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REGOLITH STUDIES RELATED TO THE BIRTHDAY GOLD PROSPECT, GAWLER CRATON, SOUTH AUSTRALIA

M. J. Lintern[1], M. J. Sheard[2] and G. Gouthas[2]

[1]Cooperative Research Centre for Landscape Evolution and Mineral Exploration
CSIRO Exploration and Mining, Private Mail Bag, PO WEMBLEY WA 6014, Australia.

[2]Regolith Terranes Team, Geological Survey Branch, Minerals Group, Core Library Complex
PIRSA, GPO Box 1671, ADELAIDE SA 5001, Australia.

CRC LEME OPEN FILE REPORT 79 / PIRSA REPORT BOOK 2000/00003

March 2000

CRC LEME is an unincorporated joint venture between The Australian National University, University of Canberra, Australian Geological Survey Organisation and CSIRO Exploration and Mining
Headquarters: CRC LEME c/o CSIRO Exploration and Mining, Private Mail Bag, PO Wembley, Western Australia, 6014

This report presents outcomes of a collaborative research project between Minotaur Gold NL, CRC LEME and PIRSA that commenced in December 1996. The agreement between the parties allowed the immediately availability of this report on open file.

Copies of this publication can be obtained from:
The Publication Officer, c/- CRC LEME, CSIRO Exploration and Mining, PMB, Wembley, WA 6014, Australia.
Information on other publications in this series may be obtained from the above or from http://leme.anu.edu.au/
Cataloguing-in-Publication:
Lintern, M.J.
Regolith studies related to the Birthday Gold Prospect, Gawler Craton, South Australia
ISBN : 0 643 06480 X
1. Geochemistry - South Australia 2. Gold - South Australia
I. Sheard, M.J. II. Gouthas, G. III. Title
CRC LEME Open File Report 79.
ISSN 1329-4768

Affiliation of Authors
M.J. Lintern
Cooperative Research Centre for Landscape Evolution and Mineral Exploration, CSIRO Exploration and Mining, Private Bag No5 Wembley, Perth, Western Australia 6913.

M.J. Sheard
Regolith Terranes Team, Minerals Group, Core Library Complex, PIRSA, GPO Box 1671, Adelaide, South Australia 5001.

G. Gouthas
Regolith Terranes Team, Minerals Group, Core Library Complex, PIRSA, GPO Box 1671, Adelaide, South Australia 5001.

PREFACE

In the late 1980s and 1990s, CSIRO-AMIRA Projects (P240, P240A, P241, P241A, P409 and others) in the Yilgarn Craton in WA investigated the geochemical expression of primary and supergene Au mineralisation in the regolith and its relationship with regolith landforms. These studies demonstrated that in relict (laterite-dominated) and erosional (saprolite-dominated) landform regimes, carefully directed, shallow sampling is usually more cost- and technically-effective than routine drilling to the lower regolith in regional- and prospect-scale exploration. In some locations, it was found that there was a surface expression of mineralisation concealed by up to 10 m of barren sediments and/or 40 m of apparently leached saprolite.

Two groups of sample media were found to have particular value for mineral exploration in the Yilgarn Craton; these were:

(i) ferruginous materials, particularly lateritic residuum and lag;

(ii) calcareous soil horizons, which are widespread in the semi-arid parts of the southern Yilgarn. Gold concentrations are often much greater in pedogenic carbonate, compared with immediately adjacent horizons. These are termed Au-in-calcrete anomalies.

The research was highly successful and numerous deposits have been found using methods attributable to the results of the CSIRO-AMIRA jointly-funded projects.

One of the principal outcomes of the success of the regolith research projects has been the formation of the Cooperative Research Centre for Mineral Exploration and Landscape Evolution (CRC LEME) in 1995, and with it a new impetus to extend similar research in other parts of Australia. The South Australian Node of CRC LEME was established in late 1996 and has successfully teamed up with the Regolith Terranes Team in PIRSA (Primary Industry and Resources, South Australia, formerly MESA, Mines and Energy Department of South Australia). The principal objective of the CRC LEME Shields Program and PIRSA Regolith Terranes Team in South Australia is to develop technically efficient procedures for mineral exploration through a comprehensive understanding of the processes of regolith development and landscape evolution and their effects on the surface expression of concealed mineralisation.

The specific objectives in South Australia are to:

1) Establish broad spatial relationships between regolith, landforms and bedrock lithotypes.
2) Establish mineralogical and geochemical characteristics of regoliths in different geological, geomorphological and climatic environments.
3) Characterise the surface and sub-surface geochemical expression of major ore systems in the regolith.
4) Establish relationships between geochemical dispersion patterns, weathering processes and evolution of regolith and landform development.
5) Develop appropriate exploration procedures for the different landscapes of the Cratons and Provinces.

CRC LEME and PIRSA commenced joint regolith studies in South Australia to assist the exploration industry with precious and base metal exploration over areas of variably-covered basement terranes. The initial focus has been on the Gawler Craton since it is a region well suited to research activities due to the current high level of exploration activity. The enormous interest in the Gawler Craton in the last few years, particularly with respect to Au exploration, has been the result of a combination of several key factors including:

1) Pioneering of calcrete sampling for Au exploration in Western Australia by CSIRO in the late 1980s.

2) Discovery of Au by drilling by MESA in the early 1990s.
3) Availability of high-quality airborne geophysical data from the state government's South Australian Exploration Initiative (SAEI).
4) The application of calcrete sampling to South Australia by Dominion Mining in 1993.
5) The discovery of the Challenger Gold Deposit in 1995.

Initially some of the preliminary "in-house" studies have involved comparisons between calcretes in Western Australia and South Australia. However, the study of the regolith goes far beyond an appraisal of calcrete as a sample medium even though it is believed that considerably more use and application of calcrete sampling can be made for exploration purposes. The regolith is a complex subject that requires the study of several inter-related research topics, including regolith mapping, regolith geochemistry and surficial geochemistry. Individually, these topics provide useful information, but when combined, they provide a powerful understanding of the processes involved in regolith formation and development.

Since late 1996, the CRC LEME-PIRSA groups have been approached by several companies offering research sites for pilot regolith studies. All sites were visited and assessed using various criteria for suitability including style and tenor of mineralisation, presence of known surficial anomalies and regolith setting. In November 1996, Minotaur Gold NL were presented with a project proposal for regolith investigations in the Gawler Craton. Agreement was reached to commence the research centred on the Birthday Gold Prospect.

Preliminary investigations were based on research methods that have been successfully applied in the deeply weathered environments of Western Australian and Queensland. As investigations progressed, they were tailored to suit the specific requirements of the South Australian regolith as they become apparent. In addition, some knowledge was already available in the published literature. Accordingly the agreed objectives of the project are:

1) Determination of the mineralogical and geochemical characteristics of one or more Au-in-calcrete anomalies.
2) Determination of the mineralogical and geochemical characteristics of the regolith at one area of mineralisation.
3) Assist with the interpretation of Au-in-calcrete anomalies.

The research project was undertaken as part of a broad CRC LEME-PIRSA Regolith Program that consists of a series of Research Modules, three of which were proposed for this project: Regolith Geochemistry, Surface Geochemistry and Biogeochemistry. The three Modules will provide fundamental data for increasing knowledge about regolith processes and landscape evolution within this important region as well as assist Minotaur Gold NL in its exploration endeavours in the Birthday area.

M.J. Lintern
(Project Leader)

February 2000

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EXECUTIVE SUMMARY

Our knowledge of geochemical dispersion of Au and Au pathfinders in the Gawler Craton (South Australia) is poor since there have been very few published research or orientation studies. In this study at the Birthday Gold Prospect, the applicability of geochemical dispersion models identified in Western Australia to sites in the Gawler Craton were investigated. The specific objectives of the study were to (i) undertake a detailed orientation survey in an area of known Au mineralisation, (ii) establish a regolith framework, (iii) identify potential sample media, and (iv) recommend the most appropriate ways to explore in this area. A 1.5 km line (the "regolith traverse") was chosen for the study of lateral and vertical geochemical dispersion and regolith stratigraphy.

The Birthday Gold Prospect (Minotaur Gold NL; EL 1900) occupies an area of low topographic relief in a semi-arid environment approximately 750 km north west of Adelaide, South Australia. Drill hole intercepts indicate a complex, deeply weathered regolith. The upper regolith (0–6 m) is characterised by the development of silcrete and calcrete on a thin (<2 m) horizon of locally transported materials, overlying Archaean rocks deeply weathered to clay-rich saprolite to about 30–40 m depth. Geochemical results confirmed anomalous Au concentrations in calcrete above mineralisation (maximum of 13 ppb) above 2 zones of bedrock mineralisation at about 30 m depth. However, concentrations were also high in a separate area (14 ppb) where no mineralisation has been identified. Anomalous concentration of Au above mineralisation also appear to persist in the upper regolith (beneath the calcrete) and it is this feature that distinguishes the false anomaly from the true.

Recommendations for Au exploration at the Birthday Prospect and in areas with similar regolith are:

1) at the prospect scale, maximum calcrete sampling at 200 x 200 m spacing with follow-up calcrete sampling, or augering at 50 x 50 m spacing from surface to 1 or (preferably) to 2 m or more (combining the cuttings);
2) calcrete nodules to be analysed for pathfinder elements since their signatures may be retained within the upper regolith and may be broader or more contrasting;
3) limited deep drilling (<5 holes, to RAB blade refusal) in areas with strong Au-in-calcrete maxima, particularly if there are concomitant maxima associated with anomalies derived from shallow augering; and
4) use of regolith-landform mapping and regolith stratigraphy to assist with interpretation of the geochemical results.

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1. INTRODUCTION

1.1 Previous work

There is relatively little information available about research or orientation studies undertaken on geochemical dispersion in the Gawler Craton (e.g. Edgecombe, 1997; Morris and Flintoff, 1999; Ferris, 1998). The limited number of company reports on the subject are mostly closed file (e.g. Wills, 1994) although some important information is often released as conference abstracts (e.g. Bonwick, 1997). Recently, however, Lintern and Sheard (1999) and Wilford *et al* (1998) released two linked research reports on geochemistry-stratigraphy and regolith landform mapping of the Challenger Gold Deposit and surrounding areas.

Gillman (1997) summarises recent exploration using calcrete by the Gawler Joint Venture in their tenement to the NW of Tarcoola (including the Challenger Gold Deposit) and ~40 km to the west of the Birthday Prospect:

i) the tenement can be broadly divided into areas dominated by either colluvium or sand dunes;
ii) calcrete can be collected by hand from shallow pits in areas of colluvium and by auger drill from the dune areas;
iii) 296 Au-in-calcrete anomalies have been identified from which 39 have been drill tested; significant Au mineralisation has been found at 80% of these sites;
iv) 1.6 km by 1.6 km grid calcrete sampling was followed up locally to 100 m by 50 m with a maximum over the Challenger Gold Deposit of 620 ppb Au, 37 ppm As and 36 ppm Cu; and
v) an initial sample spacing of at least 400 m by 400 m is recommended in order not to miss significant Au mineralisation.

Numerous Au-in-calcrete anomalies from various tenements in the Gawler Craton have been generated. Vast databases are evolving within individual companies that will potentially be of enormous value once collated and then combined with other data sets, such as regolith landform maps, digital terrain models, radiometrics, aeromagnetics, gravity and Landsat imagery. At present, however, the databases largely remain confidential to individual companies.

1.2 Objectives and scope of this study

The objectives of the integrated geochemical approach (regolith, surficial and biogeochemistry) used in this study were to:

1) Determine the geochemical characteristics of soils, deeper weathered regolith and vegetation at one or more Au-in-calcrete anomalies.
2) Determine the mineralogical characteristics of the regolith.
3) Provide an integrated regolith/geochemical dispersion framework that could assist Minotaur Gold NL in particular, and other exploration companies in general, with the interpretation of Au-in-calcrete anomalies.

The objectives were to be achieved through a work program organised as follows:

1) Determine suitable traverse (1–2 km) after detailed inspection of existing data, field evaluation and after consultation with Minotaur Gold NL personnel.
2) Undertake preliminary field sampling. Site suitability further assessed and adjustments made (if required) after consultation with Minotaur Gold NL personnel.
3) Determine the coordinates of a "regolith line or traverse" for the investigation.
4) Supervision of RC drill rig operator to ensure collection of high quality surficial samples (0–6 m).
5) Collection of other surficial material, RAB cuttings (from existing Minotaur Gold NL drill holes) and biogeochemical samples.
6) Transportation and submission of samples for analytical work.
7) Appraisal of data. Follow-up sampling and analysis if required.
8) Presentation of results.
9) Production of a Final Report.

2. SITE CHARACTERISTICS

2.1 Regional geology

The Birthday Gold Prospect lies in the northern Gawler Craton and is located 730 km NW of Adelaide (South Australia) and 110 km NW of Tarcoola. It is centred at 395650E 6689700N, Zone 53, AGD 66 (Figure 1 and Figure 2) and was discovered by Minotaur Gold NL in 1996 from regional-based (1 km) calcrete sampling on its EL1900 tenement. The information following in this section has been largely taken from Daly *et al*. (1998) and describes the geology and tectonic evolution of the Mulgathing Complex.

A significant proportion of the northern Gawler Craton retains Archaean to earliest Proterozoic radiometric ages although the region has been affected by extensive and prolonged tectonism (Daly *et al*., 1998). Archaean metasediments of the Mulgathing Complex (Daly, 1985) were derived, at least in part, from a pre-existing continental basement, and included BIF, chert, carbonate, calcsilicate, quartzite and aluminous sediments. Komatiite and tholeite basalt flows, and pyroxenite and peridotite sills are inferred to be contemporaneous with sedimentation. Together with abundant other mafic rocks intersected in the sub-surface (Robertson *et al*., 1992; Daly and Van der Stelt, 1992; Morris *et al*., 1994) these basic and ultramafic rocks are inferred to represent regional attenuation of the Archaean crust and may indicate the presence of oceanic crust during sedimentation. Peak regional granulite-facies metamorphism during the Sleafordian Orogeny (9 Kb at 860°C) and associated extensive syntectonic granites, tonalites and norite have been dated at ~2450 Ma from both Rb-Sr whole rock and U-Pb zircon geochronology (Fanning, 1997).

Aeromagnetic data and field/drilling observations show that the dominant regional structures for the Mulgathing Complex, developed during the Sleafordian, are tight to isoclinal folds (SF_3) up to 40 km long, refolding earlier macro- and micro-isoclinal folds SF_2. In some areas, limbs of SF_3 folds become increasingly attenuated and grade into mylonite. These shear zones are interpreted to be Archaean in age (developed during peak metamorphism) and were reworked during Proterozoic tectonism. Progressive rotation of Archaean SF_3 axial surfaces and parallel shear zones, from (i) predominantly north trending (and immediately south of the Karari Fault Zone and near Mount

Christie) to (ii) easterly near Lake Harris, may be explained by strike-slip fault drag along portions of Proterozoic ductile shear zones (Daly *et al.*, 1998).

A range of prograde Sleafordian metamorphic conditions are recorded within the Mulgathing Complex. Granulite-facies hypersthene-garnet, magnetite-spinel and cordierite-garnet mineral assembalges at Mount Christie and to the north-west are in distinct contrast to the much lower metamorphic grade komatiite flows, that contain relict cumulus olivine near Lake Harris, and the mildly deformed acid volcanic rocks north of Kingoonya. The original crustal architecture of the Mulgathing Complex during the late Archaean through the Palaeoproterozoic is not as well defined as in the southern Eyre Peninsula. Major structures controlling the juxtaposition of differing crustal levels are suspected to be high strain zones parallel to SF_3 axial planes, subsequently rotated in part by the ductile Proterozoic shear zones (Daly *et al.*, 1998).

2.2 Local geology and mineralisation

The local geology at the Birthday Gold Prospect includes Archaean quartz-feldspar-garnet gneiss, mafic gneiss and ultramafics with significant levels of sulphide (from company reports summarised in Daly *et al*., 1998) (Figure 2).

Archaean basement crops out near the drill-defined mineralisation and is limited to a small area centered on (396000E 6690601N), it consists of Banded Iron Formation (BIF) cross-cut by a stockwork of white to grey hydrothermal quartz veins (many are zoned). Some of these veins (100–500 mm wide) stand proud (by up to 600 mm) of the otherwise flat surface. Further north (396753E, 6694699N), a larger outcrop of silcrete-capped BIF (partly dune covered) forms part of an arcuate ridge-escarpment (see Landforms). Strongly weathered basement outcrop (saprolite and silicified equivalents) can be identified near or on the escarpment or in stream gutters leading away from it. Mafic-ultramafic dykes intrude the crystalline basement sequence at the Birthday Prospect. The age of these is not known and their relationship to the regionally widespread Gairdner Dyke Swarm (Cowley and Flint, 1993) is also unknown. No local outcrop of these intrusives has been observed.

The Birthday prospect was located by drilling to blade refusal after regional calcrete sampling identified a broadly anomalous area in Au (Figure 3). Subsequent infill sampling located a coherent Au-in-calcrete anomaly peaking at 68 ppb. Early shallow (0–60 m) rotary air blast (RAB) drilling by Minotaur Gold NL outlined a series of parallel bands of Au mineralisation located at about 30 m within saprolite; one metre samples returned 1.2, 0.5, 0.7 and 1.1 g/t Au from each respective band. Anomalous Au appears to be associated with ultramafic lenses and their contacts (faulted or folded) with surrounding gneissic lithologies. Follow-up deeper RC drilling intersected altered contact zones with quartz, feldspar, carbonate, and sulphide development and widespread low grade Au mineralisation in fresh bedrock (Anon, 1996). Active exploration at Birthday Prospect was subsequently suspended as the company pursued numerous other regional Au-in-calcrete prospects in the tenement area.

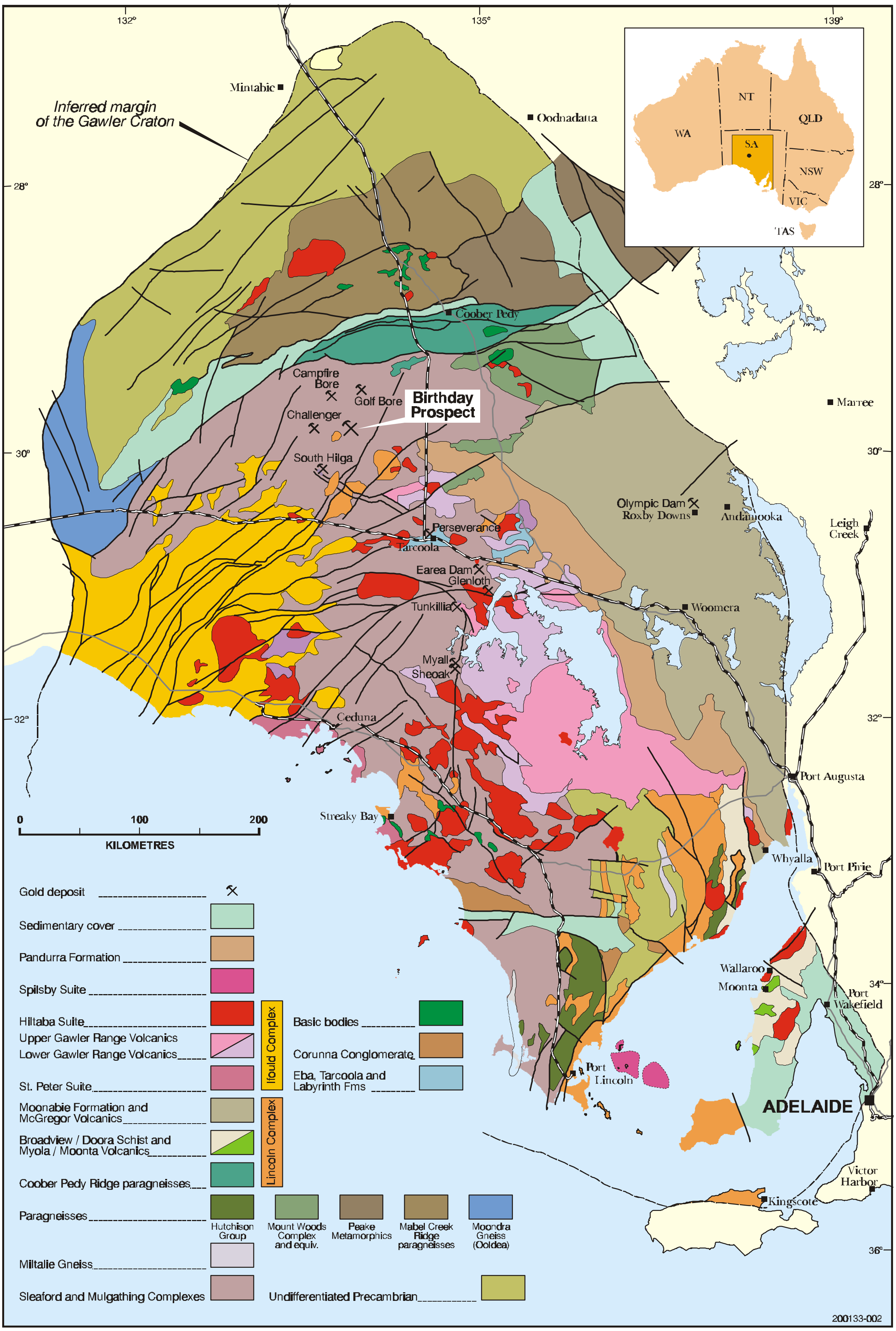

Figure 1: Regional geology of the Gawler Craton showing location of Birthday and other Au prospects and deposits. (After Daly *et al.*, 1998).

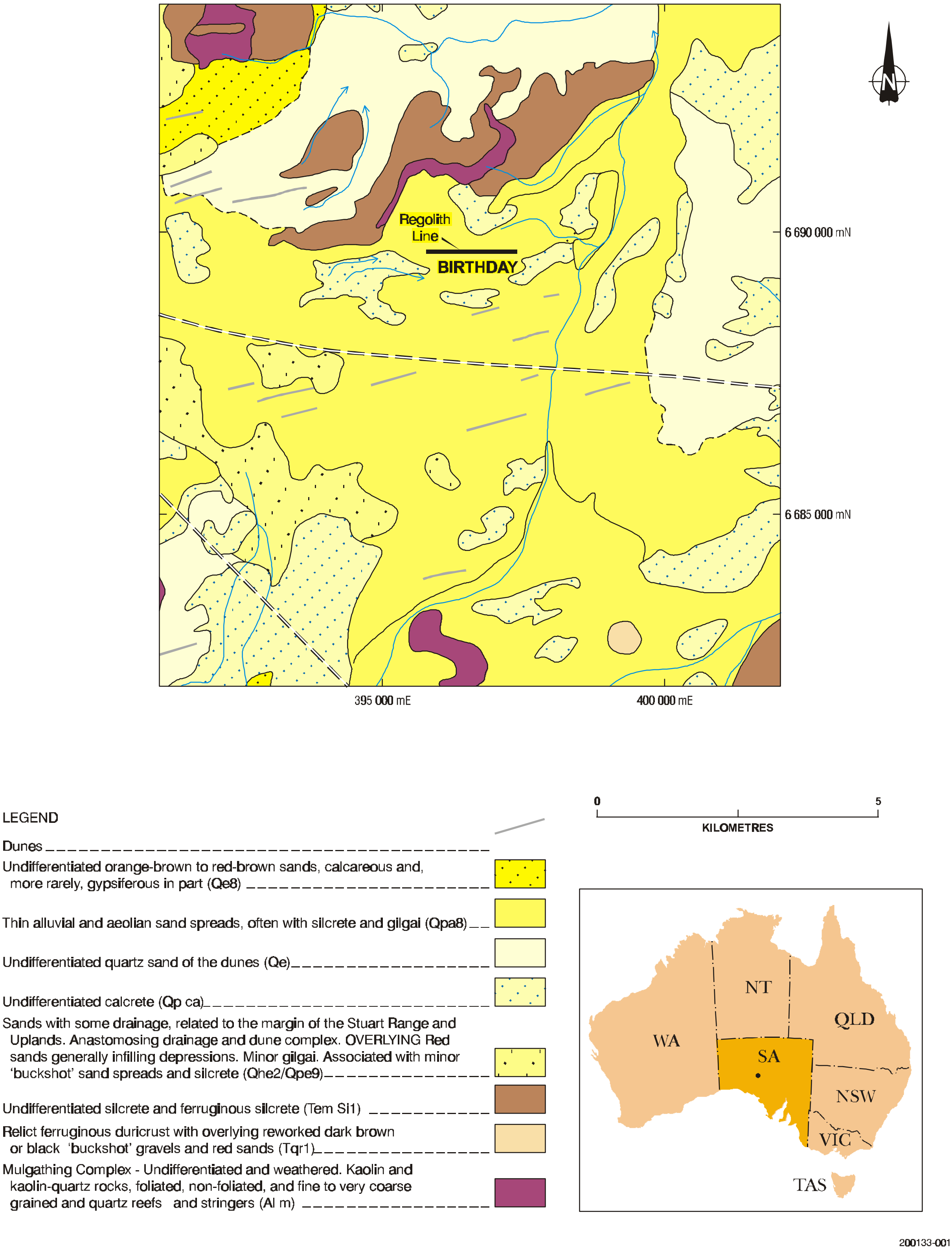

Figure 2: Local geological plan of the Birthday Gold Prospect showing the location of the "regolith line" used in this study. (From Benbow, 1996).

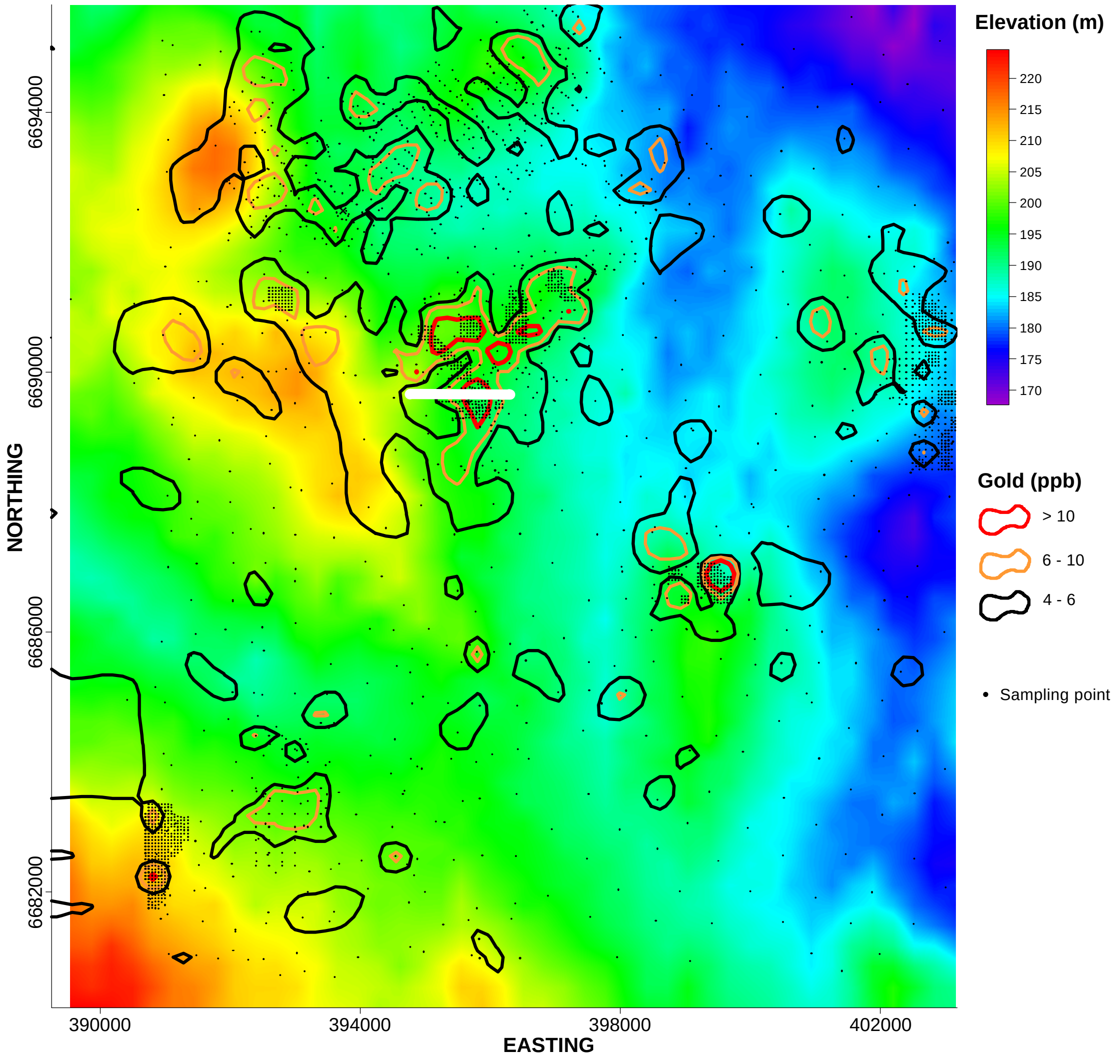

Figure 3: Plan showing topography, Au-in-calcrete anomaly, mineralisation, and the regolith line (shown in white) that cuts across the Birthday Prospect.. Data courtesy of Minotaur Gold NL.

2.3 Landforms

The Birthday Prospect occupies an area of low topographic relief (Figure 3 and Figure 4). Immediately, to the north and west of the regolith line, a low arcuate rise of variably silicified basement outcrop is partly covered by Quaternary dunes. South and east of this rise is a broad area of alluvial plain and minor sand spreads. A low-angle erosional escarpment has developed on the southern and eastern sides to this rise; the escarpment upper flanks are clad with silcrete gibber and blocks. There is a subdued drainage to the south and east of the rise with some minor clay pans. An undulating palaeo-land surface was established from identification and interpretation of drill cutting material (Figure 5). The modern land surface generally parallels the palaeo-land surface away from the escarpment, at least along the line of investigations. Drainage from the Birthday

Prospect is to the east and north to a broad floodplain associated with the Garford Palaeochannel located approximately 25 km to the NNW.

2.4 Regolith stratigraphy

2.4.1 Introduction

The Birthday Gold Prospect is located in an essentially *in situ* regolith profile consisting of highly weathered material of Archaean age covered in part by thin (<2 m) transported units (Figure 5). The stratigraphy is complex and consists of:

(i) Pedolith: consists of variably weathered clay-rich to a quartz-rich (5–10 m thick) plasmic/arenose zone with mottling/staining of pale yellows, rarer orange and some browns.

(ii) Saprolith: consists of a saprolite 20–30 m thick (pale grey, pale yellow to off-white), overlying a saprock (<1 to ~8 m thick greyish-brown) grading into fresh rock. Mottling/staining is variable with reds and reddish browns (saprock), grading to reddish (lower saprolite) and yellows and orange (upper saprolite);

(iii) Basement (protolith): consists of felsic, mafic and ultramafic lithologies.

The irregular upper surface of the silicified pedolith/saprolite is partly exposed at the far western end of the study area whereas, over the middle to eastern end, it is buried by a variety of thin (<2 m) alluvial and aeolian sediments (Figure 5). This surface is variably silicified, locally forming a pedogenic silcrete, and is overlain by calcrete impregnated silcrete and/or massive calcrete. The silcretes contain residual quartz (angular grains to cm-sized angular pieces) and, in some examples, exhibit near-intact quartz veins with a 'jig-saw fit' texture. They also contain calcite-filled joints and/or fractures. The calcite is colourless to transparent and well-crystallised and appears to pre-date the opaque poorly crystalline calcrete overprinting. The partly buried silicified upper surface represents a palaeosurface; the saprolite probably mostly formed prior to and during the silicification event(s). The palaeosurface is partly overlain by sandy or clayey alluvium, aeolian sand and soil, within which younger nodular, platy to massive calcrete may occur. A more detailed hole-by-hole description of the upper regolith is found in Appendix 6.

Weathering has yielded kaolinite after feldspars and micas, sericite after micas and feldspars, smectite and illite clays after mafic mineral assemblages, calcite, hematite and goethite/limonite in the upper saprolite. Soil and upper saprolite material are also variably cemented with silcrete, ferruginous materials, calcrete, calcite, gypsum, celestite and combinations of these (see Section 4.2, Figure 5 and Appendix 4 for XRD analysis of mineralogy).

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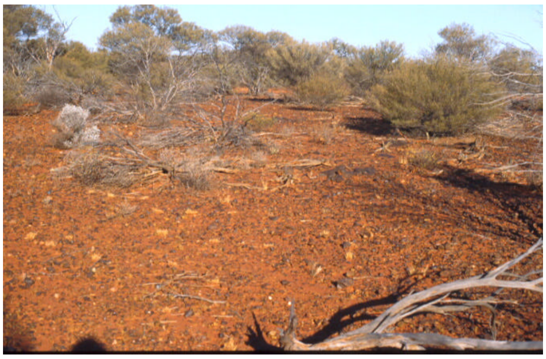

Figure 4: (opposite page) Photographs of regolith materials and landforms from the Birthday Prospect and environs.

1) Silcrete gravels and cobbles on surface from far western part of regolith line (near drill hole MB 940). A 30 cm rule is the scale.
2) Various cut specimens of calcrete showing presence of complex internal structures, saprolite and quartz.
3) Ferruginous gravels from eastern end of line (near drill hole MB636). A 30 cm rule is the scale.
4) Calcrete exposed in dune area about 2 km south of the Birthday Prospect.
5) Looking westwards towards rise from about the middle of the regolith line.
6) Looking eastwards from the rise at the far western end of the regolith line.
7) Outcropping BIF, quartz (centre) and BIF float about 1 km north of the regolith line.
8) Silicified (now partly silcrete) and ferruginised BIF outcropping (right centre of photograph) about 5 km NNE of the Birthday Prospect. BIF lag strewn about surface.

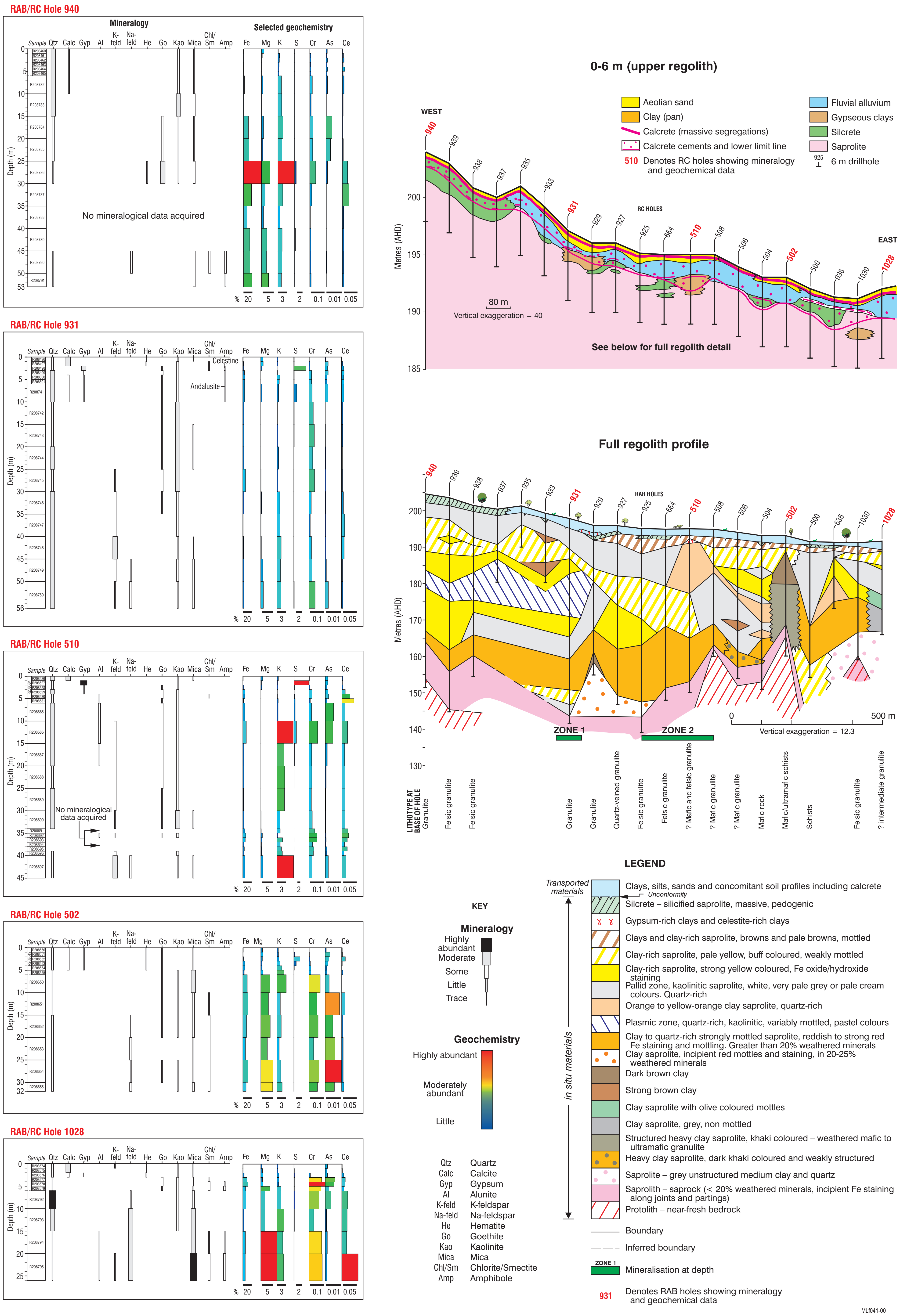

Figure 5: Regolith traverse showing regolith stratigraphy, selected geochemistry and mineralogy across the Birthday Gold Prospect.

2.4.2 Basement

In a strict sense, there are no fresh basement lithotypes intersected by Minotaur Gold NL's RAB drilling. All end-of-hole cuttings exhibited some sort of incipient weathering, including yellowish, brownish or reddish ferruginous coatings/staining on fractures and/or some alteration to feldspars or micas. Basement was intersected in RAB holes 940, 939, 508, 504, 502 and ?1030 (marginal, almost saprolitic), ranging from predominately granulitic textures to mildly and strongly deformed tectonic-schists (mylonitic fabrics). Lithotypes are dominated by felsic assemblages, however mafic lithotypes occur in hole 506 and possibly 510; ultramafic lithotypes were intersected in hole 502 and possibly near hole 1028 (by inference from the saprolite mineralogy). Quartz veining is a common component of these rocks and includes stockworks or isolated veins of colourless-translucent, grey, milky, white and bluish varieties, having thicknesses from micro-veins (<1 mm) to macro-veins (>15 mm).

The boundary between the relatively fresh rock and saprock materials displays a marked range in depth from >56 m in holes 931 and 925 to ~59 m in hole 939 to only ~27 m in hole 502. An obvious feature is the resistate nature to weathering that the ultramafic (dyke) rock (hole 502) displays compared with the more felsic host rocks surrounding the dyke.

2.4.3 Saprock-saprolite

The complex intercalation of the weathering products is shown in Figure 5. A near continuous saprock zone (<20% weathered primary minerals) occurs above fresh rock. Thickness of the saprock ranges from 1 to <2 m in holes 508 and 502 to ~10 m in holes 940 and 939; insufficient penetration in the other holes prevented establishing any greater thicknesses that may be present.

Overlying the saprock zone is a dominantly reddish-hued and variably strongly mottled saprolite zone containing abundant lithic fragments with multicoloured clays and quartz veins. A more pallid material (with reddish mottles) occurs immediately above the saprock and below the strongly mottled zone in holes 931 to 925. In contrast, for holes 506, 502 and 1028, dark brown to olive, olive-grey and dark grey clay saprolite materials occur. These have resulted from the weathering of mafic to ultramafic lithotypes (possibly intrusive dykes). Generally these dark-coloured clays are heavier textured (possibly smectitic) and stickier (when moist) than the dominantly kaolinitic saprolite from elsewhere along the line of investigation.

A variety of mottled (yellow to brown) and non-mottled pallid units comprise the upper saprolite in a complex sequence sometimes containing sub-units with strikingly different textures and/or colours. A large proportion of the fine fraction seems to have been removed by weathering from some of the saprolite units leaving arenaceous quartz-rich ?collapsed materials (plasmic zone in holes 940 to at least hole 931) whereas others are rich in quartz due to a high percentage of cross-cutting veins.

2.4.4 Saprolite-pedolith

Weakly yellow-mottled, pallid non-mottled and some bright orange coloured clay-quartz-rich saprolite units form the upper saprolite-pedolith zone. Close to the ultramafic lithotypes (holes 502, 1028), equivalent materials are olive or strong brown in colour, variably mottled and dominantly composed of clay minerals. Drill cuttings from the upper saprolite-pedolith zone have little to no primary rock fabric, although occasional lithic corestones or fragments were observed. The upper surface to this zone has been variably cemented by silica, carbonates, gypsum and Fe oxides.

2.4.5 Transported Materials

A variety of thin (~1 to 3.5 m) transported materials cover the weathered *in situ* materials between Holes 937 and 1028 (Figure 5). Alluvial sands, silts and clays make up the majority of this cover sequence. Granular minerals, mostly fine- to coarse-grained sands, display well rounded to subrounded morphotypes. These sands are often clay bearing, whereas the distinct clay units contain little or no sandy matter. Some of the clays are strongly coloured (reddish hues) between holes 929–664 (depth <2 to 3 m and <1 m thick) but most are brownish to yellowish hued. Several of the clay units contain appreciable gypsum as crystals and cleavage fragments (holes 931, 929, 664, to 506: fragments >3 x 1 x 1 mm) and pale bluish, translucent celestite crystal fragments (2.5 x 1 x 1 mm) occurred in hole 931 between 2-3 m. Both of these mineral occurrences are unusual, as there are no modern evaporitic pans or known palaeo-salinas nearby, suggesting either a local derivation from sulphides or a more distal source via groundwater transport. At the eastern end of the line the alluvium thickens (>3 m) and contains appreciable amounts of black ferruginous grains (25 to >40%). These are angular to rounded, coarse to medium sand sized and resemble small fragments of BIF material, possibly derived from the two nearby up slope outcrops.

Overlying the alluvium are orange aeolian siliceous sands, forming low dunes and thin (~1 m or less) sand spread aprons. Towards the eastern end of the study area (holes 1030 to 1028) they are unconsolidated. Calcrete formed within these aeolian sands is predominantly nodular.

A thin (<1 m) colluvium unit overlies the subcropping silcrete in hole 500. It consists of predominantly angular to subangular fragments and is rich in lithic fragments (silt to sand sized) probably derived from the weathering of the silcrete.

2.5 Soils

Soil terminology used herein follows that of Northcote (1979) and Stace *et al*. (1968). A variety of soils have developed from several surficial units over the study area. A detailed pedological examination of the area was beyond the scope of this study; the following descriptions provide a general framework only.

Primitive lithic-rich profiles include stony, coarse-textured Uniform (Uc) and stony Duplex (Dr) lithosols. These are restricted to the tops and flanks of the low escarpments at the western end of the area and to drainage lines. Sand spreads, related to Quaternary red dunes and creek flood-outs, have medium textured Uniform soils (Um 1, Um 2) and some earthy Gradational profiles (Gn 2). More mature profiles, displaying well differentiated soil horizons, are also present in the lower topographic locations, as red Duplex soils (Dr 1 and possibly Dr2). All soils in this area are within the AS2 unit described as alkaline, strongly sodic and sodic with sandy and loamy textures (Northcote and Skene, 1972).

Pedogenic carbonate (calcrete) is present in the B horizons throughout the area, and all soil profiles are either fully alkaline or at least alkaline in the lower parts, although some of the sands have neutral to weakly acid A horizons. Calcium carbonate occurs as pisoliths, nodules, plates, coatings and hardpan within the lower A or upper B horizons. All forms appear to have undergone pedogenic and biogenic modification from a likely original aeolian, earthy/silty form (Crocker, 1946; Quade *et al.*, 1995).

2.6 Vegetation

Vegetation consists of chenopod shrubland and open woodlands of mulga and sheoak, with chenopod understorey. The shrubland consists of members of the Family Chenopodiaceae, principally *Maireana sedifolia*, *Atriplex vesicaria* and *Scleroleana obliquicuspis*. Other vegetation identified include *Helipterum floribundum* (Asteraceae), *Ptilotus* sp. (Amaranthaceae), *Senna artemisioides* (Caesapiniaceae), *Erodium* sp. (Geraniaceae), *Acacia* ?*aneura* (Mimosaceae), *Eremophila scoparia* and *latrobei* (Myoporaceae), *Casuarina* sp. (Casuarinaceae), Lycium australe (Solanaceae) and lichens and grasses including *Enneapogon avenaceous* (Poaceae) and *Xanthoparmelia* sp. (Parmeliaceae). Plant communities vary across the traverse but *Maireana sedifolia* is ubiquitous to varying densities throughout the area.

3. SAMPLING AND ANALYSIS

3.1 Sample collection

Sampling at approximately 80 m intervals was undertaken to within about 10 m of the 1.53 km regolith line starting at drill hole 940 (394765E 6689695N) and running east to drill hole 1028 (396296E 6689695N). This line is close to existing RAB drilling holes undertaken by Minotaur Gold NL prior to our visit. Its position was chosen for three principal reasons:

i) it crossed two zones of mineralisation (termed here Zone 1 and Zone 2);
ii) surface drilling contamination was at minimal levels;
iii) it crossed two main Au-in-calcrete anomalies.

One hundred and twenty (1–3 kg) RC drill cutting samples were collected at one metre intervals from 0–6 m (sample numbers suffixed A to F), using a reverse circulation drill rig, with holes spaced at 80 m intervals along the regolith line. The drilling rig enabled accurate upper regolith sampling to be undertaken with minimal down hole contamination. The first 5 cm (approximately) was removed prior to drilling to (i) reduce the possibility of contamination, albeit remote, caused by previous drilling activity and (ii) be sampled separately (cf. next paragraph). Reverse circulation RC drilling was used as it provides samples with minimal up-hole contamination. Hole-to-hole contamination was minimised by (i) cleaning the drilling pipe-rod-bit system prior to commencing this job, (ii) drilling a set of test holes at the beginning of the regolith line and (iii) cleaning the system between each of the regolith holes by drilling a 1 m deep hole adjacent to each sampling hole.

Twenty "topsoils" (0–10 cm, sample numbers suffixed S) each weighing 1–2 kg were collected, using a geological pick and plastic dustpan, from uncontaminated ground close to each drill hole, at 80 m spacing along the regolith line.

Twenty "lag" samples (1–2 kg, sample numbers initially suffixed L) were collected from the surface using a plastic dustpan and brush close to each drill hole, also at 80 m spacing along the regolith line. These were further sub-divided into coarse (LC, plus 9 mesh or >2 mm) and fine (LF, plus 40 mesh or >475 µm).

Twenty calcrete samples (sample numbers suffixed N) were collected from drill spoil and the sides of the open drill holes.

Twenty samples of bluebush *Maireana sedifolia* leaf and outer branches (sample numbers suffixed V) were collected from one to several bushes per site by hand, adjacent to the drill holes, and stored in calico bags. Bluebush was chosen as the type sample medium for vegetation because, firstly, it is ubiquitous in the Birthday and surrounding areas and secondly, it has been investigated at several sites in Western Australia. No plant species, apart from bluebush, was represented at all drill hole sample locations for the entire regolith line.

One hundred and forty-six RAB drill cutting samples from 0 to up to 59 m from 20 holes were incorporated into the study to examine the dispersion and geochemical characteristics of elements closely associated with Au within the deeper regolith. The holes had been drilled by Minotaur Gold NL prior to this study. Chip trays containing cutting material were used for identification purposes, and pulps were used for geochemical analyses.

For the field numbering of samples, the RAB drill hole number as designated by the company was used; thus, all samples collected at RAB hole 1028 are prefixed with this number (e.g. soil MB1028S, calcrete nodules MB1028N, fine lag MB1028L, RC cuttings MB1028A-F). "R" numbers are assigned in the laboratory e.g. sample MB940A is an RC sample collected from 0–1 m and was given number R208640. The two sets of numbers can be cross-referenced in Appendix 7.

3.2 Sample preparation and analyses

3.2.1 Mineral samples

The preparation regime for each sample type varied. Soil (S) and 0–6 m (A-F) samples were pre-prepared in the laboratory by weighing, mixing the sample on a plastic sheet, then incrementally extracting approximately 200 g of material to be sent to the sample preparation and analytical laboratory for pulverising. Carbonate (N) samples were washed in a coarse sieve, retaining the >2 mm fraction. Lag samples (L) were washed through a coarse then fine sieve, retaining the >2 mm and >475 µm size fractions. Approximately 60 g of pulverised RAB material from the Minotaur Gold NL drilling programme was re-sampled and re-analysed for the identical suite of elements as for the other samples.

Well-characterised standards were submitted "blind" with each sample set sent to the laboratory at the rate of approximately 1 per 30 samples to check for analytical precision and accuracy. All samples and standards were analysed by AMDEL Laboratories Ltd as follows (detection limits in ppm):

(i) approximately 0.25 g of sample was analysed by ICP-OES after mixed acid digest ($HF+HCl+HNO_3$) for Ba (10), Ca (10), Cr (2), Fe (100), K (10), Mg (10), Mn (5), Na (10), Ni (2), P (5), S (500), Ti (10), V (2), and Zn (2);

(ii) approximately 0.25g of sample was analysed by ICP-MS after mixed acid digest ($HF+HCl+HNO_3$) for Ag (0.1), As (0.5), Bi (0.1), Cd (0.1), Cs (0.1), Ce (0.2), Cu (0.5), Ga (0.1), In (0.05), Mo (0.1), Nb (0.5), Pb (0.5), Rb (0.1), Sb (0.5), Se (0.5), Sr (0.1), Te (0.2), Th (0.02), Tl (0.1), U (0.02), W (0.1), Y (0.05), Zn (0.5) and the REEs Ce (0.05), La (0.05), Dy (0.02), Er (0.05), Eu (0.02), Gd (0.05), Ho (0.02), Lu (0.02), Nd (0.02), Pr (0.05), Sm (0.02), Tb (0.02), Tm (0.05) and Yb (0.05);

(iii) 25 g of sample was analysed by graphite furnace AAS after aqua regia digest and DIBK extraction for Au (0.001 ppm).

3.2.2 Vegetation samples

Vegetation samples (V) were returned to the laboratory within two days of collection to prevent mould growth. Samples were vigorously washed with hot then cold water in individual fine mesh, nylon, zippered bags to remove as much aeolian contamination as possible before air drying. Samples were weighed and then dried at approximately 80°C for at least 24 hours, to prevent smearing during grinding. Samples were then ground using a blender. The samples were then re-weighed and step-wise ashed using the following programme: 4 hours at 200°C, 4 hours at 400°C and then 15 hours at 550°C before being re-weighed and sent for analysis as for the mineral samples.

3.3 Partial extractions

Three in-house partial extraction solutions, discussed in detail in Gray and Lintern (1993), were used to test the solubility of Au; solubility is an indication of potential mobility. However, the procedure was modified in two ways. Firstly, pulverised material was used in place of un-pulverised material and, secondly, the iodide solution was un-buffered. Pulverised material was used because much of the sample material was finely ground to varying degrees by the RC drilling process; samples appeared to be siliceous and grinding would help free encapsulated Au (fine or coarse). Un-buffered samples were used as it has been found that buffering the samples to pH 7.4 (Gray and Lintern, 1993) has little effect on the extractability of Au in carbonate-rich samples (Lintern, unpublished data). In all cases, a 25 g portion of sample material was mixed with 50 mL of extractant in a screw-cap polyethylene bottle, and then gently agitated for one week, after which the total Au extracted was determined. Total Au was measured by adding a 1 g carbon sachet with the sample and analysing the carbon using INAA (Becquerel Laboratories Ltd); in-house experiments have shown that the carbon sachet procedure reduces re-adsorption of the dissolved Au on components within the sample. The three solutions are:

(i) deionised water: dissolves the most soluble Au;
(ii) iodide: a 0.1 M KI solution dissolves more Au than water alone;
(iii) cyanide: 0.2% KCN / 0.2 M NaOH solution dissolves all but the most refractory Au such as large particles of Au and that encapsulated within resistant material such as quartz.

The partial extraction tests were performed as a sequential extraction using 3 different carbon sachets, commencing with deionised water and finishing with cyanide.

3.4 X-ray diffraction analysis

X-Ray diffraction of selected samples was performed by Melbourne University using a Philips PW1050 diffractometer, fitted with a graphite crystal diffracted beam monochromator and CuK∝ radiation. Each sample was scanned over the range 2–65º 2θ at a speed of 1º 2θ a per minute and data were collected at 0.02º2θ intervals. Mineralogical compositions were determined by comparison with JCPDS files and laboratory standard traces.

4. GEOCHEMICAL RESULTS

4.1 Introduction

The geochemical results for the 50 elements analysed for the lower regolith (up to 60 m depth), upper regolith (0–6 m depth), lag, calcrete, topsoil, and vegetation are graphically displayed by element in composite figures (Appendix 2), tabulated (Appendix 7) and digitally stored (Appendix 8). The geochemical data for Au displayed as a composite are shown in Figure 7. Other graphically represented data (including scatter plots) are found in Appendices 1, 3 and 5. It is suggested that readers refer to the Appendices while browsing the text. In this section and others that follow, the terms “anomalies” and “anomaly” have been used in their broadest sense and refer to element concentrations that are clearly greater in concentration than the majority of samples of that same type. This has been done deliberately so as to (i) avoid assigning a particular value due to the statistically small sample population used, and (ii) facilitate text flow.

For Au, the geochemical results reveal three principal zones of interest (Figure 6, zones 1, 2, and A) which are discussed in detail below. Zone A is a Au-in-calcrete anomaly located in the western part of the regolith line. Zones 1 and 2 are zones of weak mineralisation, that constitute part of the Birthday Prospect, were identified in the lower regolith of the regolith line:

1) Zone 1 mineralisation located at 395245E attains a maximum concentration of 290 ppb (as determined by drilling) and is overlain by 35 m of essentially barren saprolite;
2) Zone 2 consists of mineralisation detected in two drill holes separated by 170 m, centred on 395655E, and attains a maximum concentration of 580 ppb at 35 m beneath barren saprolite.

The two zones are connected at depth (35 m) by a weakly mineralised horizon of supergene Au extending at least 400 m in an east-west orientation that reaches a concentration of about 20 ppb. Mineralisation does not outcrop in either zone.

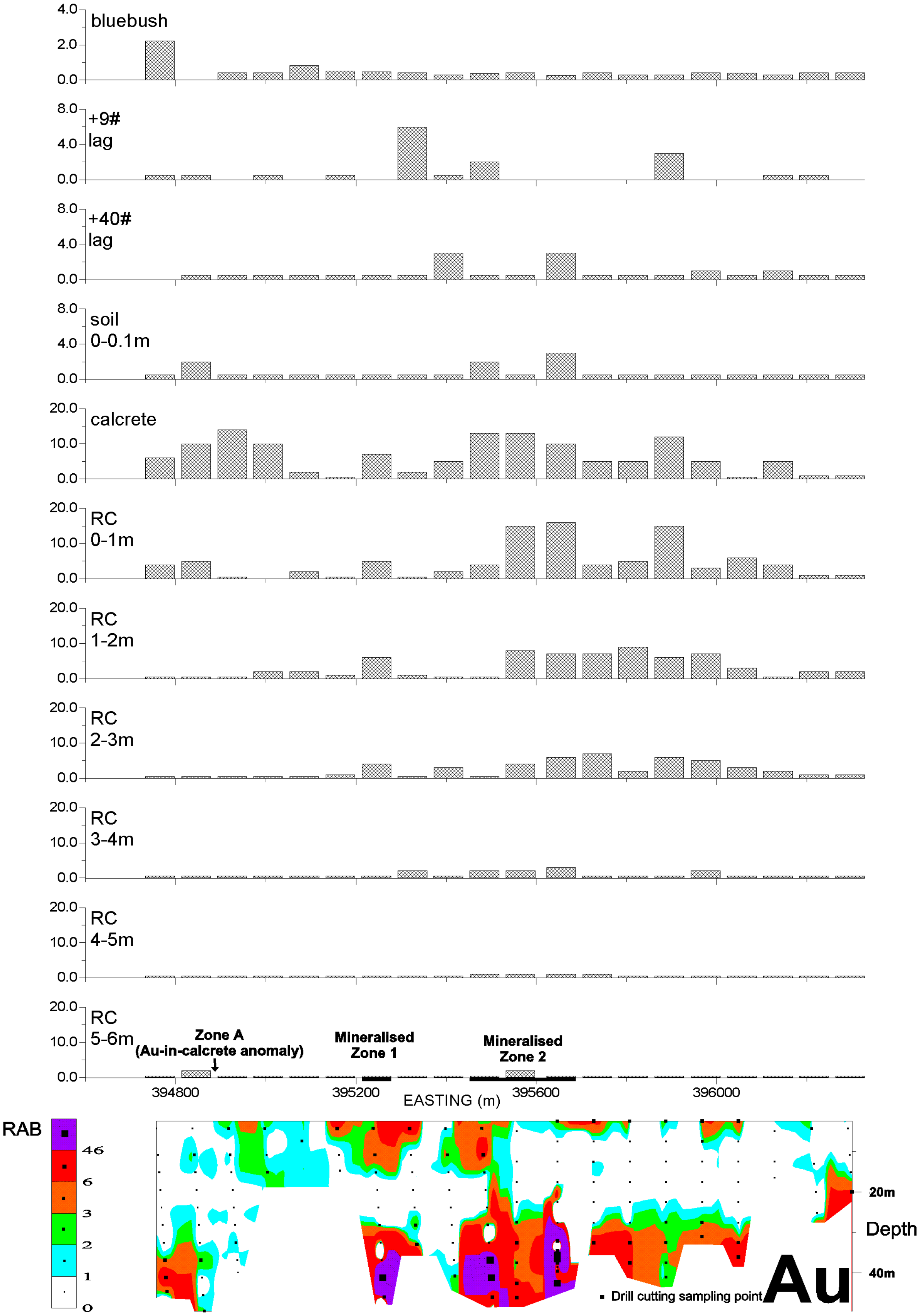

Figure 6: Composite geochemical data for Au (ppb) for different sample media from the regolith line at Birthday Prospect. Gold (ppb) concentration isopachs from data population breaks.

4.2 Mineralogy

X-ray diffraction was performed on 80 samples including samples from the upper regolith, lower regolith, the two zones of mineralisation and 5 complete drill holes (Figure 5, Appendix 4) Minerals present in the upper regolith include quartz, calcite, gypsum, hematite, mica, K-feldspar, Na-feldspar, goethite, chlorite-smectites and celestite. Quartz is either dominant, or co-dominant with calcite, in all upper regolith samples. Kaolinite is the major clay mineral present with some samples having additional smectite minerals. Gypsum appears to be particularly abundant over Zone 2 mineralisation.

The lower regolith, including the mineralised zones, is co-dominated by quartz and kaolinite. Mica and goethite are present in moderate concentrations but not in all of the 5 drill holes analysed. K-feldspar is abundant in three of the five holes, particularly below 10 m and Na-feldspar is abundant in one of the remaining two. Alunite is present in minor quantities above Zone 2 mineralisation and appears to be related to the appearance of gypsum higher in the regolith and possibly sulphides reported in the fresh rock. No other mineralogical trend or peculiarity was identified in samples from the mineralised zones.

Despite the intense weathering evident by the presence of typical secondary minerals, pale-coloured clays and saprolite in the top thirty to forty metres, the presence of primary minerals such as feldspars, mica and chlorites still present throughout the upper regolith indicates that the weathering process is not complete.

4.3 Gold

4.3.1 Upper regolith (0–6 m)

Gold is associated with Ca (carbonate) occurring throughout the top 1 to 2 metres. This type of relationship was first reported by CSIRO from Western Australia (e.g. Lintern, 1989; Lintern *et al*., 1997). Adjacent 0–1 m samples had the highest Au concentrations of 16 and 15 ppb respectively and are located above mineralisation near the centre of the section (zone 2, drill holes 664 and 925); calcrete nodules from the same location contain 13 ppb Au. A broad zone (400 m) of elevated Au (>5 ppb) is located at 0–2 m depth in the central and eastern part of the regolith traverse and persists, partly, to lower depths (zone 2, 2–6 m) but at decreasing concentrations. Near-surface calcrete in the western part of the section (zone A) contains up to 14 ppb Au, but the drill cuttings from the same location (0–1, 1–2 m, etc.) all contain <5 ppb so that the anomaly does not persist much below the surface. In contrast to the Ca of the carbonate, there is little evidence for significant Au associated with Ca in the gypseous clays.

Data normalisation of Au contents with respect to Ca or Ca+Mg is commonly undertaken in an attempt to offset the possible diluent effect of other components within the sample e.g. aeolian sand. This is met with variable success since Au is often associated with other materials apart from carbonate in the soil profile e.g. quartz or lithic fragments, particularly in areas of outcrop/subcrop. In addition, low concentrations of the alkaline earth metals or Au can distort the normalised data unless appropriate limits are applied. For these data, normalising the Au data with respect to Ca+Mg and Ca only (Figure 7) has the effect of smoothing and enhancing the Au response for the 0–1 m samples above mineralisation. The “new” maximum at hole 937 (1–2 m) can probably be ignored since the Au and Ca concentrations here are either low or below detection. Calculating mean Au concentrations in the upper regolith (averaging the individual Au concentrations from 0–6 m) had a smoothing effect on distribution and resulted in maxima over mineralised zones 1 and 2 (Figure 8).

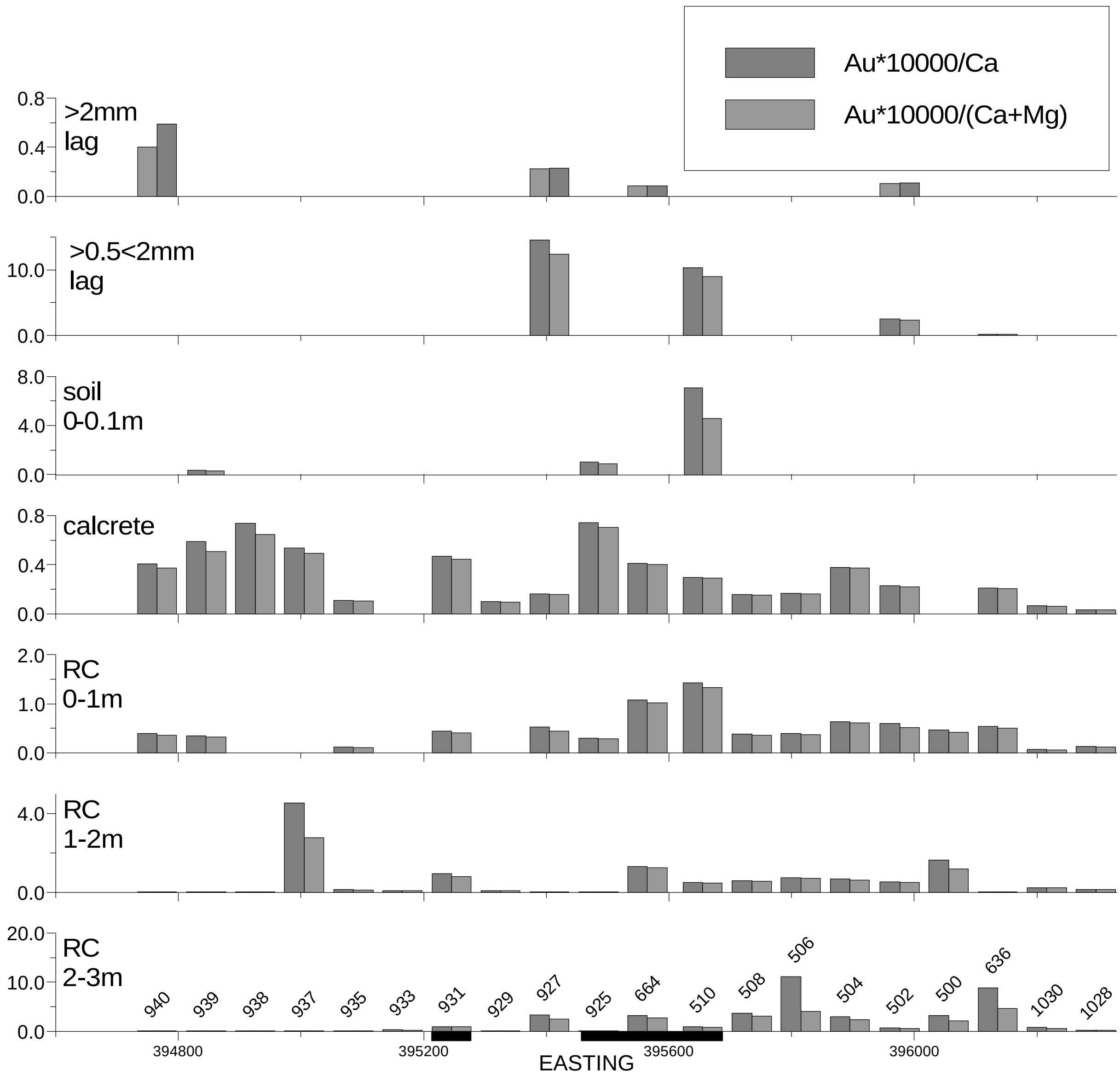

Figure 7: Normalised Au concentrations (dividing Au by Ca, and Ca + Mg) in various sample media for regolith traverse at Birthday Prospect. Numbers above columns for 2–3 m are sample numbers. Black rectangles indicate mineralisation (zones 1 and 2). Y axes show concentration in nominal units.

4.3.2 Lower regolith (up to 60 m depth)

Across the section of the regolith line, there appears to be a barren zone with low Au concentrations (<2 ppb) extending from near the surface down to about 30 m depth (Figure 6). At about 30 m, Au is broadly distributed across several hundred metres, including mineralised Zones 1 and 2, with concentrations from about 4 to 20 ppb and is suggestive of a weak supergene zone possibly related to an earlier water table or redox front. High Au concentrations are recorded deeper in the regolith and are probably related to a primary source. Gold concentrations greater than 40 ppb for the two mineralised zones are summarised in Table 1. Mean concentrations for RAB cuttings from 0–10 m show a maximum over Zone 1 mineralisation but not over Zone 2; this is in contrast to the 0–6 m samples collected from the adjacent drill hole and suggests some inhomogeneity in the Au distribution (Figure 8).

Table 1: Concentrations and locations for drill hole samples >40 ppb Au.

RAB drill hole	Depth (m)	Concentration (ppb)	Zone
510	35–36	580	2
510	36–37	46	2
510	40–45	90	2
925	40–45	84	2
925	45–50	78	2
931	45–50	290	1

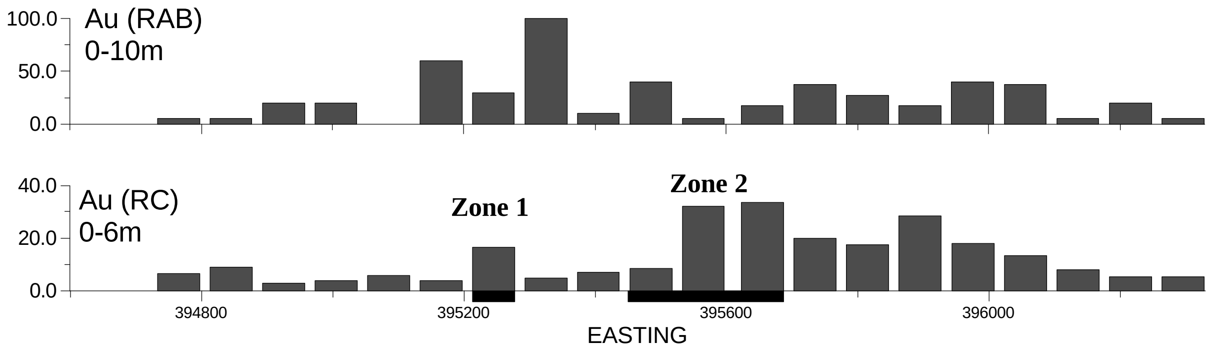

Figure 8: Regolith traverse summed (average) Au concentrations (ppb) for 0–6 m (RC) and 0–10 m (RAB) at Birthday Prospect. Black rectangles indicate position of mineralisation. Y axes show concentration.

4.3.3 Soil (0–0.1 m)

Gold contents are generally below or just above detection (1 ppb, Figure 6). The highest concentration recorded was 3 ppb and occurred over zone 2. Normalising the Au data with respect to the alkaline earth elements produced a stronger, single point maximum over mineralisation (Zone 2, Figure 6).

4.3.4 Coarse and fine lag

The lag is polymictic and consists of varying proportions of silcrete, calcrete and ferruginous material. The highest concentrations for coarse and fine lag were 6 and 3 ppb respectively although most samples contain less than 1 ppb (Figure 6). Coarse lag was generally scarce (except at the western end of the regolith line) and samples were not collected at half of the sites. One fine lag and two coarse lag samples with particularly high Fe contents sampled in the eastern and western ends of the traverse had Au contents below detection indicating that Fe oxides are not strong trap sites for Au in this environment.

4.3.5 Calcrete

Of most significance is the anomalous Au concentrations in calcrete over mineralisation (zone 2, maximum of 13 ppb, Figure 6). However, concentrations are also high in zone A (14 ppb) where no mineralisation has been identified. Normalising the Au data with respect to the alkaline earth metals had limited effects in enhancing the response over mineralisation, and did not remove the apparent spurious anomaly at zone A (Figure 7). Zone A calcrete has a higher Mg content compared with the rest of the sample set: 4 samples with a mean concentration of 2.1% compared with a mean of 1.0% for the entire data set (Figure 9). One “calcrete” sample (at hole 500) had particularly low Ca (and Au) concentrations (2.6 %); this sample, while effervescing with dilute acid, was composed primarily of silicified, clay-rich saprolite with minor carbonate coatings, emphasising the need to analyse the sample for Ca to ensure that it is a “true” calcrete (see photographs in Figure 4). There are other analytical “dangers” associated with Ca: for example, the carbonate content can be over-estimated since some Ca occurs in other minerals e.g. gypsum.

Gypsum can be determined using XRD and/or determining S concentrations. However, care should be taken with using S data as well since some S occurs as celestite ($SrSO_4$) and alunite ($KAl_3(SO_4)_2(OH)_6$).

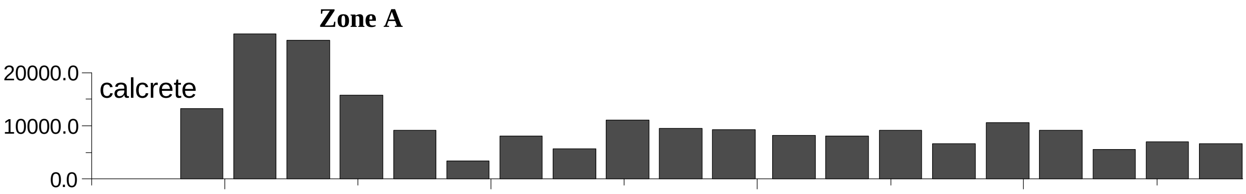

Figure 9: Regolith traverse Mg concentrations in calcrete at Birthday Prospect. Note the elevated Mg concentrations over Zone A. Y axis shows concentration in ppm.

4.3.6 Vegetation (bluebush)

Gold concentrations for bluebush were close to detection (0.3 ppb) save one sample (2.2 ppb dry weight) in background at the western end of the traverse that requires further investigation (Figure 6). In Western Australia, concentrations in excess of ~2 ppb have been estimated to be anomalous, although there may be locally higher thresholds (unpublished data, Lintern; Lintern *et al.*, 1997). Therefore, most of the concentrations at Birthday Prospect are not significant when compared with data from Western Australia.

4.3.7 Partial extractions

The sequential partial extraction data provide information on the relative solubility of Au in the surficial environment and, by inference, the potential mobility of Au. The data indicate important differences that occur in Au solubilities (i) with depth and (ii) between calcrete and drill hole materials (Figure 10, Figure 11). The main features are summarised below:

1) The proportion of cyanide-soluble Au (the least soluble) increases with increasing depth (48% to 60%). This is interpreted as being due to Au particles within the saprolite being larger than those in the soil.
2) Calcrete has the highest proportion of soluble Au (57%) as indicated by the iodide and water data. This is consistent with other data (summarised in Butt *et al*, 1997) that suggest Au in the carbonate horizon is relatively mobile.
3) Sum of the sequential extraction concentrations (water+iodide+cyanide) generally agree with the aqua-regia concentrations. This indicates that the general quality of the Au data are acceptable.

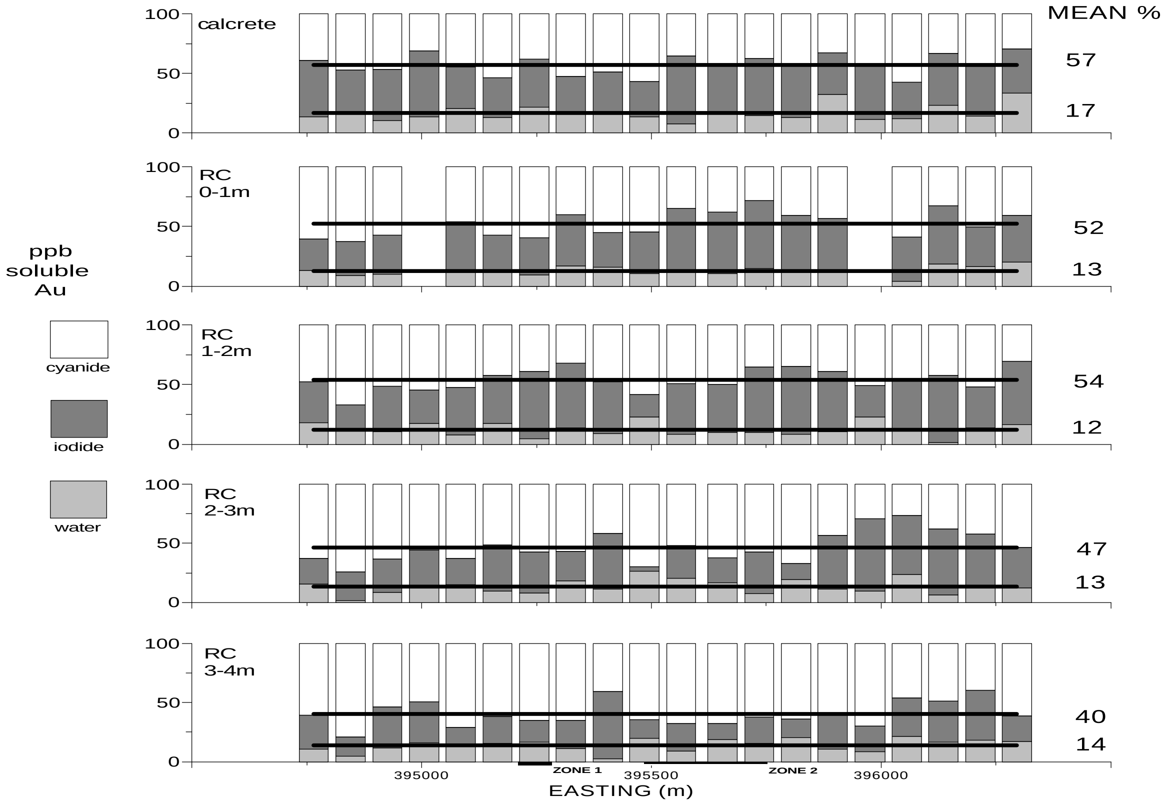

Figure 10: Partial extraction data for Birthday samples expressed as a % of combined extractable Au. Black lines across histograms indicate mean concentration.

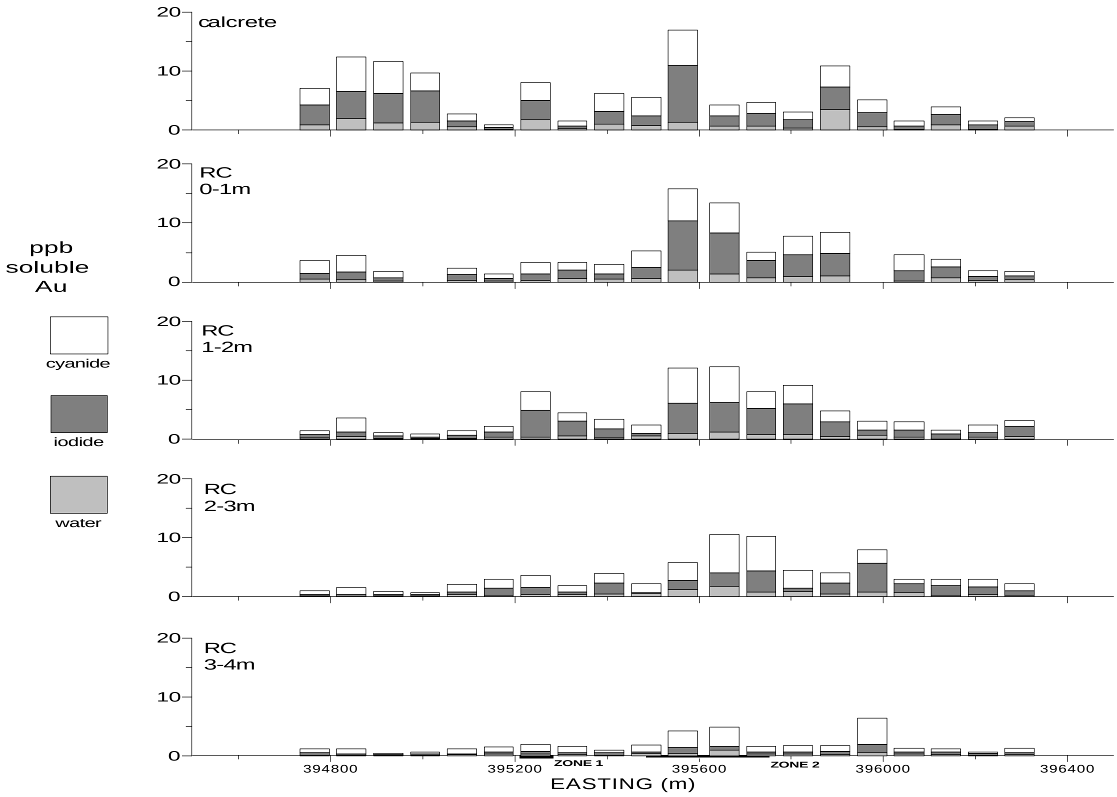

Figure 11: Raw partial extraction data for Birthday samples.

4.4 Elements associated with mineralisation

Regolith materials associated with and above the mineralised zones have anomalous concentrations of several metals (relative to equivalent samples from the rest of the regolith line, Table 2). These distributions are discussed below in more detail with an emphasis on the upper regolith and surficial materials.

Table 2: Anomalous concentrations of elements associated with mineralisation in different regolith components and vegetation: maximum concentrations in parentheses in ppm except S (%). Bold type indicates elements found with mineralisation.

REGOLITH COMPONENT	**ZONE 1** Hole 931	**ZONE 2** Holes 925, 664, 510
Mineralisation	**Au(0.3), Ba(1800), Cd(0.8), Er(11), Lu(2.1), Tm(1.7), Y(85), Yb(12)**	**Au(0.6), Ga(64)**, **Mo(12)**, **Nb(44)**, **Pb(98)**, **U(9)**, **V(340)**, **W(12)**
Lower regolith	**Ba(1550), Cd(0.8), Yb(10), Er(9), Lu(1.6), Tm(1.4), Y(89), Yb(10)**	**Au(0.007),** Ba(3250), **Ga(52),** Lu(0.4), **Mo(12), Nb(28), Pb(85),** S(1.7%), Se(4), Tl(0.7), Tm(0.4), **U(4), V(230),** Yb(3), Y(21)
Upper regolith	**Er(5)**, **Lu(0.6)**, Mo(14), S(4.2%), **Yb(5)**	**Au(0.016),** S(10.3%), Yb(4)
Calcrete	**Cd(0.3)**	Ag(49), **Au(0.013),** Ba(1900), Er(4), Gd(7), S(0.22), Tb(0.8), Tm(0.5), Y(33)
Soil		**Au(0.003)**
Fine lag	no sample collected	
Coarse lag	no sample collected	limited samples collected
Bluebush	Ag(0.4), Pb(5)	Cr(42)

Of the fifteen elements associated with mineralisation, only Au is common to both zones. A few of the fifteen elements are anomalous in the lower regolith (e.g. Au, Ba, Cd, Mo, Pb, S and REE) above mineralisation, and fewer still continue so into the upper regolith (Au, S and some REE), with only Au really persisting into surficial materials (Appendix 2, Table 2). Most of these elements are probably associated with the sulphides reported to be associated with mineralisation. Given that this study has been limited to a few holes and mineralisation is generally weak, it appears that when exploring for Birthday-type mineralisation, Au and perhaps S appear to be the only elements that can be confidently used through the regolith.

One of reasons perhaps for the poor performance of trace elements as pathfinders for mineralisation is the relatively low abundance of Fe in the regolith unlike environments commonly found in the Yilgarn Craton, for example. This suggests either that ferruginisation never took place or that the material has been eroded or chemically removed. This has considerable implications for exploration in such a deeply weathered environment. Iron oxides and oxy-hydroxides are well known scavengers or locations for Au and associated elements such as the chalcophiles in the weathering profile so that ferruginous materials are important exploration sample media (Anand *et al*, 1993; Smith *et al*, 1992). The low abundance of ferruginous materials at Birthday, and in the Gawler Craton in general, demands reliance on other regolith components.

Sulphides are associated with mineralisation (A. Belperio, pers. comm., 1997) but were not detected by XRD or ICP (<500 ppm as S). Sulphur is anomalous in the lower and upper regolith, and calcrete, particularly over Zone 2 (Figure 12, Figure 13). Most S in the regolith is found in gypsum, alunite and, to a lesser extent, celestite. Barite is also commonly found in small quantities in calcretes (Lintern, unpublished data; Lintern and Scott, 1990) which may explain the anomalous Ba and some of the S in calcrete above Zone 2. The presence of gypsum in the upper regolith over the two mineralised zones is intriguing. Normally, gypsum is indicative of proximity to evaporite deposits e.g. salt lakes, either in aeolian gypsum dunes or in evaporites generated by re-circulating groundwaters. However, there are no such deposits or landforms known in the Birthday area. The isotopic signature of the S should be determined to establish the origin of the gypsum and to determine if it is related to the S found associated with mineralisation (Chivas *et al*., 1991; Andrew *et al*., 1998). If, indeed, the S is derived from sulphides associated with mineralisation, then it would indicate that it has been retained despite the intense leaching associated with the weathering process, and that its presence in the upper regolith and calcrete may be used as an indicator of sulphide mineralisation at depth.

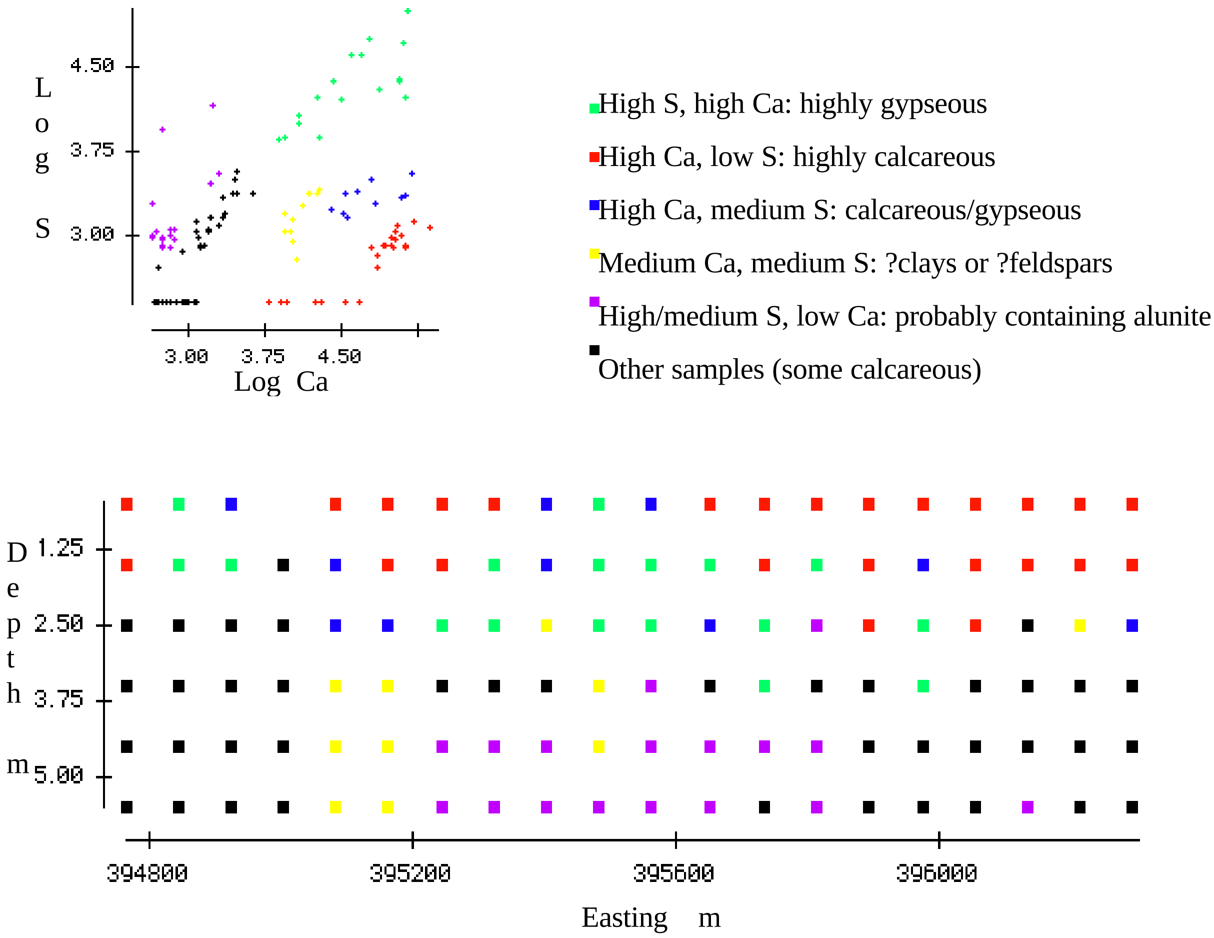

Figure 12: Scatter plot of Ca and S concentrations with corresponding distribution map of interpreted Ca-S groups and interpreted mineralogical affinities for the upper regolith (0–6 m). Each coloured square represents a 1 m drill cutting composite.

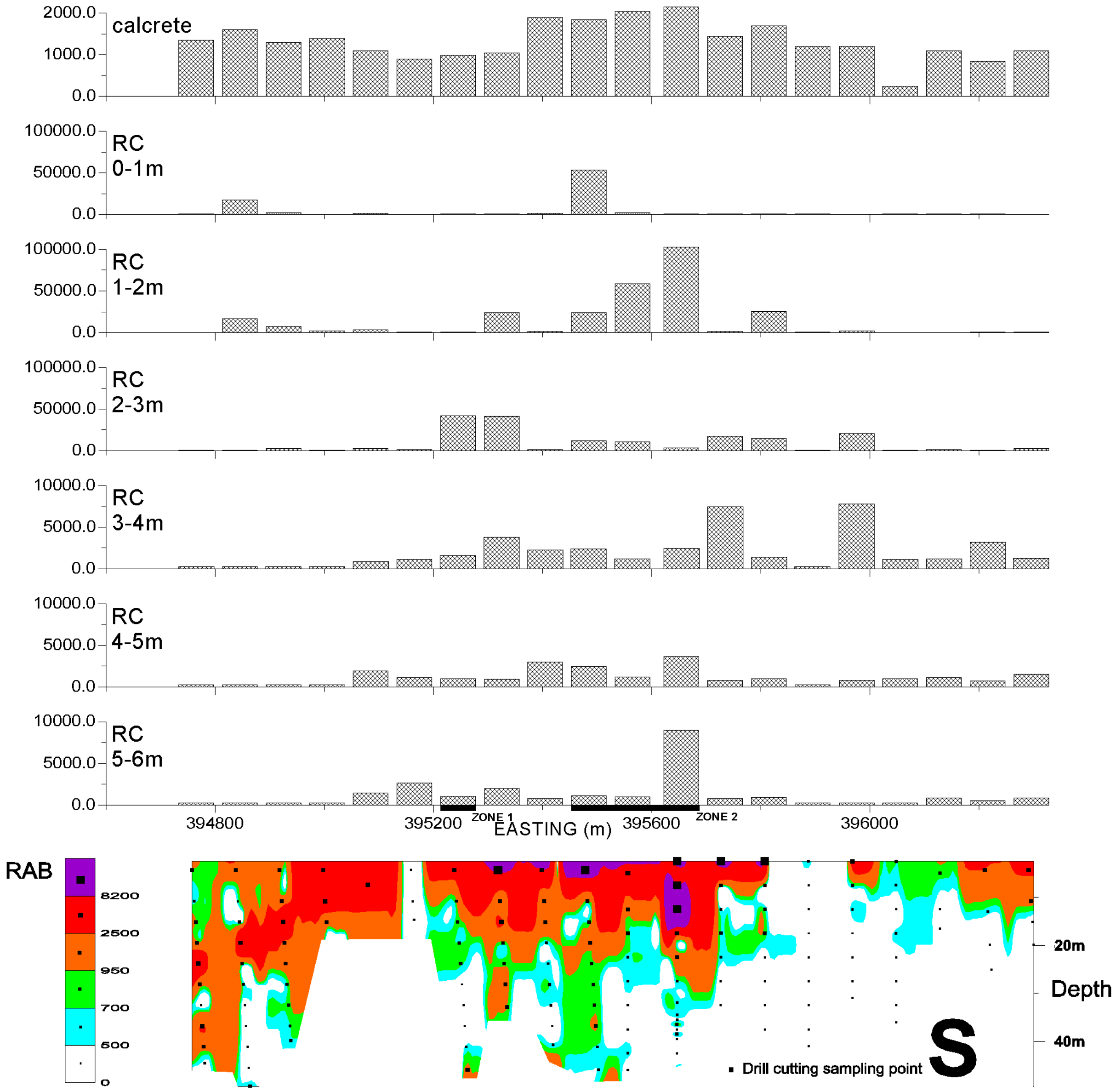

Figure 13: Composite geochemical data for S (ppm) for the regolith traverse at Birthday Prospect. Sulphur (ppm) concentration isopachs from data population breaks.

Selenium concentrations in calcrete (mean of 5 ppm) are relatively high compared with other sample media at Birthday and calcrete from the Challenger Gold Deposit (mean of 2 ppm, Lintern and Sheard, 1998) and regional samples (Lintern and Sheard, unpublished data) collected from the Gawler Craton. Selenium is often associated with sulphides and its presence might indicate this mineral group within the Birthday area. Since Se appears to be accumulating in calcrete like Au, and is a known pathfinder for mineralisation, it should possibly be considered when analysing for other metals in calcrete, although further data are required.

4.5 Other elements

The relative abundances of elements along the Birthday regolith line appear to be governed (at least in part) by lithotype/mineralogy (Appendix 4, Figure 5). For example:

1) Hole 502 samples (from the eastern part of the line) have, in the lower regolith, moderate to abundant chlorite, mica, Na-feldspar, and moderate to low quantities of smectites, quartz, and

traces of goethite. It is anomalous in Ag, As, Cr, Fe, Mg, Mn, Ni, Rb and W and relatively high Cr (max. 170 ppm) and Ni (98 ppm). This evidence suggests a more mafic lithology.

2) Hole 940 samples are particularly anomalous in Fe (17.5%) and has abundant goethite, mica, quartz and kaolinite. The Fe-rich zone is located beneath 30 m of partly bleached clay (kaolinite) and is abundant in Cu, Dy, Eu, Fe, Gd, Ho, Mn, Nb, P, Tb, Ti, V, Y and Zn. At the base of the hole (~50 m depth), moderate quantities of Na-feldspar, chlorite and amphibole appear.
3) Holes 931 and 510 (both mineralised) samples are abundant in quartz, kaolinite, goethite and K-feldspar and hole 510 has, in addition, moderate quantities of alunite. Elements abundant here have been previously discussed (Table 2).
4) Hole 1028 samples located at the far eastern end of the line contain Na-feldspar, quartz, mica and some talc and chlorite. As with hole 502, the high Ni, Cr and Mg contents suggest a more mafic lithology; in addition, REEs are particularly concentrated with moderately abundant amounts of Cs, Sr Th and Zn.

5. DISCUSSION

The results and company data indicate that the Au-in-calcrete technique was successfully used both regionally on a 1.6 km grid, to find the prospect and locally on a 50 m grid, to provide a drill target. The main zone of primary mineralisation (Zone 2) was successfully targeted under a Au-in-calcrete maximum of 13 ppb with a weaker enrichment of 7 ppb over Zone 1.

The 14 ppb Au-in-calcrete anomaly (Zone A) was considered false after no mineralisation was detected beneath it. Normalising the Au with Ca data from 0–1 m auger drill cutting composites effectively removed the anomaly (Figure 7). In addition, for Zone A the upper regolith samples (1–6 m) were found to have little Au in them suggest that the anomaly was restricted to the surficial calcrete material. Due to the apparent mobility of Au, it should be expected that some of the Au-in-calcrete anomalies have been re-located both chemically and physically due to topographic effects. The location of zone A associated with a slope may suggest the presence of mineralisation further to the west and that the Au has been transported to this site by mechanical and/or chemical means. The anomalies at zones 1 and 2, however, are in relatively flat lying areas and do not appear to have moved away from their source. Furthermore, Au has not been entirely leached for the upper regolith in Zones 1 and 2. This residual Au not only has exploration significance, indicating primary mineralisation, but also provides the immediate source for the Au in the calcrete. The process is akin to a “slow-release” fertiliser (in this case, saprolite) providing nutrient (Au) to the soil (calcrete). The Au-in-calcrete anomaly will persist above mineralisation providing that it is still being “fertilised” by the small amounts of relict Au from within the leached saprolite at a greater rate than its removal by erosion or dilution by aeolian material.

The Au-in-calcrete data from Birthday are similar to those in Western Australia where calcrete is developed on saprolite or their soils (e.g. Lintern, 1989; Lintern and Scott, 1990; Lintern and Butt, 1992). The carbonates are considered to be a recent (Quaternary) aeolian addition to the landscape as a result of a change in the climate to greater aridity (Crocker, 1946; Quade *et al*., 1995). The variety of forms, pedological features and location of calcrete observed at Birthday and elsewhere suggests that the calcrete has been re-worked as a result of rainfall (dissolution) and evaporation (precipitation). Thus the calcrete is a cementing material within the upper regolith (soil, laterite and saprolite) and that dilutes elemental signatures (including that of residual Au) that reflect the parent rock from which they are formed. In addition, it has been demonstrated that some of the Au in calcrete is water-soluble, so that some of the Au is probably mobile in the calcrete horizon (Gray and Lintern, 1998).

The evidence for the successful use of calcrete as an exploration sampling medium in areas of transported overburden is patchy. The regolith traverse in this study did not cross any areas having substantial transported overburden (depositional terrain) with buried mineralisation in order to test the use of calcrete in this type of terrain. Indications from the Challenger Gold Deposit to the west suggest that surficial calcretes are not effective at detecting mineralisation buried by over 20 m of transported overburden but this needs to be substantiated by examination of other deposits (Lintern and Sheard, 1998). Interestingly, Au-in-calcrete anomalies are mostly very much subdued or absent in the lower areas around Birthday which probably contain thick transported overburden (Figure 6).

6. RECOMMENDATIONS

Although mineralisation at Birthday is sub-economic, the results have considerable exploration significance. For prospect evaluation it is recommended that:

1) calcrete sampling should be conducted at 200 x 200 m spacing with follow-up calcrete sampling, or augering the calcrete horizon at 50 x 50 m spacing;
2) calcrete be analysed for pathfinder elements (e.g. Cd, Ag, Ba and S) since signatures may be retained within the upper regolith and may be broader or have higher contrast; specifically, the high Se concentrations require further investigation on a regional scale;
3) limited deep drilling (e.g. <5 holes, to RAB blade refusal) be undertaken in areas with strong Au in calcrete maxima, particularly if there are concomitant maxima associated with anomalies derived from shallow augering;
4) regolith-landform mapping and regolith stratigraphy be utilised to assist with interpretation of the geochemical results

Further research is recommended to analyse S isotopes in gypsum and alunite to determine whether S is of marine or sulphide origin, with the view to detecting surficial sulphates with remote sensing technologies.

7. ACKNOWLEDGEMENTS

The authors wish to acknowledge the support provided by Minotaur Gold NL for allowing access to the site, supplying a RC drilling rig and operators for a day, geological plans, geochemical data and supplying RAB samples. A. Francis and J.Weber (PIRSA Information Management Group) are thanked for the drafting of certain diagrams. S.P. Lintern and the South Australian State Herbarium are acknowledged for the plant identification. G.D. Longman determined some of the minerals from XRD analyses. R.S. Robertson, A.P. Belperio and C.R.M. Butt are thanked for earlier comments on the manuscript. CRC LEME is supported by the Australian Cooperative Research Centres Program.

8. REFERENCES

Anand, R.R., Smith, R.E., Phang, C., Wildman, J.E., Robertson, I.D.M. and Munday, T.J., 1993. Geochemical exploration in complex lateritic environments of the Yilgarn Craton, Western Australia. Final Report for Project 240A. CSIRO Australia, Division of Exploration Geoscience Report No. 442R. 297 pp.

Andrew A.S., Carr G.R., Giblin A.M. and Whitford D.J., 1998. Isotope hydrogeochemistry in exploration for buried and blind mineralization. The State of the Regolith. Geological Society of Australia Special Publication 20, 222–225.

Anon, 1996. Minotaur Gold NL Quarterly Report, ending 31-12-96. Adelaide, South Australia.

Benbow, 1996. Jumbuck map sheet. South Australia Geological Survey. Geological Atlas 1:100 000 Series, 5638, SA_GEOLOGY/Geodetail. Preliminary geological map (15th October 1996).

Bonwick, C.M., 1997. Discovery of the Challenger Gold Deposit: implications for future exploration on the Gawler Craton. In New Generation Gold Mines ,97. Case Histories of Discovery. Conference Proceedings, AMF, Glenside, Australia. p 7–1 to 7–15.

Butt, C.R.M., Gray, D.J., Robertson, I.D.M., Lintern, M.J., Anand, R.R., Britt, A.F., Bristow, A.P.J., Munday, T.J., Phang, C., Smith, R.E. and Wildman, J.E., 1997. Geochemical exploration in areas of transported overburden, Yilgarn Craton and environs, Western Australia. CRC LEME 36R/Exploration and Mining Report 333R. 153 pp.

Chivas, A.R., Andrew, A.S., Lyons, W.B., Bird, M.I. and Donnelly, T.H., 1991. Isotopic constraints on the origin of salts in Australian playas. 1. Sulphur. Palaeogeography, palaeoclimatology, and palaeoecology, 84:339–332.

Cowley, W.M. and Flint, R.B., 1993. In: Drexel, J.F., Preiss, W.V. and Parker, A.J. (editors), The geology of South Australia. Vol. 1, The Precambrian. South Australia. Geological Survey. Bulletin, 54. pp142–147.

Crocker, R.L., 1946. Post-Miocene climatic and geologic history and its significance in relation to the genesis of the major soil types of South Australia. CSIR Bulletin No. 193. Government Printer, Melbourne (out of print). 56 pp.

Daly, S.J., 1985. Tarcoola map sheet. Geological Survey of South Australia. Geological Atlas 1:250 000 Series, sheet SH53–10.

Daly, S.J. and Van der Stelt, B.J., 1992. Archaean metabasic diamond drilling project (Northwest Gawler Craton Drilling Investigations 1991; Data Package Part B). South Australia. Department of Mines and Energy. Open file Envelope, 8541 (unpublished).

Daly, S.J., Fanning, C.M. and Fairclough, M.C., 1998. Tectonic evolution and exploration potential of the Gawler Craton. Journal of Australian Geology and Geophysics, 17: 145–168.

Edgecombe, D., 1997. Challenger gold deposit. Mines and Energy. South Australia. MESA Journal, 4:8–11.

Fanning, C.M., 1997. Geochronological synthesis of Southern Australia. Part II. The Gawler Craton. South Australia Department of Mines and Energy, Open File Envelope 8918 (unpublished).

Ferris, G., 1998. Calcrete sampling within Pureba Conservation Park. Department of Primary Industries and Resources, South Australia. MESA Journal, 8:12–13.

Gillman, J., 1997. Calcrete sampling - Gawler Joint Venture case histories. Workshop: gold exploration using calcrete geochemistry - background and SA case studies. September 1997. Australian Mineral Foundation. Workshop course, 128A/97. Un-paginated.

Gray, D.J. and Lintern, M.J., 1993. Further aspects of the chemistry of gold in some Western Australian soils. CSIRO Australia, Division of Exploration Geoscience Report No.391R. 50 pp

Gray, D.J., and Lintern, M.J., 1998. Chemistry of gold in soils from the Yilgarn Craton, Western Australia. Regolith 96 Conference - The State of the Regolith. Geological Society of Australia Special Publication 20, 209–221.

Lintern, M.J., Butt, C.R.M. and Scott, K.M., 1997. Gold in vegetation and soil - three case studies from the goldfields of southern Western Australia. Journal of Geochemical Exploration 58: 1-14.

Lintern, M.J., 1989. Study of the distribution of gold in soils at Mt. Hope, Western Australia. CSIRO Australia, Division of Exploration Geoscience Report No. 24R. 36 pp.

Lintern, M.J. and Scott, K.M., 1990. The distribution of gold and other elements in soils and vegetation at Panglo, Western Australia. CSIRO Australia, Division of Exploration Geoscience Report No. 129R. 96 pp.

Lintern, M. and Sheard, M., 1998. Regolith geology and geochemistry at Birthday Gold Prospect, Gawler Craton, South Australia. Regolith '98: New Approaches to an old continent. Proceedings of 3rd Australian Regolith Conference, Kalgoorlie, Western Australia. G. Taylor and C. Pain (Editors). pp 243–250

Lintern, M.J. and Sheard, M.J., 1998. Regolith studies related to the Challenger Gold Deposit, Gawler Craton, South Australia. Geochemistry and stratigraphy of the Challenger Gold Deposit. CRC LEME Restricted Report 78R 2 Volumes. 95 pp + Appendices (un-numbered).

Lintern, M.J. and Butt, C.R.M., 1992. The distribution of gold and other elements in soils and vegetation at Zuleika, Western Australia. CSIRO Australia, Division of Exploration Geoscience Report No. 328R. 90 pp.

Morris, B.J. and Flintoff, M.W., 1999. Calcrete sampling of the Hawks Nest Prospect – highlighting the mineral potential. Department of Primary Industries and Resources, South Australia. MESA Journal, 15:5–7.

Morris, B.J., Hill, P.W. and Ferris, G.M., 1994. Barton Bedrock Drilling Project. South Australia. Department of Mines and Energy. Report Book, 94/19.

Northcote, 1979. A factual key for the recognition of Australian soils. 4th Edition, Rellim Technical Publications, Adelaide.

Quade, J., Chivas, A.R., McCulloch, M.T., 1995. Strontium and carbon isotope tracers and the origins of soil carbonate in South Australia and Victoria. Palaeogeography, Palaeoclimatology, Palaeoecology, 113: 103–117.

Robertson, R.S., Morris, B.J., Janz, J.K., Hill, P.W., Dubowski, E.A., and Crettende, P.P., 1992. Tarcoola-Tallaringa Bedrock Drilling Project (Northwest Gawler Craton Drilling Investigations 1991; Data Package A). South Australia. Department of Mines and Energy. Open file Envelope, 8541 (unpublished).

Smith, R.E., Anand, R.R., Churchward, H.M., Robertson, I.D.M., Grunsky, E.C., Gray, D.J., Wildman, J.E. and Perdrix, J.L., 1992. Laterite geochemistry for detecting concealed mineral deposits, Yilgarn Craton, Western Australia. Summary report for Project P240. CSIRO Australia, Division of Exploration Geoscience Report No. 236R. 171 pp.

Stace, H.C.T, Hubble, G.D., Brewer, R., Northcote, K.H., Sleeman, J.R., Mulcahy, M.J. and Hallsworth, E.G., 1968. A handbook of Australian soils. Rellim Technical Publications, Adelaide.

Northcote and Skene, 1972. Australian soils with saline and sodic properties. CSIRO Australia, Soil Publication No. 27.

Wilford, J., Craig, M.A., Tapley, I.J. and Mauger, A.J., 1998. Regolith-landform mapping and its implications for exploration over the Half Moon Lake Region, Gawler Craton, South Australia. CRC LEME Restricted Report 92R. 91 pp + CD ROM.

Wills, K.J.A, 1994. The Gawler Joint Venture, 21 Month Review November 1992 to July 1994, Dominion Mining Company Report. Unpublished August 1994. 4 volumes. 62 pp + figures and appendices.

9. APPENDICES (includes CD with data and full-colour version of report and appendix diagrams)

LIST OF APPENDICES

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Appendix 3: Box-whisker and scatter plots.

