

GeoPT 36, England - GSM-1, Gabbro

Veranstalter: International Association of Geoanalysts and Geostandards Newsletter - GeoPT36

Ringversuchsmaterial: GSM-1, (Gabbro)

RV geschlossen: 2015 – 3

Literatur: Report - GeoPT36 Proficiency Testing Round (CRB Laborcode = M13)

Hauptelemente [MA%]

	CRB	RV	1sRV	Z-Score
Na ₂ O	1,87	1,85	0,033	0,30
MgO	4,23	4,52	0,072	-2,00
Al ₂ O ₃	19,88	19,82	0,253	0,13
SiO ₂	45,35	45,65	0,514	-0,32
P ₂ O ₅	0,039	0,040	0,001	-0,39
K ₂ O	0,17	0,17	0,004	-0,45
CaO	12,56	12,54	0,171	0,07
TiO ₂	1,38	1,38	0,026	0,00
Fe ₂ O ₃ tot	13,28	13,21	0,179	0,20
MnO	0,163	0,159	0,004	0,48
L.O.I. *	0,43	0,44	0,2	---

Spurenelemente [µg/g]

	CRB	RV	1sRV	Z-Score
Ba	83	81,03	3,3	0,29
Co	39	39,5	1,8	-0,14
Cr *	12	13,3	2,0	---
Cu	97	90,4	3,7	0,90
Ga	21	20,3	1,0	0,35
Hf	0,8	0,83	0,1	-0,22
La	12	12,6	0,7	-0,30
Ni	16	13,5	0,7	1,75
Pb	10	11	0,6	-0,82
Sc	35	38,5	1,8	-0,99
Sr	397	386	12,6	0,44
V	595	600,9	5,5	-0,16
Y	10	9,5	0,5	0,46
Zn	88	87,7	3,6	0,10
Zr	34	27	1,3	2,66

Legende

CRB: Ergebnisse CRB – **RV:** Ergebnisse Ringversuch -- **1s-RV:** Standardabweichung Ringversuch

Z-Score: Differenz des Messwertes vom Mittelwert des Ringversuchs -- * Wert nicht zertifiziert

GeoPT36 — AN INTERNATIONAL PROFICIENCY TEST FOR ANALYTICAL GEOCHEMISTRY LABORATORIES — REPORT ON ROUND 36 (Gabbro, GSM-1) / January 2015

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Abstract

Results are presented for GeoPT36, the subject of round thirty-six of the International Association of Geoanalysts' Proficiency Testing programme for analytical geochemistry laboratories. The test sample distributed in this round was a gabbro, GSM-1, supplied by Dr Stephen Wilson of the U.S. Geological Survey. In this report, the data contributed from 93 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-sixth round of the international proficiency testing programme, GeoPT, 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 36: P.C. Webb (results coordinator), M. Thompson (statistical advisor), P.J. Potts (analytical advisor), S. Wilson (provision of GSM-1).

Timetable for Round 36:

Distribution of sample: September 2014.

Deadline for submission of analytical results:
12th December 2014.

Release of report: February 2015

Test Material details

GeoPT36: The gabbro test material, GSM-1, was originally produced at the U.S. Geological Survey under the direction of F.J. Flanagan and was supplied by Stephen Wilson. 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

3159 results were submitted for GeoPT36 (GSM-1) by 93 laboratories as listed in Table 1. Submission of data was by the recently introduced online system developed by KPMD (IT Solutions) Ltd, Sheffield, England. 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. However, in our **Instructions to Analysts** participants are instructed that values of '0', i.e. zero, should not be reported, but this was done by a number of laboratories. Zero is not regarded as a valid result, and 31 such 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 10 major components and 41 trace elements in GeoPT36 (GSM-1). Bar charts for the 51 elements/components of GeoPT36 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: SiO₂, TiO₂, Al₂O₃, Fe₂O₃T, MnO, MgO, CaO, Na₂O, K₂O, P₂O₅*, Ba, Be, Bi*, Cd*, Ce, Co, Cs, Cu, Dy, Er, Eu, Ga, Gd, Ge*, Hf, Ho, La, Li, Lu, Mo*, Nb*, Nd, Ni*, Pb, Pr, Rb, Sb*, Sc, Sm, Sn*, Sr, Tb, Th, Tl*, Tm, U, V, Y, Yb, Zn and Zr*. Of these, only provisional values were given to the 11 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 18 cases the robust mean was used to define the consensus value, but in 26 cases the median value was preferred. In 7 cases a mode provided the most satisfactory consensus value, two of which were suitable for the value to be assigned, the others were 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 GeoPT since round GeoPT23.

Bar charts for the 16 elements/components: Fe(II)O, H₂O⁺, CO₂, LOI, Ag, As, C(tot), Cl, Cr, F, Hg, In, S, Se, Ta and W 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 GeoPT36, 1649 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 GeoPT36, 1510 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:

$$H_a = k \cdot X_a^{0.8495}$$

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 GeoPT36 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 in this round is plotted in multiple z-score charts for GeoPT36 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 GeoPT37 round, the test sample for which will be distributed during March 2014.

Reminder to participants

Participants are instructed (in our **Instructions to Analysts**) that '0', i.e. zero, should not be reported as a result. For GeoPT36, 31 zeros were reported and were disregarded. It is recommended that participants do not report zeros in future.

Acknowledgements

The authors thank Liz Lomas for much-valued assistance in distributing this sample. Thanks also to Mick Daniels and Ben Solway of KPMD (IT Solutions) Ltd for developing an efficient system for producing this report.

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/>).

GeoPT1

Thompson M., Potts P.J., Kane J.S. and Webb P.C. (1996) GeoPT1. International proficiency test for analytical geochemistry laboratories - Report on round 1. *Geostandards Newsletter: The Journal of Geostandards and Geoanalysis*, 20, 295-325.

GeoPT2

Thompson M., Potts P.J., Kane J.S., Webb P.C. and Watson, J.S. (1998) GeoPT2. International proficiency test for analytical geochemistry laboratories - Report on round 2. *Geostandards Newsletter: The Journal of Geostandards and Geoanalysis*, 22 127-156.

GeoPT3

Thompson M., Potts P.J., Kane J.S. and Chappell B.W. (1999a) GeoPT3. International proficiency test for analytical geochemistry laboratories - Report on round 3. *Geostandards Newsletter: The Journal of Geostandards and Geoanalysis*, 23, 87-121.

GeoPT4

Thompson M., Potts P.J., Kane J.S., Webb P.C. and Watson J.S. (1999b) GeoPT4. 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).

GeoPT5

Thompson M., Potts P.J., Kane J.S., and Wilson S. (1999c) GeoPT5. 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).

GeoPT6

Potts P.J., Thompson M., Kane J.S., Webb P.C. and Carignan J. (2000) GEOPT6 - an international proficiency test for analytical geochemistry laboratories - report on round 6 (OU-3: Nanhon microgranite) and 6A (CAL-S: CRPG limestone). International Association of Geoanalysts: Unpublished report.

GeoPT7

Potts P.J., Thompson M., Kane J.S., and Petrov L.L. (2000)
GEOPT7 - an international proficiency test for analytical geochemistry laboratories - report on round 7 (GBPG-1 Garnet-biotite plagioclase). International Association of Geoanalysts: Unpublished report.

GeoPT8

Potts P.J., Thompson M., Kane J.S., Webb, P.C. and Watson J.S. (2000)
GEOPT8 - an international proficiency test for analytical geochemistry laboratories - report on round 8 / February 2001 (OU-4 Penmaenmawr microdiorite). International Association of Geoanalysts: Unpublished report.

GeoPT9

Potts P.J., Thompson M., Webb, P.C. and Watson J.S. (2001)
GEOPT9 - an international proficiency test for analytical geochemistry laboratories - report on round 9 / July 2001 (OU-6 Penrhyn slate). International Association of Geoanalysts: Unpublished report.

GeoPT10

Potts P.J., Thompson M., Webb, P.C., Watson J.S. and Wang Yimin (2001)
GEOPT10 - an international proficiency test for analytical geochemistry laboratories - report on round 10 / December 2001 (CH-1 Marine sediment). International Association of Geoanalysts: Unpublished report.

GeoPT11

Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Watson J.S. (2002)
GEOPT11 - an international proficiency test for analytical geochemistry laboratories - report on round 11 / July 2002 (OU-5 Leaton dolerite). International Association of Geoanalysts: Unpublished report.

GeoPT12

Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Batjargal B. (2003)
GEOPT12 - an international proficiency test for analytical geochemistry laboratories - report on round 12 / January 2003 (GAS Serpentinite). International Association of Geoanalysts: Unpublished report.

GeoPT13

Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Kaspar H.U. (2003)
GEOPT13 - an international proficiency test for analytical geochemistry laboratories - report on round 13 / July 2003 (Köln Loess). International Association of Geoanalysts: Unpublished report.

GeoPT14

Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and B. Batjargal (2004)
GeoPT14 - an international proficiency test for analytical geochemistry laboratories - report on round 14 / January 2004 (OShBO - alkaline granite). International Association of Geoanalysts: Unpublished report.

GeoPT15

Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and WANG Yimin (2004)
GeoPT15 - an international proficiency test for analytical geochemistry laboratories - report on round 15 / June 2004 (Ocean floor sediment MSAN). International Association of Geoanalysts: Unpublished report.

GeoPT16

Potts P.J., Thompson M., Webb, P.C. and S.Wilson (2005)
GeoPT16 - an international proficiency test for analytical geochemistry laboratories - report on round 16 / February 2005 (Nevada basalt, BNV-1). International Association of Geoanalysts: Unpublished report.

GeoPT17

Potts P.J., Thompson M., Webb, P.C. and J. Nicholas Walsh (2005)
GeoPT17 - an international proficiency test for analytical geochemistry laboratories - report on round 17 / July 2005 (Calcareous sandstone, OU-8). International Association of Geoanalysts: Unpublished report.

GeoPT18

Webb, P.C., Thompson M., Potts P.J. and L. Paul Bedard (2006)
GeoPT18 - an international proficiency test for analytical geochemistry laboratories - report on round 18 / Jan 2006 (Quartz Diorite, KPT-1). International Association of Geoanalysts: Unpublished report.

GeoPT19

Webb, P.C., Thompson M., Potts P.J. and B. Batjargal (2006)
GeoPT19 - an international proficiency test for analytical geochemistry laboratories - report on round 19 / July 2006 (Gabbro, MGR-N). International Association of Geoanalysts: Unpublished report.

GeoPT20

Webb, P.C., Thompson M., Potts P.J. and M. Burnham (2007)
GeoPT20 - an international proficiency test for analytical geochemistry laboratories - report on round 20 / Jan 2007 (Ultramafic rock, OPY-1). International Association of Geoanalysts: Unpublished report.

GeoPT21

Webb, P.C., Thompson M., Potts P.J. and B. Batjargal (2007)
GeoPT21 - an international proficiency test for analytical geochemistry laboratories - report on round 21 / July 2007 (Granite, MGT-1). International Association of Geoanalysts: Unpublished report.

GeoPT22

Webb, P.C., Thompson, M., Potts, P.J. and Batjargal, B. (2008)
GeoPT22 - an international proficiency test for analytical geochemistry laboratories - report on round 22 / January 2008 (Basalt, MBL-1). International Association of Geoanalysts: Unpublished report.

GeoPT23

Webb, P.C., Thompson, M., Potts, P.J., Watson, J.S. and Kriete, C. (2008)
GeoPT23 - 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.

GeoPT24

Webb, P.C., Thompson, M., Potts, P.J. and Watson, J.S. (2009)
GeoPT24 - an international proficiency test for analytical geochemistry laboratories - report on round 24 / January 2009 (Longmyndian greywacke, OU-10). International Association of Geoanalysts: Unpublished report.

GeoPT25

Webb, P.C., Thompson, M., Potts, P.J. and Enzweiler, J. (2009)
GeoPT25 - an international proficiency test for analytical geochemistry laboratories - report on round 25 / July 2009 (Basalt, HTP-1). International Association of Geoanalysts: Unpublished report.

GeoPT26

Webb, P.C., Thompson, M., Potts, P.J. and Loubser, M. (2010)
GeoPT26 - 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.

GeoPT27

Webb, P.C., Thompson, M., Potts, P.J. and Batjargal, B. (2010)
GeoPT27 - an international proficiency test for analytical geochemistry laboratories - report on round 27 / July 2010 (Andesite, MGL-AND). International Association of Geoanalysts: Unpublished report.

GeoPT28

Webb, P.C., Thompson, M., Potts, P.J. and Wilson, S. (2011)
GeoPT28 - an international proficiency test for analytical geochemistry laboratories - report on round 28 / January 2011 (Shale, SBC-1). International Association of Geoanalysts: Unpublished report.

GeoPT29

Webb, P.C., Thompson, M., Potts, P.J. and Wilson, S. (2011)
GeoPT29 - an international proficiency test for analytical geochemistry laboratories - report on round 29 / July 2011 (Nephelinite, NKT-1). International Association of Geoanalysts: Unpublished report.

GeoPT30

Webb, P.C., Thompson, M., Potts, P.J., Long, D. and Batjargal, B. (2012)

GeoPT30 - 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.

GeoPT31

Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2012)

GeoPT31 - 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.

GeoPT32

Webb, P.C., Thompson, M., Potts, P.J and Webber, E. (2013)

GeoPT32 - an international proficiency test for analytical geochemistry laboratories - report on round 32 / January 2013 (Woodstock Basalt, WG-1). International Association of Geoanalysts: Unpublished report.

GeoPT33

Webb, P.C., Thompson, M., Potts, P.J., Prusisz, B., and Young, K. (2013)

GeoPT33 - 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.

GeoPT34

Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)

GeoPT34 - an international proficiency test for analytical geochemistry laboratories - report on round 34 / January 2014 (Granite, GRI-1). International Association of Geoanalysts: Unpublished report.

GeoPT35

Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)

GeoPT35 - an international proficiency test for analytical geochemistry laboratories - report on round 35 / August 2014 (Tonalite, TLM-1). International Association of Geoanalysts: Unpublished report.

GeoPT35A

Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)

GeoPT35A - an international proficiency test for analytical geochemistry laboratories - report on round 35A / August 2014 (Metalliferous sediment, SdAR-H1). International Association of Geoanalysts: Unpublished report.

Table 1 - GeoPT36 Contributed data for Gabbro, GSM-1. 12/12/2014

Lab Code	M112	M114	-	-	-	-	-	-	-	-	-	-	-	-
SiO2	g 100g ⁻¹	<u>45.9</u>												
TiO2	g 100g ⁻¹	<u>1.35</u>	1.38											
Al2O3	g 100g ⁻¹	<u>20.1</u>												
Fe2O3T	g 100g ⁻¹	<u>13.35</u>												
Fe(II)O	g 100g ⁻¹													
MnO	g 100g ⁻¹	<u>0.15</u>	0.16											
MgO	g 100g ⁻¹	<u>4.47</u>												
CaO	g 100g ⁻¹	<u>12.6</u>												
Na2O	g 100g ⁻¹	<u>1.84</u>												
K2O	g 100g ⁻¹	<u>0.16</u>												
P2O5	g 100g ⁻¹	<u>0.04</u>												
H2O+	g 100g ⁻¹													
CO2	g 100g ⁻¹													
LOI	g 100g ⁻¹													
Ag	mg kg ⁻¹													
As	mg kg ⁻¹													
Au	mg kg ⁻¹													
B	mg kg ⁻¹													
Ba	mg kg ⁻¹		78.1											
Be	mg kg ⁻¹		0.23											
Bi	mg kg ⁻¹													
Br	mg kg ⁻¹													
C(org)	mg kg ⁻¹													
C(tot)	mg kg ⁻¹													
Cd	mg kg ⁻¹													
Ce	mg kg ⁻¹		4.88											
Cl	mg kg ⁻¹													
Co	mg kg ⁻¹		40.4											
Cr	mg kg ⁻¹													
Cs	mg kg ⁻¹		0.82											
Cu	mg kg ⁻¹		88.7											
Dy	mg kg ⁻¹		1.71											
Er	mg kg ⁻¹		1.03											
Eu	mg kg ⁻¹		0.54											
F	mg kg ⁻¹													
Ga	mg kg ⁻¹		20.6											
Gd	mg kg ⁻¹		1.39											
Ge	mg kg ⁻¹													
Hf	mg kg ⁻¹		0.87											
Hg	mg kg ⁻¹													
Ho	mg kg ⁻¹		0.36											
I	mg kg ⁻¹													
In	mg kg ⁻¹													
La	mg kg ⁻¹		2.08											
Li	mg kg ⁻¹		6.42											
Lu	mg kg ⁻¹		0.15											
Mo	mg kg ⁻¹													
N	mg kg ⁻¹													
Nb	mg kg ⁻¹													
Nd	mg kg ⁻¹		3.85											
Ni	mg kg ⁻¹		13.8											
Pb	mg kg ⁻¹		11.7											
Pd	mg kg ⁻¹													
Pr	mg kg ⁻¹		0.77											
Rb	mg kg ⁻¹		4.63											
Re	mg kg ⁻¹													
S	mg kg ⁻¹													
Sb	mg kg ⁻¹													
Sc	mg kg ⁻¹		37											
Se	mg kg ⁻¹													
Sm	mg kg ⁻¹		1.24											
Sn	mg kg ⁻¹													
Sr	mg kg ⁻¹		385											
Ta	mg kg ⁻¹													
Tb	mg kg ⁻¹		0.27											
Te	mg kg ⁻¹													
Th	mg kg ⁻¹		0.52											
Tl	mg kg ⁻¹													
Tm	mg kg ⁻¹		0.15											
U	mg kg ⁻¹		0.18											
V	mg kg ⁻¹		607											
W	mg kg ⁻¹													
Y	mg kg ⁻¹		9.7											
Yb	mg kg ⁻¹		0.96											
Zn	mg kg ⁻¹		87.3											
Zr	mg kg ⁻¹													

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

Table 2 - GeoPT36 Assigned values and statistical summary for Gabbro, GSM-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	s_{dm}	H_a	s_{dm}/H_a	n					
	g 100g ⁻¹	g 100g ⁻¹	g 100g ⁻¹			g 100g ⁻¹	g 100g ⁻¹	g 100g ⁻¹		
SiO2	45.68	0.05531	0.514	0.1076	76	45.68	0.4822	45.69	Assigned	Robust Mean
TiO2	1.38	0.003179	0.02629	0.1209	87	1.378	0.02965	1.38	Assigned	Median
Al2O3	19.82	0.03945	0.2528	0.156	82	19.82	0.3572	19.82	Assigned	Robust Mean
Fe2O3T	13.21	0.02184	0.1792	0.1219	84	13.16	0.2002	13.21	Assigned	Median
MnO	0.159	0.0006358	0.004194	0.1516	87	0.1563	0.00593	0.159	Assigned	Median
MgO	4.518	0.01253	0.07201	0.174	81	4.518	0.1128	4.513	Assigned	Robust Mean
CaO	12.54	0.0221	0.1714	0.129	82	12.5	0.2002	12.54	Assigned	Median
Na2O	1.85	0.00663	0.03373	0.1966	80	1.845	0.0593	1.85	Assigned	Median
K2O	0.17	0.001679	0.004439	0.3782	78	0.1683	0.01483	0.17	Assigned	Median
P2O5	0.04	0.0008798	0.001299	0.6775	71	0.03866	0.007413	0.04	Provisional	Median
	mg kg ⁻¹	mg kg ⁻¹	mg kg ⁻¹			mg kg ⁻¹	mg kg ⁻¹	mg kg ⁻¹		
Ba	81.03	0.6823	3.345	0.204	72	83.75	5.79	81.03	Assigned	Median
Be	0.233	0.005001	0.0232	0.2155	24	0.2429	0.0245	0.24	Assigned	Mode
Bi	0.0786	0.005194	0.009219	0.5634	21	0.09637	0.0238	0.088	Provisional	Mode
Cd	0.128	0.006001	0.01395	0.4302	24	0.1867	0.0294	0.145	Provisional	Mode
Ce	5.12	0.05032	0.3203	0.1571	56	5.194	0.3766	5.12	Assigned	Median
Co	39.5	0.4108	1.817	0.2261	68	39.01	3.388	39.5	Assigned	Median
Cs	0.833	0.009722	0.06848	0.142	43	0.8528	0.06375	0.833	Assigned	Median
Cu	90.41	0.7652	3.671	0.2084	73	91.53	6.538	90.41	Assigned	Median
Dy	1.725	0.01687	0.1271	0.1327	47	1.721	0.1156	1.725	Assigned	Median
Er	1.051	0.01127	0.08344	0.1351	46	1.051	0.07647	1.049	Assigned	Robust Mean
Eu	0.5509	0.006086	0.0482	0.1263	46	0.5509	0.04127	0.55	Assigned	Robust Mean
Ga	20.29	0.1479	1.031	0.1434	63	20.29	1.174	20.2	Assigned	Robust Mean
Gd	1.53	0.01749	0.1148	0.1523	46	1.509	0.1186	1.53	Assigned	Median
Ge	1.196	0.06737	0.09312	0.7235	15	1.247	0.2609	1.196	Provisional	Median
Hf	0.83	0.02677	0.06827	0.3921	43	0.8803	0.1755	0.83	Assigned	Median
Ho	0.3618	0.003259	0.03372	0.09666	45	0.3618	0.02186	0.36	Assigned	Robust Mean
La	2.105	0.02364	0.1505	0.1571	52	2.232	0.1705	2.105	Assigned	Median
Li	6.42	0.08008	0.3882	0.2063	32	6.944	0.453	6.58	Assigned	Mode
Lu	0.144	0.002028	0.01542	0.1315	45	0.144	0.0136	0.145	Assigned	Robust Mean
Mo	0.402	0.016	0.03688	0.4339	26	0.576	0.0816	0.4321	Provisional	Mode
Nb	0.9	0.03997	0.07314	0.5465	47	1.144	0.274	1	Provisional	Mode
Nd	3.951	0.05102	0.257	0.1985	52	3.951	0.3679	3.949	Assigned	Robust Mean
Ni	13.45	0.4471	0.7277	0.6144	68	13.45	3.687	13.25	Provisional	Robust Mean
Pb	11	0.1798	0.6133	0.2932	68	11.15	1.483	11	Assigned	Median
Pr	0.7821	0.008164	0.06491	0.1258	43	0.7821	0.05354	0.78	Assigned	Robust Mean
Rb	4.986	0.06479	0.3131	0.2069	66	5.146	0.5263	4.986	Assigned	Median
Sb	1.83	0.07005	0.1336	0.5242	27	1.973	0.364	1.899	Provisional	Mode
Sc	38.52	0.4646	1.779	0.2612	56	38.51	3.477	38.52	Assigned	Median
Sm	1.225	0.01014	0.09502	0.1067	48	1.225	0.07026	1.221	Assigned	Robust Mean
Sn	1.811	0.06683	0.1325	0.5045	29	1.811	0.3599	1.78	Provisional	Robust Mean
Sr	386	2.42	12.6	0.1921	79	386	21.51	385	Assigned	Robust Mean
Tb	0.27	0.002235	0.0263	0.08499	44	0.2656	0.01483	0.27	Assigned	Median
Th	0.52	0.01289	0.04589	0.281	50	0.5473	0.09118	0.52	Assigned	Median
Tl	0.04	0.003462	0.005193	0.6666	21	0.04523	0.01586	0.04	Provisional	Median
Tm	0.1502	0.001899	0.01598	0.1189	40	0.1502	0.01201	0.15	Assigned	Robust Mean
U	0.19	0.004325	0.01951	0.2217	47	0.1939	0.02965	0.19	Assigned	Median
V	600.9	3.997	18.35	0.2178	76	597.9	34.84	600.9	Assigned	Median
Y	9.502	0.09197	0.5415	0.1698	72	9.502	0.7804	9.541	Assigned	Robust Mean
Yb	0.971	0.01067	0.07801	0.1368	48	0.971	0.07393	0.97	Assigned	Robust Mean
Zn	87.74	0.7983	3.579	0.2231	71	87.74	6.727	88	Assigned	Robust Mean
Zr	27	0.6961	1.315	0.5293	69	27.36	5.782	27	Provisional	Median

