

Whole rock and clinopyroxene phenocryst analyses from the Springerville Volcanic Field, east-central AZ

Whole Rocks

Sample #	Flow Unit	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Cr ₂ O ₃	total
116Lb..	Qba	45.05	2.18	16.6	10.53	0.19	7.27	11.2	2.93	1.13	0	97.08
117CLb..	Qba	45.05	2.18	16.6	10.53	0.19	7.27	11.2	2.93	1.13	0	97.08
119Lc..	Qsa1	48.8	1.71	15.9	9.36	0.18	8.62	11.1	2.5	1.05	0	99.22
119Ld..	Qsa1	48.8	1.71	15.9	9.36	0.18	8.62	11.1	2.5	1.05	0	99.22
12SLNc..	QTsf	47.51	1.64	16.09	11.934	0.19	7.81	9.62	3.01	0.6	0	98.404
19SLSc..	QTsf	48.27	1.74	16.18	11.187	0.18	7.39	9.72	3.27	0.82	0	98.757
216Ld..	Qbb2	46.1	1.56	11.8	11.79	0.17	17.6	7.99	2.16	0.67	0	99.84
219SMb..	Qbb3	46.8	1.71	13.2	10.8	0.17	13.8	9.42	2.43	1.08	0	99.41
226SMb..	Qme	49.6	1.89	16	10.08	0.17	7.97	8.99	3.46	1.59	0	99.75
229Lb..	Qmb4	45.5	2.23	13.7	11.79	0.17	13.3	9.74	2.35	0.84	0	99.62
232SMb..	Tme	47.9	2.27	16	11.97	0.18	7.6	7.93	4.06	1.93	0	99.84
232SMc..	Tme	47.9	2.27	16	11.97	0.18	7.6	7.93	4.06	1.93	0	99.84
235IPc..	Qbd1	48.3	2.03	16.7	10.26	0.19	7.16	9.71	3.47	1.29	0	99.11
237IPj..	Tbl	52.3	2.15	17.2	9.09	0.18	2.43	5.64	4.4	3.9	0	97.29
25MRc..	Qwg3	49.73	1.51	16.39	10.719	0.18	7.67	9.6	3.07	0.65	0	99.519
31IPd..	Qbc1	48.28	2.21	16.42	10.872	0.2	6.93	9.44	3.5	1.37	0	99.222
414MCb..	Qla3	43.5	2.56	16.07	11.52	0.2	8.96	12.4	2.58	0.82	0	98.61
425SMb..	Qla2	45.8	2.12	15.6	10.71	0.18	8.91	11.6	2.81	1.08	0	98.81
42SMb..	QTsf	49.1	1.82	16.9	11.07	0.18	6.4	10.08	3.38	0.82	0	99.75
431SMb..	Qmb6	45.5	2.16	14.1	11.61	0.18	12.2	9.45	2.78	0.94	0	98.92
436SMb..	Qej	52.3	1.68	17.8	8.955	0.17	3.68	6.19	4.56	2.62	0	97.955
454SSb..	Qsa2	45.8	2.54	15.39	11.16	0.17	9.18	9.22	3.07	1.38	0	97.91
488-Ab..	QTwc	44.2	2.46	15.8	11.34	0.2	8.86	10.5	2.11	1.1	0	96.57
488-Bb..	QTwc	44.2	2.46	15.8	11.34	0.2	8.86	10.5	2.11	1.1	0	96.57

488-Gb..	QTwc	44.2	2.46	15.8	11.34	0.2	8.86	10.5	2.11	1.1	0	96.57
488-Ib..	QTwc	44.2	2.46	15.8	11.34	0.2	8.86	10.5	2.11	1.1	0	96.57
488-N2a..	QTwc	44.2	2.46	15.8	11.34	0.2	8.86	10.5	2.11	1.1	0	96.57
50SMc..	Qld1	45.33	2.56	15.65	11.88	0.2	9.49	9.45	2.95	0.94	0	98.45
69IPb..	Qnc	48.6	2.13	16.04	10.656	0.19	7.67	9.09	3.4	1.14	0	98.916
6Tb..	Qsg1	48.93	1.84	16.54	11.502	0.18	6.77	9.57	3.62	0.82	0	99.772
71MCb..	Qd	48.4	1.79	16	11.7	0.17	7.34	9.52	3.1	0.72	0	98.74
72MCi..	Thb2	50.53	1.85	15.56	9.738	0.17	7.87	8.07	3.74	1.59	0	99.118

