DATA REPOSITORY FOR:

The Steens Basalt: Earliest Lavas of the Columbia River Basalt Group

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(1) Major- and trace-element analyses of Stratigraphic Sections
(2) Details of Ar-Ar Geochronology

MAJOR-ELEMENT ANALYSES OF STRATIGRAPHIC SECTIONS

ABERT RIM POWERLINE ROAD SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR6-618	48.19	15.29	13.21	8.91	5.006	1.194	3.34	0.203	2.739	0.496
CR6-618A	48.32	14.85	13.37	8.9	4.966	1.217	3.31	0.202	2.814	0.529
CR6-618B	49.07	16.48	11.86	9.32	4.344	1.166	3.38	0.185	2.52	0.476
CR6-618C	48	14.67	13.78	8.86	4.622	1.181	3.2	0.203	2.865	0.525
CR6-619	48.57	16.41	10.62	10.58	6.855	0.736	2.93	0.19	1.51	0.268
CR6-620	48.65	16.42	10.7	10.74	6.92	0.639	2.87	0.185	1.522	0.272
CR6-621	48.32	16.39	10.75	10.72	7.064	0.641	2.89	0.174	1.512	0.268
CR6-622	48.43	16.86	11.73	9.65	5.299	0.876	3.31	0.179	2.162	0.392
CR6-623	48.72	17.77	11.51	9.91	5.371	0.844	3.28	0.191	1.74	0.322
CR6-624	47.2	17.38	11.11	10.86	5.282	0.809	3.18	0.18	1.663	0.305
CR6-625	48.56	15.78	12.91	8.62	4.659	1.367	3.5	0.197	2.818	0.538
CR6-626	48.27	15.46	13.21	8.57	4.805	1.301	3.46	0.201	2.864	0.526
CR6-627	47.88	14.81	13.66	8.36	4.896	1.327	3.4	0.198	2.979	0.552
CR6-628	48.25	15.13	13.36	8.42	4.862	1.368	3.5	0.204	2.925	0.591
CR6-629	48.18	14.76	13.33	8.73	4.833	1.274	3.31	0.199	2.87	0.539
CR6-630	48.14	15	13.47	8.74	5.172	1.205	3.28	0.201	2.791	0.508
CR6-631	48.03	14.75	13.69	8.67	5.154	1.259	3.35	0.203	2.872	0.511
CR6-632	47.51	16.99	11.32	10.07	6.044	0.592	2.97	0.2	1.655	0.258

ADEL SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR04-553	45.16	14.91	10.53	9.95	9.41	0.82	1.97	0.155	1.918	0.178
CR04-554	45.48	14.51	11.18	9.94	10.09	0.58	2.08	0.166	2.079	0.186
CR04-555	46.14	14.66	11.33	10.75	10.27	0.45	2.17	0.168	1.98	0.186
CR04-556	45.87	15.22	12.15	9.96	8.73	0.62	2.31	0.187	1.877	0.245
CR04-557	45.49	13.15	11.49	10.1	11.61	0.41	1.93	0.187	1.427	0.182
CR04-558	46.39	14.2	10.9	10.86	9.67	0.42	2.11	0.18	1.485	0.188
CR04-564	46.83	15.13	10.41	12	7.03	0.44	2.27	0.161	1.603	0.2
CR04-565A	46.28	14.2	10.73	10.97	9.37	0.4	2.09	0.177	1.447	0.185
CR04-565I	47.85	14.84	11.17	11.53	8.73	0.45	2.36	0.177	1.608	0.201
CR04-566	47.02	15.45	11.14	10.28	8.19	0.53	2.44	0.175	1.745	0.226
CR04-567	48.61	16.09	10.47	10.23	7.38	0.72	2.82	0.159	1.556	0.28
CR04-568	47.2	16.47	11.59	9.64	6.9	0.66	2.94	0.172	1.805	0.256
CR04-569	46.51	15.92	10.35	9.93	8.77	0.44	2.28	0.189	1.41	0.193
CR04-570	47.34	16.15	10.05	10.06	8.13	0.58	2.44	0.158	1.456	0.225
CR04-571	46.81	15.76	10.92	10.09	8.5	0.52	2.57	0.166	1.568	0.214

BLACK CANYON RESERVOIR SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR03-475	46.78	16.07	10.19	9.82	5.82	0.45	2.78	0.188	2.078	0.309
CR03-475A	49.55	16.2	10.22	8.82	4.89	1.09	3.4	0.171	1.818	0.476
CR03-476	47.3	16.21	10.27	9.81	5.65	0.56	2.86	0.143	2.13	0.32
CR03-477	48.86	15.84	11.06	9.65	5.82	0.75	3.04	0.191	2.068	0.336
CR03-478	48.08	15.61	11.36	9.72	5.78	0.64	2.98	0.154	2.087	0.35
CR03-479	47.29	15.55	10.91	9.37	6.63	0.59	2.88	0.169	2.046	0.333
CR03-480	50.92	15.82	9.92	9.08	5.48	0.82	3.15	0.186	1.559	0.266
CR03-481	48.58	16.13	9.67	9.53	5.14	0.47	2.92	0.147	1.574	0.265
CR03-482	48.69	16.45	9.74	10.65	5.11	0.5	2.96	0.19	1.724	0.294
CR03-483	47.08	15.45	10.64	9.76	6.39	0.51	2.69	0.158	1.656	0.274
CR03-484	47.55	15.58	10.53	9.58	6.31	0.97	2.67	0.182	1.689	0.282
CR03-485	47.21	15.48	12.47	8.12	4.47	1.05	3.17	0.188	2.936	0.51
CR03-486	47.74	17.07	11.34	8.98	3.77	0.86	3.44	0.205	2.705	0.473
CR03-487	49.03	20.2	7.77	10.47	3.92	0.52	3.21	0.119	1.341	0.236
CR03-488	46.96	18.53	10.05	9.04	4.65	1.09	2.91	0.175	1.749	0.29
CR03-489	48.75	17.87	10.14	9.67	4.77	0.58	3.2	0.164	1.695	0.293
CR03-490	48.32	19.7	8.21	10.36	3.82	0.36	3.22	0.149	1.444	0.246
CR03-491	51.19	16.67	9.24	8.31	3.13	1.42	3.65	0.18	1.898	0.543
CR03-492	47.41	17.42	10.25	9.59	3.87	0.62	3.17	0.121	1.829	0.442
CR03-493	48.58	17.2	9.79	9.23	4.45	0.84	3.17	0.151	1.694	0.411
CR03-494	47.18	15.87	10.52	9.12	5.82	0.66	2.88	0.166	1.876	0.281

CR03-495	45.2	15.06	11.66	9.11	6.39	0.31	2.57	0.273	1.963	0.293
CR03-496	45.65	15.56	12.44	10.02	4.88	0.3	2.86	0.177	2.18	0.323
CR03-497	45.71	15.34	12.36	10.04	4.95	0.3	2.74	0.157	2.254	0.329
CR03-498	45.78	15.45	12.01	9.86	5.55	0.27	2.75	0.163	2.151	0.316
CR03-499	46.33	15.66	11.46	9.38	5.93	0.43	2.66	0.183	1.913	0.283
CR03-500	45.02	15.52	11.17	8.73	6.66	0.85	2.15	0.226	1.853	0.275
CR03-501	45.76	15.97	11.59	9.61	4.98	0.43	2.61	0.163	1.888	0.281
CR03-502	48.01	16.83	9.83	9.84	5.09	0.63	2.97	0.126	1.919	0.287
CR03-503	46.17	16.21	12.14	10.12	4.16	0.4	2.88	0.131	2.128	0.314
CR03-504	48.3	16.87	10.91	9.34	4.02	0.79	3.28	0.171	2.163	0.399
CR03-505	46.58	16.08	11.04	8.76	5.76	0.75	2.91	0.262	2.143	0.45
CR03-506	48.54	16.3	11	9.11	3.77	0.86	3.27	0.188	2.217	0.461
CR03-507	50.63	15.77	10.82	8.24	3.16	1.54	3.55	0.172	2.3	0.538
CR03-508	50.12	17.35	9.83	9.29	3.47	0.82	3.54	0.234	1.871	0.426
CR03-509	47.97	14.87	12.84	8.96	3.97	0.81	3.15	0.24	2.854	0.658

CATLOW PEAK SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CP-01	74.13	11.17	2.74	0.18	0.03	4.61	4.17	0.049	0.216	0.07
CP-02	60.2	15.37	6.77	3.78	1.29	3.58	4.49	0.131	1.526	0.656
CP-03	47.31	16.05	12.62	8.67	6.48	0.92	3.27	0.191	2.257	0.356
CP-04	53.38	14.44	10.44	6.42	2.97	2.44	3.8	0.176	2.612	0.672
CP-05	56.12	15.58	8.22	6.13	3.69	2.39	3.39	0.131	1.462	0.291
CP-06	49.62	16.73	10.55	8.44	4.84	1.36	3.37	0.168	1.93	0.365
CP-07	50.09	16.55	10.49	8.29	5.08	1.39	3.31	0.162	1.877	0.336
CP-08	51.33	15.57	10.9	7.65	5.27	1.5	3.45	0.176	1.973	0.359
CP-09	53.18	15.61	9.68	6.91	4.49	1.98	3.38	0.151	1.69	0.341
CP-10	49	18.15	10.17	9.2	5.21	1.02	3.54	0.158	1.731	0.405
CP-11	51.16	16.68	10	8.54	4.29	1.5	3.31	0.158	1.88	0.328
CP-11 (JAI	51.42	16.73	10.1	8.37	4.22	1.42	3.48	0.158	1.908	0.336
CP-12	51.09	16.22	10.19	8.32	4.36	1.55	3.31	0.163	1.929	0.336
CP-13	50.93	16.09	10.39	8.16	4.31	1.59	3.26	0.167	1.982	0.349
CP-13A	48.06	16.59	10.53	10.2	7.06	0.61	3.06	0.171	1.62	0.254
CP-14	50.45	15.67	11.08	7.9	5.28	1.59	3.25	0.168	2.04	0.385
CP-14A	47.65	20.91	8.14	10.93	4.04	0.45	3.17	0.134	1.368	0.198
CP-14AA	50.42	15.69	11.13	8.03	5.45	1.48	3.41	0.17	2.068	0.378
CP-15	48.25	20.4	9.21	10.45	4.34	0.58	3.25	0.14	1.509	0.213
CP-15A	47.77	19.42	10.24	10.38	4.75	0.57	3.22	0.157	1.68	0.235
CP-16	47.44	20.19	9.4	10.59	4.14	0.52	3.17	0.145	1.49	0.212
CP-17	47.39	19.79	9.68	10.36	4.26	0.54	3.15	0.148	1.558	0.217
CP-18	47.67	17.3	11.73	9.28	5.91	0.71	3.21	0.178	1.856	0.263
CP-19	48.54	16.33	11.4	8.93	5.25	1.01	3.27	0.183	2.054	0.341
CP-20	48.39	18.44	10.04	9.8	3.66	0.9	3.44	0.159	2.098	0.384
CP-20 (JAI	49.1	19.37	9.51	9.99	3.58	0.86	3.55	0.151	1.947	0.352
CP-21	48.77	18.8	10.01	9.84	3.82	0.89	3.56	0.159	2.052	0.37
CP-22	48.53	18.43	10.2	9.6	3.96	0.91	3.54	0.161	2.089	0.372
CP-23	48.04	15.1	13.13	8.51	4.88	1.27	3.48	0.208	2.883	0.53
CP-24	48.11	15.32	12.55	8.37	4.5	1.28	3.5	0.199	2.766	0.517
CP-25	48.03	15.04	12.95	8.67	4.77	1.29	3.42	0.206	2.888	0.521
CP-26	48.04	17.29	10.7	8.98	3.93	1.07	3.44	0.17	2.291	0.425
CP-27	47.61	14.62	13.16	8.01	4.56	1.38	3.53	0.207	2.903	0.539
CP-28	48.36	17.18	11.19	8.94	4.06	1.11	3.53	0.177	2.417	0.45
CP-29	48.07	15.98	12.44	8.69	4.31	1.24	3.52	0.197	2.779	0.518
CP-30	48.28	15.22	13.11	7.94	4.31	1.39	3.58	0.207	2.966	0.525
CP-31	48.01	15.34	12.95	7.98	4.28	1.33	3.54	0.207	2.884	0.502
CP-32	46.99	16.49	11.49	10.55	7.47	0.38	2.77	0.185	1.613	0.195
CP-33	47.83	16.62	11.45	10.46	7.62	0.43	2.8	0.182	1.633	0.199
CP-34	47.92	16.59	11.52	10.44	7.65	0.46	2.81	0.183	1.633	0.199
CP-35	47.04	16.35	11.41	10.21	7.48	0.44	2.79	0.182	1.633	0.195
CP-36	47.21	16.24	11.59	10.36	7.56	0.43	2.61	0.183	1.642	0.183
CP-38	47.25	16.23	11.54	10.37	7.07	0.46	2.61	0.184	1.664	0.183
CP-39	47.09	16.11	11.61	10.22	7.54	0.45	2.64	0.184	1.66	0.204
CP-39 (JAI	47.24	16.13	11.63	10.34	7.72	0.45	2.64	0.184	1.681	0.191
CP-40	47.53	15.12	12.26	9.87	7.14	0.65	2.82	0.191	2.047	0.252
CP-41	47.75	15.38	11.92	9.83	7.18	0.7	2.73	0.187	1.907	0.244
CP-42	47.53	14.14	13.47	8.36	4.86	1.42	3.35	0.212	3	0.564
CP-43	47.87	15.3	12.6	8.8	4.39	1.22	3.41	0.2	2.873	0.516
CP-44	47.83	14.48	11.7	8.23	4.17	1.42	3.48	0.208	2.918	0.559

CP-45	49.36	17.43	10.49	8.85	3.71	1.3	3.69	0.17	2.434	0.497
CP-46	48.18	16.62	11.9	8.83	3.68	1.27	3.59	0.182	2.611	0.542
CP-47	49.47	17.3	10.74	8.8	3.82	1.36	3.68	0.175	2.499	0.5
CP-48	55.74	14.86	8.39	5.83	2.59	2.94	3.27	0.137	1.89	0.443
CP-49	47.24	16.01	10.81	10.33	7.6	0.49	2.79	0.176	1.678	0.223
CP-50	48.53	17.88	10.12	10	4.55	0.87	3.18	0.159	1.843	0.314
CP-51	49.17	17.85	10.32	9.12	4.27	1.14	3.48	0.158	1.864	0.349
CP-52	49.26	16.7	10.97	8.96	4.76	1.27	3.43	0.171	1.94	0.359
CP-53	49.62	13.41	12.07	8.1	4.3	1.78	3.1	0.189	2.501	0.465
CP-54	50.19	15.47	10.73	8.64	4.04	1.58	3.26	0.167	2.15	0.404
CP-55	47.92	17.53	10.85	9.86	5.43	0.78	3.03	0.164	1.904	0.257
CP-56	48.64	19.58	9.11	10.71	4.96	0.58	3.1	0.139	1.552	0.212
CP-57	49.12	15.43	10.42	10.61	7.1	0.69	2.51	0.172	1.55	0.192
CP-58	47.93	19.88	9.45	10.52	4.08	0.6	3.22	0.141	1.707	0.258
CP-60	48.74	19	9.49	9.9	3.91	0.92	3.41	0.145	1.757	0.321
CP-61	47.74	19.65	9.64	10.46	4.55	0.53	3.15	0.143	1.882	0.239
CP-62	49.88	16.01	9.37	10.06	7.64	0.84	2.71	0.156	1.315	0.229
CP-63	49.72	15.68	9.7	10.07	6.87	0.94	2.75	0.164	1.486	0.247
CP-64	49.5	15.13	10.23	10.1	5.89	0.94	2.77	0.173	1.7	0.291
CP-65	49.24	15.35	9.92	10.08	6.9	0.92	2.69	0.163	1.489	0.244
CP-66	70.39	12.29	4.24	0.46	0.09	5	4.06	0.131	0.422	0.084
CP-67	73.55	10.61	3.58	0.38	0.08	4.57	4.24	0.092	0.305	0.027

COTTONWOOD CREEK SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR03-443	55.61	13.52	10.9	6.53	2.95	1.91	3.35	0.188	2.129	0.712
CR03-444	48.27	15.16	11.33	10.68	7.74	0.49	2.66	0.173	1.931	0.285
CR03-445	47.07	15.95	11.08	9.43	7.8	0.52	2.74	0.162	1.918	0.28
CR03-446	46.12	15.87	11.4	10.5	5.69	0.47	2.88	0.179	1.886	0.275
CR03-447	47.52	14.89	11.84	8.24	3.6	1.36	3.37	0.184	2.564	0.612
CR03-448	47.1	15.48	10.87	10.13	5.94	0.57	2.79	0.171	1.838	0.292
CR03-449	46.78	16.44	11.12	9.76	3.6	0.83	3.19	0.175	2.142	0.361
CR03-450	47.23	16.54	11.99	9.68	2.24	0.82	3.21	0.223	2.179	0.371
CR03-451	48.38	15.05	12	9.02	5.52	0.95	3.03	0.176	2.274	0.391
CR03-452	46.54	15.61	11.27	9.24	7.26	1.11	2.5	0.171	1.984	0.309
CR03-453	46.97	15.18	11.82	9.16	6.88	0.63	2.82	0.172	2.121	0.301
CR03-454	48.65	15.93	11.9	8.69	5.37	0.97	3.22	0.16	2.386	0.399
CR03-455	50.99	15.03	10.63	8.38	4.81	1.27	2.89	0.159	2.074	0.353
CR03-456	49.43	15.96	10.63	9.48	5.16	0.96	2.87	0.171	1.949	0.317

LONE TREE SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR03-460	50.68	15.37	11.61	8.3	4.44	1.22	3.21	0.172	2.255	0.448
CR03-461	48.05	16.21	10.91	10.47	6.95	0.36	2.81	0.188	1.827	0.24
CR03-462	48.33	15.52	10.71	10.88	8.23	0.26	2.53	0.199	1.713	0.184
CR03-463	47.95	14.66	11.03	10.66	7.93	0.31	2.41	0.192	1.707	0.193
CR03-464	48.17	16.28	10.89	10.78	6.73	0.31	2.72	0.167	1.735	0.218
CR03-465	48.75	16.11	10.92	10.09	6.78	0.45	2.82	0.181	1.829	0.259
CR03-466	47.92	16.39	10.87	10.89	6.7	0.28	2.72	0.173	1.718	0.216
CR03-467	48.05	14.63	11.27	10.87	8.2	0.3	2.5	0.178	1.806	0.217
CR03-468	48.34	16.36	10.91	10.75	6.73	0.33	2.74	0.155	1.732	0.222
CR03-469	48.73	16.23	10.91	10.24	6.98	0.5	2.95	0.167	1.779	0.251
CR03-470	54.07	14.88	10.5	7.05	3.11	1.88	3.29	0.153	2.612	0.504
CR03-471	47.03	15.08	13.65	7.61	3.35	1.8	3.72	0.182	3.716	1.19
CR03-472	51.52	15.1	10.53	9.69	7.7	0.65	2.84	0.171	1.901	0.31
CR03-473	50.45	15.22	11.25	8.8	5.88	0.8	3.19	0.161	2.396	0.633
CR03-474	48.92	14.83	10.82	10.31	8.44	0.28	2.5	0.162	1.699	0.197

OREGON CANYON ROAD SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR-641	54.35	14.23	11.23	6.12	3.16	2.15	3.76	0.165	2.135	0.517
CR-642	75.14	11.69	2.69	0.11	0.07	4.63	3.96	0.024	0.224	0.025
CR-643	75.93	11.42	2.39	0.13	0.04	4.7	4.19	0.025	0.197	0.034
CR-644	57.12	15.35	7	6.3	2.31	2.79	4.04	0.131	2.072	0.809

CR-645	53.62	13.84	11.32	7.06	3.46	1.83	3.22	0.151	2.039	0.369
CR-646	53.08	14.22	12.24	6.86	3.87	1.93	3.63	0.18	2.261	0.5
CR-647	74.12	10.88	4.07	0.54	0.01	4.58	4.34	0.115	0.381	0.046
CR-648	74.08	11.43	3.1	0.37	0.18	4.88	4.17	0.093	0.271	0.038
CR-649	73.69	11.91	3.38	0.31	0.04	5	4.1	0.083	0.311	0.028
CR-650	59.69	13.75	9.75	4.16	1.14	3.76	3.22	0.15	1.505	0.604

Note: Tuff of Oregon Canyon can be traced from Oregon Canyon to Oregon Canyon Mtn Rd section. Ttc = 642 and 643. The Tuff of Trout Creek (Tt t= 647,

POKER JIM RIDGE SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
JM-01	47.82	17.92	10.9	11.77	6.52	0.18	2.75	0.175	1.544	0.172
JM-02	48.14	16.31	11.63	10.32	6.36	0.62	2.89	0.181	1.953	0.287
JM-03	45.81	15.64	10.73	8.7	8.51	0.52	2.41	0.142	1.627	0.237
JM-04	48.69	16.21	10.46	10.43	7.39	0.73	2.64	0.172	1.41	0.232
JM-05	48.71	16.46	10.39	10.46	7.2	0.67	2.7	0.171	1.428	0.246
JM-06	49.11	16.76	10.03	10.76	7.28	0.64	2.74	0.166	1.401	0.228
JM-07	48.08	15.14	10.76	10.29	7.85	0.61	2.64	0.174	1.665	0.257
JM-08	47.36	15.59	11.01	11.32	8.09	0.39	2.49	0.178	1.61	0.224
JM-09	48.81	15.75	10.95	10.51	7.44	0.65	2.73	0.181	1.685	0.215
JM-10	48.25	15.96	10.95	10.81	7.56	0.65	2.57	0.176	1.72	0.237
JM-11	49.65	15.55	10.55	10.61	7.29	0.81	2.61	0.177	1.635	0.213
JM-12	47.83	16.1	11.72	8.84	6.13	0.84	3.12	0.17	1.927	0.311
PJ-01	48.89	18.81	9.92	10.08	4.43	0.76	3.35	0.185	1.877	0.328
PJ-02	47.55	17.34	11.23	9.58	6.02	0.78	3.17	0.171	1.745	0.315
PJ-03	48.03	17.47	11.16	9.72	5.56	0.77	3.24	0.188	1.707	0.307
PJ-04	48.71	17.69	11.13	9.79	5.19	0.9	3.33	0.177	2.001	0.367
PJ-05	48.91	17.13	11.03	9.61	4.6	1.02	3.43	0.178	2.31	0.417
PJ-06	48.56	15.92	12.83	7.78	3.86	1.4	3.64	0.183	2.542	0.49
PJ-07	48.56	17.52	11.65	8.61	3.9	1.16	3.57	0.185	2.161	0.421
PJ-08	48.62	17.99	10.24	8.83	3.66	1.16	3.63	0.18	2.119	0.388
PJ-09	48.35	17.01	12.01	8.43	4.21	1.21	3.57	0.2	2.258	0.408
PJ-10	48.46	17.03	12.03	8.36	4.23	1.18	3.56	0.172	2.24	0.405
PJ-12	48.45	14.26	13.95	8.14	4.85	1.48	3.51	0.24	3.094	0.576
PJ-13	48.31	15.11	12.72	8.27	4.37	1.45	3.57	0.382	2.819	0.54
PJ-14	48.63	15.24	12.82	8.32	4.41	1.46	3.61	0.386	2.842	0.545
PJ-15	48.88	15.31	12.93	8.59	4.59	1.35	3.48	0.204	2.849	0.54
PJ-16	48.95	16.65	11.62	8.76	4	1.34	3.44	0.195	2.631	0.512
PJ-16x2	48.47	16.25	12.03	8.58	4.29	1.28	3.47	0.206	2.665	0.502
PJ-17	49.31	17.36	11.3	8.96	4	1.26	3.61	0.179	2.524	0.477
PJ-18	49.55	17.56	11.28	8.98	4.08	1.26	3.6	0.174	2.48	0.466
PJ-19	48.83	16.69	11.88	8.83	4.41	1.24	3.5	0.181	2.595	0.47
PJ-20	48.36	15.03	13.16	8.37	4.42	1.44	3.32	0.214	2.907	0.546
PJ-21	48.17	14.73	13.16	8.33	4.47	1.38	3.44	0.216	2.928	0.549
PJ-21x2	48.03	15.1	12.98	8.27	4.6	1.36	3.43	0.207	2.829	0.522
PJ-22	48.88	16.27	12.01	8.83	4.48	1.24	3.42	0.185	2.621	0.492
PJ-23	47.64	14.69	12.96	8.47	4.76	1.36	3.17	0.199	2.832	0.527
PJ-24	49.01	16.23	12.08	8.85	4.54	1.22	3.41	0.202	2.619	0.482
PJ-25	47.82	14.34	13.56	8.4	4.74	1.32	3.26	0.214	2.995	0.565
PJ-26	48.73	16.45	11.84	8.94	4.1	1.36	3.21	0.183	2.547	0.489
PJ-27	51.02	14.46	11.91	7.47	3.71	1.95	3.93	0.243	2.506	0.747
PJ-28	50.96	14.54	11.98	7.63	3.92	1.95	4.04	0.229	2.511	0.749
PJ-29	46.68	17.14	11.35	9.49	4.69	0.97	3.4	0.189	2.184	0.37
PJ-30	47.76	17.35	11.53	9.73	4.65	0.68	3.07	0.284	1.709	0.254
PJ-31	46.85	16.47	11.13	9.77	5.96	0.67	2.96	0.194	1.677	0.245
PJ-32	47.55	17.16	11.3	9.57	5.12	0.67	3.06	0.298	1.657	0.24
PJ-33	47.88	17.41	11.2	9.71	6	0.57	3.03	0.178	1.639	0.239
PJ-34	48.72	15.29	12.93	7.68	3.93	1.55	3.59	0.225	2.756	0.527
PJ-35	48.57	15.1	13.09	7.61	4.15	1.54	3.56	0.197	2.798	0.536
PJ-36	48.2	16.18	12.18	8.74	5.29	0.89	3.4	0.2	2.133	0.331
PJ-37	52.36	13.69	12.08	7.1	3.73	1.85	3.32	0.198	2.534	0.538
PJ-38	52.53	13.8	12.16	7.16	3.62	1.7	3.44	0.204	2.56	0.539
PJ-39	52.08	13.85	12.08	7.36	3.78	1.8	3.31	0.194	2.478	0.506
PJ-40	47.47	17.34	7.95	13.26	9.52	0.25	2	0.159	0.644	0.129

REYNOLDS SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]

CR423	47.47	15.18	11.13	9.78	9.3	0.35	2.5	0.159	1.86	0.224
CR424	47.25	16.2	11.63	10.38	4.34	0.39	2.68	0.107	1.931	0.219
CR425	49.17	14.06	10.68	9.55	8.18	0.39	2.44	0.158	1.738	0.233
CR426	49.97	14.16	10.64	9.49	8.84	0.55	2.45	0.153	1.734	0.24
CR427	47.83	16.18	11.09	10.62	7.38	0.35	2.86	0.156	1.938	0.293
CR428	48.95	14.06	10.37	9.24	9.45	0.29	2.19	0.132	1.605	0.217
CR429	48.76	15.86	10.52	9.15	7.11	0.78	2.82	0.149	1.856	0.304
CR430	47.51	15.45	11.3	10.26	8.77	0.41	2.65	0.172	1.777	0.245
CR431	49.69	14.03	10.7	9.79	8.91	0.17	2.26	0.187	1.691	0.226
CR432	50.19	13.99	10.81	9.31	9.54	0.54	2.45	0.164	1.744	0.236
CR433	50.05	14.23	10.53	9.33	9.24	0.52	2.43	0.154	1.736	0.231
CR434	48.5	15.57	10.95	9.25	6.75	0.78	2.79	0.161	1.87	0.301
CR435	48.71	15.28	10.48	10.29	8.66	0.48	2.52	0.146	1.763	0.258
CR436	48.77	15.85	10.77	9.82	7.82	0.58	2.75	0.146	1.857	0.3
CR437	47.9	15.76	11.32	10.12	8.98	0.41	2.72	0.174	1.783	0.25
CR438	66.68	13.55	5.94	3.32	0.86	3.36	3	0.07	0.945	0.223

SQUAW CREEK SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR356	51.05	15.02	10.19	8.13	3.85	1.14	2.99	0.168	2.28	0.455
CR357	48.08	15.6	11.16	9.5	6.91	0.58	2.86	0.152	1.98	0.309
CR358	46.94	15.41	11.24	9.92	8.23	0.46	2.7	0.17	1.866	0.269
CR359	47.08	15.58	11.2	10	8.5	0.44	2.68	0.173	1.786	0.252
CR360	49.82	15.83	10.6	9.06	5.64	0.82	3.06	0.154	2.177	0.38
CR361	47.93	17.35	11.54	9.13	4.06	0.75	3.38	0.183	2.557	0.467
CR362	48.39	16.25	11.46	8.42	5.33	1.01	3.25	0.149	2.531	0.458
CR363	47.2	16.02	12.26	8.61	6.4	0.74	3.08	0.168	2.288	0.393
CR364	48.99	16.61	11.02	9.01	5.76	0.87	3.16	0.154	2.146	0.334
CR365	47.69	16.43	11.79	9.08	5.41	0.61	3.12	0.163	2.06	0.339
CR366	48.64	16.17	11.06	9.14	5.17	0.94	3.16	0.238	2.274	0.368
CR367	50.95	15.73	10.63	8.24	4.78	1.25	3.31	0.136	2.202	0.489
CR368	47.2	16.01	10.98	8.74	7.32	0.59	2.77	0.133	1.862	0.274
CR369	50.23	15.91	10.41	8.73	6.44	0.96	3.03	0.138	1.747	0.3
CR370	51.89	14.62	11.55	7.9	4.17	1.7	3.12	0.163	2.644	0.519
CR371	50.35	16.69	10.36	8.76	5.89	0.74	3.51	0.154	1.918	0.327

STEENS MOUNTAIN SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
MF94-63	49.71	16.27	11.19	9.26	6.96	0.88	3.02	0.17	2.22	0.31
MF94-64	49.85	18.39	9.84	10.62	5.03	0.6	3.14	0.16	2.09	0.29
MF94-65	49.45	14.71	11.49	9.18	8.89	0.89	2.85	0.18	2.03	0.33
MF94-66	49.34	14.32	11.06	9.88	10.09	0.64	2.45	0.18	1.81	0.23
MD94-67	50.24	14.77	11.81	10.23	6.51	0.79	2.87	0.18	2.32	0.28
MF94-68	50.9	16.09	9.76	10.32	7.01	0.69	2.87	0.17	1.96	0.23
MF94-69	49.43	14.77	10.37	10.28	9.82	0.56	2.58	0.17	1.81	0.21
MF94-70	49.88	18.11	9.53	10.42	6.01	0.59	3.04	0.16	1.97	0.29
MF9471A	49.01	15.51	11.66	10.16	7.31	0.69	2.94	0.18	2.23	0.3
MF9471B	48.91	16.55	11.24	10.13	6.64	0.69	3.14	0.18	2.22	0.31
MF9471C	49.15	15.34	11.41	10.21	7.52	0.74	2.93	0.19	2.23	0.3
MF94-72	49.42	14.22	10.72	9.92	10.72	0.51	2.44	0.18	1.67	0.21
JS001	50.26	17.74	9.73	9.99	6.1	0.77	2.99	0.12	2	0.29
JS002	50.15	14.66	10.63	10.6	8.57	0.66	2.39	0.179	1.936	0.228
JS003	50.78	16.16	9.94	10.33	6.93	0.68	2.78	0.169	1.982	0.235
JS004	49.06	14.35	10.89	9.99	10.66	0.57	2.31	0.177	1.786	0.209
JS005	49.4	16.84	10.38	10.78	7.12	0.5	2.67	0.166	1.923	0.222
JS006	50.42	16.44	9.96	10.65	6.66	0.67	2.76	0.167	2.043	0.234
JS007	49.06	14.89	12.82	10.43	6.29	0.53	2.81	0.197	2.66	0.31
JS008	49.97	14.76	11.2	10.83	7.43	0.61	2.52	0.184	2.243	0.265
JS009	50.16	14.92	11.15	10.63	7.31	0.7	2.52	0.168	2.197	0.253
JS010	48.93	14.71	11.99	11.08	7.33	0.54	2.48	0.192	2.485	0.263
JS011	48.03	15.79	10.96	10.74	9.79	0.28	2.26	0.172	1.798	0.182
JS012	48.83	15.16	10.95	11.36	8.58	0.36	2.33	0.181	2.033	0.214
JS013	48.82	13.39	11.34	9.6	12.02	0.57	2.14	0.185	1.722	0.205
JS014	49.29	14.36	10.68	10.37	10.74	0.37	2.22	0.175	1.629	0.171
JS015	50.21	15.06	10.12	10.82	8.94	0.39	2.36	0.176	1.727	0.192
JS016	49.61	14.87	10.21	10.24	9.87	0.53	2.45	0.168	1.825	0.225

JS017	50.57	14.82	9.55	10.05	9.76	0.59	2.46	0.17	1.823	0.213
JS018	50.23	15.26	10.13	10.3	8.61	0.68	2.6	0.165	1.827	0.207
JS019	51.56	15.32	11.02	9.19	5.15	1.17	3.25	0.19	2.77	0.376
JS020	51.57	14.69	12.01	8.81	5.22	1.38	3.01	0.196	2.72	0.394
JS021	50.72	14.73	12.02	9.27	5.68	1.09	3.17	0.197	2.72	0.39
JS022	49.49	16.13	10.16	10.5	8.44	0.48	2.58	0.166	1.845	0.19
JS023	49.86	16.28	10.45	9.76	7.73	0.59	2.96	0.168	1.978	0.233
JS024	50.19	15.02	11.51	10.07	6.23	0.68	3.17	0.196	2.639	0.309
JS025	48.87	15.84	11.22	10.16	7.99	0.53	2.89	0.179	2.087	0.243
JS026	49.5	15.88	10.61	10.01	8.16	0.52	2.89	0.181	2.007	0.251
JS027	49.66	16.65	9.62	10.39	8.41	0.59	2.68	0.165	1.63	0.205
JS028	49.37	15.95	11.56	9.02	8.05	0.64	3.06	0.175	1.89	0.285
JS029	50.07	17.39	10.24	9.82	6.05	0.67	3.27	0.168	2.031	0.297
JS030	49.44	15.15	12.07	9.27	7.5	0.69	3.14	0.199	2.236	0.302
JS031	49.25	16.56	11.09	9.69	7.53	0.72	2.74	0.186	1.941	0.289
JS032	53.67	16.3	9.52	7.85	4.67	1.96	3.61	0.156	1.782	0.481
JS033	52.39	15.98	10.55	8.1	4.88	1.75	3.59	0.19	2.087	0.484
JS034	51.05	16.19	10.59	8.76	6.17	1.21	3.43	0.188	2.007	0.395
JS035	49.51	15.54	12.45	8.67	6.06	1.36	3	0.191	2.76	0.464
JS036	50.19	16.08	11.45	9.15	6.06	1.1	3.29	0.187	2.1	0.372
JS037	51.26	15.1	11.71	8.13	5.43	1.5	3.52	0.193	2.632	0.518
JS038	50	15.41	12.22	8.99	5.56	1.26	3.39	0.198	2.517	0.455
JS039	50.13	14.26	12.94	8.27	5.22	1.46	3.65	0.222	3.25	0.597
JS040	49.01	14.86	13.35	8.62	5.66	1.22	3.58	0.212	2.94	0.548
JS041	51.71	15.52	11.41	8.01	4.46	2.16	3.34	0.195	2.608	0.595
JS041	51.71	15.52	11.41	8.01	4.46	2.16	3.34	0.195	2.608	0.595
JS042	48.94	15.15	13.48	8.42	6.15	1.34	3.18	0.197	2.68	0.456
JS043	50.85	15.73	11.13	9.47	5.73	1.25	3.14	0.184	2.127	0.399
JS044	49.81	15.93	10.99	10.11	7.17	0.56	3.05	0.176	1.911	0.297
JS045	49.81	14.7	12.98	8.83	5.36	1.28	3.52	0.212	2.78	0.525
JS046	49.52	16.99	11.63	8.64	6.09	0.89	3.73	0.185	1.977	0.345
JS047	50.55	14.56	12.91	8.24	4.91	1.67	3.42	0.214	2.94	0.569
JS048	50.59	14.47	12.95	8.17	4.9	1.63	3.55	0.21	2.95	0.577
JS049	49.95	15.23	12.51	8.67	5.38	1.33	3.44	0.207	2.78	0.511
JS050	49.76	14.89	13.02	8.79	5.27	1.17	3.57	0.21	2.83	0.483
JS051	49.12	16.1	12.73	8.89	5.76	0.96	3.56	0.194	2.295	0.384
JS052	49.96	14.37	13.95	7.8	4.3	1.71	3.82	0.224	3.19	0.68
JS053	50.19	17.15	11.22	8.61	4.58	1.22	3.82	0.185	2.539	0.484
JS054	48.75	16.37	12.03	9.02	6.39	0.96	3.47	0.196	2.403	0.42
JS055	50.03	18.25	10.38	9.26	4.73	0.95	3.66	0.156	2.191	0.395
JS056	53.14	15.12	11.27	6.94	4.17	2.16	3.71	0.182	2.348	0.482
JS057	53.62	15.12	11.27	6.94	4.17	2.16	3.71	0.182	2.348	0.482
JS058	49.86	16.82	12.09	8.27	5.72	1.12	3.53	0.179	2.048	0.376
JS059	52.17	16.25	11.63	7.14	3.19	1.85	4.11	0.201	2.82	0.65
JS060	52.14	15.33	12.06	7.36	4.03	1.77	3.87	0.196	2.66	0.592
JS061	48.85	16.31	12.96	8.45	5.75	1.03	3.49	0.19	2.565	0.417
JS062	53.51	13.51	13.09	7.9	4.16	1.46	3.37	0.197	2.455	0.349
JS063	49.33	16.05	12.81	8.28	5.89	1.05	3.44	0.194	2.544	0.419
JS064	49.17	17.47	11.06	9.27	6.57	0.71	3.36	0.165	1.93	0.292
JS065	54.04	15.88	10.55	6.45	3.19	2.21	4.45	0.176	2.32	0.74
JS066	52.46	16.08	11.08	7.83	4.8	1.49	3.46	0.174	2.245	0.388
JS067	52.42	15.19	12.19	7.62	4.4	1.45	3.72	0.185	2.428	0.408
JS068	49.89	18.79	10.25	9.52	5.57	0.62	3.36	0.152	1.628	0.233
JS069	49.96	18.04	11.37	8.56	4.2	1.04	3.75	0.175	2.509	0.397
JS070	49.52	16.24	12.07	8.68	6.07	0.96	3.58	0.185	2.312	0.381
JS071	54.66	15.77	10.48	5.79	2.82	2.29	4.67	0.182	2.457	0.88
JS072	54.41	16.26	10.86	5.91	2.36	2.27	4.46	0.169	2.363	0.8
JS073	54.17	15.95	10.82	5.8	3.15	2.27	4.54	0.179	2.336	0.78

SUMMIT SPRINGS SECTION:

SAMPLE	SiO[2]	Al[2]O[3]	FeO	CaO	MgO	K[2]O	Na[2]O	MnO	TiO[2]	P[2]O[5]
CR7-104	48.91	16.12	11.42	10	7.06	0.51	3.09	0.183	1.797	0.289
CR7-106	50.27	18.58	9.75	10.33	5.18	0.63	3.26	0.156	1.392	0.234
CR7-107	50.69	17.52	10.45	9.24	4.57	1.04	3.43	0.167	1.731	0.369
CR7-108	49.94	16.22	11.42	10.48	5.7	0.47	3.04	0.178	2.167	0.266
CR7-109	50.06	13.85	12.95	8.86	5.24	1.11	3.12	0.216	2.715	0.83
CR7-110	51.92	14.63	11.23	8.92	5.38	1.12	3.42	0.171	2.026	0.354
CR7-111	47.94	16.51	9.93	9.96	9.75	0.25	2.37	0.171	0.984	0.113

CR7-112	47.55	16.48	10.29	9.9	9.51	0.23	2.28	0.181	0.979	0.115
CR7-113	47.36	17.33	10.62	10.47	7.82	0.2	2.39	0.194	1.007	0.12
CR7-114	55.66	14.16	10.31	8.18	4.56	1.37	3.36	0.255	1.458	0.239
CR7-115	50.63	16.5	11.1	8.58	4.1	1.26	3.37	0.158	2.667	0.388
CR7-116	55.92	14.09	10.5	7.47	3.88	1.79	3.26	0.18	1.98	0.312
CR7-117	56.02	14.36	9.67	7.88	4.1	1.58	3.45	0.232	1.992	0.352
CR7-118	52.68	13.39	13.71	7.43	3.65	1.56	3.68	0.205	2.53	0.408
CR7-119	49.82	15.82	11.63	9.67	6.05	0.68	3.17	0.177	2.181	0.373
CR7-120	50.69	14.2	12.34	9.92	5.62	0.7	3.14	0.185	2.347	0.312
CR7-121	48.82	16.38	12.29	9.1	5.8	0.85	3.21	0.173	2.335	0.322
CR7-122	50.38	17.2	11.12	9.02	4.39	0.97	3.43	0.155	2.264	0.325

Note: Major- and trace-element analyses are derived from X-ray Fluorescence Spectrometry at the San Diego State University Geoanalytical Lab, except for those analyses comprising the Steens Mountain section which were derived from the same method at Washington State University. These are the raw, non-normalized data, calculated on a volatile-free basis, with all iron expressed as FeO.

