Apatite Fission Track analysis of cutting samples from the following six wells from the North Slope region, Alaska:

Union Oil Company of California Amethyst No. 1 (510'-10,750'),
Amoco Production Aufeis No. 1 (510'-7,200'),
Husky Oil NPR Operations Inc. (U. S. Geological Survey) Awuna No. 1 (1,800'-8,900'),
U. S. Navy Oumalik Test No. 1 (500'-9,350'),
Atlantic Richfield Susie Unit No. 1 (1,300'-9,600'), and
Texaco Inc. West Kurupa No. 1 (500'-10,750').

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APATITE FISSION TRACK ANALYSIS OF SIX WELLS FROM THE NORTH SLOPE REGION, ALASKA

GEOTRACK REPORT #763B

Data Report Only

A report prepared for the Alaska Geologic Materials Center, extracted from Geotrack Report #763, North Slope Alaska.

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APATITE FISSION TRACK ANALYSIS OF SIX WELLS FROM THE NORTH SLOPE REGION, ALASKA

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GEOTRACK REPORT #763B

1. Introduction

This report comprises the AFTA (apatite fission track analysis) data obtained for 27 samples from six wells supplied by the Alaska Geologic Materials Center (GMC) from the North Slope of Alaska. As part of the agreement between Geotrack International (Kerry Hegarty) and the Alaska GMC (John Reeder), Geotrack was obliged to supply the raw fission track data for the samples supplied. These data are supplied herein. The data consists of: fission track ages (both individual grains and mean age), confined length measurements and the chlorine content of each age grain. No interpretations of the data are supplied herein. Geotrack appreciates the opportunity to have collaborated with the Alaska GMC.

2. Report structure

Sample details are discussed in Appendix A, together with the yields of detrital apatite obtained after mineral separation. Sample preparation and analytical details are described in Appendix B, and are followed by presentation of all AFTA data, including raw track counts and fission track ages for individual grains. The presentation of data in the form of Tables and Figures throughout the report is discussed in detail in Appendix B.

3. Data quality

The quality of the AFTA data is considered to be excellent. Apatite yields in 18 of the 27 samples were excellent, with the remaining ranging from very poor to good.

APPENDIX A

Sample Details

A.1 Apatite yields and quality

Twenty seven samples from six wells from the **North Slope Region, Alaska** were obtained for Apatite Fission Track Analysis (AFTA®) from the **Alaska GMC**. The yields of detrital apatite obtained after mineral separation varied from very poor to excellent with the majority being of excellent quantity, as summarised in Table A.1.

The quality of the resulting AFTA data varied from very poor in two samples to excellent in most of the samples. Overall, the samples provided age and length data of excellent quality.

Table A.1: Details of fission track samples and apatite yields - samples from North Slope, Alaska (Geotrack Report #763B)

Sample number	Depth (m)	Sample type	Stratigraphic Subdivision	Stratigraphic age (Ma)	Present temperature (°C)	Raw weight (g)	Washed weight (g)	Apatite yield *1
Amethyst-1								
GC763-31	155-402 *(510-1320')*	cuttings	Colville Grp - Prince Creek & Schrader Bluff Fm	84-66	0	670	240	excellent
GC763-32	914-1143 *(3000-3750')*	cuttings	Colville Grp - Prince Creek & Schrader Bluff Fm	84-66	28	1440	340	good
GC763-33	1661-1890 *(5450-6200')*	cuttings	Colville Grp - Seabee & Schrader Bluff Fm	94-84	56	1290	450	excellent
GC763-34	2438-2667 *(8000-8750')*	cuttings	Colville Grp - Torok Fm & Hue Shale	105-96	85	2420	1280	excellent
GC763-35	3048-3277 *(10000-10750')*	cuttings	Colville Grp - Torok Fm & Hue Shale	105-96	109	1890	1170	excellent
Aufeis-1								
GC763-23	155-366 *(510-1200')*	cuttings	Colville Grp - Prince Creek & Schrader Bluff Fm	84-66	0	370	210	excellent
GC763-24	832-1061 *(2730-3480')*	cuttings	Colville Grp - Prince Creek & Schrader Bluff Fm	84-66	23	500	220	excellent
GC763-25	1737-1966 *(5700-6450')*	cuttings	Colville Grp - Prince Creek & Seabee Fm	90-84	55	380	210	excellent
GC763-26	1966-2195 *(6450-7200')*	cuttings	Colville Grp - Prince Creek & Seabee Fm	96-90	63	330	200	excellent
Awuna-1								
GC763-98	549-777 *(1800-2550')*	cuttings	Nanushuk Grp - Torok Fm?	126-105	11	2500	1120	excellent
GC763-99	914-1143 *(3000-3750')*	cuttings	Nanushuk Grp - Torok Fm?	126-105	23	2700	1000	excellent
GC763-100	1753-1981 *(5750-6500')*	cuttings	Nanushuk Grp - Torok Fm?	126-105	50	3220	780	excellent
GC763-101	2530-2713 *(8300-8900')*	cuttings	Nanushuk Grp - Torok Fm?	126-105	74	2790	440	good

Table A.1: Continued

Sample number	Depth (m)	Sample type	Stratigraphic Subdivision	Stratigraphic age (Ma)	Present temperature (°C)	Raw weight (g)	Washed weight (g)	Apatite yield *1
Oumalik-1								
GC763-27	152-381 *(500-1250')*	cuttings	Nanushuk Grp - Torok Fm	109-96	0	530	280	excellent
GC763-28	945-1173 *(3100-3850')*	cuttings	Nanushuk Grp - Torok Fm	109-96	23	540	240	poor
GC763-29	1951-2179 *(6400-7150')*	cuttings	Nanushuk Grp - Torok Fm	109-96	54	800	330	good
GC763-30	2621-2850 *(8600-9350')*	cuttings	Nanushuk Grp - Torok Fm	109-96	74	320	180	excellent
Susie Unit-1								
GC763-102	396-610 *(1300-2000')*	cuttings	Canning Fm	66-63	6	1670	350	excellent
GC763-103	945-1173 *(3100-3850')*	core/cuttings	Colville Grp - Prince Creek Fm	74-66	22	2100	480	excellent
GC763-104	1798-2012 *(5900-6600')*	cuttings	Colville Grp - Prince Creek Fm	74-66	47	2680	1160	excellent
GC763-105	2134-2362 *(7000-7750')*	cuttings	Colville Grp - Prince Creek & Schrader Bluff Fm	84-74	57	2290	810	excellent
GC763-106	2716-2926 *(8910-9600')*	cuttings	Coville Grp - Schrader Bluff Fm	89-84	73	2280	820	excellent
West Kurupa-1								
GC763-18	152-381 *(500-1250')*	cuttings	Nanushuk Grp	103-96	0	180	110	good
GC763-19	1067-1295 *(3500-4250')*	cuttings	Nanushuk Grp	110-103	24	120	80	poor
GC763-20	2088-2316 *(6850-7600')*	cuttings	Nanushuk - Torok Fm	118-103	52	120	80	poor
GC763-21	2515-2743 *(8250-9000')*	cuttings	Nanushuk - Torok Fm	118-103	64	190	110	very poor
GC763-22	3048-3277 *(10000-10750')*	cuttings	Nanushuk - Torok Fm	118-103	79	190	110	very poor

*1 Yield based on quantity of mineral suitable for age determination. Excellent: >20 grains; Good: 15-19 grains; Fair: 10-14 grains; Poor: 5-9 grains; Very Poor: <5 grains.

APPENDIX B

Sample Preparation, Analytical Details and Data Presentation

B.1 Sample Preparation

Core and outcrop samples are crushed in a jaw crusher and then ground to sand grade in a rotary disc mill. Cuttings samples are washed and dried before grinding to sand grade. The ground material is then washed to remove dust, dried and processed by conventional heavy liquid and magnetic separation techniques to recover heavy minerals. Apatite grains are mounted in epoxy resin on glass slides, polished and etched for 20 sec in 5M HNO_3 at 20°C to reveal the fossil fission tracks.

After etching, all mounts are cut down to 1.5 X 1 cm, and cleaned in detergent, alcohol and distilled water. The mounts are then sealed in intimate contact with low-uranium muscovite detectors within heat shrink plastic film. Each batch of mounts is stacked between two pieces of uranium standard glass which has been prepared in similar fashion. The stack is then inserted into an aluminium can for irradiation.

After irradiation, the mica detectors are removed from the grain mounts and standard glasses and etched in hydrofluoric acid to reveal the fission tracks produced by induced fission of ^{235}U in the apatite and standard glass.

B.2 Experimental Details

Fission track ages

Fission track ages are calculated using the standard fission track age equation using the zeta calibration method (equation 5 of Hurford and Green, 1983), viz:

$$\text{F.T. AGE} = \frac{1}{\lambda_D} \ln \left[1 + \left(\frac{\zeta \lambda_D \rho_s g \rho_D}{\rho_i} \right) \right] \qquad \text{B.1}$$

where:
- λ_D = total decay constant of ^{238}U (= 1.55125 x 10^{-10})
- ζ = Zeta calibration factor
- ρ_s = Spontaneous track density
- ρ_i = Induced track density
- ρ_D = Track density from uranium standard glass
- g = A geometry factor (= 0.5)

Fission track ages are determined by the external detector method or EDM (Gleadow, 1981). The EDM has the advantage of allowing fission track ages to be determined on single grains. In apatite, tracks are counted in 20 grains from each mount wherever possible. In those samples where the desired number is not present, all available grains are counted, the actual number depending on the availability of suitably etched and oriented grains. Only grains oriented with surfaces parallel to the crystallographic c-axis are analysed. Such grains can be identified on the basis of the etching characteristics, as well as from morphological evidence in euhedral grains. The grain mount is scanned sequentially, and the first 20 suitably oriented grains identified are analysed.

Tracks are counted within an eyepiece graticule divided into 100 grid squares. In each grain, the number of spontaneous tracks, N_S, within a certain number of grid squares, N_a, is recorded. The number of induced tracks, N_i, in the corresponding location within the mica external detector is then counted. Spontaneous and induced track densities, ρ_S and ρ_i, respectively, are calculated by dividing the track counts by the total area counted, given by the product of Na and the area or each grid square (determined by calibration against a ruled stage graticule or diffraction grating). Fission track ages may be calculated by substituting track counts, N_S and N_i, for track densities ρ_S and ρ_i in equation B.1, since the areas cancel in the ratio.

Translation between apatite grains in the grain mount and external detector locations corresponding to each grain is carried out using Autoscan™ microcomputer-controlled automatic stages (Smith and Leigh Jones, 1985). This system allows repeated movement between grain and detector, and all grain locations are stored for later reference if required.

Neutron irradiations are carried out in a well thermalised flux (X-7 facility; Cd ratio for Au ~98) in the Australian Atomic Energy Commission's HIFAR research reactor. Total neutron fluence is monitored by counting tracks in mica external detectors attached to two pieces of NBS standard glass SRM612 included in the irradiation canister at each end of the sample stack. In determining track densities in external detectors irradiated adjacent to uranium standard glasses, 25 fields are normally counted in each detector, and the total track count N_D is divided by the total area counted to obtain the track density ρ_D. The positions of the counted fields are arranged in a 5 X 5 grid covering the whole area of the detector. For typical track densities of between ~5 X 10^5 and 5 X 10^6 this is a convenient arrangement to sample across the detector while gathering sufficient counts to achieve a precision of ~±2% in a reasonable time.

A small flux gradient is often present in the irradiation facility over the length of the sample package (note that this developed only in late 1991, after extended refurbishment of the reactor, before which no detectable flux gradient was present). If a detectable gradient is present, the track count in the external detector adjacent to each standard glass is converted to a track density ρ_D and a value for each mount in the stack is calculated by linear interpolation. When no detectable gradient is present, the track counts in the two external detectors are pooled to give a single value of ρ_D which is used to calculate fission track ages for each sample.

A Zeta calibration factor, ζ, has been determined empirically for each observer by analysing a set of carefully chosen age standards with independently known K-Ar ages, following the methods outlined by Hurford and Green (1983) and Green (1985).

All track counting is carried out using Zeiss(R) Axioplan microscopes, with an overall linear magnification of 1068 x using dry objectives.

For further details and background information on practical aspects of fission track age determination, see e.g. Fleischer, Price and Walker (1975), Naeser (1979) and Hurford (1986).

Track length measurements

For track length studies in apatite, the full lengths of 'confined' fission tracks are measured. Confined tracks are those which do not intersect the polished surface but have been etched from other tracks or fractures, so that the whole length of the track is etched. Confined track lengths are measured using a digitising tablet connected to a microcomputer, superimposed on the microscope field of view via a projection tube. With this system, calibrated against a stage graticule ruled in 2 μm divisions, individual tracks can be measured to a precision of ± 0.2 μm. Tracks are measured only in prismatic grains, characterised by sharp polishing scratches with well etched tracks of narrow cone angle in all orientations, because of the anisotropy of annealing of fission tracks in apatite (as discussed by Green et al., 1986). Tracks are also measured following the recommendations of Laslett et al. (1982), the most important of which is that only horizontal tracks should be measured. One hundred tracks are measured whenever possible. In apatite samples with low track density, or in those samples in which only a small number of apatite grains are obtained, fewer confined tracks may be available, and in such cases, the whole mount is scanned to measure as many confined tracks as possible.

Integrated fission track age and length measurement

Fission track age determination and length measurement are now made in a single pass of the grain mount, in an integrated approach. The location of each grain in which tracks are either counted or measured is recorded for future reference. Thus track length measurements can be tied to age determination in individual grains. As a routine procedure we do not measure the age of every grain in which lengths are determined, as this would be much too time consuming. Likewise we do not only measure ages in grain in which lengths are measured, as this would bias the age data against low track density grains. Nevertheless, the ability to determine the fission track age of certain grains from which length data originate can be a particularly useful aid to interpretation in some cases. Grain location data are not provided in this report, but are available on request.

B.3 Data Presentation

Fission track age data

Data sheets summarising the apatite fission track age data, including full details of fission track age data for individual apatite grains in each sample, together with the primary counting results and statistical data, are given in the following pages. Individual grain fission track ages are calculated from the ratio of spontaneous to induced fission track counts for each grain using equation B.1, and errors in the single grain ages are calculated using Poissonian statistics, as explained in more detail by Galbraith (1981) and Green (1981). All errors are quoted as $\pm 1\sigma$ throughout this report, unless otherwise stated.

The variability of fission track ages between individual apatite grains within each sample can be assessed using a chi-squared (χ^2) statistic (Galbraith, 1981), the results of which are summarised for each sample in the data sheets. If all the grains counted belong to a single age population, then the probability of obtaining the observed χ^2 value, for ν degrees of freedom (where ν = number of crystals -1), is listed in the data sheets as $P(\chi^2)$ or P(chi squared).

A $P(\chi^2)$ value greater than 5% can be taken as evidence that all grains are consistent with a single population of fission track age. In this case, the best estimate of the fission track age of the sample is given by the "pooled age", calculated from the ratio of the total spontaneous and induced track counts in all grains analysed. Errors for the pooled age are calculated using the 'conventional' technique outlined by Green (1981),

based on the total number of tracks counted for each track density measurement (see also Galbraith, 1981).

A $P(\chi^2)$ value of less than 5% denotes a significant spread of single grain ages, and suggests that real differences exist between the fission track ages of individual apatite grains. A significant spread in grain ages can result either from inheritance of detrital grains from mixed source areas (in sedimentary rocks), or from differential annealing in apatite grains of different composition, within a narrow range of temperature.

