Table 1. Summary of $^{40}Ar/^{39}Ar$ results and analytical methods

Sample #	Sample	Lab #	Irradiation	mineral	age analysis	steps	Age	±2σ	MSWD	comments
1	08GD31	59499	231	groundmass concentrate	laser step-heat	9	27.05	0.81	28.29	
2	12SAC1	62278	263	biotite	laser step-heat	13	28.20	0.12	14.01	isochron age
3	08GD19a	21725	244	sanidine	laser total fusion	15	28.23	0.13	1.55	
4	10GP10	59716	236	sanidine	laser total fusion	13	28.53	0.07	2.36	
5	11GP29	21726	244	sanidine	laser total fusion	15	28.55	0.10	1.73	
6	11GP40	21727	244	sanidine	laser total fusion	7	28.56	0.15	2.03	
7	08GD22	58757	221	sanidine	laser total fusion	15	28.59	0.05	0.86	
8	11OS03	60918	246	sanidine	laser step-heat	11	28.60	0.05	2.82	
9	09GD25	59483	231	sanidine	laser total fusion	15	28.66	0.08	3.59	
10	08GD23	58737	221	sanidine	laser total fusion	14	28.67	0.07	0.67	
11	11GP42	60919	246	sanidine	laser step-heat	15	28.78	0.04	35.3	
12	O-2	59761	236	biotite	laser step-heat	7	30.04	0.20	-	
13	08GD20	58745	221	groundmass concentrate	furnace step-heat	4	31.05	0.76	5.97	low confidence, possible recoil
14	10CM1	60011	240	groundmass concentrate	laser step-heat	8	31.41	0.38	39.45	disturbed age spectrum
15	CMC-82	60008	240	sanidine	laser step-heat	28	32.70	0.10	3.99	
16	CMC-83	60007	240	sanidine	laser total fusion	11	32.72	0.16	6.56	
17	11GP43	60920	246	sanidine	laser total fusion	15	34.28	0.05	25.55	
18	F10-40	60090	242	groundmass concentrate	laser step-heat	3	35.32	0.16	3.87	
19	10NP3	60012	240	groundmass concentrate	laser step-heat	8	36.06	0.70	135.14	disturbed age spectrum
20	Tu-1635	59762	236	hornblende	furnace step-heat	8	36.57	0.21	1.17	
21	F10-43	60091	242	groundmass concentrate	laser step-heat	10	36.87	0.13		
22	11GP7	21718	244	hornblende	laser step-heat	7	36.99	0.13	1.91	
23	10NP1	60013	240	groundmass concentrate	laser step-heat	8	37.84	0.92	11.79	disturbed age spectrum
24	10GP22	59717	236	sanidine	laser total fusion	-	-	-	-	analyses range from 17.91-29.3 Ma

Sample preparation and irradiation:

Minerals separated with standard heavy liquid, Franz Magnetic and hand-picking techniques.
Samples in NM-221 irradiated in a machined Aluminum tray for 7 hours in D-3 position, Nuclear Science Center, College Station, TX.
Samples in NM-231 irradiated in a machined Aluminum tray for 10 hours in C.T. position, USGS TRIGA, Denver, Colorado.
Samples in NM-236 irradiated in a machined Aluminum tray for 7 hours in C.T. position, USGS TRIGA, Denver, Colorado.
Samples in NM-240 irradiated in a machined Aluminum tray for 10 hours in C.T. position, USGS TRIGA, Denver, Colorado.
Samples in NM-244 irradiated in a machined Aluminum tray for 10 hours in C.T. position, USGS TRIGA, Denver, Colorado.
Samples in NM-246 irradiated in a machined Aluminum tray for 10 hours in C.T. position, USGS TRIGA, Denver, Colorado.
Samples in NM-263 irradiated in a machined Aluminum tray for 6 hours in C.T. position, USGS TRIGA, Denver, Colorado.
Neutron flux monitor Fish Canyon Tuff sanidine (FC-2). Assigned age = 28.02 Ma (Renne et al., 1998).

Instrumentation:

Analyses from NM-221 thru NM-244 performed on a Mass Analyzer Products 215-50 mass spectrometer on line with automated all-metal extraction system.
Groundmass, plagioclase and biotite step-heated, using a Mo double-vacuum resistance furnace.
Flux monitors and sanidine fused by a 50 watt Synrad CO_2 laser.
Total fusion analyses from NM-246 and NM-263 performed on a Argus VI mass spectrometer on line with automated all-metal extraction system.
Flux monitors and sanidine samples fused by a Photon Machines Inc. CO_2 laser biotite from NM-263 step-heated with a Photon Machines Inc. diode laser.

Analytical parameters:

Electron multiplier sensitivity for those analyses performed on a MASS Analylzer Products mass spectrometer averaged 8.29e-17 moles/pA for furnance analyses.
Electron multiplier sensitivity for those analyses performed on a MASS Analylzer Products mass spectrometer averaged 3.36e-17 moles/pA for laser analyses.
Total system blank and background averaged 1430, 28.4, 3.8, 4.9, 39.8 x 10^{-18} moles at masses 40, 39, 38, 37 and 36, respectively for the furnace analyses.
Total system blank and background averaged 318, 6.0, 2.5, 1.9, 39.7 x 10^{-18} moles at masses 40, 39, 38, 37 and 36, respectively for the laser analyses.
Sensitivty for sanidine analyzed on Argus VI is 5 e-17 moles/fA.
Total system blank and background averaged 109, 0.79, 1.1, 0.52, 0.43 x 10^{-18} moles at masses 40, 39, 38, 37 and 36, respectively for the laser analyses.
J-factors determined by CO_2 laser-fusion of 6 single crystals from each of 10 or 6 radial positions around the irradiation tray.
Decay constants and isotopic abundances after Steiger and Jäger (1977).

Table 2. $^{40}Ar/^{39}Ar$ analytical data.

	ID	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	Age (Ma)	±1σ (Ma)
	08GD19a, Sanidine, J=0.0022517±0.22%, D=1.0015±0.0012, NM-244J, Lab#=21725								
	14	7.195	0.0049	0.7193	13.226	104.6	97.0	28.12	0.07
	05	7.040	0.0107	0.1846	17.905	47.7	99.2	28.13	0.06
	15	7.064	0.0064	0.2368	21.564	79.5	99.0	28.16	0.05
	09	7.058	0.0099	0.2014	32.723	51.3	99.2	28.18	0.05
	04	7.038	0.0124	0.1322	20.667	41.3	99.5	28.19	0.05
	03	7.225	0.0153	0.7568	21.714	33.3	96.9	28.20	0.06
	07	7.052	0.0013	0.1514	6.119	389.7	99.4	28.22	0.10
	02	7.118	0.0072	0.3571	9.302	71.4	98.5	28.24	0.08
	01	7.074	0.0035	0.1937	9.173	146.6	99.2	28.25	0.09
	13	7.122	0.0058	0.3529	10.065	87.6	98.5	28.26	0.08
	12	7.067	0.0098	0.1530	14.459	52.3	99.4	28.27	0.07
	10	7.069	0.0111	0.1419	27.308	46.1	99.4	28.30	0.05
	11	7.080	0.0048	0.1674	14.248	105.7	99.3	28.31	0.07
	06	7.102	0.0080	0.2083	16.371	64.0	99.1	28.35	0.06
	08	7.100	0.0064	0.1744	12.944	80.2	99.3	28.38	0.07
	Mean age ± 2σ		**n=15**	**MSWD=1.55**		**93.4 ±174.7**		**28.23**	**0.13**
	10GP10, Sanidine, J=0.0015879±0.06%, D=1.002±0.001, NM-236A, Lab#=59716								
X	15	10.61	0.1127	4.192	8.132	4.5	88.4	26.65	0.11
	12	10.51	0.0970	1.989	3.424	5.3	94.5	28.19	0.19
	13	10.46	0.1151	1.697	9.130	4.4	95.3	28.31	0.08
	07	10.43	0.1237	1.500	8.413	4.1	95.8	28.39	0.09
	09	10.32	0.1174	1.073	6.483	4.3	97.0	28.43	0.11
	01	10.12	0.1160	0.3844	15.471	4.4	99.0	28.45	0.06
	03	10.12	0.1142	0.3728	11.727	4.5	99.0	28.46	0.07
	14	10.26	0.1123	0.8249	3.544	4.5	97.7	28.47	0.18
	05	10.24	0.0946	0.6931	23.240	5.4	98.1	28.52	0.05
	11	10.13	0.0894	0.2978	11.342	5.7	99.2	28.55	0.07
	04	10.20	0.1079	0.4870	12.721	4.7	98.7	28.57	0.07
	06	10.21	0.1007	0.4986	20.597	5.1	98.6	28.59	0.05
	02	10.29	0.1030	0.7207	13.293	5.0	98.0	28.64	0.07
	08	10.19	0.1121	0.3162	14.994	4.5	99.2	28.69	0.06
X	10	10.31	0.0831	0.0583	22.946	6.1	99.9	29.24	0.05
	Mean age ± 2σ		**n=13**	**MSWD=2.36**		**4.8 ±0.9**		**28.53**	**0.07**

	ID	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	Age (Ma)	±1σ (Ma)
	11GP29, Sanidine, J=0.0022535±0.35%, D=1.0015±0.0012, NM-244J, Lab#=21726								
	15	7.323	0.1847	1.101	2.426	2.8	95.8	28.27	0.23
	02	7.205	0.0724	0.5703	18.614	7.0	97.7	28.38	0.06
	11	7.370	0.0689	1.120	5.638	7.4	95.6	28.39	0.12
	01	8.097	0.1435	3.591	32.376	3.6	87.0	28.40	0.07
	08	7.910	0.0947	2.817	6.069	5.4	89.6	28.55	0.12
	13	7.213	0.1195	0.4608	5.119	4.3	98.2	28.56	0.11
	05	7.238	0.0485	0.5151	5.100	10.5	98.0	28.57	0.12
	07	7.723	0.0903	2.158	11.047	5.6	91.8	28.58	0.09
	14	7.234	0.0675	0.4876	6.756	7.6	98.1	28.59	0.10
	04	7.465	0.1328	1.286	13.680	3.8	95.1	28.59	0.08
	06	7.212	0.0706	0.3894	12.279	7.2	98.5	28.62	0.07
	12	7.352	0.0904	0.8386	9.075	5.6	96.7	28.65	0.09
	10	7.483	0.1260	1.278	8.090	4.1	95.1	28.67	0.09
	03	7.332	0.1091	0.7628	9.556	4.7	97.0	28.67	0.09
	09	7.338	0.1642	0.7954	12.772	3.1	97.0	28.68	0.08
	Mean age ± 2σ		**n=15**	**MSWD=1.73**		**5.5 ±4.2**		**28.55**	**0.21**
	11GP40, Sanidine, J=0.0022565±0.16%, D=1.0015±0.0012, NM-244J, Lab#=21727								
X	08	163.8	-0.4558	539.4	0.120	-	2.6	17.53	7.85
X	09	20.48	-0.0798	47.65	0.469	-	31.2	25.81	1.38
	10	11.82	0.0356	16.68	1.129	14.4	58.3	27.84	0.64
	01	9.545	0.0928	8.902	2.096	5.5	72.5	27.94	0.32
	07	8.907	0.0892	6.438	2.535	5.7	78.7	28.29	0.27
	02	8.207	0.0908	3.971	2.857	5.6	85.8	28.41	0.22
	03	7.312	0.0973	0.9395	7.694	5.2	96.3	28.42	0.09
	05	7.220	0.0061	0.5692	0.961	83.9	97.7	28.45	0.57
	04	7.127	0.0732	0.1054	22.206	7.0	99.6	28.65	0.05
X	06	16.30	0.0160	30.09	1.141	31.8	45.5	29.90	0.63
	Mean age ± 2σ		**n=7**	**MSWD=2.03**		**18.2 ±58.3**		**28.56**	**0.15**
	08GD22, Sanidine, J=0.0008114±0.05%, D=1.0014±0.001, NM-221P, Lab#=58757								
	03	19.85	0.0762	0.9401	8.507	6.7	98.6	28.43	0.07
	15	20.25	0.0877	2.246	2.477	5.8	96.8	28.46	0.15
	04	19.95	0.0784	1.027	3.578	6.5	98.5	28.54	0.10
	13	20.46	0.0818	2.760	2.365	6.2	96.0	28.55	0.15
	10	19.82	0.0630	0.5729	8.123	8.1	99.2	28.55	0.06
	02	19.88	0.0591	0.6749	5.056	8.6	99.0	28.58	0.08
	08	20.07	0.1931	1.345	3.961	2.6	98.1	28.59	0.09
	05	20.02	0.0883	1.143	5.515	5.8	98.3	28.60	0.08
	14	19.95	0.0642	0.8913	3.136	7.9	98.7	28.60	0.11
	07	20.09	0.0561	1.311	5.807	9.1	98.1	28.62	0.08
	06	19.90	0.0590	0.6797	5.737	8.6	99.0	28.62	0.08
	11	20.11	0.0665	1.329	4.750	7.7	98.1	28.64	0.08
	09	19.97	0.0844	0.8674	6.872	6.0	98.8	28.64	0.07
	12	19.96	0.0606	0.7605	4.701	8.4	98.9	28.67	0.09
	01	19.96	0.0643	0.7253	8.254	7.9	99.0	28.69	0.06
	Mean age ± 2σ		**n=15**	**MSWD=0.86**		**7.1 ±3.3**		**28.59**	**0.05**

	ID	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	Age (Ma)	±1σ (Ma)
	11OS03, Sanidine, J=0.0024692±0.04%, D=1±0, NM-246H, Lab#=60918								
X	10B	6.477	0.0794	0.2931	0.737	6.4	98.8	28.23	0.11
	01B	6.439	0.0966	0.0075	0.777	5.3	100.1	28.44	0.12
	09B	6.484	0.0864	0.1163	2.250	5.9	99.6	28.49	0.04
	08B	6.504	0.0866	0.1366	2.456	5.9	99.5	28.56	0.03
	14B	6.491	0.0986	0.0812	2.613	5.2	99.8	28.58	0.03
	05B	6.506	0.1025	0.1332	1.784	5.0	99.5	28.58	0.05
	13B	6.502	0.0427	0.0996	1.527	12.0	99.6	28.58	0.06
	06B	6.506	0.0467	0.1109	1.478	10.9	99.6	28.58	0.06
	03B	6.508	0.0674	0.0883	3.080	7.6	99.7	28.63	0.03
	07B	6.516	0.0905	0.1221	2.599	5.6	99.6	28.63	0.03
	04B	6.523	0.0705	0.0792	2.707	7.2	99.7	28.71	0.03
	15B	6.545	0.0918	0.1372	0.997	5.6	99.5	28.74	0.08
X	11B	6.611	0.1182	0.2366	0.647	4.3	99.1	28.91	0.12
	Mean age ± 2σ		**n=11**	**MSWD=2.82**		**6.9 ±4.8**		**28.60**	**0.05**
	09GD 25, san, J=0.0023255±0.04%, D=1.006±0.001, NM-231B, Lab#=59483								
	03A	7.586	0.0736	2.695	6.757	6.9	89.6	28.25	0.10
	10A	8.022	0.1292	4.034	7.155	4.0	85.3	28.44	0.11
	01A	7.406	0.0767	1.881	5.368	6.7	92.6	28.50	0.10
	04A	7.363	0.0690	1.674	17.993	7.4	93.3	28.57	0.06
	05A	10.61	0.0600	12.66	20.765	8.5	64.8	28.57	0.13
	14A	7.394	0.0528	1.767	8.702	9.7	93.0	28.58	0.07
	13A	8.190	0.0837	4.464	10.034	6.1	84.0	28.59	0.09
	11A	7.903	0.0692	3.451	17.033	7.4	87.2	28.64	0.08
	15A	7.145	0.0547	0.7921	11.212	9.3	96.8	28.74	0.06
	02A	7.000	0.0560	0.2963	13.612	9.1	98.8	28.75	0.06
	06A	10.67	0.1075	12.71	17.354	4.7	64.8	28.76	0.13
	08A	7.503	0.0824	1.986	13.502	6.2	92.3	28.77	0.07
	09A	10.59	0.0844	12.41	13.705	6.0	65.4	28.80	0.13
	07A	7.377	0.0930	1.536	11.022	5.5	93.9	28.81	0.07
	12A	10.67	0.0776	12.49	13.675	6.6	65.4	29.02	0.13
	Mean age ± 2σ		**n=15**	**MSWD=3.59**		**6.9 ±3.3**		**28.66**	**0.08**
	08GD23, san, J=0.000828±0.05%, D=1.004±0.001, NM-221M, Lab#=58737								
X	01A	19.21	0.0092	1.343	15.847	55.2	97.9	27.89	0.06
	14A	19.56	0.0929	1.051	3.205	5.5	98.5	28.53	0.13
	05A	20.11	0.1062	2.900	4.198	4.8	95.8	28.54	0.11
	08A	19.73	0.1462	1.439	4.752	3.5	97.9	28.62	0.10
	06A	19.85	0.1200	1.820	5.926	4.3	97.3	28.64	0.08
	09A	19.74	0.0864	1.442	4.398	5.9	97.9	28.64	0.10
	02A	19.75	0.1528	1.493	6.075	3.3	97.8	28.64	0.08
	07A	20.07	0.0977	2.550	5.195	5.2	96.3	28.65	0.09
	13A	19.96	0.1163	2.161	2.784	4.4	96.8	28.65	0.14
	03A	19.69	0.1007	1.185	4.267	5.1	98.3	28.67	0.10
	04A	20.65	0.0861	4.334	4.126	5.9	93.8	28.71	0.11
	15A	20.10	0.1234	2.389	1.872	4.1	96.5	28.76	0.21
	12A	19.66	0.0877	0.8160	2.526	5.8	98.8	28.79	0.17
	10A	19.81	0.1552	1.228	3.165	3.3	98.2	28.84	0.13
	11A	19.92	0.1042	1.457	3.677	4.9	97.9	28.89	0.12
	Mean age ± 2σ		**n=14**	**MSWD=0.67**		**4.7 ±1.9**		**28.67**	**0.07**

