Source Lithology of the Galápagos Plume

by

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ABSTRACT OF THE THESIS

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We have measured the contents of Ni, Ca, and Mn in olivine phenocrysts from volcanoes in the Galápagos archipelago to infer the mantle source lithologies. Results show that peridotite is the dominant source lithology for Fernandina, Floreana, Genovesa, Marchena, Pinta, Wolf Island, and Darwin Island. These volcanoes largely characterize the PLUME, WD, FLO and DUM Nd, Sr, and Pb isotopic endmembers of Harpp and White (2001). Only a minor pyroxenite component contributes to Fernandina and Floreana. Peridotite is also the dominant source lithology for Volcan Wolf, Alcedo, and Cerro Azul, and that these have isotopic compositions that can be defined by mixing of the 4 endmembers. Peridotite is therefore the dominant source lithology of the Galápagos plume. However, pyroxenite melting is significant in two spatially separated domains which are also isotopically distinct: Roca Redonda, Volcan Ecuador, Sierra Negra in the enriched western part of the archipelago and Volcan Darwin, Santiago, Santa Cruz, and Santa Fe in the depleted east. An implication is that the western and eastern pyroxenite domains likely represent two separate bodies of recycled crust within the Galápagos mantle plume. Isotopically enriched and depleted domains of the archipelago melted from both peridotite and pyroxenite, and there is no relationship between source lithology and

its isotopic characteristics. The identification of peridotite source melting in volcanoes with isotopic characteristics that have been attributed to recycled crust points to the importance of mixing in OIB genesis, in agreement with studies on the Canary Islands.

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Table of Contents

Abstract…….…….....ii

Acknowledgments……..... iv

List of Tables……vi

List of Illustrations…….....vii

Introduction……..……. 1

Section1: Isotopic Background….…….....4

Section2: Petrological Methods……...……..…… 6

Section3: Petrologic Results……...…...…… 10

Section4: Lithologic–Isotopic Relations…….....18

Section5: Peridotite- Pyroxenite Relations..…….…….....26

Section6: A Galápagos Mantle Plume Model……29

Section7: Conclusions…….....33

AppendixA: Sources of Other Galápagos Volcanoes…….....35

References…….....38

Figure Captions…….…….……45

List of Illustrations

Figure 1: Isotopic Domains of the Galápagos Archipelago…….....49

Figure 2: ^{206}Pb and ^{208}Pb of the Isotopic Domains…… 50

Figure 3: Isotopic Evolution of the Galápagos Plume……...51

Figure 4: Olivine Data from Cerro Azul and Fernandina……..52

Figure 5: Olivine Data from the Northern Archipelago and Floreana……...53

Figure 6: Olivine Data of Pyroxenite Source Magmas ……54

Figure 7: Results Summary Map……... 55

Figure 8: Petrographic Map of the Galápagos Archipelago…….. 56

Figure 9: Isotopic Compositions of Peridotite and Pyroxenite
Source Magmas……...57

Figure 10: Model of the Galápagos Plume Diagram……. 58

Figure A-1: Olivine Data from Northern Isabela…….....59

Figure A-2: Olivine Data of Pyroxenite Source Magmas in the
Eastern Domain……..60

List of Tables

Table 1: Olivine Analyses……..61

Table 2: Whole Rock Data and Primary Magmas…… 203

Introduction

Petrological modeling has shown that lavas with 65-95 Ma ages from the Caribbean Large Igneous Province (CLIP) melted from a hotter and more extensively melted plume source than 0-15 Ma lavas from the Galápagos archipelago, Carnegie and Cocos hotspot tracks [Herzberg and Gazel, 2009]. This provides petrological evidence for secular cooling of the Galápagos Plume. In general, mantle plumes for LIPS with Paleocene-Permian ages were generally hotter and melted more extensively than plumes of more modern oceanic islands [Herzberg and Gazel, 2009]. The high melt fractions, high mantle potential temperatures, and vast areas of magmatism associated with the largest LIPS are all consistent with formation in mantle plume heads [Richards et al., 1989; Coffin and Eldholm, 1994; Herzberg and Gazel, 2009]. In many cases, these events were so large that they had a profound impact on the hydrosphere, atmosphere, and biosphere [Saunders, 2005; Kerr, 2005; Wignall, 2005].

A major question is why mantle plumes that formed old LIPs were hotter than those that produce modern OIB. One possibly has to do with variable amounts of recycled crust in mantle plumes [Herzberg, 2011a; Gazel et al., 2011] which can cool by conductive heat loss to their surroundings as they move up the conduit during transit [Farnetani and Samuel, 2005; Kumagai et al., 2008; Nolet et al., 2008]. Eclogite is denser than mantle peridotite, and mineral physics work indicates that basaltic compositions retain a higher density even in the deep lower mantle [Hirose, 2006]. Plumes that carry up more compositionally dense eclogite/pyroxenite will upwell at a lower vertical velocity, they diffuse more heat because the travel time is longer [Kumagi et al., 2008], and they may cool down [Herzberg, 2011a; Gazel et al., 2011].

This paper is the first of two contributions that are designed to constrain the amount of recycled crust in the Galápagos Plume, and how it might have changed from the Cretaceous to the present. In this first report, we make use of high precision Ni, Mn, and Ca contents of olivine phenocrysts in lavas from the 0-3 Ma Galapagos archipelago to infer the presence and proportion of recycled crust in the mantle plume [Sobolev et al., 2007; Sobolev et al., 2005; Herzberg, 2011b]. Relative to a peridotite source, olivines with elevated Ni and Fe/Mn and lower Ca and Mn have been attributed to recycled crust in the source [Sobolev et al., 2007; Herzberg, 2011b]. In a follow up to this study, we will report estimates of recycled crust in the ancestral Galápagos plume that melted to produce olivine-phyric basalts and picrites are found throughout the CLIP and accreted Galápagos oceanic islands/tracks in Costa Rica and Panama.

For many decades, recycled crust in intraplate magmas have been interpreted from radiogenic isotopes [e.g., Pb, Sr, Nd, Hf; Zindler and Hart, 1986; Hofmann, 1997; Chauvel et al., 2008]. Ridge and intraplate volcanoes reveal substantial heterogeneity that is commonly interpreted as mixing between mantle reservoirs or end-members [e.g. Hanan and Graham, 1996; Hofmann, 1997; Hart et al., 1992; White, 1985; Zindler and Hart, 1986]. Each end-member is thought to have a unique isotopic composition and origin, but there is little agreement about whether its source has a distinctive lithological identity. For example, highly radiogenic isotopic ratios may be used to infer some role played by recycled oceanic or continental crust [e.g., Zindler and Hart, 1986]. But it cannot be determined whether the crust is still present as a lithological unit in the source [Sobolev et al., 2007; Herzberg, 2011b], or if it has been mixed and stirred back into peridotite [Gurenko et al., 2009; Day et al., 2010; Herzberg, 2011b]. Furthermore, it is

not always clear whether the isotopic characteristics of recycled crust can be distinguished from those of metasomatized peridotite [Harpp and White, 2001; Pilet et al., 2008; Niu and O'Hara, 2003] or even deep melting in the lower mantle [Collerson et al., 2010].

The islands and volcanoes of the Galápagos archipelago are the focus of this work, and their isotopic heterogeneity is well established [Geist et al., 1988; Harpp and White, 2001; White and Hofmann, 1978]. In this study we have two main goals. First, we constrain the lithological structure of the modern Galápagos mantle plume using olivine chemistry. Second, relationships between our lithological inferences and helium and heavy isotope ratios are examined, and the results are used to test mixing models often invoked to explain isotopic variations.

1. Isotopic Background

Shown in Fig. 1 is the distribution of volcanoes in four isotopic domains having $^{206}Pb/^{204}Pb$ and $^{208}Pb/^{204}Pb$ shown in Fig. 2. The Eastern domain is composed mostly by magmas with a depleted isotopic signature similar to that of mid-ocean ridge basalts. Most workers interpret this observation to the thermal entrainment of asthenosphere into the ascending plume [Geist et al., 1988; Harpp and White, 2001; White and Hofmann, 1978; White et al., 1993; Hoernle et al., 2000]. More enriched magmas erupted along the periphery of the plume define the Northern, Central, and Southern domains. A localized, highly enriched component is centered at the island of Floreana which has been attributed to a recycled source with a component of metasomatized asthenosphere [Bow and Geist, 1992; Harpp and White, 2001]. The island of Fernandina and its submarine flows have the highest $^{3}He/^{4}He$ ratios of any volcano in the archipelago [Geist et al., 2006; Kurz et al., 2009; Kurz and Geist, 1999] and as such are considered to be the most primitive mantle component in the archipelago [Harpp and White, 2001; Kurz and Geist, 1999]. The source of the enrichment in ^{207}Pb and ^{208}Pb isotopes seen in the Wolf-Darwin lineament is ambiguous; however the input of the plume is seemingly supported by isotopic data despite its distance from the plume axis [Harpp and White, 2001].

According to Hoernle et al. [2000; 2002; 2004], the Northern Galápagos domain is relatively new, first evident in the accreted seamount at Quepos, Costa Rica (60-65 Ma) and later a major component of the Seamount Province of the Cocos Ridge (Fig. 3). The oldest CLIP lavas are isotopically similar to the modern Eastern, Central and Southern domains (Fig. 3). Gorgona (90 Ma) has a wide spectrum of depleted and

enriched isotopic compositions seen in the modern Galápagos, yet it melted when the plume was hottest [Herzberg and Gazel, 2009].

2. Petrological Methods

2.1. Analytical Method

We analyzed olivine phenocrysts in 64 samples from 19 volcanoes. A total of 4657 high precision analyses were obtained from olivine phenocrysts of varying sizes and forsterite contents. Single core analyses were taken from olivine phenocrysts identified as homogeneous from reconnaissance EMP work and backscatter images. Traverses were taken from olivines which exhibited zoning. Results are listed in Table A1 (Supplementary Materials).

Olivine, major and trace element data were obtained using the method of [Sobolev et al., 2007]. Detection limits at a 3σ (99.7%) confidence level were obtained from the Probe for Windows program [Donovan, 2012]. Average detection limits for Si, Mg and Fe are 30, 26 and 40 ppm respectively. Average detection limits for trace elements Ni, Mn and Ca are 27, 28 and 16 ppm respectively. 2σ error for all elements was calculated from the San Carlos olivine standard which was analyzed at regular intervals throughout every run to correct for drift. Analyses of major elements Si, Mg and Fe have an average relative 2σ error of ~0.5%, ~0.5% and ~1% respectively. Analyses of trace elements Ni, Mn and Ca have an average relative 2σ error of ~2%, ~3% and ~4% respectively. The relative 2σ error for the Fo# is ~0.1%. Only those analyses deemed suitable were used in this study. Analyses with oxide totals > ± 2% deviation from 100% were excluded. Chemical formulas were calculated for all analyses. Analyses with deviations in stoichiometry > ± 1% were excluded.

2.2. Computational Method

Source lithology is inferred by comparing the compositions of observed olivine phenocrysts with those that have been computed for primary and derivative melts of mantle peridotite [Herzberg, 2011b]. Olivine phenocrysts with compositions that cannot be matched to a peridotite source provenance is assumed to have crystallized from magmas of a pyroxenite source. Examples are given in Figs. 4 and 5. The black colored forms represent model Mg-numbers (i.e., 100Mg/(Mg+Fe) in cation%), Ca, Mn, and Ni contents of olivine phenocrysts of primary magmas of a fertile peridotite composition [Herzberg, 2011b].

When mantle peridotite partially melts and the primary magmas are transported readily to the surface, the liquidus phase is invariably olivine [O'Hara, 1968]. But the effect of decompression is to expand the liquidus crystallization fields of both olivine and clinopyroxene [O'Hara, 1968; Herzberg, 1992], and the importance of sub Moho clinopyroxene fractionation in Galapagos petrogenesis has been recognized previously [Geist et al., 1998]. Relative to olivine only crystallization, deep fractionation of clinopyroxene can produce derivative magmas with lower CaO, SiO_2, higher FeO, lower MnO, and higher NiO [Herzberg et al., 2012]. Olivines that then crystallize from such melts at the surface will exhibit depletions in Ca and Mn, elevated Fe/Mn, and elevated Ni. Therefore, olivines that crystallize from peridotite source magmas that exhibited a prior history of deep "pyroxenite" fractionation can be confused with olivines that crystallize from primary magmas of a pyroxenite source.

The method for calculating a liquid line of descent begins with identification of a primary magma composition. Primary magma compositions for peridotite-sources have

been computed from primitive lava compositions using PRIMELT2 [Herzberg and Asimow, 2008]. Results for lavas from the Galápagos archipelago and older CLIP lavas were reported earlier [Herzberg and Asimow, 2008; Herzberg and Gazel, 2009]. Those primary magma solutions which permit olivine calculation and comparison with our observed olivines are reported in Table A2 of the Appendix. Whole rock NiO contents often provide unreliable primary magma NiO contents due to olivine sorting; for primary magmas of peridotite-sources, we use Ni (ppm) = $21.6MgO - 0.32MgO^2 + 0.051MgO^3$ [Herzberg, 2011]. From these identified primary magmas, both olivine and clinopyroxene were permitted to crystallize along a liquid line of descent, and the method for this calculation was described previously [Herzberg et al., 2012]. The Ol/Cpx proportions have been varied arbitrarily because the exact T-P paths at which melts interact with wall rocks are not known.

In some cases observed olivine phenocryst compositions are too high in Ni and Fe/Mn and too low in Ca and Mn to have crystallized from primary and derivative magmas of a peridotite source. We interpret these as a pyroxenite source signature and, for Santa Cruz, Santiago, and Volcan Ecuador we have compare them with computed olivines from a model pyroxenite source. As with peridotite-source magmas, we begin the calculation by computing a primary magma composition from specific lava compositions. However, instead of using PRIMELT2, which is appropriate for peridotite source, we add olivine to the candidate lava and back track to a set of primary magmas along model pyroxenite cotectic liquid compositions [Herzberg, 2011b]. Results are included in Table 2. To these pyroxenite-source primary magmas we have computed the effects of olivine and clinopyroxene fractionation on both derivative liquid compositions

and the olivines from which they crystallized. Distinctive olivine populations for Santa Cruz reveal hybrid magmas mixed from partial melts of peridotite and pyroxenite [Sobolev et al., 2007], and we attempt to model their proportions as described below. Whole rock compositions of most primitive lavas from Santa Cruz [Gibson and Geist, 2010; Saal et al, 2007; White et al., 1993] have low CaO and SiO_2 contents, indicating a low SiO_2 type pyroxenite melt with no restrictions to mixing with peridotite-source melts [Herzberg, 2011b].

3. Petrological Results

3.1. Dominantly Peridotite-Source Magmas

One of the most important conclusions of this study is that peridotite is the dominant source lithology that melts in the Galápagos mantle plume. A detailed discussion of each volcano now follows in the sections below and the Appendix.

3.1.1. Cerro Azul (Central Isotopic Domain)

Of all the samples covered in this study those obtained from the 1998 eruption of Cerro Azul provide a good example of high Fo# olivines crystallized from a peridotite source (Fig. 4). Olivines from 4 samples are internally consistent with those expected from ~20-40% olivine and ~60 to 80% clinopyroxene fractionation of a primary, peridotite-source magma. However, olivines from sample 14 are an exception. The extremes in Fe/Mn are not consistent with a peridotite source, and those with the highest Mg-numbers are unusually high in Mn and low in Ni. As Mn is strongly compatible in garnet [Herzberg et al., 2012], we tentatively interpret the olivines in sample 14 to crystallization from a melt that has selectively dissolved garnet.

3.1.2. Fernandina (Central Isotopic Domain)

Olivines from dredge samples indicate that the source lithology of submarine lavas is variable. There is a shift from a predominantly peridotite source in the southern most dredges (D38A, D39G and D40C) to magmas derived from a hybrid peridotite – pyroxenite source with a component of pyroxenite closer to the island. Sample D30A the strongest pyroxenite signal and is very similar to olivines from Volcan Ecuador.

3.1.3. Northern Isotopic Domain

Olivines from Wolf Island, Darwin Island, Pinta, Marchena and Genovesa (Fig. 5 A-D) have compositions consistent with a peridotite source. Unfortunately most of the magmas from the northern half of the archipelago are too evolved to calculate primary magma compositions, and model olivine compositions could not be reliably obtained. However, modeled olivine compositions from sample SC-99 from Santa Cruz (see below) provide a reasonable fit for the data and indicate that Cpx fractionation has affected the olivine chemistry.

3.1.4. Floreana (Southern Isotopic Domain)

Floreana olivines reveal the importance of peridotite melting, but a significant pyroxenite component is indicated in some samples. A single magnetically reversely polarized sample (FL-01-135) shows a strongest peridotite signal in all 4 plots (Fig.5 E-H). But there is a wide spread in Ca contents in the olivines in this and other Floreana samples that we interpret as mantle xenocrysts. Anomalously low Ca (<1000 ppm) in the core of these olivines is followed by an increase in Ca out towards the edge to values consistent with the calculated compositions of olivines crystallized from a basaltic magma of a peridotite source. Conversely there is no drop in Mg# from core to rim corresponding with the increase in Ca. These grains have subtle undulatory extinction and show signs of embayment which indicates disequilibrium between the olivine and the host liquid. It is our interpretation that the elevated Ca contents at the edges of the grains are the result of partial re-equilibration of the olivine xenocrysts with the host magma.

Normally magnetically polarized, Main stage Floreana samples (FL-03-01, FL-03-120) have Ni and Ca contents and Fe/Mn that are difficult to attribute to peridotite melting. However, Fig. 5 E-H shows that they are compatible with crystallization from a melt that was a mixture of ~ 60-80% peridotite-source melt, as modeled with FL-26 [Bow and Geist, 1992] and ~20-40% pyroxenite-source melt modeled from Santa Cruz (see below). Late fissure stage Floreana sample (FL-03-93) reveals the strongest evidence of pyroxenite source melting in low Ca, high Ni and high Fe/Mn and, as discussed below, similarly aged lavas for which isotopic data are available indicate mixing with lavas from the depleted Eastern domain.

3.1.5. Other Dominantly Peridotite-Source Occurrences

Evidence for the importance of peridotite-source melting is provided by olivine compositions from 2 lava samples from Volcan Wolf, and one from Alcedo (Appendix). However, our interpretations of a dominantly peridotite source for these may be compromised by the limited number of samples that we had to work with. Additionally, olivines have low Mg-numbers, generally < 80, and all petrological models of olivine and clinopyroxene fractionation become less secure for these evolved compositions.

3.2. Dominantly-Pyroxenite Source Magmas

One of the most important conclusions in this section is that pyroxenite melting is significant in two spatially separated areas in the Galápagos archipelago, evidence for recycled crust in the Galápagos mantle plume. A detailed discussion of each volcano now follows in the sections below and the Appendix.

3.2.1. Pyroxenite-Source Magmas in the Eastern Isotopic Domain

In the Galápagos the greatest variability in source composition as inferred from olivine chemistry is found in Santa Cruz (Fig. 6). Unlike the examples discussed above, there is little evidence for a pure peridotite source. Out of 79 lava samples from GEOROC [Gibson and Geist, 2010; Saal et al, 2007; White et al., 1993] and Bow [1979], we could only obtain 5 primary magma solutions for a peridotite source; of these model olivine compositions shown in Fig. 6 were calculated from SC-99 [Bow, 1979]. Unfortunately, we do not have olivine data for these 5 possible primary magmas and their derivatives.

Lava sample G192-1 [Kurz and Geist, 1999] was used to provide a primary magma composition; fractional crystallization of 40-100% olivine and 0-60% clinopyroxene from this primary magma yields derivative magmas that crystallize olivines that are an excellent match to observed olivines in samples GHZ-9 to 11, E-31 and 39.3 (Fig. 6). The match, however, is not as good for olivines in other samples that show systematically higher Fe/Mn and Ni, and lower Ca and Mn, evidence that they crystallized from magmas with a larger pyroxenite component. We assumed that these olivines crystallized from a pure pyroxenite melt, and the primary magma G192-1 is a mixture of primary magmas from the pure peridotite SC-99 and this pure pyroxenite primary magma. We then solve the mass balance equation: G192-1 = X PX + (1-X)SC-99 where PX is the composition of the pure pyroxenite melt, and to this we compute the fractional crystallization of 20-100% olivine and 80-0% clinopyroxene. By iteratively varying X and solving for PX, the computed olivines for a 100% pyroxenite melt provide an excellent match to many observed olivines from Santa Cruz when X = 0.4. Olivines

from sample 49.4 are consistent with 100% crystallization of olivine from the pure pyroxenite melt; olivines from sample 34.8 are more consistent with substantial clinopyroxene crystallization from the same pure pyroxenite melt. At the other extreme, olivines in sample GHZ-10 are consistent with crystallization of a melt that was a mixture of ~ 80% peridotite and 20% pyroxenite (Fig. 6).

Evidence for the importance of pyroxenite as a source lithology is also obtained from olivines from Santiago, Volcan Darwin, Española and Santa Fe (Appendix). Unfortunately, there are fewer samples from these localities to work on, and a detailed analysis of the relative contributions of peridotite and pyroxenite is not as secure. However, using our analysis of Santa Cruz as a guide, we can infer substantial contributions of pyroxenite for Santiago and Volcan Darwin, and greater contributions of peridotite for San Cristobal and Espanola (Appendix). Collectively, these volcanoes highlight the importance of pyroxenite melting in the Eastern Isotopic domain.

3.2.2. Pyroxenite Source Magmas in the Central Isotopic Domain

Some of the strongest evidence for pyroxenite melting is indicated by olivines in 4 lava samples from Volcan Ecuador, 4 samples from Roca Redonda and 1 sample from Sierra Negra (Fig. 6 E-H). Olivines from all 4 samples from Volcan Ecuador are essentially identical, and they are compared with model olivines calculated from a pyroxenite-source primary magma. Fractional crystallization of 30-100% olivine and 0 to 70 clinopyroxene from this primary magma provides a very good match to observed olivine compositions from Volcan Ecuador (Fig. 6). Unfortunately, the substantial uniformity in olivine compositions from Volcan Ecuador does not permit an evaluation of

the proportions of pyroxenite and peridotite melt that mixed to yield the primary magma. However, if Santa Cruz is a guide, then Fig. 6 shows that the primary magma for Volcan Ecuador may have mixed from ~ 40% peridotite and 60% pyroxenite. Results for Roca Redonda are similar, but slightly more pyroxenite melt may have been important for Sierra Negra. It is important to recall that olivines from Volcan Ecuador are very similar to those in sample D30A from Fernandina (see above), evidence for spatial communication of these sources.

Olivines from 3 of the 4 Roca Redonda samples are similar to those from Volcan Ecuador. Olivine phenocrysts found in the samples from Roca Redonda are generally subhedral with somewhat rounded edges and few embayments. All samples with the exception of R952 exhibit extreme zoning which permeates deep into the olivine crystals. Olivines from sample R952 and a single grain from R959 are anomalous. At Mg-numbers of ~80% olivines in these anomalous samples exhibit very strong enrichments in Mn and depletions in Fe/Mn, Ni and Ca (Fig. 6). As Mn is strongly compatible in garnet [Herzberg et al., 2012], we tentatively interpret the trends in Mn and Fe/Mn as reflecting the dissolution of garnet into the liquid from which the olivines crystallized.

3.3. A Lithological Source Map of the Galápagos Archipelago

The source lithology of the Galápagos plume inferred from the olivine data is presented in Fig. 7. Maps and bathymetric profiles used in Figures 7, 8 and 10 were made in GeoMapApp [Ryan et al., 2009]. As with samples obtained from presently active volcanoes, the results obtained from older flows are assumed to reflect the source lithology of the present day plume. Paleo-positions of older samples were calculated from

the equations of Cox and Hart [1986] using available K/Ar ages and the NUVEL-1 Euler vector for the Nazca plate relative to the hotspot [Gripp and Gordon, 1990]. It should be noted that none of the samples used in this study has been dated and exact coordinates is not known for many of the samples. As such the mapping of the results should be taken as an approximation.

All samples from San Cristobal come from the southwestern end of the island which has an age range of 0.66 to 2.35 Ma [Bailey, 1976; White et al., 1993]. With that in mind the corresponding units inferred from our analysis are offset to the east of the island. K/Ar ages from the platform stage of Santa Cruz range from 1.12 to 1.31 Ma [White et al., 1993] which places these flows near the center of the archipelago. Older ages obtained in earlier studies are not considered due to imprecision. Dated flows from Espanola range from 2.1 to 3.31 Ma [Bailey, 1976] that places the paleo-position of this island in a region west-southwest of present day Floreana. Most of the available ages for Santa Fe fall in the range of 2.5 to 2.85 Ma [Bailey, 1976; White et al., 1993], however a single younger age of 0.72 [White et al., 1993] makes it impossible to assign our results to a specific region. The separation between the units on the Galápagos platform and the islands of Pinta, Marchena and Genovesa are due to an observed bathymetric and gravity low [Sandwell and Smith, 1997]. This coupled with the presence of rifts on the ocean floor associated with these islands [Harpp and Geist, 2002; Sinton et al., 2003] suggests passive upwelling beneath these islands.

The distribution of peridotite (green) and the pyroxenite (black) within the present day Galapagos plume is given in the lithologic map below (Fig. 9). All volcanoes of the Galápagos archipelago have in common a peridotite source as inferred from olivine

chemistry (Figs 4-6 and Appendix). However, pyroxenite source melting is a significant feature in two spatially distributed regions separated by a peridotite source that appears to dominate the olivine chemistry of magmas from Volcan Wolf and Alcedo. However, we noted in section 4.5 that the lack of evidence for pyroxenite may simply reflect the few samples that we had to work with and by the low Mg-numbers of the olivines in our study. We therefore acknowledge that additional work may reveal a broad continuum of pyroxenite distribution. Wolf and Darwin Islands were excluded from the lithologic map since they have been extinct for at least 0.39 Ma [White et al., 1993] and present day activity along the Wolf-Darwin lineament appears to be focused farther south [Sinton et al., 1996].

4. Lithologic - Isotopic Relations

4.1. Isotope Systematics

Harpp and White [2001] proposed that the isotopic characteristics of lavas from the Galápagos archipelago can be understood by the mixing of four mantle endmembers: PLUME, DUM, WD and FLO. Their model, shown in Fig. 9, attempts to explain the observed isotopic variations seen in the Galápagos with the fewest number of components possible. Volcanoes which are thought to be most representative of the compositional extremes are Fernandina, Floreana, Genovesa and the islands of the Wolf-Darwin lineament. We have identified peridotite as the dominant source lithology of these volcanoes, based on inferences drawn from olivine chemistry. Furthermore, peridotite is also a likely source lithology for Volcan Wolf, Cerro Azul and Alcedo, and these volcanoes have isotope ratios that are more representative of intermediate mixtures of the 4 endmembers. The implication is that peridotite is the dominant and widespread lithology of the Galápagos mantle plume, with heterogeneous isotopic properties.

Before we discuss the implications of the lithology - isotope relations, an important assumption needs to be understood. Ideally we would have provided olivine chemistry data on samples for which isotopic data exist, a truly integrated study. However, very few isotopic data exist for the samples that we worked with, and in some cases our olivine data were acquired from a single sample which may not be representative of the entire volcano. For example, of the 284 samples for which isotopic data have been compiled from GEOROC, we collected olivine chemistry on only 5 (i.e., 2 from Vocan Ecuador, 2 from Cerro Azul and 1 from San Cristobal). This problem arose from the unavailability of rock chips for which many isotopic studies were performed,

and from our requirement to work on primitive lavas from which we could expect to find olivines with high Mg-numbers. With these restrictions in mind, we assume in the discussion that follows that the published isotope ratios represent the isotopic characteristics of the source lithologies we have inferred from olivine chemistry.

4.2. The PLUME Component

The youngest and most active volcano in the archipelago, Fernandina is thought to overly the axis of the plume [Allan and Simkin, 2000; Kurz et al., 2009; Kurz and Geist, 1999]. Most samples from Fernandina have $^{3}He/^{4}He$ ratios in the range of 19-28.8, which is higher than any other volcano in the archipelago. The elevation in primitive helium and neon isotope ratios indicates the PLUME component originates from primitive relatively undegassed mantle [Kurz et al., 2009; Kurz and Geist, 1999; Harpp and White, 2001]. A disproportionate amount of Ni is found in the olivines of sample D38A which is not consistent with olivine expected to crystallize from normal mantle peridotite having 1960 ppm Ni, yet Ca, Mn and Fe/Mn are consistent with a peridotite source. The apparent correlation of high Ni with high $^{3}He/^{4}He$ is seen not only in Fernandina but also samples from Baffin Island and West Greenland and Gorgona [Herzberg et al., 2012]. This has been interpreted as evidence of input from the core and thus places the high $^{3}He/^{4}He$ reservoir in the source of some OIBs near or above the core/mantle boundary [Herzberg et al., 2012]. D30A which has the strongest pyroxenite signal in Fernandina has a $^{3}He/^{4}He$ of 26.85, while samples D28C and D11A have $^{3}He/^{4}He$ ratios of 27.71 and 25.67 respectively [Kurz et al., 2009]. We infer a smaller component of pyroxenite in samples D28C and D11A thus there is no apparent

connection between the proportion of pyroxenite in the source and helium. These relationships however may be obscured by the contamination of variable amounts of depleted upper mantle which is thought to pervade the sources of the Galápagos plume [Harpp and White, 2001], and by the possibility that helium might diffuse between lithologies [Hart et al., 2008].

4.3. The FLO Component

Basalts from Floreana are more enriched in Pb, Sr and Nd isotopes than any other volcano in the archipelago (Fig. 9) and have the highest component of the enriched endmember FLO. This endmember appears to consist mostly of HIMU with some EMII [Harpp and White, 2001], but plots outside of the major mantle reservoirs [Hart et al., 1992; White, 1985; Zindler and Hart, 1986]. This anomalous isotopic signal was previously thought to be the result of a recycled component and metasomatized asthenosphere [Bow and Geist, 1992; Harpp and White, 2001]. Deviation from the major mantle isotopic reservoirs has been interpreted as the effect of metasomatism of the asthenosphere beneath Floreana [Bow and Geist, 1992; Harpp and White, 2001]. The presence of high ε_{Hf} and low ε_{Sr} is taken to indicate the presence of recycled sediment which is also consistent with a component of EMII [Blichert-Toft and White, 2001].

Having the most radiogenic Pb signal in the archipelago, it is surprising that Floreana shows only a small amount of pyroxenite in its olivine chemistry. It has been proposed that recycled crust may be stretched and stirred into mantle peridotite to the point in which it was no longer present as a separate lithology [Allegre and Turcotte, 1986]. Melts produced from a peridotite source re-fertilized in such a way would have the

isotopic signature of recycled crust imprinted upon it, yet would crystallize olivine phenocrysts with no apparent pyroxenite signal [Gurenko et al., 2009; Herzberg, 2011b]. This mechanism is supported by rare earth element patterns that suggest a high modal concentration of Cpx in the source [Harpp and White, 2001].

A reversed polarized Main stage [Bow, 1979, Bow and Geist, 1992] sample (FL-03-135) has the strongest peridotite signal, in contrast with the young fissure stage [Bow, 1979, Bow and Geist, 1992] sample (FL-03-93) that has one of the strongest pyroxenite signals (Fig. 5 A-C). The Main stage magmas are also the most enriched in heavy isotopes while the youngest fissure stage magmas show a relative depletion in radiogenic Pb and Sr (Fig. 9). The implication is that the pyroxenite component is derived by the incorporation of a small amount of the eastern pyroxenite into the source of Floreana as it drifted farther from the plume axis over its 1.5 Ma of activity [White et al., 1993]. At this point this position is largely speculative given that: a) none of the samples in this study have been dated and, b) none of the isotopic data from Floreana presented here is directly from the samples analyzed.

It has been suggested that the age of the FLO component is less than 270 Ma [Bow and Geist, 1992; Harpp and White, 2001], based on the need to elevate incompatible elements without affecting its depleted $^{143}Nd/^{144}Nd$. We note that the FLO component is observed in some of the more enriched 90 Ma lavas from Gorgona (Fig. 3).

4.4. The Wolf-Darwin (WD) Component

Volcanoes that most closely represent the Wolf-Darwin endmember of Harpp and White [2001] are found in the Northern Isotopic domain (Fig. 1) and are represented by

the Wolf-Darwin Islands and Pinta. Northward migration of plume material to the GSC is unequivocal given the geochemical, bathymetric and seismic data collected at the ridge [Canales et al., 1997; Christie et al., 2005; Detrick et al., 2002; Fisk et al., 1982; Schilling et al., 2003; Sinton et al., 2003] and the geochemistry of the islands Wolf, Darwin and Pinta [Cullen and Mcbirney, 1987; Harpp and Geist, 2002]. The WD endmember is distinguished by an elevation in $^{207}Pb/^{204}Pb$ and $^{208}Pb/^{204}Pb$ at a given $^{206}Pb/^{204}Pb$. This slight enrichment in ^{207}Pb and ^{208}Pb cannot be explained by mixing of the three other endmembers for the Galápagos. Although Pinta was interpreted as being derived from PLUME and DUM [Harpp and White, 2001], Fig. 9 B and C clearly show samples from Pinta that are actually more representative of the Pb isotopic anomaly in the north. Magmas of the Wolf Darwin lineament consist primarily of WD and PLUME with minor amounts of DUM [Harpp and White, 2001]. Paradoxically the seamounts and islands along the lineament become progressively younger and more depleted to the south east, closer to the plume axis [Harpp and Geist, 2002]. In their 2001 paper Harpp and White proposed a number of different possibilities for the source for the ^{207}Pb and ^{208}Pb anomaly. These include: recycled sediment [Dupre and Allegre, 1983], subducted oceanic crust, and subcontinental lithosphere [Hart, 1984]. Given that no pyroxenite signal in the olivine chemistry in these samples it may be inferred that recycled crust had been mixed into a host peridotite.

The Northern Galápagos Domain is a relatively new addition to the Galápagos mantle plume, first evident in the accreted seamount at Quepos, Costa Rica (60-65 Ma) and later a major component of the Seamount Province of the Cocos Ridge (Fig. 3 Hoernle et al. [2000; 2002; 2004]). Olivine chemistry on these older rocks has great

potential in unraveling the complex origin of the present Northern Domain. For example, the identification of pyroxenite in the older samples would suggest the mixing of recycled crust into its host peridotite was fairly recent.

4.5. The "Depleted Upper Mantle (DUM)" Component

Depleted in both isotopes and trace elements Genovesa is virtually indistinguishable from near ridge seamounts [Harpp et al., 2003; Harpp et al., 2002; Harpp and White, 2001]. It is also very similar to Pacific MORB, and has been interpreted as originating from depleted upper mantle [Geist et al., 1988; Harpp and White, 2001; White et al., 1993]. Olivine chemistry on Genovesa indicates a peridotite source (Fig. 5), and its close proximity to the Galápagos Spreading Center is consistent with an upper mantle origin.

Evidence for a depleted peridotite within the plume itself is shown by olivine results for Volcan Wolf (Appendix) which is positioned in the depleted Eastern domain (Fig. 1). And the evidence from olivine for pyroxenite in Santa Cruz (Fig. 6), Volcan Darwin, Santiago, and Santa Fe (Appendix) in the Eastern domain supports a mantle plume provenance (see below). PRIMELT2 modeling for rare peridotite-source lavas from Santiago and Santa Cruz reveals high mantle potential temperatures (Fig. 1), consistent with a plume and inconsistent with entrainment of ambient upper mantle. Additionally, the 90 Ma komatiites from Gorgona were isotopically depleted (Fig. 3) and melted from a peridotite source that was hot [Herzberg and Gazel, 2009]. We conclude that both peridotite and pyroxenite contributed to plume volcanism in the Eastern

domain, and recommend that the term “DUM component” of Harpp and White [2001] be replaced with “DM” in order to relax the restriction that it originates in the upper mantle.

4.6. Galápagos Pyroxenite Domains: The Hidden Isotopic Endmembers

Fig. 9 (D-F) shows all of the isotopic data available from Georoc (see references in caption) for all of the islands and volcanoes for which have identified a pyroxenite source melting. Two distinct populations separated by region emerge which show little overlap in isotope space. Volcan Darwin, Santiago and Santa Cruz in the Eastern isotope domain are depleted; Roca Redonda, Volcan Ecuador and Sierra Negra in the Central Isotope Domain are relatively enriched. The two pyroxenite domains do not appear to correspond to any one of the proposed Galápagos endmembers [Harpp and White, 2001 Fig. 9 E]. And while each pyroxenite domain appears to be mixtures of the 4 endmembers, which we have identified as peridotite, this is an illusion because it is not possible to form pyroxenite from peridotite. That is, there is likely to be more than 4 components that contribute to magmatism, one set for peridotite and another for pyroxenite, and the isotopic characteristics for each lithology may be similar but not identical.

Basalts from recycled ocean ridges are degassed twice, first upon eruption [Craig et al., 1975] and then again during subduction [Moreira and Kurz, 2001]. In this process both isotopes of helium are lost, however ^{4}He can be replenished by radioactive decay of Th and U. Thus elevated ^{3}He/^{4}He is not expected in recycled crust. The large drop in ^{3}He/^{4}He from Fernandina to Volcan Ecuador [Kurz et al., 2009; Kurz and Geist, 1999] indicates more pyroxenite below Volcan Ecuador, consistent with our olivine data. This

suggests that it is the peridotite component in the hybrid magmas of Fernandina that carries the primordial He signal. Given the proximity of Volcan Ecuador and the relatively small component of pyroxenite seen in most Fernandina samples, it is possible that the two volcanoes share a common recycled component.

Santa Cruz, Santiago and Volcan Darwin have depleted isotopic compositions (Fig. 9) which overlap with MORB from the East Pacific Rise and Galápagos Spreading Center [Hoernle et al., 2000]. The most reasonable interpretation is that they melted from depleted upper mantle [Harpp and White, 2001], which is consistent with our work on Genovesa (Fig. 5). This interpretation, however, is not supported by our inferences of a significant component of peridotite and pyroxenite in the plume (section 7.5). An important outcome of this study is that MORB-like isotopically depleted lavas can melt from either peridotite (e.g., Genovesa) or pyroxenite (e.g., Santa Cruz), and that it is not possible to infer source lithology from isotopes. As discussed below, this conclusion sheds new light on the geodynamic circumstances that were likely required for the incorporation of depleted recycled crust into the Galápagos mantle plume.

5. Peridotite – Pyroxenite Relations

Many models have proposed the melting of peridotite and pyroxenite derived from recycled crust can yield isotopically depleted and enriched in OIB, respectively [e.g., Hofmann and White, 1982; Allegre and Turcotte, 1986; Chauvel et al., 1992; Morgan and Morgan, 1999; Ito and Mahoney, 2005; Sobolev et al., 2005]. This view stems from the effects of partial melting and crust production on fractionating radiogenic parent/daughter isotopes. However, this theoretical expectation is in conflict with integrated olivine chemistry and isotope studies of the Canary Islands show that the more depleted Sr-Nd-Pb istope ratios are characteristic of pyroxenite-source melting [Gurenko et al., 2009]; the more enriched volcanoes melted from peridotite [Gurenko et al., 2009] into which a substantial HIMU-type recycled crustal component was mixed [Gurenko et al., 2009; Day et al., 2010].

As discussed in section 7.1, there are few isotopic data on the samples from the Galápagos Islands for which we obtained olivine chemistry data, and the problem of mantle source lithologic – isotopic relations in each domain is unconstrained. That is, we cannot tell whether pyroxenite within each domain is isotopically enriched or depleted relative to peridotite in that domain. And, work on the Canary Islands [Gurenko et al., 2009; Day et al., 2010] is sufficient reason to be skeptical of any model. However, an important observation is that all volcanic rocks that plot that in the Central and Eastern isotopic domains show very little overlap (Fig. 2). We therefore infer that the isotope ratios of each domain characterize both peridotite and pyroxenite, and future work is necessary to resolve their differences. The implication is that differences in the isotopic

ratios between the Central and Eastern pyroxenite domains are likely to be the result of two separate bodies of recycled crust with different origins; this is discussed below.

Several lines of evidence indicate that the isotopic identities of pyroxenite and peridotite in each domain are not separate issues. As pyroxenite is thought to be a second stage reaction product of mantle peridotite and either subducted oceanic crust [Herzberg, 2011b] and/or the partial melts of subducted oceanic crust [Sobolev et al., 2007a; Sobolev et al., 2005], its major element, trace element and isotopic compositions are directly inherited by both lithologies. It is then possible that the wide variations in the compositions of the two pyroxenite domains are inherited by enriched peridotites sources in the Central domain and depleted peridotite sources in the Eastern domain. For example, within the Central isotope domain, Sr, Nd and Pb isotope ratios of pyroxenite-source lavas from Volcan Ecuador are very similar to those of peridotite-source lavas from Cerro Azul (Fig. 9). This prospect shifts the problem to the understanding of the origin of the isotopic identities of the host peridotite. As reviewed above and discussed in Harpp and White [2001], PLUME, and DUM can be understood as peridotite lithologies that are relatively primitive and depleted, respectively. However, FLO and Wolf-Darwin WD have some isotopic properties of recycled crust [Harpp and White, 2001] with a peridotite lithology (Fig. 5); this apparent paradox may be resolved by mantle metasomatism [Harpp and White, 2001; Pilet et al., 2008; Niu and O'Hara, 2003] or by the mixing of recycled crust into its peridotite host; the later possibility is similar to conclusions drawn from HIMU peridotite from the Canary Islands [Gurenko et al., 2009; Day et al., 2010].

Mixing of recycled crust back into a host peridotite is thought to occur by convective thinning, stretching, recrystallization and solid state diffusion [Allègre and Turcotte, 1986; Herzberg, 2011b]. Mixing will be limited by low solid state diffusion rates and enhanced by partial melting [Hofmann and Hart, 1978]. There is a growing body of evidence for the existence of partial melt at the base of the lower mantle [Williams and Garnero, 1996; Fiquet et al., 2010; Collerson et al., 2010; Coltice et al., 2011; Herzberg et al., 2012], and we speculate that the formation of stage 2 pyroxenite by solid state reaction and its possible mixing into its host peridotite [Herzberg, 2011b] may be kinetically favored by this melt. Whether the melt is purely catalytic or it imparts its chemical signature to the source [Herzberg et al., 2012; Collerson et al., 2010] is the subject of future work. Furthermore, there is the potential that recycled water may play a catalytic role, as there is evidence for acqueous fluid-rock interaction in an independent component analysis of Pb, Nd and Sr isotope ratios of OIB [Iwamori et al., 2010]. One possible consequence of deep melt/water – catalysis/kinetics is that it might yield peridotite and pyroxenite sources with similar isotopic characteristics, not unlike those in the Central and Eastern domains.

6. A Galapagos Mantle Plume Model

Although seismic tomography studies have yet to image the Galápagos plume to the core mantle boundary [Montelli et al., 2006; Zhao, 2007], other lines of evidence suggest that the plume may be traced to the deepest parts of the lower mantle. Apart from inferring a deep lower mantle source from elevated $^{3}He/^{4}He$ [Kurz et al., 2009] and anomalously high Ni contents [Herzberg et al., 2012], large low shear velocity provinces (LLSVPs) have been linked to upwellings just above the core mantle boundary [Garnero and McNamara, 2008; Steinberger and Torsvik, 2012; Thorne et al., 2004]. Many mantle plumes have been found to overly the edges of these thermo-chemical piles at the core mantle boundary. It has been shown that the Galápagos plume is near the eastern edge of a LLSVP beneath the Pacific [Steinberger and Torsvik, 2012]. This is somewhat circumstantial since the presence of the edge of a LLSVP does not necessitate the presence of a diapir of thermally and/or compositionally buoyant mantle rising from it. Nevertheless for our model we place the origin of the enriched sources of the Galápagos hotspot at the bottom of the lower mantle (Fig. 10).

Mantle plume dynamics and plume ridge interaction has been the subject of many experimental studies and numerical models [e.g. Farnetani and Richards, 1996; Griffiths and Campbell, 1990; Ito et al., 1997; Richards and Griffiths, 1989]. Given the compositional diversity of the Galápagos plume, studies dealing with the entrainment of ambient mantle [Geist et al., 1988; Harpp and White, 2001; White et al., 1993] are most pertinent to this discussion. Early experimental studies support the thermal entrainment of ambient mantle into an ascending plume head [Griffiths & Campbell, 1990]. The later tail stage is thought to undergo little contamination during ascent through the mantle until it

is sheared laterally [Griffiths and Campbell, 1990; Richards and Griffiths, 1989]. The Galápagos plume is presently in the tail stage, and it is subject not only to shear imposed by the eastward motion overriding Nazca plate [Gripp and Gordon, 1990] but it is also evident that plume material is migrating northward to the GSC [Ito et al., 1997; Morgan, 1978]. While more recent numerical models suggest that the tail stage doesn't significantly entrain ambient mantle during ascent, they also suggest that entrainment is not a significant source of heterogeneity at any depth or stage [Farnetani et al., 2002; Farnetani and Richards, 1996]. A mantle plume origin for young depleted recycled crust in the Eastern Pyroxenite Domain would require recycled crust to subduct to the lower mantle, become thermally buoyant and rise within the plume conduit before a significant amount of radiogenic Pb had time to accumulate (Fig. 9). Fast recycling is consistent with evidence presented by Sobolev et al. [2011] for young recycled oceanic crust (200-650 Ma) in the Hawaiian mantle plume based on $^{87}Sr/^{87}Sr$ systematics in melt inclusions in Mauna Loa.

Numerical dynamic models suggest that most of the chemical and lithological heterogeneity seen in mantle plumes originates from the lowermost mantle [Farnetani et al., 2002; Farnetani and Richards, 1996]. We suggest that enriched plume sources which comprise the sources of Fernandina, most of Isabela, Roca Redonda and to some extent Floreana and Pinta may all be derived from sources that originated above the core mantle boundary (Fig. 10). The numerical models also suggest that small scale heterogeneities within plume sources are due to the stretching of various lower mantle sources into elongated filaments in the rising plume conduit and undergo very little mixing during ascent [Farnetani et al., 2002; Farnetani and Richards, 1996]. Two large, compositionally

distinct Farnetani filaments may comprise the source of Sierra Negra in the south and Volcan Ecuador and Roca Redonda in the north, although they are not distinguished in Fig. 9. Sierra Negra has a much higher $^{3}He/^{4}He$ and slightly more radiogenic Sr, Nd and Pb, while olivine compositions from Volcan Ecuador and Roca Redonda require a primary magma with a higher initial Mn content. However, as these are not pure pyroxenite sources these differences may be due to the incorporation of two geochemically distinct peridotite components. Sierra Negra may have a significant PLUME peridotite component, while Volcan Ecuador and Roca Redonda may have a peridotite component similar to that of nearby Volcan Wolf. Hybrid magmas from Fernandina may have resulted by the additional stretching and disaggregation of pyroxenite stringers in a peridotite matrix.

We propose that in the west filaments of pyroxenite and peridotite ascend nearly vertically beneath Isabela and Fernandina. Numerical modeling [Farnetani et al., 2002; Farnetani and Richards, 1996] suggests that little mixing between filaments occur during ascent so the heterogeneous nature of the source of the volcanoes in the west must have been present at the level in which entrainment occurred.

Alcedo, in the center of the archipelago, may lie at the transition of enriched western peridotite and depleted eastern peridotite filaments. Differences in Pb, Sr and Nd (Fig. 9) between Alcedo and the peridotite source endmembers, coupled with a $^{3}He/^{4}He$ which is intermediate between Fernandina and Santa Curz [Kurz and Geist, 1999] indicates that it may be derived from a hybrid peridotite source.

Unlike volcanoes in the west, isotopic compositions of the eastern pyroxenite source magmas indicate that the recycled component in the east may be significantly

younger. Changes in the degree of enrichment and perhaps the amount of recycled crust seen between the platform and shield stages of Santa Cruz may be due to several factors. The most enriched magmas are expected to be produced from the decompression melting of plume material directly below the plume axis. As plume material spreads against the lithosphere the gradual thinning of the lithosphere to the East and the North allows for continual melting of a progressively depleted plume source [Hoernle et al., 2000]. Genovesa is an example of a depleted peridotite-source, and contamination of the plume by such material from the upper mantle may further dilute the geochemical signal of the plume in the east [Geist et al., 1988; Harpp and White, 2001; White et al., 1993]. Seismic tomography of the upper mantle beneath the archipelago indicates that at shallow levels plume material does not spread East in the direction of plate motion, but rather approximately north-northeast [Villagomez et al., 2007]. This may lead to a progressive decrease in the total amount of plume material making it into the source of Santa Cruz as it drifted farther to the east (Fig. 10-C).

The Northern component [Hoernle et al., 2000] or Wolf-Darwin component [Harpp and White, 2001] is seen most prominently in Pinta (Fig. 5) and the isotopic signal of some plume component at the ridge is seen near the 91˚ fracture zone [Schilling et al., 2003]. This might be explained by Pinta being at or near the locus of the plume material being channeled Northward (Fig. 10-D).

7. Conclusions

We have analyzed the contents of Ni, Ca, and Mn in olivine phenocrysts from volcanoes in the Galápagos archipelago to infer the mantle source lithologies which melted to produce them. Results show that peridotite is the dominant source lithology for Fernandina, Floreana, Genovesa, Marchena, Pinta, Wolf Island, and Darwin Island, and these volcanoes largely characterize the PLUME, WD, FLO and DUM isotopic endmembers of Harpp and White [2001]. Minor pyroxenite melting contributes to Fernandina and Floreana. We also find that peridotite is the dominant source lithology for Volcan Wolf, Alcedo, and Cerro Azul, and that these have isotopic compositions that can be defined by mixing of the 4 endmembers of Harpp and White [2001]. Peridotite is therefore the dominant melting lithology in the Galapagos mantle plume.

Pyroxenite melting is significant in two spatially separated domains which are also isotopically distinct: Roca Redonda, Volcan Ecuador, Sierra Negra in the enriched western part of the archipelago, and Volcan Darwin, Santiago, Santa Cruz, and Santa Fe in the depleted east. The west and eastern pyroxenite domains have the isotopic characteristics of the enriched Central and depleted Eastern domains of Hoernle et al. [2000]. An implication is that two pyroxenite domains likely represent two separate bodies of recycled crust within the Galápagos mantle plume. The distribution of these pyroxenite bodies is consistent with numerical models of stretched filaments in the plume [Farnetani et al., 2002; Farnetani and Richards, 1996]. None of the pyroxenite source volcanoes have isotopic compositions of the 4 endmembers of Harpp and White [2001]. And while each pyroxenite domain appears to be mixtures of the 4 endmembers, this is an illusion because it is not petrologically possible to form pyroxenite by mixing

peridotite. Isotopically enriched and depleted domains of the archipelago melted from both peridotite and pyroxenite, and there is no relationship between source lithology and its isotopic characteristics.

Our discovery of pyroxenite with depleted MORB-like isotope ratios indicates it formed from young recycled crust. The identification of peridotite source melting in volcanoes with isotopic characteristics that have been attributed to recycled crust (i.e., Floreana and the Wolf-Darwin Islands) points to the importance of mixing in OIB genesis, in agreement with studies on the Canary Islands [Gurenko et al., 2009; Day et al., 2010]. Mixing of crust back into its host peridotite during subduction and return in a mantle plume may be facilitated by deep partial melting and recycled water in the lower mantle.

Appendix A: Sources of Other Galapagos Volcanoes

A1. Volcanoes of Northern Isabela Island

Analyses of olivines from Volcan Darwin indicate the presence of a hybrid source consisting of a mixture of 60-80% pyroxenite melt and 20-40% peridotite melt (Fig. A1, A-D). Olivines from Volcan Wolf and Alcedo, located just north and south of Volcan Darwin respectively appear to be derived from a source which is predominantly peridotite with signs of significant amounts of Cpx fractionation (Fig. A1, E-H). Due to the evolved nature of the magmas olivine compositions could not be modeled directly from whole rock data from these volcanoes. Instead the data presented in the diagrams of figure A1 (A-D) are plotted against calculated olivine compositions from Santa Cruz [Bow, 1979; Kurz and Geist, 1999]. Modeled olivine compositions from a peridotite source in figure A1 (E-H) were calculated from Fernandina sample F425 [Allan and Simkin, 2000]. The lack of consistency between the Mn and Fe/Mn plots and the Ni and Ca plots in figure A1 (E-H) are likely due to the fact that the sample used in the modeling is from a different volcano. Although the sources of Wolf and Darwin appear to be quite different, isotopic data [White et al., 1993] shows that isotopically they are similar. Since few samples were available for analysis, it is possible that the results presented in figure A1 are not fully representative of the source variations of these three volcanoes.

A2. Volcanoes of the Central Archipelago

Olivine analyses from Espanola, San Cristobal, Santa Fe and Santiago are plotted against calculated olivine compositions from Santa Cruz samples (see Appendix Table 2). Analyses of olivines from the Espanola sample indicates a source that is predominantly

peridotite, however a small amount of pyroxenite may be present (Fig. A2, A-D). Given the ages of Espanola [Bailey, 1976; White et al., 1993] it was probably just south/south west of the present location of Floreana when this magma erupted. Thus the depleted nature of Espanola relative to Floreana [White et al., 1993] may simply reflect a larger component of depleted upper mantle in its source due to this island being closer to the periphery of the plume.

Results from seven San Cristobal samples indicate that the source of these flows consists of no more than ~20% pyroxenite melt. Many of these samples show a remarkable similarity to the analyses from the Espanola sample (Fig. A2, A-D). The small pyroxenite component in these magmas suggests that the transition between peridotite and pyroxenite at the southern and eastern periphery is diffuse rather than sharp as seen between Sierra Negra and Cerro Azul as well as Volcan Ecuador and Volcan Wolf. Subtle variations in the chemistry of San Cristobal magmas [Geist et al., 1986] from the oldest to the most recent argue against significant changes in the source of this volcano.

Both samples analyzed from Santa Fe show a significant component of pyroxenite in the source of this volcano (Fig. A2, A-D). Difficulty arises when attempting to attribute the pyroxenite component in this volcano to either the eastern or western pyroxenite domains. Data presented in White et al., 1993 shows that older magmas erupted between 2.76 to 2.50 Ma have relatively unradiogenic isotopic ratios while a single sample dated at 0.72 Ma has slightly more radiogenic isotopic ratios. This is quite unusual as the older magmas formed when Santa Fe was very close to present day Sierra Negra yet their isotopic compositions bear little resemblance to this volcano. The

youngest Santa Fe sample has $^{87}Sr/^{86}Sr$, $^{143}Nd/^{144}Nd$ and $^{207}Pb/^{204}Pb$ that are well within the range of the Sierra Negra samples, however at the time of eruption Santa Fe would have been much closer to present day Santa Cruz. These limited age and isotopic data from Santa Fe suggests that localized variations in the sources of the Galapagos plume may occur on timescales that are on the order of a few million years. Unfortunately given the lack of direct ages and isotopic data from the Santa Fe samples covered in this study it is not possible to connect the unusual isotopic variations to variations in source, nor are we able to attribute these samples to a specific region.

Santiago sample SO-1 appears to have a large component of recycled crust in its source, while sample E-76 appears to have been derived from a source with more peridotite (Fig. A2, E-H). E-76 is from Buccaneer Cove in the western half of the island. It is not known where sample SO-1 was collected on Santiago. Primelt-II [Herzberg and Asimow, 2008] solutions from whole rock analyses of samples from Santiago [White et al., 1993; Gibson and Geist 2010; McBirney and Williams,1969] (Table A1) suggest that the source of the flows in the eastern half of the island is predominantly peridotite and the source of flows in the western half contains a component of pyroxenite. The presence of peridotite source magmas in the east and the full range of mixing between melts of peridotite and pyroxenite in the west need to be confirmed by the analysis of a larger suite of samples from the entire island.

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Figure Captions

Figure 1. Map of the Galapagos archipelago showing 4 domains with the isotopic characteristics given in Fig. 2, from Hoernle et al. [2000]. Numbers next to each volcano are maximum mantle potential temperatures $T_{P,MAX}$ from Herzberg and Asimow [2008], Herzberg and Gazel [2009], and more recent estimates by application of PRIMELT2 software to an updated GEOROC database. In general T_P ranges from 1400-1500°C, with T_P varying from near ambient mantle at the periphery to $T_{P,MAX}$ at the hot center of mantle plume [Herzberg and Gazel, 2009]. T_P of 1425°C for the Galápagos Spreading Center is based on PRIMELT2 modeling of 2 samples out of ~ 2200 in PetDB that show minimal or no fractionation of plagioclase or clinopyroxene.

Figure 2. Pb isotope ratios of the 4 domains in Fig. 1. Data From: Allan and Simkin, 2000; Blichert-Toft and White, 2001; Cullen and McBirney, 1987; Cullen et al., 1989; Geist et al., 2002; Geist et al., 2005; Handley et al., 201;, Harpp and White., 2001; Kurz and Geist, 1999; McBirney et al., 2003; Naumann et al., 2002; Pik et al., 1999; Reynolds and Geist, 1995; Saal et al., 2007; Standish et al., 1998; Teasdale et al., 2005; Vicenzi et al., 1990; White and Hofmann, 1978; White, 1979; White et al., 1993.

Figure 3. Isotopic evolution of the Galápagos Plume in different stages of activity. Samples from the CLIP-related suites and Galapagos tracks were age-corrected to illustrate the isotopic diversity of the units compared with the Galápagos Plume signature. The modern Galápagos domains [Hoernle et al., 2000] were projected into the past at 90 Ma (for the 95-85 diagram) and at 60 Ma (for the 65-50 Ma diagram) following a method similar to that of Hauff et al. [2000] and Hoernle et al. [2000; 2002; 2004]. Data from: Dupré and Echeverría, 1984 ; Hauff et al., 2000; Kerr et al., 2002; Mamberti et al., 2003; Walker et al., 1991; Werner, 2003, and preliminary data kindly provided by K. Hoernle.

Figure 4. Olivine phenocryst compositions from Cerro Azul (A-D) and Fernandina (E-H) compared with model compositions crystallized from primary magmas and their derivatives after variable olivine and clinopyroxene fractionation. Primary magma compositions from peridotite sources were calculated from whole rock lava compositions of s CA-46 [Naumann et al., 2002] for Cerro Azul and F425 [Allan and Simkin, 2000] for Fernandina. Primary magma compositions for a pyroxenite bearing source (blue lines, E-H) was calculated from whole rock sample G192-1 [Kurz and Geist, 1999]. Fernandina olivines with open symbols are from samples dredged from locations proximal to the island, while filled interiors were dredged from locations well south of the active fissures [Geist et al., 2006]. There is an obvious shift from a predominantly peridotite source in the southern most dredges (D38A, D39G and D40C) to magmas derived from a hybrid source with a component of pyroxenite closer to the island. Sample D30A has the strongest pyroxenite signal.

Figure 5. Olivine phenocryst compositions from the northern archipelago (A-D) and Floreana (E-H) compared with model olivine compositions. Primary peridotite-source magma composition for Floreana was calculated from lava composition FL-26 [Bow and

Geist, 1992]. The pyroxenite-source was calculated from Santa Cruz (see section 5.1; Fig. 6), and the green crosses are olivines that crystallized from the mixed proportions indicated. Green curves are olivines that crystallize from these mixed magmas by 100% olivine crystallization. The blue curves are model olivine compositions that crystallize from a 40% pyroxenite mix, by fractional crystallization of 40% olivine and 60% clinopyroxene. The drop in Fe/Mn with differentiation is likely caused by magnetite fractionation [Herzberg, 2011b].

Figure 6. Olivine phenocryst compositions from Santa Cruz (A-D) and Volcan Ecuador, Roca Redonda, Sierra Negra (E-H) compared with model compositions crystallized from primary magmas and their derivatives after variable olivine and clinopyroxene fractionation. See text for primary magma compositions for Santa Cruz. Primary magma composition for Volcan Ecuador was calculated from whole rock lava compositions of E9740 [Geist et al., 2002]; it contains 0.164% MnO, and panel F illustrates how Fe/Mn in olivine compositions propagates to small changes in MnO. Mixing between different proportions of peridotite and pyroxenite source melts are evident in the Santa Cruz samples.

Figure 7. Map summarizing the results of the olivine analyses. Regions are color coded to reflect the proportion of peridotite and pyroxenite melts contributing to the samples analyzed. Results from Santiago indicate approximately 40% to 80% pyroxenite melt. Results from Floreana indicate approximately 0% – 60% pyroxenite melt. Samples from Santa Cruz show the widest range of source compositions. Results range from a pure peridotite source to the strongest pyroxenite signal seen in this study, indicating a relatively pure pyroxenite source.

Figure 8. Petrographic map of the Galápagos archipelago. Sample locations are shown by grey symbols [Blichert-Toft and White, 2001; Geist et al., 2002; Geist et al., 2006; Geist et al., 2005; Graham et al., 1993; Kent et al., 2010; Kurz et al., 2009; Kurz and Geist, 1999; Mcbirney et al., 1985; Naumann et al., 2002; Saal et al., 2007; Teasdale et al., 2005; White et al., 1993]. Green colored areas indicate regions in which peridotite was found to be the source. Black areas indicate regions in which pyroxenite-source melting was significant. Magmas erupted in the southern half of the eastern pyroxenite domain has been shown to have variable amounts of peridotite melts mixed into it. A strong pyroxenite signal is seen in the north western Santiago sample while whole rock data from the south east seems to indicate a predominantly peridotite source which is relatively depleted in heavy isotopes [Hofmann, 1983; Thompson et al., 2004; White et al., 1993]. The presence of ~40% pyroxenite melt in the source of Fernandina samples closest to the submarine vents indicates a hybrid source in which the recycled component has been partially disseminated in a matrix of peridotite.

Figure 9. Sr, Nd and Pb isotope ratios of peridotite (left) and pyroxenite (right) source magmas [Allan and Simkin, 2000; Blichert-Toft and White, 2001; Cullen and McBirney, 1987; Cullen et al., 1989; Geist et al., 2002; Geist et al., 2005; Handley et al., 2011; Harpp and White., 2001; Kurz and Geist, 1999; McBirney et al., 2003; Naumann et al., 2002; Reynolds and Geist, 1995; Saal et al., 2007; Standish et al., 1998; Teasdale et al.,

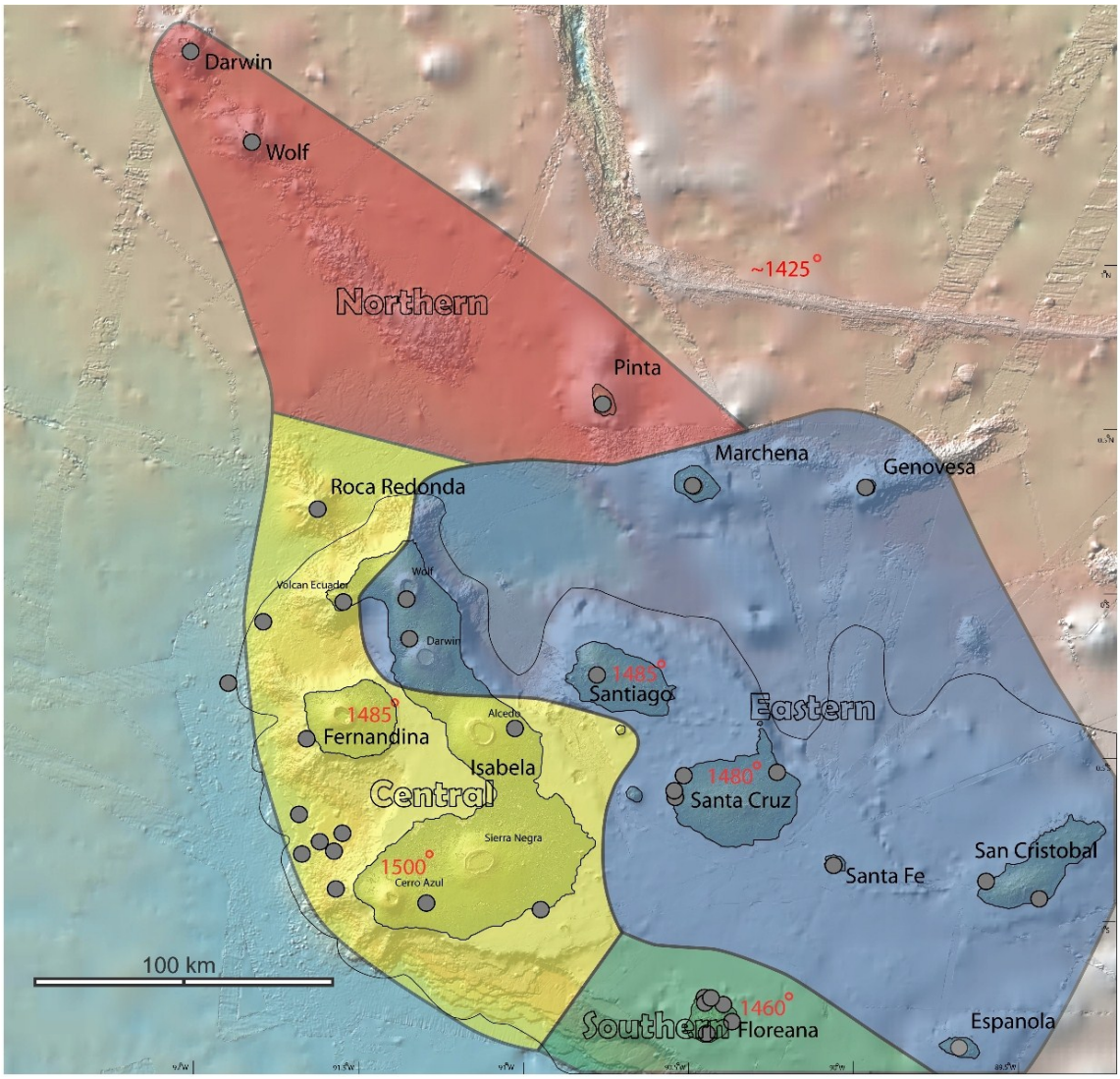
2005; Thompson et al., 2004; White and Hofmann, 1978; White, 1979; White et al., 1993]. Fernandina, Pinta, Floreana, Genovesa and islands of the Wolf Darwin lineament are thought to be most representative of the isotopic endmembers proposed by Harpp and White [2001]. Western pyroxenite source volcanoes Volcan Ecuador, Roca Redonda and Sierra Negra are more enriched in heavy isotopes than pyroxenite source volcanoes Santa Cruz, Darwin and Western Santiago to the East. Santa Fe is not included given the wide span of ages [Bailey, 1976; White et al., 1993] and isotopic compositions [Graham et al., 1993; Thompson et al., 2004; White et al., 1993] which may reflect temporal changes; thus it is not known which domain it belongs to. San Cristobal is not included since it is apparent that the pyroxenite component is minor in all samples.

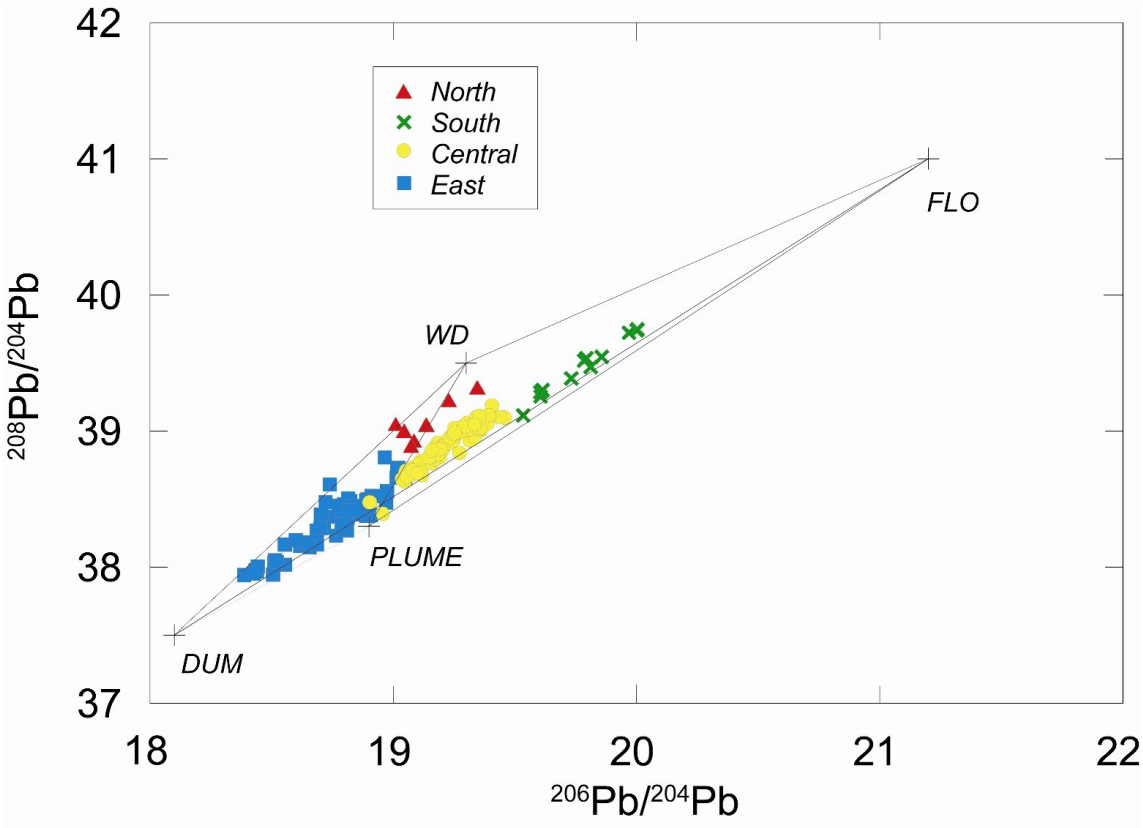
Figure 10. Model of the Galápagos mantle plume diagram. In cross-section A, high $^{3}He/^{4}He$ peridotite veined with moderately enriched recycled sources and younger recycled crust and depleted mantle ascends from the lowermost lower mantle. Cross-section B shows the distribution of pyroxenite filaments beneath the archipelago. The spreading of the plume in the direction of plate motion results in variable amounts of young pyroxenite, and depleted and enriched peridotite in the sources of the volcanoes of the eastern pyroxenite domain. The strongest pyroxenite signals in the western pyroxenite domain are in the northern-most volcanoes of Roca Redonda and Volcan Ecuador and in the south at Sierra Negra. The presence of minor amounts of pyroxenite in the hybrid magmas found at Fernandina may be result of the deformation of the plume due to the entrainment of recycled crust in the upper mantle. Cross-section C shows variable amounts of plume, depleted mantle and recycled crust being sampled. This may be what resulted in the variable mixtures of peridotite and pyroxenite sources in the shield stage of Santa Cruz. The amount of available plume material in the east decreases with increasing distance from the plume axis. Thus the observed isotopic enrichment in the platform stage is likely the result of its closer proximity to the axis relative to the shield stage. Northward channeling of plume material, cross-section D, is evident by the presence of magmas with a moderate enrichment in ^{207}Pb and ^{208}Pb seen in Pinta and Wolf and Darwin Islands and the isotopically enriched magmas of the GSC directly north of these islands.

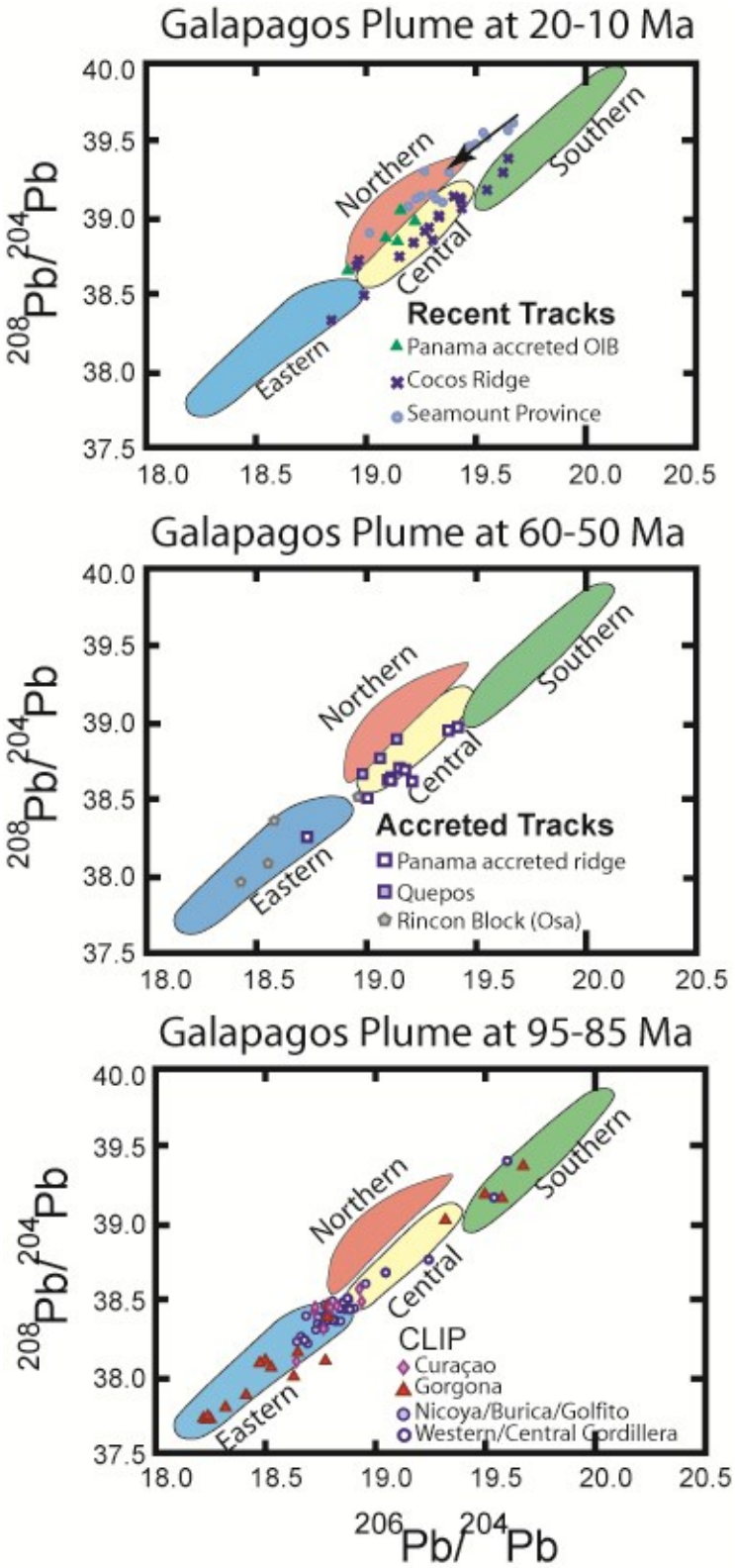
Figure A1. Olivine phenocryst compositions from Volcan Darwin (A-D) and Volcan Wolf and Alcedo (E-H). Model olivine compositions presented in diagrams A-D were calculated from whole rock compositions from Santa Cruz [Bow, 1979; Kurz and Geist, 1999]. Peridotite source olivine compositions presented in diagrams E-H were calculated from Fernandina sample F425 [Allan and Simkin, 2000]. Despite the relatively low Fo # of the olivines present, a strong pyroxenite signal is seen in Volcan Darwin. A peridotite source is indicated by the olivine analyses from Volcan Wolf and Alcedo with variable amounts of Cpx fractionation.

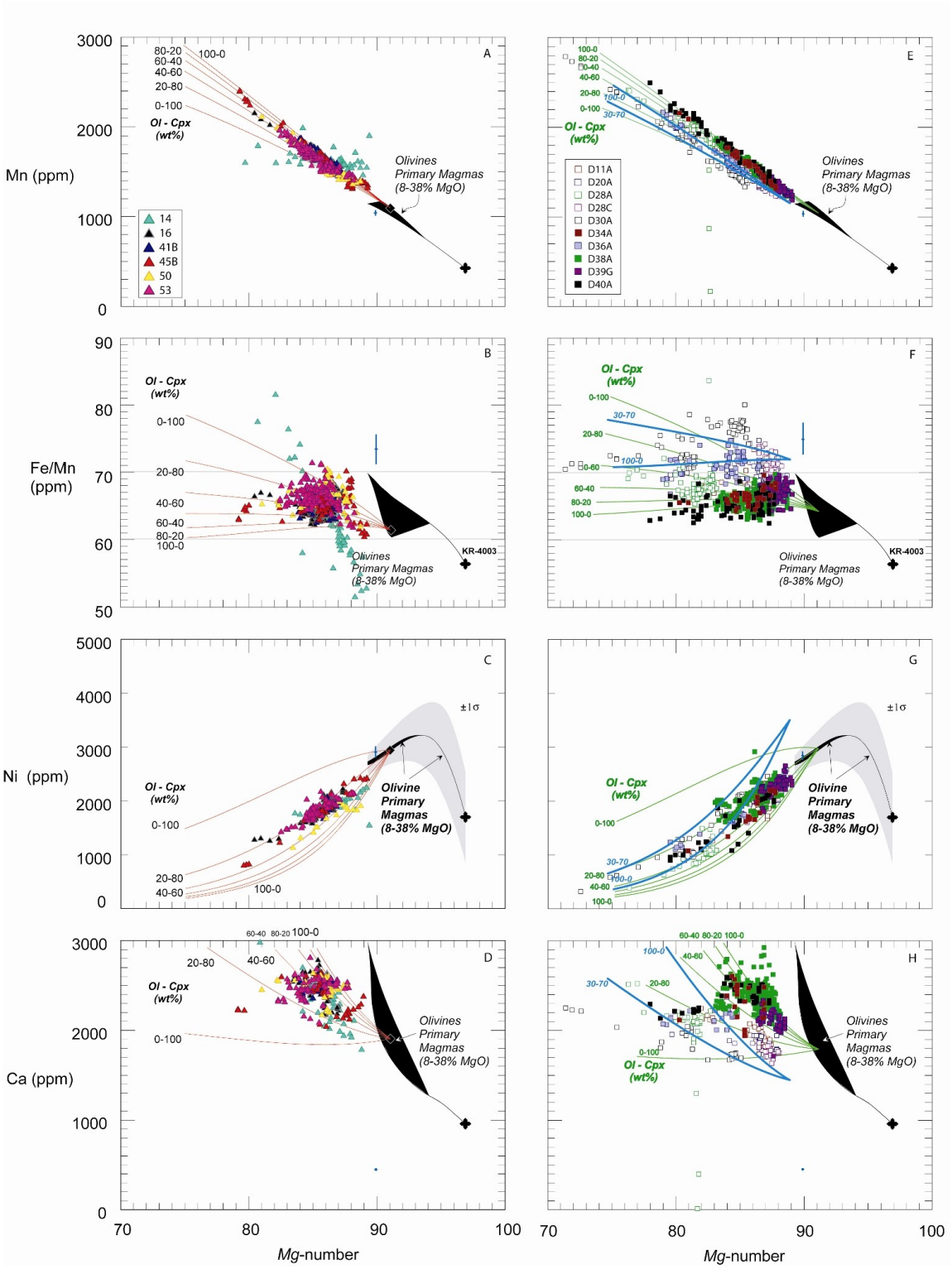
Figure A2. Olivine phenocryst compositions from Espanola, San Cristobal and Santa Fe (A-D) and Santiago (E-H). Model olivine compositions presented in diagrams A-D were calculated from whole rock compositions from Santa Cruz [Bow, 1979; Kurz and Geist, 1999] (see appendix Table 2 for details). A significant pyroxenite component is seen in the olivines of Santa Fe, while San Cristobal and Espanola appear to have a very minor

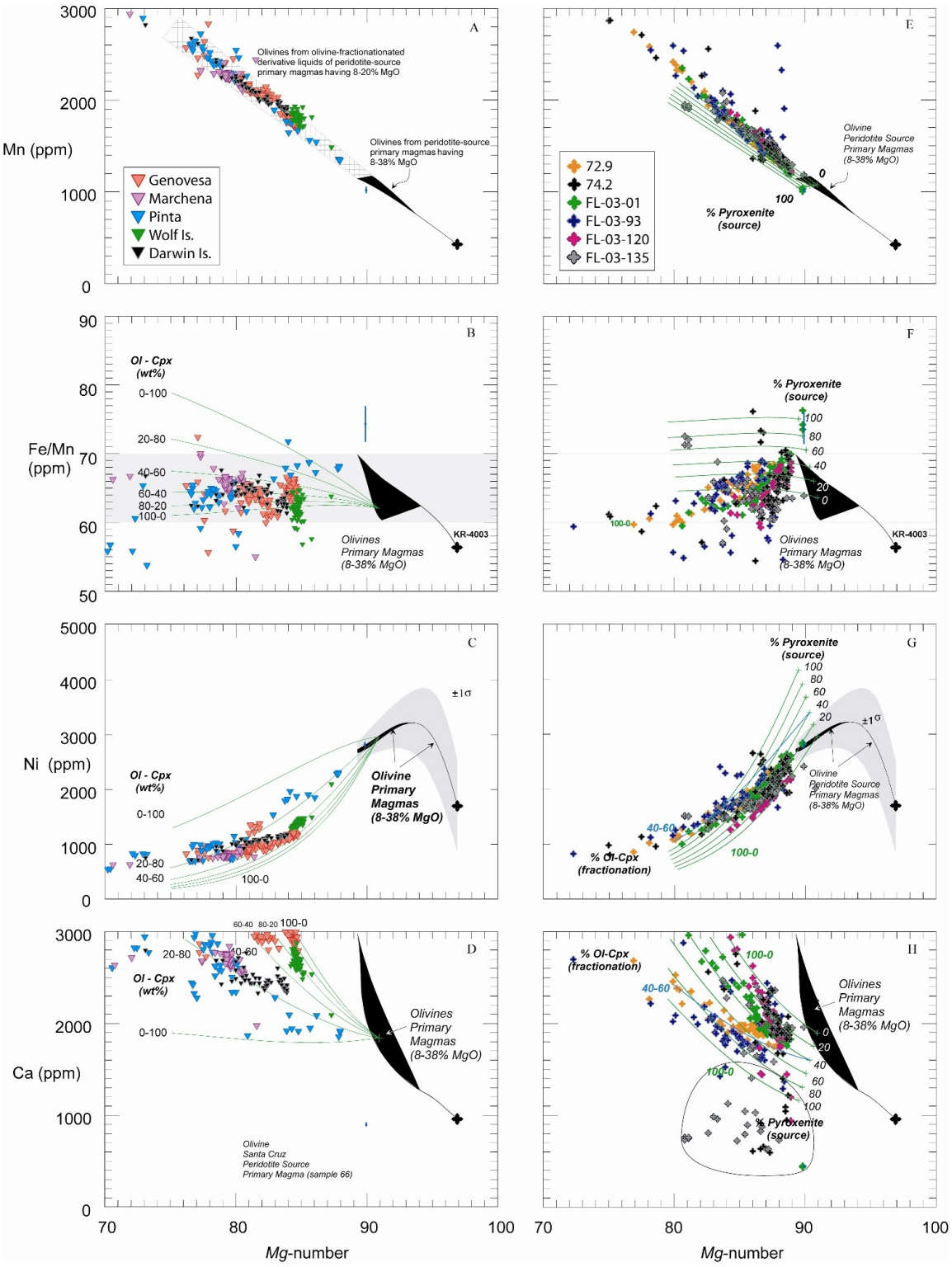
component of recycled crust in their sources. Magmas derived from both a relatively pure pyroxenite source (SO-1) and a mixture of pyroxenite and peridotite source melts (E-76) is seen in Santiago.

