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CRB Analyse Service GmbH

RFA Ringversuch GeoPT 47A, IAG - NES-1, Silty Soil

Veranstalter des Ringversuchs:	International Association of Geoanalysts and Geostandards Newsletter - GeoPT47A
Ringversuchsmaterial:	NES-1, Silty Soil
RV geschlossen:	2021 - 1
Literatur:	Report - GeoPT47A Proficiency Testing Round 47A (Laborcode CRB = J88)

Hauptelemente [MA%]

	CRB	RV	1sRV	Z-Score
SiO_2	80,120	80,150	0,829	-0,020
TiO_2	0,696	0,700	0,015	-0,140
Al_2O_3	5,680	5,670	0,087	0,060
Fe_2O_3tot	3,160	3,121	0,053	0,370
MnO	0,094	0,091	0,003	0,560
MgO	0,500	0,500	0,011	-0,060
CaO	0,340	0,320	0,008	1,320
Na_2O*	0,280	0,282	0,056	-0,020
K_2O	1,040	1,045	0,021	-0,120
P_2O5	0,227	0,230	0,010	-0,260
L.O.I.	7,690	7,640	0,113	0,220
TOC*	2,690	2,510	0,442	0,200
C-gesamt*	2,820	2,930	0,369	-0,150

Spurenelemente [µg/g]

	CRB	RV	1sRV	Z-Score
Ba	150,00	160,50	6,00	-0,88
Cr	76,00	62,20	2,70	2,58
Cu	19,00	18,00	0,90	0,54
Ga	10,00	8,10	0,50	2,05
Hf	8,50	8,10	0,50	0,42
Nb	11,00	14,40	0,80	-2,23
Ni	21,00	19,10	1,00	1,00
Pb	38,00	40,00	1,80	-0,55
Rb	48,00	54,00	2,40	-1,27
Sr	30,00	27,00	1,30	1,14
V	49,00	51,00	2,30	-0,44
Y	19,00	17,80	0,90	0,65
Zn	68,00	64,10	2,70	0,71
Zr	330,00	322,00	10,80	0,37

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*

Proficiency Testing Programme for Geochemical Laboratories

Organised by the International Association of Geoanalysts (IAG)

Certificate of Performance

Subscriber: **GeoPT240** Laboratory Code: **J88** Test Material: **NES-1**
Round: **GeoPT47A** Date: **November 2020**

Analyte	Z-Score	Data Quality	Consensus Value	Result Submitted
			g/100g	g/100g
SiO2	**-0.02**	2	80.15	80.12
TiO2	**-0.14**	2	0.7000	0.696
Al2O3	**0.06**	2	5.670	5.68
Fe2O3T	**0.37**	2	3.121	3.16
MnO	**0.56**	2	0.09105	0.094
MgO	**-0.06**	2	0.5013	0.5
CaO	**1.32**	2	0.3200	0.34
K2O	**-0.12**	2	1.045	1.04
P2O5	**-0.26**	2	0.2300	0.227
LOI	**0.22**	2	7.641	7.69
			mg/kg	mg/kg
As	-	2	10.04	
Ba	**-0.88**	2	160.5	150
Be	-	2	0.7100	
Bi	-	2	0.1300	
Cd	-	2	0.2689	
Ce	-	2	43.00	
Co	-	2	8.385	
Cr	**2.58**	2	62.20	76
Cs	-	2	2.641	
Cu	**0.54**	2	18.00	19
Dy	-	2	2.953	
Er	-	2	1.818	
Eu	-	2	0.6800	
Ga	**2.05**	2	8.066	10
Gd	-	2	2.930	
Hf	**0.42**	2	8.100	8.5
Ho	-	2	0.6200	

Analyte	Z-Score	Data Quality	Consensus Value	Result Submitted
			mg/kg	mg/kg
La	-	2	22.79	
Li	-	2	21.23	
Lu	-	2	0.2900	
Mo	-	2	0.7150	
Nb	**-2.22**	2	14.44	11
Nd	-	2	18.57	
Ni	**1**	2	19.05	21
Pb	-	2	25.10	
Pr	-	2	5.040	
Rb	**-1.27**	2	54.00	48
Sb	-	2	1.159	
Sc	-	2	5.300	
Sm	-	2	3.300	
Sn	-	2	1.980	
Sr	**1.14**	2	27.00	30
Ta	-	2	0.9390	
Tb	-	2	0.4665	
Th	-	2	5.820	
Tl	-	2	0.3160	
Tm	-	2	0.2800	
U	-	2	2.090	
V	**-0.44**	2	51.00	49
W	-	2	1.060	
Y	**0.65**	2	17.80	19
Yb	-	2	1.820	
Zn	**0.71**	2	64.11	68
Zr	**0.37**	2	322.0	330

The principles upon which GeoPT z-scores are based are detailed in the full report for this round
- indicates result within acceptable range of z-score limits $\lvert z \rvert < 2$
- indicates result outside z-score limits $\lvert z \rvert > 2$ but within the z-score limits $\lvert z \rvert <$ or = 3
- indicates result outside z-score limits $\lvert z \rvert > 3$ and likely to require investigation
Consensus values are assigned values unless otherwise indicated
Shaded Consensus values have provisional status

Peter Webb - Administrator of GeoPT on behalf of the International Association of Geoanalysts

Geo*PT*47A — AN INTERNATIONAL PROFICIENCY TEST FOR ANALYTICAL GEOCHEMISTRY LABORATORIES — REPORT ON ROUND 47A (Silty Soil, NES-1) / December 2020

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*Keywords: proficiency testing, quality assurance, Geo*PT*, Geo*PT*47A, Round 47A, NES-1, Silty Soil, BGS*

Abstract

Results are presented for Round 47A of the International Association of Geoanalysts' Proficiency Testing programme for analytical geochemistry laboratories. The supplementary test material distributed in this round of Geo*PT* was the Silty Soil, NES-1, collected and processed under the direction of Dr Charles Gowing of the British Geological Survey. In this report, the data contributed by 92 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 forty-seventh round of the international proficiency testing programme, Geo*PT*, was conducted in a similar manner to earlier rounds. However, exceptional circumstances associated with the coronavirus pandemic affected scheduling (see **Timetable** section below). The programme is designed to be part of the routine quality assurance procedures employed by analytical geochemistry laboratories. It is organised by the International Association of Geoanalysts and is conducted in accordance with a published protocol, recently revised (IAG, 2020). The overall aim of the programme is to provide participating laboratories with *z*-score information for their reported measurement results so that each 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. In circumstances where *z*-scores are unsatisfactory, a participating laboratory is encouraged to investigate for unsuspected analytical bias and to take corrective action if this appears justified.

Steering Committee for Round 47A:

P.C. Webb (administrator and results assessor), P.J. Potts (results reviewer), M. Thompson (statistical advisor), C.J.B. Gowing (distribution manager and supplier of NES-1).

Timetable for Round 47A:

The coronavirus pandemic caused postponement of the mailing of test materials for Round 47A (originally scheduled for spring 2020), so that the interval after the previous round was extended from 6 to 11 months. The scheduled reporting window was extended by 10 days to allow for delayed deliveries.

Distribution of sample: August 2020

Results submission deadline: 30th November 2020

Release of report: January 2021

Test material details

Geo*PT*47A: The Silty Soil test material, NES-1, was collected from the soil horizon overlying Old Red Sandstone deposits from Moorpark, Co. Cork, in the Republic of Ireland and processed at the British Geological Survey, Keyworth, under the direction of Dr Charles Gowing. The test material was evaluated for homogeneity by the originator, and an evaluation of the results showed that this material was suitable for use in this proficiency test.

Submission of results

For Geo*PT*47A (NES-1), a total of 3146 results are listed in Table 1 as submitted by 92 laboratories. Measurement results that were designated by the participating laboratory as data quality 1 (see ***Z*-score analysis section** below for explanation) are shown in **bold** and those specified as data quality 2 are shown underlined. Results from all laboratories submitting data were used to assess respective consensus values. It is gratifying that no value of '0' (i.e., zero) was reported for this round. However, it is suspected that several laboratories reported results for C(org), C(tot), F, S and even Zr in units of g/100g instead of mg/kg. We must remind analysts reporting results that measurements of all trace constituents should be reported in mg/kg. Analysts should be aware that suspected invalid results ***cannot be altered or removed*** once they have been submitted and that their corresponding *z*-scores will be adversely affected.

Assigned values and results summary

Following procedures described in earlier rounds and detailed fully in the Geo*PT* protocol (IAG, 2020), robust statistical procedures were used to derive consensus values for measurands in this test material: these consensus values being judged to be the best available estimates of the true composition of the test material. Values were assigned on the basis that: i) sufficient laboratories (15 or more) had contributed data for estimating the consensus, ii) visual assessment gave confidence that a substantial proportion of the results distribution was symmetrically disposed about the consensus value, iii) the ratio of the uncertainty in the location estimate to the target precision was an acceptably small value, and iv) an evaluation of measurement results by procedure – including both methods of analysis and sample preparation – indicated that no significant procedural bias was discernible amongst measurement results from which the consensus was derived. Where these criteria were largely, but not fully met, values were credited with 'provisional' rather than 'assigned' status.

These assessments involve examining the distribution of results from barcharts of data contributed for each measurand (as presented in Figures 1 and 2). In addition, when appropriate, a variety of plots permitting discrimination of data by method of analysis and by sample preparation procedure, as developed by Thomas Meisel using the Shiny App (*https://www.shinyapps.io*) and linked to the statistical package 'R', were also examined. This enabled us, when necessary, to refine the selection of consensus values by taking account of data distributions according to analytical procedure.

Consensus values derived from contributed data were provided by the Huber robust mean in only 4 instances. Although outliers can be accommodated by this procedure, frequently, as when a dataset is skewed, it does not provide a satisfactory estimation of the consensus. In such circumstances, the median is often a more appropriate robust estimator and was employed in 19 cases. For more severely skewed and strongly tailed datasets, even the median may not be satisfactory and a mode can often be a much more effective means of estimating the location of the consensus. In this round the use of modes as consensus location estimators was preferred in 31 cases, and in 23 of these, distributions were compatible with the conditions outlined above to justify their designation as assigned values. The procedure used to determine modes was most often that described by Thompson (2017) involving the estimation of the mass fraction that corresponds to the maximum value of the kernel density distribution for the dataset. Such modes derived by bootstrapping provide robust estimates of consensus locations representing the most coherent part of data distributions where data are symmetrically disposed, although the dataset as a whole may be asymmetric.

Table 2 lists assigned and provisional values for 10 major components and 44 trace elements in Geo*PT*47A (NES-1). Barcharts that were judged to have satisfactory distributions for consensus values to be designated as assigned or provisional values, enabling *z*-scores to be calculated, are shown in Figure 1. These 54 measurands of Geo*PT*47A listed in Table 2 are for the analytes: SiO_2, TiO_2, Al_2O_3, Fe_2O_3T, MnO, MgO, CaO*, K_2O, P_2O_5, LOI*, As*, Ba, Be, Bi*, Cd*, Ce, Co, Cr*, Cs, Cu, Dy, Er, Eu, Ga*, Gd, Hf*, Ho, La, Li, Lu, Mo, Nb, Nd, Ni, Pb, Pr, Rb, Sb*, Sc, Sm, Sn*, Sr, Ta, Tb, Th, Tl, Tm, U, V*, W*, Y, Yb, Zn and Zr. Of these, the measurands of the 12 analytes marked '*' were credited only with provisional status. Such instances of provisional status were identified because either: i) a relatively small number of results (less than 15, but usually more than 9) contributed to the consensus, or ii) the results were unduly dispersed in relation to the target value, or iii) the distribution of results was significantly skewed.

Bar charts for the 15 analytes: Fe(II)O, Na_2O, H_2O^+, Ag, Br, C(org), C(tot), Cl, F, Ge, Hg, In, S, Se and Te are plotted in Figure 2 for information only, as the data were either insufficient in number, or the distribution was too highly skewed or too variable for the reliable determination of a consensus for the estimation of *z*-scores.

Data review

Although some datasets in this round were largely symmetrically disposed, with relatively little dispersion of the data, many datasets were skewed, featuring variable degrees of asymmetry, and requiring estimation of the consensus using median values and modes.

For a number of constituents strongly low-tailed distributions were apparent, especially for Hf and Zr, but also to varying extents for Dy, Er, Ho, Lu, Nb, Tb, Tm, Y and Yb. Most of these low values were reported by laboratories using acid digestion prior to ICP-MS or ICP-AES measurement. Such observations are comparable to those reported for Geo*PT*31 (SdAR-1) by Potts et al (2015), where digestion recoveries were incomplete for a similar range of analytes. In this case, as for SdAR-1, the suspicion is that accessory zircon is responsible, since it frequently hosts not only Zr, but Hf and HREEs and is particularly susceptible to incomplete dissolution.

High tails were noted for Al_2O_3, MnO, CaO, Ag, Ba, Be, Bi, Ce, Co, Cs, Cu, Ga, La, Mo, Ni, Pb, Sb, Sc, Sn, Sr, Th, U, V and W. Some of these, such as those of CaO, Ce, Ga, La and Pb are the result of relatively poor precision of values reported by particular measurement procedures, frequently those derived by XRF (but not obviously so in the case of CaO). There is a consequent tendency for such values to display a positive bias, especially when reported at mass fractions close to, and in some cases below, a realistic detection limit for the measurement procedure, such as for As, Mo, U, Sc, Sn, Th and W. For Al_2O_3, MnO and to a lesser extent for CaO the high values were largely from XRF powder pellet measurements, as were several of the values in the contrasting low tail exhibited by SiO_2. In one case, for Mo, high values appear to reflect a preponderance of preparation by fusion prior to ICP-MS measurement, whereas acid digestions have a more coherent distribution. Unusually, a high tail is noted for Sr, largely due to XRF values, although they are also distributed throughout and should not be affected by proximity to the detection limit for Sr.

In some sets of results, notably those of MnO, MgO, CaO and P_2O_5, stepped distributions are apparent owing to over-rounding of much of the data. Our firm recommendation is that minor components should be quoted to at least three decimal places in order for the statistical procedures to more effectively define the consensus. Similar logic also applies when any components (such as CaO) are reported at low mass fractions.

For several trace elements, it is noteworthy that the reported data exhibit a high degree of coherence and consistency although there are insufficient data to satisfy our criteria for establishment of values that would permit *z*-scores to be quoted. In such cases information values may be recognised, including 14.9 mg/kg for Br, 0.082 mg/kg for Hg and 0.027 mg/kg for In.

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*47A, 1418 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*47A, 1728 results of data quality 2 were submitted.

The target standard deviation (H_a) for each measurand 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 mass fraction of the element; the factor k = 0.01 for pure geochemistry laboratories and k = 0.02 for applied geochemistry laboratories.

Z-scores were calculated for each elemental measurement submitted by each laboratory from:

$$z = [X - X_a] / H_a$$

Where X is the contributed measurement result, X_a is the assigned value and H_a is the target standard deviation (all as mass fractions). *Z*-scores for results contributed to Geo*PT*47A are listed in Table 3. Results designated as data quality 1 are shown in bold: results of data quality 2 are shown underlined. *Z*-scores derived from provisional values of measurands are shown in italics.

Participating laboratories are invited to assess their performance using the following criteria:–

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 an element falls outside this range, especially if it is outside the range $-3<z<3$, laboratories are advised to examine their 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 easy to identify whether the results were satisfactory or gave *z*-scores that exceeded the action limits. This chart is designed to help individual laboratories judge their overall performance in this proficiency testing round. Participants should always review their *z*-scores in accordance 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 Round 48, the test sample for which was distributed during September 2020. This round was delayed from autumn 2020 and will take place in early spring 2021.

Acknowledgements

The authors once again thank Andrea Mills (BGS) for much-valued assistance in distributing these samples and Thomas Meisel for development of procedures involving the Shiny App which has greatly assisted the investigation of data according to analytical procedure and facilitated analysis of datasets involving modes derived according to Thompson (2017).

References

IAG (2020) Protocol for the operation of the Geo*PT* Proficiency testing scheme. International Association of Geoanalysts (Keyworth, UK), 18pp. *http://www.geoanalyst.org/wp-content/uploads/2020/07/GeoPT-revised-protocol-2020.pdf*.

Potts P.J., Webb P.C. and Thompson M. (2015) Bias in the determination of Zr, Y and rare earth element concentrations in selected silicate rocks by ICP-MS when using some routine acid dissolution procedures: Evidence from the Geo*PT* proficiency testing programme. *Geostandards and Geoanalytical Research*, 39, 403–416.

Thompson, M. (2017) On the role of the mode as a location parameter for the results of proficiency tests in chemical measurement. *Anal. Methods*, **9**, p.5534-5540.

ADDENDUM
— IMPORTANT NOTICES TO ANALYSTS

Change in uncertainty estimation:

A change has been made to the algorithm for the estimation of uncertainty for median values. The revised procedure has been implemented for the first time in this round (Geo*PT*47/47A). As described in the revised Geo*PT* protocol (IAG, 2020), median uncertainties are increased by a factor of 1.2533. Therefore, when comparing uncertainties from this and future rounds with those from past rounds those uncertainty values previously reported for medians should be increased by this factor.

Explicit advice to analysts regarding reporting of procedures involving ignition and fusion:

Note that too many laboratories are still listing their procedure for determining LOI as the same as that employed for major elements, rather than providing separate, specific details. We must remind analysts that it is important to provide information that is appropriate for every analyte. Indeed, analysts reporting measurement results for procedures involving fusion, sintering or ignition, and in particular, LOI determinations, should specify the correct method used and give details both of the temperature used and where appropriate, the end-point criterion, e.g., the duration of ignition. This information should be supplied in the description of the relevant **Procedure,** as **Additional Details**.

We recommend that details of gravimetric procedures are included under **Analytical Technique details** rather than under **Sample Preparation details**. For gravimetric analysis, other than drying, which should in any case be carried out according to our instructions, there is no other sample preparation involved.

References of more general relevance

Potts, P.J., Thompson, M., and Webb, P.C. (2015) The Reliability of Assigned Values from the Geo*PT* Proficiency Testing Programme from an Evaluation of Data for Six Test Materials that have been Characterised as Certified Reference Materials. *Geostandards and Geoanalytical Research*, **39**, 407-417.

Potts, P.J., Webb, P.C. and Thompson M. (2019) The Geo*PT* proficiency testing programme as a scheme for the certification of geological reference materials. *Geostandards and Geoanalytical Research*, **43**, 409–418.

Webb, P.C., Potts P.J., Thompson M., Wilson, S.A. and Gowing, C.J.B. (2019) The long-term robustness and stability of consensus values as composition location estimators for a typical geochemical test material in the Geo*PT* proficiency testing programme. *Geostandards and Geoanalytical Research*, **43**, 397–408.

Potts, P.J. and Webb, P.C (2019) An Evaluation of Methods for Assessing the Competence of Laboratories Based on Performance in the Geo*PT* Proficiency Testing Scheme. *Geostandards and Geoanalytical Research*, **43**, 217–229.

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).

Appendix 1 (Cont'd)

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.

Appendix 1 (Cont'd)

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 (Granite, GRI-1) / January 2014. 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 (Tonalite, TLM-1) / August 2014. 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 (Metalliferous sediment, SdAR-H1) / August 2014. 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 (Gabbro, GSM-1) / January 2015. 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 (Metal-rich sediment, SdAR-M2) / January 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*37
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Burnham, M. (2015)
Geo*PT*37 - an international proficiency test for analytical geochemistry laboratories - report on round 37 (Rhyolite, ORPT-1) / July 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*37A
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S. (2015)
Geo*PT*37A - an international proficiency test for analytical geochemistry laboratories - report on round 37A (Blended sediment, SdAR-L2) / July 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*38
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2016)
Geo*PT*38 - an international proficiency test for analytical geochemistry laboratories - report on round 38 (Gabbro, OU-7) / January 2016. International Association of Geoanalysts: Unpublished report.

Geo*PT*38A
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Meisel, T. (2016)
Geo*PT*38A - an international proficiency test for analytical geochemistry laboratories – special report on round 38A (Modified harzburgite, HARZ01) / June 2016. International Association of Geoanalysts: Unpublished report.

Geo*PT*39
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2016)
Geo*PT*39 - an international proficiency test for analytical geochemistry laboratories - report on round 39 (Syenite, SyMP-1) / July 2016. International Association of Geoanalysts: Unpublished report.

Geo*PT*39A
Webb, P.C., Thompson, M., Potts, P.J, and Gowing, C.J.B. (2016)
Geo*PT*39A - an international proficiency test for analytical geochemistry laboratories - report on round 39A (Nepheline syenite, MNS-1) / July 2016. International Association of Geoanalysts: Unpublished report.

Geo*PT*40
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2017)
Geo*PT*40 - an international proficiency test for analytical geochemistry laboratories - report on round 40 (Silty marine shale, ShWYO-1) / January 2017. International Association of Geoanalysts: Unpublished report.

Geo*PT*40A
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2017)
Geo*PT*40A - an international proficiency test for analytical geochemistry laboratories - report on round 40A (Calcareous organic-rich shale, ShTX-1) / January 2017. International Association of Geoanalysts: Unpublished report.

Geo*PT*41
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2017)
Geo*PT*41 - an international proficiency test for analytical geochemistry laboratories - report on round 41 (Andesite, ORA-1) / July 2017. International Association of Geoanalysts: Unpublished report.

Geo*PT*41A
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2017)
Geo*PT*41A - an international proficiency test for analytical geochemistry laboratories - report on round 41A (Mineralized stream sediment, SSCO-1) / July 2017. International Association of Geoanalysts: Unpublished report.

Geo*PT*42
Webb, P.C., Thompson, M., Potts, P.J., Gowing, C.J.B. and Burnham, M. (2018)
Geo*PT*42 – an international proficiency test for analytical geochemistry laboratories – report on round 42 (Queenston shale, QS-1) / January 2018. International Association of Geoanalysts: Unpublished report.

Appendix 1 (Cont'd)

Geo*PT*43

Webb, P.C., Potts, P.J., Thompson, M. and Gowing, C.J.B. (2018) Geo*PT*43 – an international proficiency test for analytical geochemistry laboratories – report on round 43 (Dolerite, ADS-1) / July 2018. International Association of Geoanalysts: Unpublished report.

Geo*PT*44

Webb, P.C., Potts, P.J., Thompson, M., Gowing, C.J.B. (2019) Geo*PT*44 – an international proficiency test for analytical geochemistry laboratories – report on round 44 (Calcareous shale, ShCX-1) / January 2019. International Association of Geoanalysts: Unpublished report.

Geo*PT*44A

Webb, P.C., Potts, P.J., Thompson, M. Gowing, C.J.B. and Wilson, S.A. (2019) Geo*PT*44A – an international proficiency test for analytical geochemistry laboratories – report on round 44A (Calcareous mudrock, CM-1) / January 2019. International Association of Geoanalysts: Unpublished report.

Geo*PT*45

Webb, P.C., Potts, P.J., Thompson, M. Gowing, C.J.B. and Wilson, S.A. (2019) Geo*PT*45 – an international proficiency test for analytical geochemistry laboratories – report on round 45 (Silicified siltstone, GONV-1) / July 2019. International Association of Geoanalysts: Unpublished report.

Geo*PT*46

Webb, P.C., Potts, P.J., Thompson, M., Gowing, C.J.B. (2020) Geo*PT*46 – an international proficiency test for analytical geochemistry laboratories – report on round 46 (Granodiorite, HG-1) / January 2020. International Association of Geoanalysts: Unpublished report.

Geo*PT*46A

Webb, P.C., Potts, P.J., Thompson, M. Gowing, C.J.B. and Wilson, S.A. (2020) Geo*PT*46A – an international proficiency test for analytical geochemistry laboratories – report on round 46A (Phosphate rock, POLC-1) / January 2020. International Association of Geoanalysts: Unpublished report.

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J1	J2	J3	J4	J5	J6	J9	J11	J12	J14	J15	J16	J18
SiO2	g 100g^{-1}	**62.92**	80.15	**78.7**	79.1			**78.984**	**80.16**	**78.74**	**80.44**	80.27	80.1	82.9
TiO2	g 100g^{-1}	**1.11**	0.696	**0.67**	0.71	**0.45**		**0.694**	**0.66**	**0.659**	**0.72**	0.68	0.667	0.61
Al2O3	g 100g^{-1}	**13.56**	5.758	**5.54**	5.64	**5.42**		**5.604**	**5.48**	**5.61**	**5.71**	5.56	5.694	4.51
Fe2O3T	g 100g^{-1}	**8.99**	3.103	**2.94**	3.223	**3.08**		**3.066**	**3.05**	**3.12**	**3.1**	3.15	3.101	2.64
Fe(II)O	g 100g^{-1}						**2.34**							
MnO	g 100g^{-1}	**0.18**	0.092	**0.091**	0.089	**0.095**		**0.091**	**0.09**	**0.090**	**0.091**	0.09	0.090	0.078
MgO	g 100g^{-1}	**1.23**	0.466	**0.5**	0.501	**0.56**		**0.5**	**0.45**	**0.504**	**0.47**	0.51	0.514	0.43
CaO	g 100g^{-1}	**0.75**	0.321	**0.32**	0.3	**0.8**		**0.31**	**0.32**	**0.224**	**0.31**	0.32	0.325	0.28
Na2O	g 100g^{-1}		0.227	**0.28**	0.294	**0.1**		**0.336**	**0.27**	**0.274**	**0.28**	0.34	0.293	0.24
K2O	g 100g^{-1}	**4.05**	1.034	**1.03**	1.052	**0.85**		**1.047**	**1.03**	**1.19**	**1.06**	1.07	1.02	0.96
P2O5	g 100g^{-1}		0.234	**0.23**	0.203	**0.22**		**0.228**	**0.23**	**0.233**	**0.23**	0.23	0.226	0.23
H2O+	g 100g^{-1}													
CO2	g 100g^{-1}													
LOI	g 100g^{-1}	**7.1**	7.74			**8.84**		**9**	8.06	**8.9**	**7.56**	7.63	7.434	6.99
Ag	mg kg^{-1}				0.13	**0.21**	**0.144**							
As	mg kg^{-1}		4.67		8.89		**11.23**		**13.6**		**10**	12		
Au	mg kg^{-1}	**0.01**												
B	mg kg^{-1}				55.2									
Ba	mg kg^{-1}		161		166.4	**180**	**166.270**	**176**	11894	**162.958**	**144**	159	104.8	136.086
Be	mg kg^{-1}		0.92		1.269	**0.73**	**0.91**			**0.692**				
Bi	mg kg^{-1}		0.13		0.112	**0.119**	**0.27**				**1**			
Br	mg kg^{-1}								**14**		**15**			
C(org)	mg kg^{-1}												30400	
C(tot)	mg kg^{-1}												24300	
Cd	mg kg^{-1}		0.42		0.315	**0.18**	**0.358**		**2.6**	**0.289**				
Ce	mg kg^{-1}		42.3		46.19	**47.96**	**43.112**		**44.3**	**43.788**	**39**	43		38.818
Cl	mg kg^{-1}													
Co	mg kg^{-1}		8.37		8.324	**9.65**	**9.06**			**8.513**	**9**			
Cr	mg kg^{-1}		45.5		59.27	**56**	**38.94**	**59**	**61.9**		**59**	65	60.22	
Cs	mg kg^{-1}		2.82		2.757		**3.25**		**18.1**	**2.67**	**2**			2.619
Cu	mg kg^{-1}		20.9		17.03	**18.7**	**18.12**	**26**	**15.3**	**17.338**	**16**	15		112.477
Dy	mg kg^{-1}		2.06		3.396	**2.63**	**3.172**			**2.733**				2.881
Er	mg kg^{-1}		1.28		1.965	**1.78**	**1.967**			**1.656**				
Eu	mg kg^{-1}		0.62		0.791	**0.43**	**0.571**			**0.676**				
F	mg kg^{-1}						**0.034**		1451					
Ga	mg kg^{-1}		10.7		7.37	**8.49**	**8.21**	**7**	**10.6**		**7**	8		
Gd	mg kg^{-1}		2.76		3.073	**2.72**	**2.962**			**2.817**				
Ge	mg kg^{-1}		0.78				**0.13**							
Hf	mg kg^{-1}		2.72		8.246		**2.123**			**4.467**	**8**			
Hg	mg kg^{-1}													
Ho	mg kg^{-1}		0.4		0.603	**0.51**	**0.598**			**0.563**				
I	mg kg^{-1}								**11.2**		**5.2**			
In	mg kg^{-1}					**0.069**	**0.024**							
La	mg kg^{-1}		21.9		24.33	**23.45**	**24.814**		**17**	**22.779**	**21**	24		19.539
Li	mg kg^{-1}		23.3		20.21		**22.35**			**22.12**				
Lu	mg kg^{-1}		0.19		0.241	**0.31**	**0.308**			**0.248**				
Mo	mg kg^{-1}		0.63		0.676	**1.4**	**0.55**							
N	mg kg^{-1}													
Nb	mg kg^{-1}		11.8		14.23		**9.9**		**14.5**	**16.663**	**14**	15		
Nd	mg kg^{-1}		18		19.74	**19.4**	**19.243**		**20.2**	**19.014**	**16**			16.78
Ni	mg kg^{-1}		20.4		17.87	**21.18**	**18.4**		**16.7**	**19.097**	**17**	18	20.58	
Pb	mg kg^{-1}		25.6		22.82	**14**	**26.58**		**25.4**	**22.998**	**24**	26		
Pr	mg kg^{-1}		5.02		5.159	**5.22**	**4.961**			**5.139**				5.586
Rb	mg kg^{-1}		52.9		55.6	**54.36**	**58.53**	**58**	**47.7**	**52.639**	**52**	56		46.982
Re	mg kg^{-1}													
S	mg kg^{-1}				442.7	**400**			425				385	
Sb	mg kg^{-1}		1.12		1.083	**0.15**	**1.21**				**0.9**			
Sc	mg kg^{-1}		5.78			**5.4**	**6.13**		**4.1**	**5.577**	**4**	7		
Se	mg kg^{-1}				0.485	**0.77**	**2.7**				**1**			
Sm	mg kg^{-1}		3.14		3.216	**3.13**	**3.578**		**3**	**3.332**	**4**			
Sn	mg kg^{-1}		1.21		1.765		**2**		**6.8**	**2.201**	**2.2**			
Sr	mg kg^{-1}		27.1		24.85	**29.7**	**27.53**	**25**	**29.1**	**27.592**	**26**	28	31.84	25.28
Ta	mg kg^{-1}		0.78		0.911		**1.34**			**1.013**	**2**			
Tb	mg kg^{-1}		0.37		0.446	**0.26**	**0.451**			**0.443**				
Te	mg kg^{-1}					**0.029**	**0.14**		**2.8**					
Th	mg kg^{-1}		5.51		13.77	**5.05**	**5.77**		**7.4**	**5.679**	**5**	6		
Tl	mg kg^{-1}		0.3		0.315	**0.33**	**0.359**			**0.317**				0.361
Tm	mg kg^{-1}		0.19		0.256	**0.24**	**0.316**			**0.24**				
U	mg kg^{-1}		1.89		5.231	**2.36**	**1.89**			**2.054**	**3**	3		1.963
V	mg kg^{-1}		48		47.65	**53.4**	**47.17**	**64**	**47.6**	**51.138**	**48**	52	59.86	
W	mg kg^{-1}		0.83		1.008		**0.52**			**1.042**	**3**			
Y	mg kg^{-1}		12		18.67	**16.5**	**16.944**		**17.1**	**16.327**	**16**	18		8.505
Yb	mg kg^{-1}		1.28		2.068	**1.66**	**1.751**			**1.613**	**2**			
Zn	mg kg^{-1}		63.4		65.4	**63**	**60.45**	**64**	**48.9**	**63.894**	**62**	63	60.72	214.932
Zr	mg kg^{-1}		99.3		287.9	**242**	**75.12**	**288**	**306.7**	**165.587**	**323**	333	316	