TRACE-ELEMENT ANALYSES OF STRATIGRAPHIC SECTIONS

ABERT RIM POWERLINE ROAD SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U	
CR6-618	30.4	356.4	43.4	36.3	67.5	265.8	110.2	20.9	467.4	41	210.9	11.5	1.6	422.9	11.5	55	34.9	5.7	4.7	5.8	2.6	3.6	1.4	
CR6-618A	31.9	366.1	44.5	37.2	69.5	287.3	112.1	21	458.8	43.8	221.7	11.8	1.5	422.4	18	59.4	37.4	8.8	5.7	6.6	1.9	0.7	0.8	
CR6-618B	29.7	372.5	36.9	39.2	64.3	174.1	107.7	18.9	509.8	38.6	200	10.7	1.8	440.5	16.1	50.4	33.1	6.5	5.6	6.8	2	1.8	1.8	
CR6-618C	34.4	416.9	44.4	41.1	67.6	241.7	124.5	19.4	444.2	43.4	220.5	12.2	1.8	474.6	17.2	61.6	36.9	10.5	5.1	5.6	4	2.2	2	
CR6-619	27.7	254.1	175.6	43.4	131.5	139.5	79.3	5.8	527	22	103.7	5.7	1.6	295.4	10.4	30.1	18.5	4.6	4	3.8	-0.3	1.8	1.7	
CR6-620	28.3	249.2	180.8	45.3	122.5	121.2	82.5	5.7	526.2	23.8	101.1	5.4	1.5	269.9	10.4	25.9	17.1	3.6	3.2	3.2	-1.5	1.5	1.4	
CR6-621	28.1	237.2	183.7	42.3	128.6	158	79.2	5.2	536	22.1	108.6	5.5	2.2	268.3	6.8	25.6	15.8	2.8	4.5	4.2	-0.1	1.9	1.7	
CR6-622	27.7	310.9	87.5	42.8	99.9	206.5	99.6	11.9	543.8	31	159.5	8.7	1.9	337.5	10.9	35.7	24.7	5.2	2.6	4.9	0.4	2.5	2.2	
CR6-623	26.6	275.3	39.6	39.2	67.1	161.8	77	13	564.3	24.2	112.1	5.5	1.8	360.5	17	29.8	19.5	1.3	3.9	3.6	-1.8	1.8	1	
CR6-624	35.1	188.2	32.6	20	55.7	139.6	67.8	11.5	509.2	21.3	99	5.6	3.7	191.4	5.7	20.6	13.9	4.6	3.4	4	-0.5	4.4	1.7	
CR6-625	25.4	332.5	23.6	29.6	58.6	263.5	105.9	23.3	525.7	42	221.8	12.1	1.6	433.6	19.9	62.2	38.6	8.8	7.6	7.4	2.1	2.2	1.6	
CR6-626	26.3	343.3	25	27.7	57.8	280.5	106.1	20	513.5	41.5	221.1	11.8	1.6	424.9	29.2	58	37.2	7.1	6.2	6.7	1.5	1.9	0.6	
CR6-627	29.5	368	30.4	32.8	62.4	315	114.9	19.4	485.5	42.6	233.5	12.6	1.8	441.1	18.9	67	39.8	8.6	4.1	7	2.7	1.5	1.3	
CR6-628	28.4	381.9	32.6	36.3	62.2	305.1	114	20.2	481.7	43.2	230.1	12.6	1.8	449.1	26	60.6	36.8	10.7	5.9	6.7	3	1.8	1.9	
CR6-629	33.5	429	43.4	43.9	63.9	268	122.4	22.5	457	43	225.6	12.8	1.5	490.2	19.7	58.9	36.9	8.6	5.2	6.9	2.7	4.2	1.5	
CR6-630	29	383.3	47.6	35.5	68	272.4	115	20.7	462.5	41.2	215.9	11.8	1.8	438	16.6	61.4	36.5	10	6.4	6	3.1	2.7	1.6	
CR6-631	31.7	337.7	45.5	35.3	70.1	303.9	114.5	21.8	459.4	42.4	225.4	11.8	1.4	470.6	14.8	57.6	36	10.9	5	5.8	3	0.3	-0.1	
CR6-632	25	302.4	63.6	53	156.3	155.3	93.3	7.1	467.9	25.5	119.5	5.5	2	366.9	10.4	20	15.8	5	3.4	4.3	1.1	2.3	1.6	

ADEL SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U	
CR04-553	23.3	285	331.2	60	189.8	76.4	79.1	7.4	469.6	19.6	97	6.2	-0.2	210	7.6	25	14.4	2.6	4.8	5	-2.4	1.5	1	
CR04-554	25.8	260.7	336	61.5	210.3	152.1	83	4.9	385.1	20.8	98.2	6.7	0.1	171.4	3.3	28.2	15.9	4.6	5.7	4.1	-2.3	0.8	-0.4	
CR04-555	27.8	276	382.2	64	208.6	103.5	85.6	4.1	394.9	20.1	91.7	6.8	0.2	183.1	3.7	27.2	17.2	3.7	3.5	3	-1.7	1.1	0.1	
CR04-556	27.1	292	226.4	61.2	172.2	141.1	87.7	4.5	568.9	24.3	120.3	5.6	0.1	187.4	12.2	27.7	16	4.2	5.5	4.6	-3.9	3.2	-0.9	
CR04-557	29.3	232.6	387	72	276.9	118	82	4.6	310.3	21.3	91.7	5.6	-0.1	139.6	6.1	25.6	15	3.3	4.6	4.3	-0.6	2.3	-0.5	
CR04-558	33.8	269.3	326.2	58	181.5	132.7	77.3	4.5	331.3	22.3	93.6	5.7	0.1	157.6	9.5	25.3	18.3	6.9	6.3	3.1	-0.9	4.4	-1	
CR04-564	33.1	280	273.6	49.3	109.8	165.2	79.7	6.8	358.5	24.9	103	6	1.1	171.1	11.1	31.8	19.3	4.5	6.3	3.9	-1.4	2.9	-1.2	
CR04-565/	33.6	274.6	303.4	60.9	186.5	139.2	77.7	7.3	340	22.3	94.2	5.8	1.3	185.9	10.7	24.2	16.8	1.7	2.6	3.9	-1.1	2.6	0.3	
CR04-565I	35.6	297	278.3	55.7	145.8	135.8	78.3	5	365	23.9	100.7	6	0.5	182	9.5	25.4	16.7	4.1	3.6	4.3	-0.7	3.6	-0.5	
CR04-566	28.7	293.9	131.1	57.9	157	127.5	80.9	5.6	400	24.2	112.8	6.6	0.5	215.6	6.2	25.1	20.7	4.6	2.5	3.8	-1	3.2	-0.4	
CR04-567	26.6	268.4	167.9	47.6	110.6	108.4	78.7	7.2	477.8	23.4	105	6.6	0.5	281.1	15.7	29.4	17.1	-2.5	3.4	4.3	-2.2	3.2	0.6	
CR04-568	28.2	279.6	118.9	50.5	106.6	175.4	83.5	8.3	481.4	24.8	117.8	6.3	0.3	275.5	7.2	27.6	18.2	3.3	5	4.1	-2.2	3.7	-0.7	
CR04-569	26.5	258	227.2	55.4	163.9	93.8	72.6	8.5	349.2	22.8	93.2	4	1.2	173.4	-0.8	16.9	10.5	6.5	4.7	3.8	-1.6	2.1	-0.3	
CR04-570	27.1	240.3	191.1	53.2	141	118.2	71	7.2	398.5	20.9	98.3	6.4	0.5	332.1	7.7	17.5	13.1	4.5	4.6	4.3	-1.4	4.8	-0.2	
CR04-571	31.3	286.2	267.7	59.7	193.9	140.7	77.5	5.7	407.6	23	98.3	4.8	0.2	254	5.8	24.6	17.2	4	4.7	3.7	-2.1	2.6	-2.1	

BLACK CANYON RESERVOIR SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U	
CR03-475	26.3	297.8	89.1	53.1	116.1	48.4	112.1	5.8	465.3	29.1	162.1	11.6	1.8	320.2	14.6	38.4	25	5.6	3.6	3.8	6.6	1.2	3.1	
CR03-475/	24.9	251.2	75.4	46.5	68.8	84.2	93.7	16.7	479.2	31.2	158.4	12.4	0.6	452.9	18.9	51.3	27	4.7	1.7	3.4	5.6	3.7	2.4	
CR03-476	25.5	293.2	81.4	53.9	122.2	45.6	113.6	7	466.1	29.5	164.7	11.8	2.1	298.4	12.3	42.3	23.7	6.5	2.2	3.7	5.5	3.3	2.6	
CR03-477	28.7	287.1	57.2	54.9	80.6	30.3	110.9	15.9	512.6	28	154.3	10.8	1.2	300.4	13.4	44.6	24.3	5.8	1	2.8	3.5	3	1.9	
CR03-478	24.8	250.2	49.4	53.8	105.7	44	107.6	11.6	501.1	28.5	151.7	10.8	1	228.5	10.4	41.7	22.8	6	-0.5	2.3	3.4	3	1.8	
CR03-479	22.8	265.4	51	54.6	107.6	42.9	111.1	11.7	459.1	27.9	145.9	10.7	2.1	230.5	14.4	39.4	21.4	3.9	1.4	2.3	5.8	2	2.5	
CR03-480	28	272.7	68.2	50.3	91.6	126.6	87.7	12.9	404.3	27.7	142.8	11	0.7	374.1	11.8	34.2	20	4.1	2.7	3.2	5	3.8	2.5	
CR03-481	30.1	284.8	69.2	52.4	101.9	123	91.5	6.8	432.4	28.3	144.7	11	1.5	387.3	17.2	39.1	20.7	2.7	2.4	3.1	7.1	3.1	3.5	
CR03-482	33.2	332.6	177.3	52.7	119.3	127.7	97.2	4.3	447.5	28.7	129.7	8.5	0.5	284.8	12	30.1	19.1	5.1	1.4	2.5	3.8	1.5	1.7	
CR03-483	32.9	282.9	164.8	51.4	121.1	97	92.6	8.1	403.4	27.8	123.2	7.9	1.7	247.5	18.1	31.7	18.7	2.9	3	1.7	6.5	1.1	3.5	
CR03-484	30.9	301	180.5	54.7	116.8	125.3	95.1	11.2	478.7	28.2	127.5	8.5	0.5	610.8	8	29.6	17.8	3.8	1.8	3.3	1.6	4.6	-0.1	
CR03-485	22.4	263.3	28	50.7	111.7	80.1	114.6	23.4	479.9	35.8	237.5	16.9	0.9	370.3	24	59.9	35.6	10.4	1.2	4.4	4.7	3.1	0.4	
CR03-486	19.2	250.5	15.8	51.2	90.1	87.5	105.9	10.1	540.1	35.1	222.3	15.6	0.7	396.7	15.6	59.4	38.1	6.4	2	6.6	2.7	3.5	0.4	
CR03-487	21.4	215.3	62.9	39.7	78.8	77.3	61.5	4	506.6	21.7	112	7.8	0.5	243.1	6.9	25.5	15.3	3.9	2.7	3.4	2.4	5.4	1.9	
CR03-488	23.7	247.2	26.4	48.2	88.5	86.3	86	14.3	566.9	27	138.4	7.8	-0.1	804.7	14.3	32.5	19.8	4.8	0.5	3.7	2.6	3.4	0.5	
CR03-489	24.7	244.3	39.2	48.1	85.2	126.3	83.9	7.8	443.8	27.2	137.4	8.6	1	297.8	11.3	27.9	18.3	4	2.4	2.9	3.7	3.5	1.3	
CR03-490	22.6	206	51.6	41	75.2	92.8	67.7	1.7	492	23.7	119.9	7.4	0.3	262.5	12.6	33.1	19	0.6	0.9	3.4	2.5	3.5	1.3	
CR03-491	26.4	248.7	44.7	40.3	56	123.9	88.1	34.7	516	33.3	180.8	14.9	0.8	544.9	22	54.4	30.3	5.2	1.4	4.5	5.4	4.5	1.1	
CR03-492	29.6	268.5	70.6	44.2	67.4	104.1	98.8	5.3	531.9	30.8	157.4	11.7	-0.1	454	18.5	50.2	26.9	6.8	2.1	4.8	3.5	3.7	0.2	
CR03-493	27.1	235.7	86.6	45	82	96.9	89.2	10.5	487.3	28.8	142.1	10.8	0.8	379	22.3	46.4	25.6	7	1.6	3.4	3.3	2.9	-0.1	
CR03-494	27.2	275.4	69.8	59.4	158.1	55.7	108.7	12.2	477.8	27.5	146.5	10.4	1.1	249.2	15.5	33.4	20.5	3.7	-0.4	3.5	2.9	2.6	0.1	
CR03-495	29.6	338.9	203.6	62	139.4	158.4	106.8	6.2	372.1	30.2	138	8	1.4	351	9.7	33.8	21.6	4.3	1.2	2.5	6	2.2	0.9	
CR03-496	35.7	370.7	202.1	58.5	131.1	181.9	113.2	6.9	417.7	33.3	152.7	8.3	1.3	265.3	13.1	35.1	22.6	4.8	0.7	2.7	7.4	-0.6	3.8	
CR03-497	34.9	348	180.1	53.7	117.8	208.5	112.8	6.3	409.5	33.8	155.3	8.4	1.2	215.4	11.4	36.1	25.3	6.5	2	3.1	6.5	0.2	4.1	
CR03-498	30	290	167.9	53.4	133.5	169.3	108	4.1	403.6	33.2	150.2	8.4	1	192.8	11.5	36.3	21.2	3.7	3	3.1	6	0.6	2.6	
CR03-499	29.6	308.5	186.2	58.3	147.3	188	102.3	5.8	395.1	29.7	133.8	7.5	1.4	279.4	8	29.9	18.8	5.9	3.6	2.3	5.8	0.8	2.4	
CR03-500	24.6	268.5	191.1	58.9	153.6	93.2	92.4	25.8	406.8	29.4	130.9	7.1	0.9	2229.1	8.3	24.5	14.2	2.1	1	2	5.3	0	2.1	
CR03-501	36.1	362.7	205.7	62.3	136.9	232.7	113.8	7.4	412.9	30.2	134.1	7.1	1	336	10	38.3	20.2	6.2	1.9	1.3	6.7	0.6	3.4	

CR03-502	26.1	279.5	72.6	51.6	147.8	52.5	107.4	10.7	505	27.7	153.7	11.2	1.6	309.6	14.1	40.4	24.1	5.1	2.7	2.9	6.5	2.1	3.8
CR03-503	33	337.4	192.6	55.9	136.9	190	110.1	7.7	428.9	32.6	148.8	8.1	1.4	269	15.5	39.8	24.7	7.5	3.2	3.5	5.5	1.9	2.8
CR03-504	34.5	342	32.3	44	66.1	83.2	99.1	10.5	472.8	33.9	159.4	9.2	0.6	366.7	12.5	39.7	23.4	3.5	2.2	2.6	4	1.3	2
CR03-505	25.7	308	53.8	47.4	98.8	115.1	97	10	446.7	33.6	152.3	9.2	1.7	359.3	16.3	38.9	24.9	5.7	2.7	3.7	6.4	1.5	2
CR03-506	27.4	315.9	37.7	43.2	55.1	140.1	96.1	13.1	455.1	37	186.3	12.2	0.8	477.4	21.6	53.1	32.1	8.1	2	3.4	4.6	2.5	2.1
CR03-507	34.9	324.8	17.2	34.6	34.5	149.5	95.3	37.5	463.3	40	204.3	12.8	0.3	525.5	24.7	53.1	32.3	6.7	3	4	6.6	3	3.1
CR03-508	27.4	288	20.2	39.6	41.1	118.4	90	12.7	519.2	33.7	170.2	9.3	0.4	473.1	14.7	40.8	22.7	6.7	4.1	5.4	5.4	3.3	1.5
CR03-509	37.9	446	-16.1	43.3	45	199.3	142.4	8.5	484.4	47	255.7	17.3	-0.2	575.4	22.3	67.3	42.7	9.4	4.4	5.8	5.5	3.2	1.5

CATLOW PEAK SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CP-01	<LL	2.4	<LL	9.8	7.7	1.2	<LL	3.5	169.1	187.7	8.0	<LL	31.9	643.5	35.1	1.5	31.2	27.1	89.4	20.1	12.1	0.6	<LL	17.1	29	32.5	3.8
CP-02		19.3	67.2	12.8	33	8	15.1	115.5	78.1	414.1	46	262.6	16.4	1.3	2214.7	44.5	64.3	46.3	<LL	0.8	<LL	7.6	18.3	15.8	3.8
CP-03		27.4	346.9	71.9	60.1	122.2	170.4	109	13.7	498	28.6	168.8	8.1	<LL	376.5	19.5	16.2	21.2	<LL	<LL		6.8	14.4	2.6	<LL
CP-04		28.2	250	1.1	<LL	38.1	10	82.8	124.9	58.7	461.5	46.3	284	16.1	<LL	802.3	39.1	50.8	42.5	<LL	<LL	6.2	18.9	6.9	<LL
CP-05		18.1	212.3	32.8	38.3	64	110.8	88.7	59.4	461.6	26.3	175.9	10	1.2	700.7	20.7	34.3	15.8	7.2	<LL		8.2	15	10.4	3.3
CP-06		25.9	303	73.7	49.1	82.1	174.2	98.1	27	471.2	31.2	178.4	9.6	<LL	471.5	19.5	33.8	19.4	4.8	<LL	<LL	8.4	11.7	8	3.1
CP-07		22.4	254.3	127.7	45.8	114.8	176.4	94.6	30.3	466.2	30.3	177.9	10.6	0.2	<LL	485.3	25.7	39.6	17.3	3.6	<LL	<LL	8.2	13.1	10.7	2.2
CP-08		24.5	280.6	155.5	51.3	126.2	210.8	102.9	33.2	417.6	31.9	187.6	11.6	0.6	528.2	24.2	41.5	18	4.8	<LL	<LL	7.9	14.3	12.9	3
CP-09		22	256.7	65.4	46.5	79.1	156.6	97.5	46.2	428.4	31.2	189.9	10.4	0.1	<LL	605.1	21.4	38.9	23.5	6.4	<LL	8	13.4	8.5	3.2
CP-10		24.2	257	69	39.6	96	115.4	86.4	13.9	554.1	27.9	152	9	0.3	<LL	403.9	21	35.6	15.9	1.5	<LL	<LL	7.1	11.9	9.8	1.9
CP-11		24.5	271	71.7	33.8	63.9	173.2	91.4	32.4	464.9	31.1	179.7	10	0.4	<LL	459.2	18.1	39	23.8	4.9	<LL	<LL	7.3	14	10.9	2.1
CP-11 (JAI		24.9	275.7	82.3	42.4	68.4	183.1	87.5	31.3	464	31.3	182.6	9.4	0.1	<LL	475.1	22.5	50.6	28	0.1	<LL	<LL	7.2	12.9	9.2	2.7
CP-12		25.6	275.1	68.9	36.6	63.4	191.4	92.3	34.4	451.9	33.2	187.5	10.7	0.5	482.8	19.6	42.3	18.5	5.9	<LL		7.7	14	12.8	3.2
CP-13		28.4	314.4	82.3	50.8	68.7	191.1	103.1	34.5	438.9	34	193.9	11	1.3	537.5	25.6	49.3	25.7	10.8	<LL		3.5	10.7	9.7	2.1
CP-13A		28.1	289.9	168.9	67.9	149.9	161.3	86	5.8	525.5	24.1	120.2	7	<LL	256	16.4	23.3	10.3	1.1	<LL	<LL	5.4	10.3	8.3	1.4
CP-14		26.2	300.8	146.7	56	112.9	172.7	107.4	34.5	422.8	32.7	192.3	11.9	0.5	526.4	26.2	42	21	4.6	<LL	<LL	7.7	14.5	12.4	2.4
CP-14A		21.5	221.5	23.2	37.5	72.4	124.1	71.4	2.5	636.6	20.5	107.9	5.8	<LL	260.2	10.1	21.8	7	2.7	<LL	<LL	6.5	10.6	8.6	1.9
CP-14AA		22.6	272.1	128.2	51.6	102.7	171.6	97.3	32.1	430.7	33.6	192.7	11.8	0.1	<LL	501.3	21	42.2	18.5	4.9	<LL	<LL	8.6	13.8	12.2	2
CP-15		22.7	233.8	29	33.5	77	130.2	72.8	6.9	597.8	21.2	114	6.4	<LL	219.5	15	30.6	8.5	1.6	<LL	<LL	4	10.8	9.3	2.1
CP-15A		27.5	291.8	30.1	54.2	78.7	164.1	88.6	4.7	561.6	23.6	123.6	7.5	0.4	<LL	262.8	17.4	34.3	14.6	5.9	<LL	1.6	<LL	8.9	7.9	1.4
CP-16		21.3	249.6	27.9	60.8	77.9	159.5	76.7	4.3	598.9	22.8	114.3	6.3	<LL	250.5	14.6	20.5	5.4	6.3	<LL		6.7	10.6	9.9	2.4
CP-17		24.3	255.5	34.4	46	80.2	163.1	82.6	5	586.5	23.1	118.9	6.7	<LL	250.6	14.7	21.3	8.3	3.9	<LL	<LL	4.4	11.4	9.8	1.1
CP-18		28.8	301.5	43.4	52.8	100.9	133	98	9.3	494.7	26.7	132.3	7.6	<LL	272.9	13.9	30.4	14.8	2.2	<LL	<LL	6.9	10.8	9.3	1.5
CP-19		29.7	346	84.8	49.5	93.6	152	102.9	16.6	503.3	33	166.1	10.1	0.4	<LL	399.6	19.3	35.5	16.8	2.7	<LL	8	13.1	11.9	2.3
CP-20		24.7	323.5	34.8	32.9	53.8	204.4	90.5	11.3	653	30.2	166.9	10.2	<LL	396.2	16.5	37.1	18.8	4.0	<LL	<LL	6.3	11.9	12	2.3
CP-20 (JAI		24.2	302.2	37.7	41.6	57.8	190.1	82.6	10	681.2	27.2	155	8.6	<LL	368.3	19.4	33.5	22.2	2.2	<LL	<LL	6.8	10.7	8.7	1.6
CP-21		25	315.8	43.5	31.1	63.2	178.9	88	9.9	667.6	29.8	163.1	9.6	<LL	383.2	18.6	35	17	3.4	<LL	<LL	6.6	11.5	10.2	1.7
CP-22		25.1	327.2	39.7	34.4	65	199.5	88.5	9.5	655.7	29.6	166.1	10.2	<LL	391.1	15.9	35.5	18.1	5.3	<LL		6.8	11.7	11.3	2.6
CP-23		28.1	430.6	31.7	36.5	59.5	249.7	114.8	18	525.7	39.1	222.5	14.4	0.1	<LL	510.8	25.2	40	27.8	10.6	<LL	10.2	13	13.5	1.7
CP-24		27.6	387	27.2	30.2	55	245.2	107.1	20.9	547.3	39.3	218.1	13.6	<LL	493	27.6	50	24.9	7	<LL		10.3	12.9	12.4	2
CP-25		28.4	413.8	26.2	34.1	57.1	267.6	110.7	20.3	531.8	40.2	222.8	14	<LL	482.7	24.5	49.7	26.4	7.6	<LL		11.2	12.5	12.2	2.1
CP-26		24.9	328.3	26.4	34.9	54.3	237.9	95.9	15.2	630	33.2	189	11.7	<LL	437.1	22.4	35.5	20.7	6	<LL		8	12.3	12.3	1.9
CP-27		31.9	463.3	35	55.2	62.9	241.4	128	24.6	509.2	40	231.2	14.9	0.5	604.4	30.8	56.9	29.5	2.5	<LL	<LL	12	12.5	13.4	2.3
CP-28		25.4	334.6	31.3	29.3	57	227.7	96.5	14.3	623	35.4	196	12.2	0.1	<LL	463.3	22.4	39.5	16.1	6.4	<LL	9.5	12.5	12.3	2.1
CP-29		31.9	450.9	29.1	51.7	54.1	201.8	123.1	16.2	549.9	39.8	220.5	14.1	0.5	<LL	581.9	26	41.9	28.3	11.7	<LL	10.2	13.4	13.2	2.3
CP-30		30.9	457.8	30.9	50.8	59.3	260.7	126.4	25.4	519.3	40.1	228.5	15.1	0.5	537.9	30.9	58	30.8	7	<LL		10.5	12.8	13.3	2
CP-31		31.5	439.1	35.1	49.5	59.1	266.8	123.7	25.7	534.4	39.5	216.4	14.3	0.5	<LL	513.3	27.9	50.2	29.3	4.7	<LL	<LL	10	13.2	13	2.7
CP-32		32.1	325	157.9	57.1	155.7	168.8	87.6	2.4	419.2	25.9	107.8	6.2	<LL	156.1	9.5	16.6	5.0	<LL	1.4	<LL	4.7	10.3	7.7	2.5
CP-33		34.3	322.6	158.3	59.6	162.9	133.5	90.7	5.5	412	25.9	112.9	5.7	0.1	<LL	170.3	12.9	21.3	4.8	<LL	2.1	<LL	5.1	9.5	6.6	1.4
CP-34		29.1	283.5	127.5	47.4	147.7	146.1	86.4	6.1	419	25.7	113.5	5.7	<LL	148.7	10.5	26.1	6	<LL	<LL		4.5	9.7	6.6	0.7	<LL
CP-35		34.3	323.7	135.2	65	155.8	148.8	94.3	4.3	411	26.4	115.8	6.2	<LL	187.2	17.3	26	8.9	1.6	<LL	<LL	3.9	9.4	5.8	0.6	<LL
CP-36		35.8	330.9	110.1	66.5	160.4	147.3	93.7	7.7	354.8	26.4	117.7	7.9	<LL	168.2	14.4	36.4	14.4	3.7	<LL	<LL	<LL	9.1	7	0.2	<LL
CP-38		34.3	331.2	112.5	65	154.4	195.2	93.8	8.7	363.7	26.9	122	7.6	0.0	<LL	186.1	17.3	21.5	1.3	<LL	0.9	<LL	<LL	7.2	10.2	7.4	1.1
CP-39		33.6	317.7	103.7	64.3	160.5	157.8	92.6	7.6	350.8	27	120.5	7.1	<LL	158.7	13.6	27.3	9.1	<LL	<LL		4.2	9.6	6.2	1.2
CP-39 (JAI		34.6	322.9	105.3	71.7	154.5	129.7	90.9	7.3	350.2	26	120.4	7.3	<LL	151.7	15.2	32.6	14.6	1.0	<LL	<LL	5.8	9.1	3.8	1.5
CP-40		32.2	311	188.2	62.8	131.8	176.4	93.5	12.2	348.3	32.9	156.5	10.2	<LL	187.9	16.8	32.7	12.6	4.3	<LL	<LL	6.7	11.4	8	1.4
CP-41		35.1	346.5	216.9	65.7	147.7	147.9	99.8	14.1	341.4	31.1	149.5	9.5	0.2	<LL	242.1	20.5	33.7	12.7	2.2	<LL	<LL	5.8	9.7	5.9	1.3
CP-42		32	457.4	36.6	66	63.6	261.4	124	25.5	475.1	43.4	239.8	15.4	0.4	<LL	525.4	28.5	57.6	31.2	0.6	<LL	<LL	9.2	11.4	12.8	1.6
CP-43		35.6	467.6	31.6	53.1	59.1	247	131.3	16.9	517.4	40.9	216.4	13.8	0.5	559	30.6	61.8	34.7	8.4	<LL		3.7	10.7	9.6	2.4
CP-44		30	370.7	29.9	41	48.8	285.4	117	25.7	509.1	45.2	236.8	14.7	0.6	515.9	29.6	59.6	30.9	4.1	<LL	<LL	10	11.8	11.8	1.3
CP-45		24	282.3	19.6	19.4	49.1	209.8	91.2	22.1	612.6	36.2	211.2	12.9	0.5	477.4	27.1	49.5	26.9	2.5	<LL	<LL	8.7	12.6	11	1.7
CP-46		26	290.5	13.4	36.2	50.6	263.9	99.8	17.9	584	41	232.4	14.7	0.4	<LL	536.8	31.1	50.4	28.3	3.5	<LL	<LL	9.5	12.3	12.5	2
CP-47		25.5	342.4	17.2	39.4	51.2	204.7	105.5	23.9	580.2	36.7	211.5	13.1	0.1	<LL	487.8	29.3	48.5	24.5	2.8	<LL	<LL	8.5	11.1	11.7	1.8
CP-48		19.1	229.5	8.5	46.2	23.9	139.3	100.1	87.5	425.1	34.8	266.6	18.4	1.9	806.2	36.7	64.3	29.4	6	<LL		6.8	16.9	15.6	4.8
CP-49		31.7	293.4	251.2	58.2	172.6	178.1	90.5	4.5	421.6	26.7	126.7	7.6	0.1	<LL	254.8	18.4	30.7	9.9	<LL	<LL	2.6	<LL	9.1	6.8	2.5
CP-50		24.3	256.8	41.4	42.7	56.6	176.2	80.1	12.7	585.4	26.6	148.1	9.1	0.2	<LL	336.2	18.3	32.4	13.3	0.7	<LL	<LL	5.6	9.7	8.4	2.9
CP-51		24.4	257.1	70.5	31.2	91.3	163	83.4	23.1	502.4	30.5	169.9	8.6	0.4	<LL	401.2	20.6	32.3	17	4.2	<LL	<LL	4.9	10.9	10.3	3.4
CP-52		27.6	287	83	54.6	81.8	219.1	89.7	28.1	455.4	32.7	179.6	9.1	0.3	<LL	446.4	24.7	41.2	18.6	<LL	<LL	5.1	11.5	10.3	3.5
CP-53		32.9	409.2	64.5	65.8	49.2	199.5	119.4	43	394	39.5	241.3	15	1.3	629.4	28.7	53.7	30	2.6	<LL	<LL	6.1	12.2	11.3	2.6
CP-54		27.4	318.2	54.1	33.6	51.8	177.5	94.2	36.4	458.8	33.9	207.9	12.4	0.7	518.2	23.8	47.6	25.4	0.4	<LL	<LL	6.7	11.6	11.4	3.3
CP-55		27.7	296	69.8	60.2	113.4	140.4	87.3	14.3	460.2	26.7	152.3	9.9	0.2	<LL	252.7	16.8	30.2	12.2	2.9	<LL	<LL	3.7	9.2	7.5	2.5
CP-56		25	260.3	81.9	39.6	102.9	129.4	75.7	9.3	475	22.5	121.5	6.6	0.0	<LL	211.9	12.6	21.5	7.9	1.7	<LL	<LL	2.8	<LL	9.3	7.1	2.6
CP-57		32.6	293.3	196.1	62.6	122.2	124	83.1	12.1	383.5	24.5	114.4	6	0.2	<LL	259.3	10.9	22.4	9.6	<LL	<LL	0.7	<LL	8.9	6.3	3.6
CP-58		22.9	247.2	50.5	37.7	65.5	141.9	76.9	8.7	533.7	23.4	128.7	6.8	0.1	<LL	243.3	15.4	26.9	11.6	0.9	<LL	<LL	3.4	8.9	7.4	2.6

CP-60		22.6	227.8	61.8	38.5	66.7	151.8	74.2	17.9	553.2	26.8	149.3	8	0.2<LL		306.6	17.2	34.1	13.6	0.4<LL	<LL	4.2	9.6	8.1	2.5
CP-61		25.9	309.2	116.6	52.1	109.5	153.9	84.5	7.2	498.6	23.8	134.5	9.8	0.4<LL		221.4	19.6	29.2	11.5	4.8<LL	<LL	2.1<LL	8.2	7.7	1.1
CP-62		28.5	250.8	264.1	57.7	131.8	104.2	76.2	13.1	512.7	20.8	107.5	6.4	0.2<LL		321.8	13.7	34.3	10.1	4.3<LL	<LL	1.3<LL	8.8	6.1	1.6
CP-63		27.9	263.3	188.7	44.7	112.8	112.2	80.5	15.8	509.2	23	122.6	8	0.3<LL		344.5	12.1	35.9	10.7	5.1	<LL	1.8<LL	9	6.9	1.2
CP-64		30.5	308.6	182.2	54.9	77.6	147.2	89.9	16	508.9	27.2	140	8.9	<LL		430.3	19.3	40.8	17	5.4	<LL	1.0<LL	9.1	8.8	1.4
CP-65		32.6	302.2	220.7	60.9	119.8	119.9	92.2	16.1	500.1	22.5	124	7.7	0.2<LL		360.9	18.4	27	10.2	9.8	<LL	0.7<LL	9.5	6.1	2.3
CP-66		6	<LL	4.9	25.3	2.0<LL	9.8	141.9	160.8	35.2	108.5	350.3	19.6	3.2		797	66.6	105.3	79.2	23.7	7.9	5.6	20.9	19.5	8.4
CP-67	<LL	5.2	<LL	4.8	11.1	<LL	5.3	150.7	126.7	17	39.2	466.4	23.6	1.3		57.4	46.1	105	50	22.6	2	10.1	22.7	22	3.6

COTTONWOOD CREEK SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CR03-443	26.5	303.3	18.2	55	24.9	44.1	150.9	39.4	514	41.3	266.3	15.5	1.6	1039.4	35.5	88.7	44.3	8	1.9	5.5	8.5	4.5	3
CR03-444	27.8	259.3	186.1	61.7	116	36	101.9	6.5	451.6	25.4	135.2	10.6	1.3	180.5	13.3	39.4	21.3	3.9	0.3	3.7	3.5	2.2	2.4
CR03-445	22.6	248	116.1	55.5	123.8	44.8	103.1	5.2	488.8	25.3	128.8	10.5	1.1	158.4	12.4	38	20.2	4	-0.8	2.1	2.4	2.2	1.6
CR03-446	24.8	245.9	107.3	54.3	115.4	43.9	106.1	4.4	539.5	25.1	131.4	10.9	0.9	179.4	5	34.9	21.4	5.4	0.8	3.1	2	2	2.1
CR03-447	20.6	268.2	77.3	49.4	93.3	78	124	28.8	560.1	37.7	248.3	18.3	0.6	627.4	23.6	77.3	42.5	8.9	1.2	4.8	4.8	3.6	2.5
CR03-448	25	257.3	157.4	60.5	142.3	62.8	106	9	497.2	26	141.8	9.5	0.5	265.8	7.6	38.6	23	7	1.2	3.1	2.6	2.6	2.1
CR03-449	20.8	258.9	86.7	52.3	90.1	57.7	112.9	15.3	553.3	30.2	183.6	12.4	1	394.2	15.1	51.6	31.2	5.2	2.7	4.1	4.3	1.9	0.9
CR03-450	23.1	277	59	57.2	69.5	63.1	122.9	15.9	557.9	30.9	186.8	12.7	0.9	418.6	15.1	53.1	29.4	7.8	2.7	4.3	3.7	1.1	0.9
CR03-451	25	251.9	108.3	49.2	100.4	73.5	118.6	19.1	466.9	32.1	189.1	12.3	1.1	350	27.5	50.2	27.4	4.7	2.3	3.8	4.4	2.3	0
CR03-452	25.3	265.8	129.7	56.2	139.6	59.6	106.5	66.6	608.8	28.3	144.7	10	0.2	2653.7	13	25	15.1	3.6	2.1	3.4	1.9	2.2	0.3
CR03-453	26.3	259.4	116.2	56.2	171.5	83.6	114.3	13.5	444.9	29.4	158.8	9.9	1.9	222.7	14.6	47.4	24.7	5.9	2.8	3.2	6.2	1.5	1.1
CR03-454	23.5	251	64.5	46.6	93.1	90.2	117.5	19.7	469.3	33.4	201.2	14.5	1	341.7	22.7	54.1	32	6.4	1	4.4	4.5	2.1	0.1
CR03-455	23.1	239.9	55.9	43.4	46.5	38.6	120.7	31.5	467.2	34.1	222.3	14.9	1.4	555.8	24.9	61.5	32.6	6.9	3.1	4.9	7.3	3.1	1.2
CR03-456	28.5	291.9	94.9	58	67.7	47.4	117.5	18.9	470.3	29.2	163.1	11	1.7	368	13.2	40.1	22.9	5.7	1.4	4.4	4.1	2.6	0

LONE TREE SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CR03-460	26.6	293.1	5.2	56.8	51.9	30.3	121.6	22.1	509.5	33.9	198.7	11.9	0.5	466.8	18.7	57.6	31.5	7.9	4.3	4.5	5.5	3.2	2.2
CR03-461	27.6	258.5	126.8	66.6	152.5	69.7	96.8	2.4	441.8	25.3	127.4	7.1	0.9	135.9	7.7	31.1	17.3	3.6	0.7	2.8	2.6	1.3	2.2
CR03-462	30.3	265.7	270	67.4	208.1	69.9	92.7	1.9	381.7	22.8	109.1	6.6	0.8	123.6	9.6	20.2	15	4.4	-2.1	0.9	2.6	1.2	2.1
CR03-463	35.1	302.6	513.1	71.7	270	139.3	98.2	2	378.2	25.3	111.8	6	0.4	130.1	4.5	23.6	17.5	6.4	-1.4	0.9	3.9	0	2.9
CR03-464	29.5	274.9	231.5	57.6	169.4	93.1	91.7	1.8	436	25.2	116.3	6.8	0.1	143.8	9.2	28.6	17.6	6.8	2.4	2.7	1.8	1.3	1.1
CR03-465	25.8	274.6	89.9	59.4	134.3	58.1	95.2	5	470.8	24.8	127.1	7.6	0.8	210.3	7.4	31.4	15.6	4.7	0.7	2.5	2.9	1.8	1.3
CR03-466	29.2	271.4	244.3	59.3	177.6	87.2	95.3	1.5	440.7	24.8	117.6	6.6	0.6	142.2	6.8	24.2	16.6	2.8	-0.9	2.1	2.4	1	1.6
CR03-467	32.3	309	491.3	67.4	250.2	116.9	98.5	2.9	379.7	26.1	119.3	6.7	1.3	122.1	16.7	29.3	17.7	4.3	-1.7	1.7	3.3	1.2	1.6
CR03-468	30.1	279.9	244.3	58.2	166.9	91.5	93.4	2.6	434.8	24.2	116.8	6.5	0.6	137.2	8.4	25.2	18.6	3.6	-0.4	1.6	3.2	0	1.7
CR03-469	27.1	273.1	89.9	60.8	127.6	65.5	96.7	5.6	467.8	23.9	123.6	7.3	1	178	13.2	25.1	18.3	4.6	1.4	2.2	3	2.1	1.7
CR03-470	21.3	319.5	-11.8	44.6	21	28.4	119.1	41.2	506.4	35.3	230.3	14	0.8	606.9	24.2	61.8	35.8	8.4	3.9	5	8.2	2.9	2.8
CR03-471	25.2	193.2	48.5	39.2	67.9	233.2	155.7	48.9	384.9	70.3	513.1	40	1.6	558	51	144.4	81.4	17.1	5.8	10.2	11.5	3.3	3.4
CR03-472	28.4	258.6	349.9	58	183.5	79.7	99.1	11	415.4	25.3	158.1	8.9	1.5	334.7	13.5	36.4	20.1	5.6	0.9	3.1	3.9	2	2.1
CR03-473	25.4	262	181.6	49.2	109	58.6	112.4	11.2	510.7	30.5	184.7	10.3	1.6	368	13.3	43.9	28.1	6	1.8	3.4	4.1	1.2	1.9
CR03-474	31.8	298.3	609.9	62.2	252	82.1	99.8	2.8	392.9	24.3	109.2	5.5	1	161.3	5.8	28	17.7	4.7	-2.4	1.7	3.3	1.9	2.4

OREGON CANYON ROAD SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CR-641	27.4	339.3	0.6	34	22.9	73.7	116.5	56	486.2	34.8	200.3	9.2	2.2	829.7	23.4	59.4	31.7	7.4	3.6	6.7	5.5	4	2.8
CR-642	-0.4	8.3	1.9	9.6	-4.2	5.4	137.6	179.9	8.4	68.7	599.4	27.5	-0.8	21.5	33.1	61.9	45.8	10.3	6.9	16.7	25.8	10.9	1.4
CR-643	-1.4	13.7	0.8	9.4	-3.9	4.7	126.5	183.9	7.7	106.1	613.4	22.6	-3.3	11.9	67.7	151.9	84.1	19.4	7.8	16.6	26.3	9.2	1
CR-644	27.6	213.2	-5	28.4	4.3	19.5	117.8	58.2	560.6	42.9	231.2	10.1	2.1	1931.9	23	69.1	36.3	5.2	3.7	7.4	5.9	4.5	3.6
CR-645	31.9	237.5	5.8	33.1	17.9	70.2	115	42.6	405.5	38.3	188.6	9	1.8	753.2	23.3	55.4	28.4	8.6	4.1	6.9	6.1	2.2	2.1
CR-646	28.2	337.5	1.1	37	29.3	87.4	110.6	46.8	471.2	34.6	190.5	8.1	1.9	717	24.8	59.4	28.3	4.6	3	6.3	5.4	2.6	1.7
CR-647	1.4	12.6	-1.5	8	-3.6	7.9	156.8	120	19.6	53	424.7	19.5	-0.2	107	46.4	104.6	47.5	8.9	4.8	11.7	20.1	6.5	0.9
CR-648	0.2	3.8	1.3	7.8	-4	7.4	146.5	183.7	10.3	55.1	432.4	22.4	0.8	109	44.8	110.8	51	11.8	6.3	11.5	24.6	13.8	3.3
CR-649	3.1	4.7	2.1	5.8	-3.3	6.7	124.6	175.1	12.5	40.7	398.6	20.3	0.4	253.8	36.5	75.2	40.2	8.6	6	11.4	23.4	13.4	2.1
CR-650	22.5	106.6	-1.7	23	3.7	26.7	143.8	98.8	302.6	49.3	300.8	19.6	2.7	2020.2	39.6	87.4	47.7	8.2	4.6	8.3	12.1	8.6	4

Note: Tuff of Oregon Canyon can be traced from Oregon Canyon to Oregon Canyon Mtn Rd section. Ttc = 642 and 643, The Tuff of Trout Creek (Tt t= 647, 648, and 649), although 649 may include related Tuff of Long Ridge

POKER JIM RIDGE SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
JM-01	38.2	340.5	193.4	46.8	106.4	119.7	74.6	0.8	308.3	22.7	78.3	3.9	<LL	76.3	4.5	6.1<LL	4.9<LL	<LL	<LL	0.9<LL	8.4	4.2	0.5<LL
JM-02	33	322.4	175.6	52.9	145.9	150.1	94.3	7.4	436.1	25.2	125.1	7.4	0.1<LL	348.4	12.9	22.7	13	<LL	<LL	1.5<LL	9.4	6.5	1.4
JM-03	25.9	271.3	166.2	59.3	215.3	151.3	85.9	8.8	370.1	21.3	103.9	6.3	0.2<LL	282.2	13.6	15.9	10.7	<LL	<LL	2.6<LL	9.7	6.2	1.5
JM-04	32.1	280.9	282.7	58.6	178.3	156.1	86.4	9.6	465	20.9	104.3	5.2	<LL	270	9.6	12.5	9.7	<LL	<LL	1.9<LL	9.8	5.1	0.7<LL
JM-05	31.4	289.8	240.5	57.5	165.5	134.2	83	9	472.7	20.8	104.3	5.3	<LL	257.1	10.2	15.5	10.3	<LL	<LL	2.2<LL	9.4	5.6	0.9<LL
JM-06	32.6	276.5	247.8	51.2	139.6	127.2	78	8.1	488.7	20.3	101.4	4.9	<LL	258.4	8.7	18.7	6.9	<LL	<LL	2.7<LL	9.4	5.7	1.3
JM-07	31.8	300.9	196.3	52.9	142	142.5	83	6.4	513.6	21.3	114.7	7.2	0.3<LL	249.1	14.1	27.1	12.8	<LL	<LL	1.7<LL	9.2	5.6	1.0<LL
JM-08	35	317.8	326.5	59	170	113.6	81.1	2.2	418.9	21.1	105.7	5.6	0.0<LL	193.2	7.9	9.4<LL		9.3	<LL	<LL	0.7<LL	9.7	4.5	1.2
JM-09	33.4	314.9	268.4	57.2	152.3	158.9	87.4	8.9	399	23.9	127.7	7.5	0.4<LL	226.5	15.5	16.8	14.4	<LL	<LL	1.6<LL	11.1	5.8	1.1

