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Analyse Service GmbH

GeoPT 37, England - ORPT-1, Rhyolite

Veranstalter: International Association of Geoanalysts and Geostandards Newsletter - GeoPT37
Ringversuchsmaterial: ORPT-1, (Rhyolite)
RV geschlossen: 2015 – 7
Literatur: Report - GeoPT37 Proficiency Testing Round (Laborcode CRB = P85)

Hauptelemente [MA%]

	CRB	RV	1sRV	Z-Score
Na_2O	4,53	4,59	0,073	0,41
MgO	0,48	0,47	0,011	0,47
Al_2O_3	12,58	12,55	0,172	0,09
SiO_2	74,97	74,84	0,782	0,08
P_2O5	0,058	0,057	0,002	0,28
K_2O	2,15	2,14	0,038	0,13
CaO	12,56	12,54	0,171	0,67
TiO_2	1,17	1,14	0,022	0,08
Fe_2O_3 tot	2,88	2,91	0,05	-0,29
MnO	0,061	0,060	0,002	0,27
L.O.I.	0,61	0,77	0,02	-5,09

Spurenelemente [µg/g]

	CRB	RV	1sRV	Z-Score
Ba	385	374	12,3	0,44
Ce	65	62,1	2,7	0,54
Cl *	95	82	55	---
Cr	65	65,3	2,8	-0,05
F *	200	312	149	---
Ga	18	16	0,5	1,19
Ge	1,6	1,48	0,1	0,56
Hf	6	7,5	0,4	-1,72
La	25	27	1,3	-0,76
Nd	31	34,8	1,6	-1,16
Ni	5	6	0,5	-1,32
Pb	2	5	0,3	-4,81
Pr	7	8,2	0,6	-1,25
Rb	50	52,1	2,3	-0,45
Sc	35	38,5	1,8	-0,32
Sm	8	9	0,5	-0,28
Sr	72	72	3,0	0,06
V	13	10,2	0,6	2,46
Y	71	70,8	3,0	0,04
Zn	55	51,2	2,3	0,85
Zr	240	245,8	8,6	-0,33

Legende

CRB: Ergebnisse CRB – **RV:** Ergebnisse Ringversuch -- **1s-RV:** Standardabweichung Ringversuch
Z-Score: Differenz des Messwertes vom Mittelwert des Ringversuchs -- ***** Wert nicht zertifiziert

Geo*PT*37 — AN INTERNATIONAL PROFICIENCY TEST FOR ANALYTICAL GEOCHEMISTRY LABORATORIES — REPORT ON ROUND 37 (Rhyolite, ORPT-1) / July 2015

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*Keywords: proficiency testing, quality assurance, Geo*PT*, Geo*PT*37, round 37, ORPT-1, rhyolite*

Abstract

Results are presented for Geo*PT*37, the routine subject of round thirty-seven of the International Association of Geoanalysts' Proficiency Testing programme for analytical geochemistry laboratories. The test sample distributed in this round was a rhyolite, ORPT-1, supplied by Dr Marcus Burnham of the Ontario Geological Survey. In this report, the data contributed from 102 laboratories are listed, together with an assessment of consensus values, consequent *z*-scores and charts to show the distribution of contributed results and the overall performance of participating laboratories.

Introduction

This thirty-seventh round of the international proficiency testing programme, Geo*PT*, was conducted in a similar manner to earlier rounds. The programme is designed to be part of the routine quality assurance procedures employed by analytical geochemistry laboratories. The programme is organised by the International Association of Geoanalysts and is conducted in accordance with a published protocol available at (http://www.geoanalyst.org/documents/ GeoPT-protocol.pdf). The overall aim of the programme is to provide participating laboratories with *z*-score information for reported elemental determinations from which the laboratory can decide whether the quality of their data is satisfactory in relation both to their chosen fitness-for-purpose criteria and to the results submitted by other laboratories contributing to the round and can choose to take corrective action if this appears justified.

Steering Committee for Round 37: P.C. Webb (results coordinator), M. Thompson (statistical advisor), P.J. Potts and C.J.B. Gowing (analytical advisors), M. Burnham (provision of ORPT-1).

Timetable for Round 37:

Distribution of sample: March 2015.
Results submission deadline: 12th June 2015.
Release of report: July 2015

Test Material details

Geo*PT*37: The rhyolite test material, ORPT-1, was produced at the Ontario Geological Survey under the direction of Marcus Burnham. The test material was evaluated for homogeneity by the originator and as a result, the sample was considered suitable for use in this proficiency test.

Submission of results

3676 results were submitted for Geo*PT*37 (ORPT-1) by 102 laboratories as listed in Table 1. Data were submitted using the recently introduced online system. In Table 1 results designated as data quality 1 are shown in bold: results of data quality 2 are shown underlined. Results from all laboratories submitting data were used to assess respective assigned values. It is gratifying that

only 2 laboratories (10 values) reported values of '0' i.e. zero for this round, following our reiteration that in the **Instructions to Analysts** we state that such values should not be reported. Those 10 values were excluded from consideration.

Assigned values

Following procedures described in earlier rounds, a robust statistical procedure was used to derive assigned concentration values [X_a], these being judged to be the best available estimates of the true composition of this sample. Values were assigned on the basis that: (i) sufficient laboratories had contributed data for an element, and (ii) the statistical assessment gave confidence that the results distribution showed a central portion approximating to a normal distribution. Part of this assessment involved examining a bar chart of contributed data for each element to judge the distribution of results.

Table 2 lists assigned and provisional values for 11 major components and 42 trace elements in Geo*PT*37 (ORPT-1). Bar charts for the 53 elements/components of Geo*PT*37 that were judged to have satisfactory distributions for consensus values to be designated as assigned or provisional values are shown in Figure 1. These are: SiO_2, TiO_2, Al_2O_3, Fe_2O_3T, MnO, MgO*, CaO, Na_2O, K_2O, P_2O_5, LOI*, Ba, Be, Bi, Ce, Co, Cr*, Cs, Cu, Dy, Er, Eu, Ga, Gd, Ge*, Hf, Ho, La, Li, Lu, Mo, Nb, Nd, Ni*, Pb, Pr, Rb, Sc, Sm, Sn, Sr, Ta, Tb, Th, Tl*, Tm, U, V, W*, Y, Yb, Zn and Zr. Of these, only provisional values were given to the 7 marked '*'. Instances of provisional status were recorded because either i) a relatively small number of measurements contributed to the consensus, or ii) the results were significantly dispersed in relation to the target value or the distribution was in part non-symmetrical.
In 14 cases the robust mean was used to define the consensus value, but in 37 cases the median value was preferred. In 2 cases a mode provided the most satisfactory consensus value, one of which was suitable for the value to be assigned, the other was given provisional status (see Table 2). The procedure used to determine the mode was based on the analysis of mixed populations detailed in Thompson (2006) and used in several rounds of Geo*PT* since round Geo*PT*23.

Bar charts for the 13 elements/components: Fe(II)O, H_2O^+, Ag, As, B, C(tot), Cd, Cl, F, In, S, Sb and Se are plotted in Figure 2 for information only, as the data were insufficient, highly skewed or too variable for the reliable determination of a consensus.

***Z*-score analysis**

As in previous rounds, laboratories were invited to choose one of two performance standards against which their analytical results would be judged:
Data quality 1 for laboratories working to a 'pure geochemistry' standard of performance, where analytical results are designed for geochemical research and where care is taken to provide data of high precision and accuracy, sometimes at the expense of a reduced sample throughput rate. For Geo*PT*37, 1665 results of data quality 1 were submitted.
Data quality 2 for laboratories working to an 'applied geochemistry' standard of performance, where, although precision and accuracy are still important, the main objective is to provide results on large numbers of samples collected, for example, as part of geochemical mapping projects or geochemical exploration programmes. For Geo*PT*37, 2011 results of data quality 2 were submitted.

The target standard deviation (H_a) for each element assessed was calculated from a modified form of the Horwitz function as follows:
$H_a = k.X_a^{0.8495}$
Where X_a is the concentration of the element expressed as a *fraction*; the factor k = 0.01 for pure geochemistry labs and k = 0.02 for applied geochemistry labs.
Z-scores were calculated for each elemental result submitted by each laboratory from:
$z = [X - X_a] / H_a$
where: X is the contributed result, X_a is the assigned value and H_a is the target standard deviation.

Z-score results for contributors to Geo*PT*37 are listed in Table 3. Results designated as data quality 1 are shown

in bold: results of data quality 2 are shown underlined. Where *z*-scores are derived from provisional values, they are shown in italics.

Participating laboratories are invited to assess their performance using the following criterion:– *Z*-score results in the range $-2<z<2$ are considered to be 'satisfactory' (in the sense that no action is called for by the participant). If the *z*-score for any element falls outside this range, especially if it is outside the range $-3<z<3$, it would be advisable for the contributing laboratory to examine its procedures, and if necessary, take action to ensure that determinations are not subject to unsuspected analytical bias.

Overall performance

A summary of the overall performance of individual laboratories for this round is plotted in multiple *z*-score charts in Figure 3. In these charts, the *z*-score performance for each element is distinguished by symbols that make it simple to identify whether the results were satisfactory or gave *z*-scores that exceeded the action limits. This chart is designed to help individual laboratories to judge their overall performance in this proficiency testing round. Participants should always review their *z*-scores in accord with their own fitness-for-purpose criteria.

Participation in future rounds

The benefit from proficiency testing arises from regular participation and laboratories are invited to contribute to the Geo*PT*38 round, the test sample for which will be distributed during September 2015.

Acknowledgements

The authors thank Liz Lomas for much-valued assistance in distributing this sample.

Reference

Thompson, M. (2006). Using mixture models for bump-hunting in the results of proficiency tests. Accred. Qual. Assur., 10, 501-505.

Appendix 1

Publication status of proficiency testing reports. Previous reports are available for download from the IAG website (http://www.geoanalyst.org/).

Geo*PT*1
Thompson M., Potts P.J., Kane J.S. and Webb P.C. (1996) Geo*PT*1. International proficiency test for analytical geochemistry laboratories - Report on round 1. Geostandards Newsletter: The Journal of Geostandards and Geoanalysis, 20, 295-325.

Geo*PT*2
Thompson M., Potts P.J., Kane J.S., Webb P.C. and Watson, J.S. (1998) Geo*PT*2. International proficiency test for analytical geochemistry laboratories - Report on round 2. Geostandards Newsletter: The Journal of Geostandards and Geoanalysis, 22 127-156.

Geo*PT*3
Thompson M., Potts P.J., Kane J.S. and Chappell B.W. (1999a) Geo*PT*3. International proficiency test for analytical geochemistry laboratories - Report on round 3. Geostandards Newsletter: The Journal of Geostandards and Geoanalysis, 23, 87-121.

Geo*PT*4
Thompson M., Potts P.J., Kane J.S., Webb P.C. and Watson J.S. (1999b) Geo*PT*4. International proficiency test for analytical geochemistry laboratories - Report on round 4. Published in the electronic version of Geostandards Newsletter: The Journal of Geostandards and Geoanalysis (Summer 2000).

Geo*PT*5
Thompson M., Potts P.J., Kane J.S., and Wilson S. (1999c) Geo*PT*5. International proficiency test for analytical geochemistry laboratories - Report on round 5. Published in the electronic version of Geostandards Newsletter: The Journal of Geostandards and Geoanalysis (Summer 2000).

Geo*PT*6
Potts P.J., Thompson M., Kane J.S., Webb P.C. and Carignan J. (2000) GEO*PT*6 - an international proficiency test for analytical geochemistry laboratories - report on round 6 (OU-3: Nanhoron microgranite) and 6A (CAL-S: CRPG limestone). International Association of Geoanalysts: Unpublished report.

Geo*PT*7
Potts P.J., Thompson M., Kane J.S., and Petrov L.L. (2000) GEO*PT*7 - an international proficiency test for analytical geochemistry laboratories - report on round 7 (GBPG-1 Garnet-biotite plagiogneiss). International Association of Geoanalysts: Unpublished report.

Geo*PT*8
Potts P.J., Thompson M., Kane J.S., Webb, P.C. and Watson J.S. (2000) GEO*PT*8 - an international proficiency test for analytical geochemistry laboratories - report on round 8 / February 2001 (OU-4 Penmaenmawr microdiorite). International Association of Geoanalysts: Unpublished report.

Geo*PT*9
Potts P.J., Thompson M., Webb, P.C. and Watson J.S. (2001) GEO*PT*9 - an international proficiency test for analytical geochemistry laboratories - report on round 9 / July 2001 (OU-6 Penrhyn slate). International Association of Geoanalysts: Unpublished report.

Geo*PT*10
Potts P.J., Thompson M., Webb, P.C., Watson J.S. and Wang Yimin (2001)
GEO*PT*10 - an international proficiency test for analytical geochemistry laboratories - report on round 10 / December 2001 (CH-1 Marine sediment). International Association of Geoanalysts: Unpublished report.

Geo*PT*11
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Watson J.S. (2002)
GEO*PT*11 - an international proficiency test for analytical geochemistry laboratories - report on round 11 / July 2002 (OU-5 Leaton dolerite). International Association of Geoanalysts: Unpublished report.

Geo*PT*12
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Batjargal B. (2003)
GEO*PT*12 - an international proficiency test for analytical geochemistry laboratories - report on round 12 / January 2003 (GAS Serpentinite). International Association of Geoanalysts: Unpublished report.

Geo*PT*13
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Kaspar H.U. (2003)
GEO*PT*13 - an international proficiency test for analytical geochemistry laboratories - report on round 13 / July 2003 (Köln Loess). International Association of Geoanalysts: Unpublished report.

Geo*PT*14
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and B. Batjargal (2004)
Geo*PT*14 - an international proficiency test for analytical geochemistry laboratories - report on round 14 / January 2004 (OShBO - alkaline granite). International Association of Geoanalysts: Unpublished report.

Geo*PT*15
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and WANG Yimin (2004)
Geo*PT*15 - an international proficiency test for analytical geochemistry laboratories - report on round 15 / June 2004 (Ocean floor sediment MSAN). International Association of Geoanalysts: Unpublished report.

Geo*PT*16
Potts P.J., Thompson M., Webb, P.C. and S.Wilson (2005)
Geo*PT*16 - an international proficiency test for analytical geochemistry laboratories - report on round 16 / February 2005 (Nevada basalt, BNV-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*17
Potts P.J., Thompson M., Webb, P.C. and J. Nicholas Walsh (2005)
Geo*PT*17 - an international proficiency test for analytical geochemistry laboratories - report on round 17 / July 2005 (Calcareous sandstone, OU-8). International Association of Geoanalysts: Unpublished report.

Geo*PT*18
Webb, P.C., Thompson M., Potts P.J. and L. Paul Bedard (2006)
Geo*PT*18 - an international proficiency test for analytical geochemistry laboratories - report on round 18 / Jan 2006 (Quartz Diorite, KPT-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*19
Webb, P.C., Thompson M., Potts P.J. and B. Batjargal (2006)
Geo*PT*19 - an international proficiency test for analytical geochemistry laboratories - report on round 19 / July 2006 (Gabbro, MGR-N). International Association of Geoanalysts: Unpublished report.

Geo*PT*20
Webb, P.C., Thompson M., Potts P.J. and M. Burnham (2007)
Geo*PT*20 - an international proficiency test for analytical geochemistry laboratories - report on round 20 / Jan 2007 (Ultramafic rock, OPY-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*21
Webb, P.C., Thompson M., Potts P.J. and B. Batjargal (2007)
Geo*PT*21 - an international proficiency test for analytical geochemistry laboratories - report on round 21 / July 2007 (Granite, MGT-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*22
Webb, P.C., Thompson, M., Potts, P.J. and Batjargal, B. (2008)
Geo*PT*22 - an international proficiency test for analytical geochemistry laboratories - report on round 22 / January 2008 (Basalt, MBL-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*23
Webb, P.C., Thompson, M., Potts, P.J., Watson, J.S. and Kriete, C. (2008)
Geo*PT*23 - an international proficiency test for analytical geochemistry laboratories - report on round 23 / September 2008 (Separation Lake pegmatite, OU-9) and 23A (Manganese nodule, FeMn-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*24
Webb, P.C., Thompson, M., Potts, P.J. and Watson, J.S. (2009)
Geo*PT*24 - an international proficiency test for analytical geochemistry laboratories - report on round 24 / January 2009 (Longmyndian greywacke, OU-10). International Association of Geoanalysts: Unpublished report.

Geo*PT*25
Webb, P.C., Thompson, M., Potts, P.J. and Enzweiler, J. (2009)
Geo*PT*25 - an international proficiency test for analytical geochemistry laboratories - report on round 25 / July 2009 (Basalt, HTP-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*26
Webb, P.C., Thompson, M., Potts, P.J. and Loubser, M. (2010)
Geo*PT*26 - an international proficiency test for analytical geochemistry laboratories - report on round 26 / January 2010 (Ordinary Portland cement, OPC-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*27
Webb, P.C., Thompson, M., Potts, P.J. and Batjargal, B. (2010)
Geo*PT*27 - an international proficiency test for analytical geochemistry laboratories - report on round 27 / July 2010 (Andesite, MGL-AND). International Association of Geoanalysts: Unpublished report.

Geo*PT*28
Webb, P.C., Thompson, M., Potts, P.J. and Wilson, S. (2011)
Geo*PT*28 - an international proficiency test for analytical geochemistry laboratories - report on round 28 / January 2011 (Shale, SBC-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*29
Webb, P.C., Thompson, M., Potts, P.J. and Wilson, S. (2011)
Geo*PT*29 - an international proficiency test for analytical geochemistry laboratories - report on round 29 / July 2011 (Nephelinite, NKT-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*30
Webb, P.C., Thompson, M., Potts, P.J., Long, D. and Batjargal, B. (2012)
Geo*PT*30 - an international proficiency test for analytical geochemistry laboratories - report on round 30 / January 2012 (Syenite, CG-2) and 30A (Limestone, ML-2). International Association of Geoanalysts: Unpublished report.

Geo*PT*31
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2012)
Geo*PT*31 - an international proficiency test for analytical geochemistry laboratories - report on round 31 / July 2012 (Modified river sediment, SdAR-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*32
Webb, P.C., Thompson, M., Potts, P.J and Webber, E. (2013)
Geo*PT*32 - an international proficiency test for analytical geochemistry laboratories - report on round 32 / January 2013 (Woodstock Basalt, WG-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*33
Webb, P.C., Thompson, M., Potts, P.J., Prusisz, B., and Young, K. (2013)
Geo*PT*33 - an international proficiency test for analytical geochemistry laboratories - report on round 33 / July-August 2013 (Ball Clay, DBC-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*34
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)
Geo*PT*34 - an international proficiency test for analytical geochemistry laboratories - report on round 34 / January 2014 (Granite, GRI-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*35
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)
Geo*PT*35 - an international proficiency test for analytical geochemistry laboratories - report on round 35 / August 2014 (Tonalite, TLM-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*35A
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)
Geo*PT*35A - an international proficiency test for analytical geochemistry laboratories - report on round 35A / August 2014 (Metalliferous sediment, SdAR-H1). International Association of Geoanalysts: Unpublished report.

Geo*PT*36
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2015)
Geo*PT*36 - an international proficiency test for analytical geochemistry laboratories - report on round 36 / January 2015 (Gabbro, GSM-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*36A
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2015)
Geo*PT*36A - an international proficiency test for analytical geochemistry laboratories - report on round 36A / January 2015 (Metal-rich sediment, SdAR-M2). International Association of Geoanalysts: Unpublished report.

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
SiO2	g 100g^{-1}	**75.1**	75.6	**74.98**	74.8	74.75	74.929	75.04	75.97		75.19	**74.99**	74.25	75.22
TiO2	g 100g^{-1}	**0.3**	0.29	**0.296**	0.302	0.296	0.307	0.308	0.262	0.172	0.3	**0.292**	0.33	0.32
Al2O3	g 100g^{-1}	**12.6**	12.5	**12.5**	12.54	12.63	12.65	12.72	11.4	1.512	12.57	**12.75**	13.61	12.22
Fe2O3T	g 100g^{-1}	**2.91**	2.85	**2.71**	3.01	2.924	2.967	2.89	3.09	2.606	2.89	**2.91**	3.22	2.95
Fe(II)O	g 100g^{-1}	**1.95**								2.345				
MnO	g 100g^{-1}	**0.06**		**0.059**	0.059	0.065	0.061	0.053	0.058	0.051	0.06	**0.056**	0.07	0.06
MgO	g 100g^{-1}	**0.48**	0.48	**0.55**	0.463	0.400	0.472	0.462	0.45	0.341	0.46	**0.48**	0.51	0.5
CaO	g 100g^{-1}	**1.15**	1.15	**1.15**	1.18	1.111	1.197	1.15	1.14	0.448	1.14	**1.15**	0.78	1.18
Na2O	g 100g^{-1}	**4.59**	4.59	**4.56**	4.49	4.772	4.526	4.48	4.93	0.078	4.63	**4.69**	4.89	4.64
K2O	g 100g^{-1}	**2.16**	2.11	**2.15**	2.14	2.163	2.125	2.17	2.11	0.13	2.17	**2.19**	1.72	2.19
P2O5	g 100g^{-1}	**0.06**		**0.052**	0.056	0.058		0.057	0.045	0.049	0.05	**0.057**	0.08	0.037
H2O+	g 100g^{-1}													
CO2	g 100g^{-1}													
LOI	g 100g^{-1}	**0.79**	0.9	**0.73**	0.809	0.78	0.75		0.8		0.66	**0.63**	0.5	0.685
Ag	mg kg^{-1}									0.22				
As	mg kg^{-1}									0.47				0.5
Au	mg kg^{-1}													
B	mg kg^{-1}									1.12				
Ba	mg kg^{-1}	**359**	394	**377**		381.1	388.3		380	16.64	352	**357**		333.9
Be	mg kg^{-1}		1.38				1.4		1.4	0.51				
Bi	mg kg^{-1}								0.09	0.05				0.7
Br	mg kg^{-1}													
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}													
Cd	mg kg^{-1}								0.09	0.12				
Ce	mg kg^{-1}		63.7	**63.01**		71.4	61.12		65	25		**53**		117.5
Cl	mg kg^{-1}					33.3								
Co	mg kg^{-1}		2.9			20.5	3		2.99					4.3
Cr	mg kg^{-1}	**74.2**	62	**74**		65.9	84.1		63	34	64	**57**		58.3
Cs	mg kg^{-1}		0.57	**0.55**			0.52		0.61					2.4
Cu	mg kg^{-1}		11.8	**11**		10.3	11.7		12.1	9.94	10			10.5
Dy	mg kg^{-1}		11.9	**12.93**			11.95		12.1	4.69				
Er	mg kg^{-1}		7.42	**7.98**			7.92		8.1	2.74				
Eu	mg kg^{-1}		1.33	**1.45**			1.34		1.37	0.53				
F	mg kg^{-1}								457					
Ga	mg kg^{-1}	**12.8**	17.4	**16**		18.6	16.25		16.6		14	**15**		14.3
Gd	mg kg^{-1}		10.45	**10.49**			9.51		10.3	4.88				
Ge	mg kg^{-1}									0.11				
Hf	mg kg^{-1}		8.1	**7.48**			7.46							10.5
Hg	mg kg^{-1}													
Ho	mg kg^{-1}		2.54	**2.72**			2.57		2.6	0.95				
I	mg kg^{-1}													1.7
In	mg kg^{-1}		0.06											
La	mg kg^{-1}		27.8	**27.56**		36.8	26.16		28	10	22	**19**		59.8
Li	mg kg^{-1}		6.6						6.2	5.08				
Lu	mg kg^{-1}		1.22	**1.25**			1.23		1.3	0.33				
Mo	mg kg^{-1}		4.84				4.39		4.6	2.6				2.9
Nb	mg kg^{-1}	**10.9**	11.6	**10.13**		11.1	9.68		11.6	0.46		**11**		10.9
Nd	mg kg^{-1}		36	**35.07**		50.1	34.49		36			**32**		50.4
Ni	mg kg^{-1}		6.5	**10**			9.4		5.8	3.2				2.7
Pb	mg kg^{-1}		5.2	**5.47**		6.9	4.8		5.2	3.19		**7**		33.2
Pd	mg kg^{-1}													
Pr	mg kg^{-1}		8.28	**8.35**			8.03		8.5	3.42				
Rb	mg kg^{-1}		51.6	**52.1**		54.5	49.79		48.7	6		**53**		49.1
Re	mg kg^{-1}													
S	mg kg^{-1}					110.4			192					200
Sb	mg kg^{-1}					17.7			0.27					3.5
Sc	mg kg^{-1}		7.1	**7.5**			7.2		7.5					3.9
Se	mg kg^{-1}													
Sm	mg kg^{-1}		9.34	**9.31**		15.4	8.86		9.3	4.1				7.5
Sn	mg kg^{-1}		3.4				3.49		3.5	1.04				7.6
Sr	mg kg^{-1}	**74.6**	70.8	**75**		70.9	73.7		69.8	8	63	**72**		67.6
Ta	mg kg^{-1}		1	**0.97**			0.94		0.97					2
Tb	mg kg^{-1}		1.83	**1.92**			1.81		1.81	0.79				
Te	mg kg^{-1}													2.2
Th	mg kg^{-1}		4.92	**5.15**		6.75	4.67		5.2	1.87				4.2
Tl	mg kg^{-1}								0.19	0.02				
Tm	mg kg^{-1}		1.22	**1.22**			1.2		1.23					
U	mg kg^{-1}		1.35	**1.31**			1.28		1.27	0.46				2.1
V	mg kg^{-1}	**23.8**		**14**		13.1	9.9		11.4	5	10	**10**		6.9
W	mg kg^{-1}								0.88	0.31				2.9
Y	mg kg^{-1}		69.7	**74.41**		74.9	64.71					**74**		68
Yb	mg kg^{-1}		8.21	**7.82**			8.2		8.3	2.37		**9**		7.2
Zn	mg kg^{-1}	**50.2**	52	**53**		55.3	52.9		51.8	47.06	50	**49**		45.7
Zr	mg kg^{-1}	**249**	257	**250**		248.3	221.7		273	39.66		**262**		254.3

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P14	P15	P16	P17	P19	P20	P22	P23	P24	P26	P27	P28	P29
SiO2	g 100g^{-1}	75.14	74.9	74.27	74.9	75.06	74.601			77.49	74.7	75.18	74.58	73.14
TiO2	g 100g^{-1}	0.627	0.3	0.3		0.29	0.308	0.298	0.32	0.29	0.31	0.3	0.31	0.305
Al2O3	g 100g^{-1}	11.69	12.4	12.74	12.08	12.85	12.604	12.059	13.1	10.82	12.59	12.83	12.86	14.04
Fe2O3T	g 100g^{-1}	3.715	2.94	2.87	3.36	2.9	2.904	2.71	3.1	2.55	3.2	2.89	3.1	2.95
Fe(II)O	g 100g^{-1}						2.052					1.898		
MnO	g 100g^{-1}	0.1	0.058	0.07		0.056	0.061		0.06	0.05	0.06	0.06	0.063	0.058
MgO	g 100g^{-1}	0.364	0.45	0.43	0.53	0.32	0.499	0.437	0.49	0.39	0.52	0.54	0.52	0.43
CaO	g 100g^{-1}	0.844	1.15	1.15	1.15	1.16	1.131	1.08	1.2	1.08	1.23	1.14	1.17	1.16
Na2O	g 100g^{-1}	2.486	4.36	4.56		4.74	4.6	4.31	4.89	4.22	4.52	4.63	4.64	4.77
K2O	g 100g^{-1}	4.24	2.15	2.13		2.11	2.1	2.01	2.27	2.09	2.15	2.14	2.17	2.18
P2O5	g 100g^{-1}	0.093	0.057	0.06		0.056	0.052	0.048		0.05	0.08	0.06	0.064	0.059
H2O+	g 100g^{-1}	0.020					0.884	0.05						
CO2	g 100g^{-1}						0.019							
LOI	g 100g^{-1}	0.706	0.82	0.88	0.85	0.07	0.82			0.98	0.75	0.787	0.8	
Ag	mg kg^{-1}											0.06		
As	mg kg^{-1}	21				4.9		1.03		0.77		0.62		5
Au	mg kg^{-1}													
B	mg kg^{-1}													
Ba	mg kg^{-1}		380			335	364.990	368	389	380.340	387	381	383.1	317
Be	mg kg^{-1}						1.438	1.36		1.37		1.2	1.72	
Bi	mg kg^{-1}						0.08	0.095				0.1		
Br	mg kg^{-1}													3
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}													
Cd	mg kg^{-1}						0.104	0.085				0.16		
Ce	mg kg^{-1}		51.6			51	58.388	57	66	60.42		64.46	64.5	77.5
Cl	mg kg^{-1}											30		
Co	mg kg^{-1}					2.5	2.863	2.74	3.21	2.65		3.07	3.5	7
Cr	mg kg^{-1}		64.3			51	70.582		78.6	68.51		81.36	81.5	59
Cs	mg kg^{-1}						0.576	0.55	0.66	0.54		0.59	0.676	
Cu	mg kg^{-1}	10				9.5	11.905		12.6	14.37		15.58	11.11	15
Dy	mg kg^{-1}						11.736	11.69	12.8	10.95		12.17	11.91	13.54
Er	mg kg^{-1}						7.551	7.67	8.43	6.7		7.76	7.83	8.76
Eu	mg kg^{-1}						1.255	1.29	1.36	1.32		1.31	1.32	1.49
F	mg kg^{-1}											45		
Ga	mg kg^{-1}	16	17.8			16	15.43	14.44		15.33	14	16.71	31.35	14
Gd	mg kg^{-1}						9.785	10.37	10.8	9.51		10.24	10.11	11.03
Ge	mg kg^{-1}							1.34		1.15		1.35		
Hf	mg kg^{-1}					8.3	7.38			10.67		7.71	6.35	7
Hg	mg kg^{-1}													
Ho	mg kg^{-1}						2.457	2.48	2.78	2.07		2.52	2.6	2.87
I	mg kg^{-1}													
In	mg kg^{-1}						0.056							
La	mg kg^{-1}					21	25.626	23.3	30	26.47		27.94	27.45	29.9
Li	mg kg^{-1}						5.52		6.24	5.26			6.7	
Lu	mg kg^{-1}						1.187	1.16	1.31	1.21		1.15	1.2	1.3
Mo	mg kg^{-1}	11				3.2	4.854	4.08				4.9	3.31	
Nb	mg kg^{-1}	17				14	10.622			17.8	12	11.13	9.89	14
Nd	mg kg^{-1}		25			31	34.383	33.44	38.6	34.3		36.3	35.33	39.5
Ni	mg kg^{-1}	4					5.338		6.11	5.55		8.97	7.68	5
Pb	mg kg^{-1}	4				5	4.887	5.63	5.15	5.87		5.2	5.03	5
Pd	mg kg^{-1}													
Pr	mg kg^{-1}						7.997	7.99	9.06	7.92		8.36	8.35	9.2
Rb	mg kg^{-1}	55	51.2			46	51.285	47.5		51.64	52	52.9	52.73	54
Re	mg kg^{-1}													
S	mg kg^{-1}						0.007					186		
Sb	mg kg^{-1}						0.205	0.58		0.12		0.3		
Sc	mg kg^{-1}					4.8	7.619			7.03		6.83	7.8	8.3
Se	mg kg^{-1}													
Sm	mg kg^{-1}						8.734	8.76	9.84	8.89		8.49	9.01	9.92
Sn	mg kg^{-1}						3.748			3.26		3.61		
Sr	mg kg^{-1}	70	70.4			66	68.847	69.7	77	70.39	80	74.69	71.82	82
Ta	mg kg^{-1}						0.93			2.67		0.93	0.75	
Tb	mg kg^{-1}						1.706	1.76	1.87	1.61		1.75	1.8	2.05
Te	mg kg^{-1}													
Th	mg kg^{-1}	13				4.6	4.77	4.68	5.15	4.91		4.87	4.27	5.58
Tl	mg kg^{-1}						0.166							
Tm	mg kg^{-1}						1.146	1.17	1.31	1.27				1.26
U	mg kg^{-1}	9					1.225	1.3	1.68	1.28		1.29	1.32	
V	mg kg^{-1}					7.9	8.627	9.4	10.9	9.2		10.3	13.8	9
W	mg kg^{-1}	4					0.744	0.86				0.85		
Y	mg kg^{-1}	75	67.6			68	70.905	63.1	77.9	75.08	78	69.8	80.02	84.3
Yb	mg kg^{-1}					6.9	7.707	7.89	8.4	7.8		8.01	8.06	8.57
Zn	mg kg^{-1}	55	49.8			46	48.776	53.6	50.2	54.08	51	53.98	51.14	54
Zr	mg kg^{-1}	249	221			238	248.358	209		384.530	267	255	231.6	252