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M13	M14
SiO2	0.01	0.07	1.39	-0.53	0.54	0.52	0.79	-0.28	<u>0.41</u>	1.37	*	<u>-0.32</u>	<u>-0.08</u>
TiO2	-0.15	-0.76	0.15	0.38	4.56	0.38	0.76	-1.56	<u>0.23</u>	0.23	<u>-0.57</u>	<u>0.00</u>	<u>0.00</u>
Al2O3	-0.46	0.49	0.05	0.25	-1.05	1.12	0.37	-0.50	<u>0.82</u>	1.28	<u>-1.22</u>	<u>0.13</u>	<u>0.25</u>
Fe2O3T	0.11	1.06	-6.21	-1.00	-0.95	0.06	0.00	-1.90	<u>0.42</u>	0.22	<u>-0.03</u>	<u>0.20</u>	<u>0.64</u>
MnO	1.29	-2.15	-0.72	0.24	0.24	0.24	-1.91	0.24	<u>0.00</u>	1.67	<u>0.12</u>	<u>0.48</u>	<u>0.12</u>
MgO	-0.43	1.00	-0.29	0.59	0.17	-0.25	-0.25	-2.19	<u>0.73</u>	0.17	<u>-1.93</u>	<u>-2.00</u>	<u>-0.33</u>
CaO	-1.37	-1.02	1.00	-4.06	-1.31	0.61	-0.32	-0.73	<u>0.26</u>	0.03	<u>-1.85</u>	<u>0.07</u>	<u>-0.42</u>
Na2O	-1.33	-0.30	-0.27	2.67	0.59	1.48	-0.89	0.59	<u>0.12</u>	*	<u>-0.30</u>	<u>0.30</u>	<u>0.15</u>
K2O	-2.97	2.25	1.35	-2.25	0.00	-13.52	0.00	-1.13	<u>0.00</u>	-1.13	<u>-2.25</u>	<u>-0.45</u>	<u>0.00</u>
P2O5	-7.39	-2.31	3.85	-7.70	-15.40	0.00	3.08	0.00	<u>-3.85</u>	-4.62	<u>-2.70</u>	<u>-0.39</u>	*
Ba	2.18	*	-0.36	-0.31	3.76	*	5.07	0.74	<u>1.04</u>	0.20	<u>-0.72</u>	<u>0.29</u>	<u>2.09</u>
Be	1.11	*	*	*	*	*	*	0.52	*	*	*	*	*
Bi	*	*	*	*	*	*	*	*	*	<u>7.13</u>	*	*	*
Cd	*	*	*	*	*	*	*	*	*	*	*	*	*
Ce	0.84	*	0.31	-6.62	27.10	*	21.48	-0.56	<u>2.47</u>	-0.97	<u>-0.69</u>	*	*
Co	1.25	*	-1.93	-1.38	-2.53	*	-2.48	0.11	<u>-1.02</u>	-6.88	<u>0.55</u>	<u>-0.14</u>	<u>0.14</u>
Cs	0.82	*	0.39	*	*	*	*	1.72	<u>4.14</u>	9.59	<u>-0.02</u>	*	*
Cu	1.53	*	2.88	-1.75	-0.41	*	0.43	-0.25	<u>-0.21</u>	7.24	<u>0.08</u>	<u>0.90</u>	<u>1.17</u>
Dy	1.83	*	1.13	*	*	*	*	0.90	*	-1.85	<u>-0.26</u>	*	*
Er	1.64	*	0.71	*	*	*	*	0.71	*	-2.70	<u>-0.13</u>	*	*
Eu	1.12	*	0.34	*	*	*	*	0.40	*	-1.93	<u>0.09</u>	*	*
Ga	1.29	*	-0.28	-0.28	-0.66	*	-0.28	0.35	<u>-0.19</u>	-0.57	*	<u>0.35</u>	<u>-0.62</u>
Gd	1.89	*	1.21	*	*	*	*	0.61	*	-1.22	*	*	*
Ge	*	*	*	*	<i>12.93</i>	*	*	*	*	*	*	*	*
Hf	2.10	*	-1.73	17.14	36.18	*	*	-2.78	<u>1.24</u>	-0.23	*	<u>-0.22</u>	*
Ho	1.06	*	0.50	*	*	*	*	0.84	*	-2.04	<u>-0.17</u>	*	*
La	1.02	*	-0.26	291.62	19.90	*	*	0.96	<u>0.65</u>	-0.37	<u>-0.38</u>	*	*
Li	3.39	*	*	*	*	*	*	3.58	*	-0.31	<u>0.37</u>	*	*
Lu	1.12	*	0.24	*	*	*	*	0.06	*	-0.59	<u>-0.45</u>	*	*
Mo	0.87	*	*	*	-2.77	*	*	*	*	15.94	*	*	*
Nb	1.52	*	-1.08	*	-4.10	*	*	1.91	*	-1.33	*	*	*
Nd	0.66	*	0.07	-7.59	5.64	*	*	0.62	<u>4.96</u>	-1.95	*	*	*
Ni	-1.35	*	-3.37	-3.37	-3.10	*	-5.16	-1.59	<u>-3.75</u>	6.52	<u>-1.41</u>	<u>1.75</u>	<u>-1.00</u>
Pb	2.09	*	-1.26	17.94	226.16	*	1.63	-3.44	<u>0.00</u>	2.12	<u>-1.08</u>	<u>-0.82</u>	<u>1.63</u>
Pr	0.71	*	-0.07	*	*	*	*	0.58	*	-1.82	*	*	*
Rb	0.42	*	0.83	6.43	-5.70	*	1.64	0.04	<u>0.34</u>	2.39	<u>-0.34</u>	*	<u>0.02</u>
Sb	*	*	*	16.24	0.52	*	*	*	<u>-0.11</u>	4.49	*	*	*
Sc	0.80	*	*	-1.98	-0.13	*	4.20	-0.52	<u>-0.46</u>	11.79	<u>-1.05</u>	<u>-0.99</u>	<u>0.70</u>
Sm	1.66	*	0.54	50.25	*	*	*	0.58	*	-0.58	<u>-0.18</u>	*	*
Sn	3.65	*	*	*	*	*	*	*	<u>0.34</u>	*	*	*	*
Sr	2.94	*	0.40	0.40	-1.53	*	-0.56	1.95	<u>0.05</u>	-1.83	<u>-1.15</u>	<u>0.44</u>	<u>-0.12</u>
Tb	0.89	*	0.22	*	*	*	*	0.61	*	-1.56	<u>-0.57</u>	*	*
Th	1.27	*	1.05	32.25	*	*	71.47	0.00	*	-1.20	<u>-0.87</u>	*	*
Tl	2.06	*	*	*	<i>165.60</i>	*	*	*	*	-0.96	*	*	*
Tm	1.03	*	0.32	*	*	*	*	*	*	-0.70	<u>-0.01</u>	*	*
U	0.26	*	-0.23	144.01	31.26	*	*	-1.03	*	-1.33	<u>-0.77</u>	*	*
V	3.64	*	-1.08	0.11	-1.28	*	-0.05	0.55	<u>-1.08</u>	1.69	<u>0.82</u>	<u>-0.16</u>	<u>-0.98</u>
Y	0.51	*	-0.16	0.92	-0.93	*	<u>-0.19</u>	0.24	<u>-0.09</u>	0.48	<u>-0.48</u>	<u>0.46</u>	<u>0.46</u>
Yb	1.28	*	0.54	*	*	*	*	0.24	*	-11.01	<u>-0.52</u>	*	*
Zn	3.06	*	-0.21	0.35	-1.72	*	0.07	-0.54	<u>-0.16</u>	-0.10	<u>-1.43</u>	*	<u>0.32</u>
Zr	-7.16	*	-7.18	-2.28	-0.61	*	-1.52	-7.22	<u>-0.38</u>	0.53	*	<u>2.66</u>	<u>0.00</u>

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

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M16	M17	M22	M23	M25	M26	M27	M29	M30	M31	M32	M33	M34
SiO2	5.50	-0.18	0.31	0.41	-0.78	0.30	-0.01	0.56	*	-0.17	0.26	-0.31	0.31
TiO2	0.76	0.00	-1.15	-3.61	0.00	0.13	0.11	-0.76	-24.80	1.37	0.07	0.57	0.19
Al2O3	1.36	0.44	1.27	-19.06	-0.46	1.00	-0.11	0.61	-7.98	-1.98	0.78	-0.92	0.15
Fe2O3T	1.51	-0.20	-1.61	3.13	-0.33	-0.20	-0.20	-0.33	-26.30	0.61	-0.36	0.67	0.33
MnO	-2.62	0.12	-1.45	-15.38	-0.24	-0.83	-0.24	-2.15	-17.29	-1.19	0.15	-3.22	0.12
MgO	0.73	0.99	-0.48	-22.69	-0.94	-0.40	-0.47	-1.22	-29.39	0.96	0.78	0.92	-0.05
CaO	2.36	0.07	-1.57	-0.39	0.44	-1.07	-0.92	-0.32	-15.14	-1.19	0.24	1.12	-0.36
Na2O	-1.78	-0.74	0.95	-1.19	-0.89	-2.08	1.04	-2.08	-7.25	0.89	-1.49	2.37	0.44
K2O	-24.55	0.00	1.35	6.76	0.00	-2.25	-0.11	15.77	-12.28	0.00	-0.62	2.25	0.00
P2O5	*	*	4.16	34.65	0.00	-3.47	-3.85	3.85	-3.85	11.55	-5.48	-11.55	1.54
Ba	-0.90	*	-1.15	*	7.76	6.42	5.23	22.15	-4.13	4.33	0.23	1.67	-0.00
Be	*	*	-1.08	*	*	*	*	7.20	-1.57	-0.50	*	*	*
Bi	*	*	-1.37	*	*	12.01	*	*	-0.47	-0.57	*	12.01	0.62
Cd	0.86	*	-1.94	*	*	1.51	*	*	-2.08	*	*	253.48	0.79
Ce	-2.15	*	0.04	57.29	*	3.98	*	4.62	-4.87	-0.30	*	*	1.69
Co	-1.76	*	-0.27	-1.60	-4.13	-0.96	*	1.47	-4.97	-0.41	1.03	4.35	0.27
Cs	-0.63	*	-0.16	62.11	*	0.20	*	3.90	*	-0.39	*	-0.24	0.49
Cu	*	*	-0.33	2.52	-0.38	2.94	*	-1.42	-0.18	-0.60	2.30	-0.01	0.08
Dy	-0.43	*	-0.79	*	*	4.31	*	-0.20	-5.96	0.22	*	*	-0.49
Er	-0.49	*	-0.55	*	*	0.77	*	0.59	-5.58	0.23	*	*	0.29
Eu	-0.43	*	-0.12	*	*	3.21	*	1.02	-2.71	-0.01	*	*	0.51
Ga	-2.48	*	-0.76	-2.82	-0.28	0.88	*	-0.66	*	-0.14	0.74	-0.24	-0.04
Gd	-0.09	*	-1.32	*	*	0.61	*	-2.00	-5.44	0.44	*	*	-1.00
Ge	-2.53	*	*	*	*	*	*	*	-6.31	0.29	*	*	-3.74
Hf	-2.20	*	-0.95	*	*	*	*	1.03	*	3.22	*	-4.61	0.51
Ho	-0.35	*	-0.70	*	*	-0.03	*	*	-4.77	-0.03	*	*	-0.92
La	-1.59	*	-0.36	83.92	*	0.85	*	4.62	-3.67	-0.48	*	23.24	1.64
Li	*	*	0.36	*	*	*	*	*	-0.57	-1.08	*	*	0.49
Lu	-0.26	*	0.52	*	*	-0.45	*	0.39	-4.02	0.19	*	*	-1.43
Mo	-0.05	*	-1.25	*	*	*	*	-0.05	-5.04	18.95	2.85	5.40	-0.03
Nb	*	*	6.62	*	*	*	*	34.18	-5.95	0.75	-0.35	-2.05	1.37
Nd	-1.02	*	-0.02	*	*	0.87	*	2.53	-5.64	0.02	*	1.26	0.48
Ni	-2.82	*	-0.47	4.29	8.99	*	*	0.06	-2.85	3.12	-3.74	-2.79	-1.34
Pb	4.08	*	-0.38	2.65	0.00	0.00	*	-1.14	-8.56	0.82	-2.12	-1.47	0.00
Pr	-0.77	*	-0.86	*	*	0.52	*	1.82	-4.18	-0.48	*	*	0.91
Rb	-1.97	*	6.75	11.92	*	-0.01	*	10.58	-3.17	-3.17	-1.33	1.14	-0.14
Sb	*	*	-1.08	*	*	*	*	*	*	-0.07	*	1.01	-0.11
Sc	-1.08	*	-0.68	*	*	*	*	-0.80	-9.99	2.10	2.76	-0.91	-0.43
Sm	-0.58	*	-0.42	*	*	0.24	*	0.79	-5.13	0.13	*	-4.87	-0.13
Sn	*	*	-2.54	*	*	*	*	-2.35	-6.35	8.26	-4.99	-0.80	-0.80
Sr	-1.98	*	-0.30	0.42	1.75	-0.63	0.16	0.62	-2.46	0.20	1.24	-0.43	1.07
Tb	-0.76	*	-0.68	*	*	0.19	*	*	-4.37	0.00	*	*	0.57
Th	-1.96	*	1.37	*	*	6.65	*	5.01	-1.31	-0.22	*	5.23	-0.22
Tl	-1.93	*	*	*	*	*	*	3.85	0.00	-1.93	*	*	0.00
Tm	-0.01	*	-0.51	*	*	-0.01	*	*	-4.07	-0.01	*	*	1.56
U	-0.51	*	0.46	*	*	*	*	3.08	-2.82	1.28	*	41.26	-0.51
V	-6.26	-0.02	0.05	-16.05	-0.43	0.36	0.79	2.03	-11.22	-0.57	2.49	-4.32	-0.65
Y	*	*	1.20	11.96	0.92	0.03	*	1.11	-7.85	-1.20	0.09	-0.09	-0.28
Yb	-0.01	*	0.31	*	*	0.38	*	1.65	-5.58	0.19	*	*	0.19
Zn	-1.63	*	-0.46	-7.27	0.35	0.59	*	2.48	-7.37	0.04	1.69	-0.19	-0.24
Zr	*	*	-1.34	13.54	-8.36	-2.28	*	2.13	-10.06	1.52	2.44	-2.32	0.76

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

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M35	M36	M37	M38	M41	M43	M45	M46	M47	M48	M49	M50	M51
SiO2	*	*	<u>-0.32</u>	-0.78	<u>2.23</u>	<u>-0.15</u>	*	<u>0.50</u>	<u>1.12</u>	-7.36	<u>-0.08</u>	<u>0.21</u>	-0.01
TiO2	-5.17	*	<u>-0.19</u>	-1.90	<u>-0.38</u>	<u>0.06</u>	<u>-0.10</u>	<u>0.61</u>	<u>0.57</u>	4.94	<u>0.00</u>	<u>0.38</u>	1.26
Al2O3	*	<u>-16.46</u>	<u>-0.01</u>	-1.49	<u>-1.10</u>	<u>-0.07</u>	<u>0.05</u>	<u>0.66</u>	<u>-1.97</u>	1.80	<u>2.74</u>	<u>-0.03</u>	0.33
Fe2O3T	-5.85	<u>-30.16</u>	<u>0.08</u>	0.00	<u>-3.77</u>	<u>0.56</u>	<u>-1.24</u>	<u>0.24</u>	<u>-0.22</u>	14.23	<u>0.25</u>	<u>0.25</u>	-0.73
MnO	-17.64	<u>-2.15</u>	<u>0.36</u>	0.24	<u>-0.60</u>	<u>0.45</u>	<u>-0.36</u>	<u>0.36</u>	<u>-1.07</u>	5.01	<u>0.12</u>	*	0.95
MgO	*	<u>-28.56</u>	<u>0.22</u>	-0.80	<u>1.54</u>	<u>0.38</u>	<u>0.26</u>	<u>0.38</u>	<u>-0.40</u>	-3.86	<u>0.43</u>	<u>0.50</u>	-0.11
CaO	*	<u>-34.27</u>	<u>-0.79</u>	0.15	<u>-2.64</u>	<u>0.02</u>	<u>-0.28</u>	<u>-0.76</u>	<u>1.12</u>	5.11	<u>0.19</u>	<u>0.19</u>	0.15
Na2O	*	<u>6.80</u>	<u>-0.30</u>	-1.78	<u>1.04</u>	<u>0.46</u>	<u>4.37</u>	<u>-0.31</u>	<u>1.04</u>	1.48	<u>-5.34</u>	<u>-0.59</u>	0.00
K2O	*	<u>487.60</u>	<u>1.13</u>	2.25	<u>-1.13</u>	<u>1.26</u>	<u>-3.15</u>	*	<u>1.13</u>	2.25	<u>-2.25</u>	*	0.00
P2O5	*	*	<u>-2.31</u>	0.00	<u>2.31</u>	<u>-1.31</u>	<u>-3.85</u>	*	<u>3.85</u>	<u>0.00</u>	<u>0.00</u>	*	4.62
Ba	-0.98	<u>-2.20</u>	<u>-0.09</u>	1.79	<u>-0.30</u>	*	<u>0.14</u>	<u>-1.42</u>	*	1.26	<u>10.31</u>	*	0.29
Be	*	<u>-0.06</u>	<u>1.23</u>	*	<u>-0.28</u>	*	<u>-1.03</u>	*	*	-0.56	*	*	*
Bi	2.86	<u>0.73</u>	<u>2.25</u>	*	<u>0.08</u>	*	<u>0.18</u>	*	*	*	*	*	*
Cd	*	<u>2.26</u>	<u>-0.36</u>	*	<u>-0.36</u>	*	<u>-1.79</u>	*	*	*	*	*	*
Ce	0.06	<u>-0.17</u>	<u>-0.30</u>	33.97	<u>0.33</u>	*	<u>-0.25</u>	<u>-0.91</u>	*	0.00	*	*	*
Co	-13.54	<u>0.29</u>	<u>0.64</u>	1.92	<u>0.36</u>	*	<u>0.17</u>	<u>0.46</u>	*	-1.04	*	*	-3.03
Cs	-0.18	*	<u>0.07</u>	*	<u>0.27</u>	*	<u>-2.00</u>	*	*	-1.50	*	*	*
Cu	1.03	<u>1.90</u>	<u>0.58</u>	-0.93	<u>0.53</u>	*	<u>-0.05</u>	<u>0.12</u>	*	1.86	*	<u>-0.42</u>	0.16
Dy	0.54	<u>0.00</u>	<u>0.18</u>	*	<u>0.49</u>	*	<u>0.31</u>	<u>-0.37</u>	*	-1.53	*	*	*
Er	0.39	<u>-0.04</u>	<u>0.01</u>	*	<u>0.59</u>	*	<u>-0.05</u>	<u>-0.67</u>	*	-2.29	*	*	*
Eu	0.36	<u>-0.39</u>	<u>0.09</u>	*	<u>0.41</u>	*	<u>-0.02</u>	<u>-0.32</u>	*	1.02	*	*	*
Ga	-1.54	<u>0.66</u>	<u>0.17</u>	-2.22	<u>0.06</u>	*	<u>-0.58</u>	<u>0.33</u>	*	0.09	*	*	0.69
Gd	0.13	<u>-1.59</u>	<u>0.09</u>	12.81	<u>0.61</u>	*	<u>0.18</u>	<u>-1.31</u>	*	0.00	*	*	*
Ge	*	*	*	8.63	*	*	*	*	*	-0.17	*	*	*
Hf	22.73	*	<u>-0.51</u>	*	<u>-1.10</u>	*	<u>-0.25</u>	<u>-1.17</u>	*	4.83	*	*	*
Ho	-0.14	<u>-0.47</u>	<u>0.12</u>	*	<u>0.42</u>	*	<u>-0.12</u>	<u>-0.17</u>	*	-2.13	*	*	*
La	0.30	<u>-0.06</u>	<u>-0.18</u>	32.52	<u>0.28</u>	*	<u>0.28</u>	*	*	-0.23	*	*	*
Li	*	<u>4.22</u>	<u>0.88</u>	*	<u>0.23</u>	*	<u>0.10</u>	*	*	0.00	*	*	*
Lu	0.26	0.32	<u>-0.12</u>	*	<u>0.52</u>	*	<u>0.03</u>	*	*	1.68	*	*	*
Mo	2.44	*	<u>0.79</u>	*	<u>-0.03</u>	*	<u>-1.38</u>	*	*	*	*	*	*
Nb	0.90	*	<u>-0.27</u>	*	<u>0.00</u>	*	<u>-1.13</u>	*	*	11.49	*	*	7.52
Nd	0.34	0.18	<u>0.10</u>	15.76	<u>0.19</u>	*	<u>-0.03</u>	<u>-0.96</u>	*	1.16	*	*	*
Ni	0.20	<u>1.26</u>	<u>0.24</u>	7.62	<u>-1.34</u>	*	<u>-1.01</u>	<u>1.96</u>	*	0.82	*	*	-2.00
Pb	-0.49	<u>-0.35</u>	<u>-0.41</u>	0.00	<u>0.24</u>	*	<u>0.09</u>	<u>-1.43</u>	*	-1.91	*	*	3.26
Pr	0.18	0.37	<u>0.01</u>	*	<u>0.22</u>	*	<u>0.22</u>	*	*	1.05	*	*	*
Rb	13.78	<u>-0.03</u>	<u>2.19</u>	12.82	<u>-0.98</u>	*	<u>0.01</u>	<u>-0.97</u>	*	-1.55	*	*	0.04
Sb	*	*	<u>0.22</u>	*	<u>-0.15</u>	*	<u>0.26</u>	*	*	-2.24	*	*	*
Sc	-0.13	*	<u>0.33</u>	1.39	<u>0.67</u>	*	*	<u>-0.15</u>	*	1.91	*	*	0.27
Sm	-0.18	<u>-0.03</u>	<u>0.07</u>	*	<u>0.29</u>	*	<u>0.40</u>	<u>-0.60</u>	*	1.42	*	*	*
Sn	*	*	<u>-0.42</u>	*	<u>-0.80</u>	*	<u>-0.50</u>	<u>-1.51</u>	*	3.16	*	*	*
Sr	-0.63	<u>2.28</u>	<u>0.76</u>	-0.48	<u>-0.16</u>	*	<u>0.21</u>	<u>-0.08</u>	*	-4.37	<u>-0.63</u>	<u>-0.16</u>	1.67
Tb	0.08	0.23	<u>-0.13</u>	*	<u>0.38</u>	*	<u>-0.25</u>	*	*	-1.52	*	*	*
Th	1.39	2.81	<u>-0.40</u>	*	<u>0.98</u>	*	<u>-0.10</u>	*	*	2.83	*	*	*
Tl	0.39	<u>-0.58</u>	<u>-0.19</u>	*	<u>0.29</u>	*	<u>1.73</u>	*	*	*	*	*	*
Tm	0.30	0.49	<u>-0.01</u>	*	<u>0.31</u>	*	<u>0.15</u>	*	*	1.24	*	*	*
U	-0.51	<u>-0.90</u>	<u>-0.15</u>	*	<u>-0.26</u>	*	<u>-0.44</u>	*	*	1.03	*	*	*
V	-9.80	<u>3.47</u>	<u>0.20</u>	-0.05	<u>0.63</u>	*	<u>-0.64</u>	<u>-0.53</u>	*	0.50	*	*	1.20
Y	-1.11	0.60	<u>0.44</u>	-0.93	<u>0.15</u>	*	<u>0.06</u>	<u>0.64</u>	*	-1.28	*	*	1.84
Yb	-0.53	<u>-0.13</u>	<u>-0.04</u>	*	<u>0.44</u>	*	<u>0.14</u>	<u>-0.39</u>	*	1.01	*	*	*
Zn	-1.41	*	<u>-0.38</u>	-0.21	*	*	<u>0.05</u>	<u>0.86</u>	*	2.93	*	<u>0.86</u>	0.07
Zr	-8.14	*	<u>-1.14</u>	1.52	<u>-4.94</u>	*	<u>-2.08</u>	<u>-1.15</u>	*	3.07	<u>4.94</u>	*	0.00