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J20	J21	J22	J24	J25	J26	J27	J28	J29	J30	J31	J33	J34
SiO2	g 100g^{-1}	**79.39**	**79.9**	**78.14**	80.126	**80.39**	77.57	**81.84**		79.83	79.453	80.229	79.2	79.9
TiO2	g 100g^{-1}	**0.69**	**0.689**	**0.678**	0.690	**0.67**	0.67	**0.73**	**0.67**	0.7	0.672	0.683	0.72	0.694
Al2O3	g 100g^{-1}	**5.61**	**5.67**	**5.59**	5.739	**5.68**	5.55	**5.68**	**5.7**	5.2	5.548	5.701	5.59	5.698
Fe2O3T	g 100g^{-1}	**3.24**	**3.18**	**3.101**	3.161	**3.1**	3.04	**3.15**	**3.07**	3.29	3.1	3.049	3.35	3.036
Fe(II)O	g 100g^{-1}	**2.373**			2.398			**0.16**						
MnO	g 100g^{-1}	**0.09**	**0.092**	**0.090**	0.093	**0.09**	0.09	**0.09**	**0.09**	0.1	0.115	0.089	0.098	0.092
MgO	g 100g^{-1}	**0.49**	**0.49**	**0.48**	0.538	**0.49**	0.5	**0.47**	**0.5**	0.49	0.515	0.52	0.51	0.534
CaO	g 100g^{-1}	**0.32**	**0.32**	**0.32**	0.317	**0.31**	0.58	**0.31**	**3.06**	0.3	0.215	0.302	0.37	0.337
Na2O	g 100g^{-1}	**0.28**	**0.28**	**0.31**	0.335	**0.28**	0.31	**0.13**	**0.29**	0.27	0.256	0.289	0.28	0.339
K2O	g 100g^{-1}	**0.97**	**1.05**	**1.02**	1.071	**1.03**	1.06	**1.05**	**1.01**	1.09	1.06	1.053	1.05	1.04
P2O5	g 100g^{-1}	**0.23**	**0.229**	**0.224**	0.233	**0.23**	0.22	**0.23**	**0.22**	0.22	0.229	0.342	0.237	0.223
H2O+	g 100g^{-1}	**2.750**			3.81			**4.62**		1.24				
CO2	g 100g^{-1}	**10.702**					10.3							0.62
LOI	g 100g^{-1}	**7.58**	**7.87**	**8.41**	7.406	**7.47**	9.44			8.44	7.757	7.76	**7.88**	8.034
Ag	mg kg^{-1}	**0.148**		**0.16**	0.099	**0.101**	0.21							
As	mg kg^{-1}	**10.2**		**10.2**	9.232						12		7.1	
Au	mg kg^{-1}													
B	mg kg^{-1}	**32.387**												
Ba	mg kg^{-1}	**154**	**158**	**157**	163.260	**165.329**	160.830	**158**	**159**		174	215	187	167.3
Be	mg kg^{-1}	**0.71**		**0.72**	0.731	**0.936**			**0.8**					
Bi	mg kg^{-1}	**0.13**			0.17	**0.133**			**0.15**					
Br	mg kg^{-1}												13	
C(org)	mg kg^{-1}	**14752**		**24450**				**29600**						23300
C(tot)	mg kg^{-1}			**26000**	27928		28090.300					29748		29500
Cd	mg kg^{-1}	**0.27**		**0.301**	0.24	**0.243**			**0.15**					
Ce	mg kg^{-1}	**42.4**	**43.63**	**46.9**	42.749	**40.759**	42.93	**48**	**43.6**		47		41	
Cl	mg kg^{-1}	**59.739**						25						
Co	mg kg^{-1}	**8.34**		**8.87**	8.675	**8.385**	8.63	**8**	**8.42**				7.5	
Cr	mg kg^{-1}	**69.3**	**63**	**75.7**	59.77	**64.744**	65.24	**72**	**62**		66	70	61	71.5
Cs	mg kg^{-1}	**2.68**	**2.59**		2.783	**2.57**	3.26	**7**	**2.64**					
Cu	mg kg^{-1}	**20.2**	**19**	**18.5**	18.59	**19.009**	17.38	**22**	**17.6**		12		17	15.8
Dy	mg kg^{-1}	**2.97**	**3.22**	**3.201**	2.892	**2.953**	2.87		**3**					
Er	mg kg^{-1}	**1.77**	**1.91**	**1.901**	1.795	**1.835**	1.7		**1.88**					
Eu	mg kg^{-1}	**0.679**	**0.73**	**0.68**	0.663	**0.694**	0.64		**0.68**					
F	mg kg^{-1}	**277**		**300**				230						
Ga	mg kg^{-1}	**8.32**	**8**		8.044	**7.955**	8.01	**11**	**8.1**		9		7.9	
Gd	mg kg^{-1}	**2.87**	**3.01**	**3.501**	2.829	**2.88**	3.04		**2.88**					
Ge	mg kg^{-1}	**1.29**												
Hf	mg kg^{-1}	**8.19**	**7.57**	**8.85**	5.55	**6.633**	8.09	**4**	**8.07**		7		12	
Hg	mg kg^{-1}	**0.084**												
Ho	mg kg^{-1}	**0.643**	**0.68**	**0.65**	0.597	**0.621**	0.61		**0.62**					
I	mg kg^{-1}													
In	mg kg^{-1}				0.026									
La	mg kg^{-1}	**22**	**22.92**	**24.6**	22.5	**20.241**	22.14	**28**	**22.8**	211	26		13	
Li	mg kg^{-1}	**21.849**		**23.2**	21.21	**20.995**			**21.3**					
Lu	mg kg^{-1}	**0.287**	**0.28**	**0.31**	0.267	**0.28**	0.25		**0.29**					
Mo	mg kg^{-1}	**0.85**		**0.56**	0.7	**0.746**	1.09	**2**	**0.7**					
N	mg kg^{-1}													
Nb	mg kg^{-1}	**12.5**	**13.82**	**14.6**	14.535	**13.283**	14.26	**18**	**14.8**		18		13	
Nd	mg kg^{-1}	**18.3**	**18.74**	**19.4**	17.853	**18.035**	17.69	**20**	**18.3**	182	16		19	
Ni	mg kg^{-1}	**20**	**15**	**20.6**	20.42	**18.437**	25.75	**28**	**19.3**		17		19	22.1
Pb	mg kg^{-1}	**24.5**	**23.66**	**24.8**	24.183	**25.253**		**40**	**26.3**		28	41	24	35.9
Pr	mg kg^{-1}	**4.92**	**5.09**	**4.96**	4.951	**4.893**	4.73		**5.02**					
Rb	mg kg^{-1}	**54.6**	**52.2**	**76.1**	56.035	**47.602**	57.43	**63**	**54**		48	52	52	
Re	mg kg^{-1}													
S	mg kg^{-1}	**405**		**500**	458		431.8	590				446		
Sb	mg kg^{-1}	**1.28**		**1.06**	1.377	**1.197**	1.27							
Sc	mg kg^{-1}	**5.55**	**5.2**	**5.16**	5.68	**5.318**	5.3	**9**	**5.54**				6.5	
Se	mg kg^{-1}			**1.26**										
Sm	mg kg^{-1}	**3.29**	**3.49**	**3.54**	3.17	**3.328**	3.2		**3.41**					
Sn	mg kg^{-1}	**2.27**			1.94	**1.815**		**3**	**2.21**		2			
Sr	mg kg^{-1}	**26.8**	**28**	**27.3**	29.05	**25.1**	28.04	**34**	**25.9**			27	25	
Ta	mg kg^{-1}	**1.07**	**0.96**	**0.85**	0.900	**0.865**	0.87	**7**	**0.98**					
Tb	mg kg^{-1}	**0.455**	**0.52**	**0.47**	0.454	**0.484**	0.47		**0.48**					
Te	mg kg^{-1}					**0.024**								
Th	mg kg^{-1}	**5.82**	**5.89**	**6.301**	5.550	**5.769**	5.81	**12**	**6.24**		7			
Tl	mg kg^{-1}			**0.33**		**0.291**			**0.36**					
Tm	mg kg^{-1}	**0.278**	**0.28**	**0.28**	0.255	**0.28**	0.25		**0.29**					
U	mg kg^{-1}	**2.09**	**2.07**	**2.201**	1.978	**2.144**	2.1	**3**	**2.38**				2.2	
V	mg kg^{-1}	**46.3**	**51**	**61.4**	54.08	**44.956**	50.42	**49**	**46**	128	69		51	104.3
W	mg kg^{-1}	**1.15**			1.06	**1.071**		**2**	**1.04**					
Y	mg kg^{-1}	**17.5**	**18.37**	**18.01**	18.608	**17.552**	17.57	**21**	**19.1**		24	14	17	
Yb	mg kg^{-1}	**1.86**	**1.81**	**2.001**	1.738	**1.82**	1.66		**1.91**					
Zn	mg kg^{-1}	**67.9**	**66**	**63.8**	64.71	**61.624**	68.05	**74**	**63.3**		65	72	58	77.2
Zr	mg kg^{-1}	**326**	**300**	**362**	245	**311.422**	302.280	**332**	**348**		369	326	321	345.4

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J36	J37	J39	J40	J41	J42	J43	J45	J46	J49	J52	J54	J55
SiO2	$g\ 100g^{-1}$	**80.401**	81.55	78.66	**79.71**	79.85	79.994	80.18	77.83	**79**	77.02	79.1	**79.3**	**80.29**
TiO2	$g\ 100g^{-1}$	**0.72**	0.692	0.614	**0.736**	0.7	0.714	0.7	0.68	**0.73**	0.702	0.51	**0.71**	**0.71**
Al2O3	$g\ 100g^{-1}$	**5.664**	5.82	5.561	**5.77**	5.57	5.688	5.81	5.59	**5.56**	7.77	5.76	**5.53**	**5.81**
Fe2O3T	$g\ 100g^{-1}$	**3.161**	3.19	3.127	**3.305**	3.03	3.217	3.33	3.07	**3.27**	3.46	2.76	**3.06**	**3.17**
Fe(II)O	$g\ 100g^{-1}$													
MnO	$g\ 100g^{-1}$	**0.096**	0.098	0.087	**0.100**	0.08	0.094	0.070	0.09	**0.11**	0.102	0.093	**0.1**	**0.09**
MgO	$g\ 100g^{-1}$	**0.477**	0.43	0.495	**0.525**	0.49	0.489	0.57	0.5	**0.71**	0.674	0.42	**0.51**	**0.49**
CaO	$g\ 100g^{-1}$	**0.32**	0.34	0.298	**0.327**	0.33	0.328	0.33	0.31	**0.88**	0.373	0.28	**0.33**	**0.35**
Na2O	$g\ 100g^{-1}$	**0.162**	0.27	0.287	**0.349**	0.16	0.277	0.32	0.31	**0.39**	0.291	0.34	**0.24**	**0.28**
K2O	$g\ 100g^{-1}$	**1.045**	1.14	1.035	**1.028**	0.98	1.025	1.03	1.09	**1.06**	1.18	0.92	**1.05**	**1.03**
P2O5	$g\ 100g^{-1}$	**0.198**	0.23	0.229	**0.237**	0.222	0.232	0.249	0.225		0.373		**0.23**	**0.22**
H2O+	$g\ 100g^{-1}$													
CO2	$g\ 100g^{-1}$													
LOI	$g\ 100g^{-1}$	7.65	7.63		**7.68**	8.39	7.54	7.47	9.11	**8.14**		7.66	**8.29**	**7.3**
Ag	$mg\ kg^{-1}$													
As	$mg\ kg^{-1}$				**14**		7.67	9.9					12	**13.8**
Au	$mg\ kg^{-1}$													
B	$mg\ kg^{-1}$	33.27												
Ba	$mg\ kg^{-1}$	176.3		159.1	**162**		156.3	141.8			319		186	**152**
Be	$mg\ kg^{-1}$						0.73							
Bi	$mg\ kg^{-1}$													
Br	$mg\ kg^{-1}$							14.1						
C(org)	$mg\ kg^{-1}$						28000							
C(tot)	$mg\ kg^{-1}$			28600				30300		**27500**				**2.86**
Cd	$mg\ kg^{-1}$													
Ce	$mg\ kg^{-1}$	34.6			**49**		43.16	33.8		**41.6**				**48**
Cl	$mg\ kg^{-1}$			56	**109**						141			
Co	$mg\ kg^{-1}$	12.07			**12**		8.5	9.9						**9.2**
Cr	$mg\ kg^{-1}$	**55.7**		39.77	**72**		64.6	52.7			77			**55.6**
Cs	$mg\ kg^{-1}$	4.36					2.47	2.6						**3.2**
Cu	$mg\ kg^{-1}$	15.3			**23**		14.8	17			103			**12.5**
Dy	$mg\ kg^{-1}$	2.18					3.04			**2.37**				
Er	$mg\ kg^{-1}$	1.35					1.91			**1.08**				
Eu	$mg\ kg^{-1}$	0.664					0.67			**0.67**				
F	$mg\ kg^{-1}$			305	**575**									
Ga	$mg\ kg^{-1}$	10.71			**9**		8.22	6.9						**7**
Gd	$mg\ kg^{-1}$	2.4					2.86			**2.84**				
Ge	$mg\ kg^{-1}$	1.65												
Hf	$mg\ kg^{-1}$	2.694					7.93	9.7						**0.6**
Hg	$mg\ kg^{-1}$					0.082	0.084	0.08						
Ho	$mg\ kg^{-1}$	0.436					0.63			**0.39**				
I	$mg\ kg^{-1}$							7.7						
In	$mg\ kg^{-1}$													
La	$mg\ kg^{-1}$	16.9					23.28	22.4		**21.1**	50			**37.8**
Li	$mg\ kg^{-1}$	28.43					98							
Lu	$mg\ kg^{-1}$	0.177					0.29			**0.195**				
Mo	$mg\ kg^{-1}$						1							
N	$mg\ kg^{-1}$													**0.32**
Nb	$mg\ kg^{-1}$	14.69			**15**	14	13.03	13.7					**16**	**13**
Nd	$mg\ kg^{-1}$	15.07			**18**		19.16	17.7		**18**	53			**20.8**
Ni	$mg\ kg^{-1}$	**18.2**			**21**		16.5	16.3			37			**17**
Pb	$mg\ kg^{-1}$	**22.8**			**24**		23.96	22.7						**45.6**
Pr	$mg\ kg^{-1}$	3.83					5.2			**4.64**				
Rb	$mg\ kg^{-1}$	**52.7**			**60**	63	53.68	50.5			59		**58**	**52**
Re	$mg\ kg^{-1}$													
S	$mg\ kg^{-1}$				**1028**			440		**300**	1800			
Sb	$mg\ kg^{-1}$							4.4						
Sc	$mg\ kg^{-1}$	11.5					5.1	3.9						**8.6**
Se	$mg\ kg^{-1}$													
Sm	$mg\ kg^{-1}$	2.96					3.41	1.4		**3.19**				**4.2**
Sn	$mg\ kg^{-1}$						1.98	4.7						
Sr	$mg\ kg^{-1}$	31.17			**32**	34	26.3	25.5			35		32	**26**
Ta	$mg\ kg^{-1}$	0.921					0.9							
Tb	$mg\ kg^{-1}$	0.369					0.44			**0.49**				
Te	$mg\ kg^{-1}$							3.4						
Th	$mg\ kg^{-1}$	5.52					5.8	4		**5.63**				**3.8**
Tl	$mg\ kg^{-1}$						0.25							
Tm	$mg\ kg^{-1}$	0.183					0.28			**0.26**				
U	$mg\ kg^{-1}$	2.43					2.16	2.4		**2**				**2.8**
V	$mg\ kg^{-1}$	**54.4**		53.69	**58**	42	42.5	40.2						**52**
W	$mg\ kg^{-1}$							1.9						**8.7**
Y	$mg\ kg^{-1}$	**20**			**19**	13	17.8	16.7		**11**			**17**	**17.8**
Yb	$mg\ kg^{-1}$	1.43					1.85	1		**1.14**				
Zn	$mg\ kg^{-1}$	**63.3**		67.61	**69**		61.9	57.3			55	64.79	64	**61.2**
Zr	$mg\ kg^{-1}$	**306.1**		109.4	**328**	308	328.820	321.8			342		**316**	**317**

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J56	J57	J59	J60	J61	J62	J64	J65	J67	J68	J69	J70	J71
SiO2	g 100g^{-1}	80.96	78.5	80.01	80.5	78.89	**79.3**	**80.04**	**80.156**	79.54	**80.3**			80
TiO2	g 100g^{-1}	0.71	0.64	0.71	0.78	0.76	**0.7**	**0.7**	**0.702**	0.680	**0.7**	**0.704**	**0.639**	0.7
Al2O3	g 100g^{-1}	5.8	5.61	5.81	5.6	6.12	**5.51**	**5.39**	**5.64**	5.653	**5.7**	**5.476**	**5.4**	5.6
Fe2O3T	g 100g^{-1}	3.12	3.37	3.13	3.1	3.64	**3.05**	**3.17**	**3.241**	3.112	**3.17**	**3.121**	**3.05**	3.08
Fe(II)O	g 100g^{-1}										**1.35**			
MnO	g 100g^{-1}	0.11	0.1	0.08	0.09	0.09	**0.087**	**0.092**	**0.094**	0.091	**0.09**	**0.092**	**0.087**	0.084
MgO	g 100g^{-1}	0.47	0.55	0.52	0.46	0.53	**0.484**	**0.41**	**0.486**	0.508	**0.5**	**0.512**	**0.485**	0.54
CaO	g 100g^{-1}	0.32	0.37	0.31	0.32	0.37	**0.452**	**0.31**	**0.308**	0.324	**0.34**	**0.335**	**0.308**	0.4
Na2O	g 100g^{-1}	0.37	0.3	0.34	0.33	0.31	**0.276**	**0.14**	**0.413**	0.200	**0.33**	**0.258**		0.23
K2O	g 100g^{-1}	1.07	1.01	1.06	1.02	1.05	**1.053**	**1.04**	**1.06**	1.045	**1.05**	**1.023**	**1.03**	0.96
P2O5	g 100g^{-1}	0.23	0.22	0.23	0.23	0.15	**0.348**	**0.227**	**0.229**	0.223	**0.24**	**0.226**	**0.216**	0.216
H2O+	g 100g^{-1}									4.44				
CO2	g 100g^{-1}									4.71				
LOI	g 100g^{-1}	8.26		7.6	7.76	7.6	**8.6**	**7.53**	**7.52**	7.68	**7.67**	**8.563**		7.6
Ag	mg kg^{-1}							**0.401**	**0.135**					
As	mg kg^{-1}	11						**10.04**	**8.85**					
Au	mg kg^{-1}													
B	mg kg^{-1}							**15.76**						
Ba	mg kg^{-1}	159	181			157	**160**	**168**	**159.7**		**190**	**161.720**	**159.5**	165
Be	mg kg^{-1}						**0.722**	**0.699**						0.82
Bi	mg kg^{-1}							**0.158**	**0.145**					
Br	mg kg^{-1}													
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}									44000				
Cd	mg kg^{-1}						**0.26**	**0.294**	**0.182**					
Ce	mg kg^{-1}	54	43				**43.45**	**44**	**43.974**		**49**		**42.02**	44.6
Cl	mg kg^{-1}													
Co	mg kg^{-1}	6	12			8	**8.51**	**8.132**					**8.19**	8.9
Cr	mg kg^{-1}	59	57			24	**66.5**	**63**	**73.8**		**120**	**65.47**	**57.27**	63
Cs	mg kg^{-1}						**2.71**	**2.723**	**2.727**				**2.5**	2.81
Cu	mg kg^{-1}	20	22			12	**17.26**	**17.33**	**20.78**		**20**	**17.66**	**18.42**	17.3
Dy	mg kg^{-1}		2				**2.89**	**2.186**	**3.055**				**2.91**	2.91
Er	mg kg^{-1}		1.1				**1.81**	**1.791**	**1.884**				**1.71**	1.78
Eu	mg kg^{-1}		0.7				**0.66**	**0.663**	**0.699**				**0.642**	0.71
F	mg kg^{-1}													
Ga	mg kg^{-1}	10				12	**7.57**	**8.804**	**8.11**		**11**		**8**	8.4
Gd	mg kg^{-1}		1.8				**2.87**	**3.03**	**3.126**				**3.13**	3.06
Ge	mg kg^{-1}							**0.648**	**1.07**					
Hf	mg kg^{-1}						**8.06**	**8.502**	**8.289**				**8.31**	7.7
Hg	mg kg^{-1}													0.084
Ho	mg kg^{-1}		0.4				**0.624**	**0.585**	**0.634**				**0.602**	0.61
I	mg kg^{-1}													
In	mg kg^{-1}													
La	mg kg^{-1}	22	26				**22.39**	**21.18**	**22.686**		**32**		**21.91**	23.1
Li	mg kg^{-1}		21				**21.84**	**22.38**					**21.25**	23
Lu	mg kg^{-1}		0.3				**0.279**	**0.283**	**0.288**				**0.266**	0.28
Mo	mg kg^{-1}						**0.737**	**0.832**	**0.828**				**0.726**	0.71
N	mg kg^{-1}													
Nb	mg kg^{-1}	15				11	**14.94**	**17.06**	**14.784**		**15**		**14.55**	14.1
Nd	mg kg^{-1}		18				**18.34**	**17.52**	**19.103**		**23**		**18.05**	19.4
Ni	mg kg^{-1}	20	23			18	**18.44**	**18.96**	**21.56**		**53**	**20.91**	**19.55**	18.8
Pb	mg kg^{-1}	27	30			28	**23.31**	**24.21**	**23.3**		**25**		**24.12**	23.8
Pr	mg kg^{-1}		6				**5.08**	**4.652**	**5.408**				**4.96**	5.32
Rb	mg kg^{-1}	55	51				**53.9**	**57.5**	**54.06**		**56**		**52.21**	53.8
Re	mg kg^{-1}													
S	mg kg^{-1}									420				
Sb	mg kg^{-1}						**1.299**	**1.521**	**2.812**					1.25
Sc	mg kg^{-1}	5	5			10	**5.47**	**5.934**	**5.79**			**5.78**	**5.36**	5.35
Se	mg kg^{-1}							**0.551**						
Sm	mg kg^{-1}		3.6				**3.28**	**3.184**	**3.335**				**3.25**	3.46
Sn	mg kg^{-1}						**2.45**	**2.652**	**2.36**					2.4
Sr	mg kg^{-1}	27	27			50	**26.8**	**25.7**	**27.6**		**35**	**28.2**	**26.13**	28.3
Ta	mg kg^{-1}						**0.967**	**1.12**	**1.183**				**0.96**	1.03
Tb	mg kg^{-1}		0.3				**0.463**	**0.527**	**0.494**				**0.499**	0.47
Te	mg kg^{-1}													
Th	mg kg^{-1}		5				**5.49**	**5.954**	**5.959**		**6**		**5.7**	5.86
Tl	mg kg^{-1}						**0.316**	**0.316**	**0.353**					0.31
Tm	mg kg^{-1}		0.2				**0.28**	**0.264**	**0.285**				**0.28**	0.27
U	mg kg^{-1}		2				**2.085**	**2.15**	**2.159**				**2.01**	2.06
V	mg kg^{-1}	60	55			74	**47.65**	**50.2**	**51.4**		**46**	**52.5**	**46.77**	47.7
W	mg kg^{-1}						**1.09**	**1.634**						1.03
Y	mg kg^{-1}	18	11.3			24	**17.1**	**18.88**	**18.83**		**19**	**22.47**	**17.83**	17.2
Yb	mg kg^{-1}		1.4				**1.839**	**1.743**	**1.884**				**1.81**	1.77
Zn	mg kg^{-1}	58	72			65	**62**	**61.3**	**77.3**		**61**	**65.97**	**57.88**	58.5
Zr	mg kg^{-1}	318	275			290	**334**	**319**	**337.5**	0.028	**340**		**354.6**	320

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J72	J73	J74	J75	J76	J77	J79	J80	J81	J82	J83	J84	J85
SiO_2	g 100g^{-1}	78.9	79.4	**81.397**	79.61	80.31	78.02	80.36	**80.4**	79.93	79.3	79.1		79.06
TiO_2	g 100g^{-1}		0.71	**0.707**	0.71	0.7	0.754	0.698	**0.7**	0.72	0.793	0.67		0.711
Al_2O_3	g 100g^{-1}		6.3	**5.818**	5.58	5.7	6.6	5.684	**5.7**	5.67	6.31	5.6		5.73
Fe_2O_3T	g 100g^{-1}		3.2	**3.176**	3.1	3.12	3.28	3.15	**3.14**	3.08	3.24	3.07		3.21
Fe(II)O	g 100g^{-1}						1.125	3.2		1.67		2.71		
MnO	g 100g^{-1}		0.094	**0.099**	0.09		0.114	0.093	**0.1**	0.086	0.087	0.09		0.095
MgO	g 100g^{-1}		0.64	**0.455**	0.48	0.5	0.16	0.501	**0.54**	0.51		0.49		0.48
CaO	g 100g^{-1}		0.34	**0.279**	0.31	0.31	0.44	0.311	**0.35**	0.31	0.646	0.3		0.33
Na_2O	g 100g^{-1}		0.32	**0.291**	0.25	0.28	0.26	0.286	**0.31**	0.35		0.28		0.31
K_2O	g 100g^{-1}		1.1	**1.061**	1.05	1.04	1.14	1.056	**1.03**	1.02	1.03	1.03		1.05
P_2O_5	g 100g^{-1}		0.225	**0.227**	0.22	0.25	0.262	0.229	**0.23**	0.23		0.23		0.23
H_2O^+	g 100g^{-1}					3.56		5.6						
CO_2	g 100g^{-1}							0.12						
LOI	g 100g^{-1}	7.75	7.6	**7.49**	7.76	7.33	8.78	7.655	**7.5**	7.86		9.13		7.56
Ag	mg kg^{-1}					0.124	0.3	0.34				0.14	**38.7**	
As	mg kg^{-1}		10			10.25	18.3	7.87			8.8	10.3	**14**	
Au	mg kg^{-1}													
B	mg kg^{-1}						16			34.3				
Ba	mg kg^{-1}		158	**150.060**	165	147	200	163	**153.5**	166		160.5	**176**	172.5
Be	mg kg^{-1}		0.83	**0.11**		0.68	0.6	0.67	**0.7**			0.66	**0.66**	
Bi	mg kg^{-1}					0.11	0.22	0.2				0.13	**0.09**	
Br	mg kg^{-1}													
C(org)	mg kg^{-1}					10700		2.87				1.93		
C(tot)	mg kg^{-1}					29600		25650				2.95		
Cd	mg kg^{-1}		0.25	**0.24**		0.228	0.28	0.27				0.25	**0.29**	
Ce	mg kg^{-1}		42	**36.86**		47	58	45.9	**42.9**			42	**46.7**	42.1
Cl	mg kg^{-1}		70											
Co	mg kg^{-1}		9.09	**7.27**		8.27	10.6	8.37	**8.4**			8.4	**9.67**	
Cr	mg kg^{-1}		55	**88.02**	51	54.5	72	62	**61.8**		57.5	60	**65.1**	
Cs	mg kg^{-1}			**2.29**		2.55	3.3	2.3	**2.6**	2.03		2.53	**3.07**	
Cu	mg kg^{-1}		18.5	**15.24**		17.15	23.6	17.66	**18**	18	18.2	19.8	**36.6**	
Dy	mg kg^{-1}		1.95	**1.63**		3.11	2.6	3.94	**3**			2.04	**2.81**	2.9
Er	mg kg^{-1}		1.16	**0.99**		1.95	1.53	2.12	**1.8**			1.74	**1.66**	1.84
Eu	mg kg^{-1}		0.6	**0.54**		0.69	0.71	0.65	**0.7**			0.72	**0.67**	0.67
F	mg kg^{-1}		500											
Ga	mg kg^{-1}		8.62	**6.94**	10	7.26	11.05	7.31	**8.1**			7.97	**11.1**	
Gd	mg kg^{-1}		2.43	**2.47**		2.97	2.9	3.82	**2.9**			2.44	**3.13**	2.75
Ge	mg kg^{-1}			**1.76**			1.87	1.31				0.09	**3.4**	
Hf	mg kg^{-1}					2.8	5.9	8.54	**8**	5.7		2.8	**4.37**	6.79
Hg	mg kg^{-1}					0.079								
Ho	mg kg^{-1}		0.39	**0.32**		0.64	0.52	0.73	**0.6**			0.41	**0.54**	0.62
I	mg kg^{-1}													
In	mg kg^{-1}											0.027		
La	mg kg^{-1}		21.4	**19.34**	20	23.7	26.4	31.1	**22.2**			23.3	**24.4**	22.1
Li	mg kg^{-1}		21.2	**18.6**		20.6	20.8	19	**20.2**			20.1	**18.9**	
Lu	mg kg^{-1}		0.19	**0.15**		0.28	0.23	0.29	**0.3**			0.22	**0.22**	0.29
Mo	mg kg^{-1}		0.73	**0.63**		0.65	2.2	0.81	**0.7**			0.8	**1.13**	
N	mg kg^{-1}													
Nb	mg kg^{-1}		16	**10.56**		12.55	21.7	13.63	**14.5**			15.2	**16.1**	9.92
Nd	mg kg^{-1}		17.8	**15.91**		20.2	21.3	20.8	**18.3**			19.8	**19.6**	18.29
Ni	mg kg^{-1}		20	**16.3**	18	17.55	25.5	18.7	**19.5**	18.4		19.7	**21.9**	
Pb	mg kg^{-1}		25.3	**20.55**		25.1	29.5	21.2	**25.1**		17.4	25.4	**26.5**	
Pr	mg kg^{-1}		4.79	**4.91**		5.46	5.9	4.98	**4.9**			5.05	**5.47**	4.87
Rb	mg kg^{-1}		55.3	**47.72**		52.7	62	51.5	**53.3**		53.2	52.5	**59.6**	52.5
Re	mg kg^{-1}											0.002		
S	mg kg^{-1}		400	**896.480**			850	455				0.04		
Sb	mg kg^{-1}		1.11	**1.05**		1.1	1.7	1.2				1.38	**1.84**	
Sc	mg kg^{-1}		4.85	**4.66**	5	5.12	7.5		**5.2**			5	**5.52**	5.3
Se	mg kg^{-1}			**0.46**		0.493	0.98					1	**1.8**	
Sm	mg kg^{-1}		3.13	**2.82**		3.55	3.7	2.96	**3.3**			3.69	**3.47**	3.3
Sn	mg kg^{-1}		1.75			1.74	3.2	5.09	**2.1**			1.7	**2.19**	1.6
Sr	mg kg^{-1}		26.7	**24.24**	25	26.9	38.2	27.5	**26.4**	27	23.4	27.9	**31.1**	27.7
Ta	mg kg^{-1}					0.77	2.2	0.9	**0.9**			1	**1.5**	0.9
Tb	mg kg^{-1}		0.33	**0.31**		0.49	0.39	0.45	**0.5**			0.44	**0.43**	0.5
Te	mg kg^{-1}			**4.94**			0.06					0.05		
Th	mg kg^{-1}			**2761.570**		5.93	7.1	6.13	**5.8**	4.35		5.87	**6.03**	5.5
Tl	mg kg^{-1}		0.34	**0.26**		0.277	0.37		**0.3**			0.34	**0.3**	
Tm	mg kg^{-1}		0.18	**0.14**		0.28	0.23	0.28	**0.3**			0.27	**0.21**	0.28
U	mg kg^{-1}		2	**1.59**		1.92	2.5	2.49	**2.1**			2	**2.07**	2.2
V	mg kg^{-1}		53.1	**41.79**	49	46.6	64	42	**48.4**			44	**58.9**	55.6
W	mg kg^{-1}					0.867	4.5	1.2				0.8	**2.38**	
Y	mg kg^{-1}		19	**8.74**		18.4	14.9	16.1	**18.2**			17.5	**16.2**	17.8
Yb	mg kg^{-1}		1.19	**1.01**		1.97	1.49	2.2	**1.8**			1.88	**1.65**	1.8
Zn	mg kg^{-1}		66.9	**70.97**	59	62.1	57	65.2	**63**	64	64.5	67	**60.7**	
Zr	mg kg^{-1}		320	**310.110**		96.3	250	333	**325.9**	323	313.2	321	**174**	287.6