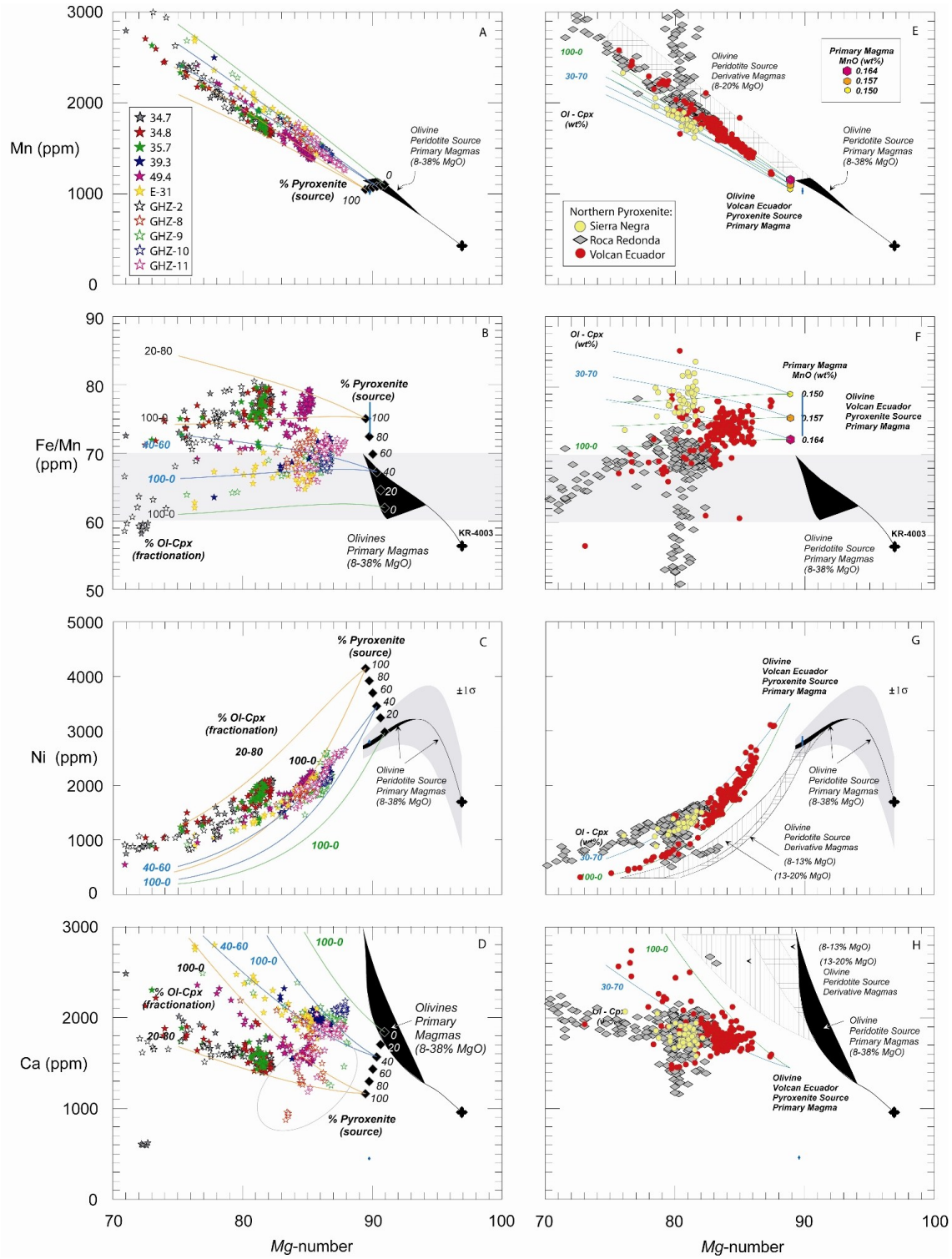

Darwin
Wolf
Northern
~1425°
Pinta
Marchena
Genovesa
Roca Redonda
Volcan Ecuador
Wolf
Darwin
1485°
Santiago
Eastern
1485°
Fernandina
Alcedo
Isabela
Central
1480°
Santa Cruz
Sierra Negra
1500°
Cerro Azul
Santa Fe
San Cristobal
100 km
1460°
Southern
Floreana
Espanola

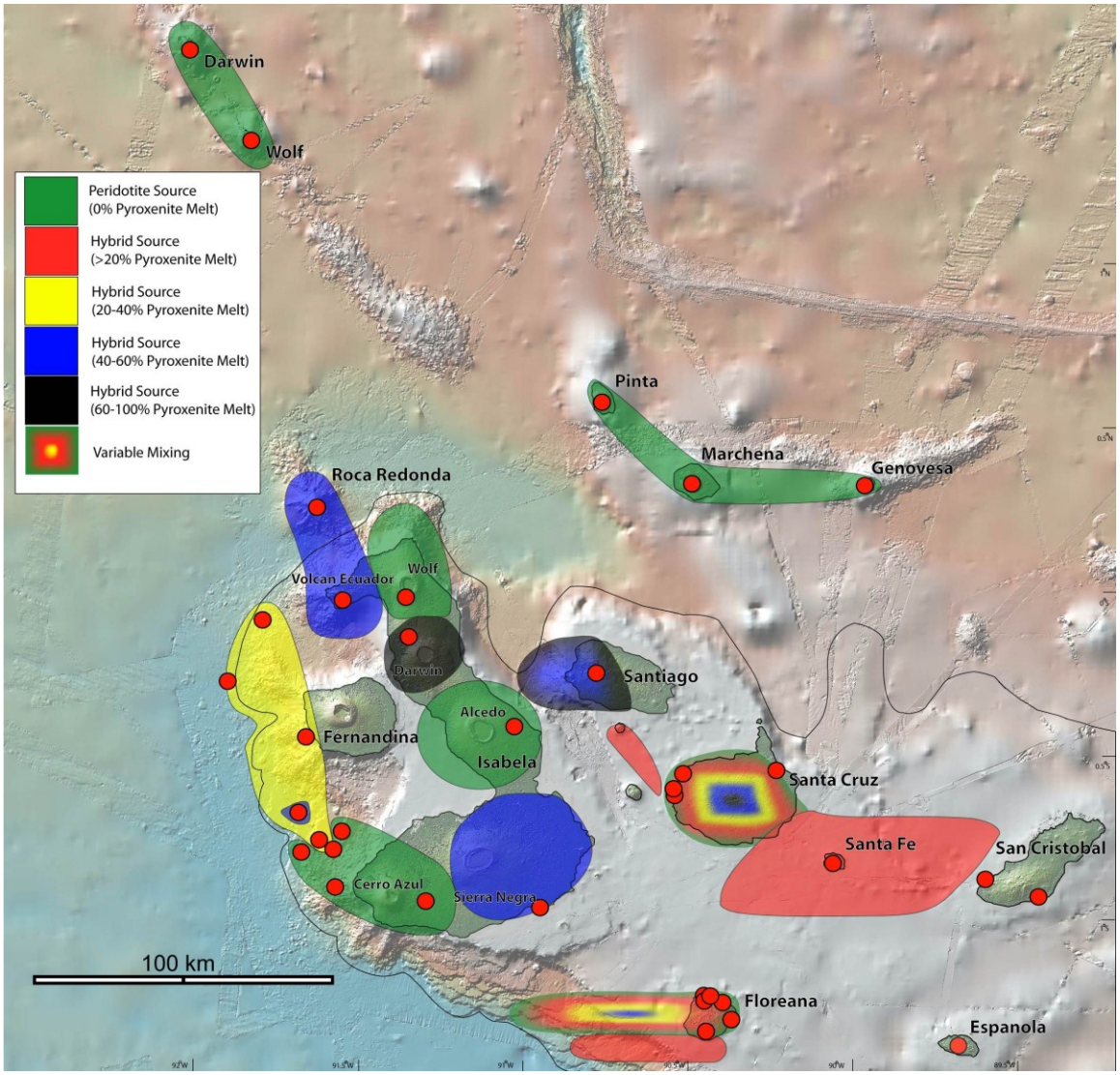

North
South
Central
East
FLO
WD
PLUME
DUM
42
41
40
39
38
37
18
19
20
21
22
$^{208}Pb/^{204}Pb$
$^{206}Pb/^{204}Pb$

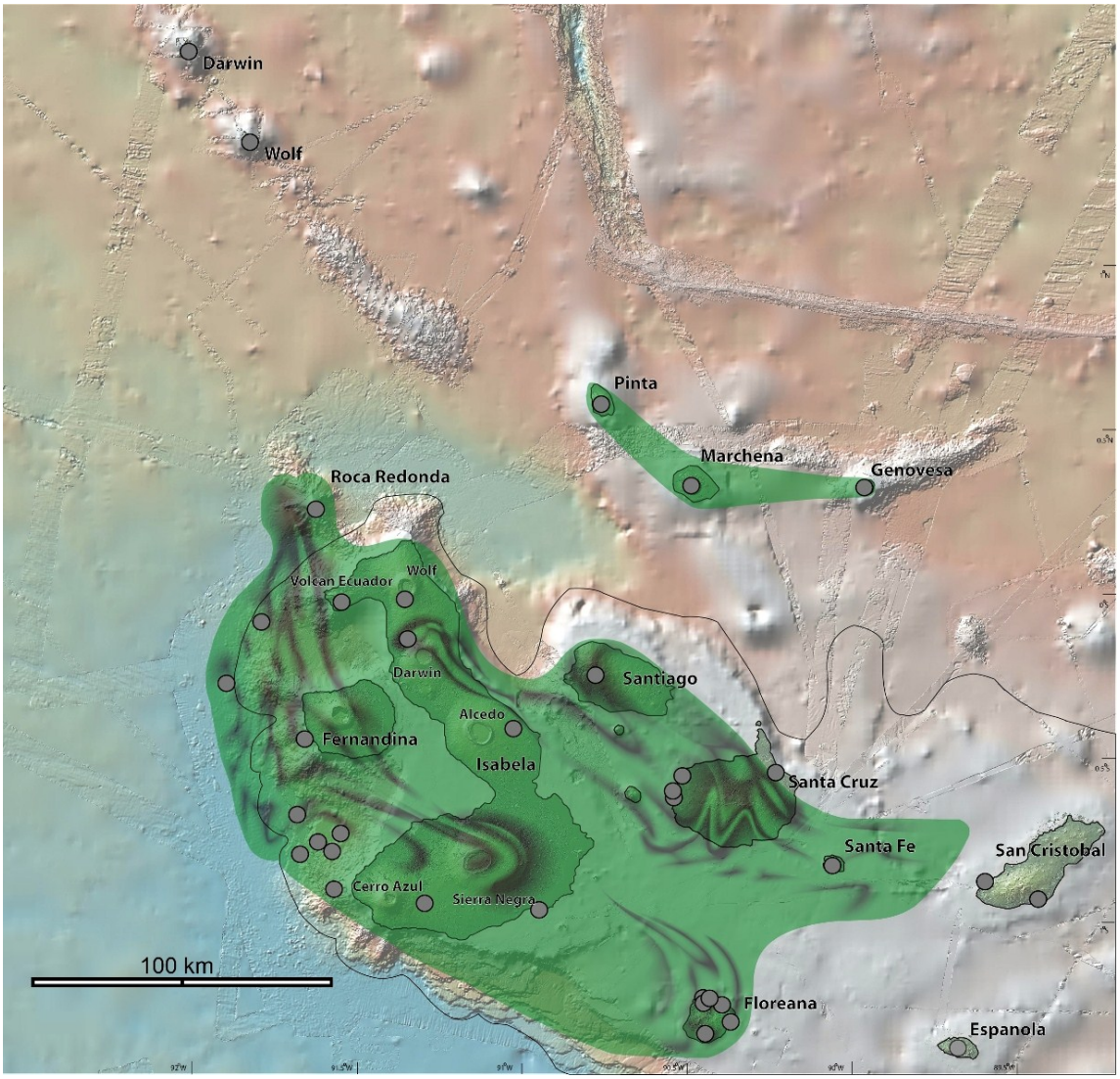

Galapagos Plume at 20-10 Ma
Northern
Southern
Central
Eastern
Recent Tracks
Panama accreted OIB
Cocos Ridge
Seamount Province
Galapagos Plume at 60-50 Ma
Northern
Southern
Central
Eastern
Accreted Tracks
Panama accreted ridge
Quepos
Rincon Block (Osa)
Galapagos Plume at 95-85 Ma
Northern
Southern
Central
Eastern
CLIP
Curaçao
Gorgona
Nicoya/Burica/Golfito
Western/Central Cordillera
208Pb/204Pb
206Pb/204Pb
40.0
39.5
39.0
38.5
38.0
37.5
18.0
18.5
19.0
19.5
20.0
20.5

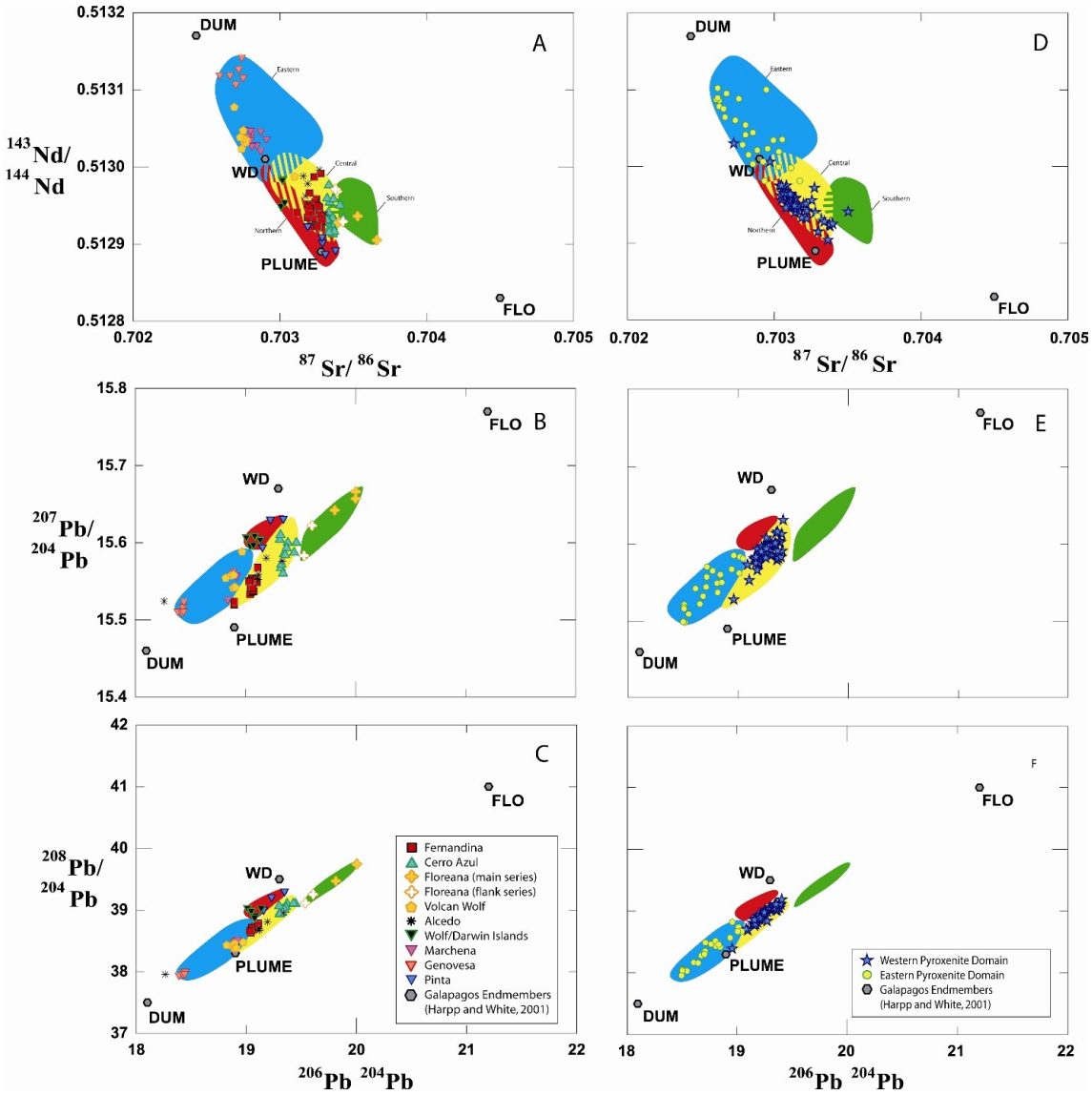

A
B
C
D
E
F
G
H
Mn (ppm)
Fe/Mn (ppm)
Ni (ppm)
Ca (ppm)
Mg-number
Ol - Cpx (wt%)
Olivines Primary Magmas (8-38% MgO)
Olivine Primary Magmas (8-38% MgO)
KR-4003
±1σ
14
16
41B
45B
50
53
D11A
D20A
D28A
D28C
D30A
D34A
D36A
D38A
D39G
D40A

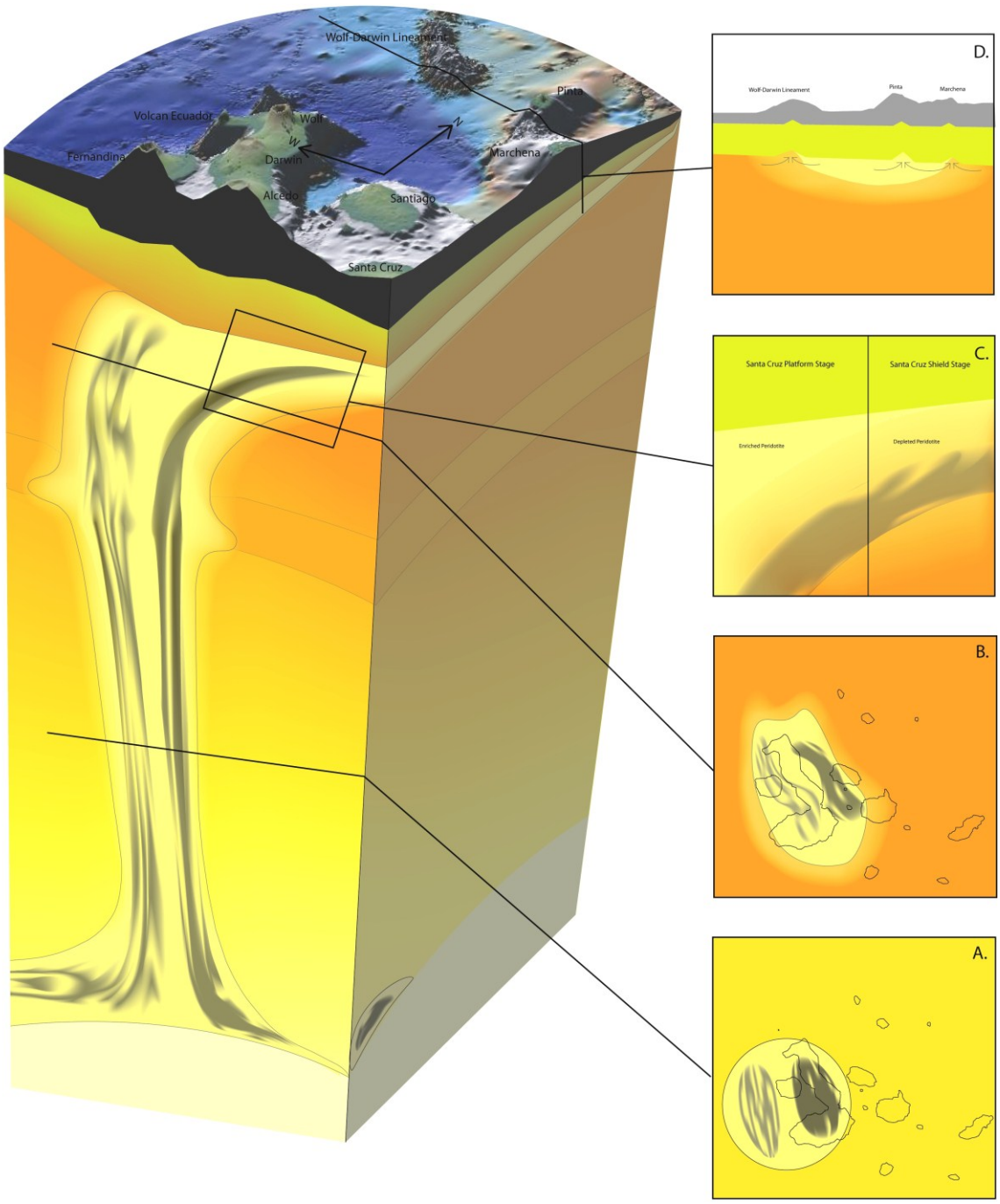

A
Olivines from olivine-fractionationated derivative liquids of peridotite-source primary magmas having 8-20% MgO
Olivines from peridotite-source primary magmas having 8-38% MgO
Genovesa
Marchena
Pinta
Wolf Is.
Darwin Is.
Mn (ppm)
E
Olivine Peridotite Source Primary Magmas (8-38% MgO)
% Pyroxenite (source)
72.9
74.2
FL-03-01
FL-03-93
FL-03-120
FL-03-135
B
Ol - Cpx (wt%)
0-100
20-80
40-60
60-40
80-20
100-0
Olivines Primary Magmas (8-38% MgO)
KR-4003
Fe/Mn (ppm)
F
% Pyroxenite (source)
C
±1σ
Olivine Primary Magmas (8-38% MgO)
Ni (ppm)
G
% Ol-Cpx (fractionation)
D
Olivine Santa Cruz Peridotite Source Primary Magma (sample 66)
Ca (ppm)
H
Mg-number

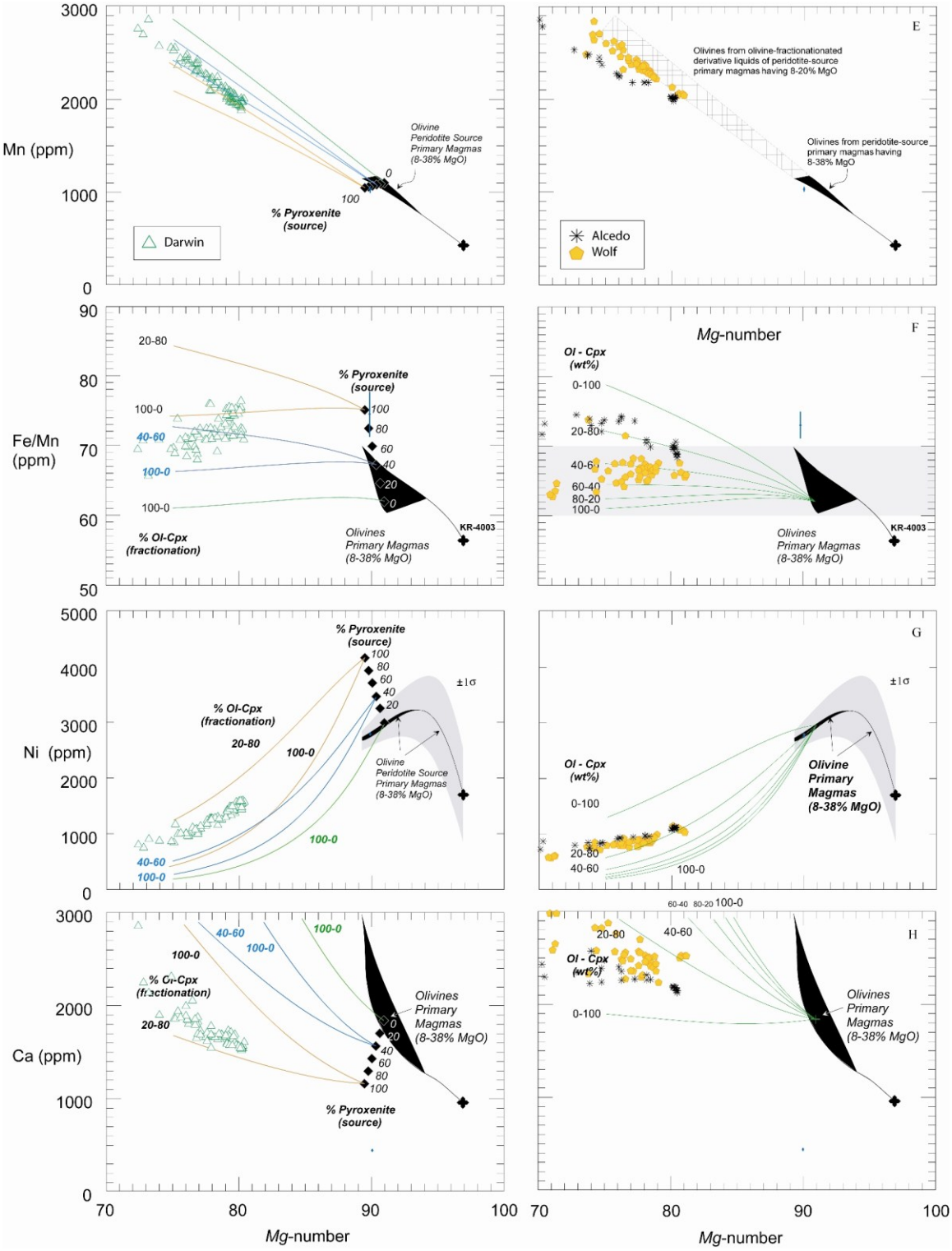

A
B
C
D
E
F
G
H
Mn (ppm)
Fe/Mn (ppm)
Ni (ppm)
Ca (ppm)
Mg-number
34.7
34.8
35.7
39.3
49.4
E-31
GHZ-2
GHZ-8
GHZ-9
GHZ-10
GHZ-11
% Pyroxenite (source)
Olivine Peridotite Source Primary Magmas (8-38% MgO)
Olivines Primary Magmas (8-38% MgO)
% Ol-Cpx (fractionation)
Olivine Peridotite Source Derivative Magmas (8-20% MgO)
Olivine Peridotite Source Derivative Magmas (8-13% MgO)
(13-20% MgO)
Olivine Volcan Ecuador Pyroxenite Source Primary Magma
Primary Magma MnO (wt%)
0.164
0.157
0.150
Northern Pyroxenite:
Sierra Negra
Roca Redonda
Volcan Ecuador
Ol - Cpx (wt%)
KR-4003
±1σ


Darwin
Wolf
Peridotite Source
(0% Pyroxenite Melt)
Hybrid Source
(>20% Pyroxenite Melt)
Hybrid Source
(20-40% Pyroxenite Melt)
Hybrid Source
(40-60% Pyroxenite Melt)
Hybrid Source
(60-100% Pyroxenite Melt)
Variable Mixing
Pinta
Marchena
Genovesa
Roca Redonda
Volcan Ecuador
Wolf
Darwin
Santiago
Alcedo
Fernandina
Isabela
Santa Cruz
Santa Fe
San Cristobal
Cerro Azul
Sierra Negra
100 km
Floreana
Espanola


Darwin
Wolf
Pinta
Marchena
Genovesa
Roca Redonda
Volcan Ecuador
Wolf
Darwin
Santiago
Alcedo
Fernandina
Isabela
Santa Cruz
Santa Fe
San Cristobal
Cerro Azul
Sierra Negra
100 km
Floreana
Espanola


A
B
C
D
E
F
DUM
WD
PLUME
FLO
Eastern
Central
Southern
Northern
$^{143}Nd/^{144}Nd$
$^{87}Sr/^{86}Sr$
$^{207}Pb/^{204}Pb$
$^{208}Pb/^{204}Pb$
$^{206}Pb/^{204}Pb$
Fernandina
Cerro Azul
Floreana (main series)
Floreana (flank series)
Volcan Wolf
Alcedo
Wolf/Darwin Islands
Marchena
Genovesa
Pinta
Galapagos Endmembers (Harpp and White, 2001)
Western Pyroxenite Domain
Eastern Pyroxenite Domain
Galapagos Endmembers (Harpp and White, 2001)


Wolf-Darwin Lineament
Pinta
Volcan Ecuador
Wolf
Fernandina
Darwin
Marchena
Alcedo
Santiago
Santa Cruz
D.
Wolf-Darwin Lineament
Pinta
Marchena
C.
Santa Cruz Platform Stage
Santa Cruz Shield Stage
Enriched Peridotite
Depleted Peridotite
B.
A.


Mn (ppm)
Olivine Peridotite Source Primary Magmas (8-38% MgO)
% Pyroxenite (source)
Darwin
E
Olivines from olivine-fractionationated derivative liquids of peridotite-source primary magmas having 8-20% MgO
Olivines from peridotite-source primary magmas having 8-38% MgO
Alcedo
Wolf
Fe/Mn (ppm)
% Ol-Cpx (fractionation)
Olivines Primary Magmas (8-38% MgO)
KR-4003
Mg-number
F
Ol - Cpx (wt%)
Ni (ppm)
G
±1σ
Olivine Primary Magmas (8-38% MgO)
Ca (ppm)
H
Mg-number

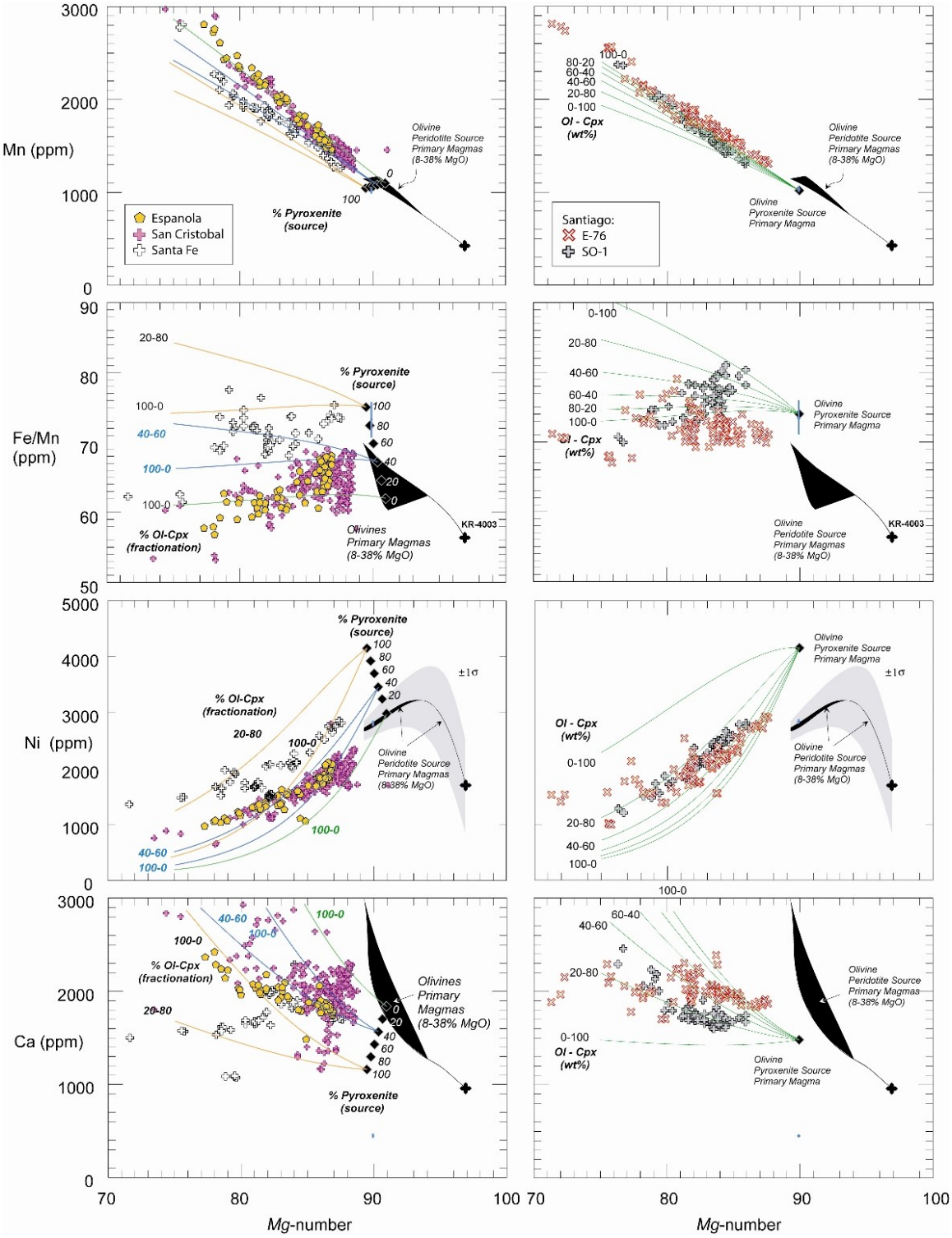

Mn (ppm)
Fe/Mn (ppm)
Ni (ppm)
Ca (ppm)
Mg-number
Espanola
San Cristobal
Santa Fe
Santiago:
E-76
SO-1
% Pyroxenite (source)
% Ol-Cpx (fractionation)
Olivine Peridotite Source Primary Magmas (8-38% MgO)
Olivine Pyroxenite Source Primary Magma
Olivines Primary Magmas (8-38% MgO)
Ol - Cpx (wt%)
KR-4003
±1σ

Table 1: Olivine Analyses

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
DG-30 phen 1	Alcedo	39.01	42.03	18.24	0.305	0.263	0.147	80.4	1158	2039	2180	141844
DG-30 phen 1	Alcedo	38.89	41.97	18.43	0.305	0.265	0.144	80.2	1132	2054	2178	143275
DG-30 phen 1	Alcedo	38.92	41.94	18.43	0.307	0.266	0.144	80.2	1132	2061	2195	143289
DG-30 phen 1	Alcedo	39.03	42.04	18.22	0.305	0.265	0.146	80.4	1147	2053	2178	141688
DG-30 phen 1	Alcedo	39.05	41.97	18.26	0.304	0.262	0.149	80.4	1174	2032	2176	142000
DG-30 phen 1	Alcedo	39.01	41.94	18.33	0.306	0.263	0.149	80.3	1170	2039	2185	142502
DG-30 phen 3	Alcedo	38.11	38.36	22.76	0.346	0.310	0.115	75.0	901	2400	2473	176957
DG-30 phen 3	Alcedo	37.98	38.27	22.98	0.334	0.320	0.113	74.8	889	2479	2387	178699
DG-30 phen 4	Alcedo	37.36	35.39	26.45	0.321	0.363	0.118	70.5	927	2809	2294	205669
DG-30 phen 5	Alcedo	37.99	38.31	22.96	0.313	0.315	0.114	74.8	892	2437	2238	178574
DG-30 phen 9	Alcedo	38.82	40.39	20.05	0.324	0.286	0.130	78.2	1019	2214	2315	155945
DG-30 phen 9	Alcedo	38.59	40.55	20.13	0.316	0.285	0.131	78.2	1031	2208	2261	156540
DG-30 phen 9	Alcedo	38.30	39.23	21.72	0.316	0.295	0.127	76.3	998	2283	2257	168930
DG-30 phen 9	Alcedo	37.37	35.23	26.58	0.340	0.372	0.100	70.3	782	2884	2431	206703
DG-30 phen 11	Alcedo	39.15	41.95	18.20	0.301	0.262	0.149	80.4	1170	2025	2149	141506
DG-30 phen 11	Alcedo	39.17	41.96	18.16	0.300	0.265	0.149	80.5	1168	2051	2142	141192
DG-30 phen 11	Alcedo	39.04	42.02	18.23	0.300	0.259	0.152	80.4	1191	2007	2146	141722
DG-30 phen 11	Alcedo	39.04	41.87	18.38	0.306	0.263	0.147	80.2	1152	2040	2188	142906
DG-30 phen 11	Alcedo	37.74	36.96	24.53	0.328	0.331	0.109	72.9	856	2561	2346	190747
DG-30 phen 11	Alcedo	39.14	42.01	18.13	0.301	0.265	0.150	80.5	1182	2050	2152	141000
DG-30 phen 11	Alcedo	39.14	42.03	18.12	0.297	0.264	0.150	80.5	1175	2044	2125	140897
DG-30 phen 11	Alcedo	39.18	41.98	18.13	0.300	0.266	0.146	80.5	1145	2062	2144	141013
DG-30 phen 12	Alcedo	38.32	39.23	21.70	0.329	0.293	0.125	76.3	980	2273	2354	168764
DG-30 phen 16	Alcedo	37.89	37.63	23.73	0.311	0.322	0.115	73.9	904	2497	2223	184545
DG-30 phen 17	Alcedo	38.69	40.72	19.85	0.317	0.285	0.130	78.5	1017	2209	2266	154361
DG-30 phen 18	Alcedo	38.43	39.02	21.80	0.336	0.298	0.124	76.1	971	2305	2400	169518
DG-30 phen 19	Alcedo	37.96	37.69	23.57	0.360	0.324	0.103	74.0	808	2512	2574	183249
DG-30 phen 20	Alcedo	38.47	39.89	20.91	0.318	0.285	0.128	77.3	1005	2209	2270	162597
[1]14 phen 1	Cerro Azul	40.63	47.82	11.08		0.208	0.262	88.5	2054	1613		86134
[1]14 phen 1	Cerro Azul	40.37	47.50	11.67		0.202	0.260	87.9	2043	1562		90742
[1]14 phen 1	Cerro Azul	40.24	47.48	11.82		0.197	0.259	87.7	2033	1524		91928
[1]14 phen 1	Cerro Azul	40.21	46.99	12.34		0.201	0.254	87.2	1998	1554		95988
[1]14 phen 1	Cerro Azul	40.27	46.77	12.50		0.202	0.260	87.0	2039	1565		97216

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]14 phen 1	Cerro Azul	40.12	46.79	12.63		0.201	0.258	86.8	2028	1559		98215
[1]14 phen 1	Cerro Azul	40.22	46.63	12.70		0.195	0.252	86.7	1981	1509		98754
[1]14 phen 1	Cerro Azul	40.17	46.57	12.81		0.201	0.249	86.6	1954	1554		99590
[2]14 phen 1	Cerro Azul	40.37	47.45	11.70	0.274	0.204		87.9		1577	1956	90966
[2]14 phen 1	Cerro Azul	40.30	47.14	12.07	0.289	0.205		87.4		1585	2066	93860
[2]14 phen 1	Cerro Azul	40.28	47.15	12.10	0.271	0.203		87.4		1569	1935	94071
[2]14 phen 1	Cerro Azul	40.13	46.51	12.83	0.327	0.204		86.6		1583	2339	99737
[2]14 phen 1	Cerro Azul	40.11	46.35	13.01	0.326	0.205		86.4		1587	2327	101160
[2]14 phen 1	Cerro Azul	40.05	46.37	13.09	0.292	0.203		86.3		1570	2089	101755
[2]14 phen 1	Cerro Azul	40.29	44.33	14.81	0.309	0.256		84.2		1985	2206	115179
[2]14 phen 1	Cerro Azul	39.67	40.99	18.60	0.542	0.206		79.7		1597	3874	144598
[1]14 phen 2	Cerro Azul	40.56	46.59	12.39		0.203	0.253	87.0	1990	1569		96353
[2]14 phen 2	Cerro Azul	40.10	46.56	12.82	0.321	0.205		86.6		1587	2295	99665
[1]14 phen 3	Cerro Azul	40.49	48.15	10.89		0.199	0.274	88.7	2155	1542		84655
[1]14 phen 3	Cerro Azul	40.11	47.08	12.36		0.212	0.238	87.2	1872	1645		96122
[1]14 phen 3	Cerro Azul	40.21	46.81	12.52		0.202	0.256	87.0	2015	1563		97321
[1]14 phen 3	Cerro Azul	39.94	46.53	13.08		0.211	0.240	86.4	1883	1637		101741
[1]14 phen 3	Cerro Azul	40.04	46.25	13.25		0.205	0.243	86.2	1906	1584		103065
[1]14 phen 3	Cerro Azul	40.06	46.20	13.29		0.211	0.240	86.1	1882	1633		103363
[1]14 phen 3	Cerro Azul	39.96	46.29	13.31		0.206	0.236	86.1	1853	1596		103462
[1]14 phen 3	Cerro Azul	40.13	46.07	13.34		0.207	0.250	86.0	1965	1604		103766
[2]14 phen 3	Cerro Azul	40.08	46.34	13.09	0.281	0.209		86.3		1616	2012	101765
[2]14 phen 3	Cerro Azul	40.09	46.05	13.35	0.308	0.206		86.0		1593	2204	103778
[2]14 phen 3	Cerro Azul	39.98	46.05	13.46	0.286	0.213		85.9		1651	2044	104696
[2]14 phen 3	Cerro Azul	40.43	44.81	14.20	0.351	0.211		84.9		1631	2510	110431
[2]14 phen 3	Cerro Azul	40.17	44.41	14.84	0.377	0.212		84.2		1643	2693	115372
[2]14 phen 3	Cerro Azul	39.42	43.16	16.74	0.475	0.206		82.1		1596	3397	130164
[1]14 phen 5	Cerro Azul	40.39	48.84	10.33		0.245	0.196	89.4	1542	1898		80307
[1]14 phen 5	Cerro Azul	40.20	47.27	12.07		0.203	0.255	87.5	2003	1574		93867
[1]14 phen 5	Cerro Azul	40.21	47.15	12.18		0.207	0.253	87.3	1987	1602		94715
[1]14 phen 5	Cerro Azul	40.21	47.10	12.23		0.203	0.256	87.3	2011	1573		95077
[1]14 phen 5	Cerro Azul	40.13	46.84	12.58		0.198	0.249	86.9	1952	1532		97845
[2]14 phen 5	Cerro Azul	40.23	46.77	12.46	0.338	0.207		87.0		1605	2417	96917

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]14 phen 5	Cerro Azul	40.16	46.60	12.70	0.332	0.202		86.7		1566	2370	98788
[2]14 phen 5	Cerro Azul	40.13	46.55	12.80	0.315	0.207		86.6		1606	2250	99539
[2]14 phen 5	Cerro Azul	40.05	45.17	14.10	0.467	0.209		85.1		1617	3335	109629
[2]14 phen 5	Cerro Azul	39.82	43.65	15.78	0.538	0.207		83.1		1606	3847	122720
[1]14 phen 6	Cerro Azul	40.20	47.33	12.02		0.204	0.249	87.5	1957	1581		93471
[1]14 phen 6	Cerro Azul	40.18	47.27	12.10		0.204	0.248	87.4	1948	1577		94068
[1]14 phen 6	Cerro Azul	40.51	46.30	12.72		0.229	0.232	86.6	1819	1774		98943
[1]14 phen 6	Cerro Azul	40.28	46.03	13.24		0.205	0.244	86.1	1914	1592		102986
[2]14 phen 6	Cerro Azul	40.31	47.75	11.44	0.294	0.203		88.2		1570	2104	88978
[2]14 phen 6	Cerro Azul	40.25	46.85	12.38	0.320	0.209		87.1		1617	2286	96237
[2]14 phen 6	Cerro Azul	40.23	46.87	12.38	0.310	0.210		87.1		1630	2218	96272
[2]14 phen 6	Cerro Azul	40.15	47.00	12.37	0.277	0.204		87.1		1578	1982	96212
[2]14 phen 6	Cerro Azul	40.23	46.76	12.50	0.296	0.210		87.0		1626	2115	97177
[1]14 phen 7	Cerro Azul	40.38	48.66	10.47		0.199	0.285	89.2	2241	1543		81429
[1]14 phen 7	Cerro Azul	40.30	48.45	10.78		0.188	0.280	88.9	2199	1459		83802
[1]14 phen 7	Cerro Azul	40.04	48.17	11.34		0.221	0.232	88.3	1823	1712		88153
[1]14 phen 7	Cerro Azul	40.18	47.31	12.05		0.190	0.275	87.5	2161	1469		93704
[2]14 phen 7	Cerro Azul	40.59	48.14	10.81	0.249	0.207		88.8		1604	1779	84044
[2]14 phen 7	Cerro Azul	40.45	47.51	11.57	0.268	0.199		88.0		1539	1919	89940
[2]14 phen 7	Cerro Azul	40.38	44.94	14.12	0.343	0.213		85.0		1648	2455	109764
[2]14 phen 7	Cerro Azul	40.15	44.92	14.38	0.327	0.225		84.8		1743	2336	111821
[1]14 phen 8	Cerro Azul	40.03	44.45	15.09		0.204	0.222	84.0	1740	1582		117332
[2]14 phen 8	Cerro Azul	40.07	45.83	13.48	0.416	0.207		85.8		1601	2973	104792
[1]14 phen 9	Cerro Azul	39.80	44.32	15.44		0.215	0.225	83.6	1764	1662		120083
[2]14 phen 9	Cerro Azul	40.03	45.56	13.88	0.307	0.219		85.4		1697	2192	107953
[2]14 phen 10	Cerro Azul	39.76	43.79	15.76	0.468	0.220		83.2		1701	3345	122559
[2]14 phen 11	Cerro Azul	39.51	41.92	17.83	0.506	0.231		80.7		1788	3615	138617
[1]14 phen 20	Cerro Azul	40.04	46.52	13.01		0.204	0.233	86.4	1827	1577		101141
[2]14 phen 20	Cerro Azul	39.98	46.49	13.02	0.298	0.204		86.4		1579	2134	101249
[2]14 phen 20	Cerro Azul	39.96	46.22	13.27	0.338	0.207		86.1		1602	2416	103214
[2]14 phen 20	Cerro Azul	40.02	46.15	13.28	0.337	0.210		86.1		1626	2411	103296
[2]14 phen 20	Cerro Azul	39.95	46.12	13.39	0.336	0.207		86.0		1604	2401	104086
[2]14 phen 20	Cerro Azul	39.98	46.09	13.38	0.336	0.206		86.0		1598	2403	104082

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 3	Cerro Azul	39.99	45.37	14.21		0.222	0.209	85.1	1640	1720		110496
[1]16 phen 3	Cerro Azul	39.94	45.39	14.23		0.221	0.215	85.0	1688	1712		110651
[1]16 phen 3	Cerro Azul	39.89	45.43	14.24		0.222	0.216	85.0	1693	1722		110702
[1]16 phen 3	Cerro Azul	39.94	45.37	14.25		0.220	0.215	85.0	1692	1706		110817
[1]16 phen 3	Cerro Azul	39.98	45.31	14.28		0.222	0.212	85.0	1665	1721		111044
[1]16 phen 3	Cerro Azul	39.81	45.46	14.29		0.225	0.217	85.0	1702	1741		111091
[1]16 phen 3	Cerro Azul	39.87	45.38	14.31		0.222	0.216	85.0	1696	1720		111248
[2]16 phen 3	Cerro Azul	39.81	44.94	14.66	0.356	0.230		84.5		1781	2543	114029
[2]16 phen 3	Cerro Azul	39.73	44.96	14.72	0.355	0.227		84.5		1759	2537	114501
[2]16 phen 3	Cerro Azul	39.73	45.00	14.70	0.354	0.227		84.5		1759	2530	114280
[2]16 phen 3	Cerro Azul	39.74	45.00	14.69	0.351	0.229		84.5		1776	2508	114196
[2]16 phen 3	Cerro Azul	39.77	44.96	14.68	0.353	0.228		84.5		1768	2525	114170
[2]16 phen 3	Cerro Azul	39.75	44.98	14.70	0.355	0.225		84.5		1743	2536	114270
[2]16 phen 3	Cerro Azul	39.78	44.83	14.81	0.361	0.228		84.4		1763	2583	115130
[1]16 phen 4	Cerro Azul	40.13	45.25	14.18		0.221	0.213	85.0	1674	1715		110299
[1]16 phen 4	Cerro Azul	40.09	45.27	14.20		0.227	0.212	85.0	1666	1756		110422
[1]16 phen 4	Cerro Azul	40.07	45.29	14.20		0.221	0.218	85.0	1710	1713		110423
[1]16 phen 4	Cerro Azul	40.15	45.20	14.21		0.225	0.220	85.0	1728	1741		110481
[1]16 phen 4	Cerro Azul	40.11	45.23	14.22		0.221	0.211	85.0	1657	1714		110600
[1]16 phen 4	Cerro Azul	40.09	45.22	14.26		0.222	0.212	85.0	1665	1717		110914
[1]16 phen 4	Cerro Azul	40.08	45.22	14.27		0.220	0.217	85.0	1707	1707		110937
[1]16 phen 4	Cerro Azul	40.09	45.13	14.34		0.222	0.214	84.9	1678	1718		111547
[2]16 phen 4	Cerro Azul	39.90	44.92	14.61	0.350	0.225		84.6		1743	2499	113620
[2]16 phen 4	Cerro Azul	39.94	44.90	14.59	0.352	0.224		84.6		1738	2515	113425
[2]16 phen 4	Cerro Azul	39.92	44.88	14.62	0.348	0.227		84.5		1755	2485	113698
[2]16 phen 4	Cerro Azul	39.92	44.85	14.66	0.350	0.225		84.5		1745	2503	113962
[2]16 phen 4	Cerro Azul	39.92	44.85	14.64	0.364	0.228		84.5		1769	2602	113866
[2]16 phen 4	Cerro Azul	39.87	44.91	14.64	0.353	0.228		84.5		1765	2521	113825
[2]16 phen 4	Cerro Azul	39.89	44.86	14.68	0.345	0.225		84.5		1742	2465	114141
[2]16 phen 4	Cerro Azul	39.97	44.52	14.91	0.371	0.229		84.2		1773	2652	115942
[1]16 phen 7	Cerro Azul	40.20	46.33	12.99		0.201	0.274	86.4	2153	1554		101037
[1]16 phen 7	Cerro Azul	40.21	46.32	12.99		0.200	0.270	86.4	2121	1550		101045
[1]16 phen 7	Cerro Azul	40.21	46.32	13.00		0.202	0.275	86.4	2163	1561		101089

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 7	Cerro Azul	40.22	46.30	13.00		0.197	0.275	86.4	2157	1528		101101
[1]16 phen 7	Cerro Azul	40.21	46.29	13.04		0.204	0.256	86.4	2014	1581		101410
[1]16 phen 7	Cerro Azul	40.20	46.29	13.04		0.206	0.267	86.4	2094	1595		101405
[1]16 phen 7	Cerro Azul	40.14	46.20	13.21		0.205	0.246	86.2	1934	1588		102750
[1]16 phen 7	Cerro Azul	39.83	44.61	15.13		0.230	0.202	84.0	1588	1784		117646
[2]16 phen 7	Cerro Azul	40.08	46.01	13.37	0.335	0.205		86.0		1588	2393	103979
[2]16 phen 7	Cerro Azul	40.10	46.01	13.37	0.303	0.207		86.0		1606	2167	103999
[2]16 phen 7	Cerro Azul	40.12	45.98	13.39	0.305	0.208		86.0		1613	2183	104116
[2]16 phen 7	Cerro Azul	40.06	46.01	13.41	0.304	0.211		85.9		1634	2174	104302
[2]16 phen 7	Cerro Azul	40.05	45.98	13.44	0.320	0.209		85.9		1618	2285	104509
[2]16 phen 7	Cerro Azul	40.03	46.01	13.44	0.314	0.204		85.9		1577	2246	104516
[2]16 phen 7	Cerro Azul	39.96	46.02	13.46	0.346	0.207		85.9		1606	2470	104656
[2]16 phen 7	Cerro Azul	39.88	45.65	13.90	0.361	0.212		85.4		1646	2582	108106
[1]16 phen 8	Cerro Azul	40.17	46.42	12.93		0.201	0.268	86.5	2107	1559		100570
[2]16 phen 8	Cerro Azul	40.07	46.19	13.22	0.309	0.205		86.2		1585	2212	102806
[1]16 phen 12	Cerro Azul	40.11	46.63	12.82		0.201	0.232	86.6	1823	1560		99710
[1]16 phen 12	Cerro Azul	40.10	46.63	12.83		0.204	0.235	86.6	1842	1577		99760
[1]16 phen 12	Cerro Azul	40.17	46.52	12.86		0.201	0.240	86.6	1888	1555		100027
[1]16 phen 12	Cerro Azul	40.17	46.43	12.96		0.207	0.236	86.5	1850	1601		100761
[1]16 phen 12	Cerro Azul	40.12	46.47	12.97		0.205	0.239	86.5	1876	1591		100817
[1]16 phen 12	Cerro Azul	40.06	46.18	13.32		0.208	0.228	86.1	1789	1614		103615
[1]16 phen 12	Cerro Azul	40.18	45.92	13.47		0.215	0.222	85.9	1741	1668		104745
[1]16 phen 12	Cerro Azul	39.90	45.33	14.34		0.228	0.205	84.9	1611	1766		111520
[1]16 phen 12	Cerro Azul	39.77	44.80	14.99		0.236	0.207	84.2	1625	1830		116554
[2]16 phen 12	Cerro Azul	40.07	46.13	13.23	0.361	0.206		86.1		1599	2579	102858
[2]16 phen 12	Cerro Azul	40.10	46.05	13.28	0.369	0.206		86.1		1595	2638	103240
[2]16 phen 12	Cerro Azul	40.06	46.07	13.29	0.368	0.207		86.1		1602	2629	103379
[2]16 phen 12	Cerro Azul	40.00	46.12	13.31	0.367	0.208		86.1		1610	2622	103490
[2]16 phen 12	Cerro Azul	39.93	45.66	13.83	0.364	0.213		85.5		1647	2601	107569
[2]16 phen 12	Cerro Azul	39.91	45.66	13.83	0.381	0.214		85.5		1657	2727	107536
[2]16 phen 12	Cerro Azul	40.00	45.49	13.90	0.389	0.216		85.4		1676	2782	108093
[2]16 phen 12	Cerro Azul	39.76	45.02	14.54	0.455	0.230		84.7		1779	3252	113058
[1]16 phen 15	Cerro Azul	40.16	46.52	12.86		0.195	0.256	86.6	2007	1511		100032

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 15	Cerro Azul	40.15	46.52	12.88		0.199	0.248	86.6	1944	1538		100157
[1]16 phen 15	Cerro Azul	40.14	46.49	12.92		0.197	0.251	86.5	1975	1530		100454
[1]16 phen 15	Cerro Azul	40.08	46.53	12.93		0.198	0.255	86.5	2006	1532		100544
[1]16 phen 15	Cerro Azul	40.10	46.50	12.95		0.196	0.250	86.5	1967	1516		100688
[1]16 phen 15	Cerro Azul	40.17	46.43	12.95		0.202	0.247	86.5	1937	1563		100729
[1]16 phen 15	Cerro Azul	40.12	46.46	12.97		0.197	0.251	86.5	1968	1526		100819
[1]16 phen 15	Cerro Azul	39.84	45.76	13.94		0.215	0.243	85.4	1906	1668		108437
[2]16 phen 15	Cerro Azul	40.10	46.16	13.20	0.344	0.197		86.2		1525	2459	102649
[2]16 phen 15	Cerro Azul	40.10	46.14	13.22	0.344	0.202		86.2		1567	2459	102767
[2]16 phen 15	Cerro Azul	40.10	46.11	13.24	0.347	0.197		86.1		1526	2480	102977
[2]16 phen 15	Cerro Azul	40.09	46.07	13.29	0.344	0.198		86.1		1537	2459	103364
[2]16 phen 15	Cerro Azul	40.03	46.09	13.33	0.345	0.203		86.0		1572	2469	103669
[2]16 phen 15	Cerro Azul	40.04	46.05	13.36	0.347	0.202		86.0		1564	2480	103893
[2]16 phen 15	Cerro Azul	40.08	46.02	13.36	0.345	0.202		86.0		1567	2468	103850
[2]16 phen 15	Cerro Azul	40.06	45.70	13.69	0.335	0.208		85.6		1611	2395	106470
[1]16 phen 16	Cerro Azul	39.99	46.57	13.00		0.194	0.253	86.5	1986	1502		101061
[1]16 phen 16	Cerro Azul	40.01	46.37	13.18		0.201	0.243	86.2	1910	1554		102510
[1]16 phen 16	Cerro Azul	40.02	46.18	13.36		0.204	0.235	86.0	1845	1583		103882
[1]16 phen 16	Cerro Azul	39.95	45.92	13.69		0.215	0.225	85.7	1766	1664		106458
[1]16 phen 16	Cerro Azul	39.96	45.80	13.80		0.214	0.220	85.5	1730	1658		107336
[1]16 phen 16	Cerro Azul	39.96	45.80	13.81		0.215	0.219	85.5	1719	1668		107363
[1]16 phen 16	Cerro Azul	39.72	45.63	14.21		0.221	0.219	85.1	1723	1714		110514
[2]16 phen 16	Cerro Azul	40.05	45.85	13.54	0.352	0.211		85.8		1635	2519	105285
[2]16 phen 16	Cerro Azul	40.01	45.67	13.75	0.352	0.213		85.5		1651	2519	106947
[2]16 phen 16	Cerro Azul	40.06	45.51	13.87	0.352	0.208		85.4		1615	2513	107817
[2]16 phen 16	Cerro Azul	39.92	45.38	14.13	0.344	0.217		85.1		1680	2462	109888
[2]16 phen 16	Cerro Azul	39.98	45.28	14.18	0.342	0.220		85.1		1703	2447	110256
[2]16 phen 16	Cerro Azul	39.92	45.26	14.27	0.341	0.218		85.0		1690	2442	110929
[2]16 phen 16	Cerro Azul	39.80	45.30	14.34	0.346	0.221		84.9		1708	2475	111484
[1]16 phen 21	Cerro Azul	40.05	46.47	13.03		0.200	0.248	86.4	1947	1546		101335
[1]16 phen 21	Cerro Azul	40.10	46.42	13.03		0.198	0.246	86.4	1934	1535		101358
[1]16 phen 21	Cerro Azul	40.09	46.41	13.04		0.199	0.251	86.4	1969	1543		101430
[1]16 phen 21	Cerro Azul	40.02	46.43	13.10		0.203	0.249	86.3	1954	1572		101875

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 21	Cerro Azul	40.08	46.36	13.11		0.204	0.248	86.3	1946	1582		101916
[1]16 phen 21	Cerro Azul	40.01	46.25	13.28		0.208	0.250	86.1	1967	1609		103263
[1]16 phen 21	Cerro Azul	39.99	46.01	13.56		0.213	0.227	85.8	1785	1647		105428
[1]16 phen 21	Cerro Azul	39.88	44.85	14.83		0.230	0.204	84.4	1604	1780		115337
[2]16 phen 21	Cerro Azul	40.08	45.96	13.41	0.347	0.208		85.9		1609	2478	104297
[2]16 phen 21	Cerro Azul	40.05	45.93	13.47	0.338	0.205		85.9		1591	2415	104782
[2]16 phen 21	Cerro Azul	40.07	45.91	13.47	0.338	0.208		85.9		1611	2416	104764
[2]16 phen 21	Cerro Azul	40.07	45.86	13.51	0.349	0.207		85.8		1602	2492	105074
[2]16 phen 21	Cerro Azul	40.03	45.78	13.64	0.342	0.209		85.7		1621	2448	106033
[2]16 phen 21	Cerro Azul	39.83	44.73	14.86	0.352	0.230		84.3		1779	2515	115541
[1]16 phen 23	Cerro Azul	40.12	46.26	13.18		0.204	0.244	86.2	1913	1582		102463
[1]16 phen 23	Cerro Azul	40.07	46.27	13.21		0.203	0.247	86.2	1943	1574		102722
[1]16 phen 23	Cerro Azul	40.07	46.22	13.26		0.203	0.243	86.1	1907	1576		103107
[1]16 phen 23	Cerro Azul	40.00	46.13	13.42		0.210	0.239	86.0	1879	1624		104339
[1]16 phen 23	Cerro Azul	39.95	46.01	13.59		0.211	0.239	85.8	1875	1637		105688
[1]16 phen 23	Cerro Azul	39.97	45.79	13.80		0.219	0.226	85.5	1775	1699		107319
[1]16 phen 23	Cerro Azul	39.90	45.34	14.31		0.228	0.219	85.0	1717	1762		111267
[1]16 phen 23	Cerro Azul	39.49	43.45	16.64		0.256	0.165	82.3	1297	1983		129369
[2]16 phen 23	Cerro Azul	40.09	45.72	13.63	0.344	0.209		85.7		1622	2463	105978
[2]16 phen 23	Cerro Azul	40.05	45.71	13.68	0.346	0.208		85.6		1611	2475	106408
[2]16 phen 23	Cerro Azul	40.08	45.67	13.69	0.346	0.209		85.6		1619	2477	106469
[2]16 phen 23	Cerro Azul	40.07	45.56	13.82	0.344	0.210		85.5		1625	2459	107452
[2]16 phen 23	Cerro Azul	40.00	45.41	14.02	0.350	0.218		85.2		1688	2503	109006
[2]16 phen 23	Cerro Azul	40.01	45.15	14.27	0.345	0.224		84.9		1738	2468	110983
[2]16 phen 23	Cerro Azul	39.90	44.92	14.61	0.347	0.226		84.6		1752	2482	113589
[2]16 phen 23	Cerro Azul	39.73	44.25	15.42	0.363	0.238		83.6		1840	2596	119897
[1]16 phen 26	Cerro Azul	40.06	45.80	13.69		0.216	0.239	85.6	1876	1676		106417
[1]16 phen 26	Cerro Azul	39.98	45.85	13.72		0.216	0.238	85.6	1869	1671		106666
[1]16 phen 26	Cerro Azul	39.95	45.88	13.72		0.214	0.233	85.6	1832	1661		106672
[1]16 phen 26	Cerro Azul	39.96	45.87	13.72		0.212	0.236	85.6	1850	1642		106705
[1]16 phen 26	Cerro Azul	39.97	45.85	13.72		0.216	0.236	85.6	1857	1676		106719
[1]16 phen 26	Cerro Azul	40.01	45.79	13.75		0.220	0.231	85.6	1815	1701		106932
[1]16 phen 26	Cerro Azul	40.02	45.73	13.80		0.221	0.231	85.5	1815	1714		107284

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 26	Cerro Azul	39.95	45.75	13.86		0.219	0.225	85.5	1768	1695		107744
[1]16 phen 26	Cerro Azul	39.93	45.66	13.97		0.217	0.220	85.3	1725	1679		108656
[1]16 phen 26	Cerro Azul	39.92	45.54	14.10		0.225	0.212	85.2	1669	1743		109670
[1]16 phen 26	Cerro Azul	39.84	45.38	14.35		0.229	0.205	84.9	1613	1777		111596
[2]16 phen 26	Cerro Azul	39.97	45.47	13.99	0.349	0.223		85.3		1730	2494	108821
[2]16 phen 26	Cerro Azul	40.02	45.39	14.02	0.347	0.225		85.2		1742	2479	109003
[2]16 phen 26	Cerro Azul	40.14	45.32	13.98	0.344	0.224		85.2		1731	2458	108702
[2]16 phen 26	Cerro Azul	39.99	45.43	14.02	0.342	0.220		85.2		1701	2445	108987
[2]16 phen 26	Cerro Azul	40.02	45.30	14.10	0.346	0.228		85.1		1764	2474	109633
[2]16 phen 26	Cerro Azul	40.03	45.17	14.22	0.346	0.228		85.0		1767	2473	110611
[2]16 phen 26	Cerro Azul	39.90	44.58	14.91	0.371	0.236		84.2		1830	2649	115935
[1]16 phen 27	Cerro Azul	40.08	45.86	13.60		0.215	0.236	85.7	1850	1663		105779
[1]16 phen 27	Cerro Azul	40.09	45.84	13.61		0.215	0.237	85.7	1860	1664		105862
[1]16 phen 27	Cerro Azul	40.05	45.88	13.62		0.213	0.235	85.7	1843	1649		105942
[1]16 phen 27	Cerro Azul	40.03	45.87	13.64		0.218	0.237	85.7	1864	1685		106075
[1]16 phen 27	Cerro Azul	39.98	45.93	13.65		0.214	0.235	85.7	1848	1658		106104
[1]16 phen 27	Cerro Azul	40.04	45.85	13.65		0.216	0.237	85.7	1865	1670		106148
[1]16 phen 27	Cerro Azul	39.96	45.92	13.67		0.215	0.235	85.7	1845	1663		106315
[1]16 phen 27	Cerro Azul	39.98	45.87	13.70		0.218	0.232	85.6	1820	1685		106539
[1]16 phen 27	Cerro Azul	39.96	45.84	13.75		0.220	0.227	85.6	1783	1706		106952
[1]16 phen 27	Cerro Azul	39.98	45.42	14.17		0.221	0.211	85.1	1658	1714		110221
[1]16 phen 27	Cerro Azul	39.90	45.27	14.40		0.230	0.202	84.9	1584	1781		111968
[2]16 phen 27	Cerro Azul	40.08	45.42	13.93	0.348	0.222		85.3		1717	2487	108318
[2]16 phen 27	Cerro Azul	40.14	45.39	13.91	0.343	0.221		85.3		1710	2454	108162
[2]16 phen 27	Cerro Azul	40.14	45.36	13.93	0.345	0.220		85.3		1704	2465	108316
[2]16 phen 27	Cerro Azul	40.13	45.34	13.97	0.344	0.221		85.3		1715	2462	108629
[2]16 phen 27	Cerro Azul	40.15	45.36	13.92	0.346	0.218		85.3		1688	2474	108257
[2]16 phen 27	Cerro Azul	40.13	45.35	13.96	0.349	0.217		85.3		1679	2493	108521
[2]16 phen 27	Cerro Azul	40.14	45.35	13.94	0.346	0.217		85.3		1682	2473	108435
[2]16 phen 27	Cerro Azul	40.10	45.37	13.97	0.345	0.220		85.3		1701	2467	108609
[1]16 phen 28	Cerro Azul	40.03	46.08	13.44		0.208	0.247	85.9	1939	1612		104497
[1]16 phen 28	Cerro Azul	39.98	46.06	13.50		0.213	0.249	85.9	1953	1653		104981
[1]16 phen 28	Cerro Azul	40.01	46.03	13.50		0.211	0.246	85.9	1931	1636		104990

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 28	Cerro Azul	39.91	46.12	13.51		0.210	0.246	85.9	1933	1626		105028
[1]16 phen 28	Cerro Azul	39.92	46.08	13.53		0.211	0.249	85.9	1957	1638		105209
[1]16 phen 28	Cerro Azul	40.04	45.95	13.56		0.212	0.239	85.8	1879	1641		105462
[1]16 phen 28	Cerro Azul	40.03	45.93	13.58		0.211	0.246	85.8	1931	1636		105582
[1]16 phen 28	Cerro Azul	40.00	45.95	13.60		0.211	0.246	85.8	1935	1635		105730
[1]16 phen 28	Cerro Azul	39.97	45.96	13.61		0.213	0.244	85.8	1919	1651		105849
[2]16 phen 28	Cerro Azul	40.08	45.62	13.73	0.358	0.215		85.6		1662	2562	106727
[2]16 phen 28	Cerro Azul	40.07	45.68	13.68	0.357	0.214		85.6		1654	2552	106377
[2]16 phen 28	Cerro Azul	40.13	45.54	13.76	0.359	0.214		85.5		1660	2565	107010
[2]16 phen 28	Cerro Azul	40.09	45.58	13.75	0.358	0.215		85.5		1669	2557	106947
[2]16 phen 28	Cerro Azul	40.12	45.54	13.77	0.358	0.216		85.5		1672	2562	107050
[2]16 phen 28	Cerro Azul	40.09	45.51	13.82	0.362	0.216		85.4		1673	2591	107437
[2]16 phen 28	Cerro Azul	40.09	45.48	13.86	0.359	0.215		85.4		1669	2564	107752
[2]16 phen 28	Cerro Azul	39.90	44.71	14.78	0.370	0.233		84.4		1804	2644	114944
[1]16 phen 29	Cerro Azul	39.92	46.07	13.53		0.207	0.260	85.9	2046	1604		105245
[1]16 phen 29	Cerro Azul	39.92	46.06	13.55		0.207	0.257	85.8	2018	1603		105400
[1]16 phen 29	Cerro Azul	39.90	46.02	13.60		0.210	0.267	85.8	2101	1626		105729
[1]16 phen 29	Cerro Azul	39.88	46.04	13.60		0.210	0.269	85.8	2114	1626		105775
[1]16 phen 29	Cerro Azul	39.93	45.98	13.61		0.209	0.262	85.8	2061	1616		105859
[1]16 phen 29	Cerro Azul	39.10	42.14	18.32		0.277	0.163	80.4	1280	2146		142448
[2]16 phen 29	Cerro Azul	40.10	45.47	13.84	0.367	0.220		85.4		1706	2625	107639
[2]16 phen 29	Cerro Azul	40.10	45.45	13.86	0.366	0.220		85.4		1702	2613	107772
[2]16 phen 29	Cerro Azul	40.11	45.44	13.86	0.369	0.222		85.4		1718	2641	107770
[2]16 phen 29	Cerro Azul	40.02	45.56	13.82	0.371	0.219		85.5		1699	2651	107493
[2]16 phen 29	Cerro Azul	40.11	45.44	13.86	0.366	0.220		85.4		1702	2617	107798
[2]16 phen 29	Cerro Azul	40.10	45.47	13.84	0.377	0.212		85.4		1640	2698	107628
[2]16 phen 29	Cerro Azul	40.08	45.52	13.81	0.371	0.218		85.5		1688	2654	107409
[2]16 phen 29	Cerro Azul	39.96	45.08	14.36	0.371	0.231		84.8		1793	2650	111634
[1]16 phen 32	Cerro Azul	40.12	47.21	12.21		0.183	0.282	87.3	2214	1414		94944
[1]16 phen 32	Cerro Azul	40.10	47.23	12.21		0.184	0.275	87.3	2158	1428		94983
[1]16 phen 32	Cerro Azul	40.12	47.20	12.22		0.184	0.278	87.3	2183	1425		95001
[1]16 phen 32	Cerro Azul	40.13	47.17	12.23		0.186	0.283	87.3	2222	1444		95120
[1]16 phen 32	Cerro Azul	40.11	47.19	12.24		0.184	0.282	87.3	2218	1423		95179

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 32	Cerro Azul	40.10	47.18	12.25		0.184	0.282	87.3	2218	1424		95239
[1]16 phen 32	Cerro Azul	39.91	46.15	13.49		0.201	0.256	85.9	2010	1553		104890
[1]16 phen 32	Cerro Azul	39.33	43.01	17.24		0.260	0.160	81.6	1259	2013		134048
[2]16 phen 32	Cerro Azul	40.43	46.62	12.45	0.310	0.189		87.0		1467	2220	96830
[2]16 phen 32	Cerro Azul	40.42	46.62	12.45	0.317	0.188		87.0		1457	2263	96836
[2]16 phen 32	Cerro Azul	40.45	46.58	12.47	0.314	0.186		86.9		1444	2243	96937
[2]16 phen 32	Cerro Azul	40.42	46.60	12.47	0.316	0.189		86.9		1465	2263	96996
[2]16 phen 32	Cerro Azul	40.40	46.61	12.48	0.313	0.189		86.9		1460	2238	97070
[2]16 phen 32	Cerro Azul	40.42	46.60	12.49	0.305	0.188		86.9		1456	2182	97095
[2]16 phen 32	Cerro Azul	40.39	46.60	12.51	0.315	0.186		86.9		1441	2255	97242
[2]16 phen 32	Cerro Azul	40.35	46.29	12.86	0.307	0.188		86.5		1460	2195	99997
[1]16 phen 33	Cerro Azul	40.02	46.76	12.79		0.189	0.251	86.7	1971	1461		99430
[1]16 phen 33	Cerro Azul	40.05	46.71	12.80		0.189	0.251	86.7	1972	1464		99543
[1]16 phen 33	Cerro Azul	39.99	46.76	12.80		0.189	0.251	86.7	1968	1468		99546
[1]16 phen 33	Cerro Azul	40.01	46.74	12.81		0.191	0.251	86.7	1975	1482		99585
[1]16 phen 33	Cerro Azul	39.97	46.77	12.81		0.194	0.257	86.7	2015	1499		99609
[1]16 phen 33	Cerro Azul	39.97	46.75	12.85		0.191	0.248	86.6	1945	1483		99922
[1]16 phen 33	Cerro Azul	40.01	46.66	12.88		0.201	0.248	86.6	1950	1555		100174
[1]16 phen 33	Cerro Azul	39.98	46.68	12.89		0.191	0.254	86.6	1994	1483		100210
[1]16 phen 33	Cerro Azul	39.95	46.39	13.21		0.198	0.250	86.2	1966	1537		102733
[1]16 phen 33	Cerro Azul	39.21	42.47	17.88		0.268	0.166	80.9	1303	2078		139058
[2]16 phen 33	Cerro Azul	40.34	46.08	13.05	0.338	0.197		86.3		1527	2416	101465
[2]16 phen 33	Cerro Azul	40.23	46.15	13.08	0.342	0.193		86.3		1497	2446	101739
[2]16 phen 33	Cerro Azul	40.19	46.20	13.08	0.337	0.192		86.3		1489	2412	101716
[2]16 phen 33	Cerro Azul	40.22	46.15	13.09	0.343	0.189		86.3		1462	2454	101795
[2]16 phen 33	Cerro Azul	40.17	46.21	13.10	0.331	0.197		86.3		1529	2367	101833
[2]16 phen 33	Cerro Azul	40.19	46.15	13.14	0.325	0.196		86.2		1518	2323	102155
[2]16 phen 33	Cerro Azul	40.18	46.09	13.22	0.324	0.192		86.1		1490	2319	102786
[2]16 phen 33	Cerro Azul	39.78	44.47	15.17	0.353	0.230		83.9		1780	2524	117931
[1]16 phen 34	Cerro Azul	39.86	45.74	13.94		0.217	0.240	85.4	1885	1684		108387
[1]16 phen 34	Cerro Azul	39.79	45.72	14.04		0.213	0.239	85.3	1879	1647		109192
[1]16 phen 34	Cerro Azul	39.79	45.71	14.05		0.213	0.235	85.3	1845	1648		109274
[1]16 phen 34	Cerro Azul	39.83	45.65	14.06		0.218	0.238	85.3	1867	1689		109340

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]16 phen 34	Cerro Azul	39.85	45.63	14.07		0.215	0.239	85.3	1880	1662		109373
[1]16 phen 34	Cerro Azul	39.78	45.69	14.08		0.215	0.237	85.3	1859	1669		109453
[1]16 phen 34	Cerro Azul	39.82	45.65	14.08		0.218	0.235	85.2	1849	1691		109508
[1]16 phen 34	Cerro Azul	39.79	45.66	14.10		0.213	0.239	85.2	1879	1649		109678
[1]16 phen 34	Cerro Azul	39.77	45.63	14.15		0.214	0.237	85.2	1864	1657		110054
[1]16 phen 34	Cerro Azul	39.63	45.44	14.50		0.222	0.212	84.8	1665	1716		112723
[2]16 phen 34	Cerro Azul	40.09	45.10	14.26	0.338	0.218		84.9		1688	2414	110877
[2]16 phen 34	Cerro Azul	40.06	45.02	14.36	0.336	0.222		84.8		1720	2401	111676
[2]16 phen 34	Cerro Azul	40.04	45.04	14.37	0.335	0.218		84.8		1689	2398	111762
[2]16 phen 34	Cerro Azul	40.06	45.02	14.36	0.336	0.224		84.8		1734	2399	111662
[2]16 phen 34	Cerro Azul	40.06	45.02	14.37	0.334	0.219		84.8		1696	2386	111715
[2]16 phen 34	Cerro Azul	40.01	45.04	14.39	0.339	0.222		84.8		1722	2423	111898
[2]16 phen 34	Cerro Azul	40.02	45.01	14.42	0.333	0.221		84.8		1713	2382	112095
[1]16 phen 35	Cerro Azul	39.92	46.64	12.99		0.202	0.247	86.5	1938	1564		100974
[1]16 phen 35	Cerro Azul	39.96	46.59	13.01		0.198	0.248	86.5	1944	1534		101183
[1]16 phen 35	Cerro Azul	39.97	46.57	13.01		0.195	0.252	86.4	1976	1511		101203
[1]16 phen 35	Cerro Azul	39.91	46.63	13.02		0.197	0.247	86.5	1940	1528		101262
[1]16 phen 35	Cerro Azul	39.98	46.54	13.03		0.197	0.251	86.4	1974	1525		101311
[1]16 phen 35	Cerro Azul	39.96	46.53	13.06		0.195	0.249	86.4	1955	1512		101593
[1]16 phen 35	Cerro Azul	39.96	46.29	13.30		0.205	0.242	86.1	1898	1584		103405
[1]16 phen 35	Cerro Azul	39.82	45.98	13.76		0.209	0.230	85.6	1803	1621		106976
[1]16 phen 35	Cerro Azul	39.65	45.30	14.62		0.223	0.209	84.7	1645	1728		113660
[2]16 phen 35	Cerro Azul	40.26	45.90	13.28	0.364	0.203		86.0		1570	2604	103235
[2]16 phen 35	Cerro Azul	40.21	45.92	13.31	0.360	0.203		86.0		1574	2576	103498
[2]16 phen 35	Cerro Azul	40.16	45.94	13.32	0.366	0.202		86.0		1565	2615	103598
[2]16 phen 35	Cerro Azul	40.19	45.91	13.34	0.361	0.201		86.0		1555	2580	103731
[2]16 phen 35	Cerro Azul	40.13	45.97	13.33	0.364	0.205		86.0		1589	2605	103682
[2]16 phen 35	Cerro Azul	40.18	45.68	13.56	0.370	0.209		85.7		1615	2643	105480
[2]16 phen 35	Cerro Azul	40.06	45.28	14.08	0.367	0.213		85.1		1650	2625	109491
[2]16 phen 35	Cerro Azul	39.82	43.97	15.62	0.355	0.235		83.4		1824	2540	121434
[1]41B phen 1	Cerro Azul	39.81	46.59	13.15		0.207	0.237	86.3	1860	1606		102276
[2]41B phen 1	Cerro Azul	40.35	45.63	13.48	0.339	0.212		85.8		1638	2427	104806
[1]41B phen 3	Cerro Azul	39.77	46.17	13.64		0.207	0.211	85.8	1655	1603		106058

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]41B phen 3	Cerro Azul	40.29	45.32	13.81	0.367	0.213		85.4		1652	2621	107422
[1]41B phen 9	Cerro Azul	39.78	46.59	13.18		0.207	0.231	86.3	1817	1602		102523
[2]41B phen 9	Cerro Azul	40.31	45.48	13.66	0.341	0.212		85.6		1639	2436	106221
[1]41B phen 10	Cerro Azul	39.85	46.66	13.05		0.200	0.241	86.4	1892	1547		101455
[2]41B phen 10	Cerro Azul	40.36	45.75	13.32	0.358	0.210		86.0		1628	2560	103602
[2]41B phen 11	Cerro Azul	39.93	44.92	14.58	0.342	0.225		84.6		1745	2446	113411
[1]41B phen 12	Cerro Azul	39.56	45.59	14.38		0.227	0.235	85.0	1843	1759		111852
[2]41B phen 13	Cerro Azul	40.29	45.60	13.54	0.350	0.212		85.7		1639	2502	105299
[1]41B phen 14	Cerro Azul	39.47	45.71	14.38		0.223	0.214	85.0	1679	1725		111844
[1]41B phen 14	Cerro Azul	39.64	45.29	14.62		0.229	0.215	84.7	1690	1773		113723
[1]41B phen 14	Cerro Azul	39.62	45.25	14.68		0.224	0.218	84.6	1715	1731		114184
[2]41B phen 14	Cerro Azul	39.79	44.73	14.92	0.338	0.234		84.2		1816	2414	115985
[2]41B phen 14	Cerro Azul	39.87	44.52	15.04	0.343	0.230		84.1		1784	2450	116970
[2]41B phen 14	Cerro Azul	39.85	44.63	14.96	0.335	0.230		84.2		1780	2396	116326
[2]41B phen 14	Cerro Azul	39.77	44.51	15.14	0.343	0.235		84.0		1817	2453	117735
[2]41B phen 14	Cerro Azul	39.77	44.55	15.08	0.356	0.240		84.0		1860	2547	117291
[1]41B phen 15	Cerro Azul	39.92	46.50	13.14		0.200	0.237	86.3	1859	1546		102198
[2]41B phen 15	Cerro Azul	40.29	45.77	13.40	0.340	0.202		85.9		1565	2428	104176
[1]41B phen 20	Cerro Azul	40.11	47.03	12.41		0.194	0.249	87.1	1958	1499		96507
[1]41B phen 20	Cerro Azul	40.16	46.89	12.51		0.192	0.249	87.0	1959	1489		97287
[1]41B phen 20	Cerro Azul	40.04	46.93	12.58		0.196	0.248	86.9	1951	1520		97848
[1]41B phen 20	Cerro Azul	39.78	46.42	13.34		0.201	0.263	86.1	2065	1560		103730
[2]41B phen 20	Cerro Azul	40.36	46.33	12.76	0.351	0.203		86.6		1571	2509	99212
[2]41B phen 20	Cerro Azul	40.29	46.28	12.87	0.356	0.200		86.5		1546	2545	100083
[2]41B phen 20	Cerro Azul	40.17	46.27	13.00	0.360	0.203		86.4		1572	2577	101076
[2]41B phen 20	Cerro Azul	40.36	46.23	12.87	0.348	0.200		86.5		1548	2485	100063
[2]41B phen 20	Cerro Azul	40.02	45.82	13.61	0.338	0.206		85.7		1598	2413	105833
[1]41B phen 21	Cerro Azul	39.87	47.00	12.69		0.193	0.248	86.8	1945	1494		98662
[1]41B phen 21	Cerro Azul	39.87	47.01	12.69		0.196	0.242	86.8	1900	1515		98663
[1]41B phen 21	Cerro Azul	39.83	47.02	12.72		0.198	0.240	86.8	1885	1537		98898
[1]41B phen 21	Cerro Azul	39.69	47.08	12.79		0.204	0.240	86.8	1886	1580		99446
[1]41B phen 21	Cerro Azul	39.66	46.47	13.41		0.196	0.257	86.1	2015	1520		104306
[2]41B phen 21	Cerro Azul	40.23	46.24	12.98	0.347	0.200		86.4		1552	2482	100911

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]41B phen 21	Cerro Azul	40.28	46.16	13.01	0.341	0.208		86.3		1613	2435	101179
[2]41B phen 21	Cerro Azul	40.02	46.32	13.10	0.356	0.202		86.3		1563	2547	101898
[2]41B phen 21	Cerro Azul	40.08	46.14	13.23	0.352	0.209		86.1		1616	2520	102839
[2]41B phen 21	Cerro Azul	39.71	45.47	14.27	0.329	0.214		85.0		1660	2355	110994
[1]41B phen 22	Cerro Azul	39.81	45.94	13.80		0.215	0.230	85.6	1805	1662		107336
[2]41B phen 22	Cerro Azul	39.94	45.51	13.99	0.339	0.225		85.3		1742	2425	108759
[1]41B phen 23	Cerro Azul	39.95	46.52	13.10		0.193	0.238	86.4	1867	1496		101844
[2]41B phen 23	Cerro Azul	40.24	45.89	13.32	0.344	0.210		86.0		1626	2461	103552
[1]41B phen 24	Cerro Azul	40.03	46.49	13.04		0.199	0.238	86.4	1872	1542		101435
[1]41B phen 24	Cerro Azul	39.79	46.55	13.22		0.202	0.237	86.3	1861	1563		102769
[1]41B phen 24	Cerro Azul	39.87	46.44	13.26		0.200	0.236	86.2	1856	1551		103085
[1]41B phen 24	Cerro Azul	39.86	46.39	13.31		0.204	0.237	86.1	1862	1584		103490
[1]41B phen 24	Cerro Azul	39.74	46.47	13.35		0.203	0.237	86.1	1858	1573		103822
[1]41B phen 24	Cerro Azul	39.74	45.75	14.06		0.215	0.234	85.3	1837	1664		109351
[2]41B phen 24	Cerro Azul	39.91	46.07	13.47	0.344	0.210		85.9		1628	2463	104744
[2]41B phen 24	Cerro Azul	39.85	46.05	13.54	0.342	0.213		85.8		1652	2444	105319
[2]41B phen 24	Cerro Azul	40.07	45.93	13.44	0.344	0.211		85.9		1635	2460	104524
[2]41B phen 24	Cerro Azul	39.97	45.83	13.63	0.357	0.213		85.7		1650	2553	106013
[2]41B phen 24	Cerro Azul	40.04	45.84	13.55	0.351	0.211		85.8		1632	2506	105401
[2]41B phen 24	Cerro Azul	40.03	45.89	13.51	0.347	0.212		85.8		1644	2483	105088
[2]41B phen 24	Cerro Azul	40.13	45.76	13.55	0.350	0.212		85.8		1642	2499	105362
[2]41B phen 24	Cerro Azul	39.61	44.55	15.24	0.361	0.239		83.9		1852	2580	118475
[1]45B phen 2	Cerro Azul	39.93	46.18	13.45		0.209	0.228	86.0	1791	1620		104603
[2]45B phen 2	Cerro Azul	40.06	45.77	13.58	0.369	0.211		85.7		1635	2639	105624
[1]45B phen 3	Cerro Azul	39.77	45.88	13.92		0.211	0.218	85.5	1716	1637		108248
[2]45B phen 3	Cerro Azul	39.99	45.29	14.17	0.339	0.216		85.1		1675	2426	110188
[1]45B phen 4	Cerro Azul	40.00	46.54	13.02		0.204	0.244	86.4	1920	1579		101236
[2]45B phen 4	Cerro Azul	40.05	46.03	13.36	0.354	0.206		86.0		1599	2528	103855
[1]45B phen 5	Cerro Azul	39.85	46.50	13.22		0.198	0.238	86.2	1873	1537		102773
[2]45B phen 5	Cerro Azul	40.13	46.12	13.20	0.351	0.204		86.2		1581	2506	102629
[1]45B phen 6	Cerro Azul	39.94	46.21	13.41		0.208	0.236	86.0	1853	1609		104249
[2]45B phen 6	Cerro Azul	40.00	45.81	13.62	0.352	0.210		85.7		1623	2515	105933
[1]45B phen 10	Cerro Azul	40.00	46.33	13.22		0.200	0.246	86.2	1928	1553		102794

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]45B phen 10	Cerro Azul	40.14	46.03	13.29	0.332	0.207		86.1		1602	2372	103355
[1]45B phen 11	Cerro Azul	40.03	46.37	13.16		0.198	0.244	86.3	1918	1531		102316
[1]45B phen 11	Cerro Azul	40.03	46.27	13.25		0.200	0.245	86.2	1927	1548		103029
[1]45B phen 11	Cerro Azul	39.99	46.28	13.27		0.202	0.247	86.1	1939	1566		103204
[1]45B phen 11	Cerro Azul	40.02	46.20	13.33		0.203	0.245	86.1	1926	1571		103618
[1]45B phen 11	Cerro Azul	40.03	46.18	13.34		0.202	0.245	86.1	1924	1562		103750
[1]45B phen 11	Cerro Azul	40.00	46.15	13.40		0.197	0.251	86.0	1968	1526		104211
[2]45B phen 11	Cerro Azul	40.01	46.03	13.42	0.335	0.210		85.9		1623	2395	104331
[2]45B phen 11	Cerro Azul	40.12	46.01	13.34	0.330	0.201		86.0		1555	2359	103730
[2]45B phen 11	Cerro Azul	40.00	45.89	13.56	0.338	0.208		85.8		1609	2418	105473
[2]45B phen 11	Cerro Azul	39.93	46.06	13.46	0.337	0.209		85.9		1618	2408	104689
[2]45B phen 11	Cerro Azul	39.63	45.53	14.28	0.343	0.219		85.0		1698	2454	111010
[1]45B phen 13	Cerro Azul	40.10	46.39	13.07		0.201	0.239	86.4	1878	1559		101610
[2]45B phen 13	Cerro Azul	40.08	46.03	13.33	0.359	0.205		86.0		1589	2570	103664
[2]45B phen 16	Cerro Azul	39.58	44.66	15.18	0.336	0.238		84.0		1845	2404	118044
[1]45B phen 18	Cerro Azul	39.65	44.95	14.96		0.234	0.208	84.3	1637	1812		116304
[1]45B phen 19	Cerro Azul	39.99	45.99	13.58		0.210	0.230	85.8	1804	1625		105581
[1]45B phen 19	Cerro Azul	39.91	45.95	13.71		0.208	0.229	85.7	1798	1608		106576
[1]45B phen 19	Cerro Azul	39.83	45.87	13.86		0.210	0.230	85.5	1803	1627		107792
[1]45B phen 19	Cerro Azul	39.99	45.68	13.88		0.211	0.231	85.4	1814	1637		107937
[2]45B phen 19	Cerro Azul	39.94	45.78	13.71	0.354	0.214		85.6		1658	2527	106627
[2]45B phen 19	Cerro Azul	39.92	45.68	13.82	0.348	0.221		85.5		1709	2489	107494
[2]45B phen 19	Cerro Azul	39.78	45.64	14.00	0.365	0.217		85.3		1680	2607	108887
[2]45B phen 19	Cerro Azul	39.86	45.63	13.95	0.342	0.219		85.4		1693	2448	108464
[2]45B phen 19	Cerro Azul	39.58	45.10	14.72	0.364	0.226		84.5		1749	2600	114500
[1]45B phen 20	Cerro Azul	40.03	45.92	13.62		0.208	0.232	85.7	1824	1607		105876
[2]45B phen 20	Cerro Azul	39.98	45.78	13.65	0.367	0.216		85.7		1670	2621	106181
[1]45B phen 21	Cerro Azul	39.86	46.40	13.28		0.203	0.246	86.2	1928	1569		103295
[2]45B phen 21	Cerro Azul	39.83	46.17	13.45	0.339	0.211		86.0		1636	2423	104572
[1]45B phen 22	Cerro Azul	40.59	48.47	10.46		0.173	0.309	89.2	2424	1340		81328
[1]45B phen 22	Cerro Azul	40.58	48.47	10.47		0.169	0.307	89.2	2413	1309		81451
[1]45B phen 22	Cerro Azul	40.47	48.35	10.70		0.176	0.305	89.0	2396	1361		83168
[1]45B phen 22	Cerro Azul	40.42	48.18	10.92		0.176	0.309	88.7	2423	1361		84934

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]45B phen 22	Cerro Azul	40.29	47.86	11.37		0.176	0.306	88.2	2407	1362		88418
[1]45B phen 22	Cerro Azul	40.30	47.12	12.11		0.183	0.295	87.4	2319	1420		94166
[1]45B phen 22	Cerro Azul	40.07	46.44	13.03		0.189	0.272	86.4	2133	1460		101293
[1]45B phen 22	Cerro Azul	39.91	46.24	13.41		0.194	0.259	86.0	2036	1501		104249
[2]45B phen 22	Cerro Azul	40.54	48.33	10.62	0.332	0.177		89.0		1369	2373	82583
[2]45B phen 22	Cerro Azul	40.55	48.12	10.84	0.320	0.179		88.8		1385	2285	84267
[2]45B phen 22	Cerro Azul	40.41	48.08	11.02	0.315	0.180		88.6		1394	2254	85693
[2]45B phen 22	Cerro Azul	40.44	47.73	11.34	0.311	0.183		88.2		1415	2227	88195
[2]45B phen 22	Cerro Azul	40.35	47.44	11.71	0.307	0.187		87.8		1449	2194	91072
[2]45B phen 22	Cerro Azul	40.26	46.74	12.51	0.300	0.194		86.9		1499	2144	97242
[2]45B phen 22	Cerro Azul	40.03	46.23	13.25	0.285	0.195		86.1		1511	2037	103066
[2]45B phen 22	Cerro Azul	39.84	45.93	13.74	0.288	0.204		85.6		1580	2059	106844
[1]45B phen 23	Cerro Azul	39.35	43.62	16.62		0.258	0.156	82.4	1227	1999		129203
[1]45B phen 23	Cerro Azul	39.05	41.91	18.65		0.288	0.105	80.0	827	2230		144986
[1]45B phen 23	Cerro Azul	39.00	41.75	18.85		0.295	0.104	79.8	817	2285		146608
[1]45B phen 23	Cerro Azul	38.97	41.59	19.04		0.297	0.102	79.6	803	2300		148056
[2]45B phen 23	Cerro Azul	39.44	43.56	16.38	0.362	0.263		82.6		2035	2589	127386
[2]45B phen 23	Cerro Azul	38.84	41.21	19.33	0.312	0.308		79.2		2385	2229	150289
[2]45B phen 23	Cerro Azul	38.75	41.29	19.35	0.310	0.309		79.2		2393	2218	150442
[2]45B phen 23	Cerro Azul	39.00	41.50	18.90	0.310	0.293		79.7		2269	2216	146963
[1]45B phen 24	Cerro Azul	40.44	47.58	11.55		0.168	0.274	88.0	2151	1302		89779
[1]45B phen 24	Cerro Azul	40.46	47.54	11.56		0.169	0.270	88.0	2121	1313		89917
[1]45B phen 24	Cerro Azul	40.55	47.43	11.57		0.172	0.274	88.0	2156	1330		90001
[1]45B phen 24	Cerro Azul	40.39	47.55	11.61		0.176	0.269	88.0	2114	1360		90307
[1]45B phen 24	Cerro Azul	40.37	47.47	11.72		0.171	0.269	87.8	2115	1326		91097
[1]45B phen 24	Cerro Azul	40.33	47.33	11.90		0.170	0.274	87.6	2150	1320		92529
[2]45B phen 24	Cerro Azul	40.36	47.45	11.70	0.305	0.179		87.9		1388	2181	90954
[2]45B phen 24	Cerro Azul	40.43	47.46	11.64	0.296	0.176		87.9		1364	2116	90479
[2]45B phen 24	Cerro Azul	40.30	47.49	11.73	0.311	0.174		87.8		1350	2224	91188
[2]45B phen 24	Cerro Azul	40.33	47.43	11.76	0.306	0.179		87.8		1383	2184	91446
[2]45B phen 24	Cerro Azul	40.23	47.44	11.84	0.302	0.176		87.7		1364	2160	92090
[2]45B phen 24	Cerro Azul	40.25	47.37	11.90	0.304	0.183		87.6		1416	2175	92536
[2]45B phen 24	Cerro Azul	40.16	47.26	12.09	0.298	0.183		87.4		1417	2129	94034

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]50 phen 5	Cerro Azul	40.25	45.36	13.98		0.212	0.193	85.3	1518	1644		108726
[1]50 phen 5	Cerro Azul	40.20	45.32	14.07		0.215	0.193	85.2	1514	1663		109393
[1]50 phen 5	Cerro Azul	40.00	44.48	15.12		0.235	0.168	84.0	1318	1817		117608
[2]50 phen 5	Cerro Azul	40.19	44.56	14.68	0.347	0.221		84.4		1710	2477	114167
[2]50 phen 5	Cerro Azul	40.27	44.48	14.68	0.348	0.222		84.4		1723	2489	114178
[2]50 phen 5	Cerro Azul	40.12	44.60	14.70	0.350	0.223		84.4		1728	2504	114327
[2]50 phen 5	Cerro Azul	40.14	44.55	14.73	0.354	0.224		84.4		1736	2529	114505
[2]50 phen 5	Cerro Azul	40.11	44.57	14.74	0.353	0.228		84.3		1764	2523	114630
[2]50 phen 5	Cerro Azul	39.56	42.22	17.61	0.341	0.271		81.0		2098	2441	136939
[1]50 phen 11	Cerro Azul	40.22	47.48	11.88		0.182	0.234	87.7	1841	1408		92413
[1]50 phen 11	Cerro Azul	40.17	47.40	12.00		0.182	0.241	87.6	1889	1407		93318
[1]50 phen 11	Cerro Azul	40.11	47.39	12.08		0.181	0.241	87.5	1889	1399		93897
[2]50 phen 11	Cerro Azul	40.39	46.17	12.90	0.345	0.197		86.5		1524	2470	100281
[2]50 phen 11	Cerro Azul	40.37	46.18	12.91	0.342	0.193		86.4		1495	2442	100410
[2]50 phen 11	Cerro Azul	40.40	46.13	12.95	0.332	0.195		86.4		1508	2375	100697
[2]50 phen 11	Cerro Azul	40.33	46.14	13.00	0.341	0.193		86.4		1491	2436	101076
[2]50 phen 11	Cerro Azul	40.30	45.81	13.37	0.329	0.196		85.9		1521	2355	103934
[2]50 phen 11	Cerro Azul	40.08	44.29	15.07	0.342	0.224		84.0		1738	2443	117187
[1]50 phen 12	Cerro Azul	40.46	47.21	11.91		0.181	0.240	87.6	1886	1406		92613
[2]50 phen 12	Cerro Azul	40.54	46.06	12.87	0.339	0.189		86.5		1464	2427	100057
[1]50 phen 13	Cerro Azul	40.45	48.15	10.98		0.178	0.243	88.7	1912	1378		85349
[1]50 phen 13	Cerro Azul	40.43	47.99	11.17		0.175	0.233	88.4	1832	1359		86890
[1]50 phen 13	Cerro Azul	40.40	47.71	11.48		0.174	0.235	88.1	1845	1346		89256
[2]50 phen 13	Cerro Azul	40.72	47.02	11.72	0.349	0.186		87.7		1440	2495	91143
[2]50 phen 13	Cerro Azul	40.59	47.08	11.79	0.352	0.188		87.7		1458	2518	91680
[2]50 phen 13	Cerro Azul	40.60	47.03	11.83	0.349	0.187		87.6		1449	2494	92018
[2]50 phen 13	Cerro Azul	40.60	46.84	12.03	0.345	0.184		87.4		1425	2466	93525
[2]50 phen 13	Cerro Azul	40.53	46.91	12.03	0.349	0.189		87.4		1463	2495	93527
[2]50 phen 13	Cerro Azul	40.54	46.53	12.40	0.341	0.187		87.0		1446	2440	96407
[2]50 phen 13	Cerro Azul	40.57	46.46	12.44	0.343	0.190		86.9		1470	2453	96719
[2]50 phen 13	Cerro Azul	39.71	43.02	16.65	0.356	0.255		82.2		1973	2547	129482
[1]50 phen 14	Cerro Azul	40.27	47.13	12.17		0.180	0.246	87.3	1933	1395		94668
[2]50 phen 14	Cerro Azul	40.46	46.04	12.97	0.338	0.190		86.4		1475	2415	100881

