

Supporting information for

## Where did the Arizona-plano go? Protracted thinning via upper- to lower-crustal processes

Gilby Jepson\*<sup>1</sup>, Barbara Carrapa<sup>1</sup>, Sarah W. M. George<sup>1</sup>, Lauren J. Reeher<sup>1</sup>, Paul A. Kapp<sup>1</sup>,

George H. Davis<sup>1</sup>, Stuart N. Thomson<sup>1</sup>, Chiara Amadori<sup>1, 2</sup>, Chris Clinkscales<sup>1</sup>, Sean Jones<sup>3</sup>,

Andrew J. W. Gleadow<sup>3</sup>, and Barry P. Kohn<sup>3</sup>

<sup>1</sup>Department of Geosciences, University of Arizona, Tucson, Arizona, USA

<sup>2</sup>University of Pavia, Department of Earth and Environmental Sciences, Pavia, Italy

<sup>3</sup>School of Earth Sciences, University of Melbourne, Melbourne, Victoria, 3010, Australia

**Table S1:** Apatite fission track data tables.  $N_s$  = number of spontaneous tracks,  $N_i$  = number of induced tracks,  $N_g$  = number of graticules counted,  $D_{par}/D_{per}$  = mean area of etchpits measured ( $\mu\text{m}$ ),  $\rho_s$  = density of spontaneous tracks in  $\text{cm}^2$ ,  $\rho_i$  = density of induced tracks in  $\text{cm}^2$ , and U ppm = estimate of  $^{238}\text{U}$  from number of tracks counted, MTL = mean track length ( $\mu\text{m}$ ), # = number of confined tracks.

Sample Number	SC-1	Mineral	Apatite
Position (#)	30	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	340.2	Count Date	19//2019
Rho d (% Relative Error)	1.139E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
2	27	60	1.65	0.58	8.444E+04	1.140E+06	0.0741	2.2	14.34	10.52	19.41	37.47	17.75
2	39	100	2.34	0.91	5.066E+04	9.879E+05	0.0513	1.9	9.93	7.21	13.39	24.89	12.23
4	43	100	2.07	0.80	1.013E+05	1.089E+06	0.0930	2.1	18.00	9.43	21.18	28.23	16.48
3	38	70	1.81	0.66	1.086E+05	1.375E+06	0.0789	2.7	15.28	9.18	18.87	29.18	15.85
3	28	54	1.93	0.91	1.407E+05	1.314E+06	0.1071	2.5	20.73	12.61	25.67	41.21	21.64
2	27	100	2.20	0.89	5.066E+04	6.840E+05	0.0741	1.3	14.34	10.52	19.41	37.47	17.75
3	17	100	1.93	0.88	7.600E+04	4.306E+05	0.1765	0.8	34.11	21.39	42.56	74.62	36.14
4	28	40	1.78	0.86	2.533E+05	1.773E+06	0.1429	3.4	27.63	14.79	32.64	46.02	25.59
2	11	25	2.18	0.94	2.027E+05	1.115E+06	0.1818	2.2	35.14	27.03	48.41	111.07	44.61
2	21	70	2.13	0.81	7.238E+04	7.600E+05	0.0952	1.5	18.43	13.65	25.03	50.04	22.93
3	14	70	1.87	0.71	1.086E+05	5.066E+05	0.2143	1.0	41.40	26.37	51.87	95.25	44.22
3	23	70	2.31	0.70	1.086E+05	8.323E+05	0.1304	1.6	25.23	15.51	31.32	51.81	26.47
2	10	32	1.94	0.88	1.583E+05	7.916E+05	0.2000	1.5	38.65	29.96	53.39	125.98	49.26
1	11	100	2.70	0.71	2.533E+04	2.786E+05	0.0909	0.5	17.60	18.39	30.43	89.67	30.02
3	21	100	2.45	0.90	7.600E+04	5.320E+05	0.1429	1.0	27.63	17.07	34.35	57.72	29.06
6	39	100	1.78	0.88	1.520E+05	9.879E+05	0.1538	1.9	29.75	13.08	33.35	37.20	23.04
3	23	70	1.99	0.89	1.086E+05	8.323E+05	0.1304	1.6	25.23	15.51	31.32	51.81	26.47
3	26	70	1.92	0.69	1.086E+05	9.409E+05	0.1154	1.8	22.32	13.63	27.67	44.89	23.34
1	5	70	2.29	0.71	3.619E+04	1.809E+05	0.2000	0.3	38.65	42.35	69.31	268.12	68.49
3	28	53	1.80	1.14	1.434E+05	1.338E+06	0.1071	2.6	20.73	12.61	25.67	41.21	21.64

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55	479	1454	2.05	0.82	9.582E+04	8.345E+05	0.1148	1.6	22.22	3.23	22.50	6.89	6.00

Pooled Ratio	0.1148	±	0.0167	
Mean Ratio	0.1280	±	0.0106	
Pooled Age	22.22	±	3.23	1 S.E.
Mean Crystal Age	24.76	±	2.06	1 S.E.
Binomial Age	22.50	+	6.89	" +95% "
		-	6.00	" -95% "

Central Age	22.22	±	3.23
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Age Dispersion	0.00 %			
Chi-squared	6.183	with	19	degrees of freedom

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Sample Number	SP-1	Mineral	Apatite
Position (#)	31	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	340.2	Count Date	20/6/2019
Rho d (% Relative Error)	1.122E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
5	41	80	1.99	0.81	1.583E+05	1.298E+06	0.1220	2.5	23.24	11.03	26.56	32.04	19.39
6	54	60	1.92	0.72	2.533E+05	2.280E+06	0.1111	4.5	21.17	9.13	23.68	25.37	16.23
5	38	100	1.84	0.83	1.267E+05	9.626E+05	0.1316	1.9	25.07	11.95	28.67	34.92	20.96
5	67	100	1.61	0.80	1.267E+05	1.697E+06	0.0746	3.3	14.23	6.61	16.22	18.62	11.74
4	30	80	1.59	0.73	1.267E+05	9.499E+05	0.1333	1.9	25.40	13.54	29.99	41.84	23.47
2	12	50	1.87	0.74	1.013E+05	6.080E+05	0.1667	1.2	31.74	24.26	43.61	97.74	40.15
4	48	70	1.52	0.64	1.448E+05	1.737E+06	0.0833	3.4	15.89	8.28	18.68	24.62	14.51
5	16	50	1.75	0.77	2.533E+05	8.106E+05	0.3125	1.6	59.38	30.47	68.72	99.48	51.65
2	20	49	1.59	0.82	1.034E+05	1.034E+06	0.1000	2.0	19.06	14.15	25.90	52.20	23.74
4	16	50	1.66	0.60	2.027E+05	8.106E+05	0.2500	1.6	47.55	26.62	56.66	89.60	45.06
4	20	50	1.71	0.60	2.027E+05	1.013E+06	0.2000	2.0	38.06	20.88	45.18	67.79	35.70
5	36	50	2.01	0.74	2.533E+05	1.824E+06	0.1389	3.6	26.46	12.65	30.28	37.15	22.16
2	20	100	1.67	0.87	5.066E+04	5.066E+05	0.1000	1.0	19.06	14.15	25.90	52.20	23.74
2	12	25	1.76	0.82	2.027E+05	1.216E+06	0.1667	2.4	31.74	24.26	43.61	97.74	40.15
3	58	70	1.79	0.84	1.086E+05	2.099E+06	0.0517	4.1	9.87	5.85	12.14	18.11	10.17
4	12	40	1.72	0.84	2.533E+05	7.600E+05	0.3333	1.5	63.32	36.60	75.97	130.63	61.03
3	21	100	1.61	0.83	7.600E+04	5.320E+05	0.1429	1.0	27.21	16.82	33.83	56.86	28.62
3	21	50	1.90	0.69	1.520E+05	1.064E+06	0.1429	2.1	27.21	16.82	33.83	56.86	28.62
2	33	50	2.35	1.22	1.013E+05	1.672E+06	0.0606	3.3	11.56	8.42	15.61	29.47	14.26
2	15	50	2.00	0.68	1.013E+05	7.600E+05	0.1333	1.5	25.40	19.14	34.71	73.81	31.89

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72	590	1274	1.79	0.78	1.432E+05	1.173E+06	0.1220	2.3	23.25	2.98	23.48	6.24	5.53

Pooled Ratio	0.1220	±	0.0157	
Mean Ratio	0.1478	±	0.0169	
Pooled Age	23.25	±	2.98	1 S.E.
Mean Crystal Age	28.15	±	3.23	1 S.E.
Binomial Age	23.48	+	6.24	" +95% "
		-	5.53	" -95% "
Central Age	23.25	±	2.98	
Age Dispersion	0.12 %			
Chi-squared	11.785	with	19	degrees of freedom

Sample Number	GM-02	Mineral	Apatite
Position (#)	25	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	340.2	Count Date	18/02/2019
Rho d (% Relative Error)	1.225E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
4	14	100	2.01	0.64	1.013E+05	3.546E+05	0.2857	0.6	59.28	33.66	70.85	116.05	56.59
2	17	100	2.96	0.88	5.066E+04	4.306E+05	0.1176	0.8	24.48	18.31	33.36	69.13	30.61
11	62	100	2.33	0.83	2.786E+05	1.571E+06	0.1774	2.8	36.88	12.12	39.32	31.13	21.79
2	26	100	2.77	1.14	5.066E+04	6.586E+05	0.0769	1.2	16.01	11.76	21.68	42.05	19.84
2	14	60	2.62	0.84	8.444E+04	5.911E+05	0.1429	1.1	29.71	22.48	40.66	87.71	37.38
4	5	60	2.14	1.08	1.689E+05	2.111E+05	0.8000	0.4	164.64	110.55	205.15	526.48	172.15
2	11	80	2.31	0.78	6.333E+04	3.483E+05	0.1818	0.6	37.79	29.07	52.05	119.31	47.97
5	21	80	2.28	1.14	1.583E+05	6.650E+05	0.2381	1.2	49.44	24.65	56.94	76.91	42.33
4	24	60	2.07	0.70	1.689E+05	1.013E+06	0.1667	1.8	34.65	18.74	41.01	59.33	32.26
2	8	50	2.78	0.88	1.013E+05	4.053E+05	0.2500	0.7	51.90	41.06	72.29	183.69	66.90
3	10	100	2.55	0.78	7.600E+04	2.533E+05	0.3000	0.5	62.23	41.01	78.70	159.71	67.65
3	17	80	2.96	0.97	9.499E+04	5.383E+05	0.1765	1.0	36.68	23.00	45.77	80.18	38.86
1	9	64	2.35	1.04	3.958E+04	3.562E+05	0.1111	0.6	23.12	24.38	40.25	124.77	39.72
2	6	50	2.67	0.87	1.013E+05	3.040E+05	0.3333	0.5	69.11	56.47	97.59	279.74	90.73
3	19	100	2.39	0.94	7.600E+04	4.813E+05	0.1579	0.9	32.83	20.42	40.88	69.97	34.64
3	20	60	2.28	1.00	1.267E+05	8.444E+05	0.1500	1.5	31.19	19.33	38.81	65.77	32.86
1	8	60	2.23	0.82	4.222E+04	3.378E+05	0.1250	0.6	26.00	27.59	45.48	146.00	44.89
4	12	63	2.04	1.04	1.608E+05	4.825E+05	0.3333	0.9	69.11	39.95	82.92	142.36	66.60
1	7	40	2.13	1.26	6.333E+04	4.433E+05	0.1429	0.8	29.71	31.77	52.27	175.45	51.61
1	5	35	1.81	0.57	7.238E+04	3.619E+05	0.2000	0.6	41.56	45.54	74.51	287.69	73.63
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
60	315	1442	2.38	0.91	1.054E+05	5.534E+05	0.1905	1.0	39.58	5.70	40.06	12.19	10.52

Pooled Ratio	0.1905	±	0.0274	
Mean Ratio	0.2234	±	0.0346	
Pooled Age	39.58	±	5.70	1 S.E.
Mean Crystal Age	46.39	±	7.21	1 S.E.
Binomial Age	40.06	+	12.19	" +95% "
		-	10.52	" -95% "
Central Age	39.58	±	5.70	
Age Dispersion	0.00 %			
Chi-squared	11.263	with	19	degrees of freedom

Sample Number	LM251008	Mineral	Apatite
Position (#)	33	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	
No. of Crystals	10	Analyst	Jepson
Zeta Factor ± Error	340.2	Count Date	24/6/2019
Rho d (% Relative Error)	1.088E+06	Locality	
N d	5313	Rock Type	

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N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
2	20	50	1.68	0.75	1.013E+05	1.013E+06	0.1000	2.0	18.48	13.71	25.11	50.61	23.02
3	28	100	1.91	0.75	7.600E+04	7.093E+05	0.1071	1.4	19.79	12.04	24.51	39.35	20.66
3	39	100	2.00	0.80	7.600E+04	9.879E+05	0.0769	2.0	14.22	8.53	17.55	27.07	14.74
3	23	100	1.56	0.52	7.600E+04	5.826E+05	0.1304	1.2	24.09	14.80	29.91	49.48	25.27
3	35	50	1.88	0.79	1.520E+05	1.773E+06	0.0857	3.6	15.84	9.54	19.57	30.54	16.45
2	16	100	2.17	0.91	5.066E+04	4.053E+05	0.1250	0.8	23.09	17.33	31.51	66.13	28.93
4	26	100	2.03	0.77	1.013E+05	6.586E+05	0.1538	1.3	28.40	15.28	33.59	47.95	26.37
5	55	100	1.72	0.70	1.267E+05	1.393E+06	0.0909	2.8	16.80	7.86	19.16	22.39	13.91
3	20	100	2.01	0.68	7.600E+04	5.066E+05	0.1500	1.0	27.69	17.17	34.46	58.45	29.18
4	27	32	1.97	0.93	3.166E+05	2.137E+06	0.1481	4.3	27.35	14.68	32.33	45.87	25.36
4	34	100	2.05	0.98	1.013E+05	8.613E+05	0.1176	1.7	21.73	11.51	25.62	35.13	20.01
3	23	100	1.82	0.65	7.600E+04	5.826E+05	0.1304	1.2	24.09	14.80	29.91	49.48	25.27
3	32	100	1.94	0.75	7.600E+04	8.106E+05	0.0938	1.6	17.32	10.47	21.42	33.79	18.02
2	11	60	2.06	0.90	8.444E+04	4.644E+05	0.1818	0.9	33.55	25.81	46.22	106.11	42.60
3	18	60	1.98	0.77	1.267E+05	7.600E+05	0.1667	1.5	30.76	19.21	38.35	66.43	32.53
9	113	60	1.96	0.65	3.800E+05	4.771E+06	0.0796	9.6	14.72	5.12	15.86	13.06	9.29
3	34	100	2.11	0.65	7.600E+04	8.613E+05	0.0882	1.7	16.31	9.83	20.15	31.55	16.94
2	14	100	1.74	0.72	5.066E+04	3.546E+05	0.1429	0.7	26.38	19.96	36.11	77.97	33.19
3	31	100	1.81	1.12	7.600E+04	7.853E+05	0.0968	1.6	17.88	10.82	22.12	35.03	18.62
2	16	100	1.77	0.72	5.066E+04	4.053E+05	0.1250	0.8	23.09	17.33	31.51	66.13	28.93
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66	615	1712	1.91	0.77	9.766E+04	9.100E+05	0.1073	1.8	19.83	2.64	20.04	5.54	4.89

