

## 2013234 - Appendix DR2

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Excel file available as well.

Member	Unit	Sample number	Material	Plateau/total no steps	% <sup>39</sup> Ar	MSWD	% <sup>40</sup> Ar*	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar/ <sup>39</sup> Ar age	1s error
<b>Saddle Mountains Formation</b>										
Pomona	Pomona Member	DCy5	grdmass glassy mat	11/14	95	0.85	54.2	9.25	10.34	0.21
Priest Rapids	Basalt of Rosalia	DS1-(1)	grdmass	4/9	69	0.94	90.9	1.21	15.07	0.07
	Basalt of Rosalia	DS1-(2)	grdmass	3/7	56	0.79	86.1	0.55	15.25	0.08
	Basalt of Rosalia	DS1-(3)	grdmass	6/11	61	1.5	77.3	4.24	14.80	0.17
Roza	Roza Member	CL3-(1)	grdmass	6/10	82	0.5	35.3	0.31	12.87	0.37
	Roza Member	DF1-(1)	grdmass	9/9	100	1.9	86.1	2.79	16.50	0.23
	Roza Member	DF3-(1)	grdmass	no plateau	-	-	68.6	0.09	-	-
	Roza Member	FsC7	grdmass	no plateau	-	-	68.2	2.89	-	-
	Roza Member	CRB06-153	grdmass	no plateau	-	-	86.4	0.43	-	-
	Roza Member	CRB06-153 dup	grdmass	3/6	60	1.6	79.4	0.67	14.98	0.06
Frenchman Springs	B. of Sand Hollow	CL4	grdmass	5/8	70	0.85	-7.1	0.47	16.42	0.38
	B. of Sand Hollow	DCy3a	grdmass	no plateau	-	-	91.3	1.97	-	-
	B. of Sand Hollow	CRB05-008	grdmass	4/6	71	1.03	17.4	1.25	13.54	0.16
	B. of Sand Hollow	CRB05-049	grdmass	9/14	71	0.53	75.2	3.01	14.71	0.08
	B. of Sand Hollow	PF7	grdmass	7/7	100	1.8	78.3	0.15	15.27	0.18
Frenchman Springs	Basalt of Ginkgo	CRB05-011	grdmass	5/7	60	0.32	66.3	1.01	12.48	0.14
	Basalt of Ginkgo	CRB05-011 (dup)	grdmass	no plateau	-	-	18.8	2.56	-	-
	Basalt of Ginkgo	CRB05-012	grdmass	no plateau	-	-	75.8	1.04	-	-
	Basalt of Ginkgo	FsC8-(1)	grdmass	6/8	52	0.63	91.8	1.93	16.20	0.10
	Basalt of Ginkgo	FsC8-(2)	grdmass	no plateau	-	-	75.9	0.98	-	-
	Basalt of Ginkgo	FsC8-(2) dup	grdmass	4/7	53	1.2	53.9	1.50	15.97	0.28

**Columbia River Basalt Group**Amounts x10<sup>-12</sup> ccSTPMass discrimination per AMU, based on power law (D<sup>i</sup>): 1.01057 ± 0.00005

Decay constants as quoted in Renne et al. (2010).

**Saddle Mountains Formation, Pomona - DCy5 (groundmass glassy matrix). Plateau steps: 1 to 11, inclusive.**

J-value: 0.008675

Plateau age: 10.34 ± 0.21

Wholerock K<sub>2</sub>O = 0.68 wt % (Vye, PhD thesis)

Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
step 1 - 0.3 W	159.537	0.375	95.370	0.129	1.328	0.019	179.894	2.231	0.345	0.020	1.89	36.0	0.603	0.062	9.413	0.95
step 2 - 0.4 W	108.615	0.214	103.295	0.109	1.343	0.022	276.579	2.232	0.122	0.020	2.68	66.7	0.701	0.057	10.941	0.88
step 3 - 0.5 W	204.969	0.212	181.342	0.162	2.564	0.029	752.760	2.233	0.260	0.017	4.15	62.5	0.706	0.028	11.021	0.43
step 4 - 0.6 W	167.413	0.287	148.488	0.197	2.224	0.022	745.447	2.234	0.236	0.017	5.02	58.3	0.658	0.034	10.266	0.53
step 5 - 0.7 W	112.330	0.292	99.191	0.113	1.489	0.022	669.737	2.237	0.172	0.020	6.75	54.8	0.620	0.059	9.680	0.92
step 6 - 0.8 W	126.150	0.254	107.301	0.186	1.542	0.020	805.963	2.237	0.200	0.024	7.51	53.2	0.626	0.066	9.768	1.01
step 7 - 1.0 W	121.398	0.241	104.075	0.141	1.563	0.019	1060.733	2.239	0.184	0.020	10.19	55.1	0.643	0.057	10.036	0.88
step 8 - 1.5 W	201.087	0.221	167.152	0.141	2.476	0.022	1908.477	2.240	0.305	0.018	11.42	55.2	0.664	0.032	10.365	0.49
step 9 - 2.0 W	162.916	0.231	136.414	0.149	1.880	0.020	1843.486	2.241	0.258	0.020	13.51	53.2	0.635	0.044	9.910	0.68
step 10 - 2.5 W	81.507	0.194	74.625	0.134	1.112	0.020	1244.314	2.242	0.142	0.020	16.67	48.7	0.532	0.080	8.305	1.23
step 11 - 3.0 W	131.309	0.158	106.863	0.229	1.680	0.014	1923.389	2.278	0.186	0.024	18.00	58.1	0.714	0.065	11.134	1.01
step 12 - 4.0 W	51.715	0.141	47.056	0.078	0.659	0.012	1002.301	1.918	0.103	0.010	21.30	41.3	0.454	0.066	7.094	1.01
step 13 - 5.0 W	23.859	0.079	23.162	0.081	0.288	0.012	486.642	1.919	0.048	0.010	21.01	40.6	0.418	0.130	6.538	2.01
Total	1652.805	0.845	1394.335	0.534	20.148	0.072	12899.721	7.910	2.561	0.068	9.25	54.2				

**Wanapum Formation, Basalt of Rosalia - DS1-(1) (groundmass). Plateau steps: 2-5, inclusive.**

J-value: 0.005284

Plateau age: 15.07 ± 0.07

Wholerock K<sub>2</sub>O = 1.53 wt % (Vye, PhD thesis)

Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
step1	0.575	0.394	-0.065	0.043	-0.016	0.037	0.000	0.101	0.000	0.008	0.00	100.0	n.d.	n.d.	n.d.	n.d.
step2	278.164	0.509	160.112	0.068	2.290	0.037	70.980	0.586	0.110	0.008	0.44	88.3	1.534	0.016	14.560	0.17
step3	856.427	4.278	500.998	0.371	7.325	0.048	405.563	3.193	0.223	0.014	0.81	92.3	1.578	0.012	14.978	0.13
step4	903.205	3.329	531.439	1.897	7.614	0.062	319.940	2.954	0.208	0.014	0.60	93.2	1.584	0.011	15.036	0.13
step5	823.615	2.018	482.097	0.284	6.991	0.048	335.474	2.294	0.204	0.011	0.70	92.7	1.584	0.008	15.032	0.10
step6	584.727	1.180	339.196	0.198	4.886	0.053	478.152	4.818	0.135	0.011	1.41	93.2	1.606	0.010	15.243	0.12
step7	434.920	0.719	253.682	0.232	3.506	0.041	447.900	4.509	0.166	0.008	1.77	88.7	1.521	0.010	14.438	0.12
step8	198.026	0.461	116.657	0.121	1.565	0.038	291.642	2.071	0.079	0.008	2.50	88.3	1.499	0.022	14.229	0.22
step9	226.400	0.459	128.834	0.169	1.846	0.037	405.026	3.505	0.136	0.008	3.14	82.3	1.446	0.020	13.728	0.20
step10	320.020	0.506	179.867	0.129	2.564	0.037	512.448	3.717	0.168	0.008	2.85	84.5	1.503	0.014	14.269	0.15
Total	4626.078	6.038	2692.817	1.994	38.571	0.141	3267.126	9.924	1.429	0.032	1.21	90.9				

**Wanapum Formation, Basalt of Rosalia - DS1-(2) (groundmass). Plateau steps: 3 to 5, inclusive**

J-value: 0.007171

Plateau age: 15.25 ± 0.08

Wholerock K<sub>2</sub>O = 1.53 wt % (Vye, PhD thesis)

Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
step1	34.570	0.057	17.004	0.049	0.254	0.002	10.090	0.125	0.062	0.000	0.59	47.1	0.957	0.004	12.336	0.08
step2	95.823	0.147	56.037	0.066	0.794	0.004	23.819	0.125	0.119	0.000	0.43	63.3	1.082	0.003	13.944	0.07
step3	244.054	0.112	176.439	0.105	2.410	0.008	78.142	0.125	0.124	0.004	0.44	85.0	1.176	0.006	15.151	0.10
step4	418.301	0.355	303.413	0.244	4.181	0.007	125.542	0.177	0.193	0.010	0.41	86.4	1.191	0.010	15.340	0.14
step5	477.477	0.543	367.934	0.115	4.896	0.007	156.057	0.177	0.135	0.010	0.42	91.6	1.189	0.008	15.317	0.12
step6	535.441	0.265	408.791	0.499	5.603	0.010	250.675	0.177	0.209	0.010	0.61	88.5	1.159	0.007	14.928	0.11
step7	265.070	0.153	198.211	0.165	2.767	0.008	196.974	0.135	0.132	0.007	0.99	85.3	1.140	0.010	14.693	0.15
Total	2070.736	0.743	1527.829	0.605	20.905	0.019	841.300	0.398	0.974	0.019	0.55	86.1				

