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^{40}AR/^{39}AR AGES FROM THE TYONEK D-6 QUADRANGLE AND PARTS OF TYONEK D-7, TYONEK D-5 AND TYONEK C-6 QUADRANGLES, ALASKA

by

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Note: This report (including all analytical data and tables) is available in digital format from the DGGS web site (http://wwwdggs.dnr.state.ak.us) at no charge. The digital data are available as PDF files and Excel spreadsheets.

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INTRODUCTION

In 1990, the Alaska Division of Geological & Geophysical Surveys (DGGS) conducted a preliminary geologic mapping project in the Tyonek D-6 quadrangle and parts of the adjacent D-5, D-7 and C-6 quadrangles. Our purpose was to map the bedrock geology at a scale of 1:63,360 as part of what was then expected to be a more extensive mapping program in the region. DGGS published a preliminary geologic map and geochemical data resulting from that initial work in 1991 (Solie and others, 1991a and 1991b). At that time, the results from the ^{40}Ar/^{39}Ar dating were pending. A brief discussion of the results was given in Layer and Solie (1991) and Solie and Layer (1993). The purpose of this DGGS Raw Data File is to present the ^{40}Ar/^{39}Ar results and make them available for use to others interested in the area.

FIELD AND ANALYTICAL METHODS

All field locations were visually determined by the geologists in the field and recorded on a 1:63,360 topographic map enlarged to a scale of 1:40,000. Table 1 presents coordinates digitized from the field maps. Latitude and longitude coordinates are based on the NAD 27 Alaska datum and the UTM coordinates are based on the Clark 1866 spheroid, NAD 27 datum, UTM zone 5 projection.

DGGS submitted fourteen rock samples to the UAF Geochronology Laboratory for ^{40}Ar/^{39}Ar dating. Major oxide and selected trace element analyses for most of the samples are included in Solie and others (1991b). Separates for ^{40}Ar/^{39}Ar dating were prepared to >99.5 percent purity (visual inspection) using standard heavy liquid and magnetic separation techniques followed by hand-picking under a binocular microscope. Thin section examination of the samples prior to crushing indicated that the chosen minerals were free from alteration and sufficiently coarse-grained for mechanical separation. For all minerals, grains in the size range of 250 - 500 microns were used. For each sample, ~50-80 mg of biotite or 250-350 mg of hornblende or 'whole rock' (phenocryst-free groundmass) was packaged in an aluminum foil tube and irradiated in position 5C at the McMaster University nuclear reactor, in Hamilton, Ontario. Approximately 20 samples were irradiated at a time. Six packages containing ~20 mg of the standard mineral mmhb-1 (Samson and Alexander, 1987) with an age of 513.9 Ma (Lanphere and others, 1990) were also irradiated with the samples to determine the irradiation parameter (J) and the flux gradient in the reactor. Samples and standards were analyzed 45 to 90 days after irradiation.

The irradiated samples were step-heated on-line in a Modifications Ltd. low-blank furnace. Temperature control was better than 5 degrees and a maximum temperature in excess of 1600^{o} C was achievable to ensure complete sample fusion. The extracted argon was purified in a two-stage process

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using a liquid nitrogen cold finger and two SAES Zr-Al getters. Prior to measurement of the Ar, the gas was collected on an activated charcoal finger. The purified Ar gas was measured using a Nuclide 6-60-SGA 15 cm mass spectrometer. The sensitivity of the spectrometer is 6.5 x 10-15 mol/mV and system noise is generally around 0.02 mV. System blanks are generally better than 1 X 10-14 mol for ^{40}Ar. Argon isotopic measurements for both samples and standards were corrected for the system blanks, for decay of ^{37}Ar and ^{39}Ar, and for reactor-induced isotopic interferences. Ages were calculated using the equations and corrections from McDougall and Harrison (1999) and the constants from Steiger and Jaeger (1977) and are shown in Table 2 (age summary) and Table 3 (analytical data). All errors on analyses are reported at the 1-sigma level.

For each mass spectrometer analysis, five Ar isotope abundances are measured. ^{36}Ar is used to determine the amount of atmospheric or initial Ar in the sample, ^{37}Ar provides an estimation of the Ca content in the mineral, ^{38}Ar provides an estimation of the Cl content, ^{39}Ar reflects the K content and ^{40}Ar is a mixture of initial and radiogenic Ar. The age of the sample is proportional to the ratio of the amount of radiogenic ^{40}Ar to the amount of ^{39}Ar produced by neutron bombardment from ^{40}K.

All samples were dated by the ^{40}Ar/^{39}Ar step-heating method. In this method, a sample is heated to progressively higher temperatures in a double-vacuum resistance-heated furnace, and the argon isotopes are measured and age determined for each step (fraction). The integrated age is the age given by the total gas measured in all fractions and is equivalent to a potassium-argon (K-Ar) age. The fractions are commonly plotted on an age spectrum plot for analysis. A spectrum provides a plateau age if three or more consecutive gas fractions represent at least 50% of the total gas release and are within two standard deviations of each other (Mean Square Weighted Deviation less than ~2.5). If the fractions do not meet the criteria for a plateau due to intrafraction scatter in ages, then a weighted mean age of 'plateau-like' fractions, with each fraction weighted by the volume of ^{39}Ar released, is calculated.

BRIEF SAMPLE DESCRIPTIONS

PLUTONIC ROCK SAMPLES:

90DNS07: West of Dickason Mountain: Coarse- to medium-grained biotite diorite, contains about 75% plagioclase, with clinopyroxene, orthopyroxene, olivine, biotite, quartz, alkali feldspar, and opaque oxides.

90DNS17: Dickason Mountain: Granite porphyry, with ~l mm-diameter phenocrysts of quartz and alkali feldspar.