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]50 phen 14	Cerro Azul	40.40	46.05	13.04	0.335	0.187		86.3		1446	2398	101362
[2]50 phen 14	Cerro Azul	40.53	45.89	13.05	0.348	0.189		86.2		1467	2485	101449
[2]50 phen 14	Cerro Azul	39.84	43.68	15.89	0.355	0.237		83.1		1839	2538	123537
[1]50 phen 19	Cerro Azul	40.21	46.90	12.45		0.180	0.253	87.0	1990	1396		96803
[2]50 phen 19	Cerro Azul	40.49	45.97	13.05	0.306	0.188		86.3		1453	2187	101477
[2]50 phen 19	Cerro Azul	40.44	45.89	13.17	0.307	0.190		86.1		1473	2198	102439
[2]50 phen 19	Cerro Azul	40.33	45.99	13.18	0.311	0.188		86.1		1455	2225	102518
[2]50 phen 19	Cerro Azul	40.37	45.62	13.52	0.302	0.191		85.7		1479	2159	105155
[1]50 phen 21	Cerro Azul	40.22	46.70	12.66		0.191	0.222	86.8	1745	1477		98475
[1]50 phen 21	Cerro Azul	40.09	46.08	13.42		0.201	0.214	86.0	1679	1554		104375
[1]50 phen 21	Cerro Azul	39.96	45.34	14.31		0.221	0.181	85.0	1419	1711		111242
[1]50 phen 21	Cerro Azul	39.78	44.16	15.67		0.247	0.145	83.4	1136	1915		121830
[2]50 phen 21	Cerro Azul	40.37	45.94	13.14	0.362	0.198		86.2		1534	2589	102166
[2]50 phen 21	Cerro Azul	40.36	45.83	13.25	0.361	0.194		86.0		1501	2582	103009
[2]50 phen 21	Cerro Azul	40.37	45.75	13.33	0.360	0.199		86.0		1542	2571	103622
[2]50 phen 21	Cerro Azul	40.26	45.52	13.65	0.364	0.201		85.6		1554	2601	106167
[2]50 phen 21	Cerro Azul	40.21	45.07	14.14	0.367	0.210		85.0		1630	2626	109985
[2]50 phen 21	Cerro Azul	40.06	43.97	15.38	0.356	0.230		83.6		1780	2546	119617
[2]50 phen 21	Cerro Azul	39.87	43.07	16.46	0.355	0.254		82.3		1966	2536	127956
[1]53 phen 1	Cerro Azul	40.22	47.89	11.43		0.179	0.273	88.2	2143	1390		88919
[1]53 phen 1	Cerro Azul	40.15	47.85	11.54		0.187	0.275	88.1	2160	1452		89755
[1]53 phen 1	Cerro Azul	40.24	47.62	11.68		0.189	0.273	87.9	2147	1464		90837
[1]53 phen 1	Cerro Azul	39.33	43.75	16.49		0.244	0.183	82.5	1437	1887		128261
[2]53 phen 1	Cerro Azul	40.48	47.39	11.60	0.346	0.186		87.9		1444	2473	90183
[2]53 phen 1	Cerro Azul	40.36	47.39	11.72	0.354	0.189		87.8		1468	2534	91098
[2]53 phen 1	Cerro Azul	40.29	47.36	11.82	0.346	0.188		87.7		1454	2470	91939
[2]53 phen 1	Cerro Azul	40.46	47.13	11.89	0.345	0.184		87.6		1425	2464	92429
[2]53 phen 1	Cerro Azul	39.69	43.86	15.85	0.360	0.242		83.1		1876	2572	123255
[1]53 phen 6	Cerro Azul	39.56	44.44	15.57		0.238	0.194	83.6	1528	1845		121036
[2]53 phen 6	Cerro Azul	39.78	43.94	15.70	0.348	0.236		83.3		1827	2488	122065
[1]53 phen 7	Cerro Azul	39.67	45.71	14.17		0.210	0.232	85.2	1826	1629		110188
[1]53 phen 7	Cerro Azul	39.66	45.68	14.21		0.218	0.231	85.1	1813	1690		110535
[1]53 phen 7	Cerro Azul	39.63	45.41	14.51		0.226	0.229	84.8	1796	1750		112801

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]53 phen 7	Cerro Azul	39.61	45.41	14.54		0.218	0.228	84.8	1790	1689		113067
[2]53 phen 7	Cerro Azul	39.96	45.38	14.10	0.349	0.217		85.2		1677	2493	109630
[2]53 phen 7	Cerro Azul	40.02	45.12	14.30	0.340	0.213		84.9		1652	2429	111214
[2]53 phen 7	Cerro Azul	40.05	45.00	14.37	0.355	0.218		84.8		1691	2538	111780
[2]53 phen 7	Cerro Azul	39.60	43.96	15.86	0.355	0.235		83.2		1819	2536	123293
[1]53 phen 8	Cerro Azul	39.75	46.87	12.92		0.198	0.251	86.6	1975	1537		100497
[1]53 phen 8	Cerro Azul	39.76	46.78	13.01		0.198	0.254	86.5	1997	1533		101144
[1]53 phen 8	Cerro Azul	39.72	46.81	13.02		0.200	0.252	86.5	1982	1545		101257
[1]53 phen 8	Cerro Azul	39.47	45.85	14.22		0.211	0.240	85.2	1888	1637		110570
[2]53 phen 8	Cerro Azul	40.26	46.26	12.92	0.360	0.197		86.5		1525	2573	100441
[2]53 phen 8	Cerro Azul	40.19	46.30	12.95	0.354	0.196		86.4		1522	2534	100731
[2]53 phen 8	Cerro Azul	40.23	46.24	12.99	0.352	0.193		86.4		1492	2515	100992
[2]53 phen 8	Cerro Azul	40.18	46.17	13.12	0.339	0.200		86.3		1546	2423	101996
[2]53 phen 8	Cerro Azul	39.88	44.89	14.67	0.344	0.216		84.5		1675	2462	114057
[1]53 phen 9	Cerro Azul	39.85	46.00	13.72		0.212	0.221	85.7	1734	1640		106660
[2]53 phen 9	Cerro Azul	40.14	45.46	13.82	0.375	0.211		85.4		1633	2683	107427
[1]53 phen 18	Cerro Azul	39.72	46.58	13.26		0.200	0.243	86.2	1911	1547		103147
[1]53 phen 18	Cerro Azul	39.85	46.36	13.35		0.202	0.243	86.1	1907	1562		103788
[1]53 phen 18	Cerro Azul	39.81	46.36	13.39		0.199	0.239	86.1	1880	1544		104118
[1]53 phen 18	Cerro Azul	40.02	46.08	13.46		0.200	0.246	85.9	1931	1546		104671
[1]53 phen 18	Cerro Azul	39.86	45.60	14.09		0.209	0.232	85.2	1822	1618		109572
[2]53 phen 18	Cerro Azul	40.24	45.91	13.30	0.352	0.201		86.0		1555	2519	103399
[2]53 phen 18	Cerro Azul	40.26	45.88	13.31	0.358	0.198		86.0		1536	2557	103474
[2]53 phen 18	Cerro Azul	40.18	45.95	13.31	0.351	0.201		86.0		1555	2507	103510
[2]53 phen 18	Cerro Azul	40.28	45.82	13.35	0.349	0.203		86.0		1569	2497	103779
[2]53 phen 18	Cerro Azul	40.00	45.19	14.23	0.358	0.216		85.0		1670	2559	110657
[1]53 phen 19	Cerro Azul	39.85	46.39	13.32		0.205	0.239	86.1	1878	1585		103569
[2]53 phen 19	Cerro Azul	40.24	45.98	13.24	0.347	0.198		86.1		1536	2478	102975
[1]53 phen 21	Cerro Azul	39.81	45.25	14.50		0.219	0.226	84.8	1772	1699		112727
[1]53 phen 21	Cerro Azul	39.76	45.28	14.51		0.219	0.228	84.8	1794	1698		112815
[1]53 phen 21	Cerro Azul	39.79	45.07	14.68		0.229	0.228	84.5	1788	1770		114183
[2]53 phen 21	Cerro Azul	40.13	44.98	14.33	0.342	0.217		84.8		1681	2446	111461
[2]53 phen 21	Cerro Azul	40.23	44.86	14.35	0.341	0.215		84.8		1664	2439	111620

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]53 phen 21	Cerro Azul	40.20	44.84	14.40	0.344	0.215		84.7		1666	2458	111981
[2]53 phen 21	Cerro Azul	40.11	44.58	14.73	0.353	0.227		84.4		1756	2527	114506
[1]53 phen 26	Cerro Azul	40.09	47.04	12.41		0.200	0.259	87.1	2031	1549		96517
[1]53 phen 26	Cerro Azul	40.04	47.03	12.48		0.195	0.260	87.0	2042	1508		97029
[1]53 phen 26	Cerro Azul	40.03	47.03	12.49		0.193	0.259	87.0	2033	1496		97113
[1]53 phen 26	Cerro Azul	40.12	46.91	12.51		0.193	0.261	87.0	2050	1495		97302
[1]53 phen 26	Cerro Azul	40.01	46.87	12.66		0.196	0.265	86.8	2080	1514		98479
[1]53 phen 26	Cerro Azul	39.68	45.36	14.50		0.220	0.237	84.8	1858	1703		112782
[2]53 phen 26	Cerro Azul	40.35	46.71	12.39	0.357	0.193		87.0		1498	2549	96366
[2]53 phen 26	Cerro Azul	40.34	46.69	12.41	0.359	0.193		87.0		1492	2564	96522
[2]53 phen 26	Cerro Azul	40.37	46.65	12.43	0.356	0.197		87.0		1526	2546	96618
[2]53 phen 26	Cerro Azul	40.45	46.56	12.45	0.352	0.190		87.0		1473	2518	96818
[2]53 phen 26	Cerro Azul	40.40	46.60	12.45	0.353	0.192		87.0		1487	2524	96844
[2]53 phen 26	Cerro Azul	40.35	46.58	12.53	0.348	0.195		86.9		1507	2490	97439
[2]53 phen 26	Cerro Azul	39.97	45.38	14.08	0.359	0.211		85.2		1632	2565	109521
[1]53 phen 27	Cerro Azul	40.10	46.82	12.64		0.194	0.245	86.8	1928	1506		98280
[1]53 phen 27	Cerro Azul	39.72	46.91	12.92		0.192	0.248	86.6	1949	1491		100489
[1]53 phen 27	Cerro Azul	39.62	44.81	15.15		0.233	0.192	84.1	1508	1804		117781
[2]53 phen 27	Cerro Azul	40.37	46.52	12.57	0.351	0.193		86.8		1491	2507	97730
[2]53 phen 27	Cerro Azul	40.28	46.61	12.57	0.352	0.194		86.9		1499	2517	97762
[2]53 phen 27	Cerro Azul	39.79	43.97	15.66	0.346	0.230		83.3		1782	2471	121809
[1]53 phen 29	Cerro Azul	39.63	45.42	14.52		0.219	0.214	84.8	1684	1697		112925
[1]53 phen 29	Cerro Azul	39.51	44.27	15.79		0.242	0.194	83.3	1527	1875		122773
[1]53 phen 29	Cerro Azul	39.41	44.06	16.10		0.248	0.188	83.0	1479	1923		125188
[1]53 phen 29	Cerro Azul	39.37	44.04	16.16		0.244	0.190	82.9	1490	1893		125644
[2]53 phen 29	Cerro Azul	39.86	44.21	15.34	0.366	0.229		83.7		1774	2616	119253
[2]53 phen 29	Cerro Azul	39.75	43.64	16.04	0.324	0.246		82.9		1906	2316	124693
[2]53 phen 29	Cerro Azul	39.75	43.55	16.12	0.329	0.249		82.8		1931	2352	125314
[2]53 phen 29	Cerro Azul	39.69	43.23	16.51	0.327	0.252		82.4		1952	2338	128350
[2]53 phen 29	Cerro Azul	39.61	43.28	16.53	0.325	0.251		82.4		1947	2323	128536
[1]53 phen 30	Cerro Azul	39.96	46.64	12.94		0.191	0.270	86.5	2121	1479		100660
[1]53 phen 30	Cerro Azul	39.88	46.22	13.44		0.201	0.259	86.0	2034	1554		104509
[1]53 phen 30	Cerro Azul	39.83	46.04	13.66		0.201	0.265	85.7	2082	1560		106259

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]53 phen 30	Cerro Azul	39.82	45.46	14.27		0.208	0.244	85.0	1915	1611		110943
[2]53 phen 30	Cerro Azul	40.25	45.82	13.41	0.319	0.195		85.9		1511	2283	104315
[2]53 phen 30	Cerro Azul	40.17	45.85	13.47	0.317	0.192		85.9		1490	2268	104716
[2]53 phen 30	Cerro Azul	39.99	44.73	14.73	0.330	0.218		84.4		1692	2357	114512
[1]53 phen 32	Cerro Azul	39.76	45.98	13.78		0.195	0.278	85.6	2182	1507		107164
[1]53 phen 32	Cerro Azul	39.77	45.04	14.71		0.223	0.260	84.5	2039	1731		114360
[2]53 phen 32	Cerro Azul	40.31	45.59	13.62	0.292	0.192		85.6		1486	2086	105939
[2]53 phen 32	Cerro Azul	40.11	45.13	14.27	0.298	0.201		84.9		1553	2128	110934
[2]53 phen 32	Cerro Azul	40.13	44.65	14.71	0.302	0.212		84.4		1642	2158	114348
[1]53 phen 33	Cerro Azul	39.93	45.36	14.28		0.216	0.210	85.0	1651	1676		111066
[1]53 phen 33	Cerro Azul	39.83	45.44	14.29		0.218	0.215	85.0	1686	1692		111103
[1]53 phen 33	Cerro Azul	39.65	45.22	14.69		0.226	0.210	84.6	1650	1748		114265
[1]53 phen 33	Cerro Azul	39.61	44.93	15.03		0.230	0.197	84.2	1546	1781		116899
[2]53 phen 33	Cerro Azul	39.99	44.58	14.84	0.367	0.226		84.3		1752	2622	115377
[2]53 phen 33	Cerro Azul	39.85	44.24	15.31	0.367	0.231		83.7		1786	2626	119022
[2]53 phen 33	Cerro Azul	39.78	45.26	14.34	0.393	0.222		84.9		1719	2811	111511
[1]53 phen 37	Cerro Azul	39.76	45.66	14.13		0.210	0.240	85.2	1886	1626		109855
[1]53 phen 37	Cerro Azul	39.81	45.59	14.15		0.209	0.242	85.2	1904	1617		110031
[1]53 phen 37	Cerro Azul	39.86	45.51	14.19		0.211	0.233	85.1	1826	1634		110303
[1]53 phen 37	Cerro Azul	39.85	45.40	14.30		0.213	0.238	85.0	1873	1651		111181
[1]53 phen 37	Cerro Azul	39.77	45.35	14.43		0.222	0.226	84.9	1778	1722		112213
[1]53 phen 37	Cerro Azul	39.83	45.28	14.44		0.215	0.231	84.8	1813	1664		112309
[1]53 phen 37	Cerro Azul	39.90	45.19	14.47		0.214	0.227	84.8	1781	1655		112519
[1]53 phen 37	Cerro Azul	39.81	45.17	14.58		0.219	0.221	84.7	1738	1696		113377
[2]53 phen 37	Cerro Azul	40.18	44.78	14.50	0.323	0.211		84.6		1636	2312	112783
[2]53 phen 37	Cerro Azul	40.06	44.79	14.61	0.326	0.216		84.5		1671	2329	113580
[2]53 phen 37	Cerro Azul	39.96	44.88	14.62	0.327	0.212		84.5		1642	2335	113702
[2]53 phen 37	Cerro Azul	40.10	44.64	14.72	0.327	0.214		84.4		1657	2335	114446
[2]53 phen 37	Cerro Azul	39.98	44.61	14.87	0.330	0.222		84.2		1721	2359	115603
[2]53 phen 37	Cerro Azul	40.05	44.51	14.89	0.326	0.217		84.2		1679	2333	115810
[2]53 phen 37	Cerro Azul	39.92	44.61	14.90	0.344	0.224		84.2		1735	2461	115832
[2]53 phen 37	Cerro Azul	39.88	44.50	15.06	0.333	0.225		84.0		1741	2381	117096
[1]53 phen 38	Cerro Azul	39.91	45.68	13.96		0.213	0.228	85.4	1789	1653		108591

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]53 phen 38	Cerro Azul	39.90	45.63	14.04		0.212	0.227	85.3	1782	1644		109150
[1]53 phen 38	Cerro Azul	39.79	45.70	14.08		0.210	0.227	85.3	1781	1626		109450
[1]53 phen 38	Cerro Azul	39.62	45.80	14.14		0.214	0.224	85.2	1763	1660		109986
[1]53 phen 38	Cerro Azul	39.71	45.54	14.32		0.217	0.221	85.0	1736	1681		111326
[1]53 phen 38	Cerro Azul	39.78	45.44	14.34		0.218	0.225	85.0	1765	1688		111474
[1]53 phen 38	Cerro Azul	39.70	45.49	14.37		0.217	0.225	84.9	1764	1679		111740
[1]53 phen 38	Cerro Azul	39.66	45.28	14.61		0.224	0.223	84.7	1751	1731		113624
[2]53 phen 38	Cerro Azul	40.13	44.94	14.37	0.340	0.217		84.8		1684	2429	111766
[2]53 phen 38	Cerro Azul	40.06	44.91	14.47	0.345	0.217		84.7		1683	2467	112487
[2]53 phen 38	Cerro Azul	40.03	44.91	14.50	0.342	0.220		84.7		1704	2446	112719
[2]53 phen 38	Cerro Azul	39.74	44.95	14.75	0.342	0.218		84.5		1687	2442	114716
[2]53 phen 38	Cerro Azul	39.86	44.79	14.79	0.342	0.221		84.4		1713	2446	114983
[2]53 phen 38	Cerro Azul	39.75	44.81	14.88	0.343	0.222		84.3		1718	2451	115705
[2]53 phen 38	Cerro Azul	40.37	44.08	14.97	0.360	0.220		84.0		1700	2575	116446
[2]53 phen 38	Cerro Azul	39.83	44.57	15.03	0.343	0.224		84.1		1734	2451	116885
[1]53 phen 39	Cerro Azul	39.75	45.17	14.65		0.220	0.216	84.6	1693	1707		113914
[1]53 phen 39	Cerro Azul	39.77	45.09	14.70		0.226	0.216	84.5	1698	1751		114324
[1]53 phen 39	Cerro Azul	39.60	45.13	14.83		0.224	0.218	84.4	1713	1731		115317
[2]53 phen 39	Cerro Azul	40.07	44.49	14.88	0.342	0.222		84.2		1720	2445	115727
[2]53 phen 39	Cerro Azul	40.10	44.23	15.11	0.338	0.231		83.9		1789	2414	117459
[2]53 phen 39	Cerro Azul	39.87	44.36	15.20	0.338	0.227		83.9		1759	2417	118224
[2]53 phen 39	Cerro Azul	39.70	44.41	15.31	0.346	0.231		83.8		1793	2472	119023
[1]53 phen 40	Cerro Azul	40.02	46.52	13.00		0.205	0.250	86.4	1962	1586		101118
[1]53 phen 40	Cerro Azul	39.97	46.46	13.12		0.192	0.253	86.3	1985	1490		102013
[1]53 phen 40	Cerro Azul	39.94	46.46	13.14		0.200	0.255	86.3	2001	1550		102202
[1]53 phen 40	Cerro Azul	40.00	46.38	13.17		0.198	0.252	86.3	1981	1537		102410
[1]53 phen 40	Cerro Azul	39.94	46.41	13.20		0.195	0.251	86.2	1971	1509		102669
[1]53 phen 40	Cerro Azul	39.78	45.89	13.87		0.212	0.246	85.5	1936	1642		107874
[2]53 phen 40	Cerro Azul	40.10	45.67	13.67	0.360	0.204		85.6		1580	2577	106305
[2]53 phen 40	Cerro Azul	40.10	45.66	13.67	0.361	0.205		85.6		1590	2582	106319
[2]53 phen 40	Cerro Azul	40.19	45.56	13.68	0.363	0.203		85.6		1570	2598	106395
[2]53 phen 40	Cerro Azul	40.22	45.51	13.71	0.359	0.200		85.5		1552	2568	106611
DA02-40J phen 1	Darwin Island	39.50	44.47	15.30	0.329	0.247	0.149	83.8	1172	1910	2356	119004

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
DA02-40J phen 1	Darwin Island	39.53	44.38	15.36	0.332	0.244	0.147	83.7	1154	1888	2377	119443
DA02-40J phen 1	Darwin Island	39.54	44.37	15.37	0.331	0.245	0.148	83.7	1163	1894	2364	119503
DA02-40J phen 1	Darwin Island	39.51	44.29	15.46	0.335	0.249	0.148	83.6	1163	1929	2395	120234
DA02-40J phen 1	Darwin Island	39.36	43.63	16.28	0.343	0.254	0.141	82.7	1111	1968	2450	126589
DA02-40J phen 1	Darwin Island	38.67	40.67	19.85	0.376	0.315	0.112	78.5	882	2443	2688	154358
DA02-40J phen 2	Darwin Island	39.08	43.07	17.11	0.341	0.257	0.138	81.8	1081	1990	2437	133039
DA02-40J phen 2	Darwin Island	38.76	41.80	18.66	0.374	0.285	0.127	80.0	997	2205	2676	145082
DA02-40J phen 2	Darwin Island	38.62	41.07	19.57	0.340	0.290	0.120	78.9	942	2250	2429	152148
DA02-40J phen 3	Darwin Island	39.28	43.21	16.78	0.334	0.260	0.140	82.1	1101	2012	2391	130476
DA02-40J phen 3	Darwin Island	38.95	42.88	17.42	0.341	0.269	0.137	81.4	1080	2084	2440	135426
DA02-40J phen 3	Darwin Island	38.65	41.67	18.92	0.344	0.290	0.128	79.7	1004	2243	2461	147106
DA02-40J phen 4	Darwin Island	38.93	41.89	18.39	0.380	0.285	0.131	80.2	1028	2207	2716	142981
DA02-40J phen 5	Darwin Island	39.11	43.58	16.57	0.336	0.260	0.142	82.4	1118	2011	2405	128811
DA02-40J phen 5	Darwin Island	39.17	43.43	16.66	0.342	0.259	0.138	82.3	1084	2006	2447	129511
DA02-40J phen 5	Darwin Island	38.83	42.47	17.93	0.353	0.277	0.133	80.8	1043	2147	2522	139441
DA02-40J phen 5	Darwin Island	38.20	39.42	21.50	0.442	0.345	0.090	76.6	709	2675	3162	167185
DA02-40J phen 6	Darwin Island	39.38	44.65	15.24	0.336	0.245	0.148	83.9	1165	1896	2405	118507
DA02-40J phen 6	Darwin Island	39.27	44.75	15.26	0.332	0.238	0.149	83.9	1168	1845	2372	118642
DA02-40J phen 6	Darwin Island	39.47	44.52	15.28	0.338	0.245	0.149	83.9	1168	1896	2418	118812
DA02-40J phen 7	Darwin Island	39.33	43.42	16.49	0.346	0.264	0.144	82.4	1130	2045	2476	128238
DA02-40J phen 7	Darwin Island	39.02	42.87	17.36	0.349	0.269	0.138	81.5	1082	2087	2497	134989
DA02-40J phen 7	Darwin Island	38.83	41.75	18.64	0.361	0.293	0.128	80.0	1005	2266	2581	144929
DA02-40J phen 7	Darwin Island	38.52	39.60	21.01	0.436	0.338	0.090	77.1	709	2618	3118	163392
DA02-40J phen 8	Darwin Island	39.32	44.37	15.57	0.345	0.246	0.149	83.5	1170	1906	2465	121084
DA02-40J phen 8	Darwin Island	39.40	44.29	15.58	0.339	0.249	0.146	83.5	1149	1928	2420	121155
DA02-40J phen 8	Darwin Island	39.27	44.31	15.67	0.347	0.255	0.146	83.4	1148	1977	2479	121848
DA02-40J phen 8	Darwin Island	39.28	44.06	15.91	0.351	0.255	0.146	83.2	1147	1975	2508	123720
DA02-40J phen 8	Darwin Island	39.32	42.03	17.85	0.387	0.275	0.126	80.8	989	2132	2770	138838
DA02-40J phen 9	Darwin Island	38.60	41.11	19.50	0.376	0.306	0.111	79.0	872	2367	2688	151650
DA02-40J phen 10	Darwin Island	39.36	44.49	15.41	0.348	0.243	0.147	83.7	1157	1884	2491	119816
DA02-40J phen 12	Darwin Island	39.45	43.28	16.54	0.337	0.256	0.136	82.3	1072	1984	2411	128605
DA02-40J phen 12	Darwin Island	39.29	43.43	16.56	0.338	0.256	0.131	82.4	1030	1984	2419	128744
DA02-40J phen 13	Darwin Island	39.27	43.29	16.71	0.331	0.260	0.136	82.2	1069	2011	2366	129904

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
DA02-40J phen 13	Darwin Island	39.30	42.87	17.11	0.326	0.261	0.135	81.7	1058	2018	2330	133017
DA02-40J phen 14	Darwin Island	39.41	44.13	15.72	0.343	0.250	0.142	83.3	1114	1933	2456	122223
DA02-40J phen 14	Darwin Island	39.23	43.58	16.45	0.345	0.252	0.147	82.5	1154	1955	2470	127951
DA02-40J phen 15	Darwin Island	38.98	42.65	17.62	0.341	0.270	0.130	81.2	1023	2092	2437	137013
DA02-40J phen 16	Darwin Island	39.03	43.13	17.09	0.349	0.270	0.137	81.8	1075	2089	2492	132862
DA02-40J phen 16	Darwin Island	38.94	42.60	17.71	0.341	0.272	0.131	81.1	1028	2103	2441	137748
DA02-40J phen 17	Darwin Island	39.45	44.61	15.21	0.327	0.249	0.147	83.9	1153	1928	2337	118312
DA02-40J phen 17	Darwin Island	39.50	44.54	15.24	0.331	0.246	0.149	83.9	1170	1905	2364	118497
DA02-40J phen 17	Darwin Island	39.50	44.38	15.40	0.334	0.246	0.144	83.7	1127	1908	2386	119715
DA02-40J phen 17	Darwin Island	39.49	43.95	15.81	0.352	0.257	0.146	83.2	1147	1992	2518	122935
DA02-40J phen 17	Darwin Island	39.42	43.95	15.87	0.364	0.253	0.141	83.2	1107	1956	2603	123407
DA02-40J phen 18	Darwin Island	38.99	42.07	18.18	0.351	0.278	0.140	80.5	1097	2156	2509	141357
DA02-40J phen 18	Darwin Island	39.01	42.02	18.21	0.341	0.285	0.138	80.4	1085	2210	2439	141615
DA02-40J phen 18	Darwin Island	38.66	40.65	19.88	0.375	0.311	0.122	78.5	958	2413	2684	154611
DA02-40J phen 19	Darwin Island	39.12	42.61	17.51	0.354	0.273	0.133	81.3	1048	2111	2533	136159
DA02-40J phen 19	Darwin Island	39.07	42.42	17.76	0.346	0.275	0.132	81.0	1035	2132	2476	138105
DA02-40J phen 19	Darwin Island	39.10	42.13	18.01	0.346	0.282	0.133	80.7	1046	2182	2472	140061
DA02-40J phen 19	Darwin Island	39.08	42.12	18.03	0.366	0.291	0.117	80.6	916	2255	2613	140231
DA02-40J phen 19	Darwin Island	38.96	41.70	18.58	0.348	0.290	0.124	80.0	974	2242	2488	144466
DA02-40J phen 20	Darwin Island	38.06	36.86	24.23	0.391	0.364	0.096	73.1	751	2821	2797	188383
G86-3 phen 1	Espanola	39.85	46.50	12.97	0.259	0.192	0.227	86.5	1784	1489	1851	100882
G86-3 phen 1	Espanola	39.90	46.38	13.02	0.263	0.198	0.230	86.4	1810	1532	1881	101265
G86-3 phen 1	Espanola	39.82	46.35	13.15	0.262	0.196	0.224	86.3	1759	1519	1874	102274
G86-3 phen 1	Espanola	39.77	46.14	13.40	0.267	0.199	0.218	86.0	1711	1543	1906	104232
G86-3 phen 1	Espanola	39.13	43.10	17.01	0.306	0.280	0.178	81.9	1399	2168	2186	132282
G86-3 phen 2	Espanola	39.98	46.78	12.54	0.244	0.185	0.259	86.9	2036	1433	1746	97549
G86-3 phen 2	Espanola	39.93	46.79	12.59	0.247	0.187	0.255	86.9	2004	1450	1767	97913
G86-3 phen 2	Espanola	39.89	46.73	12.69	0.247	0.191	0.250	86.8	1962	1476	1769	98685
G86-3 phen 2	Espanola	39.87	46.56	12.88	0.255	0.199	0.235	86.6	1847	1543	1821	100131
G86-3 phen 2	Espanola	39.60	45.48	14.22	0.264	0.222	0.216	85.1	1694	1716	1885	110583
G86-3 phen 3	Espanola	39.52	45.05	14.76	0.252	0.225	0.195	84.5	1528	1742	1803	114755
G86-3 phen 3	Espanola	38.69	40.96	19.60	0.300	0.314	0.141	78.8	1106	2432	2145	152389
G86-3 phen 4	Espanola	39.47	44.06	15.76	0.294	0.261	0.160	83.3	1257	2023	2103	122540

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
G86-3 phen 4	Espanola	39.58	45.09	14.71	0.250	0.236	0.139	84.5	1095	1830	1789	114348
G86-3 phen 4	Espanola	39.67	45.41	14.34	0.208	0.235	0.134	84.9	1050	1820	1486	111531
G86-3 phen 4	Espanola	38.63	40.71	19.88	0.314	0.337	0.130	78.5	1023	2612	2246	154619
G86-3 phen 5	Espanola	38.91	41.79	18.58	0.275	0.302	0.146	80.0	1150	2335	1965	144485
G86-3 phen 5	Espanola	39.04	42.51	17.71	0.285	0.290	0.163	81.1	1277	2244	2040	137679
G86-3 phen 5	Espanola	39.20	43.11	16.95	0.282	0.282	0.173	81.9	1356	2187	2016	131838
G86-3 phen 6	Espanola	40.15	46.08	13.09	0.257	0.201	0.227	86.3	1783	1554	1840	101801
G86-3 phen 6	Espanola	40.03	45.71	13.57	0.261	0.208	0.214	85.7	1682	1610	1864	105542
G86-3 phen 6	Espanola	39.59	43.53	16.17	0.287	0.258	0.170	82.8	1332	1995	2050	125713
G86-3 phen 7	Espanola	40.26	46.11	12.95	0.253	0.192	0.237	86.4	1865	1488	1807	100689
G86-3 phen 7	Espanola	40.17	45.98	13.17	0.250	0.197	0.234	86.2	1836	1528	1791	102398
G86-3 phen 7	Espanola	39.94	44.59	14.79	0.253	0.231	0.202	84.3	1588	1788	1806	114989
G86-3 phen 7	Espanola	39.06	40.85	19.33	0.312	0.316	0.135	79.0	1060	2445	2232	150285
G86-3 phen 8	Espanola	39.02	41.46	18.76	0.285	0.319	0.155	79.8	1218	2473	2037	145876
G86-3 phen 8	Espanola	39.06	41.58	18.62	0.283	0.305	0.152	79.9	1197	2361	2022	144799
G86-3 phen 8	Espanola	39.43	42.59	17.26	0.282	0.278	0.161	81.5	1262	2152	2014	134191
G86-3 phen 9	Espanola	39.30	44.05	15.94	0.280	0.258	0.175	83.1	1376	1999	2004	123941
G86-3 phen 9	Espanola	39.05	43.24	16.99	0.285	0.278	0.167	81.9	1310	2154	2035	132082
G86-3 phen 9	Espanola	39.00	42.37	17.87	0.291	0.302	0.165	80.9	1299	2342	2081	138939
G86-3 phen 9	Espanola	38.53	40.36	20.29	0.340	0.352	0.132	78.0	1039	2725	2428	157774
G86-3 phen 10	Espanola	39.77	45.95	13.57	0.260	0.216	0.233	85.8	1832	1674	1862	105486
G86-3 phen 10	Espanola	39.92	45.90	13.43	0.289	0.223	0.234	85.9	1840	1724	2064	104454
G86-3 phen 10	Espanola	39.98	46.26	13.07	0.257	0.205	0.240	86.3	1883	1584	1836	101619
G86-3 phen 10	Espanola	39.94	46.31	13.06	0.250	0.206	0.229	86.3	1802	1599	1787	101544
G86-3 phen 10	Espanola	39.50	43.83	15.98	0.271	0.254	0.172	83.0	1354	1965	1939	124242
G86-3 phen 11	Espanola	40.07	46.66	12.57	0.249	0.189	0.264	86.9	2074	1463	1780	97760
G86-3 phen 11	Espanola	39.42	43.88	15.95	0.286	0.264	0.206	83.1	1617	2044	2047	124029
G86-3 phen 11	Espanola	39.43	43.65	16.20	0.267	0.262	0.192	82.8	1508	2029	1907	125960
G86-3 phen 11	Espanola	39.19	42.62	17.44	0.289	0.289	0.168	81.3	1316	2237	2070	135641
G86-3 phen 12	Espanola	40.00	46.46	12.82	0.252	0.195	0.268	86.6	2105	1510	1803	99712
G86-3 phen 12	Espanola	39.99	46.31	12.99	0.254	0.200	0.259	86.4	2034	1552	1819	100979
G86-3 phen 12	Espanola	40.01	46.29	12.99	0.252	0.196	0.262	86.4	2061	1519	1798	100992
G86-3 phen 12	Espanola	38.67	40.36	20.16	0.320	0.356	0.136	78.1	1065	2760	2291	156778

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
G86-3 phen 13	Espanola	39.96	46.42	12.94	0.251	0.191	0.235	86.5	1845	1480	1793	100590
G86-3 phen 13	Espanola	39.90	46.15	13.27	0.253	0.198	0.233	86.1	1827	1533	1811	103167
G86-3 phen 13	Espanola	39.87	46.08	13.36	0.248	0.203	0.232	86.0	1824	1573	1772	103879
G86-3 phen 13	Espanola	39.15	42.82	17.30	0.276	0.283	0.163	81.5	1278	2192	1971	134532
G86-3 phen 14	Espanola	39.42	44.33	15.52	0.270	0.256	0.199	83.6	1567	1983	1929	120707
G86-3 phen 14	Espanola	39.32	44.32	15.63	0.273	0.260	0.194	83.5	1527	2012	1951	121512
G86-3 phen 14	Espanola	39.01	42.78	17.46	0.278	0.294	0.172	81.4	1350	2273	1989	135802
G86-3 phen 14	Espanola	38.42	39.91	20.85	0.332	0.363	0.122	77.3	961	2808	2370	162138
G86-3 phen 15	Espanola	39.97	46.59	12.76	0.257	0.195	0.230	86.7	1807	1513	1838	99230
G86-3 phen 15	Espanola	39.85	46.26	13.20	0.258	0.211	0.220	86.2	1725	1631	1846	102681
G86-3 phen 15	Espanola	39.97	46.58	12.77	0.253	0.199	0.235	86.7	1848	1540	1809	99268
G86-3 phen 15	Espanola	39.90	46.57	12.84	0.258	0.202	0.233	86.6	1832	1565	1848	99835
G86-3 phen 15	Espanola	39.95	46.36	12.99	0.257	0.201	0.232	86.4	1820	1558	1841	101045
[1]D11A phen 1	Fernandina	39.77	43.68	16.15		0.236	0.162	82.8	1275	1826		125558
[1]D11A phen 1	Fernandina	40.49	45.97	13.10		0.191	0.242	86.2	1903	1476		101883
[1]D11A phen 1	Fernandina	40.31	46.18	13.07		0.193	0.246	86.3	1929	1497		101621
[1]D11A phen 1	Fernandina	40.57	46.05	12.94		0.191	0.244	86.4	1917	1481		100645
[2]D11A phen 1	Fernandina	40.16	45.85	13.53	0.271	0.190		85.8		1472	1937	105209
[2]D11A phen 1	Fernandina	39.80	45.79	13.93	0.279	0.204		85.4		1580	1995	108317
[2]D11A phen 1	Fernandina	40.01	45.81	13.70	0.279	0.202		85.6		1565	1995	106531
[2]D11A phen 1	Fernandina	39.95	45.97	13.59	0.289	0.200		85.8		1549	2066	105688
[1]D11A phen 2	Fernandina	40.52	46.87	12.23		0.170	0.211	87.2	1660	1313		95138
[1]D11A phen 2	Fernandina	40.51	46.84	12.26		0.171	0.217	87.2	1706	1325		95307
[1]D11A phen 2	Fernandina	40.52	46.90	12.16		0.174	0.235	87.3	1849	1346		94592
[1]D11A phen 2	Fernandina	39.97	43.64	16.00		0.233	0.159	82.9	1246	1804		124438
[2]D11A phen 2	Fernandina	40.05	46.71	12.78	0.272	0.183		86.7		1417	1945	99383
[2]D11A phen 2	Fernandina	40.14	46.64	12.76	0.278	0.180		86.7		1394	1988	99224
[2]D11A phen 2	Fernandina	40.19	46.62	12.72	0.284	0.184		86.7		1425	2030	98913
[2]D11A phen 2	Fernandina	39.29	43.32	16.84	0.296	0.249		82.1		1929	2116	130955
[1]D11A phen 3	Fernandina	40.52	46.73	12.28		0.179	0.291	87.2	2287	1385		95483
[2]D11A phen 3	Fernandina	40.42	47.12	12.03	0.257	0.172		87.5		1332	1837	93547
[1]D11A phen 4	Fernandina	40.74	47.09	11.71		0.168	0.297	87.8	2329	1300		91040
[2]D11A phen 4	Fernandina	40.31	46.84	12.41	0.259	0.182		87.1		1410	1852	96500

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D11A phen 4	Fernandina	40.39	46.95	12.22	0.260	0.176		87.3		1363	1859	95027
[2]D11A phen 4	Fernandina	40.29	46.99	12.27	0.266	0.180		87.2		1394	1902	95416
[2]D11A phen 4	Fernandina	39.37	43.19	16.88	0.313	0.248		82.0		1921	2238	131258
[1]D11A phen 5	Fernandina	40.22	46.05	13.31		0.182	0.239	86.1	1880	1410		103474
[2]D11A phen 5	Fernandina	39.96	45.78	13.79	0.274	0.197		85.5		1526	1959	107231
[1]D11A phen 6	Fernandina	40.51	47.09	11.94		0.172	0.291	87.5	2288	1329		92855
[2]D11A phen 6	Fernandina	40.29	46.95	12.31	0.263	0.182		87.2		1410	1880	95728
[2]D11A phen 7	Fernandina	40.29	46.90	12.36	0.264	0.182		87.1		1410	1888	96116
[2]D11A phen 7	Fernandina	40.23	46.99	12.35	0.264	0.173		87.2		1340	1887	96027
[1]D11A phen 8	Fernandina	40.42	46.70	12.44		0.178	0.272	87.0	2136	1375		96706
[1]D11A phen 8	Fernandina	40.44	46.78	12.33		0.183	0.271	87.1	2129	1418		95859
[1]D11A phen 8	Fernandina	40.10	45.09	14.39		0.201	0.218	84.8	1715	1559		111898
[1]D11A phen 8	Fernandina	40.48	46.85	12.23		0.180	0.271	87.2	2127	1394		95067
[2]D11A phen 8	Fernandina	40.24	46.55	12.76	0.264	0.184		86.7		1425	1888	99224
[2]D11A phen 8	Fernandina	40.19	46.69	12.67	0.266	0.183		86.8		1417	1902	98524
[2]D11A phen 8	Fernandina	40.15	46.70	12.69	0.266	0.191		86.8		1479	1902	98681
[2]D11A phen 8	Fernandina	39.54	43.68	16.25	0.295	0.238		82.7		1843	2109	126357
[1]D11A phen 11	Fernandina	40.16	45.18	14.23		0.200	0.238	85.0	1872	1546		110629
[1]D11A phen 11	Fernandina	40.50	46.83	12.20		0.169	0.294	87.2	2312	1311		94903
[1]D11A phen 11	Fernandina	40.42	46.80	12.32		0.171	0.295	87.1	2315	1324		95803
[1]D11A phen 11	Fernandina	40.45	46.84	12.22		0.172	0.311	87.2	2443	1331		95040
[2]D11A phen 11	Fernandina	40.13	46.71	12.73	0.252	0.178		86.7		1379	1802	98989
[2]D11A phen 11	Fernandina	40.27	46.72	12.58	0.252	0.176		86.9		1363	1802	97825
[2]D11A phen 11	Fernandina	40.30	46.78	12.49	0.253	0.174		87.0		1348	1809	97126
[2]D11A phen 11	Fernandina	39.54	43.77	16.15	0.310	0.234		82.9		1812	2216	125578
[1]D11A phen 12	Fernandina	40.47	46.97	12.09		0.174	0.292	87.4	2292	1344		94049
[2]D11A phen 12	Fernandina	40.20	46.87	12.48	0.263	0.181		87.0		1402	1880	97051
[1]D11A phen 13	Fernandina	40.49	46.80	12.25		0.177	0.282	87.2	2212	1371		95257
[1]D11A phen 13	Fernandina	40.44	46.82	12.29		0.181	0.275	87.2	2158	1400		95576
[1]D11A phen 13	Fernandina	39.99	45.14	14.44		0.211	0.225	84.8	1769	1637		112262
[1]D11A phen 13	Fernandina	40.44	46.86	12.23		0.189	0.283	87.2	2224	1464		95112
[1]D11A phen 13	Fernandina	40.44	47.07	12.03		0.174	0.288	87.5	2265	1348		93558
[2]D11A phen 13	Fernandina	40.21	46.80	12.54	0.268	0.185		86.9		1433	1916	97509

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D11A phen 13	Fernandina	40.11	46.76	12.67	0.273	0.182		86.8		1410	1952	98527
[2]D11A phen 13	Fernandina	40.15	46.58	12.80	0.276	0.187		86.6		1448	1973	99540
[2]D11A phen 13	Fernandina	40.16	46.60	12.78	0.276	0.186		86.7		1441	1973	99376
[2]D11A phen 13	Fernandina	39.57	43.91	15.99	0.292	0.240		83.0		1859	2088	124337
[1]D11A phen 14	Fernandina	40.46	47.14	11.95		0.172	0.286	87.5	2244	1328		92925
[2]D11A phen 14	Fernandina	40.02	46.37	13.15	0.262	0.193		86.3		1495	1873	102260
[1]D11A phen 15	Fernandina	40.54	46.65	12.38		0.180	0.246	87.0	1934	1391		96260
[1]D11A phen 15	Fernandina	40.51	46.51	12.55		0.185	0.244	86.8	1919	1436		97616
[1]D11A phen 15	Fernandina	40.47	46.77	12.32		0.180	0.249	87.1	1956	1392		95827
[1]D11A phen 15	Fernandina	40.00	44.18	15.41		0.226	0.181	83.6	1422	1748		119804
[2]D11A phen 15	Fernandina	40.33	46.39	12.83	0.271	0.188		86.6		1456	1937	99758
[2]D11A phen 15	Fernandina	40.15	46.45	12.93	0.281	0.190		86.5		1472	2009	100543
[2]D11A phen 15	Fernandina	40.11	46.24	13.17	0.284	0.192		86.2		1487	2031	102415
[2]D11A phen 15	Fernandina	39.75	43.64	16.08	0.298	0.233		82.9		1805	2131	125038
[1]D11A phen 23	Fernandina	40.73	47.40	11.41		0.168	0.290	88.1	2280	1302		88740
[1]D11A phen 23	Fernandina	40.19	45.01	14.38		0.209	0.217	84.8	1704	1617		111786
[1]D11A phen 23	Fernandina	40.70	47.29	11.53		0.173	0.302	88.0	2370	1338		89695
[1]D11A phen 23	Fernandina	40.65	47.36	11.53		0.169	0.297	88.0	2329	1310		89624
[1]D11A phen 23	Fernandina	40.65	47.43	11.45		0.166	0.298	88.1	2338	1287		89072
[2]D11A phen 23	Fernandina	40.39	47.08	12.09	0.262	0.180		87.4		1394	1873	94011
[2]D11A phen 23	Fernandina	40.37	47.08	12.11	0.263	0.179		87.4		1386	1880	94166
[2]D11A phen 23	Fernandina	40.26	47.14	12.16	0.263	0.175		87.4		1355	1880	94559
[2]D11A phen 23	Fernandina	40.38	47.12	12.07	0.264	0.174		87.4		1348	1887	93849
[2]D11A phen 23	Fernandina	39.64	43.40	16.41	0.302	0.248		82.5		1921	2159	127605
[1]D20A phen 1	Fernandina	40.80	47.71	11.03		0.165	0.302	88.5	2370	1277		85771
[2]D20A phen 1	Fernandina	40.48	47.49	11.62	0.244	0.163		87.9		1263	1745	90360
[2]D20A phen 1	Fernandina	40.32	47.66	11.61	0.248	0.165		88.0		1278	1773	90277
[1]D20A phen 2	Fernandina	40.82	47.73	10.98		0.166	0.299	88.6	2352	1283		85420
[1]D20A phen 2	Fernandina	40.76	47.72	11.06		0.160	0.294	88.5	2306	1238		86026
[1]D20A phen 2	Fernandina	40.80	47.70	11.04		0.163	0.299	88.5	2347	1263		85813
[1]D20A phen 2	Fernandina	40.83	47.62	11.10		0.162	0.300	88.4	2357	1251		86290
[2]D20A phen 2	Fernandina	40.54	47.36	11.69	0.247	0.165		87.8		1278	1766	90891
[2]D20A phen 2	Fernandina	40.53	47.40	11.65	0.250	0.168		87.9		1301	1787	90593

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D20A phen 2	Fernandina	40.48	47.43	11.67	0.250	0.164		87.9		1270	1787	90752
[2]D20A phen 2	Fernandina	40.24	45.93	13.38	0.259	0.188		86.0		1456	1852	104047
[1]D20A phen 3	Fernandina	40.58	46.40	12.62		0.172	0.232	86.8	1819	1328		98147
[1]D20A phen 3	Fernandina	40.68	47.33	11.56		0.169	0.258	88.0	2024	1311		89867
[1]D20A phen 3	Fernandina	40.49	46.62	12.46		0.184	0.250	87.0	1961	1422		96863
[1]D20A phen 3	Fernandina	40.67	47.39	11.51		0.174	0.254	88.0	1993	1345		89502
[2]D20A phen 3	Fernandina	40.33	46.37	12.88	0.254	0.173		86.5		1340	1816	100169
[2]D20A phen 3	Fernandina	40.38	47.03	12.16	0.256	0.173		87.3		1340	1830	94558
[2]D20A phen 3	Fernandina	40.35	47.03	12.19	0.259	0.172		87.3		1332	1852	94789
[2]D20A phen 3	Fernandina	39.28	42.32	17.87	0.275	0.252		80.8		1952	1966	138962
[1]D20A phen 5	Fernandina	40.78	47.33	11.46		0.167	0.257	88.0	2020	1295		89098
[2]D20A phen 5	Fernandina	40.45	46.97	12.15	0.256	0.170		87.3		1317	1830	94483
[1]D20A phen 7	Fernandina	40.66	46.91	11.96		0.177	0.284	87.5	2234	1371		93005
[2]D20A phen 7	Fernandina	40.33	46.52	12.72	0.248	0.179		86.7		1386	1773	98914
[1]D20A phen 8	Fernandina	40.94	47.69	10.90		0.159	0.303	88.6	2381	1228		84756
[2]D20A phen 8	Fernandina	40.69	47.27	11.62	0.249	0.167		87.9		1294	1780	90361
[1]D20A phen 9	Fernandina	40.57	45.45	13.58		0.201	0.202	85.6	1590	1556		105573
[2]D20A phen 9	Fernandina	40.05	44.99	14.44	0.305	0.207		84.7		1603	2181	112295
[1]D20A phen 11	Fernandina	40.68	47.97	10.86		0.157	0.327	88.7	2568	1215		84461
[2]D20A phen 11	Fernandina	40.46	47.42	11.68	0.271	0.167		87.9		1293	1938	90826
[1]D20A phen 12	Fernandina	40.09	45.29	14.16		0.206	0.242	85.1	1902	1594		110140
[1]D20A phen 12	Fernandina	39.75	44.79	14.99	0.263	0.215		84.2		1665	1880	116554
[2]D20A phen 14	Fernandina	38.77	42.71	18.15		0.259	0.112	80.7	883	2003		141128
[1]D20A phen 14	Fernandina	39.00	41.61	18.84	0.273	0.274		79.7		2122	1952	146505
[2]D20A phen 14	Fernandina	40.29	46.86	12.44	0.237	0.175		87.0		1355	1694	96732
[2]D20A phen 16	Fernandina	40.31	46.94	12.35	0.239	0.170		87.1		1317	1709	96026
[2]D20A phen 16	Fernandina	40.14	46.48	12.96	0.242	0.182		86.5		1410	1730	100774
[2]D20A phen 16	Fernandina	39.15	41.73	18.54	0.308	0.266		80.0		2060	2202	144177
[1]D20A phen 21	Fernandina	39.90	44.50	15.14		0.216	0.241	84.0	1893	1673		117738
[1]D20A phen 21	Fernandina	40.43	46.98	12.14		0.180	0.268	87.3	2105	1395		94391
[1]D20A phen 21	Fernandina	40.40	46.98	12.18		0.177	0.265	87.3	2079	1369		94723
[1]D20A phen 21	Fernandina	40.45	46.98	12.13		0.178	0.268	87.3	2105	1376		94336
[2]D20A phen 21	Fernandina	40.14	46.55	12.86	0.267	0.187		86.6		1448	1909	99996

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D20A phen 21	Fernandina	40.10	46.57	12.87	0.270	0.190		86.6		1472	1930	100078
[2]D20A phen 21	Fernandina	38.99	41.50	18.94	0.300	0.273		79.6		2114	2145	147274
[2]D20A phen 21	Fernandina	40.05	45.40	14.09		0.205	0.256	85.2	2012	1585		109539
[1]D20A phen 22	Fernandina	40.39	46.97	12.19		0.177	0.274	87.3	2151	1367		94793
[1]D20A phen 22	Fernandina	40.32	47.02	12.20		0.182	0.271	87.3	2132	1408		94884
[1]D20A phen 22	Fernandina	40.40	46.97	12.18		0.176	0.274	87.3	2150	1365		94680
[2]D20A phen 22	Fernandina	40.17	46.52	12.86	0.266	0.183		86.6		1417	1902	100001
[2]D20A phen 22	Fernandina	40.15	46.51	12.89	0.267	0.182		86.5		1410	1909	100234
[2]D20A phen 22	Fernandina	40.14	46.51	12.90	0.269	0.185		86.5		1433	1923	100307
[2]D20A phen 22	Fernandina	39.24	42.62	17.61	0.283	0.246		81.2		1905	2023	136938
[1]D20A phen 23	Fernandina	40.40	47.02	12.13		0.176	0.270	87.4	2120	1361		94322
[1]D20A phen 23	Fernandina	40.38	47.04	12.12		0.180	0.269	87.4	2110	1393		94283
[1]D20A phen 23	Fernandina	40.43	47.04	12.09		0.175	0.267	87.4	2093	1358		94023
[1]D20A phen 23	Fernandina	40.47	46.99	12.10		0.177	0.267	87.4	2096	1373		94069
[2]D20A phen 23	Fernandina	40.18	46.54	12.82	0.263	0.190		86.6		1472	1880	99696
[2]D20A phen 23	Fernandina	40.23	46.52	12.80	0.264	0.185		86.6		1433	1887	99534
[2]D20A phen 23	Fernandina	40.28	46.44	12.83	0.267	0.187		86.6		1448	1909	99763
[2]D20A phen 23	Fernandina	40.27	46.39	12.88	0.271	0.188		86.5		1456	1938	100167
[1]D20A phen 24	Fernandina	40.18	45.87	13.52		0.183	0.245	85.8	1922	1415		105147
[1]D20A phen 24	Fernandina	40.41	46.81	12.33		0.180	0.269	87.1	2110	1391		95857
[1]D20A phen 24	Fernandina	40.43	46.68	12.44		0.184	0.265	87.0	2085	1422		96732
[1]D20A phen 24	Fernandina	40.41	47.15	11.99		0.172	0.274	87.5	2154	1334		93273
[2]D20A phen 24	Fernandina	40.06	44.91	14.56	0.259	0.205		84.6		1588	1852	113226
[2]D20A phen 24	Fernandina	40.37	46.43	12.74	0.270	0.182		86.7		1410	1931	99075
[2]D20A phen 24	Fernandina	40.24	46.09	13.21	0.271	0.187		86.1		1448	1938	102724
[2]D20A phen 24	Fernandina	40.30	46.18	13.06	0.271	0.189		86.3		1464	1938	101555
[1]D28A phen 2	Fernandina	39.15	44.23	16.25		0.241	0.134	82.9	1051	1863		126325
[1]D28A phen 2	Fernandina	39.18	43.81	16.64		0.243	0.128	82.4	1003	1881		129398
[1]D28A phen 2	Fernandina	39.21	44.18	16.25		0.241	0.131	82.9	1031	1869		126325
[1]D28A phen 2	Fernandina	39.15	44.32	16.16		0.238	0.131	83.0	1030	1840		125646
[2]D28A phen 2	Fernandina	38.98	39.79	20.62	0.307	0.298		77.5		2308	2195	160350
[2]D28A phen 2	Fernandina	38.80	38.93	21.60	0.351	0.314		76.3		2432	2510	167971
[1]D28A phen 4	Fernandina	39.69	43.41	16.53		0.242	0.136	82.4	1071	1871		128505

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D28A phen 4	Fernandina	39.59	42.62	17.24	0.291	0.265		81.5		2052	2080	134051
[1]D28A phen 5	Fernandina	39.13	44.04	16.49		0.198	0.139	82.6	1090	1533		128245
[1]D28A phen 5	Fernandina	39.22	44.16	16.46		0.023	0.140	82.7	1102	179		128030
[1]D28A phen 5	Fernandina	39.04	44.17	16.53		0.114	0.143	82.6	1125	881		128533
[1]D28A phen 5	Fernandina	39.01	44.17	16.44		0.238	0.141	82.7	1105	1845		127853
[1]D28A phen 5	Fernandina	39.03	44.07	16.52		0.242	0.145	82.6	1138	1877		128426
[1]D28A phen 5	Fernandina	39.10	44.03	16.47		0.242	0.146	82.7	1146	1877		128091
[2]D28A phen 5	Fernandina	39.50	43.02	17.23	0.001	0.254		81.7		1967	7	133975
[2]D28A phen 5	Fernandina	39.54	43.06	17.08	0.055	0.257		81.8		1991	393	132826
[2]D28A phen 5	Fernandina	39.47	42.83	17.26	0.181	0.257		81.6		1991	1294	134217
[2]D28A phen 5	Fernandina	39.36	42.73	17.39	0.260	0.263		81.4		2037	1859	135221
[2]D28A phen 5	Fernandina	39.39	42.72	17.34	0.297	0.261		81.5		2021	2123	134826
[1]D28A phen 7	Fernandina	39.07	43.85	16.70		0.247	0.130	82.4	1018	1916		129888
[2]D28A phen 7	Fernandina	39.53	42.58	17.34	0.289	0.264		81.4		2045	2066	134833
[1]D28A phen 8	Fernandina	39.04	44.10	16.43		0.242	0.186	82.7	1462	1877		127736
[2]D28A phen 8	Fernandina	39.54	43.04	17.16	0.001	0.257		81.7		1991	7	133440
[1]D28A phen 9	Fernandina	39.10	44.26	16.24		0.235	0.169	82.9	1330	1818		126245
[2]D28A phen 9	Fernandina	39.44	43.08	16.95	0.273	0.253		81.9		1960	1952	131809
[1]D28A phen 11	Fernandina	39.03	44.19	16.41		0.236	0.127	82.8	1001	1829		127603
[2]D28A phen 11	Fernandina	39.48	42.82	17.15	0.294	0.261		81.7		2021	2102	133353
[1]D28A phen 13	Fernandina	38.99	43.76	16.88		0.254	0.117	82.2	919	1966		131277
[2]D28A phen 13	Fernandina	39.32	42.61	17.51	0.289	0.264		81.3		2045	2066	136168
[1]D28A phen 14	Fernandina	39.13	43.95	16.55		0.245	0.126	82.6	989	1896		128705
[1]D28A phen 14	Fernandina	38.75	42.33	18.56		0.264	0.099	80.3	778	2047		144297
[1]D28A phen 14	Fernandina	39.08	43.99	16.55		0.250	0.128	82.6	1007	1938		128676
[1]D28A phen 14	Fernandina	39.05	44.02	16.55		0.248	0.129	82.6	1017	1918		128699
[2]D28A phen 14	Fernandina	39.49	42.72	17.24	0.289	0.256		81.5		1983	2066	134066
[2]D28A phen 14	Fernandina	39.58	42.55	17.33	0.292	0.258		81.4		1998	2087	134745
[2]D28A phen 14	Fernandina	39.56	42.54	17.35	0.293	0.257		81.4		1991	2095	134914
[2]D28A phen 14	Fernandina	39.17	41.68	18.59	0.293	0.268		80.0		2076	2095	144555
[2]D28A phen 14	Fernandina	39.38	42.75	17.31	0.300	0.262		81.5		2029	2145	134601
[1]D28A phen 15	Fernandina	38.34	39.54	21.76		0.312	0.047	76.4	371	2419		169212
[1]D28A phen 15	Fernandina	39.14	44.09	16.41		0.231	0.134	82.7	1056	1792		127581

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]D28A phen 15	Fernandina	39.13	43.99	16.51		0.241	0.132	82.6	1040	1870		128354
[2]D28A phen 15	Fernandina	39.51	42.82	17.11	0.293	0.260		81.7		2014	2095	133058
[2]D28A phen 15	Fernandina	39.63	42.72	17.11	0.294	0.254		81.7		1967	2102	133038
[1]D28A phen 16	Fernandina	39.10	44.12	16.42		0.240	0.132	82.7	1036	1858		127665
[1]D28A phen 16	Fernandina	39.06	44.11	16.45		0.243	0.134	82.7	1049	1880		127902
[2]D28A phen 16	Fernandina	39.47	42.90	17.09	0.289	0.255		81.7		1975	2066	132887
[2]D28A phen 16	Fernandina	39.52	42.90	17.03	0.295	0.256		81.8		1983	2109	132425
[2]D28A phen 16	Fernandina	39.21	42.01	18.21	0.298	0.267		80.4		2068	2131	141609
[1]D28A phen 17	Fernandina	39.07	44.03	16.52		0.240	0.141	82.6	1105	1862		128468
[1]D28A phen 17	Fernandina	38.99	44.21	16.43		0.241	0.127	82.8	1000	1868		127744
[2]D28A phen 17	Fernandina	39.54	42.56	17.37	0.266	0.261		81.4		2022	1902	135074
[2]D28A phen 17	Fernandina	39.68	42.72	17.07	0.278	0.257		81.7		1990	1987	132731
[1]D28A phen 18	Fernandina	39.07	44.16	16.39		0.240	0.128	82.8	1007	1855		127479
[2]D28A phen 18	Fernandina	39.41	43.01	17.04	0.291	0.253		81.8		1959	2080	132499
[1]D28A phen 19	Fernandina	39.15	44.48	16.00		0.237	0.136	83.2	1071	1839		124407
[2]D28A phen 19	Fernandina	39.50	43.12	16.83	0.299	0.251		82.0		1944	2138	130871
[1]D28A phen 22	Fernandina	39.10	44.24	16.28		0.237	0.143	82.9	1125	1835		126603
[1]D28A phen 22	Fernandina	39.00	44.15	16.47		0.237	0.138	82.7	1082	1835		128108
[1]D28A phen 22	Fernandina	39.09	44.25	16.27		0.240	0.141	82.9	1109	1861		126517
[1]D28A phen 22	Fernandina	39.09	44.24	16.29		0.243	0.139	82.9	1088	1881		126687
[1]D28A phen 22	Fernandina	39.09	44.25	16.28		0.235	0.141	82.9	1110	1821		126617
[2]D28A phen 22	Fernandina	39.34	43.15	16.97	0.290	0.251		81.9		1944	2073	131958
[2]D28A phen 22	Fernandina	39.34	43.11	17.01	0.291	0.251		81.9		1944	2080	132268
[2]D28A phen 22	Fernandina	39.29	43.18	16.98	0.293	0.255		81.9		1975	2095	132040
[2]D28A phen 22	Fernandina	39.25	43.22	16.98	0.293	0.255		81.9		1975	2095	132040
[2]D28A phen 22	Fernandina	39.65	43.55	16.25	0.309	0.237		82.7		1836	2209	126366
[1]D28A phen 23	Fernandina	39.18	42.34	18.11		0.257	0.116	80.6	909	1990		140834
[2]D28A phen 23	Fernandina	38.90	41.27	19.25	0.302	0.283		79.3		2192	2159	149681
[1]D28A phen 24	Fernandina	39.09	44.08	16.45		0.244	0.136	82.7	1070	1890		127901
[2]D28A phen 24	Fernandina	39.32	43.01	17.13	0.291	0.255		81.7		1975	2080	133196
[1]D28A phen 25	Fernandina	38.94	43.44	17.26		0.255	0.109	81.8	860	1975		134196
[2]D28A phen 25	Fernandina	39.39	42.30	17.75	0.298	0.264		80.9		2045	2131	138022
[1]D28A phen 27	Fernandina	38.92	43.70	16.95		0.248	0.188	82.1	1477	1918		131776

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]D28A phen 28	Fernandina	38.62	41.47	19.56		0.272	0.078	79.1	616	2110		152087
[2]D28A phen 28	Fernandina	39.46	42.24	17.74	0.300	0.266		80.9		2060	2145	137939
[1]D28A phen 32	Fernandina	38.99	43.40	17.25		0.256	0.107	81.8	842	1986		134128
[2]D28A phen 32	Fernandina	39.10	41.88	18.44	0.308	0.275		80.2		2130	2202	143386
[1]D28A phen 33	Fernandina	38.87	41.89	18.88		0.265	0.092	79.8	726	2050		146779
[2]D28A phen 33	Fernandina	38.73	39.58	21.04	0.352	0.300		77.0		2324	2517	163605
[1]D28A phen 34	Fernandina	39.34	42.91	17.39		0.256	0.106	81.5	829	1982		135254
[2]D28A phen 34	Fernandina	39.25	41.90	18.27	0.303	0.279		80.3		2161	2166	142066
[1]D28A phen 36	Fernandina	39.33	43.00	17.32		0.251	0.104	81.6	814	1943		134655
[2]D28A phen 36	Fernandina	39.25	42.09	18.09	0.295	0.274		80.6		2122	2109	140670
[1]D28A phen 37	Fernandina	39.38	42.85	17.41		0.256	0.104	81.4	816	1982		135386
[2]D28A phen 37	Fernandina	39.28	42.01	18.13	0.299	0.273		80.5		2115	2138	140991
[1]D28A phen 38	Fernandina	39.29	43.05	17.30		0.250	0.106	81.6	835	1936		134549
[2]D28A phen 38	Fernandina	39.22	42.18	18.03	0.300	0.274		80.7		2122	2145	140197
[1]D28C phen 1	Fernandina	40.51	47.22	11.82		0.171	0.278	87.7	2180	1323		91920
[1]D28C phen 1	Fernandina	40.56	47.25	11.76		0.170	0.271	87.8	2128	1317		91412
[1]D28C phen 1	Fernandina	40.55	47.19	11.82		0.171	0.275	87.7	2162	1326		91919
[1]D28C phen 1	Fernandina	40.47	47.26	11.83		0.171	0.272	87.7	2135	1321		91955
[1]D28C phen 1	Fernandina	40.59	47.14	11.83		0.169	0.272	87.7	2133	1306		91997
[2]D28C phen 1	Fernandina	40.76	46.72	12.11	0.238	0.173		87.3		1340	1702	94167
[2]D28C phen 1	Fernandina	40.54	46.84	12.21	0.239	0.172		87.2		1332	1709	94935
[2]D28C phen 1	Fernandina	40.65	46.79	12.15	0.241	0.171		87.3		1324	1723	94477
[2]D28C phen 1	Fernandina	40.61	46.76	12.21	0.242	0.176		87.2		1363	1730	94947
[2]D28C phen 1	Fernandina	40.64	46.77	12.18	0.243	0.173		87.3		1340	1737	94707
[1]D28C phen 4	Fernandina	40.60	47.30	11.66		0.162	0.278	87.9	2182	1258		90664
[2]D28C phen 4	Fernandina	40.36	47.11	12.11	0.250	0.174		87.4		1348	1787	94164
[1]D28C phen 6	Fernandina	40.47	47.25	11.84		0.166	0.277	87.7	2176	1287		92051
[2]D28C phen 6	Fernandina	40.27	46.99	12.31	0.255	0.174		87.2		1348	1823	95724
[1]D28C phen 7	Fernandina	40.53	47.10	11.93		0.171	0.269	87.6	2111	1324		92785
[2]D28C phen 7	Fernandina	40.39	46.92	12.28	0.238	0.175		87.2		1355	1702	95487
[1]D28C phen 9	Fernandina	40.39	47.24	11.92		0.171	0.273	87.6	2148	1323		92678
[2]D28C phen 9	Fernandina	40.32	46.87	12.39	0.246	0.175		87.1		1355	1759	96344
[1]D28C phen 12	Fernandina	40.65	47.54	11.37		0.161	0.282	88.2	2212	1245		88376

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D28C phen 12	Fernandina	40.57	47.24	11.78	0.242	0.169		87.7		1309	1730	91601
[1]D28C phen 13	Fernandina	40.59	47.45	11.51		0.160	0.291	88.0	2284	1242		89539
[2]D28C phen 13	Fernandina	40.52	47.14	11.93	0.234	0.168		87.6		1301	1673	92776
[1]D28C phen 14	Fernandina	40.80	47.13	11.63		0.175	0.264	87.8	2073	1354		90402
[2]D28C phen 14	Fernandina	40.69	46.86	12.03	0.248	0.172		87.4		1332	1773	93546
[1]D28C phen 17	Fernandina	40.97	46.95	11.66		0.169	0.256	87.8	2008	1310		90674
[2]D28C phen 17	Fernandina	40.81	46.78	11.99	0.240	0.172		87.4		1332	1716	93242
[1]D28C phen 20	Fernandina	40.45	47.15	11.95		0.171	0.273	87.5	2141	1322		92955
[2]D28C phen 20	Fernandina	40.55	46.65	12.39	0.246	0.172		87.0		1332	1759	96338
[1]D28C phen 21	Fernandina	40.71	47.35	11.48		0.162	0.295	88.0	2319	1253		89261
[2]D28C phen 21	Fernandina	40.62	47.04	11.95	0.228	0.164		87.5		1270	1630	92922
[1]D28C phen 22	Fernandina	40.49	47.74	11.31		0.160	0.294	88.3	2308	1240		87985
[1]D28C phen 22	Fernandina	40.67	47.73	11.14		0.164	0.288	88.4	2265	1267		86644
[1]D28C phen 22	Fernandina	40.36	47.47	11.71		0.161	0.293	87.8	2300	1247		91034
[2]D28C phen 22	Fernandina	40.85	47.34	11.40	0.244	0.167		88.1		1293	1744	88637
[2]D28C phen 22	Fernandina	40.87	47.25	11.47	0.244	0.168		88.0		1301	1744	89190
[2]D28C phen 22	Fernandina	40.95	47.21	11.43	0.246	0.167		88.0		1293	1759	88878
[1]D28C phen 23	Fernandina	40.44	46.74	12.42		0.168	0.241	87.0	1895	1301		96555
[2]D28C phen 23	Fernandina	40.52	46.18	12.88	0.252	0.177		86.5		1371	1802	100147
[2]D28C phen 23	Fernandina	40.81	45.93	12.83	0.253	0.175		86.5		1355	1809	99769
[2]D28C phen 23	Fernandina	40.44	46.28	12.85	0.258	0.177		86.5		1371	1844	99917
[2]D28C phen 23	Fernandina	40.26	46.36	12.94	0.259	0.176		86.5		1363	1852	100627
[1]D28C phen 24	Fernandina	40.34	46.85	12.38		0.172	0.256	87.1	2014	1335		96260
[2]D28C phen 24	Fernandina	40.18	46.50	12.90	0.253	0.176		86.5		1363	1809	100302
[1]D30A phen 20	Fernandina	40.20	45.24	14.13		0.182	0.256	85.1	2009	1413		109849
[1]D30A phen 20	Fernandina	40.43	45.33	13.79		0.181	0.262	85.4	2058	1402		107229
[1]D30A phen 20	Fernandina	38.88	38.03	22.70		0.314	0.073	74.9	574	2435		176544
[1]D30A phen 20	Fernandina	40.11	43.97	15.49		0.201	0.228	83.5	1788	1557		120448
[1]D30A phen 20	Fernandina	39.61	41.63	18.35		0.244	0.162	80.2	1274	1892		142710
[1]D30A phen 20	Fernandina	40.44	45.21	13.91		0.180	0.260	85.3	2039	1392		108170
[1]D30A phen 20	Fernandina	38.55	36.51	24.55		0.348	0.039	72.6	309	2698		190899
[1]D30A phen 20	Fernandina	40.45	45.44	13.67		0.180	0.261	85.6	2050	1392		106316
[1]D30A phen 20	Fernandina	40.25	45.28	14.03		0.185	0.254	85.2	1994	1434		109129

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]D30A phen 20	Fernandina	40.47	45.54	13.56		0.183	0.260	85.7	2041	1420		105408
[1]D30A phen 20	Fernandina	40.44	45.42	13.70		0.183	0.261	85.5	2048	1417		106537
[1]D30A phen 20	Fernandina	40.34	45.37	13.85		0.174	0.259	85.4	2036	1346		107732
[1]D30A phen 20	Fernandina	40.08	43.83	15.67		0.204	0.223	83.3	1751	1583		121814
[1]D30A phen 20	Fernandina	39.66	41.88	18.06		0.242	0.163	80.5	1277	1873		140407
[2]D30A phen 20	Fernandina	39.05	40.89	19.53	0.261	0.266		78.9		2060	1866	151871
[2]D30A phen 20	Fernandina	39.29	42.31	17.88	0.271	0.249		80.8		1929	1938	139036
[2]D30A phen 20	Fernandina	39.37	41.95	18.15	0.275	0.251		80.5		1944	1966	141141
[2]D30A phen 20	Fernandina	39.41	42.49	17.58	0.277	0.250		81.2		1936	1980	136693
[2]D30A phen 20	Fernandina	39.28	42.38	17.81	0.279	0.249		80.9		1929	1995	138494
[2]D30A phen 20	Fernandina	39.37	42.40	17.70	0.281	0.246		81.0		1905	2009	137640
[2]D30A phen 20	Fernandina	39.34	42.33	17.81	0.281	0.246		80.9		1905	2009	138482
[2]D30A phen 20	Fernandina	39.33	42.28	17.85	0.285	0.251		80.9		1944	2038	138808
[2]D30A phen 20	Fernandina	39.32	42.31	17.83	0.285	0.256		80.9		1983	2038	138646
[2]D30A phen 20	Fernandina	37.96	36.18	25.20	0.311	0.355		71.9		2749	2223	195945
[1]D30A phen 21	Fernandina	39.32	42.01	18.29		0.255	0.128	80.4	1003	1971		142208
[1]D30A phen 21	Fernandina	39.71	42.68	17.24		0.240	0.127	81.5	996	1855		134087
[1]D30A phen 21	Fernandina	39.65	42.64	17.33		0.246	0.127	81.4	994	1904		134778
[1]D30A phen 21	Fernandina	39.68	42.53	17.42		0.242	0.128	81.3	1002	1875		135473
[1]D30A phen 21	Fernandina	39.48	42.64	17.50		0.244	0.134	81.3	1051	1892		136078
[1]D30A phen 21	Fernandina	39.69	42.61	17.33		0.244	0.126	81.4	990	1889		134752
[1]D30A phen 21	Fernandina	39.73	42.53	17.36		0.241	0.130	81.4	1025	1867		135029
[1]D30A phen 21	Fernandina	39.15	40.69	19.77		0.268	0.120	78.6	939	2076		153719
[1]D30A phen 21	Fernandina	39.79	42.53	17.32		0.244	0.123	81.4	965	1893		134679
[1]D30A phen 21	Fernandina	39.79	42.52	17.32		0.243	0.121	81.4	949	1884		134684
[1]D30A phen 21	Fernandina	39.67	42.68	17.28		0.243	0.127	81.5	1000	1883		134365
[1]D30A phen 21	Fernandina	39.69	42.60	17.34		0.243	0.130	81.4	1024	1882		134816
[2]D30A phen 21	Fernandina	40.03	44.64	14.90	0.233	0.197		84.2		1526	1666	115863
[2]D30A phen 21	Fernandina	39.86	43.34	16.36	0.233	0.211		82.5		1634	1666	127211
[2]D30A phen 21	Fernandina	40.21	45.29	14.08	0.236	0.185		85.1		1433	1687	109486
[2]D30A phen 21	Fernandina	40.17	44.94	14.46	0.236	0.188		84.7		1456	1687	112448
[2]D30A phen 21	Fernandina	40.05	44.97	14.55	0.238	0.193		84.6		1495	1702	113140
[2]D30A phen 21	Fernandina	40.02	45.01	14.54	0.244	0.193		84.7		1495	1744	113056

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D30A phen 21	Fernandina	39.34	40.68	19.47	0.252	0.259		78.8		2006	1802	151398
[2]D30A phen 21	Fernandina	38.85	38.32	22.24	0.284	0.310		75.4		2401	2030	172932
[2]D30A phen 21	Fernandina	38.25	35.66	25.42	0.314	0.362		71.4		2804	2245	197655
[1]D30A phen 24	Fernandina	40.02	43.50	16.08		0.210	0.196	82.8	1536	1628		125013
[1]D30A phen 24	Fernandina	40.31	45.01	14.23		0.187	0.264	84.9	2074	1452		110642
[1]D30A phen 24	Fernandina	40.32	45.17	14.07		0.184	0.261	85.1	2054	1427		109410
[1]D30A phen 24	Fernandina	38.97	38.35	22.29		0.311	0.077	75.4	602	2409		173338
[1]D30A phen 24	Fernandina	40.21	45.15	14.19		0.185	0.267	85.0	2097	1433		110344
[1]D30A phen 24	Fernandina	40.21	45.30	14.03		0.184	0.268	85.2	2108	1425		109124
[1]D30A phen 24	Fernandina	39.77	42.31	17.53		0.224	0.164	81.1	1292	1734		136293
[1]D30A phen 24	Fernandina	39.23	39.46	20.92		0.290	0.097	77.1	760	2245		162682
[1]D30A phen 24	Fernandina	40.26	45.24	14.05		0.185	0.262	85.2	2056	1436		109274
[1]D30A phen 24	Fernandina	40.20	45.18	14.17		0.185	0.264	85.0	2074	1434		110160
[1]D30A phen 24	Fernandina	40.24	45.11	14.21		0.186	0.260	85.0	2038	1443		110497
[1]D30A phen 24	Fernandina	40.32	45.22	14.02		0.182	0.263	85.2	2062	1406		109000
[2]D30A phen 24	Fernandina	40.14	44.73	14.70	0.235	0.192		84.4		1487	1680	114311
[2]D30A phen 24	Fernandina	40.19	44.64	14.74	0.238	0.198		84.4		1533	1701	114612
[2]D30A phen 24	Fernandina	39.99	44.76	14.82	0.241	0.192		84.3		1487	1723	115238
[2]D30A phen 24	Fernandina	40.11	44.81	14.65	0.241	0.194		84.5		1503	1723	113913
[2]D30A phen 24	Fernandina	40.10	44.92	14.55	0.242	0.190		84.6		1472	1730	113139
[2]D30A phen 24	Fernandina	40.12	44.67	14.77	0.242	0.191		84.4		1479	1730	114860
[2]D30A phen 24	Fernandina	39.66	42.48	17.37	0.250	0.233		81.3		1805	1787	135079
[2]D30A phen 24	Fernandina	38.27	36.51	24.57	0.309	0.346		72.6		2680	2209	191048
[1]D34A phen 10	Fernandina	40.40	46.06	13.13		0.205	0.209	86.2	1641	1584		102088
[2]D34A phen 10	Fernandina	40.24	45.39	13.84	0.324	0.211		85.4		1633	2318	107627
[1]D34A phen 15	Fernandina	40.29	45.70	13.59		0.207	0.210	85.7	1653	1601		105686
[2]D34A phen 15	Fernandina	40.07	45.00	14.42	0.300	0.217		84.8		1684	2147	112106
[1]D34A phen 16	Fernandina	39.57	42.29	17.74		0.272	0.135	81.0	1064	2106		137914
[2]D34A phen 16	Fernandina	39.33	41.80	18.30	0.295	0.280		80.3		2172	2112	142309
[1]D34A phen 17	Fernandina	40.49	46.29	12.81		0.194	0.225	86.6	1765	1504		99597
[2]D34A phen 17	Fernandina	40.33	45.61	13.51	0.346	0.205		85.7		1588	2471	105084
[1]D34A phen 19	Fernandina	40.37	46.22	12.97		0.200	0.248	86.4	1946	1549		100835
[1]D34A phen 19	Fernandina	40.34	46.25	12.96		0.200	0.250	86.4	1961	1546		100807

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]D34A phen 19	Fernandina	40.42	46.17	12.96		0.200	0.248	86.4	1950	1546		100794
[1]D34A phen 19	Fernandina	40.30	46.26	13.00		0.198	0.247	86.4	1939	1530		101116
[2]D34A phen 19	Fernandina	40.25	45.46	13.81	0.271	0.210		85.4		1623	1937	107386
[2]D34A phen 19	Fernandina	40.28	45.41	13.83	0.274	0.207		85.4		1607	1959	107531
[2]D34A phen 19	Fernandina	40.32	45.40	13.80	0.279	0.209		85.4		1617	1998	107295
[2]D34A phen 19	Fernandina	40.16	44.74	14.57	0.316	0.219		84.6		1693	2258	113288
[1]D34A phen 20	Fernandina	40.50	45.61	13.48		0.204	0.210	85.8	1652	1577		104824
[1]D34A phen 20	Fernandina	40.41	45.60	13.56		0.205	0.212	85.7	1666	1587		105479
[1]D34A phen 20	Fernandina	40.35	45.45	13.79		0.207	0.205	85.5	1608	1605		107256
[1]D34A phen 20	Fernandina	40.38	45.64	13.56		0.207	0.216	85.7	1698	1603		105423
[2]D34A phen 20	Fernandina	40.12	44.96	14.37	0.335	0.216		84.8		1677	2397	111726
[2]D34A phen 20	Fernandina	40.16	44.95	14.33	0.340	0.219		84.8		1693	2434	111461
[2]D34A phen 20	Fernandina	40.11	44.90	14.42	0.346	0.225		84.7		1744	2476	112112
[2]D34A phen 20	Fernandina	40.07	44.68	14.66	0.364	0.221		84.4		1713	2601	114032
[1]D34A phen 21	Fernandina	39.90	46.07	13.61		0.206	0.212	85.8	1667	1599		105808
[2]D34A phen 21	Fernandina	40.05	45.03	14.37	0.341	0.216		84.8		1674	2436	111707
[1]D34A phen 22	Fernandina	40.38	45.66	13.54		0.207	0.209	85.7	1644	1605		105256
[1]D34A phen 22	Fernandina	40.33	45.67	13.58		0.204	0.211	85.7	1655	1582		105597
[1]D34A phen 22	Fernandina	40.23	45.73	13.61		0.211	0.211	85.7	1655	1631		105863
[1]D34A phen 22	Fernandina	40.35	45.63	13.61		0.205	0.210	85.7	1645	1585		105819
[1]D34A phen 22	Fernandina	40.30	45.69	13.60		0.206	0.215	85.7	1685	1593		105738
[2]D34A phen 22	Fernandina	40.08	44.96	14.39	0.343	0.223		84.8		1729	2452	111921
[2]D34A phen 22	Fernandina	40.10	44.93	14.41	0.345	0.220		84.8		1703	2467	112028
[2]D34A phen 22	Fernandina	40.07	44.98	14.38	0.346	0.219		84.8		1698	2474	111844
[2]D34A phen 22	Fernandina	40.07	45.00	14.37	0.350	0.216		84.8		1676	2504	111754
[2]D34A phen 22	Fernandina	40.03	44.85	14.54	0.359	0.221		84.6		1713	2566	113033
[1]D34A phen 23	Fernandina	40.53	46.97	12.04		0.182	0.278	87.4	2185	1406		93593
[2]D34A phen 23	Fernandina	40.41	46.51	12.60	0.299	0.188		86.8		1453	2134	97944
[1]D34A phen 24	Fernandina	40.18	44.41	15.01		0.230	0.169	84.1	1326	1784		116746
[1]D34A phen 24	Fernandina	40.43	46.19	12.92		0.199	0.263	86.4	2062	1540		100480
[1]D34A phen 24	Fernandina	40.57	47.24	11.74		0.174	0.277	87.8	2172	1351		91301
[1]D34A phen 24	Fernandina	40.50	47.09	11.96		0.176	0.277	87.5	2177	1366		92990
[1]D34A phen 24	Fernandina	40.59	47.29	11.67		0.171	0.272	87.8	2136	1327		90749

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D34A phen 24	Fernandina	40.48	46.51	12.52	0.299	0.190		86.9		1475	2140	97342
[2]D34A phen 24	Fernandina	40.53	46.50	12.47	0.312	0.184		86.9		1426	2229	96992
[2]D34A phen 24	Fernandina	40.39	46.59	12.52	0.321	0.181		86.9		1399	2297	97337
[2]D34A phen 24	Fernandina	39.98	44.35	15.11	0.333	0.230		84.0		1782	2378	117504
[2]D34A phen 24	Fernandina	40.46	46.55	12.46	0.347	0.185		86.9		1436	2478	96909
[1]D36A phen 1	Fernandina	39.91	44.80	14.86		0.204	0.223	84.3	1750	1584		115570
[2]D36A phen 1	Fernandina	39.74	43.82	15.91	0.310	0.226		83.1		1750	2216	123710
[1]D36A phen 8	Fernandina	39.97	44.56	15.07		0.204	0.207	84.1	1629	1583		117153
[1]D36A phen 8	Fernandina	39.98	44.49	15.11		0.209	0.212	84.0	1664	1620		117468
[2]D36A phen 8	Fernandina	39.77	43.93	15.79	0.280	0.223		83.2		1727	2002	122792
[2]D36A phen 8	Fernandina	40.06	43.55	15.87	0.294	0.226		83.0		1750	2102	123406
[1]D36A phen 10	Fernandina	39.60	43.05	16.94		0.230	0.175	81.9	1372	1779		131711
[1]D36A phen 10	Fernandina	40.06	45.21	14.32		0.200	0.212	84.9	1667	1548		111320
[1]D36A phen 10	Fernandina	39.97	45.31	14.31		0.198	0.212	85.0	1666	1530		111274
[1]D36A phen 10	Fernandina	40.03	45.24	14.32		0.199	0.215	84.9	1689	1538		111331
[1]D36A phen 10	Fernandina	39.98	45.22	14.39		0.198	0.213	84.8	1669	1531		111924
[1]D36A phen 10	Fernandina	40.02	45.24	14.33		0.197	0.212	84.9	1663	1525		111418
[2]D36A phen 10	Fernandina	40.05	44.69	14.75	0.300	0.211		84.4		1634	2145	114696
[2]D36A phen 10	Fernandina	39.99	44.49	15.00	0.306	0.217		84.1		1681	2188	116637
[2]D36A phen 10	Fernandina	39.86	44.67	14.95	0.306	0.208		84.2		1611	2188	116259
[2]D36A phen 10	Fernandina	40.04	44.45	14.98	0.311	0.211		84.1		1634	2224	116495
[2]D36A phen 10	Fernandina	39.84	44.61	15.02	0.312	0.211		84.1		1634	2231	116804
[2]D36A phen 10	Fernandina	39.97	43.70	15.78	0.325	0.223		83.2		1727	2324	122709
[1]D36A phen 11	Fernandina	39.27	42.16	18.17		0.262	0.144	80.5	1131	2027		141293
[2]D36A phen 11	Fernandina	39.25	41.28	18.89	0.298	0.284		79.6		2200	2131	146887
[1]D36A phen 12	Fernandina	39.28	42.03	18.28		0.263	0.149	80.4	1174	2037		142132
[1]D36A phen 13	Fernandina	39.83	45.19	14.57		0.207	0.194	84.7	1526	1605		113323
[2]D36A phen 13	Fernandina	40.04	44.34	15.08	0.331	0.218		84.0		1688	2366	117252
[1]D36A phen 14	Fernandina	40.22	46.38	12.96		0.181	0.257	86.5	2015	1403		100742
[1]D36A phen 14	Fernandina	40.28	46.27	13.01		0.185	0.258	86.4	2026	1433		101144
[1]D36A phen 14	Fernandina	40.31	46.25	12.99		0.185	0.260	86.4	2044	1431		101033
[1]D36A phen 14	Fernandina	40.26	46.38	12.93		0.183	0.256	86.5	2012	1417		100510
[2]D36A phen 14	Fernandina	40.22	45.72	13.52	0.340	0.203		85.8		1572	2431	105129

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D36A phen 14	Fernandina	40.21	45.76	13.49	0.345	0.201		85.8		1557	2466	104893
[2]D36A phen 14	Fernandina	40.24	45.59	13.62	0.347	0.198		85.6		1534	2481	105915
[1]D36A phen 16	Fernandina	39.98	45.47	14.12		0.199	0.224	85.2	1758	1540		109795
[1]D36A phen 16	Fernandina	40.04	45.55	13.99		0.192	0.221	85.3	1739	1488		108780
[1]D36A phen 16	Fernandina	39.99	45.62	13.98		0.194	0.222	85.3	1740	1504		108698
[1]D36A phen 16	Fernandina	40.00	45.66	13.92		0.195	0.218	85.4	1713	1509		108261
[1]D36A phen 16	Fernandina	40.06	45.61	13.92		0.195	0.220	85.4	1730	1511		108243
[2]D36A phen 16	Fernandina	39.68	45.24	14.57	0.300	0.211		84.7		1634	2145	113296
[2]D36A phen 16	Fernandina	40.14	44.70	14.64	0.302	0.210		84.5		1627	2159	113850
[2]D36A phen 16	Fernandina	39.87	44.87	14.74	0.304	0.212		84.4		1642	2174	114624
[2]D36A phen 16	Fernandina	39.90	45.13	14.46	0.305	0.212		84.8		1642	2180	112434
[2]D36A phen 16	Fernandina	39.54	42.32	17.58	0.309	0.246		81.1		1905	2209	136710
[1]D36A phen 18	Fernandina	39.28	41.42	18.88		0.264	0.156	79.6	1224	2043		146823
[1]D36A phen 19	Fernandina	39.82	44.84	14.94		0.201	0.204	84.3	1602	1554		116137
[2]D36A phen 19	Fernandina	40.18	43.90	15.40	0.298	0.219		83.6		1696	2131	119755
[1]D36A phen 20	Fernandina	40.02	45.08	14.51		0.197	0.199	84.7	1566	1525		112826
[2]D36A phen 20	Fernandina	39.68	44.65	15.18	0.280	0.215		84.0		1665	2002	118035
[1]D36A phen 21	Fernandina	39.41	41.67	18.52		0.259	0.139	80.0	1092	2003		144019
[2]D36A phen 21	Fernandina	39.31	41.01	19.12	0.288	0.278		79.3		2153	2059	148669
[1]D36A phen 22	Fernandina	39.36	41.77	18.46		0.259	0.144	80.1	1127	2009		143565
[2]D36A phen 22	Fernandina	39.19	40.87	19.37	0.289	0.282		79.0		2184	2066	150621
[1]D36A phen 23	Fernandina	39.94	45.18	14.47		0.203	0.204	84.8	1600	1568		112531
[2]D36A phen 23	Fernandina	39.83	44.47	15.17	0.306	0.223		83.9		1727	2188	117964
[1]D38A phen 1	Fernandina	40.55	47.69	11.30		0.171	0.288	88.3	2260	1324		87907
[1]D38A phen 1	Fernandina	40.54	48.07	10.93		0.166	0.296	88.7	2322	1288		84978
[1]D38A phen 1	Fernandina	40.52	48.07	10.94		0.168	0.300	88.7	2352	1304		85084
[1]D38A phen 1	Fernandina	40.59	48.06	10.89		0.164	0.293	88.7	2305	1272		84676
[2]D38A phen 1	Fernandina	40.48	47.35	11.70	0.303	0.168		87.8		1304	2170	90950
[2]D38A phen 1	Fernandina	40.48	47.30	11.73	0.304	0.177		87.8		1371	2172	91218
[2]D38A phen 1	Fernandina	40.55	47.24	11.73	0.310	0.176		87.8		1361	2217	91200
[2]D38A phen 1	Fernandina	40.42	47.09	12.00	0.315	0.179		87.5		1387	2249	93299
[3]D38A phen 1	Fernandina	40.37	47.21	11.64	0.299	0.171	0.316	87.8	2482	1324	2138	90508
[3]D38A phen 1	Fernandina	40.44	47.14	11.64	0.299	0.175	0.313	87.8	2458	1355	2138	90507

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[3]D38A phen 1	Fernandina	40.49	47.08	11.64	0.304	0.176	0.309	87.8	2427	1363	2173	90514
[3]D38A phen 1	Fernandina	40.27	46.13	12.78	0.326	0.191	0.296	86.5	2325	1479	2331	99385
[4]D38A phen 1	Fernandina	40.51	47.26	11.46	0.309	0.166	0.299	88.0	2349	1288	2211	89104
[4]D38A phen 1	Fernandina	40.38	47.33	11.50	0.308	0.170	0.306	88.0	2406	1314	2202	89432
[4]D38A phen 1	Fernandina	40.34	47.38	11.51	0.303	0.172	0.302	88.0	2369	1333	2166	89521
[4]D38A phen 1	Fernandina	40.48	47.31	11.43	0.306	0.172	0.302	88.1	2373	1336	2188	88868
[1]D38A phen 2	Fernandina	40.58	48.09	10.87		0.160	0.296	88.7	2321	1241		84544
[2]D38A phen 2	Fernandina	40.54	47.33	11.65	0.300	0.176		87.9		1362	2142	90593
[3]D38A phen 2	Fernandina	40.32	47.23	11.66	0.299	0.179	0.314	87.8	2466	1386	2138	90667
[4]D38A phen 2	Fernandina	40.46	47.30	11.46	0.302	0.172	0.305	88.0	2394	1329	2160	89098
[1]D38A phen 3	Fernandina	40.36	46.65	12.56		0.188	0.251	86.9	1972	1456		97632
[2]D38A phen 3	Fernandina	40.14	45.84	13.47	0.340	0.207		85.8		1600	2428	104781
[3]D38A phen 3	Fernandina	40.11	45.83	13.25	0.341	0.205	0.265	86.0	2081	1588	2438	103032
[4]D38A phen 3	Fernandina	40.13	45.88	13.19	0.332	0.202	0.265	86.1	2084	1562	2373	102544
[1]D38A phen 4	Fernandina	40.28	46.65	12.63		0.191	0.252	86.8	1976	1477		98204
[2]D38A phen 4	Fernandina	40.16	45.84	13.47	0.330	0.210		85.9		1627	2357	104715
[3]D38A phen 4	Fernandina	39.88	45.91	13.40	0.329	0.205	0.273	85.9	2144	1588	2352	104202
[4]D38A phen 4	Fernandina	40.18	45.82	13.20	0.335	0.203	0.265	86.1	2081	1569	2396	102652
[1]D38A phen 5	Fernandina	40.57	47.73	11.26		0.170	0.267	88.3	2096	1318		87594
[2]D38A phen 5	Fernandina	40.47	47.05	12.01	0.296	0.180		87.5		1397	2114	93358
[3]D38A phen 5	Fernandina	40.25	47.06	11.94	0.289	0.177	0.293	87.5	2301	1371	2066	92838
[4]D38A phen 5	Fernandina	40.50	46.97	11.78	0.301	0.172	0.278	87.7	2187	1329	2150	91593
[1]D38A phen 6	Fernandina	40.52	47.53	11.50		0.174	0.284	88.1	2228	1346		89402
[2]D38A phen 6	Fernandina	40.51	47.03	11.94	0.337	0.179		87.5		1385	2413	92853
[2]D38A phen 6	Fernandina	40.38	47.10	11.99	0.341	0.189		87.5		1460	2436	93217
[2]D38A phen 6	Fernandina	40.14	46.06	13.22	0.378	0.203		86.1		1570	2703	102781
[3]D38A phen 6	Fernandina	40.24	47.01	11.94	0.334	0.181	0.292	87.5	2294	1402	2388	92849
[3]D38A phen 6	Fernandina	40.26	46.93	11.99	0.339	0.180	0.296	87.5	2325	1394	2424	93239
[3]D38A phen 6	Fernandina	40.24	46.73	12.17	0.381	0.184	0.289	87.3	2270	1425	2724	94640
[4]D38A phen 6	Fernandina	40.52	46.99	11.69	0.336	0.175	0.287	87.8	2255	1353	2403	90922
[4]D38A phen 6	Fernandina	40.35	47.11	11.74	0.339	0.179	0.284	87.7	2229	1383	2422	91257
[4]D38A phen 6	Fernandina	40.38	46.98	11.81	0.366	0.180	0.285	87.6	2237	1391	2619	91815
[1]D38A phen 7	Fernandina	40.66	47.98	10.89		0.169	0.297	88.7	2331	1308		84677

