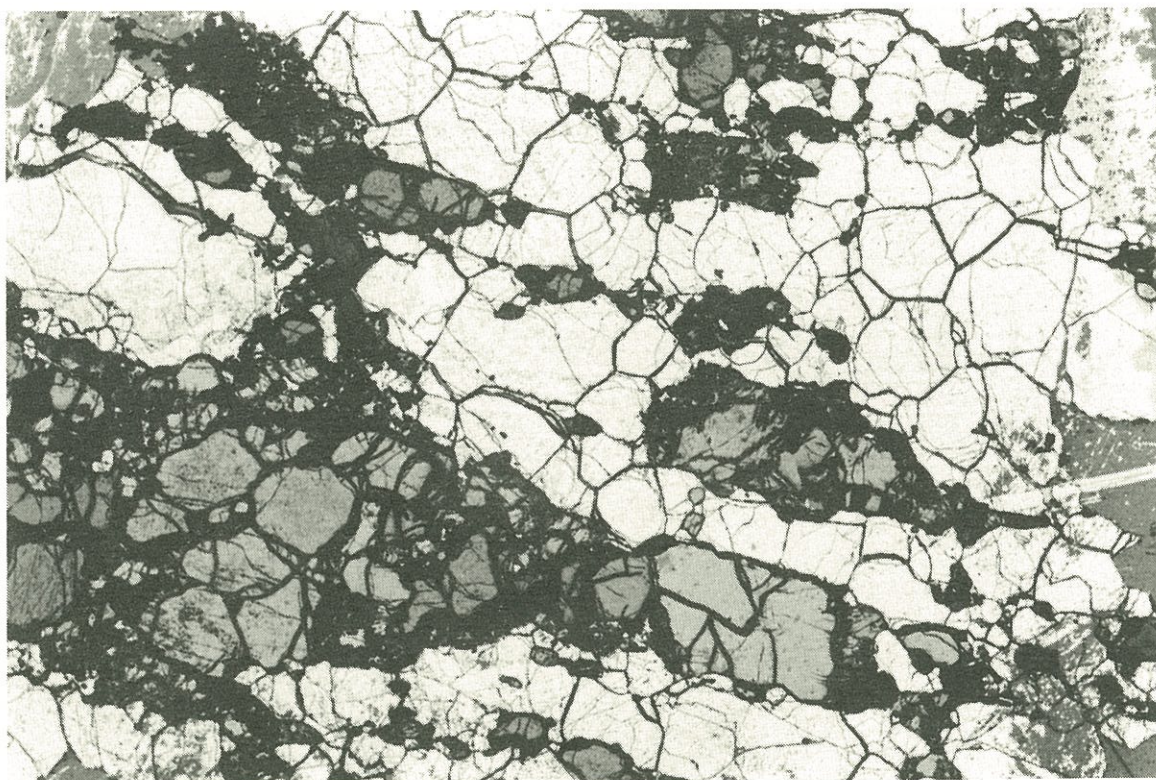


Mineral and rock analyses of lithospheric xenoliths from Marie Byrd Land, West Antarctica.

Richard Wysoczanski



**Research School of Earth Sciences
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Cover Photo: Layered norite granulite from Mount Hampton in the Executive Committee Range, Marie Byrd Land. Plagioclase (light), clinopyroxene (e.g. centre right) and orthopyroxene (e.g. mafic layer at bottom) crystallised as igneous phases from a primitive melt, and have subsequently been recrystallised, resulting in the formation of polygonal crystals with 120° angle contacts, and enhancing layering.

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Introduction

Marie Byrd Land (MBL) is a remote region of West Antarctica, currently experiencing active extension and volcanism. The Cenozoic geology of MBL is dominated by the West Antarctic Rift - a rift system estimated to be 3000 km long, and 750 km across. Late Cenozoic alkaline volcanism is evident as 18 large stratovolcanoes, and more than 30 satellite volcanic centres. The major late Cenozoic volcanic centres and mountain ranges of MBL are shown in Figure 1.

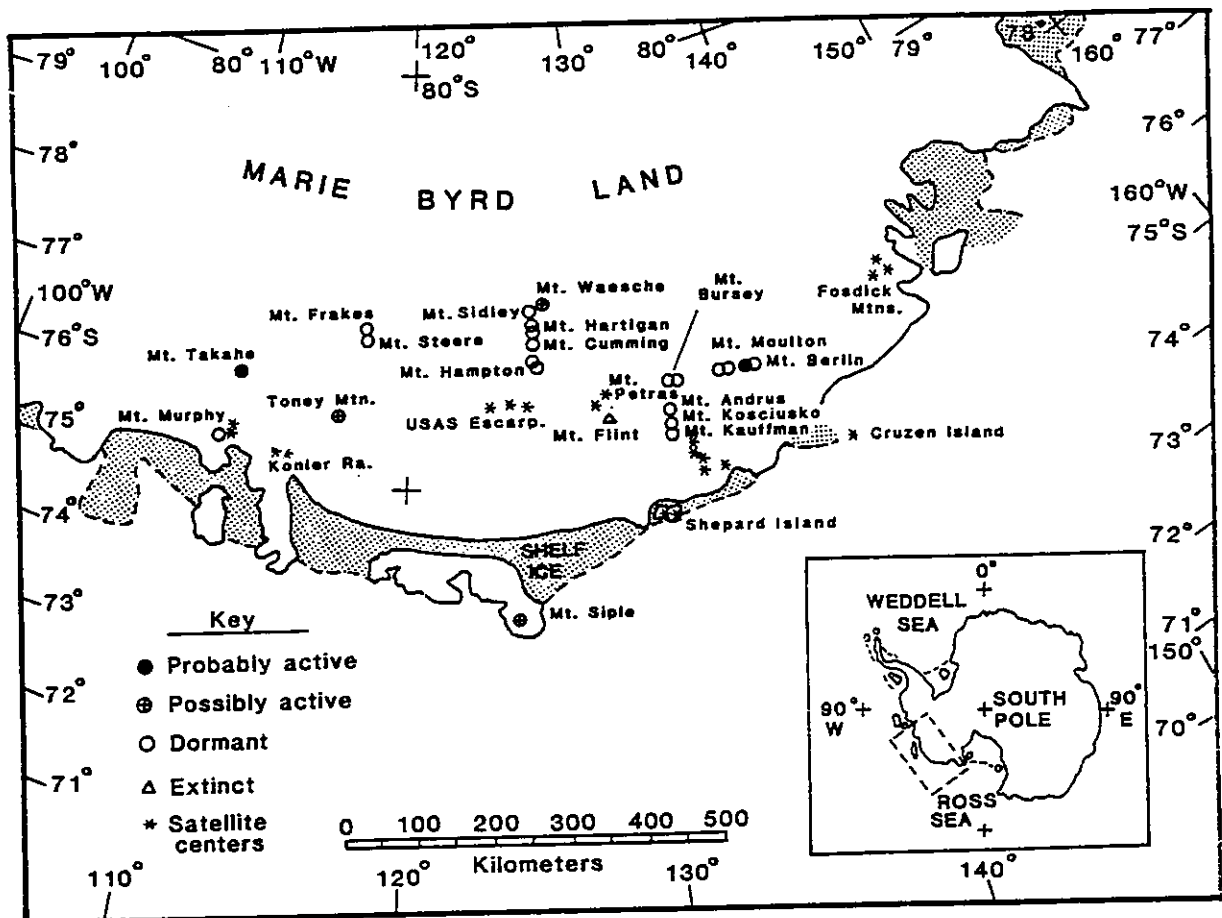


FIGURE 1: Map of Marie Byrd Land (from Le Masurier, 1990) showing late Cenozoic volcanic centres and mountain ranges. Xenoliths were collected from Mounts Waesche, Sidley, Cumming and Hampton in the Executive Committee Range, Mount Murphy and the USAS Escarpment.

Late stage scoria cones have sampled sections of the MBL lithosphere, and brought upper mantle and crustal xenoliths (fragments of foreign rock entrained in ascending (typically alkaline) magmas) to the surface. Xenoliths have been collected from several sites, and studied with the aim of determining the composition of, and processes occurring within, the lithosphere of MBL, and comparing it to other lithospheric sections world-wide (Wysoczanski and Gamble, 1992; Wysoczanski, 1993). This report presents the analytical data obtained during this study.

Location of Xenoliths

Xenoliths were collected by the West Antarctic Volcano Exploration (WAVE) programme during two field seasons, in 1989/90 and 1990/91. Full accounts of the results and logistics of these field seasons can be found in Gamble (1990 and 1991). Lithospheric xenoliths were obtained from several sites in MBL, including Mounts Waesche, Sidley, Cumming and Hampton in the Executive Committee Range, Mount Aldaz in the USAS Escarpment, and Mount Murphy on the Walgreen coast (Figure 1).

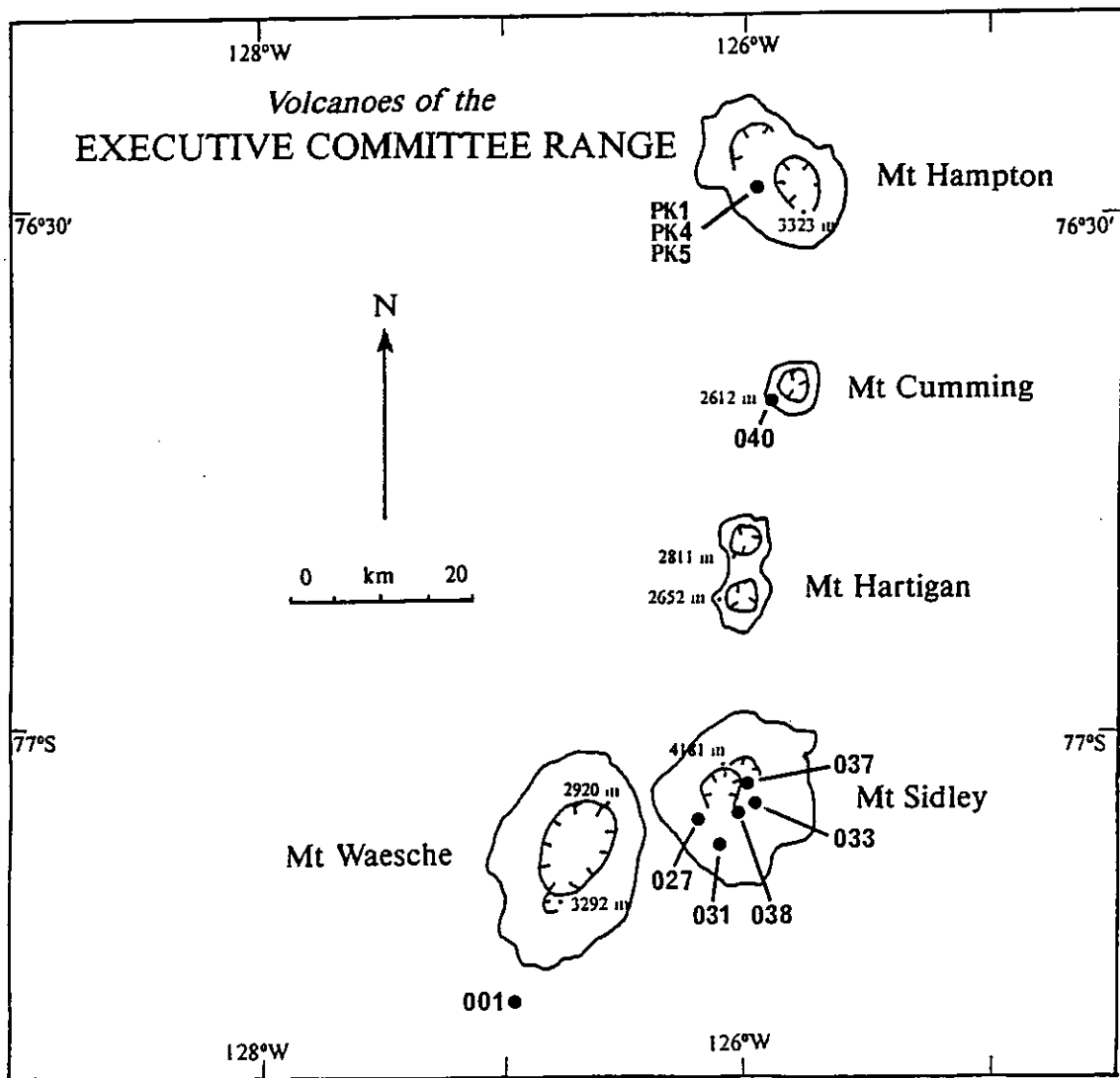


FIGURE 2: Location map of the Executive Committee Range, Marie Byrd Land (after Le Masurier, 1990). Sample localities of upper mantle and lower crustal xenoliths are shown.

Sample sites are numbered in two series according to their original field sample numbers. The first series is numbered by year (89, 90, 91) followed by a sample number from 001 to 054, corresponding with the sample site in chronological order of collection (only these numbers are shown on the following locality maps). Multiple samples from one site are further identified alphabetically (a, b, c...z, a1, b1, c1...z1, a2, b2 etc.). The second series contains samples with the prefix 'PK' or 'MB'. The 'PK' samples are from

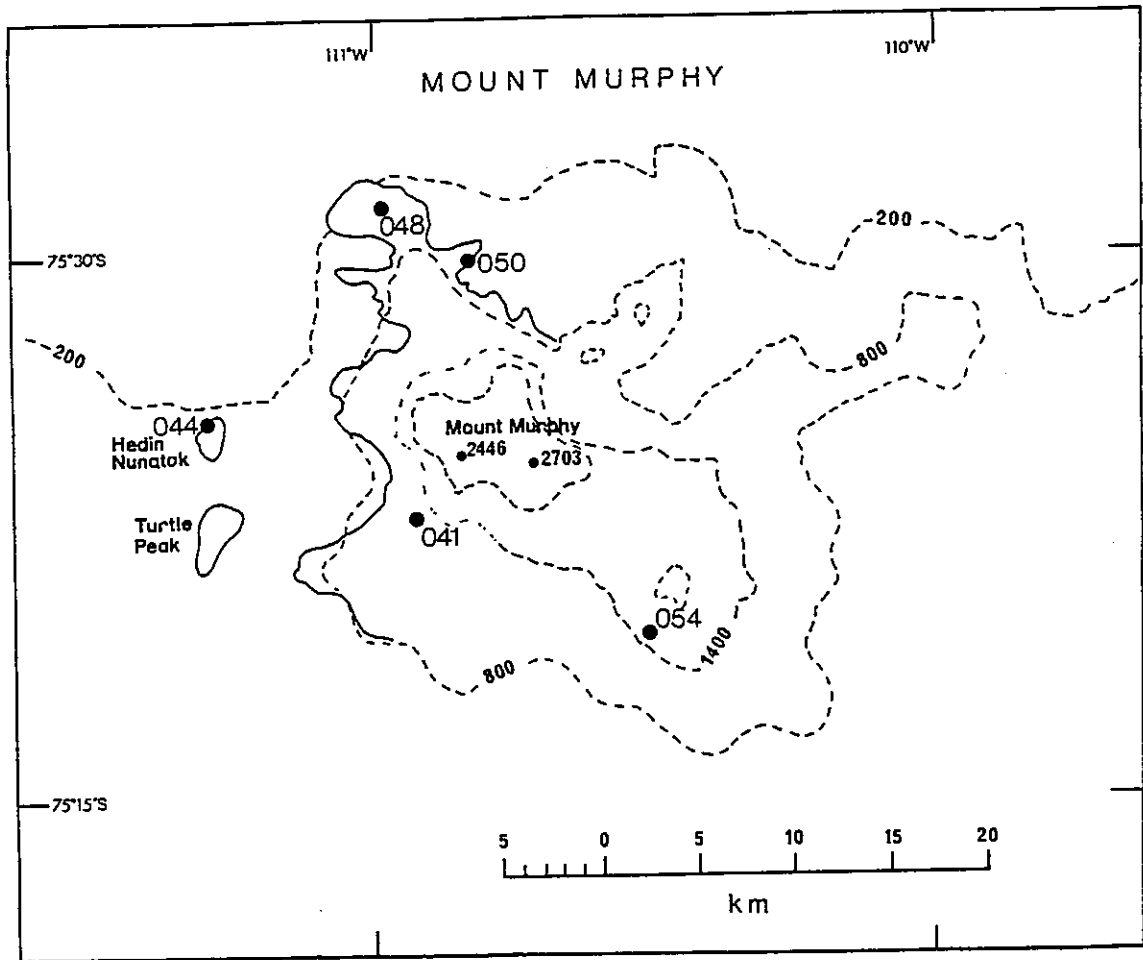


FIGURE 3: Location map of the Mount Murphy, Marie Byrd Land (after Le Masurier, 1990). Xenolith localities are indicated.

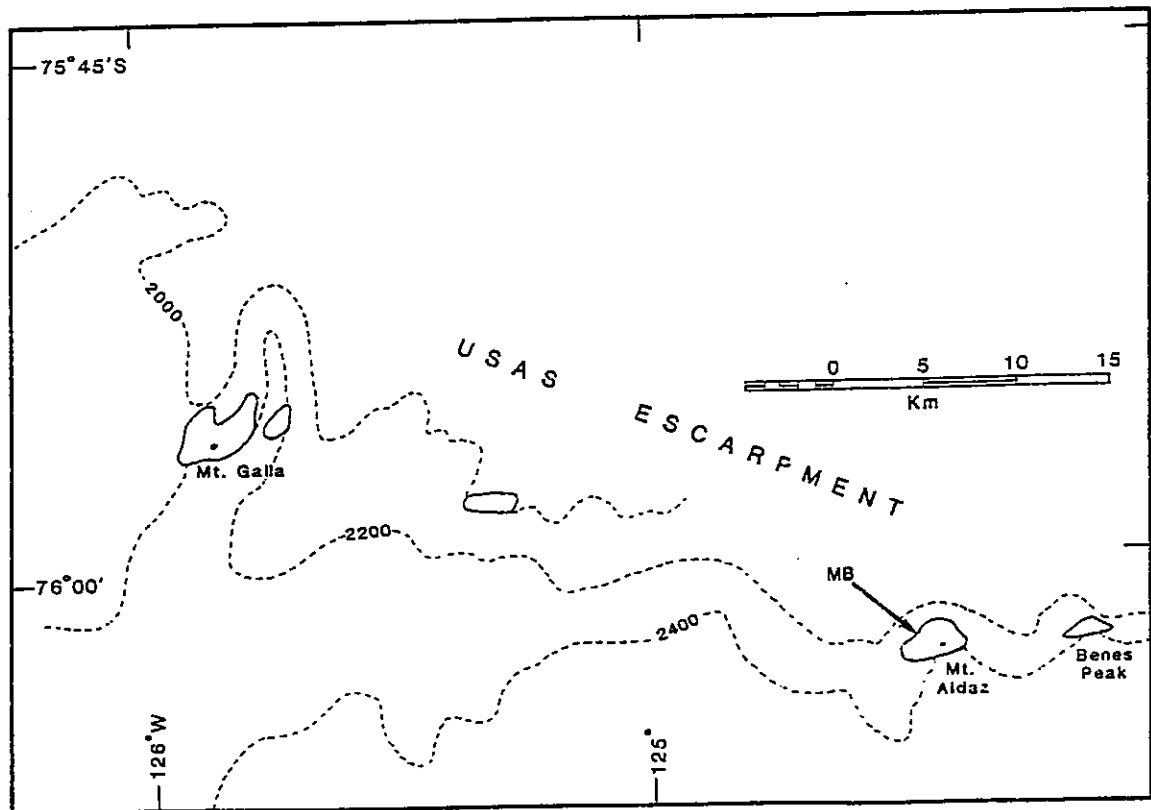


FIGURE 4: Location map of the USAS Escarpment, Marie Byrd Land (after Le Masurier, 1990). Upper mantle xenoliths (site MB) were collected from Mount Aldaz.

Mount Hampton with the first numeral representing the sample site, and following alpha-numeric indicating the sample number. All the 'MB' samples (followed by a numeric sample number) come from Mount Aldaz, in the USAS Escarpment.

Localities of xenoliths from the Executive Committee Range are shown in Figure 2, from Mount Murphy in Figure 3, and from the USAS Escarpment in Figure 4. A full list of samples can be found in Appendix Two.

Description of Xenolith Types

Upper Mantle Peridotites

Peridotite xenoliths from MBL consist of olivine + orthopyroxene + clinopyroxene + spinel + rare plagioclase; garnet is entirely absent. Textures range from coarsely granular to porphyroclastic. Spinel lherzolites occur in all peridotite localities, and dunites and Cr-diopside rich peridotites also occur at Mounts Hampton and Murphy. MBL peridotites are typical of Type I (Cr-diopside) upper mantle peridotites described world-wide (Frey and Prinz, 1978).

Lower Crustal Pyroxenites and Granulites

The MBL pyroxenite suite consists of clinopyroxene + olivine (Mounts Sidley and Murphy) or orthopyroxene (Mount Hampton) + Al-bearing and Fe-Ti spinels, with only minor amounts of plagioclase. MBL pyroxenites are typical of Type II (Al-augite) pyroxenites described elsewhere, and interpreted to be upper mantle rocks (Frey and Prinz, 1978). MBL pyroxenites are considered to be essentially lower crustal in origin, due to their occurrence with, and their geochemical similarity to the granulite suite in MBL. Olivine clinopyroxenites and wehrlites are the major rock type from Mounts Sidley and Murphy, with subordinate spinel-, kaersutite- and plagioclase-bearing pyroxenites also occurring. Plagioclase rich pyroxenites from Mount Sidley are termed Type C (plagioclase-cumulate) pyroxenites, and plagioclase poor pyroxenites are termed Type P (pyroxenite) pyroxenites. Mount Hampton pyroxenites are dominantly websterites (including plagioclase-bearing websterites) and clinopyroxenites.

Pyroxenite textures vary greatly between sites, with Mount Sidley and Murphy pyroxenites retaining cumulate (heteradcumulate and mesocumulate) textures, whereas Mount Hampton pyroxenites have been metamorphosed. Igneous mineral phases are typically 1-2 mm in size (ranging up to 5 mm), and recrystallised phases are typically ≤ 1 mm in diameter.

The MBL granulite suite consists of plagioclase + clinopyroxene + olivine or orthopyroxene (as for the pyroxenite suite) + Fe-Ti spinels (and rare green Al-bearing spinels in Mount Murphy granulites). Olivine leucogabbros and melagabbros are the most abundant rock type in Mounts Sidley and Murphy granulites, with olivine gabbros, leucogabbros, leucotroctolites, troctolites and anorthosites also occurring.

Mount Sidley plagioclase rich granulites are termed Type L (layered granulites), and plagioclase poor granulites are termed Type M (mafic) granulites. Mount Hampton granulites are mainly norites and gabbros, with minor amounts of leuco- and melanorites and gabbros.

The granulite suite ranges in texture from igneous (cumulates) to metamorphic (granoblastic with equant polygonal crystals), with many Mount Murphy granulites retaining igneous textures, whereas Mount Hampton granulites are generally recrystallised. Granulites from all localities display a layering of felsic and mafic minerals on a sub-cm scale, interpreted to represent a primary igneous cumulate layering. Primary igneous grains are typically several mm in diameter (up to 5 mm in size), whereas recrystallised grains are generally 1-2 mm.

Kaersutite occurs in many lower crustal xenoliths from Mount Sidley as a secondary mineral replacing clinopyroxene. The extent of replacement varies from minimal in granulites to extensive in pyroxenites, with kaersutite becoming a major mineral phase at the expense of clinopyroxene. Small rhönite grains also occur in many samples, in association with melts or kaersutite replacement of clinopyroxene.

Oxidation reactions are extensive in the Mount Sidley granulite suite, resulting in plagioclase overgrowths, apatite and Fe-Ti crystallisation, and small amounts of glass in Mount Sidley granulites. Widespread oxidation of Mount Murphy granulite olivine crystals has also occurred, resulting in the formation of olivine and Fe-Ti oxide symplectites, ranging from small rims on olivine to the complete replacement of primary olivine. Oxidised olivines have a rusted appearance, highlighting their cleavage planes.

Orthopyroxene in the Mount Hampton xenolith suite (especially the granulite suite) has been oxidised, resulting in symplectite growth of olivine and Fe-Ti oxides on their rims and along cracks. In advanced cases, symplectite growth has almost totally replaced the host orthopyroxene, resulting in symplectites that are opaque under transmitted light. Symplectites occur on both igneous and metamorphic orthopyroxenes, indicating symplectite formation after metamorphism. Secondary oxide growth also occurs in cracks and along plagioclase rims. Plagioclase in contact with these veins show disequilibrium textures.

Analytical Procedures

EPMA Mineral Analyses

Polished thin sections of selected xenoliths were analysed for mineral compositions on a JEOL-733 Superprobe at Victoria University of Wellington. The initial method used was modified from that of Bence and Albee (1969). For the later part of this work, the full ZAF correction was used. Anhydrous silicates were analysed at 15 kV and 1.2×10^{-8} A, and hydrous minerals, oxides and glasses were analysed at

0.8×10^{-8} A with a defocused beam (10-20 μm diameter). Precision of analyses is approximately 1% for elements with abundances > 10 %, and from 5-10 % for low abundance elements.

All Fe in mineral analyses was measured as FeO. Fe_2O_3 contents of some mineral phases was determined assuming stoichiometry, however for Fe:Fe+Mg ratios (e.g. Fe content of olivine), all Fe is assumed to be FeO. A complete list of mineral and glass analyses of MBL xenoliths is presented as Appendix Three.

Mineral Separation Techniques

Mineral separates were obtained from many samples for INAA analyses of trace elements, including rare earth elements, in minerals. Xenoliths from Antarctica are commonly well preserved and unweathered due to the desert environment. However, the oxidised nature of the xenoliths has resulted in some minerals with oxide inclusions and coatings. Along with their high densities this makes the separation of some minerals difficult.

To overcome the difficulties with coated or altered minerals, a suitable grain size for mineral separations must be established. Typically a fraction of 1/5 to 1/10 the mean grain size is suitable. In the case of Antarctic xenoliths, a grain size of 2-3 ϕ (0.25-0.125 mm) was selected. This is the largest grain size whereby samples are large enough to examine easily under a microscope and allow easy hand picking, while being small enough to produce monomineralic grains without any coatings of oxides.

Minimising the number of analytical techniques is preferred so as to restrict the possibility of contamination. With further 'handling' of samples the possibility of contamination is increased. This is especially important when dealing with small amounts of sample as for isotopic and REE analyses. Equipment used must be thoroughly cleaned at each step; especially the sieve stack and the frantz magnetic separator which easily produce contaminants.

Sample Crushing

Rock chips of samples for mineral separation were crushed in a terna for a few seconds to produce the required grain size before mineral separations were undertaken. Further discussion of techniques used for crushing minerals can be found in Palmer (1990).

Dry Sieving

To obtain a uniform grain size of 2-3 ϕ , all samples were dry sieved using a Fritsch shaker. Full details of procedures for grain size analyses can be found in Barrett and Brooker (1989). The steps taken were:

1. Samples were sieved for 18 minutes (6 mins on intermediate setting, 6 mins on micro setting, 6 mins on intermediate) at amplitude 6;

2. Fractions were collected for 1.5-2.0 ϕ , and for 2.0-3.0 ϕ . All other fractions were discarded.
3. Both fractions were then placed in beakers and washed of adhering fine grains by squirting distilled water into the beakers, stirring, and pouring off the clouded water. This was continued until the water ran clear.
4. Samples were then oven dried at 40 °C overnight before placing in vials ready for mineral separation.

Magnetic Separations

Mineral separations were undertaken using a Frantz isodynamic magnetic separator. As a knowledge of the magnetic susceptibilities of the minerals concerned is needed for this method, experiments were undertaken on a number of samples at many settings to determine the optimum conditions for separating minerals from granulites, pyroxenites and peridotites. A hand magnet in a plastic bag was passed over all samples to remove grains of magnetic oxides which can easily clog the Frantz separator, and provide contaminants. A slope of 20° for the magnetic separator was used in all cases. The procedures for different rock types are outlined below.

Granulites

Granulites were separated for plagioclase and clinopyroxene. The principle problem was separating oxidised olivine from clinopyroxene.

1. At a current of 0.5 amps, plagioclase is the only mineral phase not affected by the magnetic field. A sample containing only plagioclase grains (the residual; i.e. unaffected grains) was obtained.
2. The sample was then passed through a 0.1 amp current. Highly magnetic grains and grains well coated with oxides (oxidised olivine and orthopyroxene) were separated off and discarded. The unaffected residual sample was then separated for clinopyroxene.
3. Experiments in separations failed to obtain a sample rich in clinopyroxene. As the oxides had already been separated off, only clinopyroxene and the more susceptible plagioclase (and unoxidised olivine and orthopyroxene) grains were affected by the current. The greatest concentration of clinopyroxene (approximately 70%) was obtained at a current of 2.5 amps. The residual grains (rich in plagioclase) were discarded. Further runs at 2.5 amps failed to increase the proportion of clinopyroxene significantly, and only succeeded in reducing the size of the separation. Multiple runs are therefore discouraged unless there is sufficient sample to do so.

4. In order to purify the samples, both were floated in heavy liquids and hand picked of impurities (other mineral phases and altered minerals). The resultant samples were almost (if not totally) 100% pure.

Pyroxenites

The problems encountered in separating granulite minerals were compounded for separating pyroxenite minerals, which are often oxidised, and contain mineral phases with similar magnetic properties. For isotopic and REE analyses only clinopyroxenes were separated. Other mineral phases were not separated in this study, but because of similar magnetic susceptibilities of the other grains the use of heavy liquids is recommended.

N.B. Kaersutite was not a major phase in any of the pyroxenites. Separating kaersutite from clinopyroxene by magnetic properties and their identification under the microscope at the grain size was considered too difficult, and the use of heavy liquids is again recommended for their separation.

1. Any plagioclase present was separated out at 0.5 amps as per the granulite procedure.
2. Highly magnetically susceptible phases were then separated out at a current of 0.1 amps and discarded.
3. A current of 0.25 amps was again found to be the best for separating clinopyroxenes. Unlike the granulite samples however, it is the residue (grains unaffected by the current) that was rich in clinopyroxene. The other split is a mix of clinopyroxene and olivine or orthopyroxene.
4. The sample was then hand picked of any undesirable material.

Peridotites

Peridotites were only separated for clinopyroxenes (for REE analyses). Optimum conditions for the separation of other phases were also determined.

1. A current of 0.4 amps was used to separate clinopyroxenes, which were unaffected by the current. This split was not totally impurity free as splits using a 0.5 amp current are, but as clinopyroxene is not an abundant phase, the lower current was preferred to obtain a larger sample.
2. The sample was then passed through a 0.1 amp current to isolate highly magnetic minerals.

3. A run at 0.25 amps resulted in a split that was a mix of olivine and orthopyroxene (rich in the latter). At 3.0 amps a split that was also a mix of olivine and orthopyroxene was obtained, as well as a split almost purely olivine. A run at 0.3 amps for olivine (magnetic split), followed by 0.25 amps for orthopyroxene (magnetic split), is therefore recommended.

4. Samples were then hand picked of any impurities.

Summary of magnetic separations

Granulites:	Pyroxenites:	Peridotites:
0.5A - plagioclase (n)	0.5A - plagioclase (n)	0.4A - clinopyroxene (n)
0.1A - discard (m)	0.1A - discard (m)	0.1A - discard (m)
0.25A - clinopyroxene (m)	0.25A - clinopyroxene (n)	0.3A - olivine (m)
		0.25A - orthopyroxene(m)

(n) = non-magnetic split, (m) = magnetic split

Heavy Liquids

Sodium polytungstate was the preferred heavy liquid as it is non toxic. Although it is generally only useful for densities up to approximately 3.1 g/cc, and has problems with densities above 2.7 g/cc, it could still be used if sufficient sample was present.

Densities of 3 g/cc were used to float off plagioclase in granulites and pyroxenites. Such a high density was necessary because of the oxidised nature of the grains, which makes them denser than unoxidised grains. At this high density, settling of grains in the liquid was not complete. The heavy fraction was filtered off and washed. This was a pure clinopyroxene fraction and was used for analyses. The remaining liquid, except for the very top containing the floated fraction, was then filtered and evaporated for reuse. The grains were a mixture of heavy and light, and were discarded. The float was then filtered off and washed. This was a pure plagioclase fraction and was added to that produced by magnetic separation.

XRF Whole Rock Analyses

A representative selection of xenoliths based on size, degree of freshness and suitability for sample preparation were selected for major and trace element analyses. Samples were first split using a tungsten carbide ROCKLABS hydraulic splitter, and crushed to powder in a TEMA tungsten carbide swing mill. The use of tungsten carbide equipment precluded the determination of W and Co. Whole rock samples and powders are stored in the Victoria University of Wellington rock collection. Major and trace elements were determined using a PHILIPS PW1404 automatic sequential X-ray spectrometer, at Victoria University of Wellington.

Major Elements

Fused disks for major element analyses were prepared using procedures modified after Norrish and Hutton (1969). One half gram of rock powder, 0.60 g of AR ammonium nitrate, and a determined weight of Norrish formula X-ray flux (usually between 2.6800 g and 2.7000 g depending on atmospheric moisture at the time of fusing) were melted together and pressed as a fused disk. Loss on ignition (LOI) was determined by heating approximately two grams of sample at 1,000 °C for one hour. Full details of this technique can be found in Palmer (1990).

Fe₂O₃ (total) listed in tables represents total iron measured as Fe₂O₃; discrete FeO and Fe₂O₃ contents were not determined. For purposes of normative mineralogy calculations, total Fe was adjusted to Fe₂O₃:FeO = 0.15. Mg numbers (Mg#) are determined by the ratio: 100MgO/MgO+FeO, where FeO is total iron (FeO+Fe₂O₃) measured as FeO. These ratios are preferred as they allow direct comparisons with the majority of published normative compositions and Mg numbers.

Trace Elements

Trace element concentrations were determined on boric acid-backed pressed pellets using procedures modified after Norrish and Chappell (1977). Four grams of rock powder were combined with boric acid to form a four centimetre pressed pellet, which was then analysed by X-ray spectrometry for selected trace elements. Quoted trace element abundances are accurate to approximately \pm 1-2 ppm. The exact errors depend on the element, and its abundance, with lower concentrations having higher associated errors. For a more complete discussion of XRF analyses, and errors involved, see Roser (1983), and Palmer (1990).

Results of all major element analyses, together with trace element analyses and calculated normative mineralogy are presented in Appendix Four.

INAA Trace Element Analyses

INAA samples were prepared as for XRF analyses (see XRF Whole Rock Samples). Sample sizes ranged from 30 and 120 mg, depending on rock type and sample type as follows;

Granulite rock	70-110 mg	Granulite clinopyroxene	40-60 mg
Pyroxenite rock	50-70 mg	Pyroxenite clinopyroxene	40-50 mg
Peridotite rock	80-120 mg	Peridotite clinopyroxene	30-50 mg

The samples were irradiated and counted after 7 days, and again after 40 days. A full detail of the method can be found in Gamble and Kyle (1987).

The estimated accuracy (P.R. Kyle, writ. comm.) of analyses determined by INAA is as follows:

very good	2 % or less	La, Eu, Tb, Th
good	2-4 %	Sc, Cr, Rb, Ce, Sm, Yb, Lu, Hf, Ta
rough	5-10 %	Zn, As, Br, Ba, Nd,
very rough	up to 25 %	Ni, Sr

Trace element (including rare earth element) analyses determined by INAA are presented as Appendix Five.

Isotope Analyses

Sr, Nd and Pb isotopic ratios were determined on a VG354 multicollector mass spectrometer in the radiogenic isotope laboratory at Royal Holloway University of London following conventional ion exchange separation techniques. Analytical details are described in Thirlwall *et al.* (in press). Sr and Nd isotopic data were determined using the multidynamic procedures outlined in Thirlwall (1991a and 1991b). Pb isotope data was measured statically.

Sr isotope data is reported relative to a value of 0.71025 for the NBS standard SRM 987. Internal precision (2 se) was always better than ± 0.000015 . However, the mean value obtained for SRM987 during the period of analysis was 0.710248 ± 20 (2 sd, $n = 22$) and is a truer reflection of data quality. Similarly, the internal precision of Nd isotope data was always better than ± 0.000006 and an internal laboratory Nd standard, Aldrich, yielded a mean value of 0.511421 ± 11 (2 sd, $n = 3$ 5) during the period of analysis. This value corresponds to values of 0.512648 and 0.512860 for the international standards BCR-1 and La Jolla.

Pb isotope data was corrected for mass fractionation by normalisation to the average value obtained for the NBS standard SRM981 during the period of analysis: 206/204 16.892 ± 12 , 207/204 15.433 ± 10 and 208/204 36.509 ± 30 (2 sd). Internal precision was typically better than ± 0.005 , ± 0.005 and 0.008 for 206/204, 207/204 and 208/204 respectively.

Isotopic analyses are given in Appendix Six.

Acknowledgements

Xenolith samples were collected by John Gamble, Phil Kyle, Bill McIntosh, Nelia Dunbar and Kurt Panter (members of the WAVE programme). Thin sections of samples were prepared by Christina Smits (Geology), and XRF analyses and microprobe maintenance were carried out by Ken Palmer (Analytical Facility, V.U.W). Phil Kyle and Kurt Panter (New Mexico Institute of Mining and Technology) provided INAA analyses, and Matthew Thirlwall, Gerry Ingram and Joel Baker (Royal Holloway and Bedford New College, University of London) assisted with isotopic analyses.

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Appendix One: Descriptions and Abbreviations used in Appendices.

Appendix Two

Field No. The number given to each sample in the field (e.g. 89001A). The first two digits represent the year (e.g. 89). The following three digits represent the site number (e.g. 001). The final characters represent sample numbers for that site, from A to Z and then A1, B1 etc (e.g. A). Sample numbers are in no particular order.

V.U.W. No. The sample number given to each sample stored in the Victoria University of Wellington rock collection. Rocks, powders and thin sections are all stored in this collection.

Lithology. The nomenclature for each sample according to the classification schemes used in this study (Chapter Two). Abbreviations are:

Cpx	- Clinopyroxene	Cpxite	- Clinopyroxenite
Ka	- Kaersutite	Kaerite	- Kaersutitite
Leugb	- Leucogabbro	Leutroct	- Leucotroctolite
Melgb	- Melagabbro	Ol	- Olivine
Opx	- Orthopyroxene	Pl	- Plagioclase
Webst	- Websterite	Wehr	- Wehrlite

Analyses. The analytical methods used on each sample in this study. While some samples under the heading "Upper crustal" have been prepared, they may not have been analysed in this study. All other rock types have been both prepared and analysed in this study. Abbreviations are:

I	- Isotopic analyses	M	- Major element analyses
P	- Probe section (includes S)	R	- Rare Earth Element analyses
S	- Thin section	T	- Trace element analyses

Appendix Three

c	- core	dk	- dark part of oxidised olivine
inc	- inclusion in mineral	kaerst	- in kaersutitisation reaction
exsol	- exsolved mineral	lgt	- light part of oxidised olivine
melt	- in infiltrating melt	oxid	- in oxidation reaction
spinel	- on rim of spinel	symp	- in olivine symplectite
r	- rim	" - "	- relates this analysis to the
	following analysis		

Appendix Four

Gran	- Granulite	Perid	- Peridotite
Pyrox	- Pyroxenite	Type L	- Type L granulite
Type M	- Type M granulite	Type C	- Type C pyroxenite
Type P	- Type P pyroxenite	U.C.	- Upper crustal rock

Xenoliths named Type L to Type P refer to xenoliths from Mount Sidley only.

Appendix Five

cpx	- clinopyroxene sample	re	- repeat analysis
wr	- whole rock sample		

Appendix Two: Sample List

A1.1 Mount Sidley Xenoliths

Field No	VUW No	Lithology	Analyses	Field No	VUW No	Lithology	Analyses
Type L Granulites							
90029D	32590	Ol Gabbro	P	90031P	32642	Ka Gabbro	M,T,S
90029K	32597	Ol Gabbro	M,T	90031R	32644	Ol Gabbro	S
90029L	32598	Ol Gabbro	S	90033O	32660	Troctolite	P
90029M	32599	Ol Gabbro	M,T	90033S	32664	Ol Gabbro	M,T,P
90029O	32601	Ol Gabbro	M,T,P	90033U	32666	Ol Gabbro	M,T,P
90029P	32602	Ol Gabbro	M,T,S	90033V	32667	Ol Gabbro	M,T,P
90029R	32604	Ol Gabbro	S	90033W	32668	Ol Gabbro	M,T,P
90029S	32605	Ol Gabbro	S	90033X	32669	Ol Gabbro	M,T,I,R,P
90029T	32606	Anorthosite	S	90033B1	32673	Ka Gabbro	M,T,S
90029U	32607	Ol Gabbro	M,T,S	90033C1	32674	Ol Gabbro	M,T
90029W	32609	Ol Gabbro	S	90033E1	32676	Gabbro	M,T,P
90029X	32610	Gabbro	M,T,P	90033F1	32677	Ol Gabbro	M,T,P
90029Y	32611	Ol Gabbro	M,T,S	90033G1	32678	Ol Gabbro	P
90029Z	32612	Ol Gabbro	S	90033K1	32682	Ka Gabbro	T,P
90029A1	32613	Ol Gabbro	S	90033L1	32683	Ka Gabbro	T,S
90029B1	32614	Ol Gabbro	P	90033O1	32686	Ol Gabbro	T,S
90029C1	32615	Ol Gabbro	M,T,S	90038F	32716	Ol Gabbro	T
90029D1	32616	Ol Gabbro	M,T,P	90038G	32717	Ol Gabbro	T
90029F1	32618	Ol Gabbro	M,T,S	90039A	32724	Ol Gabbro	M,T
90029G1	32619	Ol Gabbro	M,T,I,R,S	90039C	32726	Ol Gabbro	M,T,P
90029H1	32620	Ol Gabbro	M,T,I,R,S	90039D	32727	Troctolite	M,T,P
90029J1	32622	Ol Gabbro	T	90039E	32728	Troctolite	M,T,P
90029L1	32624	Ol Gabbro	T,P	90039G	32730	Ol Gabbro	M,T,I,R,P
90029M1	32625	Ol Gabbro	T	90039I	32732	Ol Gabbro	M,T,S
90031A	32627	Ol Gabbro	T,S	90039J	32733	Ol Gabbro	T,P
90031D	32630	Ka Gabbro	T,I,R,S	90039K	32734	Ol Gabbro	M,T
90031F	32632	Ol Gabbro	T,S	90039L	32735	Ol Gabbro	M,T,S
90031G	32633	Ka Gabbro	M,T,S	90039M	32736	Gabbro	M,T,P
90031L	32638	Ka Gabbro	M,T	90039P	32739	Anorthosite	P
90031O	32641	Ka Gabbro	M,T,S				
Type M Granulites							
90029C	32589	Ol Gabbro	M,T,P	90033G	32652	Ol Gabbro	M,T
90029H	32594	Ol Gabbro	M,T,P	90033K	32656	Ol Gabbro	M,T,P
90029Q	32603	Ol Gabbro	M,T,S	90033Q	32662	Ka Gabbro	T,P
90029V	32608	Ol Gabbro	M,T,P	90039B	32725	Ol Gabbro	M,T,P
90029EI	32617	Ol Gabbro	M,T,P	90039F	32729	Ol Gabbro	M,T,P
90029I1	32621	Ol Gabbro	T,S	90039R	32741	Ol Gabbro	M,T,P
90031C	32629	Ka Gabbro	M,T,S	90039V	32745	Ol Gabbro	M,T,P
Type C Pyroxenites							
90029B	32588	Gabbro	M,T	90033M1	32684	Gabbro	T,P
90033J	32655	Ka Gabbro	M,T,P	90033P1	32687	Ka Gabbro	M,T,P
90033P	32661	Ka Gabbro	M,T,P	90039O	32738	Ol Gabbro	P
90033Z	32671	Ka Gabbro	T,S	90039Sb	32742	Gabbro	M,T,I,R,P
90033H1	32679	Gabbro	M,T,P	90039T	32743	Ka Gabbro	T,S
Type P Pyroxenites							
90031Q	32643	Wehrlite	M,T	90033N	32659	Wehrlite	S
90033A	32646	Ol Cpxite	M,T,P	90033R	32663	Gabbro	P
90033B	32647	Ol Cpxite	M,T,P	90033D1	32675	Ol Cpxite	T,S
90033C	32648	Ol Kaerite	M,T,R,P	90033N1	32685	Wehrlite	T,P
90033D	32649	Wehrlite	T,S	90033Q1	32688	Wehrlite	P
90033E	32650	Ol Gabbro	M,T,P	90033R1	32689	Wehrlite	T,P
90033F	32651	Ka Wehr	M,T,P	90033S1	32690	Wehrlite	M,T,P
90033G	32652	Ol Cpxite	P	90039Sa	32742	Wehrlite	M,T,I,R,P
90033H	32653	Ka Wehr	M,T,P	90039U	32744	Ol Cpxite	M,T

90033I	32654	Wehrlite	M,T,P	90039X	32747	Ol Cpxite	M,T,S
90033L	32657	Wehrlite	S	90039Y	32748	Ol Cpxite	M,T,I,R,S
90033M	32658	Cpxite	T,S				

Field No	VUW No	Application	Field No	VUW No	Application
Upper Crustal					
90024	32579		90033J1	32681	T,S
90025	32580		90034A	32691	T,S
90026A	32581		90034B	32692	S
90026B	32582	P	90034C	32693	T,S
90027	32583		90035A	32694	T
90028A	32584		90035B	32695	S
90028B	32585		90035C	32696	T,S
90028C	32586		90035D	32697	T,S
90029A	32587	M,T,P	90035E	32698	S
90029E	32591	S	90035F	32699	
90029F	32592	M,T,P	90036A	32700	
90029G	32593	M,T	90036B	32701	T,S
90029I	32595		90036C	32702	T,S
90029J	32596		90036D	32703	
90029N	32600	T,S	90036E	32704	
90029K1	32623		90036F	32705	
90030	32626	T,P	90036G	32706	T,S
90031B	32628	S	90036H	32707	
90031E	32631	T,S	90036I	32708	T,S
90031H	32634		90036J	32709	T,S
90031I	32635		90038D	32714	S
90031J	32636	T,S	90038E	32715	T,S
90031K	32637	T,S	90038F	32716	T,S
90031M	32639	T,S	90038G	32717	T,S
90031N	32640	T,S	90038H	32718	T,S
90032	32645		90038I	32719	T,S
90033T	32665	T,P	90038J	32720	T,S
90033Y	32670	T,S	90038K	32721	T,S
90033Z	32671	T,S	90038L	32722	T,S
90033A1	32672	M,T,P	90038M	32723	T,S
90033I1	32680	P	90039H	32731	P

A1.2 Mount Hampton Xenoliths

Field No	VUW No	Lithology	Analyses	Field No	VUW No	Lithology	Analyses
Granulites							
PK4A	32875	Norite	M,T,P	PK4Y	32903	Cpx Norite	M,T,P
PK4R	32896	Opx Melgb	M,T,P	PK4C1	32907	Melgb	M,T,I,R,P
PK4V	32900	Opx Leugb	M,T,P	PK4LI	32916	Melgb	M,T,I,R
PK4X	32902	Cpx Norite	M,T				
Pyroxenites							
PK4B	32876	Pl Webst	M,T,P	PK4Q	32895	Websterite	M,T,P
PK4C	32877	Websterite	M,T	PK4S	32897	Websterite	M,T,P
PK4D	32878	Pl Webst	M,T,P	PK4T	32898	Pl Webst	M,T,P
PK4I	32879	Websterite	M,T	PK4B1	32906	Cpxite	P
PK4J	32888	Websterite	M,T,P	PK4D1	32908	Websterite	M,T,P
PK4K	32889	Websterite	M,T	PK4O1	32919	Pl Webst	M,T,P
PK4L	32890	Websterite	M,T,I,R,P	PK4Q1	32879	Websterite	M,T
PK4M	32891	Websterite	M,T,P	PK5E	32925	Websterite	M,T,P
PK4N	32892	Websterite	M,T,P	PK5G	32927	Websterite	M,T,P
PK4P	32879	Websterite	M,T				

Field No	VUW No	Application	Field No	VUW No	Application
Peridotites					
PK1A	32874	M,T	PK4K1	32915	M,T,S
PK4E	32879	M,T	PK4M1	32917	M,T,S
PK4F	32880	M,T,S	PK4N1	32918	M,T,R
PK4G	32881	M,T,R,P	PK4P1	32920	M,T
PK4H	32882	M,T	PK5A	32921	M,T,S
PK4O	32893	M,T,P	PK5B	32922	M,TS
PK4U	32899	M,T	PK5C	32923	M,T,S
PK4W	32901	M,T,S	PK5D	32924	M,T,R,S
PK4Z	32904	M,T,P	PK5F	32926	M,T,S
PK4A1	32905	M,T,P	PK5H	32928	M,T,S
PK4E1	32909	M,T,S	PK5I	32929	M,T,S
PK4F1	32910	M,T,P	PK5J	32930	M,T,R,S
PK4G1	32911	M,T,R,P	PK5K	32931	S
PK4H1	32912	M,T,R,P	PK5L	32932	M,T
PK4I1	32913	M,T,S	PK5M	32933	M,T
PK4J1	32914	M,T,S			

A1.3 Mount Murphy Xenoliths

Field No	VUW No	Lithology	Analyses	Field No	VUW No	Lithology	Analyses
90041 Granulites							
90041A	32834	Leugb	M,T,P	90041F	32839	Ol Leugb	M,T,S
90041B	32835	Leutroct	M,T,I,R,P	90041G	32840	Ol Leugb	P
90041C	32836	Leugb	M,T,I,R,P	90041H	32841	Leugb	M,T
90041D	32837	Leutroct	M,T	90041I	32842	Troctolite	M,T,P
90041E	32838	Ol Gabbro	S	90041J	32843	Troctolite	M,T
90048 Granulites							
90048C	32847	Ol Melgb	M,T,S	90048F	32850	Ol Gabbro	T,P
90048E	32849	Leugb	M,T,P	90048G	32851	Leugb	M,T,P
90044 Pyroxenites							
90044A	32844	Cpxite	M,T,P				
90048 Pyroxenites							
90048A	32845	Ol Cpxite	M,T	90048D	32848	Pl Cpxite	M,T,P
90048B	32846	Ol Cpxite	M,T,P				
90054 Pyroxenites							
90054C	32855	Ol Cpxite	M,T,I,R,P	90054K	32863	Ol Cpxite	M,T,I,R,P
90054F	32858	Ol Cpxite	M,T	90054P	32868	Ol Cpxite	T,S
90054G	32859	Cpxite	M,T,S	90054S	32871	Ol Cpxite	T,P
90054I	32861	Ol Cpxite	M,T,P				

Field No	VUW No	Application	Field No	VUW No	Application
Peridotites					
90054A	32853	T,R,S	90054M	32865	M,T,S
90054B	32854	M,T,R,S	90054N	32866	M,T,S
90054D	32856	M,T	90054O	32867	M,T,S
90054E	32857	M,T,R,S	90054Q	32869	M,T,S
90054H	32860	M,T,S	90054R	32870	M,T,S
90054J	32862	M,T,P	90054T	32872	M,T,S
90054L	32863	M,T,S	90065U	32873	M,T

A1.4 Mount Cumming Xenoliths

Field No	VUW No	Lithology	Analyses	Field No	VUW No	Lithology	Analyses
Granulites							
90040I	32770	Gabbro	M,T,I,R,P	90040N2	32827	Gabbro	M,T,S
90040J	32771	Gabbro	S	90040O2	32828	Gabbro	M,T,S
90040W	32784	Gabbro	M,T,P	90040P2	32829	Gabbro	M,T,S
90040Y	32786	Gabbro	M,T,P	90040Q2	32830	Gabbro	S
90040F1	32793	Gabbro		90040R2	32831	Gabbro	S
90040M2	32826	Gabbro	M,T,S				
Field No	VUW No	Application		Field No	VUW No	Application	

Peridotites							
90040A	32762	S		90040K1	32798		
90040B	32763	S		90040M1	32800	P	
90040C	32764	P		90040O1	32802	T,P	
90040D	32765	T		90040P1	32803	T	
90040E	32766	M,T,R,S		90040Q1	32804	S	
90040F	32767	T,S		90040R1	32805		
90040G	32768	M,T,P		90040S1	32806	M,T,S	
90040H	32769	M,T,I,R,S		90040T1	32807	T,S	
90040K	32772	M,T		90040U1	32808	M,T,R,S	
90040M	32774	T,S		90040V1	32809	T,S	
90040N	32775	M,T,S		90040W1	32810	T,S	
90040O	32776	S		90040X1	32811	T,S	
90040P	32777	M,T,P		90040Y1	32812	T	
90040Q	32778	P		90040Z1	32813	T,S	
90040R	32779	P		90040A2	32814	T,S	
90040S	32780	P		90040B2	32815	T	
90040T	32781	T,P		90040C2	32816	T	
90040U	32782	M,T,R		90040D2	32817	T	
90040X	32785			90040F2	32818	T,S	
90040Z	32787	T,P		90040F2	32819	T,S	
90040A1	32788	P		90040G2	32820	M,T,P	
9004B1	32789			90040H2	32821	S	
90040C1	32790	P		90040I2	32822	S	
90040D1	32791	P		90040J2	32823	S	
90040E1	32792	P		90040K2	32824	S	
90040G1	32794	P		90040L2	32825	T,S	
90040H1	32795			90040A3	32833	M,T,S	
Upper crustal							
90040L	32773	M,T,S		90040J1	32797	T,P	
90040V	32783	T,P		90040L1	32799	T,P	
90040I1	32796			90040S2	32832	S	

A1.5 Mount Waesche Xenoliths

Field No	VUW No	Lithology	Analyses	Field No	VUW No	Lithology	Analyses
Granulites							
89001I	32564	Gabbro	M,T,P	89001L	32567	Gabbro	P
Field No	VUW No	Application		Field No	VUW No	Application	

Upper crustal							
89001A	32556	P		89003	32573		
89001B	32557			89004	32574		
89001C	32558	T,P		89005	32575		
89001D	32559	T		89006	32576		
89001E	32560	M,T,P		89007	32577	M,T,P	

89001F	32561	M,T,P	89008	32578	
89001G	32562	P	89009	32579	M,T,P
89001H	32563	P	89010	32580	T,P
89001J	32565	P	89011	32581	P
89001K	32566		89012	32582	
89001M	32568	S	89013	32583	
89001N	32569	S	89014	32584	
89001O	32570	P	89015	32585	
89002A	32571	T,P	89017	32586	
89002B	32572	M,T,P	89018	32587	