90DNS36: Ridge in central western Tyonek D-6 quadrangle: Porphyritic granodiorite, with phenocrysts of plagioclase, hornblende, biotite and opaque oxide in very fine-grained groundmass.

90DNS62: Hi11 4180': Coarse-grained biotite granite with minor hornblende.

90SAL44a: E. edge of D-7: Porphyritic hornblende biotite granite, with alkali feldspar phenocrysts.

90WG121: Southeast D-6: Medium-grained hornblende quartz monzonite.

VOLCANIC ROCK SAMPLES:

90DNS31: Porcupine Butte: Porphyritic andesite, with phenocrysts of plagioclase, clinopyroxene and opaque oxides.

90MR117C: Central eastern D-7: Porphyritic basalt with clinopyroxene phenocrysts.

90WG119: Southeast corner of D-6: Porphyritic andesite with plagioclase phenocrysts.

90WG143F: Central eastern D-7: Porphyritic basalt with fine-grained clinopyroxene and opaque oxide phenocrysts.

90WG154: North of Spring Creek: Olivine basalt

IGNEOUS CLASTS IN CONGLOMERATE:

90JK191A: Ridge south of Old Man Creek: Porphyritic plagioclase hornblende ±clinopyroxene igneous clast in Juro-Cretaceous conglomerate

90JK191B: Ridge south of Old Man Creek: Igneous clast in Juro-Cretaceous conglomerate

90JK191D: Ridge south of Old Man Creek: Porphyritic hornblende clinopyroxene andesite clast in Juro-Cretaceous conglomerate

DISCUSSION

As presented in our abstract (Layer and Solie, 1991), the $^{40}Ar/^{39}Ar$ data were collected to help further define the timing of Mesozoic and Tertiary tectonic events in south-central Alaska. In the study area, igneous rocks intrude and overlie low-grade metamorphic turbidites. The sediments are thought to have been deposited in the oceanic basin between continental North America and the colliding Talkeetna Superterrane during Jurassic to Cretaceous time. Our dating shows evidence of three discrete igneous events at about 55, 60 and 68 Ma, in keeping with ages reported elsewhere in the Alaska Range batholith. Overlapping ages from plutonic and hypabyssal rocks may reflect variable exposure of igneous bodies tilted by Tertiary uplift to the south.

$^{40}Ar/^{39}Ar$ whole rock dating of basalt which intrudes and is interlayered with the clastic unit shows variable age spectra reset by early Tertiary events. This implies a complex thermal history of this volcanic unit, which is presumably older than the nearby intrusive rocks which show no resetting.

Minerals extracted from igneous clasts in a boulder conglomerate in the clastic section retain Early Cretaceous ages which are interpreted as the crystallization age of the granitic clasts. If so, it may be possible to identify the source for the sediments in this region, though there are no known local sources of that age. In addition, the clast age can be used to constrain the age of the basin in this area as younger than 100 Ma.

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Table 1. Coordinates for 40Ar/39Ar samples

SampleNo	Easting	Northing	Latitude	Longitude
90DNS07	551669	6856244	61.8373	152.0188
90DNS17	559281	6858767	61.8588	151.8734
90DNS31	553134	6866077	61.9254	151.9880
90DNS36	545222	6862664	61.8957	152.1396
90DNS62	549938	6840075	61.6924	152.0561
90JK191	537453	6863940	61.9080	152.2871
90MR117	536715	6861103	61.8827	152.3017
90SAL44	539034	6860900	61.8806	152.2577
90WG119	558200	6847777	61.7604	151.8975
90WG121	557519	6851109	61.7904	151.9093
90WG143	534911	6860676	61.8790	152.3361
90WG154	540051	6859637	61.8692	152.2386

Easting and Northing are Zone 5 UTM coordinates in meters. Latitude and Longitude are in decimal degrees. Based on NAD27 Alaska datum.

Table 2. $^{40}Ar/^{39}Ar$ summary

Sample Name	Mineral	Integrated Age (Ma)	Plateau (P) or Weighted Mean (W) Age (Ma)	Plateau Information
90DNS07	BI	61.1 ± 0.4	61.2 ± 0.4 (P)	6 fractions 59% ^{39}Ar released MSWD = 0.4
90DNS17	HO	55.3 ± 0.8	54.7 ± 0.6 (P)	4 fractions 96% ^{39}Ar released MSWD = 0.7
90DNS31	WR	60.9 ± 0.4	60.5 ± 0.6 (P)	8 fractions 74% ^{39}Ar released MSWD = 2.4
90DNS36	HO	68.7 ± 0.8	68.0 ± 0.7 (P)	7 fractions 87% ^{39}Ar released MSWD = 0.5
90DNS62	BI	60.9 ± 0.5	61.9 ± 0.7 (W)	6 fractions 96% ^{39}Ar released MSWD = 3.6
90JK191A	HO	93.6 ± 0.8	97.7 ± 2.0 (W)	4 fractions 64% ^{39}Ar released MSWD = 6.2
90JK191B	HO	99.5 ± 0.7	101.0 ± 2.0 (W)	6 fractions 90% ^{39}Ar released MSWD = 8.2
90JK191D	HO	92.7 ± 1.7	94.8 ± 1.4 (P)	6 fractions 96% ^{39}Ar released MSWD = 0.2
90MR117C	WR	60.7 ± 0.5	66.0 ± 0.9 (W)	4 fractions 76% ^{39}Ar released MSWD = 5.5
90SAL44A	BI	64.7 ± 0.4	66.3 ± 1.5 (W)	7 fractions 96% ^{39}Ar released MSWD = 15.7
90SAL44A	HO	63.6 ± 0.5	63.6 ± 0.4 (P)	4 fractions 69% ^{39}Ar released MSWD = 1.6
90WG119	WR	56.0 ± 0.3	55.9 ± 0.5 (W)	5 fractions 86% ^{39}Ar released MSWD = 4.0
90WG121	HO	54.1 ± 0.5	53.7 ± 0.4 (P)	6 fractions 96% ^{39}Ar released MSWD = 0.5
90WG143F	WR	57.1 ± 0.4	57.9 ± 1.9 (W)	8 fractions 82% ^{39}Ar released MSWD = 25.8
90WG154	WR	62.0 ± 0.4	62.1±0.4 (P)	3 fractions 95% ^{39}Ar released MSWD = 0.4

Samples run against standard Mmhb-1 with an age of 513.9 Ma and processed using the standards of Steiger and Jäger (1977). All errors quoted to ± 1 σ. BI = biotite, HO = hornblende, WR = whole rock. MSWD = Mean Square Weighted Deviation.