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P30	P31	P32	P34	P35	P37	P38	P39	P40	P41	P42	P43	P44
SiO2	g 100g-1	75.05	73.54	74.35	74.78	72.72	**64.219**	**74.54**	75.1	74.66	74.852	74.67	75.57	76.15
TiO2	g 100g-1	0.31	0.29	0.296	0.297	0.287	**0.297**	**0.27**	0.3	0.325	0.288	0.3	0.308	0.28
Al2O3	g 100g-1	12.55	12.76	12.55	12.45	12.05	**12.499**	**12.36**	12.4	12.507	12.402	12.82	12.6	11.32
Fe2O3T	g 100g-1	2.9	3.12	2.92	2.86	2.81	**2.972**	**2.88**	2.92	2.828	2.922	2.91	2.929	2.94
Fe(II)O	g 100g-1				2.25								2.58	0.35
MnO	g 100g-1	0.052	0.07	0.062	0.058	0.059	**0.059**	**0.06**	0.058	0.056	0.059	0.057	0.048	0.07
MgO	g 100g-1	0.446	0.42	0.489	0.5	0.45	**0.628**	**0.48**	0.43	0.489	0.486	0.49	0.462	0.24
CaO	g 100g-1	1.14	1.07	1.119	1.2	1.07	**0.992**	**1.14**	1.06	1.185	1.147	1.14	1.178	1.18
Na2O	g 100g-1	4.37	4.68	4.651	4.5	4.55	**4.606**	**4.43**	4.37	4.66	4.558	4.63	4.52	4.86
K2O	g 100g-1	2.14	2.17	2.151	2.17	2.1	**2.048**	**2.14**	2.15	2.27	2.158	2.15	2.146	2.15
P2O5	g 100g-1	0.06	0.07	0.051	0.057	0.055		**0.07**	0.05	0.056	0.059	0.06	0.052	0.05
H2O+	g 100g-1												1.2	
CO2	g 100g-1													
LOI	g 100g-1	0.77	0.89	0.744	0.75			**0.69**	0.79	0.744	0.84	0.69	1.015	0.8
Ag	mg kg-1													0.562
As	mg kg-1						0.67				1		0.6	0.608
Au	mg kg-1													
B	mg kg-1			1.33										2.898
Ba	mg kg-1	350		384.3	388	372	**363**	**402**	390	374	369	265	368	354.022
Be	mg kg-1				1.39								1.16	0.996
Bi	mg kg-1												0.1	0.07
Br	mg kg-1													
C(org)	mg kg-1													
C(tot)	mg kg-1					1600							0.03	
Cd	mg kg-1													0.184
Ce	mg kg-1			29.3	63		**65.35**	**46**			60	29	60.7	63.588
Cl	mg kg-1						40						100	
Co	mg kg-1			4.71			**2.94**	**3**		3		1	2.7	2.721
Cr	mg kg-1	54		46.6	62	72	**75.25**	**68**		43	66	30	60	64.16
Cs	mg kg-1						**0.685**						0.6	0.551
Cu	mg kg-1	8		10.05	12	12		**8**		12	7	25	11.2	13.043
Dy	mg kg-1				10.5		**12.9**						10.2	11.924
Er	mg kg-1				6.19								7.25	8.032
Eu	mg kg-1				1.27		**1.317**						1.16	1.435
F	mg kg-1							**186**		343			260	
Ga	mg kg-1	14		16.23			**17.5**	**15**		19	16	9	16	15.308
Gd	mg kg-1				8.5			**6**					9.98	10.56
Ge	mg kg-1							**1**					2	1.402
Hf	mg kg-1						**7.82**	**10**		21			7	7.276
Hg	mg kg-1													
Ho	mg kg-1				1.95								2.44	2.554
I	mg kg-1													
In	mg kg-1						0.069							
La	mg kg-1			22.3	28	25	**27.08**	**24**			29	16	27.5	26.803
Li	mg kg-1			2.83	6.2					7				5.529
Lu	mg kg-1				1.06		**1.094**						1.24	1.258
Mo	mg kg-1			2.82									5	5.071
Nb	mg kg-1	11		12.21	12			**17**			13	8	8	12.795
Nd	mg kg-1				30.7		**33.01**	**31**					34	35.835
Ni	mg kg-1			5.96				**4**		5	3	4	6	5.484
Pb	mg kg-1	8		34.4				**5**		23	7	19	7	4.184
Pd	mg kg-1													
Pr	mg kg-1				6.85								8.26	8.64
Rb	mg kg-1	49			53		**56.9**	**56**			55	50	53.4	46.839
Re	mg kg-1													
S	mg kg-1					240		**16**						
Sb	mg kg-1			2.57									0.3	0.163
Sc	mg kg-1	9		5.76	7.9		**7.6**	**7**			9			7.633
Se	mg kg-1													0.565
Sm	mg kg-1				8.14		**9.04**						8.38	9.229
Sn	mg kg-1	8		4.79									4	3.496
Sr	mg kg-1	69		72.9	72		75	**78**	70	79	71	158	69.4	55.498
Ta	mg kg-1						**0.923**						0.9	1.257
Tb	mg kg-1				1.6		**1.798**						1.62	1.745
Te	mg kg-1													
Th	mg kg-1						**5.193**	**4**			5		5	4.028
Tl	mg kg-1													0.162
Tm	mg kg-1				0.98								1.25	1.226
U	mg kg-1						0.53				1		1.43	1.226
V	mg kg-1	9		14.7		5	**10.12**	**7**			11	11	10	9.243
W	mg kg-1												1	1.054
Y	mg kg-1	70		54.6	73	64		**78**		65	78	55	71	49.773
Yb	mg kg-1				6.4		**8.318**						7.9	8.09
Zn	mg kg-1	47		53.63	54	46	**56.9**	**56**		55	48	58	50	39.297
Zr	mg kg-1	258			247	208	**270**	**230**	240	209	263	195	243	232.159

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P45	P46	P47	P48	P49	P52	P53	P54	P55	P56	P57	P58	P59
SiO2	g 100g^{-1}	75.04	75.01	74.94	74.27	75.6	75.087	74.3	74.5	75.01	68.6	75.17	74.69	74.35
TiO2	g 100g^{-1}	0.288	0.37	0.292	0.3	0.31	0.283	0.3	0.31	0.301	0.242	0.309	0.34	0.31
Al2O3	g 100g^{-1}	12.61	12.78	12.57	12.6	12.6	12.66	12.4	12.51	12.55	13.1	12.72	12.414	12.54
Fe2O3T	g 100g^{-1}	2.88	2.79	2.91	2.86	2.87	2.917	2.87	3.09	2.94	2.72	2.94	3.034	2.93
Fe(II)O	g 100g^{-1}					0.98				2.25			2.141	
MnO	g 100g^{-1}	0.057	0.06	0.06	0.05	0.06	0.056	0.057	0.06	0.06	0.536	0.06	0.05	0.06
MgO	g 100g^{-1}	0.503	0.38	0.493	0.46	0.37	0.496	0.485	0.44	0.36		0.441	0.57	0.35
CaO	g 100g^{-1}	1.13	1.16	1.146	1.13	1.17	1.151	1.11	1.18	1.14	0.98	1.227	1.351	1.17
Na2O	g 100g^{-1}	4.6	4.51	4.48	4.67	4.91	4.678	4.48	4.28	4.87	2.59	1.88	4.603	4.63
K2O	g 100g^{-1}	2.14	2.18	2.104	2.1	2.17	2.173	2.11	2.1	2.18	2.04	0.17	2.297	2.2
P2O5	g 100g^{-1}	0.054	0.06	0.052	0.04	0.05	0.078	0.058	0.04	0.053		0.059	0.051	0.05
H2O+	g 100g^{-1}					2.76							0.681	
CO2	g 100g^{-1}													
LOI	g 100g^{-1}	0.76	0.73	0.76	0.74	0.75	0.783	0.744	0.93	0.77		0.71	0.485	0.88
Ag	mg kg^{-1}			0.375								0.44		
As	mg kg^{-1}			1.348	1.6	16			58			2.7		1
Au	mg kg^{-1}													
B	mg kg^{-1}								11					
Ba	mg kg^{-1}	381.3		407	339	413	388.6	351	499	363	371	366		
Be	mg kg^{-1}	1.5		1.442		1.1	1.561					1.46		
Bi	mg kg^{-1}	0.09		0.102		0.18	0.097					0.146		
Br	mg kg^{-1}											0.349		
C(org)	mg kg^{-1}												308	
C(tot)	mg kg^{-1}		1131			200		0.04					335	
Cd	mg kg^{-1}	0.14		0.561	4	0.15	0.087				0.9	0.297		
Ce	mg kg^{-1}	63		64	53	64.9	65.82	59		68	53.7	59.08		
Cl	mg kg^{-1}													
Co	mg kg^{-1}	2.92	7	2.94	4	2.9	2.695		45	6		2.8		4
Cr	mg kg^{-1}	63.8	58	74	51	31	71.63	62.4	124	65	148	66		63
Cs	mg kg^{-1}	0.59		1.4	2	0.59	0.596			0.66		0.583		
Cu	mg kg^{-1}	12.9		22	9	12.6	10.23	7.8	67	12	45.7	14.6		6
Dy	mg kg^{-1}	12.08		7.84		12.1	11.25			11		11.75		
Er	mg kg^{-1}	7.95		5.63		7.56	7.352			7.32		7.81		
Eu	mg kg^{-1}	1.36		0.73		1.65	1.302			1.33		1.31		
F	mg kg^{-1}									343		500	595	
Ga	mg kg^{-1}	15.3		15.8	14	15.6	17.05	14.2		15	12	14		
Gd	mg kg^{-1}	10.16		5.65		9.51	9.118			9.64	70.2	10.16		
Ge	mg kg^{-1}			2.39		9.8						1.54		
Hf	mg kg^{-1}	7.63		8.4	6	6.82	7.473	7.8		8.09		7.99		
Hg	mg kg^{-1}													
Ho	mg kg^{-1}	2.63		1.76		3.47	2.601			2.53		2.49		
I	mg kg^{-1}			0.7							0.8			
In	mg kg^{-1}					0.09								
La	mg kg^{-1}	28.1		26	24	28.1	28.01	23		29.1	21.1	25.79		
Li	mg kg^{-1}	7.02				6	6.527					6		
Lu	mg kg^{-1}	1.24		0.96		1.49	1.189			1.14		1.18		
Mo	mg kg^{-1}	4.77		5.523	3	5.12	3.676		22	4.31	2.5	4.55		
Nb	mg kg^{-1}	12.4		9	10	10.8	10.53	12.4	30	14.8	10	11.53		
Nd	mg kg^{-1}	35.77		35	28	35.1	35.29	35		36.4	32.2	34.56		
Ni	mg kg^{-1}	5.17	8	6	3	9	5.32			3	10.2	9		3
Pb	mg kg^{-1}	4.8		10	23	7	4.928		72	4.55	12.1	4.7		5
Pd	mg kg^{-1}													
Pr	mg kg^{-1}	8.35		3.48		6.01	8.256			8.32	5.6	7.87		
Rb	mg kg^{-1}	52.8		55	52	46.9	52.2	52.7		54.3	52.9	51		
Re	mg kg^{-1}											0.002		
S	mg kg^{-1}	70	146											300
Sb	mg kg^{-1}	0.13		0.17	3	0.15						0.183		
Sc	mg kg^{-1}	8.22		6.14	9	7.6	7.809	6.2		6.15		6.5		
Se	mg kg^{-1}			0.045										
Sm	mg kg^{-1}	9.27		4.63	10	7.3	9.226			8.97		8.89		
Sn	mg kg^{-1}	3.4		3	11	3.4	3.509		43			4.49		
Sr	mg kg^{-1}	73.1		71	70	68.7	71.1	67.8	85	74.3	71	74	67.6	
Ta	mg kg^{-1}	0.99		0.966	4	0.9	1.093			1.02		0.93		
Tb	mg kg^{-1}	1.88		1.11		2.28	1.681			7.75		1.75		
Te	mg kg^{-1}			0.051	6									
Th	mg kg^{-1}	4.97		3.16	5	4.9	5.406	3.9		5.63	4.48	5.07		
Tl	mg kg^{-1}	0.2		0.22		0.17						0.17		
Tm	mg kg^{-1}	1.23		0.9		1.48	1.158			1.16		1.16		
U	mg kg^{-1}	1.33		0.85	2.2	1.2	1.29			1.37		1.3		4
V	mg kg^{-1}	10.6		12	12	12	10.226	10.8		14		9.56		12
W	mg kg^{-1}	0.89		1.48	10	1.5				0.3		0.85		
Y	mg kg^{-1}	71.8		69	71	79.6	71.2	76.8	65	72.7	67.6	77		
Yb	mg kg^{-1}	8.09		6.27		7.9	7.622	5.4		7.75		7.802		
Zn	mg kg^{-1}	52.5		50	48	54	48.26	48		50	56	50		50
Zr	mg kg^{-1}	255.7		239	254	244	242.9	251		239	256	262		

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P60	P61	P62	P63	P64	P66	P67	P68	P69	P70	P71	P72	P74
SiO2	g 100g-1	70.692	75.11	73.9	74.58			76.049	75.41	74.9	74.53	74.82	75.609	
TiO2	g 100g-1	0.273	0.320	0.299	0.27			0.304	0.3	0.3	0.3	0.29	0.181	0.291
Al2O3	g 100g-1	12.337	12.27	12.581	12.6	12.134		12.341	12.63	12.6	12.64	12.42	13.161	
Fe2O3T	g 100g-1	2.936	2.998	2.865	2.9	2.787		2.864	2.9	2.9	3.01	2.86	3.073	
Fe(II)O	g 100g-1		2.49								1.82			
MnO	g 100g-1	0.06	0.059	0.056	0.05	0.066		0.061	0.06	0.06	0.058	0.054	0.061	0.057
MgO	g 100g-1	0.425	0.407	0.448	0.68	0.409		0.487	0.49	0.47	0.46	0.47	1.507	
CaO	g 100g-1	1.186	1.173	1.116	0.99	1.05		1.31	1.17	1.17	1.13	1.13	0.912	
Na2O	g 100g-1	4.488	4.529	3.952	4.3	4.066		4.615	4.37	4.61	4.56	4.66	4.6	
K2O	g 100g-1	2.22	2.137	2.128	2.1	1.923		2.198	2.13	2.23	2.12	2.15	2.702	
P2O5	g 100g-1	0.071	0.055	0.055	0.058			0.06	0.06	0.055	0.06	0.05	0.058	
H2O+	g 100g-1				0.5									
CO2	g 100g-1				0.2	0.110								
LOI	g 100g-1	0.82	0.976	1.045	0.7				0.77		0.8	0.75	0.838	
Ag	mg kg-1		0.094											
As	mg kg-1													
Au	mg kg-1													
B	mg kg-1													
Ba	mg kg-1	367.5	396		415	403.583		396	371		378	367		367
Be	mg kg-1		1.482		1.55	1.361		1.52			1.47			1.48
Bi	mg kg-1		0.076			0.084					0.11			
Br	mg kg-1													
C(org)	mg kg-1													
C(tot)	mg kg-1					300								
Cd	mg kg-1		0.05			0.103	0.1				0.11			
Ce	mg kg-1	62.14	55.14		64	64.73	58.6	64.8			64.5			61.7
Cl	mg kg-1													
Co	mg kg-1	4.35	2.715		3.07	2.935		3.13	4		4.38			2.82
Cr	mg kg-1	57.16	70.09		65			75	71		73.6			72.6
Cs	mg kg-1		0.531		0.598		0.55	0.62			0.61			0.56
Cu	mg kg-1	15.28	12.96		15	14.792			9		14.3			12.1
Dy	mg kg-1	15.41	10.65		11.77	12.51	10.6	11.1			11.8			11.9
Er	mg kg-1	10.14	7.236		7.8	8.12	7	7.2			7.31			7.5
Eu	mg kg-1	2.01	1.101		1.32	1.45	1.25	1.42			1.36			1.31
F	mg kg-1													
Ga	mg kg-1	17.3	14.23		16	17.66	16.1	16.2	15		16.1			16.4
Gd	mg kg-1	13.89	8.346		10.4	9.67	9.66	9.17			9.25			9.8
Ge	mg kg-1		1.36				1.61				1.35			
Hf	mg kg-1	14.48	7.349		7.75			6.56	7		8.41			7.44
Hg	mg kg-1					0.002								
Ho	mg kg-1	3.35	2.247		2.53	2.68	2.3	2.81			2.58			2.5
I	mg kg-1													
In	mg kg-1		0.055											
La	mg kg-1	34.99	25.17		27.5	29.15	26.1	27			27.5			26.9
Li	mg kg-1	9.22	4.346		6.7	13.229					6.81			5.98
Lu	mg kg-1	1.57	1.039		1.21	1.36	1.16	1.17			1.24			1.19
Mo	mg kg-1	4.22	4.327		4.4	4.47		4.56			1.7			
Nb	mg kg-1	14.8	11.77		13.5		10.8	10.7	11		11.8			11.7
Nd	mg kg-1	45.23	32.14		35.8	38.2	32.8	34.2			35.2			34.3
Ni	mg kg-1	4.06	9.36		11			7.36	7		7.14			5.69
Pb	mg kg-1	4.79	5.679		5.1	4.432		6.65	7		4.63			4.94
Pd	mg kg-1													
Pr	mg kg-1	10.26	7.178		8.75	8.92	7.77	8.32			8.53			8.13
Rb	mg kg-1	59.64	49.08		54	53.433	52.5	52	54		71			52.4
Re	mg kg-1		0.003											
S	mg kg-1											80	50	
Sb	mg kg-1	9.31	0.339				0.29				0.27			
Sc	mg kg-1		7.571		7.8		4.73	7.29	7		8.39			7.28
Se	mg kg-1		2.329											
Sm	mg kg-1	11.55	8.059		8.97	9.45	8.35	8.94			9.13			8.83
Sn	mg kg-1		3.739				4.12	3.68			4.57			3.46
Sr	mg kg-1	74.68	62.61		76	69.12		78.8	75		74.7	59		72.3
Ta	mg kg-1	2.32	1.025		1.2		0.97	0.99			1.27			0.97
Tb	mg kg-1	2.42	1.626		1.85	2.06	1.67	1.83			1.78			1.81
Te	mg kg-1													
Th	mg kg-1	6.39	4.526		5.01	4.81	4.49	4.87	6		5.58			4.88
Tl	mg kg-1		0.208		0.183	0.15	0.17	0.19			0.2			0.22
Tm	mg kg-1	1.64	1.016		1.17	1.34	1.16	1.16			1.14			1.18
U	mg kg-1	1.66	1.114		1.29	1.158	1.21	1.27			1.49			1.29
V	mg kg-1	10.58	10.27		11.1	11.972			16		8.45			10.8
W	mg kg-1		0.87		0.8		0.8				1.11			
Y	mg kg-1	84.23	66.15		72	72.43	67.4	71.3	76		74.1			74.2
Yb	mg kg-1	9.92	7.16		7.8	8.63	7.39	7.53			7.96			7.9
Zn	mg kg-1	50.67	55.16		43	43.655		49.21	47		61.6			50.3
Zr	mg kg-1	228.8	231.4		270	242.520		190.7	250		302			251

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P75	P77	P78	P79	P82	P83	P85	P86	P87	P88	P89	P90	P91
SiO2	g 100g-1		74.51			77.3		74.97	74.537	74.72	74.1	75.04	74.84	
TiO2	g 100g-1	0.272	0.29		0.297	0.47	0.29	0.299	0.305	0.292	0.26	0.29	0.291	0.32
Al2O3	g 100g-1		12.61	11	12.52	12.3	12.51	12.58	12.646	12.78	12.15	12.53	13.04	
Fe2O3T	g 100g-1		2.88	2	2.907	3.34	3.065	2.88	2.942	2.86	2.88	2.91	2.81	
Fe(II)O	g 100g-1													
MnO	g 100g-1	0.055	0.058	0.06	0.058	0.04	0.057	0.061	0.063	0.064	0.06	0.055	0.049	0.06
MgO	g 100g-1		0.46	0.4	0.47	0.36	0.493	0.48	0.538	0.39	0.45	0.48	0.5	
CaO	g 100g-1		1.13	1.3	1.172	0.9	1.196	1.17	1.147	1.1	1.14	1.16	1.15	
Na2O	g 100g-1		4.41	3.6	4.465	1.01	4.97	4.53	4.748	4.65	0.51	4.58	4.87	
K2O	g 100g-1		2.13	1.6	2.127	1.65	2.223	2.15	2.16	2.09	0.12	2.13	2.09	
P2O5	g 100g-1		0.057		0.056	0.095	0.06	0.058	0.06	0.051	0.04	0.058	0.063	
H2O+	g 100g-1													
CO2	g 100g-1													
LOI	g 100g-1		0.81			0.74		0.61	0.81	0.82	0.72	0.76	0.76	
Ag	mg kg-1	0.36					0.138							
As	mg kg-1	0.94					0.479							
Au	mg kg-1													
B	mg kg-1		1.01											
Ba	mg kg-1	380.650	369	380	373		380.3	385	376	359	337.2		320.3	384
Be	mg kg-1		1.3	1.3	1.41		1.5			1.71			1.34	1.4
Bi	mg kg-1	2.52					0.086							
Br	mg kg-1													
C(org)	mg kg-1													
C(tot)	mg kg-1													
Cd	mg kg-1	0.25	0.13	6.5		67	0.138			0.42				
Ce	mg kg-1	61.74	58.3	62	62.1		63	65	57.2	58	49.4		62.3	62
Cl	mg kg-1					50		95					129	
Co	mg kg-1	2.57	2.63	3.1	2.87	3	2.731	5	2.6	3.26	2.4		2.21	2.9
Cr	mg kg-1	63.68	58.68	75	69.7	68	65.3	65	60	92	54.1		47.1	69.2
Cs	mg kg-1	0.545	0.63		0.56		0.52		0.6	1.08				0.58
Cu	mg kg-1	10.83	5.21	5.9	11.6	12	11.1	7	11.1		12.5		12.7	12.1
Dy	mg kg-1	11.46	11.64	13	11.9		11.468		12.1	12.96			12.4	12
Er	mg kg-1	7.49	7.2	8.3	7.72		7.504		8	8.74			8.22	7.67
Eu	mg kg-1	1.289	1.23	1.4	1.33		1.245		1.2	1.53			1.37	1.36
F	mg kg-1							200			688		336	
Ga	mg kg-1	16.26	15.78		16.4		13.72	18		16.85	14.9			16.5
Gd	mg kg-1	10.18	9.63	10	10.1		9.8		9.7	11.41			10.45	9.54
Ge	mg kg-1							1.6		1.6	2.7			
Hf	mg kg-1	7.07	6.75		7.57		7.595	6	9	6.8	6.8		7.51	7.97
Hg	mg kg-1					0.2		0.4						
Ho	mg kg-1	2.46	2.29	2.7	2.55		2.473		2.7	2.72			2.64	2.55
I	mg kg-1							2						
In	mg kg-1													
La	mg kg-1	26.88	26.19	27	27.2		26.5	25	26.8	21.03	19.8		26.46	27.5
Li	mg kg-1		3.15		5.76		6.6			8.31			4.65	6.16
Lu	mg kg-1	1.215	1.1	1.3	1.24		1.233		1.3	1.43			1.29	1.26
Mo	mg kg-1			4.3			4		4.9		2.9		4.83	
Nb	mg kg-1	11.69	8.21		11.9		10.301	7	14.2	11.59	11.3		9.49	
Nd	mg kg-1	35.23	33.11	35	34.6		32.97	31	33.3	38.04	30.1		35.52	36.6
Ni	mg kg-1	5.15	5.69	8.1	5.57	7	5.4	5	4.7	7.86	6		6.58	6.05
Pb	mg kg-1	5.04	5.81	3.2	4.99	5	4.745	2	4.3		6		3.59	5.15
Pd	mg kg-1													
Pr	mg kg-1	8.23	7.65	8.1	8.06		8.25	7	7.7	8.96			8.16	8.4
Rb	mg kg-1	52.04	51.91		52.8		50.83	50	51.3	50.4	47.1		35.2	52.2
Re	mg kg-1													
S	mg kg-1					1362		60						
Sb	mg kg-1	0.11					0.136							
Sc	mg kg-1	5.95	6.75		7.51				7.3	5.5	6		6.76	8.06
Se	mg kg-1	1.8		6.5		9	0.073							
Sm	mg kg-1	8.8	8.39	9.2	8.95		8.658	8	9	9.52	8		9.2	9.17
Sn	mg kg-1	3.52	1.55		3.38		3.27		4	3.57				
Sr	mg kg-1	70.3	69.85		72.4		68.4	72	76.6	66	69		71.89	70.8
Ta	mg kg-1	0.955	0.871		0.98		0.853	2	1.4	1.11	3.3		0.45	
Tb	mg kg-1	1.745	1.41	1.9	1.82		1.787		1.8	1.95			1.84	1.83
Te	mg kg-1	0.19				0.1								
Th	mg kg-1	4.73	4.6	4.8	4.98		4.1	16	4.8		4.3		6.77	4.85
Tl	mg kg-1	0.51	0.221	0.1	0.21	0.3	0.199	0.6		0.23				
Tm	mg kg-1	1.233	1.035	1.2	1.21		1.115		1.2	1.3			1.23	1.25
U	mg kg-1	1.253	0.957	1.3	1.32		1.282	4	1.2	1.16			1.07	1.3
V	mg kg-1	9.37	9.73	10	10.1	9	8.1	13	14	13.9	9.9		9.54	11.2
W	mg kg-1		0.91				0.803							
Y	mg kg-1	75.48	67.1	71	75.5		69.03	71	76	70	68.2		66.38	74
Yb	mg kg-1	7.83	7.11	8.3	8.05		7.919		8.5	9.23	5.3		8.37	8.13
Zn	mg kg-1	43.02	52.5	27	51.2	48	49.9	55	51	55	46.2		51.6	50.8
Zr	mg kg-1	225.610	234.3		252		234.2	240	255	241	246.5		236	252