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D38A phen 7	Fernandina	40.51	47.45	11.57	0.299	0.174		88.0		1347	2134	89961
[3]D38A phen 7	Fernandina	40.45	47.21	11.56	0.300	0.172	0.307	87.9	2411	1332	2145	89892
[4]D38A phen 7	Fernandina	40.51	47.38	11.34	0.305	0.172	0.302	88.2	2371	1331	2180	88169
[1]D38A phen 8	Fernandina	40.50	46.65	12.41		0.187	0.251	87.0	1975	1448		96518
[1]D38A phen 8	Fernandina	40.47	46.71	12.38		0.185	0.254	87.1	1998	1432		96246
[2]D38A phen 8	Fernandina	40.16	46.06	13.24	0.337	0.201		86.1		1557	2408	102961
[2]D38A phen 8	Fernandina	40.16	46.06	13.24	0.336	0.202		86.1		1566	2405	102982
[2]D38A phen 8	Fernandina	39.84	44.55	15.01	0.363	0.229		84.1		1774	2593	116736
[3]D38A phen 8	Fernandina	40.09	45.89	13.21	0.337	0.200	0.272	86.1	2136	1549	2409	102723
[3]D38A phen 8	Fernandina	40.00	45.21	13.98	0.340	0.215	0.256	85.2	2011	1665	2431	108708
[3]D38A phen 8	Fernandina	40.05	45.94	13.20	0.335	0.202	0.277	86.1	2176	1564	2395	102640
[4]D38A phen 8	Fernandina	40.23	45.95	13.01	0.342	0.200	0.267	86.3	2100	1546	2445	101179
[4]D38A phen 8	Fernandina	40.23	46.01	12.95	0.341	0.197	0.267	86.4	2097	1529	2435	100717
[4]D38A phen 8	Fernandina	40.14	45.21	13.83	0.352	0.211	0.254	85.4	1997	1636	2516	107515
[1]D38A phen 9	Fernandina	40.69	47.30	11.56		0.176	0.269	87.9	2113	1360		89887
[1]D38A phen 9	Fernandina	40.80	47.26	11.51		0.172	0.264	88.0	2074	1334		89489
[1]D38A phen 9	Fernandina	40.56	46.61	12.38		0.188	0.255	87.0	1999	1453		96300
[2]D38A phen 9	Fernandina	40.32	46.89	12.28	0.332	0.186		87.2		1441	2373	95482
[2]D38A phen 9	Fernandina	40.39	46.83	12.26	0.331	0.189		87.2		1462	2369	95338
[2]D38A phen 9	Fernandina	40.02	45.00	14.42	0.346	0.220		84.8		1705	2475	112125
[3]D38A phen 9	Fernandina	40.26	46.04	12.91	0.330	0.191	0.269	86.4	2113	1479	2359	100389
[3]D38A phen 9	Fernandina	40.33	46.65	12.22	0.331	0.187	0.280	87.2	2199	1448	2367	95025
[3]D38A phen 9	Fernandina	39.97	45.54	13.71	0.339	0.204	0.247	85.6	1940	1580	2423	106599
[4]D38A phen 9	Fernandina	40.38	46.71	12.11	0.337	0.186	0.275	87.3	2163	1441	2412	94176
[4]D38A phen 9	Fernandina	40.35	46.74	12.11	0.336	0.185	0.276	87.3	2167	1429	2402	94176
[4]D38A phen 9	Fernandina	40.07	44.36	14.77	0.367	0.223	0.212	84.3	1663	1731	2623	114814
[1]D38A phen 10	Fernandina	40.79	47.19	11.58		0.176	0.265	87.9	2081	1365		90041
[2]D38A phen 10	Fernandina	40.33	46.82	12.33	0.333	0.192		87.1		1485	2383	95870
[3]D38A phen 10	Fernandina	40.36	46.66	12.18	0.330	0.188	0.280	87.2	2199	1456	2359	94714
[4]D38A phen 10	Fernandina	40.47	46.64	12.11	0.333	0.183	0.272	87.3	2137	1420	2378	94132
[4]D38A phen 10	Fernandina	40.37	46.71	12.13	0.334	0.183	0.280	87.3	2198	1415	2388	94310
[4]D38A phen 10	Fernandina	40.04	44.82	14.35	0.354	0.218	0.221	84.8	1738	1686	2529	111566
[1]D38A phen 12	Fernandina	40.00	47.94	11.59		0.172	0.284	88.1	2234	1333		90161

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D38A phen 12	Fernandina	39.67	44.39	15.36	0.345	0.233		83.7		1805	2467	119443
[3]D38A phen 12	Fernandina	39.77	44.15	15.29	0.345	0.229	0.217	83.7	1704	1774	2467	118895
[4]D38A phen 12	Fernandina	39.89	44.27	15.06	0.344	0.231	0.214	84.0	1677	1788	2462	117106
[1]D38A phen 13	Fernandina	40.80	47.02	11.74		0.180	0.262	87.7	2060	1393		91304
[2]D38A phen 13	Fernandina	40.28	46.65	12.54	0.352	0.187		86.9		1446	2519	97492
[3]D38A phen 13	Fernandina	40.38	46.41	12.40	0.350	0.187	0.278	87.0	2183	1448	2502	96418
[4]D38A phen 13	Fernandina	40.40	46.54	12.24	0.360	0.183	0.270	87.1	2122	1420	2573	95171
[1]D38A phen 14	Fernandina	40.76	47.41	11.38		0.167	0.289	88.1	2274	1290		88454
[2]D38A phen 14	Fernandina	40.26	47.07	12.19	0.301	0.179		87.3		1387	2152	94809
[3]D38A phen 14	Fernandina	40.33	46.88	12.02	0.298	0.179	0.303	87.4	2380	1386	2130	93459
[4]D38A phen 14	Fernandina	40.44	46.90	11.90	0.302	0.175	0.296	87.5	2325	1356	2157	92497
[1]D38A phen 15	Fernandina	40.67	47.17	11.71		0.173	0.276	87.8	2170	1338		91070
[2]D38A phen 15	Fernandina	40.32	46.80	12.37	0.326	0.187		87.1		1450	2331	96164
[3]D38A phen 15	Fernandina	40.39	46.64	12.18	0.322	0.183	0.286	87.2	2246	1417	2302	94711
[4]D38A phen 15	Fernandina	40.34	46.77	12.10	0.324	0.180	0.287	87.3	2254	1397	2318	94082
[1]D38A phen 16	Fernandina	40.62	46.70	12.25		0.178	0.252	87.2	1979	1382		95255
[2]D38A phen 16	Fernandina	40.14	46.38	12.95	0.344	0.193		86.5		1492	2460	100686
[3]D38A phen 16	Fernandina	40.33	46.06	12.81	0.335	0.189	0.273	86.5	2144	1464	2395	99614
[4]D38A phen 16	Fernandina	40.26	46.18	12.76	0.346	0.190	0.261	86.6	2049	1470	2476	99253
[1]D38A phen 18	Fernandina	41.01	47.53	11.00		0.162	0.294	88.5	2308	1255		85507
[2]D38A phen 18	Fernandina	40.34	47.26	11.92	0.306	0.180		87.6		1395	2190	92667
[3]D38A phen 18	Fernandina	40.31	46.98	11.93	0.307	0.180	0.291	87.5	2286	1394	2195	92770
[4]D38A phen 18	Fernandina	40.41	46.92	11.89	0.317	0.182	0.282	87.6	2219	1408	2269	92437
[1]D38A phen 19	Fernandina	40.79	47.19	11.56		0.175	0.283	87.9	2219	1359		89899
[1]D38A phen 19	Fernandina	40.73	47.01	11.81		0.174	0.276	87.6	2169	1348		91834
[1]D38A phen 19	Fernandina	40.62	47.10	11.83		0.179	0.276	87.7	2170	1385		91957
[2]D38A phen 19	Fernandina	40.26	46.76	12.46	0.328	0.187		87.0		1451	2342	96914
[2]D38A phen 19	Fernandina	39.92	44.63	14.85	0.363	0.231		84.3		1788	2598	115456
[2]D38A phen 19	Fernandina	40.40	46.73	12.37	0.316	0.184		87.1		1428	2261	96176
[3]D38A phen 19	Fernandina	40.30	45.83	13.10	0.321	0.191	0.258	86.2	2026	1479	2295	101866
[3]D38A phen 19	Fernandina	40.29	46.63	12.30	0.325	0.185	0.280	87.1	2199	1433	2323	95636
[3]D38A phen 19	Fernandina	40.25	46.60	12.34	0.337	0.190	0.277	87.1	2176	1472	2410	95962
[4]D38A phen 19	Fernandina	40.30	46.60	12.30	0.345	0.185	0.275	87.1	2157	1433	2470	95635

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]D38A phen 21	Fernandina	40.71	47.56	11.27		0.170	0.294	88.3	2309	1313		87613
[1]D38A phen 21	Fernandina	40.73	47.43	11.37		0.173	0.294	88.1	2309	1338		88428
[2]D38A phen 21	Fernandina	40.30	46.90	12.29	0.322	0.183		87.2		1417	2302	95572
[2]D38A phen 21	Fernandina	40.31	47.02	12.16	0.321	0.190		87.3		1473	2293	94555
[2]D38A phen 21	Fernandina	40.51	46.85	12.14	0.323	0.183		87.3		1416	2307	94388
[3]D38A phen 21	Fernandina	40.46	47.00	11.75	0.317	0.178	0.289	87.7	2270	1379	2267	91374
[3]D38A phen 21	Fernandina	40.41	46.78	12.02	0.320	0.181	0.291	87.4	2286	1402	2288	93466
[3]D38A phen 21	Fernandina	40.32	45.94	12.93	0.322	0.199	0.281	86.4	2207	1541	2302	100552
[4]D38A phen 21	Fernandina	40.34	46.83	12.03	0.323	0.184	0.287	87.4	2254	1429	2307	93545
[4]D38A phen 21	Fernandina	40.41	46.80	12.00	0.323	0.181	0.286	87.4	2245	1402	2310	93301
[4]D38A phen 21	Fernandina	40.31	46.92	11.98	0.327	0.180	0.289	87.5	2272	1396	2340	93122
[4]D38A phen 21	Fernandina	40.42	46.99	11.79	0.327	0.177	0.290	87.7	2280	1370	2341	91668
[1]D38A phen 22	Fernandina	40.59	46.65	12.33		0.193	0.238	87.1	1866	1494		95881
[1]D38A phen 22	Fernandina	40.62	47.20	11.75		0.181	0.241	87.7	1891	1399		91406
[2]D38A phen 22	Fernandina	40.09	46.26	13.11	0.337	0.207		86.3		1601	2407	101906
[2]D38A phen 22	Fernandina	40.17	46.51	12.77	0.338	0.204		86.6		1579	2416	99336
[2]D38A phen 22	Fernandina	40.11	47.34	12.01	0.345	0.188		87.5		1457	2469	93394
[3]D38A phen 22	Fernandina	40.42	45.97	12.83	0.330	0.199	0.253	86.5	1987	1541	2359	99765
[3]D38A phen 22	Fernandina	40.34	46.06	12.81	0.335	0.200	0.254	86.5	1995	1549	2395	99612
[3]D38A phen 22	Fernandina	40.50	46.45	12.27	0.340	0.192	0.254	87.1	1995	1487	2431	95406
[4]D38A phen 22	Fernandina	40.25	46.15	12.81	0.333	0.203	0.249	86.5	1954	1574	2377	99620
[4]D38A phen 22	Fernandina	40.20	46.16	12.85	0.340	0.200	0.252	86.5	1983	1552	2430	99960
[4]D38A phen 22	Fernandina	40.21	46.33	12.67	0.340	0.199	0.252	86.7	1976	1545	2430	98510
[4]D38A phen 22	Fernandina	40.28	46.72	12.21	0.349	0.191	0.254	87.2	1994	1477	2497	94924
[3]D38A phen 23	Fernandina	40.01	43.62	15.57	0.314	0.240	0.255	83.3	2003	1859	2245	121062
[3]D38A phen 23	Fernandina	39.95	43.78	15.47	0.315	0.234	0.254	83.5	1995	1812	2252	120292
[3]D38A phen 23	Fernandina	40.01	43.47	15.71	0.317	0.241	0.249	83.1	1956	1867	2266	122165
[3]D38A phen 23	Fernandina	40.06	43.44	15.68	0.325	0.244	0.251	83.2	1971	1890	2324	121928
[3]D38A phen 23	Fernandina	40.09	44.09	15.01	0.359	0.230	0.221	84.0	1736	1781	2567	116719
[4]D38A phen 23	Fernandina	39.74	44.02	15.43	0.325	0.236	0.249	83.6	1957	1825	2321	119997
[4]D38A phen 23	Fernandina	39.76	44.01	15.42	0.323	0.235	0.255	83.6	2002	1818	2308	119909
[4]D38A phen 23	Fernandina	39.70	44.08	15.42	0.318	0.233	0.251	83.6	1974	1803	2277	119941
[4]D38A phen 23	Fernandina	39.65	44.01	15.54	0.322	0.238	0.250	83.5	1964	1840	2301	120837

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[4]D38A phen 23	Fernandina	39.85	44.18	15.15	0.386	0.232	0.204	83.9	1599	1794	2758	117792
[3]D38A phen 24	Fernandina	40.55	45.58	13.12	0.323	0.203	0.221	86.1	1736	1572	2309	102025
[3]D38A phen 24	Fernandina	40.52	45.60	13.12	0.332	0.201	0.228	86.1	1791	1557	2373	102011
[3]D38A phen 24	Fernandina	40.54	45.62	13.08	0.336	0.203	0.227	86.1	1783	1572	2402	101705
[3]D38A phen 24	Fernandina	40.54	45.67	13.02	0.341	0.199	0.227	86.2	1783	1541	2438	101247
[3]D38A phen 24	Fernandina	40.23	44.07	14.92	0.345	0.225	0.213	84.0	1673	1743	2467	116015
[4]D38A phen 24	Fernandina	40.24	45.97	13.04	0.330	0.200	0.219	86.3	1718	1551	2358	101386
[4]D38A phen 24	Fernandina	40.16	46.03	13.05	0.333	0.200	0.224	86.3	1757	1552	2379	101489
[4]D38A phen 24	Fernandina	40.20	46.02	13.02	0.336	0.202	0.223	86.3	1752	1564	2400	101239
[4]D38A phen 24	Fernandina	40.29	45.99	12.95	0.342	0.203	0.225	86.4	1771	1573	2446	100664
[4]D38A phen 24	Fernandina	40.02	45.77	13.43	0.351	0.201	0.229	85.9	1798	1559	2506	104398
[3]D38A phen 25	Fernandina	40.89	46.32	11.99	0.318	0.182	0.292	87.3	2294	1410	2274	93242
[4]D38A phen 25	Fernandina	40.28	46.86	12.06	0.327	0.184	0.293	87.4	2300	1425	2340	93771
[3]D38A phen 26	Fernandina	40.78	46.14	12.28	0.331	0.190	0.283	87.0	2223	1472	2366	95486
[4]D38A phen 26	Fernandina	40.16	46.74	12.29	0.342	0.190	0.283	87.1	2220	1473	2445	95531
[3]D38A phen 27	Fernandina	40.56	45.62	13.01	0.337	0.199	0.269	86.2	2113	1541	2410	101171
[4]D38A phen 27	Fernandina	40.20	46.04	12.94	0.352	0.196	0.270	86.4	2119	1522	2515	100660
[3]D38A phen 28	Fernandina	40.70	46.01	12.50	0.329	0.189	0.272	86.8	2136	1464	2352	97201
[3]D38A phen 28	Fernandina	40.63	45.80	12.77	0.331	0.197	0.271	86.5	2129	1526	2367	99301
[3]D38A phen 28	Fernandina	40.57	45.61	13.01	0.337	0.199	0.270	86.2	2121	1541	2409	101170
[3]D38A phen 28	Fernandina	40.62	45.61	12.96	0.337	0.201	0.270	86.3	2121	1557	2409	100780
[4]D38A phen 28	Fernandina	39.68	44.08	15.44	0.317	0.235	0.251	83.6	1969	1819	2264	120059
[4]D38A phen 28	Fernandina	39.75	44.01	15.43	0.319	0.235	0.252	83.6	1982	1824	2280	120003
[4]D38A phen 28	Fernandina	39.71	43.98	15.51	0.318	0.236	0.249	83.5	1952	1829	2274	120578
[4]D38A phen 28	Fernandina	39.78	43.85	15.57	0.324	0.237	0.248	83.4	1947	1838	2313	121038
[4]D38A phen 28	Fernandina	39.74	43.82	15.62	0.335	0.238	0.247	83.3	1937	1846	2395	121474
[3]D38A phen 29	Fernandina	40.43	44.47	14.33	0.306	0.221	0.253	84.7	1987	1712	2188	111420
[4]D38A phen 29	Fernandina	40.04	44.88	14.29	0.311	0.224	0.255	84.8	2007	1733	2226	111143
[3]D38A phen 30	Fernandina	40.55	45.47	13.16	0.350	0.199	0.267	86.0	2097	1541	2502	102337
[4]D38A phen 30	Fernandina	40.14	45.10	13.97	0.331	0.212	0.253	85.2	1987	1640	2364	108617
[3]D38A phen 31	Fernandina	40.72	46.12	12.36	0.327	0.193	0.286	86.9	2246	1495	2338	96106
[4]D38A phen 31	Fernandina	40.24	46.55	12.40	0.333	0.194	0.284	87.0	2231	1501	2378	96398
[3]D38A phen 32	Fernandina	40.62	46.60	11.99	0.312	0.180	0.290	87.4	2278	1394	2231	93242

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[4]D38A phen 32	Fernandina	40.43	46.91	11.88	0.313	0.180	0.286	87.6	2250	1391	2241	92373
[3]D38A phen 33	Fernandina	40.62	46.52	12.08	0.312	0.182	0.294	87.3	2309	1410	2230	93927
[4]D38A phen 33	Fernandina	40.44	46.80	11.97	0.315	0.179	0.290	87.4	2275	1389	2252	93107
[3]D38A phen 34	Fernandina	40.64	46.56	12.02	0.313	0.182	0.291	87.3	2285	1410	2238	93463
[4]D38A phen 34	Fernandina	40.42	46.81	11.99	0.312	0.176	0.292	87.4	2290	1363	2234	93217
[3]D38A phen 35	Fernandina	40.14	44.64	14.44	0.336	0.222	0.220	84.6	1728	1719	2402	112288
[4]D38A phen 35	Fernandina	40.03	44.86	14.34	0.332	0.219	0.215	84.8	1686	1692	2377	111532
[3]D38A phen 36	Fernandina	40.09	44.57	14.53	0.355	0.227	0.219	84.5	1720	1758	2538	112996
[4]D38A phen 36	Fernandina	39.88	44.86	14.47	0.351	0.220	0.213	84.7	1676	1706	2511	112544
[3]D38A phen 37	Fernandina	40.35	45.37	13.50	0.326	0.204	0.256	85.7	2011	1580	2331	104970
[4]D38A phen 37	Fernandina	40.13	45.62	13.45	0.336	0.207	0.256	85.8	2012	1602	2405	104609
[3]D38A phen 38	Fernandina	40.52	46.50	12.19	0.316	0.186	0.291	87.2	2286	1441	2259	94787
[3]D38A phen 38	Fernandina	40.51	46.49	12.20	0.316	0.186	0.295	87.2	2317	1441	2259	94871
[3]D38A phen 38	Fernandina	40.64	46.73	11.83	0.323	0.184	0.287	87.6	2254	1425	2309	91996
[3]D38A phen 38	Fernandina	40.45	46.57	12.18	0.323	0.187	0.291	87.2	2286	1448	2309	94711
[3]D38A phen 38	Fernandina	40.15	44.79	14.25	0.362	0.219	0.233	84.9	1830	1696	2588	110804
[4]D38A phen 38	Fernandina	40.42	46.75	12.04	0.321	0.181	0.286	87.4	2244	1401	2293	93638
[4]D38A phen 38	Fernandina	40.36	46.89	11.96	0.320	0.184	0.290	87.5	2276	1426	2288	92976
[4]D38A phen 38	Fernandina	40.47	47.15	11.60	0.319	0.175	0.289	87.9	2270	1356	2279	90222
[4]D38A phen 38	Fernandina	40.42	46.91	11.87	0.326	0.183	0.290	87.6	2276	1414	2334	92297
[4]D38A phen 38	Fernandina	40.20	43.57	15.41	0.379	0.236	0.207	83.4	1627	1828	2707	119848
[3]D38A phen 39	Fernandina	40.27	46.89	12.07	0.312	0.179	0.287	87.4	2254	1386	2230	93849
[3]D38A phen 39	Fernandina	40.29	46.72	12.21	0.316	0.183	0.285	87.2	2238	1417	2259	94942
[3]D38A phen 39	Fernandina	40.44	46.49	12.28	0.324	0.184	0.278	87.1	2184	1425	2317	95494
[3]D38A phen 39	Fernandina	40.22	46.36	12.62	0.326	0.191	0.273	86.8	2144	1480	2331	98144
[4]D38A phen 39	Fernandina	40.34	46.50	12.36	0.339	0.185	0.274	87.0	2154	1435	2424	96139
[4]D38A phen 39	Fernandina	40.43	46.68	12.11	0.326	0.179	0.278	87.3	2184	1387	2329	94155
[4]D38A phen 39	Fernandina	40.56	46.86	11.81	0.309	0.176	0.279	87.6	2193	1365	2206	91857
[4]D38A phen 39	Fernandina	40.63	46.76	11.84	0.311	0.175	0.280	87.6	2196	1356	2224	92070
[3]D38A phen 40	Fernandina	40.32	46.98	11.92	0.309	0.180	0.286	87.5	2246	1394	2209	92695
[4]D38A phen 40	Fernandina	40.50	46.78	11.94	0.312	0.176	0.286	87.5	2245	1359	2234	92865
[3]D38A phen 41	Fernandina	40.01	46.04	13.14	0.313	0.196	0.298	86.2	2341	1518	2238	102180
[3]D38A phen 41	Fernandina	40.01	46.00	13.18	0.313	0.200	0.297	86.2	2333	1549	2238	102488

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[3]D38A phen 41	Fernandina	39.68	44.37	15.11	0.390	0.232	0.220	84.0	1728	1797	2788	117494
[4]D38A phen 41	Fernandina	40.26	45.84	13.08	0.319	0.197	0.304	86.2	2387	1529	2279	101739
[4]D38A phen 41	Fernandina	40.32	45.93	12.93	0.324	0.194	0.302	86.4	2375	1504	2315	100526
[4]D38A phen 41	Fernandina	40.19	45.41	13.59	0.333	0.205	0.270	85.6	2123	1588	2382	105698
[3]D38A phen 42	Fernandina	40.22	46.62	12.35	0.332	0.186	0.286	87.1	2246	1441	2374	96040
[4]D38A phen 42	Fernandina	40.55	46.42	12.24	0.330	0.187	0.277	87.1	2172	1451	2363	95158
[3]D38A phen 43	Fernandina	39.99	45.99	13.18	0.335	0.206	0.298	86.1	2341	1596	2395	102489
[4]D38A phen 43	Fernandina	40.10	45.90	13.09	0.340	0.201	0.370	86.2	2902	1559	2432	101808
[3]D38A phen 44	Fernandina	40.09	45.80	13.26	0.346	0.208	0.297	86.0	2333	1611	2474	103109
[4]D38A phen 44	Fernandina	40.12	45.87	13.10	0.340	0.199	0.369	86.2	2899	1543	2431	101883
[3]D38A phen 45	Fernandina	40.03	45.97	13.18	0.344	0.205	0.272	86.1	2136	1588	2459	102487
[4]D38A phen 45	Fernandina	40.22	45.94	13.03	0.345	0.201	0.271	86.3	2126	1556	2464	101300
[3]D38A phen 46	Fernandina	40.04	45.99	13.15	0.343	0.202	0.272	86.2	2136	1565	2452	102258
[4]D38A phen 46	Fernandina	40.30	45.78	13.11	0.342	0.200	0.279	86.2	2194	1547	2444	101916
[3]D38A phen 47	Fernandina	40.12	46.66	12.42	0.328	0.188	0.288	87.0	2262	1456	2345	96575
[4]D38A phen 47	Fernandina	40.59	45.97	12.54	0.424	0.187	0.280	86.7	2200	1450	3035	97508
[3]D38A phen 48	Fernandina	40.07	46.37	12.75	0.337	0.193	0.282	86.6	2215	1495	2409	99143
[4]D38A phen 48	Fernandina	40.55	46.82	11.84	0.323	0.180	0.288	87.6	2264	1392	2312	92066
[3]D38A phen 50	Fernandina	40.20	47.13	11.88	0.315	0.176	0.302	87.6	2372	1363	2252	92377
[4]D38A phen 50	Fernandina	40.64	46.97	11.60	0.306	0.175	0.304	87.8	2389	1359	2187	90175
[3]D38A phen 51	Fernandina	40.24	47.28	11.67	0.307	0.179	0.319	87.8	2506	1386	2195	90751
[4]D38A phen 51	Fernandina	40.53	46.90	11.76	0.323	0.176	0.312	87.7	2451	1365	2307	91466
[3]D38A phen 52	Fernandina	40.00	45.88	13.32	0.338	0.200	0.265	86.0	2081	1549	2416	103574
[4]D38A phen 52	Fernandina	40.57	47.15	11.50	0.301	0.172	0.307	88.0	2413	1334	2155	89431
[3]D38A phen 53	Fernandina	40.20	46.16	12.84	0.337	0.193	0.277	86.5	2175	1495	2409	99837
[3]D38A phen 53	Fernandina	40.14	45.95	13.10	0.341	0.205	0.269	86.2	2113	1588	2438	101861
[3]D38A phen 53	Fernandina	40.19	46.10	12.89	0.351	0.196	0.269	86.4	2113	1518	2510	100237
[4]D38A phen 53	Fernandina	40.04	45.35	13.81	0.339	0.207	0.258	85.4	2029	1604	2426	107369
[4]D38A phen 53	Fernandina	40.17	45.98	13.05	0.330	0.202	0.271	86.3	2125	1561	2356	101480
[4]D38A phen 53	Fernandina	40.24	45.95	13.01	0.335	0.197	0.268	86.3	2102	1524	2392	101134
[3]D38A phen 54	Fernandina	40.26	45.91	13.03	0.332	0.200	0.271	86.3	2128	1549	2374	101319
[3]D38A phen 54	Fernandina	40.27	45.86	13.07	0.334	0.201	0.269	86.2	2113	1557	2388	101629
[3]D38A phen 54	Fernandina	40.15	45.90	13.13	0.343	0.201	0.272	86.2	2136	1557	2452	102104

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[3]D38A phen 54	Fernandina	40.30	45.57	13.30	0.353	0.207	0.271	85.9	2128	1603	2524	103420
[4]D38A phen 54	Fernandina	40.29	45.95	12.96	0.333	0.196	0.267	86.3	2095	1519	2379	100794
[4]D38A phen 54	Fernandina	40.27	45.97	12.96	0.337	0.198	0.268	86.3	2103	1532	2412	100787
[4]D38A phen 54	Fernandina	40.21	45.99	13.00	0.345	0.197	0.266	86.3	2090	1529	2465	101077
[4]D38A phen 54	Fernandina	40.04	44.82	14.33	0.364	0.220	0.226	84.8	1773	1706	2605	111402
[3]D38A phen 55	Fernandina	40.30	45.78	13.13	0.322	0.201	0.271	86.1	2128	1557	2302	102095
[4]D38A phen 55	Fernandina	40.60	47.06	11.55	0.315	0.177	0.295	87.9	2315	1368	2254	89849
[3]D38A phen 56	Fernandina	40.16	45.92	13.11	0.329	0.207	0.271	86.2	2129	1603	2352	101947
[4]D38A phen 56	Fernandina	40.25	45.93	13.05	0.302	0.196	0.271	86.3	2125	1517	2163	101478
[3]D38A phen 57	Fernandina	40.32	46.00	12.91	0.299	0.194	0.276	86.4	2168	1503	2138	100390
[4]D38A phen 57	Fernandina	40.27	45.78	13.19	0.303	0.194	0.267	86.1	2098	1500	2170	102561
[3]D38A phen 58	Fernandina	40.25	45.37	13.56	0.342	0.216	0.262	85.6	2058	1673	2445	105443
[3]D38A phen 58	Fernandina	40.28	45.42	13.48	0.343	0.212	0.261	85.7	2050	1642	2452	104825
[3]D38A phen 58	Fernandina	40.24	45.19	13.76	0.348	0.214	0.251	85.4	1971	1657	2488	106995
[3]D38A phen 58	Fernandina	40.26	44.83	14.09	0.351	0.220	0.243	85.0	1909	1704	2510	109571
[4]D38A phen 58	Fernandina	40.26	45.35	13.57	0.357	0.208	0.258	85.6	2027	1610	2554	105526
[4]D38A phen 58	Fernandina	40.11	45.56	13.50	0.350	0.212	0.255	85.7	2002	1642	2501	105015
[4]D38A phen 58	Fernandina	40.11	45.58	13.49	0.351	0.209	0.261	85.8	2052	1615	2510	104879
[4]D38A phen 58	Fernandina	40.06	44.98	14.14	0.370	0.220	0.229	85.0	1796	1703	2645	109958
[3]D38A phen 59	Fernandina	40.20	45.34	13.65	0.338	0.217	0.261	85.6	2050	1681	2416	106137
[3]D38A phen 59	Fernandina	40.26	45.38	13.55	0.339	0.215	0.259	85.7	2034	1665	2424	105362
[3]D38A phen 59	Fernandina	40.22	45.31	13.64	0.346	0.215	0.261	85.6	2050	1665	2474	106074
[3]D38A phen 59	Fernandina	40.17	44.35	14.69	0.347	0.225	0.217	84.3	1704	1743	2481	114231
[4]D38A phen 59	Fernandina	40.15	45.57	13.46	0.350	0.208	0.259	85.8	2037	1610	2499	104697
[4]D38A phen 59	Fernandina	40.21	45.51	13.46	0.350	0.206	0.260	85.8	2039	1592	2506	104664
[4]D38A phen 59	Fernandina	40.13	45.54	13.50	0.354	0.211	0.258	85.7	2028	1634	2528	105009
[4]D38A phen 59	Fernandina	39.97	45.14	14.04	0.385	0.214	0.252	85.1	1983	1655	2750	109152
[4]D38A phen 60	Fernandina	40.15	46.26	12.79	0.324	0.196	0.274	86.6	2150	1516	2314	99488
[4]D38A phen 60	Fernandina	40.33	46.20	12.68	0.319	0.192	0.275	86.7	2162	1489	2278	98629
[4]D38A phen 60	Fernandina	40.32	46.23	12.68	0.310	0.193	0.272	86.7	2136	1493	2219	98569
[4]D38A phen 60	Fernandina	40.37	46.21	12.66	0.306	0.193	0.266	86.7	2090	1492	2187	98437
[3]D38A phen 61	Fernandina	40.03	46.25	12.94	0.312	0.197	0.272	86.4	2136	1526	2230	100611
[3]D38A phen 61	Fernandina	40.60	45.89	12.74	0.313	0.199	0.267	86.5	2097	1541	2238	99058

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[3]D38A phen 61	Fernandina	40.07	46.29	12.85	0.315	0.201	0.270	86.5	2121	1557	2252	99926
[3]D38A phen 61	Fernandina	40.17	46.22	12.83	0.316	0.198	0.270	86.5	2121	1534	2259	99763
[3]D38A phen 61	Fernandina	40.42	45.93	12.87	0.316	0.193	0.270	86.4	2121	1495	2259	100079
[4]D38A phen 61	Fernandina	40.33	46.23	12.65	0.328	0.193	0.261	86.7	2049	1491	2348	98383
[4]D38A phen 61	Fernandina	40.30	46.24	12.67	0.324	0.194	0.272	86.7	2136	1504	2316	98518
[4]D38A phen 61	Fernandina	40.26	46.26	12.69	0.320	0.193	0.269	86.7	2114	1494	2288	98689
[4]D38A phen 61	Fernandina	40.08	45.19	13.94	0.338	0.213	0.241	85.2	1891	1652	2416	108402
[3]D38A phen 62	Fernandina	40.07	46.20	12.92	0.358	0.194	0.260	86.4	2042	1503	2559	100465
[3]D38A phen 62	Fernandina	40.14	46.40	12.64	0.378	0.193	0.245	86.7	1924	1495	2703	98293
[3]D38A phen 62	Fernandina	40.15	46.31	12.71	0.395	0.194	0.242	86.7	1901	1502	2824	98823
[4]D38A phen 62	Fernandina	40.28	46.37	12.51	0.408	0.190	0.235	86.9	1844	1473	2920	97280
[4]D38A phen 62	Fernandina	40.24	46.41	12.53	0.396	0.187	0.239	86.9	1876	1447	2834	97402
[4]D38A phen 62	Fernandina	40.05	44.93	14.22	0.355	0.218	0.232	84.9	1826	1688	2535	110576
[3]D38A phen 63	Fernandina	40.17	46.19	12.85	0.307	0.198	0.283	86.5	2223	1534	2195	99924
[3]D38A phen 63	Fernandina	40.20	46.17	12.85	0.309	0.192	0.285	86.5	2238	1487	2209	99916
[3]D38A phen 63	Fernandina	40.35	46.42	12.45	0.311	0.192	0.279	86.9	2191	1487	2223	96810
[3]D38A phen 63	Fernandina	40.29	46.24	12.69	0.312	0.194	0.282	86.7	2215	1502	2230	98670
[3]D38A phen 63	Fernandina	40.32	46.27	12.61	0.314	0.194	0.287	86.7	2254	1503	2245	98061
[4]D38A phen 63	Fernandina	40.32	46.29	12.61	0.318	0.189	0.274	86.7	2152	1465	2270	98077
[4]D38A phen 63	Fernandina	40.16	46.36	12.70	0.313	0.189	0.278	86.7	2181	1465	2235	98763
[4]D38A phen 63	Fernandina	40.26	46.32	12.64	0.314	0.190	0.273	86.7	2141	1472	2247	98319
[3]D38A phen 64	Fernandina	39.70	46.53	12.98	0.326	0.195	0.274	86.5	2152	1510	2331	100928
[3]D38A phen 64	Fernandina	39.87	46.36	12.97	0.328	0.198	0.268	86.4	2105	1534	2345	100861
[3]D38A phen 64	Fernandina	39.81	46.39	12.99	0.333	0.200	0.278	86.4	2183	1549	2381	101010
[3]D38A phen 64	Fernandina	39.86	46.16	13.15	0.349	0.203	0.273	86.2	2144	1572	2495	102260
[3]D38A phen 65	Fernandina	40.36	47.21	11.67	0.284	0.178	0.302	87.8	2372	1379	2030	90743
[3]D38A phen 66	Fernandina	40.25	47.26	11.74	0.285	0.172	0.300	87.8	2356	1332	2037	91284
[3]D38A phen 67	Fernandina	39.99	46.13	13.10	0.320	0.199	0.265	86.3	2081	1541	2288	101862
[3]D38A phen 67	Fernandina	39.99	46.27	12.95	0.321	0.197	0.268	86.4	2105	1526	2295	100704
[3]D38A phen 67	Fernandina	39.94	46.11	13.16	0.328	0.193	0.273	86.2	2144	1495	2345	102329
[3]D38A phen 67	Fernandina	40.01	46.65	12.54	0.329	0.191	0.276	86.9	2168	1479	2352	97516
[3]D38A phen 68	Fernandina	39.64	44.98	14.58	0.352	0.218	0.222	84.6	1744	1689	2517	113384
[3]D38A phen 69	Fernandina	39.99	46.49	12.70	0.327	0.195	0.295	86.7	2317	1510	2338	98759

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[3]D38A phen 69	Fernandina	39.88	46.58	12.73	0.330	0.195	0.292	86.7	2293	1510	2359	98982
[3]D38A phen 69	Fernandina	39.78	46.64	12.76	0.334	0.192	0.293	86.7	2301	1487	2388	99223
[3]D38A phen 69	Fernandina	39.81	46.65	12.71	0.343	0.196	0.289	86.7	2270	1518	2452	98836
[3]D38A phen 69	Fernandina	39.74	45.28	14.16	0.351	0.215	0.251	85.1	1971	1665	2510	110112
[3]D38A phen 70	Fernandina	39.40	44.40	15.40	0.313	0.238	0.244	83.7	1917	1843	2238	119757
[3]D38A phen 71	Fernandina	39.43	44.43	15.34	0.312	0.238	0.246	83.8	1932	1843	2231	119289
[3]D38A phen 71	Fernandina	39.48	44.46	15.26	0.312	0.237	0.244	83.9	1917	1836	2231	118671
[3]D38A phen 71	Fernandina	39.49	44.45	15.26	0.314	0.237	0.246	83.9	1932	1836	2245	118666
[3]D38A phen 71	Fernandina	39.54	44.72	14.95	0.317	0.231	0.240	84.2	1885	1789	2266	116254
[3]D38A phen 71	Fernandina	39.45	44.31	15.43	0.320	0.240	0.246	83.7	1932	1859	2288	119989
[3]D38A phen 72	Fernandina	40.18	47.44	11.60	0.306	0.173	0.295	87.9	2317	1340	2188	90208
[3]D38A phen 72	Fernandina	40.14	47.63	11.45	0.309	0.170	0.297	88.1	2333	1317	2209	89039
[3]D38A phen 72	Fernandina	40.30	47.44	11.48	0.310	0.173	0.300	88.0	2356	1340	2216	89266
[3]D38A phen 72	Fernandina	39.75	46.20	13.25	0.321	0.197	0.277	86.1	2176	1526	2295	103038
[3]D38A phen 73	Fernandina	39.78	46.87	12.56	0.317	0.191	0.288	86.9	2262	1479	2266	97661
[3]D38A phen 75	Fernandina	39.67	46.98	12.53	0.355	0.194	0.263	87.0	2066	1503	2538	97442
[1]D39G phen 1	Fernandina	40.04	48.78	10.70		0.166	0.308	89.0	2422	1288		83197
[2]D39G phen 1	Fernandina	40.51	47.86	11.18	0.284	0.171		88.4		1324	2030	86932
[3]D39G phen 1	Fernandina	40.62	47.61	11.01	0.289	0.166	0.309	88.5	2429	1282	2063	85592
[1]D39G phen 2	Fernandina	40.08	48.81	10.65		0.160	0.299	89.1	2349	1241		82827
[2]D39G phen 2	Fernandina	40.51	47.92	11.12	0.288	0.170		88.5		1317	2059	86463
[3]D39G phen 2	Fernandina	40.60	47.62	11.02	0.297	0.166	0.308	88.5	2423	1285	2125	85672
[1]D39G phen 3	Fernandina	39.73	47.09	12.75		0.193	0.235	86.8	1849	1495		99134
[1]D39G phen 3	Fernandina	39.76	47.15	12.67		0.191	0.228	86.9	1791	1480		98504
[2]D39G phen 3	Fernandina	40.50	47.88	11.16	0.287	0.174		88.4		1348	2052	86780
[3]D39G phen 3	Fernandina	40.23	45.95	13.05	0.326	0.197	0.250	86.3	1961	1524	2332	101466
[1]D39G phen 4	Fernandina	40.15	48.45	10.93		0.160	0.302	88.8	2375	1241		85001
[1]D39G phen 4	Fernandina	39.71	47.37	12.47		0.183	0.268	87.1	2107	1418		96984
[1]D39G phen 4	Fernandina	39.98	48.57	10.98		0.163	0.303	88.7	2383	1259		85362
[2]D39G phen 4	Fernandina	40.43	47.73	11.38	0.284	0.173		88.2		1340	2031	88494
[2]D39G phen 4	Fernandina	40.42	47.68	11.44	0.287	0.173		88.1		1340	2052	88958
[2]D39G phen 4	Fernandina	40.37	47.13	12.02	0.296	0.183		87.5		1418	2116	93478
[3]D39G phen 4	Fernandina	40.55	47.42	11.27	0.287	0.170	0.307	88.2	2409	1316	2050	87651

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[3]D39G phen 4	Fernandina	40.60	47.38	11.26	0.285	0.169	0.306	88.2	2406	1307	2038	87560
[1]D39G phen 6	Fernandina	39.80	47.47	12.26		0.185	0.285	87.3	2237	1437		95301
[2]D39G phen 6	Fernandina	40.26	46.51	12.71	0.320	0.195		86.7		1510	2288	98839
[3]D39G phen 6	Fernandina	40.22	46.42	12.56	0.326	0.189	0.288	86.8	2261	1467	2330	97634
[1]D39G phen 7	Fernandina	40.02	48.35	11.14		0.168	0.322	88.6	2529	1302		86648
[1]D39G phen 7	Fernandina	40.01	48.42	11.08		0.166	0.322	88.6	2525	1285		86165
[2]D39G phen 7	Fernandina	40.41	47.50	11.63	0.288	0.178		87.9		1379	2059	90430
[3]D39G phen 7	Fernandina	40.61	47.17	11.46	0.296	0.174	0.290	88.0	2281	1346	2118	89131
[1]D39G phen 8	Fernandina	40.06	48.32	11.12		0.164	0.336	88.6	2638	1274		86490
[1]D39G phen 8	Fernandina	39.96	48.35	11.19		0.169	0.325	88.5	2549	1306		87007
[2]D39G phen 8	Fernandina	40.36	47.32	11.90	0.239	0.182		87.6		1410	1709	92534
[3]D39G phen 8	Fernandina	40.51	47.20	11.51	0.302	0.173	0.302	88.0	2372	1342	2161	89487
[1]D39G phen 9	Fernandina	39.94	47.47	12.14		0.181	0.262	87.5	2057	1404		94405
[2]D39G phen 9	Fernandina	40.19	46.67	12.65	0.299	0.192		86.8		1487	2138	98366
[3]D39G phen 9	Fernandina	40.37	46.37	12.49	0.306	0.189	0.275	86.9	2158	1460	2190	97113
[1]D39G phen 10	Fernandina	39.87	47.34	12.34		0.180	0.274	87.2	2155	1391		95969
[2]D39G phen 10	Fernandina	40.26	46.45	12.81	0.289	0.195		86.6		1510	2066	99607
[3]D39G phen 10	Fernandina	40.48	46.21	12.54	0.293	0.189	0.287	86.8	2254	1461	2092	97533
[1]D39G phen 11	Fernandina	40.75	47.43	11.37		0.165	0.284	88.1	2233	1279		88411
[2]D39G phen 11	Fernandina	40.57	46.98	11.97	0.298	0.187		87.5		1448	2130	93075
[3]D39G phen 11	Fernandina	40.36	47.04	11.82	0.312	0.177	0.293	87.6	2298	1369	2231	91928
[1]D39G phen 12	Fernandina	40.00	47.94	11.59		0.172	0.284	88.1	2234	1333		90161
[2]D39G phen 12	Fernandina	40.46	47.01	12.04	0.299	0.183		87.4		1418	2138	93631
[3]D39G phen 12	Fernandina	40.46	46.86	11.90	0.309	0.176	0.291	87.5	2286	1360	2210	92561
[1]D39G phen 13	Fernandina	40.68	47.51	11.36		0.168	0.281	88.2	2205	1298		88311
[2]D39G phen 13	Fernandina	40.32	47.11	12.07	0.307	0.184		87.4		1425	2195	93865
[3]D39G phen 13	Fernandina	40.51	46.84	11.87	0.311	0.179	0.289	87.6	2269	1385	2223	92306
[1]D39G phen 14	Fernandina	40.11	48.43	11.00		0.164	0.297	88.7	2331	1272		85562
[1]D39G phen 14	Fernandina	40.04	48.44	11.06		0.161	0.296	88.6	2325	1244		86022
[1]D39G phen 14	Fernandina	40.00	48.44	11.09		0.163	0.300	88.6	2354	1264		86268
[1]D39G phen 14	Fernandina	39.90	47.44	12.21		0.177	0.279	87.4	2192	1372		94951
[1]D39G phen 14	Fernandina	40.06	48.49	10.99		0.163	0.297	88.7	2332	1265		85436
[2]D39G phen 14	Fernandina	40.64	47.53	11.38	0.276	0.171		88.2		1324	1973	88494

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D39G phen 14	Fernandina	40.52	47.61	11.42	0.278	0.171		88.1		1324	1988	88803
[2]D39G phen 14	Fernandina	40.46	47.55	11.54	0.282	0.171		88.0		1324	2016	89733
[2]D39G phen 14	Fernandina	40.51	47.54	11.50	0.283	0.171		88.1		1324	2023	89421
[3]D39G phen 14	Fernandina	40.73	47.23	11.28	0.283	0.166	0.308	88.2	2421	1287	2026	87730
[3]D39G phen 14	Fernandina	40.62	47.34	11.27	0.284	0.168	0.308	88.2	2417	1298	2030	87664
[3]D39G phen 14	Fernandina	40.58	47.30	11.36	0.285	0.169	0.311	88.1	2439	1305	2036	88333
[3]D39G phen 14	Fernandina	40.64	47.29	11.31	0.285	0.169	0.305	88.2	2398	1312	2038	87969
[3]D39G phen 14	Fernandina	40.63	47.35	11.26	0.285	0.167	0.305	88.2	2397	1291	2039	87558
[3]D39G phen 14	Fernandina	40.65	47.31	11.28	0.290	0.167	0.304	88.2	2391	1294	2076	87697
[3]D39G phen 14	Fernandina	40.36	46.99	12.18	0.290	0.183		87.3		1417	2073	94709
[1]D39G phen 15	Fernandina	39.69	46.92	12.92		0.191	0.275	86.6	2159	1477		100495
[1]D39G phen 15	Fernandina	40.05	48.40	11.09		0.163	0.297	88.6	2335	1266		86202
[1]D39G phen 15	Fernandina	39.97	48.36	11.21		0.164	0.298	88.5	2340	1271		87146
[1]D39G phen 15	Fernandina	40.07	48.36	11.11		0.163	0.301	88.6	2366	1260		86395
[2]D39G phen 15	Fernandina	40.44	47.58	11.52	0.279	0.175		88.0		1356	1995	89585
[2]D39G phen 15	Fernandina	40.37	47.40	11.77	0.281	0.178		87.8		1379	2009	91525
[2]D39G phen 15	Fernandina	40.31	47.55	11.68	0.284	0.177		87.9		1371	2030	90823
[2]D39G phen 15	Fernandina	40.35	47.63	11.57	0.285	0.169		88.0		1309	2038	89965
[3]D39G phen 15	Fernandina	40.63	47.22	11.40	0.285	0.169	0.300	88.1	2358	1308	2038	88676
[3]D39G phen 15	Fernandina	40.58	47.26	11.40	0.288	0.164	0.300	88.1	2356	1274	2060	88654
[3]D39G phen 15	Fernandina	40.52	47.28	11.44	0.288	0.171	0.304	88.0	2389	1328	2056	88983
[3]D39G phen 15	Fernandina	40.49	47.20	11.55	0.288	0.168	0.301	87.9	2363	1300	2059	89852
[1]D39G phen 16	Fernandina	40.75	48.00	10.78		0.161	0.303	88.8	2379	1246		83805
[1]D39G phen 16	Fernandina	40.68	47.81	11.05		0.165	0.299	88.5	2349	1275		85892
[2]D39G phen 16	Fernandina	40.42	47.68	11.44	0.288	0.173		88.1		1340	2059	88957
[3]D39G phen 16	Fernandina	40.39	47.09	11.75	0.307	0.175	0.284	87.7	2232	1353	2197	91346
[1]D39G phen 17	Fernandina	40.08	48.36	11.11		0.166	0.280	88.6	2201	1285		86420
[2]D39G phen 17	Fernandina	40.38	47.60	11.57	0.278	0.173		88.0		1340	1988	89968
[3]D39G phen 17	Fernandina	40.55	47.30	11.41	0.287	0.168	0.290	88.1	2275	1302	2050	88689
[1]D39G phen 18	Fernandina	39.96	47.95	11.62		0.181	0.286	88.0	2245	1403		90370
[2]D39G phen 18	Fernandina	40.24	47.22	12.05	0.304	0.184		87.5		1425	2173	93703
[3]D39G phen 18	Fernandina	40.39	46.93	11.91	0.311	0.178	0.293	87.5	2300	1382	2222	92584
[1]D39G phen 19	Fernandina	39.79	47.31	12.45		0.185	0.263	87.1	2066	1430		96815

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D39G phen 19	Fernandina	40.05	46.45	13.01	0.294	0.200		86.4		1549	2102	101162
[3]D39G phen 19	Fernandina	40.43	46.16	12.65	0.295	0.189	0.278	86.7	2184	1463	2107	98378
[1]D39G phen 20	Fernandina	39.78	47.46	12.31		0.179	0.273	87.3	2141	1390		95728
[2]D39G phen 20	Fernandina	40.00	46.54	12.97	0.297	0.196		86.5		1518	2123	100852
[3]D39G phen 20	Fernandina	40.21	46.38	12.64	0.309	0.186	0.285	86.7	2235	1443	2207	98257
[1]D39G phen 21	Fernandina	40.57	46.95	12.03		0.178	0.272	87.4	2133	1381		93515
[2]D39G phen 21	Fernandina	40.08	46.61	12.81	0.298	0.195		86.6		1510	2131	99618
[3]D39G phen 21	Fernandina	40.27	46.30	12.66	0.302	0.189	0.283	86.7	2225	1466	2161	98470
[1]D39G phen 22	Fernandina	40.83	47.85	10.86		0.160	0.300	88.7	2358	1240		84414
[2]D39G phen 22	Fernandina	40.27	47.08	12.17	0.301	0.183		87.3		1417	2152	94631
[3]D39G phen 22	Fernandina	40.37	46.85	12.00	0.305	0.180	0.293	87.4	2304	1391	2178	93328
[1]D39G phen 23	Fernandina	40.12	48.43	10.99		0.164	0.292	88.7	2295	1270		85494
[2]D39G phen 23	Fernandina	40.43	47.67	11.43	0.297	0.178		88.1		1379	2123	88876
[3]D39G phen 23	Fernandina	40.52	47.34	11.37	0.302	0.167	0.301	88.1	2364	1293	2158	88442
[1]D39G phen 24	Fernandina	40.90	48.18	10.48		0.154	0.290	89.1	2279	1189		81510
[2]D39G phen 24	Fernandina	40.50	47.96	11.10	0.282	0.165		88.5		1278	2016	86308
[3]D39G phen 24	Fernandina	40.70	47.57	10.98	0.291	0.166	0.291	88.5	2286	1282	2082	85358
[1]D40A phen 1	Fernandina	40.24	46.48	12.83		0.196	0.255	86.6	2005	1518		99798
[1]D40A phen 1	Fernandina	40.23	46.50	12.81		0.200	0.257	86.6	2022	1545		99595
[1]D40A phen 1	Fernandina	40.23	46.41	12.91		0.194	0.254	86.5	1992	1499		100399
[1]D40A phen 1	Fernandina	40.21	46.45	12.89		0.194	0.254	86.5	1996	1505		100249
[1]D40A phen 1	Fernandina	40.22	46.50	12.83		0.194	0.256	86.6	2010	1503		99805
[2]D40A phen 1	Fernandina	40.24	46.05	13.18	0.322	0.203		86.2		1572	2302	102493
[2]D40A phen 1	Fernandina	40.22	46.02	13.23	0.323	0.210		86.1		1626	2309	102874
[2]D40A phen 1	Fernandina	40.21	45.98	13.27	0.331	0.210		86.1		1626	2366	103177
[2]D40A phen 1	Fernandina	40.21	45.96	13.29	0.331	0.207		86.0		1603	2367	103346
[2]D40A phen 1	Fernandina	40.20	46.04	13.22	0.333	0.205		86.1		1588	2381	102801
[1]D40A phen 2	Fernandina	39.47	43.22	16.91		0.261	0.140	82.0	1100	2024		131518
[2]D40A phen 2	Fernandina	39.33	42.66	17.43	0.312	0.276		81.4		2138	2230	135526
[1]D40A phen 3	Fernandina	39.25	41.74	18.60		0.282	0.126	80.0	987	2182		144648
[1]D40A phen 3	Fernandina	40.21	46.61	12.73		0.189	0.256	86.7	2014	1462		98985
[1]D40A phen 3	Fernandina	40.26	46.81	12.48		0.187	0.259	87.0	2035	1451		97029
[2]D40A phen 3	Fernandina	40.24	46.34	12.89	0.340	0.196		86.5		1518	2431	100227

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]D40A phen 3	Fernandina	40.27	46.30	12.89	0.343	0.200		86.5		1549	2452	100230
[2]D40A phen 3	Fernandina	40.26	46.31	12.88	0.345	0.203		86.5		1572	2467	100158
[2]D40A phen 3	Fernandina	40.10	45.86	13.48	0.349	0.208		85.8		1611	2495	104824
[1]D40A phen 4	Fernandina	39.97	45.28	14.34		0.215	0.196	84.9	1542	1667		111513
[1]D40A phen 4	Fernandina	39.79	44.50	15.26		0.232	0.218	83.9	1710	1796		118662
[1]D40A phen 4	Fernandina	39.83	45.14	14.62		0.223	0.192	84.6	1508	1724		113673
[2]D40A phen 4	Fernandina	39.81	44.51	15.11	0.333	0.234		84.0		1812	2381	117500
[2]D40A phen 4	Fernandina	39.70	44.61	15.10	0.361	0.236		84.0		1828	2581	117410
[2]D40A phen 4	Fernandina	39.77	44.71	14.93	0.361	0.232		84.2		1797	2581	116093
[2]D40A phen 4	Fernandina	39.66	44.63	15.12	0.362	0.232		84.0		1797	2588	117569
[1]D40A phen 5	Fernandina	39.52	43.19	16.89		0.267	0.138	82.0	1083	2068		131311
[2]D40A phen 5	Fernandina	39.29	42.69	17.44	0.307	0.280		81.4		2169	2195	135605
[1]D40A phen 6	Fernandina	39.53	43.19	16.88		0.263	0.140	82.0	1096	2039		131254
[2]D40A phen 6	Fernandina	39.37	42.63	17.41	0.310	0.272		81.4		2107	2217	135392
[1]D40A phen 7	Fernandina	39.32	42.32	17.94		0.280	0.135	80.8	1063	2167		139533
[1]D40A phen 7	Fernandina	40.32	47.41	11.83		0.179	0.255	87.7	2001	1389		92002
[1]D40A phen 7	Fernandina	40.00	45.34	14.25		0.208	0.207	85.0	1626	1614		110825
[1]D40A phen 7	Fernandina	40.44	47.30	11.83		0.178	0.254	87.7	1991	1381		91961
[1]D40A phen 7	Fernandina	40.29	47.42	11.85		0.182	0.251	87.7	1970	1412		92170
[2]D40A phen 7	Fernandina	39.26	42.03	18.11	0.306	0.284		80.5		2200	2188	140838
[2]D40A phen 7	Fernandina	40.36	46.94	12.19	0.322	0.196		87.3		1518	2302	94782
[2]D40A phen 7	Fernandina	40.13	46.23	13.12	0.324	0.197		86.3		1526	2316	102021
[2]D40A phen 7	Fernandina	39.95	45.24	14.27	0.325	0.214		85.0		1658	2324	110965
[2]D40A phen 7	Fernandina	40.31	46.99	12.19	0.325	0.190		87.3		1472	2323	94785
[2]D40A phen 7	Fernandina	40.35	46.92	12.21	0.326	0.192		87.3		1487	2331	94947
[1]D40A phen 11	Fernandina	39.19	41.50	18.91		0.291	0.113	79.6	885	2254		147032
[2]D40A phen 11	Fernandina	38.96	40.88	19.55	0.298	0.311		78.8		2409	2131	152023
[1]D40A phen 12	Fernandina	40.25	46.68	12.63		0.189	0.258	86.8	2026	1462		98181
[2]D40A phen 12	Fernandina	40.12	46.29	13.06	0.330	0.203		86.3		1572	2359	101552
[1]D40A phen 14	Fernandina	39.54	43.54	16.51		0.249	0.155	82.5	1220	1929		128420
[2]D40A phen 14	Fernandina	39.41	42.99	17.02	0.311	0.271		81.8		2099	2223	132346
[1]D40A phen 15	Fernandina	39.65	43.40	16.55		0.250	0.156	82.4	1225	1940		128691
[2]D40A phen 15	Fernandina	39.41	42.94	17.06	0.314	0.269		81.8		2084	2245	132669

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]D40A phen 17	Fernandina	39.59	43.46	16.54		0.255	0.156	82.4	1229	1976		128608
[2]D40A phen 17	Fernandina	39.43	42.88	17.10	0.309	0.272		81.7		2107	2209	132982
[1]D40A phen 18	Fernandina	40.39	46.95	12.21		0.185	0.271	87.3	2130	1437		94968
[1]D40A phen 18	Fernandina	40.14	47.15	12.25		0.189	0.269	87.3	2113	1462		95270
[1]D40A phen 18	Fernandina	39.75	44.06	15.71		0.240	0.236	83.3	1855	1860		122147
[2]D40A phen 18	Fernandina	39.82	44.16	15.45	0.333	0.244		83.6		1890	2381	120132
[2]D40A phen 18	Fernandina	40.17	46.60	12.68	0.349	0.200		86.8		1549	2495	98601
[2]D40A phen 18	Fernandina	40.16	46.61	12.69	0.350	0.193		86.8		1495	2502	98675
[2]D40A phen 18	Fernandina	40.17	46.61	12.67	0.350	0.199		86.8		1541	2502	98524
[1]D40A phen 19	Fernandina	39.92	45.39	14.22		0.214	0.254	85.0	1994	1655		110604
[1]D40A phen 19	Fernandina	40.26	47.04	12.24		0.184	0.271	87.3	2126	1423		95148
[1]D40A phen 19	Fernandina	40.29	47.02	12.23		0.184	0.271	87.3	2126	1425		95129
[1]D40A phen 19	Fernandina	40.46	46.84	12.26		0.180	0.266	87.2	2088	1394		95331
[2]D40A phen 19	Fernandina	39.75	45.05	14.63	0.343	0.226		84.6		1750	2452	113765
[2]D40A phen 19	Fernandina	40.06	46.62	12.77	0.349	0.200		86.7		1549	2495	99301
[2]D40A phen 19	Fernandina	40.12	46.61	12.72	0.350	0.196		86.7		1518	2502	98915
[2]D40A phen 19	Fernandina	40.10	46.63	12.72	0.351	0.200		86.7		1549	2509	98910
[1]D40A phen 20	Fernandina	39.53	43.00	17.07		0.251	0.155	81.8	1214	1943		132717
[1]D40A phen 22	Fernandina	39.36	42.13	18.11		0.276	0.125	80.6	983	2139		140789
[2]D40A phen 22	Fernandina	38.94	41.72	18.73	0.309	0.294		79.9		2277	2209	145656
[1]D40A phen 23	Fernandina	39.97	45.28	14.38		0.223	0.151	84.9	1186	1725		111836
[1]D40A phen 23	Fernandina	39.91	44.92	14.80		0.228	0.136	84.4	1068	1769		115095
[1]D40A phen 23	Fernandina	39.28	41.42	18.90		0.285	0.120	79.6	944	2210		146940
[1]D40A phen 23	Fernandina	40.10	45.83	13.68		0.207	0.177	85.7	1390	1604		106391
[2]D40A phen 23	Fernandina	38.79	40.27	20.29	0.320	0.324		78.0		2510	2288	157786
[2]D40A phen 23	Fernandina	39.73	44.83	14.86	0.350	0.236		84.3		1828	2502	115545
[2]D40A phen 23	Fernandina	39.82	45.47	14.14	0.350	0.224		85.1		1735	2502	109949
[2]D40A phen 23	Fernandina	39.57	44.50	15.34	0.352	0.242		83.8		1874	2517	119280
72.9 phen 3	Floreana	40.39	46.28	12.63	0.267	0.189	0.243	86.7	1911	1461	1908	98188
72.9 phen 3	Floreana	40.41	46.06	12.82	0.270	0.196	0.243	86.5	1907	1516	1928	99666
72.9 phen 3	Floreana	40.28	45.96	13.05	0.275	0.197	0.242	86.3	1899	1528	1967	101457
72.9 phen 3	Floreana	40.22	45.58	13.48	0.271	0.208	0.240	85.8	1887	1611	1935	104836
72.9 phen 3	Floreana	40.09	44.95	14.25	0.272	0.221	0.224	84.9	1760	1710	1947	110779

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
72.9 phen 3	Floreana	38.93	40.16	20.13	0.317	0.334	0.130	78.1	1018	2585	2266	156531
72.9 phen 6	Floreana	40.36	46.14	12.79	0.263	0.191	0.249	86.5	1959	1478	1880	99466
72.9 phen 6	Floreana	40.23	45.91	13.15	0.267	0.194	0.242	86.2	1898	1505	1911	102292
72.9 phen 6	Floreana	39.68	44.25	15.36	0.276	0.239	0.194	83.7	1524	1848	1974	119458
72.9 phen 6	Floreana	39.75	43.26	16.25	0.286	0.251	0.198	82.6	1557	1941	2048	126343
72.9 phen 6	Floreana	37.54	34.14	27.35	0.439	0.455	0.074	69.0	581	3526	3140	212659
72.9 phen 7	Floreana	40.43	45.91	12.98	0.264	0.200	0.220	86.3	1730	1552	1884	100899
72.9 phen 7	Floreana	40.14	44.97	14.20	0.264	0.213	0.211	85.0	1658	1651	1890	110437
72.9 phen 7	Floreana	40.19	45.12	13.99	0.270	0.214	0.219	85.2	1718	1656	1931	108760
72.9 phen 7	Floreana	39.62	44.02	15.65	0.277	0.240	0.193	83.4	1516	1858	1984	121733
72.9 phen 7	Floreana	39.56	41.74	17.92	0.310	0.300	0.163	80.6	1278	2322	2214	139339
72.9 phen 8	Floreana	40.46	46.18	12.65	0.266	0.191	0.255	86.7	2005	1477	1900	98357
72.9 phen 8	Floreana	40.25	46.08	12.94	0.288	0.195	0.248	86.4	1944	1512	2057	100655
72.9 phen 8	Floreana	40.38	45.62	13.29	0.275	0.196	0.236	86.0	1853	1519	1967	103367
72.9 phen 8	Floreana	40.08	44.46	14.74	0.287	0.230	0.208	84.3	1630	1783	2049	114588
72.9 phen 8	Floreana	39.41	41.56	18.25	0.333	0.301	0.147	80.2	1156	2328	2383	141911
72.9 phen 11	Floreana	40.17	45.80	13.30	0.277	0.204	0.252	86.0	1982	1582	1981	103438
72.9 phen 11	Floreana	40.07	45.20	14.00	0.277	0.214	0.242	85.2	1899	1659	1981	108853
72.9 phen 11	Floreana	39.72	44.23	15.29	0.300	0.245	0.216	83.8	1693	1897	2142	118907
72.9 phen 11	Floreana	39.87	43.95	15.45	0.283	0.245	0.210	83.5	1647	1901	2023	120151
72.9 phen 13	Floreana	40.37	46.05	12.87	0.249	0.191	0.266	86.4	2092	1483	1777	100068
72.9 phen 13	Floreana	40.24	45.46	13.59	0.254	0.204	0.250	85.6	1960	1579	1819	105678
72.9 phen 13	Floreana	40.00	44.34	14.95	0.266	0.228	0.212	84.1	1667	1769	1903	116281
72.9 phen 13	Floreana	39.26	41.79	18.17	0.331	0.302	0.145	80.4	1139	2339	2366	141289
72.9 phen 16	Floreana	40.61	47.00	11.66	0.245	0.176	0.303	87.8	2380	1359	1754	90704
72.9 phen 16	Floreana	40.57	46.92	11.79	0.244	0.173	0.298	87.6	2337	1339	1745	91660
72.9 phen 16	Floreana	40.48	46.59	12.21	0.248	0.179	0.292	87.2	2292	1387	1772	94932
72.9 phen 16	Floreana	40.37	45.99	12.93	0.262	0.198	0.259	86.4	2034	1533	1871	100534
72.9 phen 16	Floreana	40.08	45.01	14.19	0.277	0.224	0.219	85.0	1724	1737	1981	110331
72.9 phen 16	Floreana	39.22	41.56	18.42	0.353	0.308	0.137	80.1	1079	2384	2527	143217
72.9 phen 18	Floreana	40.42	45.98	12.89	0.267	0.195	0.244	86.4	1914	1514	1908	100247
72.9 phen 18	Floreana	40.20	46.39	12.71	0.266	0.193	0.246	86.7	1935	1499	1899	98844
72.9 phen 18	Floreana	40.23	46.18	12.89	0.266	0.189	0.247	86.5	1943	1465	1899	100227

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
72.9 phen 18	Floreana	40.25	46.08	12.96	0.266	0.197	0.243	86.4	1906	1526	1899	100787
72.9 phen 18	Floreana	40.01	45.44	13.83	0.270	0.215	0.227	85.4	1780	1668	1933	107578
72.9 phen 18	Floreana	39.22	43.36	16.66	0.308	0.270	0.182	82.3	1426	2095	2201	129564
72.9 phen 19	Floreana	40.28	46.45	12.57	0.261	0.193	0.246	86.8	1935	1495	1867	97775
72.9 phen 19	Floreana	40.21	45.94	13.14	0.269	0.196	0.240	86.2	1883	1515	1926	102216
72.9 phen 19	Floreana	39.96	44.67	14.65	0.275	0.225	0.208	84.5	1637	1741	1964	113954
72.9 phen 19	Floreana	39.16	41.49	18.56	0.344	0.312	0.138	79.9	1082	2418	2456	144321
72.9 phen 20	Floreana	40.34	46.56	12.40	0.264	0.190	0.248	87.0	1950	1468	1887	96444
72.9 phen 20	Floreana	40.41	46.30	12.58	0.267	0.188	0.247	86.8	1944	1455	1909	97843
72.9 phen 20	Floreana	40.30	45.95	13.06	0.264	0.194	0.239	86.2	1876	1503	1888	101542
72.9 phen 20	Floreana	40.03	45.08	14.20	0.267	0.214	0.215	85.0	1688	1661	1910	110399
72.9 phen 20	Floreana	36.02	29.56	33.37	0.423	0.569	0.053	61.2	419	4410	3023	259521
72.9 phen 23	Floreana	40.12	45.31	13.85	0.277	0.219	0.233	85.4	1830	1693	1981	107676
72.9 phen 23	Floreana	40.04	45.84	13.40	0.278	0.205	0.232	85.9	1821	1589	1989	104237
72.9 phen 23	Floreana	40.31	45.45	13.53	0.269	0.209	0.227	85.7	1780	1616	1923	105220
72.9 phen 23	Floreana	39.52	43.54	16.20	0.311	0.262	0.170	82.7	1336	2031	2225	125950
72.9 phen 23	Floreana	39.64	42.27	17.33	0.329	0.284	0.151	81.3	1187	2200	2349	134733
72.9 phen 23	Floreana	38.83	39.29	21.05	0.375	0.354	0.109	76.9	853	2742	2683	163681
74.2 phen 1	Floreana	40.76	47.77	10.76	0.256	0.155	0.296	88.8	2325	1201	1829	83686
74.2 phen 1	Floreana	40.53	46.87	11.86	0.272	0.178	0.290	87.6	2275	1382	1942	92262
74.2 phen 1	Floreana	40.26	46.31	12.69	0.283	0.210	0.246	86.7	1930	1629	2020	98677
74.2 phen 1	Floreana	39.78	42.72	16.64	0.425	0.293	0.150	82.1	1175	2266	3036	129380
74.2 phen 2	Floreana	40.52	47.97	10.88	0.170	0.163	0.303	88.7	2378	1260	1217	84575
74.2 phen 2	Floreana	39.83	46.25	13.18	0.250	0.243	0.248	86.2	1948	1883	1791	102455
74.2 phen 2	Floreana	40.22	47.33	11.69	0.292	0.185	0.281	87.8	2210	1435	2085	90924
74.2 phen 2	Floreana	40.40	47.22	11.64	0.263	0.182	0.295	87.9	2317	1406	1880	90504
74.2 phen 2	Floreana	40.20	47.05	12.00	0.272	0.193	0.279	87.5	2191	1496	1945	93299
74.2 phen 2	Floreana	39.62	43.29	16.23	0.358	0.330	0.175	82.6	1373	2559	2562	126173
74.2 phen 5	Floreana	40.48	47.21	11.59	0.285	0.180	0.266	87.9	2087	1391	2036	90099
74.2 phen 5	Floreana	40.31	46.72	12.22	0.298	0.192	0.257	87.2	2017	1488	2129	94985
74.2 phen 5	Floreana	40.60	47.68	10.98	0.259	0.170	0.311	88.6	2445	1315	1853	85383
74.2 phen 5	Floreana	40.31	46.96	11.97	0.330	0.196	0.238	87.5	1866	1517	2360	93108
74.2 phen 6	Floreana	40.19	46.76	12.32	0.294	0.190	0.236	87.1	1856	1471	2100	95823

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
74.2 phen 6	Floreana	40.63	47.94	10.76	0.262	0.162	0.246	88.8	1933	1252	1876	83675
74.2 phen 6	Floreana	40.43	47.94	10.96	0.263	0.167	0.245	88.6	1927	1294	1880	85225
74.2 phen 6	Floreana	40.47	47.60	11.23	0.268	0.173	0.261	88.3	2052	1337	1915	87334
74.2 phen 6	Floreana	38.68	40.64	19.74	0.502	0.318	0.121	78.6	953	2461	3586	153483
74.2 phen 8	Floreana	40.13	46.63	12.65	0.092	0.174	0.321	86.8	2524	1347	657	98383
74.2 phen 8	Floreana	40.19	46.39	12.79	0.128	0.179	0.312	86.6	2447	1388	914	99490
74.2 phen 8	Floreana	40.03	46.02	13.34	0.085	0.176	0.337	86.0	2651	1363	609	103763
74.2 phen 8	Floreana	40.19	46.45	12.77	0.089	0.175	0.335	86.6	2634	1354	635	99283
74.2 phen 8	Floreana	38.42	38.06	22.56	0.470	0.370	0.124	75.0	977	2867	3361	175422
74.2 phen 10	Floreana	40.50	47.61	11.16	0.270	0.168	0.297	88.4	2335	1299	1928	86751
74.2 phen 10	Floreana	40.28	47.08	11.89	0.294	0.189	0.270	87.6	2123	1461	2099	92437
74.2 phen 10	Floreana	39.82	45.01	14.37	0.370	0.229	0.202	84.8	1584	1776	2647	111750
74.2 phen 12	Floreana	40.53	47.73	11.00	0.261	0.166	0.307	88.6	2413	1283	1870	85543
74.2 phen 12	Floreana	40.57	47.49	11.20	0.268	0.172	0.298	88.3	2337	1333	1917	87116
74.2 phen 12	Floreana	40.45	47.31	11.50	0.282	0.177	0.279	88.0	2193	1370	2014	89425
74.2 phen 14	Floreana	39.27	44.58	15.38	0.332	0.233	0.198	83.8	1553	1807	2372	119615
74.2 phen 14	Floreana	40.67	47.02	11.60	0.262	0.180	0.271	87.8	2126	1398	1874	90191
74.2 phen 14	Floreana	40.58	47.09	11.60	0.269	0.178	0.280	87.9	2200	1378	1924	90213
74.2 phen 14	Floreana	40.00	46.97	12.25	0.312	0.195	0.275	87.2	2160	1512	2233	95273
74.2 phen 15	Floreana	40.61	47.47	11.21	0.233	0.178	0.298	88.3	2339	1380	1669	87188
74.2 phen 15	Floreana	40.76	46.57	11.92	0.263	0.188	0.300	87.4	2358	1458	1878	92693
74.2 phen 16	Floreana	40.56	47.80	10.91	0.274	0.161	0.300	88.7	2353	1248	1960	84824
74.2 phen 16	Floreana	40.36	46.45	12.43	0.304	0.197	0.253	86.9	1988	1529	2176	96679
74.2 phen 16	Floreana	38.53	38.08	22.46	0.460	0.371	0.102	75.1	802	2870	3288	174626
74.2 phen 18	Floreana	40.39	46.92	12.17	0.083	0.183	0.259	87.3	2035	1415	593	94596
74.2 phen 18	Floreana	40.40	47.32	11.60	0.234	0.178	0.270	87.9	2118	1379	1674	90202
74.2 phen 18	Floreana	40.34	46.69	12.21	0.326	0.196	0.242	87.2	1902	1517	2330	94917
74.2 phen 20	Floreana	40.64	47.79	10.83	0.271	0.162	0.304	88.7	2390	1256	1938	84217
74.2 phen 20	Floreana	40.56	47.21	11.49	0.285	0.176	0.280	88.0	2203	1362	2035	89308
74.2 phen 20	Floreana	40.40	46.63	12.21	0.300	0.194	0.254	87.2	1998	1502	2147	94970
74.2 phen 20	Floreana	39.11	39.48	20.46	0.462	0.350	0.144	77.5	1129	2711	3303	159093
74.2 phen 23	Floreana	40.72	47.35	11.20	0.268	0.169	0.290	88.3	2274	1310	1913	87072
74.2 phen 23	Floreana	40.69	47.45	11.13	0.265	0.167	0.290	88.4	2279	1295	1895	86563

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
74.2 phen 23	Floreana	40.91	46.98	11.39	0.272	0.172	0.274	88.0	2149	1329	1945	88580
74.2 phen 23	Floreana	40.07	44.75	14.38	0.385	0.230	0.188	84.7	1476	1783	2755	111798
74.2 phen 24	Floreana	40.64	47.65	10.96	0.256	0.166	0.321	88.6	2522	1287	1830	85206
74.2 phen 24	Floreana	40.76	47.63	10.84	0.290	0.157	0.325	88.7	2556	1218	2074	84277
74.2 phen 24	Floreana	40.87	47.14	11.25	0.265	0.161	0.318	88.2	2496	1246	1894	87449
74.2 phen 24	Floreana	40.47	47.23	11.55	0.280	0.175	0.295	87.9	2320	1356	1999	89800
74.2 phen 28	Floreana	40.72	47.66	10.99	0.152	0.157	0.324	88.5	2541	1213	1089	85467
74.2 phen 28	Floreana	40.72	47.68	10.97	0.132	0.158	0.329	88.6	2584	1223	946	85341
74.2 phen 28	Floreana	40.69	47.67	11.01	0.146	0.157	0.325	88.5	2550	1215	1043	85643
74.2 phen 28	Floreana	40.65	47.50	11.18	0.196	0.167	0.313	88.3	2460	1297	1399	86910
74.2 phen 28	Floreana	40.21	46.45	12.58	0.316	0.195	0.244	86.8	1913	1510	2259	97854
FL03-93 phen 1	Floreana	40.21	46.55	12.53	0.239	0.190	0.287	86.9	2252	1470	1711	97399
FL03-93 phen 1	Floreana	40.19	46.18	12.89	0.279	0.193	0.270	86.5	2123	1495	1998	100234
FL03-93 phen 1	Floreana	40.20	46.12	12.97	0.245	0.197	0.266	86.4	2091	1526	1754	100876
FL03-93 phen 1	Floreana	40.03	45.46	13.81	0.251	0.210	0.242	85.4	1902	1627	1797	107352
FL03-93 phen 1	Floreana	39.36	42.66	17.24	0.289	0.276	0.170	81.5	1333	2136	2068	134066
FL03-93 phen 2	Floreana	39.95	45.29	14.06	0.255	0.218	0.224	85.2	1758	1686	1820	109356
FL03-93 phen 2	Floreana	39.79	44.52	14.99	0.254	0.234	0.211	84.1	1655	1811	1818	116525
FL03-93 phen 2	Floreana	38.84	40.33	20.05	0.310	0.329	0.142	78.2	1119	2545	2215	155905
FL03-93 phen 3	Floreana	40.01	45.03	14.27	0.257	0.215	0.218	84.9	1709	1665	1841	110930
FL03-93 phen 3	Floreana	39.79	43.70	15.80	0.266	0.249	0.193	83.1	1519	1928	1903	122889
FL03-93 phen 3	Floreana	38.33	36.09	24.68	0.377	0.417	0.104	72.3	821	3231	2698	191893
FL03-93 phen 4	Floreana	39.57	43.40	16.30	0.285	0.257	0.194	82.6	1524	1990	2035	126752
FL03-93 phen 4	Floreana	39.87	42.55	16.86	0.279	0.264	0.173	81.8	1361	2044	1992	131120
FL03-93 phen 4	Floreana	39.70	43.57	16.02	0.285	0.255	0.182	82.9	1433	1973	2040	124547
FL03-93 phen 5	Floreana	39.75	44.39	15.16	0.247	0.233	0.224	83.9	1761	1801	1765	117854
FL03-93 phen 5	Floreana	39.69	43.84	15.73	0.264	0.247	0.221	83.2	1738	1910	1889	122323
FL03-93 phen 5	Floreana	39.70	43.81	15.77	0.276	0.242	0.205	83.2	1608	1876	1974	122619
FL03-93 phen 5	Floreana	39.59	43.53	16.14	0.290	0.261	0.181	82.8	1425	2023	2074	125520
FL03-93 phen 6	Floreana	39.95	45.14	14.22	0.260	0.213	0.223	85.0	1748	1653	1856	110537
FL03-93 phen 6	Floreana	39.78	44.80	14.71	0.268	0.223	0.217	84.4	1703	1728	1914	114375
FL03-93 phen 6	Floreana	39.81	44.33	15.15	0.261	0.236	0.213	83.9	1677	1828	1865	117781
FL03-93 phen 6	Floreana	39.71	43.71	15.84	0.291	0.258	0.185	83.1	1450	1998	2078	123198

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-93 phen 7	Floreana	40.16	45.13	14.01	0.245	0.213	0.247	85.2	1941	1649	1751	108920
FL03-93 phen 7	Floreana	39.83	44.11	15.36	0.253	0.233	0.217	83.7	1701	1807	1807	119465
FL03-93 phen 7	Floreana	39.22	41.64	18.39	0.292	0.293	0.159	80.1	1251	2266	2088	143038
FL03-93 phen 8	Floreana	40.61	47.48	11.22	0.180	0.206	0.302	88.3	2372	1598	1289	87219
FL03-93 phen 8	Floreana	40.55	47.61	11.15	0.191	0.246	0.252	88.4	1976	1908	1366	86736
FL03-93 phen 8	Floreana	40.47	47.39	11.30	0.291	0.301	0.257	88.2	2022	2328	2080	87854
FL03-93 phen 8	Floreana	40.52	47.10	11.58	0.257	0.335	0.212	87.9	1664	2595	1838	90037
FL03-93 phen 9	Floreana	39.91	44.74	14.63	0.268	0.223	0.229	84.5	1796	1725	1913	113776
FL03-93 phen 9	Floreana	39.95	44.88	14.46	0.264	0.221	0.223	84.7	1752	1712	1886	112440
FL03-93 phen 9	Floreana	40.03	45.29	13.99	0.249	0.209	0.234	85.2	1836	1621	1782	108761
FL03-93 phen 9	Floreana	39.70	44.16	15.44	0.271	0.238	0.197	83.6	1548	1844	1938	120065
FL03-93 phen 10	Floreana	40.08	46.71	12.50	0.224	0.183	0.301	86.9	2361	1418	1600	97227
FL03-93 phen 10	Floreana	40.05	46.53	12.72	0.231	0.185	0.278	86.7	2187	1434	1653	98930
FL03-93 phen 10	Floreana	39.83	45.77	13.71	0.249	0.201	0.237	85.6	1864	1555	1783	106636
FL03-93 phen 10	Floreana	39.18	41.49	18.57	0.283	0.335	0.147	79.9	1153	2595	2021	144373
FL03-93 phen 10	Floreana	39.84	45.74	13.74	0.249	0.203	0.239	85.6	1881	1569	1780	106812
FL03-93 phen 11	Floreana	40.25	46.33	12.74	0.225	0.186	0.275	86.6	2160	1439	1609	99044
FL03-93 phen 11	Floreana	40.25	46.34	12.71	0.227	0.189	0.286	86.7	2243	1463	1625	98798
FL03-93 phen 11	Floreana	39.83	44.22	15.21	0.256	0.244	0.232	83.8	1819	1891	1831	118310
FL03-93 phen 12	Floreana	39.84	43.95	15.48	0.199	0.236	0.306	83.5	2401	1827	1425	120336
FL03-93 phen 12	Floreana	39.87	44.25	15.14	0.213	0.234	0.291	83.9	2287	1810	1523	117759
FL03-93 phen 12	Floreana	40.07	44.84	14.35	0.237	0.219	0.285	84.8	2240	1698	1696	111612
FL03-93 phen 12	Floreana	40.14	45.05	14.06	0.247	0.212	0.288	85.1	2262	1643	1763	109357
FL03-93 phen 12	Floreana	39.79	43.80	15.69	0.275	0.242	0.203	83.3	1598	1878	1963	122004
FL03-93 phen 13	Floreana	40.65	46.57	12.02	0.333	0.195	0.238	87.4	1870	1508	2378	93435
FL03-93 phen 13	Floreana	40.29	47.02	11.93	0.329	0.197	0.236	87.5	1852	1523	2354	92795
FL03-93 phen 13	Floreana	40.44	46.84	11.95	0.327	0.199	0.236	87.5	1852	1538	2340	92948
FL03-93 phen 13	Floreana	40.22	46.86	12.16	0.321	0.205	0.232	87.3	1819	1590	2298	94583
FL03-93 phen 13	Floreana	40.25	46.78	12.21	0.308	0.214	0.230	87.2	1804	1656	2201	94972
FL03-93 phen 14	Floreana	40.36	47.10	11.79	0.310	0.195	0.239	87.7	1874	1510	2213	91711
FL03-93 phen 14	Floreana	40.31	46.62	12.28	0.341	0.214	0.234	87.1	1839	1654	2439	95504
FL03-93 phen 14	Floreana	39.44	43.22	16.54	0.305	0.294	0.190	82.3	1496	2278	2182	128637
FL03-93 phen 14	Floreana	39.79	44.63	14.77	0.328	0.267	0.215	84.3	1685	2065	2347	114836

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-93 phen 15	Floreana	39.77	44.69	14.73	0.345	0.255	0.208	84.4	1634	1972	2469	114531
FL03-93 phen 15	Floreana	39.68	44.18	15.34	0.336	0.271	0.195	83.7	1535	2102	2403	119256
FL03-93 phen 15	Floreana	39.31	41.89	17.90	0.402	0.328	0.166	80.7	1306	2538	2877	139169
FL03-1 phen 1	Floreana	41.00	48.63	9.82	0.061	0.133	0.359	89.8	2824	1029	436	76358
FL03-1 phen 1	Floreana	41.00	48.64	9.80	0.063	0.134	0.358	89.8	2812	1037	448	76209
FL03-1 phen 1	Floreana	41.02	48.59	9.84	0.062	0.129	0.362	89.8	2840	1003	443	76514
FL03-1 phen 1	Floreana	40.85	47.73	10.66	0.270	0.156	0.332	88.9	2608	1204	1928	82895
FL03-1 phen 2	Floreana	40.72	47.67	10.88	0.259	0.156	0.317	88.6	2492	1212	1854	84601
FL03-1 phen 2	Floreana	40.60	47.03	11.63	0.262	0.173	0.301	87.8	2361	1338	1873	90440
FL03-1 phen 3	Floreana	40.72	46.95	11.61	0.260	0.173	0.292	87.8	2291	1341	1857	90276
FL03-1 phen 3	Floreana	40.53	46.79	11.96	0.261	0.179	0.283	87.5	2223	1390	1868	92998
FL03-1 phen 3	Floreana	40.33	46.36	12.57	0.278	0.193	0.264	86.8	2070	1493	1988	97750
FL03-1 phen 3	Floreana	40.13	45.75	13.37	0.322	0.213	0.224	85.9	1762	1650	2302	103956
FL03-1 phen 3	Floreana	40.68	47.74	10.84	0.252	0.158	0.330	88.7	2591	1222	1805	84292
FL03-1 phen 4	Floreana	40.64	47.68	10.94	0.251	0.163	0.330	88.6	2594	1259	1792	85067
FL03-1 phen 4	Floreana	40.65	47.12	11.49	0.253	0.170	0.308	88.0	2420	1316	1810	89355
FL03-1 phen 4	Floreana	40.50	45.98	12.80	0.271	0.198	0.253	86.5	1986	1533	1941	99531
FL03-1 phen 5	Floreana	40.68	47.36	11.23	0.258	0.167	0.305	88.3	2396	1297	1843	87325
FL03-1 phen 5	Floreana	40.51	47.01	11.75	0.266	0.174	0.291	87.7	2287	1346	1899	91368
FL03-1 phen 5	Floreana	40.39	46.41	12.46	0.275	0.192	0.272	86.9	2136	1485	1964	96901
FL03-1 phen 5	Floreana	39.63	43.57	16.00	0.372	0.257	0.171	82.9	1339	1987	2658	124418
FL03-1 phen 7	Floreana	40.25	46.00	13.02	0.293	0.206	0.238	86.3	1868	1593	2096	101237
FL03-1 phen 7	Floreana	40.12	45.87	13.27	0.302	0.211	0.222	86.0	1742	1633	2159	103194
FL03-1 phen 7	Floreana	39.83	44.41	15.00	0.336	0.241	0.184	84.1	1442	1870	2402	116640
FL03-1 phen 7	Floreana	39.19	41.93	17.98	0.475	0.303	0.127	80.6	997	2350	3397	139806
FL03-1 phen 8	Floreana	40.15	46.11	13.00	0.281	0.202	0.255	86.3	2005	1565	2009	101090
FL03-1 phen 8	Floreana	40.11	46.03	13.12	0.289	0.209	0.240	86.2	1887	1621	2068	102023
FL03-1 phen 8	Floreana	40.02	45.97	13.26	0.300	0.215	0.229	86.1	1799	1668	2145	103116
FL03-1 phen 8	Floreana	39.74	44.15	15.29	0.381	0.248	0.187	83.7	1470	1919	2723	118901
FL03-1 phen 9	Floreana	40.20	45.86	13.19	0.302	0.207	0.235	86.1	1849	1600	2156	102573
FL03-1 phen 9	Floreana	40.13	45.20	13.90	0.341	0.220	0.217	85.3	1706	1704	2438	108078
FL03-1 phen 9	Floreana	39.70	43.78	15.73	0.365	0.254	0.173	83.2	1360	1969	2607	122302
FL03-1 phen 10	Floreana	40.45	46.56	12.27	0.262	0.185	0.275	87.1	2158	1433	1876	95410

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-1 phen 10	Floreana	40.45	46.53	12.29	0.267	0.187	0.274	87.1	2151	1445	1911	95570
FL03-1 phen 10	Floreana	40.32	46.25	12.70	0.274	0.197	0.257	86.7	2015	1524	1955	98759
FL03-1 phen 10	Floreana	40.02	44.98	14.24	0.335	0.228	0.199	84.9	1561	1767	2395	110729
FL03-1 phen 11	Floreana	40.49	46.94	11.85	0.267	0.176	0.276	87.6	2165	1359	1911	92148
FL03-1 phen 11	Floreana	40.53	47.27	11.50	0.262	0.171	0.271	88.0	2132	1327	1872	89420
FL03-1 phen 11	Floreana	40.57	47.28	11.43	0.262	0.167	0.291	88.1	2288	1293	1877	88880
FL03-1 phen 11	Floreana	39.51	42.99	16.70	0.374	0.264	0.160	82.1	1255	2048	2674	129862
FL03-1 phen 13	Floreana	40.54	47.40	11.34	0.253	0.167	0.305	88.2	2398	1296	1807	88176
FL03-1 phen 13	Floreana	40.53	47.32	11.41	0.262	0.167	0.305	88.1	2399	1296	1874	88729
FL03-1 phen 13	Floreana	40.50	46.83	11.94	0.266	0.179	0.290	87.5	2281	1388	1902	92841
FL03-1 phen 13	Floreana	40.24	46.24	12.79	0.284	0.198	0.249	86.6	1960	1533	2028	99455
FL03-1 phen 14	Floreana	40.67	47.78	10.82	0.260	0.160	0.308	88.7	2420	1242	1862	84138
FL03-1 phen 14	Floreana	40.56	47.42	11.30	0.256	0.165	0.298	88.2	2344	1279	1827	87870
FL03-1 phen 14	Floreana	40.51	46.98	11.79	0.263	0.174	0.286	87.7	2247	1347	1882	91677
FL03-1 phen 14	Floreana	40.15	45.69	13.41	0.312	0.211	0.232	85.9	1821	1635	2231	104272
FL03-1 phen 15	Floreana	40.25	46.84	12.19	0.276	0.182	0.269	87.3	2112	1411	1971	94784
FL03-1 phen 15	Floreana	40.27	46.65	12.34	0.279	0.187	0.270	87.1	2120	1452	1998	95960
FL03-1 phen 15	Floreana	40.33	46.32	12.63	0.279	0.191	0.252	86.7	1982	1476	1998	98209
FL03-1 phen 15	Floreana	39.17	42.35	17.62	0.414	0.288	0.156	81.1	1226	2231	2959	137017
FL03-1 phen 16	Floreana	40.38	46.56	12.34	0.278	0.188	0.260	87.1	2045	1460	1991	95949
FL03-1 phen 16	Floreana	40.15	46.57	12.56	0.280	0.196	0.250	86.9	1967	1516	2001	97661
FL03-1 phen 16	Floreana	40.07	46.11	13.09	0.291	0.207	0.230	86.3	1806	1599	2083	101791
FL03-1 phen 16	Floreana	39.86	45.28	14.02	0.415	0.231	0.189	85.2	1488	1785	2966	109026
FL03-1 phen 17	Floreana	40.19	46.76	12.33	0.266	0.187	0.260	87.1	2045	1449	1899	95885
FL03-1 phen 17	Floreana	40.12	45.67	13.47	0.287	0.210	0.245	85.8	1926	1627	2053	104741
FL03-1 phen 17	Floreana	40.24	46.43	12.60	0.270	0.196	0.264	86.8	2070	1517	1930	97979
FL03-1 phen 17	Floreana	40.15	46.02	13.09	0.287	0.203	0.244	86.2	1917	1572	2051	101795
FL03-1 phen 19	Floreana	40.54	48.03	10.70	0.256	0.154	0.324	88.9	2544	1190	1828	83201
FL03-1 phen 19	Floreana	40.64	47.77	10.85	0.257	0.155	0.318	88.7	2496	1203	1840	84378
FL03-1 phen 19	Floreana	40.58	47.20	11.50	0.258	0.171	0.293	88.0	2304	1328	1842	89422
FL03-1 phen 19	Floreana	40.15	46.07	13.05	0.293	0.202	0.237	86.3	1859	1563	2098	101476
FL03-1 phen 20	Floreana	40.42	47.86	10.98	0.246	0.159	0.336	88.6	2637	1232	1756	85381
FL03-1 phen 20	Floreana	40.52	47.38	11.35	0.255	0.165	0.329	88.2	2587	1275	1823	88268

