SUPPLEMENTARY DATA FOR GSA DATA REPOSITORY

Yellowstone $^{40}Ar/^{39}Ar$ analytical data

Fluence monitor mineral: 27.92 Ma Taylor Creek Rhyolite sanidine (85G003)
Irradiation: Oregon State University TRIGA Reactor, CLICIT (cadmium-lined) facility
Machine specs: Spectra-Physics 2016 continuous argon-ion laser; SAES Zr-Al getters;
Mass Analyzer Products 216 mass spectrometer with Baur Signer ion source and electron multiplier.
Laser extraction line blank was measured every fourth or fifth run.
Typical background values for the extraction line were 5–7 x 10^{-17} mol ^{40}Ar.
Raw data reduced and statistically analyzed by the computer program EyeSoreCon (ESC) of B. Hacker.
Decay constants after Steiger and Jager (1977).

HUCKLEBERRY RIDGE TUFF

Run 8/25/96; basaltic glass flux used

Sample: 8YC410B-1 J=0.0002630

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6263	4.70E-16	4.3022	1.20E-02	0.0137	0.0009	36	0.943	2.04	0.03
6265	2.70E-15	3.9046	3.30E-02	0.0207	0.1194	24	0.100	1.85	0.06
6266†	3.10E-15	3.5973	4.00E-02	0.0176	0.1425	28	0.079	1.71	0.06
6268	1.10E-15	4.3373	1.30E-02	0.0210	0.0002	23	0.987	2.06	0.01
6269	9.30E-16	4.3847	1.50E-02	0.0179	0.0130	27	0.533	2.08	0.03
6270	2.00E-16	4.4927	1.10E-02	0.0241	0.0005	20	0.966	2.13	0.08
6271	6.70E-16	4.5099	1.30E-02	0.0176	0.0064	28	0.704	2.14	0.03
6272	2.10E-16	3.9177	1.20E-02	0.0213	0.0019	23	0.873	1.86	0.07
6274	3.90E-16	4.1951	1.30E-02	0.0209	0.0011	23	0.931	1.99	0.04
6275	5.70E-17	3.8482	1.60E-02	1.1606	0.0070	0.42	0.659	1.82	0.33
6276	6.80E-16	4.2543	1.40E-02	0.0227	0.0039	22	0.789	2.02	0.03
6277†	1.30E-15	3.7987	3.00E-02	0.0244	0.0888	20	0.126	1.80	0.08
6278	3.00E-16	4.3359	1.30E-02	0.0171	0.0023	29	0.864	2.06	0.06

Sample: 8YC410B-2 J=0.0002628

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6280	4.00E-16	4.2471	1.30E-02	0.0228	0.0008	21	0.949	2.01	0.01
6281	3.90E-16	4.3629	1.20E-02	0.0209	0.0003	23	0.983	2.07	0.01
6282	6.90E-16	4.1246	1.30E-02	0.0213	0.0014	23	0.912	1.95	0.02
6283	5.80E-16	4.3778	1.20E-02	0.0139	0.0002	35	0.989	2.07	0.02
6284	2.10E-16	4.121	1.40E-02	0.0262	0.0015	19	0.905	1.95	0.07
6288	4.60E-16	4.1489	1.30E-02	0.0179	0.0009	27	0.941	1.97	0.03
6289	1.80E-15	4.109	2.40E-02	0.0105	0.0637	47	0.179	1.95	0.04
6291	3.80E-15	4.2486	4.70E-02	0.0224	0.1837	22	0.073	2.01	0.11

Sample: 2R577-1 J=0.0002627

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6293	4.10E-16	4.2516	1.30E-02	0.0222	0.0025	22	0.853	2.01	0.04
6294	1.70E-16	4.3753	1.10E-02	0.0059	0.0013	84	0.919	2.07	0.09
6295	6.60E-16	4.3019	1.20E-02	0.0149	0.0003	33	0.980	2.04	0.02
6296	5.60E-16	4.2636	1.30E-02	0.0204	0.0013	24	0.916	2.02	0.03
6297	2.60E-16	4.1713	1.30E-02	0.0214	0.0012	23	0.922	1.98	0.06
6301	3.20E-16	4.5159	1.30E-02	0.0067	0.0023	73	0.872	2.14	0.05
6302	3.40E-16	4.3098	1.30E-02	0.0173	0.0016	28	0.901	2.04	0.05
6304	3.70E-16	4.3539	1.30E-02	0.0151	0.0006	32	0.963	2.06	0.04
6305	5.50E-16	4.3361	1.30E-02	0.0146	0.0018	34	0.889	2.05	0.03
6306	3.30E-16	4.6583	1.20E-02	0.0239	0.0003	21	0.980	2.21	0.05
6308	5.20E-16	4.1619	1.30E-02	0.0238	0.0014	21	0.908	1.97	0.03
6309	2.20E-16	4.0878	1.30E-02	0.0242	0.0009	20	0.939	1.94	0.06
6310	2.70E-16	4.1114	1.20E-02	0.0243	0.0012	20	0.924	1.95	0.05
6311	2.30E-16	4.2199	1.30E-02	0.0199	0.0044	25	0.764	2.00	0.08