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

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M52	M53	M54	M55	M56	M57	M58	M59	M60	M64	M65	M66	M67
SiO2	*	0.46	<u>-0.27</u>	0.69	<u>-0.86</u>	0.25	*	0.27	<u>0.37</u>	<u>0.06</u>	*	1.70	*
TiO2	*	0.38	<u>0.61</u>	-0.38	<u>0.00</u>	<u>-0.38</u>	1.14	0.76	<u>-0.34</u>	<u>0.38</u>	*	1.22	1.52
Al2O3	*	-0.26	<u>-0.06</u>	0.10	<u>1.55</u>	<u>-0.29</u>	*	1.04	<u>-0.13</u>	<u>-0.11</u>	*	2.08	*
Fe2O3T	*	0.67	<u>-0.81</u>	0.17	<u>0.81</u>	<u>0.00</u>	*	-0.33	<u>-0.89</u>	<u>0.20</u>	*	1.16	*
MnO	*	0.24	<u>-0.48</u>	-0.95	<u>-1.43</u>	<u>-0.36</u>	0.48	-4.53	<u>-0.95</u>	<u>0.24</u>	*	0.24	0.72
MgO	*	1.56	<u>-0.03</u>	-0.52	<u>1.20</u>	<u>1.13</u>	*	-1.08	<u>-0.89</u>	<u>0.15</u>	*	0.73	*
CaO	*	0.50	<u>-0.37</u>	-0.61	<u>-0.10</u>	<u>0.04</u>	*	0.09	<u>-2.26</u>	<u>-0.51</u>	*	1.14	*
Na2O	*	1.19	<u>0.00</u>	0.00	<u>2.96</u>	<u>-0.30</u>	*	-3.85	<u>1.33</u>	<u>-0.15</u>	*	522.41	*
K2O	*	2.25	<u>-3.83</u>	-2.25	<u>-1.24</u>	<u>-0.11</u>	*	0.00	<u>0.00</u>	<u>0.11</u>	*	0.00	*
P2O5	*	7.70	<u>-6.93</u>	-6.16	<u>1.54</u>	<u>2.70</u>	*	0.00	<u>-0.39</u>	<u>-1.16</u>	*	-1.54	*
Ba	*	5.37	<u>-0.00</u>	*	*	*	-1.29	5.97	*	*	5.97	-0.71	-0.93
Be	*	*	*	*	*	*	0.30	*	*	*	*	*	0.30
Bi	*	*	*	*	*	*	0.80	*	*	*	*	*	1.02
Cd	*	*	*	*	*	*	*	*	*	*	*	*	*
Ce	*	*	*	*	*	*	-0.19	*	*	*	2.37	0.12	0.00
Co	*	0.82	<u>-2.07</u>	*	*	*	1.81	17.88	*	*	*	*	2.25
Cs	*	*	*	*	*	*	-0.34	*	*	*	-0.04	0.83	-0.19
Cu	1.28	3.43	<u>-5.64</u>	*	<u>10.84</u>	*	1.74	2.88	<u>-3.60</u>	*	*	0.68	1.93
Dy	*	*	*	*	*	*	0.59	*	*	*	-0.83	1.53	0.51
Er	*	*	*	*	*	*	-0.01	*	*	*	-0.97	0.35	0.11
Eu	*	*	*	*	*	*	0.40	*	*	*	-0.02	1.43	0.40
Ga	*	1.66	<u>4.71</u>	*	*	*	0.69	0.69	<u>-0.14</u>	*	*	-0.57	0.79
Gd	*	*	*	*	*	*	0.26	*	*	*	-1.39	0.96	0.35
Ge	*	*	*	*	*	*	*	*	*	*	*	*	*
Hf	*	*	<u>1.24</u>	*	*	*	-0.44	*	*	*	-0.73	0.59	-0.44
Ho	*	*	*	*	*	*	0.24	*	*	*	-0.05	1.43	0.24
La	*	*	*	*	*	*	0.03	*	*	*	2.29	*	0.17
Li	*	*	<u>-0.54</u>	*	*	*	-0.57	*	*	*	*	*	-0.33
Lu	*	*	*	*	*	*	-0.26	*	*	*	-0.26	0.39	-0.26
Mo	*	*	*	*	*	*	0.22	<u>8.11</u>	*	*	-0.87	*	0.76
Nb	*	-1.37	*	*	*	*	0.27	28.71	<u>28.03</u>	*	5.06	-0.68	0.27
Nd	*	*	*	*	*	*	-0.24	*	*	*	-0.32	0.11	-0.16
Ni	4.87	*	<u>17.55</u>	*	*	*	-0.07	-6.12	<u>-3.06</u>	*	*	0.75	0.06
Pb	4.40	3.26	<u>-8.15</u>	*	*	*	-0.33	*	<u>-2.45</u>	*	0.65	0.36	-0.16
Pr	*	*	*	*	*	*	-0.03	*	*	*	-0.19	0.12	-0.03
Rb	*	3.24	*	*	*	*	-0.79	76.69	<u>8.01</u>	*	4.04	-0.56	-0.63
Sb	*	*	*	*	*	*	*	*	*	*	*	*	*
Sc	*	1.39	*	*	*	*	-2.09	-1.98	*	*	-1.36	0.26	-1.98
Sm	*	*	*	*	*	*	0.16	*	*	*	-0.37	*	0.16
Sn	*	*	*	*	*	*	-1.14	*	*	*	*	*	-1.22
Sr	-0.08	1.35	<u>-0.12</u>	*	<u>1.15</u>	*	1.59	-2.30	<u>-0.99</u>	*	0.40	1.06	1.75
Tb	*	*	*	*	*	*	0.38	*	*	*	0.00	1.52	0.38
Th	*	*	*	*	*	*	0.00	32.25	*	*	-1.31	0.44	0.00
Tl	*	*	*	*	*	*	4.62	*	*	*	*	*	4.62
Tm	*	*	*	*	*	*	-0.01	*	*	*	-0.01	0.61	-0.01
U	*	*	*	*	*	*	0.00	41.51	<u>72.01</u>	*	-1.54	0.00	0.00
V	0.66	-0.87	*	*	<u>1.04</u>	*	1.20	1.86	<u>-0.57</u>	*	*	-1.28	1.31
Y	*	0.92	<u>-0.46</u>	*	*	*	0.59	6.46	<u>-1.39</u>	*	6.09	0.70	0.68
Yb	*	*	*	*	*	*	-0.14	*	*	*	-0.78	-0.01	-0.14
Zn	8.73	1.47	<u>-1.50</u>	*	<u>1.71</u>	*	0.16	1.19	<u>-0.24</u>	*	*	0.18	0.27
Zr	*	1.52	<u>1.14</u>	*	*	*	-1.60	15.21	<u>11.79</u>	*	-2.97	0.74	-1.37

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

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M68	M69	M70	M71	M72	M73	M74	M75	M76	M77	M79	M80	M81
SiO2	<u>-1.22</u>	<u>-0.91</u>	<u>-0.26</u>	1.32	<u>0.16</u>	<u>0.42</u>	<u>0.04</u>	0.05	-4.25	-2.17	-22.65	<u>-0.19</u>	<u>-0.04</u>
TiO2	<u>-0.23</u>	<u>-1.08</u>	<u>-1.14</u>	0.38	<u>0.17</u>	<u>-0.19</u>	<u>1.41</u>	-1.41	-3.80	-1.52	-1.52	<u>0.57</u>	<u>0.19</u>
Al2O3	<u>-1.34</u>	<u>-0.76</u>	<u>-0.80</u>	1.36	<u>0.19</u>	<u>0.56</u>	<u>-0.19</u>	1.52	-10.74	-1.09	-17.31	<u>-0.15</u>	<u>0.27</u>
Fe2O3T	<u>0.47</u>	<u>0.32</u>	<u>-1.45</u>	0.22	<u>-0.11</u>	<u>-0.42</u>	<u>0.59</u>	0.17	-6.20	-0.56	-2.85	<u>0.47</u>	<u>0.22</u>
MnO	<u>-0.36</u>	<u>0.60</u>	<u>-1.19</u>	0.24	<u>-1.19</u>	<u>-1.07</u>	<u>-0.36</u>	-0.95	-4.72	0.24	-2.15	<u>-0.48</u>	<u>0.12</u>
MgO	<u>-0.19</u>	<u>-0.46</u>	<u>-0.54</u>	0.59	<u>-0.58</u>	<u>0.50</u>	<u>0.72</u>	0.49	-3.02	-1.08	-13.16	<u>-0.26</u>	<u>-0.19</u>
CaO	<u>0.45</u>	<u>1.21</u>	<u>0.57</u>	3.12	<u>0.16</u>	<u>0.31</u>	<u>1.21</u>	1.49	-2.54	-1.25	2.19	<u>-0.01</u>	<u>0.16</u>
Na2O	<u>0.00</u>	<u>-0.04</u>	<u>-0.30</u>	1.19	<u>-0.73</u>	<u>-1.63</u>	<u>-2.52</u>	0.39	-22.24	-0.89	-20.16	<u>-1.78</u>	<u>0.30</u>
K2O	<u>0.00</u>	<u>2.14</u>	<u>0.00</u>	0.00	<u>-1.80</u>	<u>1.13</u>	<u>1.99</u>	-2.25	-2.25	-4.51	-6.76	*	<u>0.00</u>
P2O5	<u>-3.85</u>	<u>0.77</u>	<u>-1.16</u>	7.70	<u>-3.47</u>	<u>0.00</u>	<u>11.17</u>	1.54	0.00	-7.70	-23.10	*	<u>0.00</u>
Ba	<u>-0.60</u>	<u>2.14</u>	*	0.01	*	<u>0.29</u>	<u>5.08</u>	0.01	-1.08	1.19	*	<u>-0.15</u>	<u>-0.26</u>
Be	*	*	*	-8.36	*	*	<u>8.71</u>	1.90	*	*	*	*	<u>1.23</u>
Bi	*	*	*	-0.50	*	*	<u>-0.85</u>	*	*	*	*	*	<u>2.25</u>
Cd	*	<u>7.96</u>	*	12.04	*	*	<u>-0.75</u>	-0.07	191.54	*	*	*	<u>0.07</u>
Ce	*	<u>-0.20</u>	*	0.84	*	*	<u>-1.00</u>	1.03	*	15.24	*	*	<u>0.14</u>
Co	<u>0.14</u>	<u>2.65</u>	*	1.74	*	<u>-0.69</u>	<u>-0.11</u>	0.75	-11.67	-2.48	13.70	*	<u>0.35</u>
Cs	*	*	*	-0.04	*	*	<u>0.06</u>	0.00	*	*	*	*	<u>1.58</u>
Cu	<u>-0.19</u>	<u>0.00</u>	*	-1.80	*	<u>-5.23</u>	<u>-3.05</u>	-0.93	-0.06	-6.65	13.24	<u>0.49</u>	<u>-0.11</u>
Dy	*	<u>0.57</u>	*	0.17	*	*	<u>-0.37</u>	0.25	*	8.95	*	*	<u>0.06</u>
Er	*	<u>0.59</u>	*	0.27	*	*	<u>-0.50</u>	-0.17	*	11.68	*	*	<u>0.23</u>
Eu	*	<u>0.09</u>	*	-0.89	*	*	<u>-1.16</u>	-0.14	*	4.66	*	*	<u>0.09</u>
Ga	*	<u>0.60</u>	*	0.91	*	<u>7.62</u>	<u>-0.31</u>	0.60	-1.63	-0.28	*	*	<u>0.35</u>
Gd	*	<u>-0.35</u>	*	0.18	*	*	<u>-1.08</u>	0.83	*	10.76	*	*	<u>0.22</u>
Ge	*	*	*	0.00	*	*	<u>1.01</u>	*	*	*	*	*	<u>0.56</u>
Hf	*	*	*	-0.06	*	*	<u>1.20</u>	0.16	*	17.14	*	*	*
Ho	*	<u>0.42</u>	*	-0.17	*	*	<u>-0.57</u>	0.57	*	9.46	*	*	<u>0.12</u>
La	*	<u>-0.38</u>	*	-0.21	*	*	<u>-0.23</u>	-0.76	*	12.59	*	*	<u>0.05</u>
Li	*	<u>2.19</u>	*	*	*	*	<u>2.60</u>	0.23	*	*	28.55	<u>-0.54</u>	<u>1.52</u>
Lu	*	<u>-0.78</u>	*	-1.75	*	*	<u>-0.97</u>	0.45	*	*	*	*	<u>0.84</u>
Mo	*	<u>6.21</u>	*	2.79	*	*	<u>11.02</u>	*	*	*	*	*	*
Nb	*	<u>30.49</u>	*	-2.35	*	<u>48.54</u>	<u>-0.10</u>	-5.33	*	1040.53	*	*	<u>1.37</u>
Nd	*	<u>-0.12</u>	*	0.02	*	*	<u>-1.25</u>	0.31	*	23.54	*	*	<u>-0.22</u>
Ni	*	<u>-2.68</u>	*	7.35	*	<u>-5.81</u>	<u>1.36</u>	0.48	0.06	-4.75	31.53	*	<u>-0.93</u>
Pb	*	<u>-2.96</u>	*	0.38	*	<u>-1.63</u>	<u>-0.93</u>	-0.44	2.94	-1.63	68.65	*	<u>-0.60</u>
Pr	*	<u>-0.09</u>	*	0.01	*	*	<u>-0.57</u>	5.47	*	*	*	*	<u>0.22</u>
Rb	*	<u>-1.35</u>	*	-0.67	*	<u>3.22</u>	<u>-0.18</u>	-0.59	1.00	0.04	*	*	<u>0.57</u>
Sb	*	<u>14.22</u>	*	1.08	*	*	<u>-2.33</u>	0.79	16.99	26.82	*	*	<u>-0.04</u>
Sc	*	<u>-1.09</u>	*	2.12	*	*	<u>-2.12</u>	-0.32	*	1.95	*	<u>0.41</u>	<u>-0.63</u>
Sm	*	<u>0.13</u>	*	-1.78	*	*	<u>-1.02</u>	0.26	*	4.08	*	*	<u>-0.08</u>
Sn	*	*	*	1.40	*	*	<u>3.23</u>	*	16.53	1.43	*	*	<u>0.34</u>
Sr	*	<u>-0.59</u>	*	0.40	*	<u>-0.56</u>	<u>-1.26</u>	1.31	-2.35	-2.62	19.37	<u>-0.40</u>	<u>-0.20</u>
Tb	*	<u>0.00</u>	*	-0.42	*	*	<u>-1.01</u>	0.04	*	13.88	*	*	<u>0.19</u>
Th	*	<u>-3.16</u>	*	-3.16	*	*	<u>0.04</u>	0.09	25.71	141.20	*	*	<u>1.09</u>
Tl	*	*	*	*	*	*	<u>-0.77</u>	*	*	*	*	*	*
Tm	*	<u>0.31</u>	*	*	*	*	<u>-0.69</u>	*	*	*	*	*	<u>0.31</u>
U	*	<u>-0.26</u>	*	-2.05	*	*	<u>-0.67</u>	0.92	*	*	*	*	<u>0.51</u>
V	<u>0.17</u>	<u>-1.22</u>	*	-0.38	*	<u>-3.51</u>	<u>0.79</u>	1.44	-5.04	-4.57	24.48	*	<u>0.06</u>
Y	<u>-0.46</u>	<u>0.64</u>	*	0.65	*	<u>6.00</u>	<u>-0.96</u>	-0.89	1.11	-8.31	*	<u>-1.39</u>	<u>0.22</u>
Yb	*	<u>0.57</u>	*	0.83	*	*	<u>-1.09</u>	0.01	*	0.19	*	*	<u>-0.20</u>
Zn	<u>0.87</u>	<u>0.13</u>	*	0.65	*	<u>-1.92</u>	<u>-1.26</u>	2.33	-2.75	-5.24	5.38	<u>0.04</u>	<u>-0.66</u>
Zr	<u>-2.66</u>	<u>7.57</u>	*	-0.18	*	<u>13.69</u>	<u>4.60</u>	6.24	-2.74	-1.52	*	<u>-0.76</u>	<u>2.41</u>

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

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M84	M85	M86	M87	M88	M89	M90	M91	M92	M93	M95	M96	M97
SiO2	*	<u>-0.47</u>	<u>-0.55</u>	<u>0.12</u>	<u>-0.00</u>	<u>0.79</u>	<u>-0.09</u>	<u>0.11</u>	<u>-0.40</u>	*	<u>0.04</u>	*	<u>-1.15</u>
TiO2	*	<u>0.00</u>	<u>-1.52</u>	<u>0.19</u>	<u>-1.90</u>	<u>0.57</u>	<u>0.57</u>	<u>0.02</u>	<u>0.00</u>	*	<u>-0.21</u>	<u>1.33</u>	<u>-0.76</u>
Al2O3	*	<u>-0.23</u>	<u>3.10</u>	<u>0.03</u>	<u>-0.01</u>	<u>0.96</u>	<u>-0.15</u>	<u>0.22</u>	<u>0.37</u>	*	<u>0.45</u>	<u>-0.37</u>	<u>-1.17</u>
Fe2O3T	*	<u>-0.31</u>	<u>0.61</u>	<u>-0.42</u>	<u>-0.47</u>	<u>0.53</u>	<u>0.56</u>	<u>-0.18</u>	<u>-0.33</u>	*	<u>0.18</u>	<u>-1.79</u>	<u>-5.58</u>
MnO	*	<u>0.12</u>	<u>2.15</u>	<u>-1.07</u>	<u>1.31</u>	<u>1.31</u>	<u>0.83</u>	<u>-0.24</u>	<u>0.64</u>	*	<u>-1.43</u>	<u>-2.27</u>	<u>0.24</u>
MgO	*	<u>-0.33</u>	<u>-0.25</u>	<u>-0.54</u>	<u>0.02</u>	<u>1.13</u>	<u>0.09</u>	<u>0.81</u>	<u>0.45</u>	*	<u>0.41</u>	<u>1.47</u>	<u>-1.36</u>
CaO	*	<u>-0.39</u>	<u>-1.20</u>	<u>-0.28</u>	<u>0.36</u>	<u>0.19</u>	<u>-0.22</u>	<u>0.20</u>	<u>-0.20</u>	*	<u>0.15</u>	<u>-0.19</u>	<u>-5.34</u>
Na2O	*	<u>0.00</u>	<u>-5.34</u>	<u>0.59</u>	<u>0.00</u>	<u>-0.15</u>	<u>-1.33</u>	<u>0.93</u>	<u>1.48</u>	*	<u>-0.19</u>	<u>-2.37</u>	<u>-4.74</u>
K2O	*	<u>1.24</u>	<u>-2.25</u>	<u>-1.13</u>	<u>0.00</u>	<u>-1.13</u>	<u>-0.90</u>	<u>1.69</u>	<u>0.00</u>	*	<u>0.45</u>	*	<u>-11.26</u>
P2O5	*	<u>-0.77</u>	<u>15.40</u>	<u>-3.85</u>	<u>0.00</u>	<u>-3.85</u>	<u>-2.31</u>	<u>0.00</u>	*	*	<u>19.25</u>	*	*
Ba	-23.62	<u>4.03</u>	<u>-0.79</u>	<u>-0.60</u>	<u>-0.29</u>	<u>-0.12</u>	<u>-1.39</u>	<u>0.44</u>	<u>-4.26</u>	*	<u>0.74</u>	<u>-0.15</u>	<u>-0.04</u>
Be	*	*	<u>23.14</u>	*	<u>0.15</u>	*	*	*	*	*	*	*	<u>-0.13</u>
Bi	<u>-0.13</u>	*	*	*	*	*	*	*	*	*	*	<u>1.16</u>	<u>82.52</u>
Cd	*	*	<u>2.29</u>	*	*	*	*	*	<u>0.22</u>	<u>-0.57</u>	*	*	<u>60.36</u>
Ce	<u>-0.31</u>	*	<u>5.78</u>	*	<u>-0.33</u>	<u>0.12</u>	<u>-3.15</u>	*	<u>-2.53</u>	<u>0.03</u>	<u>2.93</u>	<u>0.17</u>	<u>-1.09</u>
Co	<u>1.54</u>	<u>-0.63</u>	<u>0.05</u>	<u>0.14</u>	<u>-0.08</u>	<u>-0.25</u>	<u>0.08</u>	<u>-0.14</u>	<u>0.09</u>	*	*	<u>-0.22</u>	<u>1.02</u>
Cs	<u>-0.23</u>	*	*	*	<u>0.12</u>	<u>0.78</u>	<u>7.06</u>	*	<u>-2.13</u>	<u>0.25</u>	*	<u>-0.75</u>	*
Cu	<u>0.49</u>	<u>-0.79</u>	<u>2.61</u>	<u>-1.28</u>	<u>-0.19</u>	<u>0.63</u>	<u>0.63</u>	<u>-0.19</u>	<u>-1.02</u>	*	<u>1.44</u>	<u>-4.82</u>	<u>-0.98</u>
Dy	<u>-0.38</u>	*	<u>-9.24</u>	*	<u>-0.06</u>	<u>0.02</u>	*	*	<u>-1.68</u>	<u>0.12</u>	*	<u>0.18</u>	<u>-0.75</u>
Er	<u>-0.60</u>	*	<u>0.83</u>	*	<u>-0.13</u>	<u>-0.07</u>	*	*	<u>-2.17</u>	<u>0.23</u>	*	<u>0.11</u>	<u>0.47</u>
Eu	<u>-2.34</u>	*	<u>-0.23</u>	*	<u>-0.01</u>	<u>0.41</u>	*	*	<u>-0.89</u>	*	*	<u>0.09</u>	<u>-0.64</u>
Ga	*	<u>-1.40</u>	*	<u>2.29</u>	<u>0.06</u>	<u>-0.57</u>	<u>0.25</u>	*	<u>-0.10</u>	*	<u>0.83</u>	*	<u>0.10</u>
Gd	<u>-0.47</u>	*	<u>-0.26</u>	*	<u>-0.22</u>	<u>0.74</u>	*	*	<u>-1.94</u>	<u>0.44</u>	*	<u>0.04</u>	<u>0.00</u>
Ge	*	*	*	*	<u>-0.41</u>	*	*	*	<u>-1.88</u>	<u>0.47</u>	*	*	*
Hf	<u>-3.65</u>	*	*	*	<u>0.00</u>	<u>-0.22</u>	*	*	<u>-1.42</u>	*	*	<u>1.61</u>	*
Ho	<u>-0.41</u>	*	<u>-0.35</u>	*	<u>-0.03</u>	<u>0.27</u>	*	*	<u>-0.88</u>	<u>-0.05</u>	*	<u>0.12</u>	<u>-0.05</u>
La	<u>-0.53</u>	*	<u>18.83</u>	*	<u>-0.25</u>	<u>21.24</u>	*	*	<u>-2.43</u>	<u>-0.03</u>	*	<u>0.55</u>	<u>-1.03</u>
Li	*	*	<u>6.13</u>	*	<u>0.68</u>	*	<u>5.90</u>	*	<u>-0.05</u>	*	*	*	<u>-2.86</u>
Lu	<u>-0.65</u>	*	<u>2.98</u>	*	<u>-0.13</u>	<u>0.19</u>	*	*	<u>-1.04</u>	<u>-0.26</u>	*	<u>0.19</u>	<u>-0.26</u>
Mo	<u>-0.35</u>	*	*	*	*	*	*	*	*	*	*	<u>12.72</u>	*
Nb	<u>-0.60</u>	<u>17.78</u>	*	*	<u>0.07</u>	<u>0.68</u>	*	<u>41.70</u>	<u>-3.10</u>	<u>-1.50</u>	<u>7.52</u>	<u>-0.34</u>	*
Nd	<u>-0.63</u>	*	<u>1.59</u>	*	<u>-0.29</u>	<u>0.48</u>	<u>0.10</u>	*	<u>-1.89</u>	*	*	<u>-0.45</u>	<u>-1.29</u>
Ni	<u>-0.91</u>	<u>-1.34</u>	<u>9.68</u>	<u>-1.69</u>	<u>0.03</u>	<u>3.12</u>	<u>-2.03</u>	<u>-3.06</u>	<u>3.46</u>	*	<u>-2.37</u>	<u>3.54</u>	<u>-0.21</u>
Pb	<u>-1.24</u>	<u>-0.73</u>	<u>-7.66</u>	*	<u>0.08</u>	<u>0.00</u>	<u>3.10</u>	<u>1.63</u>	<u>-2.52</u>	*	<u>3.26</u>	<u>2.15</u>	<u>-1.06</u>
Pr	<u>-0.48</u>	*	<u>3.36</u>	*	<u>-0.17</u>	<u>0.91</u>	*	*	<u>-1.30</u>	<u>-0.03</u>	*	<u>0.22</u>	<u>-0.65</u>
Rb	<u>-0.30</u>	*	<u>-14.87</u>	*	<u>0.17</u>	<u>-0.62</u>	<u>9.60</u>	<u>0.02</u>	<u>-0.69</u>	<u>-0.50</u>	<u>1.62</u>	<u>-0.81</u>	<u>0.34</u>
Sb	<u>1.50</u>	*	*	*	*	*	<u>-0.86</u>	*	<u>-1.14</u>	<u>1.95</u>	*	<u>5.13</u>	<u>1.87</u>
Sc	<u>-1.30</u>	<u>-0.93</u>	<u>0.89</u>	<u>-0.99</u>	<u>-0.74</u>	*	<u>0.41</u>	*	<u>1.04</u>	*	<u>0.41</u>	<u>1.06</u>	<u>-0.60</u>
Sm	<u>-0.09</u>	*	<u>2.47</u>	*	<u>-0.08</u>	<u>0.29</u>	*	*	<u>-1.07</u>	<u>0.05</u>	*	<u>0.92</u>	<u>-0.37</u>
Sn	<u>-3.43</u>	*	*	*	*	<u>0.71</u>	<u>0.34</u>	*	<u>0.09</u>	<u>-0.23</u>	*	<u>1.17</u>	*
Sr	<u>1.09</u>	<u>-1.55</u>	<u>-0.56</u>	<u>-1.39</u>	<u>0.64</u>	<u>-1.51</u>	<u>-0.28</u>	<u>-0.71</u>	<u>-1.67</u>	*	<u>1.07</u>	<u>-0.48</u>	<u>-0.32</u>
Tb	<u>0.08</u>	*	<u>-1.33</u>	*	<u>-0.19</u>	<u>0.38</u>	*	*	<u>-1.94</u>	<u>0.00</u>	*	<u>-0.38</u>	<u>-0.38</u>
Th	<u>-2.00</u>	*	*	*	<u>-0.11</u>	<u>-0.11</u>	*	*	<u>-2.94</u>	<u>-0.44</u>	<u>16.12</u>	<u>0.00</u>	<u>1.96</u>
Tl	<u>-0.23</u>	*	*	*	*	*	*	*	*	<u>26.96</u>	*	*	*
Tm	<u>-0.51</u>	*	<u>-2.20</u>	*	<u>-0.01</u>	<u>-0.01</u>	*	*	<u>-1.70</u>	<u>18.76</u>	*	<u>-0.32</u>	<u>-0.64</u>
U	<u>-1.59</u>	*	*	*	<u>0.26</u>	<u>0.26</u>	*	*	<u>-0.72</u>	<u>-0.51</u>	*	<u>-0.51</u>	<u>1.54</u>
V	<u>0.62</u>	<u>-2.64</u>	<u>2.13</u>	<u>-0.62</u>	<u>0.17</u>	<u>-1.66</u>	<u>0.60</u>	<u>-1.33</u>	<u>-0.96</u>	*	<u>-1.09</u>	<u>0.44</u>	<u>5.13</u>
Y	<u>-1.19</u>	<u>2.49</u>	<u>6.20</u>	*	<u>0.46</u>	<u>-0.83</u>	<u>1.38</u>	<u>2.31</u>	<u>-0.97</u>	<u>-0.87</u>	<u>-0.46</u>	<u>-0.23</u>	<u>-1.57</u>
Yb	<u>-0.44</u>	*	<u>2.42</u>	*	<u>-0.07</u>	<u>-0.13</u>	*	*	<u>-1.85</u>	<u>0.12</u>	*	<u>1.02</u>	<u>0.63</u>
Zn	<u>0.33</u>	<u>-1.10</u>	<u>-0.93</u>	<u>-1.64</u>	<u>-0.56</u>	<u>2.27</u>	<u>-0.10</u>	<u>0.73</u>	<u>1.09</u>	*	<u>0.04</u>	<u>-0.20</u>	<u>0.22</u>
Zr	<u>-9.45</u>	<u>-0.49</u>	<u>53.99</u>	*	<u>0.91</u>	<u>1.14</u>	<u>-1.52</u>	<u>-4.56</u>	<u>-2.29</u>	*	<u>1.14</u>	<u>1.18</u>	<u>-2.36</u>