A1.6 USAS Escarpment Xenoliths

Field No	VUW No	Application	Field No	VUW No	Application
Peridotites					
MB69A	32934	M,T,S	MB69F	32939	M,T,R,S
MB69B	32935	T,R,S	MB69G	32940	M,T,S
MB69C	32936	M,T,P	MB69H	32941	M,T,R,S
MB69D	32937	M,T,S	MB69I	32942	M,T,S
MB69E	32938	M,T,S			

Appendix Three: EPMA Mineral Analyses

A3.1 Mount Sidley Xenolith Mineral Analyses: olivine

Sample	90029C	90029C	90029C	90029C	90029V	90029B1	90029B1	90033A	90033A	90033A	90033B	90033C	90033C	90033C
Type	Type M core	Type M core	Type M core	Type M core	Type M oxid	Type L core	Type L core	Type P oxid	Type P core	Type P core	Type P oxid	Type P core	Type P kaerst	Type P core
SiO ₂	35.55	35.84	35.63	35.79	43.18	36.36	35.67	38.12	37.86	37.23	37.55	37.55	37.51	37.58
Al ₂ O ₃	0.18	0.11	0.19	0.00	0.30	0.19	0.00	0.02	0.05	0.02	0.08	0.03	0.70	0.03
TiO ₂	0.05	0.04	0.19	0.00	0.07	0.12	0.09	0.02	0.08	0.02	0.00	0.03	3.08	0.08
FeO	40.24	39.04	39.56	39.73	23.75	36.24	39.84	27.40	21.50	26.80	29.54	24.10	17.06	25.34
MnO	1.07	0.84	0.87	0.86	1.03	0.84	0.91	0.28	0.26	0.29	0.31	0.29	0.37	0.46
MgO	23.43	22.97	23.66	23.21	31.98	25.96	22.83	34.05	39.05	35.15	31.45	36.79	40.09	35.79
CaO	0.13	0.16	0.09	0.20	0.37	0.16	0.19	0.10	0.32	0.12	0.17	0.28	0.23	0.18
Na ₂ O	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.03	0.03	0.02	0.00	0.01	0.00
K ₂ O	0.05	0.04	0.05	0.00	0.10	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.13	0.01
TOTAL	100.71	99.04	100.24	99.79	100.99	99.87	99.52	99.99	99.15	99.66	99.12	99.06	99.17	99.46
Si	1.007	1.030	1.011	1.020	1.107	1.016	1.020	1.014	0.992	0.994	1.018	0.996	0.964	0.999
Al	0.006	0.003	0.006	0.000	0.009	0.006	0.000	0.001	0.004	0.001	0.003	0.001	0.021	0.004
Ti	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.004	0.001	0.000	0.001	0.060	0.008
Fe	0.953	0.933	0.939	0.945	0.509	0.846	0.953	0.610	0.471	0.599	0.670	0.535	0.367	0.563
Mn	0.026	0.020	0.021	0.021	0.022	0.019	0.022	0.006	0.006	0.007	0.007	0.007	0.008	0.010
Mg	0.989	0.979	1.000	0.984	1.221	1.080	0.973	1.351	1.525	1.400	1.271	1.455	1.537	1.418
Ca	0.004	0.005	0.003	0.006	0.010	0.005	0.006	0.003	0.009	0.005	0.005	0.012	0.060	0.005
Na	0.000	0.001	0.000	0.000	0.010	0.000	0.000	0.000	0.003	0.002	0.001	0.000	0.001	0.000
K	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.040	0.001
TOTAL	2.988	2.971	2.980	2.976	2.889	2.972	2.974	2.966	3.015	3.009	2.975	3.007	3.058	3.008
Mg#	50.93	51.20	51.57	51.01	70.58	56.07	50.52	68.89	76.40	70.04	65.48	73.12	80.72	71.58

Sample	90033G1	90033G1	90033G1	90033G1	90033P1	90033P1	90033P1	90033P1	90033P1	90033Q1	90033Q1	90033Q1	90033Q1	90033Q1
Type	Type L oxid	Type L core	Type L core	Type L core	Type C oxid	Type C oxid	Type C oxid	Type C oxid	Type C oxid	Type P core	Type P core	Type P rim	Type P core	Type P oxid
SiO ₂	41.22	34.79	35.31	34.52	36.34	39.09	39.92	41.03	40.35	38.54	37.85	39.16	38.26	38.17
Al ₂ O ₃	0.00	0.05	0.00	0.00	0.05	0.04	0.01	0.00	0.08	0.02	0.00	0.06	0.03	0.00
TiO ₂	0.09	0.03	0.07	0.01	0.06	0.06	0.02	0.04	0.09	0.01	0.00	0.02	0.00	0.00
FeO	16.81	40.80	36.98	42.25	40.00	14.24	13.48	15.25	16.72	22.00	22.37	14.89	22.65	21.96
MnO	0.64	0.81	1.01	0.91	0.50	0.55	0.56	0.47	0.34	0.26	0.26	0.12	0.22	0.30
MgO	41.20	23.92	26.46	22.27	22.83	45.09	45.86	43.55	42.12	39.87	39.69	45.25	39.73	39.16
CaO	0.22	0.23	0.15	0.21	0.18	0.16	0.12	0.16	0.14	0.11	0.10	0.28	0.11	0.12
Na ₂ O	0.04	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
K ₂ O	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
TOTAL	100.33	100.63	100.01	100.17	100.00	99.22	100.00	100.50	99.84	100.80	100.27	99.78	100.99	99.74
Si	1.037	0.991	0.994	0.996	1.031	0.988	0.996	1.023	1.020	0.993	0.984	0.985	0.987	0.994
Al	0.000	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.001	0.000	0.002	0.002	0.000
Ti	0.004	0.001	0.004	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe	0.354	0.972	0.870	1.020	0.949	0.301	0.281	0.318	0.353	0.474	0.486	0.313	0.489	0.478
Mn	0.014	0.019	0.024	0.022	0.012	0.012	0.012	0.010	0.007	0.006	0.006	0.003	0.005	0.007
Mg	1.546	1.016	1.110	0.958	0.965	1.700	1.706	1.617	1.585	1.531	1.538	1.697	1.528	1.521
Ca	0.006	0.007	0.040	0.006	0.006	0.004	0.003	0.004	0.000	0.003	0.003	0.007	0.003	0.003
Na	0.005	0.000	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002
K	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	2.970	3.008	3.046	3.003	2.968	3.007	2.999	2.972	2.965	3.008	3.017	3.007	3.014	3.005
Mg#	81.37	51.11	56.06	48.43	50.42	84.96	85.86	83.57	81.79	76.36	75.99	84.43	75.76	76.09

Sample Type	90033C Type P core	90033C Type P core	90033F Type P oxid	90033F Type P oxid	90033F Type P oxid	90033F Type P oxid	90033F Type P oxid	90033F Type P oxid	90033F Type P oxid	90033F Type P oxid	90033F Type P core	90033F Type P core	90033F Type P core	90033G Type P core	90033H Type P core
SiO2	37.22	37.38	39.17	39.18	42.26	40.63	41.63	39.21	38.22	39.62	40.72	39.08	38.03	38.69	
Al2O3	0.02	0.03	1.93	1.93	0.11	0.10	0.01	0.21	0.22	0.07	0.07	0.00	0.11	0.00	
TiO2	0.00	0.00	1.47	1.47	0.07	0.09	0.04	0.16	0.07	0.04	0.07	0.08	0.10	0.01	
FeO	27.29	26.52	6.68	6.68	9.45	13.84	31.24	35.77	39.94	21.63	20.47	21.89	23.08	17.28	
MnO	0.38	0.34	0.16	0.16	0.20	0.21	0.29	0.34	0.32	0.33	0.27	39.23	0.58	0.26	
MgO	35.09	35.14	48.84	48.85	48.16	45.57	25.41	25.14	21.03	39.17	38.33	0.13	37.66	42.89	
CaO	0.11	0.14	0.39	0.39	0.06	0.13	0.18	0.30	0.32	0.13	0.15	0.00	0.41	0.06	
Na2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	
K2O	0.00	0.00	0.01	0.10	0.00	0.02	0.08	0.03	0.04	0.06	0.02	0.00	0.00	0.02	
TOTAL	100.10	99.56	98.65	98.75	100.31	100.57	98.89	101.15	100.16	101.05	100.03	100.40	100.00	99.23	
Si	0.992	0.998	0.949	0.949	1.025	1.005	1.123	1.063	1.071	1.014	1.043	1.007	0.995	0.991	
Al	0.001	0.001	0.055	0.055	0.003	0.003	0.000	0.007	0.007	0.002	0.000	0.000	0.002	0.001	
Ti	0.000	0.000	0.027	0.027	0.001	0.002	0.001	0.003	0.001	0.000	0.000	0.000	0.002	0.001	
Fe	0.608	0.592	0.135	0.135	0.191	0.286	0.704	0.811	0.935	0.463	0.438	0.472	0.505	0.370	
Mn	0.009	0.008	0.003	0.003	0.004	0.004	0.007	0.008	0.008	0.007	0.006	0.003	0.013	0.006	
Mg	1.394	1.399	1.763	1.763	1.740	1.680	1.020	1.016	0.878	1.493	1.462	1.507	1.469	1.638	
Ca	0.004	0.004	0.010	0.010	0.002	0.003	0.005	0.009	0.010	0.003	0.004	0.000	0.011	0.002	
Na	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.004	0.007	
K	0.000	0.000	0.003	0.003	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.004	
TOTAL	3.008	3.002	2.945	2.945	2.966	2.984	2.863	2.919	2.910	2.982	2.953	2.991	3.002	3.019	
Mg#	69.63	70.27	92.89	92.89	90.11	85.45	59.16	55.61	48.43	76.33	76.95	76.15	74.42	81.57	

Sample Type	90033Q1 Type P core	90033Q1 Type P core	90033S1 Type P oxid	90033S1 Type P oxid	90033S1 Type P core	90033S1 Type P core	90033S1 Type P core	90033S1 Type P core	90033S1 Type P core	90039B Type M core	90039B Type M core	90039B Type M core	90039D Type L oxid	90039D Type L oxid	90039D Type L oxid
SiO2	38.47	38.71	37.85	40.11	38.36	38.45	38.10	37.66	36.65	36.66	36.48	35.69	36.07	37.55	
Al2O3	0.01	0.22	0.23	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
TiO2	0.04	0.06	0.04	0.00	0.05	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
FeO	21.71	20.17	39.70	12.10	23.19	23.35	23.75	23.21	35.70	35.51	34.86	33.65	34.19	26.84	
MnO	0.21	0.20	0.27	0.34	0.27	0.27	0.30	0.32	0.62	0.69	0.57	0.55	0.50	0.66	
MgO	39.58	40.61	21.12	48.06	38.75	38.55	38.34	37.97	26.92	27.48	28.00	29.20	29.10	34.82	
CaO	0.11	0.18	0.27	0.09	0.12	0.13	0.09	0.11	0.08	0.08	0.10	0.07	0.07	0.12	
Na2O	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
K2O	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.02	0.03	0.03	0.00	0.00	0.01	0.00	
TOTAL	100.14	100.28	99.48	100.72	100.75	100.78	100.60	99.30	100.11	100.61	100.01	99.21	100.01	99.99	
Si	0.995	0.994	1.071	0.988	0.993	0.995	0.991	0.992	1.017	1.012	1.010	0.993	0.996	0.999	
Al	0.000	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Ti	0.001	0.002	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Fe	0.470	0.433	0.939	0.249	0.502	0.506	0.517	0.511	0.828	0.819	0.807	0.783	0.790	0.597	
Mn	0.005	0.004	0.006	0.007	0.006	0.006	0.007	0.007	0.010	0.010	0.010	0.013	0.012	0.015	
Mg	1.526	1.534	0.891	1.765	1.496	1.489	1.487	1.491	1.114	1.130	1.155	1.211	1.198	1.382	
Ca	0.003	0.006	0.008	0.002	0.003	0.004	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	
Na	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
K	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	
TOTAL	3.000	2.985	2.925	3.012	3.001	3.000	3.004	3.005	2.969	2.981	2.982	3.004	3.000	2.996	
Mg#	76.45	77.99	48.69	87.64	74.87	74.64	74.20	74.48	57.36	57.98	58.87	60.73	60.26	69.83	

Sample	90033H	90033H	90033H	90033I	90033I	90033I	90033I	90033I	90033I	90033I	90033J	90033J	90033J	90033J
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type C	Type C	Type C	Type C
	core	core	core	core	core	core	core-rim	core	core	core	kaerst	kaerst	core	core
SiO2	38.48	38.73	38.82	38.73	38.29	38.49	39.03	38.60	38.69	38.20	38.80	39.63	37.88	38.58
Al2O3	0.01	0.04	0.03	0.04	0.05	0.01	0.04	0.07	0.02	0.04	0.00	0.08	0.01	0.02
TiO2	0.00	0.03	0.01	0.01	0.04	0.01	0.06	0.02	0.00	0.01	0.04	0.12	0.03	0.04
FeO	17.35	17.41	18.06	19.97	20.68	20.33	20.51	19.81	20.35	27.01	18.21	15.41	28.25	29.45
MnO	0.31	0.29	0.21	0.26	0.22	0.28	0.31	0.22	0.25	0.44	0.44	0.25	0.50	0.50
MgO	42.83	42.48	43.20	40.18	40.37	40.15	40.26	40.32	40.27	34.46	41.64	44.27	34.23	34.32
CaO	0.11	0.08	0.07	0.13	0.16	0.11	0.18	0.15	0.10	0.23	0.24	0.19	0.11	0.14
Na2O	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.03	0.00	0.01
K2O	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.02	0.02	0.01
TOTAL	99.09	99.10	100.41	99.32	99.81	99.40	100.45	99.20	99.70	100.39	99.40	99.99	101.04	103.07

Si	0.986	0.994	0.986	1.002	0.990	0.998	1.001	1.000	0.999	1.011	0.997	0.998	1.000	1.005
Al	0.000	0.002	0.001	0.001	0.002	0.000	0.001	0.006	0.001	0.002	0.000	0.006	0.000	0.000
Ti	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.001	0.006	0.000	0.000
Fe	0.372	0.374	0.384	0.432	0.447	0.441	0.440	0.429	0.439	0.598	0.391	0.324	0.625	0.641
Mn	0.007	0.006	0.005	0.006	0.005	0.006	0.007	0.005	0.010	0.010	0.005	0.010	0.011	0.011
Mg	1.636	1.626	1.636	1.549	1.556	1.532	1.538	1.557	1.550	1.360	1.595	1.661	1.350	1.332
Ca	0.003	0.003	0.002	0.004	0.004	0.005	0.005	0.004	0.003	0.007	0.007	0.005	0.004	0.004
Na	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.004	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.000
TOTAL	3.004	3.008	3.014	2.994	3.005	2.983	2.995	3.003	2.997	2.988	3.002	3.010	2.990	2.993

Mg#	81.47	81.30	80.99	78.19	77.68	77.65	77.76	78.40	77.93	69.46	80.31	83.68	68.25	67.51
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Sample	90039D	90039D	90039D	90039D	90039E	90039F	90039F	90039F	90039F	90039G	90039M	90039M	90039M	90039M
Type	Type L	Type L	Type L	Type L	Type L	Type M	Type M	Type M	Type M	Type L	Type L	Type L	Type L	Type L
	oxid	oxid	oxid	oxid	melt	core	core	core	core	melt	oxid	oxid	oxid	oxid
SiO2	36.44	36.52	36.19	35.97	37.96	35.10	35.23	35.92	35.93	40.59	38.77	37.76	40.51	38.11
Al2O3	0.06	0.08	0.08	0.00	0.00	0.07	0.04	0.08	0.04	0.06	0.00	0.04	0.05	0.13
TiO2	0.05	0.02	0.00	0.00	0.15	0.06	0.01	0.12	0.05	0.09	0.03	0.05	0.06	0.05
FeO	31.78	38.29	34.33	35.37	25.99	39.60	40.81	40.40	40.67	6.89	28.61	38.25	28.63	37.35
MnO	0.60	0.49	0.68	0.49	0.48	0.74	0.68	0.63	0.70	0.37	0.54	0.65	0.74	0.68
MgO	30.97	24.50	28.98	28.44	34.67	24.38	23.10	23.53	23.28	51.55	32.44	22.73	29.64	23.79
CaO	0.06	0.11	0.08	0.04	0.36	0.16	0.12	0.13	0.15	0.42	0.09	0.12	0.14	0.13
Na2O	0.03	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.06	0.03	0.00	0.00	0.10	0.01
K2O	0.00	0.01	0.00	0.00	0.00	0.01	0.03	0.03	0.02	0.00	0.00	0.01	0.08	0.04
TOTAL	99.97	100.02	100.34	100.31	99.60	100.12	100.07	100.91	100.89	100.00	100.48	99.60	99.94	100.29

Si	0.995	1.027	0.998	0.997	1.012	0.998	1.008	1.014	1.016	0.985	1.031	1.062	1.078	1.059
Al	0.002	0.003	0.005	0.000	0.000	0.002	0.001	0.003	0.001	0.004	0.000	0.003	0.011	0.004
Ti	0.001	0.001	0.000	0.000	0.003	0.001	0.000	0.003	0.001	0.003	0.005	0.003	0.010	0.001
Fe	0.726	0.900	0.792	0.820	0.579	0.941	0.976	0.953	0.961	0.140	0.636	0.900	0.637	0.867
Mn	0.014	0.012	0.016	0.011	0.010	0.018	0.017	0.015	0.017	0.008	0.012	0.015	0.017	0.016
Mg	1.261	1.027	1.191	1.175	1.377	1.033	0.984	0.989	0.980	1.865	1.286	0.953	1.176	0.984
Ca	0.002	0.003	0.004	0.002	0.010	0.005	0.004	0.004	0.005	0.011	0.003	0.004	0.004	0.004
Na	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.003	0.003	0.000	0.000	0.005	0.001
K	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.005	0.000	0.022	0.001
TOTAL	3.002	2.973	3.006	3.005	2.991	2.998	2.993	2.986	2.985	3.019	2.978	2.940	2.960	2.937

Mg#	63.46	53.30	60.06	58.90	70.40	52.33	50.20	50.93	50.49	93.02	66.91	51.43	64.86	53.16
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Sample	90033J	90033K	90033K	90033K	90033K	90033O	90033O	90033P	90033P	90033R	90033R	90033R	90033S	90033S
Type	Type C core	Type M oxid	Type M oxid	Type M oxid	Type M oxid	Type L oxid	Type L core	Type C oxid	Type C melt	Type P core	Type P oxid	Type P oxid	Type L oxid	Type L oxid
SiO2	38.99	38.94	39.87	39.17	38.56	38.67	38.84	41.52	40.06	39.98	39.61	39.85	39.54	39.67
Al2O3	0.05	0.00	0.00	0.14	0.00	0.37	0.07	0.01	0.22	0.20	0.05	0.05	0.00	0.02
TiO2	0.03	0.03	0.01	0.04	0.01	0.03	0.04	0.10	0.29	0.07	0.09	0.10	0.00	0.00
FeO	28.85	20.25	15.92	16.15	20.97	36.32	38.09	4.25	21.60	17.85	17.14	19.60	30.34	3.58
MnO	0.45	0.24	0.25	0.36	0.30	1.24	1.56	0.45	0.42	0.16	0.19	0.27	0.71	0.44
MgO	34.59	40.70	44.79	43.42	40.56	23.44	21.82	53.78	37.69	41.24	42.19	39.71	29.12	55.40
CaO	0.16	0.12	0.12	0.06	0.10	0.28	0.23	0.23	0.49	0.27	0.35	0.34	0.29	0.03
Na2O	0.27	0.00	0.00	0.00	0.00	0.05	0.20	0.02	0.05	0.00	0.02	0.05	0.00	0.00
K2O	0.04	0.00	0.00	0.02	0.00	0.18	0.01	0.01	0.00	0.00	0.01	0.02	0.00	0.02
TOTAL	103.42	100.27	100.96	99.35	100.49	100.58	100.86	100.37	100.82	99.77	99.65	99.99	100.00	99.15

Si	1.010	0.998	0.994	0.995	0.991	1.068	1.076	0.991	1.030	1.020	1.006	1.021	1.063	0.959
Al	0.000	0.000	0.000	0.004	0.000	0.012	0.002	0.000	0.007	0.010	0.002	0.002	0.000	0.001
Ti	0.000	0.001	0.000	0.001	0.000	0.001	0.001	0.002	0.006	0.000	0.003	0.003	0.000	0.000
Fe	0.624	0.434	0.332	0.343	0.451	0.839	0.882	0.085	0.462	0.379	0.420	0.420	0.682	0.072
Mn	0.010	0.005	0.005	0.008	0.006	0.029	0.037	0.009	0.010	0.004	0.004	0.006	0.016	0.009
Mg	1.333	1.556	1.665	1.644	1.554	0.965	0.900	1.913	1.437	1.561	1.598	1.516	1.167	1.997
Ca	0.010	0.003	0.003	0.002	0.003	0.008	0.007	0.006	0.014	0.007	0.010	0.009	0.008	0.001
Na	0.010	0.000	0.000	0.000	0.000	0.003	0.011	0.001	0.003	0.000	0.002	0.003	0.000	0.000
K	0.000	0.000	0.000	0.001	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
TOTAL	2.997	2.997	2.999	2.998	3.005	2.931	2.916	3.007	2.969	2.981	2.995	2.981	2.936	3.039
Mg#	68.11	78.19	83.38	82.74	77.51	53.49	50.51	95.75	75.67	80.46	81.20	78.31	63.12	96.52

Sample	90039O	90039O	90039O	90039O	90039O	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb
Type	Type L core	Type L core	Type L core	Type C core	Type C core	Type C core	Type C core	Type P core	Type C oxid	Type P core	Type C core	Type C core	Type P core	Type P core
SiO2	35.52	36.83	35.25	37.23	37.16	35.08	34.93	35.22	33.69	35.37	35.05	35.38	36.64	36.94
Al2O3	0.06	0.00	0.08	0.09	0.04	0.00	0.00	0.01	0.03	0.02	0.00	0.02	0.01	0.00
TiO2	0.06	0.06	0.09	0.11	0.01	0.00	0.00	0.06	0.03	0.08	0.02	0.00	0.11	0.08
FeO	38.99	39.99	40.30	33.28	32.39	39.84	39.91	37.00	38.95	29.41	39.72	37.86	28.76	26.97
MnO	0.78	0.72	0.85	0.68	0.70	0.79	0.69	0.71	0.85	0.93	0.69	0.75	0.44	0.51
MgO	24.62	23.87	24.40	30.07	30.01	25.04	24.78	26.72	26.37	34.08	24.73	25.71	33.55	35.52
CaO	0.20	0.14	0.11	0.12	0.13	0.06	0.07	0.07	0.07	0.10	0.05	0.09	0.40	0.40
Na2O	0.07	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K2O	0.03	0.01	0.02	0.08	0.03	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01
TOTAL	100.33	101.68	101.08	101.74	100.46	100.84	100.38	99.78	99.99	99.99	100.27	99.80	99.90	100.42
Si	1.004	1.025	0.993	1.003	1.010	0.991	0.992	1.045	0.961	0.961	0.995	1.000	0.988	0.983
Al	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.002
Ti	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.001	0.001	0.002	0.000	0.000	0.003	0.002
Fe	0.921	0.930	0.949	0.750	0.737	0.942	0.948	0.704	0.929	0.668	0.943	0.895	0.649	0.600
Mn	0.019	0.017	0.020	0.016	0.016	0.019	0.017	0.018	0.021	0.021	0.017	0.018	0.010	0.011
Mg	1.036	0.989	1.024	1.207	1.215	1.055	1.049	1.182	1.121	1.381	1.047	1.083	1.349	1.408
Ca	0.006	0.004	0.003	0.004	0.004	0.002	0.002	0.002	0.002	0.003	0.002	0.004	0.012	0.011
Na	0.004	0.004	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.001	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
TOTAL	2.991	2.969	2.993	2.991	2.982	3.009	3.008	2.952	3.036	3.037	3.004	3.001	3.012	3.018
Mg#	52.94	51.54	51.90	61.68	62.24	52.83	52.53	62.67	54.68	67.40	52.61	54.75	67.52	70.12

Sample	90033U	90033U	90033U	90033U	90033U	90033V	90033V	90033V	90033V	90033V	90033X	90033X	90033X	90033X
Type	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L
	melt	core	core	core	melt	core	core	melt	melt	core	core	core	core	core
SiO2	39.17	36.21	34.55	38.98	39.67	34.50	34.54	36.17	38.07	34.09	35.35	33.96	34.74	33.44
Al2O3	0.28	0.00	0.00	0.06	0.02	0.06	0.04	0.02	0.08	0.02	0.04	0.01	0.03	0.03
TiO2	0.06	0.02	0.03	0.12	0.09	0.01	0.01	0.15	0.17	0.03	0.17	0.06	0.03	0.09
FeO	39.59	36.11	39.25	33.22	8.91	43.27	42.45	33.21	29.11	43.62	38.65	45.70	44.39	44.88
MnO	0.81	0.82	0.88	0.75	0.88	0.70	0.76	0.52	0.52	0.75	0.85	1.15	1.10	1.10
MgO	19.57	26.96	24.93	27.34	47.61	21.55	22.32	29.41	31.05	21.06	25.10	19.85	20.25	19.21
CaO	0.44	0.08	0.28	0.14	0.19	0.21	0.20	0.48	0.45	0.20	0.38	0.33	0.30	0.29
Na2O	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
K2O	0.06	0.00	0.00	0.06	0.01	0.00	0.02	0.00	0.01	0.03	0.02	0.01	0.00	0.02
TOTAL	99.99	100.21	99.91	100.65	97.37	100.30	100.33	99.96	99.47	99.79	100.54	101.06	100.85	99.07
Si	1.100	1.008	0.986	1.055	0.998	0.998	0.995	0.997	1.028	0.995	0.996	0.990	1.047	0.994
Al	0.009	0.000	0.000	0.002	0.000	0.003	0.001	0.002	0.007	0.002	0.001	0.001	0.002	0.001
Ti	0.003	0.001	0.001	0.002	0.000	0.000	0.000	0.008	0.008	0.001	0.004	0.001	0.002	0.002
Fe	0.930	0.841	0.937	0.752	0.187	1.047	1.023	0.765	0.658	1.065	0.911	1.115	1.030	1.116
Mn	0.019	0.019	0.021	0.017	0.019	0.017	0.019	0.012	0.012	0.019	0.020	0.028	0.026	0.028
Mg	0.819	1.119	1.060	1.104	1.785	0.929	0.959	1.108	1.250	0.917	1.055	0.863	0.838	0.852
Ca	0.013	0.004	0.009	0.004	0.010	0.007	0.006	0.014	0.013	0.006	0.011	0.010	0.009	0.009
Na	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.001
K	0.006	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.001	0.003	0.001	0.001	0.000	0.001
TOTAL	2.900	2.993	3.014	2.938	2.999	3.001	3.004	2.906	2.977	3.008	2.999	3.009	2.957	3.004
Mg#	46.83	57.09	53.08	59.48	90.52	47.01	48.39	59.16	65.51	46.27	53.66	43.63	44.86	43.29

Sample	90039Sb	90039Sb	90039Sb	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa	90039V	90039V	90039V
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type M	Type M	Type M
	core	core	core	core	core	core	core	core	core	core	core	core	oxid	core
SiO2	37.09	37.10	37.22	36.52	37.31	37.14	37.06	37.36	37.04	37.12	37.25	36.07	35.80	35.06
Al2O3	0.04	0.05	0.04	0.04	0.00	0.05	0.05	0.03	0.03	0.03	0.03	0.04	0.02	0.00
TiO2	0.07	0.05	0.14	0.05	0.01	0.00	0.00	0.03	0.00	0.04	0.04	0.02	0.07	0.11
FeO	26.48	26.46	26.41	29.83	27.51	28.69	28.98	27.20	28.47	27.36	28.40	39.73	39.31	40.19
MnO	0.42	0.39	0.39	0.43	0.40	0.23	0.34	0.36	0.38	0.39	0.28	0.68	0.83	0.69
MgO	34.55	35.38	35.17	32.59	33.83	33.69	33.77	34.55	34.35	34.50	34.57	23.52	23.79	24.22
CaO	0.36	0.33	0.41	0.12	0.18	0.11	0.11	0.16	0.09	0.12	0.15	0.29	0.20	0.18
Na2O	0.00	0.01	0.05	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.05	0.08
K2O	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.06	0.05	0.06
TOTAL	99.02	99.77	99.85	99.61	99.28	99.91	100.31	99.70	100.37	99.58	100.72	100.61	100.12	100.59
Si	0.997	0.990	0.992	0.992	1.003	0.996	0.993	0.999	0.990	0.996	0.991	1.015	1.012	0.991
Al	0.002	0.002	0.002	0.007	0.000	0.002	0.002	0.001	0.001	0.002	0.001	0.001	0.000	0.000
Ti	0.002	0.002	0.004	0.006	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.002	0.002
Fe	0.596	0.590	0.589	0.678	0.619	0.644	0.649	0.608	0.636	0.614	0.632	0.935	0.929	0.950
Mn	0.010	0.009	0.009	0.010	0.009	0.005	0.008	0.008	0.009	0.009	0.006	0.016	0.020	0.016
Mg	1.385	1.407	1.397	1.320	1.356	1.347	1.349	1.377	1.368	1.379	1.371	0.986	1.002	1.020
Ca	0.010	0.009	0.012	0.019	0.005	0.003	0.003	0.005	0.003	0.005	0.004	0.009	0.006	0.006
Na	0.000	0.000	0.004	0.011	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.005	0.004
K	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.001	0.002
TOTAL	3.003	3.009	3.010	3.043	2.994	2.997	3.004	2.999	3.007	3.007	3.006	2.973	2.977	2.991
Mg#	69.91	70.46	70.34	66.07	68.66	67.65	67.52	69.37	68.26	69.19	68.45	51.33	51.89	51.78

Sample	90033X	90033X	90033F1
Type	Type L core	Type L core	Type L core
SiO2	34.68	35.08	35.36
Al2O3	0.01	0.01	0.00
TiO2	0.07	0.06	0.00
FeO	39.67	38.85	38.56
MnO	0.99	0.76	0.76
MgO	23.46	24.75	25.13
CaO	0.42	0.34	0.11
Na2O	0.00	0.06	0.00
K2O	0.00	0.00	0.01
TOTAL	99.29	99.90	99.93
Si	0.999	0.997	1.002
Al	0.000	0.001	0.000
Ti	0.004	0.003	0.000
Fe	0.955	0.924	0.914
Mn	0.024	0.018	0.018
Mg	1.007	1.049	1.061
Ca	0.013	0.010	0.008
Na	0.000	0.008	0.000
K	0.000	0.000	0.001
TOTAL	3.002	3.010	3.004
Mg#	51.33	53.17	53.72

Sample	90039V	90039V	90039V	90039V
Type	Type M core	Type M core	Type M core	Type M oxid
SiO2	35.61	36.21	35.95	36.80
Al2O3	0.02	0.02	0.01	0.14
TiO2	0.08	0.12	0.13	0.32
FeO	39.71	38.10	40.04	29.83
MnO	0.65	0.75	0.70	0.52
MgO	23.65	23.78	23.64	31.82
CaO	0.15	0.24	0.22	0.48
Na2O	0.04	0.75	0.00	0.09
K2O	0.05	0.06	0.03	0.05
TOTAL	99.96	100.03	100.72	100.03
Si	1.007	0.998	1.013	0.992
Al	0.000	0.000	0.000	0.004
Ti	0.001	0.003	0.003	0.006
Fe	0.939	0.878	0.943	0.672
Mn	0.016	0.018	0.017	0.012
Mg	0.996	0.976	0.992	1.278
Ca	0.005	0.007	0.007	0.014
Na	0.002	0.040	0.000	0.005
K	0.002	0.002	0.001	0.002
TOTAL	2.968	2.922	2.976	2.985
Mg#	51.47	52.64	51.27	65.54

A3.1 Mount Sidley Xenolith Mineral Analyses: pyroxenes

Sample	90029C	90029C	90029V	90029V	90029V	90029V	90029V	90029X	90029X	90029X	90029X	90029X	90029B1	90029B1
Type	Type M	Type M	Type M	Type M	Type M	Type M	Type M	Type L	Type L	Type L	Type L	Type L	Type L	Type L
	core	core	core	core	core	oxid ol	oxid ol	core	core	core	core	core	core	core
SiO2	50.16	50.39	51.30	50.41	49.32	54.33	55.58	50.14	48.93	49.48	48.76	49.47	50.54	50.24
Al2O3	4.15	4.43	3.64	3.99	3.90	0.07	0.26	3.52	5.35	3.95	4.72	4.17	3.53	3.16
TiO2	1.41	1.54	1.05	1.47	0.83	0.06	0.03	1.19	2.02	1.51	2.01	1.61	1.04	0.98
FeO total	9.73	9.86	9.73	10.00	11.03	7.20	7.89	10.00	9.14	10.13	9.42	9.71	10.20	10.19
MnO	0.40	0.31	0.28	0.40	0.38	0.81	0.60	0.23	0.28	0.37	0.30	0.24	0.40	0.30
MgO	12.55	12.18	12.83	12.59	12.42	35.73	35.16	12.82	14.01	12.17	12.17	12.18	12.59	12.70
CaO	21.15	21.27	20.92	21.64	20.82	0.26	0.68	22.08	19.95	21.51	21.46	21.99	21.07	20.96
Na2O	0.00	0.00	0.58	0.60	0.54	0.12	0.37	0.47	0.31	0.60	0.60	0.62	0.64	0.54
K2O	0.00	0.00	0.03	0.02	0.01	0.03	0.20	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Fe2O3	0.00	0.00	0.22	2.04	3.40	0.00	8.76	7.45	1.24	2.26	1.79	2.36	1.85	1.72
FeO	9.73	9.86	4.53	8.17	7.97	7.20	0.01	2.83	8.02	8.12	7.87	7.58	8.53	8.64
TOTAL	99.55	99.98	100.33	101.09	99.23	98.57	100.56	100.44	99.99	99.71	99.43	99.99	100.01	99.08
Si	1.890	1.890	1.910	1.875	1.877	1.926	1.935	1.878	1.825	1.869	1.843	1.862	1.899	1.904
AlIV	0.110	0.120	0.090	0.120	0.120	0.002	0.010	0.122	0.175	0.131	0.157	0.138	0.101	0.096
AlVI	0.070	0.080	0.070	0.050	0.050	0.000	0.000	0.030	0.060	0.050	0.050	0.050	0.060	0.050
Ti	0.040	0.040	0.030	0.040	0.023	0.002	0.000	0.034	0.057	0.043	0.057	0.046	0.029	0.028
FelII	0.000	0.000	0.006	0.013	0.097	0.000	0.230	0.080	0.040	0.070	0.050	0.067	0.052	0.049
FelI	0.300	0.310	0.303	0.250	0.252	0.213	0.000	0.230	0.250	0.260	0.246	0.237	0.267	0.273
Mn	0.010	0.010	0.010	0.012	0.012	0.012	0.010	0.007	0.009	0.012	0.010	0.008	0.012	0.010
Mg	0.700	0.680	0.712	0.698	0.704	1.887	1.824	0.716	0.779	0.685	0.686	0.684	0.705	0.718
Ca	0.850	0.850	0.835	0.862	0.829	0.010	0.020	0.886	0.797	0.870	0.869	0.887	0.848	0.851
Na	0.000	0.000	0.042	0.043	0.040	0.010	0.020	0.034	0.023	0.044	0.044	0.045	0.046	0.040
K	0.000	0.000	0.000	0.001	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.001	0.000	0.000
TOTAL	3.970	3.970	4.008	3.964	4.004	4.074	4.059	4.017	4.015	4.034	4.012	4.025	4.019	4.019
Wo	45.95	46.20	44.99	47.28	44.05	0.47	0.96	46.34	42.71	46.15	46.95	47.31	45.30	45.00
En	37.84	36.96	38.36	38.29	37.41	89.43	87.95	37.45	41.75	36.34	37.06	36.48	37.66	37.97
Fs	16.22	16.85	16.65	14.43	18.54	10.09	11.09	16.21	15.54	17.51	15.99	16.21	17.04	17.03

Sample	90033U	90033U	90033U	90033U	90033U	90033V	90033V	90033X	90033X	90033X	90033X	90033X	90033F1	90033F1
Type	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L
	oxid	oxid	core	core	core	oxid	oxid	core-	rim	core	core	core	oxid	oxid
SiO2	49.22	54.55	48.46	50.38	50.79	50.10	50.40	49.53	50.18	49.76	49.62	48.05	48.77	44.68
Al2O3	4.78	0.36	6.18	3.88	4.16	4.25	5.48	4.16	2.60	3.75	4.00	4.38	5.20	10.25
TiO2	1.32	0.12	1.55	1.34	1.05	0.98	1.56	1.18	1.43	1.26	1.06	2.22	1.78	3.34
FeO total	10.99	15.31	10.08	9.78	9.65	11.96	7.93	13.25	11.63	12.73	12.76	10.95	9.69	8.70
MnO	0.17	0.67	0.34	0.26	0.29	0.31	0.18	0.47	0.30	0.43	0.42	0.07	0.26	0.26
MgO	11.28	28.11	11.00	12.43	11.77	11.12	12.04	10.97	13.02	10.98	11.14	11.94	13.21	11.03
CaO	21.87	0.88	21.88	21.08	21.45	20.50	20.84	20.10	20.94	19.88	20.02	20.73	20.67	20.68
Na2O	0.80	0.00	0.92	0.49	0.84	0.98	0.75	0.91	0.43	0.86	0.78	0.76	0.56	0.72
K2O	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.00	0.00	0.00	0.08	0.00	0.05
Fe2O3	3.30	2.09	2.76	0.05	0.70	2.44	0.00	3.39	2.99	1.75	2.26	3.28	2.83	2.44
FeO	8.02	13.42	7.59	9.73	9.02	9.77	7.93	10.20	8.94	11.15	10.72	8.00	7.02	6.50
TOTAL	100.42	100.00	100.41	99.65	100.00	100.18	99.18	100.56	100.52	99.65	99.80	99.09	100.14	99.65
Si	1.840	1.961	1.814	1.893	1.902	1.880	1.890	1.876	1.889	1.894	1.887	1.818	1.843	1.673
AlIV	0.160	0.040	0.190	0.110	0.100	0.120	0.110	0.120	0.110	0.110	0.110	0.180	0.160	0.330
AlVI	0.050	0.000	0.090	0.070	0.090	0.070	0.130	0.060	0.000	0.060	0.070	0.010	0.080	0.130
Ti	0.037	0.003	0.044	0.038	0.030	0.028	0.044	0.034	0.041	0.036	0.030	0.063	0.050	0.094
FelII	0.093	0.057	0.078	0.002	0.020	0.069	0.299	0.096	0.084	0.050	0.064	0.101	0.029	0.069
FelI	0.251	0.403	0.238	0.306	0.282	0.307	0.000	0.321	0.279	0.354	0.339	0.245	0.273	0.204
Mn	0.005	0.021	0.011	0.008	0.009	0.010	0.006	0.015	0.010	0.014	0.014	0.002	0.008	0.008
Mg	0.629	1.506	0.614	0.696	0.657	0.622	0.673	0.619	0.730	0.623	0.632	0.674	0.744	0.616
Ca	0.877	0.034	0.862	0.849	0.861	0.825	0.838	0.816	0.844	0.811	0.815	0.841	0.785	0.830
Na	0.058	0.000	0.067	0.036	0.061	0.071	0.055	0.067	0.031	0.064	0.057	0.056	0.041	0.050
K	0.000	0.000	0.000	0.000	0.001	0.001	0.005	0.000	0.000	0.000	0.000	0.004	0.000	0.002
TOTAL	4.000	4.025	4.008	4.008	4.013	4.003	4.050	4.024	4.018	4.016	4.018	3.994	4.013	4.006
Wo	47.41	1.70	48.10	45.82	47.31	45.26	46.30	44.06	43.57	44.12	44.05	45.19	42.87	48.28
En	34.00	75.30	34.26	37.56	36.10	34.12	37.18	33.42	37.69	33.90	34.16	36.22	40.63	35.83
Fs	18.59	23.00	17.63	16.62	16.59	20.63	16.52	22.52	18.74	21.98	21.78	18.59	16.49	15.88

Sample	90029B1	90029B1	90029B1	90029D1	90033A	90033A	90033A	90033A	90033B	90033B	90033B	90033B	90033B	90033B
Type	Type L	Type L	Type L	Type L	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P
	core	melt	core	core	core	core	core	core	core	core	core	core	core	core
SiO2	51.22	59.53	50.74	50.43	47.24	48.42	48.66	48.27	48.61	48.90	48.50	48.43	48.95	48.31
Al2O3	3.27	0.75	3.59	2.99	8.38	7.84	7.33	8.37	7.91	7.67	8.04	7.83	8.00	8.43
TiO2	1.05	0.00	1.01	1.12	1.81	1.68	2.00	1.84	1.39	1.18	1.23	1.23	1.32	1.37
FeO total	10.40	6.06	10.48	11.07	7.92	8.25	7.33	7.92	7.85	7.67	8.21	8.03	8.18	8.08
MnO	0.27	0.60	0.25	0.33	0.18	0.12	0.12	0.11	0.16	0.15	0.24	0.18	0.23	0.29
MgO	12.51	30.06	12.75	12.72	12.62	12.64	11.83	12.89	12.93	12.73	12.59	12.77	12.84	12.45
CaO	20.92	0.36	21.39	21.77	19.97	20.12	22.26	19.66	20.54	20.34	19.80	19.73	20.24	20.09
Na2O	0.53	2.04	0.61		0.89	0.93	0.42	0.92	0.94	0.95	0.86	0.86	0.92	0.85
K2O	0.00	0.60	0.00		0.01	0.00	0.03	0.02	0.01	0.01	0.00	0.02	0.01	0.00
Fe2O3	0.06	0.91	2.37	0.75	2.49	1.78	0.00	1.31	2.57	1.60	1.79	1.45	2.03	0.88
FeO	10.34	5.24	8.35	10.39	5.68	6.65	7.33	6.74	5.54	6.23	6.60	6.73	6.36	7.29
TOTAL	100.17	99.40	100.82	100.43	99.01	100.00	99.98	100.00	100.33	99.59	99.56	99.09	100.69	99.87
Si	1.917	2.034	1.893	1.895	1.773	1.791	1.812	1.788	1.798	1.811	1.807	1.805	1.803	1.794
AlIV	0.083	0.000	0.107	0.105	0.227	0.209	0.188	0.212	0.202	0.189	0.193	0.195	0.197	0.206
AlVI	0.060	0.030	0.050	0.030	0.140	0.130	0.130	0.150	0.140	0.150	0.160	0.150	0.150	0.160
Ti	0.029	0.000	0.028	0.032	0.051	0.047	0.056	0.051	0.039	0.033	0.035	0.034	0.037	0.038
FelII	0.002	0.024	0.066	0.021	0.070	0.049	0.000	0.036	0.071	0.045	0.050	0.041	0.056	0.015
FelI	0.324	0.151	0.259	0.326	0.177	0.206	0.255	0.208	0.170	0.193	0.205	0.210	0.195	0.227
Mn	0.009	0.017	0.008	0.010	0.006	0.004	0.004	0.003	0.005	0.005	0.008	0.006	0.007	0.009
Mg	0.698	1.546	0.709	0.712	0.706	0.697	0.657	0.712	0.713	0.703	0.699	0.709	0.705	0.689
Ca	0.839	0.013	0.855	0.876	0.803	0.798	0.889	0.780	0.814	0.808	0.790	0.788	0.799	0.799
Na	0.038	0.136	0.044		0.064	0.067	0.031	0.066	0.066	0.068	0.068	0.062	0.065	0.061
K	0.000	0.026	0.000		0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.000
TOTAL	3.999	3.977	4.019	4.007	4.017	3.998	4.023	4.007	4.018	4.005	4.015	4.001	4.015	3.998
Wt	45.03	0.75	45.26	45.27	45.73	45.60	49.36	44.93	46.04	46.20	45.30	45.08	45.53	46.18
En	37.47	89.16	37.53	36.80	40.21	39.83	36.48	41.01	40.33	40.19	40.08	40.56	40.17	39.83
Fs	17.50	10.09	17.20	17.93	14.07	14.57	14.16	14.06	13.63	13.61	14.62	14.36	14.30	13.99
Sample	90033F1	90033F1	90033G1	90033G1	90033P1	90033P1	90033P1	90033P1	90033P1	90033P1	90033P1	90033Q1	90033Q1	90033Q1
Type	Type L	Type L	Type L	Type L	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type P	Type P	Type P
	core	core	core	core	core	core	core	oxid	core	core	oxid	oxid	rim	core
SiO2	49.96	49.90	51.81	49.55	46.94	48.05	47.84	44.56	48.10	48.02	41.06	38.84	40.97	47.09
Al2O3	3.64	4.03	2.80	4.28	8.18	7.73	6.90	8.49	7.38	8.05	13.92	15.23	12.43	7.22
TiO2	1.41	1.32	0.48	2.05	2.23	1.85	1.81	4.20	1.76	2.27	6.11	7.03	6.22	3.79
FeO total	10.34	10.01	10.91	8.75	8.55	8.05	8.64	6.98	8.17	7.45	6.11	6.78	5.69	6.10
MnO	0.26	0.27	0.33	0.20	0.13	0.21	0.20	0.08	0.17	0.22	0.18	0.07	0.08	0.11
MgO	12.87	12.87	12.49	13.25	12.17	12.23	12.22	12.25	12.32	11.92	10.26	9.38	10.99	13.41
CaO	20.97	21.32	20.48	20.74	20.95	21.06	20.68	22.27	21.21	21.30	22.31	21.90	22.58	21.90
Na2O	0.55	0.45	0.72	0.69	0.83	0.81	0.91	0.55	0.88	0.78		0.77	0.56	0.20
K2O	0.00	0.00	0.01	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01
Fe2O3	2.23	1.99	0.83	1.41	3.35	1.92	2.80	3.30	2.75	0.41	0.00	2.73	2.58	0.00
FeO	8.53	8.22	10.16	7.48	5.53	6.32	6.12	4.01	5.70	7.04	6.11	4.33	3.37	6.10
TOTAL	100.00	100.18	100.03	99.52	99.98	99.99	99.19	99.39	99.99	100.01	99.95	100.00	99.52	99.82
Si	1.879	1.871	1.939	1.853	1.755	1.782	1.802	1.680	1.793	1.783	1.540	1.464	1.543	1.752
AlIV	0.120	0.130	0.060	0.150	0.240	0.220	0.200	0.320	0.210	0.220	0.460	0.540	0.460	0.250
AlVI	0.040	0.050	0.060	0.040	0.120	0.120	0.110	0.060	0.120	0.130	0.160	0.140	0.100	0.070
Ti	0.040	0.037	0.014	0.058	0.063	0.052	0.051	0.119	0.049	0.060	0.170	0.199	0.176	0.106
FelII	0.062	0.056	0.023	0.040	0.094	0.054	0.079	0.093	0.077	0.010	0.000	0.077	0.073	0.003
FelI	0.262	0.257	0.318	0.234	0.172	0.196	0.191	0.126	0.177	0.220	0.190	0.136	0.106	0.200
Mn	0.008	0.008	0.010	0.006	0.004	0.007	0.006	0.002	0.005	0.007	0.010	0.002	0.003	0.000
Mg	0.721	0.720	0.697	0.739	0.678	0.676	0.686	0.689	0.684	0.660	0.570	0.527	0.617	0.740
Ca	0.845	0.857	0.822	0.832	0.840	0.837	0.835	0.900	0.847	0.848	0.890	0.884	0.911	0.873
Na	0.040	0.033	0.052	0.050	0.060	0.058	0.066	0.040	0.064	0.056		0.056	0.041	0.014
K	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	4.017	4.019	3.995	4.002	4.027	4.002	4.026	4.030	4.026	3.994	3.990	4.025	4.030	4.008
Wt	44.71	45.34	44.19	45.09	47.09	47.48	46.62	49.78	47.45	48.79	53.94	54.43	53.37	48.07
En	38.15	38.10	37.47	40.05	38.00	38.34	38.30	38.11	38.32	37.97	34.55	32.45	36.15	40.75
Fs	17.14	16.56	18.33	14.85	14.91	14.18	15.08	12.11	14.23	13.23	11.52	13.12	10.49	11.18

Sample	90033C	90033C	90033C	90033C	90033C	90033F	90033G	90033G	90033G	90033G	90033G	90033G	90033H	90033H
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P
	core	core	core	core	core	core	core	oxid c	core	oxid c	core	core	core	core
SiO2	49.17	47.60	47.17	47.08	51.42	49.97	44.57	45.38	46.61	45.95	47.10	47.13	49.28	49.45
Al2O3	7.15	8.52	8.53	9.17	3.04	7.87	10.46	8.40	9.29	8.38	6.88	5.61	7.43	7.07
TiO2	1.44	2.23	2.14	2.82	0.64	2.11	3.93	3.37	2.25	2.84	2.86	2.34	1.71	1.79
FeO total	6.82	7.56	7.36	7.31	6.99	6.44	8.22	6.90	8.92	7.25	7.25	9.58	4.99	5.26
MnO	0.17	0.14	0.15	0.17	0.23	0.10	0.00	0.10	0.19	0.14	0.15	0.27	0.11	0.16
MgO	12.89	12.04	12.10	11.89	14.64	12.90	10.32	12.41	11.67	12.47	12.78	11.29	14.52	14.81
CaO	20.69	20.62	20.63	20.81	21.53	20.32	21.60	22.02	19.74	22.23	22.34	22.30	20.84	20.58
Na2O	1.17	1.22	1.18	1.35	0.68	0.93	0.89	0.62	1.06	0.55	0.62	1.06	0.86	0.88
K2O	0.00	0.00	0.01	0.01	0.02	0.02	0.00	0.01	0.01	0.03	0.02	0.06	0.00	0.00
Fe2O3	2.03	2.59	3.00	3.13	2.30	0.00	1.78	2.73	2.68	3.62	3.19	6.69	1.36	1.69
FeO	4.99	5.23	4.66	4.50	4.92	6.44	6.62	4.44	6.51	3.94	4.38	3.56	3.77	3.74
TOTAL	99.51	99.93	99.27	100.61	99.17	100.66	99.99	99.20	99.72	99.80	99.98	99.58	99.73	100.00
Si	1.818	1.760	1.764	1.739	1.917	1.824	1.666	1.696	1.745	1.707	1.760	1.754	1.804	1.806
AlIV	0.182	0.240	0.236	0.261	0.083	0.176	0.334	0.304	0.255	0.293	0.240	0.246	0.196	0.194
AlVI	0.130	0.130	0.140	0.140	0.050	0.160	0.130	0.070	0.160	0.070	0.060	0.000	0.130	0.110
Ti	0.040	0.062	0.060	0.078	0.018	0.058	0.111	0.095	0.063	0.079	0.080	0.066	0.047	0.049
FeIII	0.057	0.072	0.084	0.086	0.064	0.000	0.050	0.077	0.075	0.101	0.089	0.190	0.037	0.046
FeII	0.154	0.162	0.145	0.138	0.153	0.197	0.207	0.138	0.203	0.124	0.136	0.112	0.115	0.114
Mn	0.005	0.004	0.005	0.005	0.007	0.003	0.000	0.002	0.006	0.004	0.005	0.009	0.003	0.005
Mg	0.710	0.664	0.675	0.655	0.814	0.701	0.575	0.692	0.651	0.691	0.712	0.635	0.792	0.806
Ca	0.820	0.817	0.827	0.823	0.860	0.794	0.866	0.882	0.792	0.885	0.895	0.903	0.818	0.806
Na	0.084	0.087	0.086	0.097	0.049	0.065	0.064	0.043	0.077	0.040	0.045	0.078	0.061	0.062
K	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000
TOTAL	4.000	3.999	4.022	4.023	4.016	3.979	4.003	3.999	4.027	3.993	4.023	3.996	4.003	3.998
Wo	47.10	47.64	47.78	48.35	45.48	46.93	51.00	49.30	46.02	49.14	48.85	49.08	46.42	45.49
En	40.78	38.72	38.99	38.48	43.05	41.43	33.86	38.68	37.83	38.37	38.86	34.51	44.95	45.49
Fs	12.12	13.64	13.23	13.16	11.48	11.64	15.14	12.02	16.15	12.49	12.28	16.41	8.63	9.03
Sample	90033Q1	90033Q1	90033Q1	90033Q1	90033Q1	90033Q1	90033S1	90033S1	90033S1	90033S1	90033S1	90033S1	90033S1	90039B
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type M
	core	oxid c	rim	core	rim	core	oxid	core	core	core	core	core	core	core
SiO2	43.21	38.44	42.37	49.36	41.39	48.14	45.62	46.07	40.29	42.47	42.67	47.98	48.25	50.44
Al2O3	11.45	15.30	11.46	7.86	12.68	8.67	8.92	6.58	12.91	11.50	11.79	9.22	8.72	4.49
TiO2	4.66	7.19	5.56	1.53	6.01	1.83	4.67	3.99	6.86	5.36	5.35	2.14	1.55	1.47
FeO total	5.47	7.33	5.50	6.65	5.52	6.34	5.33	6.51	5.72	5.02	5.35	6.92	6.80	8.67
MnO	0.01	0.02	0.09	0.10	0.07	0.17	0.03	0.05	0.02	0.12	0.09	0.18	0.18	0.27
MgO	11.83	9.08	11.51	13.56	11.13	13.25	12.84	14.78	10.94	11.92	11.89	13.19	13.24	12.95
CaO	22.07	21.46	22.48	20.67	22.73	20.42	21.91	20.48	22.30	22.37	22.04	19.59	19.70	20.95
Na2O	0.55	0.81	0.59	1.04	0.54	1.08	0.66	0.53	0.55	0.55	0.42	0.78	0.66	0.47
K2O	0.00	0.00	0.02	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00
Fe2O3	1.72	2.64	2.29	2.05	2.45	2.38	0.78	3.30	2.26	2.24	2.25	0.04	0.00	0.00
FeO	3.92	4.92	3.44	4.81	3.31	4.20	4.63	3.54	3.69	3.01	3.32	6.89	6.80	8.67
TOTAL	99.26	99.61	99.55	100.77	100.06	99.89	99.98	98.99	99.59	99.32	99.59	100.00	99.10	99.71
Si	1.613	1.449	1.581	1.798	1.539	1.776	1.688	1.730	1.516	1.585	1.582	1.766	1.790	1.890
AlIV	0.390	0.550	0.420	0.200	0.460	0.220	0.310	0.270	0.480	0.410	0.420	0.230	0.210	0.110
AlVI	0.120	0.130	0.090	0.140	0.100	0.150	0.080	0.020	0.090	0.090	0.100	0.170	0.170	0.090
Ti	0.131	0.204	0.156	0.042	0.168	0.051	0.130	0.113	0.194	0.150	0.149	0.059	0.043	0.040
FeIII	0.048	0.075	0.064	0.056	0.069	0.066	0.022	0.093	0.064	0.063	0.063	0.010	0.000	0.000
FeII	0.122	0.156	0.107	0.146	0.103	0.129	0.143	0.110	0.116	0.094	0.103	0.212	0.217	0.270
Mn	0.000	0.001	0.003	0.003	0.002	0.005	0.001	0.001	0.001	0.004	0.011	0.006	0.005	0.010
Mg	0.658	0.510	0.640	0.736	0.617	0.728	0.709	0.827	0.614	0.663	0.657	0.724	0.732	0.720
Ca	0.883	0.867	0.900	0.807	0.906	0.807	0.869	0.824	0.899	0.895	0.889	0.773	0.783	0.840
Na	0.040	0.059	0.043	0.073	0.039	0.077	0.047	0.039	0.040	0.040	0.040	0.056	0.047	0.030
K	0.000	0.000	0.001	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.003	0.000	0.000	0.000
TOTAL	4.005	4.001	4.005	4.001	4.004	4.009	4.000	4.028	4.014	3.994	4.017	4.006	3.997	4.000
Wo	51.61	53.92	52.60	46.25	53.45	46.65	49.86	44.44	53.10	52.19	51.93	44.97	45.21	45.90
En	38.46	31.72	37.41	42.18	36.40	42.08	40.68	44.61	36.27	38.66	38.38	42.12	42.26	39.34
Fs	9.94	14.37	9.99	11.58	10.15	11.27	9.47	10.95	10.63	9.15	9.70	12.91	12.53	14.75