**Wanapum Formation, Basalt of Rosalia - DS1-(3) (groundmass). Plateau steps: 5 to 10, inclusive**

J-value: 0.008658

Plateau age: 14.80 ± 0.17

Wholerock K<sub>2</sub>O = 1.53 wt % (Vye, PhD thesis)

Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
step1 - 0.3 W	63.678	0.387	55.423	0.181	0.840	0.015	46.456	5.404	0.018	0.017	0.84	91.8	1.055	0.090	16.401	1.39
step 2 - 0.4 W	193.985	0.408	171.970	0.208	2.396	0.013	156.504	5.406	0.035	0.017	0.91	94.7	1.068	0.029	16.607	0.45
step 3 - 0.5 W	450.988	0.499	401.789	1.020	5.419	0.023	526.293	5.410	0.183	0.017	1.31	88.0	0.988	0.013	15.360	0.20
step 4 - 0.6 W	407.903	0.577	343.018	0.499	4.663	0.018	792.874	5.412	0.237	0.017	2.31	82.8	0.985	0.015	15.314	0.23
step 5 - 0.7 W	359.430	0.375	299.583	0.253	4.325	0.028	971.148	2.609	0.248	0.026	3.24	79.6	0.955	0.026	14.859	0.40
step 6 - 0.8 W	265.614	0.551	218.869	0.461	2.962	0.045	705.823	2.613	0.167	0.026	3.22	81.4	0.987	0.035	15.359	0.54
step 7 - 1.0 W	380.623	0.392	288.375	0.247	4.082	0.026	1346.452	2.615	0.296	0.029	4.67	77.0	1.016	0.030	15.803	0.46
step 8 - 1.5 W	600.182	0.581	444.567	0.290	6.379	0.045	2608.090	2.616	0.620	0.030	5.87	69.5	0.938	0.020	14.587	0.31
step 9 - 2.0 W	437.159	0.581	334.655	0.290	4.888	0.030	2208.436	2.617	0.422	0.025	6.60	71.5	0.934	0.022	14.528	0.34
step 10 - 3.0 W	350.652	0.472	265.691	0.264	4.008	0.032	2013.125	2.618	0.358	0.027	7.58	69.9	0.922	0.030	14.346	0.46
step 11 - 4.0 W	278.685	0.385	204.579	0.247	2.858	0.026	1456.021	2.620	0.322	0.026	7.12	65.8	0.896	0.038	13.948	0.59
Total	3788.899	1.594	3028.521	1.415	42.820	0.097	12831.222	12.840	2.907	0.079	4.24	77.3				

**Wanapum Formation, Roza Member - CL3-(1) (groundmass). Plateau steps: 6 to 10, inclusive.**

J-value: 0.002540

Plateau age: 12.87 ± 0.37

No wholerock K<sub>2</sub>O data.

Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	-2.517	1.286	-0.084	0.070	-0.063	0.047	-0.153	0.095	-0.082	0.056	1.82	n.d.	n.d.	n.d.	n.d.	30.10
Step2	29.320	1.288	0.783	0.070	0.100	0.048	0.326	0.095	0.176	0.056	0.42	n.d.	n.d.	n.d.	n.d.	37.45
Step3	679.545	1.366	74.780	0.210	3.650	0.071	9.541	0.151	3.201	0.080	0.13	n.d.	n.d.	n.d.	0.0	9.09
Step4	167.013	1.292	29.203	0.074	0.906	0.048	3.024	0.101	0.667	0.056	0.10	n.d.	n.d.	n.d.	0.0	5.72
Step5	553.701	1.382	124.199	0.188	2.232	0.048	14.781	0.290	0.758	0.056	0.12	59.6	2.655	0.135	12.127	0.61
Step6	412.979	1.815	101.589	0.286	1.598	0.048	17.867	0.337	0.397	0.056	0.18	71.6	2.911	0.165	13.291	0.75
Step7	277.445	1.309	69.513	0.080	1.047	0.048	24.236	0.758	0.249	0.056	0.35	73.5	2.934	0.241	13.398	1.09
Step8	291.277	1.640	74.875	0.235	1.183	0.048	48.373	0.758	0.275	0.056	0.65	72.1	2.804	0.224	12.804	1.01
Step9	335.474	1.290	62.654	0.073	0.982	0.048	28.165	0.751	0.499	0.056	0.45	56.0	2.999	0.267	13.691	1.21
Step10	320.286	1.352	51.357	0.101	0.895	0.048	35.279	0.672	0.568	0.056	0.69	47.6	2.969	0.326	13.557	1.47
Total	3064.522	4.466	588.871	0.504	12.530	0.160	181.441	1.553	6.708	0.187	0.31	35.3				

**Wanapum Formation, Roza Member† - DF1-(1). Fresh wholerock chips (groundmass & crystals). Plateau steps: 3 to 10, inclusive.**

J-value: 0.002540

Plateau age: 16.50 ± 0.23

No wholerock K<sub>2</sub>O data.

Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±
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Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	115.836	1.907	11.565	0.049	0.277	0.023	0.332	0.052	0.342	0.033	0.03	12.7	1.267	0.866	5.799	3.90 10.02
Step2	32.648	1.923	6.517	0.047	0.185	0.023	0.308	0.052	0.170	0.034	0.05	n.d.	n.d.	n.d.	n.d.	5.01
Step3	372.088	1.928	78.089	0.060	1.273	0.024	1.980	0.052	0.506	0.034	0.03	59.8	2.849	0.129	13.007	0.58 4.76
Step4	712.760	3.100	168.917	0.063	2.393	0.030	8.044	0.073	0.546	0.034	0.05	77.3	3.264	0.061	14.895	0.28 4.22
Step5	1013.260	1.964	230.657	0.170	3.301	0.023	18.128	0.099	0.778	0.034	0.08	77.3	3.396	0.044	15.495	0.21 4.39
Step6	941.236	2.251	198.649	0.082	2.949	0.030	19.860	0.138	0.998	0.039	0.10	68.7	3.253	0.059	14.846	0.27 4.74
Step7	1085.064	1.972	209.917	0.066	2.949	0.028	21.556	0.127	1.118	0.034	0.10	69.5	3.595	0.048	16.399	0.23 5.17
Step8	517.328	1.913	99.385	0.072	1.381	0.024	10.816	0.089	0.522	0.034	0.11	70.2	3.652	0.102	16.659	0.46 5.21
Step9	597.410	0.671	111.217	0.052	1.572	0.026	13.535	0.085	0.708	0.029	0.12	65.0	3.490	0.076	15.925	0.35 5.37
Step10	459.034	0.616	88.365	0.054	1.252	0.026	10.343	0.042	0.480	0.028	0.12	69.1	3.590	0.093	16.376	0.42 5.19
Step11	169.150	0.633	32.469	0.065	0.464	0.026	5.231	0.050	0.216	0.027	0.16	62.3	3.244	0.251	14.805	1.13 5.21
Total	6015.817	6.194	1235.744	0.259	17.993	0.086	110.133	0.279	6.387	0.108	0.09	68.6				

Wanapum Formation, Roza Member - FsC7 (groundmass). No plateau.																J-value: 0.005284 Plateau age: no plateau
Wholerock K <sub>2</sub> O = 1.25 wt % (Vye, PhD thesis)																
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	7.705	0.336	2.680	0.058	0.001	0.033	2.459	0.190	-0.001	0.008	0.92	102.5	2.946	0.947	27.869	8.81 2.87
Step2	387.956	0.957	208.722	0.124	2.893	0.036	263.121	0.984	0.367	0.011	1.26	72.0	1.339	0.016	12.716	0.16 1.86
Step3	320.980	0.610	165.932	0.173	2.657	0.035	266.080	0.991	0.363	0.011	1.60	66.6	1.289	0.020	12.241	0.19 1.93
Step4	717.780	0.731	350.535	0.603	5.439	0.038	916.401	3.141	0.817	0.011	2.61	66.4	1.359	0.010	12.905	0.11 2.05
Step5	775.729	0.465	346.613	0.497	5.131	0.040	817.908	23.202	0.912	0.024	2.36	65.3	1.461	0.021	13.870	0.20 2.24
Step6	519.403	0.468	257.819	0.195	4.059	0.035	939.674	7.332	0.553	0.011	3.64	68.6	1.381	0.012	13.116	0.13 2.01
Step7	518.772	0.356	247.014	0.145	3.934	0.036	1069.921	8.273	0.514	0.011	4.33	70.7	1.485	0.013	14.098	0.14 2.10
Step8	228.246	0.356	117.062	0.138	1.810	0.034	619.539	6.097	0.220	0.008	5.29	71.6	1.395	0.022	13.252	0.21 1.95
Total	3476.572	1.620	1696.377	0.859	25.922	0.102	4895.102	26.638	3.745	0.036	2.89	68.2				

Wanapum Formation, Roza Member - CRB06-153 (groundmass). No plateau																J-value: 0.007162 Plateau age: no plateau
No wholerock K <sub>2</sub> O data.																
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	13.057	0.021	5.944	0.019	0.076	0.006	0.278	0.024	0.004	0.000	0.05	91.6	2.012	0.007	25.805	0.15 2.20
Step2	273.701	0.121	208.943	0.139	2.857	0.010	46.325	0.024	0.094	0.004	0.22	89.8	1.177	0.005	15.141	0.10 1.31
Step3	189.851	0.055	148.035	0.092	1.987	0.007	36.947	0.024	0.013	0.004	0.25	98.0	1.257	0.008	16.162	0.12 1.28
Step4	154.920	0.255	117.450	0.090	1.613	0.006	46.491	0.005	0.113	0.012	0.40	78.4	1.035	0.030	13.317	0.39 1.32
Step5	121.474	0.027	86.795	0.126	1.252	0.006	58.554	0.005	0.087	0.012	0.67	78.8	1.103	0.041	14.196	0.52 1.40
Step6	89.839	0.103	59.986	0.047	0.887	0.005	79.648	0.005	0.078	0.011	1.33	74.4	1.115	0.056	14.348	0.72 1.50
Total	842.842	0.307	627.153	0.233	8.670	0.017	268.242	0.042	0.389	0.021	0.43	86.4				

