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Title of article Geology and geochemistry of the alkali basalt-andesite association of Grenada, Lesser Antilles island arc

Author(s) R. J. Arculus

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Table 5

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Table 5a: Major- and trace-element analyses of the Mount. St. Catherine volcanic center.

Weight percent oxides

	1	2	3	4	5	6	7	8	9
SiO_2	47.46	47.82	48.13	48.45	49.84	50.54	50.94	51.12	51.54
Al_2O_3	14.97	16.38	19.00	16.45	18.51	18.09	19.15	17.15	16.92
Fe_2O_3*	10.31	9.33	9.08	9.24	10.03	8.69	9.84	9.09	8.16
MgO	9.90	10.93	9.11	9.70	4.86	5.08	5.60	5.00	9.56
CaO	13.00	10.88	10.61	11.04	11.77	11.93	9.21	11.91	8.53
Na_2O	2.57	2.59	2.38	2.81	2.29	3.09	2.89	3.25	3.08
K_2O	0.50	0.92	0.51	0.98	1.31	1.37	1.24	1.14	1.03
TiO_2	0.88	0.78	0.83	0.88	0.96	0.83	0.77	0.95	0.80
P_2O_5	0.16	0.17	0.15	0.24	0.21	0.19	0.14	0.20	0.25
MnO	0.23	0.20	0.21	0.21	0.22	0.19	0.22	0.18	0.13

Cationic norms

Q	.00	.00	.00	.00	.00	.00	.00	.00	.00
Or	2.95	5.38	3.00	5.75	7.87	8.14	7.39	6.79	6.02
Ab	17.18	20.00	21.26	22.24	20.89	26.85	26.13	29.39	27.33
An	27.79	30.02	39.46	29.15	36.95	31.61	35.88	29.06	28.97
Ne	3.51	1.79	.00	1.68	.00	0.62	.00	.00	.00
Cpx	28.44	17.81	9.55	18.91	16.80	21.31	7.38	23.33	9.00
Opx	.00	.00	9.65	.00	12.77	.00	17.68	1.63	16.62
Ol	15.87	21.16	13.22	18.16	.25	7.64	1.58	5.65	8.33
Mt	2.69	2.41	2.38	2.40	2.67	2.28	2.59	2.39	2.11
Il	1.22	1.07	1.15	1.22	1.36	1.16	1.08	1.33	1.10
Ap	0.33	0.35	0.31	0.50	0.45	0.40	0.30	0.42	0.52

Trace-element abundances (ppm)

Ba	143	197	109	742	514	451	418	467	427
Nb	6	9	9	17	7	8	8	9	8
Zr	72	74	75	191	111	103	82	109	137
Y	21	16	18	10	23	17	17	18	26
Sr	449	669	374	825	1417	1302	622	1325	614
Rb	13	18	11	107	16	14	22	12	25
Zn	68	72	73	40	74	62	85	126	65
Cu	106	39	96	125	168	95	25	401	246
Ni	318	401	267	24	28	61	144	58	43

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Table 5b

Weight percent oxides

	10	11	12	13	14	15	16	17	18
SiO_2	51.79	53.31	53.33	55.37	55.73	56.35	58.70	59.31	60.43
Al_2O_3	18.33	18.84	18.88	16.28	17.54	17.67	17.05	16.26	16.12
Fe_2O_3	7.90	8.27	7.95	7.79	7.52	7.30	6.16	7.34	7.09
MgO	6.84	4.27	5.67	5.61	3.29	4.12	3.53	3.64	3.51
CaO	10.20	8.69	9.17	9.04	9.68	8.65	8.43	7.18	7.06
Na_2O	3.03	3.76	2.98	3.74	3.25	3.46	3.69	3.53	2.97
K_2O	0.82	1.33	0.88	0.93	1.81	1.30	1.52	1.72	1.83
TiO_2	0.79	1.00	0.82	0.76	0.78	0.79	0.59	0.70	0.69
P_2O_5	0.11	0.34	0.13	0.23	0.21	0.21	0.17	0.17	0.17
MnO	0.18	0.19	0.20	0.26	0.19	0.16	0.16	0.15	0.13

Cationic norms

Q	.00	1.16	3.31	3.38	5.40	6.00	8.62	10.47	14.30
Or	4.84	7.89	5.22	5.50	10.81	7.70	9.03	10.27	10.98
Ab	27.14	33.87	26.83	33.60	29.48	31.11	33.26	31.99	27.05
An	33.92	30.71	35.66	24.91	28.21	28.89	25.57	23.67	25.62
Cpx	12.68	8.26	7.30	14.78	15.14	10.17	12.24	8.94	7.03
Opx	16.49	13.83	18.17	14.25	7.44	12.68	8.48	11.37	11.81
Ol	1.54	.00	.00	.00	.00	.00	.00	.00	.00
Mt	2.07	2.17	2.09	2.04	1.99	1.92	1.62	1.94	1.88
Il	1.10	1.40	1.15	1.06	1.10	1.10	0.83	0.98	0.98
Ap	0.23	0.71	0.27	0.48	0.44	0.44	0.36	0.36	0.36