	ID	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	Age (Ma)	±1σ (Ma)
	11GP42, Sanidine, J=0.0024705±0.04%, D=1±0, NM-246H, Lab#=60919								
	08B	6.512	0.0853	0.0751	12796.842	6.0	99.8	28.68	0.01
	15B	6.519	0.0902	0.0861	6639.361	5.7	99.7	28.70	0.02
	03B	6.539	0.0915	0.1366	6987.846	5.6	99.5	28.73	0.01
	14B	6.518	0.0910	0.0540	8937.351	5.6	99.9	28.74	0.01
	06B	6.534	0.0815	0.1010	15382.596	6.3	99.6	28.75	0.01
	09B	6.531	0.1012	0.0934	7981.701	5.0	99.7	28.75	0.01
	05B	6.544	0.0776	0.1267	4015.860	6.6	99.5	28.75	0.02
	13B	6.549	0.0900	0.1214	7949.376	5.7	99.6	28.79	0.01
	01B	6.540	0.0910	0.0831	12346.544	5.6	99.7	28.80	0.01
	04B	6.579	0.0957	0.2120	14814.678	5.3	99.2	28.80	0.01
	11B	6.538	0.0765	0.0615	7364.976	6.7	99.8	28.81	0.01
	12B	6.593	0.0863	0.2344	4261.971	5.9	99.1	28.83	0.02
	02B	6.537	0.0844	0.0347	6480.964	6.0	99.9	28.84	0.01
	10B	6.610	0.0734	0.2547	11910.447	7.0	99.0	28.88	0.01
	07B	6.552	0.0956	0.0618	10497.329	5.3	99.8	28.88	0.01
	Mean age ± 2σ	**n=15**	**MSWD=35.34**			**5.9 ±1.1**		**28.78**	**0.04**
	11GP43, Sanidine, J=0.0024685±0.05%, D=1±0, NM-246H, Lab#=60920								
	05B	7.763	0.0275	0.0282	7006.117	18.6	99.9	34.18	0.02
	02B	7.768	0.0267	0.0219	13638.263	19.1	99.9	34.20	0.01
	06B	7.769	0.0275	0.0210	9100.078	18.6	99.9	34.21	0.01
	03B	7.778	0.0272	0.0176	5431.870	18.8	100.0	34.25	0.02
	10B	7.794	0.0334	0.0710	6686.535	15.3	99.8	34.26	0.02
	04B	7.779	0.0277	0.0138	19355.446	18.4	100.0	34.27	0.01
	01B	7.792	0.0311	0.0490	2980.261	16.4	99.8	34.28	0.03
	09B	7.792	0.0235	0.0234	4220.049	21.8	99.9	34.30	0.02
	13B	7.794	0.0248	0.0098	9335.023	20.6	100.0	34.33	0.01
	11B	7.798	0.0387	0.0206	8988.515	13.2	100.0	34.34	0.01
	07B	7.809	0.0205	0.0386	3415.542	24.9	99.9	34.36	0.03
	15B	7.801	0.0326	0.0159	5001.545	15.6	100.0	34.36	0.02
	08B	7.812	0.0210	0.0478	6555.978	24.3	99.8	34.36	0.02
	14B	7.817	0.0282	0.0125	7326.235	18.1	100.0	34.43	0.02
	12B	7.829	0.0318	0.0507	1723.197	16.0	99.8	34.44	0.06
	Mean age ± 2σ	**n=15**	**MSWD=25.55**			**18.6 ±6.5**		**34.28**	**0.05**
	11GP40, Sanidine, J=0.0022565±0.16%, D=1.0015±0.0012, NM-244J, Lab#=21727								
X	08	163.8	-0.4558	539.4	0.120	-	2.6	17.53	7.85
X	09	20.48	-0.0798	47.65	0.469	-	31.2	25.81	1.38
	10	11.82	0.0356	16.68	1.129	14.4	58.3	27.84	0.64
	01	9.545	0.0928	8.902	2.096	5.5	72.5	27.94	0.32
	07	8.907	0.0892	6.438	2.535	5.7	78.7	28.29	0.27
	02	8.207	0.0908	3.971	2.857	5.6	85.8	28.41	0.22
	03	7.312	0.0973	0.9395	7.694	5.2	96.3	28.42	0.09
	05	7.220	0.0061	0.5692	0.961	83.9	97.7	28.45	0.57
	04	7.127	0.0732	0.1054	22.206	7.0	99.6	28.65	0.05
X	06	16.30	0.0160	30.09	1.141	31.8	45.5	29.90	0.63
	Mean age ± 2σ	**n=7**	**MSWD=2.03**			**18.2 ±58.3**		**28.56**	**0.15**

ID	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	Age (Ma)	±1σ (Ma)
CMC-82, Sanidine, J=0.0022789±0.05%, D=1.002±0.001, NM-240J, Lab#=60008								
04B	8.224	0.0488	1.066	12.678	10.5	96.2	32.23	0.08
12B	8.582	0.0307	2.180	1.610	16.6	92.5	32.34	0.30
08A	8.156	0.0309	0.7170	4.994	16.5	97.4	32.37	0.13
04A	8.244	0.0542	0.9985	7.704	9.4	96.4	32.39	0.10
09A	8.163	0.0407	0.7180	5.192	12.6	97.4	32.39	0.12
10A	8.144	0.0615	0.5843	4.925	8.3	97.9	32.48	0.12
12A	8.506	0.0545	1.789	2.669	9.4	93.8	32.50	0.22
14B	8.622	0.0280	2.080	4.241	18.2	92.9	32.63	0.16
01	8.184	0.0512	0.5870	14.090	10.0	97.9	32.64	0.09
07B	8.430	0.0217	1.399	3.059	23.6	95.1	32.66	0.19
02A	8.154	0.0429	0.4598	8.467	11.9	98.3	32.67	0.09
13A	8.173	0.0388	0.5164	4.103	13.2	98.1	32.68	0.15
06B	8.681	0.0239	2.195	4.780	21.3	92.5	32.73	0.15
14A	8.512	0.0462	1.620	2.577	11.0	94.4	32.73	0.23
10B	8.595	0.0726	1.886	1.591	7.0	93.5	32.74	0.31
06A	8.176	0.0216	0.4320	8.625	23.6	98.4	32.79	0.09
08B	8.853	0.0265	2.702	16.558	19.2	91.0	32.81	0.09
07A	8.166	0.0314	0.3741	6.248	16.2	98.6	32.82	0.11
11A	8.214	0.0651	0.5343	5.535	7.8	98.1	32.82	0.13
01A	8.211	0.0472	0.5212	17.622	10.8	98.1	32.82	0.06
03A	8.855	0.0353	2.684	9.097	14.5	91.0	32.84	0.11
03B	9.506	0.0348	4.845	11.755	14.7	84.9	32.89	0.11
09B	8.151	0.0465	0.2481	3.299	11.0	99.1	32.91	0.17
02B	8.199	0.0442	0.3883	8.480	11.6	98.6	32.94	0.08
05B	8.833	0.0172	2.434	1.529	29.7	91.9	33.05	0.37
05A	8.157	0.0254	0.0484	4.888	20.1	99.8	33.17	0.13
11B	8.359	0.0506	0.7071	1.428	10.1	97.5	33.20	0.37
13B	8.389	0.0158	0.7343	1.598	32.2	97.4	33.29	0.29
Mean age ± 2σ		**n=28**	**MSWD=3.99**		**15.0 ±13.0**		**32.70**	**0.10**
CMC-83, Sanidine, J=0.0022829±0.05%, D=1.002±0.001, NM-240J, Lab#=60007								
X 15	*10.96*	*0.0520*	*12.31*	*0.863*	*9.8*	*66.8*	*29.93*	*0.71*
X 02	*11.18*	*0.0355*	*12.43*	*29.934*	*14.4*	*67.1*	*30.64*	*0.14*
X 01	*9.700*	*0.0276*	*6.603*	*22.368*	*18.5*	*79.9*	*31.63*	*0.10*
X 09	*10.16*	*0.0424*	*7.948*	*10.521*	*12.0*	*76.9*	*31.88*	*0.16*
X 12	*9.053*	*0.0339*	*4.184*	*13.561*	*15.1*	*86.3*	*31.91*	*0.14*
07	8.508	0.0282	2.015	25.002	18.1	93.0	32.30	0.08
14	8.654	0.0570	2.398	15.392	9.0	91.8	32.43	0.11
08	8.853	0.0359	2.958	20.779	14.2	90.1	32.57	0.13
11	10.19	0.0284	7.390	29.829	18.0	78.6	32.68	0.13
05	8.423	0.0315	1.398	21.490	16.2	95.1	32.69	0.09
06	8.638	0.0256	2.108	23.142	19.9	92.8	32.71	0.09
16	8.777	0.0283	2.516	21.735	18.0	91.5	32.79	0.08
10	8.319	0.0368	0.9233	29.195	13.9	96.7	32.84	0.11
13	8.696	0.0395	2.143	13.117	12.9	92.7	32.91	0.13
03	10.52	0.0304	8.283	32.692	16.8	76.7	32.93	0.11
04	9.065	0.0332	3.140	25.539	15.4	89.8	33.21	0.10
Mean age ± 2σ		**n=11**	**MSWD=6.56**		**15.7 ±6.2**		**32.72**	**0.16**

ID	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	Age (Ma)	±1σ (Ma)
10GP22, Sanidine, J=0.0015875±0.05%, D=1.002±0.001, NM-236A, Lab#=59717								
04	7.641	0.0667	4.320	2.333	7.6	83.3	18.12	0.16
08	8.406	0.1190	5.928	1.060	4.3	79.3	18.96	0.30
01	9.182	0.0845	8.140	2.239	6.0	73.9	19.30	0.19
13	11.33	0.0640	14.43	3.427	8.0	62.4	20.10	0.17
02	8.072	0.1083	2.641	1.162	4.7	90.4	20.76	0.29
12	8.958	0.0680	4.971	1.335	7.5	83.6	21.31	0.28
15	9.004	0.1465	2.166	2.472	3.5	93.0	23.81	0.14
14	10.98	0.0882	7.357	0.923	5.8	80.2	25.03	0.36
09	12.68	0.4479	12.49	1.113	1.1	71.2	25.65	0.38
07	11.21	0.1364	6.606	2.111	3.7	82.7	26.33	0.19
06	14.01	0.0792	15.25	1.183	6.4	67.9	27.01	0.38
05	10.06	0.1016	1.758	2.748	5.0	94.9	27.12	0.15
03	18.63	0.3420	30.55	0.752	1.5	51.7	27.34	0.63
11	10.51	0.1877	2.789	1.342	2.7	92.3	27.54	0.26
10	11.15	0.1832	2.530	1.658	2.8	93.4	29.57	0.22

Notes:

Isotopic ratios corrected for blank, radioactive decay, and mass discrimination, not corrected for interfering reactions.

Errors quoted for individual analyses include analytical error only, without interfering reaction or J uncertainties.

Mean age is weighted mean age of Taylor (1982). Mean age error is weighted error of the mean (Taylor, 1982), multiplied by the root of the MSWD where MSWD>1, and also incorporates uncertainty in J factors and irradiation correction uncertainties.

Decay constants and isotopic abundances after Steiger and Jäger (1977).

symbol preceding sample ID denotes analyses excluded from mean age calculations.

Ages calculated relative to FC-2 Fish Canyon Tuff sanidine interlaboratory standard at 28.02 Ma

Decay Constant (LambdaK (total)) = 5.543e-10/a

Correction factors:

$(^{39}Ar/^{37}Ar)_{Ca}$ = 0.00068 ± 5e-05

$(^{36}Ar/^{37}Ar)_{Ca}$ = 0.00028 ± 2e-05

$(^{38}Ar/^{39}Ar)_{K}$ = 0.0125

$(^{40}Ar/^{39}Ar)_{K}$ = 0 ± 0.0004

Table 3. $^{40}Ar/^{39}Ar$ analytical data.

	ID	Power (Watts)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	^{39}Ar (%)	Age (Ma)	±1σ (Ma)
	08GD31, wr, 12.27 mg, J=0.00235±0.06%, D=1.005±0.001, NM-231E, Lab#=59499-01										
X	A	3	286.0	2.546	970.9	2.70	0.20	-0.3	1.3	-3.09	5.26
X	B	4	289.5	2.038	970.8	3.75	0.25	1.0	3.1	11.84	5.22
	C	5	168.0	1.034	553.5	5.36	0.49	2.7	5.6	19.25	2.89
	D	6	43.53	0.3673	127.6	13.4	1.4	13.5	12.0	24.66	0.74
	E	8	13.40	0.2723	24.44	19.9	1.9	46.2	21.6	26.06	0.18
	F	10	12.08	0.3747	18.89	16.8	1.4	54.0	29.6	27.43	0.18
	G	13	14.61	0.5108	26.39	16.5	1.00	46.9	37.5	28.79	0.22
	H	16	17.38	0.5157	35.68	19.3	0.99	39.5	46.8	28.90	0.24
	I	18	15.11	0.3506	28.93	14.4	1.5	43.6	53.7	27.68	0.24
	J	30	12.57	0.5401	21.55	71.4	0.94	49.7	88.2	26.28	0.15
	K	35	17.24	0.9230	37.82	24.2	0.55	35.6	100.0	25.84	0.26
	Integrated age ± 2σ		n=11			207.7	0.88	K2O=2.77%		25.92	0.81
	Plateau ± 2σ steps C-K		**n=9**	**MSWD=28.29**		**201.297**	**1.087±0.891**		**96.9**	**27.05**	**0.80**
	Isochron±2σ steps A-K		n=11	MSWD=25.43			$^{40}Ar/^{36}Ar$= 291.4±6.6			27.5	1.10
	12SAC1, bi, 3.78 mg, J=0.0014303±0.03%, D=1±0, NM-263D, Lab#=62278-01										
Xi	A	1	27.12	0.0670	53.05	2.73	7.6	42.2	3.6	29.30	0.14
Xi	B	1	16.68	0.0408	17.19	4.50	12.5	69.6	9.5	29.67	0.05
X	C	1	14.42	0.0405	9.821	4.14	12.6	79.9	15.0	29.48	0.05
X	D	2	13.30	0.0552	6.634	8.77	9.2	85.3	26.5	29.01	0.03
X	E	2	12.73	0.0628	4.930	7.20	8.1	88.6	36.0	28.84	0.02
X	F	2	12.38	0.0549	3.872	6.30	9.3	90.8	44.3	28.77	0.02
X	G	2	12.36	0.0462	3.800	5.20	11.1	90.9	51.1	28.75	0.03
X	H	2	12.09	0.0480	3.021	4.52	10.6	92.6	57.1	28.65	0.03
X	I	3	11.95	0.0494	2.679	4.55	10.3	93.4	63.1	28.56	0.02
X	J	3	12.00	0.0499	2.785	8.30	10.2	93.2	74.0	28.61	0.02
X	K	4	11.61	0.0614	1.579	4.98	8.3	96.0	80.5	28.52	0.02
X	L	4	11.54	0.0336	1.405	3.05	15.2	96.4	84.6	28.46	0.03
X	M	5	11.32	0.0465	0.9092	2.45	11.0	97.7	87.8	28.28	0.03
X	N	7	11.48	0.0706	1.442	2.72	7.2	96.3	91.4	28.29	0.03
X	O	21	11.70	0.0881	2.183	6.57	5.8	94.5	100.0	28.29	0.02
	Integrated age ± 2σ		n=15			76.0	9.2	K2O=5.40%		28.77	0.02
	Isochron±2σ steps C-O		**n=13**	**MSWD=14.01**			**$^{40}Ar/^{36}Ar$= 348±13**			**28.20**	**0.12**
	O-2, Bt, 2.85 mg, J=0.0016287±0.09%, D=1.001±0.001, NM-236F, Lab#=59761-01										
Xi	A	2	124.0	1.110	398.0	1.80	0.46	5.2	2.3	18.9	2.2
X	B	4	18.53	0.1361	26.65	11.60	3.7	57.6	17.1	31.06	0.18
	C	6	11.97	0.0186	5.298	16.8	27.4	87.0	37.3	30.314	0.077
	D	8	11.74	0.0290	4.745	58.6	17.6	88.1	98.2	30.126	0.057
	E	13	13.43	-0.0255	10.61	1.50	-	76.7	99.6	29.98	0.31
	F	15	14.01	-0.8647	13.90	0.379	-	70.2	99.9	28.65	0.97
	G	18	20.99	-5.1243	38.94	0.067	-	43.2	100.0	26.3	4.7
	Integrated age ± 2σ		**n=7**			**90.8**	**9.5**		**K2O=7.51**	**30.04**	**0.20**
	Plateau ± 2σ steps C-G		n=5	MSWD=1.87		77.4	19.3 ±8.8		85.2	30.18	0.14
	Isochron±2σ steps B-G		n=6	MSWD=2.29			$^{40}Ar/^{36}Ar$=308.7±9.7			29.99	0.24

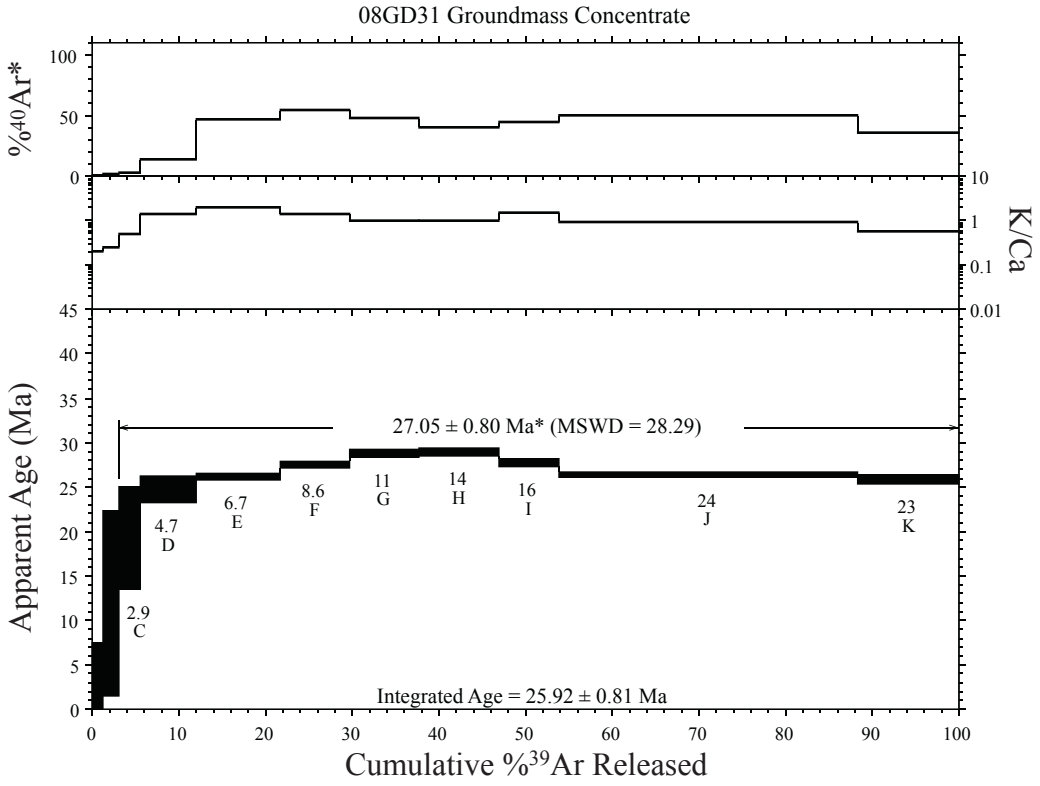
	ID	Power (Watts)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	^{39}Ar (%)	Age (Ma)	±1σ (Ma)
	08GD20, wr, 42.06 mg, J=0.00085±1.18%, D=1.004±0.001, NM-221O, Lab#=58745-01										
X	C	800	170.0	-4.2026	494.5	0.066	-	13.8	0.0	35.57	8.35
	D	900	38.77	0.7945	63.23	3.80	0.64	52.0	2.8	30.65	0.28
	E	1000	24.94	0.7485	14.91	20.9	0.68	82.6	18.2	31.33	0.09
	F	1075	23.18	0.2617	9.396	35.3	1.9	88.1	44.2	31.06	0.07
	G	1250	24.95	0.3015	15.84	55.0	1.7	81.3	84.6	30.86	0.08
Xi	H	1350	31.19	1.824	40.88	10.3	0.28	61.7	92.1	29.33	0.16
Xi	I	1450	35.62	7.290	61.32	7.41	0.070	50.8	97.5	27.68	0.24
Xi	J	1650	18.17	5.262	37.81	3.34	0.097	40.9	100.0	11.40	0.24
	Integrated age ± 2σ			n=8		136.1	0.52		K2O=1.46	30.22	0.72
	Plateau ± 2σ steps D-G			**n=4**	**MSWD=5.97**	**115.030**	**1.553±1.355**		**84.5**	**31.05**	**0.76**
	Isochron±2σ steps C-G			n=5	MSWD=5.34		$^{40}Ar/^{36}Ar$= 291±16			31.1	1.7
	10CM1, Groundmass Concentrate, 6.25 mg, J=0.0023171±0.08%, D=1.002±0.001, NM-240K, Lab#=60011-01										
X	A	3	15.45	0.3791	32.61	2.77	1.3	37.8	2.0	24.25	0.38
X	B	3	9.731	0.3866	10.59	4.36	1.3	68.1	5.1	27.48	0.21
	C	4	9.428	0.9356	6.778	14.7	0.55	79.6	15.6	31.07	0.11
	D	5	8.205	0.9170	2.445	14.2	0.56	92.1	25.8	31.30	0.09
	E	6	8.240	0.3199	2.671	13.3	1.6	90.7	35.3	30.95	0.09
	F	7	8.201	0.1739	2.643	30.2	2.9	90.6	56.9	30.78	0.07
	G	8	8.303	0.2216	2.288	21.6	2.3	92.1	72.4	31.64	0.07
	H	9	8.304	0.1941	2.046	14.2	2.6	92.9	82.5	31.93	0.09
	I	10	8.319	0.1394	1.239	3.72	3.7	95.7	85.2	32.95	0.17
	J	30	8.386	0.3200	2.450	20.7	1.6	91.7	100.0	31.82	0.07
	Integrated age ± 2σ			n=10		139.8	1.3		K2O=3.71	31.11	0.12
	Plateau ± 2σ steps C-J			**n=8**	**MSWD=39.45**	**132.681**	**1.956±2.222**		**94.9**	**31.41**	**0.38**
	F10-40, wr, 7.35 mg, J=0.0023331±0.09%, D=1.003±0.001, NM-242F, Lab#=60090-01										
Xi	A	3	24.06	3.268	97.88	0.520	0.16	-19.1	0.4	-19.51	3.40
X	B	6	9.871	0.8546	5.478	16.3	0.60	84.3	14.1	34.67	0.10
	C	10	8.766	0.4850	1.116	39.0	1.1	96.7	46.8	35.30	0.06
	D	14	8.759	0.4403	1.163	24.7	1.2	96.5	67.5	35.20	0.07
	E	16	8.855	0.6407	1.312	13.6	0.80	96.2	78.9	35.49	0.08
X	F	18	8.910	0.7919	1.357	8.52	0.64	96.2	86.0	35.72	0.11
X	G	20	8.946	0.6674	1.053	3.94	0.76	97.1	89.3	36.19	0.16
X	H	25	8.994	0.7573	1.412	4.36	0.67	96.1	93.0	35.98	0.16
X	I	30	9.165	1.082	1.579	5.30	0.47	95.9	97.4	36.60	0.13
X	J	35	9.397	1.124	1.851	3.05	0.45	95.2	100.0	37.25	0.20
	Integrated age ± 2σ			n=10		119.2	0.80		K2O=2.67	35.17	0.13
	Plateau ± 2σ steps C-E			**n=3**	**MSWD=3.87**	**77.2**	**1.0 ±0.4**		**64.8**	**35.32**	**0.16**
	Isochron±2σ steps B-J			n=9	MSWD=38.92		$^{40}Ar/^{36}Ar$=73.2±75.6			35.63	0.69