Wanapum Formation, Roza Member - CRB06-153 dup (groundmass). Plateau steps: 1 to 3, inclusive.																J-value: 0.007162 Plateau age: 14.98 ± 0.06
No wholerock K <sub>2</sub> O data.																
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	224.568	0.059	157.823	0.185	2.100	0.008	37.948	0.010	0.140	0.002	0.24	81.6	1.161	0.004	14.934	0.08 1.42
Step2	271.258	0.082	199.727	0.185	2.687	0.008	62.639	0.010	0.126	0.002	0.31	86.3	1.172	0.003	15.078	0.08 1.36
Step3	430.015	0.228	318.772	0.182	4.295	0.010	197.979	0.051	0.210	0.008	0.62	85.6	1.155	0.007	14.856	0.11 1.35
Step4	206.215	0.165	143.930	0.082	1.961	0.010	102.330	0.051	0.174	0.008	0.71	75.0	1.075	0.017	13.835	0.23 1.43
Step5	172.809	0.144	104.292	0.101	1.479	0.008	120.561	0.051	0.207	0.008	1.16	64.5	1.069	0.024	13.761	0.31 1.66
Step6	305.603	0.073	199.244	0.095	2.800	0.009	234.157	0.010	0.267	0.004	1.18	74.2	1.138	0.006	14.648	0.10 1.53
Total	1610.467	0.340	1123.788	0.357	15.322	0.022	755.614	0.090	1.124	0.015	0.67	79.4				

Wanapum Formation, Basalt of Sand Hollow - CL4 (groundmass). Plateau steps: 4 to 8, inclusive.																J-value: 0.002540 Plateau age: 16.42 ± 0.38
No wholerock K <sub>2</sub> O data, but detailed sampling of Sand Hollow lavas revealed variations from 0.88 to 1.62 wt % (n=98; Vye, PhD thesis)																
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
step 1	0.865	1.286	0.027	0.070	0.032	0.048	0.087	0.095	0.043	0.056	3.27	n.d.	n.d.	n.d.	0.01	0.01 n.d.
step 2	7.968	1.288	1.368	0.070	0.233	0.048	0.554	0.095	0.252	0.056	0.41	n.d.	n.d.	n.d.	0.01	0.01 n.d.
step 3	180.480	2.644	65.333	1.905	9.490	3.891	22.967	6.252	6.006	2.433	0.35	n.d.	n.d.	n.d.	0.01	0.01 n.d.
step 4	173.575	1.292	36.868	0.075	0.769	0.048	9.773	0.182	0.355	0.057	0.27	39.6	1.862	0.457	8.515	2.06 4.71
step 5	236.674	1.289	61.028	0.082	1.210	0.048	16.461	0.226	0.469	0.056	0.27	41.4	1.607	0.274	7.350	1.24 3.88
step 6	252.737	1.287	59.299	0.071	0.845	0.048	20.907	0.329	0.173	0.057	0.35	79.8	3.402	0.284	15.523	1.28 4.26
step 7	322.710	1.297	78.044	0.103	1.047	0.048	33.812	0.233	0.173	0.056	0.43	84.2	3.481	0.214	15.884	0.97 4.13
step 8	266.596	1.303	65.888	0.078	0.841	0.047	40.906	0.477	0.150	0.056	0.62	83.4	3.374	0.253	15.398	1.14 4.05
step 9	383.985	1.289	95.741	0.084	1.218	0.048	50.213	0.645	0.154	0.056	0.52	88.2	3.536	0.175	16.135	0.79 4.01
step 10	343.368	0.644	84.560	0.057	1.041	0.025	62.646	0.570	0.086	0.035	0.74	92.6	3.762	0.123	17.158	0.56 4.06
Total	2168.958	4.555	548.156	1.919	16.726	3.894	258.325	6.350	7.860	2.438	0.47	-7.1				

Wanapum Formation, Basalt of Sand Hollow - DCy3a (groundmass). No plateau.																J-value: 0.005284 Plateau age: no plateau
Wholerock K <sub>2</sub> O = 1.22 wt % (Vye, PhD thesis)																
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar*/ <sup>39</sup> Ar	±	Age	± <sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	-0.497	0.887	-0.128	0.429	-0.011	0.031	0.000	1.320	0.000	0.008	0.00	100.0	3.884	24.536	36.651	227.08 3.88
Step2	-0.108	0.888	-0.148	0.429	-0.015	0.031	0.000	1.320	0.000	0.008	0.00	100.0	0.733	18.160	6.978	170.81 0.73
Step3	16.682	0.900	6.116	0.429	0.098	0.031	2.578	1.321	0.053	0.008	0.42	7.0	0.190	0.436	1.812	4.12 2.73
Step4	549.963	1.030	253.249	0.566	3.178	0.033	150.349	1.789	0.192	0.008	0.59	89.7	1.948	0.012	18.471	0.14 2.17
Step5	547.625	0.911	272.928	0.440	3.341	0.032	297.721	3.942	0.081	0.008	1.09	95.6	1.919	0.010	18.201	0.13 2.01
Step6	320.379	0.957	173.916	0.441	2.230	0.033	244.697	2.610	0.034	0.008	1.41	96.9	1.784	0.016	16.930	0.17 1.84

step 5 - 0.7 W	378.379	0.391	296.289	0.314	3.988	0.033	598.050	0.094	0.326	0.008	2.02	74.6	0.952	0.008	14.827	0.13	1.28
step 6 - 0.8 W	359.886	0.285	294.116	0.401	3.928	0.027	724.435	0.094	0.281	0.008	2.46	76.9	0.942	0.009	14.663	0.13	1.22
step 7 - 1.0 W	353.951	0.690	279.918	0.931	3.868	0.024	889.679	1.670	0.295	0.016	3.18	75.3	0.953	0.017	14.835	0.27	1.26
step 8 - 1.5 W	491.415	0.419	372.766	0.251	5.347	0.020	1487.750	1.672	0.479	0.019	3.99	71.2	0.938	0.015	14.615	0.24	1.32
step 9 - 2.0 W	378.742	0.402	291.481	0.280	4.170	0.020	1209.701	1.673	0.350	0.016	4.15	72.7	0.945	0.017	14.712	0.25	1.30
step 10 - 2.5 W	279.118	0.443	217.915	0.363	3.003	0.019	964.511	1.674	0.232	0.019	4.43	75.4	0.966	0.026	15.044	0.40	1.28
step 11 - 3.0 W	244.342	0.528	185.302	0.257	2.688	0.029	894.435	1.675	0.213	0.019	4.83	74.2	0.979	0.030	15.244	0.47	1.32
step 12 - 4.0 W	209.973	0.385	161.207	0.276	2.265	0.022	779.152	1.676	0.206	0.019	4.83	71.0	0.925	0.035	14.410	0.53	1.30
step 13 - 5.0 W	207.509	0.394	166.657	0.414	2.262	0.020	918.538	1.677	0.233	0.019	5.51	66.9	0.833	0.034	12.972	0.52	1.25
step 14 - 7.0 W	104.043	0.399	86.399	0.249	1.263	0.022	431.386	1.678	0.060	0.019	4.99	82.9	0.998	0.065	15.545	0.99	1.20
Total	4277.389	1.724	3389.541	1.507	47.246	0.087	10195.105	5.463	3.592	0.058	3.01	75.2					

Wanapum Formation, Basalt of Sand Hollow - PF7 (groundmass). Plateau steps: 2 to 7, inclusive.													J-value: 0.002540		Plateau age: 15.27 ± 0.18		
No whole rock K <sub>2</sub> O data, but detailed sampling of Sand Hollow lavas revealed variations from 0.88 to 1.62 wt % (n=98; Vye, PhD thesis)																	
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar/ <sup>39</sup> Ar	±	Age	±	<sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	21.834	0.642	2.196	0.033	0.038	0.019	0.037	0.041	0.035	0.030	0.02	53.0	5.266	4.114	23.975	18.43	9.94
Step2	146.014	0.668	31.931	0.042	0.483	0.019	0.816	0.042	0.149	0.030	0.03	69.9	3.196	0.283	14.589	1.28	4.57
Step3	703.736	0.690	168.348	0.133	2.398	0.022	12.436	0.073	0.422	0.031	0.07	82.3	3.439	0.054	15.692	0.26	4.18
Step4	458.423	0.743	109.334	0.053	1.524	0.019	16.784	0.191	0.339	0.031	0.15	78.2	3.277	0.083	14.957	0.38	4.19
Step5	70.968	0.646	17.252	0.034	0.251	0.019	3.567	0.058	0.103	0.030	0.21	57.1	2.347	0.524	10.724	2.36	4.11
Step6	379.128	1.293	91.266	0.071	1.207	0.013	24.075	0.129	0.276	0.022	0.26	78.5	3.262	0.072	14.888	0.33	4.15
Step7	104.939	1.276	25.161	0.019	0.333	0.012	7.735	0.042	0.063	0.021	0.31	82.3	3.434	0.258	15.671	1.16	4.17
Total	1885.042	2.367	445.488	0.173	6.233	0.048	65.450	0.258	1.386	0.075	0.15	78.3					

