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86. *DATA REPORT:* URANIUM, THORIUM, AND OTHER TRACE ELEMENTS IN STRIP SAMPLES FROM CORES 128-798B-13H THROUGH -15H[1]

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INTRODUCTION

Because of heterogeneity, average values of sediment composition can be difficult to establish accurately in fine-grained rocks. As a result, derived values (such as biogenic silica accumulation rates) can be unreliable, and stratigraphic or spatial trends in composition indeterminate. Samples that reflect interval averages, such as well cuttings, have proven to be more valuable than conventional samples for determining compositional averages and trends reliably (Isaacs, 1987; Isaacs et al., 1990). If properly calibrated, geochemical and gamma-ray logs can also be useful.

As part of calibrating the gamma-ray and geochemical logs taken during Leg 128 (Ingle, Suyehiro, von Breymann, et al., 1990), a sampling method similar to that employed by LeClaire and Kelts (1982) was used. Channel or strip samples representing interval averages were obtained from Cores 128-798B-13H through -15H, and analyzed for major oxides (Bristow and deMenocal, this volume).

Splits of these samples were also analyzed for U and Th to compare with data from the natural gamma-ray spectroscopy tool (GST, trademark of Schlumberger Inc.). At the same time, the splits were analyzed for a variety of other major and minor elements. These data are presented here (Table 1).

METHOD

Because of the small sample size available (0.5–1.0 g), the method used to analyze the samples was instrumental neutron activation analysis (INAA). All analyses were performed by X-ray Assay Laboratories in Don Mills, Ontario, Canada.

Samples were irradiated in batches of up to 60 samples in a neutron flux of about 4×10^{12} n/cm^2/s, together with international standard reference materials (NIST, CANMET, and USGS) and a neutron flux monitoring foil. Each batch was wrapped in polyethylene and placed inside a watertight irradiation facility that was rotated continuously during irradiation. After a decay period of about seven days, the samples were counted for up to 2000 s on a high-purity germanium (HPGE) detector. Each detector has an efficiency of >10% relative to an NaI detector, and an energy resolution exceeding 1.9 keV (at 1332.5 keV). About 30% of the samples in each batch were recounted one to three days later for quality control. The flux monitoring foil was also counted on the HPGE detector, and the information used to compensate for any variation of the neutron flux during the irradiation.

The gamma-ray energy spectrum was transferred to a computer system for analysis. Peak identification, spectral interference corrections, and fission product corrections were determined using a customized version of trace element analysis by automated gamma spectroscopy (TEABAGS). The elemental concentration was calculated from a weighted average of multiple peak data for each element.

Approximately 10% of the samples were run in duplicate. Specific data on duplicates for the samples reported here are not available. Average relative standard deviations for duplicates are presented in Table 2 for certain elements within the abundance ranges reported. These averages range from 0.0% for Cs to 12.9% for Mo.

To evaluate accuracy of the data, a separate set of 22 samples was analyzed using both INAA and inductively coupled atomic plasma spectroscopy (ICP) at X-ray Assay Laboratories, with agreement between the two techniques for common elements (Fe, Ca, Na, Co, Cr, Mo, Sc, and Zn) better than ±3% at one standard deviation. The identical powders were also analyzed at X-ray Assay Laboratories by X-ray fluorescence spectroscopy (XRF) and at U.S. Geological Survey laboratories twice by XRF and once by ICP. Except for Ba, this interlaboratory comparison showed excellent agreement. Data for these 22 samples (D.Z. Piper and C.M. Isaacs, unpubl. data) will be reported and evaluated elsewhere.

Method detection limits for each element reported here are shown in Table 2. Certain elements were below the detection limit in all samples (<200 ppm Ni, <500 ppm Sr, <20 ppb Ir).

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Table 1. Geochemical data by INAA on strip samples, Site 798B.

