The Permian-Triassic Boundary in the Carnic Alps of Austria (Gartnerkofel Region)			Editors: W.T. Holser & H.P. Schönlaub	
Abh. Geol. B.-A.	ISSN 0378-0864 ISBN 3-900312-74-5	Band **45**	S. 109–121	Wien, Mai 1991

The Permian-Triassic of the Gartnerkofel-1 Core (Carnic Alps, Austria): Geochemistry of Common and Trace Elements I – ICP, AAS and LECO

By PETER KLEIN*)

With 1 Text-Figure and 7 Tables

Carinthia
Carnic Alps
Permian/Triassic Boundary
Geochemistry
Common Elements
Trace Elements

Österreichische Karte 1 : 50.000
Blatt 198

Contents

Zusammenfassung

Die Analysenmethoden werden beschrieben, die bei der Untersuchung der Kernproben der Bohrung Gartnerkofel-1 zur Anwendung kamen. Für die Haupt-, Neben- und Spurenelemente waren dies die induktiv gekoppelte Plasma-Atomemissionsspektrometrie (ICP) und die Atomabsorptionsspektrometrie (AAS). Kohlenstoff und Schwefel wurden durch Verbrennungsanalyse mit nachfolgender Infrarotdetektion mittels eines Lecomaten CS-244 bestimmt.

Abstract

Analytical methods used for the examination of samples from core Gartnerkofel-1 are described. Common and trace elements were analyzed through inductively coupled plasma-atomic emission spectrometry (ICP) and atomic absorption spectrometry (AAS). Carbon and sulfur were determined through combustion analysis followed by infrared detection using a Lecomat CS-244.

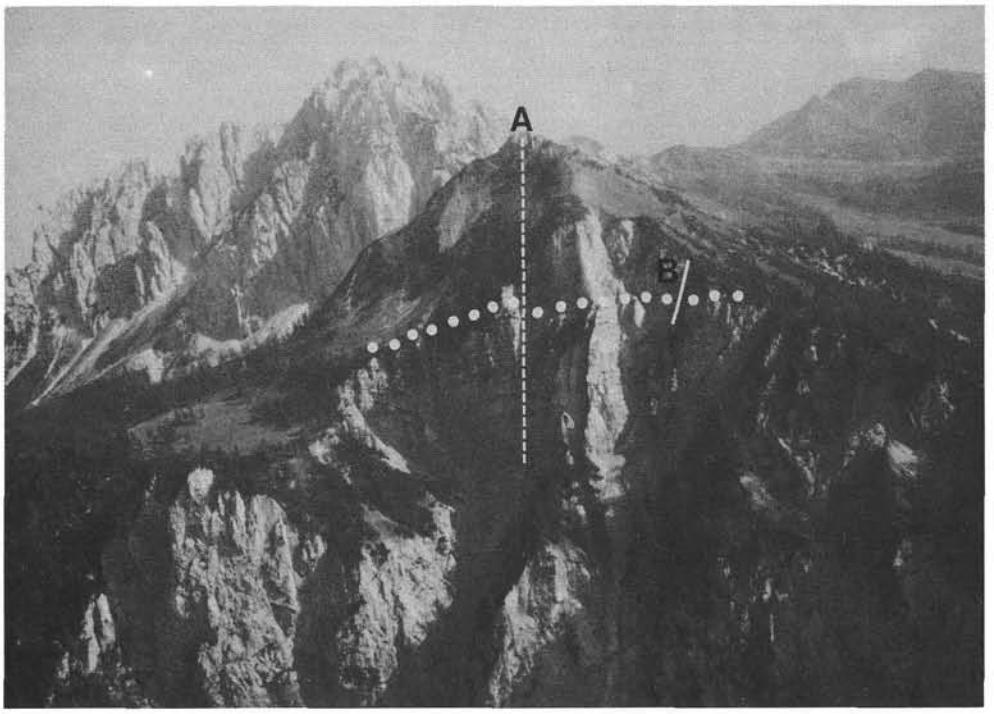
1. Sampling

Samples of the core Gartnerkofel-1 were cut as described by W. T. HOLSER et al. in this volume, and aliquots of the ground powder were assigned for analysis of common and trace elements and of carbon and sulfur, respectively.

2. Analysis of Common and Trace Elements

A sample of the powder of about 500 mg was leached with 20 ml 1 M HCl for 90 minutes in a centrifuge tube, and centrifuged at 3000 rpm for 5 minutes. The supernatant solution was used for analysis

*) Author's address: Dr. PETER KLEIN, Geologische Bundesanstalt, Rasumofskygasse 23, A-1031 Wien.



Text-Fig. 1.
Aerial photograph from the north of the Reppwand with the Gartnerkofel (2195 m) in the background.
A: Drill site on Kammleiten (1998 m);
B: Top of the outcrop section.
Dotted line indicates the Permian–Triassic boundary between the Bellerophon Formation (below) and the Werfen Formation above.
Photo: G. FLAJS, Aachen.

by inductively coupled plasma spectroscopy (ICP) and atomic absorption spectroscopy (AAS). The insoluble residue (IR) was rinsed with distilled water, dried and weighed.

Spectroscopic measurements were made on a PERKIN-ELMER PE ICP-6500 equipment. Measurements were made in four sets, by appropriate method and wavelength listed in Table 1. Calibrations were made with solutions prepared with known concentrations, and with our internal laboratory standard Bellerophon Dolomite A/1. The results are given for the initial and two supplementary sets of samples in Tables 2, 3, and 4 respectively.

It is necessary to emphasize that the trace element contents detected are mainly those contained in the dolomite mineral phase, but that the treatment with HCl described above may have leached some metals of phosphorous from the clay minerals and other phases of the insoluble residue.

Table 1.
Analytical methods applied to core Gartnerkofel-1.

ELEMENT	METHOD	SET	WAVELENGTH nm
Al	ICP	b	308.215
B	ICP	a	208.959
Ba	ICP	b	455.403
Ca	ICP	c	317.933
Co	ICP/AAS	a	228.616
Cr	ICP/AAS	a	205.552
Cu	ICP/AAS	b	324.754
Fe	ICP/AAS	a	239.562
K	AAS/ICP	d	769.896
Mg	ICP	c	293.654
Mn	ICP/AAS	a	257.610
Na	AAS/ICP	d	589.592
Ni	ICP/AAS	a	231.604
P	ICP	a	214.914
Pb	ICP/AAS	a	220.353
Sr	ICP	b	407.771
Ti	ICP	b	337.280
V	ICP	b	310.230
Zn	ICP/AAS	a	213.856
Zr	ICP	b	339.198

Salient results are discussed in separate contributions by K. STATTEGGER (this volume) and W. T. HOLSER et al. (this volume).

3. Analysis of Carbon and Sulfur

The components of carbon and sulfur content were analyzed on separate aliquots of the powdered samples. For determination of total carbon (C_{tot}) and sulfur (S_{tot}) a 100 mg portion was weighed into a ceramic crucible by electronic balance. With a glass spoon about 2 g of LECOCEL (a Sn-W alloy) and 1 g of steel (7 ppm C, 14 ppm S) were added. The mixture was combusted in a furnace at 1400°C, using oxygen (>99.5 % pure) as carrier gas. The evolved gases CO_2 and SO_2 were measured in infrared cells by integrating their respective peaks. The system was calibrated with LECO calibration samples and with our internal laboratory standard Bellerophon Dolomite A/1.

Each sample was analyzed two to four times. The relative standard deviations were <1 % for C and <10 % for S. For determination of organic carbon ($C_{org.}$) and "acid-insoluble sulfur" ($S_{ins.}$) 500 mg of powder were weighed into a porous filter crucible, leached three times with 8 ml 2 M HCl, rinsed ten times with deionized water, and filtered with a filtering flask. The crucibles were dried in an oven at 150° overnight. Measurements were carried out as for total C and S.

Acid-soluble carbon ($C_{carb.}$) was calculated by difference. Similarly, "acid-soluble sulfur" ($S_{sol.}$) was calculated by difference. Inasmuch as the main component of sulfur expected in the core and observed by X-ray diffraction (A. FENNINGER, this volume) and reflected-light microscopy (W. T. HOLSER, this volume), was pyrite, most of the S was expected to be insoluble in HCl, and this was generally the case. Otherwise acid-soluble S was probably gypsum altered from pyrite in the outcrop, as observed by A. FENNINGER (this volume)

and confirmed by sulfur isotope analyses (PAK & HOLSER, this volume). Minor amounts of acid-soluble S may have been indigenous pyrrhotite, or gypsum oxidized from pyrite after coring. Consequently, the sulfur analysis of primary interest is S_{tot}.

The results are listed in Tables 5, 6 and 7. Important aspects of the results for C_{org} and S_{tot} are considered in the papers by W.T. HOLSER (this volume), W.T. HOLSER et al. (this volume), M. MAGARITZ & W.T. HOLSER (this volume), and K. STATTEGGER (this volume).

Table 2.
ICP and AAS analysis of common and trace elements from core Gartnerkofel-1 (s indicates shaly levels).