JM-10	34.5	323.7	150.9	57.1	165.9	152.3	83.3	8	431.2	23.3	121	7.6	<LL		222.3	11.5	17.2	8.2	<LL	<LL	2.1	<LL	9.7	5.2	0.9	<LL		
JM-11	33.2	321.5	280.5	54.9	135.1	137.5	84.8	14.3	409.8	23.4	127.2	7	0.3	<LL	247.8	11.7	22.3	12.6	<LL	<LL	0.7	<LL	9.6	6.1		1.6		
JM-12	27.5	313.9	66.6	57.4	141.1	172.5	97.1	13.2	541.9	24.7	140.5	8.7	<LL		331.8	16.5	24.7	16.1	<LL	<LL		3.6	10.1	7.6	0.2	<LL		
PJ-01	26	331.2	88.4	46.8	77.6	143.1	88.9	8.8	622	24.8	141.4	8.3	<LL		330.4	18.1	29.1	15.1	<LL	<LL		3.5	8.9	7.3		1.5		
PJ-02	28.8	312.4	49.6	45.2	74.4	159.7	80.3	11.9	533.8	23.9	113.2	6.2	<LL		326.6	15	28.2	15.1	<LL	<LL	2.9	<LL	9.2	5.1		1.3		
PJ-03	28.8	305.7	49.1	45.6	79.9	140.7	79	11	559.1	23	110.4	6.1	0.1	<LL	342	14.7	26.6	15	<LL	<LL	2.3	<LL	8.9	5.5	<LL			
PJ-04	29.8	328.4	50.7	40.7	67	171.8	89.3	12.3	579.7	27.8	148.4	8.1	<LL		367.9	16.7	35.3	21.7	<LL	<LL		4.4	8.8	7.2	<LL			
PJ-05	28.8	369.1	49.1	41	61.5	183.4	99.2	14.8	587.4	31.7	178.9	10.5	<LL		394.9	22	38.8	24.8	<LL	<LL		3.6	10.7	7.6	0.9	<LL		
PJ-06	31.6	377.5	24.9	52.3	63.5	225.1	119.3	23.3	464.3	38	192.9	12.3		0.7	519.8	28.5	49.7	33	<LL	<LL		7.9	12.9	8.3		1.4		
PJ-07	27.8	331.7	31.6	50.3	68.8	177.9	105.3	21.7	521.2	31.8	177.3	9.2	0.4	<LL	431.8	21.5	38.2	25.3	<LL	<LL		5.8	11.6	7.9		1.5		
PJ-08	24.9	319.8	31.8	41.8	66.5	211.1	99.3	23.2	533.3	31.6	177.4	9.5	0.1	<LL	418.3	20.7	36	23.6	<LL	<LL		5.3	11	8.5		1.1		
PJ-09	28.4	330.8	32.5	47.9	73.5	225.3	108	23.4	502.8	34.1	187.1	10.6		0.7	448.9	23.1	46.2	28.6	<LL	<LL		6.9	10.1	9.1	0.9	<LL		
PJ-10	27.6	348.2	32.3	47.8	70.1	217.6	106.9	17.7	502.9	32.3	179	9.6	0.1	<LL	448.5	24.3	45.5	23.2	<LL	<LL		5.4	10.9	8.2		1.3		
PJ-12	28.3	302.7	39	32.7	78.5	195.5	114.3	17.1	544	34.2	188.7	10.3		1.3	222.1	18.8	38	24.9	<LL	<LL		5.5	10.5	8.7		1.6		
PJ-13	32.3	474.1	24.7	55.7	53.1	285.4	117.7	27.2	445.1	42.6	220	13.7	<LL		589.1	26.7	56.5	36.8	<LL	<LL		10.1	11.6	8		2.4		
PJ-14	30.6	430.4	21.6	45.3	56.4	263.7	114.9	28.2	500.2	40.6	226.7	14	0.1	<LL	617.4	26	53.1	35.3	<LL	<LL		6.2	11.6	8.6		2.8		
PJ-15	29.7	444	26.9	47.4	54.3	237.4	118.9	22.4	498.8	40.6	223	13.2	0.1	<LL	514.6	25.7	52.2	37.1	<LL	<LL		7.7	12	8.9		1.4		
PJ-16	26.2	402.1	23.4	45.8	51.7	235.7	112.8	22.8	561.7	36.3	213.2	13	<LL		502.7	27	45.3	32.5	<LL	<LL		5.9	11	9.6		1.7		
PJ-16x2	26.8	394.3	27.6	52.1	58.2	242.1	110.3	21	560	36.2	214.5	13.6	0.4	<LL	478.5	23.2	40.2	30.6	<LL	<LL		6.5	11.4	9.8		1.2		
PJ-17	26	379.3	25.4	42.5	54	240.2	105	21.4	589.9	34.9	204.4	12.5	0.2	<LL	468.9	25.2	51	30.7	<LL	<LL		6.7	10.9	9.1		2.2		
PJ-18	25.5	372.2	25.1	40.3	53.4	230.2	104.6	20.7	595.9	33.6	198.7	11.6	0.3	<LL	459.2	21.9	48.3	27.8	<LL	<LL		5.6	10.6	8.5		1		
PJ-19	26	376.9	33.9	39.4	57.6	245.1	104.9	20.7	555.4	35.7	204.8	12.4	<LL		449.4	23.9	49	29.9	<LL	<LL		6.4	11.7	9.6		1.1		
PJ-20	31.7	456.5	41.3	54.6	65.7	299.1	127.1	26.3	487.5	40.4	233.3	14.4		0.5	527.6	28.3	58.5	35.3	<LL	<LL		6.5	10.6	9.2		1.8		
PJ-21	31	447.8	36.1	50.3	64.3	297.3	119.7	22.1	474.3	41.4	226	14.5	0.2	<LL	519.1	27.2	54.2	33.9	1.3	<LL		7.4	11.6	9.9		1.3		
PJ-21x2	29.8	425.3	38	45.7	65.9	253.2	113.4	23.4	492.6	39.8	205.8	14.5	0.1	<LL	485.8	21.4	44.6	31.2	<LL	<LL		6.7	12.1	10.1	0.7	<LL		
PJ-22	27.3	405.1	38.1	47.7	62.6	237.2	111.1	19.5	527.8	36.9	208.3	12.9	0.1	<LL	484.8	28.5	53.2	31.2	<LL	<LL		6.3	11	8.8	0.8	<LL		
PJ-23	32.4	453.2	40.6	59.6	63.9	227.5	124	25.1	481.1	40.2	230.4	14.2		0.5	499.7	27.2	54	34.2	<LL	<LL		7	11.8	9.4		2.4		
PJ-24	29.2	404	38.5	49.3	62.4	169.8	110.4	19.1	520.1	35.7	209.1	12.4	<LL		471.7	22.4	43.4	33.1	<LL	<LL		7.1	11.1	8.7		1.5		
PJ-25	34.9	485.3	43.2	62.7	65	291.3	132.3	21.9	450.8	43	245.8	14.9	<LL		537.8	30.1	59.3	37.5	<LL	<LL		8	12.1	9.9		1.8		
PJ-26	30	377.2	42.2	50.2	60.2	203.3	113.3	22.7	523.5	35.4	205.3	12.6	0.0	<LL	457.6	26.4	53.5	32.1	<LL	<LL		6.9	10.6	11.7		2.2		
PJ-27	37.6	321.4	<LL		43.3	11.7	32.2	117	36	482.5	40	225.5	13.2	0.7	887.1	35	63.1	35.2	<LL	<LL		4.3	10.1	11.6		1.6		
PJ-28	37.6	304.9	<LL		35.4	8.6	23.5	108.5	34.2	485.6	41.5	223.5	14	0.6	798.4	33.3	57.8	36.1	<LL	<LL		3.8	11.5	12.7		1.5		
PJ-29	23.9	327.8	49.9	49.1	108.1	226.4	99.6	14.9	592.2	28.3	151.5	9.8		0.5	386.6	22.5	35.5	21.9	<LL	<LL		4.8	10.2	9.1	0.3	<LL		
PJ-30	30.2	313.2	73.3	65.7	182.3	159.4	99.5	11	483.7	26	126.6	6.6	0.5	<LL	373.5	17.4	26.1	14.3	<LL	<LL		3	9.4	7.4		1.4		
PJ-31	30.2	295	72	59.5	160.7	154	97.9	11	462.4	25.8	127.1	6.7	0.1	<LL	313.3	19.6	22.8	14.6	<LL	<LL		4.6	9.2	8.2	0.9	<LL		
PJ-32	28.8	297	68.2	66.9	171.3	176.1	100.7	9.8	480.3	25.7	130.7	6.8		1	377.2	18.8	36.3	14.4		7.3	<LL	1.6	<LL	8.8	6.8	0.9	<LL		
PJ-33	28.2	308.5	70.2	63.8	160.5	158	95.4	5.7	483	24.1	120	6.2	0.0	<LL	277.4	16.8	29.2	15.6	<LL	<LL		6.8	9.8	5.9		2.1		
PJ-34	26.3	402.7	5.5	48.1	58.5	213.1	120.5	33.9	512.5	37.5	230.6	13.5	0.2	<LL	616.7	35.1	61.5	37.3	<LL	<LL		9.7	13	10.3		2.9		
PJ-35	28	420.7	2.0	<LL	46.4	54.7	280.4	119.1	29.7	506.9	38.6	230.2	14		0.7	623.1	30.5	51.9	34.3	<LL	<LL		8.2	12.8	10.4		1.6		
PJ-36	27.6	329.9	69.4	54.4	119.8	164.4	110.3	12.7	555.6	29.9	155.1	9	0.0	<LL	426.7	18.7	28.7	20.8	<LL	<LL		3	11.1	8.5	0.6	<LL		
PJ-37	32.3	349.8	18.1	43.4	29.2	191.9	126.4	45.6	444.4	39.2	203.5	11.8		1	694.9	27	43.1	30.7	<LL	<LL		6	13.7	11		2.1		
PJ-38	32.9	338.6	22.2	43.7	30.1	169.6	123.5	40.3	451.3	38.5	203.7	11.6		0.7	700.1	24.6	51.2	32.5	<LL	<LL		5.4	14.6	10.6		2.3		
PJ-39	31	343.1	21.8	48.2	31.4	139.8	120.1	40.8	449.7	37	197.6	11.1		0.5	671.6	23.6	43.1	30.1	<LL	<LL		5.9	14.3	9.5		1.4		
PJ-40	41.6	237.5	284.9	49.5	167.1	106	49.1	2.3	183	17.3	43.7	4.2	0.3	<LL	128.1	5.5	4.3	<LL	<LL	<LL		<LL	9.8	1.4	<LL		1	

REYNOLDS SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CR423	25.1	257.3	194	57.7	206.9	67.9	106.2	4	404	23.9	116.9	9	1.3	112.5	10.1	24	18.7	2.9	-1.5	2.2	2.9	0.7	0.7
CR424	32.8	306.8	217.4	57.1	213.3	74	105.2	3.8	474.4	28.1	126.9	8.9	0.3	176.4	12.9	32.9	20.9	3.5	2.2	2.6	1.5	1.2	0.3
CR425	27.6	276.1	445.2	60.4	218.5	101.7	108.2	6.2	412.2	23.2	140.1	10.4	1.2	292.6	16.8	35	21.1	4.1	1.5	3	3.7	4.2	0.3
CR426	26.1	250.3	450.9	55.3	219.7	64.5	102.4	9.3	402.3	22.9	135.4	10.1	1	253.5	14.2	33.2	18.9	3.7	-0.3	2.8	3.5	3.3	0.3
CR427	30.1	297.9	117.8	56.4	167.6	69.2	108.4	3.9	519.7	25.2	132.8	11.8	0.6	202.8	11.4	36.4	22.4	5.4	-3.8	2.6	1.2	4.6	0
CR428	26.3	245.2	488.7	57.4	259.6	99	101.3	1.4	382.7	21	124	9.4	0.4	221.2	5.4	34	16.3	4.6	0.5	3.5	2.9	2.7	-0.1
CR429	22.4	257.8	67.1	53.3	87	40.5	104.4	14.1	476.3	25.5	151.4	12.2	0.9	296.1	12.5	43.1	25.8	4.8	-1.4	3.7	3.8	5.2	1
CR430	27.5	281.2	212.5	56.6	226.1	102.4	97.4	3.2	436.5	23.3	114.6	9.4	0.7	142.6	11.7	35.8	18.2	4	-0.1	3.6	1.7	0.3	0
CR431	24.4	240.3	441	53.4	256.1	109.3	98.3	0.3	408.7	22	130.1	9.4	1	174.4	11.8	33.7	18.8	3.7	-2.7	3	2.5	0.4	-1.3
CR432	25.4	255.7	500.3	55.3	236.7	98.4	103.6	9.7	389.6	22.8	135.9	9.9	1.1	261.4	12.3	40	20.2	4.4	-2.4	3.6	3.4	0.2	0.2
CR433	25.9	247.2	436.7	53.5	226.3	87.5	101.4	8.8	392	22.1	131.3	10.1	0.8	242.3	15.4	42.2	22.7	4.3	4	2.6	3.3	3.1	0.2
CR434	22.3	246.9	63	49.6	84.1	38.2	103	13	478.3	25.8	152.8	11.8	1	292	17.6	51.9	24.3	3.4	-0.9	4.2	2.8	1	0
CR435	26.1	257	224	52.3	138.2	46	97.4	8.1	428.1	22.8	122.9	11	1.7	169.7	13.7	35.1	19	4.7	0.3	3.3	4.4	-0.4	0.1
CR436	24.2	251.7	160	49.8	123.4	56.8	97.5	3.8	471.4	24.5	135.8	12	0.1	214.6	15.9	37.7	20.8	4.5	-2.3	4.2	0.7	2.1	1
CR437	26.2	264.5	176.5	52.9	206.5	95.3	99.2	3.7	455.1	23.4	113.4	9.3	1.6	127.4	2.2	25.8	15.6	4.6	-3.2	3.5	2.4	0.8	0.8
CR438	16.5	53.3	-7.8	27	3	12.9	131.3	127.9	299.4	45.4	322.1	21.4	1.1	1842.6	49.9	101.9	48.8	8.3	4.2	8.7	23	9.8	3.6

SQUAW CREEK SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CR356	25.1	288.8	0.3	49.9	34.3	18.2	136	33.7	555.5	36.5	243.3	16.1	0.3	709.5	24.5	79.2	41.5	7.1	0.6	5.7	6.4	2.4	1.5
CR357	24.9	269.5	66.6	57	104.9	54.2	108.9	5.4	474.8	26.7	146.1	10.7	0.8	257	10	42.7	26	5.1	-0.2	4.2	3.2	4.6	0.6
CR358	27.4	264.1	185.8	55.7	205.1	83.7	104.6	6.8	484.9	24.8	127.1	10.5	1.7	153.5	17	30.9	21.1	5.3	3.2	2.6	4.2	3.3	1.8
CR359	27.2	274	185.3	54	199.4	69.9	98.8	3.4	487.1	23	118.5	10.2	1	164.4	15.8	31.3	17.9	4.1	0.7	2.7	2.7	3.5	1.9
CR360	26.1	273.9	73.4	50.3	127.8	74.6	119.8	14.7	508.7	31.8	190.4	13.8	1.2	413.9	19.6	56.4	33.7	6.1	2	3.4	4.5	3.9	2.2
CR361	25.1	244.8	31.8	53.5	80.8	92.4	124.9	7.8	579.2	33.6	210.6	15.8	1.2	444.5	17.4	59.3	35.2	7.6	2.9	4.7	2.2	4.9	-0.2
CR362	20.2	266.3	35.5	49.4	118.7	94.3	123.4	22.3	487.3	33.9	212.1	16.2	1.1	377.6	17.9	58.4	33.1	7.5	-1.3	5.1	5.3	4.3	1.7

CR363	22.1	259.5	23.1	55.8	114.6	79	124.6	12.4	484.9	30.5	175.9	13.1	1.3	277	13.8	50.4	30.4	5.8	2.5	4	3.8	3.9	1.6
CR364	24.8	272.2	22.7	47.6	81.8	44.5	111.5	13.1	493.6	29	174.4	13.2	1.4	332.6	13.5	44.4	27.1	5.9	-0.8	4.4	4.4	5.1	-0.8
CR365	26.5	276.3	31.7	48.8	106.8	114.7	101.7	3.9	435.2	31.9	156.7	10.1	0.6	295.9	11.3	37.4	23	3.7	2.9	4.2	3.7	2.5	1
CR366	27.3	257.1	127.2	53.8	134.6	42.9	107.6	4.4	469.6	26	138.3	9.8	0.4	121.1	2.2	32.8	22.4	3.1	2.8	3.9	2.4	3.2	0.8
CR367	21.5	240.9	42.5	44	85.1	42.1	120.4	15.8	524.4	35.1	236	16.8	1	604.9	22.4	64.4	39.7	7.8	2.7	5.8	5.6	5.5	1.5
CR368	23.9	252.8	78.7	56.7	144.1	45.8	110	10.1	442.5	26.5	139.6	11.1	2.3	215.5	11.7	38.5	23.3	5.7	3.4	4.1	4.8	4	1.4
CR369	23.1	233.4	73.8	52.5	127	49	106.7	13.3	473.2	27.5	167.5	12.2	0.8	409.6	20.7	49.4	29.4	4	2.3	4.3	4.5	5.3	1.6
CR370	23.9	283.9	21.5	47.5	54	87.3	132.4	37.4	445.7	41.1	269.4	20.8	1.6	658	32.8	76.4	42.8	8.3	5	7.7	8.6	5.4	3.1
CR371	23.9	218.1	118	47.6	117.8	106.1	100.6	8.1	612.6	25.2	153.1	10.4	1.1	313.6	11.7	35.8	23.6	6.5	2.6	4.7	2.4	3.2	2

STEENS MOUNTAIN SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U	
MF94-63		27	338	160		112	226	91	12	432	30	161	14.4		243	13	33					1	1	U
MF94-64		25	296	189		101	185	88	8	476	27	150	12.7		238	12	43					3	0	U
MF94-65		27	289	500		215	104	92	15	399	28	151	13.8		263	8	34					1	2	U
MF94-66		30	311	650		261	129	90	11	327	26	132	10.4		203	14	20					3	1	U
MD94-67		36	347	296		94	185	91	12	346	31	165	12.8		205	10	29					1	1	U
MF94-68		28	324	274		134	166	85	15	309	29	138	10.9		175	4	29					0	4	U
MF94-69		28	298	463		248	109	83	12	300	26	127	10.9		148	0	29					1	1	U
MF94-70		28	311	153		107	147	87	11	486	25	140	11.5		196	0	22					2	0	U
MF9471A		32	376	238		119	149	101	10	407	30	148	11.4		238	9	22					3	1	U
MF9471B		27	338	160		112	226	91	12	432	30	161	14.4		243	13	33					1	1	U
MF9471C		40	381	241		126	169	103	12	408	29	149	11.2		216	3	37					0	5	U
MF94-72		36	290	606		240	121	86	9	340	23	117	10.4		150	14	25					0	3	U
JS001		25	302	146		110	188	85	13	450	26	143	11.2		211	2	47					0	2	U
JS002		25	323	489		176	126	89	12	330	26	138	10.4		187	0	30					0	1	U
JS003		24	321	278		137	150	84	12	310	28	140	11		189	16	28					2	3	U
JS004		24	291	461		285	116	87	10	314	25	126	9.7		136	6	30					4	1	U
JS005		24	294	292		146	148	81	8	378	26	138	10.8		167	5	32					0	0	U
JS006		25	322	281		120	161	85	12	360	28	140	11.2		178	11	35					4	1	U
JS007		34	374	296		85	234	99	5	347	36	183	14.9		235	20	56					0	4	U
JS008		34	366	330		113	149	91	11	336	30	154	12.2		148	23	40					2	1	U
JS009		35	362	329		120	207	95	16	337	31	154	12.4		143	3	33					2	3	U
JS010		33	390	276		120	132	99	8	322	32	165	15.4		106	11	50					1	2	U
JS011		26	302	424		261	113	86	3	302	25	122	10.4		66	5	28					0	3	U
JS012		35	351	407		164	127	88	6	285	28	134	12.5		77	16	27					0	1	U
JS013		31	299	890		345	118	88	10	301	24	123	9.7		138	9	17					2	3	U
JS014		27	293	592		280	176	90	7	243	23	109	8.8		92	4	27					2	1	U
JS015		31	320	404		188	173	90	7	257	26	115	8.9		105	4	27					2	1	U
JS016		27	303	484		260	162	85	9	303	26	129	10.7		147	19	43					0	1	U
JS017		29	293	474		261	179	82	13	296	25	125	11.2		139	6	37					2	1	U
JS018		34	300	385		196	125	84	12	303	26	128	10.9		131	16	44					1	0	U
JS019		31	390	76		57	223	107	20	390	35	189	15.7		287	14	55					1	0	U
JS020		29	377	108		50	184	113	25	379	38	198	18		363	24	67					4	3	U
JS021		34	406	132		59	171	110	21	374	38	190	14.9		286	6	51					2	5	U
JS022		31	309	321		192	84	82	6	342	25	120	9.4		89	6	26					0	1	U
JS023		27	294	167		158	186	88	9	380	25	131	10.9		149	7	32					2	1	U
JS024		36	412	176		75	200	110	6	360	34	169	13.2		197	11	49					2	1	U
JS025		30	354	297		163	148	96	8	370	27	133	10.1		140	11	37					0	3	U
JS026		27	337	269		162	147	96	5	391	26	125	9.6		139	14	42					0	1	U
JS027		28	296	333		179	103	84	8	402	23	109	8.1		129	17	22					1	0	U
JS028		27	336	177		125	214	102	10	448	24	125	7.1		223	0	31					0	3	U
JS029		27	329	86		82	148	101	9	490	27	134	9.9		224	22	39					0	0	U
JS030		32	408	141		103	227	107	9	430	29	138	9.3		228	13	36					3	3	U
JS031		32	320	137		116	189	95	13	568	28	130	7.2		262	17	40					0	1	U
JS032		22	250	84		63	99	92	47	517	29	181	13.8		584	5	50					4	4	U
JS033		20	307	66		50	149	98	35	508	32	183	13.6		593	37	56					4	4	U
JS034		24	298	76		79	129	105	20	464	31	157	11.6		444	30	36					2	4	U
JS035		25	379	80		98	307	132	29	429	37	197	13.2		383	17	58					4	4	U
JS036		28	323	107		79	139	102	19	466	32	156	10.3		386	12	65					3	3	U
JS037		32	346	84		69	226	120	31	409	43	211	14.8		473	25	52					3	6	U
JS038		29	342	95		58	260	114	22	454	37	190	13		415	11	49					2	3	U
JS039		34	480	58		46	192	137	26	414	45	223	16.9		497	22	80					4	5	U
JS040		32	422	85		61	240	128	18	461	40	205	16.1		430	13	50					7	5	U
JS041		30	342	39		30	251	122	40	472	42	218	16.3		550	32	70					6	3	U
JS041		30	342	39		30	251	122	40	472	42	218	16.3		550	32	70					6	3	U
JS042		33	373	78		95	281	123	25	425	38	196	13.6		403	13	50					1	4	U
JS043		30	344	118		60	205	103	19	491	31	158	11.8		402	11	53					4	2	U
JS044		28	260	97		90	52	103	6	502	27	137	12.9		238	16	53					1	1	U
JS045		34	402	82		51	281	126	20	439	42	206	15.1		449	35	71					1	3	U
JS046		24	305	49		106	184	105	9	692	27	137	9.2		355	6	52					3	1	U
JS047		36	448	31		41	225	130	27	452	44	215	14.6		526	21	63					5	3	U
JS048		35	419	33		42	272	130	29	448	43	216	16		529	20	56					7	3	U
JS049		36	445	54		55	222	124	21	479	39	197	13.9		466	12	59					4	4	U
JS050		36	459	64		50	201	125	14	472	39	191	14		456	30	71					4	0	U

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JS051	32	387	45	101	137	109	16	510	34	161	10.3	369	25	34					0	0 U
JS052	30	402	13	26	360	139	28	445	51	251	18.9	619	22	76					2	6 U
JS053	24	364	48	56	137	114	18	526	36	187	12.5	447	20	51					3	2 U
JS054	27	343	135	129	204	114	11	499	33	166	11.9	366	4	36					4	2 U
JS055	22	314	69	83	133	98	11	563	31	158	9.7	369	22	54					2	2 U
JS056	23	294	9	25	171	125	33	478	45	245	18.9	745	33	65					7	6 U
JS057	21	347	13	27	223	122	43	432	41	231	15.8	600	15	64					8	5 U
JS058	19	335	76	83	130	109	18	535	31	158	10.6	409	20	49					4	1 U
JS059	33	297	13	25	203	130	34	497	42	241	17.4	711	18	67					5	1 U
JS060	33	359	9	33	312	131	30	492	45	214	16.1	691	35	69					6	5 U
JS061	31	347	66	102	279	125	14	472	46	181	12.2	413	28	56					3	3 U
JS062	35	411	59	22	250	125	46	403	41	176	10.6	664	15	41					6	3 U
JS063	31	341	64	111	314	121	19	480	36	181	13.3	393	21	58					2	3 U
JS064	21	293	46	146	83	99	8	585	25	132	8.5	258	9	35					1	3 U
JS065	22	253	7	8	56	127	35	644	37	219	14.3	872	30	69					5	2 U
JS066	29	313	56	55	184	113	28	482	35	183	11.3	578	10	39					7	5 U
JS067	30	369	33	41	189	116	26	466	33	172	11.8	570	17	47					3	3 U
JS068	28	261	46	93	111	90	5	534	24	115	7	284	22	32					4	1 U
JS069	29	337	48	49	143	108	18	504	30	175	13.1	370	10	48					5	2 U
JS070	30	322	67	112	205	111	16	472	33	166	12.1	358	5	50					2	0 U
JS071	25	248	2	0	25	124	39	674	38	219	15	867	30	73					9	2 U
JS072	28	273	5	6	38	127	32	665	38	229	15.4	889	28	80					7	2 U
JS073	24	250	9	4	41	116	40	652	32	223	14.6	843	40	64					6	4 U

SUMMIT SPRINGS SECTION:

SAMPLE	Sc	V	Cr	Co	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb	Mo	Ba	La	Ce	Nd	Sm	Yb	Hf	Pb	Th	U
CR7-104	34	291	201	136	98	96	7	391	27	125	9.4	286	16	44								0	4
CR7-106	30	243	159	98	146	78	10	449	22	111	6.7	280	0	37								3	1
CR7-107	31	283	61	52	94	88	19	461	29	147	13.4	438	11	45								2	7
CR7-108	29	321	191	60	124	101	7	383	34	143	11	304	15	22								2	2 U
CR7-109	33	392	57	31	67	111	20	390	38	145	9	608	29	29								4	4
CR7-110	34	327	142	35	135	104	24	383	31	153	8.9	526	24	44								4	2
CR7-111	34	246	307	180	120	67	3	186	21	56	2.1	119	2	22								0	3
CR7-112	39	239	289	173	103	71	1	185	22	55	0.4	89	3	24								0	0
CR7-113	35	250	302	171	111	72	2	202	23	57	2.5	123	9	14								0	1
CR7-114	33	327	43	20	173	89	22	226	36	122	12.2	434	13	22								3	2
CR7-115	26	256	71	52	124	114	33	412	36	201	16.3	474	13	51								7	3
CR7-116	32	294	23	10	47	113	50	346	34	179	12.7	629	11	57								4	7
CR7-117	27	312	25	10	63	109	43	355	35	183	14.5	741	22	45								3	4
CR7-118	33	432	52	1	200	125	33	370	41	180	11.2	671	21	37								4	3
CR7-119	28	288	71	66	21	112	12	461	30	171	15.4	371	19	46								0	5
CR7-120	34	320	100	24	40	114	14	411	31	169	13.9	369	20	41								1	4
CR7-121	30	261	89	99	88	107	17	413	30	172	13.7	399	0	54								3	1
CR7-122	27	237	93	76	133	103	23	450	31	168	12.3	439	11	39								1	1

Note: Major- and trace-element analyses are derived from X-ray Fluorescence Spectrometry at the San Diego State University Geoanalytical Lab, except for those analyses comprising the Steens Mountain section which were derived from the same method at Washington State University. These are the raw, non-normalized data, calculated on a volatile-free basis, with all iron expressed as FeO.

Age Data - Sample CR7-1

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
07C878	500 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C879	600 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C880	700 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C881	800 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C882	900 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C883	975 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.019621	0.000985
07C884	1050 °C	0.000068	0.000005	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.023346	0.000985
07C885	1125 °C	0.000083	0.000005	0.000089	0.000021	0.000015	0.000004	0.000064	0.000016	0.027886	0.000985
07C886	1200 °C	0.000101	0.000007	0.000333	0.000003	0.000030	0.000002	0.000180	0.000005	0.032260	0.000034
07C887	1300 °C	0.000144	0.000005	0.000767	0.000021	0.000057	0.000004	0.000464	0.000016	0.041654	0.000985
07C888	1400 °C	0.000196	0.000005	0.001402	0.000009	0.000096	0.000004	0.000839	0.000008	0.051515	0.000109

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
07C878	500 °C	0.000505	0.000021	0.8090	LIN # 1 2 3 4	0.006400	0.000028	0.9919	LIN # 1
07C879	600 °C	0.000270	0.000007	0.4191	LIN # 3	0.027058	0.000168	0.9737	LIN #
07C880	700 °C	0.000229	0.000005	0.3811	LIN # 3 5	0.092523	0.000243	0.9820	LIN #
07C881	800 °C	0.000539	0.000011	0.1892	LIN #	0.340728	0.000782	0.9850	LIN #
07C882	900 °C	0.000627	0.000007	0.4206	LIN # 1 3 10	0.417779	0.001245	0.9766	LIN # 2
07C883	975 °C	0.000295	0.000010	0.0826	LIN #	0.151812	0.000260	0.9954	LIN # 2 4 5
07C884	1050 °C	0.000274	0.000008	0.1219	LIN #	0.126235	0.000266	0.9835	LIN # 9
07C885	1125 °C	0.000340	0.000007	0.5555	LIN # 4 5	0.107407	0.000186	0.9898	LIN #
07C886	1200 °C	0.000235	0.000006	0.0366	LIN #	0.078429	0.000207	0.9835	LIN # 3 6
07C887	1300 °C	0.000284	0.000009	0.0997	LIN # 1	0.089547	0.000386	0.9667	LIN # 3 5 8
07C888	1400 °C	0.000696	0.000017	0.0935	LIN # 1 3 4 5	0.327972	0.000400	0.9885	LIN # 7 8 9 10

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000376	0.000008	0.4680	LIN # 1 2 3 4	0.011153	0.000306	0.1601	LIN # 1 2 3 4
0.000205	0.000006	0.6493	LIN # 2	0.010451	0.000059	0.3304	LIN # 1 2 3 6
0.000415	0.000004	0.9093	LIN # 4 9	0.031747	0.000032	0.9794	EXP # 1 5 6
0.001452	0.000018	0.1980	LIN # 1	0.113834	0.000083	0.9979	LIN # 1 6 7 9
0.001808	0.000013	0.6044	LIN # 1	0.142463	0.000292	0.9760	LIN # 1
0.000736	0.000008	0.0027	LIN # 1 4	0.058014	0.000145	0.9574	LIN # 1 7 9
0.000480	0.000012	0.0832	LIN #	0.036672	0.000075	0.9049	LIN # 1
0.000439	0.000008	0.5548	LIN #	0.032066	0.000116	0.4218	LIN #
0.000238	0.000003	0.8584	LIN # 7 9	0.015904	0.000009	0.9954	LIN # 1 3 4 8 9
0.000204	0.000004	0.0557	LIN # 2	0.012556	0.000031	0.4789	LIN # 1 4 9 10
0.000558	0.000009	0.0737	LIN # 3	0.038545	0.000066	0.9730	LIN # 1 3 5

40Ar	1σ	r2		Sample Parameters		Sample	Material
0.158219	0.001440	0.9114	LIN # 1 2 3 4	07C878	500 °C	CR7-1	plagioclase
0.131907	0.000735	0.8808	LIN # 1 2	07C879	600 °C	CR7-1	plagioclase
0.226525	0.000294	0.9424	EXP # 6 7	07C880	700 °C	CR7-1	plagioclase
0.734051	0.000489	0.9973	LIN # 2 5	07C881	800 °C	CR7-1	plagioclase
0.905310	0.000601	0.9973	LIN # 1 4	07C882	900 °C	CR7-1	plagioclase
0.386964	0.000430	0.9804	LIN #	07C883	975 °C	CR7-1	plagioclase
0.259955	0.000236	0.9817	LIN # 1 2 3	07C884	1050 °C	CR7-1	plagioclase
0.259904	0.000271	0.9729	LIN # 1 4 5	07C885	1125 °C	CR7-1	plagioclase
0.139698	0.000230	0.6318	LIN # 1 2 6 7	07C886	1200 °C	CR7-1	plagioclase
0.127389	0.000128	0.9564	LIN # 1 2 4	07C887	1300 °C	CR7-1	plagioclase
0.323066	0.000355	0.9782	LIN # 4 7 10	07C888	1400 °C	CR7-1	plagioclase

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
OR	jh	500	28.03	0.01	0.001508	0.35
OR	jh	600	28.03	0.01	0.001508	0.35
OR	jh	700	28.03	0.01	0.001508	0.35
OR	jh	800	28.03	0.01	0.001508	0.35
OR	jh	900	28.03	0.01	0.001508	0.35
OR	jh	975	28.03	0.01	0.001508	0.35
OR	jh	1050	28.03	0.01	0.001508	0.35
OR	jh	1125	28.03	0.01	0.001508	0.35
OR	jh	1200	28.03	0.01	0.001508	0.35
OR	jh	1300	28.03	0.01	0.001508	0.35
OR	jh	1400	28.03	0.01	0.001508	0.35

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.00378	0.16	1.0148	1.012E-19	28	02	2007	16	24	001	OSU4E06	Camp	FCT-3	07C878
1.00378	0.16	1.0147	1.012E-19	28	02	2007	16	55	001	OSU4E06	Camp	FCT-3	07C879
1.00378	0.16	1.0147	1.012E-19	28	02	2007	17	26	001	OSU4E06	Camp	FCT-3	07C880
1.00378	0.16	1.0146	1.012E-19	28	02	2007	17	56	001	OSU4E06	Camp	FCT-3	07C881
1.00378	0.16	1.0146	1.012E-19	28	02	2007	18	28	001	OSU4E06	Camp	FCT-3	07C882
1.00378	0.16	1.015	1.012E-19	28	02	2007	18	59	001	OSU4E06	Camp	FCT-3	07C883
1.00378	0.16	1.0156	1.012E-19	28	02	2007	19	31	001	OSU4E06	Camp	FCT-3	07C884
1.00378	0.16	1.0159	1.012E-19	28	02	2007	20	02	001	OSU4E06	Camp	FCT-3	07C885
1.00378	0.16	1.016	1.012E-19	28	02	2007	20	34	001	OSU4E06	Camp	FCT-3	07C886
1.00378	0.16	1.0155	1.012E-19	01	03	2007	09	48	001	OSU4E06	Camp	FCT-3	07C887
1.00378	0.16	1.0152	1.012E-19	01	03	2007	10	13	001	OSU4E06	Camp	FCT-3	07C888

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
500 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
900 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
975 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1050 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1125 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1200 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1300 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0

Incremental Heating		
07C878	500 °C	
07C879	600 °C	✓
07C880	700 °C	✓
07C881	800 °C	✓
07C882	900 °C	✓
07C883	975 °C	✓
07C884	1050 °C	✓
07C885	1125 °C	✓
07C886	1200 °C	✓
07C887	1300 °C	✓
07C888	1400 °C	✓
		Σ

Information on Analysis

CR7-1
plagioclase
OR
jh

Project = Camp
Irradiation = OSU4E06
J = 0.0015080 ± 0.0000053
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.000439	0.025075	0.000156	0.011226	0.013951	3.38 ± 3.34	9.70	2.23	0.192 ± 0.012	07C878	500 °C
0.000183	0.106333	0.000029	0.010460	0.063074	16.33 ± 1.63	53.87	2.08	0.042 ± 0.001	07C879	600 °C
0.000074	0.363967	0.000000	0.031824	0.191132	16.27 ± 0.48	89.70	6.33	0.038 ± 0.001	07C880	700 °C
0.000126	1.341018	0.000000	0.114176	0.690662	16.38 ± 0.21	94.87	22.71	0.037 ± 0.001	07C881	800 °C
0.000133	1.645013	0.000000	0.142924	0.862225	16.34 ± 0.17	95.62	28.43	0.037 ± 0.001	07C882	900 °C
0.000078	0.598198	0.000000	0.058250	0.349978	16.27 ± 0.38	93.79	11.59	0.042 ± 0.001	07C883	975 °C
0.000076	0.497910	0.000000	0.036749	0.218184	16.08 ± 0.45	90.66	7.31	0.032 ± 0.001	07C884	1050 °C
0.000147	0.423682	0.000000	0.032120	0.192674	16.25 ± 0.49	81.59	6.39	0.033 ± 0.001	07C885	1125 °C
0.000054	0.308500	0.000000	0.015719	0.093620	16.13 ± 0.97	85.36	3.13	0.022 ± 0.001	07C886	1200 °C
0.000049	0.354390	0.000000	0.012008	0.073188	16.51 ± 1.43	83.44	2.39	0.015 ± 0.000	07C887	1300 °C
0.000159	1.303578	0.000000	0.037289	0.229438	16.66 ± 0.81	82.99	7.42	0.012 ± 0.000	07C888	1400 °C
0.001519	6.967664	0.000185	0.502744	2.978125						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	6.0277 ± 0.0412 ± 0.68%	16.32 ± 0.16 ± 0.97%	0.30	97.77 10	0.021 ± 0.007	No Convergence
		External Error ± 0.30	2.26	Statistical T Ratio		
		Analytical Error ± 0.11	1.0000	Error Magnification		
Total Fusion Age	5.9237 ± 0.0553 ± 0.93%	16.04 ± 0.19 ± 1.16%		11	0.001 ± 0.000	Statistics
		External Error ± 0.32				
		Analytical Error ± 0.15				

	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
	25.6 ± 3.0	327.3 ± 34.6	0.8665
✓	57.2 ± 6.5	640.7 ± 72.9	0.9883
✓	429.0 ± 110.5	2872.2 ± 739.5	0.9998
✓	906.5 ± 209.5	5778.7 ± 1335.7	0.9999
✓	1072.3 ± 207.2	6764.3 ± 1306.6	0.9996
✓	744.8 ± 249.0	4770.5 ± 1595.0	0.9997
✓	483.8 ± 121.9	3168.2 ± 798.3	0.9992
✓	218.5 ± 26.2	1606.1 ± 192.6	0.9951
✓	289.6 ± 102.1	2020.5 ± 712.3	0.9999
✓	244.6 ± 101.6	1786.0 ± 742.8	0.9984
✓	234.5 ± 55.5	1738.5 ± 411.3	0.9997

Inverse Isochron			39(k)/40(a+r) ± 2σ
07C878	500 °C		0.078075 ± 0.004591
07C879	600 °C	✓	0.089352 ± 0.001557
07C880	700 °C	✓	0.149373 ± 0.000710
07C881	800 °C	✓	0.156861 ± 0.000597
07C882	900 °C	✓	0.158520 ± 0.000859
07C883	975 °C	✓	0.156130 ± 0.001297
07C884	1050 °C	✓	0.152719 ± 0.001515
07C885	1125 °C	✓	0.136033 ± 0.001612
07C886	1200 °C	✓	0.143347 ± 0.000800
07C887	1300 °C	✓	0.136929 ± 0.003236
07C888	1400 °C	✓	0.134897 ± 0.000757

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
292.7619 ± 28.1612 ± 9.62%	6.0272 ± 0.0606 ± 1.01%	16.32 ± 0.20 ± 1.22%	0.35
		External Error ± 0.33	
		Analytical Error ± 0.16	

Results	40(a)/36(a) ± 2σ
Isochron	294.2452 ± 28.0678 ± 9.54%

Statistical F Ratio	1.94	Convergence	0.0000016720
Error Magnification	1.0000	Number of Iterations	500
n	10	Calculated Line	Weighted York-2

Statistics		
Statistical F Ratio	1.94	
Error Magnification	1.0000	
n	10	

36(a)/40(a+r) ± 2σ	r.i.
0.003056 ± 0.000323	0.0666
0.001561 ± 0.000178	0.0823
0.000348 ± 0.000090	0.0066
0.000173 ± 0.000040	0.0021
0.000148 ± 0.000029	0.0018
0.000210 ± 0.000070	0.0120
0.000316 ± 0.000080	0.0284
0.000623 ± 0.000075	0.0528
0.000495 ± 0.000174	0.0094
0.000560 ± 0.000233	0.0522
0.000575 ± 0.000136	0.0056

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
6.0297 ± 0.0595 ± 0.99%	16.33 ± 0.20 ± 1.20%	0.33
	External Error ± 0.33	
	Analytical Error ± 0.16	

Convergence	0.0000000565
Number of Iterations	5
Calculated Line	Weighted York-2

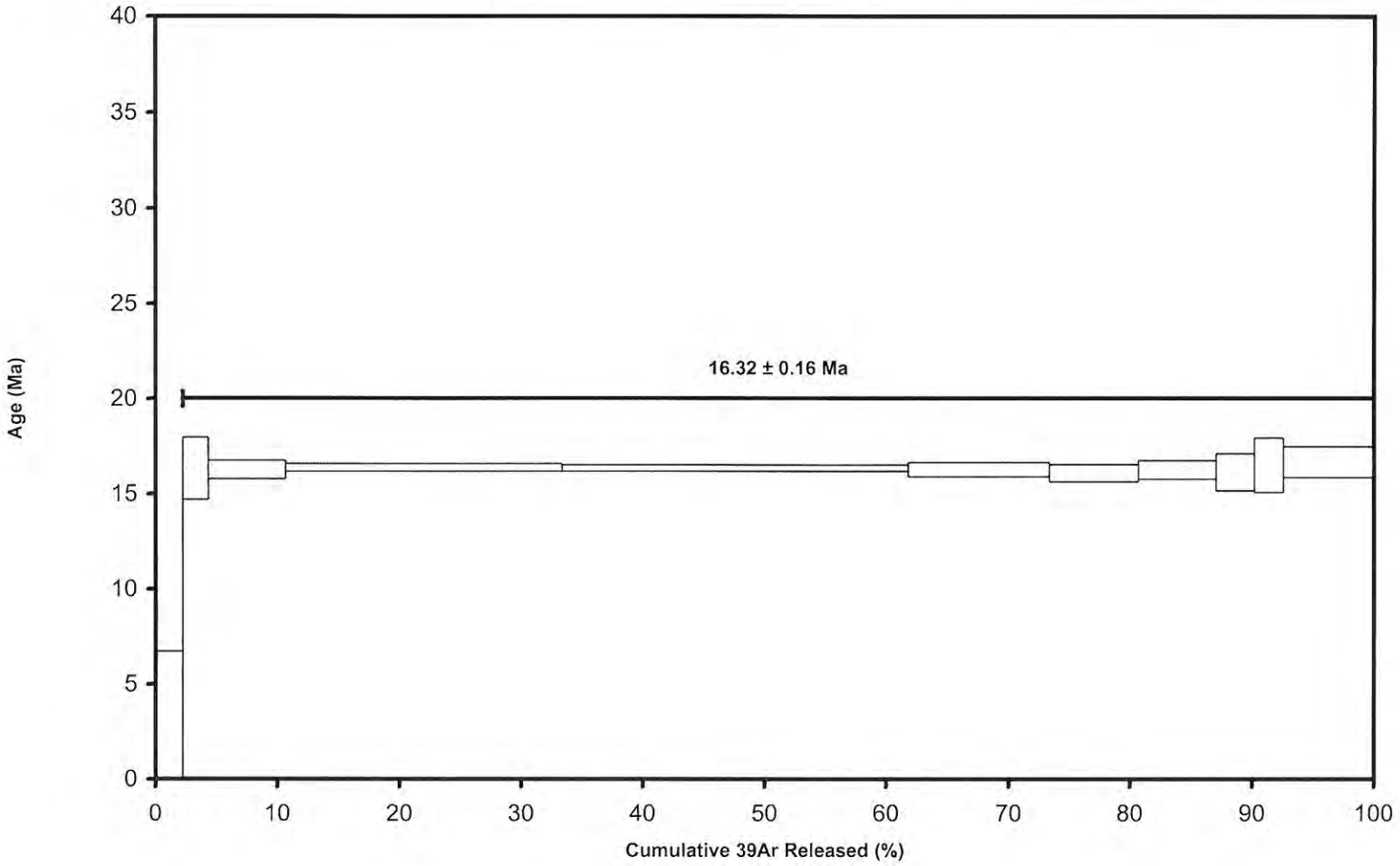
Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
07C878	500 °C		0.000439	0.000000	0.000007	0.000000
07C879	600 °C	✓	0.000183	0.000000	0.000028	0.000000
07C880	700 °C	✓	0.000074	0.000000	0.000096	0.000000
07C881	800 °C	✓	0.000126	0.000000	0.000354	0.000000
07C882	900 °C	✓	0.000133	0.000000	0.000434	0.000000
07C883	975 °C	✓	0.000078	0.000000	0.000158	0.000000
07C884	1050 °C	✓	0.000076	0.000000	0.000131	0.000000
07C885	1125 °C	✓	0.000147	0.000000	0.000112	0.000000
07C886	1200 °C	✓	0.000054	0.000000	0.000081	0.000000
07C887	1300 °C	✓	0.000049	0.000000	0.000094	0.000000
07C888	1400 °C	✓	0.000159	0.000000	0.000344	0.000000
		Σ	0.001519	0.000000	0.001839	0.000000
		Σ				0.003359