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J87	J88	J89	J91	J92	J95	J96	J99	J100	J101	J102	J103	J105
SiO2	$g\ 100g^{-1}$	**64.69**	80.12	70.9	79.92		**79.52**	80.33	**81.17**		80.3	**66.53**	80.4	**79.63**
TiO2	$g\ 100g^{-1}$	**0.672**	0.696	0.64	0.74		**0.672**	0.707	**0.76**		0.7	**0.79**	0.753	**0.68**
Al2O3	$g\ 100g^{-1}$	**5.31**	5.68	7.55	6.04		**5.87**	5.7	**5.48**		5.68	**14.94**	5.63	**5.51**
Fe2O3T	$g\ 100g^{-1}$	**2.911**	3.16	2.96	3.54		**3.43**	3.15	**3.06**		3.29	**6.25**	3.2	**3.12**
Fe(II)O	$g\ 100g^{-1}$													
MnO	$g\ 100g^{-1}$	**0.093**	0.094	0.141	0.108		**0.101**	0.092	**0.085**		0.09	**0.15**	0.092	**0.1**
MgO	$g\ 100g^{-1}$	**0.533**	0.5		0.59		**0.486**	0.513	**0.49**		0.5	**2.27**	0.532	**0.37**
CaO	$g\ 100g^{-1}$	**0.309**	0.34	0.342	0.36		**0.29**	0.319	**0.32**		0.31	**0.42**	0.312	**0.29**
Na2O	$g\ 100g^{-1}$	**0.236**	0.28		0.28		**0.229**	0.307	**1.04**		0.28	**1.34**	0.29	**0.32**
K2O	$g\ 100g^{-1}$	**1.046**	1.04	1.1	1.1		**1.062**	1.07	**0.23**		1.05	**2.77**	1.06	**0.96**
P2O5	$g\ 100g^{-1}$	**0.229**	0.227		0.25		**0.244**	0.224	**0.27**		0.23	**0.17**	0.228	**0.17**
H2O+	$g\ 100g^{-1}$													
CO2	$g\ 100g^{-1}$										6.63			
LOI	$g\ 100g^{-1}$		7.69		7.81		**8.266**	7.44	**8.02**		7.58	4.25	7.77	**8.88**
Ag	$mg\ kg^{-1}$													
As	$mg\ kg^{-1}$			9.2				11.5			13.2	**24**		
Au	$mg\ kg^{-1}$													
B	$mg\ kg^{-1}$													
Ba	$mg\ kg^{-1}$		150	156	155		**163.8**	161.150		**192.6**	160.4	**422**		
Be	$mg\ kg^{-1}$						**0.741**	1.03		**0.961**	0.95			
Bi	$mg\ kg^{-1}$									**0.143**	0.13			
Br	$mg\ kg^{-1}$			15				15.5						
C(org)	$mg\ kg^{-1}$		26852								11400			
C(tot)	$mg\ kg^{-1}$	**2.967**	28186								29500			
Cd	$mg\ kg^{-1}$										0.3			
Ce	$mg\ kg^{-1}$			42.4			**43**	43.21		**51.7**	44.1	**80.58**		
Cl	$mg\ kg^{-1}$		100					113						
Co	$mg\ kg^{-1}$				7.7		**8.61**	8.17		**9.511**	8.48			
Cr	$mg\ kg^{-1}$		76	68.6	66		**45.18**	57.8		**71.77**	48.1	**131**		
Cs	$mg\ kg^{-1}$						**2.874**	2.86		**2.846**		**6.3**		
Cu	$mg\ kg^{-1}$		19	23.2	21		**17.78**	17.3		**19.1**	19.9	**40**		
Dy	$mg\ kg^{-1}$						**2.1**	3.02		**2.99**	3.03	**5.63**		
Er	$mg\ kg^{-1}$						**1.21**	1.94		**1.818**	1.93	**3.08**		
Eu	$mg\ kg^{-1}$						**0.63**	0.69		**0.783**	0.69	**1.6**		
F	$mg\ kg^{-1}$					284		465			324.3			
Ga	$mg\ kg^{-1}$		10		9.4		**7.97**	8.8		**9.912**	8.81			
Gd	$mg\ kg^{-1}$						**2.53**	2.97		**3.292**	3.07	**6.12**		
Ge	$mg\ kg^{-1}$							1.48			2.86			
Hf	$mg\ kg^{-1}$		8.5				**3**	8.35		**5.177**	6.87	**6.02**		
Hg	$mg\ kg^{-1}$									**0.071**				
Ho	$mg\ kg^{-1}$						**2.1**	0.63		**0.624**	0.64	**1.11**		
I	$mg\ kg^{-1}$													
In	$mg\ kg^{-1}$										0.03			
La	$mg\ kg^{-1}$			20.2			**22.45**	23.82		**26.64**	22.5	**34.5**		
Li	$mg\ kg^{-1}$						**23.12**			**24.23**	18.8			
Lu	$mg\ kg^{-1}$						**0.194**	0.31		**0.269**	0.28	**0.43**		
Mo	$mg\ kg^{-1}$						**0.678**			**0.95**	0.7	**1.04**		
N	$mg\ kg^{-1}$	**0.329**												
Nb	$mg\ kg^{-1}$		11	18.9	17		**13.24**	14.28		**15.65**	9.89	**14.88**		
Nd	$mg\ kg^{-1}$			19			**18.2**	18.38		**21.86**	18.8	**34.35**		
Ni	$mg\ kg^{-1}$		21		20		**19.05**	19.4		**21.03**	21.7	**80**		
Pb	$mg\ kg^{-1}$			28.3	31		**26.22**	26.3		**29.03**	24.4	**37.4**		
Pr	$mg\ kg^{-1}$						**5.08**	5.04		**5.709**	5	**9.07**		
Rb	$mg\ kg^{-1}$		48	56.3			**57.02**	54.99		**71.27**	52.8	**99**		
Re	$mg\ kg^{-1}$													
S	$mg\ kg^{-1}$	**0.049**						573			459			
Sb	$mg\ kg^{-1}$									**1.264**	1.43			
Sc	$mg\ kg^{-1}$				5.4		**5.4**			**6.28**	5.23	**17.69**		
Se	$mg\ kg^{-1}$										1.15			
Sm	$mg\ kg^{-1}$						**3.21**	3.36		**3.788**	3.46	**6.83**		
Sn	$mg\ kg^{-1}$									**1.508**	2.02			
Sr	$mg\ kg^{-1}$		30	27.2	30		**27.5**	27.6		**33.58**	27	**68**		
Ta	$mg\ kg^{-1}$						**0.769**	1.11		**1.06**	0.65	**1.01**		
Tb	$mg\ kg^{-1}$						**0.36**	0.5		**0.512**	0.49	**0.99**		
Te	$mg\ kg^{-1}$													
Th	$mg\ kg^{-1}$			5.1			**6.054**	6.08		**6.538**	5.35	**9.71**		
Tl	$mg\ kg^{-1}$										0.31			
Tm	$mg\ kg^{-1}$							0.29		**0.262**	0.29	**0.45**		
U	$mg\ kg^{-1}$			1.43			**1.93**	2.23		**2.108**	2.29	**3.2**		
V	$mg\ kg^{-1}$		49		50		**49.28**	51.76		**52.17**	47.1	**121**		
W	$mg\ kg^{-1}$						**0.64**	5.06			0.67			
Y	$mg\ kg^{-1}$		19	12.7	20		**12.49**	18.24		**18.38**	16.9	**33.5**		
Yb	$mg\ kg^{-1}$						**1.29**	1.92		**1.781**	1.83	**2.98**		
Zn	$mg\ kg^{-1}$		68	58	74		**64.22**	65.1		**70.33**	65	**110**		
Zr	$mg\ kg^{-1}$		330	295.5	356		**109.9**	339.6		**227.4**	317.2	**234.5**		

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J106	J108	J109	J112	J116	J117	J118	J120	J121	J122	J123	J124	J126
SiO2	g 100g^{-1}	80.15	80.8	**80.78**	80.4	79.61	79.98	80.43	**80.46**	80.03	78.99	**80.2**	79.017	73.5
TiO2	g 100g^{-1}	0.714	0.69	**0.7**	0.71	0.7	0.736	0.7	**0.74**	0.7	0.709	**0.68**	0.682	0.705
Al2O3	g 100g^{-1}	5.625	5.83	**5.67**	5.76	5.65	5.66	5.68	**5.64**	5.84	5.79	**5.72**	5.668	5.59
Fe2O3T	g 100g^{-1}	3.093	3.09	**3.05**	3.18	3.07	3.123	3.1	**3.18**	3.16	3.05	**3.09**	3.19	3.141
Fe(II)O	g 100g^{-1}													
MnO	g 100g^{-1}	0.086			0.090	0.08	0.091	0.09	**0.1**	0.091	0.091	**0.09**	0.096	0.093
MgO	g 100g^{-1}	0.513	0.49	**0.49**	0.51	0.49	0.488	0.5	**0.49**	0.502	0.46	**0.53**	0.523	0.512
CaO	g 100g^{-1}	0.313	0.3	**0.32**	0.33	0.32	0.311	0.31	**0.38**	0.347	0.31	**0.49**	0.269	0.33
Na2O	g 100g^{-1}	0.257	0.3	**0.3**	0.28	0.25	0.271	0.28	**0.12**	0.277	0.35	**0.38**	0.284	0.3
K2O	g 100g^{-1}	1.042	1.02	**1.05**	1.04	1.05	0.944	1.05	**1**	1.089	1.07	**1.02**	1.036	1.05
P2O5	g 100g^{-1}		0.22	**0.26**	0.23	0.23	0.23	0.23	**0.22**	0.222	0.23	**0.23**	0.224	0.229
H2O+	g 100g^{-1}			**1.59**										
CO2	g 100g^{-1}													
LOI	g 100g^{-1}	7.911	7.36	**7.71**		8.22	7.665	7.35	**8.03**	7.35	7.9	**8.01**		
Ag	mg kg^{-1}				0.123						0.28			
As	mg kg^{-1}				8.36			10			12	**9.7**		
Au	mg kg^{-1}													
B	mg kg^{-1}													
Ba	mg kg^{-1}				164		152	156	**202**	154	147	**179.5**		168
Be	mg kg^{-1}				1.02			0.8			0.73	**0.7**		
Bi	mg kg^{-1}				0.13			0.12						
Br	mg kg^{-1}										16			
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}	29900		**26480**				24400						28500
Cd	mg kg^{-1}				0.3			0.24			0.25			
Ce	mg kg^{-1}				44.2		41.7	44.9			37.8	**41.8**		44
Cl	mg kg^{-1}													
Co	mg kg^{-1}				8.42			8.3	**12**		9	**9.5**		
Cr	mg kg^{-1}				71.4			69	**70**	60	62	**62.2**	63	69
Cs	mg kg^{-1}				2.91		2.62	2.6			2.74	**2.5**		
Cu	mg kg^{-1}				17.1			18	**23**	23	20	**18.6**		25
Dy	mg kg^{-1}				3.21		2.83	2.9			1.67	**2.8**		
Er	mg kg^{-1}				1.86		1.8	1.8			1	**1.7**		
Eu	mg kg^{-1}				0.7		0.64	0.8			0.59	**0.7**		
F	mg kg^{-1}													
Ga	mg kg^{-1}				8.21		8.14	7.5			5	**7.7**		
Gd	mg kg^{-1}				3.1		2.79	2.93			2.01	**3.1**		
Ge	mg kg^{-1}				1.27			1.1						
Hf	mg kg^{-1}				8.96		8.23	7.8			5	**8.1**		
Hg	mg kg^{-1}													
Ho	mg kg^{-1}				0.63		0.6	0.7			0.34	**0.6**		
I	mg kg^{-1}													
In	mg kg^{-1}													
La	mg kg^{-1}				23.1		22	22.9	**33**		19.5	**22.5**		24
Li	mg kg^{-1}				21.5			19.5			20.5			
Lu	mg kg^{-1}				0.3		0.27	0.3			0.15	**0.3**		
Mo	mg kg^{-1}				0.77			0.7	**46**		0.72	**0.8**		
N	mg kg^{-1}													
Nb	mg kg^{-1}				14.4		13	14.2	**19**		15	**13.8**		
Nd	mg kg^{-1}				18.4		18	18.9			16.2	**17.9**		
Ni	mg kg^{-1}				20.5			19	**27**		17	**18.3**		24
Pb	mg kg^{-1}				25.9			25	**35**	32	25	**26**		
Pr	mg kg^{-1}				5.11		4.96	5.2			4.5	**5.1**		
Rb	mg kg^{-1}				54.4		51.5	52.3	**77**	54	55	**51.9**		
Re	mg kg^{-1}													
S	mg kg^{-1}	411				361		200	**481**					
Sb	mg kg^{-1}				1.33			1.1			1.03			
Sc	mg kg^{-1}				5.93			5			5.4	**5.2**		
Se	mg kg^{-1}				1.32									
Sm	mg kg^{-1}				3.5		3.3	3.3			2.9	**3.2**		
Sn	mg kg^{-1}				2.12			1.6			1.6	**1.9**		
Sr	mg kg^{-1}				27.6		26.6	28.8	**44**	38	26.8	**31.1**	26	
Ta	mg kg^{-1}				1.1		0.97	1				**1.3**		
Tb	mg kg^{-1}				0.49		0.45	0.5			0.29	**0.5**		
Te	mg kg^{-1}													
Th	mg kg^{-1}				6.15		5.74	5.7	**17**		5.18	**5.9**		
Tl	mg kg^{-1}				0.33			0.3			0.29			
Tm	mg kg^{-1}				0.29		0.28	0.3			0.15	**0.3**		
U	mg kg^{-1}				2.21		2.19	2.3	**10**		1.78	**2.1**		
V	mg kg^{-1}				52.9			48	**60**	56	53	**48.9**		51
W	mg kg^{-1}				1.11							**1.2**		
Y	mg kg^{-1}				19		16.8	17.6	**24**		19	**18.5**		17
Yb	mg kg^{-1}				1.94		1.72	1.87			0.99	**1.8**		
Zn	mg kg^{-1}				66.5			65	**87**	60	62	**52.5**	65	65
Zr	mg kg^{-1}		330		316		327	320	**392**	328	270	**350.7**		321

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

Table 1 - GeoPT47A Contributed data for Silty soil, NES-1. 20/11/2020

Lab Code		J128	-	-	-	-	-	-	-	-	-	-	-	-
SiO2	$g\ 100g^{-1}$	**80.64**												
TiO2	$g\ 100g^{-1}$	**0.67**												
Al2O3	$g\ 100g^{-1}$	**5.68**												
Fe2O3T	$g\ 100g^{-1}$	**3.17**												
Fe(II)O	$g\ 100g^{-1}$													
MnO	$g\ 100g^{-1}$	**0.09**												
MgO	$g\ 100g^{-1}$	**0.53**												
CaO	$g\ 100g^{-1}$	**0.3**												
Na2O	$g\ 100g^{-1}$	**0.3**												
K2O	$g\ 100g^{-1}$	**1.05**												
P2O5	$g\ 100g^{-1}$	**0.23**												
H2O+	$g\ 100g^{-1}$													
CO2	$g\ 100g^{-1}$													
LOI	$g\ 100g^{-1}$	**7.24**												
Ag	$mg\ kg^{-1}$													
As	$mg\ kg^{-1}$	**11**												
Au	$mg\ kg^{-1}$													
B	$mg\ kg^{-1}$													
Ba	$mg\ kg^{-1}$	**204**												
Be	$mg\ kg^{-1}$													
Bi	$mg\ kg^{-1}$													
Br	$mg\ kg^{-1}$	**19**												
C(org)	$mg\ kg^{-1}$													
C(tot)	$mg\ kg^{-1}$													
Cd	$mg\ kg^{-1}$													
Ce	$mg\ kg^{-1}$	**48**												
Cl	$mg\ kg^{-1}$													
Co	$mg\ kg^{-1}$	**3**												
Cr	$mg\ kg^{-1}$	**62**												
Cs	$mg\ kg^{-1}$	**10**												
Cu	$mg\ kg^{-1}$	**13**												
Dy	$mg\ kg^{-1}$													
Er	$mg\ kg^{-1}$													
Eu	$mg\ kg^{-1}$													
F	$mg\ kg^{-1}$	**665**												
Ga	$mg\ kg^{-1}$	**10**												
Gd	$mg\ kg^{-1}$	**3**												
Ge	$mg\ kg^{-1}$	**2**												
Hf	$mg\ kg^{-1}$	**12**												
Hg	$mg\ kg^{-1}$													
Ho	$mg\ kg^{-1}$													
I	$mg\ kg^{-1}$													
In	$mg\ kg^{-1}$													
La	$mg\ kg^{-1}$	**30**												
Li	$mg\ kg^{-1}$													
Lu	$mg\ kg^{-1}$													
Mo	$mg\ kg^{-1}$													
N	$mg\ kg^{-1}$													
Nb	$mg\ kg^{-1}$	**18**												
Nd	$mg\ kg^{-1}$	**20**												
Ni	$mg\ kg^{-1}$	**24**												
Pb	$mg\ kg^{-1}$	**27**												
Pr	$mg\ kg^{-1}$													
Rb	$mg\ kg^{-1}$	**60**												
Re	$mg\ kg^{-1}$													
S	$mg\ kg^{-1}$	**365**												
Sb	$mg\ kg^{-1}$													
Sc	$mg\ kg^{-1}$	**8**												
Se	$mg\ kg^{-1}$													
Sm	$mg\ kg^{-1}$													
Sn	$mg\ kg^{-1}$													
Sr	$mg\ kg^{-1}$	**26**												
Ta	$mg\ kg^{-1}$													
Tb	$mg\ kg^{-1}$													
Te	$mg\ kg^{-1}$													
Th	$mg\ kg^{-1}$	**4**												
Tl	$mg\ kg^{-1}$													
Tm	$mg\ kg^{-1}$													
U	$mg\ kg^{-1}$	**2**												
V	$mg\ kg^{-1}$	**60**												
W	$mg\ kg^{-1}$													
Y	$mg\ kg^{-1}$	**21**												
Yb	$mg\ kg^{-1}$													
Zn	$mg\ kg^{-1}$	**68**												
Zr	$mg\ kg^{-1}$	**296**												

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

Table 2 - GeoPT47A Consensus values and statistical summary for Silty soil, NES-1.

	Consensus Value	Uncertainty of consensus 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	80.15	0.0599	0.8287	0.07228	84	79.73	0.8885	79.93	Assigned	Mode
TiO2	0.7	0.003586	0.01477	0.2427	87	0.6983	0.02773	0.7	Assigned	Median
Al2O3	5.67	0.01594	0.08734	0.1825	87	5.671	0.1361	5.67	Assigned	Median
Fe2O3T	3.121	0.0161	0.05259	0.3061	87	3.143	0.09556	3.127	Assigned	Mode
MnO	0.09105	0.0004156	0.002612	0.1591	84	0.09257	0.005792	0.09105	Assigned	Median
MgO	0.5013	0.003268	0.01112	0.2937	85	0.5013	0.03013	0.5	Assigned	Robust Mean
CaO	0.32	0.002391	0.007597	0.3147	87	0.3261	0.03035	0.32	Provisional	Median
K2O	1.045	0.003158	0.02076	0.1521	87	1.045	0.02945	1.05	Assigned	Robust Mean
P2O5	0.23	0.0007845	0.005739	0.1367	81	0.2283	0.007187	0.23	Assigned	Median
LOI	7.641	0.0489	0.1125	0.4346	74	7.811	0.441	7.7	Provisional	Mode
	mg kg⁻¹	mg kg⁻¹	mg kg⁻¹			mg kg⁻¹	mg kg⁻¹	mg kg⁻¹		
As	10.04	0.316	0.5675	0.5568	35	10.67	2.291	10.2	Provisional	Mode
Ba	160.5	1.2	5.978	0.2007	69	164.6	13.94	161.7	Assigned	Mode
Be	0.71	0.0161	0.05979	0.2693	30	0.7771	0.1343	0.73	Assigned	Mode
Bi	0.13	0.00665	0.01413	0.4705	20	0.1449	0.0363	0.1315	Provisional	Mode
Cd	0.2689	0.009207	0.02621	0.3512	25	0.2689	0.04603	0.27	Provisional	Robust Mean
Ce	43	0.204	1.953	0.1045	55	43.94	3.302	43.45	Assigned	Mode
Co	8.385	0.045	0.487	0.09241	45	8.686	0.8042	8.5	Assigned	Mode
Cr	62.2	1.198	2.672	0.4485	65	63.06	8.375	62.2	Provisional	Median
Cs	2.64	0.0591	0.1825	0.3239	41	2.783	0.3652	2.723	Assigned	Mode
Cu	18	0.464	0.9319	0.4979	63	18.81	3.119	18.42	Assigned	Mode
Dy	2.953	0.0692	0.2007	0.3448	41	2.785	0.4762	2.9	Assigned	Mode
Er	1.818	0.0278	0.1329	0.2092	40	1.745	0.229	1.798	Assigned	Mode
Eu	0.68	0.0149	0.05764	0.2585	40	0.6753	0.04458	0.6775	Assigned	Mode
Ga	8.066	0.144	0.4712	0.3056	51	8.58	1.367	8.21	Provisional	Mode
Gd	2.93	0.093	0.1993	0.4665	41	2.907	0.2578	2.9	Assigned	Mode
Hf	8.1	0.136	0.4729	0.2876	44	6.779	2.427	7.75	Provisional	Mode
Ho	0.62	0.00602	0.05329	0.113	40	0.5851	0.1004	0.6065	Assigned	Mode
La	22.79	0.3574	1.139	0.3139	58	23.25	2.89	22.79	Assigned	Median
Li	21.23	0.3647	1.072	0.3402	30	21.36	1.751	21.23	Assigned	Median
Lu	0.29	0.003	0.02795	0.1074	40	0.2665	0.04314	0.28	Assigned	Mode
Mo	0.715	0.0225	0.06015	0.3741	34	0.808	0.189	0.7415	Assigned	Mode
Nb	14.44	0.2475	0.7727	0.3203	56	14.44	1.852	14.5	Assigned	Robust Mean
Nd	18.57	0.2023	0.9569	0.2114	54	18.8	1.446	18.57	Assigned	Median
Ni	19.05	0.45	0.9779	0.4602	60	19.83	2.505	19.52	Assigned	Mode
Pb	25.1	0.379	1.236	0.3067	56	25.78	2.986	25.28	Assigned	Mode
Pr	5.04	0.04063	0.316	0.1286	41	5.075	0.29	5.04	Assigned	Median
Rb	54	0.472	2.37	0.1992	62	54.58	4.022	54	Assigned	Median
Sb	1.159	0.08725	0.09063	0.9627	27	1.255	0.2298	1.25	Provisional	Mode
Sc	5.3	0.106	0.3298	0.3214	48	5.563	0.7206	5.4	Assigned	Mode
Sm	3.3	0.04482	0.2205	0.2032	44	3.333	0.2609	3.3	Assigned	Median
Sn	1.98	0.14	0.1429	0.9797	32	2.111	0.4712	2.06	Provisional	Mode
Sr	27	0.3	1.315	0.2281	68	28.15	2.833	27.52	Assigned	Mode
Ta	0.939	0.03	0.07582	0.3957	36	1.002	0.1733	0.975	Assigned	Mode
Tb	0.4665	0.008814	0.04185	0.2106	40	0.4543	0.0594	0.4665	Assigned	Median
Th	5.82	0.08066	0.3571	0.2259	51	5.852	0.6462	5.82	Assigned	Median
Tl	0.316	0.005946	0.03006	0.1978	25	0.3181	0.03144	0.316	Assigned	Median
Tm	0.28	0.005356	0.02712	0.1975	39	0.2655	0.03398	0.28	Assigned	Median
U	2.09	0.0238	0.1496	0.1591	50	2.174	0.2553	2.126	Assigned	Mode
V	51	0.7897	2.257	0.3499	64	51.72	6.524	51	Provisional	Median
W	1.06	0.0435	0.08404	0.5176	25	1.355	0.7025	1.09	Provisional	Mode
Y	17.8	0.2575	0.9231	0.279	63	17.68	2.051	17.8	Assigned	Median
Yb	1.82	0.0225	0.133	0.1691	42	1.729	0.2661	1.8	Assigned	Mode
Zn	64.11	0.633	2.741	0.2309	70	64.3	4.883	64.11	Assigned	Median
Zr	322	2.23	10.8	0.2065	70	309.4	36.25	318.5	Assigned	Mode

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

Lab Code	J1	J2	J3	J4	J5	J6	J9	J11	J12	J14	J15	J16	J18
SiO2	-20.79	0.00	-1.75	-0.63	*	*	-1.41	0.01	-1.70	0.35	0.07	-0.03	1.66
TiO2	27.76	-0.14	-2.03	0.34	-16.92	*	-0.41	-2.71	-2.78	1.35	-0.68	-1.12	-3.05
Al2O3	90.34	0.50	-1.49	-0.17	-2.86	*	-0.76	-2.18	-0.69	0.46	-0.63	0.14	-6.64
Fe2O3T	111.59	-0.17	-3.44	0.97	-0.78	*	-1.05	-1.35	-0.02	-0.40	0.28	-0.19	-4.57
MnO	34.06	0.18	-0.02	-0.39	1.51	*	-0.02	-0.40	-0.59	-0.02	-0.20	-0.14	-2.50
MgO	65.50	-1.59	-0.12	-0.01	5.27	*	-0.12	-4.61	0.24	-2.82	0.39	0.56	-3.21
CaO	56.60	0.07	0.00	-1.32	63.18	*	-1.32	0.00	-12.64	-1.32	0.00	0.32	-2.63
K2O	144.77	-0.26	-0.71	0.17	-9.38	*	0.11	-0.71	6.99	0.73	0.61	-0.60	-2.04
P2O5	*	0.35	0.00	-2.35	-1.74	*	-0.35	0.00	0.52	0.00	0.00	-0.33	0.00
LOI	-4.80	0.44	*	*	10.66	*	12.08	1.86	11.19	-0.72	-0.05	-0.92	-2.89
As	*	-4.73	*	-1.01	*	2.10	*	6.27	*	-0.07	1.73	*	*
Ba	*	0.04	*	0.49	3.26	0.97	2.59	981.40	0.41	-2.76	-0.13	-4.66	-2.04
Be	*	1.76	*	4.67	0.34	3.35	*	*	-0.30	*	*	*	*
Bi	*	0.00	*	-0.64	-0.78	9.90	*	*	*	61.55	*	*	*
Cd	*	2.88	*	0.88	-3.39	3.40	*	88.93	0.77	*	*	*	*
Ce	*	-0.18	*	0.82	2.54	0.06	*	0.67	0.40	-2.05	0.00	*	-1.07
Co	*	-0.02	*	-0.06	2.60	1.39	*	*	0.26	1.26	*	*	*
Cr	*	-3.13	*	-0.55	-2.32	-8.71	-1.20	-0.11	*	-1.20	0.52	-0.37	*
Cs	*	0.49	*	0.32	*	3.34	*	84.72	0.16	-3.51	*	*	-0.06
Cu	*	1.56	*	-0.52	0.75	0.13	8.58	-2.90	-0.71	-2.15	-1.61	*	50.69
Dy	*	-2.23	*	1.10	-1.61	1.09	*	*	-1.10	*	*	*	-0.18
Er	*	-2.02	*	0.55	-0.29	1.12	*	*	-1.22	*	*	*	*
Eu	*	-0.52	*	0.96	-4.34	-1.89	*	*	-0.07	*	*	*	*
Ga	*	2.80	*	-0.74	0.90	0.31	-2.26	5.38	*	-2.26	-0.07	*	*
Gd	*	-0.43	*	0.36	-1.05	0.16	*	*	-0.57	*	*	*	*
Hf	*	-5.69	*	0.15	*	-12.64	*	*	-7.68	-0.21	*	*	*
Ho	*	-2.06	*	-0.16	-2.06	-0.41	*	*	-1.07	*	*	*	*
La	*	-0.39	*	0.68	0.58	1.78	*	-5.08	-0.01	-1.57	0.53	*	-1.43
Li	*	0.97	*	-0.48	*	1.04	*	*	0.83	*	*	*	*
Lu	*	-1.79	*	-0.88	0.72	0.64	*	*	-1.50	*	*	*	*
Mo	*	-0.71	*	-0.32	11.39	-2.74	*	*	*	*	*	*	*
Nb	*	-1.71	*	-0.13	*	-5.87	*	0.08	2.88	-0.57	0.36	*	*
Nd	*	-0.30	*	0.61	0.87	0.70	*	1.70	0.46	-2.69	*	*	-0.94
Ni	*	0.69	*	-0.60	2.18	-0.67	*	-2.40	0.05	-2.10	-0.54	0.78	*
Pb	*	0.20	*	-0.92	-8.98	1.20	*	0.24	-1.70	-0.89	0.36	*	*
Pr	*	-0.03	*	0.19	0.57	-0.25	*	*	0.31	*	*	*	0.86
Rb	*	-0.23	*	0.34	0.15	1.91	1.69	-2.66	-0.57	-0.84	0.42	*	-1.48
Sb	*	-0.21	*	-0.42	-11.13	0.57	*	*	*	-2.85	*	*	*
Sc	*	0.73	*	*	0.30	2.52	*	-3.64	0.84	-3.94	2.58	*	*
Sm	*	-0.36	*	-0.19	-0.77	1.26	*	-1.36	0.15	3.17	*	*	*
Sn	*	-2.69	*	-0.75	*	0.14	*	33.73	1.55	1.54	*	*	*
Sr	*	0.04	*	-0.82	2.05	0.40	-1.52	1.60	0.45	-0.76	0.38	1.84	-0.65
Ta	*	-1.05	*	-0.18	*	5.29	*	*	0.98	13.99	*	*	*
Tb	*	-1.15	*	-0.24	-4.93	-0.37	*	*	-0.56	*	*	*	*
Th	*	-0.43	*	11.13	-2.16	-0.14	*	4.42	-0.39	-2.30	0.25	*	*
Tl	*	-0.27	*	-0.02	0.47	1.43	*	*	0.03	*	*	*	0.75
Tm	*	-1.66	*	-0.44	-1.47	1.33	*	*	-1.47	*	*	*	*
U	*	-0.67	*	10.50	1.80	-1.34	*	*	-0.24	6.08	3.04	*	-0.42
V	*	-0.66	*	-0.74	1.06	-1.70	5.76	-1.51	0.06	-1.33	0.22	1.96	*
W	*	-1.37	*	-0.31	*	-6.42	*	*	-0.21	23.09	*	*	*
Y	*	-3.14	*	0.47	-1.41	-0.93	*	-0.76	-1.60	-1.95	0.11	*	-5.03
Yb	*	-2.03	*	0.93	-1.20	-0.52	*	*	-1.56	1.35	*	*	*
Zn	*	-0.13	*	0.24	-0.40	-1.34	-0.04	-5.55	-0.08	-0.77	-0.20	-0.62	27.51
Zr	*	-10.31	*	-1.58	-7.41	-22.86	-3.15	-1.42	-14.48	0.09	0.51	-0.28	*