Appendix 4: Mineralogical tabulated and graphed data.

Appendix 5: Histograms

Appendix 6: Detailed descriptions of upper regolith samples.

Appendix 7: Tabulated data (from Excel File).

Appendix 8: CD containing report and data.

APPENDIX 1

Appendix 1: Graphed elemental abundances for upper regolith RC drill cuttings (0–6 m)

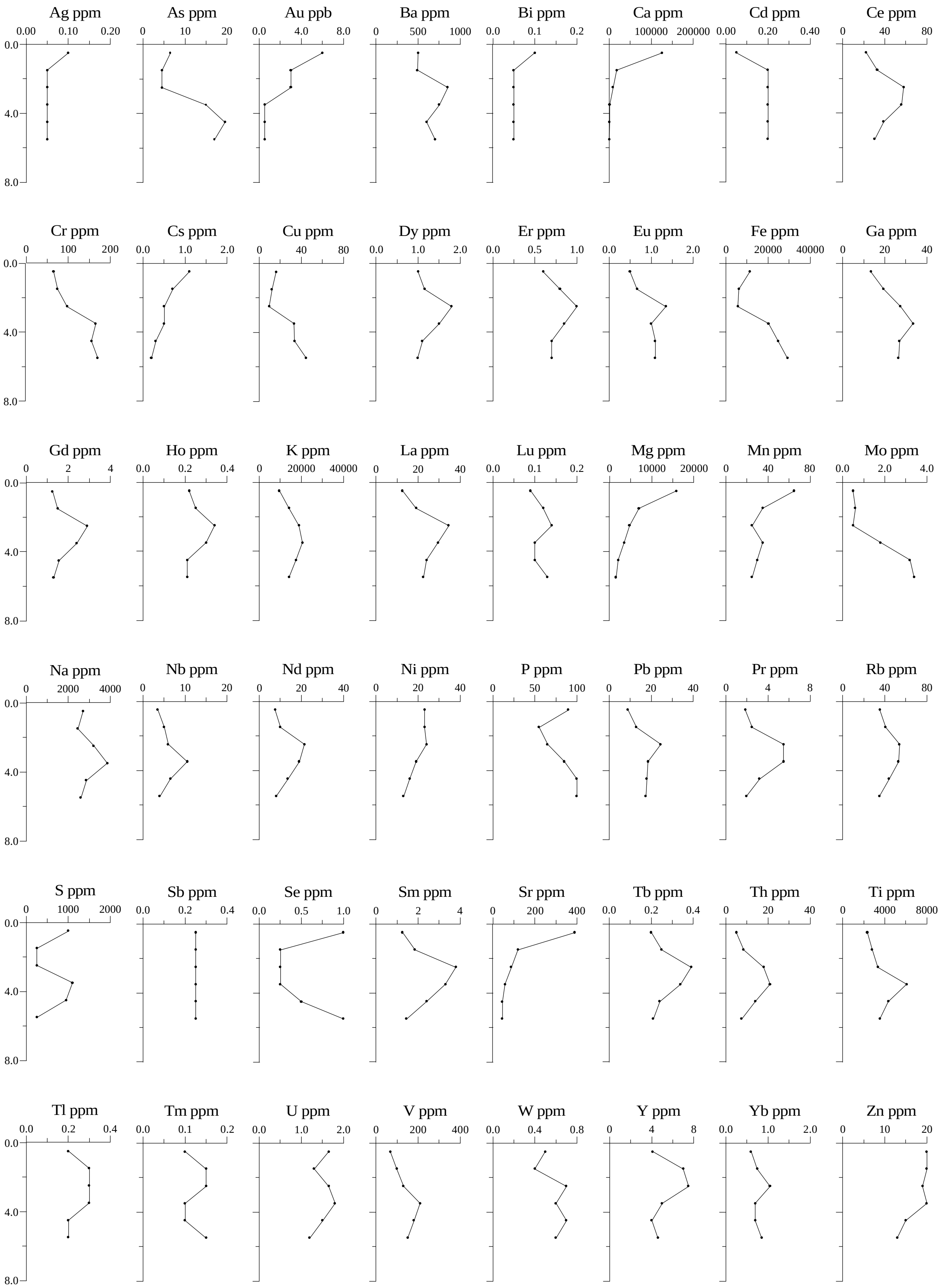

Figure A1.1 : Elemental abundances for 0–6 m RC at MB500 at Birthday.
Y axis is Depth (m).

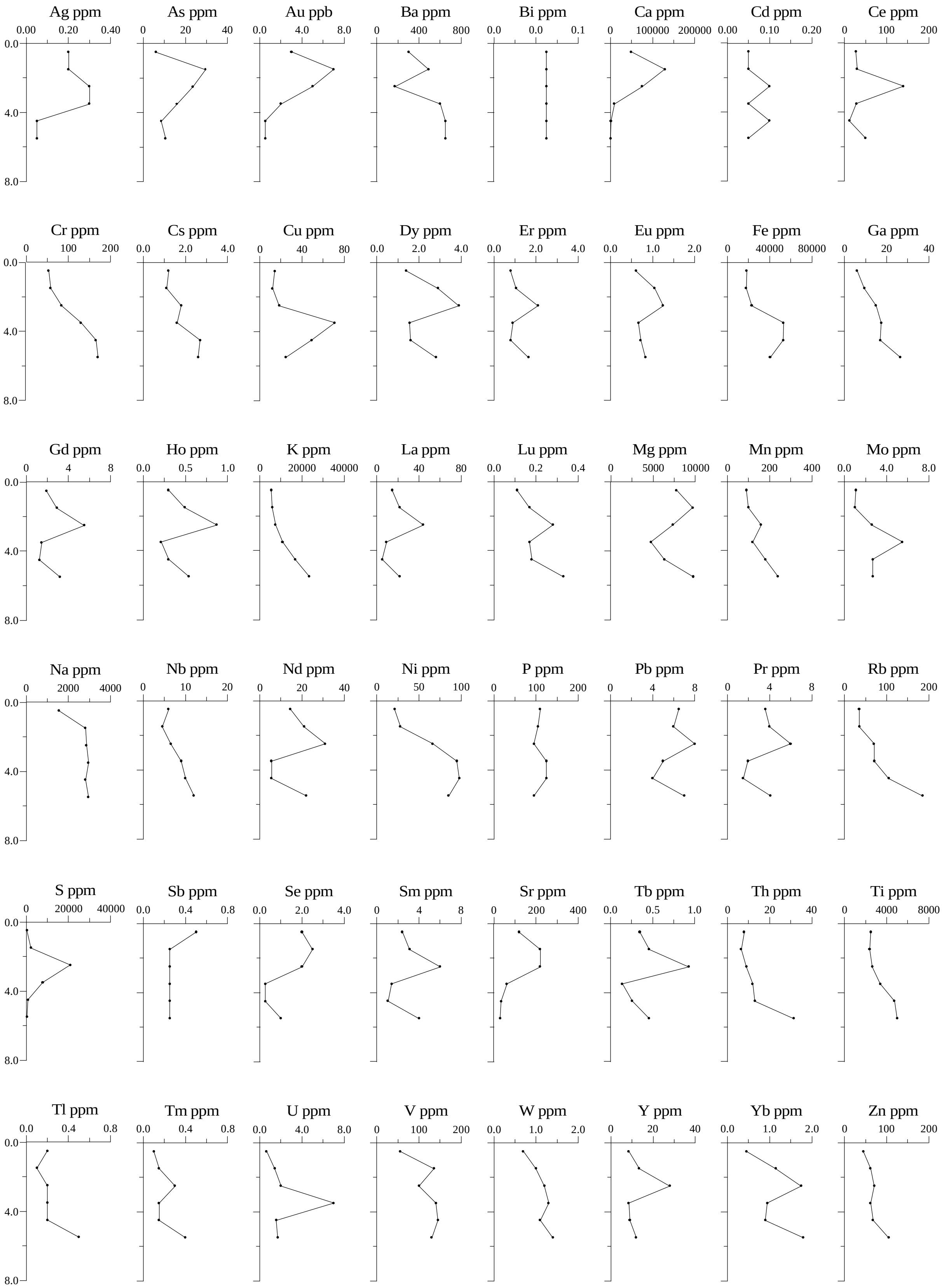

Figure A1.2 : Elemental abundances for 0–6 m RC at MB502 at Birthday.
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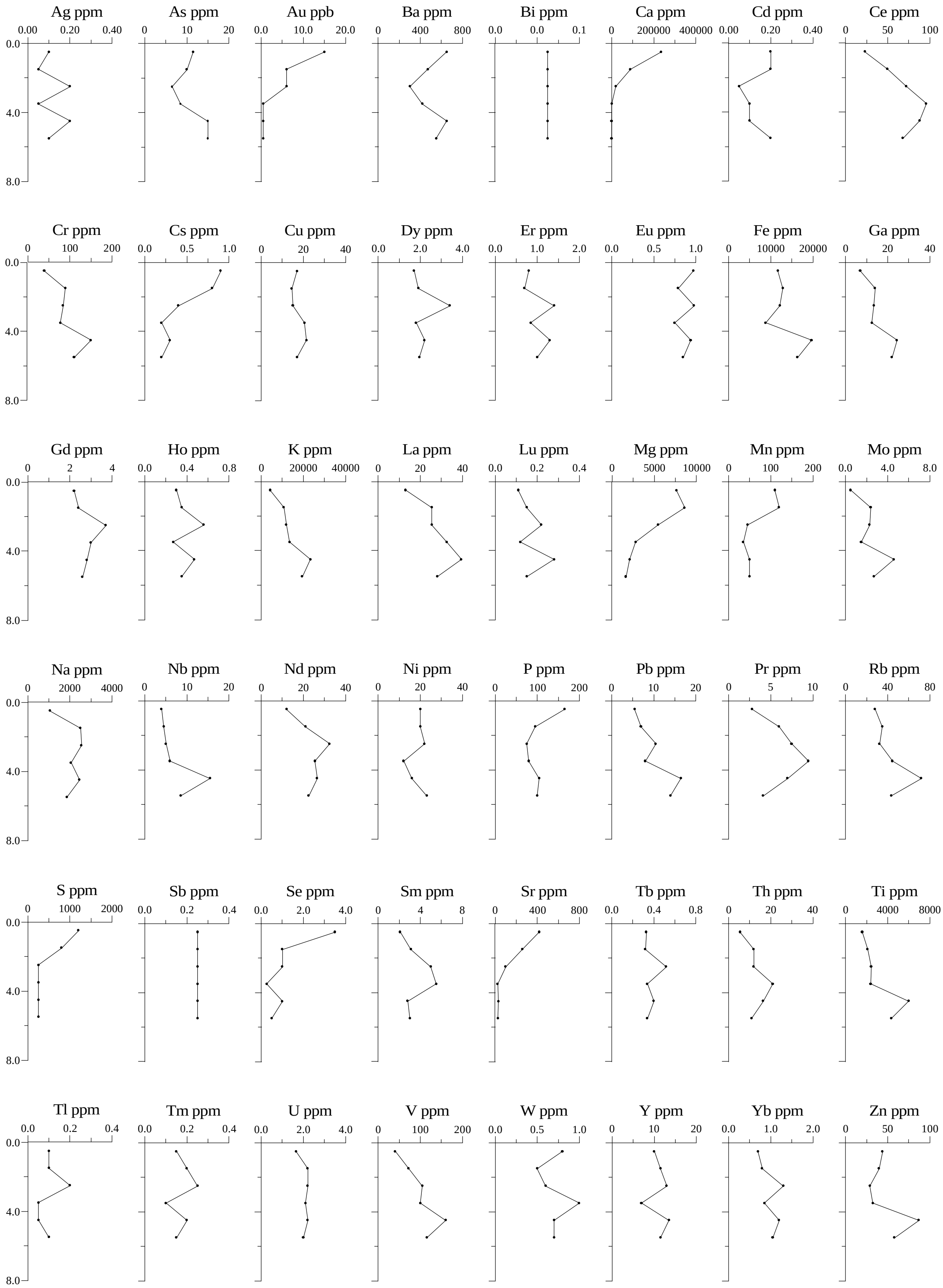

Figure A1.3 : Elemental abundances for 0–6 m RC at MB504 at Birthday.
Y axis is Depth (m).

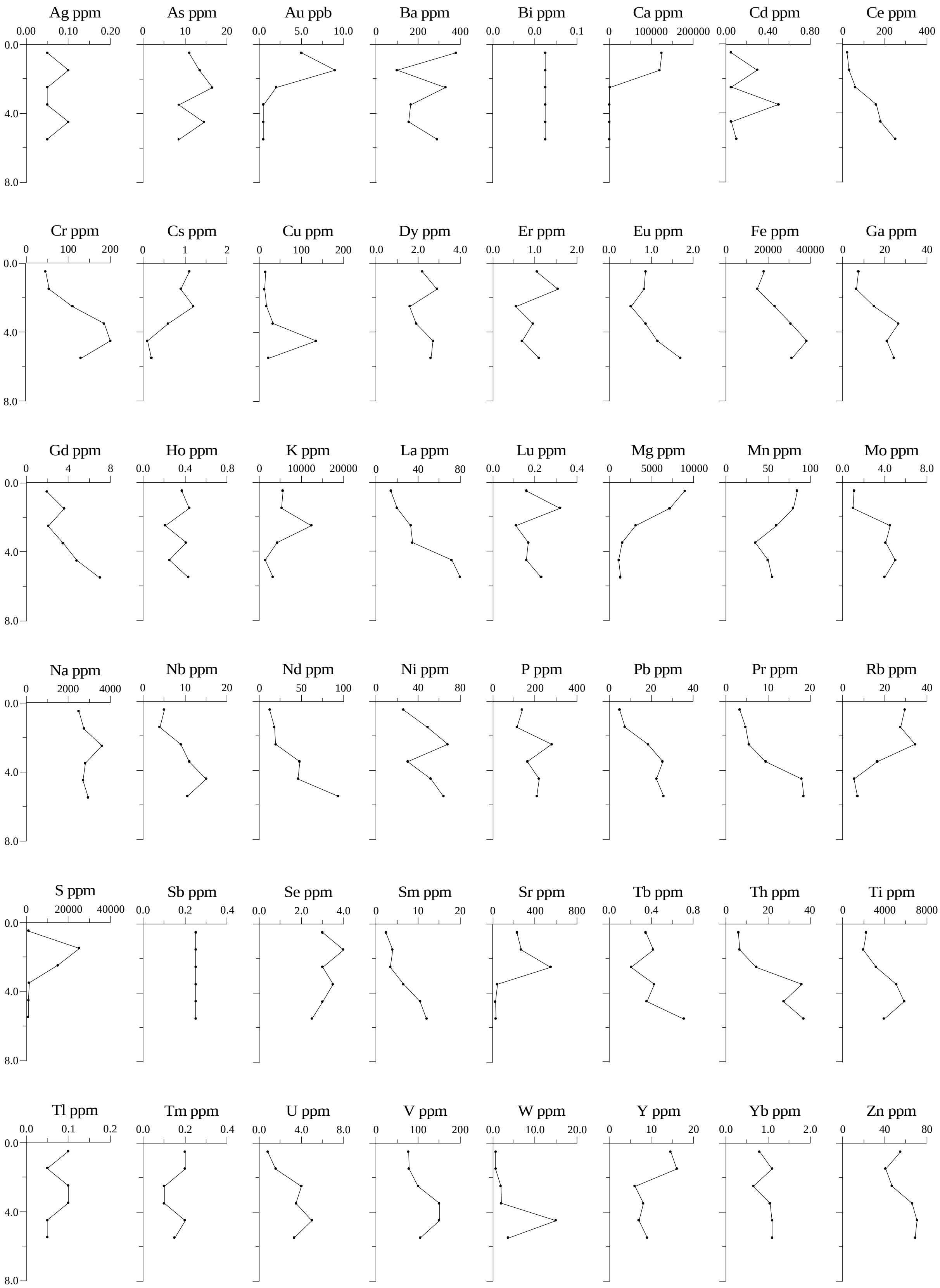

Figure A1.4 : Elemental abundances for 0–6 m RC at MB506 at Birthday.
Y axis is Depth (m).

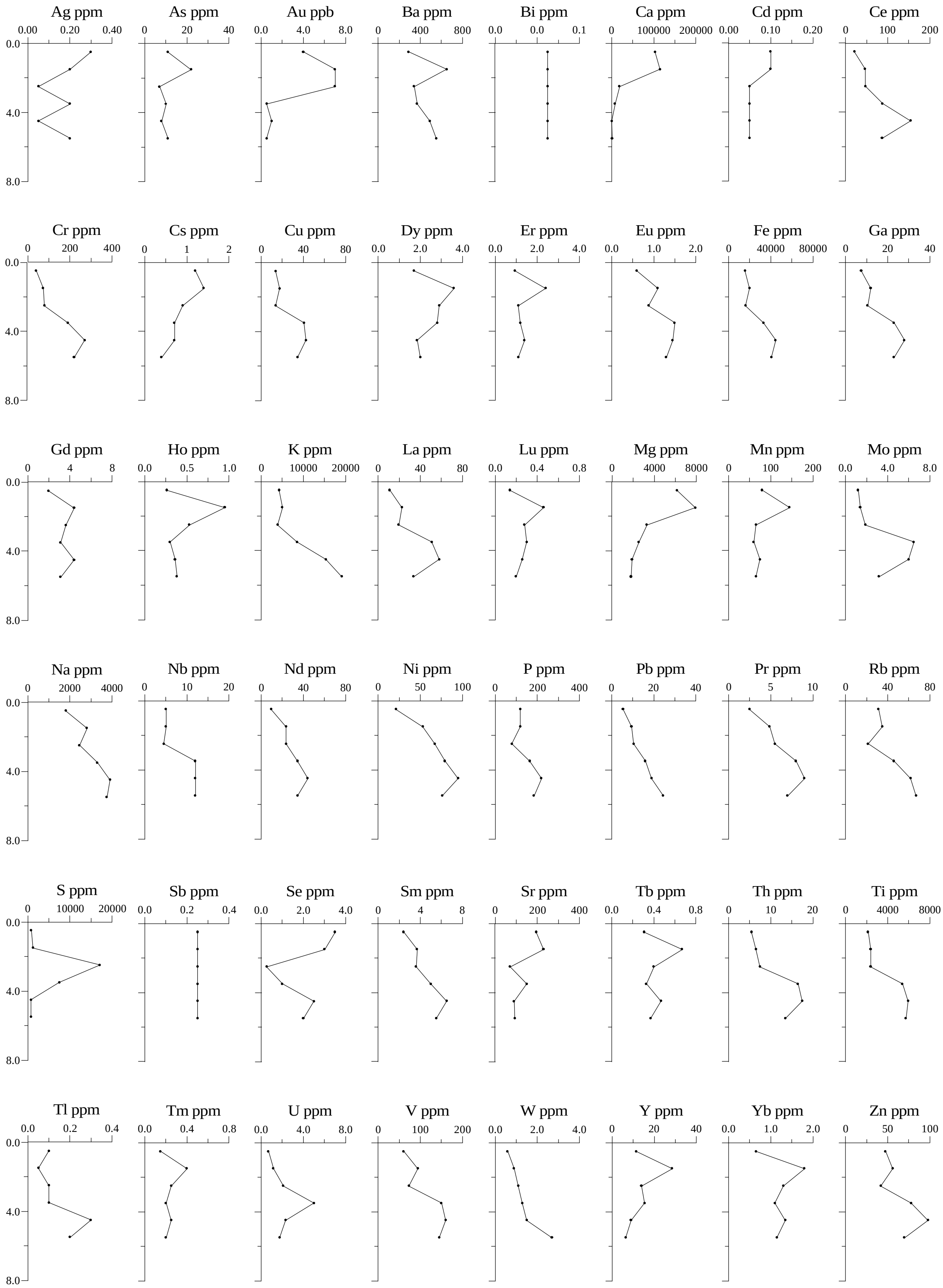

Figure A1: Elemental abundances for 0–6 m RC at MB508 at Birthday.
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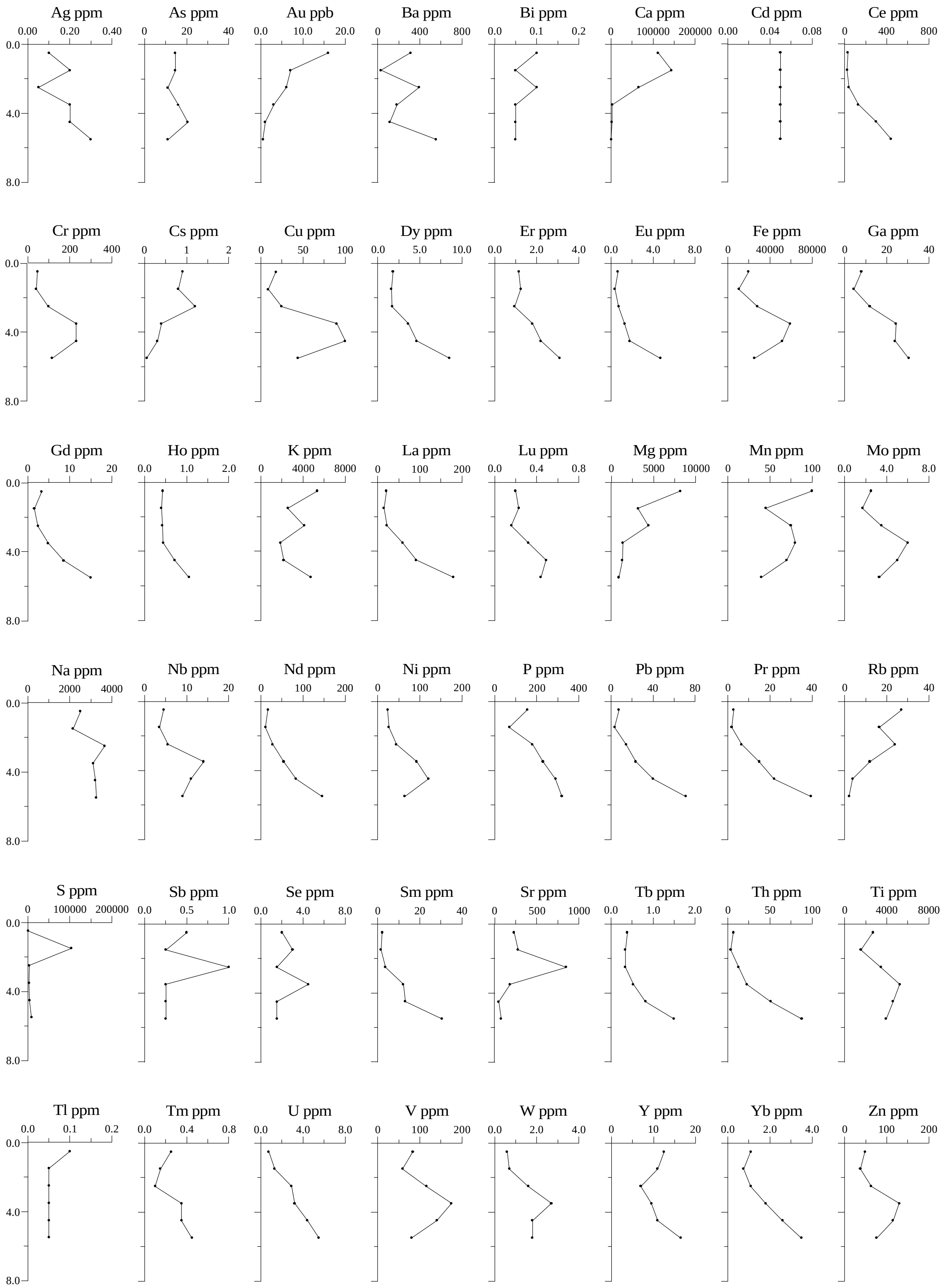

Figure A1.6: Elemental abundances for 0–6 m RC at MB510 at Birthday.
Y axis is Depth (m).

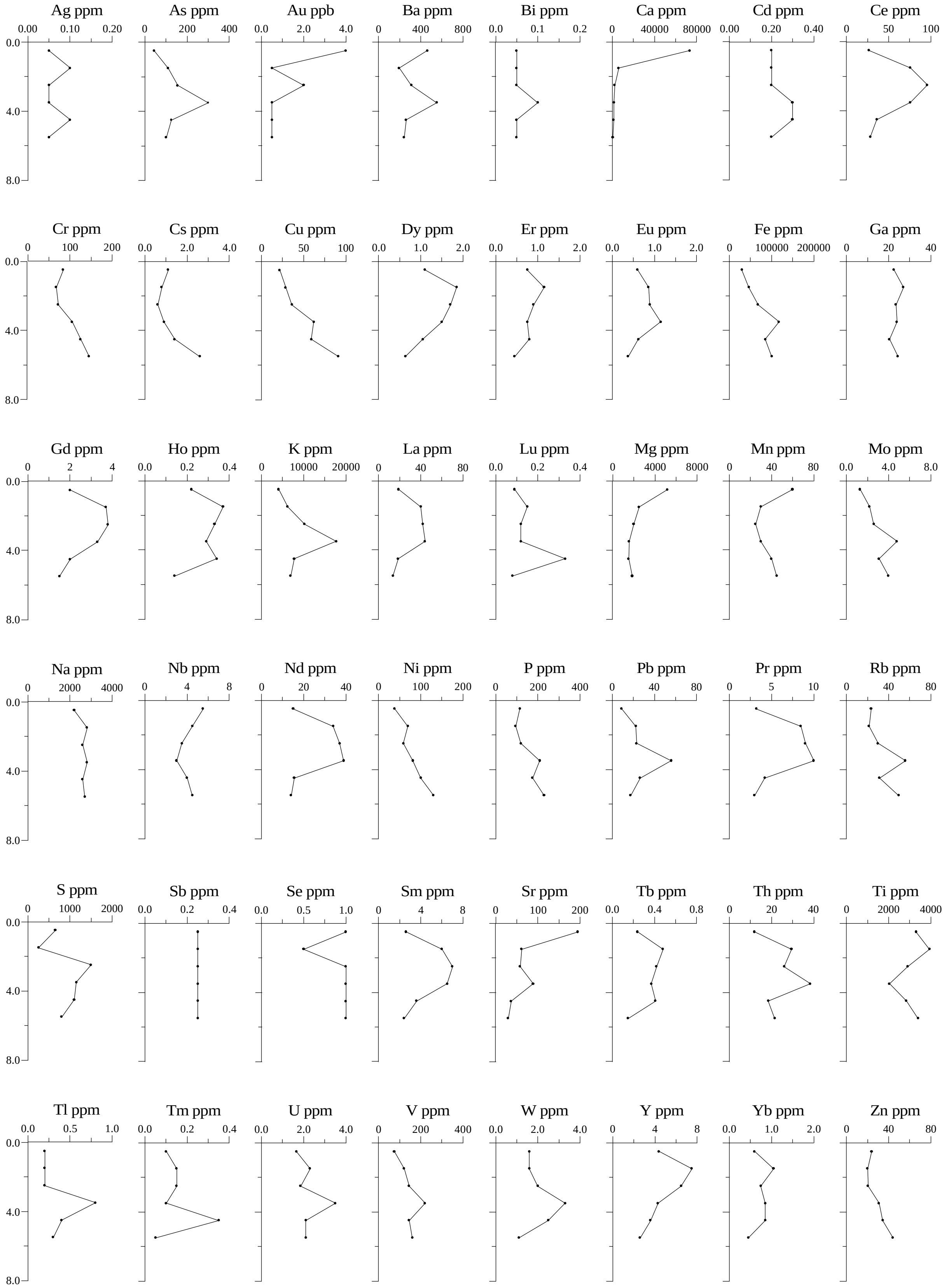

Figure A1.7: Elemental abundances for 0–6 m RC at MB636 at Birthday. Y axis is Depth (m).

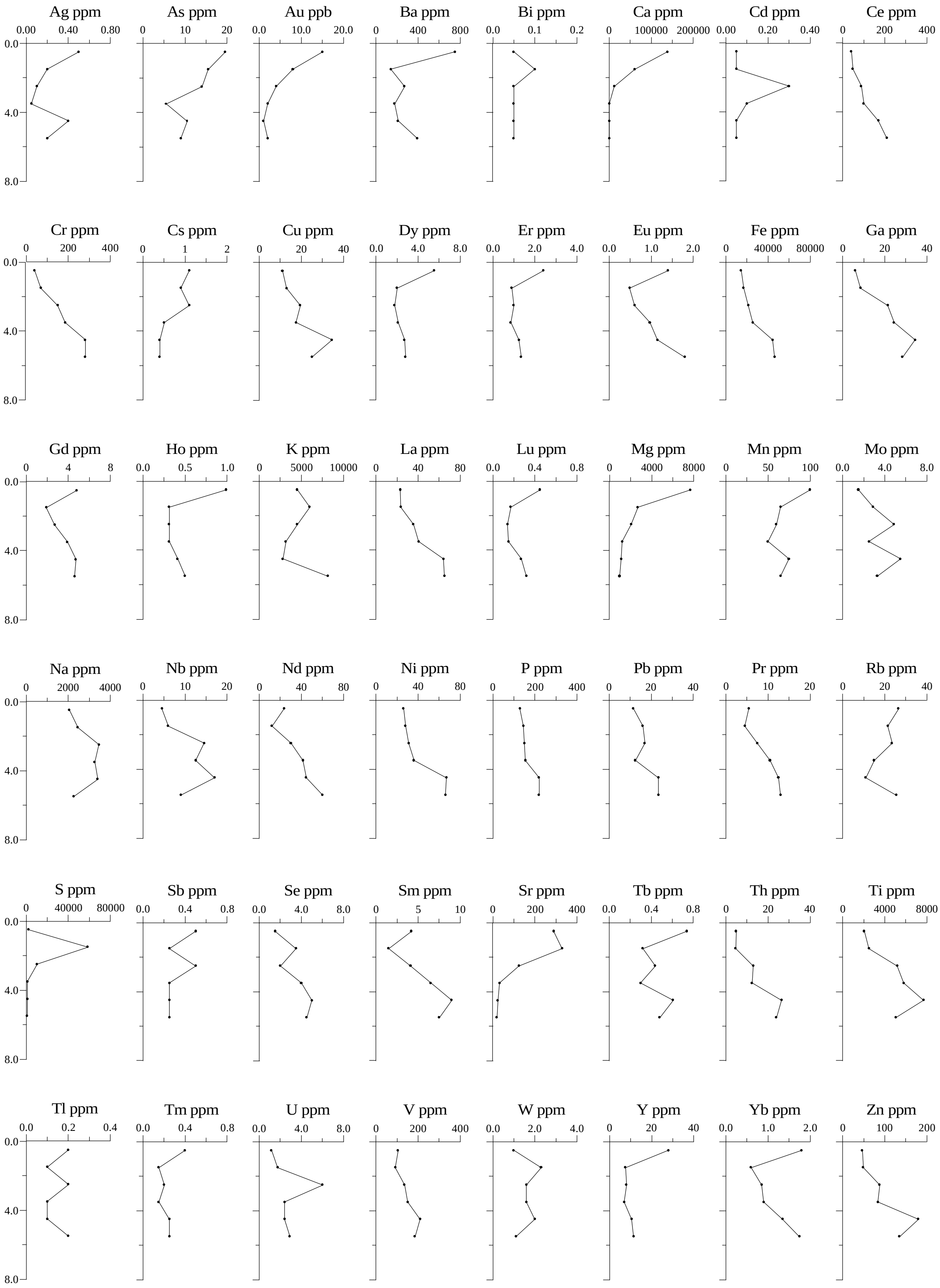

Figure A1.8 : Elemental abundances for 0–6 m RC at MB664 at Birthday.
Y axis is Depth (m).

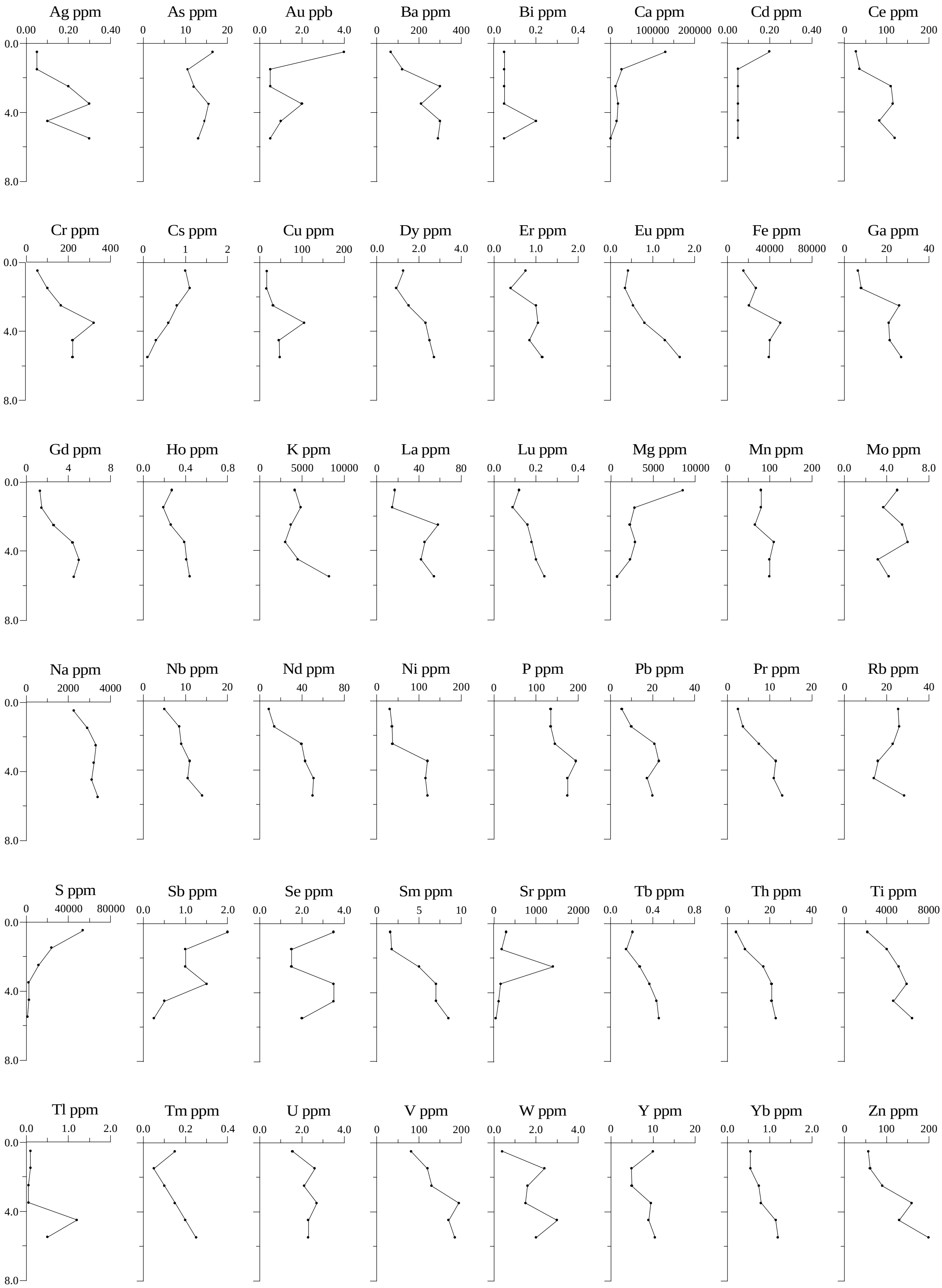

Figure A1.9 : Elemental abundances for 0–6 m RC at MB925 at Birthday.
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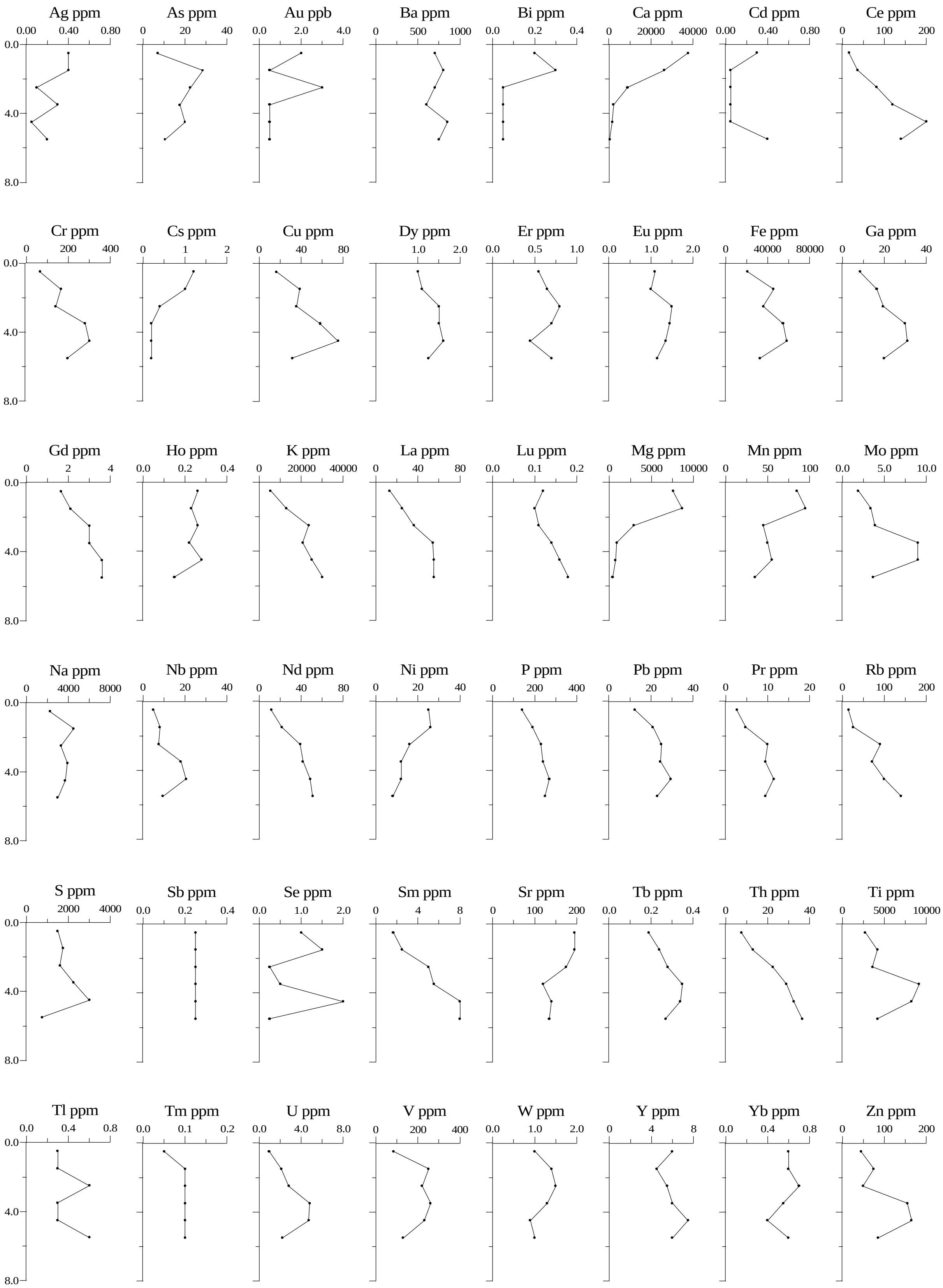

Figure A1.10 : Elemental abundances for 0–6 m RC at MB927 at Birthday.
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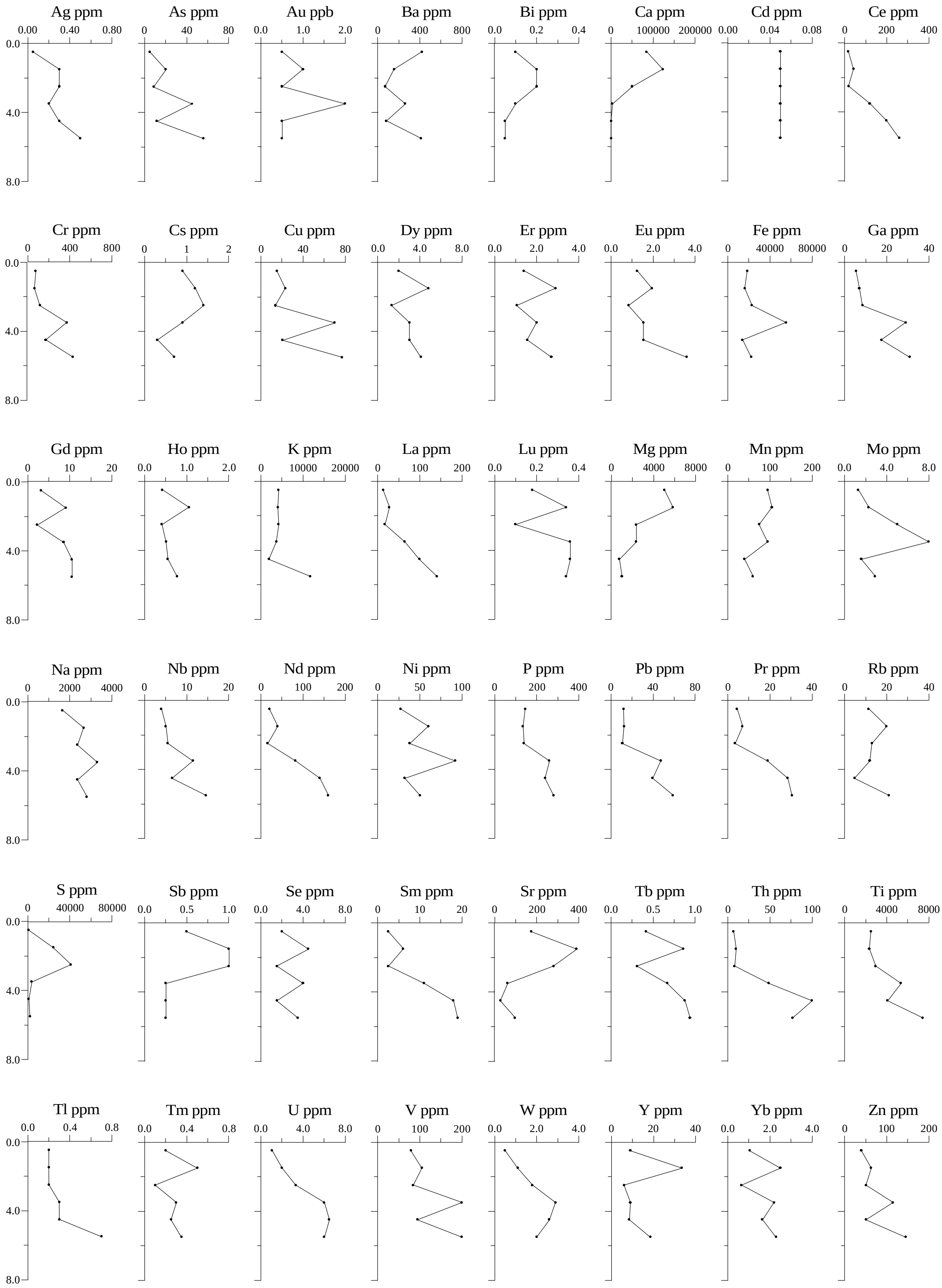

Figure A1.11 : Elemental abundances for 0–6 m RC at MB929 at Birthday.
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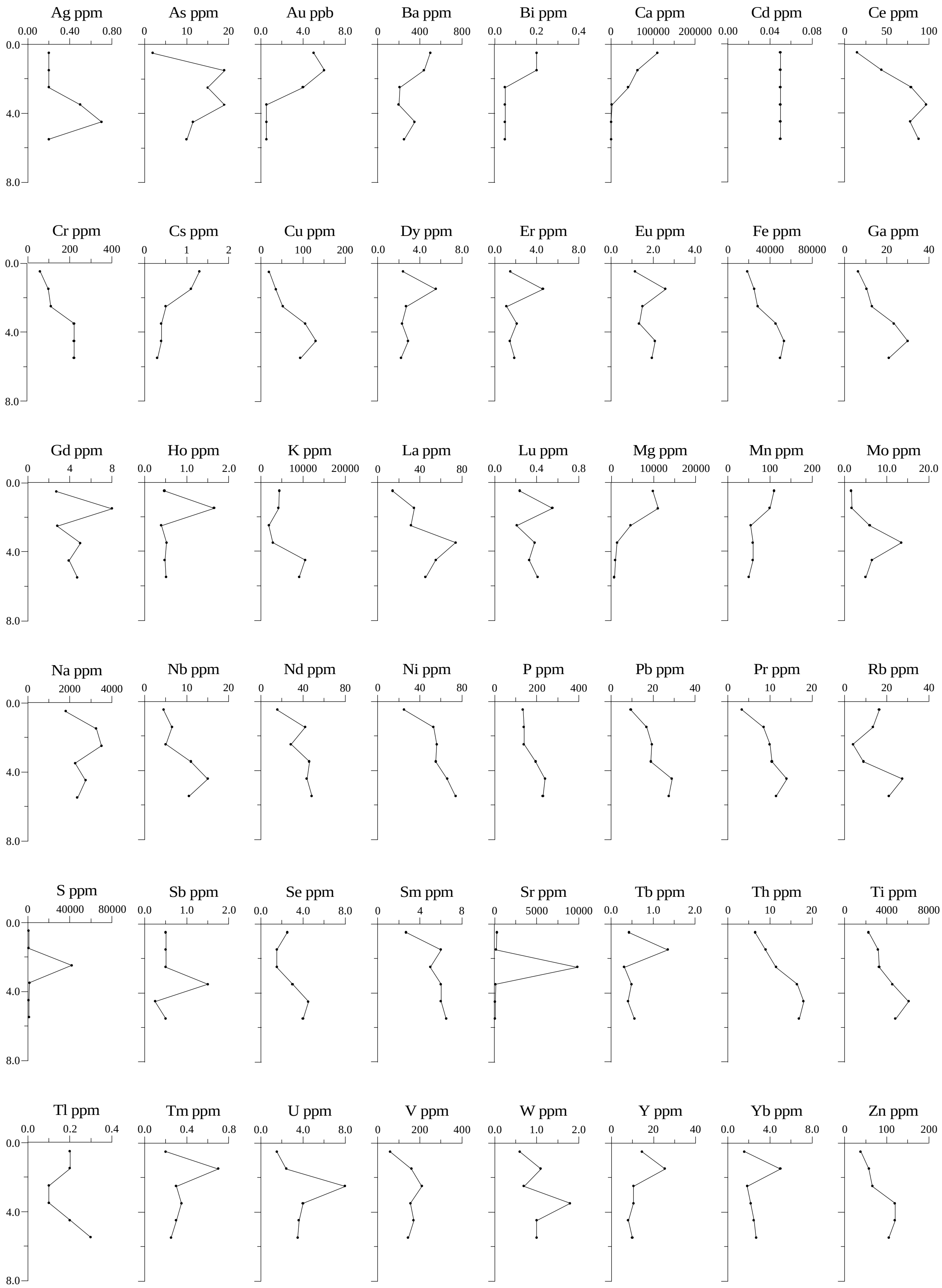

Figure A1.12 : Elemental abundances for 0–6 m RC at MB931 at Birthday.
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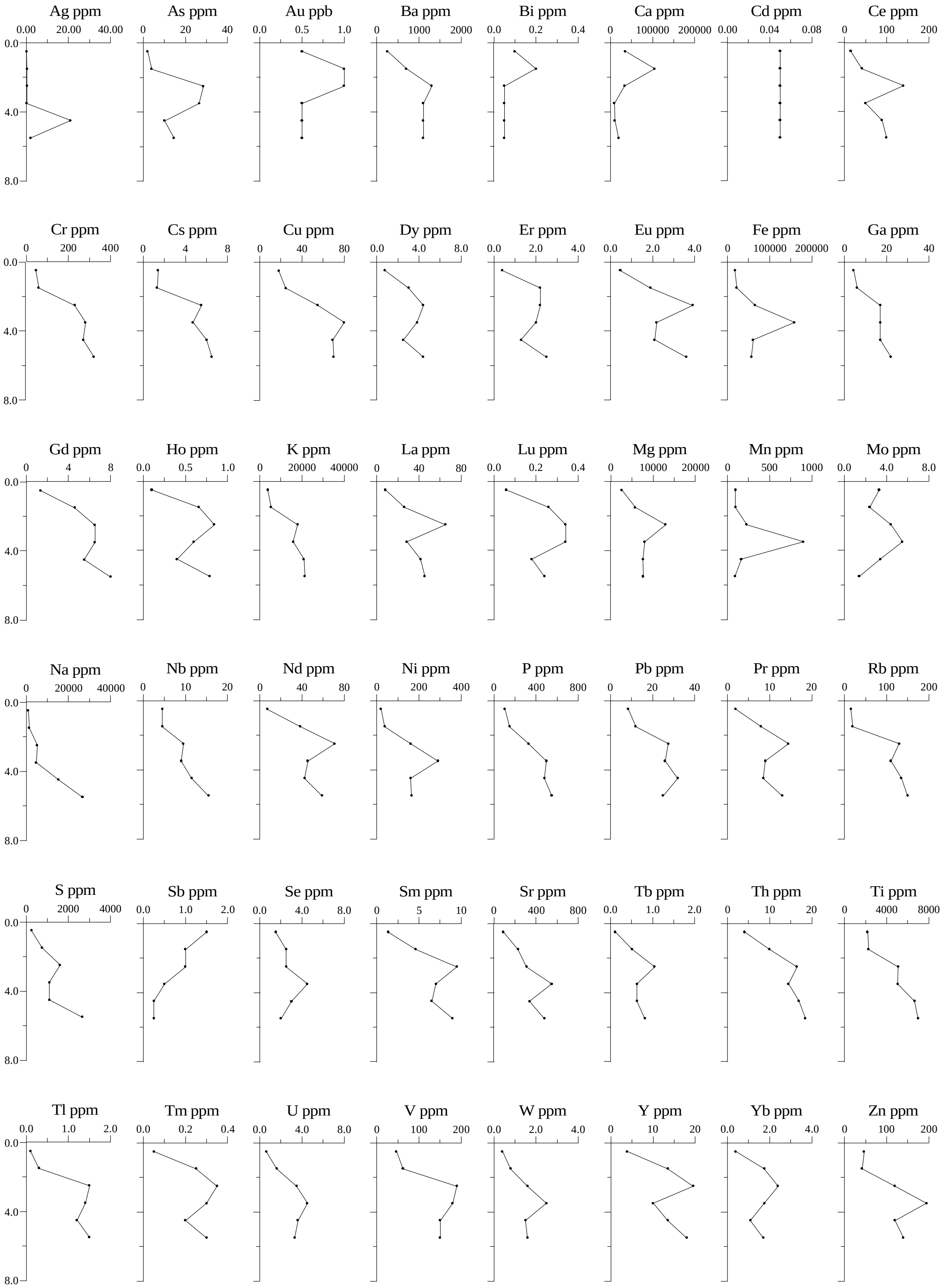

Figure A1.13 : Elemental abundances for 0–6 m RC at MB933 at Birthday.
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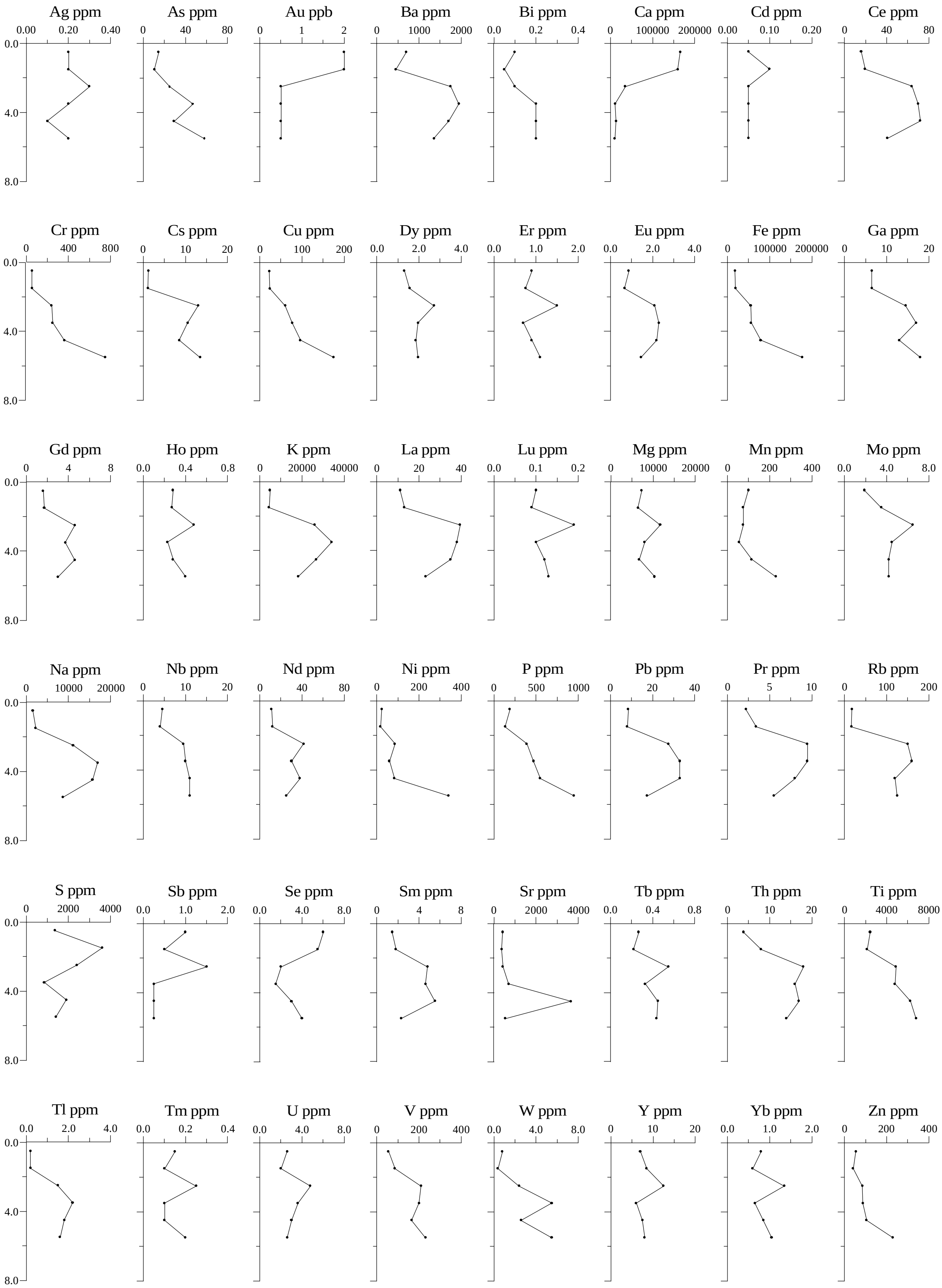

Figure A1.14 : Elemental abundances for 0–6 m RC at MB935 at Birthday.
Y axis is Depth (m).

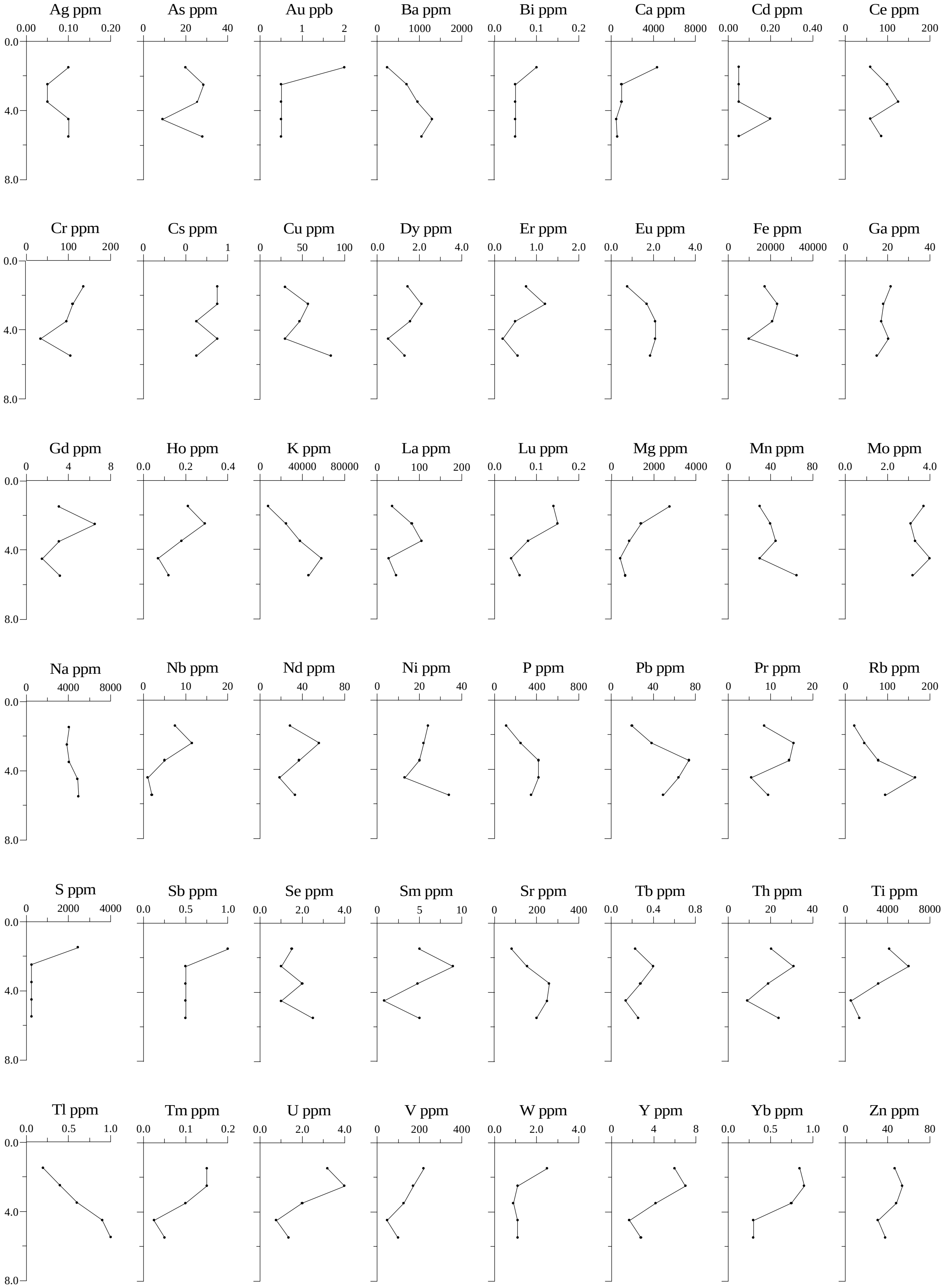

Figure A1.15: Elemental abundances for 0–6 m RC at MB937 at Birthday.
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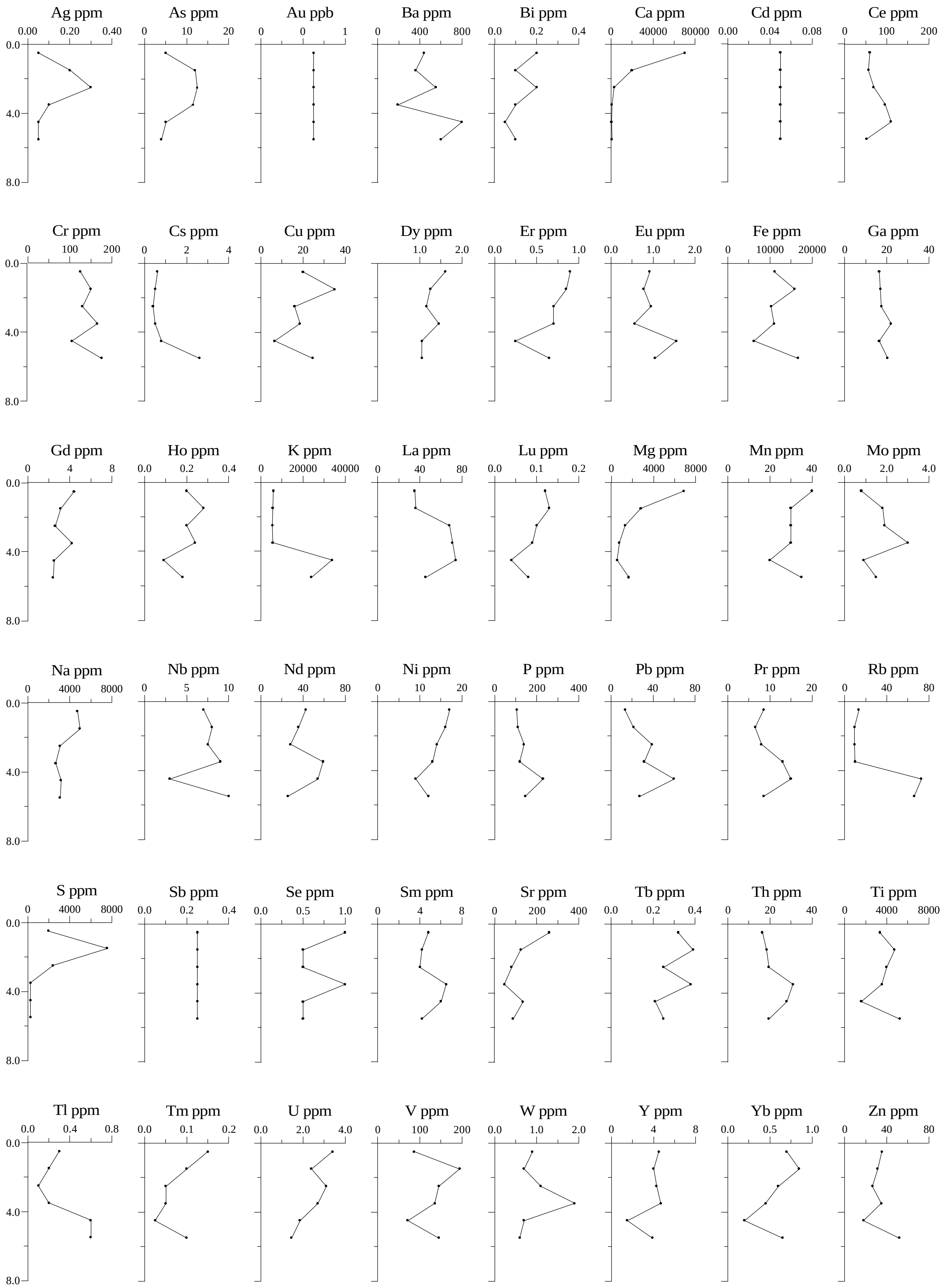

Figure A1.16 : Elemental abundances for 0–6 m RC at MB938 at Birthday.
Y axis is Depth (m).

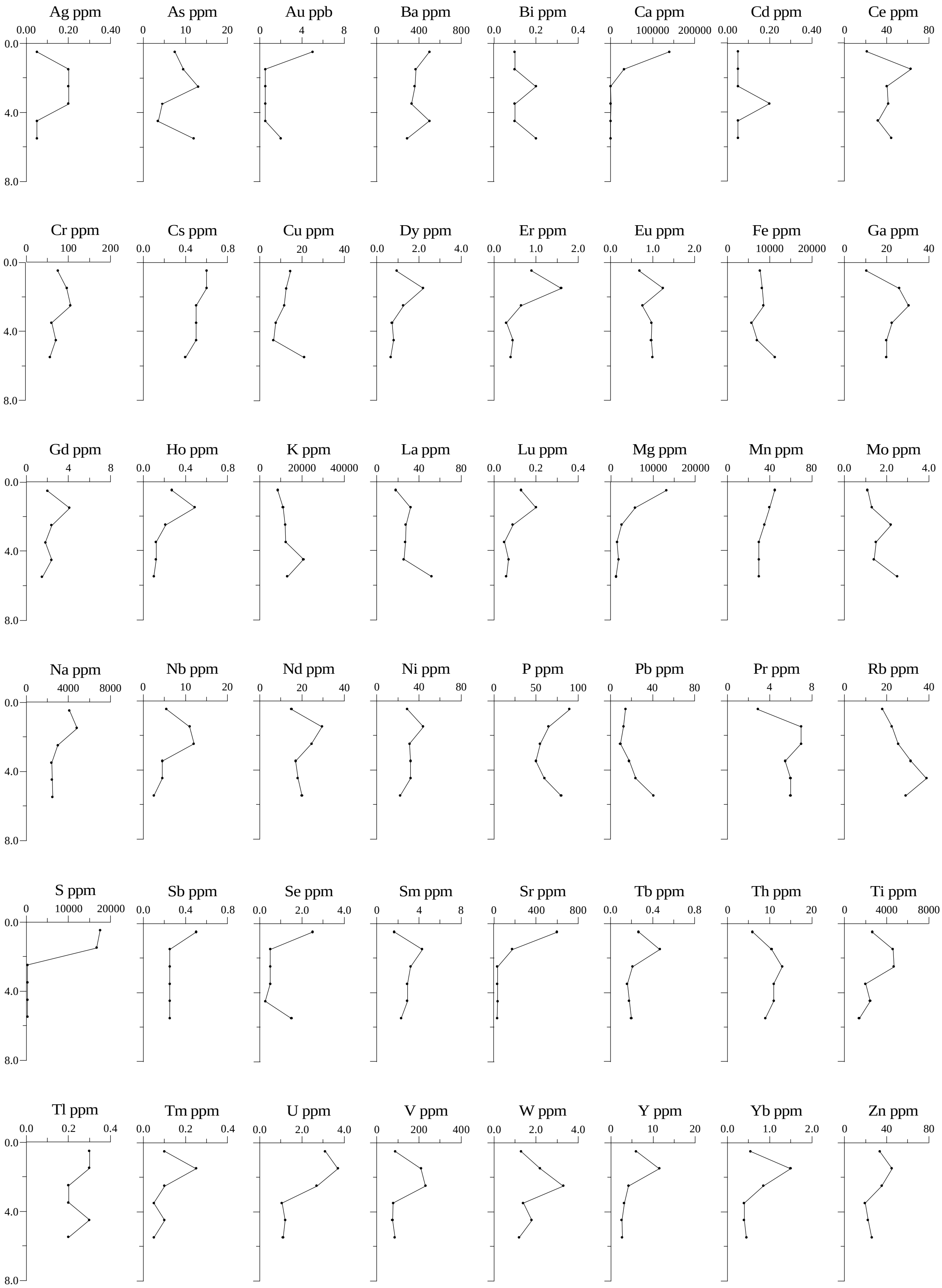

Figure A1.17 : Elemental abundances for 0–6 m RC at MB939 at Birthday.
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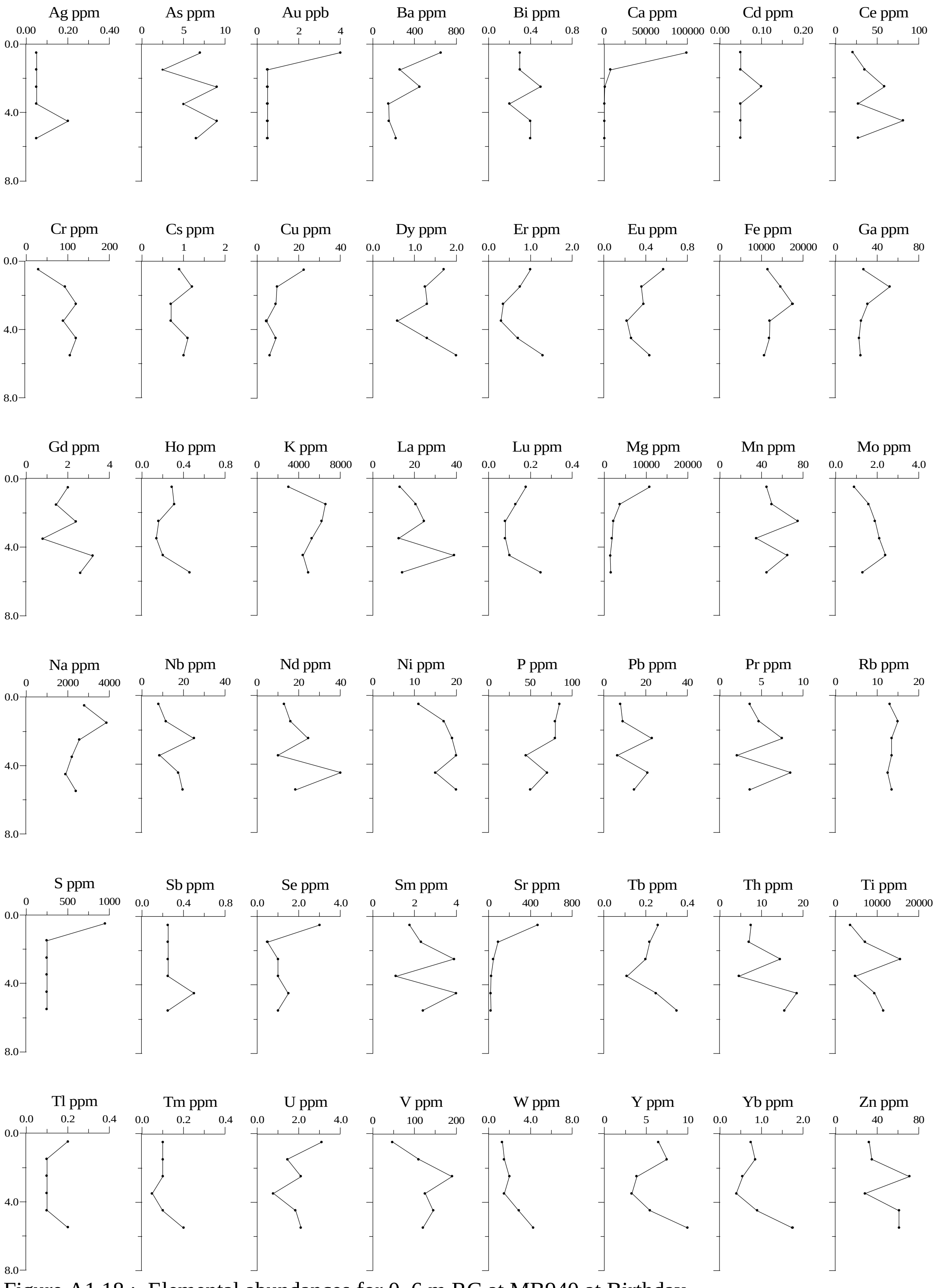

Figure A1.18 : Elemental abundances for 0–6 m RC at MB940 at Birthday.
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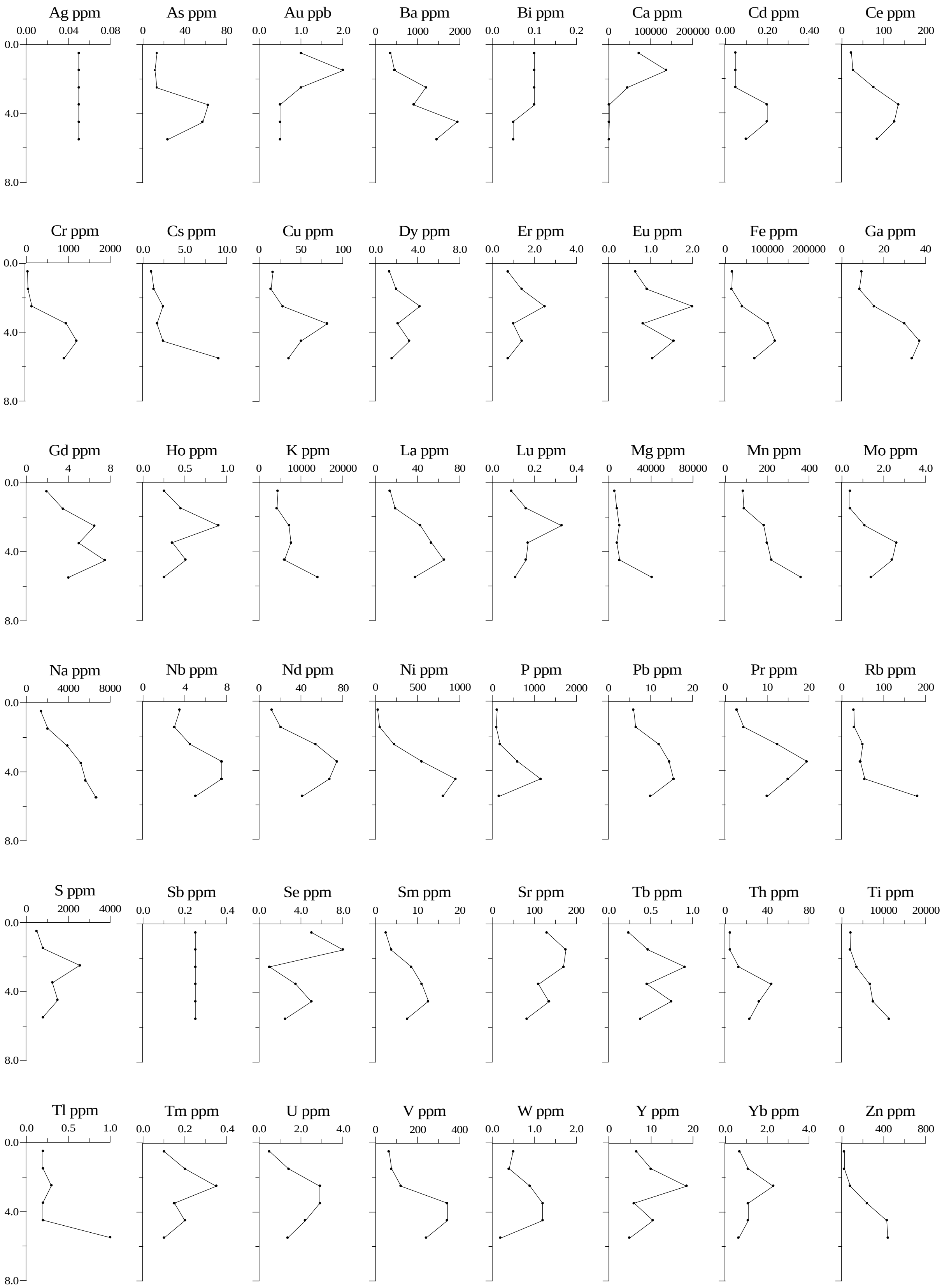

Figure A1.19 : Elemental abundances for 0–6 m RC at MB1028 at Birthday.
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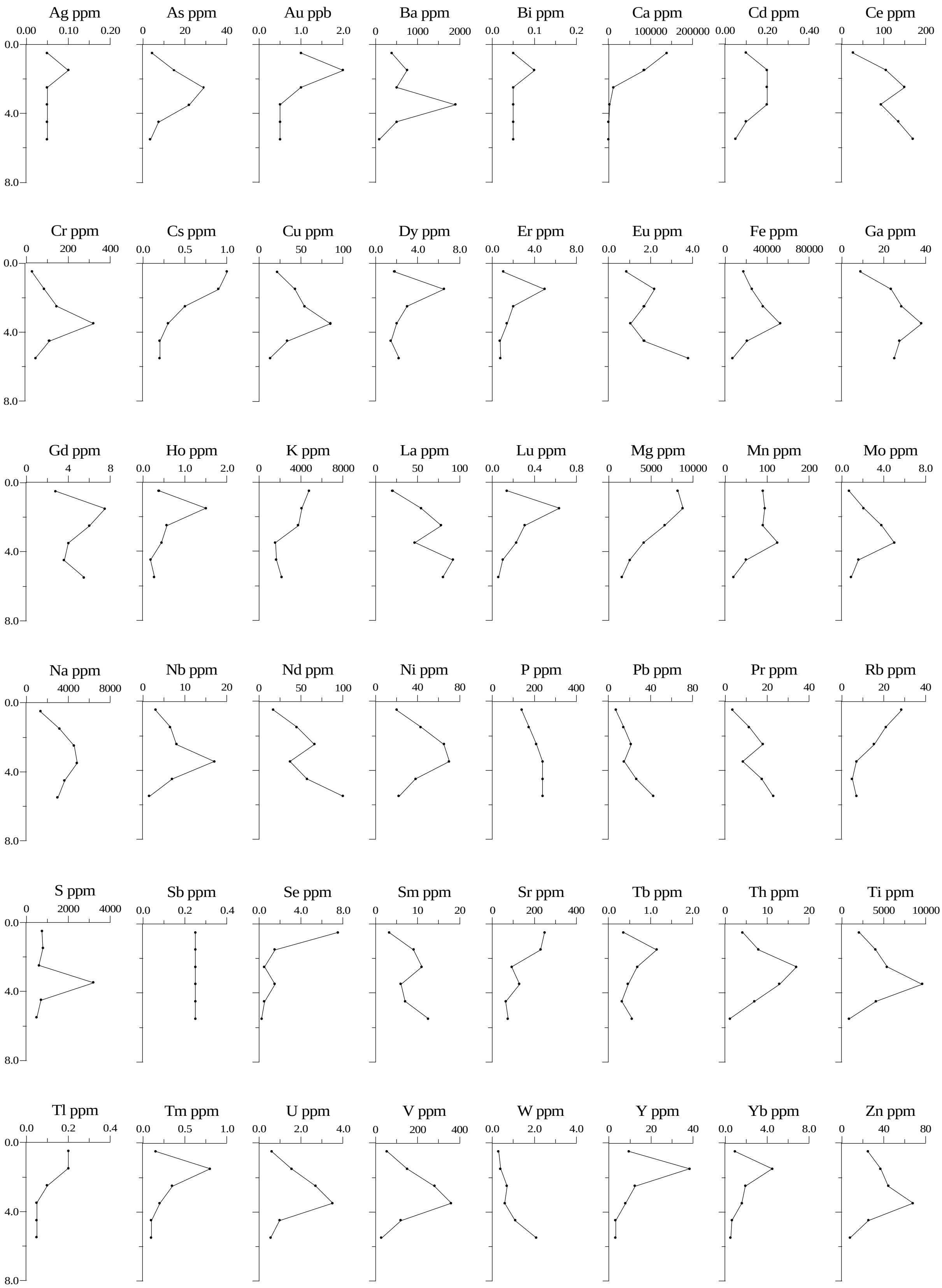

Figure A1.20 : Elemental abundances for 0–6 m RC at MB1030 at Birthday.
Y axis is Depth (m).

APPENDIX 2

Appendix 2: Graphed elemental data for all regolith line samples plotted by element.

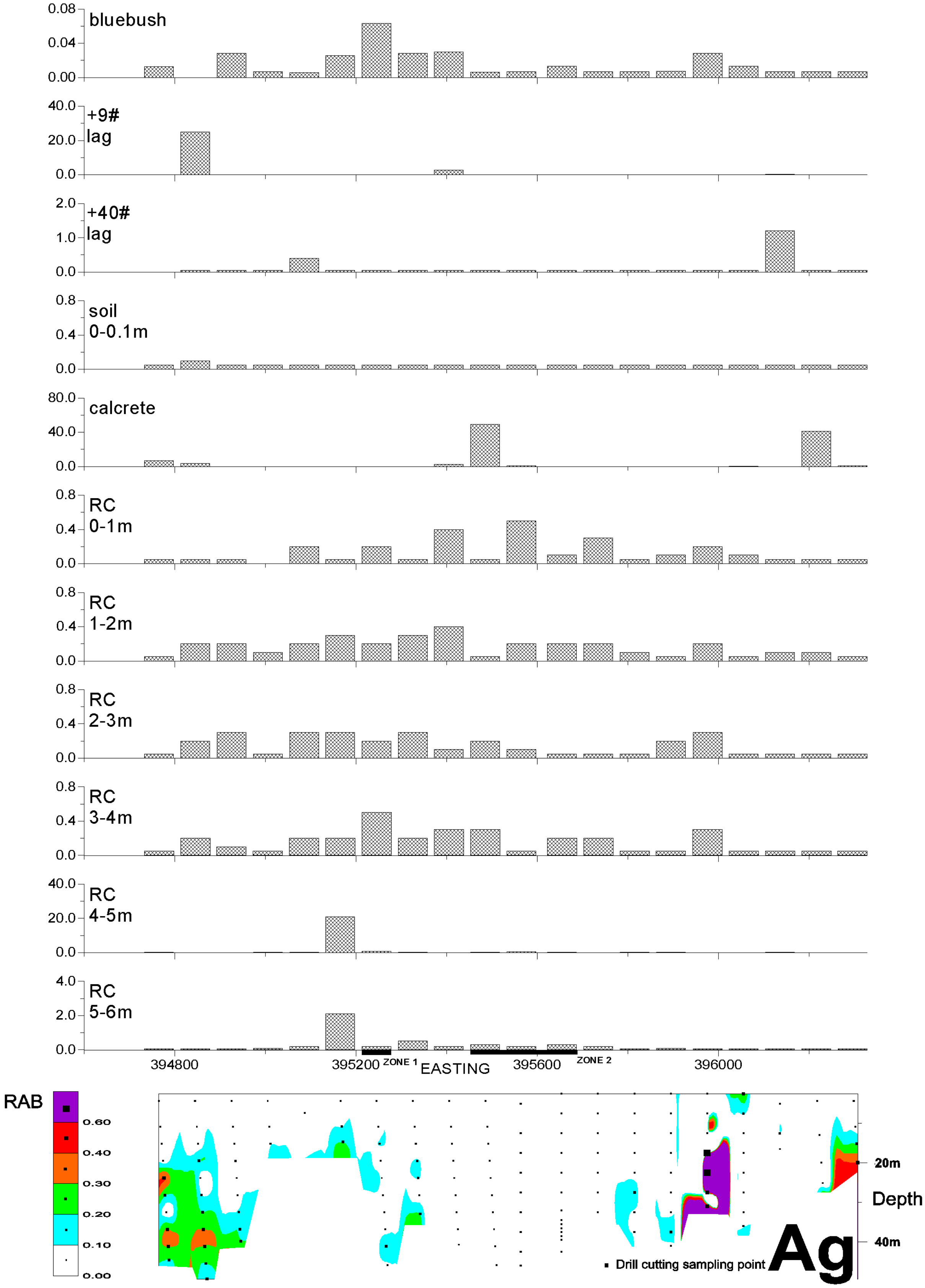

Figure A2.1: Ag distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

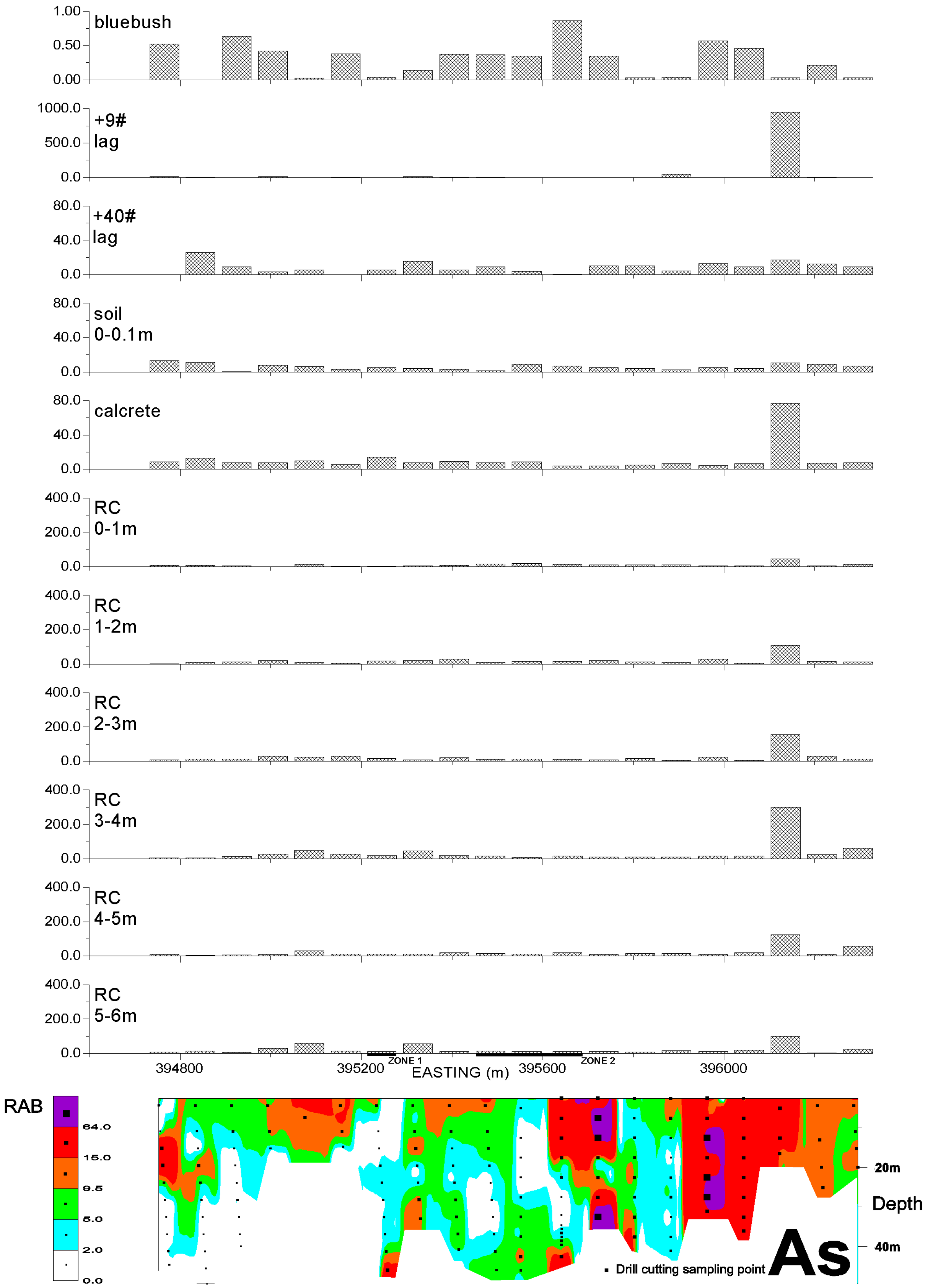

Figure A2.2a: As distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

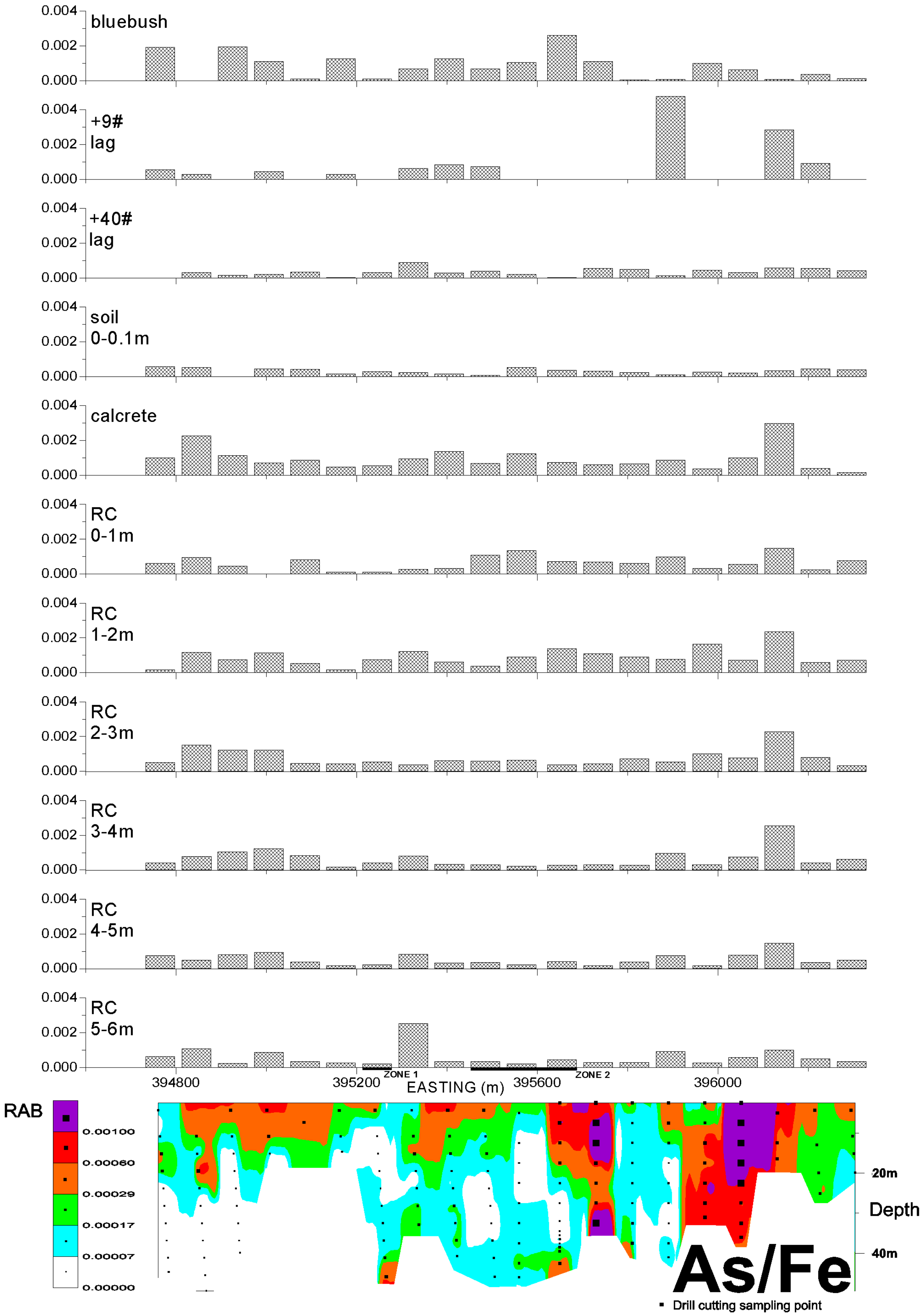

Figure A2.2b: As/Fe distributions in vegetation and regolith components.
Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

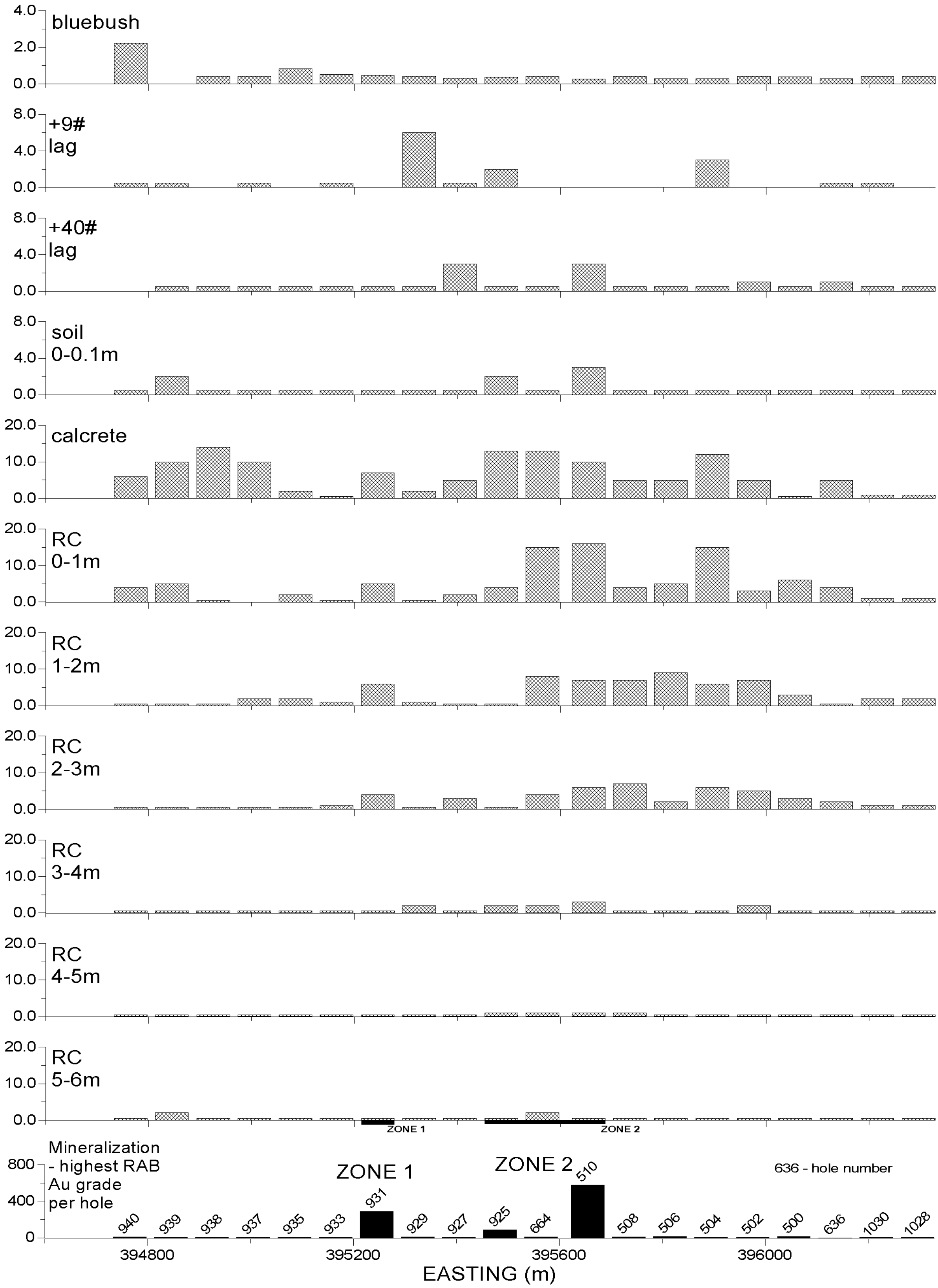

Figure A2.3a: Au distributions in vegetation and regolith components.
Data in ppb. Black rectangles (Zones 1–2) locate mineralisation.