Calculation of the pooled age inherently assumes that only a single population of ages is present, and is thus not appropriate to samples containing a significant spread of fission track ages. In such cases Galbraith has recently devised a means of estimating the modal age of a distribution of single grain fission track ages which is referred to as the "central age". Calculation of the central age assumes that all single grain ages belong to a Normal distribution of ages with a standard deviation, σ, known as the "age dispersion". An iterative algorithm (Galbraith and Laslett, 1993) is used to provide estimates of the central age with its associated error, and the age dispersion, which are all quoted in the data sheets. Note that this treatment replaces use of the "mean age" which has used been in the past for those samples in which $P(\chi^2)<5\%$. For samples in which $P(\chi^2)>5\%$, the central age and the pooled age should be equal, and the age dispersion should be less than ~10%.

Table B.1 summarises the fission track age data in apatite from each sample analysed.

Construction of radial plots of single grain age data

Single grain age data are best represented in the form of radial plot diagrams (Galbraith, 1988, 1990). As illustrated in Figure B.1, these plots display the variation of individual grain ages in a plot of y against x, where:

$$y = (z_j - z_o)/\sigma_i \qquad x = 1/\sigma_j \qquad \text{B.2}$$

and;
z_j = fission track age of grain j
z_o = a reference age
σ_j = error in age for grain j

In this plot, all points on a straight line from the origin define a single value of fission track age, and at any point the value of x is a measure of the precision of each individual grain age. Therefore, precise individual grain ages fall to the right of the plot (small error, high x), which is useful, for example, in enabling precise, young grains to be identified. The age scale is shown radially around the perimeter of the plot (in Ma). If

all grains belong to a single age population, all data should scatter between y = +2 and y = -2, equivalent to scatter within $\pm 2\sigma$. Scatter outside these boundaries shows a significant spread of individual grain ages, as also reflected in the values of $P(\chi^2)$ and age dispersion.

In detail, rather than using the fission track age for each grain as in equation B.2, we use:

$$z_j = \frac{N_{sj}}{N_{ij}} \qquad \sigma_j = \{1/N_{sj} + 1/N_{ij}\} \qquad \text{B.3}$$

as we are interested in displaying the scatter within the data from each sample in comparison with that allowed by the Poissonian uncertainty in track counts, without the additional terms which are involved in determination of the fission track age (ρ_D, ζ, etc).

Zero ages cannot be displayed in such a plot. This can be achieved using a modified plot, (Galbraith, 1990) with:

$$z_j = \arcsin\sqrt{\left\{\frac{N_{sj}+3/8}{N_{sj}+N_{ij}+3/4}\right\}} \qquad \sigma_j = \frac{1}{2}\sqrt{\left\{\frac{1}{N_{sj}+N_{ij}}\right\}} \qquad \text{B.4}$$

Note that the numerical terms in the equation for z_j are standard terms, introduced for statistical reasons. Using this arc-sin transformation, zero ages plot on a diagonal line which slopes from upper left to lower right. Note that this line does not go through the origin. Figure B.2 illustrates this difference between conventional and arc-sin radial plots, and also provides a simple guide to the structure of radial plots.

Use of arc-sin radial plots is particularly useful in assessing the relative importance of zero ages. For instance, grains with $N_s = 0$, $N_i = 1$ are compatible with ages up to ~900 Ma (at the 95% confidence level), while grains with $N_s = 0$, $N_i = 50$ are only compatible with ages up to ~14 Ma. The two data would readily be distinguishable on the radial plot as the 0,50 datum would plot well to the right (high x) compared to the 0,1 datum.

In this report the value of z corresponding to the fission track age of each sample is adopted as the reference value, z_o.

Note that the x axis of the radial plot is normally not labelled, as this would obscure the age scale around the plot. In general labelling is not considered necessary, as we are concerned only with relative variation within the data, rather than absolute values of precision.

Radial plots of the single grain age data in apatite from each sample analysed in this report are shown on the fission track age data summary sheets at the end of this Appendix.

Track length data

Distributions of confined track lengths in apatite from each sample are shown as simple histograms on the fission track age data summary sheets at the end of this Appendix. For every track length measurement, the length is recorded to the nearest 0.1 μm, but the measurements have been grouped into 1 μm intervals for construction of these histograms. Each distribution has been normalised to 100 tracks for each sample to facilitate comparison. A summary of the length distribution in each sample is presented in Table B.2, which also shows the mean track length in each sample and its associated error, the standard deviation of each distribution and the number of tracks (N) measured in each sample. The angle which each confined track makes with the crystallographic c-axis is also routinely recorded, as is the width of each fracture within which tracks are revealed. These data are not provided in this report, but can be supplied on request.

Breakdown of data into compositional groups

In Table B.3, AFTA data are grouped into compositional intervals of 0.1 wt% Cl width. Parameters for each interval represent the data from all grains with Cl contents within each interval. Distributions of Cl contents in all apatites analysed from each sample (i.e. for both age and length determinations) are shown on the fission track age data summary sheets at the end of this Appendix.

Plots of fission track age against Cl content for individual apatite grains

Fission track ages of single apatite grains within individual samples are plotted against the Cl content of each grain on the fission track age data summary sheets at the end of this Appendix. These plots are useful in assessing the degree of annealing, as expressed by the fission track age data. For example, if grains with a range of Cl contents from zero to some upper limit all give similar fission track ages which are significantly less than the stratigraphic age, then grains with these compositions must have been totally annealed. Alternatively, if fission track age falls rapidly with decreasing Cl content, the sample displays a high degree of partial annealing.

B.4 A note on terminology

Note that throughout this report, the term "fission track age" is understood to denote the parameter calculated from the fission track age equation, using the observed spontaneous and induced track counts (either pooled for all grains or for individual grains). The resulting number (with units of Ma) should not be taken as possessing any significance in terms of events taking place at the time indicated by the measured fission track age, but should rather be regarded as a measure of the integrated thermal history of the sample, and should be interpreted in that light. Use of the term "apparent age" is not considered to be useful in this regard, as almost every fission track age should be regarded as an apparent age, in the classic sense, and repeated use becomes cumbersome.

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Table B.1: Apatite fission track analytical results - samples from North Slope, Alaska (Geotrack Report #763B)

Sample number	Number of grains	ρ_D (N_D) x10^6/cm²	ρ_s (Ns) x10^6/cm²	ρ_i (Ni) x10^6/cm²	Uranium content (ppm)	P(χ^2) (%)	Age dispersion (%)	Fission track age (Ma)
Amethyst-1								
GC763-31	20	1.238 (1974)	0.698 (174)	1.758 (438)	16	85	<1	92.8 ± 8.7
GC763-32	15	1.255 (1974)	0.830 (116)	1.897 (265)	17	58	3	103.6 ± 11.9
GC763-33	20	1.272 (1974)	0.444 (122)	1.953 (537)	18	47	12	54.7 ± 5.7
GC763-34	20	1.289 (1974)	0.271 (98)	1.490 (539)	13	<1	54	44.4 ± 5.0 *49.2 ± 8.5**
GC763-35	20	1.306 (1974)	0.081 (32)	1.980 (780)	17	1	60	10.2 ± 1.9 *11.4 ± 2.7**
Aufeis-1								
GC763-23	20	1.424 (2233)	0.210 (71)	0.663 (224)	5	2	64	88.1 ± 12.3 *76.5 ± 16.8**
GC763-24	20	1.434 (2233)	0.344 (121)	1.592 (560)	13	50	6	60.6 ± 6.3
GC763-25	20	1.444 (2233)	0.194 (52)	1.081 (289)	9	93	<1	50.9 ± 7.8
GC763-26	20	1.454 (2233)	0.277 (85)	1.569 (481)	12	39	2	50.3 ± 6.1
Awuna-1								
GC763-98	20	1.349 (2333)	0.397 (135)	1.416 (482)	12	24	14	72.7 ± 7.3
GC763-99	20	1.368 (2333)	0.296 (135)	1.475 (672)	12	56	2	52.9 ± 5.2
GC763-100	20	1.387 (2333)	0.261 (63)	2.168 (524)	18	88	<1	32.2 ± 4.4
GC763-101	16	1.406 (2333)	0.533 (110)	1.754 (362)	14	<1	127	82.1 ± 9.2 *49.4 ± 17.9**
Oumalik-1								
GC763-27	20	1.170 (1974)	0.696 (243)	1.767 (617)	17	4	26	87.0 ± 7.0 *87.6 ± 9.3**
GC763-28	9	1.187 (1974)	0.413 (52)	1.748 (220)	17	69	<1	53.1 ± 8.3
GC763-29	19	1.204 (1974)	0.595 (145)	2.533 (617)	24	6	30	53.6 ± 5.2
GC763-30	20	1.221 (1974)	0.538 (181)	3.353 (1129)	31	<1	59	37.1 ± 3.1 *45.1 ± 7.6**

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Table B.1: Continued

Sample number	Number of grains	ρ_D (N_D) x10^6/cm²	ρs (Ns) x10^6/cm²	ρi (Ni) x10^6/cm²	Uranium content (ppm)	$P(\chi^2)$ (%)	Age dispersion (%)	Fission track age (Ma)
Susie Unit-1								
GC763-102	20	1.425	0.311	0.915	7	<1	70	93.0 ± 9.9
		(2333)	(126)	(371)				*65.2 ± 15.0**
GC763-103	20	1.445	0.210	1.318	10	39	9	44.4 ± 5.5
		(2333)	(79)	(495)				
GC763-104	20	1.464	0.226	1.436	11	63	2	44.4 ± 5.0
		(2333)	(96)	(610)				
GC763-105	20	1.483	0.274	1.534	12	15	28	51.1 ± 6.0
		(2333)	(89)	(498)				
GC763-106	20	1.502	0.245	2.497	19	<1	65	28.4 ± 3.4
		(2333)	(79)	(806)				*34.2 ± 7.5**
West Kurupa-1								
GC763-18	16	1.374	0.459	2.025	17	48	5	60.9 ± 7.0
		(2233)	(99)	(437)				
GC763-19	9	1.384	0.175	0.739	6	9	52	64.0 ± 15.3
		(2233)	(22)	(93)				
GC763-20	7	1.394	0.196	1.167	10	<1	113	45.9 ± 11.2
		(2233)	(20)	(119)				*50.5 ± 26.0**
GC763-21	3	1.404	0.098	0.416	3	77	<1	64.6 ± 35.9
		(2233)	(4)	(17)				
GC763-22	4	1.414	0.426	5.039	41	37	3	23.5 ± 5.3
		(2233)	(22)	(260)				

ρs = spontaneous track density; ρi = induced track density; ρD = track density in glass standard external detector. Brackets show number of tracks counted. ρD and ρi measured in mica external detectors; ρs measured in internal surfaces.

*Central age, used where sample contains a significant spread of single grain ages ($P(\chi^2)$<5%). Errors quoted at 1σ.

Ages calculated using dosimeter glass CN5, with a zeta of 380.4 ± 5.7 (Analyst: C. O'Brien) for samples; 27 - 35

CN5, with a zeta of 386.9 ± 6.9 (Analyst: H. Gibson) for samples; 98 - 106

CN5, with a zeta of 392.9 ± 7.4 (Analyst: M. Moore) for samples; 18 - 26

Table B.2: Length distribution summary data - samples from North Slope, Alaska (Geotrack Report #763B)

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
Amethyst-1																							
GC763-31	13.82 ± 0.24	0.95	16	-	-	-	-	-	-	-	-	-	-	-	-	5	3	6	2	-	-	-	-
GC763-32	12.31 ± 0.49	0.98	4	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-	-
GC763-33	11.28 ± 0.24	1.38	32	-	-	-	-	-	-	-	-	1	6	5	9	6	5	-	-	-	-	-	-
GC763-34	11.07 ± 0.34	1.59	22	-	-	-	-	-	-	-	-	3	3	4	5	4	3	-	-	-	-	-	-
GC763-35	11.56 ± 0.63	2.18	12	-	-	-	-	-	-	-	1	-	2	1	3	2	1	1	1	-	-	-	-
Aufeis-1																							
GC763-23	11.03 ± 0.56	2.31	17	-	-	-	-	-	-	-	2	2	1	5	1	1	3	2	-	-	-	-	-
GC763-24	12.32 ± 0.33	2.42	54	-	-	-	-	1	1	-	2	2	3	1	10	8	14	8	3	1	-	-	-
GC763-25	10.94 ± 0.52	2.13	17	-	-	-	-	-	-	-	2	-	4	3	3	2	1	2	-	-	-	-	-
GC763-26	11.89 ± 0.45	2.46	30	-	-	-	1	-	-	1	-	-	3	5	2	7	4	7	-	-	-	-	-
Awuna-1																							
GC763-98	12.92 ± 0.29	2.23	59	-	-	-	-	-	2	-	1	-	2	3	5	11	17	9	8	1	-	-	-
GC763-99	12.91 ± 0.27	1.80	46	-	-	-	-	-	-	-	-	1	3	4	5	9	12	8	3	1	-	-	-
GC763-100	12.97 ± 0.37	1.69	21	-	-	-	-	-	-	-	-	-	1	3	2	3	6	4	2	-	-	-	-
GC763-101	13.47 ± 0.44	1.09	6	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	1	-	-	-	-
Oumalik-1																							
GC763-27	12.78 ± 0.24	1.59	44	-	-	-	-	-	-	-	-	1	1	3	6	12	10	10	1	-	-	-	-
GC763-28	12.44 ± 0.64	1.42	5	-	-	-	-	-	-	-	-	-	-	1	-	1	3	-	-	-	-	-	-
GC763-29	12.37 ± 0.29	1.60	30	-	-	-	-	-	-	-	-	1	1	3	7	6	7	4	1	-	-	-	-
GC763-30	12.29 ± 0.62	1.87	9	-	-	-	-	-	-	-	-	-	2	-	-	5	-	1	1	-	-	-	-
Susie Unit-1																							
GC763-102	13.83 ± 0.17	1.71	100	-	-	-	-	-	1	-	-	-	1	1	5	21	22	23	19	6	1	-	-
GC763-103	12.77 ± 0.19	1.72	79	-	-	-	-	1	-	-	-	-	2	3	17	24	14	12	4	2	-	-	-
GC763-104	11.99 ± 0.33	2.90	79	-	-	-	-	3	2	3	1	2	4	8	9	12	13	16	4	1	1	-	-
GC763-105	13.55 ± 0.57	1.90	11	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	1	-	1	-	-
GC763-106	12.39 ± 0.23	1.80	60	-	-	-	-	-	1	-	-	2	2	5	12	9	19	10	-	-	-	-	-
West Kurupa-1																							
GC763-18	12.09	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
GC763-19	14.05 ± 0.84	1.68	4	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-	-
GC763-20	8.82 ± 1.23	2.14	3	-	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-
GC763-21	14.31	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
GC763-22	13.45 ± 0.91	1.58	3	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	-	-

Track length measurements by: C. O'Brien for samples; 27 - 35
H. Gibson for samples; 98 - 106
M. Moore for samples; 18 - 26