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P92	P93	P94	P95	P96	P97	P98	P99	P100	P101	P102	P103	P104
SiO2	g 100g-1	75.01	74.7	75.05	74.05	75.4	74.8	68.2	73.64	71.56	75.34	74.7	76.277	75.3
TiO2	g 100g-1	0.29	0.3	0.308	0.294	0.31	0.291	0.239	0.28	0.4	0.25	0.3	0.257	0.303
Al2O3	g 100g-1	12.6	12.5	12.1	12.6	12.9	12.6	10.14	13.24	13.41	12.75	12.55	11.736	12.5
Fe2O3T	g 100g-1	2.91	2.91	3.21	2.98	3.01	2.886	2.78	2.83	2.66	3.29	3	2.872	2.88
Fe(II)O	g 100g-1													
MnO	g 100g-1	0.058	0.06	0.067	0.060	0.06	0.057	0.054	0.05	0.063	0.06	0.06	0.058	0.054
MgO	g 100g-1	0.47	0.47	0.411	0.475	0.52	0.49	0.553	0.59	0.43	0.5	0.52	0.450	0.433
CaO	g 100g-1	1.14	1.14	1.08	1.13	0.88	1.165	1.02	1.16	1.22	1.26	1.14	1.095	1.13
Na2O	g 100g-1	4.55	4.6	4.63	4.615	4.6	4.624	2.32	5.03	4.53	4.64	4.54	4.618	4.28
K2O	g 100g-1	2.1	2.13	2.13	2.14	2.2	2.148	2.03	2.29	1.49	2.1	2.17	2.123	2.19
P2O5	g 100g-1	0.05	0.05	0.059	0.06	0.06	0.051	0.054	0.08	0.07	0.06	0.06		0.058
H2O+	g 100g-1													
CO2	g 100g-1									0.1				
LOI	g 100g-1	0.76	1.34	0.52		0.8	0.818		0.6		0.69	0.75		0.77
Ag	mg kg-1									0.57				
As	mg kg-1				0.65					7.7				
Au	mg kg-1													
B	mg kg-1													
Ba	mg kg-1			440	368.7	395.2		411.5	0.1	365	401	369	352.9	481.2
Be	mg kg-1				1.233	1.4						1.47		
Bi	mg kg-1									0.1				
Br	mg kg-1													
C(org)	mg kg-1													
C(tot)	mg kg-1		150											
Cd	mg kg-1							2.3		0.38				
Ce	mg kg-1		62.8		66.1	62.9		64.7		60.53	65.5	61.4	64.01	61.6
Cl	mg kg-1			137					0.02					
Co	mg kg-1				2.86	3.25				3.15	3.1	2.91		5.05
Cr	mg kg-1			101	74.8	77.6		55.8		86.93	67.6	68.8		52.9
Cs	mg kg-1				0.591	0.75		6.2		0.53	0.68	0.579		0.666
Cu	mg kg-1			33	13.13	12.5		10.7		44.73	19.5	12		17
Dy	mg kg-1		10.5		11.5	11.4				11.45	12.05	11.5	12.59	11.7
Er	mg kg-1		6.97		7.663	7.3				7.48	8	7.54	8.006	7.67
Eu	mg kg-1		1.28		1.333	1.32				1.38	1.36	1.29	1.318	1.47
F	mg kg-1		327				642							
Ga	mg kg-1				16.13	15.2		13.7		34.93		16.1		16.7
Gd	mg kg-1		9.54		9.897	9.15				9.6	10.6	9.59	10.53	10.1
Ge	mg kg-1									1.61		1.35		
Hf	mg kg-1				7.763	7.65		3.2		7.6	3.3	7.18		
Hg	mg kg-1				0.01									
Ho	mg kg-1		2.46		2.737	2.59				2.47	2.36	2.47	2.57	2.5
I	mg kg-1													
In	mg kg-1									0.1				0.057
La	mg kg-1		26.4		26.37	28.04		27.4		26.5	29	26.9	27.26	24.3
Li	mg kg-1				6.46							6.27		
Lu	mg kg-1		1.16		1.197	1.2				1.15	1.19	1.19	1.266	1.21
Mo	mg kg-1				4.273	6.1				5.13				4
Nb	mg kg-1					11.7				15.71	35	11.4		11.2
Nd	mg kg-1		31.3		37.8	35.2				33.57	36.5	34.6	36.78	32.4
Ni	mg kg-1					3.1		3.6		48.4	7.1	5.69		8.82
Pb	mg kg-1				4.57	4.5		5.2		4.37	14.7	4.98		7.49
Pd	mg kg-1					4.6				0.07				
Pr	mg kg-1		8.02		7.597	8.4				7.47	8.29	8.01	8.314	8.04
Rb	mg kg-1			55	51.8	53.4		47.2		49.53	51.4	52.5		49.5
Re	mg kg-1													
S	mg kg-1			71				57.7	0.01	220				
Sb	mg kg-1				0.163					0.94				
Sc	mg kg-1				7.363	7.4				8.51	5	7.34	8.026	9.46
Se	mg kg-1													
Sm	mg kg-1		8.23		8.953	7.5				8.92	8.63	8.95	9.404	8.84
Sn	mg kg-1					3.1		5.6		5.32				
Sr	mg kg-1			84	75.65	76.5		62.8	72	74.03	81.4	71.9	67.94	64.7
Ta	mg kg-1				1.18	1.1				0.91	1.06	0.964		
Tb	mg kg-1		1.8		1.897					1.76	1.66	1.74	1.83	1.86
Te	mg kg-1													
Th	mg kg-1		4.99		5.053	4.4		5.3		5.06	2.31	4.68	5.175	5.44
Tl	mg kg-1				0.197					0.02				0.174
Tm	mg kg-1		1.14		1.211					1.16	1.19	1.17	1.222	1.16
U	mg kg-1		1.27		1.313	1.3				1.3	0.72	1.29	1.377	1.49
V	mg kg-1				13.57	11.5		15.8		40.3	8.7	9.82		
W	mg kg-1				0.666	1.1				6.89				
Y	mg kg-1		64.8	9	69.13	83.2		65.3		67.4	67.7	72.8	75	70.6
Yb	mg kg-1		7.18		8.053	7.7				7.83	8.2	7.85	8.126	7.93
Zn	mg kg-1			53	55.4	65.1		50.1	63	51.13	69.3	51.6		54.3
Zr	mg kg-1		205	306	279.7	241.5		234.7	200	235.170	177	252	253.1	241.8

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT37 Contributed data for Rhyolite, ORPT-1. 12/06/2015

Lab Code		P106	P107	P109	P110	P111	P112	P113	P114	P115	P116	P117	-	-
SiO2	g 100g^{-1}	74.34	74.2	75.01	74.473	75.04	74.86	74.86	74.73	74.18	74.28	74.8		
TiO2	g 100g^{-1}	0.3	0.3	0.3	0.291	0.29	0.29	0.3	0.63	0.3	0.26	0.49		
Al2O3	g 100g^{-1}	11.79	12.51	12.58	12.605	12.52	12.43	12.6	11.43	12.34	12.63	12.4		
Fe2O3T	g 100g^{-1}	3.21	2.91	2.87	2.866	2.87	3.03	2.89	3.65	2.81	2.806	2.85		
Fe(II)O	g 100g^{-1}		2.18			2.2	2.05					2.24		
MnO	g 100g^{-1}	0.06	0.06	0.06	0.06	0.06	0.058	0.06	0.09	0.06	0.06	0.06		
MgO	g 100g^{-1}	0.5	2.07	0.48	0.449	0.48	0.47	0.48	0.46	0.42	0.49	0.5		
CaO	g 100g^{-1}	1.08	1.18	1.12	1.134	1.11	1.15	1.15	1.05	1.12	1.12	1.1		
Na2O	g 100g^{-1}	4.6	4.72	4.65	4.686	4.59	4.61	4.6	2.65	4.22	4.69	4.39		
K2O	g 100g^{-1}	2.03	2.14	2.14	2.168	2.12	2.13	2.16	4.25	2.07	2.26	2.02		
P2O5	g 100g^{-1}	0.05	0.04	0.06	0.052	0.06	0.05	0.055	0.08	0.04	0.06	0.05		
H2O+	g 100g^{-1}		0.83			0.69	1							
CO2	g 100g^{-1}		0.03											
LOI	g 100g^{-1}	0.84		0.71	0.777	0.78	0.83	0.69	1	0.74	0.7	0.92		
Ag	mg kg^{-1}					0.078				0.15		0.9		
As	mg kg^{-1}					0.56				1.47				
Au	mg kg^{-1}							0.005						
B	mg kg^{-1}					2.41	4							
Ba	mg kg^{-1}	392	364		347.6	393	365	384		404	357.3	328		
Be	mg kg^{-1}					1.51	1.36	1.3		1.27		1.42		
Bi	mg kg^{-1}		7			0.075		0.09			0.123			
Br	mg kg^{-1}													
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}						188	300	0.17					
Cd	mg kg^{-1}		6			0.17	0.24	0.07				0.07		
Ce	mg kg^{-1}	62	62		55.1	57.3	59.2	63.2		62.9	64.439	73.6		
Cl	mg kg^{-1}		40				44							
Co	mg kg^{-1}		6		3.9	3.11	2.93	3		2.6		2.7		
Cr	mg kg^{-1}	65	68		57.6	75.8	73.9	50		63.7	56	87.2		
Cs	mg kg^{-1}		5			0.69	0.51	0.6			0.597			
Cu	mg kg^{-1}	13	10		8.5	12.3	12.2	12		12.1	10			
Dy	mg kg^{-1}	11.1	11			9.94	11.3	11.7		12.3	11.654	10.5		
Er	mg kg^{-1}	7	7.3			6.23	7.2	7.6		8.06	7.615	7.5		
Eu	mg kg^{-1}	1.25	1.3			1.26	1.34	1.4		1.38	1.292	1.29		
F	mg kg^{-1}						300							
Ga	mg kg^{-1}		18		14.5	15.4	16.9	15		16.4	15.4			
Gd	mg kg^{-1}	9.5	9.6			9.67	9.34	9.8		10.6	9.771	9.42		
Ge	mg kg^{-1}					1.32	1.61	1.2		1.1				
Hf	mg kg^{-1}		5		7.4	8.58	7.42	7.3		7.1	8.215			
Hg	mg kg^{-1}													
Ho	mg kg^{-1}		2.3			2.16	2.56	2.4		2.64	2.508	2.51		
I	mg kg^{-1}													
In	mg kg^{-1}							0.06						
La	mg kg^{-1}	27.5	31		25.2	27.3	27	27.5		27.8	27.679			
Li	mg kg^{-1}	6				5.96	6.3	6.1		5	5.54	3		
Lu	mg kg^{-1}		1.1			0.96	1.19	1.1		1.28	1.158	1.2		
Mo	mg kg^{-1}		4		3.6	4.81	3.84	4.6		4.12	4.87	5.5		
Nb	mg kg^{-1}	13	80		11	11.4	10.5	12		11.7	12			
Nd	mg kg^{-1}	34	30		26.1	30.6	33.9	36.2		36	36.159	38.3		
Ni	mg kg^{-1}		11		2.9	6.54	6.5	5.8		5.24	8.2	13.5		
Pb	mg kg^{-1}		4		4.6	4.87	5.04	5		5.47	7.8	30.5		
Pd	mg kg^{-1}													
Pr	mg kg^{-1}	7.5	7.8			7.52	8.1	8.5		8.42	8.297	9.5		
Rb	mg kg^{-1}	61	37		50.9	56.2	55.1	53.8		49.8	54			
Re	mg kg^{-1}													
S	mg kg^{-1}		56				89	60				180		
Sb	mg kg^{-1}							0.2		0.15	3.4			
Sc	mg kg^{-1}	6.5	6		6.2	9.24	7.71	7		4.8	3.4	8.2		
Se	mg kg^{-1}						0.025			6.25				
Sm	mg kg^{-1}	9	8.6		6.6	8.26	9.03	8.9		9.39	9.148	10.1		
Sn	mg kg^{-1}		2		3.1	3.38	4.2	3.5		3.5	3.6			
Sr	mg kg^{-1}	78	59		69.1	67.2	74.8	81		67.1	69.8	60		
Ta	mg kg^{-1}		1			1.08	1.06	0.96			1.077			
Tb	mg kg^{-1}		1.6			1.62	1.66	1.7		1.83	1.761	2.07		
Te	mg kg^{-1}													
Th	mg kg^{-1}		1		4.8	4.65	5.02	5.1		5.38	5.483			
Tl	mg kg^{-1}					0.23		0.2			0.258			
Tm	mg kg^{-1}		1.1			0.98	1.1	1.2		1.29	1.191	1.08		
U	mg kg^{-1}		2		1.2	1.24	1.19	1.3		1.35	1.32			
V	mg kg^{-1}		8		8.7	11.6	9.2	9		8.8	14	9		
W	mg kg^{-1}		4		4.6	0.89	1.06	0.8		4.1				
Y	mg kg^{-1}	71	66		67.9	64.6	71.1	68.7		70.6	69.2	55		
Yb	mg kg^{-1}	7.5	7.4		6.4	7.04	7.79	7.8		8.26	7.768	7.62		
Zn	mg kg^{-1}	53	46		47.7	46.3	69.8	55		50.4	46.3	53		
Zr	mg kg^{-1}	245	229		246.6	252	254	241		238	247.5			

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 2 - GeoPT37 Assigned values and statistical summary for Rhyolite, ORPT-1.

	Assigned Value	Uncertainty of assigned value	Horwitz Target Value	Uncertainty/ Target	Number of reported results	Robust Mean of results	Robust SD of results	Median of results	Status of consensus value	Type of consensus value
	X_a	*sdm*	H_a	sdm/H_a	*n*					
	g 100g^{-1}	g 100g^{-1}	g 100g^{-1}			g 100g^{-1}	g 100g^{-1}	g 100g^{-1}		
SiO2	74.84	0.04663	0.7818	0.05964	91	74.79	0.4448	74.84	Assigned	Median
TiO2	0.2978	0.001519	0.007147	0.2126	98	0.2978	0.01504	0.3	Assigned	Robust Mean
Al2O3	12.55	0.02127	0.1715	0.124	98	12.52	0.2105	12.55	Assigned	Median
Fe2O3T	2.909	0.00659	0.04954	0.133	98	2.919	0.06523	2.909	Assigned	Median
MnO	0.06	0.0002995	0.001833	0.1634	98	0.05896	0.002965	0.06	Assigned	Median
MgO	0.47	0.004516	0.01053	0.4288	97	0.4676	0.04448	0.47	Provisional	Median
CaO	1.14	0.004493	0.02235	0.201	98	1.138	0.04448	1.14	Assigned	Median
Na2O	4.59	0.01355	0.07299	0.1856	97	4.55	0.1334	4.59	Assigned	Median
K2O	2.14	0.004516	0.03817	0.1183	97	2.138	0.04448	2.14	Assigned	Median
P2O5	0.057	0.0004715	0.001754	0.2687	89	0.05623	0.004448	0.057	Assigned	Median
LOI	0.7738	0.009098	0.01608	0.5657	79	0.7738	0.08087	0.77	Provisional	Robust Mean
	mg kg^{-1}	mg kg^{-1}	mg kg^{-1}			mg kg^{-1}	mg kg^{-1}	mg kg^{-1}		
Ba	374.1	2.545	12.27	0.2075	81	374.1	22.91	374	Assigned	Robust Mean
Be	1.394	0.02026	0.1061	0.191	38	1.394	0.1249	1.4	Assigned	Robust Mean
Bi	0.0899	0.007089	0.01033	0.6861	23	0.1032	0.034	0.097	Assigned	Mode
Ce	62.1	0.4751	2.668	0.178	71	61.44	4.003	62.1	Assigned	Median
Co	3	0.05025	0.2034	0.2471	63	3.201	0.3988	3	Assigned	Median
Cr	65.3	1.233	2.785	0.4429	77	66.04	10.82	65.3	Provisional	Median
Cs	0.5965	0.01016	0.05157	0.1971	46	0.6104	0.06894	0.5965	Assigned	Median
Cu	12	0.2991	0.6603	0.453	71	11.91	2.52	12	Assigned	Median
Dy	11.68	0.113	0.6456	0.175	55	11.68	0.8377	11.74	Assigned	Robust Mean
Er	7.599	0.06653	0.4479	0.1485	54	7.599	0.4889	7.58	Assigned	Robust Mean
Eu	1.32	0.007997	0.1013	0.07897	55	1.329	0.0593	1.32	Assigned	Median
Ga	16	0.1811	0.8431	0.2148	67	15.75	1.483	16	Assigned	Median
Gd	9.868	0.08256	0.5593	0.1476	56	9.868	0.6178	9.793	Assigned	Robust Mean
Ge	1.475	0.07568	0.1113	0.68	22	1.475	0.355	1.381	Provisional	Robust Mean
Hf	7.526	0.113	0.4443	0.2544	53	7.526	0.8229	7.48	Assigned	Robust Mean
Ho	2.53	0.01487	0.176	0.08448	53	2.529	0.1082	2.53	Assigned	Median
La	27	0.176	1.315	0.1338	71	26.63	1.483	27	Assigned	Median
Li	6.13	0.1408	0.3732	0.3774	36	6.029	0.8451	6.13	Assigned	Median
Lu	1.205	0.01113	0.09373	0.1188	54	1.205	0.0818	1.2	Assigned	Robust Mean
Mo	4.395	0.1071	0.2813	0.3808	46	4.318	0.7265	4.395	Assigned	Median
Nb	11.59	0.1637	0.6411	0.2553	65	11.67	1.32	11.59	Assigned	Median
Nd	34.8	0.2737	1.631	0.1678	66	34.53	2.224	34.8	Assigned	Median
Ni	5.96	0.2354	0.3644	0.6459	63	6.2	1.868	5.96	Provisional	Median
Pb	5.04	0.1053	0.316	0.3332	69	5.616	0.8747	5.04	Assigned	Median
Pr	8.195	0.04953	0.4776	0.1037	56	8.116	0.3707	8.195	Assigned	Median
Rb	52.07	0.342	2.297	0.1489	70	51.92	2.861	52.07	Assigned	Median
Sc	7.3	0.1426	0.4329	0.3293	57	7.154	1.076	7.3	Assigned	Median
Sm	8.95	0.06074	0.5147	0.118	61	8.872	0.4744	8.95	Assigned	Median
Sn	3.515	0.05849	0.2327	0.2514	40	3.745	0.3699	3.515	Assigned	Median
Sr	71.63	0.5469	3.012	0.1815	81	71.63	4.922	71	Assigned	Robust Mean
Ta	0.99	0.01768	0.0793	0.223	45	1.043	0.1186	0.99	Assigned	Median
Tb	1.8	0.01426	0.1318	0.1082	53	1.784	0.1038	1.8	Assigned	Median
Th	4.91	0.05204	0.3091	0.1684	65	4.897	0.4196	4.91	Assigned	Median
Tl	0.199	0.007984	0.02029	0.3934	29	0.1964	0.043	0.199	Provisional	Median
Tm	1.191	0.00826	0.09279	0.08902	49	1.189	0.05782	1.191	Assigned	Median
U	1.292	0.01931	0.09945	0.1942	58	1.292	0.1471	1.29	Assigned	Robust Mean
V	10.17	0.2157	0.5739	0.3759	68	10.63	1.779	10.17	Assigned	Median
W	0.88	0.06346	0.07175	0.8845	30	1.246	0.3476	0.9	Provisional	Mode
Y	70.78	0.6053	2.982	0.203	76	70.78	5.277	70.95	Assigned	Robust Mean
Yb	7.85	0.06074	0.4605	0.1319	61	7.824	0.4744	7.85	Assigned	Median
Zn	51.17	0.4522	2.264	0.1998	80	51.17	4.045	51	Assigned	Robust Mean
Zr	245.8	1.616	8.585	0.1882	76	244	14.08	245.8	Assigned	Median

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
SiO2	**0.33**	0.49	**0.18**	-0.03	-0.06	0.06	0.13	0.72	*	0.22	**0.19**	-0.38	0.24
TiO2	**0.31**	-0.55	**-0.25**	0.29	-0.11	0.64	0.71	-2.51	-8.80	0.15	**-0.81**	2.25	1.55
Al2O3	**0.29**	-0.15	**-0.29**	-0.03	0.23	0.29	0.50	-3.35	-32.18	0.06	**1.17**	3.09	-0.96
Fe2O3T	**0.03**	-0.59	**-4.01**	1.02	0.16	0.59	-0.19	1.83	-3.05	-0.19	**0.03**	3.14	0.42
MnO	**0.00**	*	**-0.55**	-0.27	1.26	0.27	-1.91	-0.55	-2.46	0.00	**-2.18**	2.73	0.00
MgO	***0.95***	*0.47*	***7.60***	*-0.33*	*-3.30*	*0.09*	*-0.38*	*-0.95*	*-6.12*	*-0.47*	***0.95***	*1.90*	*1.42*
CaO	**0.45**	0.22	**0.45**	0.89	-0.65	1.27	0.22	0.00	-15.48	0.00	**0.45**	-8.05	0.89
Na2O	**0.00**	0.00	**-0.41**	-0.69	1.25	-0.44	-0.75	2.33	-30.91	0.27	**1.37**	2.06	0.34
K2O	**0.52**	-0.39	**0.26**	0.00	0.30	-0.20	0.39	-0.39	-26.33	0.39	**1.31**	-5.50	0.65
P2O5	**1.71**	*	**-2.85**	-0.28	0.14	*	0.00	-3.42	-2.28	-1.99	**0.00**	6.55	-5.70
LOI	***1.01***	*3.92*	***-2.72***	*1.10*	*0.19*	*-0.74*	*	*0.82*	*	*-3.54*	***-8.94***	*-8.51*	*-2.76*
Ba	**-1.23**	0.81	**0.23**	*	0.28	0.58	*	0.24	-14.57	-0.90	**-1.40**	*	-1.64
Be	*	-0.07	*	*	*	0.03	*	0.03	-4.17	*	*	*	*
Bi	*	*	*	*	*	*	*	0.00	-1.93	*	*	*	29.52
Ce	*	0.30	**0.34**	*	1.74	-0.18	*	0.54	-6.95	*	**-3.41**	*	10.38
Co	*	-0.25	*	*	43.02	0.00	*	-0.02	*	*	*	*	3.20
Cr	***3.20***	*-0.59*	***3.12***	*	*0.11*	*3.38*	*	*-0.41*	*-5.62*	*-0.23*	***-2.98***	*	*-1.26*
Cs	*	-0.26	**-0.90**	*	*	-0.74	*	0.13	*	*	*	*	17.49
Cu	*	-0.15	**-1.51**	*	-1.29	-0.23	*	0.08	-1.56	-1.51	*	*	-1.14
Dy	*	0.17	**1.93**	*	*	0.21	*	0.32	-5.42	*	*	*	*
Er	*	-0.20	**0.85**	*	*	0.36	*	0.56	-5.42	*	*	*	*
Eu	*	0.05	**1.28**	*	*	0.10	*	0.25	-3.90	*	*	*	*
Ga	**-3.80**	0.83	**0.00**	*	1.54	0.15	*	0.36	*	-1.19	**-1.19**	*	-1.01
Gd	*	0.52	**1.11**	*	*	-0.32	*	0.39	-4.46	*	*	*	*
Ge	*	*	*	*	*	*	*	*	*-6.13*	*	*	*	*
Hf	*	0.65	**-0.10**	*	*	-0.07	*	*	*	*	*	*	3.35
Ho	*	0.03	**1.08**	*	*	0.11	*	0.20	-4.49	*	*	*	*
La	*	0.30	**0.43**	*	3.73	-0.32	*	0.38	-6.46	-1.90	**-6.08**	*	12.47
Li	*	0.63	*	*	*	*	*	0.09	-1.41	*	*	*	*
Lu	*	0.08	**0.48**	*	*	0.13	*	0.51	-4.67	*	*	*	*
Mo	*	0.79	*	*	*	-0.01	*	0.36	-3.19	*	*	*	-2.66
Nb	**-1.08**	0.01	**-2.28**	*	-0.38	-1.49	*	0.01	-8.68	*	**-0.92**	*	-0.54
Nd	*	0.37	**0.17**	*	4.69	-0.10	*	0.37	*	*	**-1.72**	*	4.78
Ni	*	*0.74*	***11.09***	*	*	*4.72*	*	*-0.22*	*-3.79*	*	*	*	*-4.47*
Pb	*	0.25	**1.36**	*	2.94	-0.38	*	0.25	-2.93	*	**6.20**	*	44.55
Pr	*	0.09	**0.32**	*	*	-0.17	*	0.32	-5.00	*	*	*	*
Rb	*	-0.10	**0.01**	*	0.53	-0.50	*	-0.73	-10.03	*	**0.40**	*	-0.65
Sc	*	-0.23	**0.46**	*	*	-0.12	*	0.23	*	*	*	*	-3.93
Sm	*	0.38	**0.70**	*	6.27	-0.09	*	0.34	-4.71	*	*	*	-1.41
Sn	*	-0.25	*	*	*	-0.05	*	-0.03	-5.32	*	*	*	8.78
Sr	**0.99**	-0.14	**1.12**	*	-0.12	0.34	*	-0.30	-10.56	-1.43	**0.12**	*	-0.67
Ta	*	0.06	**-0.25**	*	*	-0.32	*	-0.13	*	*	*	*	6.37
Tb	*	0.11	**0.91**	*	*	0.04	*	0.04	-3.83	*	*	*	*
Th	*	0.02	**0.78**	*	2.98	-0.39	*	0.47	-4.92	*	*	*	-1.15
Tl	*	*	*	*	*	*	*	*-0.22*	*-4.41*	*	*	*	*
Tm	*	0.16	**0.31**	*	*	0.05	*	0.21	*	*	*	*	*
U	*	0.29	**0.18**	*	*	-0.06	*	-0.11	-4.18	*	*	*	4.06
V	**23.75**	*	**6.67**	*	2.55	-0.24	*	1.07	-4.51	-0.15	**-0.30**	*	-2.85
W	*	*	*	*	*	*	*	*0.00*	*-3.97*	*	*	*	*14.08*
Y	*	-0.18	**1.22**	*	0.69	-1.02	*	*	*	*	**1.08**	*	-0.47
Yb	*	0.39	**-0.07**	*	*	0.38	*	0.49	-5.95	*	**2.50**	*	-0.71
Zn	**-0.43**	0.18	**0.81**	*	0.91	0.38	*	0.14	-0.91	-0.26	**-0.96**	*	-1.21
Zr	**0.38**	0.66	**0.50**	*	0.15	-1.40	*	1.59	-12.00	*	**1.89**	*	0.50

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P14	P15	P16	P17	P19	P20	P22	P23	P24	P26	P27	P28	P29
SiO2	**0.38**	**0.08**	**-0.73**	0.04	**0.28**	-0.15	*	*	**3.39**	**-0.18**	0.43	**-0.33**	-1.09
TiO2	**46.06**	**0.31**	**0.31**	*	**-1.09**	0.71	**0.03**	1.55	**-1.09**	**1.71**	0.31	**1.71**	0.50
Al2O3	**-5.01**	**-0.87**	**1.11**	-1.37	**1.75**	0.16	**-2.86**	1.60	**-10.09**	**0.23**	1.63	**1.81**	4.34
Fe2O3T	**16.28**	**0.64**	**-0.78**	4.56	**-0.17**	-0.05	**-4.01**	1.93	**-7.24**	**5.88**	-0.37	**3.87**	0.42
MnO	**21.83**	**-1.09**	**5.46**	*	**-2.18**	0.27	*	0.00	**-5.46**	**0.00**	0.00	**1.64**	-0.55
MgO	***-10.07***	***-1.90***	***-3.80***	*2.85*	***-14.24***	*1.38*	***-3.13***	*0.95*	***-7.60***	***4.75***	*6.65*	***4.75***	*-1.90*
CaO	**-13.24**	**0.45**	**0.45**	0.22	**0.89**	-0.20	**-2.68**	1.34	**-2.68**	**4.03**	0.00	**1.34**	0.45
Na2O	**-28.83**	**-3.15**	**-0.41**	*	**2.06**	0.07	**-3.84**	2.06	**-5.07**	**-0.96**	0.55	**0.69**	1.23
K2O	**55.02**	**0.26**	**-0.26**	*	**-0.79**	-0.52	**-3.41**	1.70	**-1.31**	**0.26**	0.00	**0.79**	0.52
P2O5	**20.52**	**0.00**	**1.71**	*	**-0.57**	-1.42	**-5.13**	*	**-3.99**	**13.11**	1.71	**3.99**	0.57
LOI	***-4.21***	***2.87***	***6.60***	*2.37*	***-43.75***	*1.44*	*	*	***12.82***	***-1.48***	*0.82*	*0.82*	*
Ba	*	**0.48**	*	*	**-3.19**	-0.37	**-0.50**	0.61	**0.51**	**1.05**	0.56	**0.73**	-2.33
Be	*	*	*	*	*	0.21	**-0.32**	*	**-0.23**	*	-1.83	**3.07**	*
Bi	*	*	*	*	*	-0.48	**0.49**	*	*	*	0.98	*	*
Ce	*	-1.97	*	*	**-4.16**	-0.70	**-1.91**	0.73	**-0.63**	*	0.88	**0.90**	2.89
Co	*	*	*	*	**-2.46**	-0.34	**-1.28**	0.52	**-1.72**	*	0.34	**2.46**	9.83
Cr	*	***-0.36***	*	*	***-5.14***	*0.95*	*	*2.39*	***1.15***	*	*5.77*	***5.82***	*-1.13*
Cs	*	*	*	*	*	-0.20	**-0.90**	0.62	**-1.10**	*	-0.13	**1.54**	*
Cu	**-3.03**	*	*	*	**-3.79**	-0.07	*	0.45	**3.59**	*	5.42	**-1.35**	2.27
Dy	*	*	*	*	*	0.04	**0.01**	0.86	**-1.14**	*	0.75	**0.35**	1.44
Er	*	*	*	*	*	-0.05	**0.16**	0.93	**-2.01**	*	0.36	**0.52**	1.30
Eu	*	*	*	*	*	-0.32	**-0.30**	0.20	**0.00**	*	-0.10	**0.00**	0.84
Ga	**0.00**	1.07	*	*	**0.00**	-0.34	**-1.85**	*	**-0.79**	**-2.37**	0.84	**18.21**	-1.19
Gd	*	*	*	*	*	-0.07	**0.90**	0.83	**-0.64**	*	0.66	**0.43**	1.04
Ge	*	*	*	*	*	*	***-1.22***	*	***-2.92***	*	*-1.13*	*	*
Hf	*	*	*	*	**1.74**	-0.16	*	*	**7.08**	*	0.41	**-2.65**	-0.59
Ho	*	*	*	*	*	-0.21	**-0.28**	0.71	**-2.61**	*	-0.06	**0.40**	0.97
La	*	*	*	*	**-4.56**	-0.52	**-2.81**	1.14	**-0.40**	*	0.71	**0.34**	1.10
Li	*	*	*	*	*	-0.82	*	0.15	**-2.33**	*	*	**1.53**	*
Lu	*	*	*	*	*	-0.10	**-0.48**	0.56	**0.05**	*	-0.59	**-0.06**	0.51
Mo	**23.48**	*	*	*	**-4.25**	0.82	**-1.12**	*	*	*	1.80	**-3.86**	*
Nb	**8.44**	*	*	*	**3.76**	-0.75	*	*	**9.69**	**0.64**	-0.72	**-2.65**	1.88
Nd	*	-3.00	*	*	**-2.33**	-0.13	**-0.83**	1.16	**-0.31**	*	0.92	**0.32**	1.44
Ni	***-5.38***	*	*	*	*	*-0.85*	*	*0.21*	***-1.13***	*	*8.26*	***4.72***	*-1.32*
Pb	**-3.29**	*	*	*	**-0.13**	-0.24	**1.87**	0.17	**2.63**	*	0.51	**-0.03**	-0.06
Pr	*	*	*	*	*	-0.21	**-0.43**	0.91	**-0.58**	*	0.35	**0.32**	1.05
Rb	**1.28**	**-0.38**	*	*	**-2.64**	-0.17	**-1.99**	*	**-0.19**	**-0.03**	0.36	**0.29**	0.42
Sc	*	*	*	*	**-5.77**	0.37	*	*	**-0.62**	*	-1.09	**1.15**	1.15
Sm	*	*	*	*	*	-0.21	**-0.37**	0.86	**-0.12**	*	-0.89	**0.12**	0.94
Sn	*	*	*	*	*	0.50	*	*	**-1.09**	*	0.41	*	*
Sr	**-0.54**	**-0.41**	*	*	**-1.87**	-0.46	**-0.64**	0.89	**-0.41**	**2.78**	1.02	**0.06**	1.72
Ta	*	*	*	*	*	-0.38	*	*	**21.18**	*	-0.76	**-3.03**	*
Tb	*	*	*	*	*	-0.36	**-0.30**	0.27	**-1.44**	*	-0.38	**0.00**	0.95
Th	**26.17**	*	*	*	**-1.00**	-0.23	**-0.74**	0.39	**0.00**	*	-0.13	**-2.07**	1.08
Tl	*	*	*	*	*	*-0.81*	*	*	*	*	*	*	*
Tm	*	*	*	*	*	-0.24	**-0.23**	0.64	**0.85**	*	*	*	0.37
U	**77.50**	*	*	*	*	-0.34	**0.08**	1.95	**-0.12**	*	-0.02	**0.28**	*
V	*	*	*	*	**-3.96**	-1.35	**-1.35**	0.63	**-1.70**	*	0.22	**6.32**	-1.02
W	***43.49***	*	*	*	*	*-0.95*	***-0.28***	*	*	*	*-0.42*	*	*
Y	**1.42**	-0.53	*	*	**-0.93**	0.02	**-2.57**	1.19	**1.44**	**2.42**	-0.33	**3.10**	2.27
Yb	*	*	*	*	**-2.06**	-0.16	**0.09**	0.60	**-0.11**	*	0.35	**0.46**	0.78
Zn	**1.69**	**-0.60**	*	*	**-2.28**	-0.53	**1.07**	-0.21	**1.29**	**-0.07**	1.24	**-0.01**	0.63
Zr	**0.38**	-1.44	*	*	**-0.90**	0.15	**-4.28**	*	**16.17**	**2.48**	1.08	**-1.65**	0.36