Core, section	Interval (cm)	ODP depth (mbsf)	Corrected depth (mbsf)	Ag (ppm)	As (ppm)	Au (ppb)	Ba (ppm)	Br (ppm)	Ca (%)	Ce (ppm)	Co (ppm)	Cr (ppm)	Cs (ppm)	Eu (ppm)	Fe (%)	Hf (ppm)
13H–1	0–30	113.50	113.65	< 5	21	11	1000	86	1.6	77	23	98	12	1.5	4.58	4.9
13H–1	30–60	113.80	113.91	< 5	13	9	800	90	3.1	75	22	90	11	1.0	3.78	3.6
13H–1	60–90	114.10	114.16	< 5	11	7	900	93	4.1	63	20	85	9	0.9	3.31	3.4
13H–1	90–119	114.40	114.41	< 5	13	< 5	800	60	1.5	70	18	85	11	1.1	3.51	2.6
13H–2	0–25	114.69	114.66	< 5	15	< 5	800	67	2.4	72	16	81	12	1.0	3.46	4.0
13H–2	32–61	115.01	114.93	< 5	15	< 5	900	91	0.9	62	16	73	9	1.4	3.17	3.3
13H–2	61–100	115.30	115.17	< 5	12	6	1100	78	1.3	60	15	77	10	1.0	3.04	3.4
13H–2	100–125	115.69	115.50	< 5	13	< 5	800	72	1.3	63	17	76	11	0.9	3.25	4.0
13H–2	125–150	115.94	115.72	< 5	11	< 5	700	81	1.3	64	17	72	10	0.7	3.08	3.4
13H–3	0–30	116.19	115.93	< 5	10	9	600	83	3.2	55	17	60	8	1.1	2.82	2.7
13H–3	30–60	116.49	116.18	< 5	7	< 5	600	80	4.3	49	15	59	8	0.4	2.57	1.8
13H–3	60–90	116.79	116.43	< 5	9	11	700	85	5.0	58	17	63	7	0.6	2.87	2.3
13H–3	90–120	117.09	116.69	< 5	7	< 5	700	77	3.1	56	15	59	9	0.8	2.68	2.9
13H–3	120–150	117.39	116.94	< 5	8	5	700	77	2.5	59	16	68	8	0.4	2.80	2.7
13H–4	0–30	117.69	117.20	< 5	8	< 5	700	78	3.0	61	17	77	9	0.9	2.95	2.6
13H–4	30–60	117.99	117.45	< 5	8	6	800	75	2.6	62	17	71	9	0.9	3.04	2.9
13H–4	60–90	118.29	117.70	< 5	12	< 5	700	76	3.0	61	16	75	9	0.9	3.14	2.9
13H–4	90–120	118.59	117.96	< 5	9	< 5	800	79	3.3	61	18	65	8	0.8	2.91	2.9
13H–4	120–150	118.89	118.21	< 5	9	5	700	84	2.0	57	18	63	8	0.8	2.99	3.3
13H–5	0–30	119.19	118.47	< 5	8	8	700	81	1.5	60	17	68	8	0.7	2.93	3.1
13H–5	30–60	119.49	118.72	< 5	10	7	700	77	2.2	63	17	66	8	0.8	3.02	3.1
13H–5	60–90	119.79	118.97	< 5	12	< 5	700	74	< 0.8	71	18	76	10	0.9	3.30	3.4
13H–5	90–120	120.09	119.23	< 5	15	< 5	700	72	1.1	63	17	74	9	1.0	3.24	3.0
13H–5	120–150	120.39	119.48	< 5	15	9	600	59	2.0	61	14	71	9	1.1	2.98	3.2
13H–6	0–30	120.69	119.74	< 5	16	6	700	43	1.8	78	17	82	11	1.0	3.32	3.4
13H–6	30–60	120.99	119.99	< 5	16	< 5	700	49	2.6	67	16	77	10	1.2	3.19	3.0
13H–6	60–90	121.29	120.24	< 5	13	< 5	700	71	3.3	58	15	73	10	0.9	2.97	2.9
13H–6	90–120	121.59	120.50	< 5	11	< 5	700	68	2.1	63	15	69	10	1.1	3.06	2.9
13H–6	120–150	121.89	120.75	< 5	8	< 5	600	70	2.7	58	13	62	9	0.9	2.83	2.8
13H–7	0–30	122.19	121.00	< 5	12	< 5	700	58	2.3	69	16	72	10	0.7	3.26	3.2
13H–7	30–60	122.49	121.26	< 5	10	5	700	63	2.7	73	16	81	10	1.0	3.38	3.6
13H–7	60–90	122.79	121.51	< 5	8	5	700	79	4.4	62	15	69	9	0.9	3.02	2.7
13H–7	90–120	123.09	121.76	< 5	8	< 5	700	89	3.9	59	15	66	7	1.0	2.86	3.3
13H–8	0–30	123.69	122.27	< 5	14	9	800	80	1.8	66	16	79	9	1.0	3.26	3.3
13H–8	30–60	123.99	122.53	< 5	10	6	800	92	1.0	70	16	66	8	0.9	3.04	3.1
13H–8	60–90	124.29	122.78	< 5	8	14	800	96	1.8	54	13	63	7	0.4	2.64	2.9
13H–CC	0–22	124.61	123.05	< 5	8	9	800	97	1.3	63	14	56	7	1.1	2.77	3.8
14H–1	30–60	123.50	123.60	< 5	13	8	700	99	2.6	65	15	74	8	0.7	3.18	3.0
14H–1A	60–90	123.80	123.85	6	13	10	800	94	2.5	73	17	80	10	1.0	3.34	3.4
14H–1A	90–120	124.10	124.11	< 5	14	< 5	700	78	1.1	70	17	73	9	1.1	3.30	3.7
14H–2A	0–40	124.40	124.36	< 5	15	< 5	700	73	4.4	63	15	66	9	0.7	3.10	3.6
14H–2	40–90	124.80	124.69	< 5	11	< 5	700	87	5.8	52	13	61	8	0.7	2.75	2.7
14H–2	120–150	125.60	125.37	< 5	13	5	700	68	5.7	61	16	62	9	0.6	3.16	3.5
14H–3	75–108	126.65	126.25	< 5	9	5	700	69	5.5	60	14	65	9	0.8	3.02	2.8
14H–3	116–150	127.06	126.59	< 5	11	< 5	700	79	4.9	67	14	71	9	0.8	3.14	3.6
14H–4	0–30	127.40	126.88	< 5	13	15	900	99	5.1	76	16	79	10	0.7	3.65	3.7
14H–4	30–60	127.70	127.13	< 5	17	< 5	800	76	5.0	65	15	73	9	0.6	3.34	3.9
14H–4	90–120	128.30	127.63	< 5	8	< 5	800	100	4.1	53	13	59	8	0.9	2.74	3.2
14H–5A	0–30	128.90	128.13	< 5	9	5	700	92	5.4	57	13	65	8	0.7	2.95	3.5