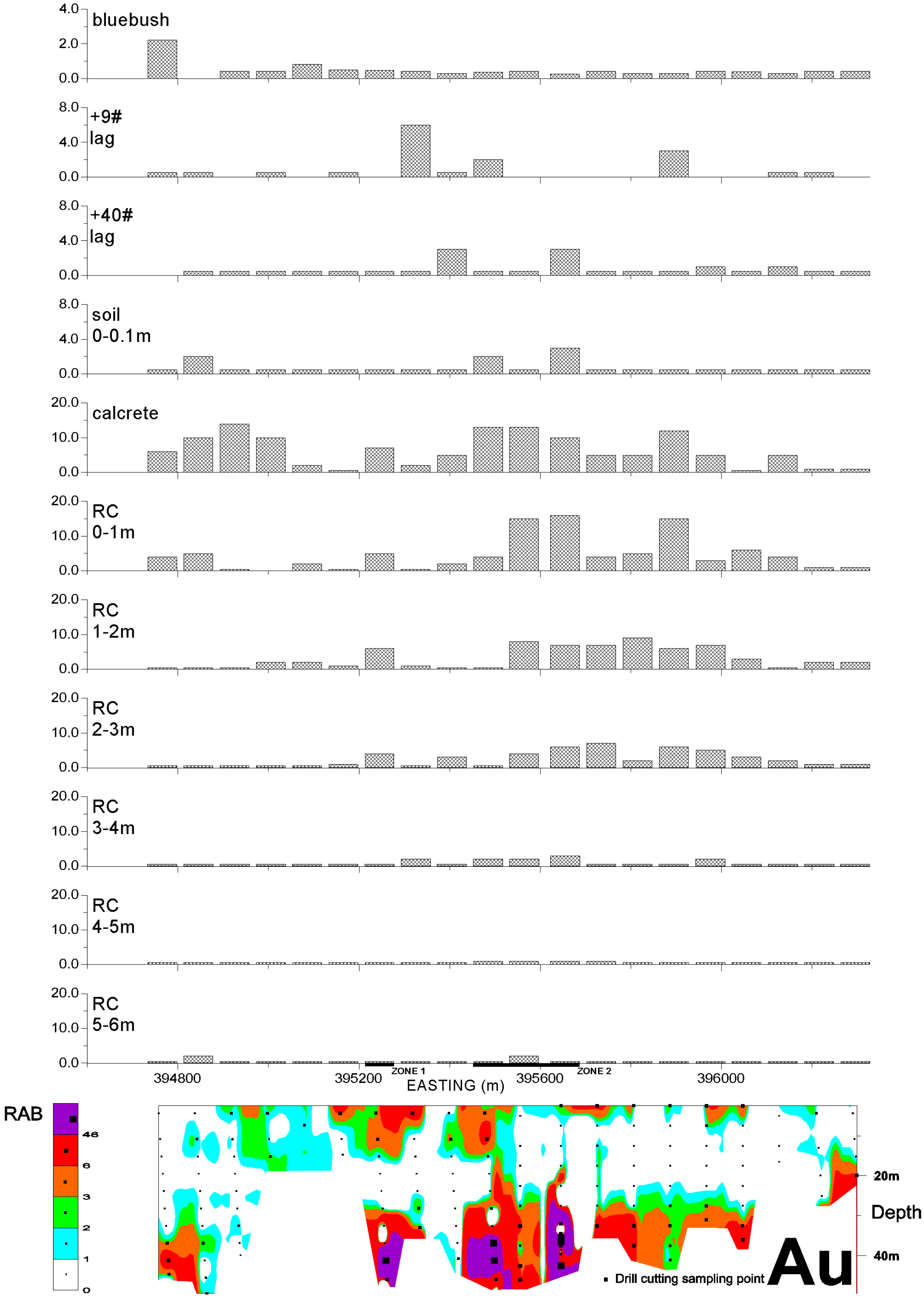

Figure A2.3b: Au distributions in vegetation and regolith components.
Data in ppb. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

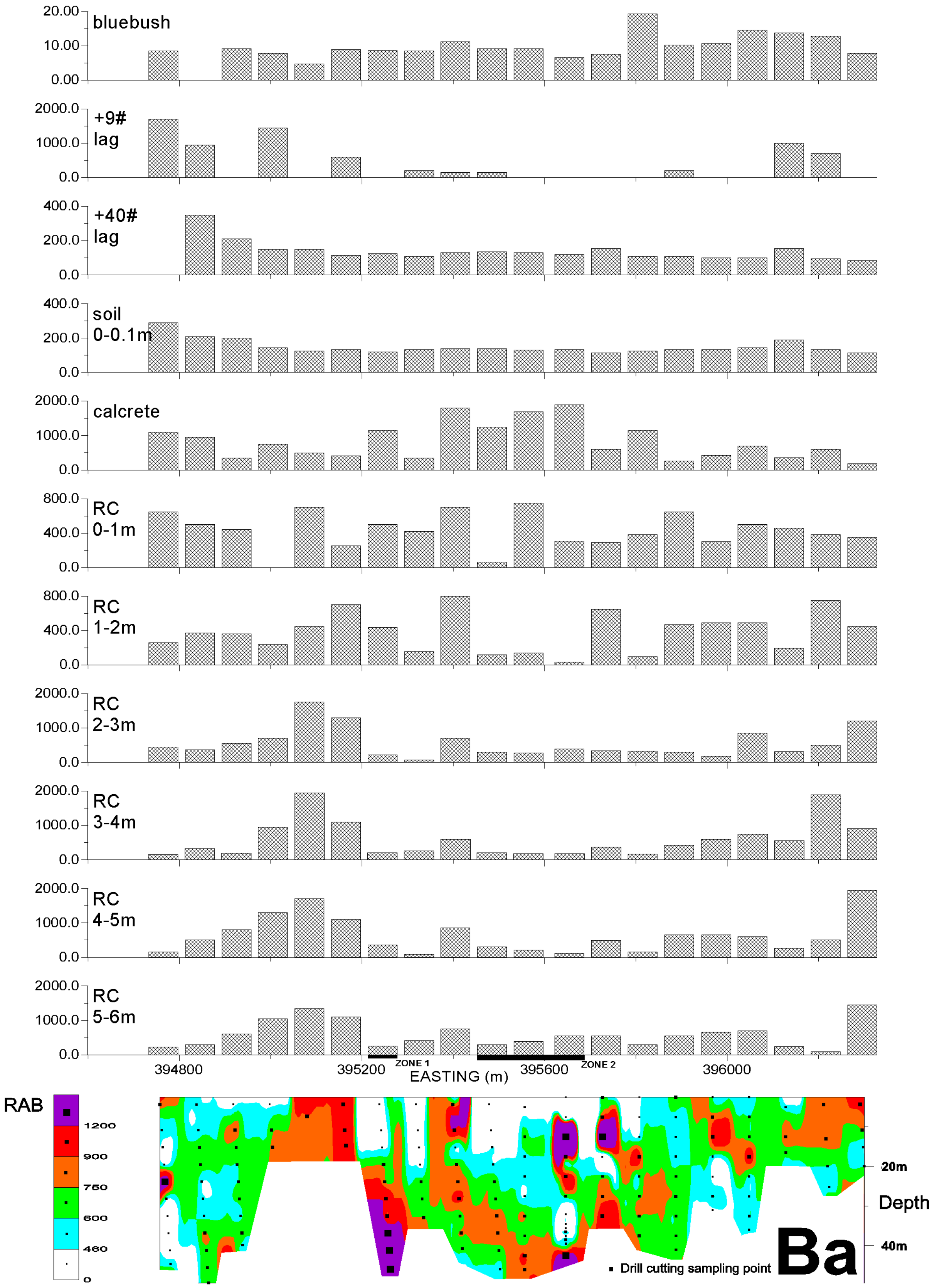

Figure A2.4: Ba distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

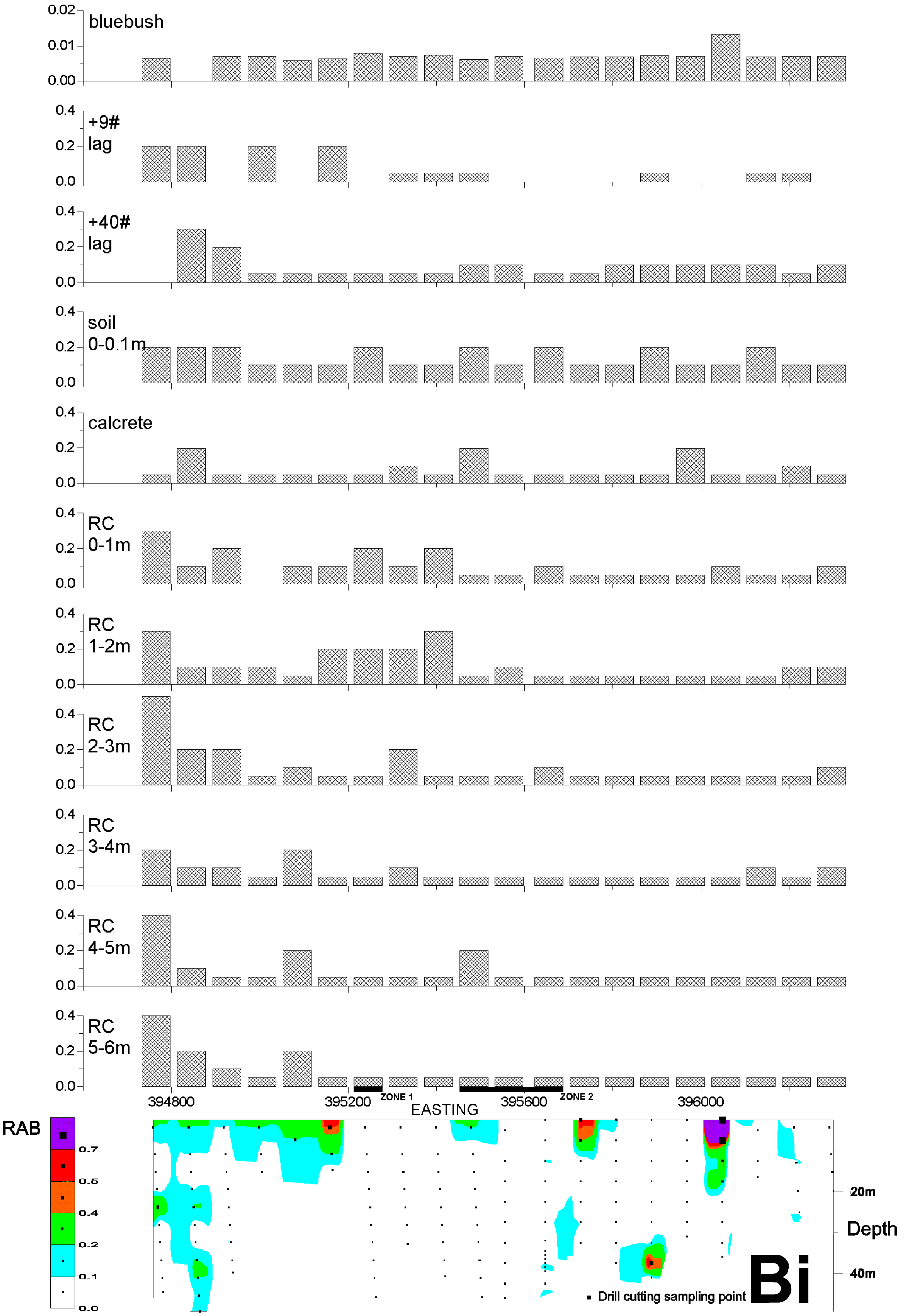

Figure A2.5: Bi distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

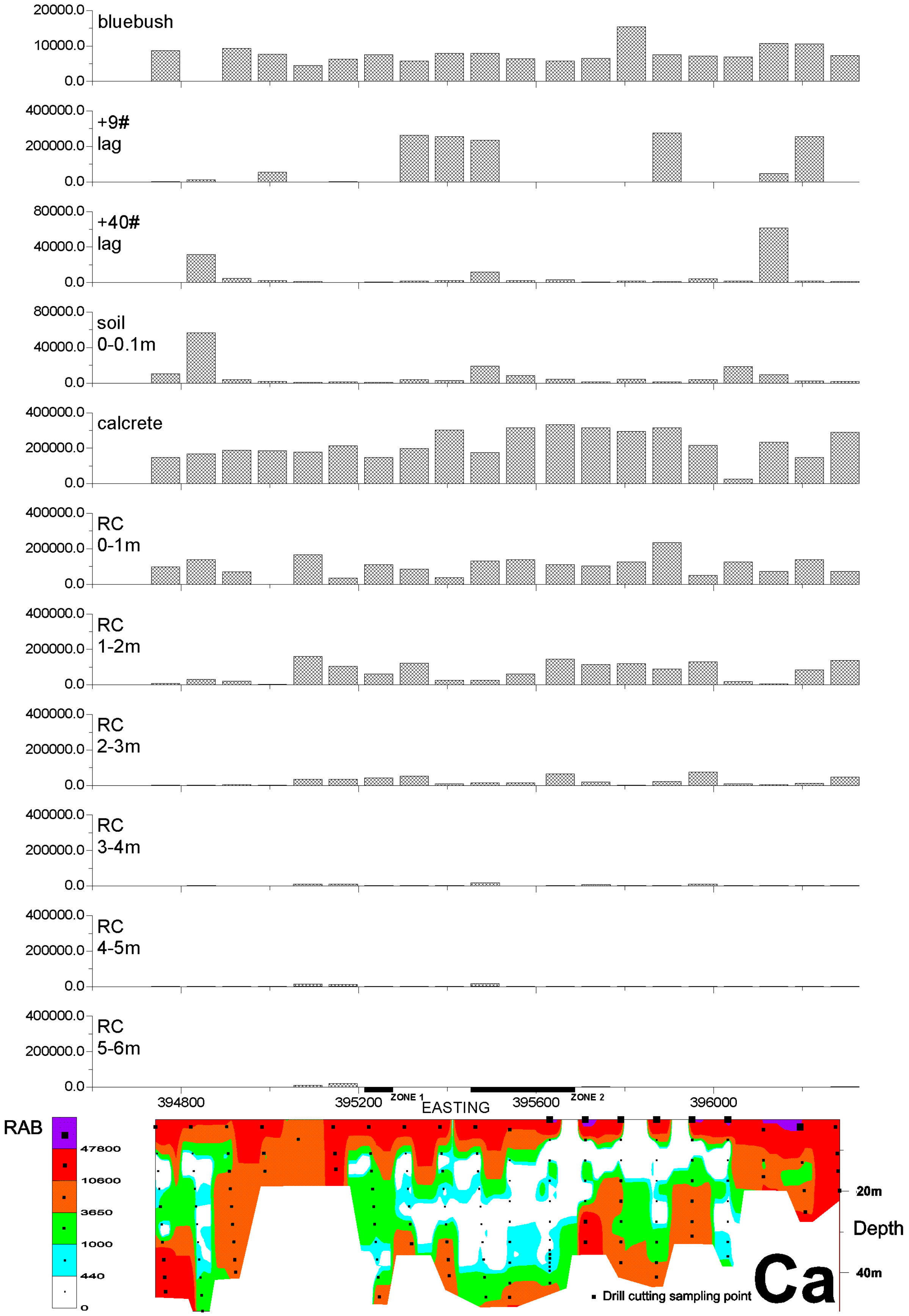

Figure A2.6: Ca distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

Figure A2.7: Cd distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

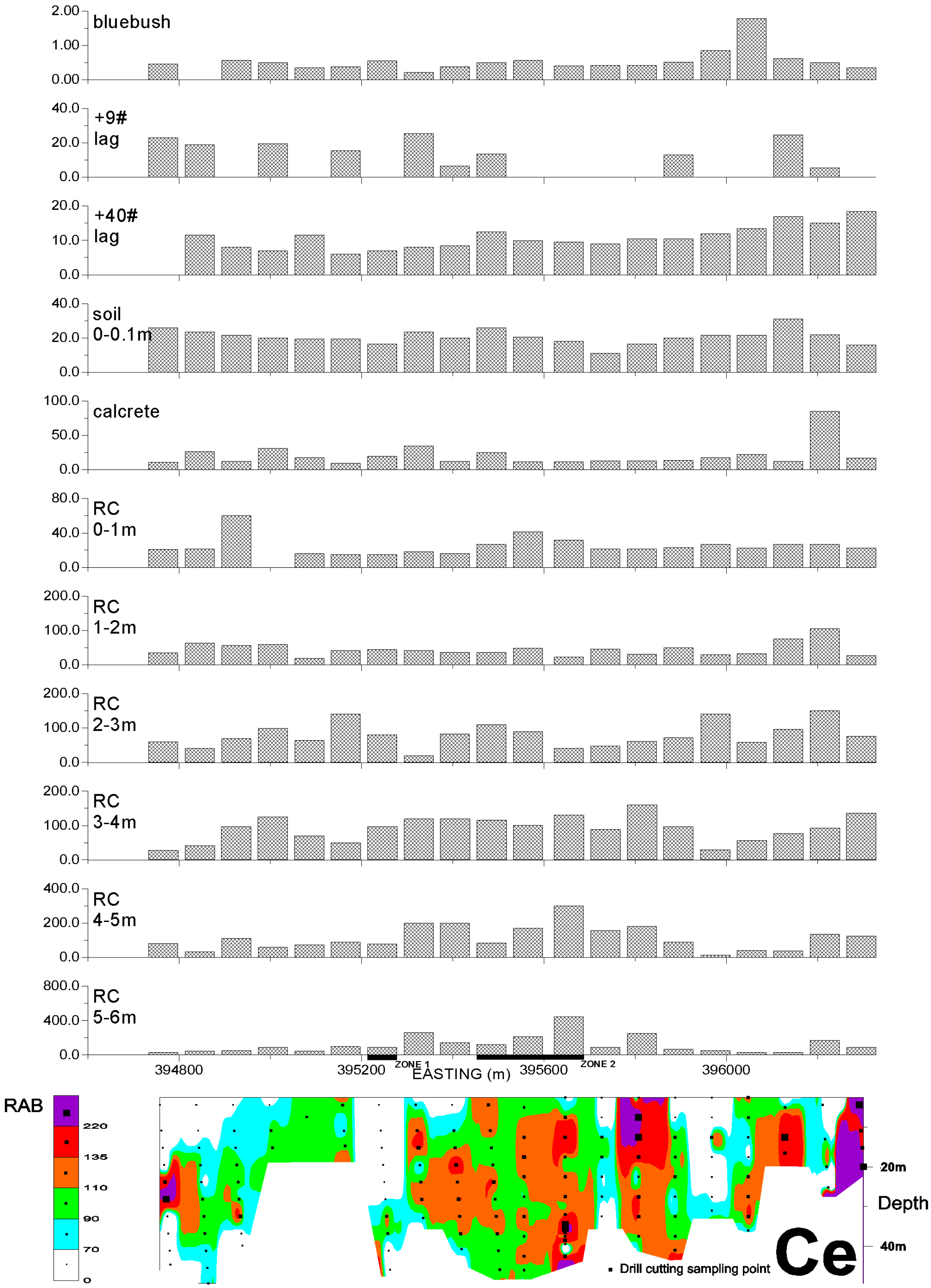

Figure A2.8: Ce distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

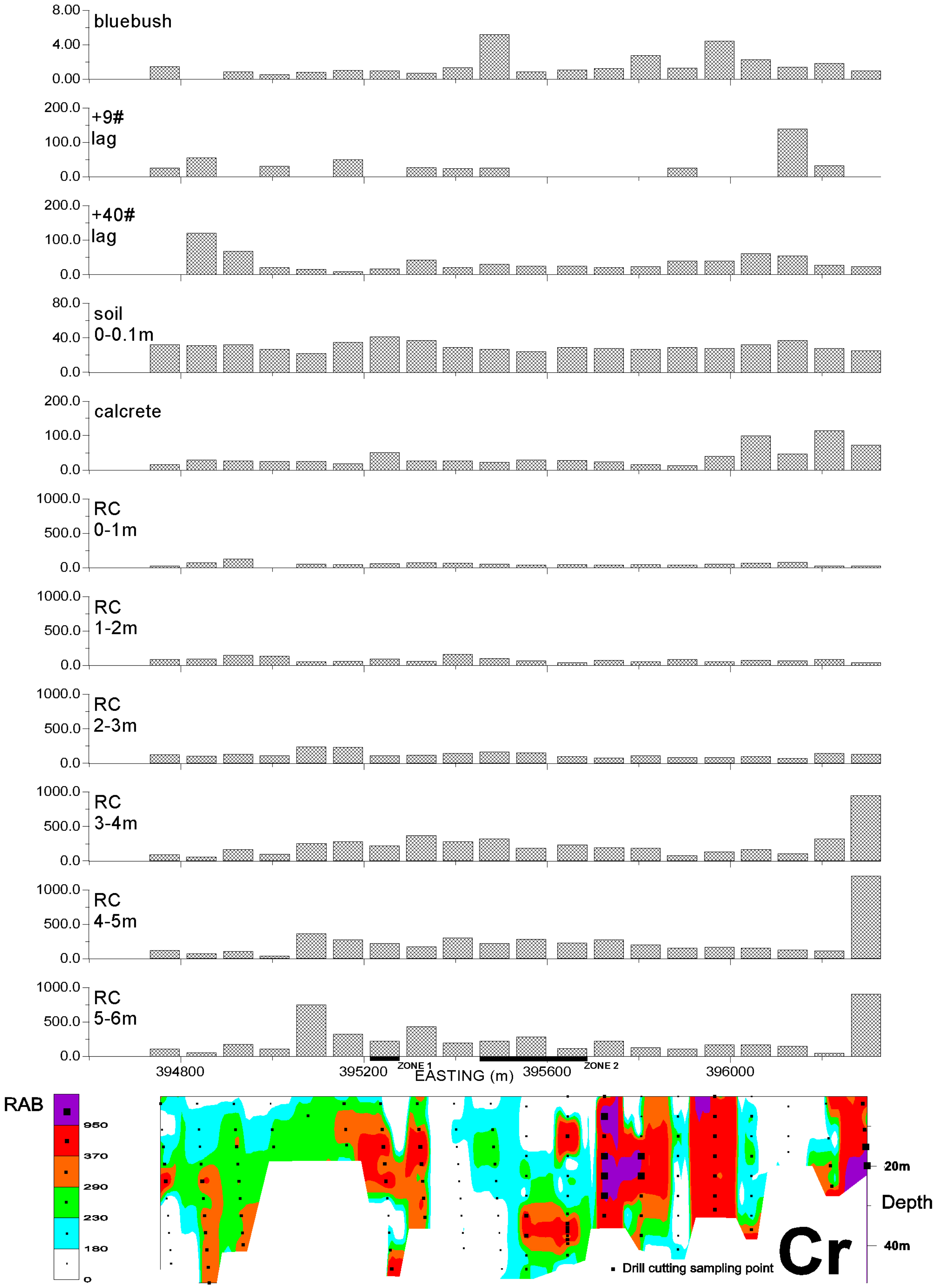

Figure A2.9a: Cr distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

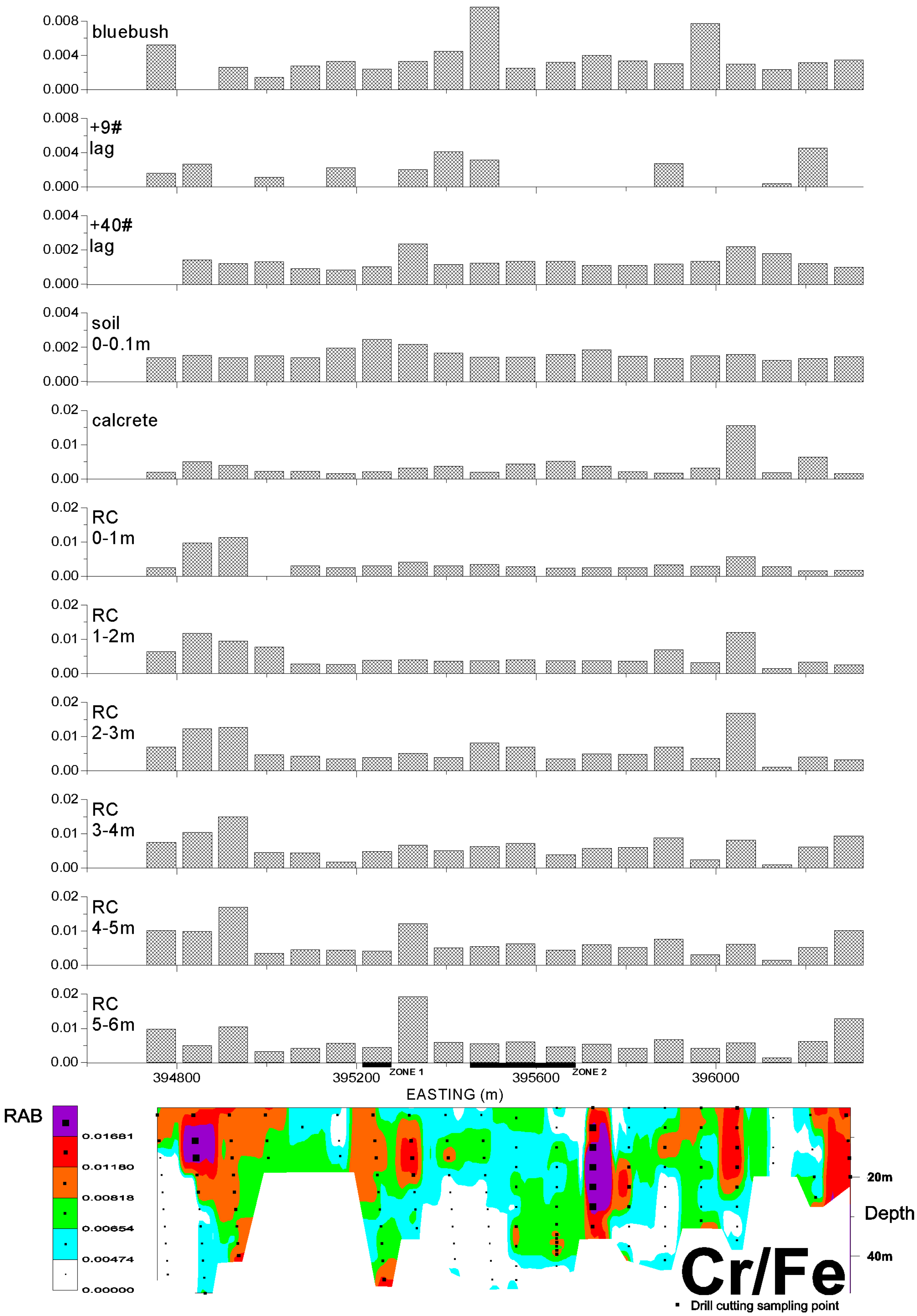

Figure A2.9b: Cr/Fe normalised distributions in vegetation and regolith components.
Data in %. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

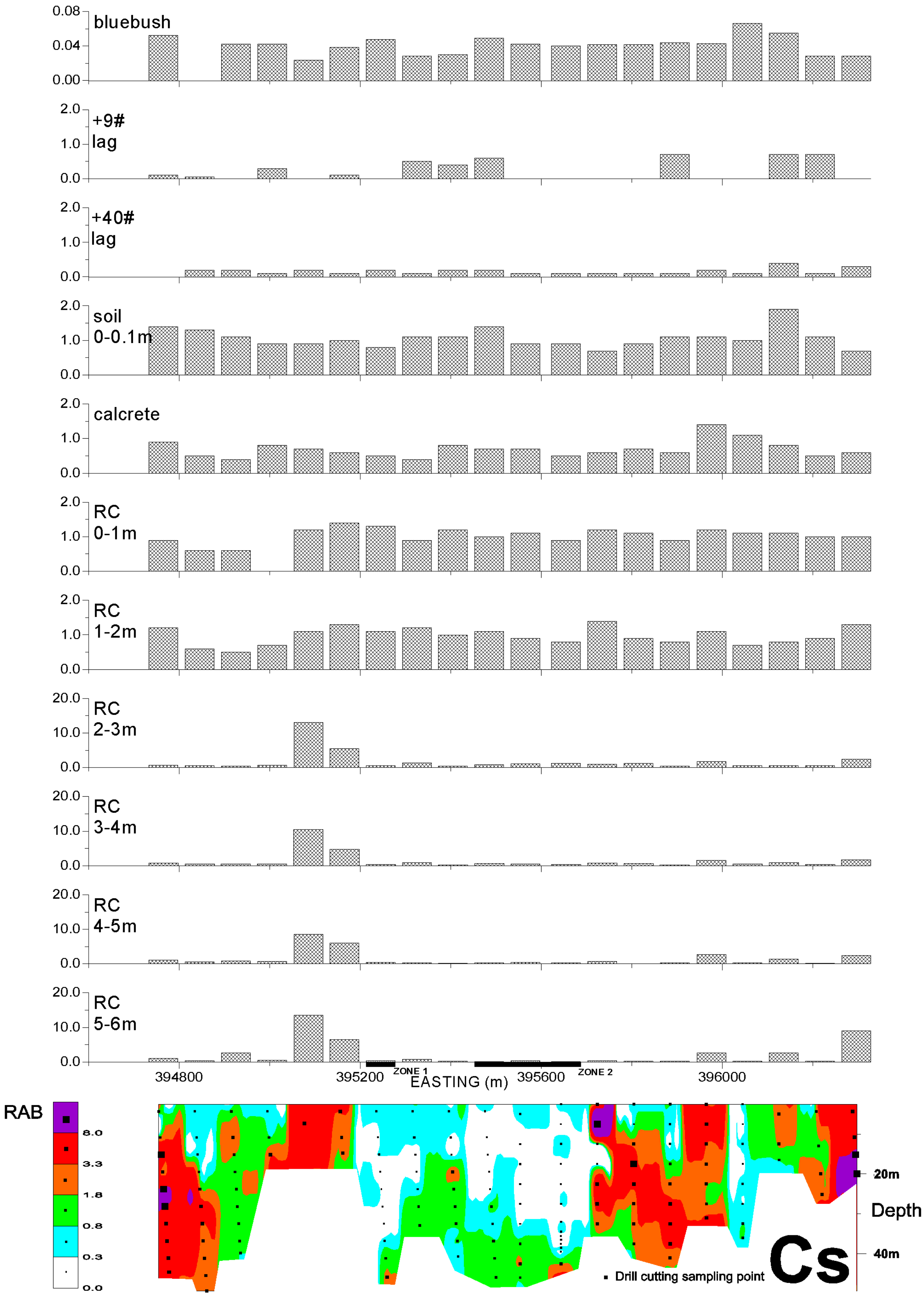

Figure A2.10: Cs distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

Figure A2.11a: Cu distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

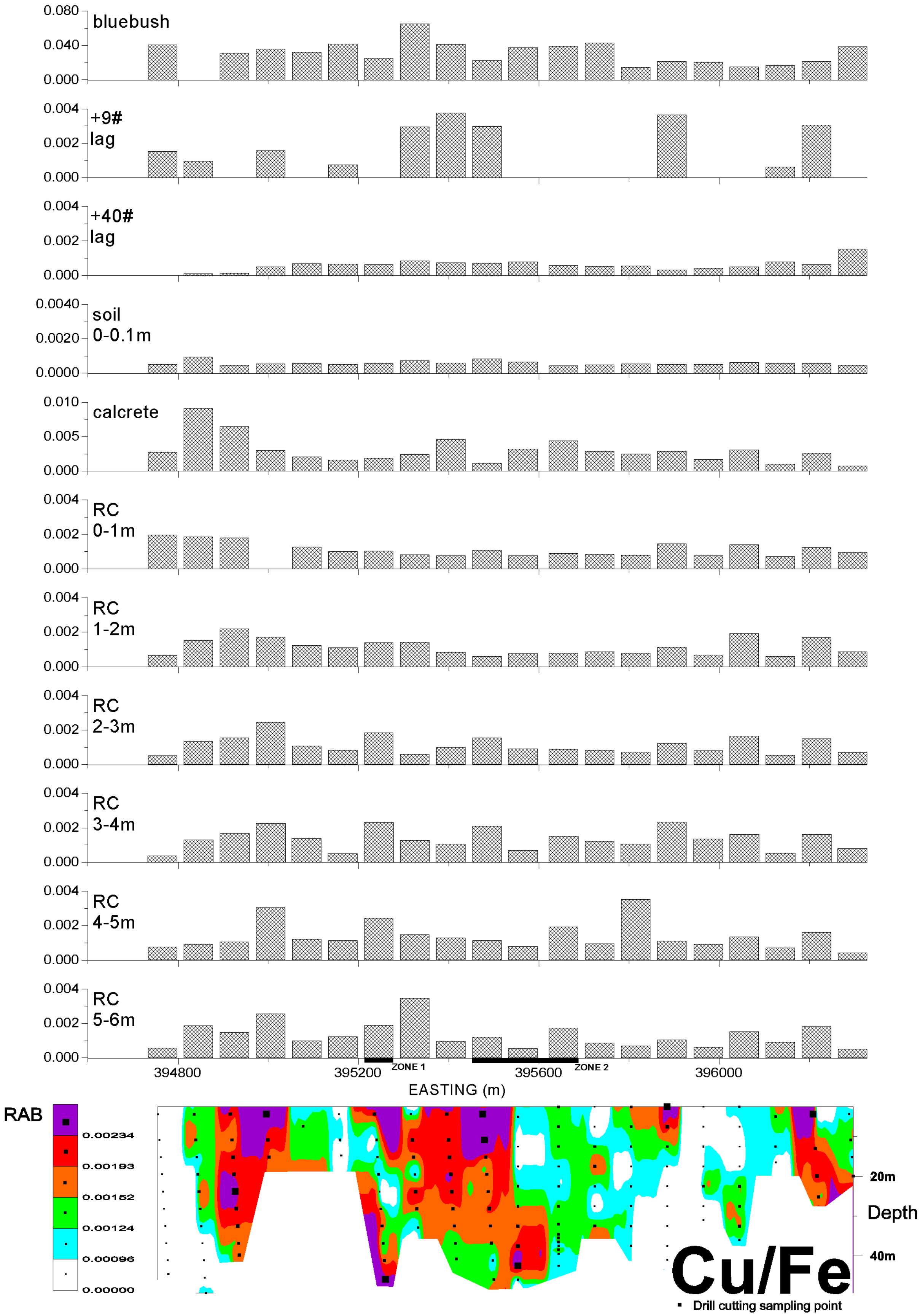

Figure A2.11b: Cr/Fe normalised distributions in vegetation and regolith components.
Data in %. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

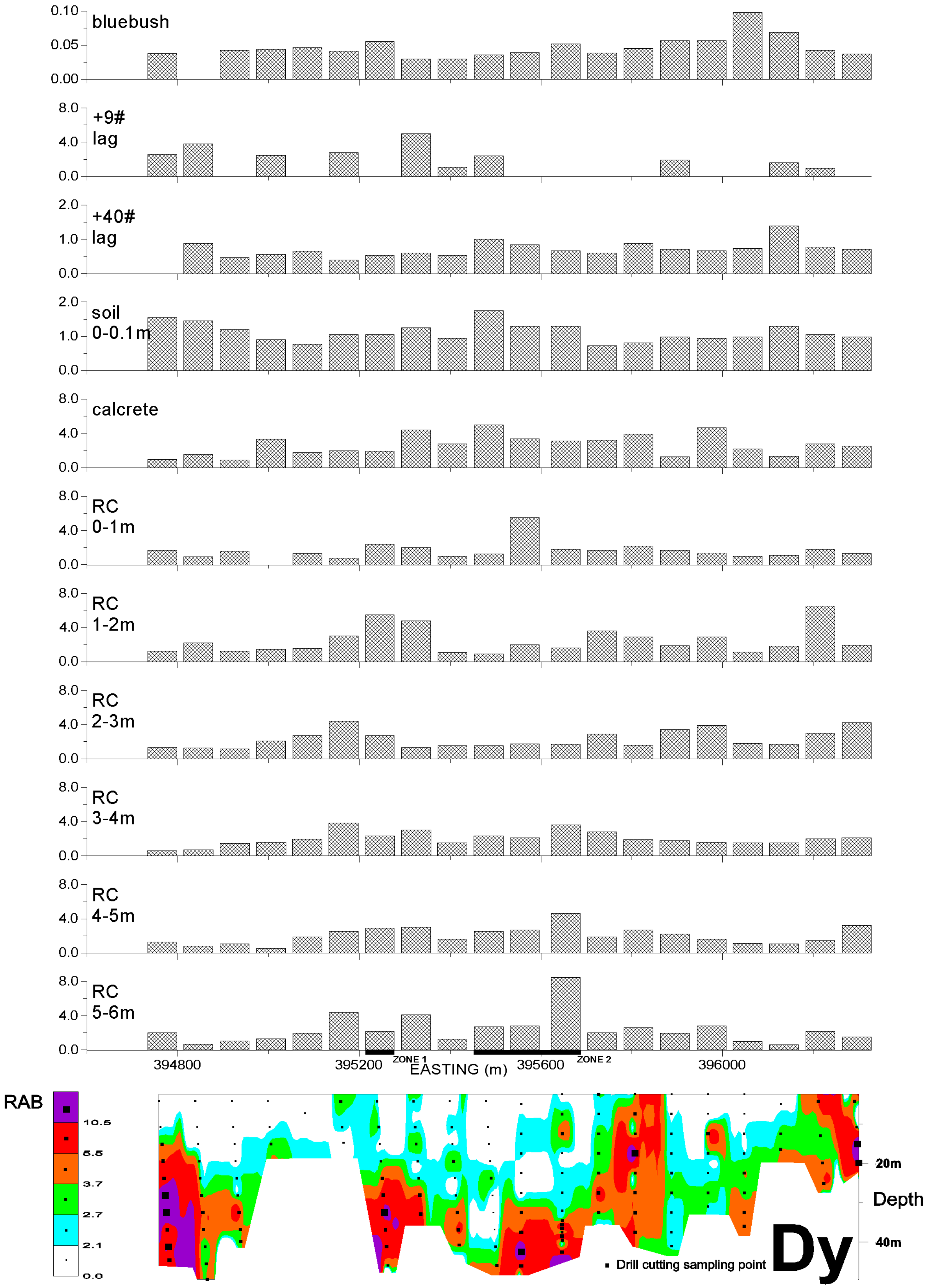

Figure A2.12: Dy distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

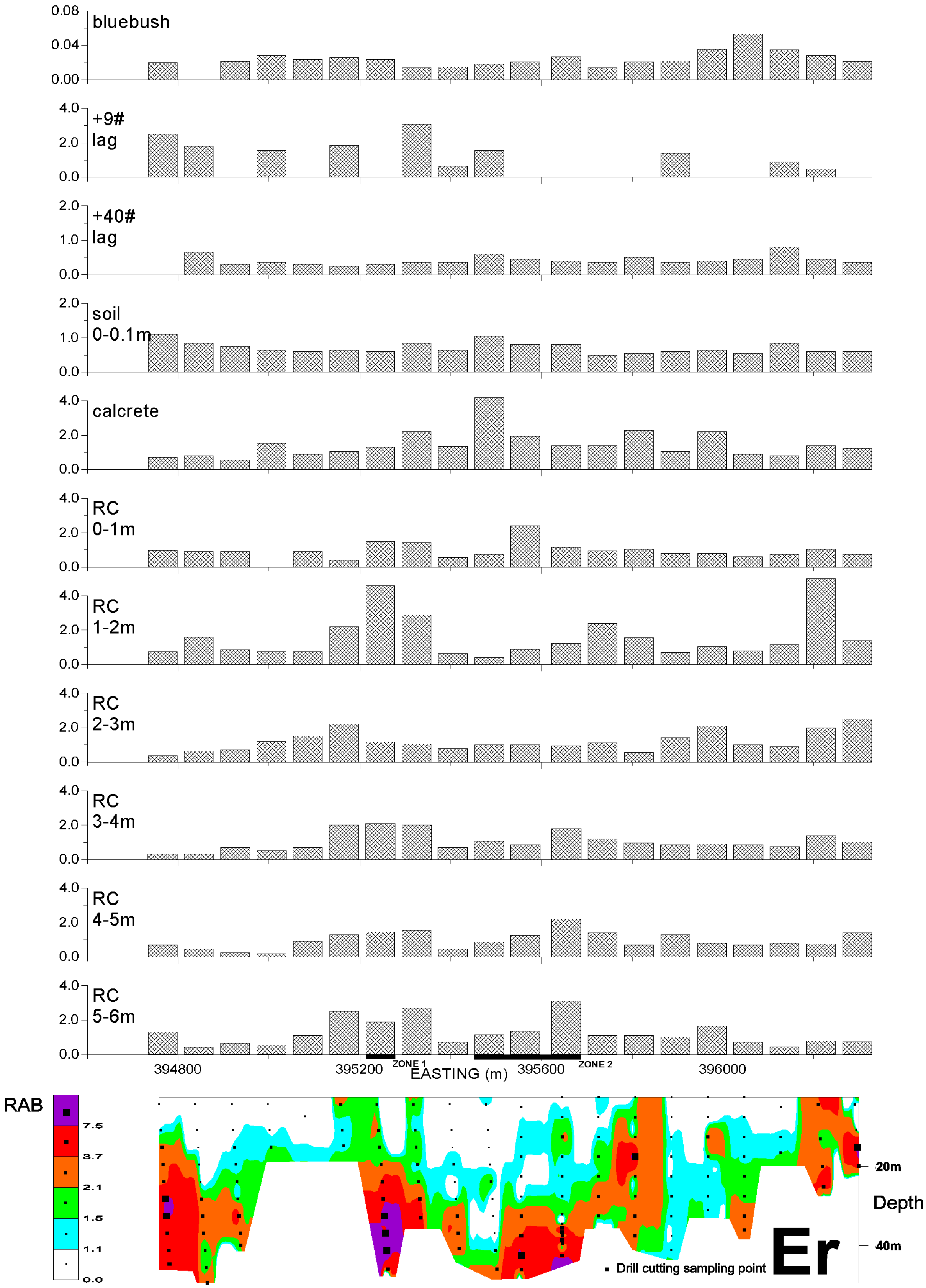

Figure A2.13: Er distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

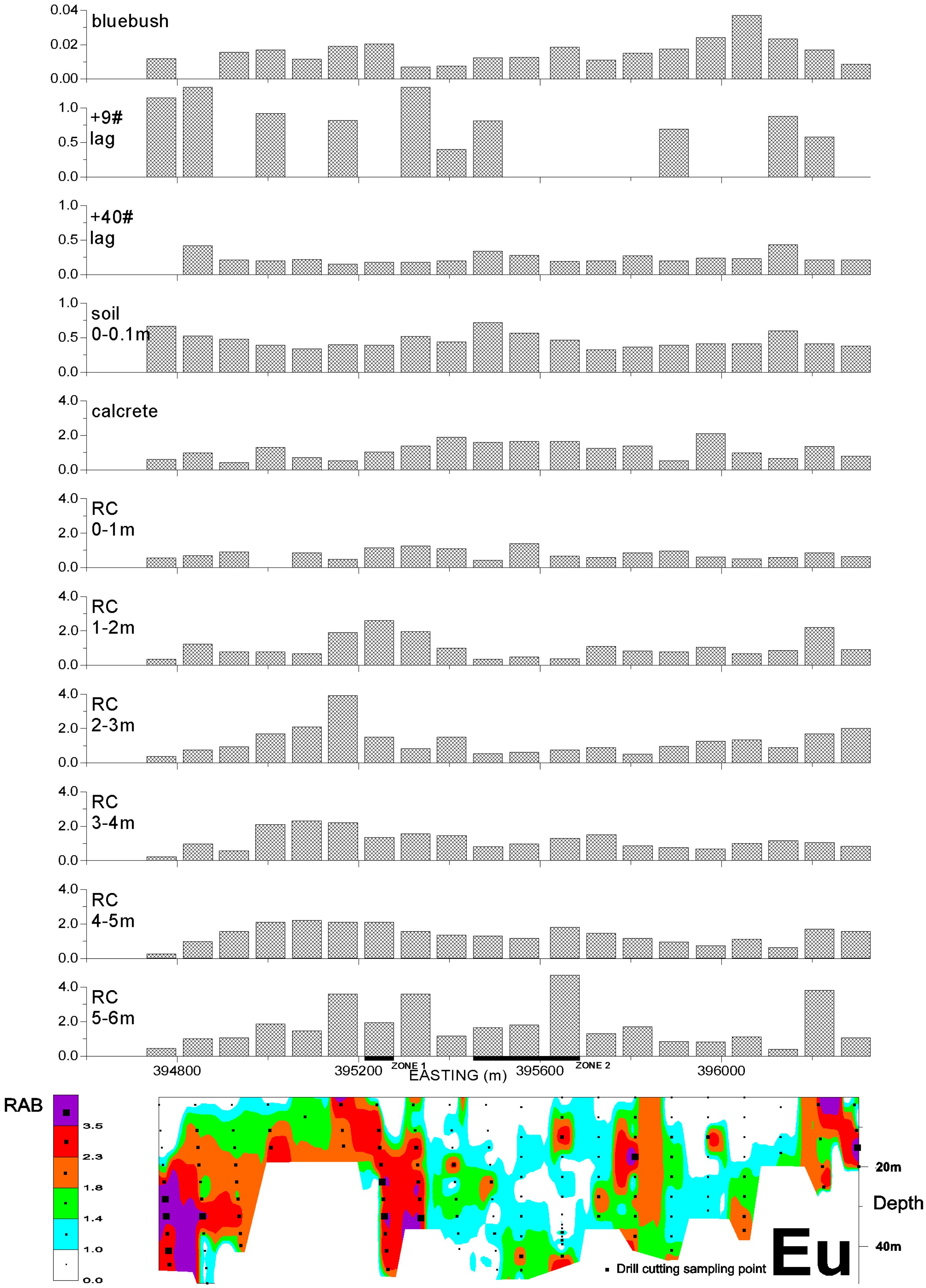

Figure A2.14: Eu distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

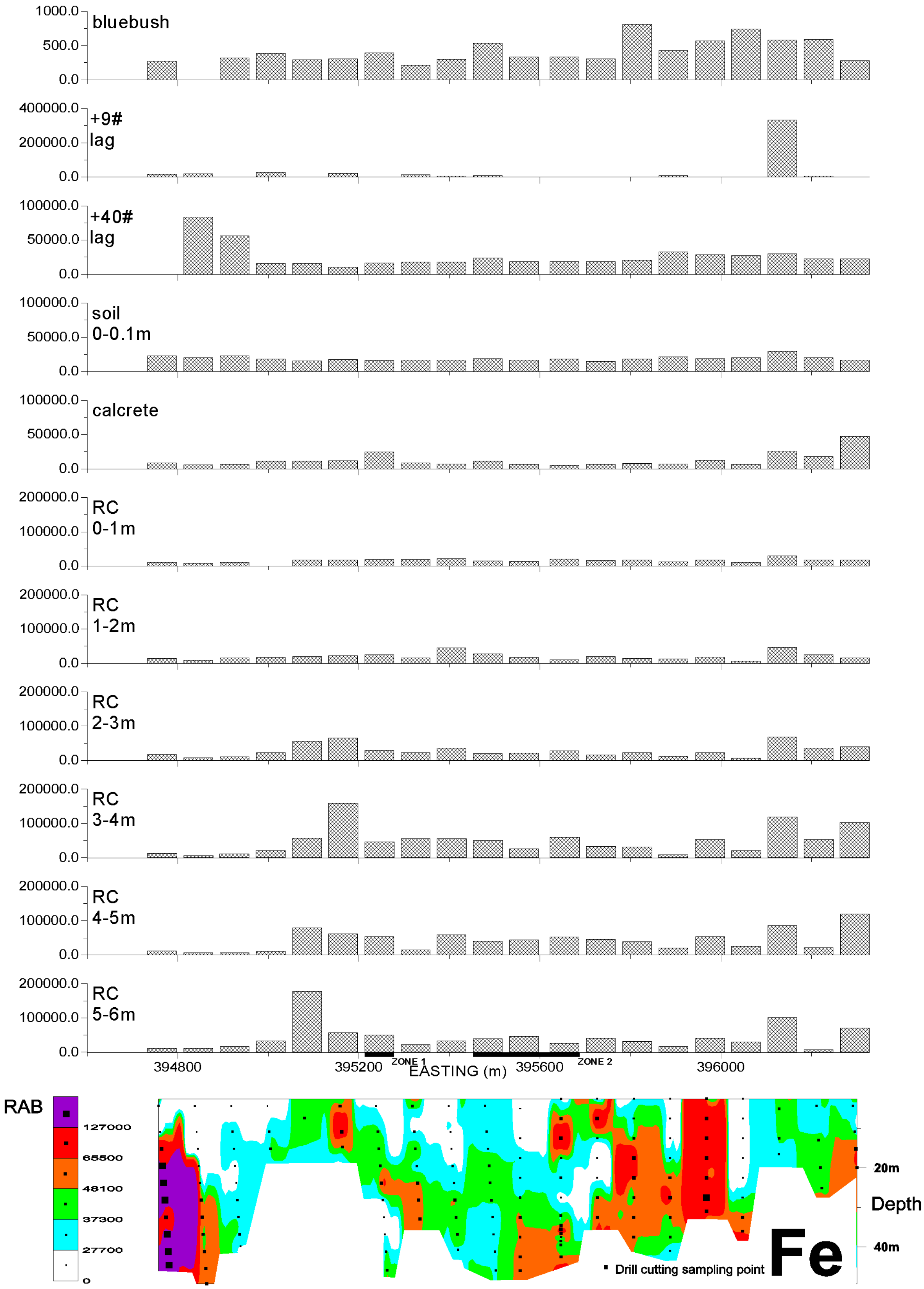

Figure A2.15: Fe distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

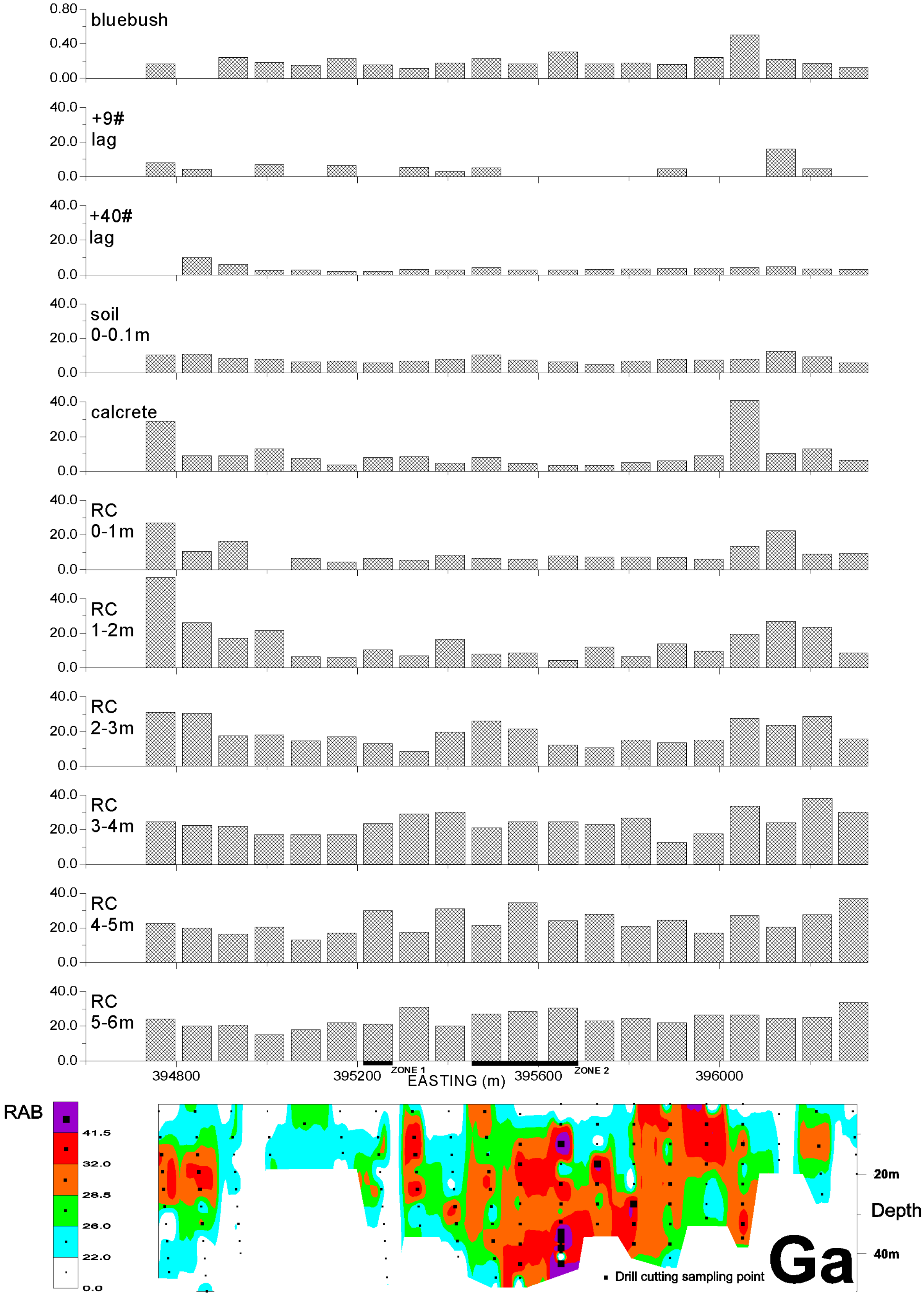

Figure A2.16: Ga distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

Figure A2.17: Gd distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

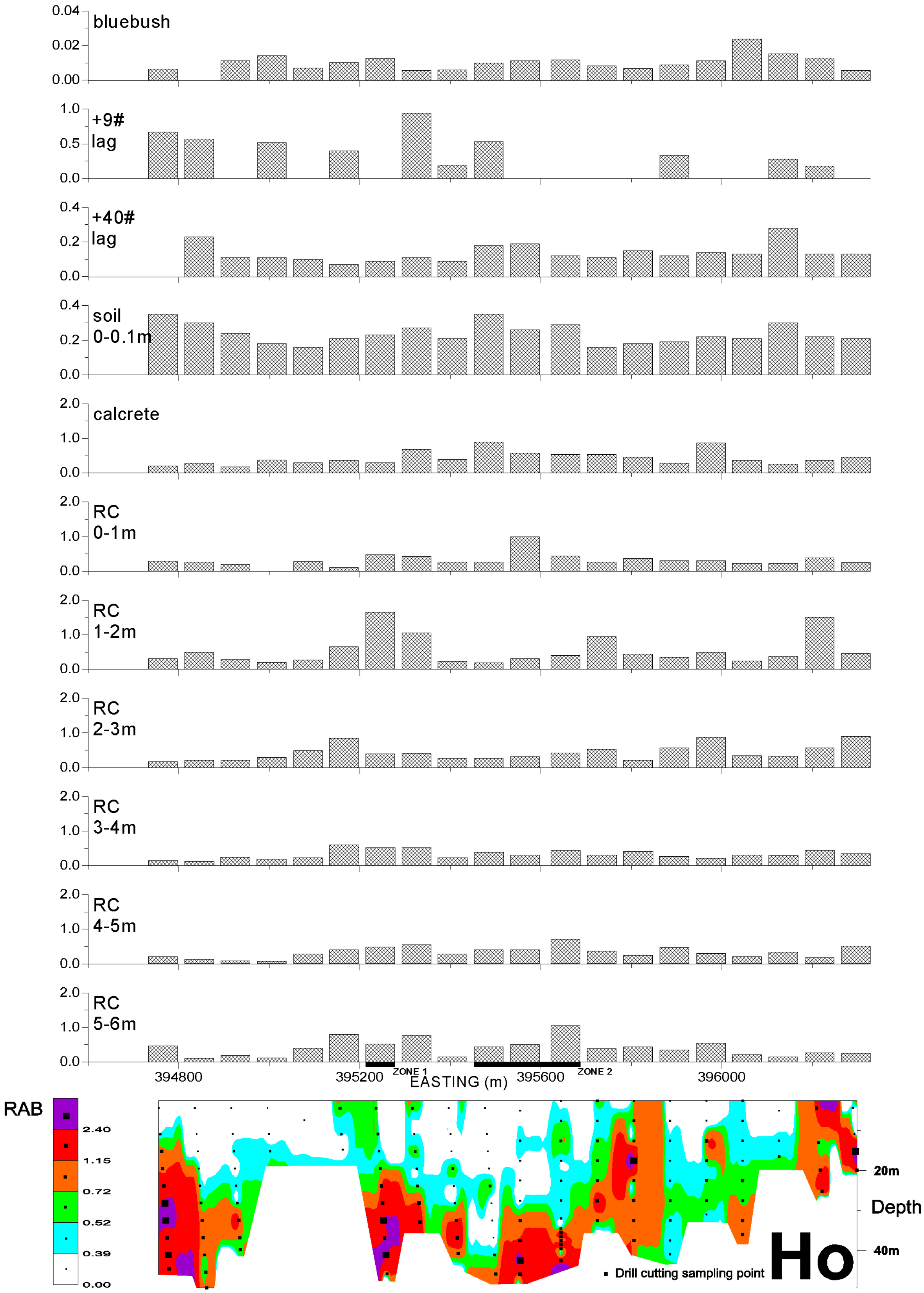

Figure A2.18: Ho distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

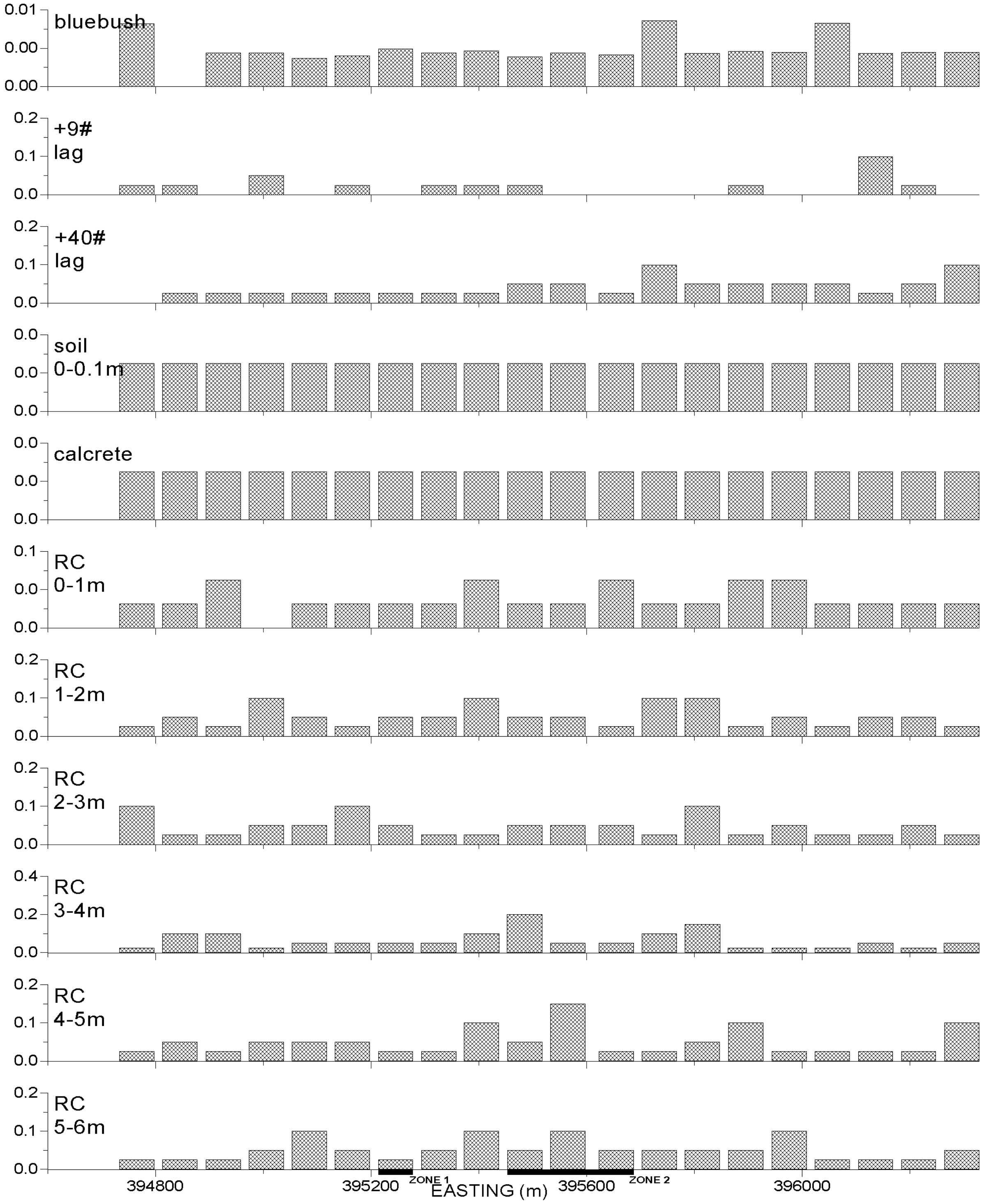

Figure A2.19: In distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.

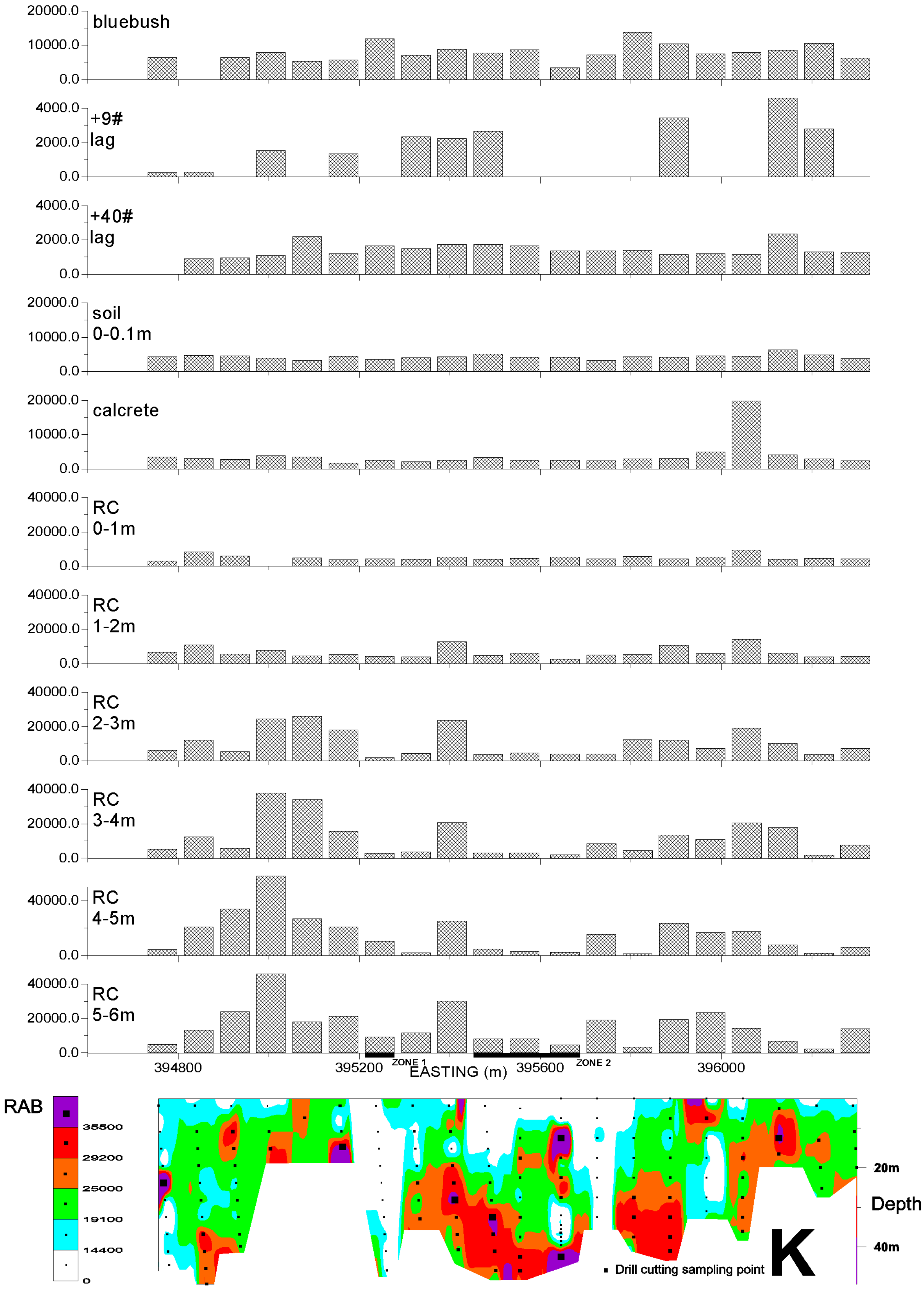

Figure A2.20: K distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

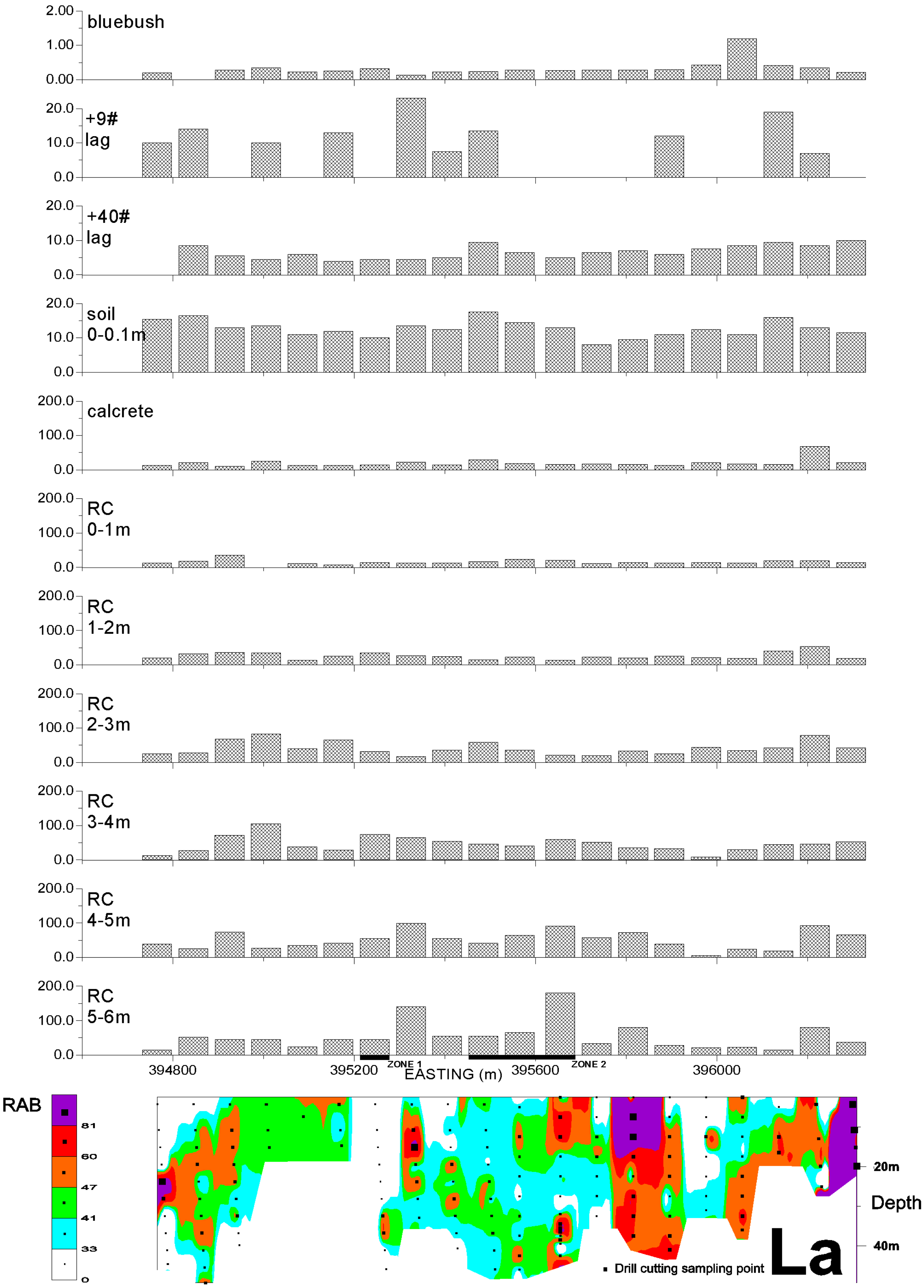

Figure A2.21: La distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

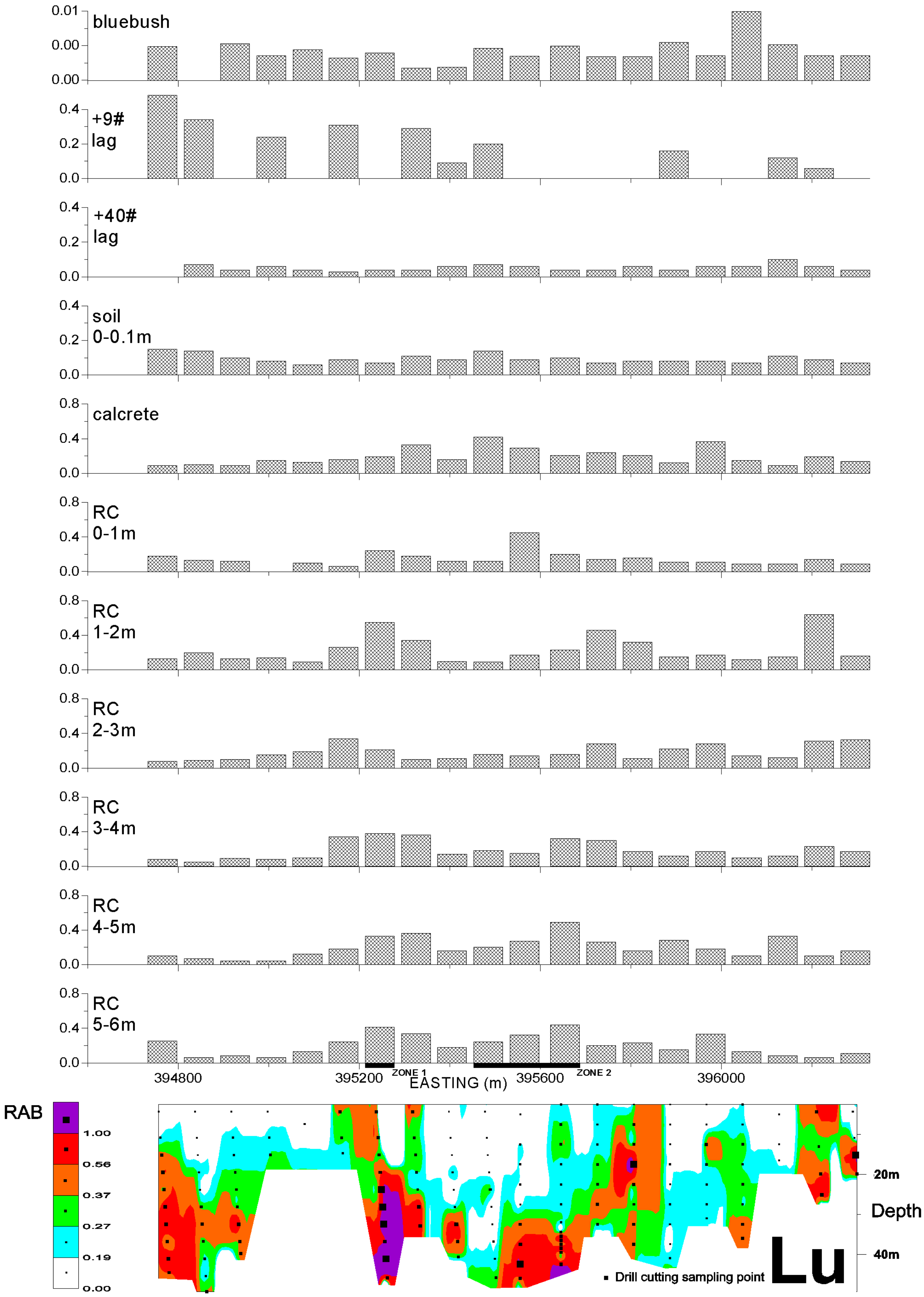

Figure A2.22: Lu distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

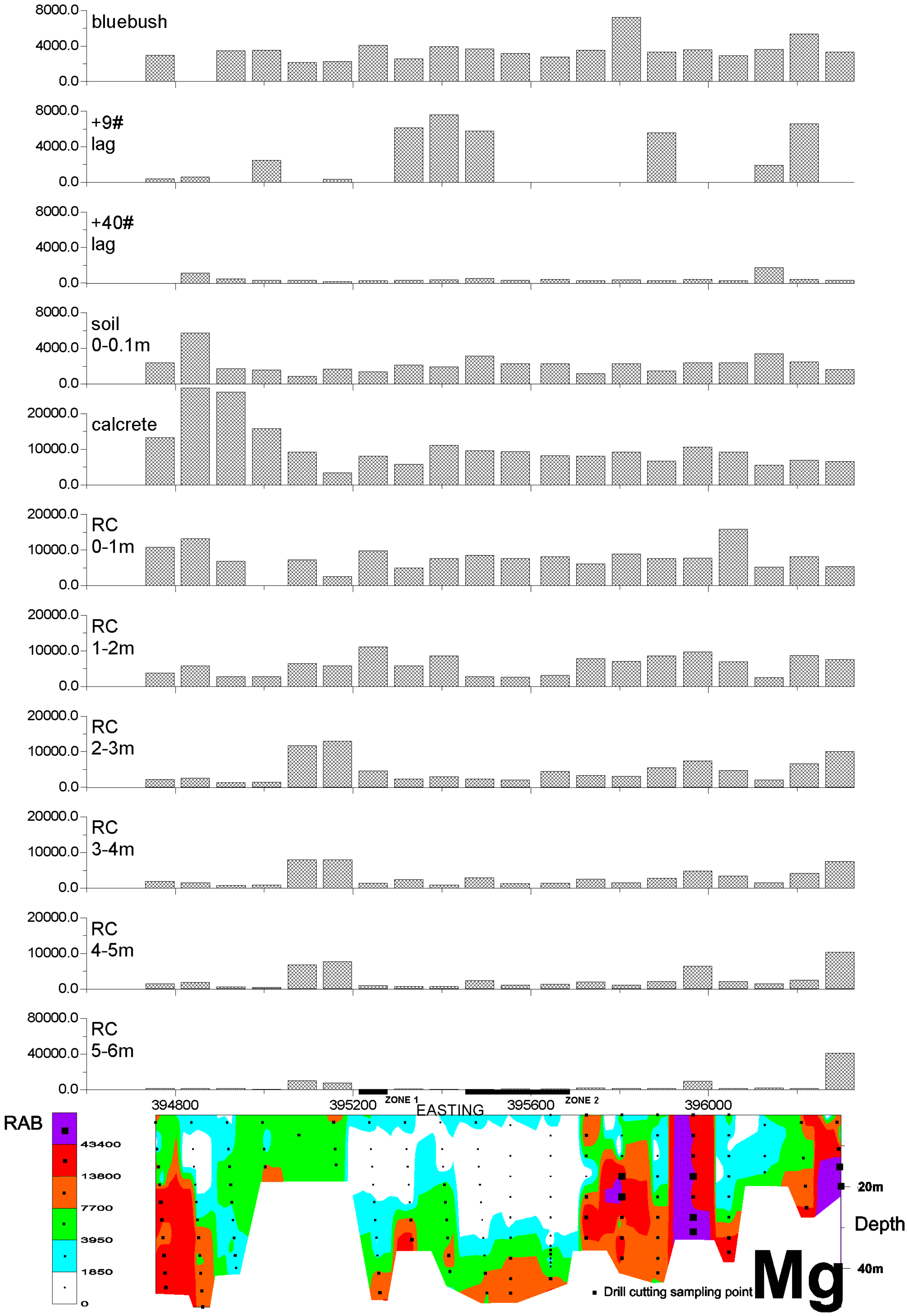

Figure A2.23: Mg distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

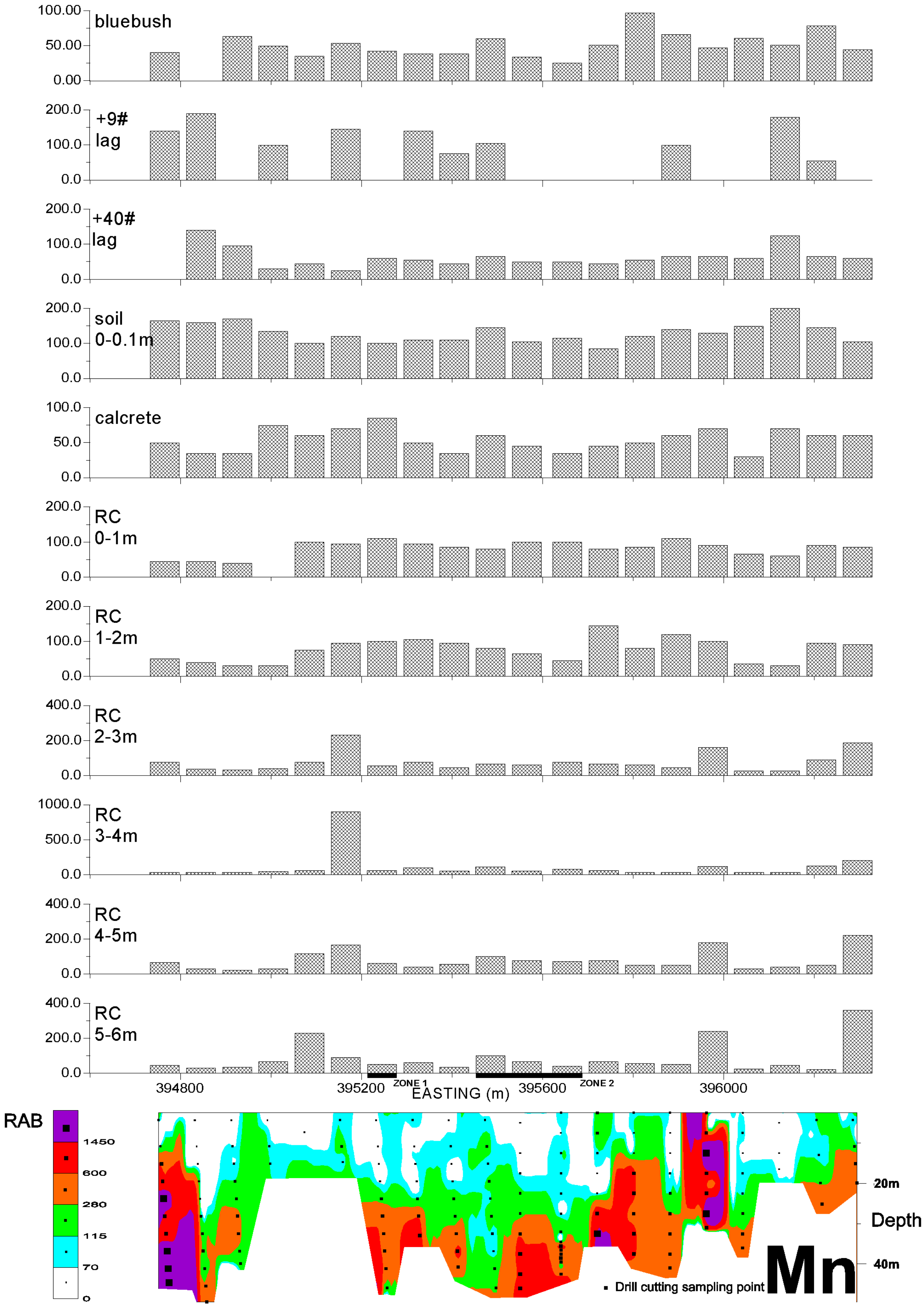

Figure A2.24: Mn distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

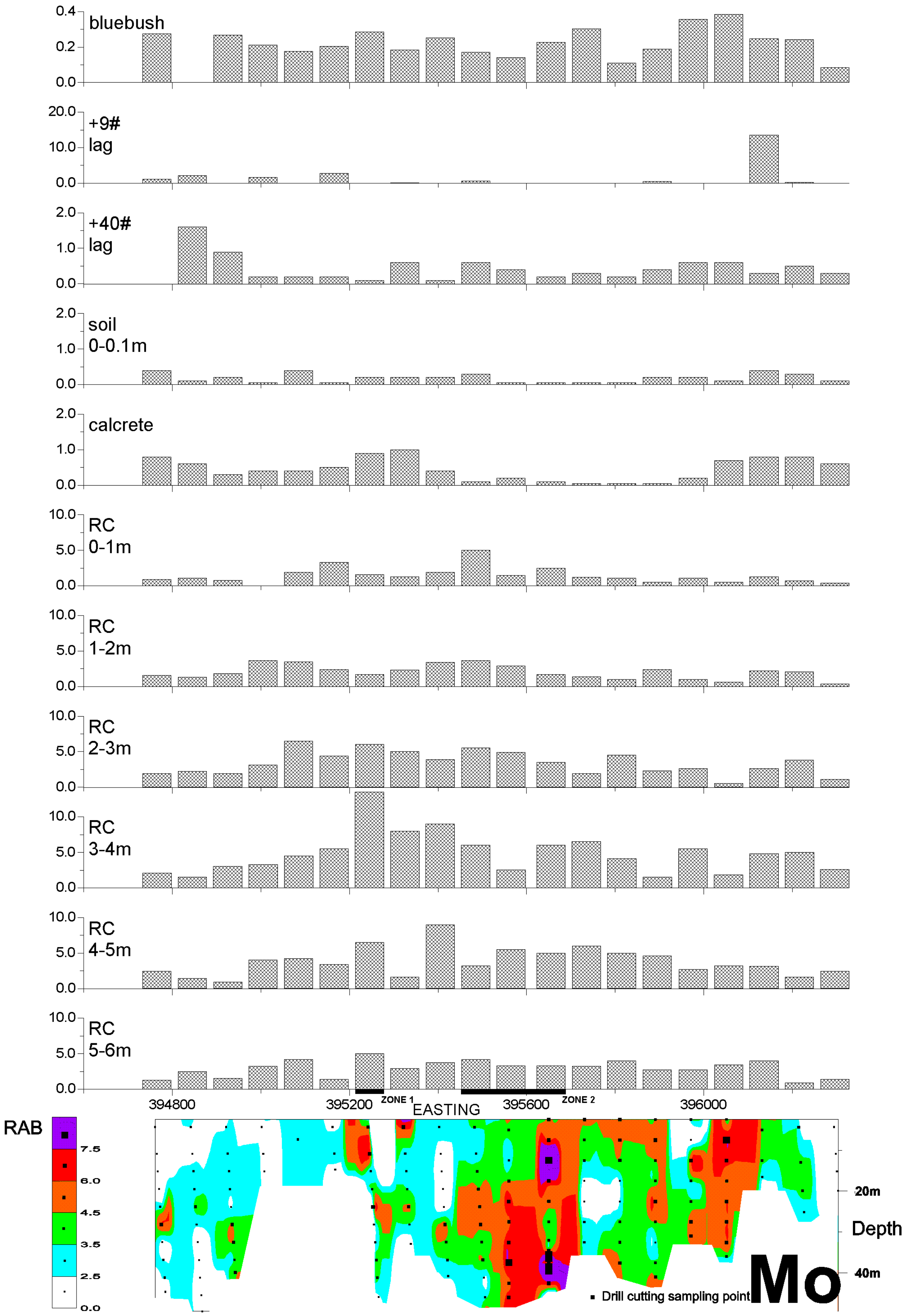

Figure A2.25: Mo distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

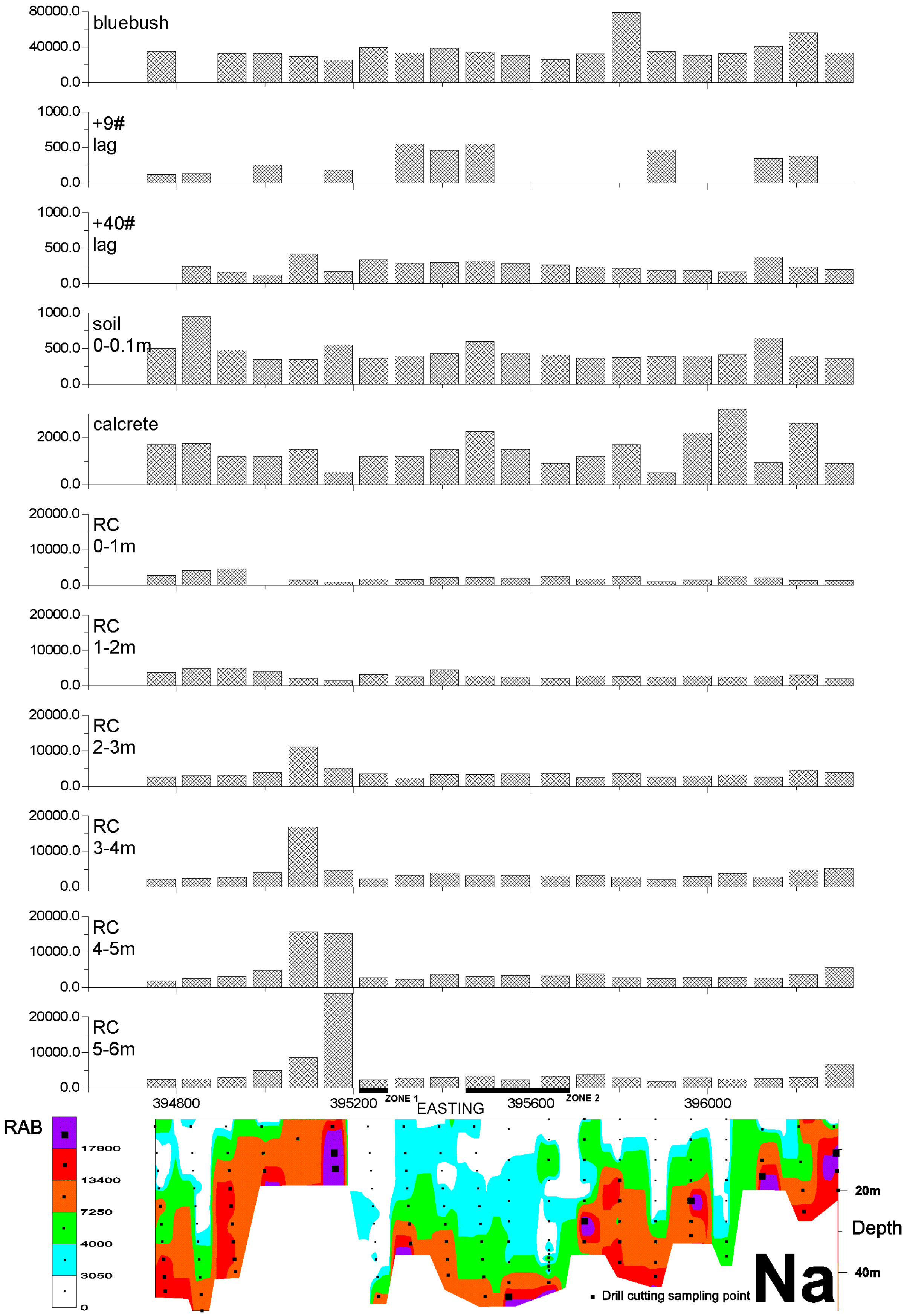

Figure A2.26: Na distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

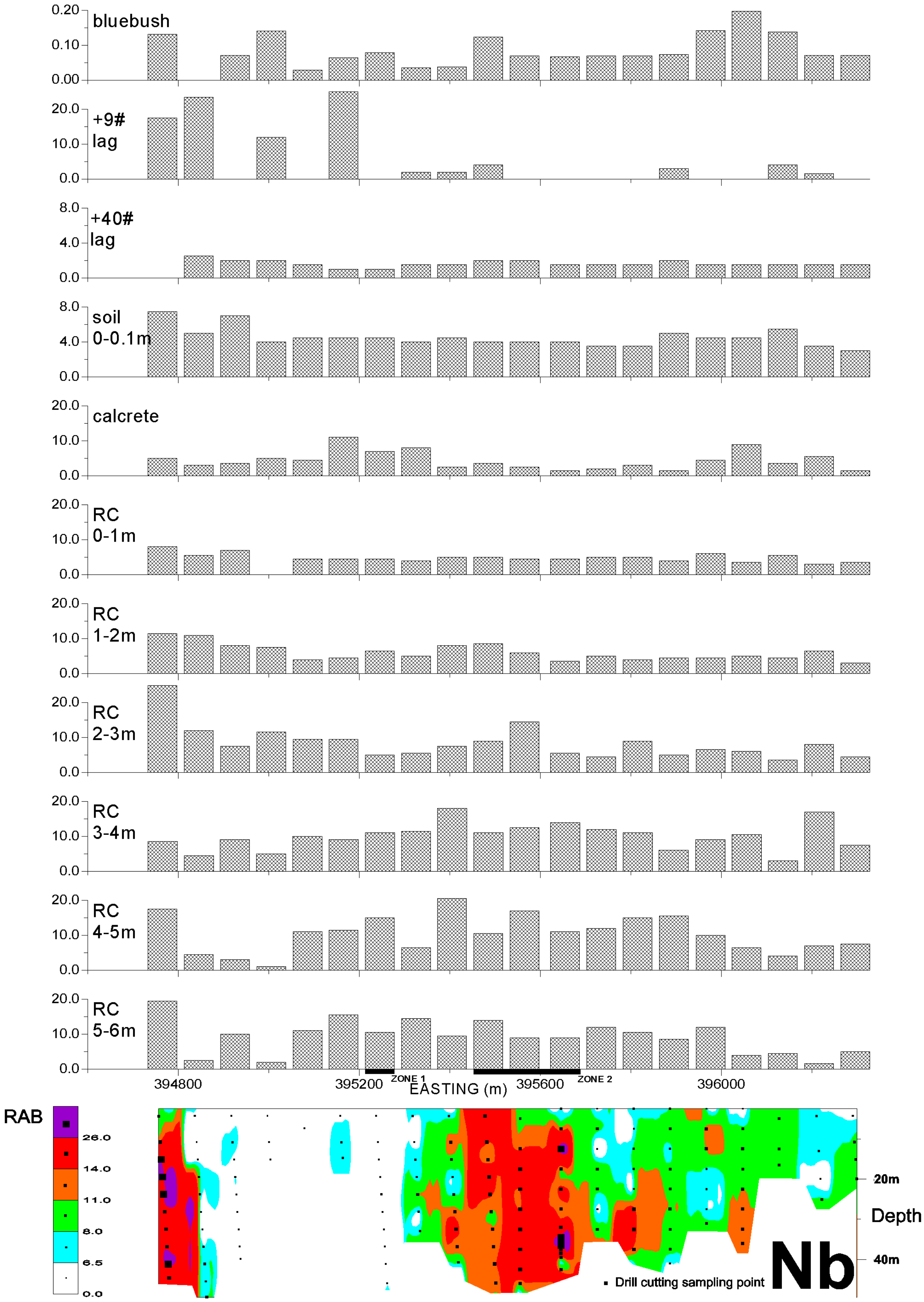

Figure A2.27: Nb distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

Figure A2.28: Nd distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

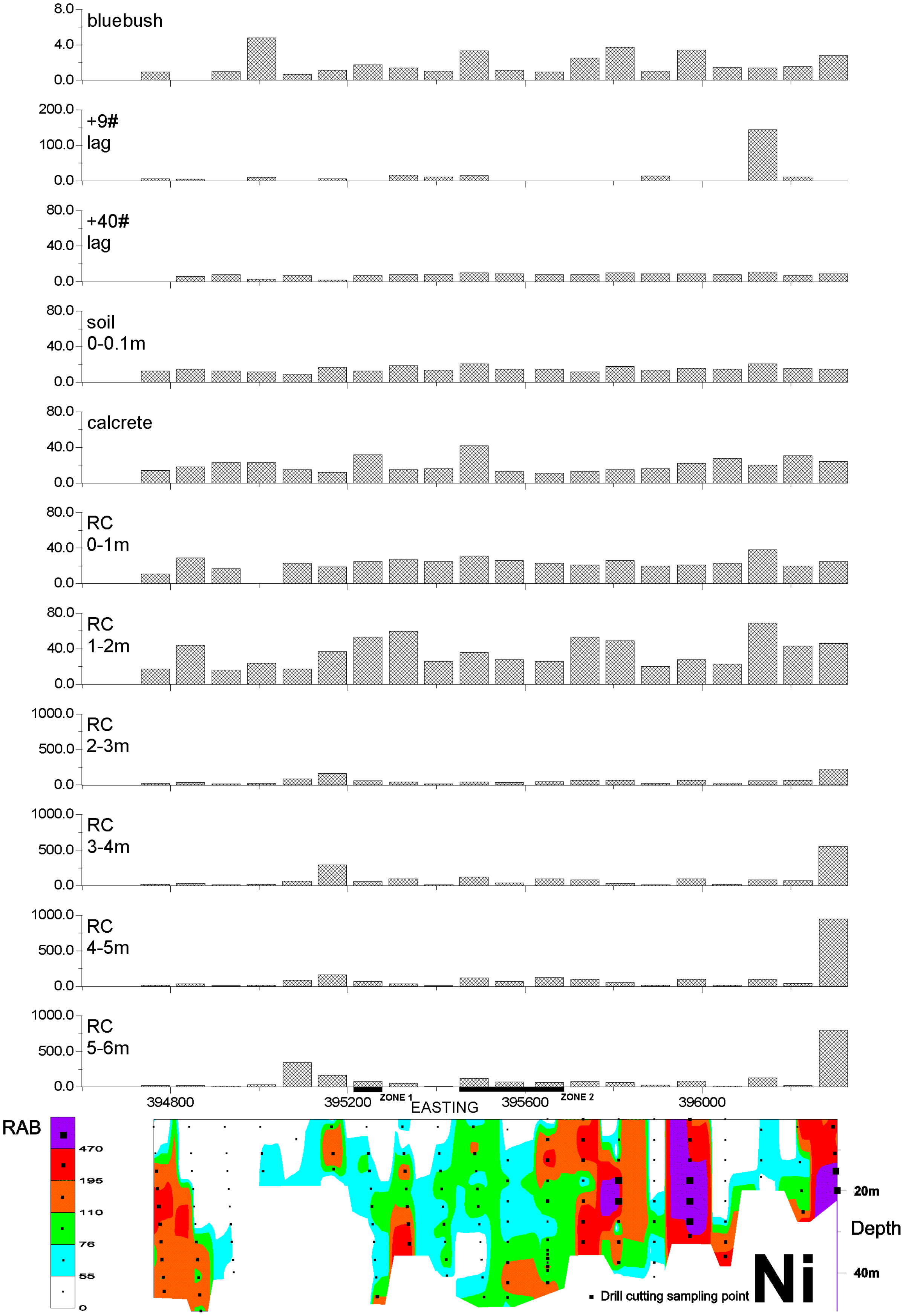

Figure A2.29: Ni distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

Figure A2.30: P distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

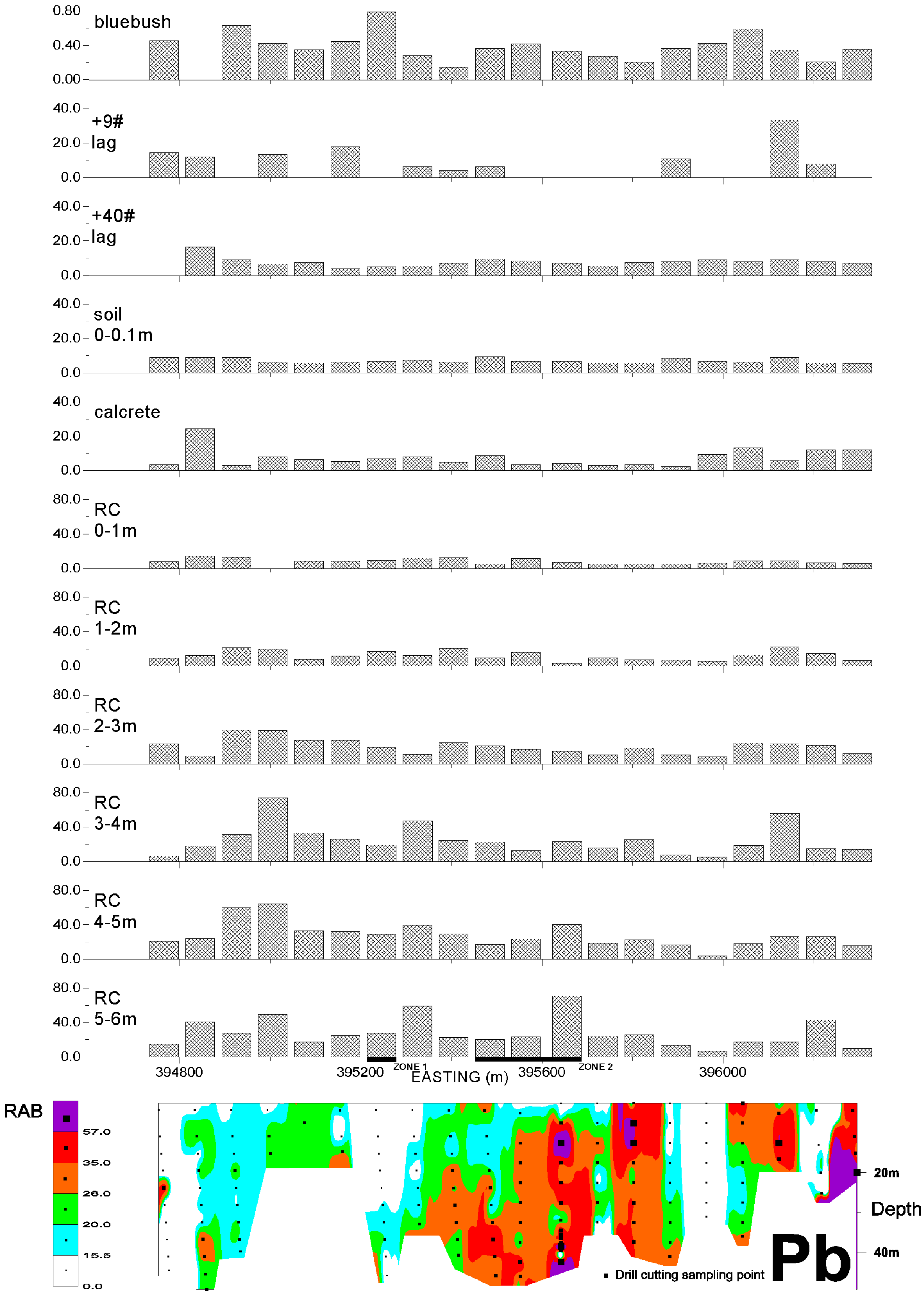

Figure A2.31: Pb distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

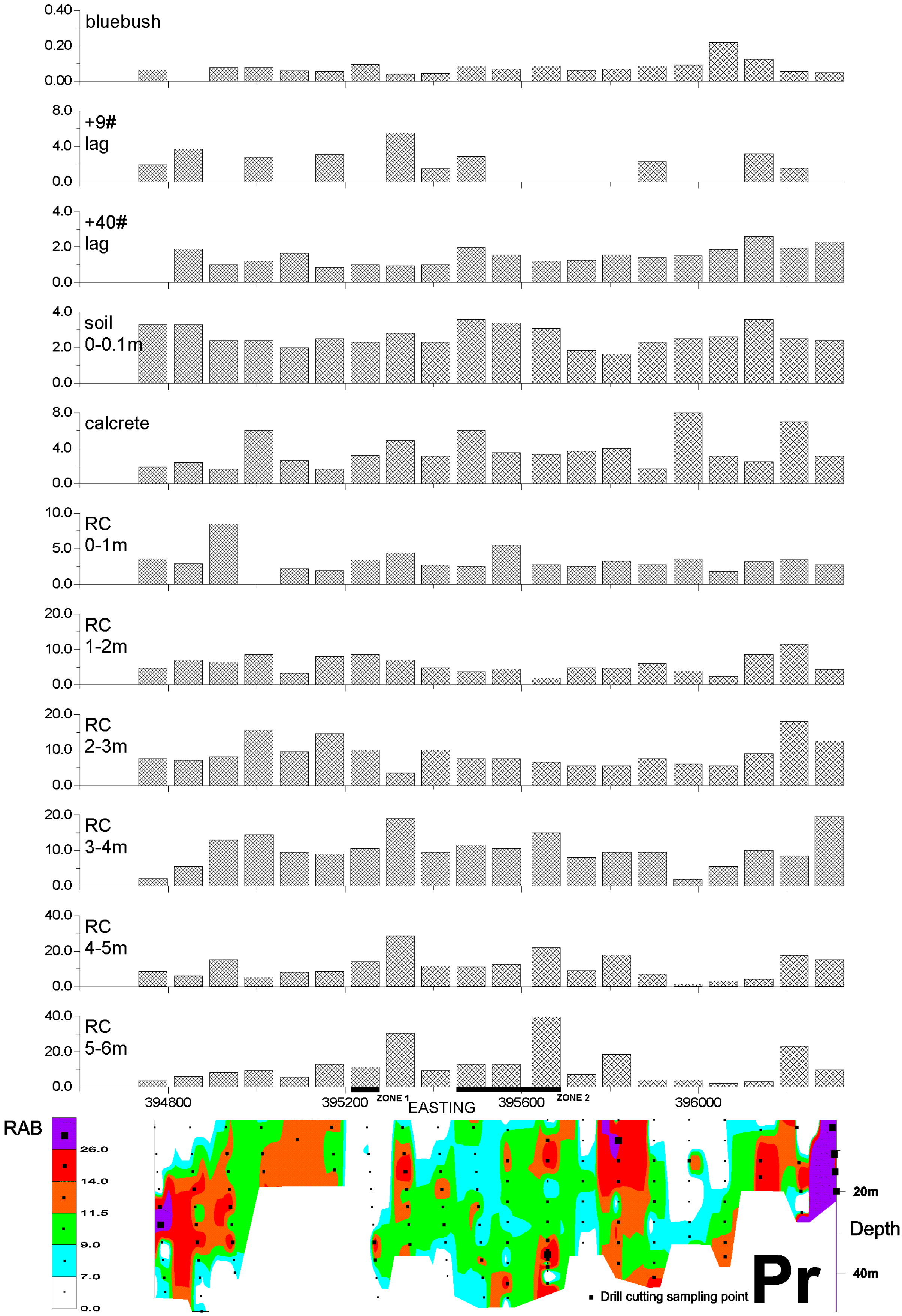

Figure A2.32: Pr distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

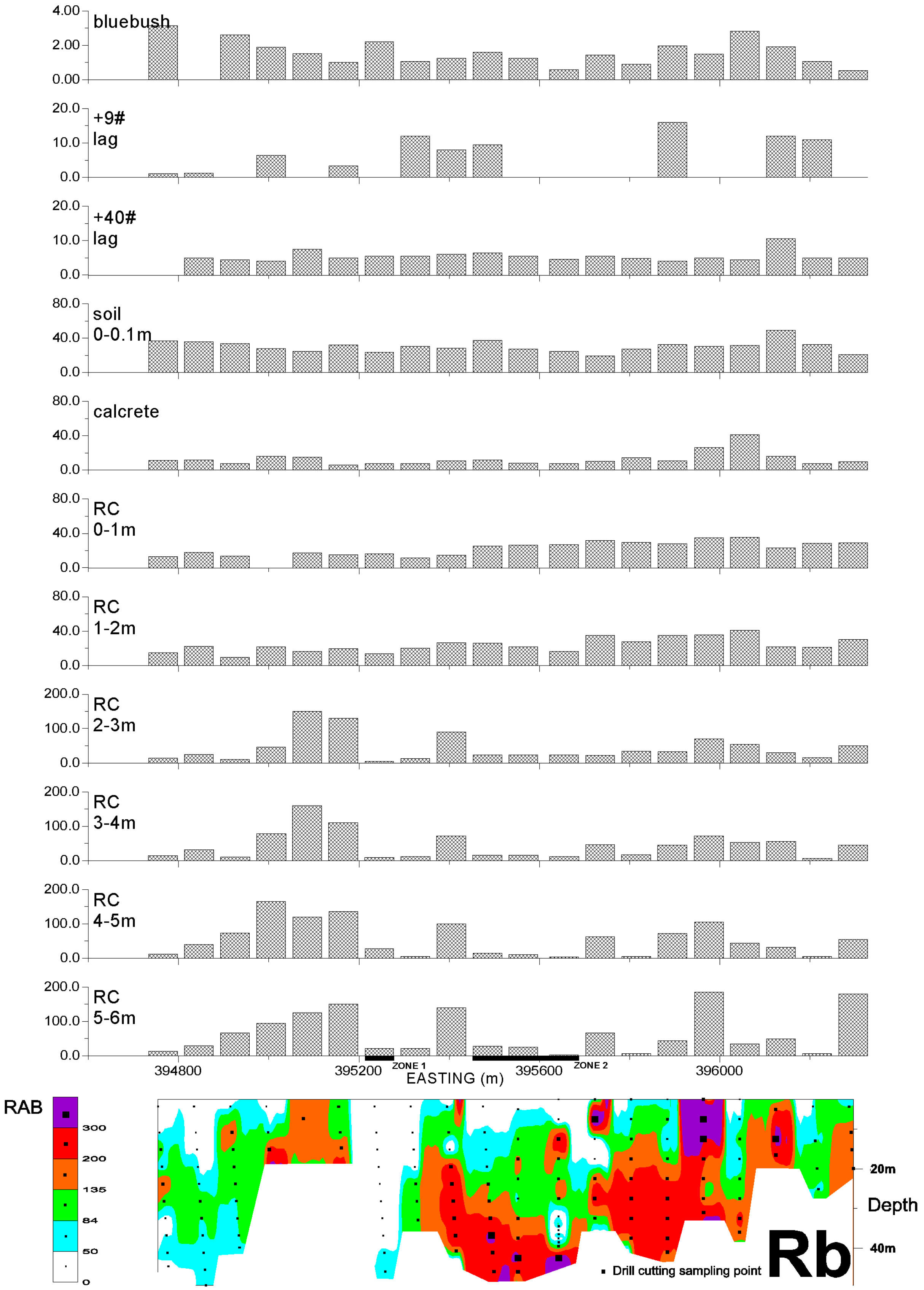

Figure A2.33: Rb distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

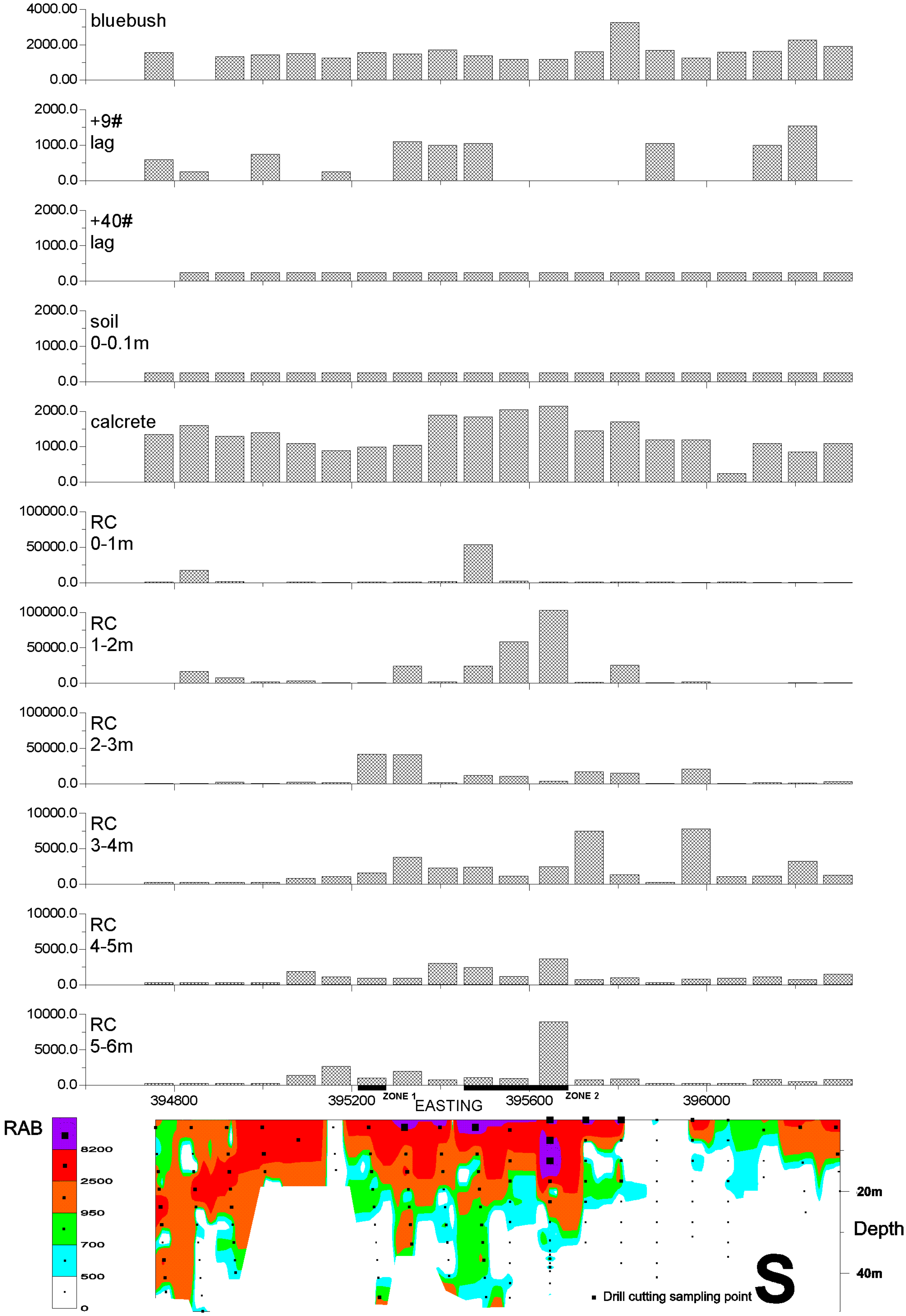

Figure A2.34: S distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

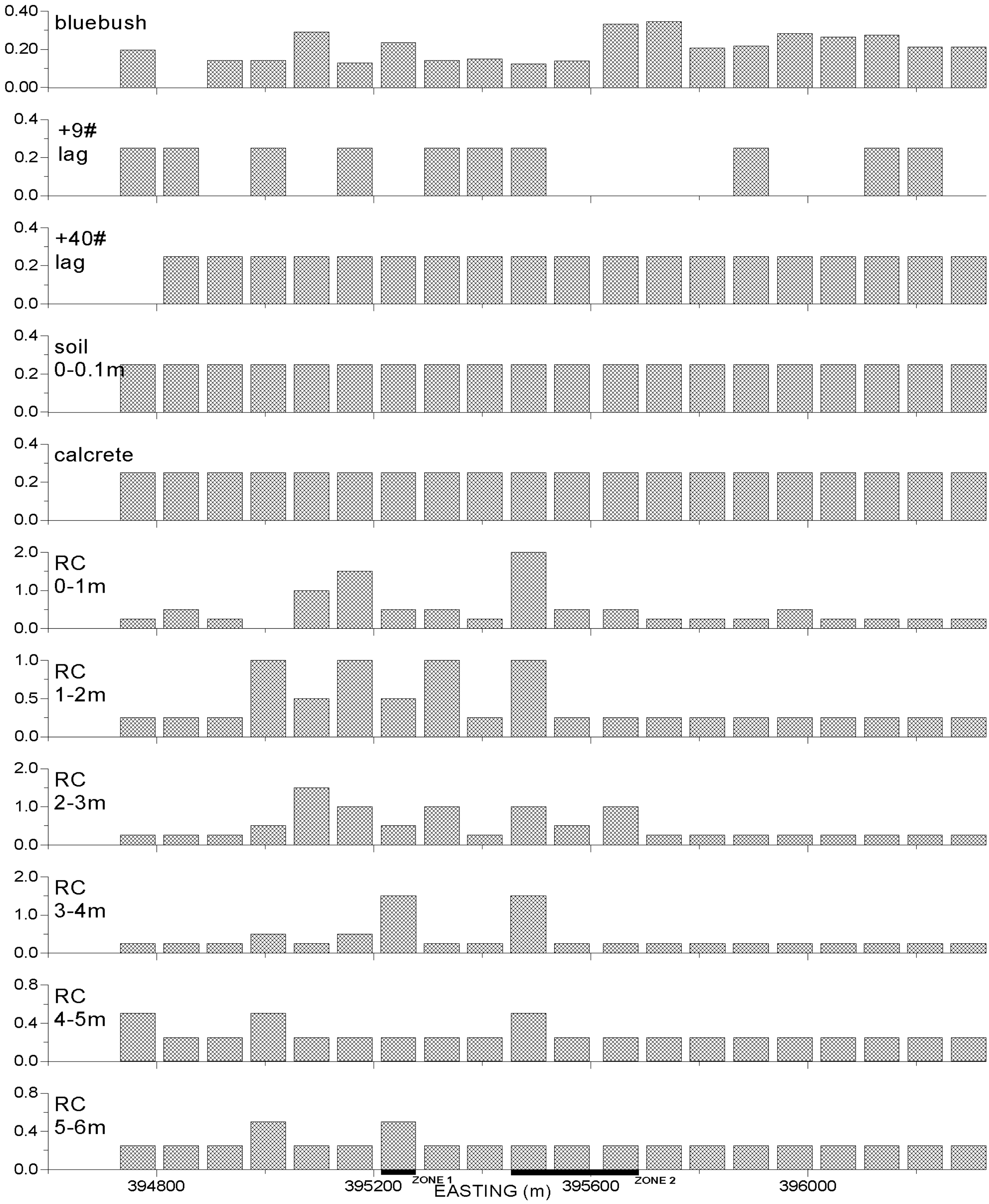

Figure A2.35: Sb distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.