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

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

Lab Code	M98	M99	M100	M101	M102	M103	M104	M105	M106	M107	M108	M109	M110
SiO2	<u>-0.28</u>	<u>-11.92</u>	<u>-1.28</u>	<u>-0.43</u>	*	<u>-1.04</u>	*	<u>0.89</u>	*	<u>-0.47</u>	<u>-0.18</u>	<u>1.23</u>	*
TiO2	<u>0.00</u>	<u>-1.98</u>	<u>-1.62</u>	<u>-0.38</u>	<u>1.45</u>	<u>-1.10</u>	<u>2.66</u>	<u>0.76</u>	<u>-2.05</u>	<u>0.68</u>	<u>-0.19</u>	<u>-0.57</u>	*
Al2O3	<u>-0.23</u>	<u>-15.20</u>	<u>0.49</u>	<u>-0.62</u>	<u>1.59</u>	<u>-0.02</u>	*	<u>-1.45</u>	*	<u>-0.22</u>	<u>0.36</u>	<u>0.96</u>	*
Fe2O3T	<u>0.47</u>	<u>-4.94</u>	<u>-1.29</u>	<u>0.28</u>	<u>0.24</u>	<u>-0.28</u>	<u>-1.17</u>	<u>0.56</u>	*	<u>0.45</u>	<u>-0.42</u>	<u>-3.66</u>	*
MnO	<u>0.12</u>	<u>-4.65</u>	<u>1.19</u>	<u>0.24</u>	<u>0.88</u>	<u>-1.76</u>	<u>0.24</u>	<u>0.24</u>	<u>-2.15</u>	<u>-0.48</u>	<u>0.12</u>	<u>-2.27</u>	*
MgO	<u>0.36</u>	*	<u>3.18</u>	<u>0.31</u>	<u>-2.41</u>	<u>2.85</u>	*	<u>2.11</u>	*	<u>0.73</u>	<u>-0.96</u>	<u>0.99</u>	*
CaO	<u>-0.39</u>	<u>18.57</u>	<u>-0.84</u>	<u>0.03</u>	<u>1.16</u>	<u>-0.19</u>	*	<u>0.15</u>	*	<u>-0.32</u>	<u>0.48</u>	<u>-1.04</u>	*
Na2O	<u>0.15</u>	*	<u>-0.39</u>	<u>0.59</u>	<u>0.71</u>	<u>2.70</u>	*	<u>0.59</u>	*	<u>0.30</u>	<u>0.74</u>	<u>1.78</u>	*
K2O	<u>0.00</u>	<u>9.57</u>	<u>0.90</u>	<u>-2.25</u>	<u>-1.46</u>	<u>4.51</u>	*	<u>2.25</u>	*	<u>2.25</u>	<u>0.00</u>	<u>-1.91</u>	*
P2O5	<u>0.00</u>	*	<u>1.54</u>	<u>0.00</u>	*	<u>2.70</u>	<u>-1.54</u>	<u>0.00</u>	*	<u>-0.77</u>	<u>0.00</u>	<u>-0.77</u>	*
Ba	<u>-0.23</u>	<u>-2.65</u>	*	<u>0.89</u>	*	*	<u>-0.04</u>	<u>1.73</u>	<u>-0.11</u>	<u>9.26</u>	<u>0.44</u>	<u>-0.45</u>	<u>-1.53</u>
Be	*	*	*	*	*	*	<u>-1.42</u>	<u>2.46</u>	*	*	<u>0.15</u>	*	*
Bi	*	*	*	*	*	*	*	<u>-0.50</u>	*	*	*	*	*
Cd	*	<u>59.93</u>	*	*	*	<u>4.37</u>	<u>1.58</u>	<u>-0.57</u>	*	*	*	*	*
Ce	<u>-0.34</u>	<u>-2.53</u>	*	*	<u>-3.68</u>	<u>0.72</u>	<u>-0.28</u>	<u>0.34</u>	<u>-0.53</u>	*	<u>-0.31</u>	<u>0.19</u>	<u>-5.68</u>
Co	*	*	*	<u>-1.93</u>	<u>-0.05</u>	<u>-1.51</u>	<u>0.71</u>	<u>-0.33</u>	<u>0.18</u>	<u>-0.28</u>	<u>-0.28</u>	<u>-0.85</u>	<u>1.32</u>
Cs	<u>-0.31</u>	<u>20.20</u>	*	*	<u>-0.04</u>	*	<u>0.69</u>	<u>0.69</u>	<u>-0.12</u>	*	<u>-0.17</u>	*	<u>-1.94</u>
Cu	*	<u>0.08</u>	*	<u>3.43</u>	*	<u>-1.70</u>	<u>0.38</u>	<u>1.36</u>	<u>-0.30</u>	<u>-2.02</u>	<u>-0.33</u>	<u>-0.14</u>	*
Dy	<u>0.02</u>	*	*	*	<u>2.01</u>	<u>-0.20</u>	<u>-0.59</u>	<u>-0.12</u>	<u>-0.13</u>	*	<u>-1.14</u>	<u>0.45</u>	<u>-1.93</u>
Er	<u>0.83</u>	*	*	*	*	<u>-0.13</u>	<u>-0.49</u>	<u>-0.13</u>	<u>-0.44</u>	*	<u>-0.85</u>	<u>0.41</u>	<u>-1.57</u>
Eu	<u>-0.01</u>	*	*	*	<u>-0.04</u>	<u>-1.99</u>	<u>-0.23</u>	<u>0.81</u>	<u>-0.41</u>	*	<u>-0.85</u>	<u>0.30</u>	<u>-1.26</u>
Ga	<u>-0.24</u>	<u>-2.32</u>	*	<u>-4.15</u>	<u>-0.66</u>	<u>1.27</u>	<u>0.31</u>	<u>0.98</u>	<u>-0.08</u>	<u>-0.28</u>	<u>-0.86</u>	*	*
Gd	<u>0.30</u>	*	*	*	*	<u>-0.70</u>	<u>-0.44</u>	<u>-0.44</u>	<u>-0.59</u>	*	<u>-0.35</u>	<u>0.26</u>	<u>-2.53</u>
Ge	*	*	*	*	*	<u>29.02</u>	*	<u>-1.89</u>	*	*	*	*	*
Hf	<u>0.51</u>	*	*	*	<u>1.22</u>	*	<u>-0.88</u>	<u>-9.23</u>	<u>2.05</u>	*	<u>2.78</u>	<u>9.74</u>	<u>-1.17</u>
Ho	<u>0.57</u>	*	*	*	*	<u>0.54</u>	<u>-0.35</u>	<u>0.24</u>	<u>0.13</u>	*	<u>-0.35</u>	<u>0.12</u>	<u>-0.05</u>
La	<u>-0.02</u>	<u>6.29</u>	*	*	<u>-0.83</u>	<u>-0.70</u>	<u>-0.70</u>	<u>0.17</u>	<u>-0.14</u>	<u>19.23</u>	<u>-0.23</u>	<u>0.28</u>	*
Li	*	*	*	*	*	*	<u>-1.13</u>	<u>-8.89</u>	*	*	<u>1.03</u>	<u>5.44</u>	*
Lu	<u>-0.45</u>	*	*	*	<u>1.36</u>	<u>1.04</u>	<u>0.39</u>	<u>0.39</u>	<u>-0.33</u>	*	<u>-0.26</u>	<u>-0.13</u>	<u>1.04</u>
Mo	*	*	*	*	*	*	<u>-0.87</u>	<u>20.82</u>	*	*	*	*	*
Nb	*	*	*	*	*	*	<u>2.73</u>	<u>3.01</u>	<u>2.01</u>	*	<u>1.03</u>	<u>-0.34</u>	<u>5.47</u>
Nd	<u>0.10</u>	<u>-3.41</u>	*	*	*	<u>-0.20</u>	<u>-0.28</u>	<u>-0.16</u>	<u>-0.20</u>	<u>19.65</u>	<u>-1.17</u>	<u>-0.00</u>	<u>-4.09</u>
Ni	*	*	*	<u>7.62</u>	*	<u>0.00</u>	<u>-5.56</u>	<u>18.34</u>	<u>1.78</u>	<u>-3.37</u>	<u>1.89</u>	<u>-1.49</u>	<u>-0.35</u>
Pb	*	<u>1.22</u>	*	<u>1.63</u>	*	<u>1.48</u>	<u>0.00</u>	<u>-0.29</u>	<u>0.54</u>	<u>1.63</u>	<u>-0.33</u>	*	*
Pr	<u>-0.09</u>	*	*	*	*	<u>-0.26</u>	<u>-0.34</u>	<u>0.28</u>	<u>0.08</u>	*	<u>-0.49</u>	<u>-0.09</u>	<u>-2.81</u>
Rb	<u>-0.30</u>	*	*	<u>0.04</u>	*	<u>-0.06</u>	<u>-0.34</u>	<u>0.30</u>	<u>-0.56</u>	<u>3.24</u>	<u>-0.30</u>	<u>-0.63</u>	<u>-1.87</u>
Sb	*	*	*	*	<u>-1.72</u>	*	*	<u>-3.82</u>	*	*	*	*	*
Sc	*	*	*	<u>2.52</u>	<u>0.13</u>	*	<u>0.94</u>	*	<u>0.15</u>	<u>2.52</u>	<u>0.36</u>	<u>0.21</u>	*
Sm	<u>-0.03</u>	*	*	*	<u>-0.62</u>	<u>0.05</u>	<u>-0.58</u>	<u>0.16</u>	<u>-0.27</u>	*	<u>-0.47</u>	<u>-0.03</u>	<u>-0.47</u>
Sn	<u>0.71</u>	*	*	*	*	*	*	<u>-0.46</u>	*	*	*	*	*
Sr	<u>0.91</u>	<u>-0.20</u>	*	<u>0.16</u>	<u>9.84</u>	<u>0.74</u>	<u>0.40</u>	<u>2.30</u>	<u>-0.18</u>	<u>1.11</u>	<u>-0.36</u>	<u>0.24</u>	<u>2.22</u>
Tb	<u>0.00</u>	*	*	*	*	<u>0.00</u>	<u>-0.38</u>	<u>0.38</u>	<u>-0.34</u>	*	<u>-0.38</u>	<u>0.00</u>	<u>-1.90</u>
Th	<u>0.22</u>	*	*	*	<u>-1.53</u>	*	<u>-1.09</u>	<u>0.22</u>	<u>-0.35</u>	*	<u>0.00</u>	<u>-0.11</u>	<u>-1.96</u>
Tl	*	*	*	*	*	*	<u>-3.85</u>	<u>-6.55</u>	*	*	<u>3.27</u>	*	*
Tm	<u>0.31</u>	*	*	*	*	<u>-0.01</u>	<u>56.31</u>	<u>-0.01</u>	<u>0.05</u>	*	<u>-0.64</u>	<u>-0.32</u>	<u>-1.26</u>
U	<u>0.00</u>	*	*	*	*	<u>5.38</u>	<u>1.03</u>	<u>2.56</u>	<u>-1.08</u>	*	<u>0.77</u>	<u>-0.51</u>	<u>0.00</u>
V	<u>2.29</u>	<u>5.07</u>	*	<u>0.39</u>	<u>2.24</u>	<u>-5.42</u>	<u>0.17</u>	<u>-0.05</u>	<u>-0.56</u>	<u>1.31</u>	<u>-0.30</u>	<u>-0.30</u>	<u>-0.59</u>
Y	<u>-0.56</u>	<u>-0.09</u>	*	<u>-0.93</u>	*	<u>-0.83</u>	<u>-0.89</u>	<u>1.11</u>	<u>0.48</u>	<u>-0.93</u>	<u>-0.60</u>	<u>-0.15</u>	<u>-2.59</u>
Yb	<u>-0.78</u>	*	*	*	<u>-1.40</u>	<u>0.63</u>	<u>-0.01</u>	<u>0.24</u>	<u>-0.35</u>	<u>13.19</u>	<u>-0.39</u>	<u>0.12</u>	<u>-1.29</u>
Zn	*	<u>0.12</u>	*	<u>0.07</u>	*	<u>3.56</u>	<u>-2.08</u>	<u>-1.19</u>	<u>-1.45</u>	<u>0.91</u>	<u>2.27</u>	<u>-0.60</u>	*
Zr	<u>1.52</u>	<u>1.44</u>	*	<u>6.84</u>	*	<u>-3.06</u>	<u>-0.30</u>	<u>3.12</u>	<u>7.59</u>	<u>1.52</u>	<u>4.56</u>	<u>1.43</u>	<u>-2.89</u>

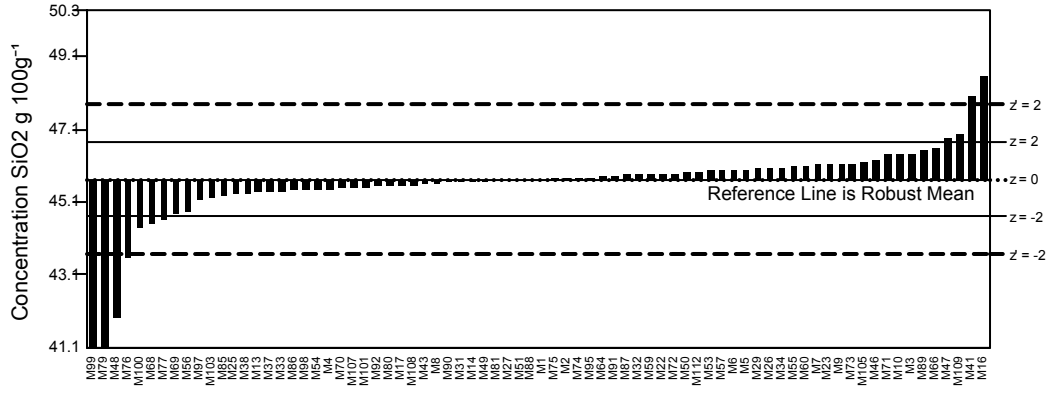
Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - Entries in italics are derived from Provisional Values.

Table 3 - GeoPT36 Z-scores for Gabbro, GSM-1. 12/12/2014

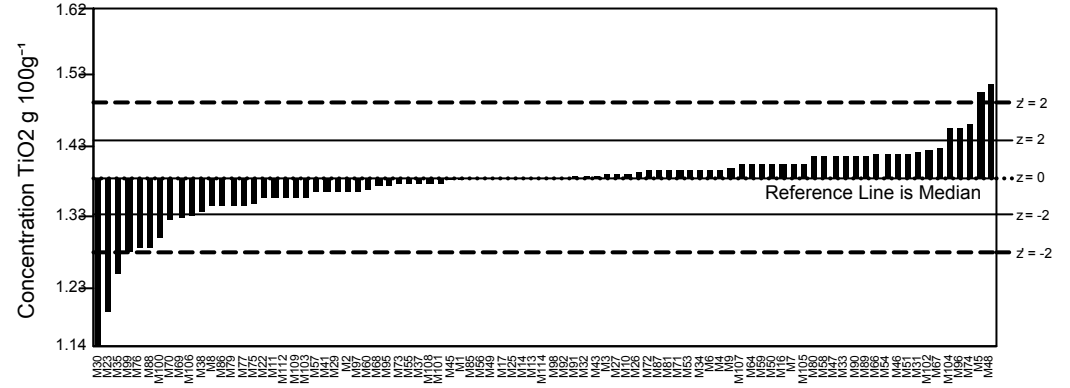
Lab Code	M112	M114
SiO2	<u>0.21</u>	*
TiO2	<u>-0.57</u>	0.00
Al2O3	<u>0.56</u>	*
Fe2O3T	<u>0.39</u>	*
MnO	<u>-1.07</u>	0.24
MgO	<u>-0.33</u>	*
CaO	<u>0.19</u>	*
Na2O	<u>-0.15</u>	*
K2O	<u>-1.13</u>	*
P2O5	<u>0.00</u>	*
Ba	*	-0.88
Be	*	-0.13
Bi	*	*
Cd	*	*
Ce	*	-0.75
Co	*	0.49
Cs	*	-0.19
Cu	*	-0.47
Dy	*	-0.12
Er	*	-0.25
Eu	*	-0.23
Ga	*	0.31
Gd	*	-1.22
Ge	*	*
Hf	*	0.59
Ho	*	-0.05
La	*	-0.17
Li	*	0.00
Lu	*	0.39
Mo	*	*
Nb	*	*
Nd	*	-0.39
Ni	*	<i>0.48</i>
Pb	*	1.14
Pr	*	-0.19
Rb	*	-1.14
Sb	*	*
Sc	*	-0.86
Sm	*	0.16
Sn	*	*
Sr	*	-0.08
Tb	*	0.00
Th	*	0.00
Tl	*	*
Tm	*	-0.01
U	*	-0.51
V	*	0.33
Y	*	0.37
Yb	*	-0.14
Zn	*	-0.12
Zr	*	*