Table 1 (continued).

Core, section	Interval (cm)	ODP depth (mbsf)	Corrected depth (mbsf)	Ag (ppm)	As (ppm)	Au (ppb)	Ba (ppm)	Br (ppm)	Ca (%)	Ce (ppm)	Co (ppm)	Cr (ppm)	Cs (ppm)	Eu (ppm)	Fe (%)	Hf (ppm)
14H–5	60–90	129.50	128.64	< 5	6	5	700	100	3.9	48	12	51	7	0.7	2.46	2.5
14H–5	90–120	129.80	128.89	< 5	8	< 5	700	83	3.3	43	12	42	5	0.6	2.47	2.6
14H–5	120–150	130.10	129.14	< 5	9	69	700	98	3.2	48	14	57	6	0.7	2.58	2.8
14H–6	0–30	130.40	129.39	< 5	9	< 5	800	110	3.2	57	15	67	8	1.0	2.98	2.7
14H–6	60–90	131.00	129.90	< 5	10	6	800	110	1.7	71	16	82	9	0.9	3.43	3.9
14H–6	90–120	131.30	130.15	< 5	15	7	900	100	0.9	76	18	85	10	0.9	3.50	4.1
14H–6	120–150	131.60	130.40	< 5	12	6	900	100	0.8	73	18	82	11	0.8	3.50	3.5
14H–7	0–30	131.90	130.65	< 5	9	< 5	900	94	3.0	72	17	78	10	0.7	3.41	3.3
14H–7	30–60	132.20	130.90	< 5	10	5	800	71	3.5	70	18	77	11	1.0	3.62	3.9
14H–7	60–97	132.50	131.16	< 5	8	6	700	61	4.2	69	17	71	9	0.8	3.38	3.3
14H–7	137–150	133.20	131.74	< 5	7	5	700	56	2.5	70	16	71	10	0.9	3.47	3.3
14H–8	0–30	133.50	131.99	< 5	8	11	700	61	2.7	73	19	75	10	0.9	3.66	3.1
14H–8	30–60	133.80	132.25	< 5	9	< 5	800	61	1.7	73	19	84	10	0.8	3.75	3.3
14H–8	60–90	134.10	132.50	< 5	11	5	800	60	1.8	74	19	84	12	1.1	3.78	3.7
14H–8	90–96	134.40	132.75	< 5	12	< 5	700	67	2.0	70	19	86	10	1.0	3.83	3.2
15H–1	0–30	132.90	133.05	< 5	8	7	800	88	0.9	61	16	64	8	0.7	3.10	2.8
15H–1	60–90	133.50	133.56	< 5	8	16	800	77	1.5	58	16	72	9	0.9	2.99	3.2
15H–1	90–116	133.80	133.81	< 5	8	7	800	81	2.4	61	17	69	9	0.7	3.19	3.0
15H–2	0–30	134.06	134.03	< 5	14	8	1000	95	0.8	68	18	80	10	0.8	3.41	3.0
15H–2	30–80	134.36	134.29	< 5	20	< 5	1000	88	0.6	65	17	79	11	1.0	3.39	2.6
15H–2	80–120	134.86	134.71	< 5	17	5	800	87	0.5	63	17	82	11	0.9	3.37	3.1
15H–2	120–150	135.26	135.05	< 5	12	6	800	84	2.0	55	15	70	10	0.7	2.99	2.5
15H–3	0–30	135.56	135.31	< 5	14	< 5	700	74	3.7	60	14	68	10	1.0	3.01	3.2
15H–3	30–60	135.86	135.56	< 5	14	< 5	800	63	2.4	69	15	80	11	0.6	3.39	3.5
15H–3	60–90	136.16	135.81	< 5	10	7	800	67	3.3	69	16	78	10	0.6	3.29	2.9
15H–3	90–120	136.46	136.07	< 5	11	5	800	68	2.5	67	16	80	11	1.0	3.27	3.1
15H–3	120–150	136.76	136.32	< 5	12	< 5	800	74	3.1	58	16	73	10	0.9	3.07	2.3
15H–4	0–30	137.06	136.58	< 5	13	< 5	900	85	3.8	59	13	73	9	0.8	2.99	3.2
15H–4	30–60	137.36	136.83	< 5	15	< 5	800	70	3.8	66	15	81	10	0.9	3.39	3.4
15H–4	60–90	137.66	137.09	< 5	14	< 5	700	72	2.1	65	15	82	10	0.8	3.30	3.0
15H–4	90–120	137.96	137.34	< 5	11	10	700	86	1.6	61	15	75	10	0.7	3.16	3.2
15H–4	120–150	138.26	137.59	< 5	10	9	700	96	2.3	55	15	70	10	0.7	3.00	3.1
15H–5	0–30	138.56	137.85	< 5	10	8	700	100	2.7	47	16	62	9	0.5	2.91	2.8
15H–5	30–60	138.86	138.10	< 5	9	17	600	100	3.4	60	17	69	8	0.6	2.87	3.0
15H–5	60–90	139.16	138.36	< 5	7	7	700	94	4.1	48	13	58	8	0.8	2.48	2.4
15H–5	90–117	139.46	138.61	< 5	7	5	700	97	4.9	47	14	60	7	0.9	2.60	2.7
15H–6	0–30	140.06	139.12	< 5	8	5	600	91	3.0	52	14	64	8	0.8	2.77	2.9
15H–6	30–60	140.36	139.37	< 5	9	6	700	90	2.7	57	15	74	9	1.0	2.99	2.9
15H–6	60–90	140.66	139.63	< 5	9	< 5	700	85	2.8	57	15	74	9	0.9	3.03	2.6
15H–6	90–120	140.96	139.88	< 5	10	< 5	800	90	2.6	64	16	82	11	1.1	3.38	3.3
15H–6	120–150	141.26	140.14	< 5	15	12	800	92	4.0	54	16	76	9	0.6	2.99	2.5
15H–7	30–53	141.86	140.65	< 5	11	5	800	88	4.6	48	13	56	8	0.8	2.32	2.3
15H–7	53–90	142.09	140.84	< 5	15	6	800	69	2.6	56	15	67	9	0.8	2.91	3.2
15H–7	90–120	142.46	141.15	< 5	15	7	900	66	0.9	70	17	87	12	1.1	3.66	3.6
15H–7	120–150	142.76	141.41	< 5	14	13	900	70	1.5	63	15	88	12	0.8	3.42	3.5
15H–8	0–30	143.06	141.66	< 5	11	11	800	64	2.0	67	14	78	11	0.9	3.23	3.5
15H–8	30–60	143.36	141.92	< 5	11	< 5	800	66	3.8	63	15	71	10	0.9	3.03	2.8
15H–8	60–90	143.66	142.17	< 5	12	8	700	78	2.1	55	14	82	9	0.6	3.12	2.9
15H–CC	0–27	143.99	142.45	< 5	10	< 5	800	83	2.3	62	14	79	9	0.8	3.20	3.3

Table 1 (continued).

