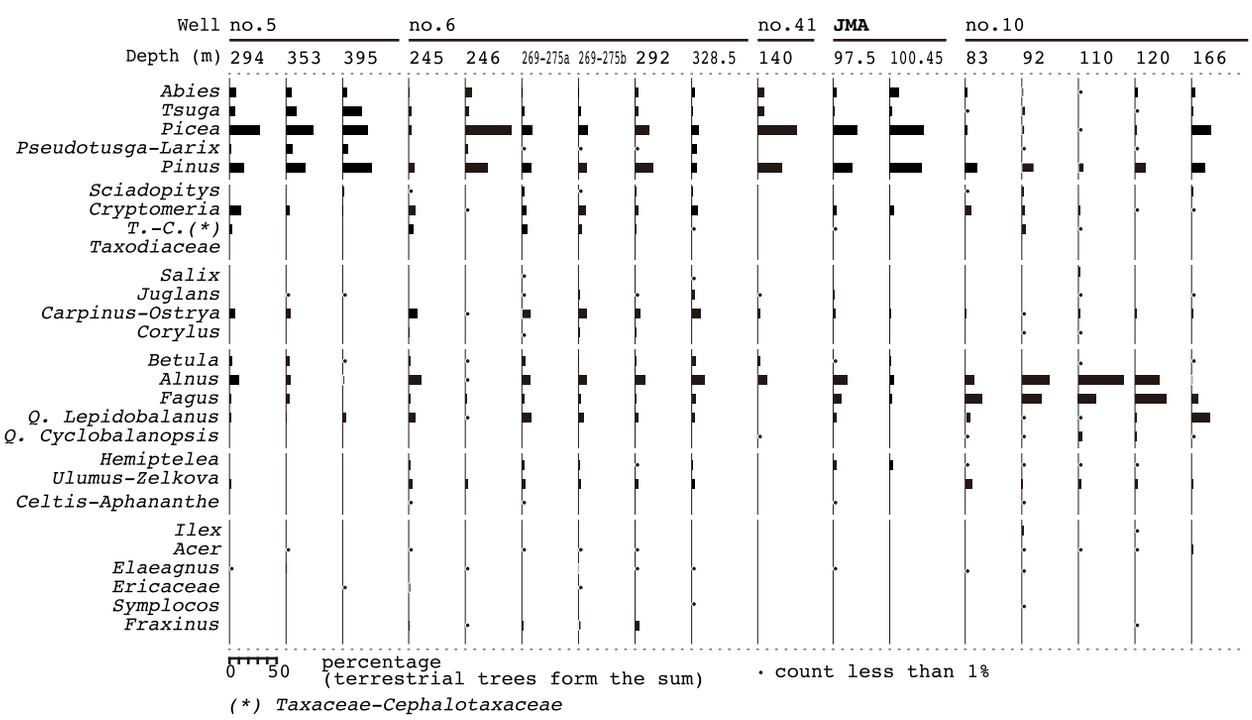
Open file 1


Well
no.5
no.6
no.41
JMA
no.10
Depth (m)
294
353
395
245
246
269-275a
269-275b
292
328.5
140
97.5
100.45
83
92
110
120
166
Abies
Tsuga
Picea
Pseudotusga-Larix
Pinus
Sciadopitys
Cryptomeria
T.-C.(*)
Taxodiaceae
Salix
Juglans
Carpinus-Ostrya
Corylus
Betula
Alnus
Fagus
Q. Lepidobalanus
Q. Cyclobalanopsis
Hemiptelea
Ulmus-Zelkova
Celtis-Aphananthe
Ilex
Acer
Elaeagnus
Ericaceae
Symplocos
Fraxinus
0
50
percentage
(terrestrial trees form the sum)
· count less than 1%
(*) Taxaceae-Cephalotaxaceae

Open file 2　Number and percentage of fossil pollen grains and in unit 6 of JMA-V29 borehole.