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

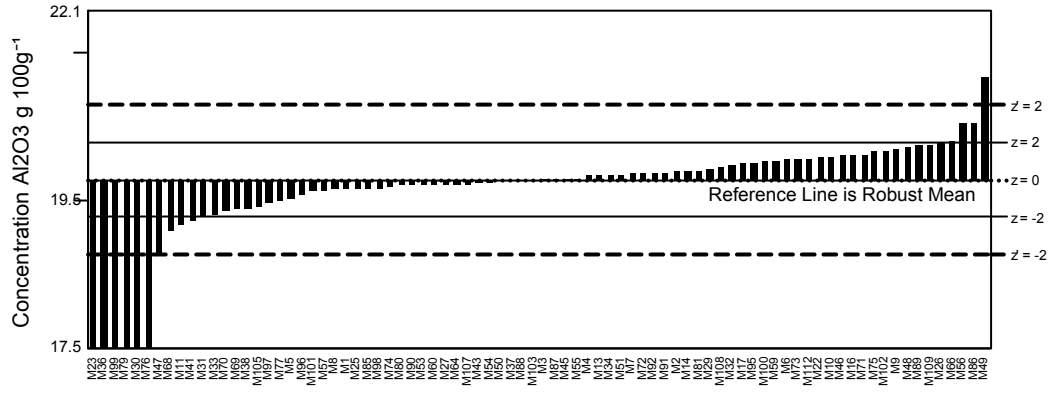
GeoPT36 - Barchart for SiO₂



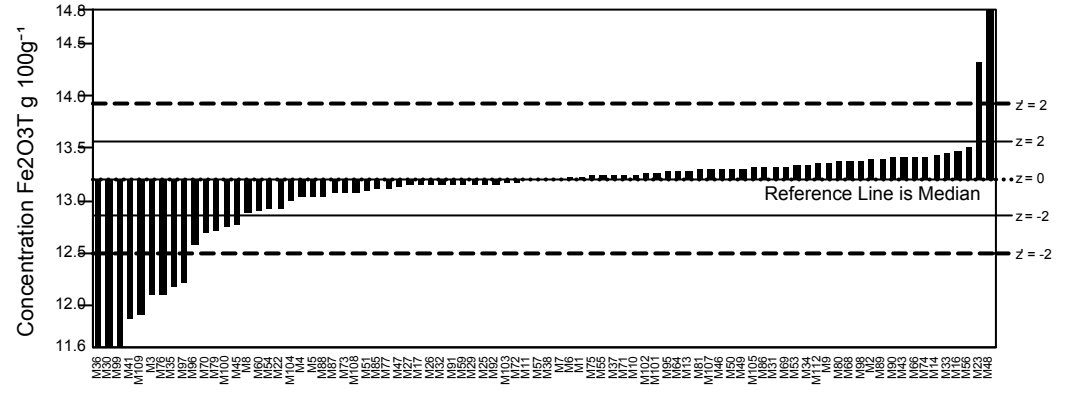
GeoPT36 - Barchart for TiO₂



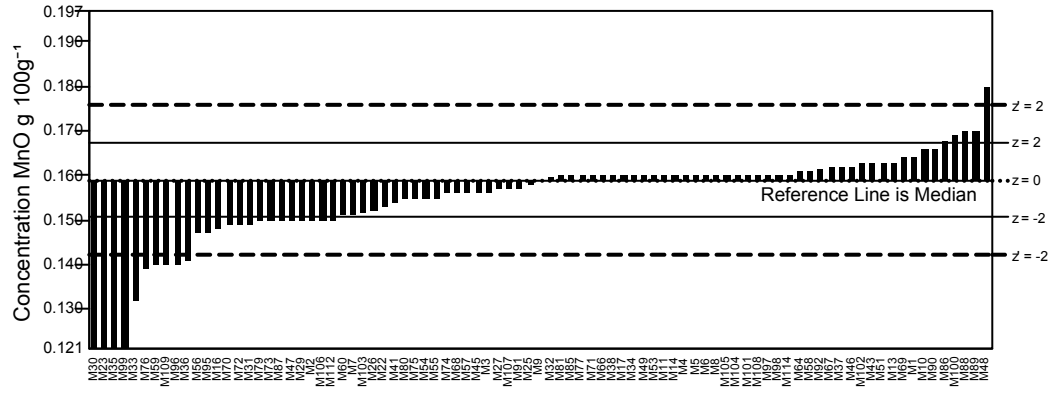
GeoPT36 - Barchart for Al₂O₃



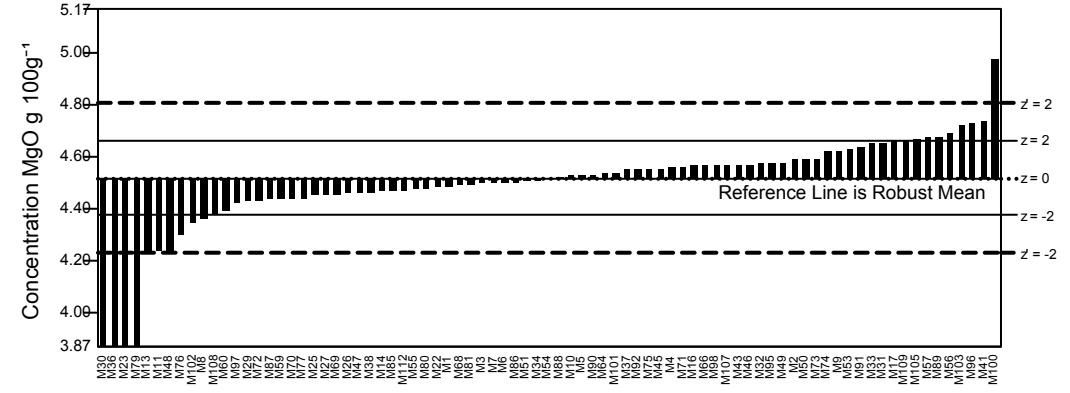
GeoPT36 - Barchart for Fe₂O_{3T}



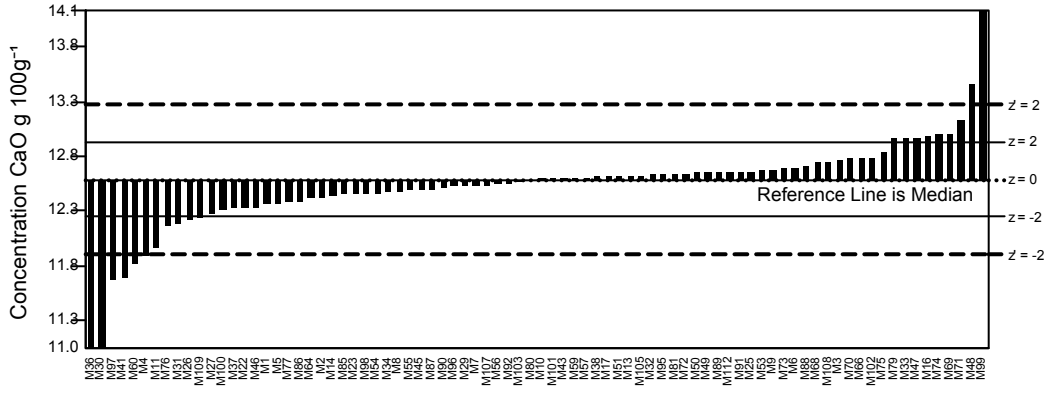
GeoPT36 - Barchart for MnO



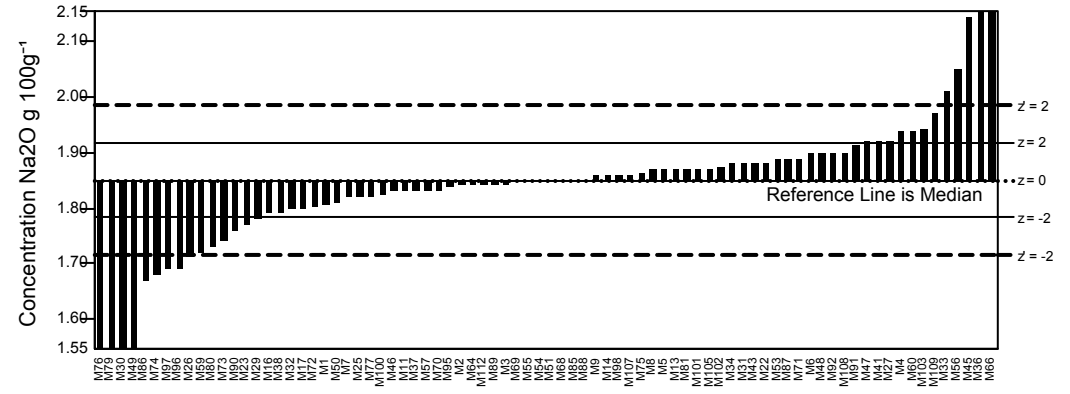
GeoPT36 - Barchart for MgO



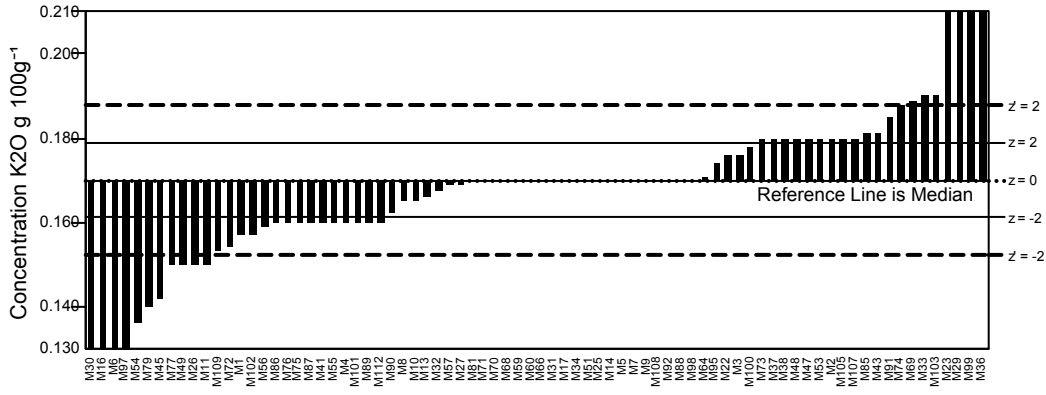
GeoPT36 - Barchart for CaO



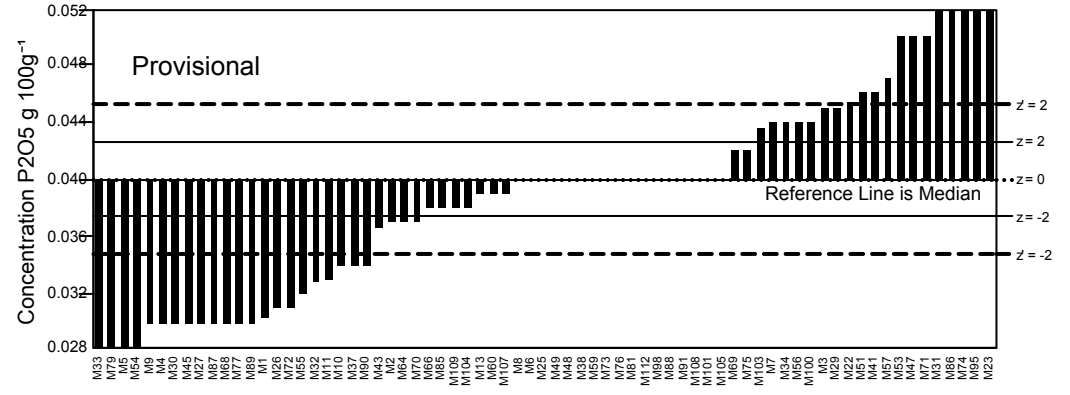
GeoPT36 - Barchart for Na2O



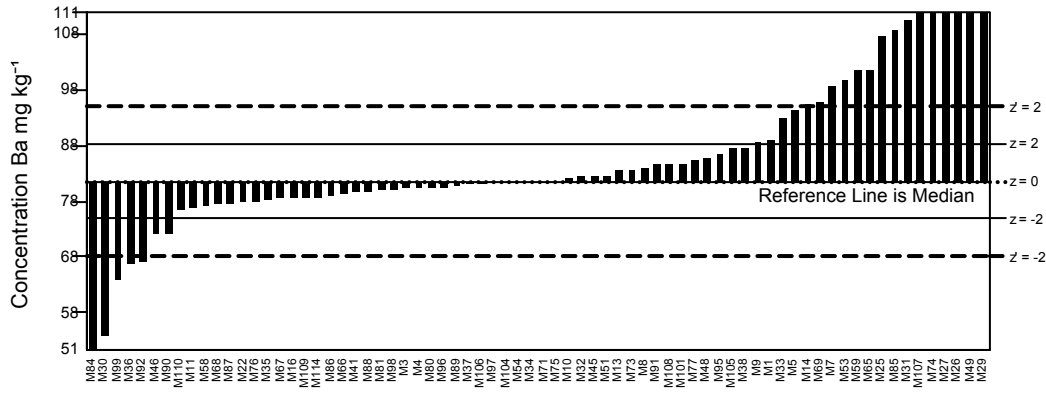
GeoPT36 - Barchart for K2O



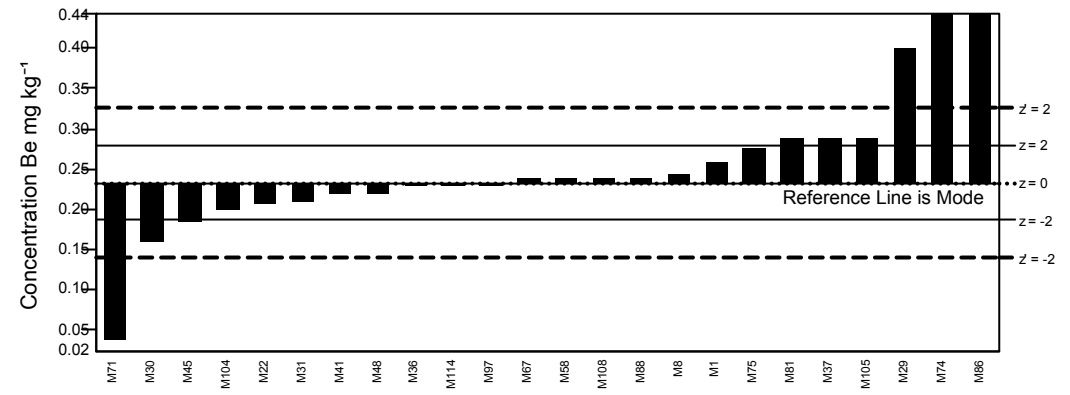
GeoPT36 - Barchart for P2O5



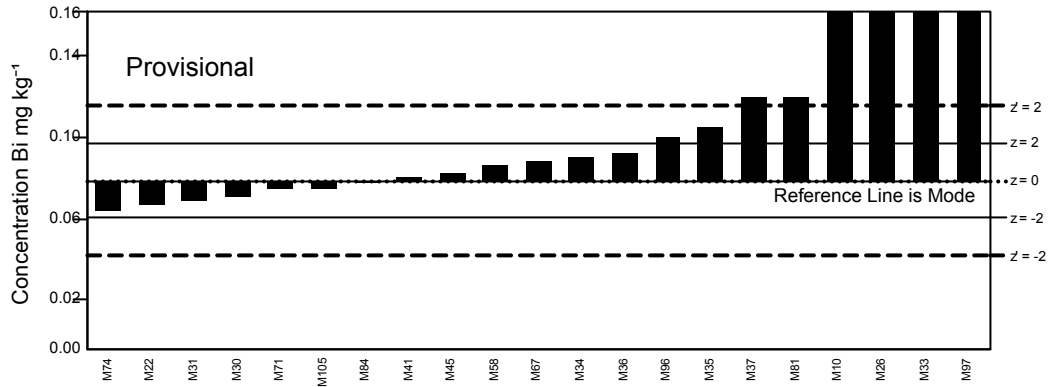
GeoPT36 - Barchart for Ba



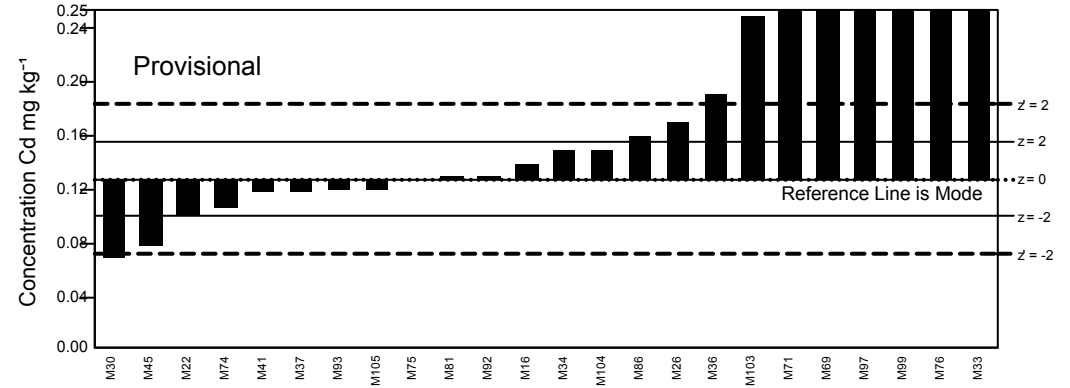
GeoPT36 - Barchart for Be



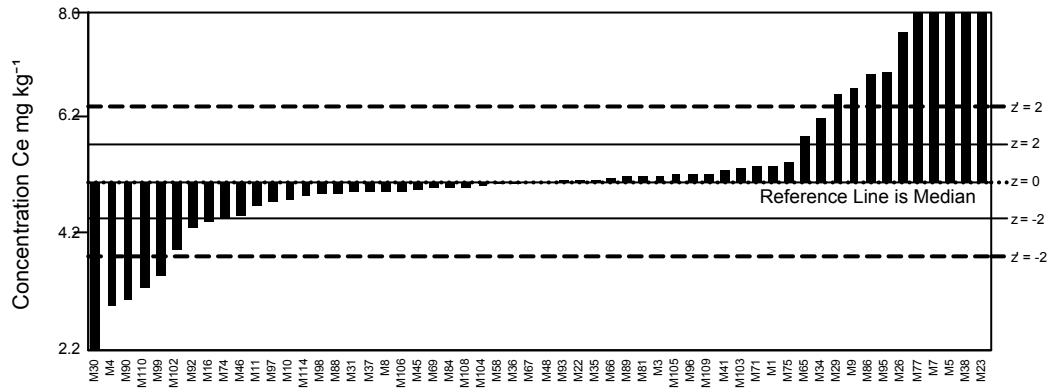
GeoPT36 - Barchart for Bi



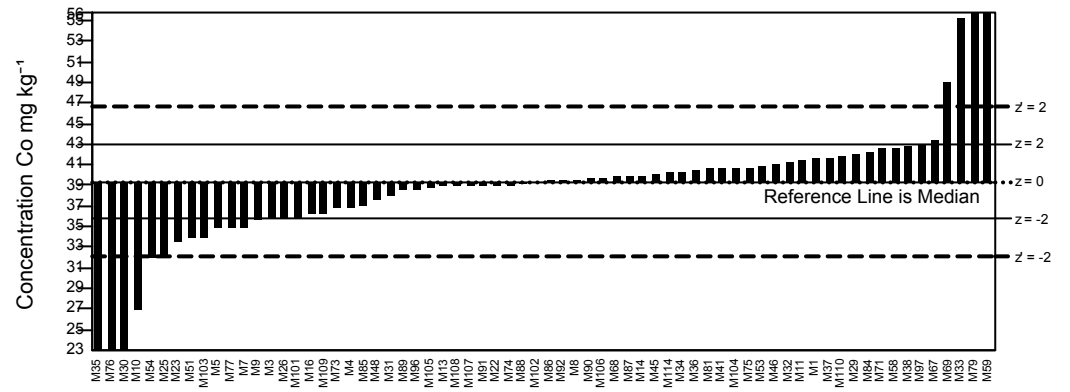
GeoPT36 - Barchart for Cd



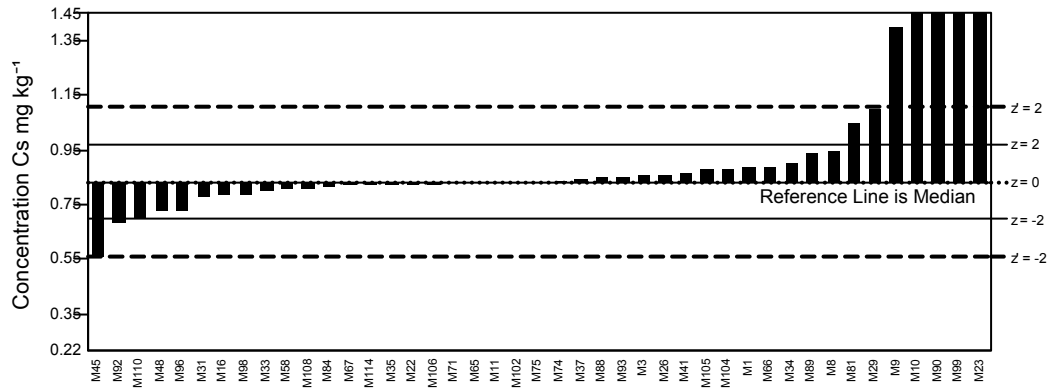
GeoPT36 - Barchart for Ce



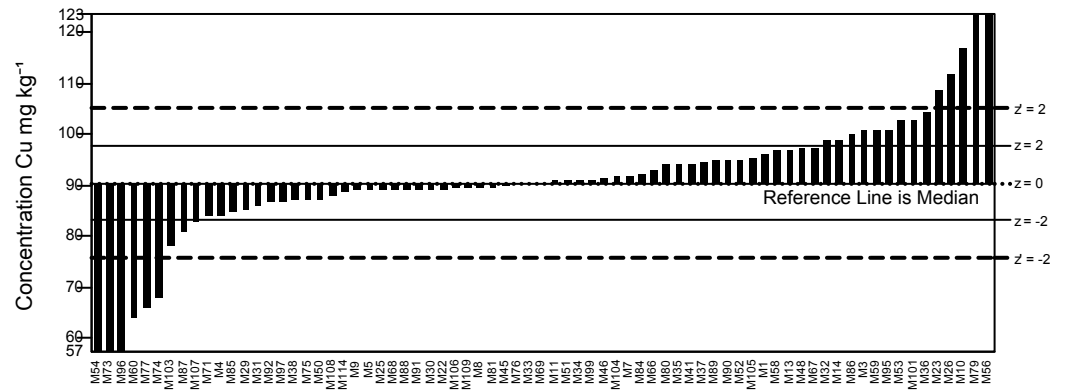
GeoPT36 - Barchart for Co



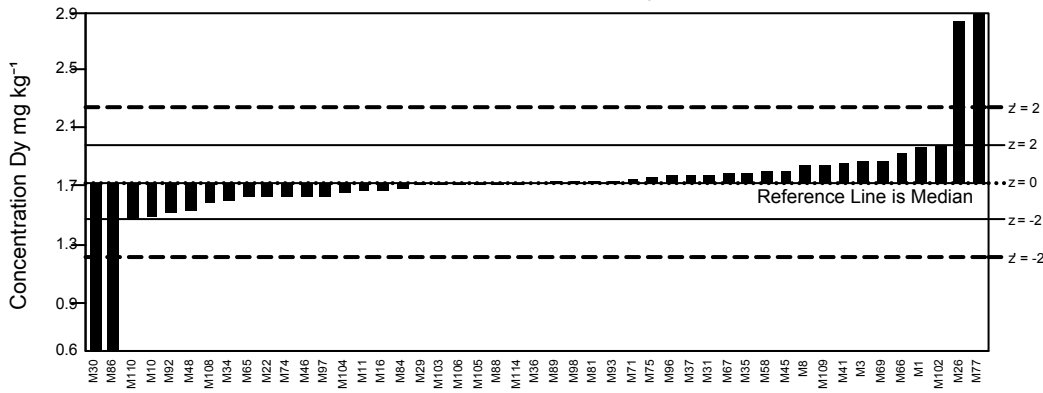
GeoPT36 - Barchart for Cs



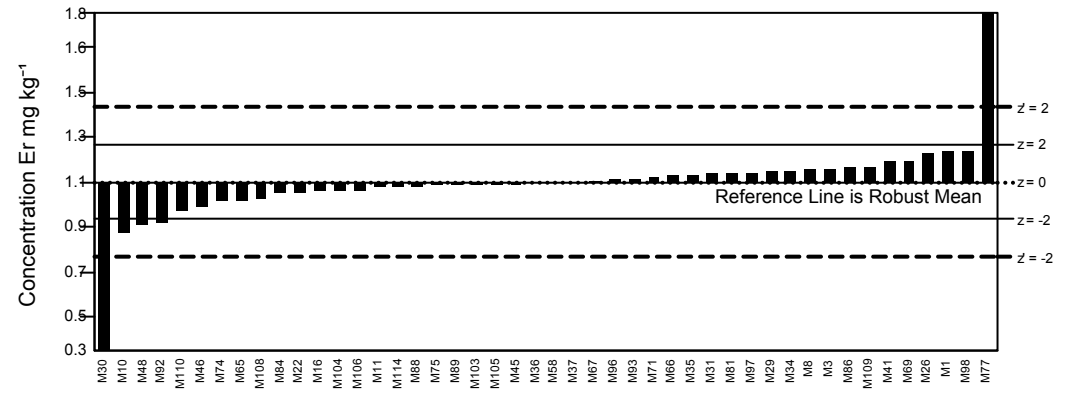
GeoPT36 - Barchart for Cu



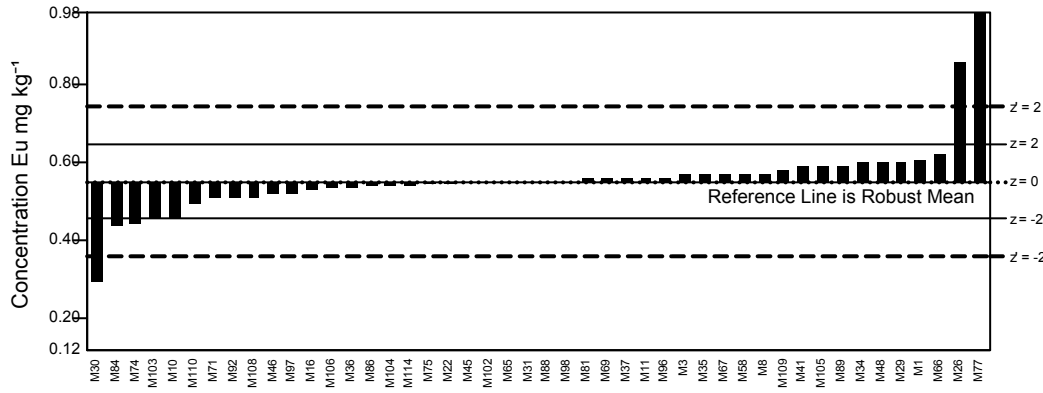
GeoPT36 - Barchart for Dy



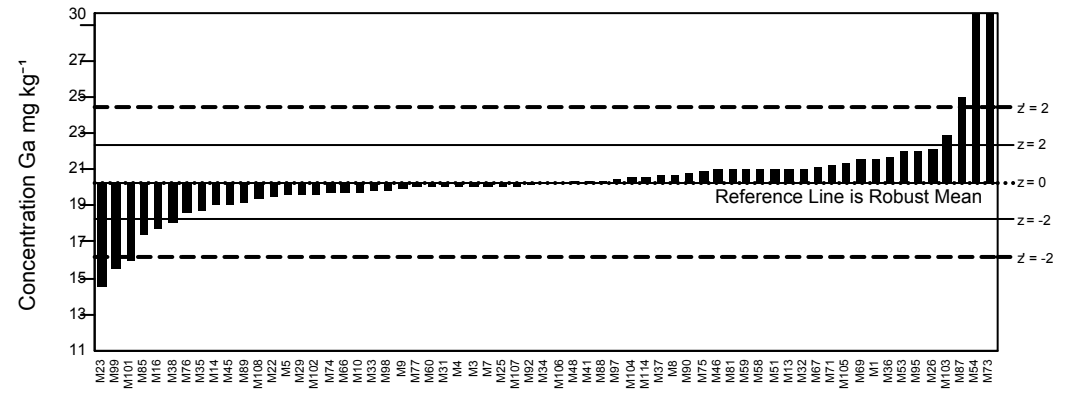