Core, section	La (ppm)	Lu (ppm)	Mo (ppm)	Na (%)	Nd (ppm)	Rb (ppm)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sm (ppm)	Ta (ppm)	Tb (ppm)	Th (ppm)	U (ppm)	W (ppm)	Yb (ppm)	Zn (ppm)
13H–1	40.3	0.38	7	2.0	33	160	3.5	16.4	< 3	6.1	< 1	0.7	15.0	4.8	< 3	2.5	130
13H–1	37.2	0.35	19	1.9	30	110	2.2	14.1	< 3	5.4	< 1	0.6	13.0	8.7	3	2.3	130
13H–1	33.3	0.36	47	1.9	27	120	2.3	14.1	< 3	5.0	< 1	0.6	12.0	11.7	< 3	2.4	110
13H–1	32.6	0.35	10	1.5	27	110	2.8	12.8	< 3	4.5	1	0.6	12.0	3.8	< 3	2.3	80
13H–2	32.8	0.35	6	1.7	26	130	2.3	13.3	< 3	4.4	1	0.7	12.0	4.6	< 3	2.3	90
13H–2	29.7	0.30	6	1.9	25	100	1.4	12.2	< 3	4.4	1	0.6	11.0	6.2	< 3	1.9	80
13H–2	29.4	0.30	8	1.8	25	100	1.5	12.1	< 3	4.4	< 1	0.6	12.0	8.3	< 3	1.9	170
13H–2	30.1	0.32	5	1.7	23	110	1.8	12.6	< 3	4.1	< 1	0.6	12.0	5.5	< 3	2.1	90
13H–2	28.4	0.29	6	1.7	27	100	1.4	11.6	< 3	3.9	1	0.7	11.0	4.0	< 3	1.9	120
13H–3	25.1	0.31	6	1.7	25	60	1.3	11.1	< 3	3.5	< 1	0.6	9.1	5.4	< 3	2.0	70
13H–3	23.1	0.26	6	1.6	18	90	1.1	10.4	< 3	3.2	< 1	0.5	8.1	4.6	< 3	1.7	110
13H–3	25.0	0.28	7	1.8	20	80	1.2	10.9	< 3	3.5	< 1	0.5	9.3	5.4	3	1.8	80
13H–3	26.6	0.27	< 5	1.7	23	70	1.3	10.1	< 3	3.4	< 1	< 0.5	8.6	4.1	< 3	1.7	110
13H–3	27.7	0.26	6	1.7	24	90	1.3	10.7	< 3	3.7	< 1	0.5	9.3	3.6	< 3	1.7	120
13H–4	28.4	0.29	5	1.7	20	100	1.5	11.5	< 3	3.9	< 1	0.5	10.0	4.7	< 3	1.9	130
13H–4	29.0	0.30	5	1.7	21	110	1.5	11.5	< 3	4.3	< 1	0.6	11.0	5.0	< 3	1.9	120
13H–4	30.9	0.32	5	1.7	21	120	1.5	12.6	< 3	4.2	< 1	0.6	11.0	5.3	< 3	2.1	110
13H–4	27.7	0.31	6	1.7	23	120	1.3	12.0	< 3	3.8	< 1	0.5	11.0	5.4	< 3	2.0	120
13H–4	27.6	0.29	8	1.8	25	80	1.5	11.2	< 3	4.2	1	< 0.5	11.0	5.6	< 3	1.8	90
13H–5	28.7	0.30	9	1.8	25	110	1.3	11.3	< 3	3.8	1	0.5	10.0	5.0	< 3	2.0	90
13H–5	28.9	0.31	11	1.7	25	90	1.9	11.6	< 3	3.9	1	0.5	11.0	5.0	< 3	2.0	100
13H–5	32.3	0.31	14	1.7	27	120	1.8	13.2	< 3	4.4	< 1	0.5	11.0	6.7	< 3	2.0	90
13H–5	30.4	0.30	49	1.6	21	100	1.9	12.3	< 3	4.2	< 1	0.6	10.0	11.2	3	2.0	120