Sample No.	Depth m	Res. %	Al %	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K ppm	Mg %	Mn ppm	Na ppm	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti ppm	V ppm	Zn ppm
1	57.53	71.2	0.07	36	6.50	2	4	< 1	0.29	950	3.00	145	60	3	600	1	39	7	1	11
2	58.81	15.1	0.03	21	17.50	7	4	5	0.90	345	8.00	350	166	3	415	5	130	3	6	21
3	60.88	27.0	0.06	23	17.00	4	4	< 1	1.10	624	7.70	380	95	2	295	4	87	5	3	18
4	61.65	23.7	0.06	33	16.00	4	5	17	0.92	700	7.00	350	105	1	330	4	90	4	4	15
5	63.00	34.1	0.84	52	15.00	2	9	< 1	0.97	4950	7.50	250	174	6	380	< 1	56	58	13	23
6	64.95	13.7	0.05	16	21.00	3	4	< 1	1.16	420	10.50	240	135	3	130	4	107	4	2	16
7	65.70	11.7	0.04	13	21.50	2	5	< 1	1.05	570	9.70	260	177	2	180	13	115	3	3	25
8	70.62	17.4	0.05	17	20.50	2	5	< 1	0.75	557	9.50	200	137	2	140	< 1	91	4	2	13
9	71.70	35.7	0.10	33	15.00	1	5	< 1	0.86	830	7.90	210	114	3	260	< 1	73	5	3	14
10	72.10	29.0	0.07	27	17.00	1	5	< 1	0.78	626	8.00	215	126	2	290	< 1	72	4	3	17
11	73.75	22.3	0.07	29	18.50	1	4	< 1	0.93	546	8.00	240	166	1	170	< 1	88	4	3	19
s 12	74.40	72.6	0.14	69	5.15	2	4	2	0.20	1670	2.40	64	158	1	620	2	24	5	2	5
13	75.32	31.0	0.09	30	16.00	1	4	< 1	0.77	611	7.20	290	108	3	270	< 1	69	5	3	16
s 14	75.90	59.9	0.09	48	9.50	2	4	< 1	0.59	1322	4.70	197	114	2	370	2	36	5	3	9
s 15	76.30	45.6	0.10	44	12.60	2	4	< 1	0.71	1242	6.50	205	134	3	445	5	45	4	5	11
17	79.67	20.2	0.07	21	18.50	4	4	< 1	0.41	545	9.00	160	105	4	130	< 1	95	3	2	120
18	81.52	23.3	0.07	21	19.00	3	4	1	0.39	598	7.90	180	123	1	150	< 1	69	3	4	72
s 19	82.60	90.8	0.13	74	2.10	3	3	1	0.13	1518	0.63	36	79	3	465	6	12	3	< 1	11
20	82.85	3.7	0.03	8	22.50	1	3	< 1	0.96	142	12.00	180	142	1	70	< 1	93	3	3	17
21	84.37	3.1	0.02	3	22.00	1	3	< 1	0.65	120	11.20	190	138	< 1	75	< 1	69	3	2	16
22	86.26	23.4	0.08	75	17.60	1	4	< 1	0.75	652	9.05	165	104	1	200	< 1	62	3	2	14
23	86.92	10.7	0.04	6	21.50	1	4	< 1	1.30	284	10.50	220	75	2	130	< 1	57	3	4	17
24	88.85	5.2	0.02	3	21.75	2	4	< 1	0.55	173	10.90	155	107	1	90	< 1	69	3	2	15
s 25	90.30	57.6	0.10	14	9.50	3	4	2	0.57	1318	5.10	160	158	2	465	1	40	3	4	8
26	90.56	15.2	0.02	3	25.10	2	4	< 1	0.49	165	12.10	150	107	1	90	< 1	72	3	3	14
27	95.17	38.4	0.08	9	11.90	1	4	< 1	0.41	595	6.50	200	70	< 1	250	< 1	49	5	4	9
28	95.30	62.9	0.65	25	8.50	4	4	1	0.67	1542	3.80	210	134	< 1	475	< 1	36	23	8	10
s 29	95.90	69.0	0.26	37	7.50	6	4	3	0.62	2646	3.20	195	126	4	570	< 1	28	11	5	13
30	96.05	13.0	0.05	33	19.50	1	4	< 1	0.99	325	9.80	215	96	1	130	< 1	67	6	8	11
s 31	97.40	68.3	0.12	9	7.20	4	3	3	0.28	1609	3.50	76	201	2	680	9	41	5	2	6
32	99.46	61.3	0.53	19	8.30	4	5	9	0.34	3070	4.50	70	215	2	380	< 1	19	20	7	9
33	100.42	7.0	0.04	12	19.70	2	3	< 1	0.52	219	10.60	160	127	1	180	< 1	77	5	7	11
s 34	102.39	13.5	0.05	6	21.10	1	3	< 1	0.65	384	9.80	150	191	2	120	< 1	95	4	2	10
35	102.93	1.9	0.01	2	32.40	1	3	< 1	0.44	76	5.10	130	121	1	70	2	800	2	4	8
36	103.45	4.8	0.04	3	22.50	< 1	3	< 1	1.03	174	11.30	290	145	1	80	< 1	68	3	3	18
s 37	103.78	25.4	0.08	12	21.10	3	4	< 1	0.90	1035	4.20	230	189	1	305	2	80	6	5	12
38	105.32	21.7	0.07	7	19.20	2	5	< 1	0.79	573	8.40	175	98	2	130	< 1	89	5	4	11
39	105.90	15.9	0.05	6	21.00	< 1	4	1	1.24	403	9.30	216	120	1	130	< 1	95	4	4	12
40	107.75	6.2	0.03	5	20.85	2	4	< 1	1.20	200	10.40	200	128	2	110	< 1	65	6	5	7
41	110.02	14.8	0.05	9	19.00	< 1	5	< 1	0.30	436	9.40	120	91	1	150	< 1	59	5	9	6
42	111.42	6.7	0.03	4	18.90	< 1	3	1	0.36	213	9.80	115	108	1	90	2	77	3	4	12
43	112.43	7.3	0.03	4	20.50	< 1	4	< 1	0.33	194	10.80	118	160	< 1	80	< 1	65	4	2	7
44	113.20	17.1	0.06	9	19.50	2	4	< 1	0.36	696	10.70	127	189	2	170	< 1	69	4	3	7
s 44A	-114.00	18.1	0.14	13	18.50	2	4	< 1	0.40	1553	10.50	140	201	2	200	< 1	75	7	4	7
45	114.10	17.9	0.28	17	18.80	2	4	1	0.33	1700	10.30	100	146	1	150	< 1	70	13	5	6
46	115.95	1.5	0.03	2	19.20	< 1	3	< 1	0.29	209	10.70	118	126	< 1	50	< 1	82	4	2	7
47	117.70	4.2	0.19	9	17.20	< 1	3	< 1	0.20	770	8.80	70	117	1	50	< 1	63	8	2	6
48	118.64	4.1	0.03	4	21.40	< 1	3	< 1	0.26	125	11.40	100	109	1	40	< 1	67	3	1	7
49	119.27	3.6	0.03	3	21.30	< 1	3	< 1	0.25	118	11.30	105	116	< 1	40	< 1	76	3	2	6
50	123.50	2.5	0.02	2	20.20	< 1	2	< 1	0.25	92	10.50	80	111	< 1	30	< 1	69	4	2	6
52	127.04	23.0	0.06	18	16.50	< 1	4	< 1	0.43	488	8.60	140	93	1	100	< 1	58	5	3	6
53	127.40	39.2	0.10	26	13.30	1	3	1	0.72	850	6.90	160	93	2	220	1	54	5	4	7
54	127.46	32.2	0.08	45	14.10	2	4	2	0.71	643	7.70	200	93	2	210	1	60	5	5	9
55	127.55	38.1	0.75	125	12.40	4	13	4	0.78	3500	6.90	190	170	13	250	< 1	59	27	9	12
56	130.10	9.2	0.06	10	19.90	1	4	1	0.51	352	10.60	140	188	3	130	< 1	71	5	3	9
57	130.40	4.0	0.03	4	20.90	< 1	3	< 1	0.47	142	11.20	126	157	2	90	1	75	4	3	10
58	130.55	1.6	0.02	2	20.50	1	3	< 1	0.46	65	11.10	135	138	1	70	2	73	6	3	9
s 59	134.53	62.5	0.14	53	9.00	9	4	3	0.28	1629	4.70	65	142	4	610	30	40	7	3	8
60	136.50	8.3	0.03	7	19.90	2	5	< 1	0.41	226	10.80	150	138	3	110	< 1	60	4	2	5
61	137.23	10.6	0.05	12	19.10	1	5	< 1	0.43	308	10.30	150	168	3	145	1	65	4	3	7
63	138.96	30.2	0.07	20	14.00	2	6	1	0.46	420	7.80	145	107	3	400	6	52	6	5	3
64	140.60	11.8	0.04	25	19.40	3	6	3	0.48	1650	10.50	148	143	3	130	< 1	77	16	6	28
65	141.54	11.6	0.05	12	19.50	1	5	< 1	0.37	286	10.90	154	173	2	145	< 1	80	4	2	6
s 66	142.74	26.6	0.09	25	17.00	2	5	< 1	0.38	1043	10.00	137	229	2	170	1	58	5	3	3
67	143.26	7.5	0.03	7	20.40	1	5	< 1	0.42	206	10.90	152	115	2	140	< 1	85	4	2	4
68	144.33	9.2	0.04	10	19.70	3	4	< 1	0.39	215	10.50	170	101	3	145	< 1	78	5	3	5
s 69	146.08	16.0	0.10	24	20.50	3	4	< 1	0.31	1091	10.80	120	269	2	108	1	71	5	2	6
70	146.65	7.5	0.04	10	20.50	2	5	< 1	0.51	634	11.30	190	182	2	160	2	63	4	2	6

Table 2 (continued).