Wanapum Formation, Basalt of Ginkgo - CRB05-011 (groundmass). Plateau steps: 1 to 5, inclusive.														J-value: 0.007060		Plateau age: 12.48 ± 0.14	
Whole rock K <sub>2</sub> O = 1.13 wt % (Vye, PhD thesis)																	
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar/ <sup>39</sup> Ar	±	Age	±	<sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	29.262	0.059	13.836	0.036	0.224	0.000	5.690	0.083	0.043	0.015	0.41	56.2	1.189	0.319	15.088	3.99	2.11
Step2	123.885	0.096	86.967	0.063	1.222	0.000	33.664	0.083	0.123	0.014	0.39	70.6	1.005	0.049	12.762	0.62	1.42
Step3	187.206	0.194	143.118	0.078	1.960	0.004	76.314	0.083	0.150	0.015	0.53	76.3	0.998	0.031	12.672	0.39	1.31
Step4	107.636	0.062	75.780	0.108	1.090	0.004	60.797	0.083	0.105	0.015	0.80	71.2	1.012	0.058	12.845	0.73	1.42
Step5	204.892	0.205	144.358	0.156	2.153	0.012	176.184	0.083	0.216	0.005	1.22	68.9	0.978	0.011	12.417	0.15	1.42
Step6	228.867	0.210	149.293	0.121	2.165	0.010	214.287	0.083	0.308	0.005	1.44	60.2	0.923	0.011	11.723	0.14	1.53
Step7	238.366	0.205	156.776	0.156	2.363	0.010	213.529	0.083	0.331	0.005	1.36	59.0	0.897	0.010	11.383	0.14	1.52
Total	1120.113	0.426	770.126	0.294	11.175	0.019	780.465	0.221	1.276	0.031	1.01	66.3					

Wanapum Formation, Basalt of Ginkgo - CRB05-011 (dup) (groundmass). No plateau.													J-value: 0.007061		Plateau age: no plateau		
Whole rock K <sub>2</sub> O = 1.13 wt % (Vye, PhD thesis)																	
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar/ <sup>39</sup> Ar	±	Age	±	<sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	-0.040	0.162	-0.001	0.019	-0.008	0.000	-0.068	0.055	-0.002	0.002	92.09	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Step2	233.610	0.216	11.793	0.025	0.268	0.004	7.605	0.055	0.676	0.002	0.64	14.5	2.863	0.051	36.110	0.65	19.81
Step3	1636.210	0.502	90.719	0.088	2.210	0.012	99.195	0.055	5.033	0.019	1.09	9.1	1.641	0.062	20.778	0.78	18.04
Step4	298.202	0.263	65.879	0.066	1.037	0.004	83.396	0.055	0.797	0.004	1.27	21.0	0.952	0.020	12.092	0.25	4.53
Step5	277.626	0.323	80.724	0.198	1.146	0.005	129.500	0.314	0.667	0.004	1.60	29.0	0.998	0.016	12.672	0.21	3.44
Step6	280.584	0.302	168.564	0.169	2.257	0.009	350.528	0.315	0.369	0.004	2.08	61.2	1.018	0.008	12.921	0.11	1.66
Step7	760.461	0.407	180.760	0.092	2.936	0.012	656.900	0.315	2.100	0.015	3.63	18.4	0.774	0.025	9.828	0.32	4.21
Step8	462.518	2.674	124.777	0.104	2.045	0.007	527.109	0.281	1.211	0.010	4.22	22.6	0.838	0.032	10.647	0.41	3.71
Total	3949.170	2.811	723.214	0.316	11.891	0.022	1854.165	0.622	10.852	0.028	2.56	18.8					

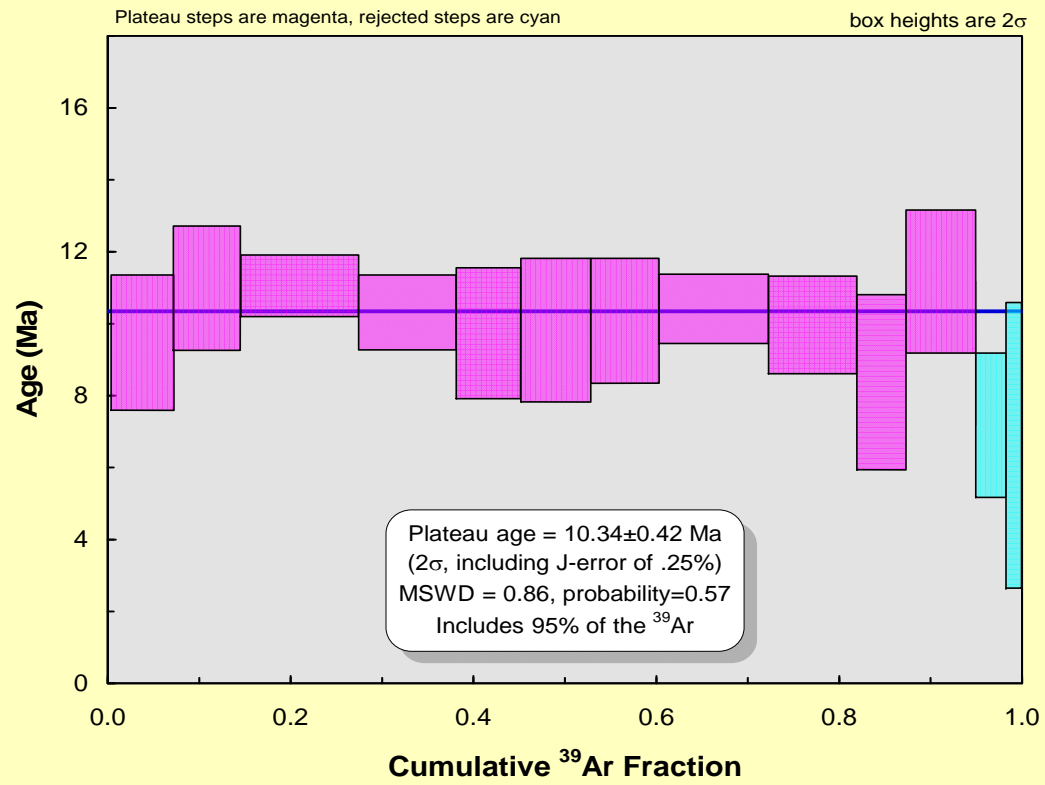
Wanapum Formation, Basalt of Ginkgo - CRB05-012 (groundmass). No plateau.													J-value: 0.007038		Plateau age: no plateau		
Whole rock K <sub>2</sub> O = 1.24 wt % (Vye, PhD thesis)																	
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar* %	<sup>40</sup> Ar/ <sup>39</sup> Ar	±	Age	±	<sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	18.471	0.037	11.160	0.025	0.167	0.008	8.252	0.054	0.023	0.006	0.74	64.0	1.059	0.151	13.395	1.89	1.66
Step2	134.247	0.097	81.815	0.058	1.103	0.009	39.635	0.054	0.128	0.007	0.48	71.8	1.178	0.025	14.893	0.32	1.64
Step3	89.577	0.086	57.533	0.066	0.761	0.011	43.132	0.054	0.047	0.007	0.75	84.3	1.313	0.035	16.596	0.45	1.56
Step4	231.377	0.101	152.507	0.089	2.097	0.011	110.597	0.054	0.201	0.007	0.73	74.4	1.128	0.013	14.271	0.18	1.52
Step5	238.969	0.195	165.702	0.134	2.216	0.010	135.832	0.018	0.143	0.004	0.82	82.4	1.188	0.007	15.019	0.11	1.44
Step6	181.621	0.120	123.207	0.130	1.742	0.007	166.000	0.018	0.142	0.004	1.35	76.9	1.133	0.009	14.329	0.13	1.47
Step7	150.252	0.230	101.190	0.055	1.412	0.010	153.185	0.018	0.157	0.005	1.51	69.1	1.026	0.016	12.984	0.21	1.48
Step8	67.076	0.145	45.002	0.055	0.670	0.010	107.344	0.018	0.070	0.005	2.39	69.0	1.029	0.035	13.012	0.45	1.49
Total	1111.591	0.393	738.116	0.239	10.168	0.027	763.977	0.113	0.911	0.016	1.04	75.8					