HUCKLEBERRY RIDGE TUFF (con't)

Run 12/4/96 by L. Webb

Sample: 2R577-2 J=0.0002626

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6493	3.60E-16	4.169	1.20E-02	0.4565	0.0011	1.1	0.933	1.97	0.24
6494	5.70E-16	4.1058	1.10E-02	0.1347	0.0021	3.6	0.871	1.94	0.13
6495†	3.90E-16	2.8083	8.40E-03	0.4582	0.0094	1.1	0.507	1.33	0.23
6498	6.20E-16	4.2633	1.30E-02	0.1884	0.0061	2.6	0.706	2.02	0.19
6499†	1.10E-15	3.4992	1.80E-02	0.1570	0.0040	3.1	0.749	1.66	0.09
6500†	5.50E-16	4.831	1.40E-02	0.2741	0.0002	1.8	0.992	2.29	0.17
6502†	3.10E-16	3.6808	1.40E-02	0.1646	0.0022	3	0.851	1.74	0.22

MESA FALLS TUFF

Run 8/24-25/96; flux used

Sample: 8YC460A-1 J=0.0002635

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6207	5.90E-16	2.6854	1.20E-02	0.0114	0.0013	43	0.873	1.28	0.02
6208	2.30E-16	2.7235	1.30E-02	0.0182	0.0009	27	0.911	1.29	0.04
6209	2.20E-16	2.7376	1.30E-02	0.0089	0.0017	55	0.844	1.30	0.05
6210	4.70E-16	2.7043	1.30E-02	0.0103	0.0012	47	0.885	1.28	0.02
6211	7.60E-16	2.6669	1.30E-02	0.0198	0.0013	25	0.876	1.27	0.01
6213	2.20E-16	2.6492	1.20E-02	0.0128	0.0006	38	0.938	1.26	0.04
6214	3.10E-16	2.7067	1.30E-02	0.0151	0.0023	32	0.803	1.29	0.04

Sample: 8YC460A-2 J=0.0002633

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6215	4.70E-16	2.7271	1.20E-02	0.0146	0.0006	34	0.943	1.29	0.02
6216	3.70E-16	2.7821	1.30E-02	0.0151	0.0002	33	0.982	1.321	0.002
6217	4.90E-16	2.7925	1.20E-02	0.0119	0.0006	41	0.945	1.326	0.002
6219	5.60E-16	2.6797	1.20E-02	0.0164	0.0007	30	0.927	1.27	0.02
6220	2.00E-16	2.7735	1.20E-02	0.0113	0.0003	43	0.967	1.32	0.05
6221	7.50E-16	2.7723	1.20E-02	0.0188	0.0003	26	0.973	1.32	0.01
6222	3.10E-16	2.7894	1.30E-02	0.0163	0.0002	30	0.979	1.32	0.03
6223†	4.40E-16	2.2873	8.90E-03	0.0050	0.0016	97	0.828	1.09	0.14
6225	7.90E-16	3.0266	1.60E-02	0.0337	0.0135	15	0.431	1.44	0.03
6226	3.10E-16	2.8063	1.30E-02	0.0178	0.0009	28	0.913	1.33	0.03
6227	2.90E-16	2.76	1.20E-02	0.0124	0.0007	40	0.929	1.31	0.03
6228	3.90E-16	2.7662	1.40E-02	0.0074	0.0071	66	0.568	1.31	0.04