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-1 phen 20	Floreana	40.39	47.07	11.81	0.261	0.180	0.292	87.7	2293	1393	1865	91833
FL03-1 phen 20	Floreana	39.93	45.53	13.79	0.321	0.221	0.209	85.5	1642	1709	2292	107232
FL03-1 phen 21	Floreana	40.58	47.61	11.07	0.262	0.165	0.315	88.5	2477	1277	1871	86079
FL03-1 phen 21	Floreana	40.33	46.45	12.50	0.271	0.191	0.262	86.9	2062	1477	1940	97196
FL03-1 phen 21	Floreana	40.19	46.25	12.82	0.286	0.195	0.257	86.5	2015	1510	2048	99691
FL03-1 phen 21	Floreana	39.42	43.31	16.45	0.390	0.263	0.162	82.4	1271	2036	2791	127922
FL03-1 phen 22	Floreana	40.27	46.40	12.61	0.278	0.193	0.255	86.8	2000	1492	1990	98050
FL03-1 phen 22	Floreana	40.21	46.30	12.75	0.282	0.194	0.255	86.6	2003	1506	2013	99154
FL03-1 phen 22	Floreana	40.11	46.08	13.09	0.290	0.205	0.230	86.3	1810	1585	2071	101784
FL03-1 phen 22	Floreana	40.08	45.68	13.49	0.315	0.216	0.215	85.8	1686	1672	2251	104904
FL03-1 phen 23	Floreana	40.28	46.48	12.53	0.279	0.191	0.249	86.9	1956	1477	1996	97425
FL03-1 phen 23	Floreana	40.37	46.54	12.37	0.270	0.191	0.258	87.0	2027	1480	1931	96200
FL03-1 phen 23	Floreana	40.32	46.33	12.62	0.273	0.196	0.259	86.7	2032	1517	1954	98136
FL03-1 phen 23	Floreana	39.85	44.83	14.57	0.341	0.232	0.185	84.6	1457	1799	2439	113287
FL03-1 phen 24	Floreana	40.34	46.80	12.14	0.279	0.179	0.264	87.3	2071	1386	1997	94399
FL03-1 phen 24	Floreana	40.37	46.64	12.27	0.272	0.187	0.262	87.1	2059	1449	1947	95411
FL03-1 phen 24	Floreana	40.14	46.09	13.03	0.303	0.206	0.226	86.3	1777	1598	2169	101326
FL03-1 phen 24	Floreana	36.88	31.25	30.81	0.477	0.522	0.061	64.4	476	4045	3411	239580
FL03-120 phen 1	Floreana	40.26	47.34	11.69	0.274	0.178	0.266	87.8	2092	1381	1962	90877
FL03-120 phen 1	Floreana	40.42	47.38	11.49	0.266	0.170	0.270	88.0	2121	1318	1901	89329
FL03-120 phen 1	Floreana	40.28	47.32	11.68	0.273	0.174	0.272	87.8	2139	1346	1952	90833
FL03-120 phen 1	Floreana	40.21	47.20	11.86	0.288	0.183	0.263	87.6	2069	1418	2060	92195
FL03-120 phen 1	Floreana	40.11	46.89	12.25	0.301	0.193	0.250	87.2	1962	1496	2150	95271
FL03-120 phen 2	Floreana	40.40	47.47	11.45	0.243	0.171	0.269	88.1	2116	1323	1737	89018
FL03-120 phen 2	Floreana	40.41	47.48	11.43	0.246	0.168	0.266	88.1	2093	1301	1760	88858
FL03-120 phen 2	Floreana	40.41	47.17	11.72	0.266	0.174	0.253	87.8	1990	1350	1905	91159
FL03-120 phen 2	Floreana	40.23	44.49	14.48	0.391	0.228	0.183	84.6	1440	1766	2794	112565
FL03-120 phen 3	Floreana	40.64	48.10	10.70	0.130	0.156	0.282	88.9	2217	1212	931	83186
FL03-120 phen 3	Floreana	40.77	47.95	10.71	0.132	0.160	0.280	88.9	2199	1236	940	83261
FL03-120 phen 3	Floreana	40.76	47.92	10.71	0.167	0.158	0.276	88.9	2165	1226	1197	83314
FL03-120 phen 3	Floreana	40.73	47.69	10.94	0.202	0.168	0.272	88.6	2139	1301	1445	85075
FL03-120 phen 3	Floreana	40.58	46.54	12.17	0.288	0.194	0.240	87.2	1882	1501	2059	94604
FL03-120 phen 4	Floreana	40.62	47.56	11.10	0.257	0.169	0.289	88.4	2271	1306	1835	86348

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-120 phen 4	Floreana	40.64	47.54	11.09	0.268	0.167	0.296	88.4	2323	1297	1913	86228
FL03-120 phen 4	Floreana	40.62	47.31	11.36	0.272	0.171	0.272	88.1	2139	1326	1945	88321
FL03-120 phen 4	Floreana	40.53	46.38	12.37	0.295	0.195	0.225	87.0	1764	1509	2112	96226
FL03-120 phen 5	Floreana	40.30	45.43	13.50	0.336	0.214	0.220	85.7	1731	1655	2402	104958
FL03-120 phen 5	Floreana	40.61	47.03	11.63	0.277	0.178	0.267	87.8	2097	1376	1980	90436
FL03-120 phen 5	Floreana	40.47	46.43	12.37	0.316	0.199	0.221	87.0	1740	1539	2257	96164
FL03-120 phen 6	Floreana	40.51	46.19	12.68	0.202	0.210	0.213	86.7	1676	1626	1441	98570
FL03-120 phen 6	Floreana	40.48	46.16	12.73	0.204	0.216	0.207	86.6	1623	1671	1455	99018
FL03-120 phen 6	Floreana	40.49	46.05	12.79	0.242	0.215	0.213	86.5	1675	1661	1732	99419
FL03-120 phen 6	Floreana	40.38	46.25	12.68	0.279	0.201	0.215	86.7	1687	1553	1996	98574
FL03-120 phen 6	Floreana	40.52	46.51	12.25	0.313	0.191	0.219	87.1	1719	1482	2238	95242
FL03-120 phen 7	Floreana	40.40	45.97	12.87	0.330	0.209	0.216	86.4	1693	1618	2358	100091
FL03-120 phen 7	Floreana	40.32	45.86	13.06	0.340	0.211	0.201	86.2	1581	1631	2434	101585
FL03-120 phen 7	Floreana	40.03	44.40	14.76	0.411	0.242	0.160	84.3	1260	1871	2937	114763
FL03-120 phen 8	Floreana	40.41	46.33	12.54	0.310	0.196	0.215	86.8	1690	1520	2215	97533
FL03-120 phen 8	Floreana	40.30	46.34	12.63	0.314	0.200	0.220	86.7	1727	1546	2242	98195
FL03-120 phen 8	Floreana	40.48	46.46	12.35	0.293	0.191	0.228	87.0	1795	1479	2091	96006
FL03-120 phen 8	Floreana	40.32	45.63	13.28	0.367	0.213	0.187	86.0	1466	1653	2626	103238
FL03-120 phen 9	Floreana	40.44	46.16	12.66	0.327	0.203	0.207	86.7	1626	1572	2336	98409
FL03-120 phen 9	Floreana	40.55	46.76	11.98	0.282	0.189	0.246	87.4	1933	1467	2017	93165
FL03-120 phen 9	Floreana	40.43	46.58	12.26	0.299	0.190	0.239	87.1	1876	1475	2138	95340
FL03-120 phen 10	Floreana	40.46	46.94	11.88	0.297	0.183	0.238	87.6	1866	1414	2123	92391
FL03-120 phen 10	Floreana	40.52	46.87	11.89	0.297	0.182	0.237	87.5	1863	1408	2122	92483
FL03-120 phen 10	Floreana	40.54	46.89	11.86	0.295	0.179	0.236	87.6	1856	1385	2111	92237
FL03-120 phen 10	Floreana	40.67	46.82	11.80	0.298	0.180	0.233	87.6	1829	1394	2130	91751
FL03-120 phen 11	Floreana	40.61	47.16	11.55	0.257	0.177	0.256	87.9	2009	1368	1840	89776
FL03-120 phen 11	Floreana	40.63	47.14	11.54	0.256	0.180	0.259	87.9	2033	1392	1831	89752
FL03-120 phen 11	Floreana	40.60	47.15	11.55	0.266	0.176	0.255	87.9	2001	1365	1898	89822
FL03-120 phen 11	Floreana	40.45	47.05	11.79	0.291	0.179	0.244	87.7	1920	1386	2077	91646
FL03-120 phen 12	Floreana	40.53	47.18	11.58	0.278	0.176	0.255	87.9	2005	1360	1987	90075
FL03-120 phen 12	Floreana	40.39	47.14	11.77	0.283	0.180	0.242	87.7	1902	1391	2020	91492
FL03-120 phen 12	Floreana	40.10	45.82	13.32	0.349	0.209	0.191	86.0	1503	1621	2496	103589
FL03-120 phen 12	Floreana	39.78	45.00	14.42	0.393	0.237	0.170	84.8	1339	1835	2807	112109

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-135 phen 1	Floreana	40.46	46.86	11.94	0.287	0.191	0.262	87.5	2061	1480	2053	92829
FL03-135 phen 1	Floreana	40.56	46.96	11.75	0.279	0.190	0.260	87.7	2042	1471	1991	91351
FL03-135 phen 1	Floreana	40.63	46.71	11.93	0.289	0.192	0.248	87.5	1947	1485	2069	92798
FL03-135 phen 2	Floreana	40.46	47.19	11.63	0.290	0.189	0.252	87.9	1982	1462	2070	90399
FL03-135 phen 2	Floreana	40.34	45.93	12.96	0.336	0.209	0.225	86.3	1767	1621	2400	100782
FL03-135 phen 3	Floreana	40.41	46.63	12.42	0.089	0.198	0.244	87.0	1920	1535	635	96616
FL03-135 phen 3	Floreana	40.50	46.72	12.25	0.088	0.197	0.245	87.2	1925	1529	630	95225
FL03-135 phen 3	Floreana	40.52	46.96	11.85	0.221	0.197	0.261	87.6	2052	1525	1583	92141
FL03-135 phen 4	Floreana	40.22	45.22	13.89	0.234	0.221	0.218	85.3	1714	1709	1673	107977
FL03-135 phen 4	Floreana	40.04	45.99	13.31	0.241	0.209	0.221	86.0	1735	1615	1725	103463
FL03-135 phen 4	Floreana	40.52	46.72	12.06	0.271	0.192	0.238	87.3	1871	1486	1938	93807
FL03-135 phen 4	Floreana	39.94	44.08	15.20	0.342	0.253	0.187	83.8	1471	1963	2448	118172
FL03-135 phen 5	Floreana	40.45	46.31	12.68	0.122	0.208	0.228	86.7	1788	1610	874	98587
FL03-135 phen 5	Floreana	40.41	46.30	12.74	0.116	0.207	0.228	86.6	1788	1606	826	99081
FL03-135 phen 5	Floreana	40.11	43.85	15.25	0.346	0.268	0.186	83.7	1460	2079	2472	118547
FL03-135 phen 6	Floreana	40.07	45.02	14.36	0.101	0.220	0.225	84.8	1769	1706	721	111703
FL03-135 phen 6	Floreana	40.18	45.43	13.84	0.111	0.216	0.222	85.4	1747	1672	792	107593
FL03-135 phen 6	Floreana	40.32	46.00	13.02	0.231	0.204	0.224	86.3	1756	1580	1648	101224
FL03-135 phen 6	Floreana	40.26	45.48	13.52	0.308	0.214	0.219	85.7	1719	1661	2202	105111
FL03-135 phen 7	Floreana	39.15	42.39	17.91	0.106	0.248	0.192	80.8	1505	1921	759	139306
FL03-135 phen 7	Floreana	39.24	42.33	17.88	0.102	0.252	0.193	80.8	1513	1951	732	139060
FL03-135 phen 7	Floreana	39.25	42.53	17.67	0.105	0.246	0.191	81.1	1502	1907	748	137420
FL03-135 phen 7	Floreana	39.25	42.51	17.70	0.106	0.250	0.191	81.1	1503	1934	758	137600
FL03-135 phen 7	Floreana	39.65	44.00	15.77	0.134	0.230	0.215	83.3	1685	1783	958	122648
FL03-135 phen 8	Floreana	40.00	45.52	13.91	0.146	0.213	0.205	85.4	1610	1647	1042	108196
FL03-135 phen 8	Floreana	40.24	46.09	13.11	0.144	0.205	0.210	86.2	1651	1585	1027	101967
FL03-135 phen 8	Floreana	40.07	45.69	13.70	0.125	0.208	0.210	85.6	1653	1609	893	106562
FL03-135 phen 8	Floreana	40.06	45.80	13.48	0.240	0.210	0.208	85.8	1634	1623	1719	104843
FL03-135 phen 8	Floreana	40.02	46.00	13.30	0.245	0.205	0.225	86.0	1769	1586	1752	103435
FL03-135 phen 9	Floreana	40.60	47.77	10.93	0.277	0.173	0.245	88.6	1923	1338	1980	85006
FL03-135 phen 9	Floreana	40.19	46.21	12.82	0.322	0.212	0.250	86.5	1960	1639	2299	99664
FL03-135 phen 9	Floreana	39.76	44.41	15.07	0.318	0.256	0.189	84.0	1484	1985	2277	117195
FL03-135 phen 10	Floreana	40.98	49.42	8.89	0.314	0.140	0.257	90.8	2015	1085	2248	69111

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
FL03-135 phen 10	Floreana	40.75	48.78	9.74	0.274	0.153	0.307	89.9	2410	1186	1960	75749
FL03-135 phen 10	Floreana	40.53	48.17	10.57	0.273	0.167	0.284	89.0	2232	1295	1952	82218
FL03-135 phen 11	Floreana	39.74	44.59	15.08	0.157	0.234	0.189	84.1	1481	1812	1126	117292
FL03-135 phen 11	Floreana	39.67	43.82	15.95	0.138	0.243	0.181	83.0	1424	1882	984	124019
FL03-135 phen 11	Floreana	39.58	43.54	16.35	0.113	0.258	0.162	82.6	1269	1999	805	127175
FL03-135 phen 11	Floreana	40.42	47.05	11.77	0.330	0.189	0.245	87.7	1926	1461	2362	91540
FL03-135 phen 12	Floreana	40.16	45.83	13.37	0.197	0.217	0.224	85.9	1761	1679	1406	103970
FL03-135 phen 12	Floreana	40.37	47.53	11.55	0.102	0.184	0.261	88.0	2051	1425	731	89826
FL03-135 phen 12	Floreana	40.27	46.82	12.16	0.299	0.202	0.244	87.3	1915	1565	2136	94591
G99-5H phen 2	Genovesa	40.03	44.63	14.56	0.409	0.222	0.155	84.5	1215	1718	2924	113186
G99-5H phen 2	Genovesa	39.96	44.65	14.61	0.403	0.226	0.152	84.5	1192	1747	2881	113603
G99-5H phen 2	Genovesa	39.86	44.62	14.74	0.412	0.224	0.143	84.4	1124	1733	2948	114646
G99-5H phen 4	Genovesa	39.94	44.52	14.72	0.446	0.224	0.144	84.4	1131	1738	3186	114453
G99-5H phen 7	Genovesa	40.03	44.54	14.63	0.419	0.222	0.148	84.4	1165	1720	2998	113782
G99-5H phen 7	Genovesa	40.04	44.49	14.67	0.425	0.228	0.149	84.4	1174	1766	3035	114040
G99-5H phen 7	Genovesa	39.92	44.57	14.71	0.424	0.228	0.148	84.4	1164	1768	3032	114374
G99-5H phen 7	Genovesa	40.01	44.36	14.81	0.428	0.235	0.145	84.2	1137	1823	3060	115198
G99-5H phen 11	Genovesa	39.77	44.50	14.94	0.411	0.227	0.142	84.1	1113	1758	2942	116209
G99-5H phen 11	Genovesa	39.80	44.12	15.28	0.419	0.235	0.136	83.7	1067	1823	2997	118851
G99-5H phen 11	Genovesa	39.74	43.88	15.56	0.442	0.239	0.133	83.4	1047	1849	3158	121029
G99-5H phen 11	Genovesa	39.48	41.96	17.70	0.484	0.277	0.098	80.9	772	2148	3463	137627
G99-5H phen 12	Genovesa	39.89	44.58	14.74	0.408	0.226	0.149	84.4	1171	1752	2917	114615
G99-5H phen 12	Genovesa	39.86	44.45	14.88	0.428	0.231	0.150	84.2	1181	1788	3062	115706
G99-5H phen 12	Genovesa	39.86	44.38	14.97	0.419	0.232	0.142	84.1	1117	1795	2998	116373
G99-5H phen 13	Genovesa	39.94	44.79	14.49	0.404	0.226	0.149	84.6	1173	1748	2888	112697
G99-5H phen 13	Genovesa	39.96	44.67	14.57	0.420	0.228	0.151	84.5	1186	1763	3001	113295
G99-5H phen 13	Genovesa	39.92	44.71	14.59	0.410	0.221	0.152	84.5	1195	1710	2934	113427
G99-5H phen 13	Genovesa	39.76	44.36	15.04	0.470	0.228	0.146	84.0	1148	1768	3362	116933
G99-5H phen 16	Genovesa	39.86	44.84	14.55	0.385	0.224	0.151	84.6	1189	1732	2752	113105
G99-5H phen 16	Genovesa	39.83	44.78	14.62	0.391	0.228	0.151	84.5	1189	1767	2796	113676
G99-5H phen 16	Genovesa	39.83	44.72	14.67	0.400	0.226	0.148	84.5	1165	1747	2863	114065
G99-5H phen 19	Genovesa	40.03	44.45	14.73	0.406	0.228	0.154	84.3	1210	1769	2902	114545
G99-5H phen 19	Genovesa	39.90	44.57	14.74	0.406	0.226	0.151	84.3	1188	1751	2906	114652

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
G99-5H phen 19	Genovesa	39.78	44.61	14.83	0.404	0.230	0.148	84.3	1164	1778	2885	115327
G99-5H phen 23	Genovesa	39.91	44.38	14.91	0.422	0.230	0.146	84.1	1148	1780	3014	115932
G99-5H phen 23	Genovesa	39.85	44.29	15.08	0.412	0.235	0.138	84.0	1087	1820	2945	117275
G99-5H phen 23	Genovesa	39.80	44.09	15.30	0.438	0.241	0.134	83.7	1052	1864	3130	119012
G99-5H phen 25	Genovesa	39.91	44.70	14.60	0.409	0.229	0.154	84.5	1212	1777	2925	113547
G99-5H phen 25	Genovesa	39.96	44.63	14.61	0.423	0.228	0.147	84.5	1151	1767	3027	113578
G99-5H phen 25	Genovesa	39.99	44.26	14.93	0.438	0.233	0.141	84.1	1109	1802	3130	116116
G99-5H phen 25	Genovesa	39.65	44.38	15.17	0.414	0.237	0.150	83.9	1175	1836	2959	117930
G99-5H phen 28	Genovesa	40.02	44.79	14.43	0.391	0.224	0.147	84.7	1152	1733	2793	112246
G99-5H phen 28	Genovesa	40.04	44.53	14.64	0.409	0.228	0.155	84.4	1214	1764	2921	113856
G99-5H phen 28	Genovesa	39.92	44.55	14.73	0.424	0.223	0.150	84.4	1182	1727	3031	114541
G99-5H phen 28	Genovesa	39.86	44.41	14.91	0.439	0.234	0.142	84.1	1119	1815	3137	115974
G99-5H phen 30	Genovesa	40.16	44.00	14.83	0.625	0.233	0.145	84.1	1138	1808	4470	115331
G99-5H phen 30	Genovesa	40.09	44.26	14.85	0.427	0.233	0.142	84.2	1119	1801	3056	115438
G99-5H phen 30	Genovesa	39.96	44.15	15.06	0.467	0.227	0.141	83.9	1104	1759	3341	117120
G99-5H phen 35	Genovesa	39.98	44.72	14.52	0.412	0.224	0.152	84.6	1192	1736	2944	112870
G99-5H phen 35	Genovesa	40.16	44.33	14.71	0.422	0.227	0.150	84.3	1176	1758	3014	114418
G99-5H phen 35	Genovesa	39.91	44.46	14.83	0.426	0.229	0.148	84.2	1166	1771	3044	115311
G99-5H phen 36	Genovesa	39.91	44.55	14.75	0.406	0.230	0.151	84.3	1184	1781	2900	114706
G99-5H phen 36	Genovesa	39.86	44.43	14.92	0.407	0.232	0.145	84.1	1136	1800	2913	116045
G99-5H phen 36	Genovesa	39.78	44.40	15.01	0.437	0.233	0.139	84.1	1090	1806	3127	116721
G99-5H phen 39	Genovesa	40.04	44.56	14.63	0.397	0.224	0.149	84.4	1170	1733	2835	113783
G99-5H phen 39	Genovesa	40.04	44.47	14.70	0.403	0.233	0.152	84.4	1191	1801	2880	114347
G99-5H phen 39	Genovesa	39.41	41.19	18.53	0.440	0.317	0.107	79.8	841	2453	3149	144126
G99-29A phen 1	Genovesa	39.23	44.07	15.92	0.394	0.262	0.128	83.2	1005	2033	2818	123757
G99-29A phen 1	Genovesa	39.55	43.24	16.43	0.392	0.271	0.118	82.4	926	2102	2802	127722
G99-29A phen 1	Genovesa	39.44	42.92	16.84	0.407	0.270	0.121	82.0	953	2089	2909	130952
G99-29A phen 1	Genovesa	39.51	42.60	17.09	0.412	0.265	0.124	81.6	976	2053	2943	132884
G99-29A phen 4	Genovesa	39.39	42.76	16.99	0.423	0.268	0.174	81.8	1366	2073	3021	132091
G99-29A phen 4	Genovesa	39.27	42.52	17.35	0.423	0.272	0.169	81.4	1324	2104	3024	134903
G99-29A phen 4	Genovesa	39.24	42.30	17.58	0.443	0.269	0.171	81.1	1343	2083	3164	136664
G99-29A phen 5	Genovesa	39.45	42.79	16.93	0.412	0.261	0.163	81.8	1284	2025	2948	131652
G99-29A phen 5	Genovesa	39.48	42.39	17.28	0.426	0.269	0.155	81.4	1218	2087	3043	134356

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
G99-29A phen 5	Genovesa	39.41	42.07	17.65	0.435	0.276	0.152	81.0	1193	2136	3111	137240
G99-29A phen 7	Genovesa	39.36	42.84	17.00	0.409	0.264	0.126	81.8	989	2045	2925	132230
G99-29A phen 7	Genovesa	39.37	42.70	17.13	0.406	0.267	0.127	81.6	999	2069	2902	133209
G99-29A phen 7	Genovesa	39.31	42.65	17.22	0.416	0.267	0.128	81.5	1007	2071	2977	133907
G99-29A phen 7	Genovesa	39.25	42.53	17.42	0.413	0.271	0.126	81.3	989	2099	2951	135432
G99-29A phen 10	Genovesa	39.57	43.27	16.33	0.443	0.268	0.121	82.5	952	2072	3169	126976
G99-29A phen 10	Genovesa	39.49	43.21	16.48	0.428	0.263	0.121	82.4	952	2037	3063	128186
G99-29A phen 10	Genovesa	39.06	42.14	17.95	0.460	0.281	0.112	80.7	883	2175	3292	139542
G99-29A phen 11	Genovesa	39.73	43.74	15.75	0.394	0.257	0.130	83.2	1023	1989	2815	122502
G99-29A phen 11	Genovesa	39.50	42.80	16.89	0.421	0.263	0.127	81.9	998	2040	3007	131359
G99-29A phen 11	Genovesa	38.63	38.85	21.60	0.475	0.332	0.104	76.2	818	2570	3394	167961
G99-29A phen 12	Genovesa	39.63	43.54	16.03	0.405	0.261	0.132	82.9	1035	2019	2899	124646
G99-29A phen 12	Genovesa	39.50	43.17	16.52	0.416	0.264	0.127	82.3	995	2047	2971	128481
G99-29A phen 12	Genovesa	39.79	42.51	16.88	0.430	0.266	0.128	81.8	1003	2064	3073	131228
G99-29A phen 13	Genovesa	39.60	43.45	16.15	0.411	0.266	0.119	82.7	937	2061	2937	125606
G99-29A phen 13	Genovesa	39.59	43.09	16.53	0.412	0.277	0.112	82.3	879	2143	2945	128519
G99-29A phen 13	Genovesa	39.51	43.00	16.68	0.427	0.273	0.112	82.1	883	2117	3050	129712
G99-29A phen 13	Genovesa	39.41	42.92	16.85	0.424	0.267	0.129	81.9	1011	2067	3034	131049
G99-29A phen 15	Genovesa	39.46	43.39	16.36	0.409	0.263	0.124	82.5	971	2038	2927	127180
G99-29A phen 15	Genovesa	38.70	40.11	20.29	0.434	0.366	0.096	77.9	755	2835	3100	157809
G99-29A phen 16	Genovesa	39.07	42.01	18.05	0.468	0.278	0.117	80.6	916	2153	3344	140393
G99-29A phen 20	Genovesa	39.22	42.49	17.46	0.438	0.270	0.119	81.3	935	2093	3135	135770
G99-29A phen 20	Genovesa	39.30	41.92	17.95	0.432	0.277	0.122	80.6	955	2148	3090	139583
G99-29A phen 21	Genovesa	39.34	42.55	17.27	0.454	0.269	0.116	81.5	912	2082	3248	134270
G99-29A phen 21	Genovesa	39.62	41.78	17.67	0.541	0.278	0.113	80.8	886	2155	3865	137402
G99-29A phen 21	Genovesa	39.58	41.52	18.06	0.446	0.288	0.110	80.4	862	2233	3189	140403
G99-29A phen 21	Genovesa	39.41	41.58	18.19	0.428	0.281	0.113	80.3	891	2173	3060	141458
G99-29A phen 27	Genovesa	39.55	43.24	16.41	0.407	0.264	0.128	82.4	1003	2045	2908	127625
G99-29A phen 27	Genovesa	39.56	43.11	16.53	0.412	0.258	0.125	82.3	985	1997	2945	128517
G99-29A phen 27	Genovesa	39.36	42.13	17.66	0.448	0.282	0.117	81.0	918	2182	3205	137326
G99-29A phen 27	Genovesa	39.05	40.92	19.12	0.489	0.311	0.109	79.2	853	2411	3498	148680
G99-29A phen 30	Genovesa	39.82	43.14	16.22	0.425	0.258	0.129	82.6	1016	1995	3039	126159
G99-29A phen 30	Genovesa	39.36	42.63	17.20	0.426	0.269	0.120	81.5	943	2085	3048	133716

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
G99-29A phen 30	Genovesa	39.21	41.65	18.28	0.459	0.286	0.111	80.2	870	2217	3279	142132
G99-29A phen 32	Genovesa	39.66	42.70	16.85	0.404	0.267	0.125	81.9	979	2068	2887	131017
G99-29A phen 32	Genovesa	39.17	41.75	18.11	0.570	0.296	0.105	80.4	824	2290	4075	140840
G99-29A phen 32	Genovesa	38.92	39.75	20.48	0.381	0.341	0.120	77.6	946	2641	2724	159276
G99-29A phen 32	Genovesa	38.86	39.46	20.86	0.401	0.318	0.105	77.1	822	2460	2869	162190
G99-29A phen 34	Genovesa	39.50	42.46	17.21	0.437	0.272	0.116	81.5	908	2109	3126	133803
G99-29A phen 35	Genovesa	39.68	42.77	16.71	0.435	0.265	0.128	82.0	1008	2055	3109	129948
G99-29A phen 35	Genovesa	39.49	42.85	16.84	0.431	0.264	0.124	81.9	970	2045	3080	130964
G99-29A phen 35	Genovesa	39.51	42.13	17.54	0.432	0.270	0.117	81.1	921	2090	3085	136402
G99-29A phen 38	Genovesa	39.27	42.02	17.85	0.459	0.273	0.124	80.8	976	2112	3279	138818
G99-29A phen 39	Genovesa	39.30	42.41	17.48	0.431	0.270	0.113	81.2	885	2095	3084	135891
G99-29A phen 39	Genovesa	39.31	42.38	17.50	0.424	0.270	0.117	81.2	920	2095	3030	136083
G99-29A phen 39	Genovesa	39.12	42.26	17.79	0.450	0.274	0.111	80.9	870	2121	3215	138354
G99-29A phen 39	Genovesa	38.65	39.95	20.53	0.442	0.321	0.107	77.6	840	2486	3161	159672
G99-29A phen 40	Genovesa	39.43	42.15	17.59	0.450	0.279	0.115	81.0	901	2158	3217	136745
G99-29A phen 40	Genovesa	39.42	42.13	17.62	0.453	0.277	0.111	81.0	870	2143	3241	136982
M-31G phen 1	Marchena	39.13	41.95	18.16	0.359	0.276	0.116	80.5	912	2137	2567	141234
M-31G phen 1	Marchena	39.18	41.93	18.15	0.359	0.271	0.119	80.5	935	2099	2570	141110
M-31G phen 1	Marchena	38.66	39.77	20.80	0.376	0.300	0.095	77.3	747	2326	2688	161731
M-31G phen 1	Marchena	39.07	41.77	18.41	0.359	0.279	0.110	80.2	862	2162	2570	143165
M-31G phen 2	Marchena	39.14	41.99	18.13	0.357	0.276	0.112	80.5	879	2141	2552	140982
M-31G phen 2	Marchena	39.14	41.86	18.24	0.361	0.276	0.117	80.4	920	2135	2584	141839
M-31G phen 2	Marchena	39.16	41.91	18.17	0.364	0.274	0.115	80.4	905	2123	2605	141289
M-31G phen 2	Marchena	38.72	39.68	20.83	0.377	0.299	0.098	77.3	767	2314	2698	161963
M-31G phen 3	Marchena	39.01	41.23	19.00	0.369	0.289	0.106	79.5	835	2240	2635	147756
M-31G phen 3	Marchena	38.94	41.30	19.00	0.366	0.289	0.103	79.5	811	2241	2618	147737
M-31G phen 3	Marchena	38.95	41.19	19.08	0.378	0.297	0.103	79.4	807	2297	2706	148350
M-31G phen 3	Marchena	36.47	29.23	33.31	0.387	0.547	0.052	61.0	408	4238	2770	259054
M-31G phen 4	Marchena	39.00	41.25	18.98	0.370	0.291	0.110	79.5	863	2257	2643	147555
M-31G phen 4	Marchena	39.02	41.23	18.99	0.371	0.287	0.104	79.5	818	2224	2653	147666
M-31G phen 4	Marchena	38.93	41.25	19.03	0.384	0.289	0.107	79.4	842	2236	2745	148008
M-31G phen 4	Marchena	38.94	41.17	19.09	0.400	0.297	0.105	79.4	824	2301	2856	148467
M-31G phen 5	Marchena	38.94	41.10	19.18	0.383	0.291	0.103	79.3	811	2255	2736	149154

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
M-31G phen 5	Marchena	38.86	41.13	19.23	0.391	0.292	0.101	79.2	794	2264	2794	149524
M-31G phen 5	Marchena	38.86	40.40	19.96	0.390	0.295	0.097	78.3	761	2287	2786	155179
M-31G phen 6	Marchena	38.99	41.03	19.21	0.381	0.294	0.102	79.2	803	2279	2721	149366
M-31G phen 6	Marchena	38.98	41.06	19.19	0.383	0.293	0.102	79.2	802	2269	2738	149203
M-31G phen 6	Marchena	39.18	40.76	19.28	0.388	0.293	0.102	79.0	799	2272	2773	149892
M-31G phen 6	Marchena	37.58	34.14	27.39	0.375	0.455	0.056	69.0	436	3526	2683	213015
M-31G phen 7	Marchena	39.06	41.08	19.08	0.387	0.294	0.100	79.3	789	2274	2764	148388
M-31G phen 7	Marchena	39.03	41.12	19.08	0.381	0.291	0.101	79.3	792	2251	2721	148363
M-31G phen 7	Marchena	38.99	41.13	19.11	0.381	0.293	0.102	79.3	803	2270	2722	148621
M-31G phen 7	Marchena	39.03	41.08	19.12	0.380	0.293	0.101	79.3	792	2266	2719	148651
M-31G phen 7	Marchena	39.05	41.10	19.08	0.384	0.294	0.102	79.3	805	2280	2742	148334
M-31G phen 8	Marchena	39.10	41.12	19.00	0.374	0.294	0.104	79.4	814	2276	2677	147782
M-31G phen 8	Marchena	39.11	41.03	19.09	0.383	0.292	0.101	79.3	795	2263	2740	148439
M-31G phen 8	Marchena	39.05	41.02	19.15	0.384	0.292	0.099	79.2	776	2262	2748	148918
M-31G phen 8	Marchena	37.19	33.01	28.91	0.372	0.441	0.072	67.1	562	3414	2662	224806
M-31G phen 9	Marchena	39.06	41.00	19.17	0.381	0.296	0.101	79.2	791	2294	2724	149042
M-31G phen 9	Marchena	39.14	41.14	18.94	0.383	0.294	0.100	79.5	788	2277	2739	147314
M-31G phen 9	Marchena	39.09	41.10	19.04	0.385	0.290	0.098	79.4	772	2245	2750	148036
M-31G phen 9	Marchena	39.51	42.53	17.26	0.278	0.315	0.099	81.5	781	2441	1986	134250
M-31G phen 10	Marchena	39.01	41.30	18.90	0.389	0.292	0.106	79.6	836	2258	2779	146966
M-31G phen 10	Marchena	39.23	41.69	18.30	0.379	0.296	0.101	80.2	793	2291	2710	142330
M-31G phen 10	Marchena	39.08	41.23	18.91	0.380	0.289	0.104	79.5	818	2239	2713	147058
M-31G phen 11	Marchena	39.06	41.18	18.98	0.379	0.288	0.103	79.5	810	2233	2713	147606
M-31G phen 11	Marchena	39.07	41.19	18.97	0.379	0.293	0.103	79.5	807	2269	2710	147528
M-31G phen 11	Marchena	39.00	41.14	19.09	0.379	0.289	0.103	79.3	811	2237	2713	148411
M-31G phen 12	Marchena	38.97	41.05	19.21	0.379	0.291	0.104	79.2	816	2250	2706	149347
M-31G phen 12	Marchena	38.96	41.08	19.18	0.381	0.296	0.100	79.2	787	2293	2723	149179
M-31G phen 12	Marchena	38.96	41.10	19.17	0.380	0.293	0.101	79.3	791	2273	2720	149071
M-31G phen 12	Marchena	37.56	35.38	26.21	0.371	0.397	0.081	70.6	637	3077	2649	203835
M-31G phen 13	Marchena	38.93	41.09	19.22	0.375	0.292	0.100	79.2	786	2264	2682	149457
M-31G phen 13	Marchena	39.06	40.92	19.24	0.381	0.295	0.104	79.1	820	2285	2722	149582
M-31G phen 13	Marchena	35.86	28.00	35.16	0.364	0.574	0.046	58.7	362	4445	2600	273394
M-31G phen 14	Marchena	38.95	41.06	19.21	0.384	0.289	0.101	79.2	791	2238	2743	149391

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
M-31G phen 14	Marchena	38.96	41.05	19.21	0.387	0.294	0.099	79.2	781	2278	2766	149367
M-31G phen 14	Marchena	37.71	36.21	25.24	0.382	0.380	0.081	71.9	639	2940	2730	196252
M-31G phen 15	Marchena	38.91	41.05	19.26	0.379	0.290	0.102	79.2	803	2249	2713	149762
M-31G phen 15	Marchena	38.49	41.31	19.41	0.373	0.311	0.099	79.1	777	2406	2669	150954
M-31G phen 15	Marchena	38.85	40.70	19.66	0.389	0.298	0.099	78.7	781	2307	2781	152859
P-24 phen 1	Pinta	38.24	39.39	21.60	0.344	0.336	0.089	76.5	697	2602	2457	167948
P-24 phen 1	Pinta	38.10	39.68	21.47	0.327	0.332	0.089	76.7	701	2570	2339	166977
P-24 phen 1	Pinta	38.14	39.53	21.56	0.340	0.338	0.091	76.6	712	2615	2434	167661
P-24 phen 1	Pinta	38.08	39.86	21.32	0.320	0.341	0.089	76.9	697	2639	2289	165753
P-24 phen 2	Pinta	39.65	46.31	13.32	0.293	0.199	0.238	86.1	1868	1539	2098	103541
P-24 phen 2	Pinta	39.55	45.95	13.77	0.274	0.201	0.244	85.6	1920	1559	1959	107109
P-24 phen 2	Pinta	39.30	44.95	15.00	0.274	0.225	0.252	84.2	1981	1743	1956	116639
P-24 phen 2	Pinta	39.15	43.97	16.12	0.321	0.244	0.197	82.9	1548	1889	2296	125324
P-24 phen 3	Pinta	39.38	45.32	14.58	0.270	0.214	0.241	84.7	1892	1661	1927	113405
P-24 phen 3	Pinta	39.25	44.63	15.40	0.270	0.228	0.230	83.8	1810	1762	1930	119712
P-24 phen 3	Pinta	38.74	41.80	18.69	0.330	0.285	0.147	79.9	1153	2207	2357	145349
P-24 phen 3	Pinta	38.49	40.76	19.90	0.403	0.309	0.132	78.5	1034	2395	2885	154757
P-24 phen 4	Pinta	39.88	47.68	11.71	0.268	0.173	0.297	87.9	2332	1336	1918	91060
P-24 phen 4	Pinta	39.92	47.57	11.78	0.262	0.174	0.293	87.8	2304	1351	1870	91637
P-24 phen 4	Pinta	39.89	47.64	11.74	0.270	0.173	0.293	87.9	2305	1342	1928	91271
P-24 phen 4	Pinta	39.35	44.76	15.15	0.295	0.212	0.234	84.0	1840	1642	2106	117801
P-24 phen 5	Pinta	38.29	40.62	20.26	0.391	0.313	0.123	78.1	968	2424	2792	157533
P-24 phen 5	Pinta	38.29	40.43	20.43	0.400	0.318	0.125	77.9	979	2461	2862	158865
P-24 phen 6	Pinta	38.37	40.07	20.74	0.403	0.329	0.090	77.5	709	2548	2881	161270
P-24 phen 6	Pinta	38.54	40.84	19.83	0.363	0.312	0.109	78.6	860	2415	2598	154202
P-24 phen 6	Pinta	38.06	36.90	24.10	0.390	0.450	0.105	73.2	824	3485	2789	187384
P-24 phen 7	Pinta	38.70	42.01	18.49	0.366	0.318	0.122	80.2	957	2463	2618	143760
P-24 phen 8	Pinta	38.93	42.45	17.93	0.263	0.292	0.140	80.8	1097	2263	1878	139390
P-24 phen 10	Pinta	38.45	39.34	21.35	0.413	0.328	0.123	76.7	963	2539	2954	166056
P-24 phen 10	Pinta	38.06	36.69	24.36	0.414	0.374	0.106	72.9	829	2897	2961	189399
P-24 phen 11	Pinta	38.95	40.69	19.56	0.362	0.307	0.129	78.8	1012	2376	2589	152111
P-24 phen 11	Pinta	38.94	40.65	19.60	0.371	0.313	0.129	78.7	1009	2423	2650	152438
P-24 phen 11	Pinta	39.08	40.28	19.84	0.369	0.308	0.126	78.3	987	2385	2641	154299

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
P-24 phen 11	Pinta	38.28	36.10	24.71	0.397	0.409	0.102	72.3	805	3171	2840	192118
P-24 phen 12	Pinta	39.11	40.01	20.03	0.417	0.314	0.124	78.1	972	2431	2981	155742
P-24 phen 12	Pinta	38.96	40.03	20.16	0.406	0.325	0.121	78.0	950	2520	2901	156749
P-24 phen 12	Pinta	38.94	39.93	20.30	0.403	0.318	0.117	77.8	921	2463	2878	157831
P-24 phen 13	Pinta	39.24	41.44	18.49	0.373	0.329	0.133	80.0	1042	2545	2663	143758
P-24 phen 13	Pinta	38.84	39.52	20.74	0.426	0.352	0.127	77.3	1001	2726	3044	161249
P-24 phen 13	Pinta	37.89	36.21	24.95	0.397	0.449	0.107	72.1	837	3474	2840	193992
P-24 phen 14	Pinta	38.91	39.10	21.11	0.419	0.342	0.128	76.8	1006	2647	2997	164156
P-24 phen 14	Pinta	39.13	40.22	19.86	0.354	0.307	0.130	78.3	1021	2381	2534	154409
P-24 phen 15	Pinta	39.35	41.16	18.74	0.353	0.296	0.099	79.6	776	2295	2520	145757
P-24 phen 15	Pinta	39.37	41.09	18.77	0.378	0.294	0.094	79.6	737	2273	2700	145992
P-24 phen 15	Pinta	39.50	41.09	18.64	0.377	0.294	0.097	79.7	763	2277	2693	144910
P-24 phen 15	Pinta	37.81	34.84	26.38	0.426	0.474	0.070	70.2	546	3675	3047	205163
P-24 phen 15	Pinta	39.38	41.13	18.76	0.329	0.296	0.098	79.6	767	2294	2353	145876
P-24 phen 15	Pinta	39.44	41.18	18.62	0.373	0.290	0.093	79.8	733	2249	2665	144803
P-24 phen 15	Pinta	37.87	34.30	26.64	0.650	0.466	0.072	69.7	565	3612	4650	207128
P-24 phen 15	Pinta	37.78	35.04	26.27	0.367	0.465	0.071	70.4	558	3602	2621	204299
P-24 phen 15	Pinta	38.80	39.68	20.68	0.395	0.334	0.113	77.4	887	2586	2824	160814
[1]R9512 phen 19	Roca Redonda	39.81	42.35	17.42		0.243	0.187	81.3	1472	1884		135435
[1]R9512 phen 19	Roca Redonda	39.72	42.37	17.46		0.251	0.191	81.2	1501	1944		135772
[1]R9512 phen 19	Roca Redonda	39.62	42.04	17.88		0.254	0.192	80.7	1508	1971		139069
[1]R9512 phen 19	Roca Redonda	39.78	42.27	17.51		0.244	0.187	81.1	1466	1889		136175
[2]R9512 phen 19	Roca Redonda	39.56	42.41	17.51	0.274	0.248		81.2		1923	1956	136170
[2]R9512 phen 19	Roca Redonda	39.52	42.41	17.56	0.266	0.251		81.2		1942	1898	136523
[2]R9512 phen 19	Roca Redonda	39.64	42.41	17.45	0.255	0.248		81.3		1920	1823	135664
[2]R9512 phen 19	Roca Redonda	39.33	41.88	18.27	0.255	0.260		80.3		2011	1822	142058
[2]R9512 phen 19	Roca Redonda	38.91	39.96	20.57	0.250	0.306		77.6		2373	1788	159954
[2]R9512 phen 19	Roca Redonda	37.31	31.66	30.19	0.312	0.532		65.1		4121	2229	234723
[1]R9512 phen 20	Roca Redonda	40.01	43.69	15.88		0.215	0.206	83.1	1617	1669		123462
[1]R9512 phen 20	Roca Redonda	39.91	43.05	16.62		0.221	0.197	82.2	1549	1710		129263
[1]R9512 phen 20	Roca Redonda	38.78	38.19	22.58		0.323	0.122	75.1	958	2501		175616
[1]R9512 phen 20	Roca Redonda	39.45	41.21	18.92		0.254	0.165	79.5	1299	1964		147127
[2]R9512 phen 20	Roca Redonda	39.19	41.57	18.73	0.265	0.255		79.8		1973	1897	145621

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R9512 phen 20	Roca Redonda	38.89	40.22	20.34	0.263	0.286		77.9		2213	1878	158183
[2]R9512 phen 20	Roca Redonda	38.40	38.09	22.90	0.276	0.335		74.8		2591	1976	178049
[2]R9512 phen 20	Roca Redonda	37.81	35.07	26.40	0.298	0.418		70.3		3234	2132	205314
[2]R9512 phen 20	Roca Redonda	37.66	33.40	28.16	0.300	0.472		67.9		3652	2146	219010
[1]R9512 phen 23	Roca Redonda	39.90	43.20	16.47		0.233	0.203	82.4	1597	1808		128088
[1]R9512 phen 23	Roca Redonda	39.93	43.15	16.48		0.229	0.207	82.4	1628	1774		128149
[1]R9512 phen 23	Roca Redonda	39.90	43.18	16.48		0.233	0.206	82.4	1621	1804		128161
[1]R9512 phen 23	Roca Redonda	39.87	43.05	16.64		0.235	0.204	82.2	1605	1822		129414
[1]R9512 phen 23	Roca Redonda	37.56	32.86	29.06		0.476	0.048	66.8	379	3684		225942
[2]R9512 phen 23	Roca Redonda	39.63	43.26	16.62	0.255	0.239		82.3		1852	1820	129200
[2]R9512 phen 23	Roca Redonda	39.64	43.22	16.65	0.253	0.237		82.2		1835	1811	129471
[2]R9512 phen 23	Roca Redonda	39.59	43.20	16.72	0.253	0.240		82.2		1862	1809	129987
[2]R9512 phen 23	Roca Redonda	39.58	42.97	16.95	0.252	0.243		81.9		1881	1798	131834
[2]R9512 phen 23	Roca Redonda	39.55	41.83	18.13	0.241	0.253		80.4		1956	1721	140969
[2]R9512 phen 23	Roca Redonda	37.29	32.79	29.12	0.317	0.480		66.7		3721	2268	226417
[1]R9512 phen 26	Roca Redonda	39.68	42.66	17.23		0.241	0.191	81.5	1498	1864		133967
[1]R9512 phen 26	Roca Redonda	37.81	34.69	27.00		0.428	0.069	69.6	545	3316		209927
[1]R9512 phen 26	Roca Redonda	39.41	41.47	18.69		0.260	0.167	79.8	1315	2015		145354
[1]R9512 phen 26	Roca Redonda	39.67	42.56	17.34		0.239	0.187	81.4	1466	1849		134834
[2]R9512 phen 26	Roca Redonda	39.46	42.69	17.34	0.262	0.246		81.4		1905	1874	134854
[2]R9512 phen 26	Roca Redonda	39.45	42.66	17.38	0.259	0.251		81.4		1944	1852	135161
[2]R9512 phen 26	Roca Redonda	39.35	42.35	17.79	0.263	0.248		80.9		1919	1879	138336
[2]R9512 phen 26	Roca Redonda	38.87	40.43	20.17	0.255	0.278		78.1		2156	1824	156808
[2]R9512 phen 26	Roca Redonda	36.92	33.27	29.01	0.320	0.485		67.2		3755	2289	225571
[1]R9512 phen 29	Roca Redonda	39.58	42.30	17.69		0.251	0.179	81.0	1403	1944		137528
[1]R9512 phen 29	Roca Redonda	39.27	42.52	17.79		0.246	0.181	81.0	1419	1907		138307
[1]R9512 phen 29	Roca Redonda	37.81	34.16	27.52		0.447	0.067	68.9	523	3459		213969
[1]R9512 phen 29	Roca Redonda	39.17	41.07	19.33		0.270	0.158	79.1	1244	2089		150313
[2]R9512 phen 29	Roca Redonda	39.22	42.21	18.03	0.277	0.261		80.7		2024	1978	140202
[2]R9512 phen 29	Roca Redonda	38.91	40.54	20.02	0.252	0.279		78.3		2160	1799	155649
[2]R9512 phen 29	Roca Redonda	38.35	37.69	23.34	0.261	0.351		74.2		2719	1863	181508
[2]R9512 phen 29	Roca Redonda	37.55	34.09	27.58	0.317	0.459		68.8		3558	2267	214500
[1]R9512 phen 33	Roca Redonda	39.59	41.87	18.10		0.251	0.183	80.5	1439	1943		140776

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R9512 phen 33	Roca Redonda	38.75	38.93	21.86		0.320	0.131	76.0	1029	2479		170022
[1]R9512 phen 33	Roca Redonda	37.14	32.67	29.65		0.495	0.041	66.3	320	3834		230588
[2]R9512 phen 33	Roca Redonda	39.37	41.81	18.26	0.302	0.249		80.3		1931	2161	142023
[2]R9512 phen 33	Roca Redonda	39.12	41.63	18.71	0.283	0.261		79.9		2022	2026	145470
[2]R9512 phen 33	Roca Redonda	38.41	38.83	22.17	0.273	0.323		75.7		2504	1953	172378
[2]R9512 phen 33	Roca Redonda	37.03	33.35	28.82	0.320	0.482		67.3		3736	2291	224098
[1]R9512 phen 37	Roca Redonda	39.61	41.82	18.14		0.247	0.184	80.4	1448	1916		141080
[1]R9512 phen 37	Roca Redonda	39.32	40.59	19.66		0.271	0.161	78.6	1266	2097		152874
[1]R9512 phen 37	Roca Redonda	37.75	33.66	28.08		0.457	0.053	68.1	414	3539		218340
[2]R9512 phen 37	Roca Redonda	39.34	41.87	18.26	0.268	0.259		80.3		2007	1916	142003
[2]R9512 phen 37	Roca Redonda	39.04	40.65	19.75	0.284	0.275		78.6		2131	2028	153614
[2]R9512 phen 37	Roca Redonda	38.51	37.98	22.91	0.272	0.332		74.7		2572	1945	178112
[2]R9512 phen 37	Roca Redonda	37.49	33.56	28.17	0.314	0.469		68.0		3632	2246	219036
[1]R9512 phen 49	Roca Redonda	39.98	43.17	16.41		0.232	0.205	82.4	1614	1797		127627
[1]R9512 phen 49	Roca Redonda	39.84	43.01	16.71		0.238	0.204	82.1	1603	1844		129945
[1]R9512 phen 49	Roca Redonda	39.73	42.15	17.70		0.245	0.179	80.9	1409	1896		137620
[1]R9512 phen 49	Roca Redonda	39.58	41.68	18.32		0.249	0.173	80.2	1360	1929		142449
[1]R9512 phen 49	Roca Redonda	38.83	38.68	22.05		0.318	0.124	75.8	976	2461		171432
[1]R9512 phen 49	Roca Redonda	38.64	37.85	23.05		0.354	0.108	74.5	847	2742		179261
[1]R9512 phen 49	Roca Redonda	38.06	36.01	25.45		0.399	0.082	71.6	647	3091		197880
[2]R9512 phen 49	Roca Redonda	39.74	43.22	16.52	0.288	0.237		82.3		1837	2062	128437
[2]R9512 phen 49	Roca Redonda	39.54	42.98	16.96	0.290	0.240		81.9		1855	2071	131846
[2]R9512 phen 49	Roca Redonda	39.35	41.73	18.39	0.282	0.250		80.2		1940	2017	142998
[2]R9512 phen 49	Roca Redonda	39.26	41.35	18.85	0.284	0.261		79.6		2023	2034	146544
[2]R9512 phen 49	Roca Redonda	38.39	37.45	23.51	0.296	0.352		74.0		2727	2118	182812
[2]R9512 phen 49	Roca Redonda	37.84	36.02	25.44	0.300	0.404		71.6		3128	2142	197808
[1]R9512 phen 52	Roca Redonda	39.29	40.77	19.49		0.275	0.171	78.9	1343	2132		151590
[1]R9512 phen 52	Roca Redonda	38.78	38.80	21.97		0.315	0.129	75.9	1017	2437		170866
[1]R9512 phen 52	Roca Redonda	38.38	36.76	24.40		0.361	0.100	72.9	787	2793		189759
[1]R9512 phen 52	Roca Redonda	37.38	32.19	29.89		0.511	0.035	65.8	278	3956		232403
[2]R9512 phen 52	Roca Redonda	38.98	40.72	19.73	0.276	0.280		78.6		2172	1975	153459
[2]R9512 phen 52	Roca Redonda	38.65	38.91	21.86	0.271	0.318		76.0		2466	1940	169958
[2]R9512 phen 52	Roca Redonda	38.51	38.56	22.33	0.278	0.324		75.5		2512	1985	173622

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R9512 phen 52	Roca Redonda	38.15	36.92	24.29	0.278	0.363		73.0		2811	1991	188885
[2]R9512 phen 52	Roca Redonda	37.79	35.33	26.18	0.296	0.396		70.6		3068	2118	203612
[2]R9512 phen 52	Roca Redonda	37.13	32.49	29.54	0.342	0.501		66.2		3884	2446	229705
[1]R9512 phen 59	Roca Redonda	39.66	42.21	17.69		0.252	0.182	81.0	1433	1950		137597
[1]R9512 phen 59	Roca Redonda	39.63	42.18	17.75		0.254	0.183	80.9	1433	1969		137997
[1]R9512 phen 59	Roca Redonda	39.60	42.04	17.91		0.256	0.187	80.7	1467	1984		139287
[1]R9512 phen 59	Roca Redonda	39.48	41.60	18.49		0.264	0.171	80.0	1340	2046		143756
[1]R9512 phen 59	Roca Redonda	37.21	32.85	29.38		0.512	0.038	66.6	302	3969		228487
[2]R9512 phen 59	Roca Redonda	39.37	41.99	18.11	0.276	0.257		80.5		1992	1971	140789
[2]R9512 phen 59	Roca Redonda	39.44	42.21	17.81	0.277	0.258		80.9		2002	1977	138525
[2]R9512 phen 59	Roca Redonda	39.49	42.21	17.77	0.278	0.249		80.9		1930	1986	138180
[2]R9512 phen 59	Roca Redonda	39.44	42.14	17.89	0.277	0.253		80.8		1958	1981	139108
[2]R9512 phen 59	Roca Redonda	39.27	41.57	18.62	0.273	0.263		79.9		2036	1955	144814
[2]R9512 phen 59	Roca Redonda	37.15	33.60	28.46	0.312	0.475		67.8		3678	2229	221322
[1]R9512 phen 66	Roca Redonda	39.80	42.85	16.92		0.243	0.193	81.9	1518	1884		131543
[1]R9512 phen 66	Roca Redonda	39.80	42.79	16.98		0.240	0.192	81.8	1508	1861		132007
[1]R9512 phen 66	Roca Redonda	39.69	42.53	17.35		0.242	0.189	81.4	1484	1872		134943
[1]R9512 phen 66	Roca Redonda	39.30	40.84	19.42		0.269	0.165	78.9	1294	2087		151030
[1]R9512 phen 66	Roca Redonda	37.56	34.69	27.24		0.442	0.067	69.4	524	3424		211823
[2]R9512 phen 66	Roca Redonda	39.52	42.88	17.06	0.297	0.240		81.7		1862	2126	132682
[2]R9512 phen 66	Roca Redonda	39.54	42.93	17.00	0.292	0.238		81.8		1845	2087	132207
[2]R9512 phen 66	Roca Redonda	39.53	42.69	17.24	0.291	0.244		81.5		1888	2080	134037
[2]R9512 phen 66	Roca Redonda	39.33	42.22	17.90	0.290	0.250		80.8		1936	2075	139225
[2]R9512 phen 66	Roca Redonda	38.86	40.29	20.29	0.280	0.284		78.0		2200	2005	157776
[2]R9512 phen 66	Roca Redonda	37.27	35.08	26.90	0.315	0.432		69.9		3344	2255	209204
[1]R9512 phen 67	Roca Redonda	39.85	43.17	16.54		0.234	0.209	82.3	1642	1815		128584
[1]R9512 phen 67	Roca Redonda	39.83	42.97	16.75		0.242	0.208	82.1	1631	1875		130251
[1]R9512 phen 67	Roca Redonda	37.47	33.60	28.40		0.480	0.056	67.8	443	3721		220819
[1]R9512 phen 67	Roca Redonda	39.48	41.63	18.45		0.255	0.182	80.1	1431	1973		143496
[2]R9512 phen 67	Roca Redonda	39.66	43.11	16.70	0.288	0.240		82.1		1862	2060	129876
[2]R9512 phen 67	Roca Redonda	39.66	43.23	16.61	0.266	0.239		82.3		1851	1902	129158
[2]R9512 phen 67	Roca Redonda	39.65	42.92	16.92	0.264	0.244		81.9		1887	1886	131554
[2]R9512 phen 67	Roca Redonda	39.42	41.63	18.41	0.270	0.261		80.1		2022	1931	143168

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R9512 phen 67	Roca Redonda	37.93	33.84	27.46	0.311	0.456		68.7		3535	2226	213533
[1]R9512 phen 69	Roca Redonda	39.70	42.05	17.82		0.249	0.175	80.8	1378	1931		138578
[1]R9512 phen 69	Roca Redonda	39.56	41.98	18.03		0.250	0.182	80.6	1430	1933		140196
[1]R9512 phen 69	Roca Redonda	39.64	41.86	18.06		0.253	0.183	80.5	1438	1960		140450
[1]R9512 phen 69	Roca Redonda	37.80	34.53	27.16		0.432	0.075	69.4	589	3348		211221
[2]R9512 phen 69	Roca Redonda	39.39	41.94	18.14	0.274	0.259		80.5		2003	1957	141038
[2]R9512 phen 69	Roca Redonda	39.36	41.98	18.13	0.270	0.257		80.5		1994	1932	140994
[2]R9512 phen 69	Roca Redonda	39.40	42.00	18.08	0.269	0.253		80.6		1962	1925	140560
[2]R9512 phen 69	Roca Redonda	39.25	41.31	18.90	0.277	0.263		79.6		2036	1981	146997
[1]R9512 phen 84	Roca Redonda	39.84	42.45	17.27		0.242	0.203	81.4	1593	1871		134270
[1]R9512 phen 84	Roca Redonda	39.73	42.44	17.39		0.247	0.200	81.3	1573	1913		135212
[1]R9512 phen 84	Roca Redonda	37.85	34.40	27.25		0.444	0.061	69.2	482	3435		211863
[2]R9512 phen 84	Roca Redonda	39.31	42.99	17.19	0.277	0.244		81.7		1887	1979	133646
[2]R9512 phen 84	Roca Redonda	39.46	42.56	17.45	0.280	0.244		81.3		1887	2001	135723
[2]R9512 phen 84	Roca Redonda	39.56	42.48	17.44	0.281	0.243		81.3		1882	2009	135621
[2]R9512 phen 84	Roca Redonda	39.37	42.11	17.98	0.283	0.255		80.7		1973	2024	139778
[2]R9512 phen 84	Roca Redonda	37.51	34.32	27.39	0.327	0.448		69.1		3466	2340	212992
[1]R9512 phen 85	Roca Redonda	39.74	41.60	18.21		0.261	0.184	80.3	1442	2023		141628
[1]R9512 phen 85	Roca Redonda	39.53	41.64	18.39		0.258	0.179	80.1	1406	2000		142990
[1]R9512 phen 85	Roca Redonda	39.45	41.35	18.76		0.272	0.174	79.7	1363	2108		145868
[1]R9512 phen 85	Roca Redonda	39.33	40.30	19.93		0.284	0.160	78.3	1258	2197		155014
[1]R9512 phen 85	Roca Redonda	37.80	34.27	27.42		0.440	0.074	69.0	580	3407		213228
[1]R9512 phen 86	Roca Redonda	39.89	43.16	16.51		0.235	0.212	82.3	1666	1818		128356
[1]R9512 phen 86	Roca Redonda	39.86	43.19	16.51		0.233	0.209	82.3	1642	1803		128381
[1]R9512 phen 86	Roca Redonda	39.57	42.49	17.50		0.246	0.194	81.2	1527	1904		136069
[1]R9512 phen 86	Roca Redonda	37.51	34.11	27.87		0.463	0.049	68.6	386	3586		216742
[1]R9512 phen 86	Roca Redonda	39.77	43.07	16.72		0.235	0.205	82.1	1607	1820		130043
[2]R9512 phen 86	Roca Redonda	39.74	43.17	16.58	0.267	0.236		82.3		1831	1909	128959
[2]R9512 phen 86	Roca Redonda	39.66	43.26	16.58	0.269	0.238		82.3		1844	1922	128916
[2]R9512 phen 86	Roca Redonda	39.70	43.01	16.78	0.267	0.243		82.0		1881	1912	130450
[2]R9512 phen 86	Roca Redonda	39.62	43.03	16.85	0.263	0.242		82.0		1878	1883	130990
[2]R9512 phen 86	Roca Redonda	39.46	42.77	17.27	0.259	0.249		81.5		1932	1850	134258
[2]R9512 phen 86	Roca Redonda	37.33	34.05	27.85	0.317	0.457		68.5		3537	2264	216531

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R9512 phen 87	Roca Redonda	39.60	42.05	17.92		0.255	0.179	80.7	1407	1976		139331
[1]R9512 phen 87	Roca Redonda	39.38	40.91	19.28		0.263	0.160	79.1	1256	2035		149945
[2]R9512 phen 87	Roca Redonda	39.38	42.08	18.02	0.257	0.256		80.6		1982	1834	140122
[2]R9512 phen 87	Roca Redonda	39.19	41.06	19.23	0.260	0.263		79.2		2041	1862	149565
[2]R9512 phen 87	Roca Redonda	39.02	40.08	20.36	0.258	0.287		77.8		2222	1841	158305
[2]R9512 phen 87	Roca Redonda	37.89	34.04	27.31	0.321	0.448		69.0		3470	2293	212327
[1]R9512 phen 92	Roca Redonda	39.81	42.98	16.83		0.225	0.158	82.0	1241	1740		130873
[1]R9512 phen 92	Roca Redonda	39.50	41.79	18.32		0.245	0.151	80.3	1186	1899		142483
[1]R9512 phen 92	Roca Redonda	38.93	38.81	21.82		0.320	0.121	76.0	954	2479		169692
[1]R9512 phen 92	Roca Redonda	38.07	34.91	26.54		0.424	0.070	70.1	547	3282		206340
[2]R9512 phen 92	Roca Redonda	39.61	43.00	16.91	0.260	0.228		81.9		1763	1860	131471
[2]R9512 phen 92	Roca Redonda	39.35	42.33	17.81	0.266	0.237		80.9		1838	1899	138530
[2]R9512 phen 92	Roca Redonda	39.04	40.41	20.01	0.263	0.277		78.3		2148	1882	155577
[2]R9512 phen 92	Roca Redonda	38.76	38.90	21.74	0.274	0.316		76.1		2449	1961	169086
[2]R9512 phen 92	Roca Redonda	37.87	35.08	26.32	0.304	0.417		70.4		3231	2172	204695
[1]R9512 phen 96	Roca Redonda	39.56	41.92	18.10		0.255	0.169	80.5	1328	1977		140781
[1]R9512 phen 96	Roca Redonda	39.55	41.46	18.57		0.258	0.158	79.9	1238	1995		144424
[1]R9512 phen 96	Roca Redonda	39.05	39.22	21.29		0.305	0.124	76.7	973	2365		165575
[2]R9512 phen 96	Roca Redonda	39.44	41.48	18.54	0.288	0.256		79.9		1979	2059	144201
[2]R9512 phen 96	Roca Redonda	39.11	40.76	19.56	0.277	0.280		78.8		2166	1981	152136
[2]R9512 phen 96	Roca Redonda	38.32	36.96	24.06	0.295	0.366		73.3		2838	2107	187073
[2]R9512 phen 96	Roca Redonda	37.54	32.92	28.73	0.314	0.491		67.1		3803	2243	223429
[1]R952 phen 1	Roca Redonda	40.01	43.61	15.93		0.268	0.187	83.0	1470	2075		123852
[2]R952 phen 1	Roca Redonda	39.70	42.42	17.40	0.232	0.255		81.3		1972	1656	135300
[1]R952 phen 2	Roca Redonda	39.47	41.42	18.62		0.352	0.143	79.9	1122	2726		144775
[2]R952 phen 2	Roca Redonda	39.32	41.44	18.66	0.230	0.352		79.8		2730	1647	145077
[1]R952 phen 3	Roca Redonda	39.79	42.24	17.53		0.269	0.181	81.1	1423	2084		136283
[2]R952 phen 3	Roca Redonda	39.67	42.29	17.51	0.271	0.261		81.2		2025	1936	136148
[1]R952 phen 4	Roca Redonda	39.54	41.00	18.93		0.384	0.141	79.4	1110	2972		147213
[2]R952 phen 4	Roca Redonda	39.35	41.05	18.95	0.263	0.382		79.4		2960	1878	147374
[1]R952 phen 5	Roca Redonda	39.54	41.18	18.75		0.387	0.152	79.7	1190	3001		145779
[2]R952 phen 5	Roca Redonda	39.46	41.47	18.46	0.279	0.328		80.0		2544	1997	143581
[1]R952 phen 6	Roca Redonda	39.50	40.85	19.07		0.497	0.076	79.2	601	3847		148311

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R952 phen 6	Roca Redonda	39.35	41.00	18.94	0.207	0.494		79.4		3827	1480	147312
[1]R952 phen 7	Roca Redonda	39.74	41.94	17.86		0.270	0.191	80.7	1497	2090		138878
[2]R952 phen 7	Roca Redonda	39.55	42.13	17.79	0.261	0.269		80.8		2084	1866	138341
[1]R952 phen 8	Roca Redonda	39.61	41.23	18.67		0.346	0.146	79.7	1147	2678		145175
[2]R952 phen 8	Roca Redonda	39.38	41.35	18.68	0.253	0.343		79.8		2655	1811	145230
[2]R952 phen 9	Roca Redonda	39.89	42.05	17.53	0.260	0.265		81.1		2055	1859	136288
[1]R952 phen 12	Roca Redonda	39.73	41.82	18.01		0.280	0.160	80.5	1260	2170		140020
[2]R952 phen 12	Roca Redonda	39.63	41.65	18.20	0.195	0.319		80.3		2468	1397	141546
[1]R952 phen 13	Roca Redonda	39.51	41.20	18.85		0.282	0.160	79.6	1255	2181		146573
[2]R952 phen 13	Roca Redonda	39.40	41.26	18.87	0.198	0.279		79.6		2159	1419	146698
[1]R952 phen 15	Roca Redonda	39.68	41.87	17.99		0.288	0.170	80.6	1333	2229		139898
[2]R952 phen 15	Roca Redonda	39.60	41.89	17.98	0.242	0.283		80.6		2192	1729	139847
[1]R952 phen 16	Roca Redonda	39.48	41.21	18.76		0.484	0.066	79.7	520	3747		145913
[2]R952 phen 16	Roca Redonda	39.35	41.27	18.70	0.198	0.481		79.7		3727	1414	145411
[1]R952 phen 17	Roca Redonda	39.76	42.73	17.05		0.261	0.194	81.7	1524	2019		132612
[1]R952 phen 17	Roca Redonda	39.50	41.68	18.27		0.423	0.120	80.3	946	3274		142068
[1]R952 phen 17	Roca Redonda	39.40	41.62	18.42		0.451	0.109	80.1	856	3496		143267
[1]R952 phen 17	Roca Redonda	39.48	42.26	17.77		0.321	0.166	80.9	1304	2486		138180
[2]R952 phen 17	Roca Redonda	39.72	42.75	17.08	0.199	0.256		81.7		1984	1420	132819
[2]R952 phen 17	Roca Redonda	39.38	42.37	17.75	0.179	0.324		81.0		2512	1277	138004
[2]R952 phen 17	Roca Redonda	39.74	43.09	16.71	0.233	0.227		82.1		1755	1666	129900
[2]R952 phen 17	Roca Redonda	39.31	41.74	18.30	0.187	0.456		80.3		3533	1337	142318
[1]R952 phen 18	Roca Redonda	39.51	41.34	18.62		0.406	0.129	79.8	1010	3148		144760
[2]R952 phen 18	Roca Redonda	39.34	41.44	18.55	0.266	0.405		79.9		3136	1902	144237
[1]R952 phen 19	Roca Redonda	39.61	41.83	18.04		0.333	0.181	80.5	1422	2577		140317
[1]R952 phen 20	Roca Redonda	39.59	41.65	18.23		0.374	0.156	80.3	1227	2895		141773
[2]R952 phen 20	Roca Redonda	39.48	41.77	18.23	0.161	0.360		80.3		2789	1154	141758
[1]R952 phen 21	Roca Redonda	39.57	41.74	18.21		0.311	0.165	80.3	1295	2409		141594
[2]R952 phen 21	Roca Redonda	39.42	41.81	18.27	0.200	0.307		80.3		2381	1428	142043
[1]R952 phen 22	Roca Redonda	39.39	41.06	18.99		0.438	0.125	79.4	982	3396		147677
[2]R952 phen 22	Roca Redonda	39.27	41.10	18.97	0.240	0.427		79.4		3306	1713	147473
[1]R952 phen 23	Roca Redonda	39.88	42.81	16.87		0.243	0.192	81.9	1507	1878		131219
[2]R952 phen 23	Roca Redonda	39.78	42.89	16.89	0.199	0.239		81.9		1853	1419	131361

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R952 phen 25	Roca Redonda	39.52	41.87	18.14	0.196	0.268		80.4		2077	1402	141096
[1]R952 phen 26	Roca Redonda	39.69	42.12	17.66		0.383	0.143	81.0	1125	2969		137338
[1]R952 phen 26	Roca Redonda	39.61	42.10	17.75		0.402	0.136	80.9	1072	3115		138023
[1]R952 phen 26	Roca Redonda	39.66	42.59	17.24		0.335	0.174	81.5	1366	2597		134027
[1]R952 phen 26	Roca Redonda	39.85	43.38	16.33		0.233	0.204	82.6	1602	1802		127008
[1]R952 phen 26	Roca Redonda	39.82	43.52	16.22		0.230	0.208	82.7	1637	1781		126133
[2]R952 phen 26	Roca Redonda	39.75	43.62	16.17	0.240	0.228		82.8		1769	1712	125723
[2]R952 phen 26	Roca Redonda	39.72	43.66	16.14	0.251	0.228		82.8		1764	1796	125482
[2]R952 phen 26	Roca Redonda	39.69	43.19	16.61	0.273	0.239		82.3		1853	1954	129188
[2]R952 phen 26	Roca Redonda	39.61	42.40	17.45	0.219	0.321		81.2		2487	1569	135704
[1]R952 phen 27	Roca Redonda	39.65	41.94	17.96		0.255	0.189	80.6	1483	1977		139688
[2]R952 phen 27	Roca Redonda	39.43	41.87	18.19	0.247	0.259		80.4		2006	1763	141459
[1]R952 phen 28	Roca Redonda	39.70	41.56	18.29		0.293	0.158	80.2	1242	2269		142238
[2]R952 phen 28	Roca Redonda	39.61	41.58	18.25	0.263	0.294		80.2		2278	1880	141923
[1]R952 phen 29	Roca Redonda	40.01	43.11	16.43		0.233	0.214	82.4	1680	1806		127738
[2]R952 phen 29	Roca Redonda	39.95	43.19	16.44	0.195	0.237		82.4		1833	1392	127800
[1]R952 phen 30	Roca Redonda	39.56	41.38	18.56		0.334	0.163	79.9	1283	2589		144322
[2]R952 phen 30	Roca Redonda	39.49	41.49	18.53	0.166	0.334		80.0		2586	1185	144062
[1]R952 phen 31	Roca Redonda	39.56	41.52	18.49		0.271	0.163	80.0	1279	2099		143746
[2]R952 phen 31	Roca Redonda	39.49	41.60	18.42	0.223	0.273		80.1		2111	1596	143227
[1]R952 phen 32	Roca Redonda	39.54	41.81	18.20		0.306	0.150	80.4	1180	2374		141486
[2]R952 phen 32	Roca Redonda	39.44	41.83	18.16	0.265	0.308		80.4		2382	1897	141209
[1]R952 phen 33	Roca Redonda	39.46	41.39	18.63		0.393	0.139	79.8	1095	3040		144843
[2]R952 phen 33	Roca Redonda	39.33	41.51	18.52	0.239	0.394		80.0		3050	1711	144042
[1]R952 phen 34	Roca Redonda	39.66	41.57	18.29		0.343	0.141	80.2	1105	2655		142198
[2]R952 phen 34	Roca Redonda	39.54	41.27	18.61	0.232	0.349		79.8		2705	1658	144689
[1]R952 phen 35	Roca Redonda	39.39	41.84	18.27		0.354	0.147	80.3	1158	2739		142105
[2]R952 phen 35	Roca Redonda	39.40	41.80	18.22	0.221	0.359		80.4		2782	1577	141667
[1]R952 phen 36	Roca Redonda	39.71	41.56	18.23		0.382	0.126	80.3	991	2957		141750
[2]R952 phen 36	Roca Redonda	39.47	41.56	18.39	0.193	0.388		80.1		3007	1381	143021
[1]R952 phen 37	Roca Redonda	39.38	41.05	19.04		0.400	0.126	79.4	986	3097		148066
[2]R952 phen 37	Roca Redonda	39.37	41.33	18.67	0.227	0.406		79.8		3141	1621	145143
[1]R952 phen 38	Roca Redonda	39.39	40.97	19.15		0.353	0.136	79.2	1069	2731		148873

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R952 phen 38	Roca Redonda	39.29	40.90	19.16	0.285	0.363		79.2		2811	2037	148979
[1]R952 phen 39	Roca Redonda	39.65	42.90	17.01		0.247	0.197	81.8	1546	1911		132249
[1]R952 phen 39	Roca Redonda	39.73	42.80	17.03		0.239	0.198	81.8	1554	1854		132427
[1]R952 phen 39	Roca Redonda	39.61	41.94	17.99		0.278	0.180	80.6	1416	2155		139912
[1]R952 phen 39	Roca Redonda	39.41	41.19	18.84		0.474	0.089	79.6	700	3671		146477
[2]R952 phen 39	Roca Redonda	39.69	43.25	16.59	0.211	0.268		82.3		2072	1510	128967
[2]R952 phen 39	Roca Redonda	39.71	42.74	17.11	0.197	0.243		81.7		1882	1411	133064
[2]R952 phen 39	Roca Redonda	39.64	42.74	17.18	0.196	0.244		81.6		1889	1402	133586
[2]R952 phen 39	Roca Redonda	39.26	41.11	18.93	0.229	0.470		79.5		3643	1641	147164
[1]R952 phen 40	Roca Redonda	39.48	42.11	17.96		0.265	0.181	80.7	1418	2053		139692
[2]R952 phen 40	Roca Redonda	39.41	42.14	17.96	0.224	0.267		80.7		2071	1600	139639
[1]R952 phen 41	Roca Redonda	39.85	42.80	16.91		0.239	0.204	81.9	1602	1850		131479
[2]R952 phen 41	Roca Redonda	39.73	42.86	16.93	0.245	0.241		81.9		1867	1752	131610
[1]R952 phen 42	Roca Redonda	39.64	41.68	18.20		0.331	0.155	80.3	1216	2561		141547
[2]R952 phen 42	Roca Redonda	39.55	41.70	18.18	0.238	0.327		80.3		2530	1702	141407
[1]R952 phen 43	Roca Redonda	39.48	41.23	18.86		0.276	0.162	79.6	1271	2136		146627
[2]R952 phen 43	Roca Redonda	39.43	41.36	18.66	0.265	0.272		79.8		2107	1896	145131
[1]R952 phen 44	Roca Redonda	39.71	41.89	17.96		0.266	0.172	80.6	1354	2059		139686
[2]R952 phen 44	Roca Redonda	39.61	41.95	17.90	0.273	0.262		80.7		2026	1951	139208
[1]R952 phen 45	Roca Redonda	39.63	42.64	17.29		0.245	0.186	81.5	1463	1901		134480
[2]R952 phen 46	Roca Redonda	39.51	42.66	17.36	0.224	0.247		81.4		1913	1598	134977
[1]R952 phen 47	Roca Redonda	39.36	41.62	18.51		0.356	0.157	80.0	1234	2757		143898
[2]R952 phen 47	Roca Redonda	39.35	41.55	18.52	0.227	0.353		80.0		2737	1623	143993
[1]R952 phen 48	Roca Redonda	39.70	42.42	17.44		0.264	0.180	81.3	1417	2046		135587
[1]R952 phen 48	Roca Redonda	39.61	42.35	17.57		0.289	0.179	81.1	1409	2240		136637
[1]R952 phen 48	Roca Redonda	39.31	41.61	18.54		0.451	0.083	80.0	650	3495		144199
[1]R952 phen 48	Roca Redonda	39.44	41.94	18.10		0.365	0.154	80.5	1207	2828		140736
[2]R952 phen 48	Roca Redonda	39.66	42.28	17.53	0.244	0.289		81.1		2242	1743	136293
[2]R952 phen 48	Roca Redonda	39.74	42.37	17.40	0.213	0.269		81.3		2080	1526	135342
[2]R952 phen 48	Roca Redonda	39.45	41.89	18.05	0.238	0.363		80.5		2809	1699	140375
[2]R952 phen 48	Roca Redonda	39.25	41.56	18.54	0.196	0.454		80.0		3515	1400	144161
[1]R952 phen 51	Roca Redonda	39.68	42.54	17.32		0.293	0.177	81.4	1388	2272		134666
[1]R952 phen 52	Roca Redonda	39.44	41.58	18.47		0.381	0.132	80.1	1033	2950		143633

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R952 phen 52	Roca Redonda	39.50	41.52	18.35	0.246	0.386		80.1		2987	1759	142692
[1]R952 phen 53	Roca Redonda	39.43	41.77	18.27		0.381	0.152	80.3	1192	2949		142040
[2]R952 phen 53	Roca Redonda	39.41	41.38	18.57	0.183	0.454		79.9		3517	1308	144423
[1]R952 phen 54	Roca Redonda	39.35	41.44	18.65		0.449	0.109	79.8	856	3476		145027
[2]R952 phen 54	Roca Redonda	39.46	41.69	18.21	0.251	0.386		80.3		2988	1797	141601
[1]R952 phen 56	Roca Redonda	39.35	41.16	19.05		0.322	0.130	79.4	1019	2495		148098
[2]R952 phen 56	Roca Redonda	39.55	41.24	18.60	0.282	0.322		79.8		2495	2019	144661
[1]R952 phen 57	Roca Redonda	39.39	41.23	18.85		0.417	0.110	79.6	864	3230		146605
[2]R952 phen 57	Roca Redonda	39.42	41.08	18.80	0.262	0.428		79.6		3314	1876	146209
[1]R952 phen 58	Roca Redonda	39.67	42.13	17.74		0.292	0.163	80.9	1284	2260		137981
[2]R952 phen 58	Roca Redonda	39.67	41.99	17.79	0.254	0.293		80.8		2270	1814	138337
[1]R952 phen 59	Roca Redonda	39.55	41.55	18.41		0.346	0.144	80.1	1134	2679		143172
[2]R952 phen 59	Roca Redonda	39.57	41.36	18.48	0.232	0.352		80.0		2726	1658	143701
[1]R952 phen 60	Roca Redonda	39.92	43.15	16.49		0.235	0.205	82.3	1611	1819		128217
[2]R952 phen 60	Roca Redonda	39.97	43.02	16.53	0.243	0.239		82.3		1853	1739	128521
[1]R952 phen 61	Roca Redonda	39.45	41.47	18.61		0.321	0.151	79.9	1183	2487		144690
[2]R952 phen 61	Roca Redonda	39.42	41.38	18.60	0.281	0.323		79.9		2505	2008	144604
[1]R952 phen 62	Roca Redonda	39.44	41.75	18.37		0.289	0.144	80.2	1129	2236		142859
[2]R952 phen 62	Roca Redonda	39.45	41.68	18.39	0.183	0.300		80.2		2322	1309	142968
[1]R952 phen 63	Roca Redonda	39.42	41.54	18.48		0.463	0.098	80.0	772	3584		143700
[2]R952 phen 63	Roca Redonda	39.40	41.38	18.52	0.236	0.462		79.9		3577	1684	144042
[1]R952 phen 64	Roca Redonda	39.52	41.22	18.72		0.414	0.117	79.7	919	3208		145591
[2]R952 phen 64	Roca Redonda	39.43	41.26	18.68	0.218	0.418		79.7		3238	1556	145236
[1]R952 phen 65	Roca Redonda	39.60	42.20	17.74		0.288	0.171	80.9	1342	2233		137974
[2]R952 phen 65	Roca Redonda	39.55	42.00	17.89	0.265	0.291		80.7		2253	1897	139095
[1]R952 phen 66	Roca Redonda	39.19	40.89	19.48		0.281	0.148	78.9	1160	2175		151503
[2]R952 phen 66	Roca Redonda	39.16	40.82	19.53	0.208	0.291		78.8		2251	1486	151861
[1]R952 phen 67	Roca Redonda	39.58	42.10	17.78		0.401	0.137	80.8	1073	3107		138247
[2]R952 phen 67	Roca Redonda	39.57	42.20	17.60	0.230	0.396		81.0		3068	1644	136846
[1]R952 phen 68	Roca Redonda	39.42	41.72	18.33		0.400	0.128	80.2	1005	3095		142551
[2]R952 phen 68	Roca Redonda	39.55	41.59	18.17	0.235	0.453		80.3		3506	1678	141308
[1]R952 phen 69	Roca Redonda	39.53	41.75	18.17		0.449	0.093	80.4	727	3475		141323
[2]R952 phen 69	Roca Redonda	39.44	41.50	18.40	0.258	0.407		80.1		3150	1843	143067

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R952 phen 70	Roca Redonda	39.60	41.86	18.07		0.295	0.172	80.5	1350	2287		140520
[2]R952 phen 70	Roca Redonda	39.59	41.83	18.03	0.251	0.297		80.5		2303	1794	140221
[1]R952 phen 71	Roca Redonda	39.42	41.42	18.70		0.323	0.131	79.8	1031	2498		145430
[2]R952 phen 71	Roca Redonda	39.26	41.36	18.77	0.266	0.340		79.7		2637	1904	145988
[1]R952 phen 72	Roca Redonda	39.42	41.66	18.40		0.403	0.117	80.1	917	3123		143076
[2]R952 phen 72	Roca Redonda	39.36	41.57	18.49	0.174	0.406		80.0		3146	1244	143792
[1]R952 phen 73	Roca Redonda	39.53	41.80	18.24		0.277	0.154	80.3	1212	2143		141823
[2]R952 phen 73	Roca Redonda	39.54	41.86	18.14	0.181	0.281		80.4		2174	1291	141040
[1]R952 phen 74	Roca Redonda	39.62	41.92	17.97		0.341	0.148	80.6	1165	2645		139728
[2]R952 phen 74	Roca Redonda	39.53	41.81	18.10	0.215	0.341		80.5		2640	1538	140778
[1]R952 phen 75	Roca Redonda	39.81	42.76	16.98		0.239	0.210	81.8	1647	1854		132069
[2]R952 phen 75	Roca Redonda	39.72	42.83	16.96	0.238	0.250		81.8		1937	1700	131890
[1]R955B phen 12	Roca Redonda	39.84	42.76	16.96		0.244	0.193	81.8	1519	1893		131883
[1]R955B phen 12	Roca Redonda	39.70	42.36	17.50		0.244	0.187	81.2	1472	1891		136102
[1]R955B phen 12	Roca Redonda	39.42	41.76	18.38		0.262	0.175	80.2	1377	2030		142946
[1]R955B phen 12	Roca Redonda	37.38	32.61	29.49		0.487	0.034	66.3	271	3769		229279
[2]R955B phen 12	Roca Redonda	39.54	42.37	17.57	0.264	0.254		81.1		1970	1888	136631
[1]R955B phen 20	Roca Redonda	39.64	42.74	17.19		0.243	0.190	81.6	1495	1883		133658
[1]R955B phen 20	Roca Redonda	39.65	42.72	17.20		0.238	0.187	81.6	1472	1842		133715
[1]R955B phen 20	Roca Redonda	39.64	42.72	17.20		0.242	0.191	81.6	1503	1874		133784
[1]R955B phen 20	Roca Redonda	39.62	42.69	17.27		0.242	0.188	81.5	1476	1875		134263
[1]R955B phen 20	Roca Redonda	37.82	34.21	27.47		0.443	0.058	68.9	453	3433		213589
[2]R955B phen 20	Roca Redonda	39.47	42.75	17.26	0.275	0.246		81.5		1909	1968	134220
[2]R955B phen 20	Roca Redonda	39.36	42.61	17.52	0.269	0.247		81.3		1916	1921	136232
[2]R955B phen 20	Roca Redonda	39.14	42.08	18.24	0.273	0.261		80.4		2025	1950	141843
[2]R955B phen 20	Roca Redonda	38.57	39.08	21.77	0.274	0.310		76.2		2400	1958	169289
[2]R955B phen 20	Roca Redonda	37.45	33.81	27.97	0.327	0.444		68.3		3442	2340	217484
[1]R955B phen 21	Roca Redonda	39.63	42.76	17.17		0.250	0.192	81.6	1506	1938		133500
[1]R955B phen 21	Roca Redonda	37.67	33.99	27.84		0.452	0.044	68.5	349	3499		216486
[1]R955B phen 21	Roca Redonda	39.56	42.69	17.33		0.239	0.185	81.4	1453	1854		134768
[1]R955B phen 21	Roca Redonda	39.22	41.02	19.34		0.263	0.154	79.1	1207	2040		150407
[2]R955B phen 21	Roca Redonda	39.29	42.71	17.45	0.292	0.252		81.4		1953	2090	135702
[2]R955B phen 21	Roca Redonda	37.91	36.53	24.88	0.290	0.384		72.4		2971	2074	193475

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R955B phen 27	Roca Redonda	39.47	42.61	17.49		0.246	0.186	81.3	1463	1908		136008
[1]R955B phen 27	Roca Redonda	39.48	42.24	17.83		0.254	0.190	80.9	1490	1971		138682
[1]R955B phen 27	Roca Redonda	38.87	39.75	20.95		0.286	0.145	77.2	1135	2212		162872
[1]R955B phen 27	Roca Redonda	37.48	33.14	28.85		0.484	0.050	67.2	394	3748		224305
[2]R955B phen 27	Roca Redonda	39.29	42.27	17.91	0.284	0.255		80.8		1972	2031	139256
[2]R955B phen 27	Roca Redonda	39.12	41.69	18.65	0.285	0.263		79.9		2034	2037	144998
[2]R955B phen 27	Roca Redonda	38.68	39.76	21.01	0.279	0.269		77.1		2085	1993	163371
[2]R955B phen 27	Roca Redonda	37.80	36.45	25.09	0.295	0.367		72.1		2844	2112	195085
[2]R955B phen 27	Roca Redonda	37.12	33.27	28.80	0.327	0.477		67.3		3694	2336	223988
[1]R955B phen 29	Roca Redonda	39.62	43.01	16.93		0.238	0.197	81.9	1544	1846		131647
[1]R955B phen 29	Roca Redonda	39.57	43.00	16.99		0.238	0.198	81.9	1558	1841		132097
[1]R955B phen 29	Roca Redonda	39.08	41.36	19.12		0.260	0.173	79.4	1359	2013		148714
[1]R955B phen 29	Roca Redonda	37.29	33.20	28.98		0.479	0.044	67.1	348	3708		225386
[1]R955B phen 29	Roca Redonda	39.76	43.22	16.59		0.235	0.199	82.3	1560	1817		129002
[1]R955B phen 29	Roca Redonda	39.75	43.22	16.60		0.231	0.197	82.3	1547	1786		129116
[1]R955B phen 29	Roca Redonda	39.70	43.20	16.67		0.232	0.198	82.2	1554	1798		129643
[1]R955B phen 29	Roca Redonda	39.49	43.24	16.84		0.234	0.193	82.1	1519	1809		130983
[1]R955B phen 30	Roca Redonda	37.76	34.50	27.22		0.442	0.076	69.3	596	3425		211643
[2]R955B phen 30	Roca Redonda	39.60	43.32	16.61	0.246	0.238		82.3		1846	1757	129124
[2]R955B phen 30	Roca Redonda	39.45	43.46	16.61	0.253	0.237		82.3		1835	1807	129145
[2]R955B phen 30	Roca Redonda	39.58	43.32	16.62	0.247	0.243		82.3		1885	1765	129202
[2]R955B phen 30	Roca Redonda	39.65	43.18	16.68	0.246	0.237		82.2		1838	1762	129735
[2]R955B phen 30	Roca Redonda	39.64	43.21	16.68	0.243	0.237		82.2		1833	1734	129670
[2]R955B phen 30	Roca Redonda	39.51	43.31	16.69	0.247	0.243		82.2		1884	1769	129796
[2]R955B phen 30	Roca Redonda	39.47	43.40	16.64	0.247	0.240		82.3		1860	1766	129428
[2]R955B phen 30	Roca Redonda	39.47	43.39	16.65	0.245	0.236		82.3		1825	1752	129508
[2]R955B phen 30	Roca Redonda	39.43	42.61	17.47	0.243	0.250		81.3		1940	1741	135856
[2]R955B phen 30	Roca Redonda	39.33	42.64	17.53	0.243	0.249		81.3		1931	1734	136331
[2]R955B phen 30	Roca Redonda	37.69	36.42	25.22	0.275	0.396		72.0		3065	1965	196120
[1]R955B phen 35	Roca Redonda	39.89	43.73	15.95		0.220	0.207	83.0	1624	1706		124008
[1]R955B phen 35	Roca Redonda	39.82	43.79	15.96		0.227	0.206	83.0	1614	1756		124142
[1]R955B phen 35	Roca Redonda	39.88	43.70	15.99		0.224	0.205	83.0	1607	1737		124336
[1]R955B phen 35	Roca Redonda	37.99	35.76	25.74		0.406	0.114	71.2	894	3148		200129