Table B.3: AFTA Data in Compositional Groups - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Amethyst-1																													
763-31†	**92.8**	**8.7**	**85.1**	**20**	**13.8**	**0.2**	**0.9**	**15**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**3**	**6**	**2**	**0**	**0**	**0**	**0**
0.0 - 0.1	95.2	11.8	87.1	11	13.4	0.4	1.0	8	4	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	1	0	0	0	0
0.1 - 0.2	185.6	88.2	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.2 - 0.3	85.7	17.6	28.5	4	14.1	0.5	1.1	4	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0
0.3 - 0.4	80.2	19.1	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	93.5	32.0	64.5	3	14.3	0.1	0.1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
763-32†	**103.6**	**11.9**	**58.0**	**15**	**12.3**	**0.5**	**1.0**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	99.2	21.4	46.9	8	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1 - 0.2	92.4	17.6	11.2	2	12.4	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0.2 - 0.3	108.5	28.1	20.5	2	12.3	0.7	1.2	3	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
0.3 - 0.4	147.5	84.2	56.9	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	128.3	36.7	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
763-33†	**54.7**	**5.7**	**47.2**	**20**	**11.3**	**0.2**	**1.4**	**32**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**5**	**9**	**6**	**5**	**0**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	53.1	6.7	9.9	10	11.1	0.3	1.1	14	7	0	0	0	0	0	0	0	0	0	3	1	7	3	0	0	0	0	0	0	0
0.1 - 0.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.2 - 0.3	46.4	22.7	57.3	3	12.0	0.9	1.7	4	3	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0
0.3 - 0.4	55.8	13.3	76.0	4	11.4	0.5	1.7	12	4	0	0	0	0	0	0	0	0	1	2	3	1	2	3	0	0	0	0	0	0
0.4 - 0.5	119.8	73.4	100.0	1	10.8	0.2	0.2	2	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	55.6	20.6	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.7 - 0.8	80.1	65.5	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-34†	**49.2**	**8.5**	**0.1**	**20**	**11.1**	**0.3**	**1.6**	**22**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**4**	**5**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	11.7	8.4	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1 - 0.2	44.4	11.4	36.7	4	11.6	1.0	1.9	4	3	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0
0.2 - 0.3	51.7	29.3	0.0	4	11.3	0.6	1.3	5	4	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0
0.3 - 0.4	29.1	13.8	51.4	2	9.6	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0.4 - 0.5	50.3	14.8	76.3	2	11.9	1.0	2.1	4	3	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0
0.5 - 0.6	84.7	34.8	35.5	2	10.4	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0.6 - 0.7	161.4	147.4	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.7 - 0.8	81.2	54.2	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	69.7	55.9	100.0	1	11.9	0.4	0.6	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
1.0 - 1.1	67.5	18.1	100.0	1	9.9	0.6	1.3	5	1	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	0	0	0	0
1.1 - 1.2	48.8	53.5	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
763-35†	**11.4**	**2.7**	**0.8**	**20**	**11.6**	**0.6**	**2.2**	**12**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**3**	**2**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
0.0 - 0.1	6.7	2.1	22.4	8	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1 - 0.2	6.3	4.2	0.3	4	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.2 - 0.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 - 0.4	22.1	10.4	24.8	2	11.7	1.3	2.2	3	2	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0
0.4 - 0.5	15.5	11.3	100.0	1	7.9	0.0	0.0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	0.0	65.7	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.7 - 0.8	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	31.0	32.9	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.0 - 1.1	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1 - 1.2	0.0	0.0	0.0	0	12.6	1.5	2.5	3	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0
1.2 - 1.3	35.4	16.9	32.9	2	9.0	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1.3 - 1.4	18.8	8.7	100.0	1	12.2	0.7	1.3	4	2	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aufeis-1																													
763-23†	**76.5**	**16.8**	**2.0**	**20**	**11.0**	**0.6**	**2.3**	**17**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**1**	**5**	**1**	**1**	**3**	**2**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	79.4	17.9	2.8	19	11.6	0.8	2.3	9	5	0	0	0	0	0	0	0	0	1	1	3	0	1	1	2	0	0	0	0	0
0.1 - 0.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.2 - 0.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 - 0.4	41.8	25.9	100.0	1	7.6	0.3	0.4	2	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	0.0	0.0	0.0	0	11.3	0.7	1.8	6	2	0	0	0	0	0	0	0	0	1	0	2	1	0	2	0	0	0	0	0	0
763-24†	**60.6**	**6.3**	**50.3**	**20**	**12.3**	**0.3**	**2.4**	**54**	**37**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	**2**	**3**	**1**	**10**	**8**	**14**	**8**	**3**	**1**	**0**	**0**	**0**
0.0 - 0.1	65.3	9.7	62.1	10	12.0	0.9	3.1	11	8	0	0	0	0	0	1	0	1	0	1	0	1	1	2	3	1	0	0	0	0
0.1 - 0.2	36.3	19.3	100.0	1	13.2	0.4	1.1	8	5	0	0	0	0	0	0	0	0	0	0	0	2	1	3	2	0	0	0	0	0
0.2 - 0.3	31.2	32.9	100.0	1	11.0	2.0	2.8	2	2	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
0.3 - 0.4	55.6	13.1	43.0	3	13.8	0.9	1.8	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	0	0	0
0.4 - 0.5	93.3	36.0	100.0	1	13.7	0.1	0.1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
0.5 - 0.6	0.0	0.0	0.0	0	13.2	2.0	2.8	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
0.6 - 0.7	71.5	16.5	34.7	3	11.3	1.0	3.4	12	8	0	0	0	0	1	0	0	1	1	1	1	1	1	2	2	1	0	0	0	0
0.7 - 0.8	0.0	0.0	0.0	0	12.2	0.6	1.0	3	3	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
0.8 - 0.9	21.6	13.0	100.0	1	12.5	0.5	1.4	9	4	0	0	0	0	0	0	0	0	0	1	0	2	3	2	1	0	0	0	0	0
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	0.0	0.0	0.0	0	12.8	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
763-25†	**50.9**	**7.8**	**92.8**	**20**	**10.9**	**0.5**	**2.1**	**17**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**3**	**3**	**2**	**1**	**2**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	40.4	25.0	100.0	1	9.6	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0.1 - 0.2	50.9	18.5	69.3	4	12.1	2.4	3.3	2	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
0.2 - 0.3	60.0	12.8	79.7	8	9.2	0.6	1.6	6	4	0	0	0	0	0	0	0	2	0	2	1	1	0	0	0	0	0	0	0	0
0.3 - 0.4	32.9	15.6	58.2	3	12.2	0.6	1.6	6	5	0	0	0	0	0	0	0	0	0	0	2	1	1	1	1	0	0	0	0	0
0.4 - 0.5	48.7	23.6	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	0.0	90.6	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.7 - 0.8	93.9	62.7	100.0	1	11.5	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0.8 - 0.9	0.0	0.0	0.0	0	12.4	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0.9 - 1.0	0.0	154.4	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-26†	**50.3**	**6.1**	**39.5**	**20**	**11.9**	**0.4**	**2.5**	**30**	**19**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**3**	**5**	**2**	**7**	**4**	**7**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	34.2	10.5	31.8	4	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1 - 0.2	45.8	11.4	60.6	3	10.8	0.5	1.4	9	6	0	0	0	0	0	0	0	0	0	3	3	1	1	1	0	0	0	0	0	0
0.2 - 0.3	61.8	30.6	100.0	1	12.9	0.5	1.1	5	4	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	0	0	0
0.3 - 0.4	48.7	10.6	43.3	7	12.2	0.6	1.4	5	2	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	0	0
0.4 - 0.5	73.8	18.6	59.1	3	13.2	0.4	0.7	4	4	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.7 - 0.8	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8 - 0.9	21.9	22.8	100.0	1	9.7	2.7	5.4	4	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1 - 1.2	210.8	161.1	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.2 - 1.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3 - 1.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4 - 1.5	0.0	0.0	0.0	0	14.2	0.1	0.1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Awuna-1																													
763-98†	**72.7**	**7.3**	**23.9**	**20**	**12.9**	**0.3**	**2.2**	**59**	**36**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**2**	**3**	**5**	**11**	**17**	**9**	**8**	**1**	**0**	**0**	**0**
0.0 - 0.1	50.4	11.1	69.1	6	12.7	0.5	2.2	24	14	0	0	0	0	0	1	0	0	0	1	2	2	5	7	4	2	0	0	0	0
0.1 - 0.2	77.4	11.3	42.8	6	14.0	0.4	0.9	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	0
0.2 - 0.3	0.0	0.0	0.0	0	13.1	0.6	2.1	11	3	0	0	0	0	0	0	0	0	0	1	0	2	2	3	0	2	1	0	0	0
0.3 - 0.4	77.8	14.9	6.8	5	11.3	1.3	3.5	7	5	0	0	0	0	0	1	0	1	0	0	0	1	1	2	0	1	0	0	0	0
0.4 - 0.5	0.0	0.0	0.0	0	13.8	1.1	1.5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
0.5 - 0.6	64.9	72.6	100.0	1	13.6	0.1	0.1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
0.6 - 0.7	0.0	0.0	0.0	0	11.5	0.9	1.2	2	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
0.7 - 0.8	154.7	113.0	100.0	1	15.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0.8 - 0.9	139.0	65.3	100.0	1	14.3	0.7	1.2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0
0.9 - 1.0	0.0	0.0	0.0	0	14.1	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1.0 - 1.1	0.0	0.0	0.0	0	13.7	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-99†	**52.9**	**5.2**	**56.4**	**20**	**12.9**	**0.3**	**1.8**	**46**	**34**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**4**	**5**	**9**	**12**	**8**	**3**	**1**	**0**	**0**	**0**
0.0 - 0.1	48.5	6.4	62.7	11	13.0	0.4	1.8	25	18	0	0	0	0	0	0	0	0	1	0	3	3	5	7	3	2	1	0	0	0
0.1 - 0.2	59.5	24.9	73.6	2	12.8	0.5	1.6	11	9	0	0	0	0	0	0	0	0	0	1	0	2	2	3	3	0	0	0	0	0
0.2 - 0.3	0.0	0.0	0.0	0	11.4	1.0	2.1	4	2	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0
0.3 - 0.4	49.7	10.7	23.0	3	13.1	0.8	1.7	4	3	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
0.4 - 0.5	71.8	46.8	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	50.2	27.4	100.0	1	14.8	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0.7 - 0.8	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8 - 0.9	121.0	42.4	100.0	1	15.5	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	53.6	17.0	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
763-100†	**32.2**	**4.4**	**87.6**	**20**	**13.0**	**0.4**	**1.7**	**21**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**2**	**3**	**6**	**4**	**2**	**0**	**0**	**0**	**0**
0.0 - 0.1	34.1	6.2	67.7	7	12.7	0.6	2.0	12	8	0	0	0	0	0	0	0	0	0	1	3	1	1	3	1	2	0	0	0	0
0.1 - 0.2	29.2	12.6	91.4	3	12.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0.2 - 0.3	0.0	34.6	0.0	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.3 - 0.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - 0.5	33.5	7.8	53.8	5	13.5	0.4	1.2	7	3	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	0	0	0	0	0
0.5 - 0.6	0.0	108.3	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	0.0	0.0	0.0	0	13.7	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0.7 - 0.8	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8 - 0.9	0.0	85.7	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	132.8	162.7	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (µm)	Error in length (µm)	Std deviation (µm)	Number of lengths	Number of grains	Number of tracks in length interval (µm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-101†	**49.4**	**17.9**	**0.0**	**16**	**13.5**	**0.4**	**1.1**	**6**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**1**	**0**	**0**	**0**	**0**
0.0 - 0.1	85.4	30.0	0.1	10	12.9	0.2	0.4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
0.1 - 0.2	8.1	5.8	74.1	3	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.2 - 0.3	0.0	53.3	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.3 - 0.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	20.1	7.4	42.5	2	14.5	1.0	1.4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Oumalik-1																													
763-27†	**87.6**	**9.3**	**4.4**	**20**	**12.8**	**0.2**	**1.6**	**44**	**26**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**3**	**6**	**12**	**10**	**10**	**1**	**0**	**0**	**0**	**0**
0.0 - 0.1	77.6	10.4	76.9	8	12.7	0.4	1.4	12	8	0	0	0	0	0	0	0	0	0	0	2	0	4	5	1	0	0	0	0	0
0.1 - 0.2	79.1	10.7	6.5	5	13.4	0.4	1.4	14	8	0	0	0	0	0	0	0	0	0	0	0	3	3	1	6	1	0	0	0	0
0.2 - 0.3	164.7	51.6	14.7	2	12.0	0.7	1.5	5	1	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0
0.3 - 0.4	113.3	31.1	2.3	2	12.1	0.4	0.9	5	3	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	0	0	0
0.4 - 0.5	0.0	0.0	0.0	0	11.3	3.2	4.5	2	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.7 - 0.8	55.4	21.9	85.0	2	13.4	0.6	0.9	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
0.8 - 0.9	0.0	0.0	0.0	0	10.2	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0.9 - 1.0	88.4	42.8	100.0	1	14.0	0.3	0.4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0
763-28†	**53.1**	**8.3**	**68.6**	**9**	**12.4**	**0.6**	**1.4**	**5**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	51.5	8.5	61.5	7	13.3	0.1	0.2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
0.1 - 0.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.2 - 0.3	0.0	0.0	0.0	0	10.0	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0.3 - 0.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	37.5	40.5	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	99.5	59.9	100.0	1	12.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-29†	**53.6**	**5.2**	**6.3**	**19**	**12.4**	**0.3**	**1.6**	**30**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**3**	**7**	**6**	**7**	**4**	**1**	**0**	**0**	**0**	**0**
0.0 - 0.1	47.2	8.9	16.4	7	12.8	0.4	1.5	11	7	0	0	0	0	0	0	0	0	0	0	1	2	2	4	1	1	0	0	0	0
0.1 - 0.2	70.3	17.7	80.1	2	12.8	0.2	0.4	4	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0
0.2 - 0.3	32.6	17.5	58.1	3	10.3	1.2	1.7	2	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
0.3 - 0.4	75.9	17.3	12.3	2	11.6	1.3	2.6	4	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	1	0	0	0	0	0
0.4 - 0.5	0.0	125.1	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 - 0.6	74.8	18.1	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.7 - 0.8	70.1	40.1	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1 - 1.2	30.5	7.1	100.0	1	12.0	0.6	1.2	4	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0
1.2 - 1.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3 - 1.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4 - 1.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 - 1.6	83.4	29.5	100.0	1	12.8	0.7	1.6	5	3	0	0	0	0	0	0	0	0	0	0	1	1	0	1	2	0	0	0	0	0
763-30†	**45.1**	**7.6**	**0.0**	**20**	**12.3**	**0.6**	**1.9**	**9**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**5**	**0**	**1**	**1**	**0**	**0**	**0**	**0**
0.0 - 0.1	31.9	4.1	19.1	6	11.7	0.9	1.8	4	4	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0
0.1 - 0.2	26.8	4.8	73.9	4	13.2	0.9	1.3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
0.2 - 0.3	51.9	10.1	52.7	4	15.0	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0.3 - 0.4	66.0	37.5	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.4 - 0.5	153.0	139.7	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 - 0.6	13.0	6.0	100.0	1	11.3	1.4	2.0	2	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
0.6 - 0.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.7 - 0.8	207.7	90.9	50.5	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1 - 1.2	115.1	31.7	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Susie Unit-1																													
763-102†	**65.2**	**15.0**	**0.0**	**20**	**13.8**	**0.2**	**1.7**	**100**	**36**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**5**	**21**	**22**	**23**	**19**	**6**	**1**	**0**	**0**
0.0 - 0.1	60.5	21.7	0.0	11	13.4	0.3	1.7	44	15	0	0	0	0	0	0	0	0	0	1	1	4	14	9	6	6	3	0	0	0
0.1 - 0.2	73.1	41.3	2.5	2	14.2	0.3	1.4	19	6	0	0	0	0	0	0	0	0	0	0	0	1	2	6	6	2	1	1	0	0
0.2 - 0.3	51.5	32.4	14.9	2	14.1	0.4	1.1	8	3	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	3	0	0	0	0
0.3 - 0.4	22.9	23.9	48.8	2	13.3	0.5	1.0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	68.6	76.7	100.0	1	14.5	0.5	0.9	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
0.6 - 0.7	0.0	0.0	0.0	0	15.5	0.2	0.5	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0
0.7 - 0.8	0.0	0.0	0.0	0	12.3	2.3	4.5	4	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	0
0.8 - 0.9	0.0	0.0	0.0	0	14.8	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0.9 - 1.0	111.8	44.4	60.9	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.0 - 1.1	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1 - 1.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2 - 1.3	0.0	0.0	0.0	0	16.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1.3 - 1.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4 - 1.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 - 1.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6 - 1.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7 - 1.8	0.0	0.0	0.0	0	15.0	0.1	0.2	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0
1.8 - 1.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9 - 2.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.0 - 2.1	0.0	0.0	0.0	0	13.1	0.4	1.0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	0	0
763-103†	**44.4**	**5.5**	**38.7**	**20**	**12.8**	**0.2**	**1.7**	**79**	**46**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**3**	**17**	**24**	**14**	**12**	**4**	**2**	**0**	**0**	**0**
0.0 - 0.1	42.6	8.7	45.2	13	12.3	0.3	2.0	37	24	0	0	0	0	1	0	0	0	0	2	2	11	8	5	6	2	0	0	0	0
0.1 - 0.2	50.4	11.5	22.8	2	12.9	0.4	1.5	18	10	0	0	0	0	0	0	0	0	0	0	1	5	5	2	4	1	0	0	0	0
0.2 - 0.3	89.5	32.6	79.5	2	13.7	0.4	1.4	13	7	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	1	2	0	0	0
0.3 - 0.4	31.6	8.1	36.3	2	13.2	0.4	0.6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
0.4 - 0.5	69.5	77.7	100.0	1	12.9	0.2	0.7	8	3	0	0	0	0	0	0	0	0	0	0	0	1	5	1	1	0	0	0	0	0
0.5 - 0.6	0.0	0.0	0.0	0	14.0	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-104†	**44.4**	**5.0**	**63.3**	**20**	**12.0**	**0.3**	**2.9**	**78**	**48**	**0**	**0**	**0**	**0**	**3**	**2**	**3**	**1**	**2**	**4**	**8**	**9**	**12**	**13**	**16**	**4**	**1**	**1**	**0**	**0**
0.0 - 0.1	46.4	7.2	21.4	7	12.4	0.4	2.5	38	23	0	0	0	0	1	0	1	0	2	1	5	2	8	8	7	2	0	1	0	0
0.1 - 0.2	33.6	11.3	100.0	1	11.4	2.9	4.9	3	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0
0.2 - 0.3	54.2	18.8	94.3	4	11.1	1.3	2.3	3	3	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0
0.3 - 0.4	80.4	64.5	100.0	1	15.1	0.2	0.4	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
0.4 - 0.5	19.8	10.3	52.9	3	12.3	1.1	2.2	4	2	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0
0.5 - 0.6	47.0	35.9	100.0	1	8.9	1.1	3.4	10	4	0	0	0	0	2	1	1	0	0	1	2	2	0	0	1	0	0	0	0	0
0.6 - 0.7	0.0	0.0	0.0	0	11.3	1.2	2.5	4	2	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0
0.7 - 0.8	44.1	15.0	100.0	1	12.6	1.3	3.4	7	5	0	0	0	0	0	1	0	0	0	0	0	0	2	1	2	1	0	0	0	0
0.8 - 0.9	56.4	35.7	100.0	1	13.6	0.7	1.2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	0.0	0.0	0.0	0	13.3	0.8	1.4	3	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0
1.1 - 1.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2 - 1.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3 - 1.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4 - 1.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 - 1.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6 - 1.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7 - 1.8	93.7	48.5	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-105†	**51.1**	**6.0**	**14.7**	**20**	**13.5**	**0.6**	**1.9**	**11**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**2**	**2**	**1**	**0**	**1**	**0**	**0**
0.0 - 0.1	41.2	6.3	11.6	5	13.4	1.2	1.7	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
0.1 - 0.2	154.6	78.6	100.0	1	14.0	0.4	0.6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
0.2 - 0.3	57.1	23.7	32.9	3	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.3 - 0.4	44.7	21.5	42.2	6	12.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0.4 - 0.5	0.0	0.0	0.0	0	11.4	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0.5 - 0.6	87.7	29.0	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	76.0	42.8	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.7 - 0.8	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	81.4	65.3	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.0 - 1.1	71.3	46.1	43.8	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1 - 1.2	0.0	0.0	0.0	0	13.2	1.4	2.4	3	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0
1.2 - 1.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3 - 1.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4 - 1.5	0.0	0.0	0.0	0	15.4	1.9	2.7	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
763-106†	**34.2**	**7.5**	**0.1**	**20**	**12.4**	**0.2**	**1.8**	**60**	**38**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**5**	**12**	**9**	**19**	**10**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	26.9	4.1	23.7	6	12.5	0.4	1.7	18	13	0	0	0	0	0	0	0	0	0	1	2	6	1	3	5	0	0	0	0	0
0.1 - 0.2	12.3	7.2	100.0	1	12.8	0.2	0.7	10	4	0	0	0	0	0	0	0	0	0	0	0	2	2	6	0	0	0	0	0	0
0.2 - 0.3	27.4	12.8	62.3	6	12.3	0.5	1.5	11	7	0	0	0	0	0	0	0	0	0	1	1	3	1	4	1	0	0	0	0	0
0.3 - 0.4	49.1	22.2	1.2	4	13.4	0.2	0.3	4	2	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0
0.4 - 0.5	14.5	14.9	100.0	1	9.5	1.5	3.2	5	3	0	0	0	0	0	1	0	0	2	0	0	1	0	1	0	0	0	0	0	0
0.5 - 0.6	0.0	0.0	0.0	0	12.5	0.1	0.1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
0.6 - 0.7	0.0	0.0	0.0	0	14.1	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0.7 - 0.8	190.9	100.7	47.5	2	10.5	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	0.0	0.0	0.0	0	13.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1.1 - 1.2	0.0	0.0	0.0	0	12.2	0.8	1.6	4	2	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0	0	0
1.2 - 1.3	0.0	0.0	0.0	0	13.9	0.3	0.4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
1.3 - 1.4	0.0	0.0	0.0	0	14.9	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