Pooled Ratio	0.1073	±	0.0143
Mean Ratio	0.1195	±	0.0097

Pooled Age	19.83	±	2.64	1 S.E.
Mean Crystal Age	22.08	±	1.80	1 S.E.
Binomial Age	20.04	+	5.54	" +95% "
		-	4.89	" -95% "

Central Age	19.83	±	2.64
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Age Dispersion	0.00 %
Chi-squared	3.901 with 9 degrees of freedom

Sample Number	Tort-2	Mineral	Apatite
Position (#)	21	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2-21
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	340.2	Count Date	11/02/2019
Rho d (% Relative Error)	1.294E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
5	62	50	2.62	0.88	2.533E+05	3.141E+06	0.0806	5.3	17.73	8.26	20.21	23.34	14.64
9	67	60	2.05	0.91	3.800E+05	2.829E+06	0.1343	4.8	29.51	10.51	31.85	27.44	18.90
7	97	80	1.65	0.71	2.217E+05	3.071E+06	0.0722	5.2	15.87	6.23	17.44	16.47	11.22
17	237	70	2.22	0.94	6.152E+05	8.577E+06	0.0717	14.6	15.77	3.99	16.41	9.36	7.37
12	94	50	2.55	0.75	6.080E+05	4.762E+06	0.1277	8.1	28.04	8.64	29.71	21.53	15.70
8	110	81	1.87	1.02	2.502E+05	3.440E+06	0.0727	5.8	15.99	5.88	17.38	15.21	10.64
6	72	60	2.00	0.99	2.533E+05	3.040E+06	0.0833	5.2	18.32	7.80	20.46	21.33	13.94
14	88	60	1.82	1.13	5.911E+05	3.715E+06	0.1591	6.3	34.93	10.10	36.73	24.91	18.36
14	125	60	2.08	0.77	5.911E+05	5.277E+06	0.1120	9.0	24.61	6.97	25.85	16.95	12.76
9	106	60	1.91	0.72	3.800E+05	4.475E+06	0.0849	7.6	18.67	6.50	20.11	16.63	11.80
13	154	80	1.71	0.91	4.116E+05	4.876E+06	0.0844	8.3	18.56	5.39	19.55	13.10	9.88
4	55	60	1.33	0.50	1.689E+05	2.322E+06	0.0727	3.9	15.99	8.30	18.78	24.44	14.57
8	116	70	2.17	1.24	2.895E+05	4.198E+06	0.0690	7.1	15.17	5.56	16.48	14.37	10.08
5	75	49	2.27	0.64	2.585E+05	3.877E+06	0.0667	6.6	14.66	6.79	16.70	19.00	12.07
8	95	60	2.62	0.75	3.378E+05	4.011E+06	0.0842	6.8	18.51	6.84	20.13	17.79	12.36
6	93	80	2.49	0.75	1.900E+05	2.945E+06	0.0645	5.0	14.19	5.99	15.83	16.20	10.75
7	81	50	1.76	1.02	3.546E+05	4.104E+06	0.0864	7.0	19.00	7.51	20.90	19.99	13.49
6	102	60	2.40	1.13	2.533E+05	4.306E+06	0.0588	7.3	12.94	5.45	14.43	14.68	9.78
7	71	60	2.60	0.73	2.955E+05	2.998E+06	0.0986	5.1	21.67	8.61	23.85	23.07	15.43
11	132	80	2.02	1.03	3.483E+05	4.180E+06	0.0833	7.1	18.32	5.78	19.48	14.34	10.55
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
176	2032	1280	2.11	0.88	3.483E+05	4.021E+06	0.0866	6.8	19.04	1.60	19.12	3.10	2.88

Pooled Ratio	0.0866	±	0.0073
Mean Ratio	0.0884	±	0.0058

Pooled Age	19.04	±	1.60	1 S.E.
Mean Crystal Age	19.42	±	1.28	1 S.E.
Binomial Age	19.12	+	3.10	" +95% "
		-	2.88	" -95% "

Central Age	19.04	±	1.60
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Age Dispersion	0.00 %
Chi-squared	11.977 with 19 degrees of freedom

Sample Number	Tort-1	Mineral	Apatite
Position (#)	24	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	341.6	Count Date	29/8/2019
Rho d (% Relative Error)	1.277E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
10	67	80	1.98	0.92	3.166E+05	2.122E+06	0.1493	3.7	32.47	11.05	34.81	28.52	19.89
5	67	70	2.15	0.82	1.809E+05	2.425E+06	0.0746	4.2	16.26	7.55	18.52	21.26	13.41
7	37	50	1.73	0.82	3.546E+05	1.875E+06	0.1892	3.2	41.13	16.99	45.46	47.63	29.95
3	28	42	1.76	0.89	1.809E+05	1.689E+06	0.1071	2.9	23.33	14.19	28.88	46.33	24.34
6	64	25	2.24	1.11	6.080E+05	6.485E+06	0.0938	11.2	20.41	8.74	22.81	24.02	15.58
2	19	25	2.14	0.75	2.027E+05	1.925E+06	0.1053	3.3	22.92	17.05	31.17	63.29	28.58
8	45	32	2.06	0.87	6.333E+05	3.562E+06	0.1778	6.1	38.66	14.87	42.19	40.39	26.42
8	48	32	2.05	1.21	6.333E+05	3.800E+06	0.1667	6.5	36.25	13.88	39.54	37.51	24.71
8	70	50	1.73	0.81	4.053E+05	3.546E+06	0.1143	6.1	24.88	9.31	27.08	24.58	16.73
2	21	35	2.21	0.76	1.448E+05	1.520E+06	0.0952	2.6	20.74	15.36	28.16	56.26	25.80
4	40	48	1.93	0.78	2.111E+05	2.111E+06	0.1000	3.6	21.77	11.43	25.63	34.42	19.97
8	83	40	1.75	0.58	5.066E+05	5.256E+06	0.0964	9.1	20.99	7.79	22.83	20.40	14.05
5	67	50	2.12	0.88	2.533E+05	3.394E+06	0.0746	5.8	16.26	7.55	18.52	21.26	13.41
6	31	60	1.67	0.99	2.533E+05	1.309E+06	0.1935	2.3	42.08	18.80	47.26	54.63	32.88
3	25	30	1.85	0.79	2.533E+05	2.111E+06	0.1200	3.6	26.12	15.98	32.39	52.82	27.33
5	49	25	2.62	1.60	5.066E+05	4.965E+06	0.1020	8.6	22.22	10.45	25.36	29.95	18.45
2	26	50	2.00	0.88	1.013E+05	1.317E+06	0.0769	2.3	16.76	12.30	22.68	43.98	20.76
5	64	36	2.09	0.85	3.518E+05	4.503E+06	0.0781	7.8	17.02	7.92	19.40	22.34	14.05
3	14	36	2.19	0.70	2.111E+05	9.851E+05	0.2143	1.7	46.57	29.66	58.34	106.98	49.73
11	102	70	1.92	0.71	3.981E+05	3.691E+06	0.1078	6.4	23.48	7.48	24.98	18.75	13.61
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
111	967	886	2.01	0.89	3.174E+05	2.765E+06	0.1148	4.8	24.99	2.60	25.15	5.28	4.80

Pooled Ratio	0.1148	±	0.0120	
Mean Ratio	0.1218	±	0.0098	
Pooled Age	24.99	±	2.60	1 S.E.
Mean Crystal Age	26.52	±	2.13	1 S.E.
Binomial Age	25.15	+	5.28	" +95% "
		-	4.80	" -95% "
Central Age	24.99	±	2.60	
Age Dispersion	0.00	%		
Chi-squared	10.251	with	19	degrees of freedom

Sample Number	WP-1	Mineral	Apatite
Position (#)	32	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	340.2	Count Date	21/06/2019
Rho d (% Relative Error)	1.105E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
4	17	100	1.88	-	1.013E+05	4.306E+05	0.2353	0.9	44.07	24.53	52.46	81.72	41.64
2	14	100	1.96	-	5.066E+04	3.546E+05	0.1429	0.7	26.80	20.27	36.67	79.19	33.71
3	36	100	2.03	-	7.600E+04	9.119E+05	0.0833	1.8	15.64	9.41	19.32	30.06	16.24
3	23	100	2.67	-	7.600E+04	5.826E+05	0.1304	1.2	24.47	15.04	30.38	50.26	25.67
4	20	100	2.06	-	1.013E+05	5.066E+05	0.2000	1.0	37.48	20.56	44.49	66.77	35.15
7	42	100	2.22	-	1.773E+05	1.064E+06	0.1667	2.1	31.25	12.79	34.50	35.49	22.64
3	16	60	1.95	-	1.267E+05	6.755E+05	0.1875	1.3	35.15	22.14	43.91	78.05	37.33
6	40	100	1.93	-	1.520E+05	1.013E+06	0.1500	2.0	28.13	12.34	31.53	35.05	21.77
3	18	50	2.09	-	1.520E+05	9.119E+05	0.1667	1.8	31.25	19.51	38.95	67.47	33.04
4	51	100	2.17	-	1.013E+05	1.292E+06	0.0784	2.6	14.72	7.66	17.30	22.68	13.44
2	22	100	2.07	-	5.066E+04	5.573E+05	0.0909	1.1	17.06	12.61	23.16	45.98	21.21
4	25	100	1.61	-	1.013E+05	6.333E+05	0.1600	1.3	30.00	16.18	35.49	51.01	27.89
4	32	100	2.01	-	1.013E+05	8.106E+05	0.1250	1.6	23.45	12.46	27.67	38.25	21.63
4	23	100	2.11	-	1.013E+05	5.826E+05	0.1739	1.2	32.61	17.69	38.62	56.35	30.41
2	16	100	2.12	-	5.066E+04	4.053E+05	0.1250	0.8	23.45	17.60	32.00	67.16	29.38
4	23	36	2.03	-	2.815E+05	1.618E+06	0.1739	3.2	32.61	17.69	38.62	56.35	30.41
5	54	100	2.38	-	1.267E+05	1.368E+06	0.0926	2.7	17.38	8.14	19.83	23.20	14.40
8	70	100	2.17	-	2.027E+05	1.773E+06	0.1143	3.5	21.45	8.03	23.35	21.20	14.43
4	46	60	2.01	-	1.689E+05	1.942E+06	0.0870	3.9	16.32	8.52	19.20	25.41	14.93
4	31	100	2.11	-	1.013E+05	7.853E+05	0.1290	1.6	24.21	12.88	28.57	39.67	22.35

80	619	1806	2.08	#DIV/0!	1.122E+05	8.682E+05	0.1292	1.7	24.25	2.97	24.46	6.17	5.49
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Pooled Ratio	0.1292	±	0.0158
Mean Ratio	0.1406	±	0.0096

Pooled Age	24.25	±	2.97	1 S.E.
Mean Crystal Age	26.38	±	1.80	1 S.E.
Binomial Age	24.46	+	6.17	" +95% "
		-	5.49	" -95% "

Central Age	24.25	±	2.97
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Age Dispersion	0.00 %
Chi-squared	6.581 with 19 degrees of freedom



Sample Number	Tort-1	Mineral	Apatite
Position (#)	24	Glass (U ppm)	2.2
Area of Graticule Square	3.948E-07	Irradiation	UA19-2
No. of Crystals	20	Analyst	Jepson
Zeta Factor ± Error	341.6	Count Date	29/8/2019
Rho d (% Relative Error)	1.311E+06	Locality	
N d	5313	Rock Type	

N s	N i	N g	Dpar	Dper	p s	p i	p s / p i	U ppm	Age (Ma)	Age error	50% Age	" +95% "	" -95% "
6	48	80	2.85	0.79	1.900E+05	1.520E+06	0.1250	2.5	27.94	12.12	31.26	33.92	21.48
6	38	80	2.40	1.13	1.900E+05	1.203E+06	0.1579	2.0	35.27	15.53	39.54	44.24	27.33
7	116	100	2.60	0.73	1.773E+05	2.938E+06	0.0603	4.9	13.50	5.27	14.83	13.85	9.52
9	84	100	2.02	1.03	2.280E+05	2.128E+06	0.1071	3.6	23.95	8.43	25.83	21.76	15.23
8	68	100	2.04	0.95	2.027E+05	1.723E+06	0.1176	2.9	26.30	9.86	28.63	26.06	17.70
7	110	100	2.08	0.77	1.773E+05	2.786E+06	0.0636	4.7	14.24	5.56	15.64	14.65	10.05
7	75	100	1.91	0.72	1.773E+05	1.900E+06	0.0933	3.2	20.87	8.27	22.96	22.11	14.84
14	144	100	1.71	0.91	3.546E+05	3.648E+06	0.0972	6.1	21.74	6.12	22.83	14.80	11.23
9	86	100	1.33	0.50	2.280E+05	2.179E+06	0.1047	3.7	23.40	8.22	25.23	21.21	14.87
11	106	100	2.17	1.24	2.786E+05	2.685E+06	0.1038	4.5	23.20	7.38	24.69	18.47	13.43
2	49	80	2.27	0.64	6.333E+04	1.552E+06	0.0408	2.6	9.14	6.60	12.30	22.44	11.22
4	79	50	2.62	0.75	2.027E+05	4.002E+06	0.0506	6.7	11.33	5.82	13.29	16.85	10.27
5	53	60	2.49	0.75	2.111E+05	2.238E+06	0.0943	3.8	21.10	9.89	24.07	28.20	17.48
4	58	60	1.76	1.02	1.689E+05	2.449E+06	0.0690	4.1	15.43	7.99	18.12	23.47	14.05
8	41	80	1.98	1.02	2.533E+05	1.298E+06	0.1951	2.2	43.56	16.88	47.57	46.18	29.90
5	38	100	2.28	1.40	1.267E+05	9.626E+05	0.1316	1.6	29.40	14.01	33.63	40.93	24.58
7	85	100	2.12	0.98	1.773E+05	2.153E+06	0.0824	3.6	18.42	7.26	20.26	19.30	13.06
6	56	50	1.59	0.59	3.040E+05	2.837E+06	0.1071	4.8	23.95	10.31	26.78	28.57	18.34
7	124	100	1.82	1.13	1.773E+05	3.141E+06	0.0565	5.3	12.63	4.92	13.88	12.91	8.90
6	82	80	1.70	1.20	1.900E+05	2.597E+06	0.0732	4.4	16.37	6.94	18.27	18.85	12.42