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

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

Lab Code	J20	J21	J22	J24	J25	J26	J27	J28	J29	J30	J31	J33	J34
SiO2	-0.92	-0.30	-2.43	-0.01	0.29	-1.56	2.04	*	-0.19	-0.42	0.05	-0.57	-0.15
TiO2	-0.68	-0.74	-1.49	-0.33	-2.03	-1.02	2.03	-2.03	0.00	-0.95	-0.58	0.68	-0.20
Al2O3	-0.69	0.00	-0.92	0.40	0.11	-0.69	0.11	0.34	-2.69	-0.70	0.18	-0.46	0.16
Fe2O3T	2.26	1.12	-0.38	0.38	-0.40	-0.77	0.55	-0.97	1.61	-0.20	-0.68	2.18	-0.81
MnO	-0.40	0.36	-0.59	0.33	-0.40	-0.20	-0.40	-0.40	1.71	4.58	-0.39	1.33	0.18
MgO	-1.02	-1.02	-1.92	1.63	-1.02	-0.06	-2.82	-0.12	-0.51	0.61	0.84	0.39	1.47
CaO	0.00	0.00	0.00	-0.18	-1.32	17.11	-1.32	360.66	-1.32	-6.91	-1.18	3.29	1.12
K2O	-3.60	0.25	-1.19	0.62	-0.71	0.37	0.25	-1.68	1.09	0.37	0.20	0.13	-0.12
P2O5	0.00	-0.17	-1.05	0.26	0.00	-0.87	0.00	-1.74	-0.87	-0.09	9.76	0.61	-0.61
LOI	-0.54	2.04	6.84	-1.04	-1.52	8.00	*	*	3.55	0.52	0.53	2.13	1.75
As	0.28	*	0.28	-0.71	*	*	*	*	*	1.73	*	-2.59	*
Ba	-1.09	-0.42	-0.59	0.23	0.81	0.03	-0.42	-0.25	*	1.13	4.56	2.22	0.57
Be	0.00	*	0.17	0.18	3.78	*	*	1.51	*	*	*	*	*
Bi	0.00	*	*	1.41	0.21	*	*	1.41	*	*	*	*	*
Cd	0.04	*	1.22	-0.55	-0.99	*	*	-4.54	*	*	*	*	*
Ce	-0.31	0.32	2.00	-0.06	-1.15	-0.02	2.56	0.31	*	1.02	*	-0.51	*
Co	-0.09	*	1.00	0.30	0.00	0.25	-0.79	0.07	*	*	*	-0.91	*
Cr	2.66	0.30	5.05	-0.45	0.95	0.57	3.67	-0.07	*	0.71	1.46	-0.22	1.74
Cs	0.22	-0.28	*	0.39	-0.39	1.70	23.89	-0.00	*	*	*	*	*
Cu	2.36	1.07	0.54	0.32	1.08	-0.33	4.29	-0.43	*	-3.22	*	-0.54	-1.18
Dy	0.08	1.33	1.24	-0.15	0.00	-0.21	*	0.23	*	*	*	*	*
Er	-0.36	0.69	0.62	-0.09	0.13	-0.44	*	0.47	*	*	*	*	*
Eu	-0.02	0.87	0.00	-0.14	0.24	-0.35	*	0.00	*	*	*	*	*
Ga	0.54	-0.14	*	-0.02	-0.24	-0.06	6.23	0.07	*	0.99	*	-0.18	*
Gd	-0.30	0.40	2.86	-0.25	-0.25	0.28	*	-0.25	*	*	*	*	*
Hf	0.19	-1.12	1.59	-2.70	-3.10	-0.01	-8.67	-0.06	*	-1.16	*	4.12	*
Ho	0.43	1.13	0.56	-0.22	0.02	-0.09	*	0.00	*	*	*	*	*
La	-0.69	0.11	1.59	-0.13	-2.24	-0.29	4.58	0.01	82.65	1.41	*	-4.30	*
Li	0.58	*	1.84	-0.01	-0.22	*	*	0.07	*	*	*	*	*
Lu	-0.11	-0.36	0.72	-0.41	-0.36	-0.72	*	0.00	*	*	*	*	*
Mo	2.24	*	-2.58	-0.12	0.52	3.12	21.36	-0.25	*	*	*	*	*
Nb	-2.51	-0.80	0.21	0.06	-1.49	-0.12	4.61	0.47	*	2.30	*	-0.93	*
Nd	-0.28	0.18	0.87	-0.37	-0.56	-0.46	1.49	-0.28	85.40	-1.34	*	0.22	*
Ni	0.97	-4.14	1.58	0.70	-0.63	3.43	9.15	0.25	*	-1.05	*	-0.03	1.56
Pb	-0.48	-1.16	-0.24	-0.37	0.13	*	12.06	0.97	*	1.17	6.43	-0.44	4.37
Pr	-0.38	0.16	-0.25	-0.14	-0.47	-0.49	*	-0.06	*	*	*	*	*
Rb	0.25	-0.76	9.33	0.43	-2.70	0.72	3.80	0.00	*	-1.27	-0.42	-0.42	*
Sb	1.34	*	-1.09	1.21	0.42	0.62	*	*	*	*	*	*	*
Sc	0.76	-0.30	-0.42	0.58	0.05	0.00	11.22	0.73	*	*	*	1.82	*
Sm	-0.05	0.86	1.09	-0.29	0.13	-0.23	*	0.50	*	*	*	*	*
Sn	2.03	*	*	-0.14	-1.15	*	7.14	1.61	*	0.07	*	*	*
Sr	-0.15	0.76	0.23	0.78	-1.44	0.40	5.32	-0.84	*	*	0.00	-0.76	*
Ta	1.73	0.28	-1.17	-0.26	-0.98	-0.46	79.94	0.54	*	*	*	*	*
Tb	-0.27	1.28	0.08	-0.15	0.42	0.04	*	0.32	*	*	*	*	*
Th	0.00	0.20	1.35	-0.38	-0.14	-0.01	17.31	1.18	*	1.65	*	*	*
Tl	*	*	0.47	*	-0.83	*	*	1.46	*	*	*	*	*
Tm	-0.07	0.00	0.00	-0.45	0.00	-0.55	*	0.37	*	*	*	*	*
U	0.00	-0.13	0.74	-0.37	0.36	0.03	6.08	1.94	*	*	*	0.37	*
V	-2.08	0.00	4.61	0.68	-2.68	-0.13	-0.89	-2.22	17.06	3.99	*	0.00	11.81
W	1.07	*	*	0.00	0.13	*	11.19	-0.24	*	*	*	*	*
Y	-0.33	0.62	0.23	0.44	-0.27	-0.12	3.47	1.41	*	3.36	-2.06	-0.43	*
Yb	0.30	-0.08	1.36	-0.31	0.00	-0.60	*	0.68	*	*	*	*	*
Zn	1.38	0.69	-0.11	0.11	-0.91	0.72	3.61	-0.30	*	0.16	1.44	-1.11	2.39
Zr	0.37	-2.04	3.70	-3.56	-0.98	-0.91	0.93	2.41	*	2.18	0.19	-0.05	1.08

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

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

Lab Code	J36	J37	J39	J40	J41	J42	J43	J45	J46	J49	J52	J54	J55
SiO2	0.30	0.84	-0.90	-0.53	-0.18	-0.09	0.02	-1.40	-1.39	-1.89	-0.63	-1.03	0.17
TiO2	1.35	-0.27	-2.92	2.44	0.00	0.47	0.00	-0.68	2.03	0.07	-6.43	0.68	0.68
Al2O3	-0.07	0.86	-0.62	1.14	-0.57	0.10	0.80	-0.46	-1.26	12.02	0.52	-1.60	1.60
Fe2O3T	0.76	0.66	0.06	3.50	-0.87	0.91	1.99	-0.48	2.83	3.22	-3.43	-1.16	0.93
MnO	1.90	1.33	-0.87	3.50	-2.12	0.56	-3.95	-0.20	7.26	2.10	0.37	3.43	-0.40
MgO	-2.19	-3.21	-0.30	2.13	-0.51	-0.55	3.09	-0.06	18.76	7.76	-3.66	0.78	-1.02
CaO	0.00	1.32	-1.47	0.92	0.66	0.53	0.66	-0.66	73.71	3.49	-2.63	1.32	3.95
K2O	0.01	2.29	-0.24	-0.81	-1.56	-0.48	-0.36	1.09	0.73	3.26	-3.01	0.25	-0.71
P2O5	-5.58	0.00	-0.11	1.22	-0.70	0.17	1.66	-0.44	*	12.46	*	0.00	-1.74
LOI	0.04	-0.05	*	0.35	3.33	-0.45	-0.76	6.53	4.44	*	0.09	5.77	-3.03
As	*	*	*	6.98	*	-2.09	-0.12	*	*	*	*	1.73	6.63
Ba	1.32	*	-0.12	0.25	*	-0.35	-1.56	*	*	13.26	*	2.13	-1.42
Be	*	*	*	*	*	0.17	*	*	*	*	*	*	*
Bi	*	*	*	*	*	*	*	*	*	*	*	*	*
Cd	*	*	*	*	*	*	*	*	*	*	*	*	*
Ce	-2.15	*	*	3.07	*	0.04	-2.36	*	-0.72	*	*	*	2.56
Co	3.78	*	*	7.42	*	0.12	1.56	*	*	*	*	*	1.67
Cr	-2.43	*	-4.20	3.67	*	0.45	-1.78	*	*	2.77	*	*	-2.47
Cs	4.71	*	*	*	*	-0.47	-0.11	*	*	*	*	*	3.07
Cu	-1.45	*	*	5.37	*	-1.72	-0.54	*	*	45.61	*	*	-5.90
Dy	-1.93	*	*	*	*	0.22	*	*	-2.91	*	*	*	*
Er	-1.76	*	*	*	*	0.35	*	*	-5.55	*	*	*	*
Eu	-0.14	*	*	*	*	-0.09	*	*	-0.17	*	*	*	*
Ga	2.81	*	*	1.98	*	0.16	-1.24	*	*	*	*	*	-2.26
Gd	-1.33	*	*	*	*	-0.18	*	*	-0.45	*	*	*	*
Hf	-5.72	*	*	*	*	-0.18	1.69	*	*	*	*	*	-15.86
Ho	-1.73	*	*	*	*	0.09	*	*	-4.32	*	*	*	*
La	-2.59	*	*	*	*	0.22	-0.17	*	-1.48	11.95	*	*	13.18
Li	3.36	*	*	*	*	35.80	*	*	*	*	*	*	*
Lu	-2.02	*	*	*	*	0.00	*	*	-3.40	*	*	*	*
Mo	*	*	*	*	*	2.37	*	*	*	*	*	*	*
Nb	0.16	*	*	0.73	-0.28	-0.91	-0.48	*	*	*	*	2.02	-1.86
Nd	-1.83	*	*	-0.60	*	0.31	-0.45	*	-0.60	17.99	*	*	2.33
Ni	-0.87	*	*	1.99	*	-1.30	-1.41	*	*	9.18	*	*	-2.10
Pb	-1.86	*	*	-0.89	*	-0.46	-0.97	*	*	*	*	*	16.59
Pr	-1.91	*	*	*	*	0.25	*	*	-1.27	*	*	*	*
Rb	-0.55	*	*	2.53	1.90	-0.07	-0.74	*	*	1.06	*	1.69	-0.84
Sb	*	*	*	*	*	*	17.88	*	*	*	*	*	*
Sc	9.40	*	*	*	*	-0.30	-2.12	*	*	*	*	*	10.01
Sm	-0.77	*	*	*	*	0.25	-4.31	*	-0.50	*	*	*	4.08
Sn	*	*	*	*	*	0.00	9.52	*	*	*	*	*	*
Sr	1.59	*	*	3.80	2.66	-0.27	-0.57	*	*	3.04	*	1.90	-0.76
Ta	-0.12	*	*	*	*	-0.26	*	*	*	*	*	*	*
Tb	-1.16	*	*	*	*	-0.32	*	*	0.56	*	*	*	*
Th	-0.42	*	*	*	*	-0.03	-2.55	*	-0.53	*	*	*	-5.66
Tl	*	*	*	*	*	-1.10	*	*	*	*	*	*	*
Tm	-1.79	*	*	*	*	0.00	*	*	-0.74	*	*	*	*
U	1.14	*	*	*	*	0.23	1.04	*	-0.60	*	*	*	4.75
V	1.51	*	0.60	3.10	-1.99	-1.88	-2.39	*	*	*	*	*	0.44
W	*	*	*	*	*	*	5.00	*	*	*	*	*	90.92
Y	2.38	*	*	1.30	-2.60	0.00	-0.60	*	-7.37	*	*	-0.87	0.00
Yb	-1.47	*	*	*	*	0.11	-3.08	*	-5.11	*	*	*	*
Zn	-0.30	*	0.64	1.78	*	-0.40	-1.24	*	*	-1.66	0.12	-0.02	-1.06
Zr	-1.47	*	-9.84	0.56	-0.65	0.32	-0.01	*	*	0.93	*	-0.55	-0.46

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

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

Lab Code	J56	J57	J59	J60	J61	J62	J64	J65	J67	J68	J69	J70	J71
SiO2	0.49	-1.00	-0.08	0.21	-0.76	**-1.03**	**-0.13**	**0.01**	-0.37	**0.18**	*	*	-0.09
TiO2	0.34	-2.03	0.34	2.71	2.03	**0.00**	**0.00**	**0.11**	-0.69	**0.00**	**0.24**	**-4.13**	0.00
Al2O3	0.74	-0.34	0.80	-0.40	2.58	**-1.83**	**-3.21**	**-0.34**	-0.10	**0.34**	**-2.22**	**-3.09**	-0.40
Fe2O3T	-0.01	2.37	0.09	-0.20	4.93	**-1.35**	**0.93**	**2.28**	-0.08	**0.93**	**0.00**	**-1.35**	-0.39
MnO	3.63	1.71	-2.12	-0.20	-0.20	**-1.55**	**0.36**	**1.01**	0.05	**-0.40**	**0.28**	**-1.55**	-1.35
MgO	-1.41	2.19	0.84	-1.86	1.29	**-1.56**	**-8.21**	**-1.38**	0.29	**-0.12**	**0.96**	**-1.47**	1.74
CaO	*0.00*	*3.29*	*-0.66*	*0.00*	*3.29*	***17.37***	***-1.32***	***-1.58***	*0.23*	***2.63***	***1.97***	***-1.58***	*5.27*
K2O	0.61	-0.84	0.37	-0.60	0.13	**0.39**	**-0.23**	**0.73**	0.00	**0.25**	**-1.03**	**-0.71**	-2.04
P2O5	0.00	-0.87	0.00	0.00	-6.97	**20.56**	**-0.52**	**-0.12**	-0.58	**1.74**	**-0.78**	**-2.44**	-1.22
LOI	*2.75*	*	*-0.18*	*0.53*	*-0.18*	***8.53***	***-0.98***	***-1.07***	*0.18*	***0.26***	***8.20***	*	*-0.18*
As	*0.85*	*	*	*	*	*	***0.00***	***-2.10***	*	*	*	*	*
Ba	-0.13	1.71	*	*	-0.29	**-0.08**	**1.25**	**-0.13**	*	**4.93**	**0.20**	**-0.17**	0.38
Be	*	*	*	*	*	**0.20**	**-0.18**	*	*	*	*	*	0.92
Bi	*	*	*	*	*	*	***1.98***	***1.06***	*	*	*	*	*
Cd	*	*	*	*	*	***-0.34***	***0.96***	***-3.32***	*	*	*	*	*
Ce	2.82	0.00	*	*	*	**0.23**	**0.51**	**0.50**	*	**3.07**	*	**-0.50**	0.41
Co	-2.45	3.71	*	*	-0.40	**0.26**	**-0.52**	*	*	*	*	**-0.40**	0.53
Cr	*-0.60*	*-0.97*	*	*	*-7.15*	***1.61***	***0.30***	***4.34***	*	***21.63***	***1.22***	***-1.85***	*0.15*
Cs	*	*	*	*	*	**0.38**	**0.45**	**0.47**	*	*	*	**-0.77**	0.46
Cu	1.07	2.15	*	*	-3.22	**-0.79**	**-0.72**	**2.98**	*	**2.15**	**-0.36**	**0.45**	-0.38
Dy	*	-2.37	*	*	*	**-0.31**	**-3.82**	**0.51**	*	*	*	**-0.21**	-0.11
Er	*	-2.70	*	*	*	**-0.06**	**-0.20**	**0.50**	*	*	*	**-0.81**	-0.14
Eu	*	0.17	*	*	*	**-0.35**	**-0.29**	**0.33**	*	*	*	**-0.66**	0.26
Ga	*2.05*	*	*	*	*4.17*	***-1.05***	***1.57***	***0.09***	*	***6.23***	*	***-0.14***	*0.35*
Gd	*	-2.83	*	*	*	**-0.30**	**0.50**	**0.98**	*	*	*	**1.00**	0.33
Hf	*	*	*	*	*	***-0.08***	***0.85***	***0.40***	*	*	*	***0.45***	*-0.42*
Ho	*	-2.06	*	*	*	**0.08**	**-0.66**	**0.26**	*	*	*	**-0.34**	-0.09
La	-0.35	1.41	*	*	*	**-0.35**	**-1.41**	**-0.09**	*	**8.09**	*	**-0.77**	0.14
Li	*	-0.11	*	*	*	**0.57**	**1.07**	*	*	*	*	**0.02**	0.83
Lu	*	0.18	*	*	*	**-0.39**	**-0.25**	**-0.07**	*	*	*	**-0.86**	-0.18
Mo	*	*	*	*	*	**0.37**	**1.95**	**1.88**	*	*	*	**0.18**	-0.04
Nb	0.36	*	*	*	-2.22	**0.65**	**3.39**	**0.45**	*	**0.73**	*	**0.14**	-0.22
Nd	*	-0.30	*	*	*	**-0.24**	**-1.10**	**0.56**	*	**4.63**	*	**-0.54**	0.43
Ni	0.49	2.02	*	*	-0.54	**-0.62**	**-0.09**	**2.57**	*	**34.72**	**1.90**	**0.51**	-0.13
Pb	0.77	1.98	*	*	1.17	**-1.45**	**-0.72**	**-1.45**	*	**-0.08**	*	**-0.79**	-0.53
Pr	*	1.52	*	*	*	**0.13**	**-1.23**	**1.16**	*	*	*	**-0.25**	0.44
Rb	0.21	-0.63	*	*	*	**-0.04**	**1.48**	**0.03**	*	**0.84**	*	**-0.76**	-0.04
Sb	*	*	*	*	*	***1.55***	***4.00***	***18.24***	*	*	*	*	*0.50*
Sc	-0.45	-0.45	*	*	7.13	**0.52**	**1.92**	**1.49**	*	*	**1.46**	**0.18**	0.08
Sm	*	0.68	*	*	*	**-0.09**	**-0.53**	**0.16**	*	*	*	**-0.23**	0.36
Sn	*	*	*	*	*	***3.29***	***4.70***	***2.66***	*	*	*	*	*1.47*
Sr	0.00	0.00	*	*	8.74	**-0.15**	**-0.99**	**0.46**	*	**6.08**	**0.91**	**-0.66**	0.49
Ta	*	*	*	*	*	**0.37**	**2.39**	**3.22**	*	*	*	**0.28**	0.60
Tb	*	-1.99	*	*	*	**-0.08**	**1.45**	**0.66**	*	*	*	**0.78**	0.04
Th	*	-1.15	*	*	*	**-0.92**	**0.38**	**0.39**	*	**0.50**	*	**-0.34**	0.06
Tl	*	*	*	*	*	**0.00**	**0.00**	**1.23**	*	*	*	*	-0.10
Tm	*	-1.47	*	*	*	**0.00**	**-0.59**	**0.18**	*	*	*	**0.00**	-0.18
U	*	-0.30	*	*	*	**-0.03**	**0.40**	**0.46**	*	*	*	**-0.53**	-0.10
V	*1.99*	*0.89*	*	*	*5.09*	***-1.48***	***-0.35***	***0.18***	*	***-2.22***	***0.66***	***-1.87***	*-0.73*
W	*	*	*	*	*	***0.36***	***6.83***	*	*	*	*	*	*-0.18*
Y	0.11	-3.52	*	*	3.36	**-0.76**	**1.17**	**1.12**	*	**1.30**	**5.06**	**0.03**	-0.33
Yb	*	-1.58	*	*	*	**0.14**	**-0.58**	**0.48**	*	*	*	**-0.08**	-0.19
Zn	-1.11	1.44	*	*	0.16	**-0.77**	**-1.02**	**4.81**	*	**-1.13**	**0.68**	**-2.27**	-1.02
Zr	-0.18	-2.18	*	*	-1.48	**1.11**	**-0.28**	**1.44**	-14.91	**1.67**	*	**3.02**	-0.09

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

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

Lab Code	J72	J73	J74	J75	J76	J77	J79	J80	J81	J82	J83	J84	J85
SiO2	-0.75	-0.45	1.50	-0.33	0.10	-1.29	0.13	0.30	-0.13	-0.51	-0.63	*	-0.66
TiO2	*	0.34	0.47	0.34	0.00	1.83	-0.07	0.00	0.68	3.15	-1.02	*	0.37
Al2O3	*	3.61	1.69	-0.52	0.17	5.32	0.08	0.34	0.00	3.66	-0.40	*	0.34
Fe2O3T	*	0.75	1.05	-0.20	-0.01	1.51	0.28	0.36	-0.39	1.13	-0.48	*	0.85
MnO	*	0.56	3.04	-0.20	*	4.39	0.37	3.43	-0.97	-0.78	-0.20	*	0.76
MgO	*	6.23	-4.16	-0.96	-0.06	-15.34	-0.01	3.48	0.39	*	-0.51	*	-0.96
CaO	*	1.32	-5.40	-0.66	-0.66	7.90	-0.59	3.95	-0.66	21.46	-1.32	*	0.66
K2O	*	1.33	0.78	0.13	-0.12	2.29	0.27	-0.71	-0.60	-0.36	-0.36	*	0.13
P2O5	*	-0.44	-0.52	-0.87	1.74	2.79	-0.09	0.00	0.00	*	0.00	*	0.00
LOI	0.49	-0.18	-1.34	0.53	-1.38	5.06	0.06	-1.25	0.98	*	6.62	*	-0.36
As	*	-0.04	*	*	0.19	7.28	-1.91	*	*	-1.09	0.23	6.98	*
Ba	*	-0.21	-1.75	0.38	-1.13	3.30	0.21	-1.17	0.46	*	0.00	2.59	1.00
Be	*	1.00	-10.03	*	-0.25	-0.92	-0.33	-0.17	*	*	-0.42	-0.84	*
Bi	*	*	*	*	-0.71	3.18	2.48	*	*	*	0.00	-2.83	*
Cd	*	-0.36	-1.10	*	-0.78	0.21	0.02	*	*	*	-0.36	0.80	*
Ce	*	-0.26	-3.14	*	1.02	3.84	0.74	-0.05	*	*	-0.26	1.89	-0.23
Co	*	0.72	-2.29	*	-0.12	2.27	-0.02	0.03	*	*	0.02	2.64	*
Cr	*	-1.35	9.66	-2.10	-1.44	1.83	-0.04	-0.15	*	-0.88	-0.41	1.09	*
Cs	*	*	-1.92	*	-0.25	1.81	-0.93	-0.22	-1.67	*	-0.30	2.35	*
Cu	*	0.27	-2.96	*	-0.46	3.00	-0.18	0.00	0.00	0.11	0.97	19.96	*
Dy	*	-2.50	-6.59	*	0.39	-0.88	2.46	0.23	*	*	-2.27	-0.71	-0.13
Er	*	-2.48	-6.23	*	0.50	-1.08	1.14	-0.14	*	*	-0.29	-1.19	0.08
Eu	*	-0.69	-2.43	*	0.09	0.26	-0.26	0.35	*	*	0.35	-0.17	-0.09
Ga	*	0.59	-2.39	2.05	-0.86	3.17	-0.80	0.07	*	*	-0.10	6.44	*
Gd	*	-1.25	-2.31	*	0.10	-0.08	2.23	-0.15	*	*	-1.23	1.00	-0.45
Hf	*	*	*	*	-5.60	-2.33	0.47	-0.21	-2.54	*	-5.60	-7.89	-1.38
Ho	*	-2.16	-5.63	*	0.19	-0.94	1.03	-0.38	*	*	-1.97	-1.50	0.00
La	*	-0.61	-3.03	-1.22	0.40	1.59	3.65	-0.52	*	*	0.22	1.41	-0.30
Li	*	-0.01	-2.45	*	-0.29	-0.20	-1.04	-0.96	*	*	-0.53	-2.17	*
Lu	*	-1.79	-5.01	*	-0.18	-1.07	0.00	0.36	*	*	-1.25	-2.50	0.00
Mo	*	0.12	-1.41	*	-0.54	12.34	0.79	-0.25	*	*	0.71	6.90	*
Nb	*	1.01	-5.02	*	-1.22	4.70	-0.52	0.08	*	*	0.49	2.15	-2.92
Nd	*	-0.40	-2.78	*	0.85	1.43	1.17	-0.28	*	*	0.64	1.08	-0.15
Ni	*	0.49	-2.81	-0.54	-0.77	3.30	-0.18	0.46	-0.33	*	0.33	2.91	*
Pb	*	0.08	-3.68	*	0.00	1.78	-1.58	0.00	*	-3.11	0.12	1.13	*
Pr	*	-0.40	-0.41	*	0.66	1.36	-0.09	-0.44	*	*	0.02	1.36	-0.27
Rb	*	0.27	-2.65	*	-0.27	1.69	-0.53	-0.30	*	-0.17	-0.32	2.36	-0.32
Sb	*	-0.27	-1.20	*	-0.32	2.99	0.23	*	*	*	1.22	7.52	*
Sc	*	-0.68	-1.94	-0.45	-0.27	3.34	*	-0.30	*	*	-0.45	0.67	0.00
Sm	*	-0.39	-2.18	*	0.57	0.91	-0.77	0.00	*	*	0.88	0.77	0.00
Sn	*	-0.80	*	*	-0.84	4.27	10.88	0.84	*	*	-0.98	1.47	-1.33
Sr	*	-0.11	-2.10	-0.76	-0.04	4.26	0.19	-0.46	0.00	-1.37	0.34	3.12	0.27
Ta	*	*	*	*	-1.11	8.32	-0.26	-0.51	*	*	0.40	7.40	-0.26
Tb	*	-1.63	-3.74	*	0.28	-0.91	-0.20	0.80	*	*	-0.32	-0.87	0.40
Th	*	*	7716.81	*	0.15	1.79	0.43	-0.06	-2.06	*	0.07	0.59	-0.45
Tl	*	0.40	-1.86	*	-0.65	0.90	*	-0.53	*	*	0.40	-0.53	*
Tm	*	-1.84	-5.16	*	0.00	-0.92	0.00	0.74	*	*	-0.18	-2.58	0.00
U	*	-0.30	-3.34	*	-0.57	1.37	1.34	0.07	*	*	-0.30	-0.13	0.37
V	*	0.47	-4.08	-0.44	-0.97	2.88	-1.99	-1.15	*	*	-1.55	3.50	1.02
W	*	*	*	*	-1.15	20.47	0.83	*	*	*	-1.55	15.71	*
Y	*	0.65	-9.82	*	0.33	-1.57	-0.92	0.43	*	*	-0.16	-1.73	0.00
Yb	*	-2.37	-6.09	*	0.56	-1.24	1.43	-0.15	*	*	0.23	-1.28	-0.08
Zn	*	0.51	2.50	-0.93	-0.37	-1.30	0.20	-0.40	-0.02	0.07	0.53	-1.24	*
Zr	*	-0.09	-1.10	*	-10.45	-3.33	0.51	0.36	0.05	-0.41	-0.05	-13.70	-1.59