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P30	P31	P32	P34	P35	P37	P38	P39	P40	P41	P42	P43	P44
SiO2	0.13	-0.83	-0.31	-0.04	-1.36	**-13.58**	**-0.38**	0.17	-0.12	0.01	-0.11	0.47	0.84
TiO2	0.85	-0.55	-0.13	-0.06	-0.76	**-0.06**	**-3.89**	0.15	1.90	-0.69	0.15	0.71	-1.25
Al2O3	0.00	0.61	0.00	-0.29	-1.46	**-0.30**	**-1.11**	-0.44	-0.13	-0.43	0.79	0.15	-3.59
Fe2O3T	-0.09	2.13	0.12	-0.49	-0.99	**1.28**	**-0.58**	0.12	-0.81	0.14	0.02	0.21	0.32
MnO	-2.18	2.73	0.60	-0.55	-0.27	**-0.81**	**0.00**	-0.55	-1.09	-0.27	-0.82	-3.27	2.73
MgO	*-1.14*	*-2.37*	*0.90*	*1.42*	*-0.95*	***15.00***	***0.95***	*-1.90*	*0.90*	*0.76*	*0.95*	*-0.38*	*-10.92*
CaO	0.00	-1.57	-0.47	1.34	-1.57	**-6.62**	**0.00**	-1.79	1.01	0.16	0.00	0.85	0.89
Na2O	-1.51	0.62	0.42	-0.62	-0.27	**0.22**	**-2.19**	-1.51	0.48	-0.22	0.27	-0.48	1.85
K2O	0.00	0.39	0.14	0.39	-0.52	**-2.41**	**0.00**	0.13	1.70	0.24	0.13	0.08	0.13
P2O5	0.85	3.70	-1.77	0.00	-0.57	*	**7.41**	-1.99	-0.28	0.57	0.85	-1.42	-1.99
LOI	*-0.12*	*3.61*	*-0.93*	*-0.74*	*	*	***-5.21***	*0.50*	*-0.93*	*2.06*	*-2.60*	*7.50*	*0.82*
Ba	-0.98	*	0.41	0.57	-0.09	**-0.91**	**2.27**	0.65	-0.01	-0.21	-4.45	-0.25	-0.82
Be	*	*	*	-0.02	*	*	*	*	*	*	*	-1.10	-1.88
Bi	*	*	*	*	*	*	*	*	*	*	*	0.49	-0.96
Ce	*	*	-6.15	0.17	*	**1.22**	**-6.03**	*	*	-0.39	-6.20	-0.26	0.28
Co	*	*	4.20	*	*	**-0.30**	**0.00**	*	0.00	*	-4.92	-0.74	-0.69
Cr	*-2.03*	*	*-3.36*	*-0.59*	*1.20*	***3.57***	***0.97***	*	*-4.00*	*0.13*	*-6.34*	*-0.95*	*-0.20*
Cs	*	*	*	*	*	**1.72**	*	*	*	*	*	0.03	-0.44
Cu	-3.03	*	-1.48	0.00	0.00	*	**-6.06**	*	0.00	-3.79	9.84	-0.61	0.79
Dy	*	*	*	-0.92	*	**1.88**	*	*	*	*	*	-1.15	0.19
Er	*	*	*	-1.57	*	*	*	*	*	*	*	-0.39	0.48
Eu	*	*	*	-0.25	*	**-0.03**	*	*	*	*	*	-0.79	0.57
Ga	-1.19	*	0.14	*	*	**1.78**	**-1.19**	*	1.78	0.00	-4.15	0.00	-0.41
Gd	*	*	*	-1.22	*	*	**-6.92**	*	*	*	*	0.10	0.62
Ge	*	*	*	*	*	*	***-4.27***	*	*	*	*	*2.36*	*-0.33*
Hf	*	*	*	*	*	**0.66**	**5.57**	*	15.16	*	*	-0.59	-0.28
Ho	*	*	*	-1.65	*	*	*	*	*	*	*	-0.26	0.07
La	*	*	-1.79	0.38	-0.76	**0.06**	**-2.28**	*	*	0.76	-4.18	0.19	-0.07
Li	*	*	-4.42	0.09	*	*	*	*	1.17	*	*	*	-0.81
Lu	*	*	*	-0.77	*	**-1.19**	*	*	*	*	*	0.19	0.28
Mo	*	*	-2.80	*	*	*	*	*	*	*	*	1.08	1.20
Nb	-0.46	*	0.48	0.32	*	*	**8.44**	*	*	1.10	-2.80	-2.80	0.94
Nd	*	*	*	-1.26	*	**-1.10**	**-2.33**	*	*	*	*	-0.25	0.32
Ni	*	*	*0.00*	*	*	*	***-5.38***	*	*-1.32*	*-4.06*	*-2.69*	*0.05*	*-0.65*
Pb	4.68	*	46.45	*	*	*	**-0.13**	*	28.42	3.10	22.09	3.10	-1.35
Pr	*	*	*	-1.41	*	*	*	*	*	*	*	0.07	0.47
Rb	-0.67	*	*	0.20	*	**2.10**	**1.71**	*	*	0.64	-0.45	0.29	-1.14
Sc	1.96	*	-1.78	0.69	*	**0.69**	**-0.69**	*	*	1.96	*	*	0.38
Sm	*	*	*	-0.79	*	**0.17**	*	*	*	*	*	-0.55	0.27
Sn	9.64	*	2.74	*	*	*	*	*	*	*	*	1.04	-0.04
Sr	-0.44	*	0.21	0.06	*	0.56	**2.12**	-0.27	1.22	-0.10	14.34	-0.37	-2.68
Ta	*	*	*	*	*	**-0.84**	*	*	*	*	*	-0.57	1.68
Tb	*	*	*	-0.76	*	**-0.02**	*	*	*	*	*	-0.68	-0.21
Th	*	*	*	*	*	**0.92**	**-2.94**	*	*	0.15	*	0.15	-1.43
Tl	*	*	*	*	*	*	*	*	*	*	*	*	*-0.91*
Tm	*	*	*	-1.14	*	*	*	*	*	*	*	0.32	0.19
U	*	*	*	*	*	-3.83	*	*	*	-1.47	*	0.69	-0.33
V	-1.02	*	3.94	*	-4.51	**-0.09**	**-5.53**	*	*	0.72	0.72	-0.15	-0.81
W	*	*	*	*	*	*	*	*	*	*	*	*0.84*	*1.21*
Y	-0.13	*	-2.71	0.37	-1.14	*	**2.42**	*	-0.97	1.21	-2.65	0.04	-3.52
Yb	*	*	*	-1.57	*	**1.02**	*	*	*	*	*	0.05	0.26
Zn	-0.92	*	0.54	0.63	-1.14	**2.53**	**2.13**	*	0.85	-0.70	1.51	-0.26	-2.62
Zr	0.71	*	*	0.07	-2.20	**2.82**	**-1.83**	-0.33	-2.14	1.00	-2.96	-0.16	-0.79

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P45	P46	P47	P48	P49	P52	P53	P54	P55	P56	P57	P58	P59
SiO2	0.26	0.22	0.06	-0.73	0.49	0.32	-0.35	-0.22	0.22	-3.99	0.42	-0.19	-0.31
TiO2	-1.37	10.10	-0.41	0.31	0.85	-2.03	0.15	0.85	0.45	-3.90	1.57	5.90	1.71
Al2O3	0.35	1.34	0.06	0.29	0.15	0.64	-0.44	-0.12	0.00	1.60	0.99	-0.79	-0.06
Fe2O3T	-0.58	-2.39	0.02	-0.98	-0.39	0.17	-0.39	1.83	0.64	-1.90	0.64	2.53	0.43
MnO	-1.64	0.00	0.00	-5.46	0.00	-2.13	-0.82	0.00	0.00	129.87	0.00	-5.46	0.00
MgO	*3.13*	*-8.55*	*1.09*	*-0.95*	*-4.75*	*2.47*	*0.71*	*-1.42*	*-10.45*	*	*-1.38*	*9.50*	*-11.39*
CaO	-0.45	0.89	0.13	-0.45	0.67	0.49	-0.67	0.89	0.00	-3.58	1.95	9.44	1.34
Na2O	0.14	-1.10	-0.75	1.10	2.19	1.21	-0.75	-2.12	3.84	-13.70	-37.13	0.18	0.55
K2O	0.00	1.05	-0.47	-1.05	0.39	0.86	-0.39	-0.52	1.05	-1.31	-51.61	4.11	1.57
P2O5	-1.71	1.71	-1.42	-9.69	-1.99	12.20	0.28	-4.84	-2.28	*	0.57	-3.70	-3.99
LOI	*-0.86*	*-2.72*	*-0.43*	*-2.10*	*-0.74*	*0.57*	*-0.93*	*4.86*	*-0.23*	*	*-1.98*	*-17.95*	*6.60*
Ba	0.58	*	1.34	-2.86	1.58	1.18	-0.94	5.09	-0.91	-0.13	-0.33	*	*
Be	1.00	*	0.23	*	-1.39	1.57	*	*	*	*	0.31	*	*
Bi	0.01	*	0.59	*	4.36	0.69	*	*	*	*	2.71	*	*
Ce	0.34	*	0.36	-3.41	0.52	1.39	-0.58	*	2.21	-1.57	-0.57	*	*
Co	-0.39	19.67	-0.15	4.92	-0.25	-1.50	*	103.25	7.38	*	-0.49	*	4.92
Cr	*-0.54*	*-2.62*	*1.56*	*-5.14*	*-6.16*	*2.27*	*-0.52*	*10.54*	*-0.11*	*14.85*	*0.13*	*	*-0.83*
Cs	-0.13	*	7.79	27.22	-0.06	-0.01	*	*	1.23	*	-0.13	*	*
Cu	1.36	*	7.57	-4.54	0.45	-2.68	-3.18	41.65	0.00	25.52	1.97	*	-9.09
Dy	0.61	*	-2.98	*	0.32	-0.67	*	*	-1.06	*	0.05	*	*
Er	0.78	*	-2.20	*	-0.04	-0.55	*	*	-0.62	*	0.24	*	*
Eu	0.40	*	-2.91	*	1.63	-0.18	*	*	0.10	*	-0.05	*	*
Ga	-0.83	*	-0.12	-2.37	-0.24	1.25	-1.07	*	-1.19	-2.37	-1.19	*	*
Gd	0.52	*	-3.77	*	-0.32	-1.34	*	*	-0.41	53.94	0.26	*	*
Ge	*	*	*4.11*	*	*37.40*	*	*	*	*	*	*0.29*	*	*
Hf	0.23	*	0.98	-3.44	-0.79	-0.12	0.31	*	1.27	*	0.52	*	*
Ho	0.57	*	-2.19	*	2.67	0.40	*	*	0.00	*	-0.11	*	*
La	0.84	*	-0.38	-2.28	0.42	0.77	-1.52	*	1.60	-2.24	-0.46	*	*
Li	2.38	*	*	*	-0.17	1.06	*	*	*	*	-0.35	*	*
Lu	0.37	*	-1.31	*	1.52	-0.17	*	*	-0.70	*	-0.13	*	*
Mo	1.33	*	2.00	-4.96	1.29	-2.56	*	31.29	-0.30	-3.37	0.28	*	*
Nb	1.26	*	-2.02	-2.48	-0.62	-1.65	0.63	14.36	5.01	-1.24	-0.05	*	*
Nd	0.59	*	0.06	-4.17	0.09	0.30	0.06	*	0.98	-0.80	-0.07	*	*
Ni	*-2.17*	*5.60*	*0.05*	*-8.12*	*4.17*	*-1.76*	*	*	*-4.06*	*5.82*	*4.17*	*	*-8.12*
Pb	-0.76	*	7.85	56.83	3.10	-0.35	*	105.94	-1.55	11.17	-0.54	*	-0.13
Pr	0.32	*	-4.94	*	-2.29	0.13	*	*	0.26	-2.72	-0.34	*	*
Rb	0.32	*	0.64	-0.03	-1.13	0.06	0.14	*	0.97	0.18	-0.23	*	*
Sc	2.13	*	-1.34	3.93	0.35	1.18	-1.27	*	-2.66	*	-0.92	*	*
Sm	0.62	*	-4.20	2.04	-1.60	0.54	*	*	0.04	*	-0.06	*	*
Sn	-0.49	*	-1.11	32.17	-0.25	-0.02	*	84.86	*	*	2.10	*	*
Sr	0.49	*	-0.10	-0.54	-0.49	-0.17	-0.64	2.22	0.89	-0.10	0.39	-1.34	*
Ta	0.00	*	-0.15	37.96	-0.57	1.30	*	*	0.38	*	-0.38	*	*
Tb	0.61	*	-2.62	*	1.82	-0.90	*	*	45.15	*	-0.19	*	*
Th	0.19	*	-2.83	0.29	-0.02	1.60	-1.63	*	2.33	-0.70	0.26	*	*
Tl	*0.05*	*	*0.52*	*	*-0.71*	*	*	*	*	*	*-0.71*	*	*
Tm	0.42	*	-1.57	*	1.56	-0.36	*	*	-0.33	*	-0.17	*	*
U	0.38	*	-2.22	9.13	-0.46	-0.02	*	*	0.78	*	0.04	*	27.23
V	0.74	*	1.59	3.18	1.59	0.09	0.55	*	6.67	*	-0.53	*	3.18
W	*0.14*	*	*4.18*	*127.11*	*4.32*	*	*	*	*-8.08*	*	*-0.21*	*	*
Y	0.34	*	-0.30	0.07	1.48	0.14	1.01	-0.97	0.64	-0.53	1.04	*	*
Yb	0.52	*	-1.72	*	0.05	-0.50	-2.66	*	-0.22	*	-0.05	*	*
Zn	0.59	*	-0.26	-1.40	0.63	-1.29	-0.70	*	-0.52	1.07	-0.26	*	-0.52
Zr	1.16	*	-0.39	0.96	-0.10	-0.33	0.31	*	-0.79	0.60	0.95	*	*

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P60	P61	P62	P63	P64	P66	P67	P68	P69	P70	P71	P72	P74
SiO2	-2.65	0.17	-1.20	-0.17	*	*	0.77	0.73	0.04	-0.40	-0.01	0.49	*
TiO2	-1.74	1.52	0.17	-1.95	*	*	0.45	0.31	0.15	0.31	-0.55	-8.17	-0.95
Al2O3	-0.62	-0.82	0.18	0.15	-1.21	*	-0.61	0.47	0.15	0.52	-0.38	1.78	*
Fe2O3T	0.28	0.90	-0.88	-0.09	-1.23	*	-0.45	-0.17	-0.09	2.05	-0.49	1.66	*
MnO	0.00	-0.25	-2.18	-2.73	1.64	*	0.30	0.00	0.00	-1.09	-1.64	0.27	-1.64
MgO	*-2.14*	*-2.97*	***-2.09***	*9.97*	*-2.90*	*	*0.79*	***1.90***	*0.00*	***-0.95***	*0.00*	*49.23*	*
CaO	1.03	0.74	-1.07	-3.35	-2.01	*	3.80	1.34	0.67	-0.45	-0.22	-5.10	*
Na2O	-0.70	-0.42	-8.74	-1.99	-3.59	*	0.17	-3.01	0.14	-0.41	0.48	0.07	*
K2O	1.05	-0.04	-0.31	-0.52	-2.84	*	0.76	-0.26	1.18	-0.52	0.13	7.36	*
P2O5	3.99	-0.48	-1.14	0.28	*	*	0.85	1.71	-0.57	1.71	-1.99	0.28	*
LOI	*1.44*	*6.29*	***16.86***	*-2.29*	*	*	*	***-0.23***	*	***1.63***	*-0.74*	*2.00*	*
Ba	-0.27	0.89	*	3.33	1.20	*	0.89	-0.26	*	0.32	-0.29	*	-0.58
Be	*	0.41	*	1.47	-0.16	*	0.59	*	*	0.72	*	*	0.81
Bi	*	-0.67	*	*	-0.29	*	*	*	*	1.95	*	*	*
Ce	0.01	-1.30	*	0.71	0.49	-1.31	0.51	*	*	0.90	*	*	-0.15
Co	3.32	-0.70	*	0.34	-0.16	*	0.32	4.92	*	6.79	*	*	-0.89
Cr	*-1.46*	*0.86*	*	*-0.05*	*	*	*1.74*	***2.05***	*	***2.98***	*	*	***2.62***
Cs	*	-0.64	*	0.03	*	-0.90	0.23	*	*	0.26	*	*	-0.71
Cu	2.48	0.73	*	2.27	2.11	*	*	-4.54	*	3.48	*	*	0.15
Dy	2.89	-0.80	*	0.13	0.64	-1.68	-0.45	*	*	0.18	*	*	0.33
Er	2.84	-0.40	*	0.45	0.58	-1.34	-0.45	*	*	-0.64	*	*	-0.22
Eu	3.41	-1.08	*	0.00	0.64	-0.69	0.49	*	*	0.40	*	*	-0.10
Ga	0.77	-1.05	*	0.00	0.98	0.12	0.12	-1.19	*	0.12	*	*	0.47
Gd	3.60	-1.36	*	0.95	-0.18	-0.37	-0.62	*	*	-1.11	*	*	-0.12
Ge	*	*-0.52*	*	*	*	***1.21***	*	*	*	***-1.13***	*	*	*
Hf	7.83	-0.20	*	0.50	*	*	-1.09	-1.18	*	1.99	*	*	-0.19
Ho	2.33	-0.80	*	0.00	0.43	-1.31	0.80	*	*	0.28	*	*	-0.17
La	3.04	-0.70	*	0.38	0.82	-0.68	0.00	*	*	0.38	*	*	-0.08
Li	4.14	-2.39	*	1.53	9.51	*	*	*	*	1.82	*	*	-0.40
Lu	1.95	-0.89	*	0.05	0.83	-0.48	-0.19	*	*	0.37	*	*	-0.16
Mo	-0.31	-0.12	*	0.01	0.13	*	0.29	*	*	-9.58	*	*	*
Nb	2.50	0.14	*	2.98	*	-1.23	-0.69	-0.92	*	0.33	*	*	0.17
Nd	3.20	-0.82	*	0.61	1.04	-1.23	-0.18	*	*	0.25	*	*	-0.31
Ni	*-2.61*	*4.67*	*	*6.92*	*	*	*1.92*	***2.85***	*	***3.24***	*	*	***-0.74***
Pb	-0.40	1.01	*	0.09	-0.96	*	2.55	6.20	*	-1.30	*	*	-0.32
Pr	2.16	-1.06	*	1.16	0.76	-0.89	0.13	*	*	0.70	*	*	-0.14
Rb	1.65	-0.65	*	0.84	0.30	0.19	-0.02	0.84	*	8.24	*	*	0.14
Sc	*	0.31	*	0.58	*	-5.94	-0.01	-0.69	*	2.52	*	*	-0.05
Sm	2.53	-0.87	*	0.04	0.49	-1.17	-0.01	*	*	0.35	*	*	-0.23
Sn	*	0.48	*	*	*	2.60	0.36	*	*	4.54	*	*	-0.23
Sr	0.51	-1.50	*	1.45	-0.42	*	1.19	1.12	*	1.02	-2.10	*	0.22
Ta	8.39	0.22	*	1.32	*	-0.25	0.00	*	*	3.53	*	*	-0.25
Tb	2.35	-0.66	*	0.38	0.99	-0.99	0.11	*	*	-0.15	*	*	0.08
Th	2.39	-0.62	*	0.32	-0.16	-1.36	-0.06	3.53	*	2.17	*	*	-0.10
Tl	*	*0.22*	*	***-0.79***	*-1.21*	***-1.43***	*-0.22*	*	*	***0.05***	*	*	***1.03***
Tm	2.42	-0.94	*	-0.23	0.80	-0.33	-0.17	*	*	-0.55	*	*	-0.12
U	1.85	-0.90	*	-0.02	-0.68	-0.83	-0.11	*	*	1.99	*	*	-0.02
V	0.35	0.08	*	1.62	1.57	*	*	10.15	*	-3.00	*	*	1.09
W	*	*-0.07*	*	*-0.56*	*	***-1.11***	*	*	*	***3.21***	*	*	*
Y	2.26	-0.78	*	0.41	0.28	-1.13	0.09	1.75	*	1.11	*	*	1.15
Yb	2.25	-0.75	*	-0.11	0.85	-1.00	-0.35	*	*	0.24	*	*	0.11
Zn	-0.11	0.88	*	-1.80	-1.66	*	-0.43	-1.84	*	4.61	*	*	-0.38
Zr	-0.99	-0.84	*	1.41	-0.19	*	-3.21	0.50	*	6.55	*	*	0.61

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P75	P77	P78	P79	P82	P83	P85	P86	P87	P88	P89	P90	P91
SiO2	*	-0.42	*	*	3.15	*	0.08	-0.19	-0.08	-0.95	0.13	0.00	*
TiO2	-3.61	-1.09	*	-0.11	24.09	-0.55	0.08	0.50	-0.41	-5.29	-0.55	-0.48	3.10
Al2O3	*	0.35	-9.04	-0.17	-1.46	-0.12	0.09	0.28	0.67	-2.33	-0.06	1.43	*
Fe2O3T	*	-0.58	-18.34	-0.03	8.71	1.58	-0.29	0.34	-0.49	-0.58	0.02	-0.99	*
MnO	-2.73	-1.26	0.00	-1.09	-10.91	-0.82	0.27	0.82	1.09	0.00	-1.36	-3.00	0.00
MgO	*	*-0.95*	*-6.65*	*0.00*	*-10.45*	*1.09*	*0.47*	*3.23*	*-3.80*	*-1.90*	*0.47*	*1.42*	*
CaO	*	-0.45	7.16	1.43	-10.74	1.25	0.67	0.16	-0.89	0.00	0.45	0.22	*
Na2O	*	-2.47	-13.56	-1.71	-49.05	2.60	-0.41	1.08	0.41	-55.90	-0.07	1.92	*
K2O	*	-0.26	-14.15	-0.34	-12.84	1.09	0.13	0.26	-0.65	-52.92	-0.13	-0.65	*
P2O5	*	-0.28	*	-0.57	21.77	0.85	0.28	0.85	-1.71	-9.69	0.28	1.71	*
LOI	*	*2.25*	*	*	*-2.10*	*	*-5.09*	*1.13*	*1.44*	*-1.67*	*-0.43*	*-0.43*	*
Ba	0.53	-0.42	0.48	-0.09	*	0.25	0.44	0.08	-0.62	-3.01	*	-2.19	0.80
Be	*	-0.89	-0.89	0.15	*	0.50	*	*	1.49	*	*	-0.25	0.06
Bi	117.59	*	*	*	*	-0.19	*	*	*	*	*	*	*
Ce	-0.13	-1.42	-0.04	0.00	*	0.17	0.54	-1.84	-0.77	-4.76	*	0.04	-0.04
Co	-2.11	-1.82	0.49	-0.64	0.00	-0.66	4.92	-1.97	0.64	-2.95	*	-1.94	-0.49
Cr	*-0.58*	*-2.38*	*3.48*	*1.58*	*0.97*	*0.00*	*-0.05*	*-0.95*	*4.79*	*-4.02*	*	*-3.27*	*1.40*
Cs	-1.00	0.65	*	-0.71	*	-0.74	*	0.07	4.69	*	*	*	-0.32
Cu	-1.77	-10.28	-9.24	-0.61	0.00	-0.68	-3.79	-1.36	*	0.76	*	0.53	0.15
Dy	-0.35	-0.07	2.04	0.33	*	-0.17	*	0.64	0.99	*	*	0.55	0.49
Er	-0.24	-0.89	1.57	0.27	*	-0.11	*	0.90	1.27	*	*	0.69	0.16
Eu	-0.31	-0.89	0.79	0.10	*	-0.37	*	-1.19	1.04	*	*	0.25	0.40
Ga	0.31	-0.26	*	0.47	*	-1.35	1.19	*	0.50	-1.30	*	*	0.59
Gd	0.56	-0.43	0.24	0.41	*	-0.06	*	-0.30	1.38	*	*	0.52	-0.59
Ge	*	*	*	*	*	*	*0.56*	*	*0.56*	*11.00*	*	*	*
Hf	-1.03	-1.75	*	0.10	*	0.08	-1.72	3.32	-0.82	-1.63	*	-0.02	1.00
Ho	-0.40	-1.36	0.97	0.11	*	-0.16	*	0.97	0.54	*	*	0.31	0.11
La	-0.09	-0.62	0.00	0.15	*	-0.19	-0.76	-0.15	-2.27	-5.48	*	-0.21	0.38
Li	*	-7.98	*	-0.99	*	0.63	*	*	2.92	*	*	-1.98	0.08
Lu	0.10	-1.12	1.01	0.37	*	0.15	*	1.01	1.20	*	*	0.45	0.58
Mo	*	*	-0.34	*	*	-0.70	*	1.80	*	-5.31	*	0.77	*
Nb	0.16	-5.27	*	0.48	*	-1.01	-3.58	4.07	0.00	-0.45	*	-1.64	*
Nd	0.26	-1.04	0.12	-0.12	*	-0.56	-1.16	-0.92	0.99	-2.88	*	0.22	1.10
Ni	*-2.22*	*-0.74*	*5.87*	*-1.07*	*2.85*	*-0.77*	*-1.32*	*-3.46*	*2.61*	*0.11*	*	*0.85*	*0.25*
Pb	0.00	2.44	-5.82	-0.16	-0.13	-0.47	-4.81	-2.34	*	3.04	*	-2.29	0.35
Pr	0.07	-1.14	-0.20	-0.28	*	0.06	-1.25	-1.04	0.80	*	*	-0.04	0.43
Rb	-0.01	-0.07	*	0.32	*	-0.27	-0.45	-0.34	-0.36	-2.16	*	-3.67	0.06
Sc	-3.12	-1.27	*	0.49	*	*	*	0.00	-2.08	-3.00	*	-0.62	1.76
Sm	-0.29	-1.09	0.49	0.00	*	-0.28	-0.92	0.10	0.55	-1.85	*	0.24	0.43
Sn	0.01	-8.44	*	-0.58	*	-0.53	*	2.09	0.12	*	*	*	*
Sr	-0.44	-0.59	*	0.26	*	-0.54	0.06	1.65	-0.93	-0.87	*	0.04	-0.27
Ta	-0.44	-1.50	*	-0.13	*	-0.86	6.37	5.17	0.76	29.13	*	-3.40	*
Tb	-0.42	-2.96	0.76	0.15	*	-0.05	*	0.00	0.57	*	*	0.15	0.23
Th	-0.58	-1.00	-0.36	0.23	*	-1.31	17.94	-0.36	*	-1.97	*	3.01	-0.19
Tl	*7.66*	*1.08*	*-4.88*	*0.54*	*4.98*	*0.00*	*9.88*	*	*0.76*	*	*	*	*
Tm	0.45	-1.68	0.10	0.20	*	-0.41	*	0.10	0.59	*	*	0.21	0.64
U	-0.40	-3.37	0.08	0.28	*	-0.05	13.61	-0.93	-0.67	*	*	-1.12	0.08
V	-1.40	-0.77	-0.30	-0.13	-2.04	-1.81	2.46	3.33	3.25	-0.48	*	-0.55	1.79
W	*	*0.42*	*	*	*	*-0.54*	*	*	*	*	*	*	*
Y	1.58	-1.23	0.07	1.58	*	-0.29	0.04	1.75	-0.13	-0.86	*	-0.74	1.08
Yb	-0.04	-1.61	0.98	0.43	*	0.07	*	1.41	1.50	-5.54	*	0.56	0.61
Zn	-3.60	0.59	-10.68	0.01	-1.40	-0.28	0.85	-0.04	0.85	-2.20	*	0.10	-0.16
Zr	-2.35	-1.33	*	0.73	*	-0.67	-0.33	0.54	-0.28	0.09	*	-0.57	0.73