GeoPT36 - Barchart for Er



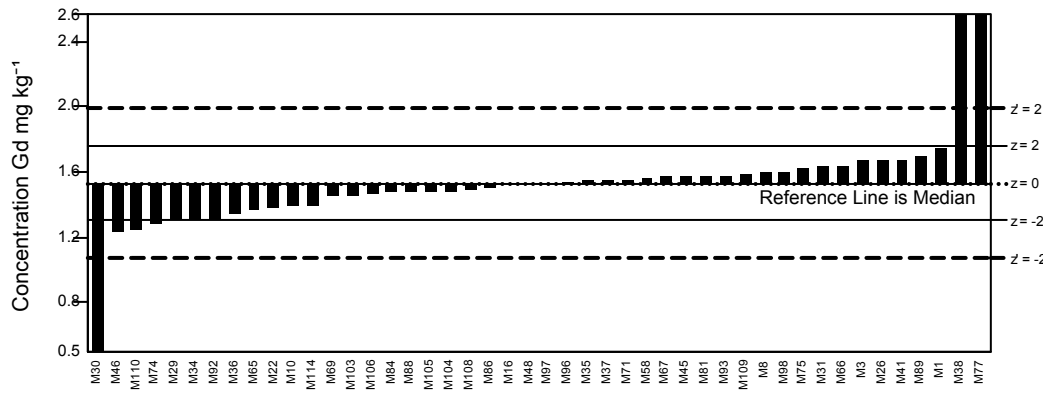
GeoPT36 - Barchart for Eu



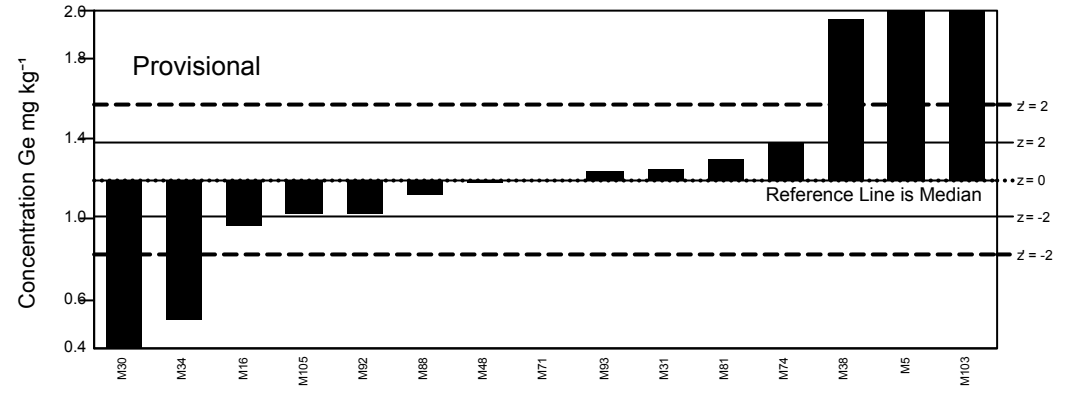
GeoPT36 - Barchart for Ga



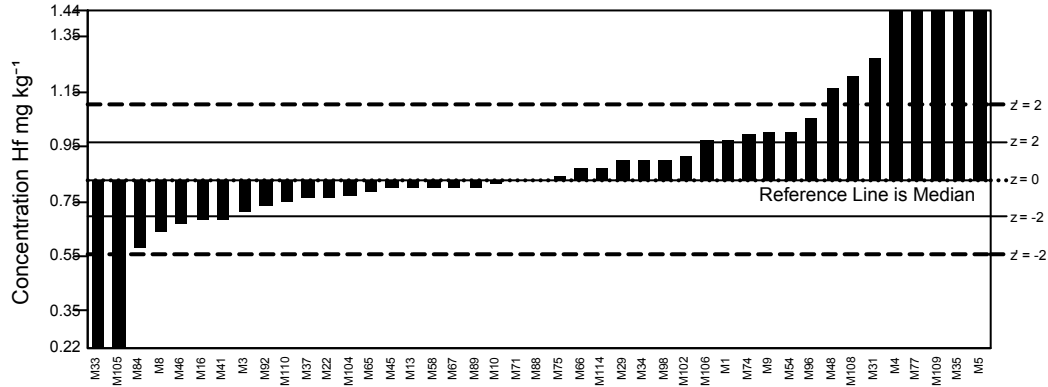
GeoPT36 - Barchart for Gd



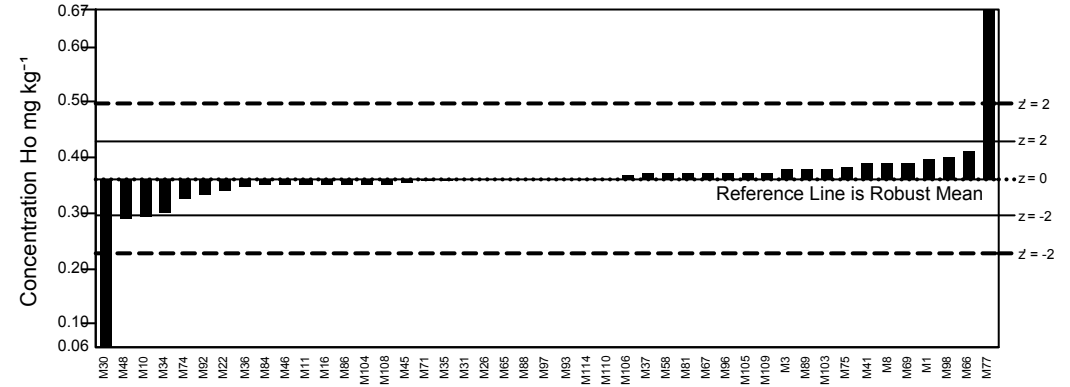
GeoPT36 - Barchart for Ge



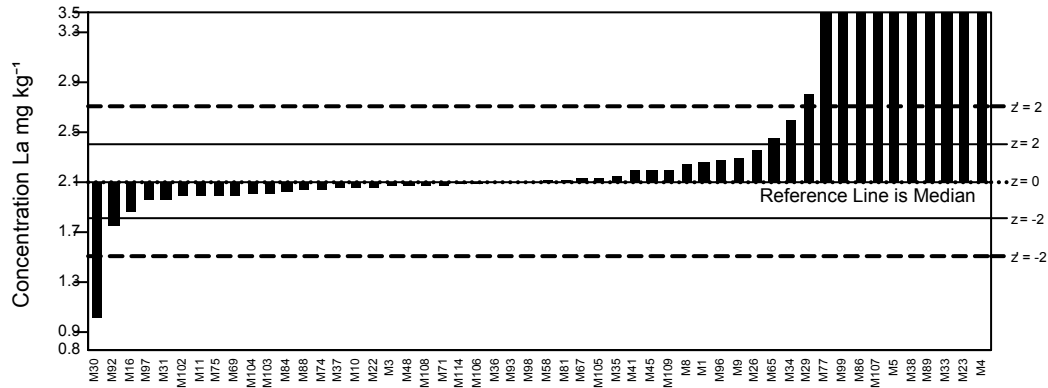
GeoPT36 - Barchart for Hf



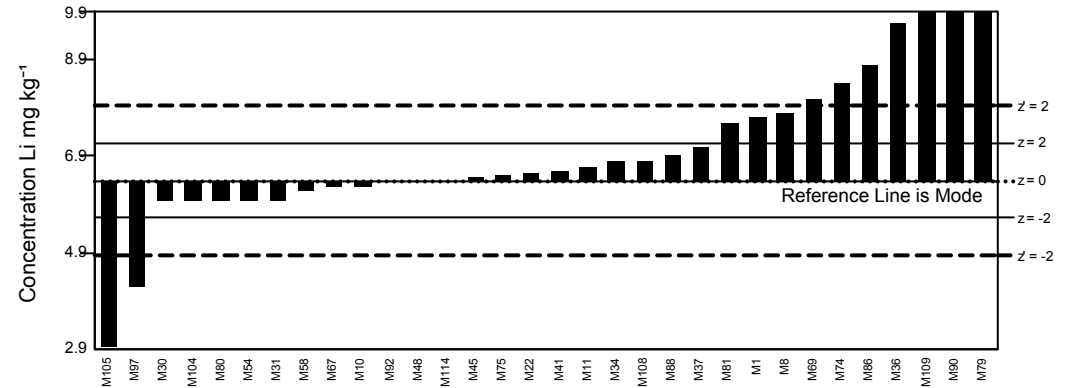
GeoPT36 - Barchart for Ho



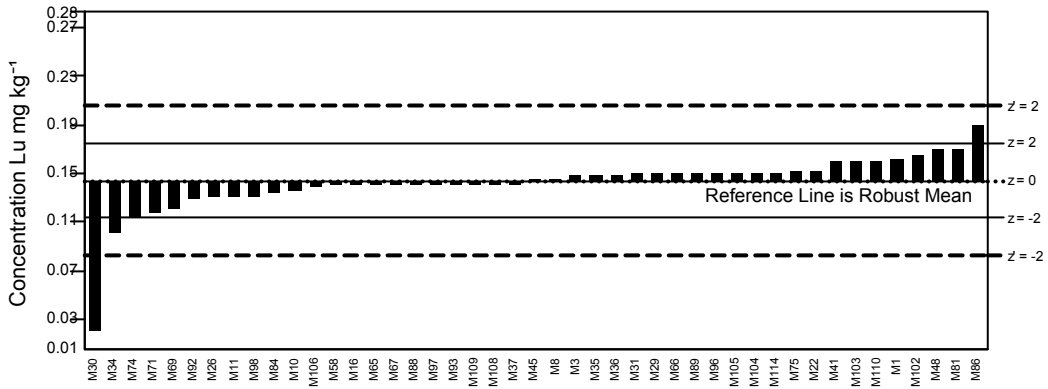
GeoPT36 - Barchart for La



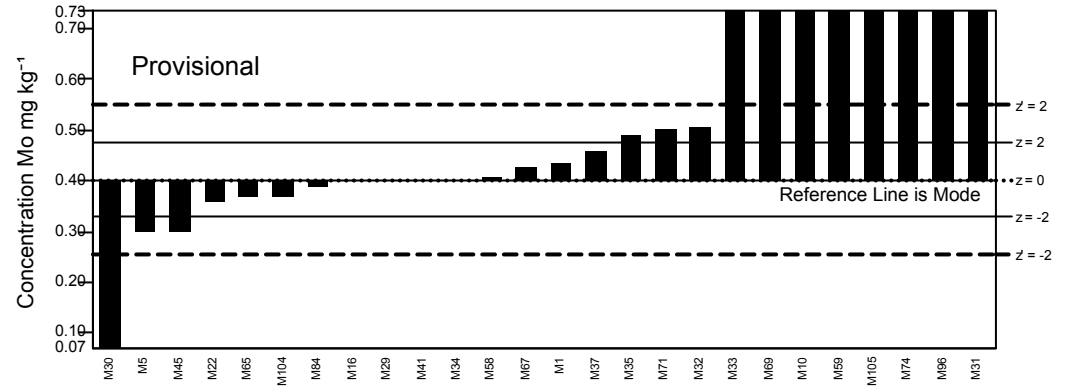
GeoPT36 - Barchart for Li



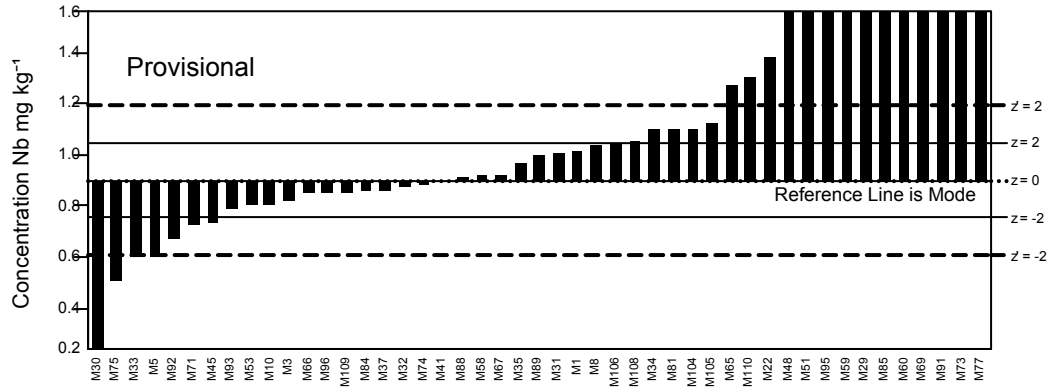
GeoPT36 - Barchart for Lu



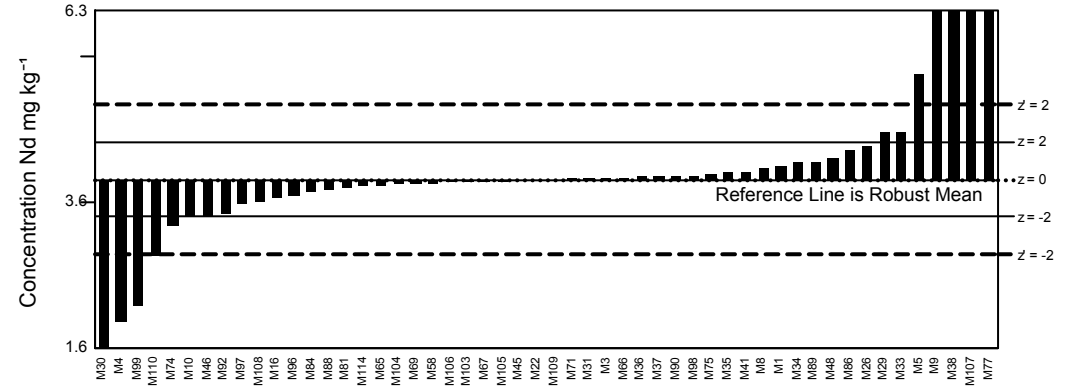
GeoPT36 - Barchart for Mo



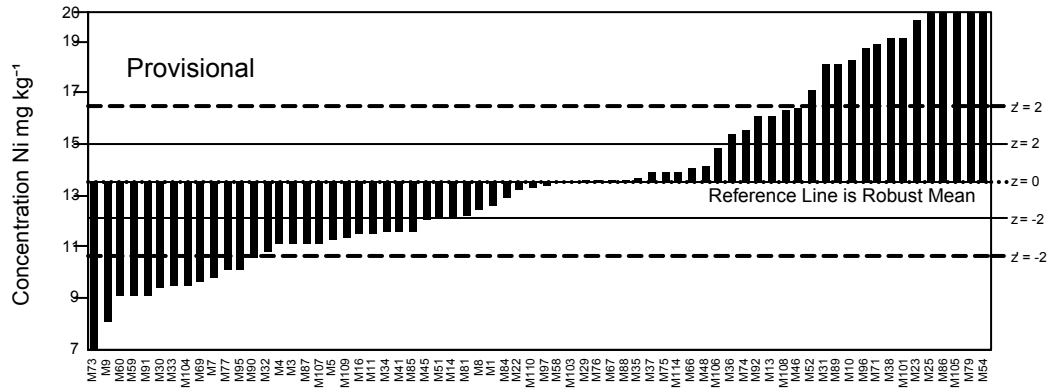
GeoPT36 - Barchart for Nb



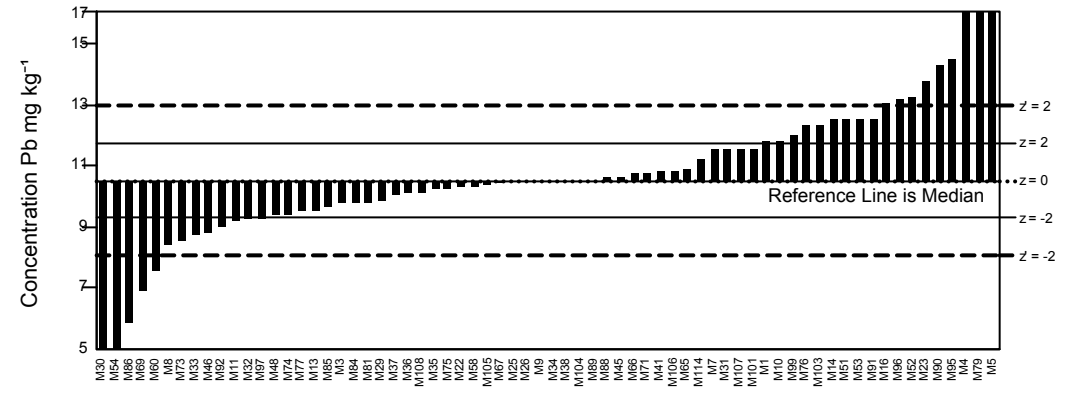
GeoPT36 - Barchart for Nd



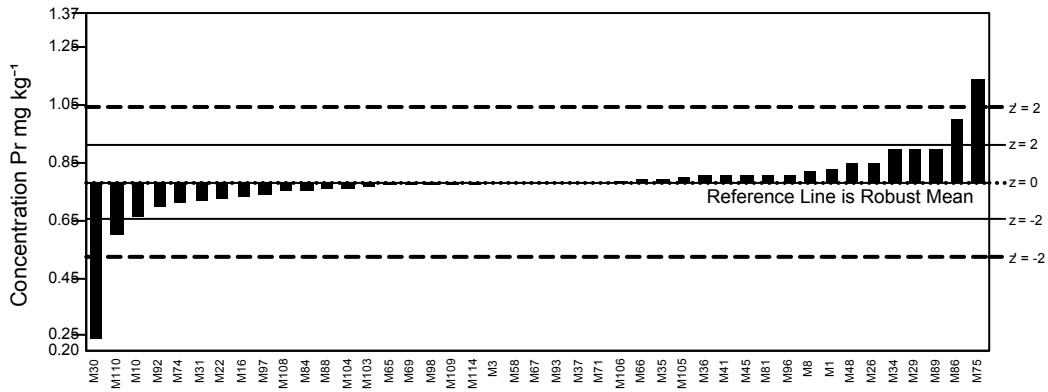
GeoPT36 - Barchart for Ni



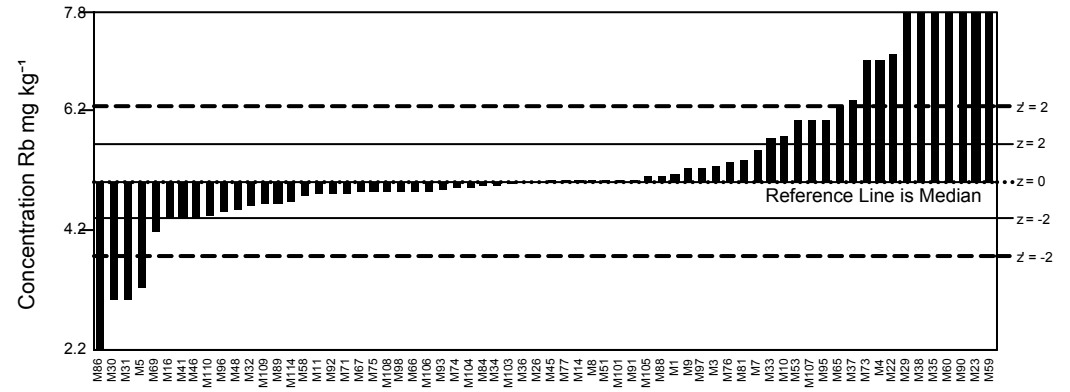
GeoPT36 - Barchart for Pb



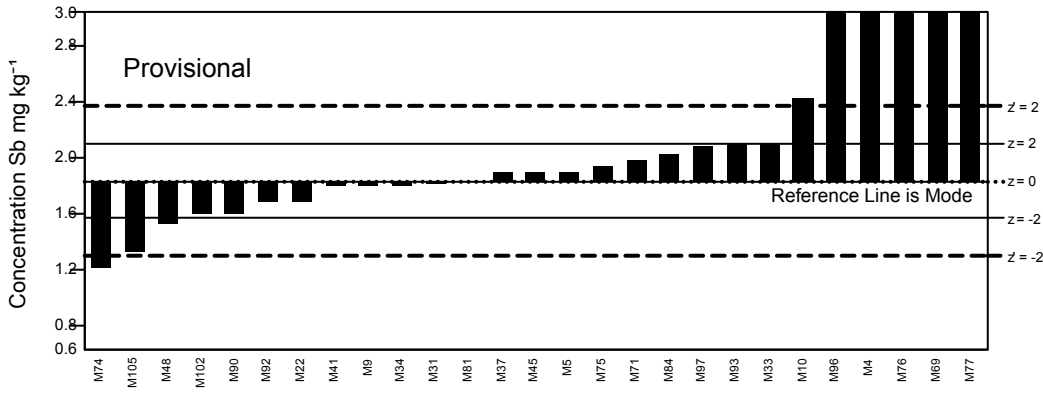
GeoPT36 - Barchart for Pr



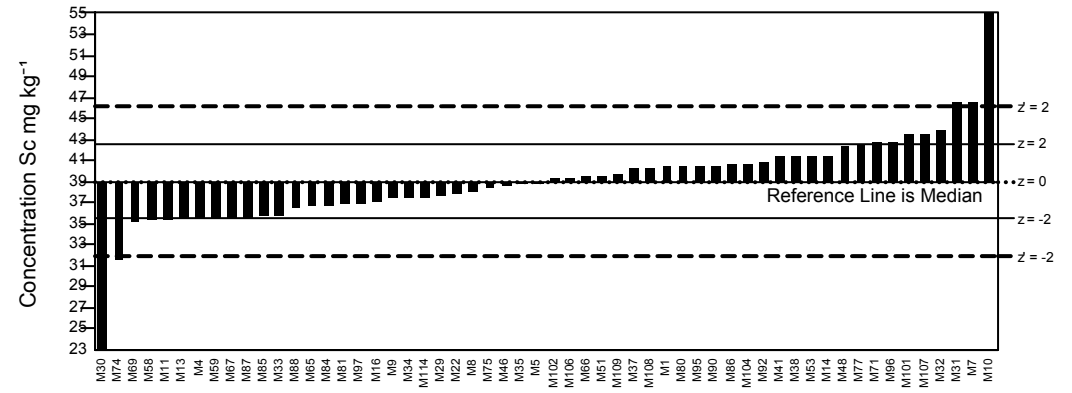
GeoPT36 - Barchart for Rb



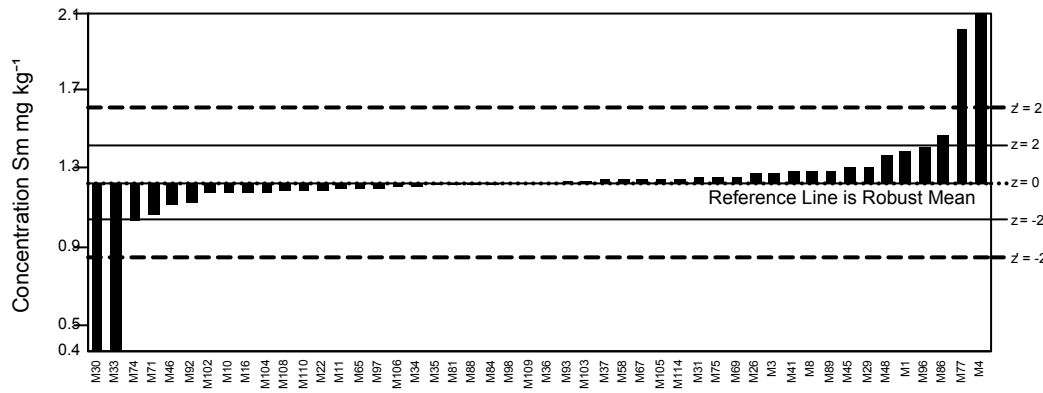
GeoPT36 - Barchart for Sb



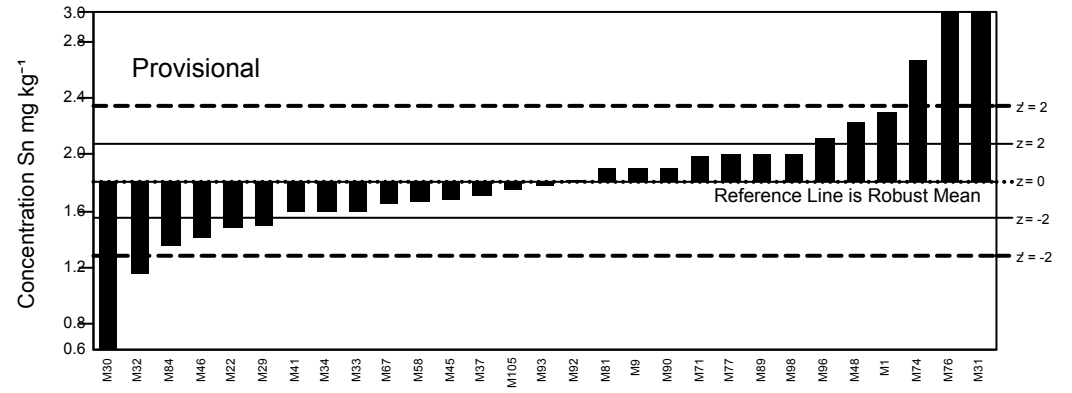
GeoPT36 - Barchart for Sc



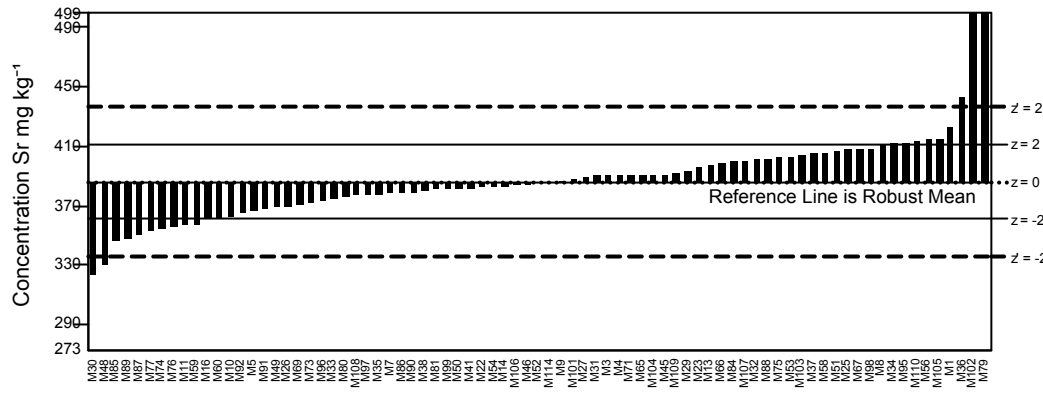
GeoPT36 - Barchart for Sm



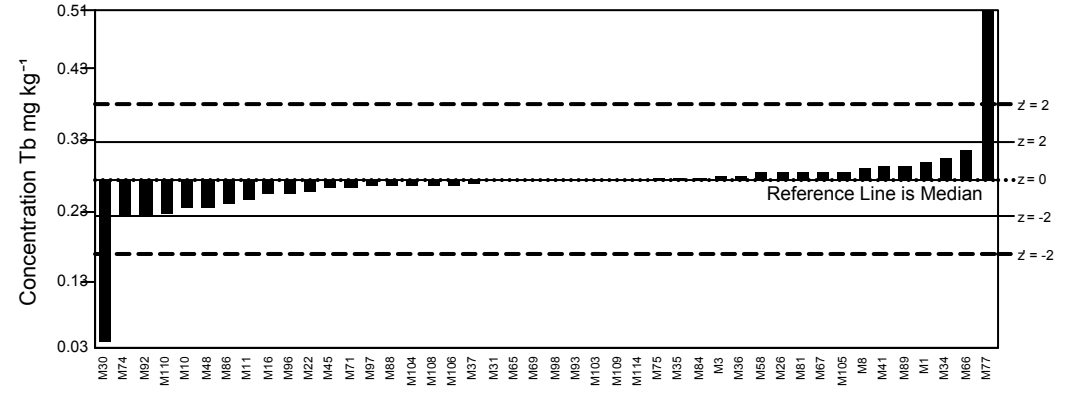
GeoPT36 - Barchart for Sn



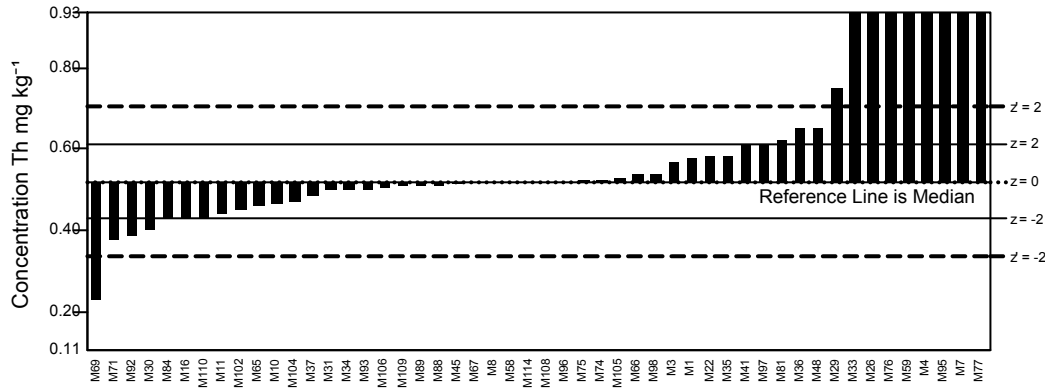