Sample	90033I	90033I	90033I	90033I	90033J	90033J	90033J	90033J	90033J	90033J	90033K	90033K	90033K	90033K
Type	Type P	Type P	Type P	Type P	Type C	Type C	Type C	Type C	Type C	Type C	Type M	Type M	Type M	Type P
	core	core	core	core	core	core	core	core	core	core	core-	rim	core	core
SiO2	48.21	48.24	49.31	48.96	48.76	48.58	45.30	48.22	50.16	50.53	48.78	44.55	47.52	45.50
Al2O3	8.73	8.56	7.90	8.55	8.14	7.98	7.79	8.51	6.98	7.19	8.29	10.29	8.51	8.93
TiO2	2.02	1.95	1.47	1.43	1.70	1.86	3.87	1.92	1.28	1.53	2.20	5.01	2.57	2.79
FeO total	5.83	6.25	5.64	5.70	7.38	7.39	6.94	7.38	7.74	8.14	5.58	4.71	5.99	6.51
MnO	0.12	0.19	0.16	0.29	0.14	0.20	0.12	0.20	0.27	0.06	0.12	0.06	0.19	0.14
MgO	13.17	13.11	13.73	13.53	12.17	12.40	12.41	12.27	13.07	13.23	13.84	12.62	13.35	12.05
CaO	20.41	20.05	20.61	20.65	21.89	21.70	22.29	21.69	21.61	21.08	20.37	21.95	20.91	22.68
Na2O	1.06	1.05	0.92	0.88	0.73	0.82	0.87	0.77	0.83	0.84	0.76	0.63	0.91	0.56
K2O	0.02	0.02	0.00	0.02	0.00	0.00	0.01	0.02	0.03	0.02	0.00	0.00	0.00	0.01
Fe2O3	1.23	1.12	0.82	0.98	0.09	1.73	2.77	1.67	2.03	1.07	0.00	0.61	2.08	3.24
FeO	4.73	5.24	4.90	4.81	6.55	5.84	4.64	5.82	5.92	7.17	5.58	4.16	4.12	3.59
TOTAL	99.57	99.42	99.74	100.01	100.91	100.94	99.61	100.97	101.96	102.61	99.94	99.83	99.95	99.17
Si	1.776	1.785	1.811	1.795	1.794	1.787	1.687	1.775	1.830	1.826	1.791	1.650	1.751	1.712
AlIV	0.224	0.215	0.189	0.205	0.206	0.213	0.313	0.220	0.170	0.170	0.209	0.350	0.249	0.288
AlVI	0.160	0.160	0.150	0.160	0.150	0.130	0.030	0.150	0.130	0.140	0.150	0.100	0.120	0.110
Ti	0.056	0.054	0.042	0.039	0.047	0.052	0.108	0.053	0.035	0.041	0.061	0.140	0.071	0.079
FeIII	0.034	0.031	0.023	0.027	0.025	0.048	0.130	0.050	0.050	0.030	0.004	0.017	0.058	0.091
FeII	0.146	0.162	0.150	0.148	0.201	0.179	0.086	0.180	0.180	0.220	0.130	0.129	0.127	0.112
Mn	0.004	0.006	0.005	0.009	0.004	0.006	0.006	0.006	0.010	0.002	0.000	0.002	0.006	0.005
Mg	0.723	0.722	0.752	0.740	0.667	0.680	0.689	0.673	0.709	0.712	0.760	0.697	0.733	0.676
Ca	0.806	0.794	0.811	0.811	0.863	0.855	0.890	0.855	0.843	0.816	0.800	0.871	0.825	0.914
Na	0.076	0.075	0.066	0.063	0.052	0.059	0.063	0.055	0.059	0.059	0.050	0.045	0.065	0.041
K	0.001	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
TOTAL	4.006	4.005	3.999	3.998	4.009	4.009	4.001	4.017	4.017	4.016	3.955	4.001	4.005	4.028
Wt	47.16	46.46	46.72	46.99	49.15	48.52	49.58	48.63	47.31	45.89	46.23	50.82	47.33	50.98
En	42.31	42.25	43.32	42.87	37.98	38.59	38.38	38.28	39.79	40.04	43.68	40.67	42.05	37.70
Fs	10.53	11.29	9.97	10.14	12.87	12.88	12.03	13.08	12.91	14.06	10.09	8.52	10.61	11.32
Sample	90039B	90039B	90039D	90039F	90039F	90039F	90039F	90039F	90039G	90039G	90039M	90039M	90039M	90039M
Type	Type M	Type M	Type L	Type M	Type M	Type M	Type M	Type M	Type L	Type L	Type L	Type L	Type L	Type L
	core	core	oxid ol	core	core	core	core	core	core	oxid	core	core	core	core
SiO2	49.91	51.29	53.59	49.75	50.02	49.94	50.65	50.32	44.54	39.72	49.75	49.59	50.19	49.87
Al2O3	4.69	4.65	2.33	3.62	3.69	3.98	3.79	3.62	9.15	10.51	4.23	4.31	3.71	4.09
TiO2	1.58	1.55	0.06	1.30	1.19	1.23	1.22	0.77	4.38	5.93	1.55	1.58	1.23	1.27
FeO total	9.26	8.49	19.04	10.23	10.24	9.68	9.86	10.41	7.34	16.45	9.50	9.47	9.95	9.64
MnO	0.40	0.23	0.53	0.32	0.24	0.33	0.34	0.35	0.09	0.22	0.23	0.22	0.26	0.25
MgO	12.69	13.23	23.67	12.68	12.75	12.72	12.73	13.03	11.82	8.43	12.66	12.85	12.75	12.69
CaO	20.92	20.04	0.78	21.20	21.38	20.22	20.77	20.58	22.17	17.34	21.39	21.83	21.62	22.03
Na2O	0.43	0.63	0.00	0.53	0.50	0.64	0.71	0.46	0.50	0.97	0.59	0.55	0.52	0.42
K2O	0.00	0.23	0.00	0.00	0.00	0.04	0.01	0.00	0.01	0.12	0.03	0.02	0.03	0.01
Fe2O3	0.00	0.00	0.00	2.38	2.28	0.97	1.31	1.83	2.28	10.47	1.85	2.75	2.26	2.18
FeO	9.26	8.49	19.04	8.13	8.19	8.80	8.68	8.77	5.28	6.66	7.83	6.99	7.91	7.68
TOTAL	99.88	100.09	100.00	99.62	100.01	98.73	100.07	99.55	99.99	99.57	99.90	100.39	100.23	100.25
Si	1.870	1.900	1.969	1.879	1.881	1.892	1.900	1.900	1.662	1.551	1.859	1.843	1.882	1.859
AlIV	0.130	0.100	0.030	0.120	0.120	0.110	0.100	0.100	0.340	0.450	0.140	0.140	0.120	0.140
AlVI	0.080	0.100	0.070	0.040	0.050	0.070	0.070	0.060	0.070	0.050	0.050	0.030	0.050	0.040
Ti	0.040	0.040	0.002	0.037	0.034	0.030	0.034	0.022	0.123	0.174	0.044	0.044	0.035	0.036
FeIII	0.000	0.000	0.000	0.067	0.064	0.030	0.040	0.050	0.064	0.336	0.052	0.077	0.064	0.061
FeII	0.290	0.263	0.627	0.254	0.256	0.280	0.270	0.280	0.165	0.192	0.245	0.217	0.247	0.240
Mn	0.010	0.007	0.016	0.010	0.008	0.010	0.011	0.011	0.003	0.007	0.007	0.007	0.008	0.008
Mg	0.710	0.731	1.296	0.714	0.715	0.718	0.710	0.732	0.887	0.491	0.705	0.712	0.712	0.705
Ca	0.840	0.796	0.031	0.858	0.862	0.820	0.833	0.831	0.657	0.725	0.857	0.870	0.869	0.881
Na	0.030	0.050	0.000	0.039	0.036	0.047	0.052	0.034	0.036	0.073	0.043	0.040	0.038	0.030
K	0.000	0.011	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.006	0.002	0.001	0.001	0.001
TOTAL	4.000	3.998	4.041	4.018	4.026	4.009	4.020	4.020	4.007	4.035	4.004	3.981	4.026	4.001
Wt	45.65	44.47	1.59	45.32	45.44	44.37	44.95	43.90	37.06	41.57	46.10	46.38	45.93	46.69
En	38.59	40.83	66.33	37.72	37.69	38.85	38.32	38.67	50.03	28.15	37.92	37.95	37.63	37.36
Fs	15.76	14.69	32.09	16.96	16.87	16.77	16.73	17.43	12.92	30.28	15.98	15.67	16.44	15.95

Sample	90033R	90033R	90033R	90033R	90033R	90033R	90033R	90033R	90033R	90033S	90033S	90033S	90033S	90033S
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type L	Type L	Type L	Type L	Type L
	oxid	oxid	oxid	oxid	core	core	oxid	oxid	core	core	core	core	core-	rim
SiO2	46.30	51.52	41.07	47.24	47.50	49.49	46.04	42.92	47.98	46.71	48.40	49.10	48.11	44.10
Al2O3	8.21	3.95	12.78	5.72	9.08	7.81	9.10	11.05	9.46	7.84	5.73	6.37	6.44	9.28
TiO2	3.85	1.66	6.04	3.24	1.89	1.12	3.64	5.16	2.16	1.70	1.76	1.17	1.32	3.51
FeO total	6.54	5.85	6.87	8.55	8.74	8.15	6.00	6.74	8.09	8.89	8.73	9.28	9.00	8.42
MnO	0.08	0.14	0.04	0.20	0.12	0.13	0.13	0.01	0.19	0.23	0.22	0.23	0.11	0.12
MgO	14.50	18.05	11.06	10.90	11.92	12.95	14.23	12.18	12.20	11.35	12.62	11.93	11.70	11.10
CaO	19.37	18.47	21.88	23.25	19.47	19.95	20.31	20.97	19.87	22.44	21.82	21.94	23.73	23.49
Na2O	0.67	0.38	0.68	0.98	1.17	0.95	0.69	0.73	0.00	0.63	0.70	0.73	0.43	0.50
K2O	0.00	0.00	0.01	0.05	0.01	0.01	0.01	0.00	0.05	0.00	0.02	0.00	0.00	0.01
Fe2O3	1.76	0.56	3.69	3.65	2.25	1.32	2.71	3.07	0.00	4.07	3.62	2.75	4.07	5.45
FeO	4.96	5.34	3.55	5.27	6.71	6.96	3.56	3.97	8.09	5.23	5.47	6.75	5.33	3.52
TOTAL	99.52	100.03	100.43	100.14	99.90	100.55	100.17	99.76	99.95	99.79	99.98	100.75	100.84	100.51
Si	1.721	1.877	1.538	1.783	1.769	1.821	1.699	1.608	1.770	1.762	1.800	1.816	1.798	1.662
AlIV	0.279	0.123	0.462	0.217	0.231	0.179	0.301	0.392	0.230	0.238	0.200	0.184	0.202	0.338
AlVI	0.080	0.050	0.100	0.040	0.170	0.160	0.100	0.100	0.180	0.110	0.050	0.090	0.080	0.070
Ti	0.108	0.046	0.170	0.092	0.053	0.031	0.101	0.145	0.060	0.048	0.049	0.033	0.037	0.099
FeIII	0.049	0.015	0.103	0.103	0.062	0.037	0.075	0.086	0.000	0.114	0.101	0.077	0.114	0.152
FeII	0.154	0.163	0.110	0.165	0.209	0.214	0.109	0.124	0.250	0.165	0.170	0.209	0.165	0.109
Mn	0.002	0.004	0.001	0.007	0.004	0.004	0.004	0.000	0.010	0.007	0.007	0.007	0.003	0.004
Mg	0.803	0.981	0.617	0.613	0.664	0.710	0.783	0.680	0.670	0.638	0.700	0.658	0.652	0.624
Ca	0.771	0.721	0.878	0.940	0.777	0.786	0.803	0.841	0.790	0.907	0.870	0.870	0.950	0.948
Na	0.048	0.027	0.050	0.072	0.084	0.068	0.050	0.053	0.000	0.046	0.050	0.052	0.031	0.036
K	0.000	0.000	0.001	0.002	0.001	0.001	0.001	0.000	0.020	0.000	0.002	0.000	0.000	0.000
TOTAL	4.015	4.007	4.030	4.034	4.024	4.011	4.026	4.029	3.980	4.035	3.999	3.996	4.032	4.042
Wo	43.39	38.35	51.41	51.62	45.39	44.99	45.37	48.58	46.20	49.73	47.26	47.96	50.51	51.72
En	45.19	52.18	36.12	33.66	38.79	40.64	44.24	39.28	39.18	34.98	38.02	36.27	34.66	34.04
Fs	11.42	9.47	12.47	14.72	15.83	14.37	10.40	12.13	14.62	15.30	14.72	15.77	14.83	14.24
Sample	90039M	90039O	90039O	90039O	90039O	90039O	90039O	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa	90039Sa
Type	Type L	Type L	Type L	Type L	Type L	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type P
	core	core	core	core	core	core	core	core	core	core	core	core	core	core
SiO2	48.75	51.41	52.01	50.23	49.96	52.34	50.72	49.10	46.57	46.43	46.84	47.58	46.92	46.83
Al2O3	4.98	3.37	3.03	3.43	3.40	2.29	2.86	8.05	8.95	9.14	8.75	8.08	8.68	8.60
TiO2	1.72	1.14	1.10	1.16	1.33	0.47	1.02	1.68	2.32	2.57	2.30	1.96	2.11	2.30
FeO total	9.42	10.98	10.89	10.19	10.17	8.13	7.93	8.66	8.73	8.22	8.68	8.74	8.36	7.61
MnO	0.20	0.31	0.27	0.47	0.36	0.39	0.21	0.12	0.10	0.15	0.13	0.14	0.17	0.16
MgO	13.91	12.90	12.98	12.74	12.66	15.02	14.05	10.68	11.85	11.71	11.85	12.23	11.71	12.55
CaO	21.65	21.04	21.41	21.47	21.01	21.12	20.93	20.99	20.28	20.16	20.10	20.20	20.87	21.05
Na2O	0.34	0.66	0.47	0.59	0.57	0.62	0.56	0.73	0.73	0.72	0.78	0.68	0.69	0.76
K2O	0.06	0.07	0.06	0.05	0.05	0.03	0.01	0.00	0.02	0.00	0.00	0.02	0.00	0.01
Fe2O3	4.55	2.26	1.03	2.98	2.11	2.59	1.20	0.00	1.81	0.66	1.38	1.26	1.51	2.91
FeO	5.33	8.94	9.96	7.51	8.28	5.80	6.85	8.66	7.10	7.62	7.44	7.60	7.00	4.99
TOTAL	100.97	101.81	102.14	100.28	99.45	100.38	98.29	100.01	99.52	99.09	99.42	99.61	99.51	99.85
Si	1.795	1.890	1.900	1.884	1.890	1.932	1.913	1.835	1.746	1.744	1.756	1.780	1.760	1.745
AlIV	0.200	0.140	0.130	0.120	0.110	0.070	0.090	0.160	0.250	0.260	0.240	0.220	0.240	0.250
AlVI	0.010	0.030	0.030	0.030	0.040	0.030	0.040	0.190	0.140	0.150	0.140	0.140	0.140	0.120
Ti	0.048	0.031	0.030	0.030	0.038	0.013	0.030	0.047	0.065	0.073	0.065	0.055	0.059	0.064
FeIII	0.126	0.060	0.030	0.080	0.060	0.070	0.030	0.000	0.051	0.019	0.039	0.035	0.042	0.081
FeII	0.164	0.280	0.310	0.230	0.260	0.170	0.220	0.270	0.222	0.239	0.233	0.237	0.219	0.155
Mn	0.006	0.010	0.008	0.015	0.011	0.012	0.010	0.004	0.003	0.005	0.004	0.005	0.005	0.005
Mg	0.765	0.696	0.697	0.712	0.712	0.826	0.790	0.595	0.662	0.655	0.662	0.682	0.654	0.697
Ca	0.855	0.816	0.827	0.863	0.849	0.835	0.846	0.841	0.814	0.811	0.807	0.810	0.838	0.840
Na	0.024	0.046	0.033	0.043	0.042	0.044	0.041	0.053	0.053	0.052	0.057	0.049	0.050	0.055
K	0.003	0.003	0.003	0.002	0.002	0.001	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
TOTAL	3.996	4.002	3.998	4.009	4.014	4.003	4.010	3.995	4.007	4.008	4.003	4.014	4.007	4.012
Wo	44.76	44.06	44.37	45.78	45.14	43.92	44.86	49.30	46.54	47.04	46.35	45.92	47.80	47.38
En	40.06	37.58	37.39	37.77	37.85	43.45	41.89	34.88	37.85	37.99	38.02	38.66	37.31	39.31
Fs	15.18	18.36	18.24	16.45	17.01	12.62	13.26	15.83	15.61	14.97	15.62	15.42	14.89	13.31

Sample	90033S	90033S	90033S	90033U
Type	Type L core	Type L rim	Type L rim	Type L core
SiO2	48.51	46.73	46.01	49.95
Al2O3	6.95	9.06	9.72	4.43
TiO2	1.03	1.86	2.98	1.22
FeO total	9.55	10.07	7.17	9.72
MnO	0.17	0.30	0.12	0.48
MgO	11.33	10.12	12.36	11.68
CaO	21.66	20.85	21.05	21.64
Na2O	0.79	1.01	0.73	0.89
K2O	0.00	0.00	0.00	0.00

Fe2O3	2.69	2.53	2.22	2.27
FeO	7.15	7.79	5.17	7.68

TOTAL	99.99	100.00	100.14	100.01
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Si	1.819	1.759	1.701	1.878
AlIV	0.181	0.241	0.299	0.122
AlVI	0.130	0.160	0.130	0.070
Ti	0.029	0.052	0.083	0.034
FeIII	0.075	0.071	0.062	0.064
FeII	0.223	0.244	0.160	0.240
Mn	0.006	0.010	0.004	0.015
Mg	0.633	0.567	0.681	0.654
Ca	0.870	0.841	0.834	0.872
Na	0.057	0.073	0.052	0.065
K	0.000	0.001	0.006	0.000

TOTAL	4.023	4.019	4.012	4.014
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Wo	48.31	48.81	48.01	47.65
En	35.15	32.91	39.21	35.74
Fs	16.55	18.28	12.78	16.61

Sample	90039Sa	90039V	90039V	90039V	90039V
Type	Type P core	Type M core	Type M core	Type M core	Type M core
SiO2	46.86	47.06	50.28	50.49	49.67
Al2O3	8.41	6.03	4.54	4.15	4.05
TiO2	2.12	2.84	1.16	1.31	1.47
FeO total	8.29	9.78	9.26	9.28	9.11
MnO	0.13	0.18	0.28	0.32	0.35
MgO	12.51	11.62	12.66	12.90	12.90
CaO	20.07	22.07	21.26	21.75	21.98
Na2O	0.80	0.41	0.47	0.69	0.45
K2O	0.00	0.06	0.03	0.06	0.02

Fe2O3	2.47	2.74	0.57	0.00	2.27
FeO	6.07	7.50	8.74	9.28	7.07

TOTAL	99.18	99.99	99.91	100.87	99.98
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Si	1.750	1.766	1.875	1.866	1.860
AlIV	0.250	0.230	0.120	0.130	0.140
AlVI	0.120	0.040	0.080	0.050	0.040
Ti	0.060	0.080	0.032	0.040	0.040
FeIII	0.069	0.072	0.016	0.000	0.064
FeII	0.190	0.236	0.273	0.287	0.221
Mn	0.004	0.001	0.009	0.010	0.011
Mg	0.696	0.650	0.703	0.710	0.720
Ca	0.803	0.888	0.849	0.861	0.882
Na	0.058	0.030	0.034	0.050	0.033
K	0.000	0.003	0.002	0.000	0.001

TOTAL	4.000	3.996	3.993	4.004	4.012
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Wo	45.68	48.10	46.12	46.34	46.74
En	39.59	35.21	38.19	38.21	38.16
Fs	14.73	16.68	15.70	15.45	15.10

A3.1 Mount Sidley Xenolith Mineral Analyses: plagioclase

Sample	90029C	90029C	90029C	90029V	90029V	90029V	90029V	90029X	90029X	90029X	90029X	90029X	90029X	90029B1
Type	Type L	Type L	Type L	Type M	Type M	Type M	Type M	Type L	Type L	Type L	Type L	Type L	Type L	Type L
	core	core	core	core-	rim	core-	rim	core	core	core	core	core-	rim	rim
SiO2	53.69	54.26	54.06	56.63	48.41	56.20	48.28	53.76	54.43	53.70	52.96	54.47	53.01	52.82
Al2O3	29.41	29.10	28.65	28.58	33.56	29.24	33.47	29.10	28.98	29.60	29.72	29.43	30.07	28.80
TiO2	0.09	0.09	0.01	0.01	0.20	0.02	0.15	0.05	0.04	0.03	0.01	0.01	0.08	0.32
FeO	0.18	0.20	0.26	0.27	0.71	0.23	0.59	0.11	0.20	0.16	0.15	0.16	0.24	1.22
MnO	0.15	0.04	0.07	0.09	0.00	0.13	0.15	0.12	0.03	0.00	0.00	0.05	0.00	0.00
MgO	0.00	0.00	0.00	0.01	0.04	0.10	0.02	0.00	0.00	0.01	0.03	0.00	0.03	0.01
CaO	12.26	11.52	11.64	10.81	16.39	10.69	17.25	11.83	11.14	11.47	11.68	10.99	11.95	12.22
Na2O	4.40	4.73	4.63	3.74	1.88	3.83	2.17	4.66	5.09	4.85	4.77	5.03	4.57	4.71
K2O	0.11	0.10	0.13	0.36	0.12	0.34	0.11	0.22	0.28	0.26	0.19	0.28	0.21	0.26

TOTAL	100.28	100.04	99.44	100.49	101.31	100.79	102.18	99.85	100.17	100.07	99.51	100.40	100.16	100.36
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Si	2.420	2.448	2.456	2.520	2.190	2.500	2.180	2.435	2.455	2.426	2.405	2.448	2.397	2.402
Al	1.562	1.547	1.534	1.500	1.790	1.530	1.780	1.554	1.540	1.576	1.591	1.559	1.602	1.545
Ti	0.003	0.003	0.000	0.000	0.010	0.000	0.010	0.002	0.001	0.001	0.000	0.000	0.003	0.011
Fe	0.007	0.007	0.010	0.010	0.030	0.010	0.020	0.004	0.008	0.006	0.006	0.006	0.009	0.046
Mn	0.006	0.001	0.003	0.000	0.000	0.000	0.010	0.005	0.001	0.000	0.000	0.002	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.001
Ca	0.592	0.556	0.567	0.516	0.795	0.509	0.833	0.574	0.538	0.555	0.568	0.529	0.579	0.596
Na	0.385	0.413	0.407	0.323	0.165	0.330	0.190	0.409	0.445	0.425	0.420	0.438	0.401	0.415
K	0.006	0.006	0.008	0.021	0.010	0.020	0.010	0.013	0.016	0.015	0.011	0.016	0.012	0.015

TOTAL	4.981	4.981	4.985	4.890	4.990	4.909	5.033	4.996	5.004	5.004	5.003	4.998	5.005	5.031
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An	60.22	57.03	57.74	60.00	81.96	59.25	80.64	57.63	53.85	55.78	56.86	53.81	58.37	58.09
Ab	39.17	42.36	41.45	37.56	17.01	38.42	18.39	41.06	44.54	42.71	42.04	44.56	40.42	40.45
Or	0.61	0.62	0.81	2.44	1.03	2.33	0.97	1.31	1.60	1.51	1.10	1.63	1.21	1.46

Sample	90033U	90033V	90033V	90033V	90033V	90033X	90033X	90033X	90033X	90033X	90033X	90033FI	90033FI	90033FI
Type	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L
	core	core	melt	melt	core	core	core	core	core	core-	rim	core	core	core
SiO2	54.21	56.92	51.78	54.09	59.41	58.24	58.03	58.46	58.11	58.26	54.68	54.56	54.94	55.27
Al2O3	28.54	27.49	30.15	28.65	26.40	26.84	26.73	26.78	26.49	26.01	28.55	28.96	29.15	28.55
TiO2	0.00	0.00	0.11	0.11	0.01	0.08	0.03	0.06	0.03	0.05	0.08	0.02	0.07	0.01
FeO	0.19	0.11	0.59	0.47	0.15	0.15	0.27	0.23	0.20	0.20	0.57	0.19	0.04	0.18
MnO	0.00	0.00	0.02	0.04	0.09	0.00	0.01	0.09	0.00	0.00	0.01	0.00	0.02	0.00
MgO	0.00	0.09	0.04	0.08	0.00	0.02	0.03	0.03	0.00	0.02	0.06	0.00	0.01	0.00
CaO	11.69	9.20	13.45	11.89	8.34	8.73	8.12	8.20	8.05	8.17	10.62	11.36	11.71	10.95
Na2O	5.09	6.22	3.81	4.54	5.12	6.22	6.30	6.33	6.47	6.41	5.11	4.91	4.71	5.25
K2O	0.29	0.51	0.25	0.41	0.57	0.47	0.51	0.50	0.44	0.47	0.18	0.28	0.28	0.25

TOTAL	100.01	100.55	100.18	100.29	100.09	100.74	100.01	100.68	99.78	99.59	99.84	100.27	100.92	100.45
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Si	2.453	2.545	2.355	2.445	2.641	2.590	2.597	2.599	2.604	2.618	2.471	2.457	2.456	2.482
Al	1.522	1.448	1.617	1.527	1.383	1.407	1.410	1.404	1.399	1.377	1.521	1.537	1.536	1.511
Ti	0.000	0.000	0.004	0.005	0.000	0.003	0.001	0.002	0.001	0.002	0.003	0.001	0.002	0.000
Fe	0.007	0.004	0.022	0.018	0.006	0.006	0.010	0.009	0.007	0.008	0.021	0.007	0.002	0.007
Mn	0.002	0.000	0.001	0.002	0.004	0.000	0.001	0.003	0.000	0.000	0.000	0.000	0.001	0.000
Mg	0.001	0.006	0.003	0.005	0.000	0.001	0.002	0.002	0.000	0.001	0.004	0.000	0.001	0.000
Ca	0.567	0.441	0.656	0.576	0.397	0.416	0.389	0.391	0.387	0.394	0.514	0.548	0.561	0.527
Na	0.446	0.539	0.336	0.398	0.441	0.537	0.546	0.546	0.562	0.558	0.447	0.428	0.409	0.457
K	0.017	0.029	0.015	0.024	0.032	0.027	0.029	0.029	0.025	0.027	0.010	0.016	0.016	0.014

TOTAL	5.015	5.012	5.009	5.000	4.904	4.987	4.985	4.985	4.985	4.985	4.991	4.994	4.984	4.998
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An	55.05	43.71	65.14	57.72	45.63	42.45	40.35	40.48	39.73	40.25	52.94	55.24	56.90	52.81
Ab	43.30	53.42	33.37	39.88	50.69	54.80	56.64	56.52	57.70	57.00	46.04	43.15	41.48	45.79
Or	1.65	2.87	1.49	2.40	3.68	2.76	3.01	3.00	2.57	2.76	1.03	1.61	1.62	1.40

Sample Type	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90033A Type P melt	90033A Type P melt	90033A Type P melt	90033B Type P core	90033B Type P core	90033B Type P core
SiO2	56.52	56.10	56.54	56.21	56.97	56.80	57.32	56.64	53.76	55.92	52.20	50.62	53.06	52.34
Al2O3	27.68	27.61	27.53	27.86	27.59	27.35	27.56	27.43	27.53	25.99	29.40	31.03	29.88	29.65
TiO2	0.04	0.03	0.07	0.02	0.07	0.13	0.12	0.04	0.25	0.47	0.20	0.17	0.03	0.13
FeO	0.07	0.24	0.14	0.14	0.20	0.27	0.16	0.27	1.03	1.15	0.80	0.54	0.29	0.52
MnO	0.00	0.00	0.00	0.01	0.03	0.07	0.08	0.05	0.02	0.00	0.05	0.00	0.00	0.00
MgO	0.03	0.01	0.02	0.00	0.00	0.00	0.00	0.00	1.17	0.13	0.01	0.12	0.03	0.09
CaO	9.91	10.04	9.90	9.85	9.78	9.65	9.91	9.91	11.57	10.51	12.40	14.41	12.51	12.90
Na2O	6.01	6.07	6.29	6.38	5.51	5.44	5.21	5.40	4.49	5.46	4.19	3.38	4.48	4.08
K2O	0.44	0.41	0.44	0.39	0.28	0.35	0.36	0.32	0.25	0.36	0.30	0.16	0.25	0.22
TOTAL	100.70	100.50	100.92	100.88	100.42	100.06	100.72	100.06	100.07	99.99	99.53	100.43	100.53	99.92
Si	2.528	2.519	2.527	2.515	2.545	2.549	2.551	2.543	2.442	2.535	2.387	2.301	2.396	2.381
Al	1.460	1.462	1.451	1.470	1.452	1.446	1.445	1.451	1.475	1.390	1.585	1.662	1.591	1.590
Ti	0.001	0.001	0.001	0.001	0.002	0.005	0.004	0.001	0.009	0.016	0.007	0.006	0.001	0.004
Fe	0.002	0.009	0.065	0.005	0.007	0.010	0.006	0.010	0.039	0.044	0.031	0.020	0.011	0.020
Mn	0.000	0.000	0.000	0.000	0.001	0.002	0.003	0.001	0.004	0.000	0.002	0.000	0.000	0.000
Mg	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.079	0.009	0.001	0.008	0.002	0.006
Ca	0.475	0.483	0.474	0.472	0.468	0.464	0.472	0.476	0.563	0.511	0.608	0.702	0.606	0.629
Na	0.521	0.528	0.545	0.553	0.477	0.473	0.450	0.470	0.395	0.480	0.371	0.298	0.392	0.360
K	0.025	0.023	0.025	0.022	0.016	0.020	0.020	0.018	0.014	0.021	0.018	0.009	0.014	0.013
TOTAL	5.013	5.026	5.089	5.038	4.968	4.969	4.951	4.970	5.020	5.006	5.010	5.006	5.013	5.003
An	46.52	46.71	45.40	45.08	48.70	48.48	50.11	49.38	57.92	50.49	60.98	69.57	59.88	62.77
Ab	51.03	51.06	52.20	52.82	49.64	49.43	47.77	48.76	40.64	47.43	37.21	29.53	38.74	35.93
Or	2.45	2.22	2.39	2.10	1.66	2.09	2.12	1.87	1.44	2.08	1.81	0.89	1.38	1.30

Sample Type	90033F1 Type L core	90033G1 Type L core	90033G1 Type L core	90033G1 Type L core	90033G1 Type L core	90033P1 Type C core	90033P1 Type C core	90033P1 Type C core	90033P1 Type C core	90033P1 Type C core	90033P1 Type C core	90033P1 Type C core	90033Q1 Type P melt	90033Q1 Type P melt
SiO2	54.69	53.69	52.75	55.61	57.12	52.48	54.09	51.08	54.94	52.32	52.56	51.09	52.50	51.02
Al2O3	28.95	29.46	29.40	28.33	27.51	29.77	28.90	30.29	28.29	29.83	29.84	30.46	30.13	31.12
TiO2	0.06	0.03	0.13	0.10	0.10	0.05	0.09	0.20	0.06	0.13	0.09	0.19	0.22	0.28
FeO	0.13	0.18	0.60	0.18	0.13	0.24	0.20	0.52	0.28	0.15	0.20	0.50	0.47	0.74
MnO	0.00	0.08	0.00	0.00	0.05	0.00	0.00	0.00	0.03	0.00	0.04	0.00	0.00	0.03
MgO	0.02	0.04	0.05	0.02	0.01	0.04	0.03	0.05	0.06	0.06	0.04	0.03	0.09	0.02
CaO	11.50	11.72	12.20	10.16	8.95	12.47	11.79	13.62	10.78	12.72	12.67	13.60	12.62	13.35
Na2O	4.80	5.02	4.65	5.76	6.28	4.53	4.96	3.76	5.38	4.36	4.31	4.08	4.26	3.81
K2O	0.25	0.36	0.35	0.44	0.51	0.24	0.27	0.30	0.45	0.29	0.32	0.23	0.32	0.27
TOTAL	100.39	100.57	100.12	100.60	100.66	99.81	100.33	99.80	100.26	99.85	100.07	100.17	100.61	100.62
Si	2.459	2.421	2.396	2.494	2.550	2.386	2.440	2.335	2.477	2.381	2.386	2.329	2.368	2.314
Al	1.534	1.565	1.574	1.498	1.448	1.595	1.537	1.632	1.503	1.600	1.596	1.637	1.603	1.663
Ti	0.002	0.001	0.004	0.004	0.004	0.002	0.003	0.007	0.002	0.004	0.003	0.007	0.007	0.010
Fe	0.005	0.007	0.023	0.007	0.005	0.009	0.007	0.020	0.011	0.006	0.008	0.019	0.018	0.028
Mn	0.000	0.003	0.000	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.001
Mg	0.000	0.003	0.004	0.002	0.001	0.003	0.000	0.003	0.004	0.004	0.003	0.002	0.006	0.002
Ca	0.554	0.566	0.594	0.488	0.428	0.608	0.570	0.667	0.521	0.620	0.616	0.664	0.610	0.648
Na	0.418	0.438	0.409	0.501	0.544	0.399	0.433	0.333	0.470	0.385	0.379	0.360	0.404	0.335
K	0.014	0.021	0.020	0.025	0.029	0.014	0.016	0.018	0.026	0.017	0.018	0.014	0.018	0.015
TOTAL	4.986	5.025	5.024	5.019	5.011	5.016	5.006	5.015	5.015	5.017	5.011	5.032	5.034	5.016
An	56.19	55.22	58.06	48.13	42.76	59.55	55.94	65.52	51.23	60.67	60.81	63.97	59.11	64.93
Ab	42.39	42.73	39.98	49.41	54.35	39.08	42.49	32.71	46.21	37.67	37.41	34.68	39.15	33.57
Or	1.42	2.05	1.96	2.47	2.90	1.37	1.57	1.77	2.56	1.66	1.78	1.35	1.74	1.50

Sample	90033C	90033G	90033G	90033G	90033G	90033G	90033G	90033G	90033G	90033G	90033H	90033J	90033J	90033J	90033O
Type	Type P kaerst	Type P melt	Type P melt	Type P core	Type P melt	Type P melt	Type P core	Type P oxid	Type P oxid	Type P core	Type C core	Type C kaerst	Type C kaerst	Type C core	Type L core
SiO2	61.50	51.65	47.62	50.60	64.65	60.46	47.76	48.54	51.84	50.99	50.28	57.62	54.49	59.56	
Al2O3	25.01	30.39	32.28	30.55	19.71	25.01	33.05	32.01	29.79	30.78	30.78	26.08	26.57	25.94	
TiO2	1.01	0.09	0.13	0.17	0.25	0.10	0.16	0.08	0.14	0.20	0.21	0.28	0.76	0.06	
FeO	1.12	0.39	0.43	0.61	0.34	0.40	0.56	0.60	0.55	0.32	0.37	0.77	1.07	0.27	
MnO	0.04	0.00	0.04	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.04	
MgO	1.60	0.00	0.02	0.01	0.04	0.00	0.00	0.02	0.02	0.04	0.01	0.01	0.84	0.03	
CaO	0.53	13.26	16.06	13.19	1.23	6.66	15.70	14.97	12.65	13.60	13.45	7.90	10.17	7.53	
Na2O	1.95	4.04	2.44	3.67	3.69	7.13	2.48	2.81	4.20	3.76	3.61	5.76	5.53	6.70	
K2O	5.38	0.33	0.16	0.21	9.58	1.07	0.11	0.18	0.42	0.28	0.35	1.37	0.57	0.55	
TOTAL	98.13	100.15	99.18	99.00	99.48	100.86	99.81	99.21	99.62	99.98	99.07	99.78	100.00	100.68	

Si	2.764	2.350	2.205	2.329	2.938	2.678	2.195	2.234	2.369	2.323	2.315	2.599	2.478	2.642	
Al	1.326	1.630	1.761	1.657	1.056	1.306	1.790	1.736	1.604	1.653	1.671	1.386	1.424	1.357	
Ti	0.034	0.003	0.005	0.006	0.009	0.003	0.006	0.003	0.005	0.007	0.007	0.009	0.026	0.002	
Fe	0.042	0.015	0.017	0.023	0.013	0.015	0.021	0.023	0.021	0.012	0.014	0.029	0.041	0.010	
Mn	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	
Mg	0.107	0.000	0.002	0.001	0.002	0.000	0.000	0.001	0.001	0.003	0.000	0.001	0.057	0.002	
Ca	0.026	0.647	0.797	0.651	0.060	0.316	0.773	0.738	0.619	0.664	0.664	0.382	0.495	0.358	
Na	0.170	0.357	0.219	0.328	0.325	0.612	0.221	0.250	0.372	0.331	0.322	0.503	0.488	0.576	
K	0.308	0.019	0.010	0.012	0.555	0.061	0.007	0.011	0.024	0.016	0.021	0.079	0.033	0.031	
TOTAL	4.777	5.021	5.018	5.007	4.958	4.991	5.013	4.996	5.015	5.010	5.014	4.988	5.042	4.979	

An	5.16	63.25	77.68	65.69	6.38	31.95	77.22	73.87	60.99	65.68	65.94	39.63	48.72	37.10	
Ab	33.73	34.90	21.35	33.10	34.57	61.88	22.08	25.03	36.65	32.74	31.98	52.18	48.03	59.69	
Or	61.11	1.86	0.97	1.21	59.04	6.17	0.70	1.10	2.36	1.58	2.09	8.20	3.25	3.21	

Sample	90033Q1	90033Q1	90033Q1	90033Q1	90033Q1	90039D	90039D	90039D	90039D	90039D	90039D	90039D	90039E	90039E
Type	Type P melt	Type P melt	Type P melt	Type P melt	Type P core	Type L core	Type L core	Type L core	Type L core	Type L core	Type L core	Type L core	Type L melt	Type L core-
SiO2	58.04	52.77	52.77	52.69	52.01	53.38	52.35	52.68	52.55	53.23	52.09	52.73	55.00	57.96
Al2O3	25.09	20.66	29.68	29.72	30.14	29.44	30.35	30.19	29.85	29.82	30.21	30.00	27.26	28.43
TiO2	0.43	2.20	0.27	0.19	0.16	0.05	0.06	0.09	0.00	0.07	0.04	0.10	0.31	0.14
FeO	0.81	4.82	0.35	0.39	0.50	0.30	0.20	0.04	0.18	0.15	0.13	0.16	1.02	0.00
MnO	0.00	0.06	0.00	0.02	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.00	0.00	0.00
MgO	0.50	2.21	0.07	0.07	0.09	0.01	0.04	0.00	0.11	0.00	0.00	0.00	0.00	0.00
CaO	8.07	9.23	12.71	12.76	12.94	11.99	13.05	12.95	12.69	12.15	12.76	12.21	10.34	11.12
Na2O	6.09	5.69	4.28	4.44	3.97	4.63	3.93	4.09	4.04	4.41	4.12	4.31	4.92	5.64
K2O	1.29	1.19	0.36	0.23	0.28	0.28	0.23	0.23	0.26	0.31	0.27	0.26	0.44	0.24
TOTAL	100.32	98.82	100.47	100.52	100.10	100.09	100.21	100.25	99.57	100.25	99.63	99.76	99.28	103.53

Si	2.610	2.499	2.388	2.384	2.363	2.417	2.369	2.382	2.392	2.405	2.372	2.394	2.499	2.518
Al	1.329	1.154	1.583	1.585	1.614	1.571	1.619	1.609	1.601	1.588	1.622	1.605	1.460	1.456
Ti	0.014	0.078	0.009	0.006	0.006	0.002	0.002	0.003	0.000	0.002	0.001	0.003	0.010	0.005
Fe	0.030	0.191	0.013	0.015	0.019	0.011	0.007	0.002	0.007	0.006	0.005	0.006	0.038	0.000
Mn	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Mg	0.033	0.156	0.005	0.004	0.006	0.001	0.003	0.000	0.000	0.008	0.000	0.000	0.000	0.000
Ca	0.389	0.469	0.616	0.619	0.630	0.582	0.633	0.627	0.619	0.588	0.623	0.594	0.503	0.517
Na	0.531	0.523	0.375	0.389	0.350	0.407	0.345	0.358	0.356	0.386	0.364	0.379	0.433	0.474
K	0.074	0.072	0.021	0.013	0.016	0.016	0.013	0.013	0.015	0.018	0.015	0.015	0.026	0.014
TOTAL	5.010	5.145	5.010	5.016	5.004	5.007	4.991	4.994	4.990	5.001	5.003	4.996	4.969	4.984

An	39.13	44.08	60.87	60.63	63.25	57.91	63.87	62.83	62.53	59.27	62.18	60.12	52.29	51.44
Ab	53.42	49.15	37.06	38.10	35.14	40.50	34.81	35.87	35.96	38.91	36.33	38.36	45.01	47.16
Or	7.44	6.77	2.08	1.27	1.61	1.59	1.31	1.30	1.52	1.81	1.50	1.52	2.70	1.39

Sample	90033P	90033P	90033P	90033P	90033P	90033P	90033P	90033P	90033P	90033R	90033R	90033R	90033R	90033R
Type	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C	Type C
	core	core	kaerst	core	core	core	core	melt-	melt	melt	core	core-	rim	melt
SiO2	55.01	55.61	61.55	53.81	52.14	52.86	55.13	50.51	49.43	58.31	55.86	56.12	51.21	49.61
Al2O3	28.16	28.57	22.21	29.56	30.12	29.89	28.54	30.81	32.24	25.69	27.62	27.61	30.98	31.67
TiO2	0.01	0.05	0.20	0.05	0.07	0.09	0.04	0.15	0.15	0.23	0.05	0.07	0.06	0.23
FeO	0.17	0.16	1.69	0.17	0.27	0.12	0.14	0.40	0.29	0.62	0.17	0.00	0.44	0.61
MnO	0.02	0.03	0.08	0.00	0.00	0.05	0.00	0.03	0.00	0.00	0.05	0.00	0.01	0.00
MgO	0.03	0.00	1.14	0.03	0.05	0.02	0.03	0.07	0.06	0.00	0.03	0.07	0.05	0.03
CaO	10.64	10.57	1.73	11.55	13.04	12.65	10.84	14.21	15.18	8.12	9.65	10.08	13.62	15.01
Na2O	6.00	5.79	3.99	5.10	4.61	4.62	5.21	3.55	2.85	6.23	5.72	5.69	3.58	2.93
K2O	0.26	0.22	7.84	0.17	0.34	0.15	0.18	0.15	0.11	0.08	0.47	0.35	0.34	0.21
TOTAL	100.29	101.01	100.41	100.42	100.63	100.46	100.11	99.89	100.29	99.29	99.62	100.00	100.29	100.30
Si	2.481	2.485	2.789	2.424	2.362	2.389	2.481	2.309	2.253	2.618	2.524	2.577	2.327	2.266
Al	1.498	1.505	1.187	1.569	1.609	1.592	1.514	1.660	1.732	1.359	1.471	1.418	1.659	1.705
Ti	0.000	0.001	0.007	0.002	0.002	0.003	0.001	0.005	0.005	0.008	0.002	0.000	0.002	0.008
Fe	0.006	0.006	0.064	0.006	0.010	0.004	0.005	0.015	0.011	0.023	0.006	0.000	0.017	0.023
Mn	0.000	0.001	0.007	0.000	0.000	0.002	0.000	0.001	0.000	0.000	0.002	0.000	0.000	0.000
Mg	0.001	0.000	0.077	0.002	0.003	0.001	0.002	0.005	0.004	0.002	0.002	0.000	0.004	0.002
Ca	0.514	0.506	0.084	0.557	0.633	0.613	0.523	0.696	0.741	0.390	0.467	0.471	0.663	0.735
Na	0.525	0.502	0.351	0.446	0.405	0.405	0.455	0.315	0.252	0.543	0.501	0.481	0.316	0.260
K	0.015	0.013	0.453	0.010	0.020	0.008	0.010	0.009	0.006	0.047	0.027	0.020	0.019	0.012
TOTAL	5.040	5.019	5.019	5.016	5.044	5.017	4.991	5.015	5.004	4.990	5.002	4.967	5.007	5.011
An	48.77	49.56	9.46	54.99	59.83	59.75	52.94	68.24	74.17	39.80	46.93	48.46	66.43	72.99
Ab	49.81	49.17	39.53	44.03	38.28	39.47	46.05	30.88	25.23	55.41	50.35	49.49	31.66	25.82
Or	1.42	1.27	51.01	0.99	1.89	0.78	1.01	0.88	0.60	4.80	2.71	2.06	1.90	1.19

Sample	90039E	90039F	90039M	90039M	90039M	90039M	90039M	90039M	90039M	90039M	90039M	90039O	90039O	90039O
Type	Type L	Type M	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type C
	rim	core	core-	rim	core	core	core	core	core	core	core	core	core	core
SiO2	54.60	55.68	54.12	49.28	54.89	54.56	54.76	53.97	54.82	54.23	55.02	55.52	57.16	57.92
Al2O3	29.94	28.61	29.25	32.22	29.02	29.25	28.89	28.76	29.05	29.37	28.89	28.59	28.56	27.40
TiO2	0.21	0.05	0.00	0.05	0.07	0.01	0.11	0.03	0.08	0.08	0.02	0.07	0.00	0.30
FeO	0.70	0.20	0.19	0.58	0.15	0.25	0.13	0.17	0.15	0.14	0.12	0.13	0.17	0.29
MnO	0.00	0.05	0.00	0.09	0.00	0.00	0.00	0.00	0.03	0.05	0.00	0.00	0.14	0.10
MgO	0.08	0.01	0.00	0.02	0.00	0.03	0.05	0.00	0.02	0.06	0.00	0.05	0.03	0.01
CaO	14.60	10.50	11.36	14.79	10.90	11.42	10.79	11.45	11.10	11.53	11.05	10.07	10.47	9.27
Na2O	3.76	4.52	4.84	2.81	5.16	4.98	5.13	5.05	5.38	5.07	5.06	5.38	5.38	5.83
K2O	0.27	0.25	0.25	0.16	0.34	0.24	0.25	0.23	0.24	0.23	0.29	0.31	0.26	0.33
TOTAL	104.16	99.87	100.01	100.00	100.53	100.73	100.10	99.65	100.86	100.76	100.45	100.11	102.17	101.43
Si	2.388	2.501	2.443	2.255	2.464	2.448	2.465	2.449	2.456	2.434	2.470	2.490	2.514	2.561
Al	1.543	1.515	1.556	1.737	1.535	1.547	1.533	1.538	1.534	1.554	1.529	1.512	1.480	1.428
Ti	0.007	0.000	0.000	0.002	0.002	0.000	0.004	0.001	0.003	0.003	0.001	0.002	0.000	0.010
Fe	0.025	0.000	0.007	0.022	0.006	0.009	0.005	0.007	0.005	0.005	0.005	0.005	0.010	0.010
Mn	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.010	0.000
Mg	0.000	0.000	0.000	0.001	0.000	0.000	0.003	0.000	0.000	0.004	0.000	0.000	0.000	0.000
Ca	0.684	0.507	0.549	0.725	0.524	0.549	0.520	0.557	0.533	0.554	0.531	0.484	0.493	0.439
Na	0.318	0.392	0.424	0.250	0.449	0.433	0.447	0.444	0.468	0.441	0.441	0.467	0.458	0.499
K	0.015	0.013	0.014	0.009	0.019	0.014	0.015	0.013	0.014	0.013	0.017	0.018	0.014	0.019
TOTAL	4.980	4.928	4.993	5.004	4.999	5.000	4.992	5.009	5.013	5.010	4.994	4.978	4.979	4.966
An	67.26	55.59	55.62	73.68	52.82	55.12	52.95	54.93	52.51	54.96	53.69	49.95	51.09	45.87
Ab	31.27	42.98	42.96	25.41	45.26	43.47	45.52	43.79	46.11	43.75	44.59	48.19	47.46	52.14
Or	1.47	1.43	1.42	0.91	1.92	1.41	1.53	1.28	1.38	1.29	1.72	1.86	1.45	1.99

Sample	90033S	90033S	90033S	90033S	90033S	90033S	90033S	90033S	90033S	90033S	90033S	90033S
Type	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type L
	core	core	core-	rim	core	core	melt	core	core	core	core	kaerst
SiO2	54.64	51.57	53.67	49.19	53.59	51.95	49.87	52.59	53.45	50.61	49.88	56.53
Al2O3	28.20	29.83	28.86	31.36	29.62	29.78	30.98	29.70	28.79	30.86	31.30	27.56
TiO2	0.05	0.00	0.03	0.09	0.04	0.01	0.21	0.01	0.15	0.17	0.15	0.13
FeO	0.23	0.28	0.22	0.72	0.16	0.22	1.08	0.16	0.45	0.56	0.57	0.53
MnO	0.00	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00
MgO	0.01	0.07	0.14	0.00	0.05	0.04	0.07	0.01	0.08	0.00	0.00	0.00
CaO	11.08	13.68	12.09	14.85	12.92	13.25	14.47	12.71	12.38	13.97	14.67	9.86
Na2O	5.27	4.18	4.25	2.90	4.30	3.99	2.97	4.31	4.13	3.62	2.90	5.46
K2O	0.23	0.15	0.22	0.21	0.18	0.16	0.18	0.14	0.38	0.00	0.17	0.45
TOTAL	99.72	99.79	99.48	99.34	100.86	99.40	99.82	99.62	99.89	99.79	99.64	100.52
Si	2.475	2.356	2.439	2.269	2.409	2.375	2.288	2.394	2.428	2.318	2.287	2.533
Al	1.506	1.606	1.545	1.705	1.570	1.605	1.676	1.594	1.541	1.657	1.693	1.455
Ti	0.002	0.000	0.001	0.003	0.001	0.000	0.007	0.000	0.005	0.006	0.005	0.004
Fe	0.009	0.011	0.008	0.028	0.006	0.008	0.041	0.006	0.017	0.021	0.022	0.020
Mn	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000
Mg	0.000	0.004	0.010	0.000	0.003	0.002	0.005	0.001	0.005	0.000	0.000	0.000
Ca	0.538	0.670	0.588	0.734	0.623	0.649	0.712	0.620	0.603	0.686	0.721	0.473
Na	0.463	0.370	0.375	0.259	0.375	0.353	0.264	0.380	0.364	0.321	0.258	0.474
K	0.013	0.009	0.013	0.013	0.010	0.009	0.011	0.008	0.022	0.000	0.010	0.026
TOTAL	5.006	5.027	4.979	5.012	4.997	5.001	5.004	5.003	4.988	5.009	4.996	4.985
An	53.06	63.87	60.25	72.96	61.81	64.19	72.14	61.51	60.97	68.12	72.90	48.61
Ab	45.66	35.27	38.42	25.75	37.20	34.92	26.75	37.70	36.80	31.88	26.09	48.72
Or	1.28	0.86	1.33	1.29	0.99	0.89	1.11	0.79	2.22	0.00	1.01	2.67

Sample	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb	90039Sb	90039Sa	90039Sa	90039V	90039V	90039V	90039V
Type	Type C	Type C	Type C	Type P	Type C	Type P	Type C	Type P	Type M	Type M	Type M	Type M
	core	core	core	core	core	core	core	core	core	rim	core	core
SiO2	55.46	55.12	52.15	50.50	52.07	51.33	54.48	49.63	54.62	49.06	53.37	53.59
Al2O3	29.04	28.40	30.41	31.27	30.36	30.67	28.56	31.93	29.30	31.92	29.50	29.45
TiO2	0.02	0.07	0.14	0.18	0.17	0.17	0.05	0.06	0.08	0.21	0.13	0.09
FeO	0.15	0.09	0.44	0.51	0.66	0.48	0.24	0.29	0.18	0.55	0.24	0.25
MnO	0.01	0.10	0.00	0.01	0.00	0.00	0.00	0.02	0.09	0.11	0.11	0.02
MgO	0.02	0.00	0.08	0.06	0.10	0.09	0.07	0.03	0.00	0.08	0.10	0.06
CaO	10.59	10.43	12.98	14.21	12.97	13.72	11.13	15.06	11.79	14.92	11.76	11.83
Na2O	5.44	5.57	4.24	3.47	4.09	3.65	4.81	2.91	3.89	2.71	4.65	4.91
K2O	0.25	0.27	0.24	0.18	0.24	0.22	0.18	0.04	0.14	0.10	0.12	0.13
TOTAL	100.97	100.06	100.68	100.38	100.64	100.33	99.50	99.96	100.09	99.66	99.98	100.33
Si	2.476	2.485	2.357	2.298	2.357	2.333	2.469	2.267	2.447	2.243	2.409	2.414
Al	1.528	1.590	1.620	1.677	1.619	1.642	1.526	1.720	1.547	1.719	1.570	1.563
Ti	0.000	0.000	0.010	0.010	0.010	0.010	0.002	0.001	0.002	0.007	0.004	0.003
Fe	0.006	0.000	0.017	0.020	0.025	0.018	0.009	0.011	0.007	0.020	0.009	0.009
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.004	0.004	0.000
Mg	0.000	0.000	0.010	0.000	0.010	0.010	0.004	0.002	0.000	0.005	0.006	0.000
Ca	0.507	0.504	0.629	0.693	0.629	0.668	0.540	0.738	0.566	0.730	0.568	0.571
Na	0.471	0.487	0.371	0.306	0.359	0.321	0.422	0.258	0.338	0.240	0.407	0.428
K	0.014	0.016	0.014	0.010	0.014	0.013	0.010	0.002	0.008	0.006	0.007	0.008
TOTAL	5.002	5.082	5.028	5.014	5.023	5.015	4.982	5.000	4.918	4.974	4.984	4.996
An	51.11	50.05	62.03	68.68	62.77	66.67	55.56	73.95	62.06	74.80	57.84	56.70
Ab	47.48	48.36	36.59	30.33	35.83	32.04	43.42	25.85	37.06	24.59	41.45	42.50
Or	1.41	1.59	1.38	0.99	1.40	1.30	1.03	0.20	0.88	0.61	0.71	0.79