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

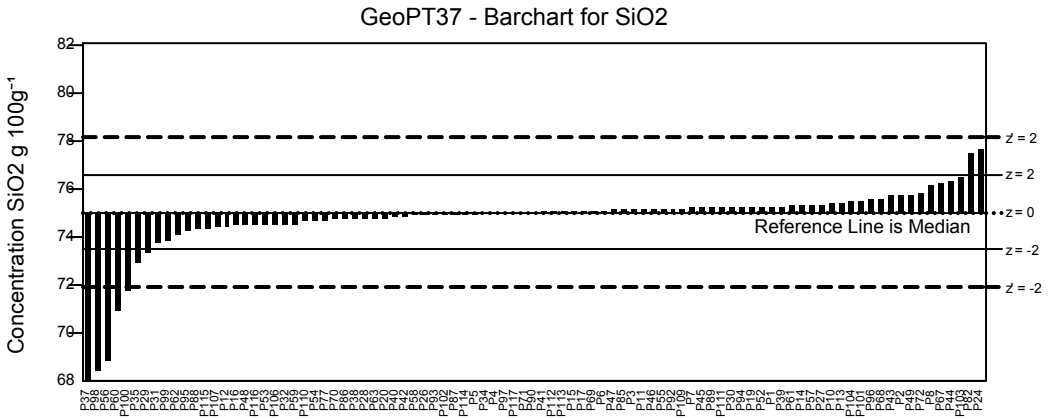
Lab Code	P92	P93	P94	P95	P96	P97	P98	P99	P100	P101	P102	P103	P104
SiO2	**0.22**	-0.09	0.13	**-1.01**	0.36	-0.03	**-8.49**	**-1.53**	-2.10	**0.64**	-0.09	**1.84**	0.29
TiO2	**-1.09**	0.15	0.71	**-0.53**	0.85	-0.48	**-8.23**	**-2.49**	7.15	**-6.69**	0.15	**-5.70**	0.36
Al2O3	**0.29**	-0.15	-1.31	**0.29**	1.02	0.15	**-14.05**	**4.02**	2.51	**1.17**	0.00	**-4.75**	-0.15
Fe2O3T	**0.03**	0.02	3.04	**1.44**	1.02	-0.23	**-2.59**	**-1.58**	-2.51	**7.70**	0.92	**-0.74**	-0.29
MnO	**-1.09**	0.00	2.02	**-0.27**	0.00	-0.82	**-3.27**	**-5.46**	0.82	**0.00**	0.00	**-1.10**	-1.66
MgO	***0.00***	*0.00*	*-2.80*	***0.47***	*2.37*	*0.95*	***7.88***	***11.39***	*-1.90*	***2.85***	*2.37*	***-1.88***	*-1.76*
CaO	**0.00**	0.00	-1.34	**-0.45**	-5.82	0.56	**-5.37**	**0.89**	1.79	**5.37**	0.00	**-2.01**	-0.22
Na2O	**-0.55**	0.07	0.27	**0.34**	0.07	0.23	**-31.10**	**6.03**	-0.41	**0.69**	-0.34	**0.38**	-2.12
K2O	**-1.05**	-0.13	-0.13	**0.00**	0.79	0.10	**-2.88**	**3.93**	-8.51	**-1.05**	0.39	**-0.45**	0.65
P2O5	**-3.99**	-1.99	0.48	**1.71**	0.85	-1.71	**-1.71**	**13.11**	3.70	**1.71**	0.85	*	0.20
LOI	***-0.86***	*17.60*	*-7.89*	*	*0.82*	*1.37*	*	***-10.80***	*	***-5.21***	*-0.74*	*	*-0.12*
Ba	*	*	2.68	**-0.44**	0.86	*	**3.05**	**-30.49**	-0.37	**2.19**	-0.21	**-1.73**	4.36
Be	*	*	*	**-1.52**	0.03	*	*	*	*	*	0.36	*	*
Bi	*	*	*	*	*	*	*	*	0.49	*	*	*	*
Ce	*	0.13	*	**1.50**	0.15	*	**0.97**	*	-0.29	**1.27**	-0.13	**0.72**	-0.09
Co	*	*	*	**-0.69**	0.61	*	*	*	0.37	**0.49**	-0.22	*	5.04
Cr	*	*	*6.41*	***3.41***	*2.21*	*	***-3.41***	*	*3.88*	***0.83***	*0.63*	*	*-2.23*
Cs	*	*	*	**-0.11**	1.49	*	**108.66**	*	-0.64	**1.62**	-0.17	*	0.67
Cu	*	*	15.90	**1.71**	0.38	*	**-1.97**	*	24.78	**11.36**	0.00	*	3.79
Dy	*	-0.92	*	**-0.29**	-0.22	*	*	*	-0.18	**0.57**	-0.14	**1.40**	0.01
Er	*	-0.70	*	**0.14**	-0.33	*	*	*	-0.13	**0.90**	-0.07	**0.91**	0.08
Eu	*	-0.20	*	**0.13**	0.00	*	*	*	0.30	**0.40**	-0.15	**-0.02**	0.74
Ga	*	*	*	**0.15**	-0.47	*	**-2.73**	*	11.23	*	0.06	*	0.42
Gd	*	-0.29	*	**0.05**	-0.64	*	*	*	-0.24	**1.31**	-0.25	**1.18**	0.21
Ge	*	*	*	*	*	*	*	*	*0.60*	*	*-0.56*	*	*
Hf	*	*	*	**0.53**	0.14	*	**-9.74**	*	0.08	**-9.51**	-0.39	*	*
Ho	*	-0.20	*	**1.18**	0.17	*	*	*	-0.17	**-0.97**	-0.17	**0.23**	-0.09
La	*	-0.23	*	**-0.48**	0.40	*	**0.30**	*	-0.19	**1.52**	-0.04	**0.20**	-1.03
Li	*	*	*	**0.88**	*	*	*	*	*	*	0.19	*	*
Lu	*	-0.24	*	**-0.09**	-0.03	*	*	*	-0.29	**-0.16**	-0.08	**0.65**	0.03
Mo	*	*	*	**-0.43**	3.03	*	*	*	1.31	*	*	*	-0.70
Nb	*	*	*	*	0.09	*	*	*	3.21	**36.51**	-0.15	*	-0.30
Nd	*	-1.07	*	**1.84**	0.12	*	*	*	-0.38	**1.04**	-0.06	**1.21**	-0.74
Ni	*	*	*	*	*-3.92*	*	***-6.48***	*	*58.23*	***3.13***	*-0.37*	*	*3.92*
Pb	*	*	*	**-1.49**	-0.85	*	**0.51**	*	-1.06	**30.57**	-0.09	*	3.88
Pr	*	-0.18	*	**-1.25**	0.21	*	*	*	-0.76	**0.20**	-0.19	**0.25**	-0.16
Rb	*	*	0.64	**-0.12**	0.29	*	**-2.12**	*	-0.55	**-0.29**	0.09	*	-0.56
Sc	*	*	*	**0.15**	0.12	*	*	*	1.40	**-5.31**	0.05	**1.68**	2.49
Sm	*	-0.70	*	**0.01**	-1.41	*	*	*	-0.03	**-0.62**	0.00	**0.88**	-0.11
Sn	*	*	*	*	-0.89	*	**8.96**	*	3.88	*	*	*	*
Sr	*	*	2.05	**1.34**	0.81	*	**-2.93**	**0.12**	0.40	**3.24**	0.05	**-1.22**	-1.15
Ta	*	*	*	**2.40**	0.69	*	*	*	-0.50	**0.88**	-0.16	*	*
Tb	*	0.00	*	**0.74**	*	*	*	*	-0.15	**-1.06**	-0.23	**0.23**	0.23
Th	*	0.13	*	**0.46**	-0.83	*	**1.26**	*	0.24	**-8.41**	-0.37	**0.86**	0.86
Tl	*	*	*	***-0.11***	*	*	*	*	*-4.41*	*	*	*	*-0.62*
Tm	*	-0.27	*	**0.22**	*	*	*	*	-0.17	**-0.01**	-0.11	**0.33**	-0.17
U	*	-0.11	*	**0.21**	0.04	*	*	*	0.04	**-5.75**	-0.01	**0.85**	0.99
V	*	*	*	**5.92**	1.16	*	**9.81**	*	26.25	**-2.57**	-0.31	*	*
W	*	*	*	***-2.98***	*1.53*	*	*	*	*41.88*	*	*	*	*
Y	*	-1.00	-10.36	**-0.55**	2.08	*	**-1.84**	*	-0.57	**-1.03**	0.34	**1.42**	-0.03
Yb	*	-0.73	*	**0.44**	-0.16	*	*	*	-0.02	**0.76**	0.00	**0.60**	0.09
Zn	*	*	0.40	**1.87**	3.08	*	**-0.47**	**5.23**	-0.01	**8.01**	0.10	*	0.69
Zr	*	-2.37	3.51	**3.95**	-0.25	*	**-1.29**	**-5.33**	-0.62	**-8.01**	0.36	**0.86**	-0.23

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT37 Z-scores for Rhyolite, ORPT-1. 12/06/2015

Lab Code	P106	P107	P109	P110	P111	P112	P113	P114	P115	P116	P117
SiO2	-0.64	-0.82	0.11	-0.23	0.13	0.03	0.01	-0.14	-0.84	-0.72	-0.05
TiO2	0.31	0.31	0.15	-0.48	-0.55	-1.09	0.15	46.48	0.31	-5.29	26.89
Al2O3	-4.43	-0.23	0.09	0.16	-0.09	-0.70	0.15	-6.53	-1.22	0.47	-0.87
Fe2O3T	6.09	0.03	-0.39	-0.43	-0.39	2.45	-0.19	14.97	-1.99	-2.07	-1.18
MnO	0.00	0.00	0.00	0.00	0.00	-1.09	0.00	16.37	0.00	0.00	0.00
MgO	*2.85*	*151.93*	*0.47*	*-1.00*	*0.47*	*0.00*	*0.47*	*-0.95*	*-4.75*	*1.90*	*2.85*
CaO	-2.68	1.79	-0.45	-0.13	-0.67	0.45	0.22	-4.03	-0.89	-0.89	-1.79
Na2O	0.14	1.78	0.41	0.66	0.00	0.27	0.07	-26.58	-5.07	1.37	-2.74
K2O	-2.88	0.00	0.00	0.37	-0.26	-0.26	0.26	55.28	-1.83	3.14	-3.14
P2O5	-3.99	-9.69	0.85	-1.42	0.85	-3.99	-0.57	13.11	-9.69	1.71	-3.99
LOI	*4.12*	*	*-1.98*	*0.10*	*0.19*	*3.50*	*-2.60*	*14.07*	*-2.10*	*-4.59*	*9.09*
Ba	1.46	-0.83	*	-1.08	0.77	-0.74	0.40	*	2.43	-1.37	-3.76
Be	*	*	*	*	0.55	-0.32	-0.44	*	-1.17	*	0.24
Bi	*	334.38	*	*	-0.72	*	0.00	*	*	3.20	*
Ce	-0.04	-0.04	*	-1.31	-0.90	-1.09	0.21	*	0.30	0.88	4.31
Co	*	14.75	*	2.21	0.27	-0.34	0.00	*	-1.97	*	-1.48
Cr	*-0.11*	*0.97*	*	*-1.38*	*1.89*	*3.09*	*-2.75*	*	*-0.57*	*-3.34*	*7.86*
Cs	*	42.70	*	*	0.91	-1.68	0.03	*	*	0.01	*
Cu	1.51	-3.03	*	-2.65	0.23	0.30	0.00	*	0.08	-3.03	*
Dy	-0.91	-1.06	*	*	-1.35	-0.60	0.01	*	0.95	-0.05	-1.84
Er	-1.34	-0.67	*	*	-1.53	-0.89	0.00	*	1.03	0.04	-0.22
Eu	-0.69	-0.20	*	*	-0.30	0.20	0.40	*	0.59	-0.28	-0.30
Ga	*	2.37	*	-0.89	-0.36	1.07	-0.59	*	0.24	-0.71	*
Gd	-0.66	-0.48	*	*	-0.18	-0.94	-0.06	*	1.31	-0.17	-0.80
Ge	*	*	*	*	*-0.70*	*1.21*	*-1.24*	*	*-1.69*	*	*
Hf	*	-5.69	*	-0.14	1.19	-0.24	-0.25	*	-0.48	1.55	*
Ho	*	-1.31	*	*	-1.05	0.17	-0.37	*	0.63	-0.13	-0.11
La	0.38	3.04	*	-0.68	0.11	0.00	0.19	*	0.61	0.52	*
Li	-0.35	*	*	*	-0.23	0.46	-0.04	*	-1.51	-1.58	-8.39
Lu	*	-1.12	*	*	-1.31	-0.16	-0.56	*	0.80	-0.50	-0.06
Mo	*	-1.40	*	-1.41	0.74	-1.97	0.36	*	-0.98	1.69	3.93
Nb	2.20	106.70	*	-0.46	-0.15	-1.70	0.32	*	0.09	0.64	*
Nd	-0.49	-2.94	*	-2.67	-1.29	-0.55	0.43	*	0.74	0.83	2.15
Ni	*	*13.83*	*	*-4.20*	*0.80*	*1.48*	*-0.22*	*	*-1.98*	*6.15*	*20.69*
Pb	*	-3.29	*	-0.70	-0.27	0.00	-0.06	*	1.36	8.73	80.56
Pr	-1.46	-0.83	*	*	-0.71	-0.20	0.32	*	0.47	0.21	2.73
Rb	3.89	-6.56	*	-0.25	0.90	1.32	0.38	*	-0.49	0.84	*
Sc	-1.85	-3.00	*	-1.27	2.24	0.95	-0.35	*	-2.89	-9.01	2.08
Sm	0.10	-0.68	*	-2.28	-0.67	0.16	-0.05	*	0.85	0.38	2.23
Sn	*	-6.51	*	-0.89	-0.29	2.95	-0.03	*	-0.03	0.37	*
Sr	2.12	-4.19	*	-0.42	-0.73	1.05	1.56	*	-0.75	-0.61	-3.86
Ta	*	0.13	*	*	0.57	0.88	-0.19	*	*	1.10	*
Tb	*	-0.76	*	*	-0.68	-1.06	-0.38	*	0.23	-0.30	2.05
Th	*	-12.65	*	-0.18	-0.42	0.36	0.31	*	1.52	1.85	*
Tl	*	*	*	*	*0.76*	*	*0.02*	*	*	*2.91*	*
Tm	*	-0.49	*	*	-1.14	-0.98	0.05	*	1.07	0.00	-1.20
U	*	7.12	*	-0.46	-0.26	-1.03	0.04	*	0.58	0.28	*
V	*	-3.79	*	-1.28	1.24	-1.70	-1.02	*	-1.20	6.67	-2.04
W	*	*43.49*	*	*25.92*	*0.07*	*2.51*	*-0.56*	*	*22.44*	*	*
Y	0.07	-1.60	*	-0.48	-1.04	0.11	-0.35	*	-0.03	-0.53	-5.29
Yb	-0.76	-0.98	*	-1.57	-0.88	-0.13	-0.05	*	0.89	-0.18	-0.50
Zn	0.81	-2.28	*	-0.77	-1.08	8.23	0.85	*	-0.17	-2.15	0.81
Zr	-0.09	-1.95	*	0.05	0.36	0.96	-0.28	*	-0.45	0.20	*

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.


GeoPT37 - Barchart for SiO2
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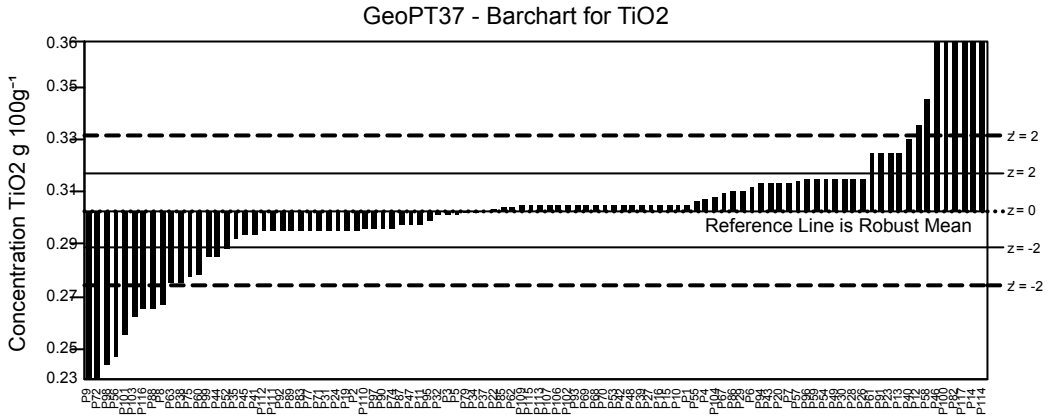
GeoPT37 - Barchart for TiO2
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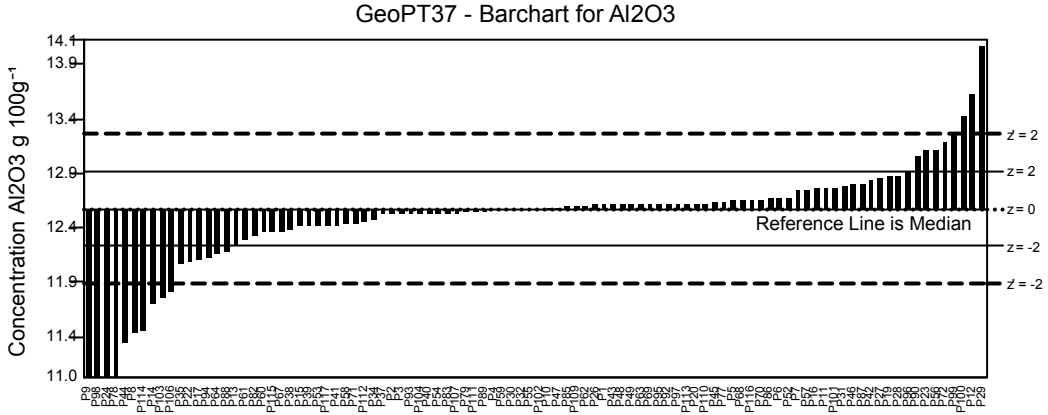
GeoPT37 - Barchart for Al2O3
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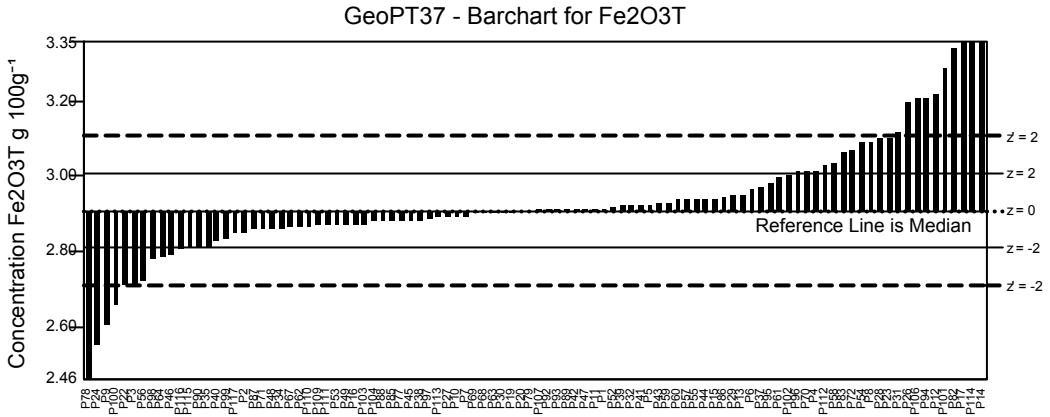
GeoPT37 - Barchart for Fe2O3T
Concentration Fe2O3T g 100g⁻¹
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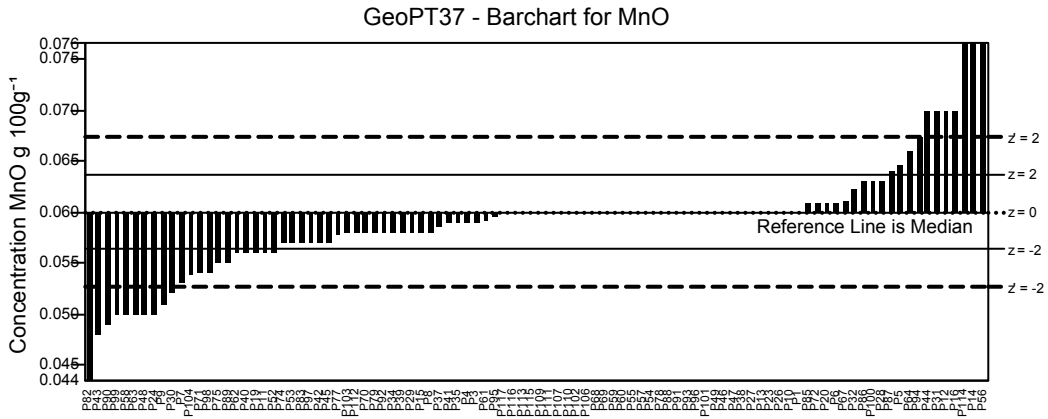
GeoPT37 - Barchart for MnO
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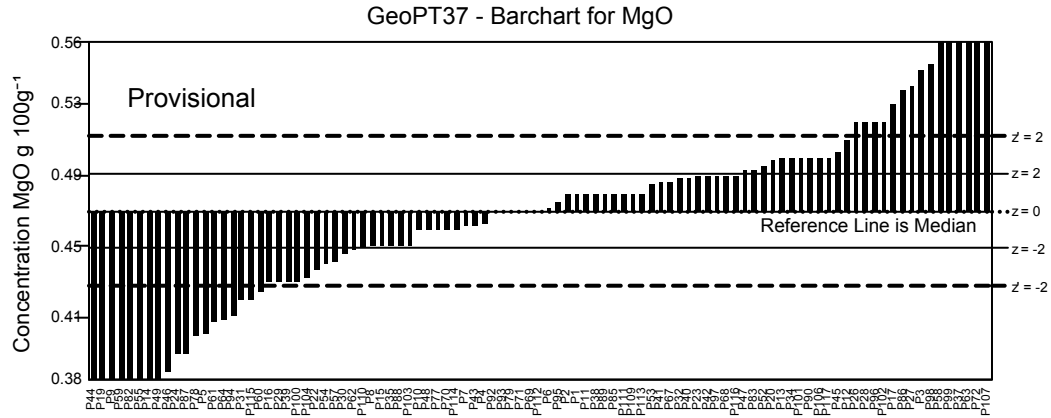
GeoPT37 - Barchart for MgO
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Provisional
Reference Line is Median
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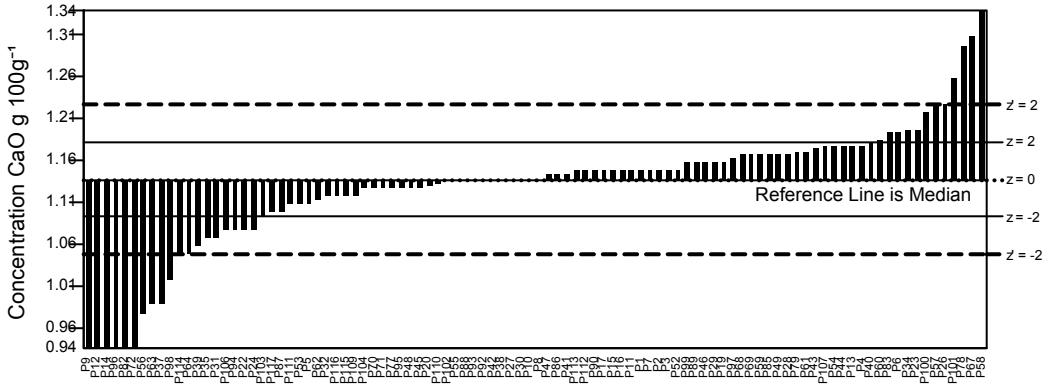
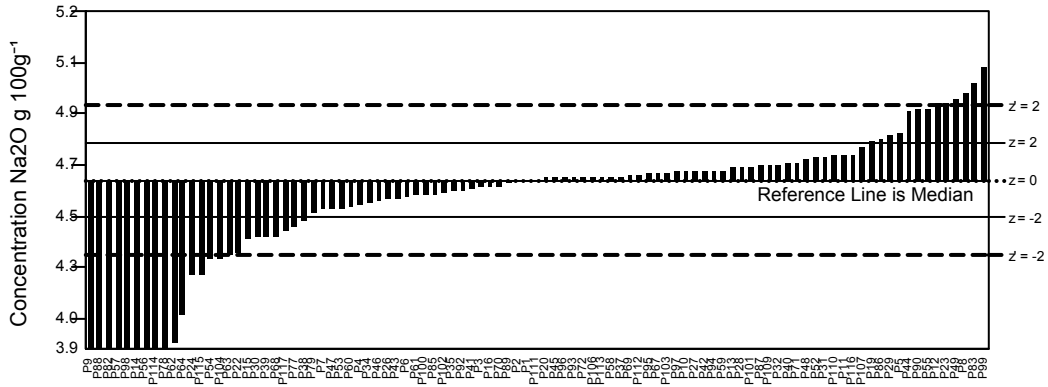
GeoPT37 - Barchart for CaO



GeoPT37 - Barchart for Na2O



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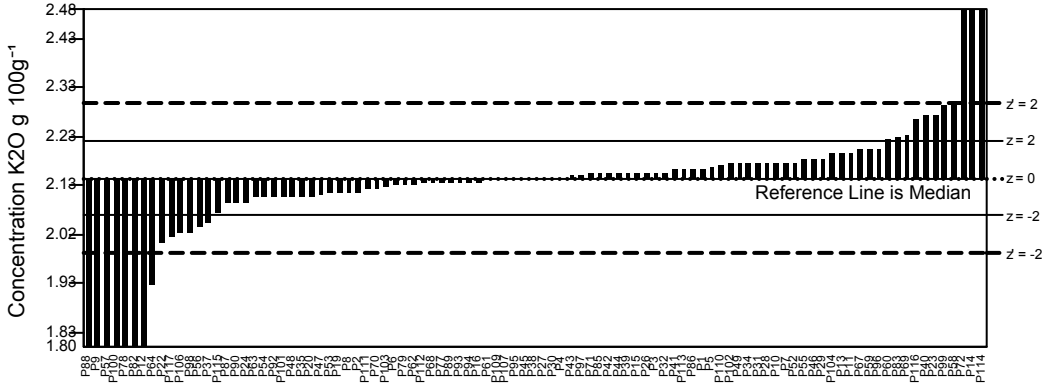
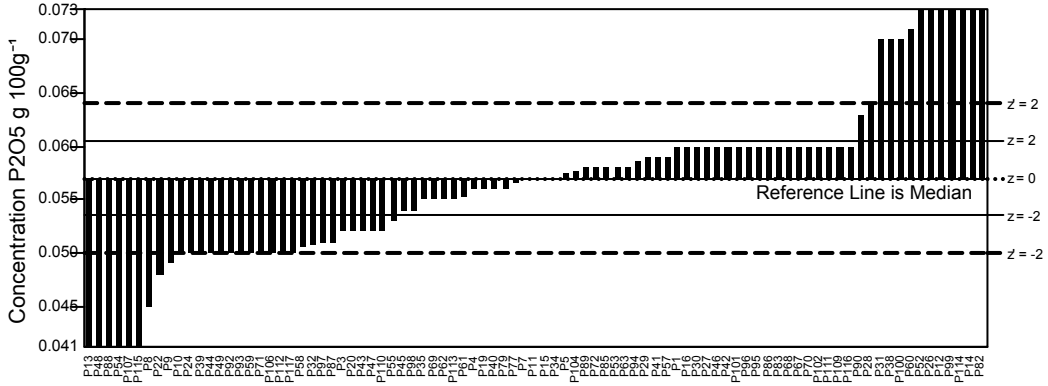
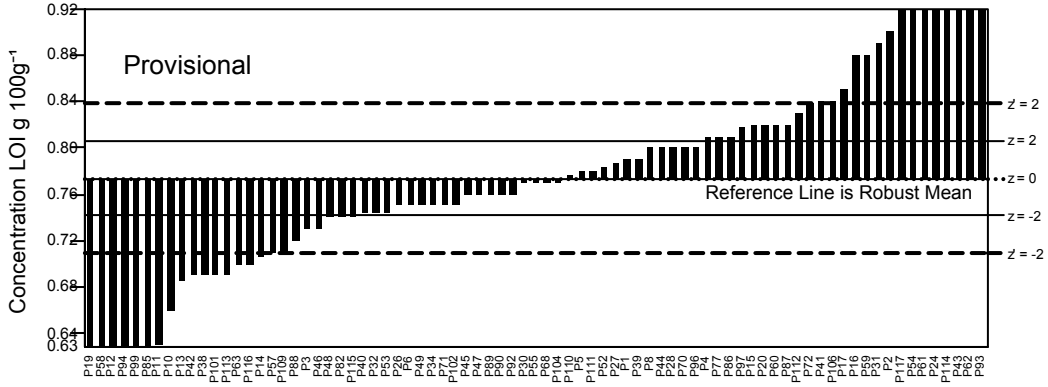