†Combined data for all compositional groups

Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
West Kurupa-1																													
763-18†	**60.9**	**7.0**	**48.1**	**16**	**12.1**	**0.0**	**0.0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	48.9	8.0	45.4	8	12.1	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0.1 - 0.2	76.7	13.9	85.2	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.2 - 0.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 - 0.4	24.5	25.6	14.0	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.4 - 0.5	82.5	47.2	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 - 0.6	152.4	95.7	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.7 - 0.8	100.5	68.1	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 0.9	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 - 1.0	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 - 1.1	53.8	58.9	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
763-19†	**64.0**	**15.3**	**9.1**	**9**	**14.1**	**0.8**	**1.7**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
0.0 - 0.1	19.4	11.6	100.0	1	14.2	1.2	2.0	3	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0
0.1 - 0.2	45.2	48.8	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.2 - 0.3	60.1	47.1	15.4	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.3 - 0.4	79.5	40.5	67.4	3	13.8	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	149.3	83.4	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.7 - 0.8	161.1	83.3	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

†Combined data for all compositional groups

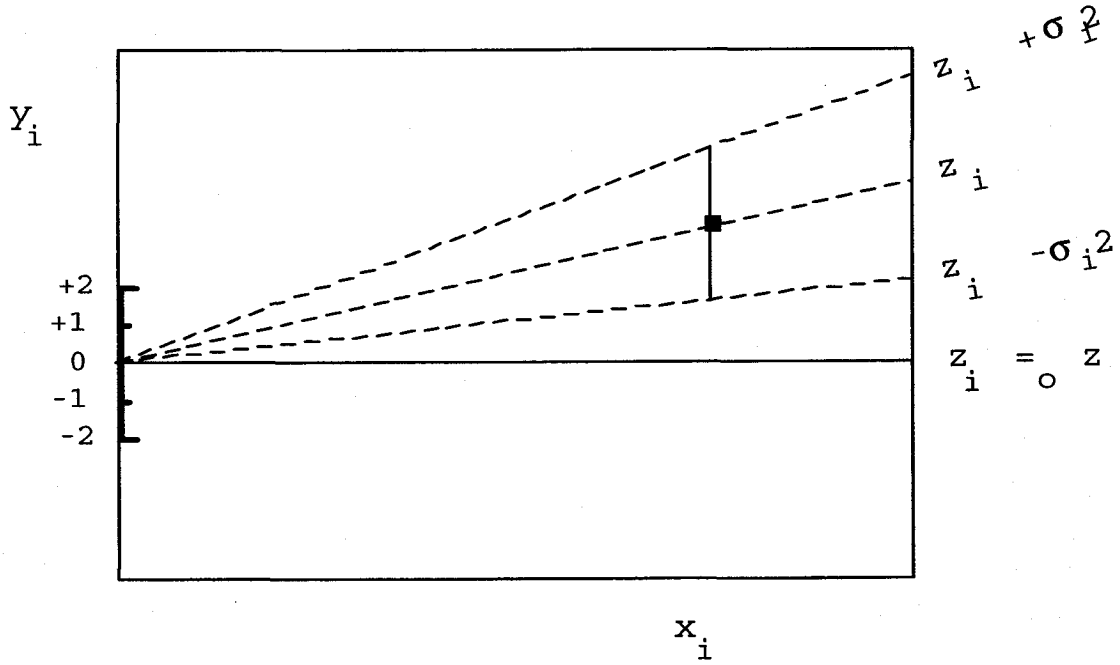
Table B.3: Continued - (Geotrack Report #763B)

Cl Wt %	Measured fission track age (Ma)	Error in age (Ma)	P (χ^2)	Number of grains	Mean Track length (μm)	Error in length (μm)	Std deviation (μm)	Number of lengths	Number of grains	Number of tracks in length interval (μm) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
763-20†	**50.5**	**26.0**	**0.0**	**7**	**8.8**	**1.2**	**2.1**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	211.7	85.5	10.2	2	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1 - 0.2	28.4	10.6	50.9	3	8.8	1.2	2.1	3	2	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0
0.2 - 0.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 - 0.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.7 - 0.8	39.0	41.7	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 0.9	0.0	20.9	0.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
763-21†	**64.6**	**35.9**	**76.5**	**3**	**14.3**	**0.0**	**0.0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	61.0	47.7	46.1	2	14.3	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0.1 - 0.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.2 - 0.3	68.6	54.3	100.0	1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
763-22†	**23.5**	**5.3**	**36.7**	**4**	**13.4**	**0.9**	**1.6**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**
0.0 - 0.1	24.7	5.5	38.2	3	12.7	0.9	1.3	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
0.1 - 0.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.2 - 0.3	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 - 0.4	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - 0.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5 - 0.6	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - 0.7	0.0	35.8	0.0	1	14.9	0.0	0.0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

†Combined data for all compositional groups

Estimates	z_i
Standard errors	σ_i
Reference value	z_o
Standardised estimates	$y_i = (z_i - z_o) / \sigma_i$
Precision	$x_i = 1 / \sigma_i$

PLOT y_i against x_i



Slope of line from origin through data point $= y_i / x_i$

$= \{(z_i - z_o)/\sigma_i\} / \{1/\sigma_i\}$

$= z_i - z_o$

Key Points:

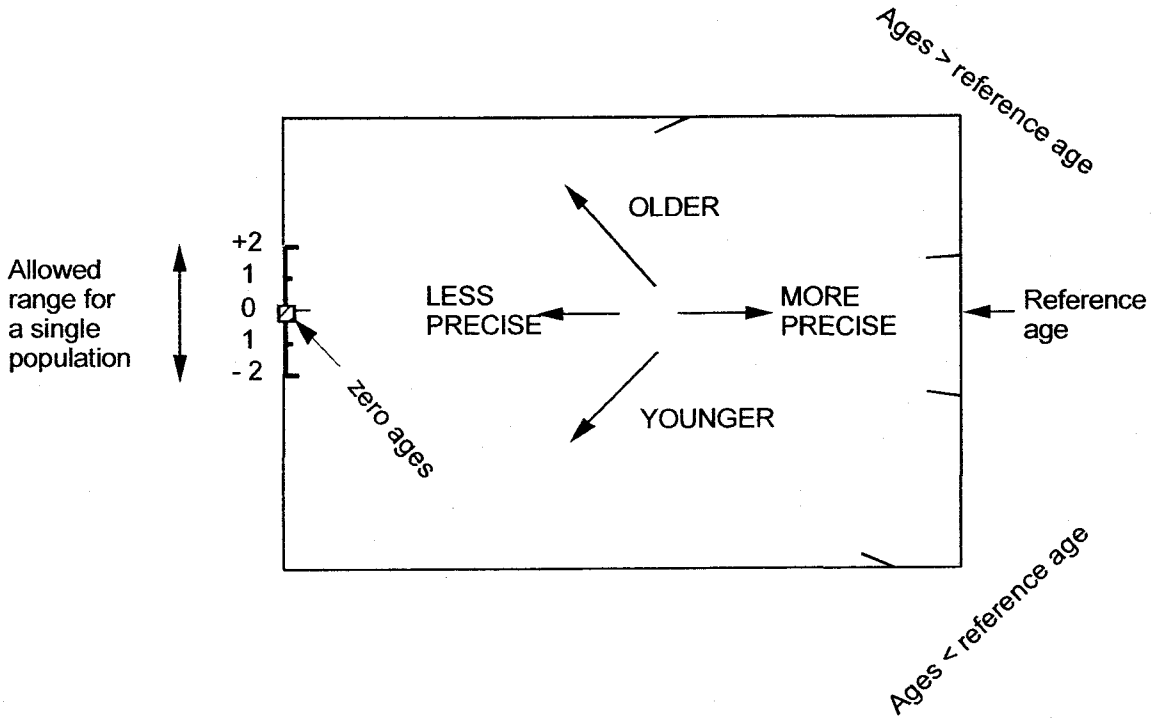
Radial lines emanating from the origin correspond to fixed values of z

Data points with higher values of x_i have greater precision.

Error bars on all points are the same size in this plot.

Figure B.1 Basic construction of a radial plot. In AFTA, the estimates z_i correspond to the fission track age values for individual apatite grains. Any convenient value of age can be chosen as the reference value corresponding to the horizontal in the radial plot. Radial lines emanating from the origin with positive slopes correspond to fission track ages greater than the reference value. Lines with negative slopes correspond to fission track ages less than the reference value.

Normal radial plot (equations B.2 and B.3)



Arc-sin radial plot (equations B.2 and B.4)

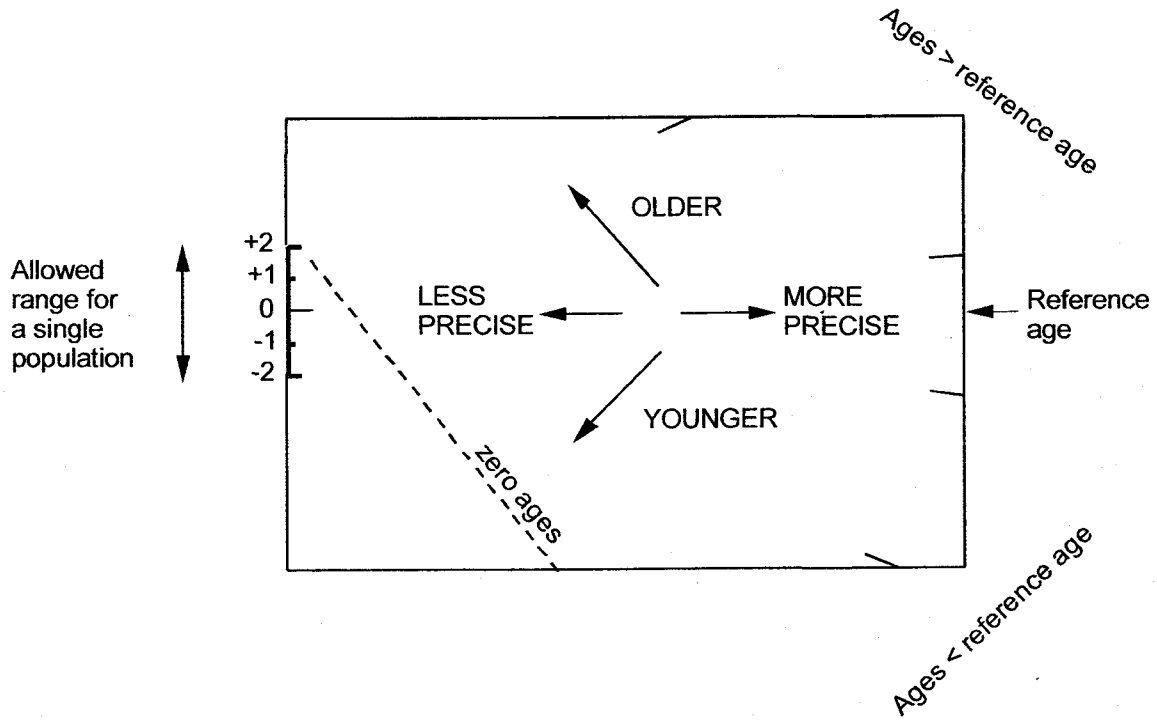


Figure B.2 Simplified structure of Normal and Arc-sin radial plots.