Taxa	Depth (m)	
	97.50	100.45
Arboreal Pollen　（木本花粉）		
Abies　（モミ属）	9 (4.2%)	14 (9.7%)
Tsuga　（ツガ属）	4 (1.9%)	3 (2.1%)
Picea　（トウヒ属）	55 (25.8%)	52 (35.9%)
Pinus　（マツ属）	45 (21.1%)	50 (34.5%)
Cryptomeria　（スギ属）	7 (3.3%)	6 (4.1%)
Taxaceae-Cephalotaxaceae-Cupressaceae （イチイ科－イヌガヤ科－ヒノキ科）	2 (0.9%)	-
Juglans　（クルミ属）	3 (1.4%)	-
Carpinus – Ostrya （クマシデ属－アサダ属）	6 (2.8%)	2 (1.4%)
Betula　（カバノキ属）	2 (0.9%)	2 (1.4%)
Alnus　（ハンノキ属）	31 (14.6%)	6 (4.1%)
Fagus　（ブナ属）	18 (8.5%)	4 (2.8%)
Quercus subgen. *Lepidobalanus* （コナラ属コナラ亜属）	9 (4.2%)	-
Hemiptelea　（ハリゲヤキ属）	9 (4.2%)	5 (3.4%)
Celtis-Aphananthe （エノキ属―ムクノキ属）	1 (0.5%)	-
Phellodendron　（キハダ属）	1 (0.5%)	-
Tilia　（シナノキ属）	1 (0.5%)	-
Elaeagnus　（グミ属）	1 (0.5%)	-
Subtotal　（木本花粉小計）	**204** (95.8%)	**144** (99.3%)
Nonarboreal Pollen（草本花粉）		
Gramineae　（イネ科）	2 (0.9%)	1 (0.7%)
Artemisia　（ヨモギ属）	4 (1.9%)	-
Carduoideae　（キク亜科）	1 (0.5%)	-
Cichorioideae　（タンポポ亜科）	1 (0.5%)	-
Subtotal　（草本花粉小計）	**8** (3.8%)	**1** (0.7%)
Unknown pollen　（不明花粉）	1 (0.5%)	-
Total number of Pollen	**213** (100%)	**145** (100%)
other Pteridophyta spores （シダ植物胞子）	83	74
Total Number of Pollen & Spores （総花粉・胞子）	**296**	**219**

(Analyst; Yoshifumi Tanaka)

Open file 3 Fossil diatoms in unit 6 of JMA-V29 borehole (1/2)