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R955B phen 35	Roca Redonda	39.80	43.61	16.16		0.225	0.204	82.8	1605	1743		125684
[2]R955B phen 35	Roca Redonda	39.72	43.81	15.97	0.270	0.227		83.0		1761	1927	124219
[2]R955B phen 35	Roca Redonda	39.73	43.75	16.02	0.268	0.229		83.0		1775	1914	124582
[2]R955B phen 35	Roca Redonda	39.75	43.69	16.05	0.272	0.228		82.9		1764	1946	124834
[2]R955B phen 35	Roca Redonda	39.60	43.87	16.02	0.271	0.234		83.0		1813	1937	124576
[2]R955B phen 35	Roca Redonda	39.76	43.67	16.06	0.270	0.232		82.9		1795	1933	124922
[2]R955B phen 35	Roca Redonda	39.56	42.90	17.03	0.271	0.241		81.8		1866	1937	132411
[1]R955B phen 36	Roca Redonda	39.56	42.49	17.52		0.242	0.190	81.2	1491	1871		136230
[1]R955B phen 36	Roca Redonda	39.58	42.43	17.55		0.245	0.194	81.2	1523	1900		136504
[1]R955B phen 36	Roca Redonda	39.59	42.32	17.66		0.250	0.187	81.0	1470	1933		137332
[1]R955B phen 36	Roca Redonda	37.80	33.97	27.73		0.454	0.051	68.6	403	3515		215633
[2]R955B phen 36	Roca Redonda	39.51	42.36	17.63	0.247	0.252		81.1		1952	1768	137097
[2]R955B phen 36	Roca Redonda	39.46	42.29	17.75	0.249	0.254		80.9		1966	1781	138008
[2]R955B phen 36	Roca Redonda	39.37	42.13	17.99	0.248	0.252		80.7		1954	1772	139911
[2]R955B phen 36	Roca Redonda	38.43	37.99	22.98	0.253	0.340		74.7		2630	1808	178728
[2]R955B phen 36	Roca Redonda	37.98	35.75	25.60	0.276	0.397		71.3		3071	1972	199074
[2]R955B phen 36	Roca Redonda	37.58	33.90	27.76	0.297	0.463		68.5		3590	2127	215893
[1]R955B phen 41	Roca Redonda	39.75	43.24	16.58		0.237	0.196	82.3	1538	1834		128915
[1]R955B phen 41	Roca Redonda	39.76	43.18	16.62		0.237	0.196	82.2	1538	1834		129254
[1]R955B phen 41	Roca Redonda	39.99	42.94	16.65		0.233	0.195	82.1	1534	1801		129462
[1]R955B phen 41	Roca Redonda	39.40	42.50	17.66		0.258	0.187	81.1	1467	2000		137320
[1]R955B phen 41	Roca Redonda	37.50	33.91	28.09		0.453	0.053	68.3	419	3511		218405
[2]R955B phen 41	Roca Redonda	39.91	42.95	16.65	0.251	0.247		82.1		1910	1795	129433
[2]R955B phen 41	Roca Redonda	39.58	43.27	16.66	0.251	0.241		82.2		1868	1792	129543
[2]R955B phen 41	Roca Redonda	39.69	43.18	16.65	0.251	0.240		82.2		1857	1796	129446
[2]R955B phen 41	Roca Redonda	39.68	43.18	16.64	0.251	0.244		82.2		1894	1798	129429
[2]R955B phen 41	Roca Redonda	39.04	40.75	19.65	0.279	0.280		78.7		2169	1997	152812
[2]R955B phen 41	Roca Redonda	37.54	34.52	27.21	0.289	0.438		69.3		3395	2065	211549
[1]R955B phen 43	Roca Redonda	39.38	41.81	18.39		0.259	0.163	80.2	1280	2004		142989
[1]R955B phen 43	Roca Redonda	38.78	39.45	21.34		0.302	0.127	76.7	998	2335		165920
[1]R955B phen 43	Roca Redonda	39.34	41.71	18.53		0.263	0.156	80.0	1224	2038		144096
[1]R955B phen 43	Roca Redonda	37.40	33.88	28.20		0.470	0.050	68.2	396	3638		219308
[2]R955B phen 43	Roca Redonda	39.22	41.81	18.45	0.256	0.270		80.2		2093	1828	143454

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R955B phen 43	Roca Redonda	39.24	41.69	18.54	0.258	0.267		80.0		2066	1846	144170
[2]R955B phen 43	Roca Redonda	38.62	39.58	21.24	0.265	0.305		76.9		2361	1895	165136
[2]R955B phen 43	Roca Redonda	37.25	33.81	28.14	0.317	0.481		68.2		3722	2267	218850
[1]R955B phen 48	Roca Redonda	39.58	41.99	18.00		0.250	0.178	80.6	1397	1940		139983
[1]R955B phen 48	Roca Redonda	39.68	42.29	17.59		0.241	0.192	81.1	1507	1868		136814
[1]R955B phen 48	Roca Redonda	39.59	42.24	17.74		0.248	0.184	80.9	1442	1923		137922
[2]R955B phen 48	Roca Redonda	39.37	41.44	18.68	0.244	0.264		79.8		2045	1746	145257
[2]R955B phen 48	Roca Redonda	39.48	42.46	17.57	0.236	0.255		81.2		1973	1685	136586
[2]R955B phen 48	Roca Redonda	39.50	42.41	17.61	0.231	0.249		81.1		1929	1653	136970
[2]R955B phen 48	Roca Redonda	39.43	42.38	17.69	0.238	0.253		81.0		1963	1704	137575
[2]R955B phen 48	Roca Redonda	39.41	42.17	17.92	0.238	0.260		80.8		2013	1704	139337
[1]R955B phen 53	Roca Redonda	39.99	43.56	16.02		0.224	0.212	82.9	1662	1735		124567
[1]R955B phen 53	Roca Redonda	37.32	33.59	28.56		0.464	0.057	67.7	447	3591		222098
[1]R955B phen 53	Roca Redonda	39.97	43.56	16.04		0.223	0.212	82.9	1666	1726		124721
[1]R955B phen 53	Roca Redonda	39.76	42.77	17.04		0.234	0.197	81.7	1550	1811		132507
[2]R955B phen 53	Roca Redonda	39.78	43.69	16.03	0.264	0.232		82.9		1797	1889	124676
[2]R955B phen 53	Roca Redonda	39.78	43.66	16.07	0.266	0.230		82.9		1785	1905	124922
[2]R955B phen 53	Roca Redonda	39.77	43.64	16.10	0.265	0.232		82.9		1797	1892	125157
[2]R955B phen 53	Roca Redonda	39.47	42.66	17.36	0.264	0.244		81.4		1894	1885	134995
[2]R955B phen 53	Roca Redonda	37.68	35.63	25.98	0.286	0.416		71.0		3222	2045	202056
[1]R955B phen 54	Roca Redonda	39.91	42.86	16.80		0.237	0.197	82.0	1547	1832		130624
[1]R955B phen 54	Roca Redonda	39.87	42.81	16.89		0.232	0.193	81.9	1519	1798		131316
[1]R955B phen 54	Roca Redonda	37.92	34.10	27.48		0.437	0.072	68.9	566	3389		213655
[1]R955B phen 54	Roca Redonda	39.80	42.84	16.93		0.242	0.195	81.9	1535	1875		131633
[1]R955B phen 54	Roca Redonda	39.85	42.78	16.93		0.240	0.196	81.8	1543	1860		131671
[1]R955B phen 54	Roca Redonda	39.74	42.63	17.19		0.247	0.197	81.6	1544	1911		133640
[2]R955B phen 54	Roca Redonda	39.69	42.94	16.86	0.267	0.238		82.0		1847	1908	131094
[2]R955B phen 54	Roca Redonda	39.63	42.93	16.92	0.268	0.245		81.9		1895	1917	131597
[2]R955B phen 54	Roca Redonda	39.66	42.89	16.94	0.271	0.243		81.9		1884	1935	131741
[2]R955B phen 54	Roca Redonda	39.64	42.91	16.93	0.268	0.246		81.9		1905	1918	131643
[2]R955B phen 54	Roca Redonda	39.56	42.36	17.56	0.269	0.254		81.1		1966	1925	136555
[2]R955B phen 54	Roca Redonda	38.66	38.52	22.23	0.260	0.328		75.5		2542	1861	172879
[1]R955B phen 62	Roca Redonda	39.66	42.16	17.75		0.249	0.188	80.9	1477	1932		138014

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R955B phen 62	Roca Redonda	39.64	42.10	17.82		0.249	0.190	80.8	1494	1927		138599
[1]R955B phen 62	Roca Redonda	39.23	40.42	19.92		0.276	0.160	78.3	1259	2139		154863
[1]R955B phen 62	Roca Redonda	37.38	32.19	29.90		0.491	0.035	65.7	272	3800		232534
[1]R955B phen 62	Roca Redonda	39.87	42.69	16.99		0.238	0.212	81.7	1669	1844		132106
[1]R955B phen 62	Roca Redonda	39.81	42.70	17.04		0.240	0.209	81.7	1645	1855		132518
[1]R955B phen 62	Roca Redonda	39.84	42.45	17.26		0.242	0.210	81.4	1653	1872		134218
[2]R955B phen 62	Roca Redonda	39.40	42.25	17.84	0.257	0.258		80.8		2000	1835	138757
[2]R955B phen 62	Roca Redonda	39.43	42.16	17.89	0.257	0.261		80.8		2018	1838	139107
[2]R955B phen 62	Roca Redonda	39.08	40.73	19.66	0.255	0.278		78.7		2155	1822	152893
[2]R955B phen 62	Roca Redonda	37.26	33.51	28.46	0.301	0.474		67.7		3674	2155	221296
[2]R955B phen 69	Roca Redonda	39.75	42.98	16.77	0.260	0.243		82.0		1885	1862	130372
[2]R955B phen 69	Roca Redonda	39.71	42.82	16.97	0.257	0.246		81.8		1907	1840	131937
[2]R955B phen 69	Roca Redonda	37.95	34.67	26.66	0.298	0.429		69.9		3326	2134	207291
[1]R955B phen 72	Roca Redonda	39.82	42.48	17.26		0.237	0.207	81.4	1625	1836		134205
[1]R955B phen 72	Roca Redonda	39.76	42.50	17.29		0.239	0.206	81.4	1622	1854		134436
[1]R955B phen 72	Roca Redonda	39.93	42.33	17.29		0.243	0.207	81.4	1629	1879		134464
[1]R955B phen 72	Roca Redonda	39.65	41.70	18.20		0.256	0.192	80.3	1511	1985		141521
[1]R955B phen 72	Roca Redonda	38.00	34.08	27.40		0.435	0.073	68.9	573	3367		213101
[2]R955B phen 72	Roca Redonda	39.70	42.73	17.08	0.242	0.244		81.7		1891	1732	132810
[2]R955B phen 72	Roca Redonda	39.73	42.73	17.06	0.246	0.241		81.7		1868	1757	132641
[2]R955B phen 72	Roca Redonda	39.58	42.77	17.15	0.247	0.249		81.6		1927	1765	133372
[2]R955B phen 72	Roca Redonda	39.29	42.62	17.57	0.266	0.255		81.2		1972	1905	136660
[2]R955B phen 72	Roca Redonda	39.18	41.07	19.21	0.255	0.283		79.2		2195	1826	149381
[2]R955B phen 72	Roca Redonda	38.03	35.41	25.84	0.295	0.420		71.0		3254	2110	200958
[1]R955B phen 73	Roca Redonda	39.34	39.83	20.40		0.276	0.157	77.7	1230	2134		158601
[1]R955B phen 73	Roca Redonda	39.08	39.60	20.86		0.299	0.159	77.2	1246	2314		162194
[1]R955B phen 73	Roca Redonda	39.85	42.28	17.42		0.247	0.201	81.2	1580	1911		135469
[1]R955B phen 73	Roca Redonda	39.79	42.21	17.55		0.246	0.196	81.1	1541	1908		136498
[2]R955B phen 73	Roca Redonda	39.70	42.55	17.25	0.250	0.251		81.5		1946	1789	134105
[2]R955B phen 73	Roca Redonda	39.67	42.52	17.31	0.248	0.249		81.4		1930	1775	134581
[2]R955B phen 73	Roca Redonda	39.66	42.52	17.32	0.249	0.252		81.4		1949	1782	134720
[2]R955B phen 73	Roca Redonda	39.15	40.60	19.71	0.257	0.287		78.6		2220	1836	153248
[2]R955B phen 73	Roca Redonda	37.45	32.55	29.19	0.310	0.496		66.5		3839	2214	226978

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R955B phen 76	Roca Redonda	40.06	43.14	16.31	0.266	0.237		82.5		1833	1900	126804
[2]R955B phen 76	Roca Redonda	39.91	43.27	16.30	0.281	0.233		82.5		1804	2011	126782
[2]R955B phen 76	Roca Redonda	39.74	42.84	16.92	0.263	0.244		81.9		1888	1879	131540
[2]R955B phen 76	Roca Redonda	39.05	40.03	20.39	0.248	0.286		77.8		2214	1772	158531
[1]R955B phen 100	Roca Redonda	39.73	41.45	18.39		0.268	0.167	80.1	1314	2073		142990
[1]R955B phen 100	Roca Redonda	39.48	40.92	19.17		0.269	0.163	79.2	1279	2087		149078
[1]R955B phen 100	Roca Redonda	39.15	39.33	21.09		0.303	0.138	76.9	1084	2350		163961
[2]R955B phen 100	Roca Redonda	39.42	41.56	18.48	0.274	0.267		80.0		2071	1959	143677
[2]R955B phen 100	Roca Redonda	39.60	41.38	18.48	0.272	0.268		80.0		2072	1941	143717
[2]R955B phen 100	Roca Redonda	37.96	36.59	24.81	0.270	0.376		72.4		2909	1933	192933
[2]R955B phen 103	Roca Redonda	38.74	38.73	21.96	0.264	0.311		75.9		2406	1884	170779
[2]R955B phen 103	Roca Redonda	37.97	35.65	25.67	0.312	0.395		71.2		3059	2230	199637
[2]R955B phen 103	Roca Redonda	37.31	32.24	29.64	0.307	0.512		66.0		3966	2195	230458
[1]R959 phen 3	Roca Redonda	39.52	42.21	17.61		0.247	0.202	81.0	1583	1911		136966
[1]R959 phen 3	Roca Redonda	39.41	42.17	17.77		0.243	0.196	80.9	1537	1883		138219
[1]R959 phen 3	Roca Redonda	39.20	41.43	18.73		0.258	0.178	79.8	1396	1999		145619
[1]R959 phen 3	Roca Redonda	38.75	39.66	20.92		0.287	0.160	77.2	1254	2221		162713
[1]R959 phen 3	Roca Redonda	38.21	37.09	24.01		0.349	0.118	73.4	926	2705		186727
[1]R959 phen 3	Roca Redonda	37.59	34.12	27.55		0.440	0.047	68.8	372	3404		214251
[2]R959 phen 3	Roca Redonda	39.67	42.23	17.59	0.251	0.254		81.1		1964	1796	136798
[2]R959 phen 3	Roca Redonda	39.66	42.14	17.69	0.254	0.253		80.9		1961	1815	137593
[2]R959 phen 3	Roca Redonda	39.49	41.26	18.74	0.248	0.262		79.7		2027	1771	145757
[2]R959 phen 3	Roca Redonda	38.97	39.29	21.18	0.249	0.309		76.8		2391	1779	164699
[1]R959 phen 11	Roca Redonda	39.64	42.76	16.93		0.236	0.203	81.8	1593	1828		131639
[1]R959 phen 11	Roca Redonda	39.60	42.53	17.18		0.239	0.206	81.5	1620	1850		133617
[1]R959 phen 11	Roca Redonda	39.65	42.83	16.85		0.236	0.201	81.9	1575	1825		131026
[1]R959 phen 11	Roca Redonda	39.63	42.79	16.91		0.236	0.206	81.9	1620	1831		131487
[1]R959 phen 11	Roca Redonda	39.51	42.81	17.01		0.233	0.205	81.8	1609	1805		132287
[1]R959 phen 11	Roca Redonda	39.55	42.80	16.99		0.234	0.203	81.8	1592	1814		132112
[1]R959 phen 11	Roca Redonda	39.48	42.64	17.21		0.239	0.197	81.5	1545	1853		133855
[1]R959 phen 11	Roca Redonda	39.36	41.69	18.30		0.252	0.183	80.2	1434	1954		142271
[1]R959 phen 11	Roca Redonda	38.60	38.77	21.95		0.308	0.140	75.9	1098	2384		170704
[1]R959 phen 11	Roca Redonda	37.63	34.15	27.47		0.448	0.060	68.9	469	3468		213590

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R959 phen 11	Roca Redonda	39.73	42.80	16.96	0.272	0.245		81.8		1895	1945	131848
[2]R959 phen 11	Roca Redonda	39.81	42.74	16.94	0.272	0.242		81.8		1873	1941	131736
[2]R959 phen 11	Roca Redonda	39.72	42.88	16.88	0.272	0.239		81.9		1854	1946	131283
[2]R959 phen 11	Roca Redonda	39.71	42.78	17.01	0.266	0.243		81.8		1883	1903	132249
[2]R959 phen 11	Roca Redonda	39.50	41.96	18.03	0.264	0.252		80.6		1952	1889	140165
[2]R959 phen 11	Roca Redonda	38.75	38.52	22.14	0.257	0.324		75.6		2510	1834	172176
[2]R959 phen 11	Roca Redonda	38.33	36.77	24.26	0.267	0.377		73.0		2917	1905	188675
[2]R959 phen 11	Roca Redonda	37.74	33.90	27.61	0.301	0.458		68.6		3551	2152	214659
[1]R959 phen 19	Roca Redonda	39.47	42.96	16.90		0.235	0.203	81.9	1593	1818		131388
[1]R959 phen 19	Roca Redonda	39.51	42.87	16.94		0.241	0.203	81.9	1598	1868		131722
[1]R959 phen 19	Roca Redonda	39.47	42.88	16.98		0.238	0.208	81.8	1634	1840		132012
[1]R959 phen 19	Roca Redonda	39.47	42.66	17.19		0.242	0.208	81.6	1630	1874		133656
[1]R959 phen 19	Roca Redonda	39.51	42.57	17.24		0.243	0.199	81.5	1562	1880		134082
[1]R959 phen 19	Roca Redonda	39.39	42.47	17.47		0.245	0.203	81.2	1593	1898		135855
[1]R959 phen 19	Roca Redonda	39.28	41.79	18.27		0.247	0.193	80.3	1518	1913		142041
[1]R959 phen 19	Roca Redonda	38.60	38.73	21.99		0.317	0.145	75.8	1138	2455		171018
[1]R959 phen 19	Roca Redonda	37.98	35.72	25.59		0.387	0.093	71.3	733	2995		199003
[1]R959 phen 19	Roca Redonda	37.01	32.60	29.62		0.494	0.036	66.2	284	3828		230304
[2]R959 phen 19	Roca Redonda	39.79	42.88	16.81	0.275	0.241		82.0		1863	1963	130750
[2]R959 phen 19	Roca Redonda	39.81	42.83	16.84	0.277	0.248		81.9		1918	1981	130945
[2]R959 phen 19	Roca Redonda	39.76	42.88	16.84	0.274	0.243		81.9		1882	1960	130985
[2]R959 phen 19	Roca Redonda	39.69	42.70	17.08	0.276	0.248		81.7		1922	1973	132837
[2]R959 phen 19	Roca Redonda	39.77	42.52	17.19	0.273	0.253		81.5		1962	1953	133669
[2]R959 phen 19	Roca Redonda	39.65	42.46	17.37	0.270	0.251		81.3		1946	1931	135093
[2]R959 phen 19	Roca Redonda	39.56	41.79	18.12	0.273	0.257		80.4		1989	1950	140872
[2]R959 phen 19	Roca Redonda	38.84	38.72	21.86	0.260	0.319		75.9		2473	1858	169991
[2]R959 phen 19	Roca Redonda	38.13	35.77	25.42	0.275	0.402		71.5		3113	1970	197671
[2]R959 phen 19	Roca Redonda	37.32	32.57	29.31	0.307	0.495		66.5		3832	2194	227882
[1]R959 phen 23	Roca Redonda	37.72	33.41	28.34		0.488	0.038	67.8	299	3778		220370
[1]R959 phen 23	Roca Redonda	38.31	36.65	24.54		0.397	0.103	72.7	807	3074		190853
[1]R959 phen 23	Roca Redonda	39.67	43.17	16.71		0.248	0.199	82.2	1564	1918		129962
[1]R959 phen 23	Roca Redonda	39.31	41.67	18.56		0.288	0.176	80.0	1380	2233		144302
[1]R959 phen 23	Roca Redonda	39.63	43.38	16.55		0.243	0.203	82.4	1593	1882		128682

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R959 phen 23	Roca Redonda	39.68	43.29	16.58		0.248	0.201	82.3	1582	1920		128917
[1]R959 phen 23	Roca Redonda	39.48	42.32	17.74		0.265	0.188	81.0	1480	2049		137982
[1]R959 phen 23	Roca Redonda	38.96	40.24	20.35		0.308	0.154	77.9	1213	2385		158210
[1]R959 phen 23	Roca Redonda	39.62	42.90	17.03		0.258	0.194	81.8	1527	1996		132421
[1]R959 phen 23	Roca Redonda	39.32	41.71	18.52		0.277	0.175	80.1	1378	2142		143980
[1]R959 phen 23	Roca Redonda	39.39	42.15	18.00		0.271	0.180	80.7	1416	2099		139993
[1]R959 phen 23	Roca Redonda	39.33	42.05	18.17		0.271	0.181	80.5	1419	2099		141327
[2]R959 phen 23	Roca Redonda	39.77	42.53	17.19	0.252	0.248		81.5		1920	1802	133684
[2]R959 phen 23	Roca Redonda	39.69	42.52	17.28	0.250	0.252		81.4		1953	1785	134402
[2]R959 phen 23	Roca Redonda	39.79	42.35	17.36	0.251	0.252		81.3		1953	1797	134956
[2]R959 phen 23	Roca Redonda	39.70	42.19	17.60	0.245	0.259		81.0		2007	1753	136882
[2]R959 phen 23	Roca Redonda	39.50	41.55	18.43	0.248	0.272		80.1		2103	1776	143277
[2]R959 phen 23	Roca Redonda	39.48	41.48	18.53	0.251	0.265		80.0		2049	1797	144073
[2]R959 phen 23	Roca Redonda	39.41	41.38	18.70	0.249	0.263		79.8		2036	1780	145399
[2]R959 phen 23	Roca Redonda	39.34	40.88	19.26	0.248	0.277		79.1		2145	1774	149731
[2]R959 phen 23	Roca Redonda	38.93	39.61	20.90	0.249	0.306		77.2		2368	1782	162505
[2]R959 phen 23	Roca Redonda	38.08	35.78	25.47	0.261	0.402		71.5		3113	1865	198058
[1]R959 phen 53	Roca Redonda	39.42	42.52	17.42		0.239	0.195	81.3	1532	1848		135445
[1]R959 phen 53	Roca Redonda	39.43	42.59	17.33		0.241	0.195	81.4	1532	1864		134784
[1]R959 phen 53	Roca Redonda	39.49	42.56	17.31		0.245	0.194	81.4	1525	1897		134569
[1]R959 phen 53	Roca Redonda	39.56	42.57	17.22		0.241	0.200	81.5	1569	1870		133926
[1]R959 phen 53	Roca Redonda	39.49	42.44	17.42		0.243	0.197	81.3	1545	1883		135465
[1]R959 phen 53	Roca Redonda	39.49	42.33	17.52		0.245	0.200	81.2	1568	1896		136265
[1]R959 phen 53	Roca Redonda	39.54	42.37	17.45		0.240	0.192	81.2	1511	1856		135729
[1]R959 phen 53	Roca Redonda	39.37	41.85	18.13		0.249	0.190	80.4	1490	1926		141005
[1]R959 phen 53	Roca Redonda	38.98	40.05	20.32		0.285	0.168	77.8	1322	2208		157997
[1]R959 phen 53	Roca Redonda	37.75	34.45	27.07		0.427	0.055	69.4	436	3310		210488
[2]R959 phen 53	Roca Redonda	39.64	42.57	17.30	0.248	0.248		81.4		1920	1771	134507
[2]R959 phen 53	Roca Redonda	39.66	42.49	17.35	0.249	0.247		81.4		1916	1781	134918
[2]R959 phen 53	Roca Redonda	39.64	42.49	17.38	0.246	0.251		81.3		1942	1756	135143
[2]R959 phen 53	Roca Redonda	39.57	42.54	17.39	0.245	0.248		81.3		1924	1749	135241
[2]R959 phen 53	Roca Redonda	39.65	42.39	17.48	0.239	0.246		81.2		1907	1710	135928
[2]R959 phen 53	Roca Redonda	39.49	42.46	17.55	0.241	0.253		81.2		1959	1726	136502

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R959 phen 53	Roca Redonda	39.46	42.47	17.59	0.242	0.249		81.1		1926	1729	136760
[2]R959 phen 53	Roca Redonda	39.60	42.06	17.83	0.247	0.255		80.8		1977	1762	138681
[2]R959 phen 53	Roca Redonda	39.53	42.09	17.88	0.247	0.253		80.8		1959	1766	138999
[2]R959 phen 53	Roca Redonda	39.62	41.98	17.90	0.245	0.251		80.7		1948	1753	139159
[1]R959 phen 54	Roca Redonda	39.63	42.93	17.00		0.252	0.190	81.8	1491	1951		132204
[1]R959 phen 54	Roca Redonda	39.47	42.02	18.06		0.266	0.177	80.6	1388	2064		140446
[1]R959 phen 54	Roca Redonda	39.71	43.31	16.53		0.251	0.194	82.4	1523	1947		128554
[1]R959 phen 54	Roca Redonda	39.70	43.32	16.55		0.244	0.194	82.4	1525	1889		128678
[1]R959 phen 54	Roca Redonda	39.67	43.55	16.35		0.246	0.189	82.6	1481	1905		127117
[2]R959 phen 54	Roca Redonda	39.74	42.54	17.22	0.248	0.251		81.5		1942	1774	133912
[2]R959 phen 54	Roca Redonda	39.47	42.88	17.17	0.240	0.244		81.7		1894	1715	133496
[2]R959 phen 54	Roca Redonda	39.77	42.21	17.53	0.245	0.249		81.1		1931	1752	136297
[2]R959 phen 54	Roca Redonda	39.46	42.22	17.82	0.244	0.251		80.9		1946	1747	138538
[2]R959 phen 54	Roca Redonda	39.42	41.20	18.88	0.231	0.262		79.5		2025	1650	146823
[1]R959 phen 58	Roca Redonda	39.75	43.49	16.10		0.226	0.215	82.8	1687	1749		125222
[1]R959 phen 58	Roca Redonda	39.67	43.54	16.13		0.226	0.207	82.8	1626	1748		125448
[1]R959 phen 58	Roca Redonda	39.66	43.55	16.13		0.225	0.218	82.8	1711	1742		125457
[1]R959 phen 58	Roca Redonda	39.63	43.54	16.17		0.226	0.216	82.8	1693	1753		125734
[1]R959 phen 58	Roca Redonda	39.66	43.47	16.22		0.222	0.213	82.7	1672	1720		126146
[1]R959 phen 58	Roca Redonda	39.70	43.29	16.35		0.228	0.214	82.5	1684	1769		127135
[1]R959 phen 58	Roca Redonda	39.48	42.61	17.25		0.238	0.207	81.5	1625	1846		134136
[1]R959 phen 58	Roca Redonda	38.81	40.16	20.36		0.292	0.169	77.9	1328	2261		158310
[1]R959 phen 58	Roca Redonda	38.27	36.76	24.28		0.364	0.105	73.0	826	2815		188806
[1]R959 phen 58	Roca Redonda	37.56	34.37	27.33		0.435	0.058	69.2	453	3365		212548
[1]R959 phen 58	Roca Redonda	37.12	32.63	29.48		0.485	0.035	66.4	272	3757		229223
[2]R959 phen 58	Roca Redonda	39.86	43.75	15.80	0.364	0.225		83.2		1741	2604	122864
[2]R959 phen 58	Roca Redonda	39.62	43.80	16.09	0.264	0.234		82.9		1810	1885	125093
[2]R959 phen 58	Roca Redonda	39.72	43.70	16.09	0.262	0.237		82.9		1833	1876	125096
[2]R959 phen 58	Roca Redonda	39.82	43.40	16.18	0.375	0.231		82.7		1788	2683	125800
[2]R959 phen 58	Roca Redonda	39.99	43.40	16.12	0.266	0.231		82.8		1790	1902	125343
[2]R959 phen 58	Roca Redonda	39.77	43.58	16.16	0.262	0.234		82.8		1809	1874	125680
[2]R959 phen 58	Roca Redonda	39.75	43.47	16.29	0.261	0.233		82.6		1808	1866	126640
[2]R959 phen 58	Roca Redonda	39.69	43.19	16.62	0.265	0.237		82.2		1839	1892	129213

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]R959 phen 58	Roca Redonda	39.77	43.01	16.73	0.263	0.234		82.1		1816	1880	130055
[2]R959 phen 58	Roca Redonda	39.53	42.31	17.64	0.264	0.247		81.0		1916	1885	137200
[2]R959 phen 58	Roca Redonda	39.08	40.55	19.83	0.258	0.276		78.5		2142	1846	154188
[2]R959 phen 58	Roca Redonda	38.98	38.63	21.82	0.255	0.317		75.9		2457	1821	169654
[1]R959 phen 61	Roca Redonda	39.94	44.65	14.84		0.465	0.111	84.3	868	3600		115365
[1]R959 phen 61	Roca Redonda	39.90	44.54	15.00		0.454	0.102	84.1	802	3519		116645
[1]R959 phen 61	Roca Redonda	39.70	44.43	15.34		0.436	0.102	83.8	799	3376		119292
[1]R959 phen 61	Roca Redonda	39.31	42.62	17.64		0.312	0.121	81.2	951	2415		137185
[1]R959 phen 61	Roca Redonda	39.54	42.93	17.09		0.325	0.115	81.7	900	2516		132868
[1]R959 phen 61	Roca Redonda	38.02	36.91	24.60		0.393	0.082	72.8	645	3043		191253
[1]R959 phen 61	Roca Redonda	38.45	38.46	22.64		0.355	0.102	75.2	805	2752		176046
[1]R959 phen 61	Roca Redonda	39.53	43.73	16.26		0.386	0.098	82.7	766	2988		126426
[1]R959 phen 61	Roca Redonda	38.92	40.33	20.33		0.312	0.120	78.0	942	2414		158051
[1]R959 phen 61	Roca Redonda	37.69	35.00	26.80		0.448	0.065	70.0	507	3467		208373
[1]R959 phen 61	Roca Redonda	39.29	43.49	16.77		0.350	0.101	82.2	795	2712		130377
[1]R959 phen 61	Roca Redonda	39.69	43.84	15.96		0.406	0.100	83.0	786	3143		124105
[1]R959 phen 61	Roca Redonda	39.10	41.08	19.39		0.309	0.121	79.1	946	2393		150793
[1]R959 phen 61	Roca Redonda	39.43	43.66	16.45		0.365	0.096	82.6	754	2824		127909
[2]R959 phen 61	Roca Redonda	39.45	43.76	16.10	0.249	0.439		82.9		3398	1781	125182
[2]R959 phen 61	Roca Redonda	39.93	43.14	16.28	0.240	0.415		82.5		3213	1715	126586
[2]R959 phen 61	Roca Redonda	39.55	43.11	16.70	0.250	0.390		82.1		3022	1787	129848
[2]R959 phen 61	Roca Redonda	39.44	42.89	17.06	0.250	0.363		81.8		2808	1788	132636
[2]R959 phen 61	Roca Redonda	39.32	42.89	17.19	0.250	0.351		81.6		2716	1786	133662
[2]R959 phen 61	Roca Redonda	39.59	42.26	17.57	0.252	0.326		81.1		2527	1802	136641
[2]R959 phen 61	Roca Redonda	39.49	40.95	19.00	0.261	0.298		79.3		2305	1864	147770
[2]R959 phen 61	Roca Redonda	38.84	39.53	21.05	0.259	0.324		77.0		2506	1854	163675
[2]R959 phen 61	Roca Redonda	38.13	37.05	24.16	0.277	0.375		73.2		2906	1982	187881
[2]R959 phen 61	Roca Redonda	37.63	34.43	27.19	0.289	0.458		69.3		3549	2066	211467
[2]R959 phen 61	Roca Redonda	37.60	34.27	27.39	0.289	0.457		69.0		3539	2068	212963
[2]R959 phen 61	Roca Redonda	37.20	33.82	28.18	0.310	0.480		68.1		3715	2217	219159
[1]R959 phen 63	Roca Redonda	39.42	43.62	16.29		0.228	0.213	82.7	1677	1764		126703
[1]R959 phen 63	Roca Redonda	39.37	43.75	16.21		0.229	0.213	82.8	1673	1770		126071
[1]R959 phen 63	Roca Redonda	39.38	43.74	16.21		0.228	0.212	82.8	1661	1770		126020

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]R959 phen 63	Roca Redonda	39.38	43.70	16.25		0.222	0.215	82.7	1685	1721		126363
[1]R959 phen 63	Roca Redonda	39.42	43.72	16.20		0.225	0.213	82.8	1670	1746		125964
[1]R959 phen 63	Roca Redonda	39.39	43.75	16.20		0.227	0.214	82.8	1682	1755		125946
[1]R959 phen 63	Roca Redonda	39.45	43.76	16.13		0.224	0.215	82.9	1686	1733		125419
[1]R959 phen 63	Roca Redonda	39.43	43.76	16.14		0.227	0.211	82.9	1656	1756		125532
[1]R959 phen 63	Roca Redonda	39.50	43.67	16.17		0.225	0.208	82.8	1635	1740		125765
[1]R959 phen 63	Roca Redonda	39.10	43.46	16.77		0.228	0.214	82.2	1681	1769		130443
[1]R959 phen 63	Roca Redonda	39.01	42.09	18.24		0.262	0.186	80.4	1463	2028		141804
[1]R959 phen 63	Roca Redonda	39.00	41.79	18.53		0.267	0.184	80.1	1449	2064		144086
[1]R959 phen 63	Roca Redonda	38.51	40.16	20.66		0.294	0.152	77.6	1191	2280		160663
[1]R959 phen 63	Roca Redonda	38.02	38.28	23.03		0.333	0.115	74.8	902	2579		179084
[1]R959 phen 63	Roca Redonda	37.17	35.78	26.32		0.405	0.079	70.8	620	3140		204693
[1]R959 phen 63	Roca Redonda	36.72	31.94	30.55		0.509	0.028	65.1	217	3942		237535
[2]R959 phen 63	Roca Redonda	39.76	43.74	16.00	0.268	0.235		83.0		1818	1916	124410
[2]R959 phen 63	Roca Redonda	39.80	43.68	16.03	0.261	0.232		82.9		1798	1867	124639
[2]R959 phen 63	Roca Redonda	39.82	43.62	16.06	0.267	0.236		82.9		1827	1908	124892
[2]R959 phen 63	Roca Redonda	39.80	43.65	16.05	0.267	0.233		82.9		1806	1905	124844
[2]R959 phen 63	Roca Redonda	39.78	43.64	16.07	0.271	0.233		82.9		1803	1937	124989
[2]R959 phen 63	Roca Redonda	39.79	43.63	16.08	0.268	0.235		82.9		1820	1918	125002
[2]R959 phen 63	Roca Redonda	39.80	43.68	16.03	0.263	0.233		82.9		1808	1883	124618
[2]R959 phen 63	Roca Redonda	39.82	43.65	16.04	0.258	0.231		82.9		1792	1842	124724
[2]R959 phen 63	Roca Redonda	39.80	43.54	16.16	0.269	0.234		82.8		1815	1927	125660
[2]R959 phen 63	Roca Redonda	39.57	43.55	16.37	0.267	0.239		82.6		1852	1908	127293
[2]R959 phen 63	Roca Redonda	39.41	42.37	17.69	0.264	0.258		81.0		1999	1889	137562
10.6 phen 1	San Cristobal	40.38	46.19	12.79	0.19	0.191	0.25	86.6	1964	1479	1358	99456
10.6 phen 1	San Cristobal	40.41	46	12.86	0.277	0.196	0.259	86.4	2034	1518	1980	100000
10.6 phen 1	San Cristobal	40.38	46	13.01	0.171	0.198	0.245	86.3	1924	1534	1223	101166
10.6 phen 1	San Cristobal	40.28	45.86	13.25	0.162	0.2	0.243	86.1	1909	1549	1158	103033
10.6 phen 1	San Cristobal	40.26	45.84	13.29	0.163	0.201	0.244	86.0	1916	1557	1165	103344
10.6 phen 2	San Cristobal	40.53	46.31	12.45	0.269	0.187	0.253	86.9	1987	1448	1923	96812
10.6 phen 2	San Cristobal	40.56	46.15	12.58	0.278	0.189	0.249	86.7	1956	1464	1988	97823
10.6 phen 2	San Cristobal	40.62	46.09	12.58	0.275	0.192	0.247	86.7	1940	1487	1966	97823
10.6 phen 2	San Cristobal	40.29	45.38	13.61	0.298	0.205	0.222	85.6	1744	1588	2131	105832

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
10.6 phen 6	San Cristobal	40.61	46.66	11.99	0.267	0.187	0.279	87.4	2191	1448	1909	93235
10.6 phen 6	San Cristobal	40.58	46.44	12.26	0.276	0.186	0.26	87.1	2042	1441	1973	95334
10.6 phen 6	San Cristobal	40.49	46.12	12.66	0.283	0.193	0.25	86.7	1964	1495	2023	98445
10.6 phen 6	San Cristobal	39.38	41.77	18.11	0.312	0.276	0.158	80.4	1241	2138	2231	140824
10.6 phen 7	San Cristobal	40.53	46.21	12.54	0.285	0.197	0.242	86.8	1901	1526	2038	97512
10.6 phen 7	San Cristobal	40.55	46.14	12.6	0.282	0.194	0.232	86.7	1822	1503	2016	97978
10.6 phen 7	San Cristobal	40.4	45.91	12.97	0.29	0.202	0.231	86.3	1814	1565	2073	100855
10.6 phen 7	San Cristobal	39.49	41.8	17.93	0.333	0.285	0.157	80.6	1233	2207	2381	139425
10.6 phen 8	San Cristobal	40.46	46.57	12.25	0.251	0.187	0.282	87.1	2215	1448	1795	95257
10.6 phen 8	San Cristobal	40.33	46.54	12.42	0.26	0.186	0.276	87.0	2168	1441	1859	96579
10.6 phen 8	San Cristobal	40.24	46.2	12.83	0.277	0.195	0.249	86.5	1956	1510	1980	99767
10.6 phen 8	San Cristobal	39.39	41.91	17.91	0.352	0.286	0.148	80.7	1162	2215	2517	139269
10.6 phen 9	San Cristobal	40.44	46.21	12.53	0.278	0.19	0.356	86.8	2796	1472	1988	97434
10.6 phen 9	San Cristobal	40.44	46.11	12.73	0.285	0.193	0.254	86.6	1995	1495	2038	98989
10.6 phen 9	San Cristobal	40.31	46.04	12.9	0.294	0.201	0.252	86.4	1979	1557	2102	100311
10.6 phen 9	San Cristobal	39.41	42.08	17.71	0.361	0.282	0.162	80.9	1272	2184	2581	137714
10.6 phen 11	San Cristobal	40.55	47.54	11.16	0.319	0.167	0.266	88.4	2089	1293	2281	86781
10.6 phen 11	San Cristobal	40.59	47.47	11.19	0.305	0.17	0.281	88.3	2207	1317	2181	87014
10.6 phen 11	San Cristobal	40.25	46.92	12.08	0.281	0.184	0.287	87.4	2254	1425	2009	93935
10.6 phen 11	San Cristobal	40.1	45.55	13.58	0.316	0.215	0.235	85.7	1846	1665	2259	105599
10.6 phen 12	San Cristobal	40.44	46.83	11.99	0.292	0.18	0.27	87.4	2121	1394	2088	93235
10.6 phen 12	San Cristobal	40.34	46.87	12.06	0.288	0.183	0.269	87.4	2113	1417	2059	93779
10.6 phen 12	San Cristobal	40.26	46.66	12.34	0.279	0.188	0.269	87.1	2113	1456	1995	95956
10.6 phen 12	San Cristobal	39.26	42.61	17.38	0.299	0.262	0.184	81.4	1445	2029	2138	135148
10.6 phen 14	San Cristobal	40.29	46.23	12.8	0.239	0.186	0.249	86.6	1956	1441	1709	99533
10.6 phen 14	San Cristobal	40.29	46.23	12.83	0.209	0.195	0.249	86.5	1956	1510	1494	99767
10.6 phen 14	San Cristobal	40.24	46.22	12.88	0.222	0.19	0.246	86.5	1932	1472	1587	100156
10.6 phen 14	San Cristobal	40.21	46.21	12.92	0.206	0.202	0.25	86.4	1964	1565	1473	100467
10.6 phen 14	San Cristobal	40.15	45.57	13.56	0.282	0.199	0.243	85.7	1909	1541	2016	105443
10.6 phen 14	San Cristobal	39.28	41.69	18.24	0.349	0.287	0.159	80.3	1249	2223	2495	141835
10.6 phen 16	San Cristobal	40.35	46.39	12.55	0.274	0.184	0.263	86.8	2066	1425	1959	97589
10.6 phen 16	San Cristobal	40.56	46.12	12.58	0.279	0.19	0.263	86.7	2066	1472	1995	97823
10.6 phen 16	San Cristobal	40.22	45.79	13.26	0.279	0.199	0.242	86.0	1901	1541	1995	103110

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
10.6 phen 16	San Cristobal	40.03	44.12	15.12	0.303	0.229	0.199	83.9	1563	1774	2166	117574
10.6 phen 17	San Cristobal	40.84	46.11	12.31	0.288	0.188	0.264	87.0	2074	1456	2059	95723
10.6 phen 17	San Cristobal	40.58	45.81	12.94	0.239	0.191	0.239	86.3	1877	1479	1709	100622
10.6 phen 17	San Cristobal	40.45	44.81	14.13	0.196	0.207	0.21	85.0	1649	1603	1401	109876
10.6 phen 17	San Cristobal	40.29	44.37	14.74	0.181	0.22	0.202	84.3	1587	1704	1294	114619
10.6 phen 17	San Cristobal	40.09	44.47	14.82	0.185	0.222	0.209	84.2	1642	1719	1323	115241
10.6 phen 20	San Cristobal	40.83	46.36	12.09	0.272	0.181	0.265	87.2	2081	1402	1945	94012
10.6 phen 20	San Cristobal	40.66	46.36	12.25	0.273	0.184	0.276	87.1	2168	1425	1952	95257
10.6 phen 20	San Cristobal	40.67	46.23	12.36	0.273	0.193	0.27	87.0	2121	1495	1952	96112
10.6 phen 20	San Cristobal	40.22	44.57	14.47	0.303	0.224	0.209	84.6	1642	1735	2166	112519
10.6 phen 22	San Cristobal	40.62	46.58	12.13	0.214	0.185	0.265	87.3	2081	1433	1530	94323
10.6 phen 22	San Cristobal	40.69	46.52	12.15	0.19	0.188	0.262	87.2	2058	1456	1358	94479
10.6 phen 22	San Cristobal	40.7	46.46	12.2	0.194	0.19	0.262	87.2	2058	1472	1387	94868
10.6 phen 22	San Cristobal	40.58	46.52	12.2	0.244	0.192	0.264	87.2	2074	1487	1744	94868
10.6 phen 22	San Cristobal	39.55	42.2	17.44	0.38	0.286	0.145	81.2	1139	2215	2717	135614
10.6 phen 25	San Cristobal	40.67	46.44	12.19	0.259	0.189	0.247	87.2	1940	1464	1852	94790
10.6 phen 25	San Cristobal	40.6	46.35	12.34	0.273	0.185	0.259	87.0	2034	1433	1952	95956
10.6 phen 25	San Cristobal	40.34	46.17	12.73	0.289	0.2	0.267	86.6	2097	1549	2066	98989
10.6 phen 25	San Cristobal	39.6	42.26	17.3	0.388	0.288	0.169	81.3	1327	2231	2774	134526
25.3 phen 3	San Cristobal	40.2	44.97	14.13	0.251	0.219	0.232	85.0	1822	1696	1795	109876
25.3 phen 3	San Cristobal	40.12	44.98	14.19	0.247	0.22	0.24	85.0	1885	1704	1766	110342
25.3 phen 3	San Cristobal	40.18	44.92	14.19	0.257	0.219	0.227	84.9	1783	1696	1837	110342
25.3 phen 3	San Cristobal	40.04	44.94	14.31	0.267	0.224	0.22	84.8	1728	1735	1909	111275
25.3 phen 4	San Cristobal	40.01	45.03	14.25	0.281	0.225	0.2	84.9	1571	1743	2009	110809
25.3 phen 4	San Cristobal	39.94	45.01	14.34	0.291	0.229	0.197	84.8	1547	1774	2081	111509
25.3 phen 4	San Cristobal	39.84	44.37	15.08	0.285	0.232	0.19	84.0	1492	1797	2038	117263
25.3 phen 4	San Cristobal	39.67	43.57	16.03	0.3	0.248	0.177	82.9	1390	1921	2145	124650
25.3 phen 6	San Cristobal	40.5	46.12	12.72	0.245	0.195	0.227	86.6	1783	1510	1752	98911
25.3 phen 6	San Cristobal	40.48	46.08	12.75	0.255	0.196	0.234	86.6	1838	1518	1823	99145
25.3 phen 6	San Cristobal	40.39	46.06	12.88	0.252	0.197	0.228	86.4	1791	1526	1802	100156
25.3 phen 6	San Cristobal	40.5	45.86	12.96	0.252	0.202	0.23	86.3	1806	1565	1802	100778
25.3 phen 6	San Cristobal	39.34	41.3	18.65	0.292	0.277	0.152	79.8	1194	2145	2088	145023
25.3 phen 7	San Cristobal	40.62	46.18	12.57	0.215	0.191	0.226	86.8	1775	1479	1537	97745

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
25.3 phen 7	San Cristobal	40.57	46.09	12.72	0.203	0.2	0.219	86.6	1720	1549	1451	98911
25.3 phen 7	San Cristobal	40.51	45.85	13.03	0.187	0.208	0.209	86.2	1642	1611	1337	101322
25.3 phen 7	San Cristobal	40.33	45.66	13.4	0.191	0.213	0.212	85.9	1665	1650	1366	104199
25.3 phen 7	San Cristobal	40.31	45.06	13.94	0.265	0.209	0.213	85.2	1673	1619	1895	108398
25.3 phen 9	San Cristobal	40.37	46.14	12.78	0.275	0.198	0.241	86.6	1893	1534	1966	99378
25.3 phen 9	San Cristobal	40.38	45.75	13.15	0.283	0.203	0.227	86.1	1783	1572	2023	102255
25.3 phen 9	San Cristobal	39.26	41.2	18.76	0.333	0.302	0.143	79.7	1123	2339	2381	145879
25.3 phen 11	San Cristobal	40.19	44.96	14.16	0.27	0.218	0.199	85.0	1563	1688	1930	110109
25.3 phen 11	San Cristobal	40.23	44.85	14.22	0.269	0.223	0.202	84.9	1587	1727	1923	110575
25.3 phen 11	San Cristobal	40.05	44.82	14.41	0.289	0.226	0.199	84.7	1563	1750	2066	112053
25.3 phen 11	San Cristobal	39.91	43.85	15.51	0.292	0.252	0.192	83.4	1508	1952	2088	120607
25.3 phen 11	San Cristobal	38.65	38.31	22.18	0.392	0.366	0.105	75.5	825	2835	2803	172473
25.3 phen 13	San Cristobal	40.78	47.41	11.07	0.272	0.171	0.296	88.4	2325	1324	1945	86081
25.3 phen 13	San Cristobal	40.65	47.32	11.25	0.32	0.174	0.283	88.2	2223	1348	2288	87481
25.3 phen 13	San Cristobal	40.54	46.69	12.04	0.27	0.187	0.281	87.4	2207	1448	1930	93624
25.3 phen 13	San Cristobal	39.51	42.25	17.47	0.314	0.28	0.173	81.2	1359	2169	2245	135848
25.3 phen 14	San Cristobal	40.27	45.13	13.89	0.287	0.214	0.203	85.3	1594	1658	2052	108009
25.3 phen 14	San Cristobal	40.17	44.84	14.28	0.287	0.223	0.201	84.8	1579	1727	2052	111042
25.3 phen 14	San Cristobal	40.1	44.57	14.62	0.289	0.22	0.202	84.5	1587	1704	2066	113686
25.3 phen 14	San Cristobal	38.5	37.59	23.02	0.397	0.384	0.112	74.4	880	2974	2838	179005
25.3 phen 16	San Cristobal	40.63	46.51	12.16	0.263	0.184	0.255	87.2	2003	1425	1880	94557
25.3 phen 16	San Cristobal	40.4	45.89	12.99	0.281	0.204	0.239	86.3	1877	1580	2009	101011
25.3 phen 16	San Cristobal	40.03	44.3	14.94	0.292	0.235	0.196	84.1	1539	1820	2088	116174
25.3 phen 16	San Cristobal	37.52	33.48	27.98	0.46	0.488	0.074	68.1	581	3780	3289	217574
25.3 phen 18	San Cristobal	40.36	45.73	13.22	0.252	0.202	0.247	86.0	1940	1565	1802	102799
25.3 phen 18	San Cristobal	40.39	45.63	13.28	0.256	0.204	0.239	86.0	1877	1580	1830	103266
25.3 phen 18	San Cristobal	40.31	45.46	13.53	0.268	0.207	0.225	85.7	1767	1603	1916	105210
25.3 phen 18	San Cristobal	39.96	44.04	15.27	0.3	0.242	0.186	83.7	1461	1874	2145	118740
25.3 phen 19	San Cristobal	40.38	45.47	13.45	0.271	0.208	0.222	85.8	1744	1611	1938	104588
25.3 phen 19	San Cristobal	40.41	45.43	13.46	0.274	0.211	0.217	85.7	1704	1634	1959	104666
25.3 phen 19	San Cristobal	40.23	45.2	13.86	0.283	0.218	0.205	85.3	1610	1688	2023	107776
25.3 phen 19	San Cristobal	40.1	44.68	14.49	0.311	0.231	0.192	84.6	1508	1789	2223	112675
25.3 phen 22	San Cristobal	40.27	45.01	14.04	0.262	0.216	0.202	85.1	1587	1673	1873	109176

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
25.3 phen 22	San Cristobal	40.25	44.91	14.15	0.277	0.221	0.197	85.0	1547	1712	1980	110031
25.3 phen 22	San Cristobal	40.18	44.75	14.37	0.277	0.223	0.208	84.7	1634	1727	1980	111742
25.3 phen 22	San Cristobal	39.34	40.78	19.11	0.327	0.305	0.141	79.2	1107	2362	2338	148600
25.3 phen 23	San Cristobal	40.39	45.72	13.18	0.26	0.202	0.251	86.1	1971	1565	1859	102488
25.3 phen 23	San Cristobal	40.38	45.74	13.2	0.25	0.199	0.237	86.1	1861	1541	1787	102644
25.3 phen 23	San Cristobal	40.37	45.19	13.75	0.255	0.209	0.226	85.4	1775	1619	1823	106921
25.3 phen 23	San Cristobal	40.25	45.1	13.94	0.257	0.214	0.236	85.2	1854	1658	1837	108398
25.3 phen 23	San Cristobal	39.74	43.14	16.36	0.315	0.265	0.182	82.5	1429	2053	2252	127216
25.4 phen 1	San Cristobal	40.41	46.71	12.17	0.374	0.18	0.158	87.2	1241	1394	2674	94635
25.4 phen 1	San Cristobal	40.41	46.59	12.29	0.373	0.184	0.154	87.1	1210	1425	2667	95568
25.4 phen 1	San Cristobal	40.47	46.46	12.34	0.37	0.188	0.164	87.0	1288	1456	2645	95956
25.4 phen 1	San Cristobal	40.4	46.46	12.45	0.323	0.178	0.196	86.9	1539	1379	2309	96812
25.4 phen 1	San Cristobal	37.7	35.11	26.22	0.454	0.435	0.084	70.5	660	3369	3246	203888
25.4 phen 4	San Cristobal	40.25	46.62	12.44	0.245	0.183	0.268	87.0	2105	1417	1752	96734
25.4 phen 4	San Cristobal	40.27	46.59	12.45	0.244	0.177	0.268	87.0	2105	1371	1744	96812
25.4 phen 4	San Cristobal	40.24	46.46	12.59	0.261	0.183	0.267	86.8	2097	1417	1866	97900
25.4 phen 4	San Cristobal	40.25	46.42	12.62	0.25	0.187	0.276	86.8	2168	1448	1787	98134
25.4 phen 4	San Cristobal	40.02	45.71	13.57	0.272	0.204	0.221	85.7	1736	1580	1945	105521
25.4 phen 4	San Cristobal	38.79	39.66	20.7	0.404	0.338	0.106	77.4	833	2618	2888	160964
25.4 phen 5	San Cristobal	40.29	46.07	12.98	0.233	0.192	0.241	86.4	1893	1487	1666	100933
25.4 phen 5	San Cristobal	40.27	45.8	13.24	0.255	0.192	0.246	86.0	1932	1487	1823	102955
25.4 phen 5	San Cristobal	40.12	45.49	13.77	0.211	0.206	0.205	85.5	1610	1596	1509	107076
25.4 phen 5	San Cristobal	39.97	44.98	14.46	0.186	0.213	0.194	84.7	1524	1650	1330	112442
25.4 phen 5	San Cristobal	39.87	44.83	14.7	0.179	0.22	0.196	84.5	1539	1704	1280	114308
25.4 phen 5	San Cristobal	39.19	41.26	18.82	0.297	0.287	0.145	79.6	1139	2223	2123	146345
25.4 phen 8	San Cristobal	40.21	46.14	12.92	0.249	0.192	0.279	86.4	2191	1487	1780	100467
25.4 phen 8	San Cristobal	40.18	46.17	12.94	0.24	0.188	0.276	86.4	2168	1456	1716	100622
25.4 phen 8	San Cristobal	40.07	45.89	13.33	0.247	0.197	0.262	86.0	2058	1526	1766	103655
25.4 phen 8	San Cristobal	40.03	45.19	14.08	0.263	0.21	0.226	85.1	1775	1627	1880	109487
25.4 phen 8	San Cristobal	39.07	41.03	19.12	0.343	0.311	0.135	79.3	1060	2409	2452	148678
25.4 phen 11	San Cristobal	40.11	46.08	13.1	0.274	0.19	0.239	86.2	1877	1472	1959	101866
25.4 phen 11	San Cristobal	40.12	46.02	13.16	0.274	0.193	0.233	86.2	1830	1495	1959	102333
25.4 phen 11	San Cristobal	39.98	45.69	13.63	0.276	0.202	0.223	85.7	1751	1565	1973	105988

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
25.4 phen 12	San Cristobal	40.3	46.71	12.34	0.211	0.185	0.245	87.1	1924	1433	1509	95956
25.4 phen 12	San Cristobal	40.14	46.55	12.59	0.276	0.194	0.257	86.8	2019	1503	1973	97900
25.4 phen 12	San Cristobal	40.28	46.41	12.68	0.204	0.194	0.24	86.7	1885	1503	1458	98600
25.4 phen 12	San Cristobal	40.11	45.89	13.38	0.187	0.212	0.224	85.9	1759	1642	1337	104044
25.4 phen 12	San Cristobal	40.01	45.54	13.83	0.182	0.217	0.222	85.4	1744	1681	1301	107543
25.4 phen 12	San Cristobal	39.93	45.43	14.01	0.185	0.221	0.221	85.3	1736	1712	1323	108942
25.4 phen 13	San Cristobal	39.45	42.97	16.83	0.316	0.274	0.16	82.0	1257	2122	2259	130871
25.4 phen 13	San Cristobal	37.53	34.82	26.69	0.409	0.461	0.084	69.9	660	3571	2924	207543
25.4 phen 13	San Cristobal	37.28	33.89	27.83	0.451	0.473	0.081	68.5	636	3664	3224	216407
25.4 phen 17	San Cristobal	39.68	43.77	15.9	0.21	0.234	0.204	83.1	1602	1812	1501	123639
25.4 phen 17	San Cristobal	39.39	42.55	17.43	0.181	0.262	0.196	81.3	1539	2029	1294	135537
25.4 phen 17	San Cristobal	39.04	42.11	18.21	0.177	0.272	0.194	80.5	1524	2107	1265	141602
25.4 phen 17	San Cristobal	39.03	41.92	18.41	0.175	0.273	0.192	80.2	1508	2114	1251	143157
25.4 phen 20	San Cristobal	40.12	45.35	13.84	0.256	0.208	0.23	85.4	1806	1611	1830	107621
25.4 phen 20	San Cristobal	40.13	45.22	13.95	0.266	0.207	0.225	85.2	1767	1603	1902	108476
25.4 phen 20	San Cristobal	39.2	41.77	18.27	0.298	0.286	0.172	80.3	1351	2215	2131	142068
25.4 phen 20	San Cristobal	38.67	39.66	20.92	0.296	0.324	0.133	77.2	1045	2509	2116	162675
25.4 phen 20	San Cristobal	35.99	28.16	34.72	0.445	0.627	0.054	59.1	424	4856	3182	269984
25.4 phen 24	San Cristobal	40.11	46.2	12.95	0.28	0.189	0.27	86.4	2121	1464	2002	100700
25.4 phen 24	San Cristobal	40.23	46.09	12.95	0.278	0.191	0.263	86.4	2066	1479	1988	100700
25.4 phen 24	San Cristobal	40.13	45.84	13.29	0.282	0.194	0.265	86.0	2081	1503	2016	103344
25.4 phen 24	San Cristobal	40.03	45.14	14.1	0.294	0.212	0.233	85.1	1830	1642	2102	109642
25.4 phen 24	San Cristobal	39.93	45.14	14.22	0.283	0.22	0.213	85.0	1673	1704	2023	110575
25.4 phen 24	San Cristobal	39.96	44.93	14.33	0.361	0.214	0.215	84.8	1689	1658	2581	111431
27.6 phen 2	San Cristobal	40.11	45.35	13.85	0.268	0.21	0.212	85.4	1665	1627	1916	107698
27.6 phen 2	San Cristobal	40	45.45	13.85	0.276	0.209	0.211	85.4	1657	1619	1973	107698
27.6 phen 2	San Cristobal	40.18	45.04	14.09	0.278	0.21	0.209	85.1	1642	1627	1988	109565
27.6 phen 2	San Cristobal	40.15	44.6	14.55	0.283	0.218	0.2	84.5	1571	1688	2023	113142
27.6 phen 3	San Cristobal	40.13	45.61	13.57	0.242	0.199	0.244	85.7	1916	1541	1730	105521
27.6 phen 3	San Cristobal	40.25	45.45	13.61	0.243	0.201	0.246	85.6	1932	1557	1737	105832
27.6 phen 3	San Cristobal	40.13	45.49	13.69	0.247	0.21	0.237	85.6	1861	1627	1766	106454
27.6 phen 3	San Cristobal	39.83	45.57	13.91	0.262	0.207	0.221	85.4	1736	1603	1873	108165
27.6 phen 5	San Cristobal	39.82	44.36	15.1	0.289	0.234	0.197	84.0	1547	1812	2066	117418

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
27.6 phen 5	San Cristobal	39.84	43.93	15.51	0.292	0.247	0.181	83.5	1422	1913	2088	120607
27.6 phen 5	San Cristobal	39.61	43.83	15.78	0.348	0.247	0.181	83.2	1422	1913	2488	122706
27.6 phen 5	San Cristobal	39.18	42.2	17.83	0.367	0.287	0.131	80.8	1029	2223	2624	138647
27.6 phen 5	San Cristobal	38.74	40.73	19.66	0.436	0.322	0.108	78.7	848	2494	3117	152877
27.6 phen 6	San Cristobal	39.91	44.98	14.41	0.285	0.213	0.199	84.8	1563	1650	2038	112053
27.6 phen 8	San Cristobal	39.96	45.07	14.27	0.252	0.217	0.231	84.9	1814	1681	1802	110964
27.6 phen 8	San Cristobal	40.03	44.91	14.38	0.254	0.22	0.206	84.8	1618	1704	1816	111820
27.6 phen 8	San Cristobal	40.04	44.88	14.39	0.268	0.217	0.202	84.8	1587	1681	1916	111897
27.6 phen 8	San Cristobal	40.05	44.7	14.62	0.21	0.223	0.203	84.5	1594	1727	1501	113686
27.6 phen 8	San Cristobal	40	44.65	14.76	0.176	0.227	0.191	84.4	1500	1758	1258	114774
27.6 phen 12	San Cristobal	40.32	46.92	12.05	0.243	0.177	0.287	87.4	2254	1371	1737	93701
27.6 phen 12	San Cristobal	40.28	46.86	12.17	0.236	0.176	0.282	87.3	2215	1363	1687	94635
27.6 phen 12	San Cristobal	40.24	46.83	12.23	0.242	0.176	0.277	87.2	2176	1363	1730	95101
27.6 phen 12	San Cristobal	40.23	46.59	12.46	0.248	0.186	0.282	87.0	2215	1441	1773	96890
27.6 phen 12	San Cristobal	40.17	46.38	12.74	0.253	0.187	0.264	86.6	2074	1448	1809	99067
27.6 phen 13	San Cristobal	40.05	45.97	13.3	0.252	0.198	0.238	86.0	1869	1534	1802	103421
27.6 phen 13	San Cristobal	40.18	45.67	13.45	0.255	0.204	0.239	85.8	1877	1580	1823	104588
27.6 phen 13	San Cristobal	40.14	45.71	13.47	0.235	0.2	0.244	85.8	1916	1549	1680	104743
27.6 phen 13	San Cristobal	40.02	45.58	13.71	0.276	0.208	0.21	85.6	1649	1611	1973	106610
27.6 phen 13	San Cristobal	39.17	42.82	17.3	0.292	0.264	0.16	81.5	1257	2045	2088	134526
27.6 phen 16	San Cristobal	40.13	46.24	12.92	0.243	0.194	0.278	86.4	2183	1503	1737	100467
27.6 phen 16	San Cristobal	39.94	45.66	13.69	0.217	0.206	0.276	85.6	2168	1596	1551	106454
27.6 phen 16	San Cristobal	39.89	45.59	13.83	0.209	0.209	0.276	85.5	2168	1619	1494	107543
27.6 phen 16	San Cristobal	39.82	45.65	13.84	0.206	0.21	0.277	85.5	2176	1627	1473	107621
27.6 phen 16	San Cristobal	39.83	45.14	14.35	0.192	0.219	0.271	84.9	2128	1696	1373	111586
27.6 phen 16	San Cristobal	39.91	44.81	14.61	0.182	0.222	0.263	84.5	2066	1719	1301	113608
27.6 phen 17	San Cristobal	40.15	45.89	13.26	0.26	0.193	0.242	86.1	1901	1495	1859	103110
27.6 phen 18	San Cristobal	39.95	46.18	13.14	0.254	0.197	0.274	86.2	2152	1526	1816	102177
27.6 phen 18	San Cristobal	39.26	43.21	16.78	0.326	0.267	0.162	82.1	1272	2068	2331	130482
27.6 phen 18	San Cristobal	39.21	43.15	16.96	0.194	0.251	0.234	81.9	1838	1944	1387	131882
27.6 phen 18	San Cristobal	39.18	42.87	17.28	0.185	0.262	0.229	81.6	1799	2029	1323	134370
27.6 phen 18	San Cristobal	39.12	42.69	17.51	0.184	0.256	0.232	81.3	1822	1983	1316	136159
27.6 phen 18	San Cristobal	39.15	42.61	17.57	0.184	0.258	0.228	81.2	1791	1998	1316	136625

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
27.6 phen 22	San Cristobal	39.98	45.42	13.87	0.272	0.208	0.249	85.4	1956	1611	1945	107854
27.6 phen 22	San Cristobal	39.75	45.44	14.07	0.275	0.213	0.246	85.2	1932	1650	1966	109409
27.6 phen 22	San Cristobal	39.94	45.11	14.23	0.279	0.214	0.225	85.0	1767	1658	1995	110653
27.6 phen 22	San Cristobal	39.83	45.04	14.42	0.293	0.218	0.206	84.8	1618	1688	2095	112131
27.6 phen 22	San Cristobal	39.82	45.05	14.43	0.279	0.221	0.203	84.8	1594	1712	1995	112208
27.6 phen 22	San Cristobal	39.9	44.87	14.52	0.29	0.226	0.199	84.6	1563	1750	2073	112908
27.6 phen 24	San Cristobal	40.19	47.32	11.78	0.248	0.17	0.291	87.7	2286	1317	1773	91602
27.6 phen 25	San Cristobal	39.8	45.31	14.18	0.27	0.215	0.225	85.1	1767	1665	1930	110264
27.6 phen 25	San Cristobal	39.81	45.22	14.28	0.273	0.218	0.204	85.0	1602	1688	1952	111042
27.6 phen 25	San Cristobal	39.67	45.14	14.48	0.287	0.224	0.195	84.7	1532	1735	2052	112597
27.6 phen 25	San Cristobal	37.83	37.52	23.74	0.406	0.399	0.103	73.8	809	3090	2903	184603
SC82-47 phen 1	San Cristobal	40.35	47.14	11.81	0.257	0.174	0.266	87.7	2089	1348	1837	91835
SC82-47 phen 1	San Cristobal	40.33	47.1	11.88	0.263	0.178	0.253	87.6	1987	1379	1880	92379
SC82-47 phen 1	San Cristobal	40.25	46.7	12.33	0.284	0.189	0.237	87.1	1861	1464	2030	95879
SC82-47 phen 1	San Cristobal	39.52	43.5	16.14	0.394	0.265	0.175	82.8	1374	2053	2817	125505
SC82-47 phen 2	San Cristobal	40.32	47.01	11.95	0.281	0.18	0.256	87.5	2011	1394	2009	92924
SC82-47 phen 2	San Cristobal	40.34	47.04	11.93	0.274	0.179	0.248	87.5	1948	1386	1959	92768
SC82-47 phen 2	San Cristobal	40.3	46.96	12.04	0.268	0.181	0.251	87.4	1971	1402	1916	93624
SC82-47 phen 2	San Cristobal	40.33	47.09	11.89	0.258	0.178	0.256	87.6	2011	1379	1845	92457
SC82-47 phen 2	San Cristobal	39.7	44.51	15.06	0.308	0.239	0.182	84.0	1429	1851	2202	117107
SC82-47 phen 3	San Cristobal	39.95	45.95	13.37	0.302	0.213	0.209	86.0	1642	1650	2159	103966
SC82-47 phen 3	San Cristobal	40.19	46.1	13	0.288	0.202	0.218	86.3	1712	1565	2059	101089
SC82-47 phen 3	San Cristobal	40.15	46.36	12.78	0.284	0.202	0.222	86.6	1744	1565	2030	99378
SC82-47 phen 3	San Cristobal	39.94	45.93	13.41	0.299	0.217	0.213	85.9	1673	1681	2138	104277
SC82-47 phen 3	San Cristobal	40.11	46.18	13	0.282	0.205	0.22	86.4	1728	1588	2016	101089
SC82-47 phen 3	San Cristobal	40.1	46.4	12.79	0.287	0.203	0.222	86.6	1744	1572	2052	99456
SC82-47 phen 3	San Cristobal	39.65	44.61	15.01	0.318	0.237	0.175	84.1	1374	1836	2274	116719
SC82-47 phen 4	San Cristobal	40.36	47.07	11.89	0.247	0.176	0.258	87.6	2026	1363	1766	92457
SC82-47 phen 4	San Cristobal	40.2	46.84	12.28	0.261	0.188	0.238	87.2	1869	1456	1866	95490
SC82-47 phen 4	San Cristobal	40.12	46.37	12.81	0.28	0.197	0.219	86.6	1720	1526	2002	99611
SC82-47 phen 4	San Cristobal	39.7	44.54	15.02	0.313	0.239	0.188	84.1	1477	1851	2238	116796
SC82-47 phen 5	San Cristobal	39.75	44.33	15.08	0.403	0.249	0.184	84.0	1445	1929	2881	117263
SC82-47 phen 5	San Cristobal	39.91	45	14.37	0.306	0.23	0.186	84.8	1461	1781	2188	111742

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SC82-47 phen 5	San Cristobal	39.53	43	16.66	0.387	0.27	0.15	82.1	1178	2091	2767	129549
SC82-47 phen 6	San Cristobal	39.92	45.21	14.13	0.323	0.224	0.191	85.1	1500	1735	2309	109876
SC82-47 phen 6	San Cristobal	40.15	46.3	12.84	0.302	0.205	0.209	86.5	1642	1588	2159	99844
SC82-47 phen 6	San Cristobal	39.52	43.38	16.3	0.372	0.268	0.151	82.6	1186	2076	2660	126750
SC82-47 phen 7	San Cristobal	40.52	47.09	11.69	0.257	0.179	0.263	87.8	2066	1386	1837	90902
SC82-47 phen 7	San Cristobal	40.34	46.42	12.54	0.27	0.195	0.24	86.8	1885	1510	1930	97512
SC82-47 phen 7	San Cristobal	40.18	45.98	13.13	0.291	0.213	0.215	86.2	1689	1650	2081	102100
SC82-47 phen 8	San Cristobal	40.63	47.71	10.96	0.24	0.161	0.299	88.6	2348	1247	1716	85226
SC82-47 phen 8	San Cristobal	40.61	47.74	10.95	0.239	0.161	0.299	88.6	2348	1247	1709	85148
SC82-47 phen 8	San Cristobal	40.55	47.69	11.06	0.233	0.162	0.296	88.5	2325	1255	1666	86003
SC82-47 phen 8	San Cristobal	40.45	47.42	11.44	0.242	0.172	0.277	88.1	2176	1332	1730	88958
SC82-47 phen 8	San Cristobal	40.3	46.83	12.17	0.274	0.186	0.237	87.3	1861	1441	1959	94635
SC82-47 phen 9	San Cristobal	40.6	47.51	11.2	0.244	0.165	0.284	88.3	2231	1278	1744	87092
SC82-47 phen 9	San Cristobal	40.4	47.39	11.48	0.288	0.168	0.275	88.0	2160	1301	2059	89269
SC82-47 phen 9	San Cristobal	40.46	47.24	11.61	0.253	0.17	0.265	87.9	2081	1317	1809	90280
SC82-47 phen 9	San Cristobal	40.39	46.8	12.11	0.269	0.189	0.243	87.3	1909	1464	1923	94168
SC82-47 phen 10	San Cristobal	40.59	47.8	10.91	0.242	0.161	0.295	88.6	2317	1247	1730	84837
SC82-47 phen 10	San Cristobal	40.5	47.71	11.08	0.25	0.167	0.291	88.5	2286	1293	1787	86159
SC82-47 phen 10	San Cristobal	40.5	47.51	11.3	0.244	0.168	0.283	88.2	2223	1301	1744	87869
SC82-47 phen 10	San Cristobal	40.22	46.45	12.64	0.274	0.192	0.227	86.8	1783	1487	1959	98289
SC82-47 phen 11	San Cristobal	40.4	47.01	11.89	0.257	0.182	0.259	87.6	2034	1410	1837	92457
SC82-47 phen 11	San Cristobal	40.48	47	11.84	0.255	0.177	0.253	87.6	1987	1371	1823	92068
SC82-47 phen 11	San Cristobal	40.37	46.93	12.01	0.263	0.184	0.242	87.4	1901	1425	1880	93390
SC82-47 phen 11	San Cristobal	40.26	46.61	12.43	0.281	0.195	0.228	87.0	1791	1510	2009	96656
SC82-47 phen 12	San Cristobal	40.34	46.87	12.07	0.298	0.183	0.239	87.4	1877	1417	2131	93857
SC-82-47 phen 12	San Cristobal	40.39	46.95	11.97	0.273	0.186	0.236	87.5	1854	1441	1952	93079
SC-82-47 phen 12	San Cristobal	40.49	46.77	12.05	0.271	0.189	0.233	87.4	1830	1464	1938	93701
SC-82-47 phen 12	San Cristobal	40.37	46.85	12.08	0.273	0.191	0.235	87.4	1846	1479	1952	93935
SC-82-47 phen 12	San Cristobal	40.2	45.96	13.11	0.307	0.211	0.204	86.2	1602	1634	2195	101944
SC82-59 phen 1	San Cristobal	40.58	47.4	11.31	0.305	0.185	0.216	88.2	1697	1433	2181	87947
SC82-59 phen 1	San Cristobal	40.54	47.41	11.34	0.313	0.189	0.213	88.2	1673	1464	2238	88180
SC82-59 phen 1	San Cristobal	40.51	47.41	11.37	0.323	0.186	0.21	88.1	1649	1441	2309	88414
SC82-59 phen 2	San Cristobal	40.65	47.25	11.39	0.308	0.183	0.223	88.1	1751	1417	2202	88569

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SC82-59 phen 2	San Cristobal	40.61	47.13	11.55	0.305	0.185	0.222	87.9	1744	1433	2181	89813
SC82-59 phen 2	San Cristobal	40.52	47.32	11.46	0.302	0.182	0.219	88.0	1720	1410	2159	89114
SC82-59 phen 2	San Cristobal	40.53	47.18	11.58	0.306	0.187	0.221	87.9	1736	1448	2188	90047
SC82-59 phen 2	San Cristobal	40.55	47.21	11.52	0.313	0.186	0.221	88.0	1736	1441	2238	89580
SC82-59 phen 2	San Cristobal	41.04	49.66	8.63	0.27	0.188	0.216	91.1	1697	1456	1930	67107
SC82-59 phen 3	San Cristobal	40.76	47.19	11.34	0.311	0.184	0.215	88.1	1689	1425	2223	88180
SC82-59 phen 3	San Cristobal	40.62	47.34	11.32	0.316	0.188	0.216	88.2	1697	1456	2259	88025
SC82-59 phen 3	San Cristobal	40.65	47.89	10.77	0.28	0.188	0.217	88.8	1704	1456	2002	83748
SC82-59 phen 5	San Cristobal	40.46	47.29	11.54	0.309	0.188	0.216	88.0	1697	1456	2209	89736
SC82-59 phen 5	San Cristobal	40.41	47.35	11.54	0.295	0.189	0.216	88.0	1697	1464	2109	89736
SC82-59 phen 6	San Cristobal	40.45	46.95	11.7	0.496	0.187	0.22	87.7	1728	1448	3546	90980
SC82-59 phen 8	San Cristobal	39.38	39.81	19.84	0.504	0.375	0.084	78.2	660	2905	3603	154277
SC82-59 phen 8	San Cristobal	38.83	40.17	20.1	0.438	0.375	0.081	78.1	636	2905	3131	156299
SC82-59 phen 10	San Cristobal	37.7	34.51	26.78	0.356	0.598	0.063	69.7	495	4632	2545	208243
SC82-59 phen 10	San Cristobal	37.45	34.17	27.37	0.387	0.561	0.064	69.0	503	4345	2767	212830
SC82-59 phen 11	San Cristobal	40.29	46.1	12.84	0.369	0.203	0.197	86.5	1547	1572	2638	99844
SC82-59 phen 11	San Cristobal	40.11	45.47	13.63	0.37	0.22	0.2	85.6	1571	1704	2645	105988
SC82-59 phen 11	San Cristobal	38.23	37.13	23.85	0.252	0.449	0.095	73.5	746	3478	1802	185459
SC82-59 phen 12	San Cristobal	39.13	41.68	18.36	0.411	0.293	0.126	80.2	990	2269	2938	142768
SC82-76 phen 1	San Cristobal	40.37	47.32	11.6	0.285	0.182	0.251	87.9	1971	1410	2038	90202
SC82-76 phen 1	San Cristobal	40.53	47.63	11.12	0.281	0.176	0.261	88.4	2050	1363	2009	86470
SC82-76 phen 1	San Cristobal	40.49	47.59	11.21	0.281	0.175	0.258	88.3	2026	1355	2009	87170
SC82-76 phen 1	San Cristobal	40.44	47.58	11.26	0.286	0.179	0.253	88.3	1987	1386	2045	87558
SC82-76 phen 1	San Cristobal	39.44	43.08	16.61	0.434	0.288	0.143	82.2	1123	2231	3103	129160
SC82-76 phen 2	San Cristobal	40.51	47.69	11.08	0.279	0.176	0.266	88.5	2089	1363	1995	86159
SC82-76 phen 2	San Cristobal	40.54	47.65	11.09	0.279	0.174	0.263	88.5	2066	1348	1995	86236
SC82-76 phen 2	San Cristobal	40.48	47.62	11.18	0.282	0.177	0.261	88.4	2050	1371	2016	86936
SC82-76 phen 2	San Cristobal	40.46	47.42	11.4	0.29	0.181	0.245	88.1	1924	1402	2073	88647
SC82-76 phen 3	San Cristobal	40.59	47.48	11.22	0.278	0.176	0.253	88.3	1987	1363	1988	87247
SC82-76 phen 3	San Cristobal	40.45	47.54	11.3	0.283	0.182	0.248	88.2	1948	1410	2023	87869
SC82-76 phen 3	San Cristobal	40.4	47.19	11.7	0.293	0.183	0.243	87.8	1909	1417	2095	90980
SC82-76 phen 4	San Cristobal	40.42	47.4	11.45	0.306	0.182	0.243	88.1	1909	1410	2188	89036
SC82-76 phen 4	San Cristobal	40.45	47.22	11.61	0.292	0.189	0.239	87.9	1877	1464	2088	90280

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SC82-76 phen 4	San Cristobal	39.86	44.79	14.61	0.319	0.236	0.189	84.5	1484	1828	2281	113608
SC82-76 phen 5	San Cristobal	40.34	47.02	11.94	0.278	0.187	0.229	87.5	1799	1448	1988	92846
SC82-76 phen 5	San Cristobal	40.34	47.13	11.84	0.27	0.192	0.234	87.6	1838	1487	1930	92068
SC82-76 phen 5	San Cristobal	40.34	47.3	11.69	0.248	0.189	0.234	87.8	1838	1464	1773	90902
SC82-76 phen 5	San Cristobal	40.48	47.36	11.5	0.245	0.182	0.241	88.0	1893	1410	1752	89425
SC82-76 phen 5	San Cristobal	40.46	47.45	11.41	0.256	0.183	0.243	88.1	1909	1417	1830	88725
SC82-76 phen 5	San Cristobal	40.44	47.46	11.39	0.274	0.187	0.244	88.1	1916	1448	1959	88569
SC82-76 phen 6	San Cristobal	39.46	43.1	16.58	0.439	0.28	0.142	82.2	1115	2169	3139	128927
SC82-76 phen 6	San Cristobal	39.52	43.07	16.55	0.434	0.285	0.141	82.3	1107	2207	3103	128694
SC82-76 phen 6	San Cristobal	39.61	42.96	16.56	0.447	0.286	0.139	82.2	1092	2215	3196	128771
SC82-76 phen 7	San Cristobal	39.5	43.17	16.47	0.436	0.287	0.139	82.4	1092	2223	3117	128072
SC82-76 phen 7	San Cristobal	39.51	43.19	16.45	0.437	0.278	0.14	82.4	1100	2153	3124	127916
SC82-76 phen 8	San Cristobal	40.49	46.99	11.78	0.306	0.192	0.234	87.7	1838	1487	2188	91602
SC82-76 phen 8	San Cristobal	40.46	46.97	11.84	0.309	0.194	0.23	87.6	1806	1503	2209	92068
SC82-76 phen 8	San Cristobal	40.45	46.68	12.12	0.312	0.203	0.226	87.3	1775	1572	2231	94246
SC82-76 phen 8	San Cristobal	40.59	46.87	11.81	0.314	0.196	0.227	87.6	1783	1518	2245	91835
SC82-76 phen 9	San Cristobal	40.4	46.9	11.97	0.307	0.198	0.221	87.5	1736	1534	2195	93079
SC82-76 phen 9	San Cristobal	40.34	47.02	11.91	0.303	0.198	0.23	87.6	1806	1534	2166	92613
SC82-76 phen 9	San Cristobal	40.42	47.11	11.76	0.299	0.192	0.229	87.7	1799	1487	2138	91446
SC82-76 phen 9	San Cristobal	39.95	45.02	14.29	0.318	0.233	0.183	84.9	1437	1805	2274	111120
SC82-76 phen 10	San Cristobal	40.31	46.88	12.08	0.304	0.194	0.225	87.4	1767	1503	2173	93935
SC82-76 phen 10	San Cristobal	40.52	47.07	11.69	0.301	0.195	0.233	87.8	1830	1510	2152	90902
SC82-76 phen 10	San Cristobal	40.21	47	12.05	0.314	0.198	0.219	87.4	1720	1534	2245	93701
SC82-76 phen 10	San Cristobal	40.16	46.48	12.62	0.313	0.206	0.217	86.8	1704	1596	2238	98134
SC82-76 phen 11	San Cristobal	40.51	47.36	11.41	0.296	0.187	0.239	88.1	1877	1448	2116	88725
SC82-76 phen 11	San Cristobal	40.49	47.39	11.4	0.296	0.181	0.241	88.1	1893	1402	2116	88647
SC82-76 phen 11	San Cristobal	40.28	46.6	12.38	0.306	0.206	0.225	87.0	1767	1596	2188	96267
SC82-76 phen 12	San Cristobal	40.43	47.32	11.54	0.288	0.177	0.241	88.0	1893	1371	2059	89736
SC82-76 phen 12	San Cristobal	40.37	47.17	11.75	0.286	0.184	0.24	87.7	1885	1425	2045	91369
SC82-76 phen 12	San Cristobal	40.16	46.04	13.09	0.286	0.206	0.222	86.2	1744	1596	2045	101788
SC82-76 phen 12	San Cristobal	39.67	43.78	15.74	0.386	0.266	0.164	83.2	1288	2060	2760	122395
E-31 phen 1	Santa Cruz	40.43	45.29	13.52	0.294	0.185	0.280	85.7	2198	1435	2101	105150
E-31 phen 1	Santa Cruz	39.90	45.81	13.57	0.247	0.195	0.269	85.7	2109	1508	1768	105538

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
E-31 phen 1	Santa Cruz	39.73	45.46	14.06	0.278	0.208	0.252	85.2	1982	1613	1991	109370
E-31 phen 1	Santa Cruz	39.60	44.63	15.04	0.275	0.224	0.230	84.1	1803	1733	1968	116932
E-31 phen 2	Santa Cruz	39.63	45.01	14.64	0.282	0.215	0.226	84.6	1771	1664	2019	113869
E-31 phen 2	Santa Cruz	39.81	45.24	14.23	0.276	0.213	0.237	85.0	1861	1646	1972	110660
E-31 phen 2	Santa Cruz	39.63	44.69	14.95	0.279	0.221	0.225	84.2	1768	1712	1996	116276
E-31 phen 3	Santa Cruz	39.36	41.03	18.83	0.347	0.280	0.151	79.5	1187	2171	2479	146453
E-31 phen 3	Santa Cruz	39.10	42.95	17.20	0.309	0.252	0.186	81.7	1460	1953	2211	133773
E-31 phen 3	Santa Cruz	39.04	42.44	17.75	0.334	0.262	0.170	81.0	1334	2028	2389	138060
E-31 phen 4	Santa Cruz	39.02	42.37	17.84	0.314	0.265	0.183	80.9	1435	2053	2243	138737
E-31 phen 4	Santa Cruz	39.67	45.61	13.99	0.268	0.207	0.252	85.3	1983	1602	1913	108794
E-31 phen 4	Santa Cruz	39.08	42.97	17.24	0.288	0.247	0.181	81.6	1423	1912	2058	134026
E-31 phen 5	Santa Cruz	39.59	44.84	14.84	0.276	0.218	0.236	84.3	1851	1688	1972	115358
E-31 phen 5	Santa Cruz	39.73	45.45	14.09	0.278	0.208	0.240	85.2	1883	1613	1985	109577
E-31 phen 5	Santa Cruz	38.80	41.86	18.57	0.332	0.279	0.158	80.1	1245	2160	2377	144373
E-31 phen 6	Santa Cruz	38.34	39.13	21.66	0.390	0.351	0.138	76.3	1083	2717	2787	168404
E-31 phen 6	Santa Cruz	39.67	45.20	14.41	0.279	0.214	0.235	84.8	1849	1656	1997	112015
E-31 phen 6	Santa Cruz	39.53	44.76	14.98	0.276	0.224	0.230	84.2	1809	1736	1973	116498
E-31 phen 6	Santa Cruz	39.73	45.41	14.12	0.281	0.213	0.239	85.1	1881	1649	2011	109803
E-31 phen 7	Santa Cruz	40.01	45.52	13.74	0.260	0.205	0.259	85.5	2034	1591	1862	106864
E-31 phen 7	Santa Cruz	39.76	45.65	13.88	0.259	0.206	0.255	85.4	2002	1592	1852	107908
E-31 phen 7	Santa Cruz	39.72	45.55	14.00	0.268	0.211	0.248	85.3	1950	1633	1913	108860
E-31 phen 7	Santa Cruz	39.28	43.71	16.28	0.293	0.244	0.203	82.7	1592	1886	2094	126566
E-31 phen 7	Santa Cruz	39.06	42.25	17.91	0.344	0.270	0.165	80.8	1299	2088	2459	139283
E-31 phen 8	Santa Cruz	39.73	44.97	14.57	0.271	0.221	0.242	84.6	1898	1710	1939	113307
E-31 phen 8	Santa Cruz	39.83	45.43	14.01	0.269	0.210	0.251	85.3	1974	1630	1924	108915
E-31 phen 8	Santa Cruz	39.77	45.45	14.04	0.276	0.215	0.246	85.2	1933	1662	1974	109214
E-31 phen 8	Santa Cruz	39.42	44.21	15.62	0.302	0.235	0.207	83.5	1623	1823	2157	121485
E-31 phen 9	Santa Cruz	39.74	45.29	14.23	0.283	0.217	0.238	85.0	1867	1679	2027	110663
E-31 phen 9	Santa Cruz	39.69	45.17	14.38	0.291	0.219	0.242	84.8	1899	1697	2083	111830
E-31 phen 9	Santa Cruz	39.45	43.82	15.99	0.284	0.241	0.216	83.0	1699	1866	2031	124335
E-31 phen 9	Santa Cruz	38.45	39.07	21.63	0.385	0.346	0.113	76.3	889	2681	2753	168197
E-31 phen 10	Santa Cruz	39.76	44.58	14.93	0.262	0.216	0.251	84.2	1969	1670	1870	116113
E-31 phen 10	Santa Cruz	39.93	45.24	14.10	0.267	0.209	0.253	85.1	1990	1621	1910	109659

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
E-31 phen 10	Santa Cruz	39.56	44.00	15.70	0.292	0.232	0.221	83.3	1740	1795	2085	122098
E-31 phen 10	Santa Cruz	39.39	43.29	16.57	0.322	0.251	0.188	82.3	1473	1941	2302	128825
E-31 phen 11	Santa Cruz	39.86	45.42	13.98	0.271	0.207	0.262	85.3	2055	1604	1937	108714
E-31 phen 11	Santa Cruz	39.61	44.50	15.15	0.277	0.224	0.242	84.0	1900	1734	1981	117783
E-31 phen 11	Santa Cruz	39.63	44.59	15.03	0.279	0.228	0.244	84.1	1919	1767	1992	116859
E-31 phen 11	Santa Cruz	39.67	44.75	14.84	0.277	0.227	0.241	84.3	1895	1759	1978	115392
E-31 phen 12	Santa Cruz	39.91	45.49	13.85	0.272	0.210	0.272	85.4	2138	1630	1944	107719
E-31 phen 12	Santa Cruz	39.89	45.57	13.79	0.264	0.205	0.270	85.5	2120	1585	1884	107270
E-31 phen 12	Santa Cruz	39.76	45.44	14.06	0.272	0.212	0.260	85.2	2042	1644	1945	109316
E-31 phen 13	Santa Cruz	39.81	45.31	14.14	0.263	0.211	0.260	85.1	2043	1636	1881	109954
E-31 phen 13	Santa Cruz	39.84	45.48	13.94	0.260	0.208	0.271	85.3	2126	1613	1861	108403
E-31 phen 13	Santa Cruz	39.91	45.45	13.89	0.269	0.209	0.271	85.4	2126	1621	1925	108017
E-31 phen 14	Santa Cruz	39.96	45.13	14.16	0.282	0.217	0.252	85.0	1976	1684	2017	110087
E-31 phen 14	Santa Cruz	39.93	44.93	14.39	0.284	0.223	0.241	84.8	1894	1729	2032	111890
E-31 phen 14	Santa Cruz	39.33	42.09	17.80	0.337	0.273	0.170	80.8	1333	2112	2412	138409
E-31 phen 15	Santa Cruz	39.86	45.60	13.80	0.268	0.207	0.264	85.5	2074	1600	1915	107315
E-31 phen 15	Santa Cruz	39.85	45.25	14.17	0.272	0.209	0.253	85.1	1987	1619	1947	110149
E-31 phen 15	Santa Cruz	38.71	40.06	20.41	0.392	0.305	0.132	77.8	1038	2359	2803	158674
34.7 phen 2	Santa Cruz	37.60	36.63	25.14	0.085	0.434	0.110	72.2	862	3361	605	195509
34.7 phen 2	Santa Cruz	37.81	36.82	24.74	0.083	0.422	0.117	72.6	916	3266	594	192412
34.7 phen 2	Santa Cruz	37.71	36.94	24.73	0.087	0.416	0.112	72.7	883	3221	622	192338
34.7 phen 2	Santa Cruz	37.61	36.65	25.11	0.085	0.429	0.112	72.2	883	3322	608	195257
34.7 phen 2	Santa Cruz	37.74	36.63	25.01	0.084	0.421	0.111	72.3	875	3264	600	194458
34.7 phen 3	Santa Cruz	39.12	42.64	17.57	0.204	0.223	0.241	81.2	1896	1725	1457	136654
34.7 phen 3	Santa Cruz	39.09	42.50	17.73	0.209	0.232	0.235	81.0	1842	1797	1491	137895
34.7 phen 3	Santa Cruz	38.21	38.39	22.67	0.282	0.312	0.139	75.1	1091	2413	2015	176262
34.7 phen 3	Santa Cruz	39.16	43.21	16.94	0.211	0.220	0.253	82.0	1987	1707	1509	131748
34.7 phen 5	Santa Cruz	39.04	43.11	17.14	0.246	0.221	0.240	81.8	1888	1708	1759	133303
34.7 phen 5	Santa Cruz	38.40	40.14	20.80	0.232	0.265	0.174	77.5	1367	2054	1662	161716
34.7 phen 5	Santa Cruz	38.87	41.82	18.64	0.220	0.238	0.215	80.0	1688	1842	1576	144942
34.7 phen 5	Santa Cruz	38.85	41.28	19.20	0.231	0.250	0.192	79.3	1511	1933	1655	149322
34.7 phen 6	Santa Cruz	39.10	42.72	17.49	0.220	0.231	0.245	81.3	1926	1788	1572	135987
34.7 phen 6	Santa Cruz	38.80	41.11	19.38	0.239	0.262	0.214	79.1	1678	2027	1709	150664