138	1540	1720	2.09	0.91	2.032E+05	2.268E+06	0.0896	3.8	20.04	1.87	20.14	3.72	3.42
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Pooled Ratio	0.0896	±	0.0084	
Mean Ratio	0.0966	±	0.0084	
Pooled Age	20.04	±	1.87	1 S.E.
Mean Crystal Age	21.59	±	1.89	1 S.E.
Binomial Age	20.14	+	3.72	" +95% "
		-	3.42	" -95% "
Central Age	20.04	±	1.87	
Age Dispersion	0.02 %			
Chi-squared	15.037	with	19	degrees of freedom

Data from sample **0422-17.rtf**  
 Irradiation Number **MU167-14**, Counted by user#: **0**  
 The mineral is: **Apatite**, Rock type: **Biotite granite**  
 Elevation: **1049.0(m)**, Location: **-110.616666 : 32.142444**  
 Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	14	130	100	0.108	21.4	2.188e5	2.031e6	23.4 $\pm$ 6.7	0-1	0
2	15	121	100	0.124	19.9	2.344e5	1.891e6	27.0 $\pm$ 7.5	1-2	0
3	15	184	100	0.082	30.3	2.344e5	2.875e6	17.8 $\pm$ 4.8	2-3	0
4	8	59	60	0.136	16.2	2.083e5	1.536e6	29.5 $\pm$ 11.2	3-4	0
5	15	156	90	0.096	28.6	2.604e5	2.708e6	20.9 $\pm$ 5.7	4-5	0
6	28	360	100	0.078	59.3	4.375e5	5.625e6	16.9 $\pm$ 3.4	5-6	0
7	18	155	100	0.116	25.5	2.813e5	2.422e6	25.3 $\pm$ 6.4	6-7	0
8	16	235	90	0.068	43.0	2.778e5	4.08e6	14.8 $\pm$ 3.9	7-8	0
9	9	93	70	0.097	21.9	2.009e5	2.076e6	21.1 $\pm$ 7.4	8-9	2
10	23	157	64	0.146	40.4	5.615e5	3.833e6	31.9 $\pm$ 7.2	9-10	0
11	9	61	70	0.148	14.4	2.009e5	1.362e6	32.1 $\pm$ 11.5	10-11	2
12	23	218	100	0.106	35.9	3.594e5	3.406e6	23.0 $\pm$ 5.1	11-12	8
13	14	120	100	0.117	19.8	2.188e5	1.875e6	25.4 $\pm$ 7.2	12-13	13
14	19	230	100	0.083	37.9	2.969e5	3.594e6	18.0 $\pm$ 4.4	13-14	27
15	11	62	80	0.177	12.8	2.148e5	1.211e6	38.6 $\pm$ 12.7	14-15	33
16	10	87	70	0.115	20.5	2.232e5	1.942e6	25.0 $\pm$ 8.4	15-16	14
17	12	73	49	0.164	24.6	3.827e5	2.328e6	35.7 $\pm$ 11.2	16-17	2
18	11	133	100	0.083	21.9	1.719e5	2.078e6	18.0 $\pm$ 5.7	17-18	0
19	18	205	100	0.088	33.8	2.813e5	3.203e6	19.1 $\pm$ 4.8	18-19	0
20	13	141	100	0.092	23.2	2.031e5	2.203e6	20.1 $\pm$ 5.9	19-20	0
21	13	160	100	0.081	26.4	2.031e5	2.5e6	17.7 $\pm$ 5.1		
22	28	358	200	0.078	29.5	2.188e5	2.797e6	17.0 $\pm$ 3.4		
					342	3498	2043	28.2	2.616e5	2.675e6

MTL = 13.7  
 SD = 1.5  
 # = 101

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 10.169 with 21 degrees of freedom.  
 P(chi square) = **100.0%**

Ns/Ni = 0.098  $\pm$  0.0060  
 Mean Ratio = 0.108  $\pm$  0.0060

Pooled Age = 21.3  $\pm$  1.5 Ma  
 Mean Age = 23.6  $\pm$  1.4 Ma  
 Central Age = **21.3  $\pm$  1.5 Ma**  
 % Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.  
 RhoD = 1.185e6 cm-2; ND = 3494.

Data from sample **MU176-1AB.rtf**  
 Irradiation Number **MU176-1**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-02F1

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m	
1	7	70	100	0.1	15.0	1.094e5	1.094e6	17.4 $\pm$ 6.9	0-1	0
2	6	40	100	0.15	8.6	0.938e5	0.625e6	26.1 $\pm$ 11.5	1-2	0
3	8	106	200	0.075	11.4	0.625e5	0.828e6	13.2 $\pm$ 4.8	2-3	0
4	7	38	100	0.184	8.2	1.094e5	0.594e6	32.1 $\pm$ 13.2	3-4	0
5	8	44	100	0.182	9.5	1.25e5	0.688e6	31.7 $\pm$ 12.2	4-5	0
6	9	108	300	0.083	7.7	0.469e5	0.563e6	14.5 $\pm$ 5.1	5-6	0
7	8	103	200	0.078	11.1	0.625e5	0.805e6	13.5 $\pm$ 5.0	6-7	1
8	10	73	200	0.137	7.8	0.781e5	0.57e6	23.9 $\pm$ 8.1	7-8	0
9	4	20	100	0.2	4.3	0.625e5	0.313e6	34.8 $\pm$ 19.1	8-9	0
10	9	46	100	0.196	9.9	1.406e5	0.719e6	34.1 $\pm$ 12.4	9-10	0
11	8	110	200	0.073	11.8	0.625e5	0.859e6	12.7 $\pm$ 4.7	10-11	0
12	3	43	100	0.07	9.2	0.469e5	0.672e6	12.2 $\pm$ 7.3	11-12	1
13	4	31	70	0.129	9.5	0.893e5	0.692e6	22.5 $\pm$ 12.0	12-13	0
14	2	30	100	0.067	6.4	0.313e5	0.469e6	11.6 $\pm$ 8.5	13-14	1
15	3	21	100	0.143	4.5	0.469e5	0.328e6	24.9 $\pm$ 15.4	14-15	2
16	6	33	100	0.182	7.1	0.938e5	0.516e6	31.7 $\pm$ 14.1	15-16	1
17	4	33	100	0.121	7.1	0.625e5	0.516e6	21.1 $\pm$ 11.2	16-17	2
18	5	48	80	0.104	12.9	0.977e5	0.938e6	18.2 $\pm$ 8.5	17-18	0
19	6	85	200	0.071	9.1	0.469e5	0.664e6	12.3 $\pm$ 5.2	18-19	0
20	3	30	100	0.1	6.4	0.469e5	0.469e6	17.4 $\pm$ 10.6	19-20	0
120 1112 2650					9.0	0.708e5	0.656e6		MTL = 13.4	

SD = 3.3  
 # = 8

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 8.051 with 19 degrees of freedom.  
 P(chi square) = **65.05%**

Ns/Ni = 0.108  $\pm$  0.01  
 Mean Ratio = 0.122  $\pm$  0.01

Pooled Age = 18.8  $\pm$  1.9 Ma  
 Mean Age = 21.3  $\pm$  1.8 Ma  
 Central Age = **18.8  $\pm$  1.8 Ma**  
 % Variation = **0.0%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 0.909e6 cm-2; ND = 3399.

Data from sample **MU176-2AB.rtf**

Irradiation Number **MU176-2**, Counted by user#: **0**

The mineral is: **Apatite**

Elevation: NA , Location: NA

0522-03

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m
1	3	27	100	0.111	5.7	0.469e5	0.422e6	19.8 $\pm$ 12.1	0-1 0
2	9	79	200	0.114	8.3	0.703e5	0.617e6	20.3 $\pm$ 7.2	1-2 0
3	3	58	300	0.052	4.1	0.156e5	0.302e6	9.2 $\pm$ 5.5	2-3 0
4	6	38	100	0.158	8.0	0.938e5	0.594e6	28.1 $\pm$ 12.4	3-4 0
5	4	5	100	0.8	1.1	0.625e5	0.078e6	141.3 $\pm$ 94.8	4-5 0
6	3	21	80	0.143	5.5	0.586e5	0.41e6	25.5 $\pm$ 15.7	5-6 1
7	5	62	200	0.081	6.5	0.391e5	0.484e6	14.4 $\pm$ 6.7	6-7 0
8	7	27	100	0.259	5.7	1.094e5	0.422e6	46.1 $\pm$ 19.6	7-8 0
9	3	28	100	0.107	5.9	0.469e5	0.438e6	19.1 $\pm$ 11.6	8-9 0
10	1	39	100	0.026	8.2	0.156e5	0.609e6	4.6 $\pm$ 4.6	9-10 0
11	2	13	60	0.154	4.6	0.521e5	0.339e6	27.4 $\pm$ 20.8	10-11 0
12	1	30	64	0.033	9.8	0.244e5	0.732e6	5.9 $\pm$ 6.0	11-12 0
13	4	22	100	0.182	4.6	0.625e5	0.344e6	32.4 $\pm$ 17.6	12-13 0
14	2	26	100	0.077	5.5	0.313e5	0.406e6	13.7 $\pm$ 10.1	13-14 0
15	0	11	80	0.0	2.9	0.0e5	0.215e6	0.0 $\pm$ 0.0	14-15 2
16	5	37	100	0.135	7.8	0.781e5	0.578e6	24.1 $\pm$ 11.5	15-16 1
17	1	16	200	0.063	1.7	0.078e5	0.125e6	11.1 $\pm$ 11.5	16-17 1
18	4	35	100	0.114	7.4	0.625e5	0.547e6	20.4 $\pm$ 10.8	17-18 0
19	6	23	100	0.261	4.8	0.938e5	0.359e6	46.4 $\pm$ 21.3	18-19 0
20	4	43	200	0.093	4.5	0.313e5	0.336e6	16.6 $\pm$ 8.7	19-20 0
73	640	2484			5.4	0.459e5	0.403e6		MTL = 13.3 SD = 4.5 # = 5

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 14.678 with 19 degrees of freedom.

P(chi square) = **6.06%**

Ns/Ni = 0.114  $\pm$  0.014

Mean Ratio = 0.148  $\pm$  0.038

Pooled Age = 20.3  $\pm$  2.5 Ma

Mean Age = 26.4  $\pm$  6.6 Ma

Central Age = **20.4  $\pm$  2.6 Ma**

% Variation = **11.92%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.

RhoD = 0.93e6 cm-2; ND = 3399.

Data from sample **MU176-3AB.rtf**  
 Irradiation Number **MU176-3**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-4

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m	
1	17	163	100	0.104	33.5	2.656e5	2.547e6	19.0 $\pm$ 4.9	0-1	0
2	16	143	160	0.112	18.4	1.563e5	1.396e6	20.4 $\pm$ 5.4	1-2	0
3	11	101	50	0.109	41.5	3.438e5	3.156e6	19.8 $\pm$ 6.3	2-3	0
4	13	146	70	0.089	42.9	2.902e5	3.259e6	16.2 $\pm$ 4.7	3-4	0
5	20	197	200	0.102	20.2	1.563e5	1.539e6	18.5 $\pm$ 4.4	4-5	0
6	4	62	100	0.065	12.7	0.625e5	0.969e6	11.8 $\pm$ 6.1	5-6	0
7	11	169	100	0.065	34.7	1.719e5	2.641e6	11.9 $\pm$ 3.7	6-7	0
8	16	112	80	0.143	28.8	3.125e5	2.188e6	26.0 $\pm$ 7.0	7-8	0
9	13	120	70	0.108	35.2	2.902e5	2.679e6	19.7 $\pm$ 5.8	8-9	0
10	29	253	70	0.115	74.3	6.473e5	5.647e6	20.9 $\pm$ 4.1	9-10	0
11	14	105	100	0.133	21.6	2.188e5	1.641e6	24.3 $\pm$ 6.9	10-11	2
12	10	130	200	0.077	13.4	0.781e5	1.016e6	14.0 $\pm$ 4.6	11-12	4
13	48	784	400	0.061	40.3	1.875e5	3.063e6	11.2 $\pm$ 1.7	12-13	2
14	5	97	100	0.052	19.9	0.781e5	1.516e6	9.4 $\pm$ 4.3	13-14	6
15	16	185	100	0.086	38.0	2.5e5	2.891e6	15.8 $\pm$ 4.1	14-15	4
16	6	94	80	0.064	24.2	1.172e5	1.836e6	11.6 $\pm$ 4.9	15-16	1
17	10	80	70	0.125	23.5	2.232e5	1.786e6	22.8 $\pm$ 7.7	16-17	2
18	6	93	100	0.065	19.1	0.938e5	1.453e6	11.8 $\pm$ 5.0	17-18	0
19	12	96	90	0.125	21.9	2.083e5	1.667e6	22.8 $\pm$ 7.0	18-19	0
20	11	111	80	0.099	28.5	2.148e5	2.168e6	18.1 $\pm$ 5.7	19-20	0
21	7	70	49	0.1	29.4	2.232e5	2.232e6	18.2 $\pm$ 7.2		
22	35	283	100	0.124	58.2	5.469e5	4.422e6	22.5 $\pm$ 4.1		
					330	3594	2469	29.9	2.088e5	2.274e6

MTL = 13.3  
 SD = 1.8  
 # = 21

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 12.433 with 21 degrees of freedom.  
 P(chi square) = **25.31%**

Ns/Ni = 0.092  $\pm$  0.0050  
 Mean Ratio = 0.096  $\pm$  0.0060

Pooled Age = 16.7  $\pm$  1.0 Ma  
 Mean Age = 17.6  $\pm$  1.0 Ma  
 Central Age = **17.2  $\pm$  1.2 Ma**  
 % Variation = **14.47%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 0.95e6 cm-2; ND = 3399.

Data from sample **MU176-4AB.rtf**  
 Irradiation Number **MU176-4**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-05

RhoD = 0.971e6 cm-2;  
 ND = 3399.