Species	Depth (m)					
	84.20	86.05	92.05	93.45	97.5	100.45
Opephora martyi Heribaud	-	3	-	-	1	1
Fragilaria aff. *tabulata* (Ag.) Lange-Bertalot	1	-	-	1	-	-
Bacillaria paradoxa Gmelin	-	1	-	-	-	-
Pseudostraurosira brevistriata Grunow	-	4	1	2	4	1
Nitzschia palea (Kuetz.) W.Smith	-	-	-	-	1	-
Rhopalodia gibberula (Ehr.) O.Muller	-	-	-	-	1	-
Achnanthes lanceolata (Breb.) Grunow	-	1	-	-	-	3
Achnanthes spp.	-	1	-	-	-	1
Amphora ovalis var. *affinis* (Kuetz.) Van Heurck	-	1	-	-	-	-
Amphora pediculus (Kuetz.) Grunow	-	4	2	-	-	1
Aulacoseira cf. *distans* (Ehr.) Simonsen	-	-	-	3	-	-
Aulacoseira islandica (O.Mull.) Simonsen	-	-	-	1	-	-
Aulacoseira italica (Ehr.) Simonsen	3	-	1	1	1	3
Aulacoseira italica var. *tenuissima* (Grun.) Simonsen	-	-	2	-	24	15
Aulacoseira cf. *praeislandica* Jouse	-	-	-	3	-	-
Aulacoseira spp.	-	-	-	1	-	-
Cocconeis pediculus Ehrenberg	-	-	-	1	-	7
Cocconeis placentula (Ehr.) Cleve	-	-	-	-	-	1
Cocconeis placentula var. *euglypta* (Ehr.) Cleve	-	-	1	-	-	1
Cocconeis spp.	-	-	1	-	1	1
Cyclotella ocellata Pantocsek	-	3	18	25	19	4
Cyclotella reczickiae Churs	24	84	119	127	97	91
Cyclotella spp.	-	-	1	-	1	5
Diploneis elliptica (Kuetz.) Cleve	-	-	2	-	-	2
Diploneis ovalis (Hilse) Cleve	-	-	1	-	-	-
Epithemia adnata (Kuetz.) Brebisson	5	-	2	1	1	2
Epithemia sorex Kuetzing	1	1	-	2	-	4
Epithemia turgida (Ehr.) Kuetzing	-	1	-	2	1	1
Epithemia turgida var. *westermannii* (Ehr.) Grunow	4	6	-	13	1	4
Epithemis spp.	-	2	2	-	3	3
Eunotia exigua (Breb.) Rabennorst	-	-	1	-	-	-
Eunotia lunaris (Ehr.) Grunow	-	-	1	-	-	-
Eunotia spp.	-	-	1	-	-	-
Fragilaria construens (Ehr.) Grunow	-	1	-	-	1	2
Fragilaria construens fo. *binodis* (Ehr.) Hustedt	-	3	1	-	1	-
Fragilaria construens fo. *venter* (Ehr.) Hustedt	-	3	8	1	12	5
Fragilaria exigua Grunow	-	1	-	-	-	-
Fragilaria parasitica (W.Smith) Grunow	-	-	-	1	2	-
Fragilaria pinnata Ehrenberg	-	4	1	1	-	1
Fragilaria pinnata var. *lancettula* (Schum.) Hustedt	-	1	-	-	-	-
Fragilaria ulna (Nitzsch) Lange-Bertalot	8	1	10	4	8	8
Fragilaria ulna var. *arcus* (Kuetz.) Lange-Bertalot	-	-	-	-	-	3
Fragilaria vaucheriae (Kuetz.) Petersen	-	-	-	-	-	1
Fragilaria zeilleri var. *elliptica* Gasse	3	67	21	3	11	3
Fragilaria spp.	3	2	2	-	4	4
Gomphonema parvulum (Kuetzing) Kuetzing	-	-	-	-	-	1
Gomphonema spp.	1	-	-	1	1	-
Gyrosigma spp.	-	-	-	-	1	-

Open file 3 Fossil diatoms in unit 6 of JMA-V29 borehole (2/2)

Species	Depth (m)					
	84.20	86.05	92.05	93.45	97.5	100.45
Melosira aff. *solida* Eulenstein	-	-	2	4	-	-
Melosira varians Agardh	1	-	-	-	-	1
Meridion circulare var. *constrictum* (Ralfs) Van Heurck	-	-	1	-	-	-
Navicula contenta Grunow	-	-	1	-	3	-
Navicula contenta fo. *biceps* (Arnott) Hustedt	-	-	-	-	1	-
Navicula cryptotenella Lange-Bertalot	-	-	-	-	1	-
Navicula radiosa Kuetzing	-	-	-	2	1	-
Navicula placenta Ehrenberg	-	-	-	-	-	1
Navicula hasta Pantocsek	-	-	-	-	-	-
Navicula spp.	-	-	-	1	1	1
Nitzschia spp.	1	-	-	-	-	-
Pinnularia borealis var. *rectangularis* Carlson	-	-	-	-	-	-
Pinnularia gibba Ehrenberg	-	2	-	-	-	-
Pinnularia gibba var. *linearis* Hustedt	-	1	-	-	-	-
Pinnularia microstauron (Ehr.) Cleve	-	-	-	-	-	1
Pinnularia spp.	-	-	-	-	-	2
Rhopalodia gibba (Ehr.) O.Muller	3	6	-	-	-	5
Rhopalodia quisumbirgiana Skvortzow	-	4	2	6	2	6
Stauroneis smithii Grunow	-	-	-	-	1	-
Stauroneis spp.	-	-	-	-	1	-
Stephanodiscus parvus Stoermer and Hakansson	-	-	-	-	-	5
Stephanodiscus spp.	-	-	-	-	-	3
Tabellaria fenestrata (Lyngb.) Kuetzing	-	1	-	-	-	-
Total	57	205	205	206	207	203
Abundance	VR	F	F	R	R	F
Preservation	P	P	P	P	P	P

(Analyst; Seiji Horiuchi)

Open file 4 Whole rock major element (wt%) and trace element (ppm) compositions of volcanic clasts in JMA-V29 borehole determined by XRF.