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

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

Lab Code	J87	J88	J89	J91	J95	J96	J99	J100	J101	J102	J103	J105	J106
SiO2	**-18.66**	-0.02	-5.58	-0.14	**-0.76**	0.11	**1.23**	*	0.09	**-16.44**	0.15	**-0.63**	0.00
TiO2	**-1.90**	-0.14	-2.03	1.35	**-1.90**	0.24	**4.06**	*	0.00	**6.09**	1.79	**-1.35**	0.47
Al2O3	**-4.12**	0.06	10.76	2.12	**2.29**	0.17	**-2.18**	*	0.06	**106.14**	-0.23	**-1.83**	-0.26
Fe2O3T	**-3.99**	0.37	-1.53	3.98	**5.88**	0.28	**-1.16**	*	1.61	**59.49**	0.75	**-0.02**	-0.27
MnO	**0.75**	0.56	9.56	3.24	**3.69**	0.18	**-2.32**	*	-0.20	**22.57**	0.18	**3.43**	-0.91
MgO	**2.85**	-0.06	*	3.99	**-1.38**	0.52	**-1.02**	*	-0.06	**158.99**	1.38	**-11.80**	0.52
CaO	***-1.45***	*1.32*	*1.45*	*2.63*	***-3.95***	*-0.07*	***0.00***	*	*-0.66*	***13.16***	*-0.53*	***-3.95***	*-0.46*
K2O	**0.06**	-0.12	1.33	1.33	**0.83**	0.61	**-39.25**	*	0.13	**83.11**	0.37	**-4.09**	-0.07
P2O5	**-0.17**	-0.26	*	1.74	**2.44**	-0.52	**6.97**	*	0.00	**-10.46**	-0.17	**-10.46**	*
LOI	*	*0.22*	*	*0.75*	***5.56***	*-0.89*	***3.37***	*	*-0.27*	*-15.07*	*0.58*	***11.02***	*1.20*
As	*	*	*-0.74*	*	*	*1.29*	*	*	*2.78*	***24.60***	*	*	*
Ba	*	-0.88	-0.38	-0.46	**0.55**	0.05	*	**5.37**	-0.01	**43.74**	*	*	*
Be	*	*	*	*	**0.52**	2.68	*	**4.20**	2.01	*	*	*	*
Bi	*	*	*	*	*	*	*	***0.92***	*0.00*	*	*	*	*
Cd	*	*	*	*	*	*	*	*	*0.59*	*	*	*	*
Ce	*	*	-0.15	*	**0.00**	0.05	*	**4.46**	0.28	**19.25**	*	*	*
Co	*	*	*	-0.70	**0.46**	-0.22	*	**2.31**	0.10	*	*	*	*
Cr	*	*2.58*	*1.20*	*0.71*	***-6.37***	*-0.82*	*	***3.58***	*-2.64*	***25.75***	*	*	*
Cs	*	*	*	*	**1.28**	0.60	*	**1.13**	*	**20.05**	*	*	*
Cu	*	0.54	2.79	1.61	**-0.24**	-0.38	*	**1.18**	1.02	**23.61**	*	*	*
Dy	*	*	*	*	**-4.25**	0.17	*	**0.18**	0.19	**13.34**	*	*	*
Er	*	*	*	*	**-4.58**	0.46	*	**-0.00**	0.42	**9.49**	*	*	*
Eu	*	*	*	*	**-0.87**	0.09	*	**1.79**	0.09	**15.96**	*	*	*
Ga	*	*2.05*	*	*1.42*	***-0.20***	*0.78*	*	***3.92***	*0.79*	*	*	*	*
Gd	*	*	*	*	**-2.01**	0.10	*	**1.82**	0.35	**16.00**	*	*	*
Hf	*	*0.42*	*	*	***-10.78***	*0.26*	*	***-6.18***	*-1.30*	***-4.40***	*	*	*
Ho	*	*	*	*	**27.77**	0.09	*	**0.08**	0.19	**9.20**	*	*	*
La	*	*	-1.14	*	**-0.30**	0.45	*	**3.38**	-0.13	**10.28**	*	*	*
Li	*	*	*	*	**1.76**	*	*	**2.80**	-1.13	*	*	*	*
Lu	*	*	*	*	**-3.44**	0.36	*	**-0.75**	-0.18	**5.01**	*	*	*
Mo	*	*	*	*	**-0.62**	*	*	**3.91**	-0.12	**5.40**	*	*	*
Nb	*	-2.22	2.89	1.66	**-1.55**	-0.10	*	**1.57**	-2.94	**0.57**	*	*	*
Nd	*	*	0.22	*	**-0.39**	-0.10	*	**3.44**	0.12	**16.49**	*	*	*
Ni	*	1.00	*	0.49	**-0.00**	0.18	*	**2.02**	1.35	**62.33**	*	*	*
Pb	*	*	1.30	2.39	**0.91**	0.49	*	**3.18**	-0.28	**9.95**	*	*	*
Pr	*	*	*	*	**0.13**	0.00	*	**2.12**	-0.06	**12.75**	*	*	*
Rb	*	-1.27	0.49	*	**1.27**	0.21	*	**7.29**	-0.25	**18.99**	*	*	*
Sb	*	*	*	*	*	*	*	***1.16***	*1.50*	*	*	*	*
Sc	*	*	*	0.15	**0.30**	*	*	**2.97**	-0.11	**37.57**	*	*	*
Sm	*	*	*	*	**-0.41**	0.14	*	**2.21**	0.36	**16.01**	*	*	*
Sn	*	*	*	*	*	*	*	***-3.30***	*0.14*	*	*	*	*
Sr	*	1.14	0.08	1.14	**0.38**	0.23	*	**5.00**	0.00	**31.18**	*	*	*
Ta	*	*	*	*	**-2.24**	1.13	*	**1.60**	-1.91	**0.94**	*	*	*
Tb	*	*	*	*	**-2.54**	0.40	*	**1.09**	0.28	**12.51**	*	*	*
Th	*	*	-1.01	*	**0.66**	0.36	*	**2.01**	-0.66	**10.89**	*	*	*
Tl	*	*	*	*	*	*	*	*	-0.10	*	*	*	*
Tm	*	*	*	*	*	0.18	*	**-0.66**	0.18	**6.27**	*	*	*
U	*	*	-2.21	*	**-1.07**	0.47	*	**0.12**	0.67	**7.42**	*	*	*
V	*	*-0.44*	*	*-0.22*	***-0.76***	*0.17*	*	***0.52***	*-0.86*	***31.01***	*	*	*
W	*	*	*	*	***-5.00***	*23.80*	*	*	*-2.32*	*	*	*	*
Y	*	0.65	-2.76	1.19	**-5.75**	0.24	*	**0.63**	-0.49	**17.01**	*	*	*
Yb	*	*	*	*	**-3.98**	0.38	*	**-0.29**	0.04	**8.72**	*	*	*
Zn	*	0.71	-1.11	1.80	**0.04**	0.18	*	**2.27**	0.16	**16.74**	*	*	*
Zr	*	0.37	-1.23	1.57	**-19.64**	0.82	*	**-8.76**	-0.22	**-8.10**	*	*	*

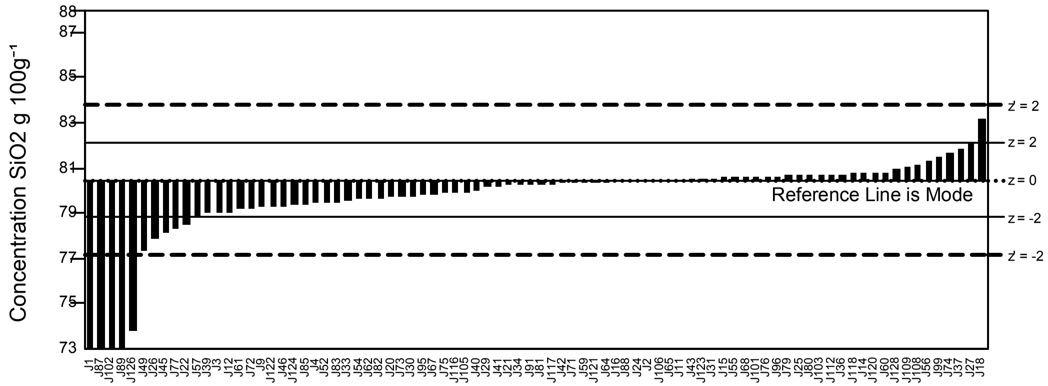
Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT47A Z-scores for Silty soil, NES-1. 20/11/2020

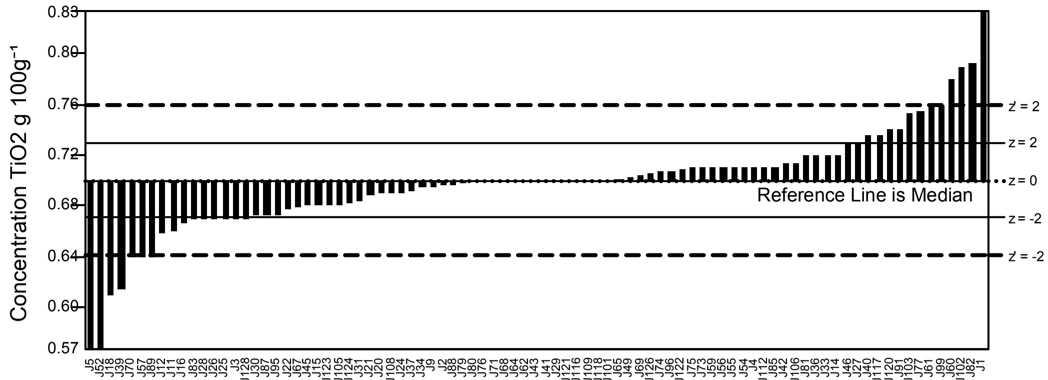
Lab Code	J108	J109	J112	J116	J117	J118	J120	J121	J122	J123	J124	J126	J128
SiO2	0.39	**0.76**	0.15	-0.33	-0.10	0.17	**0.37**	-0.07	-0.70	**0.06**	-0.68	-4.01	**0.59**
TiO2	-0.34	**0.00**	0.34	0.00	1.22	0.00	**2.71**	0.00	0.30	**-1.35**	-0.61	0.17	**-2.03**
Al2O3	0.92	**0.00**	0.52	-0.11	-0.06	0.06	**-0.34**	0.97	0.69	**0.57**	-0.01	-0.46	**0.11**
Fe2O3T	-0.29	**-1.35**	0.56	-0.48	0.02	-0.20	**1.12**	0.37	-0.67	**-0.59**	0.66	0.19	**0.93**
MnO	*	*	-0.24	-2.12	-0.01	-0.20	**3.43**	0.01	-0.01	**-0.40**	0.87	0.37	**-0.40**
MgO	-0.51	**-1.02**	0.39	-0.51	-0.60	-0.06	**-1.02**	0.03	-1.86	**2.58**	0.97	0.48	**2.58**
CaO	*-1.32*	***0.00***	*0.66*	*0.00*	*-0.59*	*-0.66*	***7.90***	*1.78*	*-0.66*	***22.38***	*-3.36*	*0.66*	***-2.63***
K2O	-0.60	**0.25**	-0.12	0.13	-2.43	0.13	**-2.16**	1.06	0.61	**-1.19**	-0.21	0.13	**0.25**
P2O5	-0.87	**5.23**	0.00	0.00	0.00	0.00	**-1.74**	-0.70	0.00	**0.00**	-0.52	-0.09	**0.00**
LOI	*-1.25*	***0.62***	*	*2.58*	*0.11*	*-1.29*	***3.46***	*-1.29*	*1.15*	***3.28***	*	*	***-3.56***
As	*	*	*-1.48*	*	*	*-0.04*	*	*	*1.73*	***-0.60***	*	*	***1.69***
Ba	*	*	0.29	*	-0.71	-0.38	**6.94**	-0.54	-1.13	**3.18**	*	0.63	**7.28**
Be	*	*	2.59	*	*	0.75	*	*	0.17	**-0.17**	*	*	*
Bi	*	*	*0.00*	*	*	*-0.35*	*	*	*	*	*	*	*
Cd	*	*	*0.59*	*	*	*-0.55*	*	*	*-0.36*	*	*	*	*
Ce	*	*	0.31	*	-0.33	0.49	*	*	-1.33	**-0.61**	*	0.26	**2.56**
Co	*	*	0.04	*	*	-0.09	**7.42**	*	0.63	**2.29**	*	*	**-11.06**
Cr	*	*	*1.72*	*	*	*1.27*	***2.92***	*-0.41*	*-0.04*	***0.00***	*0.15*	*1.27*	***-0.07***
Cs	*	*	0.74	*	-0.06	-0.11	*	*	0.27	**-0.77**	*	*	**40.33**
Cu	*	*	-0.48	*	*	0.00	**5.37**	2.68	1.07	**0.64**	*	3.76	**-5.37**
Dy	*	*	0.64	*	-0.31	-0.13	*	*	-3.20	**-0.76**	*	*	*
Er	*	*	0.16	*	-0.07	-0.07	*	*	-3.08	**-0.89**	*	*	*
Eu	*	*	0.17	*	-0.35	1.04	*	*	-0.78	**0.35**	*	*	*
Ga	*	*	*0.15*	*	*0.08*	*-0.60*	*	*	*-3.25*	***-0.78***	*	*	***4.10***
Gd	*	*	0.43	*	-0.35	0.00	*	*	-2.31	**0.85**	*	*	**0.35**
Hf	*	*	*0.91*	*	*0.14*	*-0.32*	*	*	*-3.28*	***0.00***	*	*	***8.25***
Ho	*	*	0.09	*	-0.19	0.75	*	*	-2.63	**-0.38**	*	*	*
La	*	*	0.14	*	-0.35	0.05	**8.97**	*	-1.44	**-0.25**	*	0.53	**6.33**
Li	*	*	0.13	*	*	-0.81	*	*	-0.34	*	*	*	*
Lu	*	*	0.18	*	-0.36	0.18	*	*	-2.50	**0.36**	*	*	*
Mo	*	*	0.46	*	*	-0.12	**752.87**	*	0.04	**1.41**	*	*	*
Nb	*	*	-0.02	*	-0.93	-0.15	**5.90**	*	0.36	**-0.83**	*	*	**4.61**
Nd	*	*	-0.09	*	-0.30	0.17	*	*	-1.24	**-0.70**	*	*	**1.49**
Ni	*	*	0.74	*	*	-0.03	**8.13**	*	-1.05	**-0.77**	*	2.53	**5.06**
Pb	*	*	0.32	*	*	-0.04	**8.01**	2.79	-0.04	**0.73**	*	*	**1.54**
Pr	*	*	0.11	*	-0.13	0.25	*	*	-0.85	**0.19**	*	*	*
Rb	*	*	0.08	*	-0.53	-0.36	**9.71**	0.00	0.21	**-0.89**	*	*	**2.53**
Sb	*	*	*0.95*	*	*	*-0.32*	*	*	*-0.71*	*	*	*	*
Sc	*	*	0.96	*	*	-0.45	*	*	0.15	**-0.30**	*	*	**8.19**
Sm	*	*	0.45	*	0.00	0.00	*	*	-0.91	**-0.45**	*	*	*
Sn	*	*	*0.49*	*	*	*-1.33*	*	*	*-1.33*	***-0.56***	*	*	*
Sr	*	*	0.23	*	-0.15	0.68	**12.93**	4.18	-0.08	**3.12**	-0.38	*	**-0.76**
Ta	*	*	1.06	*	0.20	0.40	*	*	*	**4.76**	*	*	*
Tb	*	*	0.28	*	-0.20	0.40	*	*	-2.11	**0.80**	*	*	*
Th	*	*	0.46	*	-0.11	-0.17	**31.31**	*	-0.90	**0.22**	*	*	**-5.10**
Tl	*	*	0.23	*	*	-0.27	*	*	-0.43	*	*	*	*
Tm	*	*	0.18	*	0.00	0.37	*	*	-2.40	**0.74**	*	*	*
U	*	*	0.40	*	0.33	0.70	**52.87**	*	-1.04	**0.07**	*	*	**-0.60**
V	*	*	*0.42*	*	*	*-0.66*	***3.99***	*1.11*	*0.44*	***-0.93***	*	*0.00*	***3.99***
W	*	*	*0.30*	*	*	*	*	*	*	***1.67***	*	*	*
Y	*	*	0.65	*	-0.54	-0.11	**6.72**	*	0.65	**0.76**	*	-0.43	**3.47**
Yb	*	*	0.45	*	-0.38	0.19	*	*	-3.12	**-0.15**	*	*	*
Zn	*	*	0.44	*	*	0.16	**8.35**	-0.75	-0.38	**-4.23**	0.16	0.16	**1.42**
Zr	0.37	*	-0.28	*	0.23	-0.09	**6.48**	0.28	-2.41	**2.66**	*	-0.05	**-2.41**