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)
1	1	34	25	0.029	27.4	0.625e5	2.125e6	5.5 ± 5.6
2	1	7	35	0.143	4.0	0.446e5	0.313e6	26.6 ± 28.4
3	2	35	30	0.057	23.5	1.042e5	1.823e6	10.6 ± 7.7
4	1	5	50	0.2	2.0	0.313e5	0.156e6	37.2 ± 40.7
5	0	30	36	0.0	16.8	0.0e5	1.302e6	0.0 ± 0.0
6	1	14	40	0.071	7.0	0.391e5	0.547e6	13.3 ± 13.8
7	0	26	35	0.0	14.9	0.0e5	1.161e6	0.0 ± 0.0
8	0	13	36	0.0	7.3	0.0e5	0.564e6	0.0 ± 0.0
9	0	16	30	0.0	10.7	0.0e5	0.833e6	0.0 ± 0.0
10	6	33	35	0.182	19.0	2.679e5	1.473e6	33.8 ± 15.0
11	2	9	30	0.222	6.0	1.042e5	0.469e6	41.3 ± 32.3
12	5	39	60	0.128	13.1	1.302e5	1.016e6	23.8 ± 11.3
13	2	5	15	0.4	6.7	2.083e5	0.521e6	74.1 ± 62.0
14	6	64	70	0.094	18.4	1.339e5	1.429e6	17.4 ± 7.5
15	1	12	16	0.083	15.1	0.977e5	1.172e6	15.5 ± 16.1
16	6	88	20	0.068	88.5	4.688e5	6.875e6	12.7 ± 5.4
17	2	25	64	0.08	7.9	0.488e5	0.61e6	14.9 ± 10.9
18	2	14	30	0.143	9.4	1.042e5	0.729e6	26.6 ± 20.1
19	0	6	24	0.0	5.0	0.0e5	0.391e6	0.0 ± 0.0
20	3	10	25	0.3	8.0	1.875e5	0.625e6	55.7 ± 36.7
21	0	7	16	0.0	8.8	0.0e5	0.684e6	0.0 ± 0.0
22	2	18	49	0.111	7.4	0.638e5	0.574e6	20.7 ± 15.4
23	4	35	56	0.114	12.6	1.116e5	0.977e6	21.3 ± 11.2
24	0	15	49	0.0	6.2	0.0e5	0.478e6	0.0 ± 0.0
25	4	18	60	0.222	6.0	1.042e5	0.469e6	41.3 ± 22.8
26	0	25	60	0.0	8.4	0.0e5	0.651e6	0.0 ± 0.0
27	1	20	60	0.05	6.7	0.26e5	0.521e6	9.3 ± 9.5
28	0	6	25	0.0	4.8	0.0e5	0.375e6	0.0 ± 0.0
29	0	12	36	0.0	6.7	0.0e5	0.521e6	0.0 ± 0.0
30	0	17	36	0.0	9.5	0.0e5	0.738e6	0.0 ± 0.0
31	1	18	40	0.056	9.1	0.391e5	0.703e6	10.3 ± 10.6
32	3	17	36	0.176	9.5	1.302e5	0.738e6	32.8 ± 20.6
33	3	18	42	0.167	8.6	1.116e5	0.67e6	31.0 ± 19.3
34	2	8	42	0.25	3.8	0.744e5	0.298e6	46.4 ± 36.7
35	2	52	54	0.038	19.4	0.579e5	1.505e6	7.2 ± 5.2
36	4	35	100	0.114	7.0	0.625e5	0.547e6	21.3 ± 11.2
37	0	12	36	0.0	6.7	0.0e5	0.521e6	0.0 ± 0.0
38	1	14	40	0.071	7.0	0.391e5	0.547e6	13.3 ± 13.8
39	1	11	30	0.091	7.4	0.521e5	0.573e6	16.9 ± 17.7
40	1	24	36	0.042	13.4	0.434e5	1.042e6	7.8 ± 7.9
41	6	20	90	0.3	4.5	1.042e5	0.347e6	55.7 ± 25.9
42	10	139	40	0.072	69.9	3.906e5	5.43e6	13.4 ± 4.4
86	1026	1739			11.9	0.773e5	0.922e6	

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 26.496 with 41 degrees of freedom.  
 P(chi square) = **9.93%**

Ns/Ni = 0.084 ± 0.0090  
 Mean Ratio = 0.097 ± 0.015

Pooled Age = 15.6 ± 1.8 Ma  
 Mean Age = 18.1 ± 2.8 Ma  
 Central Age = **15.8 ± 1.9 Ma**  
 % Variation = **24.42%**

Ages calculated using a zeta of 384.0 ± 5.0 for CN5 with 12.5ppm.

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Length  $\mu\text{m}$

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0-1	0
1-2	0
2-3	0
3-4	0
4-5	0
5-6	0
6-7	0
7-8	0
8-9	0
9-10	0
10-11	0
11-12	2
12-13	3
13-14	2
14-15	4
15-16	0
16-17	0
17-18	0
18-19	0
19-20	0

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MTL = 13.2

SD = 1.3

# = 11

Data from sample **MU176-5AB.rtf**  
 Irradiation Number **MU176-5**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-06

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m
1	3	15	27	0.2	11.0	1.736e5	0.868e6	37.9 $\pm$ 24.0	0-1 0
2	2	13	30	0.154	8.5	1.042e5	0.677e6	29.2 $\pm$ 22.2	1-2 0
3	59	75	200	0.787	7.4	4.609e5	0.586e6	148.0 $\pm$ 25.9	2-3 0
4	3	91	70	0.033	25.6	0.67e5	2.031e6	6.3 $\pm$ 3.7	3-4 0
5	2	23	81	0.087	5.6	0.386e5	0.444e6	16.5 $\pm$ 12.2	4-5 0
6	0	14	64	0.0	4.3	0.0e5	0.342e6	0.0 $\pm$ 0.0	5-6 0
7	17	147	100	0.116	29.0	2.656e5	2.297e6	22.0 $\pm$ 5.6	6-7 0
8	0	11	100	0.0	2.2	0.0e5	0.172e6	0.0 $\pm$ 0.0	7-8 0
9	1	73	64	0.014	22.5	0.244e5	1.782e6	2.6 $\pm$ 2.6	8-9 0
10	4	47	60	0.085	15.4	1.042e5	1.224e6	16.2 $\pm$ 8.4	9-10 0
11	4	40	60	0.1	13.1	1.042e5	1.042e6	19.0 $\pm$ 10.0	10-11 1
12	14	183	300	0.077	12.0	0.729e5	0.953e6	14.5 $\pm$ 4.0	11-12 0
13	0	15	100	0.0	3.0	0.0e5	0.234e6	0.0 $\pm$ 0.0	12-13 0
14	16	131	80	0.122	32.3	3.125e5	2.559e6	23.2 $\pm$ 6.2	13-14 2
15	0	5	49	0.0	2.0	0.0e5	0.159e6	0.0 $\pm$ 0.0	14-15 1
16	5	58	70	0.086	16.3	1.116e5	1.295e6	16.4 $\pm$ 7.6	15-16 2
17	27	20	36	1.35	11.0	11.719e5	0.868e6	251.9 $\pm$ 74.5	16-17 0
18	9	72	100	0.125	14.2	1.406e5	1.125e6	23.7 $\pm$ 8.4	17-18 0
19	5	75	70	0.067	21.1	1.116e5	1.674e6	12.7 $\pm$ 5.9	18-19 0
20	8	43	80	0.186	10.6	1.563e5	0.84e6	35.3 $\pm$ 13.6	19-20 0
21	1	23	80	0.043	5.7	0.195e5	0.449e6	8.3 $\pm$ 8.4	
22	4	18	60	0.222	5.9	1.042e5	0.469e6	42.1 $\pm$ 23.3	
184	1192	1881			12.5	1.528e5	0.99e6		MTL = 13.6 SD = 1.9 # = 6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 115.801 with 21 degrees of freedom.  
 P(chi square) = **0.0%**

Ns/Ni = 0.154  $\pm$  0.012  
 Mean Ratio = 0.175  $\pm$  0.066

Pooled Age = 29.3  $\pm$  2.4 Ma  
 Mean Age = 33.2  $\pm$  12.3 Ma  
 Central Age = **26.0  $\pm$  7.5 Ma**  
 % Variation = **123.98%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 0.991e6 cm-2; ND = 3399.



Data from sample **MU176-6AB.rtf**  
 Irradiation Number **MU176-6**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-07

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m
1	0	3	49	0.0	1.2	0.0e5	0.096e6	0.0 $\pm$ 0.0	0-1 0
2	5	72	30	0.069	46.4	2.604e5	3.75e6	13.5 $\pm$ 6.2	1-2 0
3	1	50	70	0.02	13.8	0.223e5	1.116e6	3.9 $\pm$ 3.9	2-3 0
4	33	34	80	0.971	8.2	6.445e5	0.664e6	185.7 $\pm$ 45.6	3-4 0
5	2	20	49	0.1	7.9	0.638e5	0.638e6	19.4 $\pm$ 14.4	4-5 0
6	6	75	70	0.08	20.7	1.339e5	1.674e6	15.5 $\pm$ 6.6	5-6 0
7	4	55	50	0.073	21.2	1.25e5	1.719e6	14.1 $\pm$ 7.3	6-7 0
8	0	2	36	0.0	1.1	0.0e5	0.087e6	0.0 $\pm$ 0.0	7-8 0
9	11	78	70	0.141	21.5	2.455e5	1.741e6	27.3 $\pm$ 8.8	8-9 0
10	17	16	200	1.063	1.5	1.328e5	0.125e6	203.1 $\pm$ 70.9	9-10 1
11	4	70	70	0.057	19.3	0.893e5	1.563e6	11.1 $\pm$ 5.7	10-11 0
12	4	69	70	0.058	19.0	0.893e5	1.54e6	11.2 $\pm$ 5.8	11-12 1
13	18	22	16	0.818	26.6	17.578e5	2.148e6	156.9 $\pm$ 50.0	12-13 1
14	0	32	25	0.0	24.7	0.0e5	2.0e6	0.0 $\pm$ 0.0	13-14 2
									14-15 3
									15-16 0
									16-17 0
									17-18 0
									18-19 0
									19-20 0
									MTL = 12.8
									SD = 1.9
									# = 8

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 80.539 with 13 degrees of freedom.  
 P(chi square) = **0.0%**

Ns/Ni = 0.176  $\pm$  0.019  
 Mean Ratio = 0.246  $\pm$  0.103

Pooled Age = 34.0  $\pm$  3.7 Ma  
 Mean Age = 47.7  $\pm$  19.8 Ma  
 Central Age = **35.4  $\pm$  13.7 Ma**  
 % Variation = **134.34%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 1.011e6 cm-2; ND = 3399.

Data from sample **0422-02.rtf**

Irradiation Number **MU167-1**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Foliated biotite granite**

Elevation: **1003.0(m)**, Location: **-110.94817 : 32.37397**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	6	78	64	0.077	24.2	1.465e5	1.904e6	13.9 $\pm$ 5.9	0-1	0
2	4	51	54	0.078	18.7	1.157e5	1.476e6	14.2 $\pm$ 7.4	1-2	0
3	8	39	36	0.205	21.5	3.472e5	1.693e6	37.0 $\pm$ 14.4	2-3	0
4	6	38	32	0.158	23.6	2.93e5	1.855e6	28.5 $\pm$ 12.6	3-4	0
5	10	79	100	0.127	15.7	1.563e5	1.234e6	22.9 $\pm$ 7.7	4-5	0
6	7	31	36	0.226	17.1	3.038e5	1.345e6	40.8 $\pm$ 17.1	5-6	0
7	16	141	80	0.113	35.0	3.125e5	2.754e6	20.5 $\pm$ 5.5	6-7	0
8	3	65	70	0.046	18.4	0.67e5	1.451e6	8.4 $\pm$ 4.9	7-8	0
9	6	38	49	0.158	15.4	1.913e5	1.212e6	28.5 $\pm$ 12.6	8-9	0
10	6	94	80	0.064	23.3	1.172e5	1.836e6	11.5 $\pm$ 4.9	9-10	0
11	16	205	90	0.078	45.2	2.778e5	3.559e6	14.1 $\pm$ 3.7	10-11	7
12	5	47	40	0.106	23.3	1.953e5	1.836e6	19.2 $\pm$ 9.1	11-12	6
13	10	146	100	0.068	29.0	1.563e5	2.281e6	12.4 $\pm$ 4.1	12-13	5
14	6	88	90	0.068	19.4	1.042e5	1.528e6	12.3 $\pm$ 5.2	13-14	18
15	9	131	80	0.069	32.5	1.758e5	2.559e6	12.4 $\pm$ 4.3	14-15	22
16	9	108	100	0.083	21.4	1.406e5	1.688e6	15.1 $\pm$ 5.3	15-16	24
17	9	137	100	0.066	27.2	1.406e5	2.141e6	11.9 $\pm$ 4.1	16-17	4
18	6	72	70	0.083	20.4	1.339e5	1.607e6	15.1 $\pm$ 6.4	17-18	0
19	5	91	54	0.055	33.4	1.447e5	2.633e6	9.9 $\pm$ 4.6	18-19	0
20	13	124	56	0.105	44.0	3.627e5	3.46e6	19.0 $\pm$ 5.6	19-20	0
21	0	24	100	0.0	4.8	0.0e5	0.375e6	0.0 $\pm$ 0.0	MTL = 14.0 SD = 1.6 # = 86	
22	6	77	70	0.078	21.8	1.339e5	1.719e6	14.1 $\pm$ 6.0		
23	4	33	80	0.121	8.2	0.781e5	0.645e6	21.9 $\pm$ 11.6		
24	10	160	100	0.063	31.8	1.563e5	2.5e6	11.3 $\pm$ 3.7		
25	10	144	60	0.069	47.6	2.604e5	3.75e6	12.6 $\pm$ 4.1		
26	6	56	50	0.107	22.2	1.875e5	1.75e6	19.4 $\pm$ 8.4		
27	6	60	80	0.1	14.9	1.172e5	1.172e6	18.1 $\pm$ 7.8		
					202	2357	1921	24.4	1.643e5	1.917e6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 13.633 with 26 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.086  $\pm$  0.0060

Mean Ratio = 0.095  $\pm$  0.0090

Pooled Age = 15.5  $\pm$  1.3 Ma

Mean Age = 17.2  $\pm$  1.7 Ma

Central Age = **15.5  $\pm$  1.3 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 0.984e6 cm-2; ND = 3494.