Table 3. 40Ar/39Ar analytical data, Tyonek quadrangle, Alaska

90DNS07 BIO Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
300	0.0005	104.1400	2.9164	0.22517	0.16682	0.35833	0.02487	101.7	0.4132	0.3062	0.06385	0.00586	-1.7582	6.7252	-27.3	105.2
400	0.0010	77.4713	2.1072	0.27055	0.16204	0.27410	0.02332	104.6	0.4965	0.2974	0.07658	0.00581	-3.5342	6.5305	-55.3	103.7
475	0.0023	41.6683	0.4024	0.53167	0.05750	0.12865	0.00792	91.2	0.9759	0.1056	0.06604	0.00202	3.6640	2.3113	55.6	34.5
550	0.0060	20.3887	0.0766	0.79633	0.02194	0.05848	0.00297	84.6	1.4619	0.0403	0.06198	0.00076	3.1411	0.8773	47.7	13.2
625	0.0287	13.0745	0.0138	0.06571	0.00351	0.02987	0.00048	67.6	0.1206	0.0064	0.07143	0.00014	4.2234	0.1418	63.9	2.1
700	0.1077	6.7904	0.0059	0.02091	0.00100	0.00904	0.00014	39.5	0.0384	0.0018	0.07107	0.00007	4.0922	0.0405	62.0	0.6
775	0.1858	5.5260	0.0050	0.01328	0.00103	0.00495	0.00014	26.6	0.0244	0.0019	0.06691	0.00007	4.0349	0.0418	61.1	0.6
925	0.2966	4.7828	0.0041	0.01239	0.00071	0.00244	0.00010	15.2	0.0227	0.0013	0.06337	0.00006	4.0330	0.0288	61.1	0.4
925	0.4419	4.4488	0.0039	0.01237	0.00054	0.00136	0.00007	9.1	0.0227	0.0010	0.06436	0.00006	4.0196	0.0221	60.9	0.3
1000	0.5989	4.7678	0.0042	0.01196	0.00050	0.00241	0.00007	15.0	0.0219	0.0009	0.06518	0.00006	4.0285	0.0206	61.0	0.3
1200	0.9958	5.8335	0.0053	0.04555	0.00020	0.00594	0.00003	30.2	0.0836	0.0004	0.06186	0.00005	4.0532	0.0094	61.4	0.1
1600	1.0000	6.8753	0.0236	3.79715	0.02280	0.01260	0.00259	50.2	6.9845	0.0420	0.13592	0.00078	3.4168	0.7687	51.9	11.5
Integrated		5.7535	0.0024	0.04701	0.00027	0.00573	0.00004	29.5	0.0863	0.0005	0.06457	0.00003	4.0348	0.0113	61.1	0.4

90DNS17 HBD Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
600	0.0298	11.9433	0.0324	1.52941	0.02205	0.02771	0.00207	67.8	2.8091	0.0405	0.18946	0.00072	3.8459	0.6126	58.3	9.1
800	0.6299	4.1796	0.0039	4.13233	0.00359	0.00305	0.00010	14.3	7.6027	0.0066	0.57500	0.00049	3.5685	0.0312	54.1	0.5
850	0.7303	4.0275	0.0048	4.41124	0.00800	0.00206	0.00061	7.0	8.1173	0.0148	0.47901	0.00055	3.7307	0.1804	56.6	2.7
900	0.7931	4.0332	0.0064	4.49467	0.01215	0.00231	0.00097	8.6	8.2713	0.0224	0.47600	0.00075	3.6700	0.2884	55.7	4.3
1000	0.9937	4.0510	0.0039	4.43787	0.00498	0.00246	0.00030	9.8	8.1665	0.0092	0.48440	0.00043	3.6406	0.0901	55.2	1.4
1200	0.9972	4.6676	0.1010	4.22591	0.19985	-0.00212	0.01709	-20.3	7.7754	0.3687	0.43665	0.01018	5.5972	5.0652	84.2	74.5
1600	1.0000	17.8431	0.4887	4.18736	0.25891	0.03165	0.02220	50.7	7.7042	0.4777	0.41730	0.01269	8.8001	6.5785	130.7	94.3
Integrated		4.4295	0.0027	4.16705	0.00297	0.00364	0.00017	17.3	7.6668	0.0055	0.52852	0.00032	3.6481	0.0514	55.3	0.8