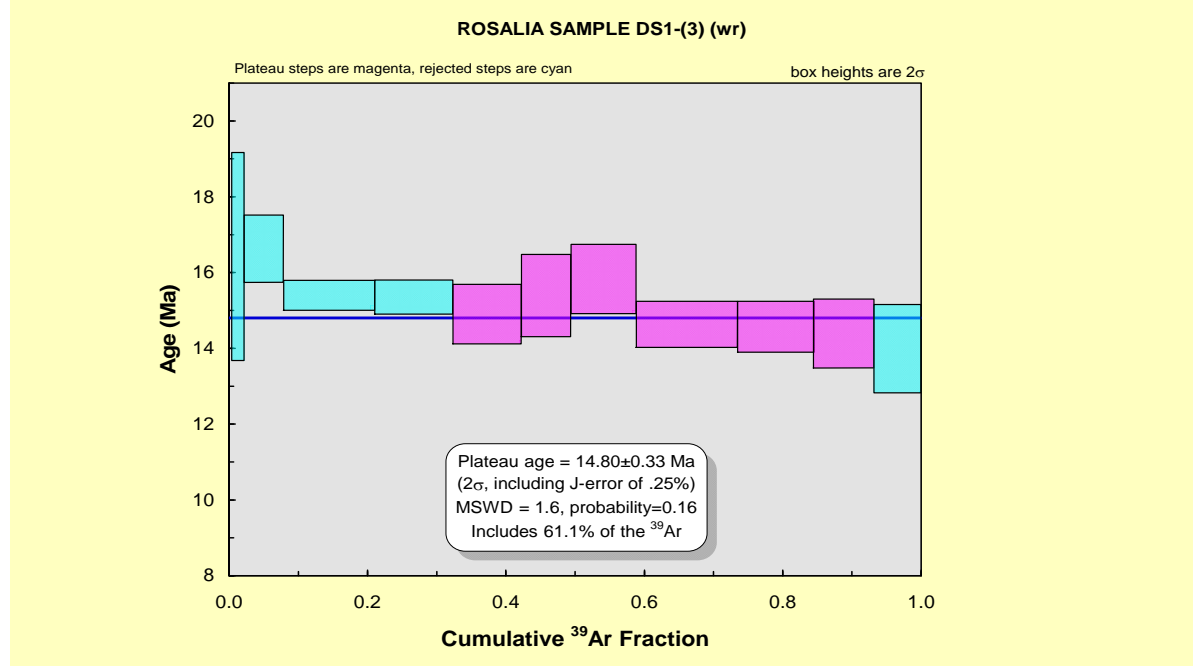
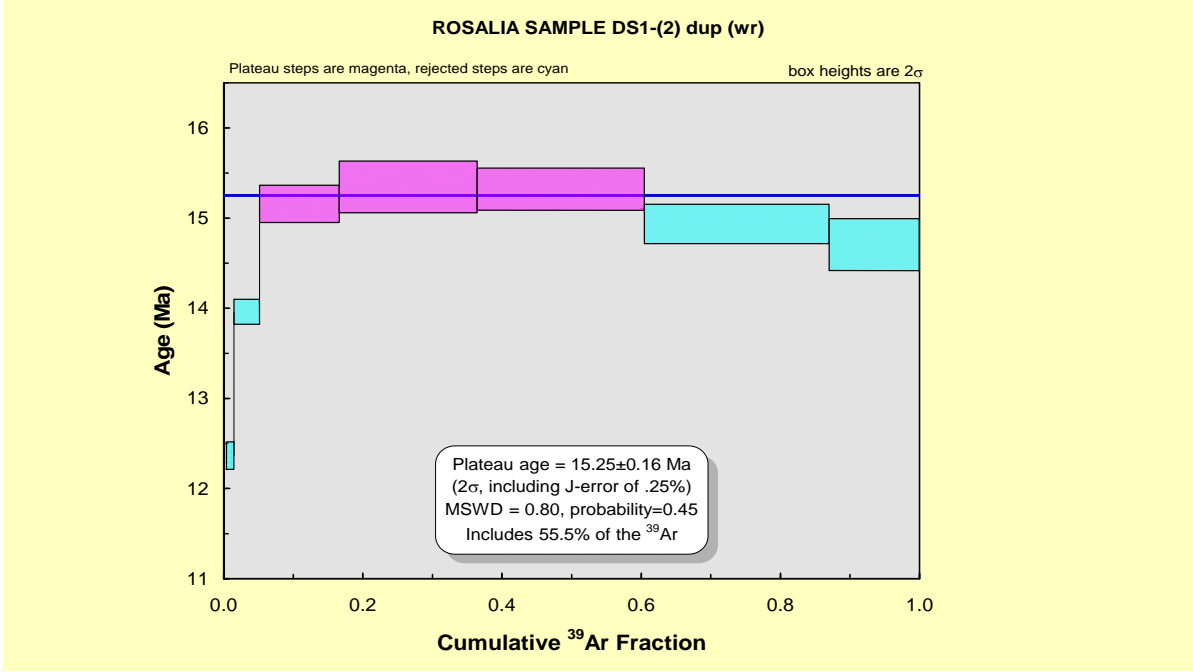
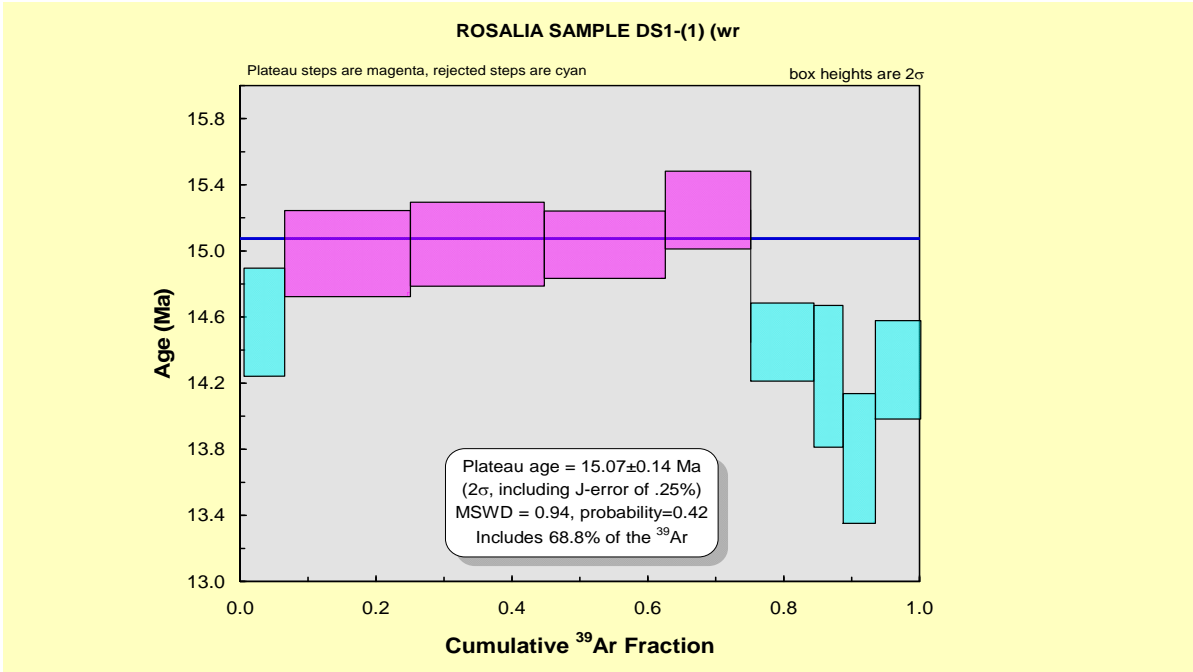
Wanapum Formation, Basalt of Ginkgo - FsC8-(1) (groundmass). Plateau steps: 2 to 7, inclusive.														J-value: 0.005284		Plateau age: 16.20 ± 0.10	
Whole rock K <sub>2</sub> O = 1.18 wt % (Vye, PhD thesis)																	
Step	<sup>40</sup> Ar	±	<sup>39</sup> Ar	±	<sup>38</sup> Ar	±	<sup>37</sup> Ar	±	<sup>36</sup> Ar	±	<sup>37</sup> Ar/ <sup>39</sup> Ar	<sup>40</sup> Ar %	<sup>40</sup> Ar/ <sup>39</sup> Ar	±	Age	±	<sup>40</sup> Ar/ <sup>39</sup> Ar
Step1	818.253	5.687	442.074	0.441	5.374	0.042	569.624	11.808	0.305	0.011	1.29	89.0	1.647	0.015	15.632	0.16	1.85
Step2	107.578	0.495	58.777	0.152	0.749	0.033	77.363	0.563	0.014	0.008	1.32	96.2	1.761	0.044	16.713	0.42	1.83
Step3	182.395	0.479	100.597	0.220	1.274	0.033	134.205	0.882	0.044	0.008	1.33	92.8	1.683	0.026	15.974	0.25	1.81
Step4	267.204	0.515	146.975	0.117	1.764	0.034	217.056	1.933	0.060	0.008	1.48	93.3	1.697	0.017	16.103	0.18	1.82
Step5	213.771	0.389	118.556	0.111	1.426	0.034	209.746	1.670	0.036	0.008	1.77	95.1	1.714	0.021	16.268	0.22	1.80
Step6	303.082	0.405	166.342	0.313	2.041	0.034	365.221	5.012	0.059	0.008	2.20	94.2	1.717	0.016	16.295	0.17	1.82
Step7	241.966	0.509	130.741	0.108	1.665	0.034	351.720	1.966	0.066	0.008	2.69	91.9	1.701	0.020	16.139	0.20	1.85
Step8	450.001	0.435	234.432	0.324	3.105	0.036	767.513	5.313	0.131	0.008	3.27	91.4	1.754	0.011	16.646	0.13	1.92
Total	2584.249	5.818	1398.494	0.712	17.399	0.099	2692.449	14.292	0.715	0.025	1.93	91.8					