Data from sample **0422-03.rtf**

Irradiation Number **MU167-2**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Foliated biotite granite**

Elevation: **921.0(m)**, Location: **32.407388 : -110.910305**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	25	283	100	0.088	55.3	3.906e5	4.422e6	16.2 $\pm$ 3.4	0-1	0
2	15	227	81	0.066	54.8	2.894e5	4.379e6	12.1 $\pm$ 3.3	1-2	0
3	13	169	100	0.077	33.0	2.031e5	2.641e6	14.1 $\pm$ 4.1	2-3	0
4	8	129	100	0.062	25.2	1.25e5	2.016e6	11.4 $\pm$ 4.2	3-4	0
5	32	315	200	0.102	30.8	2.5e5	2.461e6	18.6 $\pm$ 3.5	4-5	0
6	34	318	64	0.107	97.1	8.301e5	7.764e6	19.6 $\pm$ 3.6	5-6	1
7	36	390	200	0.092	38.1	2.813e5	3.047e6	16.9 $\pm$ 3.0	6-7	0
8	57	599	200	0.095	58.6	4.453e5	4.68e6	17.5 $\pm$ 2.5	7-8	0
9	30	480	200	0.063	46.9	2.344e5	3.75e6	11.5 $\pm$ 2.2	8-9	0
10	49	531	100	0.092	103.8	7.656e5	8.297e6	16.9 $\pm$ 2.6	9-10	0
11	24	248	90	0.097	53.9	4.167e5	4.306e6	17.8 $\pm$ 3.9	10-11	7
12	33	438	100	0.075	85.6	5.156e5	6.844e6	13.8 $\pm$ 2.6	11-12	8
13	34	377	100	0.09	73.7	5.313e5	5.891e6	16.6 $\pm$ 3.0	12-13	15
14	23	267	80	0.086	65.3	4.492e5	5.215e6	15.8 $\pm$ 3.5	13-14	24
15	24	263	100	0.091	51.4	3.75e5	4.109e6	16.8 $\pm$ 3.6	14-15	18
16	50	600	200	0.083	58.7	3.906e5	4.688e6	15.3 $\pm$ 2.3	15-16	17
17	35	467	200	0.075	45.7	2.734e5	3.648e6	13.8 $\pm$ 2.5	16-17	10
18	40	553	200	0.072	54.1	3.125e5	4.32e6	13.3 $\pm$ 2.2	17-18	0
19	30	409	100	0.073	80.0	4.688e5	6.391e6	13.5 $\pm$ 2.6	18-19	0
20	25	323	81	0.077	78.0	4.823e5	6.231e6	14.2 $\pm$ 3.0	19-20	0
21	11	162	100	0.068	31.7	1.719e5	2.531e6	12.5 $\pm$ 3.9	MTL = 13.8 SD = 1.9 # = 100	
22	20	154	70	0.13	43.0	4.464e5	3.438e6	23.8 $\pm$ 5.7		
23	19	143	90	0.133	31.1	3.299e5	2.483e6	24.4 $\pm$ 6.0		
24	18	239	100	0.075	46.7	2.813e5	3.734e6	13.8 $\pm$ 3.4		
25	25	213	100	0.117	41.6	3.906e5	3.328e6	21.5 $\pm$ 4.6		
					710	8297	3056	53.1	3.63e5	4.242e6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 10.598 with 24 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.086  $\pm$  0.0030

Mean Ratio = 0.088  $\pm$  0.0040

Pooled Age = 15.7  $\pm$  0.9 Ma

Mean Age = 16.1  $\pm$  0.7 Ma

Central Age = **15.7  $\pm$  0.9 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 0.999e6 cm-2; ND = 3494.

Data from sample **0422-04.rtf**

Irradiation Number **MU167-3**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Biotite granite**

Elevation: **983.0(m)**, Location: **-110.879444 : 32.43925**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	9	31	40	0.29	14.9	3.516e5	1.211e6	54.0 $\pm$ 20.6	0-1	0
2	6	60	42	0.1	27.5	2.232e5	2.232e6	18.6 $\pm$ 8.0	1-2	0
3	8	61	40	0.131	29.3	3.125e5	2.383e6	24.4 $\pm$ 9.2	2-3	0
4	13	149	81	0.087	35.4	2.508e5	2.874e6	16.3 $\pm$ 4.7	3-4	0
5	5	24	40	0.208	11.5	1.953e5	0.938e6	38.8 $\pm$ 19.1	4-5	0
6	5	52	50	0.096	20.0	1.563e5	1.625e6	17.9 $\pm$ 8.4	5-6	0
7	7	66	40	0.106	31.8	2.734e5	2.578e6	19.8 $\pm$ 7.9	6-7	0
8	3	68	48	0.044	27.3	0.977e5	2.214e6	8.2 $\pm$ 4.9	7-8	0
9	5	45	70	0.111	12.4	1.116e5	1.004e6	20.7 $\pm$ 9.8	8-9	0
10	5	63	70	0.079	17.3	1.116e5	1.406e6	14.8 $\pm$ 6.9	9-10	1
11	5	74	63	0.068	22.6	1.24e5	1.835e6	12.6 $\pm$ 5.8	10-11	1
12	3	37	40	0.081	17.8	1.172e5	1.445e6	15.1 $\pm$ 9.1	11-12	10
13	4	31	30	0.129	19.9	2.083e5	1.615e6	24.1 $\pm$ 12.8	12-13	14
14	7	105	100	0.067	20.2	1.094e5	1.641e6	12.4 $\pm$ 4.9	13-14	24
15	5	47	36	0.106	25.1	2.17e5	2.04e6	19.8 $\pm$ 9.4	14-15	23
16	4	48	50	0.083	18.5	1.25e5	1.5e6	15.5 $\pm$ 8.1	15-16	23
17	4	68	60	0.059	21.8	1.042e5	1.771e6	11.0 $\pm$ 5.7	16-17	4
18	6	81	50	0.074	31.2	1.875e5	2.531e6	13.8 $\pm$ 5.9	17-18	0
19	5	45	49	0.111	17.7	1.594e5	1.435e6	20.7 $\pm$ 9.8	18-19	0
20	4	52	35	0.077	28.6	1.786e5	2.321e6	14.4 $\pm$ 7.5	19-20	0
21	3	51	50	0.059	19.6	0.938e5	1.594e6	11.0 $\pm$ 6.5	MTL = 13.9 SD = 1.4 # = 100	
22	7	100	80	0.07	24.1	1.367e5	1.953e6	13.1 $\pm$ 5.1		
23	5	46	45	0.109	19.7	1.736e5	1.597e6	20.3 $\pm$ 9.6		
24	9	125	100	0.072	24.1	1.406e5	1.953e6	13.4 $\pm$ 4.7		
					137	1529	1309	22.5	1.635e5	1.825e6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 10.648 with 23 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.09  $\pm$  0.0080

Mean Ratio = 0.101  $\pm$  0.011

Pooled Age = 16.7  $\pm$  1.6 Ma

Mean Age = 18.8  $\pm$  2.0 Ma

Central Age = **16.7  $\pm$  1.6 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.015e6 cm-2; ND = 3494.

Data from sample **0422-05.rtf**

Irradiation Number **MU167-4**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Mylonitic gneiss**

Elevation: **932.0(m)**, Location: **-110.741805 : 32.311999**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	3	14	100	0.214	2.7	0.469e5	0.219e6	40.5 $\pm$ 25.8	0-1	0
2	3	15	100	0.2	2.8	0.469e5	0.234e6	37.8 $\pm$ 23.9	1-2	0
3	5	46	60	0.109	14.5	1.302e5	1.198e6	20.6 $\pm$ 9.7	2-3	0
4	6	112	100	0.054	21.2	0.938e5	1.75e6	10.1 $\pm$ 4.3	3-4	0
5	5	21	90	0.238	4.4	0.868e5	0.365e6	45.0 $\pm$ 22.4	4-5	0
6	1	9	100	0.111	1.7	0.156e5	0.141e6	21.0 $\pm$ 22.2	5-6	0
7	3	21	100	0.143	4.0	0.469e5	0.328e6	27.0 $\pm$ 16.7	6-7	0
8	2	19	90	0.105	4.0	0.347e5	0.33e6	19.9 $\pm$ 14.8	7-8	0
9	8	60	300	0.133	3.8	0.417e5	0.313e6	25.2 $\pm$ 9.5	8-9	0
10	2	18	100	0.111	3.4	0.313e5	0.281e6	21.0 $\pm$ 15.7	9-10	0
11	3	24	100	0.125	4.6	0.469e5	0.375e6	23.6 $\pm$ 14.5	10-11	2
12	7	61	100	0.115	11.6	1.094e5	0.953e6	21.7 $\pm$ 8.7	11-12	0
13	1	6	100	0.167	1.1	0.156e5	0.094e6	31.5 $\pm$ 34.1	12-13	3
14	1	11	100	0.091	2.1	0.156e5	0.172e6	17.2 $\pm$ 18.0	13-14	2
15	3	30	100	0.1	5.7	0.469e5	0.469e6	18.9 $\pm$ 11.5	14-15	3
16	2	16	100	0.125	3.0	0.313e5	0.25e6	23.6 $\pm$ 17.8	15-16	1
17	2	17	100	0.118	3.2	0.313e5	0.266e6	22.3 $\pm$ 16.7	16-17	0
18	5	35	70	0.143	9.5	1.116e5	0.781e6	27.0 $\pm$ 13.0	17-18	0
19	5	32	100	0.156	6.1	0.781e5	0.5e6	29.5 $\pm$ 14.3	18-19	0
20	2	24	100	0.083	4.6	0.313e5	0.375e6	15.8 $\pm$ 11.6	19-20	0
21	8	52	300	0.154	3.3	0.417e5	0.271e6	29.1 $\pm$ 11.1	MTL = 13.1 SD = 1.6 # = 11	
22	3	39	200	0.077	3.7	0.234e5	0.305e6	14.6 $\pm$ 8.7		
23	3	36	100	0.083	6.8	0.469e5	0.563e6	15.8 $\pm$ 9.5		
24	6	40	100	0.15	7.6	0.938e5	0.625e6	28.4 $\pm$ 12.5		
25	5	44	100	0.114	8.3	0.781e5	0.688e6	21.5 $\pm$ 10.2		
26	3	31	100	0.097	5.9	0.469e5	0.484e6	18.3 $\pm$ 11.1		
27	4	39	200	0.103	3.7	0.313e5	0.305e6	19.4 $\pm$ 10.2		
28	3	28	100	0.107	5.3	0.469e5	0.438e6	20.3 $\pm$ 12.3		
29	5	25	200	0.2	2.4	0.391e5	0.195e6	37.8 $\pm$ 18.6		
30	4	31	100	0.129	5.9	0.625e5	0.484e6	24.4 $\pm$ 13.0		
					113	956	3610	5.0	0.489e5	0.414e6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 5.873 with 29 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.118  $\pm$  0.012

Mean Ratio = 0.128  $\pm$  0.0080

Pooled Age = 22.4  $\pm$  2.4 Ma

Mean Age = 24.3  $\pm$  1.5 Ma

Central Age = **22.4  $\pm$  2.4 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.03e6 cm-2; ND = 3494.

Data from sample **0422-06.rtf**

Irradiation Number **MU167-5**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Mylonitic gneiss**

Elevation: **1085.0(m)**, Location: **-110.719694 : 32.309416**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	8	98	70	0.082	26.1	1.786e5	2.188e6	15.7 $\pm$ 5.8	0-1	0
2	30	210	90	0.143	43.6	5.208e5	3.646e6	27.4 $\pm$ 5.5	1-2	0
3	14	174	80	0.08	40.6	2.734e5	3.398e6	15.5 $\pm$ 4.3	2-3	0
4	15	149	100	0.101	27.8	2.344e5	2.328e6	19.3 $\pm$ 5.3	3-4	0
5	20	214	100	0.093	40.0	3.125e5	3.344e6	18.0 $\pm$ 4.3	4-5	0
6	22	230	100	0.096	42.9	3.438e5	3.594e6	18.4 $\pm$ 4.2	5-6	0
7	16	192	80	0.083	44.8	3.125e5	3.75e6	16.0 $\pm$ 4.2	6-7	0
8	10	131	50	0.076	48.9	3.125e5	4.094e6	14.7 $\pm$ 4.8	7-8	0
9	18	153	100	0.118	28.6	2.813e5	2.391e6	22.6 $\pm$ 5.7	8-9	0
10	19	208	80	0.091	48.5	3.711e5	4.063e6	17.6 $\pm$ 4.3	9-10	1
11	22	129	70	0.171	34.4	4.911e5	2.879e6	32.7 $\pm$ 7.7	10-11	0
12	23	147	80	0.156	34.3	4.492e5	2.871e6	30.0 $\pm$ 6.8	11-12	3
13	16	78	48	0.205	30.3	5.208e5	2.539e6	39.4 $\pm$ 10.9	12-13	9
14	22	285	90	0.077	59.1	3.819e5	4.948e6	14.8 $\pm$ 3.3	13-14	11
15	27	214	90	0.126	44.4	4.688e5	3.715e6	24.2 $\pm$ 5.0	14-15	13
16	9	52	60	0.173	16.2	2.344e5	1.354e6	33.2 $\pm$ 12.1	15-16	3
17	15	158	100	0.095	29.5	2.344e5	2.469e6	18.2 $\pm$ 5.0	16-17	2
18	59	557	100	0.106	104.0	9.219e5	8.703e6	20.4 $\pm$ 2.9	17-18	0
19	12	148	70	0.081	39.5	2.679e5	3.304e6	15.6 $\pm$ 4.7	18-19	0
20	24	171	70	0.14	45.6	5.357e5	3.817e6	27.0 $\pm$ 6.0	19-20	0
21	23	156	100	0.147	29.1	3.594e5	2.438e6	28.3 $\pm$ 6.4		
22	18	140	100	0.129	26.1	2.813e5	2.188e6	24.7 $\pm$ 6.3		
23	15	143	90	0.105	29.7	2.604e5	2.483e6	20.2 $\pm$ 5.5		
457	4137	1918			40.3	3.723e5	3.37e6		MTL = 13.7	
									SD = 1.3	
									# = 42	

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 14.329 with 22 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.11  $\pm$  0.0050

Mean Ratio = 0.116  $\pm$  0.0080

Pooled Age = 21.2  $\pm$  1.3 Ma

Mean Age = 22.3  $\pm$  1.4 Ma

Central Age = **21.2  $\pm$  1.3 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.046e6 cm-2; ND = 3494.