Clinopyroxene Phenocrysts

Sample #	Flow Unit	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	Cr2O3	total
116L-10	Qba	44.91	2.87	9.73	7.32	0.15	11.91	22.01	0.41	0	0.37	99.68
116L-11	Qba	49.7	1.75	5.01	7.51	0.14	14.06	22.32	0.31	0	0.03	100.83
116L-12	Qba	47.77	1.79	7.8	6.69	0.12	13.12	22.65	0.36	0	0.3	100.6
116L-13	Qba	46.85	2.19	8.56	6.63	0.1	13.06	22.57	0.34	0	0.55	100.85
116L-3	Qba	49.95	1.54	5.06	6.83	0.08	14.43	22.28	0.32	0	0.24	100.73
116L-7	Qba	44.09	3.27	10.82	7.76	0.14	11.65	21.76	0.4	0	0.37	100.26
116L-8	Qba	44.87	2.75	9.98	7.39	0.17	11.97	21.19	0.41	0	0.34	99.07
116L-9	Qba	45.42	2.74	9.03	7.02	0.07	12.29	22.32	0.36	0	0.34	99.59
116Lb..	Qba	47	2.3	8	7.1	0.1	13	22.1	0.4	0	0.3	100.3
117CLb..	Qba	48	1.8	7	6.9	0.1	13.5	22.4	0.4	0	0.1	100.2
117L-1	Qba	49.07	0.98	8.2	5.52	0.05	14.34	21.43	0.58	0	0.04	100.21
117L-10	Qba	49.28	1.46	5.5	6.93	0.08	13.71	23.02	0.27	0	0.01	100.26
117L-2	Qba	49.02	1.03	8.54	5.72	0.1	14.37	21.31	0.65	0	0.04	100.78
117L-5	Qba	49.77	1.2	4.78	5.8	0.06	14.57	23.51	0.25	0	0.26	100.2
117L-6	Qba	48.72	1.89	5.4	7.97	0.14	13.41	22.59	0.46	0	0	100.58
117L-8	Qba	43.26	3.78	10.59	8.23	0.11	10.91	22.72	0.36	0	0.12	100.08
117L-9	Qba	47.03	2.31	5.98	8.16	0.16	13.01	22.06	0.32	0	0.04	99.07
119L-11	Qsa6	50.69	1.04	5.43	5.34	0.14	14.95	22.36	0.23	0	0.71	100.89
119L-2	Qsa5	52.47	0.7	3.16	5.58	0.16	16.27	21.74	0.15	0	0.14	100.37
119L-4	Qsa4	50.76	0.77	5.51	4.68	0.11	15.54	21.66	0.37	0	1.39	100.79
119L-5	Qsa3	52.34	0.71	3.38	5.36	0.08	16.09	22.34	0.22	0	0.21	100.73