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Fission Track Age Data Sheets - Glossary

N_s	=	Number of spontaneous tracks in N_a grid squares
N_i	=	Number of induced tracks in N_a grid squares
N_a	=	Number of grid squares counted in each grain
RATIO	=	N_S/N_i
U (ppm)	=	Uranium content of each grain (= U content of standard glass * ρ_i/ρ_D)
Cl (wt%)	=	Weight percent chlorine content of each grain
ρ_s	=	Spontaneous track density (ρ_s) = N_s/ (N_a*area of basic unit)
ρ_i	=	Induced track density (ρ_i) = N_i/(N_a*area of basic unit)
F.T. AGE	=	Fission track age, calculated using equation B.1
Area of basic unit	=	Area of one grid square
Chi squared	=	χ^2 parameter, used to assess variation of single grain ages within the sample
P(chi squared)	=	Probability of obtaining observed χ^2 value for the relevant number of degrees of freedom, if all grains belong to a single population
Age Dispersion	=	% variation in single grain ages - see discussion in text re "Central age"
N_s/N_i	=	Pooled ratio, total spontaneous tracks divided by total induced tracks for all grains
Mean ratio	=	Mean of (N_s/N_i) for individual grains
Zeta	=	Calibration constant, determined empirically for each observer
ρ_D	=	Track density (ρ_D) from uranium standard glass (interpolated from values at each end of stack)
ND	=	Total number of tracks counted for determining ρ_D
POOLED AGE	=	Fission track age calculated from pooled ratio N_s/N_i. Valid only when P(χ2) > 5%
CENTRAL AGE	=	Alternative to pooled age when P(χ2)< 5%

Key to Figures:

A: Radial plot of single grain ages *(See Figures B.1 and B.2 for details of radial plot construction)*	B: Distribution of Cl contents in apatite grains
C: Single grain age vs weight % Cl for individual apatite grains.	D: Distribution of confined track lengths

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GC763-18 Apatite
Counted by: MEM

West Kurupa-1 500-1250'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-1	3	5	16	5	1.589E+06	5.085E+06	0.313	42.2	0.15	83.8 ± 43.0
G822-1	4	0	2	25	0.000E+00	1.271E+05	0.000	1.1	0.01	0.0 ± 437.6
G822-1	6	0	8	20	0.000E+00	6.356E+05	0.000	5.3	0.30	0.0 ± 60.7
G822-1	7	4	7	36	1.766E+05	3.090E+05	0.571	2.6	0.51	152.4 ± 95.7
G822-1	14	4	13	16	3.973E+05	1.291E+06	0.308	10.7	0.43	82.5 ± 47.2
G822-1	15	24	105	18	2.119E+06	9.270E+06	0.229	76.9	0.00	61.4 ± 14.0
G822-1	16	1	5	12	1.324E+05	6.621E+05	0.200	5.5	1.02	53.8 ± 58.9
G822-1	17	3	26	25	1.907E+05	1.653E+06	0.115	13.7	0.09	31.1 ± 19.0
G822-1	19	35	124	36	1.545E+06	5.473E+06	0.282	45.4	0.10	75.8 ± 14.7
G822-1	21	4	14	16	3.973E+05	1.390E+06	0.286	11.5	0.05	76.7 ± 43.5
G822-1	22	1	3	15	1.059E+05	3.178E+05	0.333	2.6	0.35	89.4 ± 103.2
G822-1	23	3	25	14	3.405E+05	2.838E+06	0.120	23.5	0.08	32.3 ± 19.8
G822-1	24	6	39	60	1.589E+05	1.033E+06	0.154	8.6	0.00	41.4 ± 18.2
G822-1	25	2	3	12	2.648E+05	3.973E+05	0.667	3.3	0.03	177.5 ± 162.1
G822-1	26	3	8	12	3.973E+05	1.059E+06	0.375	8.8	0.75	100.5 ± 68.1
G822-1	27	4	39	21	3.027E+05	2.951E+06	0.103	24.5	0.00	27.6 ± 14.5
		99	437		4.587E+05	2.025E+06		16.8		

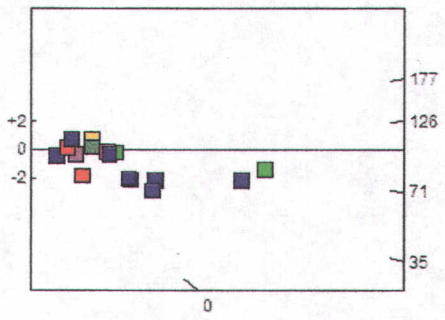
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 14.595 with 15 degrees of freedom
P(χ^2) =48.1%
Age Dispersion =5.315% (did not converge)

Ns / Ni = 0.227 ± 0.025
Mean Ratio = 0.253 ± 0.046

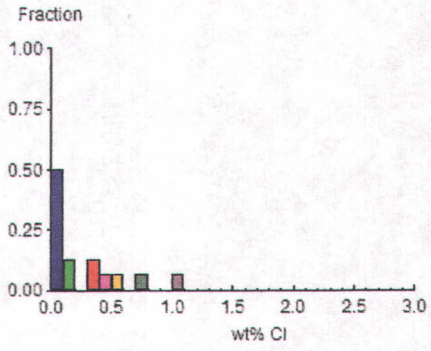
Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.374E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 60.9 ± 7.0 Ma
CENTRAL AGE = 60.7 ± 7.1 Ma

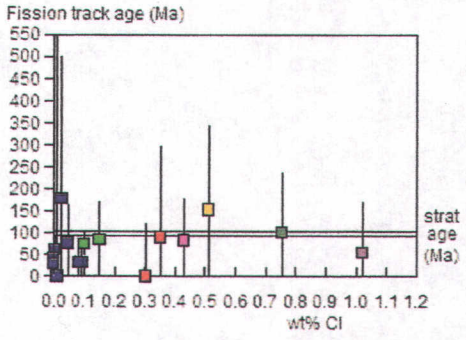
A:



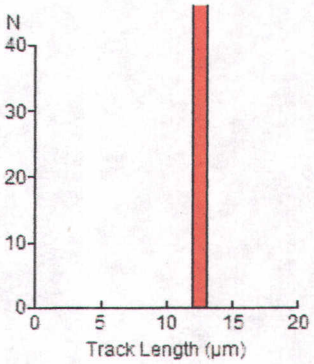
B:



C:



D:



Mean track length 12.09 ± 0.00 µm Std. Dev. 0.00 µm 1 tracks

GMC DATA REPORT 3 3 3

GC763-19 Apatite
Counted by: MEM

West Kurupa-1 3500-4250'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-2	3	1	3	21	7.567E+04	2.270E+05	0.333	1.9	0.32	90.0 ± 104.0
G822-2	6	5	9	24	3.311E+05	5.959E+05	0.556	4.9	0.63	149.3 ± 83.4
G822-2	8	3	7	9	5.297E+05	1.236E+06	0.429	10.2	0.37	115.5 ± 79.8
G822-2	9	0	5	15	0.000E+00	5.297E+05	0.000	4.4	0.29	0.0 ± 109.7
G822-2	13	6	10	70	1.362E+05	2.270E+05	0.600	1.9	0.79	161.1 ± 83.3
G822-2	15	3	42	20	2.384E+05	3.337E+06	0.071	27.5	0.07	19.4 ± 11.6
G822-2	16	2	4	20	1.589E+05	3.178E+05	0.500	2.6	0.25	134.6 ± 116.6
G822-2	18	1	6	15	1.059E+05	6.356E+05	0.167	5.2	0.11	45.2 ± 48.8
G822-2	19	1	7	6	2.648E+05	1.854E+06	0.143	15.3	0.32	38.7 ± 41.4
		22	93		1.748E+05	7.389E+05		6.1		

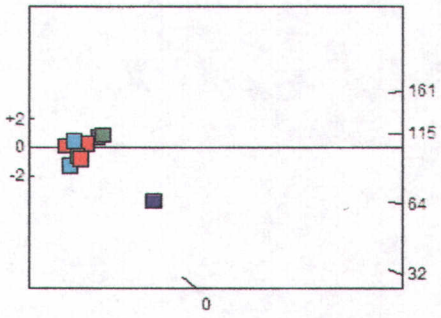
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 13.649 with 8 degrees of freedom
P(χ^2) =9.1%
Age Dispersion =51.605%

Ns / Ni = 0.237 ± 0.056
Mean Ratio = 0.311 ± 0.074

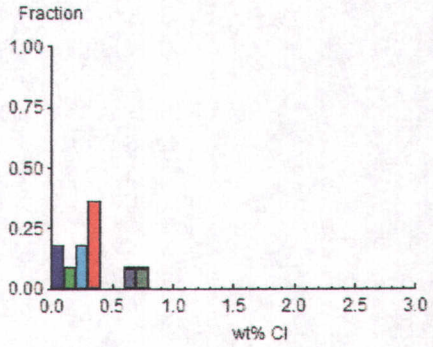
Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.384E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 64.0 ± 15.3 Ma
CENTRAL AGE = 74.0 ± 22.5 Ma

A:



B:



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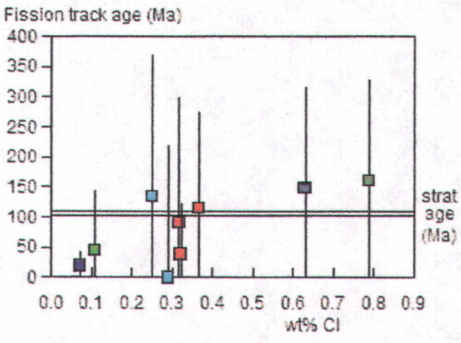

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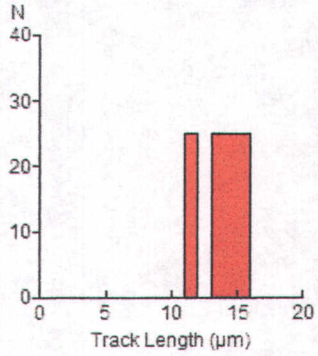


Mean track length 14.05 ± 0.84 µm Std. Dev. 1.68 µm 4 tracks

GMC DATA REPORT 3 3 3

GMC DATA REPORT 333

GC763-20 Apatite
Counted by: MEM

West Kurupa-1 6850-7600'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-3	5	3	26	20	2.384E+05	2.066E+06	0.115	16.9	0.10	31.5 ± 19.2
G822-3	8	1	3	25	6.356E+04	1.907E+05	0.333	1.6	0.15	90.7 ± 104.7
G822-3	12	0	3	25	0.000E+00	1.907E+05	0.000	1.6	0.00	0.0 ± 226.6
G822-3	14	1	7	6	2.648E+05	1.854E+06	0.143	15.2	0.71	39.0 ± 41.7
G822-3	15	11	11	6	2.913E+06	2.913E+06	1.000	23.8	0.01	268.2 ± 114.6
G822-3	17	4	48	20	3.178E+05	3.814E+06	0.083	31.2	0.17	22.8 ± 11.9
G822-3	18	0	21	60	0.000E+00	5.562E+05	0.000	4.5	0.90	0.0 ± 20.9
		20	119		1.962E+05	1.167E+06		9.5		

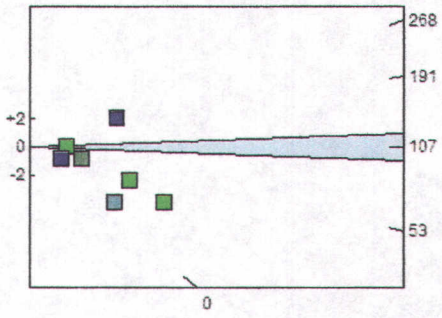
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 29.350 with 6 degrees of freedom
P(χ^2) =0.0%
Age Dispersion =113.195%

Ns / Ni = 0.168 ± 0.041
Mean Ratio = 0.239 ± 0.134

Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.394E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 45.9 ± 11.2 Ma
CENTRAL AGE = 50.5 ± 26.0 Ma

A:



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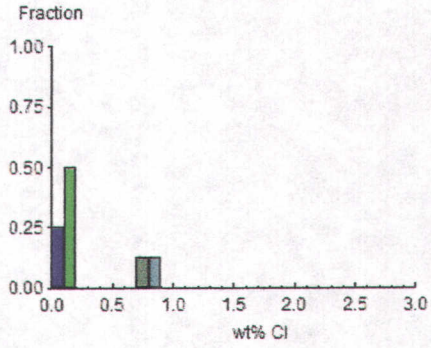

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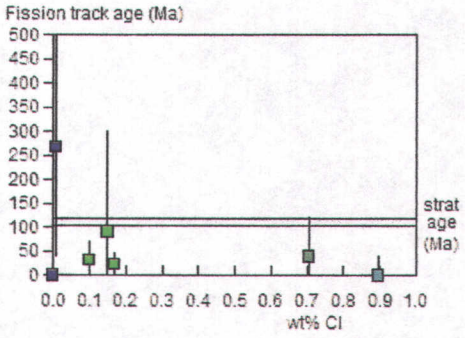

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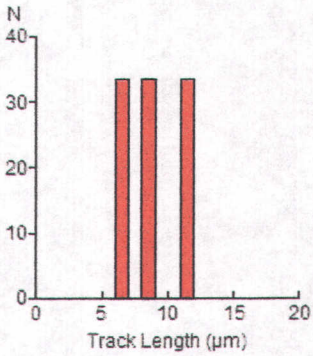


Mean track length 8.82 ± 1.23 µm Std. Dev. 2.14 µm 3 tracks

GMC DATA REPORT 3 3 3

GC763-21 Apatite
Counted by: MEM

West Kurupa-1 8250-9000'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-4	4	2	8	18	1.766E+05	7.063E+05	0.250	5.7	0.30	68.6 ± 54.3
G822-4	5	2	7	32	9.932E+04	3.476E+05	0.286	2.8	0.00	78.3 ± 62.9
G822-4	9	0	2	15	0.000E+00	2.119E+05	0.000	1.7	0.01	0.0 ± 446.5
		4	17		9.779E+04	4.156E+05		3.4		

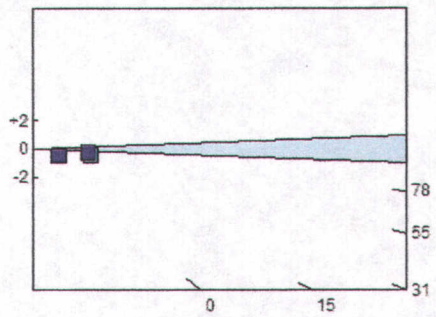
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 0.535 with 2 degrees of freedom
P(χ^2) =76.5%
Age Dispersion =0.000% (did not converge)