Sample: 1R547-1 J=0.0002632

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6231	3.30E-16	2.7035	1.20E-02	0.0198	0.0010	25	0.899	1.28	0.03
6232	3.20E-16	2.5017	1.30E-02	0.0213	0.0020	23	0.808	1.19	0.03
6233	5.60E-16	2.7062	1.20E-02	0.0158	0.0002	31	0.976	1.28	0.02
6234	3.70E-16	3.5268	1.40E-02	0.0051	0.0207	95	0.365	1.67	0.08
6235	8.20E-16	3.0823	1.50E-02	0.0084	0.0186	58	0.359	1.46	0.03
6238	2.80E-16	2.4971	1.40E-02	0.0206	0.0012	24	0.878	1.19	0.03
6239†	1.70E-16	2.3611	1.30E-02	0.0214	0.0020	23	0.796	1.12	0.06
6240†	1.70E-16	2.679	1.40E-02	0.0306	0.0004	16	0.960	1.27	0.05
6241†	1.90E-16	2.3249	1.30E-02	0.0247	0.0036	20	0.684	1.10	0.06
6244†	1.00E-16	2.2643	1.50E-02	0.0110	0.0019	45	0.803	1.07	0.09

MESA FALLS TUFF (con't)

Sample: 1R547-2 J=0.0002631

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6247†	1.80E-16	2.1028	1.40E-02	0.0240	0.0035	20	0.669	0.998	0.055
6248	6.00E-16	2.4769	1.60E-02	0.0154	0.0176	32	0.323	1.18	0.04
6250	3.30E-16	2.691	1.20E-02	0.0176	0.0008	28	0.919	1.28	0.03
6251	5.20E-16	2.7011	1.20E-02	0.0118	0.0002	42	0.974	1.28	0.02
6252	4.20E-16	2.7069	1.30E-02	0.0116	0.0012	42	0.888	1.28	0.02
6254	6.50E-16	2.9138	1.20E-02	0.0125	0.0005	39	0.948	1.38	0.02
6256	4.00E-16	2.5711	1.30E-02	0.0220	0.0018	22	0.829	1.22	0.03
6257	6.70E-16	2.5096	1.30E-02	0.0248	0.0019	20	0.819	1.19	0.01
6258	5.40E-16	2.4755	1.30E-02	0.0158	0.0011	31	0.886	1.17	0.02
6259	4.70E-16	2.4923	1.20E-02	0.0324	0.0014	15	0.856	1.18	0.02
6260	2.50E-16	2.4835	1.40E-02	0.0254	0.0032	19	0.723	1.18	0.05
6262	1.50E-16	2.5662	1.30E-02	0.0275	0.0009	18	0.907	1.22	0.13

LAVA CREEK TUFF

Grains analyzed by CG on 2/24/96

Used basaltic glass as flux

Sample: 8YC413-A5 J=0.0002621

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
2151	1.90E-15	1.3314	not measured	0.0131	0.0006	37	0.876	0.629	0.013
2147	1.20E-15	1.3357		0.0117	0.0012	42	0.788	0.631	0.022
2148	1.50E-15	1.3434		0.0131	0.0010	38	0.815	0.635	0.018
2150	2.00E-15	1.3617		0.0136	0.0018	36	0.717	0.644	0.019
2149	2.10E-15	1.3644		0.0119	0.0004	41	0.928	0.645	0.011

Sample: 7YC325-A7 J=0.0002622

2154†	2.60E-15	1.1898		0.0209	0.0090	23	0.309	0.563	0.029
2155	1.80E-15	1.2382		0.0152	0.0012	32	0.771	0.586	0.016
2162	1.30E-15	1.2678		0.0143	0.0006	34	0.887	0.600	0.015
2161	3.10E-15	1.2704		0.0144	0.0047	34	0.476	0.601	0.015
2159	2.70E-15	1.3096		0.0229	0.0020	21	0.685	0.619	0.013
2160	1.50E-15	1.3092		0.0148	0.0015	33	0.751	0.619	0.016
2156	2.10E-15	1.3124		0.0172	0.0011	29	0.806	0.621	0.012
2157	2.00E-15	1.3743		0.0150	0.0003	33	0.939	0.650	0.014

Sample: 7YC325-A8 J=0.0002623

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
2166	1.90E-15	1.2576		0.0151	0.0051	33	0.453	0.595	0.024
2168	6.70E-15	1.2679		0.0138	0.0153	36	0.219	0.600	0.021
2170	2.10E-15	1.2895		0.0128	0.0011	38	0.806	0.610	0.014
2169	1.50E-15	1.3868		0.0158	0.0004	31	0.926	0.656	0.017
2167	3.20E-15	1.4028		0.0124	0.0003	39	0.941	0.664	0.010

Analyzed by BRH on 1/1/96

No flux used

Sample: 0YC553-A2 J=0.0002619

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
1020	7.90E-16	1.3536		0.7990	0.0055	0.61	0.464	0.639	0.083
1021	1.50E-15	1.4153		0.0189	0.0004	26	0.917	0.669	0.021
1022	2.00E-15	1.4592		0.0378	0.0008	13	0.357	0.689	0.018
1023†	1.20E-15	2.4891		0.0387	0.0079	13	0.516	1.176	0.079