	Major elements (wt%)										Trace elements (ppm)											
Depth (m)	SiO_2	TiO_2	Al_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	Ba	Cr	Cu	Nb	Ni	Pb	Rb	Sr	V	Y	Zn	Zr
4.65	57.52	0.80	17.02	7.86	0.14	5.13	7.92	2.86	0.62	0.12	153	107	61	2.5	53	6.3	12.6	316	209	18.6	63.1	72.1
5.05	59.45	0.82	16.79	7.46	0.14	4.08	7.52	3.10	0.53	0.10	189	52	71	2.5	29	5.9	10.5	298	181	20.0	67.3	72.7
6.6	58.82	0.80	16.55	7.87	0.15	4.55	7.57	3.00	0.58	0.11	180	76	75	2.4	43	6.4	8.2	293	208	19.7	61.6	73.7
7.05	58.17	0.89	16.50	8.34	0.15	4.47	7.76	2.98	0.63	0.12	190	65	56	2.5	32	6.1	12.3	285	240	19.6	61.2	74.4
8.35	58.66	0.77	17.36	7.26	0.13	4.11	7.88	3.08	0.63	0.11	171	62	67	2.2	35	7.6	13.4	310	194	18.9	64.7	70.4
8.9	59.88	0.77	16.96	7.10	0.13	3.81	7.55	3.09	0.60	0.12	169	48	109	2.1	35	5.3	8.0	335	184	26.4	64.7	87.2
9.55	60.37	0.79	16.49	7.28	0.14	3.87	7.32	3.02	0.62	0.11	175	46	59	1.6	30	5.6	7.0	292	201	24.8	62.2	98.8
11.8	59.36	0.89	17.30	8.81	0.16	4.37	5.71	2.65	0.63	0.12	169	61	72	1.6	29	5.3	9.4	360	217	15.7	64.9	74.6
14.9	59.00	0.82	16.79	7.69	0.14	4.19	7.55	3.09	0.63	0.11	172	70	75	1.8	40	6.0	8.8	302	207	19.5	62.6	72.4
15.3†	53.34	0.86	17.32	9.33	0.16	6.27	9.86	2.43	0.33	0.10	114	84	84	1.6	39	4.7	5.6	309	263	14.6	46.1	74.7
16.1	58.95	0.81	16.69	7.71	0.14	4.28	7.60	3.08	0.61	0.11	173	64	70	1.7	39	7.0	8.8	302	208	19.2	62.7	71.6
18.8	58.33	0.82	16.91	7.98	0.15	4.07	7.87	3.19	0.57	0.12	163	41	108	2.7	33	5.6	7.6	321	195	18.3	60.5	73.8
20.3	58.94	0.80	16.88	7.69	0.14	4.29	7.45	3.07	0.62	0.11	171	65	43	1.5	36	5.2	8.3	298	207	18.9	61.8	73.0
21.5	59.08	0.78	16.79	7.58	0.14	4.27	7.57	3.05	0.61	0.11	173	62	88	1.5	42	5.5	9.1	301	193	20.8	62.5	69.1
23.5	60.37	0.77	15.97	7.32	0.14	3.96	7.60	3.10	0.65	0.11	189	60	105	2.4	35	4.9	10.7	297	194	20.4	66.9	70.0
26.8	60.04	0.78	17.27	7.01	0.12	3.56	7.40	3.08	0.63	0.10	197	42	64	2.4	25	6.0	11.3	297	190	20.7	67.1	71.9
29.5	58.18	0.82	17.23	7.70	0.14	4.43	7.90	2.90	0.60	0.11	167	76	65	2.2	40	6.0	10.8	305	211	18.5	62.9	71.2
32.5	59.57	0.75	17.86	6.73	0.13	3.26	7.72	3.24	0.64	0.12	178	34	44	2.3	25	6.9	11.0	337	177	18.5	67.6	65.5
33.5	59.53	0.75	17.21	6.88	0.13	3.76	7.82	3.15	0.67	0.11	194	54	57	2.3	30	8.0	12.6	306	188	20.7	68.0	67.8
36.5	59.11	0.80	17.21	7.25	0.14	3.86	7.82	3.06	0.64	0.11	194	58	63	2.3	32	6.7	12.4	299	204	20.1	65.6	68.3
40.7*	54.97	0.82	17.76	8.33	0.14	5.72	9.03	2.65	0.47	0.11	132	122	63	1.9	56	7.1	10.0	339	233	15.0	56.4	69.6
40.7**	60.61	0.80	16.62	7.00	0.13	3.50	7.35	3.22	0.66	0.11	211	41	65	2.4	25	8.0	13.5	287	195	21.5	69.8	69.6
44.5	58.60	0.79	17.26	7.49	0.14	4.13	7.79	3.11	0.58	0.11	176	56	33	2.2	32	7.3	10.3	313	200	18.0	65.0	69.6
50	60.55	0.82	17.05	7.04	0.13	3.24	7.29	3.12	0.64	0.12	202	34	54	2.2	20	7.7	12.5	302	198	21.5	71.2	71.5
62.1	58.25	0.76	17.04	7.48	0.14	4.41	8.38	2.81	0.63	0.09	177	127	58	1.9	29	6.0	10.7	278	205	19.3	61.7	67.7
65.9	55.24	0.87	17.89	8.94	0.16	4.59	9.09	2.75	0.38	0.09	136	40	123	2.2	16	5.9	8.1	260	253	17.6	47.5	81.6
85.6	58.78	0.84	16.82	8.06	0.16	3.71	7.99	2.98	0.55	0.10	164	26	37	2.2	12	6.3	12.0	255	245	19.9	54.8	78.7
86.75	60.10	0.87	16.31	7.99	0.16	3.40	7.41	3.02	0.64	0.11	197	23	26	2.1	11	8.5	12.2	249	237	22.0	59.3	75.2
90.45	58.48	0.85	17.06	7.95	0.16	3.66	8.17	3.01	0.57	0.10	177	25	71	2.1	10	6.1	11.0	265	240	19.8	54.5	81.6