119L-6	Qsa2	50.42	1.04	5.54	5.5	0.11	14.69	22.47	0.26	0	0.34	100.37
119L-7	Qsa1	48.52	1.48	6.89	6.16	0.13	14.02	21.69	0.28	0	0.48	99.65
119L-9	Qsa0	52.86	0.75	3.5	5.07	0.09	16.05	21.94	0.24	0	0.33	100.83
119Lc..	Qsa1	51.2	0.9	4.8	5.4	0.1	15.4	22	0.3	0	0.5	100.6
119Ld..	Qsa1	52	1.3	3.2	7.9	0.2	14.9	20.6	0.3	0	0.1	100.5
12SLN-1	QTsf	48.76	1.79	4.56	8.1	0.27	13.99	21.95	0.38	0	0.46	100.26
12SLN-3	QTsf	48.75	1.9	4.28	8.41	0.26	14.05	21.79	0.4	0	0.5	100.34
12SLN-5	QTsf	48.97	1.99	4.21	8.45	0.26	14.14	21.71	0.4	0	0.51	100.64
12SLN-6	QTsf	48.2	2.2	4.39	9.01	0.3	13.94	21.26	0.39	0	0.48	100.17
12SLN-7	QTsf	47.45	2.89	4.09	10.27	0.33	13	21.61	0.49	0	0.1	100.23
12SLN-8	QTsf	50.46	1.26	2.21	8.39	0.24	15.39	21.69	0.32	0	0.27	100.23
12SLNc..	QTsf	49.1	1.5	11	6.8	0.2	10.6	19.9	1.1	0	0.3	100.5
19SLS-2	QTsf	49.47	2.09	3.72	9.86	0.29	13.39	21.19	0.4	0	0.11	100.52
19SLS-3	QTsf	51.72	1.09	1.91	9.29	0.27	15.03	21.26	0.32	0	0.05	100.94
19SLS-4	QTsf	49.34	2.18	4.07	10.05	0.2	13.3	20.8	0.37	0	0	100.31
19SLS-5	QTsf	49.08	2.07	4.32	9.54	0.17	13.71	20.79	0.41	0	0.14	100.23
19SLS-6	QTsf	49.9	1.74	3.95	8.69	0.28	14.06	21.47	0.31	0	0.18	100.58
19SLS-7	QTsf	48.37	2.89	3.77	11.89	0.22	12.02	21.07	0.49	0	0.06	100.78
19SLS-8	QTsf	49.14	1.79	4.52	8.37	0.16	14.32	20.88	0.34	0	0.44	99.96
19SLS-9	QTsf	51.15	1.61	1.91	11.56	0.28	13.63	19.83	0.35	0	0.02	100.34
19SLSc..	QTsf	49.8	1.9	3.6	9.7	0.2	13.7	21	0.4	0	0.2	100.5
216Ld..	Qbb2	48.4	1.8	4.5	9	0.2	14	21	0.1	0	0.2	99.2
219SM-3	Qbb0	48.58	2.52	5.66	8.26	0.07	12.98	21.28	0.43	0	0.13	99.91
219SM-6	Qbb1	48.59	2.27	5.68	7.9	0.13	13.42	21.47	0.39	0	0.5	100.35
219SM-9	Qbb2	47.34	2.84	7.49	7.71	0.16	12.88	21.89	0.37	0	0.25	100.93
219SMb..	Qbb3	48.2	2.5	6.4	7.6	0.1	13.1	21.6	0.4	0	0.3	100.2
219SM-1	Qbb4	48.9	2	5.05	6.67	0.13	13.76	21.62	0.32	0	0.44	98.89
226SM-1	Qme	44.04	3.51	8.99	9.24	0.18	11.36	21.53	0.45	0	0.09	99.39
226SM-11	Qme	47.71	1.85	8.22	7.4	0.15	13.19	20.59	0.55	0	0.53	100.19
226SM-12	Qme	49.53	1.54	3.29	8.59	0.18	13.84	21.74	0.43	0	0.23	99.37
226SM-13	Qme	50.57	0.94	4.48	7.89	0.19	15.93	19.01	0.52	0	0.16	99.69
226SM-2	Qme	46.33	1.99	9.24	7.83	0.19	13.16	19.74	0.56	0	0.53	99.57