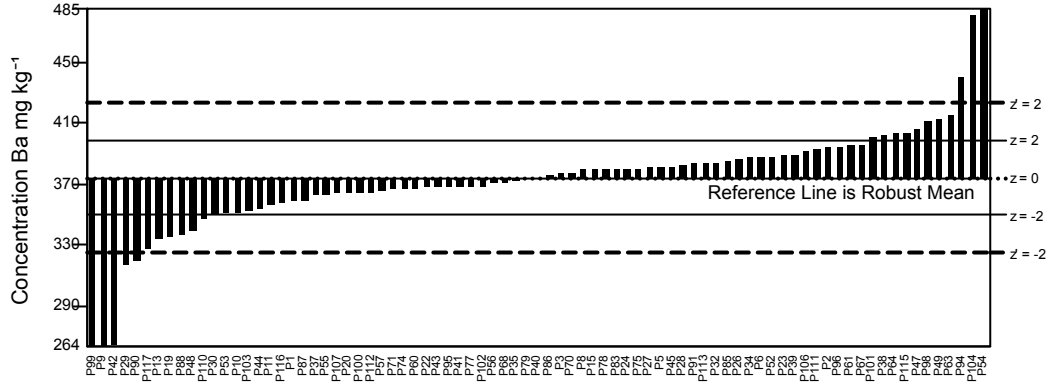
GeoPT37 - Barchart for P2O5



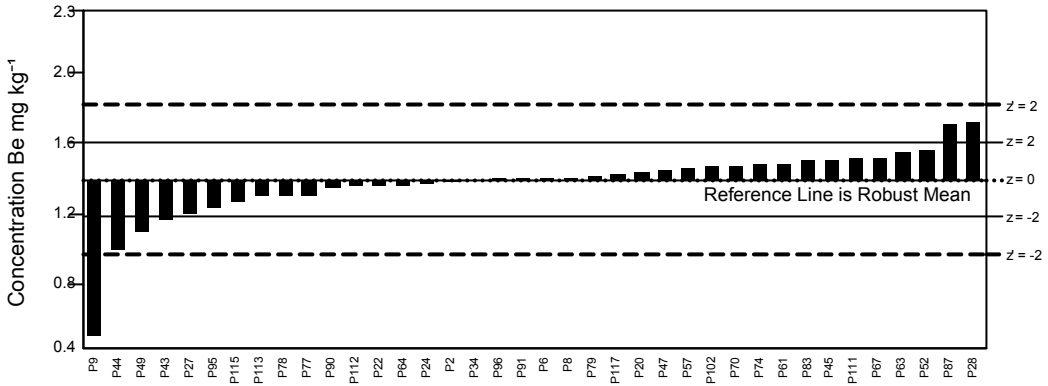
GeoPT37 - Barchart for LOI



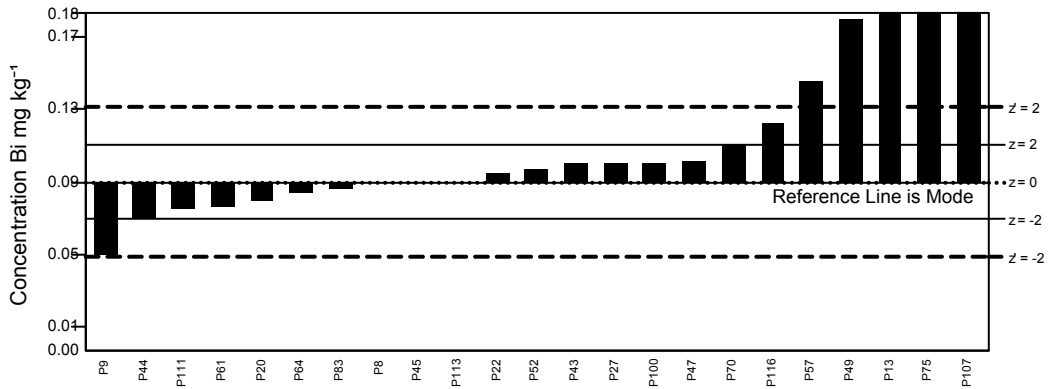
GeoPT37 - Barchart for Ba



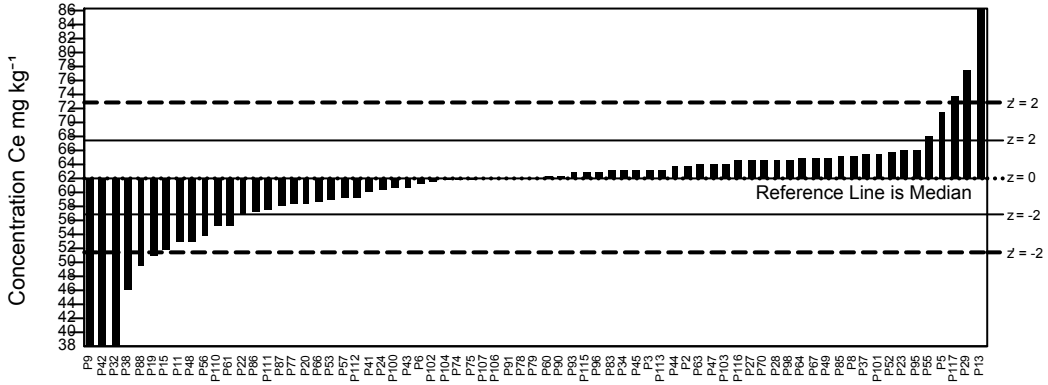
GeoPT37 - Barchart for Be



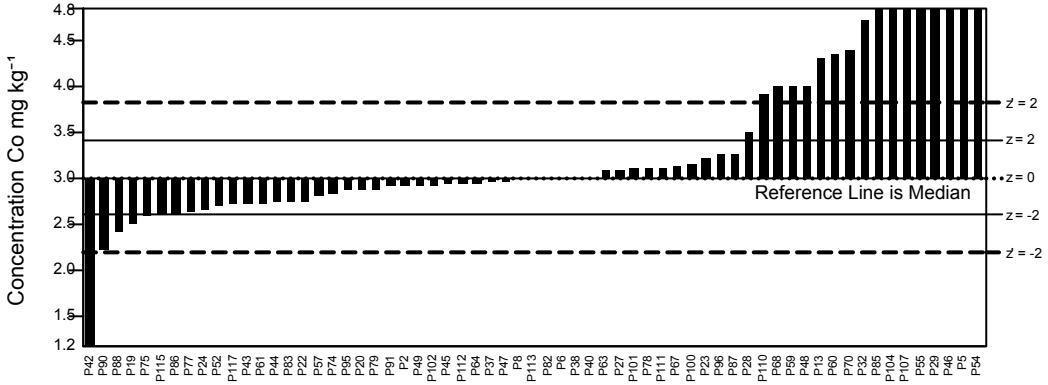
GeoPT37 - Barchart for Bi



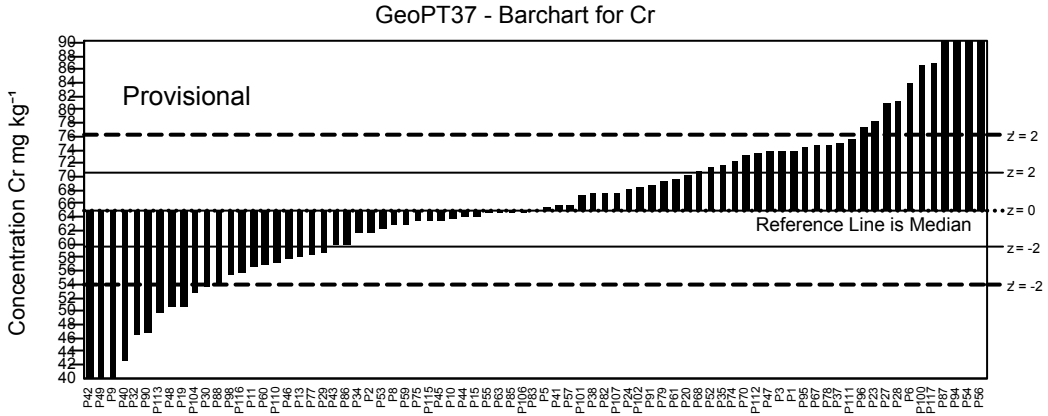
GeoPT37 - Barchart for Ce



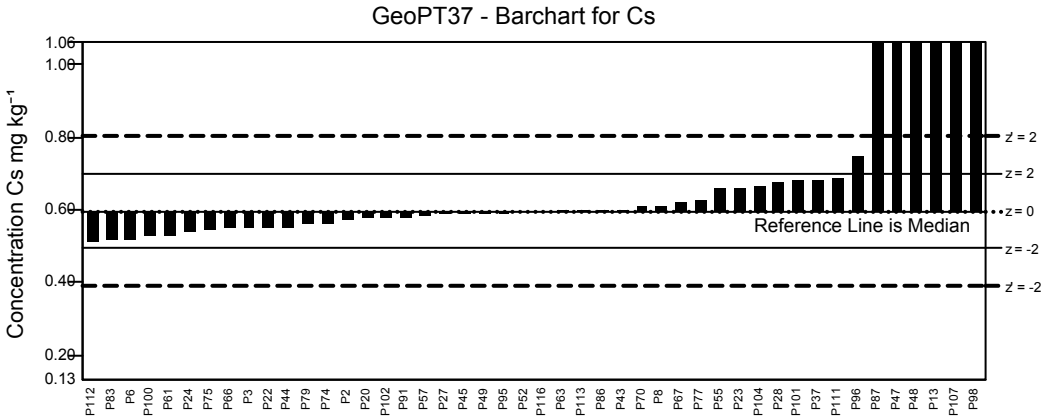
GeoPT37 - Barchart for Co



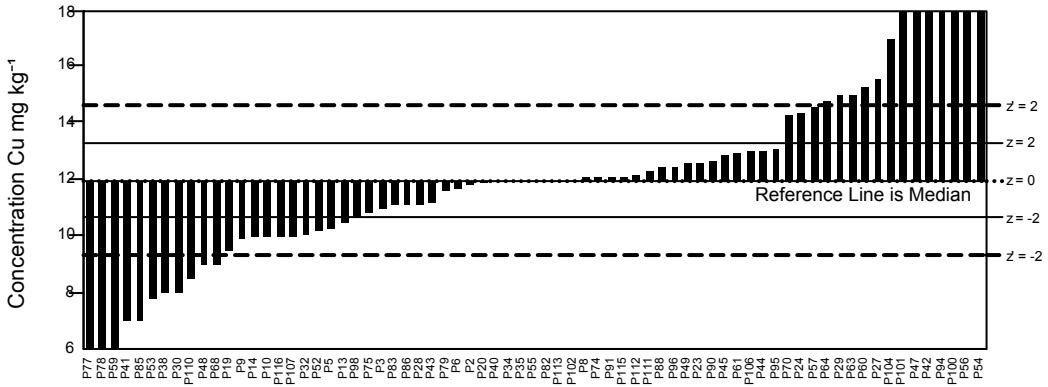
GeoPT37 - Barchart for Cr



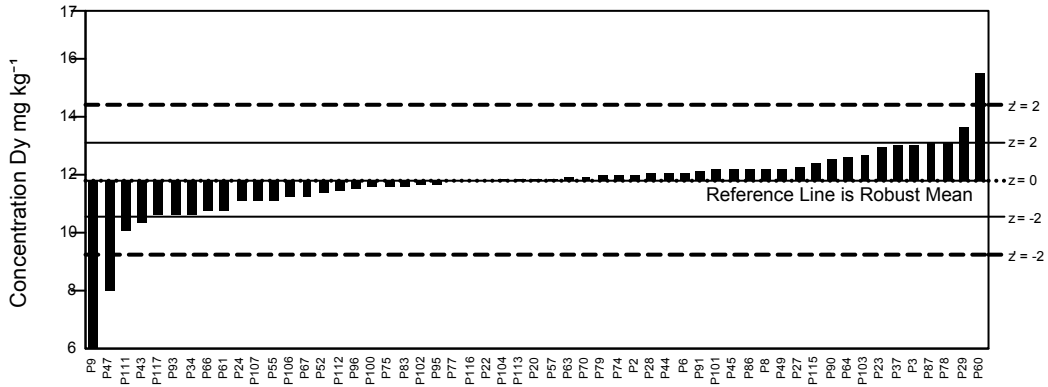
GeoPT37 - Barchart for Cs



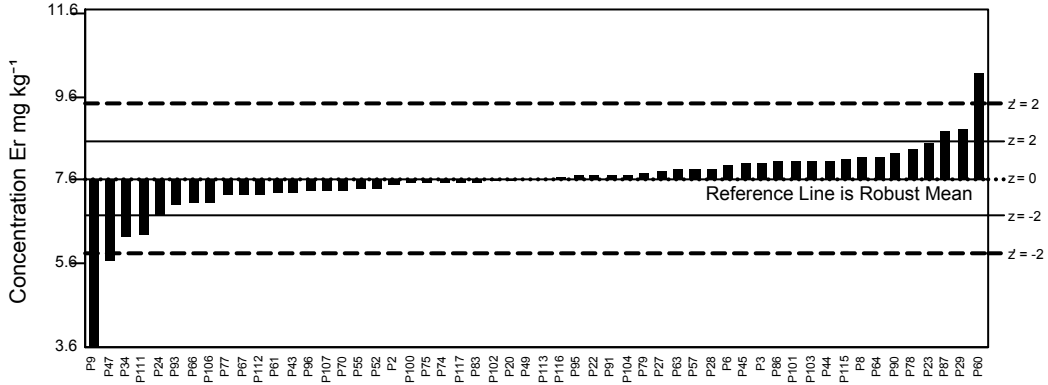
GeoPT37 - Barchart for Cu



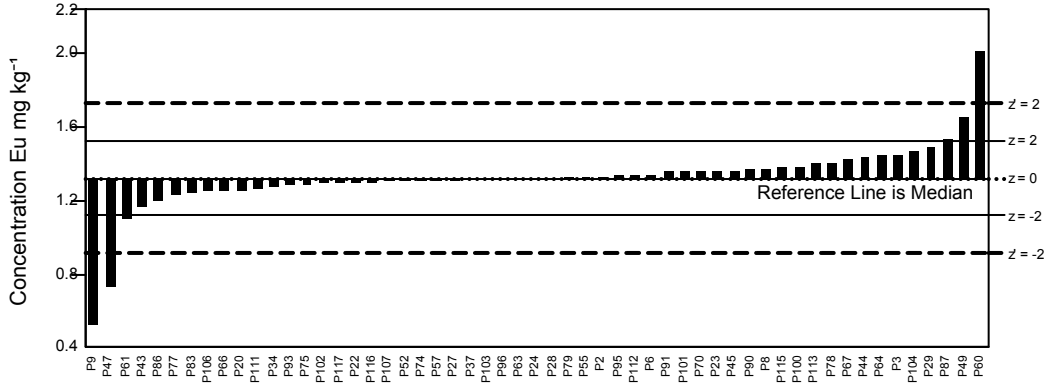
GeoPT37 - Barchart for Dy



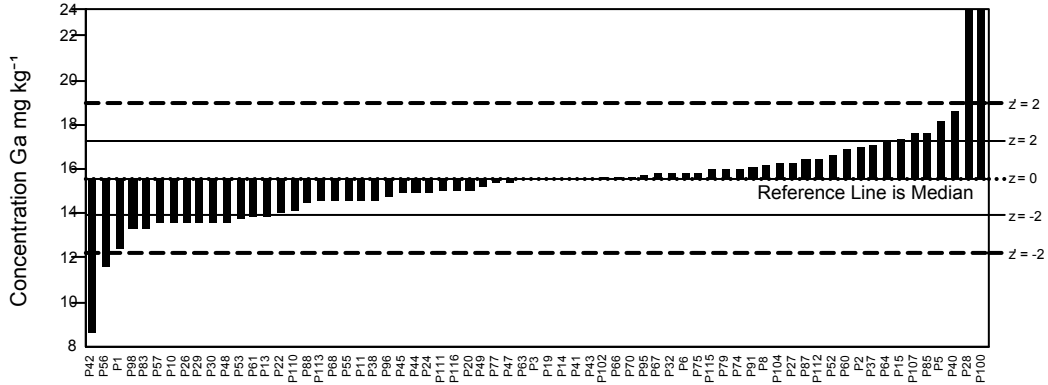
GeoPT37 - Barchart for Er



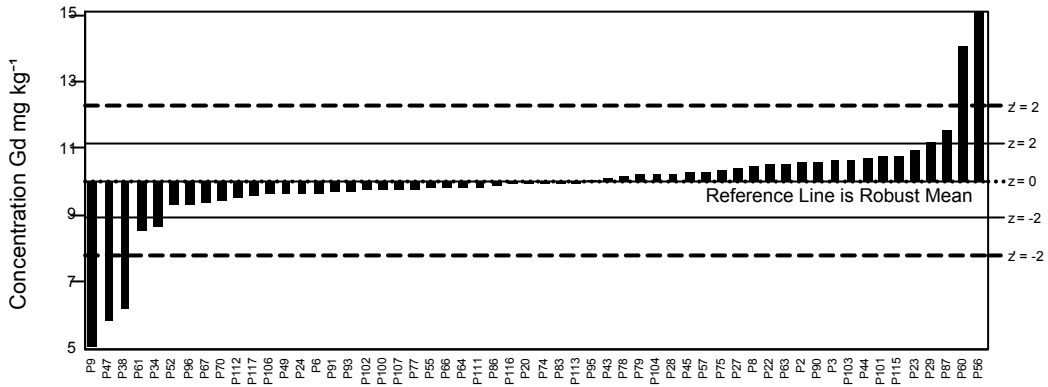
GeoPT37 - Barchart for Eu



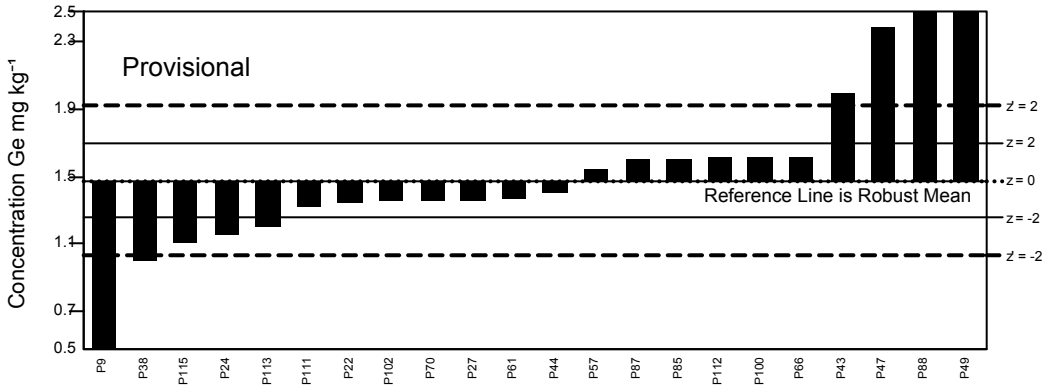
GeoPT37 - Barchart for Ga



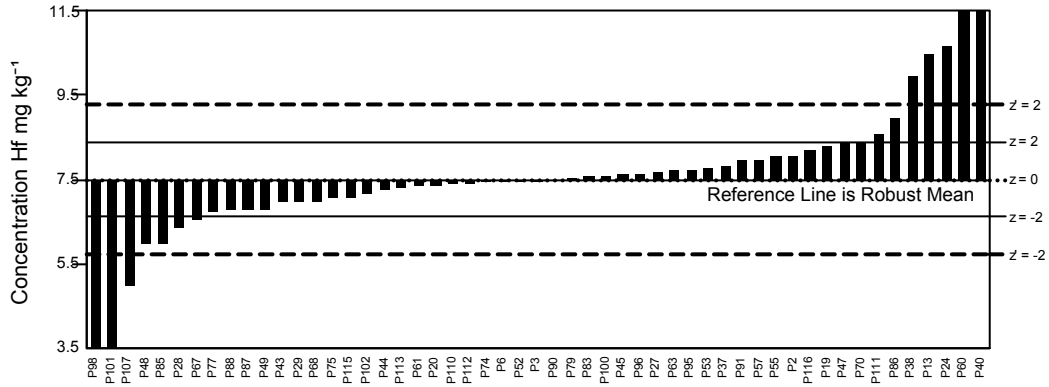
GeoPT37 - Barchart for Gd



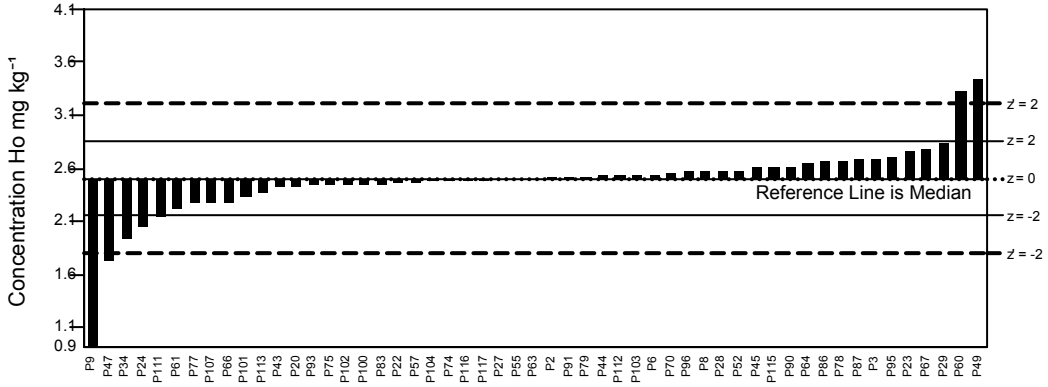
GeoPT37 - Barchart for Ge



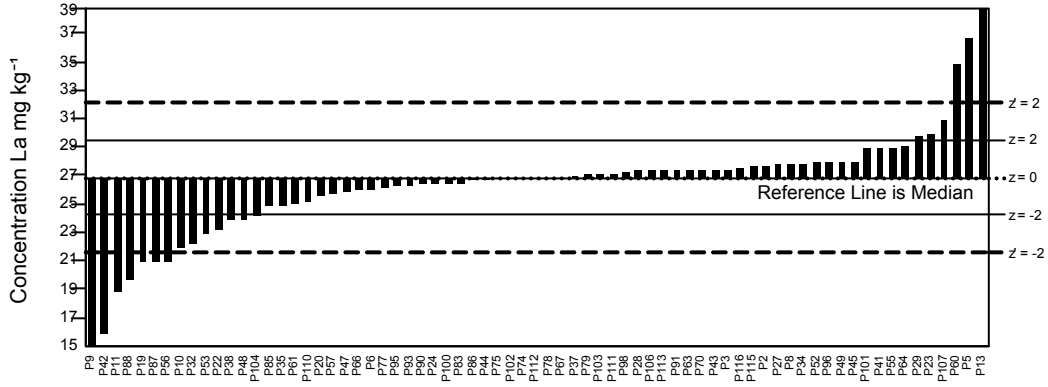
GeoPT37 - Barchart for Hf



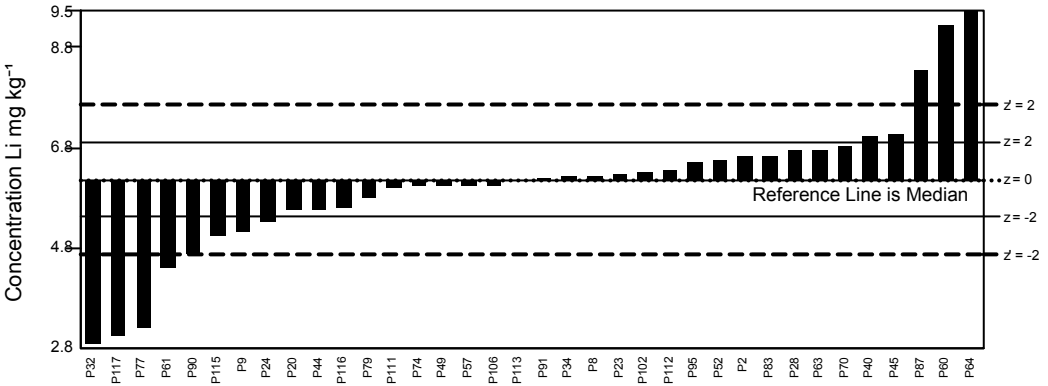
GeoPT37 - Barchart for Ho



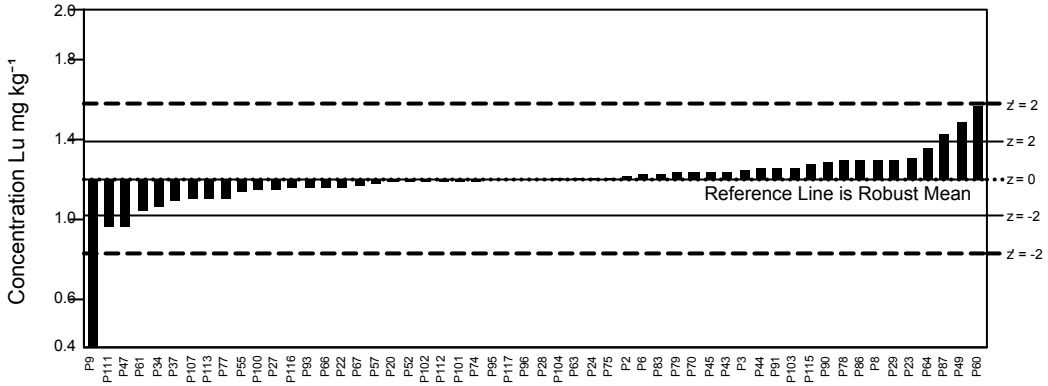
GeoPT37 - Barchart for La



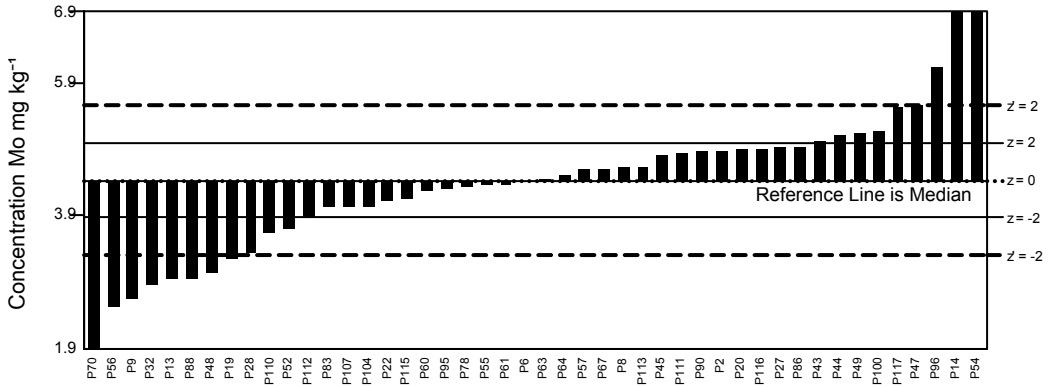
GeoPT37 - Barchart for Li



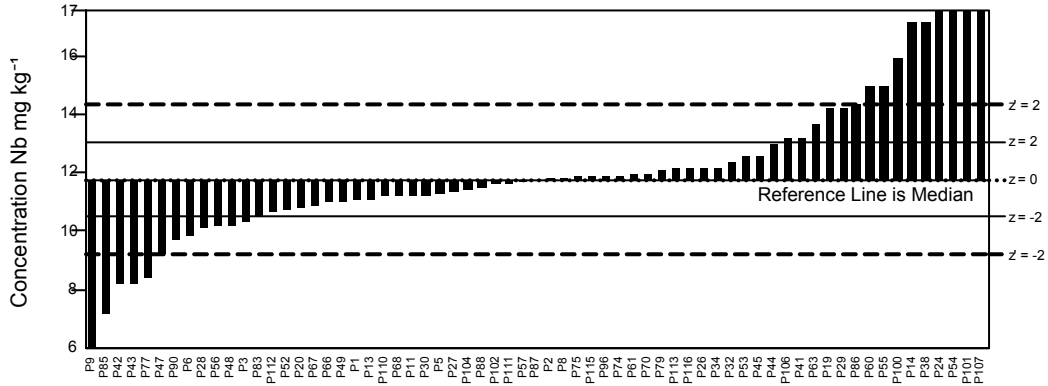
GeoPT37 - Barchart for Lu



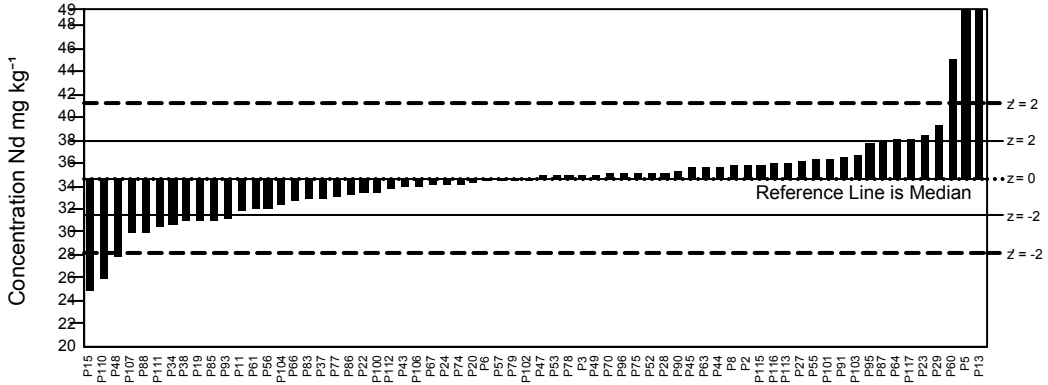
GeoPT37 - Barchart for Mo



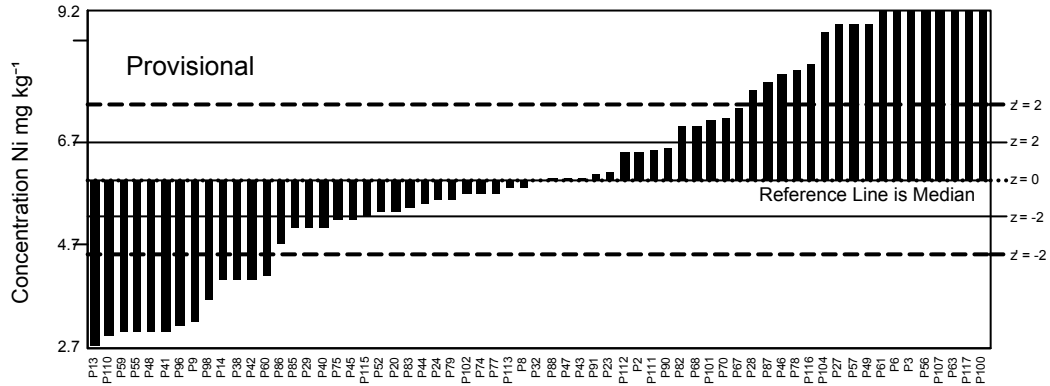
GeoPT37 - Barchart for Nb



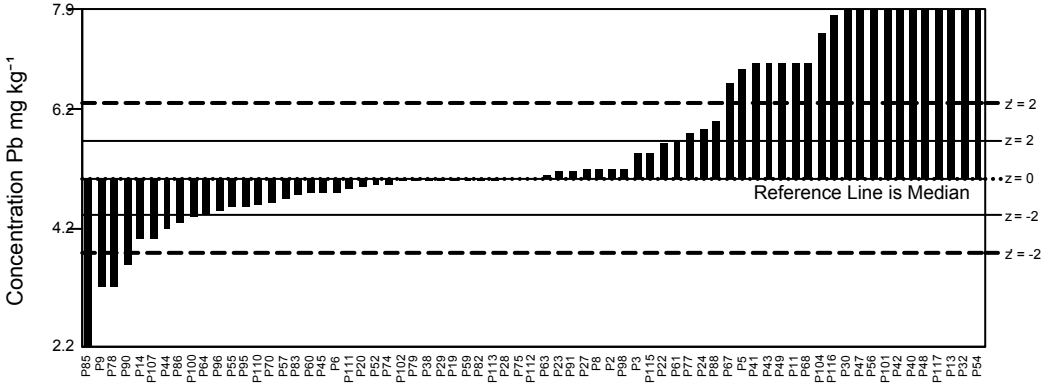
GeoPT37 - Barchart for Nd



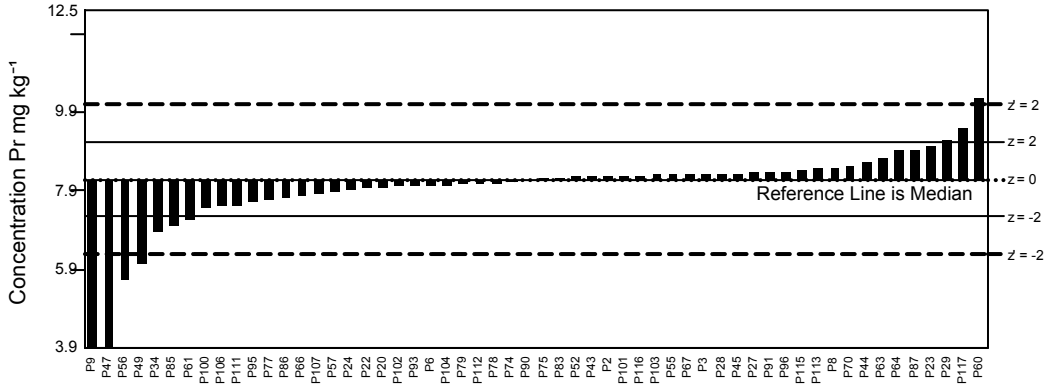
GeoPT37 - Barchart for Ni

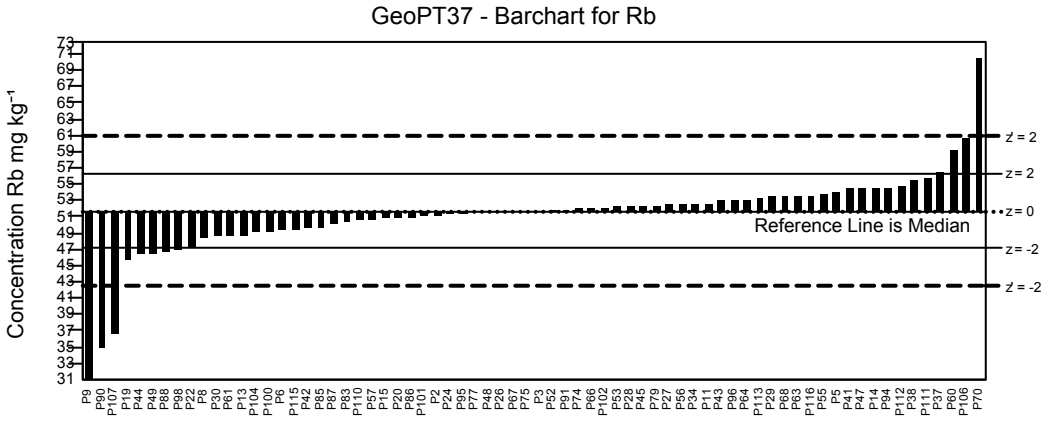


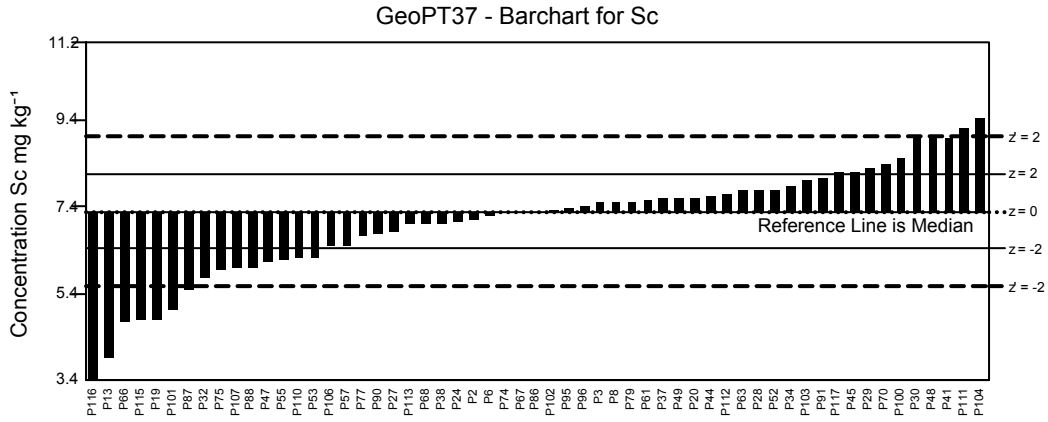