† petrographically different from the Younger Central Cone (probably Somma origin); *host; **inclusion.

Open file 5 Whole rock major element (wt%) and trace element (ppm) compositions of volcanic clasts and lavas samples from boreholes near the JMA-V29 determined by XRF (1/2).

# Well ID	Major elements (wt%)										Trace elements (ppm)											
Depth (m)	SiO_2	TiO_2	Al_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	Ba	Cr	Cu	Nb	Ni	Pb	Rb	Sr	V	Y	Zn	Zr
#9																						
70	58.05	0.74	17.18	7.41	0.14	4.64	8.25	2.89	0.57	0.11	224	95	39	1.6		3.5	14.3	287	223	19.1	67.4	67.7
82	58.06	0.73	17.40	7.20	0.14	4.52	8.41	2.87	0.56	0.11	216	93	61	1.6		3.0	13.6	291	219	18.8	65.2	68.2
88	57.09	0.72	17.90	7.38	0.14	4.67	8.66	2.83	0.51	0.10	191	96	47	1.7		3.1	13.1	295	229	18.0	65.8	65.0
102	58.67	0.78	17.84	7.11	0.14	4.05	7.71	3.04	0.55	0.11	221	76	53	1.7		4.0	14.3	304	217	20.5	68.4	70.8
120	57.84	0.72	19.55	6.57	0.13	3.32	8.24	3.08	0.42	0.12	212	37	49	2.1		3.7	12.0	365	196	16.6	67.0	72.9
130	59.40	0.78	17.10	7.10	0.14	4.05	7.70	3.04	0.60	0.11	231	60	59	2.0		3.9	14.4	290	219	21.6	69.7	71.2
140	58.06	0.83	17.71	7.67	0.15	4.08	7.87	2.97	0.55	0.11	235	60	49	2.0		4.8	12.8	297	251	19.2	70.4	68.8
155	58.10	0.79	18.02	7.31	0.14	4.06	8.07	2.90	0.50	0.11	213	61	58	1.8		2.4	12.9	315	233	18.9	70.8	70.8
160	56.41	0.86	18.42	8.12	0.15	4.52	8.17	2.90	0.35	0.10	219	62	50	1.8		4.3	9.7	336	190	15.6	75.5	65.3
162	59.33	0.80	17.89	7.13	0.14	3.61	7.68	2.82	0.50	0.10	234	39	25	2.0		5.2	13.2	281	232	22.0	71.3	70.4
165	56.93	0.81	19.39	7.34	0.14	3.94	8.45	2.79	0.10	0.11	162	36	45	1.6		7.9	8.6	339	276	21.7	72.9	70.5
219	60.81	0.80	18.01	6.92	0.10	2.71	6.86	3.10	0.59	0.11	259	18	67	1.9		6.1	13.0	265	215	23.5	65.8	68.1
227	53.33	0.97	20.65	8.49	0.17	3.81	8.94	3.35	0.18	0.11	131	29	52	2.0		3.8	8.9	260	302	23.2	87.6	67.4
232	60.80	0.83	16.88	7.34	0.22	2.95	7.13	3.16	0.57	0.12	263	18	56	2.1		5.5	13.7	233	232	24.2	74.7	67.2