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

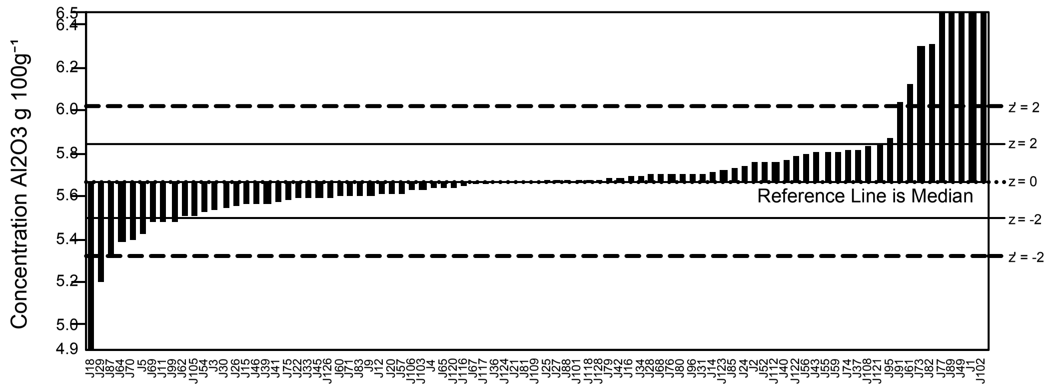
GeoPT47A - Barchart for SiO2



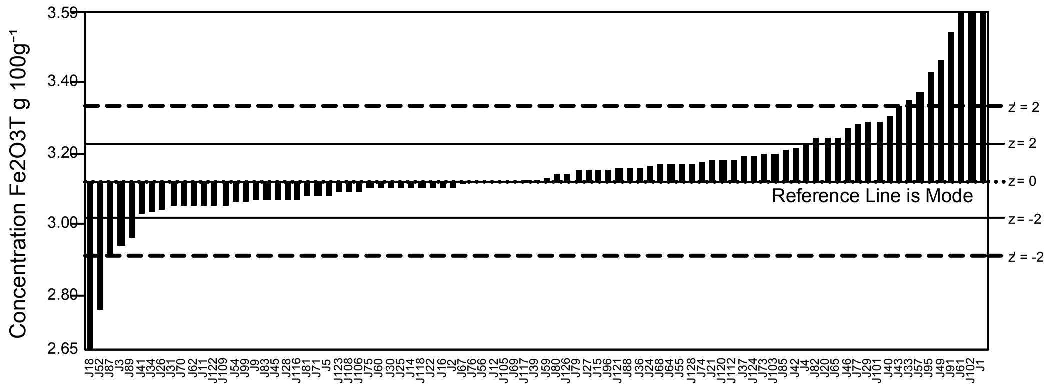
GeoPT47A - Barchart for TiO2



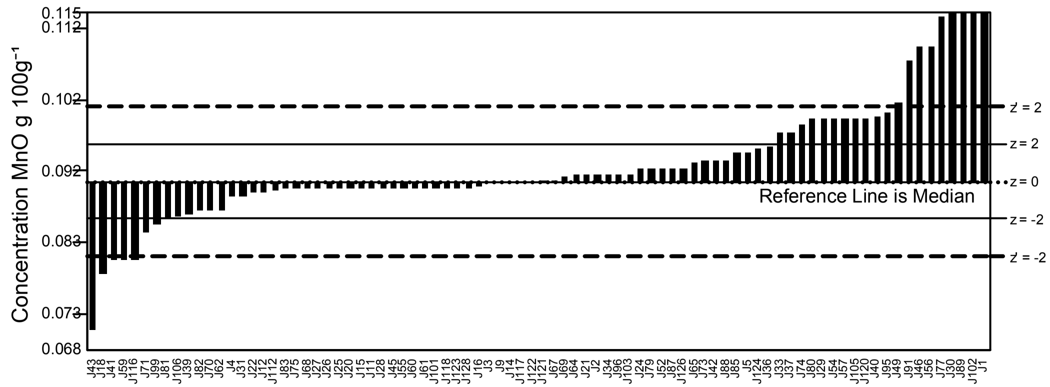
GeoPT47A - Barchart for Al2O3



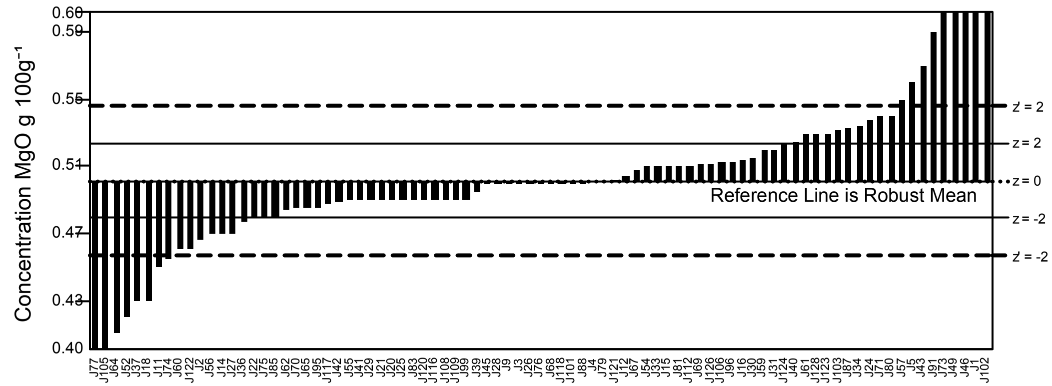
GeoPT47A - Barchart for Fe2O3T



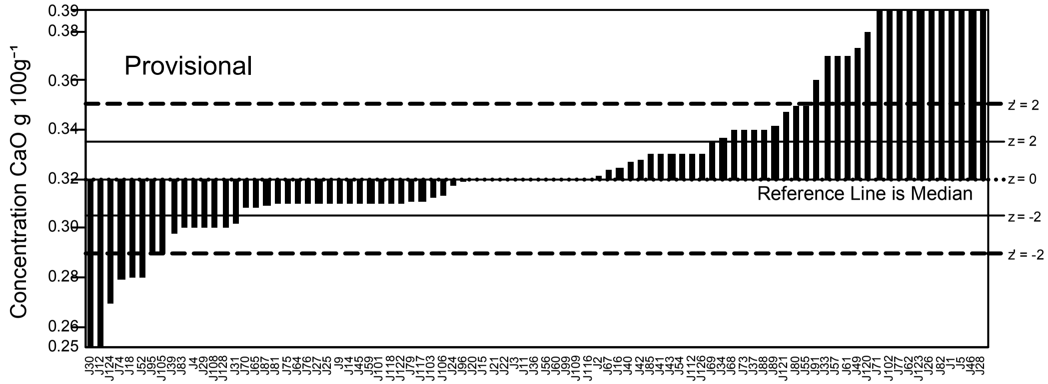
GeoPT47A - Barchart for MnO



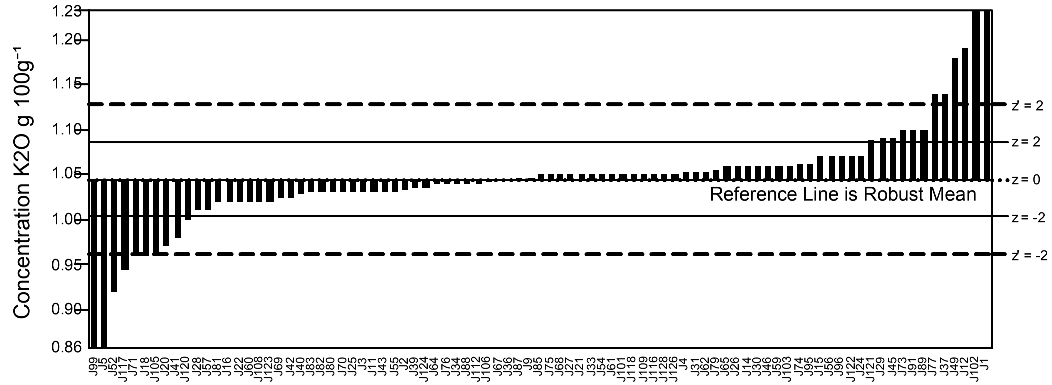
GeoPT47A - Barchart for MgO



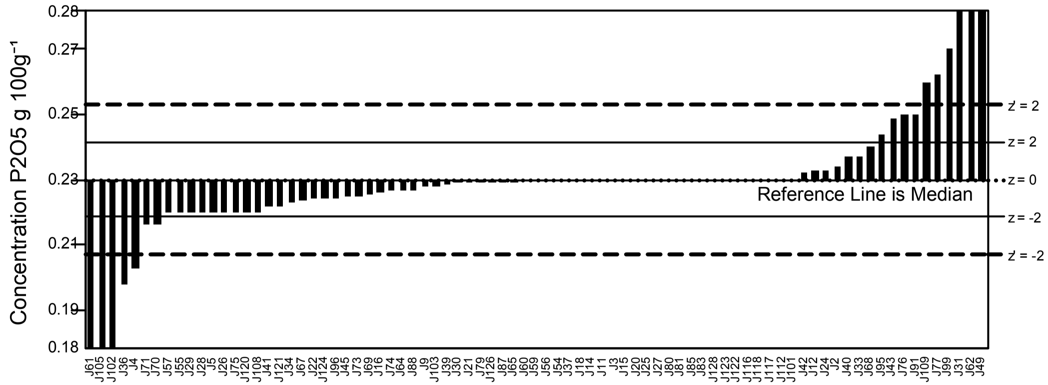
GeoPT47A - Barchart for CaO



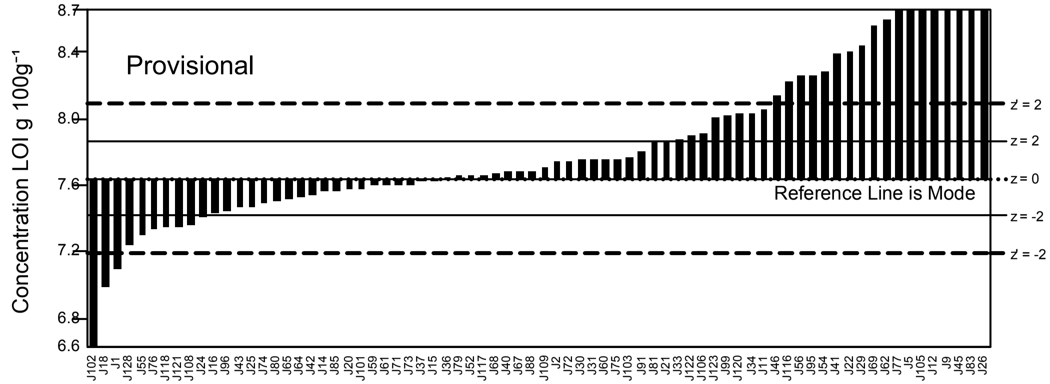
GeoPT47A - Barchart for K2O



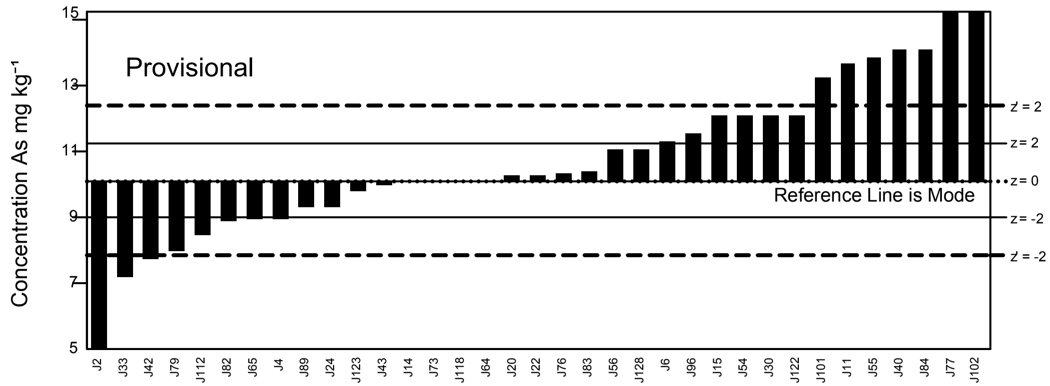
GeoPT47A - Barchart for P2O5



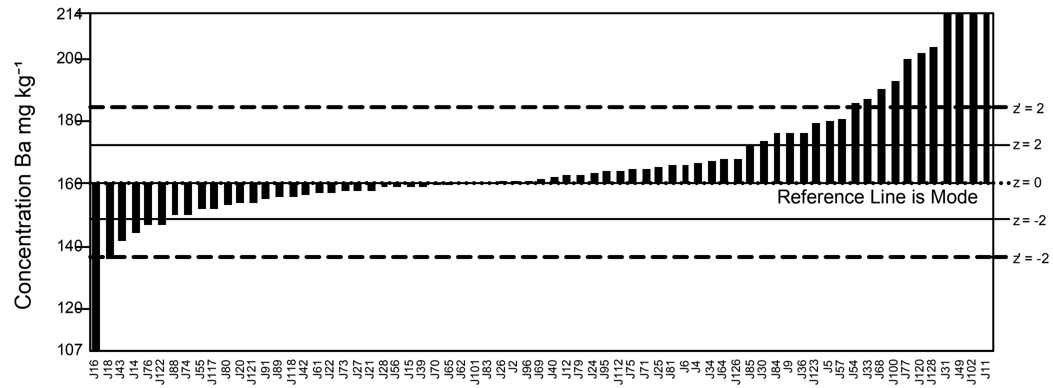
GeoPT47A - Barchart for LOI



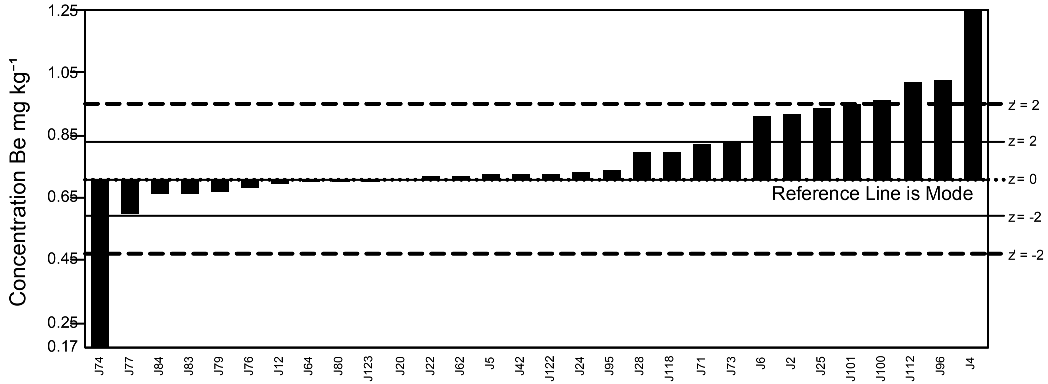
GeoPT47A - Barchart for As



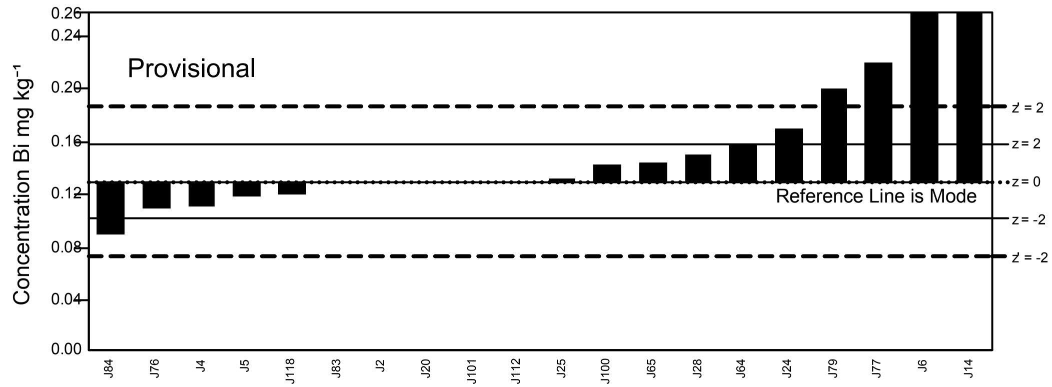
GeoPT47A - Barchart for Ba



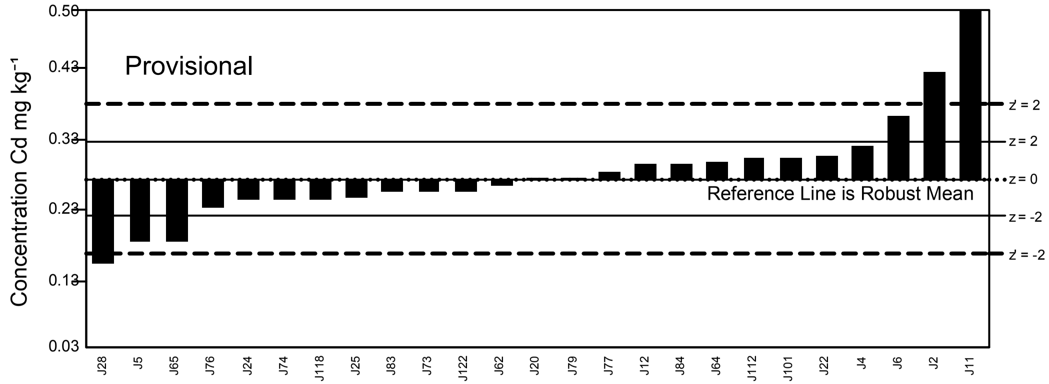
GeoPT47A - Barchart for Be



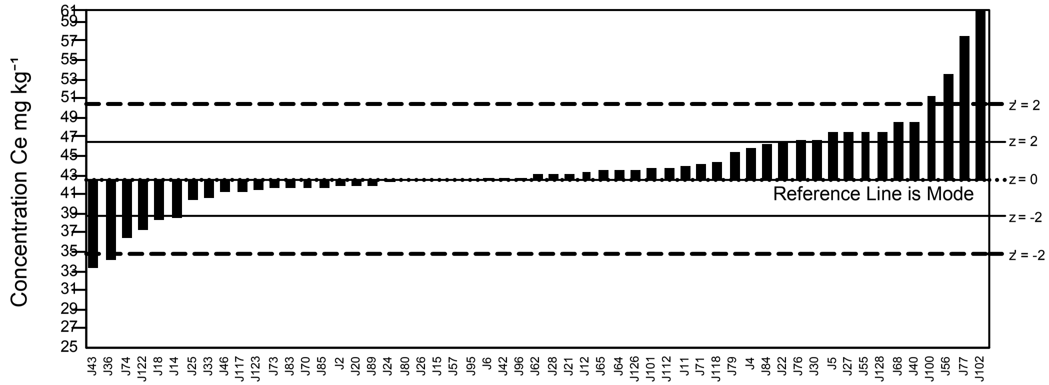
GeoPT47A - Barchart for Bi



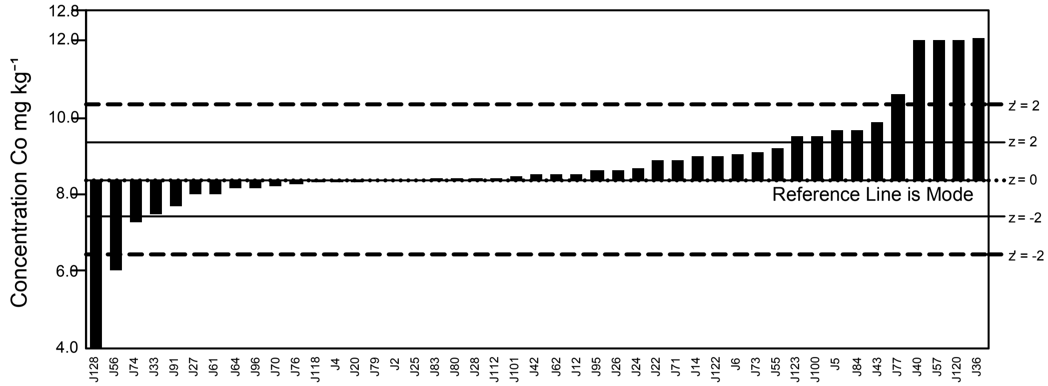
GeoPT47A - Barchart for Cd



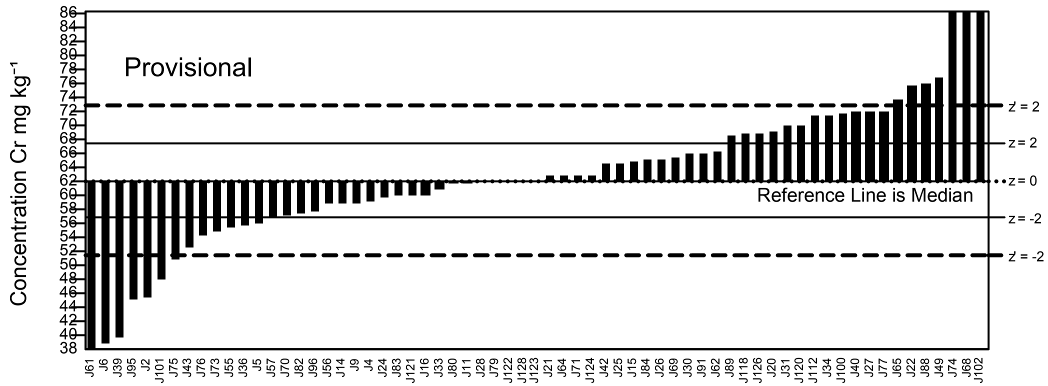
GeoPT47A - Barchart for Ce



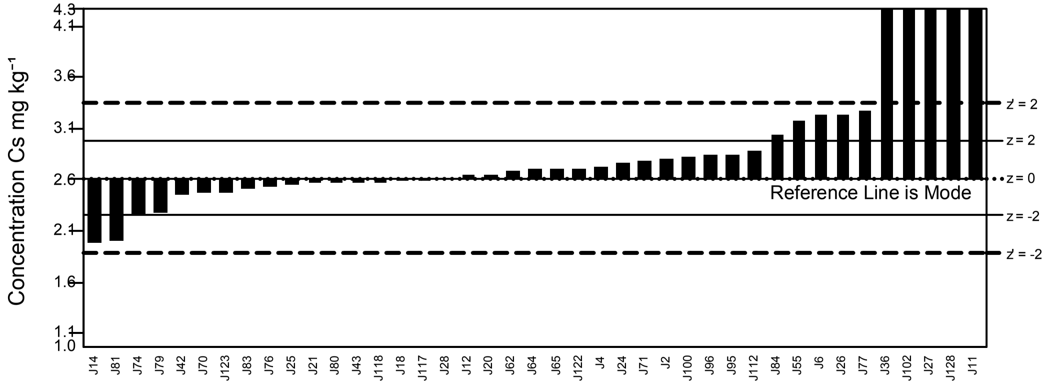
GeoPT47A - Barchart for Co



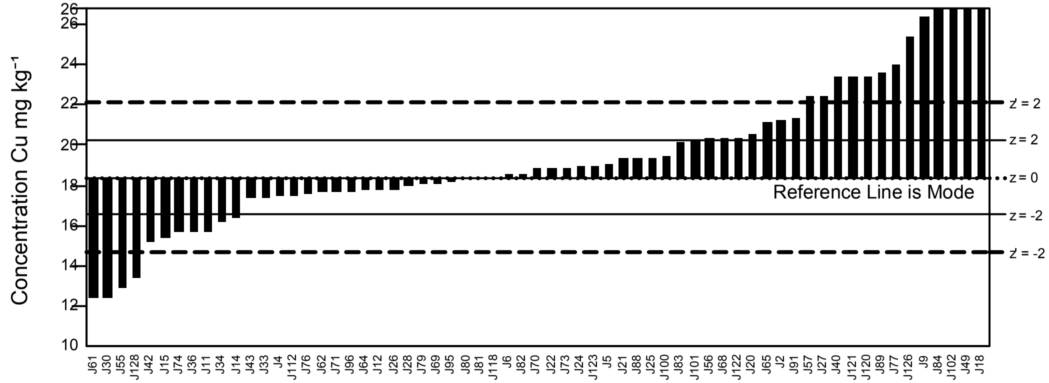
GeoPT47A - Barchart for Cr



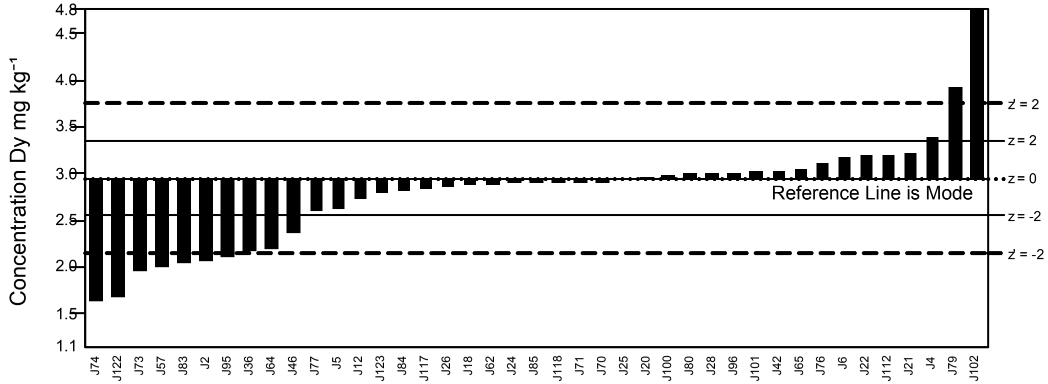
GeoPT47A - Barchart for Cs



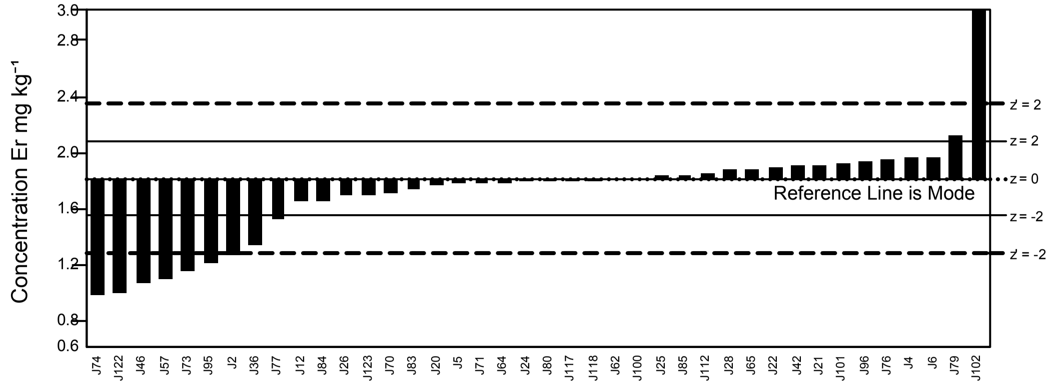
GeoPT47A - Barchart for Cu



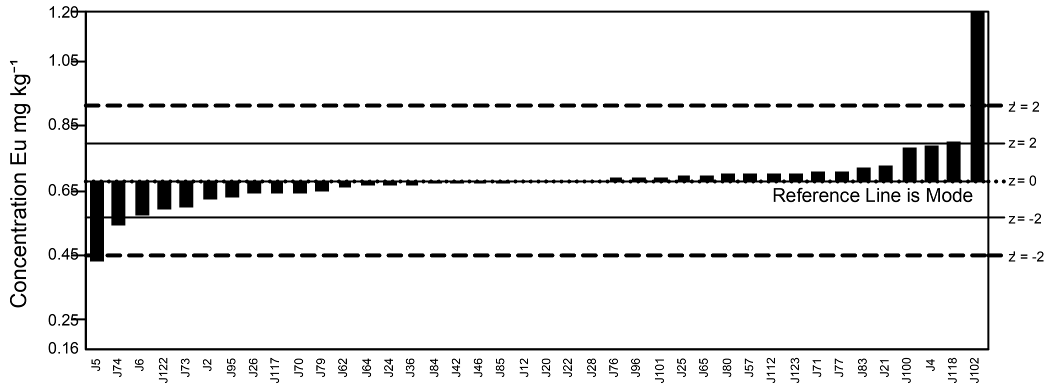
GeoPT47A - Barchart for Dy



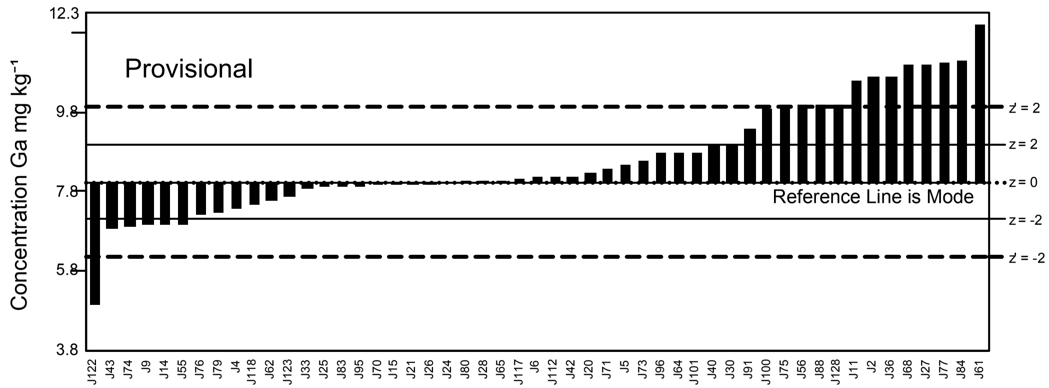
GeoPT47A - Barchart for Er



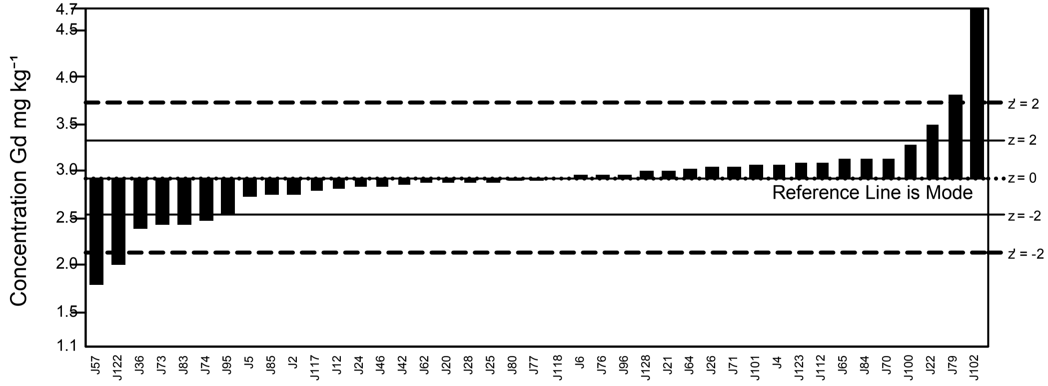
GeoPT47A - Barchart for Eu



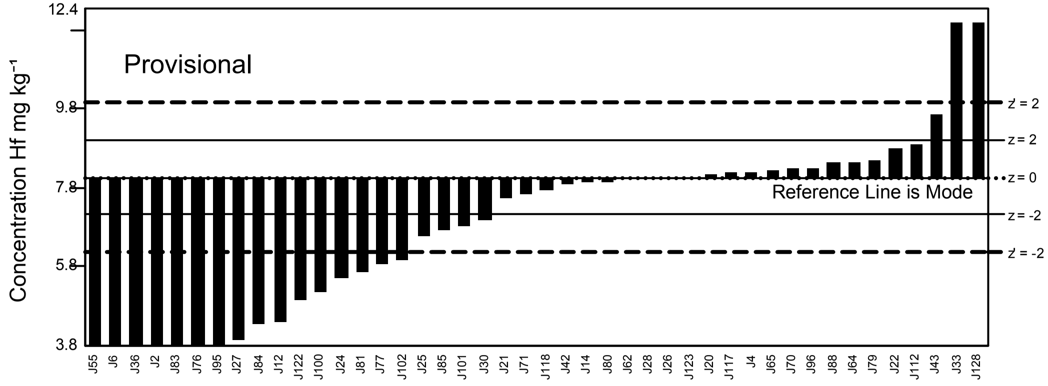
GeoPT47A - Barchart for Ga



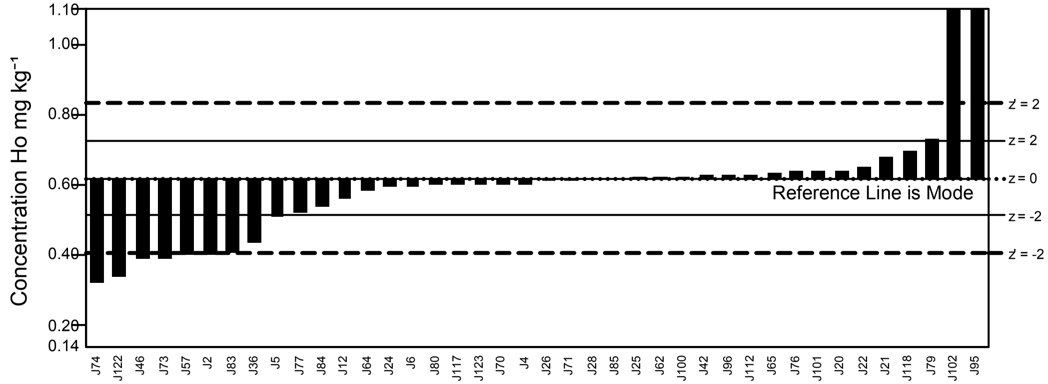
GeoPT47A - Barchart for Gd



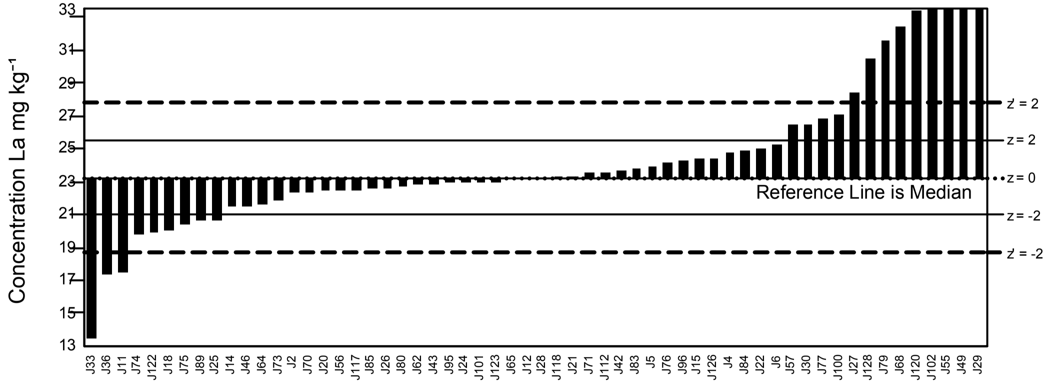
GeoPT47A - Barchart for Hf



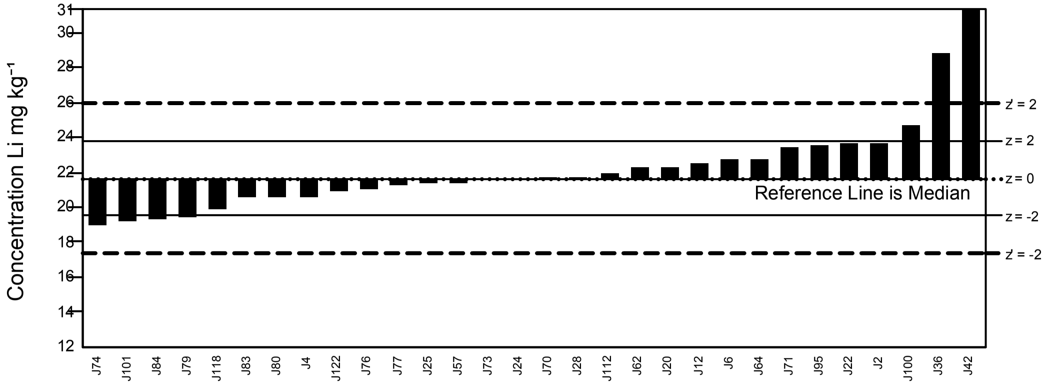
GeoPT47A - Barchart for Ho



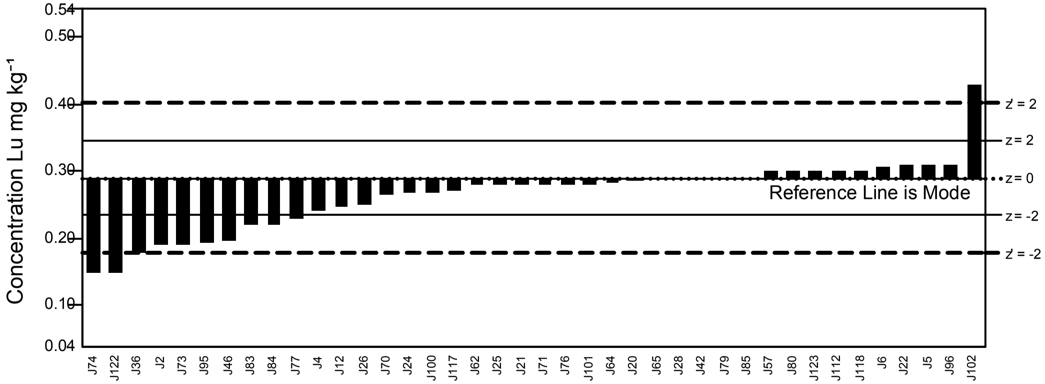
GeoPT47A - Barchart for La



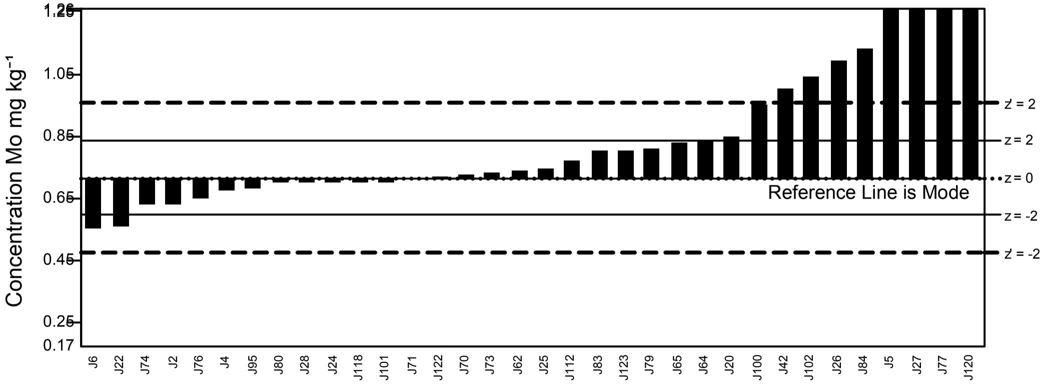
GeoPT47A - Barchart for Li



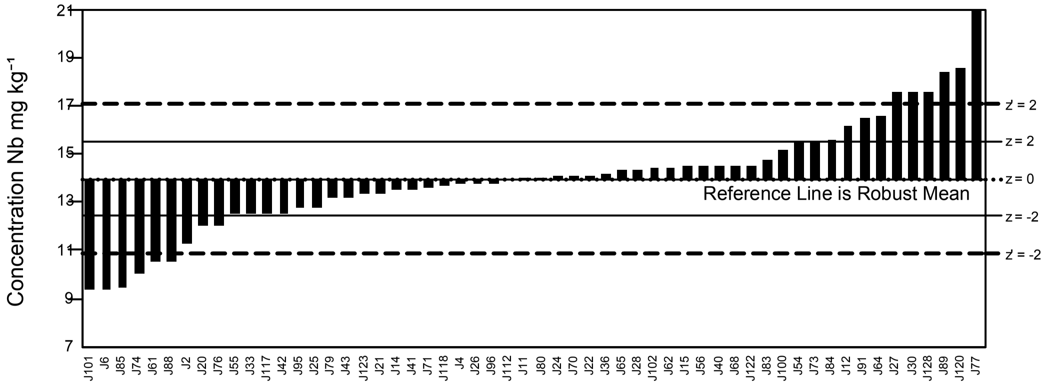