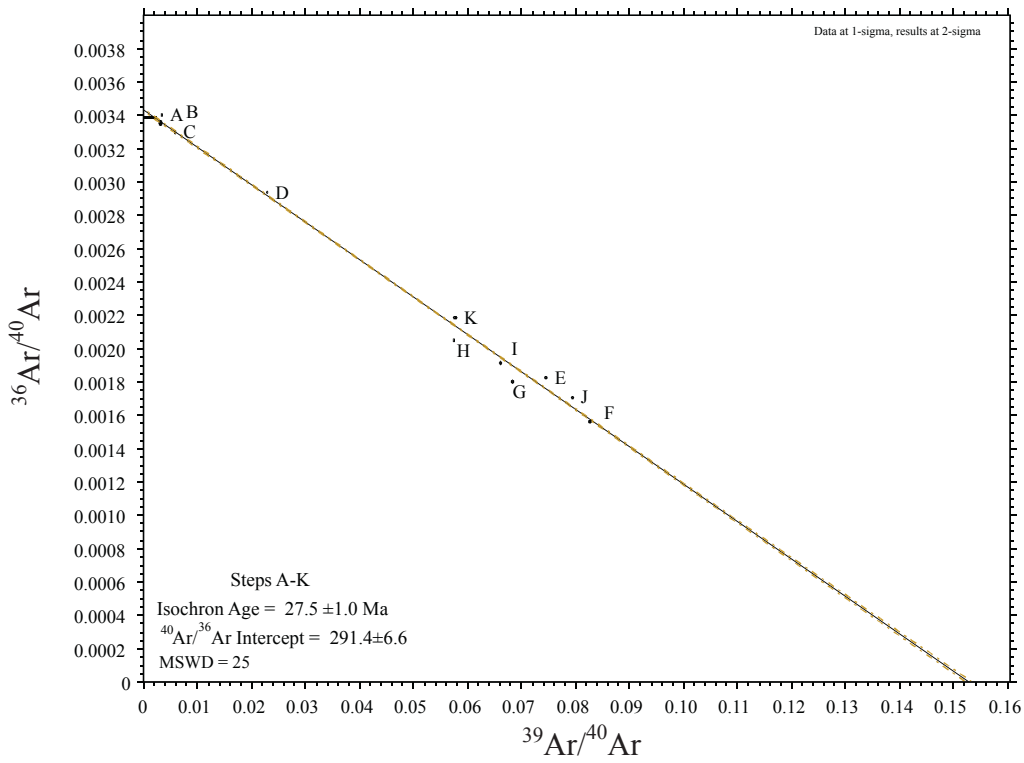
	ID	Power (Watts)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	^{39}Ar (%)	Age (Ma)	±1σ (Ma)
	10NP3, Groundmass Concentrate, 7.56 mg, J=0.0023145±0.11%, D=1.002±0.001, NM-240K, Lab#=60012-01										
Xi	A	3	9.255	0.0655	14.89	13.5	7.8	52.5	7.9	20.15	0.15
Xi	B	3	8.846	0.0511	6.326	26.0	10.0	78.9	22.5	28.88	0.09
i	C	4	8.912	0.0401	1.120	65.7	12.7	96.3	56.1	35.45	0.06
	D	5	9.095	0.0348	0.2729	35.7	14.7	99.1	72.5	37.23	0.06
	E	6	8.730	0.0443	0.0360	17.6	11.5	99.9	80.2	36.02	0.08
	F	7	8.566	0.0585	0.5908	21.8	8.7	98.0	89.4	34.68	0.08
	G	8	9.187	0.0593	1.402	9.18	8.6	95.5	93.2	36.24	0.13
	H	9	9.394	0.0712	1.773	5.20	7.2	94.5	95.3	36.65	0.17
	I	10	9.665	0.0866	1.634	3.23	5.9	95.1	96.6	37.93	0.25
	J	30	10.06	0.2361	3.821	8.64	2.2	89.0	100.0	36.94	0.13
	Integrated age ± 2σ			n=10		206.5	9.3		K2O=4.53	34.07	0.13
	Plateau ± 2σ steps C-J			**n=8**	**MSWD=135.14**	**167.000**	**1.411±8.004**		**80.9**	**36.06**	**0.70**
	Isochron±2σ steps D-J			n=7	MSWD=138.79		$^{40}Ar/^{36}Ar$=400±200			36.00	1.10
	Tu-1635, 9.98 mg, J=0.0016288±0.09%, D=1.002±0.001, NM-236F, Lab#=59762-01										
X	A	650	211.0	0.7343	670.5	1.253	0.69	6.1	2.6	37.7	3.5
X	B	750	32.78	0.4839	66.51	1.249	1.1	40.1	5.1	38.26	0.79
	C	800	30.81	0.5519	59.42	0.566	0.92	43.1	6.2	38.6	1.2
	D	850	61.16	0.6232	165.0	0.543	0.82	20.3	7.3	36.2	1.9
	E	900	70.15	0.8863	196.8	0.395	0.58	17.2	8.1	35.1	2.4
	F	950	37.97	2.079	88.08	0.374	0.25	31.9	8.8	35.3	1.9
	G	1025	23.97	2.202	39.01	0.749	0.23	52.7	10.3	36.77	0.91
	H	1075	16.60	3.293	15.66	1.65	0.15	73.8	13.5	35.72	0.44
	I	1150	14.00	4.030	6.121	17.0	0.13	89.5	43.8	36.55	0.13
	J	1250	14.45	5.052	7.778	37.6	0.10	87.0	97.7	36.68	0.14
Xi	K	1700	98.79	7.498	306.4	1.91	0.068	9.0	100.0	26.0	1.6
	Integrated age ± 2σ			n=11		63.3	0.11		K2O=1.50	36.34	0.39
	Plateau ± 2σ steps C-J			**n=8**	**MSWD=1.17**	**58.9**	**0.13 ±0.66**		**93.0**	**36.57**	**0.21**
	Isochron±2σ steps A-J			n=10	MSWD=1.52		$^{40}Ar/^{36}Ar$=!96.5±4.4			36.58	0.27
	F10-43, wr, 9.61 mg, J=0.00233±0.07%, D=1.003±0.001, NM-242F, Lab#=60091-01										
X	A	3	20.32	0.6657	33.97	2.12	0.77	50.8	1.8	42.90	0.52
X	B	6	11.33	0.4361	8.052	18.7	1.2	79.3	17.5	37.37	0.13
X	C	10	9.063	0.2259	1.289	38.5	2.3	96.0	49.9	36.18	0.05
X	D	14	9.240	0.2570	1.648	26.8	2.0	95.0	72.5	36.48	0.09
X	E	16	9.645	0.3680	2.702	12.5	1.4	92.0	83.0	36.90	0.08
X	F	18	9.786	0.3874	3.028	6.46	1.3	91.2	88.4	37.09	0.12
X	G	20	9.895	0.4296	3.282	4.23	1.2	90.6	92.0	37.25	0.15
X	H	25	10.14	0.4607	3.504	3.66	1.1	90.2	95.0	38.00	0.17
X	I	30	10.22	0.5238	3.768	3.13	0.97	89.5	97.7	38.03	0.20
X	J	35	10.61	0.6626	4.930	2.76	0.77	86.8	100.0	38.28	0.23
	Integrated age ± 2σ			**n=10**		**118.8**	**1.5**		**K2O=2.04**	**36.87**	**0.13**
	Isochron±2σ steps A-J			n=10	MSWD=15.18		$^{40}Ar/^{36}Ar$= 350±30			36.12	0.39

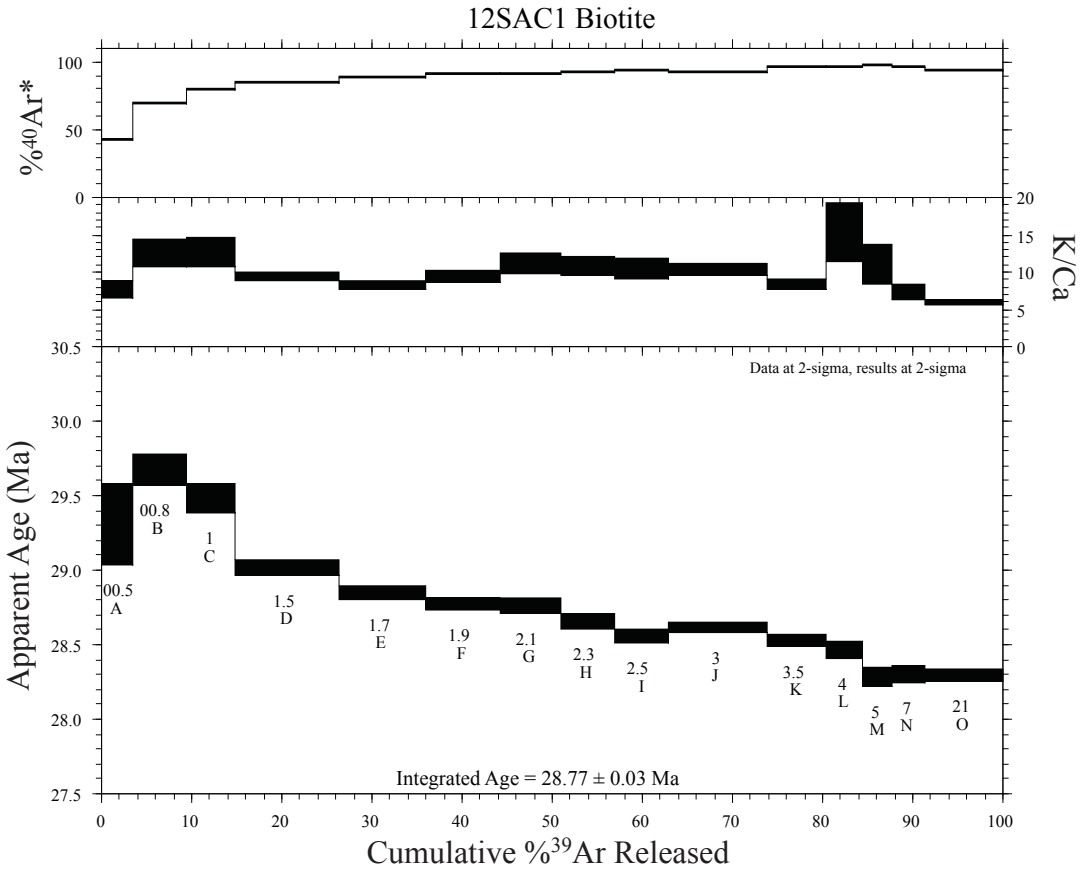
ID	Power (Watts)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ (x 10^{-3})	$^{39}Ar_K$ (x 10^{-15} mol)	K/Ca	$^{40}Ar^*$ (%)	^{39}Ar (%)	Age (Ma)	±1σ (Ma)
11GP7, hornblende, 6.93 mg, J=0.0022191±0.08%, D=1.0015±0.0012, NM-244C, Lab#=21718-01										
E	12	11.52	3.915	8.617	2.61	0.13	80.7	4.9	36.95	0.27
F	14	9.686	3.871	2.450	9.65	0.13	95.9	23.2	36.87	0.13
G	16	9.356	3.833	1.194	12.25	0.13	99.7	46.4	37.02	0.12
H	18	9.365	3.978	1.185	12.53	0.13	99.8	70.1	37.11	0.12
I	20	9.374	4.068	1.454	6.78	0.13	99.0	83.0	36.87	0.13
J	25	9.348	3.936	1.193	8.50	0.13	99.7	99.1	37.02	0.14
K	35	9.859	3.752	1.496	0.495	0.14	98.7	100.0	38.61	0.84
Integrated age ± 2σ			n=7		52.8	0.13	K2O=1.32%		37.01	0.23
Plateau ± 2σ	**steps E-K**		**n=7**	**MSWD=1.09**	**52.8**	**0.13 ±0.01**		**100.0**	**36.99**	**0.13**
Isochron±2σ	steps E-K		n=7	MSWD=1.91		$^{40}Ar/^{36}Ar$=	289.8±16.7		37.01	0.10
10NP1, Groundmass Concentrate, 6.03 mg, J=0.0023069±0.12%, D=1.002±0.001, NM-240K, Lab#=60013-01										
Xi A	3	80.45	3.586	260.8	0.474	0.14	4.6	2.3	15.28	2.66
Xi B	3	45.92	3.085	133.0	0.541	0.17	14.9	5.0	28.36	1.72
i C	4	31.11	3.109	76.61	1.45	0.16	28.0	12.0	35.99	0.86
D	5	17.49	2.995	28.49	1.91	0.17	53.3	21.4	38.41	0.50
E	6	16.08	2.454	22.92	1.78	0.21	59.1	30.1	39.18	0.48
F	7	13.25	1.729	14.50	3.61	0.30	68.7	47.7	37.54	0.25
G	8	11.21	1.546	6.390	1.70	0.33	84.3	56.0	38.89	0.42
H	9	10.43	1.707	4.032	1.55	0.30	89.9	63.6	38.64	0.44
I	10	10.16	2.553	2.196	1.38	0.20	95.7	70.4	40.04	0.44
J	30	10.73	4.009	7.644	6.06	0.13	82.0	100.0	36.34	0.26
Integrated age ± 2σ			n=10		20.5	0.18	K2O=0.56		36.91	0.45
Plateau ± 2σ	**steps C-J**		**n=8**	**MSWD=11.79**	**19.437**	**0.209±0.148**		**95.0**	**37.84**	**0.92**
Isochron±2σ	steps D-J		n=7	MSWD=16.51		$^{40}Ar/^{36}Ar$=	300±40		37.47	1.90

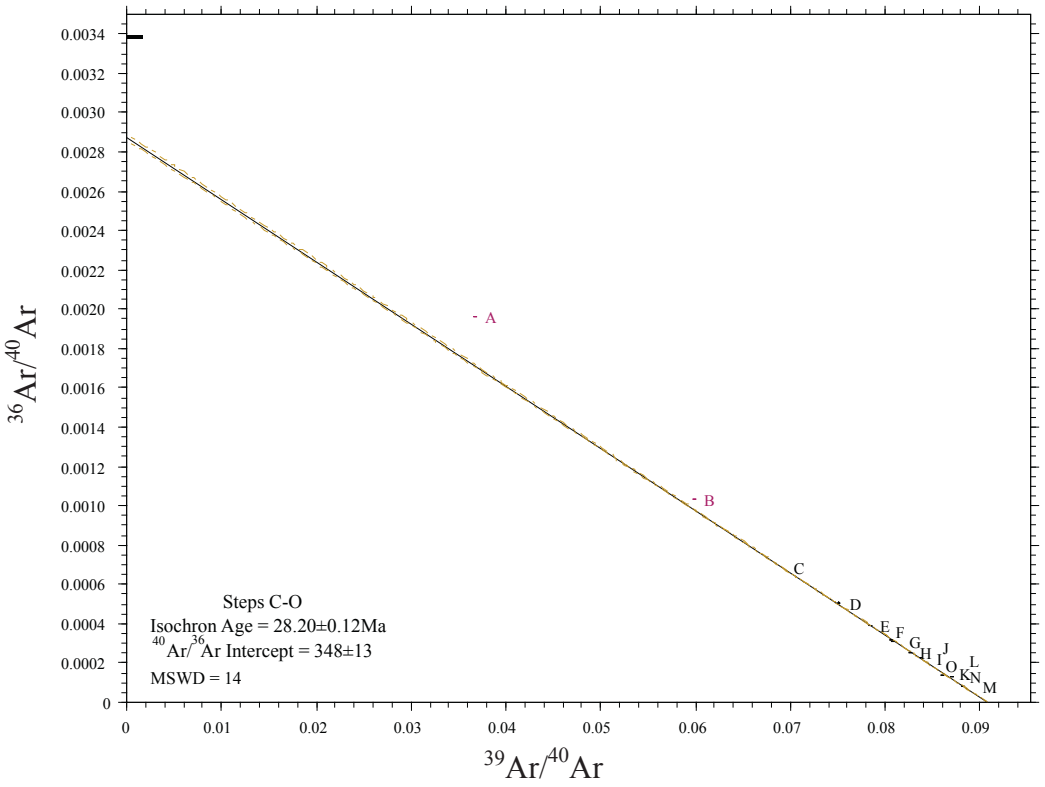
Notes:

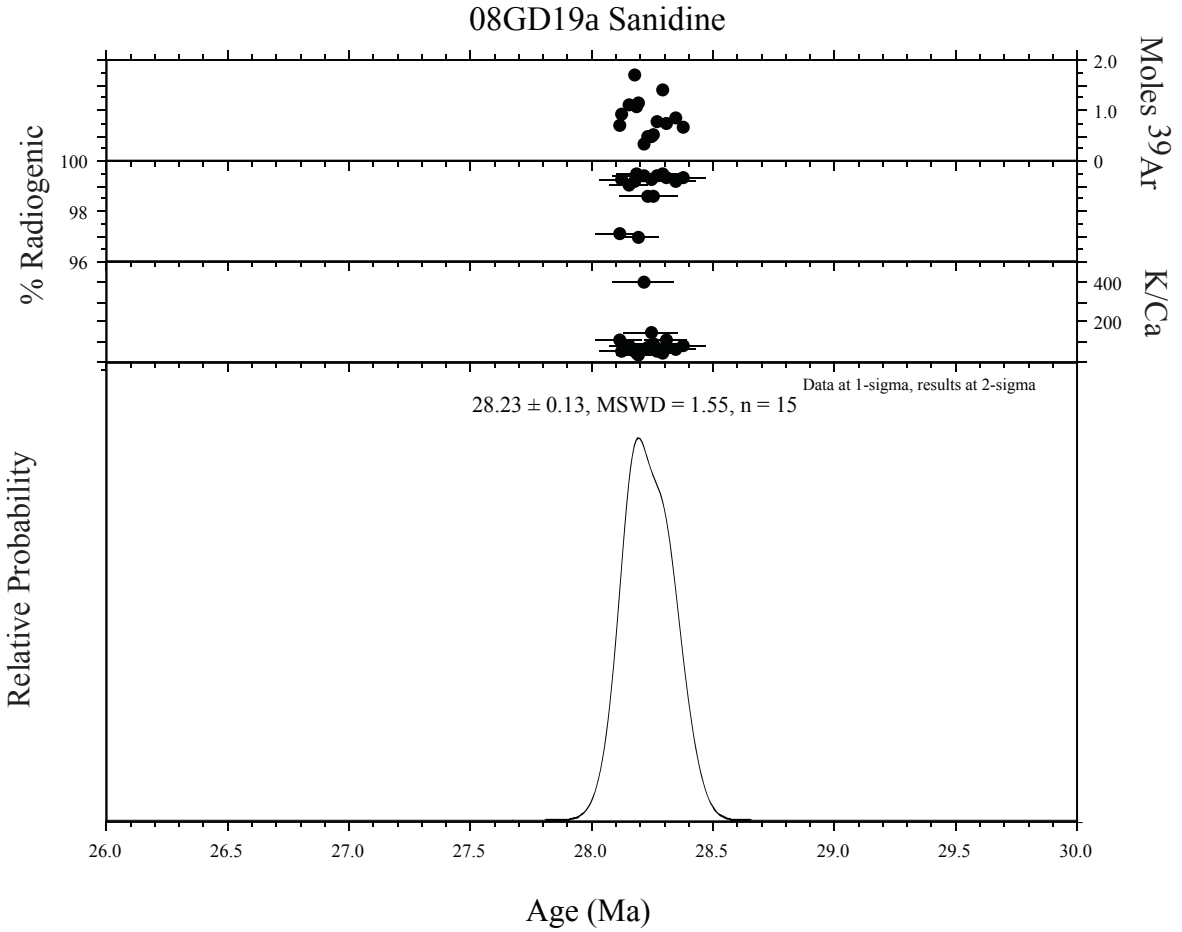
Isotopic ratios corrected for blank, radioactive decay, and mass discrimination, not corrected for interfering reactions.
Errors quoted for individual analyses include analytical error only, without interfering reaction or J uncertainties.
Integrated age calculated by summing isotopic measurements of all steps.
Integrated age error calculated by quadratically combining errors of isotopic measurements of all steps.
Plateau age is inverse-variance-weighted mean of selected steps.
Plateau age error is inverse-variance-weighted mean error (Taylor, 1982) times root MSWD where MSWD>1.
Plateau error is weighted error of Taylor (1982).
Decay constants and isotopic abundances after Steiger and Jäger (1977).
X symbol preceding sample ID denotes analyses excluded from plateau age calculations.
Weight percent K_2O calculated from ^{39}Ar signal, sample weight, and instrument sensitivity.
Ages calculated relative to FC-2 Fish Canyon Tuff sanidine interlaboratory standard at 28.02 Ma
Decay Constant (LambdaK (total)) = 5.543e-10/a
Correction factors:
$(^{39}Ar/^{37}Ar)_{Ca}$ = 0.0007 ± 5e-05
$(^{36}Ar/^{37}Ar)_{Ca}$ = 0.00028 ± 2e-05
$(^{38}Ar/^{39}Ar)_{K}$ = 0.013
$(^{40}Ar/^{39}Ar)_{K}$ = 0.01 ± 0.002

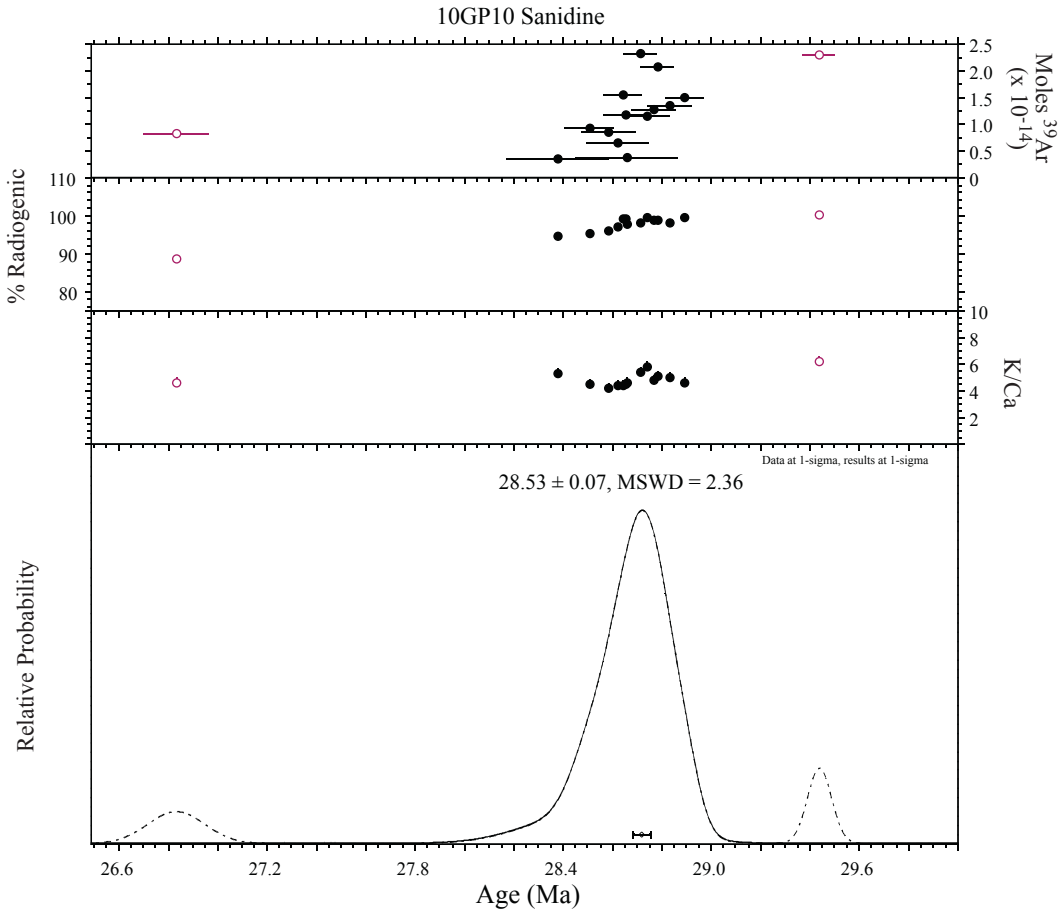

08GD31 Groundmass Concentrate
%40Ar*
K/Ca
Apparent Age (Ma)
27.05 ± 0.80 Ma* (MSWD = 28.29)
Integrated Age = 25.92 ± 0.81 Ma
2.9 C
4.7 D
6.7 E
8.6 F
11 G
14 H
16 I
24 J
23 K
Cumulative %39Ar Released

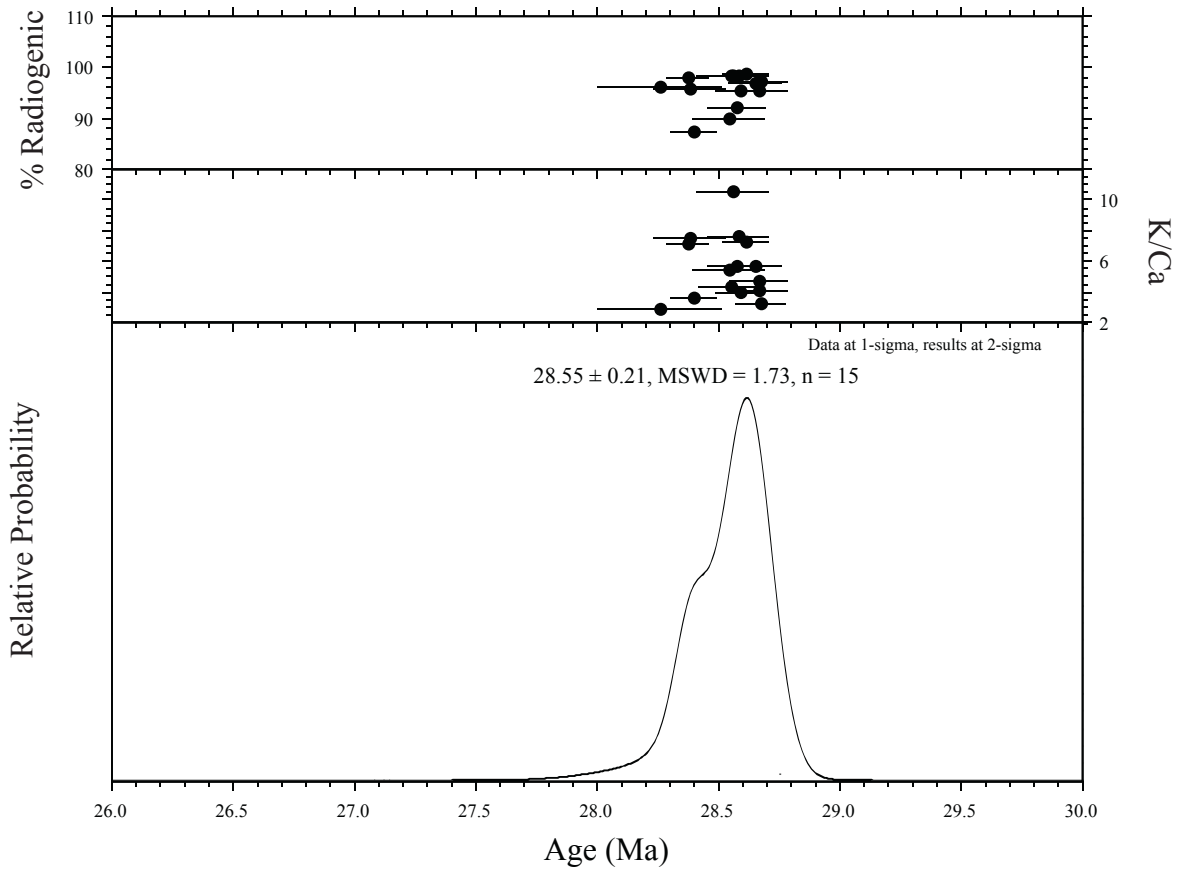

Data at 1-sigma, results at 2-sigma
36Ar/40Ar
39Ar/40Ar
Steps A-K
Isochron Age = 27.5 ±1.0 Ma
40Ar/36Ar Intercept = 291.4±6.6
MSWD = 25

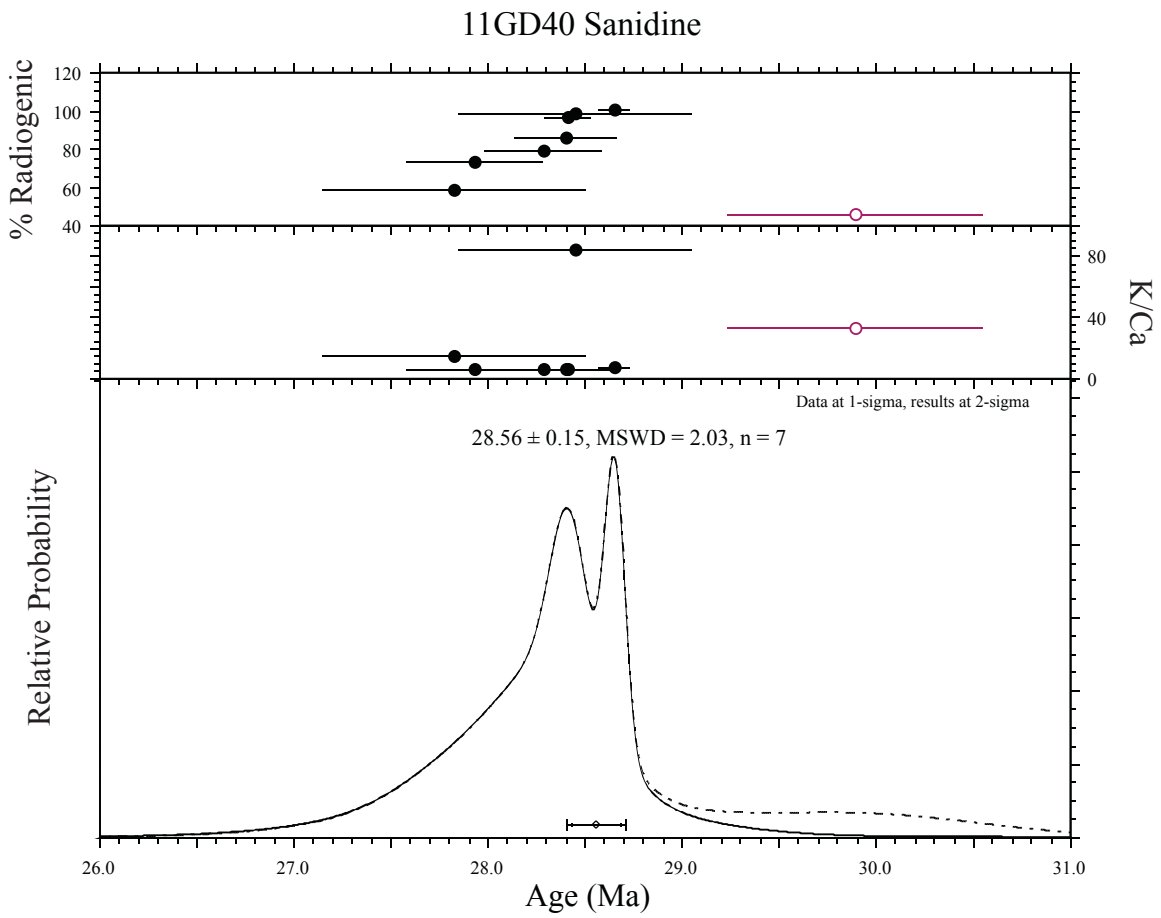

12SAC1 Biotite
%40Ar*
K/Ca
Data at 2-sigma, results at 2-sigma
Apparent Age (Ma)
00.5 A
00.8 B
1 C
1.5 D
1.7 E
1.9 F
2.1 G
2.3 H
2.5 I
3 J
3.5 K
4 L
5 M
7 N
21 O
Integrated Age = 28.77 ± 0.03 Ma
Cumulative %39Ar Released


36Ar/40Ar
39Ar/40Ar
Steps C-O
Isochron Age = 28.20±0.12Ma
40Ar/36Ar Intercept = 348±13
MSWD = 14

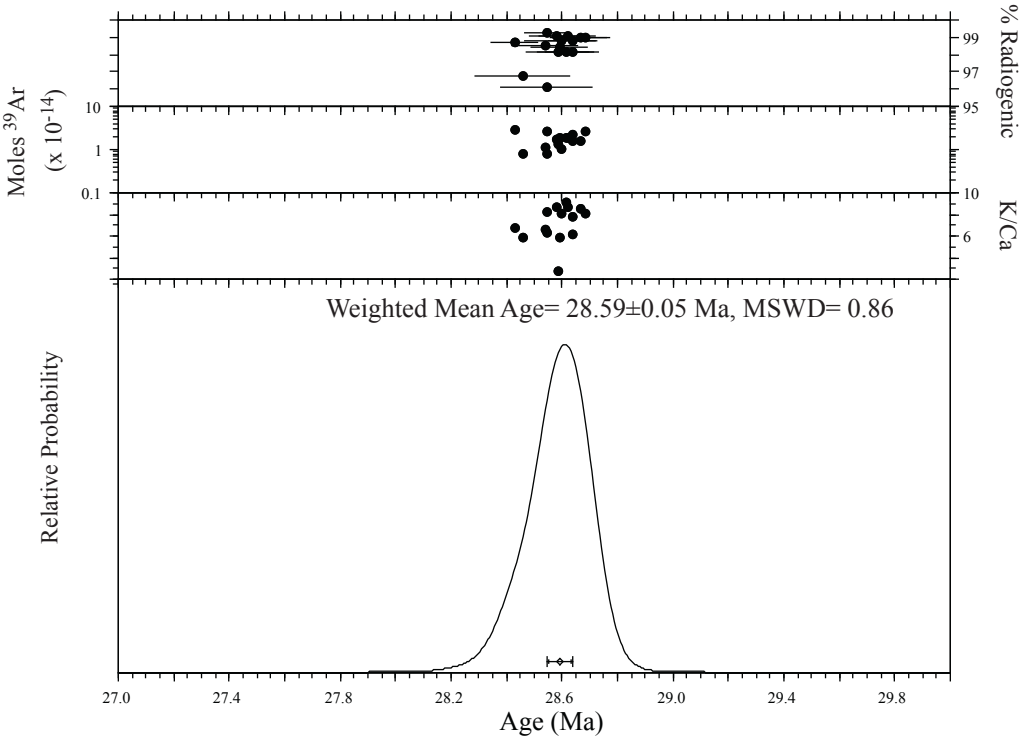

08GD19a Sanidine
% Radiogenic
100
98
96
Moles 39Ar
2.0
1.0
0
K/Ca
400
200
Data at 1-sigma, results at 2-sigma
28.23 ± 0.13, MSWD = 1.55, n = 15
Relative Probability
26.0
26.5
27.0
27.5
28.0
28.5
29.0
29.5
30.0
Age (Ma)

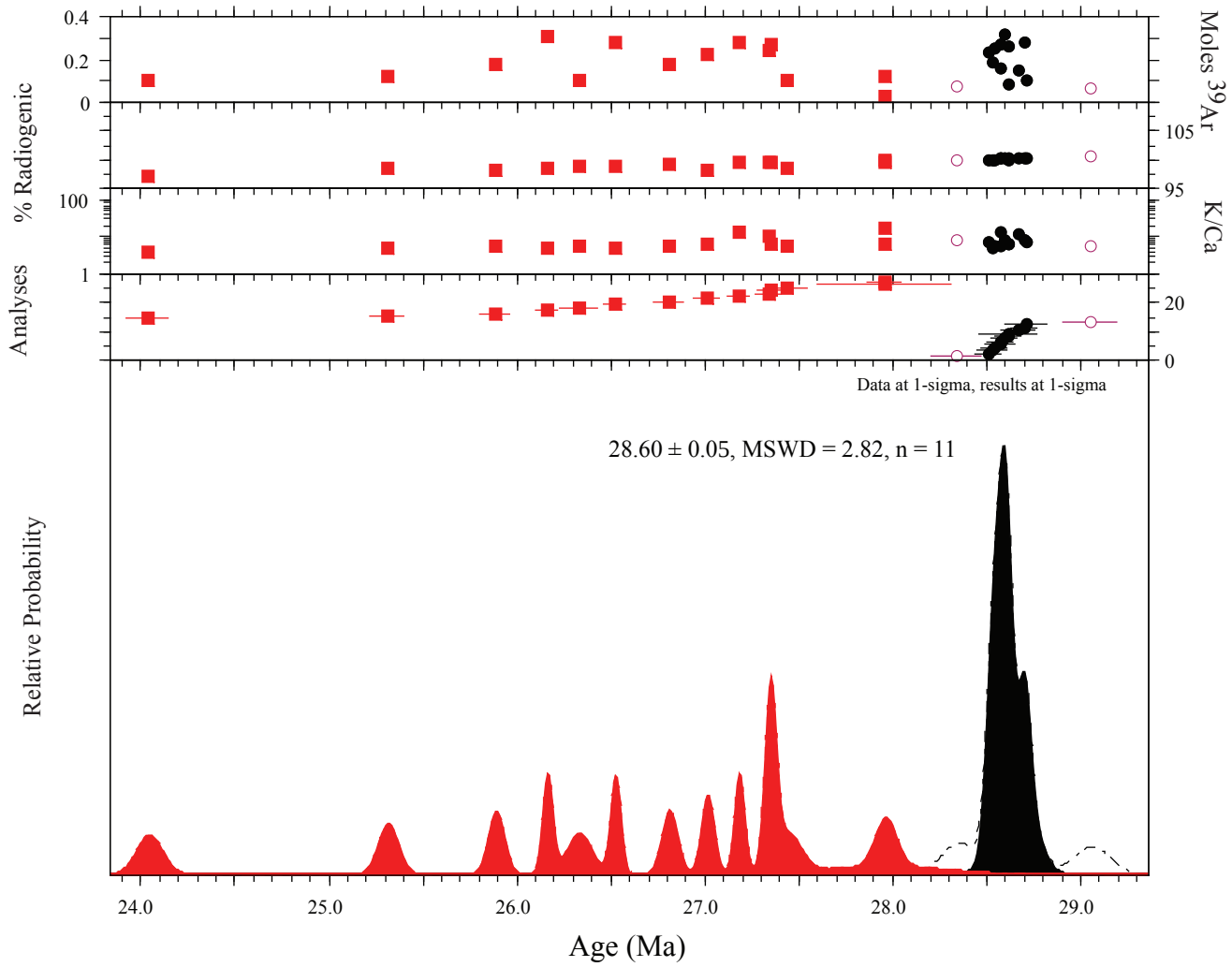

10GP10 Sanidine
Moles ^{39}Ar (x 10^{-14})
2.5
2.0
1.5
1.0
0.5
0
% Radiogenic
110
100
90
80
K/Ca
10
8
6
4
2
Data at 1-sigma, results at 1-sigma
28.53 ± 0.07, MSWD = 2.36
Relative Probability
26.6
27.2
27.8
28.4
29.0
29.6
Age (Ma)