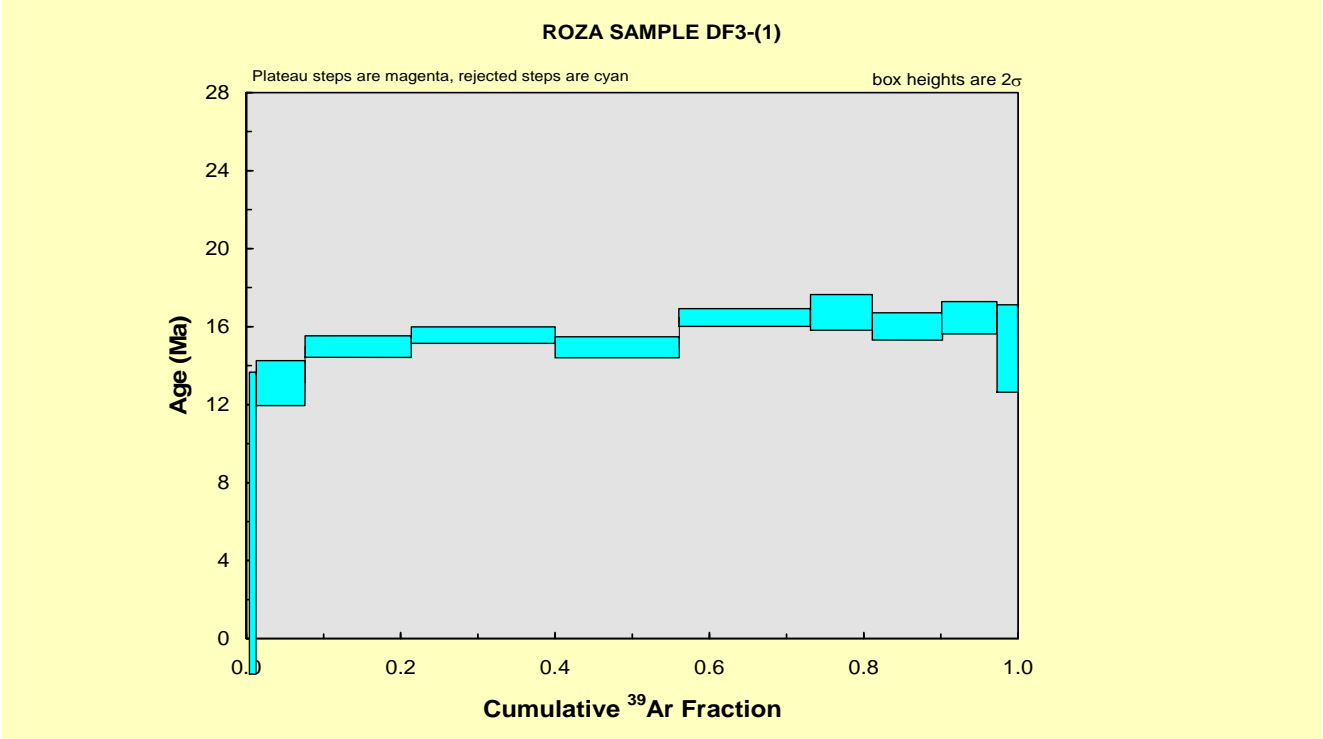
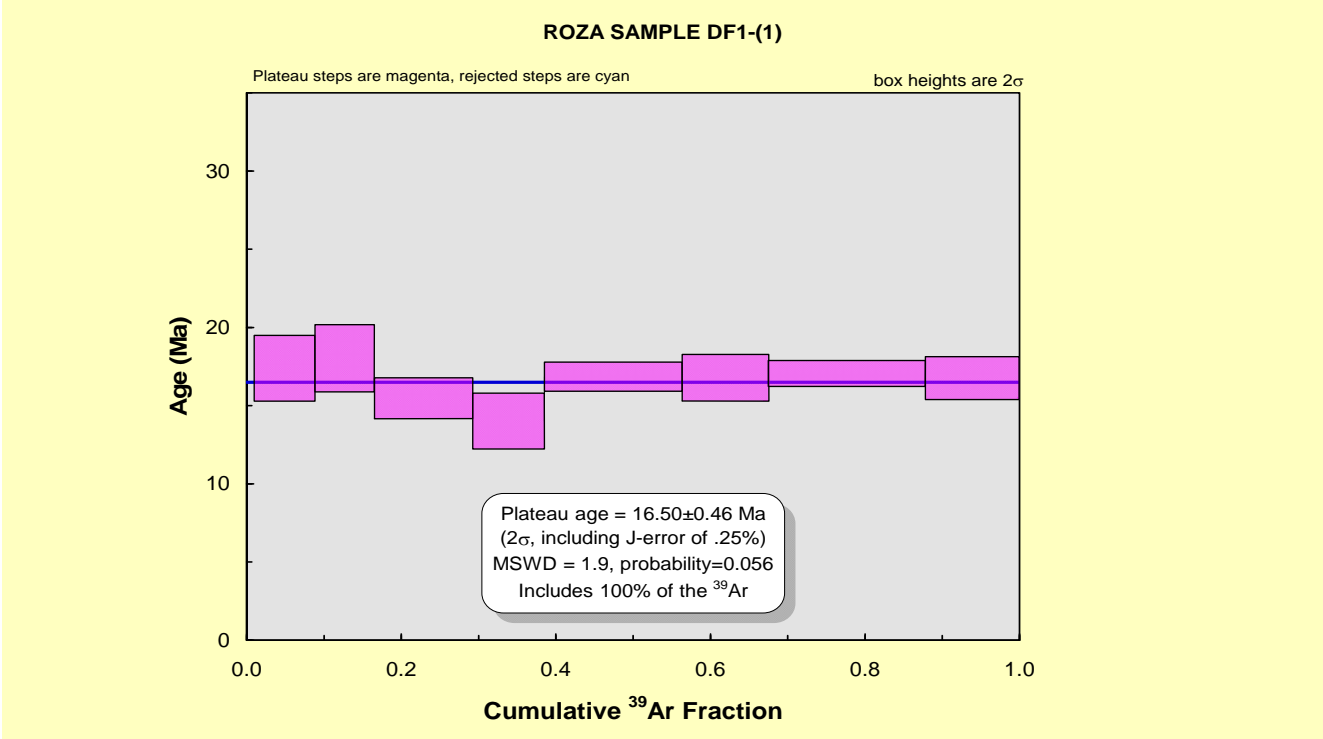
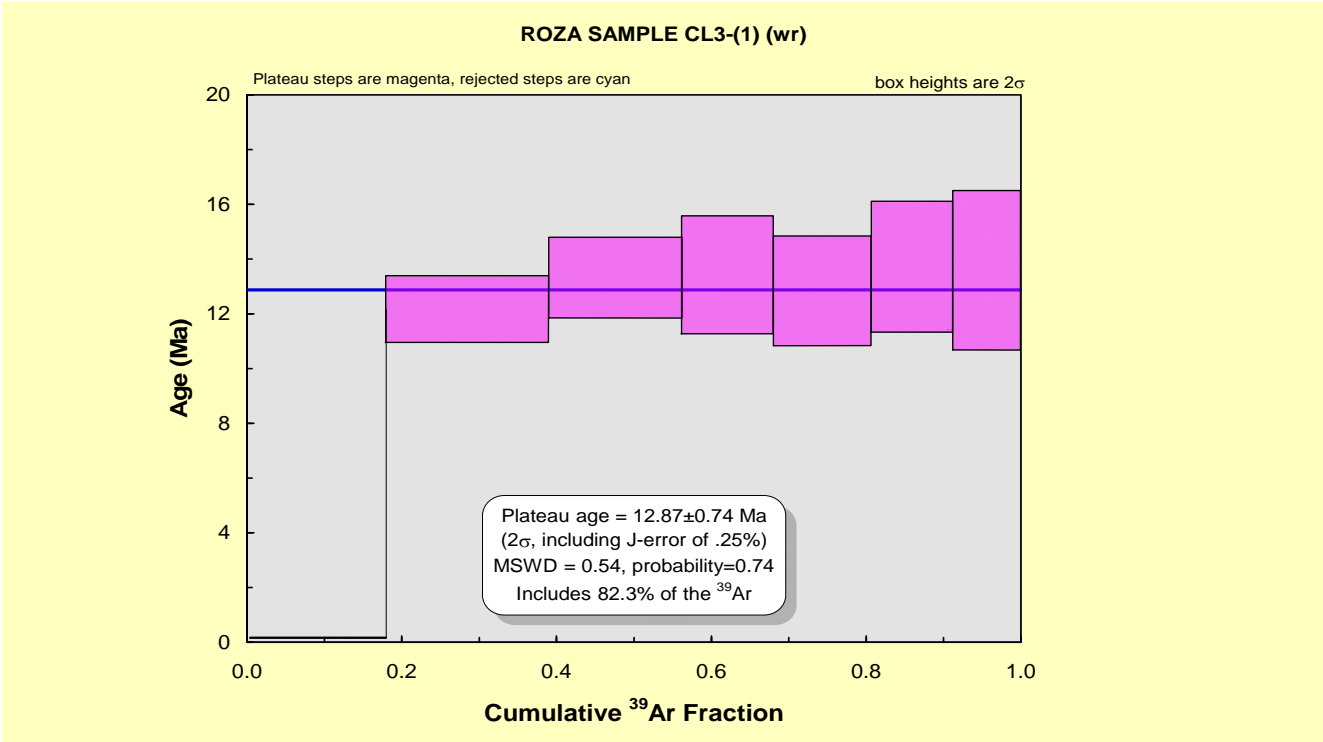
Plateau diagrams on proceeding sheets plotted using Isoplot 3.13 (Ludwig, 2003).