13H–5	31.5	0.33	40	1.5	25	130	1.9	11.9	< 3	4.3	< 1	0.6	10.0	11.5	< 3	2.2	110
13H–6	36.6	0.34	25	1.5	25	130	3.1	12.9	< 3	5.0	< 1	1.0	11.0	6.1	< 3	2.3	70
13H–6	33.1	0.34	20	1.5	24	120	2.4	12.4	< 3	4.5	< 1	1.1	11.0	5.0	< 3	2.4	100
13H–6	29.3	0.32	22	1.6	23	100	1.9	12.3	< 3	4.0	< 1	0.8	10.0	6.2	< 3	2.1	90
13H–6	30.7	0.31	8	1.6	24	90	2.2	12.1	< 3	3.9	1	0.5	10.0	4.2	< 3	2.0	110
13H–6	27.7	0.26	10	1.5	21	90	1.4	11.9	< 3	3.7	1	0.5	9.6	5.6	< 3	1.7	120
13H–7	32.1	0.34	5	1.5	23	130	2.3	12.8	< 3	4.2	1	0.6	11.0	3.5	< 3	2.2	100
13H–7	34.0	0.32	7	1.7	29	120	1.7	13.3	< 3	4.4	1	0.8	12.0	3.8	< 3	2.1	70
13H–7	28.8	0.32	5	1.7	20	110	1.2	12.0	< 3	3.8	< 1	0.7	10.0	4.6	< 3	2.1	100
13H–7	28.1	0.29	8	1.7	20	90	1.0	11.4	< 3	3.7	1	0.6	9.7	4.9	< 3	1.9	130
13H–8	31.8	0.32	12	1.8	21	110	1.9	12.3	< 3	4.1	1	0.5	11.0	4.5	< 3	2.1	120
13H–8	28.5	0.29	22	1.8	22	70	1.1	10.5	< 3	3.7	1	0.6	9.7	4.6	< 3	1.9	130
13H–8	25.5	0.27	14	1.8	24	100	1.0	10.3	< 3	3.4	< 1	0.6	8.3	6.4	< 3	1.8	100
13H–CC	32.3	0.29	11	1.9	22	90	1.0	9.3	< 3	3.6	1	0.6	10.0	6.0	< 3	1.9	80
14H–1	29.6	0.32	15	1.8	22	110	1.4	12.4	< 3	4.0	1	0.7	10.0	10.6	< 3	2.1	100
14H–1A	34.7	0.34	23	1.8	24	100	1.5	12.7	< 3	4.6	1	0.8	12.0	10.3	3	2.2	170
14H–1A	34.1	0.33	25	1.7	21	100	1.8	11.8	< 3	4.4	1	0.8	11.0	7.8	< 3	2.2	100
14H–2A	31.4	0.30	15	1.6	24	90	2.3	11.1	< 3	4.0	1	0.7	10.0	5.3	< 3	2.0	100
14H–2	25.6	0.25	23	1.7	22	60	1.3	10.3	< 3	3.4	< 1	0.7	8.7	6.6	< 3	1.7	60
14H–2	29.8	0.27	10	1.6	19	110	1.7	11.4	< 3	4.0	< 1	0.7	10.0	3.7	3	1.8	60
14H–3	29.1	0.29	8	1.6	19	100	1.7	11.8	< 3	3.9	< 1	0.7	9.9	4.4	< 3	1.9	100
14H–3	29.8	0.31	10	1.7	21	100	1.7	12.0	< 3	4.0	< 1	0.7	10.0	5.2	< 3	2.0	90
14H–4	34.6	0.34	9	1.9	34	120	2.2	14.0	< 3	5.5	< 1	1.0	12.0	7.7	< 3	2.3	110
14H–4	32.1	0.33	5	1.7	23	100	2.5	12.6	< 3	4.3	< 1	0.7	11.0	4.3	< 3	2.2	110
14H–4	25.4	0.33	14	1.9	22	80	1.1	10.6	< 3	3.6	1	0.6	8.9	6.5	< 3	2.2	90
14H–5A	31.6	0.31	9	1.8	23	90	1.0	11.1	< 3	4.0	1	0.5	10.0	5.2	< 3	2.0	120