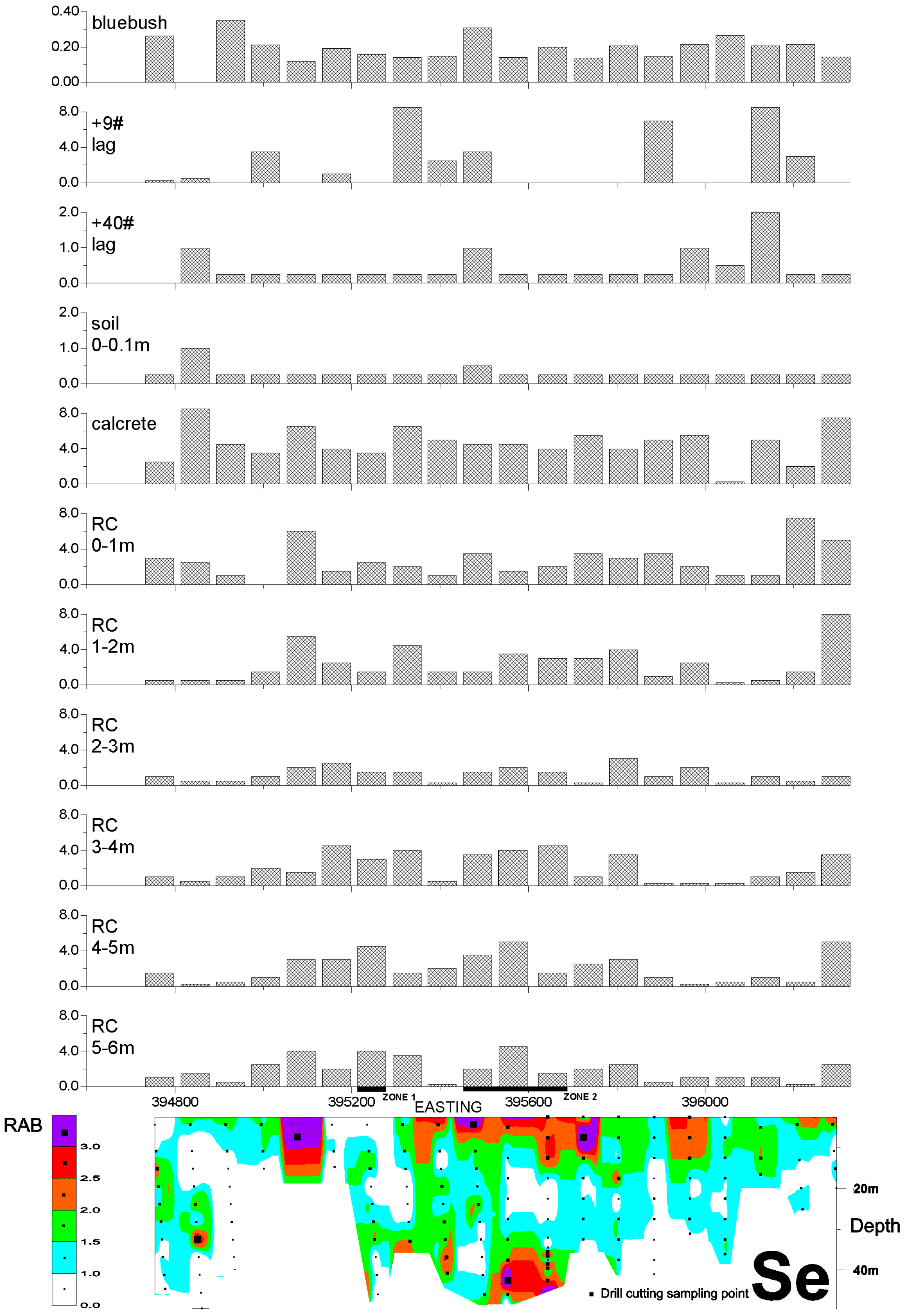

Figure A2.36: Se distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

Figure A2.37: Sm distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

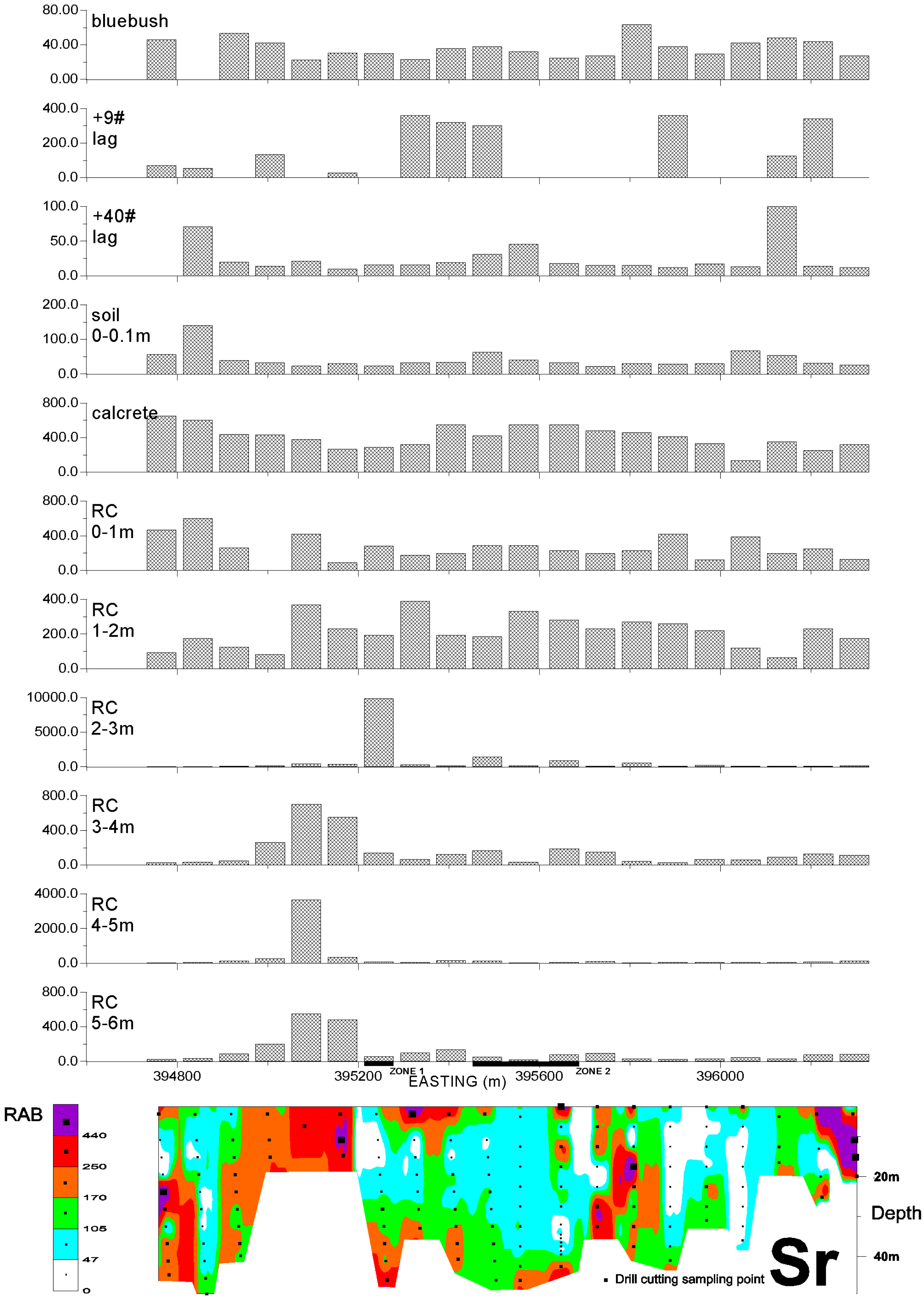

Figure A2.38: Sr distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

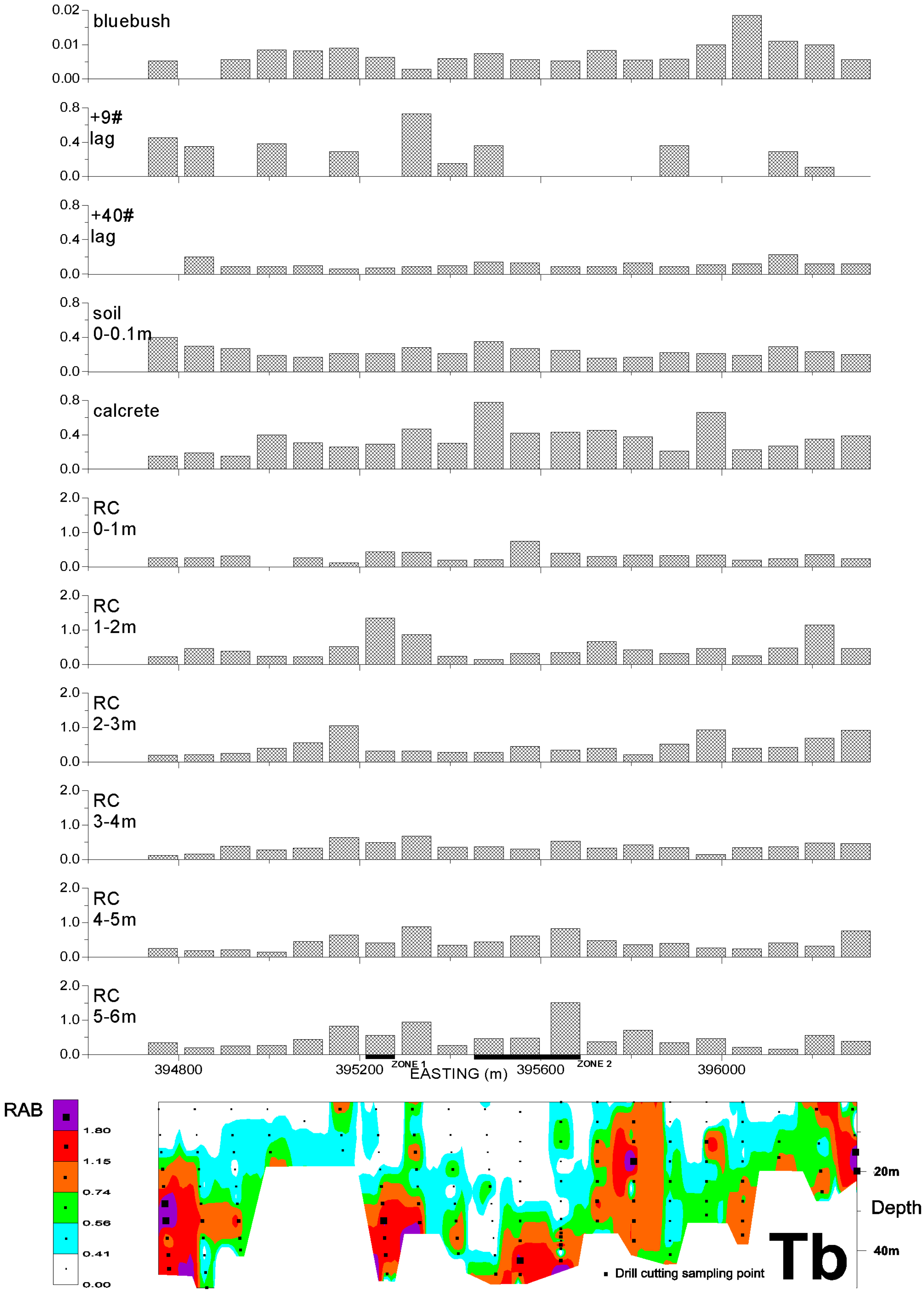

Figure A2.39: Tb distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

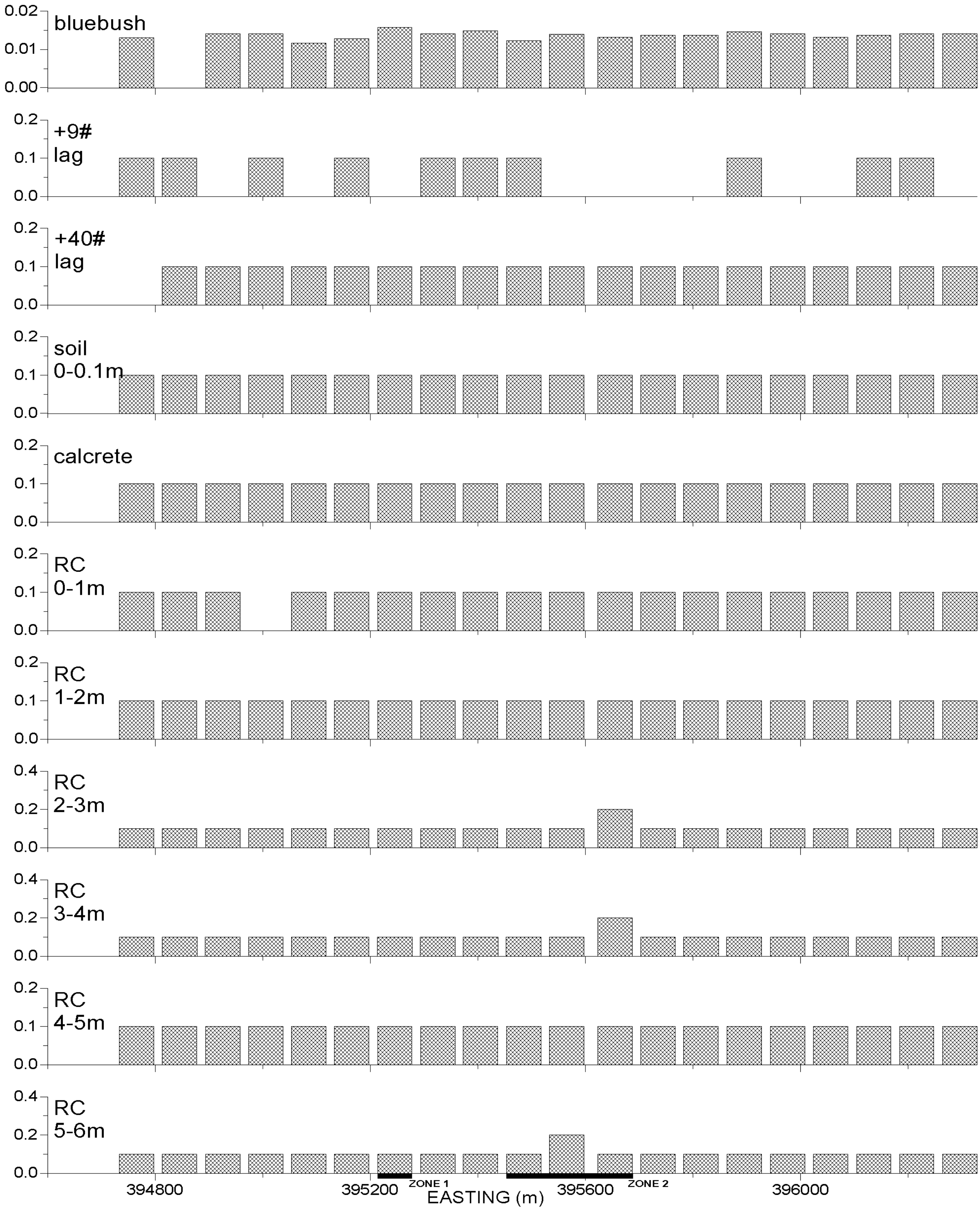

Figure A2.40: Te distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.

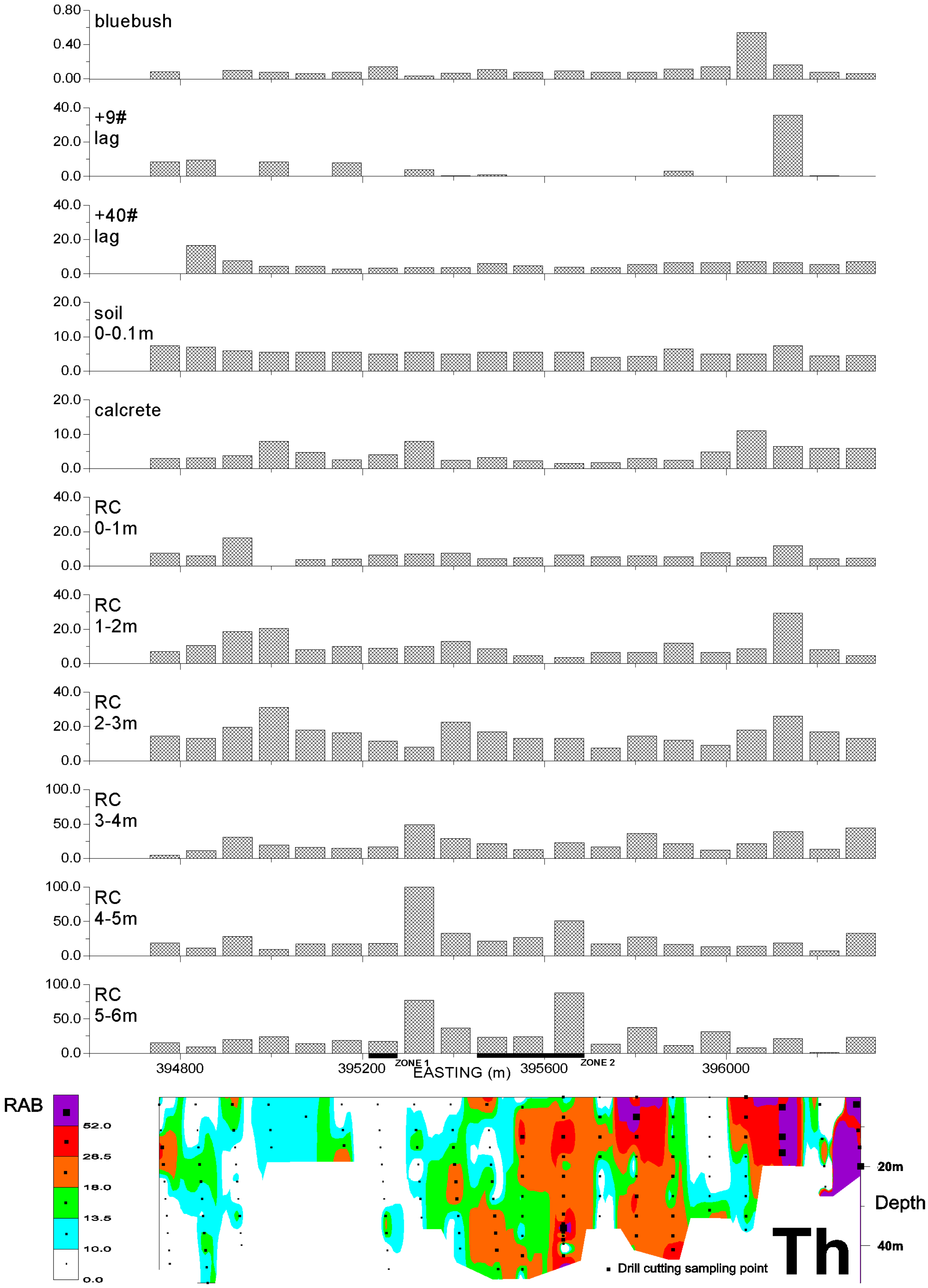

Figure A2.41: Th distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

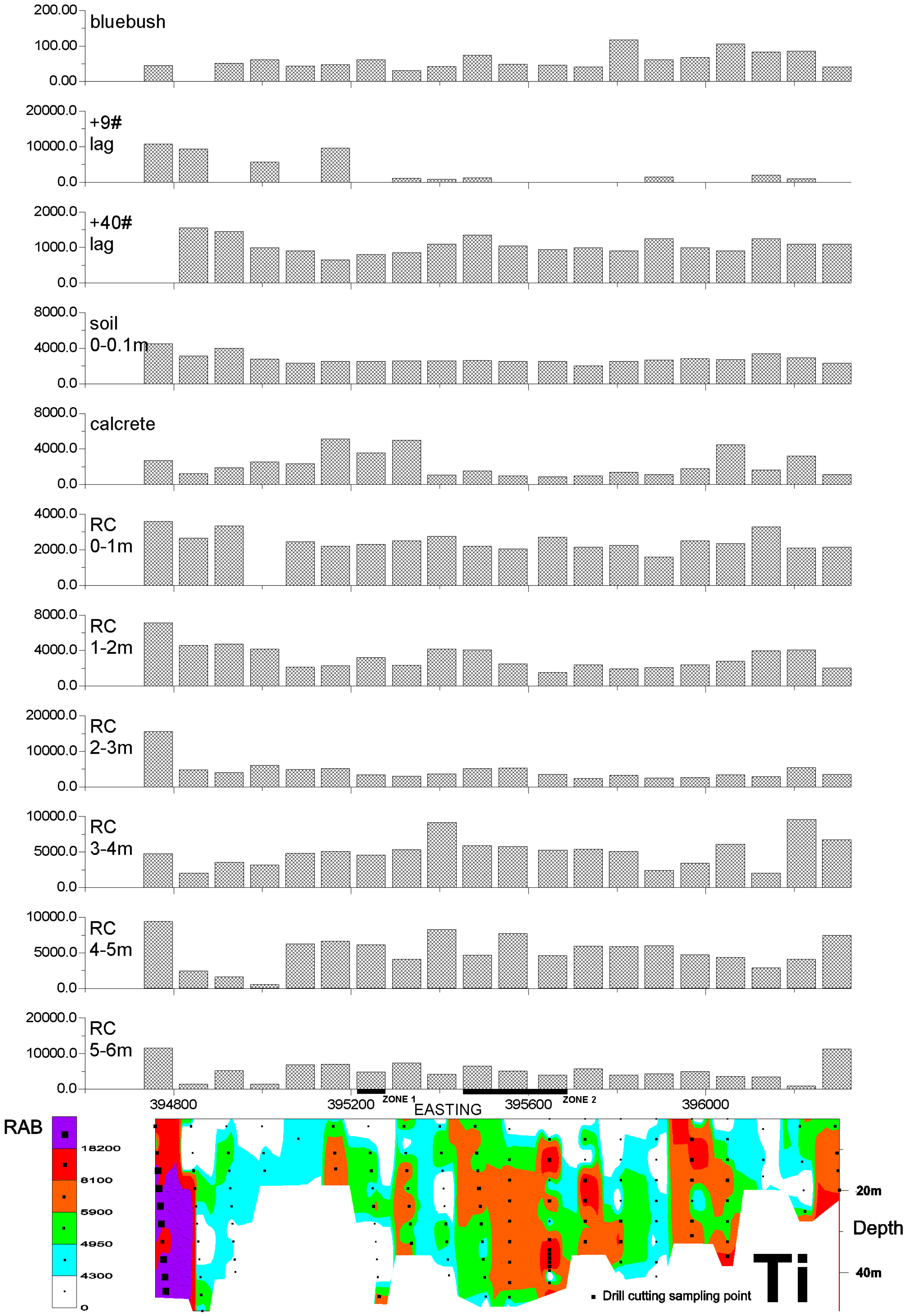

Figure A2.42: Ti distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

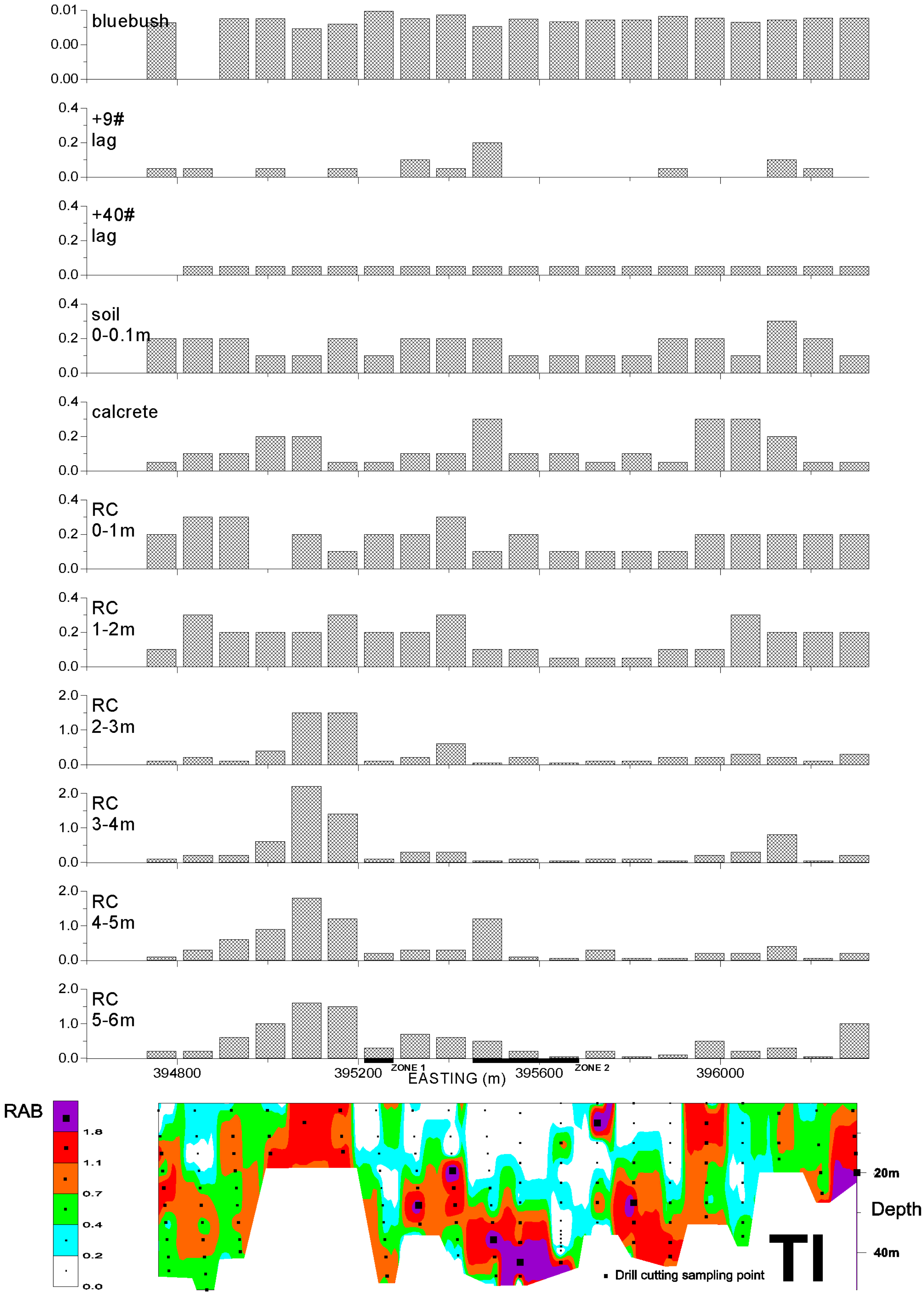

Figure A2.43: Tl distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

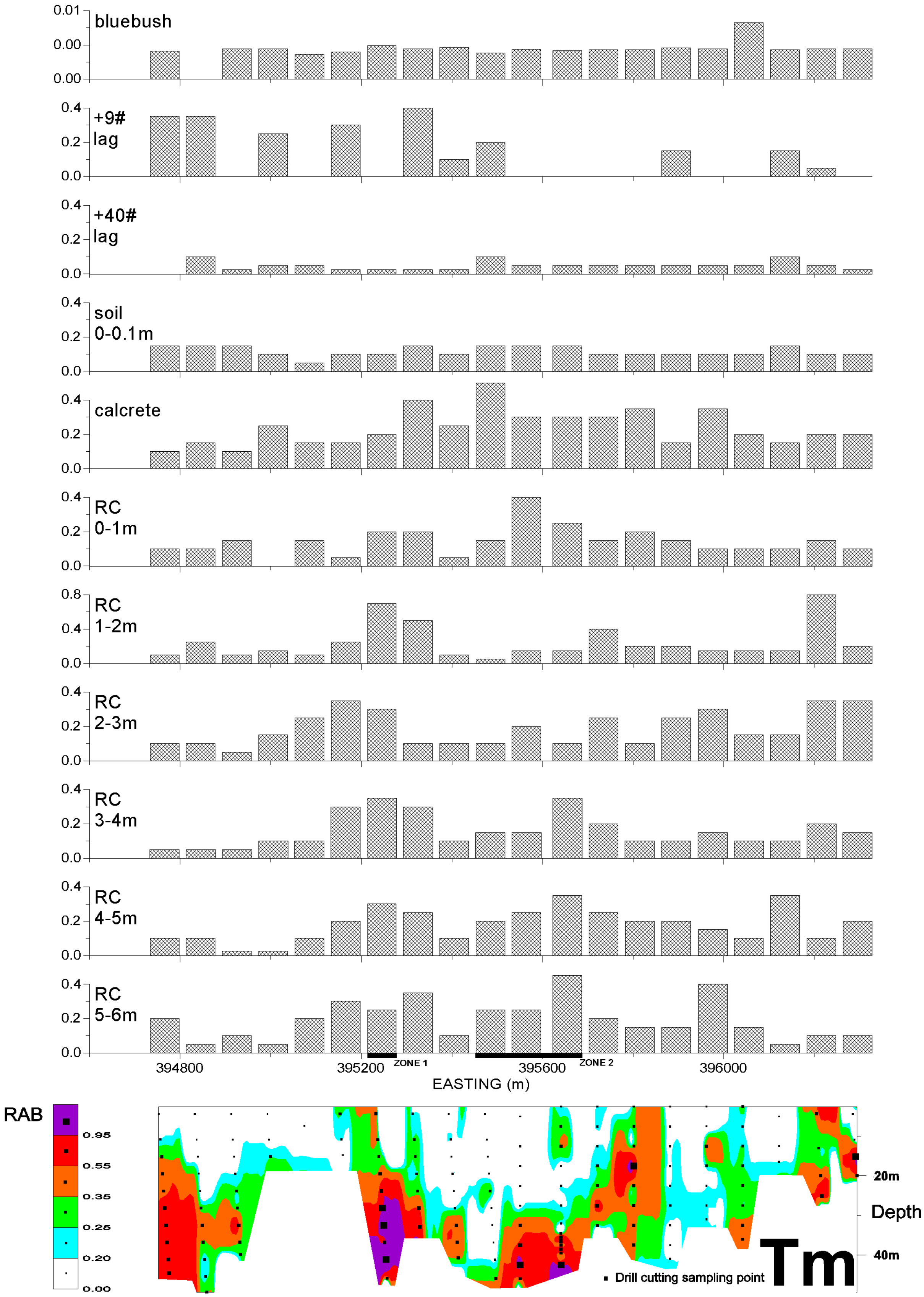

Figure A2.44: Tm distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

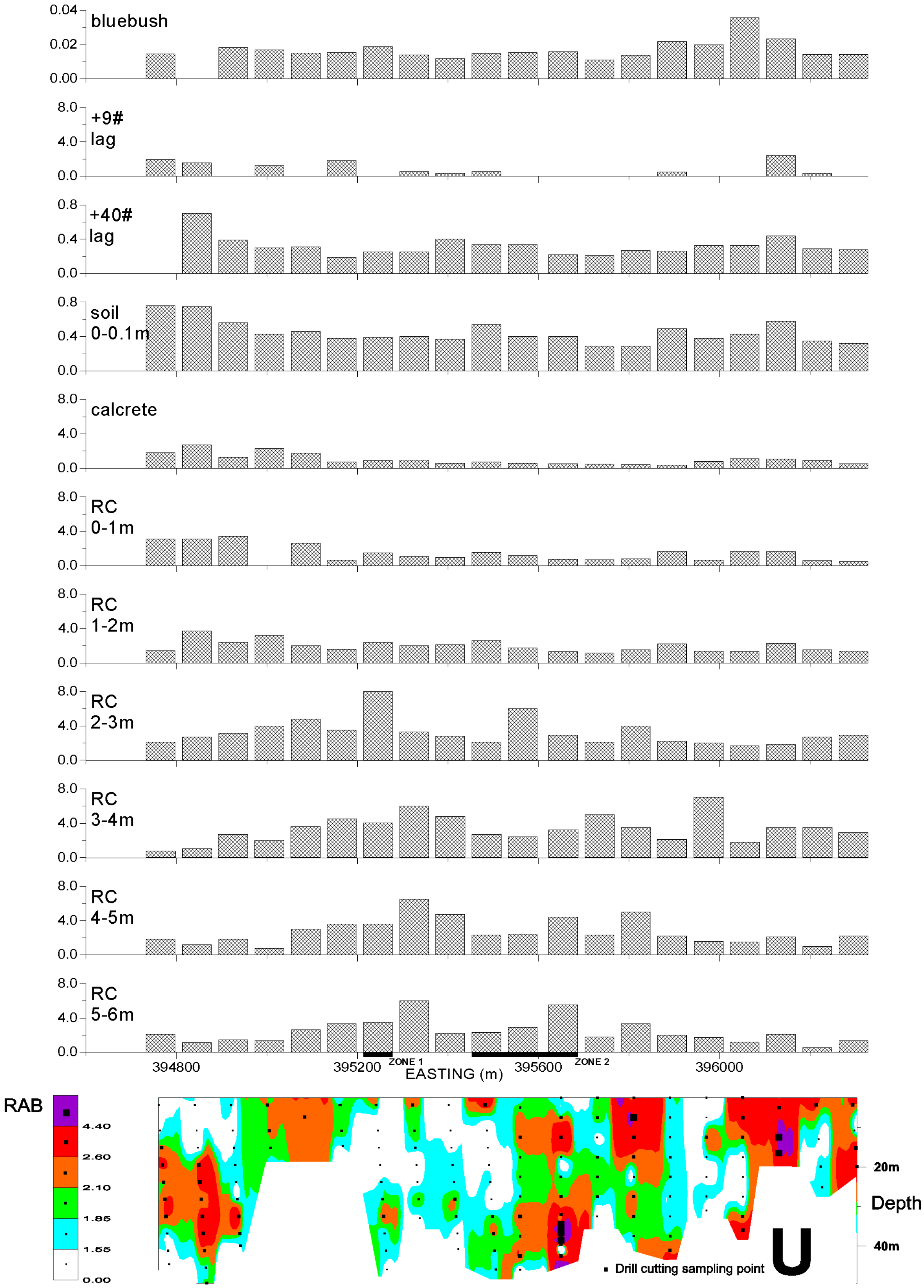

Figure A2.45: U distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

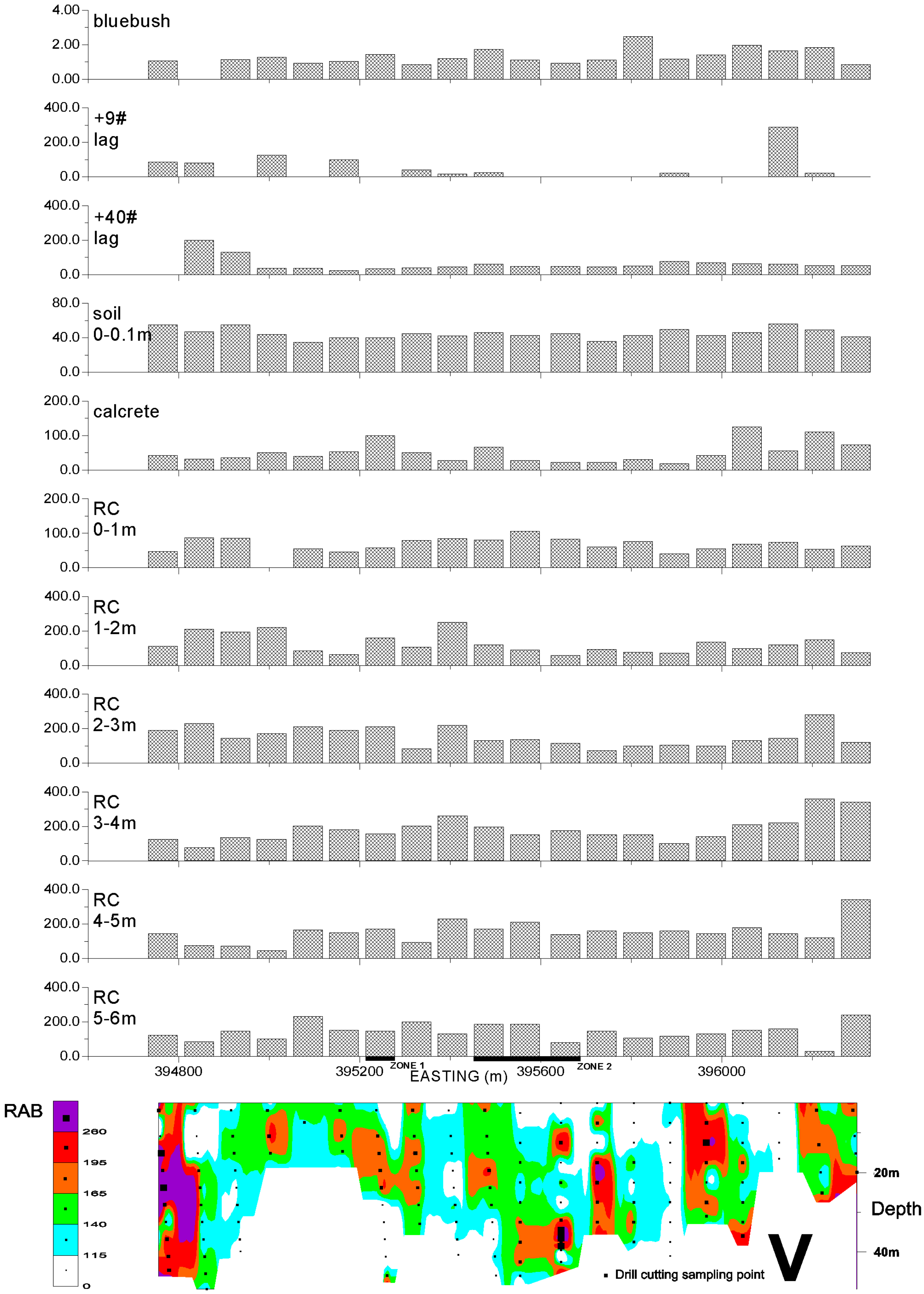

Figure A2.46: V distributions in vegetation and regolith components.
Data in ppm. Black rectangles (Zones 1–2) locate mineralisation.
Contouring using Minimum Curvature gridding technique.

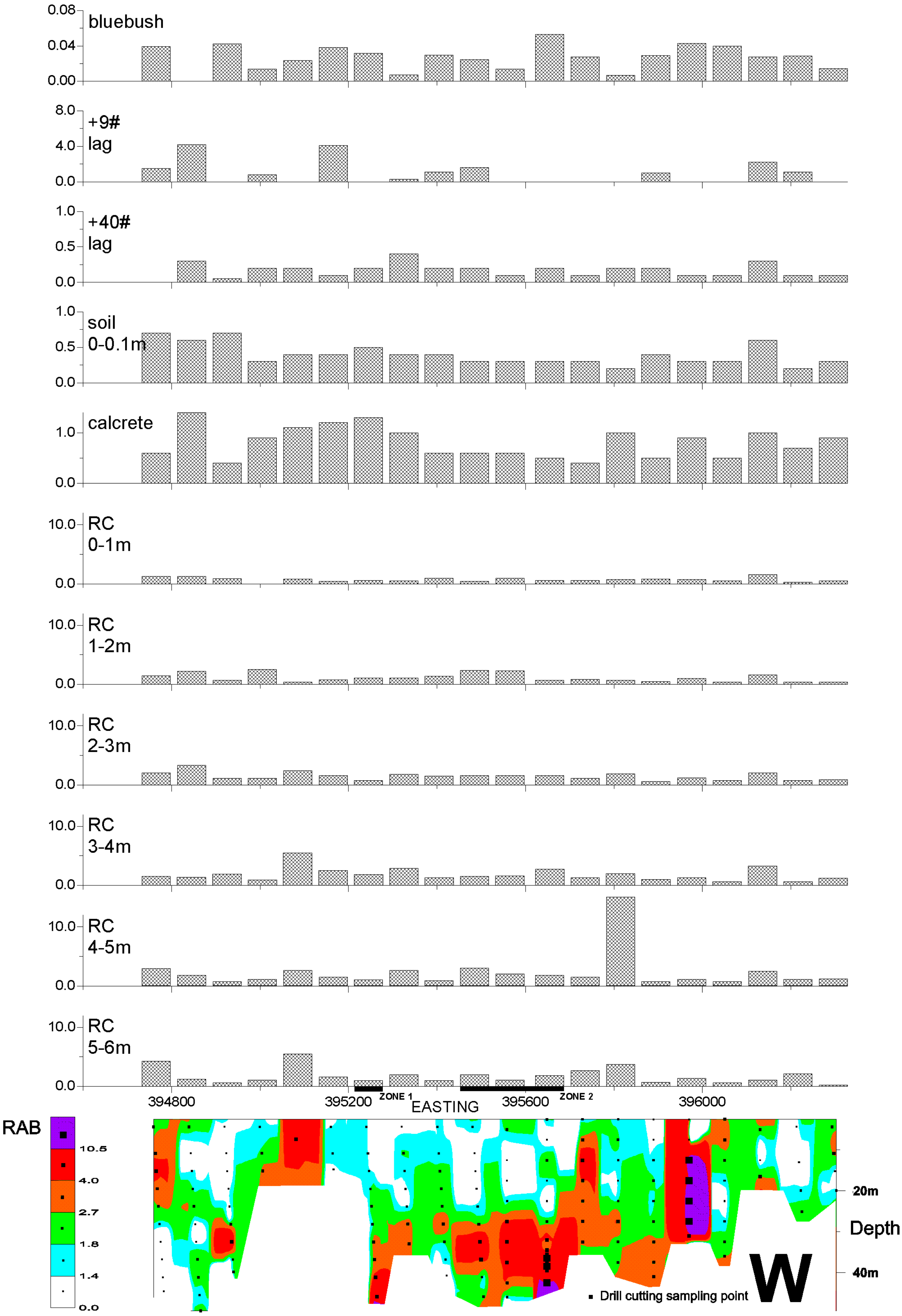

Figure A2.47: W distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

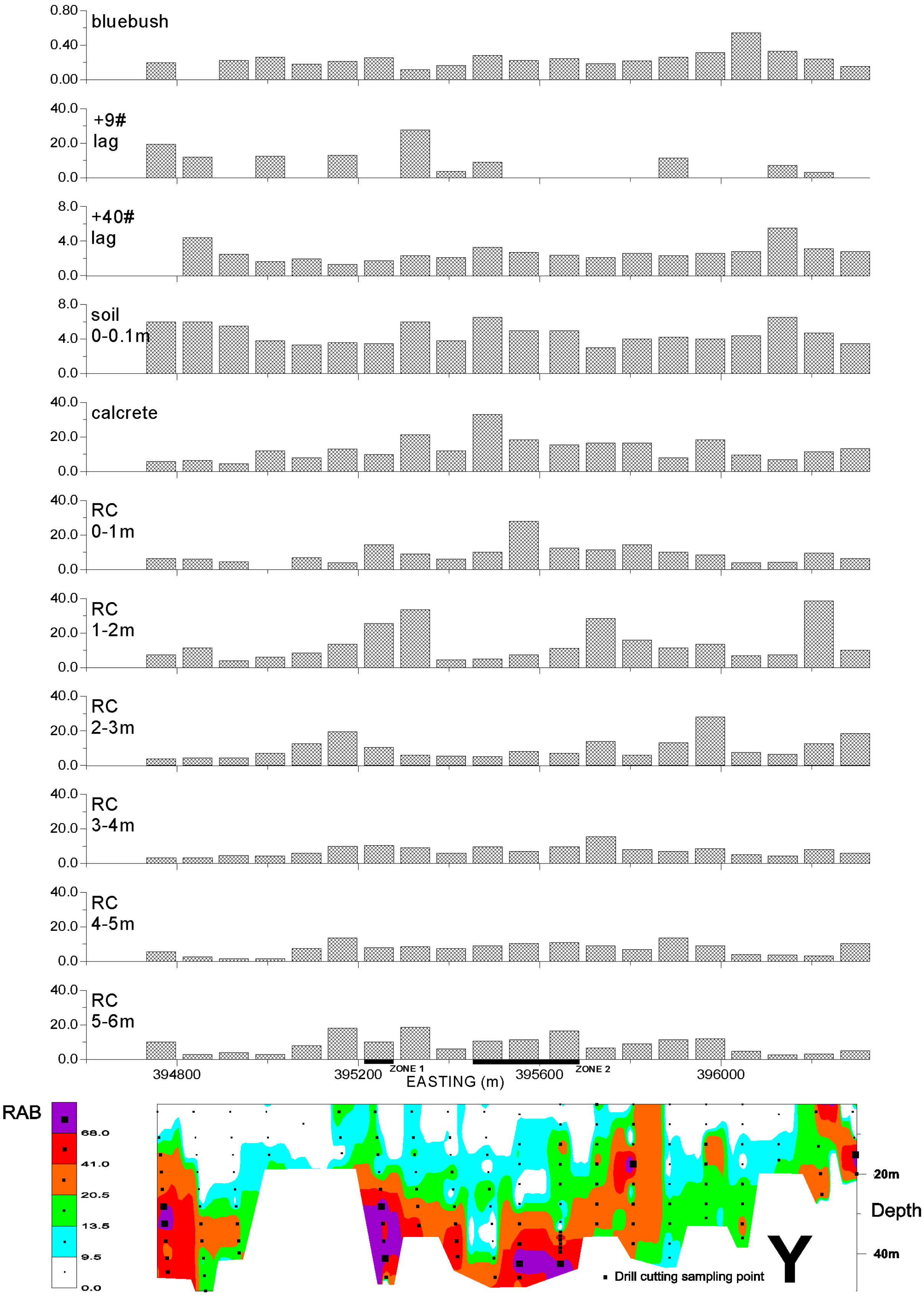

Figure A2.48: Y distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

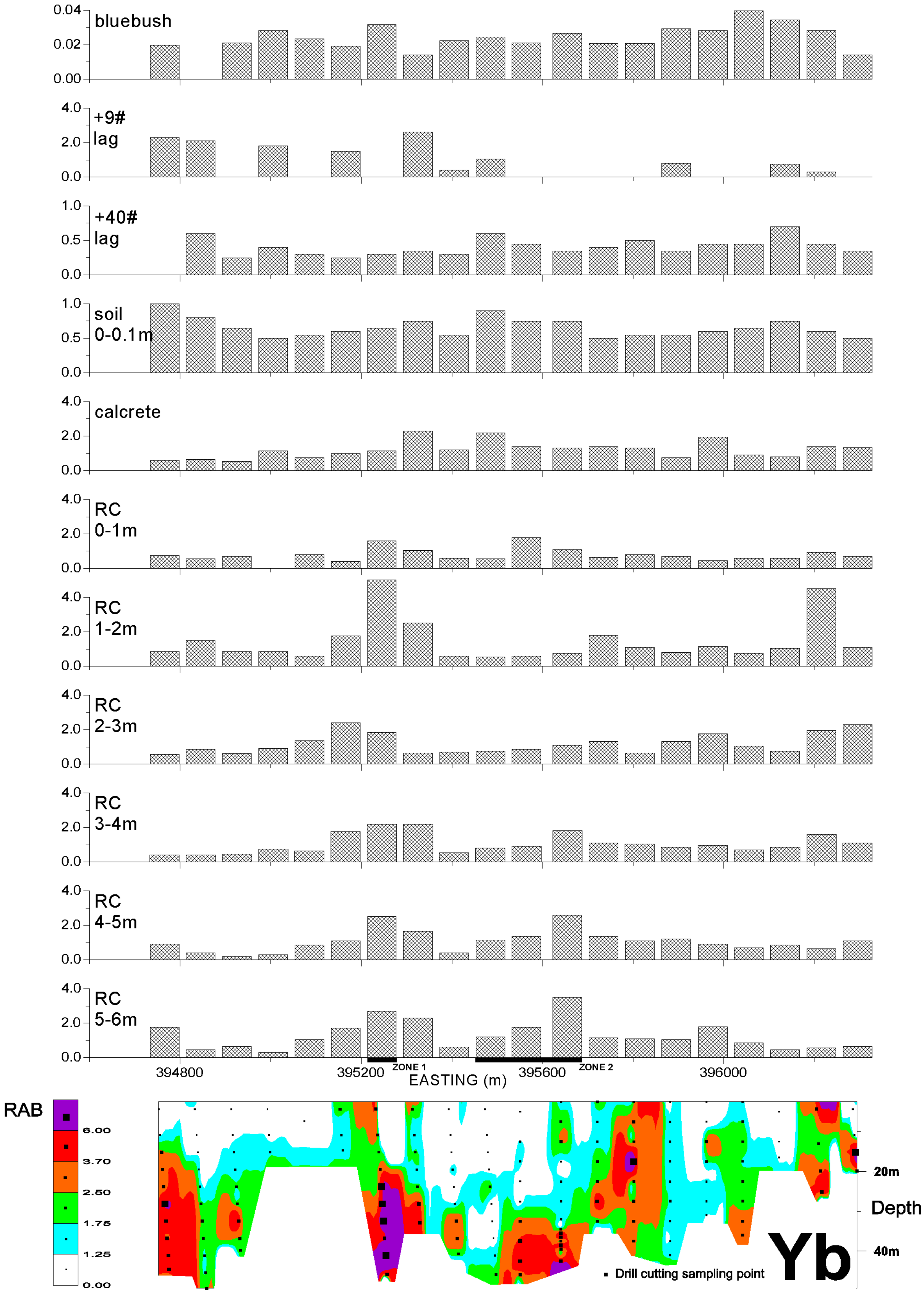

Figure A2.49: Yb distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

Figure A2.50: Zn distributions in vegetation and regolith components. Data in ppm. Black rectangles (Zones 1–2) locate mineralisation. Contouring using Minimum Curvature gridding technique.

APPENDIX 3

Appendix 3: Box–whisker and scatter plots.

Appendix 3a: Box and whisker plots. Units in ppm except for Au (ppb).

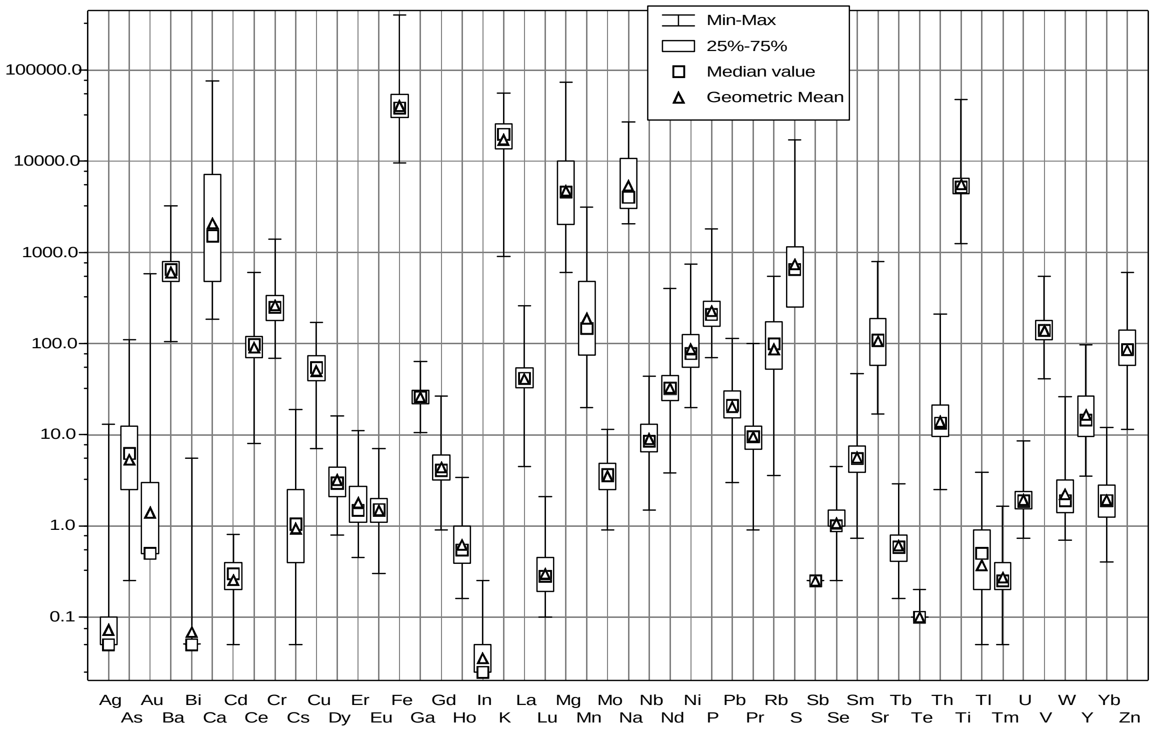

Figure A3a.1: Box and whisker plot for lower regolith samples

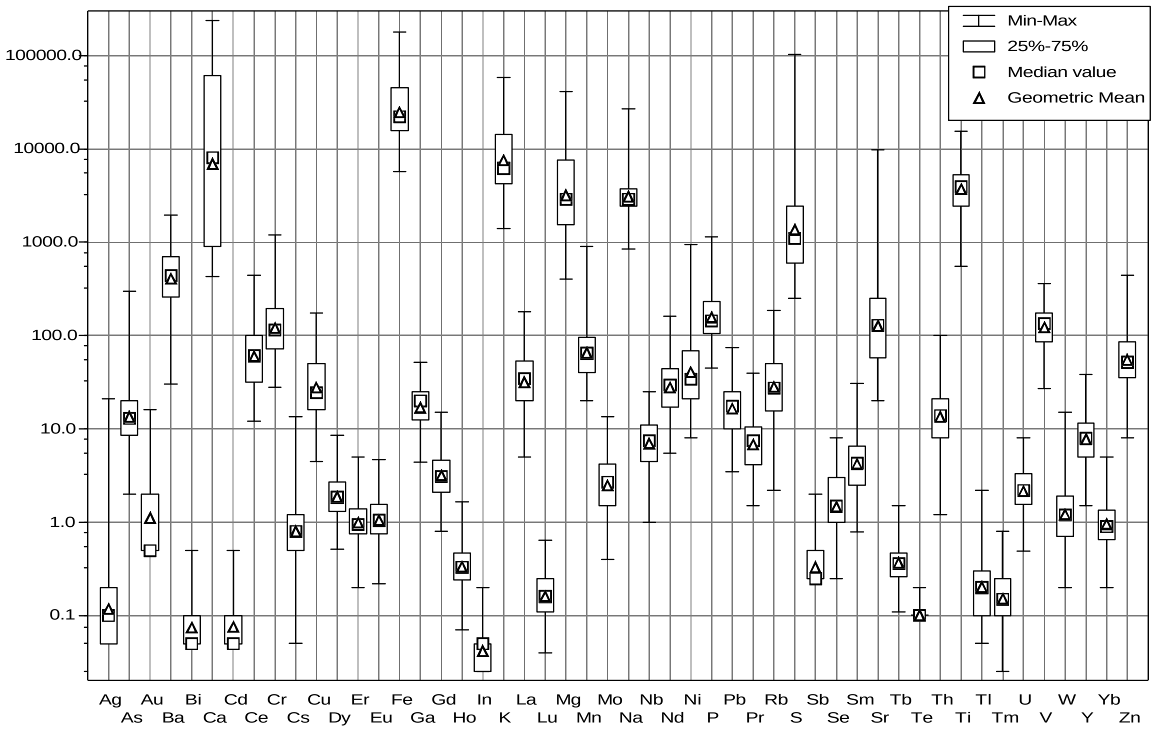

Figure A3a.2: Box and whisker plot for upper regolith samples

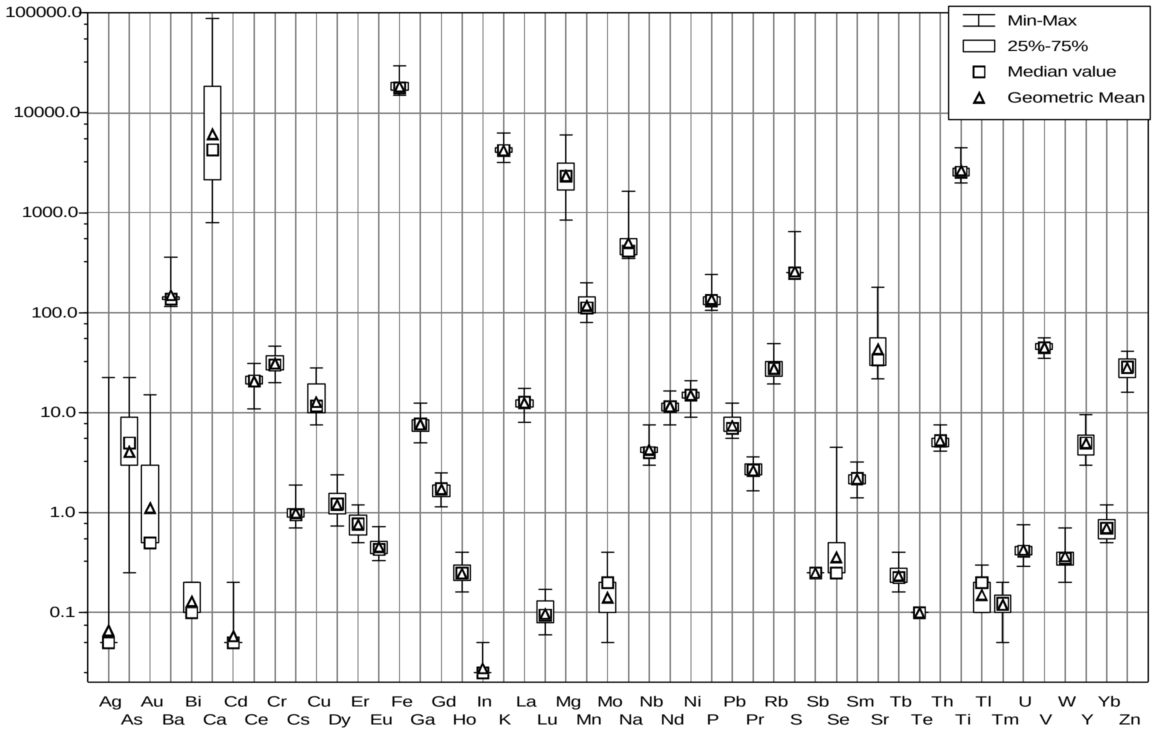

Figure A3a.3: Box and whisker plot for soil samples

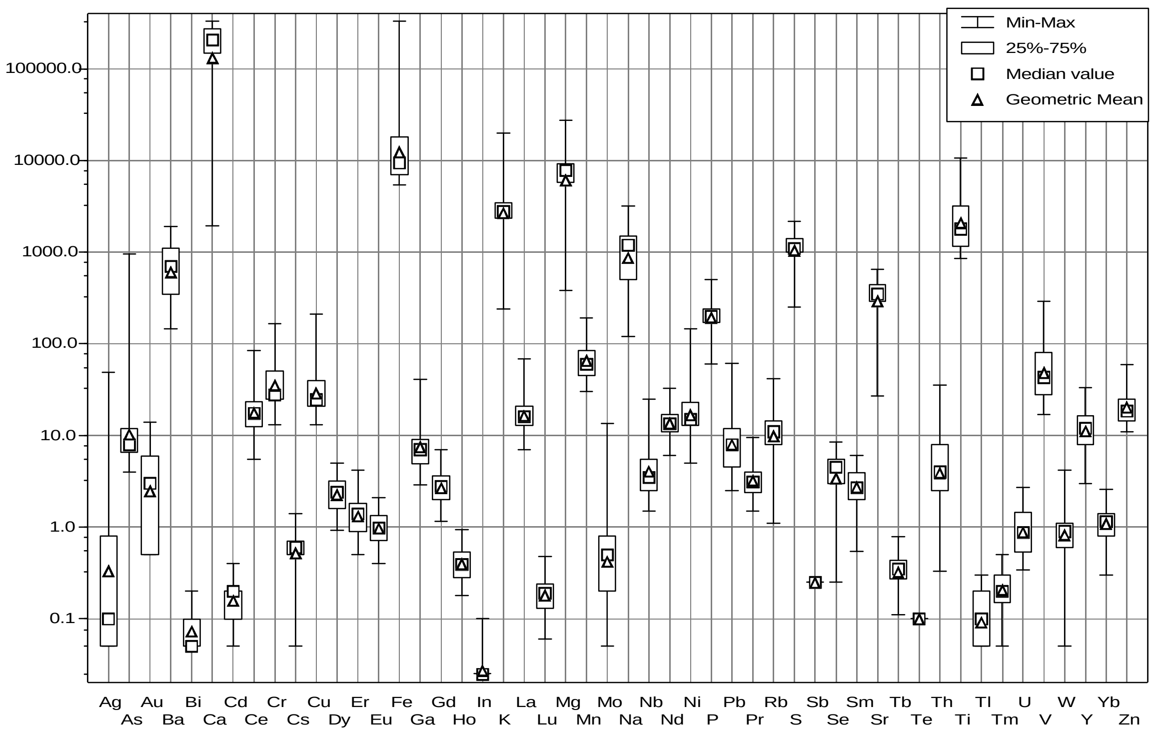

Figure A3a.4: Box and whisker plot for coarse lag (+9#) samples

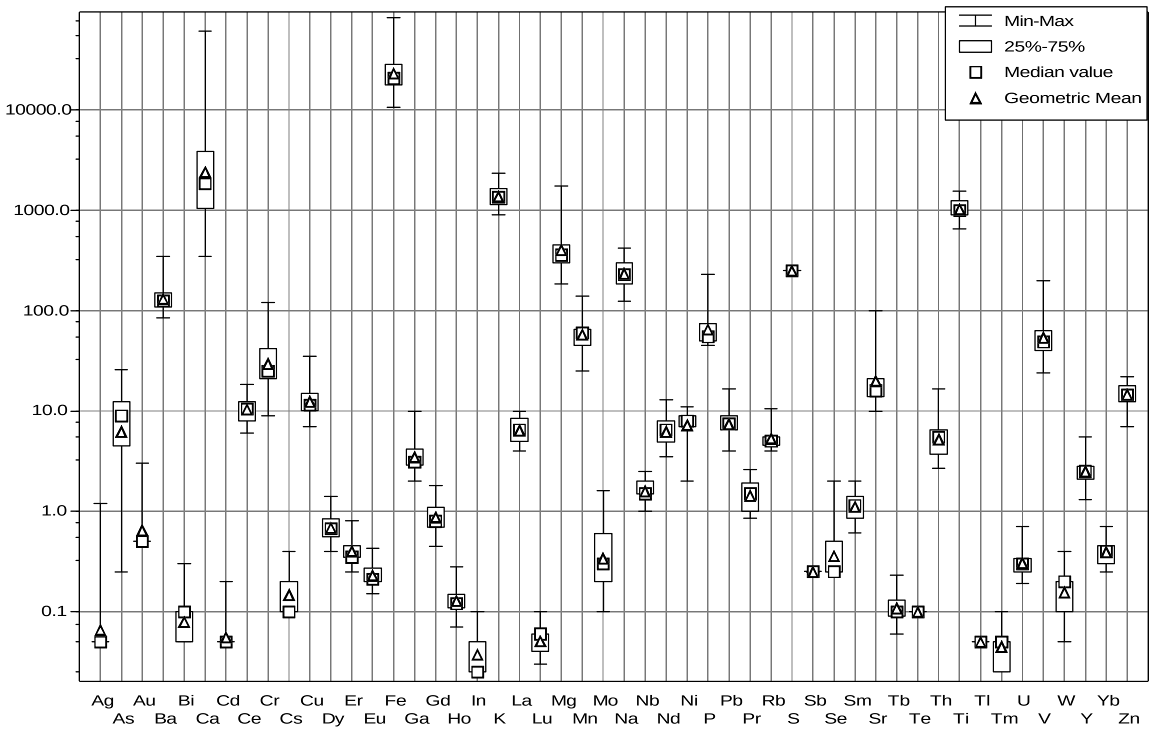

Figure A3a.5: Box and whisker plot for fine lag (+40#) samples

Appendix 3b: Scatter plots.

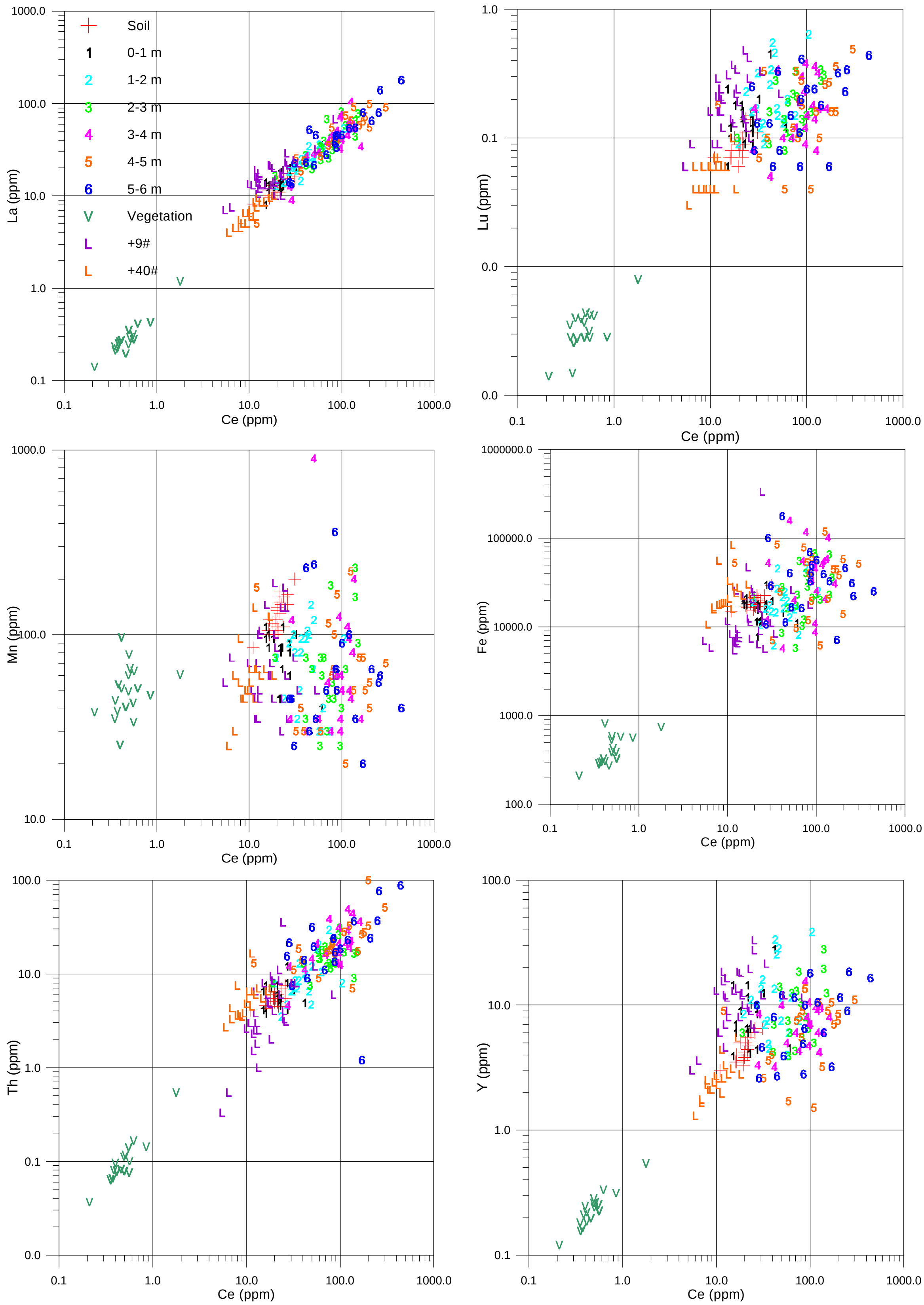

Figure A3b.1: Cerium versus selected elements for regolith line samples.

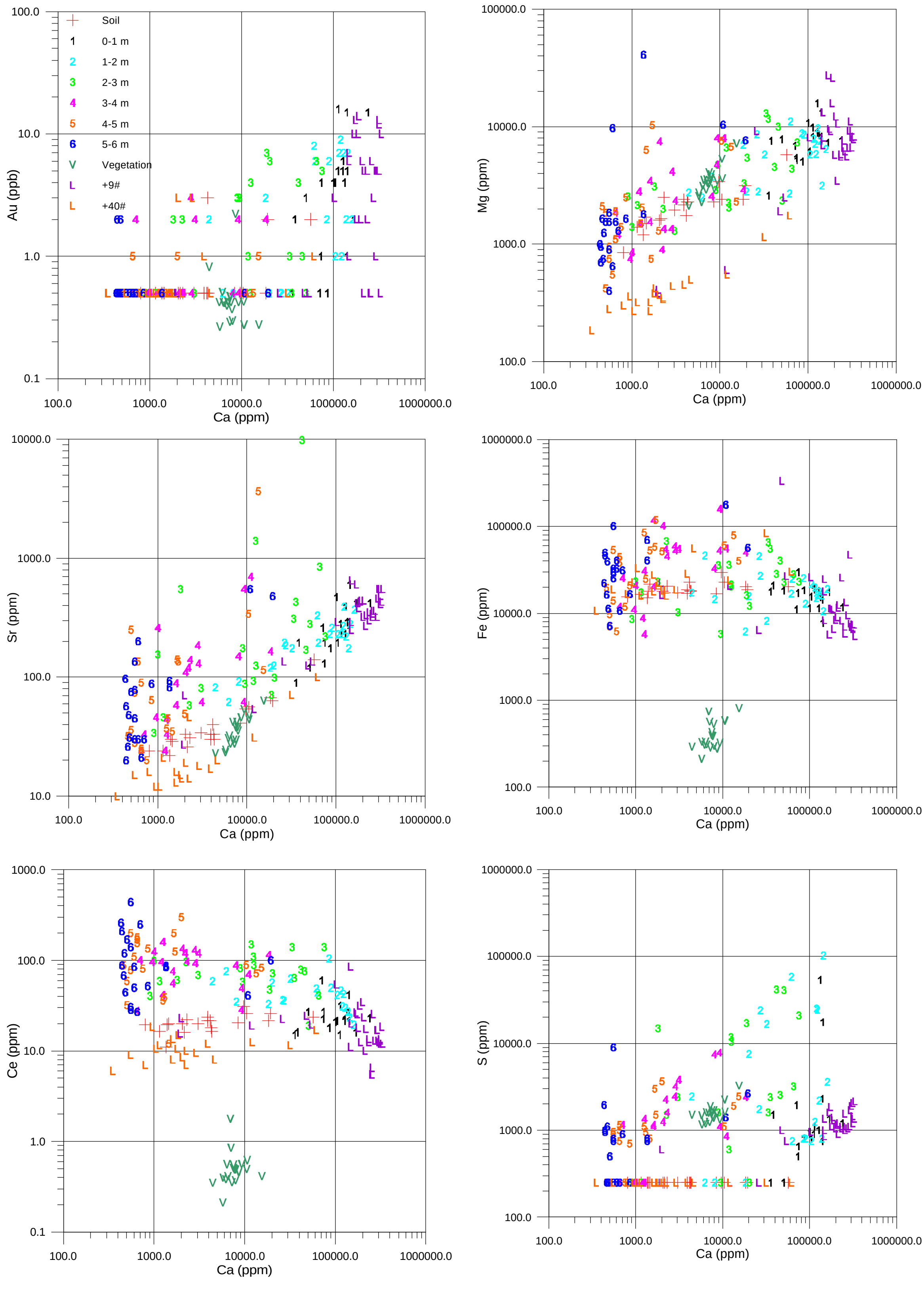

Figure A3b.2: Calcium versus selected elements for regolith line samples.

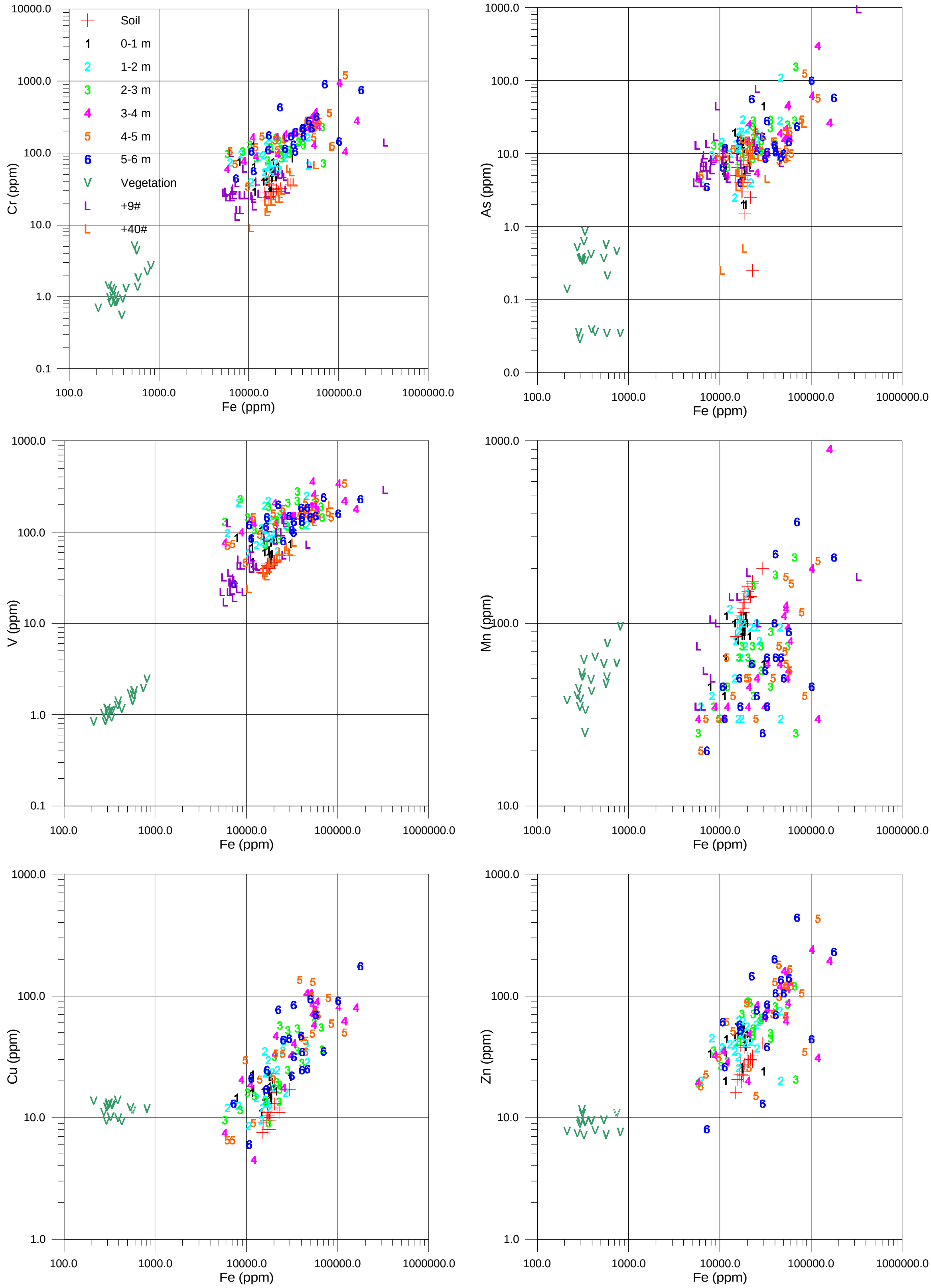

Figure A3b.3: Iron versus selected elements for regolith line samples.

APPENDIX 4

Appendix 4: Mineralogical tabulated and graphed data.

Appendix 4: Mineralogical Data

Table A4: Compiled XRD results for selected Birthday study area samples. As data has been interpreted from only standard XRD traces, clay mineral species identified (except kaolinite) and their quantities are speculative as listed under chlorite-smectite; for more precise clay identification and quantities, pre-treatment including sedimentation of samples is required.

Sample	Hole	E	N	from	to	Type	Quartz	Calcite	Gypsum	Alunite	K–Feldspar	Na–Feldspar	Hematite	Goethite	Kaolinite	Mica	Chl/Smectite	Amphibole	Others
R208465	RC940	394765	6689695	5	6	Upper reg.	xxx								xxxx	x			
R208782	RAB940	394765	6689659	0	10	Upper reg.	xxx	x							xx	x			
R208783	RAB940	394765	6689659	10	15	Lower reg.	xxx								xxx	xx			
R208784	RAB940	394765	6689659	15	20	Lower reg.	xx							xx	x	x			
R208785	RAB940	394765	6689659	20	25	Lower reg.	xx							xx	x	x			
R208786	RAB940	394765	6689659	25	30	Lower reg.	x						x	xxx	x	xx			
R208790	RAB940	394765	6689659	45	50	Lower reg.	x					xx				xx	xx	xx	
R208791	RAB940	394765	6689659	50	53	Lower reg.	x									xx		x	
R208466	RC939	394845	6689695	0	1	Upper reg.	xx	xxx	xx						xx	x			
R208467	RC939	394845	6689695	1	2	Upper reg.	xx	x	xx						xxx	xx			
R208468	RC939	394845	6689695	2	3	Upper reg.	xx								xxxx	xxx			
R208469	RC939	394845	6689695	3	4	Upper reg.	xxx				tr				xxx	xxx			
R208471	RC939	394845	6689695	5	6	Upper reg.	xx				tr				xxxx	xxx			
R208477	RC938	394925	6689695	5	6	Upper reg.	xxx				xxx				xxx	x			
R208482	RC937	395005	6689695	4	5	Upper reg.	xx				xxx				xx				
R208483	RC937	395005	6689695	5	6	Upper reg.	xx				xxx			x	xx				
R208489	RC935	395085	6689695	5	6	Upper reg.	x				xx	xx		xx	xx	xx	x		
R208490	RC933	395165	6689695	0	1	Upper reg.	xxxx	xxx			x				x	x			
R208491	RC933	395165	6689695	1	2	Upper reg.	xxxx	xxxx			tr				x				
R208492	RC933	395165	6689695	2	3	Upper reg.	xx	xx	tr		x			x	xx	x	xx		
R208493	RC933	395165	6689695	3	4	Upper reg.	xx	x			xx			xx	xx	x	xx		
R208496	RC931	395245	6689695	0	1	U. reg. (zone 1)	xx	xxx					tr		x	tr			
R208497	RC931	395245	6689695	1	2	U. reg. (zone 1)	xx	xxx					x		xx		x		
R208498	RC931	395245	6689695	2	3	U. reg. (zone 1)	xx		xxx					x	xx		x		Celestine: x
R208499	RC931	395245	6689695	3	4	U. reg. (zone 1)	xxx		tr					xx	xx				
R208741	RAB931	395245	6689659	0	10	U. reg. (zone 1)	xxx	xx	x					x	xx				Andalusite: x
R208742	RAB931	395245	6689659	10	15	L. reg (zone 1)	xx							x	xxx				
R208743	RAB931	395245	6689659	15	20	L. reg (zone 1)	xx							x	xxx	x			

Sample	Hole	E	N	from	to	Type	Quartz	Calcite	Gypsum	Alunite	K–Felspar	Na–Felspar	Hematite	Goethite	Kaolinite	Mica	Chl/Smectite	Amphibole	Others
R208744	RAB931	395245	6689659	20	25	L. reg (zone 1)	xxx							x	xxx	x			
R208745	RAB931	395245	6689659	25	30	L. reg (zone 1)	xx				x			xx	xxx				
R208746	RAB931	395245	6689659	30	35	L. reg (zone 1)	xxx				xx			x	xx				
R208747	RAB931	395245	6689659	35	40	L. reg (zone 1)	xxx				xx				xx				
R208748	RAB931	395245	6689659	40	45	L. reg (zone 1)	xxx				xxx				x	tr			
R208749	RAB931	395245	6689659	45	50	L. reg (zone 1)	xxx				xx	x			xx	xx			
R208750	RAB931	395245	6689659	50	56	L. reg (zone 1)	xxx				x	xx			x	xx			
R208514	RC925	395485	6689695	0	1	U. reg (zone 2)	xx	xxx	xxxx				x		x				
R208515	RC925	395485	6689695	1	2	U. reg (zone 2)	xxx		xxx		tr			x	xx				Aragonite: tr
R208516	RC925	395485	6689695	2	3	U. reg (zone 2)	xxx		xx		tr			xx	xxx	tr			
R208517	RC925	395485	6689695	3	4	U. reg (zone 2)	xx	x	tr					xx	xxx				
R208525	RC664	395565	6689695	5	6	U. reg (zone 2)	xx							xx	xxx	xx			
R208526	RC510	395655	6689695	0	1	U. reg (zone 2)	xxx	xxx							x	x			
R208527	RC510	395655	6689695	1	2	U. reg (zone 2)	xx		xxxx						x				
R208528	RC510	395655	6689695	2	3	U. reg (zone 2)	xx		x					x	x				
R208529	RC510	395655	6689695	3	4	U. reg (zone 2)	xxx		x					xx	xx				
R208530	RC510	395655	6689695	4	5	U. reg (zone 2)	xx			x				xx	xx		tr		
R208531	RC510	395655	6689695	5	6	U. reg (zone 2)	xx			x				x	xx				
R208684	RAB510	395655	6689660	0	5	U. reg (zone 2)	xx	xx	x				x		x	tr			
R208685	RAB510	395655	6689660	5	10	L. reg (zone 2)	xxx			xx				xx	xx				
R208686	RAB510	395655	6689660	10	15	L. reg (zone 2)	xxx			xx	xx			xx	xx				
R208687	RAB510	395655	6689660	15	20	L. reg (zone 2)	xxx			x	xx			xx	xx				
R208688	RAB510	395655	6689660	20	25	L. reg (zone 2)	xx				xx			xx	xx				
R208689	RAB510	395655	6689660	25	30	L. reg (zone 2)	xxx				xx			x	xx				
R208690	RAB510	395655	6689660	30	34	L. reg (zone 2)	xxx				x			x	xxx	x			
R208692	RAB510	395655	6689660	35	36	L. reg (zone 2)	xx			x	tr			tr	xx				
R208696	RAB510	395655	6689660	39	40	L. reg (zone 2)	xx				xx				xx				
R208697	RAB510	395655	6689660	40	45	L. reg (zone 2)	xx				xxx	xx			x	x			
R208537	RC508	395735	6689695	5	6	Upper reg.	xx				xx			x	xx				
R208549	RC504	395895	6689695	5	6	Upper reg.	xxx							x	xxx	xxx			
R208649	RAB502	395976	6689660	0	5	Upper reg.	xx	xx	x				x	x		x			
R208650	RAB502	395976	6689660	5	10	Lower reg.	x							x	x	xxx			
R208651	RAB502	395976	6689660	10	15	Lower reg.	x							x	x	xx	x		
R208652	RAB502	395976	6689660	15	20	Lower reg.	xx					tr		x	x	xx	xx		

Sample	Hole	E	N	from	to	Type	Quartz	Calcite	Gypsum	Alunite	K–Felspar	Na–Felspar	Hematite	Goethite	Kaolinite	Mica	Chl/Smectite	Amphibole	Others
R208653	RAB502	395976	6689660	20	25	Lower reg.	xx					xx				x	xx		
R208654	RAB502	395976	6689660	25	30	Lower reg.	xx					x		x	x	x	xx		
R208655	RAB502	395976	6689660	30	32	Lower reg.	xx					xx			x	xx	xx		
R208562	RC636	396136	6689695	0	1	Upper. reg.	xx	xxx			tr			xx	xx				
R208563	RC636	396136	6689695	1	2	Upper reg.	xx	x			x			xx	xx				
R208564	RC636	396136	6689695	2	3	Upper reg.	xx				xx		x	xx	xx	x			
R208565	RC636	396136	6689695	3	4	Upper reg.	xx				xx		xx	xx	xx	x			
R208573	RC1030	396216	6689695	5	6	Upper reg.	xxx								xxx	tr	tr		
R208574	RC1028	396296	6689695	0	1	Upper reg.	xx	xxx			x		tr		x	x			
R208575	RC1028	396296	6689695	1	2	Upper reg.	xx	xxx					tr		x	x			
R208576	RC1028	396296	6689695	2	3	Upper reg.	xx	xx	tr				x		x	x			
R208577	RC1028	396296	6689695	3	4	Upper reg.	x							xx	xx	tr	tr		
R208578	RC1028	396296	6689695	4	5	Upper reg.	x							xx	xx	tr	xx		Talc: x
R208579	RC1028	396296	6689695	5	6	Upp. reg.	x							x	xx	x	xx		Talc: xx
R208792	RAB1028	396296	6689660	0	10	Upp. reg.	xxxx	xx				x			xx	xx			
R208793	RAB1028	396296	6689660	10	15	Lower reg.	xxx					xxx			xx	xxx			
R208794	RAB1028	396296	6689660	15	20	Lower reg.	x					xxx				xxx	x	x	Talc: x
R208795	RAB1028	396296	6689660	20	26	Lower reg.	x				x	xxx				xxxx	xx	x	Talc: xx

xxxx Predominant
xxx Moderate to high concentration
xx Low to moderate concentration
x Slight to low concentration
tr Trace

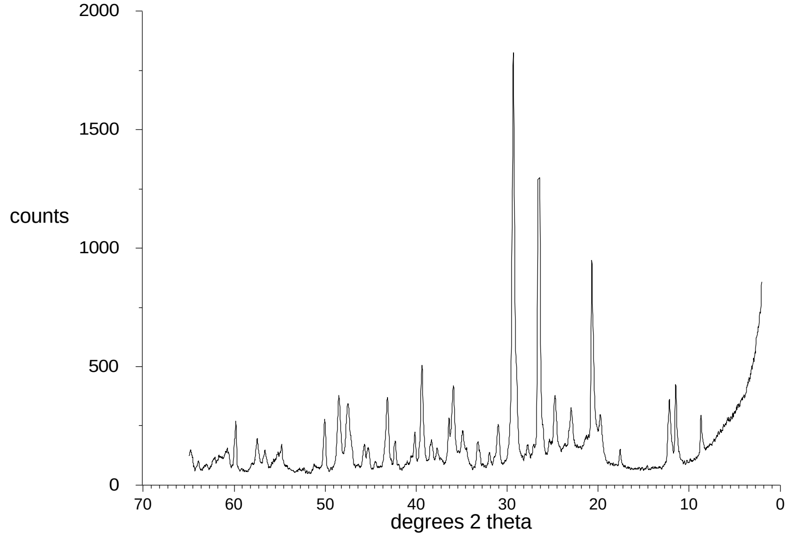

Figure A4.1: XRD trace of sample R208466 (RC939, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

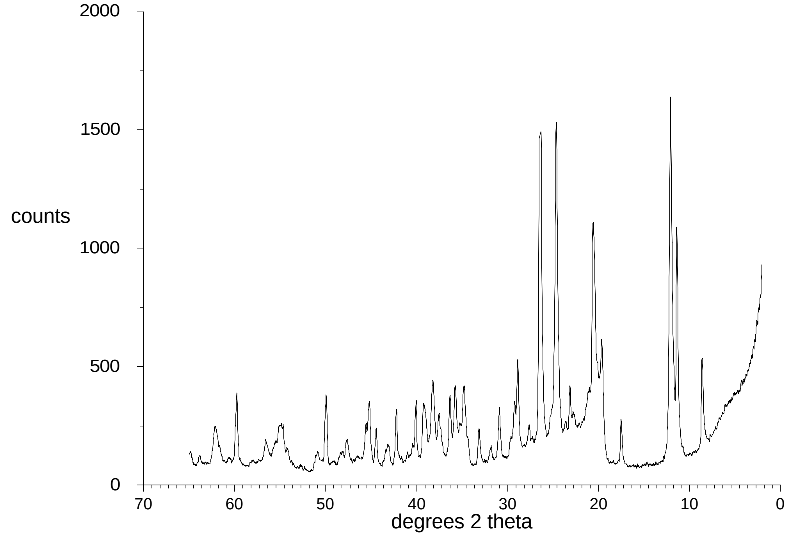

Figure A4.2: XRD trace of sample R208467 (RC939, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

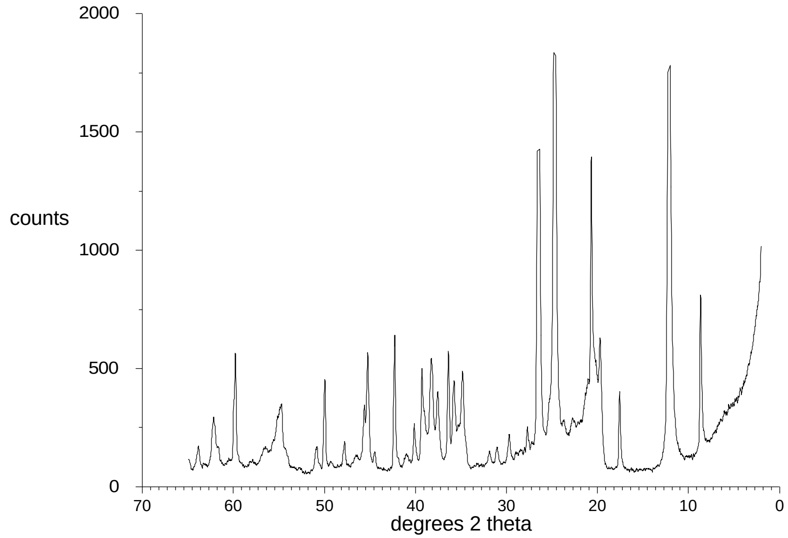

Figure A4.3: XRD trace of sample R208468 (RC939, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

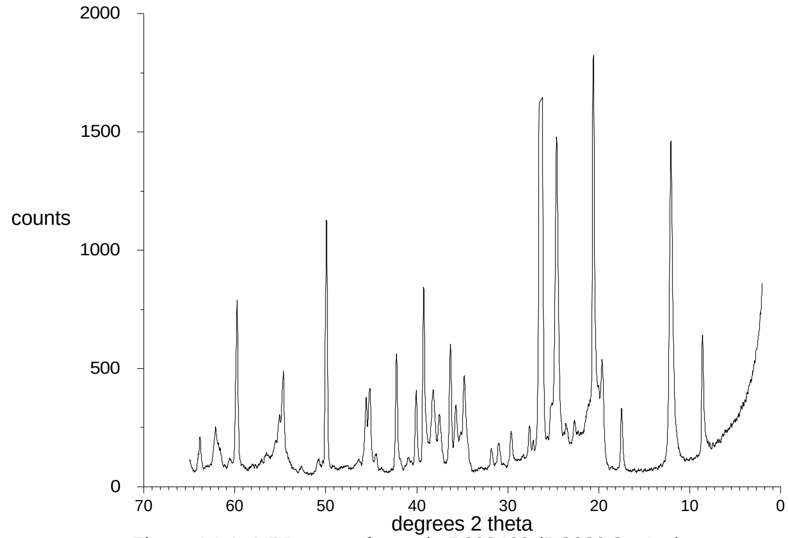

Figure A4.4: XRD trace of sample R208469 (RC939 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

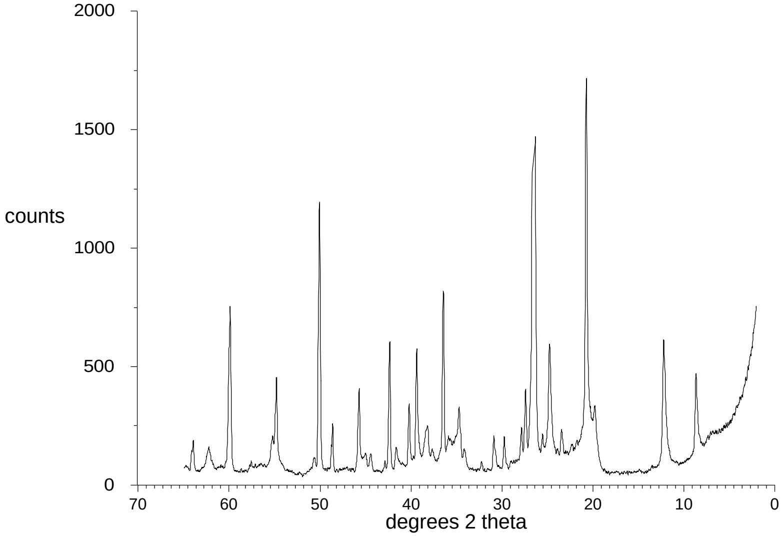

Figure A4.5: XRD trace of sample R208749 (RC931, 45 - 50 m).
Data smoothed with 5-point running average and clipped at 2000 counts

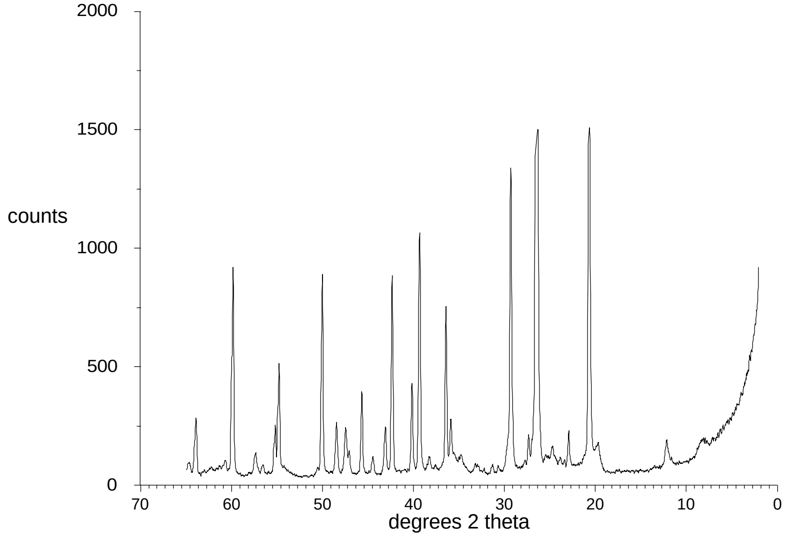

Figure A4.6: XRD trace of sample R208490 (RC933, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

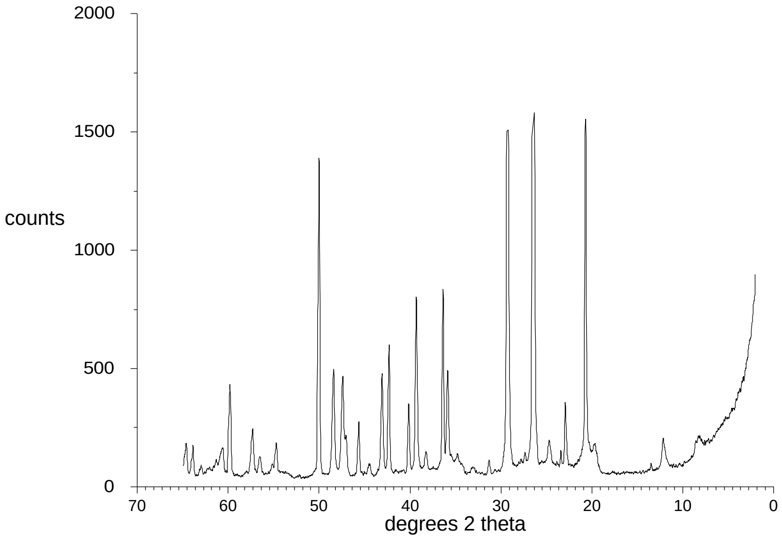

Figure A4.7: XRD trace of sample R208491 (RC933, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

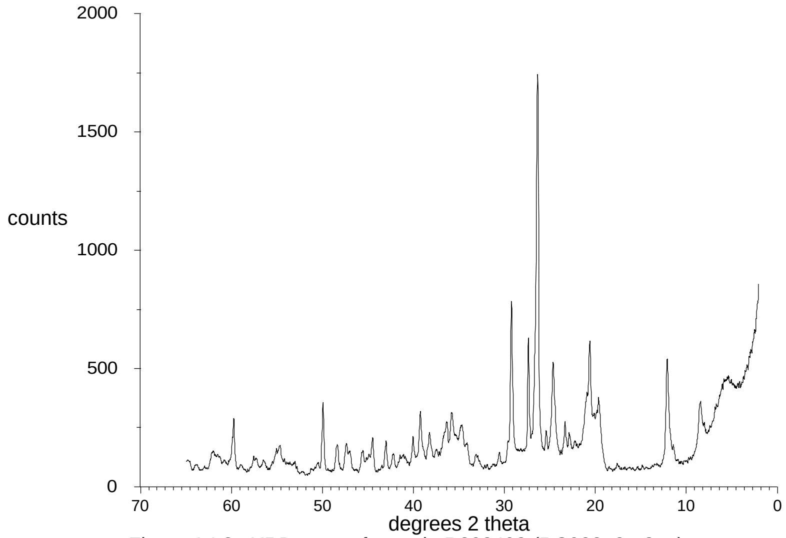

Figure A4.8: XRD trace of sample R208492 (RC933, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

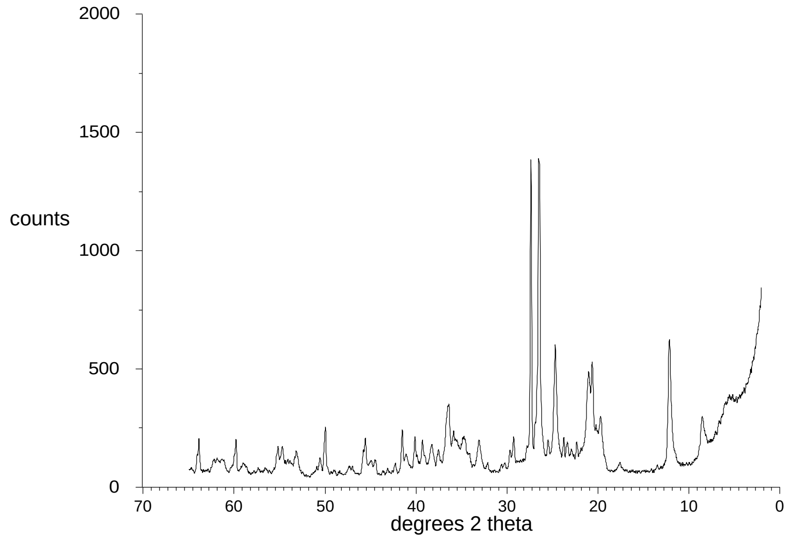

Figure A4.9: XRD trace of sample R208493 (RC933, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

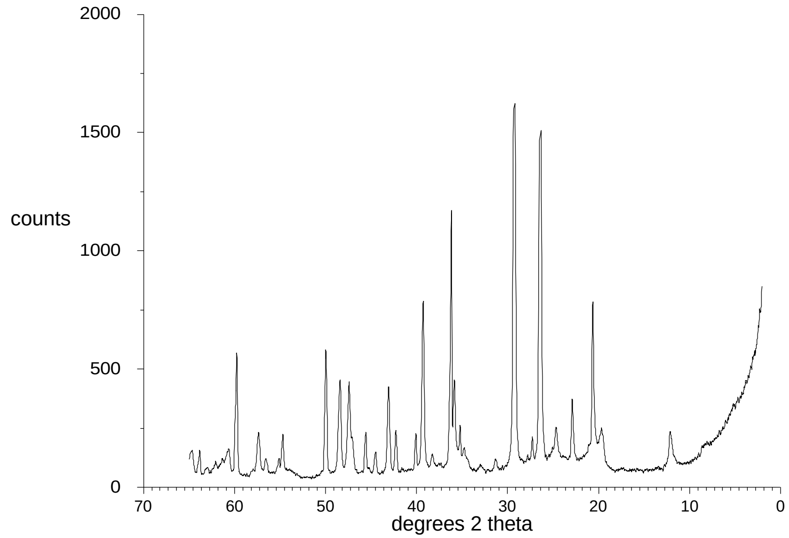

Figure A4.10: XRD trace of sample R208496 (RC931, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

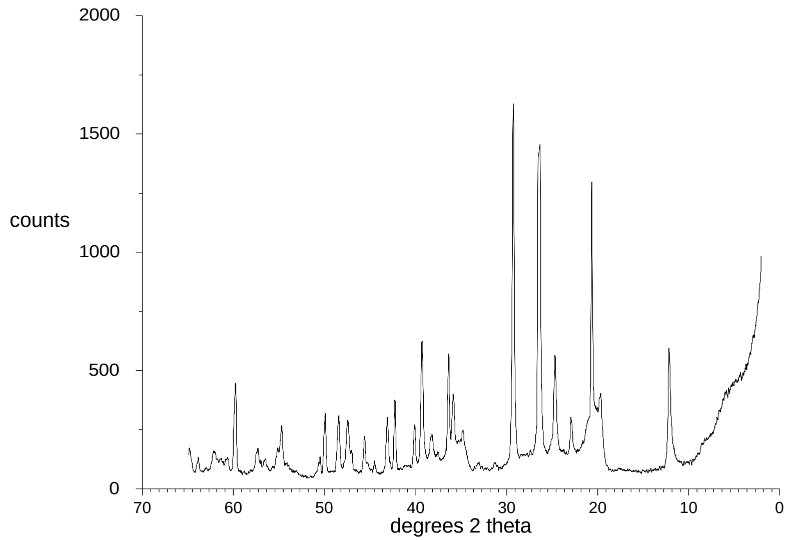

Figure A4.11: XRD trace of sample R208497 (RC931, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

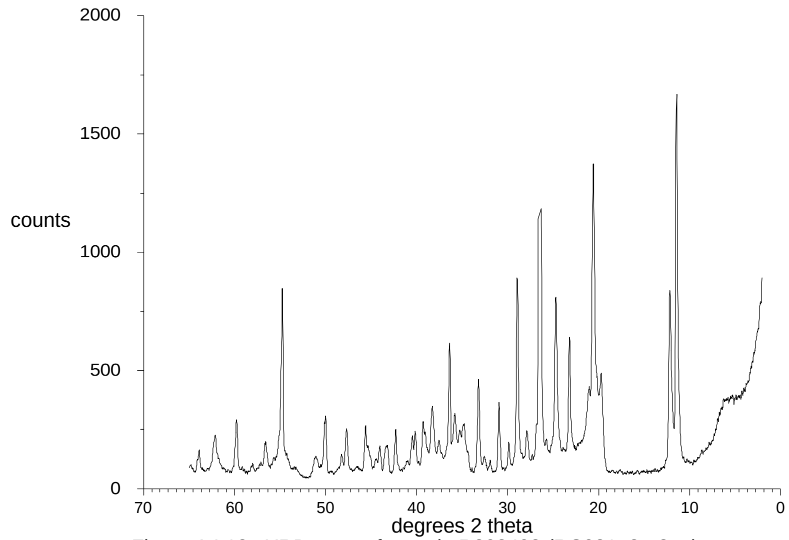

Figure A4.12: XRD trace of sample R208498 (RC931, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

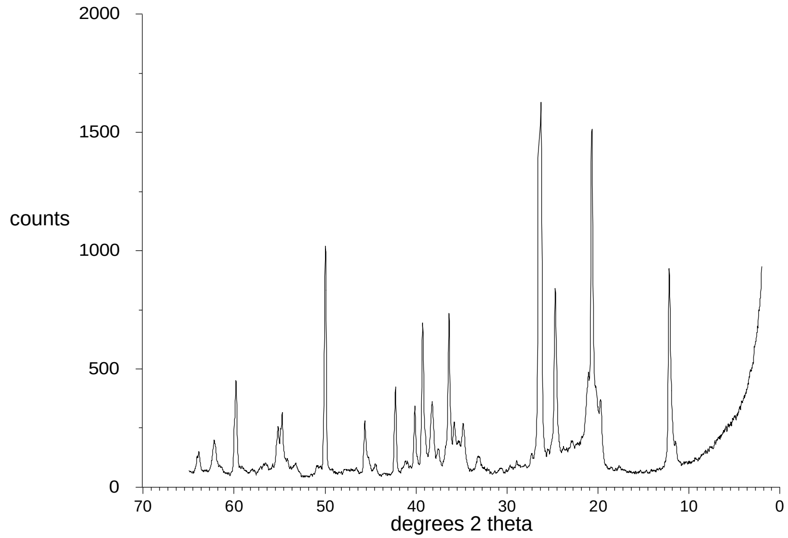

Figure A4.13: XRD trace of sample R208499 (RC931, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

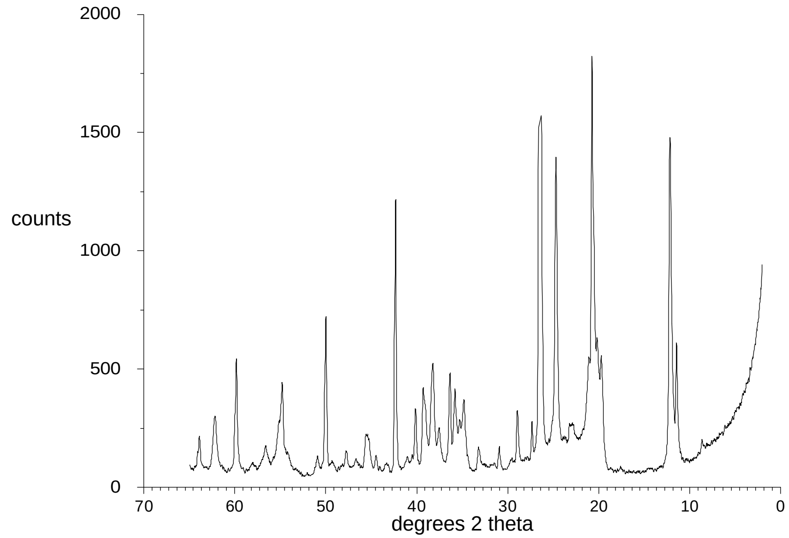

Figure A4.14: XRD trace of sample R208516 (RC925, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

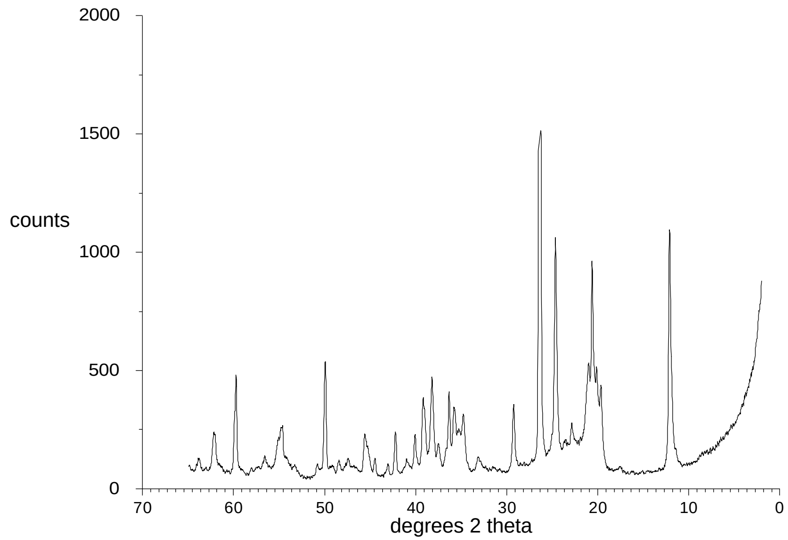

Figure A4.15: XRD trace of sample R208517 (RC925, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

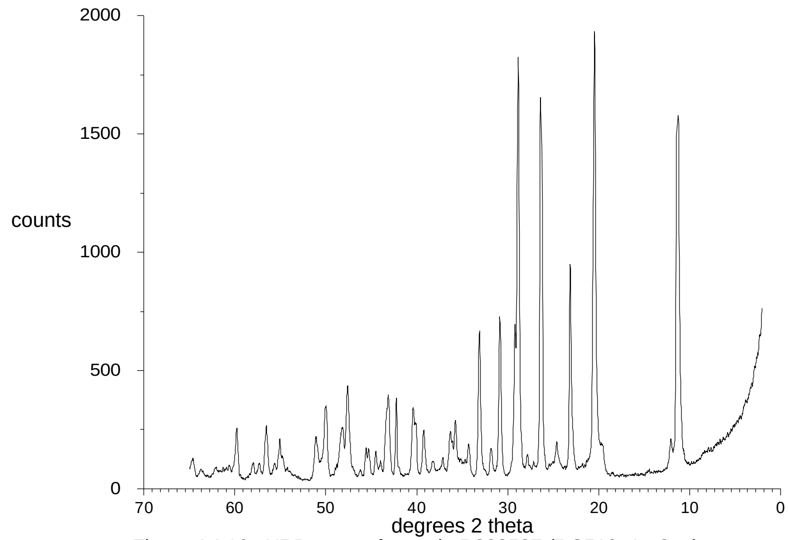

Figure A4.16: XRD trace of sample R208527 (RC510, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