Ns / Ni = 0.235 ± 0.131
Mean Ratio = 0.179 ± 0.090

Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.404E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 64.6 ± 35.9 Ma
CENTRAL AGE = 64.6 ± 35.9 Ma

A:



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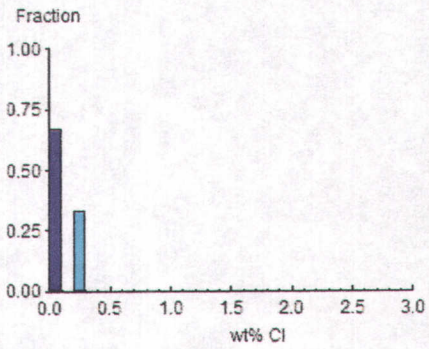

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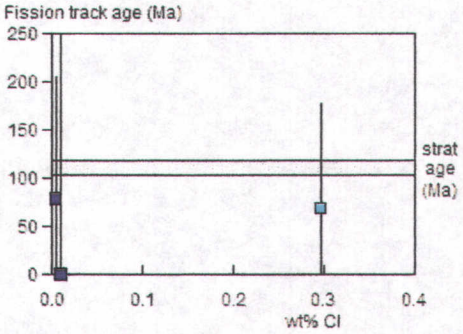
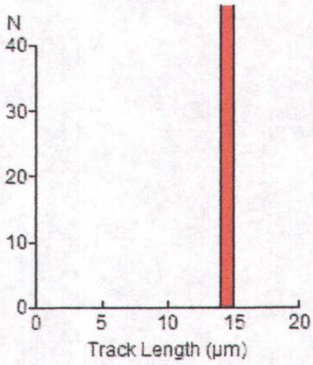


D:



Mean track length 14.31 ± 0.00 µm Std. Dev. 0.00 µm 1 tracks

GMC DATA REPORT 333

GC763-22 Apatite
Counted by: MEM

West Kurupa-1 10000-10750'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-5	4	0	17	6	0.000E+00	4.502E+06	0.000	36.3	0.00	0.0 ± 26.7
G822-5	6	0	13	28	0.000E+00	7.378E+05	0.000	5.9	0.63	0.0 ± 35.8
G822-5	7	0	3	18	0.000E+00	2.648E+05	0.000	2.1	0.01	0.0 ± 229.8
G822-5	8	22	227	30	1.165E+06	1.202E+07	0.097	96.9	0.02	26.9 ± 6.0
		22	260		4.263E+05	5.039E+06		40.6		

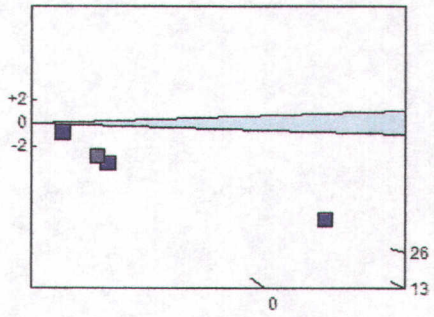
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 3.162 with 3 degrees of freedom
P(χ^2) =36.7%
Age Dispersion =2.516% (did not converge)

Ns / Ni = 0.085 ± 0.019
Mean Ratio = 0.024 ± 0.024

Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.414E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 23.5 ± 5.3 Ma
CENTRAL AGE = 23.4 ± 5.3 Ma

A:



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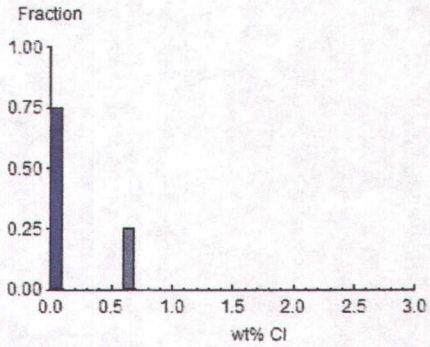

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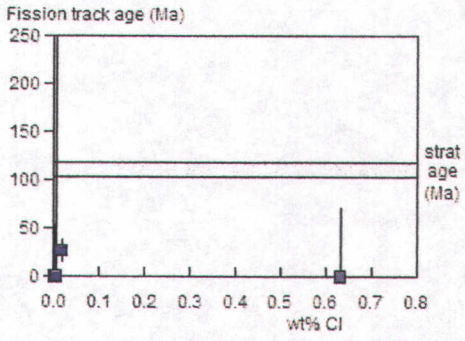
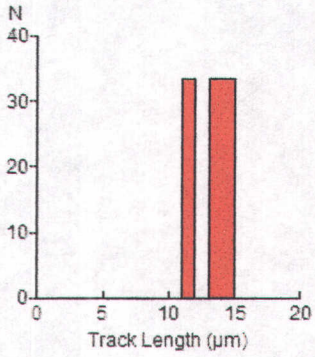


D:



Mean track length 13.45 ± 0.91 µm Std. Dev. 1.58 µm 3 tracks

GMC DATA REPORT 3 3 3

GC763-23 Apatite
Counted by: MEM

Aufeis-1 510-1200'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-6	3	1	4	20	7.945E+04	3.178E+05	0.250	2.5	0.00	69.6 ± 77.8
G822-6	5	0	7	32	0.000E+00	3.476E+05	0.000	2.8	0.00	0.0 ± 73.9
G822-6	6	1	4	24	6.621E+04	2.648E+05	0.250	2.1	0.00	69.6 ± 77.8
G822-6	7	0	1	20	0.000E+00	7.945E+04	0.000	0.6	0.00	0.0 ± 1938.5
G822-6	8	9	15	40	3.575E+05	5.959E+05	0.600	4.8	0.03	165.7 ± 70.0
G822-6	9	14	19	20	1.112E+06	1.510E+06	0.737	12.1	0.03	203.0 ± 71.7
G822-6	10	3	20	16	2.980E+05	1.986E+06	0.150	15.9	0.31	41.8 ± 25.9
G822-6	11	0	1	36	0.000E+00	4.414E+04	0.000	0.4	0.00	0.0 ± 1938.5
G822-6	12	12	17	28	6.810E+05	9.648E+05	0.706	7.7	0.03	194.6 ± 73.6
G822-6	13	2	4	20	1.589E+05	3.178E+05	0.500	2.5	0.00	138.4 ± 119.9
G822-6	14	0	3	50	0.000E+00	9.534E+04	0.000	0.8	0.00	0.0 ± 231.4
G822-6	15	5	14	24	3.311E+05	9.270E+05	0.357	7.4	0.02	99.2 ± 51.7
G822-6	17	3	6	18	2.648E+05	5.297E+05	0.500	4.2	0.00	138.4 ± 98.0
G822-6	18	0	8	35	0.000E+00	3.632E+05	0.000	2.9	0.00	0.0 ± 62.9
G822-6	19	0	2	20	0.000E+00	1.589E+05	0.000	1.3	0.00	0.0 ± 452.5
G822-6	20	0	23	16	0.000E+00	2.284E+06	0.000	18.3	0.00	0.0 ± 19.4
G822-6	21	0	7	14	0.000E+00	7.945E+05	0.000	6.4	0.00	0.0 ± 73.9
G822-6	22	12	30	36	5.297E+05	1.324E+06	0.400	10.6	0.01	111.0 ± 38.0
G822-6	24	4	13	28	2.270E+05	7.378E+05	0.308	5.9	0.01	85.5 ± 49.0
G822-6	25	5	26	40	1.986E+05	1.033E+06	0.192	8.3	0.03	53.6 ± 26.2
		71	224		2.101E+05	6.629E+05		5.3		

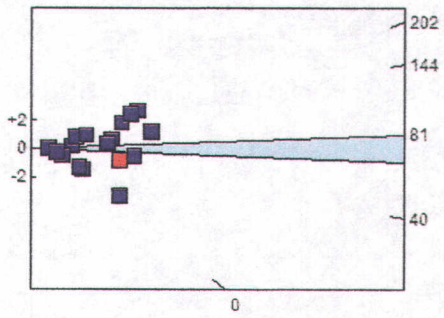
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 33.607 with 19 degrees of freedom
$P(\chi^2)$ =2.0%
Age Dispersion =63.824%

Ns / Ni = 0.317 ± 0.043
Mean Ratio = 0.247 ± 0.057

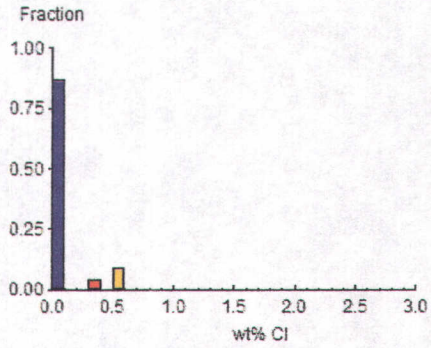
Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.424E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 88.1 ± 12.3 Ma
CENTRAL AGE = 76.5 ± 16.8 Ma

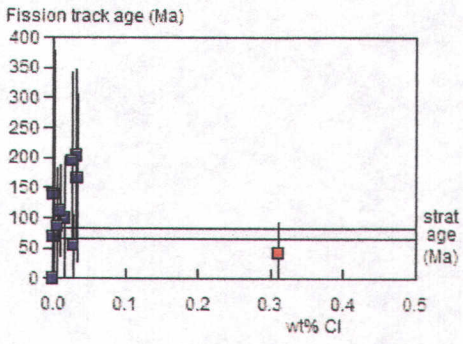
A:



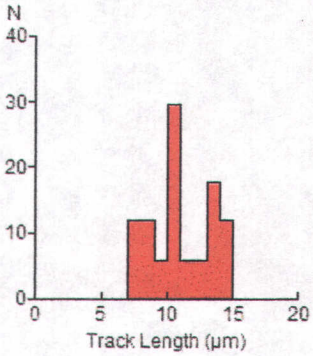
B:



C:



D:



Mean track length 11.03 ± 0.56 µm Std. Dev. 2.31 µm 17 tracks

GMC DATA REPORT 3 3 3

GC763-24 Apatite
Counted by: MEM

Aufeis-1 2730-3480'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-7	3	1	2	15	1.059E+05	2.119E+05	0.500	1.7	0.00	139.4 ± 170.7
G822-7	4	3	39	30	1.589E+05	2.066E+06	0.077	16.4	0.84	21.6 ± 13.0
G822-7	5	6	15	25	3.814E+05	9.534E+05	0.400	7.6	0.00	111.7 ± 54.1
G822-7	6	5	14	64	1.241E+05	3.476E+05	0.357	2.8	0.00	99.9 ± 52.1
G822-7	7	4	31	35	1.816E+05	1.407E+06	0.129	11.2	0.12	36.3 ± 19.3
G822-7	8	2	14	21	1.513E+05	1.059E+06	0.143	8.4	0.37	40.1 ± 30.4
G822-7	9	0	6	25	0.000E+00	3.814E+05	0.000	3.0	0.01	0.0 ± 90.0
G822-7	10	9	60	12	1.192E+06	7.945E+06	0.150	63.1	0.00	42.1 ± 15.1
G822-7	11	15	59	20	1.192E+06	4.688E+06	0.254	37.3	0.37	71.2 ± 20.7
G822-7	13	5	38	50	1.589E+05	1.208E+06	0.132	9.6	0.36	37.0 ± 17.6
G822-7	14	1	11	12	1.324E+05	1.457E+06	0.091	11.6	0.00	25.6 ± 26.7
G822-7	15	9	27	25	5.721E+05	1.716E+06	0.333	13.6	0.47	93.3 ± 36.0
G822-7	16	8	22	6	2.119E+06	5.827E+06	0.364	46.3	0.67	101.7 ± 42.1
G822-7	17	9	29	18	7.945E+05	2.560E+06	0.310	20.3	0.00	86.9 ± 33.2
G822-7	19	10	44	35	4.540E+05	1.998E+06	0.227	15.9	0.01	63.7 ± 22.4
G822-7	21	1	7	48	3.311E+04	2.317E+05	0.143	1.8	0.00	40.1 ± 42.9
G822-7	22	6	38	40	2.384E+05	1.510E+06	0.158	12.0	0.60	44.3 ± 19.5
G822-7	23	1	9	40	3.973E+04	3.575E+05	0.111	2.8	0.25	31.2 ± 32.9
G822-7	25	10	34	18	8.828E+05	3.002E+06	0.294	23.9	0.67	82.4 ± 29.7
G822-7	26	16	61	20	1.271E+06	4.847E+06	0.262	38.5	0.00	73.5 ± 20.7
		121	560		3.440E+05	1.592E+06		12.7		

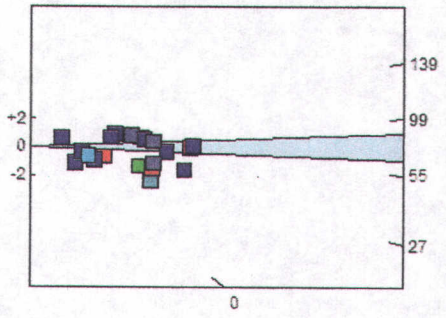
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 18.288 with 19 degrees of freedom
P(χ^2) =50.3%
Age Dispersion =5.742% (did not converge)

Ns / Ni = 0.216 ± 0.022
Mean Ratio = 0.222 ± 0.029

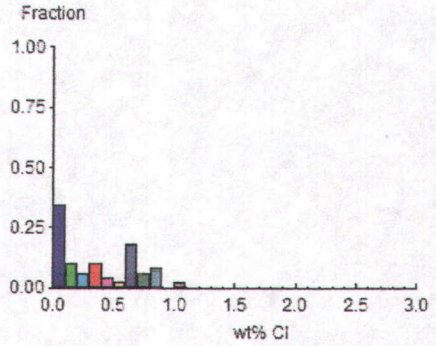
Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.434E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 60.6 ± 6.3 Ma
CENTRAL AGE = 60.6 ± 6.4 Ma

A:



B:



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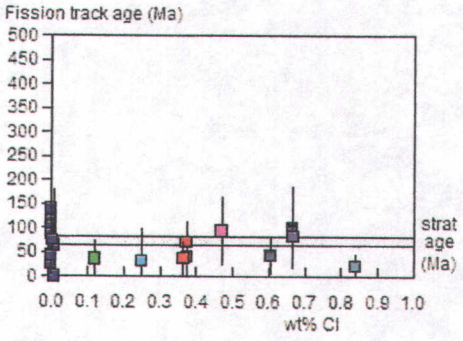
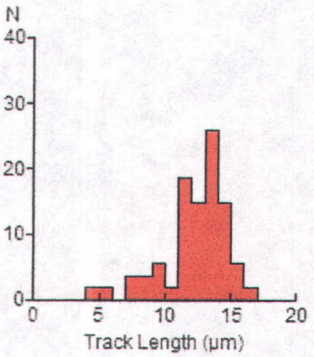


D:



Mean track length 12.32 ± 0.33 µm Std. Dev. 2.42 µm 54 tracks

GMC DATA REPORT 3 3 3

GC763-25 Apatite
Counted by: MEM

Aufeis-1 5700-6450'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-8	5	1	8	30	5.297E+04	4.238E+05	0.125	3.3	0.23	35.4 ± 37.5
G822-8	6	0	9	18	0.000E+00	7.945E+05	0.000	6.3	0.29	0.0 ± 55.6
G822-8	7	6	17	10	9.534E+05	2.701E+06	0.353	21.3	0.25	99.4 ± 47.3
G822-8	8	3	10	20	2.384E+05	7.945E+05	0.300	6.3	0.13	84.6 ± 55.7
G822-8	10	0	4	20	0.000E+00	3.178E+05	0.000	2.5	0.18	0.0 ± 154.4
G822-8	11	3	16	25	1.907E+05	1.017E+06	0.188	8.0	0.32	53.0 ± 33.4
G822-8	12	0	2	10	0.000E+00	3.178E+05	0.000	2.5	0.39	0.0 ± 458.4
G822-8	14	0	6	20	0.000E+00	4.767E+05	0.000	3.8	0.65	0.0 ± 90.6
G822-8	16	3	20	20	2.384E+05	1.589E+06	0.150	12.5	0.23	42.4 ± 26.3
G822-8	17	3	9	30	1.589E+05	4.767E+05	0.333	3.8	0.71	93.9 ± 62.7
G822-8	18	5	29	24	3.311E+05	1.920E+06	0.172	15.2	0.42	48.7 ± 23.6
G822-8	19	2	25	24	1.324E+05	1.655E+06	0.080	13.1	0.35	22.7 ± 16.7
G822-8	20	3	21	12	3.973E+05	2.781E+06	0.143	21.9	0.00	40.4 ± 25.0
G822-8	21	5	28	30	2.648E+05	1.483E+06	0.179	11.7	0.19	50.5 ± 24.5
G822-8	22	2	9	16	1.986E+05	8.939E+05	0.222	7.1	0.22	62.8 ± 49.1
G822-8	23	4	17	20	3.178E+05	1.351E+06	0.235	10.7	0.30	66.4 ± 37.0
G822-8	24	3	11	28	1.703E+05	6.243E+05	0.273	4.9	0.23	76.9 ± 50.2
G822-8	25	1	8	20	7.945E+04	6.356E+05	0.125	5.0	0.13	35.4 ± 37.5
G822-8	26	0	4	20	0.000E+00	3.178E+05	0.000	2.5	0.97	0.0 ± 154.4
G822-8	27	8	36	28	4.540E+05	2.043E+06	0.222	16.1	0.22	62.8 ± 24.6
		52	289		1.944E+05	1.081E+06		8.5		

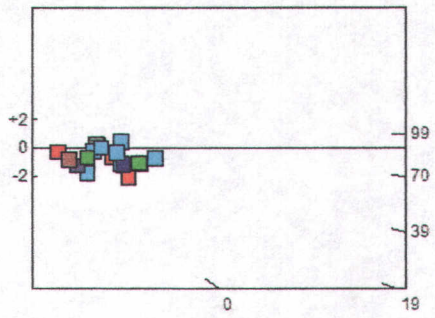
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 10.864 with 19 degrees of freedom
P(χ^2) =92.8%
Age Dispersion =0.043% (did not converge)

Ns / Ni = 0.180 ± 0.027
Mean Ratio = 0.155 ± 0.026

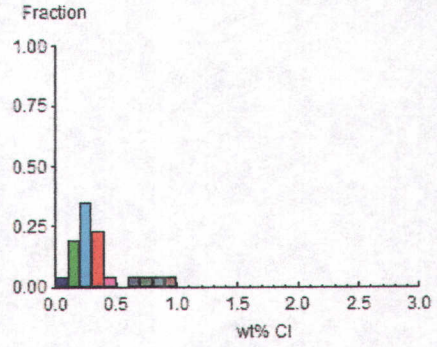
Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.444E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 50.9 ± 7.8 Ma
CENTRAL AGE = 50.9 ± 7.8 Ma

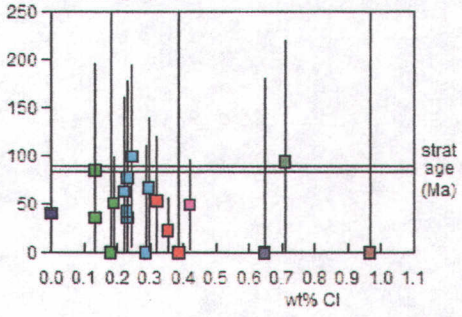
A:



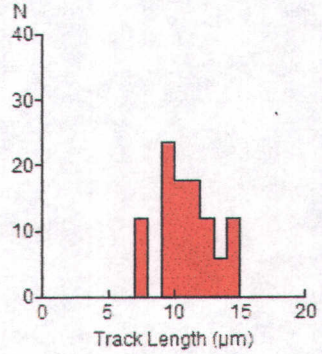
B:



C:



D:



Mean track length 10.94 ± 0.52 µm Std. Dev. 2.13 µm 17 tracks

GMC DATA REPORT 3 3 3

GC763-26 Apatite
Counted by: MEM

Aufeis-1 6450-7200'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G822-9	4	1	20	30	5.297E+04	1.059E+06	0.050	8.3	0.33	14.3 ± 14.6
G822-9	5	3	10	20	2.384E+05	7.945E+05	0.300	6.2	0.01	85.2 ± 56.1
G822-9	6	5	21	28	2.838E+05	1.192E+06	0.238	9.3	0.45	67.7 ± 33.7
G822-9	7	1	8	20	7.945E+04	6.356E+05	0.125	5.0	0.32	35.6 ± 37.8
G822-9	8	9	41	42	3.405E+05	1.551E+06	0.220	12.2	0.49	62.4 ± 23.0
G822-9	9	3	4	15	3.178E+05	4.238E+05	0.750	3.3	1.11	210.8 ± 161.1
G822-9	10	3	43	30	1.589E+05	2.278E+06	0.070	17.9	0.00	19.9 ± 11.9
G822-9	11	2	6	20	1.589E+05	4.767E+05	0.333	3.7	0.35	94.5 ± 77.2
G822-9	12	6	15	30	3.178E+05	7.945E+05	0.400	6.2	0.41	113.3 ± 54.8
G822-9	14	3	12	30	1.589E+05	6.356E+05	0.250	5.0	0.20	71.0 ± 45.9
G822-9	15	1	13	42	3.783E+04	4.919E+05	0.077	3.9	0.80	21.9 ± 22.8
G822-9	16	5	19	25	3.178E+05	1.208E+06	0.263	9.5	0.39	74.8 ± 37.6
G822-9	17	5	23	21	3.783E+05	1.740E+06	0.217	13.6	0.27	61.8 ± 30.6
G822-9	18	0	4	15	0.000E+00	4.238E+05	0.000	3.3	0.00	0.0 ± 155.4
G822-9	19	1	13	12	1.324E+05	1.721E+06	0.077	13.5	0.15	21.9 ± 22.8
G822-9	20	15	93	14	1.703E+06	1.056E+07	0.161	82.7	0.19	45.9 ± 12.8
G822-9	21	1	12	30	5.297E+04	6.356E+05	0.083	5.0	0.33	23.8 ± 24.7
G822-9	22	15	71	14	1.703E+06	8.059E+06	0.211	63.2	0.34	60.1 ± 17.2
G822-9	23	6	43	21	4.540E+05	3.254E+06	0.140	25.5	0.05	39.7 ± 17.4
G822-9	25	0	10	28	0.000E+00	5.675E+05	0.000	4.4	0.39	0.0 ± 49.5
		85	481		2.774E+05	1.569E+06		12.3		

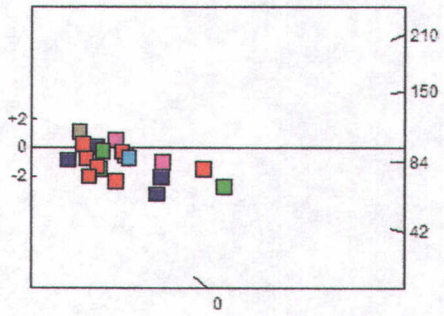
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 19.995 with 19 degrees of freedom
P(χ^2) =39.5%
Age Dispersion =2.094% (did not converge)

Ns / Ni = 0.177 ± 0.021
Mean Ratio = 0.198 ± 0.038

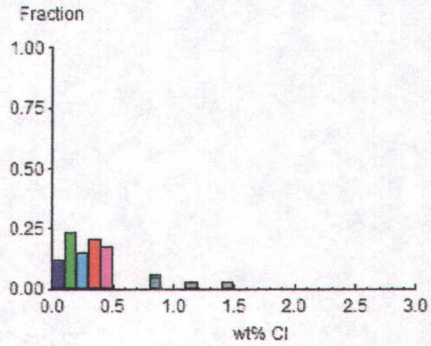
Ages calculated using a zeta of 392.9 ± 7.4 for CN5 glass
ρ_D = 1.454E+06cm^{-2} ND =2233
ρ_D interpolated between top of can; ρ_D = 1.374E+06cm^{-2} ND =1081
bottom of can; ρ_D = 1.464E+06cm^{-2} ND =1152

POOLED AGE = 50.3 ± 6.1 Ma
CENTRAL AGE = 50.3 ± 6.1 Ma

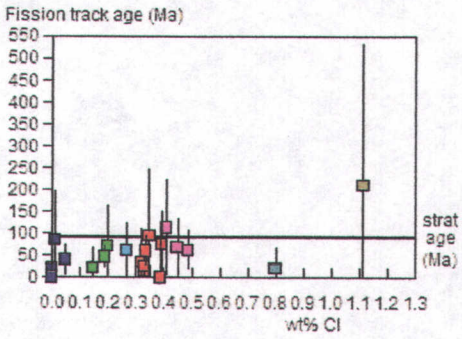
A:



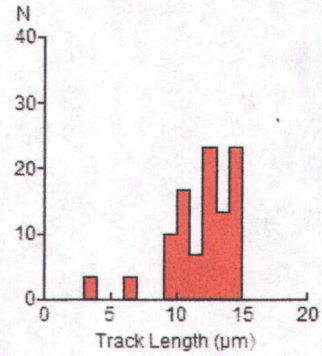
B:



C:



D:



Mean track length 11.89 ± 0.45 µm Std. Dev. 2.46 µm 30 tracks

GMC DATA REPORT 3 3 3

GC763-27 Apatite
Counted by: COB

Oumalik-1 500-1250'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-1	3	13	12	36	5.738E+05	5.297E+05	1.083	5.2	0.27	236.6 ± 94.9
G823-1	5	11	39	25	6.992E+05	2.479E+06	0.282	24.2	0.09	62.4 ± 21.4
G823-1	6	2	8	48	6.621E+04	2.648E+05	0.250	2.6	0.03	55.4 ± 43.8
G823-1	7	19	48	30	1.006E+06	2.543E+06	0.396	24.8	0.06	87.5 ± 23.8
G823-1	8	1	6	25	6.356E+04	3.814E+05	0.167	3.7	0.17	37.0 ± 39.9
G823-1	9	36	49	9	6.356E+06	8.652E+06	0.735	84.3	0.32	161.4 ± 35.7
G823-1	10	1	2	36	4.414E+04	8.828E+04	0.500	0.9	0.06	110.3 ± 135.1
G823-1	11	29	113	30	1.536E+06	5.985E+06	0.257	58.3	0.18	56.8 ± 11.9
G823-1	12	2	7	24	1.324E+05	4.635E+05	0.286	4.5	0.80	63.2 ± 50.7
G823-1	13	17	35	20	1.351E+06	2.781E+06	0.486	27.1	0.18	107.2 ± 31.8
G823-1	14	7	26	24	4.635E+05	1.721E+06	0.269	16.8	0.03	59.6 ± 25.4
G823-1	15	12	24	21	9.080E+05	1.816E+06	0.500	17.7	0.04	110.3 ± 39.1
G823-1	17	0	5	20	0.000E+00	3.973E+05	0.000	3.9	0.00	0.0 ± 90.0
G823-1	18	6	25	20	4.767E+05	1.986E+06	0.240	19.4	0.76	53.2 ± 24.2
G823-1	19	27	73	50	8.581E+05	2.320E+06	0.370	22.6	0.00	81.8 ± 18.5
G823-1	20	18	54	54	5.297E+05	1.589E+06	0.333	15.5	0.38	73.7 ± 20.2
G823-1	21	8	27	25	5.085E+05	1.716E+06	0.296	16.7	0.13	65.6 ± 26.5
G823-1	22	5	12	28	2.838E+05	6.810E+05	0.417	6.6	0.29	92.0 ± 49.0
G823-1	24	6	15	15	6.356E+05	1.589E+06	0.400	15.5	0.91	88.4 ± 42.8
G823-1	25	23	37	15	2.437E+06	3.920E+06	0.622	38.2	0.19	136.8 ± 36.5
		243	617		6.958E+05	1.767E+06		17.2		

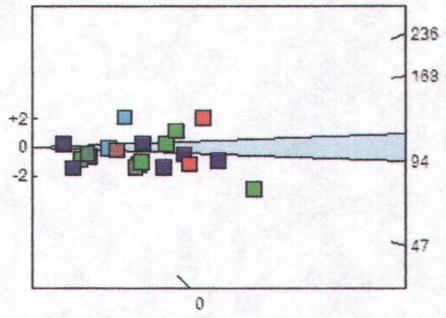
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 30.686 with 19 degrees of freedom
P(χ^2) =4.4%
Age Dispersion =26.305%

Ns / Ni = 0.394 ± 0.030
Mean Ratio = 0.394 ± 0.051

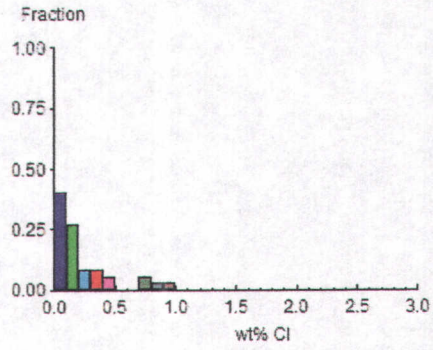
Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.170E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 87.0 ± 7.0 Ma
CENTRAL AGE = 87.6 ± 9.3 Ma

A:



B:



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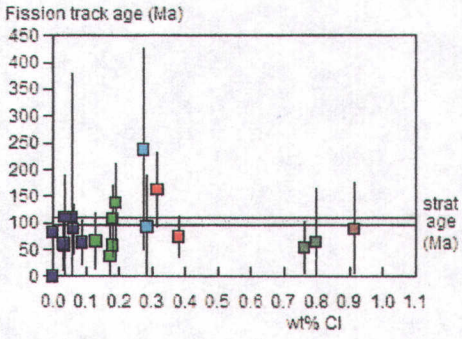
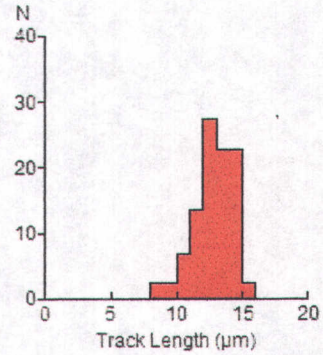


D:



Mean track length 12.78 ± 0.24 µm Std. Dev. 1.59 µm 44 tracks

GMC DATA REPORT 3 3 3

GC763-28 Apatite
Counted by: COB

Oumalik-1 3100-3850'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-2	4	0	5	18	0.000E+00	4.414E+05	0.000	4.2	0.00	0.0 ± 91.3
G823-2	5	13	62	24	8.607E+05	4.105E+06	0.210	39.4	0.00	47.1 ± 14.4
G823-2	6	2	4	15	2.119E+05	4.238E+05	0.500	4.1	0.04	111.9 ± 96.9
G823-2	8	4	9	24	2.648E+05	5.959E+05	0.444	5.7	0.64	99.5 ± 59.9
G823-2	9	17	53	54	5.003E+05	1.560E+06	0.321	15.0	0.10	72.0 ± 20.2
G823-2	10	5	31	25	3.178E+05	1.970E+06	0.161	18.9	0.01	36.3 ± 17.5
G823-2	11	8	43	28	4.540E+05	2.440E+06	0.186	23.4	0.06	41.9 ± 16.2
G823-2	12	2	7	4	7.945E+05	2.781E+06	0.286	26.7	0.00	64.2 ± 51.5
G823-2	13	1	6	8	1.986E+05	1.192E+06	0.167	11.5	0.59	37.5 ± 40.5
		52	220		4.132E+05	1.748E+06		16.8		