Sample No	Depth m	Res. %	Al %	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K ppm	Mg %	Mn ppm	Na ppm	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti ppm	V ppm	Zn ppm
71	147.60	13.2	0.05	16	19.70	3	5	1	0.46	557	10.65	160	147	3	150	2	73	4	4	8
72	149.34	12.0	0.04	15	19.80	4	4	1	0.40	365	10.45	140	139	3	147	3	78	4	3	15
73	149.61	7.0	0.03	9	21.50	2	4	1	0.44	255	11.20	150	135	2	140	12	79	3	4	7
s 74	152.57	45.4	0.12	32	13.00	8	5	< 1	0.33	1360	7.00	130	138	3	310	2	41	5	4	3
75	152.69	30.0	0.05	19	15.50	3	6	< 1	0.39	421	8.45	171	96	3	360	2	45	5	4	4
76	152.80	25.0	0.06	17	15.80	4	6	< 1	0.43	502	8.95	182	123	4	230	2	50	4	4	6
77	153.50	10.7	0.05	10	19.80	2	5	< 1	0.37	331	10.60	183	104	3	170	4	65	5	3	10
78	154.11	18.4	0.05	15	18.30	3	5	< 1	0.34	361	9.50	170	88	3	155	2	60	4	3	8
79	158.33	1.8	0.02	2	22.80	2	4	1	0.21	110	11.70	110	190	2	55	4	99	2	2	17
80	161.04	3.7	0.04	5	22.00	< 1	3	< 1	0.27	208	11.10	147	135	1	50	1	93	4	2	13
81	162.36	4.0	0.03	5	21.40	< 1	3	< 1	0.30	165	11.60	148	92	1	70	2	74	4	7	7
s 81B	163.50	51.3	0.16	40	11.60	11	4	1	0.39	1710	5.60	145	94	6	370	13	46	6	3	2
s 82	163.88	42.4	0.12	37	12.50	8	4	< 1	0.37	1540	7.10	140	130	5	230	7	47	5	3	3
83	164.32	4.3	0.03	6	21.50	1	3	< 1	0.37	255	11.50	172	84	2	54	5	71	5	2	7
84	164.60	5.3	0.04	8	21.50	1	3	< 1	0.33	199	11.40	146	104	2	70	4	77	5	2	8
85	166.35	7.4	0.03	8	21.00	1	4	< 1	0.32	187	11.50	145	104	1	67	4	59	5	2	6
s 86	167.98	39.2	0.07	34	13.60	2	3	< 1	0.28	935	7.20	105	114	2	241	2	41	2	3	13
87	168.78	10.8	0.04	8	20.50	1	4	1	0.24	255	10.90	149	119	2	115	4	82	3	3	6
88	169.10	8.2	0.04	7	20.70	1	3	< 1	0.23	306	10.70	104	123	2	77	2	88	2	4	15
89	171.33	4.4	0.03	6	22.50	1	3	< 1	0.26	165	11.10	165	139	2	69	2	93	5	10	16
90	173.53	9.1	0.04	11	20.50	1	3	< 1	0.30	272	10.70	147	88	2	80	2	74	3	4	12
92	174.90	24.1	0.03	11	17.50	1	3	< 1	0.28	199	9.30	200	139	2	135	3	75	4	4	9
93	175.10	15.4	0.03	11	19.40	1	3	< 1	0.34	170	10.10	206	123	1	165	3	80	5	4	13
94	176.37	2.9	0.02	3	22.20	< 1	2	< 1	0.25	114	12.00	119	84	1	54	2	77	4	2	7
95	177.43	3.7	0.02	5	22.00	< 1	2	< 1	0.24	182	11.70	108	111	2	66	2	85	4	2	9
96	177.42	3.2	0.02	33	21.90	< 1	2	< 1	0.22	140	11.85	103	96	2	50	4	83	4	2	5
97	179.64	7.0	0.03	8	20.70	< 1	3	< 1	0.20	178	10.50	128	139	2	70	2	70	4	2	3
98	180.33	7.9	0.22	13	19.60	2	22	9	0.38	1360	10.45	177	139	14	55	1	65	15	3	13
99	181.37	32.4	0.08	22	15.30	2	4	1	0.42	745	7.10	250	123	2	218	2	67	4	4	3
s 100	181.57	63.0	0.33	130	8.70	10	4	< 1	0.20	3200	3.90	244	178	9	560	< 1	40	13	5	18
s 101	182.00	53.1	0.11	22	10.80	1	3	< 1	0.10	1350	5.50	172	119	2	190	1	40	4	3	5
103	182.20	9.3	0.05	29	22.50	< 1	< 1	< 1	0.44	251	10.50	209	197	2	240	4	79	4	4	3
104A	182.70	6.9	0.04	5	21.00	< 1	< 1	< 1	0.36	1190	10.40	214	160	3	105	< 1	57	4	3	56
s 104B	183.28	49.9	0.19	30	11.20	5	4	< 1	0.24	2020	6.00	151	138	5	198	1	49	7	2	8
105	183.40	7.2	0.04	5	22.00	< 1	< 1	< 1	0.33	175	10.50	193	139	< 1	120	< 1	52	4	3	3
s 106	183.51	38.3	0.40	38	13.60	8	5	< 1	0.23	3350	7.50	190	190	8	151	< 1	48	12	5	20
107	183.61	8.6	0.07	8	21.25	< 1	< 1	< 1	0.30	320	10.55	163	160	< 1	110	< 1	53	4	4	2
108	183.97	7.6	0.05	5	21.00	< 1	1	< 1	0.38	270	11.00	179	174	3	100	< 1	55	4	3	7
109	184.17	13.1	0.06	9	22.00	< 1	2	< 1	0.30	570	9.80	158	167	3	122	< 1	51	4	3	6
110	184.43	4.8	0.04	4	24.00	< 1	< 1	< 1	0.31	196	10.50	151	157	2	98	< 1	61	4	2	3
111	184.72	3.2	0.03	7	23.50	< 1	< 1	< 1	0.35	115	10.55	152	160	1	90	1	62	4	2	4
112	184.80	5.5	0.04	4	22.50	< 1	< 1	< 1	0.21	195	11.20	160	146	3	125	< 1	52	4	3	6
s 112	184.93	53.7	0.10	55	8.50	16	2	1	0.55	1600	5.00	128	115	9	139	150	24	5	2	47
113	184.96	7.9	0.04	5	21.20	< 1	1	< 1	0.36	180	10.10	181	136	2	120	< 1	47	3	2	8
114	185.26	8.2	0.11	12	21.50	< 1	< 1	< 1	0.41	215	10.60	177	143	3	170	< 1	50	3	3	6
115	185.30	7.5	0.05	8	21.25	< 1	1	< 1	0.37	306	11.40	157	146	5	85	< 1	52	4	3	3
116	185.51	8.5	0.05	29	21.00	< 1	< 1	< 1	0.32	245	11.50	178	128	5	82	23	56	4	7	4
s 117	185.57	91.1	0.55	33	0.10	9	6	< 1	2.15	4400	0.18	1	80	45	620	900	5	9	20	5
118	185.65	20.7	0.06	8	17.50	< 1	2	< 1	0.64	380	9.50	244	146	4	210	< 1	44	3	5	6
s 118B	185.80	89.6	0.21	28	2.00	10	2	< 1	0.40	2280	1.05	52	90	17	605	19	18	4	2	35
119	185.96	31.9	0.06	8	15.90	< 1	< 1	< 1	0.43	537	7.70	187	118	5	360	1	50	4	4	2
120	186.15	14.1	0.05	5	19.60	< 1	1	< 1	0.40	353	9.95	221	134	4	190	< 1	61	4	4	2
121	186.47	24.4	0.06	8	17.00	< 1	2	< 1	0.36	545	8.75	176	139	6	300	< 1	46	4	4	1
s 121	186.50	45.7	0.66	28	11.60	3	6	1	0.36	5500	7.50	100	240	5	380	< 1	45	22	7	6
122	186.77	7.2	0.28	16	22.00	< 1	1	< 1	0.35	1666	11.25	170	176	7	130	< 1	57	13	5	5
123	186.80	8.4	0.19	12	22.50	< 1	1	< 1	0.36	1237	10.50	166	153	4	200	< 1	52	10	5	4
s 124	186.85	39.1	0.06	25	14.00	10	3	< 1	0.23	750	7.50	176	100	8	183	8	43	3	3	6
125	186.93	16.0	0.06	210	19.50	< 1	1	< 1	0.27	415	10.20	160	130	2	350	< 1	48	4	4	3
126	187.05	3.7	0.04	6	22.50	< 1	< 1	< 1	0.25	128	11.40	113	155	< 1	180	< 1	72	3	4	4
s 126Ad	186.97	82.2	0.74	96	3.40	8	6	1	0.22	5900	2.10	64	240	10	480	1	18	24	8	10
s 126Al	186.95	28.9	0.70	55	15.00	6	7	1	0.32	7500	9.00	165	310	9	180	< 1	51	30	13	14
127	187.20	6.8	0.06	6	22.00	1	1	< 1	0.33	270	11.20	145	120	1	170	< 1	53	4	3	4
128	187.45	5.4	0.04	5	21.80	< 1	1	< 1	0.30	170	11.90	120	110	2	180	< 1	61	4	3	4
s 129	187.55	54.8	0.65	45	9.50	13	8	1	0.20	5400	5.50	119	230	8	250	< 1	27	20	8	17
130	187.83	5.4	0.03	4	21.40	< 1	1	< 1	0.30	199	11.10	150	90	2	205	< 1	26	3	3	4
s 131	188.15	84.8	0.53	64	2.90	12	5	2	0.21	4100	1.50	47	134	6	271	12	12	14	5	10
132	188.44	6.3	0.04	5	20.95	< 1	1	< 1	0.25	234	12.80	108	98	1	46	< 1	55	4	2	5
s 133	188.52	18.0	0.04	15	19.50	3	4	< 1	0.28	426	10.20	104	110	2	80	5	47	4	3	5
134	188.98	6.1	0.04	5	21.30	< 1	2	< 1	0.24	204	12.50	100	90	1	51	1	58	4	2	6
135	189.23	12.0	0.05	10	19.50	< 1	3	< 1	0.24	336	11.30	95	99	1	77	< 1	59	2	4	4
s 136	189.30	32.0	0.04	27	16.10	5	4	< 1	0.33	544	8.70	110	98	3	81	6	51	3	3	5
137	189.65	4.1	0.03	6	21.70	< 1	2	< 1	0.20	97	12.25	94	117	1	51	< 1	70	2	3	3
s 138	189.80	19.7	0.05	16	19.40	2	4	< 1	0.29	556	10.10	99	193	3	79	3	16	3	3	4
139	190.00	8.1	0.03	5	20.80	1	2	1	0.24	174	11.70	102	117	1	54	2	55	4	3	3
140	190.21	5.5	0.03	5	21.30	< 1	1	1	0.18	173	12.00	110	157	1	54	3	79	5	2	3
141	190.50	5.7	0.02	4	20.90	1	2	< 1	0.16	87	10.75	111	125	2	57	2	78	5	2	3
142	190.66	6.0	0.02	4	21.70	< 1	2	< 1	0.18	105	11.10	105	137	< 1	59	3	81	5	3	3
s 143	190.86	56.2	0.67	79	9.10	10	14	1	0.49	9950	5.00	91	395	12	114	< 1	39	37	18	15

Table 2 (continued).

Sample No.	Depth m	Res. %	Al %	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K ppm	Mg %	Mn ppm	Na ppm	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti ppm	V ppm	Zn ppm
144	191.06	5.6	0.03	4	20.65	< 1	1	1	0.17	152	11.10	91	141	1	38	2	75	6	2	7
145	191.53	8.5	0.15	10	21.00	< 1	3	4	0.22	1210	10.90	98	145	2	40	< 1	77	12	3	8
146	192.23	6.6	0.03	4	21.50	< 1	2	< 1	0.13	177	11.25	83	129	< 1	51	1	70	5	3	6
147	192.90	3.4	0.02	4	22.50	< 1	1	< 1	0.14	89	10.80	92	137	< 1	48	1	66	4	2	6
148	193.00	7.2	0.03	5	19.70	1	2	< 1	0.12	203	11.90	72	153	< 1	55	4	66	8	4	6
149	193.55	3.7	0.05	7	20.50	1	2	2	0.12	231	12.20	68	149	1	31	1	73	6	2	10
150	193.80	4.1	0.02	4	20.90	< 1	1	1	0.12	103	12.70	66	137	< 1	31	< 1	67	4	2	5
151	194.33	4.2	0.03	5	20.40	< 1	1	1	0.11	178	12.20	64	149	< 1	32	3	74	5	3	4
152	194.75	5.2	0.03	4	20.00	< 1	2	< 1	0.12	124	10.85	75	101	< 1	32	1	70	5	2	3
153	195.15	4.8	0.02	9	21.00	< 1	1	< 1	0.15	90	12.40	73	125	< 1	29	1	61	5	5	3
154	195.38	4.8	0.02	5	21.50	< 1	1	< 1	0.14	97	11.50	68	105	< 1	27	< 1	63	6	4	3
155	195.90	4.1	0.02	5	21.80	< 1	2	< 1	0.10	101	11.40	60	137	< 1	35	1	71	5	2	4
156	196.23	3.2	0.03	4	22.00	< 1	1	< 1	0.09	107	11.00	63	105	< 1	39	1	74	5	1	8
157	196.60	2.2	0.02	3	22.30	< 1	1	< 1	0.12	72	12.10	65	125	< 1	27	< 1	64	4	< 1	5
158	197.05	2.2	0.02	3	22.50	< 1	< 1	< 1	0.15	54	11.90	79	125	< 1	23	< 1	64	5	1	4
159	197.73	2.6	0.02	3	22.00	< 1	1	< 1	0.11	47	12.00	79	113	1	33	1	75	5	1	5
160	198.36	3.3	0.12	10	21.60	< 1	2	8	0.16	519	12.60	74	135	2	47	1	79	9	2	18
161	198.70	1.8	0.02	3	22.50	< 1	< 1	< 1	0.14	76	11.50	77	125	2	33	3	65	5	1	8
162	199.15	2.0	0.02	3	22.20	< 1	< 1	< 1	0.13	59	11.90	69	121	< 1	30	1	59	4	< 1	4
163	199.45	2.0	0.02	2	22.50	< 1	2	< 1	0.17	57	11.70	99	85	1	35	2	61	5	< 1	5
164	201.31	1.1	0.02	5	22.70	< 1	1	< 1	0.14	53	11.90	87	105	2	43	3	57	4	< 1	10
165	201.99	1.7	0.02	3	21.50	< 1	1	< 1	0.10	55	12.50	75	145	< 1	45	2	69	5	< 1	15
166	202.15	1.4	0.02	3	22.40	< 1	1	< 1	0.18	51	11.30	109	109	2	38	2	68	4	< 1	13
167	202.50	1.7	0.02	2	22.70	< 1	2	< 1	0.19	64	11.50	113	81	2	49	4	61	5	< 1	7
168	203.73	1.7	0.02	2	22.90	< 1	1	< 1	0.22	36	11.80	113	85	< 1	36	8	49	3	< 1	4
169	205.63	1.8	0.02	2	23.00	1	2	< 1	0.21	60	11.40	111	89	2	42	1	57	4	< 1	9
170	206.89	2.9	0.02	4	22.80	< 1	2	< 1	0.11	77	11.70	78	97	2	51	2	61	5	< 1	8
171	207.14	2.0	0.02	4	22.90	< 1	1	< 1	0.23	78	11.30	122	49	2	32	2	68	3	1	9
172	210.03	6.5	0.01	4	21.10	< 1	< 1	< 1	0.22	46	11.30	101	33	2	18	2	55	2	< 1	9
173	211.33	11.2	0.03	5	20.60	1	2	< 1	0.19	194	9.90	96	65	2	86	2	49	5	< 1	12
174	211.45	14.0	0.05	21	20.50	< 1	2	2	0.26	274	9.50	108	105	2	75	6	58	5	2	9
s 175	211.85	22.2	0.07	23	17.60	3	2	< 1	0.27	920	9.70	112	118	4	162	5	33	4	1	37
176	212.20	16.0	0.05	15	20.40	< 1	3	1	0.22	290	9.70	124	97	2	170	2	66	5	3	4
177	212.30	13.1	0.04	12	20.50	< 1	2	< 1	0.21	212	9.50	110	93	1	130	5	62	4	2	3
178	213.50	27.5	0.07	21	15.20	3	3	2	0.19	404	9.50	140	109	4	200	3	48	4	4	4
179	213.65	16.0	0.05	13	20.80	< 1	3	2	0.25	273	9.40	150	97	2	120	4	52	4	5	12
180	214.05	11.2	0.03	11	21.00	2	2	1	0.17	152	9.60	175	660	5	148	2	71	5	6	9
181	214.25	8.2	0.03	30	21.90	1	1	1	0.25	153	10.10	168	109	3	124	1	71	5	4	34
182	215.07	8.6	0.03	8	21.50	1	1	1	0.25	119	10.50	145	141	2	81	< 1	75	4	2	4
183	215.35	17.8	0.03	22	21.00	1	1	< 1	0.16	357	7.80	102	129	3	103	8	180	3	2	6
184	215.70	6.4	0.01	7	37.50	1	< 1	< 1	0.08	116	0.65	86	105	3	59	< 1	1100	1	1	6
s 185	216.30	14.5	0.75	31	21.70	2	7	7	0.77	6050	8.90	320	285	7	88	< 1	100	25	9	72
186	216.62	10.6	0.03	9	20.95	2	2	< 1	0.57	185	9.70	315	129	3	57	< 1	93	3	2	11
187	219.70	29.4	0.05	41	16.90	2	2	< 1	0.40	387	7.70	179	85	3	166	7	44	3	4	5
188	220.10	36.2	0.05	22	14.50	2	2	< 1	0.37	422	7.50	163	81	3	186	7	40	4	3	4
189	220.20	41.5	0.05	14	12.40	< 1	3	< 1	0.31	497	7.00	146	85	1	240	7	39	3	3	3
s 190	220.35	55.1	0.06	17	9.50	4	2	< 1	0.39	915	4.90	155	98	7	415	38	76	3	4	5
191	221.01	20.0	0.05	56	17.90	< 1	4	< 1	0.41	326	10.50	199	93	1	153	1	50	4	4	5
192	222.08	54.2	0.09	12	8.95	1	3	1	0.18	778	5.15	108	85	2	325	7	39	4	3	2
s 193	222.20	32.6	0.07	9	15.40	6	2	1	0.49	572	8.50	178	98	22	340	50	48	2	5	6
194	222.35	5.9	0.03	51	20.40	< 1	2	< 1	0.35	103	11.50	220	101	< 1	76	< 1	54	3	1	4
195	223.94	11.0	0.03	6	19.70	< 1	3	< 1	0.24	134	11.10	190	137	1	88	< 1	57	3	2	3
s 196	224.52	45.5	0.06	165	11.40	12	2	1	0.23	639	7.00	255	102	12	212	60	40	3	4	6
197	225.40	2.2	0.02	2	20.90	< 1	2	2	0.31	55	12.50	150	101	< 1	36	< 1	48	3	2	4
198	226.00	0.8	0.01	2	22.90	< 1	1	< 1	0.41	31	11.60	165	85	< 1	33	< 1	52	3	2	3
199	227.45	2.8	0.02	2	20.80	< 1	2	< 1	0.29	49	12.70	119	113	< 1	37	< 1	52	4	2	3
200	228.94	0.8	0.02	2	21.30	< 1	2	1	0.29	32	13.40	119	113	< 1	21	< 1	55	3	1	3
201	229.12	0.9	0.01	2	21.50	< 1	1	1	0.29	26	13.50	115	121	< 1	33	1	57	3	1	3
202	229.65	16.4	0.05	16	19.50	1	3	2	0.21	344	10.50	96	121	1	40	1	52	5	4	2
s 203	229.80	85.0	1.00	160	1.95	5	17	5	0.77	10300	1.20	38	360	11	117	12	11	34	17	10
204	229.92	5.6	0.03	4	20.20	< 1	2	< 1	0.23	124	12.10	97	114	1	29	< 1	51	6	5	3
s 205	230.95	42.0	0.07	54	13.00	7	3	< 1	0.29	610	7.10	112	98	5	83	560	46	2	6	8
206	231.25	3.4	0.03	6	21.90	< 1	3	< 1	0.29	128	12.00	95	109	1	36	< 1	70	3	5	4
207	231.37	2.2	0.03	6	22.50	< 1	3	< 1	0.27	95	11.65	98	105	1	32	< 1	64	3	5	5
208	231.72	4.8	0.04	7	21.90	< 1	2	< 1	0.26	206	11.80	105	118	1	40	< 1	60	3	4	6
209	233.08	4.4	0.04	7	21.55	< 1	3	< 1	0.22	216	11.50	80	218	1	40	< 1	80	3	8	4
210	233.60	9.2	0.06	10	21.15	< 1	4	< 1	0.27	405	11.30	80	222	1	43	< 1	62	3	5	5
211	235.25	9.1	0.01	5	19.00	< 1	3	< 1	0.19	61	11.15	98	131	< 1	28	< 1	66	3	2	5
212	235.77	5.1	0.02	3	20.60	< 1	3	< 1	0.17	78	11.60	90	131	1	34	< 1	63	3	4	5
213	236.65	3.0	0.02	5	22.10	< 1	3	< 1	0.17	55	11.50	81	114	1	59	< 1	69	2	5	6
214	236.76	3.7	0.02	15	21.70	< 1	5	< 1	0.15	45	11.80	76	127	< 1	43	< 1	68	3	6	6
215	237.84	2.6	0.02	7	21.20	< 1	5	< 1	0.15	33	11.45	99	127	1	28	< 1	71	3	7	5
216	240.26	3.6	0.03	4	21.90	< 1	4	< 1	0.14	73	11.40	75	164	1	32	< 1	73	3	7	12
217	240.90	1.6	0.02	2	22.10	< 1	7	< 1	0.20	46	12.00	112	109	1	30	< 1	56	3	16	6
218	241.89	4.4	0.03	62	21.60	< 1	7	< 1	0.18	122	12.10	78	151	1	57	< 1	65	3	26	4
219	243.17	2.2	0.03	22	21.90	< 1	3	< 1	0.12	79	11.80	70	151	1	26	< 1	71	2	11	9
220	243.60	0.8	0.02	3	22.30	< 1	3	< 1	0.16	35	12.10	102	118	1	20	< 1	63	3	18	7
221	244.28	1.6	0.02	4	22.50	< 1	6	< 1	0.13	46	12.00	81	147	1	16	22	68	3	18	10