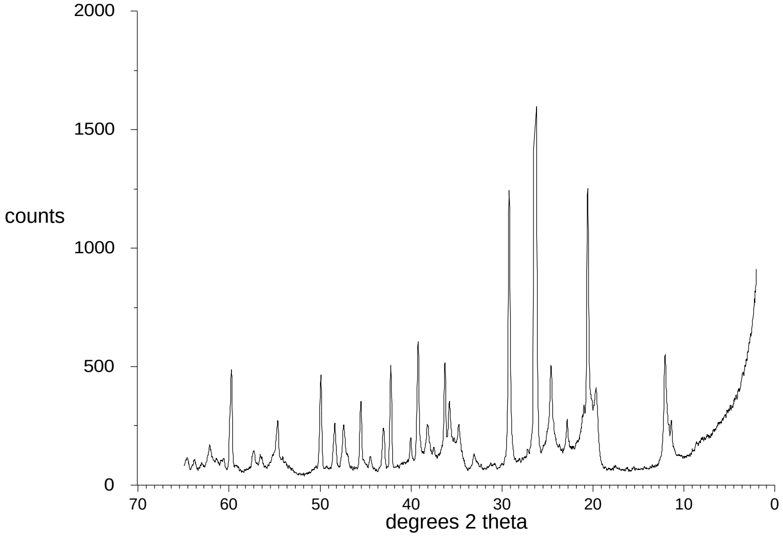

Figure A4.17: XRD trace of sample R208528 (RC510, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

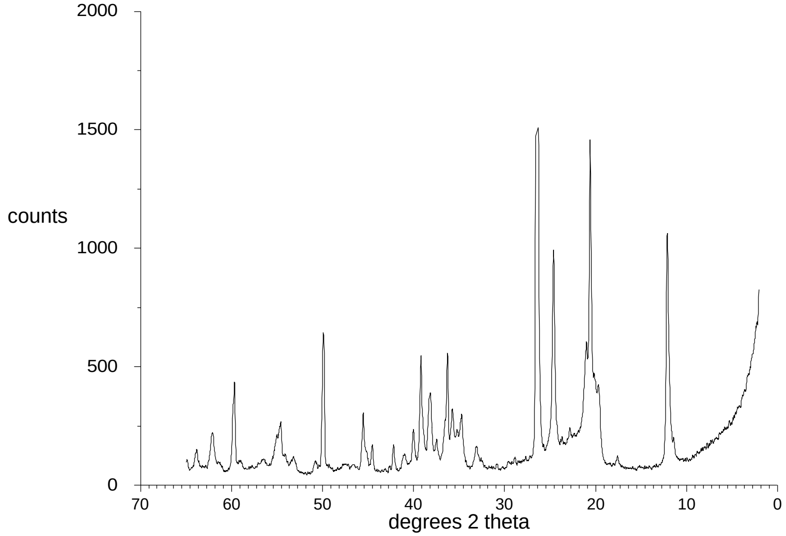

Figure A4.18: XRD trace of sample R208529 (RC510, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

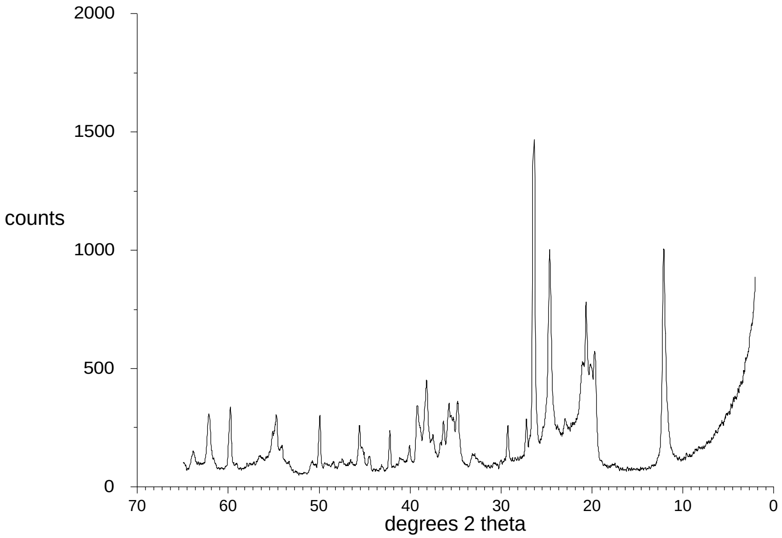

Figure A4.19: XRD trace of sample R208563 (RC636, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

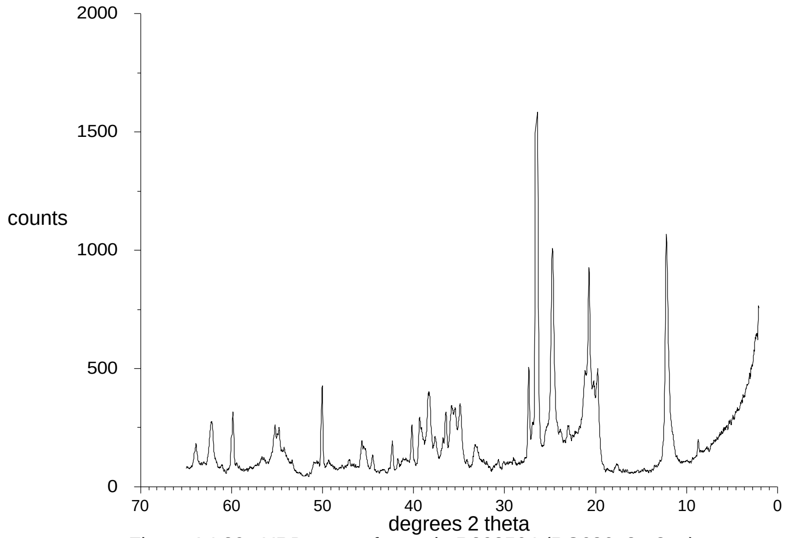

Figure A4.20: XRD trace of sample R208564 (RC636, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

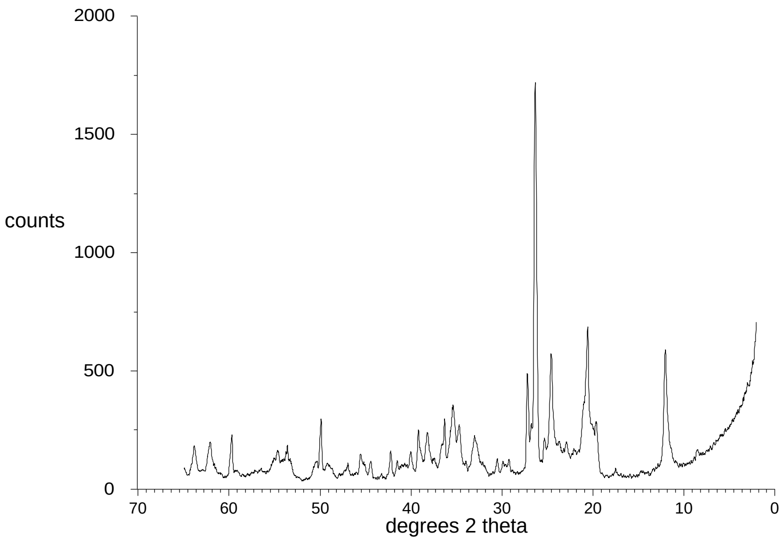

Figure A4.21: XRD trace of sample R208565 (RC636, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

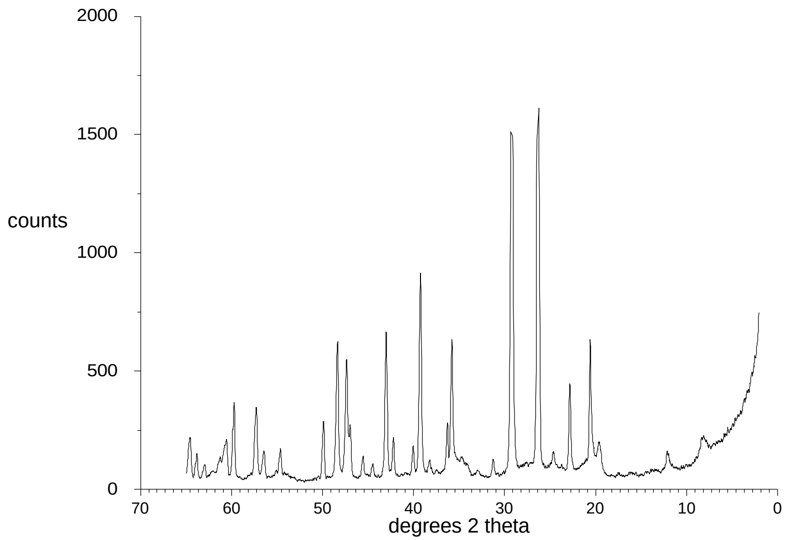

Figure A4.22: XRD trace of sample R208575 (RC1028, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

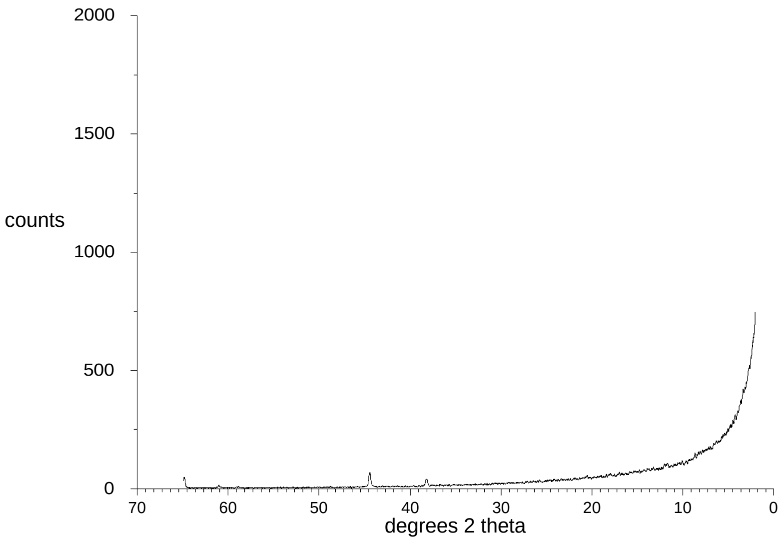

Figure A4.23: XRD trace of sample R208576 (RC1028, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

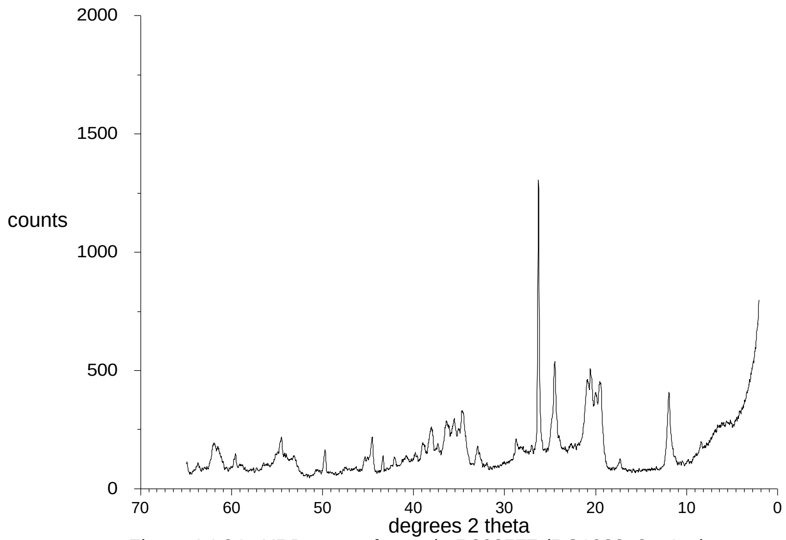

Figure A4.24: XRD trace of sample R208577 (RC1028, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

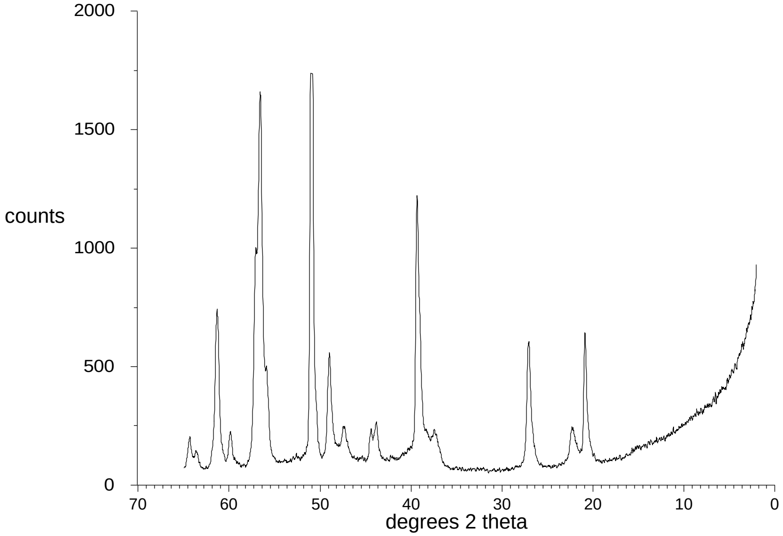

Figure A4.25: XRD trace of sample R208514 (RC925, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

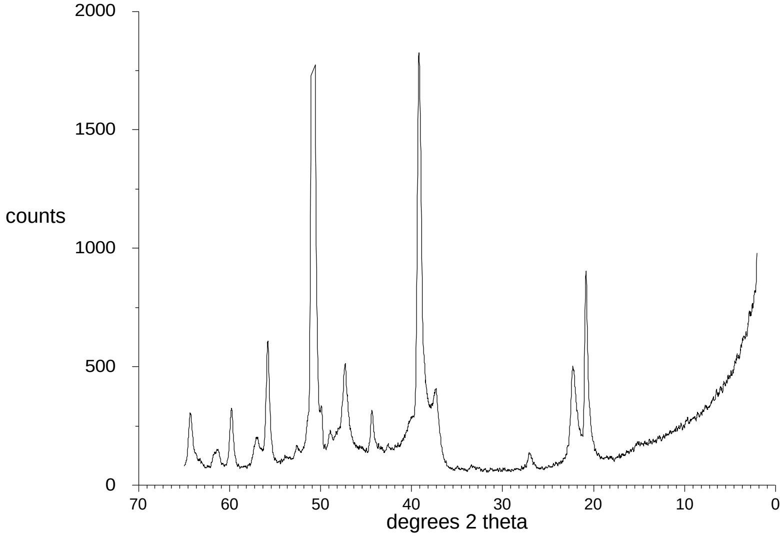

Figure A4.26: XRD trace of sample R208515 (RC925, 1 - 2 m).
Data smoothed with 5-point running average and clipped at 2000 counts

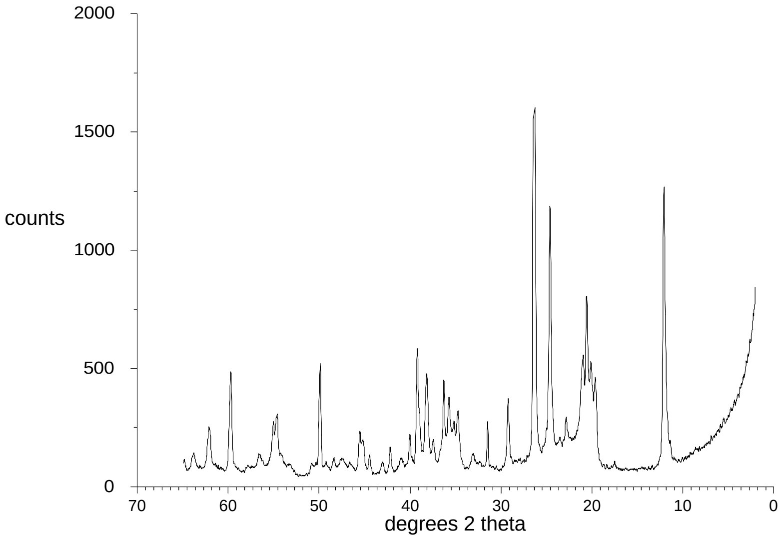

Figure A4.27: XRD trace of sample R208517 (RC925, 3 - 4 m).
Data smoothed with 5-point running average and clipped at 2000 counts

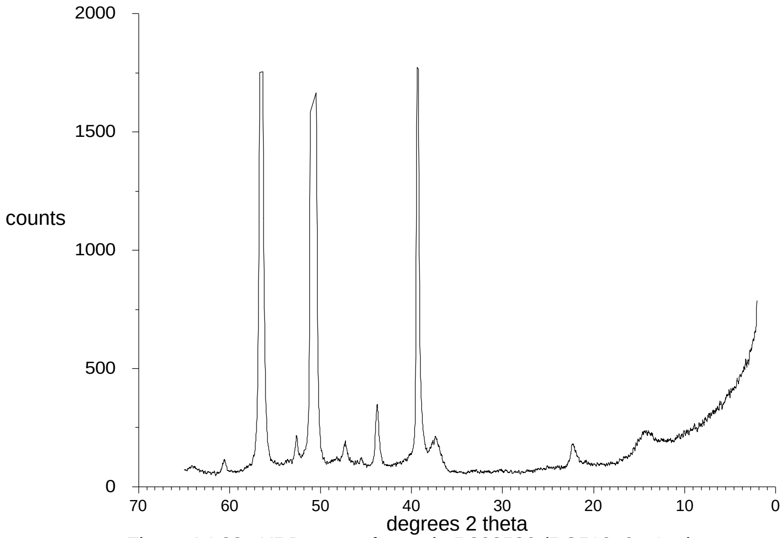

Figure A4.28: XRD trace of sample R208526 (RC510, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

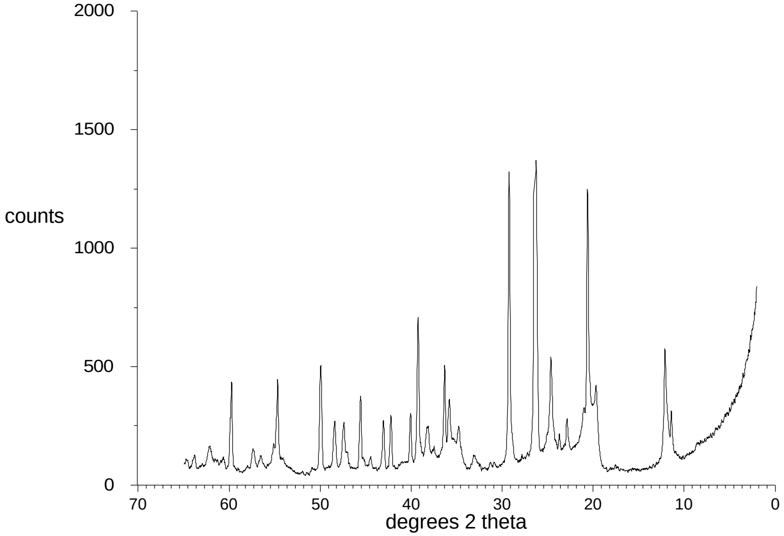

Figure A4.29: XRD trace of sample R208528 (RC510, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

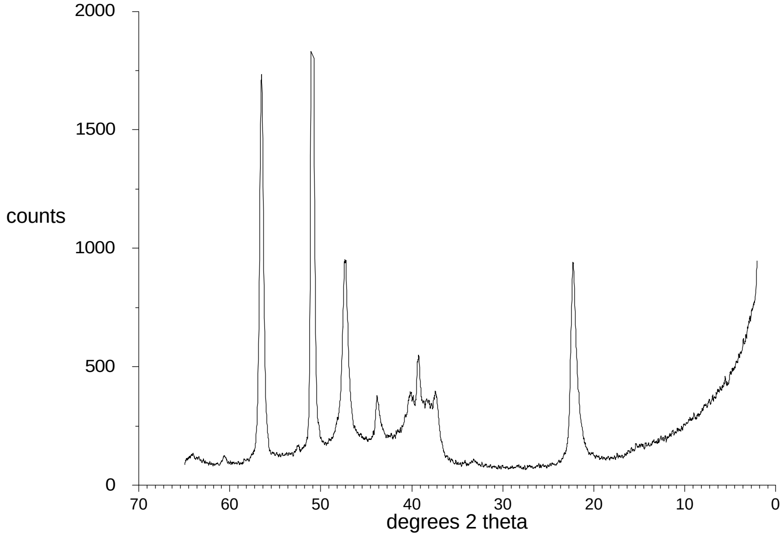

Figure A4.30: XRD trace of sample R208562 (RC636, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

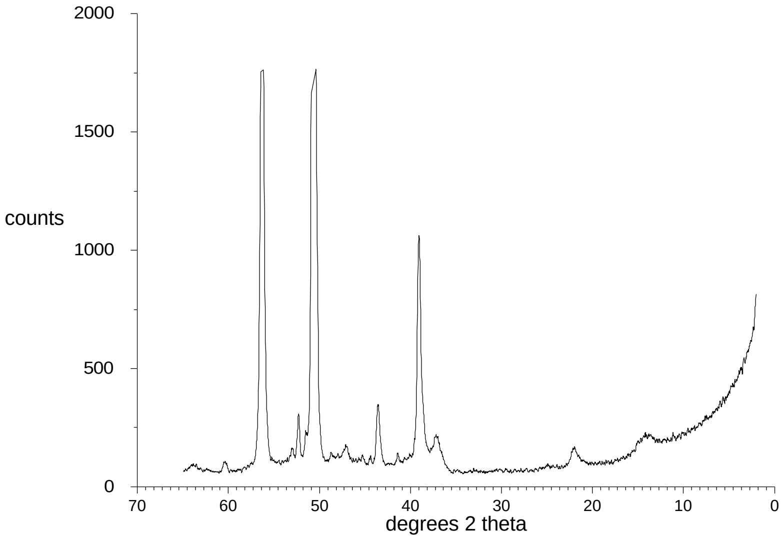

Figure A4.31: XRD trace of sample R208574 (RC1028, 0 - 1 m).
Data smoothed with 5-point running average and clipped at 2000 counts

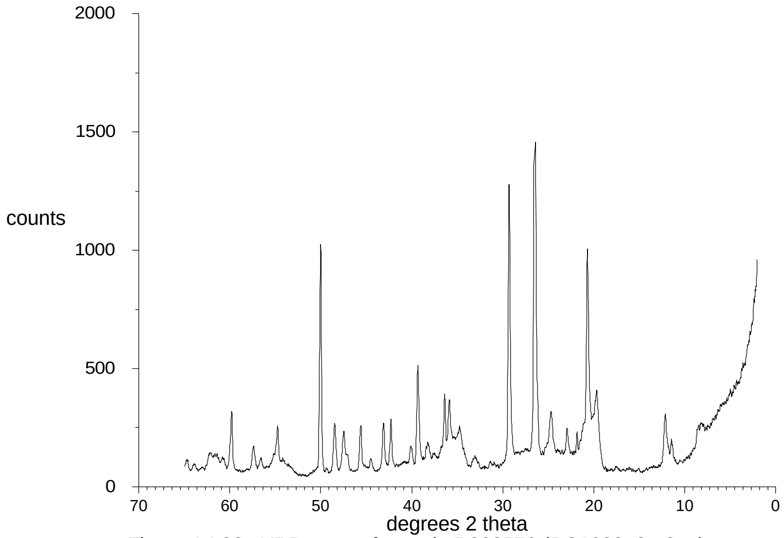

Figure A4.32: XRD trace of sample R208576 (RC1028, 2 - 3 m).
Data smoothed with 5-point running average and clipped at 2000 counts

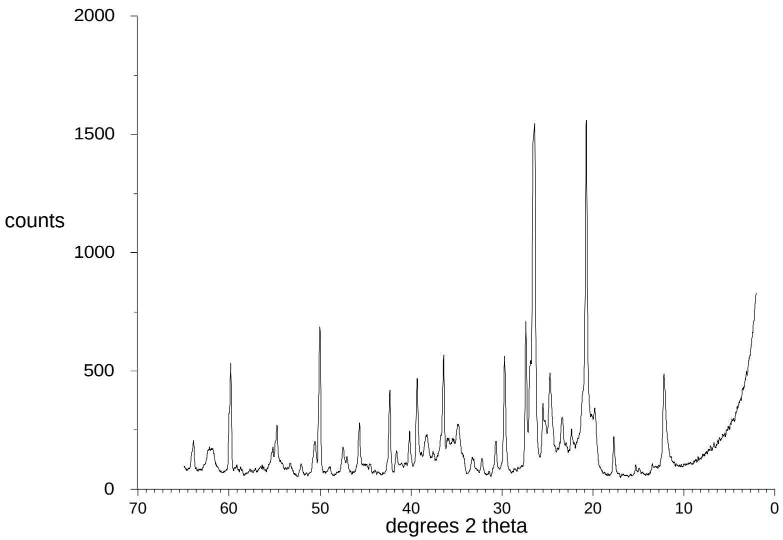

Figure A4.33: XRD trace of sample R208686 (RAB510, 10 - 15 m).
Data smoothed with 5-point running average and clipped at 2000 counts

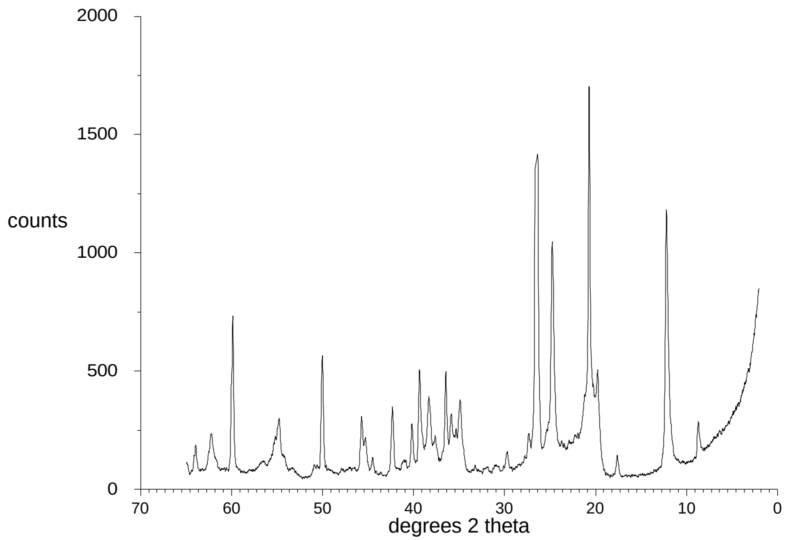

Figure A4.34: XRD trace of sample R208690 (RAB510, 30 - 34 m).
Data smoothed with 5-point running average and clipped at 2000 counts

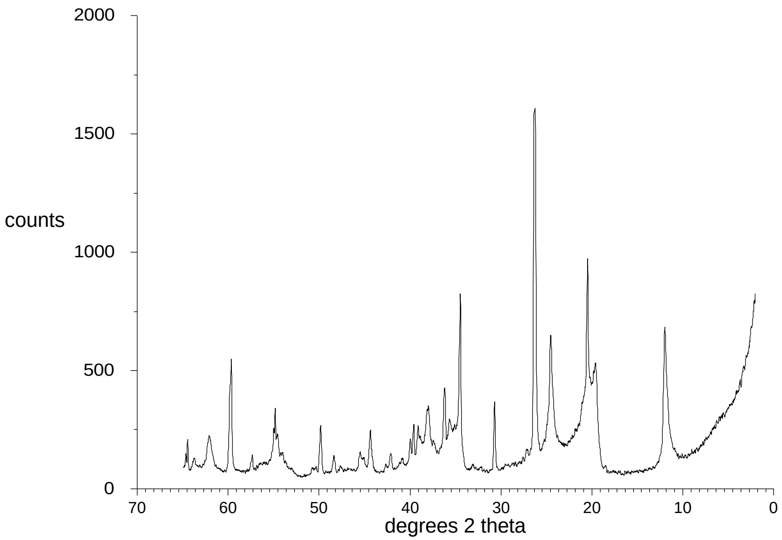

Figure A4.35: XRD trace of sample R208692 (RAB510, 35 - 36 m).
Data smoothed with 5-point running average and clipped at 2000 counts

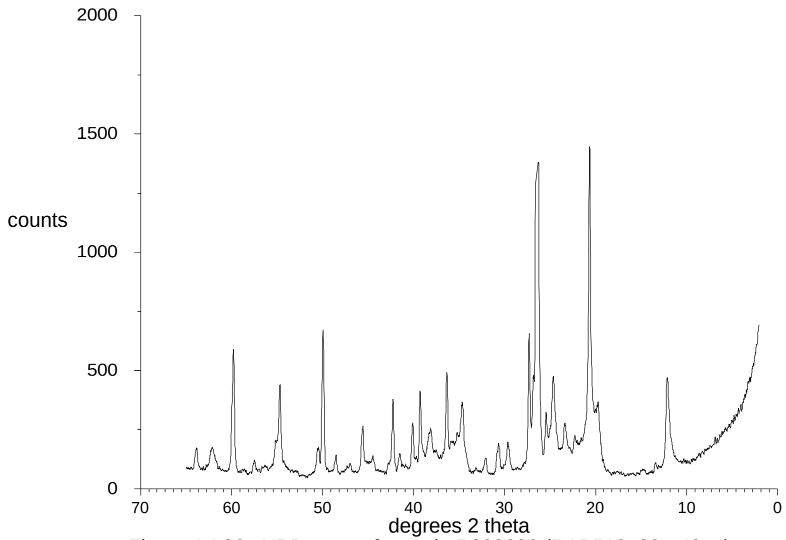

Figure A4.36: XRD trace of sample R208696 (RAB510, 39 - 40 m).
Data smoothed with 5-point running average and clipped at 2000 counts

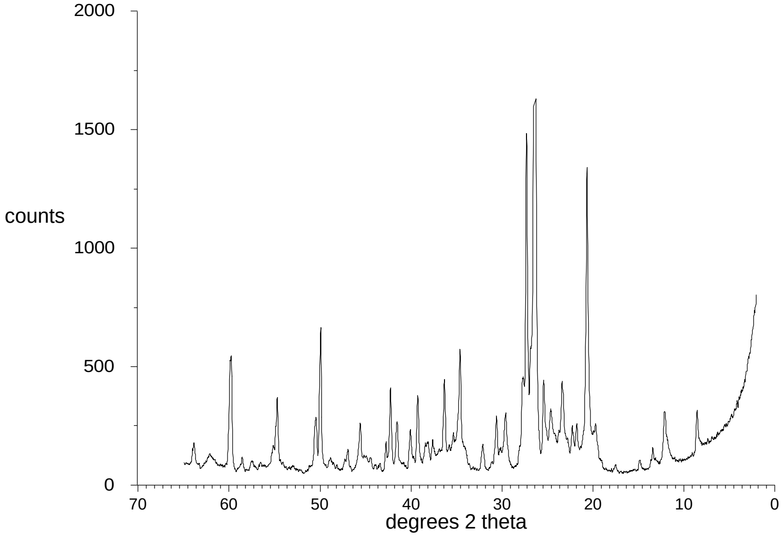

Figure A4.37: XRD trace of sample R208697 (RAB510, 40 - 45 m).
Data smoothed with 5-point running average and clipped at 2000 counts

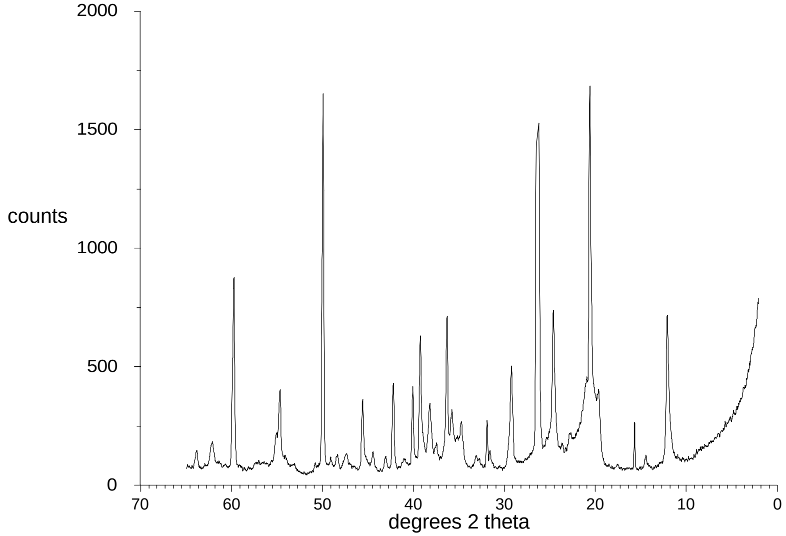

Figure A4.38: XRD trace of sample R208741 (RAB931, 0 - 10 m).
Data smoothed with 5-point running average and clipped at 2000 counts

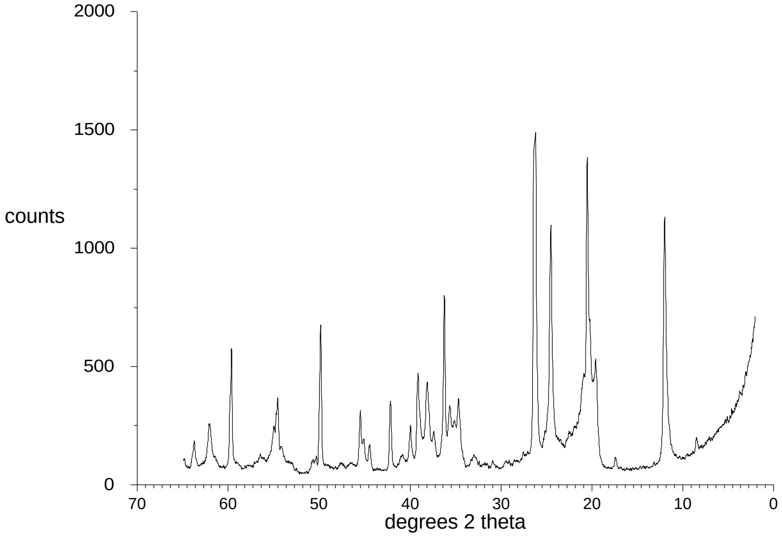

Figure A4.39: XRD trace of sample R208743 (RAB931, 15 - 20 m).
Data smoothed with 5-point running average and clipped at 2000 counts

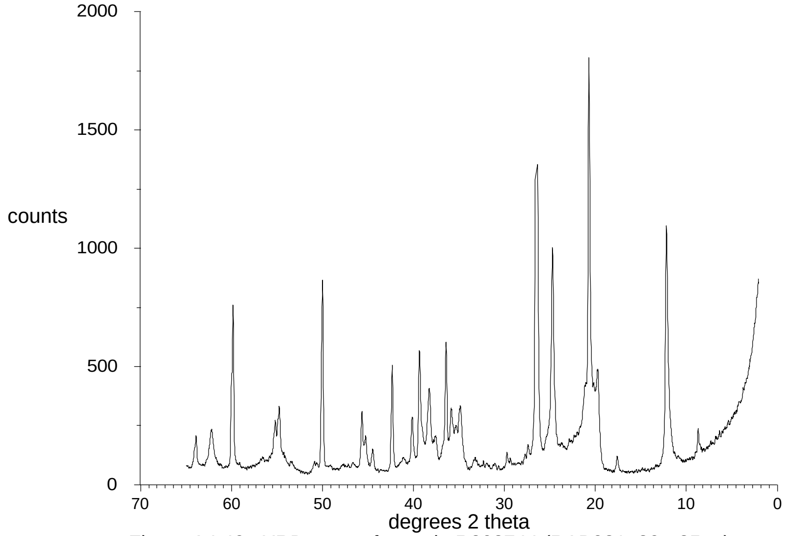

Figure A4.40: XRD trace of sample R208744 (RAB931, 20 - 25 m).
Data smoothed with 5-point running average and clipped at 2000 counts

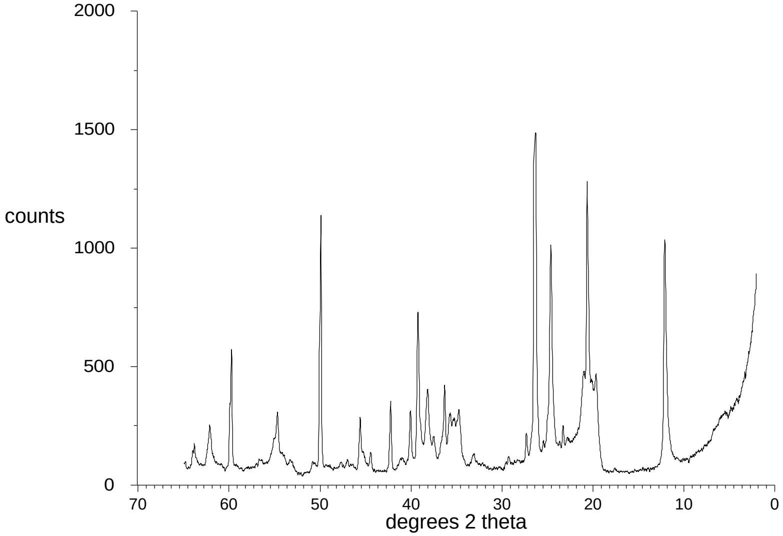

Figure A4.41: XRD trace of sample R208746 (RAB931, 25 - 30 m).
Data smoothed with 5-point running average and clipped at 2000 counts

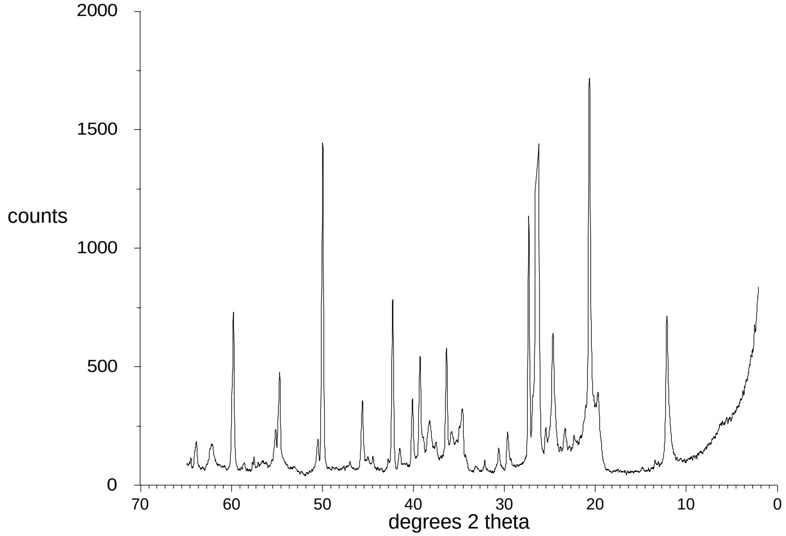

Figure A4.42: XRD trace of sample R208746 (RAB931, 30 - 35 m).
Data smoothed with 5-point running average and clipped at 2000 counts

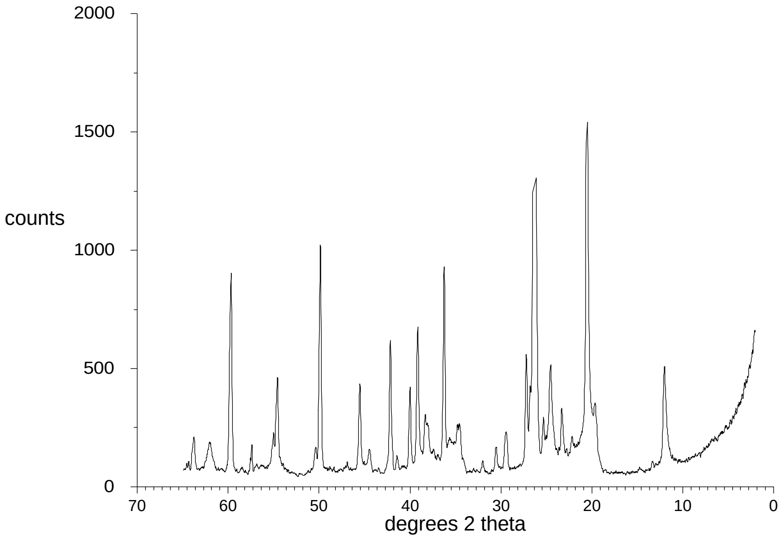

Figure A4.43: XRD trace of sample R208747 (RAB931, 35 - 40 m).
Data smoothed with 5-point running average and clipped at 2000 counts

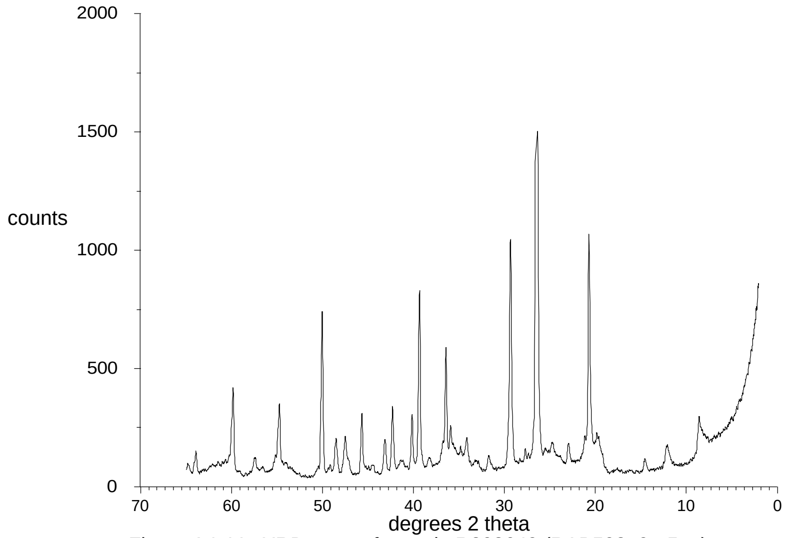

Figure A4.44: XRD trace of sample R208649 (RAB502, 0 - 5 m).
Data smoothed with 5-point running average and clipped at 2000 counts

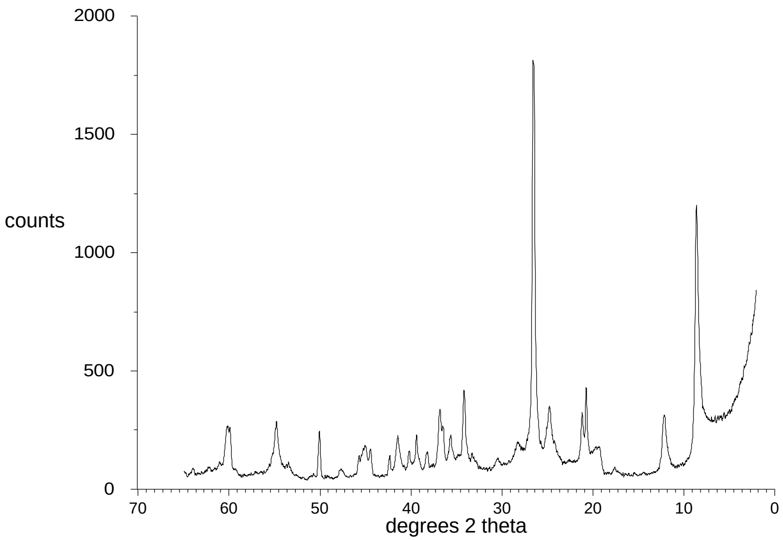

Figure A4.45: XRD trace of sample R208650 (RAB502, 5 - 10 m).
Data smoothed with 5-point running average and clipped at 2000 counts

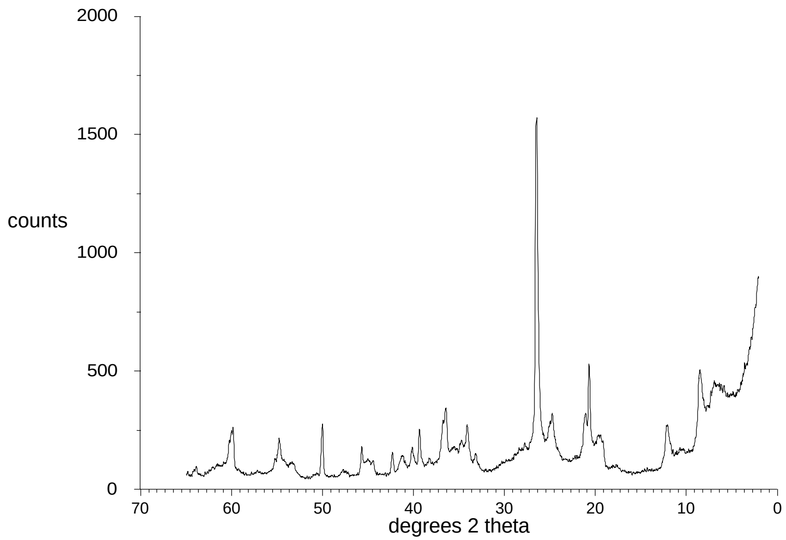

Figure A4.46: XRD trace of sample R208651 (RAB502, 10 - 15 m).
Data smoothed with 5-point running average and clipped at 2000 counts

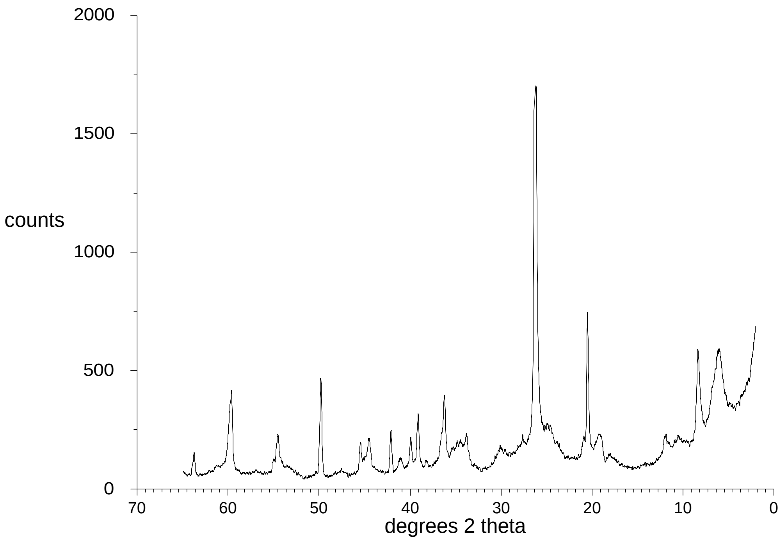

Figure A4.47: XRD trace of sample R208652 (RAB502, 15 - 20 m).
Data smoothed with 5-point running average and clipped at 2000 counts

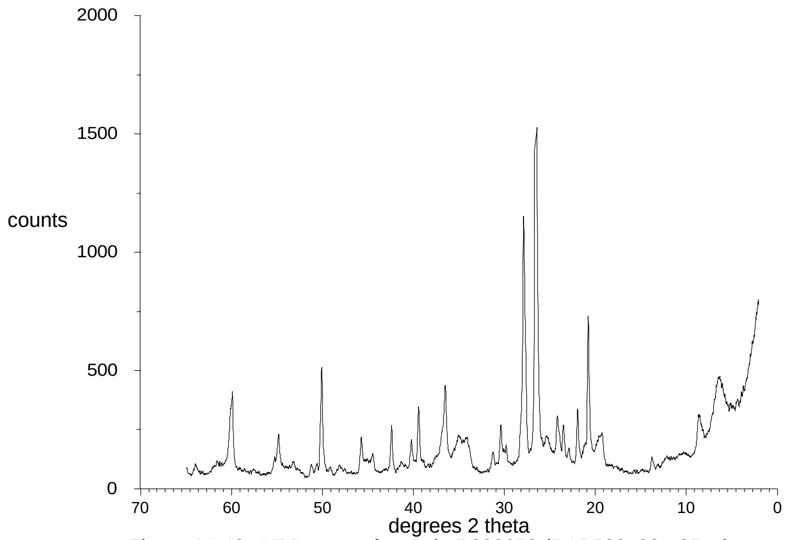

Figure A4.48: XRD trace of sample R208653 (RAB502, 20 - 25 m).
Data smoothed with 5-point running average and clipped at 2000 counts

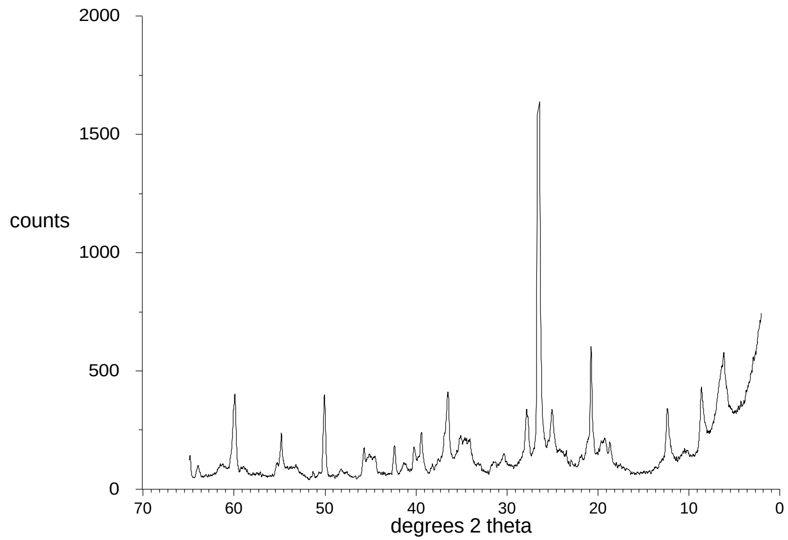

Figure A4.49: XRD trace of sample R208654 (RAB502, 25 - 30 m).
Data smoothed with 5-point running average and clipped at 2000 counts

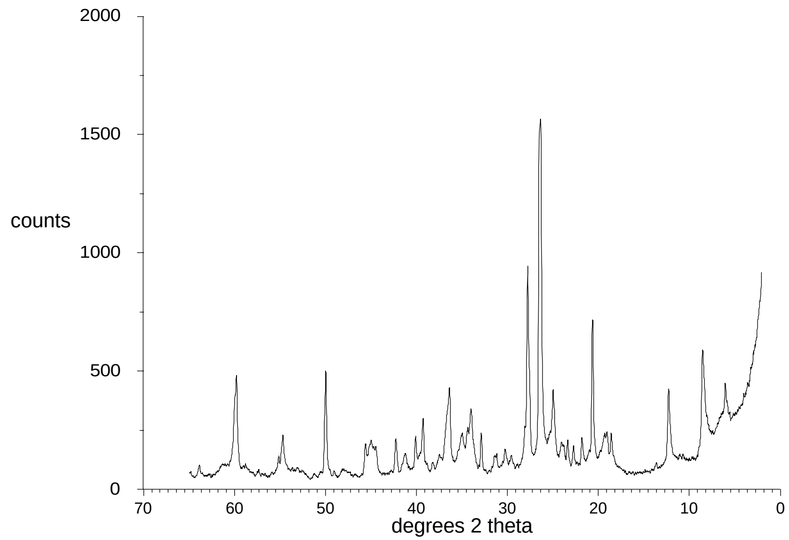

Figure A4.50: XRD trace of sample R208655 (RAB502, 30 - 32 m).
Data smoothed with 5-point running average and clipped at 2000 counts

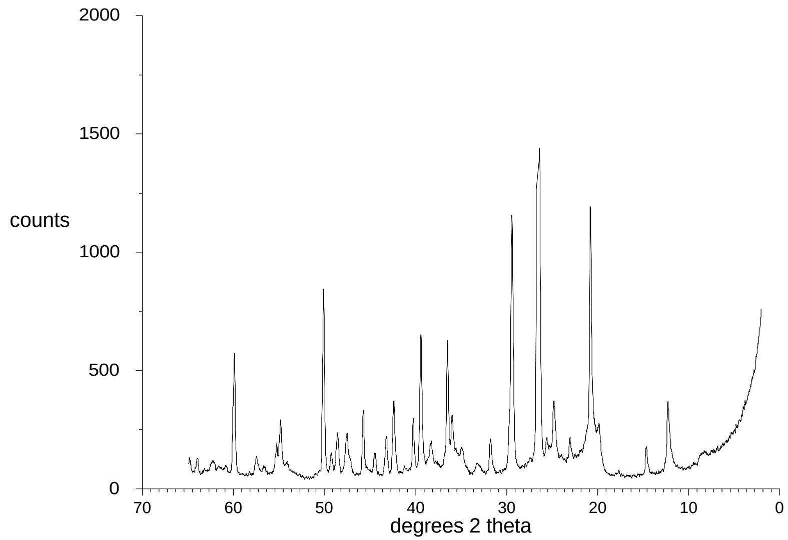

Figure A4.51: XRD trace of sample R208684 (RAB510, 0 - 5 m).
Data smoothed with 5-point running average and clipped at 2000 counts

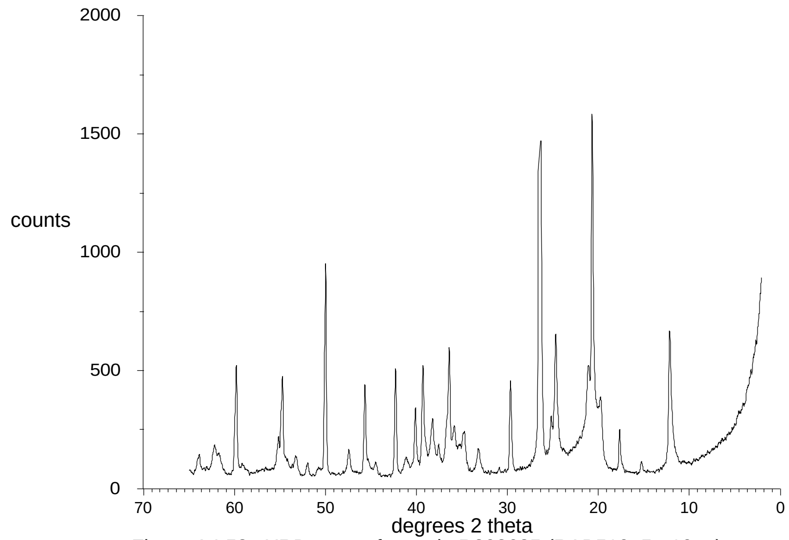

Figure A4.52: XRD trace of sample R208685 (RAB510, 5 - 10 m).
Data smoothed with 5-point running average and clipped at 2000 counts

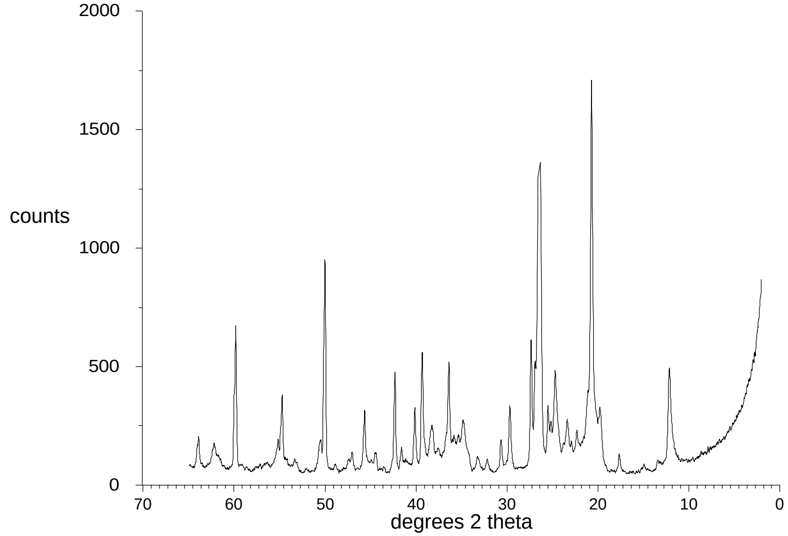

Figure A4.53: XRD trace of sample R208687 (RAB510, 15 - 20 m).
Data smoothed with 5-point running average and clipped at 2000 counts

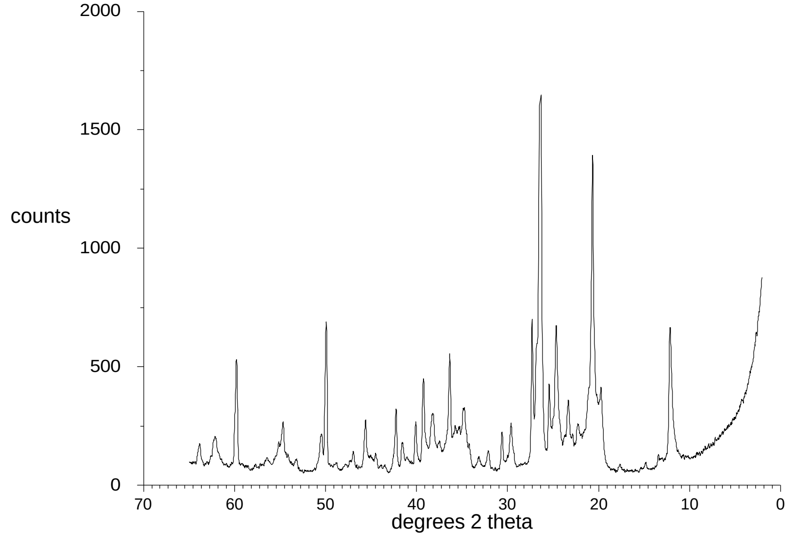

Figure A4.54: XRD trace of sample R208688 (RAB510, 20 - 25 m).
Data smoothed with 5-point running average and clipped at 2000 counts

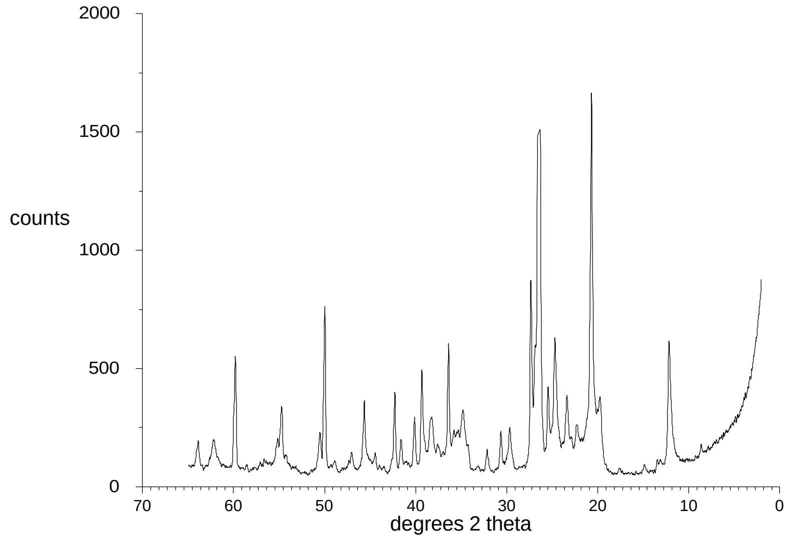

Figure A4.55: XRD trace of sample R208689 (RAB510, 25 - 30 m).
Data smoothed with 5-point running average and clipped at 2000 counts

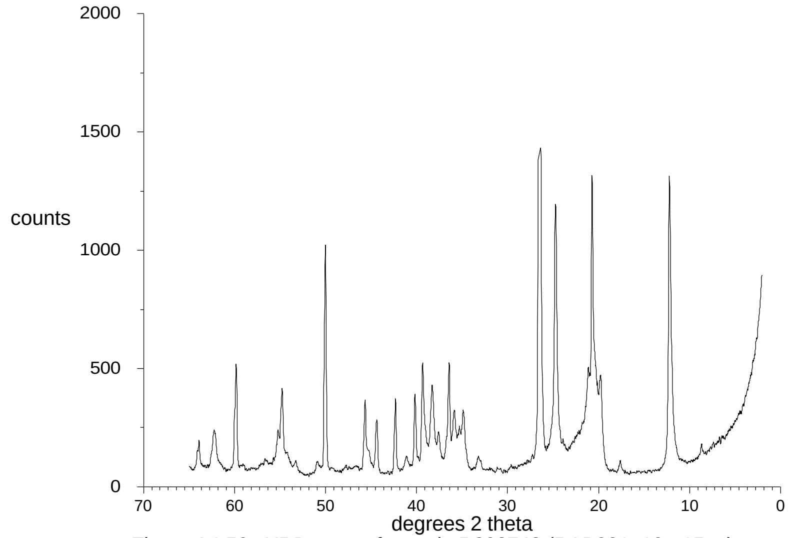

Figure A4.56: XRD trace of sample R208742 (RAB931, 10 - 15 m).
Data smoothed with 5-point running average and clipped at 2000 counts

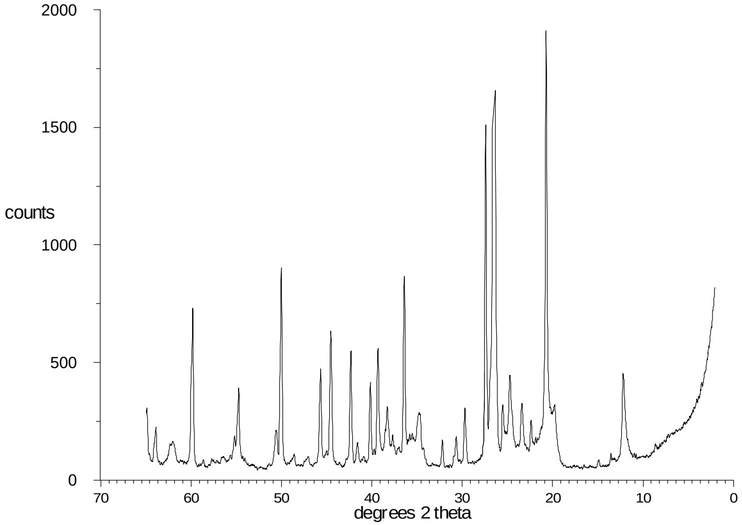

Figure A4.57: XRD trace of sample R208748 (RAB931, 40 - 45 m).
Data smoothed with 5-point running average and clipped at 2000 counts

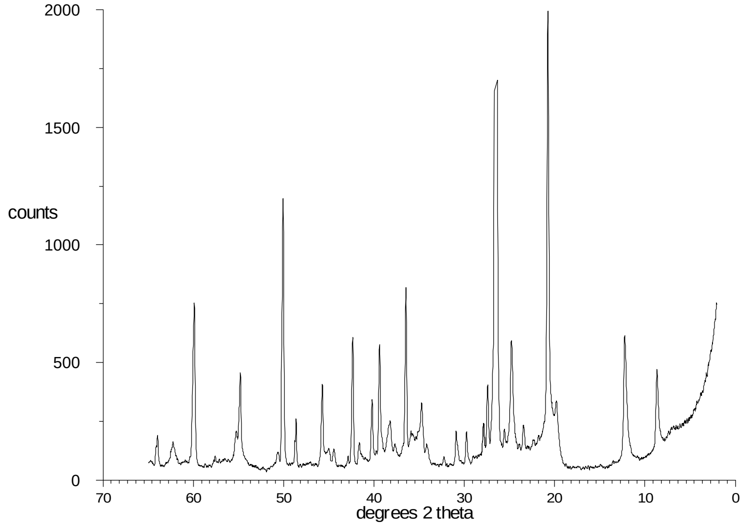

Figure A4.58: XRD trace of sample R208749 (RAB931, 45 - 50 m).
Data smoothed with 5-point running average and clipped at 2000 counts

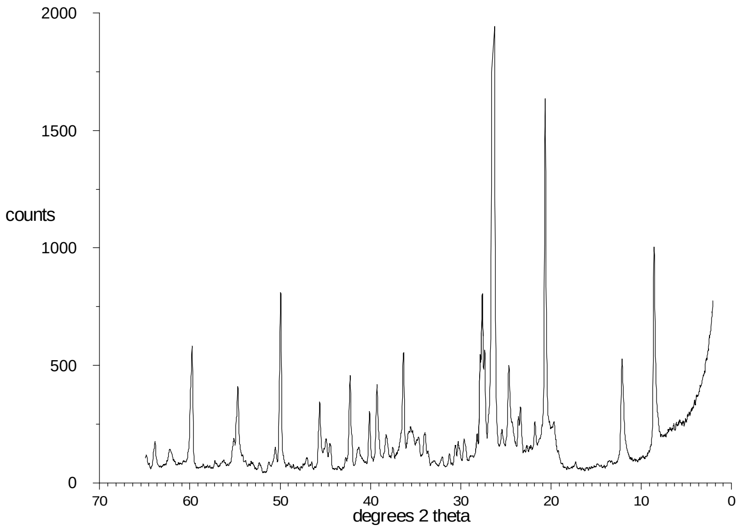

Figure A4.59: XRD trace of sample R208750 (RAB931, 50 - 56 m).
Data smoothed with 5-point running average and clipped at 2000 counts

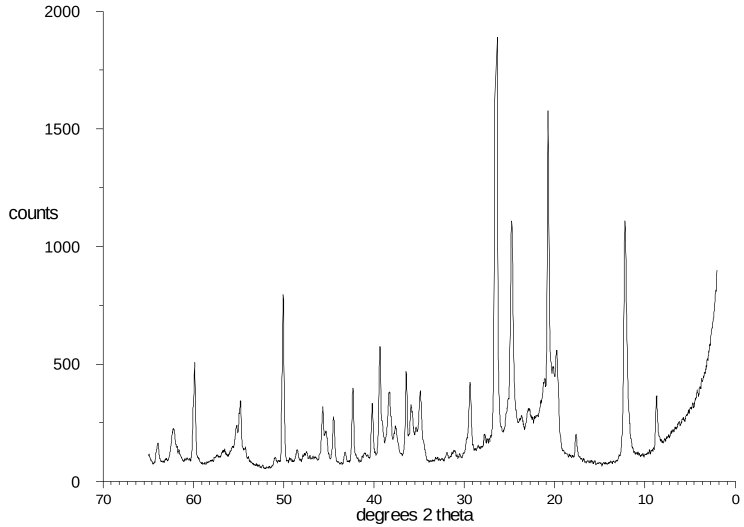

Figure A4.60: XRD trace of sample R208782 (RAB940, 0 - 10 m).
Data smoothed with 5-point running average and clipped at 2000 counts

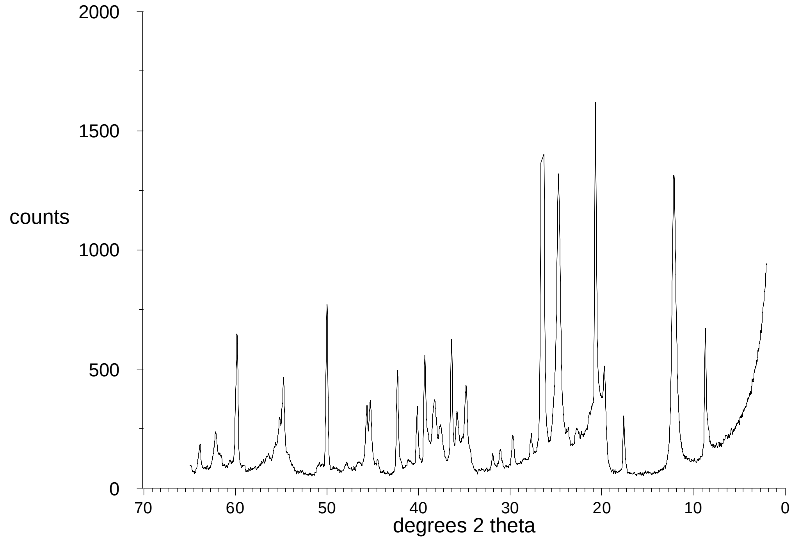

Figure A4.61: XRD trace of sample R208783 (RAB940, 10 - 15 m).
Data smoothed with 5-point running average and clipped at 2000 counts

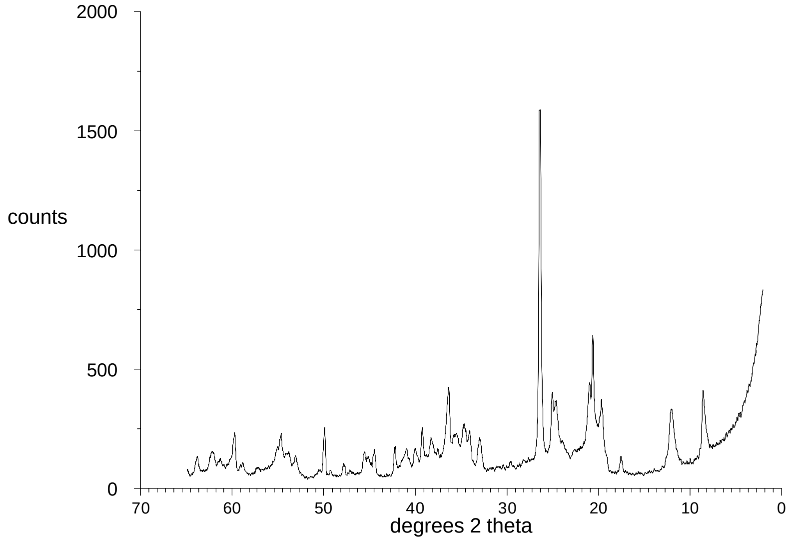

Figure A4.62: XRD trace of sample R208784 (RAB940, 15 - 20 m).
Data smoothed with 5-point running average and clipped at 2000 counts

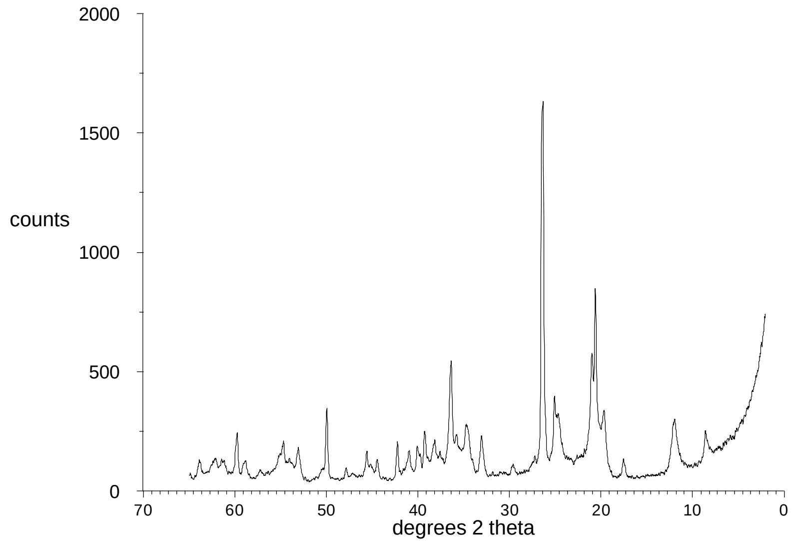

Figure A4.63: XRD trace of sample R208785 (RAB940, 20 - 25 m).
Data smoothed with 5-point running average and clipped at 2000 counts

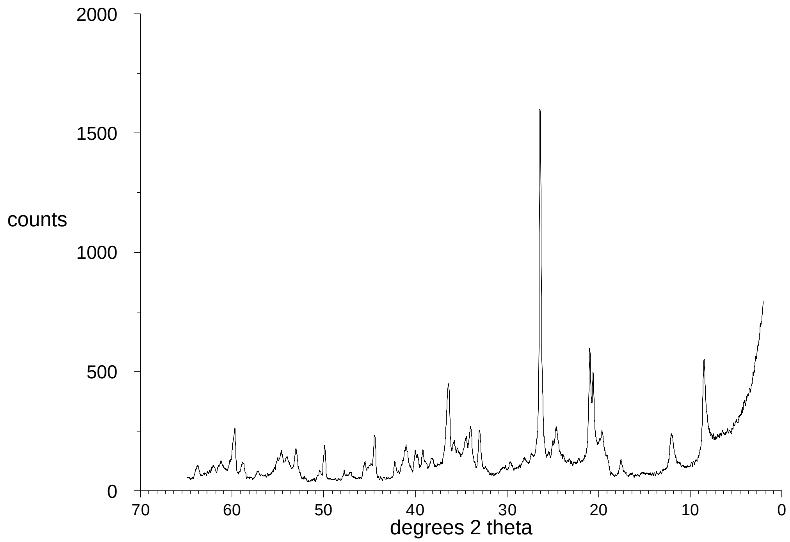

Figure A4.64: XRD trace of sample R208786 (RAB940 25 - 30 m).
Data smoothed with 5-point running average and clipped at 2000 counts

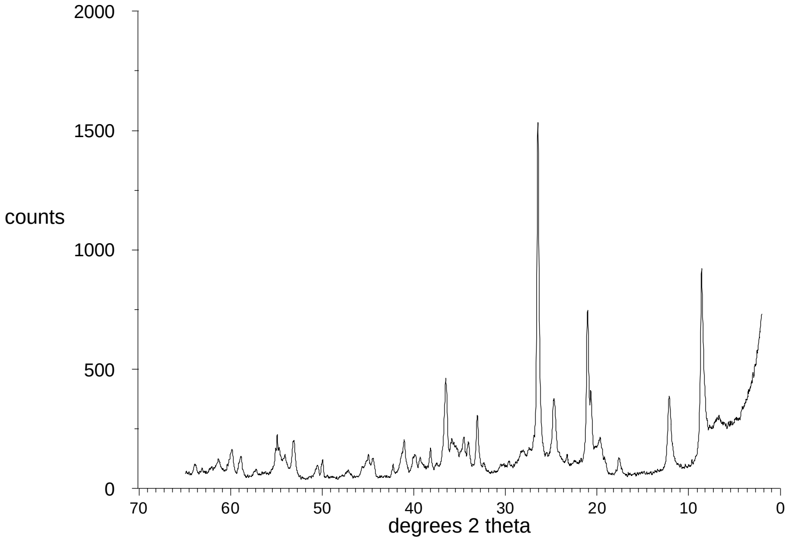

Figure A4.65: XRD trace of sample R208787 (RAB940, 30 - 35 m).
Data smoothed with 5-point running average and clipped at 2000 counts

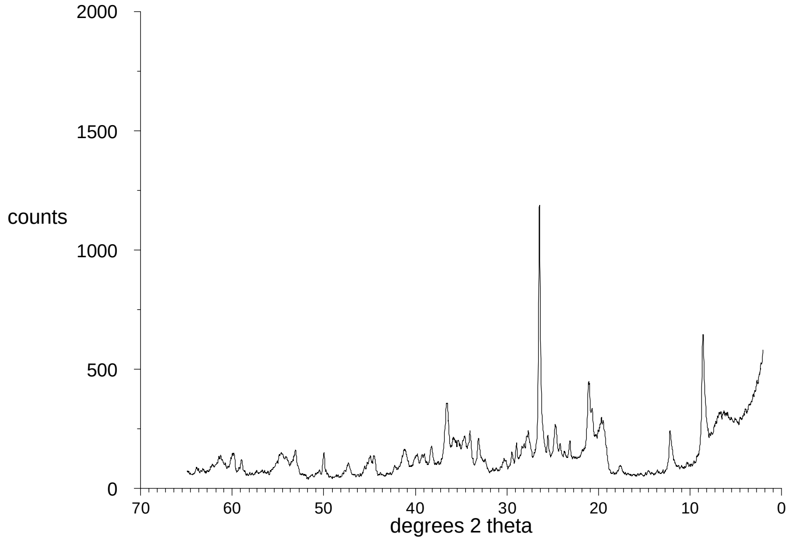

Figure A4.66: XRD trace of sample R208788 (RAB940, 35 - 40 m).
Data smoothed with 5-point running average and clipped at 2000 counts

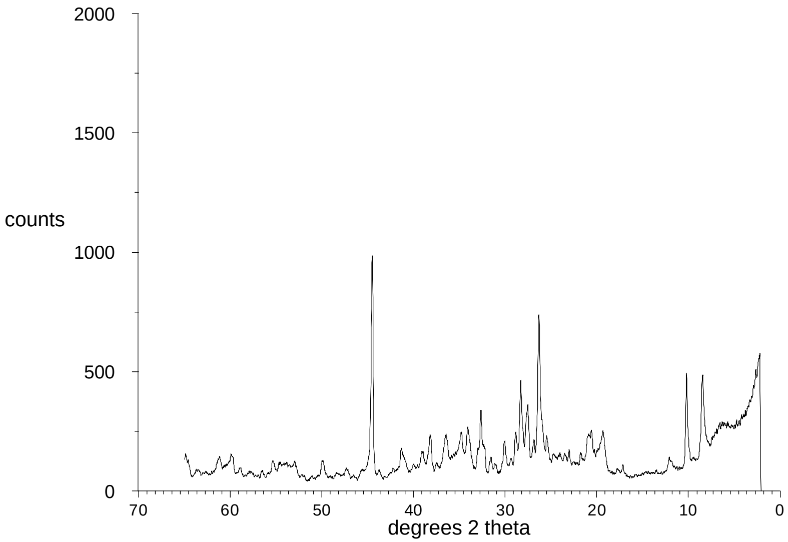

Figure A4.67: XRD trace of sample R208789 (RAB940, 40 - 45 m).
Data smoothed with 5-point running average and clipped at 2000 counts

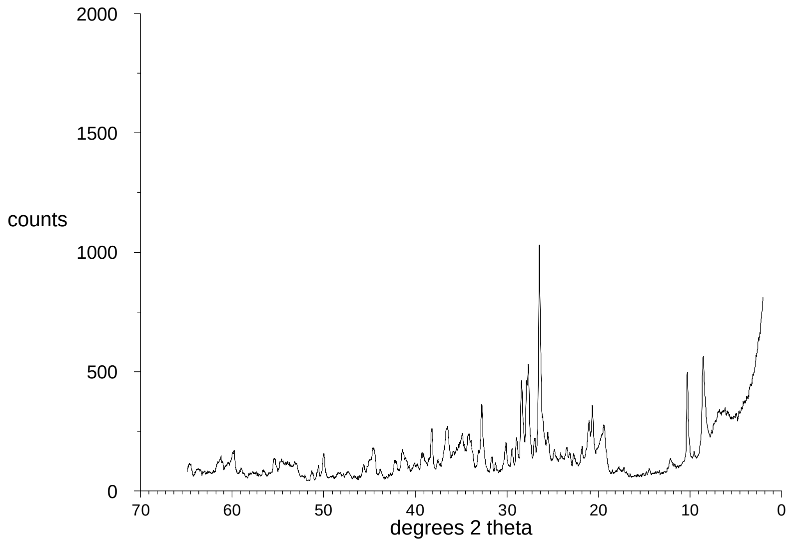

Figure A4.68: XRD trace of sample R208790 (RAB940 45 - 50 m).
Data smoothed with 5-point running average and clipped at 2000 counts

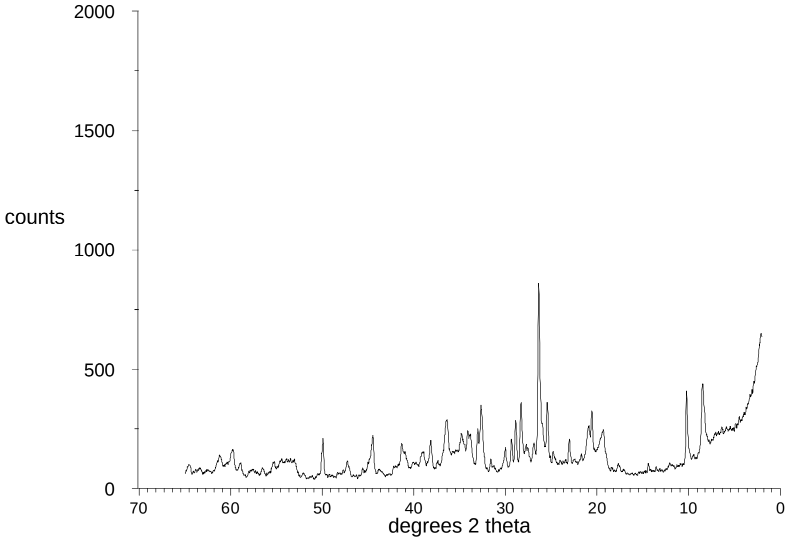

Figure A4.69: XRD trace of sample R208791 (RAB940, 50 - 53 m).
Data smoothed with 5-point running average and clipped at 2000 counts

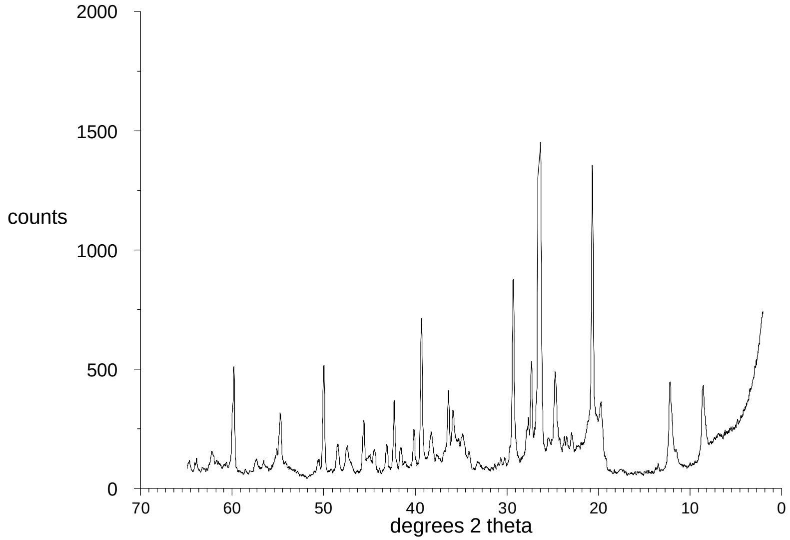

Figure A4.70: XRD trace of sample R208792 (RAB1028, 0 - 10 m).
Data smoothed with 5-point running average and clipped at 2000 counts

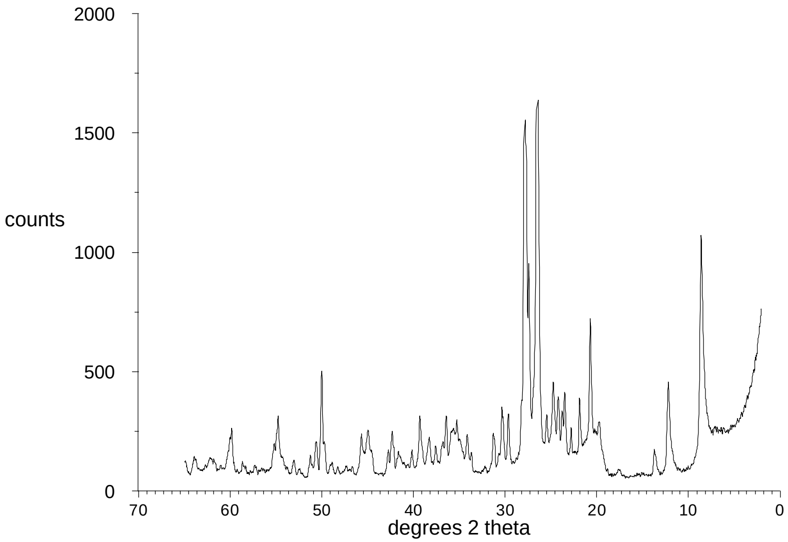

Figure A4.71: XRD trace of sample R208793 (RAB1028, 10 - 15 m).
Data smoothed with 5-point running average and clipped at 2000 counts

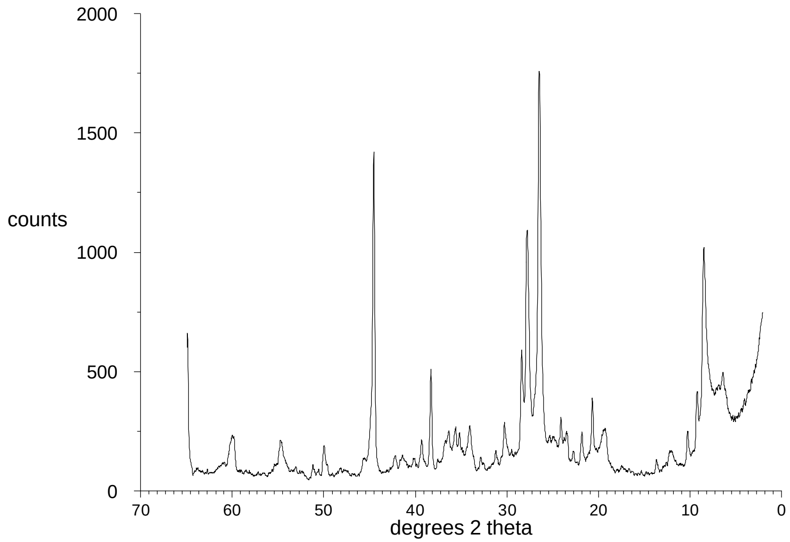

Figure A4.72: XRD trace of sample R208794 (RAB1028 15 - 20 m).
Data smoothed with 5-point running average and clipped at 2000 counts

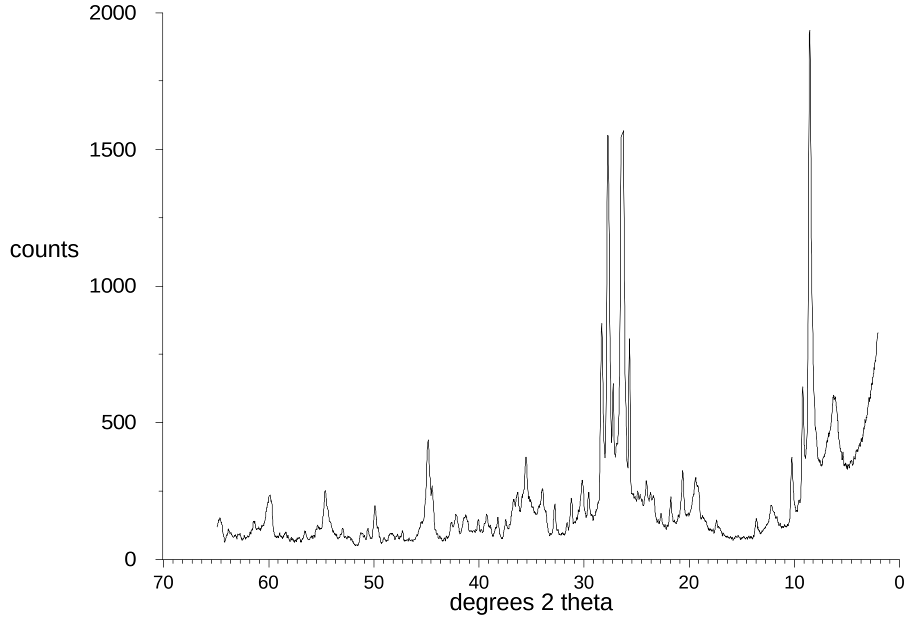

Figure A4.73: XRD trace of sample R208795 (RAB1028, 20 - 26 m).
Data smoothed with 5-point running average and clipped at 2000 counts

APPENDIX 5

Appendix 5: Histograms

Appendix 5a: Histograms

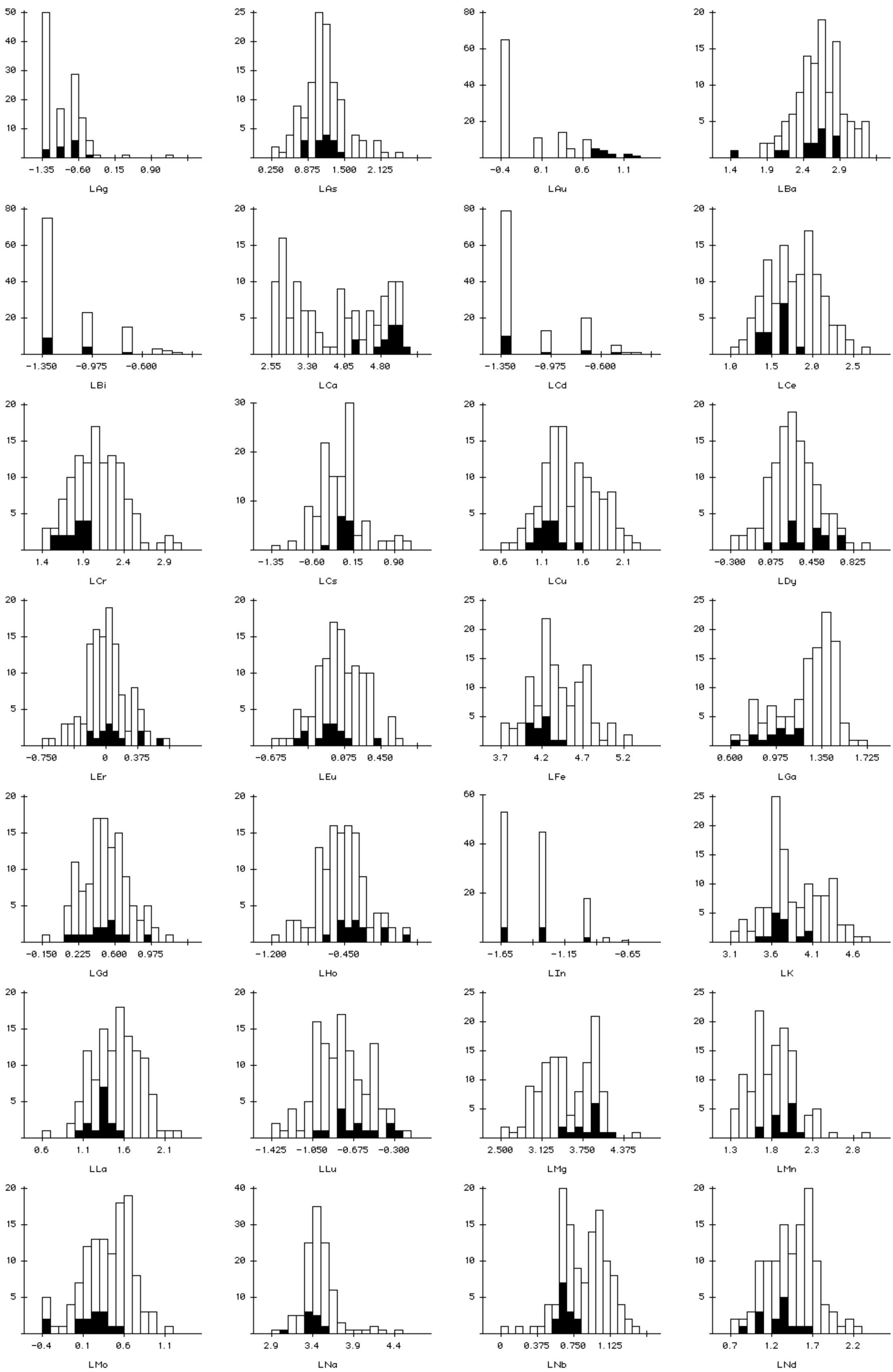

Figure A5.1: Log transformed 0–6 m data. Top 10% of Au data are black.

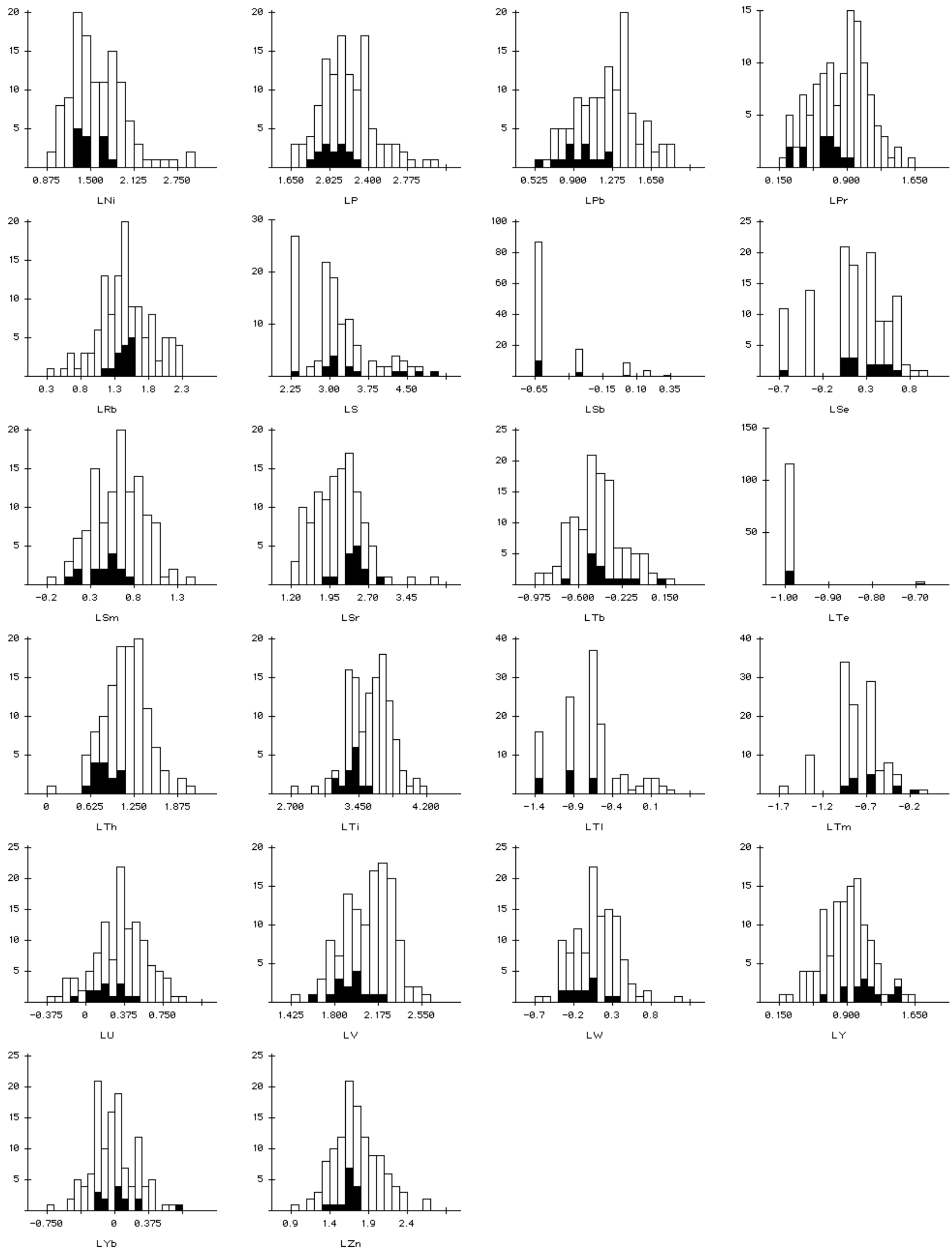

Figure A5.1 (continued): Log transformed 0–6 m data. Top 10% of Au data are black.

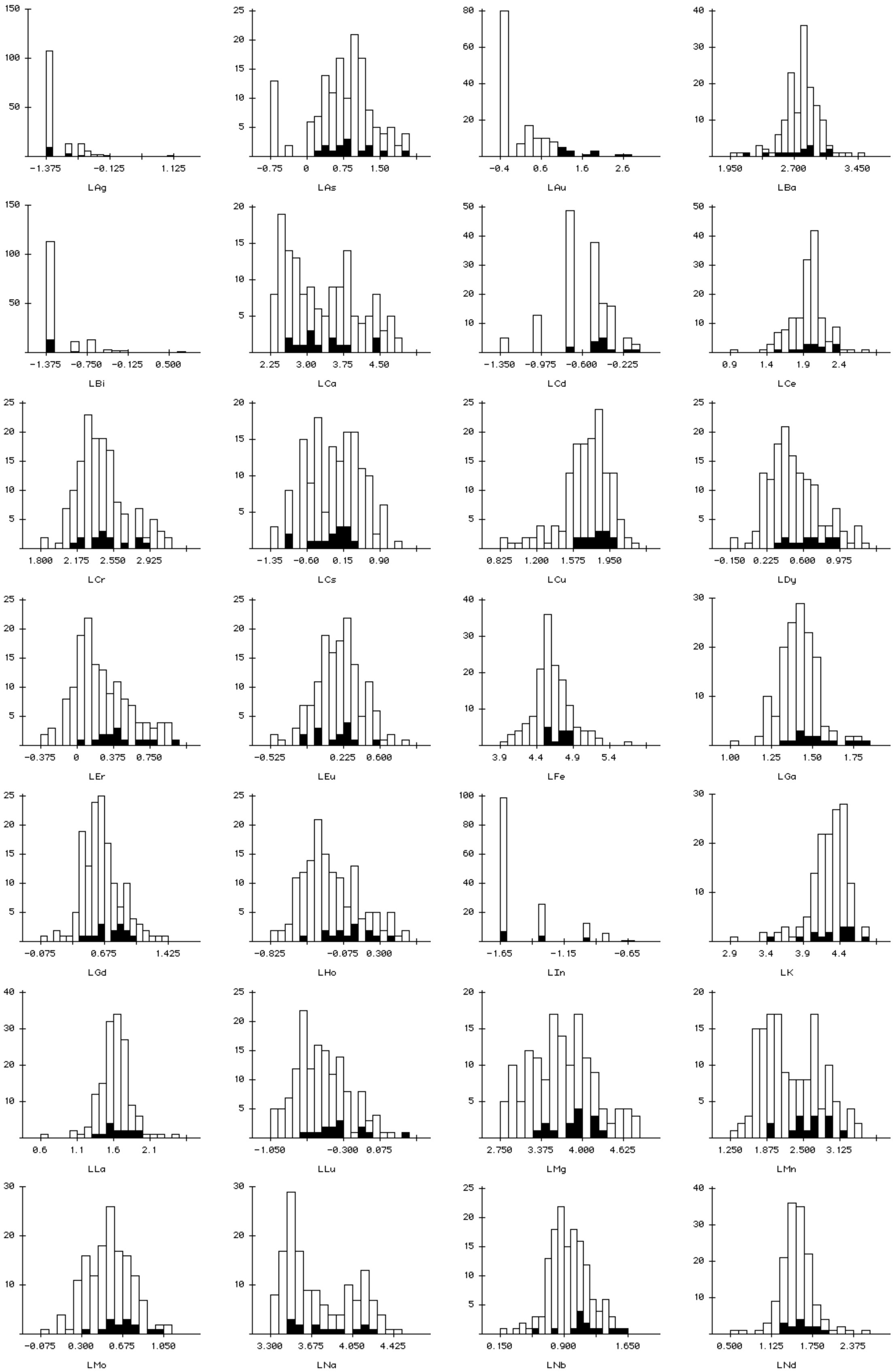

Figure A5.2: Log transformed lower regolith data. Top 10% of Au data are black.

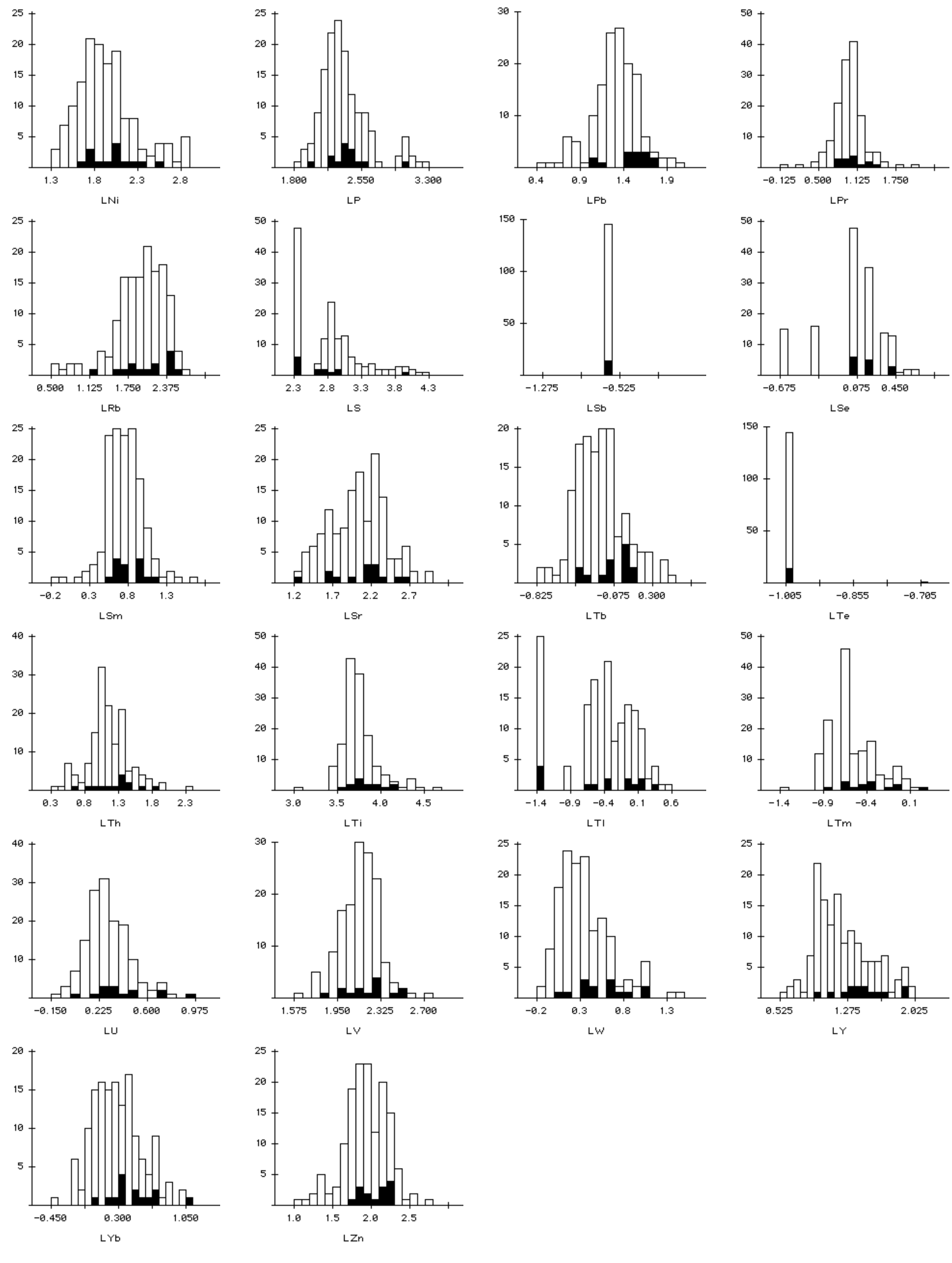

Figure A5.2 (continued): Log transformed lower regolith data. Top 10% of Au data are black.

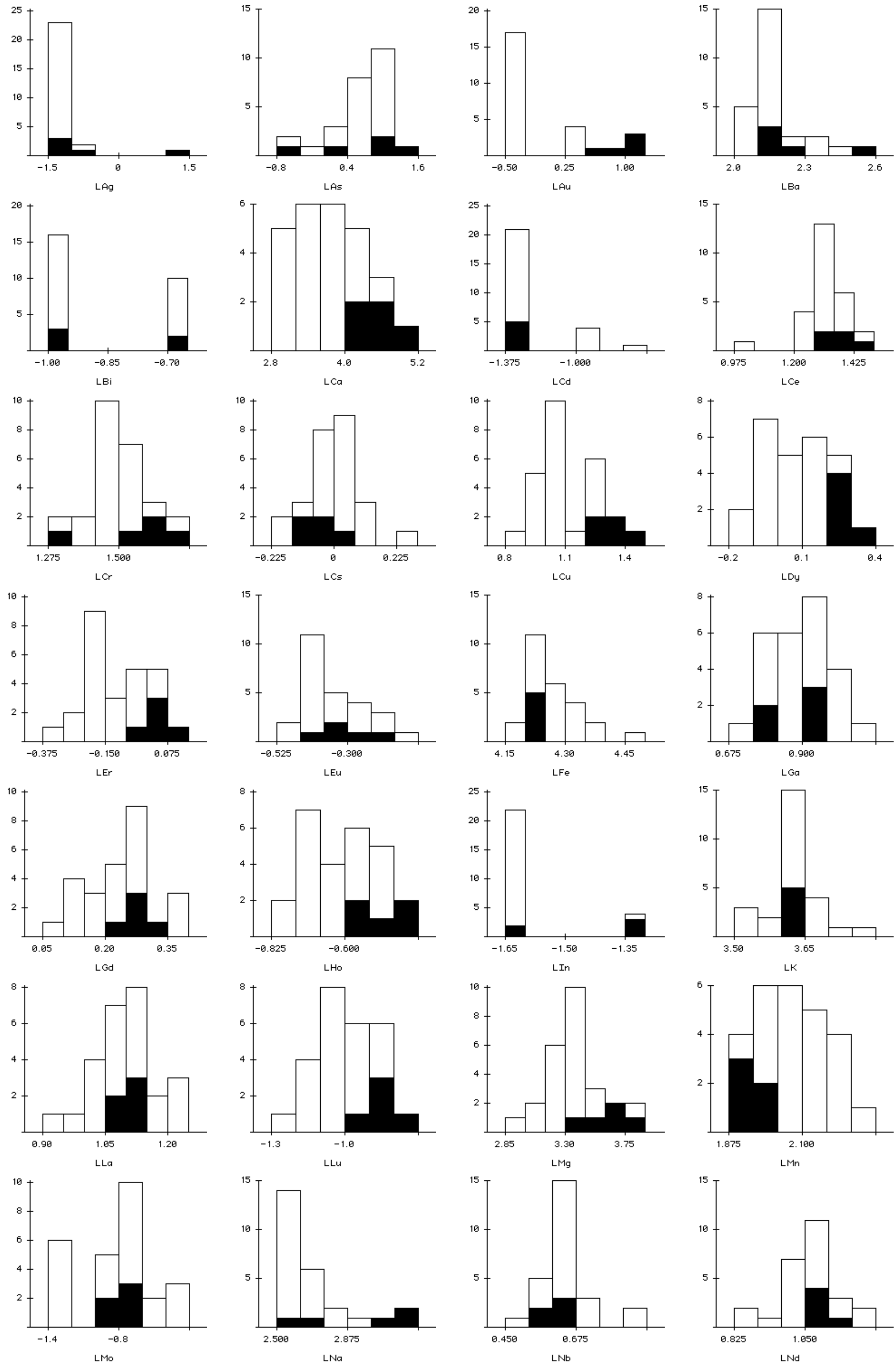

Figure A5.3: Log transformed soil data. Top 10% of Au data are black.