11GP29 Sanidine
% Radiogenic
110
100
90
80
10
6
2
K/Ca
Data at 1-sigma, results at 2-sigma
28.55 ± 0.21, MSWD = 1.73, n = 15
Relative Probability
26.0
26.5
27.0
27.5
28.0
28.5
29.0
29.5
30.0
Age (Ma)

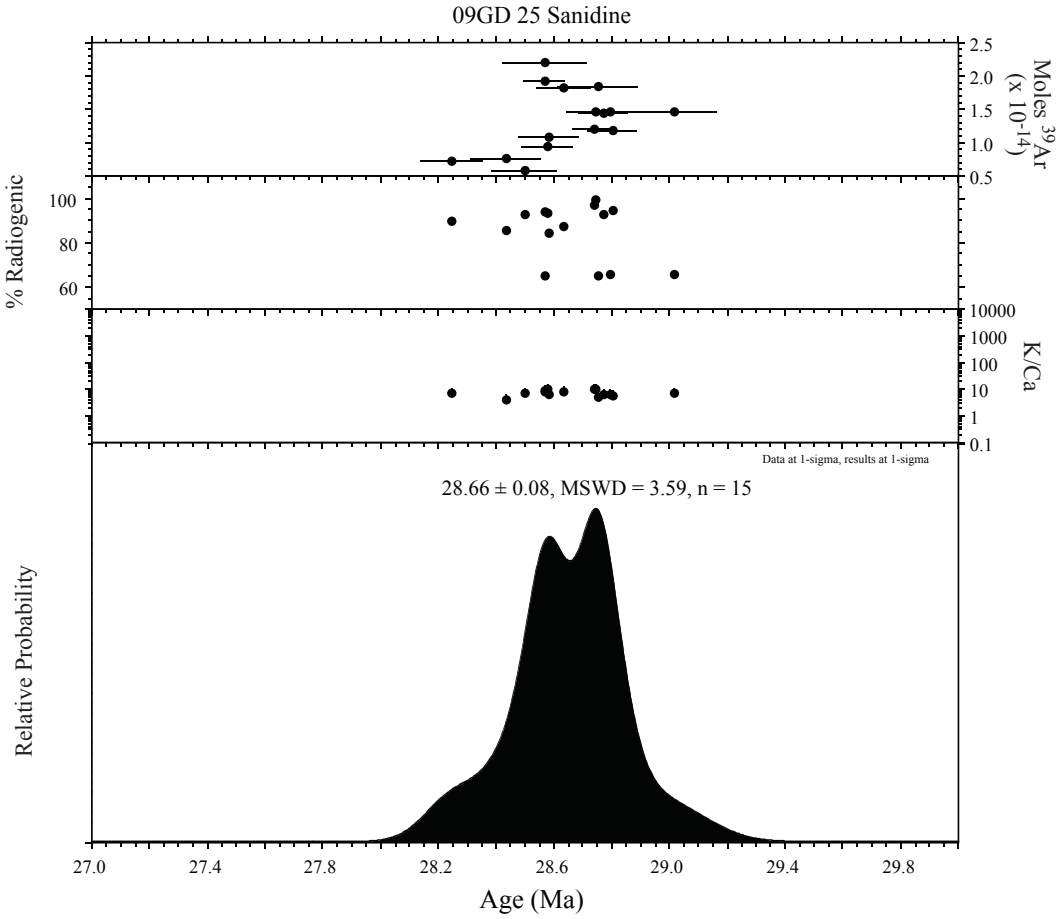

11GD40 Sanidine
% Radiogenic
120
100
80
60
40
80
40
0
K/Ca
Data at 1-sigma, results at 2-sigma
28.56 ± 0.15, MSWD = 2.03, n = 7
Relative Probability
26.0
27.0
28.0
29.0
30.0
31.0
Age (Ma)

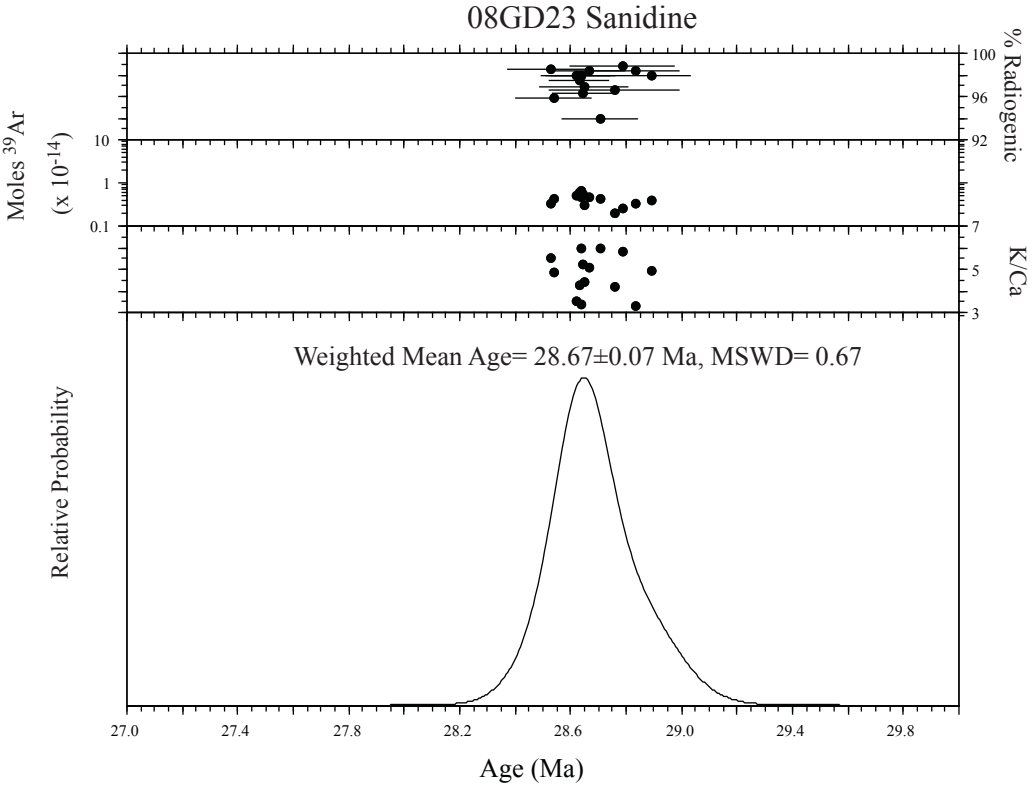
08GD22 Sanidine

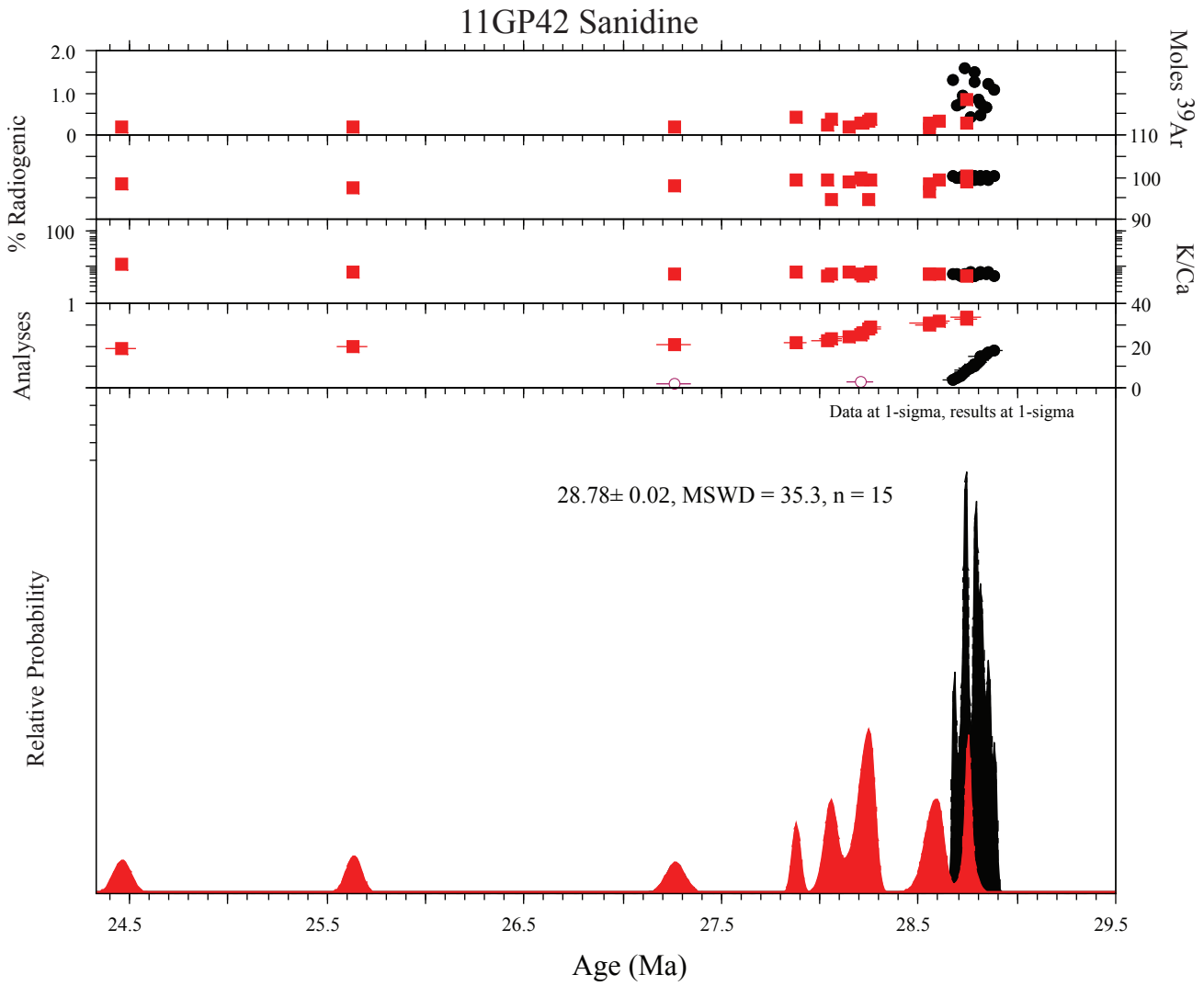




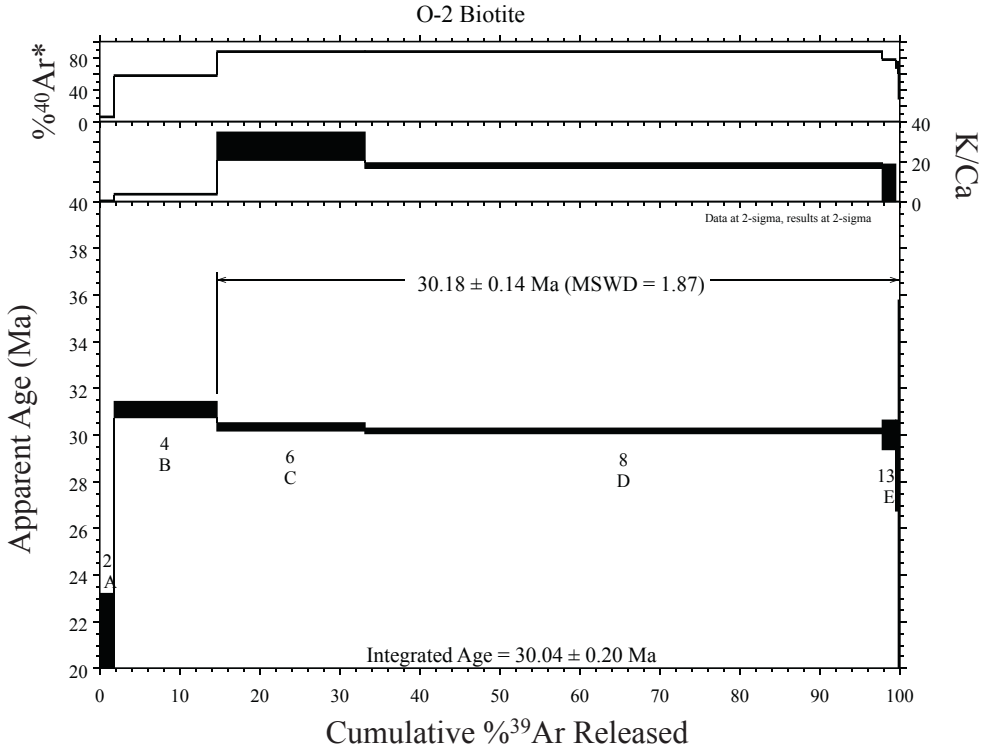
Age probability distribution diagram of 112OSO3 sanidine.
Analyses shown in red are A steps, those in black are B steps and those in purple are those eliminated from weighted mean age calculation.

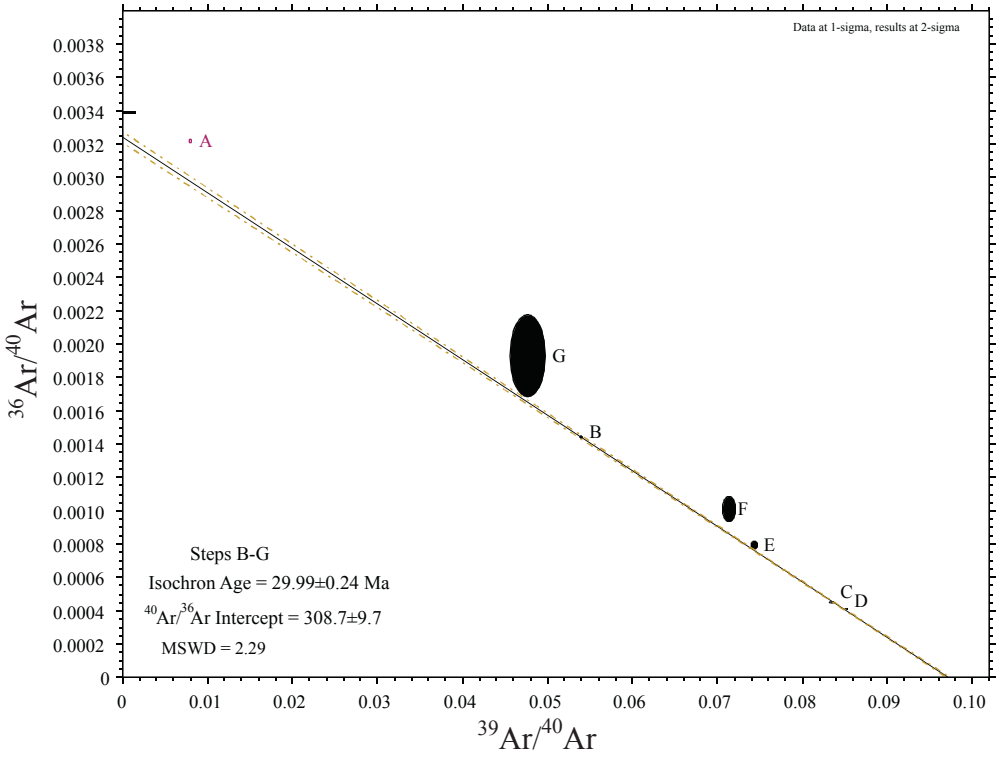

09GD 25 Sanidine
Moles ^{39}Ar (x 10^{-14})
2.5
2.0
1.5
1.0
0.5
% Radiogenic
100
80
60
K/Ca
10000
1000
100
10
1
0.1
Data at 1-sigma, results at 1-sigma
28.66 ± 0.08, MSWD = 3.59, n = 15
Relative Probability
27.0
27.4
27.8
28.2
28.6
29.0
29.4
29.8
Age (Ma)

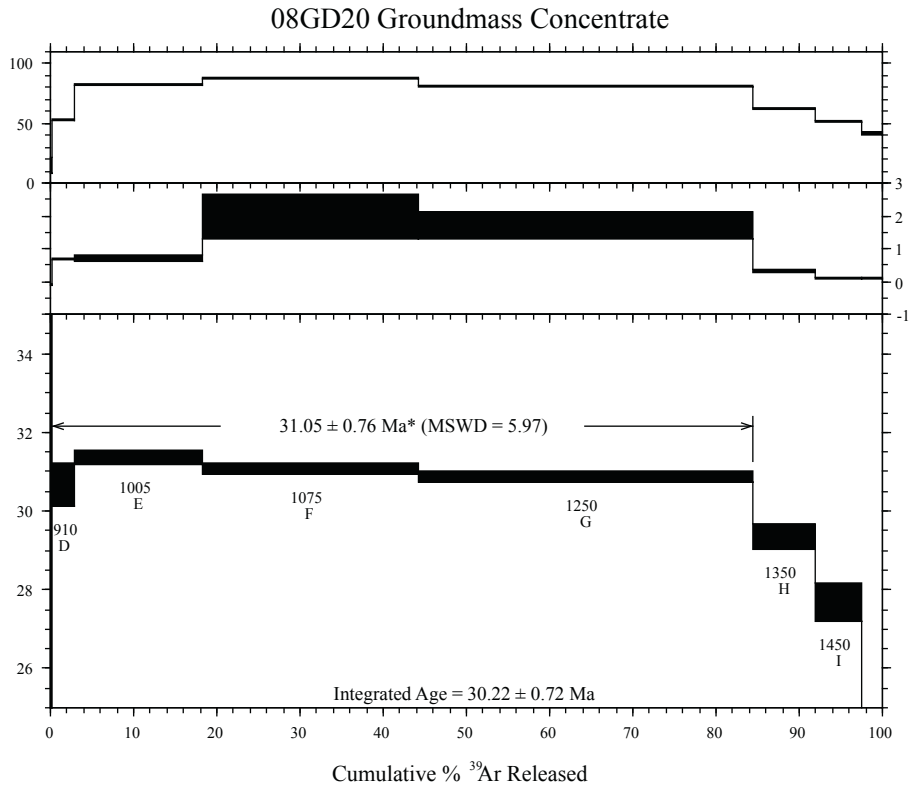

08GD23 Sanidine
% Radiogenic
100
96
92
Moles ^{39}Ar
(x 10^{-14})
10
1
0.1
7
5
3
K/Ca
Weighted Mean Age= 28.67±0.07 Ma, MSWD= 0.67
Relative Probability
27.0
27.4
27.8
28.2
28.6
29.0
29.4
29.8
Age (Ma)