A3.1 Mount Sidley Xenolith Mineral Analyses: kaersutite

Sample	90033C	90033C	90033C	90033C	90033C	90033C	90033C	90033C	90033C	90033C	90033H	90033J	90033J	
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type C	Type C	
	core	core	core	core	core	core	core	core	core	core	core	core	core	
SiO ₂	39.31	39.04	40.37	39.11	40.19	39.31	39.58	39.23	39.08	38.30	38.71	40.61	38.94	37.13
Al ₂ O ₃	14.74	15.04	14.53	15.36	14.07	14.35	14.39	14.61	14.81	14.78	14.39	14.24	14.70	14.40
TiO ₂	7.08	6.42	5.68	5.47	5.43	6.97	5.99	6.99	7.11	6.10	7.08	6.21	5.66	5.98
FeO	8.94	10.29	9.92	10.72	11.10	9.75	11.01	9.89	9.50	10.95	9.12	6.77	12.18	13.54
MnO	0.08	0.10	0.07	0.10	0.14	0.04	0.07	0.08	0.14	0.07	0.12	0.10	0.15	0.15
MgO	12.51	12.24	12.78	12.07	12.48	12.66	12.50	12.31	12.36	12.25	13.20	14.66	12.52	12.44
CaO	11.54	11.30	10.97	11.21	10.66	11.40	11.16	11.37	11.61	11.10	12.02	11.16	11.23	11.15
Na ₂ O	2.90	3.16	3.22	3.02	3.26	2.97	3.13	2.93	3.03	2.83	2.95	3.15	3.04	3.04
K ₂ O	1.06	1.14	0.88	1.08	0.93	1.03	0.94	1.09	1.10	1.08	0.60	0.71	0.75	0.73
Cr ₂ O ₃	0.24	0.24	0.25	0.26	0.09	0.22	0.14	0.15	0.16	0.20	0.62	0.75	0.18	0.16
TOTAL	98.40	98.97	98.67	98.40	98.35	98.70	98.91	98.65	98.90	97.65	98.81	98.36	99.34	98.72
Si	5.720	5.700	5.870	5.740	5.900	5.740	5.790	5.720	5.690	5.682	5.640	5.850	5.576	5.400
Al	2.530	2.590	2.490	2.660	2.430	2.470	2.480	2.520	2.540	2.584	2.470	2.420	2.481	2.470
Ti	0.780	0.710	0.620	0.600	0.600	0.770	0.660	0.770	0.780	0.680	0.780	0.670	0.610	0.650
Fe	1.090	1.260	1.210	1.320	1.360	1.190	1.350	1.210	1.160	1.359	1.110	0.820	1.313	1.480
Mn	0.010	0.010	0.010	0.010	0.020	0.010	0.010	0.010	0.020	0.009	0.020	0.010	0.018	0.020
Mg	2.720	2.670	2.770	2.640	2.730	2.760	2.720	2.680	2.690	2.709	2.870	3.150	2.673	2.700
Ca	1.800	1.770	1.710	1.760	1.680	1.780	1.750	1.780	1.810	1.765	1.880	1.720	1.723	1.740
Na	0.820	0.890	0.910	0.860	0.930	0.840	0.890	0.830	0.860	0.815	0.830	0.880	0.845	0.860
K	0.200	0.210	0.160	0.200	0.170	0.190	0.180	0.200	0.210	0.203	0.110	0.130	0.136	0.140
Cr	0.030	0.030	0.030	0.030	0.010	0.030	0.020	0.020	0.020	0.023	0.070	0.090	0.020	0.020
TOTAL	15.700	15.840	15.780	15.820	15.830	15.780	15.850	15.740	15.780	15.829	15.780	15.740	15.395	15.480
Mg#	0.71	0.68	0.70	0.67	0.67	0.70	0.67	0.69	0.70	0.67	0.72	0.79	0.67	0.65

Sample	90033J	90033P	90033P	90033P	90033P	90033S	90033S	90033S	90033Q1	90033Q1	90033S1	90033S1	90033S1	90033S1
Type	Type C	Type C	Type C	Type C	Type C	Type L	Type L	Type L	Type P	Type P	Type P	Type P	Type P	Type P
	core	core	core	core	core	oxid	core	core	core	core	core-	rim	core-	rim
SiO ₂	38.94	40.23	40.45	41.00	39.94	38.85	38.36	37.39	38.29	40.72	39.95	37.47	39.76	37.44
Al ₂ O ₃	14.70	13.20	14.84	13.53	13.35	14.24	14.58	14.90	13.83	14.49	14.56	14.35	14.71	14.51
TiO ₂	5.66	7.65	6.55	4.35	4.39	5.75	6.46	6.49	8.09	4.43	6.13	8.62	6.10	9.08
FeO	12.18	9.37	8.41	14.54	13.94	11.21	9.96	12.71	10.09	9.08	9.60	8.75	9.78	8.50
MnO	0.15	0.15	0.11	0.18	0.24	0.15	0.09	0.07	0.08	0.09	0.09	0.08	0.13	0.01
MgO	12.52	12.86	14.10	10.84	11.09	12.37	12.32	12.03	12.57	14.28	13.32	12.61	13.44	12.80
CaO	11.23	11.95	11.36	10.64	11.30	12.38	12.67	12.41	12.20	10.82	10.83	11.96	10.77	12.39
Na ₂ O	3.04	3.00	2.95	3.07	2.88	2.82	2.80	2.64	2.84	3.58	2.84	2.61	2.87	2.64
K ₂ O	0.75	0.44	0.82	0.81	0.81	0.69	0.69	0.62	0.83	0.33	0.87	0.60	0.81	0.60
Cr ₂ O ₃	0.18	0.05	0.07	0.00	0.01	0.01	0.07	0.01	0.05	0.26	0.21	0.00	0.19	0.04
TOTAL	99.35	98.90	99.66	98.96	97.95	98.46	98.00	99.27	98.86	98.07	98.41	97.06	98.56	98.01
Si	5.580	5.840	5.790	6.050	5.970	5.731	5.662	5.390	5.616	5.929	5.813	5.553	5.780	5.450
Al	2.480	2.260	2.500	2.350	2.350	2.476	2.537	2.530	2.392	2.488	2.497	2.506	2.520	2.510
Ti	0.610	0.830	0.710	0.480	0.490	0.638	0.717	0.700	0.892	0.485	0.671	0.961	0.670	1.000
Fe	1.310	1.140	1.010	1.800	1.740	1.384	1.230	1.380	1.238	1.106	1.168	1.084	1.190	1.040
Mn	0.020	0.020	0.010	0.020	0.030	0.019	0.011	0.010	0.010	0.011	0.011	0.011	0.020	0.000
Mg	2.670	2.780	3.010	2.390	2.470	2.719	2.712	2.590	2.748	3.100	2.890	2.786	2.910	2.800
Ca	1.720	1.860	1.740	1.680	1.810	1.956	2.004	1.920	1.918	1.689	1.689	1.899	1.680	1.950
Na	0.850	0.840	0.820	0.880	0.840	0.808	0.800	0.740	0.808	1.011	0.800	0.749	0.810	0.750
K	0.140	0.080	0.150	0.150	0.150	0.130	0.131	0.120	0.155	0.061	0.162	0.113	0.150	0.110
Cr	0.020	0.010	0.010	0.000	0.000	0.001	0.008	0.000	0.003	0.013	0.024	0.000	0.020	0.010
TOTAL	15.400	15.660	15.750	15.800	15.850	15.862	15.812	15.380	15.780	15.893	15.725	15.662	15.750	64.670
Mg#	0.67	0.71	0.75	0.57	0.59	0.66	0.69	0.65	0.69	0.74	0.71	0.72	0.71	0.73

A3.1 Mount Sidley Xenolith Mineral Analyses: rhönite

Sample	90033A	90033A	90033A	90033C	90033C	90033C	90033C	90033G	90033G	90033G	90033H	90033J
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type C
	core	inc cpx	melt	inc cpx	kaerst	kaerst	kaerst	inc cpx	inc cpx	ox r	kaerst	kaerst
SiO2	26.34	25.67	23.73	28.02	28.37	28.89	28.49	26.27	26.26	23.96	24.78	24.84
Al2O3	16.93	17.25	17.62	14.61	15.64	15.93	14.86	16.83	16.41	17.87	17.08	15.97
TiO2	11.14	12.01	11.26	9.72	9.62	9.80	9.88	11.36	11.52	11.08	11.02	9.83
FeO	18.10	16.16	20.08	16.89	16.58	16.89	17.18	18.70	20.04	21.69	18.63	22.97
MnO	0.11	0.01	0.14	0.22	0.11	0.11	0.22	0.19	0.22	0.00	0.13	0.07
MgO	14.33	15.03	13.00	15.90	15.01	15.29	16.17	13.88	13.04	12.17	13.36	13.33
CaO	12.37	11.56	12.00	9.86	10.61	10.81	10.03	11.58	11.15	11.64	10.86	10.54
Na2O	0.76	1.16	0.89	2.53	2.23	2.23	2.53	1.18	1.35	0.93	1.81	1.68
K2O	0.00	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.02	0.02
Cr2O3	0.07	0.06	0.27	0.58	0.34	0.34	0.58	0.03	0.03	0.11	1.44	0.53
TOTAL	100.15	98.91	99.00	98.32	98.51	100.30	99.95	100.04	100.02	99.45	99.12	99.76
Si	3.511	3.436	3.253	3.781	3.610	3.803	3.781	3.516	3.537	3.283	3.368	3.417
Al	2.661	2.723	2.848	2.325	2.347	2.470	2.325	2.656	2.606	2.888	2.737	2.590
Ti	1.117	1.209	1.161	0.986	0.922	0.970	0.986	1.143	1.166	1.140	1.126	1.017
Fe	2.018	1.809	2.302	1.906	1.767	1.860	1.906	2.093	2.257	2.486	2.118	2.642
Mn	0.012	0.000	0.016	0.025	0.013	0.013	0.025	0.022	0.025	0.000	0.015	0.008
Mg	2.847	2.999	2.657	3.198	2.850	3.000	3.198	2.768	2.617	2.486	2.707	2.733
Ca	1.768	1.659	1.764	1.426	1.447	1.523	1.426	1.662	1.610	1.710	1.582	1.554
Na	0.196	0.301	0.237	0.662	0.551	0.580	0.662	0.306	0.352	0.247	0.478	0.448
K	0.000	0.003	0.002	0.002	0.003	0.003	0.002	0.003	0.001	0.000	0.004	0.004
Cr	0.007	0.006	0.029	0.062	0.011	0.036	0.062	0.001	0.002	0.012	0.155	0.058
TOTAL	14.137	14.145	14.269	14.373	13.521	14.258	14.373	14.170	14.173	14.252	14.290	14.471
Ca+Al	4.43	4.38	4.61	3.75	3.79	3.99	3.75	4.32	4.22	4.60	4.32	4.14
Na+Si	3.71	3.74	3.49	4.44	4.16	4.38	4.44	3.82	3.89	3.53	3.85	3.87

Sample	90033R	90033R	90033R	90033R	90033S	90033S	90033Q1	90033Q1	90033Q1	90033Q1	90033Q1	90033Q1	90033S1
Type	Type C	Type C	Type C	Type C	Type L	Type L	Type P	Type P	Type P	Type P	Type P	Type P	Type P
	core	core	core	core	kaerst	melt	core	core	core	core	melt	core	core
SiO2	23.77	23.91	23.62	24.31	27.55	25.29	25.68	24.36	24.55	24.02	24.43	24.41	25.46
Al2O3	18.15	17.60	18.76	17.96	17.31	15.88	17.87	18.59	19.43	18.73	18.57	18.22	16.70
TiO2	12.53	12.53	12.90	11.97	9.12	9.93	10.78	11.68	11.58	12.13	12.64	12.41	12.56
FeO	19.43	19.01	18.26	19.49	13.32	25.63	17.97	18.52	16.45	17.84	17.66	17.62	17.01
MnO	0.16	0.10	0.03	0.17	0.24	0.28	0.10	0.11	0.11	0.07	0.11	0.08	0.10
MgO	13.36	13.45	13.45	13.32	18.78	12.40	14.14	12.85	14.08	13.51	13.68	13.68	14.24
CaO	11.60	11.40	11.73	12.00	12.30	8.07	11.61	12.03	12.20	11.97	12.00	12.04	11.32
Na2O	0.89	1.42	1.02	0.95	1.34	2.33	1.14	0.99	0.99	0.99	1.12	1.05	1.43
K2O	0.01	0.04	0.00	0.01	0.03	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Cr2O3	0.00	0.11	0.01	0.14	0.00	0.08	0.05	0.12	0.39	0.32	0.03	0.29	0.16
TOTAL	99.88	99.57	99.76	100.33	99.99	100.00	99.34	99.25	99.79	99.60	100.23	99.81	98.99
Si	3.210	3.240	3.173	3.271	3.595	3.493	3.448	3.294	3.269	3.231	3.257	3.272	3.424
Al	2.890	2.813	2.970	2.848	2.664	2.586	2.829	2.965	3.051	2.971	2.919	2.879	2.648
Ti	1.273	1.277	1.303	1.211	0.895	1.031	1.088	1.188	1.160	1.221	1.267	1.251	1.271
Fe	2.195	2.155	2.051	2.193	1.454	2.960	2.018	2.095	1.832	2.007	1.968	1.974	1.914
Mn	0.018	0.011	0.003	0.019	0.027	0.033	0.011	0.013	0.012	0.008	0.013	0.009	0.012
Mg	2.690	2.717	2.694	2.672	3.653	2.553	2.830	2.590	2.795	2.709	2.719	2.733	2.856
Ca	1.680	1.656	1.688	1.730	1.721	1.194	1.671	1.744	1.741	1.726	1.714	1.729	1.632
Na	0.233	0.373	0.265	0.248	0.338	0.624	0.297	0.260	0.256	0.258	0.291	0.273	0.373
K	0.002	0.007	0.000	0.001	0.005	0.020	0.000	0.000	0.000	0.002	0.000	0.000	0.001
Cr	0.000	0.012	0.015	0.015	0.000	0.009	0.005	0.013	0.041	0.034	0.003	0.031	0.017
TOTAL	14.191	14.261	14.162	14.208	14.352	14.503	14.197	14.162	14.157	14.167	14.151	14.151	14.148
Ca+Al	4.57	4.47	4.66	4.58	4.39	3.78	4.50	4.71	4.79	4.70	4.63	4.61	4.28
Na+Si	3.44	3.61	3.44	3.52	3.93	4.12	3.75	3.55	3.53	3.49	3.55	3.55	3.80

A3.1 Mount Sidley Xenolith Mineral Analyses: oxides

Sample Type	90029X Type L core	90029X Type L oxid	90029X Type L oxid-	90029B1 Type L core	90029B1 Type L core	90029B1 Type L core	90029B1 Type L oxid-	90029B1 Type L oxid	90029D1 Type L core	90029D1 Type L oxid	90033A Type P core	90033A Type P core	90033A Type P core	90033A Type P oxid
SiO2	0.09	0.00	0.00	0.06	0.10	0.06	0.01	0.04	0.11	0.07	0.00	0.17	0.11	0.29
Al2O3	0.84	1.75	3.02	0.77	3.31	3.24	0.45	0.26	10.69	0.52	60.23	58.99	59.34	1.52
TiO2	29.08	50.67	8.96	47.76	8.14	12.53	0.52	50.01	1.84	27.67	0.58	0.59	0.45	12.79
Fe2O3	13.13	5.24	49.95	10.24	50.93	38.13	61.37	7.20	53.62	37.59	4.25	4.76	4.64	42.98
FeO	46.63	36.14	33.73	32.41	27.20	39.05	27.97	33.50	26.82	13.93	20.47	20.57	19.60	38.53
MnO	0.32	0.35	0.52	0.35	1.16	0.17	0.25	0.42	0.84	0.69	0.12	0.18	0.14	0.26
MgO	6.63	5.06	3.51	5.72	6.19	1.61	0.36	6.22	4.24	5.78	14.07	13.83	14.28	2.49
CaO	0.23	0.04	0.00	0.05	0.56	0.02	0.02	0.01	0.00	0.03	0.02	0.01	0.01	0.23
Cr2O3	0.06	0.11	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.04	0.60	0.48	0.47	0.03
TOTAL	97.00	99.35	99.69	97.35	97.59	94.80	90.98	97.69	98.16	86.32	100.34	99.57	99.05	99.12

Si	0.003	0.000	0.000	0.001	0.004	0.002	0.000	0.000	0.003	0.003	0.000	0.005	0.003	0.012
Al	0.036	0.050	0.130	0.023	0.143	0.148	0.021	0.008	0.460	0.027	1.880	1.861	1.873	0.078
Ti	0.797	0.926	0.240	0.892	0.224	0.366	0.015	0.930	0.048	0.882	0.012	0.012	0.009	0.354
FeIII	0.361	0.096	1.371	0.191	1.402	1.115	1.944	0.140	1.443	1.200	0.085	0.096	0.093	1.190
FeII	1.421	0.730	1.029	0.673	0.832	1.269	0.984	0.690	0.801	0.495	0.453	0.460	0.439	1.190
Mn	0.010	0.008	0.018	0.007	0.036	0.006	0.009	0.008	0.024	0.024	0.003	0.004	0.003	0.009
Mg	0.360	0.184	0.210	0.212	0.337	0.093	0.024	0.228	0.220	0.366	0.555	0.552	0.570	0.150
Ca	0.009	0.002	0.000	0.001	0.022	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.012
Cr	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.010	0.010	0.000
TOTAL	2.999	1.998	2.998	2.000	3.000	3.000	2.997	2.004	2.999	2.997	3.002	3.000	3.000	2.995

Sample Type	90033S Type L core	90033S Type L oxid	90033S Type L oxid	90033S Type L oxid	90033S Type L oxid	90033S Type L oxid	90033S Type L oxid-	90033U Type L oxid	90033U Type L oxid	90033X Type L core	90033F1 Type L oxid r	90033F1 Type L oxid r	90033F1 Type L oxid-	90033F1 Type L oxid
SiO2	0.43	0.43	0.35	0.09	0.32	0.14	0.02	0.07	0.13	0.13	0.06	0.03	0.00	0.10
Al2O3	2.16	2.16	2.46	1.28	2.81	5.91	2.16	1.26	0.68	4.76	1.28	4.89	0.32	5.56
TiO2	14.37	14.37	9.72	43.70	39.97	7.73	7.72	31.29	0.24	27.34	1.37	1.08	47.55	7.30
Fe2O3	35.98	35.98	43.55	21.07	22.60	52.56	50.05	41.45	61.09	10.04	61.58	64.28	12.24	48.14
FeO	41.85	41.85	31.95	31.38	28.19	32.30	31.36	22.27	28.58	51.56	30.30	16.79	32.62	30.58
MnO	0.25	0.25	0.38	0.22	0.20	0.44	0.46	0.44	0.00	0.53	0.05	3.16	0.49	0.45
MgO	1.25	1.25	3.98	4.37	4.26	5.07	3.46	3.06	0.05	2.92	0.48	8.02	5.39	4.44
CaO	0.20	0.20	0.18	0.01	0.27	0.23	0.05	0.04	0.03	0.04	0.03	0.08	0.03	0.05
Cr2O3	0.01	0.01	0.02	0.00	0.08	0.05	0.18	0.05	0.00	0.00	0.06	0.00	0.02	0.14
TOTAL	96.49	96.49	92.60	102.11	98.70	104.43	93.45	99.94	90.79	97.30	95.20	98.33	98.65	96.75

Si	0.017	0.018	0.015	0.002	0.008	0.006	0.000	0.003	0.006	0.050	0.003	0.000	0.000	0.003
Al	0.098	0.099	0.114	0.036	0.082	0.237	0.090	0.057	0.033	0.206	0.060	0.207	0.010	0.243
Ti	0.415	0.414	0.288	0.790	0.740	0.198	0.210	0.882	0.009	0.740	0.042	0.036	0.882	0.204
FeIII	1.039	1.038	1.284	0.380	0.420	1.353	1.460	1.170	1.941	0.270	1.851	1.720	0.228	1.341
FeII	1.343	1.344	1.047	0.630	0.582	0.924	1.020	0.699	1.008	1.560	1.011	1.512	0.672	0.945
Mn	0.008	0.009	0.012	0.004	0.004	0.012	0.015	0.015	0.000	0.016	0.003	0.288	0.010	0.015
Mg	0.072	0.072	0.234	0.156	0.156	0.258	0.200	0.171	0.003	0.160	0.030	0.230	0.198	0.246
Ca	0.008	0.009	0.003	0.000	0.008	0.010	0.001	0.001	0.000	0.000	0.000	0.003	0.000	0.003
Cr	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.001
TOTAL	3.000	3.003	2.997	1.998	2.001	2.998	2.998	2.998	3.000	3.002	3.001	3.996	2.000	3.001

Sample	90033A	90033C	90033C	90033C	90033C	90033G	90033G	90033G	90033G	90033G	90033K	90033K	90033K	90033K	90033K
Type	Type P oxid	Type P core	Type P core	Type P core	Type P core	Type P oxid-	Type P oxid r	Type P oxid	Type P oxid	Type P oxid	Type M core	Type M core	Type M core	Type M core	Type M oxid
SiO2	0.11	0.05	0.12	0.14	0.13	0.09	0.09	0.22	0.12	0.23	0.19	0.00	0.17	0.05	
Al2O3	0.19	54.24	52.81	55.76	55.79	55.26	8.91	55.83	7.47	32.87	50.76	53.14	52.60	0.35	
TiO2	46.93	0.97	4.33	0.85	1.45	1.29	20.34	1.22	35.58	0.21	0.92	1.09	1.11	37.66	
Fe2O3	13.86	5.76	0.14	4.73	6.21	8.33	55.57	6.72	27.86	25.95	4.97	4.10	3.88	20.11	
FeO	34.00	21.28	21.33	21.94	17.75	23.31	8.47	23.82	19.61	20.62	16.48	17.10	18.37	23.26	
MnO	0.41	0.19	0.04	0.23	0.18	0.22	0.28	0.11	0.60	0.08	0.12	0.15	0.08	0.58	
MgO	4.15	13.05	14.08	12.50	15.63	12.18	5.34	11.95	6.56	11.06	15.47	15.93	15.32	5.65	
CaO	0.08	0.02	0.09	0.02	0.08	0.00	0.10	0.01	0.18	0.01	0.00	0.00	0.03	0.01	
Cr2O3	0.00	4.38	2.57	2.50	1.80	0.22	0.00	0.30	0.21	9.84	8.57	9.27	9.67	0.00	
TOTAL	99.74	99.93	95.51	98.66	99.01	100.89	99.08	100.17	98.19	100.87	97.48	100.78	101.22	87.67	

Si	0.002	0.000	0.001	0.004	0.003	0.003	0.003	0.006	0.002	0.007	0.005	0.000	0.005	0.002
Al	0.006	1.746	1.750	1.805	1.770	1.773	0.378	1.790	0.210	1.160	1.660	1.677	1.663	0.012
Ti	0.866	0.021	0.092	0.018	0.029	0.027	0.552	0.020	0.640	0.005	0.019	0.022	0.022	0.780
FeIII	0.256	0.117	0.003	0.098	0.126	0.171	1.510	0.150	0.502	0.584	0.104	0.083	0.078	0.420
FeII	0.698	0.486	0.501	0.504	0.400	0.531	0.255	0.543	0.392	0.516	0.382	0.383	0.412	0.540
Mn	0.004	0.003	0.001	0.005	0.004	0.006	0.009	0.003	0.012	0.002	0.003	0.003	0.002	0.014
Mg	0.170	0.531	0.590	0.512	0.627	0.490	0.290	0.486	0.234	0.493	0.639	0.636	0.612	0.232
Ca	0.002	0.000	0.003	0.001	0.002	0.000	0.001	0.000	0.006	0.000	0.000	0.000	0.001	0.000
Cr	0.000	0.093	0.057	0.054	0.038	0.000	0.000	0.002	0.004	0.233	0.188	0.196	0.205	0.000
TOTAL	2.004	2.997	2.998	3.001	2.999	3.001	2.998	3.000	2.002	3.000	3.000	3.000	3.000	2.000

Sample	90033F1	90033F1	90033G1	90033G1	90033G1	90033G1	90033G1	90033G1	90033P1	90033Q1	90033Q1	90033Q1	90033Q1
Type	Type L oxid-	Type L oxid r	Type L oxid	Type L oxid	Type L oxid	Type L oxid	Type L oxid	Type L oxid	Type C oxid-	Type C oxid	Type P core	Type P core	Type P core
SiO2	0.03	0.28	0.58	1.72	0.65	0.21	0.11	0.10	0.04	0.06	0.13	0.09	0.10
Al2O3	0.24	2.22	0.46	8.11	2.13	3.67	1.72	0.40	0.70	1.61	60.17	60.64	58.76
TiO2	52.39	0.75	37.32	40.14	14.62	4.98	15.31	48.87	18.97	48.65	0.23	0.24	0.41
Fe2O3	0.89	62.56	33.42	18.54	36.24	54.16	35.07	7.76	34.08	10.08	4.63	3.71	3.65
FeO	38.18	26.16	5.32	20.25	39.65	32.04	41.05	36.85	40.40	33.68	14.96	16.67	17.36
MnO	0.50	1.22	0.26	0.41	0.49	0.17	0.38	0.46	0.40	0.18	0.13	0.15	0.06
MgO	4.74	2.41	15.98	8.60	3.10	2.18	1.91	3.79	4.90	5.28	17.31	16.26	15.58
CaO	0.01	0.03	0.15	1.03	0.00	0.26	0.00	0.00	0.03	0.01	0.00	0.00	0.00
Cr2O3	0.00	0.00	0.03	0.07	0.03	0.04	0.11	0.09	0.13	0.09	1.52	1.57	2.44
TOTAL	96.99	95.63	93.53	98.87	96.91	97.72	95.66	98.32	99.66	99.63	99.08	99.33	98.37

Si	0.000	0.012	0.014	0.042	0.024	0.009	0.003	0.002	0.003	0.002	0.003	0.002	0.003
Al	0.008	0.102	0.014	0.230	0.096	0.170	0.078	0.012	0.033	0.048	1.861	1.880	1.853
Ti	0.988	0.021	0.676	0.686	0.414	0.141	0.444	0.920	0.516	0.882	0.005	0.005	0.008
FeIII	0.016	1.833	0.606	0.316	1.026	0.000	1.020	0.146	0.927	0.184	0.092	0.073	0.074
FeII	0.800	0.852	0.108	0.384	1.248	1.536	1.326	0.770	1.224	0.680	0.328	0.367	0.388
Mn	0.010	0.039	0.006	0.008	0.015	1.011	0.012	0.010	0.012	0.004	0.003	0.003	0.001
Mg	0.178	0.141	0.574	0.308	0.174	0.006	0.111	0.140	0.282	0.200	0.677	0.637	0.621
Ca	0.000	0.000	0.004	0.026	0.000	0.123	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.001	0.032	0.033	0.052
TOTAL	2.000	3.000	2.002	2.000	2.997	2.996	2.995	2.001	3.000	2.001	3.001	3.000	3.001

Sample	90033K	90033K	90033O	90033O	90033O	90033O	90033O	90033O	90033O	90033P	90033R	90033R	90033R	90033R	90033R
Type	Type M	Type M	Type L	Type L	Type L	Type L	Type L	Type L	Type L	Type C	Type C	Type C	Type C	Type C	Type C
	oxid	oxid r	oxid r	oxid	oxid-	oxid	oxid-	oxid-	oxid	oxid	core	oxid	oxid	oxid	oxid
SiO2	0.13	0.50	0.42	0.14	0.11	0.10	0.17	0.23	3.09	0.04	0.13	0.10	0.06	6.77	
Al2O3	49.22	4.02	0.13	2.21	2.73	3.05	3.20	2.15	2.89	56.84	1.45	8.70	0.24	7.59	
TiO2	0.82	5.49	0.01	8.35	7.54	45.50	42.46	14.54	5.16	0.69	19.48	36.17	51.16	15.16	
Fe2O3	7.94	44.87	93.37	45.87	49.45	12.95	16.18	37.12	43.24	6.25	23.99	31.54	7.94	13.89	
FeO	14.46	28.42	0.20	32.44	34.46	34.21	33.29	41.59	34.07	22.37	44.28	14.79	34.30	41.07	
MnO	0.11	0.23	0.00	0.71	1.05	0.62	0.56	0.77	0.06	0.09	0.10	0.32	0.38	0.40	
MgO	16.91	4.14	0.10	2.44	1.35	3.44	2.51	1.47	1.73	12.39	1.49	9.61	6.32	6.71	
CaO	0.04	0.05	0.10	0.03	0.08	0.05	0.04	0.03	0.74	0.00	0.17	0.32	0.10	1.33	
Cr2O3	9.94	4.25	0.00	0.00	0.08	0.03	0.02	0.24	0.01	0.69	0.19	0.33	0.07	0.17	
TOTAL	99.56	91.97	94.32	92.20	96.85	99.94	98.42	98.15	90.99	99.37	91.27	101.88	100.56	93.10	

Si	0.003	0.021	0.012	0.006	0.003	0.002	0.004	0.010	0.123	0.001	0.006	0.002	0.002	0.240	
Al	1.581	0.186	0.004	0.120	0.123	0.088	0.094	0.090	0.138	1.826	0.069	0.230	0.006	0.320	
Ti	0.018	0.160	0.000	0.250	0.220	0.834	0.790	0.414	0.156	0.014	0.591	0.612	0.920	0.408	
FeIII	0.160	1.320	1.980	1.370	1.431	0.238	0.300	1.053	1.305	0.128	0.729	0.534	0.146	0.375	
FeII	0.330	0.930	0.002	1.080	1.107	0.698	0.660	1.320	1.143	0.510	1.497	0.278	0.688	1.230	
Mn	0.003	0.009	0.000	0.024	0.033	0.012	0.012	0.024	0.003	0.002	0.003	0.006	0.008	0.012	
Mg	0.690	0.240	0.002	0.150	0.080	0.126	0.140	0.084	0.100	0.503	0.090	0.320	0.226	0.360	
Ca	0.000	0.003	0.002	0.000	0.001	0.001	0.002	0.000	0.033	0.000	0.006	0.010	0.001	0.050	
Cr	0.210	0.130	0.000	0.000	0.001	0.000	0.000	0.002	0.000	0.015	0.006	0.003	0.001	0.002	
TOTAL	2.995	2.999	2.002	3.000	2.999	1.999	2.002	2.997	3.001	2.999	2.997	1.995	1.998	2.997	

Sample	90033Q1	90033Q1	90033Q1	90033Q1	90033S1	90033S1	90033S1	90033S1	90033S1	90033S1	90039G	90039G	90039M	90039M
Type	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type P	Type L	Type L	Type L	Type L
	core	core	oxid	oxid	core	core	core	core	core	core	core	oxid-	oxid	oxid
SiO2	0.08	0.19	0.33	6.38	0.07	0.09	0.22	0.01	0.11	0.87	0.05	0.01	0.33	0.36
Al2O3	61.19	59.74	0.43	4.84	58.23	58.09	58.06	58.25	59.24	0.13	2.95	9.29	1.99	3.30
TiO2	0.24	1.04	24.16	1.07	0.69	0.80	0.24	0.45	0.42	0.02	8.78	1.75	46.61	5.08
Fe2O3	2.34	3.47	48.08	41.79	4.98	4.95	5.05	6.19	4.34	96.86	46.16	56.97	7.29	49.64
FeO	17.16	15.10	15.61	30.71	17.92	18.06	18.15	15.57	17.14	0.47	30.71	28.88	35.83	30.28
MnO	0.14	0.12	0.40	0.49	0.17	0.17	0.10	0.10	0.14	0.00	0.48	0.57	0.17	0.53
MgO	15.90	18.04	3.16	4.08	15.47	15.52	15.38	15.48	15.93	0.26	4.10	3.33	3.53	2.03
CaO	0.00	0.13	0.37	1.08	0.00	0.05	0.00	0.02	0.04	0.10	0.22	0.01	0.01	0.18
Cr2O3	1.76	3.26	0.00	0.98	2.05	2.40	3.19	2.54	2.11	0.00	0.06	0.12	0.01	0.02
TOTAL	98.80	101.08	92.55	91.41	99.59	100.14	100.40	98.60	99.47	98.71	99.51	100.92	95.77	91.41

Si	0.002	0.005	0.012	0.243	0.002	0.002	0.006	0.002	0.003	0.023	0.002	0.000	0.008	0.015
Al	1.903	1.816	0.021	0.219	1.826	1.815	1.812	1.815	1.847	0.004	0.135	0.387	0.060	0.156
Ti	0.005	0.020	0.741	0.030	0.014	0.016	0.005	0.004	0.008	0.000	0.256	0.048	0.892	0.153
FeIII	0.047	0.067	1.473	1.203	0.100	0.098	0.100	0.122	0.086	1.949	1.347	1.515	0.140	1.506
FeII	0.379	0.326	0.531	0.981	0.399	0.400	0.402	0.342	0.379	0.010	0.996	0.855	0.762	1.020
Mn	0.003	0.003	0.015	0.015	0.004	0.004	0.002	0.004	0.003	0.000	0.016	0.018	0.004	0.018
Mg	0.625	0.693	0.190	0.234	0.613	0.613	0.607	0.661	0.628	1.010	0.237	0.174	0.134	0.123
Ca	0.000	0.004	0.015	0.045	0.000	0.001	0.000	0.000	0.001	0.003	0.009	0.000	0.000	0.010
Cr	0.037	0.066	0.000	0.030	0.043	0.050	0.067	0.050	0.044	0.000	0.002	0.001	0.000	0.000
TOTAL	3.001	3.000	2.998	3.000	3.001	2.999	3.001	3.000	2.999	2.999	3.000	2.998	2.000	3.001

Sample	90033S	90033S	90033S	90033S
Type	Type L	Type L	Type L	Type L
	core	core	core	core
SiO2	0.24	0.03	0.21	0.08
Al2O3	64.29	63.41	0.84	2.63
TiO2	0.13	0.11	13.90	25.33
Fe2O3	3.65	7.37	40.19	13.25
FeO	9.62	5.42	31.12	45.82
MnO	0.88	0.88	0.40	0.09
MgO	20.95	23.56	6.76	4.10
CaO	0.00	0.02	0.47	0.29
CzO3	0.17	0.10	0.00	0.05
TOTAL	99.92	100.91	93.89	91.63

Si	0.006	0.001	0.008	0.003
Al	1.910	1.855	0.038	0.121
Ti	0.002	0.002	0.398	0.742
FeIII	0.069	0.138	0.151	0.388
FeII	0.203	0.113	0.990	1.492
Mn	0.019	0.018	0.013	0.003
Mg	0.787	0.871	0.383	0.238
Ca	0.000	0.001	0.019	0.012
Cr	0.003	0.002	0.000	0.002
TOTAL	2.999	3.001	2.000	3.001

Sample	90039M	90039M	90039M	90039V	90039V
Type	Type L	Type L	Type L	Type M	Type M
	oxid	oxid-	oxid	oxid	oxid
SiO2	0.97	0.00	0.55	0.18	0.01
Al2O3	1.22	1.66	3.07	5.60	0.46
TiO2	6.54	51.91	4.42	18.58	51.97
Fe2O3	50.60	3.56	54.37	27.60	5.66
FeO	30.06	38.29	32.50	45.23	37.12
MnO	0.70	0.25	0.39	0.58	0.66
MgO	3.65	4.54	1.64	2.47	4.99
CaO	0.34	0.04	0.07	0.06	0.05
CzO3	0.00	0.00	0.04	0.10	0.00
TOTAL	94.08	100.24	97.04	100.39	100.92

Si	0.039	0.000	0.021	0.006	0.000
Al	0.057	0.048	0.138	0.228	0.014
Ti	0.192	0.944	0.126	0.504	0.942
FeIII	1.480	0.064	1.563	0.750	0.100
FeII	0.981	0.774	1.038	1.365	0.748
Mn	0.024	0.006	0.012	0.018	0.014
Mg	0.213	0.164	0.100	0.126	0.180
Ca	0.015	0.002	0.003	0.001	0.002
Cr	0.000	0.000	0.000	0.001	0.000
TOTAL	3.001	2.002	3.001	2.999	2.000

A3.1 Mount Sidley Xenolith Mineral Analyses: glasses

Sample	90033O	90033O	90033P	90033P	90033P	90033P	90033P	90033P	90033X	90033X
Type	Type L	Type L	Type C	Type C	Type C	Type C	Type C	Type C	Type L	Type L
SiO2	50.18	50.63	47.86	48.00	54.63	46.23	47.35	44.70	45.13	42.94
Al2O3	18.38	18.08	17.29	18.72	16.62	16.15	18.28	15.97	10.49	10.34
TiO2	2.57	1.96	4.75	3.99	2.62	4.53	2.90	4.69	2.68	3.21
FeO	11.05	10.39	11.25	12.23	9.59	13.49	10.65	14.01	21.39	22.42
MnO	0.12	0.14	0.10	0.01	0.22	0.13	0.07	0.15	0.65	0.61
MgO	0.87	3.61	2.47	3.43	4.40	2.94	6.03	2.98	9.59	6.60
CaO	6.23	6.88	8.61	3.20	4.35	7.63	1.97	10.49	7.75	8.25
Na2O	4.66	3.69	5.07	3.80	2.96	5.43	6.62	4.00	0.36	2.52
K2O	2.76	1.28	1.54	6.16	4.18	1.52	5.42	1.11	1.17	0.67
Cr2O3	0.07	0.53	0.00	0.02	0.00	0.10	0.07	0.06	0.00	0.00
Cl			0.22	0.23	0.28	0.30	0.18	0.16	0.00	0.03
P2O5	3.33	3.03				1.24	0.64	0.77		2.12

TOTAL	100.22	100.22	99.16	99.80	99.85	99.68	100.17	99.08	99.21	99.72
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Mg#	12.26	38.24	28.12	33.32	44.96	27.96	50.20	27.50	44.41	34.41
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Q	0.00	3.80	0.00	0.00	1.13	0.00	0.00	0.00	0.00	0.00
Or	16.31	7.56	9.10	36.40	24.70	8.98	32.03	6.56	6.91	3.96
Ab	43.43	36.22	26.60	10.78	25.05	29.29	7.00	21.20	3.05	21.32
An	9.17	14.36	19.87	15.83	19.72	15.20	4.16	22.34	23.55	14.92
Ne	0.00	0.00	8.83	11.58	0.00	9.02	26.55	6.85	0.00	0.00
Di	7.99	12.02	19.17	0.04	1.54	12.28	4.23	20.84	12.41	10.27
Hy	8.59	15.67	0.00	0.00	20.75	0.00	0.00	0.00	37.67	14.43
Ol	1.57	0.00	4.34	15.15	0.00	10.63	17.82	7.89	6.72	19.77
Mt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Il	4.88	3.72	9.02	7.58	4.98	8.60	5.51	8.91	5.09	6.10
Ap	7.88	7.17	0.00	0.00	0.00	2.94	0.17	1.82	0.00	5.02

TOTAL	99.82	100.52	96.93	97.36	97.87	96.94	97.47	96.41	95.40	95.79
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Sample	90033X	90033Q1	90033G	90033V	90033V	90033E	90033E	90033E	90033E	90033E
Type	Type L	Type F	Type L	Type M	Type M	Type L	Type L	Type L	Type L	Type L
SiO2	43.58	46.83	48.99	38.46	50.97	47.69	46.13	45.73	51.93	45.32
Al2O3	10.52	17.68	18.99	5.61	12.10	16.11	16.31	14.79	17.05	14.97
TiO2	4.63	3.65	4.69	8.36	2.64	3.44	4.07	4.09	2.93	4.35
FeO	23.08	9.70	9.84	22.60	15.52	9.78	11.12	14.47	7.97	14.54
MnO	0.60	0.18	0.18	0.50	0.60	0.33	0.32	0.30	0.27	0.33
MgO	3.43	4.73	2.74	8.04	4.34	5.33	3.09	4.76	3.15	3.38
CaO	10.01	10.67	7.96	13.72	11.28	9.64	11.22	8.61	7.39	7.43
Na2O	2.72	3.94	4.81	1.32	0.79	3.91	3.99	4.23	1.79	4.39
K2O	0.76	0.90	1.43	0.44	0.66	1.67	0.70	1.32	4.70	2.24
Cr2O3	0.04	0.00	0.11	0.03	0.03	0.00	0.03	0.03	0.04	0.03
Cl	0.00		0.02				0.06			
P2O5					1.03	2.66	2.98	3.24	3.06	3.22

TOTAL	99.37	98.28	99.76	99.08	99.96	100.36	100.01	101.36	100.28	100.20
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Mg#	20.94	46.49	33.16	38.80	33.26	49.27	33.11	36.96	41.32	29.30
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Q	0.00	0.00	0.00	0.00	11.60	0.00	0.00	0.00	4.75	0.00
Or	4.49	5.32	8.45	2.60	3.90	9.87	4.14	7.80	27.78	13.24
Ab	19.17	21.86	32.41	1.02	6.68	33.09	33.76	35.79	15.15	34.16
An	14.25	27.90	26.00	8.08	27.53	21.48	24.53	17.47	16.69	14.53
Ne	2.08	6.22	4.49	5.50	0.00	0.00	0.00	0.00	0.00	1.02
Di	30.39	20.53	11.19	49.73	18.35	7.36	9.78	3.42	13.77	1.11
Hy	0.00	0.00	0.00	0.00	0.00	21.70	0.69	4.39	0.84	8.23
Ol	16.02	7.80	6.42	12.22	0.00	13.64	6.72	18.07	0.00	16.87
Mt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Il	8.79	6.93	8.91	15.88	5.01	6.53	7.73	7.77	5.56	8.26
Ap	0.00	0.00	0.00	0.00	2.44	6.30	7.05	7.67	7.24	7.62

TOTAL	95.19	96.56	97.87	95.03	97.21	98.96	98.10	98.83	99.17	96.81
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A3.2 Mount Hampton Xenolith Mineral Analyses: olivine

Sample Type	PK4A Gran symp	PK4A Gran symp	PK4B Pyxite symp	PK4B Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4S Pyxite symp	PK4S Pyxite symp	PK4S Pyxite vein	PK4S Pyxite vein	PK4Y Gran symp	PK4Y Gran symp
SiO2	43.47	35.85	42.20	38.12	39.96	42.07	38.60	39.57	42.96	39.18	28.10	31.90	42.79	40.80
Al2O3	0.02	0.15	0.08	0.11	0.10	0.07	0.23	0.62	0.05	0.12	3.44	3.90	0.02	0.13
TiO2	0.08	0.09	0.08	0.13	0.14	0.04	0.25	0.02	0.11	0.11	0.25	0.27	0.06	0.13
FeO	1.63	37.10	8.18	43.64	34.45	4.86	35.34	28.78	1.04	30.99	45.30	39.45	2.47	27.16
MnO	0.33	0.23	0.44	0.44	0.26	0.31	0.30	0.44	0.26	0.44	0.50	0.37	0.33	0.52
MgO	55.73	24.52	49.90	16.11	24.60	52.28	24.18	28.68	56.39	27.63	21.49	22.89	54.35	30.47
CaO	0.14	0.51	0.16	0.27	0.33	0.14	0.76	0.35	0.10	0.35	0.65	0.76	0.18	0.47
Na2O	0.03	0.00	0.09	0.24	0.07	0.06	0.00	0.11	0.00	0.00	0.23	0.42	0.10	0.06
K2O	0.00	0.08	0.00	0.15	0.03	0.02	0.04	0.01	0.02	0.02	0.03	0.04	0.05	0.13
TOTAL	101.42	98.54	101.13	99.19	99.95	99.83	99.70	98.55	100.92	98.85	99.97	99.99	100.35	99.88

Si	1.517	1.532	1.010	1.100	1.090	1.009	1.067	1.070	1.003	1.069	0.837	0.912	1.010	1.079
Al	0.001	0.008	0.002	0.003	0.000	0.000	0.007	0.019	0.002	0.003	0.120	0.136	0.000	0.003
Ti	0.000	0.003	0.001	0.002	0.000	0.000	0.005	0.000	0.001	0.002	0.000	0.005	0.000	0.002
Fe	0.048	1.324	0.164	1.053	0.786	0.097	0.816	0.650	0.020	0.706	1.128	0.941	0.048	0.600
Mn	0.010	0.008	0.010	0.010	0.006	0.006	0.007	0.010	0.005	0.010	0.012	0.008	0.007	0.011
Mg	2.898	1.560	1.784	0.692	1.000	1.868	0.996	1.155	1.962	1.123	0.954	0.965	1.912	1.200
Ca	0.005	0.024	0.004	0.008	0.009	0.003	0.022	0.010	0.002	0.010	0.020	0.022	0.004	0.013
Na	0.002	0.000	0.004	0.013	0.000	0.002	0.000	0.010	0.000	0.000	0.013	0.022	0.004	0.003
K	0.000	0.004	0.001	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.004
TOTAL	4.481	4.463	2.980	2.886	2.991	2.985	2.920	2.924	2.995	2.923	3.084	3.012	2.986	2.915

Mg#	98.37	54.09	91.58	39.66	55.99	95.06	54.97	63.99	98.99	61.40	45.82	50.63	97.55	66.67
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Sample Type	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran symp	PK4B1 Pyxite symp	PK4C1 Gran	PK4C1 Gran	PK4C1 Gran	PK4C1 Gran	PK4C1 Gran	PK4C1 Gran	PK4C1 Gran
SiO2	42.91	37.00	42.71	38.39	43.80	37.83	41.44	42.86	37.63	42.34	39.70	43.23	42.19	38.20
Al2O3	0.00	0.16	0.00	0.32	0.00	0.20	2.51	0.20	0.26	0.00	0.27	0.05	0.00	0.08
TiO2	0.02	0.20	0.04	0.20	0.00	0.09	0.24	0.46	0.18	0.11	0.49	0.07	0.05	0.15
FeO	1.85	36.53	1.43	33.96	1.35	36.44	26.84	25.82	33.05	0.90	31.43	1.19	3.22	38.24
MnO	0.37	0.40	0.35	0.37	0.34	0.33	0.54	0.59	0.46	0.37	0.43	0.39	0.32	0.35
MgO	54.67	24.15	55.86	26.17	54.49	24.41	28.04	31.08	26.05	56.93	27.27	56.24	54.05	21.94
CaO	0.07	0.38	0.25	0.38	0.09	0.24	0.46	0.66	0.43	0.08	1.05	0.09	0.19	0.88
Na2O	0.09	0.35	0.03	0.31	0.04	0.31	0.11	0.05	0.19	0.00	0.12	0.03	0.01	0.17
K2O	0.04	0.10	0.02	0.08	0.04	0.01	0.06	0.02	0.05	0.03	0.03	0.02	0.02	0.05
TOTAL	100.01	98.54	101.13	99.19	99.95	99.83	99.70	98.55	100.92	98.85	99.97	99.99	100.35	99.88

Si	1.013	1.040	1.503	1.576	1.542	1.578	1.082	1.644	1.049	0.991	1.065	1.006	1.004	1.056
Al	0.000	0.005	0.000	0.015	0.000	0.010	0.077	0.000	0.008	0.000	0.010	0.001	0.000	0.002
Ti	0.004	0.004	0.000	0.000	0.000	0.004	0.010	0.004	0.002	0.008	0.001	0.010	0.000	0.003
Fe	0.037	0.858	0.042	1.166	0.039	1.270	0.586	0.828	0.770	0.018	0.705	0.023	0.064	0.907
Mn	0.007	0.009	0.010	0.012	0.010	0.010	0.012	0.019	0.010	0.007	0.010	0.008	0.006	0.008
Mg	1.925	1.011	2.928	1.601	2.858	1.516	1.091	1.776	1.082	1.986	1.090	1.949	1.917	0.927
Ca	0.002	0.011	0.010	0.016	0.003	0.010	0.012	0.027	0.012	0.002	0.030	0.002	0.005	0.026
Na	0.004	0.018	0.000	0.024	0.000	0.024	0.005	0.004	0.010	0.000	0.006	0.001	0.002	0.009
K	0.007	0.003	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.001	0.001	0.001	0.006	0.000
TOTAL	2.999	2.959	4.493	4.410	4.452	4.418	2.871	4.309	2.947	3.007	2.925	2.992	3.014	2.938

Mg#	98.11	54.09	98.59	57.86	98.65	54.41	65.06	68.20	58.42	99.10	60.72	98.83	96.77	50.55
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A3.2 Mount Hampton Xenolith Mineral Analyses: pyroxenes

Sample Type	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core
SiO ₂	48.97	48.74	50.82	49.66	50.51	48.80	47.49	51.05	48.23	47.90	50.60	48.29	47.73	51.37
Al ₂ O ₃	8.67	8.59	6.69	6.03	6.64	5.63	7.67	5.22	8.31	8.39	5.71	8.11	8.22	5.76
TiO ₂	0.77	0.89	0.15	0.92	0.15	1.14	1.44	0.42	1.43	1.52	0.28	1.49	1.45	0.37
FeO total	7.90	7.89	16.86	8.47	17.25	7.95	8.27	16.89	7.95	8.25	17.09	8.27	8.59	16.71
MnO	0.19	0.15	0.34	0.17	0.37	0.25	0.21	0.37	0.22	0.20	0.21	0.21	0.24	0.45
MgO	12.47	12.52	24.30	15.16	24.02	14.39	12.49	24.78	12.72	12.59	24.92	12.96	12.91	24.68
CaO	21.04	20.17	0.73	19.29	0.96	21.53	20.24	0.95	19.51	19.54	1.29	19.94	20.57	0.88
Na ₂ O	1.07	1.11	0.12	0.34	0.15	0.32	1.07	0.15	1.04	1.07	0.58	1.09	1.09	0.16
K ₂ O	0.01	0.00	0.01	0.00	0.04	0.04	0.02	0.01	0.07	0.04	0.12	0.04	0.08	0.07
Fe ₂ O ₃	3.37	2.42	1.21	1.93	1.98	3.93	4.02	2.13	2.12	2.67	6.31	3.46	5.69	0.66
FeO	4.86	5.71	15.77	6.74	15.47	4.41	4.65	14.97	6.04	5.85	11.41	5.15	3.47	16.12
TOTAL	101.09	100.06	100.02	100.04	100.08	100.05	98.89	99.84	99.48	99.50	100.80	100.40	100.87	100.46
Si	1.799	1.805	1.846	1.840	1.840	1.819	1.789	1.859	1.791	1.785	1.830	1.785	1.765	1.862
AlIV	0.200	0.190	0.150	0.160	0.160	0.180	0.210	0.140	0.210	0.210	0.170	0.210	0.230	0.140
AlVI	0.180	0.180	0.140	0.100	0.130	0.070	0.130	0.080	0.150	0.160	0.070	0.140	0.130	0.110
Ti	0.020	0.024	0.004	0.025	0.004	0.032	0.040	0.010	0.040	0.042	0.010	0.040	0.040	0.010
FeIII	0.093	0.067	0.033	0.010	0.054	0.109	0.113	0.058	0.059	0.075	0.170	0.096	0.156	0.018
FeII	0.148	0.176	0.478	0.053	0.469	0.136	0.145	0.454	0.187	0.181	0.341	0.158	0.106	0.499
Mn	0.006	0.004	0.010	0.007	0.015	0.008	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.013
Mg	0.682	0.691	1.315	0.836	1.305	0.799	0.701	1.345	0.703	0.699	1.345	0.713	0.711	1.312
Ca	0.828	0.800	0.028	0.765	0.037	0.860	0.817	0.037	0.776	0.780	0.050	0.789	0.814	0.034
Na	0.076	0.077	0.008	0.024	0.014	0.022	0.077	0.010	0.074	0.077	0.040	0.078	0.078	0.011
K	0.000	0.000	0.001	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000
TOTAL	4.032	4.014	4.013	3.820	4.030	4.037	4.032	4.003	4.000	4.019	4.046	4.019	4.040	3.999
Wo	47.29	46.14	1.51	45.97	1.98	45.17	46.00	1.95	44.99	44.96	2.62	44.93	45.55	1.83
En	38.95	39.85	70.93	50.24	69.97	41.96	39.47	71.01	40.75	40.29	70.57	40.60	39.79	70.80
Fs	13.76	14.01	27.56	3.79	28.04	12.87	14.53	27.03	14.26	14.76	26.81	14.46	14.66	27.36
Sample Type	PK4T Pyxite core	PK4T Pyxite core	PK4T Pyxite core	PK4T Pyxite core	PK4T Pyxite core	PK4T Pyxite core	PK4T Pyxite core	PK4T Pyxite core	PK4V Gran core	PK4V Gran core	PK4V Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core
SiO ₂	47.87	49.97	47.56	48.21	48.04	50.21	51.10	51.74	46.60	46.58	47.79	50.84	53.16	50.09
Al ₂ O ₃	8.40	5.76	7.48	8.21	7.34	4.83	5.23	5.35	8.60	7.14	8.98	6.32	1.99	8.31
TiO ₂	1.41	0.38	1.52	1.45	1.43	0.37	0.39	0.44	1.19	2.45	1.41	0.25	0.63	0.91
FeO total	9.14	18.18	9.12	8.84	8.87	18.31	18.45	17.76	9.64	7.56	9.33	16.63	7.66	8.38
MnO	0.22	0.51	0.25	0.26	0.28	0.43	0.38	0.33	0.22	0.11	0.21	0.40	0.26	0.21
MgO	12.67	23.88	12.52	12.60	12.44	23.37	23.97	24.06	11.12	12.60	11.51	24.93	17.89	13.19
CaO	19.01	1.12	20.21	19.06	19.22	1.21	1.07	1.13	20.39	22.36	19.72	0.91	19.04	17.55
Na ₂ O	1.00	0.06	1.04	1.14	1.05	0.19	0.14	0.13	1.06	0.43	0.99	0.16	0.38	1.40
K ₂ O	0.00	0.02	0.02	0.04	0.03	0.05	0.03	0.05	0.01	0.00	0.00	0.01	0.02	0.03
Fe ₂ O ₃	2.70	3.25	4.70	2.69	2.42	2.95	2.48	1.02	4.39	3.21	1.78	2.63	2.06	0.33
FeO	6.70	15.25	4.89	6.43	6.69	15.66	16.22	16.83	5.69	4.67	7.72	14.26	5.81	8.08
TOTAL	99.71	99.88	99.71	99.82	98.70	98.98	100.75	100.98	98.82	99.23	99.94	100.45	101.03	100.07
Si	1.783	1.834	1.784	1.793	1.808	1.863	1.858	1.869	1.771	1.756	1.781	1.840	1.935	1.842
AlIV	0.220	0.170	0.220	0.210	0.190	0.140	0.140	0.130	0.230	0.240	0.220	0.160	0.060	0.160
AlVI	0.150	0.080	0.110	0.150	0.140	0.070	0.080	0.100	0.160	0.060	0.170	0.110	0.030	0.200
Ti	0.039	0.010	0.040	0.040	0.040	0.010	0.010	0.028	0.124	0.090	0.050	0.071	0.056	0.009
FeIII	0.075	0.089	0.131	0.075	0.068	0.082	0.067	0.028	0.124	0.090	0.050	0.071	0.056	0.009
FeII	0.208	0.465	0.152	0.199	0.210	0.483	0.491	0.508	0.179	0.146	0.240	0.429	0.176	0.248
Mn	0.010	0.015	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.003	0.007	0.012	0.008	0.007
Mg	0.702	1.305	0.699	0.697	0.697	1.292	1.298	1.295	0.630	0.708	0.639	1.344	0.970	0.722
Ca	0.758	0.043	0.812	0.759	0.774	0.048	0.041	0.043	0.830	0.903	0.787	0.035	0.742	0.691
Na	0.072	0.000	0.075	0.081	0.070	0.013	0.010	0.010	0.078	0.032	0.074	0.011	0.027	0.098
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.001	0.001
TOTAL	4.017	4.011	4.033	4.014	4.007	4.011	4.005	4.003	4.044	4.007	4.009	4.020	4.022	4.003
Wo	43.49	2.26	45.26	43.87	44.25	2.52	2.16	2.29	47.08	48.89	45.86	1.86	38.17	41.38
En	40.28	68.61	38.96	40.29	39.85	67.82	68.42	69.10	35.73	38.33	37.24	71.53	49.90	43.23
Fs	16.24	29.13	15.77	15.84	15.89	29.66	29.41	28.60	17.19	12.78	16.90	26.61	11.93	15.39