GeoPT37 - Barchart for Pb

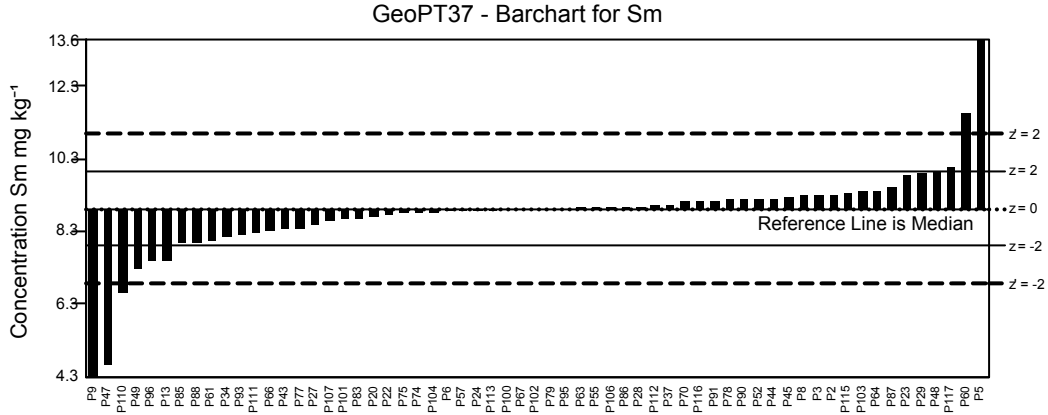


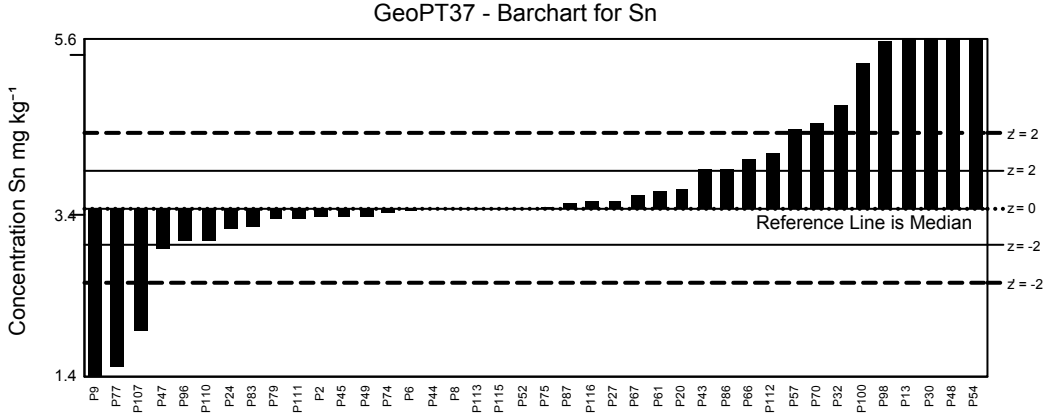
GeoPT37 - Barchart for Pr

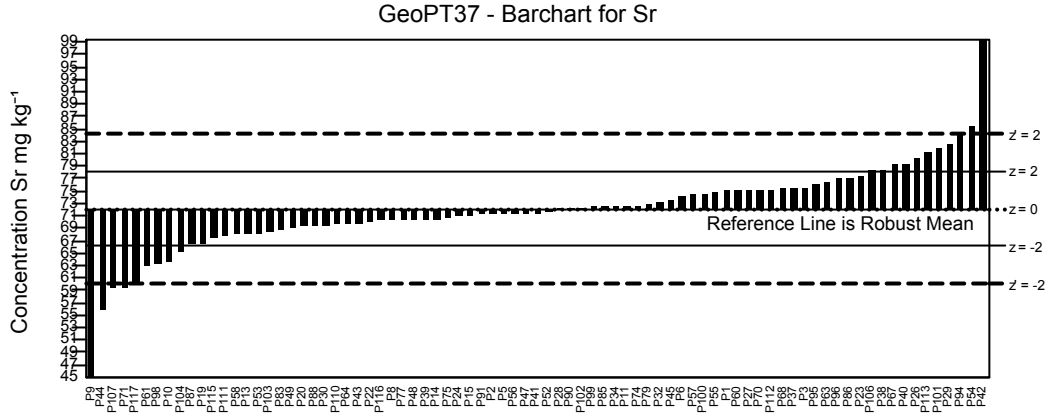


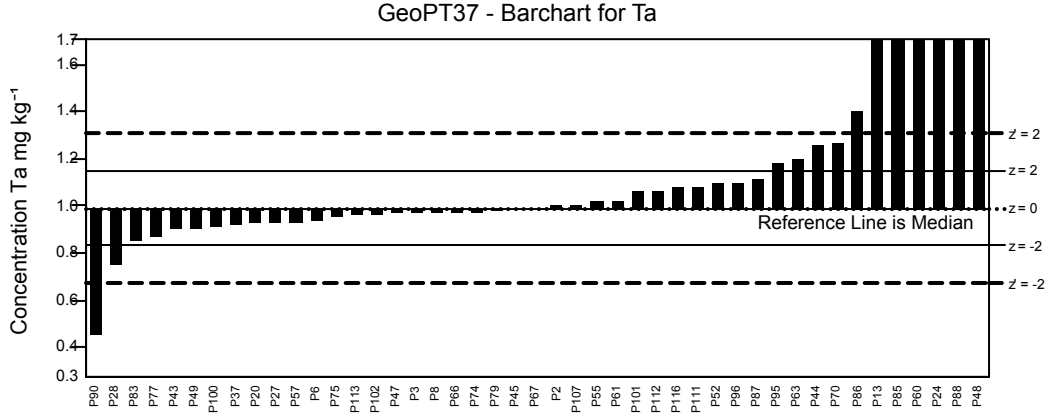

GeoPT37 - Barchart for Rb
Concentration Rb mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2


GeoPT37 - Barchart for Sc
Concentration Sc mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2

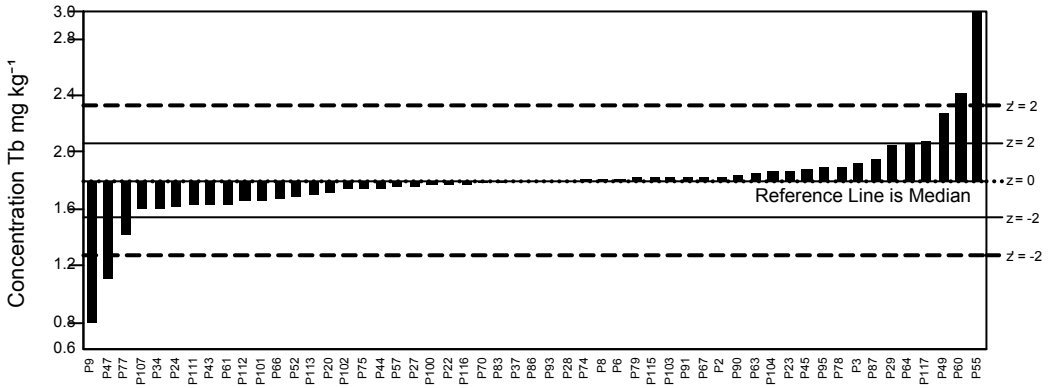

GeoPT37 - Barchart for Sm
Concentration Sm mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2


GeoPT37 - Barchart for Sn
Concentration Sn mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2

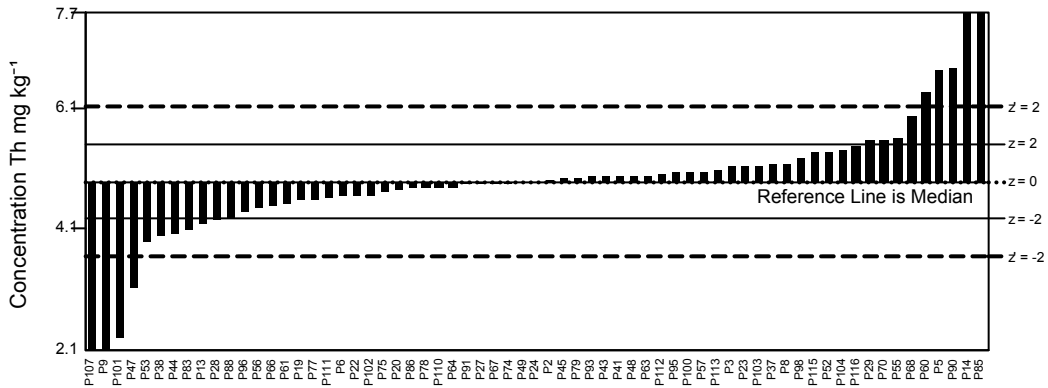

GeoPT37 - Barchart for Sr
Concentration Sr mg kg⁻¹
Reference Line is Robust Mean
z' = 2
z = 2
z = 0
z = -2
z' = -2


GeoPT37 - Barchart for Ta
Concentration Ta mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2

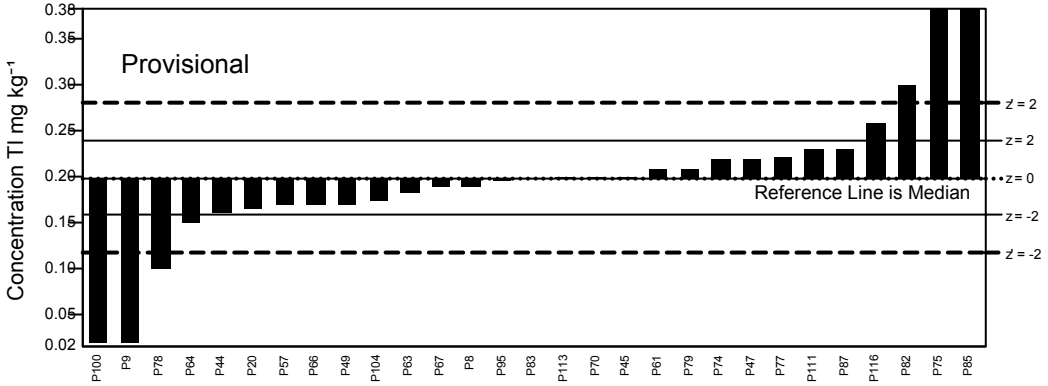
GeoPT37 - Barchart for Tb



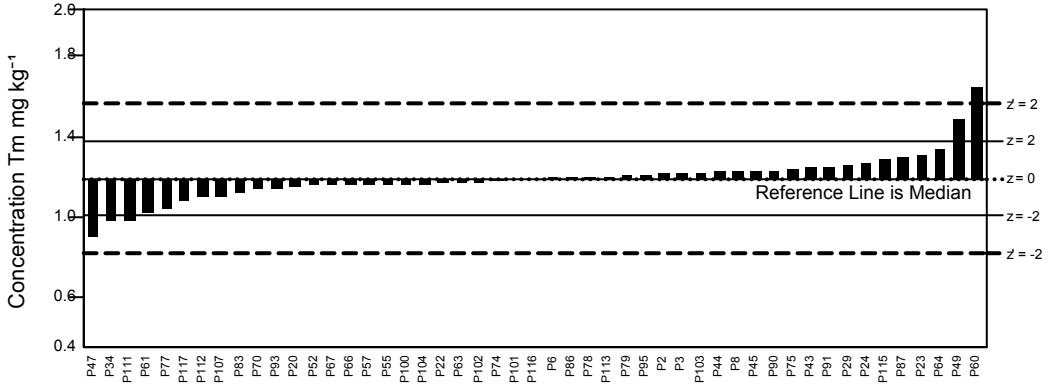
GeoPT37 - Barchart for Th



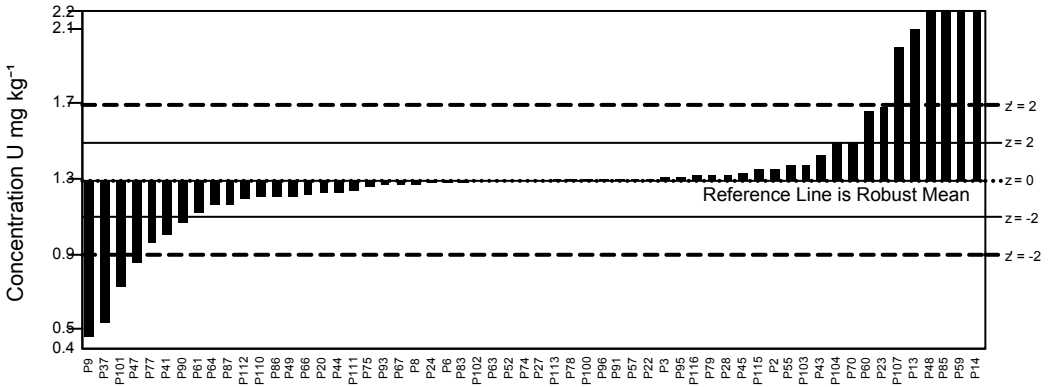
GeoPT37 - Barchart for Tl



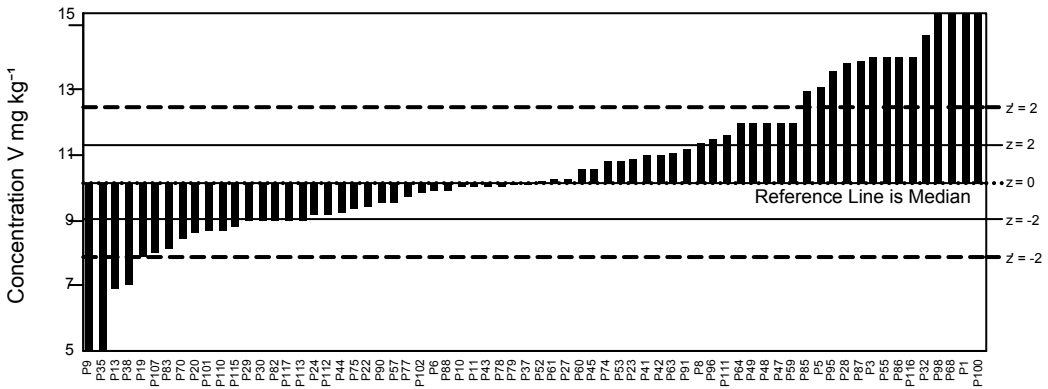
GeoPT37 - Barchart for Tm

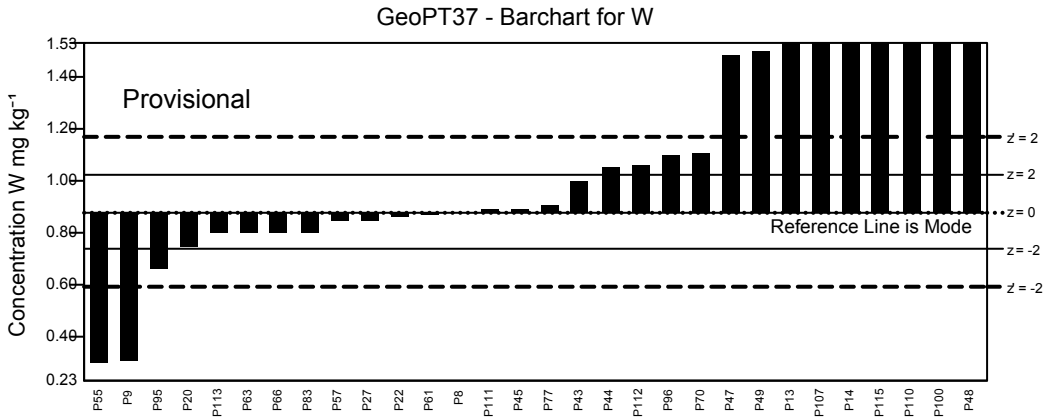


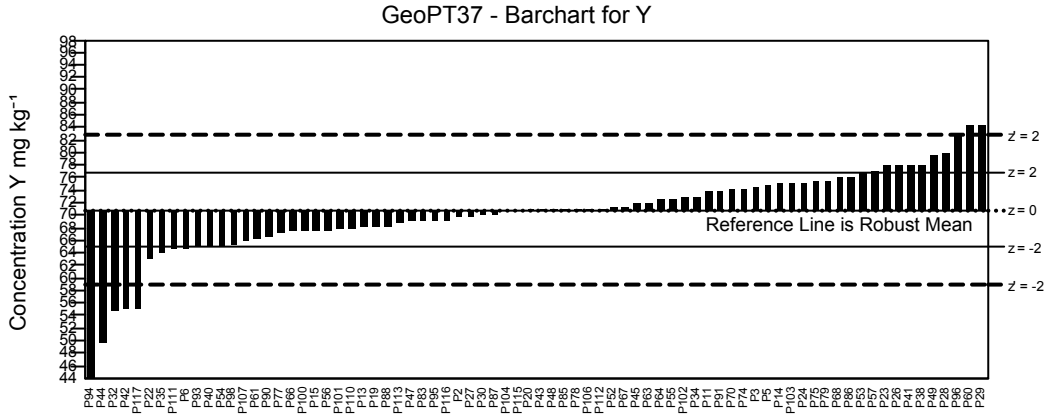
GeoPT37 - Barchart for U

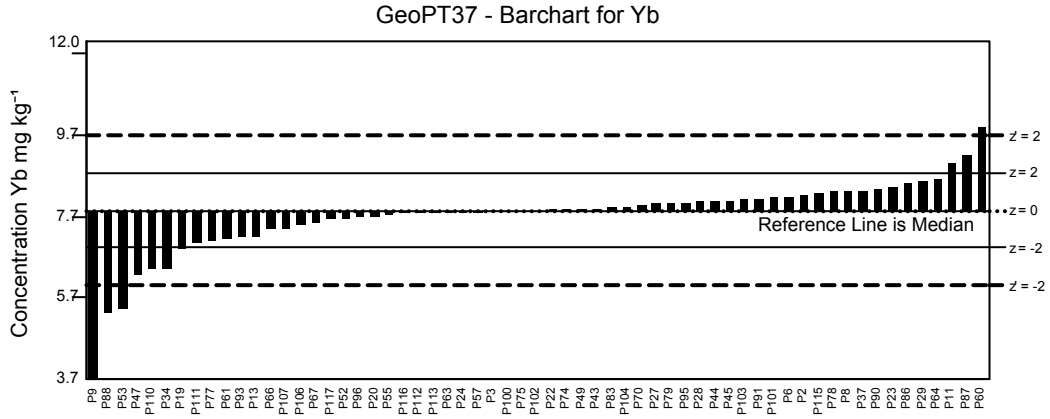


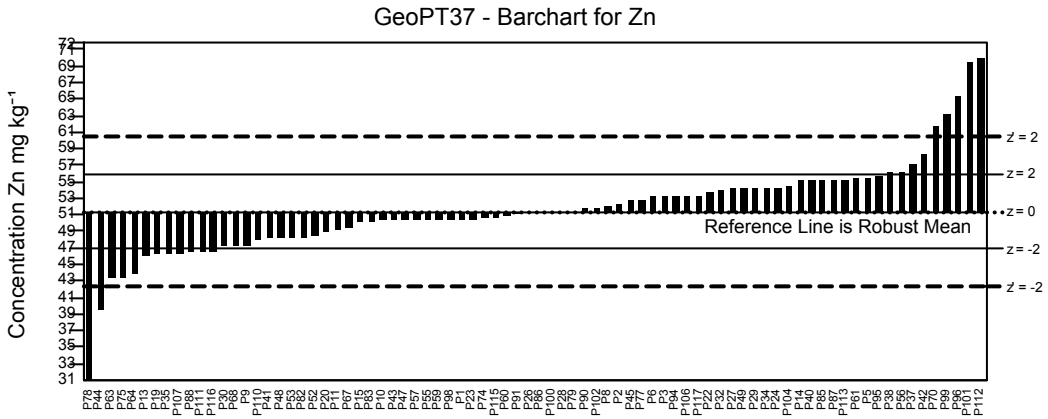
GeoPT37 - Barchart for V











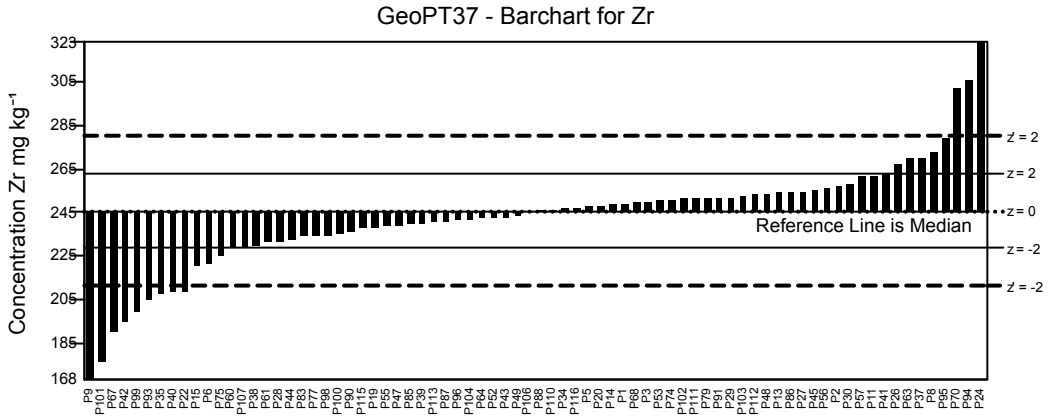
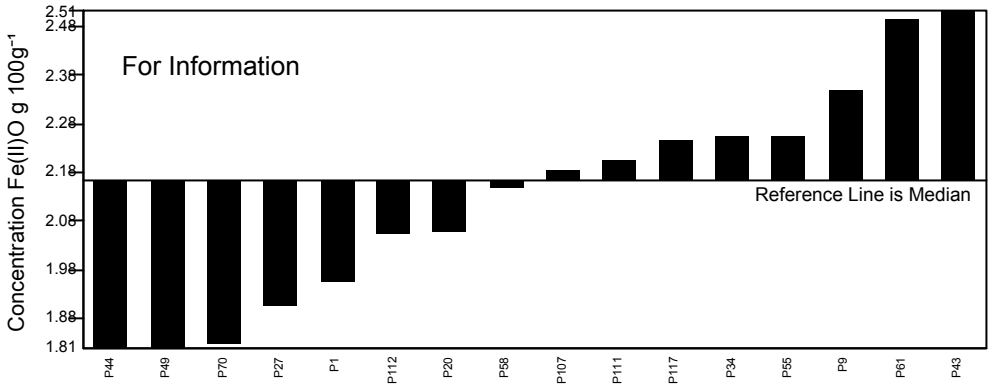
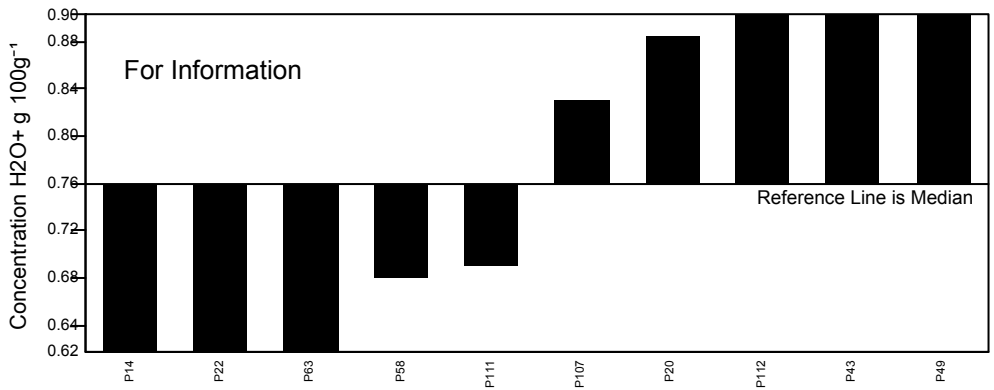


Figure 1: GeoPT37 - Rhyolite, ORPT-1. Data distribution charts for elements for which values were assigned or provisional values given for guidance. Horizontal lines show the limits for -2<z<2 for pure geochemistry labs (solid lines) and -2<z'<2 for applied geochemistry labs (pecked lines).