226SM-3	Qme	48.59	1.34	7.45	7.38	0.1	13.92	20.46	0.57	0	0.68	100.49
226SM-4	Qme	46.19	2.3	9.13	8.46	0.13	12.7	20.03	0.63	0	0.2	99.77
226SM-5	Qme	45.91	2.29	9.47	8.41	0.17	12.56	19.91	0.58	0	0.08	99.38
226SM-6	Qme	47.81	1.95	6.74	7.07	0.15	13.5	21.77	0.4	0	0.58	99.97
226SM-7	Qme	49.09	1.54	5.69	7.35	0.19	14.32	21.81	0.32	0	0.36	100.67
226SM-8	Qme	49.86	1.18	3.85	7.21	0.15	15.17	21.27	0.33	0	0.36	99.38
226SM-9	Qme	49.08	1.18	5.4	7.73	0.19	14.03	21.19	0.35	0	0.38	99.53
226SMb..	Qme	48	1.8	6.6	7.9	0.2	13.6	20.7	0.5	0	0.3	99.6
229L-5	Qmb3	45	3.2	7.97	8.63	0.14	11.73	21.72	0.43	0	0.77	99.59
229Lb..	Qmb4	45	3.2	8	8.6	0.1	11.7	21.7	0.4	0	0.8	99.5
232SM-1	Tme	42.42	3.39	12.74	6.32	0.12	11.95	22.23	0.46	0	0.1	99.73
232SM-5	Tme	44.48	3.9	8.58	6.03	0.08	12.99	22.78	0.36	0	0.12	99.32
232SM-6	Tme	41.38	5.57	12.32	7.15	0.12	10.84	22.38	0.51	0	0.02	100.29
232SM-7	Tme	42.03	4.74	11.95	6.5	0.02	11.045	22.58	0.4	0	0.07	99.335
232SM-8	Tme	43.96	4.17	9.46	6.32	0.03	12.63	22.89	0.33	0	0.05	99.84
232SMb..	Tme	49.4	1.3	7.7	6.3	0.2	13.2	20.9	1.1	0	0.1	100.2
232SMc..	Tme	42.9	4.3	11	6.5	-0.1	12	22.6	0.4	0	0.1	99.7
232SM-Rx1	Tme	49.53	1.029	7.59	6.021	0.13	13.019	21.08	1.1	0	0.12	99.619
232SM-Rx2	Tme	49.09	1.35	7.7	6.38	0.14	13.039	20.58	1.12	0	0.06	99.459
232SM-Rx3	Tme	49.94	1.005	7.08	6.035	0.2	13.48	20.88	1.02	0	0.04	99.68
232SM-Rx4	Tme	49.12	1.31	8.07	6.45	0.13	12.99	20.85	1.05	0	0.08	100.05
232SM-Rx5	Tme	49.41	1.32	7.94	6.03	0.14	13.24	20.98	1.03	0	0.08	100.17
235IP-4	Qbd3	43.87	4.06	5.37	14.09	0.28	11.51	20.27	0.71	0	0.12	100.28
235IP-7	Qbd1	48.99	1.82	3.33	8.61	0.29	14.36	21.71	0.48	0	0.07	99.66
235IP-9	Qbd0	49.12	1.87	4.1	7.82	0.25	13.73	22.46	0.57	0	0.02	99.94
235IPc..	Qbd1	48.3	2.2	4.3	9.7	0.3	13.7	21.6	0.5	0	0.1	100.7
237IP-7	Tbl	49.22	2	2.77	12.78	0.31	10.02	21.77	0.23	0	0	99.1
31IP-18	Qbc3	51.25	1.61	3.16	7.94	0.14	14.23	21.84	0.38	0	0.02	100.57
31IP-19	Qbc2	49.15	2.35	5.06	8.5	0.15	12.94	21.94	0.49	0	0.05	100.63
31IP-20	Qbc1	50.79	1.68	3.68	7.4	0.15	14.05	21.83	0.45	0	0.25	100.28
414MCb..	Qla3	48	1.4	8.6	5.8	0.1	13.8	21.6	0.4	0	0.1	99.8
414SM-1	Qla4	47.32	1.76	9.5	6.24	0.06	13.37	21.45	0.52	0	0.11	100.33