90DNS31 WR Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
450	0.0301	27.8267	0.0264	0.33733	0.00223	0.08017	0.00025	85.1	0.6191	0.0041	0.00235	0.00006	4.1331	0.0730	62.6	1.1
600	0.2566	5.9614	0.0052	0.25892	0.00036	0.00633	0.00003	31.2	0.4752	0.0007	0.00322	0.00001	4.0810	0.0103	61.8	0.2
700	0.4585	4.7337	0.0042	0.30946	0.00041	0.00235	0.00003	14.3	0.5679	0.0008	0.01076	0.00001	4.0351	0.0110	61.1	0.2
800	0.6932	4.4892	0.0039	0.32839	0.00039	0.00164	0.00003	10.3	0.6027	0.0007	0.01176	0.00001	4.0014	0.0096	60.6	0.1
900	0.7749	4.6748	0.0042	0.53115	0.00091	0.00245	0.00009	14.8	0.9749	0.0017	0.01312	0.00003	3.9619	0.0257	60.0	0.4
1000	0.8187	5.0656	0.0046	0.60530	0.00157	0.00369	0.00016	20.7	1.1111	0.0029	0.00796	0.00004	3.9947	0.0474	60.5	0.7
1200	0.8611	6.2443	0.0057	1.08319	0.00178	0.00797	0.00017	36.6	1.9889	0.0033	0.01024	0.00004	3.9446	0.0492	59.8	0.7
1400	0.9831	5.5506	0.0049	0.75812	0.00081	0.00544	0.00006	28.1	1.3917	0.0015	0.00888	0.00002	3.9742	0.0175	60.2	0.3
1600	0.9951	6.5089	0.0076	0.60838	0.00543	0.00839	0.00058	37.6	1.1167	0.0100	0.00608	0.00014	4.0469	0.1716	61.3	2.6
1709	1.0000	8.0027	0.0162	0.34708	0.01347	0.01422	0.00145	52.4	0.6370	0.0247	0.00605	0.00035	3.7976	0.4279	57.6	6.4
Integrated		5.8596	0.0021	0.42575	0.00025	0.00624	0.00002	31.1	0.7814	0.0005	0.00877	0.00001	4.0205	0.0068	60.9	0.4

90DNS36 HBD Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
600	0.0533	16.8895	0.0240	0.70544	0.00925	0.04133	0.00090	72.1	1.2950	0.0170	0.04344	0.00023	4.7039	0.2656	71.0	3.9
800	0.1151	6.5439	0.0084	1.40033	0.00803	0.00650	0.00076	27.9	2.5718	0.0148	0.04150	0.00019	4.7043	0.2263	71.0	3.4
900	0.3699	5.2144	0.0047	5.19800	0.00463	0.00365	0.00019	13.3	9.5700	0.0086	0.08783	0.00009	4.5120	0.0552	68.2	0.8
950	0.5897	5.0252	0.0046	5.21137	0.00480	0.00290	0.00021	9.3	9.5947	0.0089	0.05314	0.00007	4.5453	0.0637	68.7	0.9
1000	0.7966	4.9277	0.0045	5.46448	0.00509	0.00302	0.00023	9.9	10.0624	0.0094	0.04568	0.00007	4.4315	0.0674	67.0	1.0
1050	0.9095	5.0348	0.0052	5.71988	0.00685	0.00291	0.00042	8.6	10.5344	0.0127	0.06021	0.00012	4.5924	0.1237	69.4	1.8
1100	0.9194	5.1171	0.0308	6.05978	0.06017	0.00192	0.00473	2.2	11.1629	0.1113	0.06271	0.00121	4.9970	1.4029	75.4	20.7
1150	0.9585	5.0078	0.0089	5.82255	0.01581	0.00420	0.00121	16.2	10.7242	0.0292	0.06035	0.00031	4.1901	0.3585	63.4	5.3
1250	0.9799	5.0381	0.0147	5.61577	0.02755	0.00352	0.00220	12.3	10.3420	0.0509	0.06020	0.00056	4.4075	0.6519	66.6	9.7
1600	0.9984	6.1535	0.0202	4.70631	0.03007	0.00542	0.00253	20.4	8.6620	0.0555	0.05149	0.00064	4.8916	0.7509	73.8	11.1
1700	1.0000	17.5521	0.6481	2.17866	0.31746	0.00837	0.02994	13.2	4.0032	0.5842	0.01338	0.00734	15.2357	8.8759	220.6	121.0
Integrated		5.8201	0.0024	4.87027	0.00249	0.00549	0.00016	21.7	8.9647	0.0046	0.06043	0.00005	4.5478	0.0464	68.7	0.8

90DNS62 BIO Weighted average of J from standards = 8.294e-03 +/- 3.374e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
400	0.0018	72.6125	1.1989	0.56781	0.15497	0.24733	0.01400	100.6	1.0422	0.2846	0.04344	0.00336	-0.4610	3.9579	-6.9	59.5
600	0.0351	8.2583	0.0104	0.10697	0.00823	0.02044	0.00071	73.3	0.1963	0.0151	0.05617	0.00019	2.1984	0.2106	32.6	3.1
700	0.1023	4.9107	0.0049	0.01145	0.00410	0.00285	0.00036	17.2	0.0210	0.0075	0.06249	0.00010	4.0411	0.1051	59.5	1.5
800	0.2815	4.3722	0.0039	0.00670	0.00154	0.00051	0.00013	3.4	0.0123	0.0028	0.06298	0.00006	4.1939	0.0396	61.7	0.6
900	0.4087	4.5258	0.0042	0.01361	0.00217	0.00053	0.00019	3.4	0.0250	0.0040	0.06410	0.00007	4.3425	0.0558	63.8	0.8
1000	0.6024	4.4507	0.0040	0.02012	0.00142	0.00043	0.00012	2.9	0.0369	0.0026	0.06430	0.00006	4.2954	0.0364	63.2	0.5
1100	0.9000	4.2772	0.0038	0.02918	0.00092	0.00030	0.00008	2.0	0.0535	0.0017	0.06192	0.00005	4.1630	0.0239	61.2	0.4
1300	0.9966	4.2762	0.0041	0.28561	0.00286	0.00034	0.00025	1.9	0.5241	0.0053	0.06358	0.00008	4.1689	0.0731	61.3	1.1
1600	1.0000	6.4823	0.0569	0.39517	0.08014	0.00520	0.00693	23.4	0.7253	0.1471	0.05842	0.00177	4.9475	2.0486	72.6	29.5
Integrated		4.6639	0.0018	0.04980	0.00083	0.00169	0.00007	10.7	0.0914	0.0015	0.06281	0.00003	4.1383	0.0212	60.9	0.4