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.025075	0.000082	0.000000	0.000128	0.000003	0.000156	0.011226	0.000017	0.013951	0.129828	0.000000
0.106333	0.000034	0.000000	0.000119	0.000015	0.000029	0.010460	0.000072	0.063074	0.053991	0.000000
0.363967	0.000014	0.000000	0.000362	0.000051	0.000000	0.031824	0.000245	0.191132	0.021920	0.000000
1.341018	0.000024	0.000000	0.001299	0.000186	0.000000	0.114176	0.000903	0.690662	0.037221	0.000000
1.645013	0.000025	0.000000	0.001626	0.000229	0.000000	0.142924	0.001107	0.862225	0.039387	0.000000
0.598198	0.000015	0.000000	0.000663	0.000083	0.000000	0.058250	0.000403	0.349978	0.023110	0.000000
0.497910	0.000014	0.000000	0.000418	0.000069	0.000000	0.036749	0.000335	0.218184	0.022443	0.000000
0.423682	0.000027	0.000000	0.000366	0.000059	0.000000	0.032120	0.000285	0.192674	0.043443	0.000000
0.308500	0.000010	0.000000	0.000179	0.000043	0.000000	0.015719	0.000208	0.093620	0.016038	0.000000
0.354390	0.000009	0.000000	0.000137	0.000049	0.000000	0.012008	0.000239	0.073188	0.014510	0.000000
1.303578	0.000030	0.000000	0.000424	0.000181	0.000000	0.037289	0.000877	0.229438	0.046986	0.000000
6.967664	0.000284	0.000000	0.005721	0.000969	0.000185	0.502744	0.004689	2.978125	0.448877	0.000000
6.967664					0.007159		0.507434			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000011	07C878	500 °C		1.242756	0.61506	0.14378	0.00146	12.78999	0.37557	2.23042	0.07008
0.000011	07C879	600 °C	✓	6.030002	0.30251	0.11707	0.00075	11.11669	0.09657	10.09666	0.16976
0.000032	07C880	700 °C	✓	6.005885	0.08990	0.21305	0.00030	6.64452	0.01569	11.34946	0.16831
0.000115	07C881	800 °C	✓	6.049084	0.03942	0.72788	0.00050	6.32608	0.01194	11.65304	0.17202
0.000144	07C882	900 °C	✓	6.032765	0.03125	0.90161	0.00061	6.26086	0.01682	11.42126	0.17143
0.000059	07C883	975 °C	✓	6.008178	0.07114	0.37309	0.00108	6.36196	0.02632	10.19897	0.15179
0.000037	07C884	1050 °C	✓	5.937227	0.08316	0.24063	0.00101	6.48979	0.03210	13.42668	0.19964
0.000032	07C885	1125 °C	✓	5.998609	0.09023	0.23612	0.00102	7.28746	0.04298	13.07460	0.19791
0.000016	07C886	1200 °C	✓	5.955819	0.18077	0.10966	0.00024	6.88614	0.01907	19.37001	0.28743
0.000012	07C887	1300 °C	✓	6.094752	0.26497	0.08770	0.00099	7.16181	0.08445	28.93719	0.45106
0.000038	07C888	1400 °C	✓	6.152984	0.15014	0.27642	0.00038	7.24362	0.01983	34.15533	0.50703
0.000508											
3.427510											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
0.03967	0.00230	3.91840696	1.00048798	1.455E-20
0.02001	0.00099	3.92007349	1.00048813	1.185E-20
0.00531	0.00029	3.92174072	1.00048829	2.156E-20
0.00417	0.00012	3.92335485	1.00048843	7.367E-20
0.00394	0.00008	3.92507732	1.00048859	9.126E-20
0.00403	0.00022	3.92674668	1.00048874	3.776E-20
0.00559	0.00025	3.92847064	1.00048890	2.436E-20
0.00799	0.00027	3.93014145	1.00048905	2.390E-20
0.00852	0.00060	3.93186690	1.00048921	1.110E-20
0.01165	0.00083	3.97492303	1.00049310	8.876E-21
0.01318	0.00048	3.97628633	1.00049322	2.798E-20

07C878.AGE >>> CR7-1 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.32 ± 0.16
TOTAL FUSION
16.04 ± 0.19
NORMAL ISOCHRON
16.32 ± 0.20
INVERSE ISOCHRON
16.33 ± 0.20

MSWD
0.30

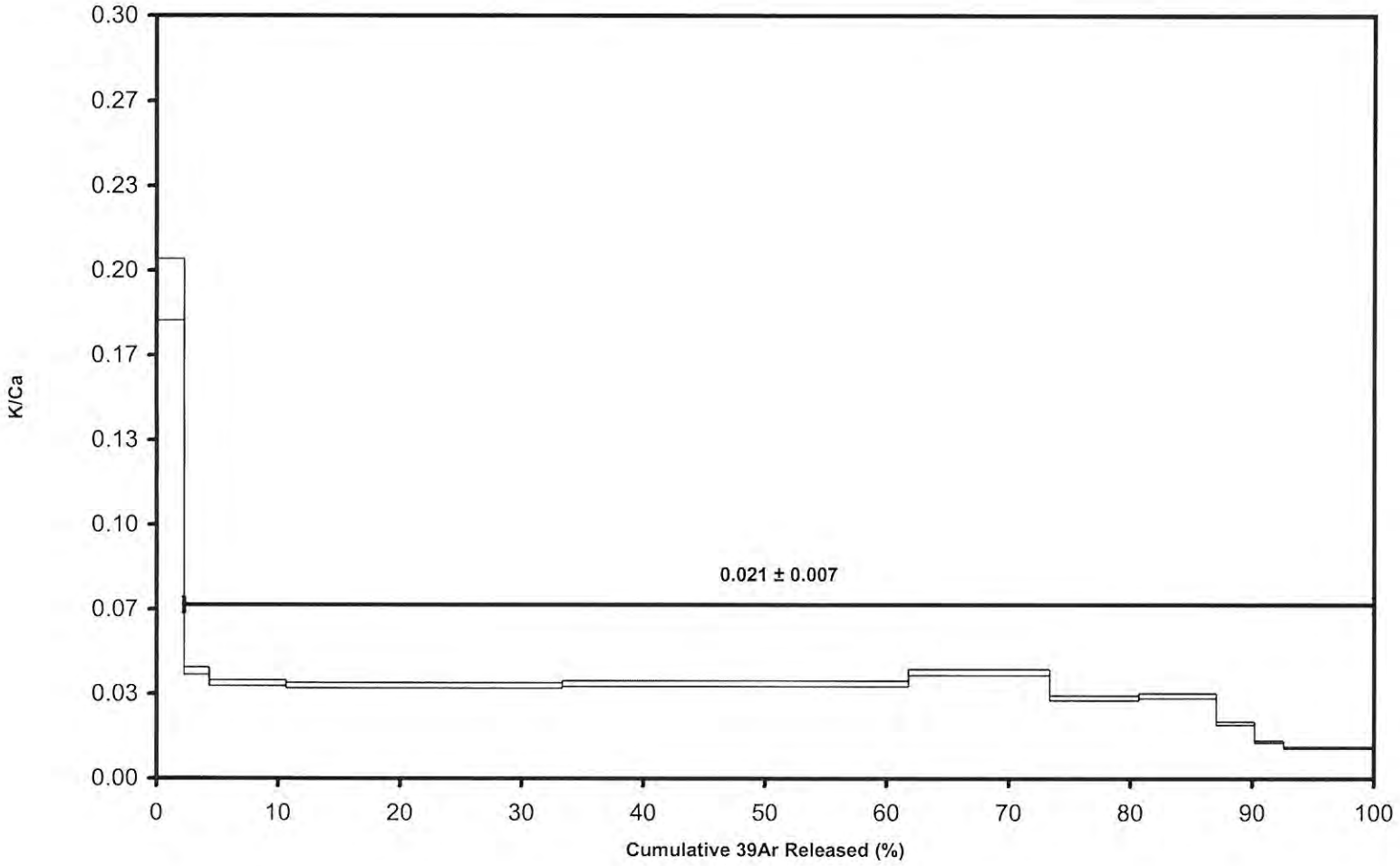
Sample Info

plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015080 ±

DR20132[illegible]0 Camp

07C878.AGE >>> CR7-1 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.32 ± 0.16
TOTAL FUSION
16.04 ± 0.19
NORMAL ISOCHRON
16.32 ± 0.20
INVERSE ISOCHRON
16.33 ± 0.20

Sample Info

plagioclase
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IRR = OSU4E06
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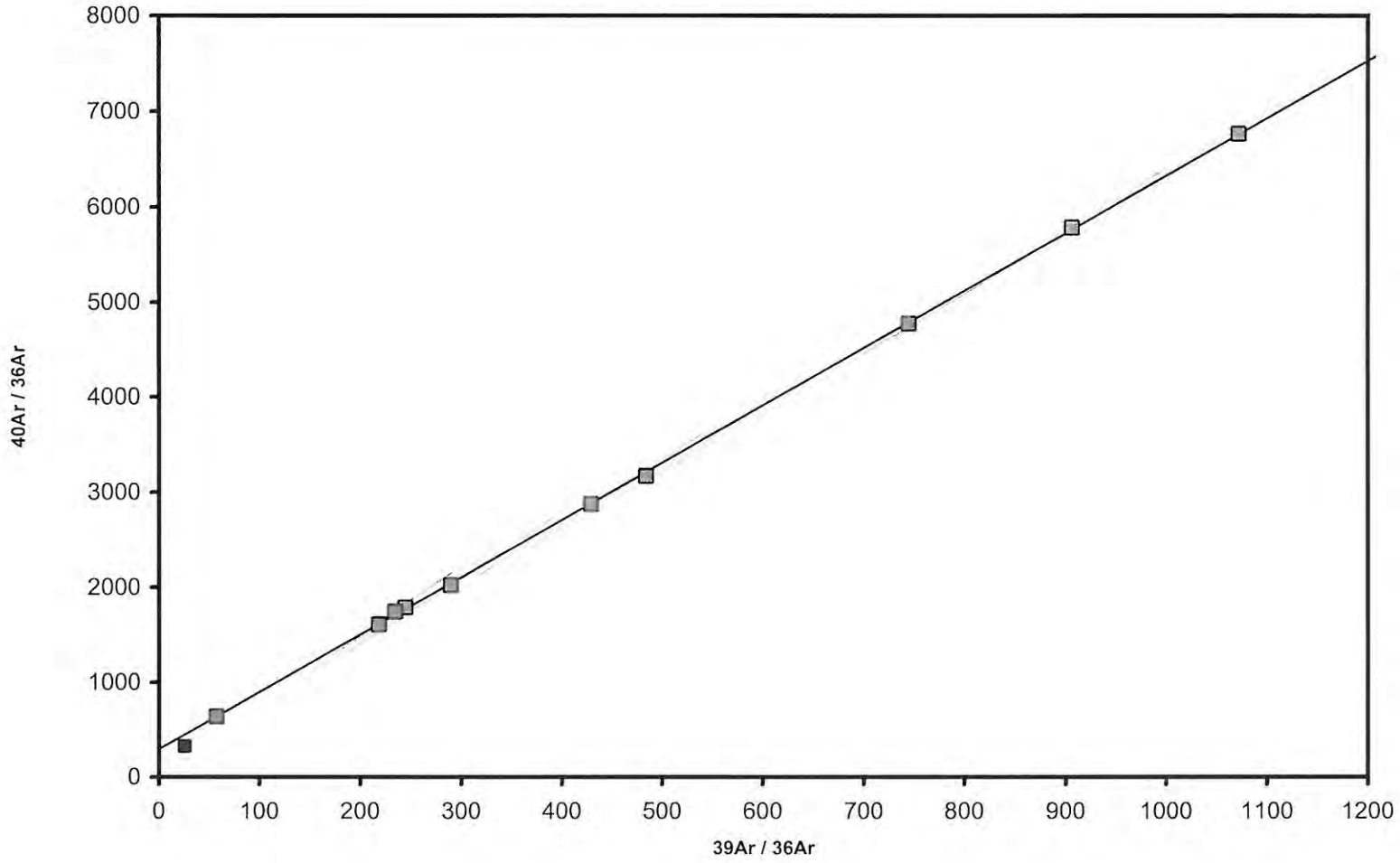
DR20132[illegible]0 Camp

07C878.AGE >>> CR7-1 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.32 ± 0.16
TOTAL FUSION
16.04 ± 0.19
NORMAL ISOCHRON
16.32 ± 0.20
INVERSE ISOCHRON
16.33 ± 0.20

MSWD
0.35

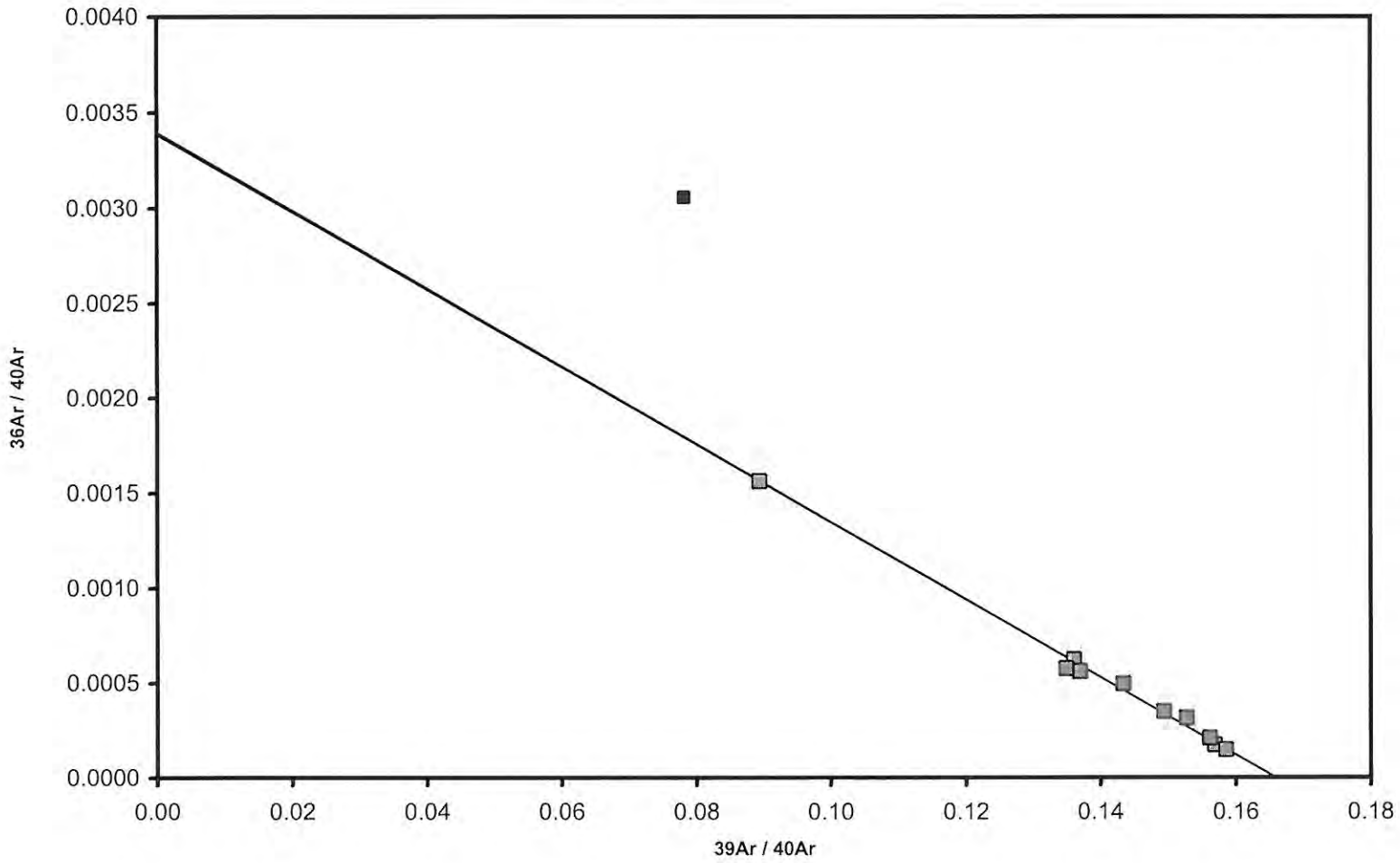
Sample Info

plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015080 ±

DR20132 50 Camp

07C878.AGE >>> CR7-1 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.32 ± 0.16
TOTAL FUSION
16.04 ± 0.19
NORMAL ISOCHRON
16.32 ± 0.20
INVERSE ISOCHRON
16.33 ± 0.20

MSWD
0.33

Sample Info

plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015080 ±

DR20132 50 Camp

Age Data - Sample CR-358

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
10C429	400 °C	0.000267	0.000005	0.000004	0.000001	0.000013	0.000003	0.000029	0.000005	0.001072	0.000012
10C430	500 °C	0.000268	0.000006	0.000010	0.000020	0.000010	0.000003	0.000027	0.000003	0.001095	0.000022
10C431	600 °C	0.000268	0.000006	0.000013	0.000020	0.000009	0.000003	0.000026	0.000003	0.001108	0.000022
10C433	700 °C	0.000268	0.000006	0.000022	0.000020	0.000007	0.000003	0.000025	0.000003	0.001127	0.000022
10C434	800 °C	0.000268	0.000006	0.000029	0.000020	0.000007	0.000003	0.000025	0.000003	0.001134	0.000022
10C435	900 °C	0.000268	0.000006	0.000037	0.000020	0.000007	0.000003	0.000026	0.000003	0.001139	0.000022
10C437	975 °C	0.000270	0.000006	0.000059	0.000020	0.000009	0.000003	0.000028	0.000003	0.001145	0.000022
10C438	1050 °C	0.000271	0.000006	0.000071	0.000020	0.000010	0.000003	0.000030	0.000003	0.001145	0.000022
10C439	1125 °C	0.000272	0.000006	0.000084	0.000020	0.000011	0.000003	0.000032	0.000003	0.001144	0.000022
10C440	1200 °C	0.000273	0.000006	0.000100	0.000020	0.000013	0.000003	0.000034	0.000003	0.001140	0.000022
10C442	1300 °C	0.000276	0.000006	0.000135	0.000020	0.000018	0.000003	0.000040	0.000003	0.001129	0.000022
10C443	1400 °C	0.000276	0.000004	0.000120	0.000005	0.000016	0.000004	0.000037	0.000003	0.001132	0.000016

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
10C429	400 °C	0.000439	0.000013	0.1464	LIN # 1 3 4 5	0.002051	0.000007	0.9848	EXP # 7 9
10C430	500 °C	0.000448	0.000003	0.3512	LIN # 4 6 8 9	0.004152	0.000016	0.9888	EXP # 1 4
10C431	600 °C	0.000412	0.000005	0.0928	LIN # 7	0.016212	0.000064	0.9924	LIN # 1 3 5
10C433	700 °C	0.000338	0.000004	0.1471	LIN #	0.025144	0.000112	0.9857	LIN # 1 8
10C434	800 °C	0.000374	0.000004	0.0009	LIN # 1	0.054315	0.000115	0.9958	EXP # 1
10C435	900 °C	0.000320	0.000003	0.1211	LIN #	0.039877	0.000256	0.9712	EXP #
10C437	975 °C	0.000314	0.000007	0.0471	LIN # 1 8 9	0.024483	0.000098	0.9854	LIN # 1 6
10C438	1050 °C	0.000301	0.000003	0.3865	LIN # 1 5	0.016945	0.000036	0.9938	LIN # 2 6 8
10C439	1125 °C	0.000312	0.000006	0.0018	LIN #	0.019444	0.000084	0.9762	EXP # 1
10C440	1200 °C	0.000308	0.000004	0.2982	LIN #	0.021717	0.000039	0.9967	EXP # 1
10C442	1300 °C	0.000300	0.000001	0.1663	LIN # 8	0.019957	0.000032	0.9976	LIN # 1 2 6
10C443	1400 °C	0.000309	0.000012	0.0931	LIN #	0.015250	0.000045	0.9922	EXP # 1 5

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000099	0.000026	0.6274	LIN # 1 2 3	0.000582	0.000009	0.6796	LIN # 9
0.000047	0.000016	0.0922	LIN #	0.000999	0.000012	0.7668	LIN # 1 2
0.000072	0.000008	0.2424	LIN # 9	0.003755	0.000030	0.8357	LIN # 1
0.000087	0.000003	0.2908	LIN #	0.006105	0.000023	0.9759	EXP # 1
0.000205	0.000004	0.5386	LIN #	0.014185	0.000019	0.9974	LIN # 1 2
0.000187	0.000005	0.3775	LIN #	0.013724	0.000027	0.9953	EXP # 1 2
0.000144	0.000014	0.2163	LIN #	0.009688	0.000015	0.9951	LIN #
0.000095	0.000003	0.1186	LIN # 2 3	0.006165	0.000019	0.9882	LIN # 3 4 5
0.000068	0.000004	0.0520	LIN #	0.003974	0.000024	0.8261	LIN #
0.000066	0.000004	0.6598	LIN # 1 4	0.002726	0.000016	0.8394	LIN #
0.000040	0.000002	0.3685	LIN #	0.001786	0.000010	0.8727	LIN # 1 4
0.000039	0.000019	0.4025	LIN # 1 3 5 7	0.001145	0.000018	0.0274	LIN # 2 5 8

40Ar	1σ	r2		Sample Parameters		Sample	Material
0.054641	0.000200	0.9552	EXP # 1	10C429	400 °C	CR-358	groundmass
0.057727	0.000177	0.9935	EXP # 1 3 4 5	10C430	500 °C	CR-358	groundmass
0.061834	0.000192	0.9744	EXP # 1	10C431	600 °C	CR-358	groundmass
0.052876	0.000145	0.9746	EXP # 1	10C433	700 °C	CR-358	groundmass
0.107999	0.000629	0.9586	EXP # 1 3	10C434	800 °C	CR-358	groundmass
0.089089	0.000218	0.9882	EXP # 1	10C435	900 °C	CR-358	groundmass
0.062365	0.000216	0.9619	EXP #	10C437	975 °C	CR-358	groundmass
0.041258	0.000059	0.9976	LIN # 2 3 4 5	10C438	1050 °C	CR-358	groundmass
0.029356	0.000074	0.9412	PAR #	10C439	1125 °C	CR-358	groundmass
0.022682	0.000020	0.9867	EXP # 2 9	10C440	1200 °C	CR-358	groundmass
0.016919	0.000038	0.4367	LIN # 1 4	10C442	1300 °C	CR-358	groundmass
0.014275	0.000009	0.8679	LIN # 1 3 9	10C443	1400 °C	CR-358	groundmass

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COAS Oregon State University, Corvallis, Oregon USA

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
Steens basalt	jh	400	28.03	0.01	0.0016079	0.24
Steens basalt	jh	500	28.03	0.01	0.0016079	0.24
Steens basalt	jh	600	28.03	0.01	0.0016079	0.24
Steens basalt	jh	700	28.03	0.01	0.0016079	0.24
Steens basalt	jh	800	28.03	0.01	0.0016079	0.24
Steens basalt	jh	900	28.03	0.01	0.0016079	0.24
Steens basalt	jh	975	28.03	0.01	0.0016079	0.24
Steens basalt	jh	1050	28.03	0.01	0.0016079	0.24
Steens basalt	jh	1125	28.03	0.01	0.0016079	0.24
Steens basalt	jh	1200	28.03	0.01	0.0016079	0.24
Steens basalt	jh	1300	28.03	0.01	0.0016079	0.24
Steens basalt	jh	1400	28.03	0.01	0.0016079	0.24

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.004933	0.06	1.0104	2.000E-13	10	03	2010	10	34	001	OSU1D10	Camp	FCT-3	10C429
1.004933	0.06	1.0107	2.000E-13	10	03	2010	10	55	001	OSU1D10	Camp	FCT-3	10C430
1.004933	0.06	1.0103	2.000E-13	10	03	2010	11	18	001	OSU1D10	Camp	FCT-3	10C431
1.004933	0.06	1.0105	2.000E-13	10	03	2010	12	02	001	OSU1D10	Camp	FCT-3	10C433
1.004933	0.06	1.0105	2.000E-13	10	03	2010	12	23	001	OSU1D10	Camp	FCT-3	10C434
1.004933	0.06	1.0106	2.000E-13	10	03	2010	12	45	001	OSU1D10	Camp	FCT-3	10C435
1.004933	0.06	1.0104	2.000E-13	10	03	2010	13	30	001	OSU1D10	Camp	FCT-3	10C437
1.004933	0.06	1.0105	2.000E-13	10	03	2010	13	51	001	OSU1D10	Camp	FCT-3	10C438
1.004933	0.06	1.0108	2.000E-13	10	03	2010	14	13	001	OSU1D10	Camp	FCT-3	10C439
1.004933	0.06	1.0103	2.000E-13	10	03	2010	14	36	001	OSU1D10	Camp	FCT-3	10C440
1.004933	0.06	1.0106	2.000E-13	10	03	2010	15	20	001	OSU1D10	Camp	FCT-3	10C442
1.004933	0.06	1.0103	2.000E-13	10	03	2010	15	42	001	OSU1D10	Camp	FCT-3	10C443

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
500 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
900 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
975 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1050 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1125 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1200 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1300 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ	Incremental Heating		
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C429	400 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C430	500 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C431	600 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C433	700 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C434	800 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C435	900 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C437	975 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C438	1050 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C439	1125 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C440	1200 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C442	1300 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	10C443	1400 °C	✓
														Σ

Information on Analysis

CR-358
groundmass
Steens basalt
jh

Project = Camp
Irradiation = OSU1D10
J = 0.0016079 ± 0.0000039
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.000172	0.003470	0.000048	0.000553	0.003252	16.98 ± 42.87	6.01	0.86	0.069 ± 0.003	10C429	400 °C
0.000179	0.007022	0.000000	0.000973	0.004303	12.78 ± 11.42	7.52	1.51	0.060 ± 0.002	10C430	500 °C
0.000139	0.027459	0.000000	0.003732	0.020338	15.74 ± 3.40	33.14	5.78	0.058 ± 0.001	10C431	600 °C
0.000061	0.042616	0.000000	0.006086	0.034150	16.20 ± 1.91	65.29	9.43	0.061 ± 0.001	10C433	700 °C
0.000083	0.092119	0.000008	0.014179	0.083353	16.97 ± 0.90	77.18	21.97	0.066 ± 0.001	10C434	800 °C
0.000036	0.067632	0.000007	0.013733	0.078178	16.44 ± 0.82	87.94	21.27	0.087 ± 0.002	10C435	900 °C
0.000036	0.041480	0.000013	0.009686	0.051268	15.29 ± 1.57	82.87	15.01	0.100 ± 0.001	10C437	975 °C
0.000025	0.028670	0.000007	0.006151	0.033162	15.57 ± 1.78	81.79	9.53	0.092 ± 0.001	10C438	1050 °C
0.000034	0.032913	0.000001	0.003944	0.018568	13.61 ± 3.70	65.08	6.11	0.052 ± 0.001	10C439	1125 °C
0.000028	0.036743	0.000012	0.002682	0.013526	14.57 ± 4.42	62.11	4.16	0.031 ± 0.001	10C440	1200 °C
0.000018	0.033723	0.000000	0.001734	0.010770	17.93 ± 5.71	67.44	2.69	0.022 ± 0.000	10C442	1300 °C
0.000029	0.025741	0.000002	0.001097	0.004779	12.60 ± 19.90	35.96	1.70	0.018 ± 0.001	10C443	1400 °C
0.000840	0.439588	0.000099	0.064550	0.355647						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	5.6488 ± 0.1747 ± 3.09%	16.31 ± 0.51 ± 3.12%	0.76	100.00 12	0.039 ± 0.014	Isochron
		External Error ± 0.57	2.20	Statistical T Ratio		
		Analytical Error ± 0.50	1.0000	Error Magnification		
Total Fusion Age	5.5096 ± 0.2720 ± 4.94%	15.91 ± 0.79 ± 4.94%		12	0.063 ± 0.000	Statistics
		External Error ± 0.83				
		Analytical Error ± 0.78				

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	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
✓	3.2 ± 0.5	314.4 ± 51.0	0.9752
✓	5.4 ± 0.4	319.5 ± 23.3	0.9408
✓	26.9 ± 2.9	442.0 ± 47.3	0.9867
✓	99.1 ± 22.0	851.6 ± 189.2	0.9991
✓	170.1 ± 29.3	1295.5 ± 223.8	0.9975
✓	379.2 ± 137.7	2454.0 ± 891.1	0.9998
✓	270.3 ± 134.3	1726.0 ± 858.0	0.9999
✓	246.4 ± 127.1	1623.7 ± 837.6	0.9999
✓	117.0 ± 59.4	846.5 ± 429.7	0.9996
✓	96.1 ± 47.9	780.1 ± 389.1	0.9997
✓	98.6 ± 65.3	907.8 ± 601.2	0.9998
✓	38.1 ± 33.9	461.5 ± 410.8	0.9993

Inverse Isochron			39(k)/40(a+r) ± 2σ
10C429	400 °C	✓	0.010217 ± 0.000375
10C430	500 °C	✓	0.017002 ± 0.000443
10C431	600 °C	✓	0.060821 ± 0.001069
10C433	700 °C	✓	0.116370 ± 0.001107
10C434	800 °C	✓	0.131306 ± 0.001596
10C435	900 °C	✓	0.154511 ± 0.000998
10C437	975 °C	✓	0.156586 ± 0.001228
10C438	1050 °C	✓	0.151730 ± 0.001092
10C439	1125 °C	✓	0.138262 ± 0.001891
10C440	1200 °C	✓	0.123188 ± 0.001553
10C442	1300 °C	✓	0.108579 ± 0.001487
10C443	1400 °C	✓	0.082535 ± 0.002836

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
292.8232 ± 17.7333 ± 6.06%	5.5217 ± 0.2210 ± 4.00%	15.95 ± 0.64 ± 4.01%	1.08
		External Error ± 0.69	
		Analytical Error ± 0.64	

Results	40(a)/36(a) ± 2σ
Isochron	291.8453 ± 17.0999 ± 5.86%

Statistical F Ratio	1.83	Convergence	0.0000000545
Error Magnification	1.0378	Number of Iterations	270
n	12	Calculated Line	Weighted York-2

Statistics		
	Statistical F Ratio	1.83
	Error Magnification	1.0000
	n	12

Ar-Ar Sample CR-358 printed at 11/19/2011 (3:10 PM)
ArArCALC v2.40

36(a)/40(a+r) ± 2σ	r.i.
0.003181 ± 0.000516	0.0094
0.003130 ± 0.000228	0.0209
0.002262 ± 0.000242	0.0216
0.001174 ± 0.000261	0.0152
0.000772 ± 0.000133	0.0662
0.000407 ± 0.000148	0.0106
0.000579 ± 0.000288	0.0129
0.000616 ± 0.000318	0.0026
0.001181 ± 0.000600	0.0043
0.001282 ± 0.000639	0.0012
0.001102 ± 0.000729	0.0033
0.002167 ± 0.001929	0.0003

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
5.6706 ± 0.1983 ± 3.50%	16.37 ± 0.58 ± 3.51%	0.82
	External Error ± 0.63	
	Analytical Error ± 0.57	

Convergence	0.0000000129
Number of Iterations	4
Calculated Line	Weighted York-2

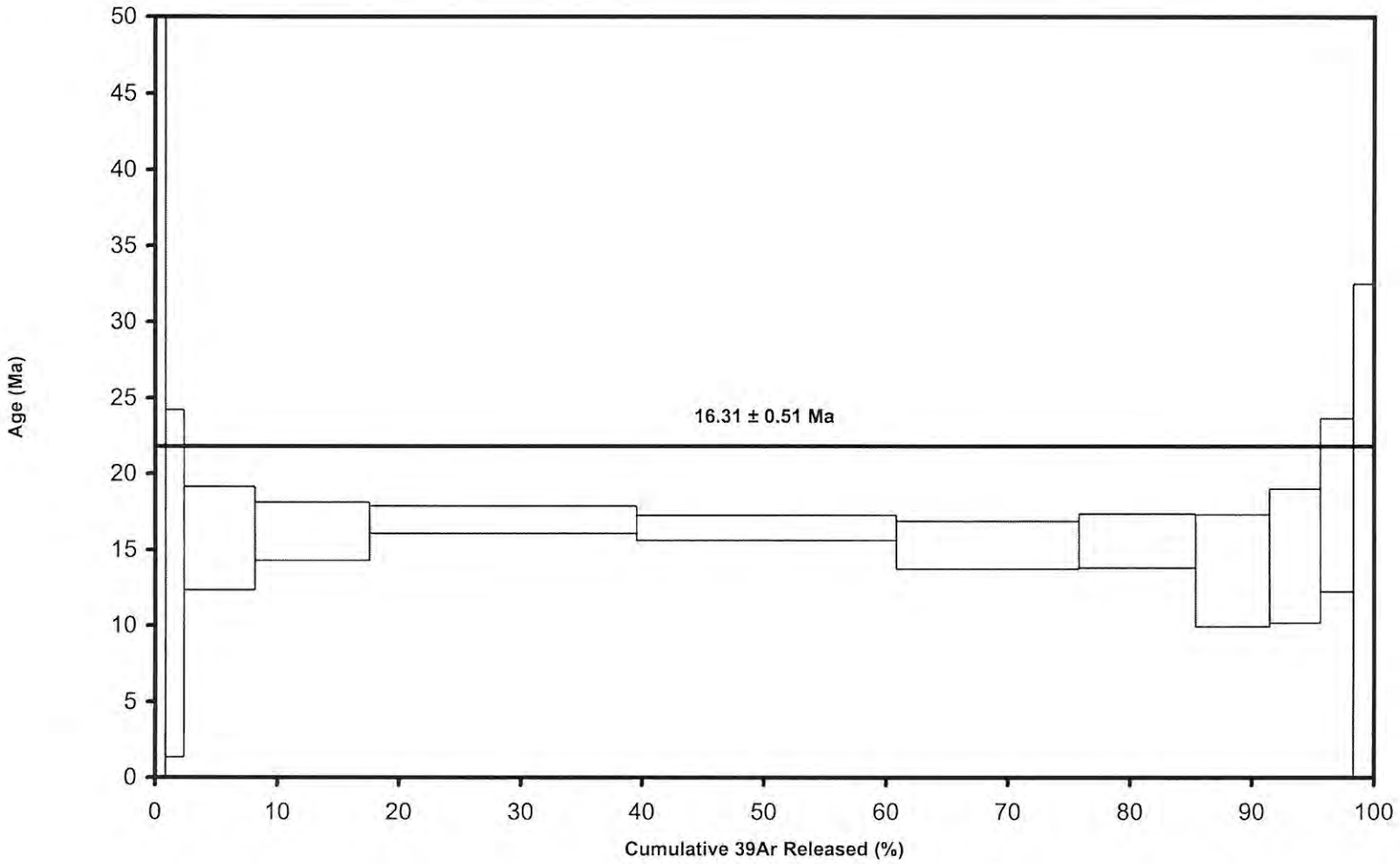
Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
10C429	400 °C	✓	0.000172	0.000000	0.000001	0.000000
10C430	500 °C	✓	0.000179	0.000000	0.000002	0.000000
10C431	600 °C	✓	0.000139	0.000000	0.000007	0.000000
10C433	700 °C	✓	0.000061	0.000000	0.000011	0.000000
10C434	800 °C	✓	0.000083	0.000000	0.000024	0.000000
10C435	900 °C	✓	0.000036	0.000000	0.000018	0.000000
10C437	975 °C	✓	0.000036	0.000000	0.000011	0.000000
10C438	1050 °C	✓	0.000025	0.000000	0.000008	0.000000
10C439	1125 °C	✓	0.000034	0.000000	0.000009	0.000000
10C440	1200 °C	✓	0.000028	0.000000	0.000010	0.000000
10C442	1300 °C	✓	0.000018	0.000000	0.000009	0.000000
10C443	1400 °C	✓	0.000029	0.000000	0.000007	0.000000
		Σ	0.000840	0.000000	0.000116	0.000000
		Σ				0.000956

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.003470	0.000032	0.000000	0.000006	0.000000	0.000048	0.000553	0.000002	0.003252	0.050885	0.000000
0.007022	0.000033	0.000000	0.000011	0.000001	0.000000	0.000973	0.000005	0.004303	0.052945	0.000000
0.027459	0.000026	0.000000	0.000042	0.000004	0.000000	0.003732	0.000018	0.020338	0.041021	0.000000
0.042616	0.000011	0.000000	0.000069	0.000006	0.000000	0.006086	0.000029	0.034150	0.018148	0.000000
0.092119	0.000016	0.000000	0.000161	0.000013	0.000008	0.014179	0.000062	0.083353	0.024632	0.000000
0.067632	0.000007	0.000000	0.000156	0.000009	0.000007	0.013733	0.000046	0.078178	0.010702	0.000000
0.041480	0.000007	0.000000	0.000110	0.000006	0.000013	0.009686	0.000028	0.051268	0.010590	0.000000
0.028670	0.000005	0.000000	0.000070	0.000004	0.000007	0.006151	0.000019	0.033162	0.007378	0.000000
0.032913	0.000006	0.000000	0.000045	0.000005	0.000001	0.003944	0.000022	0.018568	0.009958	0.000000
0.036743	0.000005	0.000000	0.000031	0.000005	0.000012	0.002682	0.000025	0.013526	0.008247	0.000000
0.033723	0.000003	0.000000	0.000020	0.000005	0.000000	0.001734	0.000023	0.010770	0.005198	0.000000
0.025741	0.000005	0.000000	0.000012	0.000004	0.000002	0.001097	0.000017	0.004779	0.008510	0.000000
0.439588	0.000157	0.000000	0.000735	0.000061	0.000099	0.064550	0.000296	0.355647	0.248214	0.000000
0.439588					0.001051		0.064846			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000001	10C429	400 °C	✓	5.880022	7.45969	0.05414	0.00020	97.46504	1.78324	6.24638	0.11942
0.000001	10C430	500 °C	✓	4.420940	1.98294	0.05725	0.00018	58.53221	0.75884	7.17910	0.10830
0.000004	10C431	600 °C	✓	5.449722	0.59057	0.06136	0.00020	16.36181	0.14316	7.32177	0.07846
0.000006	10C433	700 °C	✓	5.611327	0.33268	0.05230	0.00015	8.55395	0.04056	6.96965	0.05677
0.000014	10C434	800 °C	✓	5.878599	0.15652	0.10798	0.00064	7.58363	0.04608	6.46855	0.04007
0.000014	10C435	900 °C	✓	5.692711	0.14288	0.08888	0.00022	6.45167	0.02081	4.90850	0.04313
0.000010	10C437	975 °C	✓	5.292915	0.27280	0.06186	0.00022	6.36891	0.02495	4.27009	0.03054
0.000006	10C438	1050 °C	✓	5.391174	0.31005	0.04054	0.00006	6.57103	0.02358	4.64628	0.03216
0.000004	10C439	1125 °C	✓	4.707912	0.64174	0.02853	0.00008	7.19327	0.04895	8.29851	0.07882
0.000003	10C440	1200 °C	✓	5.042764	0.76748	0.02177	0.00003	8.04449	0.05027	13.57393	0.11601
0.000002	10C442	1300 °C	✓	6.212014	0.99371	0.01597	0.00004	9.09186	0.06158	19.19978	0.16495
0.000001	10C443	1400 °C	✓	4.357399	3.45459	0.01329	0.00002	11.92867	0.20180	23.10365	0.41662
0.000065											
0.603926											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
0.31166	0.02572	1.70158636	1.00018991	1.083E-14
0.18508	0.00704	1.70207657	1.00019001	1.145E-14
0.03895	0.00200	1.70261363	1.00019012	1.227E-14
0.01188	0.00112	1.70364153	1.00019034	1.046E-14
0.00756	0.00050	1.70413233	1.00019044	2.160E-14
0.00392	0.00048	1.70464666	1.00019055	1.778E-14
0.00482	0.00092	1.70569918	1.00019077	1.237E-14
0.00527	0.00104	1.70619057	1.00019087	8.109E-15
0.01069	0.00216	1.70670552	1.00019098	5.706E-15
0.01389	0.00257	1.70724404	1.00019109	4.355E-15
0.01508	0.00332	1.70827473	1.00019131	3.194E-15
0.03195	0.01152	1.70879031	1.00019142	2.658E-15

10C429.AGE >>> CR-358 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.31 ± 0.51
TOTAL FUSION
15.91 ± 0.79
NORMAL ISOCHRON
15.95 ± 0.64
INVERSE ISOCHRON
16.37 ± 0.58

MSWD
0.76

Sample Info

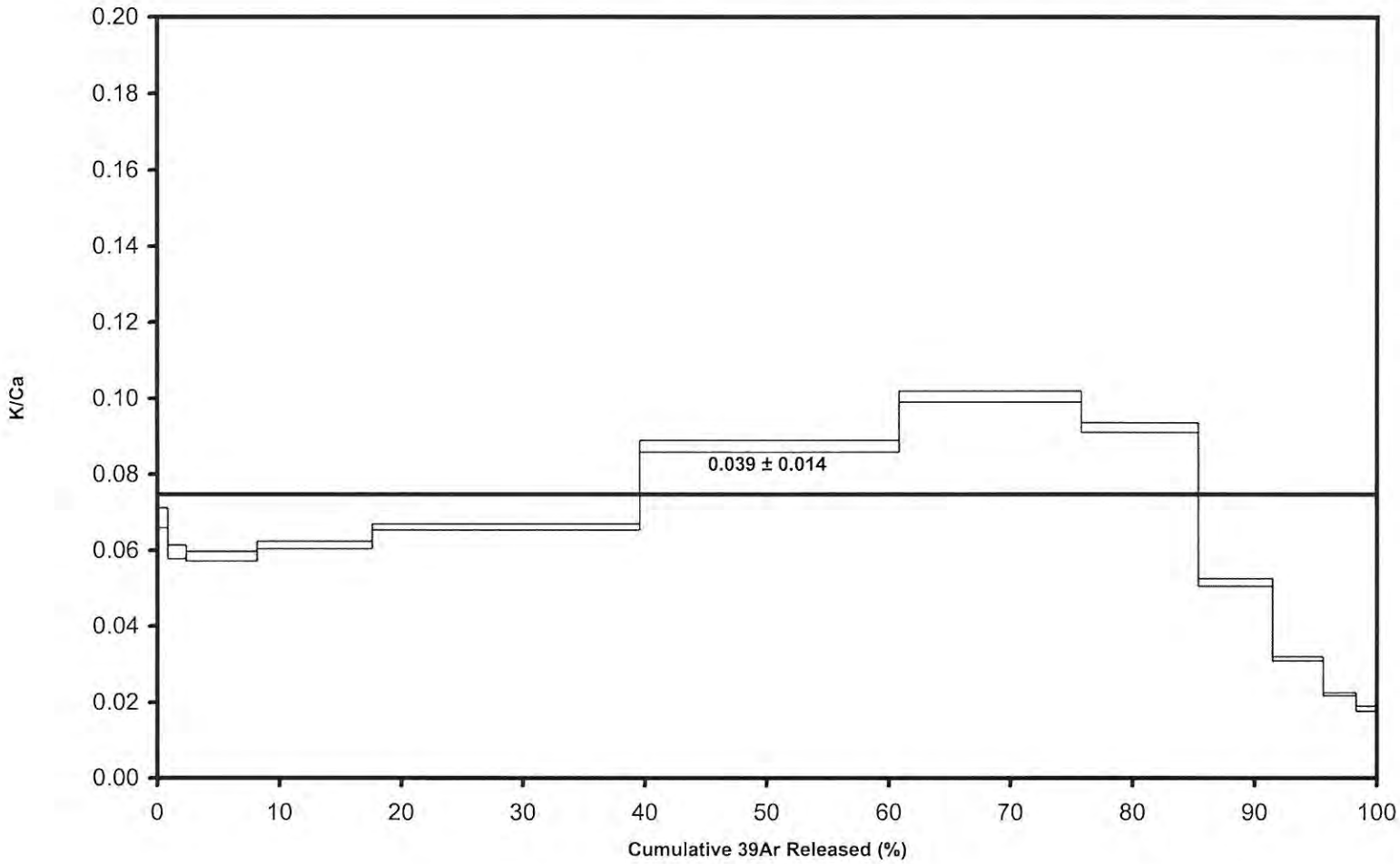
groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0016079 ±

DR20132 50 Camp

Ar-Ar Sample CR-358 printed at 11/19/2011 (3:15 PM)
ArArCALC v2.40

10C429.AGE >>> CR-358 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.31 ± 0.51
TOTAL FUSION
15.91 ± 0.79
NORMAL ISOCHRON
15.95 ± 0.64
INVERSE ISOCHRON
16.37 ± 0.58