414SM-2	Qla5	47.74	1.69	7.93	6.6	0.14	13.58	22.61	0.28	0	0.07	100.64
414SM-3	Qla6	47.96	1.17	8.9	5.45	0.07	13.76	21.08	0.42	0	0.03	98.84
414SM-4	Qla7	48.32	1.43	8.88	5.68	0.1	13.88	21.12	0.51	0	0.13	100.05
414SM-5	Qla8	48.46	1.12	8.18	5.2	0.12	14.32	21.76	0.48	0	0.07	99.71
414SM-6(1)	Qla9	47.24	2.38	6.97	7.33	0.13	13.33	22.78	0.25	0	0.07	100.48
425SM-1	Qla2	46.79	2.38	10.09	6.84	0.05	12.58	21.19	0.47	0	0.12	100.51
425SM-3	Qla0	48	2.17	9.31	6.59	0.17	13.33	20.16	0.49	0	0.28	100.5
425SM-5	Qla1	48.58	1.65	8.86	6.11	0.1	13.8	20.31	0.49	0	0.42	100.32
425SMb..	Qla2	48.2	2	8.7	6.6	0.1	13.5	21	0.4	0	0.3	100.8
42SM-12	Qla3	48.72	1.89	3.65	10.72	0.2	12.85	20.34	0.38	0	0.03	98.78
42SM-11	QTsf	51.24	0.91	2.17	7.81	0.18	15.73	20.32	0.29	0	0.36	99.01
42SM-24	QTsf	50.13	1.48	3.83	8.23	0.25	14.18	21.24	0.29	0	0.23	99.86
42SM-25	QTsf	49.91	1.78	3.64	9.08	0.18	14.02	20.85	0.34	0	0.04	99.84
42SM-26	QTsf	51.5	0.96	1.96	8.88	0.21	14.98	20.73	0.28	0	0.06	99.56
42SM-28	QTsf	49.7	1.85	3.43	10.33	0.22	13.05	20.65	0.4	0	0	99.63
42SM-4	QTsf	49.71	1.4	4	7.54	0.16	14.45	21.53	0.29	0	0.7	99.78
42SM-5	QTsf	48.9	1.63	4.43	8.34	0.2	14.22	20.69	0.34	0	0.32	99.07
42SM-6	QTsf	48.94	2	2.81	12.47	0.21	12.15	20.23	0.43	0	0	99.24
42SMb..	QTsf	49.8	1.5	3.4	9	0.2	14	20.9	0.3	0	0.3	99.4
431SMb..	Qmb6	48.5	2.5	4.5	8.7	0.2	13.1	22	0.4	0	0	99.9
436SM-2	Qej	54.93	0.9	1.78	9.21	0.27	12.58	19.82	0.88	0	0.01	100.38
436SM-4	Qej	48.14	1.39	7.82	7.5	0.19	13.25	20.06	0.8	0	0.37	99.52
436SM-5	Qej	48.35	1.37	7.74	8.14	0.18	13.04	19.55	0.75	0	0.33	99.45
436SMb..	Qej	49.7	1.3	6.4	8.2	0.2	12.9	19.7	0.8	0	0.3	99.5
454S-2	Qsa3	47.55	1.02	7.38	6.58	0.1	14.17	21.62	0.37	0	0.76	99.55
454SS-1	Qsa2	48.55	0.89	7.8	5.65	0.1	15.26	19.61	0.59	0	0.93	99.38
454SS-3	Qsa1	47.25	1.53	9.42	8.69	0.12	14.24	17.65	0.84	0	0.07	99.81
454SS-4	Qsa0	47.89	1.15	6.58	6.49	0.1	14.38	21.57	0.39	0	0.46	99.01
454SSb..	Qsa2	48	1.1	8.5	6.7	0.1	14.4	20	0.6	0	0.5	99.9
488-Bb..	QTwc	50.1	1.1	5.1	5.6	0.1	14.7	21.6	0.7	0	0.3	99.3
488-Ib..	QTwc	50.9	0.7	5.1	5	0.1	15.7	20.7	0.7	0	0.6	99.5
488OM-B-3	QTwc	49.92	1.02	5.35	5.72	0.16	14.62	21.62	0.68	0	0.3	99.39