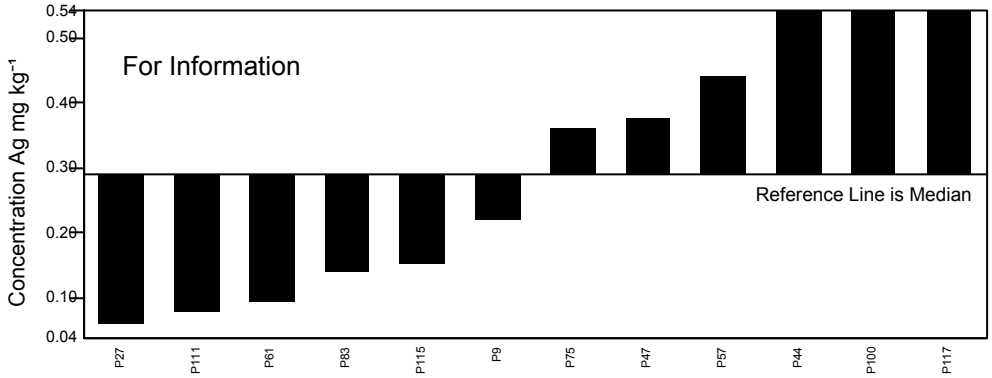
GeoPT37 - Barchart for Fe(II)O



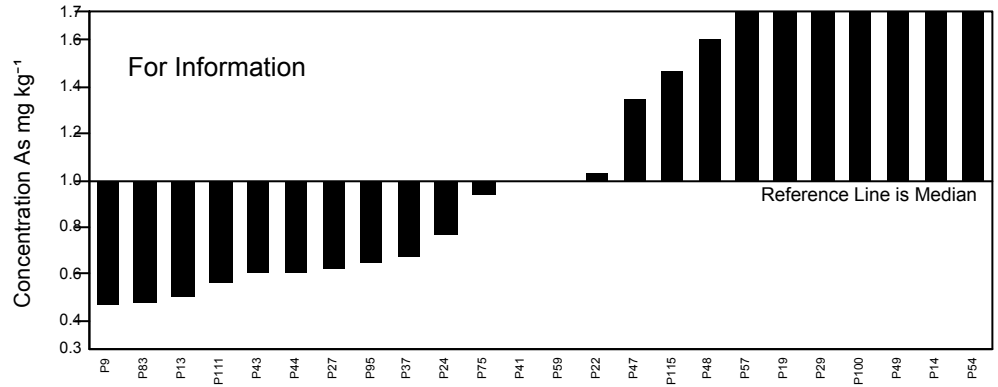
GeoPT37 - Barchart for H2O+



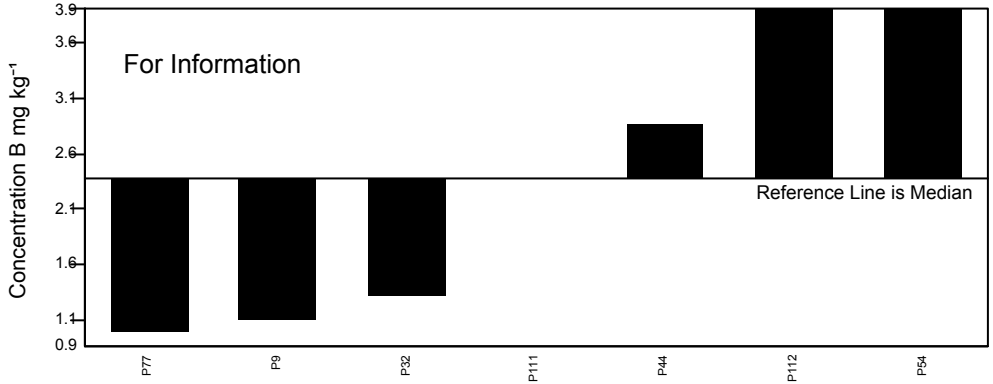
GeoPT37 - Barchart for Ag



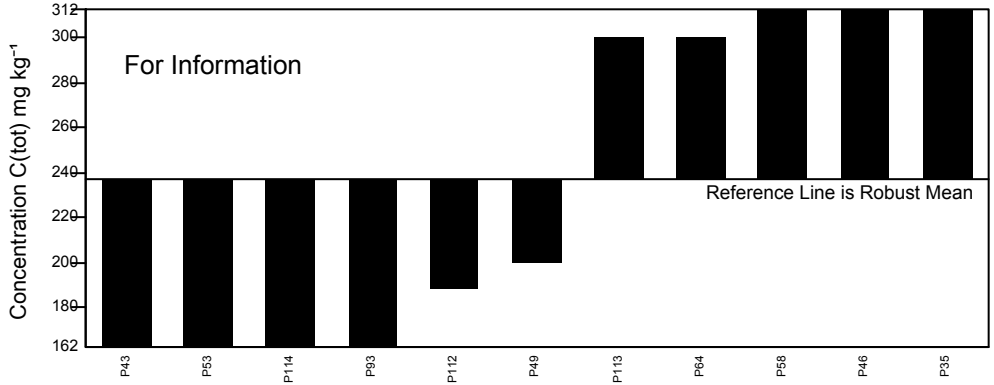
GeoPT37 - Barchart for As



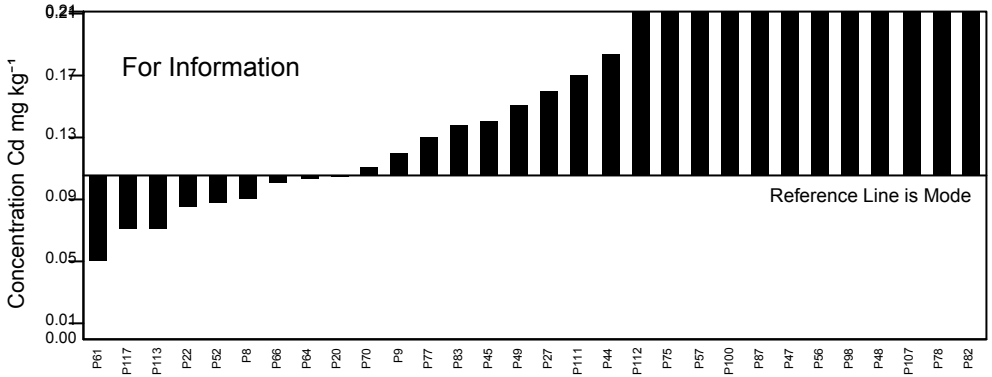
GeoPT37 - Barchart for B



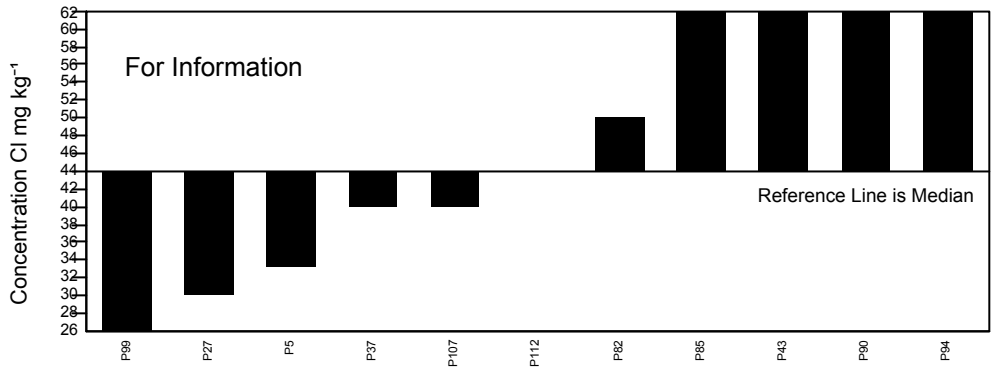
GeoPT37 - Barchart for C(tot)



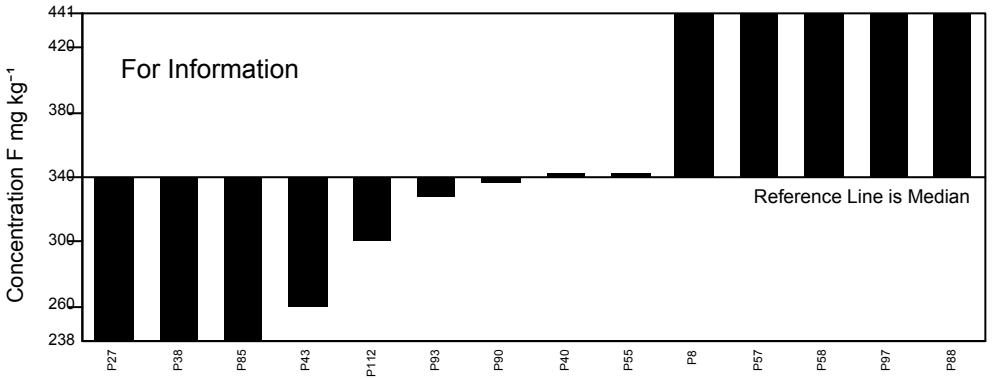
GeoPT37 - Barchart for Cd



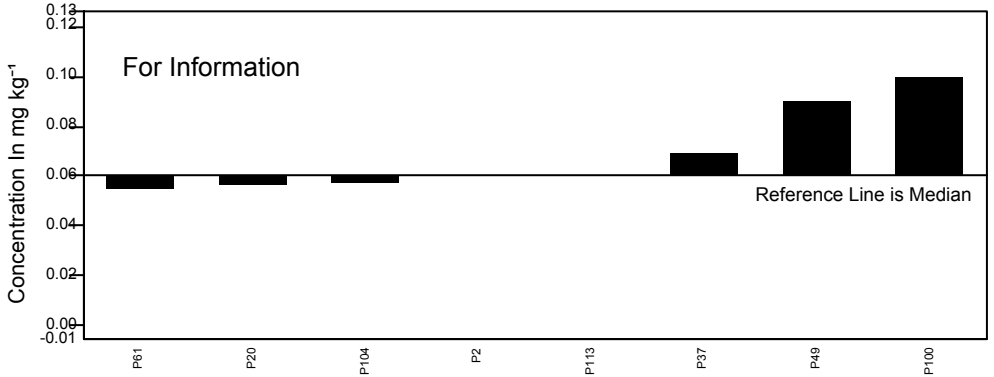
GeoPT37 - Barchart for Cl



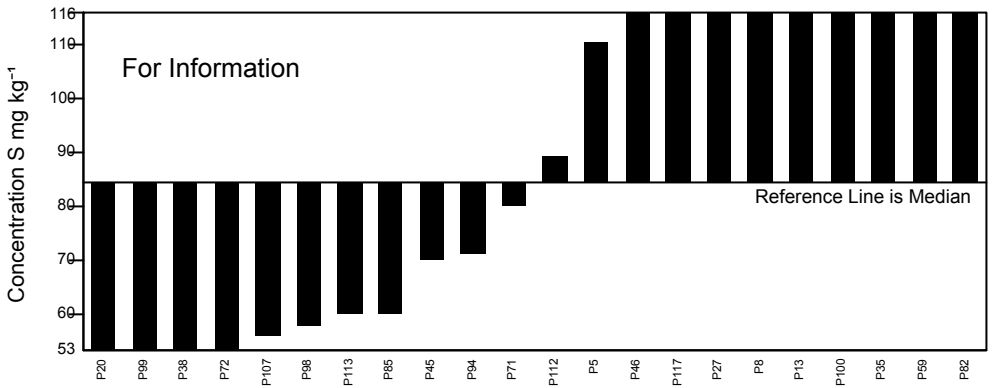
GeoPT37 - Barchart for F



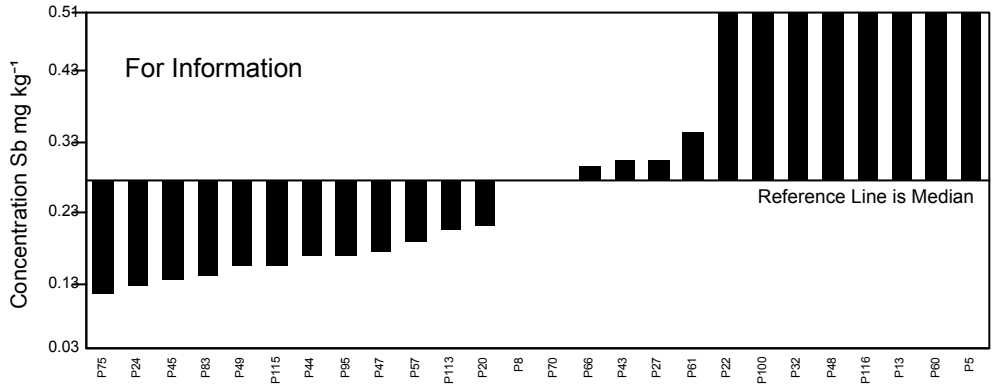
GeoPT37 - Barchart for In



GeoPT37 - Barchart for S



GeoPT37 - Barchart for Sb



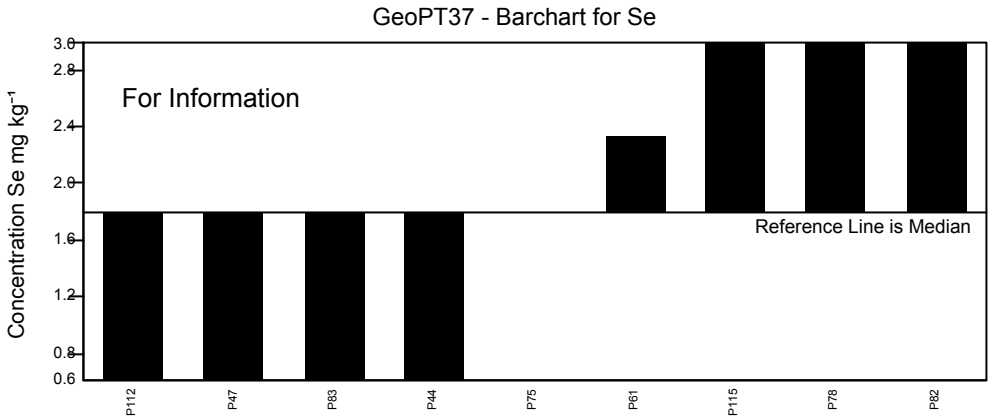


Figure 2: GeoPT37 - Rhyolite, ORPT-1. Data distribution charts provided for information only for elements for which values could not be assigned.

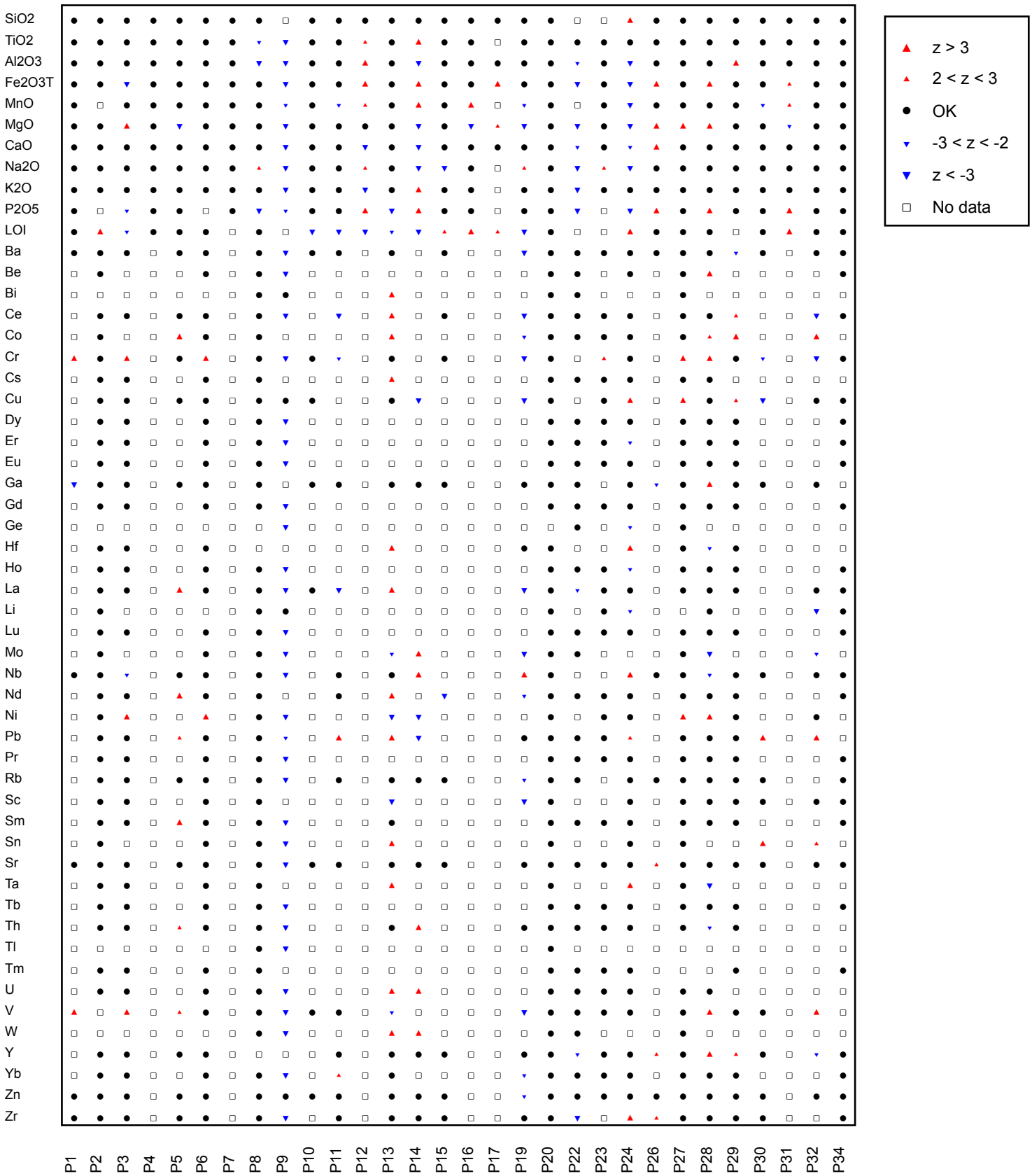


Figure 3: GeoPT37 - Rhyolite, ORPT-1. Multiple z-score charts for laboratories participating in the GeoPT37 round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

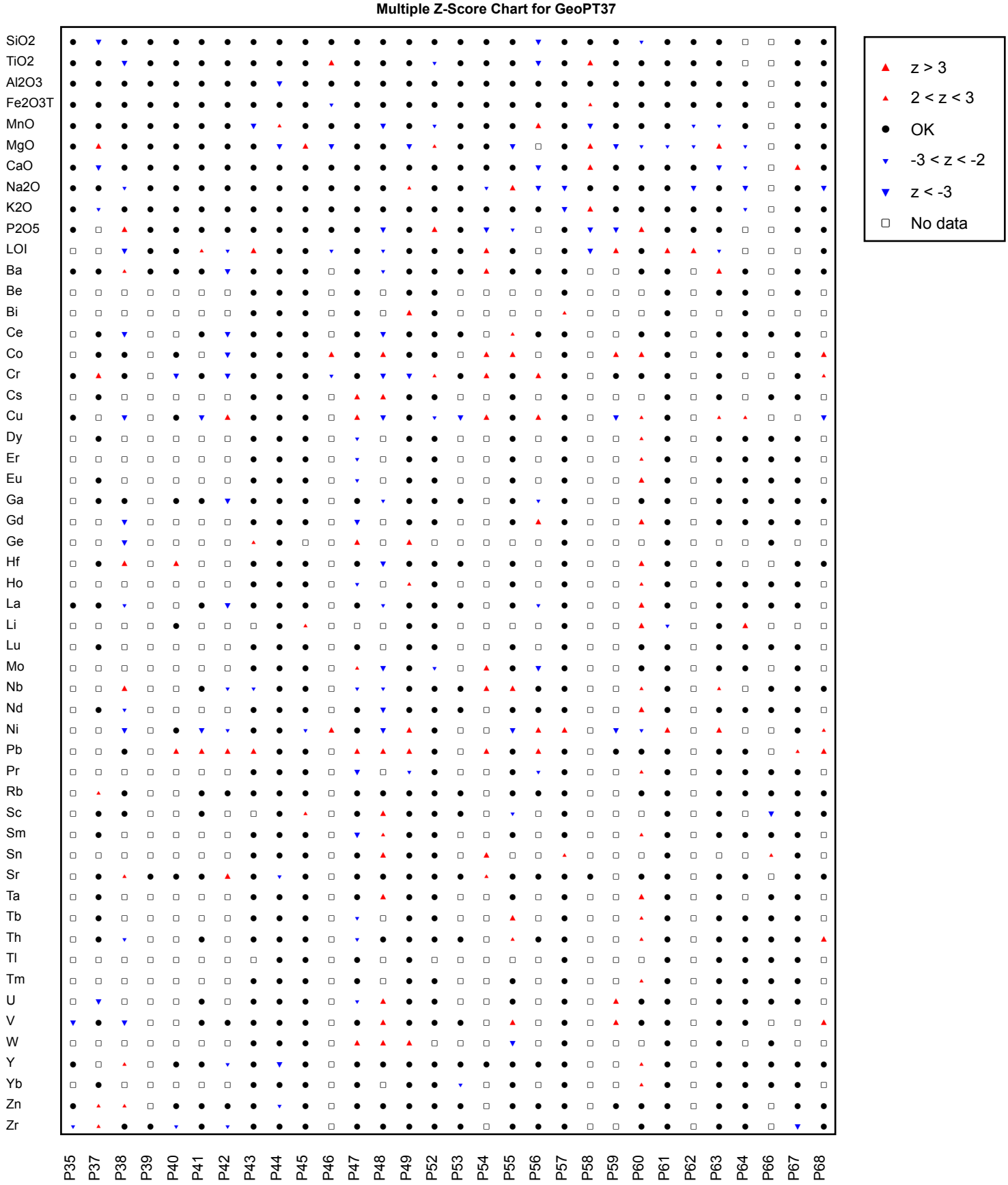


Figure 3: GeoPT37 - Rhyolite, ORPT-1. Multiple z-score charts for laboratories participating in the GeoPT37 round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

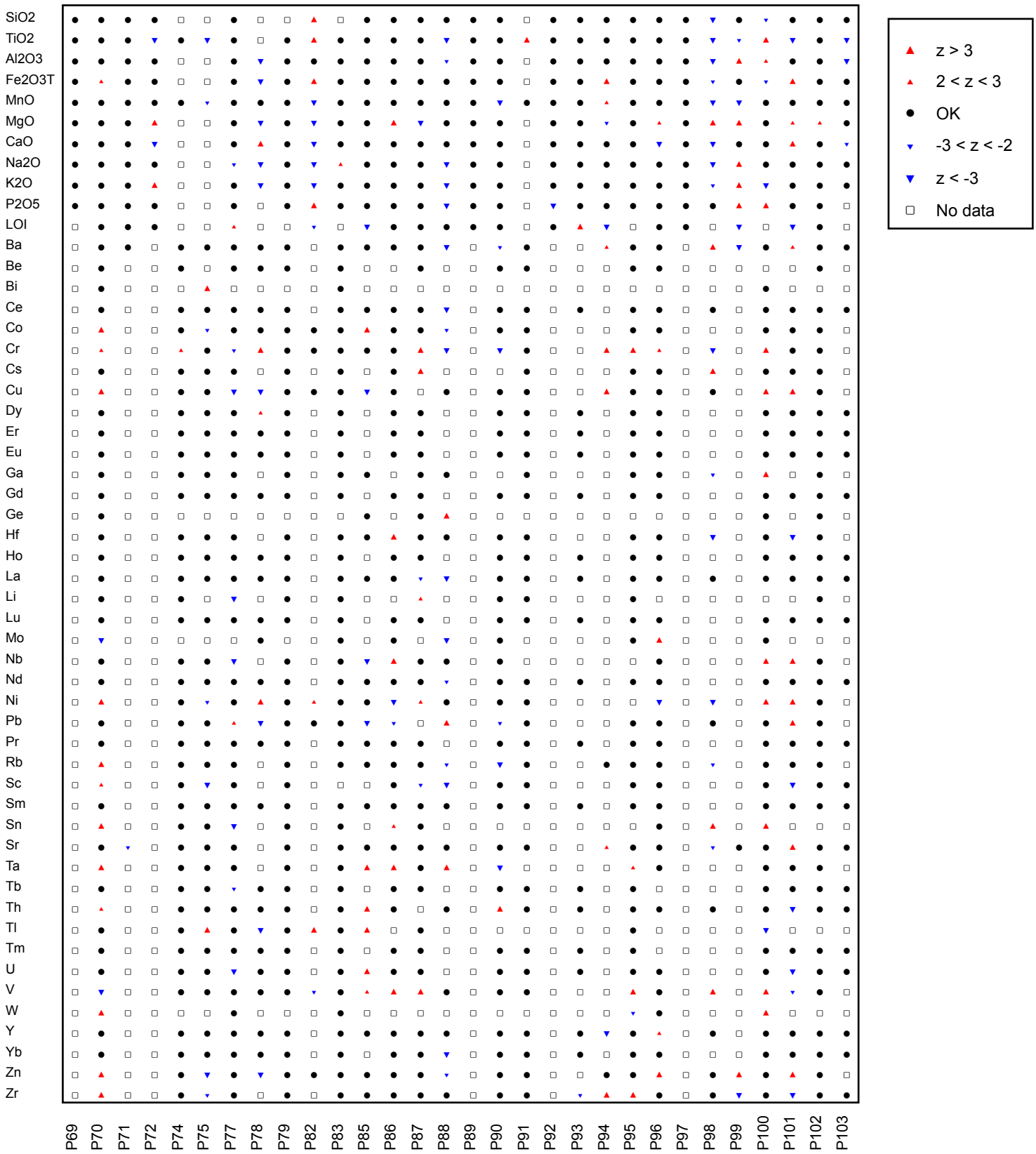
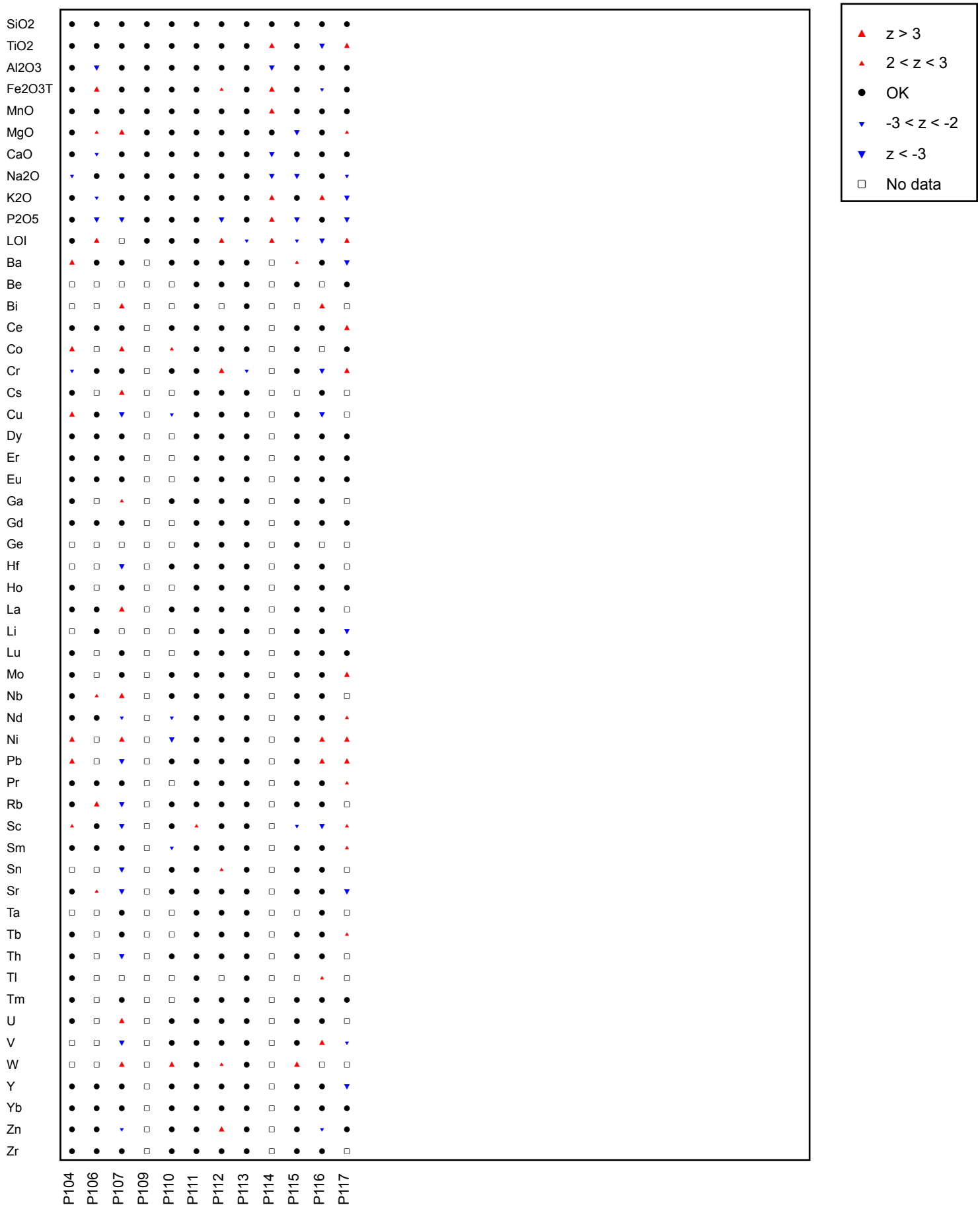


Figure 3: GeoPT37 - Rhyolite, ORPT-1. Multiple z-score charts for laboratories participating in the GeoPT37 round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).



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