Table 2 (continued).

Sample No.	Depth m	Res. %	Al %	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K ppm	Mg %	Mn ppm	Na ppm	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti ppm	V ppm	Zn ppm
222	247.95	2.0	0.03	200	22.20	< 1	6	< 1	0.14	83	12.50	95	155	2	40	15	77	3	33	13
223	251.00	4.4	0.03	9	20.70	< 1	5	< 1	0.19	139	12.30	95	239	2	34	10	75	3	20	6
224	251.85	0.5	0.02	5	21.40	< 1	4	< 1	0.18	24	12.15	117	143	2	17	< 1	56	2	4	7
225	252.36	2.1	0.02	215	21.25	< 1	3	< 1	0.23	59	12.80	105	126	2	31	< 1	58	2	9	6
226	254.28	0.7	0.04	12	21.60	< 1	4	< 1	0.14	102	13.60	93	185	2	26	3	67	3	6	17
227	255.65	9.4	0.06	20	21.45	< 1	7	< 1	0.23	428	12.40	90	197	3	45	< 1	55	3	15	5
228	256.54	3.0	0.03	33	21.55	< 1	3	< 1	0.26	125	13.20	124	189	1	31	< 1	54	2	4	8
229	256.97	2.8	0.19	12	21.50	< 1	11	< 1	0.27	850	13.00	138	493	7	24	< 1	54	7	6	10
230	257.35	2.8	0.03	19	20.60	< 1	3	< 1	0.28	93	13.60	112	176	2	32	< 1	49	2	6	9
231	259.17	1.5	0.03	4	21.30	< 1	3	< 1	0.28	69	14.45	139	180	1	22	< 1	52	2	7	10
s 232	259.50	37.0	0.14	550	14.00	2	10	< 1	0.25	1190	8.00	102	216	4	160	< 1	46	2	6	10
233	261.05	3.2	0.07	9	20.50	< 1	5	5	0.26	600	13.50	128	180	2	24	< 1	47	5	6	12
234	261.83	7.5	0.03	23	20.10	< 1	8	< 1	0.27	331	12.90	143	193	2	49	< 1	58	4	31	10
235	263.25	2.2	0.02	5	20.00	< 1	2	< 1	0.25	79	13.50	125	176	1	30	< 1	55	2	5	9
s 236	263.54	59.8	0.22	117	8.15	2	4	1	0.27	1645	5.65	66	166	7	215	2	29	3	4	7
237	265.13	0.7	0.02	350	21.50	< 1	2	< 1	0.16	55	13.20	100	151	1	29	< 1	58	2	13	9
s 238	266.80	17.7	0.10	42	18.50	1	3	1	0.32	832	11.10	104	285	4	95	1	55	3	5	9
239	267.46	1.2	0.06	7	21.35	< 1	2	1	0.28	288	13.60	120	247	1	37	< 1	55	3	7	11
240	269.75	24.4	0.08	18	16.00	< 1	8	< 1	0.31	550	10.10	115	180	2	51	< 1	42	3	10	8
241	270.15	12.0	0.04	51	19.00	2	6	< 1	0.34	258	11.70	120	218	2	46	< 1	49	2	6	7
242	270.80	2.5	0.03	17	21.15	< 1	3	< 1	0.28	90	13.35	117	214	2	30	< 1	56	2	4	10
243	271.20	6.1	0.05	12	20.00	< 1	5	< 1	0.28	285	12.70	126	222	2	24	< 1	51	2	4	9
244	272.95	0.4	0.03	9	22.05	< 1	3	< 1	0.20	204	13.40	101	143	1	22	< 1	70	2	6	10
245	273.85	4.7	0.03	16	21.70	< 1	5	< 1	0.25	198	12.90	121	264	2	35	< 1	59	2	6	9
246	276.30	2.3	0.14	14	21.80	< 1	5	4	0.30	700	13.00	122	247	3	30	< 1	57	5	5	13
247	277.98	0.7	0.02	5	21.65	< 1	3	< 1	0.21	53	13.30	101	201	2	22	< 1	55	2	3	8
248	278.75	25.8	0.07	70	15.30	1	8	< 1	0.24	470	10.30	95	176	3	200	1	40	2	10	6
249	279.67	2.0	0.02	4	20.75	< 1	3	< 1	0.19	76	13.20	100	188	2	29	< 1	55	1	7	6
250	280.44	0.4	0.02	4	21.20	< 1	3	2	0.23	53	13.60	128	126	1	20	< 1	52	2	8	9
251	281.40	0.2	0.02	3	22.00	< 1	2	1	0.22	43	13.80	105	134	1	17	< 1	53	1	12	6
252	281.45	0.1	0.02	2	21.15	< 1	2	1	0.20	28	13.50	94	139	1	19	< 1	52	1	11	6
253	282.71	7.6	0.06	30	21.20	< 1	6	1	0.30	340	11.70	145	105	3	55	< 1	50	2	10	12
254	285.05	5.0	0.05	14	21.50	< 1	4	< 1	0.22	233	12.00	120	188	2	33	2	57	1	9	9
255	286.33	0.6	0.02	2	20.95	< 1	2	< 1	0.15	41	13.60	80	126	2	22	1	54	2	34	10
256	287.83	3.2	0.03	11	20.50	< 1	3	< 1	0.25	131	13.05	190	176	2	34	< 1	60	2	8	7
257	289.07	3.4	0.03	7	20.70	< 1	3	< 1	0.24	119	13.00	107	172	2	36	1	53	2	11	8
258	289.62	30.4	0.15	48	15.10	1	4	1	0.49	1720	9.20	105	256	2	85	< 1	45	5	8	7
259	290.37	0.7	0.02	6	21.30	< 1	1	< 1	0.27	38	13.50	135	178	1	30	< 1	56	2	6	7
260	291.15	4.5	0.03	7	20.30	< 1	3	< 1	0.30	153	13.20	128	199	1	49	< 1	60	2	10	8
261	291.26	4.6	0.04	8	20.50	< 1	5	< 1	0.36	165	12.70	148	299	1	35	< 1	70	3	5	9
s 262	292.30	84.0	0.19	41	2.70	5	1	4	0.21	1320	2.15	31	86	18	375	6	17	2	2	17
263	292.60	6.0	0.04	7	20.80	< 1	3	1	0.29	188	12.60	136	195	2	54	< 1	59	3	6	10
264	293.46	2.6	0.03	6	21.00	< 1	2	1	0.30	100	13.50	141	219	1	20	< 1	66	3	4	9
s 265	294.80	53.0	0.17	85	10.05	< 1	2	< 1	0.25	1550	6.20	64	189	4	340	6	37	3	3	5
266	295.29	1.8	0.03	5	21.10	1	3	< 1	0.24	73	13.60	121	170	2	35	1	58	2	4	8
s 267	295.95	24.0	0.14	18	16.50	< 1	2	< 1	0.38	1190	9.80	40	285	8	84	< 1	60	3	5	11
268	296.40	1.5	0.02	4	21.40	1	2	1	0.28	96	13.70	132	199	1	27	1	63	2	3	8
269	297.77	0.5	0.02	8	21.80	1	3	2	0.21	35	13.50	119	378	2	21	9	89	2	2	8
270	298.85	0.4	0.02	7	21.50	1	3	2	0.18	44	13.30	112	456	2	26	15	100	2	4	9
271	299.60	2.7	0.03	10	21.20	1	3	1	0.25	121	12.90	117	235	2	43	4	67	2	6	9
272	299.92	1.0	0.02	4	21.75	< 1	2	1	0.22	62	13.00	118	162	1	23	1	62	2	14	6
273	301.10	1.1	0.02	4	21.80	1	3	1	0.21	41	13.00	145	154	1	32	1	62	2	14	6
274	303.15	2.3	0.03	5	21.10	1	2	< 1	0.13	101	12.70	77	170	2	47	< 1	68	3	35	5
275	305.80	2.4	0.03	6	21.30	1	3	2	0.12	91	12.70	80	239	1	38	2	73	3	32	4
276	306.80	1.6	0.03	3	20.95	< 1	2	1	0.10	67	12.65	68	215	1	37	2	71	2	28	4
277	307.55	5.3	0.05	10	20.75	1	3	1	0.13	230	12.50	73	207	2	68	1	66	3	12	4
278	308.10	2.3	0.03	5	21.20	1	4	1	0.09	86	13.15	68	256	2	40	1	79	2	37	4
279	310.02	0.8	0.02	3	21.30	1	2	< 1	0.10	33	13.85	64	178	1	23	1	65	2	7	4
280	311.34	0.2	0.02	4	21.55	1	2	< 1	0.09	22	13.90	65	239	1	30	2	80	2	29	4
281	312.10	1.5	0.03	3	21.90	1	2	< 1	0.09	86	13.60	61	260	1	32	< 1	68	2	8	4
282	313.58	2.1	0.02	5	21.70	1	2	< 1	0.15	68	13.35	90	187	1	23	1	57	1	8	5
283	314.36	4.0	0.03	7	20.90	1	3	< 1	0.25	138	13.45	140	199	2	43	1	60	3	10	6
s 284	314.86	31.8	0.12	22	14.60	1	3	< 1	0.72	1380	9.00	151	146	3	135	1	53	4	5	8
285	315.16	3.3	0.03	5	20.90	1	3	< 1	0.24	107	13.00	105	207	2	33	< 1	59	3	7	5
s 286	315.52	97.7	0.13	450	0.26	< 1	< 1	1	0.04	1380	0.18	1	63	3	560	11	11	1	1	2
287	315.76	0.6	0.02	3	21.80	< 1	2	< 1	0.16	28	13.50	70	203	< 1	39	3	71	2	15	5
288	317.05	9.4	0.05	9	19.60	2	3	< 1	0.23	249	12.00	88	227	3	115	20	70	6	10	5
289	317.53	1.6	0.02	4	21.10	2	3	< 1	0.16	66	13.10	72	182	1	57	34	72	2	15	5
290	318.50	7.1	0.04	11	20.15	1	3	< 1	0.27	198	12.50	110	175	2	56	2	54	4	10	5
291	318.87	1.1	0.02	2	21.85	1	2	< 1	0.21	34	14.00	76	179	1	27	1	61	2	22	4
292	321.43	8.0	0.04	10	20.10	1	3	< 1	0.23	215	12.40	84	192	2	60	1	64	3	15	4
293	322.60	3.5	0.03	5	21.00	1	3	< 1	0.13	118	13.15	64	221	1	57	1	67	3	8	4
294	322.90	1.8	0.03	2	21.40	1	2	< 1	0.13	90	13.00	65	196	2	40	1	61	2	13	4
295	323.70	1.3	0.02	1	21.25	< 1	2	< 1	0.12	52	13.45	76	157	1	45	1	66	2	18	4
296	324.80	0.4	0.02	1	21.35	1	2	< 1	0.09	26	13.70	82	175	< 1	25	< 1	57	1	5	3
297	326.55	0.4	0.02	1	21.70	1	2	< 1	0.10	38	13.30	72	179	1	40	4	65	1	24	3
298	327.31	1.2	0.02	2	21.00	< 1	3	< 1	0.11	57	13.10	92	153	< 1	21	1	64	2	70	3
299	328.06	0.2	0.02	2	22.70	< 1	1	< 1	0.06	78	12.50	67	229	< 1	24	3	68	1	10	2
300	329.04	1.1	0.02	1	22.20	< 1	3	< 1	0.08	36	12.80	69	149	1	34	5	40	< 1	71	3
301	329.60	0.2	0.02	3	23.25	1	3	1	0.08	36	13.00	67	196	2	24	3	56	2	11	3