Data from sample **0422-07.rtf**

Irradiation Number **MU167-6**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Quartz diorite**

Elevation: **1292.0(m)**, Location: **-110.693777 : 32.331916**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length μm	
1	3	40	100	0.075	7.4	0.469e5	0.625e6	14.6 ± 8.8	0-1	0
2	6	90	100	0.067	16.6	0.938e5	1.406e6	13.0 ± 5.5	1-2	0
3	6	90	100	0.067	16.6	0.938e5	1.406e6	13.0 ± 5.5	2-3	0
4	8	73	36	0.11	37.3	3.472e5	3.168e6	21.4 ± 8.0	3-4	0
5	4	84	100	0.048	15.5	0.625e5	1.313e6	9.3 ± 4.8	4-5	0
6	11	198	200	0.056	18.2	0.859e5	1.547e6	10.8 ± 3.4	5-6	0
7	3	85	80	0.035	19.6	0.586e5	1.66e6	6.9 ± 4.1	6-7	0
8	5	52	100	0.096	9.6	0.781e5	0.813e6	18.7 ± 8.8	7-8	0
9	15	259	200	0.058	23.8	1.172e5	2.023e6	11.3 ± 3.0	8-9	0
10	12	107	100	0.112	19.7	1.875e5	1.672e6	21.9 ± 6.7	9-10	2
11	6	69	100	0.087	12.7	0.938e5	1.078e6	17.0 ± 7.2	10-11	3
12	6	67	100	0.09	12.3	0.938e5	1.047e6	17.5 ± 7.5	11-12	0
13	10	75	100	0.133	13.8	1.563e5	1.172e6	26.0 ± 8.8	12-13	4
14	12	184	200	0.065	16.9	0.938e5	1.438e6	12.7 ± 3.8	13-14	2
15	6	53	200	0.113	4.9	0.469e5	0.414e6	22.1 ± 9.5	14-15	6
16	8	172	100	0.047	31.7	1.25e5	2.688e6	9.1 ± 3.3	15-16	6
17	5	65	80	0.077	15.0	0.977e5	1.27e6	15.0 ± 7.0	16-17	1
18	10	115	200	0.087	10.6	0.781e5	0.898e6	17.0 ± 5.6	17-18	0
19	4	34	100	0.118	6.3	0.625e5	0.531e6	22.9 ± 12.2	18-19	0
20	7	82	80	0.085	18.9	1.367e5	1.602e6	16.6 ± 6.6	19-20	0
21	9	145	70	0.062	38.1	2.009e5	3.237e6	12.1 ± 4.2		
22	5	91	100	0.055	16.8	0.781e5	1.422e6	10.7 ± 4.9	MTL = 13.5	
23	8	76	100	0.105	14.0	1.25e5	1.188e6	20.5 ± 7.7	SD = 2.0	
24	10	191	200	0.052	17.6	0.781e5	1.492e6	10.2 ± 3.3	# = 24	
25	5	52	90	0.096	10.6	0.868e5	0.903e6	18.7 ± 8.8		
					184	2549	2936	16.0	0.979e5	1.357e6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 9.218 with 24 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.072  $\pm$  0.0060

Mean Ratio = 0.08  $\pm$  0.0050

Pooled Age = 14.1  $\pm$  1.2 Ma

Mean Age = 15.6  $\pm$  1.0 Ma

Central Age = **14.1  $\pm$  1.2 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.061e6 cm-2; ND = 3494.

Data from sample **0422-09.rtf**

Irradiation Number **MU167-7**, Counted by user#: **0**

The mineral is: **Apatite 0422-09**, Rock type: **Garnet 2 mica granite**

Elevation: **2071.0(m)**, Location: **-110.696972 : 32.379083**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	14	228	200	0.061	20.7	1.094e5	1.781e6	12.1 $\pm$ 3.4	0-1	0
2	14	145	200	0.097	13.2	1.094e5	1.133e6	19.1 $\pm$ 5.4	1-2	0
3	16	133	200	0.12	12.1	1.25e5	1.039e6	23.8 $\pm$ 6.4	2-3	0
4	15	190	100	0.079	34.5	2.344e5	2.969e6	15.6 $\pm$ 4.2	3-4	0
5	8	105	100	0.076	19.1	1.25e5	1.641e6	15.1 $\pm$ 5.6	4-5	0
6	6	48	36	0.125	24.2	2.604e5	2.083e6	24.7 $\pm$ 10.7	5-6	0
7	5	58	100	0.086	10.5	0.781e5	0.906e6	17.0 $\pm$ 8.0	6-7	0
8	6	137	100	0.044	24.9	0.938e5	2.141e6	8.7 $\pm$ 3.6	7-8	0
9	6	93	80	0.065	21.1	1.172e5	1.816e6	12.8 $\pm$ 5.4	8-9	0
10	11	161	200	0.068	14.6	0.859e5	1.258e6	13.5 $\pm$ 4.2	9-10	0
11	7	59	200	0.119	5.4	0.547e5	0.461e6	23.4 $\pm$ 9.4	10-11	1
12	7	66	100	0.106	12.0	1.094e5	1.031e6	21.0 $\pm$ 8.4	11-12	2
13	16	156	200	0.103	14.2	1.25e5	1.219e6	20.3 $\pm$ 5.4	12-13	4
14	15	167	100	0.09	30.3	2.344e5	2.609e6	17.8 $\pm$ 4.8	13-14	12
15	8	79	100	0.101	14.3	1.25e5	1.234e6	20.0 $\pm$ 7.5	14-15	9
16	9	83	100	0.108	15.1	1.406e5	1.297e6	21.4 $\pm$ 7.6	15-16	3
17	6	53	100	0.113	9.6	0.938e5	0.828e6	22.4 $\pm$ 9.7	16-17	0
18	6	102	100	0.059	18.5	0.938e5	1.594e6	11.6 $\pm$ 4.9	17-18	0
19	6	84	200	0.071	7.6	0.469e5	0.656e6	14.1 $\pm$ 6.0	18-19	0
20	18	212	100	0.085	38.5	2.813e5	3.313e6	16.8 $\pm$ 4.2	19-20	0
21	34	293	200	0.116	26.6	2.656e5	2.289e6	22.9 $\pm$ 4.3		
22	15	141	200	0.106	12.8	1.172e5	1.102e6	21.0 $\pm$ 5.8		
23	13	128	400	0.102	5.8	0.508e5	0.5e6	20.1 $\pm$ 5.9		
24	9	113	100	0.08	20.5	1.406e5	1.766e6	15.7 $\pm$ 5.5		
25	10	110	100	0.091	20.0	1.563e5	1.719e6	18.0 $\pm$ 6.0		
26	27	303	200	0.089	27.5	2.109e5	2.367e6	17.6 $\pm$ 3.6		
					307	3447	3816	16.4	1.257e5	1.411e6

MTL = 13.7  
SD = 1.2  
# = 31

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 7.256 with 25 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.089  $\pm$  0.0050

Mean Ratio = 0.091  $\pm$  0.0040

Pooled Age = 17.6  $\pm$  1.3 Ma

Mean Age = 17.9  $\pm$  0.8 Ma

Central Age = **17.6  $\pm$  1.3 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.076e6 cm-2; ND = 3494.



Data from sample **0422-10.rtf**

Irradiation Number **MU167-8**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Mafic granodiorite**

Elevation: **2392.0(m)**, Location: **-110.76125 : 32.446222**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	9	67	100	0.134	12.0	1.406e5	1.047e6	26.9 $\pm$ 9.6	0-1	0
2	8	58	60	0.138	17.3	2.083e5	1.51e6	27.7 $\pm$ 10.5	1-2	0
3	5	72	100	0.069	12.9	0.781e5	1.125e6	13.9 $\pm$ 6.5	2-3	0
4	8	46	60	0.174	13.7	2.083e5	1.198e6	34.8 $\pm$ 13.4	3-4	0
5	22	247	100	0.089	44.2	3.438e5	3.859e6	17.9 $\pm$ 4.0	4-5	0
6	6	95	100	0.063	17.0	0.938e5	1.484e6	12.7 $\pm$ 5.4	5-6	0
7	17	165	100	0.103	29.5	2.656e5	2.578e6	20.7 $\pm$ 5.3	6-7	0
8	19	123	100	0.154	22.0	2.969e5	1.922e6	31.0 $\pm$ 7.7	7-8	0
9	9	108	100	0.083	19.3	1.406e5	1.688e6	16.7 $\pm$ 5.8	8-9	0
10	13	122	90	0.107	24.2	2.257e5	2.118e6	21.4 $\pm$ 6.3	9-10	0
11	8	50	100	0.16	8.9	1.25e5	0.781e6	32.1 $\pm$ 12.3	10-11	1
12	10	51	100	0.196	9.1	1.563e5	0.797e6	39.3 $\pm$ 13.7	11-12	0
13	8	64	42	0.125	27.3	2.976e5	2.381e6	25.1 $\pm$ 9.5	12-13	6
14	10	92	70	0.109	23.5	2.232e5	2.054e6	21.8 $\pm$ 7.3	13-14	19
15	11	89	100	0.124	15.9	1.719e5	1.391e6	24.8 $\pm$ 8.0	14-15	30
16	14	148	70	0.095	37.8	3.125e5	3.304e6	19.0 $\pm$ 5.4	15-16	8
17	10	124	100	0.081	22.2	1.563e5	1.938e6	16.2 $\pm$ 5.4	16-17	0
18	12	124	64	0.097	34.7	2.93e5	3.027e6	19.4 $\pm$ 5.9	17-18	0
19	5	48	100	0.104	8.6	0.781e5	0.75e6	20.9 $\pm$ 9.9	18-19	0
20	13	117	90	0.111	23.3	2.257e5	2.031e6	22.3 $\pm$ 6.6	19-20	0
21	11	94	100	0.117	16.8	1.719e5	1.469e6	23.5 $\pm$ 7.5	MTL = 14.1 SD = 0.9 # = 64	
22	7	113	100	0.062	20.2	1.094e5	1.766e6	12.4 $\pm$ 4.9		
23	6	62	49	0.097	22.6	1.913e5	1.977e6	19.4 $\pm$ 8.3		
24	12	112	100	0.107	20.0	1.875e5	1.75e6	21.5 $\pm$ 6.6		
25	6	44	36	0.136	21.9	2.604e5	1.91e6	27.3 $\pm$ 11.9		
26	20	149	64	0.134	41.6	4.883e5	3.638e6	26.9 $\pm$ 6.5		
27	14	177	100	0.079	31.7	2.188e5	2.766e6	15.9 $\pm$ 4.5		
					293	2761	2295	21.5	1.995e5	1.88e6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 9.444 with 26 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.106  $\pm$  0.0070

Mean Ratio = 0.113  $\pm$  0.0060

Pooled Age = 21.3  $\pm$  1.6 Ma

Mean Age = 22.6  $\pm$  1.3 Ma

Central Age = **21.3  $\pm$  1.6 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.092e6 cm-2; ND = 3494.

Data from sample **0422-12.rtf**

Irradiation Number **MU167-9**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Biotite granite**

Elevation: **2291.0(m)**, Location: **-110.69975 : 32.403555**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	6	38	100	0.158	6.7	0.938e5	0.594e6	32.1 $\pm$ 14.1	0-1	NA
2	9	52	80	0.173	11.5	1.758e5	1.016e6	35.2 $\pm$ 12.8	1-2	NA
3	12	122	100	0.098	21.5	1.875e5	1.906e6	20.0 $\pm$ 6.1	2-3	NA
4	8	82	100	0.098	14.5	1.25e5	1.281e6	19.8 $\pm$ 7.4	3-4	NA
5	4	51	100	0.078	9.0	0.625e5	0.797e6	16.0 $\pm$ 8.3	4-5	NA
6	9	57	100	0.158	10.1	1.406e5	0.891e6	32.1 $\pm$ 11.6	5-6	NA
7	14	156	100	0.09	27.5	2.188e5	2.438e6	18.3 $\pm$ 5.1	6-7	NA
8	10	121	100	0.083	21.3	1.563e5	1.891e6	16.8 $\pm$ 5.6	7-8	NA
9	13	129	100	0.101	22.8	2.031e5	2.016e6	20.5 $\pm$ 6.0	8-9	NA
10	11	92	200	0.12	8.1	0.859e5	0.719e6	24.3 $\pm$ 7.8	9-10	NA
11	6	47	100	0.128	8.3	0.938e5	0.734e6	26.0 $\pm$ 11.3	10-11	NA
12	5	76	100	0.066	13.4	0.781e5	1.188e6	13.4 $\pm$ 6.2	11-12	NA
13	4	52	100	0.077	9.2	0.625e5	0.813e6	15.6 $\pm$ 8.1	12-13	NA
14	16	116	100	0.138	20.5	2.5e5	1.812e6	28.0 $\pm$ 7.6	13-14	NA
15	32	296	200	0.108	26.1	2.5e5	2.313e6	22.0 $\pm$ 4.2	14-15	NA
16	4	58	100	0.069	10.2	0.625e5	0.906e6	14.0 $\pm$ 7.3	15-16	NA
17	13	96	200	0.135	8.5	1.016e5	0.75e6	27.5 $\pm$ 8.2	16-17	NA
18	5	97	100	0.052	17.1	0.781e5	1.516e6	10.5 $\pm$ 4.8	17-18	NA
19	20	108	200	0.185	9.5	1.563e5	0.844e6	37.6 $\pm$ 9.3	18-19	NA
20	6	42	100	0.143	7.4	0.938e5	0.656e6	29.0 $\pm$ 12.7	19-20	NA
21	9	70	100	0.129	12.4	1.406e5	1.094e6	26.1 $\pm$ 9.3		
22	13	134	100	0.097	23.6	2.031e5	2.094e6	19.7 $\pm$ 5.8		
23	7	54	80	0.13	11.9	1.367e5	1.055e6	26.4 $\pm$ 10.6	MTL = NA	
24	5	60	100	0.083	10.6	0.781e5	0.938e6	17.0 $\pm$ 7.9	SD = NA	
25	12	99	200	0.121	8.7	0.938e5	0.773e6	24.6 $\pm$ 7.6	# = NA	
253 2305 2960					13.7	1.336e5	1.217e6			

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 9.155 with 24 degrees of freedom.

P(chi square) = **78.77%**

Ns/Ni = 0.11  $\pm$  0.0070

Mean Ratio = 0.113  $\pm$  0.0070

Pooled Age = 22.3  $\pm$  1.7 Ma

Mean Age = 22.9  $\pm$  1.4 Ma

Central Age = **22.3  $\pm$  1.5 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.107e6 cm-2; ND = 3494.