Sample Type	PK4B Pyxite core	PK4B Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core
SiO2	51.21	48.81	48.03	51.57	48.42	50.86	47.86	48.59	51.81	51.46	51.37	47.04	51.38	47.88
Al2O3	5.83	8.51	8.09	5.40	8.16	5.49	8.43	7.86	5.65	5.46	5.41	8.06	5.61	8.25
TiO2	0.34	1.54	1.59	0.38	1.56	0.38	1.56	1.54	0.42	0.42	0.36	1.62	0.37	1.58
FeO total	17.20	7.98	7.70	15.74	7.60	16.80	8.84	8.32	16.04	16.08	16.68	8.90	16.42	8.34
MnO	0.34	0.21	0.27	0.38	0.20	0.27	0.18	0.17	0.27	0.30	0.25	0.23	0.31	0.24
MgO	24.17	12.50	12.78	25.29	12.74	25.27	12.62	12.70	24.71	25.01	24.88	12.89	24.77	12.91
CaO	0.94	19.81	19.23	0.97	19.90	1.02	19.92	19.81	0.99	0.99	0.94	20.15	1.03	19.77
Na2O	0.09	1.07	1.14	0.15	1.01	0.13	1.04	1.05	0.13	0.30	0.12	1.10	0.11	1.09
K2O	0.04	0.04	0.08	0.03	0.04	0.04	0.02	0.05	0.02	0.11	0.03	0.05	0.02	0.01
Fe2O3	0.30	1.12	2.31	1.35	1.67	3.30	3.65	2.30	0.00	1.86	1.44	6.03	1.05	3.67
FeO	16.93	6.97	5.63	14.53	6.10	13.83	5.56	6.26	16.04	14.40	15.38	3.48	15.47	5.01
TOTAL	100.16	100.47	98.93	99.90	99.62	100.25	100.46	100.09	100.04	100.13	100.03	100.04	100.02	100.07

Si	1.860	1.805	1.798	1.866	1.797	1.834	1.773	1.801	1.871	1.860	1.860	1.758	1.862	1.780
AlIV	0.140	0.190	0.200	0.130	0.200	0.170	0.230	0.200	0.130	0.140	0.140	0.240	0.140	0.220
AlVI	0.110	0.160	0.160	0.100	0.160	0.060	0.140	0.140	0.110	0.090	0.090	0.110	0.100	0.140
Ti	0.010	0.040	0.040	0.010	0.043	0.010	0.040	0.040	0.010	0.010	0.010	0.040	0.010	0.040
FeIII	0.008	0.031	0.065	0.037	0.047	0.090	0.101	0.064	0.000	0.051	0.039	0.167	0.029	0.102
FeII	0.515	0.215	0.175	0.444	0.189	0.417	0.171	0.193	0.484	0.435	0.466	0.107	0.468	0.155
Mn	0.010	0.010	0.008	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mg	1.308	0.689	0.712	1.363	0.704	1.358	0.696	0.701	1.329	1.348	1.344	0.717	1.337	0.714
Ca	0.035	0.784	0.771	0.037	0.790	0.039	0.790	0.786	0.038	0.038	0.036	0.806	0.039	0.786
Na	0.010	0.075	0.082	0.010	0.072	0.010	0.074	0.075	0.010	0.020	0.010	0.080	0.010	0.080
K	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	4.006	3.999	4.014	4.007	4.012	3.998	4.025	4.012	3.992	4.002	4.005	4.035	4.005	4.027

Wo	1.88	45.61	44.75	1.97	45.66	2.05	44.94	45.07	2.05	2.03	1.91	44.85	2.08	44.74
En	70.10	40.08	41.32	72.46	40.69	71.32	39.59	40.19	71.80	72.01	71.30	39.90	71.38	40.64
Fs	28.03	14.31	13.93	25.57	13.64	26.63	15.47	14.74	26.15	25.96	26.79	15.25	26.53	14.63

Sample Type	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran symp
SiO2	51.44	49.88	50.78	50.63	47.74	51.55	52.05	51.39	48.00	50.54	47.52	49.76	49.22	54.35
Al2O3	5.99	6.80	8.37	8.26	7.07	6.47	5.89	6.27	8.17	6.14	8.47	8.57	8.79	1.20
TiO2	0.16	0.22	1.16	0.98	2.53	0.20	0.20	0.22	0.89	0.23	1.12	0.88	0.82	0.31
FeO total	16.23	16.47	7.87	8.21	7.93	15.93	15.79	16.48	8.25	16.50	8.19	8.24	8.56	13.56
MnO	0.37	0.33	0.19	0.23	0.21	0.34	0.40	0.26	0.28	0.31	0.28	0.30	0.26	0.42
MgO	25.09	25.42	12.88	12.84	14.04	25.26	24.47	24.67	12.52	24.39	12.13	12.44	12.35	27.62
CaO	0.83	0.75	18.85	18.44	20.19	0.87	1.05	0.97	19.83	0.88	20.08	19.91	19.63	1.92
Na2O	0.09	0.14	1.19	1.17	0.54	0.08	0.09	0.08	1.24	0.25	1.22	1.27	1.15	0.21
K2O	0.01	0.01	0.03	0.04	0.09	0.09	0.01	0.27	0.02	0.07	0.05	0.04	0.04	0.08
Fe2O3	1.29	4.29	0.00	0.00	2.44	1.07	0.00	0.08	4.34	2.36	4.23	2.21	1.66	1.77
FeO	15.07	12.61	7.87	8.21	5.73	14.96	15.79	16.42	4.34	14.37	4.38	6.25	7.07	11.97
TOTAL	100.21	100.02	101.32	100.79	100.32	100.77	99.95	100.62	99.21	99.30	99.05	101.42	100.82	99.66

Si	1.860	1.818	1.842	1.848	1.772	1.851	1.881	1.854	1.799	1.850	1.786	1.817	1.820	1.959
AlIV	0.140	0.180	0.160	0.150	0.230	0.150	0.120	0.150	0.200	0.150	0.210	0.180	0.180	0.040
AlVI	0.120	0.100	0.200	0.210	0.080	0.120	0.130	0.120	0.160	0.110	0.170	0.190	0.180	0.010
Ti	0.004	0.006	0.031	0.027	0.070	0.005	0.005	0.006	0.026	0.007	0.031	0.024	0.022	0.009
FeIII	0.035	0.116	0.000	0.000	0.068	0.029	0.000	0.002	0.121	0.065	0.118	0.060	0.046	0.048
FeII	0.454	0.380	0.240	0.250	0.177	0.448	0.480	0.497	0.135	0.438	0.136	0.190	0.218	0.359
Mn	0.011	0.010	0.006	0.007	0.006	0.010	0.012	0.008	0.008	0.009	0.008	0.009	0.008	0.012
Mg	1.351	1.380	0.696	0.697	0.776	1.350	1.317	1.327	0.699	1.330	0.679	0.676	0.680	1.483
Ca	0.032	0.029	0.732	0.721	0.802	0.033	0.039	0.038	0.796	0.034	0.808	0.778	0.777	0.073
Na	0.007	0.010	0.084	0.082	0.038	0.005	0.006	0.006	0.090	0.017	0.089	0.090	0.082	0.014
K	0.000	0.000	0.002	0.002	0.004	0.004	0.000	0.012	0.000	0.003	0.002	0.001	0.001	0.003
TOTAL	4.014	4.029	3.993	3.994	4.023	4.005	3.990	4.020	4.034	4.013	4.037	4.015	4.014	4.010

Wo	1.71	1.52	43.88	43.23	43.99	1.77	2.12	2.04	45.46	1.82	46.41	45.66	45.15	3.72
En	72.17	72.44	41.73	41.79	42.57	72.58	71.73	71.19	39.92	71.24	39.00	39.67	39.51	75.55
Fs	26.12	26.04	14.39	14.99	13.44	25.65	26.14	26.77	14.62	26.94	14.59	14.67	15.34	20.73

Sample Type	PK4D Pyxite core	PK4L Pyxite core	PK4L Pyxite core	PK4L Pyxite core	PK4L Pyxite core	PK4L Pyxite host	PK4L Pyxite exsol	PK4L Pyxite host	PK4L Pyxite exsol	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4R Gran core
SiO2	50.70	46.68	47.77	49.03	50.17	49.03	51.49	47.63	50.87	50.69	52.53	50.07	51.52	49.63
Al2O3	5.73	9.39	9.24	9.08	6.53	8.73	6.15	9.00	6.57	4.57	4.17	7.17	3.98	7.05
TiO2	0.40	1.71	1.69	1.64	0.40	1.46	0.45	1.79	0.48	0.20	0.23	1.26	1.05	1.43
FeO total	16.53	8.54	8.31	8.43	16.85	8.50	16.52	8.92	16.98	19.68	18.53	8.42	9.66	8.28
MnO	0.27	0.21	0.25	0.15	0.33	0.15	0.32	0.26	0.39	0.44	0.45	0.17	0.28	0.17
MgO	25.34	12.42	12.56	12.30	24.33	12.05	23.84	12.16	23.78	23.51	23.39	12.25	14.77	12.08
CaO	0.93	18.49	19.05	17.97	1.03	19.28	1.14	18.99	1.12	0.80	0.74	20.32	18.50	20.01
Na2O	0.10	1.32	1.33	1.36	0.11	1.35	0.11	1.28	0.16	0.11	0.06	1.39	0.70	1.39
K2O	0.05	0.01	0.04	0.00	0.03	0.00	0.03	0.00	0.03	0.03	0.03	0.05	0.06	0.02
Fe2O3	2.92	4.41	3.31	0.00	0.00	1.27	0.00	2.71	0.04	3.13	0.00	2.30	0.99	1.60
FeO	13.90	4.58	5.33	8.43	16.85	7.35	16.52	6.50	16.61	16.86	18.53	6.35	8.77	6.84
TOTAL	100.05	98.76	100.19	99.93	99.73	100.55	100.02	100.03	100.35	99.99	100.09	101.05	100.47	100.04
Si	1.838	1.750	1.764	1.805	1.830	1.806	1.867	1.770	1.842	1.870	1.918	1.839	1.902	1.842
AlIV	0.160	0.250	0.240	0.190	0.170	0.190	0.130	0.230	0.160	0.130	0.080	0.160	0.100	0.160
AlVI	0.090	0.160	0.160	0.200	0.110	0.190	0.130	0.160	0.120	0.070	0.100	0.150	0.070	0.150
Ti	0.010	0.040	0.046	0.045	0.011	0.040	0.012	0.049	0.013	0.005	0.006	0.034	0.029	0.039
FelII	0.079	0.124	0.092	0.000	0.000	0.035	0.000	0.075	0.011	0.086	0.000	0.063	0.027	0.045
FelI	0.420	0.143	0.164	0.259	0.513	0.226	0.500	0.201	0.504	0.516	0.565	0.194	0.270	0.211
Mn	0.010	0.010	0.007	0.004	0.010	0.004	0.009	0.007	0.011	0.012	0.013	0.005	0.008	0.005
Mg	1.368	0.694	0.690	0.674	1.321	0.661	1.287	0.673	1.282	1.290	1.272	0.670	0.812	0.668
Ca	0.036	0.743	0.753	0.708	0.040	0.761	0.043	0.755	0.043	0.030	0.028	0.799	0.731	0.795
Na	0.010	0.096	0.094	0.097	0.008	0.096	0.007	0.089	0.011	0.010	0.004	0.099	0.050	0.098
K	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	0.002	0.003	0.000
TOTAL	4.021	4.010	4.011	3.982	4.013	4.009	3.986	4.009	3.998	4.019	3.987	4.015	4.002	4.013
Wo	1.89	43.60	44.32	43.14	2.13	45.22	2.35	44.31	2.34	1.56	1.50	46.29	39.73	46.25
En	71.89	40.73	40.61	41.07	70.49	39.28	70.33	39.50	69.67	67.12	68.20	38.82	44.13	38.86
Fs	26.22	15.67	15.07	15.78	27.37	15.51	27.32	16.20	27.99	31.32	30.29	14.89	16.14	14.89
Sample Type	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4B1 Pyxite core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core
SiO2	46.73	47.38	50.59	47.22	50.20	50.32	49.68	47.07	50.51	48.43	47.64	49.83	50.88	50.43
Al2O3	9.18	9.15	6.83	9.14	6.49	7.12	6.64	8.67	5.85	6.76	8.44	6.03	5.88	6.15
TiO2	1.54	1.62	0.50	1.54	0.43	0.47	0.41	1.51	0.30	1.70	1.28	0.26	0.26	0.30
FeO total	8.68	8.94	15.93	8.61	16.50	16.43	17.35	8.45	17.45	8.58	8.33	17.90	17.38	17.49
MnO	0.22	0.17	0.38	0.24	0.36	0.32	0.25	0.25	0.26	0.20	0.21	0.38	0.35	0.32
MgO	12.51	12.70	24.55	12.69	24.93	24.36	24.11	12.64	24.85	13.34	13.41	24.68	24.18	24.50
CaO	19.19	19.11	1.22	19.27	1.11	1.16	1.22	19.87	1.05	19.81	19.94	0.94	0.87	0.94
Na2O	1.02	1.10	0.10	1.30	0.21	0.15	0.15	0.86	0.11	0.89	0.99	0.10	0.01	0.06
K2O	0.00	0.01	0.05	0.03	0.08	0.02	0.04	0.04	0.06	0.01	0.02	0.00	0.00	0.04
Fe2O3	3.63	3.39	0.77	4.83	2.56	1.59	3.54	3.53	2.68	2.94	4.70	4.05	2.11	2.80
FeO	5.91	5.89	15.24	4.27	14.20	15.00	14.16	5.28	15.04	5.94	4.09	14.26	15.49	14.97
TOTAL	99.07	100.18	100.15	100.04	100.30	100.35	99.85	99.36	100.43	99.72	100.25	100.13	99.82	100.22
Si	1.752	1.756	1.825	1.754	1.819	1.822	1.815	1.762	1.838	1.809	1.770	1.820	1.858	1.838
AlIV	0.250	0.240	0.170	0.250	0.180	0.180	0.180	0.240	0.160	0.190	0.230	0.180	0.140	0.160
AlVI	0.160	0.160	0.120	0.150	0.100	0.120	0.110	0.140	0.090	0.110	0.140	0.080	0.110	0.100
Ti	0.040	0.050	0.014	0.043	0.011	0.010	0.010	0.040	0.010	0.050	0.035	0.010	0.007	0.010
FelII	0.102	0.094	0.021	0.134	0.070	0.043	0.097	0.099	0.073	0.082	0.130	0.111	0.058	0.076
FelI	0.169	0.182	0.461	0.131	0.429	0.454	0.430	0.164	0.456	0.184	0.126	0.433	0.470	0.453
Mn	0.007	0.005	0.011	0.007	0.010	0.010	0.008	0.008	0.008	0.006	0.006	0.012	0.010	0.010
Mg	0.699	0.701	1.320	0.702	1.345	1.314	1.312	0.705	1.347	0.742	0.742	1.346	1.315	1.330
Ca	0.770	0.759	0.047	0.767	0.042	0.044	0.048	0.797	0.041	0.793	0.794	0.037	0.034	0.037
Na	0.074	0.078	0.007	0.093	0.014	0.011	0.010	0.062	0.007	0.064	0.070	0.007	0.001	0.004
K	0.000	0.000	0.002	0.001	0.004	0.001	0.002	0.002	0.003	0.001	0.001	0.000	0.000	0.002
TOTAL	4.023	4.025	3.998	4.032	4.024	4.009	4.022	4.019	4.033	4.031	4.044	4.036	4.003	4.020
Wo	44.25	43.72	2.54	44.23	2.23	2.37	2.54	45.16	2.14	44.03	44.31	1.92	1.81	1.95
En	40.17	40.38	71.39	40.48	71.31	70.84	69.53	39.94	70.27	41.20	41.41	69.85	70.06	70.15
Fs	15.57	15.90	26.07	15.28	26.46	26.79	27.93	14.90	27.60	14.77	14.29	28.23	28.13	27.90

Sample Type	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite core	PK4S Pyxite symp
SiO2	49.77	49.15	49.23	50.46	51.41	48.39	52.00	48.19	49.35	52.08	51.75	50.96	51.07	48.84
Al2O3	7.45	7.57	7.69	7.18	5.31	7.15	5.31	7.25	7.32	5.02	5.06	4.95	5.16	4.48
TiO2	1.47	1.47	1.46	1.43	0.35	1.50	0.39	1.33	1.44	0.29	0.26	0.34	0.36	1.90
FeO total	8.28	8.12	8.19	8.27	17.34	8.34	16.93	8.45	8.88	17.27	17.05	17.64	17.05	10.20
MnO	0.30	0.23	0.22	0.37	0.31	0.26	0.45	0.20	0.24	0.57	0.33	0.37	0.36	0.28
MgO	12.22	11.95	12.32	12.94	24.86	13.52	24.39	12.88	13.02	24.54	25.09	25.17	24.69	18.31
CaO	19.80	20.56	20.05	18.01	1.15	19.74	1.00	20.56	18.74	0.98	1.00	0.93	1.14	15.36
Na2O	1.49	1.42	1.45	0.88	0.13	1.08	0.12	0.91	0.94	0.13	0.15	0.10	0.16	0.56
K2O	0.05	0.02	0.02	0.04	0.06	0.09	0.05	0.04	0.07	0.05	0.01	0.04	0.03	0.04

Fe2O3	2.15	2.84	2.96	0.00	2.70	4.53	0.31	3.89	0.73	1.15	2.22	3.78	2.58	6.10
FeO	6.35	5.56	5.53	8.27	14.90	4.26	16.64	4.95	8.22	16.23	15.06	14.24	14.73	4.71

TOTAL	100.78	100.47	100.60	99.53	100.86	99.97	100.56	99.78	99.93	100.87	100.69	100.45	99.98	99.93
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Si	1.832	1.819	1.817	1.864	1.859	1.800	1.877	1.799	1.826	1.879	1.871	1.854	1.863	1.800
AlIV	0.170	0.180	0.180	0.140	0.140	0.200	0.120	0.200	0.170	0.120	0.130	0.150	0.140	0.200
AlVI	0.150	0.150	0.150	0.170	0.070	0.110	0.110	0.120	0.150	0.090	0.080	0.060	0.080	0.000
Ti	0.040	0.040	0.040	0.039	0.009	0.041	0.010	0.037	0.040	0.007	0.007	0.009	0.009	0.050
FeIII	0.059	0.079	0.082	0.000	0.000	0.126	0.009	0.108	0.020	0.031	0.060	0.103	0.070	0.168
FeII	0.194	0.171	0.169	0.260	0.524	0.131	0.503	0.153	0.254	0.489	0.453	0.430	0.446	0.144
Mn	0.009	0.007	0.006	0.011	0.009	0.008	0.013	0.006	0.007	0.017	0.010	0.011	0.010	0.009
Mg	0.670	0.658	0.677	0.712	1.339	0.749	1.311	0.716	0.718	1.319	1.350	1.364	1.341	1.006
Ca	0.780	0.815	0.792	0.712	0.044	0.786	0.038	0.822	0.742	0.037	0.038	0.036	0.044	0.607
Na	0.105	0.101	0.103	0.063	0.009	0.078	0.008	0.065	0.067	0.009	0.010	0.007	0.011	0.040
K	0.002	0.001	0.001	0.000	0.002	0.004	0.002	0.001	0.003	0.002	0.000	0.001	0.001	0.001

TOTAL	4.011	4.021	4.017	3.971	4.005	4.033	4.001	4.027	3.997	4.000	4.009	4.025	4.015	4.025
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Wo	45.80	47.30	46.05	42.28	2.31	43.86	2.04	45.69	42.79	1.97	2.00	1.86	2.31	31.53
En	39.34	38.19	39.36	42.28	70.21	41.80	70.45	39.80	41.41	70.31	71.02	70.56	70.54	52.26
Fs	14.86	14.51	14.59	15.44	27.48	14.34	27.51	14.51	15.80	27.72	26.99	27.57	27.14	16.21

Sample Type	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core	PK4D1 Pyxite core	PK4D1 Pyxite core	PK4D1 Pyxite core	PK4D1 Pyxite core	PK4D1 Pyxite core	PK4D1 Pyxite core
SiO2	48.41	50.96	47.61	47.17	48.03	51.05	47.88	50.61	48.57	50.38	50.53	50.80	51.23	48.52
Al2O3	8.54	6.01	8.74	8.78	8.72	6.17	8.69	6.18	7.81	5.43	5.63	5.39	5.65	7.87
TiO2	1.37	0.29	1.55	1.38	1.41	0.26	1.34	0.35	1.46	0.30	0.32	0.35	0.35	1.39
FeO total	8.33	17.88	8.28	8.32	8.06	17.06	8.27	17.02	8.29	16.87	16.35	15.62	16.80	8.39
MnO	0.34	0.41	0.27	0.26	0.27	0.43	0.31	0.28	0.16	0.34	0.21	0.28	0.27	0.20
MgO	12.74	24.11	12.81	12.79	12.54	24.10	12.49	24.62	12.71	24.74	24.96	25.59	24.47	12.61
CaO	20.24	0.94	20.54	19.84	19.89	0.95	19.99	0.96	20.12	1.00	0.97	1.03	1.05	20.15
Na2O	1.17	0.11	1.22	1.05	1.09	0.14	1.09	0.08	1.01	0.03	0.05	0.12	0.06	1.05
K2O	0.05	0.01	0.05	0.03	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01

Fe2O3	4.04	1.99	5.61	4.81	2.84	0.42	3.32	1.79	2.30	0.34	2.02	2.60	0.84	2.55
FeO	4.69	16.09	3.23	4.17	5.50	16.68	5.29	15.41	6.21	14.65	14.53	13.28	16.05	6.09

TOTAL	101.18	100.72	101.07	99.62	100.02	100.16	100.08	100.10	100.14	99.08	99.02	99.19	99.88	100.18
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Si	1.782	1.850	1.759	1.763	1.781	1.852	1.777	1.840	1.800	1.852	1.852	1.854	1.860	1.800
AlIV	0.220	0.150	0.240	0.240	0.220	0.150	0.220	0.160	0.200	0.150	0.150	0.150	0.140	0.200
AlVI	0.150	0.110	0.140	0.150	0.160	0.110	0.160	0.100	0.140	0.090	0.090	0.080	0.100	0.140
Ti	0.040	0.010	0.040	0.039	0.039	0.007	0.037	0.010	0.041	0.008	0.009	0.010	0.010	0.039
FeIII	0.111	0.054	0.154	0.128	0.079	0.012	0.092	0.049	0.064	0.068	0.056	0.009	0.023	0.071
FeII	0.143	0.486	0.098	0.129	0.170	0.507	0.163	0.467	0.198	0.448	0.443	0.403	0.487	0.188
Mn	0.011	0.013	0.008	0.011	0.008	0.013	0.010	0.008	0.005	0.011	0.006	0.009	0.008	0.006
Mg	0.698	1.304	0.705	0.713	0.693	1.303	0.690	1.333	0.702	1.356	1.363	1.392	1.333	0.697
Ca	0.798	0.037	0.812	0.795	0.791	0.037	0.794	0.037	0.799	0.039	0.038	0.040	0.042	0.801
Na	0.083	0.008	0.087	0.076	0.078	0.010	0.076	0.006	0.074	0.002	0.004	0.009	0.004	0.075
K	0.002	0.001	0.002	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001

TOTAL	4.038	4.023	4.045	4.046	4.019	4.001	4.020	4.010	4.023	4.024	4.011	3.956	4.007	4.018
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Wo	45.60	1.97	45.90	45.04	45.64	1.99	45.66	1.96	45.32	2.04	2.00	2.17	2.23	45.59
En	39.89	69.32	39.85	40.40	39.99	70.09	39.68	70.68	39.82	70.96	71.74	75.49	70.72	39.67
Fs	14.51	28.71	14.25	14.56	14.37	27.92	14.66	27.36	14.86	27.00	26.26	22.34	27.06	14.74

Sample	PK4S	PK4S	PK4S	PK4T	PK4T
Type	Pyxite symp	Pyxite symp	Pyxite oxld	Pyxite core	Pyxite core
SiO2	50.42	48.76	51.28	47.78	49.93
Al2O3	4.67	7.29	4.90	7.88	5.54
TiO2	1.77	1.24	0.33	1.51	0.35
FeO total	7.09	8.98	12.37	8.94	17.40
MnO	0.17	0.18	0.46	0.26	0.51
MgO	15.84	13.16	29.14	12.58	24.33
CaO	19.57	19.87	1.36	19.48	0.99
Na2O	0.49	0.97	0.09	1.17	0.21
K2O	0.00	0.01	0.06	0.06	0.05

Fe2O3	1.09	3.54	6.10	3.94	3.90
FeO	6.11	5.73	6.88	5.39	13.89

TOTAL	100.03	100.44	99.93	99.61	99.27
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Si	1.846	1.806	1.834	1.785	1.837
AlIV	0.150	0.190	0.170	0.210	0.160
AlVI	0.050	0.130	0.040	0.130	0.080
Ti	0.048	0.034	0.009	0.040	0.010
FeIII	0.030	0.098	0.162	0.110	0.107
FeII	0.188	0.178	0.203	0.167	0.424
Mn	0.005	0.005	0.013	0.010	0.016
Mg	0.863	0.726	1.553	0.700	1.334
Ca	0.767	0.788	0.051	0.779	0.038
Na	0.034	0.069	0.006	0.084	0.014
K	0.000	0.000	0.003	0.000	0.000

TOTAL	3.981	4.024	4.044	4.015	4.020
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Wo	41.50	44.02	2.59	44.36	2.00
En	46.70	40.56	78.87	39.86	70.10
Fs	11.80	15.42	18.54	15.77	27.90

Sample	PK5G	PK5G	PK5G	PK5G	PK5G	PK5G
Type	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core
SiO2	49.71	52.15	50.92	51.36	49.70	52.75
Al2O3	7.34	5.39	6.87	5.01	6.92	4.72
TiO2	1.11	0.30	1.11	0.33	1.21	0.31
FeO total	7.17	14.13	6.76	14.06	7.40	13.41
MnO	0.11	0.43	0.13	0.20	0.09	0.33
MgO	14.04	27.42	13.88	26.93	14.13	27.28
CaO	20.05	1.02	19.89	0.94	19.59	0.98
Na2O	0.96	0.13	0.93	0.19	1.00	0.24
K2O	0.01	0.00	0.00	0.00	0.02	0.02

Fe2O3	2.26	2.99	0.00	2.91	2.18	1.53
FeO	5.14	11.44	6.76	11.44	5.58	12.03

TOTAL	100.51	100.94	100.48	99.00	100.07	100.03
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Si	1.818	1.854	1.855	1.864	1.833	1.878
AlIV	0.180	0.150	0.140	0.140	0.170	0.120
AlVI	0.140	0.080	0.150	0.070	0.130	0.080
Ti	0.030	0.010	0.030	0.010	0.030	0.010
FeIII	0.062	0.080	0.000	0.079	0.059	0.041
FeII	0.157	0.338	0.205	0.345	0.168	0.359
Mn	0.000	0.010	0.000	0.010	0.000	0.010
Mg	0.764	1.452	0.753	1.456	0.776	1.446
Ca	0.785	0.038	0.776	0.036	0.773	0.037
Na	0.068	0.010	0.065	0.013	0.070	0.016
K	0.000	0.000	0.000	0.000	0.000	0.000

TOTAL	4.004	4.022	3.974	4.023	4.009	3.997
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Wo	44.40	1.99	44.75	1.88	43.52	1.96
En	43.21	76.10	43.43	75.99	43.69	76.79
Fs	12.39	21.91	11.82	22.13	12.78	21.24

A3.2 Mount Hampton Xenolith Mineral Analyses: plagioclase

Sample Type	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4A Gran core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4B Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core	PK4D Pyxite core
SiO2	55.28	54.57	56.69	55.05	54.30	54.48	54.91	54.82	54.97	54.67	55.68	52.77	55.14	55.85
Al2O3	28.08	28.40	28.71	29.38	29.34	29.08	0.08	28.48	28.38	28.63	28.42	29.11	28.03	28.27
TiO2	0.03	0.08	0.10	0.07	0.04	0.12	27.92	0.07	0.06	0.05	0.04	0.15	0.08	0.01
FeO	0.35	0.15	0.19	0.12	0.18	0.23	0.22	0.18	0.23	0.21	0.33	0.42	0.21	0.19
MnO	0.08	0.02	0.00	0.14	0.02	0.07	0.04	0.05	0.06	0.07	0.00	0.06	0.00	0.05
MgO	0.03	0.04	0.03	0.00	0.06	0.07	0.08	0.03	0.04	0.04	0.11	0.12	0.08	0.04
CaO	10.52	9.94	10.29	10.60	10.38	11.23	11.38	10.95	10.94	10.86	10.48	12.23	10.80	10.66
Na2O	5.21	5.49	3.74	4.57	5.70	5.17	5.14	5.03	5.04	5.24	5.40	4.84	5.62	5.36
K2O	0.45	0.54	0.46	0.44	0.46	0.42	0.35	0.48	0.36	0.39	0.50	0.28	0.57	0.51
TOTAL	100.03	99.23	100.21	100.36	100.48	100.86	100.12	100.09	100.08	100.16	100.95	99.98	100.53	100.93
Si	2.495	2.481	2.533	2.466	2.454	2.444	2.479	2.474	2.479	2.464	2.488	2.400	2.482	2.495
Al	1.493	1.522	1.506	1.550	1.537	1.537	1.490	1.514	1.508	1.521	1.496	1.560	1.486	1.488
Ti	0.001	0.003	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.010	0.000	0.000
Fe	0.013	0.006	0.005	0.004	0.006	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.007
Mn	0.003	0.001	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.002	0.003	0.000	0.000	0.004	0.000	0.010	0.000	0.000	0.000	0.010	0.010	0.010	0.000
Ca	0.509	0.484	0.492	0.508	0.502	0.539	0.550	0.529	0.528	0.524	0.501	0.596	0.520	0.509
Na	0.455	0.483	0.420	0.396	0.499	0.449	0.449	0.439	0.440	0.457	0.467	0.426	0.490	0.463
K	0.026	0.031	0.030	0.025	0.026	0.020	0.020	0.027	0.020	0.023	0.028	0.016	0.032	0.029
TOTAL	4.997	5.014	4.986	4.956	5.029	4.999	5.008	4.993	4.985	4.999	5.001	5.028	5.030	4.991
An	51.41	48.50	52.23	54.68	48.88	53.47	53.97	53.17	53.44	52.19	50.30	57.42	49.90	50.85
Ab	45.96	48.40	44.59	42.63	48.59	44.54	44.06	44.12	44.53	45.52	46.89	41.04	47.02	46.25
Or	2.63	3.11	3.18	2.69	2.53	1.98	1.96	2.71	2.02	2.29	2.81	1.54	3.07	2.90

Sample Type	PK4R Gran core	PK4S Pyxite symp	PK4S Pyxite symp	PK4V Gran core	PK4V Gran core	PK4V Gran core	PK4V Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core
SiO2	58.21	53.87	53.22	54.13	54.57	52.02	54.59	55.54	55.90	55.70	56.29	56.26	55.59	55.65
Al2O3	28.07	26.82	26.87	28.38	29.21	29.89	28.55	28.51	27.82	28.55	28.16	28.17	27.79	27.05
TiO2	0.18	0.26	1.27	0.04	0.02	0.01	0.04	0.07	0.05	0.04	0.03	0.03	0.04	0.07
FeO	0.19	1.90	2.45	0.21	0.22	0.20	0.23	0.29	0.16	0.15	0.25	0.17	0.27	0.25
MnO	0.03	0.01	0.06	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.02	0.05	0.06	0.00
MgO	0.01	1.08	0.34	0.02	0.01	0.00	0.03	0.07	0.09	0.08	0.08	0.07	0.08	0.04
CaO	9.75	10.78	10.66	11.14	11.58	12.24	11.39	11.61	10.48	10.84	10.31	10.65	10.43	10.39
Na2O	4.25	5.44	5.05	4.96	4.92	5.07	4.93	3.87	5.69	5.02	5.26	4.38	5.88	5.78
K2O	0.24	0.25	0.09	0.27	0.27	0.27	0.23	0.37	0.41	0.34	0.29	0.32	0.30	0.35
TOTAL	100.92	100.39	100.01	99.15	100.80	99.71	99.99	100.36	100.39	100.74	100.69	100.09	100.44	99.57
Si	2.570	2.447	2.433	2.465	2.447	2.374	2.466	2.491	2.508	2.491	2.515	2.519	2.500	2.524
Al	1.460	1.436	1.447	1.523	1.545	1.609	1.521	1.507	1.470	1.504	1.482	1.486	1.473	1.445
Ti	0.005	0.008	0.043	0.001	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.000	0.001	0.002
Fe	0.006	0.071	0.093	0.008	0.008	0.008	0.007	0.010	0.006	0.006	0.009	0.006	0.010	0.009
Mn	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.002	0.002	0.000
Mg	0.000	0.072	0.023	0.001	0.001	0.000	0.000	0.005	0.006	0.005	0.006	0.004	0.006	0.002
Ca	0.460	0.524	0.521	0.544	0.557	0.599	0.552	0.557	0.504	0.519	0.493	0.510	0.503	0.505
Na	0.363	0.478	0.446	0.438	0.428	0.449	0.432	0.336	0.495	0.435	0.456	0.397	0.517	0.507
K	0.013	0.014	0.005	0.016	0.015	0.016	0.014	0.021	0.023	0.019	0.017	0.018	0.018	0.020
TOTAL	4.878	5.050	5.011	4.996	5.001	5.055	4.993	4.931	5.014	4.980	4.980	4.942	5.030	5.014
An	55.02	51.57	53.60	54.51	55.70	56.30	55.31	60.94	49.32	53.34	51.04	55.14	48.46	48.93
Ab	43.42	47.05	45.88	43.89	42.80	42.20	43.29	36.76	48.43	44.71	47.20	42.92	49.81	49.13
Or	1.56	1.38	0.51	1.60	1.50	1.50	1.40	2.30	2.25	1.95	1.76	1.95	1.73	1.94

Sample Type	PK4D Pyxite core	PK4D Pyxite core	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4R Gran core	PK4R Gran core
SiO2	55.76	54.75	49.87	52.84	51.00	51.08	50.54	56.91	51.71	58.00	57.44	58.19	58.28	58.39
Al2O3	28.98	0.07	30.67	29.17	30.25	29.59	30.62	27.14	29.55	27.68	27.68	27.05	27.64	26.96
TiO2	0.11	28.57	0.14	0.15	0.10	0.22	0.21	0.06	0.22	0.06	0.05	0.05	0.05	0.05
FeO	0.29	0.10	0.77	0.73	0.66	1.06	0.81	0.22	0.61	0.14	0.06	0.13	0.17	0.22
MnO	0.00	0.04	0.03	0.02	0.11	0.04	0.14	0.09	0.05	0.08	0.07	0.09	0.00	0.07
MgO	0.05	0.04	0.19	0.19	0.12	0.20	0.19	0.07	0.17	0.07	0.05	0.06	0.00	0.01
CaO	10.63	10.67	15.17	12.64	14.48	14.07	14.50	9.50	13.85	9.76	9.38	9.48	9.89	9.91
Na2O	4.71	5.42	3.18	4.41	3.44	3.19	3.32	4.75	3.77	4.45	5.11	4.88	3.77	5.03
K2O	0.44	0.53	0.04	0.08	0.08	0.07	0.05	0.22	0.36	0.35	0.33	0.28	0.26	0.33
TOTAL	100.97	100.19	100.06	100.23	100.23	99.52	100.36	98.94	100.29	100.58	100.17	100.21	100.06	100.97

Si	2.482	2.470	2.287	2.398	2.327	2.336	2.306	2.570	2.357	2.573	2.563	2.592	2.589	2.588
Al	1.520	1.519	1.657	1.560	1.626	1.594	1.646	1.444	1.587	1.447	1.455	1.419	1.447	1.408
Ti	0.003	0.000	0.004	0.004	0.003	0.007	0.007	0.002	0.007	0.001	0.001	0.001	0.001	0.001
Fe	0.010	0.000	0.028	0.027	0.024	0.039	0.029	0.008	0.022	0.005	0.002	0.004	0.006	0.008
Mn	0.000	0.000	0.000	0.000	0.004	0.001	0.005	0.003	0.001	0.002	0.002	0.003	0.000	0.002
Mg	0.000	0.000	0.012	0.012	0.010	0.013	0.012	0.004	0.011	0.004	0.003	0.003	0.000	0.000
Ca	0.507	0.515	0.745	0.614	0.707	0.689	0.708	0.459	0.676	0.463	0.448	0.452	0.470	0.470
Na	0.405	0.473	0.282	0.388	0.304	0.348	0.293	0.415	0.332	0.382	0.442	0.421	0.320	0.431
K	0.025	0.030	0.002	0.004	0.005	0.004	0.002	0.012	0.021	0.019	0.018	0.015	0.014	0.018
TOTAL	4.952	5.007	5.017	5.007	5.010	5.031	5.008	4.917	5.014	4.896	4.934	4.910	4.847	4.926

An	54.11	50.59	72.40	61.03	69.59	66.19	70.59	51.81	65.69	53.59	49.34	50.90	58.46	51.14
Ab	43.22	46.46	27.41	38.57	29.92	33.43	29.21	46.84	32.26	44.21	48.68	47.41	39.80	46.90
Or	2.67	2.95	0.19	0.40	0.49	0.38	0.20	1.35	2.04	2.20	1.98	1.69	1.74	1.96

Sample Type	PK4Y Gran core	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran core	PK4Y Gran rim	PK4Y Gran core	PK4Y Gran core	PK4Y Gran core	PK4Y Gran melt	PK4Y Gran melt	PK4Y Gran rim	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran core
SiO2	56.24	53.49	54.67	55.05	50.79	54.89	55.74	55.80	54.12	53.80	54.50	54.64	54.46	52.87
Al2O3	28.39	27.84	28.27	28.25	30.60	28.16	28.07	27.95	28.07	28.60	28.36	28.16	28.49	29.87
TiO2	0.07	0.15	0.19	0.00	0.11	0.05	0.07	0.00	0.38	0.29	0.23	0.01	0.04	0.22
FeO	0.29	1.26	1.11	0.20	0.66	0.17	0.26	0.43	1.15	0.85	0.76	0.13	0.20	0.54
MnO	0.00	0.00	0.09	0.09	0.03	0.02	0.00	0.00	0.00	0.06	0.00	0.05	0.01	0.10
MgO	0.06	0.01	0.00	0.01	0.05	0.01	0.00	0.00	0.18	0.10	0.00	0.01	0.16	0.08
CaO	10.87	11.56	10.88	10.43	14.33	11.21	11.20	10.90	11.68	11.68	12.11	10.91	11.03	12.81
Na2O	4.50	5.37	5.28	5.86	3.72	4.94	5.63	5.64	5.26	4.74	5.02	4.72	5.36	4.21
K2O	0.31	0.34	0.43	0.37	0.17	0.33	0.34	0.45	0.35	0.32	0.44	0.41	0.33	0.26
TOTAL	100.73	100.03	100.91	100.26	100.44	99.77	101.31	101.17	101.19	100.43	101.41	99.04	100.07	100.96

Si	2.509	2.414	2.462	2.482	2.314	2.483	2.490	2.495	2.439	2.434	2.446	2.487	2.462	2.383
Al	1.493	1.498	1.500	1.502	1.640	1.501	1.477	1.473	1.490	1.525	1.500	1.510	1.510	1.587
Ti	0.002	0.005	0.006	0.000	0.003	0.001	0.002	0.000	0.012	0.009	0.007	0.000	0.000	0.007
Fe	0.010	0.047	0.041	0.007	0.025	0.006	0.009	0.016	0.043	0.030	0.028	0.005	0.007	0.020
Mn	0.000	0.000	0.003	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.003	0.004
Mg	0.004	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.012	0.006	0.000	0.001	0.011	0.006
Ca	0.520	0.566	0.524	0.504	0.699	0.543	0.535	0.522	0.563	0.566	0.582	0.532	0.534	0.618
Na	0.389	0.475	0.460	0.512	0.328	0.432	0.486	0.488	0.459	0.415	0.436	0.416	0.470	0.368
K	0.017	0.020	0.024	0.021	0.009	0.018	0.019	0.025	0.020	0.018	0.025	0.024	0.019	0.015
TOTAL	4.944	5.025	5.020	5.031	5.022	4.984	5.018	5.019	5.038	5.003	5.024	4.977	5.016	5.008

An	56.16	53.35	51.98	48.60	67.47	54.68	51.44	50.43	54.03	56.66	55.80	54.73	52.20	61.74
Ab	42.01	44.77	45.63	49.37	31.66	43.50	46.73	47.15	44.05	41.54	41.80	42.80	45.94	36.76
Or	1.84	1.89	2.38	2.03	0.87	1.81	1.83	2.42	1.92	1.80	2.40	2.47	1.86	1.50

Sample Type	PK4R Gran core	PK4R Gran core	PK4R Gran core
SiO2	57.10	57.94	56.99
Al2O3	27.88	27.32	27.99
TiO2	0.04	0.07	0.10
FeO	0.23	0.14	0.13
MnO	0.00	0.05	0.00
MgO	0.00	0.03	0.04
CaO	9.29	10.17	9.81
Na2O	5.49	4.11	4.71
K2O	0.31	0.26	0.24

TOTAL	100.32	100.09	100.01
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Si	2.549	2.582	2.547
Al	1.466	1.434	1.474
Ti	0.001	0.002	0.003
Fe	0.008	0.005	0.004
Mn	0.000	0.001	0.000
Mg	0.000	0.001	0.002
Ca	0.444	0.485	0.469
Na	0.474	0.354	0.407
K	0.017	0.014	0.013

TOTAL	4.959	4.878	4.919
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An	47.49	56.86	52.76
Ab	50.70	41.50	45.78
Or	1.82	1.64	1.46

Sample Type	PK4C1 Gran core	PK4C1 Gran core	PK4C1 Gran rim	PK4C1 Gran core
SiO2	50.25	56.22	50.65	55.76
Al2O3	30.69	28.46	30.25	28.38
TiO2	0.19	0.09	0.11	0.07
FeO	1.03	0.12	0.76	0.17
MnO	0.06	0.08	0.07	0.08
MgO	0.11	0.08	0.14	0.04
CaO	14.47	10.69	13.89	10.77
Na2O	3.39	4.26	3.61	4.76
K2O	0.18	0.37	0.21	0.33

TOTAL	100.37	100.37	99.69	100.36
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Si	2.298	2.513	2.325	2.500
Al	1.653	1.499	1.635	1.501
Ti	0.007	0.003	0.004	0.002
Fe	0.039	0.004	0.028	0.006
Mn	0.002	0.003	0.003	0.003
Mg	0.007	0.005	0.010	0.003
Ca	0.708	0.512	0.682	0.517
Na	0.300	0.369	0.321	0.414
K	0.010	0.021	0.012	0.019

TOTAL	5.024	4.929	5.020	4.965
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An	69.55	56.76	67.19	54.42
Ab	29.47	40.91	31.63	43.58
Or	0.98	2.33	1.18	2.00

A3.2 Mount Hampton Xenolith Mineral Analyses: oxides

Sample Type	PK4A Gran symp	PK4A Gran vein	PK4B Pyxite core	PK4D Pyxite core	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite symp	PK4L Pyxite core	PK4S Pyxite symp	PK4S Pyxite symp	PK4S Pyxite symp	PK4S Pyxite symp	PK4T Pyxite core
SiO2	0.24	6.22	0.12	0.11	2.71	0.05	0.12	0.06	0.06	0.63	0.17	0.70	0.11
Al2O3	1.42	3.89	1.40	0.11	0.19	0.15	0.54	58.13	0.24	0.38	3.84	0.97	0.23
TiO2	0.08	1.91	51.09	51.28	0.27	0.07	0.02	0.40	1.12	6.77	0.02	7.37	46.89
Fe2O3	76.66	50.04	1.19	5.58	62.78	69.34	66.52	5.67	66.19	55.97	71.06	53.29	13.56
FeO	0.22	30.86	39.14	32.26	28.50	26.88	30.20	19.24	31.53	31.83	5.53	31.29	31.72
MnO	0.55	0.30	0.19	0.37	0.07	0.04	0.09	0.16	0.07	0.35	1.15	0.33	0.38
MgO	19.73	6.15	3.67	7.47	3.70	2.54	0.15	13.99	0.28	3.61	13.28	4.12	5.83
CaO	0.08	0.18	0.04	0.09	0.13	0.08	0.06	0.04	0.04	0.18	0.06	0.17	0.14
Cr2O3	0.13	0.12	0.16	0.31					0.00		0.29	0.81	0.03
NiO	0.18	0.11	0.16	0.19					0.44		3.19	0.45	0.11
TOTAL	99.28	99.76	97.16	97.77	98.33	99.17	97.69	97.68	99.97	99.73	96.58	99.51	98.25

Si	0.008	0.211	0.003	0.003	0.102	0.002	0.005	0.002	0.002	0.024	0.006	0.027	0.003
Al	0.056	0.155	0.041	0.003	0.008	0.007	0.025	1.864	0.011	0.018	0.164	0.045	0.007
Ti	0.002	0.049	0.967	0.946	0.008	0.002	0.000	0.008	0.033	0.188	0.000	0.203	0.869
FeIII	1.924	0.934	0.019	0.099	1.774	1.985	1.965	0.116	1.920	1.557	1.823	1.469	0.251
FeII	0.009	1.326	0.827	0.666	0.895	0.855	0.991	0.438	1.016	0.984	0.158	0.958	0.653
Mn	0.016	0.009	0.004	0.008	0.002	0.001	0.003	0.004	0.002	0.012	0.035	0.011	0.008
Mg	0.982	0.311	0.138	0.273	0.207	0.144	0.009	0.567	0.016	0.210	0.718	0.240	0.207
Ca	0.003	0.006	0.001	0.003	0.005	0.003	0.002	0.001	0.000	0.007	0.000	0.007	0.003
Cr	0.003	0.000	0.003	0.000					0.000		0.000	0.025	0.000
Ni	0.005	0.000	0.003	0.000					0.010		0.092	0.014	0.010
TOTAL	3.008	3.001	2.006	2.001	3.001	2.999	3.000	3.000	3.010	3.000	2.996	2.999	2.004

Sample Type	PK4T Pyxite core	PK4V Gran core	PK4V Gran core	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran symp	PK4Y Gran vein	PK4Y Gran vein	PK4Y Gran vein	PK4Y Gran vein	PK4C1 Gran symp	PK4C1 Gran core	PK4D1 Pyxite core
SiO2	0.17	0.03	0.82	0.36	0.70	0.11	0.21	0.23	0.42	1.06	1.34	0.13	0.08	
Al2O3	0.41	2.27	0.75	2.78	3.37	1.28	0.31	4.55	2.07	0.40	0.45	61.42	0.50	
TiO2	48.89	53.44	50.59	0.14	0.17	2.78	0.16	0.79	16.53	7.94	0.57	0.23	48.37	
Fe2O3	9.25	0.96	3.42	73.94	73.16	64.44	67.46	63.99	35.78	52.99	65.07	4.10	10.81	
FeO	33.37	36.87	40.28	1.59	2.15	23.22	29.53	24.53	39.05	32.40	28.69	20.21	31.31	
MnO	0.41	0.14	0.24	1.16	1.16	0.58	0.26	0.44	0.54	0.49	0.37	0.25	0.22	
MgO	5.75	6.03	2.72	19.56	18.85	6.30	0.78	4.82	4.21	4.22	2.59	14.24	6.75	
CaO	0.32	0.02	0.15	0.10	0.14	0.12	0.14	0.15	0.19	0.18	0.12	0.01	0.02	
Cr2O3	0.24	0.00	0.01	0.35	0.37								0.17	
NiO	0.12	0.01	0.03										0.03	
TOTAL	98.93	99.75	99.01	99.98	100.06	98.83	98.84	99.50	98.78	99.67	99.20	100.59	98.25	

Si	0.004	0.001	0.024	0.011	0.022	0.004	0.008	0.009	0.017	0.041	0.051	0.005	0.002
Al	0.011	0.066	0.026	0.105	0.124	0.056	0.014	0.206	0.102	0.018	0.020	1.903	0.014
Ti	0.900	0.958	0.931	0.004	0.004	0.077	0.005	0.021	0.447	0.219	0.016	0.005	0.889
FeIII	0.171	0.017	0.063	1.864	1.825	1.782	1.961	1.734	0.969	1.463	1.846	0.081	0.204
FeII	0.687	0.734	0.824	0.045	0.060	0.714	0.954	0.733	1.175	0.994	0.905	0.440	0.635
Mn	0.008	0.003	0.006	0.032	0.030	0.018	0.008	0.014	0.019	0.016	0.012	0.006	0.004
Mg	0.205	0.221	0.120	0.935	0.931	0.345	0.045	0.276	0.262	0.242	0.145	0.558	0.246
Ca	0.008	0.000	0.005	0.003	0.005	0.005	0.006	0.006	0.009	0.007	0.005		0.006
Cr	0.003	0.000	0.000	0.004	0.002								0.003
Ni	0.003	0.000	0.000										0.001
TOTAL	2.000	2.000	1.999	3.003	3.003	3.001	3.001	2.999	3.000	3.000	3.000	2.998	2.004

A3.2 Mount Hampton Xenolith Mineral Analyses: glasses

Sample Type	FK4A Gran symp	FK4A Gran symp	FK4A Gran vein	FK4A Gran vein	FK4L Pyxite symp	FK4S Pyxite symp	FK4Y Gran symp	FK4Y Gran symp	FK4Y Gran symp
SiO2	56.02	58.27	58.93	60.77	49.95	47.70	56.34	55.67	56.41
Al2O3	11.27	17.23	15.25	15.10	17.80	17.02	14.98	14.80	15.37
TiO2	3.27	1.61	2.97	2.32	0.97	3.47	3.08	2.83	2.73
FeO	12.04	5.09	8.87	9.13	4.38	10.78	9.60	8.97	7.58
MnO	0.22	0.14	0.19	0.03	0.12	0.23	0.10	0.11	0.21
MgO	4.65	2.41	2.36	2.99	7.50	9.38	3.77	3.72	3.41
CaO	9.94	8.03	2.87	4.31	17.54	8.36	4.57	6.58	5.50
Na2O	2.99	5.69	4.60	4.77	1.84	3.72	6.48	5.97	5.53
K2O	0.76	1.69	4.50	0.76	0.02	0.09	2.16	2.27	1.97
TOTAL	101.16	100.16	100.54	100.17	100.12	100.76	101.07	100.92	98.70
Mg#	40.76	45.74	32.12	36.88	75.32	60.78	41.15	42.52	44.51
Q	9.70	0.88	3.31	13.32	0.00	0.00	0.00	0.00	0.47
Or	4.49	9.99	26.59	4.49	0.12	0.53	12.76	13.42	11.64
Ab	25.30	48.15	38.93	40.36	15.57	31.43	50.00	42.67	46.80
An	15.09	16.48	7.67	17.55	40.25	29.48	5.41	6.88	11.30
Ne	0.00	0.00	0.00	0.00	0.00	0.02	2.62	4.25	0.00
Di	28.30	19.15	5.48	3.19	37.24	9.66	14.22	21.19	13.09
Hy	8.94	1.14	10.59	14.49	3.97	0.00	0.00	0.00	8.27
Ol	0.00	0.00	0.00	0.00	0.00	20.23	7.73	4.81	0.00
Mt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Il	6.21	3.06	5.64	4.41	1.84	6.59	5.85	5.37	5.18
Ap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	98.03	98.85	98.21	97.81	98.99	97.94	98.59	98.59	96.75