Table 3.
ICP and AAS analysis of common and trace elements from core Gartnerkofel-1.
First supplementary samples.

Sample No.	Depth m	Res. %	Al %	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K ppm	Mg %	Mn ppm	Na ppm	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti ppm	V ppm	Zn ppm
190A	220.50 - 220.53	18.2	0.03	8	18.90	2	4	1	0.48	233	10.15	183	136	3	194	5	52	4	5	5
190B	220.72 - 220.76	20.8	0.03	9	18.20	1	4	< 1	0.46	198	9.60	195	140	2	135	4	50	4	5	4
190C	220.88 - 220.92	31.2	0.03	9	15.70	2	4	1	0.34	306	9.00	176	115	2	186	6	46	3	3	4
191A	221.16 - 221.20	20.0	0.04	35	19.20	1	1	< 1	0.43	234	10.00	188	104	< 1	131	1	82	4	5	4
191B	221.32 - 221.35	24.2	0.03	19	17.40	2	4	1	0.37	305	9.20	190	115	2	155	6	45	4	3	4
191C	221.35 - 221.39	29.4	0.03	7	16.00	1	4	1	0.32	338	8.40	174	115	3	177	7	42	2	3	1
191D	221.52 - 221.56	34.6	0.04	10	14.80	1	4	< 1	0.27	384	8.00	155	111	4	197	5	53	4	4	3
191E	221.78 - 221.82	32.0	0.02	7	14.75	1	3	1	0.35	239	8.00	154	94	2	130	6	66	3	4	3
191F	222.03 - 222.06	30.2	0.04	7	15.85	1	2	< 1	0.28	344	9.10	123	115	2	187	6	48	3	5	4
192A	222.13 - 222.16	13.3	0.03	5	20.10	< 1	1	< 1	0.24	160	10.65	138	165	2	150	7	65	3	4	2
193A	222.25 - 222.28	5.8	0.02	4	21.50	1	< 1	< 1	0.29	86	11.50	131	128	1	72	1	64	3	3	1
194A	222.44 - 222.48	11.2	0.03	5	20.00	< 1	< 1	< 1	0.27	128	10.95	109	136	1	67	1	59	3	3	1
194B	222.62 - 222.66	9.5	0.02	5	21.10	< 1	< 1	1	0.30	102	11.45	109	132	1	59	2	60	3	2	2
194C	223.00 - 223.03	16.0	0.03	7	19.40	1	2	< 1	0.24	183	10.55	154	132	2	113	2	60	3	3	2
194D	223.31 - 223.35	7.1	0.02	5	21.00	< 1	1	< 1	0.27	75	11.90	207	124	< 1	74	1	69	3	2	8
194E	223.69 - 223.73	7.1	0.02	5	21.20	< 1	1	< 1	0.23	70	11.45	195	136	< 1	88	1	63	3	2	3
195A	224.02 - 224.06	15.2	0.03	8	19.60	1	2	< 1	0.23	174	10.30	185	128	< 1	112	2	57	3	3	4
195B	224.35 - 224.38	12.6	0.03	8	19.30	2	1	< 1	0.26	180	11.50	190	109	< 1	72	5	51	3	3	3
196A	224.70 - 224.75	4.4	0.02	110	21.40	< 1	1	< 1	0.33	69	12.00	214	120	< 1	43	1	57	3	7	5
196B	224.99 - 225.03	1.8	0.02	5	21.70	< 1	< 1	< 1	0.37	32	12.90	178	116	< 1	35	< 1	54	2	1	6
196C	225.20 - 225.24	3.0	0.02	4	21.30	< 1	< 1	< 1	0.34	64	12.30	152	116	< 1	40	< 1	54	3	2	5
197A	225.62 - 225.66	1.2	0.02	7	21.70	< 1	< 1	< 1	0.35	27	12.80	148	112	< 1	24	< 1	49	2	2	7
197B	225.82 - 225.86	1.1	0.02	3	21.80	< 1	< 1	< 1	0.38	24	12.85	148	126	< 1	23	< 1	50	2	1	4
198A	226.10 - 226.14	0.8	0.02	3	21.60	< 1	< 1	< 1	0.41	24	12.90	164	124	< 1	24	< 1	50	2	1	5
198B	226.50 - 226.53	1.8	0.01	3	21.20	< 1	< 1	< 1	0.38	16	12.50	150	120	< 1	19	< 1	45	1	1	4
198C	227.00 - 227.04	0.7	0.02	4	22.10	1	< 1	< 1	0.25	34	12.70	108	132	< 1	25	< 1	59	3	1	3
199A	227.75 - 227.79	0.4	0.01	3	21.70	< 1	< 1	< 1	0.30	20	13.20	120	153	< 1	24	< 1	55	1	1	4
199B	228.02 - 228.06	0.5	0.01	4	21.50	< 1	< 1	< 1	0.32	16	13.40	132	153	< 1	22	< 1	51	1	1	4
199C	228.50 - 228.55	0.6	0.01	3	21.50	< 1	< 1	< 1	0.28	16	12.90	112	120	< 1	20	< 1	53	1	1	3
199D	228.61 - 228.66	0.4	0.01	2	21.00	< 1	< 1	< 1	0.29	16	13.50	112	116	< 1	18	< 1	51	1	1	3
201A	229.19 - 229.24	4.9	0.01	3	20.80	1	< 1	< 1	0.29	15	12.90	116	107	< 1	14	< 1	54	1	1	4
202A	229.72 - 229.76	7.4	0.02	9	20.20	< 1	1	< 1	0.23	87	12.50	105	128	< 1	32	< 1	61	4	4	3
204A	230.01 - 230.06	7.8	0.03	7	20.20	< 1	1	< 1	0.24	106	12.45	102	128	< 1	39	< 1	56	4	4	3
204B	230.44 - 230.48	4.2	0.02	5	20.90	< 1	1	< 1	0.24	66	13.10	91	116	< 1	31	< 1	61	4	4	3
204C	230.58 - 230.62	4.2	0.02	27	20.70	1	1	< 1	0.23	52	12.90	88	136	< 1	23	< 1	60	4	3	3

Table 4.
ICP and AAS analysis of common and trace elements from core Gartnerkofel-1.
Second supplementary samples.