Table 1 (continued).

Core, section	La (ppm)	Lu (ppm)	Mo (ppm)	Na (%)	Nd (ppm)	Rb (ppm)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sm (ppm)	Ta (ppm)	Tb (ppm)	Th (ppm)	U (ppm)	W (ppm)	Yb (ppm)	Zn (ppm)
14H–5	23.2	0.23	10	1.9	19	80	0.8	9.4	< 3	3.1	< 1	< 0.5	8.1	4.5	< 3	1.5	90
14H–5	21.9	0.20	7	2.4	19	60	1.1	9.0	< 3	2.8	1	< 0.5	6.9	3.8	3	1.3	130
14H–5	24.4	0.24	6	1.9	24	80	1.0	10.4	< 3	3.2	< 1	0.5	8.2	4.9	< 3	1.6	110
14H–6	27.1	0.31	8	1.9	24	90	1.2	11.5	< 3	3.8	< 1	< 0.5	9.5	5.4	< 3	2.0	100
14H–6	33.4	0.32	10	1.9	27	120	1.9	12.9	< 3	4.5	1	0.6	12.0	6.9	3	2.1	120
14H–6	35.6	0.32	17	1.9	29	110	1.8	13.1	< 3	4.8	1	0.6	12.0	7.3	3	2.1	150
14H–6	33.5	0.31	16	1.9	28	120	1.8	13.4	< 3	4.6	1	0.8	12.0	7.0	3	2.0	110
14H–7	32.0	0.36	13	1.7	26	110	1.6	13.7	< 3	4.5	1	0.8	11.0	6.6	< 3	2.4	100
14H–7	34.0	0.35	< 5	1.7	28	130	2.0	14.2	< 3	4.9	< 1	0.9	12.0	5.0	3	2.3	140
14H–7	33.0	0.31	8	1.6	25	110	2.0	13.1	< 3	4.4	1	0.7	12.0	3.9	3	2.1	120
14H–7	33.2	0.32	< 5	1.5	21	110	1.4	13.5	< 3	4.5	1	0.5	12.0	3.4	3	2.1	100
14H–8	33.3	0.33	5	1.6	19	120	1.5	14.0	< 3	4.5	1	0.7	12.0	3.8	4	2.2	120
14H–8	34.5	0.32	6	1.6	26	130	1.7	14.4	< 3	4.7	1	0.9	12.0	4.0	3	2.1	130
14H–8	35.3	0.35	5	1.6	28	120	1.9	14.3	< 3	4.7	1	0.5	13.0	3.9	3	2.3	90
14H–8	34.3	0.31	6	1.6	24	140	1.6	13.7	< 3	4.6	2	0.5	12.0	4.0	< 3	2.1	110
15H–1	29.1	0.30	7	1.8	21	110	1.1	11.8	< 3	3.9	< 1	0.6	10.0	6.1	< 3	1.9	100
15H–1	28.8	0.31	6	1.7	21	110	1.2	11.8	< 3	3.8	1	0.6	10.0	4.4	< 3	2.0	110
15H–1	29.5	0.30	6	1.7	21	100	1.2	12.3	< 3	3.9	< 1	0.7	10.0	4.6	< 3	1.9	140
15H–2	31.1	0.30	23	1.7	27	110	1.3	13.1	< 3	4.3	1	0.5	11.0	10.4	< 3	2.0	110
15H–2	31.3	0.32	32	1.6	25	110	1.6	12.8	< 3	4.5	1	0.7	11.0	15.2	3	2.1	110
15H–2	32.7	0.34	30	1.7	26	120	1.4	13.4	< 3	4.7	< 1	0.6	12.0	13.3	3	2.2	120
15H–2	27.4	0.30	44	1.6	26	110	1.7	11.6	4	4.0	< 1	0.6	10.0	11.0	< 3	1.9	90
15H–3	29.2	0.32	31	1.7	23	100	2.5	12.1	< 3	4.0	< 1	0.6	10.0	8.7	< 3	2.1	90