90JK191A HBD Weighted average of J from standards = 7.721e-03 +/- 3.988e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
600	0.0370	16.6610	0.0322	1.90117	0.00495	0.04120	0.00139	72.3	3.4927	0.0091	0.01056	0.00034	4.6050	0.4116	63.0	5.5
700	0.0733	13.4795	0.0264	7.31069	0.01428	0.02684	0.00141	54.9	13.4783	0.0265	0.00246	0.00035	6.0980	0.4184	83.0	5.6
800	0.1242	7.5496	0.0117	0.47118	0.00259	0.00885	0.00101	34.3	0.8648	0.0048	0.00256	0.00025	4.9430	0.2989	67.6	4.0
900	0.1799	5.9338	0.0088	0.40891	0.00235	0.00311	0.00092	15.0	0.7505	0.0043	0.00409	0.00023	5.0196	0.2733	68.6	3.7
950	0.2212	6.8946	0.0124	1.18111	0.00366	0.00491	0.00124	19.9	2.1689	0.0067	0.01860	0.00030	5.5066	0.3666	75.1	4.9
1000	0.3384	7.3558	0.0076	3.61010	0.00354	-0.00176	0.00044	-10.8	6.6396	0.0065	0.05385	0.00012	8.1386	0.1296	110.0	1.7
1050	0.5033	7.4803	0.0074	4.58072	0.00408	0.00256	0.00032	5.6	8.4301	0.0075	0.05920	0.00009	7.0589	0.0940	95.7	1.2
1100	0.6478	7.3514	0.0073	4.37957	0.00394	0.00209	0.00035	4.0	8.0589	0.0073	0.05317	0.00010	7.0536	0.1050	95.7	1.4
1150	0.7772	7.7153	0.0079	4.90740	0.00455	0.00318	0.00039	7.4	9.0333	0.0084	0.05980	0.00011	7.1368	0.1173	96.8	1.6
1200	0.9761	7.8845	0.0074	5.39149	0.00450	0.00270	0.00026	5.0	9.9275	0.0083	0.06543	0.00008	7.4900	0.0764	101.4	1.0
1600	1.0000	11.0376	0.0309	5.31220	0.01539	0.01102	0.00212	26.0	9.7810	0.0284	0.06429	0.00055	8.1785	0.6298	110.5	8.3
Integrated		8.0942	0.0031	4.07919	0.00153	0.00506	0.00017	14.7	7.5047	0.0028	0.04765	0.00005	6.8962	0.0504	93.6	0.8

90JK191B HBD Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
600	0.0214	21.8292	0.0429	7.68133	0.01877	0.05388	0.00141	70.4	14.1650	0.0348	0.01442	0.00035	6.4872	0.4176	97.3	6.1
700	0.0446	9.8955	0.0184	15.84155	0.03040	0.01942	0.00130	46.1	29.3699	0.0570	0.00533	0.00032	5.3728	0.3872	80.9	5.7
800	0.0658	6.0594	0.0123	2.21473	0.01261	0.00414	0.00144	17.5	4.0696	0.0232	0.00750	0.00035	4.9817	0.4257	75.1	6.3
900	0.0790	5.8534	0.0178	2.06668	0.02000	0.00215	0.00231	8.3	3.7972	0.0368	0.02053	0.00056	5.3505	0.6843	80.6	10.1
950	0.0985	6.5783	0.0138	3.44702	0.01432	0.00251	0.00152	7.4	6.3390	0.0264	0.05262	0.00038	6.0794	0.4490	91.3	6.6
1000	0.2178	7.0562	0.0069	4.97765	0.00486	0.00234	0.00025	4.5	9.1630	0.0090	0.06677	0.00009	6.7315	0.0744	100.8	1.1
1030	0.3367	7.0178	0.0076	5.26047	0.00563	0.00195	0.00027	2.6	9.6854	0.0104	0.06473	0.00009	6.8311	0.0802	102.3	1.2
1060	0.4127	6.8815	0.0072	5.11353	0.00585	0.00174	0.00039	1.9	9.4140	0.0108	0.05955	0.00011	6.7456	0.1154	101.0	1.7
1090	0.4656	6.7118	0.0079	4.79615	0.00701	0.00191	0.00056	3.1	8.8278	0.0129	0.05462	0.00015	6.4991	0.1674	97.4	2.4
1150	0.6200	6.9695	0.0067	5.33801	0.00487	0.00291	0.00019	6.6	9.8287	0.0090	0.06168	0.00007	6.5032	0.0576	97.5	0.8
1600	1.0000	7.0838	0.0072	5.52291	0.00503	0.00215	0.00008	3.1	10.1704	0.0093	0.06300	0.00006	6.8605	0.0254	102.7	0.4
Integrated		7.3537	0.0034	5.45949	0.00244	0.00378	0.00010	9.7	10.0532	0.0045	0.05843	0.00004	6.6411	0.0300	99.5	0.7