GeoPT36 - Barchart for Sr



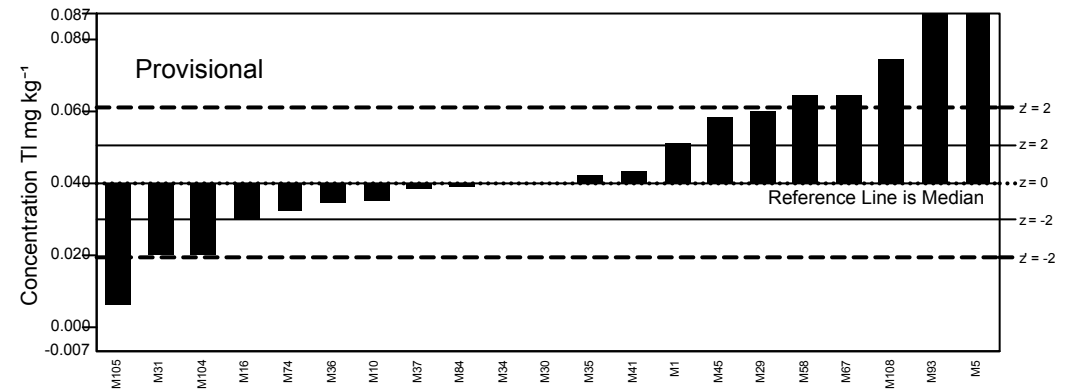
GeoPT36 - Barchart for Tb



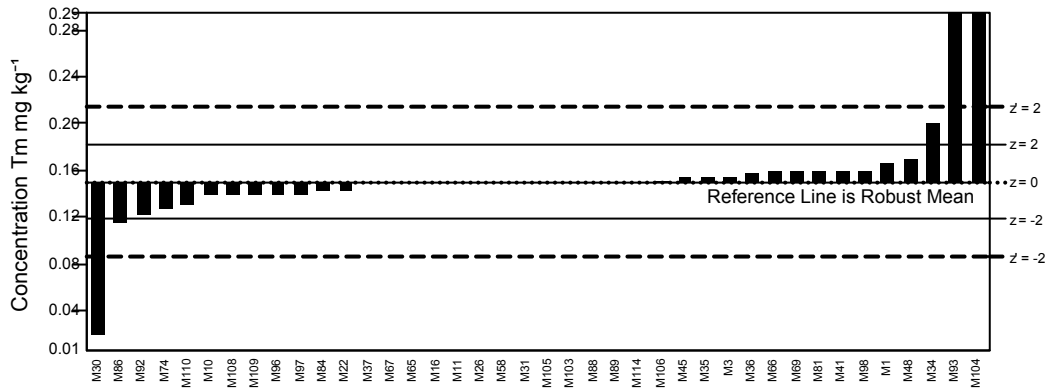
GeoPT36 - Barchart for Th



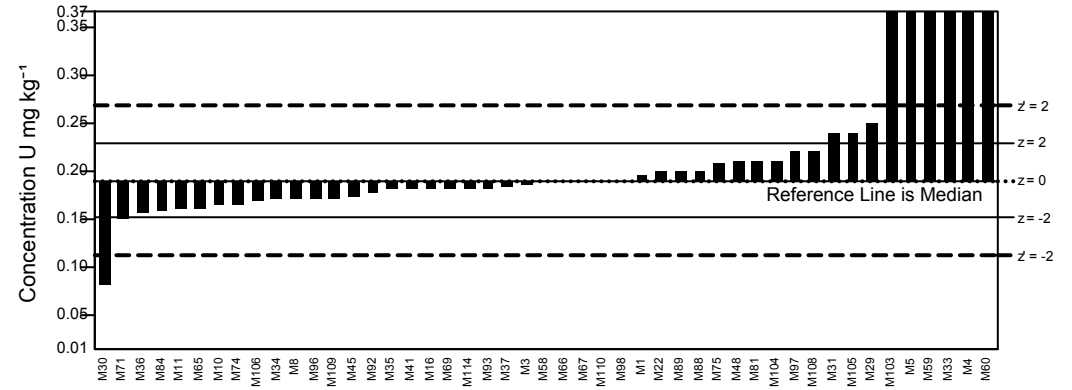
GeoPT36 - Barchart for TI



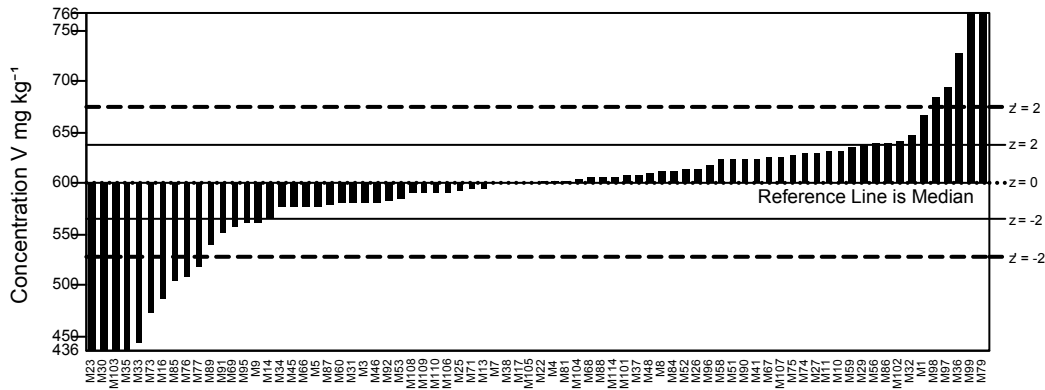
GeoPT36 - Barchart for Tm



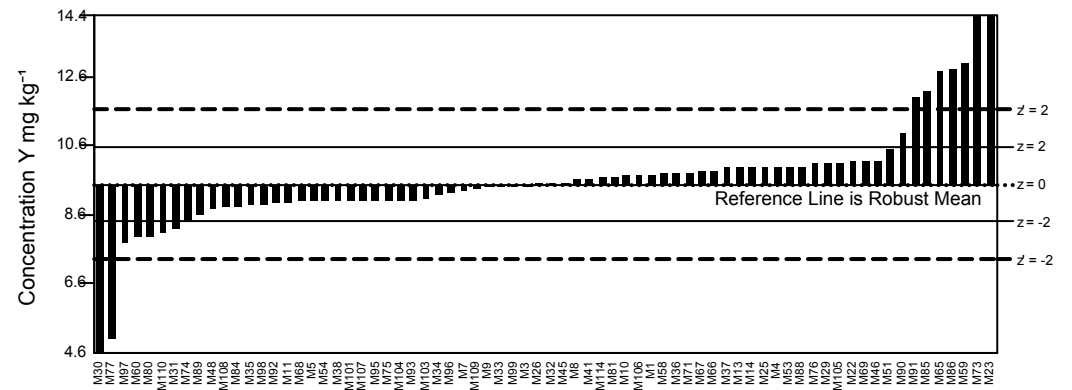
GeoPT36 - Barchart for U



GeoPT36 - Barchart for V



GeoPT36 - Barchart for Y



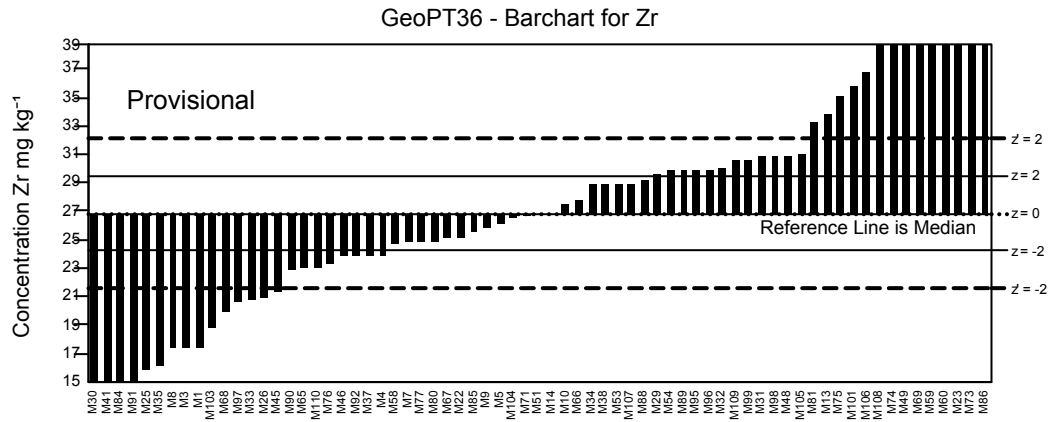
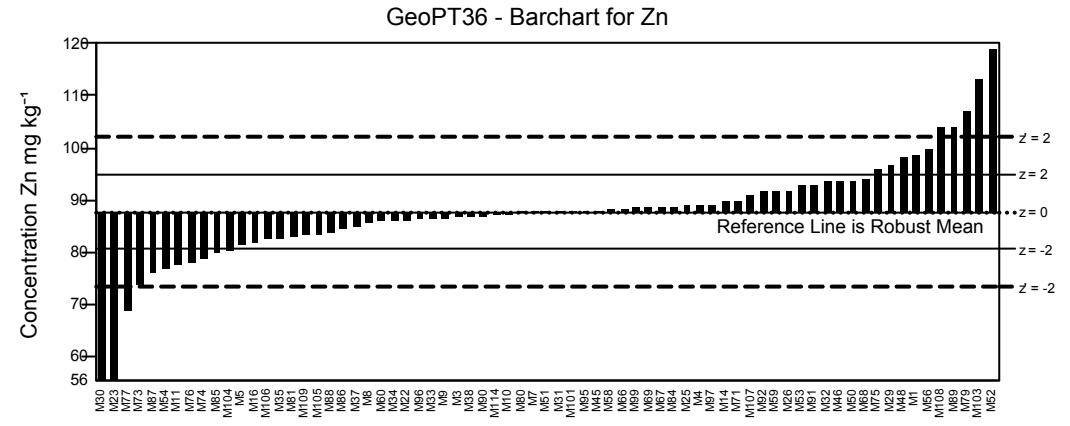
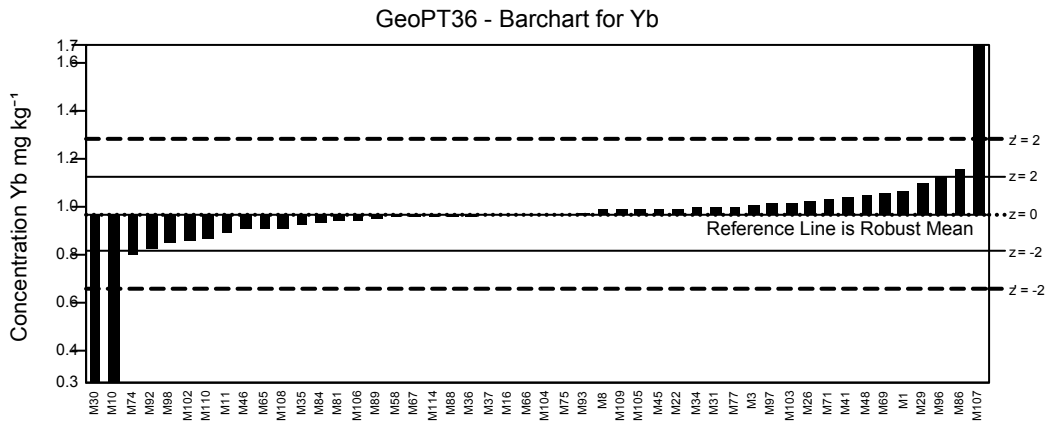
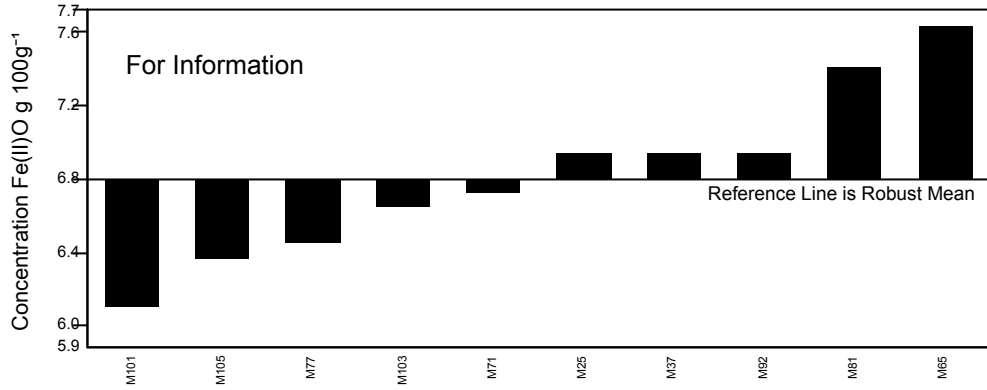
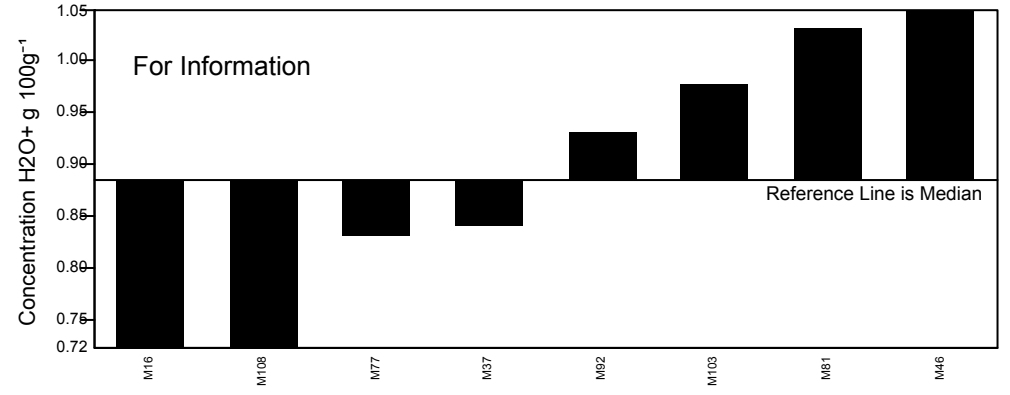


Figure 1: GeoPT36 - Gabbro, GSM-1. Data distribution charts for elements for which values were assigned or provisional values given for guidance. Horizontal lines show the limits for $-2 < z < 2$ for pure geochemistry labs (solid lines) and $-2 < z' < 2$ for applied geochemistry labs (pecked lines).

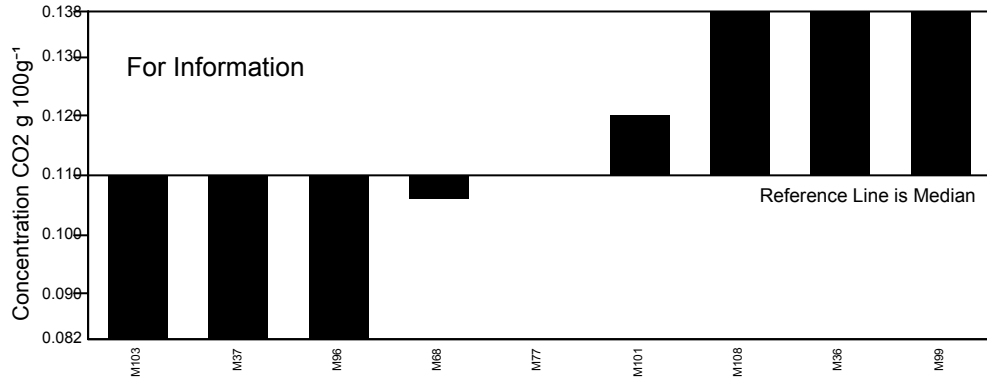
GeoPT36 - Barchart for Fe(II)O



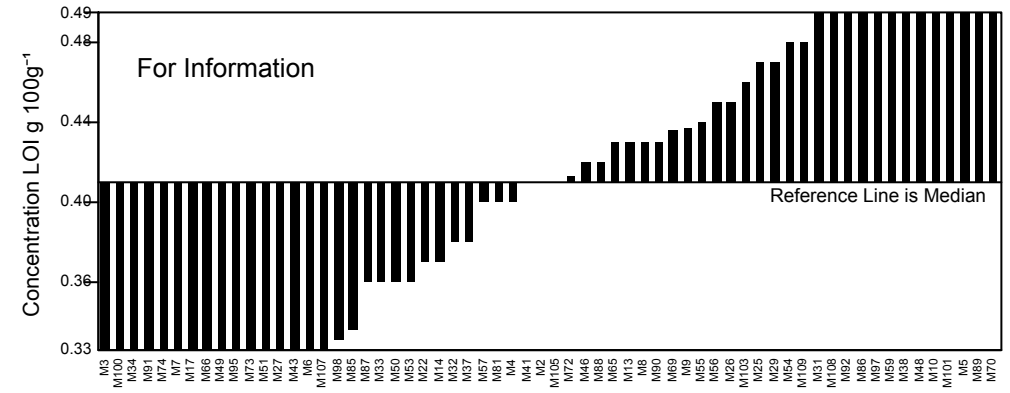
GeoPT36 - Barchart for H2O+



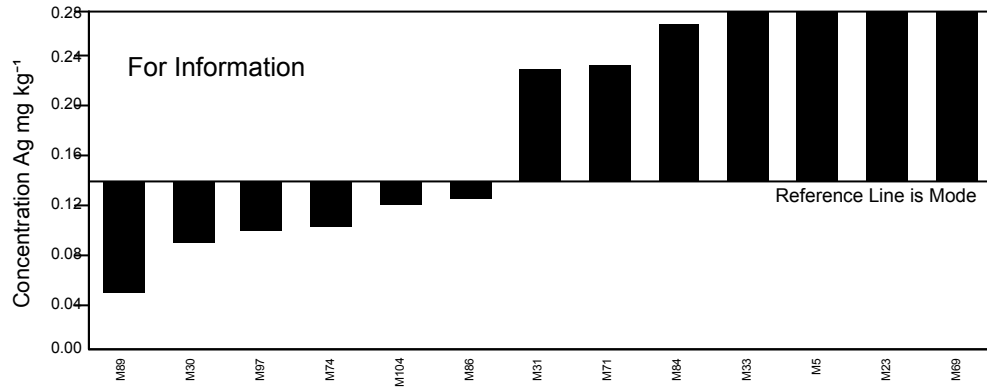
GeoPT36 - Barchart for CO2



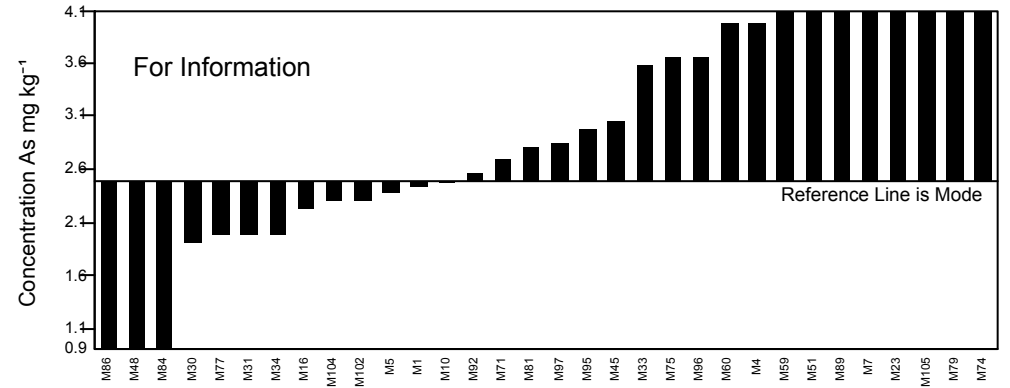
GeoPT36 - Barchart for LOI



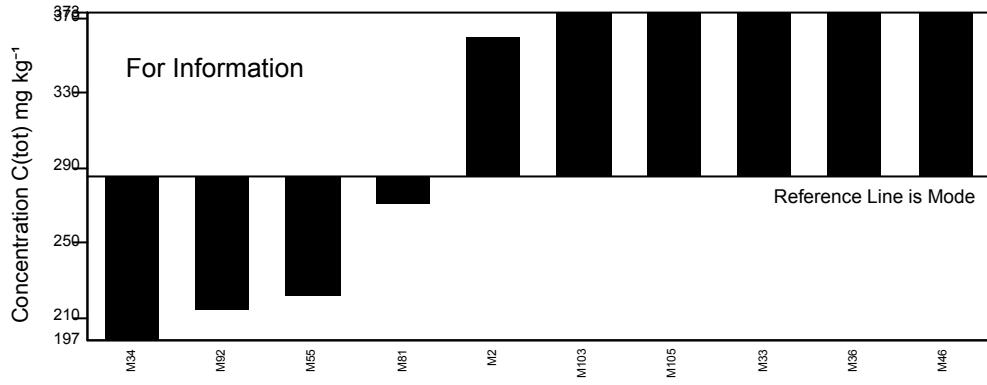
GeoPT36 - Barchart for Ag



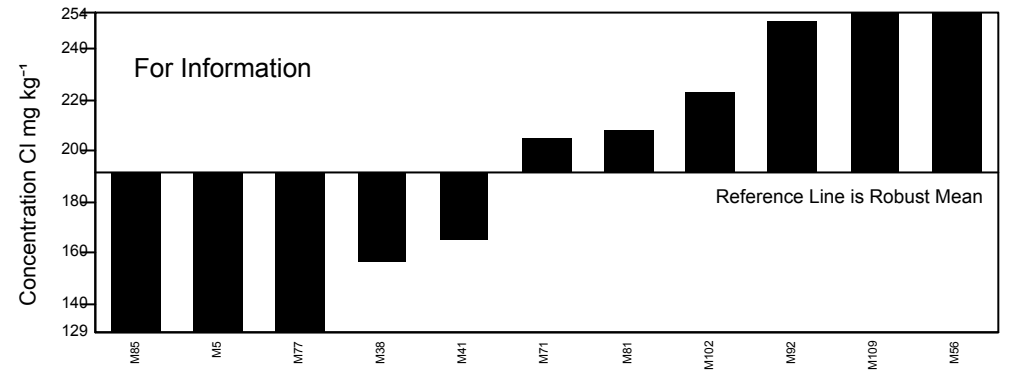
GeoPT36 - Barchart for As



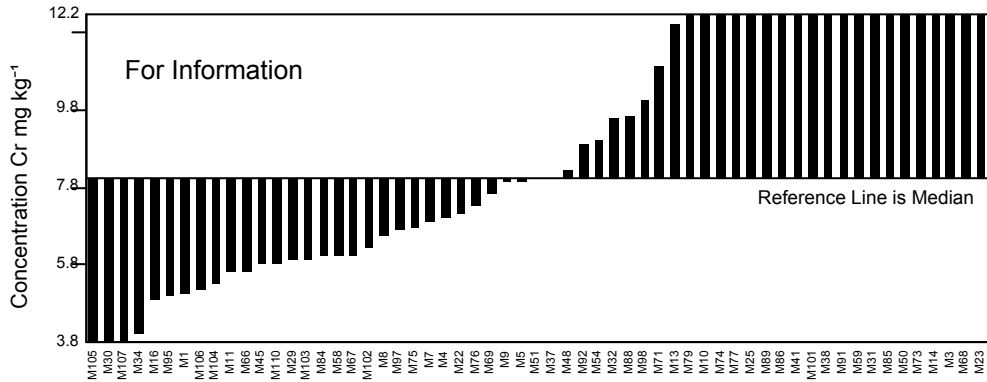
GeoPT36 - Barchart for C(tot)