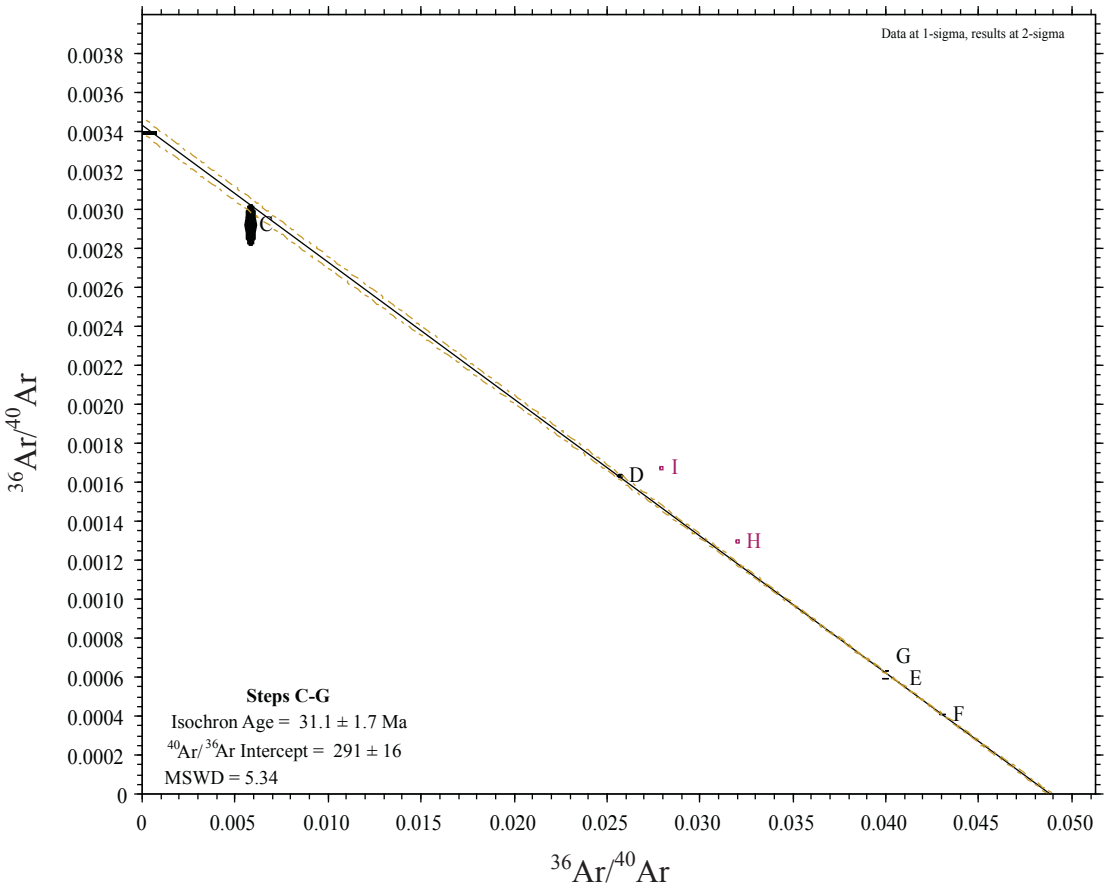


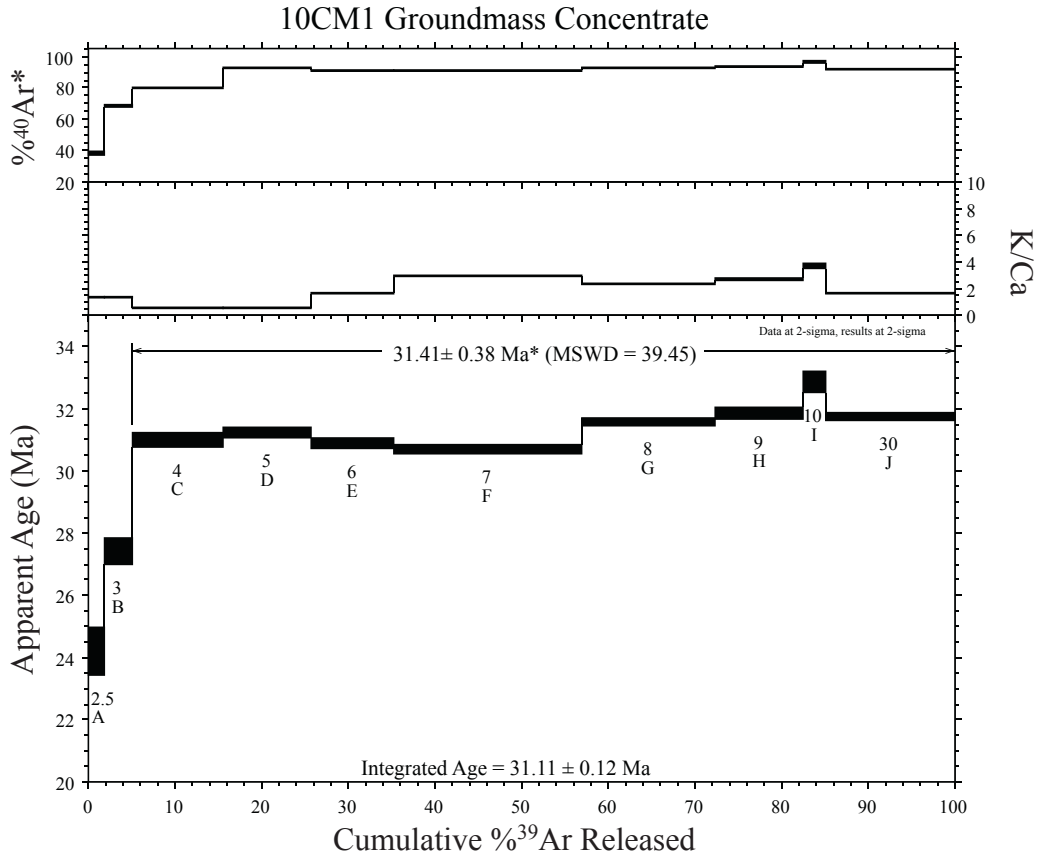
Age probability distribution diagram of 11GP42 sanidine. Analyses shown in red are A steps and the black are B steps. Those in purple are analyses eliminated from weighted mean age calculation.

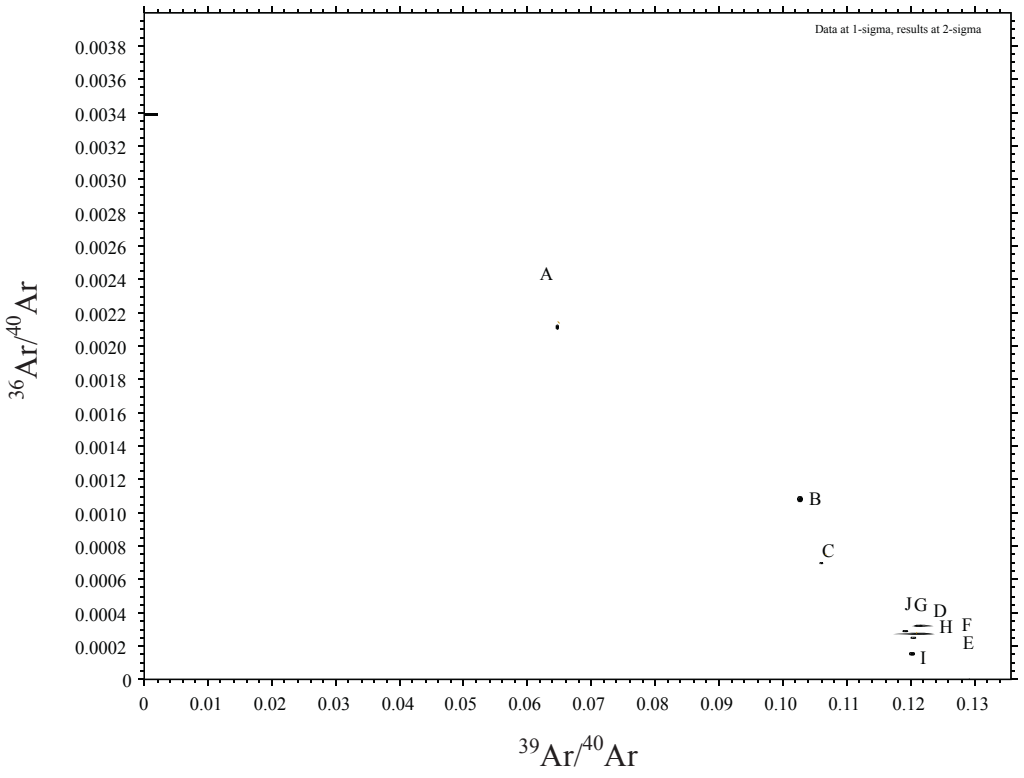

O-2 Biotite
%40Ar*
K/Ca
Data at 2-sigma, results at 2-sigma
30.18 ± 0.14 Ma (MSWD = 1.87)
Apparent Age (Ma)
2
A
4
B
6
C
8
D
13
E
Integrated Age = 30.04 ± 0.20 Ma
Cumulative %39Ar Released

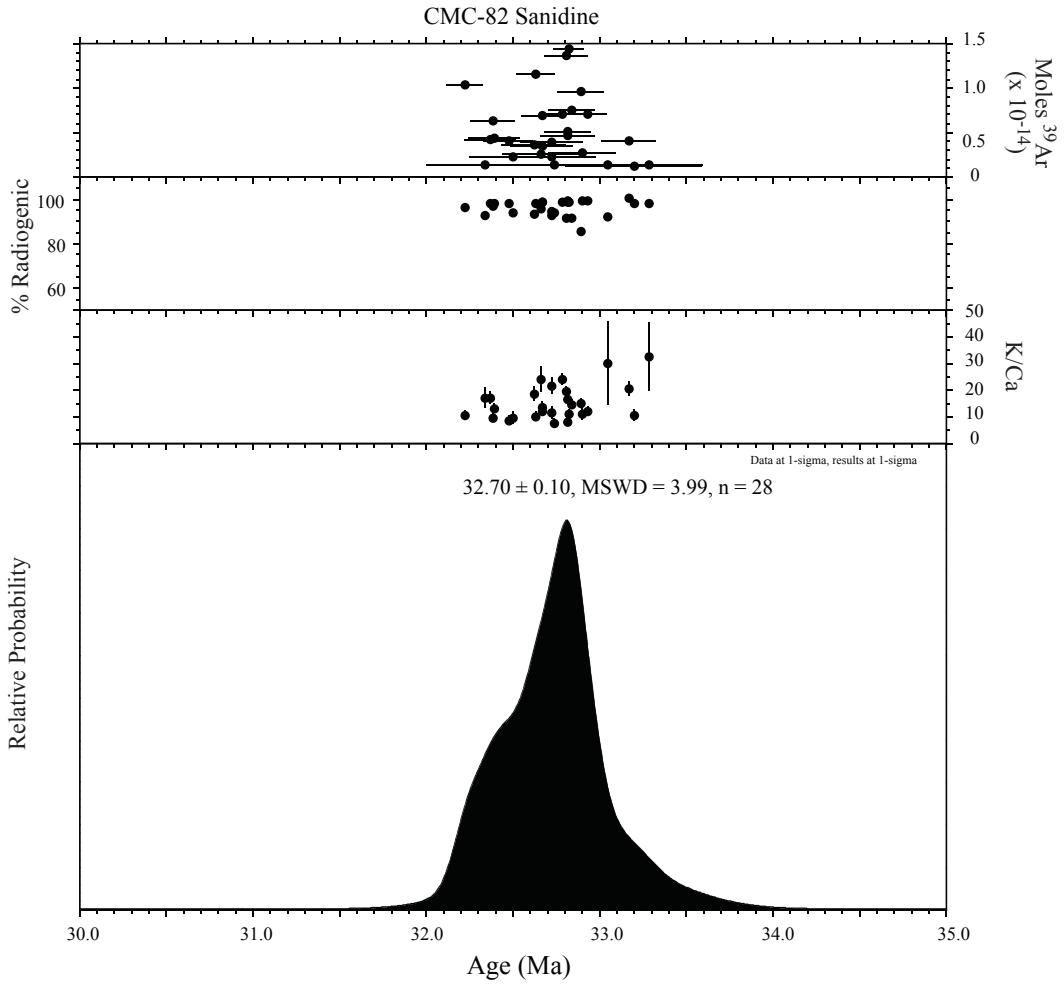

Data at 1-sigma, results at 2-sigma
A
G
B
F
E
C
D
Steps B-G
Isochron Age = 29.99±0.24 Ma
40Ar/36Ar Intercept = 308.7±9.7
MSWD = 2.29
36Ar/40Ar
39Ar/40Ar

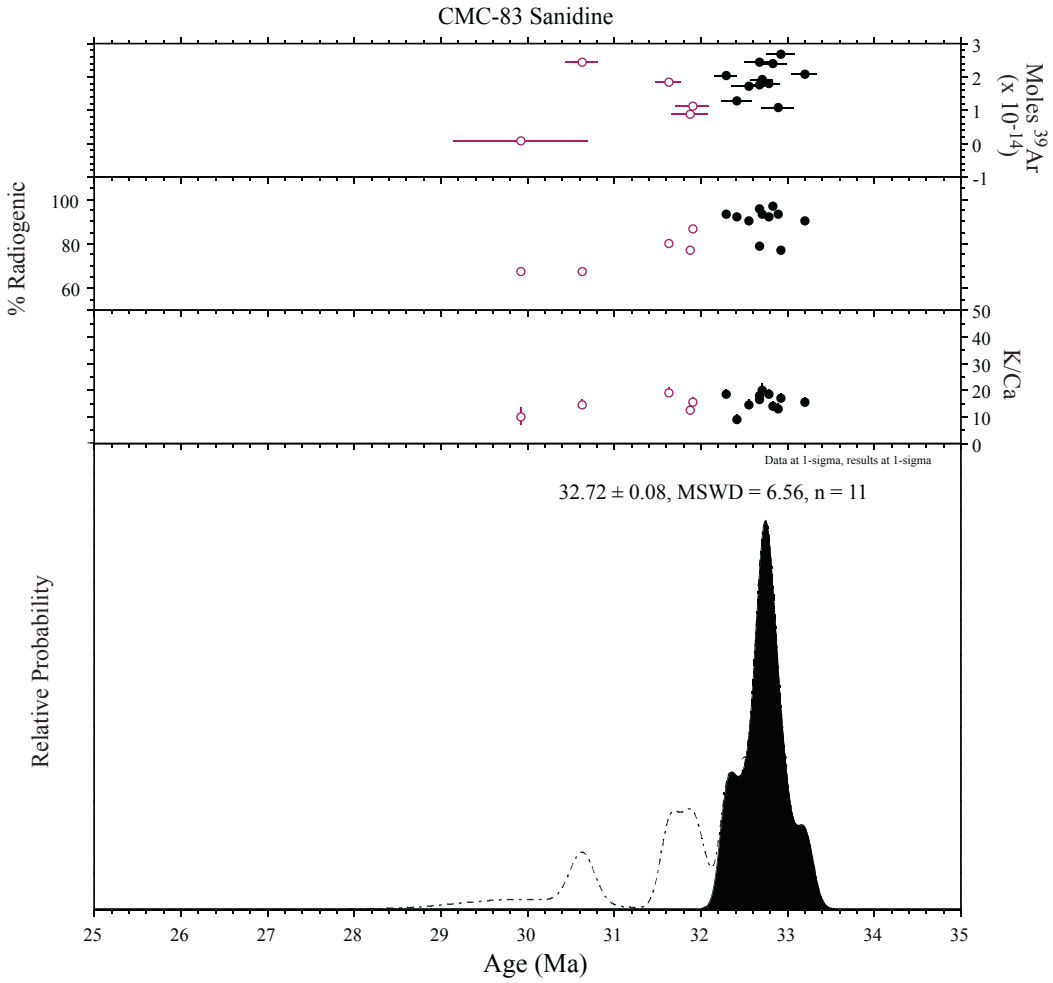

08GD20 Groundmass Concentrate
100
50
0
3
2
1
0
-1
34
32
30
28
26
31.05 ± 0.76 Ma* (MSWD = 5.97)
910
D
1005
E
1075
F
1250
G
1350
H
1450
I
Integrated Age = 30.22 ± 0.72 Ma
0
10
20
30
40
50
60
70
80
90
100
Cumulative % 39Ar Released

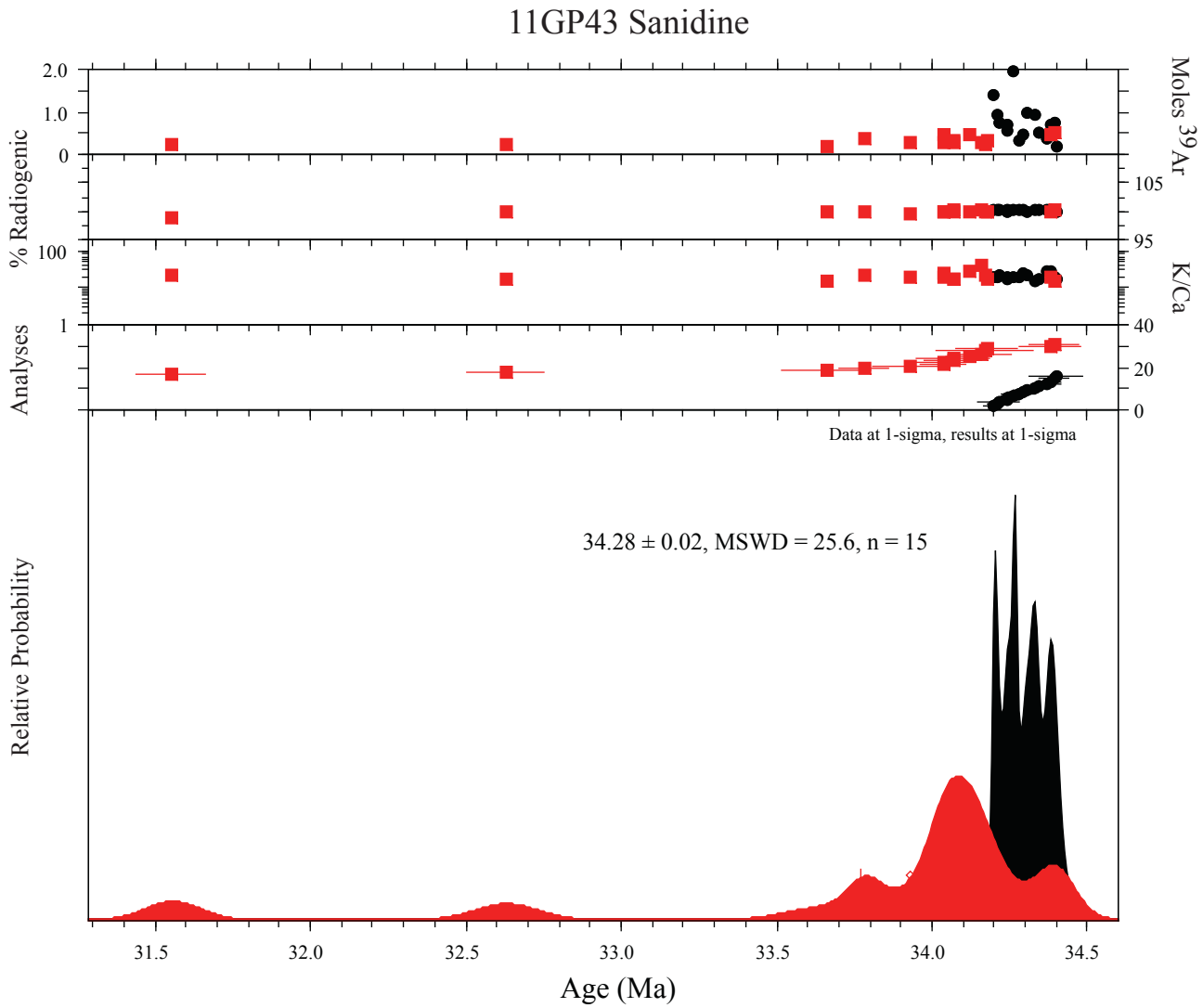

Data at 1-sigma, results at 2-sigma
0.0038
0.0036
0.0034
0.0032
0.0030
0.0028
0.0026
0.0024
0.0022
0.0020
0.0018
0.0016
0.0014
0.0012
0.0010
0.0008
0.0006
0.0004
0.0002
0
C
D
I
H
G
E
F
Steps C-G
Isochron Age = 31.1 ± 1.7 Ma
40Ar/36Ar Intercept = 291 ± 16
MSWD = 5.34
0
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
0.045
0.050
36Ar/40Ar
36Ar/40Ar


10CM1 Groundmass Concentrate
%40Ar*
K/Ca
Data at 2-sigma, results at 2-sigma
31.41± 0.38 Ma* (MSWD = 39.45)
Apparent Age (Ma)
2.5
A
3
B
4
C
5
D
6
E
7
F
8
G
9
H
10
I
30
J
Integrated Age = 31.11 ± 0.12 Ma
Cumulative %39Ar Released