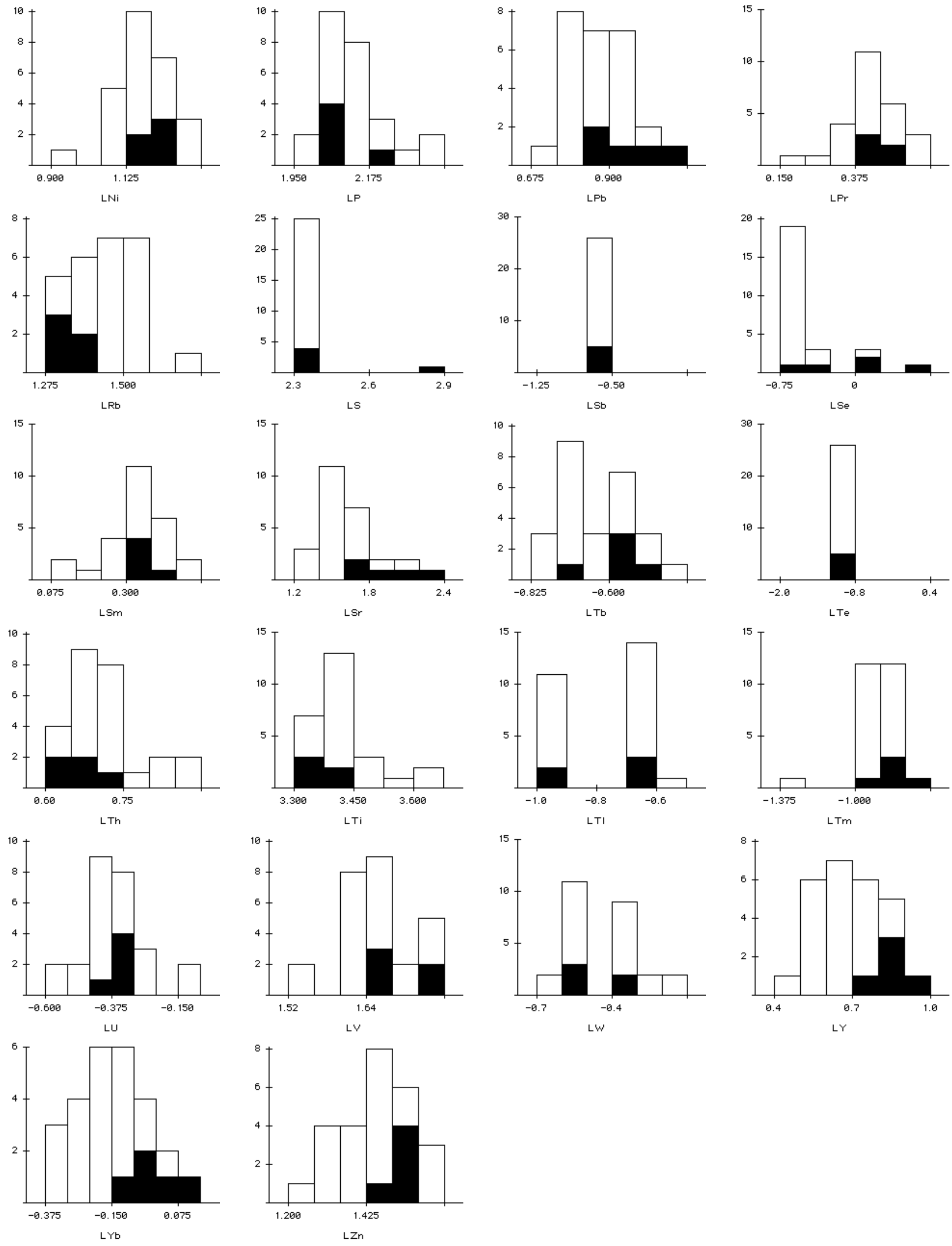

Figure A5.3 (continued): Log transformed soil data. Top 10% of Au data are black.

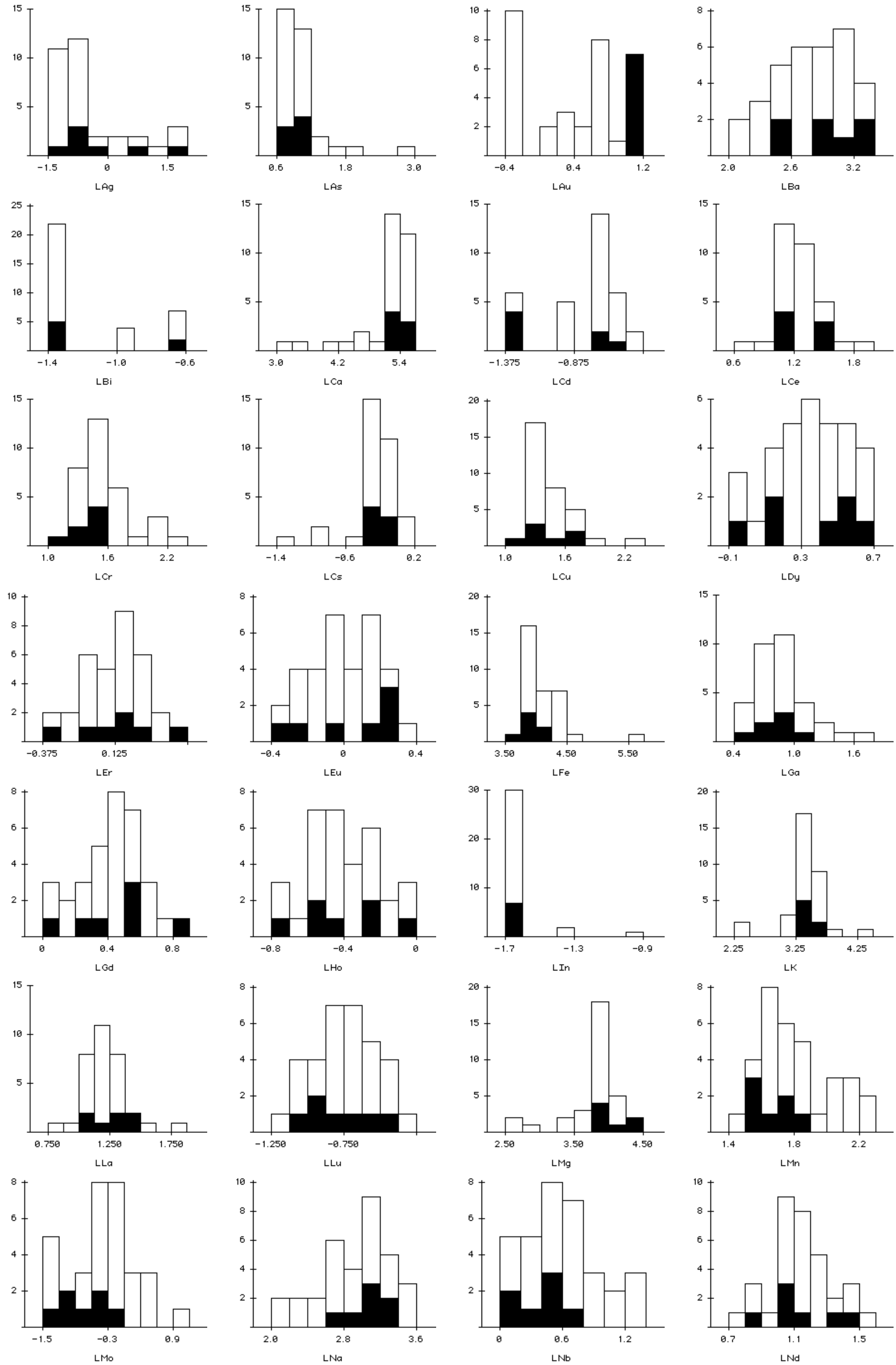

Figure A5.4: Log transformed +9# lag data. Top 10% of Au data are black.

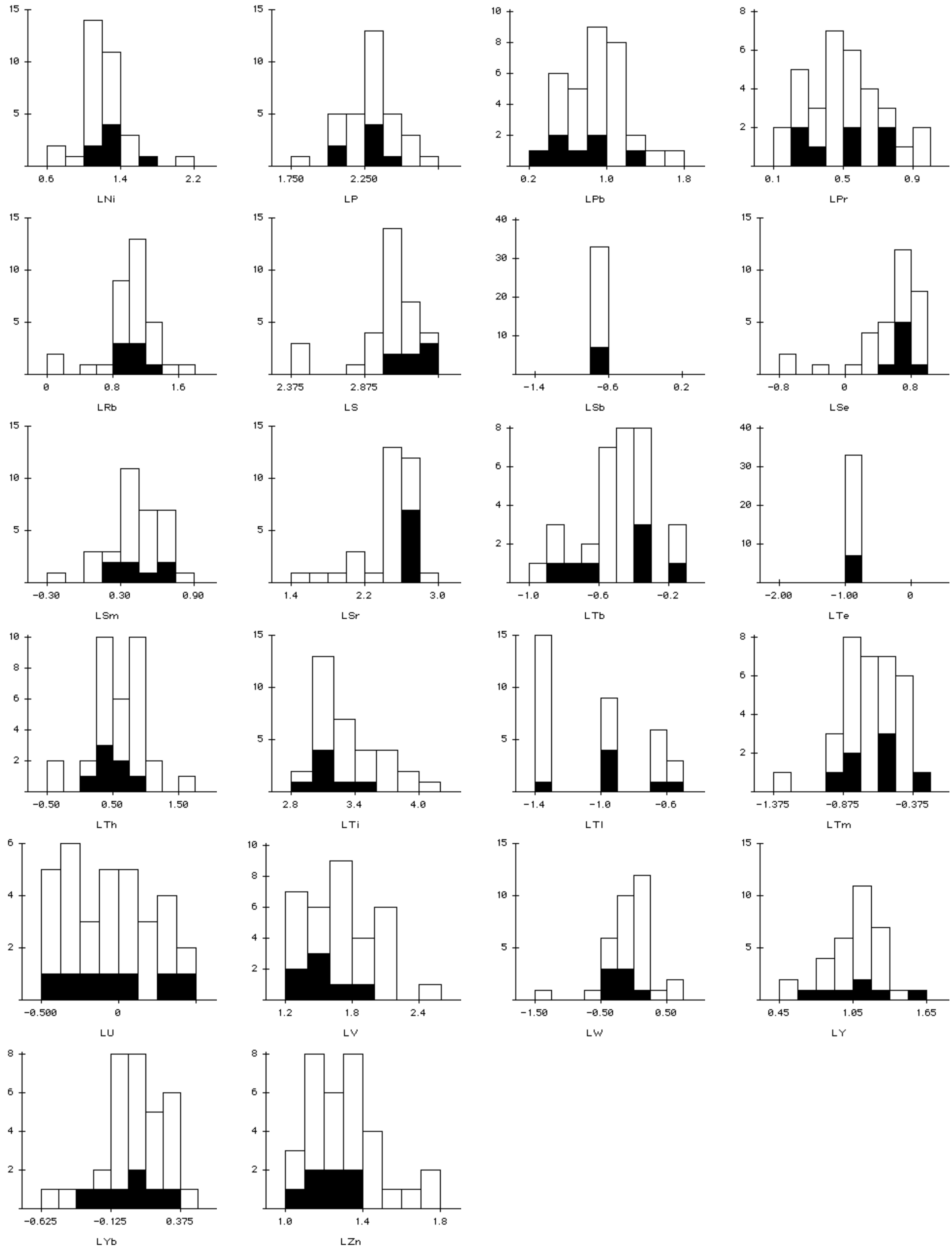

Figure A5.4 (continued): Log transformed +9# lag data. Top 10% of Au data are black.

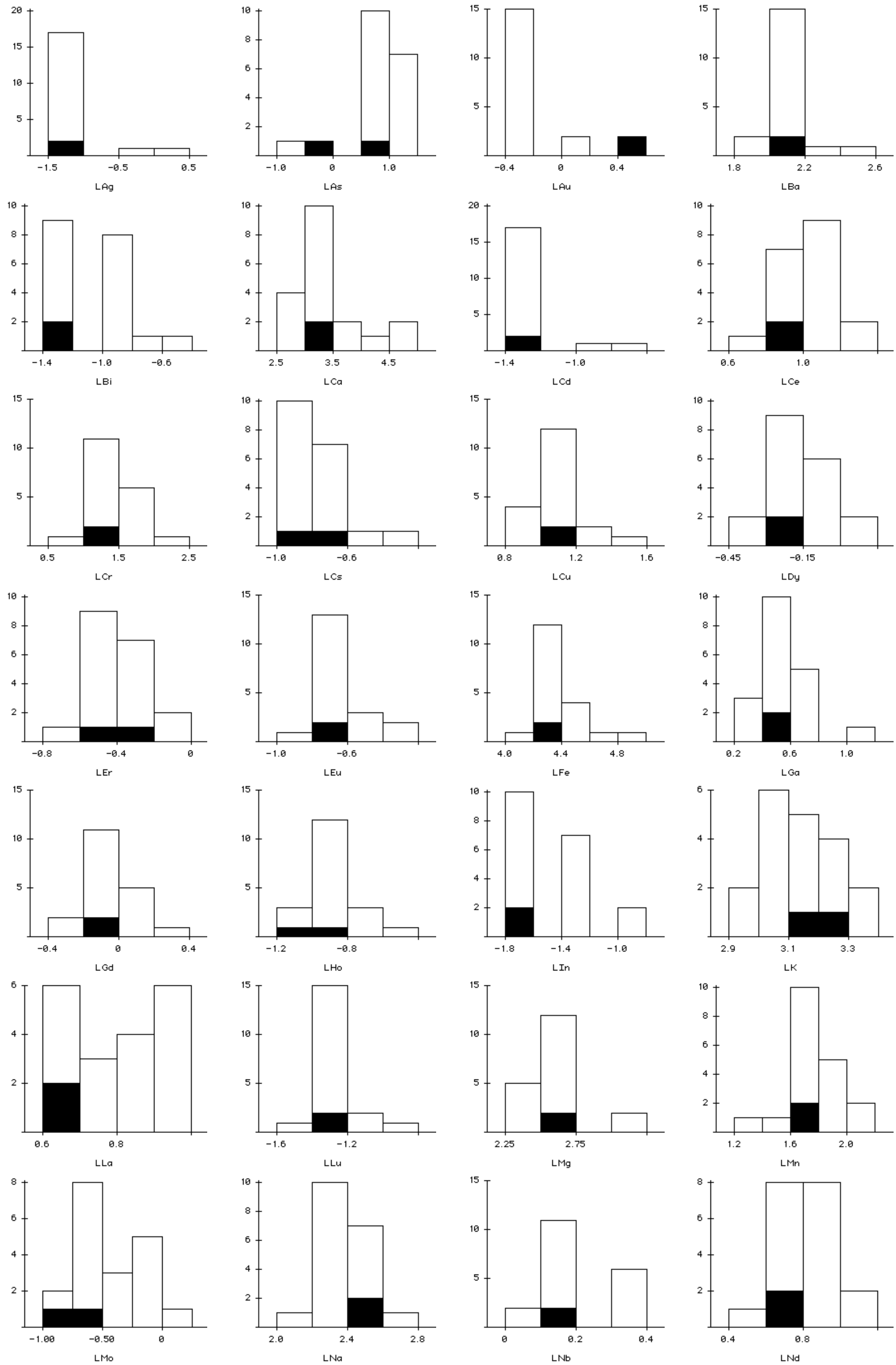

Figure A5.5: Log transformed +40# lag data. Top 10% of Au data are black.

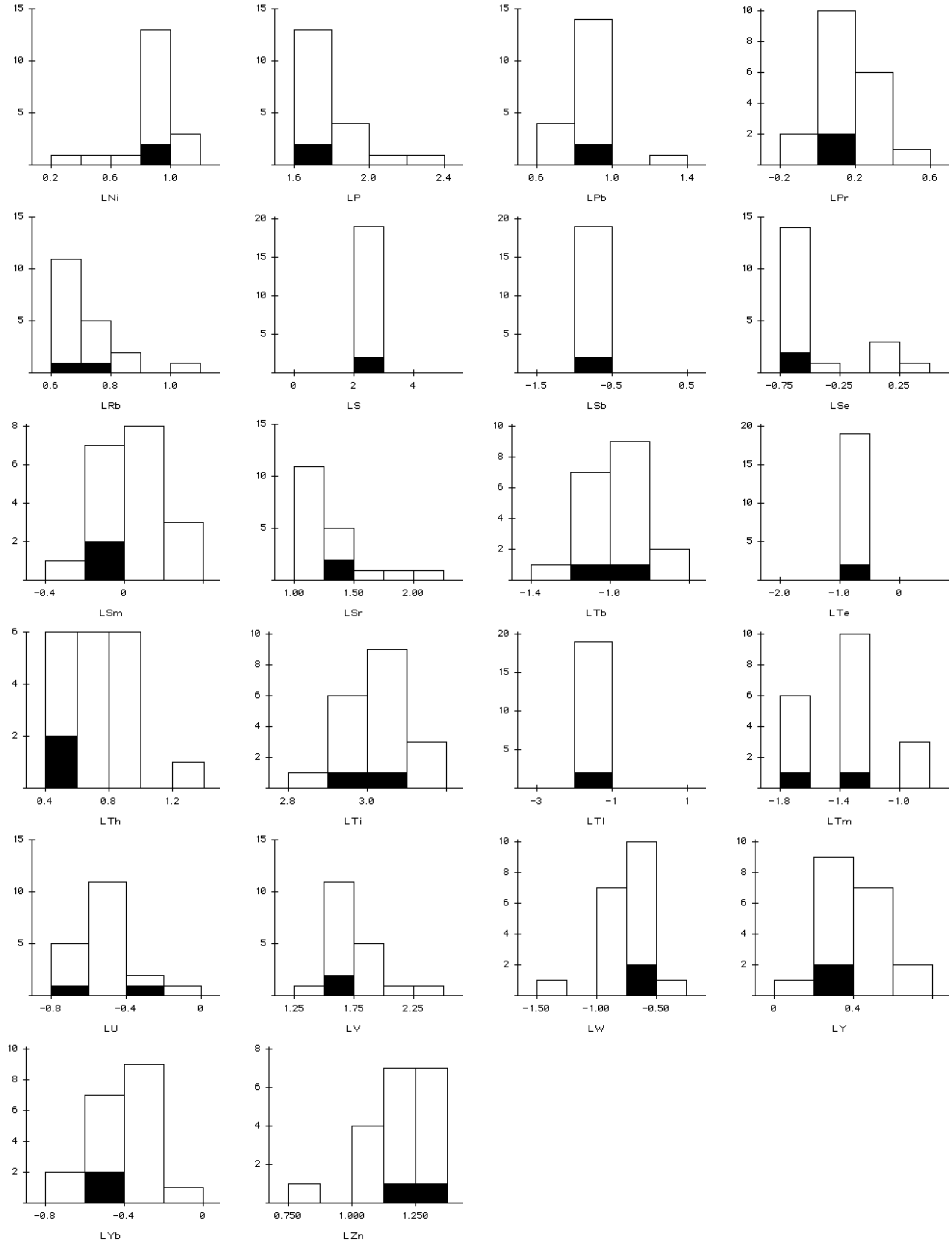

Figure A5.5 (continued): Log transformed +40# lag data. Top 10% of Au data are black.

APPENDIX 6

Appendix 6: Detailed descriptions of upper regolith samples.

Symbols and methods used in log descriptions.

Textures for soils and non–lithified particulate materials the methodology and terminology of Northcote (1979) has been used.

Colours for crystalline rocks, lithified and non–lithified particulate materials the following methods were applied:

– standard Munsell Color Notation, Soil Charts (Munsell Color, 1975),
– word colours (Kelly and Judd, 1976) modified by Sheard and Bowman (1996),
– (d) = colour description applied to DRY sample,
– (w) = colour description applied to WET sample,

Mineralogy – preliminary in–field identification made using a hand lens, follow–up detail carried out on both UNWASHED and WASHED (wet sieved samples), using a binocular microscope.

References

Munsell Color, 1975. Munsell soil color charts. Munsell Color, Baltimore, Maryland, USA. Un–paginated.

Northcote, K.H., 1979. A factual key for the recognition of Australian soils. 4th Edition, Rellim Technical Publications, Adelaide. 124 pp.

Kelly, K.L. and Judd, D.R., 1976. Color — universal language and dictionary of names. National Bureau of Standards, United States Commerce Department, Washington, D.C. 16–34 pp.

Sheard, M.J. and Bowman, G.M., 1996. Soils, stratigraphy and engineering geology of near surface materials of the Adelaide Plains. South Australia. Mines and Energy Department. Report Book, 94/9. 3 Volumes. 156 pp + figures, plates and appendices.

Hole MB940

Location: 394765E 6689650N

Site: on gentle rise, sloping downwards to the east.

Surface: silcrete gravels and cobbles on surface. Silcrete partly ferruginised. Surface lag of silcrete (angular clast). Ferruginous silcrete, water worn clasts, vein quartz clasts (angular), silicified sandstone and psammitic ?basement. Many clasts are well–lichen covered indicating surface disturbance by water is very rare.

Vegetation: bluebush dominant with some mulga and sheoak.

Calcrete: nodules - mostly platy type ~ 30 cm deep.

MB940A	0–1 m	UNWASHED: very strong carbonate acid reaction, buff coloured (d), gravelly to nodular, fines and rock chips; texture - silty sand, gritty, light brown (w) (5YR 5/6). WASHED: large chips of pinkish calcrete and calcrete impregnated grey silcrete, abundant smaller chips of same with white to translucent calcite (Iceland spar) veins in silcrete.
MB940B	1–2 m	UNWASHED: weak carbonate acid reaction, pinkish coloured (d), abundant fines and rock chips; texture - silty sand, gritty, light brown (w) (5YR 6/4). WASHED: abundant silcrete fragments - grey and cream, calcite fragments - white and translucent (Iceland spar), common bluish quartz, some reddish Fe staining on silcrete. Saprolitic zone.
MB940C	2–3 m	UNWASHED: weak carbonate acid reaction, cream coloured (d), mostly rock chips and fines, pink band cut; texture - silty grit, light yellowish brown (w) (10YR 6/4). WASHED: large silcrete fragments with yellow Fe staining on partings and vug linings, kaolinitic composite quartz–lithic fragments - relict felsic gneiss/granulite rock, bluish grey angular quartz, red–stained feldspar–quartz lithics. Saprolitic zone.
MB940D	3–4 m	UNWASHED: no carbonate acid reaction, cream to pale brown coloured (d), abundant fines and rock chips; texture - gritty silty clay, light brown (w) (5YR 6/4). WASHED: large (20 mm) chunks of milky vein quartz, white to creamy porcelanite, and as per 2–3 m. ?Saprolitic zone.
MB940E	4–5 m	UNWASHED: no carbonate acid reaction, pinkish–cream coloured (d), abundant fines and rock chips; texture - gritty medium clay, moderate yellowish pink (w) (5YR 7/4). WASHED: fragments of kaolinitic foliated quartz–rich lithics ?gneiss, vein quartz - milky to grey and bluish quartz fragments, red Fe stains on quartz and lithic fragments. Saprolitic zone.
MB940F	5–6 m	UNWASHED: no carbonate acid reaction, white, cream and grey coloured (d), abundant fines and rock chips; texture - fine sandy clay, light yellowish brown (w) (7.5YR 7/4). WASHED: kaolinitic quartz fragments - weathered gneiss - saprolite, quartz - milky and rare bluish quartz fragments. Saprolitic zone.

MINOTAUR: BIRTHDAY PROSPECT: Regolith Line

Hole MB939,

Location: 394845E 6689650N

Site: on gentle rise sloping to the east, near top of mesa.

Surface: silcrete gravels and cobbles on surface. Silcrete partly ferruginised. Fewer silcrete gravels and cobbles than at site MB940. Surface lag of angular silcrete, ferruginous silcrete, water worn clasts, angular vein quartz, silicified sandstone and psammitic ?basement. Many clasts are well lichen covered - possibly indicating only rare surface disturbance by water.

Vegetation: bluebush dominant with some mulga and sheoak.

Calcrete: nodules - mostly platy ~ 30 cm deep.

MB939A	0–1 m	UNWASHED: very strong carbonate acid reaction, pale brown (d), cuttings and fines; texture - gritty loam, light brown (w) (7.5YR 6/4). WASHED: large cuttings of massive calcrete and silcrete, abundant small sand grains of quartz - white and yellow, rounded to sub–angular.
MB939B	1–2 m	UNWASHED: weak carbonate acid reaction, creamy (d), fines; texture –gritty clay loam, light grayish brown (w) (7.5YR 6/3). WASHED: as above and silcrete with calcrete coatings and void infill.
MB939C	2–3 m	UNWASHED: no carbonate acid reaction, pale grey (d), fines; texture - light clay with some grit and claystone fragments, brownish pink (w) (7.5YR 8/2). WASHED: fragments of yellow and cream claystone, yellow silcrete, many quartz grains –rounded, clear to grey and white with some containing chlorite inclusions. Saprolitic zone.
MB939D	3–4 m	UNWASHED: no carbonate acid reaction, white (d), fines; texture - silty light clay with coarse grit, pale orange yellow (w) (10YR 8/4). WASHED: quartz - sub–rounded to sub–angular gravel to sand sized, grey yellow, white and clear forms, some grey with chlorite inclusions, kaolin fragments yellow stained, composite vein quartz fragments. Saprolitic zone.
MB939E	4–5 m	UNWASHED: no carbonate acid reaction, off white (d), fines; texture - silty light clay with minor sand, light grayish yellowish brown (w) (10YR 7/3). WASHED: gravel clasts of composite vein quartz, blue–grey quartz, medium to coarse quartz sand - sub–rounded to angular, white to yellow to blue–grey. ?Saprolitic zone.
MB939F	5–6 m	UNWASHED: no carbonate acid reaction, yellow (d), fines; texture - light clay, moderate orange yellow (w) (10YR 8/7). WASHED: gritty fine gravel, mostly grey angular to sub–angular fragments, many composite meta–quartz–rich rock, some quartz grains contain small euhedral black ?magnetite inclusions, some yellow weathered feldspar grains, some white quartz grains. Saprolitic zone.

Hole MB938

Location: 394925E 6689650N

Site: very gentle slope → E

Surface: lag as per 940.

Vegetation: bluebush, rare sheoak and ?mulga

Calcrete: nodules - platy and mixed and nodules ~ 30 cm deep.

MB938A	0–1 m	UNWASHED: strong carbonate acid reaction, buff coloured (d), nodular to gravely with fines and rock chips; texture - gritty–sandy loam, light brown (w) (7.5YR 6/4). WASHED: pinkish calcrete fragments, white and translucent vein calcite (Iceland spar), white and buff to grey silcrete, calcrete coated silcrete, angular medium to coarse quartz grains.
MB938B	1–2 m	UNWASHED: weak–moderate carbonate acid reaction, creamy coloured (d), nodular to gravely with fines and rock chips; texture - fine sandy silt, light brown (w) (7.5YR 6.5/5). WASHED: As above, silcrete fragments have micro vugs, calcite cleavage fragments and veining and rinds - most is translucent to clear (Iceland–spar), some gypsum as fracture infill.
MB938C	2–3 m	UNWASHED: no carbonate acid reaction, near white coloured (d), fines and rock chips; texture - loam - fine sandy, light brown (w) (7.5YR 6.5/5). WASHED: fragments of silcrete - white cream and grey containing large angular quartz grains and fragments to 3 mm, silcrete is vuggy with yellow and brown Fe linings,
MB938D	3–4 m	UNWASHED: no carbonate acid reaction, yellow and white (d), fines and rock chips; texture - loam - fine sandy (gritty), light yellowish brown (w) (10YR 7.5/4). WASHED: some large creamy silcrete fragments ~12 mm, many small fragments of same, some are Fe stained, fragments of yellow silicified clay - claystone, many medium to coarse–grained sub–angular to angular translucent grey quartz grains/fragments, some vein quartz fragments to 5 mm. Saprolitic zone.
MB938E	4–5 m	UNWASHED: no carbonate acid reaction, white (d), fines and rock chips; texture - gritty clay loam, light grayish yellowish brown (w) (10YR 7/3). WASHED: some large white silcrete fragments - a few with black Mn oxide staining, more grey quartz as above, some quartz fragments with greenish chlorite inclusions, relict ?felsic granulite fragments + relict micas (muscovite and biotite) + black opaques, some silicified saprolite.
MB938F	5–6 m	UNWASHED: no carbonate acid reaction, yellowish cream (d), mostly fines and a few rock chips; texture - light clay (gritty), light yellowish brown (w) (10YR 6/4). WASHED: sample mostly fines with very few larger fragments - these include white and grey quartz as above, composite quartz grains, Fe stained quartz, and silicified psammite, pink ?feldspar and rose quartz. Saprolitic zone.

Hole MB937

Location: 395005E 6689650N

Site: slope very gentle to flat.

Surface: very few silcrete gravels on surface. Surface is a red sand, no lag or gravel.

Vegetation: few bluebush. Vegetation has changed.

Calcrete: nodules - platy and nodular ~30 cm deep.

MB937A	0–1 m	(Split A imperfect, biased towards top 0.5m.) UNWASHED: moderate carbonate acid reaction, brownish (d), fines and rock chips; texture - clayey sand, light brown (w) (7.5YR 5.5/4). WASHED: coarse fragments of creamy massive silcrete with calcrete coatings and void infill, some translucent calcite fragments (Iceland spar), black Fe oxide grains, some vein quartz fragments - bluish and grey, some reddish aeolian sand grains - frosted and rounded (~10%).
MB937B	1–2 m	UNWASHED: very weak carbonate acid reaction, buff coloured (d), fines and rock chips; texture - sticky light clay (gritty), light yellowish brown (w) (10YR 3/4). WASHED: silcrete as above, some yellow Fe stained silcrete, more bluish quartz fragments. Saprolitic zone.
MB937C	2–3 m	UNWASHED: very weak carbonate acid reaction, creamy colour (d), mostly fines with some rock chips; texture - light clay (gritty), light yellow (w) (2.5Y /4). WASHED: white to cream silcrete with abundant yellow Fe stained silcrete fragments, yellow siliceous ?saprolitic matter, large fragments of vein quartz.
MB937D	3–4 m	UNWASHED: no carbonate acid reaction, yellowish colour (d), mostly fines and some rock chips; texture - sticky light clay (gritty), light yellowish brown (w) (10YR 7/6). WASHED: some yellow silicified saprolite with included quartz veining, abundant grey angular quartz grains and some kaolinitic–sericitic feldspar grains. Saprolitic zone.
MB937E	4–5 m	UNWASHED: no carbonate acid reaction, yellowish colour (d) mostly fines, some rock chips; texture - sticky light clay (gritty), moderate orange yellow (w) (10YR 7.5/6). WASHED: grey quartz and white kaolinitic/sericitic feldspar grains, rare Fe stained grains. Saprolitic zone.
MB937F	5–6 m	UNWASHED: no carbonate acid reaction, yellow (d) mostly fines, some rock chips; texture - sticky light clay (gritty), light yellowish brown (w) (10YR 7/6). WASHED: abundant kaolinitic relict feldspar grains and kaolinite fragments, angular grey quartz grains, relict fragments of felsic granulite. Saprolitic zone.

Hole MB935 (mis–numbered on stake).

Location: 395085E 6689650N

Site: flat

Surface: red sandy surface, no lag.

Vegetation: dead mulga, some bluebush.

Calcrete: nodules - indurated, mostly platy calcrete pan at 30 cm under sandy clay.

MB935A	0–1 m	UNWASHED: strong carbonate acid reaction, pinkish (d), nodular to gravelly with fines and rock chips; texture - slightly clayey silty sand, light brown (w) (5YR 5/5). WASHED: calcrete nodule fragments (mostly 1 to 17 mm) with incorporated quartz grains, 1 large (cm sized) sub–rounded Fe–stained silcrete clast (lag clast), calcrete coated quartz fragments to 10 mm; smaller fragments - mostly calcrete, some grey to translucent and some white to milky quartz, angular quartz grains (<1 mm) with calcrete rinds.
MB935B	1–2 m	UNWASHED: strong carbonate acid reaction, pale pink (d), nodular to gravelly with fines and rock chips; texture - slightly clayey silty sand, brownish orange (w) (5YR 5/7). WASHED: as above, calcrete fragments <1 to 20 mm dominant, rare Fe–stained silcrete, Fe–stained quartz with calcrete coatings, rounded (alluvial) black Fe oxide grains (?BIF sourced), some rare silcrete fragments, angular white to grey translucent quartz fragments.
MB935C	2–3 m	UNWASHED: slow response carbonate acid reaction, strong buff coloured (d), fines and rock chips; texture - light clay (gritty), moderate yellowish brown (w) (10YR 5/5). WASHED: calcrete fragments (1 to 10 mm), bluish and grey quartz - vein, angular up to 8 mm and platy, milky quartz, grey quartz with black grain inclusions, Fe–stained quartz grains, composite grains with relict granulite texture. Saprolitic zone.
MB935D	3–4 m	UNWASHED: weak carbonate acid reaction, yellowish coloured (d), fines and rock chips; texture - light clay (gritty), moderate yellowish brown (w) (10YR 5/5). WASHED: some large calcrete fragments (up hole contamination), large yellowish Fe–stained psammite fragments (8 mm), most grains are grey translucent angular quartz, some relict felsic granulite fragments (qtz–f–spar–mica), mica inclusions in quartz fragments. Saprolitic zone.
MB935E	4–5 m	UNWASHED: no carbonate acid reaction, yellow–yellow brown (d), fines and a few rock chips; texture - light clay (gritty), moderate yellowish brown (w) (10YR 4.5/5). WASHED: as above with large kaolinitic creamy feldspar fragments to 10 mm, abundant relict weathered felsic granulite fragments, bluish and grey quartz fragments. Saprolitic zone.
MB935F	5–6 m	UNWASHED: no carbonate acid reaction, yellow and red (d), fines and a few rock chips; texture - light clay with minute mica flakes, strong yellowish brown (w) (7,5YR 5/6). WASHED: brown weathered micaceous psammite or schist (2 to 15 mm), large vein quartz fragments - clear to milky–grey, composite relict felsic granulite textured grains (qtz–f–spar–mica), mica and minute black grain inclusions in quartz fragments. All fragments have saprolitic appearance and are angular to irregular in shape.

Hole MB933

Location: 395165E 6689650N

Site: flat with meso–undulations (possibly linear slope–gilgai)

Surface: red sandy surface with some angular surface lag silcrete and calcrete nodules.

Vegetation: dead mulga, few bluebush.

Calcrete: nodules - 60 cm deep nodular calcrete.

MB933A	0–1 m	UNWASHED: strong carbonate acid reaction, buff to pinkish brown (d), nodular to gravelly with fines and rock chips; texture - clayey sand, brownish orange (w) (2.5YR 5/8). WASHED: pinkish and cream calcrete fragments (~20%), reddish aeolian quartz sand (medium grained) frosted and rounded with uniform size distribution (~50%), rounded and broken alluvial quartz grains (<0.1 to 1 mm) and granules - grey and milky (small % of bulk).
MB933B	1–2 m	UNWASHED: strong carbonate acid reaction, buff and pink (d), fines and rock chips; texture - light clay, light brown (w) (5YR 6/6). WASHED: gravel sized calcrete fragments, quartz - broken clasts up to 3 mm of grey, translucent yellow and colourless composite grains, rare Fe–stained silcrete fragments, rare Fe oxide grains, some rounded quartz grains.
MB933C	2–3 m	UNWASHED: weak carbonate acid reaction, buff coloured (d), fines and rock chips; texture - light clay (gritty), moderate yellowish brown (w) (10YR 5/5). WASHED: ferruginous psammite and Fe oxide grains - both are angular; bluish, grey and milky quartz, all small grains are rounded - fluvial derived, rare calcrete fragments (contamination from above).
MB933D	3–4 m	UNWASHED: no carbonate acid reaction, buff, yellow and pink (d), fines and rock chips; texture - light clay (gritty), moderate yellowish brown (w) (10YR 5/4). WASHED: silicified ferruginous psammite fragments, abundant angular vein quartz - grey, milky and smoky - basement quartz, trace mica as small flakes. Saprolitic zone.
MB933E	4–5 m	UNWASHED: no carbonate acid reaction, cream (d), fines and rock chips; texture - silty light clay (gritty), moderate yellowish brown (w) (10YR 5/4). WASHED: as above with bluish vein quartz fragments, relict kaolinitic feldspar grains and trace mica flakes - saprolitic zone.
MB933F	5–6 m	UNWASHED: no carbonate acid reaction, yellow and cream (d), fines and rock chips; texture - clayey fine sandy silt, moderate yellowish brown (w) (10YR 5/5). WASHED: very little particulate matter, as above with small mica flakes (weathered biotite or discoloured muscovite), pallid saprolitic grains.

Hole MB931,

Location: 395245E 6689650N

Site: flat area

Surface: red sandy surface, no lag or gravels.

Vegetation: mostly dead mulga, few bluebush.

Calcrete: nodules - platy at >30 cm.

MB931A	0–1 m	UNWASHED: strong carbonate acid reaction, pinkish (d), nodular and gravelly with fines; texture –.clayey sand, light reddish brown (w) (2.5YR 5/5). WASHED: rounded quartz grains, cream to pink calcrete nodule and pisolite fragments (calcreted sand).
MB931B	1–2 m	UNWASHED: strong carbonate acid reaction, pale pinkish (d), few nodules, some gravel and fines; texture - clayey sand to sandy clay, light grayish reddish brown (w) (5YR 6/5). WASHED: calcrete fragments common, quartz grains - clear and grey are rounded to sub–rounded, white to cream are subrounded to angular, some white grains have black ? MnO staining.
MB931C	2–3 m	UNWASHED: no carbonate acid reaction, yellow–buff (d), gypseous, rock chips and fines; texture - light clay and chips, clay - light yellowish brown (w) (7.5YR 5.5/6). WASHED: clasts of red psammite, quartz grains - white, bluish and grey, rounded to sub–angular, Fe stained yellow and brown quartz grains, gypsum cleavage fragments + bluish celestite cleavage fragments. Saprolite zone.
MB931D	3–4 m	UNWASHED: no carbonate acid reaction, buff (d), rock chips and fines, texture - gritty light clay, light brown (w) (7.5YR 6/5). WASHED: one large vein quartz fragment, yellow sandy claystone fragments, small angular quartz fragments - clear, grey, bluish and white, rounded to sub–angular quartz sand, relict ?granulite fragment, and Fe stained fragments of quartz. Saprolitic zone.
MB931E	4–5 m	UNWASHED: no carbonate acid reaction, creamy yellow (d), mostly fines; texture - light clay with some grit, strong yellowish brown (w) (10YR 5/6). WASHED: quartz sand, rounded to angular, white, clear, grey and bluish, some with Fe coatings and staining, brown sandstone fragments, relict ?granite fragments, dark brown Fe oxide grains, ferruginous psammite fragments, yellow silty claystone fragments.
MB931F	5–6 m	UNWASHED: no carbonate acid reaction, creamy yellow (d), mostly fines; texture - light medium clay with grit, light yellowish brown (w) (10YR 6/5). WASHED: mostly white to creamy angular quartz, some reddish quartz, complex crystalline metamorphic vein quartz fragments, relict (?)granulite fragments, saprolitic zone.

Hole MB929

Location: 395325E 6689650N

Site: flat

Surface: calcrete exposed in rabbit warren. Red sandy surface, no lag. (Heavy red clay at about 2m).

Vegetation: mostly dead mulga, some bluebush

Calcrete: nodules - sparse small nodules > 40 cm.

MB929A	0–1 m	UNWASHED: strong carbonate acid reaction, pinkish (d), few nodules, some gravel and fines; texture - sandy clay (gritty), brownish orange (w) (5YR 5/7). WASHED: abundant calcrete chips and grains, angular milky quartz fragments, silcrete fragments, reddish aeolian quartz sand (medium grained, frosted, uniform size distribution).
MB929B	1–2 m	UNWASHED: moderate carbonate acid reaction, gypseous, pale pinkish (d), fines and rock chips; texture - light clay (gritty), brownish orange (w) (5YR 5/8). WASHED: abundant red calcrete fragments, clear gypsum plates and cleavage fragments, white and milky vein quartz fragments, some reddish aeolian quartz sand (as above).
MB929C	2–3 m	UNWASHED: weak carbonate acid reaction, gypseous, dark pinkish and red (d), fines and rock chips; texture - light clay (gritty), light brown (w) (5YR 5/6). WASHED: chunks of hard stiff–red–brown clay - very coherent when wet and not dispersive, gypsum plates, grey and milky quartz grains and fragments (<1 to 4 mm), silcrete fragment; Fe oxide grains - small and black, larger grains are reddish.
MB929D	3–4 m	UNWASHED: no carbonate acid reaction, yellow brown and red (d), fines and rock chips; texture - sticky light clay (gritty), strong brown (w) (5YR 5/7). WASHED: as above but with more chunky matter, quartz - grey, bluish and milky, kaolinitic feldspar relicts, larger fragments of Fe oxides and rose quartz, saprolitic zone.
MB929E	4–5 m	UNWASHED: no carbonate acid reaction, pale cream (d), fines and rock chips; texture - sticky light clay (gritty), moderate orange yellow (w) (10YR 7.5/6). WASHED: gruss–like grains - quartz (grey) and kaolinitic relict feldspar, rare Fe–stained grains.
MB929F	5–6 m	UNWASHED: no carbonate acid reaction, pale cream and yellow (d), mostly fines; texture - light clay (gritty), light yellowish brown (w) (10YR 7/6). WASHED: abundant kaolinitic relict feldspar and kaolinite fragments, quartz - grey. Relict grains suggest a saprolitic granulite origin.

Hole MB927

Location: 395405E 6689650N

Site: flat

Surface: red sandy surface, no lag.

Vegetation: mostly dead mulga.

Calcrete: nodules - platy < 20 cm from surface.

MB927A	0–1 m	UNWASHED: strong carbonate acid reaction, strong pinkish brown (d), fines and few rock chips; texture - clay loam (gritty), brownish orange (w) (5YR 5/6). WASHED: very little coarse matter, 2 large pinkish brown calcrete fragments + numerous smaller fragments, large (10 mm) and small (~1 mm) rounded milky quartz clasts, numerous rounded reddish quartz grains (~1 mm) - aeolian sand.
MB927B	1–2 m	UNWASHED: strong carbonate acid reaction, strong pinkish brown (d), mostly fines; texture - sandy light - medium clay, brownish orange (w) (5YR 5/6). WASHED: mostly small fragments and grains, calcrete, milky - grey quartz fragments, some black Fe oxide fragments (3%) and granules to grains (<1 - 4 mm) - ?B.I.F. derived, some angular yellow - brown silcrete fragments, reddish sand as above, red jasper fragments, white kaolinitic relict feldspar fragments.
MB927C	2–3 m	UNWASHED: no carbonate acid reaction, pale pinkish grey (d), fines and rock chips; texture - sandy light - light clay (gritty), strong brown (w) (7.5YR 5/7). WASHED: large amount of kaolinite after feldspar - as granules and grains, larger white saprolite fragments, yellow porcelanite fragments, grey vein quartz fragments, Fe–stained (yellows and browns) psammitic saprolite with schistosity and gneissic fabric evident, red and black Fe oxide grains
MB927D	3–4 m	UNWASHED: no carbonate acid reaction, buff - pale brown (d), mostly fines; texture - sandy light - sandy loam, strong brown (w) (7.5YR 5/5). WASHED: as per 2–3 m, saprolitic zone.
MB927E	4–5 m	UNWASHED: no carbonate acid reaction, buff to greyish brown (d), mostly fines; texture - sandy light - sandy light clay, medium orange brown (w) (7.5YR 5.5/6). WASHED: as per 2–3 m, saprolitic zone.
MB927F	5–6 m	UNWASHED: no carbonate acid reaction, creamy (d), mostly fines; texture - sandy light - sandy light clay, dark orange yellow (w) (10YR 6/7). WASHED: large (~10 mm) relict granulite fragments (qtz–fspar–mica) plus yellow and white equivalents, Fe–stained psammite fragments, angular grey vein quartz + granulite derived quartz grains, kaolinitic relict feldspar grains, quartz and feldspar grains with minute black Fe oxide grain inclusions; saprolitic zone.

Hole MB925

Location: 395485E 6689650N

Site: flat.

Surface: red sandy surface some calcrete nodules, and gravel.

Vegetation: bluebush dominant, some mulga.

Calcrete: nodules - near surface, lumpy (angular and biscuity forms also) to nodular aggregates.

MB925A	0–1 m	UNWASHED: strong carbonate acid reaction, gypseous, pink–buff coloured (d), nodular to gravelly with fines and rock chips; texture - clayey sand, light brown (w) (5YR 5/6). WASHED: abundant calcrete fragments, gypsum plates and cleavage fragments - colourless and transparent, red quartz sand - well rounded and frosted grains (~1 mm) - aeolian.
MB925B	1–2 m	UNWASHED: weak carbonate acid reaction, gypseous, red and pink (d), nodular to gravelly with fines and rock chips; texture - (stiff) heavy clay, brownish orange (w) (5YR 5/8). WASHED: abundant clear gypsum plates, silcrete fragments, rounded (fluvial) quartz grains
MB925C	2–3 m	UNWASHED: medium carbonate acid reaction, gypseous, pink and cream coloured (d), fines and few rock chips; texture - light clay, light brown (w) (5YR 6/6). WASHED: minimal coarse matter, gypsum plates, rare silcrete, rounded water–worn quartz and kaolinised feldspar grains, rare dark Fe oxide grains.
MB925D	3–4 m	UNWASHED: weak carbonate acid reaction, gypseous, pinkish yellow–brown (d), fines and few rock chips; texture - light clay (gritty), light brown (w) (5YR 5/4). WASHED: more coarse matter than above, Fe–stained silcrete with calcrete and calcite coatings and void infill, vein quartz fragments and granulite derived quartz grains, kaolinised feldspar grains, weathered foliated granulite fragments - saprolite zone.
MB925E	4–5 m	UNWASHED: weak carbonate acid reaction, gypseous, pinkish white (d), fines and few rock chips; texture - light clay (gritty), light grayish brown (w) (5YR 6/3). WASHED: as above, calcrete fragments still present (? up hole contamination), weathered granulite - psammite fragments (saprolitic zone).
MB925F	5–6 m	UNWASHED: no carbonate acid reaction, buff–white (d), fines and few rock chips; texture - sticky light clay (gritty), light grayish reddish brown (w) (5YR 6/4). WASHED: kaolinitic and Fe–stained granulite fragments, all grains <2 mm, saprolitic zone.

Hole MB664, (line 2 - # 386 on drill peg)

Location: 395565E 6689650N

Site: flat

Surface: red sandy surface, no lag.

Vegetation: some bluebush dominant.

Calcrete: nodules near surface - sparse rounded nodules in reddish sand.

MB664A	0–1 m	UNWASHED: very strong carbonate acid reaction, buff (d), some rock chips ?nodules, fines; texture - light clay with some grit, light brown (w) (5YR 5.5/6). WASHED: coarse calcrete fragments with quartz sand - rounded alluvial and larger sub–angular to angular white to clear–grey grains/fragments, black Fe oxide grain inclusions, rare angular black Fe grains.
MB664B	1–2 m	UNWASHED: moderate carbonate acid reaction, dark and light pink (d), gypseous, mostly fines.; texture - light to medium clay, gritty, light brown (w) (5YR 5/6). WASHED: platy clear gypsum cleavage fragments, irregular black grains of Fe oxide cemented psammite, sub–rounded to angular clear grey to bluish quartz grains, some creamy angular silcrete fragments.
MB664C	2–3 m	UNWASHED: no carbonate acid reaction, dark and light pink (d), gypseous in part, some chips and fines; texture - light clay with some grit, light brown (w) (5YR 5.5/5). WASHED: fragments of creamy silcreted sand, rounded to angular quartz - fine to medium grained, a fragmented gravel clast, some calcrete fragments, black irregular Fe oxide fragments and grains - similar also as inclusions in quartz fragments, gypsum cleavage fragments
MB664D	3–4 m	UNWASHED: no carbonate acid reaction, pink (d), rock chips and fines; texture - gritty light clay, brownish orange (w) (5YR 5/8). WASHED: fragments are mostly creamy silcrete, with quartz grains - mostly angular, rare black Fe oxide grains, some brown ferruginous psammite fragments.
MB664E	4–5 m	UNWASHED: no carbonate acid reaction, pink–buff coloured (d), rock chips and fines; texture - gritty light clay, light brown (w) (5YR 6/6). WASHED: no large fragments, silcrete and siliceous kaolinite fragments, brown psammite, fragments of grey quartz –angular to sub–rounded. ?Saprolite zone.
MB664F	5–6 m	UNWASHED: no carbonate acid reaction, pale buff coloured (d), fines; texture - gritty light to medium clay, light brown (w) (5YR 6/6). WASHED: as per 4–5m.

Hole MB510

Location: 395655E 6689650N

Site: flat site

Surface: red clays and sands, no lag.

Vegetation: bluebush dominant, some mulga.

Calcrete: nodules **-** very sparse, small nodules in sand ~ 30 cm.

(Problem drilling through to collect C. due to blockages.)

MB510A	0–1 m	UNWASHED: very strong carbonate acid reaction, brownish (d), fines and chips; texture **-** silty light clay with sand, grit and gravel, light brown (w) (5YR 6/6). WASHED: sand **-** white, grey to brown translucent quartz and calcreted similar sand, pink calcrete nodules and pisolite fragments.
MB510B	1–2 m	UNWASHED: very strong carbonate acid reaction, pale pink (d), nodular–gravelly and fines, gypseous **-** loose plates; texture **-** gritty silty light clay, brownish orange (w) (5YR 5/8). WASHED: calcreted sand as above, gypsum cleavage fragments, sand as above.
MB510C	2–3 m	UNWASHED: some carbonate acid reaction, pale pink to yellow (d), fines and few rock chips, gypsum cleavage fragments; texture **-** sandy light clay, light brown (w) (5YR 5/6). WASHED: sand as above with yellow claystone fragments, rare dark brown Fe oxide grains (1–2 mm), some gypsum cleavage fragments. ?Saprolitic zone.
MB510D	3–4 m	UNWASHED: no carbonate acid reaction, pale brown (d), rock chips and fines, gypseous; texture **-** sandy light clay, strong yellowish brown (w) (7.5YR 5/6). WASHED: red clay fragments (10–20 mm), some rare large gypsum flakes, white quartz –angular with yellow staining **-** ? relict quartz veins in yellow claystone. Saprolitic zone.
MB510E	4–5 m	UNWASHED: no carbonate acid reaction, pale yellow (d), fines; texture **-** sandy light clay, moderate yellowish brown (w) (10YR 5/5). WASHED: quartz sand and grit **-** white to bluish, sub–angular to angular with some Fe staining, large composite quartz fragments. Saprolitic zone.
MB510F	5–6 m	UNWASHED: no carbonate acid reaction, cream (d), fines; texture **-** sandy light clay, light yellowish brown (w) (10YR 6/4). WASHED: quartz grains/fragments **-** medium to coarse grained, white to grey, sub–angular to angular, some yellow to brown Fe oxide plates and grains. Saprolitic zone.

Hole MB509

Location: 395695E 6689650N

Site: slightly rising ground.

Surface: red sand and silty clay, no lag or nodules.

Vegetation: bluebush, mulga and *Eremophila*.

Calcrete: nodular to platy ~ 30 cm.

MB509A	0–1 m	UNWASHED: very strong carbonate acid reaction, pinkish brown (d), fines and chips; texture - sandy clay loam, light brown (w) (5YR 5/6). WASHED: ubiquitous calcrete nodule and plate fragments, quartz sand, rounded - aeolian, fine to medium grained, Fe stained, quartz fragments/grains - medium to coarse grained, white to grey, angular to sub–angular.
MB509B	1–2 m	UNWASHED: very strong carbonate acid reaction, pale pink (d), fines and chips; texture - light medium clay, gritty, light brown (w) (5YR 6/6). WASHED: ubiquitous platy gypsum - colourless, some calcrete fragments, quartz sand fragments/grains - fine to coarse grained, grey–white–colourless, rounded to angular, some large composite quartz clasts, some irregular black Fe oxide grains.
MB509C	2–3 m	UNWASHED: no carbonate acid reaction, pale pinkish brown (d), gritty fines; texture - light medium clay, gritty, light brown (w) (7.5YR 6/5) with fragments of dark pink (d) stiff clay, moderate reddish brown (w) (10R 4/6). WASHED: quartz sand grains/fragments - grey–white–yellow, sub–rounded to angular, also composite quartz chunks, some rare black irregular Fe oxide fragments, some gypsum, some kaolinised feldspar grains. Saprolitic zone
MB509D	3–4 m	UNWASHED: no carbonate acid reaction, pale yellowish brown (d), gritty fines; texture - light clay, gritty, light brown (w) (7.5YR 6.5/6). WASHED: very sandy material, quartz grains - grey sub–rounded to angular,, kaolin – ?haloysite fragments, composite grains - ?crystalline acid basement rock fragments.
MB509E	4–5 m	UNWASHED: no carbonate acid reaction, pale yellow (d), gritty fines; texture - light clay, gritty, light brown (w) (7.5YR 6/6). WASHED: as per 3–4 m, composite grains are quite ferruginous and look like weathered granitoid - saprolitic zone.
MB509F	5–6 m	UNWASHED: no carbonate acid reaction, very pale yellowish brown (d), gritty fines; texture - light clay, gritty, light yellowish brown (w) (10YR 7/6/). WASHED: quartz fragments/grains –colourless–grey, angular, relict acid basement fragments with white kaolinitic K–feldspars and ferruginous relict ferro–magnesian minerals, white clay fragments common.

Hole MB508

Location: 395735E 6689650N

Site: flat

Surface: red silty sand, no lag.

Vegetation: few bluebush, some dead mulga, some alive.

Calcrete: nodules - sparse nodules in red sand ~ 30 cm.

MB508A	0–1 m	UNWASHED: very strong carbonate acid reaction, cream–pale pink (d), nodular to gravely, fines and rock chips; texture - light–medium clay, light brown (w) (5YR 6/6). WASHED: abundant pinkish nodular calcrete fragments, angular to sub–rounded vein quartz clasts, reddish quartz sand - rounded (<1 mm) grains - aeolian, rare rounded black Fe oxide grains (1–2 mm).
MB508B	1–2 m	UNWASHED: very strong carbonate acid reaction, pinkish coloured (d), mostly fines and some rock chips; texture - sticky light–medium clay, light brown (w) (5YR 6/6). WASHED: calcrete fragments, calcrete coated silcrete fragments, large angular vein milky quartz fragments, rounded milky quartz grains, some angular and rounded black Fe oxide grains, some reddish quartz sand - rounded (<1 mm) grains - aeolian.
MB508C	2–3 m	UNWASHED: no carbonate acid reaction, quite gypseous, pale brown–buff coloured (d), mostly fines and some rock chips; texture - sticky light clay, light brown (w) (5YR 6/6). WASHED: stiff red clay lumps (non dispersive), clear gypsum plates, grey and yellow quartz fragments, relict crystalline basement fragments - granulite, kaolinite and kaolinitic feldspar grains, Fe–stained siliceous fragments and grains, saprolitic zone.
MB508D	3–4 m	UNWASHED: no carbonate acid reaction, gypseous, buff–yellowish (d), fines and rock chips; texture - sticky light clay, strong brown (w) (7.5YR 5/7). WASHED: relict crystalline basement fragments (qtz–fspar–mica) - granulite, kaolinitic and sericitic feldspar grains, grey and yellow vein quartz fragments, bluish quartz grains - granulite derived, stiff yellow clay lumps (non dispersive), saprolitic zone.
MB508E	4–5 m	UNWASHED: no carbonate acid reaction, gypseous, buff–yellowish (d), fines and rock chips; texture - sticky light clay (gritty), dark orange yellow (w) (7.5YR 6/6). WASHED: as above with a high proportion of Fe–stained silicified saprolite, relict granulite fragments, kaolinite and quartz.
MB508F	5–6 m	UNWASHED: no carbonate acid reaction, creamy coloured (d), fines and rock chips; texture - sticky light clay (gritty), moderate yellowish brown (w) (10YR 5.5/5). WASHED: : as above with more Fe–stained silicified saprolite (staining is red and cementing is yellow), relict granulite fragments, kaolinite and quartz.

Hole MB506

Location: 395815E 6689650N

Site: flat

Surface: red silty sand surface, no lag.

Vegetation: few bluebush, few dead mulga.

Calcrete: nodules - sparse small rounded ~ 20–30 cm deep in red sand.

MB506A	0–1 m	UNWASHED: very strong carbonate acid reaction, pink (d), fines and rock chips; texture - sticky light clay, light brown (w) (5YR 6/6). WASHED: abundant red calcrete fragments, lithic fragments - dark red silcrete (jasper–like), black Fe–stained fine grained rock, milky–grey and bluish quartz fragments and water–worn grains ~10–15% of bulk, minor red–stained quartz sand with frosted grains (<1 mm) - aeolian.
MB506B	1–2 m	UNWASHED: very strong carbonate acid reaction, nodular calcrete, gypsum - platy, pale pink (d), fines and rock chips; texture - sticky light clay, light brown (w) (5YR 6/6). WASHED: abundant glassy gypsum plates (1–10 mm), abundant small calcrete fragments, abundant red–stained quartz sand with frosted grains (<1 mm) - aeolian, bluish sub–rounded to angular quartz - some with black grain inclusions, some black Fe oxide grains.
MB506C	2–3 m	UNWASHED: no carbonate acid reaction, gypsum, brown and pink (d), fines and rock chips; texture - sticky medium clay (gritty), light brown (w) (5YR 5/4). WASHED: abundant bluish and milky quartz - sub–rounded to angular, lithics - Fe–stained (dark brown to black) psammitic schist, Fe oxide grains, rare kaolinitic granulite fragments, abundant red–stained quartz sand with frosted grains (<1 mm) - aeolian (possible up–hole contamination).
MB506D	3–4 m	UNWASHED: : no carbonate acid reaction, gypsum, grey (d), fines and rock chips; texture - light clay, light grayish brown (w) (5YR 5/3). WASHED: large fragments of milky vein quartz, abundant large and small kaolinitic granulite fragments - some strongly foliated, dark Fe oxide grains and fragments - irregular shaped, abundant bluish granulite–derived quartz grains. Saprolitic zone.
MB506E	4–5 m	UNWASHED: no carbonate acid reaction, yellow (d), fines and few rock chips; texture - sticky light clay (gritty), light brown (w) (7.5YR 5/4). WASHED: as above, saprolitic zone.
MB506F	5–6 m	UNWASHED: no carbonate acid reaction, cream (d), fines and few rock chips; texture - sticky light clay (gritty), light yellowish brown (w) (10YR 6/4). WASHED: as above but much less granular matter, platy schistose quartz fragments (1–10 x 4 x 2 mm),, abundant crystalline basement–derived quartz grains, irregular shaped Fe oxide grains and fragments (yellow and brown), kaolinitic feldspar fragments and grains - saprolitic zone.

Hole MB504

Location: 395895E 6689650N

Site: flat

Surface: bare ground, Calcrete nodules on surface (rare). Red silty bare area with lag and fluvial rounded clasts 2–6 cm and nodular calcrete.

Vegetation: bluebush dominant, some mulga.

Calcrete: as float on surface and as nodules - aggregated nodules and plates (3 layers ~5 cm thick and 5–10 cm apart with nodules above top layer), ~20 cm deep.

MB504A	0–1 m	UNWASHED: very strong carbonate acid reaction, nodular calcrete, pale pink (d), fines and rock chips; texture - silty sand, light brown (w) (5YR 5/6). WASHED: abundant pinkish to cream calcrete fragments, some coarse angular milky vein quartz fragments (2–4 mm); finer material - mostly calcrete with rare angular quartz, rare black Fe oxide rounded grains, (10–15%) reddish–stained quartz sand with frosted grains (<1 mm) - aeolian,
MB504B	1–2 m	UNWASHED: very strong carbonate acid reaction, yellowish cream (d), fines and rock chips; texture - silty sand, light grayish reddish brown (w) (5YR 6/4). WASHED: as above.
MB504C	2–3 m	UNWASHED: moderate carbonate acid reaction, cream to white (d), fines and rock chips; texture - sandy clay loam, light grayish reddish brown (w) (5YR 6/4). WASHED: fragments of calcrete impregnated silcrete, silcrete fragments enclosing coarse quartz grains, quartz fragments - milky, bluish, ferruginous with dark red inclusions and micro–vug infill, yellowish coatings; fragments of yellow weathered crystalline basement - saprolitic zone.
MB504D	3–4 m	UNWASHED: no carbonate acid reaction, cream–pale yellow (d), fines and some rock chips; texture - light clay (gritty), pale yellowish pink (w) (5YR 8/2). WASHED: sample is mostly fines with angular milky and grey vein and crystalline quartz (gneissic to granulitic), foliated psammite fragments with grains from <1–2 mm and some rare to 6 mm, kaolinitic feldspar fragments. Saprolite zone.
MB504E	4–5 m	UNWASHED: no carbonate acid reaction, cream–off white (d), fines and rock chips; texture - silty clay (gritty), light grayish yellowish brown (w) (10YR 6/3). WASHED: gneissic quartz fragments, vein quartz fragments, composite grains, quartz grains - grey, milky, yellow and pink; rare red Fe oxide grains, rare micaceous quartz, kaolinitic feldspar grains. Saprolite zone.
MB504F	5–6 m	UNWASHED: no carbonate acid reaction, pale yellow (d), fines and some small rock chips; texture - silty clay (gritty), light brown (w) (7.5YR 6/4). WASHED: very little granular matter, mostly medium to coarse grit of grey quartz with ~2% Fe oxide grains and rare kaolinitic feldspar. Saprolite zone.

Hole MB502		
Location: 395976E 6689650N **Site:** flat **Surface:** not recorded but probably similar to Hole MB500 **Vegetation:** bluebush dominant, few mulga (dead and alive). **Calcrete** nodules - sparse small nodules in red sand ~ 30 cm depth.		
MB502A	0–1 m	UNWASHED: strong carbonate acid reaction, micaceous, buff - light brown coloured (d), mostly fines and small rock chips; texture - clayey sand, grayish reddish orange (w) (2.5YR 5/6). .WASHED: mostly buff to pink calcrete fragments, rounded water–worn grey quartz grains (1–3 mm), water–worn black Fe oxide grains (1–2%), red–stained quartz (<1 mm) - rounded and frosted aeolian grains 10%.
MB502B	1–2 m	UNWASHED: very strong carbonate acid reaction, yellowish pink (d), fines and small rock chips; texture - light clay, brownish orange (w) (5YR 5/8). WASHED: rare large calcrete chips and as 40% of washed bulk smaller grains, abundant rounded water–worn grey quartz grains (1–2 mm), rounded black Fe oxide grains are larger but rarer (1–2 %), 10–15% red–stained quartz - rounded and frosted aeolian grains (<1 mm).
MB502C	2–3 m	UNWASHED: weak carbonate acid reaction, gypsum flakes and plates, pink and red (d), fines and rock chips; texture - sticky light clay, brownish orange (w) (5YR 5/7). WASHED: one large fragment of bluish quartz (15 x 15 x 4 mm) with greenish chlorite inclusions and an Fe–stained ?schistose rind, clear and colourless gypsum plates and cleavage fragments ~5%, quartz as rounded water–worn and angular bluish fragments in ratio 50:50 make up 50% of bulk washed grains, calcrete fragments ~30% of bulk, larger angular bluish quartz ~5%, rare feldspar grains, red–stained quartz - rounded and frosted aeolian grains (<1 mm).
MB502D	3–4 m	UNWASHED: no carbonate acid reaction, gypsum flakes and plates, bright yellow (d), fines and rock chips; texture - sticky light clay (gritty), strong brown (w) (7.5YR 5/7). WASHED: conspicuous large gypsum plates, yellow claystone fragments, stiff clay adhering to rock chips, common fragments of quartz (2–4 mm) - white, milky, pale grey, translucent; kaolinitic feldspar grains.
MB502E	4–5 m	UNWASHED: no carbonate acid reaction, pale yellow (d), fines and rock chips; texture - light clay, light brown (w) (7.5YR 6/6). WASHED: abundant vein quartz fragments - yellow, smoky, grey and milky, with some small mica inclusions and coatings from a strongly foliated host rock (schist), most quartz is quite platy, yellow Fe–stained quartz and claystone, rare red jasper.
MB502F	5–6 m	UNWASHED: no carbonate acid reaction, buff coloured (d), mostly fines and some rock chips; texture - light clay (gritty), moderate yellowish brown (w) (10YR 5/5). WASHED: many schistose lithic fragments to 3 mm (qtz–mica–dark minerals) with yellow clay coatings, most quartz fragments are platy and have mica inclusions, numerous bluish quartz fragments, numerous kaolinitic feldspar fragments to 2 mm, other quartz fragments - glassy yellow and brown and milky and grey colourings.

Hole MB500

Location: 396056E 6689650N

Site: next to fence.

Surface: red sand on silty clay and sand.

Vegetation: bluebush area.

Calcrete: nodules - cuttings and from hole at ~40 cm.

MB500A	0–1 m	UNWASHED: strong carbonate acid reaction, nodular calcrete, pale pink (d), fines and rock chips; texture - sand, grayish reddish orange (w) (2.5YR 5/6). WASHED: calcrete and calcrete impregnated silcrete fragments, sub–angular vein quartz - milky and grey, reddish uniform grained quartz sand, frosted grains (~1 mm) - aeolian.
MB500B	1–2 m	UNWASHED: strong carbonate acid reaction, cream (d), fines and rock chips; texture - silty sand, pale orange yellow (w) (7.5YR 8/3). WASHED: white to cream calcareous silcrete, rare bluish and grey vein quartz fragments.
MB500C	2–3 m	UNWASHED: moderate carbonate acid reaction, off white colour (d), mostly fines and few rock chips; texture - silty loam, brownish pink (w) (7.5YR 7/2). WASHED: some silcrete fragments as above, abundant weathered lithic fragments - quartz–kaolinised feldspar, bluish and grey basement–derived quartz grains. Saprolite zone.
MB500D	3–4 m	UNWASHED: weak carbonate acid reaction, buff–cream (d), fines and rock chips; texture - silty loam, light brown (w) (7.5YR 6/4). WASHED: as above with yellow Fe–stained fine–grained psammite fragments. Saprolite zone
MB500E	4–5 m	UNWASHED: weak carbonate acid reaction, buff coloured (d), mostly fines; texture - loam (gritty), pale orange yellow (w) (7.5YR 6/4). WASHED: minimal granular matter, as above but finer grain size. Saprolite zone.
MB500F	5–6 m	UNWASHED: weak carbonate acid reaction, buff coloured (d), mostly fines; texture - silty fine sandy clay, light yellowish brown (w) (7.5YR 7/3). WASHED: mostly fine grained bluish quartz, kaolinitic feldspar and rare fragments of yellow psammite. Saprolite zone.

Hole MB636

Location: 396136E 6689650N

Site: flat.

Surface: ferricrete lag and some vein quartz lag.

Vegetation: bluebush dominant, few mulga.

Calcrete: nodules - biscuity (hole wall and cuttings) ~ 20–30 cm deep.

MB636A	0–1 m	UNWASHED: very strong carbonate acid reaction, pale pinkish brown (d), fines and chips; texture - silty sandy clay, gritty, grayish reddish orange (w) (2.5YR 5/6). WASHED: large fragments of silcrete, cream and red - cementing quartz sand grains and calcrete, finer fragments of calcrete and silcrete, sand as fine to medium grained fluvial and aeolian rounded grains.
MB636B	1–2 m	UNWASHED: strong carbonate acid reaction, pale pinkish brown (d), fines and chips, texture - clayey silty grit, light brown (w) (5YR 5/6). WASHED: large cream silcrete fragments with reddish coatings, quartz sand grains/fragments - grey–bluish–white, rounded to angular, Fe–rich silcrete - red jasper common also, some calcrete grains and fragments.
MB636C	2–3 m	UNWASHED: weak carbonate acid reaction, pale pinkish brown (d), fines and chips; texture - light clay, gritty, light grayish brown (w) (5YR 5/3). WASHED: silcrete fragments as above, ferricrete fragments - dark red brown - siliceous and cementing quartz sand, quartz grains/fragments –grey–white–bluish–colourless.
MB636D	3–4 m	UNWASHED: no carbonate acid reaction, deep red–brown (d), fines and chips; texture - sticky light clay, gritty, moderate reddish brown (w) (2.5YR 4/5). WASHED: large fragments of ferruginous fluvial sandstone with fine gravel sized rounded clasts, bulk of the fines are same as larger fragments but with - rounded quartz grains - grey–white–yellow, kaolinised ?feldspar grains. Saprolitic zone.
MB636E	4–5 m	UNWASHED: no carbonate acid reaction, reddish brown (d) fines and chips; texture - sticky medium clay, gritty, light reddish brown (w) (2.5YR 5/5). WASHED: coarse grey quartz plates (vein frags) to 3 mm thick, bluish–grey and yellow angular and irregular quartz grains/fragments, kaolinite fragments, ferruginous psammite fragments, quartz–rich acid rock fragments containing quartz veins - saprolitic appearance to fragments.
MB636F	5–6 m	UNWASHED: no carbonate acid reaction, moderate orange (d), fines and chips; texture - light clay, light brown (w) (5YR 6/6). WASHED: very little fragmentary matter, chunks of ferruginous kaolinitic psammite, ferruginous psammite grains - red–brown, quartz - bluish and grey, sub–rounded to angular, fragments of yellow claystone. Saprolitic zone

Hole MB1030

Location: 396216E 6689650N

Site: flat

Surface: silty clay surface, no lag.

Vegetation: mulga, some bluebush.

Calcrete: nodules - ? 50 cm cuttings and nodules.

MB1030A	0–1 m	UNWASHED: strong carbonate acid reaction, pale brown (d), fines and rock chips; texture - clayey sand, strong brown (w) (5YR 4/8). WASHED: large cream to dark pink and brown calcrete fragments and chips, rare black Fe oxide fragments - up to 4 mm, numerous white to translucent grey quartz fragments and sub–rounded grains to granules (<4 mm).
MB1030B	1–2 m	UNWASHED: slight carbonate acid reaction, buff coloured (d), fines and rock chips; texture - clayey sand (gritty), light brown (w) (5YR 5/6). WASHED: mostly calcrete fragments to 15 mm, some large (10 mm) fragments of dark red–brown ferruginous psammite or ferricrete; smaller fragments as above, quartz fragments - vein type to 4 mm, composite quartz grains to 4 mm, white and grey quartz grains with black inclusions.
MB1030C	2–3 m	UNWASHED: weak carbonate acid reaction, pink (d), fines and rock chips; texture - sticky light clay (gritty), strong brown (w) (7.5YR 5/7). WASHED: some large calcrete fragments to 20 mm (? up hole contamination), large vein quartz fragments to 6 mm, smaller quartz fragments - grey translucent, white, Fe–stained, pink and brown, some with black oxide micro–grain inclusions.
MB1030D	3–4 m	UNWASHED: no carbonate acid reaction, with white flakes and grey to greyish brown (d), mostly fines; texture - sticky light clay (gritty), light brown (w) (7.5YR 5/4). WASHED: very little grainy matter present, rare gypsum vein fragments, large quartz (3 mm) sub–rounded fragments - white, yellow (rare) and grey translucent; some composite quartz grains/fragments; smaller quartz grains - white, yellow, rose and grey angular grains, numerous yellow and dark brown ferruginous grains and laminated lithic equivalents, Fe–stained quartz grains and some quartz with black oxide micro–grain inclusions. This interval is partly in saprolite.
MB1030E	4–5 m	UNWASHED: no carbonate acid reaction, yellow and white (d), mostly fines; texture - sticky light–medium clay (gritty), light yellowish brown (w) (7.5YR 7/4). WASHED: more clasts than 3–4 m, common (1–6 mm) angular grey vein quartz, white and greenish angular quartz fragments, some brown and reddish quartz, some red jasper, Fe–stained quartz and some composite fragments with Fe cement and relict crystalline basement textures. Saprolite zone.
MB1030F	5–6 m	UNWASHED: no carbonate acid reaction, cream (d), fines and rock chips; texture - sticky light clay (gritty), pale orange brown (w) (10YR 8/4).. WASHED: grains mostly grey translucent quartz with black oxide micro–grain inclusions, ~10% white feldspar grains (sericitic and kaolinitic), all grains are angular, some rare Fe staining of grains and grain fractures. Saprolitic zone.

Hole MB1028

Location: 396296E 6689650N

Site: flat

Surface: reddish clays, no lag.

Vegetation: some bluebush, some dead and dying mulga.

Calcrete: nodules - sparse from ~40–50 cm.

MB1028A	0–1 m	UNWASHED: very strong carbonate acid reaction, pale brown (d), fines and small chips; texture - sandy clay, grayish reddish orange (w) (2.5YR 5/7). WASHED: fine aeolian sand with rounded quartz grains, quartz –angular gravel, calcrete fragments, some coarse sand to fine gravel, dark Fe minerals - ?magnetite or haematite after magnetite,
MB1028B	1–2 m	UNWASHED: very strong carbonate acid reaction, pale pink (d), fines and small chips;. Texture - sandy clay, brownish orange (w) (5YR 5/8). WASHED: grains as above - with more dark Fe mineral grains, all grains larger than medium sand are angular.
MB1028C	2–3 m	UNWASHED: no carbonate acid reaction, reddish (d) sandy clay, fines; texture - light medium clay, gritty, grayish brownish orange (w) (5YR 5/8). WASHED: quartz grains angular (coarse) to rounded (fine),grey–white translucent–colourless, some with chlorite inclusions, conspicuous Fe oxides as black to reddish black ?Banded Iron Formation (BIF) fragments or similar Fe lag and ferruginous sandstone.
MB1028D	3–4 m	UNWASHED: no carbonate acid reaction, yellow brown (d), fines; texture - sticky medium clay, gritty, light brown (w) (7.5YR 5.5/6). WASHED: most grains and fragments are Fe oxides - dark brown to black, quartz grey–white, angular, claystone host is a tenacious clinger to grains and quite stiff, Fe grains are quite irregular - fine to coarse grained. ?saprolite zone.
MB1028E	4–5 m	UNWASHED: no carbonate acid reaction, yellow and grey (d), fines and chips; texture - sticky light medium clay, strong yellowish brown (w) (10YR 5/6). WASHED: grains as per 3–4 m, large Fe oxide fragments are platy, fragments of weathered foliated rock ?schist or gneiss, some irregularly shaped bright green quartz grains, most quartz grains - white–grey–cream–Fe stained. Saprolite zone
MB1028F	5–6 m	UNWASHED: no carbonate acid reaction, grey (d), fines and chips; texture - sticky light clay, strong yellowish brown (w) (10YR 4/6). WASHED: micaceous sand, mica is muscovite as large 1–3 mm flakes (5–10% of grains), quartz grains mostly irregular - angular to sub–rounded and white to grey, some composite grains/fragments, some quartz grains have inclusions of greenish chlorite and black Fe oxides, Fe oxide grain numbers down to ~50% of washed grains. Saprolite zone.

Field Logs of 0–6 m samples from the regolith line

Hole MB1029
Location: 396256E 6689650N

Site: flat.
Surface: red silty sand–clay.
Vegetation: mulga and sparse bluebush
Calcrete: nodules **-** large nodules and small ~ 50 cm.

MB1029A	0–1 m	Very strong carbonate acid reaction, brownish; fines, nodule fragments and rock chips.
MB1029B	1–2 m	Very strong carbonate acid reaction, yellow–cream, fines.
MB1029C	2–3 m	No carbonate acid reaction, buff coloured, gypsum flakes, fines and sand.
MB1029D	3–4 m	No carbonate acid reaction, buff–brown, gypsum flakes, fines and sand.
MB1029E	4–5 m	No carbonate acid reaction, pale brown, fines.
MB1029F	5–6 m	No carbonate acid reaction, cream, fines.

Hole MB637
Location: 396176E 6689650N

Site: flat.
Surface: red silty sand–clay, no lag.
Vegetation: bluebush, mulga and *Eremophila*.
Calcrete: nodules **-** large and small, drilled out ~ 60 cm depth.

MB637A	0–1 m	Very strong carbonate acid reaction, pale brown to orange, fines and chips.
MB637B	1–2 m	Very strong carbonate acid reaction, pale pink; nodules, gravel and fines.
MB637C	2–3 m	No carbonate acid reaction, grey to pale pink gypseous, fines and chips.
MB637D	3–4 m	Weak carbonate acid reaction, pale grey–brown, fines and chips.
MB637E	4–5 m	No carbonate acid reaction, creamy yellow, fines.
MB637F	5–6 m	No carbonate acid reaction, creamy yellow, fines.

Hole MB635
Location: 396096E 6689650N

Site: flat.
Surface: red sandy silt and clay.
Vegetation: rare mulga, bluebush and *Eremophila*.
Calcrete: nodules **-** biscuity to nodular, cuttings and wall samples 20 cm.

MB635A	0–1 m	Very strong carbonate acid reaction, dark pink, nodular gravelly and fines.
MB635B	1–2 m	Very strong carbonate acid reaction, pale grey, gravelly, chips and fines.
MB635C	2–3 m	Moderate carbonate acid reaction, buff coloured, chips and fines.
MB635D	3–4 m	Moderate carbonate acid reaction, buff–white, chips and fines.
MB635E	4–5 m	Weak carbonate acid reaction, white and yellow, fines.
MB635F	5–6 m	No carbonate acid reaction, yellow, chips and fines.

Hole MB501
Location: 396016E 6689650N

Site: flat, bare.
Surface: red sandy silt and clay, no surface lag, some biscuity calcrete in surface.
Vegetation: dead bluebush.
Calcrete: nodular to platy + aggregates, ~30 cm.

MB501A	0–1 m	Very strong carbonate acid reaction, brown–buff, fine gravel and fines.
MB501B	1–2 m	Very strong carbonate acid reaction, buff–yellow, fine gravel and fines.
MB501C	2–3 m	No carbonate acid reaction, buff–white, fines.
MB501D	3–4 m	No carbonate acid reaction, off white–grey, fines.
MB501E	4–5 m	No carbonate acid reaction, off white, fines.
MB501F	5–6 m	No carbonate acid reaction, off white, fines.

Hole MB503
Location: 395936E 6689650N

Site: level.
Surface: red sandy silt to clay with calcrete nodules at surface sparsely.
Vegetation: mulga, bluebush and *Eremophila*.
Calcrete: nodular to platy, ~20 cm

MB503A	0–1 m	Very strong carbonate acid reaction, yellowish pink, gravelly and fines.
MB503B	1–2 m	Very strong carbonate acid reaction, yellow, fines.
MB503C	2–3 m	No carbonate acid reaction, yellow, fines.
MB503D	3–4 m	No carbonate acid reaction, yellowish grey, fines.
MB503E	4–5 m	No carbonate acid reaction, cream, fines.
MB503F	5–6 m	No carbonate acid reaction, yellowish cream, fines.

Hole MB505
Location: 395855E 6689650N

Site: slightly hummocky.
Surface: red sand with occasional calcrete nodules.
Vegetation: not recorded
Calcrete: nodular, 10 to 25 cm.

MB505A	0–1 m	Very strong carbonate acid reaction, yellowish pink, sandy and fines.
MB505B	1–2 m	Very strong carbonate acid reaction, pale pink, gravelly and fines.
MB505C	2–3 m	Moderate carbonate acid reaction, pink to red, fines.
MB505D	3–4 m	No carbonate acid reaction, grey, fines.
MB505E	4–5 m	No carbonate acid reaction, yellow, fines.
MB505F	5–6 m	No carbonate acid reaction, yellow and white.

Hole MB507
Location: 395775E 6689650N

Site: slightly rising ground.
Surface: red sandy soil, no lag or calcrete nodules.
Vegetation: bluebush only and dead mulga.
Calcrete: scarce small nodules in reddish sandy soil, 20 to 30 cm.

MB507A	0–1 m	Very strong carbonate acid reaction, red sand, buff–pink fines, calcrete nodules.
MB507B	1–2 m	Very strong carbonate acid reaction, buff–pink with very small calcrete nodules.
MB507C	2–3 m	No carbonate acid reaction, greyish clay.
MB507D	3–4 m	No carbonate acid reaction, greyish clay..
MB507E	4–5 m	No carbonate acid reaction, greyish brown to dark brown clay and small chips.
MB507F	5–6 m	No carbonate acid reaction, greyish green chips and fines.

Hole MB663

Location: 395615E 6689650N
Site: slightly hummocky.
Surface: red sandy soil, no lag or nodules.
Vegetation: bluebush and *Eremophila*.
Calcrete: nodular to platy, ~30 cm.

MB663A	0–1 m	Very strong carbonate acid reaction, pink, sands and fines.
MB663B	1–2 m	Very strong carbonate acid reaction, pale pink, fine gravel and fines, gypsum.
MB663C	2–3 m	No carbonate acid reaction, dark red, sand and clay lumps.
MB663D	3–4 m	No carbonate acid reaction, strong yellow, fines.
MB663E	4–5 m	No carbonate acid reaction, yellowish cream, fines.
MB663F	5–6 m	No carbonate acid reaction, yellowish cream, fines.

Hole MB665		
Location: 395525E 6689650N **Site:** slightly hummocky. **Surface:** red sandy soil with some lag and calcrete nodules at surface. **Vegetation:** bluebush, dead finish *Acacia tetragonophylla*, *Eremophila* and dead mulga. **Calcrete: nodular, ~15 cm.**		
MB665A	0–1 m	Very strong carbonate acid reaction, pale brown, fines and some cuttings.
MB665B	1–2 m	No carbonate acid reaction, reddish, fines, some gypsum.
MB665C	2–3 m	No carbonate acid reaction, pink, fines.
MB665D	3–4 m	No carbonate acid reaction, buff–pale brown, fines.
MB665E	4–5 m	No carbonate acid reaction, greyish–brown, fines.
MB665F	5–6 m	No carbonate acid reaction, brown and white, fines.

Hole MB926		
Location: 395445E 6689650N **Site:** slightly rising ground. **Surface:** red sandy soil, no lag or nodules. **Vegetation:** dead mulga, bluebush and *Eremophila* ssp. **Calcrete:** nodules, ~20 cm.		
MB926A	0–1 m	Very strong carbonate acid reaction, pale orange; fines, nodules and chips
MB926B	1–2 m	Very strong carbonate acid reaction, yellowish pink, fines and fine gravelly cuttings.
MB926C	2–3 m	No carbonate acid reaction, orange–yellow–brown, gypseous, fines.
MB926D	3–4 m	No carbonate acid reaction, yellow and grey, gypseous, fines.
MB926E	4–5 m	No carbonate acid reaction, grey and white, fines.
MB926F	5–6 m	No carbonate acid reaction, yellowish grey and white, fines.

Hole MB928		
Location: 395365E 6689650N **Site:** level. **Surface:** red sandy soil, no lag, calcrete nodules at surface. **Vegetation:** bluebush and dead mulga. **Calcrete:** nodules, ~30 cm.		
MB928A	0–1 m	Very strong carbonate acid reaction pale orange; fines nodules and chips.
MB928B	1–2 m	No carbonate acid reaction, dark and light pink, gypseous, fines.
MB928C	2–3 m	No carbonate acid reaction, yellowish brown, gypseous, fines.
MB928D	3–4 m	No carbonate acid reaction, greyish brown, fines.
MB928E	4–5 m	No carbonate acid reaction, dark grey–brown, fines.
MB928F	5–6 m	No carbonate acid reaction, yellowish grey, fines.

Hole MB930		
Location: 395265E 6689650N **Site:** flat **Surface:** reddish soil with calcrete nodules at surface but no lag. **Vegetation:** mulga **-** live and dead, bluebush, rare *Eremophila* ssp. **Calcrete:** nodules and incipient plates, ~30 cm.		
MB930A	0–1 m	Very strong carbonate acid reaction, dark pink, fines and nodules.
MB930B	1–2 m	Moderate carbonate acid reaction, greyish yellow, gypseous, fines and cuttings–nodules.
MB930C	2–3 m	Moderate carbonate acid reaction, bright strong yellow, fines and cuttings–nodules.
MB930D	3–4 m	No carbonate acid reaction, yellow–cream, fines and cuttings.
MB930E	4–5 m	No carbonate acid reaction, yellow–brown–orange, fines and cuttings.
MB930F	5–6 m	No carbonate acid reaction, yellowish grey, fines and cuttings.

Hole MB932		
Location: 395205E 6689650N **Site:** slightly rising ground. **Surface:** red sandy soil, no lag or nodules. **Vegetation:** dead mulga and stunted sparse bluebush. **Calcrete:** nodules, ~40 cm.		
MB932A	0–1 m	Very strong carbonate acid reaction, cream; nodules, chips and fines.
MB932B	1–2 m	Moderate carbonate acid reaction, cream, gypseous, fines.
MB932C	2–3 m	No carbonate acid reaction, yellowish, fines.
MB932D	3–4 m	No carbonate acid reaction, pink, fines and chips.
MB932E	4–5 m	No carbonate acid reaction, pink and pale grey, fines.
MB932F	5–6 m	No carbonate acid reaction, pale pink, fines.

Hole MB934		
Location: 395125E 6689650N **Site:** rising ground at inflection point to ridge at end of line. **Surface:** red sandy soil with sparse lag of silcrete clasts **Vegetation:** dead mulga and rare bluebush. **Calcrete:** sparse nodules, ~40 cm.		
MB934A	0–1 m	Very strong carbonate acid reaction, pink, weakly nodular, fines and nodules.
MB934B	1–2 m	Strong carbonate acid reaction, pale pink and dark grey brown, nodules and fines.
MB934C	2–3 m	No carbonate acid reaction, yellowish grey, fines.
MB934D	3–4 m	No carbonate acid reaction, greyish yellow–brown, fines.
MB934E	4–5 m	No carbonate acid reaction, insufficient sample for colour determination.
MB934F	5–6 m	No carbonate acid reaction, insufficient sample for colour determination.

Hole MB936		
Location: 395045E 6689650N **Site;** flat. **Surface:** red sandy soil, no lag or nodules. **Vegetation:** dead mulga, sparse to heavy cover of bluebush. **Calcrete:** nodular and platy, ~30 cm.		
MB936A	0–1 m	Very strong carbonate acid reaction, very pale greyish orange, fines.
MB936B	1–2 m	Very strong carbonate acid reaction, very pale greyish brown, gypseous, granular and fines.
MB936C	2–3 m	No carbonate acid reaction, yellowish grey, granular and fines.
MB936D	3–4 m	No carbonate acid reaction, pale yellow–grey, fines.
MB936E	4–5 m	No carbonate acid reaction, white, fines.
MB936F	5–6 m	No carbonate acid reaction, white and pink, fines.

Hole MB001 (between MB937 and MB938). **Location:** 394965E 6689650N **Site:** hummocky and sloping. **Surface:** a Gibber lag armoring, red sandy soil. **Vegetation:** bluebush only. **Calcrete:** plates and coatings on silcrete, ~30 cm.		
MB001A	0–1 m	Very strong carbonate acid reaction, pale brown, nodules and fines.
MB001B	1–2 m	No carbonate acid reaction, pale grey, fines.
MB001C	2–3 m	No carbonate acid reaction, pale grey - off white, fines.
MB001D	3–4 m	No carbonate acid reaction, pale grey - off white, fines.
MB001E	4–5 m	No carbonate acid reaction, grey, fines.
MB001F	5–6 m	No carbonate acid reaction, grey, fines.

Hole MB002 (between MB938 and MB939).
Location: 394885E 6689650N
Site: slightly rising hummocky ground.
Surface: gibber clad, Fe silcrete, quartzite, fluvial clasts, rounded.
Vegetation: bluebush and rare dead *Casuarina* ssp.
Calcrete: platy and coatings on silcrete, ~30 cm.

MB002A	0–1 m	Strong carbonate acid reaction, pale greyish pink, gravel and fines.
MB002B	1–2 m	No carbonate acid reaction, pale grey, fines.
MB002C	2–3 m	No carbonate acid reaction, pale grey, fines.
MB002D	3–4 m	No carbonate acid reaction, pale grey and brown, fines.
MB002E	4–5 m	No carbonate acid reaction, pale grey, fines.
MB002F	5–6 m	No carbonate acid reaction, very pale grey, fines.

Hole: MB003 (between MB939 and MB940)
Location: 394805E 6689650N.
Site: sloping stony.
Surface: reddish lithosol with gibber armoring (silcrete)
Vegetation: large *Casuarina* ssp, *Cassia* ssp, *Eremophila* ssp and bluebush.
Calcrete: platy and coatings on silcrete, ~30 cm.

MB003A	0–1 m	Very strong carbonate acid reaction, pale brown, nodular with fines.
MB003B	1–2 m	Moderate carbonate acid reaction, pale grey, fines.
MB003C	2–3 m	No carbonate acid reaction, pale greyish brown, fines.
MB003D	3–4 m	No carbonate acid reaction, pale greyish yellow, fines.
MB003E	4–5 m	No carbonate acid reaction, off white with yellow, fines.
MB003F	5–6 m	No carbonate acid reaction, white.

APPENDIX 7

Appendix 7: Tabulated data (from Excel File).