Data from sample **MU176-1AB.rtf**  
 Irradiation Number **MU176-1**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-02F1

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m	
1	7	70	100	0.1	15.0	1.094e5	1.094e6	17.4 $\pm$ 6.9	0-1	0
2	6	40	100	0.15	8.6	0.938e5	0.625e6	26.1 $\pm$ 11.5	1-2	0
3	8	106	200	0.075	11.4	0.625e5	0.828e6	13.2 $\pm$ 4.8	2-3	0
4	7	38	100	0.184	8.2	1.094e5	0.594e6	32.1 $\pm$ 13.2	3-4	0
5	8	44	100	0.182	9.5	1.25e5	0.688e6	31.7 $\pm$ 12.2	4-5	0
6	9	108	300	0.083	7.7	0.469e5	0.563e6	14.5 $\pm$ 5.1	5-6	0
7	8	103	200	0.078	11.1	0.625e5	0.805e6	13.5 $\pm$ 5.0	6-7	1
8	10	73	200	0.137	7.8	0.781e5	0.57e6	23.9 $\pm$ 8.1	7-8	0
9	4	20	100	0.2	4.3	0.625e5	0.313e6	34.8 $\pm$ 19.1	8-9	0
10	9	46	100	0.196	9.9	1.406e5	0.719e6	34.1 $\pm$ 12.4	9-10	0
11	8	110	200	0.073	11.8	0.625e5	0.859e6	12.7 $\pm$ 4.7	10-11	0
12	3	43	100	0.07	9.2	0.469e5	0.672e6	12.2 $\pm$ 7.3	11-12	1
13	4	31	70	0.129	9.5	0.893e5	0.692e6	22.5 $\pm$ 12.0	12-13	0
14	2	30	100	0.067	6.4	0.313e5	0.469e6	11.6 $\pm$ 8.5	13-14	1
15	3	21	100	0.143	4.5	0.469e5	0.328e6	24.9 $\pm$ 15.4	14-15	2
16	6	33	100	0.182	7.1	0.938e5	0.516e6	31.7 $\pm$ 14.1	15-16	1
17	4	33	100	0.121	7.1	0.625e5	0.516e6	21.1 $\pm$ 11.2	16-17	2
18	5	48	80	0.104	12.9	0.977e5	0.938e6	18.2 $\pm$ 8.5	17-18	0
19	6	85	200	0.071	9.1	0.469e5	0.664e6	12.3 $\pm$ 5.2	18-19	0
20	3	30	100	0.1	6.4	0.469e5	0.469e6	17.4 $\pm$ 10.6	19-20	0
120 1112 2650					9.0	0.708e5	0.656e6		MTL = 13.4	

SD = 3.3  
 # = 8

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 8.051 with 19 degrees of freedom.  
 P(chi square) = **65.05%**

Ns/Ni = 0.108  $\pm$  0.01  
 Mean Ratio = 0.122  $\pm$  0.01

Pooled Age = 18.8  $\pm$  1.9 Ma  
 Mean Age = 21.3  $\pm$  1.8 Ma  
 Central Age = **18.8  $\pm$  1.8 Ma**  
 % Variation = **0.0%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 0.909e6 cm-2; ND = 3399.

Data from sample **MU176-2AB.rtf**

Irradiation Number **MU176-2**, Counted by user#: **0**

The mineral is: **Apatite**

Elevation: NA , Location: NA

0522-03

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m
1	3	27	100	0.111	5.7	0.469e5	0.422e6	19.8 $\pm$ 12.1	0-1 0
2	9	79	200	0.114	8.3	0.703e5	0.617e6	20.3 $\pm$ 7.2	1-2 0
3	3	58	300	0.052	4.1	0.156e5	0.302e6	9.2 $\pm$ 5.5	2-3 0
4	6	38	100	0.158	8.0	0.938e5	0.594e6	28.1 $\pm$ 12.4	3-4 0
5	4	5	100	0.8	1.1	0.625e5	0.078e6	141.3 $\pm$ 94.8	4-5 0
6	3	21	80	0.143	5.5	0.586e5	0.41e6	25.5 $\pm$ 15.7	5-6 1
7	5	62	200	0.081	6.5	0.391e5	0.484e6	14.4 $\pm$ 6.7	6-7 0
8	7	27	100	0.259	5.7	1.094e5	0.422e6	46.1 $\pm$ 19.6	7-8 0
9	3	28	100	0.107	5.9	0.469e5	0.438e6	19.1 $\pm$ 11.6	8-9 0
10	1	39	100	0.026	8.2	0.156e5	0.609e6	4.6 $\pm$ 4.6	9-10 0
11	2	13	60	0.154	4.6	0.521e5	0.339e6	27.4 $\pm$ 20.8	10-11 0
12	1	30	64	0.033	9.8	0.244e5	0.732e6	5.9 $\pm$ 6.0	11-12 0
13	4	22	100	0.182	4.6	0.625e5	0.344e6	32.4 $\pm$ 17.6	12-13 0
14	2	26	100	0.077	5.5	0.313e5	0.406e6	13.7 $\pm$ 10.1	13-14 0
15	0	11	80	0.0	2.9	0.0e5	0.215e6	0.0 $\pm$ 0.0	14-15 2
16	5	37	100	0.135	7.8	0.781e5	0.578e6	24.1 $\pm$ 11.5	15-16 1
17	1	16	200	0.063	1.7	0.078e5	0.125e6	11.1 $\pm$ 11.5	16-17 1
18	4	35	100	0.114	7.4	0.625e5	0.547e6	20.4 $\pm$ 10.8	17-18 0
19	6	23	100	0.261	4.8	0.938e5	0.359e6	46.4 $\pm$ 21.3	18-19 0
20	4	43	200	0.093	4.5	0.313e5	0.336e6	16.6 $\pm$ 8.7	19-20 0
73	640	2484			5.4	0.459e5	0.403e6		MTL = 13.3

SD = 4.5  
# = 5

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 14.678 with 19 degrees of freedom.

P(chi square) = **6.06%**

Ns/Ni = 0.114  $\pm$  0.014

Mean Ratio = 0.148  $\pm$  0.038

Pooled Age = 20.3  $\pm$  2.5 Ma

Mean Age = 26.4  $\pm$  6.6 Ma

Central Age = **20.4  $\pm$  2.6 Ma**

% Variation = **11.92%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.

RhoD = 0.93e6 cm-2; ND = 3399.

Data from sample **MU176-3AB.rtf**  
 Irradiation Number **MU176-3**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-4

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m	
1	17	163	100	0.104	33.5	2.656e5	2.547e6	19.0 $\pm$ 4.9	0-1	0
2	16	143	160	0.112	18.4	1.563e5	1.396e6	20.4 $\pm$ 5.4	1-2	0
3	11	101	50	0.109	41.5	3.438e5	3.156e6	19.8 $\pm$ 6.3	2-3	0
4	13	146	70	0.089	42.9	2.902e5	3.259e6	16.2 $\pm$ 4.7	3-4	0
5	20	197	200	0.102	20.2	1.563e5	1.539e6	18.5 $\pm$ 4.4	4-5	0
6	4	62	100	0.065	12.7	0.625e5	0.969e6	11.8 $\pm$ 6.1	5-6	0
7	11	169	100	0.065	34.7	1.719e5	2.641e6	11.9 $\pm$ 3.7	6-7	0
8	16	112	80	0.143	28.8	3.125e5	2.188e6	26.0 $\pm$ 7.0	7-8	0
9	13	120	70	0.108	35.2	2.902e5	2.679e6	19.7 $\pm$ 5.8	8-9	0
10	29	253	70	0.115	74.3	6.473e5	5.647e6	20.9 $\pm$ 4.1	9-10	0
11	14	105	100	0.133	21.6	2.188e5	1.641e6	24.3 $\pm$ 6.9	10-11	2
12	10	130	200	0.077	13.4	0.781e5	1.016e6	14.0 $\pm$ 4.6	11-12	4
13	48	784	400	0.061	40.3	1.875e5	3.063e6	11.2 $\pm$ 1.7	12-13	2
14	5	97	100	0.052	19.9	0.781e5	1.516e6	9.4 $\pm$ 4.3	13-14	6
15	16	185	100	0.086	38.0	2.5e5	2.891e6	15.8 $\pm$ 4.1	14-15	4
16	6	94	80	0.064	24.2	1.172e5	1.836e6	11.6 $\pm$ 4.9	15-16	1
17	10	80	70	0.125	23.5	2.232e5	1.786e6	22.8 $\pm$ 7.7	16-17	2
18	6	93	100	0.065	19.1	0.938e5	1.453e6	11.8 $\pm$ 5.0	17-18	0
19	12	96	90	0.125	21.9	2.083e5	1.667e6	22.8 $\pm$ 7.0	18-19	0
20	11	111	80	0.099	28.5	2.148e5	2.168e6	18.1 $\pm$ 5.7	19-20	0
21	7	70	49	0.1	29.4	2.232e5	2.232e6	18.2 $\pm$ 7.2		
22	35	283	100	0.124	58.2	5.469e5	4.422e6	22.5 $\pm$ 4.1		
					330	3594	2469	29.9	2.088e5	2.274e6

MTL = 13.3  
 SD = 1.8  
 # = 21

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 12.433 with 21 degrees of freedom.  
 P(chi square) = **25.31%**

Ns/Ni = 0.092  $\pm$  0.0050  
 Mean Ratio = 0.096  $\pm$  0.0060

Pooled Age = 16.7  $\pm$  1.0 Ma  
 Mean Age = 17.6  $\pm$  1.0 Ma  
 Central Age = **17.2  $\pm$  1.2 Ma**  
 % Variation = **14.47%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 0.95e6 cm-2; ND = 3399.

Data from sample **MU176-4AB.rtf**  
 Irradiation Number **MU176-4**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-05

RhoD = 0.971e6 cm-2;  
 ND = 3399.

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)
1	1	34	25	0.029	27.4	0.625e5	2.125e6	5.5 ± 5.6
2	1	7	35	0.143	4.0	0.446e5	0.313e6	26.6 ± 28.4
3	2	35	30	0.057	23.5	1.042e5	1.823e6	10.6 ± 7.7
4	1	5	50	0.2	2.0	0.313e5	0.156e6	37.2 ± 40.7
5	0	30	36	0.0	16.8	0.0e5	1.302e6	0.0 ± 0.0
6	1	14	40	0.071	7.0	0.391e5	0.547e6	13.3 ± 13.8
7	0	26	35	0.0	14.9	0.0e5	1.161e6	0.0 ± 0.0
8	0	13	36	0.0	7.3	0.0e5	0.564e6	0.0 ± 0.0
9	0	16	30	0.0	10.7	0.0e5	0.833e6	0.0 ± 0.0
10	6	33	35	0.182	19.0	2.679e5	1.473e6	33.8 ± 15.0
11	2	9	30	0.222	6.0	1.042e5	0.469e6	41.3 ± 32.3
12	5	39	60	0.128	13.1	1.302e5	1.016e6	23.8 ± 11.3
13	2	5	15	0.4	6.7	2.083e5	0.521e6	74.1 ± 62.0
14	6	64	70	0.094	18.4	1.339e5	1.429e6	17.4 ± 7.5
15	1	12	16	0.083	15.1	0.977e5	1.172e6	15.5 ± 16.1
16	6	88	20	0.068	88.5	4.688e5	6.875e6	12.7 ± 5.4
17	2	25	64	0.08	7.9	0.488e5	0.61e6	14.9 ± 10.9
18	2	14	30	0.143	9.4	1.042e5	0.729e6	26.6 ± 20.1
19	0	6	24	0.0	5.0	0.0e5	0.391e6	0.0 ± 0.0
20	3	10	25	0.3	8.0	1.875e5	0.625e6	55.7 ± 36.7
21	0	7	16	0.0	8.8	0.0e5	0.684e6	0.0 ± 0.0
22	2	18	49	0.111	7.4	0.638e5	0.574e6	20.7 ± 15.4
23	4	35	56	0.114	12.6	1.116e5	0.977e6	21.3 ± 11.2
24	0	15	49	0.0	6.2	0.0e5	0.478e6	0.0 ± 0.0
25	4	18	60	0.222	6.0	1.042e5	0.469e6	41.3 ± 22.8
26	0	25	60	0.0	8.4	0.0e5	0.651e6	0.0 ± 0.0
27	1	20	60	0.05	6.7	0.26e5	0.521e6	9.3 ± 9.5
28	0	6	25	0.0	4.8	0.0e5	0.375e6	0.0 ± 0.0
29	0	12	36	0.0	6.7	0.0e5	0.521e6	0.0 ± 0.0
30	0	17	36	0.0	9.5	0.0e5	0.738e6	0.0 ± 0.0
31	1	18	40	0.056	9.1	0.391e5	0.703e6	10.3 ± 10.6
32	3	17	36	0.176	9.5	1.302e5	0.738e6	32.8 ± 20.6
33	3	18	42	0.167	8.6	1.116e5	0.67e6	31.0 ± 19.3
34	2	8	42	0.25	3.8	0.744e5	0.298e6	46.4 ± 36.7
35	2	52	54	0.038	19.4	0.579e5	1.505e6	7.2 ± 5.2
36	4	35	100	0.114	7.0	0.625e5	0.547e6	21.3 ± 11.2
37	0	12	36	0.0	6.7	0.0e5	0.521e6	0.0 ± 0.0
38	1	14	40	0.071	7.0	0.391e5	0.547e6	13.3 ± 13.8
39	1	11	30	0.091	7.4	0.521e5	0.573e6	16.9 ± 17.7
40	1	24	36	0.042	13.4	0.434e5	1.042e6	7.8 ± 7.9
41	6	20	90	0.3	4.5	1.042e5	0.347e6	55.7 ± 25.9
42	10	139	40	0.072	69.9	3.906e5	5.43e6	13.4 ± 4.4
86	1026	1739			11.9	0.773e5	0.922e6	

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 26.496 with 41 degrees of freedom.  
 P(chi square) = **9.93%**

Ns/Ni = 0.084 ± 0.0090  
 Mean Ratio = 0.097 ± 0.015

Pooled Age = 15.6 ± 1.8 Ma  
 Mean Age = 18.1 ± 2.8 Ma  
 Central Age = **15.8 ± 1.9 Ma**  
 % Variation = **24.42%**

Ages calculated using a zeta of 384.0 ± 5.0 for CN5 with 12.5ppm.