LAVA CREEK TUFF (con't)

Sample: 0YC553-A3 J=0.0002619

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
1027†	1.30E-15	1.1157		0.0219	0.0022	22	0.633	0.527	0.027
1029	2.10E-15	1.2386		0.0239	0.0032	20	0.565	0.585	0.025
1026	1.70E-15	1.3175		0.0243	0.0006	20	0.875	0.622	0.018
1028	1.60E-15	1.3568		0.0185	0.0046	26	0.498	0.641	0.033
Sample: 8YC413-A4		J=0.0002620							
1034	1.50E-15	1.3852		0.0161	0.0097	31	0.326	0.655	0.055
1032	2.40E-15	2.2109		0.0203	0.0044	24	0.628	1.04	0.04
1035†	1.60E-15	9.2836		0.0217	0.0376	23	0.455	4.38	0.25
1033	1.40E-14	56.2719		0.0089	0.0084	55	0.958	26.4	0.28
Sample: 8YC413-A5		J=0.0002621							
1037†	7.40E-16	3.128		0.0230	0.0103	21	0.507	1.48	0.11
Sample: 7YC325-A7		J=0.0002622							
1041†	1.40E-15	3.1981		0.0147	0.0036	33	0.752	1.51	0.07
1040†	2.20E-15	4.6201		0.0250	0.0060	20	0.723	2.18	0.06
Sample: 7YC325-A8		J=0.0002623							
1038†	6.70E-16	0.7832		0.0199	0.0029	25	0.482	0.371	0.032
1039†	1.00E-15	0.8792		0.0196	0.0023	25	0.567	0.416	0.031

Analyzed by CG 8/24/96 with flux

Sample: YC411-1 J=0.0002636

Run#	40(mol)	40/39	38/39	37/39	36/39	K/Ca	40Ar*	Age (Ma)	±1σ
6183†	1.70E-16	0.9658	1.30E-02	0.0258	0.0036	19	0.479	0.459	0.039
6184	2.60E-16	1.2202	1.30E-02	0.0179	0.0038	27	0.524	0.580	0.041
6185	1.60E-16	1.1756	1.30E-02	0.0178	0.0016	28	0.712	0.559	0.035
6186	1.60E-16	1.9837	1.30E-02	0.0145	0.0010	34	0.869	0.943	0.049
6187	2.70E-16	1.3024	1.30E-02	0.0177	0.0010	28	0.822	0.619	0.020
6189	3.20E-16	1.1591	0.00E+00	0.0260	0.0103	19	0.276	0.551	0.056
6190	5.30E-16	1.2231	0.00E+00	0.0202	0.0091	24	0.313	0.582	0.025
6191	9.20E-17	1.1709	0.00E+00	0.0279	0.0023	18	0.632	0.557	0.066
6192†	1.60E-16	1.1438	0.00E+00	0.0233	0.0020	21	0.663	0.544	0.036
6193	2.10E-16	2.1217	0.00E+00	0.0178	0.0008	28	0.903	1.009	0.037
6195	8.10E-17	1.2593	1.30E-02	0.0200	0.0004	25	0.918	0.599	0.055
6196	9.60E-17	1.2502	1.30E-02	0.0166	0.0003	30	0.930	0.595	0.006
Sample: YC411-2		J=0.0002635							
6197	1.20E-16	1.2882	1.30E-02	0.0161	0.0003	31	0.943	0.612	0.038
6198	1.80E-16	1.2332	1.20E-02	0.0163	0.0003	30	0.924	0.586	0.025
6199	1.40E-16	1.2387	1.30E-02	0.0180	0.0005	27	0.901	0.589	0.005
6201	2.00E-16	1.2727	1.20E-02	0.0127	0.0005	39	0.898	0.605	0.003
6202†	1.50E-16	1.0112	1.30E-02	0.0172	0.0020	28	0.631	0.481	0.036
6203	1.30E-16	1.2437	1.30E-02	0.0130	0.0005	38	0.894	0.591	0.036
6204†	3.60E-16	0.8088	1.80E-02	0.0051	0.0282	97	0.088	0.385	0.084
6205	1.50E-16	1.2467	1.30E-02	0.0174	0.0009	28	0.825	0.593	0.032

† incompletely fused grain, bad analysis not included in age calculations

40(mol) = moles of ^{40}Ar corrected for blank and reactor-produced 40.

Ratios are corrected for blanks and decay, but not for interference.

40Ar* = radiogenic ^{40}Ar fraction.