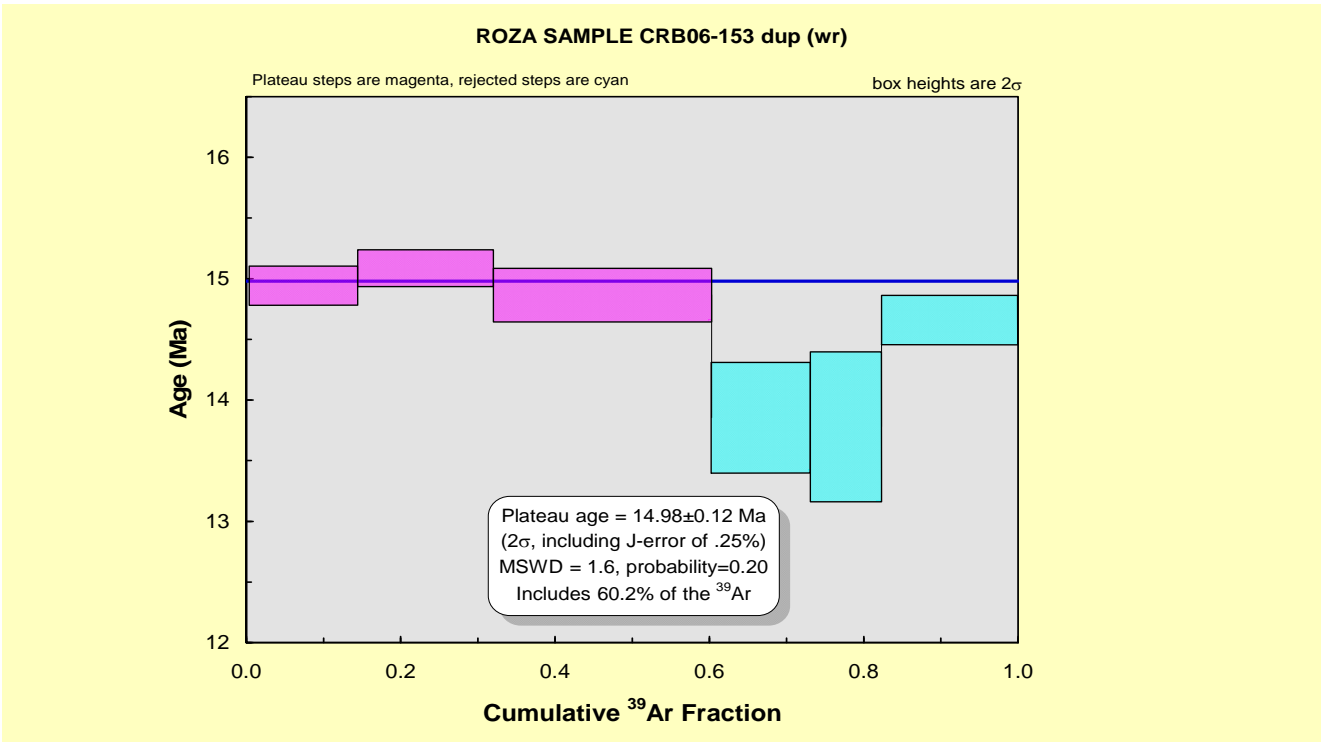
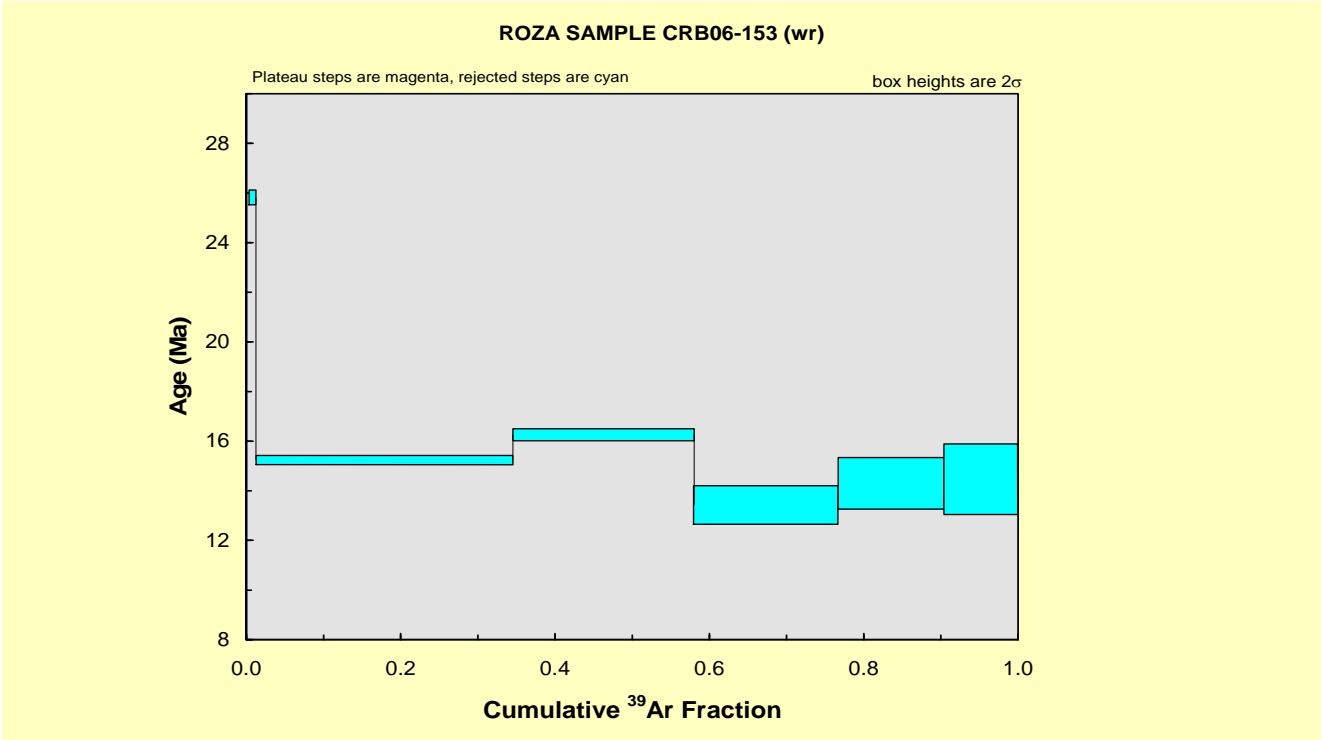
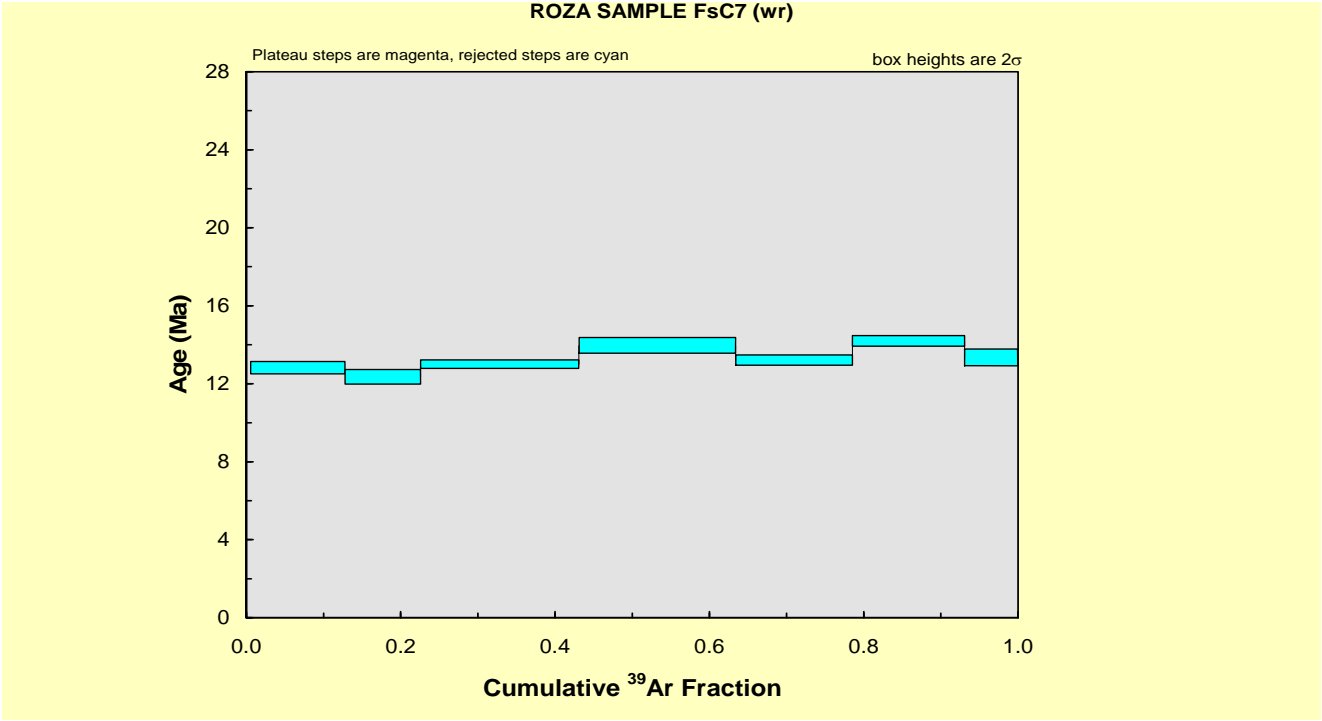