90JK191D HBD Weighted average of J from standards = 7.721e-03 +/- 3.988e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
600	0.0090	96.2790	1.6803	13.85061	0.24433	0.31846	0.01523	96.7	25.6452	0.4565	0.03716	0.00356	3.2152	4.2309	44.2	57.5
700	0.0131	86.8569	3.2690	79.91414	3.00792	0.32646	0.03306	104.2	154.6784	6.1415	0.03316	0.00800	-3.8414	9.5678	-54.3	137.4
800	0.0204	58.9848	1.2584	27.29959	0.58375	0.18012	0.01778	86.8	50.9973	1.1102	0.02601	0.00435	7.9195	5.2257	107.1	68.6
900	0.0315	15.9838	0.2276	5.08209	0.07786	0.04626	0.01154	83.3	9.3559	0.1438	0.03439	0.00287	2.6753	3.4155	36.9	46.6
950	0.0376	15.6731	0.4062	7.47064	0.20027	0.05137	0.02107	93.4	13.7746	0.3711	0.07521	0.00553	1.0299	6.2455	14.3	86.3
1000	0.0703	9.3216	0.0465	8.62315	0.04343	0.00858	0.00394	20.3	15.9116	0.0806	0.11359	0.00112	7.4478	1.1708	100.9	15.4
1050	0.2595	7.5745	0.0095	7.90663	0.00916	0.00364	0.00068	6.4	14.5826	0.0170	0.10688	0.00021	7.1004	0.2016	96.3	2.7
1100	0.4959	7.2752	0.0083	7.82391	0.00810	0.00314	0.00054	4.7	14.4293	0.0150	0.10846	0.00017	6.9400	0.1609	94.2	2.1
1150	0.8115	7.2427	0.0076	8.10430	0.00756	0.00309	0.00041	4.2	14.9492	0.0140	0.12197	0.00015	6.9450	0.1212	94.2	1.6
1200	0.9672	7.1753	0.0102	7.96943	0.01054	0.00299	0.00083	4.0	14.6991	0.0196	0.11332	0.00025	6.8976	0.2475	93.6	3.3
1600	1.0000	10.3374	0.0510	10.12673	0.05018	0.01410	0.00390	33.0	18.7045	0.0933	0.11245	0.00111	6.9496	1.1603	94.3	15.3
Integrated		9.1478	0.0060	8.52724	0.00550	0.01005	0.00043	25.5	15.7336	0.0102	0.11091	0.00013	6.8285	0.1269	92.7	1.7

90MR117C WR Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
300	0.0200	4.7163	0.0052	0.24865	0.00576	0.00853	0.00054	53.4	0.4563	0.0106	0.01185	0.00013	2.1867	0.1594	33.4	2.4
400	0.1080	2.7820	0.0025	0.26759	0.00133	0.00161	0.00012	16.6	0.4911	0.0024	0.01382	0.00003	2.2976	0.0363	35.1	0.6
500	0.3593	4.6356	0.0040	0.18749	0.00048	0.00087	0.00004	5.3	0.3441	0.0009	0.02255	0.00002	4.3653	0.0130	66.0	0.2
600	0.5895	4.6590	0.0041	0.24901	0.00053	0.00094	0.00005	5.6	0.4570	0.0010	0.02009	0.00002	4.3729	0.0141	66.1	0.2
700	0.7052	4.9225	0.0044	0.37041	0.00103	0.00170	0.00009	9.7	0.6798	0.0019	0.02052	0.00003	4.4206	0.0274	66.8	0.4
775	0.8716	4.6739	0.0041	0.30817	0.00073	0.00126	0.00006	7.5	0.5656	0.0013	0.02172	0.00003	4.2978	0.0192	65.0	0.3
850	0.9548	4.4605	0.0040	0.76503	0.00149	0.00265	0.00013	16.4	1.4044	0.0027	0.03541	0.00004	3.7068	0.0376	56.2	0.6
925	0.9753	5.3001	0.0059	2.83871	0.00621	0.00856	0.00051	43.9	5.2183	0.0114	0.04950	0.00014	2.9614	0.1523	45.1	2.3
1000	0.9845	7.5721	0.0127	15.64301	0.02782	0.02021	0.00113	63.6	28.9981	0.0521	0.09979	0.00032	2.7747	0.3361	42.2	5.1
1100	0.9964	7.7931	0.0111	41.33622	0.05613	0.02661	0.00087	61.3	77.9437	0.1088	0.12459	0.00028	3.0878	0.2626	46.9	3.9
1300	1.0000	12.1750	0.0383	293.20974	0.90670	0.11134	0.00242	89.7	664.9188	2.5412	0.18553	0.00092	1.5542	0.8746	23.8	13.3
1700	1.0000	72.0356	15.6012	379.18882	82.13515	0.62160	0.22153	215.5	923.8011	265.6877	0.04934	0.05802	-110.4789	75.9871	-3847.0	20616.2
Integrated		4.6210	0.0017	2.30495	0.00099	0.00258	0.00004	12.9	4.2356	0.0018	0.02475	0.00001	4.0080	0.0110	60.7	0.4

SAL44A BIO Weighted average of J from standards = 7.916e-03 +/- 3.631e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
400	0.0015	39.5139	0.7238	0.52867	0.03039	0.11321	0.01497	84.6	0.9704	0.0558	0.09061	0.00400	6.0737	4.3857	84.7	59.8
600	0.0358	5.5991	0.0075	0.12759	0.00123	0.01489	0.00063	78.8	0.2341	0.0023	0.09509	0.00019	1.1809	0.1854	16.8	2.6
700	0.0736	5.0667	0.0066	0.14093	0.00112	0.00097	0.00057	5.5	0.2586	0.0021	0.10379	0.00018	4.7623	0.1690	66.8	2.3
800	0.1991	4.6557	0.0045	0.04652	0.00034	-0.00021	0.00017	-1.4	0.0854	0.0006	0.09972	0.00010	4.6921	0.0509	65.8	0.7
900	0.3432	4.6965	0.0045	0.03611	0.00029	-0.00037	0.00015	-2.4	0.0663	0.0005	0.10216	0.00009	4.7806	0.0443	67.0	0.6
1000	0.5271	4.8657	0.0045	0.15287	0.00026	-0.00040	0.00012	-2.7	0.2805	0.0005	0.13569	0.00012	4.9681	0.0349	69.6	0.5
1100	0.9714	4.6436	0.0042	0.19329	0.00019	0.00000	0.00005	-0.3	0.3547	0.0003	0.11205	0.00014	4.6303	0.0150	64.9	0.2
1200	0.9876	2.5705	0.0074	2.16863	0.00474	-0.00686	0.00133	-86.2	3.9848	0.0087	0.15283	0.00043	4.7396	0.3925	66.5	5.4
1600	1.0000	9.9927	0.0253	1.30546	0.00458	0.01839	0.00176	53.6	2.3974	0.0084	0.12594	0.00053	4.6316	0.5209	65.0	7.2
Integrated		4.8256	0.0023	0.18702	0.00015	0.00067	0.00006	3.9	0.3432	0.0003	0.11333	0.00005	4.6122	0.0193	64.7	0.4