Sample Type	FK4Y Gran vein	FK4Y Gran vein	FK4Y Gran vein	FK4Y Gran vein	FK4Y Gran symp	FK4Y Gran symp	FK4Cl Gran symp	FK4Cl Gran symp	FK4Cl Gran symp
SiO2	52.59	56.01	51.70	56.25	56.84	57.80	56.96	56.43	49.25
Al2O3	16.57	15.05	14.94	13.54	15.76	15.45	17.09	15.17	10.58
TiO2	2.82	4.42	4.20	3.41	3.19	3.39	3.65	6.17	3.08
FeO	9.09	11.51	12.09	9.78	6.04	6.14	7.32	5.37	11.43
MnO	0.16	0.23	0.27	0.15	0.19	0.08	0.17	0.05	0.14
MgO	2.41	3.14	2.76	3.52	3.80	3.90	3.54	2.00	15.19
CaO	6.31	5.25	4.78	4.11	8.65	5.33	6.88	3.66	5.86
Na2O	7.49	4.33	5.89	5.14	4.49	5.79	3.74	3.42	3.16
K2O	3.32	1.28	3.13	3.52	1.34	1.95	1.50	4.34	1.30
TOTAL	100.76	101.23	99.75	99.44	100.29	99.83	100.85	96.61	99.99
Mg#	32.10	32.73	28.93	39.09	52.85	53.09	46.32	39.85	70.31
Q	0.00	7.77	0.00	0.00	5.08	1.56	9.39	10.17	0.00
Or	19.62	7.56	18.50	20.80	7.92	11.52	8.86	25.65	7.68
Ab	24.89	36.64	34.33	43.50	37.99	49.00	31.65	28.94	26.74
An	1.79	17.85	5.08	3.48	18.89	10.41	25.42	13.22	10.85
Ne	20.85	0.00	8.40	0.00	0.00	0.00	0.00	0.00	0.00
Di	24.66	6.81	15.61	13.95	19.27	12.82	7.05	3.84	14.55
Hy	0.00	13.19	0.00	5.52	3.53	6.49	9.65	3.20	5.44
Ol	1.23	0.00	6.92	3.16	0.00	0.00	0.00	0.00	25.91
Mt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	0.00
Il	5.36	8.39	7.98	6.48	6.06	6.44	6.93	11.72	5.85
Ap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	98.4	98.21	96.82	96.89	98.74	98.24	98.95	100.12	97.02

Sample	90041I	90048B	90048B	90048B	90048B	90048B	90048B	90048B
Type	Gran oxid dk	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite melt	Pyxite melt
SiO2	42.23	37.12	37.50	37.43	37.29	37.73	40.13	38.37
Al2O3	0.00	0.06	0.01	0.02	0.14	0.09	0.15	0.24
TiO2	0.00	0.01	0.13	0.05	0.10	0.03	0.14	0.11
FeO	8.62	27.45	26.76	26.61	26.86	25.29	18.30	20.29
MnO	0.10	0.42	0.47	0.51	0.34	0.42	0.16	0.30
MgO	49.82	35.25	34.48	35.10	34.92	36.02	41.08	39.76
CaO	0.03	0.15	0.18	0.17	0.19	0.19	0.33	0.33
Na2O	0.01	0.04	0.17	0.06	0.00	0.00	0.13	0.09
K2O	0.01	0.04	0.01	0.01	0.03	0.03	0.03	0.02
Cr2O3	0.05	0.21	0.00	0.12	0.07	0.20	0.21	0.29
TOTAL	100.85	100.75	99.71	100.07	99.94	99.99	100.65	99.80
Si	1.017	0.989	1.000	0.995	0.993	0.996	1.014	0.991
Al	0.000	0.001	0.000	0.000	0.004	0.003	0.004	0.007
Ti	0.000	0.000	0.002	0.001	0.001	0.001	0.002	0.002
Fe	0.173	0.611	0.596	0.591	0.598	0.558	0.386	0.438
Mn	0.002	0.009	0.010	0.011	0.007	0.009	0.003	0.007
Mg	1.787	1.378	1.370	1.390	1.385	1.417	1.547	1.531
Ca	0.001	0.004	0.005	0.004	0.005	0.005	0.009	0.009
Na	0.001	0.002	0.008	0.002	0.000	0.000	0.007	0.004
K	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000
Cr	0.001	0.004	0.000	0.002	0.001	0.004	0.004	0.005
TOTAL	2.981	2.999	2.991	2.996	2.995	2.993	2.977	2.994
Mg#	91.15	69.28	69.68	70.17	69.84	71.75	80.03	77.76

Sample	90054I	90054I	90054I	90054K	90054K	90054K	90054K	90054K	90054K
Type	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite oxid dk-	Pyxite oxid lgt	Pyxite core	Pyxite core
SiO2	39.88	40.19	41.10	37.95	38.38	40.19	37.16	38.22	38.44
Al2O3	0.04	0.07	0.02	0.06	0.07	0.01	0.01	0.05	0.06
TiO2	0.04	0.01	0.07	0.05	0.02	0.01	0.11	0.04	0.05
FeO	15.79	14.13	12.98	23.79	24.03	10.53	38.96	23.67	21.78
MnO	0.22	0.33	0.30	0.39	0.38	0.36	0.37	0.38	0.38
MgO	43.97	44.93	45.46	37.64	36.89	47.56	22.84	37.38	39.08
CaO	0.15	0.23	0.06	0.10	0.15	0.09	0.24	0.13	0.17
Na2O	0.00	0.06	0.00	0.05	0.04	0.00	0.12	0.01	0.01
K2O	0.03	0.03	0.07	0.05	0.02	0.07	0.08	0.02	0.00
Cr2O3				0.07	0.05	0.06	0.06	0.02	0.00
TOTAL	100.12	99.98	100.04	100.15	100.03	98.87	99.95	99.92	99.98
Si	1.003	1.004	1.019	0.994	1.005	1.000	1.046	1.001	0.997
Al	0.001	0.002	0.000	0.001	0.002	0.000	0.000	0.001	0.002
Ti	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.001
Fe	0.332	0.299	0.269	0.520	0.526	0.218	0.917	0.518	0.472
Mn	0.004	0.007	0.006	0.008	0.008	0.007	0.009	0.008	0.008
Mg	1.648	1.672	1.679	1.468	1.440	1.763	0.958	1.459	1.510
Ca	0.003	0.006	0.001	0.002	0.004	0.002	0.007	0.003	0.004
Na	0.000	0.002	0.000	0.002	0.002	0.000	0.006	0.000	0.000
K	0.001	0.000	0.002	0.001	0.000	0.002	0.003	0.000	0.000
Cr				0.001	0.001	0.001	0.001	0.000	0.000
TOTAL	2.992	2.992	2.977	2.997	2.988	2.993	2.949	2.990	2.994
Mg#	83.23	84.83	86.19	73.84	73.25	89.00	51.09	73.80	76.19

A3.3 Mount Murphy Xenolith Mineral Analyses: pyroxenes

Sample	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041A	90041C
Type	Gran core	Gran core	Gran core	Gran core	Gran core	Gran oxid z	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core
SiO2	51.47	51.82	51.77	51.51	51.63	51.20	52.06	49.51	52.35	51.80	51.28	51.54	55.35	52.99	
Al2O3	3.30	2.51	2.36	3.26	2.97	1.95	2.78	4.45	2.34	2.93	2.77	2.64	2.41	1.64	
TiO2	0.37	0.27	0.29	0.58	0.38	0.55	0.28	0.85	0.35	0.46	0.34	0.28	0.06	0.35	
FeO total	6.90	6.84	6.27	6.58	6.64	7.97	6.39	7.16	6.46	6.64	6.38	6.52	7.82	5.41	
MnO	0.21	0.17	0.28	0.20	0.20	0.23	0.22	0.34	0.27	0.25	0.18	0.22	0.33	0.20	
MgO	14.42	15.18	14.84	13.74	14.73	18.26	14.57	14.65	14.71	14.09	14.22	14.68	33.81	15.44	
CaO	22.72	22.49	23.53	22.85	22.56	18.45	22.96	21.55	23.11	23.06	22.87	23.41	0.28	24.47	
Na2O	0.66	0.66	0.50	0.66	0.63	1.33	0.67	0.79	0.56	0.68	0.66	0.66	0.12	0.41	
K2O	0.00	0.02	0.04	0.05	0.02	0.03	0.00	0.02	0.01	0.03	0.01	0.02	0.04	0.01	
Cr2O3	0.08	0.11	0.20	0.63	0.20	0.00	0.16	0.23	0.19	0.41	0.22	0.23	0.12		
Fe2O3	3.46	4.24	3.92	1.89	3.20	8.86	2.98	5.66	2.58	2.70	3.18	4.61	2.81	3.09	
FeO	3.79	3.03	2.74	4.88	3.77	0.00	3.71	2.06	4.14	4.21	3.52	2.38	5.29	2.63	
TOTAL	100.12	100.07	100.08	100.04	99.96	99.97	100.09	99.53	100.34	100.35	98.92	100.19	100.33	100.93	
Si	1.916	1.920	1.917	1.911	1.914	1.898	1.924	1.851	1.934	1.915	1.921	1.912	1.921	1.940	
AlIV	0.080	0.080	0.080	0.090	0.090	0.085	0.080	0.150	0.070	0.080	0.080	0.090	0.080	0.060	
AlVI	0.061	0.031	0.026	0.052	0.041	0.000	0.043	0.046	0.032	0.050	0.042	0.027	0.017	0.010	
Ti	0.010	0.007	0.008	0.016	0.011	0.015	0.008	0.024	0.010	0.013	0.010	0.008	0.001	0.009	
FeIII	0.096	0.117	0.108	0.052	0.089	0.000	0.082	0.157	0.071	0.075	0.089	0.127	0.073	0.085	
FeII	0.117	0.093	0.084	0.151	0.116	0.247	0.114	0.064	0.127	0.130	0.109	0.073	0.153	0.080	
Mn	0.006	0.005	0.009	0.006	0.006	0.007	0.007	0.011	0.008	0.008	0.006	0.007	0.009	0.006	
Mg	0.792	0.837	0.819	0.759	0.813	1.008	0.802	0.816	0.809	0.776	0.794	0.811	1.748	0.842	
Ca	0.897	0.892	0.933	0.908	0.896	0.733	0.909	0.863	0.914	0.913	0.917	0.930	0.010	0.959	
Na	0.047	0.048	0.037	0.047	0.045	0.096	0.049	0.057	0.040	0.049	0.048	0.048	0.002	0.029	
K	0.000	0.001	0.002	0.002	0.001	0.002	0.000	0.007	0.000	0.001	0.000	0.001	0.003	0.000	
Cr	0.002	0.003	0.006	0.018	0.006	0.000	0.005	0.007	0.006	0.012	0.007	0.007	0.007		
TOTAL	4.023	4.034	4.029	4.013	4.028	4.090	4.023	4.052	4.020	4.024	4.022	4.040	4.024	4.020	
Wo	47.16	46.00	48.01	48.55	46.80	36.86	47.67	45.42	47.57	48.20	48.06	47.92	0.50	48.78	
En	41.64	43.17	42.12	40.59	42.49	50.72	42.05	42.94	42.12	40.98	41.57	41.78	88.11	42.83	
Fs	11.20	10.83	9.88	10.86	10.71	12.42	10.28	11.64	10.31	10.82	10.37	10.30	11.39	8.39	
Sample	90048B	90048B	90048D	90048D	90048D	90048D	90048D	90048D	90048D	90048D	90048D	90048D	90048D	90048D	
Type	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	
SiO2	47.86	48.54	45.52	47.49	46.37	47.11	45.91	47.29	46.69	45.56	47.44	47.42	46.40	46.26	
Al2O3	7.62	7.47	8.59	7.73	0.04	9.21	8.77	8.34	8.63	8.81	7.91	8.48	8.24	8.81	
TiO2	1.78	1.57	2.61	2.37	2.31	3.10	2.86	2.61	2.67	2.65	2.36	2.75	2.86	2.54	
FeO total	7.77	7.65	8.69	8.51	8.75	8.37	8.92	8.26	8.74	8.10	7.97	7.91	8.45	8.26	
MnO	0.16	0.34	0.30	0.01	0.29	0.16	0.21	0.21	0.34	0.36	0.24	0.22	0.26	0.23	
MgO	12.67	12.63	12.55	12.52	12.55	11.81	12.18	12.07	12.09	12.51	12.02	12.09	12.48	12.20	
CaO	19.98	20.35	20.65	20.36	20.72	20.01	20.42	20.16	20.00	20.30	21.08	20.56	20.41	20.53	
Na2O	1.04	1.01	1.04	0.97	0.99	1.02	1.07	1.06	1.01	1.18	0.98	1.02	0.98	1.18	
K2O	0.01	0.02	0.04	0.02	0.02	0.03	0.03	0.00	0.01	0.01	0.08	0.01	0.02	0.01	
Cr2O3	0.41	0.33	0.16	0.00	0.17	0.13	0.11	0.26	0.29	0.12	0.13	0.20	0.42	0.18	
Fe2O3	2.46	2.18	6.48	2.91	5.58	0.97	5.11	2.05	2.99	6.03	2.54	1.80	4.21	4.94	
FeO	5.55	5.69	2.85	5.90	3.73	7.50	4.32	6.42	6.04	2.68	5.69	6.29	4.66	3.81	
TOTAL	99.31	99.91	100.15	99.97	92.22	100.95	100.46	100.26	100.44	99.59	100.21	100.65	100.53	100.20	
Si	1.791	1.804	1.710	1.773	1.739	1.740	1.716	1.760	1.740	1.713	1.768	1.755	1.730	1.729	
AlIV	0.210	0.200	0.290	0.230	0.260	0.260	0.280	0.240	0.260	0.290	0.230	0.240	0.270	0.270	
AlVI	0.126	0.127	0.090	0.110	0.095	0.140	0.106	0.125	0.139	0.100	0.117	0.129	0.092	0.118	
Ti	0.050	0.043	0.075	0.066	0.065	0.086	0.080	0.073	0.075	0.075	0.066	0.076	0.080	0.071	
FeIII	0.069	0.050	0.181	0.081	0.156	0.027	0.142	0.057	0.084	0.168	0.071	0.050	0.117	0.138	
FeII	0.173	0.176	0.088	0.183	0.116	0.231	0.134	0.199	0.187	0.083	0.177	0.194	0.144	0.118	
Mn	0.005	0.010	0.010	0.000	0.009	0.005	0.007	0.007	0.011	0.011	0.008	0.007	0.008	0.007	
Mg	0.706	0.699	0.702	0.696	0.701	0.650	0.678	0.669	0.671	0.701	0.668	0.666	0.693	0.679	
Ca	0.800	0.810	0.830	0.814	0.832	0.792	0.817	0.804	0.798	0.817	0.842	0.815	0.815	0.822	
Na	0.075	0.071	0.073	0.070	0.071	0.073	0.078	0.076	0.073	0.086	0.069	0.073	0.071	0.086	
K	0.000	0.001	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.001	0.001	0.000	
Cr	0.012	0.009	0.005	0.000	0.005	0.004	0.003	0.007	0.008	0.003	0.004	0.006	0.012	0.005	
TOTAL	4.017	4.000	4.035	4.024	4.050	4.008	4.041	4.016	4.046	4.048	4.022	4.012	4.033	4.043	
Wo	45.77	46.69	46.09	45.88	46.09	46.58	46.14	46.49	45.87	46.21	47.89	47.24	46.08	46.78	
En	40.39	40.29	38.98	39.24	38.84	38.24	38.28	38.70	38.56	39.60	37.99	38.62	39.16	38.65	
Fs	13.84	13.03	14.93	14.88	15.07	15.18	15.58	14.81	15.57	14.19	14.11	14.14	14.76	14.57	

SAMPLE	90041C	90041C	90041C	90041G	90041G	90041G	90041G	90041G	90041G	90041G	90041G	90041G	90041G	90041I	90041I
Type	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran oxid r	Gran oxid r
SiO2	52.66	53.26	51.07	51.75	51.24	52.33	51.41	54.20	54.33	50.62	49.54	53.57	47.37	53.64	
Al2O3	1.83	1.49	3.67	3.98	3.80	3.85	3.63	2.09	2.27	2.68	5.54	2.45	9.39	2.15	
TiO2	0.40	0.36	0.95	0.94	0.78	0.73	0.75	0.09	0.13	0.16	1.39	0.21	0.42	0.11	
FeO total	5.70	4.76	5.30	4.70	4.74	4.17	4.51	12.06	12.53	5.09	6.95	4.21	5.70	5.99	
MnO	0.19	0.27	0.19	0.11	0.08	0.00	0.21	0.34	0.32	0.05	0.21	0.20	0.19	0.24	
MgO	15.26	15.39	15.65	14.83	15.50	15.07	15.69	29.50	29.54	16.21	14.66	15.81	13.78	19.41	
CaO	23.43	24.55	22.14	22.55	22.86	22.08	23.42	0.64	0.63	24.69	20.97	22.91	21.76	18.07	
Na2O	0.49	0.45	0.61	0.69	0.65	0.52	0.60	0.10	0.07	0.44	0.52	0.40	0.57	0.34	
K2O	0.04	0.02	0.01	0.01	0.02	0.31	0.00	0.03	0.03	0.01	0.06	0.03	0.04	0.00	
Cr2O3				0.49	0.60	0.78	0.68	0.35	0.22	0.01	0.10	0.18	0.07	0.08	
Fe2O3	2.38	2.32	3.01	0.74	3.20	0.00	3.77	1.73	1.87	5.66	2.69	0.00	4.55	1.49	
FeO	3.56	2.67	2.59	4.04	1.86	4.17	1.12	10.50	10.87	0.00	4.53	4.21	1.60	4.65	
TOTAL	100.01	100.55	99.59	100.04	100.27	99.84	100.90	99.40	100.05	99.96	99.93	99.96	99.27	100.02	
Si	1.943	1.952	1.885	1.901	1.882	1.916	1.878	1.937	1.934	1.880	1.836	1.958	1.761	1.948	
AlIV	0.060	0.050	0.110	0.100	0.120	0.080	0.120	0.060	0.070	0.120	0.160	0.050	0.240	0.060	
AlVI	0.020	0.014	0.050	0.069	0.044	0.086	0.036	0.027	0.022	0.000	0.078	0.054	0.171	0.033	
Ti	0.010	0.009	0.026	0.025	0.021	0.019	0.020	0.002	0.003	0.005	0.038	0.006	0.011	0.003	
FeIII	0.066	0.064	0.083	0.020	0.088	0.000	0.103	0.046	0.049	0.158	0.074	0.000	0.126	0.041	
FeII	0.109	0.082	0.079	0.124	0.057	0.127	0.034	0.321	0.322	0.000	0.140	0.129	0.049	0.141	
Mn	0.010	0.008	0.006	0.003	0.002	0.000	0.006	0.010	0.009	0.001	0.006	0.006	0.006	0.007	
Mg	0.838	0.840	0.860	0.811	0.847	0.822	0.854	1.570	1.567	0.897	0.809	0.861	0.763	1.050	
Ca	0.925	0.964	0.875	0.887	0.899	0.866	0.916	0.024	0.023	0.982	0.833	0.897	0.866	0.703	
Na	0.036	0.032	0.043	0.047	0.046	0.037	0.042	0.006	0.004	0.031	0.037	0.028	0.041	0.024	
K	0.002	0.000	0.000	0.000	0.000	0.014	0.000	0.001	0.001	0.000	0.003	0.001	0.002	0.000	
Cr				0.013	0.017	0.022	0.019	0.009	0.005	0.000	0.003	0.005	0.002	0.002	
TOTAL	4.019	4.015	4.017	4.000	4.023	3.989	4.028	4.013	4.009	4.074	4.017	3.993	4.037	4.012	
Wo	47.73	49.44	46.13	48.15	47.54	47.71	48.03	1.22	1.17	48.22	44.86	47.55	48.02	36.33	
En	43.24	43.08	45.33	44.03	44.79	45.29	44.78	80.05	79.91	44.03	43.61	45.63	42.28	54.26	
Fs	9.03	7.49	8.54	7.82	7.67	7.00	7.18	18.73	18.92	7.75	11.53	6.82	9.70	9.41	
SAMPLE	90048D	90048D	90048D	90048D	90048E	90048F	90048F	90048F	90048G	90048G	90048G	90054C	90054C	90054C	
Type	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Gran core	Pyxite core	Pyxite core	Pyxite core	
SiO2	45.54	46.09	46.25	46.03	48.67	46.32	46.50	47.21	49.94	47.54	49.99	48.47	49.19	47.75	
Al2O3	8.54	8.51	8.67	8.75	7.04	8.48	8.62	7.59	3.20	6.12	2.49	8.52	6.85	8.80	
TiO2	2.75	2.88	2.63	2.69	1.84	2.61	2.73	2.51	0.76	1.60	0.50	1.61	0.86	1.79	
FeO total	8.88	7.87	8.54	8.89	8.91	8.32	8.43	8.62	9.84	9.30	10.54	7.13	6.50	7.76	
MnO	0.30	0.26	0.12	0.15	0.21	0.29	0.17	0.31	0.30	0.34	0.59	0.20	0.17	0.46	
MgO	12.24	12.53	12.12	12.00	11.93	12.37	12.18	12.63	13.22	13.40	13.24	13.42	14.83	13.47	
CaO	20.54	20.48	20.92	20.30	20.57	20.00	19.90	19.90	22.16	20.79	21.59	19.90	21.23	19.20	
Na2O	1.08	1.09	1.07	1.17	0.83	1.19	1.24	1.06	0.27	0.81	0.69	0.84	0.43	1.03	
K2O	0.00	0.01	0.01	0.04	0.02	0.00	0.01	0.04	0.01	0.05	0.01	0.00	0.02	0.06	
Cr2O3	0.09	0.13	0.30	0.26		0.14	0.17	0.05	0.05	0.00	0.30	0.22	0.30	0.21	
Fe2O3	6.02	4.59	4.97	5.05	0.09	0.00	3.80	3.63	3.35	6.32	6.07	1.35	3.06	3.33	
FeO	3.47	3.74	4.07	4.34	8.10	8.32	5.01	5.35	6.82	3.61	5.08	5.91	3.75	4.77	
TOTAL	99.95	99.83	100.64	100.28	100.01	99.71	99.95	99.92	99.76	99.96	99.94	100.31	100.38	100.54	
Si	1.714	1.726	1.724	1.727	1.815	1.738	1.739	1.766	1.885	1.787	1.894	1.786	1.812	1.768	
AlIV	0.290	0.270	0.280	0.270	0.180	0.260	0.260	0.230	0.110	0.210	0.110	0.220	0.190	0.240	
AlVI	0.089	0.106	0.101	0.117	0.130	0.115	0.120	0.105	0.032	0.064	0.000	0.147	0.104	0.134	
Ti	0.078	0.081	0.074	0.076	0.050	0.074	0.077	0.071	0.022	0.046	0.014	0.044	0.024	0.049	
FeIII	0.108	0.128	0.138	0.141	0.025	0.000	0.106	0.101	0.094	0.176	0.171	0.037	0.064	0.092	
FeII	0.108	0.116	0.125	0.135	0.252	0.261	0.155	0.166	0.214	0.112	0.159	0.182	0.115	0.147	
Mn	0.010	0.008	0.004	0.005	0.007	0.009	0.005	0.009	0.009	0.011	0.019	0.006	0.005	0.014	
Mg	0.687	0.699	0.673	0.671	0.663	0.691	0.678	0.704	0.744	0.750	0.747	0.736	0.813	0.743	
Ca	0.829	0.822	0.836	0.816	0.822	0.804	0.797	0.797	0.896	0.837	0.876	0.785	0.837	0.761	
Na	0.079	0.071	0.077	0.085	0.061	0.086	0.087	0.075	0.020	0.060	0.050	0.059	0.030	0.072	
K	0.000	0.000	0.000	0.002	0.001	0.000	0.001	0.002	0.000	0.003	0.001	0.000	0.001	0.003	
Cr	0.003	0.004	0.009	0.007		0.004	0.005	0.001	0.002	0.000	0.009	0.006	0.009	0.006	
TOTAL	3.995	4.031	4.041	4.052	4.006	4.041	4.029	4.027	4.027	4.056	4.051	4.009	4.004	4.028	
Wo	47.86	46.57	47.18	46.28	46.65	45.78	45.90	45.09	46.01	44.64	44.85	45.11	45.76	43.67	
En	39.67	39.60	37.98	38.06	37.63	39.36	39.07	39.81	38.18	40.01	38.26	42.31	44.46	42.61	
Fs	12.47	13.82	14.84	15.66	15.72	14.86	15.03	15.10	15.81	15.36	16.89	12.58	9.78	13.71	

SAMPLE	90041I	90041I	90041I	90041I	90041I	90044A	90044A	90044A	90044A	90044A	90044A	90044A	90044A	90044A
Type	Gran core	Gran core	Gran core	Gran core	Gran core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core
SiO2	52.28	48.49	46.44	47.97	50.43	53.43	50.30	53.16	50.42	51.17	53.89	50.36	50.65	53.17
Al2O3	3.50	7.01	9.03	8.22	3.90	5.17	6.97	5.25	6.64	6.68	5.27	6.74	6.90	5.34
TiO2	0.60	1.63	1.77	1.46	0.87	0.27	0.80	0.19	0.87	0.81	0.16	0.72	0.85	0.19
FeO total	3.50	3.89	4.77	3.42	4.45	9.97	4.84	9.65	4.62	4.55	9.90	4.77	4.78	10.16
MnO	0.14	0.10	0.06	0.10	0.10	0.18	0.17	0.29	0.06	0.27	0.29	0.14	0.17	0.32
MgO	16.00	15.14	13.88	15.29	15.18	28.99	14.64	29.49	14.76	14.67	29.11	14.53	14.78	29.34
CaO	23.39	22.39	22.81	22.12	23.48	0.91	20.45	0.92	20.95	20.53	0.99	20.96	20.27	0.85
Na2O	0.50	0.59	0.61	0.65	0.84	0.15	1.07	0.12	1.15	1.06	0.17	1.11	1.12	0.12
K2O	0.03	0.04	0.01	0.00	0.02	0.00	0.02	0.03	0.01	0.01	0.04	0.03	0.00	0.04
Cr2O3	0.69	0.79	0.69	0.81	0.61	0.21	0.45	0.28	0.39	0.59	0.29	0.68	0.56	0.40
Fe2O3	1.66	3.36	4.99	3.80	4.94	0.00	1.62	0.65	2.38	0.37	0.00	2.23	1.24	0.89
FeO	2.00	0.87	0.28	0.00	0.00	9.97	3.38	9.06	2.48	4.21	9.90	2.85	3.66	9.26
TOTAL	100.63	100.06	100.07	100.03	99.87	99.28	99.69	99.36	99.88	100.33	100.11	100.04	100.07	99.93
Si	1.902	1.783	1.720	1.759	1.866	1.891	1.844	1.880	1.846	1.860	1.893	1.845	1.848	1.874
AlIV	0.100	0.220	0.280	0.240	0.130	0.110	0.160	0.120	0.150	0.140	0.110	0.150	0.150	0.130
AlVI	0.050	0.080	0.110	0.120	0.040	0.110	0.140	0.100	0.140	0.150	0.100	0.140	0.150	0.090
Ti	0.016	0.044	0.048	0.039	0.024	0.007	0.021	0.005	0.020	0.021	0.000	0.019	0.023	0.005
FeIII	0.045	0.096	0.137	0.116	0.152	0.000	0.045	0.017	0.065	0.010	0.000	0.060	0.034	0.024
FeII	0.061	0.026	0.009	0.000	0.000	0.295	0.104	0.268	0.076	0.128	0.290	0.085	0.112	0.275
Mn	0.004	0.002	0.002	0.003	0.003	0.005	0.005	0.008	0.001	0.008	0.010	0.004	0.005	0.009
Mg	0.867	0.829	0.765	0.835	0.836	1.529	0.799	1.554	0.806	0.794	1.524	0.792	0.803	1.541
Ca	0.911	0.881	0.904	0.868	0.930	0.034	0.803	0.034	0.821	0.799	0.036	0.822	0.792	0.032
Na	0.035	0.040	0.042	0.045	0.060	0.010	0.075	0.008	0.081	0.074	0.010	0.077	0.079	0.008
K	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.001	0.000	0.001
Cr	0.019	0.022	0.019	0.023	0.017	0.005	0.012	0.007	0.011	0.016	0.010	0.019	0.016	0.011
TOTAL	4.011	4.024	4.036	4.048	4.058	3.996	4.008	4.002	4.017	4.000	3.984	4.014	4.012	4.000
Wo	48.35	48.09	49.81	47.72	48.49	1.83	45.86	1.82	46.44	46.16	1.95	46.73	45.49	1.71
En	46.02	45.25	42.15	45.90	43.59	82.29	45.63	82.97	45.59	45.87	82.38	45.03	46.12	82.32
Fs	5.63	6.66	8.04	6.38	7.92	15.88	8.51	15.22	7.98	7.97	15.68	8.24	8.39	15.97
SAMPLE	90054C	90054C	90054I	90054I	90054I	90054I	90054I	90054I	90054I	90054I	90054I	90054I	90054I	90054I
Type	Pyxite core	Pyxite core	Pyxite oxid	Pyxite oxid	Pyxite core	Pyxite oxid	Pyxite core-	Pyxite exsol	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core	Pyxite core
SiO2	48.42	47.91	48.97	48.33	48.74	48.27	48.75	53.41	47.71	49.08	48.39	48.87	49.07	50.61
Al2O3	8.28	8.62	5.34	6.35	7.75	7.25	6.49	4.99	8.46	7.72	6.60	8.06	8.47	5.69
TiO2	1.43	1.74	1.56	1.55	1.38	1.89	0.98	0.28	1.65	1.44	1.78	1.32	1.67	1.30
FeO total	6.92	6.75	5.74	6.65	6.12	6.05	6.17	10.50	5.74	6.02	7.10	5.86	5.50	5.11
MnO	0.26	0.20	0.15	0.13	0.27	0.15	0.19	0.23	0.21	0.17	0.17	0.20	0.08	0.16
MgO	13.81	13.36	14.88	14.44	14.22	13.70	14.91	29.27	13.98	14.00	13.63	14.17	14.05	15.31
CaO	19.88	20.30	22.22	20.91	20.20	22.07	19.41	1.25	19.99	20.19	21.77	20.26	20.04	21.14
Na2O	1.07	1.04	0.42	0.56	1.07	0.46	0.97	0.11	1.32	1.41	0.82	1.19	1.22	0.54
K2O	0.19	0.02	0.02	0.14	0.04	0.05	0.06	0.00	0.03	0.03	0.03	0.00	0.00	0.02
Cr2O3	0.16	0.10	0.36	0.66	0.43	0.39	0.68	0.44						
Fe2O3	3.94	3.17	3.47	3.70	3.65	1.81	2.66	0.92	4.66	3.97	4.32	3.58	2.01	0.60
FeO	3.37	3.90	2.62	3.31	2.83	4.43	3.78	9.68	1.55	2.44	3.21	2.64	3.68	4.57
TOTAL	100.41	100.05	99.65	99.71	100.20	100.27	98.60	100.48	99.09	100.05	100.28	99.94	100.10	99.86
Si	1.789	1.771	1.815	1.798	1.790	1.780	1.831	1.879	1.773	1.807	1.796	1.798	1.796	1.853
AlIV	0.220	0.230	0.190	0.210	0.210	0.220	0.170	0.130	0.230	0.190	0.200	0.200	0.200	0.150
AlVI	0.133	0.146	0.048	0.068	0.132	0.100	0.117	0.077	0.140	0.144	0.088	0.149	0.165	0.099
Ti	0.039	0.048	0.044	0.043	0.039	0.053	0.028	0.007	0.045	0.039	0.049	0.036	0.045	0.036
FeIII	0.109	0.087	0.096	0.103	0.100	0.050	0.073	0.024	0.129	0.109	0.120	0.081	0.055	0.016
FeII	0.103	0.120	0.080	0.102	0.086	0.136	0.116	0.286	0.048	0.075	0.099	0.006	0.112	0.140
Mn	0.008	0.006	0.005	0.004	0.008	0.005	0.006	0.007	0.006	0.005	0.005	0.008	0.002	0.004
Mg	0.760	0.736	0.822	0.800	0.778	0.753	0.818	1.534	0.774	0.767	0.753	0.777	0.766	0.834
Ca	0.786	0.804	0.882	0.833	0.794	0.872	0.765	0.046	0.796	0.796	0.865	0.798	0.786	0.828
Na	0.075	0.075	0.031	0.040	0.078	0.033	0.070	0.007	0.095	0.098	0.058	0.084	0.086	0.038
K	0.009	0.001	0.001	0.007	0.002	0.002	0.003	0.000	0.001	0.001	0.001	0.000	0.000	0.000
Cr	0.004	0.003	0.011	0.019	0.013	0.011	0.020	0.012						
TOTAL	4.034	4.026	4.024	4.026	4.029	4.015	4.017	4.008	4.037	4.031	4.034	4.027	4.013	3.998
Wo	44.73	46.01	46.92	45.31	45.17	48.15	43.19	2.43	45.56	45.56	47.09	48.01	45.72	45.54
En	43.22	42.14	43.71	43.53	44.25	41.57	46.15	81.16	44.30	43.90	40.99	46.75	44.56	45.87
Fs	12.06	11.85	9.36	11.16	10.58	10.28	10.67	16.41	10.13	10.53	11.92	5.23	9.71	8.58

SAMPLE	90044A	90044A	90044A	90048B	90048B	90048B	90048B	90048B
Type	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite
	core	core	core	core	core	core	core	core
SiO ₂	52.49	49.57	49.74	48.05	48.18	49.22	46.55	48.62
Al ₂ O ₃	5.31	7.14	6.98	7.41	7.13	7.25	9.05	7.88
TiO ₂	0.25	0.95	0.83	1.96	1.82	1.59	2.00	1.53
FeO total	10.33	4.81	4.69	8.43	7.92	7.69	6.58	7.09
MnO	0.38	0.19	0.04	0.19	0.26	0.25	0.15	0.12
MgO	29.66	14.66	14.79	12.50	12.99	12.48	12.71	13.66
CaO	0.96	21.11	20.46	20.54	20.50	20.57	21.39	20.23
Na ₂ O	0.10	1.26	1.20	1.15	1.07	1.10	1.02	1.05
K ₂ O	0.02	0.02	0.00	0.00	0.02	0.02	0.02	0.05
Cr ₂ O ₃	0.34	0.55	0.58	0.20	0.01	0.72	0.44	0.67
Fe ₂ O ₃	2.59	4.38	2.99	3.80	3.87	1.63	4.66	3.41
FeO	8.00	0.86	2.00	5.01	4.44	6.22	2.39	4.02

TOTAL	99.83	100.27	99.33	100.43	99.90	100.89	99.90	100.89
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Si	1.859	1.816	1.832	1.786	1.795	1.813	1.732	1.785
AlIV	0.140	0.180	0.170	0.210	0.200	0.190	0.270	0.210
AlVI	0.080	0.130	0.130	0.114	0.113	0.124	0.126	0.131
Ti	0.006	0.026	0.023	0.054	0.051	0.044	0.056	0.042
FeIII	0.069	0.120	0.082	0.105	0.107	0.045	0.129	0.093
FeII	0.236	0.026	0.061	0.154	0.137	0.191	0.074	0.122
Mn	0.011	0.006	0.001	0.005	0.008	0.007	0.004	0.003
Mg	1.564	0.800	0.811	0.692	0.720	0.685	0.704	0.747
Ca	0.036	0.828	0.807	0.817	0.818	0.811	0.852	0.795
Na	0.007	0.089	0.085	0.082	0.077	0.078	0.074	0.074
K	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002
Cr	0.009	0.015	0.017	0.005	0.000	0.020	0.013	0.019

TOTAL	4.017	4.036	4.019	4.024	4.026	4.009	4.034	4.023
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Wo	1.89	46.67	45.83	46.21	45.90	46.82	48.44	45.25
En	82.10	45.10	46.05	39.14	40.40	39.55	40.02	42.52
Fs	16.01	8.23	8.12	14.65	13.69	13.63	11.54	12.24

SAMPLE	90054I	90054I	90054K	90054K	90054K	90054K	90054K	90054K
Type	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite
	core	core	core	core	core	core	core	core
SiO ₂	48.87	50.25	46.83	47.46	47.70	47.09	47.79	46.90
Al ₂ O ₃	8.44	7.74	8.21	8.36	7.18	8.45	8.41	8.32
TiO ₂	1.36	1.37	2.05	2.05	1.98	1.95	1.74	1.87
FeO total	5.52	5.33	6.27	7.51	6.70	7.26	7.20	7.64
MnO	0.20	0.12	0.14	0.22	0.16	0.18	0.22	0.28
MgO	14.03	14.13	13.19	12.43	13.35	12.81	13.13	12.92
CaO	20.15	20.60	21.80	20.54	22.66	21.06	20.88	20.88
Na ₂ O	1.33	1.32	0.45	0.99	0.42	1.00	0.87	0.84
K ₂ O	0.06	0.04	0.04	0.00	0.03	0.02	0.01	0.03
Cr ₂ O ₃			0.03	0.17	0.19	0.04	0.12	0.20

Fe ₂ O ₃	3.70	2.19	2.49	2.63	3.24	4.50	4.09	4.52
FeO	2.19	3.36	4.02	5.14	3.78	3.21	3.52	3.58

TOTAL	99.96	100.90	99.00	99.74	100.35	99.86	100.37	99.88
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Si	1.794	1.824	1.754	1.768	1.771	1.754	1.758	1.750
AlIV	0.210	0.180	0.250	0.230	0.230	0.250	0.240	0.250
AlVI	0.155	0.151	0.112	0.137	0.084	0.121	0.128	0.115
Ti	0.037	0.037	0.057	0.057	0.055	0.055	0.049	0.053
FeIII	0.101	0.060	0.070	0.073	0.090	0.125	0.113	0.126
FeII	0.067	0.102	0.125	0.159	0.117	0.099	0.108	0.111
Mn	0.006	0.003	0.004	0.006	0.004	0.005	0.006	0.009
Mg	0.766	0.764	0.736	0.690	0.738	0.710	0.727	0.718
Ca	0.792	0.801	0.874	0.819	0.901	0.839	0.831	0.834
Na	0.096	0.092	0.032	0.071	0.030	0.073	0.064	0.062
K	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.001
Cr			0.001	0.005	0.005	0.001	0.003	0.006

TOTAL	4.026	4.015	4.016	4.015	4.026	4.032	4.027	4.035
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Wo	45.89	46.38	48.42	47.04	48.81	47.32	46.71	46.62
En	44.38	44.24	40.78	39.63	39.98	40.05	40.87	40.13
Fs	9.73	9.38	10.80	13.33	11.21	12.63	12.42	13.25

A3.3 Mount Murphy Xenolith Mineral Analyses: plagioclase

Sample Type	90041A Gran core	90041A Gran core	90041A Gran core	90041A Gran core	90041A Gran core	90041A Gran core	90041A Gran vein	90041A Gran core	90041A Gran melt	90041B Gran core	90041B Gran core	90041B Gran core	90041B Gran core	90041B Gran core
SiO ₂	49.73	49.63	49.70	48.73	49.83	48.63	49.63	47.92	51.11	47.06	44.99	47.87	45.94	45.91
Al ₂ O ₃	31.59	31.61	31.94	32.33	31.47	32.09	31.83	33.11	30.06	32.71	34.95	33.34	34.53	34.50
TiO ₂	0.09	0.05	0.01	0.05	0.07	0.08	0.14	0.00	0.03	0.05	0.00	0.03	0.00	0.00
FeO	0.19	0.22	0.18	0.25	0.18	0.08	0.19	0.23	0.19	0.14	0.13	0.20	0.12	0.12
MnO	0.02	0.06	0.05	0.03	0.00	0.07	0.04	0.01	0.00	0.22	0.10	0.02	0.01	0.10
MgO	0.07	0.04	0.05	0.11	0.04	0.00	0.01	0.03	0.01	0.04	0.03	0.06	0.01	0.02
CaO	14.66	14.93	14.46	14.88	14.14	15.44	14.10	15.70	14.28	15.94	18.12	15.93	18.45	17.87
Na ₂ O	3.69	3.63	3.65	3.65	3.78	3.34	3.75	2.97	4.27	3.16	1.31	3.10	1.50	1.58
K ₂ O	0.05	0.08	0.00	0.12	0.06	0.09	0.08	0.06	0.07	0.04	0.04	0.04	0.04	0.07
TOTAL	100.09	100.25	100.04	100.14	99.57	99.80	99.78	100.04	100.02	99.35	99.66	100.59	100.60	100.17
Si	2.269	2.265	2.269	2.232	2.282	2.235	2.268	2.199	2.334	2.178	2.081	2.184	2.108	2.112
Al	1.698	1.700	1.718	1.745	1.698	1.738	1.714	1.790	1.618	1.784	1.905	1.792	1.867	1.870
Ti	0.003	0.002	0.000	0.002	0.002	0.003	0.005	0.000	0.001	0.001	0.000	0.001	0.000	0.000
Fe	0.007	0.009	0.007	0.009	0.007	0.003	0.007	0.001	0.007	0.005	0.004	0.007	0.004	0.004
Mn	0.001	0.002	0.002	0.001	0.000	0.003	0.002	0.000	0.000	0.006	0.003	0.000	0.000	0.004
Mg	0.005	0.002	0.004	0.008	0.003	0.000	0.001	0.002	0.001	0.002	0.002	0.004	0.000	0.001
Ca	0.716	0.730	0.707	0.730	0.694	0.760	0.690	0.771	0.699	0.789	0.897	0.778	0.906	0.880
Na	0.326	0.320	0.323	0.324	0.335	0.297	0.332	0.264	0.378	0.283	0.117	0.273	0.133	0.140
K	0.003	0.005	0.000	0.007	0.004	0.005	0.005	0.004	0.004	0.002	0.002	0.002	0.002	0.004
TOTAL	5.027	5.034	5.031	5.037	5.025	5.042	5.023	5.031	5.041	5.032	5.011	5.041	5.020	5.015
An	68.54	69.19	68.64	68.80	67.18	71.52	67.22	74.26	64.66	73.46	88.29	73.88	87.03	85.94
Ab	31.20	30.38	31.36	30.55	32.48	27.97	32.31	25.39	34.96	26.35	11.52	25.93	12.78	13.67
Or	0.26	0.44	0.00	0.65	0.34	0.51	0.47	0.36	0.38	0.19	0.20	0.19	0.19	0.39

Sample Type	90041I Gran core	90041I Gran core	90041I Gran core	90041I Gran oxid	90041I Gran oxid	90041A Pyxite spinel r	90048B Pyxite core	90048B Pyxite oxid	90048B Pyxite melt	90048B Pyxite melt	90048D Pyxite melt	90048D Pyxite oxid	90048D Pyxite core	90048D Pyxite core
SiO ₂	48.03	48.79	47.61	56.83	45.75	53.24	52.63	50.36	50.51	49.69	50.86	52.44	52.94	52.26
Al ₂ O ₃	33.49	32.41	32.77	25.60	33.43	28.57	29.08	30.37	30.44	31.15	29.62	28.84	29.01	29.67
TiO ₂	0.01	0.07	0.03	0.11	0.03	0.11	0.07	0.16	0.19	0.17	0.37	0.31	0.19	0.18
FeO	0.12	0.13	0.15	1.00	0.82	0.82	0.58	0.61	0.92	1.09	0.97	0.88	0.56	0.43
MnO	0.00	0.05	0.04	0.01	0.09	0.07	0.01	0.03	0.05	0.08	0.11	0.09	0.17	0.12
MgO	0.04	0.05	0.06	0.22	0.14	0.21	0.08	0.14	0.14	0.15	0.17	0.07	0.08	0.04
CaO	15.54	15.55	16.66	8.65	17.40	11.07	11.18	14.44	13.54	13.31	13.04	11.77	11.66	12.17
Na ₂ O	3.19	2.77	2.12	5.63	1.62	5.99	5.88	3.56	4.07	4.26	4.49	5.26	4.99	5.39
K ₂ O	0.03	0.07	0.10	0.60	0.07	0.26	0.30	0.13	0.21	0.21	0.23	0.40	0.30	0.33
TOTAL	100.45	99.88	99.54	98.66	99.35	100.33	99.81	99.80	100.07	100.11	99.86	100.06	99.90	100.58
Si	2.193	2.233	2.194	2.591	2.129	2.416	2.399	2.306	2.313	2.275	2.332	2.391	2.407	2.371
Al	1.802	1.748	1.780	1.375	1.833	1.527	1.562	1.638	1.642	1.680	1.602	1.549	1.554	1.587
Ti	0.000	0.002	0.001	0.004	0.001	0.003	0.002	0.005	0.006	0.005	0.012	0.010	0.007	0.006
Fe	0.004	0.004	0.006	0.038	0.032	0.030	0.022	0.022	0.034	0.040	0.036	0.032	0.021	0.016
Mn	0.000	0.002	0.001	0.000	0.004	0.002	0.000	0.001	0.001	0.002	0.004	0.003	0.007	0.005
Mg	0.002	0.003	0.004	0.015	0.010	0.014	0.005	0.009	0.009	0.010	0.001	0.005	0.005	0.002
Ca	0.760	0.762	0.822	0.422	0.867	0.538	0.545	0.708	0.664	0.652	0.641	0.575	0.568	0.592
Na	0.282	0.245	0.199	0.497	0.146	0.526	0.518	0.315	0.361	0.377	0.400	0.464	0.440	0.474
K	0.001	0.003	0.006	0.035	0.004	0.015	0.017	0.007	0.012	0.012	0.013	0.022	0.017	0.019
TOTAL	5.044	5.002	5.003	4.978	5.026	5.071	5.070	5.011	5.042	5.053	5.041	5.052	5.025	5.071
An	72.87	75.45	80.83	44.24	85.28	49.86	50.46	68.74	64.03	62.63	60.82	54.17	55.42	54.55
Ab	27.04	24.26	18.59	52.11	14.33	48.75	47.96	30.58	34.81	36.22	37.95	43.75	42.91	43.70
Or	0.10	0.30	0.58	3.66	0.39	1.39	1.57	0.68	1.16	1.15	1.23	2.07	1.67	1.75

Sample Type	90041B Gran core	90041B Gran core	90041B Gran core	90041B Gran core	90041C Gran core	90041C Gran core	90041C Gran core	90041C Gran core	90041C Gran core	90041C Gran core	90041G Gran core	90041G Gran core	90041G Gran core	90041G Gran core
SiO2	46.67	47.98	47.95	48.38	48.53	48.94	48.44	48.18	49.19	46.57	45.48	49.16	48.66	48.80
Al2O3	33.26	32.89	32.86	32.90	33.33	32.38	32.89	33.38	32.21	34.00	34.37	32.30	32.34	32.49
TiO2	0.00	0.01	0.06	0.03	0.04	0.04	0.07	0.00	0.00	0.02	0.05	0.00	0.00	0.09
FeO	0.10	0.13	0.04	0.07	0.12	0.22	0.11	0.11	0.17	0.45	0.24	0.21	0.22	0.16
MnO	0.13	0.10	0.08	0.16	0.04	0.01	0.04	0.07	0.08	0.00	0.01	0.07	0.05	0.05
MgO	0.05	0.04	0.05	0.04	0.03	0.07	0.08	0.06	0.06	0.06	0.06	0.00	0.07	0.05
CaO	16.68	15.81	15.82	15.78	15.47	15.72	15.64	15.42	15.75	17.06	17.87	15.30	15.15	14.88
Na2O	2.68	3.06	3.13	2.99	2.67	2.90	2.80	2.86	2.96	1.87	1.72	3.08	3.49	3.35
K2O	0.02	0.13	0.08	0.06	0.09	0.06	0.14	0.08	0.07	0.07	0.06	0.09	0.09	0.06
TOTAL	99.58	100.14	100.06	100.40	100.32	100.33	100.20	100.15	100.50	100.10	99.86	100.21	100.06	99.93

Si	2.156	2.200	2.200	2.209	2.213	2.235	2.215	2.200	2.243	2.142	2.103	2.244	2.230	2.232
Al	1.810	1.777	1.777	1.770	1.791	1.742	1.772	1.798	1.731	1.843	1.872	1.737	1.746	1.751
Ti	0.000	0.000	0.002	0.001	0.001	0.001	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.003
Fe	0.003	0.004	0.001	0.002	0.004	0.008	0.004	0.004	0.006	0.016	0.009	0.007	0.008	0.006
Mn	0.005	0.003	0.003	0.005	0.000	0.000	0.001	0.003	0.003	0.000	0.000	0.002	0.001	0.001
Mg	0.003	0.002	0.003	0.002	0.000	0.000	0.005	0.003	0.004	0.004	0.004	0.000	0.004	0.003
Ca	0.825	0.776	0.777	0.771	0.755	0.769	0.765	0.755	0.769	0.840	0.885	0.748	0.744	0.728
Na	0.239	0.272	0.278	0.264	0.236	0.256	0.248	0.253	0.261	0.166	0.154	0.272	0.310	0.314
K	0.001	0.007	0.004	0.003	0.004	0.003	0.008	0.004	0.004	0.004	0.004	0.005	0.005	0.003
TOTAL	5.042	5.041	5.045	5.027	5.004	5.014	5.020	5.020	5.021	5.015	5.032	5.015	5.048	5.041

An	77.46	73.55	73.37	74.28	75.88	74.81	74.93	74.60	74.37	83.17	84.89	72.98	70.25	69.67
Ab	22.44	25.78	26.25	25.43	23.72	24.90	24.29	25.00	25.24	16.44	14.78	26.54	29.27	30.05
Or	0.09	0.66	0.38	0.29	0.40	0.29	0.78	0.40	0.39	0.40	0.34	0.49	0.47	0.29

Sample Type	90048E Gran core	90048E Gran melt	90048E Gran melt	90048E Gran core	90048E Gran core	90048E Gran melt	90048E Gran core	90048E Gran core	90048F Gran core	90048F Gran core	90048F Gran core	90048F Gran core	90048G Gran core-rim	90048G Gran core
SiO2	53.44	52.64	53.12	49.35	53.05	52.93	52.59	53.32	52.98	53.20	53.59	55.09	49.46	55.19
Al2O3	30.40	29.09	29.45	32.10	29.99	29.21	29.78	28.85	29.49	29.27	29.17	28.08	30.76	27.87
TiO2	0.04	0.27	0.28	0.18	0.08	0.28	0.06	0.11	0.12	0.10	0.18	0.02	0.22	0.00
FeO	0.25	0.74	0.71	0.51	0.17	0.91	0.20	0.39	0.43	0.39	0.45	0.07	0.68	0.17
MnO	0.02	0.00	0.00	0.02	0.00	0.00	0.09	0.05	0.00	0.10	0.00	0.15	0.00	0.11
MgO	0.05	0.31	0.08	0.06	0.06	0.12	0.02	0.07	0.08	0.14	0.06	0.00	0.15	0.03
CaO	12.31	12.26	12.05	15.08	12.34	12.31	12.65	11.45	11.12	11.02	11.00	10.18	14.16	10.17
Na2O	4.48	4.05	4.08	2.67	4.16	4.07	4.14	4.53	5.56	5.40	5.14	6.70	4.11	6.84
K2O	0.25	0.21	0.21	0.11	0.28	0.25	0.24	0.29	0.33	0.33	0.41	0.36	0.11	0.39
TOTAL	101.24	99.57	99.98	100.08	100.12	100.08	99.77	99.05	100.12	99.94	100.00	100.65	99.65	100.75

Si	2.392	2.400	2.407	2.255	2.399	2.403	2.392	2.436	2.403	2.415	2.427	2.479	2.273	2.481
Al	1.604	1.562	1.573	1.729	1.599	1.562	1.596	1.553	1.576	1.566	1.557	1.489	1.665	1.476
Ti	0.001	0.010	0.010	0.006	0.003	0.010	0.002	0.004	0.004	0.003	0.006	0.001	0.008	0.000
Fe	0.009	0.028	0.027	0.020	0.006	0.036	0.008	0.015	0.016	0.014	0.017	0.003	0.026	0.006
Mn	0.001	0.000	0.000	0.001	0.000	0.000	0.004	0.002	0.000	0.003	0.000	0.006	0.000	0.004
Mg	0.003	0.021	0.006	0.004	0.004	0.009	0.001	0.005	0.005	0.009	0.004	0.000	0.010	0.002
Ca	0.591	0.598	0.585	0.738	0.598	0.599	0.616	0.560	0.540	0.536	0.534	0.491	0.697	0.489
Na	0.389	0.358	0.358	0.237	0.365	0.358	0.365	0.401	0.488	0.475	0.452	0.584	0.366	0.596
K	0.014	0.012	0.012	0.006	0.016	0.015	0.014	0.017	0.019	0.019	0.024	0.020	0.006	0.022
TOTAL	5.004	4.989	4.978	4.996	4.990	4.992	4.998	4.993	5.051	5.040	5.020	5.072	5.050	5.076

An	59.46	61.78	61.26	75.23	61.08	61.63	61.91	57.26	51.56	52.02	52.90	44.83	65.19	44.18
Ab	39.13	36.98	37.49	24.16	37.28	36.83	36.68	41.00	46.64	46.12	44.75	53.34	34.22	53.80
Or	1.41	1.24	1.26	0.61	1.63	1.54	1.41	1.74	1.80	1.85	2.35	1.83	0.59	2.02

Sample	90041G	90041G	90041I	90041I	90041I	90041I
Type	Gran	Gran	Gran	Gran	Gran	Gran
	core	core	core	core	core	core
SiO2	45.64	47.27	47.30	48.15	48.28	47.50
Al2O3	34.84	33.43	33.05	32.44	33.03	32.99
TiO2	0.04	0.05	0.10	0.00	0.04	0.05
FeO	0.17	0.20	0.29	0.29	0.13	0.13
MnO	0.10	0.12	0.03	0.05	0.03	0.06
MgO	0.00	0.05	0.00	0.05	0.08	0.01
CaO	17.38	15.84	15.89	15.71	15.04	16.20
Na2O	1.83	3.07	2.95	3.12	3.30	3.03
K2O	0.04	0.07	0.11	0.06	0.07	0.03
TOTAL	100.04	100.10	99.71	99.87	100.00	100.01
Si	2.101	2.170	2.178	2.213	2.212	2.185
Al	1.899	1.809	1.793	1.756	1.783	1.788
Ti	0.001	0.001	0.003	0.000	0.001	0.001
Fe	0.006	0.070	0.010	0.010	0.005	0.004
Mn	0.004	0.005	0.001	0.002	0.001	0.002
Mg	0.000	0.003	0.000	0.003	0.005	0.000
Ca	0.856	0.778	0.783	0.773	0.737	0.798
Na	0.163	0.273	0.262	0.277	0.292	0.269
K	0.002	0.004	0.006	0.003	0.004	0.001
TOTAL	5.022	5.113	5.036	5.037	5.040	5.048
An	83.84	73.74	74.50	73.41	71.35	74.72
Ab	15.96	25.88	24.93	26.31	28.27	25.19
Or	0.20	0.38	0.57	0.28	0.39	0.09