488OM-B-4	QTwc	50.37	0.95	4.81	5.66	0.11	14.82	21.71	0.69	0	0.23	99.35
488OM-B-6	QTwc	50.27	1.07	4.94	5.58	0.15	14.8	21.42	0.66	0	0.29	99.18
488OM-B-7	QTwc	50.68	1.07	4.66	5.57	0.14	15.11	21.73	0.7	0	0.26	99.92
488OM-B-9	QTwc	49.57	1.18	5.55	5.62	0.16	14.54	21.63	0.75	0	0.42	99.42
488OM-I-1	QTwc	50.72	0.71	5.19	4.93	0.15	15.72	20.53	0.74	0	0.48	99.17
488OM-I-2	QTwc	51.36	0.57	4.7	5.02	0.16	15.93	20.72	0.69	0	0.6	99.75
488OM-I-3	QTwc	50.68	1.02	5.33	4.83	0.12	15.57	20.03	0.79	0	0.39	98.76
488OM-I-4	QTwc	50.79	0.59	5.27	5.01	0.14	15.66	20.67	0.74	0	0.6	99.47
488OM-I-5	QTwc	50.61	0.71	5.34	5.11	0.12	15.6	20.77	0.75	0	0.54	99.55
488OM-I-6	QTwc	50.9	0.71	5.01	4.85	0.13	15.65	20.92	0.73	0	0.6	99.5
488OM-I-7	QTwc	51.28	0.56	4.8	5.03	0.13	15.86	21.25	0.69	0	0.7	100.3
488OM-I-8	QTwc	50.84	0.57	5.23	5.07	0.11	15.68	20.76	0.69	0	0.64	99.59
488OM-N2-1	QTwc	51.39	0.11	4.2	19.62	0.32	24.08	0.55	0.01	0	0.22	100.5
488OM-N2-2	QTwc	51.32	0.12	4.08	19.66	0.35	24.24	0.47	0	0	0.23	100.47
488OM-N2-3	QTwc	51.2	0.11	4.38	19.57	0.32	24.27	0.37	0.02	0	0.24	100.48
488OM-N2-4	QTwc	50.98	0.22	4.27	19.37	0.32	24.08	0.78	0.03	0	0.21	100.26
488OM-N2-5	QTwc	51.23	0.14	4.36	19.1	0.34	23.88	1.05	0.06	0	0.18	100.34
488OM-N2-6	QTwc	51.1	0.14	4.48	19.78	0.33	24.02	0.47	0	0	0.17	100.49
488OM-N2-7	QTwc	51.1	0.31	4.17	19.54	0.35	24.14	0.43	0.01	0	0.21	100.26
488OM-N2-8	QTwc	51.27	0.1	4.44	19.83	0.38	24.04	0.4	0	0	0.21	100.67
50SM-11	Qld8	45.64	3.98	7.01	8.59	0.19	11.66	22.91	0.49	0	0.06	100.53
50SM-13	Qld7	46.03	3.75	4.64	8.72	0.23	12.13	24.58	0.54	0	0.06	100.68
50SM-15	Qld6	46.24	3.57	5.29	8.9	0.26	12.05	23.35	0.59	0	0.03	100.28
50SM-8	Qld1	44.5	4	7.43	8.81	0.18	11.73	22.07	0.53	0	0	99.25
50SMc..	Qld1	45	4.1	7.3	8.9	0.2	11.8	23.1	0.5	0	0	100.9
6T-3	Qsg1	49.39	1.51	3.95	7.39	0.2	14.11	21.96	0.36	0	0.65	99.52
6Tb..	Qsg1	49.4	1.4	3.8	7.5	0.2	14.3	21.6	0.4	0	0.5	99.1
71MCb..	Qd	49.8	1.7	2.5	10.4	0.3	13.9	20.7	0.4	0	0.1	99.8
72Mc-10	Thb8	52.64	1.13	2.29	7.92	0.23	15.75	20.46	0.29	0	0.28	100.99
72Mc-12	Thb7	50.82	1.9	3.65	8.53	0.22	14.06	20.27	0.79	0	0.1	100.34
72Mc-5	Thb3	51.06	1.48	3.4	8.23	0.11	14.8	21.19	0.4	0	0.06	100.73
72Mc-7	Thb1	51.91	1.39	2.61	8.16	0.2	15.02	21.11	0.42	0	0.09	100.91

All whole rock major element and mineral chemistry data and sample locations can be found in the Macintosh-only Dynamic Digital Map of the Springerville volcanic field (DDM-SVF) which can be downloaded via links from the URL <http://ddm.geo.umass.edu/>. DDM.SVF was originally published by the GSA (Condit, 1995) on a now out of print CD-ROM; the present download is an update of that CD, which itself is based on the USGS MI 2431 (Condit and others, 1999). DDM.SVF is being updated to a web-accessible cross-platform version (see URL above for availability).

Information on analytical techniques for whole-rock data and mineral chemistry can be found in Condit, 1984). Whole rock major element analyses are from the USGS Lakewood CO. lab. Mineral chemistry (for details see Condit, 1984, Appendix 1) were obtained by ARL electron microprobe analyses made by Condit; mineral standards used were the same used for Lunar sample analysis at the time.

Condit, C.D., 1984, The geology of the western part of the Springerville volcanic field, east-central Arizona: (unpublished Ph.D. dissertation), University of New Mexico, Albuquerque, 453 p.

Condit, C.D., 1995, Dynamic Digital Map: The Springerville Volcanic Field: Prototype color digital maps with ancillary data, Boulder Colorado, Geological Society of America Digital Publication Series DPSM01MC, ver. 4.10.95

Condit, C.D., Crumpler, L.S., and Aubele, J.C., 1999, Lithologic, age group, magnetopolarity, and geochemical maps of the Springerville volcanic field, east-central Arizona: U.S. Geological Survey Miscellaneous Investigations, I-2431.