GeoPT47A - Barchart for Lu



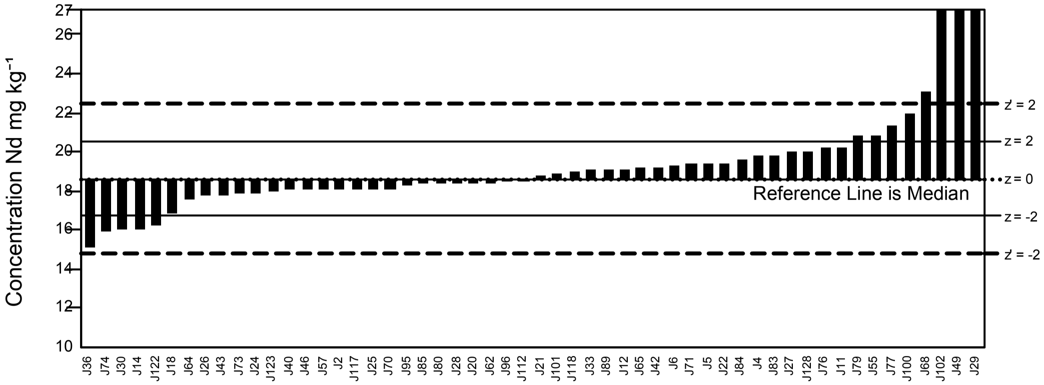
GeoPT47A - Barchart for Mo



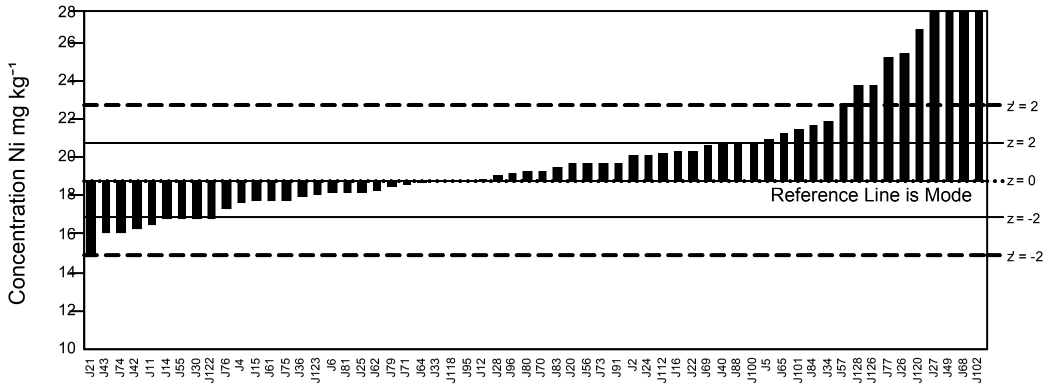
GeoPT47A - Barchart for Nb



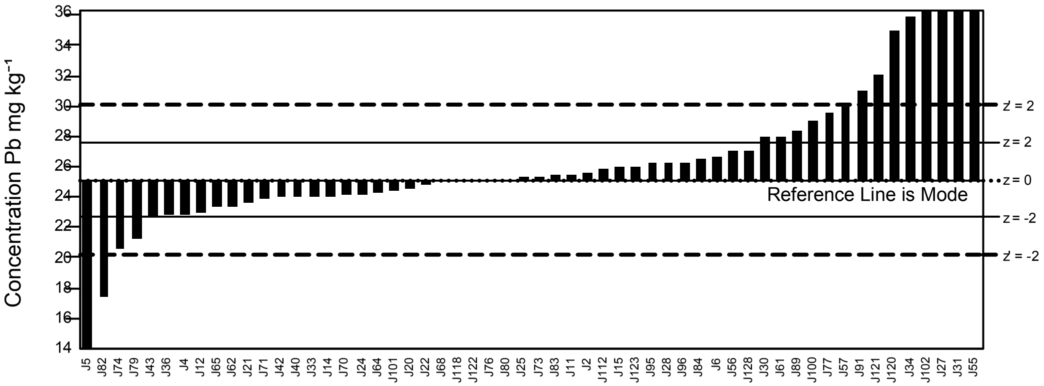
GeoPT47A - Barchart for Nd



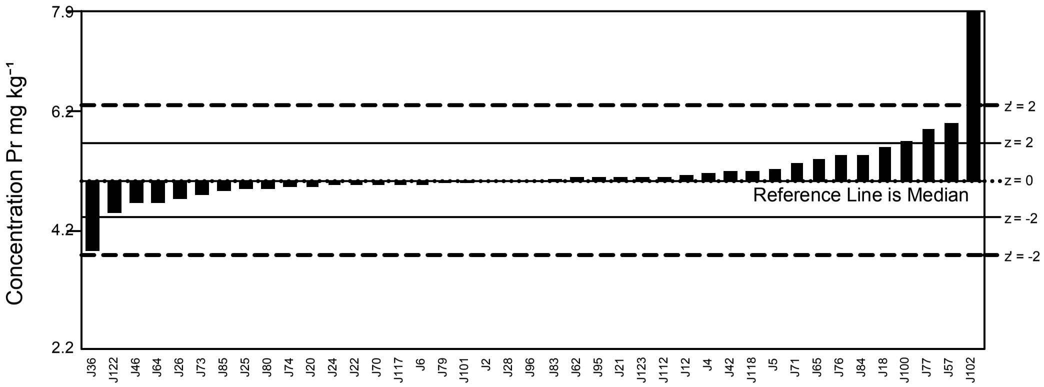
GeoPT47A - Barchart for Ni



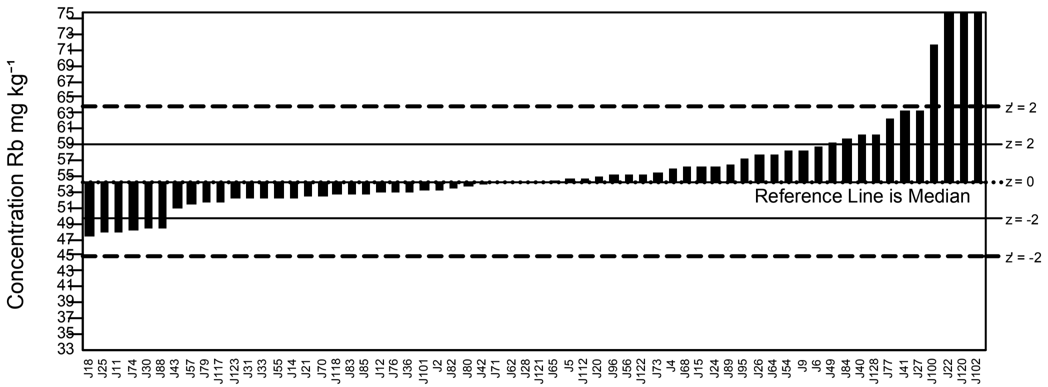
GeoPT47A - Barchart for Pb



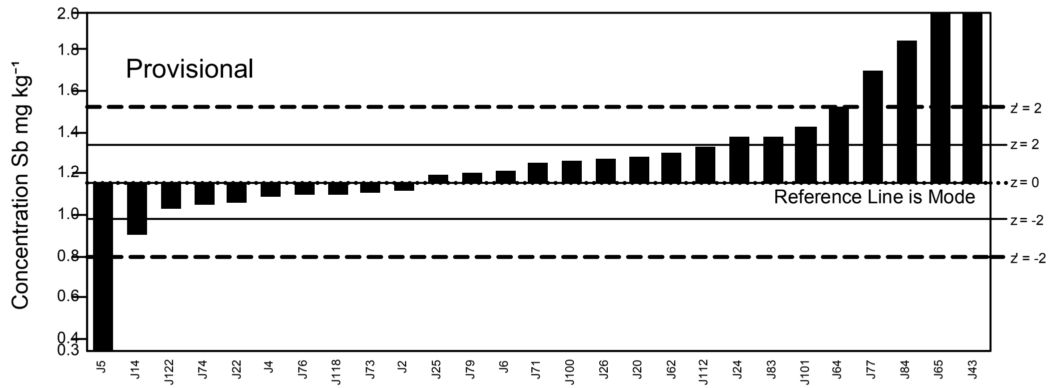
GeoPT47A - Barchart for Pr



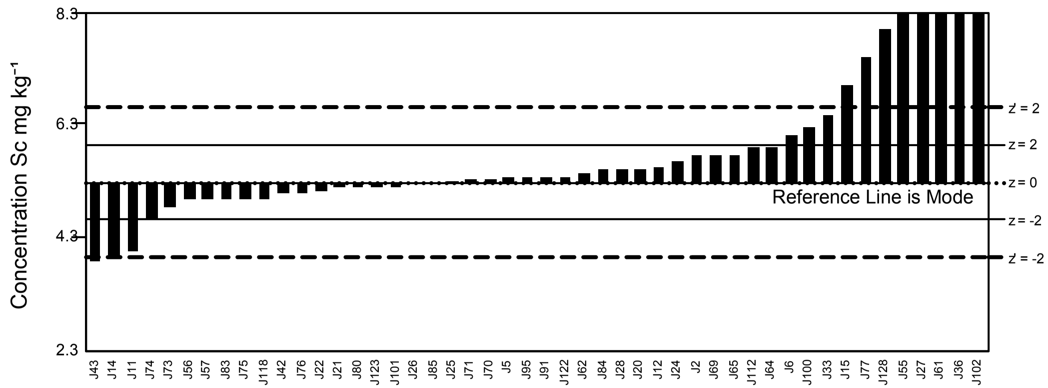
GeoPT47A - Barchart for Rb



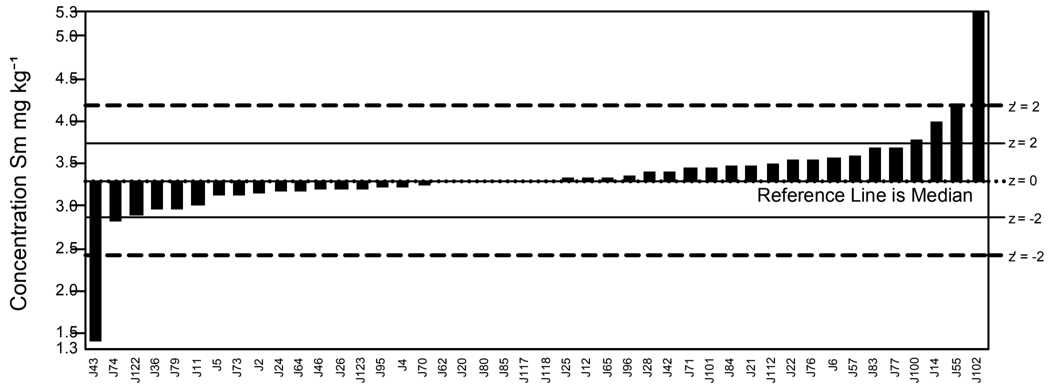
GeoPT47A - Barchart for Sb



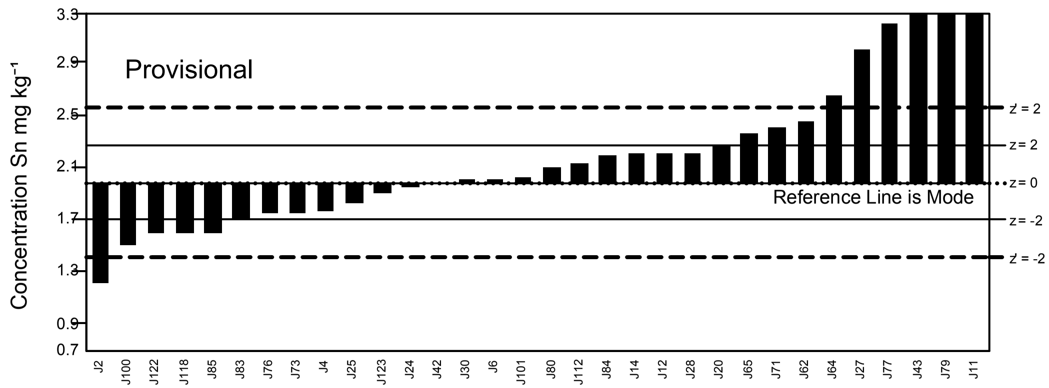
GeoPT47A - Barchart for Sc



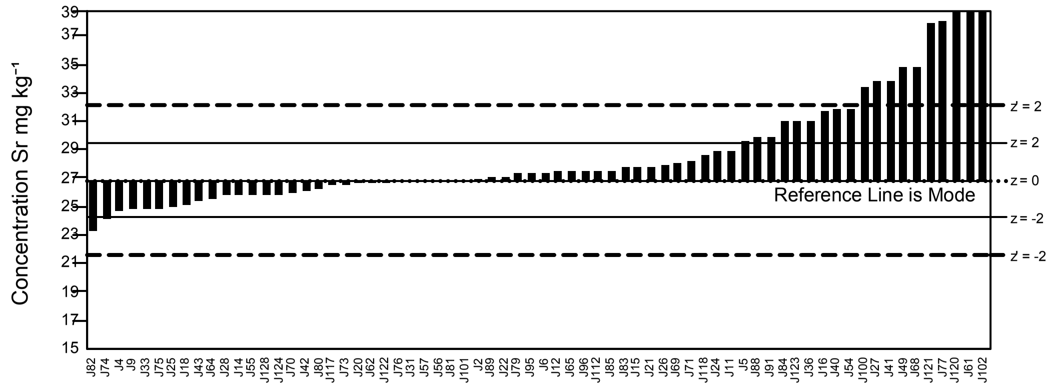
GeoPT47A - Barchart for Sm



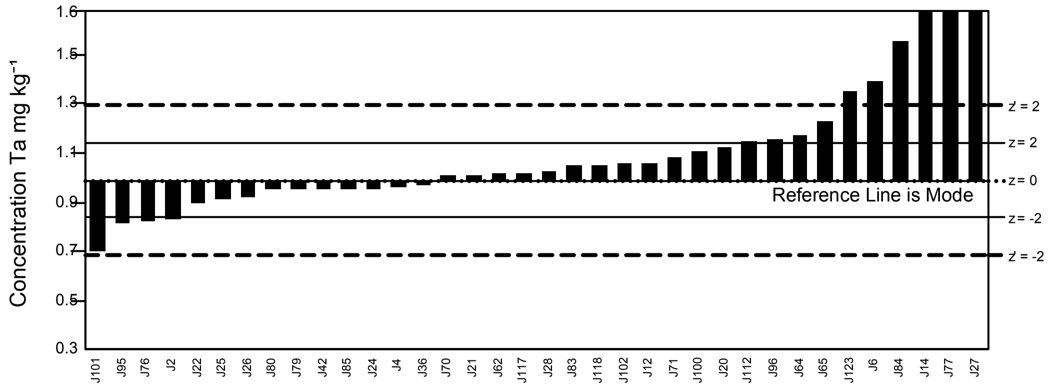
GeoPT47A - Barchart for Sn



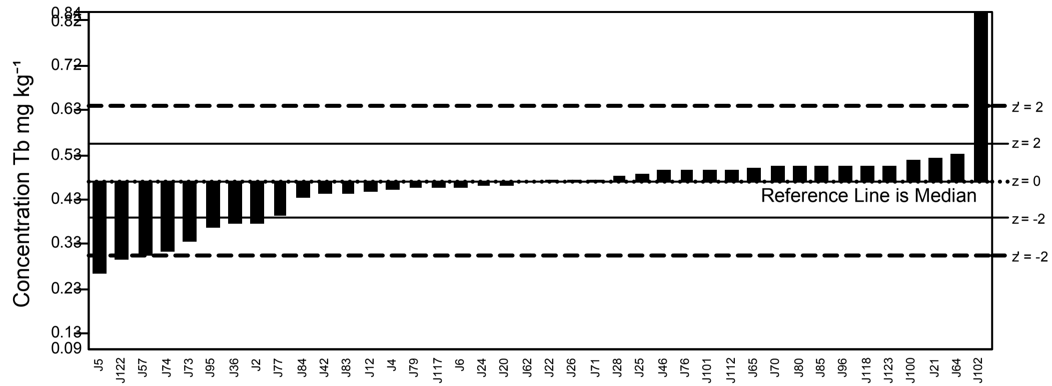
GeoPT47A - Barchart for Sr



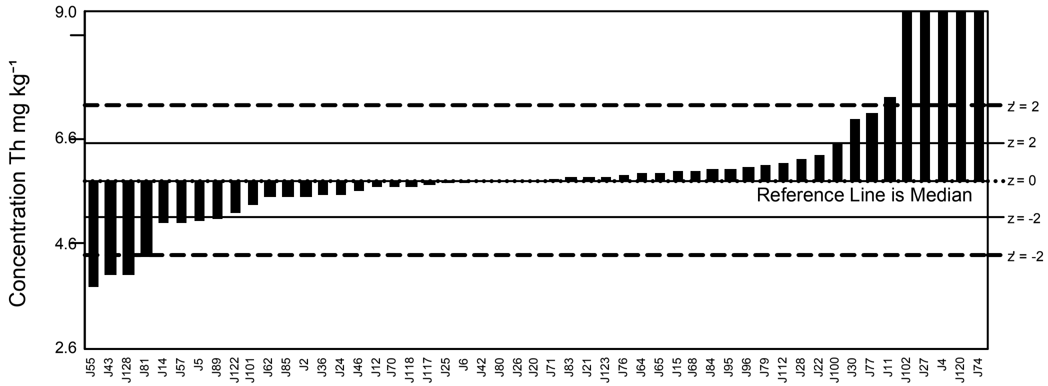
GeoPT47A - Barchart for Ta



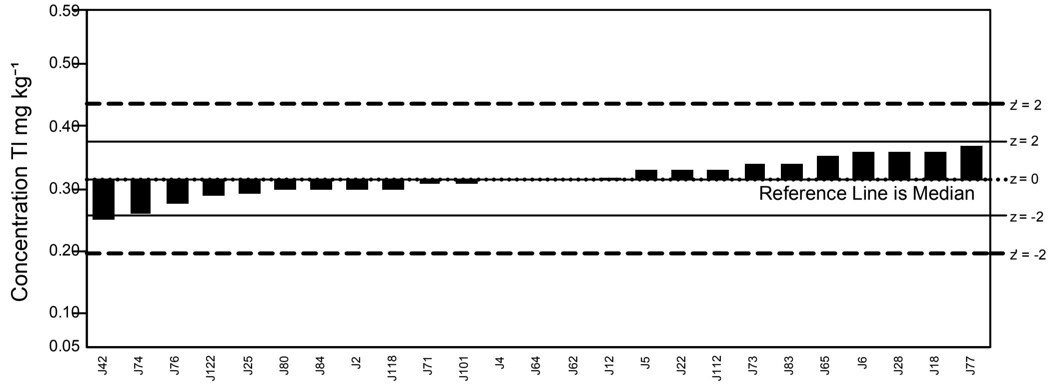
GeoPT47A - Barchart for Tb



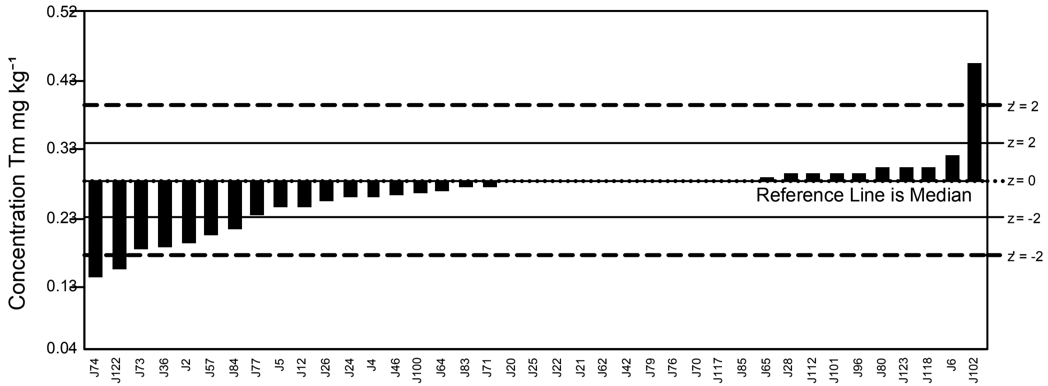
GeoPT47A - Barchart for Th



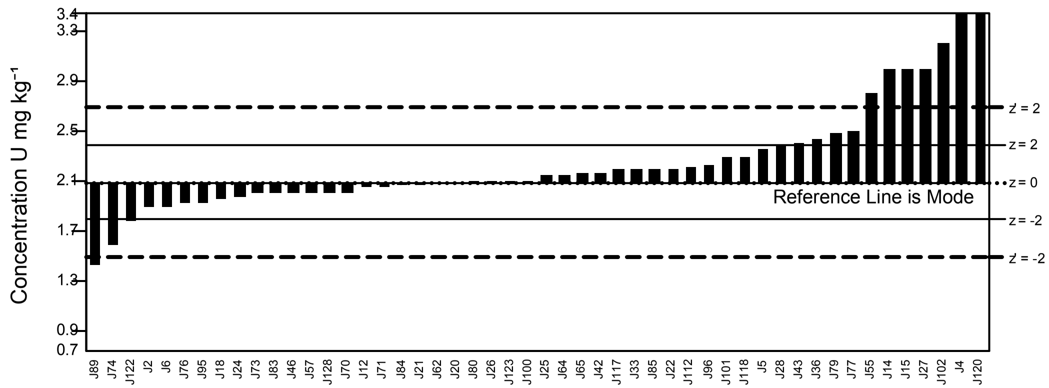
GeoPT47A - Barchart for Tl



GeoPT47A - Barchart for Tm



GeoPT47A - Barchart for U



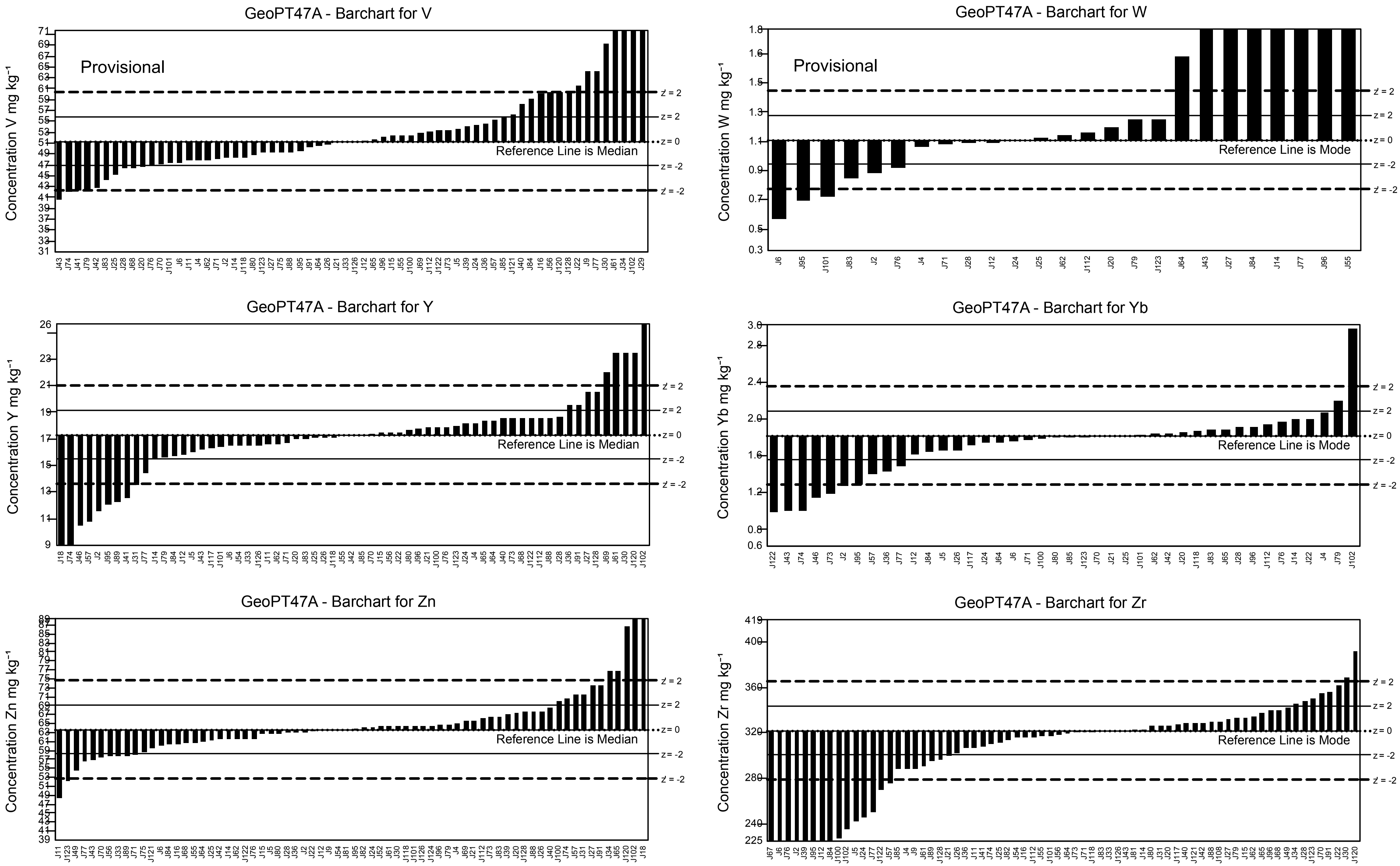
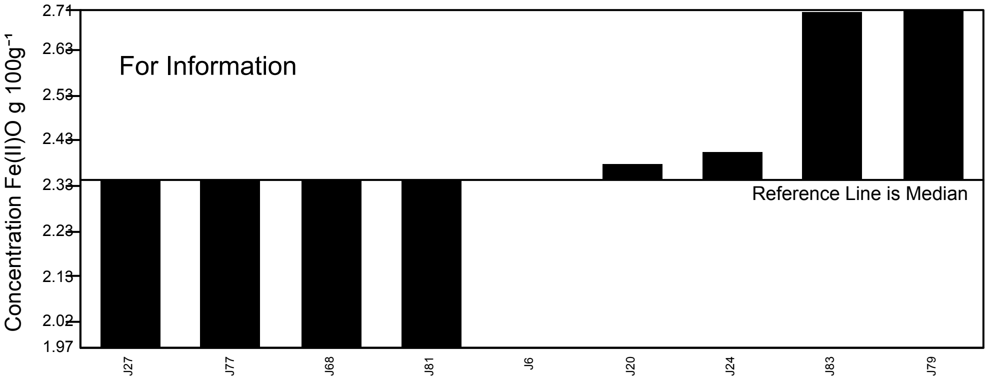
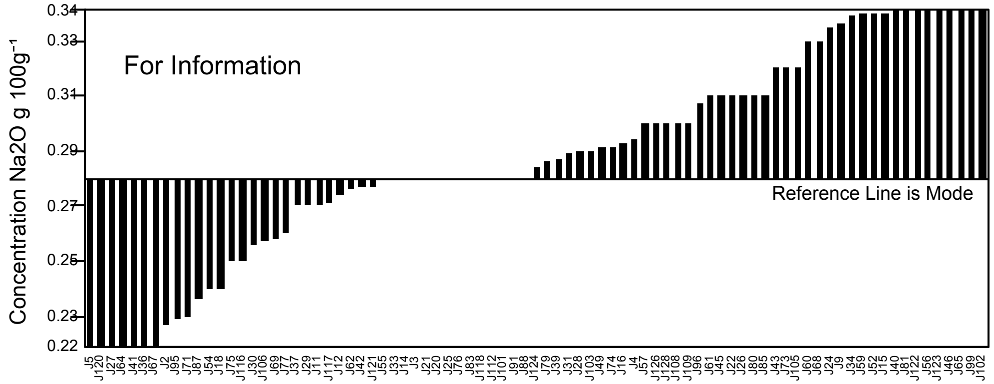


Figure 1: GeoPT47A - Silty soil, NES-1. Data distribution charts for elements for which values were assigned or provisional values given for guidance. Horizontal lines show the limits for -2<z<2 for pure geochemistry labs (solid lines) and -2<z'<2 for applied geochemistry labs (pecked lines).

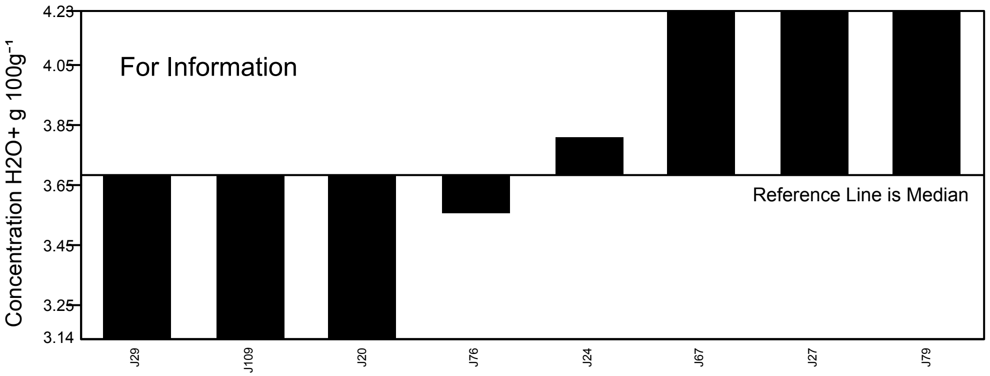
GeoPT47A - Barchart for Fe(II)O



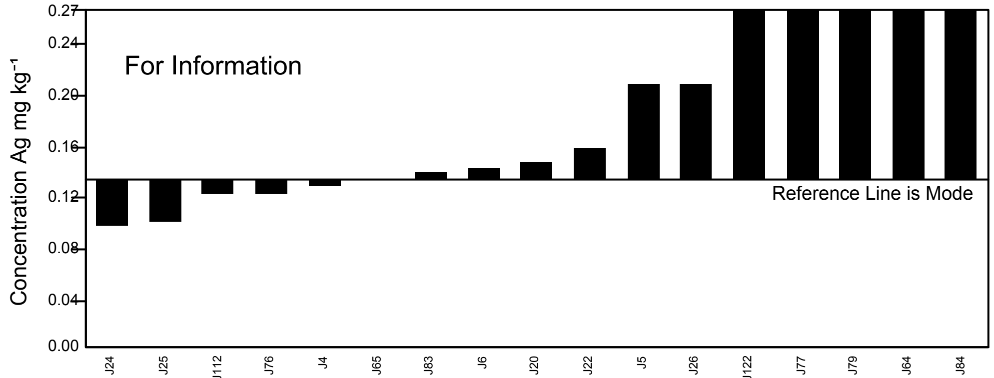
GeoPT47A - Barchart for Na2O



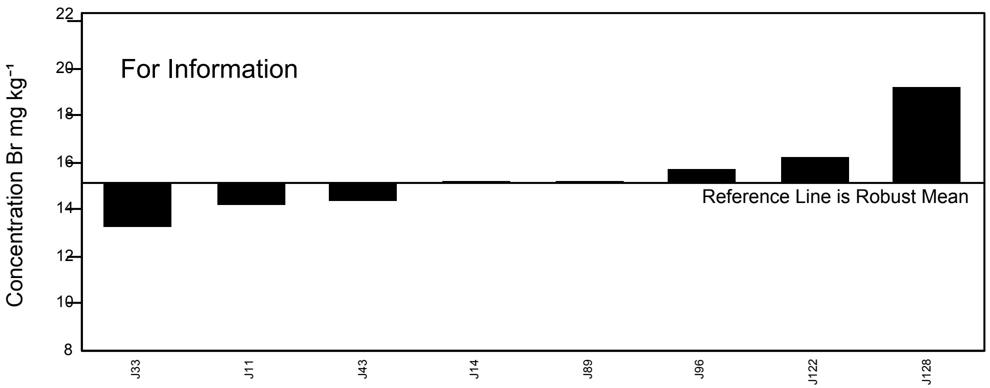
GeoPT47A - Barchart for H2O+



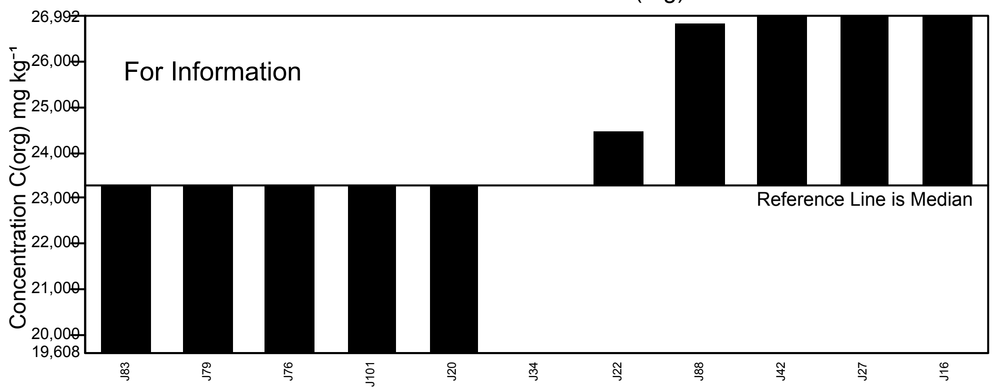
GeoPT47A - Barchart for Ag

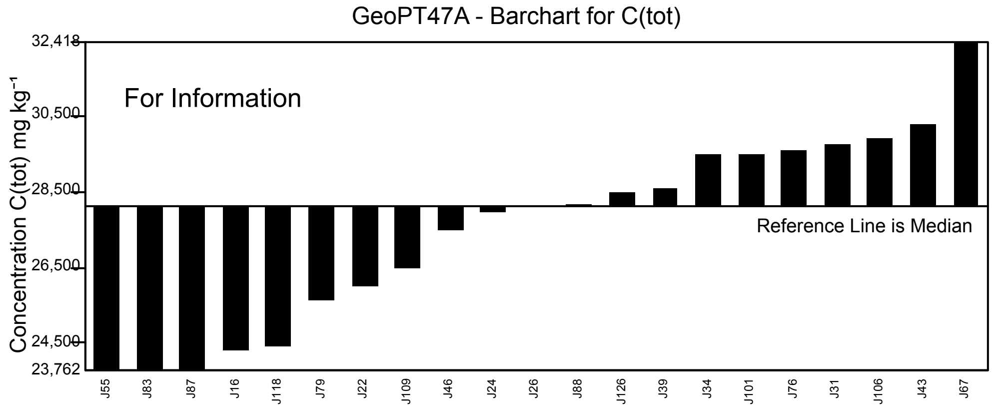


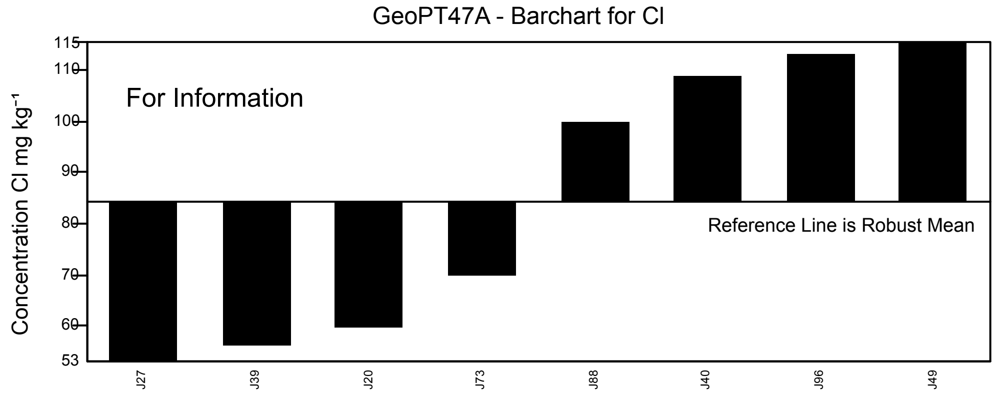
GeoPT47A - Barchart for Br

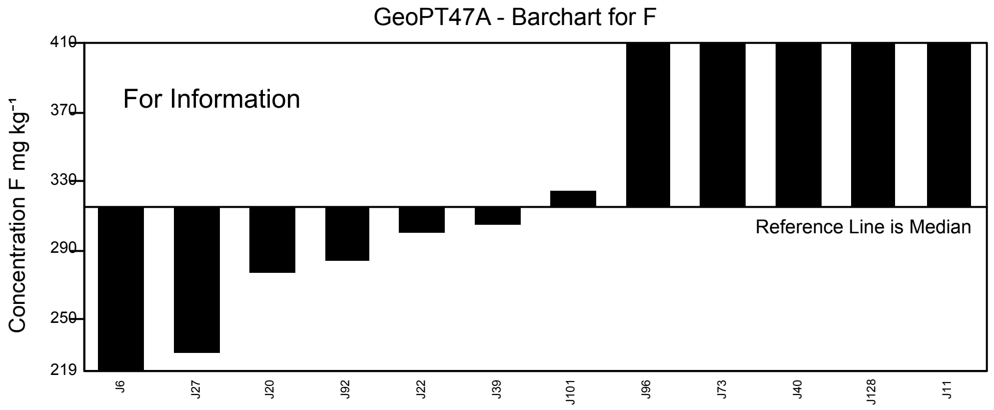


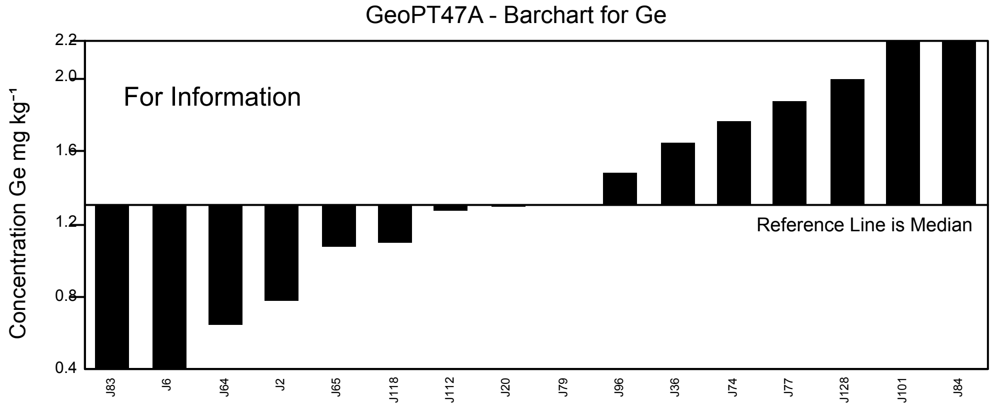
GeoPT47A - Barchart for C(org)

