Apatite fission track data derived from core of the following Alaskan Barrow Arch oil and gas wells:

U. S. Navy Avak Test No. 1 (3,571' - 3,792'),

U. S. Navy South Barrow Test No. 3 (602' - 2,799'), and

North Slope Borough (U.S. Navy) South Barrow No. 12 (2,220' - 2,250').

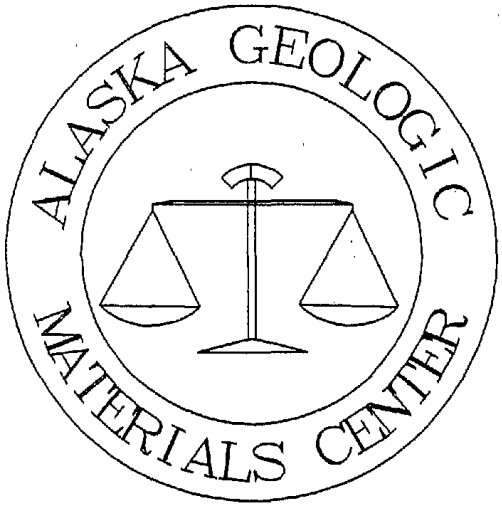

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Table 2.1: Summary of apatite fission track data - well samples from Barrow Arch, Alaska (Geotrack Report #311)

Sample number	Average depth (m)	Present temperature *1 (°C)	Stratigraphic age (Ma)	Mean track length (µm)	Predicted range of mean track length *2 (µm)	Fission track age (Ma)	Predicted range of fission track age *2 (Ma)
S. Barrow-3 core chip samples							
GC311-1	187	602'-622'	146-97	13.06 ± 0.16	-	177.5 ± 13.5	-
GC311-2	533	1,730'-1,750'	208-146	12.71 ± 0.40	-	102.2 ± 20.2	-
GC311-3	643	2,089'-2,119'	208-146	13.20 ± 0.28	-	169.9 ± 41.7	-
GC311-4	771	2,496'-2,561'	208-146	11.72 ± 0.59	-	152.0 ± 33.3	-
GC311-5	847	2,761'-2,799'	245-208	12.83 ± 0.56	-	134.7 ± 34.5	-
S. Barrow-12 core chip samples							
GC311-6	681	2,220'-2,250'	245-208	11.80 ± 1.07	-	77.3 ± 16.6	-
Avak-1 core chip samples.							
GC311-7	1122	3,571'-3,792'	362-245	10.59 ± 0.70	-	86.7 ± 80.5	-

Exact composite sample range given in feet for each sample

John Reeder
23 May 1997

Table B.2: Length distribution summary data - well samples from Barrow Arch, Alaska (Geotrack Report #311)

Sample number	Mean track length (μm)	Standard deviation (μm)	Number of tracks (N)	Number of Tracks in Length Intervals (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
S. Barrow-3																							
602'-622' GC311-1	13.06 ± 0.16	1.64	106	-	-	1	-	-	-	-	-	-	2	5	13	25	32	21	7	-	-	-	-
1730'-1750' GC311-2	12.71 ± 0.40	1.38	12	-	-	-	-	-	-	-	-	-	-	1	2	5	3	-	1	-	-	-	-
2099'-2119' GC311-3	13.20 ± 0.28	0.49	3	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-
2496'-2561' GC311-4	11.72 ± 0.59	1.19	4	-	-	-	-	-	-	-	-	-	-	1	2	-	1	-	-	-	-	-	-
2761'-2799' GC311-5	12.83 ± 0.56	0.79	2	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
S. Barrow-12																							
2220'-2250' GC311-6	11.80 ± 1.07	2.13	4	-	-	-	-	-	-	-	-	-	1	1	-	1	-	1	-	-	-	-	-
Avak-1																							
3571'-3792' GC311-7	10.59 ± 0.70	1.56	5	-	-	-	-	-	-	-	-	-	3	-	1	1	-	-	-	-	-	-	-

Track length measurements by P. O'Sullivan.