Data at 1-sigma, results at 2-sigma
36Ar/40Ar
39Ar/40Ar
A
B
C
JG
D
H
F
E
I

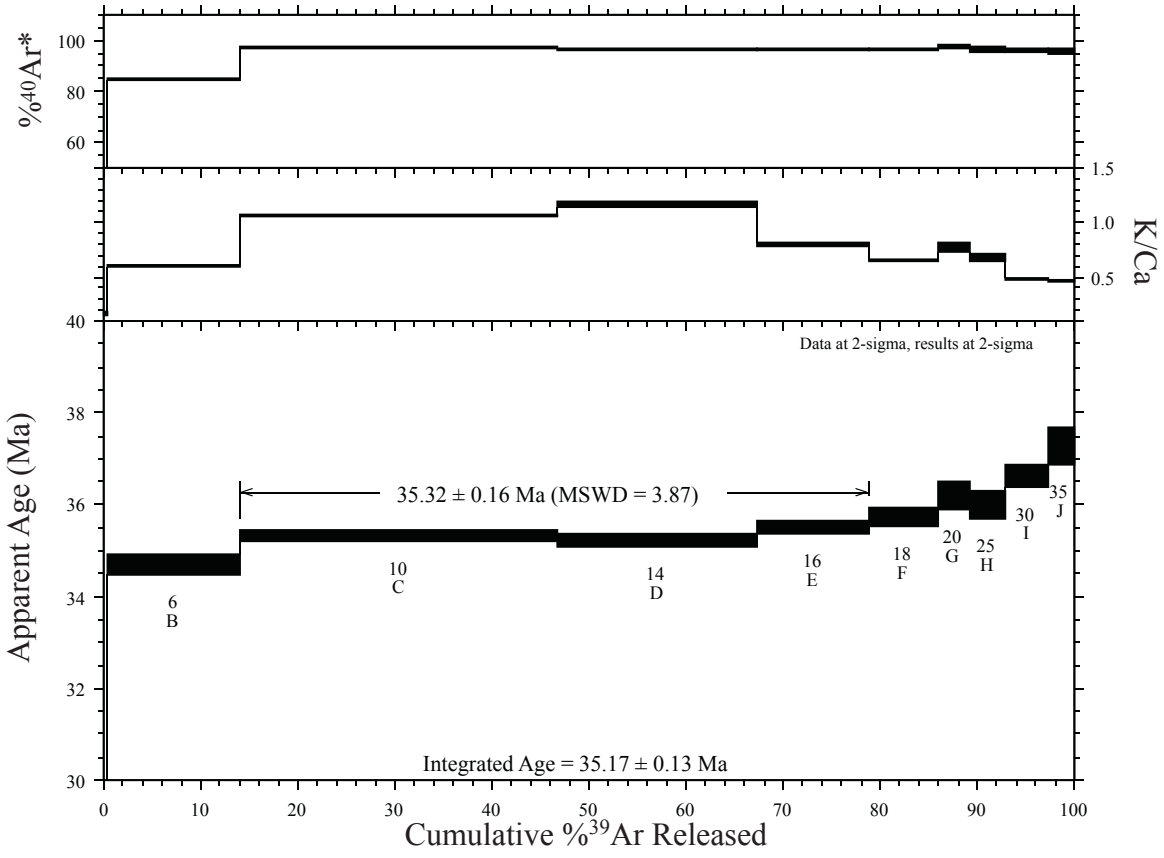

CMC-82 Sanidine
Moles ^{39}Ar (x 10^{-14})
1.5
1.0
0.5
0
% Radiogenic
100
80
60
50
40
30
20
10
0
K/Ca
Data at 1-sigma, results at 1-sigma
32.70 ± 0.10, MSWD = 3.99, n = 28
Relative Probability
30.0
31.0
32.0
33.0
34.0
35.0
Age (Ma)

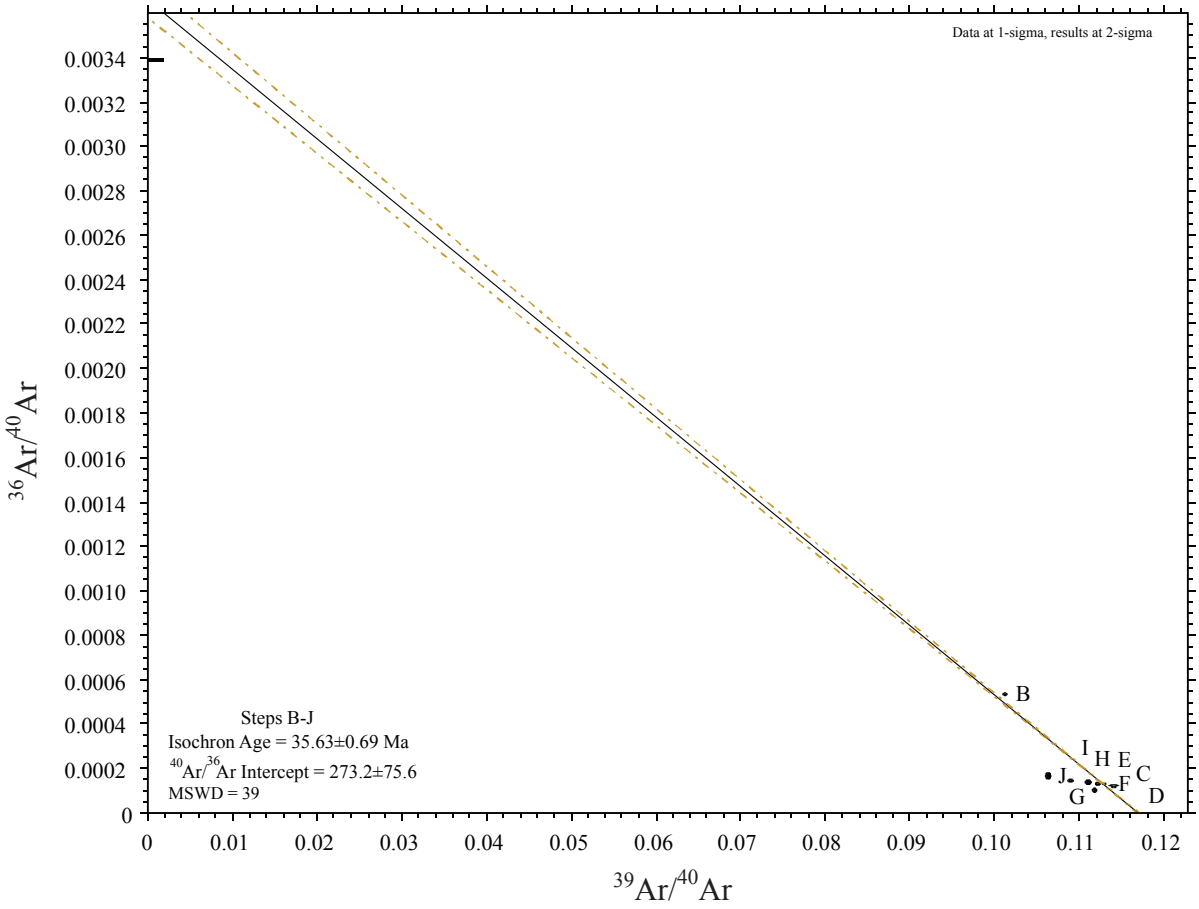

CMC-83 Sanidine
Moles 39Ar (x 10-14)
% Radiogenic
K/Ca
Data at 1-sigma, results at 1-sigma
32.72 ± 0.08, MSWD = 6.56, n = 11
Relative Probability
Age (Ma)



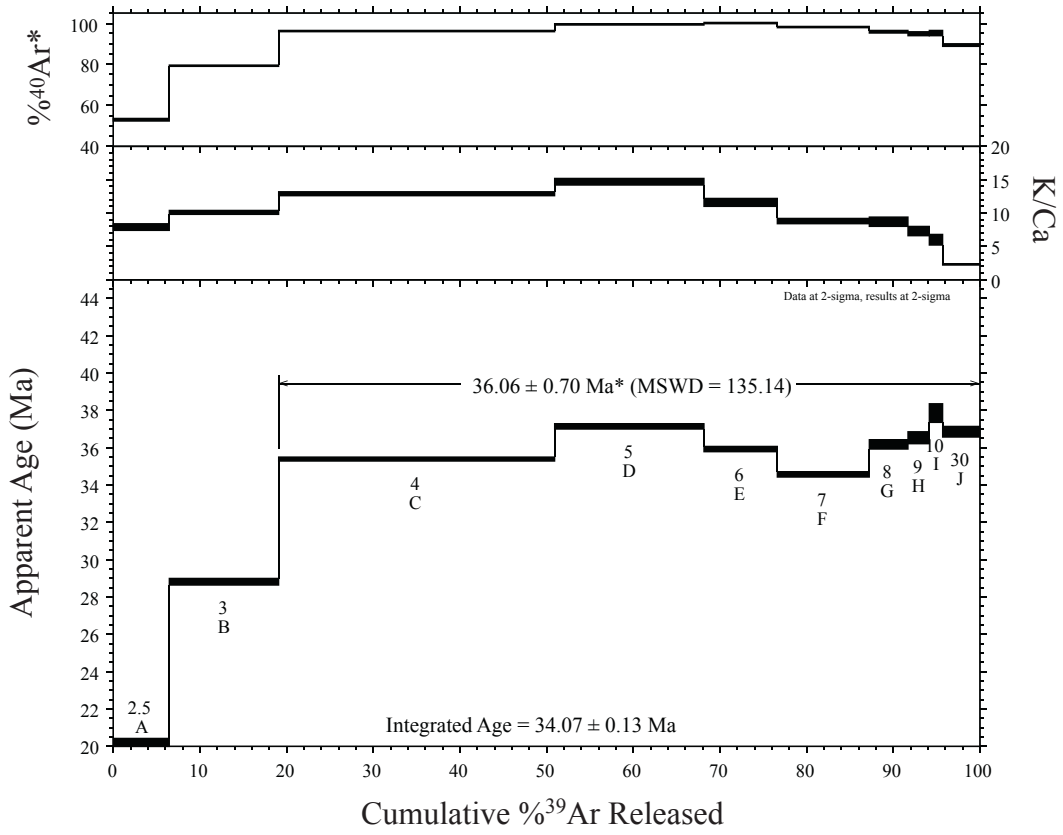
Age probability distribution diagram of 11GP43 sanidine.
Analyses shown in red are A steps, those in black are B steps.