255	61.05	0.80	17.27	6.72	0.33	2.88	7.12	3.15	0.57	0.12	244	17	42	1.8		5.4	12.8	246	219	24.5	69.9	69.4
263	59.79	0.83	16.97	7.52	0.18	3.38	7.66	3.03	0.53	0.10	237	25	62	1.6		4.2	12.3	243	262	22.1	73.6	63.8
267	61.88	0.81	17.02	6.68	0.20	2.89	6.97	3.09	0.33	0.12	268	20	24	1.9		5.4	9.7	259	215	25.4	75.9	73.5
302	63.03	0.69	16.21	7.03	0.14	2.98	7.40	1.99	0.44	0.09	220	10	42	1.5		5.3	13.8	238	206	20.0	65.9	53.3
315	57.25	0.80	19.39	7.40	0.13	3.26	9.23	1.85	0.61	0.08	167	16	79	1.4		3.3	16.2	279	254	17.2	76.3	53.0
#32																						
26	58.67	0.66	17.26	7.22	0.14	4.43	8.03	2.92	0.56	0.12	209	49	66	1.5	25	4.8	11.1	281	218	16.5	71.6	68.6
140	60.42	0.74	17.39	7.79	0.14	3.66	6.97	2.33	0.44	0.10	185	39	58	1.4	13	4.5	8.8	214	270	17.6	74.7	59.0
185	58.61	0.76	17.90	8.04	0.17	4.50	7.93	1.94	0.07	0.09	106	37	62	1.5	13	4.4	6.6	219	237	16.1	75.5	60.7
195	62.01	0.75	18.38	6.98	0.06	2.22	6.40	2.50	0.58	0.11	239	37	64	1.1	11	5.1	13.1	235	277	16.8	75.8	66.5
215	59.72	0.66	17.43	6.87	0.13	3.94	7.79	2.82	0.54	0.10	205	34	55	1.2	11	4.2	11.5	255	215	17.0	71.6	66.1
225	60.22	0.67	17.81	6.65	0.13	3.61	7.40	2.87	0.55	0.10	231	33	50	1.2	12	4.6	11.4	255	222	16.2	76.7	66.9
235	59.14	0.69	17.35	7.19	0.14	4.07	7.99	2.80	0.52	0.10	214	36	48	1.4	12	3.9	11.0	254	237	16.9	74.0	64.9
240	59.42	0.68	17.40	7.01	0.14	3.84	7.99	2.87	0.55	0.10	215	34	56	1.6	12	4.8	11.7	252	230	17.2	72.3	66.2
245.25	60.32	0.73	17.73	7.29	0.16	3.22	7.57	2.28	0.60	0.10	168	40	107	3.2	11	2.8	11.3	209	200	21.3	73.8	56.2
245.35	60.08	0.76	17.40	7.44	0.14	3.25	7.84	2.39	0.60	0.11	180	41	112	3.1	11	5.9	11.4	214	208	23.4	76.5	55.9
246.85	59.33	0.84	19.58	7.54	0.09	2.85	7.36	2.17	0.12	0.12	101	42	133	3.6	13	7.5	5.2	232	227	17.9	84.3	63.4
246.85	60.81	0.87	19.41	7.59	0.09	2.96	6.12	1.83	0.21	0.13	125	46	120	3.2	22	5.8	5.9	207	238	20.6	83.6	61.2
251.7	59.43	0.81	19.60	7.06	0.14	3.73	6.67	2.20	0.25	0.10	170	43	88	2.4	13	5.0	7.3	237	214	24.7	76.4	64.1