15H–3	33.5	0.36	< 5	1.7	26	130	2.0	13.6	< 3	4.5	1	0.7	12.0	4.3	< 3	2.2	80
15H–3	32.2	0.35	5	1.5	23	120	1.8	13.6	< 3	4.5	1	0.7	11.0	4.7	< 3	2.3	110
15H–3	31.0	0.31	7	1.6	23	120	1.7	13.6	< 3	4.2	< 1	0.6	12.0	4.6	3	2.0	90
15H–3	28.5	0.30	8	1.6	21	100	1.4	12.2	< 3	4.0	1	0.5	10.0	5.7	< 3	2.0	90
15H–4	30.1	0.31	12	1.6	21	110	1.2	12.2	< 3	4.1	< 1	0.5	10.0	9.4	< 3	2.0	90
15H–4	32.7	0.33	10	1.6	25	130	1.8	13.1	< 3	4.4	1	0.7	12.0	5.6	< 3	2.2	110
15H–4	31.2	0.33	8	1.5	24	110	1.9	12.5	4	4.3	1	0.6	11.0	3.7	4	2.2	130
15H–4	29.2	0.31	9	1.6	24	110	1.3	12.0	< 3	4.0	1	0.6	11.0	4.7	< 3	2.0	110
15H–4	27.2	0.30	9	1.7	20	90	1.3	11.3	< 3	3.7	< 1	0.7	10.0	4.9	< 3	1.9	80
15H–5	26.5	0.26	6	1.7	15	90	1.2	11.0	< 3	3.6	< 1	0.6	9.2	5.1	3	1.7	90
15H–5	25.5	0.26	10	1.7	17	100	1.4	11.0	< 3	3.5	< 1	0.5	9.2	3.9	< 3	1.7	90
15H–5	23.4	0.25	6	1.6	20	60	1.1	10.0	< 3	3.2	1	< 0.5	8.4	4.0	< 3	1.6	90
15H–5	23.9	0.23	6	1.7	18	80	1.1	10.1	< 3	3.3	< 1	0.5	8.7	4.8	< 3	1.5	100
15H–6	25.9	0.26	9	1.6	22	90	1.1	10.8	< 3	3.4	< 1	0.5	9.2	4.7	3	1.7	110
15H–6	27.6	0.27	10	1.7	21	120	1.1	11.6	< 3	3.8	< 1	0.6	10.0	4.7	< 3	1.8	110
15H–6	28.1	0.27	9	1.6	25	100	1.5	12.0	< 3	3.9	< 1	0.5	10.0	4.4	< 3	1.9	90
15H–6	31.1	0.33	19	1.8	25	130	1.5	13.5	3	5.0	< 1	0.7	12.0	8.3	< 3	2.2	130
15H–6	27.9	0.29	62	1.7	24	120	1.6	11.3	7	4.1	< 1	0.5	9.7	14.5	< 3	2.0	110
15H–7	24.3	0.26	58	1.8	20	80	1.5	10.4	4	3.5	< 1	0.6	8.1	12.4	< 3	1.8	100
15H–7	29.6	0.39	35	1.8	23	110	2.2	11.6	< 3	3.9	1	0.6	9.9	7.3	< 3	2.2	90
15H–7	35.7	0.33	7	1.6	25	140	2.7	14.7	< 3	4.8	1	0.6	13.0	4.7	< 3	2.2	110
15H–7	32.4	0.32	7	1.7	20	130	1.7	14.3	< 3	4.5	1	0.6	13.0	6.5	3	2.0	110
15H–8	32.4	0.32	13	1.6	23	140	1.7	13.6	< 3	4.4	1	0.6	12.0	5.2	3	2.1	110
15H–8	30.1	0.33	10	1.5	23	110	1.9	12.7	< 3	4.2	1	0.7	11.0	5.7	< 3	2.2	100
15H–8	28.6	0.31	< 5	1.7	24	100	1.4	12.0	< 3	3.9	1	0.7	10.0	4.4	< 3	1.9	100
15H–CC	30.8	0.33	14	1.7	21	110	1.4	12.4	< 3	4.2	1	0.5	11.0	5.0	< 3	2.1	110