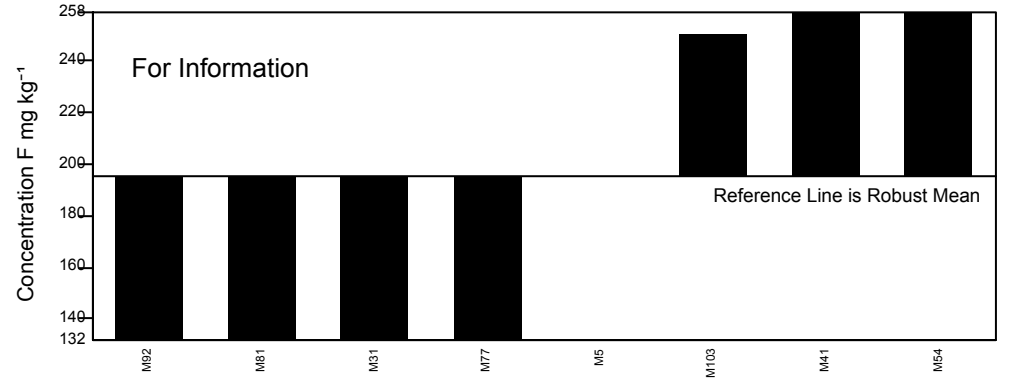
GeoPT36 - Barchart for Cl



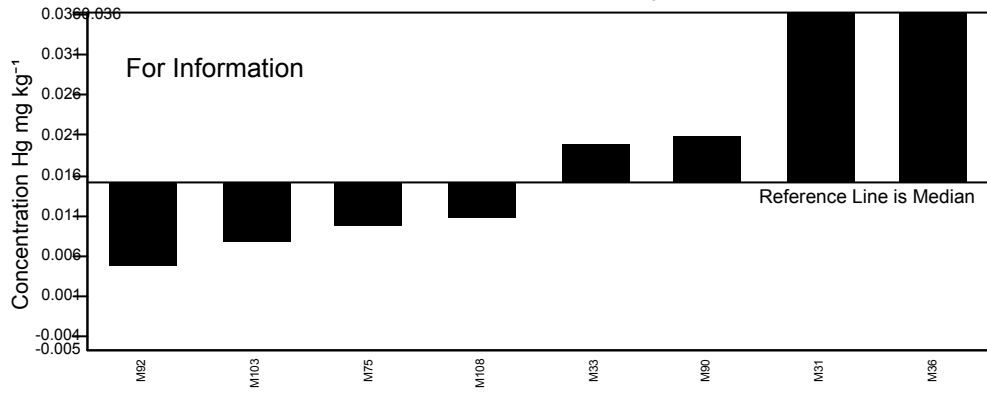
GeoPT36 - Barchart for Cr



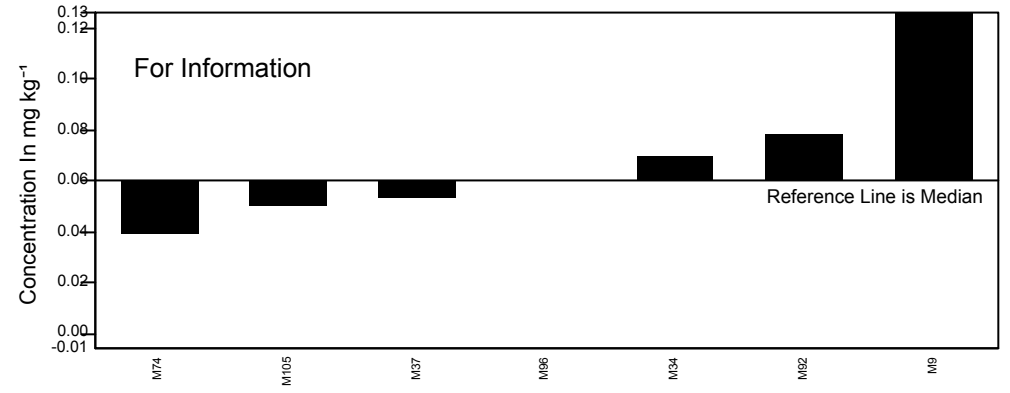
GeoPT36 - Barchart for F



GeoPT36 - Barchart for Hg



GeoPT36 - Barchart for In



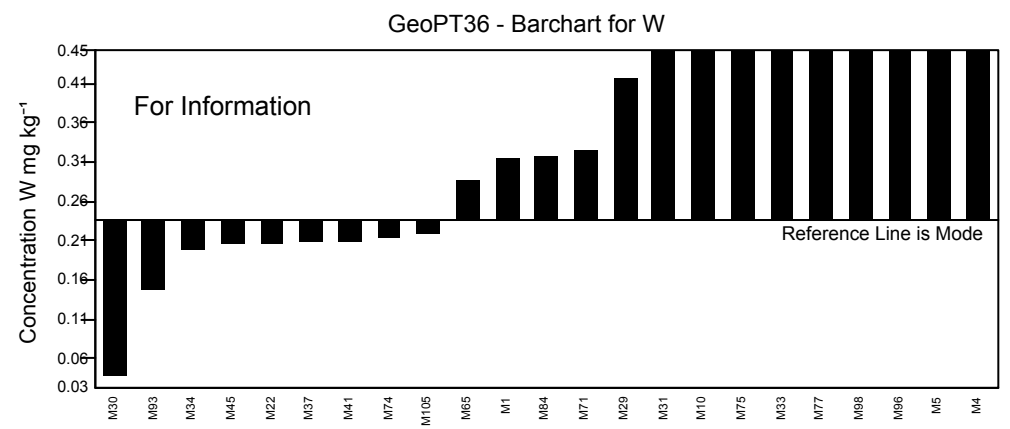
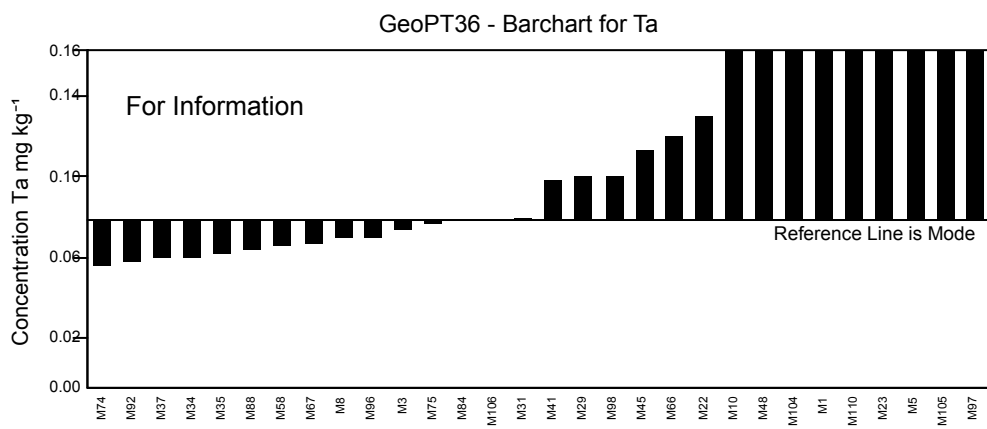
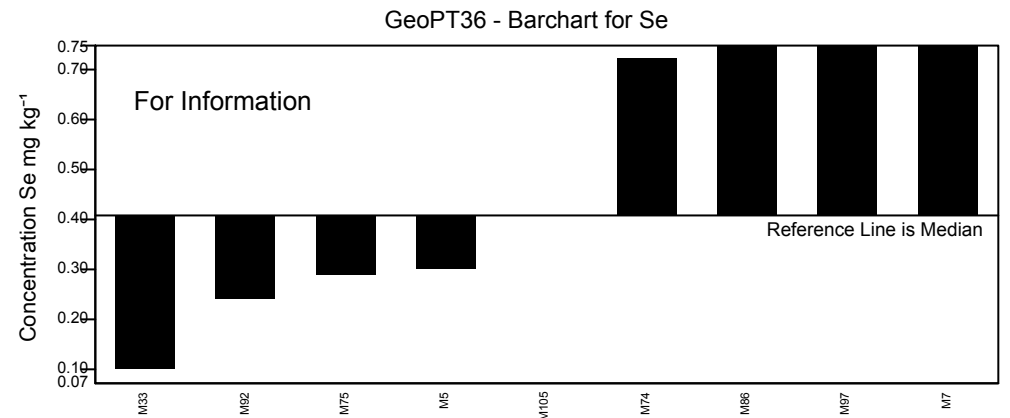
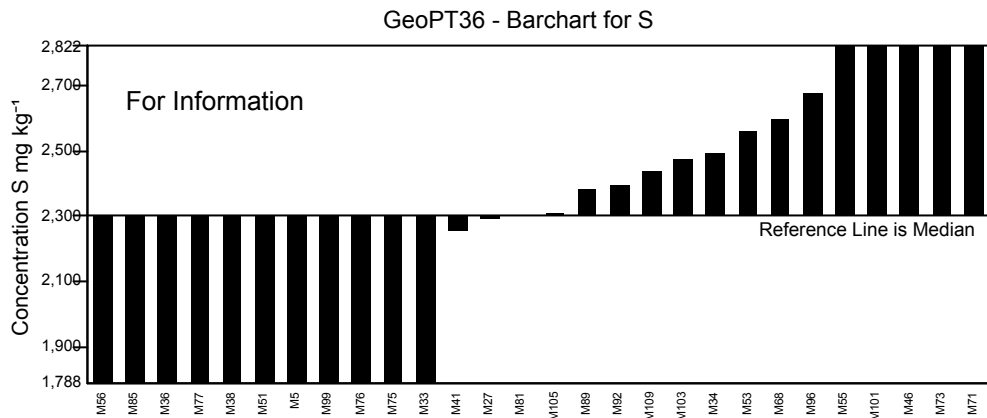


Figure 2: GeoPT36 - Gabbro, GSM-1. Data distribution charts provided for information only for elements for which values could not be assigned.

Multiple Z-Score Chart for GeoPT36

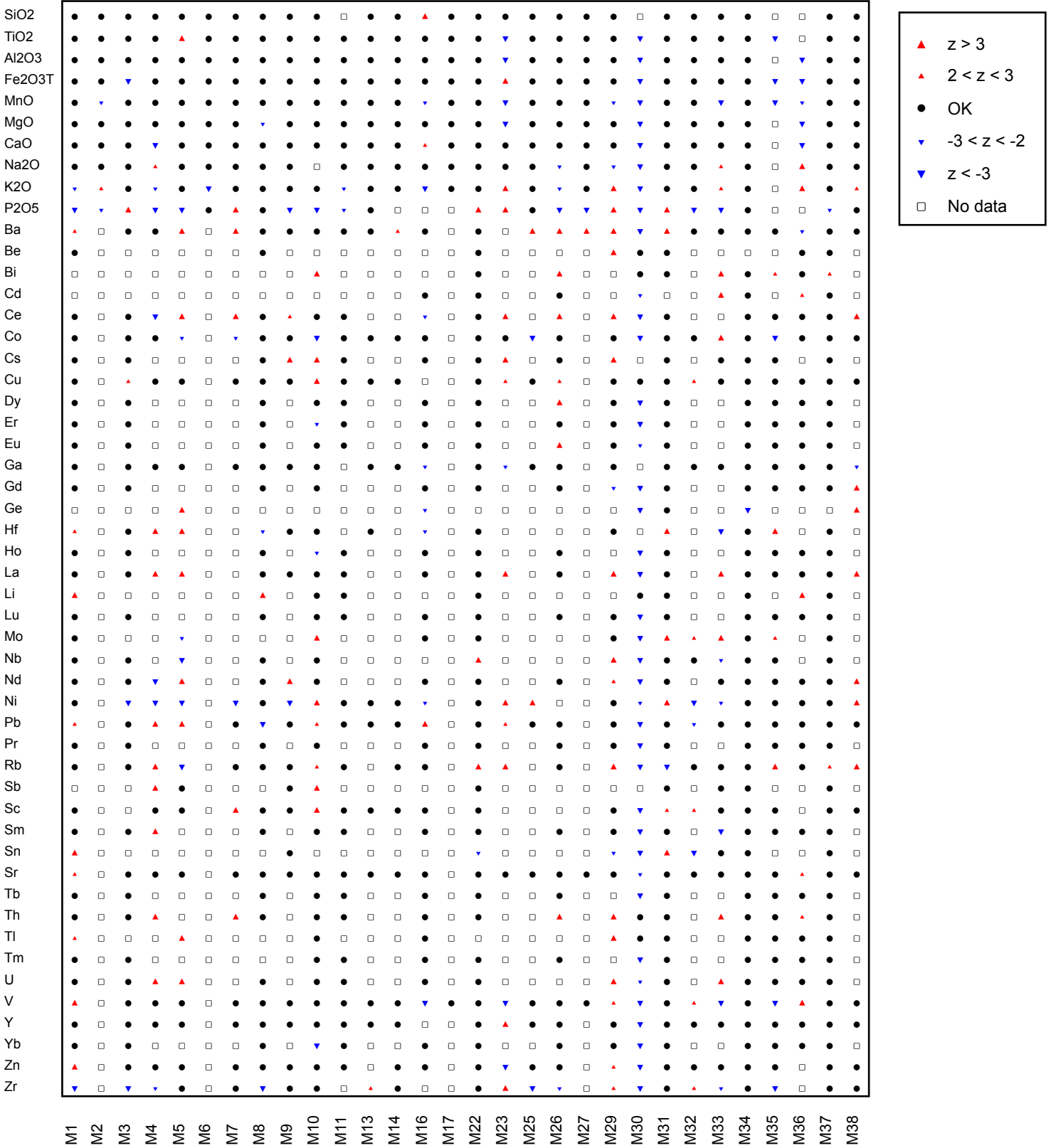


Figure 3: GeoPT36 - Gabbro, GSM-1. Multiple z-score charts for laboratories participating in the GeoPT36 round. Symbols indicate whether or not an elemental result complies with the $-2 < z < +2$ criteria (see key).

Multiple Z-Score Chart for GeoPT36

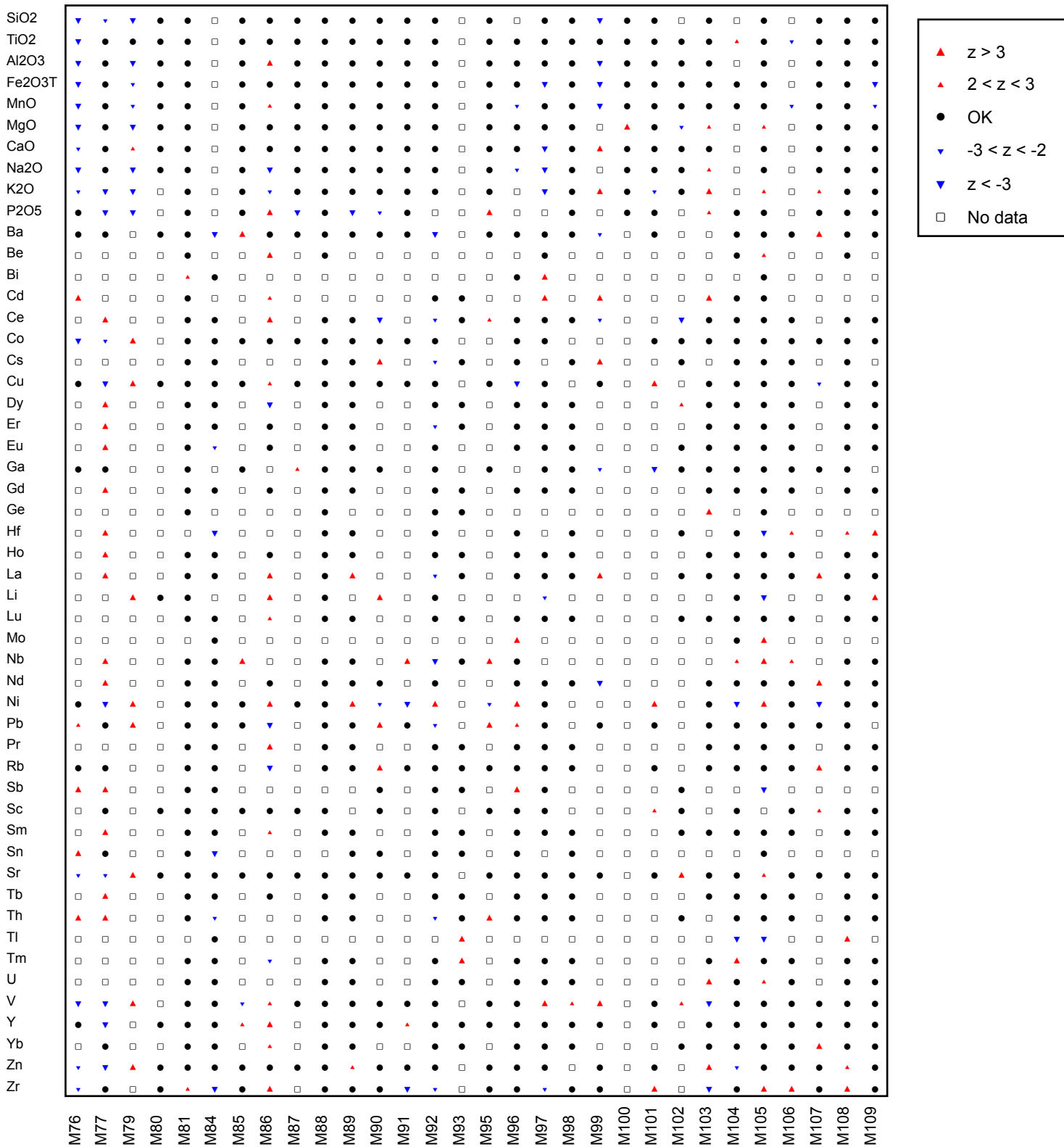


Figure 3: GeoPT36 - Gabbro, GSM-1. Multiple z-score charts for laboratories participating in the GeoPT36 round. Symbols indicate whether or not an elemental result complies with the $-2 < z < +2$ criteria (see key).

Multiple Z-Score Chart for GeoPT36

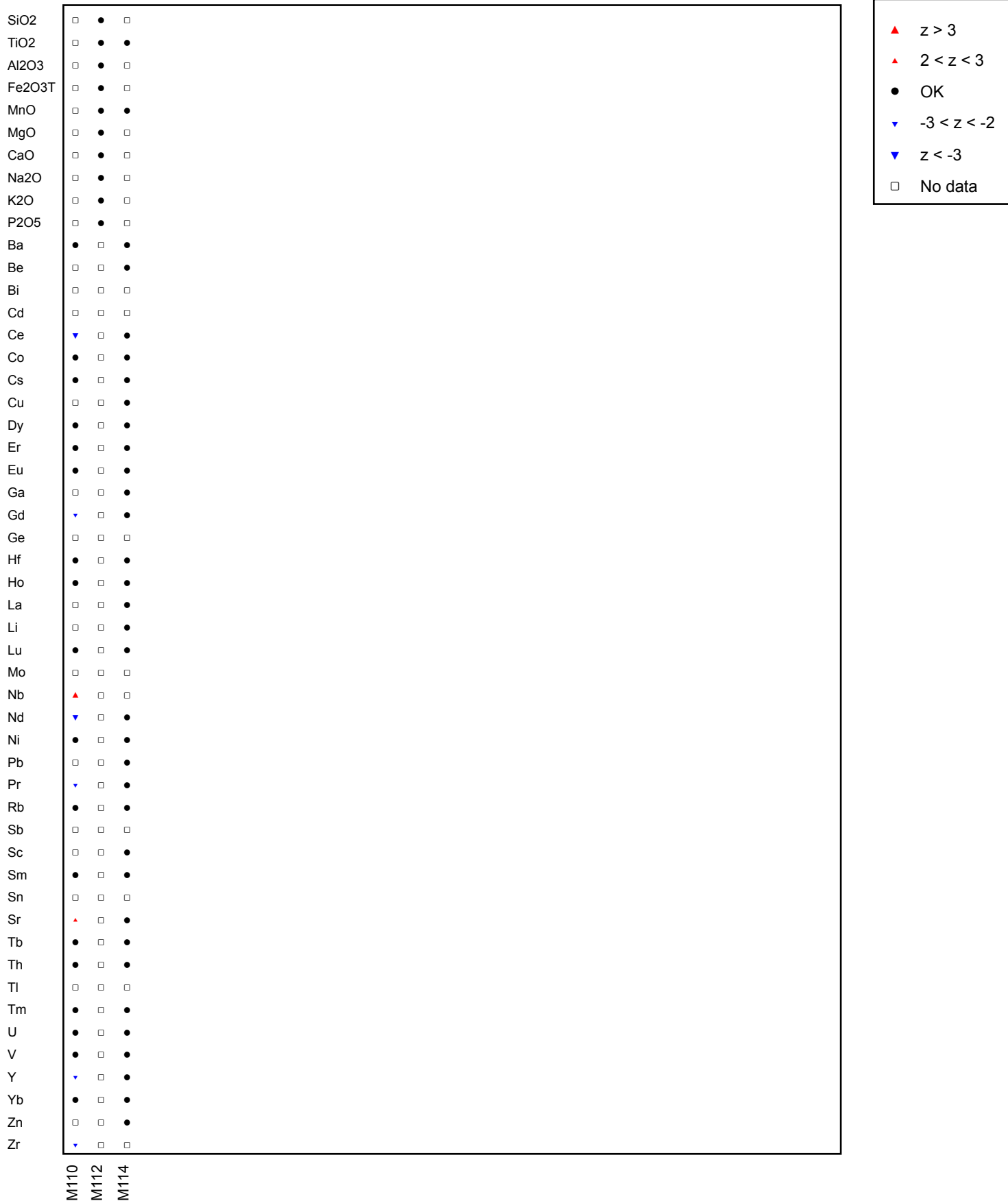


Figure 3: GeoPT36 - Gabbro, GSM-1. Multiple z-score charts for laboratories participating in the GeoPT36 round. Symbols indicate whether or not an elemental result complies with the $-2 < z < +2$ criteria (see key).