	Res. %	Al %	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K ppm	Mg %	Mn ppm	Na ppm	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti ppm	V ppm	Zn ppm
251.20m	7.3	0.05	15	21.15	1	4	< 1	0.20	283	11.40	86	203	1	45	7	76	4	7	7
251.40m	2.2	0.03	8	22.10	1	4	< 1	0.18	89	12.00	97	167	1	33	12	72	4	19	6
251.60m	5.6	0.05	13	21.40	1	3	< 1	0.24	230	11.25	88	147	1	36	6	80	3	9	5
251.75m	0.9	0.02	173	22.00	< 1	3	< 1	0.18	45	12.70	108	159	1	21	5	74	3	7	7
251.95m	6.6	0.04	15	21.45	< 1	4	< 1	0.23	150	11.25	113	179	1	63	3	67	3	5	5
252.40m	5.4	0.03	13	20.70	< 1	3	< 1	0.23	165	11.90	120	171	2	68	2	65	3	4	6
252.30m	2.8	0.03	64	22.10	< 1	2	< 1	0.24	81	12.10	120	147	< 1	37	3	69	3	4	5
252.70m	2.3	0.02	17	22.10	< 1	2	< 1	0.15	35	12.30	87	187	1	24	1	72	3	4	3
252.95m	1.2	0.02	7	21.90	< 1	2	< 1	0.14	27	12.40	71	203	1	22	2	73	2	5	3
253.00m	0.8	0.02	5	22.30	1	3	< 1	0.20	25	12.40	156	127	1	13	4	53	2	5	6
253.20m	0.8	0.02	12	22.30	1	3	1	0.18	28	12.65	126	155	< 1	23	2	56	3	5	5
253.55m	0.8	0.02	5	22.60	1	4	1	0.10	43	12.50	75	183	1	26	11	70	4	8	8
253.75m	0.6	0.02	4	22.50	1	3	2	0.16	27	12.20	108	131	1	19	7	60	3	10	6
253.95m	1.3	0.03	8	22.20	1	5	2	0.13	44	12.40	102	191	2	36	14	74	4	10	13
254.15m	2.1	0.03	12	22.20	1	5	2	0.16	95	12.50	107	163	1	34	18	67	4	28	8
313.65m	1.8	0.02	5	21.50	1	2	2	0.14	89	13.20	93	147	1	27	3	53	3	10	4
313.75m	0.9	0.02	3	22.00	1	3	1	0.12	43	12.90	87	155	1	28	6	57	3	13	3
313.85m	1.8	0.02	5	21.70	1	3	2	0.11	86	12.50	75	187	1	30	10	62	3	16	3
313.95m	1.8	0.02	4	21.60	1	3	2	0.15	73	12.60	87	183	1	32	3	60	2	9	4
314.05m	1.5	0.02	4	22.00	1	3	2	0.16	70	13.10	88	175	1	30	3	59	3	12	3
314.20m	2.8	0.03	7	21.60	< 1	2	2	0.13	156	12.40	85	215	< 1	36	9	66	3	26	2
314.40m	4.0	0.04	6	21.20	< 1	4	2	0.27	212	12.40	153	171	< 1	49	2	58	4	12	4
314.50m	5.3	0.04	5	20.90	< 1	3	1	0.36	253	12.10	197	167	1	75	1	56	4	12	7
314.64m	4.3	0.04	9	20.80	< 1	3	2	0.26	200	12.00	156	199	< 1	57	1	66	5	8	4
314.70m	7.9	0.04	10	20.60	< 1	3	1	0.31	314	11.90	152	167	< 1	62	1	55	4	10	4
314.80m	11.5	0.05	8	19.70	< 1	3	2	0.22	425	11.50	107	171	< 1	67	1	58	4	8	2

Table 5.
Analysis for C and S components core Gartnerkofel-1.
ins = insoluble in HCl; s = standard deviation.

Sample No.	Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(ins.)}$ in ppm		$S_{HCl\ sol}$ %
		x	s	x	s		x	s	x	s	
1	57.53	3.68	0.05	0.074	0.008	98	157	2	7	2	96
2	58.81	11.90	0.10	0.098	0.003	99	205	10	118	15	42
3	60.88	9.29	0.04	0.061	0.004	99	217	7	40	4	82
4	61.65	8.40	0.06	0.104	0.008	99	190	20	22	2	88
5	63.00	7.96	0.03	0.140	0.005	98	169	11	10	2	94
6	64.95	10.65	0.10	0.075	0.010	99	212	5	70	3	67
7	65.70	11.20	0.08	0.053	0.004	99	200	20	55	5	73
8	70.62	10.31	0.11	0.050	0.001	99	158	12	70	6	56
9	71.70	7.95	0.10	0.057	0.006	99	170	15	25	5	85
10	72.10	8.83	0.05	0.071	0.008	99	215	15	144	15	33
11	73.75	9.85	0.02	0.071	0.009	99	210	20	75	5	64
s 12	74.40	2.75	0.05	0.058	0.001	98	120	15	25	5	79
13	75.32	8.80	0.01	0.075	0.014	99	196	7	50	10	77
s 14	75.90	5.10	0.01	0.072	0.011	98	140	15	20	4	86
s 15	76.30	6.90	0.08	0.079	0.002	99	170	13	60	10	65
17	79.67	10.25	0.08	0.064	0.001	99	210	10	80	8	62
18	81.52	9.54	0.01	0.062	0.006	99	340	30	300	20	13
s 19	82.60	1.11	0.01	0.103	0.007	91	136	8	20	4	85
20	82.85	11.97	0.11	0.082	0.004	99	47	2	40	2	15
21	84.37	12.25	0.10	0.070	0.015	99	55	7	50	4	9
22	86.26	10.04	0.07	0.061	0.009	99	140	15	35	5	75
23	86.92	10.89	0.05	0.060	0.007	99	99	1	90	2	9
24	88.85	11.86	0.03	0.062	0.004	99	78	3	60	7	23
s 25	90.30	5.45	0.05	0.150	0.015	97	167	2	95	15	43
26	90.56	8.00	0.07	0.141	0.001	98	220	20	55	5	75
27	95.17	6.25	0.12	0.136	0.010	98	225	25	140	20	38
28	95.30	4.70	0.08	0.110	0.010	97	240	20	75	7	69
s 29	95.90	4.02	0.02	0.120	0.015	99	220	20	80	6	64
30	96.05	11.10	0.13	0.097	0.009	99	186	1	86	4	54
s 31	97.40	4.12	0.04	0.114	0.004	97	290	15	130	10	55
32	99.46	5.45	0.05	0.765	0.009	86	300	15	250	20	17
33	100.42	11.75	0.10	0.098	0.005	99	110	2	90	2	18
s 34	102.39	11.00	0.10	0.065	0.007	99	217	15	80	4	63
35	102.93	11.70	0.10	0.070	0.001	99	252	17	154	9	39
36	103.45	12.25	0.10	0.069	0.001	99	115	7	86	2	25
s 37	103.78	9.30	0.10	0.098	0.003	99	340	15	140	12	59
38	105.32	9.60	0.15	0.099	0.009	99	348	5	191	1	45
39	105.90	10.50	0.10	0.080	0.008	99	310	10	237	4	24
40	107.75	11.80	0.12	0.095	0.015	99	100	10	73	8	27
41	110.02	10.90	0.10	0.090	0.006	99	175	15	90	7	49
42	111.42	11.70	0.11	0.070	0.009	99	160	14	85	5	47
43	112.43	11.78	0.05	0.065	0.010	99	110	7	80	6	27
44	113.20	10.40	0.10	0.080	0.011	99	280	13	140	8	50
s 44A	-114.00	10.24	0.03	0.065	0.012	99	290	15	126	6	57
45	114.10	9.80	0.05	0.060	0.010	99	230	17	105	7	54
46	115.95	12.60	0.05	0.115	0.010	99	72	8	50	5	31
47	117.70	11.90	0.10	0.125	0.011	99	77	11	66	6	14
48	118.64	12.40	0.10	0.235	0.013	98	55	7	45	5	18
49	119.27	12.62	0.05	0.120	0.010	99	70	7	60	6	14
50	123.50	12.70	0.10	0.060	0.005	99	60	5	53	4	12
52	127.04	10.35	0.05	0.075	0.004	99	170	10	156	4	8
53	127.40	7.90	0.10	0.105	0.005	99	270	15	200	5	26
54	127.46	8.50	0.10	0.112	0.006	99	310	10	245	6	21
55	127.55	7.72	0.05	0.205	0.010	97	3850	100	3750	50	3
56	130.10	11.80	0.03	0.090	0.003	99	190	15	125	5	34
57	130.40	12.10	0.05	0.080	0.004	99	70	5	60	6	14
58	130.55	12.37	0.03	0.065	0.008	99	19	2	20	5	0
s 59	134.53	4.75	0.05	0.195	0.005	96	200	5	109	10	46
60	136.50	11.84	0.07	0.105	0.002	99	168	2	160	3	5
61	137.23	11.72	0.01	0.104	0.003	99	160	15	115	5	28
63	138.96	9.05	0.05	0.130	0.006	99	246	2	235	3	5
64	140.60	10.60	0.05	0.161	0.007	98	140	10	130	3	7
65	141.54	11.00	0.10	0.093	0.001	99	145	5	140	2	3
s 66	142.74	8.90	0.10	0.129	0.002	99	170	10	164	2	4
67	143.26	12.00	0.10	0.084	0.002	99	200	15	180	10	10
68	144.33	11.80	0.10	0.073	0.001	99	150	15	139	5	7
s 69	146.08	10.50	0.10	0.122	0.001	99	225	10	183	5	19
70	146.65	12.00	0.10	0.098	0.002	99	120	15	110	5	8
71	147.60	11.20	0.10	0.195	0.003	99	210	10	185	4	12
72	149.34	11.30	0.10	0.110	0.005	99	196	5	165	4	16

Table 5 (continued).