90SAL44A HBD Weighted average of J from standards = 7.916e-03 +/- 3.631e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
600	0.0322	19.3972	0.0288	0.45627	0.00175	0.06113	0.00086	93.1	0.8374	0.0032	0.11805	0.00027	1.3385	0.2547	19.0	3.6
800	0.0825	6.4535	0.0088	0.33117	0.00111	0.00509	0.00055	23.0	0.6078	0.0020	0.12017	0.00019	4.9451	0.1634	69.3	2.2
850	0.1229	4.1525	0.0071	0.33550	0.00136	-0.00240	0.00068	-17.8	0.6157	0.0025	0.12481	0.00022	4.8595	0.2013	68.1	2.8
900	0.1489	2.9997	0.0082	0.62404	0.00225	-0.00559	0.00106	-57.2	1.1455	0.0041	0.19441	0.00040	4.6720	0.3149	65.5	4.3
950	0.1918	5.3045	0.0082	1.98023	0.00255	-0.00013	0.00064	-3.6	3.6381	0.0047	0.58509	0.00070	5.4711	0.1900	76.5	2.6
1000	0.3138	4.7329	0.0052	2.80123	0.00243	0.00051	0.00023	-1.2	5.1493	0.0045	0.75661	0.00066	4.7713	0.0672	66.9	0.9
1050	0.5607	4.6149	0.0046	3.17475	0.00260	0.00085	0.00011	0.3	5.8373	0.0048	0.47713	0.00040	4.5834	0.0334	64.3	0.5
1100	0.8280	4.5448	0.0045	4.06718	0.00333	0.00119	0.00010	1.0	7.4825	0.0061	0.51908	0.00044	4.4826	0.0309	62.9	0.4
1200	0.9344	4.5597	0.0052	4.85637	0.00425	0.00128	0.00026	0.3	8.9390	0.0078	0.52980	0.00048	4.5324	0.0766	63.6	1.1
1600	1.0000	8.4995	0.0103	5.10215	0.00509	0.01471	0.00042	46.8	9.3929	0.0094	0.51513	0.00053	4.5215	0.1255	63.4	1.7
Integrated		5.3967	0.0023	3.21158	0.00120	0.00367	0.00009	15.7	5.9052	0.0022	0.48407	0.00018	4.5350	0.0259	63.6	0.5

90WG119 WR Weighted average of J from standards = 8.294e-03 +/- 3.374e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
400	0.0027	14.8073	0.0738	0.30580	0.05169	0.03759	0.00398	75.0	0.5612	0.0949	0.00857	0.00097	3.6942	1.1743	54.5	17.1
600	0.0414	5.6668	0.0054	0.25150	0.00367	0.00679	0.00028	35.2	0.4615	0.0067	0.00964	0.00007	3.6514	0.0834	53.8	1.2
700	0.1367	4.9925	0.0044	0.34717	0.00152	0.00363	0.00011	21.1	0.6372	0.0028	0.00801	0.00003	3.9171	0.0341	57.7	0.5
800	0.2648	4.4364	0.0039	0.38159	0.00115	0.00201	0.00009	12.8	0.7003	0.0021	0.00696	0.00002	3.8425	0.0254	56.6	0.4
900	0.3893	4.2915	0.0038	0.32888	0.00116	0.00152	0.00009	9.9	0.6036	0.0021	0.00622	0.00002	3.8398	0.0260	56.6	0.4
1000	0.5957	4.3908	0.0038	0.27443	0.00071	0.00198	0.00005	13.0	0.5036	0.0013	0.00591	0.00001	3.7973	0.0159	55.9	0.2
1200	0.7960	4.6789	0.0041	0.47082	0.00079	0.00317	0.00005	19.4	0.8642	0.0015	0.00447	0.00001	3.7485	0.0164	55.2	0.2
1600	1.0000	4.9444	0.0044	0.64567	0.00086	0.00404	0.00005	23.3	1.1852	0.0016	0.00400	0.00001	3.7729	0.0162	55.6	0.2
Integrated		4.6902	0.0017	0.41614	0.00042	0.00303	0.00003	18.5	0.7638	0.0008	0.00576	0.00001	3.7991	0.0092	56.0	0.3

90WG121 HBD Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
500	0.0091	23.3363	0.0870	4.46238	0.03150	0.06995	0.00295	87.2	8.2117	0.0581	0.09070	0.00080	2.9808	0.8718	45.3	13.1
700	0.0288	7.0833	0.0133	1.91495	0.01272	0.01066	0.00134	42.6	3.5181	0.0234	0.22999	0.00054	4.0541	0.3970	61.4	5.9
800	0.0397	8.3366	0.0262	3.28511	0.02435	0.01576	0.00243	53.1	6.0407	0.0449	0.63155	0.00205	3.9065	0.7192	59.2	10.7
850	0.0489	8.0153	0.0293	3.43779	0.02882	0.01592	0.00286	55.7	6.3220	0.0531	0.70203	0.00263	3.5478	0.8458	53.8	12.6
900	0.1772	4.3697	0.0040	3.81511	0.00363	0.00359	0.00021	17.8	7.0176	0.0067	0.71775	0.00060	3.5757	0.0612	54.3	0.9
940	0.3151	4.0305	0.0037	3.87934	0.00362	0.00272	0.00019	12.8	7.1361	0.0067	0.66622	0.00056	3.4971	0.0571	53.1	0.9
980	0.3846	4.0148	0.0041	3.76448	0.00489	0.00213	0.00038	8.7	6.9243	0.0090	0.66174	0.00062	3.6473	0.1130	55.3	1.7
1020	0.4939	4.0019	0.0038	3.72115	0.00380	0.00244	0.00024	11.1	6.8444	0.0070	0.67129	0.00057	3.5391	0.0716	53.7	1.1
1100	0.9971	3.9594	0.0035	3.70315	0.00293	0.00234	0.00005	10.5	6.8112	0.0054	0.65230	0.00052	3.5251	0.0160	53.5	0.2
1300	1.0000	22.0642	0.2513	3.27613	0.09166	0.05120	0.00921	67.5	6.0241	0.1689	0.53226	0.00648	7.1663	2.7227	107.1	39.5
1600	1.0000	4431.98	2994.29	1.37794	5.08412	14.52613	9.82929	96.9	2.5306	9.3454	0.48179	0.35358	139.71	187.78	1416.6	1319.0
Integrated		4.6198	0.0022	3.71132	0.00183	0.00445	0.00009	22.5	6.8263	0.0034	0.65181	0.00030	3.5648	0.0261	54.1	0.5