GC311-01 APATITE

IRRADIATION G187
SLIDE NUMBER 1
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	2	2	35	1.000	1.0	9.080E+04	9.080E+04	214.3 ± 214.4
2	276	265	40	1.042	111.6	1.096E+07	1.053E+07	223.0 ± 20.1
3	43	42	20	1.024	35.4	3.416E+06	3.337E+06	219.3 ± 47.9
4	28	36	21	0.778	28.9	2.119E+06	2.724E+06	167.3 ± 42.4
5	23	26	42	0.885	10.4	8.702E+05	9.837E+05	189.9 ± 54.6
6	15	17	80	0.882	3.6	2.980E+05	3.377E+05	189.5 ± 67.3
7	55	64	30	0.859	35.9	2.913E+06	3.390E+06	184.6 ± 34.3
8	33	37	100	0.892	6.2	5.244E+05	5.880E+05	191.5 ± 46.1
9	21	17	35	1.235	8.2	9.534E+05	7.718E+05	263.7 ± 86.3
10	16	18	64	0.889	4.7	3.973E+05	4.469E+05	190.8 ± 65.8
11	59	120	36	0.492	56.2	2.604E+06	5.297E+06	106.3 ± 17.1
12	10	17	50	0.588	5.7	3.178E+05	5.403E+05	126.9 ± 50.7
13	22	23	36	0.957	10.8	9.711E+05	1.015E+06	205.1 ± 61.4
14	10	17	80	0.588	3.6	1.986E+05	3.377E+05	126.9 ± 50.7
15	42	79	70	0.532	19.0	9.534E+05	1.793E+06	114.8 ± 22.1
16	5	11	50	0.455	3.7	1.589E+05	3.496E+05	98.3 ± 53.1
17	178	188	36	0.947	88.0	7.857E+06	8.298E+06	203.1 ± 21.9
18	27	26	16	1.038	27.4	2.682E+06	2.582E+06	222.4 ± 61.4
19	1	1	60	1.000	0.3	2.648E+04	2.648E+04	214.3 ± 303.1
20	12	14	42	0.857	5.6	4.540E+05	5.297E+05	184.1 ± 72.6
	878	1020			18.2	1.480E+06	1.719E+06	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 30.991 with 19 degrees of freedom
P(chi squared) = 4.0 %
Correlation Coefficient = 0.973
Variance of SQR(Ns) = 13.96
Variance of SQR(Ni) = 14.77
Age Dispersion = 18.313 %

Ns/Ni = 0.861 ± 0.040
Mean Ratio = 0.847 ± 0.047

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 184.9 ± 9.8 Ma
CENTRAL AGE = 177.2 ± 13.5 Ma

GC311-02 APATITE

IRRADIATION G187
SLIDE NUMBER 2
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	4	4	25	1.000	2.7	2.542E+05	2.542E+05	214.3 ± 151.6
2	16	17	12	0.941	23.9	2.119E+06	2.251E+06	201.9 ± 70.5
3	3	7	25	0.429	4.7	1.907E+05	4.449E+05	92.7 ± 64.0
4	3	5	16	0.600	5.3	2.980E+05	4.966E+05	129.4 ± 94.6
5	3	11	25	0.273	7.4	1.907E+05	6.992E+05	59.2 ± 38.6
6	7	10	36	0.700	4.7	3.090E+05	4.414E+05	150.8 ± 74.4
7	3	4	21	0.750	3.2	2.270E+05	3.027E+05	161.4 ± 123.3
8	0	2	28	0.000	1.2	0.000E+00	1.135E+05	0.0 ± 0.0
9	19	27	28	0.704	16.2	1.078E+06	1.532E+06	151.5 ± 45.6
10	17	75	90	0.227	14.0	3.002E+05	1.324E+06	49.2 ± 13.3
11	0	1	50	0.000	0.3	0.000E+00	3.178E+04	0.0 ± 0.0
12	8	34	30	0.235	19.1	4.238E+05	1.801E+06	51.1 ± 20.1
	83	197			8.6	3.417E+05	8.110E+05	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 21.590 with 11 degrees of freedom
P(chi squared) = 2.8 %
Correlation Coefficient = 0.728
Variance of SQR(Ns) = 2.07
Variance of SQR(Ni) = 4.81
Age Dispersion = 41.129 %

Ns/Ni = 0.421 ± 0.055
Mean Ratio = 0.488 ± 0.099

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 91.2 ± 12.2 Ma
CENTRAL AGE = 102.1 ± 20.2 Ma

GC311-03 APATITE

IRRADIATION G187
SLIDE NUMBER 3
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	17	18	56	0.944	5.4	4.824E+05	5.108E+05	202.6 ± 68.7
2	13	20	70	0.650	4.8	2.951E+05	4.540E+05	140.1 ± 50.1
	30	38			5.1	3.783E+05	4.792E+05	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 0.580 with 1 degrees of freedom
P(chi squared) = 44.6 %
Correlation Coefficient = -1.000
Variance of SQR(Ns) = 0.13
Variance of SQR(Ni) = 0.03
Age Dispersion = 0.000 % (did not converge)