Sample	90048G	90048G	90054I	90054I	90054I	90054I	90054I
Type	Gran	Gran	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite
	core	core	core	core	oxld	oxld	spinel r
SiO2	54.02	55.31	51.73	52.53	52.24	54.41	52.81
Al2O3	28.74	27.45	30.12	28.91	28.14	28.14	28.60
TiO2	0.03	0.04	0.17	0.10	0.34	0.21	0.77
FeO	0.20	0.17	0.70	0.71	0.62	0.62	0.80
MnO	0.03	0.10	0.00	0.06	0.00	0.12	0.09
MgO	0.11	0.11	0.14	0.11	0.09	0.12	0.08
CaO	10.60	9.57	12.70	11.72	11.19	11.01	12.60
Na2O	6.80	7.01	4.95	5.59	5.28	5.33	4.14
K2O	0.30	0.35	0.15	0.19	0.17	0.26	0.22
TOTAL	100.81	100.11	100.66	99.92	98.07	100.21	100.10
Si	2.435	2.501	2.338	2.398	2.455	2.459	2.401
Al	1.527	1.462	1.620	1.555	1.510	1.499	1.532
Ti	0.001	0.001	0.005	0.003	0.012	0.007	0.026
Fe	0.007	0.006	0.026	0.026	0.023	0.024	0.030
Mn	0.001	0.004	0.000	0.002	0.000	0.005	0.003
Mg	0.007	0.007	0.009	0.007	0.006	0.008	0.005
Ca	0.512	0.463	0.620	0.573	0.542	0.533	0.613
Na	0.594	0.614	0.437	0.494	0.463	0.467	0.365
K	0.017	0.020	0.008	0.010	0.009	0.015	0.012
TOTAL	5.101	5.078	5.063	5.068	5.020	5.016	4.987
An	45.58	42.21	58.22	53.20	53.45	52.52	61.92
Ab	52.87	55.97	41.03	45.87	45.66	45.98	36.82
Or	1.55	1.82	0.75	0.93	0.89	1.50	1.25

A3.3 Mount Murphy Xenolith Mineral Analyses: oxides

Sample Type	90041A Gran melt	90041A Gran melt	90041A Gran symp	90041C Gran melt	90041C Gran core	90041I Gran oxid	90041I Gran oxid	90044A Pyxite core-	90044A Pyxite rim	90048B Pyxite core	90048B Pyxite core	90048B Pyxite core	90048B Pyxite core	90048B Pyxite oxid
SiO2	0.72	0.60	0.39	0.28	0.24	0.23	0.11	0.19	3.29	0.71	0.36	0.22	0.88	0.25
Al2O3	1.14	1.81	2.31	0.91	16.22	0.18	0.05	60.14	2.85	0.14	0.14	50.30	0.39	8.75
TiO2	9.27	8.86	0.16	11.03	2.35	0.05	0.08	0.22	3.09	0.09	0.05	1.25	0.04	21.00
Fe2O3	47.40	47.59	74.62	45.03	45.91	84.06	79.86	0.59	42.41	62.94	67.45	6.52	61.09	14.61
FeO	31.17	30.23	4.00	36.53	27.95	1.25	8.56	13.17	31.08	27.70	30.29	20.42	28.96	38.02
MnO	0.49	0.62	0.66	0.13	0.04	0.28	0.24	0.10	0.32	0.03	0.12	0.14	0.01	0.45
MgO	4.79	4.86	17.79	2.39	4.61	20.60	15.29	18.50	2.89	0.41	0.17	13.36	0.25	7.86
CaO	0.31	0.45	0.06	0.38	0.59	0.09	0.07	0.10	0.54	0.45	0.15	0.14	0.22	0.11
Cr2O3	0.19	0.09	0.04	0.08	0.28	0.03	0.17	6.10	5.81	0.06	0.24	7.56	0.19	3.49
NiO	0.27	0.24	0.42	0.02	0.06	0.25	0.32			1.33	0.50	0.20	0.34	0.15
TOTAL	95.75	95.35	100.45	96.77	98.23	107.01	104.75	99.11	92.28	93.87	99.46	100.10	92.37	94.69
Si	0.027	0.023	0.013	0.011	0.008	0.007	0.003	0.005	0.129	0.029	0.014	0.006	0.037	0.009
Al	0.051	0.081	0.091	0.041	0.661	0.007	0.002	1.845	0.132	0.007	0.006	1.636	0.019	0.367
Ti	0.265	0.253	0.004	0.318	0.061	0.001	0.002	0.004	0.091	0.003	0.001	0.026	0.001	0.562
FeIII	1.358	1.363	1.874	1.299	1.193	1.976	1.983	0.011	1.249	1.927	1.956	0.135	1.899	0.392
FeII	0.992	0.962	0.112	1.172	0.847	0.033	0.236	0.257	1.018	0.943	0.980	0.471	1.001	1.132
Mn	0.016	0.020	0.019	0.004	0.001	0.007	0.007	0.002	0.011	0.001	0.004	0.003	0.000	0.014
Mg	0.272	0.276	0.886	0.137	0.237	0.959	0.752	0.717	0.168	0.025	0.010	0.549	0.015	0.417
Ca	0.013	0.018	0.002	0.016	0.022	0.003	0.002	0.003	0.023	0.020	0.006	0.004	0.010	0.004
Cr	0.006	0.003	0.001	0.002	0.008	0.001	0.004	0.126	0.180	0.002	0.007	0.165	0.006	0.098
Ni	0.000	0.000	0.000	0.001	0.002	0.006	0.009			0.044	0.015	0.004	0.011	0.004
TOTAL	3.000	2.999	3.001	3.001	3.040	3.000	3.000	2.970	3.001	3.001	2.999	2.999	2.999	2.999

Sample Type	90048C Gran oxid	90054C Pyxite core-	90054C Pyxite rim	90054C Pyxite core	90054C Pyxite core	90054I Pyxite oxid	90054I Pyxite oxid	90054I Pyxite oxid	90054I Pyxite oxid c-	90054I Pyxite oxid r	90054I Pyxite core	90054I Pyxite oxid	90054I Pyxite core	90054I Pyxite oxid
SiO2	0.02	0.15	0.04	1.00	3.18	0.19	6.05	0.48	0.20	1.12	0.36	0.09	0.44	0.92
Al2O3	0.65	58.83	0.13	0.54	7.96	1.48	0.89	1.43	54.93	5.29	48.69	27.77	56.19	3.12
TiO2	51.77	0.54	0.00	0.23	11.88	0.11	0.16	0.49	1.80	36.63	0.85	0.37	0.27	0.84
Fe2O3	7.52	7.67	47.01	55.02	35.17	76.85	53.72	73.99	3.14	19.24	7.28	10.49	6.54	80.65
FeO	32.92	16.74	19.52	0.00	41.03	6.44	31.78	1.61	17.13	25.99	16.33	11.05	13.92	
MnO	0.09	0.21	0.21	0.20	0.43	0.64	0.29	0.42	0.20	0.16	0.15	0.13	0.19	0.22
MgO	7.06	16.50	0.14	0.63	3.95	16.00	3.87	18.91	15.93	4.12	16.20	12.25	16.76	0.74
CaO	0.08	0.02	0.11	0.66	1.37	0.28	0.19	0.21	0.23	0.43	0.17	0.27	0.08	0.30
Cr2O3	0.23	1.15	0.30	32.00	0.49	0.11	0.19	0.09	5.17	2.47	12.26	17.80		
NiO	0.06	0.20	1.42	28.17	0.39	0.40	0.42	0.39	0.28	0.23	0.23	0.24		
TOTAL	100.38	102.01	68.87	118.45	105.85	102.49	97.55	98.02	99.00	93.68	102.52	80.47	94.39	86.78
Si	0.000	0.004	0.000	0.045	0.105	0.006	0.224	0.016	0.005	0.028	0.010	0.003	0.012	
Al	0.018	1.806	0.009	0.025	0.310	0.058	0.039	0.057	1.743	0.156	1.539	1.181	1.829	
Ti	0.921	0.011	0.000	0.008	0.296	0.003	0.004	0.012	0.036	0.689	0.017	0.010	0.006	
FeIII	0.134	0.141	1.974	1.855	0.875	1.921	1.499	1.883	0.064	0.364	0.147	0.285	0.136	
FeII	0.631	0.365	0.911	0.000	1.135	0.179	0.985	0.045	0.386	0.544	0.366	0.333	0.321	
Mn	0.018	0.005	0.010	0.005	0.012	0.018	0.009	0.012	0.004	0.003	0.003	0.004	0.005	
Mg	0.249	0.641	0.012	0.042	0.195	0.792	0.214	0.953	0.639	0.154	0.647	0.659	0.689	
Ca	0.002	0.000	0.007	0.002	0.048	0.010	0.008	0.007	0.007	0.011	0.005	0.010	0.002	
Cr	0.004	0.024	0.013	0.011	0.013	0.003	0.006	0.002	0.110	0.049	0.260	0.508		
Ni	0.001	0.004	0.064	1.015	0.010	0.011	0.012	0.011	0.006	0.005	0.005	0.007		
TOTAL	1.978	3.001	3.000	3.008	2.999	3.001	3.000	2.998	3.000	2.993	2.999	3.000	3.000	6.000

Sample Type	90048B Pyxite oxid	90048D Pyxite melt	90048D Pyxite melt	90048D Pyxite melt	90048D Pyxite core	90048D Pyxite core	90048E Gran core	90048E Gran core	90048F Gran oxid	90048F Gran oxid	90048G Gran oxid c-	90048G Gran oxid r
SiO2	0.46	0.17	0.13	0.29	0.12	0.13	0.11	0.12	0.24	0.02	0.01	0.08
Al2O3	7.76	9.85	4.96	8.84	9.39	8.75	7.02	7.18	8.85	0.49	0.49	5.82
TiO2	17.15	19.09	25.11	10.26	15.86	16.36	18.80	22.72	17.45	49.14	52.70	23.30
Fe2O3	18.05	23.67	17.13	42.73	30.37	29.47	35.12	24.43	27.04	14.26	6.19	21.43
FeO	41.99	38.75	45.02	29.70	37.14	37.63	31.84	29.29	37.53	28.88	31.81	43.14
MnO	0.19	0.28	0.36	0.56	0.22	0.42	0.34	0.33	0.63	0.39	0.63	0.53
MgO	3.05	7.59	6.43	7.91	6.66	6.44	5.66	6.75	6.84	8.26	8.31	6.77
CaO	0.23	0.05	0.13	0.25	0.11	0.05	0.01	0.08	0.05	0.07	0.07	0.09
Cr2O3	5.20	0.76	1.10	0.16	0.82	1.18	0.92	3.43	0.29	0.13	0.02	0.21
NiO	0.11	0.08	0.18	0.00	0.11	0.11	0.02	0.08	0.08	0.05	0.05	0.09
TOTAL	94.19	100.29	100.55	100.69	100.80	100.53	99.85	94.40	99.00	101.69	100.28	101.46

Si	0.017	0.006	0.004	0.010	0.005	0.004	0.004	0.004	0.008	0.000	0.000	0.003
Al	0.341	0.393	0.203	0.355	0.377	0.354	0.176	0.183	0.361	0.014	0.014	0.235
Ti	0.482	0.486	0.655	0.262	0.407	0.422	0.737	0.909	0.454	0.866	0.938	0.601
FeIII	0.507	0.603	0.447	1.097	0.779	0.761	0.880	0.624	0.705	0.251	0.110	0.553
FeII	1.311	1.097	1.307	0.842	1.059	1.080	0.886	0.832	1.087	0.566	0.629	1.236
Mn	0.006	0.008	0.011	0.016	0.006	0.012	0.010	0.010	0.019	0.008	0.013	0.015
Mg	0.169	0.303	0.333	0.401	0.338	0.330	0.281	0.341	0.353	0.288	0.293	0.346
Ca	0.009	0.002	0.005	0.009	0.004	0.002	0.000	0.003	0.002	0.002	0.002	0.003
Cr	0.154	0.100	0.030	0.004	0.022	0.032	0.024	0.092	0.008	0.002	0.000	0.006
Ni	0.003	0.002	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.003	0.001	0.002
TOTAL	2.999	3.000	3.000	3.000	3.000	3.000	3.000	3.000	2.999	2.000	2.000	3.000

Sample Type	90054I Pyxite core	90054I Pyxite core	90054I Pyxite core	90054K Pyxite core-	90054K Pyxite rim	90054K Pyxite core	90054K Pyxite core	90054K Pyxite oxid c-	90054K Pyxite oxid r	90054K Pyxite core	90054K Pyxite core	90054K Pyxite core
SiO2	0.13	0.40	1.25	0.18	0.86	0.20	0.22	0.26	0.49	0.19	0.17	0.11
Al2O3	58.39	43.66	0.72	63.36	10.63	64.45	59.13	64.57	43.61	59.16	58.33	59.44
TiO2	0.74	1.18	0.34	0.33	3.36	0.69	0.75	0.65	1.16	0.90	0.86	0.29
Fe2O3	3.51	9.42	52.91	3.20	48.65	0.00	6.01	0.00	23.44	4.73	5.65	5.73
FeO	14.43	12.70	0.00	10.47	26.75	15.31	19.31	19.35	21.90	19.69	19.04	19.11
MnO	0.13	0.13	0.00	0.23	0.23	0.22	0.15	0.13	0.16	0.17	0.09	0.15
MgO	16.69	13.93	0.48	20.37	5.60	16.03	15.10	12.99	12.61	14.64	14.94	14.65
CaO	0.05	0.33	0.34	0.08	0.32	0.08	0.11	0.10	0.32	0.12	0.06	0.03
Cr2O3			0.11	0.42	0.25	0.73	0.83	1.10	0.90	0.76	0.91	0.46
NiO			29.38	0.23	0.23	0.23	0.16	0.16	0.04	0.16	0.21	0.25
TOTAL	94.06	81.74	85.53	98.86	96.89	97.93	101.78	99.31	104.63	100.51	100.26	100.21

Si	0.004	0.013	0.056	0.005	0.031	0.005	0.006	0.007	0.014	0.005	0.004	0.003
Al	0.015	1.684	0.038	1.908	0.447	1.992	1.823	2.010	1.418	1.844	1.825	1.859
Ti	0.331	0.029	0.012	0.006	0.090	0.014	0.015	0.013	0.024	0.018	0.017	0.006
FeIII	1.890	0.232	1.784	0.062	1.305	0.000	0.118	0.000	0.487	0.094	0.113	0.114
FeII	0.072	0.348	0.000	0.224	0.797	0.340	0.422	0.427	0.505	0.435	0.423	0.424
Mn	0.003	0.003	0.000	0.005	0.007	0.005	0.003	0.003	0.004	0.004	0.002	0.003
Mg	0.683	0.679	0.032	0.775	0.298	0.626	0.588	0.511	0.519	0.577	0.591	0.579
Ca	0.001	0.012	0.016	0.002	0.012	0.002	0.003	0.003	0.009	0.003	0.002	0.001
Cr			0.004	0.009	0.007	0.015	0.017	0.023	0.020	0.016	0.019	0.010
Ni			1.058	0.004	0.007	0.004	0.003	0.003	0.001	0.003	0.005	0.001
TOTAL	2.999	3.000	3.000	3.000	3.001	3.003	2.998	3.000	3.001	2.999	3.001	3.000

A3.3 Mount Murphy Xenolith Mineral Analyses: glasses

Sample	90048E	90048E	90048E	90048E	90048E	90048B	90048B	90041A	90041A
Type	Gran	Gran	Gran	Gran	Gran	Pyxite	Pyxite	Gran	Gran
SiO ₂	48.27	48.65	46.77	47.94	47.90	44.68	46.69	54.24	43.78
Al ₂ O ₃	13.79	14.94	14.26	14.83	14.56	15.20	13.39	15.04	13.92
TiO ₂	4.97	4.57	4.63	4.91	4.58	4.99	5.16	2.72	2.65
FeO	13.53	12.58	12.99	12.81	12.90	13.01	10.52	8.33	11.66
MnO	0.24	0.19	0.16	0.19	0.20	0.28	0.23	0.21	0.61
MgO	3.90	3.16	3.75	4.14	4.17	3.65	5.80	4.13	6.07
CaO	6.88	8.22	8.01	8.24	8.14	11.45	14.82	7.62	13.68
Na ₂ O	3.85	3.13	2.75	2.40	2.67	5.02	2.05	6.13	4.10
K ₂ O	1.64	1.61	1.49	1.44	1.61	1.60	1.19	1.41	0.31
TOTAL	97.07	97.05	94.81	96.89	96.73	99.88	99.84	99.83	96.77

Mg#	33.92	30.92	33.99	36.53	36.53	33.32	49.56	46.92	48.13
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Q	0.00	0.65	0.55	2.70	0.71	0.00	0.00	0.00	0.00
Or	9.89	9.51	9.18	8.51	9.51	9.46	7.03	8.33	1.83
Ab	32.58	26.49	24.25	20.31	22.59	7.53	12.38	40.79	6.22
An	15.50	21.96	23.10	25.44	22.99	14.22	23.82	9.36	18.66
Ne	0.00	0.00	0.00	0.00	0.00	18.93	2.69	6.00	15.43
Di	15.55	15.78	15.29	12.82	14.47	35.56	40.33	23.38	40.64
Hy	4.16	11.73	14.85	15.51	15.45	0.00	0.00	0.00	0.00
Ol	7.73	0.00	0.00	0.00	0.00	2.39	1.92	5.31	6.90
Mt	2.59	2.41	2.59	2.45	2.47	2.49	2.02	1.60	2.23
Il	9.44	8.68	9.16	9.33	8.70	9.48	9.80	5.17	5.03
Ap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TOTAL	97.44	97.21	98.97	97.07	96.89	100.06	99.99	99.94	96.94
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Sample	90041A	90048D	90048D	90048D	90048D	90048D	90048D	90048C	90051I
Type	Gran	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Pyxite	Gran	Pyxite
SiO ₂	57.69	47.35	44.63	47.38	53.12	45.83	41.33	43.68	48.39
Al ₂ O ₃	17.62	15.86	14.45	15.75	18.81	12.87	16.58	13.32	16.19
TiO ₂	0.46	4.78	5.47	5.13	3.24	3.87	2.86	5.50	2.99
FeO	6.78	12.78	10.99	12.41	9.69	9.73	13.26	13.24	10.47
MnO	0.17	0.35	0.37	0.42	0.27	0.39	0.34	0.34	0.19
MgO	2.98	3.91	5.50	3.50	4.29	7.88	4.90	3.25	4.46
CaO	5.80	9.62	15.25	10.22	6.59	14.15	11.31	15.19	9.48
Na ₂ O	6.96	4.50	1.35	4.03	1.86	4.39	3.70	2.29	4.56
K ₂ O	1.19	2.06	0.83	2.00	1.31	1.64	0.53	1.79	1.08

TOTAL	99.63	101.20	98.84	100.82	99.17	100.73	94.81	98.60	97.81
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Mg#	43.96	35.29	47.14	33.42	44.09	59.05	39.72	30.43	43.15
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Q	0.00	0.00	0.00	0.00	5.06	0.00	0.00	0.00	0.00
Or	7.03	12.17	4.91	11.82	7.44	6.13	3.26	11.02	0.40
Ab	53.31	16.99	10.93	18.14	15.13	0.00	8.52	3.48	28.09
An	13.32	16.99	30.92	18.98	31.43	10.57	28.21	21.65	21.86
Ne	3.03	11.42	0.27	8.65	0.00	20.12	13.06	9.05	7.05
Di	12.90	25.61	36.42	26.46	25.93	48.17	25.27	40.78	23.37
Hy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ol	7.97	6.66	3.06	4.84	6.86	3.89	12.36	0.00	8.98
Mt	1.30	2.45	2.11	2.38	1.79	1.86	2.65	2.65	2.14
Il	0.87	9.08	10.39	9.74	5.91	7.35	5.66	10.88	6.05
Ap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TOTAL	99.73	101.37	99.01	101.01	99.55	98.09	98.99	99.51	97.94
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Appendix Four: XRF Whole Rock Analyses

A4.1 Mount Sidley Xenolith Analyses

Sample Type	90029A	90029B	90029C	90029F	90029G	90029H	90029K	90029M	90029O	90029P	90029Q	90029U	90029V	90029X	90029Y	90029C1	90029D1	90029E1	90029F1	90029G1
Type	U.C.	Type C	Type M	U.C.	U.C.	Type M	Type L	Type L	Type L	Type L	Type M	Type L	Type M	Type L	Type L	Type L	Type L	Type M	Type L	Type L
SiO2	55.12	44.65	33.28	56.06	63.89	35.29	52.15	41.68	45.02	45.35	31.73	48.37	33.65	44.85	48.13	49.14	49.19	38.17	45.87	50.18
TiO2	1.66	0.67	6.40	1.67	0.19	5.14	1.32	3.62	3.27	3.77	7.04	2.08	6.74	3.65	1.46	1.59	1.90	4.14	2.75	1.48
Al2O3	15.76	18.54	8.87	16.30	18.09	12.54	23.50	17.70	20.13	19.64	7.31	21.51	8.91	19.49	19.42	22.37	22.90	8.84	20.22	23.71
Fe2O3 total	8.65	14.30	25.74	8.67	3.47	29.28	5.01	13.93	12.01	10.90	27.23	8.64	25.10	11.48	9.99	7.91	7.38	25.19	10.73	6.28
MnO	0.15	0.22	0.37	0.14	0.09	0.36	0.06	0.16	0.12	0.13	0.39	0.12	0.32	0.16	0.15	0.12	0.10	0.33	0.17	0.10
MgO	4.14	10.08	9.58	2.61	0.39	9.09	1.72	5.72	4.14	4.65	10.06	3.04	9.63	4.45	5.01	2.77	2.39	13.33	4.44	1.98
CaO	5.18	8.19	12.13	4.22	1.38	6.03	9.87	11.14	11.97	12.10	11.81	10.98	11.13	10.98	10.20	10.54	10.38	9.25	9.80	10.20
Na2O	5.30	2.77	1.63	5.87	7.59	2.23	5.24	3.18	3.31	3.31	1.42	4.25	2.14	3.42	4.37	4.49	4.72	1.47	3.96	4.73
K2O	3.22	0.20	0.07	3.65	4.37	0.15	0.31	0.19	0.19	0.23	0.07	0.24	0.22	0.25	0.25	0.26	0.26	0.07	0.24	0.36
P2O5	0.32	0.15	2.45	0.51	0.09	0.40	0.72	1.84	0.02	0.04	3.25	1.05	2.34	0.39	1.48	0.86	1.00	0.04	1.32	0.77
LOI	0.36	-0.23	-0.42	0.28	0.56	0.40	0.37	0.88	-0.08	0.09	-0.14	0.01	0.12	0.23	-0.22	0.20	0.02	0.00	0.00	0.22
TOTAL	99.86	99.54	100.10	99.98	99.83	99.95	100.27	100.04	100.30	100.21	100.17	100.29	100.30	99.35	100.24	100.25	100.24	100.83	99.50	100.01
Mg#	48.66	58.26	42.43	37.35	18.21	38.07	40.47	44.85	40.57	45.80	42.25	41.07	43.18	43.43	49.83	40.95	39.07	51.17	45.04	38.44
Sc	8	3	23	3	2	7	10	12	16	19	25	14	20	16	9	10	8	28	5	6
V	118	45	376	88	14	393	47	305	334	258	324	124	291	221	35	81	58	415	95	58
Cr	126	66	7	8	1	13	<1	4	7	6	11	4	10	3	2	<1	1	63	1	1
Ni	63	136	12	15	1	12	1	4	8	8	9	3	9	8	4	1	1	28	4	2
Cu	20	15	29	19	12	15	8	17	35	36	26	12	38	21	19	10	12	31	18	16
Zn	82	70	113	81	22	123	21	49	43	49	123	37	119	61	35	38	28	113	47	34
Ga	24	18	18	25	24	21	23	21	24	22	15	23	18	21	18	23	22	16	19	23
As	1	<1	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Rb	122	2	2	134	61	2	1	2	4	4	<1	<1	2	2	2	2	1	2	1	2
Sr	475	754	481	647	200	694	1325	915	949	976	419	1102	461	1041	1111	1201	1282	404	1109	1190
Y	35	<1	35	34	5	10	3	13	2	4	37	9	25	7	13	9	8	5	9	7
Zr	357	21	48	304	515	36	29	38	41	38	43	38	47	51	31	39	29	42	37	34
Nb	93	3	17	90	28	9	5	9	6	9	18	5	20	19	5	6	5	7	14	10
Ba	525	143	47	492	565	135	446	143	137	135	31	322	20	204	313	338	372	43	250	394
La	52	8	45	64	26	5	10	17	5	7	31	12	14	9	21	13	12	5	14	12
Ce	97	19	171	118	40	38	21	56	17	21	158	31	109	31	48	36	29	32	38	34
Pb	10	5	6	10	9	6	3	3	4	5	8	5	7	5	4	3	4	3	6	4
Th	12	2	1	18	13	1	<1	1	<1	2	2	1	1	<1	1	<1	<1	1	2	<1
U	4	<1	<1	5	4	<1	<1	1	<1	<1	<1	<1	<1	<1	1	1	<1	1	<1	<1
Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	19.03	1.18	0.41	21.57	25.83	0.89	1.83	1.12	1.12	1.36	0.41	1.42	1.30	1.48	1.48	1.54	1.54	0.41	1.42	2.13
Ab	40.64	21.45	1.93	43.97	62.91	10.76	43.24	21.56	19.18	19.86	3.76	33.55	3.62	23.72	33.98	34.96	36.45	2.38	32.04	37.93
An	9.70	37.57	16.68	7.35	2.39	23.76	39.69	33.46	39.51	38.05	13.37	38.91	14.06	37.09	32.64	40.12	40.53	17.32	36.69	42.40
Ne	2.28	1.08	6.42	3.09	0.72	4.39	0.60	2.90	4.78	4.41	4.47	1.31	7.85	2.83	1.63	1.64	1.89	5.45	0.80	1.14
Di	11.47	1.71	22.81	8.59	2.36	2.97	3.80	8.08	16.37	17.81	19.90	7.24	21.41	12.22	6.86	5.46	3.69	23.30	2.73	2.65
Hy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oi	10.24	31.45	27.73	8.52	2.90	39.42	5.26	17.26	9.81	8.54	30.42	9.23	27.20	10.95	15.10	9.26	8.27	36.45	14.75	7.32
Mt	1.49	2.47	4.44	1.50	0.60	5.05	0.86	2.40	2.07	1.88	4.70	1.49	4.33	1.98	1.72	1.36	1.27	4.34	1.85	0.90
Il	3.15	1.27	12.16	3.17	0.36	9.76	2.51	6.88	6.21	7.16	13.37	3.95	17.80	6.93	2.77	3.02	3.61	7.86	5.22	2.81
Ap	0.76	0.36	5.80	1.21	0.21	0.95	1.70	4.36	0.05	0.09	7.69	2.49	5.54	0.92	3.50	2.04	2.37	0.09	3.12	1.82
TOTAL	98.76	98.54	98.38	98.97	98.28	97.95	99.49	98.02	99.10	99.16	98.09	99.59	98.11	98.12	99.68	99.40	99.62	97.60	98.62	98.20

Sample Type	900335I Type P	90034C U.C.	90035C U.C.	90036C U.C.	90036G U.C.	90038L U.C.	90039A U.C.	90039B U.C.	90039C U.C.
SiO2	37.72	73.54	65.69	62.10	66.25	62.74	50.84	40.89	45.08
TiO2	1.09	0.05	0.60	0.48	0.56	0.33	0.54	3.21	3.33
Al2O3	6.96	14.12	14.96	16.05	15.77	15.77	25.93	8.87	19.10
Fe2O3 total	20.80	0.80	5.75	7.39	3.64	6.63	3.90	21.35	11.49
MnO	0.24	0.02	0.14	0.22	0.05	0.19	0.06	0.31	0.14
MgO	27.63	0.29	0.09	0.27	1.68	0.19	2.69	12.86	4.60
CaO	5.82	1.50	0.78	2.01	4.19	1.31	11.15	11.87	11.63
Na2O	0.59	4.47	6.53	6.13	4.65	6.47	4.11	1.51	3.51
K2O	0.11	3.50	5.57	5.52	2.56	5.52	0.35	0.12	0.27
P2O5	0.04	0.25	0.02	0.08	0.12	0.05	0.02	0.02	1.54
LOI	-0.89	0.92	0.11	-0.07	0.29	0.10	0.00	-0.74	-0.52
TOTAL	100.11	99.46	100.24	100.18	99.75	99.30	99.59	100.27	100.17
Mg#	72.46	41.79	3.01	6.75	47.75	5.37	57.73	54.40	44.22

Sample Type	90033W Type L	90033X Type L	90033A1 Type L	90033B1 Type L	90033C1 Type L	90033E1 Type L	90033F1 Type L	90033H1 Type C	90033P1 Type C
SiO2	47.15	52.17	44.44	65.43	44.02	49.43	52.00	43.01	45.72
TiO2	2.34	1.12	3.09	0.19	2.44	1.67	1.53	4.07	1.86
Al2O3	21.07	23.84	15.83	16.67	19.33	14.25	24.06	13.53	14.10
Fe2O3 total	9.37	5.01	16.44	3.19	11.17	16.11	5.92	8.67	14.94
MnO	0.11	0.09	0.27	0.08	0.14	0.23	0.07	0.20	0.14
MgO	3.10	1.49	4.80	0.31	4.53	7.82	2.51	3.31	11.44
CaO	11.37	9.50	10.11	0.87	9.58	10.71	11.64	9.42	10.38
Na2O	4.15	5.50	3.89	7.05	4.31	3.15	4.20	4.80	2.37
K2O	0.30	0.37	0.30	5.29	0.43	0.53	0.26	0.64	0.11
P2O5	1.31	0.76	1.36	0.05	0.52	0.58	0.08	0.34	0.02
LOI	-0.27	-0.13	-0.72	0.20	-0.10	-0.31	0.18	-0.19	-0.61
TOTAL	100.00	99.72	99.81	99.33	99.18	99.97	100.02	99.27	100.15
Mg#	39.58	37.07	36.64	16.14	44.54	49.01	45.64	43.06	60.26

Sc	13	2	<1	3	3	<1	6	36	14	10
V	212	8	9	10	50	5	29	347	148	43
Cr	1671	<1	1	2	51	3	11	106	7	4
Ni	765	<1	3	3	12	3	28	41	6	4
Cu	47	4	10	13	12	9	25	62	18	15
Zn	122	33	112	96	58	91	22	92	44	45
Ga	16	18	40	28	24	33	21	15	22	24
As	<1	<1	2	2	3	1	<1	<1	<1	<1
Rb	2	159	243	106	108	160	2	2	3	4
Sr	79	122	2	36	356	15	1034	386	1104	1201
Y	6	3	89	42	16	48	<1	11	13	17
Zr	29	23	861	302	128	359	29	43	53	54
Nb	3	16	176	69	7	76	5	5	11	10
Ba	20	159	33	384	388	203	185	55	190	377
La	4	4	110	45	19	59	7	5	22	25
Ce	17	6	190	86	39	100	13	23	58	60
Pb	5	26	22	13	24	10	4	6	3	5
Th	1	1	28	8	15	12	<1	1	1	1
U	1	3	7	4	6	3	<1	<1	<1	<1
TOTAL	0.00	98.12	99.22	99.59	99.14	98.25	99.24	99.13	99.77	99.40

Q	29.47	6.46	0.00	17.55	0.00	0.00	0.00	0.00	0.00	0.00
Or	20.68	32.92	15.13	32.62	2.07	0.71	1.60	2.19	33.47	33.47
Ab	37.83	45.94	51.53	39.35	50.39	32.90	3.30	26.57	33.76	33.76
An	5.81	0.00	0.00	14.57	0.00	51.27	17.07	35.57	33.76	33.76
Ne	0.00	0.00	0.00	0.00	0.00	1.02	5.13	1.70	0.89	0.89
Di	3.51	3.32	8.35	3.19	5.46	3.19	34.18	9.96	8.32	8.32
Hy	0.00	0.00	6.08	0.00	4.93	0.00	0.00	0.00	0.00	0.00
Ol	0.00	0.00	4.58	0.00	3.84	7.04	28.91	12.42	12.01	12.01
Mt	0.14	1.51	1.25	0.63	0.26	0.67	3.68	1.98	1.93	1.93
Il	0.09	1.14	0.91	1.06	0.63	1.03	6.10	6.32	4.37	4.37
Ap	0.59	0.05	0.19	0.28	0.12	0.05	0.05	0.05	3.65	2.46
TOTAL	99.81	99.46	99.15	100.27	98.33	98.89	99.33	98.73	99.45	98.23

Sample Type	90039E Type L	90039F Type M	90039G Type L	90039I Type L	90039J Type L	90039K Type L	90039L Type L	90039M Type L	90039R Type M	90039S Type P
SiO2	44.50	36.91	49.91	47.87	46.24	46.32	46.03	40.48	26.67	40.65
TiO2	2.86	6.22	4.21	2.12	0.50	2.73	3.00	5.19	8.67	1.93
Al2O3	18.49	10.98	18.34	21.16	20.18	17.00	19.44	15.54	2.04	10.73
Fe2O3 total	12.95	22.93	12.65	8.12	11.92	15.00	12.15	16.80	36.71	14.43
MnO	0.18	0.29	0.14	0.10	0.18	0.27	0.18	0.21	0.52	0.18
MgO	5.56	7.92	5.16	3.35	9.55	3.89	4.11	5.32	13.30	15.60
CaO	10.38	12.08	11.65	11.07	8.86	9.74	10.34	11.56	10.50	15.02
Na2O	3.59	1.80	3.01	4.18	2.79	4.21	3.82	3.22	0.59	1.34
K2O	0.27	0.13	0.21	0.33	0.24	0.42	0.44	0.28	0.08	0.07
P2O5	1.56	1.36	0.03	1.38	0.13	0.97	1.05	1.48	3.17	0.02
LOI	-0.45	-0.39	0.07	-0.51	-0.53	-0.19	-0.42	-0.65	-2.24	-0.55
TOTAL	99.89	100.23	99.38	99.17	100.06	100.36	100.14	99.43	100.01	99.42
Mg#	45.95	40.62	44.69	44.97	61.34	33.93	40.12	38.54	41.78	68.16

Sc	9	32	19	12	3	15	10	23	21	44
V	158	324	377	103	29	118	170	288	177	463
Cr	23	18	13	8	41	14	8	7	870	7
Ni	7	12	6	139	9	10	8	15	350	15
Cu	26	25	31	13	27	17	30	16	40	74
Zn	54	86	52	32	62	66	59	72	176	108
Ga	19	21	23	20	17	23	22	21	15	23
As	<1	<1	<1	<1	<1	<1	<1	1	2	<1
Rb	2	1	1	3	2	3	4	4	1	<1
Sr	1082	554	849	1091	777	801	995	775	101	67
Y	15	23	4	10	<1	17	14	19	44	16
Zr	42	46	48	42	25	33	59	54	44	45
Nb	12	14	10	9	4	5	17	16	24	2
Ba	241	139	122	281	145	374	243	213	8	8
La	23	21	5	14	7	25	23	22	25	4
Ce	57	76	16	39	17	60	56	66	188	15
Pb	4	4	4	4	6	6	5	7	5	3
Th	<1	1	1	2	1	1	2	2	2	1
U	<1	<1	<1	<1	<1	<1	<1	1	<1	<1

Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.71	0.77	1.24	1.95	1.42	2.48	2.60	1.65	0.00	0.00
Ab	28.09	7.17	18.54	33.32	23.43	29.42	28.44	16.33	0.00	0.00
An	33.98	21.50	35.91	38.00	41.83	26.25	34.60	27.12	2.68	23.06
Ne	1.24	4.37	3.75	1.11	0.10	3.36	2.10	5.91	2.70	6.14
Di	6.05	24.52	17.83	6.52	1.04	13.25	8.19	17.08	21.84	39.39
Hy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ol	17.70	21.36	10.67	9.44	28.41	14.45	13.33	14.33	42.64	25.74
Mt	2.23	3.95	2.18	1.40	2.06	2.59	2.10	2.90	6.33	2.49
Il	5.43	11.81	8.00	4.03	0.95	5.18	5.70	9.86	16.47	3.67
Ap	3.69	3.22	0.07	3.27	0.31	2.30	2.49	3.50	7.34	0.05
TOTAL	99.12	98.67	98.19	99.04	99.55	99.23	99.55	98.68	100.00	100.51

Sample Type	90039Sb Type C	90039T Type C	90039U Type M	90039V Type P	90039X Type P	90039Y Type P
SiO2	44.66	44.99	45.16	32.68	45.90	35.58
TiO2	1.70	0.67	0.94	8.62	1.96	1.53
Al2O3	16.58	18.10	7.25	7.10	9.56	16.90
Fe2O3 total	10.81	15.30	11.12	30.39	10.80	15.22
MnO	0.13	0.24	0.18	0.36	0.18	0.17
MgO	11.08	10.84	20.00	9.29	12.05	18.56
CaO	13.28	7.76	15.07	11.77	18.47	11.35
Na2O	2.19	2.64	0.84	1.08	1.20	0.97
K2O	0.15	0.20	0.08	0.11	0.10	0.17
P2O5	0.05	0.02	0.00	0.10	0.00	0.01
LOI	-0.32	-1.06	-0.33	-1.55	-0.01	-0.34
TOTAL	100.31	99.70	100.31	99.95	100.21	100.12
Mg#	67.00	58.39	78.08	37.71	68.84	70.72

Sc	32	2	54	33	75	35
V	311	53	280	689	508	431
Cr	360	65	3004	16	296	1120
Ni	225	153	428	16	70	429
Cu	34	13	33	30	16	17
Zn	80	75	63	157	44	184
Ga	22	17	12	22	16	34
As	<1	<1	<1	1	<1	<1
Rb	1	1	1	3	3	4
Sr	529	758	84	245	180	80
Y	12	<1	10	14	19	12
Zr	48	21	28	68	65	38
Nb	4	3	1	20	2	4
Ba	51	127	14	10	25	22
La	4	3	3	2	5	4
Ce	14	13	8	49	21	16
Pb	5	5	3	6	5	5
Th	1	1	1	1	1	1
U	<1	1	<1	<1	1	<1

Q	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.89	1.18	0.00	0.00	0.00	0.00
Ab	8.31	21.87	0.00	0.00	0.00	0.00
An	34.97	36.95	15.78	14.20	20.40	41.26
Ne	5.54	0.25	3.85	4.95	5.50	4.45
Di	24.67	1.16	47.08	34.24	57.30	12.06
Hy	0.00	0.00	0.00	0.00	0.00	0.00
Ol	20.09	34.05	29.54	24.24	10.26	36.15
Mt	1.86	2.64	1.92	5.24	1.86	2.62
Il	3.23	1.27	1.79	16.37	3.72	2.91
Ap	0.12	0.05	0.00	0.24	0.00	0.02
TOTAL	99.68	99.42	99.96	99.48	99.04	99.47

Sample Type	PK1A1	PK1C1	PK4D1	PK4E1	PK4F1	PK4G1	PK4H1a	PK4H1b	PK4H1c	PK4I1
	Peridot	Gran	Pyxite	Peridot	Peridot	Peridot	Peridot	Peridot	Peridot	Peridot
SiO2	39.45	49.68	49.57	44.20	44.48	43.93	40.34	49.35	45.09	44.83
TiO2	0.04	0.81	0.59	0.03	0.08	0.03	0.03	0.18	0.12	0.11
Al2O3	0.28	12.64	5.93	0.91	3.22	1.59	0.73	4.86	3.45	3.37
Fe2O3 total	15.69	10.43	17.92	8.46	9.11	9.00	10.94	7.23	9.13	9.18
MnO	0.18	0.17	0.26	0.13	0.14	0.13	0.14	0.13	0.14	0.14
MgO	43.96	13.10	22.37	45.47	39.38	44.66	47.88	31.57	39.10	39.28
CaO	0.38	11.15	3.52	0.69	2.74	0.78	0.56	5.97	2.90	2.93
Na2O	0.55	2.11	0.50	0.25	0.61	0.23	0.14	0.65	0.41	0.44
K2O	0.04	0.13	0.02	0.01	0.03	0.00	0.00	0.00	0.01	0.00
P2O5	0.02	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
LOI	-1.05	-0.13	-0.59	-0.31	-0.45	-0.51	-0.55	-0.15	-0.34	-0.53
TOTAL	99.54	100.09	100.10	99.85	99.35	99.85	100.22	99.79	100.02	99.76

Mg#	84.73	71.33	71.20	91.41	89.54	90.76	89.66	89.63	89.45	89.44
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Sample Type	PK1Q	PK1R	PK1S	PK1T	PK1U	PK1V	PK1W	PK1X	PK1Y	PK1Z
	Pyxite	Gran	Fyxlite	Peridot	Gran	Peridot	Gran	Gran	Gran	Peridot
SiO2	47.93	46.13	48.37	47.60	40.22	49.08	43.81	51.55	51.93	44.12
TiO2	1.40	1.31	1.00	1.38	0.05	1.58	0.02	0.34	0.44	0.03
Al2O3	8.22	7.58	6.26	7.53	0.52	22.65	1.00	18.72	19.62	1.15
Fe2O3 total	12.22	14.12	14.10	11.65	13.74	5.43	8.76	6.60	6.15	8.44
MnO	0.21	0.23	0.23	0.21	0.17	0.06	0.12	0.11	0.10	0.12
MgO	14.86	16.14	17.68	14.29	45.51	3.77	46.12	9.11	8.44	44.11
CaO	14.46	13.36	11.51	16.12	0.56	13.30	0.68	9.48	9.59	0.91
Na2O	1.16	1.63	1.03	1.06	0.40	3.86	0.29	3.37	3.37	0.58
K2O	0.02	0.08	0.04	0.01	0.02	0.23	0.01	0.22	0.26	0.05
P2O5	0.01	0.01	0.00	0.00	0.02	0.02	0.01	0.00	0.01	0.01
LOI	-0.25	-0.55	-0.37	-0.10	-0.89	0.15	-0.41	-0.11	-0.08	-0.41
TOTAL	100.24	100.04	99.85	99.75	100.32	100.13	100.41	99.39	99.83	99.11

Mg#	70.66	69.36	71.29	70.84	86.77	57.89	91.25	73.22	73.10	91.19
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Sample Type	PK1A1	PK1C1	PK4D1	PK4E1	PK4F1	PK4G1	PK4H1a	PK4H1b	PK4H1c	PK4I1
	Peridot	Gran	Pyxite	Peridot	Peridot	Peridot	Peridot	Peridot	Peridot	Peridot
SiO2	39.45	49.68	49.57	44.20	44.48	43.93	40.34	49.35	45.09	44.83
TiO2	0.04	0.81	0.59	0.03	0.08	0.03	0.03	0.18	0.12	0.11
Al2O3	0.28	12.64	5.93	0.91	3.22	1.59	0.73	4.86	3.45	3.37
Fe2O3 total	15.69	10.43	17.92	8.46	9.11	9.00	10.94	7.23	9.13	9.18
MnO	0.18	0.17	0.26	0.13	0.14	0.13	0.14	0.13	0.14	0.14
MgO	43.96	13.10	22.37	45.47	39.38	44.66	47.88	31.57	39.10	39.28
CaO	0.38	11.15	3.52	0.69	2.74	0.78	0.56	5.97	2.90	2.93
Na2O	0.55	2.11	0.50	0.25	0.61	0.23	0.14	0.65	0.41	0.44
K2O	0.04	0.13	0.02	0.01	0.03	0.00	0.00	0.00	0.01	0.00
P2O5	0.02	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
LOI	-1.05	-0.13	-0.59	-0.31	-0.45	-0.51	-0.55	-0.15	-0.34	-0.53
TOTAL	99.54	100.09	100.10	99.85	99.35	99.85	100.22	99.79	100.02	99.76

Mg#	84.73	71.33	71.20	91.41	89.54	90.76	89.66	89.63	89.45	89.44
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Sample Type	PK1Q	PK1R	PK1S	PK1T	PK1U	PK1V	PK1W	PK1X	PK1Y	PK1Z
	Pyxite	Gran	Fyxlite	Peridot	Gran	Peridot	Gran	Gran	Gran	Peridot
SiO2	47.93	46.13	48.37	47.60	40.22	49.08	43.81	51.55	51.93	44.12
TiO2	1.40	1.31	1.00	1.38	0.05	1.58	0.02	0.34	0.44	0.03
Al2O3	8.22	7.58	6.26	7.53	0.52	22.65	1.00	18.72	19.62	1.15
Fe2O3 total	12.22	14.12	14.10	11.65	13.74	5.43	8.76	6.60	6.15	8.44
MnO	0.21	0.23	0.23	0.21	0.17	0.06	0.12	0.11	0.10	0.12
MgO	14.86	16.14	17.68	14.29	45.51	3.77	46.12	9.11	8.44	44.11
CaO	14.46	13.36	11.51	16.12	0.56	13.30	0.68	9.48	9.59	0.91
Na2O	1.16	1.63	1.03	1.06	0.40	3.86	0.29	3.37	3.37	0.58
K2O	0.02	0.08	0.04	0.01	0.02	0.23	0.01	0.22	0.26	0.05
P2O5	0.01	0.01	0.00	0.00	0.02	0.02	0.01	0.00	0.01	0.01
LOI	-0.25	-0.55	-0.37	-0.10	-0.89	0.15	-0.41	-0.11	-0.08	-0.41
TOTAL	100.24	100.04	99.85	99.75	100.32	100.13	100.41	99.39	99.83	99.11

Mg#	70.66	69.36	71.29	70.84	86.77	57.89	91.25	73.22	73.10	91.19
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Sample Type	PK1A1	PK1C1	PK4D1	PK4E1	PK4F1	PK4G1	PK4H1a	PK4H1b	PK4H1c	PK4I1
	Peridot	Gran	Pyxite	Peridot	Peridot	Peridot	Peridot	Peridot	Peridot	Peridot
SiO2	39.45	49.68	49.57	44.20	44.48	43.93	40.34	49.35	45.09	44.83
TiO2	0.04	0.81	0.59	0.03	0.08	0.03	0.03	0.18	0.12	0.11
Al2O3	0.28	12.64	5.93	0.91	3.22	1.59	0.73	4.86	3.45	3.37
Fe2O3 total	15.69	10.43	17.92	8.46	9.11	9.00	10.94	7.23	9.13	9.18
MnO	0.18	0.17	0.26	0.13	0.14	0.13	0.14	0.13	0.14	0.14
MgO	43.96	13.10	22.37	45.47	39.38	44.66	47.88	31.57	39.10	39.28
CaO	0.38	11.15	3.52	0.69	2.74	0.78	0.56	5.97	2.90	2.93
Na2O	0.55	2.11	0.50	0.25	0.61	0.23	0.14	0.65	0.41	0.44
K2O	0.04	0.13	0.02	0.01	0.03	0.00	0.00	0.00	0.01	0.00
P2O5	0.02	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
LOI	-1.05	-0.13	-0.59	-0.31	-0.45	-0.51	-0.55	-0.15	-0.34	-0.53
TOTAL	99.54	100.09	100.10	99.85	99.35	99.85	100.22	99.79	100.02	99.76

Sample Type	PK5C Perid	PK5D Perid	PK5E Fyxsite	PK5F Fyxsite	PK5G Fyxsite	PK5H Perid	PK5I Perid	PK5J Perid	PK5L Fyxsite	PK5M Perid
SiO2	42.25	45.24	49.96	53.02	49.65	45.72	44.27	45.23	53.17	43.78
TiO2	0.04	0.17	0.58	0.26	0.86	0.10	0.03	0.09	0.27	0.02
Al2O3	0.84	2.41	5.95	4.49	6.35	3.43	2.09	3.16	4.63	0.85
Fe2O3 total	9.27	10.58	17.19	10.81	10.13	8.81	8.31	9.00	10.92	8.63
MnO	0.13	0.15	0.23	0.18	0.19	0.14	0.13	0.14	0.19	0.13
MgO	46.45	39.94	24.09	28.57	17.76	37.75	43.54	39.26	28.86	45.98
CaO	0.39	1.92	2.05	1.92	14.07	3.15	1.09	2.56	1.96	0.64
Na2O	0.23	0.33	0.35	0.22	0.87	0.39	0.35	0.48	0.24	0.57
K2O	0.01	0.01	0.02	0.00	0.03	0.01	0.01	0.01	0.00	0.03
P2O5	0.01	0.01	0.02	0.01	0.00	0.00	0.01	0.00	0.01	0.02
LOI	-0.31	-0.43	-0.55	-0.14	0.10	-0.24	-0.25	-0.15	-0.38	-0.37
TOTAL	99.31	100.33	99.89	99.34	100.01	99.26	99.58	99.78	99.87	100.28

Mg#	90.85	88.20	73.51	83.96	77.64	89.46	91.21	89.63	83.96	91.34
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Sample Type	PK4J Perid	PK4K Gran	PK4L1 Perid	PK4M1 Perid	PK4N1a Perid	PK4N1f Perid	PK4O1 Perid	PK4P1 Perid	PK5A Perid	PK5B Perid
SiO2	43.69	44.51	49.08	43.87	49.08	44.97	48.02	44.59	46.07	46.34
TiO2	0.07	0.11	0.90	0.12	0.48	0.11	1.12	0.15	0.08	0.20
Al2O3	2.33	3.40	11.59	3.64	6.31	3.23	8.37	4.07	1.87	3.61
Fe2O3 total	9.62	9.12	10.66	9.28	5.11	9.41	10.95	8.85	7.45	8.93
MnO	0.14	0.15	0.18	0.14	0.12	0.14	0.20	0.14	0.12	0.14
MgO	42.12	39.62	13.14	38.58	21.51	38.12	14.43	38.73	39.57	36.08
CaO	1.58	3.30	11.77	3.48	15.07	2.75	15.29	3.17	4.40	4.46
Na2O	0.35	0.48	1.90	0.31	1.28	0.40	1.44	0.47	0.36	0.36
K2O	0.01	0.01	0.13	0.02	0.04	0.04	0.05	0.02	0.01	0.04
P2O5	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
LOI	-0.47	-0.40	-0.15	0.26	0.85	0.04	0.33	-0.43	-0.24	0.05
TOTAL	99.45	100.31	99.20	99.70	99.85	99.21	100.20	99.77	99.69	100.22

Mg#	89.66	89.59	70.94	89.17	89.29	88.92	72.30	89.66	91.32	88.89
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Sc	10	1	26	24	51	17	6	14	4	4
V	83	26	227	148	313	91	38	76	30	32
Cr	2432	1660	1636	3280	1746	2935	2547	2827	2977	2620
Ni	2085	2542	555	996	484	2053	2548	2117	2658	2637
Cu	18	2	49	68	68	36	<1	12	<1	1
Zn	67	50	98	71	58	54	50	53	53	52
Ga	3	1	9	8	10	4	3	4	1	2
As	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Rb	1	<1	1	1	1	1	1	1	<1	<1
Sr	7	2	6	3	35	2	2	2	2	2
Y	<1	<1	<1	<1	11	<1	<1	<1	<1	<1
Zr	1	<1	<1	<1	20	<1	2	<1	1	<1
Nb	1	<1	<1	<1	<1	1	1	<1	<1	<1
Ba	5	1	4	7	7	6	7	4	4	7
La	<1	<1	4	<1	<1	1	1	1	<1	1
Ce	<1	3	8	<1	8	1	1	1	<1	2
Pb	3	5	3	3	4	4	2	4	4	3
Th	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
U	<1	1	<1	1	<1	1	1	1	1	1

Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.06	0.06	0.12	0.00	0.18	0.06	0.06	0.06	0.00	0.18
Ab	1.95	2.79	2.96	1.86	7.36	3.30	2.96	4.06	2.03	4.21
An	1.23	5.07	10.04	9.46	13.33	7.58	4.10	6.44	9.66	0.00
Ne	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Di	0.50	2.48	8.07	7.51	45.10	6.35	0.97	4.93	7.67	2.40
Hy	8.93	22.84	61.20	69.57	15.15	22.84	16.95	18.94	68.30	8.49
Ol	84.44	63.43	12.77	8.99	14.52	56.89	72.54	62.98	10.47	82.78
Mt	1.60	1.82	2.96	1.86	1.75	1.52	1.43	1.55	1.88	1.22
Il	0.08	0.32	1.10	0.49	1.63	0.19	0.06	0.17	0.51	0.04
Ap	0.02	0.02	0.05	0.02	0.00	0.00	0.02	0.00	0.02	0.05
TOTAL	98.81	98.83	99.27	99.76	99.02	98.73	99.09	99.13	100.54	99.37

Sc	7	14	38	14	43	13	61	14	14	18
V	56	84	273	78	204	74	343	79	72	85
Cr	2372	2915	387	2877	4604	2741	824	3165	3455	2554
Ni	2291	2188	194	2278	1422	2229	197	2174	2388	2139
Cu	2	41	40	41	158	42	32	35	80	35
Zn	54	56	58	58	30	55	54	58	42	51
Ga	4	4	16	3	6	4	13	5	2	4
As	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Rb	<1	<1	1	<1	1	<1	1	<1	<1	1
Sr	4	5	259	5	33	6	98	4	7	31
Y	<1	<1	10	1	11	<1	17	<1	<1	2
Zr	1	1	26	2	15	1	26	1	<1	9
Nb	1	<1	<1	<1	<1	<1	1	<1	1	2
Ba	5	4	59	1	5	4	6	6	3	<1
La	<1	<1	3	1	2	2	2	1	<1	2
Ce	<1	1	8	4	3	<1	10	<1	2	4
Pb	3	2	2	3	4	1	4	3	3	3
Th	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
U	1	1	<1	<1	1	1	<1	1	<1	<1

Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.06	0.06	0.77	0.12	0.24	0.24	0.30	0.12	0.06	0.24
Ab	2.96	4.06	16.08	2.62	7.66	3.38	10.70	3.98	3.05	8.05
An	4.76	7.09	22.71	8.48	11.35	6.90	16.23	8.94	3.46	8.12
Ne	0.00	0.00	0.00	0.00	1.72	0.00	0.80	0.00	0.00	0.00
Di	2.38	7.27	28.73	6.93	49.96	5.33	47.91	5.31	14.45	11.00
Hy	14.35	13.76	11.96	13.21	0.00	20.58	0.00	14.18	15.97	22.12
Ol	72.76	64.87	14.62	65.44	25.84	60.08	18.96	65.08	60.86	52.93
Mt	1.66	1.57	1.84	1.60	0.88	1.62	1.89	1.53	1.29	1.54
Il	0.13	0.21	1.71	0.23	0.91	0.21	2.13	0.28	0.15	0.38
Ap	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
TOTAL	99.08	98.91	98.42	98.63	98.56	98.34	98.92	99.44	99.29	99.40