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
34.7 phen 6	Santa Cruz	39.19	43.14	16.98	0.204	0.220	0.265	81.9	2078	1704	1462	132055
34.7 phen 6	Santa Cruz	39.20	43.34	16.77	0.208	0.214	0.269	82.2	2113	1660	1486	130427
34.7 phen 12	Santa Cruz	38.91	42.91	17.50	0.221	0.233	0.230	81.4	1810	1806	1582	136053
34.7 phen 12	Santa Cruz	38.39	39.78	21.15	0.235	0.279	0.171	77.0	1340	2162	1682	164477
34.7 phen 12	Santa Cruz	38.84	42.46	18.02	0.226	0.236	0.214	80.8	1682	1828	1619	140158
34.7 phen 12	Santa Cruz	38.57	39.42	21.30	0.269	0.289	0.163	76.7	1278	2237	1926	165594
34.7 phen 14	Santa Cruz	38.32	40.67	20.32	0.236	0.272	0.188	78.1	1480	2105	1685	157987
34.7 phen 14	Santa Cruz	38.79	42.75	17.77	0.214	0.231	0.242	81.1	1903	1790	1528	138179
34.7 phen 14	Santa Cruz	37.23	35.88	26.08	0.348	0.361	0.095	71.0	749	2796	2485	202835
34.7 phen 14	Santa Cruz	39.06	42.81	17.44	0.206	0.222	0.253	81.4	1984	1718	1475	135650
34.7 phen 17	Santa Cruz	38.51	40.95	19.86	0.225	0.263	0.188	78.6	1480	2038	1607	154470
34.7 phen 17	Santa Cruz	38.83	41.78	18.71	0.227	0.251	0.205	79.9	1611	1943	1624	145468
34.7 phen 17	Santa Cruz	38.83	41.18	19.31	0.226	0.255	0.201	79.2	1582	1973	1615	150121
34.7 phen 17	Santa Cruz	38.93	41.61	18.79	0.226	0.250	0.201	79.8	1578	1939	1612	146127
34.7 phen 20	Santa Cruz	38.97	42.98	17.38	0.195	0.218	0.257	81.5	2019	1690	1395	135122
34.7 phen 20	Santa Cruz	39.14	42.84	17.34	0.197	0.224	0.263	81.5	2064	1738	1406	134850
34.7 phen 20	Santa Cruz	38.94	42.90	17.49	0.205	0.222	0.245	81.4	1924	1719	1466	136011
34.7 phen 20	Santa Cruz	37.84	38.83	22.59	0.275	0.314	0.147	75.4	1155	2433	1963	175692
34.7 phen 21	Santa Cruz	39.27	42.52	17.52	0.226	0.230	0.233	81.2	1832	1778	1617	136266
34.7 phen 21	Santa Cruz	38.38	38.67	22.22	0.256	0.303	0.171	75.6	1347	2343	1830	172787
34.7 phen 21	Santa Cruz	39.31	42.58	17.42	0.243	0.233	0.207	81.3	1626	1807	1735	135494
34.7 phen 22	Santa Cruz	38.80	40.14	20.33	0.257	0.273	0.204	77.9	1601	2113	1834	158090
34.7 phen 22	Santa Cruz	39.22	42.73	17.36	0.207	0.221	0.259	81.4	2037	1708	1477	135005
34.7 phen 22	Santa Cruz	39.21	42.51	17.59	0.216	0.228	0.246	81.2	1936	1762	1548	136771
34.7 phen 22	Santa Cruz	39.19	42.68	17.45	0.205	0.224	0.250	81.3	1965	1734	1464	135668
34.7 phen 25	Santa Cruz	39.24	43.39	16.70	0.204	0.215	0.261	82.2	2048	1668	1460	129822
34.7 phen 25	Santa Cruz	39.29	43.35	16.67	0.203	0.219	0.265	82.3	2081	1697	1448	129627
34.7 phen 25	Santa Cruz	39.24	43.34	16.74	0.206	0.214	0.254	82.2	1995	1660	1476	130209
34.7 phen 25	Santa Cruz	39.28	43.40	16.64	0.204	0.214	0.264	82.3	2072	1656	1459	129424
34.7 phen 25	Santa Cruz	39.16	43.02	17.13	0.218	0.221	0.239	81.7	1876	1710	1559	133235
34.7 phen 25	Santa Cruz	38.15	38.77	22.37	0.248	0.295	0.159	75.5	1250	2284	1774	173986
34.8 phen 2	Santa Cruz	39.23	42.54	17.56	0.217	0.229	0.227	81.2	1785	1775	1548	136581
34.8 phen 2	Santa Cruz	39.28	42.43	17.62	0.220	0.231	0.224	81.1	1756	1789	1571	136984

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
34.8 phen 2	Santa Cruz	39.14	42.36	17.82	0.224	0.235	0.218	80.9	1715	1824	1599	138552
34.8 phen 2	Santa Cruz	38.35	38.71	22.22	0.249	0.303	0.164	75.6	1290	2349	1781	172810
34.8 phen 8	Santa Cruz	39.35	42.31	17.64	0.274	0.223	0.203	81.0	1597	1726	1956	137171
34.8 phen 8	Santa Cruz	39.31	42.43	17.52	0.270	0.232	0.238	81.2	1869	1798	1928	136242
34.8 phen 8	Santa Cruz	39.36	42.48	17.47	0.225	0.222	0.242	81.3	1902	1721	1607	135826
34.8 phen 8	Santa Cruz	39.25	41.87	18.21	0.210	0.232	0.229	80.4	1801	1795	1501	141567
34.8 phen 8	Santa Cruz	38.82	39.44	21.03	0.265	0.285	0.166	77.0	1302	2207	1892	163492
34.8 phen 9	Santa Cruz	38.28	38.76	22.19	0.266	0.308	0.191	75.7	1500	2385	1903	172579
34.8 phen 9	Santa Cruz	39.28	42.55	17.48	0.203	0.228	0.256	81.3	2012	1767	1455	135900
34.8 phen 9	Santa Cruz	39.36	42.76	17.20	0.198	0.222	0.261	81.6	2047	1720	1419	133747
34.8 phen 9	Santa Cruz	39.45	42.49	17.39	0.199	0.226	0.245	81.3	1926	1750	1423	135253
34.8 phen 10	Santa Cruz	39.04	41.85	18.42	0.240	0.245	0.198	80.2	1559	1897	1717	143264
34.8 phen 10	Santa Cruz	39.05	41.86	18.41	0.237	0.244	0.202	80.2	1586	1891	1698	143123
34.8 phen 10	Santa Cruz	39.11	41.86	18.35	0.229	0.249	0.202	80.3	1585	1931	1637	142712
34.8 phen 10	Santa Cruz	38.56	38.60	22.14	0.253	0.297	0.147	75.7	1152	2298	1811	172191
34.8 phen 11	Santa Cruz	39.20	42.55	17.57	0.219	0.228	0.232	81.2	1825	1765	1567	136611
34.8 phen 11	Santa Cruz	39.25	42.58	17.50	0.217	0.225	0.235	81.3	1849	1746	1555	136078
34.8 phen 11	Santa Cruz	38.49	39.29	21.53	0.229	0.281	0.170	76.5	1332	2175	1639	167456
34.8 phen 11	Santa Cruz	39.21	42.47	17.65	0.212	0.231	0.230	81.1	1809	1785	1512	137209
34.8 phen 12	Santa Cruz	39.26	42.61	17.47	0.215	0.229	0.212	81.3	1664	1775	1538	135872
34.8 phen 12	Santa Cruz	39.22	42.71	17.41	0.218	0.228	0.219	81.4	1719	1769	1560	135390
34.8 phen 12	Santa Cruz	39.19	42.75	17.38	0.216	0.232	0.232	81.4	1820	1796	1541	135170
34.8 phen 12	Santa Cruz	38.60	39.64	21.05	0.247	0.281	0.180	77.0	1414	2174	1766	163707
34.8 phen 14	Santa Cruz	39.34	42.58	17.39	0.227	0.230	0.226	81.4	1773	1782	1625	135235
34.8 phen 14	Santa Cruz	39.40	42.88	17.05	0.209	0.216	0.250	81.8	1964	1677	1494	132562
34.8 phen 14	Santa Cruz	39.23	42.09	18.00	0.231	0.241	0.211	80.7	1653	1869	1649	139963
34.8 phen 14	Santa Cruz	38.74	39.84	20.73	0.242	0.279	0.170	77.4	1337	2161	1732	161219
34.8 phen 15	Santa Cruz	39.40	42.49	17.42	0.207	0.228	0.246	81.3	1930	1770	1482	135476
34.8 phen 15	Santa Cruz	38.90	41.23	19.16	0.220	0.260	0.222	79.3	1746	2011	1575	149009
34.8 phen 15	Santa Cruz	39.24	42.08	18.00	0.213	0.241	0.235	80.6	1842	1868	1520	139952
34.8 phen 15	Santa Cruz	39.43	42.53	17.36	0.216	0.230	0.232	81.4	1821	1780	1543	135029
34.8 phen 17	Santa Cruz	39.42	43.15	16.75	0.200	0.212	0.266	82.1	2090	1643	1430	130219
34.8 phen 17	Santa Cruz	39.28	42.44	17.60	0.210	0.229	0.242	81.1	1899	1773	1502	136848

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
34.8 phen 17	Santa Cruz	39.37	42.84	17.09	0.200	0.223	0.266	81.7	2089	1729	1429	132909
34.8 phen 17	Santa Cruz	38.04	37.69	23.56	0.263	0.317	0.134	74.0	1055	2454	1882	183175
34.8 phen 20	Santa Cruz	39.49	42.51	17.31	0.217	0.228	0.235	81.4	1850	1766	1549	134636
34.8 phen 20	Santa Cruz	39.43	42.55	17.35	0.221	0.226	0.226	81.4	1778	1754	1584	134892
34.8 phen 20	Santa Cruz	39.30	41.62	18.41	0.232	0.243	0.203	80.1	1593	1879	1659	143118
34.8 phen 21	Santa Cruz	39.39	42.54	17.40	0.202	0.227	0.247	81.3	1942	1759	1444	135275
34.8 phen 21	Santa Cruz	39.21	42.29	17.84	0.198	0.226	0.245	80.9	1924	1747	1416	138694
34.8 phen 21	Santa Cruz	37.83	36.61	24.78	0.298	0.349	0.133	72.5	1042	2707	2131	192695
34.8 phen 23	Santa Cruz	39.16	42.45	17.71	0.222	0.235	0.221	81.0	1738	1822	1590	137690
34.8 phen 23	Santa Cruz	39.38	43.19	16.75	0.224	0.221	0.236	82.1	1856	1708	1598	130240
34.8 phen 24	Santa Cruz	39.42	43.14	16.78	0.204	0.222	0.228	82.1	1787	1720	1462	130509
34.8 phen 24	Santa Cruz	39.40	43.21	16.73	0.203	0.216	0.242	82.2	1897	1673	1449	130066
34.8 phen 24	Santa Cruz	39.37	42.94	17.04	0.196	0.232	0.219	81.8	1717	1800	1399	132477
34.8 phen 24	Santa Cruz	39.34	42.88	17.11	0.204	0.216	0.249	81.7	1954	1675	1459	133010
34.8 phen 24	Santa Cruz	38.28	37.00	23.97	0.310	0.335	0.107	73.3	843	2596	2219	186357
34.8 phen 26	Santa Cruz	39.34	43.15	16.83	0.209	0.212	0.257	82.0	2021	1645	1495	130888
34.8 phen 27	Santa Cruz	39.40	43.02	16.90	0.220	0.215	0.243	81.9	1912	1666	1570	131412
34.8 phen 27	Santa Cruz	39.46	43.10	16.75	0.225	0.218	0.242	82.1	1900	1689	1609	130245
34.8 phen 27	Santa Cruz	39.27	42.88	17.18	0.206	0.223	0.241	81.7	1891	1725	1469	133559
34.8 phen 27	Santa Cruz	39.41	43.22	16.69	0.213	0.217	0.247	82.2	1943	1679	1525	129800
34.8 phen 27	Santa Cruz	38.22	37.49	23.59	0.252	0.316	0.132	73.9	1034	2446	1804	183412
35.7 phen 1	Santa Cruz	39.29	42.74	17.29	0.203	0.224	0.260	81.5	2045	1737	1450	134418
35.7 phen 2	Santa Cruz	39.50	42.81	17.02	0.210	0.215	0.250	81.8	1966	1662	1500	132313
35.7 phen 2	Santa Cruz	39.12	41.53	18.67	0.223	0.242	0.216	79.9	1695	1873	1595	145210
35.7 phen 2	Santa Cruz	39.36	42.87	17.09	0.212	0.218	0.255	81.7	2005	1690	1513	132858
35.7 phen 2	Santa Cruz	39.32	42.91	17.10	0.202	0.219	0.255	81.7	2005	1699	1447	132935
35.7 phen 2	Santa Cruz	39.46	42.58	17.28	0.206	0.222	0.248	81.5	1952	1723	1473	134389
35.7 phen 3	Santa Cruz	39.44	41.99	17.88	0.217	0.232	0.241	80.7	1889	1800	1549	139024
35.7 phen 10	Santa Cruz	39.44	42.49	17.39	0.215	0.227	0.239	81.3	1874	1757	1539	135209
35.7 phen 10	Santa Cruz	39.50	42.63	17.19	0.205	0.224	0.246	81.6	1931	1737	1463	133661
35.7 phen 10	Santa Cruz	39.32	42.34	17.66	0.224	0.236	0.218	81.0	1711	1828	1601	137359
35.7 phen 10	Santa Cruz	38.39	38.40	22.49	0.264	0.311	0.149	75.3	1170	2405	1884	174864
35.7 phen 13	Santa Cruz	39.40	42.72	17.20	0.220	0.224	0.233	81.6	1826	1737	1574	133774

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
35.7 phen 13	Santa Cruz	39.28	42.15	17.89	0.221	0.236	0.225	80.8	1767	1829	1583	139128
35.7 phen 13	Santa Cruz	38.76	39.42	21.14	0.239	0.282	0.160	76.9	1260	2187	1706	164413
35.7 phen 13	Santa Cruz	39.43	42.58	17.32	0.224	0.235	0.219	81.4	1722	1821	1603	134663
35.7 phen 14	Santa Cruz	39.47	42.25	17.60	0.217	0.237	0.227	81.1	1782	1837	1550	136824
35.7 phen 16	Santa Cruz	39.39	42.44	17.49	0.222	0.231	0.226	81.2	1778	1790	1586	135981
35.7 phen 16	Santa Cruz	38.89	41.47	18.95	0.233	0.251	0.202	79.6	1584	1941	1666	147349
35.7 phen 16	Santa Cruz	39.25	42.82	17.26	0.213	0.229	0.231	81.6	1814	1775	1520	134186
35.7 phen 16	Santa Cruz	39.31	42.70	17.30	0.224	0.228	0.234	81.5	1835	1766	1601	134530
35.7 phen 17	Santa Cruz	39.39	42.90	17.02	0.224	0.222	0.250	81.8	1962	1722	1602	132318
35.7 phen 17	Santa Cruz	39.20	42.56	17.55	0.222	0.232	0.230	81.2	1809	1801	1586	136441
35.7 phen 17	Santa Cruz	38.38	38.39	22.53	0.243	0.301	0.158	75.2	1241	2334	1737	175170
35.7 phen 17	Santa Cruz	39.33	42.92	17.06	0.251	0.229	0.209	81.8	1642	1771	1793	132650
35.7 phen 18	Santa Cruz	39.37	42.52	17.47	0.226	0.247	0.177	81.3	1392	1917	1612	135811
35.7 phen 18	Santa Cruz	39.41	42.42	17.52	0.233	0.246	0.174	81.2	1368	1904	1664	136242
35.7 phen 18	Santa Cruz	39.32	42.49	17.56	0.222	0.248	0.166	81.2	1306	1921	1589	136547
35.7 phen 18	Santa Cruz	39.42	41.85	18.05	0.242	0.241	0.197	80.5	1544	1867	1731	140337
35.7 phen 20	Santa Cruz	39.27	42.36	17.67	0.212	0.233	0.250	81.0	1966	1801	1517	137431
35.7 phen 23	Santa Cruz	39.37	42.39	17.57	0.200	0.222	0.255	81.1	1999	1716	1433	136607
35.7 phen 27	Santa Cruz	39.24	42.61	17.48	0.210	0.226	0.238	81.3	1866	1749	1498	135894
35.7 phen 27	Santa Cruz	37.28	34.53	27.34	0.360	0.398	0.086	69.2	674	3082	2573	212627
35.7 phen 27	Santa Cruz	37.88	36.99	24.36	0.322	0.340	0.115	73.0	902	2633	2304	189408
35.7 phen 27	Santa Cruz	38.93	42.23	18.15	0.220	0.241	0.217	80.6	1703	1870	1572	141163
39.3 phen 1	Santa Cruz	39.91	45.90	13.48	0.275	0.194	0.248	85.9	1945	1502	1967	104801
39.3 phen 1	Santa Cruz	39.84	45.90	13.54	0.274	0.193	0.254	85.8	1998	1492	1962	105302
39.3 phen 1	Santa Cruz	39.90	45.66	13.72	0.277	0.197	0.247	85.6	1942	1525	1983	106662
39.3 phen 1	Santa Cruz	40.15	45.72	13.41	0.274	0.193	0.252	85.9	1982	1496	1958	104285
39.3 phen 1	Santa Cruz	39.97	45.56	13.74	0.278	0.202	0.251	85.5	1971	1564	1987	106860
39.3 phen 3	Santa Cruz	39.64	45.74	13.89	0.293	0.207	0.235	85.4	1849	1601	2097	107984
39.3 phen 3	Santa Cruz	39.88	46.47	12.89	0.273	0.184	0.301	86.5	2363	1425	1951	100252
39.3 phen 3	Santa Cruz	40.05	46.46	12.74	0.268	0.182	0.302	86.7	2368	1408	1919	99102
39.3 phen 3	Santa Cruz	39.78	46.23	13.27	0.275	0.188	0.262	86.1	2057	1454	1966	103171
39.3 phen 3	Santa Cruz	40.05	46.47	12.73	0.269	0.181	0.300	86.7	2360	1401	1926	98962
39.3 phen 3	Santa Cruz	39.99	46.28	13.00	0.268	0.184	0.279	86.4	2188	1426	1915	101084

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
39.3 phen 5	Santa Cruz	40.11	46.06	13.09	0.268	0.189	0.282	86.2	2215	1462	1916	101813
39.3 phen 5	Santa Cruz	40.16	45.96	13.14	0.271	0.185	0.283	86.2	2222	1435	1936	102163
39.3 phen 5	Santa Cruz	40.09	45.96	13.22	0.271	0.189	0.274	86.1	2150	1467	1937	102773
39.3 phen 5	Santa Cruz	39.96	46.19	13.13	0.270	0.187	0.273	86.2	2147	1446	1932	102066
39.3 phen 5	Santa Cruz	40.00	45.65	13.63	0.274	0.196	0.245	85.7	1923	1521	1959	105980
39.3 phen 6	Santa Cruz	40.16	45.77	13.34	0.269	0.190	0.273	85.9	2143	1472	1923	103714
39.3 phen 6	Santa Cruz	40.09	45.79	13.40	0.268	0.192	0.262	85.9	2057	1489	1914	104228
39.3 phen 6	Santa Cruz	40.11	45.86	13.30	0.269	0.189	0.275	86.0	2162	1461	1923	103421
39.3 phen 6	Santa Cruz	40.15	45.80	13.31	0.274	0.190	0.274	86.0	2156	1472	1960	103472
39.3 phen 6	Santa Cruz	40.06	45.17	14.05	0.279	0.203	0.238	85.1	1869	1571	1994	109238
39.3 phen 7	Santa Cruz	39.71	44.64	14.99	0.218	0.222	0.228	84.1	1791	1722	1561	116543
39.3 phen 7	Santa Cruz	39.88	45.74	13.66	0.251	0.198	0.269	85.7	2111	1532	1793	106185
39.3 phen 7	Santa Cruz	39.66	44.38	15.29	0.217	0.224	0.220	83.8	1728	1732	1548	118918
39.3 phen 7	Santa Cruz	39.98	45.98	13.31	0.269	0.190	0.266	86.0	2090	1473	1921	103538
39.3 phen 7	Santa Cruz	40.00	45.80	13.48	0.265	0.194	0.254	85.8	1995	1506	1894	104831
39.3 phen 7	Santa Cruz	39.75	45.28	14.28	0.236	0.212	0.245	85.0	1927	1640	1685	111033
39.3 phen 8	Santa Cruz	39.39	43.79	16.07	0.308	0.237	0.208	82.9	1632	1834	2200	124952
39.3 phen 8	Santa Cruz	39.97	45.71	13.58	0.275	0.196	0.258	85.7	2026	1522	1969	105637
39.3 phen 8	Santa Cruz	40.08	46.01	13.19	0.269	0.185	0.271	86.1	2130	1435	1925	102569
39.3 phen 8	Santa Cruz	40.05	46.11	13.10	0.270	0.185	0.281	86.3	2204	1431	1933	101838
39.3 phen 8	Santa Cruz	40.06	46.10	13.09	0.268	0.183	0.295	86.3	2319	1418	1914	101785
39.3 phen 9	Santa Cruz	40.21	45.87	13.17	0.272	0.191	0.280	86.1	2196	1476	1941	102440
39.3 phen 9	Santa Cruz	40.23	45.69	13.37	0.274	0.191	0.251	85.9	1968	1481	1961	103958
39.3 phen 9	Santa Cruz	40.22	45.82	13.24	0.274	0.188	0.256	86.1	2011	1458	1957	102929
39.3 phen 9	Santa Cruz	40.28	45.90	13.10	0.271	0.191	0.268	86.2	2103	1481	1936	101835
39.3 phen 9	Santa Cruz	40.00	43.60	15.66	0.325	0.231	0.194	83.2	1521	1788	2324	121735
39.3 phen 10	Santa Cruz	40.10	46.25	12.91	0.264	0.184	0.285	86.5	2242	1428	1889	100427
39.3 phen 10	Santa Cruz	40.15	46.37	12.75	0.266	0.181	0.283	86.6	2223	1400	1903	99136
39.3 phen 10	Santa Cruz	40.29	46.31	12.68	0.258	0.180	0.277	86.7	2177	1392	1846	98569
39.3 phen 10	Santa Cruz	40.17	46.45	12.66	0.259	0.176	0.281	86.7	2208	1362	1850	98458
39.3 phen 10	Santa Cruz	39.95	45.76	13.56	0.273	0.198	0.252	85.7	1982	1534	1952	105463
39.3 phen 13	Santa Cruz	39.76	45.95	13.56	0.285	0.198	0.239	85.8	1877	1537	2036	105481
39.3 phen 13	Santa Cruz	39.90	45.65	13.72	0.292	0.202	0.231	85.6	1817	1561	2088	106723

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
39.3 phen 13	Santa Cruz	40.04	45.49	13.75	0.286	0.199	0.235	85.5	1842	1543	2043	106957
39.3 phen 13	Santa Cruz	39.95	45.83	13.50	0.285	0.197	0.240	85.8	1888	1526	2035	105007
39.3 phen 15	Santa Cruz	40.01	45.85	13.42	0.274	0.195	0.247	85.9	1940	1512	1962	104346
39.3 phen 15	Santa Cruz	40.07	45.87	13.35	0.281	0.191	0.247	86.0	1940	1476	2009	103779
39.3 phen 15	Santa Cruz	40.01	45.93	13.34	0.279	0.191	0.247	86.0	1939	1479	1995	103747
39.3 phen 15	Santa Cruz	39.91	45.85	13.51	0.287	0.201	0.243	85.8	1908	1555	2053	105077
39.3 phen 15	Santa Cruz	38.65	40.07	20.41	0.423	0.323	0.129	77.8	1011	2499	3025	158687
39.3 phen 15	Santa Cruz	40.09	45.79	13.39	0.280	0.198	0.248	85.9	1950	1536	2003	104117
39.3 phen 16	Santa Cruz	39.91	45.22	14.15	0.287	0.206	0.231	85.1	1814	1592	2052	110010
39.3 phen 16	Santa Cruz	40.09	45.72	13.47	0.277	0.195	0.245	85.8	1923	1513	1980	104745
39.3 phen 16	Santa Cruz	40.16	45.73	13.39	0.273	0.198	0.245	85.9	1924	1530	1955	104134
39.3 phen 16	Santa Cruz	40.02	45.99	13.28	0.275	0.193	0.243	86.1	1911	1491	1969	103269
39.3 phen 16	Santa Cruz	40.09	45.85	13.35	0.273	0.192	0.245	86.0	1924	1487	1950	103819
39.3 phen 17	Santa Cruz	40.06	46.08	13.13	0.270	0.192	0.275	86.2	2157	1488	1932	102081
39.3 phen 17	Santa Cruz	40.00	45.77	13.52	0.275	0.189	0.248	85.8	1949	1466	1966	105104
39.3 phen 17	Santa Cruz	40.08	46.01	13.18	0.280	0.186	0.262	86.2	2056	1442	2000	102503
39.3 phen 17	Santa Cruz	40.09	45.97	13.21	0.271	0.186	0.268	86.1	2103	1442	1938	102744
39.3 phen 17	Santa Cruz	39.49	43.69	16.09	0.313	0.240	0.190	82.9	1489	1855	2241	125084
39.3 phen 19	Santa Cruz	40.04	46.21	13.03	0.274	0.185	0.268	86.3	2104	1431	1962	101309
39.3 phen 19	Santa Cruz	40.27	46.31	12.67	0.273	0.180	0.288	86.7	2262	1394	1955	98561
39.3 phen 19	Santa Cruz	37.20	33.95	27.91	0.418	0.423	0.096	68.4	750	3274	2986	217050
39.3 phen 19	Santa Cruz	40.26	46.39	12.60	0.273	0.184	0.283	86.8	2226	1425	1951	98013
39.3 phen 19	Santa Cruz	40.24	46.33	12.70	0.274	0.181	0.276	86.7	2167	1400	1959	98740
39.3 phen 19	Santa Cruz	40.01	46.65	12.61	0.269	0.176	0.285	86.8	2240	1367	1921	98061
39.3 phen 20	Santa Cruz	40.18	45.93	13.17	0.270	0.187	0.269	86.1	2113	1451	1928	102399
39.3 phen 20	Santa Cruz	40.18	45.84	13.25	0.273	0.190	0.257	86.0	2022	1471	1950	103063
39.3 phen 20	Santa Cruz	40.18	46.01	13.08	0.271	0.188	0.268	86.2	2102	1453	1935	101705
39.3 phen 20	Santa Cruz	40.19	45.58	13.52	0.280	0.198	0.239	85.7	1880	1530	2005	105124
39.3 phen 21	Santa Cruz	39.92	45.49	13.87	0.277	0.197	0.241	85.4	1896	1529	1979	107860
39.3 phen 21	Santa Cruz	40.01	45.80	13.47	0.272	0.194	0.251	85.8	1975	1502	1944	104782
39.3 phen 21	Santa Cruz	40.04	45.90	13.35	0.274	0.190	0.248	86.0	1946	1474	1958	103837
39.3 phen 21	Santa Cruz	40.16	45.83	13.31	0.270	0.188	0.248	86.0	1948	1455	1929	103462
39.3 phen 21	Santa Cruz	39.78	44.90	14.60	0.279	0.208	0.224	84.6	1763	1612	1994	113558

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
49.4 phen 1	Santa Cruz	37.73	35.44	25.94	0.424	0.391	0.070	70.9	548	3030	3029	201732
49.4 phen 1	Santa Cruz	39.34	43.20	16.78	0.250	0.226	0.203	82.1	1594	1754	1790	130506
49.4 phen 1	Santa Cruz	39.56	44.00	15.79	0.226	0.212	0.211	83.2	1656	1644	1612	122766
49.4 phen 1	Santa Cruz	39.65	44.29	15.39	0.229	0.209	0.236	83.7	1853	1615	1634	119692
49.4 phen 1	Santa Cruz	39.50	44.07	15.80	0.226	0.218	0.181	83.3	1425	1692	1614	122848
49.4 phen 2	Santa Cruz	39.34	41.62	18.32	0.277	0.260	0.182	80.2	1426	2015	1979	142494
49.4 phen 2	Santa Cruz	39.80	44.17	15.35	0.238	0.207	0.233	83.7	1831	1607	1701	119343
49.4 phen 2	Santa Cruz	39.89	44.70	14.74	0.222	0.191	0.252	84.4	1979	1482	1590	114653
49.4 phen 2	Santa Cruz	39.87	44.83	14.63	0.217	0.194	0.258	84.5	2026	1500	1551	113772
49.4 phen 3	Santa Cruz	39.90	45.43	13.99	0.216	0.180	0.283	85.3	2225	1396	1547	108756
49.4 phen 3	Santa Cruz	39.87	45.24	14.22	0.217	0.180	0.275	85.0	2164	1396	1549	110554
49.4 phen 3	Santa Cruz	39.82	44.52	14.99	0.220	0.199	0.251	84.1	1970	1538	1575	116586
49.4 phen 3	Santa Cruz	40.04	45.41	13.88	0.214	0.181	0.277	85.4	2176	1400	1527	107913
49.4 phen 4	Santa Cruz	39.86	45.37	14.10	0.219	0.184	0.275	85.2	2161	1427	1563	109645
49.4 phen 4	Santa Cruz	39.73	44.81	14.79	0.221	0.198	0.252	84.4	1977	1534	1582	115042
49.4 phen 4	Santa Cruz	39.15	42.16	17.99	0.266	0.256	0.184	80.7	1448	1979	1905	139855
49.4 phen 4	Santa Cruz	39.78	45.33	14.22	0.216	0.186	0.269	85.0	2112	1441	1542	110550
49.4 phen 5	Santa Cruz	39.86	45.09	14.38	0.217	0.190	0.266	84.8	2090	1472	1552	111796
49.4 phen 5	Santa Cruz	39.91	45.06	14.32	0.250	0.187	0.268	84.9	2107	1447	1791	111346
49.4 phen 5	Santa Cruz	39.87	45.20	14.24	0.237	0.186	0.269	85.0	2114	1437	1691	110761
49.4 phen 5	Santa Cruz	38.57	39.17	21.49	0.330	0.312	0.121	76.5	952	2417	2361	167108
49.4 phen 7	Santa Cruz	39.84	45.45	14.05	0.209	0.178	0.274	85.2	2152	1381	1495	109247
49.4 phen 7	Santa Cruz	39.89	45.33	14.10	0.218	0.185	0.274	85.1	2150	1434	1556	109677
49.4 phen 7	Santa Cruz	39.88	45.40	14.06	0.212	0.178	0.274	85.2	2156	1379	1515	109350
49.4 phen 7	Santa Cruz	39.86	45.11	14.36	0.218	0.185	0.267	84.8	2101	1433	1562	111685
49.4 phen 7	Santa Cruz	39.06	41.51	18.71	0.286	0.266	0.173	79.8	1355	2061	2043	145481
49.4 phen 8	Santa Cruz	39.80	43.75	15.79	0.225	0.207	0.234	83.2	1838	1604	1612	122765
49.4 phen 8	Santa Cruz	39.97	44.72	14.64	0.220	0.193	0.257	84.5	2016	1493	1573	113843
49.4 phen 8	Santa Cruz	39.98	45.15	14.19	0.220	0.186	0.273	85.0	2145	1441	1570	110375
49.4 phen 8	Santa Cruz	40.07	45.08	14.17	0.214	0.184	0.274	85.0	2148	1423	1532	110215
49.4 phen 8	Santa Cruz	40.05	45.16	14.11	0.218	0.185	0.274	85.1	2151	1430	1558	109729
49.4 phen 11	Santa Cruz	39.99	45.31	14.02	0.215	0.183	0.279	85.2	2190	1415	1538	108998
49.4 phen 11	Santa Cruz	39.96	45.17	14.20	0.218	0.185	0.272	85.0	2137	1432	1556	110391

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
49.4 phen 11	Santa Cruz	39.98	45.26	14.09	0.214	0.179	0.278	85.1	2185	1383	1533	109534
49.4 phen 11	Santa Cruz	39.60	42.98	16.75	0.248	0.227	0.199	82.1	1561	1755	1776	130252
49.4 phen 12	Santa Cruz	40.08	45.38	13.86	0.214	0.180	0.287	85.4	2254	1396	1531	107784
49.4 phen 12	Santa Cruz	40.10	45.41	13.82	0.214	0.178	0.283	85.4	2222	1378	1531	107438
49.4 phen 12	Santa Cruz	39.95	45.25	14.13	0.217	0.181	0.272	85.1	2136	1405	1549	109888
49.4 phen 12	Santa Cruz	39.33	41.56	18.43	0.270	0.248	0.167	80.1	1314	1918	1931	143296
49.4 phen 15	Santa Cruz	40.05	45.16	14.12	0.216	0.186	0.273	85.1	2146	1442	1548	109778
49.4 phen 15	Santa Cruz	40.04	44.77	14.53	0.221	0.186	0.252	84.6	1981	1439	1580	112987
49.4 phen 15	Santa Cruz	39.96	45.02	14.35	0.219	0.191	0.263	84.8	2067	1477	1564	111569
49.4 phen 15	Santa Cruz	39.74	43.48	16.10	0.235	0.214	0.235	82.8	1849	1656	1680	125190
49.4 phen 16	Santa Cruz	38.84	40.17	20.23	0.317	0.286	0.150	78.0	1177	2216	2268	157289
49.4 phen 16	Santa Cruz	39.96	45.00	14.37	0.220	0.187	0.262	84.8	2055	1445	1575	111751
49.4 phen 16	Santa Cruz	40.14	45.19	14.00	0.210	0.179	0.287	85.2	2252	1385	1500	108867
49.4 phen 16	Santa Cruz	40.00	45.29	14.03	0.212	0.182	0.286	85.2	2247	1413	1518	109132
49.4 phen 17	Santa Cruz	39.79	43.96	15.56	0.236	0.214	0.234	83.4	1842	1657	1686	120987
49.4 phen 17	Santa Cruz	39.97	44.99	14.37	0.217	0.187	0.264	84.8	2073	1447	1549	111768
49.4 phen 17	Santa Cruz	39.76	43.83	15.75	0.249	0.201	0.214	83.2	1684	1553	1782	122446
49.4 phen 17	Santa Cruz	39.74	43.78	15.85	0.236	0.207	0.184	83.1	1447	1600	1691	123269
49.4 phen 21	Santa Cruz	39.89	43.63	15.81	0.242	0.213	0.215	83.1	1692	1653	1728	122935
49.4 phen 21	Santa Cruz	40.12	45.18	14.00	0.241	0.185	0.275	85.2	2159	1430	1723	108863
49.4 phen 21	Santa Cruz	40.02	44.75	14.53	0.229	0.190	0.270	84.6	2124	1475	1637	113015
49.4 phen 21	Santa Cruz	39.91	44.41	15.01	0.218	0.204	0.250	84.1	1965	1577	1562	116695
49.4 phen 21	Santa Cruz	40.15	44.95	14.21	0.233	0.194	0.258	84.9	2029	1502	1663	110508
49.4 phen 22	Santa Cruz	40.02	44.24	15.04	0.268	0.207	0.227	84.0	1781	1601	1914	116949
49.4 phen 22	Santa Cruz	39.93	44.03	15.35	0.277	0.213	0.204	83.6	1599	1649	1979	119324
49.4 phen 22	Santa Cruz	39.96	44.65	14.71	0.223	0.201	0.253	84.4	1988	1556	1593	114383
49.4 phen 22	Santa Cruz	38.91	40.34	20.01	0.325	0.284	0.135	78.2	1059	2202	2323	155585
49.4 phen 22	Santa Cruz	40.01	44.95	14.35	0.223	0.192	0.270	84.8	2121	1487	1597	111568
49.4 phen 25	Santa Cruz	38.89	41.03	19.34	0.307	0.271	0.171	79.1	1346	2098	2196	150378
49.4 phen 25	Santa Cruz	39.91	45.05	14.37	0.220	0.187	0.265	84.8	2082	1447	1571	111740
49.4 phen 25	Santa Cruz	39.77	44.80	14.75	0.224	0.193	0.259	84.4	2031	1496	1604	114728
49.4 phen 25	Santa Cruz	39.99	45.04	14.30	0.219	0.186	0.268	84.9	2104	1439	1566	111179
49.4 phen 26	Santa Cruz	40.01	45.21	14.10	0.220	0.185	0.274	85.1	2153	1434	1570	109630

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
49.4 phen 26	Santa Cruz	39.95	45.37	14.01	0.217	0.181	0.276	85.2	2171	1399	1555	108911
GFZ2 phen 1	Santa Cruz	38.74	40.20	20.42	0.216	0.269	0.150	77.8	1180	2085	1545	158791
GFZ2 phen 1	Santa Cruz	38.84	40.13	20.39	0.216	0.272	0.148	77.8	1164	2110	1544	158584
GFZ2 phen 1	Santa Cruz	38.89	40.25	20.23	0.218	0.270	0.147	78.0	1158	2088	1562	157326
GFZ2 phen 1	Santa Cruz	37.92	36.13	25.21	0.227	0.408	0.105	71.9	822	3160	1624	196025
GFZ2 phen 2	Santa Cruz	38.57	38.81	21.98	0.229	0.308	0.105	75.9	827	2385	1638	170912
GFZ2 phen 2	Santa Cruz	38.57	38.74	22.04	0.230	0.310	0.108	75.8	849	2398	1644	171408
GFZ2 phen 2	Santa Cruz	38.60	38.74	22.01	0.229	0.307	0.108	75.8	850	2376	1634	171183
GFZ2 phen 2	Santa Cruz	38.67	38.76	21.93	0.227	0.308	0.104	75.9	818	2384	1620	170548
GFZ2 phen 2	Santa Cruz	38.61	38.92	21.81	0.232	0.310	0.108	76.1	845	2404	1660	169607
GFZ2 phen 3	Santa Cruz	38.44	38.90	22.02	0.204	0.305	0.125	75.9	980	2362	1461	171261
GFZ2 phen 4	Santa Cruz	38.90	40.28	20.19	0.214	0.272	0.140	78.0	1101	2110	1531	157027
GFZ2 phen 4	Santa Cruz	38.87	40.27	20.22	0.218	0.281	0.138	78.0	1086	2173	1558	157206
GFZ2 phen 4	Santa Cruz	38.88	40.38	20.12	0.218	0.273	0.138	78.2	1080	2115	1559	156447
GFZ2 phen 4	Santa Cruz	38.25	37.61	23.39	0.237	0.380	0.132	74.1	1034	2940	1691	181910
GFZ2 phen 5	Santa Cruz	38.91	40.21	20.26	0.216	0.271	0.134	78.0	1052	2097	1544	157518
GFZ2 phen 5	Santa Cruz	38.90	40.22	20.27	0.216	0.273	0.134	78.0	1055	2111	1541	157592
GFZ2 phen 5	Santa Cruz	38.64	39.16	21.53	0.212	0.314	0.136	76.4	1067	2432	1517	167427
GFZ2 phen 5	Santa Cruz	36.70	31.25	31.03	0.328	0.632	0.057	64.2	449	4895	2342	241300
GFZ2 phen 6	Santa Cruz	38.80	40.29	20.28	0.215	0.274	0.138	78.0	1083	2124	1536	157713
GFZ2 phen 6	Santa Cruz	38.78	40.32	20.27	0.216	0.273	0.139	78.0	1094	2114	1542	157657
GFZ2 phen 6	Santa Cruz	38.54	39.23	21.58	0.216	0.303	0.136	76.4	1069	2346	1541	167784
GFZ2 phen 6	Santa Cruz	36.96	32.92	29.14	0.318	0.582	0.072	66.8	567	4510	2277	226626
GFZ2 phen 7	Santa Cruz	38.78	41.15	19.44	0.213	0.246	0.171	79.0	1342	1907	1520	151164
GFZ2 phen 7	Santa Cruz	38.67	40.83	19.86	0.219	0.252	0.169	78.6	1325	1953	1569	154419
GFZ2 phen 7	Santa Cruz	37.59	36.41	25.22	0.224	0.427	0.136	72.0	1069	3306	1603	196084
GFZ2 phen 7	Santa Cruz	36.38	31.56	31.00	0.354	0.644	0.067	64.5	530	4989	2531	241024
GFZ2 phen 8	Santa Cruz	39.06	42.52	17.79	0.210	0.233	0.191	81.0	1498	1805	1499	138332
GFZ2 phen 8	Santa Cruz	39.06	42.53	17.78	0.211	0.230	0.185	81.0	1457	1782	1508	138247
GFZ2 phen 8	Santa Cruz	39.00	42.49	17.88	0.214	0.223	0.187	80.9	1466	1727	1529	139044
GFZ2 phen 8	Santa Cruz	38.92	41.71	18.75	0.209	0.236	0.175	79.9	1376	1829	1497	145784
GFZ2 phen 8	Santa Cruz	37.53	35.78	25.92	0.219	0.436	0.112	71.1	878	3378	1565	201583
GFZ2 phen 9	Santa Cruz	38.69	40.57	20.10	0.218	0.267	0.161	78.2	1261	2067	1558	156321

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ2 phen 9	Santa Cruz	38.72	40.52	20.11	0.221	0.266	0.162	78.2	1275	2058	1577	156392
GFZ2 phen 9	Santa Cruz	38.74	40.54	20.06	0.225	0.269	0.163	78.3	1278	2086	1609	155953
GFZ2 phen 9	Santa Cruz	38.57	40.09	20.67	0.215	0.290	0.167	77.6	1310	2248	1534	160735
GFZ2 phen 10	Santa Cruz	38.46	39.71	21.18	0.216	0.296	0.149	77.0	1173	2291	1543	164664
GFZ2 phen 10	Santa Cruz	37.81	37.12	24.35	0.224	0.387	0.118	73.1	928	2998	1600	189317
GFZ2 phen 10	Santa Cruz	36.99	33.64	28.48	0.282	0.528	0.080	67.8	625	4093	2016	221499
GFZ2 phen 10	Santa Cruz	35.83	28.87	34.08	0.416	0.763	0.035	60.2	277	5913	2975	265030
GFZ2 phen 11	Santa Cruz	37.53	36.06	25.63	0.236	0.425	0.112	71.5	880	3288	1687	199335
GFZ2 phen 11	Santa Cruz	37.21	34.32	27.60	0.273	0.513	0.093	68.9	732	3977	1955	214606
GFZ2 phen 11	Santa Cruz	37.68	36.40	25.20	0.224	0.398	0.107	72.0	840	3080	1598	195937
GFZ2 phen 11	Santa Cruz	37.61	35.56	26.03	0.240	0.446	0.116	70.9	913	3457	1717	202440
GFZ2 phen 12	Santa Cruz	38.01	38.27	23.00	0.254	0.339	0.132	74.8	1036	2628	1818	178840
GFZ8 phen 1	Santa Cruz	39.86	45.58	13.89	0.230	0.191	0.250	85.4	1965	1480	1642	108025
GFZ8 phen 1	Santa Cruz	39.90	45.60	13.82	0.232	0.191	0.254	85.5	1993	1483	1661	107432
GFZ8 phen 1	Santa Cruz	39.80	45.39	14.12	0.248	0.197	0.243	85.1	1912	1524	1777	109787
GFZ8 phen 1	Santa Cruz	38.96	41.53	18.72	0.307	0.268	0.207	79.8	1627	2075	2191	145581
GFZ8 phen 2	Santa Cruz	39.82	45.40	14.10	0.251	0.193	0.242	85.2	1901	1498	1793	109635
GFZ8 phen 2	Santa Cruz	39.76	45.41	14.14	0.254	0.195	0.244	85.1	1917	1512	1813	109931
GFZ8 phen 2	Santa Cruz	39.65	45.24	14.40	0.275	0.202	0.232	84.9	1825	1562	1963	111961
GFZ8 phen 2	Santa Cruz	39.68	44.87	14.74	0.281	0.207	0.223	84.4	1755	1606	2010	114622
GFZ8 phen 3	Santa Cruz	39.49	44.20	15.72	0.134	0.236	0.220	83.4	1724	1825	960	122234
GFZ8 phen 3	Santa Cruz	39.42	44.24	15.76	0.123	0.233	0.222	83.3	1743	1802	876	122580
GFZ8 phen 3	Santa Cruz	39.45	44.37	15.60	0.129	0.229	0.222	83.5	1747	1770	921	121338
GFZ8 phen 3	Santa Cruz	39.47	44.35	15.59	0.133	0.230	0.227	83.5	1781	1784	948	121251
GFZ8 phen 4	Santa Cruz	39.62	44.97	14.80	0.180	0.212	0.224	84.4	1758	1646	1285	115047
GFZ8 phen 4	Santa Cruz	39.58	45.05	14.74	0.179	0.216	0.226	84.5	1775	1676	1278	114622
GFZ8 phen 4	Santa Cruz	39.59	45.14	14.65	0.177	0.216	0.230	84.6	1807	1675	1263	113924
GFZ8 phen 4	Santa Cruz	39.61	45.11	14.67	0.184	0.209	0.220	84.6	1731	1615	1313	114065
GFZ8 phen 4	Santa Cruz	39.73	45.41	14.19	0.230	0.195	0.244	85.1	1917	1507	1648	110342
GFZ8 phen 5	Santa Cruz	39.56	44.70	15.09	0.197	0.218	0.239	84.1	1879	1685	1409	117302
GFZ8 phen 5	Santa Cruz	39.52	44.84	14.99	0.199	0.214	0.237	84.2	1859	1654	1426	116544
GFZ8 phen 5	Santa Cruz	39.64	44.65	15.05	0.207	0.220	0.232	84.1	1823	1704	1480	117058
GFZ8 phen 5	Santa Cruz	39.64	44.73	14.96	0.218	0.217	0.235	84.2	1848	1682	1562	116335

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ8 phen 6	Santa Cruz	39.70	44.96	14.69	0.184	0.210	0.252	84.5	1976	1623	1312	114268
GFZ8 phen 6	Santa Cruz	39.70	44.90	14.76	0.190	0.212	0.245	84.4	1923	1639	1360	114739
GFZ8 phen 6	Santa Cruz	39.75	44.96	14.61	0.221	0.205	0.246	84.6	1928	1588	1579	113643
GFZ8 phen 6	Santa Cruz	39.75	44.92	14.63	0.252	0.209	0.236	84.6	1854	1618	1799	113752
GFZ8 phen 7	Santa Cruz	39.86	45.56	13.87	0.262	0.193	0.254	85.4	1994	1496	1874	107850
GFZ8 phen 7	Santa Cruz	39.83	45.55	13.91	0.264	0.192	0.249	85.4	1955	1490	1886	108199
GFZ8 phen 7	Santa Cruz	39.64	44.72	14.93	0.277	0.210	0.224	84.2	1762	1625	1982	116127
GFZ8 phen 8	Santa Cruz	40.03	46.13	13.18	0.195	0.193	0.267	86.2	2099	1498	1394	102457
GFZ8 phen 8	Santa Cruz	39.95	46.27	13.14	0.182	0.188	0.267	86.3	2096	1459	1303	102189
GFZ8 phen 8	Santa Cruz	39.98	46.12	13.25	0.187	0.190	0.270	86.1	2117	1472	1336	103069
GFZ8 phen 8	Santa Cruz	39.99	46.01	13.34	0.192	0.190	0.273	86.0	2148	1472	1375	103762
GFZ8 phen 8	Santa Cruz	39.97	46.06	13.30	0.210	0.188	0.278	86.1	2182	1458	1499	103451
GFZ8 phen 8	Santa Cruz	40.02	45.95	13.33	0.229	0.194	0.274	86.0	2151	1501	1637	103666
GFZ8 phen 9	Santa Cruz	39.71	45.05	14.52	0.271	0.209	0.232	84.7	1821	1618	1936	112922
GFZ8 phen 9	Santa Cruz	39.79	45.08	14.42	0.269	0.208	0.234	84.8	1841	1609	1927	112117
GFZ8 phen 9	Santa Cruz	39.77	45.05	14.46	0.274	0.208	0.233	84.7	1830	1608	1959	112434
GFZ8 phen 9	Santa Cruz	39.54	44.10	15.62	0.296	0.227	0.220	83.4	1725	1757	2116	121431
GFZ8 phen 10	Santa Cruz	39.95	45.29	14.10	0.218	0.199	0.248	85.1	1946	1543	1558	109655
GFZ8 phen 10	Santa Cruz	39.95	45.34	14.03	0.230	0.195	0.251	85.2	1968	1513	1644	109106
GFZ8 phen 10	Santa Cruz	39.89	45.37	14.04	0.254	0.197	0.244	85.2	1914	1524	1819	109173
GFZ8 phen 10	Santa Cruz	39.47	43.46	16.34	0.291	0.234	0.210	82.6	1649	1812	2082	127025
GFZ8 phen 10	Santa Cruz	39.69	44.38	15.20	0.286	0.217	0.225	83.9	1771	1677	2042	118187
GFZ8 phen 12	Santa Cruz	39.86	45.47	13.99	0.233	0.194	0.255	85.3	2002	1506	1666	108800
GFZ8 phen 12	Santa Cruz	39.84	45.58	13.89	0.236	0.194	0.260	85.4	2045	1506	1689	108045
GFZ8 phen 12	Santa Cruz	39.88	45.60	13.84	0.233	0.193	0.258	85.5	2023	1491	1668	107612
GFZ8 phen 12	Santa Cruz	40.01	45.60	13.71	0.234	0.194	0.261	85.6	2046	1502	1672	106606
GFZ9 phen 1	Santa Cruz	39.95	45.54	13.88	0.170	0.203	0.255	85.4	2005	1570	1217	107961
GFZ9 phen 1	Santa Cruz	40.10	45.63	13.64	0.167	0.201	0.260	85.6	2046	1560	1197	106032
GFZ9 phen 1	Santa Cruz	40.21	46.34	12.80	0.197	0.185	0.273	86.6	2147	1436	1407	99545
GFZ9 phen 1	Santa Cruz	40.21	46.58	12.52	0.232	0.179	0.278	86.9	2185	1390	1656	97365
GFZ9 phen 1	Santa Cruz	40.12	46.08	13.09	0.269	0.191	0.252	86.3	1976	1480	1920	101803
GFZ9 phen 1	Santa Cruz	40.18	45.62	13.49	0.276	0.201	0.233	85.8	1832	1555	1977	104908
GFZ9 phen 2	Santa Cruz	40.27	46.49	12.56	0.234	0.183	0.269	86.8	2109	1416	1674	97656

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ9 phen 2	Santa Cruz	40.24	46.10	12.96	0.249	0.191	0.256	86.4	2010	1482	1778	100789
GFZ9 phen 2	Santa Cruz	40.16	45.27	13.86	0.268	0.205	0.234	85.3	1841	1591	1919	107804
GFZ9 phen 2	Santa Cruz	40.34	45.78	13.18	0.260	0.197	0.244	86.1	1919	1527	1862	102502
GFZ9 phen 2	Santa Cruz	40.28	45.75	13.27	0.264	0.195	0.243	86.0	1909	1507	1884	103211
GFZ9 phen 3	Santa Cruz	40.22	45.36	13.72	0.270	0.202	0.234	85.5	1838	1562	1928	106663
GFZ9 phen 3	Santa Cruz	40.19	44.85	14.28	0.289	0.207	0.186	84.8	1459	1600	2064	111040
GFZ9 phen 3	Santa Cruz	40.36	45.82	13.13	0.263	0.187	0.241	86.2	1897	1452	1879	102083
GFZ9 phen 3	Santa Cruz	40.36	45.75	13.18	0.274	0.197	0.238	86.1	1873	1527	1962	102513
GFZ9 phen 4	Santa Cruz	39.29	41.12	18.81	0.310	0.294	0.172	79.6	1353	2276	2218	146279
GFZ9 phen 4	Santa Cruz	39.23	40.83	19.16	0.327	0.300	0.149	79.2	1167	2322	2338	149009
GFZ9 phen 4	Santa Cruz	38.64	38.49	22.07	0.340	0.347	0.117	75.7	920	2686	2433	171594
GFZ9 phen 4	Santa Cruz	37.41	32.68	28.92	0.393	0.509	0.086	66.8	678	3943	2812	224898
GFZ9 phen 5	Santa Cruz	40.45	46.06	12.72	0.262	0.182	0.319	86.6	2508	1409	1875	98931
GFZ9 phen 5	Santa Cruz	40.39	46.00	12.84	0.265	0.189	0.318	86.5	2499	1464	1896	99820
GFZ9 phen 5	Santa Cruz	40.44	45.97	12.80	0.266	0.184	0.333	86.5	2619	1429	1898	99533
GFZ9 phen 5	Santa Cruz	40.35	45.98	12.90	0.259	0.189	0.327	86.4	2571	1464	1853	100292
GFZ9 phen 5	Santa Cruz	40.27	45.92	13.03	0.259	0.188	0.328	86.3	2578	1453	1853	101289
GFZ9 phen 6	Santa Cruz	40.28	45.68	13.27	0.268	0.191	0.309	86.0	2424	1481	1916	103222
GFZ9 phen 6	Santa Cruz	40.31	46.04	12.90	0.264	0.186	0.301	86.4	2363	1440	1891	100323
GFZ9 phen 6	Santa Cruz	40.29	45.99	12.97	0.267	0.187	0.291	86.3	2282	1451	1912	100881
GFZ9 phen 6	Santa Cruz	40.19	45.67	13.40	0.268	0.196	0.278	85.9	2187	1515	1915	104184
GFZ9 phen 6	Santa Cruz	39.48	42.95	16.81	0.290	0.245	0.213	82.0	1674	1896	2071	130745
GFZ9 phen 7	Santa Cruz	40.29	46.09	12.91	0.267	0.188	0.253	86.4	1987	1458	1910	100425
GFZ9 phen 7	Santa Cruz	40.27	46.03	12.99	0.268	0.192	0.251	86.3	1968	1489	1917	101013
GFZ9 phen 7	Santa Cruz	40.35	46.02	12.93	0.272	0.192	0.245	86.4	1923	1488	1947	100506
GFZ9 phen 7	Santa Cruz	40.35	45.88	13.07	0.269	0.194	0.244	86.2	1918	1499	1923	101627
GFZ9 phen 7	Santa Cruz	40.19	45.25	13.85	0.276	0.206	0.230	85.3	1807	1598	1972	107681
GFZ9 phen 7	Santa Cruz	39.77	43.56	15.92	0.326	0.240	0.182	83.0	1432	1858	2330	123814
GFZ9 phen 8	Santa Cruz	40.37	46.18	12.73	0.267	0.182	0.266	86.6	2092	1413	1909	98999
GFZ9 phen 8	Santa Cruz	40.38	46.10	12.81	0.266	0.186	0.255	86.5	2001	1440	1901	99595
GFZ9 phen 8	Santa Cruz	40.33	45.98	12.97	0.270	0.190	0.253	86.3	1987	1475	1929	100886
GFZ9 phen 8	Santa Cruz	40.19	45.19	13.90	0.273	0.205	0.230	85.3	1809	1591	1952	108120
GFZ9 phen 9	Santa Cruz	40.44	46.11	12.73	0.268	0.186	0.266	86.6	2087	1438	1915	98974

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ9 phen 9	Santa Cruz	40.41	46.03	12.84	0.269	0.188	0.258	86.5	2024	1460	1921	99861
GFZ9 phen 9	Santa Cruz	40.42	45.93	12.95	0.266	0.188	0.248	86.3	1952	1455	1903	100719
GFZ9 phen 9	Santa Cruz	40.25	45.69	13.35	0.267	0.196	0.242	85.9	1904	1516	1912	103802
GFZ9 phen 10	Santa Cruz	40.25	45.73	13.31	0.282	0.199	0.233	86.0	1831	1544	2015	103535
GFZ9 phen 10	Santa Cruz	40.24	45.58	13.47	0.279	0.198	0.232	85.8	1823	1536	1994	104759
GFZ9 phen 10	Santa Cruz	40.12	44.90	14.28	0.280	0.206	0.217	84.9	1708	1595	1999	111037
GFZ9 phen 11	Santa Cruz	40.20	45.41	13.67	0.279	0.199	0.237	85.6	1862	1539	1995	106293
GFZ9 phen 11	Santa Cruz	40.29	45.80	13.19	0.282	0.197	0.233	86.1	1830	1528	2017	102565
GFZ9 phen 11	Santa Cruz	39.81	43.85	15.60	0.280	0.234	0.226	83.4	1774	1814	2002	121326
GFZ9 phen 12	Santa Cruz	40.20	45.71	13.39	0.276	0.196	0.234	85.9	1839	1516	1977	104095
GFZ9 phen 12	Santa Cruz	40.11	45.29	13.89	0.280	0.198	0.229	85.3	1797	1530	2000	108045
GFZ9 phen 12	Santa Cruz	39.70	43.51	16.09	0.269	0.227	0.208	82.8	1631	1762	1925	125116
GFZ10 phen 1	Santa Cruz	40.17	46.02	13.08	0.283	0.190	0.259	86.2	2033	1468	2025	101696
GFZ10 phen 1	Santa Cruz	40.01	46.18	13.07	0.287	0.190	0.264	86.3	2074	1472	2050	101637
GFZ10 phen 1	Santa Cruz	40.10	46.17	12.99	0.289	0.190	0.262	86.4	2058	1470	2065	101017
GFZ10 phen 1	Santa Cruz	40.09	46.10	13.07	0.284	0.190	0.259	86.3	2034	1468	2028	101663
GFZ10 phen 1	Santa Cruz	40.16	45.99	13.12	0.286	0.190	0.257	86.2	2022	1469	2042	102007
GFZ10 phen 2	Santa Cruz	40.26	46.39	12.61	0.281	0.185	0.276	86.8	2170	1435	2010	98059
GFZ10 phen 2	Santa Cruz	40.18	46.31	12.76	0.284	0.187	0.273	86.6	2146	1447	2034	99234
GFZ10 phen 2	Santa Cruz	39.99	46.02	13.25	0.282	0.195	0.263	86.1	2069	1508	2017	103032
GFZ10 phen 2	Santa Cruz	40.12	45.94	13.21	0.279	0.194	0.260	86.1	2043	1502	1998	102698
GFZ10 phen 3	Santa Cruz	40.27	46.19	12.80	0.285	0.189	0.272	86.5	2139	1463	2035	99548
GFZ10 phen 3	Santa Cruz	40.34	46.09	12.81	0.283	0.190	0.275	86.5	2158	1470	2021	99650
GFZ10 phen 3	Santa Cruz	40.36	46.02	12.88	0.283	0.186	0.269	86.4	2111	1441	2026	100180
GFZ10 phen 3	Santa Cruz	40.34	45.90	13.02	0.283	0.191	0.263	86.3	2066	1483	2026	101260
GFZ10 phen 4	Santa Cruz	40.09	45.84	13.33	0.286	0.191	0.264	86.0	2074	1482	2048	103663
GFZ10 phen 5	Santa Cruz	40.28	46.35	12.63	0.284	0.185	0.265	86.7	2085	1435	2034	98246
GFZ10 phen 5	Santa Cruz	40.29	46.26	12.70	0.298	0.186	0.270	86.7	2120	1441	2130	98750
GFZ10 phen 5	Santa Cruz	40.30	46.33	12.64	0.285	0.184	0.266	86.7	2091	1422	2040	98296
GFZ10 phen 5	Santa Cruz	40.20	46.34	12.72	0.287	0.185	0.274	86.7	2153	1432	2051	98875
GFZ10 phen 5	Santa Cruz	40.29	46.11	12.86	0.287	0.187	0.270	86.5	2120	1448	2051	99965
GFZ10 phen 6	Santa Cruz	40.27	46.13	12.85	0.288	0.185	0.270	86.5	2117	1432	2056	99957
GFZ10 phen 6	Santa Cruz	40.23	46.30	12.73	0.286	0.185	0.266	86.6	2088	1437	2048	98987

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ10 phen 6	Santa Cruz	40.29	46.17	12.80	0.282	0.188	0.271	86.5	2125	1455	2018	99545
GFZ10 phen 6	Santa Cruz	40.09	46.05	13.12	0.285	0.189	0.264	86.2	2075	1468	2035	102016
GFZ10 phen 7	Santa Cruz	40.28	45.99	12.98	0.288	0.192	0.264	86.3	2074	1485	2062	100960
GFZ10 phen 7	Santa Cruz	40.17	45.96	13.13	0.286	0.195	0.261	86.2	2050	1509	2043	102101
GFZ10 phen 7	Santa Cruz	40.12	45.99	13.15	0.282	0.192	0.260	86.2	2040	1490	2014	102278
GFZ10 phen 7	Santa Cruz	40.15	45.99	13.12	0.285	0.190	0.264	86.2	2076	1470	2035	101996
GFZ10 phen 7	Santa Cruz	40.12	45.96	13.18	0.287	0.191	0.261	86.1	2050	1479	2054	102473
GFZ10 phen 8	Santa Cruz	40.21	46.02	13.03	0.284	0.194	0.262	86.3	2057	1502	2029	101307
GFZ10 phen 9	Santa Cruz	40.13	46.44	12.71	0.276	0.183	0.265	86.7	2081	1418	1973	98819
GFZ10 phen 9	Santa Cruz	40.20	46.37	12.69	0.281	0.189	0.269	86.7	2116	1466	2006	98684
GFZ10 phen 9	Santa Cruz	40.08	46.47	12.71	0.284	0.186	0.264	86.7	2073	1443	2032	98833
GFZ10 phen 9	Santa Cruz	40.08	46.43	12.74	0.288	0.183	0.276	86.7	2168	1415	2062	99053
GFZ10 phen 9	Santa Cruz	40.06	46.32	12.86	0.287	0.189	0.270	86.5	2119	1468	2055	100030
GFZ10 phen 10	Santa Cruz	40.17	46.21	12.88	0.287	0.186	0.270	86.5	2121	1439	2050	100121
GFZ10 phen 10	Santa Cruz	40.13	46.23	12.90	0.284	0.187	0.266	86.5	2088	1445	2032	100313
GFZ10 phen 10	Santa Cruz	40.08	46.27	12.90	0.286	0.191	0.267	86.5	2099	1481	2044	100344
GFZ10 phen 10	Santa Cruz	40.12	46.13	13.01	0.286	0.190	0.264	86.3	2076	1473	2043	101167
GFZ10 phen 11	Santa Cruz	40.12	46.32	12.81	0.287	0.183	0.279	86.6	2192	1417	2055	99610
GFZ10 phen 11	Santa Cruz	40.10	46.33	12.82	0.284	0.186	0.280	86.6	2198	1441	2029	99727
GFZ10 phen 11	Santa Cruz	40.09	46.13	13.04	0.278	0.189	0.275	86.3	2159	1464	1986	101396
GFZ10 phen 11	Santa Cruz	40.03	45.72	13.50	0.285	0.201	0.261	85.8	2049	1553	2038	104966
GFZ10 phen 12	Santa Cruz	40.00	46.15	13.09	0.290	0.190	0.272	86.3	2138	1473	2077	101778
GFZ10 phen 12	Santa Cruz	40.03	46.15	13.07	0.287	0.188	0.273	86.3	2141	1459	2055	101667
GFZ10 phen 12	Santa Cruz	40.04	46.09	13.13	0.284	0.190	0.269	86.2	2114	1475	2029	102073
GFZ10 phen 12	Santa Cruz	39.96	45.91	13.39	0.283	0.193	0.264	85.9	2072	1496	2022	104126
GFZ11 phen 1	Santa Cruz	39.59	44.78	14.96	0.206	0.225	0.243	84.2	1912	1740	1472	116304
GFZ11 phen 1	Santa Cruz	39.64	44.76	14.94	0.203	0.225	0.246	84.2	1928	1741	1452	116142
GFZ11 phen 1	Santa Cruz	39.70	45.28	14.34	0.218	0.213	0.250	84.9	1967	1652	1560	111491
GFZ11 phen 1	Santa Cruz	39.79	45.55	13.95	0.243	0.206	0.263	85.3	2063	1595	1740	108498
GFZ11 phen 1	Santa Cruz	39.88	45.81	13.59	0.263	0.196	0.262	85.7	2056	1518	1882	105674
GFZ11 phen 1	Santa Cruz	39.86	45.82	13.58	0.285	0.201	0.253	85.7	1984	1560	2040	105628
GFZ11 phen 2	Santa Cruz	40.21	46.53	12.52	0.249	0.178	0.308	86.9	2417	1376	1781	97389
GFZ11 phen 2	Santa Cruz	40.23	46.35	12.67	0.255	0.179	0.305	86.7	2398	1387	1822	98557

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ11 phen 2	Santa Cruz	40.19	46.39	12.68	0.254	0.178	0.309	86.7	2427	1379	1818	98598
GFZ11 phen 2	Santa Cruz	40.15	46.02	13.10	0.264	0.186	0.281	86.2	2206	1441	1885	101845
GFZ11 phen 3	Santa Cruz	40.31	46.97	11.97	0.251	0.169	0.327	87.5	2569	1312	1795	93112
GFZ11 phen 3	Santa Cruz	40.25	46.91	12.09	0.253	0.173	0.330	87.4	2591	1344	1811	94006
GFZ11 phen 3	Santa Cruz	40.21	46.89	12.14	0.256	0.169	0.322	87.3	2531	1310	1831	94437
GFZ11 phen 3	Santa Cruz	40.25	46.58	12.42	0.257	0.176	0.314	87.0	2466	1366	1837	96563
GFZ11 phen 3	Santa Cruz	40.12	46.16	12.99	0.260	0.185	0.287	86.4	2254	1435	1857	100993
GFZ11 phen 4	Santa Cruz	40.34	46.74	12.16	0.266	0.174	0.323	87.3	2538	1345	1901	94536
GFZ11 phen 4	Santa Cruz	40.21	47.11	11.91	0.271	0.170	0.323	87.6	2539	1313	1940	92634
GFZ11 phen 4	Santa Cruz	40.30	46.89	12.04	0.271	0.172	0.326	87.4	2561	1336	1937	93608
GFZ11 phen 5	Santa Cruz	40.34	46.61	12.28	0.263	0.175	0.329	87.1	2588	1355	1878	95524
GFZ11 phen 5	Santa Cruz	40.36	46.81	12.07	0.262	0.170	0.332	87.4	2605	1316	1871	93834
GFZ11 phen 5	Santa Cruz	40.35	46.58	12.32	0.264	0.174	0.320	87.1	2514	1350	1888	95770
GFZ11 phen 5	Santa Cruz	40.17	46.15	12.94	0.264	0.186	0.289	86.4	2269	1440	1887	100639
GFZ11 phen 6	Santa Cruz	40.40	47.23	11.61	0.266	0.162	0.336	87.9	2643	1258	1901	90245
GFZ11 phen 6	Santa Cruz	40.45	47.15	11.64	0.264	0.163	0.338	87.8	2655	1266	1887	90476
GFZ11 phen 6	Santa Cruz	40.42	47.11	11.70	0.262	0.165	0.337	87.8	2650	1281	1876	91010
GFZ11 phen 6	Santa Cruz	40.24	46.27	12.74	0.264	0.180	0.310	86.6	2438	1396	1885	99044
GFZ11 phen 7	Santa Cruz	39.66	44.88	14.81	0.222	0.219	0.211	84.4	1659	1693	1590	115158
GFZ11 phen 7	Santa Cruz	39.82	44.53	15.01	0.208	0.222	0.201	84.1	1579	1723	1485	116737
GFZ11 phen 7	Santa Cruz	39.86	44.76	14.75	0.214	0.219	0.206	84.4	1617	1695	1527	114697
GFZ11 phen 7	Santa Cruz	40.01	45.18	14.15	0.228	0.209	0.221	85.1	1733	1618	1630	110009
GFZ11 phen 7	Santa Cruz	40.03	45.67	13.60	0.256	0.198	0.256	85.7	2009	1534	1833	105719
GFZ11 phen 8	Santa Cruz	40.08	45.97	13.24	0.251	0.186	0.274	86.1	2150	1438	1795	102918
GFZ11 phen 8	Santa Cruz	40.05	46.04	13.20	0.251	0.189	0.276	86.1	2166	1464	1796	102633
GFZ11 phen 8	Santa Cruz	40.11	45.99	13.19	0.254	0.187	0.271	86.1	2130	1447	1813	102596
GFZ11 phen 8	Santa Cruz	39.99	45.61	13.67	0.269	0.198	0.260	85.6	2042	1533	1924	106261
GFZ11 phen 8	Santa Cruz	39.94	45.89	13.46	0.267	0.190	0.257	85.9	2022	1473	1906	104670
GFZ11 phen 9	Santa Cruz	40.23	46.16	12.86	0.270	0.183	0.296	86.5	2327	1415	1929	100039
GFZ11 phen 9	Santa Cruz	40.12	46.11	13.02	0.269	0.186	0.292	86.3	2292	1438	1925	101254
GFZ11 phen 9	Santa Cruz	40.06	46.32	12.86	0.273	0.186	0.302	86.5	2372	1444	1949	100032
GFZ11 phen 9	Santa Cruz	40.13	46.28	12.83	0.271	0.179	0.304	86.5	2385	1387	1940	99767
GFZ11 phen 9	Santa Cruz	40.14	46.12	12.98	0.273	0.182	0.309	86.4	2426	1411	1949	100924

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
GFZ11 phen 10	Santa Cruz	40.13	46.16	12.98	0.259	0.181	0.286	86.4	2247	1405	1854	100933
GFZ11 phen 10	Santa Cruz	40.03	46.32	12.92	0.257	0.180	0.293	86.5	2298	1393	1834	100491
GFZ11 phen 10	Santa Cruz	40.06	46.20	13.01	0.262	0.180	0.291	86.4	2283	1391	1872	101175
GFZ11 phen 10	Santa Cruz	39.89	46.48	12.89	0.262	0.180	0.287	86.5	2251	1395	1873	100260
GFZ11 phen 11	Santa Cruz	39.92	45.24	14.25	0.166	0.202	0.228	85.0	1789	1567	1188	110794
GFZ11 phen 11	Santa Cruz	39.96	45.35	14.09	0.172	0.202	0.223	85.2	1753	1566	1231	109579
GFZ11 phen 11	Santa Cruz	40.03	45.72	13.64	0.189	0.194	0.238	85.7	1866	1503	1348	106043
GFZ11 phen 11	Santa Cruz	40.12	46.12	13.06	0.230	0.188	0.277	86.3	2175	1453	1643	101569
GFZ11 phen 11	Santa Cruz	39.90	45.65	13.80	0.221	0.200	0.229	85.5	1802	1546	1579	107288
GFZ11 phen 12	Santa Cruz	39.74	44.75	14.83	0.211	0.230	0.241	84.3	1892	1779	1510	115312
GFZ11 phen 12	Santa Cruz	39.86	45.21	14.23	0.226	0.217	0.253	85.0	1984	1681	1619	110670
GFZ11 phen 12	Santa Cruz	40.00	45.55	13.75	0.249	0.204	0.257	85.5	2017	1582	1777	106897
GFZ11 phen 12	Santa Cruz	39.78	45.69	13.84	0.224	0.210	0.251	85.5	1974	1627	1605	107657
GFZ11 phen 12	Santa Cruz	40.01	45.82	13.49	0.223	0.206	0.248	85.8	1948	1595	1596	104929
SF-3 phen 1	Santa Fe	39.59	43.07	16.63	0.279	0.243	0.187	82.2	1471	1880	1992	129300
SF-3 phen 1	Santa Fe	39.73	42.92	16.65	0.279	0.241	0.188	82.1	1479	1870	1993	129466
SF-3 phen 1	Santa Fe	39.60	43.00	16.70	0.275	0.239	0.188	82.1	1476	1848	1968	129827
SF-3 phen 1	Santa Fe	39.66	42.98	16.65	0.275	0.240	0.192	82.1	1506	1859	1966	129479
SF-3 phen 1	Santa Fe	39.63	43.01	16.66	0.277	0.241	0.190	82.1	1493	1867	1981	129541
SF-3 phen 1	Santa Fe	39.68	43.01	16.61	0.279	0.238	0.186	82.2	1457	1847	1992	129166
SF-3 phen 2	Santa Fe	39.72	43.12	16.46	0.279	0.236	0.190	82.4	1491	1829	1998	127990
SF-3 phen 2	Santa Fe	39.61	43.15	16.53	0.282	0.239	0.194	82.3	1525	1848	2014	128506
SF-3 phen 2	Santa Fe	39.65	43.05	16.58	0.278	0.235	0.195	82.2	1534	1818	1986	128957
SF-3 phen 2	Santa Fe	39.64	42.92	16.73	0.278	0.237	0.191	82.1	1497	1833	1990	130118
SF-3 phen 13	Santa Fe	35.60	26.25	37.12	0.275	0.691	0.064	55.8	503	5351	1965	288630
SF-3 phen 14	Santa Fe	35.26	25.26	38.41	0.294	0.726	0.057	54.0	450	5625	2099	298641
SF-7 phen 3	Santa Fe	39.46	44.45	15.37	0.254	0.210	0.258	83.8	2026	1623	1819	119520
SF-7 phen 5	Santa Fe	39.14	42.90	17.28	0.240	0.227	0.209	81.6	1642	1760	1718	134350
SF-7 phen 5	Santa Fe	39.83	42.05	17.42	0.250	0.242	0.216	81.1	1696	1874	1788	135437
SF-7 phen 5	Santa Fe	39.00	41.98	18.33	0.234	0.247	0.208	80.3	1630	1910	1673	142538
SF-7 phen 5	Santa Fe	38.74	40.71	19.86	0.226	0.271	0.191	78.5	1501	2098	1618	154459
SF-7 phen 7	Santa Fe	39.22	43.32	16.74	0.229	0.233	0.262	82.2	2059	1807	1637	130168
SF-7 phen 7	Santa Fe	38.79	41.26	19.26	0.222	0.249	0.222	79.2	1743	1932	1586	149753

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SF-7 phen 7	Santa Fe	38.72	40.36	20.20	0.214	0.293	0.211	78.1	1659	2268	1533	157094
SF-7 phen 8	Santa Fe	40.10	46.51	12.64	0.237	0.172	0.347	86.8	2725	1329	1692	98262
SF-7 phen 8	Santa Fe	40.11	46.34	12.79	0.236	0.176	0.350	86.6	2747	1362	1690	99431
SF-7 phen 8	Santa Fe	39.97	45.82	13.44	0.250	0.191	0.329	85.9	2581	1483	1789	104525
SF-7 phen 9	Santa Fe	39.77	44.60	14.88	0.266	0.214	0.266	84.2	2088	1660	1901	115710
SF-7 phen 9	Santa Fe	39.87	44.04	15.33	0.264	0.226	0.266	83.7	2090	1751	1885	119196
SF-7 phen 9	Santa Fe	39.60	43.65	15.99	0.260	0.228	0.260	83.0	2044	1768	1861	124368
SF-7 phen 9	Santa Fe	39.69	44.38	15.20	0.264	0.207	0.254	83.9	1999	1603	1884	118218
SF-7 phen 10	Santa Fe	39.76	44.38	15.04	0.320	0.217	0.287	84.0	2254	1684	2288	116921
SF-7 phen 10	Santa Fe	39.99	45.24	14.02	0.256	0.197	0.290	85.2	2277	1529	1833	109030
SF-7 phen 10	Santa Fe	39.76	44.60	14.90	0.255	0.210	0.268	84.2	2104	1626	1820	115880
SF-7 phen 10	Santa Fe	39.43	42.87	16.94	0.249	0.249	0.258	81.9	2028	1928	1778	131720
SF-7 phen 11	Santa Fe	39.06	41.26	19.01	0.151	0.262	0.245	79.5	1922	2030	1083	147842
SF-7 phen 11	Santa Fe	39.07	41.37	18.90	0.150	0.263	0.241	79.6	1892	2041	1070	146985
SF-7 phen 11	Santa Fe	39.09	41.26	18.99	0.153	0.267	0.244	79.5	1919	2064	1092	147643
SF-7 phen 11	Santa Fe	38.98	40.79	19.55	0.152	0.282	0.249	78.8	1958	2188	1086	152060
SF-7 phen 11	Santa Fe	38.13	35.78	25.30	0.210	0.408	0.171	71.6	1344	3163	1501	196757
SF-7 phen 13	Santa Fe	40.41	46.96	11.86	0.238	0.162	0.358	87.6	2812	1256	1701	92247
SF-7 phen 13	Santa Fe	40.32	46.88	12.03	0.239	0.164	0.363	87.4	2847	1272	1708	93540
SF-7 phen 13	Santa Fe	40.29	46.68	12.28	0.241	0.164	0.349	87.1	2745	1268	1723	95475
SF-7 phen 13	Santa Fe	40.32	46.42	12.50	0.248	0.171	0.336	86.9	2642	1325	1772	97202
SF-7 phen 13	Santa Fe	40.22	46.03	13.00	0.248	0.180	0.319	86.3	2509	1392	1773	101108
SF-7 phen 14	Santa Fe	39.28	42.39	17.63	0.234	0.247	0.212	81.1	1661	1910	1670	137111
SF-7 phen 14	Santa Fe	39.15	41.87	18.28	0.231	0.250	0.220	80.3	1730	1934	1652	142120
SF-7 phen 14	Santa Fe	38.85	40.65	19.78	0.226	0.289	0.208	78.6	1635	2235	1616	153787
SF-7 phen 14	Santa Fe	38.44	38.65	22.14	0.219	0.362	0.187	75.7	1469	2802	1569	172159
SF-7 phen 15	Santa Fe	39.14	42.45	17.72	0.231	0.246	0.211	81.0	1661	1908	1651	137799
SF-7 phen 14	Santa Fe	39.10	42.52	17.69	0.231	0.246	0.213	81.1	1672	1902	1653	137564
SF-7 phen 14	Santa Fe	39.01	41.91	18.37	0.236	0.255	0.220	80.3	1730	1975	1687	142840
SF-7 phen 14	Santa Fe	38.76	40.65	19.88	0.220	0.290	0.208	78.5	1635	2246	1575	154574
SF-7 phen 14	Santa Fe	38.40	38.56	22.28	0.221	0.358	0.186	75.5	1463	2770	1579	173234
SF-7 phen 15	Santa Fe	39.08	42.50	17.73	0.235	0.247	0.211	81.0	1656	1911	1678	137891
SF-7 phen 15	Santa Fe	39.14	42.47	17.70	0.235	0.247	0.210	81.0	1648	1912	1677	137671

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SF-7 phen 15	Santa Fe	39.18	42.60	17.52	0.236	0.245	0.222	81.3	1744	1901	1687	136256
SF-7 phen 15	Santa Fe	38.64	41.78	18.83	0.259	0.260	0.228	79.8	1787	2016	1851	146436
E-76 phen 1	Santiago	39.46	43.36	16.43	0.307	0.223	0.224	82.5	1759	1728	2197	127753
E-76 phen 1	Santiago	39.39	43.27	16.59	0.315	0.223	0.220	82.3	1728	1724	2252	128981
E-76 phen 1	Santiago	39.41	43.31	16.53	0.309	0.225	0.224	82.4	1762	1746	2207	128524
E-76 phen 1	Santiago	39.25	42.80	17.20	0.307	0.228	0.216	81.6	1694	1768	2196	133719
E-76 phen 1	Santiago	37.27	34.38	27.50	0.296	0.400	0.150	69.0	1180	3097	2119	213842
E-76 phen 2	Santiago	39.54	44.31	15.38	0.286	0.220	0.265	83.7	2083	1707	2047	119617
E-76 phen 2	Santiago	39.58	44.30	15.35	0.284	0.218	0.263	83.7	2067	1686	2033	119335
E-76 phen 2	Santiago	39.58	44.27	15.39	0.280	0.217	0.262	83.7	2058	1684	2000	119690
E-76 phen 2	Santiago	39.51	43.96	15.77	0.286	0.218	0.260	83.2	2043	1692	2045	122633
E-76 phen 2	Santiago	38.63	40.25	20.35	0.286	0.266	0.218	77.9	1716	2061	2042	158235
E-76 phen 3	Santiago	39.16	42.94	17.12	0.274	0.236	0.258	81.7	2029	1828	1961	133158
E-76 phen 3	Santiago	39.12	43.04	17.07	0.271	0.238	0.263	81.8	2064	1840	1939	132719
E-76 phen 3	Santiago	39.05	42.87	17.31	0.282	0.239	0.250	81.5	1960	1853	2017	134614
E-76 phen 3	Santiago	39.12	42.72	17.38	0.283	0.247	0.245	81.4	1927	1915	2025	135159
E-76 phen 3	Santiago	39.06	42.65	17.50	0.301	0.246	0.236	81.3	1857	1903	2150	136096
E-76 phen 4	Santiago	39.33	43.05	16.83	0.276	0.241	0.274	82.0	2149	1865	1973	130880
E-76 phen 4	Santiago	39.24	43.18	16.77	0.290	0.243	0.273	82.1	2142	1882	2070	130438
E-76 phen 4	Santiago	39.54	43.79	15.89	0.275	0.230	0.280	83.1	2196	1783	1965	123552
E-76 phen 4	Santiago	39.65	42.19	17.27	0.324	0.247	0.325	81.3	2556	1916	2318	134255
E-76 phen 4	Santiago	37.67	34.18	27.13	0.419	0.399	0.193	69.2	1515	3088	2994	211000
E-76 phen 5	Santiago	39.57	44.86	14.79	0.278	0.206	0.291	84.4	2289	1598	1985	115017
E-76 phen 5	Santiago	39.53	44.77	14.91	0.280	0.209	0.288	84.3	2264	1621	1999	115977
E-76 phen 5	Santiago	39.47	44.41	15.34	0.280	0.212	0.286	83.8	2249	1643	2003	119295
E-76 phen 5	Santiago	35.97	28.72	34.23	0.415	0.561	0.105	59.9	821	4342	2967	266139
E-76 phen 6	Santiago	39.53	44.10	15.62	0.280	0.219	0.254	83.4	1995	1694	2003	121424
E-76 phen 6	Santiago	39.48	44.07	15.68	0.289	0.223	0.257	83.4	2020	1728	2069	121910
E-76 phen 6	Santiago	39.49	44.06	15.68	0.290	0.221	0.262	83.4	2057	1709	2076	121941
E-76 phen 6	Santiago	38.51	40.09	20.61	0.278	0.282	0.229	77.6	1799	2182	1990	160249
E-76 phen 7	Santiago	39.60	44.36	15.31	0.320	0.207	0.198	83.8	1552	1602	2288	119090
E-76 phen 7	Santiago	39.57	44.28	15.40	0.334	0.211	0.198	83.7	1555	1638	2390	119764
E-76 phen 7	Santiago	39.12	42.13	18.00	0.313	0.229	0.201	80.7	1576	1771	2237	140006

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
E-76 phen 7	Santiago	37.70	36.30	25.19	0.275	0.358	0.179	72.0	1405	2770	1968	195868
E-76 phen 8	Santiago	39.73	44.84	14.67	0.278	0.204	0.277	84.5	2177	1581	1986	114095
E-76 phen 8	Santiago	39.73	44.85	14.66	0.275	0.210	0.278	84.5	2182	1624	1969	113961
E-76 phen 8	Santiago	39.67	44.86	14.70	0.278	0.211	0.284	84.5	2228	1633	1991	114290
E-76 phen 8	Santiago	39.74	44.33	15.15	0.281	0.209	0.284	83.9	2233	1622	2008	117807
E-76 phen 8	Santiago	39.51	43.69	16.02	0.280	0.220	0.276	82.9	2169	1707	2004	124592
E-76 phen 9	Santiago	38.84	40.91	19.50	0.280	0.270	0.200	78.9	1568	2088	1999	151615
E-76 phen 9	Santiago	38.70	40.47	20.08	0.272	0.277	0.199	78.2	1564	2146	1947	156140
E-76 phen 9	Santiago	38.68	40.46	20.11	0.269	0.276	0.200	78.2	1572	2135	1927	156403
E-76 phen 9	Santiago	38.77	40.81	19.69	0.277	0.268	0.197	78.7	1548	2076	1982	153083
E-76 phen 9	Santiago	35.93	28.65	34.30	0.445	0.566	0.102	59.8	800	4383	3183	266752
E-76 phen 10	Santiago	40.18	46.79	12.25	0.259	0.173	0.347	87.2	2722	1338	1851	95262
E-76 phen 10	Santiago	40.19	46.81	12.22	0.262	0.173	0.347	87.2	2724	1340	1875	94998
E-76 phen 10	Santiago	38.45	39.87	20.85	0.249	0.309	0.271	77.3	2132	2394	1780	162157
E-76 phen 11	Santiago	40.29	47.02	11.89	0.262	0.168	0.371	87.6	2914	1301	1870	92468
E-76 phen 11	Santiago	40.17	46.98	12.03	0.268	0.173	0.374	87.4	2939	1338	1917	93580
E-76 phen 11	Santiago	40.30	46.80	12.09	0.265	0.170	0.367	87.3	2885	1316	1894	94014
E-76 phen 11	Santiago	40.04	46.08	13.09	0.259	0.181	0.345	86.3	2708	1403	1851	101799
E-76 phen 11	Santiago	36.42	30.32	32.25	0.384	0.512	0.120	62.6	943	3964	2744	250747
E-76 phen 12	Santiago	40.17	46.49	12.54	0.265	0.174	0.357	86.9	2802	1347	1892	97543
E-76 phen 12	Santiago	40.24	46.29	12.67	0.256	0.181	0.351	86.7	2756	1402	1833	98553
E-76 phen 12	Santiago	40.00	45.53	13.69	0.259	0.186	0.338	85.6	2654	1439	1854	106467
E-76 phen 12	Santiago	40.19	46.24	12.78	0.261	0.180	0.352	86.6	2763	1393	1866	99349
E-76 phen 12	Santiago	37.75	35.78	25.65	0.264	0.362	0.195	71.3	1528	2801	1884	199429
E-76 phen 13	Santiago	39.81	44.50	14.92	0.276	0.205	0.281	84.2	2206	1590	1976	116018
E-76 phen 13	Santiago	39.80	44.64	14.79	0.277	0.204	0.284	84.3	2233	1579	1980	114998
E-76 phen 13	Santiago	39.91	45.17	14.15	0.275	0.202	0.297	85.1	2329	1567	1968	109993
E-76 phen 13	Santiago	39.96	45.30	13.97	0.276	0.197	0.296	85.3	2321	1527	1973	108608
E-76 phen 13	Santiago	39.94	45.04	14.25	0.278	0.196	0.300	84.9	2357	1519	1989	110794
E-76 phen 14	Santiago	39.73	44.24	15.25	0.267	0.211	0.303	83.8	2377	1636	1911	118603
E-76 phen 14	Santiago	40.04	45.47	13.70	0.273	0.197	0.314	85.5	2465	1527	1949	106525
E-76 phen 14	Santiago	39.99	45.57	13.66	0.266	0.193	0.323	85.6	2535	1492	1900	106185
E-76 phen 14	Santiago	39.88	45.29	14.05	0.265	0.197	0.324	85.2	2546	1526	1896	109238

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
E-76 phen 14	Santiago	39.38	42.93	16.90	0.265	0.238	0.292	81.9	2292	1846	1892	131443
E-76 phen 15	Santiago	39.93	45.36	13.95	0.278	0.195	0.291	85.3	2285	1514	1987	108454
E-76 phen 15	Santiago	38.49	38.42	22.24	0.321	0.329	0.200	75.5	1573	2545	2293	172941
E-76 phen 1b	Santiago	39.65	44.86	14.73	0.270	0.206	0.281	84.4	2211	1596	1932	114554
E-76 phen 1b	Santiago	39.79	44.71	14.75	0.271	0.203	0.280	84.4	2203	1573	1934	114705
E-76 phen 1b	Santiago	39.68	44.79	14.77	0.270	0.209	0.278	84.4	2186	1618	1930	114868
E-76 phen 1b	Santiago	39.46	44.90	14.88	0.274	0.210	0.276	84.3	2165	1629	1962	115686
E-76 phen 1b	Santiago	39.63	44.78	14.83	0.281	0.205	0.276	84.3	2169	1585	2009	115285
E-76 phen 2b	Santiago	39.69	44.57	14.98	0.276	0.206	0.277	84.1	2177	1593	1973	116495
E-76 phen 2b	Santiago	39.83	44.40	15.01	0.278	0.207	0.278	84.1	2181	1604	1988	116693
E-76 phen 2b	Santiago	39.78	44.53	14.94	0.276	0.206	0.273	84.2	2142	1597	1974	116141
E-76 phen 2b	Santiago	39.47	42.76	16.99	0.269	0.236	0.268	81.8	2108	1826	1923	132136
E-76 phen 3b	Santiago	39.58	44.46	15.19	0.278	0.210	0.284	83.9	2234	1627	1987	118107
E-76 phen 3b	Santiago	39.58	44.84	14.80	0.282	0.205	0.284	84.4	2231	1591	2019	115103
E-76 phen 3b	Santiago	39.63	44.65	14.95	0.281	0.213	0.282	84.2	2217	1649	2011	116244
E-76 phen 4b	Santiago	39.37	42.82	17.05	0.302	0.226	0.237	81.7	1864	1747	2159	132554
E-76 phen 4b	Santiago	39.33	42.91	16.99	0.302	0.228	0.240	81.8	1888	1767	2156	132084
E-76 phen 4b	Santiago	39.39	43.03	16.81	0.304	0.226	0.240	82.0	1889	1752	2174	130694
E-76 phen 4b	Santiago	39.19	42.23	17.78	0.314	0.249	0.237	80.9	1859	1926	2242	138268
E-76 phen 5b	Santiago	39.00	41.67	18.67	0.238	0.244	0.176	79.9	1385	1888	1704	145178
E-76 phen 5b	Santiago	39.01	41.41	18.92	0.238	0.249	0.177	79.6	1390	1929	1702	147133
E-76 phen 6b	Santiago	39.40	43.11	16.74	0.281	0.233	0.225	82.1	1767	1806	2011	130193
E-76 phen 6b	Santiago	39.34	43.05	16.86	0.282	0.236	0.229	82.0	1796	1825	2013	131112
E-76 phen 6b	Santiago	39.36	42.95	16.92	0.291	0.242	0.231	81.9	1812	1875	2077	131577
E-76 phen 6b	Santiago	39.07	41.88	18.28	0.301	0.259	0.210	80.3	1649	2004	2150	142118
E-76 phen 7b	Santiago	40.08	44.11	15.06	0.269	0.206	0.271	83.9	2132	1597	1921	117137
E-76 phen 7b	Santiago	39.22	41.94	18.09	0.264	0.235	0.253	80.5	1986	1819	1890	140675
E-76 phen 7b	Santiago	36.56	29.00	33.23	0.545	0.547	0.114	60.9	897	4237	3896	258414
E-76 phen 8b	Santiago	36.99	32.53	29.60	0.318	0.443	0.116	66.2	908	3433	2275	230189
E-76 phen 8b	Santiago	36.63	30.72	31.68	0.361	0.504	0.103	63.3	811	3907	2584	246368
E-76 phen 9b	Santiago	38.53	38.55	22.17	0.293	0.328	0.130	75.6	1020	2542	2092	172429
E-76 phen 9b	Santiago	38.53	38.57	22.15	0.293	0.327	0.127	75.6	1001	2530	2091	172207
E-76 phen 9b	Santiago	38.57	38.63	22.03	0.302	0.330	0.126	75.8	991	2556	2160	171329