Trace element abundances (ppm)

Ba	198	654	231	531	591	522	613	656	679
Nb	11	19	11	18	13	8	15	13	14
Zr	80	184	96	158	164	163	163	174	170
Y	16	18	17	22	17	20	14	13	16
Sr	371	880	384	724	1188	900	1099	770	779
Rb	31	46	46	45	33	43	57	77	76
Zn	65	116	76	87	40	53	30	55	58
Cu	64	25	51	60	198	51	39	62	66
Ni	146	71	121	81	26	26	39	127	115

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Table 5c

Weight percent oxides

	19	20	21	22	23	24	25
SiO_2	61.45	62.47	62.92	63.66	63.68	64.42	67.08
Al_2O_3	15.26	15.35	15.91	16.09	16.43	15.84	15.74
Fe_2O_3	5.20	5.08	5.23	4.97	4.60	5.26	4.62
MgO	2.39	2.71	2.68	2.63	2.45	2.42	1.15
CaO	9.65	8.18	6.77	6.66	6.16	6.28	4.49
Na_2O	3.47	3.59	4.03	3.68	4.14	3.11	3.72
K_2O	1.56	1.72	1.66	1.53	1.72	1.85	2.48
TiO_2	0.55	0.50	0.50	0.49	0.46	0.55	0.53
P_2O_5	0.20	0.18	0.16	0.15	0.23	0.15	0.13
MnO	0.28	0.21	0.15	0.14	0.13	0.13	0.06

Cationic norms

Q	13.83	14.75	14.41	17.30	15.41	20.49	22.31
Or	9.33	10.26	9.87	9.12	10.20	11.10	14.82
Ab	31.50	32.51	36.36	33.30	37.29	28.33	33.74
An	21.69	20.87	20.52	23.05	21.24	24.14	19.12
Cpx	20.31	15.10	9.75	7.42	6.33	5.18	2.02
Opx	0.76	4.09	6.68	7.50	7.19	8.26	5.33
Mt	1.37	1.34	1.38	1.31	1.21	1.40	1.65
Il	0.77	0.70	0.70	0.69	0.64	0.78	0.75
Ap	0.42	0.38	0.34	0.32	0.48	0.32	0.27

Trace-element abundances (ppm)

Ba	705	781	683	681	581	778	909
Nb	18	17	12	11	13	13	17
Zr	189	179	184	183	203	190	243
Y	15	13	13	11	12	13	20
Sr	872	731	934	907	739	751	650
Rb	82	99	72	58	98	85	106
Zn	556	68	59	29	48	38	60
Cu	7	4	60	8	56	61	49
Ni	16	73	29	27	23	34	58

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Table 5d

Column	Sample No.	Rock Type	Series O=high-Sr +=low-Sr	Location (Lat)	Location (Long)
1	139	alkalic basalt	+	12° 11.9'	61° 37.1'
2	395	alkalic basalt	O	12° 06.8'	61° 44.4'
3	344	subalkalic basalt	+	12° 11.3'	61° 40.5'
4	226A	alkalic basalt	O	12° 12.7'	61° 41.5'
5	380	subalkalic basalt	O	12° 10.6'	61° 36.6'
6	362	alkalic basalt	O	12° 12.3'	61° 41.5'
7	282	subalkalic basalt	+	12° 11.4'	61° 38.9'
8	225B	alkalic basalt	O	12° 11.9'	61° 42.3'
9	319	subalkalic basalt	+	12° 11.7'	61° 39.2'
10	311	subalkalic basalt	+	12° 11.0'	61° 39.9'
11	109	subalkalic basalt	+	12° 10.9'	61° 38.5'
12	310A	subalkalic basalt	+	12° 11.0'	61° 39.9'
13	313D	andesite	+	12° 10.8'	61° 39.9'
14	337	andesite	O	12° 12.9'	61° 40.8'
15	365	andesite	+	12° 11.7'	61° 41.6'
16	219	andesite	O	12° 10.9'	61° 43.6'
17	369	andesite	+	12° 10.3'	61° 39.5'
18	370	andesite	+	12° 10.3'	61° 39.6'
19	463B	andesite	+	12° 10.7'	61° 41.4'
20	464	dacite	O	12° 10.6'	61° 41.1'
21	214	dacite	O	12° 11.2'	61° 43.3'
22	491	dacite	O	12° 10.3'	61° 43.1'
23	312	dacite	O	12° 10.8'	61° 39.9'
24	349	dacite	+	12° 11.3'	61° 40.2'
25	348	dacite	+	12° 11.3'	61° 40.2'

1. Samples 24, 33, 43, 202, 286 and 373 listed in Table 1 also belong to the Mt. St. Catherine center.

* Total Fe as Fe_2O_3. Normative compositions calculated assuming a fixed oxidation of $FeO:Fe_2O_3$ = 3:1.