Sample No.	Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(ins.)}$ in ppm		$S_{HCl\ sol.}$ %
		x	s	x	s		x	s	x	s	
73	149.61	11.70	0.10	0.105	0.008	99	215	10	210	3	2
s 74	152.57	6.87	0.10	0.087	0.003	99	150	10	65	5	57
75	152.69	8.90	0.09	0.085	0.002	99	390	20	45	3	88
76	152.80	10.20	0.10	0.128	0.005	99	130	5	107	4	18
77	153.50	11.40	0.10	0.110	0.006	99	340	20	320	10	6
78	154.11	10.50	0.05	0.120	0.007	99	240	20	220	9	8
79	158.33	12.70	0.10	0.055	0.005	99	65	10	55	6	15
80	161.04	12.40	0.10	0.065	0.008	99	110	10	102	3	7
81	162.36	12.60	0.10	0.085	0.010	99	260	20	220	10	15
s 81B	163.50	6.40	0.05	0.102	0.002	98	220	13	170	8	23
s 82	163.88	7.45	0.05	0.122	0.005	98	285	5	215	5	25
83	164.32	12.45	0.10	0.105	0.004	99	90	5	84	3	7
84	164.60	11.40	0.10	0.098	0.002	99	110	10	80	5	27
85	166.35	11.70	0.11	0.097	0.003	99	293	4	250	10	15
s 86	167.98	7.70	0.10	0.107	0.004	98	160	4	111	6	31
87	168.78	11.50	0.11	0.120	0.006	99	147	12	84	6	43
88	169.10	11.90	0.10	0.045	0.004	99	125	11	76	4	39
89	171.33	12.20	0.10	0.065	0.006	99	158	2	130	10	18
90	173.53	11.70	0.10	0.062	0.005	99	120	15	112	3	7
92	174.90	9.90	0.05	0.056	0.002	99	284	14	211	4	26
93	175.10	11.05	0.10	0.063	0.003	99	260	25	239	5	8
94	176.37	12.69	0.03	0.090	0.010	99	30	10	30	5	0
95	177.43	12.50	0.05	0.075	0.008	99	74	12	65	5	12
96	177.42	12.55	0.04	0.078	0.004	99	76	2	68	6	11
97	179.64	12.25	0.05	0.077	0.003	99	93	15	80	5	14
98	180.33	12.05	0.10	0.270	0.004	98	75	15	65	6	13
99	181.37	8.90	0.05	0.133	0.005	98	365	3	315	10	14
s 100	181.57	4.75	0.05	0.216	0.016	95	306	6	40	5	87
s 101	182.00	6.16	0.05	0.161	0.006	97	12400	500	10500	300	15
103	182.20	11.70	0.05	0.088	0.005	99	230	20	185	10	20
104A	182.70	12.20	0.10	0.086	0.005	99	150	10	120	10	20
s 104B	183.28	6.54	0.03	0.235	0.015	96	510	30	210	15	59
105	183.40	11.94	0.07	0.081	0.006	99	220	5	170	10	23
s 106	183.51	7.76	0.01	0.248	0.002	97	322	4	230	20	29
107	183.61	11.87	0.03	0.102	0.009	99	309	11	285	10	8
108	183.97	11.98	0.03	0.088	0.002	99	220	11	210	5	5
109	184.17	11.08	0.02	0.112	0.007	99	228	4	215	5	6
110	184.43	12.00	0.02	0.073	0.009	99	162	1	150	10	7
111	184.72	12.53	0.02	0.065	0.005	99	74	8	70	5	5
112	184.80	12.00	0.15	0.120	0.010	99	165	2	122	2	26
s 112	184.93	4.58	0.10	0.458	0.032	90	978	22	760	60	22
113	184.96	11.90	0.20	0.089	0.016	99	153	2	137	2	10
114	185.26	11.81	0.09	0.065	0.001	99	210	18	150	1	29
115	185.30	11.75	0.01	0.152	0.017	99	237	1	202	6	15
116	185.51	11.74	0.03	0.108	0.014	99	201	8	117	3	42
s 117	185.57	0.39	0.03	0.384	0.011	1	126000	200	47500	6500	62
118	185.65	10.44	0.11	0.083	0.013	99	3285	65	3100	50	6
s 118B	185.80	1.13	0.02	0.261	0.060	86	23900	700	18200	500	24
119	185.96	9.00	0.03	0.164	0.020	98	8405	35	7835	15	7
120	186.15	11.16	0.09	0.068	0.001	99	550	7	540	5	2
121	186.47	9.69	0.07	0.124	0.004	99	4980	57	4850	100	3
s 121	186.50	6.56	0.06	0.160	0.009	97	5540	112	5320	110	4
122	186.77	11.31	0.04	0.180	0.007	98	159	7	95	5	40
123	186.80	11.35	0.15	0.111	0.025	99	154	5	82	5	47
s 124	186.85	7.78	0.10	0.151	0.011	98	204	20	109	8	47
125	186.93	10.60	0.10	0.099	0.008	99	200	20	105	10	48
126	187.05	12.05	0.02	0.057	0.004	99	98	10	80	5	18
s 126Ad	186.97	8.45	0.03	0.199	0.006	98	215	15	118	1	45
s 126Al	186.95	2.07	0.03	0.316	0.004	85	210	15	118	5	44
127	187.20	11.98	0.01	0.140	0.035	99	125	12	70	5	5
128	187.45	12.20	0.10	0.061	0.005	99	120	9	65	5	46
s 129	187.55	5.68	0.05	0.195	0.010	96	168	5	90	7	46
130	187.83	11.87	0.12	0.118	0.008	99	110	3	75	5	32
s 131	188.15	1.91	0 04	0.444	0.010	77	181	15	132	6	27
132	188.44	11.91	0.07	0.080	0.010	99	103	3	76	1	26
s 133	188.52	10.24	0.10	0.113	0.004	99	155	11	140	5	10
134	188.98	11.84	0.06	0.110	0.010	99	134	6	80	11	40
135	189.23	11.40	0.06	0.115	0.011	99	230	2	185	15	20
s 136	189.30	8.39	0.08	0.268	0.003	97	177	1	136	7	23
137	189.65	12.36	0.02	0.068	0.008	99	113	7	86	5	23
s 138	189.80	10.18	0.09	0.135	0.015	99	230	10	143	15	38
139	190.00	11.76	0.13	0.075	0.011	99	135	3	90	13	33
140	190.21	12.09	0.08	0.066	0.014	99	306	9	215	10	30
141	190.50	12.12	0.10	0.080	0.010	99	343	8	275	25	23

Table 5 (continued).

Sample No.	Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(ins.)}$ in ppm		$S_{HCl\ sol.}$ %
		x	s	x	s		x	s	x	s	
142	190.66	12.10	0.07	0.081	0.009	99	364	17	295	20	19
s 143	190.86	5.40	0.02	0.559	0.002	90	270	17	245	5	9
144	191.06	12.57	0.10	0.336	0.011	97	151	15	80	20	47
145	191.53	11.52	0.08	0.130	0.009	99	167	15	145	12	31
146	192.23	12.00	0.06	0.085	0.010	99	200	1	150	8	25
147	192.90	12.55	0.07	0.095	0.010	99	250	2	210	10	16
148	193.00	12.07	0.01	0.135	0.012	99	242	5	152	7	37
149	193.55	12.45	0.10	0.125	0.010	99	123	3	110	5	11
150	193.80	12.49	0.11	0.090	0.009	99	115	14	60	15	50
151	194.33	12.47	0.03	0.088	0.008	99	275	20	223	6	19
152	194.75	12.20	0.08	0.087	0.009	99	251	21	230	15	8
153	195.15	12.20	0.05	0.071	0.008	99	155	15	140	10	10
154	195.38	12.17	0.05	0.075	0.009	99	151	7	135	9	11
155	195.90	12.50	0.06	0.080	0.010	99	224	4	185	10	17
156	196.23	12.50	0.03	0.070	0.005	99	180	9	175	5	3
157	196.60	12.50	0.07	0.073	0.007	99	65	1	45	7	30
158	197.05	12.50	0.10	0.092	0.007	99	90	10	82	4	9
159	197.73	12.50	0.12	0.100	0.010	99	67	1	50	8	25
160	198.36	12.05	0.10	0.225	0.011	98	155	5	130	6	16
161	198.70	12.63	0.01	0.085	0.007	99	81	8	77	3	5
162	199.15	12.48	0.02	0.090	0.010	99	40	7	35	3	13
163	199.45	12.23	0.06	0.115	0.005	99	32	1	30	3	6
164	201.31	12-70	0.01	0.109	0.002	99	48	6	45	5	6
165	201.99	12.65	0.05	0.084	0.006	99	37	9	30	6	19
166	202.15	12.75	0.05	0.090	0.010	99	30	5	25	5	17
167	202.50	12.60	0.10	0.085	0.005	99	40	8	35	4	13
168	203.73	12.55	0.10	0.075	0.005	99	20	5	20	5	0
169	205.63	12.62	0.10	0.077	0.006	99	20	5	20	5	0
170	206.89	12.40	0.04	0.095	0.010	99	27	5	25	5	7
171	207.14	12.91	0.09	0.165	0.003	99	31	6	30	5	3
172	210.03	12.20	0.04	0.070	0.008	99	16	1	20	5	0
173	211.33	11.41	0.07	0.118	0.010	99	69	2	65	6	6
174	211.45	11.17	0.04	0.164	0.004	99	113	2	110	5	3
s 175	211.85	9.90	0.09	0.132	0.010	99	132	2	105	10	20
176	212.20	10.53	0.08	0.110	0.010	99	141	13	135	3	4
177	212.30	11.14	0.04	0.090	0.009	99	114	4	85	8	25
178	213.50	9.46	0.11	0.125	0.004	99	210	4	160	15	24
179	213.65	10.78	0.01	0.117	0.001	99	151	5	125	2	17
180	214.05	11.63	0.04	0.158	0.015	99	283	8	162	8	43
181	214.25	11.73	0.10	0.104	0.011	99	222	17	164	1	26
182	215.07	11.74	0.02	0.163	0.004	99	495	35	450	30	9
183	215.35	10.80	0.08	0.192	0.002	98	6680	20	6220	90	7
184	215.70	10.90	0.09	0.107	0.029	99	2285	35	2180	60	5
s 185	216.30	9.80	0.15	0.253	0.011	97	3540	25	3200	100	10
186	216.62	11.50	0.07	0.118	0.032	99	670	20	620	30	7
187	219.70	8.95	0.01	0.149	0.006	98	5120	10	5070	20	1
188	220.10	8.36	0.03	0.166	0.022	98	5655	95	5380	60	5
189	220.20	7.81	0.08	0.165	0.016	98	6590	60	6500	200	6
s 190	220.35	6.27	0.01	0.550	0.020	91	16700	100	14200	200	15
191	221.01	10.10	0.07	0.097	0.004	99	5440	50	5350	50	2
192	222.08	6.30	0.02	0.395	0.012	94	12300	100	11200	300	9
s 193	222.20	8.44	0.08	0.354	0.020	96	33100	100	24000	1000	27
194	222.35	12.25	0.07	0.149	0.003	99	182	8	128	4	30
195	223.94	11.60	0.12	0.065	0.001	99	191	6	115	2	40
s 196	224.52	7.14	0.03	0.275	0.025	96	305	3	270	15	11
197	225.40	12.80	0.10	0.106	0.015	99	45	5	40	5	11
198	226.00	12.66	0.11	0.065	0.002	99	18	5	20	4	0
199	227.45	12.70	0.15	0.110	0.015	99	30	1	25	5	16
200	228.94	12.74	0.04	0.150	0.020	99	18	2	20	4	0
201	229.12	12.86	0.08	0.065	0.007	99	18	5	20	5	0
202	229.65	10.67	0.10	0.112	0.008	99	107	15	105	6	0
s 203	229.80	1.40	0.03	0.356	0.021	75	680	20	550	15	19
204	229.92	12.45	0.13	0.084	0.007	99	120	10	94	14	22
s 205	230.95	7.60	0.10	0.367	0.006	95	271	11	153	13	44
206	231.25	12.18	0.08	0.067	0.005	99	148	8	85	7	43
207	231.37	12.67	0.03	0.054	0.001	99	120	8	75	9	38
208	231.72	11.98	0.04	0.059	0.002	99	134	12	70	5	48
209	233.08	12.16	0.02	0.084	0.003	99	255	15	118	7	42
210	233.60	11.47	0.09	0.082	0.008	99	345	10	181	2	48
211	235.25	12.80	0.15	0.061	0.002	99	190	14	140	10	26
212	235.77	12.49	0.07	0.149	0.003	99	201	15	190	8	10
213	236.65	12.50	0.05	0.060	0.008	99	130	5	75	7	42

Table 5 (continued).