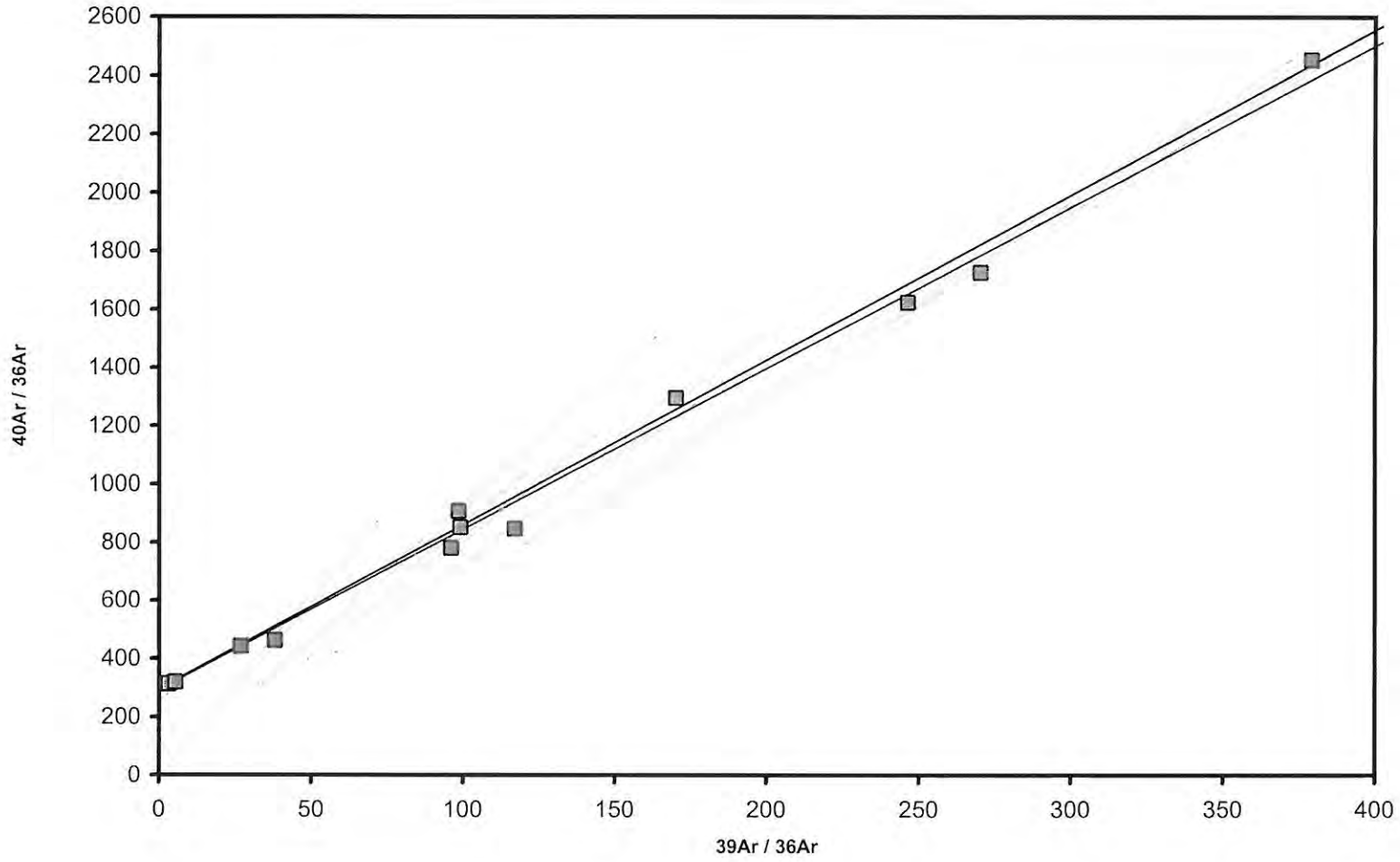
Sample Info

groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0016079 ±

DR20132 50 Camp

10C429.AGE >>> CR-358 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.31 ± 0.51
TOTAL FUSION
15.91 ± 0.79
NORMAL ISOCHRON
15.95 ± 0.64
INVERSE ISOCHRON
16.37 ± 0.58

MSWD
1.08

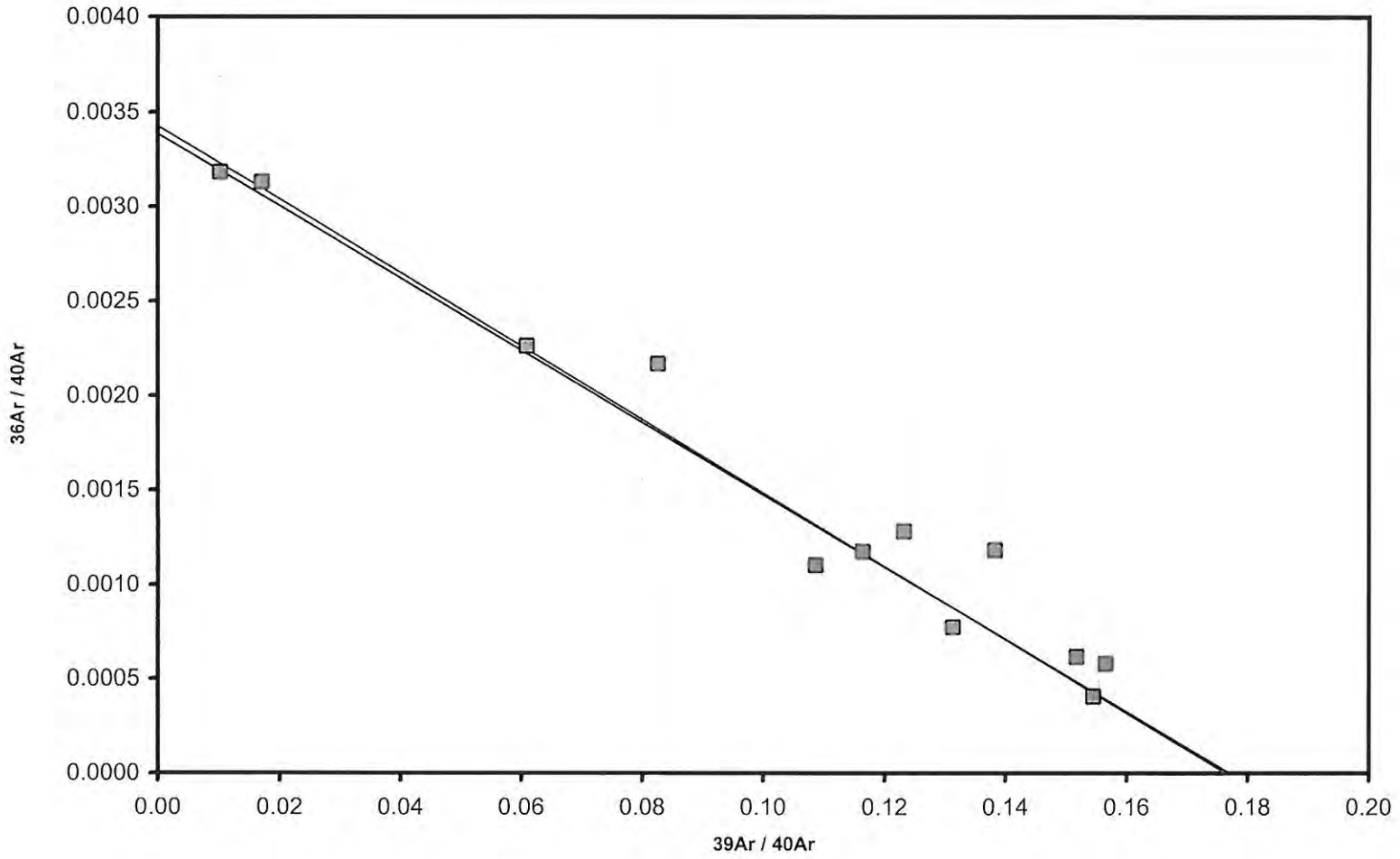
Sample Info

groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0016079 ±

DR20132?0 Camp

10C429.AGE >>> CR-358 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.31 ± 0.51
TOTAL FUSION
15.91 ± 0.79
NORMAL ISOCHRON
15.95 ± 0.64
INVERSE ISOCHRON
16.37 ± 0.58

MSWD
0.82

Sample Info

groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0016079 ±

DR20132 50 Camp

Ar-Ar Sample CR-358 printed at 11/19/2011 (3:15 PM)
ArArCALC v2.40

Age Data - Sample CR-462

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
10C445	400 °C	0.000264	0.000002	0.000011	0.000002	0.000003	0.000003	0.000005	0.000002	0.000644	0.000006
10C446	500 °C	0.000269	0.000003	0.000022	0.000005	0.000024	0.000005	0.000033	0.000004	0.001051	0.000015
10C447	600 °C	0.000272	0.000003	0.000031	0.000005	0.000027	0.000005	0.000040	0.000004	0.001157	0.000015
10C449	700 °C	0.000277	0.000003	0.000052	0.000005	0.000025	0.000005	0.000044	0.000004	0.001220	0.000015
10C450	800 °C	0.000279	0.000003	0.000065	0.000005	0.000020	0.000005	0.000041	0.000004	0.001194	0.000015
10C451	900 °C	0.000281	0.000003	0.000077	0.000005	0.000015	0.000005	0.000037	0.000004	0.001148	0.000015
10C453	1000 °C	0.000283	0.000003	0.000099	0.000005	0.000015	0.000005	0.000026	0.000004	0.001028	0.000015
10C454	1100 °C	0.000282	0.000003	0.000115	0.000005	0.000015	0.000005	0.000017	0.000004	0.000947	0.000015
10C455	1200 °C	0.000280	0.000003	0.000121	0.000005	0.000015	0.000005	0.000014	0.000004	0.000932	0.000015
10C456	1300 °C	0.000278	0.000003	0.000125	0.000005	0.000015	0.000005	0.000013	0.000004	0.000955	0.000015
10C458	1400 °C	0.000270	0.000003	0.000124	0.000005	0.000016	0.000005	0.000021	0.000004	0.001134	0.000015

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
10C445	400 °C	0.003747	0.000022	0.9385	LIN # 3	0.004604	0.000030	0.9545	LIN # 1 3
10C446	500 °C	0.003452	0.000013	0.9779	LIN # 4 5 6	0.007971	0.000021	0.9847	LIN #
10C447	600 °C	0.002938	0.000019	0.9794	LIN # 1 2 3	0.039410	0.000136	0.9910	LIN # 1 3
10C449	700 °C	0.001538	0.000013	0.9039	LIN # 1 3	0.067432	0.000191	0.9934	LIN # 1 5 7 8
10C450	800 °C	0.000797	0.000015	0.6510	LIN #	0.054248	0.000177	0.9934	LIN # 2 4
10C451	900 °C	0.000533	0.000009	0.7035	LIN # 2 4	0.030193	0.000056	0.9972	EXP # 1 4 5
10C453	1000 °C	0.000460	0.000001	0.9879	LIN # 2 8 9	0.025182	0.000126	0.9700	LIN #
10C454	1100 °C	0.000370	0.000006	0.0013	LIN # 1 5 8	0.013937	0.000101	0.9607	LIN # 1 3
10C455	1200 °C	0.000373	0.000005	0.1426	LIN # 5	0.022562	0.000043	0.9978	LIN # 3 5 6 7
10C456	1300 °C	0.000330	0.000013	0.1756	LIN #	0.024093	0.000090	0.9815	EXP # 1
10C458	1400 °C	0.000326	0.000008	0.0136	LIN #	0.015929	0.000041	0.9959	LIN # 1 3 5

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000709	0.000005	0.4975	LIN #	0.002322	0.000016	0.9975	EXP #
0.000717	0.000007	0.6191	LIN #	0.005642	0.000017	0.9957	LIN #
0.000724	0.000006	0.3216	LIN #	0.014753	0.000019	0.6854	LIN # 2
0.000487	0.000005	0.5579	LIN # 3	0.017620	0.000026	0.9883	LIN # 1 8
0.000284	0.000011	0.2289	LIN # 3 4 6	0.012520	0.000027	0.9894	EXP # 1
0.000128	0.000014	0.0044	LIN #	0.005558	0.000029	0.7832	EXP # 1
0.000089	0.000002	0.5100	LIN #	0.003278	0.000017	0.8128	LIN # 4
0.000062	0.000005	0.8810	LIN # 1 3 4	0.001195	0.000018	0.0585	LIN #
0.000033	0.000010	0.3378	LIN # 2 8 9	0.001318	0.000009	0.4214	LIN # 2 3
0.000059	0.000008	0.1984	LIN # 3 9	0.001026	0.000011	0.6491	LIN # 4 5
0.000025	0.000003	0.0003	LIN # 2 5	0.000629	0.000003	0.9789	LIN # 5 8 9

40Ar	1σ	r2		Sample Parameters		Sample	Material
1.020259	0.001515	0.9952	LIN # 1 3	10C445	400 °C	CR-462	groundmass
0.952261	0.001134	0.9972	LIN # 1 2 3	10C446	500 °C	CR-462	groundmass
0.850699	0.000451	0.9992	EXP #	10C447	600 °C	CR-462	groundmass
0.461468	0.000370	0.9992	LIN # 1 2 6	10C449	700 °C	CR-462	groundmass
0.215792	0.000356	0.9957	EXP # 1	10C450	800 °C	CR-462	groundmass
0.100026	0.000228	0.9915	EXP # 1 3 4	10C451	900 °C	CR-462	groundmass
0.068696	0.000059	0.9965	EXP # 1 2	10C453	1000 °C	CR-462	groundmass
0.032050	0.000035	0.9707	LIN # 1	10C454	1100 °C	CR-462	groundmass
0.032830	0.000082	0.8640	LIN # 1 3	10C455	1200 °C	CR-462	groundmass
0.024640	0.000020	0.2066	LIN # 1 2 4 5	10C456	1300 °C	CR-462	groundmass
0.016206	0.000084	0.2195	LIN #	10C458	1400 °C	CR-462	groundmass

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
Steens basalt	jh	400	28.03	0.01	0.00159	0.25
Steens basalt	jh	500	28.03	0.01	0.00159	0.25
Steens basalt	jh	600	28.03	0.01	0.00159	0.25
Steens basalt	jh	700	28.03	0.01	0.00159	0.25
Steens basalt	jh	800	28.03	0.01	0.00159	0.25
Steens basalt	jh	900	28.03	0.01	0.00159	0.25
Steens basalt	jh	1000	28.03	0.01	0.00159	0.25
Steens basalt	jh	1100	28.03	0.01	0.00159	0.25
Steens basalt	jh	1200	28.03	0.01	0.00159	0.25
Steens basalt	jh	1300	28.03	0.01	0.00159	0.25
Steens basalt	jh	1400	28.03	0.01	0.00159	0.25

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.004933	0.06	1.0106	2.000E-13	11	03	2010	10	17	001	OSU1D10	Camp	FCT-3	10C445
1.004933	0.06	1.011	2.000E-13	11	03	2010	10	39	001	OSU1D10	Camp	FCT-3	10C446
1.004933	0.06	1.011	2.000E-13	11	03	2010	11	01	001	OSU1D10	Camp	FCT-3	10C447
1.004933	0.06	1.0111	2.000E-13	11	03	2010	11	45	001	OSU1D10	Camp	FCT-3	10C449
1.004933	0.06	1.0108	2.000E-13	11	03	2010	12	09	001	OSU1D10	Camp	FCT-3	10C450
1.004933	0.06	1.0109	2.000E-13	11	03	2010	12	31	001	OSU1D10	Camp	FCT-3	10C451
1.004933	0.06	1.0107	2.000E-13	11	03	2010	13	15	001	OSU1D10	Camp	FCT-3	10C453
1.004933	0.06	1.0109	2.000E-13	11	03	2010	13	54	001	OSU1D10	Camp	FCT-3	10C454
1.004933	0.06	1.0112	2.000E-13	11	03	2010	14	17	001	OSU1D10	Camp	FCT-3	10C455
1.004933	0.06	1.0109	2.000E-13	11	03	2010	14	39	001	OSU1D10	Camp	FCT-3	10C456
1.004933	0.06	1.0109	2.000E-13	11	03	2010	15	21	001	OSU1D10	Camp	FCT-3	10C458

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
500 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
900 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1000 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1100 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1200 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1300 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0

Incremental Heating		
10C445	400 °C	✓
10C446	500 °C	✓
10C447	600 °C	✓
10C449	700 °C	✓
10C450	800 °C	✓
10C451	900 °C	✓
10C453	1000 °C	✓
10C454	1100 °C	✓
10C455	1200 °C	✓
10C456	1300 °C	
10C458	1400 °C	
		Σ

Information on Analysis

CR-462
groundmass
Steens basalt
jh

Project = Camp
Irradiation = OSU1D10
J = 0.0015900 ± 0.0000040
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.003453	0.007936	0.000034	0.002326	0.010149	12.48 ± 17.62	0.98	3.54	0.126 ± 0.003	10C445	400 °C
0.003155	0.013745	0.000038	0.005635	0.029451	14.93 ± 4.66	3.06	8.59	0.176 ± 0.003	10C446	500 °C
0.002628	0.068113	0.000029	0.014759	0.082207	15.91 ± 2.29	9.57	22.49	0.093 ± 0.001	10C447	600 °C
0.001222	0.116628	0.000018	0.017610	0.104144	16.88 ± 1.30	22.38	26.83	0.065 ± 0.001	10C449	700 °C
0.000491	0.093789	0.000018	0.012492	0.071788	16.41 ± 2.05	33.09	19.04	0.057 ± 0.001	10C450	800 °C
0.000239	0.052151	0.000000	0.005521	0.029372	15.20 ± 2.83	29.38	8.41	0.046 ± 0.001	10C451	900 °C
0.000168	0.043455	0.000000	0.003242	0.018885	16.63 ± 1.78	27.61	4.94	0.032 ± 0.001	10C453	1000 °C
0.000084	0.023964	0.000015	0.001170	0.006553	16.00 ± 9.97	20.83	1.78	0.021 ± 0.001	10C454	1100 °C
0.000085	0.038930	0.000000	0.001287	0.007254	16.10 ± 8.24	22.48	1.96	0.014 ± 0.000	10C455	1200 °C
0.000044	0.041579	0.000019	0.000991	0.010958	31.43 ± 22.45	45.75	1.51	0.010 ± 0.000	10C456	1300 °C
0.000052	0.027434	0.000000	0.000594	0.000006	0.03 ± 25.83	0.04	0.90	0.009 ± 0.000	10C458	1400 °C
0.011620	0.527724	0.000171	0.065627	0.370767						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	5.7495 ± 0.2841 ± 4.94%	16.42 ± 0.81 ± 4.94%	0.27	97.58 9	0.029 ± 0.017	Isochron
		External Error ± 0.85	2.31	Statistical T Ratio		
		Analytical Error ± 0.81	1.0000	Error Magnification		
Total Fusion Age	5.6496 ± 0.4132 ± 7.31%	16.13 ± 1.18 ± 7.30%		11	0.053 ± 0.000	Statistics
		External Error ± 1.21				
		Analytical Error ± 1.17				

	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
✓	0.7 ± 0.0	298.4 ± 4.2	0.6839
✓	1.8 ± 0.0	304.8 ± 3.0	0.8156
✓	5.6 ± 0.1	326.8 ± 5.0	0.9791
✓	14.4 ± 0.3	380.7 ± 8.5	0.9873
✓	25.4 ± 1.6	441.7 ± 27.4	0.9958
✓	23.1 ± 1.8	418.5 ± 32.5	0.9886
✓	19.3 ± 0.8	408.2 ± 16.6	0.9649
✓	13.9 ± 2.3	373.3 ± 61.4	0.9811
✓	15.2 ± 2.3	381.2 ± 56.8	0.9939
	22.5 ± 13.7	544.7 ± 330.7	0.9992
	11.5 ± 4.0	295.6 ± 103.7	0.9982

Inverse Isochron			39(k)/40(a+r) ± 2σ
10C445	400 °C	✓	0.002257 ± 0.000032
10C446	500 °C	✓	0.005860 ± 0.000039
10C447	600 °C	✓	0.017184 ± 0.000054
10C449	700 °C	✓	0.037842 ± 0.000135
10C450	800 °C	✓	0.057590 ± 0.000328
10C451	900 °C	✓	0.055230 ± 0.000650
10C453	1000 °C	✓	0.047402 ± 0.000524
10C454	1100 °C	✓	0.037190 ± 0.001206
10C455	1200 °C	✓	0.039884 ± 0.000659
10C456	1300 °C		0.041391 ± 0.001027
10C458	1400 °C		0.038928 ± 0.000824

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
294.4582 ± 2.5045 ± 0.85%	5.8376 ± 0.3619 ± 6.20%	16.67 ± 1.03 ± 6.19%	0.21
		External Error ± 1.07	
		Analytical Error ± 1.03	

Statistical F Ratio	2.01	Convergence	0.0000000493
Error Magnification	1.0000	Number of Iterations	13
n	9	Calculated Line	Weighted York-2

Results	40(a)/36(a) ± 2σ
Isochron	294.4385 ± 2.5061 ± 0.85%

Statistics		
Statistical F Ratio	2.01	
Error Magnification	1.0000	
n	9	

36(a)/40(a+r) ± 2σ	r.i.
0.003351 ± 0.000047	0.0436
0.003280 ± 0.000032	0.0868
0.003060 ± 0.000047	0.0235
0.002627 ± 0.000059	0.0325
0.002264 ± 0.000140	0.0311
0.002390 ± 0.000185	0.0234
0.002450 ± 0.000100	0.0073
0.002679 ± 0.000441	0.0011
0.002623 ± 0.000391	0.0110
0.001836 ± 0.001115	0.0003
0.003383 ± 0.001186	0.0171

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
5.8454 ± 0.3621 ± 6.19%	16.69 ± 1.03 ± 6.19%	0.20
	External Error ± 1.07	
	Analytical Error ± 1.03	

Convergence	0.0000000028
Number of Iterations	4
Calculated Line	Weighted York-2

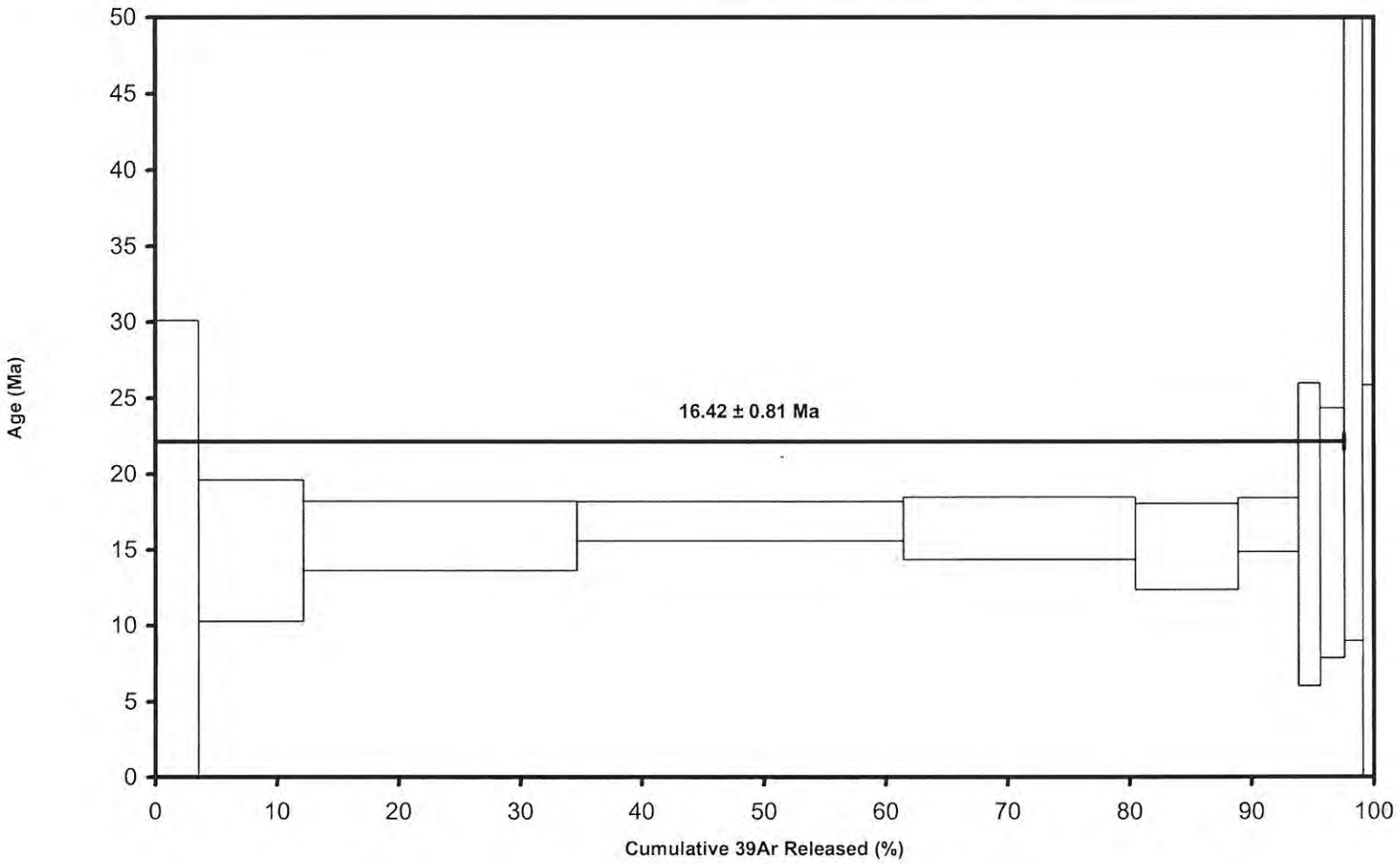
Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
10C445	400 °C	✓	0.003453	0.000000	0.000002	0.000000
10C446	500 °C	✓	0.003155	0.000000	0.000004	0.000000
10C447	600 °C	✓	0.002628	0.000000	0.000018	0.000000
10C449	700 °C	✓	0.001222	0.000000	0.000031	0.000000
10C450	800 °C	✓	0.000491	0.000000	0.000025	0.000000
10C451	900 °C	✓	0.000239	0.000000	0.000014	0.000000
10C453	1000 °C	✓	0.000168	0.000000	0.000011	0.000000
10C454	1100 °C	✓	0.000084	0.000000	0.000006	0.000000
10C455	1200 °C	✓	0.000085	0.000000	0.000010	0.000000
10C456	1300 °C		0.000044	0.000000	0.000011	0.000000
10C458	1400 °C		0.000052	0.000000	0.000007	0.000000
		Σ	0.011620	0.000000	0.000139	0.000000
		Σ				0.011760

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.007936	0.000645	0.000000	0.000026	0.000001	0.000034	0.002326	0.000005	0.010149	1.020278	0.000000
0.013745	0.000590	0.000000	0.000064	0.000002	0.000038	0.005635	0.000009	0.029451	0.932229	0.000000
0.068113	0.000491	0.000000	0.000168	0.000009	0.000029	0.014759	0.000046	0.082207	0.776677	0.000000
0.116628	0.000228	0.000000	0.000200	0.000016	0.000018	0.017610	0.000078	0.104144	0.361208	0.000000
0.093789	0.000092	0.000000	0.000142	0.000013	0.000018	0.012492	0.000063	0.071788	0.145128	0.000000
0.052151	0.000045	0.000000	0.000063	0.000007	0.000000	0.005521	0.000035	0.029372	0.070591	0.000000
0.043455	0.000031	0.000000	0.000037	0.000006	0.000000	0.003242	0.000029	0.018885	0.049514	0.000000
0.023964	0.000016	0.000000	0.000013	0.000003	0.000015	0.001170	0.000016	0.006553	0.024899	0.000000
0.038930	0.000016	0.000000	0.000015	0.000005	0.000000	0.001287	0.000026	0.007254	0.025010	0.000000
0.041579	0.000008	0.000000	0.000011	0.000006	0.000019	0.000991	0.000028	0.010958	0.012995	0.000000
0.027434	0.000010	0.000000	0.000007	0.000004	0.000000	0.000594	0.000018	0.000006	0.015242	0.000000
0.527724	0.002172	0.000000	0.000747	0.000073	0.000171	0.065627	0.000355	0.370767	3.433772	0.000000
0.527724					0.003163		0.065982			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000002	10C445	400 °C	✓	4.364106	3.09230	1.03043	0.00153	442.07482	3.17051	3.40477	0.03809
0.000006	10C446	500 °C	✓	5.226172	0.81890	0.96168	0.00115	170.37707	0.56374	2.43505	0.01735
0.000015	10C447	600 °C	✓	5.570064	0.40192	0.85888	0.00046	58.01566	0.09121	4.60079	0.03181
0.000018	10C449	700 °C	✓	5.913907	0.22929	0.46535	0.00037	26.30914	0.04690	6.59343	0.04387
0.000013	10C450	800 °C	✓	5.746642	0.36134	0.21692	0.00036	17.27782	0.04907	7.47010	0.05269
0.000006	10C451	900 °C	✓	5.320021	0.49759	0.09996	0.00023	17.99274	0.10525	9.38642	0.07635
0.000003	10C453	1000 °C	✓	5.824555	0.31243	0.06840	0.00006	20.90847	0.11449	13.28278	0.12468
0.000001	10C454	1100 °C	✓	5.602006	1.75251	0.03145	0.00004	26.52402	0.42413	20.20887	0.37375
0.000001	10C455	1200 °C	✓	5.637387	1.44936	0.03226	0.00008	24.57350	0.19938	29.64863	0.29156
0.000001	10C456	1300 °C		11.052433	3.98138	0.02395	0.00002	23.49759	0.28363	40.78684	0.56628
0.000001	10C458	1400 °C		0.010552	4.50245	0.01525	0.00009	24.91436	0.25782	44.82378	0.48280
0.000066											
3.804605											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
1.48218	0.01457	1.73512557	1.00019688	2.061E-13
0.55955	0.00319	1.73564925	1.00019699	1.923E-13
0.17875	0.00138	1.73617309	1.00019710	1.718E-13
0.07085	0.00078	1.73722124	1.00019731	9.307E-14
0.04109	0.00122	1.73779323	1.00019743	4.339E-14
0.04547	0.00168	1.73831772	1.00019754	1.999E-14
0.05472	0.00108	1.73936717	1.00019775	1.368E-14
0.07639	0.00597	1.74029789	1.00019795	6.290E-15
0.07229	0.00483	1.74084701	1.00019806	6.453E-15
0.05391	0.01311	1.74137242	1.00019817	4.791E-15
0.09611	0.01479	1.74237592	1.00019837	3.050E-15

10C445.AGE >>> CR-462 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.42 ± 0.81
TOTAL FUSION
16.13 ± 1.18
NORMAL ISOCHRON
16.67 ± 1.03
INVERSE ISOCHRON
16.69 ± 1.03

MSWD
0.27

Sample Info

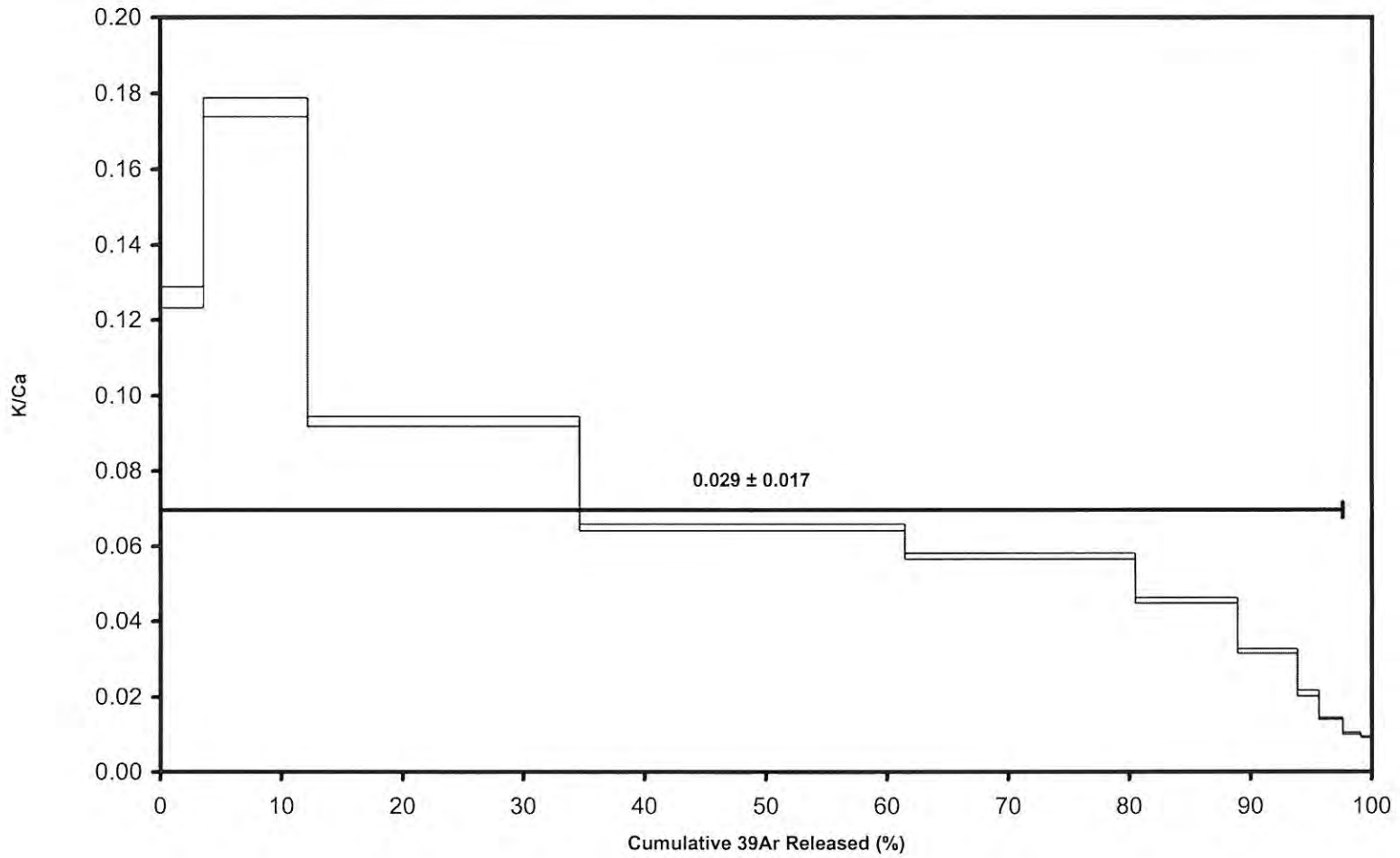
groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0015900 ±

DR20132 50 Camp

Noble Gas Mass Spectrometry
COAS Oregon State University, Corvallis, Oregon USA

10C445.AGE >>> CR-462 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.42 ± 0.81
TOTAL FUSION
16.13 ± 1.18
NORMAL ISOCHRON
16.67 ± 1.03
INVERSE ISOCHRON
16.69 ± 1.03

Sample Info

groundmass
Steens basalt
jh

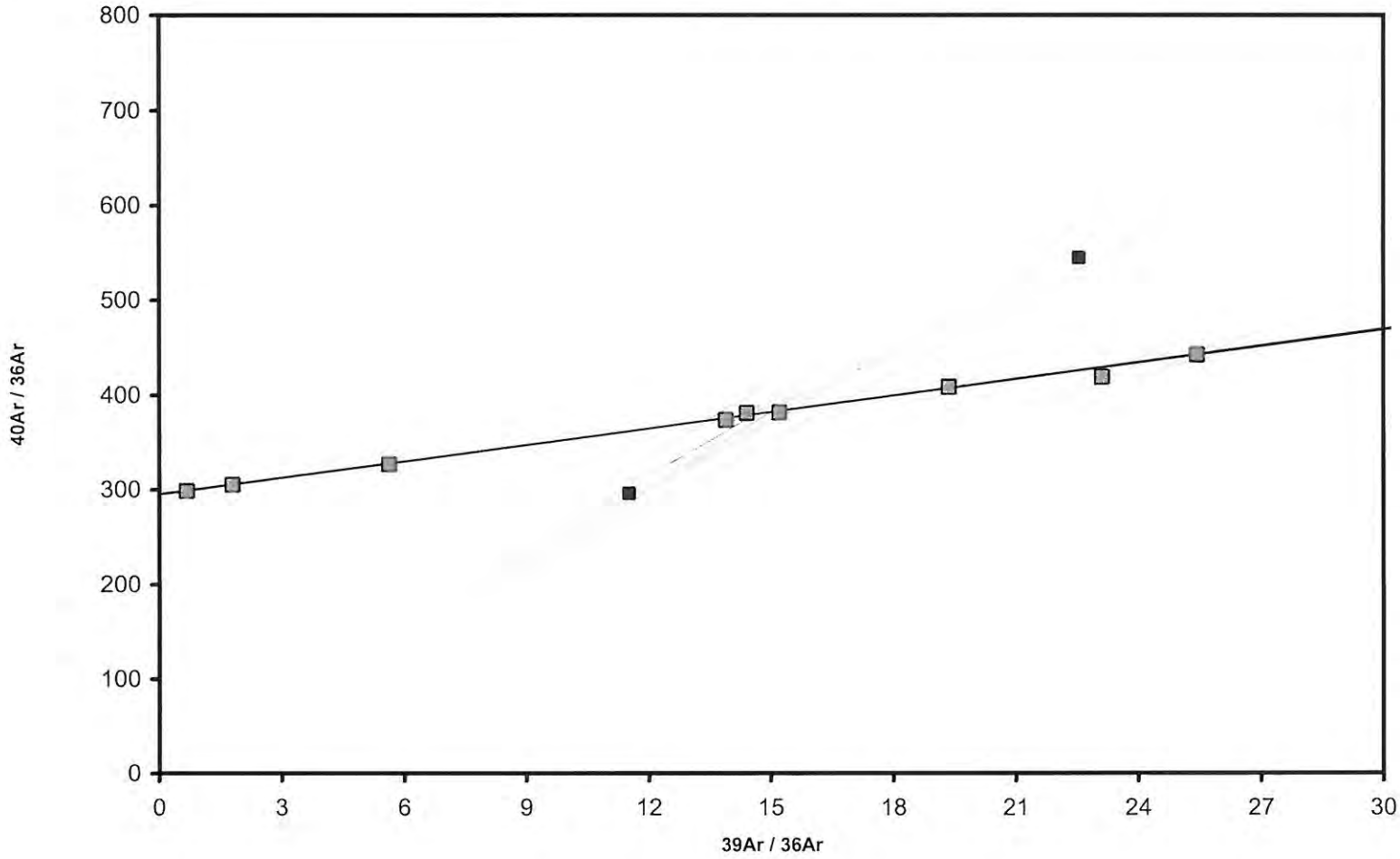
IRR = OSU1D10
J = 0.0015900 ±

DR20132 50 Camp

69

Ar-Ar Sample CR-462 printed at 11/19/2011 (3:19 PM)
ArArCALC v2.40

10C445.AGE >>> CR-462 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.42 ± 0.81
TOTAL FUSION
16.13 ± 1.18
NORMAL ISOCHRON
16.67 ± 1.03
INVERSE ISOCHRON
16.69 ± 1.03

MSWD
0.21

Sample Info

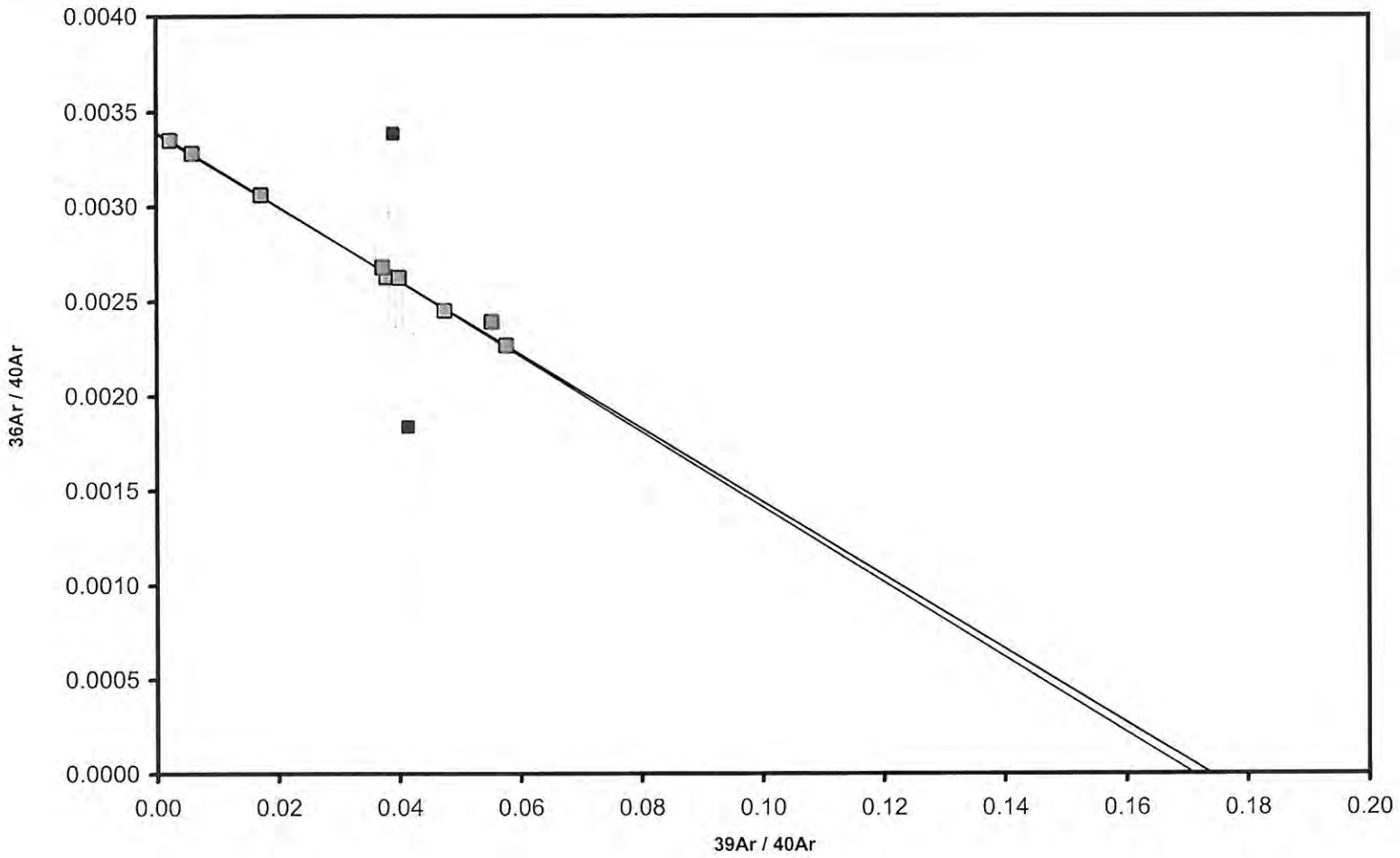
groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0015900 ±

DR20132 50 Camp

67

10C445.AGE >>> CR-462 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.42 ± 0.81
TOTAL FUSION
16.13 ± 1.18
NORMAL ISOCHRON
16.67 ± 1.03
INVERSE ISOCHRON
16.69 ± 1.03

MSWD
0.20

Sample Info

groundmass
Steens basalt
jh

IRR = OSU1D10
J = 0.0015900 ±

DR20132 50 Camp

Age Data - Sample JS07-1

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
07C2335	500 °C	0.000023	0.000001	0.000027	0.000008	0.000015	0.000009	0.000046	0.000006	0.007514	0.000034
07C2336	600 °C	0.000027	0.000003	0.000044	0.000106	0.000011	0.000005	0.000053	0.000007	0.007870	0.000428
07C2337	700 °C	0.000029	0.000003	0.000075	0.000106	0.000009	0.000005	0.000059	0.000007	0.008116	0.000428
07C2339	800 °C	0.000034	0.000003	0.000153	0.000106	0.000007	0.000005	0.000070	0.000007	0.008847	0.000428
07C2340	900 °C	0.000037	0.000003	0.000200	0.000106	0.000007	0.000005	0.000076	0.000007	0.009333	0.000428
07C2341	975 °C	0.000040	0.000003	0.000254	0.000106	0.000008	0.000005	0.000082	0.000007	0.009924	0.000428
07C2343	1050 °C	0.000046	0.000003	0.000376	0.000106	0.000012	0.000005	0.000093	0.000007	0.011303	0.000428
07C2344	1125 °C	0.000049	0.000003	0.000445	0.000106	0.000015	0.000005	0.000099	0.000007	0.012112	0.000428
07C2345	1200 °C	0.000052	0.000003	0.000519	0.000106	0.000019	0.000005	0.000104	0.000007	0.013002	0.000428
07C2346	1275 °C	0.000056	0.000003	0.000599	0.000106	0.000023	0.000005	0.000110	0.000007	0.013972	0.000428
07C2348	1350 °C	0.000063	0.000003	0.000778	0.000106	0.000035	0.000005	0.000122	0.000007	0.016200	0.000428
07C2349	1400 °C	0.000067	0.000003	0.000874	0.000106	0.000041	0.000005	0.000127	0.000007	0.017413	0.000428