A4.3 Mount Murphy Xenolith Analyses

Sample	90041A	90041B	90041C	90041D	90041E	90041H	90041I	90041J	90044A	90048A	90048B	90048C	90048D	90048E	90048G	90050A	90054B	90054C	90054D	90054E
Type	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Pyxite	Pyxite	Pyxite	Gran	Pyxite	Gran	Pyxite	Gran	Pyxite	Pyxite	Pyxite	Pyxite
SiO2	48.79	47.34	48.07	45.58	46.00	49.65	45.03	45.08	50.91	44.56	44.07	43.29	43.53	46.54	49.09	44.94	45.22	44.66	45.65	43.82
TiO2	0.30	0.23	0.34	0.25	0.27	0.58	0.13	0.12	0.59	0.72	1.74	3.67	3.04	1.75	2.30	0.85	0.11	1.32	0.29	0.09
Al2O3	22.14	18.16	23.70	17.07	24.88	20.89	20.77	20.85	6.47	7.88	7.33	14.25	10.17	15.70	22.39	7.27	2.48	10.26	4.30	2.31
Fe2O3 total	3.89	8.14	3.01	7.78	5.06	4.50	6.72	6.71	7.29	14.65	12.95	12.68	12.17	9.78	6.21	14.79	9.88	9.80	10.35	10.01
MnO	0.06	0.12	0.06	0.11	0.07	0.08	0.09	0.09	0.15	0.20	0.20	0.16	0.16	0.14	0.09	0.44	0.16	0.16	0.16	0.15
MgO	6.28	12.26	5.53	15.19	8.58	5.66	14.43	14.48	19.41	20.29	17.66	10.56	11.42	8.91	3.08	12.73	39.02	15.22	31.42	41.05
CaO	15.98	10.86	16.25	12.11	12.58	15.42	11.03	11.05	14.36	10.55	15.42	12.31	17.41	13.59	10.73	11.82	2.17	17.31	6.79	1.45
Na2O	0.10	0.17	0.18	0.06	0.19	0.16	0.06	0.06	0.02	0.06	0.86	2.25	1.66	2.63	4.39	0.90	0.30	1.05	0.72	0.37
K2O	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.10	0.49	0.17	0.35	0.52	0.77	0.05	0.05	0.02	0.02
P2O5	0.17	0.20	0.22	0.25	0.43	0.47	0.08	-0.19	0.06	-0.73	0.02	0.21	0.06	0.12	0.24	0.01	0.03	0.00	0.01	0.03
LOI	0.17	0.20	0.22	0.25	0.43	0.47	0.08	-0.19	0.06	-0.73	0.05	0.18	0.25	0.79	1.37	4.80	-0.24	0.00	-0.38	-0.39
TOTAL	100.29	100.33	99.64	99.97	100.15	100.34	100.09	100.02	100.29	99.56	100.40	100.05	100.04	100.30	100.41	99.32	99.18	99.83	99.33	98.91
Mg#	76.17	74.89	78.44	79.45	77.05	71.35	80.96	81.04	84.06	73.28	72.98	62.25	65.02	64.34	49.55	63.03	88.66	75.46	85.74	89.04
Sc	26	14	24	18	10	27	7	6	43	27	54	33	55	32	14	41	10	60	19	10
V	85	57	69	70	36	142	31	21	238	170	302	313	446	251	137	177	62	424	130	57
Cr	462	220	72	914	126	287	460	445	2022	1755	2081	171	587	370	7	2729	2991	1092	2896	3018
Ni	72	239	31	248	168	38	331	282	624	585	334	84	93	73	5	329	2088	325	1645	2205
Cu	23	66	5	55	29	33	4	18	62	222	46	37	33	26	13	8	18	63	23	11
Zn	19	50	23	48	34	25	41	37	38	91	65	56	55	56	31	260	61	67	62	66
Ga	14	16	16	12	18	20	14	15	8	9	14	17	17	17	20	20	5	18	5	4
As	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1
Sr	582	559	588	453	754	547	566	579	30	340	219	939	310	891	1683	130	18	74	21	11
Y	1	1	1	1	3	1	1	<1	10	5	15	18	22	12	3	64	<1	14	5	<1
Zr	20	16	27	16	21	25	16	15	14	27	72	113	90	98	54	74	11	46	12	6
Nb	1	2	5	<1	2	2	<1	2	1	1	4	4	4	9	10	13	1	<1	1	<1
Ba	51	75	37	36	61	75	35	40	2	28	19	91	27	79	243	458	4	1	6	<1
La	2	6	3	3	5	4	4	5	2	4	5	12	7	10	7	27	6	6	<1	<1
Ce	3	12	8	7	11	8	8	9	6	10	27	27	22	34	22	73	3	19	6	2
Pb	4	5	4	3	5	4	3	3	4	4	3	3	5	3	4	7	3	4	4	4
Th	1	2	1	<1	<1	2	1	<1	1	<1	1	2	1	1	1	2	<1	<1	<1	<1
U	<1	<1	<1	<1	1	<1	<1	<1	1	2	<1	<1	<1	<1	<1	<1	1	1	1	<1
Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.59	1.00	1.06	0.35	1.12	0.95	0.35	0.35	0.12	0.35	0.00	2.90	0.00	2.07	3.07	4.79	0.30	0.00	0.12	0.12
Ab	14.58	17.91	13.32	10.72	15.03	18.46	12.23	12.07	8.72	7.93	0.00	9.34	0.00	13.54	30.89	8.04	2.54	0.00	6.09	3.13
An	48.54	36.30	53.95	39.35	57.99	43.38	48.64	48.77	12.97	15.18	15.85	27.34	19.80	30.00	39.85	14.16	5.27	23.14	8.44	4.58
Ne	3.93	3.31	3.19	1.39	1.39	3.43	1.40	1.58	0.00	1.99	3.94	5.26	7.61	4.72	3.39	0.00	0.00	4.81	0.00	0.00
Di	24.61	14.05	21.22	16.53	3.48	26.62	4.84	4.82	46.20	29.82	48.53	26.10	53.33	29.63	9.63	38.53	4.18	50.17	19.94	1.91
Hy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.20	0.00	0.00	0.00	0.00	0.00	0.00	10.06	24.53	0.00	10.40	
Ol	6.30	24.97	5.23	28.86	18.85	4.77	30.55	30.65	16.02	39.82	25.74	18.18	10.52	13.40	5.66	17.85	59.76	18.20	51.46	69.17
Mt	0.67	1.40	0.52	1.34	0.87	0.78	1.16	1.16	1.26	2.53	2.23	2.19	2.10	1.69	1.07	3.38	1.70	1.69	1.79	1.73
Il	0.57	0.44	0.65	0.47	0.51	1.10	0.25	0.23	1.12	1.37	3.30	6.97	5.77	3.32	4.37	1.69	0.21	2.51	0.55	0.17
Ap	0.00	0.02	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.05	0.50	0.79	0.28	0.57	0.02	0.07	0.00	0.02	0.07
TOTAL	99.79	99.40	99.16	99.01	99.26	99.49	99.42	99.63	99.61	99.01	99.64	98.78	99.92	98.65	98.50	98.52	98.56	100.52	98.81	98.41

Sample Type	90054G	90054H	90054I	90054J	90054K	90054L	90054M	90054N	90054O
	Pyzite	Pyzite	Pyzite	Pyzite	Pyzite	Pyzite	Pyzite	Pyzite	Pyzite
SiO2	47.13	43.20	43.08	46.48	38.10	41.55	42.26	43.56	42.08
TiO2	1.25	1.51	0.10	1.15	0.68	1.81	0.32	0.09	0.19
Al2O3	7.06	12.78	2.22	7.37	5.40	12.34	3.31	1.90	2.89
Fe2O3 total	8.36	10.01	12.47	8.44	19.24	11.82	12.68	12.27	17.18
MnO	0.16	0.16	0.17	0.15	0.23	0.17	0.20	0.17	0.23
MgO	16.33	14.30	39.41	17.22	30.70	15.20	35.66	39.90	34.47
CaO	18.56	17.14	1.94	17.13	5.55	16.20	5.26	1.29	2.90
Na2O	0.91	1.27	0.21	1.97	0.54	1.17	0.29	0.68	0.21
K2O	0.09	0.03	0.07	0.12	0.07	0.02	0.03	0.05	0.02
P2O5	0.01	0.00	0.03	0.01	0.01	0.00	0.00	0.05	0.01
LOI	0.17	0.07	-0.28	0.08	-1.10	-0.23	-0.48	-0.63	-0.85
TOTAL	100.03	100.47	99.42	100.12	99.42	100.05	99.53	99.33	99.33

Sample Type	90054Q	90054R	90054T	90054U
	Perid	Perid	Perid	Perid
SiO2	44.24	43.65	42.47	42.11
TiO2	0.04	0.04	0.12	0.08
Al2O3	1.65	1.59	1.73	1.61
Fe2O3 total	11.62	9.16	16.24	13.30
MnO	0.16	0.14	0.21	0.17
MgO	40.94	42.67	37.63	40.95
CaO	1.34	1.18	1.97	1.32
Na2O	0.07	0.10	0.56	0.37
K2O	0.02	0.02	0.02	0.03
P2O5	0.00	0.00	0.04	0.02
LOI	-0.69	0.90	-0.81	-0.64
TOTAL	99.39	99.45	100.18	99.32

Mg#	87.46	90.22	82.11	85.91
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Sc	8	9	4	4
V	47	49	59	52
Cr	3048	3104	2431	2550
Ni	2203	2422	1784	2189
Cu	7	3	10	26
Zn	81	58	98	91
Ga	3	3	3	4
As	<1	<1	<1	<1
Rb	<1	1	1	1
Sr	5	5	10	7
Y	<1	<1	<1	<1
Zr	1	1	4	<1
Nb	1	<1	<1	2
Ba	4	3	4	5
La	3	2	<1	1
Ce	1	<1	3	3
Pb	4	4	6	4
Th	1	<1	3	<1
U	<1	1	1	1

Mg#	79.46	73.88	86.22	80.16	75.96	71.81	84.78	86.56	79.89	76.14
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Sc	68	53	9	54	20	50	20	8	13	13
V	328	464	64	328	202	472	130	57	88	157
Cr	2603	232	2902	3745	2300	399	2520	2525	2547	1641
Ni	299	311	2263	483	1037	236	1731	2075	1611	1109
Cu	33	40	27	72	16	36	41	7	10	14
Zn	44	101	91	43	112	91	90	78	106	135
Ga	12	26	4	12	13	21	7	3	4	11
As	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Rb	1	1	1	<1	<1	<1	1	1	<1	<1
Sr	124	13	18	94	35	61	20	7	18	36
Y	55	45	13	45	20	43	10	4	5	16
Zr	2	1	2	1	1	1	1	<1	<1	2
Nb	14	4	5	8	2	8	2	6	2	4
Ba	6	4	2	3	1	4	2	<1	2	3
La	18	14	6	10	6	13	6	<1	6	11
Ce	4	3	3	2	5	4	5	3	4	3
Pb	1	<1	<1	1	1	1	1	1	<1	1
Th	<1	1	<1	<1	<1	<1	<1	<1	1	<1
U	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Q	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.00	0.00	1.78	0.00	0.00	0.00	0.18	0.30	0.12	0.00
Ab	14.91	29.08	4.91	10.91	12.10	28.36	7.64	5.75	1.78	0.00
An	4.17	5.82	0.00	9.03	2.48	5.36	0.00	0.00	0.00	0.00
Ne	59.96	43.79	3.58	58.79	12.31	40.74	14.64	3.34	5.94	11.89
Di	0.00	0.00	16.43	0.00	0.00	0.00	2.48	12.51	15.39	0.00
Hy	15.08	18.37	69.09	17.30	68.99	21.45	68.71	72.63	65.21	71.12
Ol	1.44	1.73	2.15	1.46	3.32	2.04	2.19	2.12	2.96	3.38
Mt	2.37	2.87	0.19	2.87	1.29	3.44	0.61	0.17	0.36	1.04
Il	0.02	0.00	0.07	0.02	0.02	0.00	0.00	0.07	0.02	0.09
Ap	97.95	101.66	98.61	100.38	100.51	101.39	98.90	98.37	98.66	100.72
TOTAL	97.95	101.66	98.61	100.38	100.51	101.39	98.90	98.37	98.66	100.72

Sample Type	90054Q	90054R	90054T	90054U
	Perid	Perid	Perid	Perid
Q	0.00	0.00	0.00	0.00
Or	0.12	0.12	0.12	0.18
Ab	0.59	0.85	4.74	3.13
An	4.13	3.83	2.15	2.64
Ne	0.00	0.00	0.00	0.00
Di	1.99	1.59	5.86	2.99
Hy	24.15	20.58	9.49	9.70
Ol	66.00	69.13	74.08	77.65
Mt	2.01	1.58	2.80	2.30
Il	0.08	0.08	0.23	0.15
Ap	0.00	0.00	0.09	0.05
TOTAL	99.07	97.76	99.56	98.79

A4.4 Mount Cumming Xenolith Analyses

Sample Type	90040Y	90040SI	90040U1	90040G2	90040M2	90040N2	90040O2	90040P2	90040A3
	Gran	Perid	Perid	Perid	Gran	Gran	Gran	Gran	Perid
SiO ₂	52.22	43.65	46.29	44.32	49.03	46.28	48.56	49.55	43.74
TiO ₂	0.26	0.05	0.09	0.10	0.24	5.04	0.44	0.22	0.21
Al ₂ O ₃	19.51	1.63	3.38	2.85	23.86	15.67	17.66	19.75	1.70
Fe ₂ O ₃ total	7.05	10.11	8.66	11.51	5.92	11.80	7.51	7.63	10.83
MnO	0.11	0.15	0.14	0.20	0.07	0.15	0.12	0.10	0.18
MgO	9.11	43.36	38.51	37.71	6.41	8.22	9.02	9.90	40.44
CaO	8.47	1.03	3.02	2.78	10.75	9.61	13.55	10.51	1.71
Na ₂ O	2.96	0.09	0.21	0.75	3.43	3.03	2.67	2.51	0.60
K ₂ O	0.30	0.02	0.02	0.11	0.31	0.35	0.24	0.26	0.17
P ₂ O ₅	0.01	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.02
LOI	0.14	-0.30	-0.16	-0.20	0.16	-0.09	0.27	-0.09	-0.54
TOTAL	100.14	99.79	100.16	100.14	100.21	100.09	100.04	100.34	99.06

Mg#	90040Y	90040SI	90040U1	90040G2	90040M2	90040N2	90040O2	90040P2	90040A3
Mg#	71.90	89.47	89.80	86.65	68.20	57.98	70.40	71.99	88.09
Sc	16	8	14	15	10	26	26	14	9
V	52	45	73	68	28	117	273	51	47
Cr	198	2348	2803	3216	33	182	261	165	2897
Ni	131	2495	2057	1933	137	87	129	167	2148
Cu	27	1	21	4	13	17	49	14	29
Zn	53	57	50	82	48	53	76	56	69
Ga	20	3	3	3	19	19	21	17	3
As	<1	<1	<1	<1	<1	<1	<1	<1	<1
Rb	2	<1	<1	1	3	3	7	2	12
Sr	931	4	2	12	1478	567	636	888	12
Y	1	<1	<1	<1	<1	6	7	<1	<1
Zr	26	3	1	3	44	35	67	27	8
Nb	1	<1	<1	<1	1	11	<1	<1	3
Ba	168	2	3	3	180	117	126	150	28
La	5	2	1	3	8	5	4	4	4
Ce	12	<1	2	3	17	14	19	9	2
Pb	4	3	4	2	5	5	6	6	4
Th	1	<1	<1	<1	<1	<1	1	2	<1
U	<1	<1	<1	<1	<1	<1	<1	<1	<1

Q	90040Y	90040SI	90040U1	90040G2	90040M2	90040N2	90040O2	90040P2	90040A3
Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	1.77	0.12	0.12	0.65	1.83	2.07	1.42	1.54	1.00
Ab	25.05	0.76	1.78	6.35	26.54	25.64	17.29	21.24	5.08
An	39.06	3.98	8.22	4.09	48.79	28.12	35.50	41.86	1.44
Ne	0.00	0.00	0.00	0.00	1.35	0.00	2.87	0.00	0.00
Di	2.33	0.89	5.33	7.63	3.51	15.57	25.59	8.28	5.45
Hy	25.59	18.80	26.92	10.16	0.00	3.39	0.00	10.22	11.19
Ol	3.84	72.82	55.52	68.26	15.96	12.67	14.31	14.89	72.17
Mt	1.22	1.75	1.49	1.98	1.02	2.04	1.30	1.32	1.87
Il	0.49	0.09	0.17	0.19	0.46	9.57	0.84	0.42	0.40
Ap	0.02	0.00	0.00	0.02	0.07	0.07	0.00	0.00	0.05
TOTAL	99.37	99.21	99.55	99.33	99.83	99.14	99.12	99.77	98.65

Sample Type	90040E	90040G	90040H	90040I	90040K	90040L	90040N	90040P	90040U	90040W
	Perid	Perid	Perid	Gran	Perid	U.C.	Perid	Perid	Perid	Gran
SiO ₂	45.17	42.90	41.61	47.83	44.83	71.10	44.51	43.89	44.70	47.02
TiO ₂	0.14	0.04	0.29	0.46	0.04	0.09	0.05	0.01	0.02	4.66
Al ₂ O ₃	3.59	0.97	2.58	26.12	1.62	14.88	1.60	0.89	0.78	16.10
Fe ₂ O ₃ total	9.31	10.25	13.85	4.59	8.35	1.38	8.75	8.73	8.69	11.05
MnO	0.14	0.15	0.19	0.06	0.13	0.08	0.13	0.13	0.14	0.15
MgO	37.93	44.40	38.55	5.39	42.88	0.18	43.06	45.05	44.76	8.04
CaO	3.10	0.78	3.34	12.09	1.57	0.80	1.46	0.86	0.71	10.24
Na ₂ O	0.40	0.07	0.35	3.17	0.21	4.53	0.18	0.04	0.11	2.70
K ₂ O	0.03	0.04	0.31	0.23	0.01	5.02	0.04	0.02	0.02	0.26
P ₂ O ₅	0.01	0.01	0.02	0.03	0.01	0.03	0.01	0.00	0.00	0.02
LOI	-0.38	-0.38	-0.61	0.20	-0.45	1.52	-0.19	-0.24	-0.27	0.00
TOTAL	99.44	99.23	100.48	100.17	99.20	99.61	99.60	99.38	99.86	100.24

Mg#	90040E	90040G	90040H	90040I	90040K	90040L	90040N	90040P	90040U	90040W
Mg#	88.97	89.56	84.64	69.93	91.05	20.53	90.69	91.09	91.07	59.03
Sc	13	<1	4	5	8	4	6	4	6	27
V	79	29	68	32	40	8	39	27	267	208
Cr	2788	2268	669	11	2615	1	2793	2342	3165	208
Ni	1936	2667	1865	98	2436	1	2511	2643	2587	143
Cu	15	3	24	9	1	2	4	1	3	50
Zn	53	63	84	35	47	39	52	50	53	59
Ga	4	3	5	17	3	22	2	2	20	20
As	<1	<1	<1	<1	<1	1	<1	<1	<1	<1
Rb	1	1	2	2	2	300	1	<1	<1	2
Sr	12	11	41	771	8	55	12	4	3	714
Y	<1	<1	3	<1	<1	44	<1	<1	1	<1
Zr	5	3	16	30	1	117	1	1	<1	61
Nb	2	2	2	3	1	23	1	1	1	7
Ba	2	9	10	109	2	174	1	5	4	144
La	2	2	4	5	<1	20	1	1	3	5
Ce	5	2	11	12	<1	42	1	3	3	21
Pb	4	6	4	5	4	36	3	3	4	5
Th	1	<1	1	<1	<1	27	<1	<1	2	<1
U	1	<1	1	<1	<1	9	1	<1	<1	<1

Q	90040E	90040G	90040H	90040I	90040K	90040L	90040N	90040P	90040U	90040W
Q	0.00	0.00	0.00	0.00	0.00	21.96	0.00	0.00	0.00	0.00
Or	0.18	0.24	0.35	1.36	0.06	29.67	0.24	0.12	0.12	1.54
Ab	3.38	0.59	2.96	21.94	1.78	38.33	1.52	0.34	0.93	22.85
An	7.91	2.21	5.29	56.36	3.45	3.77	3.44	2.19	1.58	31.04
Ne	0.00	0.00	0.00	2.65	0.00	0.00	0.00	0.00	0.00	0.00
Di	5.83	1.25	8.83	2.76	3.37	3.26	2.94	1.63	1.53	15.78
Hy	19.79	15.64	1.59	0.00	20.92	0.64	19.77	19.26	22.48	10.12
Ol	60.00	76.91	77.61	12.77	67.81	0.00	69.49	73.79	70.99	7.14
Mt	1.61	1.77	2.39	0.79	1.44	0.24	1.51	1.51	1.91	1.91
Il	0.27	0.08	0.55	0.87	0.08	0.17	0.09	0.02	0.04	8.85
Ap	0.02	0.02	0.05	0.07	0.02	0.07	0.02	0.00	0.00	0.05
TOTAL	98.99	98.71	99.62	99.57	98.93	98.11	99.02	98.86	99.17	99.23

A4.5 Mount Waesche Xenolith Analyses

Sample Type	89001E		89001F		89001I		89002B		890007		890009	
	U.C.	U.C.	U.C.	Gran	U.C.	U.C.	U.C.	U.C.	U.C.	U.C.	U.C.	U.C.
SiO2	60.43	62.51	48.78	45.03	38.31	46.19						
TiO2	0.61	0.24	1.79	1.91	7.75	2.40						
Al2O3	17.35	19.82	15.19	14.00	8.89	16.32						
Fe2O3 total	7.12	2.74	13.77	12.80	25.71	13.22						
MnO	0.15	0.05	0.31	0.20	0.35	0.19						
MgO	0.70	0.20	5.26	12.15	5.08	5.35						
CaO	2.67	1.52	10.34	9.88	10.06	10.82						
Na2O	7.19	7.21	4.30	2.99	3.06	3.39						
K2O	3.49	5.20	0.28	0.67	0.81	0.70						
P2O5	0.14	0.04	0.64	0.37	0.42	0.35						
LOI	0.39	0.71	-0.39	0.22	-0.32	1.34						
TOTAL	100.24	100.24	100.27	100.22	100.12	100.27						
Mg#	16.30	12.63	43.07	65.28	28.13	44.49						

Sc	<1	4	24	22	31	23
V	15	15	160	188	485	272
Cr	5	1	26	565	10	71
Ni	3	9	21	272	17	35
Cu	9	5	24	77	92	69
Zn	61	31	92	74	127	73
Ga	<1	1	<1	<1	2	<1
Rb	22	109	4	17	19	14
Sr	132	196	562	462	281	455
Y	32	23	27	24	41	26
Zr	197	1726	92	152	216	141
Nb	123	18	6	35	51	25
Ba	1204	257	333	293	274	235
La	46	47	23	32	27	23
Ce	100	76	52	67	124	59
Pb	5	15	6	6	7	6
Th	1	13	2	4	2	3
U	1	4	1	2	1	1

Q	0.00	0.00	0.00	0.00	0.00	0.00
Or	20.62	30.73	1.65	3.96	4.79	4.14
Ab	56.87	53.79	30.91	14.68	9.05	22.01
An	4.76	6.36	21.32	22.80	8.13	27.25
Na	2.15	3.91	2.97	5.76	9.12	3.61
Di	6.58	0.80	21.50	19.25	32.95	20.03
Hy	0.00	0.00	0.00	0.00	0.00	0.00
Ol	5.53	2.68	13.83	25.74	14.01	13.08
Mt	1.23	0.47	2.37	2.21	4.43	2.28
Il	1.16	0.46	3.40	3.63	14.72	4.56
Ap	0.33	0.09	1.52	0.88	0.99	0.83
TOTAL	99.23	99.29	99.47	98.91	98.19	97.79

A4.6 USAS Escarpment Xenolith Analyses

Sample Type	MB69A		MB69C		MB69D		MB69E		MB69F		MB69G		MB69H		MB69I	
	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid	Perid
SiO2	44.48	44.13	44.01	44.26	44.91	44.96	44.32	45.28								
TiO2	0.15	0.13	0.12	0.10	0.10	0.01	0.12	0.12								
Al2O3	3.68	3.24	3.34	3.24	3.36	1.76	2.76	3.82								
Fe2O3 total	8.94	9.32	9.51	9.01	8.03	8.07	9.62	8.91								
MnO	0.14	0.15	0.14	0.14	0.13	0.13	0.14	0.14								
MgO	37.18	37.38	38.11	38.75	38.28	42.48	40.52	37.23								
CaO	3.29	3.57	3.09	3.08	3.38	1.54	2.47	3.17								
Na2O	0.69	0.35	0.55	0.61	0.59	0.41	0.56	0.34								
K2O	0.05	0.05	0.02	0.03	0.02	0.02	0.01	0.03								
P2O5	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00								
LOI	1.10	1.77	0.35	0.47	0.61	0.17	0.00	1.12								
TOTAL	99.71	100.10	99.25	99.70	99.42	99.56	100.33	100.16								
Mg#	89.17	88.82	88.81	89.49	90.42	91.25	89.30	89.22								

Sc	12	16	16	11	12	8	10	20
V	77	79	77	72	85	43	64	81
Cr	2736	2564	2459	2998	3403	3052	2246	2808
Ni	1978	2152	2143	2183	2130	2319	2235	1962
Cu	24	23	26	20	32	<1	22	23
Zn	55	54	57	53	51	48	55	55
Ga	4	3	4	3	4	2	3	3
As	<1	<1	<1	<1	<1	<1	<1	<1
Rb	<1	2	<1	<1	<1	1	<1	1
Sr	15	20	9	5	6	9	10	34
Y	1	<1	1	1	<1	<1	<1	1
Zr	5	5	2	2	<1	<1	<1	3
Nb	2	2	1	2	<1	1	<1	2
Ba	<1	7	<1	<1	<1	6	3	<1
La	<1	1	<1	<1	<1	1	<1	5
Ce	1	3	<1	<1	<1	1	<1	6
Pb	3	4	3	1	4	3	3	4
Th	<1	1	<1	<1	<1	<1	<1	2
U	<1	<1	1	<1	<1	1	<1	<1

Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Or	0.30	0.30	0.12	0.18	0.12	0.12	0.06	0.18
Ab	5.84	2.96	4.65	5.16	4.99	3.47	3.05	2.88
An	6.80	7.12	6.59	6.01	6.46	2.90	5.89	8.81
Na	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Di	7.46	8.30	6.85	7.26	8.07	3.67	4.97	5.46
Hy	13.04	16.03	12.79	11.43	14.60	18.89	15.16	22.76
Ol	62.54	60.92	65.17	66.63	62.27	68.19	68.47	56.41
Mt	1.54	1.61	1.64	1.55	1.38	1.66	1.54	1.51
Il	0.28	0.25	0.23	0.19	0.19	0.02	0.23	0.23
Ap	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
TOTAL	97.82	97.51	96.06	98.43	98.10	98.67	99.51	96.27

Appendix Five: INAA Trace Element Analyses

Sample Type	90029G Gran rock	190029H Gran rock	190029H1 Gran cpx	190029H1 Gran cpx re	90031D Gran rock	90033C Pyxite rock	90033C Pyxite rock re	90033C Pyxite rock re	90033X Gran rock	90039G Gran rock
Sc	5.75	24.86	87.8	24.79	20.32	34.6	34.7	34.4	23.99	29.08
Cr	2.3	10	16	11.6	3.8	872	875	872	24.3	10.4
Ni	0	49	0	0	58	482	472	450	0	0
Zn	32	48	108	50	61	88	85	70	101	80
As	0	0	1.7	0	0	0	0	0	0	0
Br	0.3	0	0	0	0	0.24	0	0	0	0
Rb	7	0	0	0	0	0	0	0	0	0
Sr	1110	848	0	850	1111	530	417	400	780	816
Sb	-	-	-	0	-	-	0	0	-	-
Cs	-	-	-	0.08	-	-	0	0	-	-
Ba	417	149	0	99	192	142	170	43	268	124
La	14.94	4.07	3.24	4.18	17.83	6.52	6.61	6.49	23.78	4.35
Ce	31.5	8.7	11.7	8.1	40.4	17.1	20.3	18.7	54.9	9.3
Nd	17	5	8.3	3.9	21.1	10.7	12.8	11	31.5	5
Sm	3.49	1.3	3.3	1.31	5.61	3.85	3.93	3.87	7.45	1.53
Eu	3.26	1.05	1.11	1.064	2.7	1.38	1.36	1.373	3.47	1.184
Tb	0.414	0.171	0.56	0.219	0.686	0.57	0.57	0.566	0.837	0.248
Yb	0.56	0.39	0.97	0.4	1.14	0.93	0.99	0.93	1.05	0.47
Lu	0.063	0.047	0.187	0.077	0.128	0.122	0.138	0.131	0.151	0.053
Hf	0.37	0.94	2.95	0.93	1.02	2.26	2.29	2.11	0.67	1.17
Ta	1.2	1	3.73	0.97	1.03	1.23	1.21	1.19	0.94	1.17
Th	0.29	0.18	0	0.11	0.34	0.37	0.43	0.39	0.42	0.18

Sample Type	90039G Gran cpx	90039Sa Pyxite rock	90039Sa Pyxite cpx	90039Sb Pyxite rock	90039Y Pyxite rock	90040E Perid rock	90040E Perid cpx	90040H Perid rock	90040I Gran rock	90040U Perid rock
Sc	87.7	51	33.6	4.11	38.8	12.95	68.4	12.76	23.64	7
Cr	17.9	795	314	14.9	947	2286	5025	657	226	3016
Ni	252	449	188	173	556	1657	451	2047	181	2578
Zn	83	119	75	60	185	39	42	57	45	48
As	0	0	0	1.1	0	0	0	0	0	-
Br	0	0	0	0.25	0.35	0	0	0	0	0
Rb	0	0	0	11	10	6	0	0	0	0
Sr	0	0	528	1720	141	0	0	0	0	0
Sb	-	0	0	0	0	0	0.2	0	0.1	0
Cs	-	0	0	0.18	0.31	0	0.21	0.14	0.06	0
Ba	0	45	49	222	0	0	0	13	0	0
La	4.29	2.65	3.83	8.33	3.44	0.51	1.02	1.5	1.17	0.17
Ce	12.9	10	10.3	16.4	10.1	2.2	1.9	3.8	4.6	0.8
Nd	10	10.9	0	6.2	0	0	0	0	4.2	0.4
Sm	4.01	3.68	2.88	1.21	2.54	0.23	1.38	0.75	1.69	0.01
Eu	1.48	1.26	1.13	1.144	0.89	0.097	0.57	0.319	0.575	0
Tb	0.62	0.68	0.507	0.133	0.396	0.07	0.38	0.145	0.314	0.035
Yb	1.24	1.35	0.97	0.27	0.9	0.34	1.8	0.42	0.63	0.02
Lu	0.236	0.179	0.124	0.042	0.139	0.04	0.312	0.043	0.077	0.004
Hf	2.83	2.28	1.55	0.73	1.56	0.15	0.62	0.6	1	0
Ta	1.48	0.46	0.53	1.5	0.47	0.49	0.08	0.35	0.03	0.23
Th	0	0	0	0.39	0.18	0.14	0.44	0.1	0	0.05

Sample Type	90040U1 Perid rock	90041B Gran rock	90041B Gran cpx	90041C Gran rock	90041C Gran cpx	90054Aa Perid rock	90054Ab Perid rock	90054B Perid rock	90054B Perid cpx	90054C Pyxite rock
Sc	14.76	16.81	42.8	25.14	92.5	27.29	6.96	13.22	58.8	61.3
Cr	2785	228.8	572	79.4	292	5951	1139	2806	6196	985
Ni	1978	269	318	84	0	1798	2711	1984	450	352
Zn	39	47	68	24	65	50	48	47	23	95
As	-	-	-	-	-	-	-	-	-	-
Br	0	0	0	0	0	0.44	0	0	0	42
Rb	0	0	0	0	0	8	0	-	-	-
Sr	0	611	273	628	0	0	0	0	243	0
Sb	0	0	0	0.1	0	0	0	0	0.2	0
Cs	0	0.1	0	0	0.18	0	0	0	0.22	0
Ba	17	56	82	41	57	18	0	-	-	-
La	0.06	1.62	2.1	2.9	2.92	0.8	0.23	1.62	12.76	2.98
Ce	0	3.6	5.5	7	7.3	3.1	0.48	4.8	40.1	10.9
Nd	0	2.4	0	0	0	2.4	0	0	0	0
Sm	0.17	0.54	1.27	0.81	1.97	0.57	0.1	0.55	4.93	2.94
Eu	0.08	0.437	0.68	0.448	0.57	0.259	0.036	0.177	1.63	1
Tb	0.076	0.111	0.32	0.133	0.41	0.161	0.02	0.072	0.7	0.46
Yb	0.34	0.23	0.72	0.4	1.23	0.38	0.09	0.37	1.79	1.15
Lu	0.055	0.034	0.088	0.051	0.165	0.065	0.009	0.052	0.277	0.17
Hf	0.09	0.2	0.61	0.64	1.28	0.23	0.14	0.24	1.7	1.96
Ta	0.18	0.14	0.19	0.49	0.47	0.19	0.3	0.24	0.27	0.32
Th	0	0	0	0.57	0.83	0.12	0	0	0.18	0

Sample Type	90054E Perid rock	90054K Perid rock	90054K Perid cpx	PK4G Perid rock	PK4L Pyxite rock	PK4C1 Gran rock	PK4C1 Gran cpx	PK4G1 Perid rock	PK4H1a Perid rock	PK4H1b Perid rock
Sc	11.25	54.9	45.3	37.5	50.3	39.8	71.9	7.56	3.93	26.41
Cr	2936	335	439	5399	1216	421	685	2187	1580	4227
Ni	2185	184	343	1283	223	255	193	2216	2790	1454
Zn	54	117	178	24	62	63	60	41	51	39
As	-	-	-	-	-	0	0	0	0.33	0
Br	0	0	0	0	0	0	0	0	0.29	0
Rb	-	-	-	-	-	-	-	-	-	-
Sr	0	0	0	163	0	262	0	0	0	0
Sb	0	0	0	0	0	-	-	-	-	-
Cs	0.03	0.04	0	0	0	0.23	0	0	0	0.1
Ba	-	-	-	-	-	86	0	0	0	30
La	0.94	2.19	1.69	6.89	0.58	0.95	1.24	0.09	0.19	1.85
Ce	2.7	8.3	7.2	12	2.5	3.2	6.8	0	0	4.6
Nd	1.8	0	6	3.6	0	-	-	-	-	-
Sm	0.33	3.28	2.53	0.46	2.08	1.46	3	0.03	0.02	0.43
Eu	0.092	1.24	0.99	0.155	0.92	0.782	1.26	0.02	0.029	0.167
Tb	0.092	0.62	0.5	0.086	0.38	0.326	0.71	0	0.026	0.12
Yb	0.32	1.38	1.01	0.46	0.61	0.95	1.83	0.09	0	0.59
Lu	0.056	0.187	0.152	0.07	0.102	0.119	0.209	0.012	0.014	0.082
Hf	0.11	2.07	1.35	0.33	0.38	0.79	1.32	0	0	0.29
Ta	0.23	0.23	0.13	0.49	0	0.19	0.05	0.22	0.13	0.25
Th	0	0.1	0.15	0.56	0.09	0	0	0	0	0.18

Sample Type	PK4H1b Perid cpx	PK4H1c Perid rock	PK4H1c Perid cpx	PK4L1 Gran rock	PK4N1a Perid rock	PK4N1a Perid cpx	PK4N1f Perid cpx	PK4N1f Perid rock	PK5D Perid rock	PK5J Perid rock
Sc	56.1	15.07	54.1	42.7	44.6	39.5	13.62	57.9	5.27	13.18
Cr	6629	2565	4626	365	4377	422	2669	4799	1535	2812
Ni	511	2127	499	259	1495	263	2219	526	2527	2047
Zn	34	41	24	65	29	63	51	41	44	47
As	0	0	0	0	0	1.2	0.25	0	0	0
Br	0	0	0	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-
Sr	0	0	0	314	0	443	0	0	137	0
Sb	-	-	-	-	-	-	-	-	-	-
Cs	0	0	0	0	0.17	0.3	0	0	0	0
Ba	0	0	37	0	0	45	0	96	0	0
La	4.74	0.84	4.65	1	0.53	0.96	0.55	0.64	0.18	0
Ce	11.3	2.4	10.9	3.8	3.1	2.9	0	3.7	0	0
Nd	-	-	-	-	-	-	-	-	-	-
Sm	1.36	0.24	1.18	1.69	1.33	1.52	0.18	1.35	0.04	0.12
Eu	0.51	0.103	0.447	0.844	0.489	0.8	0.072	0.53	0.01	0.037
Tb	0.36	0	0.36	0.407	0.374	0.348	0.063	0.36	0	0.042
Yb	1.4	0.31	1.36	1.19	1.25	1	0.29	1.52	0	0.26
Lu	0.206	0.049	0.206	0.159	0.162	0.119	0.043	0.219	0.013	0.041
Hf	0.91	0.17	0.58	1.2	0.78	0.72	0	0.82	0	0.12
Ta	0.12	0.14	0.17	0.15	0.22	0.2	0.23	0	0.17	0.15
Th	0.57	0	0.6	0.17	0	0	0	0	0	0

Sample Type	MB69Ba Perid cpx	MB69Bb Perid cpx	MB69F Perid rock	MB69F Perid cpx	MB69H Perid rock	Silica tema
Sc	65.2	64.3	16.14	61.8	11.75	0.22
Cr	6696	5656	3214	5770	2124	4
Ni	566	462	2123	259	2177	0
Zn	18	49	41	29	45	0
As	0	0	0	0.34	0	0.32
Br	-	0	0	0.34	0	0.32
Rb	-	0	0	0	0	9
Sr	0	0	0	0	0	0
Sb	-	0	0	0	0	0.1
Cs	0	0	0	0	0	0.2
Ba	0	0	30	0	0	104
La	0.48	0.33	0.14	0.37	0.06	1.04
Ce	1.1	0	0	0	0	1.74
Nd	-	0	0	0	0	0
Sm	0.88	0.88	0.19	0.93	0.18	0.1
Eu	0.37	0.38	0.069	0.37	0	0.075
Tb	0.37	0.4	0.07	0.29	0.074	0.027
Yb	1.69	1.59	0.32	1.46	0.28	0
Lu	0.257	0.229	0.052	0.222	0.049	0.01
Hf	0.87	0.83	0	0.77	0.3	0.3
Ta	0.09	0	0.18	0	0.12	0.68
Th	0	0	0	0	0	0.29

Appendix Six: Isotope Analyses

Sample No.	90029G1	90029H1	90031D	90033C	90033X
Type	Granulite	Granulite	Granulite	Pyroxenite	Granulite
Rb ppm	2	1	4	3	1
Sr ppm	1190	903	1122	420	869
87Sr/86Sr	0.703454 +- 20	0.703250 +- 10	0.703490 +- 9	0.703066 +- 12	0.703758 +- 11
Sample No.	90039G	90039Sa	90039Sb	90039Y	90040H
Type	Granulite	Pyroxenite	Pyroxenite	Pyroxenite	Peridotite
Rb ppm	1	1	1	4	2
Sr ppm	849	67	529	80	41
87Sr/86Sr	0.703250 +- 9	0.702886 +- 17	0.702861 - 7	0.702931 +- 11	0.702690 +- 8
Sample No.	90040I	90041B	90041C	90054C	90054K
Type	Granulite	Granulite	Granulite	Pyroxenite	Pyroxenite
Rb ppm	2	1	2	1	1
Sr ppm	771	559	588	78	61
87Sr/86Sr	0.704333 +- 10	0.704416 +- 10	0.703283 +- 10	0.702638 +- 86	0.702820 +- 12
Sample No.	PK4L	PK4C1	PK4L1 (cpx)		
Type	Pyroxenite	Granulite	Granulite		
Rb ppm	1	2	1		
Sr ppm	37	302	259		
87Sr/86Sr	0.704576 +- 15	0.704242 +- 10	0.704198 +- 46		
Sample No.	90029G1	90031D	90039Sa	PK4L	PK4L1
Nd ppm	17.0	21.1	6.2		
Sm ppm	3.49	5.61	1.21	2.08	1.69
144Nd/143Nd	0.512864 +- 5	0.512870 +- 5	0.502819 +- 5	0.512771 +- 6	0.512819 +- 5
Sample No.	PK4L1 (cpx)		Sample No.	90029G1	90031D
Nd ppm			Pb ppm	4	6
Sm ppm			206Pb/204Pb	19.364	19.598
144Nd/143Nd	0.512818 +- 5		207Pb/204Pb	15.650	16.660
			208Pb/204Pb	39.008	39.182
Sample No.	90033X	90039Sa	90039Sb	PK4C1	PK4L1
Pb ppm	5	3	5	2	2
206Pb/204Pb	18.005	17.653	18.252	19.179	19.048
207Pb/204Pb	15.577	15.539	15.607	15.647	15.650
208Pb/204Pb	37.876	37.378	38.087	38.883	38.830
Sample No.	90029H1	90031D	90033X	90039Sa	90039Sb
$\Delta 18O$ ‰	4.62	5.33	4.04	4.13	3.78

A3.3 Mount Murphy Xenolith Mineral Analyses; olivine

Sample	90041A	90041A	90041A	90041A	90041A	90041B	90041B	90041B	90041B	90041B	90041B	90041B	90041B	90041B
Type	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran
	oxid r	symp c-	symp c-	symp r-	symp r-	core	core	core	core	core	core	core	core	core
SiO2	43.42	39.47	43.01	39.41	42.63	39.52	39.35	39.44	39.39	39.35	38.75	39.08	39.80	39.95
Al2O3	0.04	0.04	0.00	0.93	0.08	0.01	0.05	0.06	0.00	0.04	0.07	0.06	0.04	0.00
TiO2	0.00	0.00	0.00	0.26	0.04	0.03	0.05	0.07	0.06	0.00	0.00	0.05	0.08	0.08
FeO	1.52	28.92	2.35	28.69	1.19	17.47	17.78	17.00	17.90	17.42	17.40	17.95	17.08	17.12
MnO	0.27	0.39	0.22	0.57	0.31	0.36	0.49	0.48	0.27	0.27	0.29	0.32	0.33	0.45
MgO	54.46	30.47	54.79	29.19	55.92	42.91	43.17	42.81	42.62	42.76	43.50	42.53	43.32	43.03
CaO	0.08	0.04	0.00	0.76	0.17	0.05	0.02	0.04	0.02	0.07	0.02	0.03	0.02	0.03
Na2O	0.01	0.10	0.00	0.28	0.12	0.08	0.00	0.03	0.07	0.00	0.16	0.06	0.12	0.10
K2O	0.03	0.00	0.00	0.05	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.02	0.03	0.02
Cr2O3	0.46	0.09	0.16	0.31	0.17									
TOTAL	100.29	99.52	100.53	100.44	100.63	100.45	100.92	99.95	100.34	99.91	100.19	100.10	100.82	100.78
Si	1.019	1.057	1.011	1.049	0.999	0.998	0.991	1.000	1.000	0.997	0.981	0.992	0.999	1.002
Al	0.001	0.001	0.000	0.028	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.000
Ti	0.000	0.000	0.000	0.005	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000
Fe	0.030	0.648	0.046	0.638	0.023	0.369	0.374	0.360	0.371	0.369	0.368	0.381	0.358	0.359
Mn	0.006	0.009	0.004	0.013	0.006	0.007	0.010	0.010	0.006	0.005	0.006	0.006	0.007	0.009
Mg	1.904	1.216	1.919	1.157	1.952	1.615	1.619	1.617	1.611	1.615	1.641	1.609	1.620	1.609
Ca	0.002	0.001	0.000	0.021	0.004	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Na	0.000	0.005	0.000	0.014	0.005	0.003	0.000	0.000	0.000	0.000	0.007	0.003	0.006	0.005
K	0.001	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.009	0.002	0.003	0.006	0.003									
TOTAL	2.971	2.938	2.982	2.933	2.997	2.993	2.994	2.987	2.989	2.987	3.005	2.992	2.992	2.984
Mg#	98.46	65.25	97.66	64.46	98.82	81.40	81.23	81.79	81.28	81.40	81.68	80.85	81.90	81.76

Sample	90048D	90048D	90048D	90048D	90048E	90048E	90048E	90048E	90048E	90048E	90048F	90048F	90048F	90048F
Type	Pyxite	Pyxite	Pyxite	Pyxite	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran	Gran
	core	core	melt	melt	core	melt	melt	core	melt	melt	core	core	core	core
SiO2	36.98	37.48	38.78	38.33	37.00	38.18	38.46	36.25	38.37	39.03	37.05	38.20	37.38	38.40
Al2O3	0.06	0.06	0.11	0.07	0.03	0.09	0.10	0.01	0.07	0.05	0.07	0.13	0.07	0.09
TiO2	0.08	0.08	0.22	0.27	0.02	0.06	0.05	0.01	0.10	0.08	0.02	0.07	0.08	0.13
FeO	27.12	26.71	20.55	22.36	30.51	19.24	19.45	32.95	20.67	19.79	26.22	25.62	24.94	26.06
MnO	0.38	0.32	0.34	0.56	0.32	0.24	0.20	0.57	0.21	0.24	0.54	0.40	0.33	0.36
MgO	35.67	35.07	39.63	38.00	32.81	40.94	40.55	29.80	39.32	40.93	35.71	35.25	34.09	34.63
CaO	0.22	0.20	0.40	0.42	0.37	0.27	0.34	0.18	0.42	0.31	0.17	0.23	0.23	0.22
Na2O	0.04	0.10	0.01	0.00	0.00	0.04	0.04	0.00	0.02	0.00	0.00	0.04	0.27	0.14
K2O	0.01	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.33	0.04
Cr2O3	0.04	0.01	0.23	0.04								0.08	2.24	0.05
TOTAL	100.59	100.06	100.29	100.08	101.06	99.06	99.19	99.77	99.20	100.43	99.78	100.03	99.96	100.12
Si	0.982	0.997	1.001	0.999	0.992	0.989	0.996	0.998	0.999	0.998	0.987	1.009	0.995	1.015
Al	0.002	0.002	0.003	0.002	0.000	0.000	0.003	0.000	0.002	0.004	0.002	0.004	0.002	0.003
Ti	0.002	0.002	0.004	0.005	0.000	0.000	0.001	0.000	0.002	0.001	0.000	0.001	0.001	0.002
Fe	0.602	0.594	0.443	0.487	0.684	0.417	0.421	0.759	0.450	0.423	0.584	0.566	0.555	0.576
Mn	0.008	0.007	0.007	0.012	0.010	0.010	0.004	0.013	0.005	0.005	0.012	0.009	0.007	0.008
Mg	1.411	1.389	1.524	1.476	1.311	1.582	1.566	1.223	1.526	1.561	1.418	1.387	1.352	1.363
Ca	0.006	0.005	0.001	0.011	0.010	0.010	0.009	0.005	0.012	0.008	0.005	0.006	0.006	0.006
Na	0.002	0.005	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.000	0.000	0.002	0.013	0.007
K	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.011	0.001
Cr	0.001	0.000	0.005	0.001								0.002	0.047	0.001
TOTAL	3.015	3.002	2.989	2.994	3.007	3.008	3.002	2.998	2.998	3.000	3.008	2.986	2.988	2.981
Mg#	70.09	70.05	77.48	75.18	65.71	79.14	78.81	61.71	77.23	78.68	70.83	71.04	70.90	70.30

Sample Type	90041G Gran oxid	90041G Gran dk-	90041G Gran lgt	90041G Gran oxid	90041G Gran dk-	90041G Gran lgt	90041I Gran core	90041I Gran core	90041I Gran core	90041I Gran core	90041I Gran core	90041I Gran core	90041I Gran core	90041I Gran core
SiO2	39.12	37.13	39.67	38.16	39.34	40.92	39.83	39.73	39.50	39.18	36.93	41.59	41.25	37.79
Al2O3	0.12	0.01	0.01	0.04	0.02	0.05	0.11	0.08	0.04	0.01	0.01	0.00	0.00	0.00
TiO2	0.01	0.03	0.08	0.03	0.08	0.01	0.02	0.00	0.00	0.04	0.01	0.00	0.00	0.01
FeO	17.55	37.58	16.44	38.70	17.87	16.50	16.82	14.94	16.72	18.58	48.60	10.07	9.40	37.88
MnO	0.31	0.27	0.34	0.30	0.31	0.24	0.33	0.27	0.45	0.31	0.18	0.10	0.26	0.25
MgO	42.32	24.30	43.24	22.71	41.96	42.34	42.70	44.79	43.78	41.88	12.85	48.04	48.82	24.39
CaO	0.03	0.07	0.03	0.05	0.09	0.01	0.08	0.04	0.01	0.05	0.14	0.01	0.04	0.04
Na2O	0.11	0.10	0.00	0.10	0.12	0.01	0.07	0.04	0.01	0.00	0.27	0.00	0.00	0.01
K2O	0.09	0.01	0.05	0.01	0.02	0.03	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.03
Cr2O3	0.35	0.31	0.13	0.04	0.07	0.17	0.04	0.11	0.12	0.00	0.07	0.02	0.09	0.12
TOTAL	100.01	99.79	99.99	100.13	99.87	100.29	100.02	100.01	100.65	100.05	99.05	99.83	99.86	100.52

Si	0.996	1.039	1.003	1.066	1.002	1.027	1.008	0.997	0.994	1.000	1.100	1.018	1.009	1.049
Al	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000
Ti	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Fe	0.737	0.879	0.347	0.904	0.380	0.346	0.355	0.313	0.352	0.397	1.210	0.206	0.192	0.879
Mn	0.006	0.006	0.007	0.007	0.006	0.005	0.006	0.005	0.009	0.007	0.005	0.002	0.005	0.006
Mg	1.606	1.014	1.628	0.945	1.593	1.584	1.609	1.676	1.642	1.592	0.570	1.752	1.778	1.009
Ca	0.000	0.002	0.000	0.001	0.002	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.001	0.001
Na	0.005	0.005	0.000	0.005	0.005	0.000	0.000	0.001	0.000	0.000	0.016	0.000	0.000	0.001
K	0.002	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Cr	0.004	0.007	0.002	0.000	0.001	0.003	0.000	0.002	0.002	0.000	0.002	0.000	0.002	0.003

TOTAL	3.359	2.952	2.989	2.929	2.990	2.966	2.980	2.996	3.000	2.998	2.906	2.978	2.987	2.949
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Mg#	68.54	53.57	82.43	51.11	80.74	82.07	81.92	84.26	82.35	80.06	32.03	89.48	90.25	53.43
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Sample Type	90048G Gran core	90048G Gran core	90054C Pyxite core	90054C Pyxite core	90054C Pyxite core	90054C Pyxite core	90054I Pyxite core-	90054I Pyxite oxid dk-	90054I Pyxite oxid lgt	90054I Pyxite core	90054I Pyxite oxid dk-	90054I Pyxite oxid lgt	90054I Pyxite core	90054I Pyxite core
SiO2	34.63	34.96	38.24	38.60	38.75	38.26	38.62	40.19	37.52	38.80	40.11	37.17	39.23	39.93
Al2O3	0.08	0.07	0.05	0.15	0.12	0.11	0.04	0.00	0.35	0.04	0.05	0.29	0.05	0.05
TiO2	0.06	0.10	0.28	0.07	0.04	0.11	0.04	0.02	0.05	0.11	0.01	0.06	0.01	0.04
FeO	36.12	37.64	21.83	21.19	21.06	21.80	19.61	13.65	44.62	17.66	12.93	39.88	18.07	16.99
MnO	0.74	0.86	0.30	0.38	0.35	0.34	0.19	0.26	0.34	0.35	0.26	0.34	0.22	0.35
MgO	28.23	25.96	38.82	39.33	39.02	38.93	41.68	45.38	16.03	43.30	46.72	21.76	42.38	43.28
CaO	0.19	0.18	0.22	0.11	0.17	0.15	0.11	0.11	0.34	0.33	0.08	0.32	0.11	0.13
Na2O	0.00	0.28	0.00	0.00	0.07	0.12	0.01	0.00	0.23	0.09	0.00	0.48	0.00	0.07
K2O	0.02	0.06	0.00	0.04	0.00	0.00	0.04	0.00	0.05	0.06	0.02	0.08	0.01	0.03
Cr2O3	0.26	0.00	0.00	0.15	0.22	0.08	0.10	0.10	0.21	0.20				
TOTAL	100.32	100.10	99.74	100.02	99.80	99.90	100.42	99.71	99.75	100.93	100.18	100.37	100.07	100.86

Si	0.970	0.988	0.995	0.998	1.003	0.995	0.987	1.004	1.085	0.981	0.996	1.048	0.998	1.003
Al	0.003	0.002	0.002	0.004	0.004	0.003	0.001	0.000	0.012	0.001	0.001	0.009	0.001	0.001
Ti	0.001	0.002	0.005	0.001	0.001	0.002	0.001	0.000	0.001	0.002	0.000	0.001	0.000	0.000
Fe	0.846	0.890	0.475	0.458	0.456	0.474	0.419	0.285	1.079	0.373	0.268	0.940	0.384	0.356
Mn	0.017	0.020	0.006	0.008	0.007	0.007	0.004	0.005	0.008	0.007	0.005	0.008	0.004	0.007
Mg	1.177	1.093	1.504	1.515	1.505	1.508	1.588	1.689	0.691	1.631	1.728	0.914	1.607	1.619
Ca	0.005	0.005	0.006	0.003	0.005	0.004	0.003	0.003	0.010	0.009	0.002	0.009	0.002	0.003
Na	0.000	0.015	0.000	0.000	0.003	0.006	0.000	0.000	0.013	0.005	0.000	0.025	0.000	0.003
K	0.001	0.002	0.000	0.001	0.000	0.000	0.001	0.000	0.002	0.002	0.000	0.002	0.000	0.001
Cr	0.006	0.000	0.000	0.003	0.004	0.002	0.002	0.002	0.005	0.004				

TOTAL	3.025	3.017	2.993	2.993	2.988	3.000	3.006	2.988	2.906	3.014	3.000	2.956	2.996	2.993
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Mg#	58.20	55.14	76.01	76.79	76.76	76.09	79.12	85.56	39.03	81.38	86.57	49.30	80.71	81.97
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