Depths, which indicate the top of the sampled interval, have been taken from Bristow and deMenocal (this volume).

Table 2. Detection limits for INAA method.

Element	Symbol	Detection limit (ppm)	Standard deviation (%)
Silver	Ag	5	
Arsenic	As	2	7.1
Gold	Au	5 ppb	
Barium	Ba	100	
Bromine	Br	1	2.6
Calcium	Ca	0.5%	
Cerium	Ce	3	9.1
Cobalt	Co	1	0.4
Chromium	Cr	2	
Cesium	Cs	1	0.0
Europium	Eu	0.2	6.1
Iron	Fe	0.05%	
Hafnium	Hf	0.5	4.4
Lanthanum	La	0.5	1.5
Lutetium	Lu	0.05	2.9
Molybdenum	Mo	5	12.9
Sodium	Na	100	
Neodymium	Nd	5	3.4
Rubidium	Rb	20	
Antimony	Sb	0.2	8.8
Scandium	Sc	0.1	1.8
Selenium	Se	3	
Samarium	Sm	0.1	
Tantalum	Ta	1	
Terbium	Tb	0.5	3.8
Thorium	Th	0.5	4.8
Uranium	U	0.5	1.0
Tungsten	W	3	
Ytterbium	Yb	0.2	1.4
Zinc	Zn	40	