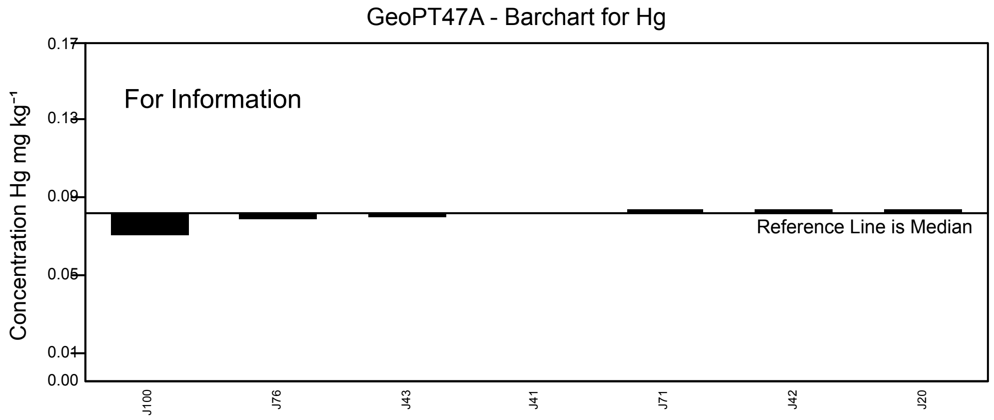


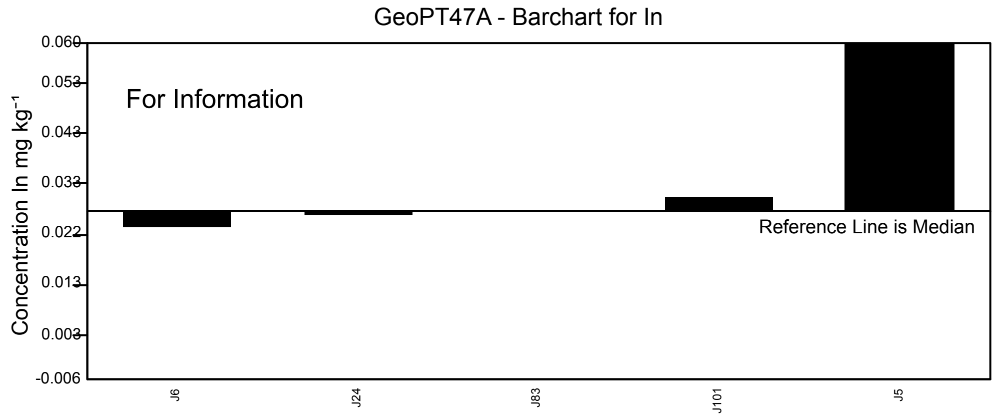

GeoPT47A - Barchart for C(tot)
For Information
Reference Line is Median
Concentration C(tot) mg kg⁻¹
32,418
30,500
28,500
26,500
24,500
23,762
J55 J83 J87 J16 J118 J79 J22 J109 J46 J24 J26 J88 J126 J39 J34 J101 J76 J31 J106 J43 J67

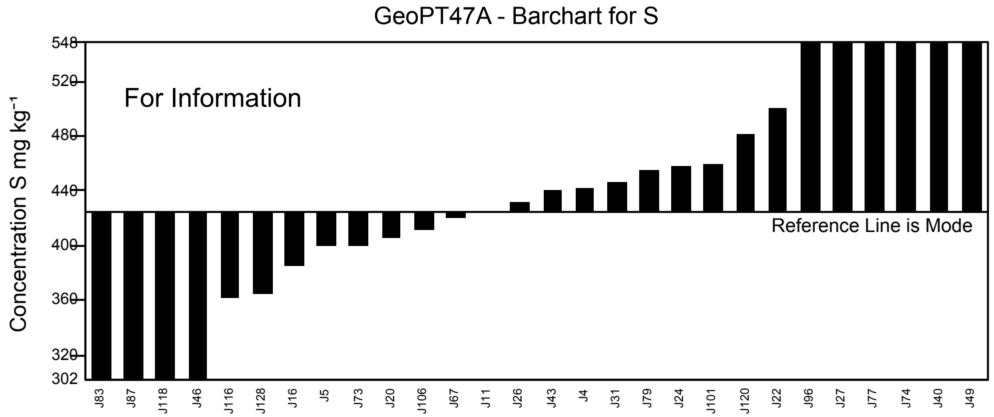

GeoPT47A - Barchart for Cl
For Information
Reference Line is Robust Mean
Concentration Cl mg kg⁻¹
115
110
100
90
80
70
60
53
J27 J39 J20 J73 J88 J40 J96 J49

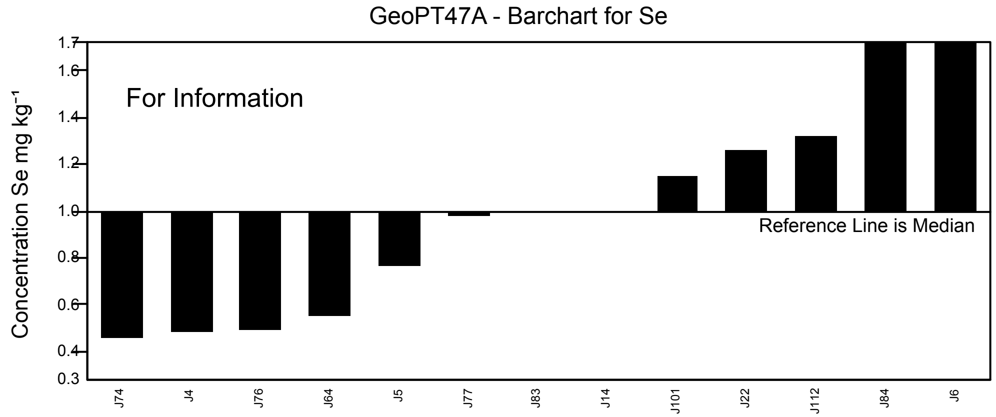

GeoPT47A - Barchart for F
For Information
Reference Line is Median
Concentration F mg kg⁻¹
410
370
330
290
250
219
J6 J27 J20 J92 J22 J39 J101 J96 J73 J40 J128 J11


GeoPT47A - Barchart for Ge
For Information
Reference Line is Median
Concentration Ge mg kg⁻¹
2.2
2.0
1.6
1.2
0.8
0.4
J83 J6 J64 J2 J65 J118 J112 J20 J79 J96 J36 J74 J77 J128 J101 J84


GeoPT47A - Barchart for Hg
For Information
Reference Line is Median
Concentration Hg mg kg⁻¹
0.17
0.13
0.09
0.05
0.01
0.00
J100 J76 J43 J41 J71 J42 J20


GeoPT47A - Barchart for In
For Information
Reference Line is Median
Concentration In mg kg⁻¹
0.060
0.053
0.043
0.033
0.022
0.013
0.003
-0.006
J6 J24 J83 J101 J5





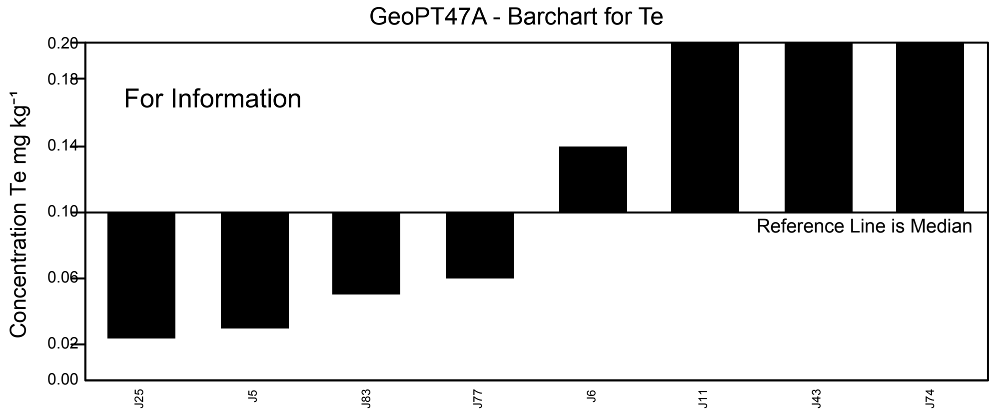
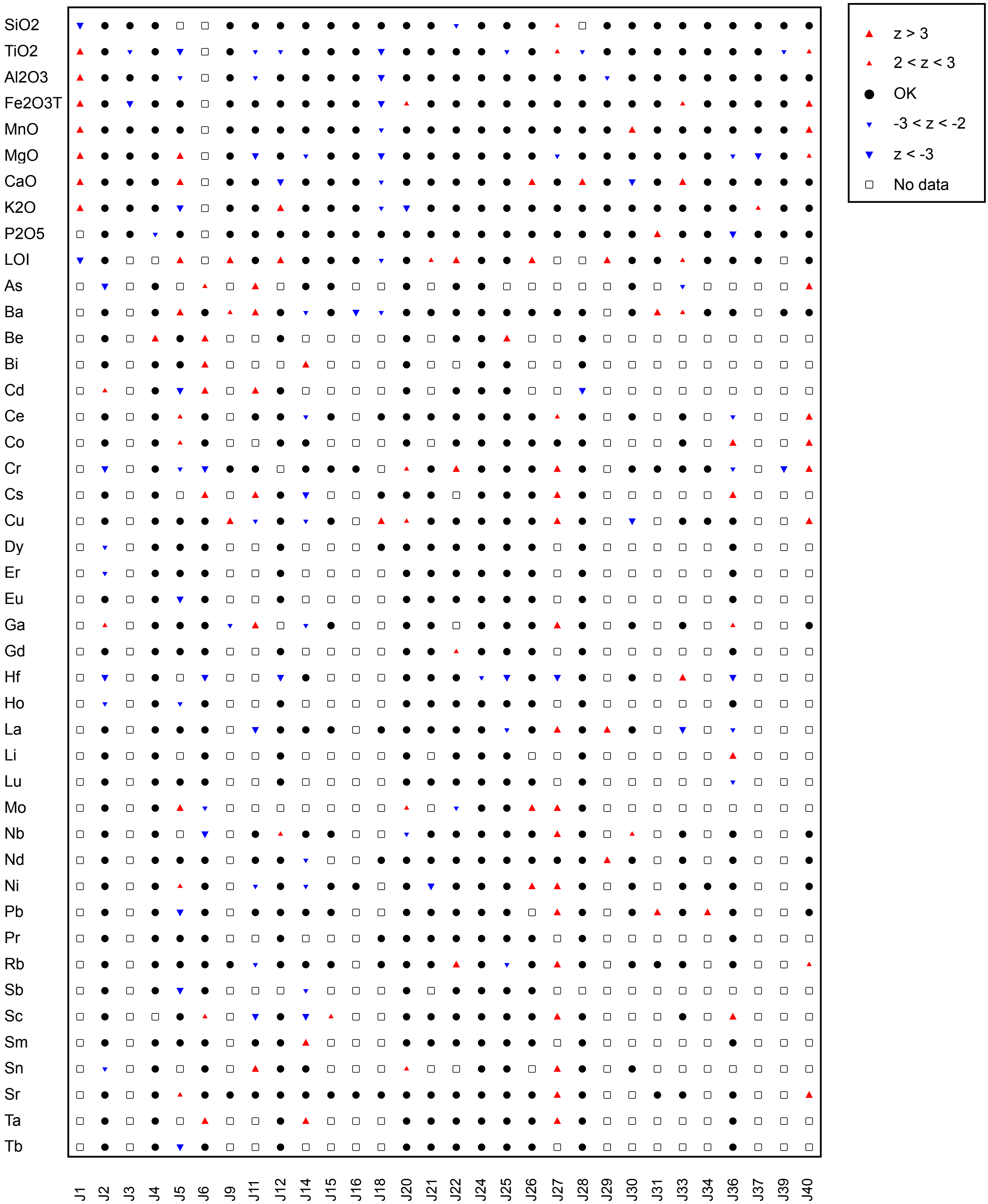


Figure 2: GeoPT47A - Silty soil, NES-1. Data distribution charts provided for information only for elements for which values could not be assigned.

Multiple Z-Score Chart for GeoPT47A



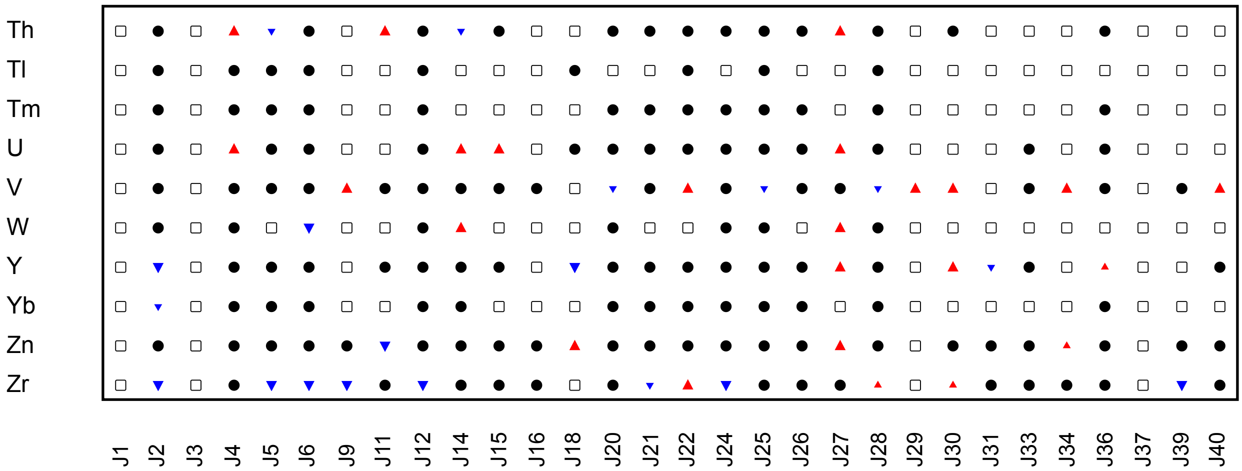
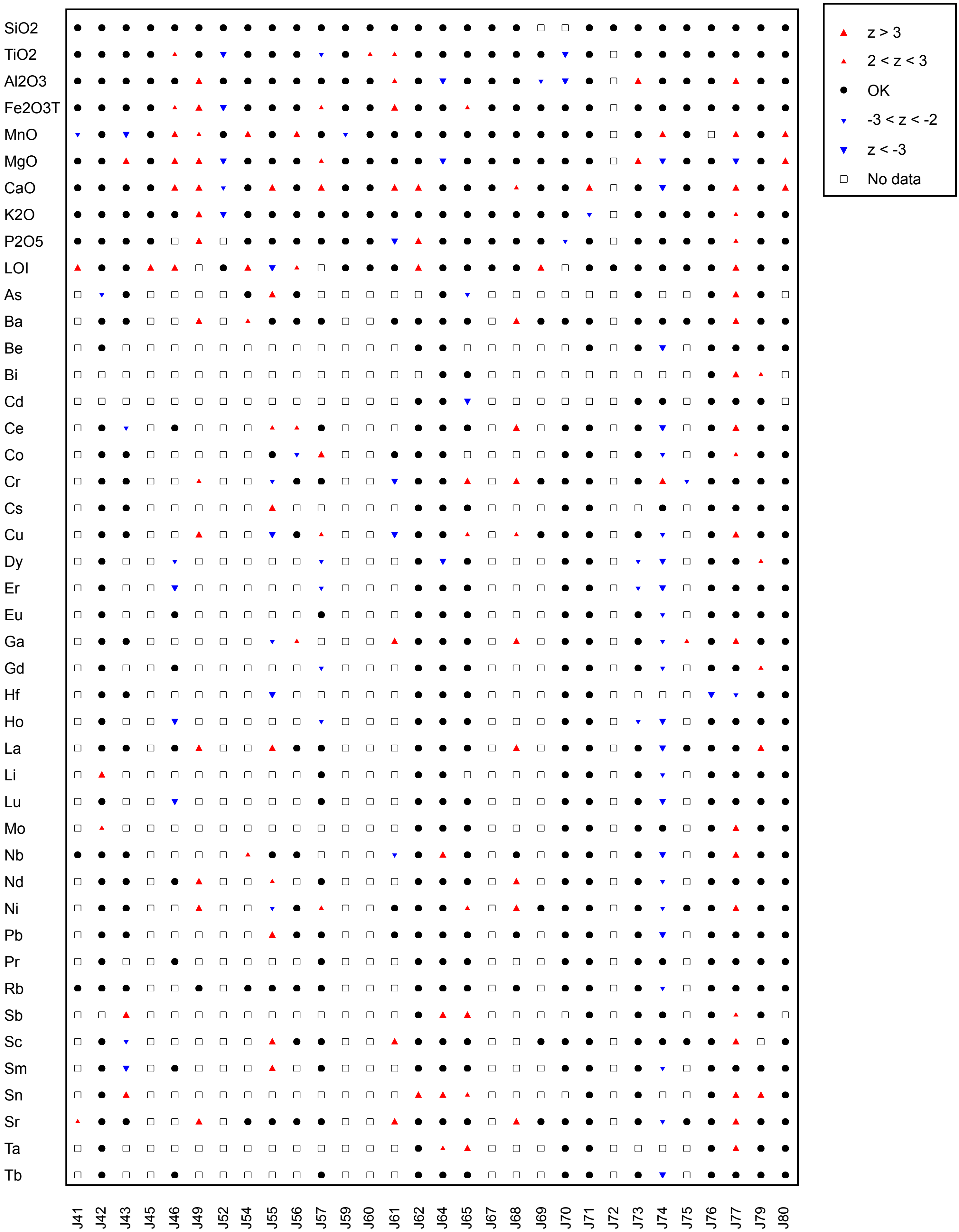


Figure 3: GeoPT47A - Silty soil, NES-1. Multiple z-score charts for laboratories participating in the GeoPT47 A round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

Multiple Z-Score Chart for GeoPT47A



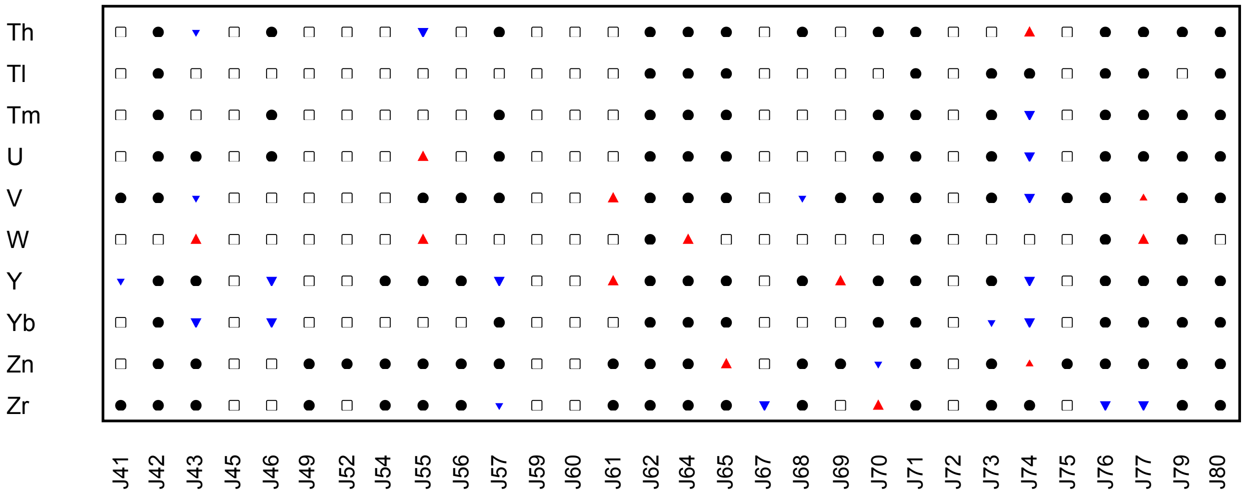
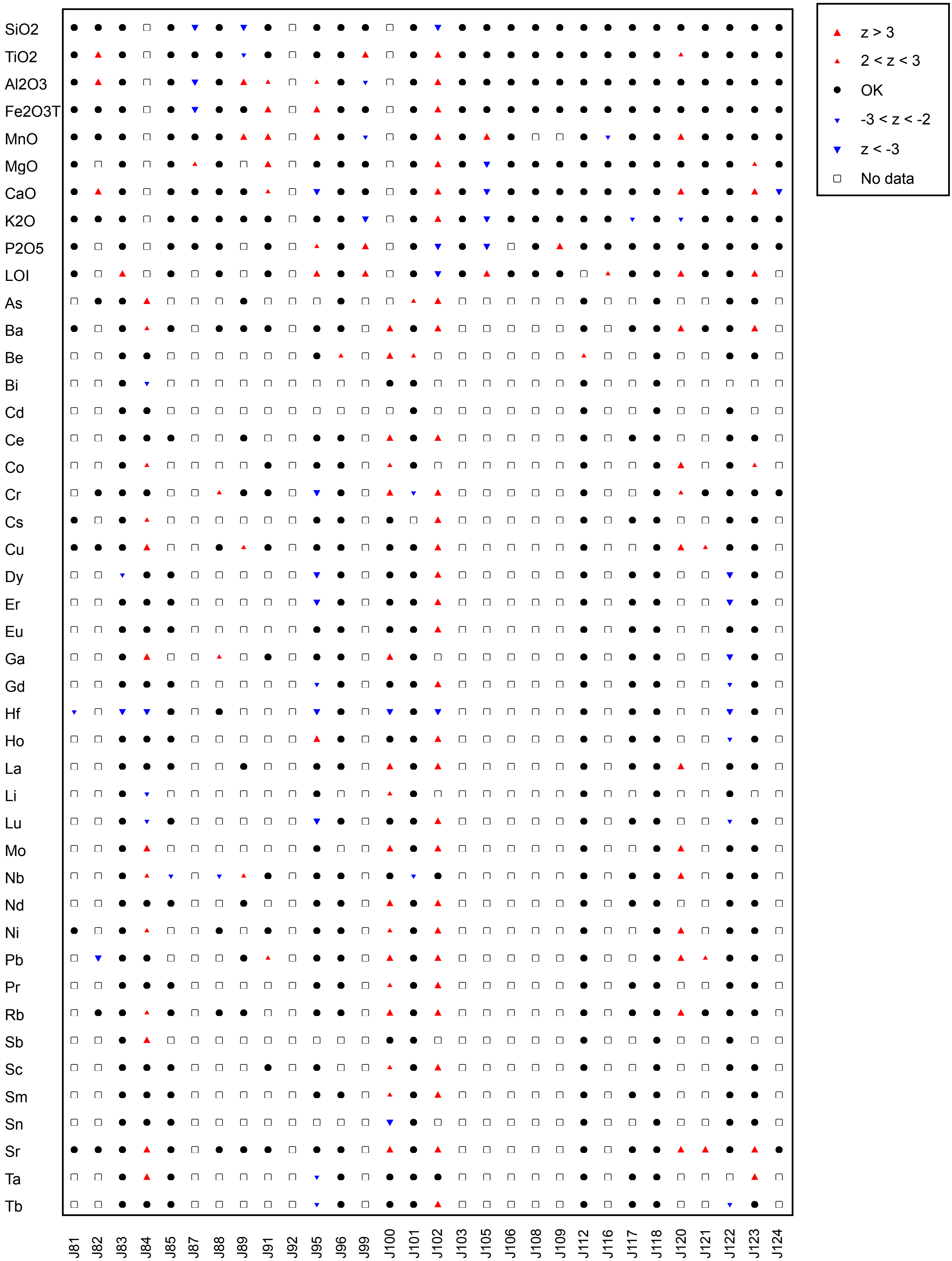


Figure 3: GeoPT47A - Silty soil, NES-1. Multiple z-score charts for laboratories participating in the GeoPT47 A round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

Multiple Z-Score Chart for GeoPT47A



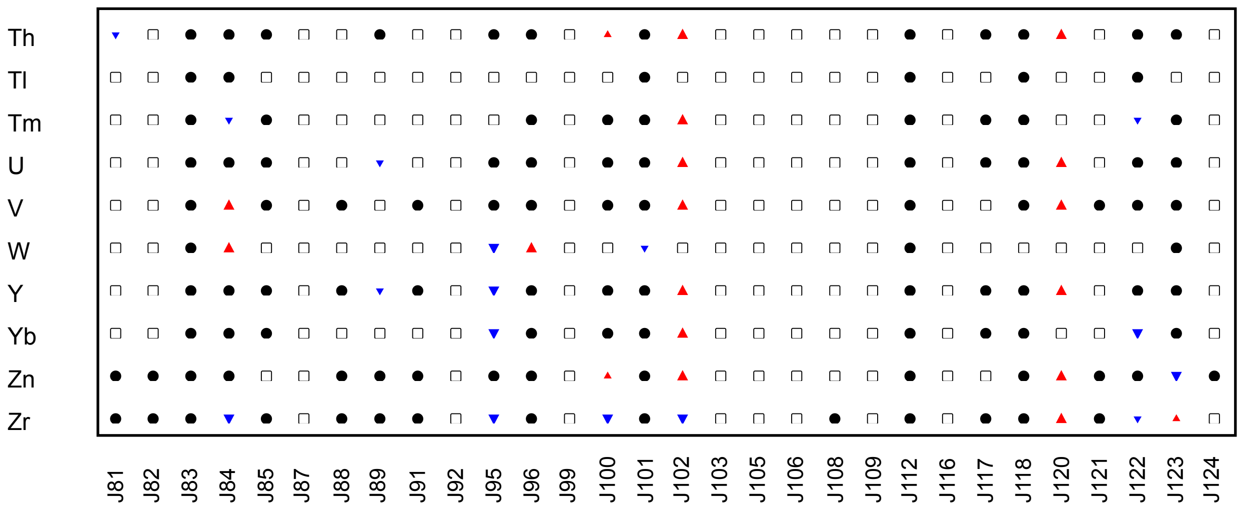


Figure 3: GeoPT47A - Silty soil, NES-1. Multiple z-score charts for laboratories participating in the GeoPT47 A round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

Multiple Z-Score Chart for GeoPT47A

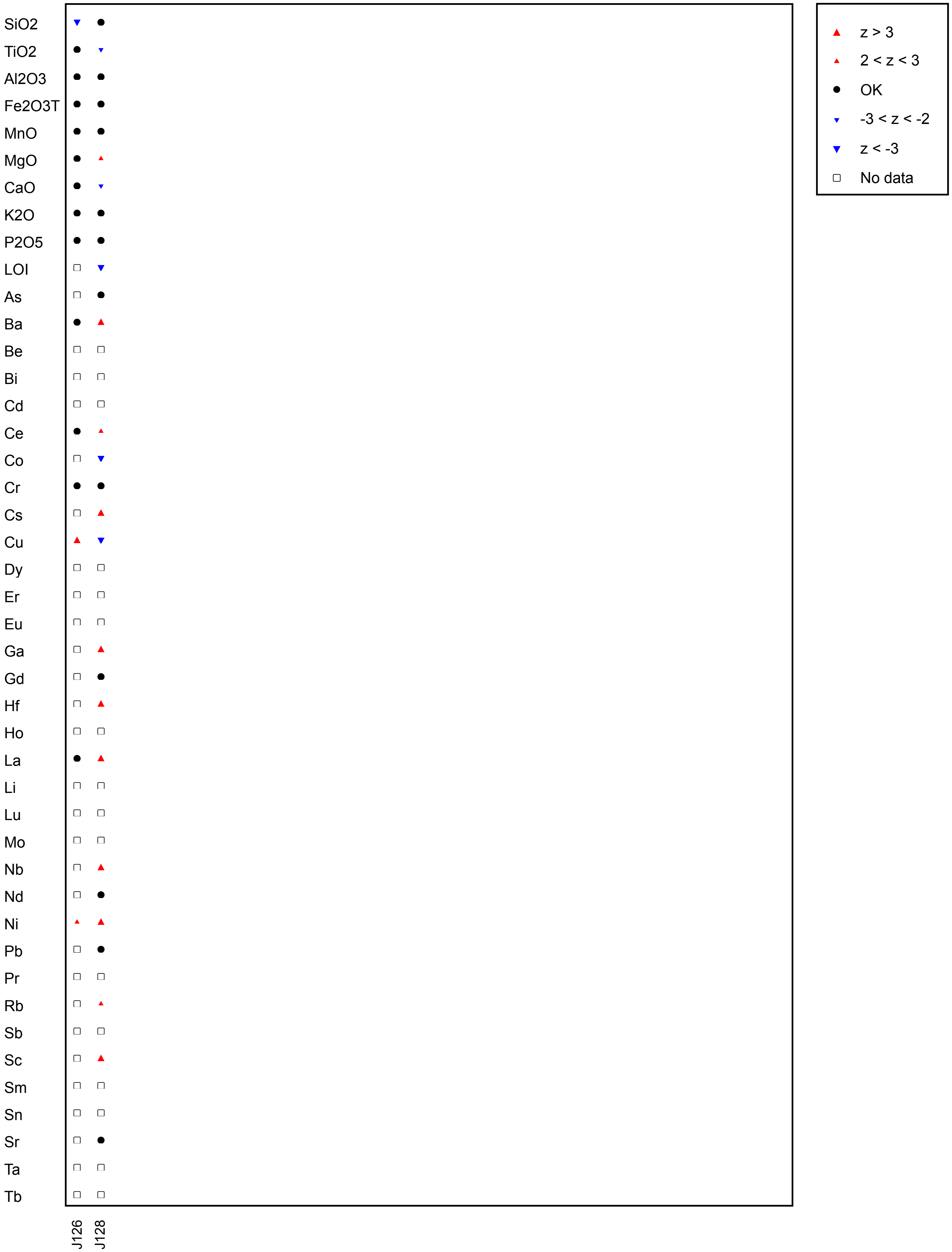


Figure 3: GeoPT47A - Silty soil, NES-1. Multiple z-score charts for laboratories participating in the GeoPT47 A round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).