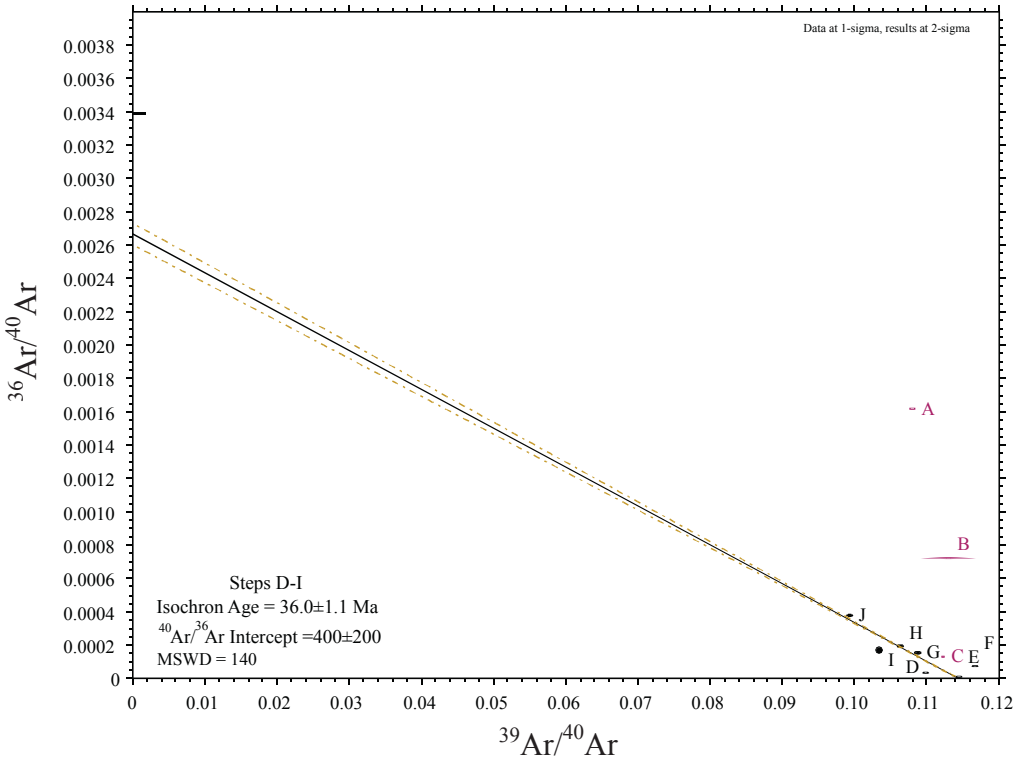
F10-40 Groundmass Concentrate

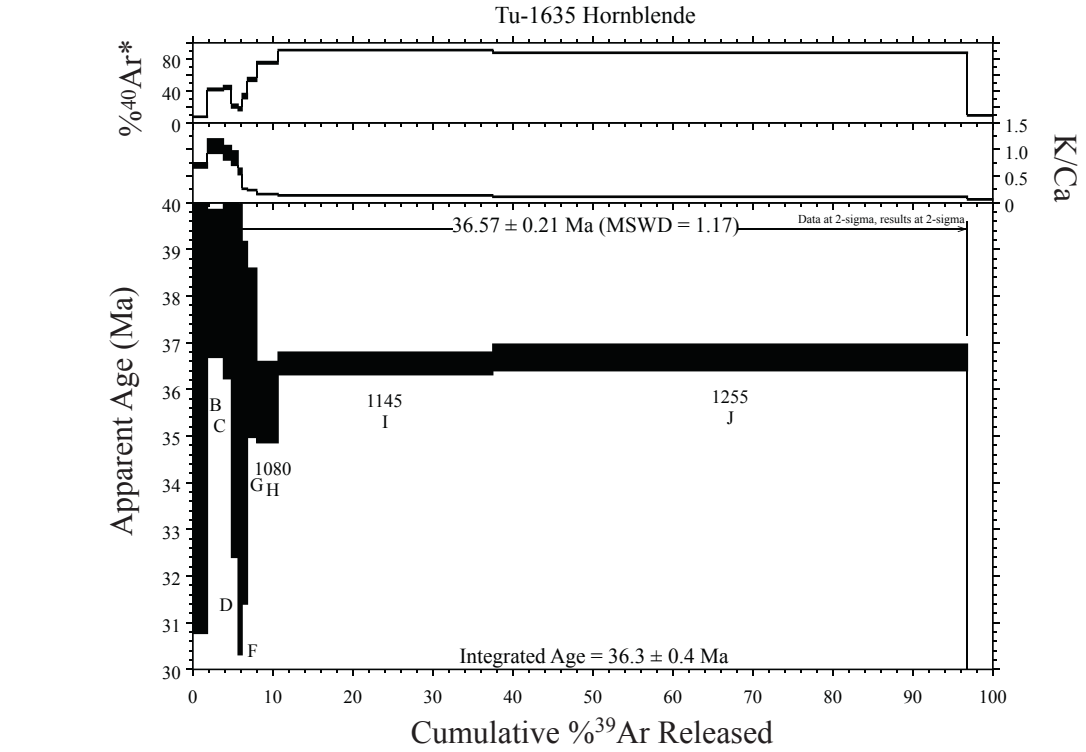


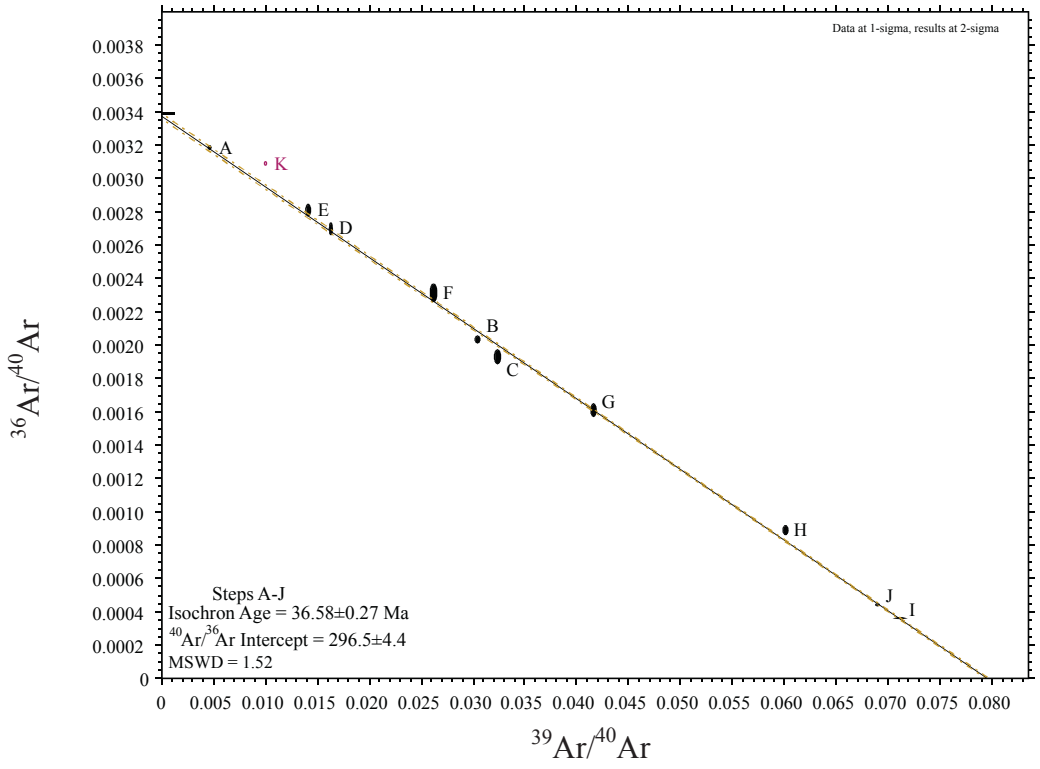


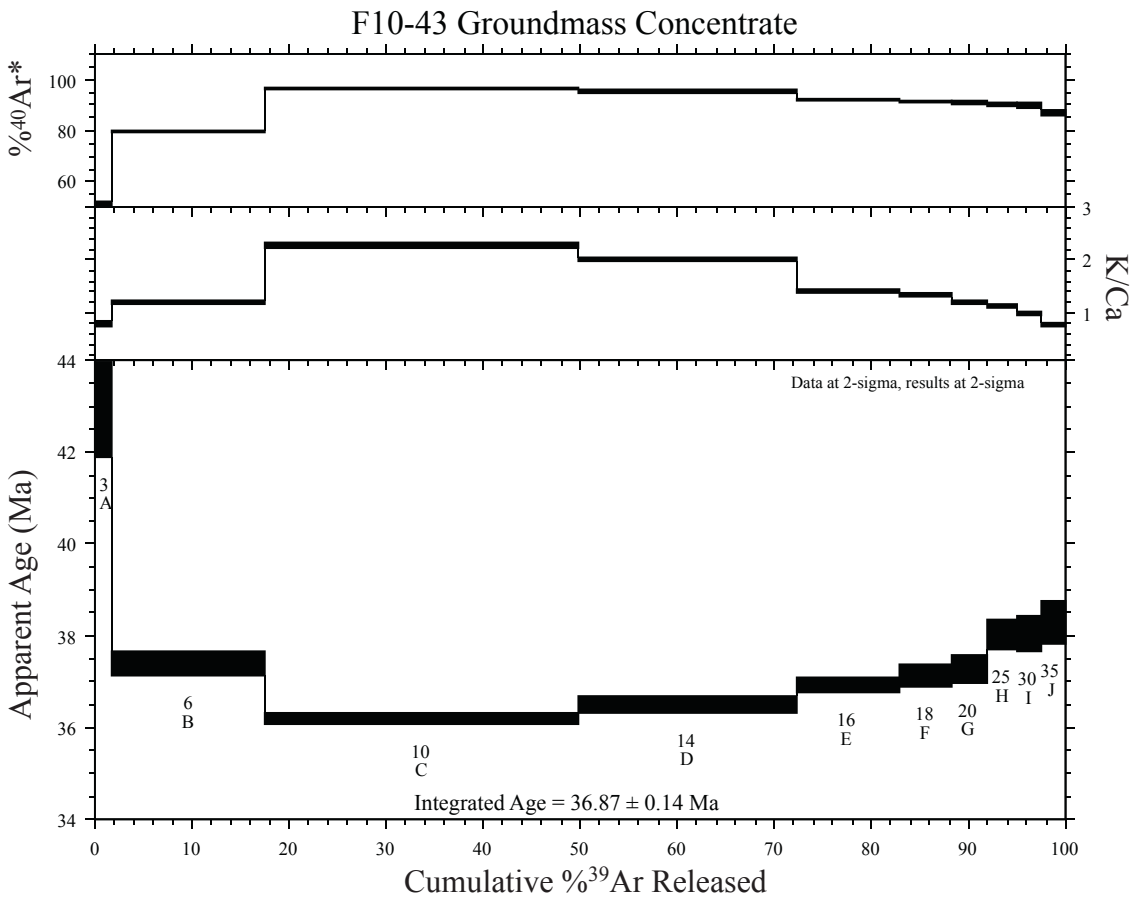
10NP3 Groundmass Concentrate

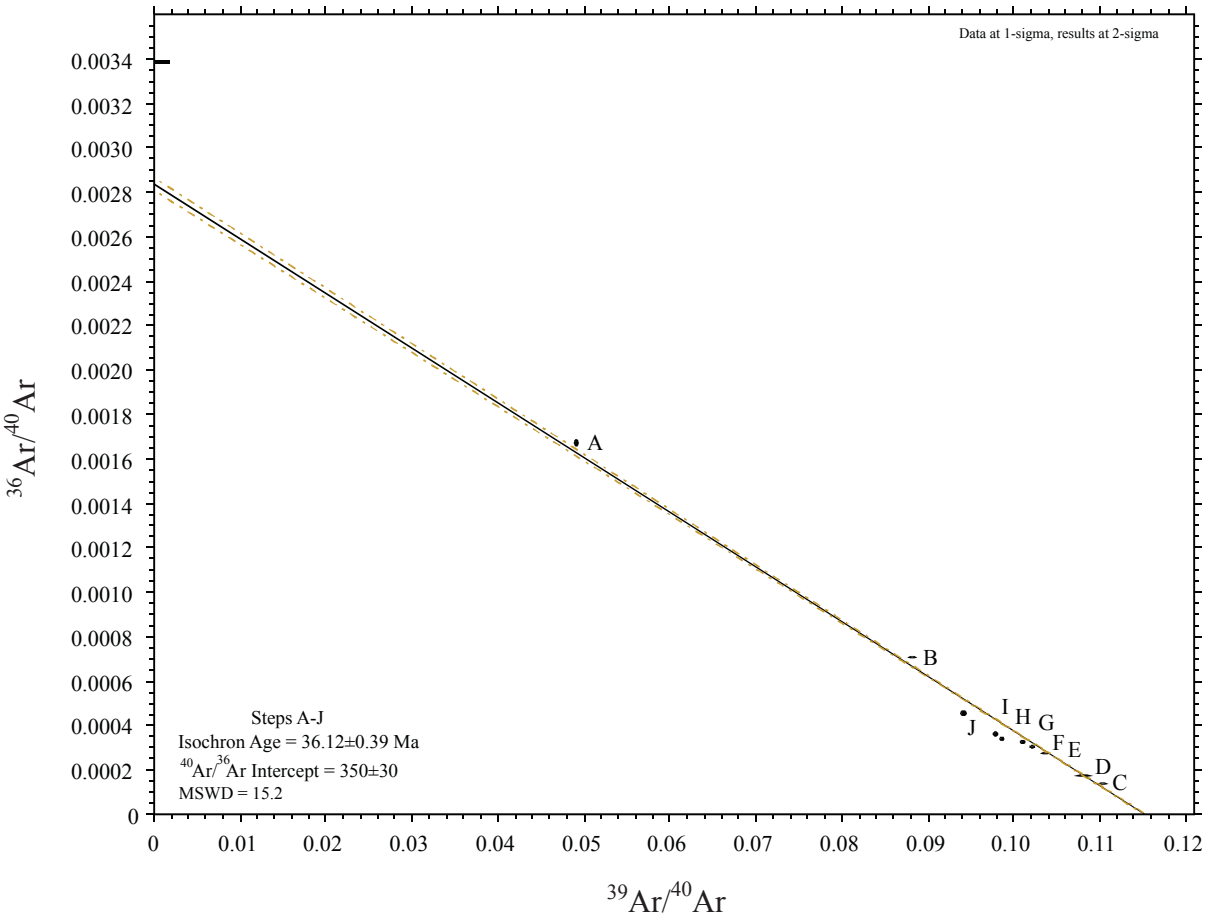




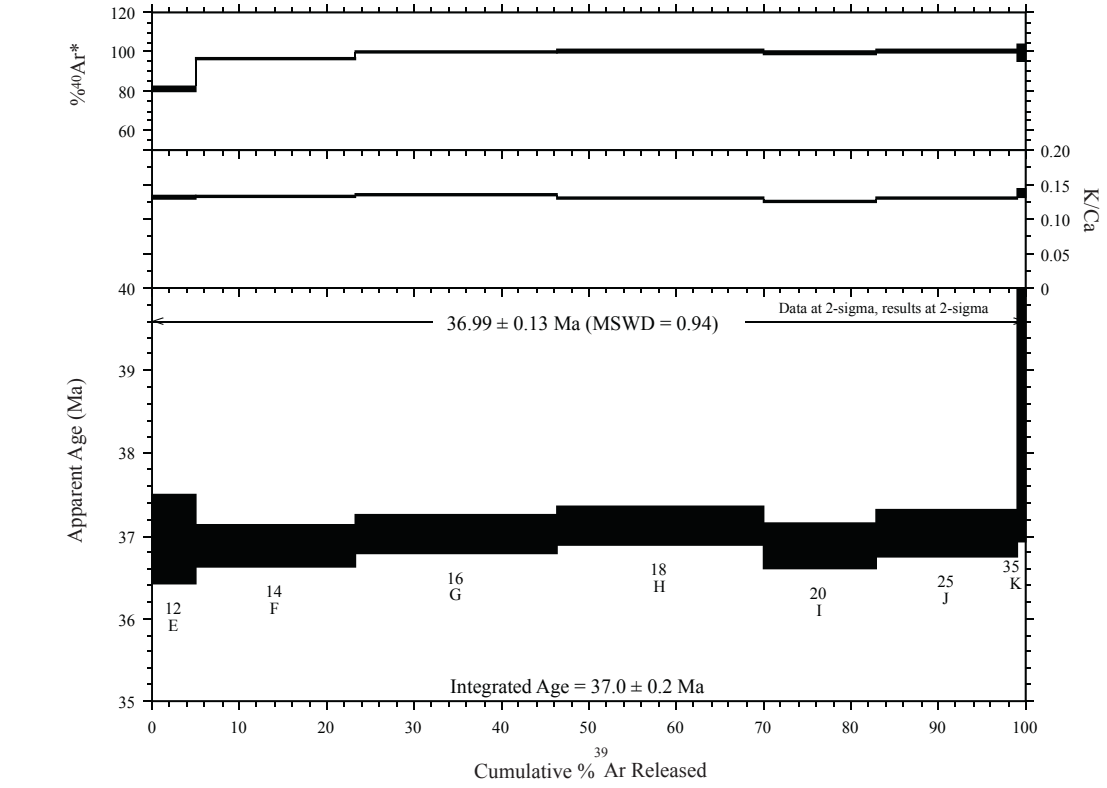

Tu-1635 Hornblende
%40Ar*
K/Ca
Apparent Age (Ma)
36.57 ± 0.21 Ma (MSWD = 1.17)
Data at 2-sigma, results at 2-sigma
Integrated Age = 36.3 ± 0.4 Ma
1145
I
1255
J
1080
B
C
G
H
D
F
Cumulative %39Ar Released

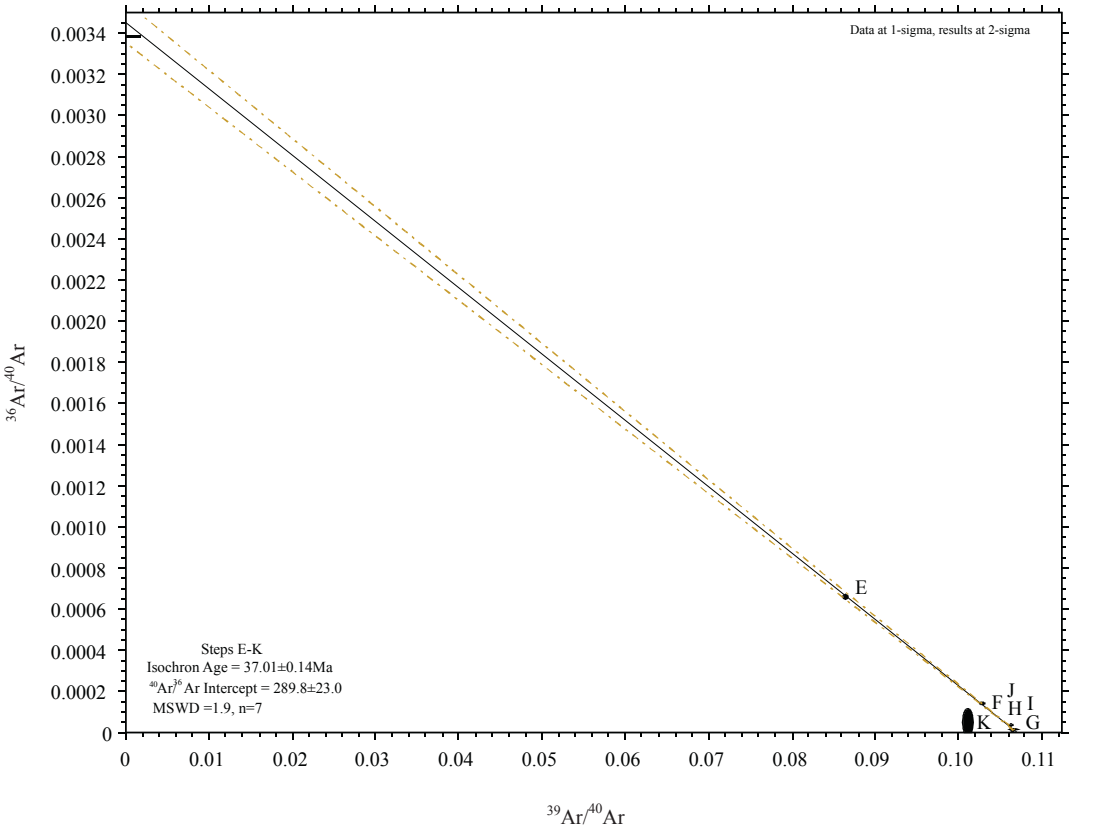

Data at 1-sigma, results at 2-sigma
36Ar/40Ar
39Ar/40Ar
A
K
E
D
F
B
C
G
H
J
I
Steps A-J
Isochron Age = 36.58±0.27 Ma
40Ar/36Ar Intercept = 296.5±4.4
MSWD = 1.52

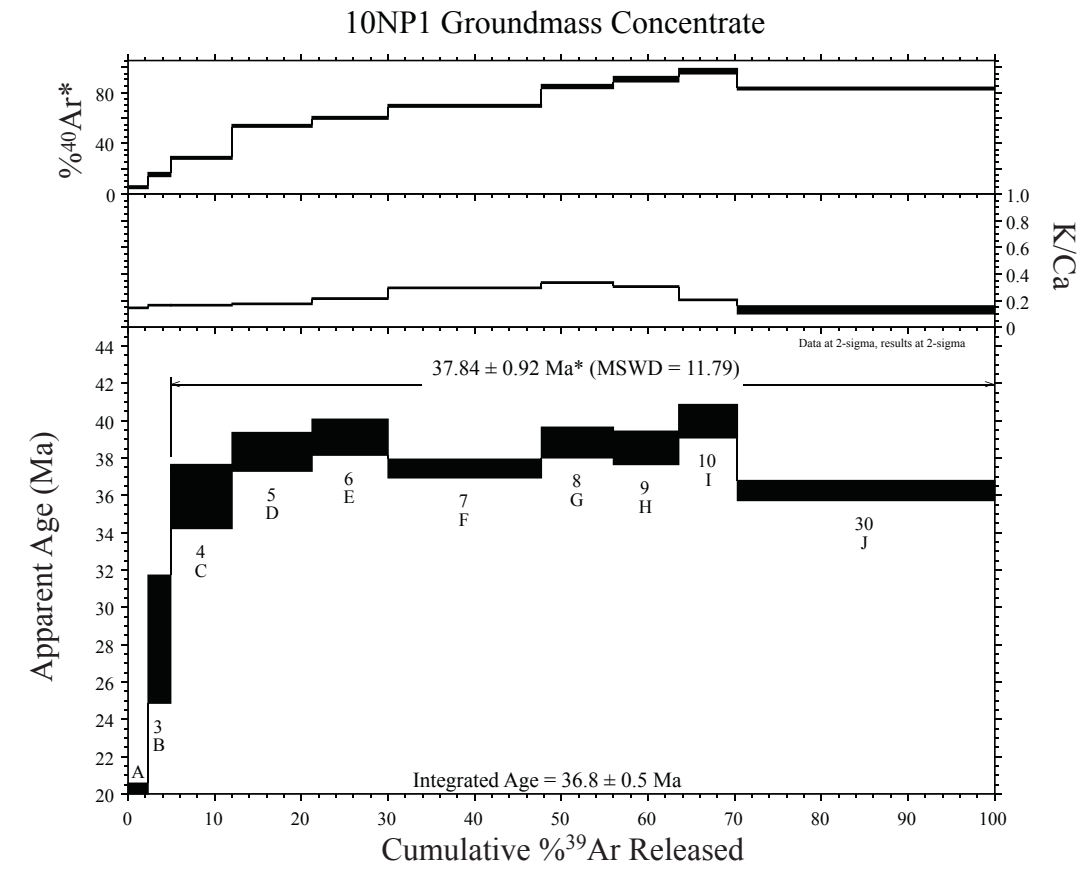

F10-43 Groundmass Concentrate
%40Ar*
K/Ca
Data at 2-sigma, results at 2-sigma
Apparent Age (Ma)
3 A
6 B
10 C
14 D
16 E
18 F
20 G
25 H
30 I
35 J
Integrated Age = 36.87 ± 0.14 Ma
Cumulative %39Ar Released

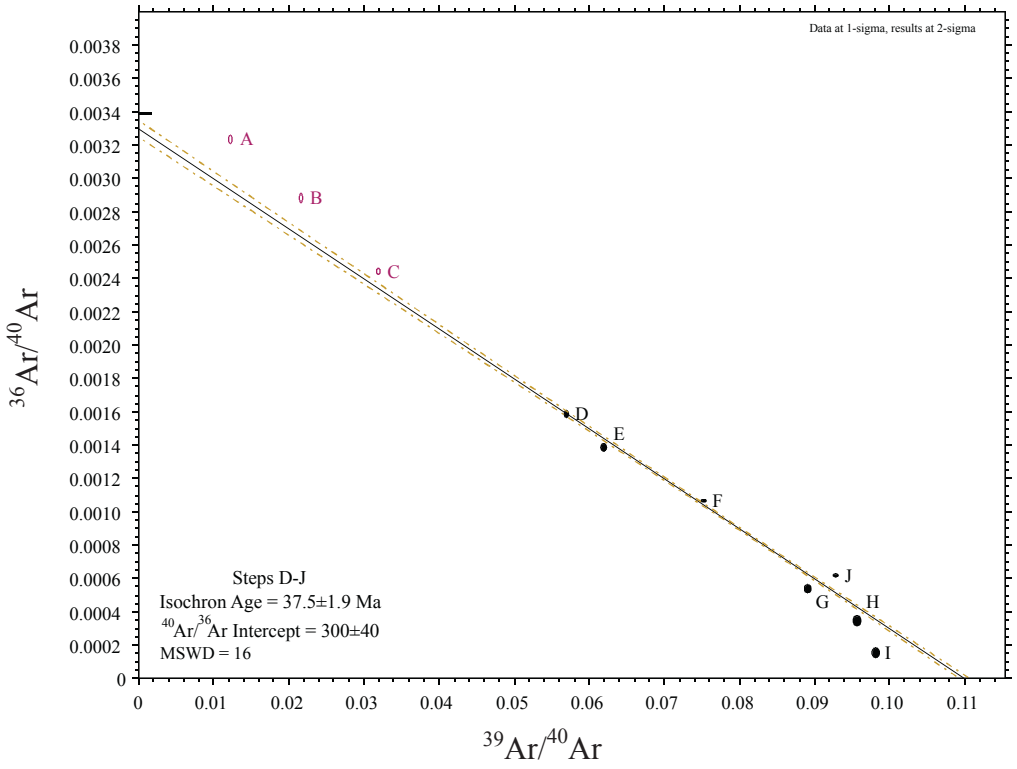

Data at 1-sigma, results at 2-sigma
36Ar/40Ar
39Ar/40Ar
Steps A-J
Isochron Age = 36.12±0.39 Ma
40Ar/36Ar Intercept = 350±30
MSWD = 15.2

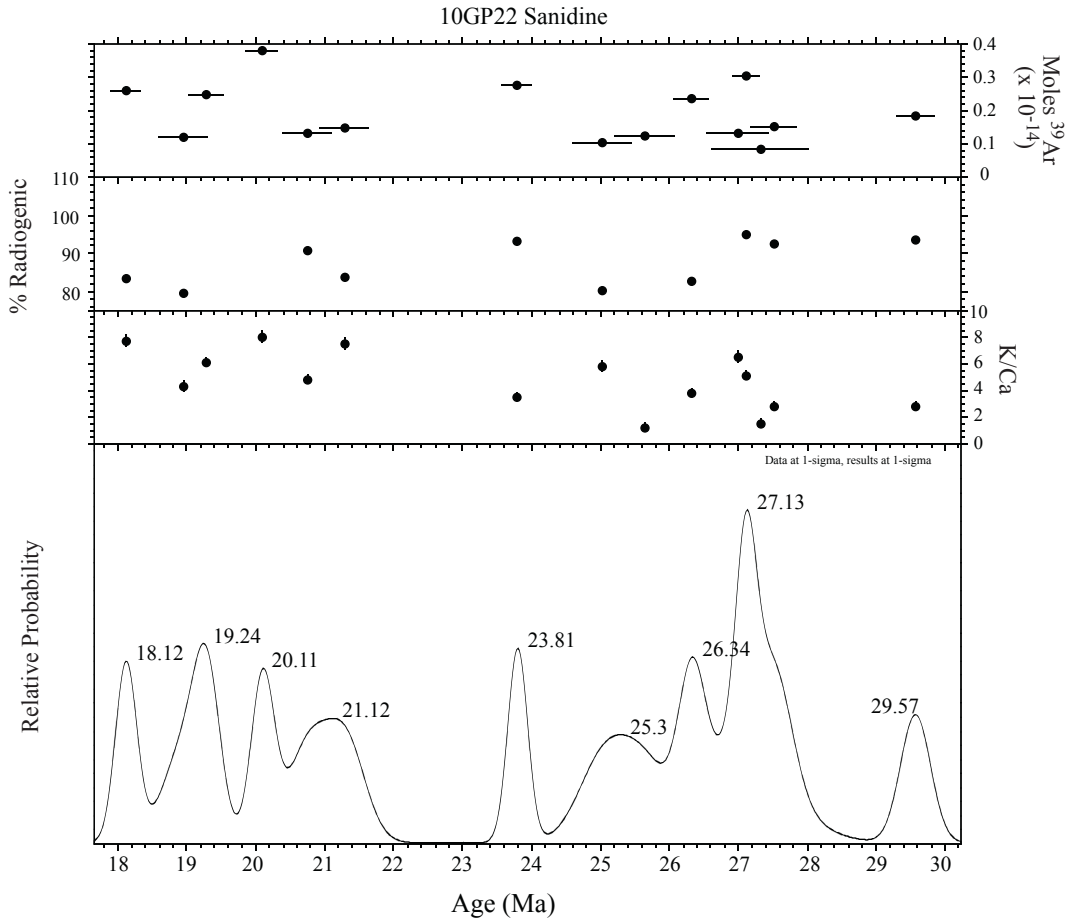
11GP7 Hornblende






10NP1 Groundmass Concentrate
%40Ar*
K/Ca
Data at 2-sigma, results at 2-sigma
37.84 ± 0.92 Ma* (MSWD = 11.79)
Apparent Age (Ma)
Integrated Age = 36.8 ± 0.5 Ma
Cumulative %39Ar Released


Data at 1-sigma, results at 2-sigma
Steps D-J
Isochron Age = 37.5±1.9 Ma
40Ar/36Ar Intercept = 300±40
MSWD = 16
36Ar/40Ar
39Ar/40Ar


10GP22 Sanidine
Moles ^{39}Ar (x 10^{-14})
% Radiogenic
K/Ca
Data at 1-sigma, results at 1-sigma
Relative Probability
18.12
19.24
20.11
21.12
23.81
25.3
26.34
27.13
29.57
Age (Ma)