Length  $\mu\text{m}$

0-1	0
1-2	0
2-3	0
3-4	0
4-5	0
5-6	0
6-7	0
7-8	0
8-9	0
9-10	0
10-11	0
11-12	2
12-13	3
13-14	2
14-15	4
15-16	0
16-17	0
17-18	0
18-19	0
19-20	0

MTL = 13.2  
SD = 1.3  
# = 11

Data from sample **MU176-5AB.rtf**

Irradiation Number **MU176-5**, Counted by user#: **0**

The mineral is: **Apatite**

Elevation: NA , Location: NA

0522-06

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m
1	3	15	27	0.2	11.0	1.736e5	0.868e6	37.9 $\pm$ 24.0	0-1 0
2	2	13	30	0.154	8.5	1.042e5	0.677e6	29.2 $\pm$ 22.2	1-2 0
3	59	75	200	0.787	7.4	4.609e5	0.586e6	148.0 $\pm$ 25.9	2-3 0
4	3	91	70	0.033	25.6	0.67e5	2.031e6	6.3 $\pm$ 3.7	3-4 0
5	2	23	81	0.087	5.6	0.386e5	0.444e6	16.5 $\pm$ 12.2	4-5 0
6	0	14	64	0.0	4.3	0.0e5	0.342e6	0.0 $\pm$ 0.0	5-6 0
7	17	147	100	0.116	29.0	2.656e5	2.297e6	22.0 $\pm$ 5.6	6-7 0
8	0	11	100	0.0	2.2	0.0e5	0.172e6	0.0 $\pm$ 0.0	7-8 0
9	1	73	64	0.014	22.5	0.244e5	1.782e6	2.6 $\pm$ 2.6	8-9 0
10	4	47	60	0.085	15.4	1.042e5	1.224e6	16.2 $\pm$ 8.4	9-10 0
11	4	40	60	0.1	13.1	1.042e5	1.042e6	19.0 $\pm$ 10.0	10-11 1
12	14	183	300	0.077	12.0	0.729e5	0.953e6	14.5 $\pm$ 4.0	11-12 0
13	0	15	100	0.0	3.0	0.0e5	0.234e6	0.0 $\pm$ 0.0	12-13 0
14	16	131	80	0.122	32.3	3.125e5	2.559e6	23.2 $\pm$ 6.2	13-14 2
15	0	5	49	0.0	2.0	0.0e5	0.159e6	0.0 $\pm$ 0.0	14-15 1
16	5	58	70	0.086	16.3	1.116e5	1.295e6	16.4 $\pm$ 7.6	15-16 2
17	27	20	36	1.35	11.0	11.719e5	0.868e6	251.9 $\pm$ 74.5	16-17 0
18	9	72	100	0.125	14.2	1.406e5	1.125e6	23.7 $\pm$ 8.4	17-18 0
19	5	75	70	0.067	21.1	1.116e5	1.674e6	12.7 $\pm$ 5.9	18-19 0
20	8	43	80	0.186	10.6	1.563e5	0.84e6	35.3 $\pm$ 13.6	19-20 0
21	1	23	80	0.043	5.7	0.195e5	0.449e6	8.3 $\pm$ 8.4	
22	4	18	60	0.222	5.9	1.042e5	0.469e6	42.1 $\pm$ 23.3	
184	1192	1881			12.5	1.528e5	0.99e6		MTL = 13.6 SD = 1.9 # = 6

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 115.801 with 21 degrees of freedom.

P(chi square) = **0.0%**

Ns/Ni = 0.154  $\pm$  0.012

Mean Ratio = 0.175  $\pm$  0.066

Pooled Age = 29.3  $\pm$  2.4 Ma

Mean Age = 33.2  $\pm$  12.3 Ma

Central Age = **26.0  $\pm$  7.5 Ma**

% Variation = **123.98%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.

RhoD = 0.991e6 cm-2; ND = 3399.



Data from sample **MU176-6AB.rtf**  
 Irradiation Number **MU176-6**, Counted by user#: **0**  
 The mineral is: **Apatite**  
 Elevation: NA , Location: NA  
 0522-07

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhos	Rhoi	Age (Ma)	Length $\mu$ m
1	0	3	49	0.0	1.2	0.0e5	0.096e6	0.0 $\pm$ 0.0	0-1 0
2	5	72	30	0.069	46.4	2.604e5	3.75e6	13.5 $\pm$ 6.2	1-2 0
3	1	50	70	0.02	13.8	0.223e5	1.116e6	3.9 $\pm$ 3.9	2-3 0
4	33	34	80	0.971	8.2	6.445e5	0.664e6	185.7 $\pm$ 45.6	3-4 0
5	2	20	49	0.1	7.9	0.638e5	0.638e6	19.4 $\pm$ 14.4	4-5 0
6	6	75	70	0.08	20.7	1.339e5	1.674e6	15.5 $\pm$ 6.6	5-6 0
7	4	55	50	0.073	21.2	1.25e5	1.719e6	14.1 $\pm$ 7.3	6-7 0
8	0	2	36	0.0	1.1	0.0e5	0.087e6	0.0 $\pm$ 0.0	7-8 0
9	11	78	70	0.141	21.5	2.455e5	1.741e6	27.3 $\pm$ 8.8	8-9 0
10	17	16	200	1.063	1.5	1.328e5	0.125e6	203.1 $\pm$ 70.9	9-10 1
11	4	70	70	0.057	19.3	0.893e5	1.563e6	11.1 $\pm$ 5.7	10-11 0
12	4	69	70	0.058	19.0	0.893e5	1.54e6	11.2 $\pm$ 5.8	11-12 1
13	18	22	16	0.818	26.6	17.578e5	2.148e6	156.9 $\pm$ 50.0	12-13 1
14	0	32	25	0.0	24.7	0.0e5	2.0e6	0.0 $\pm$ 0.0	13-14 2
									14-15 3
									15-16 0
									16-17 0
									17-18 0
									18-19 0
									19-20 0
									MTL = 12.8
									SD = 1.9
									# = 8

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7  
 Chi Square = 80.539 with 13 degrees of freedom.  
 P(chi square) = **0.0%**

Ns/Ni = 0.176  $\pm$  0.019  
 Mean Ratio = 0.246  $\pm$  0.103

Pooled Age = 34.0  $\pm$  3.7 Ma  
 Mean Age = 47.7  $\pm$  19.8 Ma  
 Central Age = **35.4  $\pm$  13.7 Ma**  
 % Variation = **134.34%**

Ages calculated using a zeta of 384.0  $\pm$  5.0 for CN5 with 12.5ppm.  
 RhoD = 1.011e6 cm-2; ND = 3399.

Data from sample **0422-13.rtf**

Irradiation Number **MU167-10**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Mylonitized bi granite**

Elevation: **1060.0(m)**, Location: **-110.907472 : 32.344305**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	14	184	400	0.076	8.0	0.547e5	0.719e6	15.7 $\pm$ 4.4	0-1	0
2	8	81	100	0.099	14.1	1.25e5	1.266e6	20.4 $\pm$ 7.6	1-2	0
3	6	73	100	0.082	12.7	0.938e5	1.141e6	17.0 $\pm$ 7.2	2-3	0
4	5	42	90	0.119	8.1	0.868e5	0.729e6	24.6 $\pm$ 11.7	3-4	0
5	8	43	100	0.186	7.5	1.25e5	0.672e6	38.3 $\pm$ 14.8	4-5	1
6	6	63	70	0.095	15.7	1.339e5	1.406e6	19.6 $\pm$ 8.4	5-6	1
7	5	71	90	0.07	13.7	0.868e5	1.233e6	14.5 $\pm$ 6.7	6-7	0
8	10	83	100	0.12	14.4	1.563e5	1.297e6	24.8 $\pm$ 8.4	7-8	0
9	6	67	100	0.09	11.7	0.938e5	1.047e6	18.5 $\pm$ 7.9	8-9	1
10	30	390	500	0.077	13.6	0.938e5	1.219e6	15.9 $\pm$ 3.1	9-10	1
11	15	79	100	0.19	13.7	2.344e5	1.234e6	39.1 $\pm$ 11.1	10-11	6
12	6	46	100	0.13	8.0	0.938e5	0.719e6	26.9 $\pm$ 11.7	11-12	12
13	11	61	100	0.18	10.6	1.719e5	0.953e6	37.2 $\pm$ 12.3	12-13	11
14	5	41	80	0.122	8.9	0.977e5	0.801e6	25.1 $\pm$ 12.0	13-14	8
15	91	848	400	0.107	36.9	3.555e5	3.313e6	22.1 $\pm$ 2.6	14-15	13
16	41	471	200	0.087	41.0	3.203e5	3.68e6	18.0 $\pm$ 3.0	15-16	8
17	6	58	100	0.103	10.1	0.938e5	0.906e6	21.3 $\pm$ 9.2	16-17	2
18	10	70	100	0.143	12.2	1.563e5	1.094e6	29.5 $\pm$ 10.0	17-18	0
19	15	161	200	0.093	14.0	1.172e5	1.258e6	19.2 $\pm$ 5.2	18-19	0
20	8	81	100	0.099	14.1	1.25e5	1.266e6	20.4 $\pm$ 7.6	19-20	0
21	14	149	200	0.094	13.0	1.094e5	1.164e6	19.4 $\pm$ 5.5	MTL = 12.9 SD = 2.2 # = 64	
22	23	282	100	0.082	49.0	3.594e5	4.406e6	16.8 $\pm$ 3.7		
23	9	70	80	0.129	15.2	1.758e5	1.367e6	26.5 $\pm$ 9.4		
24	10	68	100	0.147	11.8	1.563e5	1.063e6	30.3 $\pm$ 10.3		
25	37	423	300	0.087	24.5	1.927e5	2.203e6	18.0 $\pm$ 3.2		
26	17	188	200	0.09	16.3	1.328e5	1.469e6	18.7 $\pm$ 4.8		
27	48	562	400	0.085	24.4	1.875e5	2.195e6	17.6 $\pm$ 2.7		
464	4755	4510			18.3	1.608e5	1.647e6			

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 11.669 with 26 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.098  $\pm$  0.0050

Mean Ratio = 0.111  $\pm$  0.0060

Pooled Age = 20.1  $\pm$  1.3 Ma

Mean Age = 22.8  $\pm$  1.3 Ma

Central Age = **20.1  $\pm$  1.3 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.123e6 cm-2; ND = 3494.

Data from sample **0422-15.rtf**

Irradiation Number **MU167-13**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Granodiorite**

Elevation: **1094.0(m)**, Location: **-110.663472 : 32.062388**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	9	56	64	0.161	14.6	2.197e5	1.367e6	34.5 $\pm$ 12.5	0-1	0
2	10	112	80	0.089	23.4	1.953e5	2.188e6	19.2 $\pm$ 6.4	1-2	0
3	12	134	70	0.09	32.0	2.679e5	2.991e6	19.2 $\pm$ 5.8	2-3	0
4	4	41	70	0.098	9.8	0.893e5	0.915e6	21.0 $\pm$ 11.0	3-4	0
5	4	39	56	0.103	11.6	1.116e5	1.088e6	22.0 $\pm$ 11.6	4-5	0
6	13	140	200	0.093	11.7	1.016e5	1.094e6	19.9 $\pm$ 5.8	5-6	0
7	5	39	40	0.128	16.3	1.953e5	1.523e6	27.5 $\pm$ 13.1	6-7	0
8	5	61	80	0.082	12.7	0.977e5	1.191e6	17.6 $\pm$ 8.2	7-8	1
9	8	111	60	0.072	30.9	2.083e5	2.891e6	15.5 $\pm$ 5.7	8-9	0
10	10	121	80	0.083	25.3	1.953e5	2.363e6	17.8 $\pm$ 5.9	9-10	0
11	7	53	80	0.132	11.1	1.367e5	1.035e6	28.3 $\pm$ 11.5	10-11	0
12	6	52	90	0.115	9.7	1.042e5	0.903e6	24.8 $\pm$ 10.7	11-12	1
									12-13	8
									13-14	4
									14-15	11
									15-16	6
									16-17	1
									17-18	0
									18-19	0
									19-20	0
									MTL = 13.8	
									SD = 1.7	
									# = 32	

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 2.161 with 11 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.097  $\pm$  0.011

Mean Ratio = 0.104  $\pm$  0.0070

Pooled Age = 20.8  $\pm$  2.4 Ma

Mean Age = 22.3  $\pm$  1.6 Ma

Central Age = **20.8  $\pm$  2.4 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.169e6 cm-2; ND = 3494.

Data from sample **0422-17.rtf**

Irradiation Number **MU167-14**, Counted by user#: **0**

The mineral is: **Apatite**, Rock type: **Biotite granite**

Elevation: **1049.0(m)**, Location: **-110.616666 : 32.142444**

Santa Catalina Mts

No.	Ns	Ni	Na	Ratio	U(ppm)	Rhoi	Rhos	Age (Ma)	Length $\mu$ m	
1	14	130	100	0.108	21.4	2.188e5	2.031e6	23.4 $\pm$ 6.7	0-1	0
2	15	121	100	0.124	19.9	2.344e5	1.891e6	27.0 $\pm$ 7.5	1-2	0
3	15	184	100	0.082	30.3	2.344e5	2.875e6	17.8 $\pm$ 4.8	2-3	0
4	8	59	60	0.136	16.2	2.083e5	1.536e6	29.5 $\pm$ 11.2	3-4	0
5	15	156	90	0.096	28.6	2.604e5	2.708e6	20.9 $\pm$ 5.7	4-5	0
6	28	360	100	0.078	59.3	4.375e5	5.625e6	16.9 $\pm$ 3.4	5-6	0
7	18	155	100	0.116	25.5	2.813e5	2.422e6	25.3 $\pm$ 6.4	6-7	0
8	16	235	90	0.068	43.0	2.778e5	4.08e6	14.8 $\pm$ 3.9	7-8	0
9	9	93	70	0.097	21.9	2.009e5	2.076e6	21.1 $\pm$ 7.4	8-9	2
10	23	157	64	0.146	40.4	5.615e5	3.833e6	31.9 $\pm$ 7.2	9-10	0
11	9	61	70	0.148	14.4	2.009e5	1.362e6	32.1 $\pm$ 11.5	10-11	2
12	23	218	100	0.106	35.9	3.594e5	3.406e6	23.0 $\pm$ 5.1	11-12	8
13	14	120	100	0.117	19.8	2.188e5	1.875e6	25.4 $\pm$ 7.2	12-13	13
14	19	230	100	0.083	37.9	2.969e5	3.594e6	18.0 $\pm$ 4.4	13-14	27
15	11	62	80	0.177	12.8	2.148e5	1.211e6	38.6 $\pm$ 12.7	14-15	33
16	10	87	70	0.115	20.5	2.232e5	1.942e6	25.0 $\pm$ 8.4	15-16	14
17	12	73	49	0.164	24.6	3.827e5	2.328e6	35.7 $\pm$ 11.2	16-17	2
18	11	133	100	0.083	21.9	1.719e5	2.078e6	18.0 $\pm$ 5.7	17-18	0
19	18	205	100	0.088	33.8	2.813e5	3.203e6	19.1 $\pm$ 4.8	18-19	0
20	13	141	100	0.092	23.2	2.031e5	2.203e6	20.1 $\pm$ 5.9	19-20	0
21	13	160	100	0.081	26.4	2.031e5	2.5e6	17.7 $\pm$ 5.1		
22	28	358	200	0.078	29.5	2.188e5	2.797e6	17.0 $\pm$ 3.4		
					342	3498	2043	28.2	2.616e5	2.675e6

MTL = 13.7  
SD = 1.5  
# = 101

Area of basic unit 6.4E-7cm-2 using Mic2a: 6.4E-7

Chi Square = 10.169 with 21 degrees of freedom.

P(chi square) = **100.0%**

Ns/Ni = 0.098  $\pm$  0.0060

Mean Ratio = 0.108  $\pm$  0.0060

Pooled Age = 21.3  $\pm$  1.5 Ma

Mean Age = 23.6  $\pm$  1.4 Ma

Central Age = **21.3  $\pm$  1.5 Ma**

% Variation = **0.0%**

Ages calculated using a zeta of 368.0  $\pm$  13.0 for CN5 with 12.5ppm.

RhoD = 1.185e6 cm-2; ND = 3494.