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
E-76 phen 9b	Santiago	37.58	34.85	26.76	0.309	0.395	0.110	69.9	863	3062	2213	208082
E-76 phen 10b	Santiago	38.07	36.33	24.75	0.301	0.352	0.195	72.3	1532	2727	2152	192496
E-76 phen 10b	Santiago	38.71	39.29	21.21	0.288	0.286	0.225	76.8	1768	2212	2060	164907
SO-1 phen 1	Santiago	39.69	45.19	14.37	0.234	0.186	0.331	84.9	2598	1443	1674	111770
SO-1 phen 1	Santiago	39.66	45.10	14.48	0.237	0.187	0.327	84.7	2565	1446	1695	112608
SO-1 phen 1	Santiago	39.60	44.88	14.78	0.240	0.186	0.315	84.4	2475	1444	1716	114935
SO-1 phen 1	Santiago	39.54	44.41	15.32	0.238	0.193	0.302	83.8	2375	1499	1704	119114
SO-1 phen 1	Santiago	39.19	42.84	17.25	0.237	0.221	0.258	81.6	2025	1710	1693	134127
SO-1 phen 2	Santiago	39.52	44.97	14.76	0.226	0.183	0.340	84.4	2669	1416	1617	114789
SO-1 phen 2	Santiago	39.56	44.51	15.18	0.230	0.196	0.320	83.9	2515	1519	1647	118043
SO-1 phen 2	Santiago	39.28	43.79	16.21	0.237	0.215	0.276	82.8	2167	1668	1695	126033
SO-1 phen 2	Santiago	39.08	43.06	17.13	0.261	0.229	0.242	81.8	1904	1776	1866	133168
SO-1 phen 4	Santiago	39.54	44.37	15.33	0.241	0.205	0.312	83.8	2449	1587	1722	119237
SO-1 phen 4	Santiago	39.57	44.13	15.56	0.223	0.204	0.307	83.5	2408	1579	1598	121027
SO-1 phen 4	Santiago	39.44	43.67	16.16	0.232	0.219	0.278	82.8	2186	1694	1657	125627
SO-1 phen 4	Santiago	38.97	41.77	18.54	0.263	0.248	0.219	80.1	1717	1918	1879	144140
SO-1 phen 5	Santiago	39.48	44.10	15.68	0.226	0.208	0.306	83.4	2400	1610	1618	121932
SO-1 phen 5	Santiago	39.47	44.13	15.66	0.227	0.201	0.310	83.4	2433	1559	1624	121803
SO-1 phen 5	Santiago	39.41	43.83	16.02	0.235	0.212	0.290	83.0	2276	1642	1678	124555
SO-1 phen 5	Santiago	39.18	42.91	17.17	0.258	0.232	0.249	81.7	1955	1794	1845	133514
SO-1 phen 7	Santiago	39.47	43.24	16.56	0.237	0.223	0.266	82.3	2093	1729	1693	128776
SO-1 phen 7	Santiago	39.47	43.25	16.56	0.240	0.226	0.259	82.3	2036	1752	1713	128789
SO-1 phen 7	Santiago	39.31	42.64	17.33	0.253	0.240	0.233	81.4	1833	1857	1812	134731
SO-1 phen 7	Santiago	38.96	41.23	19.07	0.281	0.264	0.198	79.4	1559	2046	2007	148257
SO-1 phen 7	Santiago	39.44	43.17	16.65	0.245	0.229	0.258	82.2	2030	1775	1750	129507
SO-1 phen 7	Santiago	39.42	43.11	16.74	0.243	0.232	0.252	82.1	1979	1798	1734	130163
SO-1 phen 8	Santiago	39.44	43.52	16.27	0.267	0.221	0.280	82.7	2199	1714	1910	126539
SO-1 phen 8	Santiago	39.26	42.45	17.57	0.243	0.240	0.241	81.2	1894	1858	1740	136609
SO-1 phen 8	Santiago	39.08	41.98	18.21	0.251	0.250	0.226	80.4	1772	1940	1795	141625
SO-1 phen 8	Santiago	38.42	39.46	21.32	0.345	0.306	0.153	76.7	1205	2368	2464	165780
SO-1 phen 9	Santiago	39.74	44.37	15.14	0.232	0.200	0.318	83.9	2501	1549	1661	117726
SO-1 phen 9	Santiago	39.73	44.27	15.25	0.231	0.201	0.320	83.8	2513	1559	1650	118600
SO-1 phen 9	Santiago	39.03	41.48	18.75	0.251	0.260	0.237	79.8	1864	2011	1798	145765

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SO-1 phen 9	Santiago	38.42	39.15	21.64	0.321	0.307	0.163	76.3	1280	2376	2298	168290
SO-1 phen 9	Santiago	39.70	44.39	15.16	0.231	0.201	0.317	83.9	2491	1553	1655	117879
SO-1 phen 10	Santiago	39.48	44.20	15.56	0.247	0.209	0.311	83.5	2439	1615	1767	120963
SO-1 phen 10	Santiago	39.31	43.07	16.84	0.245	0.232	0.302	82.0	2369	1800	1749	130948
SO-1 phen 10	Santiago	39.57	44.59	15.09	0.233	0.205	0.312	84.0	2450	1591	1665	117338
SO-1 phen 10	Santiago	39.09	42.94	17.24	0.241	0.230	0.259	81.6	2034	1782	1725	134085
SO-1 phen 10	Santiago	39.58	44.61	15.05	0.245	0.202	0.314	84.1	2463	1568	1752	117031
SO-1 phen 10	Santiago	39.56	44.76	14.92	0.244	0.200	0.313	84.2	2462	1546	1747	116049
SO-1 phen 11	Santiago	39.43	44.25	15.60	0.232	0.198	0.291	83.5	2283	1537	1660	121316
SO-1 phen 11	Santiago	39.65	45.03	14.58	0.234	0.190	0.320	84.6	2514	1470	1676	113345
SO-1 phen 11	Santiago	39.54	44.68	15.03	0.231	0.199	0.315	84.1	2478	1541	1653	116907
SO-1 phen 11	Santiago	38.67	40.49	20.09	0.289	0.276	0.190	78.2	1496	2135	2065	156192
SO-1 phen 11	Santiago	39.64	44.98	14.64	0.231	0.189	0.322	84.6	2528	1465	1654	113844
SO-1 phen 14	Santiago	39.68	45.63	13.91	0.241	0.176	0.355	85.4	2789	1360	1720	108178
SO-1 phen 14	Santiago	39.78	45.95	13.49	0.244	0.173	0.358	85.9	2810	1341	1746	104912
SO-1 phen 14	Santiago	39.76	46.01	13.47	0.234	0.168	0.351	85.9	2758	1303	1674	104742
SO-1 phen 15	Santiago	39.33	44.56	15.36	0.231	0.201	0.316	83.8	2478	1560	1648	119453
SO-1 phen 15	Santiago	39.33	44.46	15.48	0.231	0.195	0.307	83.7	2413	1510	1653	120384
SO-1 phen 15	Santiago	39.19	43.85	16.22	0.247	0.213	0.275	82.8	2157	1648	1764	126127
SO-1 phen 15	Santiago	38.60	41.00	19.63	0.313	0.264	0.189	78.8	1488	2044	2238	152642
SO-1 phen 16	Santiago	39.36	44.82	15.08	0.226	0.189	0.320	84.1	2516	1462	1615	117281
SO-1 phen 16	Santiago	39.37	44.57	15.34	0.227	0.200	0.304	83.8	2385	1546	1626	119247
SO-1 phen 16	Santiago	39.17	43.75	16.37	0.236	0.211	0.269	82.7	2111	1637	1690	127287
SO-1 phen 16	Santiago	38.56	41.06	19.64	0.287	0.264	0.188	78.8	1475	2048	2055	152686
SO-1 phen 17	Santiago	39.41	44.73	15.11	0.230	0.196	0.323	84.1	2538	1515	1646	117504
SO-1 phen 17	Santiago	39.08	43.33	16.86	0.236	0.216	0.280	82.1	2196	1676	1686	131117
SO-1 phen 17	Santiago	39.30	44.36	15.59	0.231	0.201	0.314	83.5	2466	1560	1654	121248
SO-1 phen 17	Santiago	38.78	41.09	19.34	0.299	0.260	0.220	79.1	1725	2015	2137	150424
SO-1 phen 18	Santiago	39.26	43.82	16.21	0.239	0.208	0.266	82.8	2086	1612	1707	126033
SO-1 phen 18	Santiago	39.06	42.93	17.30	0.249	0.222	0.240	81.6	1889	1718	1778	134530
SO-1 phen 18	Santiago	38.80	41.15	19.28	0.306	0.266	0.204	79.2	1601	2062	2189	149926
SO-1 phen 19	Santiago	39.12	43.30	16.85	0.249	0.221	0.256	82.1	2008	1709	1778	131038
SO-1 phen 20	Santiago	39.35	44.45	15.44	0.256	0.201	0.309	83.7	2429	1557	1831	120037

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SO-1 phen 20	Santiago	39.47	44.63	15.15	0.233	0.196	0.316	84.0	2484	1521	1664	117820
SO-1 phen 20	Santiago	39.34	44.22	15.72	0.231	0.200	0.291	83.4	2284	1547	1654	122217
SO-1 phen 20	Santiago	38.98	42.62	17.70	0.241	0.231	0.234	81.1	1841	1785	1722	137611
SN91-36 phen 1	Sierra Negra	39.22	42.62	17.48	0.272	0.219	0.186	81.3	1463	1698	1946	135907
SN91-36 phen 1	Sierra Negra	39.37	42.71	17.26	0.256	0.224	0.183	81.5	1441	1735	1833	134179
SN91-36 phen 1	Sierra Negra	39.34	42.64	17.37	0.251	0.223	0.177	81.4	1392	1725	1796	135066
SN91-36 phen 1	Sierra Negra	39.00	40.55	19.81	0.259	0.250	0.133	78.5	1042	1935	1850	154047
SN91-36 phen 1	Sierra Negra	39.32	42.61	17.41	0.259	0.223	0.170	81.4	1338	1727	1852	135394
SN91-36 phen 2	Sierra Negra	39.43	42.24	17.69	0.254	0.225	0.165	81.0	1298	1744	1815	137541
SN91-36 phen 2	Sierra Negra	39.23	42.06	18.05	0.266	0.239	0.157	80.6	1237	1847	1904	140392
SN91-36 phen 2	Sierra Negra	39.42	42.42	17.50	0.262	0.229	0.171	81.2	1346	1775	1877	136044
SN91-36 phen 3	Sierra Negra	39.50	42.36	17.50	0.237	0.222	0.180	81.2	1410	1716	1692	136101
SN91-36 phen 3	Sierra Negra	39.53	42.18	17.63	0.253	0.229	0.177	81.0	1392	1776	1812	137076
SN91-36 phen 3	Sierra Negra	39.50	42.67	17.18	0.245	0.214	0.184	81.6	1446	1660	1753	133631
SN91-36 phen 4	Sierra Negra	39.47	42.09	17.79	0.266	0.231	0.156	80.8	1227	1790	1905	138313
SN91-36 phen 4	Sierra Negra	39.32	41.80	18.21	0.266	0.238	0.159	80.4	1245	1845	1904	141614
SN91-36 phen 4	Sierra Negra	39.26	41.57	18.51	0.270	0.245	0.145	80.0	1140	1895	1932	143960
SN91-36 phen 4	Sierra Negra	39.63	42.43	17.29	0.261	0.226	0.162	81.4	1274	1751	1868	134486
SN91-36 phen 5	Sierra Negra	39.66	41.77	17.95	0.235	0.231	0.155	80.6	1218	1788	1678	139577
SN91-36 phen 5	Sierra Negra	39.55	41.73	18.09	0.244	0.239	0.149	80.4	1172	1849	1746	140667
SN91-36 phen 5	Sierra Negra	39.61	41.80	17.96	0.244	0.233	0.155	80.6	1216	1805	1745	139635
SN91-36 phen 5	Sierra Negra	39.67	42.06	17.64	0.248	0.232	0.155	81.0	1215	1799	1775	137133
SN91-36 phen 7	Sierra Negra	39.62	42.10	17.64	0.240	0.222	0.179	81.0	1407	1723	1719	137172
SN91-36 phen 7	Sierra Negra	39.64	41.66	18.06	0.238	0.233	0.158	80.4	1245	1806	1702	140457
SN91-36 phen 7	Sierra Negra	39.54	41.05	18.78	0.249	0.243	0.136	79.6	1067	1886	1779	146050
SN91-36 phen 7	Sierra Negra	39.69	41.51	18.16	0.254	0.240	0.149	80.3	1168	1860	1816	141194
SN91-36 phen 9	Sierra Negra	39.46	41.12	18.80	0.241	0.238	0.145	79.6	1141	1847	1722	146156
SN91-36 phen 9	Sierra Negra	39.38	41.17	18.82	0.243	0.246	0.144	79.6	1131	1902	1736	146322
SN91-36 phen 9	Sierra Negra	39.76	42.55	17.04	0.238	0.216	0.192	81.7	1508	1671	1704	132528
SN91-36 phen 9	Sierra Negra	39.78	42.90	16.66	0.247	0.219	0.189	82.1	1485	1694	1769	129552
SN91-36 phen 9	Sierra Negra	39.74	42.51	17.09	0.270	0.227	0.168	81.6	1322	1762	1934	132898
SN91-36 phen 10	Sierra Negra	39.59	42.45	17.32	0.246	0.218	0.179	81.4	1407	1687	1756	134657
SN91-36 phen 10	Sierra Negra	39.69	42.51	17.16	0.244	0.222	0.172	81.5	1353	1717	1746	133421

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
SN91-36 phen 10	Sierra Negra	39.61	42.49	17.26	0.252	0.225	0.166	81.4	1305	1747	1800	134235
SN91-36 phen 10	Sierra Negra	39.56	41.97	17.81	0.261	0.242	0.153	80.8	1205	1872	1867	138484
SN91-36 phen 11	Sierra Negra	39.42	41.96	17.99	0.240	0.222	0.166	80.6	1302	1719	1719	139899
SN91-36 phen 11	Sierra Negra	39.37	42.38	17.62	0.238	0.218	0.169	81.1	1325	1685	1699	137050
SN91-36 phen 11	Sierra Negra	39.53	42.57	17.26	0.242	0.220	0.179	81.5	1406	1706	1733	134223
SN91-36 phen 13	Sierra Negra	39.20	41.20	18.95	0.265	0.247	0.136	79.5	1071	1913	1896	147337
SN91-36 phen 13	Sierra Negra	39.51	42.28	17.56	0.265	0.224	0.165	81.1	1297	1734	1894	136542
SN91-36 phen 13	Sierra Negra	39.32	41.40	18.53	0.324	0.233	0.195	79.9	1534	1804	2314	144071
SN91-36 phen 13	Sierra Negra	39.24	40.93	19.10	0.289	0.241	0.194	79.3	1526	1867	2065	148507
SN91-36 phen 13	Sierra Negra	39.42	42.29	17.65	0.245	0.216	0.179	81.0	1403	1676	1751	137282
SN91-36 phen 13	Sierra Negra	39.39	42.01	17.95	0.253	0.232	0.164	80.7	1289	1795	1809	139543
SN91-36 phen 14	Sierra Negra	39.69	42.58	17.13	0.219	0.206	0.181	81.6	1418	1596	1569	133208
SN91-36 phen 14	Sierra Negra	39.64	42.53	17.21	0.229	0.211	0.177	81.5	1387	1637	1638	133799
SN91-36 phen 14	Sierra Negra	39.50	42.43	17.43	0.250	0.222	0.163	81.3	1283	1719	1787	135537
SN91-36 phen 14	Sierra Negra	39.07	40.59	19.68	0.285	0.262	0.110	78.6	865	2029	2039	153017
SN91-36 phen 15	Sierra Negra	38.61	38.90	21.78	0.288	0.298	0.135	76.1	1059	2308	2060	169339
SN91-36 phen 15	Sierra Negra	39.16	41.55	18.65	0.232	0.236	0.174	79.9	1365	1832	1658	145053
SN91-36 phen 15	Sierra Negra	39.30	41.79	18.28	0.235	0.234	0.164	80.3	1288	1810	1681	142137
SN91-36 phen 15	Sierra Negra	39.01	40.69	19.65	0.248	0.250	0.151	78.7	1183	1936	1771	152821
OP226 phen 1	Volcan Darwin	39.03	41.48	18.82	0.236	0.260	0.174	79.7	1370	2015	1686	146368
OP226 phen 1	Volcan Darwin	39.08	41.20	19.04	0.239	0.260	0.182	79.4	1432	2016	1708	148078
OP226 phen 1	Volcan Darwin	38.99	41.26	19.09	0.226	0.254	0.182	79.4	1428	1971	1618	148430
OP226 phen 1	Volcan Darwin	38.96	41.08	19.28	0.242	0.265	0.177	79.2	1390	2056	1728	149905
OP226 phen 2	Volcan Darwin	39.09	41.85	18.41	0.214	0.242	0.202	80.2	1583	1873	1529	143142
OP226 phen 2	Volcan Darwin	39.05	41.85	18.44	0.217	0.245	0.200	80.2	1573	1898	1553	143359
OP226 phen 2	Volcan Darwin	39.04	41.84	18.46	0.215	0.246	0.201	80.2	1580	1909	1538	143518
OP226 phen 2	Volcan Darwin	38.98	41.71	18.66	0.219	0.249	0.190	79.9	1495	1930	1569	145085
OP226 phen 2	Volcan Darwin	38.71	40.26	20.35	0.248	0.269	0.162	77.9	1275	2083	1775	158254
OP226 phen 3	Volcan Darwin	38.98	41.47	18.88	0.223	0.255	0.187	79.7	1472	1976	1598	146821
OP226 phen 3	Volcan Darwin	38.89	41.38	19.06	0.227	0.257	0.185	79.5	1452	1993	1624	148196
OP226 phen 3	Volcan Darwin	38.82	41.42	19.09	0.231	0.258	0.177	79.5	1391	1997	1649	148473
OP226 phen 3	Volcan Darwin	38.25	39.05	21.98	0.278	0.310	0.127	76.0	1000	2401	1991	170903
OP226 phen 3	Volcan Darwin	36.65	31.41	31.06	0.314	0.464	0.098	64.3	773	3595	2243	241503

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
OP226 phen 4	Volcan Darwin	38.97	40.94	19.42	0.234	0.267	0.165	79.0	1294	2065	1674	151047
OP226 phen 4	Volcan Darwin	38.82	40.81	19.71	0.235	0.272	0.160	78.7	1254	2110	1683	153256
OP226 phen 4	Volcan Darwin	38.79	40.82	19.72	0.236	0.275	0.159	78.7	1246	2132	1686	153345
OP226 phen 4	Volcan Darwin	38.56	39.26	21.45	0.287	0.303	0.141	76.5	1111	2348	2049	166804
OP226 phen 4	Volcan Darwin	38.43	38.50	22.38	0.270	0.304	0.127	75.4	996	2355	1934	174005
OP226 phen 6	Volcan Darwin	39.17	41.67	18.50	0.215	0.247	0.202	80.1	1584	1916	1535	143825
OP226 phen 6	Volcan Darwin	39.20	41.58	18.55	0.218	0.250	0.201	80.0	1578	1934	1560	144255
OP226 phen 6	Volcan Darwin	39.10	41.51	18.71	0.219	0.249	0.199	79.8	1567	1931	1569	145521
OP226 phen 6	Volcan Darwin	39.11	40.92	19.31	0.223	0.257	0.181	79.1	1420	1994	1594	150166
OP226 phen 6	Volcan Darwin	38.37	36.18	24.60	0.399	0.355	0.102	72.4	799	2751	2854	191285
OP226 phen 8	Volcan Darwin	39.32	41.22	18.80	0.233	0.253	0.181	79.6	1424	1957	1669	146161
OP226 phen 8	Volcan Darwin	39.17	40.41	19.75	0.237	0.268	0.161	78.5	1268	2080	1692	153596
OP226 phen 8	Volcan Darwin	39.19	40.17	19.97	0.231	0.277	0.163	78.2	1282	2147	1654	155294
OP226 phen 8	Volcan Darwin	38.94	39.18	21.18	0.259	0.295	0.136	76.7	1071	2286	1850	164711
OP226 phen 9	Volcan Darwin	39.18	41.21	18.95	0.219	0.252	0.190	79.5	1490	1953	1568	147354
OP226 phen 9	Volcan Darwin	39.20	41.01	19.13	0.220	0.254	0.184	79.3	1444	1968	1571	148754
OP226 phen 9	Volcan Darwin	39.10	40.91	19.33	0.221	0.261	0.178	79.1	1400	2020	1583	150292
OP226 phen 9	Volcan Darwin	38.93	40.11	20.28	0.236	0.281	0.159	77.9	1253	2173	1684	157663
OP226 phen 9	Volcan Darwin	38.59	38.55	22.16	0.261	0.314	0.128	75.6	1007	2432	1868	172301
OP226 phen 10	Volcan Darwin	38.76	38.91	21.65	0.257	0.306	0.124	76.2	970	2372	1834	168341
OP226 phen 10	Volcan Darwin	38.72	38.89	21.71	0.252	0.312	0.121	76.2	949	2419	1800	168806
OP226 phen 10	Volcan Darwin	38.65	38.09	22.57	0.259	0.325	0.107	75.1	839	2518	1852	175508
OP226 phen 10	Volcan Darwin	36.50	30.18	32.32	0.411	0.526	0.060	62.5	474	4076	2941	251336
OP226 phen 12	Volcan Darwin	39.26	41.09	18.98	0.220	0.257	0.189	79.4	1482	1988	1576	147604
OP226 phen 12	Volcan Darwin	39.20	41.07	19.07	0.219	0.259	0.189	79.3	1484	2005	1567	148253
OP226 phen 12	Volcan Darwin	39.32	40.87	19.14	0.235	0.261	0.176	79.2	1381	2022	1677	148827
OP226 phen 12	Volcan Darwin	38.90	40.02	20.41	0.231	0.270	0.162	77.8	1274	2088	1653	158726
OP226 phen 12	Volcan Darwin	38.19	36.61	24.44	0.314	0.347	0.095	72.8	747	2688	2245	190077
OP226 phen 14	Volcan Darwin	39.08	40.38	19.86	0.228	0.288	0.166	78.4	1302	2232	1631	154416
OP226 phen 14	Volcan Darwin	38.88	39.35	21.07	0.255	0.307	0.136	76.9	1067	2380	1824	163840
OP226 phen 14	Volcan Darwin	38.24	36.92	24.06	0.299	0.368	0.115	73.2	904	2849	2135	187104
OP226 phen 18	Volcan Darwin	38.96	41.22	19.15	0.233	0.269	0.171	79.3	1344	2086	1663	148894
OP226 phen 18	Volcan Darwin	39.13	40.96	19.24	0.229	0.272	0.168	79.1	1323	2107	1634	149648

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
OP226 phen 18	Volcan Darwin	38.48	37.43	23.39	0.265	0.331	0.111	74.0	872	2566	1895	181846
OP226 phen 19	Volcan Darwin	39.24	41.88	18.20	0.224	0.258	0.200	80.4	1569	1996	1603	141524
OP226 phen 19	Volcan Darwin	39.29	41.79	18.25	0.219	0.253	0.203	80.3	1592	1960	1563	141875
OP226 phen 19	Volcan Darwin	39.31	41.76	18.26	0.215	0.254	0.197	80.3	1549	1964	1534	142004
OP226 phen 19	Volcan Darwin	39.32	41.69	18.33	0.212	0.254	0.195	80.2	1530	1965	1516	142520
OP226 phen 19	Volcan Darwin	38.76	39.35	21.19	0.252	0.297	0.138	76.8	1084	2301	1801	164813
OP226 phen 21	Volcan Darwin	39.55	41.48	18.31	0.214	0.255	0.183	80.2	1434	1977	1529	142388
OP226 phen 21	Volcan Darwin	39.20	41.73	18.41	0.216	0.258	0.187	80.2	1470	2002	1545	143151
OP226 phen 21	Volcan Darwin	39.07	41.47	18.78	0.222	0.264	0.186	79.7	1462	2042	1585	146059
OP226 phen 21	Volcan Darwin	38.43	38.03	22.77	0.323	0.329	0.109	74.9	860	2548	2310	177079
OP226 phen 22	Volcan Darwin	38.78	40.25	20.31	0.216	0.285	0.161	77.9	1264	2210	1543	157937
OP226 phen 22	Volcan Darwin	38.74	39.97	20.62	0.226	0.286	0.158	77.6	1239	2212	1613	160322
OP226 phen 22	Volcan Darwin	38.77	39.92	20.64	0.232	0.292	0.145	77.5	1141	2264	1656	160477
OP226 phen 22	Volcan Darwin	38.77	39.56	20.99	0.241	0.296	0.139	77.1	1090	2292	1724	163258
OP226 phen 24	Volcan Darwin	38.75	39.42	21.13	0.262	0.312	0.127	76.9	995	2416	1870	164271
OP226 phen 24	Volcan Darwin	38.70	39.46	21.18	0.237	0.297	0.132	76.9	1033	2299	1691	164660
OP226 phen 24	Volcan Darwin	38.73	39.42	21.19	0.230	0.307	0.126	76.8	991	2374	1646	164779
OP226 phen 24	Volcan Darwin	38.69	39.36	21.27	0.250	0.305	0.129	76.7	1014	2366	1788	165358
OP226 phen 24	Volcan Darwin	38.58	38.96	21.76	0.258	0.319	0.122	76.1	958	2471	1844	169200
OP226 phen 25	Volcan Darwin	38.79	40.61	19.94	0.233	0.281	0.147	78.4	1154	2175	1663	155055
OP226 phen 25	Volcan Darwin	38.65	40.36	20.31	0.233	0.287	0.162	78.0	1271	2225	1666	157894
OP226 phen 25	Volcan Darwin	38.79	39.99	20.55	0.238	0.291	0.150	77.6	1177	2255	1704	159773
OP226 phen 25	Volcan Darwin	38.38	38.95	21.97	0.264	0.315	0.128	76.0	1007	2443	1886	170809
OP226 phen 25	Volcan Darwin	38.24	38.44	22.57	0.259	0.329	0.148	75.2	1166	2547	1853	175539
OP226 phen 28	Volcan Darwin	38.99	41.45	18.89	0.225	0.265	0.179	79.6	1403	2056	1606	146877
OP226 phen 28	Volcan Darwin	38.95	41.25	19.13	0.227	0.267	0.169	79.4	1331	2070	1624	148789
OP226 phen 28	Volcan Darwin	38.86	41.04	19.43	0.232	0.275	0.167	79.0	1314	2128	1656	151082
OP226 phen 28	Volcan Darwin	38.55	39.74	21.04	0.235	0.292	0.145	77.1	1135	2258	1682	163634
OP226 phen 28	Volcan Darwin	35.96	28.36	34.72	0.321	0.580	0.056	59.3	443	4489	2294	269994
[1]E95-01 phen 1	Volcan Ecuador	40.14	43.89	15.52		0.206	0.242	83.4	1898	1598		120682
[1]E95-01 phen 1	Volcan Ecuador	40.19	43.99	15.39		0.198	0.237	83.6	1862	1536		119649
[1]E95-01 phen 1	Volcan Ecuador	40.14	43.90	15.53		0.198	0.235	83.4	1847	1533		120728
[1]E95-01 phen 1	Volcan Ecuador	40.30	44.17	15.08		0.214	0.240	83.9	1889	1654		117262

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E95-01 phen 1	Volcan Ecuador	39.88	43.92	15.75	0.233	0.215		83.3		1662	1667	122469
[2]E95-01 phen 1	Volcan Ecuador	40.30	44.53	14.68	0.273	0.212		84.4		1644	1949	114163
[1]E95-01 phen 2	Volcan Ecuador	40.37	44.19	15.01		0.196	0.241	84.0	1890	1519		116705
[2]E95-01 phen 2	Volcan Ecuador	40.32	44.44	14.80	0.234	0.204		84.3		1579	1672	115093
[1]E95-01 phen 4	Volcan Ecuador	40.36	45.09	14.07		0.190	0.282	85.1	2216	1474		109434
[1]E95-01 phen 4	Volcan Ecuador	40.29	44.37	14.91		0.198	0.239	84.1	1880	1532		115908
[1]E95-01 phen 4	Volcan Ecuador	40.35	44.30	14.92		0.201	0.238	84.1	1866	1554		115989
[2]E95-01 phen 4	Volcan Ecuador	39.55	45.47	14.55	0.237	0.194		84.8		1505	1697	113114
[2]E95-01 phen 4	Volcan Ecuador	40.26	44.44	14.87	0.236	0.203		84.2		1572	1690	115593
[2]E95-01 phen 4	Volcan Ecuador	40.30	44.49	14.78	0.235	0.200		84.3		1548	1680	114910
[2]E95-01 phen 5	Volcan Ecuador	40.32	44.62	14.63	0.241	0.202		84.5		1566	1722	113737
[2]E95-01 phen 5	Volcan Ecuador	39.80	42.00	17.67	0.272	0.256		80.9		1984	1945	137417
[2]E95-01 phen 6	Volcan Ecuador	40.07	43.88	15.58	0.258	0.217		83.4		1679	1843	121129
[1]E95-01 phen 7	Volcan Ecuador	40.24	43.88	15.48		0.199	0.206	83.5	1616	1544		120361
[2]E95-01 phen 7	Volcan Ecuador	39.98	44.03	15.55	0.230	0.210		83.5		1629	1647	120933
[1]E95-01 phen 8	Volcan Ecuador	40.15	43.37	16.04		0.214	0.223	82.8	1750	1654		124748
[2]E95-01 phen 8	Volcan Ecuador	40.09	43.39	16.08	0.220	0.217		82.8		1680	1570	125008
[1]E95-01 phen 9	Volcan Ecuador	40.42	44.78	14.34		0.198	0.263	84.8	2067	1533		111499
[2]E95-01 phen 9	Volcan Ecuador	40.18	44.93	14.45	0.246	0.196		84.7		1521	1758	112363
[1]E95-01 phen 10	Volcan Ecuador	40.16	44.05	15.37		0.204	0.218	83.6	1713	1581		119536
[2]E95-01 phen 10	Volcan Ecuador	39.96	44.10	15.48	0.254	0.204		83.5		1580	1816	120395
[1]E95-01 phen 11	Volcan Ecuador	40.14	44.04	15.40		0.205	0.220	83.6	1731	1585		119719
[2]E95-01 phen 11	Volcan Ecuador	39.88	43.80	15.88	0.232	0.219		83.1		1693	1656	123462
[1]E95-01 phen 12	Volcan Ecuador	40.13	43.80	15.65		0.206	0.206	83.3	1622	1593		121728
[2]E95-01 phen 12	Volcan Ecuador	39.92	44.09	15.55	0.232	0.213		83.5		1649	1658	120882
[1]E95-01 phen 13	Volcan Ecuador	40.26	44.20	15.13		0.200	0.213	83.9	1669	1548		117673
[2]E95-01 phen 13	Volcan Ecuador	40.07	44.64	14.83	0.252	0.201		84.3		1556	1804	115313
[1]E95-01 phen 17	Volcan Ecuador	40.40	44.70	14.45		0.194	0.258	84.7	2025	1500		112332
[2]E95-01 phen 17	Volcan Ecuador	40.13	44.72	14.72	0.235	0.197		84.4		1528	1682	114476
[1]E95-01 phen 18	Volcan Ecuador	40.60	45.82	13.09		0.179	0.304	86.2	2389	1388		101806
[1]E95-01 phen 18	Volcan Ecuador	40.63	45.89	12.99		0.174	0.317	86.3	2491	1348		101036
[1]E95-01 phen 18	Volcan Ecuador	40.53	45.65	13.35		0.180	0.291	85.9	2287	1395		103778
[1]E95-01 phen 18	Volcan Ecuador	39.79	42.01	17.78		0.253	0.167	80.8	1313	1961		138264

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E95-01 phen 18	Volcan Ecuador	40.38	45.93	13.26	0.254	0.185		86.1		1436	1819	103073
[2]E95-01 phen 18	Volcan Ecuador	40.36	45.92	13.28	0.254	0.186		86.0		1444	1813	103251
[2]E95-01 phen 18	Volcan Ecuador	40.34	45.76	13.46	0.252	0.184		85.8		1425	1800	104694
[2]E95-01 phen 18	Volcan Ecuador	39.54	42.36	17.51	0.349	0.249		81.2		1930	2493	136142
[1]E95-01 phen 19	Volcan Ecuador	40.29	44.53	14.75		0.197	0.225	84.3	1767	1530		114735
[2]E95-01 phen 19	Volcan Ecuador	40.01	44.42	15.11	0.254	0.207		84.0		1600	1813	117529
[1]E95-01 phen 20	Volcan Ecuador	40.25	43.86	15.49		0.209	0.189	83.5	1483	1622		120440
[1]E95-01 phen 20	Volcan Ecuador	40.38	44.39	14.79		0.200	0.237	84.3	1862	1548		115019
[1]E95-01 phen 20	Volcan Ecuador	40.44	44.56	14.56		0.198	0.233	84.5	1830	1537		113255
[1]E95-01 phen 20	Volcan Ecuador	40.41	44.58	14.58		0.195	0.230	84.5	1810	1514		113383
[2]E95-01 phen 20	Volcan Ecuador	39.86	43.93	15.75	0.243	0.219		83.3		1698	1735	122493
[2]E95-01 phen 21	Volcan Ecuador	39.84	44.20	15.53	0.233	0.206		83.5		1599	1666	120725
[2]E95-01 phen 21	Volcan Ecuador	39.90	44.17	15.47	0.255	0.210		83.6		1623	1821	120305
[2]E95-01 phen 21	Volcan Ecuador	40.01	44.57	14.98	0.242	0.205		84.1		1590	1729	116462
[2]E95-01 phen 21	Volcan Ecuador	40.02	44.60	14.93	0.249	0.204		84.2		1577	1778	116070
[2]E95-01 phen 21	Volcan Ecuador	40.04	44.80	14.71	0.241	0.203		84.4		1570	1725	114389
[2]E95-01 phen 21	Volcan Ecuador	39.88	44.62	15.04	0.249	0.206		84.1		1598	1779	116978
[1]E95-01 phen 22	Volcan Ecuador	40.54	45.57	13.43		0.182	0.279	85.8	2191	1408		104407
[1]E95-01 phen 22	Volcan Ecuador	40.54	45.35	13.65		0.177	0.279	85.6	2190	1372		106125
[1]E95-01 phen 22	Volcan Ecuador	40.49	45.15	13.91		0.185	0.277	85.3	2173	1432		108127
[1]E95-01 phen 22	Volcan Ecuador	40.41	44.86	14.27		0.192	0.267	84.9	2098	1489		110964
[1]E95-01 phen 22	Volcan Ecuador	40.36	44.48	14.72		0.200	0.242	84.3	1902	1552		114455
[2]E95-01 phen 22	Volcan Ecuador	40.11	45.63	13.83	0.248	0.187		85.5		1450	1774	107515
[2]E95-01 phen 22	Volcan Ecuador	40.09	45.41	14.06	0.247	0.195		85.2		1508	1764	109302
[2]E95-01 phen 22	Volcan Ecuador	40.04	45.21	14.31	0.244	0.195		84.9		1509	1746	111243
[2]E95-01 phen 22	Volcan Ecuador	39.96	44.98	14.62	0.247	0.200		84.6		1548	1764	113650
[2]E95-01 phen 22	Volcan Ecuador	39.83	44.64	15.08	0.244	0.203		84.1		1574	1745	117279
[2]E95-01 phen 22	Volcan Ecuador	39.97	44.95	14.62	0.260	0.205		84.6		1586	1858	113652
[1]E95-01 phen 23	Volcan Ecuador	40.62	45.54	13.36		0.183	0.286	85.9	2247	1419		103910
[1]E95-01 phen 23	Volcan Ecuador	40.61	45.62	13.30		0.180	0.289	85.9	2269	1397		103436
[1]E95-01 phen 23	Volcan Ecuador	40.61	45.67	13.25		0.177	0.296	86.0	2328	1374		103032
[1]E95-01 phen 23	Volcan Ecuador	40.64	45.74	13.14		0.178	0.304	86.1	2389	1379		102183
[1]E95-01 phen 23	Volcan Ecuador	40.59	45.56	13.37		0.178	0.297	85.9	2335	1377		103985

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]E95-01 phen 23	Volcan Ecuador	40.47	44.91	14.16		0.193	0.267	85.0	2094	1493		110102
[2]E95-01 phen 23	Volcan Ecuador	40.21	45.71	13.64	0.254	0.189		85.7		1465	1819	106038
[2]E95-01 phen 23	Volcan Ecuador	40.28	45.71	13.57	0.254	0.188		85.7		1453	1817	105530
[2]E95-01 phen 23	Volcan Ecuador	40.24	45.78	13.53	0.255	0.189		85.8		1465	1820	105218
[2]E95-01 phen 23	Volcan Ecuador	40.26	45.84	13.46	0.253	0.186		85.9		1439	1810	104660
[2]E95-01 phen 23	Volcan Ecuador	40.27	45.90	13.40	0.251	0.182		85.9		1412	1795	104217
[2]E95-01 phen 23	Volcan Ecuador	40.19	45.51	13.86	0.250	0.194		85.4		1501	1790	107743
[1]E95-01 phen 24	Volcan Ecuador	40.34	44.13	15.09		0.202	0.228	83.9	1794	1564		117379
[1]E95-01 phen 24	Volcan Ecuador	40.32	44.19	15.06		0.200	0.227	83.9	1783	1547		117140
[1]E95-01 phen 24	Volcan Ecuador	40.44	44.65	14.47		0.190	0.248	84.6	1949	1472		112541
[1]E95-01 phen 24	Volcan Ecuador	40.31	44.19	15.06		0.203	0.232	83.9	1818	1574		117123
[1]E95-01 phen 24	Volcan Ecuador	40.18	43.63	15.77		0.207	0.213	83.1	1669	1602		122636
[2]E95-01 phen 24	Volcan Ecuador	39.96	44.46	15.13	0.239	0.205		84.0		1585	1712	117661
[2]E95-01 phen 24	Volcan Ecuador	39.92	44.41	15.23	0.241	0.205		83.9		1585	1721	118391
[2]E95-01 phen 24	Volcan Ecuador	39.88	44.43	15.24	0.246	0.202		83.9		1564	1755	118530
[2]E95-01 phen 24	Volcan Ecuador	39.75	43.96	15.84	0.233	0.214		83.2		1654	1663	123198
[2]E95-01 phen 24	Volcan Ecuador	39.83	44.09	15.62	0.242	0.212		83.4		1642	1730	121483
[1]E95-02 phen 1	Volcan Ecuador	40.39	44.65	14.55		0.196	0.219	84.5	1722	1515		113113
[2]E95-02 phen 1	Volcan Ecuador	40.17	44.66	14.70	0.263	0.205		84.4		1586	1880	114346
[1]E95-02 phen 2	Volcan Ecuador	40.40	45.34	13.83		0.194	0.235	85.4	1842	1502		107546
[1]E95-02 phen 2	Volcan Ecuador	40.18	44.09	15.29		0.204	0.240	83.7	1883	1581		118895
[1]E95-02 phen 3	Volcan Ecuador	40.29	44.69	14.59		0.198	0.236	84.5	1854	1530		113464
[2]E95-02 phen 3	Volcan Ecuador	39.52	44.98	15.06	0.250	0.199		84.2		1539	1787	117085
[1]E95-02 phen 4	Volcan Ecuador	40.26	44.53	14.77		0.195	0.244	84.3	1913	1512		114882
[2]E95-02 phen 4	Volcan Ecuador	39.63	44.65	15.27	0.245	0.209		83.9		1618	1752	118708
[2]E95-02 phen 4	Volcan Ecuador	39.60	44.64	15.31	0.246	0.209		83.9		1617	1756	119061
[2]E95-02 phen 4	Volcan Ecuador	39.62	44.55	15.38	0.238	0.210		83.8		1628	1703	119599
[2]E95-02 phen 4	Volcan Ecuador	39.63	44.53	15.40	0.231	0.212		83.7		1640	1649	119769
[2]E95-02 phen 4	Volcan Ecuador	39.50	43.96	16.04	0.277	0.223		83.0		1728	1978	124734
[1]E95-02 phen 5	Volcan Ecuador	40.56	45.15	13.83		0.191	0.258	85.3	2024	1481		107568
[1]E95-02 phen 5	Volcan Ecuador	40.54	45.26	13.74		0.194	0.266	85.4	2091	1502		106853
[1]E95-02 phen 5	Volcan Ecuador	40.52	45.36	13.65		0.186	0.274	85.6	2153	1441		106177
[1]E95-02 phen 5	Volcan Ecuador	40.52	45.45	13.56		0.187	0.278	85.7	2180	1450		105479

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]E95-02 phen 5	Volcan Ecuador	40.48	45.45	13.59		0.187	0.295	85.6	2319	1447		105699
[2]E95-02 phen 5	Volcan Ecuador	39.79	45.44	14.33	0.242	0.195		85.0		1508	1729	111416
[2]E95-02 phen 5	Volcan Ecuador	39.92	45.54	14.10	0.245	0.195		85.2		1510	1751	109656
[2]E95-02 phen 5	Volcan Ecuador	39.90	45.64	14.03	0.245	0.189		85.3		1461	1748	109079
[2]E95-02 phen 5	Volcan Ecuador	39.59	44.46	15.45	0.282	0.217		83.7		1678	2014	120169
[1]E95-02 phen 6	Volcan Ecuador	40.56	45.25	13.73		0.188	0.278	85.5	2184	1456		106754
[1]E95-02 phen 6	Volcan Ecuador	40.51	45.28	13.75		0.186	0.278	85.4	2186	1440		106901
[1]E95-02 phen 6	Volcan Ecuador	40.51	45.32	13.71		0.185	0.277	85.5	2172	1431		106620
[1]E95-02 phen 6	Volcan Ecuador	40.39	45.57	13.57		0.190	0.282	85.7	2212	1470		105537
[1]E95-02 phen 7	Volcan Ecuador	40.05	43.09	16.45		0.216	0.187	82.4	1466	1673		127933
[1]E95-02 phen 7	Volcan Ecuador	40.03	43.12	16.44		0.216	0.187	82.4	1465	1673		127877
[1]E95-02 phen 7	Volcan Ecuador	40.05	43.06	16.49		0.216	0.187	82.3	1467	1672		128250
[1]E95-02 phen 7	Volcan Ecuador	40.06	42.93	16.61		0.220	0.185	82.2	1449	1707		129145
[1]E95-02 phen 7	Volcan Ecuador	39.86	42.17	17.55		0.238	0.178	81.1	1400	1840		136496
[2]E95-02 phen 7	Volcan Ecuador	39.26	43.36	16.91	0.247	0.222		82.1		1718	1766	131472
[2]E95-02 phen 7	Volcan Ecuador	39.26	43.31	16.98	0.233	0.222		82.0		1722	1663	132028
[2]E95-02 phen 7	Volcan Ecuador	39.27	43.16	17.13	0.219	0.229		81.8		1777	1562	133201
[2]E95-02 phen 7	Volcan Ecuador	39.25	43.00	17.32	0.206	0.227		81.6		1762	1470	134648
[1]E95-02 phen 8	Volcan Ecuador	40.44	44.99	14.15		0.196	0.220	85.0	1729	1515		110056
[1]E95-02 phen 8	Volcan Ecuador	40.40	44.83	14.35		0.193	0.221	84.8	1737	1495		111622
[1]E95-02 phen 8	Volcan Ecuador	40.44	44.73	14.41		0.192	0.219	84.7	1722	1489		112086
[1]E95-02 phen 8	Volcan Ecuador	40.39	44.76	14.43		0.199	0.223	84.7	1753	1538		112198
[1]E95-02 phen 8	Volcan Ecuador	40.41	44.78	14.39		0.196	0.228	84.7	1793	1518		111880
[1]E95-02 phen 8	Volcan Ecuador	40.47	44.93	14.14		0.198	0.251	85.0	1975	1532		109982
[1]E95-02 phen 8	Volcan Ecuador	40.49	44.68	14.40		0.194	0.238	84.7	1869	1505		111976
[1]E95-02 phen 8	Volcan Ecuador	40.43	44.68	14.46		0.198	0.235	84.6	1845	1535		112458
[1]E95-02 phen 8	Volcan Ecuador	40.35	44.83	14.38		0.197	0.241	84.7	1890	1528		111839
[2]E95-02 phen 8	Volcan Ecuador	39.85	44.92	14.74	0.291	0.197		84.5		1522	2079	114635
[2]E95-02 phen 8	Volcan Ecuador	39.75	44.97	14.82	0.260	0.201		84.4		1554	1858	115270
[2]E95-02 phen 8	Volcan Ecuador	39.78	44.87	14.89	0.256	0.203		84.3		1573	1830	115781
[2]E95-02 phen 8	Volcan Ecuador	39.76	44.95	14.83	0.251	0.205		84.4		1585	1792	115319
[2]E95-02 phen 8	Volcan Ecuador	39.69	44.99	14.88	0.238	0.202		84.4		1563	1704	115708
[2]E95-02 phen 8	Volcan Ecuador	39.83	45.30	14.44	0.236	0.197		84.8		1529	1684	112273

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[1]E95-02 phen 9	Volcan Ecuador	40.21	43.99	15.37		0.208	0.218	83.6	1709	1613		119542
[1]E95-02 phen 9	Volcan Ecuador	40.23	43.95	15.39		0.207	0.219	83.6	1722	1606		119707
[1]E95-02 phen 9	Volcan Ecuador	40.23	44.03	15.32		0.206	0.218	83.7	1709	1597		119131
[1]E95-02 phen 9	Volcan Ecuador	40.14	43.47	15.96		0.224	0.201	82.9	1579	1731		124104
[2]E95-02 phen 9	Volcan Ecuador	39.56	44.15	15.85	0.233	0.211		83.2		1635	1665	123225
[1]E95-02 phen 10	Volcan Ecuador	40.34	44.56	14.67		0.198	0.231	84.4	1817	1536		114063
[2]E95-02 phen 10	Volcan Ecuador	39.59	44.88	15.11	0.225	0.200		84.1		1549	1607	117467
[1]E95-02 phen 11	Volcan Ecuador	40.07	43.41	16.11		0.226	0.183	82.8	1438	1750		125290
[1]E95-02 phen 11	Volcan Ecuador	40.46	45.06	14.02		0.198	0.254	85.1	1993	1534		109044
[2]E95-02 phen 11	Volcan Ecuador	39.36	43.64	16.51	0.257	0.232		82.5		1798	1838	128405
[2]E95-02 phen 11	Volcan Ecuador	39.76	45.37	14.43	0.247	0.198		84.9		1535	1766	112234
[2]E95-02 phen 11	Volcan Ecuador	39.70	45.37	14.48	0.247	0.202		84.8		1565	1764	112568
[2]E95-02 phen 11	Volcan Ecuador	39.65	45.36	14.55	0.246	0.199		84.8		1541	1756	113121
[1]E95-02 phen 12	Volcan Ecuador	40.48	45.64	13.39		0.181	0.313	85.9	2455	1402		104155
[1]E95-02 phen 12	Volcan Ecuador	40.59	45.93	12.97		0.175	0.333	86.3	2617	1356		100831
[2]E95-02 phen 12	Volcan Ecuador	39.76	45.27	14.52	0.245	0.198		84.7		1532	1752	112939
[2]E95-02 phen 12	Volcan Ecuador	39.90	45.57	14.08	0.260	0.196		85.2		1518	1857	109454
[2]E95-02 phen 12	Volcan Ecuador	40.13	46.09	13.38	0.229	0.177		86.0		1372	1640	104046
[2]E95-02 phen 12	Volcan Ecuador	40.07	45.85	13.68	0.229	0.178		85.7		1379	1635	106341
[2]E95-02 phen 12	Volcan Ecuador	39.93	45.50	14.16	0.224	0.186		85.1		1441	1604	110124
[2]E95-02 phen 12	Volcan Ecuador	39.95	45.51	14.12	0.228	0.187		85.2		1449	1631	109822
[2]E95-02 phen 12	Volcan Ecuador	39.72	44.56	15.23	0.277	0.215		83.9		1663	1979	118414
[2]E95-02 phen 12	Volcan Ecuador	39.07	41.79	18.54	0.335	0.258		80.1		1997	2398	144178
[1]E95-02 phen 13	Volcan Ecuador	40.42	45.39	13.68		0.182	0.326	85.5	2564	1412		106411
[2]E95-02 phen 13	Volcan Ecuador	39.75	45.10	14.72	0.240	0.194		84.5		1501	1717	114440
[1]E95-02 phen 14	Volcan Ecuador	40.10	43.24	16.22		0.228	0.212	82.6	1662	1763		126121
[2]E95-02 phen 14	Volcan Ecuador	39.93	46.21	13.44	0.240	0.180		86.0		1398	1716	104516
[1]E95-02 phen 15	Volcan Ecuador	40.35	44.93	14.28		0.192	0.250	84.9	1961	1483		111046
[2]E95-02 phen 15	Volcan Ecuador	39.54	44.50	15.52	0.236	0.204		83.6		1578	1689	120664
[1]E95-02 phen 16	Volcan Ecuador	40.52	45.92	13.07		0.179	0.315	86.2	2474	1385		101619
[1]E95-02 phen 16	Volcan Ecuador	40.22	44.30	15.03		0.201	0.251	84.0	1975	1559		116857
[1]E95-02 phen 16	Volcan Ecuador	40.54	45.55	13.44		0.187	0.287	85.8	2257	1449		104509
[1]E95-02 phen 16	Volcan Ecuador	40.61	45.47	13.46		0.175	0.286	85.8	2245	1357		104703

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E95-02 phen 16	Volcan Ecuador	39.88	45.85	13.84	0.247	0.186		85.5		1441	1765	107650
[2]E95-02 phen 16	Volcan Ecuador	39.92	45.82	13.83	0.249	0.182		85.5		1409	1781	107506
[2]E95-02 phen 16	Volcan Ecuador	39.93	45.76	13.88	0.246	0.188		85.5		1456	1759	107893
[2]E95-02 phen 16	Volcan Ecuador	39.89	45.56	14.11	0.245	0.187		85.2		1452	1754	109709
[2]E95-02 phen 16	Volcan Ecuador	39.78	45.12	14.66	0.234	0.200		84.6		1547	1670	114011
[1]E95-02 phen 17	Volcan Ecuador	40.34	44.93	14.24		0.197	0.291	84.9	2285	1525		110759
[2]E95-02 phen 17	Volcan Ecuador	39.71	45.58	14.27	0.246	0.189		85.1		1467	1758	110980
[1]E95-02 phen 18	Volcan Ecuador	40.30	44.46	14.78		0.209	0.239	84.3	1874	1620		114969
[2]E95-02 phen 18	Volcan Ecuador	39.91	45.39	14.25	0.260	0.192		85.0		1485	1856	110816
[1]E95-02 phen 19	Volcan Ecuador	40.43	45.34	13.76		0.190	0.278	85.5	2185	1472		106969
[2]E95-02 phen 19	Volcan Ecuador	39.44	44.38	15.74	0.236	0.203		83.4		1572	1684	122399
[1]E95-02 phen 20	Volcan Ecuador	40.14	44.03	15.40		0.205	0.229	83.6	1797	1585		119715
[2]E95-02 phen 20	Volcan Ecuador	39.50	44.30	15.78	0.224	0.203		83.3		1576	1600	122677
[1]E95-02 phen 22	Volcan Ecuador	39.62	41.55	18.42		0.236	0.182	80.1	1432	1825		143204
[1]E95-02 phen 22	Volcan Ecuador	39.64	41.49	18.44		0.242	0.184	80.0	1441	1875		143423
[1]E95-02 phen 22	Volcan Ecuador	39.66	41.53	18.39		0.242	0.180	80.1	1413	1872		142981
[1]E95-02 phen 22	Volcan Ecuador	40.38	44.85	14.30		0.203	0.260	84.8	2043	1570		111209
[2]E95-02 phen 22	Volcan Ecuador	38.98	41.75	18.83	0.199	0.240		79.8		1855	1420	146453
[2]E95-02 phen 22	Volcan Ecuador	38.97	41.77	18.81	0.204	0.242		79.8		1873	1462	146264
[2]E95-02 phen 22	Volcan Ecuador	39.09	42.12	18.35	0.201	0.244		80.4		1887	1440	142664
[2]E95-02 phen 22	Volcan Ecuador	39.17	42.52	17.87	0.205	0.236		80.9		1829	1464	138969
[2]E95-02 phen 22	Volcan Ecuador	39.08	42.01	18.48	0.200	0.241		80.2		1868	1431	143671
[2]E95-20 phen 1	Volcan Ecuador	39.48	43.58	16.44	0.269	0.231		82.5		1787	1920	127831
[2]E95-20 phen 2	Volcan Ecuador	39.29	42.83	17.35	0.284	0.247		81.5		1913	2032	134936
[2]E95-20 phen 3	Volcan Ecuador	39.59	43.59	16.33	0.271	0.228		82.6		1768	1938	126947
[1]E95-20 phen 4	Volcan Ecuador	40.27	43.71	15.62		0.222	0.185	83.3	1456	1721		121443
[1]E95-20 phen 4	Volcan Ecuador	40.20	43.47	15.94		0.225	0.167	82.9	1315	1740		123913
[2]E95-20 phen 4	Volcan Ecuador	39.59	44.02	15.93	0.251	0.216		83.1		1673	1791	123877
[2]E95-20 phen 4	Volcan Ecuador	39.48	43.56	16.47	0.265	0.231		82.5		1791	1896	128058
[2]E95-20 phen 4	Volcan Ecuador	39.08	42.29	18.08	0.292	0.261		80.7		2022	2086	140624
[2]E95-20 phen 4	Volcan Ecuador	38.46	39.50	21.35	0.382	0.311		76.7		2410	2729	165997
[2]E95-20 phen 5	Volcan Ecuador	39.50	43.64	16.38	0.252	0.222		82.6		1720	1804	127406
[2]E95-20 phen 5	Volcan Ecuador	39.40	43.60	16.50	0.264	0.229		82.5		1773	1888	128327

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E95-20 phen 5	Volcan Ecuador	39.39	43.16	16.94	0.270	0.236		82.0		1827	1932	131758
[2]E95-20 phen 5	Volcan Ecuador	38.54	39.32	21.47	0.361	0.308		76.6		2385	2584	166917
[2]E95-20 phen 6	Volcan Ecuador	39.51	43.58	16.41	0.264	0.231		82.6		1788	1890	127613
[1]E95-20 phen 7	Volcan Ecuador	40.08	43.59	15.92		0.226	0.189	83.0	1486	1748		123787
[2]E95-20 phen 7	Volcan Ecuador	39.37	43.32	16.80	0.276	0.239		82.1		1848	1974	130604
[2]E95-20 phen 7	Volcan Ecuador	39.48	43.57	16.46	0.263	0.232		82.5		1795	1882	127955
[2]E95-20 phen 7	Volcan Ecuador	39.53	43.76	16.23	0.264	0.223		82.8		1725	1889	126211
[2]E95-20 phen 7	Volcan Ecuador	39.34	43.34	16.80	0.278	0.238		82.1		1842	1987	130660
[1]E95-20 phen 8	Volcan Ecuador	40.19	43.38	16.02		0.230	0.184	82.8	1448	1783		124539
[1]E95-20 phen 8	Volcan Ecuador	40.13	43.33	16.13		0.230	0.183	82.7	1438	1785		125434
[1]E95-20 phen 8	Volcan Ecuador	40.15	43.21	16.25		0.233	0.163	82.6	1279	1801		126331
[2]E95-20 phen 8	Volcan Ecuador	39.30	42.69	17.45	0.305	0.255		81.3		1977	2178	135690
[2]E95-20 phen 8	Volcan Ecuador	39.51	43.38	16.60	0.270	0.234		82.3		1812	1929	129101
[2]E95-20 phen 8	Volcan Ecuador	39.44	43.57	16.51	0.254	0.228		82.5		1766	1817	128356
[2]E95-20 phen 8	Volcan Ecuador	39.47	43.70	16.35	0.259	0.226		82.7		1750	1850	127144
[2]E95-20 phen 9	Volcan Ecuador	39.65	43.94	15.95	0.243	0.215		83.1		1666	1734	124059
[2]E95-20 phen 10	Volcan Ecuador	39.54	44.06	15.93	0.252	0.218		83.1		1685	1804	123868
[1]E95-20 phen 11	Volcan Ecuador	40.25	43.86	15.48		0.212	0.201	83.5	1579	1642		120346
[2]E95-20 phen 11	Volcan Ecuador	39.63	44.13	15.79	0.241	0.210		83.3		1628	1720	122757
[2]E95-20 phen 11	Volcan Ecuador	39.59	44.16	15.79	0.248	0.216		83.3		1672	1770	122769
[2]E95-20 phen 11	Volcan Ecuador	39.58	44.19	15.77	0.247	0.216		83.3		1675	1767	122617
[2]E95-20 phen 11	Volcan Ecuador	39.22	43.04	17.26	0.254	0.233		81.6		1805	1816	134178
[2]E95-20 phen 12	Volcan Ecuador	39.46	44.27	15.81	0.244	0.210		83.3		1630	1744	122973
[2]E95-20 phen 12	Volcan Ecuador	39.51	44.24	15.79	0.245	0.215		83.3		1664	1748	122763
[2]E95-20 phen 12	Volcan Ecuador	39.45	44.29	15.79	0.249	0.215		83.3		1665	1778	122791
[2]E95-20 phen 12	Volcan Ecuador	39.66	44.16	15.71	0.262	0.213		83.4		1647	1872	122131
[2]E95-20 phen 12	Volcan Ecuador	39.51	44.26	15.78	0.242	0.213		83.3		1647	1734	122670
[2]E95-20 phen 12	Volcan Ecuador	39.68	44.32	15.55	0.248	0.210		83.6		1625	1771	120920
[1]E95-20 phen 13	Volcan Ecuador	40.36	44.19	15.03		0.198	0.216	84.0	1697	1535		116898
[1]E95-20 phen 13	Volcan Ecuador	40.36	44.12	15.09		0.206	0.222	83.9	1744	1592		117339
[1]E95-20 phen 13	Volcan Ecuador	40.33	44.22	15.03		0.203	0.220	84.0	1725	1575		116900
[1]E95-20 phen 13	Volcan Ecuador	40.39	44.22	14.97		0.202	0.220	84.0	1731	1566		116389
[1]E95-20 phen 13	Volcan Ecuador	40.08	43.10	16.42		0.233	0.169	82.4	1331	1802		127721

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E95-20 phen 13	Volcan Ecuador	39.70	44.47	15.40	0.228	0.205		83.7		1590	1631	119742
[2]E95-20 phen 13	Volcan Ecuador	39.64	44.49	15.43	0.229	0.202		83.7		1562	1638	120022
[2]E95-20 phen 13	Volcan Ecuador	39.71	44.51	15.36	0.226	0.202		83.8		1566	1618	119418
[2]E95-20 phen 13	Volcan Ecuador	39.70	44.54	15.33	0.230	0.204		83.8		1578	1643	119203
[2]E95-20 phen 13	Volcan Ecuador	39.62	44.63	15.30	0.232	0.207		83.9		1605	1661	118996
[2]E95-20 phen 13	Volcan Ecuador	39.53	44.00	16.00	0.248	0.222		83.1		1721	1776	124419
[1]E95-20 phen 14	Volcan Ecuador	40.35	44.13	15.10		0.207	0.214	83.9	1679	1605		117452
[2]E95-20 phen 14	Volcan Ecuador	39.71	44.43	15.41	0.243	0.207		83.7		1601	1735	119823
[1]E95-20 phen 15	Volcan Ecuador	40.46	44.78	14.32		0.196	0.247	84.8	1937	1520		111365
[1]E95-20 phen 15	Volcan Ecuador	40.49	44.69	14.38		0.200	0.241	84.7	1894	1547		111842
[2]E95-20 phen 15	Volcan Ecuador	39.95	44.92	14.69	0.241	0.201		84.5		1554	1722	114193
[2]E95-20 phen 15	Volcan Ecuador	40.00	44.99	14.57	0.240	0.194		84.6		1499	1717	113301
[2]E95-20 phen 15	Volcan Ecuador	40.03	44.96	14.56	0.241	0.201		84.6		1558	1726	113250
[2]E95-20 phen 15	Volcan Ecuador	39.99	44.93	14.64	0.245	0.198		84.5		1535	1750	113832
[2]E95-20 phen 15	Volcan Ecuador	39.85	44.25	15.44	0.241	0.213		83.6		1649	1721	120097
[1]E95-20 phen 16	Volcan Ecuador	40.43	44.60	14.53		0.202	0.242	84.6	1903	1566		112956
[2]E95-20 phen 16	Volcan Ecuador	40.01	44.80	14.75	0.240	0.198		84.4		1534	1718	114718
[2]E95-20 phen 17	Volcan Ecuador	40.01	44.62	14.92	0.245	0.204		84.2		1581	1750	115988
[1]E95-20 phen 18	Volcan Ecuador	40.48	44.73	14.34		0.198	0.252	84.8	1981	1536		111484
[2]E95-20 phen 18	Volcan Ecuador	40.19	44.83	14.54	0.244	0.195		84.6		1507	1746	113090
[1]E95-20 phen 19	Volcan Ecuador	40.51	44.93	14.12		0.191	0.250	85.0	1962	1482		109781
[2]E95-20 phen 19	Volcan Ecuador	40.22	45.11	14.24	0.244	0.191		85.0		1476	1743	110715
[1]E95-20 phen 20	Volcan Ecuador	40.85	46.80	11.80		0.155	0.387	87.6	3037	1197		91785
[1]E95-20 phen 20	Volcan Ecuador	40.93	46.81	11.71		0.156	0.390	87.7	3060	1207		91081
[1]E95-20 phen 20	Volcan Ecuador	40.87	46.60	11.99		0.161	0.389	87.4	3057	1244		93215
[1]E95-20 phen 20	Volcan Ecuador	40.67	45.49	13.32		0.182	0.341	85.9	2682	1412		103590
[2]E95-20 phen 20	Volcan Ecuador	40.32	47.15	12.16	0.219	0.158		87.4		1226	1567	94523
[2]E95-20 phen 20	Volcan Ecuador	40.40	47.20	12.03	0.222	0.155		87.5		1203	1587	93553
[2]E95-20 phen 20	Volcan Ecuador	40.28	47.24	12.10	0.220	0.156		87.4		1207	1575	94129
[2]E95-20 phen 20	Volcan Ecuador	39.60	44.85	15.11	0.240	0.203		84.1		1571	1713	117507
[1]E95-20 phen 21	Volcan Ecuador	40.67	45.55	13.28		0.177	0.321	85.9	2523	1372		103281
[2]E95-20 phen 21	Volcan Ecuador	40.09	45.84	13.66	0.235	0.180		85.7		1391	1680	106204
[1]E95-20 phen 22	Volcan Ecuador	40.27	44.02	15.28		0.212	0.215	83.7	1686	1639		118835

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E95-20 phen 22	Volcan Ecuador	39.16	42.20	18.16	0.240	0.242		80.6		1874	1717	141212
[2]E95-20 phen 22	Volcan Ecuador	39.29	42.59	17.64	0.238	0.242		81.1		1871	1703	137136
[2]E95-20 phen 22	Volcan Ecuador	39.64	43.93	15.97	0.244	0.216		83.1		1675	1747	124155
[2]E95-20 phen 22	Volcan Ecuador	39.80	44.36	15.37	0.256	0.212		83.7		1641	1831	119503
[2]E95-20 phen 23	Volcan Ecuador	40.33	44.87	14.32	0.275	0.195		84.8		1508	1966	111365
[1]E95-20 phen 24	Volcan Ecuador	40.22	43.86	15.52		0.213	0.191	83.4	1501	1653		120684
[2]E95-20 phen 24	Volcan Ecuador	39.48	44.19	15.86	0.245	0.216		83.2		1671	1751	123358
[1]E97-134 phen 1	Volcan Ecuador	40.09	43.87	15.62		0.229	0.188	83.3	1473	1771		121485
[1]E97-134 phen 1	Volcan Ecuador	40.06	43.93	15.59		0.228	0.188	83.4	1480	1767		121252
[1]E97-134 phen 1	Volcan Ecuador	40.05	43.88	15.66		0.222	0.188	83.3	1478	1716		121793
[1]E97-134 phen 1	Volcan Ecuador	40.07	44.05	15.47		0.229	0.187	83.5	1470	1770		120291
[1]E97-134 phen 1	Volcan Ecuador	40.04	43.91	15.63		0.226	0.185	83.4	1452	1753		121573
[1]E97-134 phen 1	Volcan Ecuador	40.01	43.83	15.75		0.230	0.183	83.2	1439	1784		122484
[1]E97-134 phen 1	Volcan Ecuador	39.78	42.73	17.09		0.236	0.160	81.7	1253	1831		132880
[2]E97-134 phen 1	Volcan Ecuador	39.73	43.83	15.96	0.245	0.233		83.0		1803	1751	124102
[2]E97-134 phen 1	Volcan Ecuador	40.04	45.27	14.19	0.251	0.235		85.0		1823	1795	110376
[2]E97-134 phen 1	Volcan Ecuador	39.74	43.84	15.94	0.257	0.229		83.1		1771	1840	123926
[2]E97-134 phen 1	Volcan Ecuador	39.79	43.76	15.96	0.261	0.232		83.0		1794	1869	124096
[2]E97-134 phen 1	Volcan Ecuador	39.12	40.46	19.91	0.238	0.277		78.4		2144	1700	154806
[2]E97-134 phen 3	Volcan Ecuador	38.84	39.23	21.27	0.343	0.317		76.7		2452	2449	165386
[1]E97-134 phen 4	Volcan Ecuador	39.51	41.25	18.87		0.277	0.094	79.6	742	2148		146725
[1]E97-134 phen 4	Volcan Ecuador	39.45	41.13	19.04		0.278	0.096	79.4	754	2157		148078
[1]E97-134 phen 4	Volcan Ecuador	39.32	40.33	19.97		0.292	0.085	78.3	670	2259		155325
[2]E97-134 phen 4	Volcan Ecuador	39.16	40.97	19.28	0.304	0.289		79.1		2236	2173	149929
[2]E97-134 phen 4	Volcan Ecuador	39.20	41.00	19.21	0.311	0.283		79.2		2194	2222	149354
[1]E97-134 phen 5	Volcan Ecuador	39.61	41.41	18.60		0.275	0.103	79.9	810	2134		144639
[1]E97-134 phen 5	Volcan Ecuador	40.00	43.88	15.71		0.228	0.185	83.3	1456	1769		122144
[1]E97-134 phen 5	Volcan Ecuador	39.60	41.29	18.74		0.273	0.098	79.7	772	2118		145735
[2]E97-134 phen 5	Volcan Ecuador	39.15	40.75	19.50	0.316	0.284		78.8		2199	2256	151624
[2]E97-134 phen 5	Volcan Ecuador	39.24	41.27	18.94	0.265	0.288		79.5		2232	1895	147246
[2]E97-134 phen 5	Volcan Ecuador	39.74	43.77	15.99	0.263	0.231		83.0		1788	1877	124341
[2]E97-134 phen 5	Volcan Ecuador	39.27	41.13	19.01	0.308	0.283		79.4		2191	2199	147805
[1]E97-134 phen 8	Volcan Ecuador	40.19	44.07	15.33		0.221	0.186	83.7	1458	1713		119194

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
[2]E97-134 phen 8	Volcan Ecuador	39.96	44.05	15.54	0.231	0.228		83.5		1764	1651	120807
[1]E97-134 phen 9	Volcan Ecuador	38.90	42.25	18.47		0.259	0.120	80.3	943	2007		143635
[1]E97-134 phen 9	Volcan Ecuador	39.00	40.50	20.13		0.297	0.081	78.2	634	2298		156501
[1]E97-134 phen 9	Volcan Ecuador	38.90	40.71	20.00		0.296	0.088	78.4	692	2294		155559
[1]E97-134 phen 9	Volcan Ecuador	38.93	39.14	21.56		0.309	0.056	76.4	438	2390		167629
[1]E97-134 phen 9	Volcan Ecuador	38.94	39.12	21.57		0.314	0.059	76.4	465	2434		167715
[1]E97-134 phen 9	Volcan Ecuador	38.89	39.16	21.59		0.309	0.058	76.4	456	2396		167847
[1]E97-134 phen 9	Volcan Ecuador	38.39	36.67	24.55		0.352	0.040	72.7	316	2724		190900
[2]E97-134 phen 9	Volcan Ecuador	38.34	38.75	22.22	0.358	0.332		75.7		2573	2558	172785
[1]E97-134 phen 10	Volcan Ecuador	40.13	44.01	15.45		0.222	0.187	83.5	1470	1722		120132
[2]E97-134 phen 10	Volcan Ecuador	39.84	43.97	15.71	0.260	0.224		83.3		1733	1857	122157
[1]E97-134 phen 11	Volcan Ecuador	39.92	43.82	15.84		0.228	0.188	83.1	1476	1769		123171
[1]E97-134 phen 11	Volcan Ecuador	39.64	43.87	16.07		0.232	0.195	83.0	1535	1799		124962
[1]E97-134 phen 11	Volcan Ecuador	39.74	43.81	16.03		0.228	0.191	83.0	1500	1768		124668
[1]E97-134 phen 11	Volcan Ecuador	40.12	43.95	15.52		0.224	0.185	83.5	1452	1735		120708
[2]E97-134 phen 11	Volcan Ecuador	39.62	43.70	16.19	0.257	0.230		82.8		1783	1838	125881
[2]E97-134 phen 11	Volcan Ecuador	39.58	43.75	16.18	0.260	0.235		82.8		1820	1862	125800
[2]E97-134 phen 11	Volcan Ecuador	39.82	43.20	16.44	0.264	0.271		82.4		2099	1887	127824
[1]E97-134 phen 13	Volcan Ecuador	40.06	43.96	15.56		0.231	0.184	83.4	1449	1793		120998
[1]E97-134 phen 13	Volcan Ecuador	40.03	44.00	15.57		0.217	0.186	83.4	1459	1682		121081
[2]E97-134 phen 14	Volcan Ecuador	39.79	43.93	15.78	0.267	0.228		83.2		1769	1906	122726
[2]E97-134 phen 14	Volcan Ecuador	39.80	43.91	15.79	0.267	0.231		83.2		1791	1908	122822
[2]E97-134 phen 15	Volcan Ecuador	39.82	43.92	15.77	0.269	0.230		83.2		1785	1920	122600
[2]E97-134 phen 15	Volcan Ecuador	38.24	36.87	24.19	0.269	0.430		73.1		3334	1921	188098
[2]E97-134 phen 16	Volcan Ecuador	39.19	40.87	19.38	0.266	0.287		79.0		2227	1901	150730
[1]E97-134 phen 18	Volcan Ecuador	40.00	43.89	15.70		0.228	0.184	83.3	1442	1763		122074
[1]E97-134 phen 20	Volcan Ecuador	40.09	43.87	15.63		0.220	0.184	83.3	1443	1707		121576
[1]E97-134 phen 21	Volcan Ecuador	40.06	43.86	15.67		0.228	0.183	83.3	1439	1764		121847
[1]E97-134 phen 24	Volcan Ecuador	38.89	38.17	22.55		0.332	0.049	75.1	386	2570		175389
[2]E97-134 phen 24	Volcan Ecuador	39.77	43.77	15.96	0.264	0.234		83.0		1812	1884	124085
[2]E97-134 phen 24	Volcan Ecuador	39.88	43.75	15.86	0.268	0.229		83.1		1775	1914	123361
[2]E97-134 phen 24	Volcan Ecuador	39.81	43.80	15.89	0.270	0.234		83.1		1811	1928	123573
[2]E97-134 phen 24	Volcan Ecuador	39.00	40.20	20.20	0.295	0.295		78.0		2284	2112	157094

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
W95-50 phen 2	Volcan Wolf	38.86	40.88	19.51	0.330	0.292	0.126	78.9	989	2264	2356	151701
W95-50 phen 2	Volcan Wolf	38.59	40.01	20.63	0.338	0.311	0.120	77.6	946	2412	2414	160418
W95-50 phen 2	Volcan Wolf	38.15	38.08	22.92	0.394	0.353	0.099	74.8	778	2732	2820	178255
W95-50 phen 2	Volcan Wolf	38.99	40.79	19.46	0.340	0.294	0.128	78.9	1003	2279	2434	151312
W95-50 phen 2	Volcan Wolf	38.94	40.65	19.65	0.335	0.296	0.125	78.7	985	2294	2395	152806
W95-50 phen 2	Volcan Wolf	38.71	40.65	19.88	0.337	0.298	0.125	78.5	982	2309	2408	154627
W95-50 phen 4	Volcan Wolf	38.65	40.84	19.76	0.336	0.297	0.119	78.7	937	2304	2403	153640
W95-50 phen 4	Volcan Wolf	38.35	39.26	21.61	0.345	0.321	0.114	76.4	895	2485	2465	168046
W95-50 phen 4	Volcan Wolf	37.06	34.03	27.96	0.431	0.456	0.062	68.4	484	3533	3083	217430
W95-50 phen 5	Volcan Wolf	38.79	40.73	19.72	0.341	0.298	0.118	78.6	930	2307	2440	153364
W95-50 phen 5	Volcan Wolf	38.53	40.84	19.87	0.338	0.300	0.121	78.6	951	2323	2419	154497
W95-50 phen 5	Volcan Wolf	37.54	35.52	26.03	0.416	0.415	0.081	70.9	637	3211	2977	202373
W95-50 phen 6	Volcan Wolf	38.14	38.95	22.11	0.359	0.329	0.110	75.8	863	2549	2566	171947
W95-50 phen 7	Volcan Wolf	37.78	38.02	23.36	0.361	0.370	0.115	74.4	905	2865	2578	181654
W95-50 phen 9	Volcan Wolf	38.49	40.46	20.28	0.344	0.308	0.114	78.1	893	2384	2456	157719
W95-50 phen 9	Volcan Wolf	38.27	39.35	21.58	0.354	0.338	0.108	76.5	847	2616	2532	167791
W95-50 phen 10	Volcan Wolf	38.63	40.83	19.78	0.341	0.302	0.114	78.6	898	2337	2437	153804
W95-50 phen 10	Volcan Wolf	38.65	39.55	21.01	0.348	0.320	0.116	77.0	909	2477	2487	163397
W95-50 phen 10	Volcan Wolf	37.40	34.67	27.05	0.384	0.418	0.074	69.6	581	3235	2747	210342
W95-50 phen 11	Volcan Wolf	38.46	39.09	21.66	0.347	0.335	0.108	76.3	849	2596	2484	168448
W95-50 phen 11	Volcan Wolf	38.59	40.55	20.09	0.349	0.301	0.119	78.3	936	2332	2493	156189
W95-50 phen 11	Volcan Wolf	38.53	40.16	20.52	0.358	0.314	0.121	77.7	954	2431	2556	159570
W95-50 phen 12	Volcan Wolf	38.62	40.68	19.94	0.350	0.300	0.119	78.4	937	2324	2504	155024
W95-50 phen 12	Volcan Wolf	38.72	40.92	19.59	0.352	0.296	0.123	78.8	964	2292	2514	152369
W95-50 phen 12	Volcan Wolf	37.93	37.88	23.34	0.395	0.352	0.105	74.3	825	2723	2823	181493
W95-50 phen 13	Volcan Wolf	38.82	40.42	19.99	0.343	0.308	0.115	78.3	901	2388	2449	155459
W95-50 phen 13	Volcan Wolf	38.01	35.62	25.51	0.371	0.403	0.084	71.3	659	3122	2649	198391
W95-50 phen 14	Volcan Wolf	38.68	39.97	20.56	0.359	0.317	0.106	77.6	831	2455	2568	159896
W95-50 phen 14	Volcan Wolf	38.75	40.40	20.08	0.349	0.310	0.115	78.2	904	2404	2492	156141
W95-50 phen 14	Volcan Wolf	37.53	35.95	25.63	0.416	0.398	0.085	71.4	665	3083	2976	199277
W95-50 phen 15	Volcan Wolf	39.33	42.39	17.53	0.352	0.267	0.138	81.2	1084	2070	2520	136290
W95-50 phen 15	Volcan Wolf	39.11	42.14	17.99	0.349	0.267	0.149	80.7	1170	2071	2496	139895
W95-50 phen 15	Volcan Wolf	38.30	38.41	22.44	0.402	0.339	0.109	75.3	853	2627	2873	174479

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
W95-50 phen 15	Volcan Wolf	39.38	42.29	17.57	0.352	0.269	0.143	81.1	1122	2086	2520	136643
W95-50 phen 15	Volcan Wolf	39.37	42.05	17.81	0.353	0.270	0.143	80.8	1125	2091	2523	138462
W95-50 phen 15	Volcan Wolf	39.23	41.65	18.26	0.429	0.279	0.153	80.3	1202	2158	3070	141978
W95-50 phen 16	Volcan Wolf	38.23	39.80	21.22	0.330	0.316	0.104	77.0	818	2448	2360	165030
W95-50 phen 16	Volcan Wolf	38.44	40.37	20.44	0.323	0.308	0.112	77.9	880	2382	2313	158957
W95-50 phen 16	Volcan Wolf	38.02	37.94	23.24	0.360	0.344	0.101	74.4	796	2666	2576	180715
W95-50 phen 18	Volcan Wolf	38.47	40.49	20.26	0.353	0.302	0.119	78.1	936	2339	2526	157565
W95-50 phen 18	Volcan Wolf	38.16	39.49	21.55	0.358	0.330	0.110	76.6	861	2558	2557	167606
W95-50 phen 18	Volcan Wolf	37.27	35.84	26.03	0.361	0.417	0.080	71.1	627	3229	2583	202420
W95-50 phen 19	Volcan Wolf	38.16	38.95	22.05	0.386	0.342	0.112	75.9	880	2650	2761	171434
W95-50 phen 19	Volcan Wolf	38.44	40.18	20.59	0.377	0.309	0.107	77.7	843	2395	2698	160083
W95-50 phen 19	Volcan Wolf	36.89	34.65	27.52	0.422	0.450	0.071	69.2	561	3488	3020	214017
W95-49 phen 8	Volcan Wolf	37.68	37.73	23.83	0.326	0.324	0.105	73.8	826	2512	2328	185338
W95-49 phen 14	Volcan Wolf	38.10	39.58	21.58	0.318	0.303	0.124	76.6	976	2348	2271	167784
W95-49 phen 16	Volcan Wolf	38.44	41.32	19.51	0.312	0.290	0.133	79.1	1046	2246	2233	151720
W95-49 phen 16	Volcan Wolf	38.11	40.05	21.08	0.329	0.310	0.119	77.2	934	2403	2356	163951
WO02-100l phen 1	Wolf Island	39.99	44.76	14.47	0.383	0.232	0.172	84.6	1350	1798	2736	112515
WO02-100l phen 2	Wolf Island	39.93	44.63	14.66	0.376	0.237	0.167	84.4	1312	1839	2686	114010
WO02-100l phen 3	Wolf Island	39.87	44.74	14.59	0.383	0.241	0.171	84.5	1340	1868	2738	113491
WO02-100l phen 4	Wolf Island	39.84	44.72	14.64	0.394	0.235	0.170	84.5	1334	1819	2819	113868
WO02-100l phen 5	Wolf Island	39.96	44.69	14.55	0.388	0.233	0.179	84.6	1407	1806	2777	113147
WO02-100l phen 9	Wolf Island	40.04	45.12	14.07	0.355	0.248	0.171	85.1	1343	1924	2537	109380
WO02-100l phen 10	Wolf Island	40.12	45.67	13.44	0.355	0.234	0.189	85.8	1486	1814	2535	104505
WO02-100l phen 11	Wolf Island	39.89	44.93	14.40	0.377	0.233	0.174	84.8	1363	1805	2695	111977
WO02-100l phen 12	Wolf Island	39.89	44.96	14.37	0.372	0.236	0.177	84.8	1391	1825	2663	111707
WO02-100l phen 13	Wolf Island	39.77	44.95	14.50	0.363	0.236	0.181	84.7	1418	1830	2592	112752
WO02-100l phen 14	Wolf Island	39.85	44.76	14.62	0.366	0.237	0.174	84.5	1369	1833	2618	113658
WO02-100l phen 15	Wolf Island	39.76	44.84	14.61	0.376	0.238	0.173	84.5	1356	1843	2686	113645
WO02-100l phen 16	Wolf Island	39.91	44.90	14.41	0.364	0.234	0.176	84.7	1383	1810	2601	112078
WO02-100l phen 17	Wolf Island	39.85	44.95	14.41	0.365	0.238	0.178	84.8	1399	1845	2609	112081
WO02-100l phen 18	Wolf Island	40.30	46.77	12.18	0.292	0.192	0.265	87.3	2085	1484	2089	94702
WO02-100l phen 19	Wolf Island	39.79	44.70	14.71	0.388	0.237	0.170	84.4	1336	1835	2773	114381
WO02-100l phen 20	Wolf Island	39.86	44.52	14.81	0.393	0.246	0.166	84.3	1302	1906	2813	115184

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
WO02-100l phen 21	Wolf Island	39.84	45.17	14.21	0.369	0.237	0.177	85.0	1391	1838	2635	110524
WO02-100l phen 22	Wolf Island	39.84	44.86	14.53	0.361	0.233	0.178	84.6	1401	1808	2581	112963
WO02-100l phen 23	Wolf Island	39.82	44.77	14.61	0.390	0.238	0.168	84.5	1321	1844	2792	113575
WO02-100l phen 24	Wolf Island	39.92	45.06	14.23	0.373	0.232	0.177	84.9	1393	1798	2666	110676
WO02-100l phen 25	Wolf Island	39.77	44.98	14.45	0.386	0.246	0.169	84.7	1329	1903	2758	112372
WO02-100l phen 26	Wolf Island	40.04	45.23	13.96	0.355	0.233	0.180	85.2	1417	1803	2541	108540
WO02-100l phen 27	Wolf Island	39.78	45.19	14.23	0.378	0.233	0.178	85.0	1394	1806	2703	110669
WO02-100l phen 28	Wolf Island	39.72	44.85	14.63	0.389	0.239	0.171	84.5	1347	1851	2781	113766
WO02-100l phen 29	Wolf Island	39.84	44.92	14.45	0.379	0.241	0.174	84.7	1369	1864	2712	112357
WO02-100l phen 30	Wolf Island	39.68	44.82	14.71	0.370	0.249	0.167	84.5	1314	1932	2645	114379
WO02-100l phen 31	Wolf Island	39.79	44.90	14.54	0.372	0.238	0.169	84.6	1325	1844	2659	113034
WO02-100l phen 32	Wolf Island	39.76	44.85	14.58	0.402	0.238	0.169	84.6	1329	1847	2877	113382
WO02-100l phen 33	Wolf Island	39.80	44.74	14.67	0.383	0.236	0.172	84.5	1352	1825	2736	114059
WO02-100l phen 34	Wolf Island	39.92	44.83	14.45	0.376	0.237	0.182	84.7	1432	1832	2688	112388
WO02-100l phen 35	Wolf Island	39.81	45.07	14.34	0.368	0.230	0.174	84.9	1364	1780	2631	111542
WO02-100l phen 36	Wolf Island	39.88	44.96	14.37	0.374	0.236	0.176	84.8	1385	1826	2672	111772
WO02-100l phen 37	Wolf Island	39.50	45.11	14.61	0.368	0.237	0.168	84.6	1316	1837	2629	113615
WO02-100l phen 38	Wolf Island	39.56	45.21	14.44	0.369	0.230	0.185	84.8	1457	1779	2638	112318
WO02-100l phen 40	Wolf Island	39.94	45.04	14.25	0.363	0.227	0.180	84.9	1418	1761	2592	110831
WO02-100l phen 41	Wolf Island	39.74	44.92	14.56	0.376	0.235	0.171	84.6	1340	1822	2685	113248
WO02-100l phen 42	Wolf Island	39.67	44.66	14.90	0.368	0.241	0.163	84.2	1284	1865	2628	115853
WO02-100l phen 43	Wolf Island	39.81	44.61	14.81	0.371	0.231	0.169	84.3	1326	1787	2654	115161
WO02-100l phen 44	Wolf Island	39.97	44.82	14.44	0.379	0.230	0.167	84.7	1309	1778	2711	112260
WO02-100l phen 45	Wolf Island	39.69	45.11	14.43	0.364	0.228	0.175	84.8	1376	1763	2601	112212
WO02-100l phen 47	Wolf Island	39.76	44.91	14.54	0.382	0.231	0.177	84.6	1389	1786	2730	113074
WO02-100l phen 48	Wolf Island	39.79	44.90	14.52	0.374	0.233	0.176	84.6	1379	1806	2677	112923
WO02-100l phen 49	Wolf Island	39.94	44.96	14.31	0.378	0.229	0.178	84.8	1399	1776	2703	111280
WO02-100l phen 50	Wolf Island	40.34	44.60	14.28	0.379	0.222	0.185	84.8	1452	1716	2708	111012
WO02-100l phen 52	Wolf Island	39.99	45.19	14.08	0.348	0.220	0.179	85.1	1409	1708	2485	109452
WO02-100l phen 53	Wolf Island	39.89	45.09	14.24	0.364	0.226	0.183	84.9	1435	1752	2605	110763
WO02-100l phen 54	Wolf Island	39.92	45.05	14.26	0.367	0.221	0.188	84.9	1474	1713	2627	110875
WO02-100l phen 55	Wolf Island	39.93	44.90	14.39	0.373	0.228	0.174	84.8	1363	1766	2667	111911
WO02-100l phen 56	Wolf Island	39.96	45.25	14.03	0.358	0.222	0.187	85.2	1471	1719	2556	109098

Sample	Location	SiO2 %	MgO %	FeO %	CaO %	MnO %	NiO %	Mg#	Ni ppm	Mn ppm	Ca ppm	Fe ppm
WO02-100I phen 57	Wolf Island	39.89	45.01	14.33	0.364	0.227	0.178	84.8	1402	1757	2600	111407
WO02-100I phen 58	Wolf Island	39.82	44.88	14.53	0.375	0.229	0.168	84.6	1321	1770	2683	112973
WO02-100I phen 59	Wolf Island	39.80	44.69	14.73	0.384	0.229	0.167	84.4	1312	1777	2747	114576
WO02-100I phen 60	Wolf Island	39.82	44.86	14.53	0.367	0.234	0.178	84.6	1397	1810	2622	113024

[1] First run of Cerro Azul, Fernandina, Roca Redonda and Volcan Ecuador. Ca data has been omitted due to it being ~15% too low.
[2] Second run of Cerro Azul, Fernandina, Roca Redonda and Volcan Ecuador for Ca. Mn was added to the run however Ni was not in the interest of time.
[3] Third run of Fernandina samples D38A and D39G.
[4] Fourth run of Fernandina sample D38A.

Table 2: Whole Rock Data and Primary Magmas

Volcano	ID	% Pyroxenite	SiO_2	TIO_2	Al_2O_3	Cr_2O_3	Fe_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	NiO	P_2O_5
Lavas															
Cerro Azul	CA-46[a]		47.25	1.65	11.36	0.16	0	10.17	0.169	17.13	9.83	1.79	0.28	0.073	0.16
Fernandina	F425[b]		48.16	2.00	16.62	0.04	0	9.75	0.153	8.07	12.24	2.40	0.28	0.013	0.16
Floreana	FL-26[c]		46.91	1.47	15.87	0.05	0.00	10.24	0.182	10.25	12.36	2.32	0.18	0.024	0.13
Santa Cruz	SC-99[d]		47.95	0.88	17.20	0	0	9.56	0.171	9.72	11.71	2.61	0	0	0.10
Santa Cruz	GI92-1[e]		47.32	1.71	16.09	0.06	0	10.57	0.170	10.52	9.81	3.07	0.22	0.030	0.25
San Cristobal	NSK97-126[f]		47.05	1.13	17.09	0.07	0	9.03	0.160	11.15	11.32	2.49	0.34	0.030	0.15
Volcan Ecuador	E9740[g]		47.64	3.12	16.41	0.02		10.82	0.160	6.64	9.44	4.17	0.87	0.012	0.51

References: [a]Naumann et al., 2002; [b]Allan and Simkin, 2000; [c]Bow and Geist, 1992; [d]Bow, 1979; [e]Kurz and Geist, 1999; [f]Saal et al., 2007; [g]Geist et al., 2002.

Peridotite - Source Primary Magmas (PRIMELT2 solutions, Herzberg and Asimow, 2008)

Volcano	ID	% Pyroxenite	SiO_2	TIO_2	Al_2O_3	Cr_2O_3	Fe_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	NiO	P_2O_5
Cerro Azul	CA-46	0	47.56	1.74	12.04	0.16	1.75	8.71	0.171	15.05	10.41	1.90	0.29	0.054	0.17
Fernandina	F425	0	46.59	1.61	13.29	0.04	0.80	9.32	0.153/0.172	16.02	9.84	1.92	0.22	0.060	0.13
Floreana	FL-26	0	45.87	1.25	13.41	0.05	0.62	9.73	0.179	16.13	10.47	1.96	0.15	0.061	0.11
Santa Cruz	SC-99	0	46.95	0.76	14.90	0.00	0.92	8.86	0.171	14.92	10.17	2.26	0	0.054	0.09
San Cristobal	*NSK97-126*	0	46.64	1.07	16.12	0.06	0.95	8.21	0.160	13.26	10.69	2.35	0.32	0.044	0.14

		T OL	TP	FAFM
Cerro Azul	CA-46	1348	1460	0.171
Fernandina	F425	1369	1485	0.128
Floreana	FL-26	1371	1487	0.051
Santa Cruz	SC-99	1345	1457	0.110
San Cristobal	*NSK97-126*	1307	1411	0.061

Pyroxenite - Source Primary Magmas (Herzberg, 2011)

Volcano	ID	% Pyroxenite	SiO_2	TIO_2	Al_2O_3	Cr_2O_3	Fe_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	NiO	P_2O_5
Santa Cruz	GI92-1	40	46.54	1.52	14.23	0.06	1.18	9.58	0.169	14.88	8.69	2.71	0.19	0.063	0.22
Santa Cruz	GI92-1	100	45.95	2.65	13.23	0.14	1.57	10.67	0.166	14.82	6.49	3.40	0.49	0.077	0.43
Volcan Ecuador	E9740	?	46.38	2.63	13.74	0.02	1.31	10.07	0.164	13.02	7.94	3.49	0.73	0.084/0.054	0.43
Santiago	GI92-1	?	46.54	1.52	14.23	0.06	0.76	9.96	0.160	14.88	8.20	2.71	0.19	0.077	0.224

Fernandina Model MnO from lava = 0.153; optimum MnO to satisfy observed MnO in olivine = 0.172

Volcan Ecuador Model NiO from lava = 0.084; optimum NiO to satisfy observed NiO in olivine = 0.054

Santiago solution is derived from Santa Cruz with CaO, MnO & NiO modified to provide an optimum match to observed Santiago olivines

TOL = 1 atmosphere olivine liquidus temperature

TP = mantle potential temperature

FAFM = melt fraction for accumulated fractional melting

ID in Green … no citations