Ns/Ni = 0.789 ± 0.193
Mean Ratio = 0.797 ± 0.147

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 169.8 ± 41.7 Ma
CENTRAL AGE = 169.8 ± 41.7 Ma

GC311-04 APATITE

IRRADIATION G187
SLIDE NUMBER 4
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	1	2	30	0.500	1.1	5.297E+04	1.059E+05	108.0 ± 132.4
2	16	33	20	0.485	27.8	1.271E+06	2.622E+06	104.8 ± 32.0
3	11	9	64	1.222	2.4	2.731E+05	2.235E+05	261.0 ± 117.5
4	8	7	40	1.143	2.9	3.178E+05	2.781E+05	244.3 ± 126.6
	36	51			5.6	3.715E+05	5.262E+05	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 4.032 with 3 degrees of freedom
P(chi squared) = 25.8 %
Correlation Coefficient = 0.869
Variance of SQR(Ns) = 1.65
Variance of SQR(Ni) = 3.34
Age Dispersion = 22.734 %

Ns/Ni = 0.706 ± 0.154
Mean Ratio = 0.837 ± 0.200

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 152.0 ± 33.3 Ma
CENTRAL AGE = 160.4 ± 41.3 Ma

GC311-05 APATITE

IRRADIATION G187
SLIDE NUMBER 5
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	8	12	50	0.667	4.0	2.542E+05	3.814E+05	143.7 ± 65.7
2	17	28	36	0.607	13.1	7.504E+05	1.236E+06	131.0 ± 40.4
	25	40			7.8	4.619E+05	7.391E+05	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 0.029 with 1 degrees of freedom
P(chi squared) = 86.5 %
Correlation Coefficient = 1.000
Variance of SQR(Ns) = 0.84
Variance of SQR(Ni) = 1.67
Age Dispersion = 0.000 % (did not converge)

Ns/Ni = 0.625 ± 0.159
Mean Ratio = 0.637 ± 0.030

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 134.8 ± 34.5 Ma
CENTRAL AGE = 134.8 ± 34.5 Ma

GC311-06 APATITE

IRRADIATION G187
SLIDE NUMBER 6
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	3	9	20	0.333	7.6	2.384E+05	7.151E+05	72.2 ± 48.2
2	2	2	70	1.000	0.5	4.540E+04	4.540E+04	214.3 ± 214.4
3	2	6	25	0.333	4.0	1.271E+05	3.814E+05	72.2 ± 59.0
4	23	67	80	0.343	14.1	4.569E+05	1.331E+06	74.4 ± 18.1
	30	84			7.3	2.445E+05	6.845E+05	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 1.202 with 3 degrees of freedom
P(chi squared) = 75.3 %
Correlation Coefficient = 0.998
Variance of SQR(Ns) = 2.70
Variance of SQR(Ni) = 9.13
Age Dispersion = 0.000 % (did not converge)

Ns/Ni = 0.357 ± 0.076
Mean Ratio = 0.502 ± 0.166

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 77.4 ± 16.6 Ma
CENTRAL AGE = 77.4 ± 16.6 Ma

GC311-07 APATITE

IRRADIATION G187
SLIDE NUMBER 7
COUNTED BY: POS

No.	Ns	Ni	Na	RATIO	U (ppm)	RHOs	RHOi	F.T. AGE (Ma)
1	0	11	54	0.000	3.4	0.000E+00	3.237E+05	0.0 ± 0.0
2	21	18	20	1.167	15.2	1.669E+06	1.430E+06	249.3 ± 80.4
	21	29			6.6	4.510E+05	6.227E+05	

Area of basic unit = 6.293E-07 cm-2

Chi Squared = 10.212 with 1 degrees of freedom
P(chi squared) = 0.1 %
Correlation Coefficient = 1.000
Variance of SQR(Ns) = 10.50
Variance of SQR(Ni) = 0.43
Age Dispersion = %123.877 %

Ns/Ni = 0.724 ± 0.207
Mean Ratio = 0.583 ± 0.583

Ages calculated using a zeta of 352.7 ± 5 for SRM612 glass
Rho D = 1.236E+06cm-2; ND = 1944

POOLED AGE = 155.9 ± 44.9 Ma
CENTRAL AGE = 86.8 ± 80.6 Ma