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
07C2335	500 °C	0.000078	0.000005	0.0787	LIN #	0.003463	0.000018	0.9312	LIN # 1 2 7
07C2336	600 °C	0.000166	0.000003	0.0039	LIN #	0.054444	0.000192	0.9832	EXP # 1 4
07C2337	700 °C	0.000138	0.000004	0.2528	LIN # 1 10	0.111263	0.000284	0.9921	EXP # 1 2 4 7
07C2339	800 °C	0.000228	0.000006	0.1602	LIN #	0.246915	0.001274	0.9604	EXP # 1 3 4
07C2340	900 °C	0.000242	0.000007	0.6949	LIN # 1 3 7 8	0.301018	0.000168	0.9999	LIN # 1 3 4 5 6 7
07C2341	975 °C	0.000276	0.000004	0.3588	LIN # 1 5	0.274667	0.000495	0.9920	EXP # 1 5 6
07C2343	1050 °C	0.000301	0.000004	0.0619	LIN # 1 7	0.403944	0.000938	0.9861	LIN # 1 8
07C2344	1125 °C	0.000271	0.000003	0.0016	LIN # 1	0.327035	0.001715	0.9434	LIN # 1
07C2345	1200 °C	0.000268	0.000008	0.0035	LIN # 1 2 4	0.276667	0.000912	0.9711	LIN # 1 6 10
07C2346	1275 °C	0.000282	0.000004	0.0254	LIN #	0.288694	0.001147	0.9792	LIN # 1 3 4
07C2348	1350 °C	0.000228	0.000003	0.5116	LIN # 4 9	0.217349	0.000609	0.9770	LIN # 1
07C2349	1400 °C	0.000326	0.000007	0.3051	LIN # 1 2 3 6	0.121440	0.000348	0.9867	LIN # 1 5

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000041	0.000006	0.0726	LIN # 1 2	0.000768	0.000003	0.9992	LIN # 3 8 9
0.000117	0.000003	0.7925	LIN # 5 8 9	0.005923	0.000016	0.9267	LIN # 1
0.000134	0.000005	0.6187	LIN # 1 7	0.008510	0.000013	0.8155	LIN # 3 8
0.000243	0.000006	0.4433	LIN # 2 3 9	0.016229	0.000024	0.5164	LIN # 5 7 10
0.000283	0.000005	0.0009	LIN # 4 7	0.018591	0.000013	0.8493	LIN # 1 6 10
0.000253	0.000006	0.5833	LIN # 1 5	0.016755	0.000046	0.2613	LIN # 1 4
0.000343	0.000008	0.2522	LIN #	0.024544	0.000059	0.7553	LIN # 2 6
0.000268	0.000004	0.5330	LIN #	0.019674	0.000033	0.6658	LIN # 3 4 5 6
0.000253	0.000006	0.1620	LIN #	0.016572	0.000034	0.8462	LIN # 8
0.000259	0.000006	0.6063	LIN # 1 4 6	0.017273	0.000033	0.1813	LIN # 2 4
0.000194	0.000004	0.5513	LIN #	0.013041	0.000015	0.3965	LIN # 2 3 7
0.000144	0.000004	0.3732	LIN # 7	0.007267	0.000023	0.9518	LIN # 5 8

40Ar	1σ	r2		Sample Parameters		Sample	Material
0.023881	0.000048	0.9961	LIN # 2 9	07C2335	500 °C	JS07-1	plagioclase
0.073297	0.000113	0.8716	PAR #	07C2336	600 °C	JS07-1	plagioclase
0.068665	0.000056	0.9861	PAR # 4 9	07C2337	700 °C	JS07-1	plagioclase
0.119474	0.000045	0.9914	EXP # 1 3 4 6	07C2339	800 °C	JS07-1	plagioclase
0.129422	0.000092	0.9741	LIN # 2 4 7	07C2340	900 °C	JS07-1	plagioclase
0.129122	0.000319	0.6195	PAR #	07C2341	975 °C	JS07-1	plagioclase
0.160176	0.000347	0.4959	LIN # 7	07C2343	1050 °C	JS07-1	plagioclase
0.136393	0.000266	0.3913	LIN # 3 6 8 10	07C2344	1125 °C	JS07-1	plagioclase
0.125433	0.000182	0.9662	LIN # 1 2 3 5 6	07C2345	1200 °C	JS07-1	plagioclase
0.134175	0.000291	0.8570	LIN # 1 3 4 7	07C2346	1275 °C	JS07-1	plagioclase
0.105881	0.000253	0.6697	LIN # 2 3	07C2348	1350 °C	JS07-1	plagioclase
0.116285	0.000258	0.0051	LIN # 1 2	07C2349	1400 °C	JS07-1	plagioclase

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
Steens basalt	jh	500	28.03	0.01	0.001723	0.22
Steens basalt	jh	600	28.03	0.01	0.001723	0.22
Steens basalt	jh	700	28.03	0.01	0.001723	0.22
Steens basalt	jh	800	28.03	0.01	0.001723	0.22
Steens basalt	jh	900	28.03	0.01	0.001723	0.22
Steens basalt	jh	975	28.03	0.01	0.001723	0.22
Steens basalt	jh	1050	28.03	0.01	0.001723	0.22
Steens basalt	jh	1125	28.03	0.01	0.001723	0.22
Steens basalt	jh	1200	28.03	0.01	0.001723	0.22
Steens basalt	jh	1275	28.03	0.01	0.001723	0.22
Steens basalt	jh	1350	28.03	0.01	0.001723	0.22
Steens basalt	jh	1400	28.03	0.01	0.001723	0.22

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.00378	0.16	1.0149	1.012E-19	07	06	2007	08	30	001	OSU1C07	HLP	FCT-3	07C2335
1.00378	0.16	1.0152	1.012E-19	07	06	2007	08	54	001	OSU1C07	HLP	FCT-3	07C2336
1.00378	0.16	1.0154	1.012E-19	07	06	2007	09	19	001	OSU1C07	HLP	FCT-3	07C2337
1.00378	0.16	1.0156	1.012E-19	07	06	2007	10	09	001	OSU1C07	HLP	FCT-3	07C2339
1.00378	0.16	1.0156	1.012E-19	07	06	2007	10	34	001	OSU1C07	HLP	FCT-3	07C2340
1.00378	0.16	1.0156	1.012E-19	07	06	2007	11	00	001	OSU1C07	HLP	FCT-3	07C2341
1.00378	0.16	1.0157	1.012E-19	07	06	2007	11	50	001	OSU1C07	HLP	FCT-3	07C2343
1.00378	0.16	1.0158	1.012E-19	07	06	2007	12	15	001	OSU1C07	HLP	FCT-3	07C2344
1.00378	0.16	1.0157	1.012E-19	07	06	2007	12	40	001	OSU1C07	HLP	FCT-3	07C2345
1.00378	0.16	1.0156	1.012E-19	07	06	2007	13	05	001	OSU1C07	HLP	FCT-3	07C2346
1.00378	0.16	1.0158	1.012E-19	07	06	2007	13	56	001	OSU1C07	HLP	FCT-3	07C2348
1.00378	0.16	1.0158	1.012E-19	07	06	2007	14	21	001	OSU1C07	HLP	FCT-3	07C2349

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
500 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
900 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
975 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1050 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1125 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1200 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1275 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1350 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0

Incremental Heating		
07C2335	500 °C	
07C2336	600 °C	✓
07C2337	700 °C	✓
07C2339	800 °C	✓
07C2340	900 °C	✓
07C2341	975 °C	✓
07C2343	1050 °C	✓
07C2344	1125 °C	✓
07C2345	1200 °C	✓
07C2346	1275 °C	✓
07C2348	1350 °C	✓
07C2349	1400 °C	✓
		Σ

Information on Analysis

JS07-1
plagioclase
Steens basalt
jh

Project = HLP
Irradiation = OSU1C07
J = 0.0017230 ± 0.0000038
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.000054	0.005864	0.000007	0.000726	0.000829	3.55 ± 14.10	4.96	0.45	0.053 ± 0.001	07C2335	500 °C
0.000115	0.092878	0.000006	0.005876	0.032426	17.07 ± 1.53	48.73	3.60	0.027 ± 0.000	07C2336	600 °C
0.000060	0.189934	0.000000	0.008424	0.043973	16.15 ± 1.21	71.38	5.17	0.019 ± 0.000	07C2337	700 °C
0.000083	0.421897	0.000000	0.016069	0.088008	16.94 ± 0.77	78.24	9.85	0.016 ± 0.000	07C2339	800 °C
0.000070	0.514495	0.000000	0.018392	0.101514	17.08 ± 0.79	83.14	11.28	0.015 ± 0.000	07C2340	900 °C
0.000113	0.469502	0.000000	0.016559	0.087683	16.39 ± 0.64	72.34	10.15	0.015 ± 0.000	07C2341	975 °C
0.000074	0.691021	0.000000	0.024282	0.129506	16.50 ± 0.43	85.55	14.89	0.015 ± 0.000	07C2343	1050 °C
0.000075	0.559463	0.000000	0.019438	0.104276	16.60 ± 0.49	82.47	11.92	0.015 ± 0.000	07C2344	1125 °C
0.000092	0.473174	0.000000	0.016349	0.087199	16.50 ± 1.01	76.22	10.03	0.015 ± 0.000	07C2345	1200 °C
0.000097	0.493767	0.000000	0.017038	0.093738	17.02 ± 0.63	76.65	10.45	0.015 ± 0.000	07C2346	1275 °C
0.000068	0.371523	0.000000	0.012829	0.071199	17.17 ± 0.65	77.94	7.87	0.015 ± 0.000	07C2348	1350 °C
0.000206	0.206910	0.000000	0.007089	0.039835	17.38 ± 2.03	39.55	4.35	0.015 ± 0.000	07C2349	1400 °C
0.001106	4.490428	0.000013	0.163071	0.880184						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	5.4037 ± 0.0685 ± 1.27%	16.72 ± 0.22 ± 1.34%	0.81	99.55 11	0.016 ± 0.001	Isochron
		External Error ± 0.35	2.23	Statistical T Ratio		
		Analytical Error ± 0.21	1.0000	Error Magnification		
Total Fusion Age	5.3976 ± 0.0803 ± 1.49%	16.70 ± 0.26 ± 1.54%		12	0.016 ± 0.000	Statistics
		External Error ± 0.37				
		Analytical Error ± 0.25				

	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
	13.5 ± 2.8	310.9 ± 64.6	0.9956
✓	50.9 ± 4.2	576.4 ± 47.5	0.9833
✓	141.2 ± 25.5	1032.7 ± 186.9	0.9966
✓	194.1 ± 31.0	1358.4 ± 217.3	0.9985
✓	264.1 ± 59.0	1753.5 ± 391.5	0.9993
✓	146.0 ± 14.0	1068.6 ± 102.4	0.9934
✓	328.3 ± 47.0	2046.3 ± 293.3	0.9978
✓	259.4 ± 33.7	1687.2 ± 219.6	0.9974
✓	177.7 ± 34.4	1243.4 ± 240.9	0.9987
✓	176.4 ± 20.5	1266.1 ± 147.5	0.9963
✓	188.2 ± 23.3	1340.0 ± 166.6	0.9956
✓	34.4 ± 2.6	488.9 ± 36.8	0.9859

Inverse Isochron			39(k)/40(a+r) ± 2σ
07C2335	500 °C		0.043446 ± 0.000849
07C2336	600 °C	✓	0.088311 ± 0.001325
07C2337	700 °C	✓	0.136751 ± 0.002030
07C2339	800 °C	✓	0.142872 ± 0.001269
07C2340	900 °C	✓	0.150641 ± 0.001213
07C2341	975 °C	✓	0.136627 ± 0.001505
07C2343	1050 °C	✓	0.160424 ± 0.001513
07C2344	1125 °C	✓	0.153765 ± 0.001437
07C2345	1200 °C	✓	0.142933 ± 0.001396
07C2346	1275 °C	✓	0.139337 ± 0.001389
07C2348	1350 °C	✓	0.140448 ± 0.001646
07C2349	1400 °C	✓	0.070396 ± 0.000888

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
305.3027 ± 20.1439 ± 6.60%	5.3388 ± 0.1262 ± 2.36%	16.52 ± 0.40 ± 2.39%	0.75
		External Error ± 0.47	
		Analytical Error ± 0.39	

Results	40(a)/36(a) ± 2σ
Isochron	305.5642 ± 20.3279 ± 6.65%

Statistical F Ratio	1.88	Convergence	0.0000000518
Error Magnification	1.0000	Number of Iterations	176
n	11	Calculated Line	Weighted York-2

Statistics		
Statistical F Ratio	1.88
Error Magnification	1.0000
n	11

36(a)/40(a+r) ± 2σ	r.i.
0.003216 ± 0.000668	0.0124
0.001735 ± 0.000143	0.1434
0.000968 ± 0.000175	0.0732
0.000736 ± 0.000118	0.0412
0.000570 ± 0.000127	0.0286
0.000936 ± 0.000090	0.0743
0.000489 ± 0.000070	0.0397
0.000593 ± 0.000077	0.0528
0.000804 ± 0.000156	0.0351
0.000790 ± 0.000092	0.0624
0.000746 ± 0.000093	0.0821
0.002045 ± 0.000154	0.1046

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
5.3518 ± 0.1262 ± 2.36%	16.56 ± 0.40 ± 2.39%	0.78
	External Error ± 0.47	
	Analytical Error ± 0.39	

Convergence	0.0000000109
Number of Iterations	5
Calculated Line	Weighted York-2

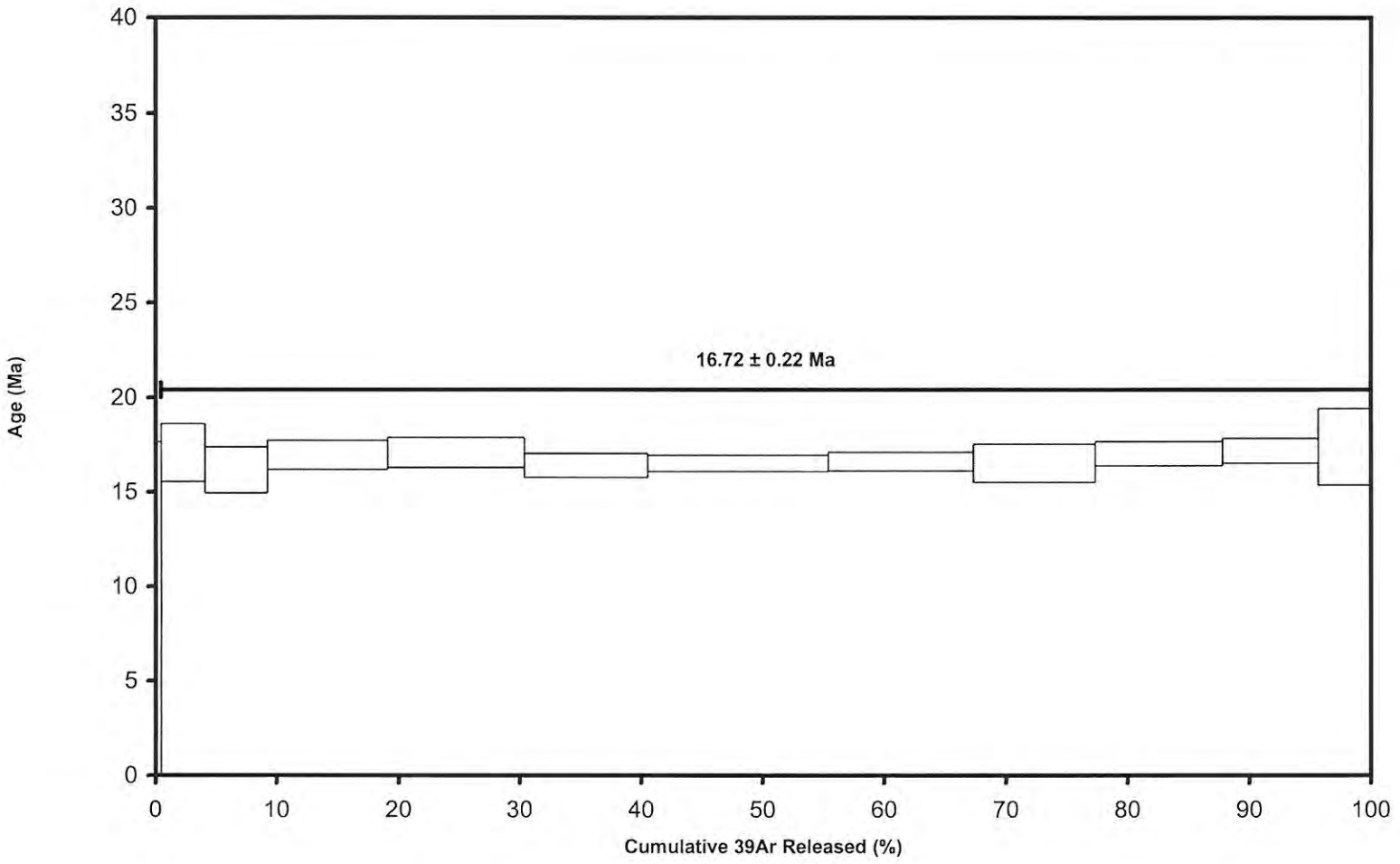
Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
07C2335	500 °C		0.000054	0.000000	0.000002	0.000000
07C2336	600 °C	✓	0.000115	0.000000	0.000025	0.000000
07C2337	700 °C	✓	0.000060	0.000000	0.000050	0.000000
07C2339	800 °C	✓	0.000083	0.000000	0.000111	0.000000
07C2340	900 °C	✓	0.000070	0.000000	0.000136	0.000000
07C2341	975 °C	✓	0.000113	0.000000	0.000124	0.000000
07C2343	1050 °C	✓	0.000074	0.000000	0.000182	0.000000
07C2344	1125 °C	✓	0.000075	0.000000	0.000148	0.000000
07C2345	1200 °C	✓	0.000092	0.000000	0.000125	0.000000
07C2346	1275 °C	✓	0.000097	0.000000	0.000130	0.000000
07C2348	1350 °C	✓	0.000068	0.000000	0.000098	0.000000
07C2349	1400 °C	✓	0.000206	0.000000	0.000055	0.000000
		Σ	0.001106	0.000000	0.001185	0.000000
		Σ				0.002292

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.005864	0.000010	0.000000	0.000008	0.000001	0.000007	0.000726	0.000004	0.000829	0.015893	0.000000
0.092878	0.000022	0.000000	0.000067	0.000013	0.000006	0.005876	0.000063	0.032426	0.034109	0.000000
0.189934	0.000011	0.000000	0.000096	0.000026	0.000000	0.008424	0.000128	0.043973	0.017626	0.000000
0.421897	0.000015	0.000000	0.000183	0.000059	0.000000	0.016069	0.000284	0.088008	0.024466	0.000000
0.514495	0.000013	0.000000	0.000209	0.000072	0.000000	0.018392	0.000346	0.101514	0.020575	0.000000
0.469502	0.000021	0.000000	0.000188	0.000065	0.000000	0.016559	0.000316	0.087683	0.033513	0.000000
0.691021	0.000014	0.000000	0.000276	0.000096	0.000000	0.024282	0.000465	0.129506	0.021858	0.000000
0.559463	0.000014	0.000000	0.000221	0.000078	0.000000	0.019438	0.000377	0.104276	0.022141	0.000000
0.473174	0.000017	0.000000	0.000186	0.000066	0.000000	0.016349	0.000318	0.087199	0.027185	0.000000
0.493767	0.000018	0.000000	0.000194	0.000069	0.000000	0.017038	0.000332	0.093738	0.028540	0.000000
0.371523	0.000013	0.000000	0.000146	0.000052	0.000000	0.012829	0.000250	0.071199	0.020143	0.000000
0.206910	0.000038	0.000000	0.000081	0.000029	0.000000	0.007089	0.000139	0.039835	0.060867	0.000000
4.490428	0.000207	0.000000	0.001856	0.000624	0.000013	0.163071	0.003022	0.880184	0.326914	0.000000
4.490428					0.002699		0.166093			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000001	07C2335	500 °C		1.141594	2.27290	0.01672	0.00006	22.89389	0.22255	8.02732	0.10322
0.000006	07C2336	600 °C	✓	5.518582	0.24867	0.06653	0.00044	11.20537	0.08385	15.64046	0.13868
0.000009	07C2337	700 °C	✓	5.220157	0.19606	0.06160	0.00043	7.20424	0.05336	22.21061	0.17777
0.000016	07C2339	800 °C	✓	5.476730	0.12517	0.11247	0.00043	6.87874	0.03039	25.79883	0.23467
0.000019	07C2340	900 °C	✓	5.519586	0.12748	0.12209	0.00044	6.51661	0.02612	27.45754	0.20303
0.000017	07C2341	975 °C	✓	5.295309	0.10329	0.12120	0.00054	7.18315	0.03929	27.82309	0.22398
0.000025	07C2343	1050 °C	✓	5.333340	0.07016	0.15136	0.00055	6.11734	0.02862	27.92305	0.22533
0.000020	07C2344	1125 °C	✓	5.364413	0.07949	0.12642	0.00051	6.38084	0.02964	28.23447	0.25943
0.000017	07C2345	1200 °C	✓	5.333527	0.16409	0.11438	0.00047	6.86362	0.03329	28.38885	0.23620
0.000017	07C2346	1275 °C	✓	5.501745	0.10300	0.12228	0.00052	7.04053	0.03489	28.42610	0.24407
0.000013	07C2348	1350 °C	✓	5.549972	0.10539	0.09134	0.00050	6.98497	0.04081	28.40679	0.22675
0.000007	07C2349	1400 °C	✓	5.619228	0.32890	0.10070	0.00050	13.93262	0.08719	28.62501	0.24756
0.000165											
1.207263											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
0.07575	0.00768	1.70023317	1.00018962	1.692E-21
0.02357	0.00079	1.70079298	1.00018974	6.734E-21
0.01284	0.00063	1.70137631	1.00018986	6.235E-21
0.01187	0.00040	1.70254357	1.00019011	1.138E-20
0.01096	0.00041	1.70312750	1.00019023	1.236E-20
0.01407	0.00032	1.70373500	1.00019036	1.227E-20
0.01036	0.00021	1.70490388	1.00019060	1.532E-20
0.01124	0.00024	1.70548862	1.00019073	1.280E-20
0.01301	0.00053	1.70607356	1.00019085	1.158E-20
0.01306	0.00032	1.70665870	1.00019097	1.238E-20
0.01271	0.00032	1.70785301	1.00019122	9.245E-21
0.03605	0.00107	1.70843877	1.00019134	1.019E-20

07C2335.AGE >>> JS07-1 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.72 ± 0.22
TOTAL FUSION
16.70 ± 0.26
NORMAL ISOCHRON
16.52 ± 0.40
INVERSE ISOCHRON
16.56 ± 0.40

MSWD
0.81

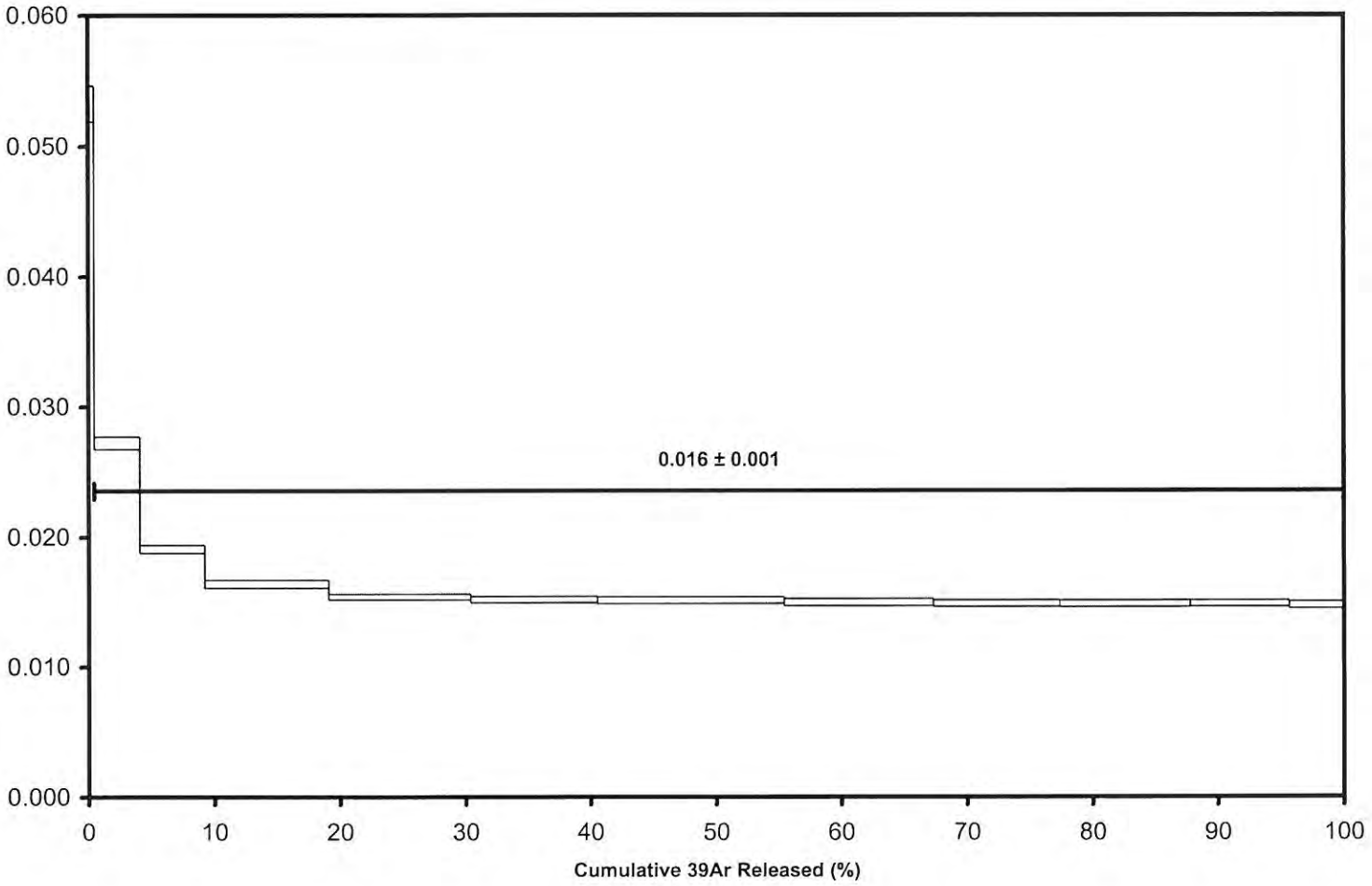
Sample Info

plagioclase
Steens basalt
jh

IRR = OSU1C07
J = 0.0017230 ±

DR20132 50 Camp

07C2335.AGE >>> JS07-1 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.72 ± 0.22
TOTAL FUSION
16.70 ± 0.26
NORMAL ISOCHRON
16.52 ± 0.40
INVERSE ISOCHRON
16.56 ± 0.40

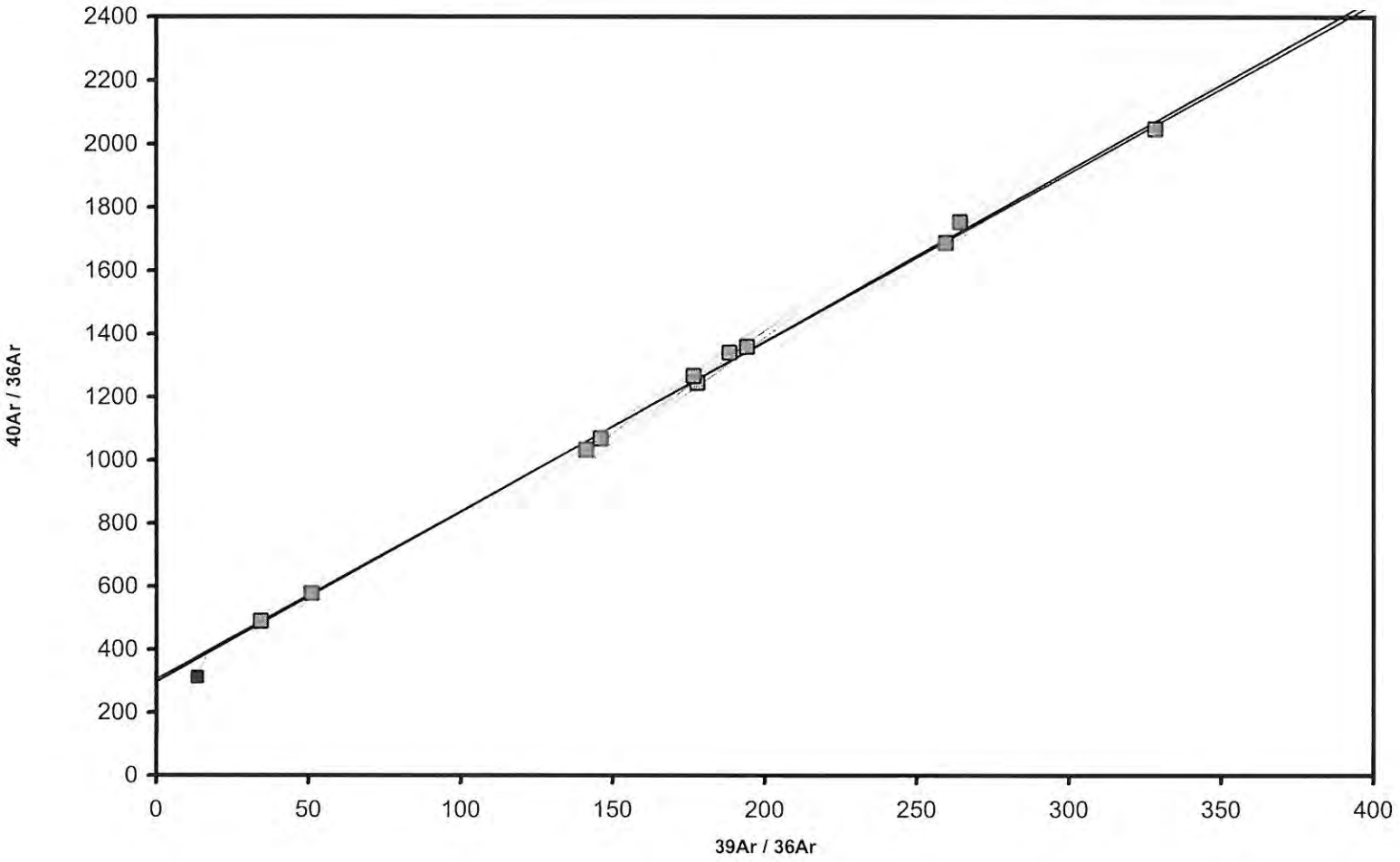
Sample Info

plagioclase
Steens basalt
jh

IRR = OSU1C07
J = 0.0017230 ±

DR20132 50 Camp

07C2335.AGE >>> JS07-1 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.72 ± 0.22
TOTAL FUSION
16.70 ± 0.26
NORMAL ISOCHRON
16.52 ± 0.40
INVERSE ISOCHRON
16.56 ± 0.40

MSWD
0.75

Sample Info

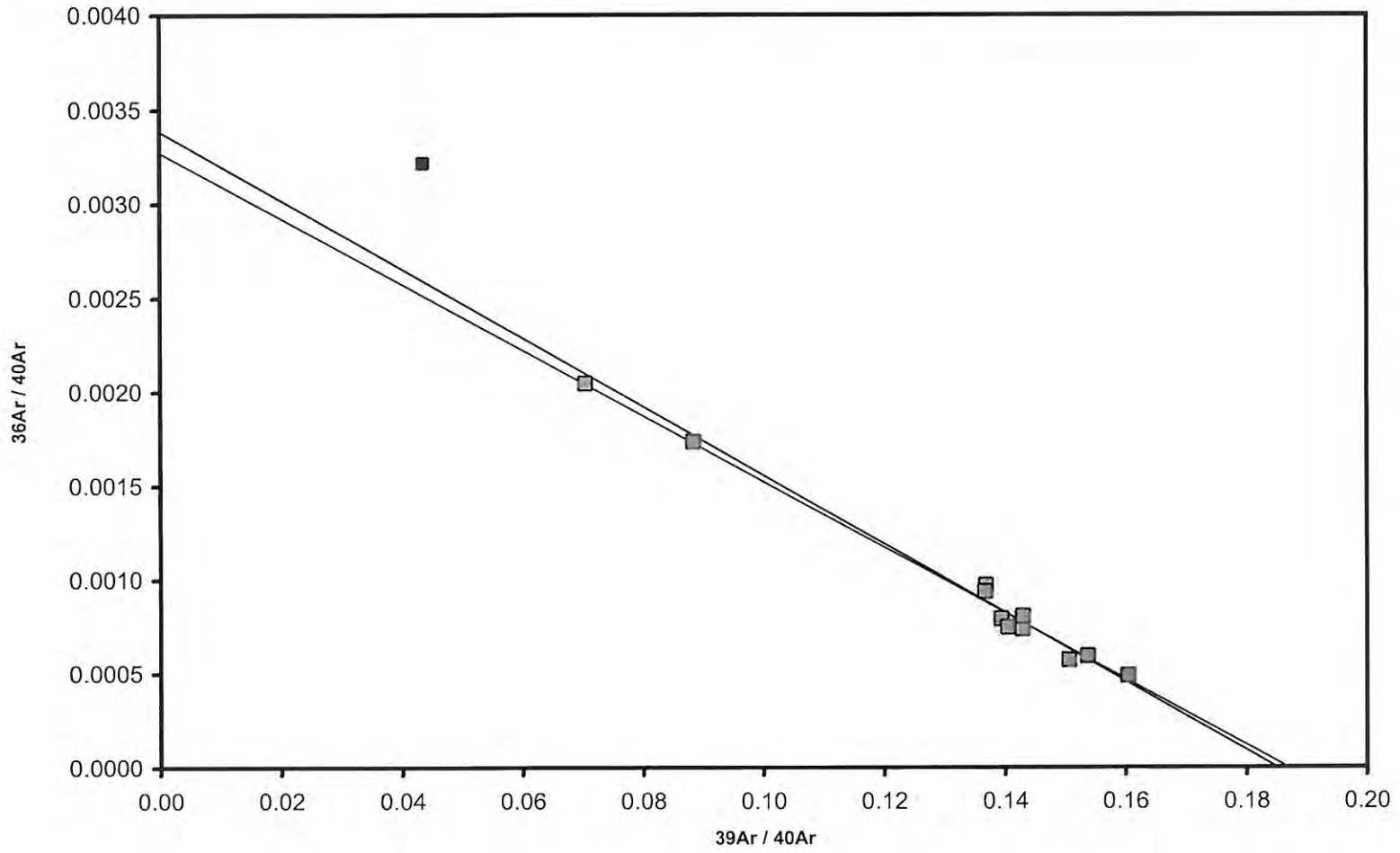
plagioclase
Steens basalt
jh

IRR = OSU1C07
J = 0.0017230 ±

DR20132 50 Camp

Ar-Ar Sample JS07-1 printed at 11/19/2011 (3:22 PM)
ArArCALC v2.40

07C2335.AGE >>> JS07-1 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.72 ± 0.22
TOTAL FUSION
16.70 ± 0.26
NORMAL ISOCHRON
16.52 ± 0.40
INVERSE ISOCHRON
16.56 ± 0.40

MSWD
0.78

Sample Info

plagioclase
Steens basalt
jh

IRR = OSU1C07
J = 0.0017230 ±

DR20132 50 Camp

Age Data - Sample JS-5

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
07C1436	600 °C	0.000022	0.000004	0.000033	0.000005	0.000019	0.000003	0.000011	0.000006	0.003890	0.000019
07C1437	700 °C	0.000022	0.000004	0.000033	0.000005	0.000019	0.000003	0.000011	0.000006	0.003890	0.000019
07C1438	800 °C	0.000020	0.000005	0.000039	0.000008	0.000022	0.000003	0.000046	0.000007	0.003701	0.000030
07C1440	900 °C	0.000020	0.000005	0.000039	0.000008	0.000022	0.000003	0.000046	0.000007	0.003701	0.000030
07C1441	1000 °C	0.000020	0.000005	0.000039	0.000008	0.000022	0.000003	0.000046	0.000007	0.003701	0.000030
07C1442	1100 °C	0.000020	0.000005	0.000039	0.000008	0.000022	0.000003	0.000046	0.000007	0.003701	0.000030
07C1443	1250 °C	0.000020	0.000005	0.000039	0.000008	0.000022	0.000003	0.000046	0.000007	0.003701	0.000030
07C1445	1400 °C	0.000022	0.000003	0.000145	0.000002	0.000017	0.000003	0.000053	0.000005	0.003514	0.000027

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
07C1436	600 °C	0.000053	0.000007	0.1300	LIN #	0.010404	0.000016	0.9955	LIN # 4 6
07C1437	700 °C	0.000155	0.000003	0.0723	LIN # 7 10	0.037096	0.000086	0.9769	LIN #
07C1438	800 °C	0.000209	0.000008	0.0137	LIN #	0.053514	0.000072	0.9906	LIN # 1 9
07C1440	900 °C	0.000190	0.000003	0.6354	LIN # 1 3 4 10	0.043233	0.000076	0.9839	LIN #
07C1441	1000 °C	0.000140	0.000003	0.0106	LIN # 2 5 6	0.037470	0.000102	0.9681	LIN #
07C1442	1100 °C	0.000121	0.000006	0.0605	LIN # 1 4	0.033359	0.000096	0.9773	LIN # 4 6
07C1443	1250 °C	0.000202	0.000004	0.5369	LIN # 1 5 8	0.065196	0.000163	0.9823	LIN # 1 2 4 8
07C1445	1400 °C	0.000134	0.000008	0.0025	LIN # 1 2 7	0.038885	0.000046	0.9920	LIN #

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000043	0.000007	0.3132	LIN # 3	0.002864	0.000007	0.9163	LIN # 3 5 6
0.000127	0.000009	0.3159	LIN #	0.009796	0.000029	0.3275	LIN # 1 6 7 10
0.000178	0.000008	0.3968	LIN # 5 7	0.013440	0.000026	0.9551	LIN # 1
0.000148	0.000007	0.1463	LIN # 1 6 10	0.010129	0.000037	0.5888	LIN # 1
0.000119	0.000009	0.0055	LIN #	0.008514	0.000020	0.3148	LIN # 1 5 7 9
0.000102	0.000006	0.4414	LIN # 5 10	0.007363	0.000026	0.4069	LIN # 1
0.000193	0.000007	0.0403	LIN # 5	0.014341	0.000044	0.9151	LIN # 1 2 3 9
0.000139	0.000007	0.4905	LIN # 2	0.008315	0.000039	0.1592	LIN #

40Ar	1σ	r2		Sample Parameters		Sample	Material
0.025703	0.000049	0.9908	LIN #	07C1436	600 °C	JS5	plagioclase
0.078217	0.000061	0.9507	LIN # 1 6	07C1437	700 °C	JS5	plagioclase
0.104074	0.000130	0.3628	LIN # 1	07C1438	800 °C	JS5	plagioclase
0.087911	0.000052	0.8948	LIN # 1 9 10	07C1440	900 °C	JS5	plagioclase
0.066030	0.000044	0.9938	LIN # 1 2 3 7 9	07C1441	1000 °C	JS5	plagioclase
0.055488	0.000108	0.9570	LIN # 1	07C1442	1100 °C	JS5	plagioclase
0.100580	0.000248	0.5910	LIN # 1 2	07C1443	1250 °C	JS5	plagioclase
0.062132	0.000065	0.9821	LIN # 1	07C1445	1400 °C	JS5	plagioclase

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
Steens	jh	600	28.03	0.01	0.0014849	0.39
Steens	jh	700	28.03	0.01	0.0014849	0.39
Steens	jh	800	28.03	0.01	0.0014849	0.39
Steens	jh	900	28.03	0.01	0.0014849	0.39
Steens	jh	1000	28.03	0.01	0.0014849	0.39
Steens	jh	1100	28.03	0.01	0.0014849	0.39
Steens	jh	1250	28.03	0.01	0.0014849	0.39
Steens	jh	1400	28.03	0.01	0.0014849	0.39

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.00378	0.16	1.0157	1.012E-19	08	04	2007	17	31	001	OSU4E06	HLP	FCT-3	07C1436
1.00378	0.16	1.0158	1.012E-19	08	04	2007	17	51	001	OSU4E06	HLP	FCT-3	07C1437
1.00378	0.16	1.0158	1.012E-19	08	04	2007	18	12	001	OSU4E06	HLP	FCT-3	07C1438
1.00378	0.16	1.0158	1.012E-19	08	04	2007	19	01	001	OSU4E06	HLP	FCT-3	07C1440
1.00378	0.16	1.0158	1.012E-19	08	04	2007	19	22	001	OSU4E06	HLP	FCT-3	07C1441
1.00378	0.16	1.0157	1.012E-19	08	04	2007	19	42	001	OSU4E06	HLP	FCT-3	07C1442
1.00378	0.16	1.0157	1.012E-19	08	04	2007	20	03	001	OSU4E06	HLP	FCT-3	07C1443
1.00378	0.16	1.0156	1.012E-19	08	04	2007	20	44	001	OSU4E06	HLP	FCT-3	07C1445

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
900 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1000 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1100 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1250 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ	Incremental Heating		
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1436	600 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1437	700 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1438	800 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1440	900 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1441	1000 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1442	1100 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1443	1250 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1445	1400 °C	✓

Σ

Information on Analysis

JS5
plagioclase
Steens
jh

Project = HLP
Irradiation = OSU4E06
J = 0.0014849 ± 0.0000058
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.000009	0.088267	0.000000	0.002830	0.019628	18.49 ± 4.66	88.35	3.85	0.014 ± 0.001	07C1436	600 °C
0.000050	0.315532	0.000000	0.009697	0.060773	16.71 ± 0.94	80.43	13.18	0.013 ± 0.001	07C1437	700 °C
0.000069	0.455369	0.000000	0.013259	0.081511	16.39 ± 1.16	79.90	18.02	0.013 ± 0.001	07C1438	800 °C
0.000073	0.368067	0.000000	0.009965	0.064009	17.13 ± 0.99	74.78	13.54	0.012 ± 0.001	07C1440	900 °C
0.000037	0.319051	0.000000	0.008362	0.052546	16.76 ± 1.14	82.92	11.36	0.011 ± 0.001	07C1441	1000 °C
0.000027	0.284062	0.000000	0.007219	0.044761	16.53 ± 1.72	85.00	9.81	0.011 ± 0.000	07C1442	1100 °C
0.000036	0.555646	0.000000	0.014102	0.087874	16.62 ± 0.79	89.25	19.17	0.011 ± 0.000	07C1443	1250 °C
0.000026	0.330539	0.000000	0.008145	0.051985	17.02 ± 1.79	87.24	11.07	0.011 ± 0.000	07C1445	1400 °C
0.000326	2.716533	0.000000	0.073578	0.463088						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	6.2790 ± 0.1546 ± 2.46%	16.74 ± 0.43 ± 2.57%	0.25	100.00 8	0.012 ± 0.001	No Convergence
		External Error ± 0.51	2.36	Statistical T Ratio		
		Analytical Error ± 0.41	1.0000	Error Magnification		
Total Fusion Age	6.2938 ± 0.1756 ± 2.79%	16.78 ± 0.48 ± 2.88%		8	0.000 ± 0.000	Statistics
		External Error ± 0.55				
		Analytical Error ± 0.47				

	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
✓	323.4 ± 621.7	2538.6 ± 4880.4	1.0000
✓	193.9 ± 44.6	1510.6 ± 347.4	0.9995
✓	191.2 ± 53.9	1470.9 ± 414.9	0.9998
✓	136.5 ± 23.3	1172.0 ± 200.2	0.9987
✓	228.4 ± 75.8	1730.9 ± 574.3	0.9998
✓	270.4 ± 159.8	1972.0 ± 1165.3	0.9999
✓	394.3 ± 154.5	2752.4 ± 1078.4	0.9997
✓	316.9 ± 227.9	2318.5 ± 1667.3	0.9999

Inverse Isochron			39(k)/40(a+r) ± 2σ
07C1436	600 °C	✓	0.127378 ± 0.001123
07C1437	700 °C	✓	0.128352 ± 0.000924
07C1438	800 °C	✓	0.129981 ± 0.000776
07C1440	900 °C	✓	0.116426 ± 0.000995
07C1441	1000 °C	✓	0.131963 ± 0.000843
07C1442	1100 °C	✓	0.137119 ± 0.001282
07C1443	1250 °C	✓	0.143254 ± 0.001278
07C1445	1400 °C	✓	0.136703 ± 0.001461