90WG143F WR Weighted average of J from standards = 8.538e-03 +/- 5.037e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
400	0.0779	6.2947	0.0057	0.68166	0.00132	0.01076	0.00013	49.9	1.2513	0.0024	0.00172	0.00003	3.1396	0.0376	47.7	0.6
475	0.1253	4.7826	0.0043	1.11084	0.00212	0.00459	0.00020	26.8	2.0397	0.0039	0.00062	0.00005	3.4841	0.0600	52.9	0.9
550	0.1509	8.9105	0.0090	14.04544	0.01337	0.02082	0.00037	57.4	26.0093	0.0250	0.00308	0.00009	3.8183	0.1115	57.9	1.7
625	0.1722	5.5569	0.0058	3.76585	0.00560	0.00651	0.00045	29.7	6.9268	0.0103	0.00153	0.00011	3.8968	0.1336	59.0	2.0
700	0.1985	4.2365	0.0042	0.40360	0.00350	0.00117	0.00037	7.5	0.7408	0.0064	0.00133	0.00009	3.8920	0.1084	59.0	1.6
775	0.2629	4.2501	0.0038	0.29928	0.00144	0.00130	0.00015	8.5	0.5493	0.0026	0.00169	0.00004	3.8613	0.0443	58.5	0.7
850	0.4076	4.1520	0.0037	0.26805	0.00067	0.00150	0.00007	10.3	0.4919	0.0012	0.00208	0.00002	3.6999	0.0201	56.1	0.3
925	0.5857	4.2424	0.0037	0.31550	0.00057	0.00187	0.00005	12.5	0.5790	0.0011	0.00271	0.00001	3.6861	0.0164	55.9	0.2
1000	0.7841	4.4450	0.0039	0.39518	0.00056	0.00198	0.00005	12.6	0.7253	0.0010	0.00325	0.00001	3.8620	0.0148	58.5	0.2
1100	0.9461	4.6444	0.0043	0.85360	0.00091	0.00240	0.00006	14.0	1.5671	0.0017	0.00343	0.00002	3.9728	0.0184	60.2	0.3
1200	0.9793	5.0562	0.0053	4.84065	0.00527	0.00431	0.00029	18.1	8.9100	0.0097	0.00369	0.00007	4.1301	0.0853	62.5	1.3
1400	0.9894	5.3933	0.0082	10.70222	0.01753	0.00610	0.00094	18.6	19.7749	0.0326	0.00459	0.00023	4.3956	0.2800	66.5	4.2
1700	1.0000	6.0007	0.0088	1.48677	0.00887	0.00632	0.00091	29.4	2.7307	0.0163	0.00337	0.00022	4.2214	0.2692	63.9	4.0
Integrated		4.7264	0.0015	1.17563	0.00048	0.00345	0.00003	19.8	2.1588	0.0009	0.00261	0.00001	3.7694	0.0104	57.1	0.4

90WG154 WR Weighted average of J from standards = 7.721e-03 +/- 3.988e-05

Temp. (Deg C)	Cum. ^{39}Ar	$^{40}Ar/^{39}Ar$ measured	+/-	$^{37}Ar/^{39}Ar$ measured	+/-	$^{36}Ar/^{39}Ar$ measured	+/-	% Atm. ^{40}Ar	Ca/K	+/-	Cl/K	+/-	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
400	0.0029	22.2349	0.2953	1.55707	0.03630	0.05868	0.01079	77.6	2.8599	0.0667	0.01588	0.00264	4.9889	3.1837	68.2	42.7
600	0.0405	8.0808	0.0112	1.59706	0.00312	0.01463	0.00084	52.2	2.9334	0.0057	0.01189	0.00021	3.8522	0.2480	52.9	3.4
800	0.2273	7.0896	0.0065	3.30691	0.00272	0.00940	0.00017	35.8	6.0808	0.0050	0.00888	0.00004	4.5426	0.0505	62.2	0.7
1000	0.5963	5.4659	0.0049	1.23581	0.00101	0.00345	0.00009	17.0	2.2694	0.0019	0.01106	0.00002	4.5149	0.0258	61.8	0.4
1200	0.9948	5.2162	0.0047	3.68176	0.00289	0.00314	0.00008	12.6	6.7718	0.0053	0.01758	0.00003	4.5456	0.0238	62.2	0.3
1600	1.0000	20.1941	0.1406	121.58602	0.83953	0.07409	0.00557	63.3	242.2699	1.8166	0.03333	0.00148	8.0374	1.7795	108.6	23.3
Integrated		5.9010	0.0030	3.29618	0.00149	0.00542	0.00008	23.1	6.0611	0.0027	0.01341	0.00002	4.5273	0.0231	62.0	0.4