Sample No.	Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(ins.)}$ in ppm		$S_{HCl\ sol.}$ %
		x	s	x	s		x	s	x	s	
214	236.76	12.60	0.10	0.066	0.006	99	145	15	90	12	38
215	237.84	12.80	0.10	0.068	0.003	99	135	5	85	13	37
216	240.26	12.49	0.01	0.059	0.004	99	110	10	99	6	10
217	240.90	12.80	0.10	0.061	0.006	99	60	5	55	3	8
218	241.89	12.34	0.09	0.085	0.010	99	180	17	160	7	11
219	243.17	12.65	0.08	0.068	0.001	99	130	7	120	9	8
220	243.60	12.70	0.05	0.073	0.002	99	105	10	98	4	7
221	244.28	12.72	0.04	0.095	0.008	99	150	1	140	6	7
222	247.95	12.45	0.10	0.163	0.008	99	155	15	150	1	3
223	251.00	12.44	0.08	0.307	0.007	98	183	9	175	5	4
224	251.85	13.12	0.04	0.150	0.004	99	58	5	55	3	5
225	252.36	12.48	0.01	0.077	0.003	99	120	10	117	3	3
226	254.28	12.50	0.03	0.108	0.007	99	150	15	120	10	20
227	255.65	10.35	0.05	0.128	0.004	99	6850	250	6600	100	4
228	256.54	11.95	0.01	0.088	0.009	99	175	10	130	7	26
229	256.97	12.20	0.04	0.155	0.013	99	200	20	155	10	23
230	257.35	12.45	0.15	0.130	0.008	99	180	10	88	2	51
231	259.17	12.63	0.01	0.080	0.015	99	120	4	80	5	33
s 232	259.50	8.04	0.01	0.150	0.020	98	439	8	300	15	32
233	261.05	12.20	0.15	0.169	0.001	99	160	10	133	3	17
234	261.83	11.73	0.04	0.158	0.017	99	225	20	190	20	16
235	263.25	12.60	0.10	0.170	0.020	99	120	10	90	10	25
s 236	263.54	5.16	0.05	0.148	0.005	97	210	15	168	7	20
237	265.13	12.70	0.11	0.085	0.009	99	134	9	135	5	0
s 238	266.80	10.28	0.05	0.068	0.008	99	440	5	382	10	13
239	267.46	12.50	0.05	0.110	0.012	99	140	15	67	7	52
240	269.75	9.70	0.07	0.340	0.010	96	1615	35	1500	100	7
241	270.15	11.30	0.10	0.090	0.010	99	390	20	380	10	3
242	270.80	12.25	0.10	0.111	0.011	99	170	10	100	8	41
243	271.20	11.95	0.01	0.077	0.001	99	260	10	110	5	58
244	272.95	12.51	0.11	0.110	0.015	99	141	7	102	4	28
245	273.85	12.10	0.15	0.123	0.008	99	220	5	145	8	34
246	276.30	12.65	0.10	0.198	0.004	98	180	10	91	3	49
247	277.98	12.97	0.01	0.084	0.001	99	140	15	78	1	44
248	278.75	9.55	0.02	0.155	0.025	98	195	15	120	20	38
249	279.67	12.75	0.12	0.117	0.009	99	150	3	86	3	43
250	280.44	12.79	0.08	0.097	0.003	99	115	7	70	4	39
251	281.40	12.53	0.03	0.077	0.002	99	53	1	48	2	9
252	281.45	12.90	0.05	0.060	0.008	99	47	8	45	2	4
253	282.71	11.62	0.13	0.102	0.003	99	152	10	150	2	0
254	285.05	12.14	0.01	0.071	0.004	99	196	13	160	4	18
255	286.33	12.92	0.12	0.130	0.008	99	58	5	50	5	14
256	287.83	12.60	0.10	0.070	0.002	99	104	11	82	5	21
257	289.07	12.35	0.15	0.064	0.001	99	117	12	88	10	25
258	289.62	8.82	0.07	0.150	0.010	98	3300	30	3100	120	6
259	290.37	12.79	0.01	0.075	0.010	99	88	2	66	3	25
260	291.15	12.15	0.05	0.107	0.001	99	135	5	85	6	37
261	291.26	12.45	0.10	0.094	0.006	99	160	15	88	15	45
s 262	292.30	2.12	0.10	0.266	0.004	87	19800	200	19500	100	2
263	292.60	11.90	0.15	0.065	0.010	99	150	20	128	8	21
264	293.46	12.30	0.10	0.058	0.001	99	170	10	68	9	60
s 265	294.80	5.77	0.10	0.112	0.002	98	330	18	140	20	58
266	295.29	12.47	0.05	0.066	0.009	99	113	7	77	4	32
s 267	295.95	9.68	0.01	0.085	0.005	99	3990	95	3800	150	5
268	296.40	12.40	0.16	0.063	0.011	99	120	2	72	6	40
269	297.77	12.70	0.15	0.164	0.001	99	250	20	130	10	48
270	298.85	12.95	0.09	0.065	0.003	99	303	1	90	11	70
271	299.60	12.45	0.03	0.070	0.010	99	195	9	102	15	48
272	299.92	12.71	0.06	0.077	0.003	99	100	6	72	13	28
273	301.10	12.60	0.15	0.057	0.006	99	70	10	58	6	17
274	303.15	12.78	0.01	0.070	0.008	99	78	1	75	2	4
275	305.80	12.65	0.15	0.075	0.005	99	105	10	100	3	5
276	306.80	12.97	0.14	0.192	0.007	98	70	12	65	3	7
277	307.55	12.05	0.05	0.087	0.003	99	210	5	125	8	40
278	308.10	12.50	0.10	0.080	0.002	99	207	3	142	1	31
279	310.02	12.60	0.10	0.068	0.004	99	80	8	74	3	8
280	311.34	12.72	0.08	0.065	0.003	99	94	8	81	7	14
281	312.10	12.40	0.10	0.061	0.007	99	95	5	89	3	6
282	313.58	12.30	0.10	0.065	0.007	99	85	5	80	4	6
283	314.36	12.10	0.10	0.088	0.003	99	225	5	210	5	7
s 284	314.86	8.60	0.12	0.074	0.002	99	2950	95	2800	100	5
285	315.16	12.41	0.01	0.150	0.005	99	185	17	170	10	8

Table 5 (continued).

Sample No.	Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(ins.)}$ in ppm		$S_{HCl\ sol.}$ %
		x	s	x	s		x	s	x	s	
s 286	315.52	0.095	0.005	0.085	0.005	10	230	20	190	15	17
287	315.76	12.60	0.10	0.087	0.003	99	105	10	87	6	17
288	317.05	11.80	0.10	0.120	0.010	99	2250	100	2100	100	7
289	317.53	12.70	0.10	0.067	0.002	99	140	10	130	6	7
290	318.50	11.90	0.10	0.069	0.001	99	190	10	130	15	32
291	318.87	12.20	0.08	0.070	0.010	99	50	5	45	5	10
292	321.43	11.75	0.10	0.079	0.005	99	180	5	105	6	42
293	322.60	12.25	0.05	0.072	0.015	99	110	10	80	4	27
294	322.90	12.65	0.10	0.059	0.011	99	60	10	55	5	8
295	323.70	12.40	0.10	0.075	0.005	99	35	5	30	5	14
296	324.80	12.42	0.02	0.096	0.003	99	75	10	70	3	7
297	326.55	12.80	0.15	0.060	0.004	99	35	4	30	2	14
298	327.31	12.90	0.10	0.062	0.008	99	40	2	35	5	13
299	328.06	13.05	0.10	0.135	0.007	99	50	5	45	5	10
300	329.04	12.62	0.01	0.090	0.009	99	138	4	95	2	31
301	329.60	12.80	0.10	0.070	0.005	99	75	5	70	2	7

Table 6.
Analysis for C and S components core Gartnerkofel-1.
First supplementary samples.
ins = insoluble in HCl; s = standard deviation.

Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(ins.)}$ in ppm		$S_{HCl\ sol.}$ %
	x	s	x	s		x	s	x	s	
251.20m	11.84	0.09	0.063	0.008	99	260	20	199	1	24
251.40m	12.65	0.07	0.047	0.001	99	195	10	158	4	19
251.60m	12.18	0.18	0.047	0.005	99	230	20	119	8	48
251.75m	12.66	0.10	0.118	0.012	99	150	6	118	1	21
251.95m	11.86	0.06	0.048	0.006	99	165	9	93	5	44
252.10m	12.14	0.06	0.058	0.001	99	158	7	98	4	38
252.30m	12.25	0.01	0.052	0.001	99	140	15	86	4	39
252.70m	12.47	0.07	0.074	0.003	99	98	9	85	4	13
252.95m	12.82	0.12	0.051	0.002	99	80	7	75	3	6
253.00m	12.80	0.05	0.064	0.003	99	85	5	85	1	1
253.20m	12.49	0.05	0.068	0.002	99	80	4	63	3	21
253.55m	12.76	0.12	0.047	0.001	99	150	10	130	5	13
253.75m	12.93	0.02	0.060	0.004	99	130	9	125	5	4
253.95m	12.58	0.17	0.062	0.006	99	140	10	130	4	7
254.15m	12.50	0.08	0.073	0.006	99	210	8	190	5	10
313.65m	12.55	0.03	0.048	0.005	99	105	12	70	4	33
313.75m	12.63	0.02	0.051	0.005	99	110	8	67	3	39
313.85m	12.83	0.14	0.047	0.001	99	118	6	111	1	6
313.95m	12.80	0.05	0.058	0.005	99	95	5	88	5	7
314.05m	12.50	0.10	0.057	0.002	99	120	9	85	1	29
314.20m	12.58	0.06	0.051	0.003	99	140	13	104	4	26
314.40m	12.30	0.03	0.053	0.002	99	350	30	320	20	9
314.50m	12.15	0.04	0.053	0.002	99	320	25	200	15	38
314.64m	12.36	0.03	0.070	0.003	99	1200	50	1150	30	4
314.70m	11.60	0.10	0.054	0.001	99	700	30	670	20	4
314.80m	11.24	0.01	0.050	0.004	99	1400	40	1300	30	7

Table 7.
Analysis for C and S components core Gartnerkofel-1.
Second supplementary samples.
ins = insoluble in HCl; s = standard deviation.

Sample No.	Depth m	$C_{tot.}$ in %		$C_{org.}$ in %		$C_{karb.}$ %	$S_{tot.}$ in ppm		$S_{(org.)}$ in ppm		$S_{HCl\ sol.}$ %
		x	s	x	s		x	s	x	s	
190A	220.50 - 220.53	10.30	0.02	0.140	0.010	99	4700	200	4450	50	5
190B	220.72 - 220.76	10.08	0.03	0.125	0.008	99	4970	155	4380	60	12
190C	220.88 - 220.92	8.61	0.10	0.230	0.009	97	8500	210	7750	50	9
191A	221.16 - 221.20	9.87	0.02	0.165	0.010	98	3970	100	3700	40	7
191B	221.32 - 221.35	9.71	0.10	0.210	0.015	98	5500	160	4900	40	11
191C	221.35 - 221.39	9.25	0.07	0.130	0.009	98	6900	180	6050	50	12
191D	221.52 - 221.56	8.43	0.02	0.195	0.002	98	7000	200	6740	30	4
191E	221.78 - 221.82	9.18	0.01	0.150	0.009	98	4750	170	4400	70	7
191F	222.03 - 222.06	8.75	0.08	0.135	0.005	98	7200	100	6480	20	10
192A	222.13 - 222.16	11.01	0.05	0.162	0.004	99	3020	100	2850	30	6
193A	222.25 - 222.28	12.16	0.06	0.129	0.010	99	130	15	120	1	8
194A	222.44 - 222.48	11.55	0.12	0.106	0.003	99	270	20	210	6	22
194B	222.62 - 222.66	11.30	0.10	0.140	0.010	99	740	25	650	10	12
194C	223.00 - 223.03	10.60	0.10	0.145	0.007	99	210	15	141	3	33
194D	223.31 - 223.35	11.80	0.02	0.103	0.001	99	170	10	127	2	25
194E	223.69 - 223.73	12.00	0.03	0.098	0.003	99	190	11	145	5	24
195A	224.02 - 224.06	10.88	0.02	0.120	0.010	99	265	9	240	2	10
195B	224.35 - 224.38	11.15	0.05	0.125	0.009	99	160	5	130	10	19
196A	224.70 - 224.75	12.30	0.06	0.140	0.008	99	170	20	115	2	32
196B	224.99 - 225.03	12.45	0.10	0.105	0.007	99	122	13	88	4	28
196C	225.20 - 225.24	12.40	0.10	0.130	0.010	99	125	14	95	5	24
197A	225.62 - 225.66	12.50	0.05	0.125	0.009	99	123	12	78	4	37
197B	225.82 - 225.86	12.85	0.03	0.128	0.010	99	120	13	77	3	36
198A	226.20 - 226.24	12.80	0.08	0.135	0.006	99	115	13	69	2	40
198B	226.50 - 226.53	12.65	0.07	0.075	0.003	99	121	12	55	7	55
198C	227.00 - 227.04	12.60	0.04	0.060	0.002	99	120	13	72	5	40
199A	227.75 - 227.79	12.65	0.05	0.090	0.005	99	115	13	75	6	35
199B	228.02 - 228.06	12.85	0.05	0.080	0.007	99	119	12	80	7	46
199C	228.50 - 228.55	12.60	0.09	0.070	0.008	99	115	12	76	1	34
199D	228.61 - 228.66	12.90	0.10	0.075	0.009	99	135	15	62	2	54
201A	229.19 - 229.24	11.90	0.10	0.068	0.007	99	118	12	55	7	53
202A	229.72 - 229.76	11.90	0.10	0.120	0.010	99	155	12	110	10	29
204A	230.01 - 230.06	11.70	0.10	0.095	0.011	99	160	15	145	12	10
204B	230.44 - 230.48	12.10	0.08	0.090	0.010	99	140	16	75	4	46
204C	230.58 - 230.62	12.05	0.10	0.105	0.012	99	125	12	90	5	28