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sample_id	Type Code	Drill Hole	Zone	Easting	Northing	from	to	av depth	Dip	Ag	As	Au
units											ppm	ppm	ppb
technique											icpms	icpms	aas
detn limit											0.1	1.5	1
R208460	MB940A	RC	RC940	53	394765	6689695	0.00	1.00	0.5	90	0.05	7	4
R208461	MB940B	RC	RC940	53	394765	6689695	1.00	2.00	1.5	90	0.05	2.5	0.5
R208462	MB940C	RC	RC940	53	394765	6689695	2.00	3.00	2.5	90	0.05	9	0.5
R208463	MB940D	RC	RC940	53	394765	6689695	3.00	4.00	3.5	90	0.05	5	0.5
R208464	MB940E	RC	RC940	53	394765	6689695	4.00	5.00	4.5	90	0.2	9	0.5
R208465	MB940F	RC	RC940	53	394765	6689695	5.00	6.00	5.5	90	0.05	6.5	0.5
R208466	MB939A	RC	RC939	53	394845	6689695	0.00	1.00	0.5	90	0.05	7.5	5
R208467	MB939B	RC	RC939	53	394845	6689695	1.00	2.00	1.5	90	0.2	9.5	0.5
R208468	MB939C	RC	RC939	53	394845	6689695	2.00	3.00	2.5	90	0.2	13	0.5
R208469	MB939D	RC	RC939	53	394845	6689695	3.00	4.00	3.5	90	0.2	4.5	0.5
R208470	MB939E	RC	RC939	53	394845	6689695	4.00	5.00	4.5	90	0.05	3.5	0.5
R208471	MB939F	RC	RC939	53	394845	6689695	5.00	6.00	5.5	90	0.05	12	2
R208472	MB938A	RC	RC938	53	394925	6689695	0.00	1.00	0.5	90	0.05	5	0.5
R208473	MB938B	RC	RC938	53	394925	6689695	1.00	2.00	1.5	90	0.2	12	0.5
R208474	MB938C	RC	RC938	53	394925	6689695	2.00	3.00	2.5	90	0.3	12.5	0.5
R208475	MB938D	RC	RC938	53	394925	6689695	3.00	4.00	3.5	90	0.1	11.5	0.5
R208476	MB938E	RC	RC938	53	394925	6689695	4.00	5.00	4.5	90	0.05	5	0.5
R208477	MB938F	RC	RC938	53	394925	6689695	5.00	6.00	5.5	90	0.05	4	0.5
R208478	MB937A	RCis	RC937	53	395005	6689695	0.00	1.00	0.5	90			
R208479	MB937B	RC	RC937	53	395005	6689695	1.00	2.00	1.5	90	0.1	20	2
R208480	MB937C	RC	RC937	53	395005	6689695	2.00	3.00	2.5	90	0.05	28.5	0.5
R208481	MB937D	RC	RC937	53	395005	6689695	3.00	4.00	3.5	90	0.05	25.5	0.5
R208482	MB937E	RC	RC937	53	395005	6689695	4.00	5.00	4.5	90	0.1	9	0.5
R208483	MB937F	RC	RC937	53	395005	6689695	5.00	6.00	5.5	90	0.1	28	0.5
R208484	MB935A	RC	RC935	53	395085	6689695	0.00	1.00	0.5	90	0.2	14.5	2
R208485	MB935B	RC	RC935	53	395085	6689695	1.00	2.00	1.5	90	0.2	10.5	2
R208486	MB935C	RC	RC935	53	395085	6689695	2.00	3.00	2.5	90	0.3	25	0.5
R208487	MB935D	RC	RC935	53	395085	6689695	3.00	4.00	3.5	90	0.2	47	0.5
R208488	MB935E	RC	RC935	53	395085	6689695	4.00	5.00	4.5	90	0.1	29	0.5
R208489	MB935F	RC	RC935	53	395085	6689695	5.00	6.00	5.5	90	0.2	58	0.5
R208490	MB933A	RC	RC933	53	395165	6689695	0.00	1.00	0.5	90	0.05	2	0.5
R208491	MB933B	RC	RC933	53	395165	6689695	1.00	2.00	1.5	90	0.3	4	1
R208492	MB933C	RC	RC933	53	395165	6689695	2.00	3.00	2.5	90	0.3	28.5	1
R208493	MB933D	RC	RC933	53	395165	6689695	3.00	4.00	3.5	90	0.2	26.5	0.5
R208494	MB933E	RC	RC933	53	395165	6689695	4.00	5.00	4.5	90	21	10	0.5
R208495	MB933F	RC	RC933	53	395165	6689695	5.00	6.00	5.5	90	2.1	14.5	0.5
R208496	MB931A	RC	RC931	53	395245	6689695	0.00	1.00	0.5	90	0.2	2	5
R208497	MB931B	RC	RC931	53	395245	6689695	1.00	2.00	1.5	90	0.2	19	6
R208498	MB931C	RC	RC931	53	395245	6689695	2.00	3.00	2.5	90	0.2	15	4
R208499	MB931D	RC	RC931	53	395245	6689695	3.00	4.00	3.5	90	0.5	19	0.5
R208500	MB931E	RC	RC931	53	395245	6689695	4.00	5.00	4.5	90	0.7	11.5	0.5
R208501	MB931F	RC	RC931	53	395245	6689695	5.00	6.00	5.5	90	0.2	10	0.5
R208502	MB929A	RC	RC929	53	395325	6689695	0.00	1.00	0.5	90	0.05	5	0.5
R208503	MB929B	RC	RC929	53	395325	6689695	1.00	2.00	1.5	90	0.3	20	1
R208504	MB929C	RC	RC929	53	395325	6689695	2.00	3.00	2.5	90	0.3	8.5	0.5
R208505	MB929D	RC	RC929	53	395325	6689695	3.00	4.00	3.5	90	0.2	45	2
R208506	MB929E	RC	RC929	53	395325	6689695	4.00	5.00	4.5	90	0.3	11.5	0.5
R208507	MB929F	RC	RC929	53	395325	6689695	5.00	6.00	5.5	90	0.5	56	0.5
R208508	MB927A	RC	RC927	53	395405	6689695	0.00	1.00	0.5	90	0.4	7	2
R208509	MB927B	RC	RC927	53	395405	6689695	1.00	2.00	1.5	90	0.4	28.5	0.5
R208510	MB927C	RC	RC927	53	395405	6689695	2.00	3.00	2.5	90	0.1	22.5	3
R208511	MB927D	RC	RC927	53	395405	6689695	3.00	4.00	3.5	90	0.3	17.5	0.5
R208512	MB927E	RC	RC927	53	395405	6689695	4.00	5.00	4.5	90	0.05	20	0.5
R208513	MB927F	RC	RC927	53	395405	6689695	5.00	6.00	5.5	90	0.2	10.5	0.5
R208514	MB925A	RC	RC925	53	395485	6689695	0.00	1.00	0.5	90	0.05	16.5	4
R208515	MB925B	RC	RC925	53	395485	6689695	1.00	2.00	1.5	90	0.05	10.5	0.5
R208516	MB925C	RC	RC925	53	395485	6689695	2.00	3.00	2.5	90	0.2	12	0.5
R208517	MB925D	RC	RC925	53	395485	6689695	3.00	4.00	3.5	90	0.3	15.5	2
R208518	MB925E	RC	RC925	53	395485	6689695	4.00	5.00	4.5	90	0.1	14.5	1
R208519	MB925F	RC	RC925	53	395485	6689695	5.00	6.00	5.5	90	0.3	13	0.5
R208520	MB664A	RC	RC664	53	395565	6689695	0.00	1.00	0.5	90	0.5	19.5	15
R208521	MB664B	RC	RC664	53	395565	6689695	1.00	2.00	1.5	90	0.2	15.5	8
R208522	MB664C	RC	RC664	53	395565	6689695	2.00	3.00	2.5	90	0.1	14	4
R208523	MB664D	RC	RC664	53	395565	6689695	3.00	4.00	3.5	90	0.05	5.5	2
R208524	MB664E	RC	RC664	53	395565	6689695	4.00	5.00	4.5	90	0.4	10.5	1
R208525	MB664F	RC	RC664	53	395565	6689695	5.00	6.00	5.5	90	0.2	9	2
R208526	MB510A	RC	RC510	53	395655	6689695	0.00	1.00	0.5	90	0.1	14.5	16
R208527	MB510B	RC	RC510	53	395655	6689695	1.00	2.00	1.5	90	0.2	14.5	7
R208528	MB510C	RC	RC510	53	395655	6689695	2.00	3.00	2.5	90	0.05	11	6
R208529	MB510D	RC	RC510	53	395655	6689695	3.00	4.00	3.5	90	0.2	16	3
R208530	MB510E	RC	RC510	53	395655	6689695	4.00	5.00	4.5	90	0.2	20.5	1
R208531	MB510F	RC	RC510	53	395655	6689695	5.00	6.00	5.5	90	0.3	11	0.5
R208532	MB508A	RC	RC508	53	395735	6689695	0.00	1.00	0.5	90	0.3	11	4
R208533	MB508B	RC	RC508	53	395735	6689695	1.00	2.00	1.5	90	0.2	22	7
R208534	MB508C	RC	RC508	53	395735	6689695	2.00	3.00	2.5	90	0.05	7	7
R208535	MB508D	RC	RC508	53	395735	6689695	3.00	4.00	3.5	90	0.2	10	0.5
R208536	MB508E	RC	RC508	53	395735	6689695	4.00	5.00	4.5	90	0.05	8	1
R208537	MB508F	RC	RC508	53	395735	6689695	5.00	6.00	5.5	90	0.2	11	0.5
R208538	MB506A	RC	RC506	53	395815	6689695	0.00	1.00	0.5	90	0.05	11	5
R208539	MB506B	RC	RC506	53	395815	6689695	1.00	2.00	1.5	90	0.1	13.5	9
R208540	MB506C	RC	RC506	53	395815	6689695	2.00	3.00	2.5	90	0.05	16.5	2
R208541	MB506D	RC	RC506	53	395815	6689695	3.00	4.00	3.5	90	0.05	8.5	0.5
R208542	MB506E	RC	RC506	53	395815	6689695	4.00	5.00	4.5	90	0.1	14.5	0.5
R208543	MB506F	RC	RC506	53	395815	6689695	5.00	6.00	5.5	90	0.05	8.5	0.5

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sample_id	Type Code	Drill Hole	Zone	Easting	Northing	from	to	av depth	Dip	Ag	As	Au
units											ppm	ppm	ppb
technique											icpms	icpms	aas
detn limit											0.1	1.5	1
R208544	MB504A	RC	RC504	53	395895	6689695	0.00	1.00	0.5	90	0.1	11.5	15
R208545	MB504B	RC	RC504	53	395895	6689695	1.00	2.00	1.5	90	0.05	10	6
R208546	MB504C	RC	RC504	53	395895	6689695	2.00	3.00	2.5	90	0.2	6.5	6
R208547	MB504D	RC	RC504	53	395895	6689695	3.00	4.00	3.5	90	0.05	8.5	0.5
R208548	MB504E	RC	RC504	53	395895	6689695	4.00	5.00	4.5	90	0.2	15	0.5
R208549	MB504F	RC	RC504	53	395895	6689695	5.00	6.00	5.5	90	0.1	15	0.5
R208550	MB502A	RC	RC502	53	395976	6689695	0.00	1.00	0.5	90	0.2	6	3
R208551	MB502B	RC	RC502	53	395976	6689695	1.00	2.00	1.5	90	0.2	29.5	7
R208552	MB502C	RC	RC502	53	395976	6689695	2.00	3.00	2.5	90	0.3	23.5	5
R208553	MB502D	RC	RC502	53	395976	6689695	3.00	4.00	3.5	90	0.3	16	2
R208554	MB502E	RC	RC502	53	395976	6689695	4.00	5.00	4.5	90	0.05	8.5	0.5
R208555	MB502F	RC	RC502	53	395976	6689695	5.00	6.00	5.5	90	0.05	10.5	0.5
R208556	MB500A	RC	RC500	53	396056	6689695	0.00	1.00	0.5	90	0.1	6.5	6
R208557	MB500B	RC	RC500	53	396056	6689695	1.00	2.00	1.5	90	0.05	4.5	3
R208558	MB500C	RC	RC500	53	396056	6689695	2.00	3.00	2.5	90	0.05	4.5	3
R208559	MB500D	RC	RC500	53	396056	6689695	3.00	4.00	3.5	90	0.05	15	0.5
R208560	MB500E	RC	RC500	53	396056	6689695	4.00	5.00	4.5	90	0.05	19.5	0.5
R208561	MB500F	RC	RC500	53	396056	6689695	5.00	6.00	5.5	90	0.05	17	0.5
R208562	MB636A	RC	RC636	53	396136	6689695	0.00	1.00	0.5	90	0.05	44.5	4
R208563	MB636B	RC	RC636	53	396136	6689695	1.00	2.00	1.5	90	0.1	110	0.5
R208564	MB636C	RC	RC636	53	396136	6689695	2.00	3.00	2.5	90	0.05	155	2
R208565	MB636D	RC	RC636	53	396136	6689695	3.00	4.00	3.5	90	0.05	300	0.5
R208566	MB636E	RC	RC636	53	396136	6689695	4.00	5.00	4.5	90	0.1	125	0.5
R208567	MB636F	RC	RC636	53	396136	6689695	5.00	6.00	5.5	90	0.05	100	0.5
R208568	MB1030A	RC	RC1030	53	396216	6689695	0.00	1.00	0.5	90	0.05	4.5	1
R208569	MB1030B	RC	RC1030	53	396216	6689695	1.00	2.00	1.5	90	0.1	15	2
R208570	MB1030C	RC	RC1030	53	396216	6689695	2.00	3.00	2.5	90	0.05	29	1
R208571	MB1030D	RC	RC1030	53	396216	6689695	3.00	4.00	3.5	90	0.05	22	0.5
R208572	MB1030E	RC	RC1030	53	396216	6689695	4.00	5.00	4.5	90	0.05	7.5	0.5
R208573	MB1030F	RC	RC1030	53	396216	6689695	5.00	6.00	5.5	90	0.05	3.5	0.5
R208574	MB1028A	RC	RC1028	53	396296	6689695	0.00	1.00	0.5	90	0.05	13.5	1
R208575	MB1028B	RC	RC1028	53	396296	6689695	1.00	2.00	1.5	90	0.05	11.5	2
R208576	MB1028C	RC	RC1028	53	396296	6689695	2.00	3.00	2.5	90	0.05	13.5	1
R208577	MB1028D	RC	RC1028	53	396296	6689695	3.00	4.00	3.5	90	0.05	62	0.5
R208578	MB1028E	RC	RC1028	53	396296	6689695	4.00	5.00	4.5	90	0.05	57	0.5
R208579	MB1028F	RC	RC1028	53	396296	6689695	5.00	6.00	5.5	90	0.05	23.5	0.5
R208580	MB940S	soil		53	394765	6689695	0.00	0.05	0.025		0.05	13.5	0.5
R208581	MB939S	soil		53	394845	6689695		0.05	0.025		0.1	11	2
R208582	MB938S	soil		53	394925	6689695		0.05	0.025		0.05	0.25	0.5
R208583	MB937S	soil		53	395005	6689695		0.05	0.025		0.05	8	0.5
R208584	MB935S	soil		53	395085	6689695		0.05	0.025		0.05	6.5	0.5
R208585	MB933S	soil		53	395165	6689695		0.05	0.025		0.05	3	0.5
R208586	MB931S	soil		53	395245	6689695		0.05	0.025		0.05	5	0.5
R208587	MB929S	soil		53	395325	6689695		0.05	0.025		0.05	4	0.5
R208588	MB927S	soil		53	395405	6689695		0.05	0.025		0.05	3	0.5
R208589	MB925S	soil		53	395485	6689695		0.05	0.025		0.05	1.5	2
R208590	MB664S	soil		53	395565	6689695		0.05	0.025		0.05	9	0.5
R208591	MB510S	soil		53	395655	6689695		0.05	0.025		0.05	7	3
R208592	MB508S	soil		53	395735	6689695		0.05	0.025		0.05	5	0.5
R208593	MB506S	soil		53	395815	6689695		0.05	0.025		0.05	4.5	0.5
R208594	MB504S	soil		53	395895	6689695		0.05	0.025		0.05	2.5	0.5
R208595	MB502S	soil		53	395976	6689695		0.05	0.025		0.05	5	0.5
R208596	MB500S	soil		53	396056	6689695		0.05	0.025		0.05	4	0.5
R208597	MB636S	soil		53	396136	6689695		0.05	0.025		0.05	10.5	0.5
R208598	MB1030S	soil		53	396216	6689695		0.05	0.025		0.05	9	0.5
R208599	MB1028S	soil		53	396296	6689695		0.05	0.025		0.05	7	0.5
R208600	MB940L	+40#is		53	394765	6689695		0.01	0.005				
R208601	MB939L	+40#		53	394845	6689695		0.01	0.005		0.05	26	0.5
R208602	MB938L	+40#		53	394925	6689695		0.01	0.005		0.05	9	0.5
R208603	MB937L	+40#		53	395005	6689695		0.01	0.005		0.05	3.5	0.5
R208604	MB935L	+40#		53	395085	6689695		0.01	0.005		0.4	5.5	0.5
R208605	MB933L	+40#		53	395165	6689695		0.01	0.005		0.05	0.25	0.5
R208606	MB931L	+40#		53	395245	6689695		0.01	0.005		0.05	5.5	0.5
R208607	MB929L	+40#		53	395325	6689695		0.01	0.005		0.05	16	0.5
R208608	MB927L	+40#		53	395405	6689695		0.01	0.005		0.05	5.5	3
R208609	MB925L	+40#		53	395485	6689695		0.01	0.005		0.05	9.5	0.5
R208610	MB664L	+40#		53	395565	6689695		0.01	0.005		0.05	4	0.5
R208611	MB510L	+40#		53	395655	6689695		0.01	0.005		0.05	0.5	3
R208612	MB508L	+40#		53	395735	6689695		0.01	0.005		0.05	10.5	0.5
R208613	MB506L	+40#		53	395815	6689695		0.01	0.005		0.05	10.5	0.5
R208614	MB504L	+40#		53	395895	6689695		0.01	0.005		0.05	4.5	0.5
R208615	MB502L	+40#		53	395976	6689695		0.01	0.005		0.05	13	1
R208616	MB500L	+40#		53	396056	6689695		0.01	0.005		0.05	9	0.5
R208617	MB636L	+40#		53	396136	6689695		0.01	0.005		1.2	17.5	1
R208618	MB1030L	+40#		53	396216	6689695		0.01	0.005		0.05	12.5	0.5
R208619	MB1028L	+40#		53	396296	6689695		0.01	0.005		0.05	9.5	0.5
R208620	MB940N	+9#		53	394765	6689695			0.3		7	8.5	6
R208621	MB939N	+9#		53	394845	6689695			0.3		3.3	13	10
R208622	MB938N	+9#		53	394925	6689695			0.3		0.1	7.5	14
R208623	MB937N	+9#		53	395005	6689695			0.3		0.1	8	10
R208624	MB935N	+9#		53	395085	6689695			0.3		0.05	10	2
R208625	MB933N	+9#		53	395165	6689695			0.6		0.1	5.5	0.5
R208626	MB931N	+9#		53	395245	6689695			0.3		0.05	14	7
R208627	MB929N	+9#		53	395325	6689695			0.4		0.1	8	2

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sample_id	Type Code	Drill Hole	Zone	Easting	Northing	from	to	av depth	Dip	Ag	As	Au
units											ppm	ppm	ppb
technique											icpms	icpms	aas
detn limit											0.1	1.5	1
R208628	MB927N	+9#		53	395405	6689695			0.2		2.5	9.5	5
R208629	MB925N	+9#		53	395485	6689695			0.1		49	8	13
R208630	MB664N	+9#		53	395565	6689695			0.1		0.8	8.5	13
R208631	MB510N	+9#		53	395655	6689695			0.3		0.1	4	10
R208632	MB508N	+9#		53	395735	6689695			0.3		0.05	4	5
R208633	MB506N	+9#		53	395815	6689695			0.25		0.05	5	5
R208634	MB504N	+9#		53	395895	6689695			0.2		0.05	6.5	12
R208635	MB502N	+9#		53	395976	6689695			0.3		0.05	4.5	5
R208636	MB500N	+9#		53	396056	6689695			0.4		0.2	6.5	0.5
R208637	MB636N	+9#		53	396136	6689695			0.25		0.05	77	5
R208638	MB1030N	+9#		53	396216	6689695			0.5		41	7	1
R208639	MB1028N	+9#		53	396296	6689695			0.45		0.7	7.5	1
R208640	849301	RAB	500	53	396056	6689660	0	5	2.5	90	0.3	8.5	7
R208641	849302	RAB	500	53	396056	6689660	5	10	7.5	90	0.1	48.5	0.5
R208642	849303	RAB	500	53	396056	6689660	10	15	12.5	90	0.05	23	0.5
R208643	849304	RAB	500	53	396056	6689660	15	20	17.5	90	0.05	25.5	0.5
R208644	849305	RAB	500	53	396056	6689660	20	25	22.5	90	0.05	22	0.5
R208645	849306	RAB	500	53	396056	6689660	25	30	27.5	90	0.05	21.5	0.5
R208646	849307	RAB	500	53	396056	6689660	30	35	32.5	90	0.05	39	5
R208647	849308	RAB	500	53	396056	6689660	35	37	36.0	90	0.1	42.5	17
R208648		STD		51	335550	6642850					0.05	1400	2200
R208649	849314	RAB	502	53	395976	6689660	0	5	2.5	90	0.05	18.5	6
R208650	849315	RAB	502	53	395976	6689660	5	10	7.5	90	0.05	25.5	2
R208651	849316	RAB	502	53	395976	6689660	10	15	12.5	90	0.05	93	0.5
R208652	849317	RAB	502	53	395976	6689660	15	20	17.5	90	0.6	49	0.5
R208653	849318	RAB	502	53	395976	6689660	20	25	22.5	90	13	64	0.5
R208654	849319	RAB	502	53	395976	6689660	25	30	27.5	90	0.5	105	3
R208655	849320	RAB	502	53	395976	6689660	30	32	31.0	90	0.5	59	4
R208656		STD		50	580638	6897317					0.2	1.5	106
R208657	849328	RAB	504	53	395895	6689660	0	5	2.5	90	0.05	11	3
R208658	849329	RAB	504	53	395895	6689660	5	10	7.5	90	0.05	10.5	0.5
R208659	849330	RAB	504	53	395895	6689660	10	15	12.5	90	0.05	4.5	0.5
R208660	849331	RAB	504	53	395895	6689660	15	20	17.5	90	0.05	1.5	0.5
R208661	849332	RAB	504	53	395895	6689660	20	25	22.5	90	0.05	4	0.5
R208662	849333	RAB	504	53	395895	6689660	25	30	27.5	90	0.05	5	2
R208663	849334	RAB	504	53	395895	6689660	30	35	32.5	90	0.05	1	4
R208664	849335	RAB	504	53	395895	6689660	35	40	37.5	90	0.2	4	2
R208665	849336	RAB	504	53	395895	6689660	40	42	41.0	90	0.05	3	2
R208666		STD		50	692500	6464000					0.5	67	135
R208667	849344	RAB	506	53	395815	6689660	0	5	2.5	90	0.05	9.5	5
R208668	849345	RAB	506	53	395815	6689660	5	10	7.5	90	0.05	2.5	0.5
R208669	849346	RAB	506	53	395815	6689660	10	15	12.5	90	0.05	5	0.5
R208670	849347	RAB	506	53	395815	6689660	15	20	17.5	90	0.05	8.5	0.5
R208671	849348	RAB	506	53	395815	6689660	20	25	22.5	90	0.05	11.5	0.5
R208672	849349	RAB	506	53	395815	6689660	25	30	27.5	90	0.2	5.5	0.5
R208673	849350	RAB	506	53	395815	6689660	30	35	32.5	90	0.1	12	15
R208674	849351	RAB	506	53	395815	6689660	35	40	37.5	90	0.1	17	13
R208675		STD		51	361500	6582200					0.3	1100	5550
R208676	849359	RAB	508	53	395735	6689660	0	5	2.5	90	0.05	18.5	7
R208677	849360	RAB	508	53	395735	6689660	5	10	7.5	90	0.05	100	0.5
R208678	849361	RAB	508	53	395735	6689660	10	15	12.5	90	0.05	71	1
R208679	849362	RAB	508	53	395735	6689660	15	20	17.5	90	0.05	8.5	0.5
R208680	849363	RAB	508	53	395735	6689660	20	25	22.5	90	0.05	9.5	0.5
R208681	849364	RAB	508	53	395735	6689660	25	30	27.5	90	0.05	29	0.5
R208682	849365	RAB	508	53	395735	6689660	30	35	32.5	90	0.05	110	10
R208683		STD		51	434000	6840000					0.6	470	62
R208684	849376	RAB	510	53	395655	6689660	0	5	2.5	90	0.05	15	3
R208685	849377	RAB	510	53	395655	6689660	5	10	7.5	90	0.05	53	0.5
R208686	849378	RAB	510	53	395655	6689660	10	15	12.5	90	0.05	48	0.5
R208687	849379	RAB	510	53	395655	6689660	15	20	17.5	90	0.05	11.5	0.5
R208688	849380	RAB	510	53	395655	6689660	20	25	22.5	90	0.05	5	0.5
R208689	849381	RAB	510	53	395655	6689660	25	30	27.5	90	0.05	0.25	0.5
R208690	849382	RAB	510	53	395655	6689660	30	34	32.0	90	0.05	1	6
R208691	852918	RAB	510	53	395655	6689660	34	35	34.5	90	0.05	1.5	18
R208692	852919	RAB	510	53	395655	6689660	35	36	35.5	90	0.05	3.5	580
R208693	852920	RAB	510	53	395655	6689660	36	37	36.5	90	0.05	5	46
R208694	852921	RAB	510	53	395655	6689660	37	38	37.5	90	0.05	2	12
R208695	852922	RAB	510	53	395655	6689660	38	39	38.5	90	0.05	9	0.5
R208696	852923	RAB	510	53	395655	6689660	39	40	39.5	90	0.05	8	2
R208697	849384	RAB	510	53	395655	6689660	40	45	42.5	90	0.05	18	90
R208698		STD		51	434100	6838800					0.05	19	11
R208699	848344	RAB	636	53	396136	6689660	0	10	5.0	90	0.05	37	0.5
R208700	848345	RAB	636	53	396136	6689660	10	15	12.5	90	0.1	20.5	0.5
R208701	848346	RAB	636	53	396136	6689660	15	18	16.5	90	0.05	13.5	0.5
R208702	848481	RAB	664	53	395565	6689660	0	10	5.0	90	0.05	3.5	0.5
R208703	848482	RAB	664	53	395565	6689660	10	15	12.5	90	0.05	0.25	0.5
R208704	848483	RAB	664	53	395565	6689660	15	20	17.5	90	0.05	0.25	0.5
R208705	848484	RAB	664	53	395565	6689660	20	25	22.5	90	0.05	0.25	0.5
R208706	848485	RAB	664	53	395565	6689660	25	30	27.5	90	0.05	3	2
R208707	848486	RAB	664	53	395565	6689660	30	35	32.5	90	0.05	6.5	9
R208708	848487	RAB	664	53	395565	6689660	35	40	37.5	90	0.05	5	2
R208709	848488	RAB	664	53	395565	6689660	40	45	42.5	90	0.05	11.5	8
R208710	848489	RAB	664	53	395565	6689660	45	47	46.0	90	0.05	6	9
R208711		STD		50	516074	6707366					0.3	71	2800

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sample_id	Type Code	Drill Hole	Zone	Easting	Northing	from	to	av depth	Dip	Ag	As	Au
units											ppm	ppm	ppb
technique											icpms	icpms	aas
detn limit											0.1	1.5	1
R208712	914989	RAB	925	53	395485	6689659	0	10	5.0	60	0.05	13	4
R208713	914990	RAB	925	53	395485	6689659	10	15	12.5	60	0.05	5.5	7
R208714	914991	RAB	925	53	395485	6689659	15	20	17.5	60	0.05	7	1
R208715	914992	RAB	925	53	395485	6689659	20	25	22.5	60	0.05	4	0.5
R208716	914993	RAB	925	53	395485	6689659	25	30	27.5	60	0.05	1	0.5
R208717	914994	RAB	925	53	395485	6689659	30	35	32.5	60	0.05	2	2
R208718	914995	RAB	925	53	395485	6689659	35	40	37.5	60	0.05	0.25	0.5
R208719	914996	RAB	925	53	395485	6689659	40	45	42.5	60	0.05	2.5	84
R208720	914997	RAB	925	53	395485	6689659	45	50	47.5	60	0.05	5.5	78
R208721	914998	RAB	925	53	395485	6689659	50	56	53.0	60	0.05	6	24
R208722		STD		51	335550	6642850					0.05	1700	1900
R208723	961009	RAB	927	53	395405	6689659	0	10	5.0	60	0.05	12.5	1
R208724	961010	RAB	927	53	395405	6689659	10	15	12.5	60	0.05	6.5	3
R208725	961011	RAB	927	53	395405	6689659	15	20	17.5	60	0.05	3.5	0.5
R208726	961012	RAB	927	53	395405	6689659	20	25	22.5	60	0.05	3	0.5
R208727	961013	RAB	927	53	395405	6689659	25	30	27.5	60	0.05	2.5	0.5
R208728	961014	RAB	927	53	395405	6689659	30	35	32.5	60	0.05	8.5	0.5
R208729	961015	RAB	927	53	395405	6689659	35	40	37.5	60	0.05	5.5	0.5
R208730	961016	RAB	927	53	395405	6689659	40	45	42.5	60	0.05	7.5	0.5
R208731	961017	RAB	927	53	395405	6689659	45	49	47.0	60	0.05	5	2
R208732		STD		50	580638	6897317					0.2	0.5	70
R208733	961027	RAB	929	53	395325	6689659	0	10	5.0	60	0.05	6	10
R208734	961028	RAB	929	53	395325	6689659	10	15	12.5	60	0.05	7	0.5
R208735	961029	RAB	929	53	395325	6689659	15	20	17.5	60	0.05	12.5	0.5
R208736	961030	RAB	929	53	395325	6689659	20	25	22.5	60	0.1	3	0.5
R208737	961031	RAB	929	53	395325	6689659	25	30	27.5	60	0.1	4	0.5
R208738	961032	RAB	929	53	395325	6689659	30	35	32.5	60	0.05	10.5	3
R208739	961033	RAB	929	53	395325	6689659	35	41	38.0	60	0.2	12	4
R208740		STD		50	692500	6464000					0.5	59	169
R208741	961044	RAB	931	53	395245	6689659	0	10	5.0	60	0.05	8.5	3
R208742	961045	RAB	931	53	395245	6689659	10	15	12.5	60	0.05	0.5	4
R208743	961046	RAB	931	53	395245	6689659	15	20	17.5	60	0.1	1.5	1
R208744	961047	RAB	931	53	395245	6689659	20	25	22.5	60	0.05	2	0.5
R208745	961048	RAB	931	53	395245	6689659	25	30	27.5	60	0.05	3.5	0.5
R208746	961049	RAB	931	53	395245	6689659	30	35	32.5	60	0.05	2	1
R208747	961050	RAB	931	53	395245	6689659	35	40	37.5	60	0.05	2.5	0.5
R208748	961051	RAB	931	53	395245	6689659	40	45	42.5	60	0.05	3.5	0.5
R208749	961052	RAB	931	53	395245	6689659	45	50	47.5	60	0.2	7	290
R208750	961053	RAB	931	53	395245	6689659	50	56	53.0	60	0.05	20.5	3
R208751		STD		51	361500	6582200					0.3	1150	4800
R208752	961059	RAB	933	53	395165	6689659	0	10	5.0	60	0.05	14	6
R208753	961060	RAB	933	53	395165	6689659	10	15	12.5	60	0.1	12.5	0.5
R208754	961061	RAB	933	53	395165	6689659	15	19	17.0	60	0.2	2.5	0.5
R208755		STD		51	434000	6840000					0.5	410	62
R208756	961065	RAB	935	53	395085	6689659	6	11	8.5	60	0.05	14	2
R208757	961071	RAB	937	53	395005	6689659		10	5.0	60	0.05	9.5	2
R208758	961072	RAB	937	53	395005	6689659	10	15	12.5	60	0.05	11	0.5
R208759	961073	RAB	937	53	395005	6689659	15	20	17.5	60	0.1	2.5	2
R208760		STD		51	434100	6838800					0.05	17.5	14
R208761	961074	RAB	938	53	394925	6689659	0	10	5.0	60	0.05	8.5	2
R208762	961075	RAB	938	53	394925	6689659	10	15	12.5	60	0.05	5	1
R208763	961076	RAB	938	53	394925	6689659	15	20	17.5	60	0.05	2	0.5
R208764	961077	RAB	938	53	394925	6689659	20	25	22.5	60	0.1	0.25	0.5
R208765	961078	RAB	938	53	394925	6689659	25	30	27.5	60	0.05	0.25	0.5
R208766	961079	RAB	938	53	394925	6689659	30	35	32.5	60	0.05	2	0.5
R208767	961080	RAB	938	53	394925	6689659	35	40	37.5	60	0.1	1	2
R208768	961081	RAB	938	53	394925	6689659	40	45	42.5	60	0.2	0.5	0.5
R208769	961082	RAB	938	53	394925	6689659	45	47	46.0	60	0.2	0.25	0.5
R208770		STD		50	516074	6707366					0.9	82	2800
R208771	961083	RAB	939	53	394845	6689659		10	5.0	60	0.05	8	0.5
R208772	961084	RAB	939	53	394845	6689659	10	15	12.5	60	0.05	3	2
R208773	961085	RAB	939	53	394845	6689659	15	20	17.5	60	0.05	1.5	0.5
R208774	961086	RAB	939	53	394845	6689659	20	25	22.5	60	0.2	14.5	0.5
R208775	961087	RAB	939	53	394845	6689659	25	30	27.5	60	0.05	5.5	0.5
R208776	961088	RAB	939	53	394845	6689659	30	35	32.5	60	0.1	2	0.5
R208777	961089	RAB	939	53	394845	6689659	35	40	37.5	60	0.2	0.25	0.5
R208778	961090	RAB	939	53	394845	6689659	40	45	42.5	60	0.3	0.25	3
R208779	961091	RAB	939	53	394845	6689659	45	50	47.5	60	0.3	0.25	0.5
R208780	961092	RAB	939	53	394845	6689659	50	55	52.5	60	0.2	0.25	1
R208781	961093	RAB	939	53	394845	6689659	55	59	57.0	60	0.3	0.25	2
R208782	961094	RAB	940	53	394765	6689659	0	10	5.0	60	0.05	3	0.5
R208783	961095	RAB	940	53	394765	6689659	10	15	12.5	60	0.05	1	0.5
R208784	961096	RAB	940	53	394765	6689659	15	20	17.5	60	0.05	38.5	0.5
R208785	961097	RAB	940	53	394765	6689659	20	25	22.5	60	0.05	28	0.5
R208786	961098	RAB	940	53	394765	6689659	25	30	27.5	60	0.4	8	0.5
R208787	961099	RAB	940	53	394765	6689659	30	35	32.5	60	0.2	1.5	0.5
R208788	961100	RAB	940	53	394765	6689659	35	40	37.5	60	0.05	1	0.5
R208789	961101	RAB	940	53	394765	6689659	40	45	42.5	60	0.3	1.5	3
R208790	961102	RAB	940	53	394765	6689659	45	50	47.5	60	0.3	2	9
R208791	961103	RAB	940	53	394765	6689659	50	53	51.5	60	0.2	1.5	3
R208792	961594	RAB	1028	53	396296	6689660	0	10	5.0	60	0.05	13	0.5
R208793	961595	RAB	1028	53	396296	6689660	10	15	12.5	60	0.05	7	0.5
R208794	961596	RAB	1028	53	396296	6689660	15	20	17.5	60	0.2	12	0.5
R208795	961597	RAB	1028	53	396296	6689660	20	26	23.0	60	0.4	10	7

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sample_id	Type Code	Drill Hole	Zone	Easting	Northing	from	to	av depth	Dip	Ag	As	Au
units											ppm	ppm	ppb
technique											icpms	icpms	aas
detn limit											0.1	1.5	1
R208796	961604	RAB	1030	53	396216	6689660	0	10	5.0	60	0.05	11	2
R208797	961605	RAB	1030	53	396216	6689660	10	20	15.0	60	0.05	10.5	0.5
R208798	961606	RAB	1030	53	396216	6689660	20	26	23.0	60	0.05	11	0.5
R208799	961607	RAB	1030	53	396216	6689660	26	32	29.0	60	0.05	13	0.5
R208838	MR1-MB510	soil		53	395659	6689596	0.0	0.1			0.05	0.5	3
R208839	MR2-MB510	soil		53	395659	6689596	0.1	0.2			0.05	1.5	5
R208840	MR3-MB510	soil		53	395659	6689596	0.2	0.3			0.05	22.5	8
R208841	MR4-MB510	soil		53	395659	6689596	0.3	0.4			22.5	0.25	11
R208842	MR5-MB510	soil		53	395659	6689596	0.4	0.5			0.1	9.5	11
R208843	MR6-MB510	soil		53	395659	6689596	0.5	0.6			0.05	8.5	15
R208844	MR7-MB510	lag		53	395659	6689596	0.0	0.1			0.05	5	2
R208845	MB940V	veg-ash		53	394765	6689695					0.1	4	17
R208846	MB939V	veg-is-ash		53	394845	6689695							
R208847	MB938V	veg-ash		53	394925	6689695					0.2	4.5	3
R208848	MB937V	veg-ash		53	395005	6689695					0.05	3	3
R208849	MB935V	veg-ash		53	395085	6689695					0.05	0.25	7
R208850	MB933V	veg-ash		53	395165	6689695					0.2	3	4
R208851	MB931V	veg-ash		53	395245	6689695					0.4	0.25	3
R208852	MB929V	veg-ash		53	395325	6689695					0.2	1	3
R208853	MB927V	veg-ash		53	395405	6689695					0.2	2.5	2
R208854	MB925V	veg-ash		53	395485	6689695					0.05	3	3
R208855	MB664V	veg-ash		53	395565	6689695					0.05	2.5	3
R208856	MB510V	veg-ash		53	395655	6689695					0.1	6.5	2
R208857	MB508V	veg-ash		53	395735	6689695					0.05	2.5	3
R208858	MB506V	veg-ash		53	395815	6689695					0.05	0.25	2
R208859	MB504V	veg-ash		53	395895	6689695					0.05	0.25	2
R208860	MB502V	veg-ash		53	395976	6689695					0.2	4	3
R208861	MB500V	veg-ash		53	396056	6689695					0.1	3.5	3
R208862	MB636V	veg-ash		53	396136	6689695					0.05	0.25	2
R208863	MB1030V	veg-ash		53	396216	6689695					0.05	1.5	3
R208864	MB1028V	veg-ash		53	396296	6689695					0.05	0.25	3
R208865	MB500L	+9#is		53	396056	6689695		0.01	0.005				
R208866	MB508L	+9#is		53	395735	6689695		0.01	0.005				
R208867	MB510L	+9#is		53	395655	6689695		0.01	0.005				
R208868	MB636L	+9#		53	396136	6689695		0.01	0.005		0.3	950	0.5
R208869	MB504L	+9#		53	395895	6689695		0.01	0.005		0.05	45	3
R208870	MB938L	+9#		53	395165	6689695		0.01	0.005		0.2	6.5	0.5
R208871	MB931L	+9#is		53	395245	6689695		0.01	0.005				
R208872	MB1028L	+9#is		53	396296	6689695		0.01	0.005				
R208873	MB506L	+9#is		53	395815	6689695		0.01	0.005				
R208874	MB664L	+9#is		53	395565	6689695		0.01	0.005				
R208875	MB935L	+9#is		53	395085	6689695		0.01	0.005				
R208876	MB940L	+9#		53	394765	6689695		0.01	0.005		0.2	9	0.5
R208877	MB502L	+9#is		53	395976	6689695		0.01	0.005				
R208878	MB925L	+9#		53	395485	6689695		0.01	0.005		0.05	6	2
R208879	MB1030L	+9#		53	396216	6689695		0.01	0.005		0.1	6.5	0.5
R208880	MB929L	+9#		53	395325	6689695		0.01	0.005		0.05	8.5	6
R208881	MB939L	+9#		53	394845	6689695		0.01	0.005		25	6	0.5
R208882	MB933L	+9#is		53	395165	6689695		0.01	0.005				
R208883	MB937L	+9#		53	395005	6689695		0.01	0.005		0.2	12	0.5
R208884	MB927L	+9#		53	395405	6689695		0.01	0.005		2.8	5	0.5
R208885	MB637N	+9#		53	396176	6689660		0.01	0.005		0.3	21	3
R208886	MB635N	+9#		53	396096	6689660		0.01	0.005		0.05	17	6
R208887	MB1029N	+9#		53	396256	6689660		0.01	0.005		42	13.5	0.5

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Ba	Bi	Ca	Cd	Ce	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ho	In	K
units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
technique	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpoes
detn limit	5	0.1	0.001	0.1	0.5	2	0.1	0.5	0.02	0.05	0.02	0.01	0.1	0.05	0.02	0.05	0.001
R208460	650	0.3	9.94	0.05	21	29	0.9	22.5	1.7	1	0.57	1.15	27	2	0.29	0.025	0.3
R208461	260	0.3	0.81	0.05	35	93	1.2	9.5	1.25	0.75	0.36	1.46	52	1.45	0.31	0.025	0.655
R208462	450	0.5	0.115	0.1	59	120	0.7	9	1.3	0.35	0.38	1.75	31	2.4	0.16	0.1	0.62
R208463	150	0.2	0.065	0.05	27.5	89	0.7	4.5	0.59	0.3	0.22	1.2	24.5	0.8	0.14	0.025	0.525
R208464	155	0.4	0.075	0.05	81	120	1.1	9	1.3	0.7	0.26	1.19	22.5	3.2	0.2	0.025	0.44
R208465	220	0.4	0.065	0.05	27	105	1	6	2	1.3	0.44	1.07	24	2.6	0.46	0.025	0.49
R208466	500	0.1	14	0.05	21.5	75	0.6	14.5	0.94	0.9	0.69	0.775	10.5	2	0.27	0.025	0.845
R208467	370	0.1	3.21	0.05	63	96	0.6	12.5	2.2	1.6	1.25	0.82	26	4.1	0.49	0.05	1.1
R208468	360	0.2	0.09	0.05	40.5	105	0.5	11.5	1.25	0.65	0.76	0.86	30.5	2.4	0.21	0.025	1.2
R208469	330	0.1	0.125	0.2	41.5	60	0.5	7.5	0.72	0.3	0.98	0.575	22.5	1.8	0.12	0.1	1.23
R208470	500	0.1	0.05	0.05	32	70	0.5	6.5	0.79	0.45	0.97	0.705	20	2.4	0.12	0.05	2.07
R208471	290	0.2	0.048	0.05	44.5	56	0.4	21	0.65	0.4	1	1.13	20	1.5	0.1	0.025	1.31
R208472	440	0.2	7.01	0.05	60	125	0.6	20	1.6	0.9	0.92	1.11	16.5	4.4	0.2	0.05	0.59
R208473	360	0.1	2	0.05	57	150	0.5	35	1.25	0.85	0.78	1.59	17	3.1	0.28	0.025	0.56
R208474	550	0.2	0.305	0.05	69	130	0.4	16	1.15	0.7	0.95	1.03	17.5	2.6	0.2	0.025	0.545
R208475	190	0.1	0.095	0.05	96	165	0.5	18.5	1.45	0.7	0.56	1.1	22	4.2	0.24	0.1	0.56
R208476	800	0.05	0.06	0.05	110	105	0.8	6.5	1.05	0.25	1.55	0.62	16.5	2.5	0.09	0.025	3.37
R208477	600	0.1	0.085	0.05	52	175	2.6	24.5	1.05	0.65	1.05	1.67	20.5	2.4	0.18	0.025	2.39
R208478																	
R208479	240	0.1	0.44	0.05	59	135	0.7	29.5	1.45	0.75	0.78	1.73	21.5	3.1	0.21	0.1	0.755
R208480	700	0.05	0.1	0.05	99	110	0.7	57	2.1	1.2	1.7	2.33	18	6.5	0.29	0.05	2.44
R208481	950	0.05	0.1	0.05	125	95	0.5	47	1.55	0.5	2.1	2.09	17	3.1	0.18	0.025	3.78
R208482	1300	0.05	0.05	0.2	59	34	0.7	29.5	0.51	0.2	2.1	0.975	20.5	1.5	0.07	0.05	5.8
R208483	1050	0.05	0.06	0.05	85	105	0.5	84	1.3	0.55	1.85	3.28	15	3.2	0.12	0.05	4.59
R208484	700	0.1	16.6	0.05	16	55	1.2	22.5	1.3	0.9	0.87	1.77	6.5	1.6	0.28	0.025	0.485
R208485	450	0.05	16	0.1	19.5	54	1.1	23.5	1.55	0.75	0.67	1.91	6.5	1.7	0.27	0.05	0.44
R208486	1750	0.1	3.53	0.05	64	240	13	60	2.7	1.5	2.1	5.55	14.5	4.6	0.48	0.05	2.59
R208487	1950	0.2	1.1	0.05	70	250	10.5	77	1.95	0.7	2.3	5.61	17	3.7	0.23	0.05	3.41
R208488	1700	0.2	1.34	0.05	72	360	8.5	96	1.85	0.9	2.2	7.91	13	4.6	0.28	0.05	2.66
R208489	1350	0.2	1.08	0.05	41	750	13.5	175	1.95	1.1	1.45	17.8	18	3	0.4	0.1	1.81
R208490	250	0.1	3.52	0.05	15	45	1.4	18	0.77	0.4	0.48	1.78	4.4	1.35	0.1	0.025	0.37
R208491	700	0.2	10.5	0.05	41.5	59	1.3	24.5	3	2.2	1.9	2.19	6	4.6	0.66	0.025	0.525
R208492	1300	0.05	3.34	0.05	140	230	5.5	55	4.4	2.2	3.9	6.6	17	6.5	0.84	0.1	1.79
R208493	1100	0.05	0.925	0.05	49.5	280	4.7	80	3.8	2	2.2	15.9	17	6.5	0.6	0.05	1.58
R208494	1100	0.05	1.04	0.05	89	270	6	69	2.5	1.3	2.1	6.09	17	5.5	0.4	0.05	2.08
R208495	1100	0.05	1.94	0.05	100	320	6.5	70	4.4	2.5	3.6	5.69	22	8	0.79	0.05	2.13
R208496	500	0.2	11.1	0.05	15	59	1.3	19.5	2.4	1.5	1.15	1.88	6.5	2.7	0.47	0.025	0.435
R208497	440	0.2	6.31	0.05	44	97	1.1	35.5	5.5	4.6	2.6	2.51	10.5	8	1.65	0.05	0.42
R208498	210	0.05	4.15	0.05	79	110	0.5	52	2.7	1.15	1.5	2.85	13	2.8	0.4	0.05	0.185
R208499	200	0.05	0.23	0.05	97	220	0.4	105	2.3	2.1	1.35	4.56	23.5	5	0.52	0.05	0.285
R208500	350	0.05	0.055	0.05	78	220	0.4	130	2.9	1.45	2.1	5.35	30	3.9	0.48	0.025	1.05
R208501	250	0.05	0.044	0.05	88	220	0.3	94	2.2	1.9	1.95	4.99	21	4.7	0.51	0.025	0.905
R208502	420	0.1	8.51	0.05	18	75	0.9	15	2	1.4	1.25	1.85	5.5	3.1	0.42	0.025	0.415
R208503	155	0.2	12.3	0.05	42.5	64	1.2	23	4.8	2.9	1.95	1.62	7	9	1.05	0.05	0.4
R208504	70	0.2	5.07	0.05	19	115	1.4	13.5	1.3	1.05	0.84	2.29	8.5	2.2	0.41	0.025	0.415
R208505	260	0.1	0.31	0.05	120	370	0.9	70	3	2	1.55	5.53	29	8.5	0.51	0.05	0.365
R208506	80	0.05	0.055	0.05	200	170	0.3	20.5	3	1.55	1.55	1.4	17.5	10.5	0.55	0.025	0.19
R208507	410	0.05	0.043	0.05	260	430	0.7	77	4.1	2.7	3.6	2.23	31	10.5	0.77	0.05	1.17
R208508	700	0.2	3.77	0.3	16	65	1.2	16.5	1	0.55	1.1	2.1	8.5	1.65	0.26	0.05	0.535
R208509	800	0.3	2.63	0.05	36.5	165	1	38.5	1.1	0.65	1	4.57	16.5	2.1	0.23	0.1	1.28
R208510	700	0.05	0.895	0.05	82	140	0.4	35.5	1.5	0.8	1.5	3.6	19.5	3	0.26	0.025	2.35
R208511	600	0.05	0.22	0.05	120	280	0.2	58	1.5	0.7	1.45	5.48	30	3	0.22	0.1	2.07
R208512	850	0.05	0.165	0.05	200	300	0.2	75	1.6	0.45	1.35	5.83	31	3.6	0.28	0.1	2.51
R208513	750	0.05	0.055	0.4	140	195	0.2	31.5	1.25	0.7	1.15	3.29	20	3.6	0.15	0.1	3
R208514	65	0.05	13.1	0.2	27	53	1	16.5	1.25	0.75	0.42	1.53	6.5	1.3	0.27	0.025	0.415
R208515	120	0.05	2.71	0.05	36	100	1.1	16	0.92	0.4	0.35	2.71	8	1.45	0.19	0.05	0.485
R208516	300	0.05	1.25	0.05	110	165	0.8	31.5	1.5	1	0.54	2.04	26	2.6	0.26	0.05	0.37
R208517	210	0.05	1.84	0.05	115	320	0.6	105	2.3	1.05	0.81	5.04	21	4.4	0.39	0.2	0.3
R208518	300	0.2	1.53	0.05	83	220	0.3	45.5	2.5	0.85	1.3	4.03	21.5	5	0.41	0.05	0.45
R208519	290	0.05	0.047	0.05	120	220	0.1	47	2.7	1.15	1.65	3.96	27	4.5	0.44	0.05	0.82
R208520	750	0.05	13.9	0.05	41.5	40	1.1	11	5.5	2.4	1.4	1.44	6	4.8	0.99	0.025	0.45
R208521	140	0.1	6.16	0.05	49	69	0.9	13	2	0.9	0.49	1.69	8.5	1.9	0.31	0.05	0.6
R208522	270	0.05	1.26	0.3	89	150	1.1	19.5	1.75	1	0.61	2.15	21.5	2.7	0.31	0.05	0.45
R208523	175	0.05	0.07	0.1	100	185	0.5	17.5	2.1	0.85	0.97	2.55	24.5	3.9	0.31	0.05	0.315
R208524	210	0.05	0.065	0.05	170	280	0.4	34.5	2.7	1.25	1.15	4.45	34.5	4.7	0.41	0.15	0.28
R208525	390	0.05	0.044	0.05	210	280	0.4	25	2.8	1.35	1.8	4.65	28.5	4.6	0.5	0.1	0.815
R208526	310	0.1	11.2	0.05	31.5	46	0.9	17.5	1.8	1.15	0.66	1.97	8	3.3	0.43	0.05	0.535
R208527	30	0.05	14.4	0.05	23.5	39	0.8	8.5	1.6	1.25	0.38	1.06	4.4	1.55	0.4	0.025	0.255
R208528	390	0.1	6.54	0.05	41	98	1.2	24.5	1.7	0.95	0.74	2.83	12	2.4	0.42	0.05	0.41
R208529	180	0.05	0.28	0.05	130	230	0.4	90	3.6	1.8	1.3	5.93	24.5	4.8	0.44	0.05	0.185
R208530	115	0.05	0.2	0.05	300	230	0.3	100	4.6	2.2	1.8	5.18	24	8.5	0.71	0.025	0.215
R208531	550	0.05	0.055	0.05	440	115	0.05	43.5	8.5	3.1	4.7	2.53	30.5	15	1.05	0.05	0.475
R208532	290	0.05	10.3	0.1	21.5	40	1.2	13.5	1.7	0.95	0.6	1.56	7.5	1.95	0.26	0.025	0.425
R208533	650	0.05	11.5	0.1	46.5	73	1.4	17.5	3.6	2.4	1.1	1.99	12	4.4	0.95	0.1	0.5
R208534	340	0.05	1.88	0.05	47.5	79	0.9	13.5	2.9	1.1	0.88	1.62	10.5	3.6	0.53	0.025	0.385
R208535	370	0.05	0.8	0.05	88	190	0.7	40.5	2.8	1.2	1.5	3.31	23	3.1	0.3	0.1	0.85
R208536	490	0.05	0.065	0.05	155	270	0.7	42.5	1.85	1.4	1.45	4.48	28	4.4	0.36	0.025	1.53
R208537	550	0.05	0.135	0.05	87	220	0.4	34.5	2	1.1	1.3	4.07	23	3.1	0.38	0.05	1.91
R208538	380	0.05	12.5	0.05	21.5	46	1.1	14.5	2.2	1.05	0.87	1.81	7.5	1.95	0.37	0.025	0.56
R208539	100	0.05	12	0.3	31	54	0.9	12	2.9	1.55	0.83	1.5	6.5	3.6	0.44	0.1	0.53
R208540	330	0.05	0.18	0.05	61	110	1.2	17	1.6	0.55	0.52	2.32	15	2.1	0.21	0.1	1.24
R208541	165	0.05	0.125	0.5	160	185	0.6	32.5	1.9	0.95	0.87	3.09	26.5	3.5	0.41	0.15	0.425
R208542	155	0.05	0.065	0.05	180	200	0.1	135	2.7	0.7	1.15	3.84	21	4.8	0.25	0.05	0.14
R208543	290	0.05	0.07	0.1	250	130	0.2	22	2.6	1.1	1.7	3.13	24.5	7	0.43	0.05	0.32

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Ba	Bi	Ca	Cd	Ce	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ho	In	K
units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
technique	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpoes
detn limit	5	0.1	0.001	0.1	0.5	2	0.1	0.5	0.02	0.05	0.02	0.01	0.1	0.05	0.02	0.05	0.001
R208544	650	0.05	23.6	0.2	23	39	0.9	17	1.7	0.8	0.97	1.17	7	2.2	0.3	0.05	0.42
R208545	470	0.05	8.95	0.2	50	89	0.8	14.5	1.9	0.7	0.79	1.29	14	2.4	0.35	0.025	1.07
R208546	300	0.05	2.03	0.05	72	84	0.4	15	3.4	1.4	0.98	1.22	13.5	3.7	0.56	0.025	1.19
R208547	420	0.05	0.12	0.1	96	77	0.2	20.5	1.8	0.85	0.75	0.88	12.5	3	0.27	0.025	1.34
R208548	650	0.05	0.046	0.1	88	150	0.3	21.5	2.2	1.3	0.94	1.97	24.5	2.8	0.47	0.1	2.34
R208549	550	0.05	0.046	0.2	68	110	0.2	17	1.95	1	0.85	1.64	22	2.6	0.35	0.05	1.95
R208550	300	0.05	4.97	0.05	27	53	1.2	14	1.4	0.8	0.61	1.83	6	1.9	0.3	0.05	0.54
R208551	490	0.05	12.9	0.05	30	58	1.1	12	2.9	1.05	1.05	1.79	9.5	2.9	0.49	0.05	0.585
R208552	170	0.05	7.53	0.1	140	84	1.8	18.5	3.9	2.1	1.25	2.32	15	5.5	0.87	0.05	0.735
R208553	600	0.05	0.915	0.05	28.5	130	1.6	71	1.55	0.9	0.67	5.31	17.5	1.45	0.21	0.025	1.08
R208554	650	0.05	0.145	0.1	12	165	2.7	49	1.6	0.8	0.72	5.29	17	1.25	0.3	0.025	1.67
R208555	650	0.05	0.06	0.05	50	170	2.6	24.5	2.8	1.65	0.83	4.06	26.5	3.2	0.54	0.1	2.35
R208556	500	0.1	12.6	0.05	22.5	65	1.1	16	1	0.6	0.5	1.14	13.5	1.25	0.22	0.025	0.955
R208557	490	0.05	1.83	0.2	33	74	0.7	12	1.15	0.8	0.67	0.62	19.5	1.5	0.25	0.025	1.41
R208558	850	0.05	0.945	0.2	58	97	0.5	9.5	1.8	1	1.35	0.58	27.5	2.9	0.34	0.025	1.89
R208559	750	0.05	0.16	0.2	56	165	0.5	33	1.5	0.85	1	2.03	33.5	2.4	0.3	0.025	2.05
R208560	600	0.05	0.13	0.2	39	155	0.3	33.5	1.1	0.7	1.1	2.49	27	1.55	0.21	0.025	1.74
R208561	700	0.05	0.055	0.2	30.5	170	0.2	44.5	0.99	0.7	1.1	2.94	26.5	1.3	0.21	0.025	1.42
R208562	460	0.05	7.34	0.2	27	84	1.1	21.5	1.1	0.75	0.6	2.99	22.5	2	0.22	0.025	0.405
R208563	195	0.05	0.625	0.2	76	67	0.8	28.5	1.85	1.15	0.86	4.65	27	3.7	0.37	0.05	0.62
R208564	310	0.05	0.225	0.2	96	72	0.6	36	1.7	0.9	0.89	6.8	23.5	3.8	0.33	0.025	1.02
R208565	550	0.1	0.16	0.3	76	105	0.9	62	1.5	0.75	1.15	11.8	24	3.3	0.29	0.05	1.77
R208566	260	0.05	0.125	0.3	36	125	1.4	59	1.05	0.8	0.62	8.53	20.5	2	0.34	0.025	0.775
R208567	240	0.05	0.055	0.2	28.5	145	2.6	91	0.63	0.45	0.38	10.1	24.5	1.5	0.14	0.025	0.69
R208568	380	0.05	13.9	0.1	27	28	1	21.5	1.8	1.05	0.86	1.74	9	2.8	0.38	0.025	0.475
R208569	750	0.1	8.51	0.2	105	86	0.9	43	6.5	5	2.2	2.55	23.5	7.5	1.5	0.05	0.405
R208570	500	0.05	1.18	0.2	150	145	0.5	54	3	2	1.7	3.62	28.5	6	0.57	0.05	0.375
R208571	1900	0.05	0.285	0.2	93	320	0.3	85	2	1.4	1.05	5.27	38	4	0.44	0.025	0.155
R208572	500	0.05	0.085	0.1	135	110	0.2	33.5	1.45	0.75	1.7	2.09	27.5	3.6	0.18	0.025	0.165
R208573	90	0.05	0.05	0.05	170	44	0.2	13	2.2	0.8	3.8	0.72	25	5.5	0.27	0.025	0.215
R208574	350	0.1	7.26	0.05	22.5	30	1	16.5	1.3	0.75	0.64	1.72	9.5	1.95	0.25	0.025	0.445
R208575	450	0.1	13.8	0.05	27	42	1.3	14	1.95	1.4	0.92	1.61	8.5	3.5	0.45	0.025	0.425
R208576	1200	0.1	4.58	0.05	76	130	2.4	28	4.2	2.5	2	4.06	15.5	6.5	0.9	0.025	0.715
R208577	900	0.1	0.205	0.2	135	950	1.7	81	2.1	1	0.82	10.2	30	5	0.35	0.05	0.76
R208578	1950	0.05	0.17	0.2	125	1200	2.4	50	3.2	1.4	1.55	11.9	37	7.5	0.51	0.1	0.605
R208579	1450	0.05	0.135	0.1	84	900	9	35	1.55	0.75	1.05	7	33.5	4	0.25	0.05	1.39
R208580	290	0.2	1.05	0.2	26	32	1.4	12	1.55	1.1	0.67	2.28	10.5	2.5	0.35	0.025	0.435
R208581	210	0.2	5.69	0.1	23.5	31	1.3	19.5	1.45	0.85	0.53	2.03	11	1.95	0.3	0.025	0.47
R208582	200	0.2	0.415	0.1	21.5	32	1.1	11	1.2	0.75	0.48	2.28	8.5	1.9	0.24	0.025	0.46
R208583	145	0.1	0.205	0.05	20	27	0.9	10	0.9	0.65	0.39	1.8	8	1.5	0.18	0.025	0.395
R208584	125	0.1	0.08	0.05	19.5	22	0.9	9	0.77	0.6	0.34	1.56	6.5	1.35	0.16	0.025	0.32
R208585	135	0.1	0.14	0.05	19.5	35	1	9.5	1.05	0.65	0.4	1.79	7	1.7	0.21	0.025	0.445
R208586	120	0.2	0.115	0.05	16.5	41	0.8	9.5	1.05	0.6	0.39	1.66	6	1.4	0.23	0.025	0.35
R208587	135	0.1	0.39	0.05	23.5	37	1.1	12.5	1.25	0.85	0.52	1.7	7	1.85	0.27	0.025	0.405
R208588	140	0.1	0.305	0.05	20	29	1.1	10.5	0.95	0.65	0.44	1.73	8	1.6	0.21	0.025	0.44
R208589	140	0.2	1.93	0.1	26	27	1.4	16	1.75	1.05	0.72	1.88	10.5	2.5	0.35	0.025	0.51
R208590	130	0.1	0.845	0.05	20.5	24	0.9	11	1.3	0.8	0.57	1.69	7.5	1.95	0.26	0.025	0.42
R208591	135	0.2	0.425	0.05	18	29	0.9	8	1.3	0.8	0.47	1.82	6.5	1.85	0.29	0.025	0.42
R208592	115	0.1	0.135	0.05	11	28	0.7	7.5	0.73	0.5	0.33	1.5	5	1.15	0.16	0.025	0.33
R208593	125	0.1	0.43	0.05	16.5	27	0.9	10	0.81	0.55	0.37	1.81	7	1.3	0.18	0.025	0.43
R208594	135	0.2	0.145	0.05	20	29	1.1	11.5	0.98	0.6	0.39	2.16	8	1.45	0.19	0.025	0.425
R208595	135	0.1	0.39	0.05	21.5	28	1.1	10	0.95	0.65	0.41	1.87	7.5	1.45	0.22	0.025	0.46
R208596	145	0.1	1.84	0.05	21.5	32	1	13	0.98	0.55	0.41	2.02	8	1.4	0.21	0.025	0.445
R208597	190	0.2	0.97	0.1	31	37	1.9	17	1.3	0.85	0.6	2.96	12.5	2.3	0.3	0.025	0.63
R208598	135	0.1	0.23	0.05	22	28	1.1	12	1.05	0.6	0.41	2.06	9.5	1.6	0.22	0.025	0.49
R208599	115	0.1	0.215	0.05	16	25	0.7	8	0.98	0.6	0.38	1.72	6	1.65	0.21	0.025	0.375
R208600																	
R208601	350	0.3	3.18	0.2	11.5	120	0.2	9.5	0.89	0.65	0.42	8.38	10	1.35	0.23	0.025	0.09
R208602	210	0.2	0.465	0.05	8	68	0.2	7.5	0.46	0.3	0.21	5.6	6	0.7	0.11	0.025	0.095
R208603	150	0.05	0.225	0.05	7	21	0.1	8	0.56	0.35	0.2	1.59	2.5	0.7	0.11	0.025	0.11
R208604	150	0.05	0.115	0.05	11.5	15	0.2	11	0.65	0.3	0.22	1.61	2.9	0.8	0.1	0.025	0.22
R208605	115	0.05	0.035	0.05	6	9	0.1	7	0.4	0.25	0.15	1.07	2	0.45	0.07	0.025	0.12
R208606	125	0.05	0.08	0.05	7	17	0.2	10.5	0.53	0.3	0.18	1.67	2.2	0.6	0.09	0.025	0.165
R208607	110	0.05	0.16	0.05	8	42	0.1	15	0.6	0.35	0.18	1.79	3.1	0.65	0.11	0.025	0.15
R208608	130	0.05	0.205	0.05	8.5	21	0.2	13.5	0.53	0.35	0.2	1.82	2.9	0.8	0.09	0.025	0.175
R208609	135	0.1	1.21	0.05	12.5	30	0.2	17	1	0.6	0.34	2.4	4.2	1.15	0.18	0.05	0.175
R208610	130	0.1	0.225	0.05	10	25	0.1	15	0.85	0.45	0.28	1.87	3	0.9	0.19	0.05	0.165
R208611	120	0.05	0.29	0.05	9.5	25	0.1	11	0.67	0.4	0.19	1.87	2.8	0.8	0.12	0.025	0.135
R208612	155	0.05	0.055	0.05	9	21	0.1	10	0.6	0.35	0.2	1.88	3.1	0.8	0.11	0.1	0.135
R208613	110	0.1	0.18	0.05	10.5	23	0.1	11.5	0.89	0.5	0.27	2.08	3.4	0.95	0.15	0.05	0.14
R208614	110	0.1	0.105	0.05	10.5	39	0.1	10.5	0.71	0.35	0.2	3.31	3.7	0.8	0.12	0.05	0.115
R208615	100	0.1	0.39	0.05	12	39	0.2	12.5	0.67	0.4	0.24	2.87	4	0.9	0.14	0.05	0.12
R208616	100	0.1	0.16	0.05	13.5	61	0.1	14	0.73	0.45	0.23	2.77	4.2	1.15	0.13	0.05	0.115
R208617	155	0.1	6.16	0.1	17	54	0.4	24	1.4	0.8	0.43	3.02	4.9	1.8	0.28	0.025	0.235
R208618	95	0.05	0.185	0.05	15	27	0.1	14.5	0.78	0.45	0.21	2.25	3.5	1.1	0.13	0.05	0.13
R208619	85	0.1	0.095	0.05	18.5	23	0.3	35	0.7	0.35	0.21	2.28	3.1	1.05	0.13	0.1	0.125
R208620	1100	0.05	14.8	0.1	11	16	0.9	23	0.97	0.7	0.6	0.835	29	1.2	0.21	0.025	0.35
R208621	950	0.2	16.9	0.05	26.5	29	0.5	52	1.55	0.8	0.98	0.57	9	1.65	0.28	0.025	0.3
R208622	350	0.05	19	0.05	12.5	26	0.4	42.5	0.92	0.55	0.42	0.66	9	1.15	0.18	0.025	0.275
R208623	750	0.05	18.7	0.05	31.5	25	0.8	33	3.3	1.55	1.3	1.11	13	3.6	0.38	0.025	0.385
R208624	500	0.05	18	0.2	18	25	0.7	23.5	1.75	0.9	0.71	1.13	7.5	2.7	0.3	0.025	0.34
R208625	410	0.05	21.4	0.2	10	18	0.6	19	2	1.05	0.52	1.16	3.6	1.5	0.36	0.025	0.17
R208626	1150	0.05	14.9	0.3	20	51	0.5	46.5	1.95	1.3	1.05	2.48	8	2.4	0.3	0.025	0.245
R208627	350	0.1	20	0.2	34.5	26	0.4	20	4.4	2.2	1.4	0.84	8.5	5	0.68	0.025	0.21

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Ba	Bi	Ca	Cd	Ce	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ho	In	K
units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
technique	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpoes
detn limit	5	0.1	0.001	0.1	0.5	2	0.1	0.5	0.02	0.05	0.02	0.01	0.1	0.05	0.02	0.05	0.001
R208628	1800	0.05	30.3	0.3	12.5	26	0.8	32	2.8	1.35	1.9	0.695	4.9	3.3	0.39	0.025	0.25
R208629	1250	0.2	17.5	0.05	25.5	23	0.7	13	5	4.2	1.6	1.14	8	7	0.9	0.025	0.33
R208630	1700	0.05	31.5	0.3	12	30	0.7	22	3.4	1.95	1.65	0.68	4.5	3.8	0.57	0.025	0.255
R208631	1900	0.05	33.4	0.2	12	28	0.5	24	3.1	1.4	1.65	0.545	3.4	3.2	0.53	0.025	0.245
R208632	600	0.05	31.5	0.1	13	24	0.6	19	3.2	1.4	1.25	0.655	3.4	3.6	0.53	0.025	0.23
R208633	1150	0.05	29.6	0.2	13	16	0.7	19	3.9	2.3	1.4	0.76	5	4.3	0.46	0.025	0.295
R208634	260	0.05	31.5	0.2	13.5	13	0.6	21.5	1.3	1.05	0.53	0.745	6	2	0.28	0.025	0.305
R208635	430	0.2	21.7	0.2	17.5	40	1.4	21	4.7	2.2	2.1	1.25	9	4.8	0.87	0.025	0.5
R208636	700	0.05	2.61	0.2	22.5	100	1.1	19.5	2.2	0.9	1	0.64	41	1.95	0.37	0.025	1.98
R208637	360	0.05	23.5	0.2	12.5	47	0.8	25.5	1.35	0.8	0.68	2.58	10.5	1.75	0.26	0.025	0.415
R208638	600	0.1	14.8	0.1	85	115	0.5	47	2.8	1.4	1.35	1.79	13	3	0.37	0.025	0.285
R208639	185	0.05	29	0.1	17	72	0.6	36	2.5	1.25	0.8	4.74	6.5	3.3	0.45	0.025	0.24
R208640	480	5.5	7.17	0.3	115	135	0.5	10	1.95	1.1	0.69	0.965	16.5	2.8	0.45	0.15	1
R208641	600	0.7	0.085	0.3	96	230	0.2	17.5	2	1.1	0.77	1.96	26	2.7	0.44	0.1	1.79
R208642	650	0.4	0.029	0.2	81	210	0.4	8	2.1	1.4	0.6	1.42	32.5	2.3	0.49	0.1	2.36
R208643	1050	0.2	0.08	0.2	65	270	0.2	14	2.2	1.2	0.85	1.77	25.5	2.3	0.45	0.1	3
R208644	550	0.05	0.02	0.2	115	180	0.4	33.5	3.8	1.95	1.7	2.2	27	5	0.72	0.05	2.22
R208645	500	0.05	0.0185	0.2	120	210	0.3	51	3.2	1.85	1.55	3.67	30.5	4.9	0.64	0.025	2.5
R208646	600	0.05	0.05	0.2	145	200	0.8	79	4.9	2.7	2	5.04	35	6	1	0.05	2.79
R208647	490	0.05	0.095	0.2	80	330	0.8	76	4.8	2.7	1.95	6.42	31	6.5	1.05	0.05	2.53
R208648	300	0.5	0.019	0.8	19.5	1500	0.5	135	1.55	1	0.88	9.73	16	1.7	0.37	0.15	1.15
R208649	500	0.05	5.37	0.1	36	320	3	13.5	1.5	0.8	0.6	4.33	16	2	0.27	0.025	0.87
R208650	850	0.05	0.14	0.1	8	850	6	12.5	0.79	0.5	0.34	10.7	38.5	0.9	0.18	0.1	3.19
R208651	1100	0.05	0.18	0.2	120	600	3	115	6	3.1	2.5	11.9	39	8.5	1.15	0.1	1.21
R208652	500	0.05	0.26	0.1	49	700	2.8	100	2.9	1.65	1.15	9.06	31	3.8	0.64	0.1	1.5
R208653	320	0.05	0.565	0.2	60	370	1.8	99	2.4	1.25	1.1	6.63	25.5	3.6	0.54	0.05	0.87
R208654	600	0.05	0.645	0.4	63	750	1.7	72	2.9	1.4	1.2	12.7	24	4.1	0.59	0.05	1.32
R208655	440	0.05	0.73	0.2	82	650	3.8	34.5	2.6	1.25	1.15	8.3	26	4.3	0.49	0.05	1.83
R208656	320	0.2	0.02	0.05	30.5	41	7	48	0.96	0.5	0.5	0.305	28.5	1.1	0.18	0.025	3.26
R208657	750	0.05	4.78	0.2	43	135	0.9	55	1.5	0.75	0.59	2.35	19.5	2	0.29	0.025	1.11
R208658	550	0.05	0.035	0.2	63	190	0.5	62	2.2	1.05	0.75	2.77	34	2.5	0.39	0.05	2.31
R208659	490	0.05	0.022	0.2	110	250	0.3	33	2.5	1.2	1.45	2.55	26	4.1	0.46	0.025	1.6
R208660	550	0.05	0.028	0.2	105	195	1.1	33	2.3	1.1	1.45	3.41	28.5	3.4	0.42	0.025	2.24
R208661	650	0.05	0.029	0.2	115	180	2.1	43.5	2.8	1.1	1.6	5.24	32	4	0.46	0.025	2.42
R208662	750	0.05	0.044	0.2	70	180	4.2	54	2.9	1.5	1.15	7.47	28.5	3	0.66	0.025	2.74
R208663	600	0.05	0.19	0.4	93	145	4.1	35.5	2.5	1.3	1.25	4.44	26.5	3.5	0.52	0.025	3.31
R208664	650	0.6	0.365	0.5	105	165	3.7	23	2.5	1	1.2	4.12	29	3.9	0.4	0.025	3.19
R208665	700	0.05	0.645	0.4	130	195	2.5	27.5	2.7	1.25	1.65	3.55	25	4.6	0.48	0.025	3.07
R208666	40	2.2	0.185	0.2	10.5	410	1.2	53	0.65	0.35	0.22	24.7	49.5	0.6	0.13	0.15	0.165
R208667	390	0.2	5.23	0.1	55	135	0.8	39.5	2.1	1	0.83	2.64	16.5	2.9	0.37	0.025	0.895
R208668	330	0.05	0.05	0.4	320	160	0.2	45	4	1.5	1.5	3.38	27	9	0.54	0.025	1.24
R208669	410	0.05	0.039	0.3	250	210	2.8	41.5	3	1.65	1.65	3.87	26.5	7	0.54	0.025	1.69
R208670	1150	0.05	0.525	0.2	165	1300	8	79	15.5	8	4.9	11.6	24	14.5	3.4	0.025	1.48
R208671	550	0.05	0.86	0.2	73	950	4.4	76	3.2	1.95	1.35	7.05	17.5	3.5	0.68	0.025	1.9
R208672	700	0.05	0.145	0.3	145	330	1.8	48.5	4.4	1.8	1.7	3.93	42	6	0.8	0.05	2.92
R208673	750	0.05	0.5	0.4	145	290	1.8	76	5.5	2.7	1.6	6.33	39	7.5	1.05	0.05	3.42
R208674	750	0.05	0.635	0.4	105	310	1.2	68	6.5	3	2.1	5.86	33	7	1.15	0.05	2.6
R208675	3100	56	0.185	0.2	110	100	8.5	190	2.5	1.1	2.9	11.5	31.5	3.6	0.48	0.3	3.86
R208676	700	0.5	7.66	0.1	45.5	290	2.7	26	2.7	1.35	0.84	2.76	10.5	2.8	0.55	0.025	0.97
R208677	950	0.4	0.175	0.1	52	1400	19	56	2.3	1.05	1	8.33	26	3.2	0.43	0.05	1.02
R208678	2000	0.05	0.055	0.1	90	850	0.6	46.5	3	1.3	1.3	3.64	21	4.9	0.54	0.025	1.59
R208679	105	0.05	0.08	0.2	91	1000	0.2	19	3.2	1.85	1.15	1.1	41.5	5	0.71	0.025	0.09
R208680	650	0.05	0.06	0.2	72	1000	4.7	28.5	3.5	1.55	1.2	2.36	32	3.6	0.67	0.025	0.67
R208681	850	0.1	2.45	0.2	74	950	3.9	42	6	3.6	2.2	4.98	28.5	6	1.4	0.05	1.11
R208682	1050	0.05	3	0.3	57	800	2.3	91	3.7	1.9	1.6	6.19	30	4.4	0.78	0.05	0.785
R208683	320	1.4	0.085	0.4	19	490	0.3	175	2.6	1.45	0.94	55.7	39.5	2.8	0.5	0.2	0.155
R208684	340	0.05	5.42	0.2	71	180	0.6	38.5	1.65	0.95	0.9	2.77	15.5	2.6	0.34	0.025	0.325
R208685	125	0.05	0.038	0.3	120	200	0.05	69	3	1.35	1.65	5.34	27	4.1	0.5	0.025	0.465
R208686	3250	0.1	0.06	0.5	210	650	0.5	115	4.1	2.1	2.6	8.74	52	5	0.7	0.1	5.47
R208687	900	0.05	0.06	0.2	105	210	0.1	41.5	1.85	1.3	1.1	3.67	24	3.1	0.39	0.025	2.36
R208688	1000	0.05	0.023	0.2	120	220	0.2	37	2.4	1.45	1.2	3.75	33.5	3.3	0.48	0.025	2.6
R208689	650	0.1	0.029	0.3	120	195	0.3	34	2.3	1.3	1.1	2.51	30	3.2	0.44	0.025	2.58
R208690	370	0.05	0.03	0.2	125	260	0.3	48	2.5	1.5	0.64	3.73	35	3.7	0.42	0.025	1.03
R208691	340	0.05	0.05	0.4	220	440	0.4	69	4.2	2	0.91	5.21	54	6	0.69	0.1	1.15
R208692	140	0.05	0.1	0.5	250	600	0.1	95	7.5	5.5	0.61	7.41	57	10	1.45	0.1	0.31
R208693	650	0.05	0.11	0.6	200	600	0.3	81	7	4.6	1.8	6.44	64	8	1.45	0.1	1.91
R208694	400	0.1	0.055	0.3	98	280	0.1	40	3.3	2.3	0.69	3.64	26.5	3.2	0.75	0.025	1.18
R208695	600	0.2	0.07	0.5	200	370	0.4	64	9	6.5	1.5	4.42	61	9	1.95	0.05	1.56
R208696	550	0.05	0.065	0.3	83	340	0.2	47.5	4.5	3.3	1.05	3.95	31.5	3.9	0.94	0.025	1.87
R208697	1350	0.05	0.335	0.4	155	240	1.9	56	8.5	6.5	1.95	5.36	41.5	8.5	1.85	0.025	5.62
R208698	400	0.3	18.3	0.05	6.5	96	0.3	38	0.38	0.3	0.16	8.43	24	0.35	0.07	0.025	0.215
R208699	500	0.05	3.75	0.2	92	110	2.9	65	1.8	0.8	0.59	4.43	19	3.8	0.27	0.025	2.36
R208700	850	0.05	0.355	0.4	220	130	2.1	43.5	3	1.2	1.1	3.99	21.5	5.5	0.44	0.025	3.79
R208701	650	0.05	0.76	0.3	185	69	0.8	25	3.7	1.45	1.4	3.03	21.5	7.5	0.52	0.025	2.84
R208702	280	0.05	1.06	0.2	100	145	0.4	23	1.65	1	0.7	2.01	21	2.6	0.3	0.025	0.735
R208703	650	0.05	0.04	0.2	125	125	0.2	18.5	2.6	1.25	1.15	2.11	30	4.1	0.44	0.025	2.26
R208704	550	0.05	0.035	0.3	135	220	0.3	35	2.3	1.25	1.1	3.64	35	3.1	0.38	0.025	2.64
R208705	550	0.05	0.034	0.2	115	250	0.1	41	1.65	1.1	1.1	3.16	32	3.1	0.34	0.025	2.4
R208706	430	0.05	0.032	0.3	90	175	0.05	57	1.2	0.85	0.87	3.76	27.5	2.4	0.27	0.025	1.69
R208707	800	0.05	0.065	0.3	125	420	0.2	90	4.2	2.5	1.4	5	31	4	0.83	0.025	2.67
R208708	600	0.05	0.085	0.3	105	390	1.1	100	5.5	3.7	1.1	4.8	31	4.7	1.25	0.025	2.17
R208709	950	0.05	0.315	0.3	120	210	1.9	140	14.5	8	2.3	5.44	39.5	12.5	2.7	0.025	3.53
R208710	850	0.05	0.885	0.3	100	250	1	54	6.5	3.1	1.45	5.31	23.5	5.5	1.15	0.025	3.08
R208711	550	6.5	0.009	0.2	17	370	0.4	39.5	0.45	0.25	0.23	20	60	0.55	0.09	0.15	0.105

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Ba	Bi	Ca	Cd	Ce	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ho	In	K
units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
technique	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpoes
detn limit	5	0.1	0.001	0.1	0.5	2	0.1	0.5	0.02	0.05	0.02	0.01	0.1	0.05	0.02	0.05	0.001
R208712	195	0.2	3	0.1	115	160	0.3	89	1.6	1.1	0.75	3.04	29	3.4	0.29	0.025	0.385
R208713	310	0.05	0.047	0.3	115	230	0.05	120	1.55	0.75	0.87	3.25	28.5	2.7	0.28	0.025	1.02
R208714	460	0.05	0.055	0.2	100	250	0.1	68	1.8	0.9	1.1	3.52	26	2.4	0.3	0.025	1.44
R208715	470	0.05	0.032	0.3	105	240	0.1	74	1.75	0.95	1	4.63	31	2.6	0.26	0.025	1.51
R208716	700	0.05	0.029	0.2	135	200	0.1	73	3.4	1.7	2.1	4.36	31.5	4.2	0.65	0.025	2.44
R208717	650	0.05	0.025	0.2	100	185	0.9	78	1.85	0.85	1.25	3.97	26	2.4	0.28	0.025	2.16
R208718	800	0.05	0.032	0.2	115	110	0.5	54	1.55	0.8	0.82	3.11	26.5	2.5	0.27	0.025	3.55
R208719	800	0.05	0.048	0.3	110	150	0.9	52	2	1.05	1.4	3.37	32	3.6	0.35	0.025	3.45
R208720	700	0.05	0.145	0.2	99	140	1.1	39.5	2.7	1.5	0.94	3.63	27.5	2.8	0.56	0.025	3.48
R208721	550	0.05	0.325	0.3	105	165	1.3	55	4	2.4	0.98	3.68	23	4.2	0.86	0.025	2.62
R208722	310	0.5	0.022	0.8	17	1550	0.5	200	1.4	0.9	0.68	10.1	14.5	1.35	0.29	0.1	1.24
R208723	850	0.05	2.85	0.3	52	115	0.4	46	1.05	0.55	0.58	1.99	16.5	1.5	0.21	0.025	1.56
R208724	1150	0.05	0.06	0.3	90	190	0.3	56	2.3	0.9	1.2	2.69	22.5	2.5	0.37	0.025	2.39
R208725	450	0.05	0.135	0.2	110	170	0.2	39.5	2	1	0.91	1.93	24.5	3.2	0.26	0.025	1.2
R208726	750	0.05	0.043	0.2	150	145	2.3	68	3.7	1.35	2.4	2.92	24	4.5	0.59	0.025	2.87
R208727	800	0.05	0.041	0.3	120	130	1.1	66	2	0.95	1.05	3.02	22.5	3.2	0.37	0.025	3.22
R208728	950	0.05	0.08	0.5	135	170	1.5	87	2.2	1.15	1.7	4.81	32.5	3.9	0.4	0.025	3.7
R208729	650	0.05	0.41	0.3	115	170	0.9	63	4.2	3.2	1.45	4.03	28.5	3.8	1.1	0.025	2.77
R208730	750	0.05	0.49	0.4	110	175	0.8	61	5.5	3.3	1.25	4.15	26	4.9	1.35	0.025	2.64
R208731	650	0.05	0.59	0.2	86	155	0.7	51	3.9	2.6	0.9	3.51	18	3.6	0.93	0.025	2.5
R208732	310	0.2	0.016	0.2	28	75	6.5	7	1.2	0.7	0.75	0.28	26	1.35	0.18	0.025	2.84
R208733	240	0.05	2.45	0.4	77	270	0.7	50	2.5	1.8	1.7	4.06	26	4.1	0.57	0.025	1.71
R208734	390	0.05	0.035	0.4	130	330	0.4	58	2.3	1.4	1.6	2.77	35	4.5	0.38	0.025	1.44
R208735	370	0.05	0.043	0.5	135	600	0.2	74	3.2	1.7	2.9	4.36	33.5	7.5	0.55	0.025	1.46
R208736	420	0.05	0.035	0.5	84	400	0.2	35	2.2	1.45	1.95	3.39	27.5	4.2	0.41	0.025	1.48
R208737	650	0.05	0.055	0.5	110	290	0.5	105	2.6	1.9	3.3	4.96	34.5	5.5	0.52	0.025	2.61
R208738	700	0.05	0.16	0.5	120	360	1.4	94	5.5	3.7	3.3	5.61	24	6	1.15	0.025	2.31
R208739	750	0.05	0.665	0.8	82	340	1.6	59	7.5	5	3.5	5.49	25.5	9	1.7	0.025	2.68
R208740	30	2.6	0.125	0.2	8	420	1.1	50	0.72	0.45	0.32	20.6	41	0.85	0.14	0.15	0.135
R208741	240	0.05	2.09	0.3	37	230	0.5	55	2.4	1.75	1.65	2.61	17.5	2.6	0.58	0.025	0.2
R208742	200	0.05	0.1	0.5	45.5	350	0.2	37.5	2.8	2.1	3.2	3.9	22.5	2.7	0.66	0.025	0.24
R208743	440	0.05	0.135	0.4	41	430	0.3	50	1.95	1.6	2.3	4.06	27.5	2.6	0.44	0.025	0.42
R208744	750	0.05	0.235	0.5	31	300	0.2	48	2.5	2	2.8	3.88	21	2.7	0.55	0.025	0.63
R208745	700	0.05	0.305	0.8	38	440	0.2	39.5	5.5	4.8	3.6	6.92	22	4.6	1.5	0.025	0.445
R208746	1150	0.05	0.235	0.5	69	200	0.2	44	8	7	2.7	3.08	20	5.5	1.95	0.025	1.02
R208747	900	0.05	0.06	0.3	115	125	0.1	32.5	11.5	8.5	3.5	1.91	17	12	2.4	0.025	1.1
R208748	1550	0.05	0.075	0.6	100	210	0.4	33	9	7.5	3.3	2.66	17	9.5	2.3	0.025	1.52
R208749	1200	0.05	0.125	0.8	36.5	250	1.5	65	9	11	3.4	3.47	20	7	2.7	0.025	1.28
R208750	1750	0.05	0.74	0.5	45.5	480	1.8	97	3	2.4	2	3.74	21	4.3	0.71	0.025	1.46
R208751	3200	51	0.185	0.4	105	125	8	200	2.6	1.65	3.8	13	30.5	5	0.57	0.25	2.46
R208752	1100	0.5	2.18	0.2	105	250	3.5	50	3.1	2.1	3.2	5.27	20	6	0.62	0.025	1.99
R208753	1050	0.2	1.68	0.5	84	330	2.1	72	2.3	1.2	2	7.39	23	4.4	0.39	0.025	1.85
R208754	1100	0.05	1.59	0.3	105	280	1.9	41.5	1.5	1.25	2.1	4.69	22.5	4.6	0.34	0.025	3.83
R208755	290	1.2	0.08	0.6	14.5	500	0.2	170	2	1.25	1.05	56.8	29.5	2.5	0.37	0.15	0.155
R208756	900	0.2	0.4	0.1	100	240	6	51	1.45	0.55	1.6	4	26.5	3.8	0.16	0.025	2.54
R208757	420	0.2	2	0.2	69	160	0.6	41.5	1.65	1	1.1	1.48	21	3.8	0.33	0.025	1.35
R208758	750	0.05	0.365	0.3	96	250	0.9	76	1.95	0.95	1.95	3.61	22	4.8	0.3	0.025	2.49
R208759	850	0.05	0.68	0.4	95	260	3.3	68	3.1	1.5	2.9	3.81	25.5	5.5	0.46	0.025	2.97
R208760	310	0.2	15.2	0.1	3	120	0.2	27.5	0.53	0.45	0.44	7.49	17	0.5	0.13	0.025	0.185
R208761	350	0.1	0.99	0.3	53	190	0.9	37.5	1.5	0.8	0.85	1.63	20	3.4	0.23	0.025	1.16
R208762	800	0.05	0.105	0.2	87	270	2.6	54	1.8	0.85	1.6	3.14	26	3.9	0.33	0.025	3.15
R208763	650	0.05	0.4	0.4	88	290	1.7	72	1.8	1.25	1.7	3.33	21	3.9	0.43	0.025	2.6
R208764	600	0.05	0.725	0.3	94	230	1.4	57	1.65	1.15	1.9	2.48	22.5	3.4	0.31	0.025	2.36
R208765	600	0.05	0.725	0.4	98	290	1.6	64	2.6	1.5	2.1	2.52	24	4	0.43	0.025	1.81
R208766	650	0.05	0.47	0.5	97	270	1.4	74	2.4	1.45	1.8	3.18	17	3.2	0.44	0.025	2.19
R208767	500	0.1	0.645	0.6	150	290	1.4	71	7.5	4.7	3.2	3.67	22	8.5	1.5	0.025	1.85
R208768	750	0.05	0.47	0.6	53	260	0.9	58	3.9	2.6	1.9	3.85	20	6	0.83	0.025	2.41
R208769	550	0.05	0.52	0.3	56	340	0.8	49	3.9	2.3	2	2.74	18	4.8	0.72	0.025	2.4
R208770	600	9	0.016	0.6	21	500	0.7	47	0.66	0.5	0.64	22.7	74	1.05	0.14	0.25	0.11
R208771	490	0.2	1.17	0.4	30.5	160	0.5	18	1.2	0.8	0.89	1.34	26	2	0.25	0.025	1.52
R208772	500	0.1	0.023	0.3	37	220	0.4	17	0.8	0.45	1.85	1.08	24	1.85	0.16	0.025	1.99
R208773	700	0.05	0.0185	0.6	83	200	0.5	12.5	1.8	1	1.85	1.06	30.5	3.6	0.28	0.025	2.18
R208774	700	0.1	0.03	0.5	83	260	0.4	30.5	2.1	0.75	2	2.21	32.5	5	0.33	0.05	2.04
R208775	460	0.2	0.044	0.2	70	370	1.8	58	2.5	1.05	1.75	3.57	32	4.4	0.45	0.025	1.69
R208776	480	0.05	0.032	0.3	96	260	4.3	82	3.7	2.3	1.9	5.58	24.5	4.9	0.62	0.025	2.05
R208777	550	0.05	0.035	0.3	105	330	3.3	71	5.5	3	3.7	6.16	29	9	0.93	0.025	1.65
R208778	750	0.2	0.06	0.2	105	290	3.1	41	4.9	2.6	1.7	5.39	19.5	5	1	0.05	3.12
R208779	700	0.2	0.095	0.2	79	310	2.5	40	3.4	1.85	1.25	5.5	20.5	3.3	0.8	0.05	2.8
R208780	700	0.1	0.23	0.2	72	320	2.2	51	3.7	2	1.15	5.7	20.5	3.9	0.73	0.05	2.81
R208781	700	0.2	0.28	0.2	82	340	2.5	51	4	2.9	1.25	5.12	25	4.7	0.89	0.05	2.77
R208782	850	0.2	3.61	0.05	37.5	240	1.3	7.5	1.25	0.55	0.3	2.87	18.5	1.25	0.23	0.05	1.69
R208783	480	0.05	0.024	0.1	29	125	1.6	7	1.85	1.15	0.38	1.32	24.5	1.2	0.39	0.05	1.37
R208784	460	0.05	0.034	0.2	24.5	270	9	70	3.7	2.4	0.81	11.7	33.5	2.4	0.89	0.15	1.8
R208785	450	0.05	0.031	0.3	33.5	230	2.4	79	5.5	3.4	1.35	13	30.5	3.8	1.1	0.1	1.5
R208786	1400	0.4	0.1	0.2	185	450	9	170	8	3.4	3	40.5	30.5	8.5	1.45	0.2	5.47
R208787	490	0.05	0.048	0.2	240	160	8	140	15	7.5	7	18.6	27.5	18	2.7	0.25	1.75
R208788	180	0.05	0.34	0.2	43	71	3.7	74	14.5	7.5	4.5	8.85	15.5	15.5	3	0.15	0.895
R208789	380	0.05	2.61	0.3	51	120	4.2	99	9	4.3	3.1	14.8	23	8	1.7	0.15	1.54
R208790	360	0.05	2.32	0.3	47.5	105	4.2	110	10.5	6	3.5	15.1	24	10	2.4	0.15	1.48
R208791	550	0.05	2.87	0.3	53	130	4.9	100	9.5	5	3.1	19.3	23.5	9.5	2	0.15	1.29
R208792	950	0.05	3.82	0.1	280	430	5	39.5	4	1.2	1.45	3.6	21	12.5	0.43	0.025	1.48
R208793	750	0.05	1.14	0.05	200	380	4.7	50	2.6	0.9	1.8	3.31	24.5	6.5	0.35	0.05	2.41
R208794	460	0.05	1.35	0.05	180	950	9.5	67	16	8.5	5.5	6.55	20	20	3.4	0.1	1.99
R208795	600	0.05	1.57	0.2	600	1000	9	105	10.5	4.5	2.2	6.42	17.5	26.5	1.3	0.1	2.29

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Ba	Bi	Ca	Cd	Ce	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ho	In	K
units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
technique	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms	icpoes
detn limit	5	0.1	0.001	0.1	0.5	2	0.1	0.5	0.02	0.05	0.02	0.01	0.1	0.05	0.02	0.05	0.001
R208796	800	0.1	5.8	0.05	85	170	0.8	110	4.4	2.7	2	3.13	26.5	5.5	1.05	0.05	1.44
R208797	800	0.1	0.345	0.05	86	180	1.6	72	3.1	1.9	1.75	3.85	30.5	4.4	0.65	0.05	2.59
R208798	600	0.05	0.585	0.1	96	300	2.2	100	4	3.4	1.95	4.55	25.5	4.6	1.15	0.05	2.41
R208799	550	0.1	1.06	0.1	85	330	2.6	75	5	3.7	1.85	4.73	24	6	1.05	0.05	1.98
R208838	135	0.1	0.605	0.05	21.5	46	0.9	19.5	1.5	0.95	0.42	1.75	7.5	1.8	0.26	0.05	0.4
R208839	145	0.2	1.28	0.05	22.5	45	0.8	19.5	1.7	1.1	0.45	1.76	6.5	1.9	0.29	0.025	0.405
R208840	140	0.1	2.1	0.05	27.5	36	0.9	20	1.6	0.9	0.36	1.74	8	1.65	0.26	0.025	0.405
R208841	140	0.2	3.84	0.05	23	43	0.9	28	1.6	1.1	0.47	1.61	8.5	1.8	0.31	0.05	0.405
R208842	165	0.1	4.13	0.05	20.5	39	1	19.5	1.7	1.1	0.52	1.75	8	1.85	0.36	0.05	0.43
R208843	360	0.1	8.75	0.05	19	20	0.8	21.5	2.4	1.2	0.65	1.59	6	2.2	0.4	0.05	0.415
R208844	140	0.05	0.365	0.05	12.5	33	0.4	12.5	0.89	0.45	0.27	1.94	4.6	0.95	0.15	0.025	0.22
R208845	65	0.05	6.59	0.5	3.5	11	0.4	85	0.29	0.15	0.09	0.21	1.3	0.25	0.05	0.05	4.87
R208846																	
R208847	65	0.05	6.59	0.6	4	6	0.3	72	0.3	0.15	0.11	0.23	1.7	0.45	0.08	0.025	4.6
R208848	55	0.05	5.46	0.2	3.5	4	0.3	99	0.31	0.2	0.12	0.275	1.3	0.4	0.1	0.025	5.61
R208849	40	0.05	3.79	0.2	3	7	0.2	81	0.4	0.2	0.1	0.25	1.3	0.4	0.06	0.025	4.57
R208850	70	0.05	4.86	0.4	3	8	0.3	100	0.32	0.2	0.15	0.24	1.8	0.3	0.08	0.025	4.53
R208851	55	0.05	4.77	0.4	3.5	6	0.3	63	0.35	0.15	0.13	0.25	1	0.3	0.08	0.025	7.51
R208852	60	0.05	4.08	0.3	1.5	5	0.2	98	0.21	0.1	0.05	0.15	0.8	0.2	0.04	0.025	5
R208853	75	0.05	5.34	0.2	2.5	9	0.2	82	0.2	0.1	0.05	0.2	1.2	0.25	0.04	0.025	5.95
R208854	75	0.05	6.43	0.5	4	42	0.4	99	0.29	0.15	0.1	0.435	1.9	0.4	0.08	0.025	6.31
R208855	65	0.05	4.55	0.3	4	6	0.3	90	0.28	0.15	0.09	0.24	1.2	0.3	0.08	0.025	6.22
R208856	50	0.05	4.35	0.3	3	8	0.3	98	0.39	0.2	0.14	0.25	2.3	0.4	0.09	0.025	2.63
R208857	55	0.05	4.74	0.3	3	9	0.3	96	0.28	0.1	0.08	0.225	1.2	0.3	0.06	0.05	5.25
R208858	140	0.05	11.2	0.2	3	20	0.3	86	0.33	0.15	0.11	0.59	1.3	0.3	0.05	0.025	10
R208859	70	0.05	5.15	0.3	3.5	9	0.3	64	0.39	0.15	0.12	0.295	1.1	0.4	0.06	0.025	7.16
R208860	75	0.05	5	0.2	6	31	0.3	81	0.4	0.25	0.17	0.4	1.7	0.45	0.08	0.025	5.26
R208861	110	0.1	5.26	0.6	13.5	17	0.5	87	0.74	0.4	0.28	0.565	3.8	0.95	0.18	0.05	5.99
R208862	100	0.05	7.71	0.5	4.5	10	0.4	70	0.5	0.25	0.17	0.42	1.6	0.6	0.11	0.025	6.25
R208863	90	0.05	7.44	0.2	3.5	13	0.2	89	0.3	0.2	0.12	0.415	1.2	0.35	0.09	0.025	7.46
R208864	55	0.05	5.1	0.3	2.5	7	0.2	77	0.26	0.15	0.06	0.2	0.9	0.15	0.04	0.025	4.46
R208865																	
R208866																	
R208867																	
R208868	1000	0.05	4.83	0.4	24.5	140	0.7	210	1.6	0.9	0.88	33.4	16	2.3	0.28	0.1	0.46
R208869	210	0.05	27.5	0.3	13	26	0.7	34.5	1.95	1.4	0.69	0.945	4.7	2.9	0.33	0.025	0.345
R208870	600	0.2	0.195	0.3	15.5	50	0.1	17	2.8	1.85	0.82	2.23	6.5	2.7	0.4	0.025	0.135
R208871																	
R208872																	
R208873																	
R208874																	
R208875																	
R208876	1700	0.2	0.2	0.4	23	26	0.1	24.5	2.6	2.5	1.15	1.62	8	2.7	0.67	0.025	0.024
R208877																	
R208878	145	0.05	23.5	0.3	13.5	26	0.6	24.5	2.4	1.55	0.81	0.825	5	2.9	0.53	0.025	0.265
R208879	700	0.05	25.5	0.1	5.5	32	0.7	21.5	0.95	0.5	0.58	0.7	4.7	1.2	0.18	0.025	0.28
R208880	200	0.05	26.3	0.2	25.5	27	0.5	39.5	5	3.1	1.3	1.34	5.5	5.5	0.94	0.025	0.235
R208881	950	0.2	1.2	0.2	19	56	0.05	20	3.8	1.8	1.3	2.07	4.4	3	0.57	0.025	0.029
R208882																	
R208883	1450	0.2	5.45	0.2	19.5	31	0.3	42	2.5	1.55	0.92	2.69	7	2.3	0.52	0.05	0.155
R208884	155	0.05	25.6	0.05	6.5	24	0.4	22	1.1	0.65	0.4	0.585	2.9	1.45	0.19	0.025	0.225
R208885	1000	0.1	10.3	0.2	54	165	0.5	66	2.3	1.4	1.45	2.6	20	3.6	0.39	0.025	0.91
R208886	800	0.05	20.7	0.05	23.5	61	1	39.5	1.35	0.95	0.87	0.9	13.5	2.1	0.27	0.025	0.465
R208887	260	0.1	32.6	0.2	18.5	38	0.6	27.5	1.95	1.3	0.76	0.74	5.5	2.8	0.47	0.05	0.285

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	La	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Sm
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpms	icpms	icpoes	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms
detn limit	0.5	0.02	10	5	0.1	10	0.5	0.02	2	5	0.5	0.05	0.1	500	0.5	0.5	0.02
R208460	13	0.18	10800	45	0.9	2800	8	13	11	85	8	3.6	13	950	0.25	3	1.75
R208461	20.5	0.13	3750	50	1.6	3850	11.5	16	17	80	9	4.7	15	250	0.25	0.5	2.3
R208462	24.5	0.08	2150	75	1.9	2550	25	24.5	19	80	23	7.5	13.5	250	0.25	1	3.9
R208463	12.5	0.08	1850	35	2.1	2200	8.5	10	20	45	6.5	2.1	13.5	250	0.25	1	1.1
R208464	39	0.1	1400	65	2.4	1900	17.5	40	15	70	21	8.5	12.5	250	0.5	1.5	4
R208465	14	0.25	1550	45	1.3	2400	19.5	18.5	20	50	14.5	3.6	13.5	250	0.25	1	2.4
R208466	18	0.13	13200	45	1.1	4100	5.5	15	29	90	14.5	2.9	18	17500	0.5	2.5	1.65
R208467	32	0.2	5800	40	1.3	4800	11	29.5	44	65	12.5	7	22.5	16700	0.25	0.5	4.3
R208468	27.5	0.09	2550	35	2.2	3000	12	24.5	31	55	9.5	7	25.5	250	0.25	0.5	3.2
R208469	27	0.05	1500	30	1.5	2400	4.5	17	32	50	18	5.5	31.5	250	0.25	0.5	2.9
R208470	25.5	0.07	1850	30	1.4	2450	4.5	18	32	60	24	6	39	250	0.25	0.25	2.9
R208471	52	0.06	1250	30	2.5	2500	2.5	20	22	80	41	6	29	250	0.25	1.5	2.3
R208472	35	0.12	6900	40	0.8	4700	7	42.5	17	105	13.5	8.5	13.5	1950	0.25	1	4.8
R208473	36	0.13	2800	30	1.8	4950	8	35.5	16	110	21.5	6.5	9.5	7550	0.25	0.5	4.2
R208474	68	0.1	1300	30	1.9	3050	7.5	28	14	140	39	8	9.5	2400	0.25	0.5	4
R208475	71	0.09	750	30	3	2650	9	59	13	120	31.5	13	10	250	0.25	1	6.5
R208476	74	0.04	550	20	0.9	3150	3	54	9	230	60	15	73	250	0.25	0.5	6
R208477	45.5	0.08	1650	35	1.5	3050	10	25.5	12	145	27.5	8.5	66	250	0.25	0.5	4.2
R208478																	
R208479	35	0.14	2750	30	3.7	4050	7.5	28.5	24	115	20	8.5	21.5	2450	1	1.5	5
R208480	82	0.15	1400	40	3.1	3850	11.5	56	22	250	38.5	15.5	45.5	250	0.5	1	9
R208481	105	0.08	850	45	3.3	4050	5	37	20	420	74	14.5	78	250	0.5	2	4.8
R208482	27	0.04	420	30	4	4850	1	18.5	13	420	64	5.5	165	250	0.5	1	0.79
R208483	44.5	0.06	650	65	3.2	4950	2	33	34	350	49.5	9.5	95	250	0.5	2.5	5
R208484	11	0.1	7300	100	1.9	1550	4.5	11	23	190	8.5	2.2	17.5	1350	1	6	1.45
R208485	13	0.09	6450	75	3.5	2200	4	12	17	135	8	3.4	16.5	3600	0.5	5.5	1.8
R208486	39.5	0.19	11700	75	6.5	11100	9.5	41.5	85	390	27.5	9.5	150	2400	1.5	2	4.8
R208487	38	0.1	8000	55	4.5	16900	10	30	59	470	33	9.5	160	850	0.25	1.5	4.6
R208488	35	0.12	6750	115	4.2	15700	11	38	83	550	33	8	120	1900	0.25	3	5.5
R208489	23	0.13	10400	230	4.2	8650	11	25	340	950	17.5	5.5	125	1400	0.25	4	2.3
R208490	8	0.06	2600	95	3.3	850	4.5	7	19	105	8.5	1.95	15.5	250	1.5	1.5	1.35
R208491	26	0.26	5800	95	2.4	1400	4.5	38.5	37	150	12	8	19.5	750	1	2.5	4.6
R208492	65	0.34	13000	230	4.4	5150	9.5	71	160	330	27.5	14.5	130	1600	1	2.5	9.5
R208493	28.5	0.34	8000	900	5.5	4700	9	45.5	290	500	26	9	110	1100	0.5	4.5	7
R208494	41.5	0.18	7600	165	3.4	15300	11.5	42.5	160	480	32	8.5	135	1100	0.25	3	6.5
R208495	45.5	0.24	7650	90	1.4	26700	15.5	59	165	550	25	13	150	2650	0.25	2	9
R208496	14	0.24	9850	110	1.6	1800	4.5	15.5	25	135	9.5	3.4	16.5	900	0.5	2.5	2.7
R208497	34.5	0.55	11100	100	1.7	3250	6.5	42	53	140	17	8.5	13.5	750	0.5	1.5	6
R208498	31.5	0.21	4550	55	6	3500	5	28.5	56	140	19.5	10	4	41700	0.5	1.5	5
R208499	74	0.38	1350	60	13.5	2250	11	46	55	195	19	10.5	9	1600	1.5	3	6
R208500	55	0.33	950	60	6.5	2750	15	43.5	66	240	29	14	27.5	950	0.25	4.5	6
R208501	45.5	0.41	700	50	5	2350	10.5	48.5	74	230	27.5	11.5	21	1000	0.5	4	6.5
R208502	12.5	0.18	5050	95	1.3	1650	4	20	27	145	12	4.4	11.5	800	0.5	2	2.5
R208503	27.5	0.34	5850	105	2.3	2650	5	39.5	60	135	12.5	7	20	24400	1	4.5	6
R208504	16.5	0.1	2350	75	5	2350	5.5	15.5	38	140	11	3.5	13	40900	1	1.5	2.5
R208505	64	0.36	2350	95	8	3300	11.5	82	92	260	47.5	19	12	3800	0.25	4	11
R208506	99	0.36	750	40	1.6	2350	6.5	140	32	240	39.5	28.5	4.7	900	0.25	1.5	18
R208507	140	0.34	1000	60	2.9	2800	14.5	160	50	280	59	30.5	21	1950	0.25	3.5	19
R208508	13	0.12	7600	85	1.9	2250	5	11.5	25	140	12.5	2.7	15	1500	0.25	1	1.65
R208509	25	0.1	8650	95	3.4	4500	8	21.5	26	190	21	4.8	26.5	1750	0.25	1.5	2.5
R208510	36	0.11	2900	45	3.9	3300	7.5	39	16	230	25	10	90	1600	0.25	0.25	5
R208511	54	0.14	900	50	9	3900	18	41.5	12	240	24.5	9.5	71	2250	0.25	0.5	5.5
R208512	55	0.16	750	55	9	3700	20.5	48.5	12	270	29.5	11.5	100	3000	0.25	2	8
R208513	55	0.18	400	35	3.7	3000	9.5	51	8	250	23	9.5	140	750	0.25	0.25	8
R208514	17	0.12	8550	80	5	2250	5	8.5	31	135	5.5	2.5	25.5	53700	2	3.5	1.6
R208515	14.5	0.09	2800	80	3.7	2900	8.5	13.5	36	135	10	3.7	26	24000	1	1.5	1.75
R208516	58	0.16	2250	65	5.5	3300	9	39.5	37	145	21	7.5	23	11800	1	1.5	5
R208517	45.5	0.18	2900	110	6	3200	11	43	120	195	23	11.5	16	2400	1.5	3.5	7
R208518	42	0.2	2300	100	3.2	3100	10.5	51	115	175	17.5	11	14	2450	0.5	3.5	7
R208519	54	0.24	750	100	4.2	3400	14	50	120	175	20	13	28.5	1100	0.25	2	8.5
R208520	23	0.45	7700	100	1.5	2050	4.5	23.5	26	130	11.5	5.5	26.5	2300	0.5	1.5	4.2
R208521	23.5	0.17	2700	65	2.9	2450	6	12	28	145	16	4.5	21.5	58500	0.25	3.5	1.5
R208522	35.5	0.14	2050	60	4.9	3450	14.5	30	31	150	17	7.5	23.5	10400	0.5	2	4.1
R208523	40.5	0.15	1200	50	2.5	3250	12.5	41.5	36	155	12.5	10.5	15	1150	0.25	4	6.5
R208524	64	0.27	1100	75	5.5	3400	17	44.5	67	220	23.5	12.5	11	1150	0.25	5	9
R208525	65	0.32	950	65	3.3	2250	9	60	66	220	23.5	13	25.5	950	0.25	4.5	7.5
R208526	20.5	0.2	8200	100	2.5	2500	4.5	16.5	23	155	7.5	2.8	27	1100	0.5	2	2.1
R208527	14	0.23	3150	45	1.7	2150	3.5	10.5	26	70	3.5	1.9	16.5	103000	0.25	3	1.45
R208528	21.5	0.16	4400	75	3.5	3650	5.5	27.5	44	180	14.5	6.5	24	3200	1	1.5	3.6
R208529	59	0.32	1350	80	6	3100	14	54	92	230	23.5	15	12	2450	0.25	4.5	12
R208530	91	0.49	1300	70	5	3200	11	83	120	290	40	22	3.8	3650	0.25	1.5	13
R208531	180	0.44	900	40	3.3	3250	9	145	64	320	71	39.5	2.2	8950	0.25	1.5	30.5
R208532	11	0.14	6150	80	1.2	1800	5	9.5	21	120	5.5	2.5	31.5	800	0.25	3.5	2.4
R208533	22.5	0.46	7900	145	1.4	2800	5	23.5	53	120	9.5	4.9	35	1250	0.25	3	3.7
R208534	19.5	0.28	3300	65	1.9	2450	4.5	23.5	67	80	10.5	5.5	21.5	17100	0.25	0.25	3.6
R208535	51	0.3	2550	60	6.5	3300	12	34.5	79	165	16	8	46	7450	0.25	1	5
R208536	58	0.26	1900	75	6	3900	12	44	95	220	19	9	62	750	0.25	2.5	6.5
R208537	33.5	0.2	1800	65	3.2	3750	12	34.5	76	185	24.5	7	67	750	0.25	2	5.5
R208538	14	0.16	8950	85	1.1	2500	5	12.5	26	140	5	3.3	29.5	1000	0.25	3	2.3
R208539	20	0.32	7150	80	1	2750	4	18	49	115	7.5	4.7	27.5	25200	0.25	4	3.9
R208540	33	0.11	3100	60	4.5	3600	9	19.5	68	280	18.5	5.5	34.5	14900	0.25	3	3.4
R208541	34.5	0.17	1500	35	4.1	2800	11	48	30	165	25.5	9.5	16.5	1350	0.25	3.5	6.5
R208542	72	0.16	1100	50	5	2700	15	46	52	220	22.5	18	5.5	1000	0.25	3	10.5
R208543	80	0.23	1300	55	4	2950	10.5	94	64	210	26	18.5	7	900	0.25	2.5	12

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	La	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Sm
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpms	icpms	icpoes	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms
detn limit	0.5	0.02	10	5	0.1	10	0.5	0.02	2	5	0.5	0.05	0.1	500	0.5	0.5	0.02
R208544	13	0.11	7650	110	0.5	1050	4	12	20	165	5.5	2.8	28	1200	0.25	3.5	2.1
R208545	25.5	0.15	8600	120	2.4	2500	4.5	21	20	95	7	6	35	800	0.25	1	3.1
R208546	25.5	0.22	5450	45	2.3	2550	5	32.5	22	75	10.5	7.5	32.5	250	0.25	1	5
R208547	32.5	0.12	2800	35	1.5	2050	6	25.5	12	80	8	9.5	44.5	250	0.25	0.25	5.5
R208548	39.5	0.28	2100	50	4.6	2450	15.5	26.5	16	105	16.5	7	72	250	0.25	1	2.8
R208549	28	0.15	1650	50	2.7	1850	8.5	22.5	23	100	14	4.1	43.5	250	0.25	0.5	3
R208550	14.5	0.11	7800	90	1.1	1550	6	14.5	21	110	6.5	3.6	35	250	0.5	2	2.4
R208551	21.5	0.17	9700	100	1	2800	4.5	21	28	105	6	4	35.5	2200	0.25	2.5	3.1
R208552	44	0.28	7350	160	2.6	2850	6.5	31	66	95	8	6	70	20900	0.25	2	6
R208553	9	0.17	4750	120	5.5	2950	9	5.5	95	125	5	1.95	71	7800	0.25	0.25	1.4
R208554	5	0.18	6350	180	2.7	2800	10	5.5	98	125	4	1.5	105	800	0.25	0.25	1.05
R208555	21.5	0.33	9750	240	2.7	2950	12	22	85	95	7	4.1	185	250	0.25	1	4
R208556	12.5	0.09	15900	65	0.5	2700	3.5	7.5	23	90	9	1.85	35.5	1000	0.25	1	1.25
R208557	19	0.12	7000	35	0.6	2450	5	10	23	55	13	2.5	41	250	0.25	0.25	1.85
R208558	34.5	0.14	4750	25	0.5	3200	6	21.5	24	65	24.5	5.5	54	250	0.25	0.25	3.8
R208559	29.5	0.1	3450	35	1.8	3850	10.5	19	19	85	18.5	5.5	53	1100	0.25	0.25	3.3
R208560	24	0.1	2050	30	3.2	2850	6.5	13.5	16	100	18	3.2	44	950	0.25	0.5	2.4
R208561	22.5	0.13	1550	25	3.4	2600	4	8	13	100	17.5	1.95	35	250	0.25	1	1.45
R208562	19	0.09	5200	60	1.3	2200	5.5	15	38	115	9	3.2	23.5	650	0.25	1	2.6
R208563	40	0.15	2500	30	2.2	2800	4.5	34	69	95	22.5	8.5	21.5	250	0.25	0.5	6
R208564	42	0.12	2000	25	2.6	2600	3.5	37	59	120	23	9	30	1500	0.25	1	7
R208565	44	0.12	1550	30	4.8	2800	3	39	81	210	56	10	56	1150	0.25	1	6.5
R208566	18.5	0.33	1500	40	3.1	2600	4	15.5	100	175	26.5	4.2	31.5	1100	0.25	1	3.6
R208567	13.5	0.08	1850	45	4	2700	4.5	14	130	230	17.5	3	49.5	800	0.25	1	2.4
R208568	20	0.14	8200	90	0.7	1350	3	17	20	140	7	3.5	28.5	750	0.25	7.5	3.2
R208569	54	0.64	8800	95	2.1	3150	6.5	45	43	175	14.5	11.5	21	800	0.25	1.5	9
R208570	78	0.31	6650	90	3.8	4550	8	66	65	210	21.5	18	15.5	600	0.25	0.5	11
R208571	46.5	0.23	4150	125	5	4850	17	37	70	240	15	8.5	7	3200	0.25	1.5	6
R208572	92	0.1	2500	50	1.6	3650	7	57	38	240	26.5	17.5	5	700	0.25	0.5	7
R208573	80	0.06	1550	20	0.9	3000	1.5	100	22	240	43	23	7	500	0.25	0.25	12.5
R208574	13.5	0.09	5400	85	0.4	1400	3.5	12	25	115	6	2.8	29	500	0.25	5	2.4
R208575	18.5	0.16	7600	90	0.4	2050	3	20.5	46	100	6.5	4.4	30	800	0.25	8	3.7
R208576	42.5	0.33	10000	185	1.1	3900	4.5	54	220	185	12	12.5	50	2550	0.25	1	8.5
R208577	53	0.17	7500	200	2.6	5200	7.5	74	550	600	14.5	19.5	44.5	1250	0.25	3.5	11
R208578	65	0.16	10300	220	2.4	5650	7.5	67	950	1150	15.5	15	55	1500	0.25	5	12.5
R208579	37.5	0.11	41000	360	1.4	6650	5	41	800	165	10	10	180	800	0.25	2.5	7.5
R208580	15.5	0.15	2400	165	0.4	500	7.5	16.5	13	155	9	3.3	37	250	0.25	0.25	3.1
R208581	16.5	0.14	5750	160	0.1	950	5	15	15	240	9	3.3	36	250	0.25	1	2.8
R208582	13	0.1	1750	170	0.2	480	7	11.5	13	155	9	2.4	33.5	250	0.25	0.25	2.3
R208583	13.5	0.08	1600	135	0.05	350	4	10.5	12	135	6.5	2.4	28	250	0.25	0.25	1.8
R208584	11	0.06	850	100	0.4	350	4.5	9	9	135	6	2	24.5	250	0.25	0.25	1.65
R208585	12	0.09	1700	120	0.05	550	4.5	10.5	17	125	6.5	2.5	32	250	0.25	0.25	2.1
R208586	10	0.07	1400	100	0.2	370	4.5	10.5	13	105	7	2.3	23.5	250	0.25	0.25	2
R208587	13.5	0.11	2150	110	0.2	400	4	12.5	19	140	7.5	2.8	30.5	250	0.25	0.25	2.4
R208588	12.5	0.09	1950	110	0.2	430	4.5	11.5	14	120	6.5	2.3	28.5	250	0.25	0.25	2.2
R208589	17.5	0.14	3150	145	0.3	600	4	16.5	21	185	9.5	3.6	37.5	250	0.25	0.5	3.2
R208590	14.5	0.09	2300	105	0.05	440	4	12	15	130	7	3.4	27.5	250	0.25	0.25	2.6
R208591	13	0.1	2300	115	0.05	410	4	13	15	125	7	3.1	24.5	250	0.25	0.25	2.5
R208592	8	0.07	1200	85	0.05	370	3.5	7.5	12	105	6	1.85	19.5	250	0.25	0.25	1.4
R208593	9.5	0.08	2300	120	0.05	380	3.5	7.5	18	120	6	1.65	27.5	250	0.25	0.25	1.4
R208594	11	0.08	1500	140	0.2	390	5	11	14	135	8.5	2.3	32.5	250	0.25	0.25	1.8
R208595	12.5	0.08	2400	130	0.2	400	4.5	11	16	140	7	2.5	30.5	250	0.25	0.25	1.95
R208596	11	0.07	2400	150	0.1	420	4.5	10.5	15	145	6.5	2.6	31.5	250	0.25	0.25	1.95
R208597	16	0.11	3400	200	0.4	650	5.5	15.5	21	220	9	3.6	49	250	0.25	0.25	2.8
R208598	13	0.09	2500	145	0.3	400	3.5	11.5	16	140	6	2.5	32.5	250	0.25	0.25	2.1
R208599	11.5	0.07	1650	105	0.1	360	3	11	15	125	5.5	2.4	21	250	0.25	0.25	2.1
R208600																	
R208601	8.5	0.07	1150	140	1.6	240	2.5	8.5	6	145	16.5	1.9	5	250	0.25	1	1.8
R208602	5.5	0.04	500	95	0.9	160	2	4.3	8	85	9	1	4.5	250	0.25	0.25	0.84
R208603	4.5	0.06	340	30	0.2	125	2	4.9	3	75	6.5	1.2	4.1	250	0.25	0.25	0.89
R208604	6	0.04	320	45	0.2	420	1.5	6.5	7	60	7.5	1.65	7.5	250	0.25	0.25	1.25
R208605	4	0.03	185	25	0.2	175	1	3.5	2	45	4	0.85	5	250	0.25	0.25	0.61
R208606	4.5	0.04	300	60	0.1	340	1	4.5	7	50	5	1	5.5	250	0.25	0.25	0.86
R208607	4.5	0.04	320	55	0.6	290	1.5	4.6	8	50	5.5	0.95	5.5	250	0.25	0.25	0.93
R208608	5	0.06	370	45	0.1	300	1.5	5	8	50	7	1	6	250	0.25	0.25	0.83
R208609	9.5	0.07	550	65	0.6	320	2	8	10	80	9.5	2	6.5	250	0.25	1	1.5
R208610	6.5	0.06	350	50	0.4	280	2	6.5	9	55	8.5	1.55	5.5	250	0.25	0.25	1.25
R208611	5	0.04	440	50	0.2	260	1.5	4.9	8	55	7	1.2	4.6	250	0.25	0.25	0.87
R208612	6.5	0.04	280	45	0.3	230	1.5	5.5	8	50	5.5	1.25	5.5	250	0.25	0.25	0.84
R208613	7	0.06	380	55	0.2	220	1.5	7.5	10	50	7.5	1.55	4.8	250	0.25	0.25	1.15
R208614	6	0.04	270	65	0.4	185	2	5	9	65	8	1.4	4	250	0.25	0.25	1.05
R208615	7.5	0.06	450	65	0.6	185	1.5	7	9	60	9	1.5	5	250	0.25	1	1.2
R208616	8.5	0.06	270	60	0.6	165	1.5	8	8	55	8	1.85	4.5	250	0.25	0.5	1.4
R208617	9.5	0.1	1750	125	0.3	380	1.5	13	11	230	9	2.6	10.5	250	0.25	2	2
R208618	8.5	0.06	420	65	0.5	230	1.5	8	7	55	8	1.95	5	250	0.25	0.25	1.4
R208619	10	0.04	360	60	0.3	200	1.5	10	9	60	7	2.3	5	250	0.25	0.25	1.6
R208620	13	0.09	13300	50	0.8	1700	5	8	14	120	3.5	1.9	11.5	1350	0.25	2.5	1.25
R208621	21.5	0.1	27300	35	0.6	1750	3	10	18	125	24.5	2.4	12	1600	0.25	8.5	2
R208622	10.5	0.09	26100	35	0.3	1200	3.5	7	23	210	3	1.65	7.5	1300	0.25	4.5	1.5
R208623	24.5	0.15	15800	75	0.4	1200	5	22.5	23	220	8	6	16	1400	0.25	3.5	5.5
R208624	13	0.13	9200	60	0.4	1500	4.5	13.5	15	170	6.5	2.6	15	1100	0.25	6.5	2.7
R208625	13.5	0.16	3450	70	0.5	550	11	7.5	12	240	5.5	1.65	6	900	0.25	4	1.3
R208626	15	0.19	8050	85	0.9	1200	7	15	32	220	7	3.2	7.5	1000	0.25	3.5	2.4
R208627	22.5	0.33	5750	50	1	1200	8	19.5	15	175	8	4.9	7.5	1050	0.25	6.5	5.5