Open file 5 Whole rock major element (wt%) and trace element (ppm) compositions of volcanic clasts and lavas samples from boreholes near the JMA-V29 determined by XRF (2/2).

# Well ID	Major elements (wt%)										Trace elements (ppm)											
Depth (m)	SiO_2	TiO_2	Al_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	Ba	Cr	Cu	Nb	Ni	Pb	Rb	Sr	V	Y	Zn	Zr
#38																						
280	61.77	0.76	16.82	6.74	0.13	3.06	6.95	2.84	0.81	0.11	259	32	43	2.1		3.5	15.7	239	216	25.5	75.8	72.2
311	63.13	0.76	17.79	6.23	0.08	2.12	5.80	3.30	0.70	0.10	273	26	90	1.8		5.3	15.8	243	214	26.2	73.1	76.0
339.5	57.13	0.78	18.81	7.81	0.15	3.80	8.50	2.67	0.26	0.09	159	17	44	1.5		3.4	10.5	264	252	17.7	68.3	53.2
347.3	59.65	0.78	17.16	7.69	0.18	3.73	7.48	2.80	0.43	0.10	224	30	34	1.7		4.4	11.7	242	261	21.1	76.8	62.3
351	58.80	0.79	16.74	7.74	0.23	4.10	8.18	2.82	0.52	0.09	219	38	66	1.7		4.3	12.2	232	255	20.0	77.4	59.9
370	60.65	0.77	17.31	6.66	0.18	3.09	7.47	3.11	0.64	0.11	233	27	24	2.0		4.3	12.8	224	205	20.6	69.3	62.8
370	60.51	0.78	17.29	6.71	0.17	3.13	7.57	3.09	0.63	0.11	232	28	33	2.0		3.3	12.5	222	207	20.7	68.7	61.5
373	60.12	0.86	16.24	7.82	0.14	3.84	7.36	2.94	0.58	0.10	234	40	66	1.8		3.8	13.6	214	252	24.0	75.7	61.7
373	59.41	0.86	16.58	8.01	0.14	3.92	7.57	2.88	0.55	0.10	218	42	60	1.9		4.3	11.9	217	263	23.9	74.8	59.6
378.8	59.81	0.84	16.74	7.58	0.13	3.65	7.58	2.98	0.59	0.10	234	41	72	2.0		3.6	14.1	222	257	20.4	80.1	61.9
409	60.02	0.80	16.84	7.24	0.17	3.57	7.62	3.02	0.61	0.11	254	33	60	1.9		5.1	12.9	231	226	22.8	68.6	65.5
409.4a	60.31	0.80	17.14	6.92	0.15	3.28	7.60	3.08	0.61	0.11	244	32	77	1.6		5.9	13.1	238	225	21.5	71.6	66.9
409.4f	60.19	0.81	17.08	6.97	0.15	3.35	7.60	3.11	0.63	0.11	242	30	71	2.1		4.8	13.0	229	225	21.3	73.7	65.0