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
331.4175 ± 108.9331 ± 32.87%	6.1011 ± 0.5307 ± 8.70%	16.27 ± 1.41 ± 8.69%	0.15
		External Error ± 1.44	
		Analytical Error ± 1.41	

Statistical F Ratio	2.10	Convergence	0.0000004110
Error Magnification	1.0000	Number of Iterations	500
n	8	Calculated Line	Weighted York-2

Results	40(a)/36(a) ± 2σ
Isochron	331.7300 ± 107.0117 ± 32.26%

Statistics		
Statistical F Ratio	2.10
Error Magnification	1.0000
n	8

36(a)/40(a+r) ± 2σ	r.i.
0.000394 ± 0.000757	0.0014
0.000662 ± 0.000152	0.0018
0.000680 ± 0.000192	0.0042
0.000853 ± 0.000146	0.0014
0.000578 ± 0.000192	0.0014
0.000507 ± 0.000300	0.0034
0.000363 ± 0.000142	0.0076
0.000431 ± 0.000310	0.0008

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
6.1148 ± 0.5038 ± 8.24%	16.31 ± 1.34 ± 8.24%	0.20
	External Error ± 1.37	
	Analytical Error ± 1.34	

Convergence	0.0000000246
Number of Iterations	4
Calculated Line	Weighted York-2

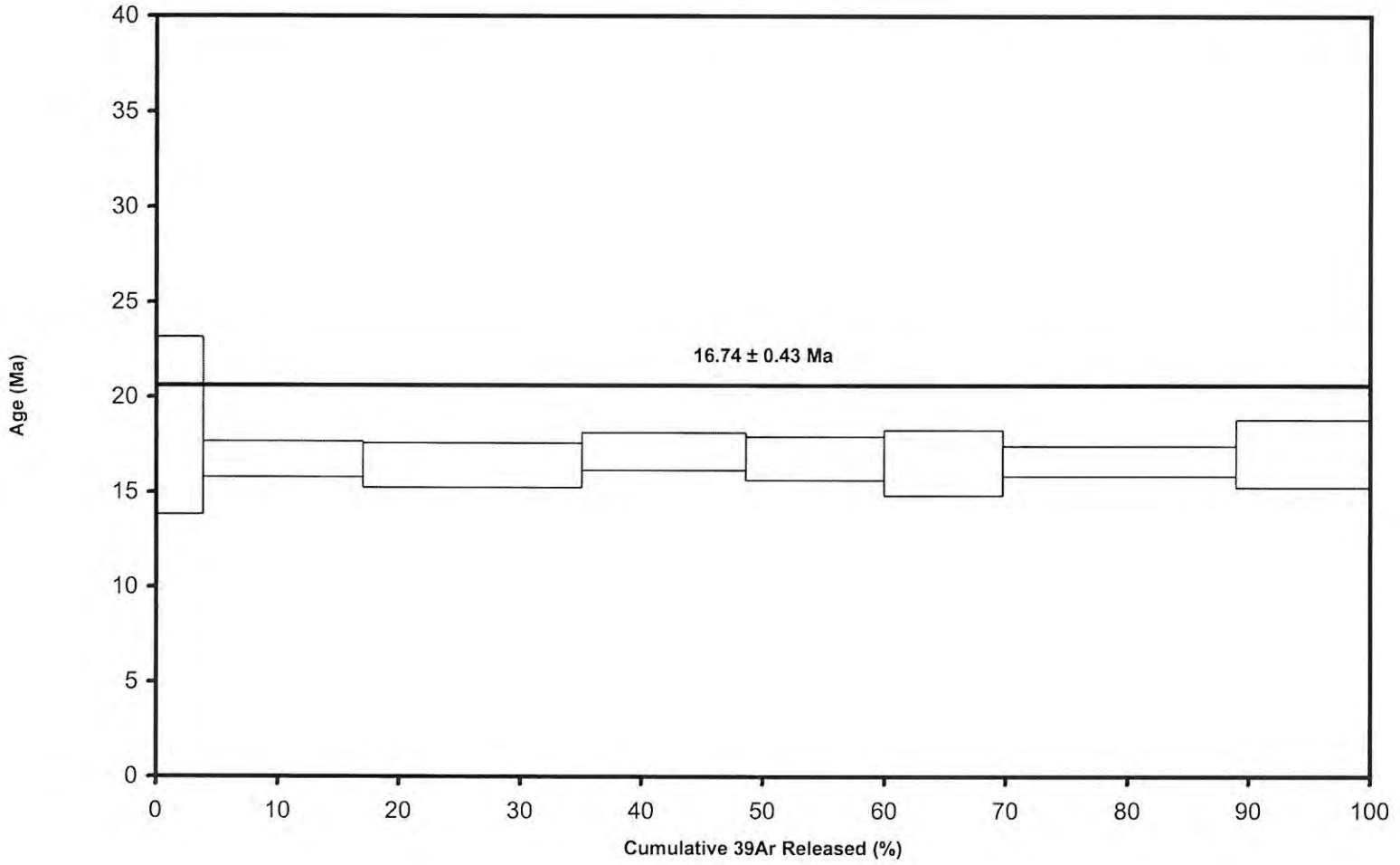
Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
07C1436	600 °C	✓	0.000009	0.000000	0.000023	0.000000
07C1437	700 °C	✓	0.000050	0.000000	0.000083	0.000000
07C1438	800 °C	✓	0.000069	0.000000	0.000120	0.000000
07C1440	900 °C	✓	0.000073	0.000000	0.000097	0.000000
07C1441	1000 °C	✓	0.000037	0.000000	0.000084	0.000000
07C1442	1100 °C	✓	0.000027	0.000000	0.000075	0.000000
07C1443	1250 °C	✓	0.000036	0.000000	0.000147	0.000000
07C1445	1400 °C	✓	0.000026	0.000000	0.000087	0.000000
		Σ	0.000326	0.000000	0.000717	0.000000
		Σ				0.001043

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.088267	0.000002	0.000000	0.000032	0.000012	0.000000	0.002830	0.000059	0.019628	0.002586	0.000000
0.315532	0.000009	0.000000	0.000110	0.000044	0.000000	0.009697	0.000212	0.060773	0.014779	0.000000
0.455369	0.000013	0.000000	0.000151	0.000063	0.000000	0.013259	0.000306	0.081511	0.020493	0.000000
0.368067	0.000014	0.000000	0.000113	0.000051	0.000000	0.009965	0.000248	0.064009	0.021580	0.000000
0.319051	0.000007	0.000000	0.000095	0.000044	0.000000	0.008362	0.000215	0.052546	0.010817	0.000000
0.284062	0.000005	0.000000	0.000082	0.000039	0.000000	0.007219	0.000191	0.044761	0.007890	0.000000
0.555646	0.000007	0.000000	0.000160	0.000077	0.000000	0.014102	0.000374	0.087874	0.010569	0.000000
0.330539	0.000005	0.000000	0.000093	0.000046	0.000000	0.008145	0.000222	0.051985	0.007594	0.000000
2.716533	0.000061	0.000000	0.000837	0.000378	0.000000	0.073578	0.001828	0.463088	0.096307	0.000000
2.716533					0.001276		0.075406			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000003	07C1436	600 °C	✓	6.936813	0.87901	0.02221	0.00005	7.69023	0.03322	30.55356	0.67966
0.000010	07C1437	700 °C	✓	6.267033	0.17674	0.07555	0.00006	7.62509	0.02664	31.84079	0.70940
0.000013	07C1438	800 °C	✓	6.147835	0.21886	0.10200	0.00014	7.52063	0.02173	33.56933	0.74158
0.000010	07C1440	900 °C	✓	6.423498	0.18699	0.08559	0.00006	8.38176	0.03469	36.04085	0.80558
0.000008	07C1441	1000 °C	✓	6.284198	0.21559	0.06336	0.00005	7.38917	0.02268	37.20134	0.82868
0.000007	07C1442	1100 °C	✓	6.200091	0.32428	0.05265	0.00011	7.10578	0.03229	38.33213	0.86090
0.000014	07C1443	1250 °C	✓	6.231152	0.14964	0.09844	0.00025	6.80125	0.02957	38.38290	0.85723
0.000008	07C1445	1400 °C	✓	6.382799	0.33699	0.05958	0.00007	7.12164	0.03687	39.50490	0.88974
0.000074											
0.559469											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
0.01110	0.00291	8.47340301	1.00076367	2.248E-21
0.01345	0.00055	8.47572787	1.00076377	7.647E-21
0.01397	0.00070	8.47816966	1.00076387	1.032E-20
0.01667	0.00058	8.48386989	1.00076411	8.663E-21
0.01409	0.00068	8.48631402	1.00076421	6.413E-21
0.01372	0.00104	8.48864242	1.00076431	5.329E-21
0.01260	0.00043	8.49108792	1.00076441	9.964E-21
0.01350	0.00108	8.49586451	1.00076461	6.030E-21

07C1436.AGE >>> JS5 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.74 ± 0.43
TOTAL FUSION
16.78 ± 0.48
NORMAL ISOCHRON
16.27 ± 1.41
INVERSE ISOCHRON
16.31 ± 1.34

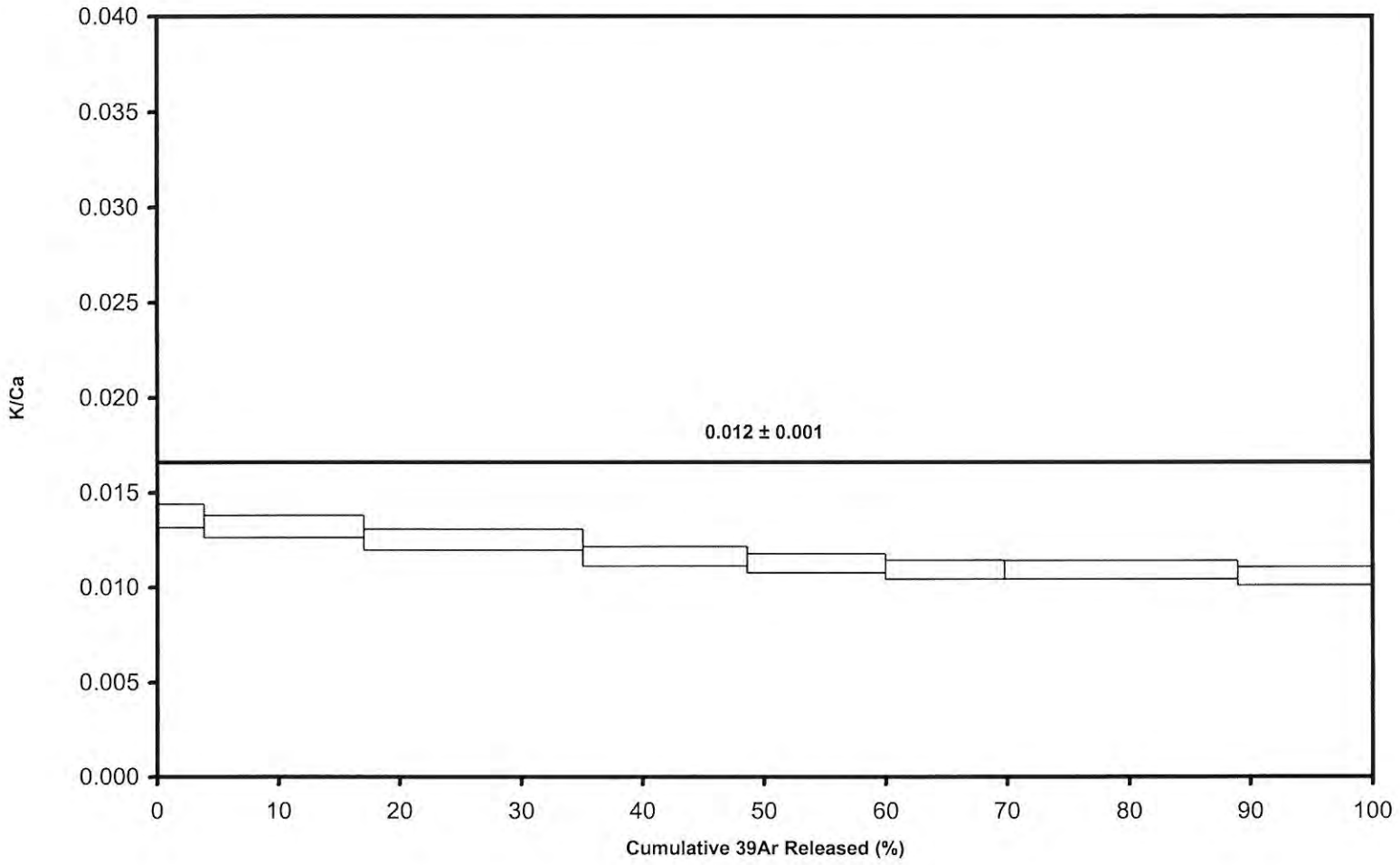
MSWD
0.25

Sample Info

plagioclase
Steens
jh

IRR = OSU4E06
J = 0.0014849 ±

07C1436.AGE >>> JS5 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.74 ± 0.43
TOTAL FUSION
16.78 ± 0.48
NORMAL ISOCHRON
16.27 ± 1.41
INVERSE ISOCHRON
16.31 ± 1.34

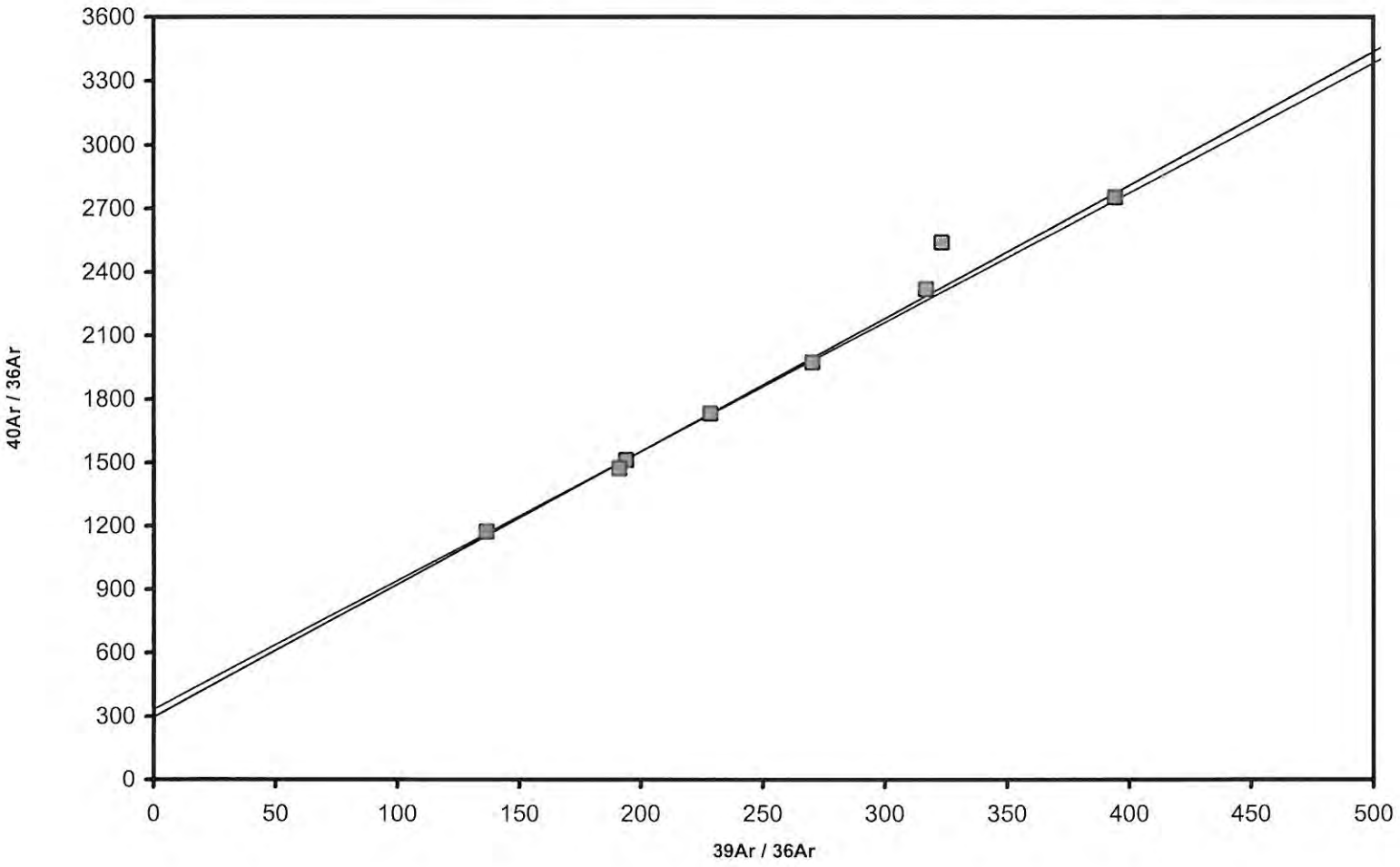
Sample Info

plagioclase
Steens
jh

IRR = OSU4E06
J = 0.0014849 ±

DR20132?0 Camp

07C1436.AGE >>> JS5 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.74 ± 0.43
TOTAL FUSION
16.78 ± 0.48
NORMAL ISOCHRON
16.27 ± 1.41
INVERSE ISOCHRON
16.31 ± 1.34

MSWD
0.15

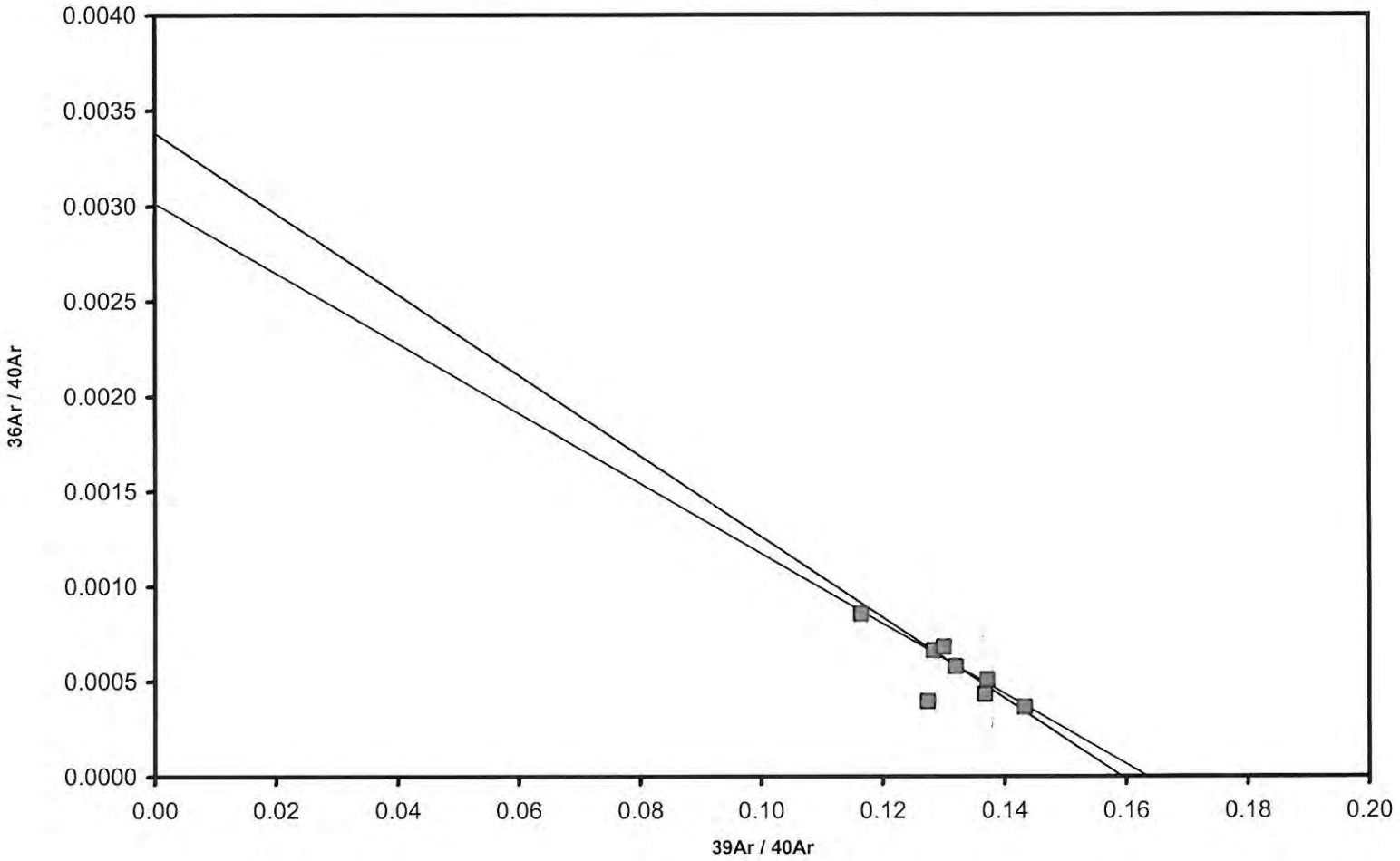
Sample Info

plagioclase
Steens
jh

IRR = OSU4E06
J = 0.0014849 ±

DR20132?0 Camp

07C1436.AGE >>> JS5 >>> HLP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.74 ± 0.43
TOTAL FUSION
16.78 ± 0.48
NORMAL ISOCHRON
16.27 ± 1.41
INVERSE ISOCHRON
16.31 ± 1.34

MSWD
0.20

Sample Info

plagioclase
Steens
jh

IRR = OSU4E06
J = 0.0014849 ±

DR20132[illegible]0 Camp

Age Data - Sample MD06-142

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
07C868	500 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C869	600 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C870	700 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C871	800 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C872	900 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.016770	0.000047
07C873	1000 °C	0.000060	0.000008	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.020772	0.000047
07C874	1100 °C	0.000077	0.000005	0.000023	0.000003	0.000009	0.000004	0.000039	0.000004	0.026282	0.000985
07C875	1200 °C	0.000101	0.000007	0.000333	0.000003	0.000030	0.000002	0.000180	0.000005	0.032260	0.000034
07C876	1300 °C	0.000144	0.000005	0.000767	0.000021	0.000057	0.000004	0.000464	0.000016	0.041654	0.000985
07C877	1400 °C	0.000196	0.000005	0.001402	0.000009	0.000096	0.000004	0.000839	0.000008	0.051515	0.000109

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
07C868	500 °C	0.000332	0.000002	0.9803	LIN # 1 6 7 8	0.008403	0.000020	0.9966	EXP # 4
07C869	600 °C	0.000099	0.000005	0.4603	LIN # 1 2 5 9	0.011228	0.000048	0.9885	LIN # 2 3 5 6
07C870	700 °C	0.000192	0.000005	0.7569	LIN # 1 3 4 10	0.064954	0.000055	0.9978	LIN # 3
07C871	800 °C	0.000393	0.000003	0.8103	LIN # 7 8 10	0.189222	0.000139	0.9978	LIN # 3
07C872	900 °C	0.000406	0.000006	0.5287	LIN # 1 5	0.208140	0.000177	0.9978	LIN # 3 6
07C873	1000 °C	0.000208	0.000005	0.4784	LIN # 3 4 9	0.097601	0.000152	0.9916	EXP #
07C874	1100 °C	0.000206	0.000013	0.0003	LIN #	0.061628	0.000141	0.9835	LIN #
07C875	1200 °C	0.000177	0.000005	0.4796	LIN # 7 10	0.036639	0.000071	0.9923	LIN # 3 4
07C876	1300 °C	0.000576	0.000004	0.0151	LIN # 8	0.341053	0.000379	0.9971	LIN # 1 3
07C877	1400 °C	0.001002	0.000010	0.6116	LIN # 1	0.678362	0.000817	0.9966	LIN # 7

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000120	0.000004	0.7721	LIN # 1 2 4	0.001935	0.000019	0.9889	LIN # 1 3 10
0.000064	0.000006	0.2365	LIN # 2 6	0.001943	0.000011	0.9836	LIN # 1
0.000152	0.000001	0.9262	LIN # 1 6 10	0.009825	0.000040	0.0115	LIN # 1 2 4 6
0.000416	0.000008	0.6112	LIN # 1 3 4	0.027537	0.000054	0.9371	LIN # 1 3 6 9
0.000402	0.000004	0.7657	LIN #	0.030328	0.000020	0.9918	LIN # 1 3 5
0.000217	0.000009	0.0667	LIN # 1	0.014570	0.000006	0.9980	LIN # 1 2 6 7
0.000158	0.000004	0.4594	LIN #	0.009993	0.000033	0.0799	LIN # 1 6 7
0.000127	0.000006	0.1226	LIN #	0.006478	0.000016	0.8947	LIN # 1 10
0.000720	0.000006	0.0207	LIN # 4	0.051414	0.000074	0.9766	LIN # 1 6 9
0.001315	0.000008	0.0775	LIN # 1 3	0.100891	0.000141	0.9918	LIN # 1 3 4

40Ar	1σ	r2	
0.104558	0.000153	0.9970	PAR # 1 4 5
0.037601	0.000156	0.8326	LIN # 1 2 5 6
0.095478	0.000072	0.0042	LIN # 1 2 5 6 10
0.221773	0.000098	0.9976	LIN # 1 2 6 7
0.229482	0.000250	0.9610	EXP # 2 7 9
0.119000	0.000026	0.9840	EXP # 4 5 8 10
0.101225	0.000058	0.9583	LIN # 1 3 7
0.077642	0.000089	0.8256	EXP # 1 2 6
0.371436	0.000275	0.9927	LIN # 1
0.683275	0.000502	0.9958	LIN # 3 8

Sample Parameters		Sample	Material
07C868	500 °C	MD06-142	plagioclase
07C869	600 °C	MD06-142	plagioclase
07C870	700 °C	MD06-142	plagioclase
07C871	800 °C	MD06-142	plagioclase
07C872	900 °C	MD06-142	plagioclase
07C873	1000 °C	MD06-142	plagioclase
07C874	1100 °C	MD06-142	plagioclase
07C875	1200 °C	MD06-142	plagioclase
07C876	1300 °C	MD06-142	plagioclase
07C877	1400 °C	MD06-142	plagioclase

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
OR	jh	500	28.03	0.01	0.0015191	0.32
OR	jh	600	28.03	0.01	0.0015191	0.32
OR	jh	700	28.03	0.01	0.0015191	0.32
OR	jh	800	28.03	0.01	0.0015191	0.32
OR	jh	900	28.03	0.01	0.0015191	0.32
OR	jh	1000	28.03	0.01	0.0015191	0.32
OR	jh	1100	28.03	0.01	0.0015191	0.32
OR	jh	1200	28.03	0.01	0.0015191	0.32
OR	jh	1300	28.03	0.01	0.0015191	0.32
OR	jh	1400	28.03	0.01	0.0015191	0.32

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.00378	0.16	1.0144	1.012E-19	28	02	2007	10	29	001	OSU4E06	Camp	FCT-3	07C868
1.00378	0.16	1.0145	1.012E-19	28	02	2007	10	59	001	OSU4E06	Camp	FCT-3	07C869
1.00378	0.16	1.0144	1.012E-19	28	02	2007	11	31	001	OSU4E06	Camp	FCT-3	07C870
1.00378	0.16	1.0146	1.012E-19	28	02	2007	12	03	001	OSU4E06	Camp	FCT-3	07C871
1.00378	0.16	1.0146	1.012E-19	28	02	2007	12	32	001	OSU4E06	Camp	FCT-3	07C872
1.00378	0.16	1.0145	1.012E-19	28	02	2007	13	01	001	OSU4E06	Camp	FCT-3	07C873
1.00378	0.16	1.0145	1.012E-19	28	02	2007	13	32	001	OSU4E06	Camp	FCT-3	07C874
1.00378	0.16	1.0144	1.012E-19	28	02	2007	14	03	001	OSU4E06	Camp	FCT-3	07C875
1.00378	0.16	1.0146	1.012E-19	28	02	2007	14	35	001	OSU4E06	Camp	FCT-3	07C876
1.00378	0.16	1.0146	1.012E-19	28	02	2007	15	02	001	OSU4E06	Camp	FCT-3	07C877

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
500 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
900 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1000 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1100 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1200 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1300 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0

Incremental Heating		
07C868	500 °C	✓
07C869	600 °C	✓
07C870	700 °C	✓
07C871	800 °C	✓
07C872	900 °C	✓
07C873	1000 °C	✓
07C874	1100 °C	✓
07C875	1200 °C	✓
07C876	1300 °C	✓
07C877	1400 °C	✓
		Σ

Information on Analysis

MD06-142
plagioclase
OR
jh

Project = Camp
Irradiation = OSU4E06
J = 0.0015191 ± 0.0000049
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.000264	0.032778	0.000036	0.001896	0.011199	16.12 ± 7.01	12.54	0.75	0.025 ± 0.001	07C868	500 °C
0.000029	0.043851	0.000022	0.001897	0.012903	18.54 ± 7.97	60.36	0.75	0.019 ± 0.001	07C869	600 °C
0.000065	0.254174	0.000000	0.009725	0.060749	17.04 ± 1.52	75.86	3.87	0.016 ± 0.000	07C870	700 °C
0.000138	0.741092	0.000000	0.027310	0.167302	16.71 ± 0.54	80.34	10.86	0.016 ± 0.000	07C871	800 °C
0.000132	0.815519	0.000000	0.030083	0.177160	16.07 ± 0.57	82.00	11.96	0.016 ± 0.000	07C872	900 °C
0.000047	0.382479	0.000000	0.014437	0.085950	16.24 ± 1.02	85.99	5.74	0.016 ± 0.000	07C873	1000 °C
0.000066	0.241580	0.000000	0.009903	0.056870	15.67 ± 2.38	74.43	3.94	0.018 ± 0.001	07C874	1100 °C
0.000040	0.142434	0.000000	0.006275	0.034597	15.05 ± 2.13	74.40	2.49	0.019 ± 0.001	07C875	1200 °C
0.000082	1.335723	0.000000	0.050633	0.311062	16.76 ± 0.31	92.80	20.13	0.016 ± 0.000	07C876	1300 °C
0.000107	2.658244	0.000000	0.099403	0.610063	16.74 ± 0.27	95.06	39.51	0.016 ± 0.000	07C877	1400 °C
0.000970	6.647874	0.000058	0.251560	1.527855						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	6.1047 ± 0.0655 ± 1.07%	16.65 ± 0.21 ± 1.24%	1.03	100.00 10	0.017 ± 0.001	No Convergence
		External Error ± 0.34	2.26	Statistical T Ratio		
		Analytical Error ± 0.18	1.0131	Error Magnification		
Total Fusion Age	6.0735 ± 0.0810 ± 1.33%	16.57 ± 0.24 ± 1.47%		10	0.000 ± 0.000	Statistics
		External Error ± 0.36				
		Analytical Error ± 0.22				

	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
✓	7.2 ± 0.5	337.9 ± 21.1	0.9488
✓	66.2 ± 43.5	745.6 ± 490.0	0.9995
✓	148.7 ± 41.6	1224.5 ± 342.4	0.9994
✓	197.3 ± 25.9	1503.9 ± 197.2	0.9992
✓	228.7 ± 37.0	1642.3 ± 265.7	0.9996
✓	305.0 ± 118.3	2111.1 ± 818.8	1.0000
✓	149.8 ± 64.8	1156.0 ± 500.4	0.9981
✓	155.9 ± 64.3	1154.8 ± 476.3	0.9998
✓	621.0 ± 132.5	4110.8 ± 877.2	0.9994
✓	930.4 ± 281.4	6005.5 ± 1816.0	0.9999

Inverse Isochron			39(k)/40(a+r) ± 2σ
07C868	500 °C	✓	0.021232 ± 0.000441
07C869	600 °C	✓	0.088765 ± 0.001776
07C870	700 °C	✓	0.121449 ± 0.001129
07C871	800 °C	✓	0.131163 ± 0.000698
07C872	900 °C	✓	0.139251 ± 0.000600
07C873	1000 °C	✓	0.144455 ± 0.000520
07C874	1100 °C	✓	0.129621 ± 0.003484
07C875	1200 °C	✓	0.134962 ± 0.001024
07C876	1300 °C	✓	0.151073 ± 0.001144
07C877	1400 °C	✓	0.154921 ± 0.000723

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
288.2885 ± 20.9596 ± 7.27%	6.0913 ± 0.0995 ± 1.63%	16.62 ± 0.29 ± 1.75%	1.52
		External Error ± 0.39	
		Analytical Error ± 0.27	

Statistical F Ratio	1.94	Convergence	0.0000362246
Error Magnification	1.2342	Number of Iterations	500
n	10	Calculated Line	Weighted York-2

Results	40(a)/36(a) ± 2σ
Isochron	291.0095 ± 17.8370 ± 6.13%

Statistics		
Statistical F Ratio	1.94	
Error Magnification	1.0579	
n	10	

36(a)/40(a+r) ± 2σ	r.i.
0.002960 ± 0.000185	0.0101
0.001341 ± 0.000881	0.0182
0.000817 ± 0.000228	0.0018
0.000665 ± 0.000087	0.0016
0.000609 ± 0.000099	0.0082
0.000474 ± 0.000184	0.0008
0.000865 ± 0.000374	0.0573
0.000866 ± 0.000357	0.0055
0.000243 ± 0.000052	0.0231
0.000167 ± 0.000050	0.0019

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
6.1149 ± 0.0786 ± 1.29%	16.68 ± 0.24 ± 1.43%	1.12
	External Error ± 0.36	
	Analytical Error ± 0.21	

Convergence	0.0000001040
Number of Iterations	4
Calculated Line	Weighted York-2

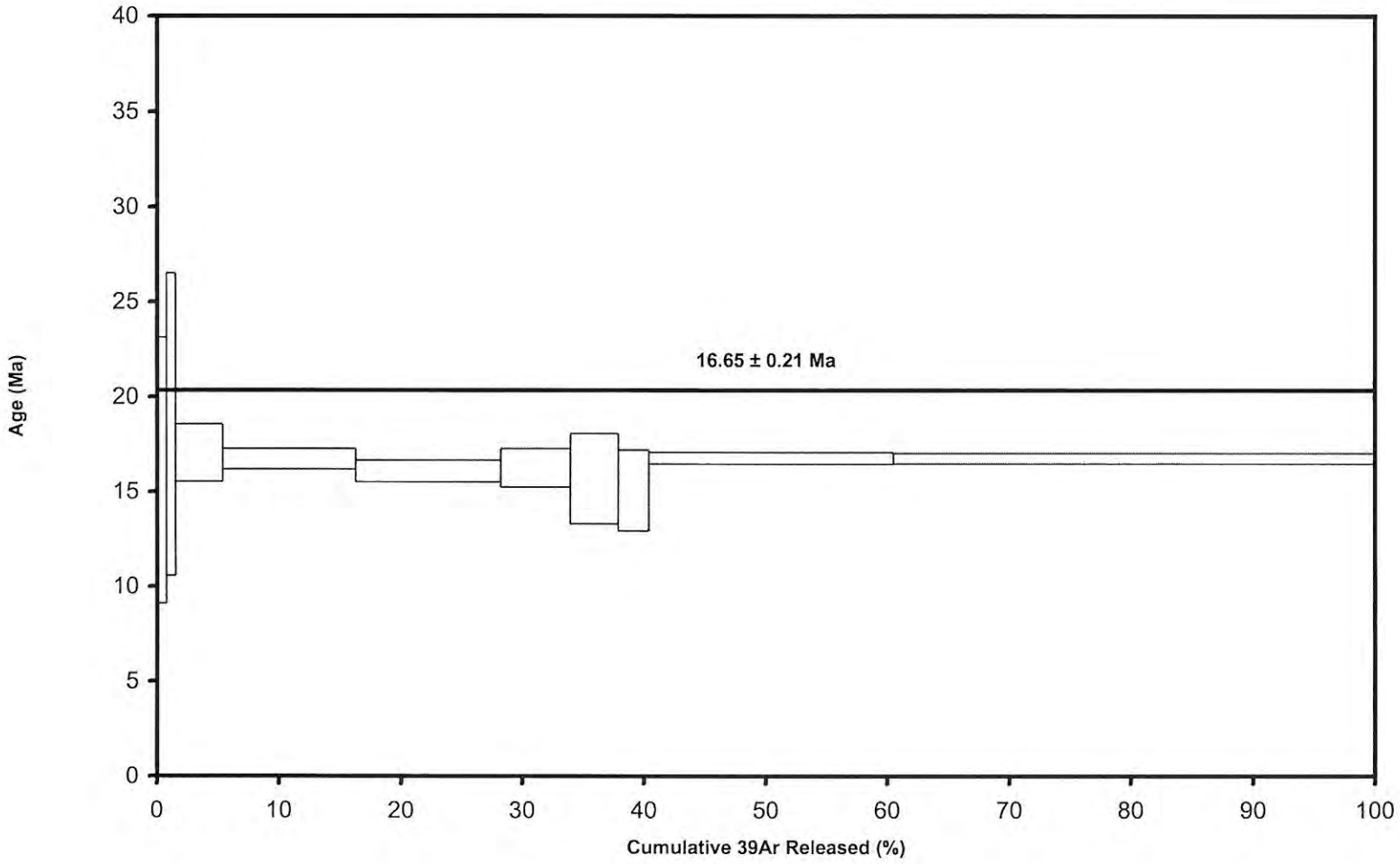
Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
07C868	500 °C	✓	0.000264	0.000000	0.000009	0.000000
07C869	600 °C	✓	0.000029	0.000000	0.000012	0.000000
07C870	700 °C	✓	0.000065	0.000000	0.000067	0.000000
07C871	800 °C	✓	0.000138	0.000000	0.000196	0.000000
07C872	900 °C	✓	0.000132	0.000000	0.000215	0.000000
07C873	1000 °C	✓	0.000047	0.000000	0.000101	0.000000
07C874	1100 °C	✓	0.000066	0.000000	0.000064	0.000000
07C875	1200 °C	✓	0.000040	0.000000	0.000038	0.000000
07C876	1300 °C	✓	0.000082	0.000000	0.000353	0.000000
07C877	1400 °C	✓	0.000107	0.000000	0.000702	0.000000
		Σ	0.000970	0.000000	0.001755	0.000000
		Σ				0.002725

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.032778	0.000049	0.000000	0.000022	0.000005	0.000036	0.001896	0.000022	0.011199	0.078093	0.000000
0.043851	0.000005	0.000000	0.000022	0.000006	0.000022	0.001897	0.000030	0.012903	0.008471	0.000000
0.254174	0.000012	0.000000	0.000111	0.000035	0.000000	0.009725	0.000171	0.060749	0.019324	0.000000
0.741092	0.000026	0.000000	0.000311	0.000103	0.000000	0.027310	0.000499	0.167302	0.040911	0.000000
0.815519	0.000025	0.000000	0.000342	0.000113	0.000000	0.030083	0.000549	0.177160	0.038871	0.000000
0.382479	0.000009	0.000000	0.000164	0.000053	0.000000	0.014437	0.000257	0.085950	0.013989	0.000000
0.241580	0.000012	0.000000	0.000113	0.000034	0.000000	0.009903	0.000163	0.056870	0.019530	0.000000
0.142434	0.000008	0.000000	0.000071	0.000020	0.000000	0.006275	0.000096	0.034597	0.011897	0.000000
1.335723	0.000015	0.000000	0.000576	0.000186	0.000000	0.050633	0.000899	0.311062	0.024092	0.000000
2.658244	0.000020	0.000000	0.001131	0.000369	0.000000	0.099403	0.001789	0.610063	0.031572	0.000000
6.647874	0.000181	0.000000	0.002863	0.000924	0.000058	0.251560	0.004474	1.527855	0.286748	0.000000
6.647874					0.004026		0.256034			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000002	07C868	500 °C	✓	5.906851	1.29089	0.08929	0.00016	46.55715	0.47791	17.09013	0.30360
0.000002	07C869	600 °C	✓	6.800946	1.46997	0.02137	0.00017	11.09419	0.11027	22.75924	0.37082
0.000010	07C870	700 °C	✓	6.246825	0.27940	0.08007	0.00009	8.09254	0.03693	25.68509	0.38825
0.000028	07C871	800 °C	✓	6.126050	0.09957	0.20821	0.00011	7.48834	0.01947	26.64971	0.39099
0.000030	07C872	900 °C	✓	5.889130	0.10541	0.21603	0.00026	7.05359	0.01490	26.62361	0.38773
0.000015	07C873	1000 °C	✓	5.953590	0.18823	0.09994	0.00005	6.80228	0.01193	26.02934	0.38046
0.000010	07C874	1100 °C	✓	5.742696	0.43807	0.07640	0.00099	7.59119	0.10187	24.00040	0.36183
0.000006	07C875	1200 °C	✓	5.513531	0.39168	0.04649	0.00010	7.29898	0.02734	22.35775	0.33328
0.000051	07C876	1300 °C	✓	6.143496	0.05633	0.33515	0.00102	6.50484	0.02442	25.92041	0.37991
0.000100	07C877	1400 °C	✓	6.137300	0.05013	0.64164	0.00052	6.34179	0.01447	26.26942	0.38510
0.000254											
1.814857											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
0.14230	0.00454	3.89937299	1.00048624	9.036E-21
0.02089	0.00489	3.90097791	1.00048639	2.163E-21
0.01339	0.00092	3.90269055	1.00048655	8.104E-21
0.01201	0.00031	3.90440395	1.00048670	2.107E-20
0.01132	0.00033	3.90595737	1.00048685	2.187E-20
0.01009	0.00062	3.90751140	1.00048699	1.012E-20
0.01290	0.00142	3.90917329	1.00048714	7.733E-21
0.01222	0.00130	3.91083589	1.00048729	4.706E-21
0.00843	0.00014	3.91255286	1.00048745	3.392E-20
0.00799	0.00013	3.91400215	1.00048758	6.494E-20

07C868.AGE >>> MD06-142 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.65 ± 0.21
TOTAL FUSION
16.57 ± 0.24
NORMAL ISOCHRON
16.62 ± 0.29
INVERSE ISOCHRON
16.68 ± 0.24

MSWD
1.03

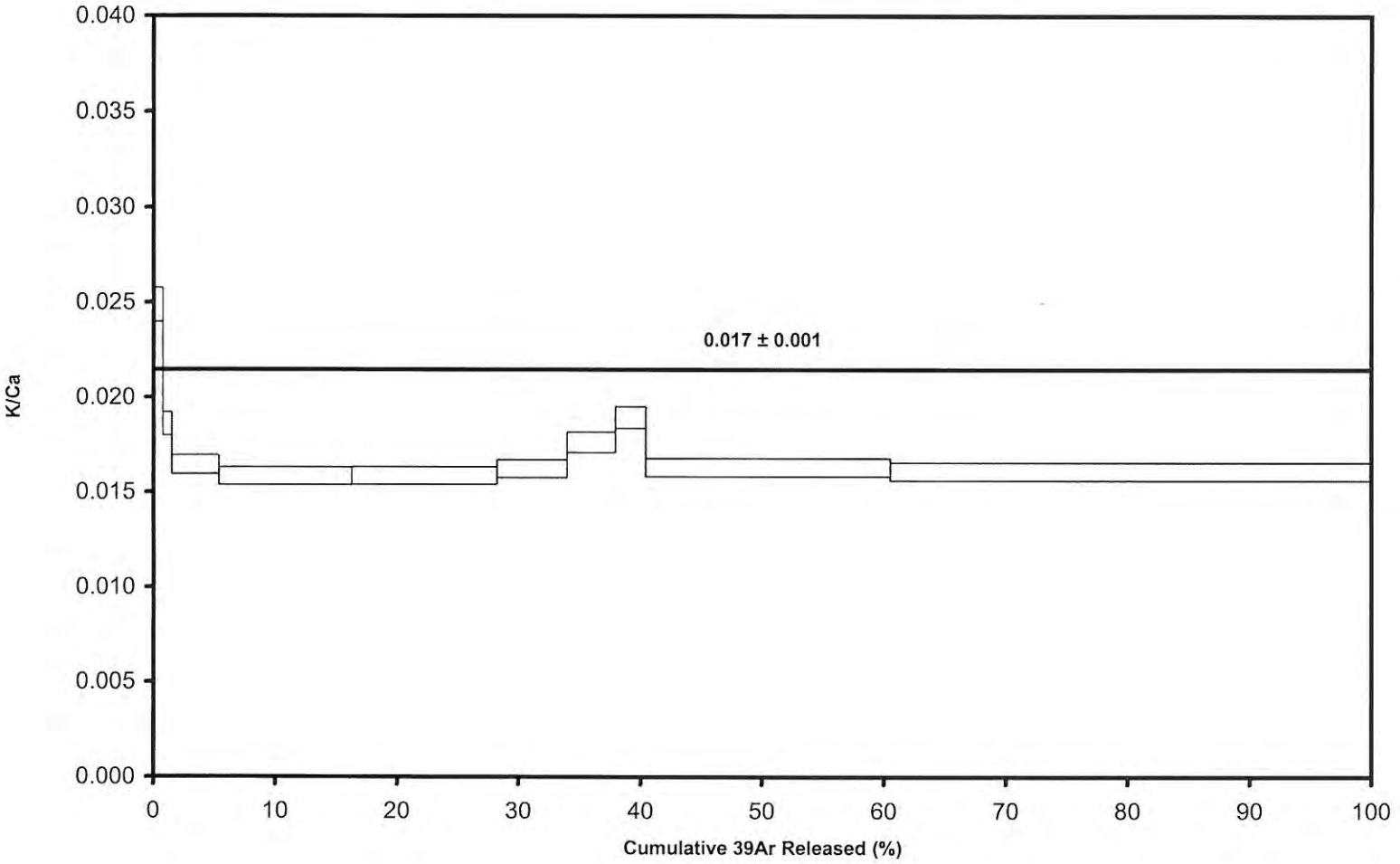
Sample Info

plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015191 ±

DR20132 50 Camp

07C868.AGE >>> MD06-142 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.65 ± 0.21
TOTAL FUSION
16.57 ± 0.24
NORMAL ISOCHRON
16.62 ± 0.29
INVERSE ISOCHRON
16.68 ± 0.24