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	La	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Sm
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpms	icpms	icpoes	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms
detn limit	0.5	0.02	10	5	0.1	10	0.5	0.02	2	5	0.5	0.05	0.1	500	0.5	0.5	0.02
R208628	14	0.16	11100	35	0.4	1500	2.5	11.5	16	185	5	3.1	11	1900	0.25	5	3.3
R208629	29	0.42	9600	60	0.1	2250	3.5	29.5	42	100	9	6	12	1850	0.25	4.5	5.5
R208630	19	0.29	9300	45	0.2	1500	2.5	13.5	13	210	3.5	3.5	8.5	2050	0.25	4.5	2.9
R208631	16	0.21	8200	35	0.1	900	1.5	12	11	200	4.5	3.3	8	2150	0.25	4	2.5
R208632	17.5	0.24	8100	45	0.05	1200	2	14.5	13	200	3	3.7	10.5	1450	0.25	5.5	3.6
R208633	16.5	0.21	9250	50	0.05	1700	3	17	15	195	3.5	4	14.5	1700	0.25	4	5
R208634	13	0.12	6650	60	0.05	500	1.5	10	16	260	2.5	1.7	11	1200	0.25	5	1.95
R208635	21	0.37	10600	70	0.2	2200	4.5	22	22	155	9.5	8	26.5	1200	0.25	5.5	6
R208636	17.5	0.15	9150	30	0.7	3200	9	10	28	60	13.5	3.1	41.5	250	0.25	0.25	2.2
R208637	15.5	0.09	5550	70	0.8	950	3.5	11	20	180	6	2.5	16	1100	0.25	5	2
R208638	68	0.19	6950	60	0.8	2600	5.5	25.5	31	175	12	7	8	850	0.25	2	5.5
R208639	21.5	0.14	6600	60	0.6	900	1.5	16	24	240	12	3.1	10	1100	0.25	7.5	3.5
R208640	62	0.2	6150	60	3.2	2500	5	21.5	28	130	39	7	35.5	700	0.25	0.5	4.7
R208641	44.5	0.22	2050	85	7.5	2150	8.5	25.5	30	175	32.5	6.5	58	600	0.25	1.5	5.5
R208642	35.5	0.32	2000	55	6.5	2100	11	18	29	95	26	5.5	98	250	0.25	1.5	3.8
R208643	35	0.26	2650	85	5	3200	9.5	16.5	45	135	21	4.8	61	600	0.25	1	3.2
R208644	57	0.32	2400	110	6	2950	11	33	38	140	18	10.5	96	250	0.25	1	6.5
R208645	49	0.26	5550	195	6	2950	11.5	30	60	135	17	9	125	250	0.25	1	6.5
R208646	65	0.45	13800	300	6	4350	11.5	44.5	145	140	22.5	13	220	250	0.25	1.5	8
R208647	56	0.46	20000	410	3.7	5300	12	48.5	220	155	27	12.5	175	250	0.25	1.5	9
R208648	5	0.22	1400	370	5.5	2350	0.25	5.5	550	210	88	1.35	64	250	15.5	1	1.75
R208649	19	0.14	13000	185	3.9	2300	6	12	135	135	7	3	190	5100	0.25	2	2.5
R208650	4.5	0.13	41600	460	1.7	4100	12	3.8	320	210	3	0.9	550	700	0.25	2.5	0.96
R208651	58	0.47	34500	2600	7	6550	12	48	450	430	14.5	13.5	300	650	0.25	2	10
R208652	24	0.29	43400	1100	3.5	6550	7.5	19	650	430	6	4.2	200	250	0.25	1	4.1
R208653	31	0.21	29900	900	3.6	20000	7	24	470	350	12	6	150	250	0.25	1	4.4
R208654	33.5	0.22	54900	3150	5.5	10700	6.5	26.5	700	1100	9.5	7	145	250	0.25	1.5	5.5
R208655	38.5	0.2	54200	1000	5	11700	8.5	33	450	1150	10	8.5	260	250	0.25	1	6.5
R208656	36.5	0.11	1850	10	0.5	3100	1	8.5	10	35	13	2.7	160	250	12.5	0.25	1.7
R208657	27	0.14	7250	90	3.7	2800	7	13.5	36	100	12	3.7	48.5	650	0.25	1	2.8
R208658	35	0.18	2200	55	6	2500	10.5	19	42	90	17	5.5	100	250	0.25	1.5	3.9
R208659	59	0.18	1700	55	4.3	2400	7	31.5	33	135	13	10.5	54	250	0.25	1	6
R208660	53	0.19	2700	80	3.7	2500	9	34.5	42	115	19	10	125	250	0.25	0.5	6
R208661	57	0.18	4600	115	6.5	2950	10.5	38.5	56	210	17.5	11.5	195	250	0.25	1	6.5
R208662	29.5	0.24	12200	320	4.3	3300	11	20	96	230	21	6	260	250	0.25	1	3.9
R208663	45	0.21	12300	430	2.4	8550	9.5	25.5	60	165	24.5	8.5	240	250	0.25	0.5	5
R208664	61	0.15	13600	410	3.7	11400	9	37	55	135	23	10	230	250	0.25	0.5	7
R208665	65	0.23	9650	400	4.8	15500	6.5	49.5	43	185	29.5	14	200	250	0.25	0.5	9
R208666	4	0.06	1500	260	2.9	600	10	3	47	140	26	0.9	21.5	250	2	3	0.94
R208667	27.5	0.16	4800	90	4.9	2650	7.5	22	37	130	15.5	6.5	52	11400	0.25	1.5	4.5
R208668	180	0.32	1550	45	4.7	2350	5.5	115	58	370	68	32	56	800	0.25	1.5	19
R208669	115	0.28	2200	65	4.5	2900	7.5	86	79	310	68	25.5	92	850	0.25	1	14.5
R208670	70	1.3	43900	1000	1.9	16200	7	61	600	900	30	18.5	180	1000	0.25	2.5	14.5
R208671	37	0.39	57600	950	1.8	15000	5.5	26	750	380	24.5	6.5	190	250	0.25	0.5	5.5
R208672	77	0.31	9900	430	3.7	6500	16.5	48.5	95	220	37.5	13	280	250	0.25	1.5	9
R208673	72	0.43	15000	900	4.2	14800	21.5	48	175	260	35.5	14	280	250	0.25	1.5	9
R208674	63	0.48	15600	750	5	16900	14	42	135	230	39.5	13	160	250	0.25	1.5	8
R208675	37.5	0.2	5600	340	4.4	12600	6	30	100	750	21.5	9.5	185	3250	12	1.5	6.5
R208676	24	0.24	8300	160	4.8	3350	6	17	105	160	14.5	4.8	78	10600	0.25	1.5	3.2
R208677	29	0.21	10600	170	3.8	7100	8.5	21	350	160	19	6	370	900	0.25	4.5	3.9
R208678	42.5	0.22	4650	100	3.5	4000	5	31	195	200	27.5	7.5	45	650	0.25	2	6.5
R208679	46.5	0.31	1350	30	2.2	3350	10.5	37	63	165	21.5	10.5	4.4	750	0.25	1	6.5
R208680	34	0.32	9000	60	1.4	4300	9	24	160	145	16	7.5	160	650	0.25	1	5.5
R208681	36	0.52	19900	950	2.9	21800	6.5	31.5	320	500	26	7.5	230	250	0.25	1.5	7
R208682	28	0.28	14400	1450	3.3	14200	9.5	22.5	320	1050	15.5	6	120	250	0.25	1	5
R208683	11.5	0.29	850	1950	6	180	5	12	57	900	65	2.8	11	500	1.5	4.5	3
R208684	41.5	0.2	3700	90	4.8	2450	7	25.5	43	160	15	6.5	23.5	9400	0.25	2.5	4.9
R208685	66	0.28	700	65	6	2750	12.5	44.5	135	260	30	13.5	3.6	8200	0.25	2.5	9
R208686	66	0.36	1400	110	11.5	7000	27.5	50	220	550	85	16.5	250	17100	0.25	2.5	9
R208687	35.5	0.21	600	70	7	2750	11	24.5	95	280	35	7.5	120	3200	0.25	1	3.9
R208688	40	0.24	750	95	4.9	3350	15	30	110	300	35	9.5	125	1400	0.25	0.5	4.2
R208689	31.5	0.21	700	70	3.8	3050	12	26.5	60	240	38.5	10	135	650	0.25	1	4.3
R208690	42	0.24	1450	150	3.8	2800	17.5	35	83	210	21.5	11.5	44.5	600	0.25	1	5.5
R208691	80	0.34	2350	240	5	3500	32.5	62	105	290	41	21	69	600	0.25	1	11
R208692	78	0.78	6850	750	8.5	3050	44	83	105	290	40.5	29	17	500	0.25	2.5	13.5
R208693	80	0.73	5850	490	10	6050	29.5	58	110	330	46.5	20	82	900	0.25	2.5	9
R208694	33	0.39	3150	280	4.9	3050	16	22	72	175	29	7	49.5	250	0.25	1	3.6
R208695	60	0.89	3800	600	11	4950	22	51	125	240	98	15.5	64	750	0.25	2.5	8
R208696	33.5	0.49	3600	350	11.5	3300	13	20	93	200	40.5	6.5	91	250	0.25	2	3.2
R208697	45.5	0.9	8850	550	6.5	11600	13	39	115	420	57	11	360	250	0.25	2.5	6
R208698	2	0.05	4150	380	2.1	1450	12	1.6	135	90	6	0.55	13	1700	0.5	6	0.26
R208699	29.5	0.1	3700	50	4.1	3250	9	31	69	290	32	8.5	185	800	0.25	1.5	5.5
R208700	62	0.13	3450	50	3.7	11500	9.5	60	66	410	57	19	320	250	0.25	2	9.5
R208701	60	0.17	3850	45	2.6	19000	9.5	61	51	370	39.5	21.5	240	250	0.25	1.5	11.5
R208702	35	0.14	1500	55	4.1	2650	10	24	39	150	17.5	8.5	47.5	6450	0.25	2.5	4
R208703	51	0.19	850	60	3	3050	13.5	39.5	62	220	30	13	100	1300	0.25	1	6.5
R208704	43.5	0.19	700	70	4.6	3550	19	29	79	230	32.5	10	140	1000	0.25	1	4.8
R208705	37.5	0.19	750	140	7	3450	14	31	65	200	31	9.5	130	650	0.25	1	4.6
R208706	29.5	0.15	800	200	5.5	3400	14	21.5	60	165	26	7.5	77	650	0.25	1	3.4
R208707	44	0.41	3500	550	7	4150	15	28.5	75	230	34	10	145	250	0.25	1.5	4.8
R208708	35.5	0.63	8300	750	7.5	3900	17	20.5	110	170	20.5	7	180	250	0.25	2	3.6
R208709	56	1	11200	650	5.5	11000	20	46.5	135	310	41.5	16.5	320	600	0.25	4	8
R208710	33.5	0.48	11100	800	6.5	17900	11	26.5	88	270	31	8	200	250	0.25	1.5	4.5
R208711	7	0.06	370	165	2.9	300	12	3.5	23	100	76	1.2	14	1000	6	9.5	0.49

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	La	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Sm
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpms	icpms	icpoes	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms
detn limit	0.5	0.02	10	5	0.1	10	0.5	0.02	2	5	0.5	0.05	0.1	500	0.5	0.5	0.02
R208712	42.5	0.17	2650	80	3.6	3300	16	34.5	77	185	27	11	27	13000	0.25	3.5	5.5
R208713	38.5	0.15	750	130	2.9	3000	14.5	27	110	145	17	8.5	56	1050	0.25	1.5	3.7
R208714	37	0.14	800	95	4.2	3000	13	22.5	75	160	17	7.5	72	1000	0.25	1.5	3.4
R208715	33	0.15	800	125	4.5	3550	18.5	22.5	81	180	21.5	8.5	63	1000	0.25	1	3.9
R208716	46.5	0.29	700	110	5.5	3850	15	38.5	86	210	34	12	135	900	0.25	2	5.5
R208717	41	0.12	1400	135	5	3300	11	25.5	67	175	17.5	7.5	135	700	0.25	1	3.3
R208718	43	0.15	1750	115	3.8	4450	11.5	27.5	46	240	29.5	8	200	800	0.25	1	4.3
R208719	42.5	0.19	3900	95	4.6	4850	13	35	45	220	51	12	310	950	0.25	1	5.5
R208720	33.5	0.23	8100	220	2.2	7250	14	24	62	240	34.5	9	250	650	0.25	1	4.1
R208721	38.5	0.32	7600	270	3.4	8850	12	28	81	200	28	8	250	550	0.25	1.5	4.3
R208722	3.5	0.17	1350	380	6.5	2400	0.25	5	550	210	105	1.4	76	250	12.5	2.5	1.25
R208723	18	0.11	1800	50	2.8	3100	7.5	10	20	140	19.5	3.8	64	7750	0.25	2.5	1.5
R208724	36	0.17	1350	85	2.2	3300	11.5	23	63	160	20	8.5	110	1450	0.25	1	3.8
R208725	29	0.15	1100	55	1.7	2750	10	29	76	110	17.5	10	38.5	1850	0.25	1	4.9
R208726	51	0.21	4300	75	2.2	3250	7	41	98	170	31	13.5	230	600	0.25	2	6.5
R208727	40.5	0.15	4250	150	1.9	3650	8	27.5	65	185	25.5	10	200	550	0.25	1	3.8
R208728	51	0.22	7200	155	5	5050	12.5	37.5	80	220	32	11.5	290	700	0.25	2	5
R208729	41.5	0.59	6550	410	4.4	10500	15.5	24.5	74	210	30	8	220	500	0.25	1.5	3.8
R208730	36	0.54	8650	600	3.5	11500	12.5	23.5	84	220	25	6.5	270	250	0.25	2.5	3.7
R208731	23	0.28	7000	460	2.7	10700	8.5	18.5	58	195	24.5	6	150	600	0.25	2	3
R208732	16	0.18	1700	10	0.7	2950	0.5	12.5	7	35	11	3.7	110	250	10.5	0.25	2.1
R208733	38.5	0.42	2500	85	6.5	3800	6.5	33.5	59	240	11.5	9	36.5	9250	0.25	1.5	6
R208734	62	0.28	1350	65	3.3	3500	6	42	69	170	14	13.5	32	1800	0.25	1.5	7.5
R208735	81	0.35	900	65	3.4	3350	7.5	67	130	210	18	17	31	2800	0.25	1	12
R208736	42	0.27	900	70	3.4	3400	7	35.5	83	140	13	11.5	38.5	850	0.25	0.25	6
R208737	51	0.28	1550	125	4.6	4600	11	46.5	110	210	19	12	105	900	0.25	0.25	8
R208738	38.5	0.76	8750	550	3.4	7900	6.5	44.5	195	195	16.5	11	105	1200	0.25	1	7
R208739	39.5	0.81	15200	800	2	16100	7.5	42	280	220	23.5	11.5	105	1000	0.25	2	7.5
R208740	3	0.1	1250	220	2.9	480	6	4.7	40	115	22	1.15	10	250	1.5	2	1.15
R208741	22.5	0.39	3250	55	4.6	2100	3.5	19	36	80	5.5	5.5	7.5	4100	0.25	0.25	3.3
R208742	32	0.5	850	55	7	2350	4	24	76	135	5.5	7	4	750	0.25	1.5	3.1
R208743	24.5	0.34	1150	55	3	2750	4	17.5	76	110	6	4.9	7	750	0.25	1.5	3.2
R208744	18	0.44	1150	70	3.2	2500	3	17	66	85	7	5	7	700	0.25	0.5	2.9
R208745	23	1.15	1850	180	6.5	3000	6.5	20.5	99	125	10.5	6	9	700	0.25	1	4.1
R208746	24	1.15	3250	550	3.2	2950	2.5	17.5	75	120	16.5	5.5	18.5	250	0.25	1.5	3.9
R208747	52	1.55	1850	440	2.9	2500	2.5	59	55	150	16.5	16	18	250	0.25	2	11.5
R208748	59	0.97	3200	410	3.9	3200	2	52	71	190	20	11.5	27	250	0.25	0.5	9
R208749	24.5	2.1	8800	480	3.9	3100	3.5	21.5	62	100	12.5	6	59	500	0.25	1	4.1
R208750	21.5	0.51	12200	210	2	8900	5.5	23.5	120	260	13.5	6	70	1000	0.25	0.5	4.4
R208751	28	0.2	5800	390	4.4	12500	3.5	39.5	115	750	14	9.5	70	3550	11	1.5	7.5
R208752	47	0.37	7700	105	2.1	15900	6	50	93	470	18.5	12	105	250	0.25	0.25	7.5
R208753	37.5	0.29	5700	120	3.2	24700	7.5	35	160	470	14	10.5	110	250	0.25	1	6.5
R208754	43.5	0.23	5800	100	1.9	27100	7.5	44.5	85	390	25	11.5	175	250	0.25	0.25	7
R208755	7	0.32	750	1950	4.4	190	2	10.5	54	900	35.5	2.9	4.8	500	1	4	2.2
R208756	46.5	0.1	5450	35	3.1	11100	6	40.5	44	380	25	12.5	155	3000	0.25	3.5	7
R208757	43.5	0.12	5450	40	2.4	4000	5	35.5	28	190	14.5	9.5	41.5	3100	0.25	1.5	6
R208758	46	0.23	3200	80	2	9450	6	42	61	320	23.5	12	82	3550	0.25	1.5	7
R208759	46.5	0.28	8550	100	1.7	15300	5	53	66	280	24	13.5	230	1350	0.25	0.25	8.5
R208760	2	0.1	3550	340	1.8	1250	6.5	2.7	125	80	3.5	0.7	5.5	1500	0.25	1	0.76
R208761	39	0.12	2200	25	2.4	2850	5	31	22	125	13	8.5	38	1850	0.25	1.5	5.5
R208762	54	0.21	3300	75	3.1	5600	7	38	39	230	19.5	12	155	1400	0.25	1	6.5
R208763	51	0.21	5150	70	2.9	10500	6	33	43	220	17.5	10.5	115	5950	0.25	0.25	5.5
R208764	46	0.29	4250	120	2.8	15200	6.5	44	34	230	22	13	110	2000	0.25	0.25	5.5
R208765	50	0.31	4000	160	2.3	15500	6	43	41	200	17	15.5	105	1250	0.25	0.25	6.5
R208766	33	0.32	3400	420	4.6	12600	4.5	28.5	55	180	15.5	9	80	550	0.25	1	5
R208767	48.5	0.77	3950	550	4.7	14500	6	52	59	240	20.5	17.5	75	700	0.25	0.25	12
R208768	27	0.38	3950	260	3.1	14700	5	31	59	330	21	8	74	550	0.25	0.5	5.5
R208769	26	0.44	2300	180	4.5	12100	3.5	27.5	45	290	17.5	7.5	78	700	0.25	0.5	6
R208770	12	0.11	420	190	3.7	310	9	8.5	24	115	68	2.6	10	1100	7.5	9	1.2
R208771	24	0.13	2700	55	2.5	3100	5.5	17.5	27	75	12	4.9	36	1850	0.25	1.5	2.9
R208772	36	0.1	1150	20	2.2	2250	1.5	16.5	31	115	24	6	47.5	250	0.25	0.5	2.5
R208773	45.5	0.16	1700	35	2.8	2750	6	32	20	110	14.5	10.5	44	750	0.25	0.25	6
R208774	56	0.21	1050	70	3.1	3150	7.5	49.5	34	200	23	15	45.5	7450	0.25	1	9.5
R208775	37	0.18	2300	45	3.8	2800	7	38.5	28	135	15.5	11	66	850	0.25	2	6.5
R208776	46	0.34	4250	130	2.7	2900	5.5	46	39	155	18	12	105	650	0.25	1	7.5
R208777	43.5	0.49	11700	270	1.8	3550	5.5	58	105	155	15.5	15.5	86	250	0.25	3	12
R208778	57	0.35	7350	310	2.2	5550	7.5	33	120	340	32.5	9	83	250	0.25	0.25	5.5
R208779	40.5	0.29	9600	230	1.9	6500	8	24.5	105	290	27	7.5	70	250	0.25	0.25	3.6
R208780	38	0.26	11300	440	1.6	10000	7.5	26	125	280	21.5	6.5	60	250	0.25	0.25	3.8
R208781	51	0.4	13400	500	2.3	10500	8	37.5	93	190	22.5	8.5	74	700	0.25	0.25	4.7
R208782	23.5	0.1	7500	100	1.9	5550	10	13.5	43	160	10	3.5	20	950	0.25	0.5	1.85
R208783	29.5	0.19	2450	70	1.9	2050	14	4.9	47	70	12	1.75	42.5	650	0.25	1	0.73
R208784	10	0.42	8750	650	1.3	3400	27.5	7.5	165	200	7	2.4	125	1100	0.25	2.5	1.9
R208785	11	0.56	5300	800	1.3	3200	26	12.5	180	320	4.5	3.7	64	1050	0.25	1.5	2.5
R208786	91	0.37	39100	1950	3.1	9200	26	76	450	1200	38	24	185	4700	0.25	1.5	11.5
R208787	73	0.73	15900	1300	6	5000	24	140	165	900	6.5	36.5	105	1300	0.25	1.5	23.5
R208788	15.5	0.8	8700	1100	2.2	5700	14.5	36	145	500	3.5	7.5	45.5	250	0.25	1	13
R208789	24	0.46	24100	2000	2.5	15000	24.5	30.5	135	1400	5.5	8	51	2500	0.25	1	7.5
R208790	26	0.74	22900	2100	2.5	13400	26	41.5	110	1550	6	9	57	1250	0.25	1	8.5
R208791	30.5	0.55	31700	2100	2.3	15500	23	40	125	1800	6.5	8.5	43	500	0.25	1	7
R208792	155	0.12	10100	105	2.2	5200	6	220	230	420	39.5	57	84	2900	0.25	2	27.5
R208793	90	0.1	19100	145	2.1	20200	8.5	93	280	410	44	28	160	1150	0.25	0.5	12.5
R208794	80	1.05	72900	550	0.9	17300	8	140	650	1150	28.5	26	165	250	0.25	1.5	23.5
R208795	260	0.46	73200	550	1.4	16500	9	400	650	1000	115	100	170	250	0.25	0.5	47

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	La	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Sm
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpms	icpms	icpoes	icpoes	icpms	icpoes	icpms	icpms	icpoes	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms
detn limit	0.5	0.02	10	5	0.1	10	0.5	0.02	2	5	0.5	0.05	0.1	500	0.5	0.5	0.02
R208796	60	0.45	5350	90	3.5	3250	7.5	52	49	155	19	14	37	2500	0.25	1.5	7
R208797	52	0.32	4950	95	3.7	4400	7.5	40	60	140	11	12	84	550	0.25	1	6
R208798	48	0.53	12700	260	3.9	9800	5	41	105	125	17.5	11.5	105	250	0.25	1	5.5
R208799	46.5	0.59	14200	490	2.9	14600	8.5	38.5	125	160	23	11	84	250	0.25	1	5
R208838	12.5	0.1	2350	110	0.2	370	4	12.5	15	120	8	3	23.5	250	0.25	0.5	2.2
R208839	12.5	0.13	2700	105	0.2	380	4.5	14.5	15	120	12.5	3	22	250	0.25	0.25	2.2
R208840	14	0.1	3250	95	0.2	500	4	11.5	15	125	8	2.8	22	250	0.25	0.5	2.3
R208841	12	0.13	4250	85	0.2	1000	3.5	12	16	125	10	2.7	23	250	0.25	1	2.1
R208842	13	0.13	5200	85	0.1	1550	4	11.5	17	120	7	2.8	22.5	250	0.25	1.5	2.3
R208843	13	0.17	6000	80	0.1	1650	3.5	12.5	16	150	7.5	3.2	21	650	0.25	4.5	2.4
R208844	7.5	0.07	950	70	0.05	300	2.5	7	11	85	7.5	1.8	10.5	250	0.25	0.25	1.45
R208845	1.5	0.03	22700	310	2.1	269000	1	1.85	7	3850	3.5	0.5	24	11900	1.5	2	0.07
R208846																	
R208847	2	0.03	24700	450	1.9	231000	0.5	1.95	7	3800	4.5	0.55	18.5	9400	1	2.5	0.32
R208848	2.5	0.02	24900	350	1.5	231000	1	2.4	34	5750	3	0.55	13.5	10200	1	1.5	0.32
R208849	2	0.03	18200	300	1.5	254000	0.25	2.1	6	7300	3	0.5	13	12900	2.5	1	0.15
R208850	2	0.02	17800	420	1.6	199000	0.5	1.7	9	5900	3.5	0.45	8	9800	1	1.5	0.34
R208851	2	0.02	26000	270	1.8	247000	0.5	1.75	11	4400	5	0.6	14	9900	1.5	1	0.33
R208852	1	0.01	18200	270	1.3	234000	0.25	1.05	10	5650	2	0.3	7.5	10500	1	1	0.01
R208853	1.5	0.01	26400	260	1.7	260000	0.25	1.2	7	5250	1	0.3	8.5	11500	1	1	0.01
R208854	2	0.03	29700	490	1.4	279000	1	1.8	27	5200	3	0.7	13	11300	1	2.5	0.19
R208855	2	0.02	22500	240	1	220000	0.5	1.85	8	4950	3	0.5	9	8500	1	1	0.25
R208856	2	0.03	20700	190	1.7	197000	0.5	2.1	7	5350	2.5	0.65	4.4	8750	2.5	1.5	0.33
R208857	2	0.02	25600	370	2.2	234000	0.5	1.8	18	6150	2	0.45	10.5	11700	2.5	1	0.13
R208858	2	0.02	52400	700	0.8	573000	0.5	1.5	27	13100	1.5	0.5	6.5	23700	1.5	1.5	0.28
R208859	2	0.03	22600	450	1.3	242000	0.5	1.9	7	4900	2.5	0.6	13.5	11600	1.5	1	0.41
R208860	3	0.02	25200	330	2.5	216000	1	2.7	24	3650	3	0.65	10.5	8800	2	1.5	0.32
R208861	9	0.06	22100	460	2.9	248000	1.5	8	11	5450	4.5	1.65	21.5	12000	2	2	0.88
R208862	3	0.03	26400	370	1.8	294000	1	3.3	10	4300	2.5	0.9	14	11800	2	1.5	0.5
R208863	2.5	0.02	37600	550	1.7	394000	0.5	1.95	11	8500	1.5	0.4	7.5	15900	1.5	1.5	0.22
R208864	1.5	0.02	23500	310	0.6	232000	0.5	1.35	20	7300	2.5	0.35	3.8	13400	1.5	1	0.11
R208865																	
R208866																	
R208867																	
R208868	19	0.12	1900	180	13.5	350	4	15.5	145	500	33.5	3.2	12	1000	0.25	8.5	3.2
R208869	12	0.16	5600	100	0.5	470	3	13.5	14	360	11	2.3	16	1050	0.25	7	2.6
R208870	13	0.31	380	145	2.8	180	25	11	7	210	18	3.1	3.4	250	0.25	1	3
R208871																	
R208872																	
R208873																	
R208874																	
R208875																	
R208876	10	0.48	410	140	1.2	120	17.5	11	6	105	14.5	1.9	1.1	600	0.25	0.25	1.8
R208877																	
R208878	13.5	0.2	5800	105	0.6	550	4	13	15	390	6.5	2.9	9.5	1050	0.25	3.5	2.7
R208879	7	0.06	6600	55	0.3	380	1.5	6	12	240	8	1.55	11	1550	0.25	3	0.54
R208880	23	0.29	6150	140	0.2	550	2	25.5	17	320	6.5	5.5	12	1100	0.25	8.5	5.5
R208881	14	0.34	600	190	2.2	130	23.5	16	5	195	12	3.7	1.3	250	0.25	0.5	3.9
R208882																	
R208883	10	0.24	2500	100	1.6	250	12	12	10	220	13.5	2.8	6.5	750	0.25	3.5	2.3
R208884	7.5	0.09	7600	75	0.05	460	2	6.5	12	290	4	1.5	8	1000	0.25	2.5	1.05
R208885	32	0.22	8100	50	3.5	2850	3	32.5	23	115	14.5	9.5	20	950	0.25	2.5	5.5
R208886	16.5	0.14	12200	45	0.3	1350	3	13.5	18	165	61	4	21	1150	0.25	7	2
R208887	20	0.22	7800	45	0.05	950	1.5	17	13	180	3.5	4	12.5	1350	0.25	4.5	2.8

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sr	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms
detn limit	2	0.02	0.2	0.02	10	0.1	0.05	0.02	2	0.1	0.05	0.05	0.5
R208460	470	0.26	0.1	7.5	3600	0.2	0.1	3.1	47	1.3	6.5	0.75	32.5
R208461	92	0.22	0.1	7	7100	0.1	0.1	1.45	110	1.5	7.5	0.85	35
R208462	46	0.2	0.1	14.5	15500	0.1	0.1	2.1	190	2	3.9	0.55	71
R208463	24	0.11	0.1	4.6	4750	0.1	0.05	0.78	125	1.5	3.3	0.4	28.5
R208464	20	0.25	0.1	18.5	9400	0.1	0.1	1.85	145	2.9	5.5	0.9	61
R208465	21	0.35	0.1	15.5	11500	0.2	0.2	2.1	120	4.3	10	1.75	61
R208466	600	0.27	0.1	6	2650	0.3	0.1	3.1	87	1.3	6	0.55	33.5
R208467	175	0.47	0.1	10.5	4600	0.3	0.25	3.7	210	2.2	11.5	1.5	45
R208468	34	0.21	0.1	13	4700	0.2	0.1	2.7	230	3.3	4.2	0.85	35.5
R208469	33	0.16	0.1	11	2000	0.2	0.05	1.05	77	1.4	3.2	0.4	19.5
R208470	36	0.18	0.1	11	2450	0.3	0.1	1.2	74	1.8	2.6	0.4	22.5
R208471	31	0.2	0.1	9	1400	0.2	0.05	1.1	85	1.2	2.7	0.45	26
R208472	260	0.32	0.1	16.5	3350	0.3	0.15	3.4	86	0.9	4.5	0.7	35.5
R208473	125	0.39	0.1	18.5	4750	0.2	0.1	2.4	195	0.7	4	0.85	31.5
R208474	81	0.25	0.1	19.5	4000	0.1	0.05	3.1	145	1.1	4.3	0.6	26.5
R208475	46	0.38	0.1	31	3550	0.2	0.05	2.7	135	1.9	4.7	0.45	35
R208476	135	0.21	0.1	28	1600	0.6	0.025	1.85	71	0.7	1.5	0.2	18
R208477	88	0.25	0.1	19.5	5250	0.6	0.1	1.45	145	0.6	3.9	0.65	52
R208478													
R208479	82	0.23	0.1	20.5	4150	0.2	0.15	3.2	220	2.5	6	0.85	47
R208480	155	0.4	0.1	31	6000	0.4	0.15	4	170	1.1	7	0.9	54
R208481	260	0.28	0.1	19	3150	0.6	0.1	2	125	0.9	4.2	0.75	48.5
R208482	250	0.14	0.1	9	550	0.9	0.025	0.76	46	1.1	1.7	0.3	31
R208483	200	0.26	0.1	24	1350	1	0.05	1.35	99	1.1	2.8	0.3	38
R208484	420	0.27	0.1	3.8	2450	0.2	0.15	2.6	55	0.8	7	0.8	54
R208485	370	0.22	0.1	8	2150	0.2	0.1	2	85	0.4	8.5	0.6	41
R208486	430	0.55	0.1	18	4900	1.5	0.25	4.8	210	2.4	12.5	1.35	85
R208487	700	0.33	0.1	16	4800	2.2	0.1	3.6	200	5.5	6	0.65	87
R208488	3650	0.45	0.1	17	6250	1.8	0.1	3	165	2.6	7.5	0.85	105
R208489	550	0.44	0.1	14	6800	1.6	0.2	2.6	230	5.5	8	1.05	230
R208490	90	0.12	0.1	4.1	2200	0.1	0.05	0.61	46	0.4	3.9	0.4	46.5
R208491	230	0.52	0.1	10	2300	0.3	0.25	1.6	62	0.8	13.5	1.75	42
R208492	310	1.05	0.1	16.5	5100	1.5	0.35	3.5	190	1.6	19.5	2.4	120
R208493	550	0.63	0.1	14.5	5050	1.4	0.3	4.5	180	2.5	10	1.75	195
R208494	340	0.63	0.1	17	6650	1.2	0.2	3.6	150	1.5	13.5	1.1	120
R208495	480	0.82	0.1	18.5	7000	1.5	0.3	3.3	150	1.6	18	1.7	140
R208496	280	0.43	0.1	6.5	2300	0.2	0.2	1.5	58	0.6	14.5	1.6	38
R208497	195	1.35	0.1	9	3200	0.2	0.7	2.4	160	1.1	25.5	5	58
R208498	9850	0.32	0.1	11.5	3300	0.1	0.3	8	210	0.7	10.5	1.85	66
R208499	140	0.49	0.1	16.5	4550	0.1	0.35	4	155	1.8	10.5	2.2	120
R208500	74	0.41	0.1	18	6100	0.2	0.3	3.6	170	1	8	2.5	120
R208501	57	0.56	0.1	17	4850	0.3	0.25	3.5	145	1	10	2.7	105
R208502	175	0.42	0.1	7	2500	0.2	0.2	1.05	79	0.5	9	1.05	40
R208503	390	0.86	0.1	10	2350	0.2	0.5	2	105	1.1	33.5	2.5	63
R208504	280	0.31	0.1	8	2950	0.2	0.1	3.3	84	1.8	6	0.65	51
R208505	62	0.67	0.1	49	5350	0.3	0.3	6	200	2.9	9	2.2	115
R208506	28	0.88	0.1	100	4100	0.3	0.25	6.5	94	2.6	8.5	1.65	51
R208507	97	0.94	0.1	77	7400	0.7	0.35	6	200	2	18.5	2.3	145
R208508	195	0.19	0.1	7.5	2750	0.3	0.05	0.95	84	1	6	0.6	45
R208509	195	0.24	0.1	13	4200	0.3	0.1	2.1	250	1.4	4.5	0.6	75
R208510	175	0.28	0.1	22.5	3600	0.6	0.1	2.8	220	1.5	5.5	0.7	49.5
R208511	120	0.35	0.1	29	9150	0.3	0.1	4.8	260	1.3	6	0.55	155
R208512	140	0.34	0.1	32.5	8250	0.3	0.1	4.7	230	0.9	7.5	0.4	165
R208513	135	0.27	0.1	36.5	4200	0.6	0.1	2.2	130	1	6	0.6	85
R208514	290	0.21	0.1	4.2	2200	0.1	0.15	1.55	81	0.4	10	0.55	57
R208515	185	0.15	0.1	8.5	4050	0.1	0.05	2.6	120	2.4	4.9	0.55	61
R208516	1400	0.28	0.1	17	5150	0.05	0.1	2.1	130	1.6	5	0.75	90
R208517	165	0.37	0.1	21	5900	0.05	0.15	2.7	195	1.5	9.5	0.8	160
R208518	115	0.44	0.1	21	4650	1.2	0.2	2.3	170	3	9	1.15	130
R208519	48	0.46	0.1	23	6450	0.5	0.25	2.3	185	2	10.5	1.2	200
R208520	290	0.74	0.1	4.9	2050	0.2	0.4	1.15	105	1	28	1.8	46.5
R208521	330	0.32	0.1	4.7	2500	0.1	0.15	1.75	91	2.3	7.5	0.6	49
R208522	125	0.44	0.1	13	5200	0.2	0.2	6	135	1.6	8	0.85	88
R208523	33	0.3	0.1	12.5	5800	0.1	0.15	2.4	150	1.6	7	0.9	84
R208524	24	0.61	0.1	26.5	7700	0.1	0.25	2.4	210	2	10.5	1.35	180
R208525	20	0.48	0.2	24	5050	0.2	0.25	2.9	185	1.1	11.5	1.75	135
R208526	230	0.39	0.1	6.5	2700	0.1	0.25	0.73	83	0.6	12.5	1.1	48.5
R208527	280	0.34	0.1	3.5	1550	0.05	0.15	1.3	59	0.7	11	0.75	37.5
R208528	850	0.34	0.2	13	3450	0.05	0.1	2.9	115	1.6	7	1.1	63
R208529	185	0.53	0.2	22.5	5250	0.05	0.35	3.2	175	2.7	9.5	1.8	130
R208530	49	0.82	0.1	51	4600	0.05	0.35	4.4	140	1.8	11	2.6	115
R208531	78	1.5	0.1	88	3950	0.05	0.45	5.5	80	1.8	16.5	3.5	76
R208532	195	0.31	0.1	5.5	2150	0.1	0.15	0.68	60	0.6	11.5	0.65	47.5
R208533	230	0.67	0.1	6.5	2400	0.05	0.4	1.15	94	0.9	28.5	1.8	56
R208534	71	0.4	0.1	7.5	2400	0.1	0.25	2.1	73	1.1	14	1.3	42
R208535	150	0.33	0.1	16.5	5400	0.1	0.2	5	150	1.3	15.5	1.1	78
R208536	90	0.47	0.1	17.5	5950	0.3	0.25	2.3	160	1.5	9	1.35	98
R208537	93	0.37	0.1	13.5	5750	0.2	0.2	1.75	145	2.7	6.5	1.15	70
R208538	230	0.35	0.1	6	2250	0.1	0.2	0.79	77	0.7	14.5	0.8	55
R208539	270	0.42	0.1	6.5	1950	0.05	0.2	1.55	78	0.7	16	1.1	41
R208540	550	0.21	0.1	14.5	3200	0.1	0.1	4	100	1.9	6	0.65	47
R208541	44	0.43	0.1	36	5100	0.1	0.1	3.5	150	2	8	1.05	66
R208542	25	0.36	0.1	27.5	5850	0.05	0.2	5	150	15	7	1.1	71
R208543	30	0.71	0.1	37	3950	0.05	0.15	3.3	105	3.7	9	1.1	69

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sr	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms
detn limit	2	0.02	0.2	0.02	10	0.1	0.05	0.02	2	0.1	0.05	0.05	0.5
R208544	420	0.33	0.1	5.5	1600	0.1	0.15	1.65	40	0.8	10	0.7	44
R208545	260	0.32	0.1	12	2100	0.1	0.2	2.2	72	0.5	11.5	0.8	40
R208546	99	0.52	0.1	12	2450	0.2	0.25	2.2	105	0.6	13	1.3	29
R208547	24	0.34	0.1	21	2400	0.05	0.1	2.1	100	1	7	0.85	32.5
R208548	32	0.4	0.1	16.5	6000	0.05	0.2	2.2	160	0.7	13.5	1.2	87
R208549	26	0.34	0.1	11	4350	0.1	0.15	2	115	0.7	11.5	1.05	58
R208550	120	0.35	0.1	8	2500	0.2	0.1	0.63	55	0.7	8.5	0.45	45
R208551	220	0.46	0.1	6.5	2400	0.1	0.15	1.4	135	1	13.5	1.15	62
R208552	220	0.93	0.1	9	2650	0.2	0.3	2	100	1.2	28	1.75	71
R208553	62	0.14	0.1	12	3400	0.2	0.15	7	140	1.3	8.5	0.95	62
R208554	35	0.26	0.1	13	4750	0.2	0.15	1.55	145	1.1	9	0.9	68
R208555	30	0.46	0.1	31.5	5000	0.5	0.4	1.7	130	1.4	12	1.8	105
R208556	390	0.2	0.1	5	2350	0.2	0.1	1.65	68	0.5	4.1	0.6	20
R208557	120	0.25	0.1	8.5	2800	0.3	0.15	1.3	98	0.4	7	0.75	20
R208558	88	0.39	0.1	18	3350	0.3	0.15	1.65	130	0.7	7.5	1.05	19
R208559	58	0.34	0.1	21	6100	0.3	0.1	1.8	210	0.6	5	0.7	20
R208560	45	0.24	0.1	14	4350	0.2	0.1	1.5	180	0.7	4	0.7	15
R208561	45	0.21	0.1	7.5	3550	0.2	0.15	1.2	150	0.6	4.6	0.85	13
R208562	195	0.24	0.1	12	3300	0.2	0.1	1.65	74	1.6	4.4	0.6	24
R208563	62	0.48	0.1	29.5	3950	0.2	0.15	2.3	120	1.6	7.5	1.05	20
R208564	58	0.42	0.1	26	2900	0.2	0.15	1.85	145	2	6.5	0.75	20.5
R208565	89	0.37	0.1	38.5	2050	0.8	0.1	3.5	220	3.3	4.3	0.85	31
R208566	37	0.41	0.1	18.5	2850	0.4	0.35	2.1	145	2.5	3.6	0.85	34.5
R208567	30	0.15	0.1	21.5	3400	0.3	0.05	2.1	160	1.1	2.6	0.45	44
R208568	250	0.36	0.1	4.2	2100	0.2	0.15	0.6	54	0.3	9.5	0.95	25
R208569	230	1.15	0.1	8	4050	0.2	0.8	1.55	150	0.4	38.5	4.5	37
R208570	93	0.69	0.1	17	5400	0.1	0.35	2.7	280	0.7	12.5	1.95	44.5
R208571	130	0.47	0.1	13	9600	0.05	0.2	3.5	360	0.6	8	1.6	68
R208572	64	0.32	0.1	7	4100	0.05	0.1	0.98	120	1.1	3.2	0.65	25.5
R208573	75	0.56	0.1	1.2	900	0.05	0.1	0.55	27	2.1	3.2	0.55	8
R208574	130	0.24	0.1	4.6	2150	0.2	0.1	0.49	63	0.5	6.5	0.7	26
R208575	175	0.47	0.1	4.7	2050	0.2	0.2	1.4	75	0.4	10	1.1	25.5
R208576	170	0.91	0.1	13	3500	0.3	0.35	2.9	120	0.9	18.5	2.3	82
R208577	110	0.46	0.1	44	6700	0.2	0.15	2.9	340	1.2	6	1.1	240
R208578	135	0.75	0.1	32.5	7450	0.2	0.2	2.2	340	1.2	10.5	1.1	430
R208579	82	0.38	0.1	23.5	11300	1	0.1	1.35	240	0.2	4.9	0.65	440
R208580	56	0.4	0.1	7.5	4500	0.2	0.15	0.76	55	0.7	6	1	32
R208581	140	0.3	0.1	7	3150	0.2	0.15	0.75	47	0.6	6	0.8	31
R208582	40	0.27	0.1	6	4000	0.2	0.15	0.56	55	0.7	5.5	0.65	29
R208583	33	0.19	0.1	5.5	2800	0.1	0.1	0.43	44	0.3	3.8	0.5	22
R208584	24	0.17	0.1	5.5	2350	0.1	0.05	0.46	35	0.4	3.3	0.55	20.5
R208585	30	0.21	0.1	5.5	2550	0.2	0.1	0.38	40	0.4	3.6	0.6	24
R208586	24	0.21	0.1	5	2550	0.1	0.1	0.39	40	0.5	3.5	0.65	22.5
R208587	33	0.28	0.1	5.5	2600	0.2	0.15	0.4	45	0.4	6	0.75	39
R208588	34	0.21	0.1	5	2600	0.2	0.1	0.37	42	0.4	3.8	0.55	22.5
R208589	63	0.35	0.1	5.5	2650	0.2	0.15	0.54	46	0.3	6.5	0.9	37.5
R208590	41	0.27	0.1	5.5	2500	0.1	0.15	0.4	43	0.3	5	0.75	28
R208591	33	0.25	0.1	5.5	2500	0.1	0.15	0.4	45	0.3	5	0.75	22
R208592	22	0.16	0.1	4.1	2000	0.1	0.1	0.29	36	0.3	3	0.5	16
R208593	30	0.17	0.1	4.3	2500	0.1	0.1	0.29	43	0.2	4	0.55	26.5
R208594	29	0.22	0.1	6.5	2700	0.2	0.1	0.49	50	0.4	4.2	0.55	30
R208595	30	0.21	0.1	5	2850	0.2	0.1	0.38	43	0.3	4	0.6	27.5
R208596	67	0.19	0.1	5	2750	0.1	0.1	0.43	46	0.3	4.4	0.65	27.5
R208597	54	0.29	0.1	7.5	3400	0.3	0.15	0.58	56	0.6	6.5	0.75	41
R208598	31	0.23	0.1	4.5	2950	0.2	0.1	0.35	49	0.2	4.7	0.6	29
R208599	26	0.2	0.1	4.6	2350	0.1	0.1	0.32	41	0.3	3.5	0.5	19.5
R208600													
R208601	71	0.2	0.1	16.5	1550	0.05	0.1	0.7	200	0.3	4.4	0.6	10
R208602	20	0.09	0.1	7.5	1450	0.05	0.025	0.39	130	0.05	2.5	0.25	7
R208603	14	0.09	0.1	4.3	1000	0.05	0.05	0.3	38	0.2	1.65	0.4	12
R208604	21	0.1	0.1	4.5	900	0.05	0.05	0.31	36	0.2	1.95	0.3	14
R208605	10	0.06	0.1	2.7	650	0.05	0.025	0.19	24	0.1	1.3	0.25	10.5
R208606	16	0.07	0.1	3.3	800	0.05	0.025	0.25	33	0.2	1.75	0.3	12.5
R208607	16	0.09	0.1	3.6	850	0.05	0.025	0.25	40	0.4	2.3	0.35	14
R208608	19	0.1	0.1	3.7	1100	0.05	0.025	0.4	45	0.2	2.1	0.3	14.5
R208609	31	0.14	0.1	6	1350	0.05	0.1	0.34	61	0.2	3.3	0.6	19
R208610	46	0.13	0.1	4.8	1050	0.05	0.05	0.34	47	0.1	2.7	0.45	16.5
R208611	18	0.09	0.1	3.8	950	0.05	0.05	0.22	47	0.2	2.4	0.35	18
R208612	15	0.09	0.1	3.5	1000	0.05	0.05	0.21	45	0.1	2.1	0.4	13.5
R208613	15	0.13	0.1	5.5	900	0.05	0.05	0.27	49	0.2	2.6	0.5	14
R208614	12	0.09	0.1	6.5	1250	0.05	0.05	0.26	77	0.2	2.3	0.35	15.5
R208615	17	0.11	0.1	6.5	1000	0.05	0.05	0.33	69	0.1	2.6	0.45	19
R208616	13	0.12	0.1	7	900	0.05	0.05	0.33	63	0.1	2.8	0.45	18
R208617	100	0.23	0.1	6.5	1250	0.05	0.1	0.44	61	0.3	5.5	0.7	22
R208618	14	0.12	0.1	5.5	1100	0.05	0.05	0.29	52	0.1	3.1	0.45	18.5
R208619	12	0.12	0.1	7	1100	0.05	0.025	0.28	53	0.1	2.8	0.35	18
R208620	650	0.15	0.1	3	2700	0.05	0.1	1.8	43	0.6	6	0.6	13.5
R208621	600	0.19	0.1	3.1	1250	0.1	0.15	2.7	32	1.4	6.5	0.65	13
R208622	440	0.15	0.1	3.8	1900	0.1	0.1	1.3	36	0.4	4.6	0.55	11
R208623	430	0.4	0.1	8	2550	0.2	0.25	2.3	50	0.9	12	1.15	22
R208624	380	0.31	0.1	4.8	2350	0.2	0.15	1.75	40	1.1	8	0.75	16
R208625	270	0.26	0.1	2.6	5150	0.05	0.15	0.73	53	1.2	13	1	15.5
R208626	290	0.29	0.1	4	3550	0.05	0.2	0.88	100	1.3	10	1.15	28
R208627	320	0.47	0.1	8	5000	0.1	0.4	0.97	50	1	21.5	2.3	11.5

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sr	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms
detn limit	2	0.02	0.2	0.02	10	0.1	0.05	0.02	2	0.1	0.05	0.05	0.5
R208628	550	0.3	0.1	2.5	1100	0.1	0.25	0.6	28	0.6	12	1.2	18.5
R208629	420	0.78	0.1	3.3	1550	0.3	0.5	0.77	66	0.6	33	2.2	18.5
R208630	550	0.42	0.1	2.3	1000	0.1	0.3	0.57	28	0.6	18.5	1.4	22.5
R208631	550	0.43	0.1	1.5	850	0.1	0.3	0.53	22	0.5	15.5	1.3	17.5
R208632	480	0.45	0.1	1.8	1000	0.05	0.3	0.47	22	0.4	16.5	1.4	15.5
R208633	460	0.38	0.1	3	1400	0.1	0.35	0.42	30	1	16.5	1.3	13.5
R208634	410	0.21	0.1	2.5	1150	0.05	0.15	0.37	19	0.5	8	0.75	14
R208635	330	0.66	0.1	4.9	1800	0.3	0.35	0.79	43	0.9	18.5	1.95	25
R208636	135	0.23	0.1	11	4500	0.3	0.2	1.15	125	0.5	9.5	0.9	32
R208637	350	0.27	0.1	6.5	1650	0.2	0.15	1.05	56	1	7	0.8	16
R208638	250	0.35	0.1	6	3200	0.05	0.2	0.9	110	0.7	11.5	1.4	20
R208639	320	0.39	0.1	6	1150	0.05	0.2	0.55	73	0.9	13.5	1.35	23.5
R208640	250	0.43	0.1	28.5	2800	0.5	0.3	2.5	76	2.9	9	1.3	63
R208641	38	0.43	0.1	40	4850	0.3	0.2	3.2	130	3.4	8	1.75	37.5
R208642	28	0.43	0.1	22.5	5100	0.3	0.25	2.2	125	2.1	11	2.2	23
R208643	46	0.45	0.1	12.5	8150	0.2	0.25	1.35	190	1.6	8	1.65	22.5
R208644	30	0.8	0.1	11.5	5550	0.2	0.3	1.2	135	1.1	16	2.2	59
R208645	33	0.72	0.1	11.5	5650	0.2	0.25	1.2	140	1.5	14.5	1.9	83
R208646	43	1	0.1	15.5	5800	0.5	0.4	2.1	155	2.1	23.5	3.3	150
R208647	47	1.05	0.1	11	8600	0.5	0.45	3.2	210	2.7	19.5	3.4	170
R208648	26	0.33	0.5	0.25	600	0.4	0.2	0.34	195	24	6.5	1.3	190
R208649	125	0.31	0.1	6.5	3650	0.3	0.15	1.55	110	1.2	8.5	0.95	62
R208650	28	0.18	0.1	7	8450	1.6	0.1	1.35	210	0.9	4.3	0.7	145
R208651	80	1.25	0.1	4.6	9000	1.1	0.5	2.5	260	12.5	29.5	3.2	190
R208652	44	0.6	0.1	3.8	6450	0.7	0.25	1.65	180	12	20.5	1.75	185
R208653	180	0.57	0.1	6.5	4450	0.6	0.2	1.5	115	24.5	15.5	1.3	175
R208654	135	0.6	0.1	11	6100	0.4	0.2	1.55	195	26	14.5	1.6	135
R208655	145	0.59	0.1	16.5	6150	0.8	0.2	1.5	160	10	14	1.25	135
R208656	54	0.18	0.1	4.4	1250	0.5	0.1	1.15	82	6	4.2	0.85	8
R208657	145	0.3	0.1	11.5	3500	0.05	0.15	1.8	125	1.1	7.5	1	37
R208658	21	0.39	0.1	15.5	4800	0.05	0.2	1.8	125	1.3	9	1.55	41
R208659	20	0.57	0.1	14	3550	0.05	0.2	1.6	81	1.5	11	1.35	25
R208660	21	0.54	0.1	20.5	4450	0.05	0.2	1.85	100	1.9	9	1.4	48.5
R208661	25	0.6	0.1	20	4450	0.3	0.2	1.95	105	1.7	11.5	1.6	69
R208662	32	0.55	0.1	12.5	4800	0.4	0.25	1.55	120	2	15.5	1.85	140
R208663	74	0.53	0.1	21.5	4150	0.6	0.2	1.7	96	3	16.5	1.5	125
R208664	100	0.49	0.1	23.5	4600	1.5	0.15	1.9	97	3.2	10.5	1.2	105
R208665	155	0.66	0.1	33	3450	1.2	0.2	2.5	82	3	11.5	1.65	86
R208666	14	0.13	0.1	26.5	11600	0.2	0.05	4.4	850	17	2.6	0.6	28
R208667	390	0.39	0.1	16	3250	0.2	0.2	2	97	1.5	9	1.45	33.5
R208668	34	0.86	0.1	80	3050	0.05	0.25	4.9	54	2.1	13.5	2.6	47
R208669	53	0.82	0.1	43	3750	0.2	0.25	3.4	90	1.6	10	2.1	54
R208670	800	2.9	0.1	11.5	4850	0.4	1.15	2.4	160	1.2	97	9.5	210
R208671	260	0.6	0.1	12	3450	0.8	0.35	1.35	105	1.7	19	2.4	210
R208672	110	0.8	0.1	31	6250	2.4	0.35	2.5	140	4.1	20.5	2.5	115
R208673	175	1.15	0.1	28	8450	1.5	0.4	2.2	185	2.3	27	3	150
R208674	190	1.15	0.1	21.5	5700	0.8	0.45	1.75	140	2.3	29.5	3.3	145
R208675	92	0.54	0.7	6.5	3250	1	0.2	1.85	91	51	10.5	1.3	105
R208676	230	0.53	0.1	7	3200	0.2	0.2	2	86	1.7	14.5	1.95	43.5
R208677	160	0.46	0.1	14.5	5650	2.7	0.2	2	180	3.1	9.5	1.4	130
R208678	220	0.75	0.1	21.5	3800	0.05	0.2	1.5	87	4.9	16.5	1.55	87
R208679	28	0.83	0.1	15	10700	0.05	0.25	1.9	250	3.9	20.5	2.1	54
R208680	34	0.62	0.1	10	9300	0.4	0.3	1.95	250	3.9	18	2.4	100
R208681	400	1.15	0.1	10.5	5950	0.9	0.6	1.85	190	3.5	38	4.2	175
R208682	380	0.78	0.1	7.5	6900	0.3	0.25	1.15	190	2.8	25	2.1	180
R208683	20	0.47	0.6	14.5	3950	0.05	0.25	3	750	19	14	1.9	410
R208684	500	0.41	0.1	13.5	2850	0.05	0.2	1.65	89	1.8	9	1.45	57
R208685	48	0.58	0.1	23.5	5200	0.05	0.3	2.1	130	1	9.5	2.2	81
R208686	240	0.64	0.1	47	11400	0.7	0.35	4	230	2.3	21	2.5	125
R208687	110	0.36	0.1	21.5	4800	0.2	0.15	1.7	105	1.6	15.5	1.1	57
R208688	97	0.47	0.1	21	6650	0.2	0.2	1.85	145	1.2	17.5	1.4	79
R208689	94	0.38	0.1	26.5	4650	0.3	0.2	2.1	100	2.3	13	1.35	56
R208690	33	0.41	0.1	23.5	7750	0.05	0.2	2.5	185	4	12	1.45	69
R208691	46	0.72	0.1	48	12100	0.05	0.3	5	280	4	22	2.2	110
R208692	19	1.05	0.1	77	14600	0.05	0.85	8.5	300	7.5	51	4.7	165
R208693	97	1.15	0.1	31.5	13500	0.05	0.75	5	340	10.5	41	4.8	185
R208694	56	0.5	0.1	15.5	7750	0.05	0.35	2.6	190	5.5	24.5	2.3	83
R208695	39	1.5	0.1	32	10200	0.3	0.85	6.5	260	11.5	63	5	140
R208696	86	0.68	0.1	11.5	5650	0.05	0.5	2.8	130	7	51	2.9	99
R208697	230	1.3	0.1	25	5850	1.4	0.95	2.9	130	11.5	80	5.5	140
R208698	175	0.06	0.1	3.9	10200	0.05	0.025	1.35	290	2.2	3.6	0.3	28.5
R208699	140	0.38	0.1	52	3750	0.7	0.1	3.4	87	2.4	8	0.65	48.5
R208700	125	0.65	0.1	60	4400	0.8	0.15	5	56	1	11	0.9	58
R208701	165	0.77	0.1	57	4100	0.6	0.2	4.4	56	2.8	13.5	1.15	62
R208702	97	0.31	0.1	15	4000	0.05	0.15	1.95	97	1.9	8.5	0.85	68
R208703	76	0.35	0.1	33	5550	0.1	0.2	2.4	130	1	13	1.25	68
R208704	82	0.36	0.1	20	6700	0.2	0.15	1.85	150	0.8	12.5	1.35	88
R208705	81	0.32	0.1	21	6100	0.3	0.15	2	130	1.6	8.5	1.05	66
R208706	71	0.3	0.1	13.5	6150	0.3	0.15	1.75	140	4.3	7.5	0.85	69
R208707	110	0.67	0.1	16	6500	1	0.45	2.6	170	8.5	33.5	2.8	96
R208708	75	0.85	0.1	11	7000	1.1	0.6	1.95	165	4.8	53	3.9	155
R208709	155	1.95	0.2	25	6700	3.9	1.05	2.6	180	3.9	93	5.5	185
R208710	230	0.93	0.1	14	4950	0.9	0.45	1.05	115	1.4	48	2.6	92
R208711	14	0.07	0.1	15.5	11800	0.05	0.025	0.87	1350	5	3	0.25	15

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sr	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms
detn limit	2	0.02	0.2	0.02	10	0.1	0.05	0.02	2	0.1	0.05	0.05	0.5
R208712	180	0.39	0.1	25	5850	0.05	0.15	2.9	165	1.6	8.5	1.05	93
R208713	46	0.31	0.1	9.5	5900	0.05	0.15	1.15	150	1.1	8	0.9	135
R208714	60	0.29	0.1	9	5800	0.05	0.15	1.05	150	1	10	0.85	98
R208715	62	0.3	0.1	12	8100	0.05	0.15	1.35	200	0.9	9	1.05	140
R208716	110	0.62	0.1	17	6550	0.4	0.3	1.65	160	1.5	17.5	1.95	140
R208717	73	0.33	0.1	10	5400	0.3	0.1	0.99	150	2.5	11.5	1.05	105
R208718	110	0.27	0.1	21.5	4950	1	0.1	1.9	110	5.5	9.5	0.75	65
R208719	130	0.39	0.1	23	4950	2.3	0.15	2.1	105	4.2	9	1.15	66
R208720	140	0.42	0.1	20.5	5850	1	0.2	1.85	125	1.5	16.5	1.65	68
R208721	130	0.79	0.1	16	4400	0.5	0.35	1.8	99	2.5	34.5	1.95	99
R208722	26	0.23	0.4	0.4	600	0.2	0.1	0.29	195	15	8.5	0.9	210
R208723	280	0.21	0.1	5.5	4550	0.05	0.1	1.25	110	1.4	7	0.65	28
R208724	86	0.34	0.1	13	5800	0.05	0.2	1.5	135	1.6	9.5	1.15	53
R208725	46	0.39	0.1	14	4350	0.05	0.15	1.5	130	1.9	9	0.9	56
R208726	105	0.68	0.1	18	2900	2.4	0.2	1.7	100	1.9	16	1.35	110
R208727	96	0.39	0.1	19	3650	1.2	0.1	1.65	92	2.2	10	0.9	85
R208728	105	0.5	0.1	21	5250	1.4	0.2	2.1	140	3.6	15.5	1.3	94
R208729	165	0.65	0.1	11.5	5150	0.8	0.5	1.95	115	1.9	37	3.2	79
R208730	190	0.93	0.1	12.5	4600	0.5	0.5	1.4	115	1.5	52	3.1	98
R208731	180	0.6	0.1	12	3700	0.3	0.35	1.3	81	1	48	1.95	70
R208732	53	0.2	0.1	3.2	850	0.6	0.1	0.9	81	4.1	6.5	0.8	8.5
R208733	500	0.64	0.1	8.5	5350	0.2	0.2	2.1	170	1.1	11.5	2.2	67
R208734	38	0.56	0.1	13	4700	0.1	0.25	1.85	155	1.8	11	1.45	69
R208735	60	0.84	0.1	14.5	6850	0.2	0.25	1.7	195	1.5	13.5	1.75	135
R208736	67	0.57	0.1	8	5300	0.3	0.25	1	150	1.4	10.5	1.7	105
R208737	98	0.55	0.1	10.5	7700	0.9	0.3	1.4	180	1.4	15.5	1.9	160
R208738	115	0.98	0.1	10	5350	2	0.55	2	160	3.3	28	4	135
R208739	200	1.7	0.1	9	5900	1	0.8	1.45	150	3.7	48	5	155
R208740	11	0.17	0.1	24	9400	0.05	0.05	5.5	700	20.5	3.2	0.55	29.5
R208741	75	0.39	0.1	3.9	3150	0.05	0.35	2	135	1.5	13.5	2.9	41.5
R208742	17	0.49	0.1	3.7	5150	0.05	0.35	1.15	170	1.6	14.5	2.6	65
R208743	30	0.36	0.1	4.3	5650	0.3	0.3	1.15	185	1.5	13.5	2	81
R208744	65	0.4	0.1	3.1	4550	0.2	0.35	0.94	170	1.7	12	2.4	50
R208745	96	0.84	0.1	3.8	6200	0.1	0.9	1.75	200	2.7	36	7	69
R208746	170	1.2	0.1	3.6	4100	0.3	1.05	1.95	90	1.9	89	7	56
R208747	120	1.8	0.1	16.5	2900	0.3	1.4	2.4	41	3.2	64	9.5	41
R208748	210	1.65	0.1	17	2850	0.5	0.9	1.65	56	3	67	5.5	45
R208749	160	1.4	0.1	4.2	3800	0.9	1.65	1.65	64	4.8	85	12	56
R208750	360	0.67	0.1	6.5	6450	0.7	0.3	1.45	150	9.5	25	2.5	80
R208751	95	0.61	0.6	4.8	3450	1.3	0.2	1.65	99	46	12	1.25	94
R208752	410	0.79	0.1	8.5	5250	1.2	0.25	1.9	150	1.4	15	2	67
R208753	440	0.54	0.1	11	6700	0.9	0.2	2	170	1.5	11.5	1.4	90
R208754	420	0.48	0.1	17	7500	1.2	0.15	1.55	145	1.3	8	1.55	76
R208755	19	0.38	0.5	8.5	3750	0.1	0.2	2.2	700	13	11.5	1.4	320
R208756	290	0.38	0.1	13	4600	1.5	0.1	2.5	140	4.5	5.5	0.6	58
R208757	180	0.39	0.1	10.5	3600	0.4	0.15	2.1	140	1.5	8.5	0.9	22.5
R208758	195	0.48	0.1	11.5	4450	0.7	0.15	2.2	210	2.1	7	1.05	53
R208759	240	0.69	0.1	12	4500	1.3	0.25	1.95	160	3.2	12	1.65	110
R208760	150	0.08	0.2	2.9	9250	0.05	0.05	1.3	250	3.9	2.9	0.4	21
R208761	92	0.33	0.1	16.5	4100	0.4	0.1	1.7	115	1.3	4.3	0.85	18.5
R208762	120	0.48	0.1	13.5	5450	1	0.1	1.45	145	0.9	7.5	1.1	66
R208763	160	0.48	0.1	9	4750	0.9	0.15	1.6	150	0.7	6.5	1.5	62
R208764	195	0.35	0.1	9	4900	0.7	0.2	1.6	125	1.3	7	1.4	61
R208765	190	0.47	0.1	10	4700	0.5	0.25	1.55	110	1.2	11	1.75	68
R208766	160	0.51	0.1	8	4150	0.5	0.3	1.55	115	2.2	10.5	2.1	71
R208767	160	1.35	0.1	15	4350	0.8	0.7	3.6	120	7.5	29	5.5	110
R208768	195	0.76	0.1	9	4450	0.6	0.4	2.3	120	1.4	23	2.6	100
R208769	155	0.72	0.1	8	2700	0.7	0.3	1.65	82	2.4	20.5	2.4	68
R208770	16	0.12	0.3	20.5	13400	0.05	0.1	1.3	1500	8	3.5	0.6	30
R208771	115	0.28	0.1	7.5	4300	0.3	0.1	1.35	140	2.3	5.5	1.1	19
R208772	58	0.16	0.1	6	1250	0.3	0.05	0.73	57	1.1	3.5	0.4	11.5
R208773	47	0.51	0.1	11.5	5200	0.1	0.15	1.4	100	1.4	8	1.15	14
R208774	105	0.49	0.1	17.5	5800	0.2	0.15	3	160	1.6	7	1.15	55
R208775	40	0.46	0.1	13.5	4650	0.5	0.15	2.9	145	2.4	9	1.35	40
R208776	58	0.73	0.1	12	4200	1	0.3	2.4	155	1.1	12.5	1.9	94
R208777	45	1.15	0.1	10	4300	0.6	0.45	2.9	135	1.2	27	2.5	160
R208778	99	0.63	0.1	13.5	4150	0.8	0.35	3	135	2.5	25.5	2.1	97
R208779	88	0.48	0.1	13.5	4850	0.7	0.25	2.4	145	2.3	16	1.9	94
R208780	120	0.56	0.1	12	5150	0.5	0.25	1.8	150	1.6	19	1.9	97
R208781	125	0.67	0.1	12.5	4700	0.7	0.35	1.9	130	2.1	19	2.4	135
R208782	250	0.17	0.1	10.5	11800	0.2	0.1	1.45	220	2.5	5.5	0.65	25
R208783	40	0.25	0.1	8.5	8100	0.4	0.2	1.4	105	3.6	10	1.1	29
R208784	27	0.48	0.1	34.5	23400	1.5	0.35	2.3	390	4.9	22.5	2.8	200
R208785	24	0.74	0.1	24	18200	0.5	0.45	2.7	240	3.3	34	3.4	180
R208786	600	1.05	0.1	8.5	48000	1.5	0.45	2.1	550	2.7	32.5	3	600
R208787	320	2.4	0.1	8.5	21500	1	0.85	2.6	220	1.6	68	6	360
R208788	76	2.4	0.1	2.5	13000	0.4	0.9	2.6	135	0.7	79	4.8	155
R208789	230	0.99	0.1	3.7	22000	0.6	0.6	1.6	210	0.9	44.5	3.7	210
R208790	200	1.65	0.1	4.3	21100	0.5	0.7	1.55	195	0.9	42.5	5	210
R208791	190	1.55	0.1	3.3	25200	0.6	0.65	0.99	240	0.9	44	4.1	210
R208792	210	0.68	0.1	85	5800	0.7	0.15	2.6	180	2.4	8	0.8	150
R208793	600	0.55	0.1	39.5	6400	1.4	0.1	1.4	135	2.9	8	0.65	180
R208794	800	2.6	0.1	39.5	6350	1.3	1.05	3.4	135	1.2	87	7.5	300
R208795	280	1.9	0.1	210	7850	1.8	0.5	3.2	185	1.5	41	2.5	320

Table A7a: Tabulated geochemical data for regolith and vegetation materials. IS signifies insufficient sample. Data below detection is expressed as half detection limit.

R-Number	Sr	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpoes	icpms	icpms	icpms	icpms
detn limit	2	0.02	0.2	0.02	10	0.1	0.05	0.02	2	0.1	0.05	0.05	0.5
R208796	200	0.75	0.1	15	4750	0.3	0.35	2.9	190	0.9	19	2.8	65
R208797	57	0.52	0.1	14.5	4850	0.6	0.25	1.4	175	1.1	15	1.95	87
R208798	100	0.77	0.1	10.5	3250	0.7	0.45	1.7	135	1.5	24.5	3.4	165
R208799	170	0.74	0.1	9.5	5400	0.8	0.55	1.65	165	2.1	26.5	3.7	175
R208838	34	0.19	0.1	5	2350	0.2	0.15	0.37	43	0.4	6	0.85	38.5
R208839	44	0.27	0.1	4.8	2500	0.2	0.15	0.45	45	0.5	6	0.9	35.5
R208840	56	0.2	0.1	5.5	2400	0.1	0.1	0.39	46	0.3	6.5	0.8	34.5
R208841	85	0.28	0.1	4.6	2200	0.2	0.15	0.44	45	0.4	7.5	0.95	36.5
R208842	105	0.26	0.1	4.3	2300	0.1	0.15	0.44	54	0.3	7.5	1.05	34
R208843	180	0.31	0.1	4.3	2200	0.2	0.2	0.44	53	0.3	9.5	1.2	28.5
R208844	24	0.13	0.1	4.6	1750	0.05	0.1	0.31	47	0.2	3.5	0.55	21
R208845	350	0.04	0.1	0.63	340	0.05	0.025	0.11	8	0.3	1.5	0.15	57
R208846													
R208847	380	0.04	0.1	0.71	360	0.05	0.025	0.13	8	0.3	1.6	0.15	51
R208848	300	0.06	0.1	0.56	440	0.05	0.025	0.12	9	0.1	1.85	0.2	67
R208849	195	0.07	0.1	0.55	370	0.05	0.025	0.13	8	0.2	1.55	0.2	76
R208850	240	0.07	0.1	0.63	370	0.05	0.025	0.12	8	0.3	1.65	0.15	91
R208851	190	0.04	0.1	0.89	390	0.05	0.025	0.12	9	0.2	1.6	0.2	60
R208852	165	0.02	0.1	0.26	220	0.05	0.025	0.1	6	0.05	0.85	0.1	55
R208853	240	0.04	0.1	0.44	280	0.05	0.025	0.08	8	0.2	1.1	0.15	63
R208854	310	0.06	0.1	0.91	600	0.05	0.025	0.12	14	0.2	2.3	0.2	78
R208855	230	0.04	0.1	0.54	350	0.05	0.025	0.11	8	0.1	1.6	0.15	67
R208856	185	0.04	0.1	0.72	350	0.05	0.025	0.12	7	0.4	1.85	0.2	69
R208857	200	0.06	0.1	0.58	300	0.05	0.025	0.08	8	0.2	1.35	0.15	79
R208858	460	0.04	0.1	0.56	850	0.05	0.025	0.1	18	0.05	1.6	0.15	55
R208859	260	0.04	0.1	0.8	420	0.05	0.025	0.15	8	0.2	1.8	0.2	54
R208860	210	0.07	0.1	1	480	0.05	0.025	0.14	10	0.3	2.2	0.2	51
R208861	320	0.14	0.1	4.1	800	0.05	0.05	0.27	15	0.3	4.1	0.3	82
R208862	350	0.08	0.1	1.2	600	0.05	0.025	0.17	12	0.2	2.4	0.25	44.5
R208863	310	0.07	0.1	0.55	600	0.05	0.025	0.1	13	0.2	1.7	0.2	55
R208864	195	0.04	0.1	0.44	290	0.05	0.025	0.1	6	0.1	1.1	0.1	72
R208865													
R208866													
R208867													
R208868	125	0.29	0.1	35.5	1950	0.1	0.15	2.4	290	2.2	7	0.75	59
R208869	360	0.36	0.1	3	1450	0.05	0.15	0.5	22	1	11.5	0.8	16.5
R208870	27	0.29	0.1	8	9600	0.05	0.3	1.8	100	4.1	13	1.5	31.5
R208871													
R208872													
R208873													
R208874													
R208875													
R208876	70	0.45	0.1	8.5	10700	0.05	0.35	1.95	87	1.5	19.5	2.3	14
R208877													
R208878	300	0.36	0.1	1	1250	0.2	0.2	0.55	24	1.6	9	1.05	22.5
R208879	340	0.11	0.1	0.33	1000	0.05	0.05	0.34	23	1.1	3	0.3	54
R208880	360	0.73	0.1	4	1100	0.1	0.4	0.53	42	0.3	27.5	2.6	23
R208881	54	0.35	0.1	9.5	9400	0.05	0.35	1.55	81	4.2	12	2.1	14.5
R208882													
R208883	135	0.38	0.1	8.5	5700	0.05	0.25	1.25	125	0.8	12.5	1.8	27
R208884	320	0.15	0.1	0.54	900	0.05	0.1	0.35	17	1.1	3.6	0.4	12.5
R208885	290	0.44	0.1	12	2350	0.2	0.2	1.45	135	0.5	12	1	48
R208886	440	0.32	0.1	6	1900	0.2	0.15	1.1	43	0.7	9	0.8	29
R208887	430	0.44	0.1	2	1100	0.05	0.2	0.4	31	0.05	18	0.95	22

Table A7b: Tabulated geochemical data for water, iodide and cyanide soluble Au.

R-Number	Sample_id	Type Code	Drill Hole	Easting	Northing	from	to	av depth	Dip	Au - w	Au - I	Au - cn	Au - tot
units										ppb	ppb	ppb	ppb
technique										INAA	INAA	INAA	INAA
detn limit										0.02	0.02	0.02	0.02
R208460	MB940A	RC	RC940	394765	6689695	0.00	1.00	0.5	90	0.48	0.96	2.21	3.66
R208461	MB940B	RC	RC940	394765	6689695	1.00	2.00	1.5	90	0.26	0.50	0.69	1.46
R208462	MB940C	RC	RC940	394765	6689695	2.00	3.00	2.5	90	0.16	0.22	0.64	1.02
R208463	MB940D	RC	RC940	394765	6689695	3.00	4.00	3.5	90	0.12	0.34	0.71	1.18
R208464	MB940E	RC	RC940	394765	6689695	4.00	5.00	4.5	90				
R208465	MB940F	RC	RC940	394765	6689695	5.00	6.00	5.5	90				
R208466	MB939A	RC	RC939	394845	6689695	0.00	1.00	0.5	90	0.40	1.28	2.83	4.52
R208467	MB939B	RC	RC939	394845	6689695	1.00	2.00	1.5	90	0.44	0.75	2.42	3.61
R208468	MB939C	RC	RC939	394845	6689695	2.00	3.00	2.5	90	0.02	0.36	1.10	1.43
R208469	MB939D	RC	RC939	394845	6689695	3.00	4.00	3.5	90	0.06	0.20	0.94	1.20
R208470	MB939E	RC	RC939	394845	6689695	4.00	5.00	4.5	90				
R208471	MB939F	RC	RC939	394845	6689695	5.00	6.00	5.5	90				
R208472	MB938A	RC	RC938	394925	6689695	0.00	1.00	0.5	90	0.18	0.58	1.02	1.77
R208473	MB938B	RC	RC938	394925	6689695	1.00	2.00	1.5	90	0.12	0.44	0.59	1.14
R208474	MB938C	RC	RC938	394925	6689695	2.00	3.00	2.5	90	0.07	0.24	0.54	0.84
R208475	MB938D	RC	RC938	394925	6689695	3.00	4.00	3.5	90	0.05	0.16	0.24	0.46
R208476	MB938E	RC	RC938	394925	6689695	4.00	5.00	4.5	90				
R208477	MB938F	RC	RC938	394925	6689695	5.00	6.00	5.5	90				
R208478	MB937A	Rcis	RC937	395005	6689695	0.00	1.00	0.5	90				
R208479	MB937B	RC	RC937	395005	6689695	1.00	2.00	1.5	90	0.16	0.24	0.48	0.88
R208480	MB937C	RC	RC937	395005	6689695	2.00	3.00	2.5	90	0.08	0.22	0.38	0.68
R208481	MB937D	RC	RC937	395005	6689695	3.00	4.00	3.5	90	0.10	0.21	0.30	0.60
R208482	MB937E	RC	RC937	395005	6689695	4.00	5.00	4.5	90				
R208483	MB937F	RC	RC937	395005	6689695	5.00	6.00	5.5	90				
R208484	MB935A	RC	RC935	395085	6689695	0.00	1.00	0.5	90	0.28	0.99	1.08	2.35
R208485	MB935B	RC	RC935	395085	6689695	1.00	2.00	1.5	90	0.11	0.59	0.76	1.46
R208486	MB935C	RC	RC935	395085	6689695	2.00	3.00	2.5	90	0.32	0.46	1.31	2.09
R208487	MB935D	RC	RC935	395085	6689695	3.00	4.00	3.5	90	0.17	0.17	0.83	1.17
R208488	MB935E	RC	RC935	395085	6689695	4.00	5.00	4.5	90				
R208489	MB935F	RC	RC935	395085	6689695	5.00	6.00	5.5	90				
R208490	MB933A	RC	RC933	395165	6689695	0.00	1.00	0.5	90	0.18	0.42	0.81	1.41
R208491	MB933B	RC	RC933	395165	6689695	1.00	2.00	1.5	90	0.39	0.89	0.93	2.21
R208492	MB933C	RC	RC933	395165	6689695	2.00	3.00	2.5	90	0.28	1.16	1.54	2.98
R208493	MB933D	RC	RC933	395165	6689695	3.00	4.00	3.5	90	0.24	0.34	0.93	1.50
R208494	MB933E	RC	RC933	395165	6689695	4.00	5.00	4.5	90				
R208495	MB933F	RC	RC933	395165	6689695	5.00	6.00	5.5	90				
R208496	MB931A	RC	RC931	395245	6689695	0.00	1.00	0.5	90	0.32	1.03	1.95	3.30
R208497	MB931B	RC	RC931	395245	6689695	1.00	2.00	1.5	90	0.36	4.56	3.12	8.04
R208498	MB931C	RC	RC931	395245	6689695	2.00	3.00	2.5	90	0.29	1.24	2.04	3.57
R208499	MB931D	RC	RC931	395245	6689695	3.00	4.00	3.5	90	0.32	0.36	1.26	1.95
R208500	MB931E	RC	RC931	395245	6689695	4.00	5.00	4.5	90				
R208501	MB931F	RC	RC931	395245	6689695	5.00	6.00	5.5	90				
R208502	MB929A	RC	RC929	395325	6689695	0.00	1.00	0.5	90	0.56	1.44	1.34	3.34
R208503	MB929B	RC	RC929	395325	6689695	1.00	2.00	1.5	90	0.62	2.45	1.44	4.51
R208504	MB929C	RC	RC929	395325	6689695	2.00	3.00	2.5	90	0.34	0.48	1.08	1.91
R208505	MB929D	RC	RC929	395325	6689695	3.00	4.00	3.5	90	0.18	0.38	1.04	1.59
R208506	MB929E	RC	RC929	395325	6689695	4.00	5.00	4.5	90				
R208507	MB929F	RC	RC929	395325	6689695	5.00	6.00	5.5	90				
R208508	MB927A	RC	RC927	395405	6689695	0.00	1.00	0.5	90	0.48	0.87	1.65	3.00
R208509	MB927B	RC	RC927	395405	6689695	1.00	2.00	1.5	90	0.31	1.52	1.64	3.47
R208510	MB927C	RC	RC927	395405	6689695	2.00	3.00	2.5	90	0.44	1.88	1.65	3.97
R208511	MB927D	RC	RC927	395405	6689695	3.00	4.00	3.5	90	0.02	0.52	0.36	0.84
R208512	MB927E	RC	RC927	395405	6689695	4.00	5.00	4.5	90				
R208513	MB927F	RC	RC927	395405	6689695	5.00	6.00	5.5	90				
R208514	MB925A	RC	RC925	395485	6689695	0.00	1.00	0.5	90	0.56	1.84	2.87	5.27
R208515	MB925B	RC	RC925	395485	6689695	1.00	2.00	1.5	90	0.55	0.45	1.40	2.40
R208516	MB925C	RC	RC925	395485	6689695	2.00	3.00	2.5	90	0.58	0.09	1.55	1.96
R208517	MB925D	RC	RC925	395485	6689695	3.00	4.00	3.5	90	0.37	0.29	1.20	1.86
R208518	MB925E	RC	RC925	395485	6689695	4.00	5.00	4.5	90				
R208519	MB925F	RC	RC925	395485	6689695	5.00	6.00	5.5	90				
R208520	MB664A	RC	RC664	395565	6689695	0.00	1.00	0.5	90	2.05	8.28	5.52	15.85
R208521	MB664B	RC	RC664	395565	6689695	1.00	2.00	1.5	90	1.06	5.08	5.96	12.10
R208522	MB664C	RC	RC664	395565	6689695	2.00	3.00	2.5	90	1.18	1.62	3.02	5.82
R208523	MB664D	RC	RC664	395565	6689695	3.00	4.00	3.5	90	0.38	0.97	2.84	4.19
R208524	MB664E	RC	RC664	395565	6689695	4.00	5.00	4.5	90				
R208525	MB664F	RC	RC664	395565	6689695	5.00	6.00	5.5	90				
R208526	MB510A	RC	RC510	395655	6689695	0.00	1.00	0.5	90	1.40	6.92	5.12	13.44
R208527	MB510B	RC	RC510	395655	6689695	1.00	2.00	1.5	90	1.22	5.00	6.12	12.34
R208528	MB510C	RC	RC510	395655	6689695	2.00	3.00	2.5	90	1.78	2.22	6.56	10.56
R208529	MB510D	RC	RC510	395655	6689695	3.00	4.00	3.5	90	0.89	0.66	3.27	4.82
R208530	MB510E	RC	RC510	395655	6689695	4.00	5.00	4.5	90				
R208531	MB510F	RC	RC510	395655	6689695	5.00	6.00	5.5	90				
R208532	MB508A	RC	RC508	395735	6689695	0.00	1.00	0.5	90	0.75	2.89	1.42	5.06
R208533	MB508B	RC	RC508	395735	6689695	1.00	2.00	1.5	90	0.82	4.44	2.82	8.08
R208534	MB508C	RC	RC508	395735	6689695	2.00	3.00	2.5	90	0.78	3.58	5.84	10.19
R208535	MB508D	RC	RC508	395735	6689695	3.00	4.00	3.5	90	0.25	0.36	1.01	1.62
R208536	MB508E	RC	RC508	395735	6689695	4.00	5.00	4.5	90				
R208537	MB508F	RC	RC508	395735	6689695	5.00	6.00	5.5	90				
R208538	MB506A	RC	RC506	395815	6689695	0.00	1.00	0.5	90	0.92	3.70	3.13	7.76
R208539	MB506B	RC	RC506	395815	6689695	1.00	2.00	1.5	90	0.79	5.20	3.15	9.14
R208540	MB506C	RC	RC506	395815	6689695	2.00	3.00	2.5	90	0.86	0.60	2.99	4.45
R208541	MB506D	RC	RC506	395815	6689695	3.00	4.00	3.5	90	0.34	0.27	1.09	1.70
R208542	MB506E	RC	RC506	395815	6689695	4.00	5.00	4.5	90				
R208543	MB506F	RC	RC506	395815	6689695	5.00	6.00	5.5	90				

Table A7b: Tabulated geochemical data for water, iodide and cyanide soluble Au.

R-Number	Sample_id	Type Code	Drill Hole	Easting	Northing	from	to	av depth	Dip	Au - w	Au - I	Au - cn	Au - tot
units										ppb	ppb	ppb	ppb
technique										INAA	INAA	INAA	INAA
detn limit										0.02	0.02	0.02	0.02
R208544	MB504A	RC	RC504	395895	6689695	0.00	1.00	0.5	90	1.02	3.78	3.61	8.41
R208545	MB504B	RC	RC504	395895	6689695	1.00	2.00	1.5	90	0.51	2.42	1.87	4.80
R208546	MB504C	RC	RC504	395895	6689695	2.00	3.00	2.5	90	0.46	1.82	1.75	4.03
R208547	MB504D	RC	RC504	395895	6689695	3.00	4.00	3.5	90	0.18	0.52	1.01	1.71
R208548	MB504E	RC	RC504	395895	6689695	4.00	5.00	4.5	90				
R208549	MB504F	RC	RC504	395895	6689695	5.00	6.00	5.5	90				
R208550	MB502A	RC	RC502	395976	6689695	0.00	1.00	0.5	90				
R208551	MB502B	RC	RC502	395976	6689695	1.00	2.00	1.5	90	0.71	0.80	1.57	3.08
R208552	MB502C	RC	RC502	395976	6689695	2.00	3.00	2.5	90	0.75	4.92	2.31	7.98
R208553	MB502D	RC	RC502	395976	6689695	3.00	4.00	3.5	90	0.52	1.37	4.44	6.34
R208554	MB502E	RC	RC502	395976	6689695	4.00	5.00	4.5	90	0.51	0.41	1.66	2.59
R208555	MB502F	RC	RC502	395976	6689695	5.00	6.00	5.5	90				
R208556	MB500A	RC	RC500	396056	6689695	0.00	1.00	0.5	90	0.20	1.71	2.73	4.64
R208557	MB500B	RC	RC500	396056	6689695	1.00	2.00	1.5	90	0.33	1.23	1.36	2.92
R208558	MB500C	RC	RC500	396056	6689695	2.00	3.00	2.5	90	0.71	1.50	0.80	3.01
R208559	MB500D	RC	RC500	396056	6689695	3.00	4.00	3.5	90	0.26	0.40	0.56	1.23
R208560	MB500E	RC	RC500	396056	6689695	4.00	5.00	4.5	90				
R208561	MB500F	RC	RC500	396056	6689695	5.00	6.00	5.5	90				
R208562	MB636A	RC	RC636	396136	6689695	0.00	1.00	0.5	90	0.72	1.86	1.25	3.83
R208563	MB636B	RC	RC636	396136	6689695	1.00	2.00	1.5	90	0.02	0.88	0.65	1.50
R208564	MB636C	RC	RC636	396136	6689695	2.00	3.00	2.5	90	0.19	1.69	1.12	3.00
R208565	MB636D	RC	RC636	396136	6689695	3.00	4.00	3.5	90	0.20	0.40	0.58	1.18
R208566	MB636E	RC	RC636	396136	6689695	4.00	5.00	4.5	90				
R208567	MB636F	RC	RC636	396136	6689695	5.00	6.00	5.5	90				
R208568	MB1030A	RC	RC1030	396216	6689695	0.00	1.00	0.5	90	0.31	0.63	0.96	1.90
R208569	MB1030B	RC	RC1030	396216	6689695	1.00	2.00	1.5	90	0.33	0.84	1.25	2.42
R208570	MB1030C	RC	RC1030	396216	6689695	2.00	3.00	2.5	90	0.36	1.35	1.24	2.95
R208571	MB1030D	RC	RC1030	396216	6689695	3.00	4.00	3.5	90	0.11	0.25	0.24	0.60
R208572	MB1030E	RC	RC1030	396216	6689695	4.00	5.00	4.5	90				
R208573	MB1030F	RC	RC1030	396216	6689695	5.00	6.00	5.5	90				
R208574	MB1028A	RC	RC1028	396296	6689695	0.00	1.00	0.5	90	0.36	0.70	0.72	1.77
R208575	MB1028B	RC	RC1028	396296	6689695	1.00	2.00	1.5	90	0.53	1.69	0.96	3.18
R208576	MB1028C	RC	RC1028	396296	6689695	2.00	3.00	2.5	90	0.26	0.75	1.18	2.19
R208577	MB1028D	RC	RC1028	396296	6689695	3.00	4.00	3.5	90	0.22	0.28	0.80	1.30
R208578	MB1028E	RC	RC1028	396296	6689695	4.00	5.00	4.5	90				
R208579	MB1028F	RC	RC1028	396296	6689695	5.00	6.00	5.5	90				
R208620	MB940N	+9#		394765	6689695			0.3		0.98	3.32	2.77	7.07
R208621	MB939N	+9#		394845	6689695			0.3		1.97	4.60	5.88	12.45
R208622	MB938N	+9#		394925	6689695			0.3		1.23	5.04	5.44	11.71
R208623	MB937N	+9#		395005	6689695			0.3		1.31	5.36	3.01	9.68
R208624	MB935N	+9#		395085	6689695			0.3		0.57	0.95	1.21	2.73
R208625	MB933N	+9#		395165	6689695			0.6		0.13	0.32	0.52	0.98
R208626	MB931N	+9#		395245	6689695			0.3		1.75	3.30	3.07	8.12
R208627	MB929N	+9#		395325	6689695			0.4		0.24	0.48	0.81	1.54
R208628	MB927N	+9#		395405	6689695			0.2		1.00	2.24	3.05	6.29
R208629	MB925N	+9#		395485	6689695			0.1		0.78	1.64	3.22	5.64
R208630	MB664N	+9#		395565	6689695			0.1		1.32	9.72	5.96	17.00
R208631	MB510N	+9#		395655	6689695			0.3		0.72	1.73	1.78	4.24
R208632	MB508N	+9#		395735	6689695			0.3		0.68	2.25	1.77	4.71
R208633	MB506N	+9#		395815	6689695			0.25		0.41	1.34	1.35	3.10
R208634	MB504N	+9#		395895	6689695			0.2		3.56	3.82	3.54	10.92
R208635	MB502N	+9#		395976	6689695			0.3		0.61	2.39	2.18	5.18
R208636	MB500N	+9#		396056	6689695			0.4		0.18	0.48	0.89	1.56
R208637	MB636N	+9#		396136	6689695			0.25		0.94	1.73	1.31	3.98
R208638	MB1030N	+9#		396216	6689695			0.5		0.22	0.66	0.68	1.56
R208639	MB1028N	+9#		396296	6689695			0.45		0.71	0.78	0.62	2.10

Table A7c: Tabulated geochemical data for vegetation samples by INAA. Samples were ashed prior to analysis and their dry weight concentration calculated from the %ash data. Data below detection is expressed as hald detection limit.

R-Number	Sample_id	Type Code	Zone	Easting	Northing	Au	%Ash	Ag	As	Au	Ba	Br	Ce	Co	Cr
units						ppb		ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm
technique						aas		inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa
detn limit						1.0		15	4	20	300	2	4	3	10
R208440	MB940V	veg	53	394765	6689695		13.1	7.5	2.0	27.3	150.0	1390	2.0	1.5	5.0
R208441	MB939V	veg	53	394845	6689695		13.4	7.5	2.0	10.0	150.0	857	2.0	1.5	5.0
R208442	MB938V	veg	53	394925	6689695		14.1	7.5	2.0	10.0	150.0	1490	2.0	1.5	5.0
R208443	MB937V	veg	53	395005	6689695		14.1	7.5	2.0	10.0	150.0	1640	2.0	1.5	14.9
R208444	MB935V	veg	53	395085	6689695		11.7	7.5	7.6	10.0	150.0	1370	4.4	1.5	16.2
R208445	MB933V	veg	53	395165	6689695		12.8	7.5	2.0	10.0	150.0	1550	2.0	1.5	5.0
R208446	MB931V	veg	53	395245	6689695		15.8	7.5	2.0	10.0	150.0	1380	2.0	1.5	5.0
R208447	MB929V	veg	53	395325	6689695		14.1	7.5	2.0	10.0	150.0	1360	2.0	1.5	11.9
R208448	MB927V	veg	53	395405	6689695		14.9	7.5	2.0	10.0	150.0	1660	4.8	1.5	15.2
R208449	MB925V	veg	53	395485	6689695		12.3	7.5	2.0	10.0	150.0	1490	5.5	1.5	28.2
R208450	MB664V	veg	53	395565	6689695		14	7.5	2.0	10.0	150.0	1720	6.4	1.5	12.2
R208451	MB510V	veg	53	395655	6689695		13.3	7.5	2.0	10.0	150.0	1460	5.4	1.5	5.0
R208452	MB508V	veg	53	395735	6689695		13.8	7.5	2.0	10.0	150.0	1460	2.0	1.5	16.0
R208453	MB506V	veg	53	395815	6689695		13.8	7.5	2.0	10.0	150.0	1720	2.0	1.5	5.0
R208454	MB504V	veg	53	395895	6689695		14.6	7.5	2.0	10.0	150.0	1470	2.0	1.5	5.0
R208455	MB502V	veg	53	395976	6689695		14.2	7.5	2.0	10.0	150.0	1380	8.8	1.5	31.9
R208456	MB500V	veg	53	396056	6689695		13.2	7.5	2.0	10.0	150.0	1270	15.0	1.5	21.6
R208457	MB636V	veg	53	396136	6689695		13.8	7.5	2.0	10.0	150.0	1760	7.2	1.5	12.3
R208458	MB1030V	veg	53	396216	6689695		14.2	7.5	2.0	10.0	150.0	1720	5.6	1.5	5.0
R208459	MB1028V	veg	53	396296	6689695		14.2	7.5	2.0	10.0	464.0	1640	2.0	1.5	19.0
R208845	MB940V	veg-ash	53	394765	6689695	17.0		0.98	0.26	3.58	19.65	182	0.26	0.20	0.66
R208846	MB939V	veg-ash	53	394845	6689695	I.S.		1.01	0.27	1.34	20.10	115	0.27	0.20	0.67
R208847	MB938V	veg-ash	53	394925	6689695	3.0		1.06	0.28	1.41	21.15	210	0.28	0.21	0.71
R208848	MB937V	veg-ash	53	395005	6689695	3.0		1.06	0.28	1.41	21.15	231	0.28	0.21	2.10
R208849	MB935V	veg-ash	53	395085	6689695	7.0		0.88	0.89	1.17	17.55	160	0.51	0.18	1.90
R208850	MB933V	veg-ash	53	395165	6689695	4.0		0.96	0.26	1.28	19.20	198	0.26	0.19	0.64
R208851	MB931V	veg-ash	53	395245	6689695	3.0		1.19	0.32	1.58	23.70	218	0.32	0.24	0.79
R208852	MB929V	veg-ash	53	395325	6689695	3.0		1.06	0.28	1.41	21.15	192	0.28	0.21	1.68
R208853	MB927V	veg-ash	53	395405	6689695	2.0		1.12	0.30	1.49	22.35	247	0.71	0.22	2.26
R208854	MB925V	veg-ash	53	395485	6689695	3.0		0.92	0.25	1.23	18.45	183	0.68	0.18	3.47
R208855	MB664V	veg-ash	53	395565	6689695	3.0		1.05	0.28	1.40	21.00	241	0.90	0.21	1.71
R208856	MB510V	veg-ash	53	395655	6689695	2.0		1.00	0.27	1.33	19.95	194	0.71	0.20	0.67
R208857	MB508V	veg-ash	53	395735	6689695	3.0		1.04	0.28	1.38	20.70	201	0.28	0.21	2.21
R208858	MB506V	veg-ash	53	395815	6689695	2.0		1.04	0.28	1.38	20.70	237	0.28	0.21	0.69
R208859	MB504V	veg-ash	53	395895	6689695	2.0		1.10	0.29	1.46	21.90	215	0.29	0.22	0.73
R208860	MB502V	veg-ash	53	395976	6689695	3.0		1.07	0.28	1.42	21.30	196	1.25	0.21	4.53
R208861	MB500V	veg-ash	53	396056	6689695	3.0		0.99	0.26	1.32	19.80	168	1.98	0.20	2.85
R208862	MB636V	veg-ash	53	396136	6689695	2.0		1.04	0.28	1.38	20.70	243	0.99	0.21	1.70
R208863	MB1030V	veg-ash	53	396216	6689695	3.0		1.07	0.28	1.42	21.30	244	0.79	0.21	0.71
R208864	MB1028V	veg-ash	53	396296	6689695	3.0		1.07	0.28	1.42	65.89	233	0.28	0.21	2.70

Table A7c: Tabulated geochemical data for vegetation samples by INAA. Samples were ashed prior to analysis and their dry weight concentration calculated from the %ash data. Data below detection is expressed as hald detection limit.

R-Number	Cs	Eu	Fe	Hf	Ir	K	La	Lu	Mo	Na	Rb	Sb	Sc	Se	Sm	Ta	Th	U	W	Yb
units	ppm	ppm	%	ppm	ppb	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
technique	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa	inaa
detn limit	2	0.5	0.1	1	30	1	0.5	0.2	20	0.05	50	0.5	0.2	10	0.3	10	2	5	7	0.5
R208440	1.0	0.3	0.1	0.5	15.0	5.7	1.5	0.1	10.0	25.0	25.0	1.0	0.7	5.0	0.5	5.0	1.0	2.5	3.5	0.3
R208441	1.0	0.3	0.1	0.5	15.0	6.4	0.9	0.1	10.0	18.8	25.0	0.7	0.3	5.0	0.2	5.0	1.0	2.5	3.5	0.3
R208442	2.4	0.3	0.1	0.5	15.0	9.6	1.9	0.1	10.0	22.4	25.0	0.3	0.7	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208443	1.0	0.3	0.3	1.0	15.0	10.4	2.1	0.1	10.0	21.7	25.0	0.8	1.0	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208444	1.0	0.3	0.1	0.5	15.0	11.8	1.4	0.1	10.0	24.2	25.0	2.2	0.7	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208445	1.0	0.3	0.2	0.5	15.0	13.2	1.9	0.1	10.0	21.0	25.0	0.5	0.9	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208446	1.0	0.3	0.1	0.5	15.0	10.4	1.8	0.1	10.0	22.4	25.0	0.7	0.9	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208447	1.0	0.3	0.1	0.5	15.0	14.1	1.6	0.1	10.0	23.2	25.0	0.3	0.5	5.0	0.2	5.0	1.0	2.5	3.5	0.3
R208448	1.0	0.3	0.1	0.5	15.0	14.6	1.3	0.1	10.0	22.1	25.0	1.2	0.6	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208449	1.0	0.3	0.2	0.5	15.0	14.0	2.4	0.1	10.0	22.0	25.0	1.0	1.2	5.0	0.6	5.0	1.0	2.5	3.5	0.3
R208450	1.0	0.3	0.1	0.5	15.0	14.9	2.1	0.1	10.0	20.6	25.0	0.3	0.8	5.0	0.3	5.0	1.0	2.5	3.5	0.3
R208451	1.0	0.3	0.3	0.5	15.0	11.7	2.6	0.1	10.0	20.4	25.0	1.5	1.0	5.0	0.5	5.0	1.0	2.5	3.5	0.3
R208452	1.0	0.3	0.2	0.5	15.0	10.7	1.4	0.1	10.0	21.7	25.0	1.6	0.8	5.0	0.3	5.0	1.0	2.5	3.5	0.3
R208453	1.0	0.3	0.3	0.5	15.0	9.1	2.5	0.1	10.0	23.0	25.0	0.7	1.0	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208454	1.0	0.3	0.2	0.5	15.0	9.8	2.7	0.1	10.0	21.5	25.0	1.2	0.9	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208455	1.0	0.3	0.3	0.5	15.0	10.6	2.8	0.1	10.0	19.5	25.0	1.4	1.3	5.0	0.6	5.0	1.0	2.5	3.5	0.3
R208456	1.0	1.1	0.5	0.5	15.0	5.3	6.2	0.1	10.0	23.7	25.0	1.3	1.9	5.0	1.2	5.0	2.7	2.5	3.5	0.3
R208457	2.3	0.3	0.2	0.5	15.0	8.6	3.1	0.1	10.0	23.6	25.0	0.3	1.3	5.0	0.6	5.0	1.0	2.5	3.5	0.3
R208458	1.0	0.3	0.2	0.5	15.0	12.7	2.1	0.1	10.0	22.8	25.0	1.6	0.8	5.0	0.5	5.0	1.0	2.5	3.5	0.3
R208459	1.0	0.3	0.2	0.5	15.0	13.5	1.5	0.1	10.0	20.9	25.0	1.3	0.7	5.0	0.4	5.0	1.0	2.5	3.5	0.3
R208845	0.13	0.03	0.01	0.07	1.97	0.75	0.20	0.01	1.31	3.28	3.28	0.13	0.09	0.66	0.07	0.66	0.13	0.33	0.46	0.03
R208846	0.13	0.03	0.01	0.07	2.01	0.85	0.13	0.01	1.34	2.52	3.35	0.09	0.04	0.67	0.02	0.67	0.13	0.34	0.47	0.03
R208847	0.34	0.04	0.01	0.07	2.12	1.36	0.26	0.01	1.41	3.16	3.53	0.04	0.10	0.71	0.05	0.71	0.14	0.35	0.49	0.04
R208848	0.14	0.04	0.04	0.14	2.12	1.47	0.29	0.01	1.41	3.06	3.53	0.11	0.14	0.71	0.06	0.71	0.14	0.35	0.49	0.04
R208849	0.12	0.03	0.01	0.06	1.76	1.38	0.16	0.01	1.17	2.83	2.93	0.26	0.08	0.59	0.05	0.59	0.12	0.29	0.41	0.03
R208850	0.13	0.03	0.02	0.06	1.92	1.69	0.24	0.01	1.28	2.69	3.20	0.07	0.11	0.64	0.05	0.64	0.13	0.32	0.45	0.03
R208851	0.16	0.04	0.02	0.08	2.37	1.64	0.28	0.02	1.58	3.54	3.95	0.10	0.14	0.79	0.06	0.79	0.16	0.40	0.55	0.04
R208852	0.14	0.04	0.01	0.07	2.12	1.99	0.22	0.01	1.41	3.27	3.53	0.04	0.06	0.71	0.02	0.71	0.14	0.35	0.49	0.04
R208853	0.15	0.04	0.01	0.07	2.24	2.18	0.20	0.01	1.49	3.29	3.73	0.18	0.09	0.75	0.06	0.75	0.15	0.37	0.52	0.04
R208854	0.12	0.03	0.02	0.06	1.85	1.72	0.29	0.01	1.23	2.71	3.08	0.12	0.14	0.62	0.07	0.62	0.12	0.31	0.43	0.03
R208855	0.14	0.04	0.01	0.07	2.10	2.09	0.29	0.01	1.40	2.88	3.50	0.04	0.12	0.70	0.04	0.70	0.14	0.35	0.49	0.04
R208856	0.13	0.03	0.04	0.07	2.00	1.56	0.35	0.01	1.33	2.71	3.33	0.19	0.14	0.67	0.07	0.67	0.13	0.33	0.47	0.03
R208857	0.14	0.03	0.03	0.07	2.07	1.48	0.20	0.01	1.38	2.99	3.45	0.22	0.10	0.69	0.04	0.69	0.14	0.35	0.48	0.03
R208858	0.14	0.03	0.04	0.07	2.07	1.25	0.35	0.01	1.38	3.17	3.45	0.10	0.14	0.69	0.06	0.69	0.14	0.35	0.48	0.03
R208859	0.15	0.04	0.04	0.07	2.19	1.43	0.39	0.01	1.46	3.14	3.65	0.18	0.14	0.73	0.06	0.73	0.15	0.37	0.51	0.04
R208860	0.14	0.04	0.05	0.07	2.13	1.51	0.39	0.01	1.42	2.77	3.55	0.20	0.18	0.71	0.08	0.71	0.14	0.36	0.50	0.04
R208861	0.13	0.15	0.06	0.07	1.98	0.70	0.82	0.01	1.32	3.13	3.30	0.17	0.25	0.66	0.16	0.66	0.35	0.33	0.46	0.03
R208862	0.32	0.03	0.03	0.07	2.07	1.19	0.43	0.01	1.38	3.26	3.45	0.03	0.18	0.69	0.09	0.69	0.14	0.35	0.48	0.03
R208863	0.14	0.04	0.02	0.07	2.13	1.80	0.29	0.01	1.42	3.24	3.55	0.23	0.12	0.71	0.07	0.71	0.14	0.36	0.50	0.04
R208864	0.14	0.04	0.03	0.07	2.13	1.92	0.21	0.01	1.42	2.97	3.55	0.18	0.09	0.71	0.06	0.71	0.14	0.36	0.50	0.04

APPENDIX 8

Appendix 8: CD containing report and data.