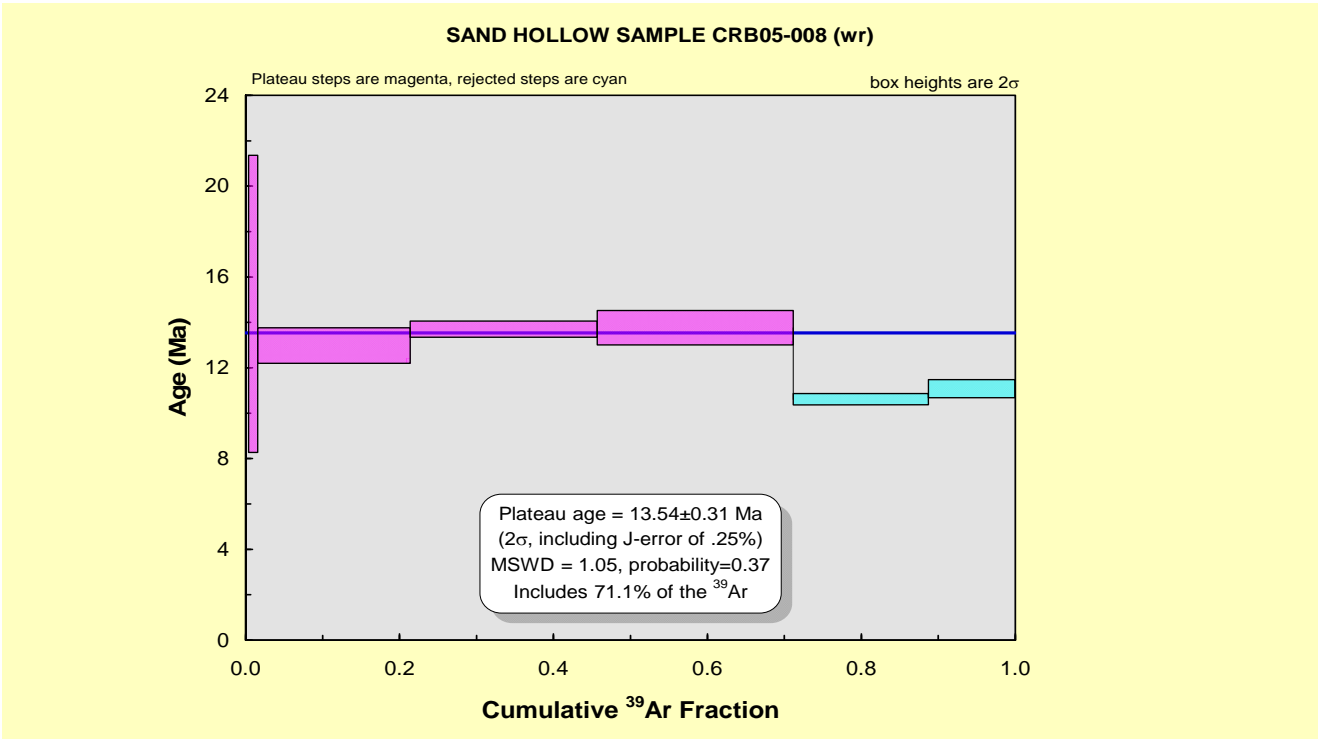
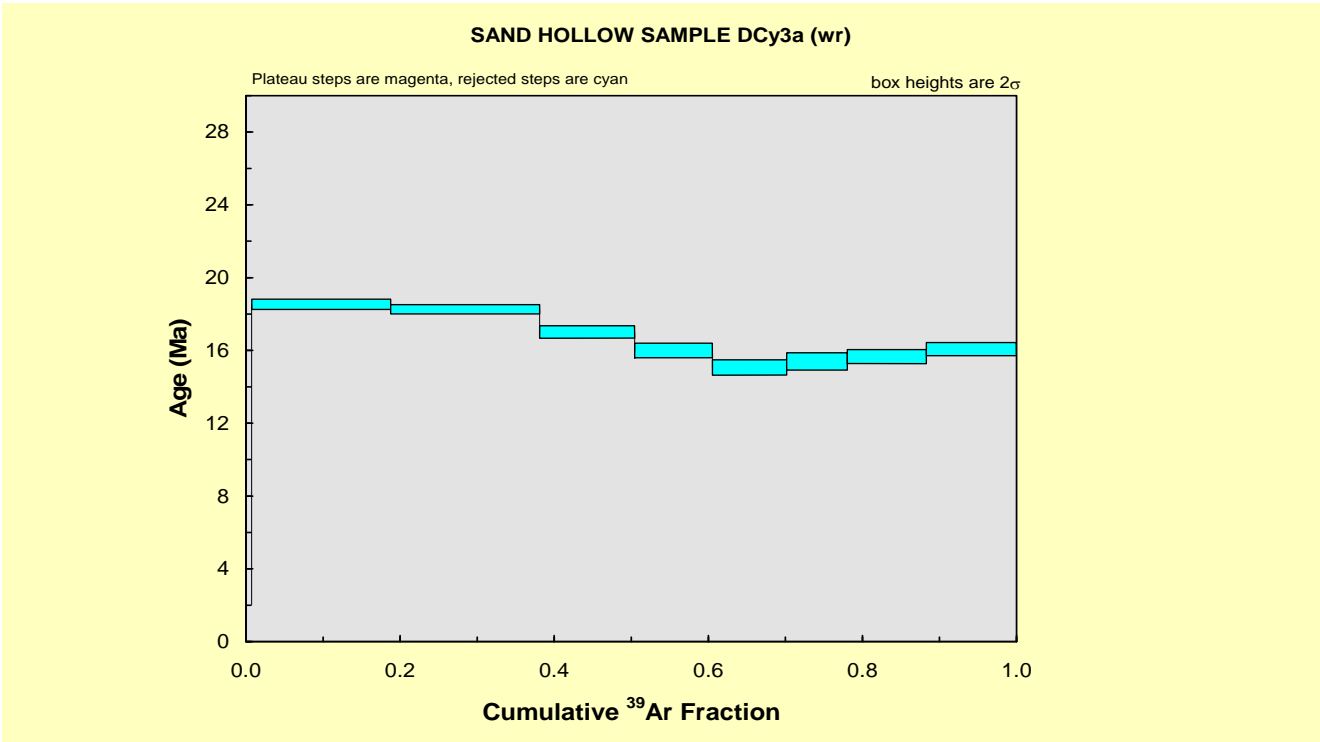
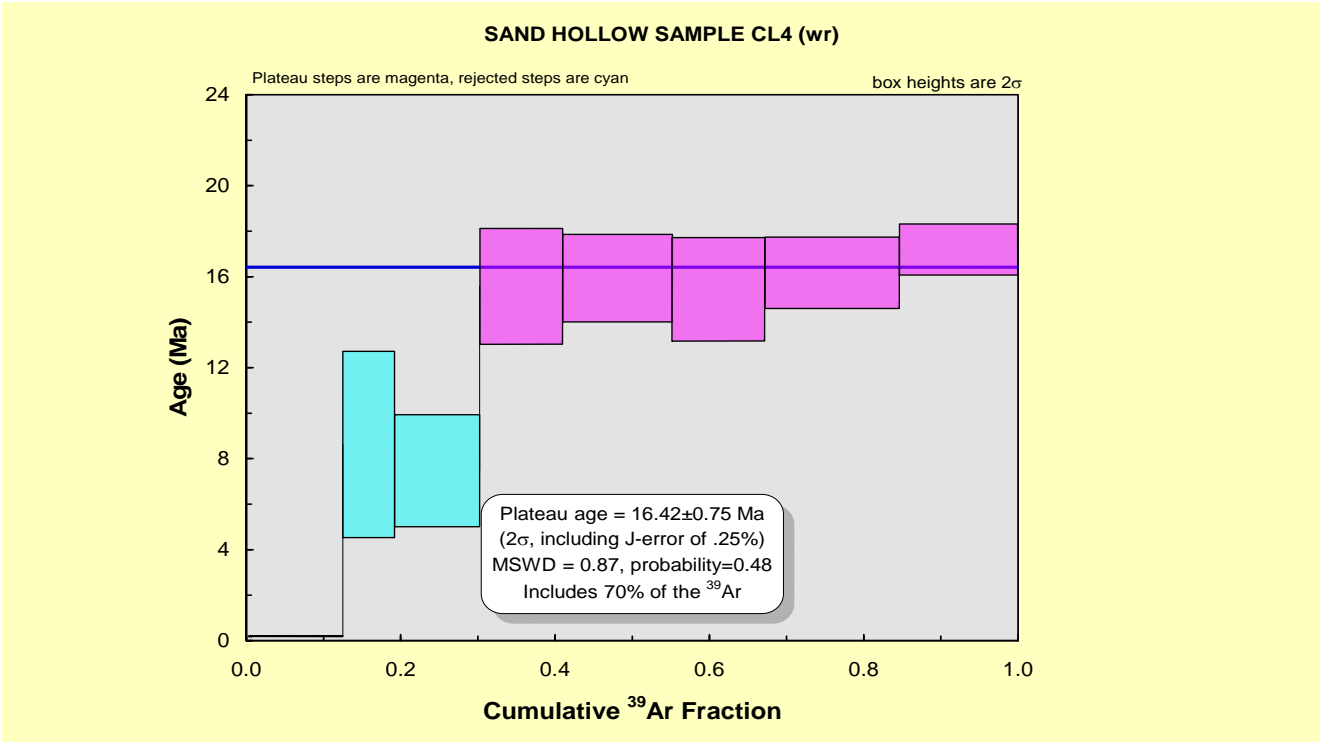
# POMONA SAMPLE DCy5 (wr glassy matirx)



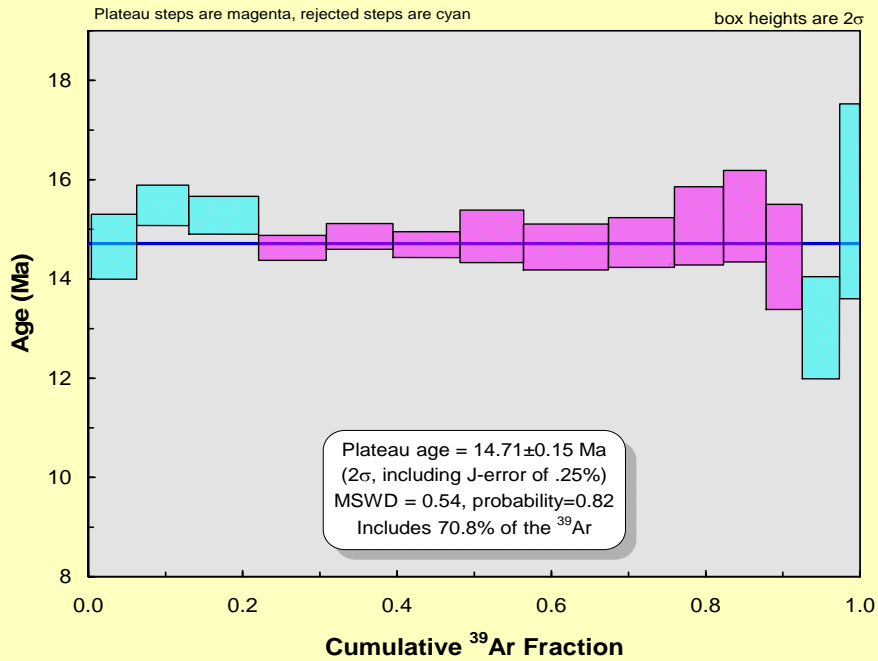








SAND HOLLOW SAMPLE CRB05-049



SAND HOLLOW SAMPLE PF7