Sample Info

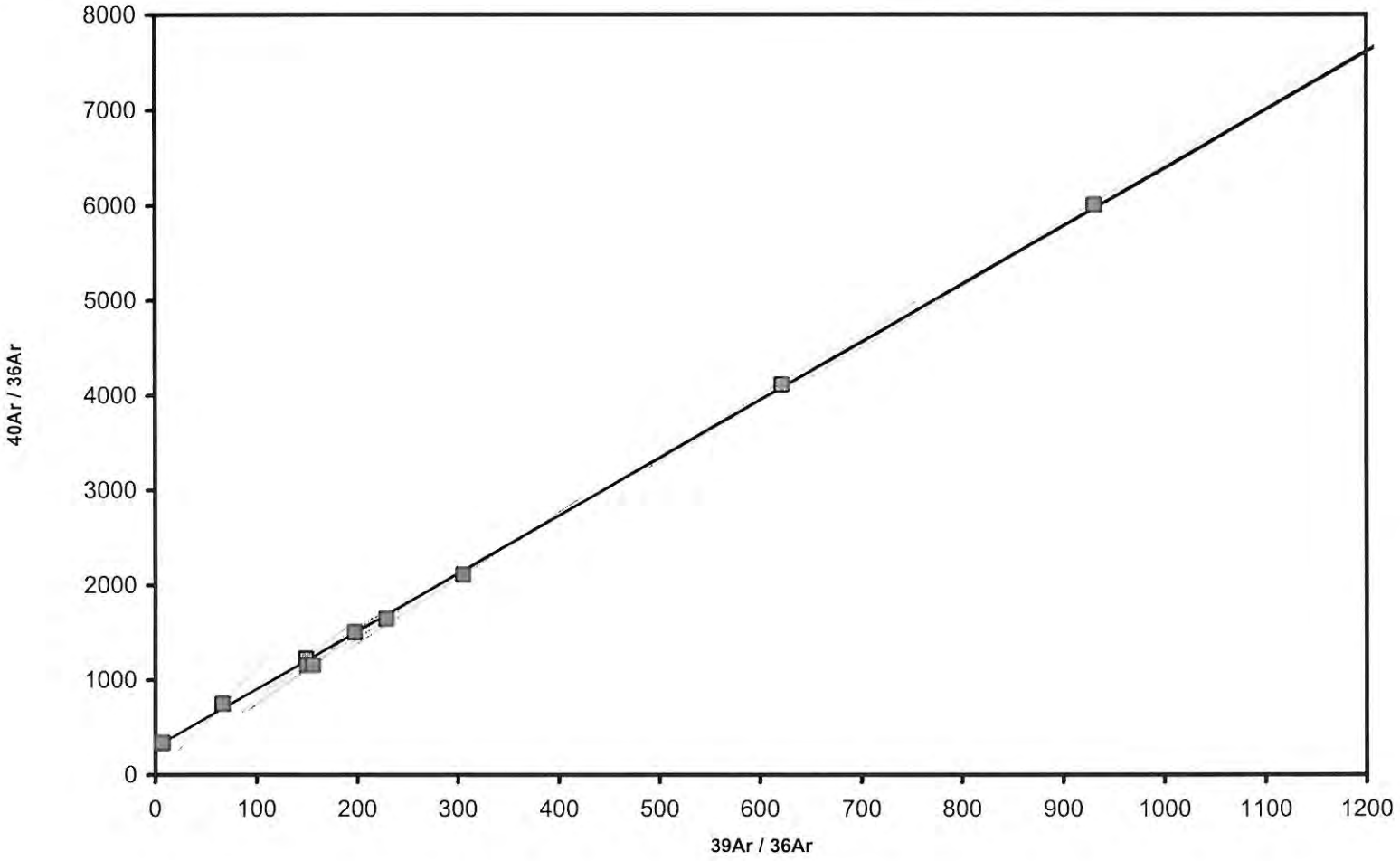
plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015191 ±

DR20132[illegible]0 Camp

120

07C868.AGE >>> MD06-142 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.65 ± 0.21
TOTAL FUSION
16.57 ± 0.24
NORMAL ISOCHRON
16.62 ± 0.29
INVERSE ISOCHRON
16.68 ± 0.24

MSWD
1.52

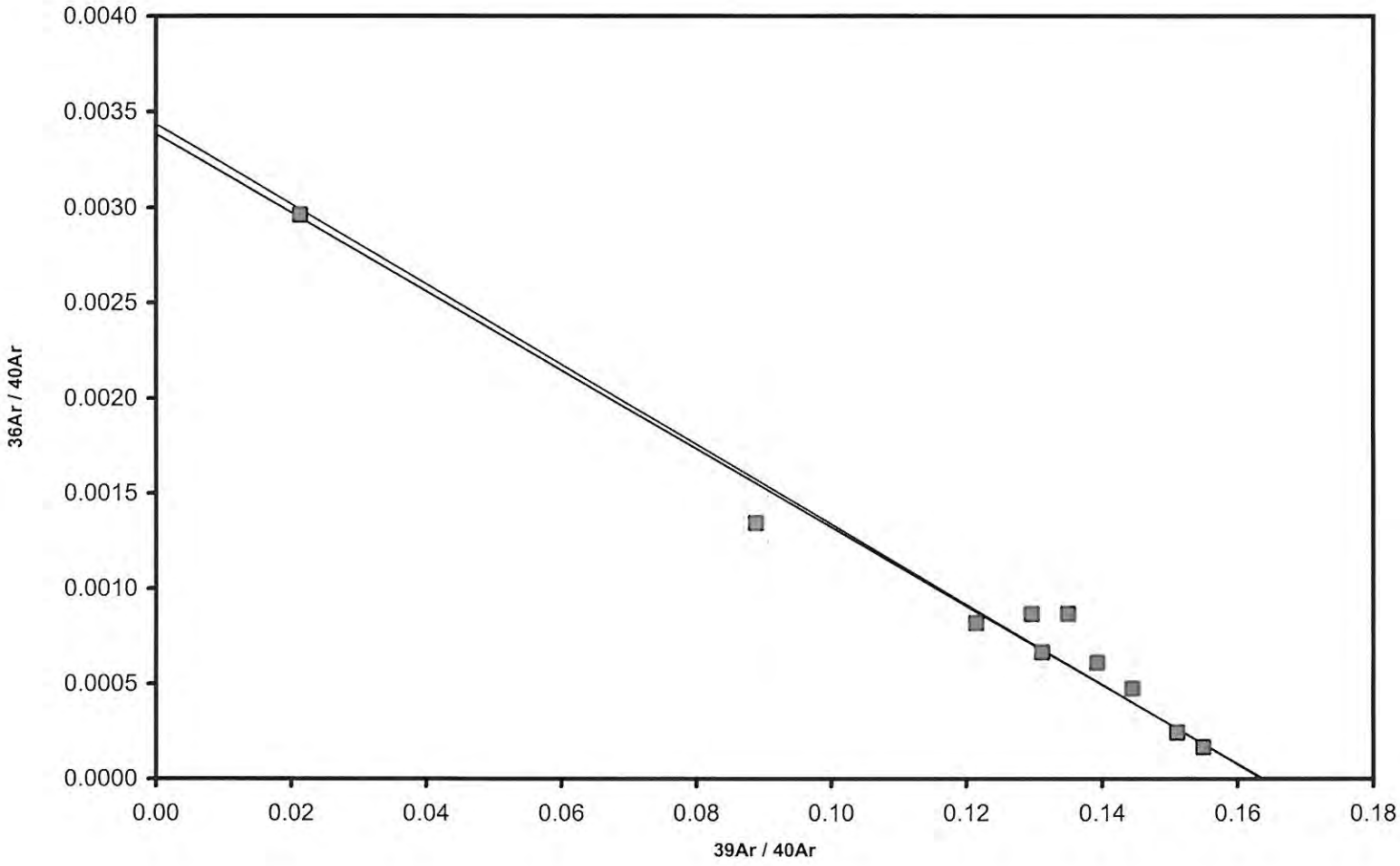
Sample Info

plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015191 ±

DR20132 50 Camp

07C868.AGE >>> MD06-142 >>> CAMP PROJECT



Ar-Ages in Ma

WEIGHTED PLATEAU
16.65 ± 0.21
TOTAL FUSION
16.57 ± 0.24
NORMAL ISOCHRON
16.62 ± 0.29
INVERSE ISOCHRON
16.68 ± 0.24

MSWD
1.12

Sample Info

plagioclase
OR
jh

IRR = OSU4E06
J = 0.0015191 ±

DR20132 50 Camp

Age Data - Sampl MF94-63

Procedure Blanks		36Ar	1σ	37Ar	1σ	38Ar	1σ	39Ar	1σ	40Ar	1σ
07C1767	400 °C	0.000022	0.000001	0.000019	0.000005	0.000014	0.000002	0.000025	0.000007	0.006982	0.000047
07C1768	500 °C	0.000032	0.000004	0.000013	0.000015	0.000013	0.000006	0.000031	0.000006	0.007600	0.000611
07C1769	600 °C	0.000034	0.000004	0.000012	0.000015	0.000013	0.000006	0.000034	0.000006	0.007837	0.000611
07C1771	700 °C	0.000037	0.000004	0.000014	0.000015	0.000013	0.000006	0.000044	0.000006	0.008228	0.000611
07C1772	800 °C	0.000038	0.000004	0.000018	0.000015	0.000013	0.000006	0.000049	0.000006	0.008390	0.000611
07C1773	875 °C	0.000037	0.000004	0.000022	0.000015	0.000012	0.000006	0.000054	0.000006	0.008522	0.000611
07C1775	950 °C	0.000036	0.000004	0.000037	0.000015	0.000012	0.000006	0.000066	0.000006	0.008728	0.000611
07C1776	1025 °C	0.000035	0.000004	0.000047	0.000015	0.000012	0.000006	0.000071	0.000006	0.008787	0.000611
07C1777	1100 °C	0.000034	0.000004	0.000058	0.000015	0.000012	0.000006	0.000075	0.000006	0.008823	0.000611
07C1779	1200 °C	0.000033	0.000004	0.000084	0.000015	0.000011	0.000006	0.000083	0.000006	0.008822	0.000611
07C1780	1300 °C	0.000032	0.000004	0.000099	0.000015	0.000011	0.000006	0.000086	0.000006	0.008784	0.000611
07C1782	1400 °C	0.000033	0.000004	0.000110	0.000006	0.000012	0.000004	0.000088	0.000005	0.009018	0.000049

These calculations are all relative to the FCT-3 biotite monitor age at 28.0 Ma, and have not yet been recalculated to the new 28.201 Ma mor

Intercept Values		36Ar	1σ	r2		37Ar	1σ	r2	
07C1767	400 °C	0.000219	0.000005	0.0916	LIN # 1	0.000222	0.000006	0.0089	LIN # 6
07C1768	500 °C	0.000179	0.000004	0.2786	LIN #	0.001288	0.000016	0.6376	LIN #
07C1769	600 °C	0.000456	0.000002	0.8437	LIN #	0.009135	0.000132	0.8789	EXP # 2 3 4 6
07C1771	700 °C	0.000260	0.000006	0.0011	LIN # 10	0.019542	0.000111	0.9371	EXP # 8
07C1772	800 °C	0.000345	0.000004	0.6099	LIN # 1 2 10	0.035641	0.000183	0.9790	LIN # 2 3 6
07C1773	875 °C	0.000230	0.000003	0.5972	LIN # 1	0.029982	0.000180	0.9242	EXP #
07C1775	950 °C	0.000297	0.000006	0.0657	LIN #	0.039377	0.000302	0.9552	LIN # 2 3 6 8
07C1776	1025 °C	0.000294	0.000004	0.0384	LIN #	0.041970	0.000161	0.9657	EXP # 8
07C1777	1100 °C	0.000384	0.000007	0.0317	LIN #	0.041227	0.000115	0.9873	EXP # 2 4 5
07C1779	1200 °C	0.000391	0.000006	0.4847	LIN #	0.058003	0.000220	0.9670	EXP #
07C1780	1300 °C	0.000253	0.000004	0.5367	LIN # 9	0.036421	0.000184	0.9447	LIN #
07C1782	1400 °C	0.000165	0.000006	0.0203	LIN #	0.017910	0.000088	0.9546	LIN # 1

nitor age of Kuiper et al.(2008).

38Ar	1σ	r2		39Ar	1σ	r2	
0.000044	0.000004	0.6136	LIN # 3 5	0.000221	0.000008	0.9935	LIN #
0.000051	0.000005	0.0238	LIN #	0.000816	0.000008	0.9939	LIN #
0.000142	0.000006	0.0206	LIN #	0.004454	0.000026	0.8977	LIN #
0.000168	0.000005	0.6923	LIN # 1 9	0.009133	0.000018	0.5486	LIN # 3 9
0.000237	0.000003	0.8121	LIN # 3 6	0.016390	0.000061	0.9590	LIN # 1 2 3 4 5 10
0.000190	0.000006	0.4845	LIN # 4	0.013643	0.000035	0.8020	LIN # 1
0.000264	0.000006	0.0815	LIN # 2 9	0.017873	0.000020	0.9871	LIN # 1 4 7
0.000263	0.000009	0.0543	LIN #	0.018844	0.000017	0.9876	LIN # 1 5
0.000299	0.000004	0.7108	LIN # 5 6 7	0.018607	0.000035	0.9471	EXP # 2 6 9
0.000362	0.000005	0.0000	LIN #	0.025652	0.000042	0.9739	EXP # 1 6
0.000228	0.000006	0.1139	LIN #	0.016339	0.000049	0.9184	LIN # 1 2 3 7
0.000122	0.000006	0.0297	LIN #	0.008195	0.000032	0.5467	LIN # 1 7

40Ar	1σ	r2		Sample Parameters		Sample	Material
0.065992	0.000032	0.9613	LIN # 1 5 6 8 10	07C1767	400 °C	MF9463	plagioclase
0.055605	0.000110	0.9390	LIN # 1 9	07C1768	500 °C	MF9463	plagioclase
0.148620	0.000254	0.9291	LIN # 4	07C1769	600 °C	MF9463	plagioclase
0.110244	0.000092	0.9845	LIN # 1 2 6 8	07C1771	700 °C	MF9463	plagioclase
0.166650	0.000076	0.9944	LIN # 6	07C1772	800 °C	MF9463	plagioclase
0.120937	0.000203	0.8823	LIN # 1 2	07C1773	875 °C	MF9463	plagioclase
0.157100	0.000135	0.9877	LIN # 1 4 5 7	07C1775	950 °C	MF9463	plagioclase
0.157501	0.000233	0.9712	LIN # 1 2 3 6	07C1776	1025 °C	MF9463	plagioclase
0.184830	0.000141	0.9875	LIN # 1 7	07C1777	1100 °C	MF9463	plagioclase
0.209549	0.000165	0.9936	LIN # 1 3 8 9	07C1779	1200 °C	MF9463	plagioclase
0.138127	0.000117	0.9754	LIN # 1 2 3	07C1780	1300 °C	MF9463	plagioclase
0.079693	0.000028	0.9399	LIN # 3 4 5 7	07C1782	1400 °C	MF9463	plagioclase

Location	Analyst	Temp	Standard (in Ma)	%1σ	J	%1σ
Steens	jh	400	28.03	0.01	0.0014714	0.42
Steens	jh	500	28.03	0.01	0.0014714	0.42
Steens	jh	600	28.03	0.01	0.0014714	0.42
Steens	jh	700	28.03	0.01	0.0014714	0.42
Steens	jh	800	28.03	0.01	0.0014714	0.42
Steens	jh	875	28.03	0.01	0.0014714	0.42
Steens	jh	950	28.03	0.01	0.0014714	0.42
Steens	jh	1025	28.03	0.01	0.0014714	0.42
Steens	jh	1100	28.03	0.01	0.0014714	0.42
Steens	jh	1200	28.03	0.01	0.0014714	0.42
Steens	jh	1300	28.03	0.01	0.0014714	0.42
Steens	jh	1400	28.03	0.01	0.0014714	0.42

MDF	%1σ	Volume Ratio	Sensitivity (mol/vol)	Day	Month	Year	Hour	Min	Resist	Irradiation	Project	Standard Name	Irradiation Constants
1.00378	0.16	1.0149	1.012E-19	27	04	2007	09	03	001	OSU4E06	HLP	FCT-3	07C1767
1.00378	0.16	1.015	1.012E-19	27	04	2007	09	28	001	OSU4E06	HLP	FCT-3	07C1768
1.00378	0.16	1.0148	1.012E-19	27	04	2007	09	53	001	OSU4E06	HLP	FCT-3	07C1769
1.00378	0.16	1.0153	1.012E-19	27	04	2007	10	42	001	OSU4E06	HLP	FCT-3	07C1771
1.00378	0.16	1.0156	1.012E-19	27	04	2007	11	07	001	OSU4E06	HLP	FCT-3	07C1772
1.00378	0.16	1.0157	1.012E-19	27	04	2007	11	31	001	OSU4E06	HLP	FCT-3	07C1773
1.00378	0.16	1.0158	1.012E-19	27	04	2007	12	23	001	OSU4E06	HLP	FCT-3	07C1775
1.00378	0.16	1.0157	1.012E-19	27	04	2007	12	47	001	OSU4E06	HLP	FCT-3	07C1776
1.00378	0.16	1.0157	1.012E-19	27	04	2007	13	12	001	OSU4E06	HLP	FCT-3	07C1777
1.00378	0.16	1.0158	1.012E-19	27	04	2007	14	01	001	OSU4E06	HLP	FCT-3	07C1779
1.00378	0.16	1.0157	1.012E-19	27	04	2007	14	26	001	OSU4E06	HLP	FCT-3	07C1780
1.00378	0.16	1.0156	1.012E-19	27	04	2007	15	15	001	OSU4E06	HLP	FCT-3	07C1782

	40/36(a)	%1σ	40/36(c)	%1σ	38/36(a)	%1σ	38/36(c)	%1σ	39/37(ca)	%1σ	38/37(ca)	%1σ	36/37(ca)	%1σ
400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
500 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
600 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
700 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
800 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
875 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
950 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1025 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1100 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1200 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1300 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0
1400 °C	295.5	0	0.018	35	0.1869	0	1.493	3	0.000673	0	0.000139	0	0.000264	0

40/39(k)	%1σ	38/39(k)	%1σ	36/38(cl)	%1σ	K/Ca	%1σ	K/Cl	%1σ	Ca/Cl	%1σ	Incremental Heating		
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1767	400 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1768	500 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1769	600 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1771	700 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1772	800 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1773	875 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1775	950 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1776	1025 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1777	1100 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1779	1200 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1780	1300 °C	✓
0.00101	0	0.01138	0	0	0	0.43	0	0	0	0	0	07C1782	1400 °C	✓
														Σ

Information on Analysis

MF9463
plagioclase
Steens
jh

Project = HLP
Irradiation = OSU4E06
J = 0.0014714 ± 0.0000062
FCT-3 = 28.030 ± 0.003 Ma

36Ar(a)	37Ar(ca)	38Ar(cl)	39Ar(k)	40Ar(r)	Age ± 2σ (Ma)	40Ar(r) (%)	39Ar(k) (%)	K/Ca ± 2σ	Normal Isochron	
0.000197	0.002496	0.000000	0.000197	0.001884	25.27 ± 41.09	3.14	0.13	0.034 ± 0.005	07C1767	400 °C
0.000144	0.015677	0.000000	0.000785	0.006425	21.59 ± 11.52	13.16	0.53	0.022 ± 0.001	07C1768	500 °C
0.000393	0.112185	0.000000	0.004397	0.026907	16.17 ± 1.94	18.82	2.96	0.017 ± 0.001	07C1769	600 °C
0.000160	0.240412	0.000000	0.009041	0.056508	16.52 ± 1.25	54.49	6.08	0.016 ± 0.001	07C1771	700 °C
0.000193	0.438856	0.000000	0.016253	0.103889	16.89 ± 0.69	64.58	10.94	0.016 ± 0.001	07C1772	800 °C
0.000096	0.369239	0.000000	0.013515	0.085882	16.79 ± 0.69	75.13	9.09	0.016 ± 0.001	07C1773	875 °C
0.000133	0.485238	0.000000	0.017711	0.111415	16.62 ± 0.75	73.86	11.92	0.016 ± 0.001	07C1775	950 °C
0.000123	0.517235	0.000000	0.018666	0.114823	16.26 ± 0.59	75.95	12.56	0.016 ± 0.001	07C1776	1025 °C
0.000217	0.508110	0.000000	0.018428	0.114751	16.45 ± 0.76	64.14	12.40	0.016 ± 0.001	07C1777	1100 °C
0.000170	0.715387	0.000000	0.025418	0.153750	15.99 ± 0.55	75.35	17.10	0.015 ± 0.001	07C1779	1200 °C
0.000103	0.448745	0.000000	0.016160	0.101040	16.52 ± 0.69	76.83	10.87	0.015 ± 0.001	07C1780	1300 °C
0.000075	0.220048	0.000000	0.008064	0.049887	16.35 ± 1.44	69.37	5.43	0.016 ± 0.001	07C1782	1400 °C
0.002003	4.073627	0.000000	0.148635	0.927161						

Results	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%,n)	K/Ca ± 2σ	Results
Weighted Plateau	6.2256 ± 0.0912 ± 1.46%	16.45 ± 0.28 ± 1.68%	0.65	100.00 12	0.016 ± 0.001	Isochron
		External Error ± 0.38	2.20	Statistical T Ratio		
		Analytical Error ± 0.24	1.0000	Error Magnification		
Total Fusion Age	6.2378 ± 0.0993 ± 1.59%	16.48 ± 0.30 ± 1.79%		12	0.000 ± 0.000	Statistics
		External Error ± 0.39				
		Analytical Error ± 0.26				

	39(k)/36(a) ± 2σ	40(a+r)/36(a) ± 2σ	r.i.
✓	1.0 ± 0.1	305.1 ± 16.2	0.4345
✓	5.5 ± 0.4	340.3 ± 27.2	0.8984
✓	11.2 ± 0.3	364.0 ± 9.8	0.8404
✓	56.6 ± 4.9	649.4 ± 57.0	0.9888
✓	84.3 ± 5.9	834.5 ± 58.6	0.9870
✓	140.5 ± 16.0	1188.5 ± 135.9	0.9936
✓	132.8 ± 16.3	1130.7 ± 139.4	0.9972
✓	151.8 ± 16.6	1229.1 ± 134.5	0.9962
✓	84.9 ± 6.8	824.2 ± 66.3	0.9941
✓	149.4 ± 15.3	1199.4 ± 123.2	0.9971
✓	156.8 ± 20.4	1275.9 ± 166.2	0.9959
✓	108.2 ± 21.6	964.9 ± 192.1	0.9990

Inverse Isochron			39(k)/40(a+r) ± 2σ
07C1767	400 °C	✓	0.003276 ± 0.000359
07C1768	500 °C	✓	0.016076 ± 0.000579
07C1769	600 °C	✓	0.030753 ± 0.000480
07C1771	700 °C	✓	0.087189 ± 0.001140
07C1772	800 °C	✓	0.101051 ± 0.001147
07C1773	875 °C	✓	0.118240 ± 0.001528
07C1775	950 °C	✓	0.117422 ± 0.001092
07C1776	1025 °C	✓	0.123479 ± 0.001176
07C1777	1100 °C	✓	0.103012 ± 0.000900
07C1779	1200 °C	✓	0.124590 ± 0.000980
07C1780	1300 °C	✓	0.122897 ± 0.001456
07C1782	1400 °C	✓	0.112135 ± 0.001007

40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
297.5164 ± 7.4033 ± 2.49%	6.1912 ± 0.1164 ± 1.88%	16.36 ± 0.34 ± 2.05%	0.70
		External Error ± 0.42	
		Analytical Error ± 0.31	

Statistical F Ratio	1.83	Convergence	0.0000000583
Error Magnification	1.0000	Number of Iterations	84
n	12	Calculated Line	Weighted York-2

Results	40(a)/36(a) ± 2σ
Isochron	297.4371 ± 7.4258 ± 2.50%

Statistics		
Statistical F Ratio	1.83	
Error Magnification	1.0000	
n	12	

36(a)/40(a+r) ± 2σ	r.i.
0.003278 ± 0.000174	0.0006
0.002939 ± 0.000235	0.2249
0.002747 ± 0.000074	0.2051
0.001540 ± 0.000135	0.1239
0.001198 ± 0.000084	0.0736
0.000841 ± 0.000096	0.0863
0.000884 ± 0.000109	0.0602
0.000814 ± 0.000089	0.0722
0.001213 ± 0.000098	0.0701
0.000834 ± 0.000086	0.0478
0.000784 ± 0.000102	0.0582
0.001036 ± 0.000206	0.0014

40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD
6.2072 ± 0.1168 ± 1.88%	16.40 ± 0.34 ± 2.05%	0.69
	External Error ± 0.43	
	Analytical Error ± 0.31	

Convergence	0.0000000684
Number of Iterations	5
Calculated Line	Weighted York-2

Degassing Patterns			36Ar(a)	36Ar(c)	36Ar(ca)	36Ar(cl)
07C1767	400 °C	✓	0.000197	0.000000	0.000001	0.000000
07C1768	500 °C	✓	0.000144	0.000000	0.000004	0.000000
07C1769	600 °C	✓	0.000393	0.000000	0.000030	0.000000
07C1771	700 °C	✓	0.000160	0.000000	0.000063	0.000000
07C1772	800 °C	✓	0.000193	0.000000	0.000116	0.000000
07C1773	875 °C	✓	0.000096	0.000000	0.000097	0.000000
07C1775	950 °C	✓	0.000133	0.000000	0.000128	0.000000
07C1776	1025 °C	✓	0.000123	0.000000	0.000137	0.000000
07C1777	1100 °C	✓	0.000217	0.000000	0.000134	0.000000
07C1779	1200 °C	✓	0.000170	0.000000	0.000189	0.000000
07C1780	1300 °C	✓	0.000103	0.000000	0.000118	0.000000
07C1782	1400 °C	✓	0.000075	0.000000	0.000058	0.000000
		Σ	0.002003	0.000000	0.001075	0.000000
		Σ				0.003078

37Ar(ca)	38Ar(a)	38Ar(c)	38Ar(k)	38Ar(ca)	38Ar(cl)	39Ar(k)	39Ar(ca)	40Ar(r)	40Ar(a)	40Ar(c)
0.002496	0.000037	0.000000	0.000002	0.000000	0.000000	0.000197	0.000002	0.001884	0.058109	0.000000
0.015677	0.000027	0.000000	0.000009	0.000002	0.000000	0.000785	0.000011	0.006425	0.042414	0.000000
0.112185	0.000073	0.000000	0.000050	0.000016	0.000000	0.004397	0.000076	0.026907	0.116071	0.000000
0.240412	0.000030	0.000000	0.000103	0.000033	0.000000	0.009041	0.000162	0.056508	0.047186	0.000000
0.438856	0.000036	0.000000	0.000185	0.000061	0.000000	0.016253	0.000295	0.103889	0.056955	0.000000
0.369239	0.000018	0.000000	0.000154	0.000051	0.000000	0.013515	0.000248	0.085882	0.028418	0.000000
0.485238	0.000025	0.000000	0.000202	0.000067	0.000000	0.017711	0.000327	0.111415	0.039421	0.000000
0.517235	0.000023	0.000000	0.000212	0.000072	0.000000	0.018666	0.000348	0.114823	0.036345	0.000000
0.508110	0.000041	0.000000	0.000210	0.000071	0.000000	0.018428	0.000342	0.114751	0.064139	0.000000
0.715387	0.000032	0.000000	0.000289	0.000099	0.000000	0.025418	0.000481	0.153750	0.050263	0.000000
0.448745	0.000019	0.000000	0.000184	0.000062	0.000000	0.016160	0.000302	0.101040	0.030455	0.000000
0.220048	0.000014	0.000000	0.000092	0.000031	0.000000	0.008064	0.000148	0.049887	0.022023	0.000000
4.073627	0.000374	0.000000	0.001691	0.000566	0.000000	0.148635	0.002742	0.927161	0.591799	0.000000
4.073627					0.002632		0.151377			

40Ar(k)	Additional Parameters			40(r)/39(k)	1σ	40(r+a)	1σ	40Ar/39Ar	1σ	37Ar/39Ar	1σ
0.000000	07C1767	400 °C	✓	9.585385	7.84835	0.05999	0.00006	302.63936	16.45201	12.59057	0.88440
0.000001	07C1768	500 °C	✓	8.183220	2.19654	0.04884	0.00062	61.38114	1.09801	19.70225	0.65034
0.000004	07C1769	600 °C	✓	6.119387	0.36781	0.14298	0.00066	31.96914	0.24638	25.08323	0.75313
0.000009	07C1771	700 °C	✓	6.250221	0.23761	0.10369	0.00062	11.26871	0.07328	26.12388	0.68642
0.000016	07C1772	800 °C	✓	6.391818	0.13089	0.16084	0.00062	9.72040	0.05444	26.51895	0.69876
0.000014	07C1773	875 °C	✓	6.354648	0.13031	0.11430	0.00065	8.30569	0.05329	26.82779	0.70818
0.000018	07C1775	950 °C	✓	6.290554	0.14201	0.15084	0.00063	8.36308	0.03851	26.90086	0.71927
0.000019	07C1776	1025 °C	✓	6.151429	0.11250	0.15117	0.00066	7.95126	0.03754	27.20254	0.70422
0.000019	07C1777	1100 °C	✓	6.227085	0.14451	0.17889	0.00063	9.53176	0.04112	27.07070	0.69878
0.000026	07C1779	1200 °C	✓	6.048872	0.10542	0.20401	0.00063	7.87810	0.03054	27.62178	0.71618
0.000016	07C1780	1300 °C	✓	6.252341	0.13023	0.13150	0.00062	7.98861	0.04685	27.25878	0.71627
0.000008	07C1782	1400 °C	✓	6.186635	0.27340	0.07191	0.00006	8.75801	0.03844	26.79690	0.70699
0.000150											
1.519110											

36Ar/39Ar	1σ	37Ar (decay)	39Ar (decay)	40Ar (moles)
0.99532	0.06013	12.24664637	1.00089535	6.071E-21
0.18559	0.00722	12.25084667	1.00089547	4.943E-21
0.09445	0.00124	12.25504841	1.00089560	1.447E-20
0.02425	0.00074	12.26328800	1.00089584	1.049E-20
0.01865	0.00037	12.26749401	1.00089596	1.628E-20
0.01407	0.00035	12.27153313	1.00089608	1.157E-20
0.01450	0.00041	12.28028913	1.00089633	1.527E-20
0.01365	0.00030	12.28433247	1.00089645	1.530E-20
0.01871	0.00043	12.28854569	1.00089657	1.811E-20
0.01386	0.00028	12.29680781	1.00089681	2.065E-20
0.01346	0.00036	12.30102531	1.00089694	1.331E-20
0.01615	0.00089	12.30929581	1.00089718	7.278E-21

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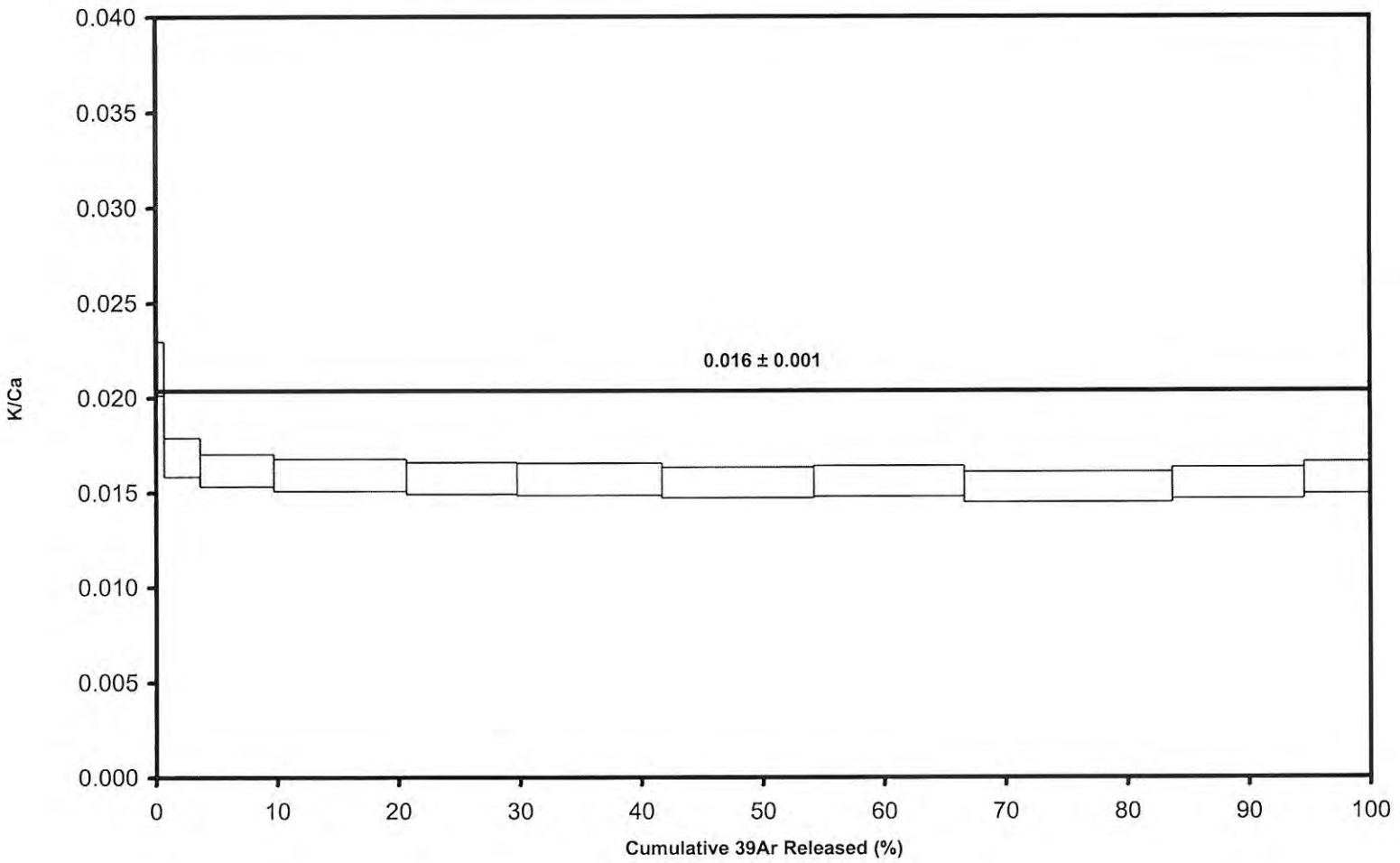


Ar-Ages in Ma

WEIGHTED PLATEAU
16.45 ± 0.28
TOTAL FUSION
16.48 ± 0.30
NORMAL ISOCHRON
16.36 ± 0.34
INVERSE ISOCHRON
16.40 ± 0.34

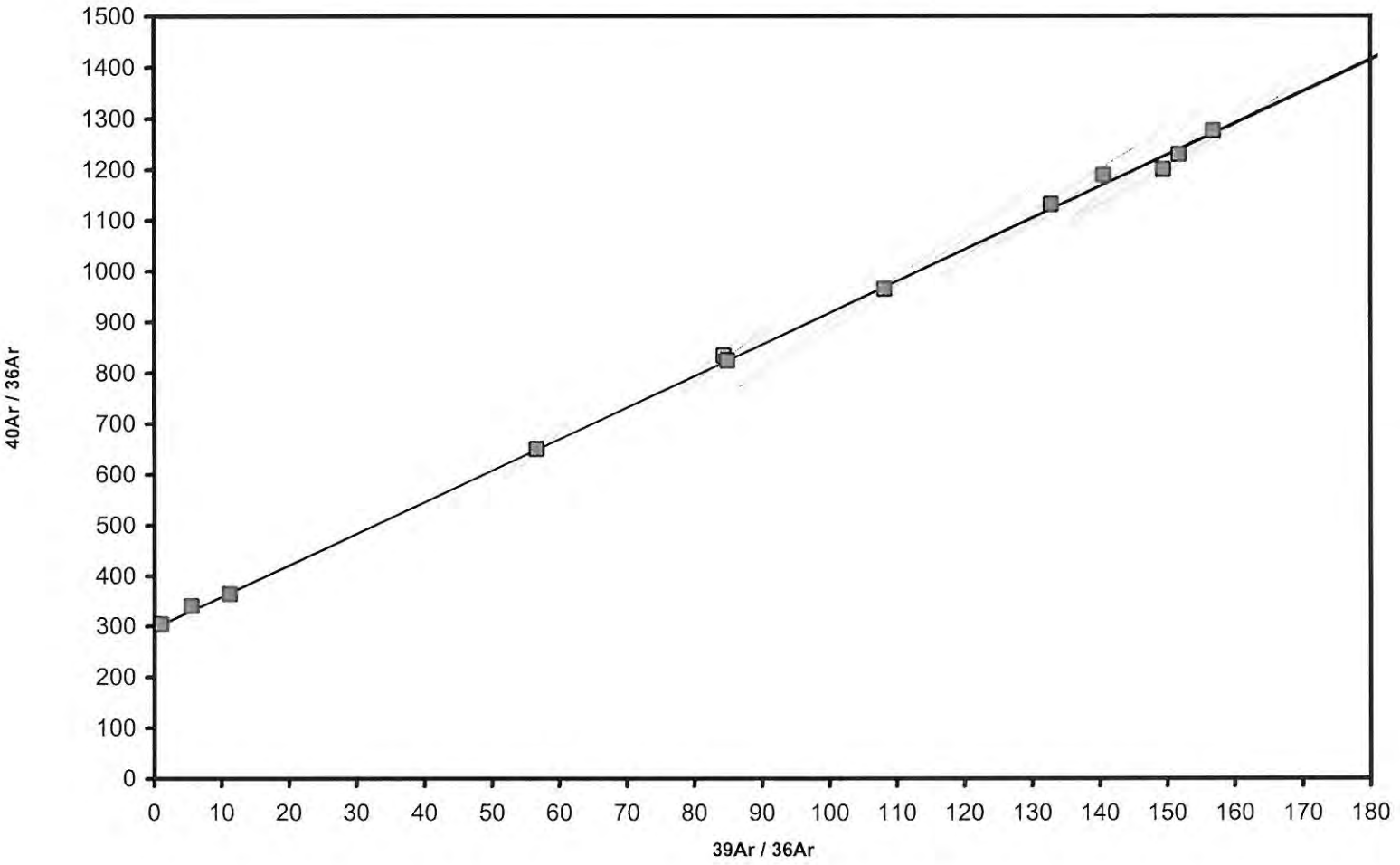
Sample Info

plagioclase
Steens
jh

IRR = OSU4E06
J = 0.0014714 ±

DR20132 50 Camp

07C1767.AGE >>> MF9463 >>> HLP PROJECT



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MSWD
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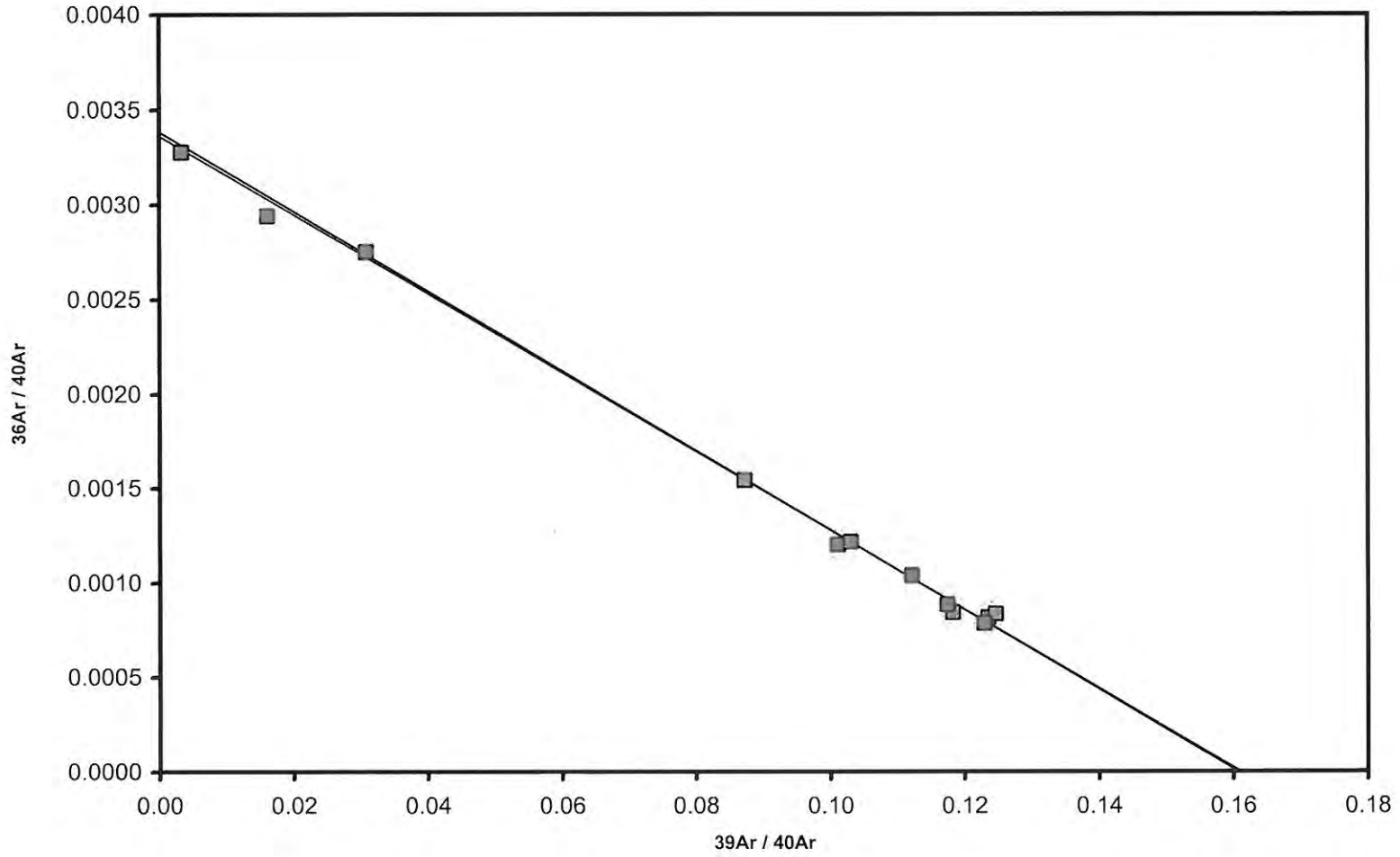

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