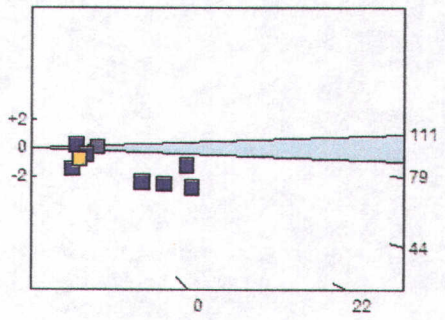
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 5.658 with 8 degrees of freedom
P(χ^2) =68.6%
Age Dispersion =0.221% (did not converge)

Ns / Ni = 0.236 ± 0.036
Mean Ratio = 0.253 ± 0.051

Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.187E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 53.1 ± 8.3 Ma
CENTRAL AGE = 53.1 ± 8.3 Ma

A:



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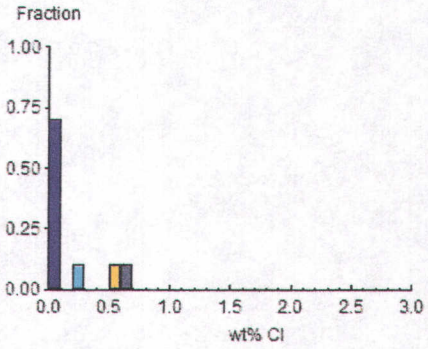
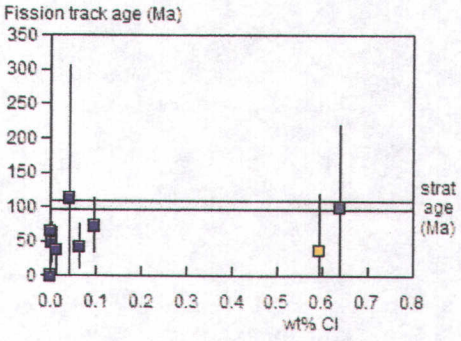
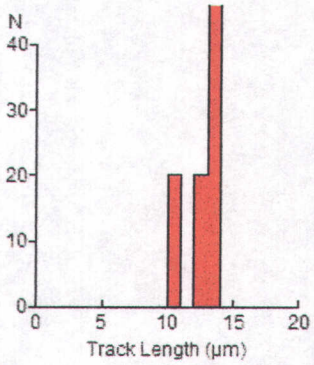


C:



D:



Mean track length 12.44 ± 0.64 µm Std. Dev. 1.42 µm 5 tracks

GMC DATA REPORT 333

GC763-29 Apatite
Counted by: COB

Oumalik-1 6400-7150'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-3	3	3	12	12	3.973E+05	1.589E+06	0.250	15.1	0.00	57.0 ± 36.8
G823-3	5	1	10	12	1.324E+05	1.324E+06	0.100	12.5	0.22	22.9 ± 24.0
G823-3	6	2	7	18	1.766E+05	6.180E+05	0.286	5.9	0.25	65.1 ± 52.2
G823-3	7	0	4	20	0.000E+00	3.178E+05	0.000	3.0	0.42	0.0 ± 125.1
G823-3	8	0	6	27	0.000E+00	3.531E+05	0.000	3.3	0.02	0.0 ± 73.3
G823-3	9	1	11	18	8.828E+04	9.711E+05	0.091	9.2	0.20	20.8 ± 21.7
G823-3	10	21	157	21	1.589E+06	1.188E+07	0.134	112.5	1.13	30.5 ± 7.1
G823-3	11	14	46	12	1.854E+06	6.091E+06	0.304	57.7	0.03	69.3 ± 21.2
G823-3	12	5	24	12	6.621E+05	3.178E+06	0.208	30.1	0.03	47.5 ± 23.4
G823-3	13	23	70	16	2.284E+06	6.952E+06	0.329	65.8	0.58	74.8 ± 18.1
G823-3	14	6	17	16	5.959E+05	1.688E+06	0.353	16.0	0.04	80.3 ± 38.2
G823-3	15	1	12	36	4.414E+04	5.297E+05	0.083	5.0	0.32	19.0 ± 19.8
G823-3	16	4	13	40	1.589E+05	5.164E+05	0.308	4.9	0.78	70.1 ± 40.1
G823-3	17	25	66	28	1.419E+06	3.746E+06	0.379	35.5	0.32	86.1 ± 20.4
G823-3	18	13	40	16	1.291E+06	3.973E+06	0.325	37.6	0.11	74.0 ± 23.7
G823-3	19	3	49	18	2.648E+05	4.326E+06	0.061	41.0	0.01	14.0 ± 8.3
G823-3	21	4	15	30	2.119E+05	7.945E+05	0.267	7.5	0.03	60.8 ± 34.2
G823-3	28	11	30	20	8.740E+05	2.384E+06	0.367	22.6	1.59	83.4 ± 29.5
G823-3	29	8	28	15	8.475E+05	2.966E+06	0.286	28.1	0.17	65.1 ± 26.1
		145	617		5.954E+05	2.533E+06		24.0		

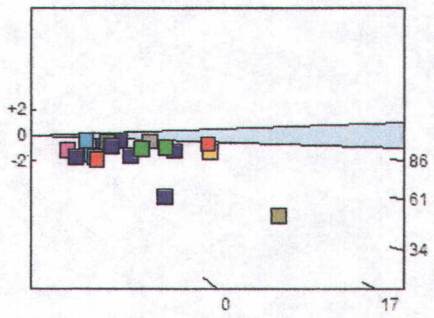
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 27.944 with 18 degrees of freedom
P(χ^2) =6.3%
Age Dispersion =30.352%

Ns / Ni = 0.235 ± 0.022
Mean Ratio = 0.217 ± 0.029

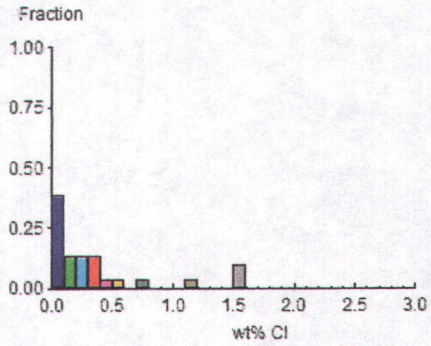
Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.204E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 53.6 ± 5.2 Ma
CENTRAL AGE = 54.4 ± 7.0 Ma

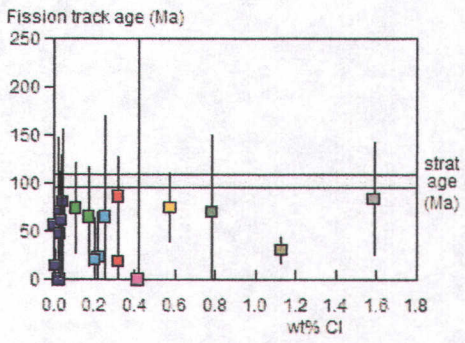
A:



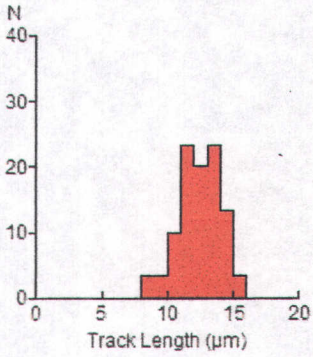
B:



C:



D:



Mean track length 12.37 ± 0.29 µm Std. Dev. 1.60 µm 30 tracks

GMC DATA REPORT 3 3 3

GC763-30 Apatite
Counted by: COB

Oumalik-1 8600-9350'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-4	3	12	80	40	4.767E+05	3.178E+06	0.150	29.7	0.11	34.7 ± 10.8
G823-4	5	0	21	12	0.000E+00	2.781E+06	0.000	26.0	0.00	0.0 ± 17.8
G823-4	6	2	7	9	3.531E+05	1.236E+06	0.286	11.5	0.25	66.0 ± 52.9
G823-4	7	20	98	16	1.986E+06	9.733E+06	0.204	90.9	0.10	47.2 ± 11.7
G823-4	9	6	5	15	6.356E+05	5.297E+05	1.200	4.9	0.76	272.8 ± 165.3
G823-4	10	2	3	15	2.119E+05	3.178E+05	0.667	3.0	0.45	153.0 ± 139.7
G823-4	11	4	6	30	2.119E+05	3.178E+05	0.667	3.0	0.76	153.0 ± 98.8
G823-4	12	5	89	36	2.207E+05	3.929E+06	0.056	36.7	0.57	13.0 ± 6.0
G823-4	13	23	116	15	2.437E+06	1.229E+07	0.198	114.8	0.28	45.9 ± 10.5
G823-4	14	23	194	21	1.740E+06	1.468E+07	0.119	137.1	0.00	27.5 ± 6.1
G823-4	15	2	10	30	1.059E+05	5.297E+05	0.200	4.9	0.29	46.3 ± 35.9
G823-4	16	4	14	21	3.027E+05	1.059E+06	0.286	9.9	0.33	66.0 ± 37.5
G823-4	17	7	47	20	5.562E+05	3.734E+06	0.149	34.9	0.09	34.5 ± 14.0
G823-4	18	2	16	30	1.059E+05	8.475E+05	0.125	7.9	0.17	29.0 ± 21.7
G823-4	20	6	14	20	4.767E+05	1.112E+06	0.429	10.4	0.27	98.7 ± 48.3
G823-4	21	11	97	60	2.913E+05	2.569E+06	0.113	24.0	0.15	26.3 ± 8.4
G823-4	22	10	110	30	5.297E+05	5.827E+06	0.091	54.4	0.19	21.1 ± 7.0
G823-4	23	19	121	70	4.313E+05	2.747E+06	0.157	25.7	0.00	36.4 ± 9.0
G823-4	24	3	41	30	1.589E+05	2.172E+06	0.073	20.3	0.05	17.0 ± 10.2
G823-4	25	20	40	15	2.119E+06	4.238E+06	0.500	39.6	1.18	115.1 ± 31.7
		181	1129		5.376E+05	3.353E+06		31.3		

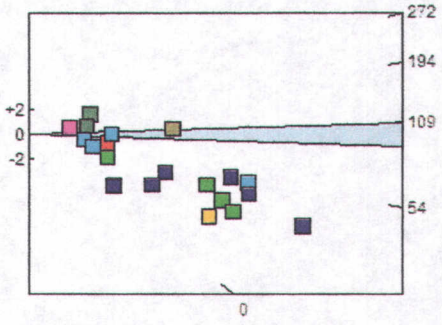
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 68.264 with 19 degrees of freedom
P(χ^2) =0.0%
Age Dispersion =58.540%

Ns / Ni = 0.160 ± 0.013
Mean Ratio = 0.283 ± 0.064

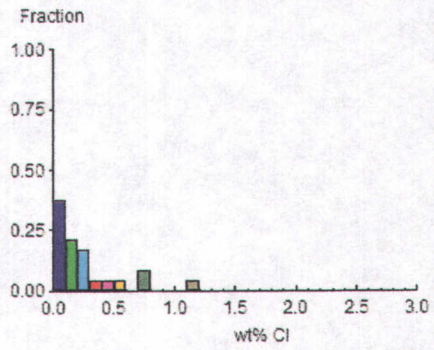
Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.221E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 37.1 ± 3.1 Ma
CENTRAL AGE = 45.1 ± 7.6 Ma

A:



B:



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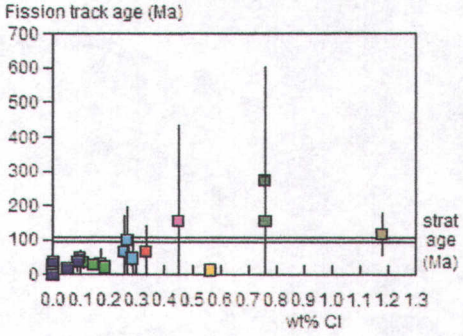
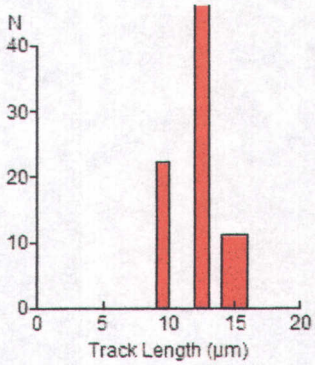


D:



Mean track length 12.29 ± 0.62 µm Std. Dev. 1.87 µm 9 tracks

GMC DATA REPORT 3 3 3

GC763-31 Apatite
Counted by: COB

Amethyst-1 510-1320'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-5	3	0	2	24	0.000E+00	1.324E+05	0.000	1.2	0.00	0.0 ± 384.8
G823-5	4	0	3	30	0.000E+00	1.589E+05	0.000	1.5	0.00	0.0 ± 195.7
G823-5	5	1	3	32	4.966E+04	1.490E+05	0.333	1.4	0.00	78.0 ± 90.1
G823-5	6	2	4	30	1.059E+05	2.119E+05	0.500	2.0	0.59	116.6 ± 101.1
G823-5	7	7	14	28	3.973E+05	7.945E+05	0.500	7.3	0.25	116.6 ± 54.1
G823-5	9	0	3	30	0.000E+00	1.589E+05	0.000	1.5	0.00	0.0 ± 195.7
G823-5	10	28	64	30	1.483E+06	3.390E+06	0.438	31.2	0.00	102.2 ± 23.3
G823-5	11	41	90	20	3.258E+06	7.151E+06	0.456	65.9	0.07	106.4 ± 20.2
G823-5	12	5	16	10	7.945E+05	2.543E+06	0.313	23.4	0.01	73.1 ± 37.5
G823-5	13	12	41	18	1.059E+06	3.620E+06	0.293	33.3	0.24	68.5 ± 22.6
G823-5	14	5	9	10	7.945E+05	1.430E+06	0.556	13.2	0.02	129.5 ± 72.3
G823-5	15	13	34	15	1.377E+06	3.602E+06	0.382	33.2	0.01	89.4 ± 29.2
G823-5	16	24	70	20	1.907E+06	5.562E+06	0.343	51.2	0.33	80.2 ± 19.1
G823-5	17	7	9	9	1.236E+06	1.589E+06	0.778	14.6	0.29	180.5 ± 91.1
G823-5	18	8	10	20	6.356E+05	7.945E+05	0.800	7.3	0.17	185.6 ± 88.2
G823-5	19	10	24	12	1.324E+06	3.178E+06	0.417	29.3	0.51	97.3 ± 36.7
G823-5	21	0	2	24	0.000E+00	1.324E+05	0.000	1.2	0.00	0.0 ± 384.8
G823-5	22	0	2	16	0.000E+00	1.986E+05	0.000	1.8	0.52	0.0 ± 384.8
G823-5	23	7	26	9	1.236E+06	4.591E+06	0.269	42.3	0.23	63.1 ± 26.9
G823-5	24	4	12	9	7.063E+05	2.119E+06	0.333	19.5	0.01	78.0 ± 45.1
		174	438		6.982E+05	1.758E+06		16.2		

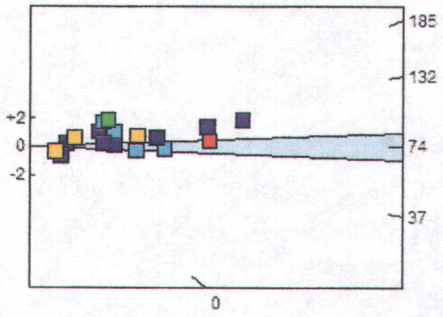
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 12.748 with 19 degrees of freedom
P(χ^2) =85.1%
Age Dispersion =0.040% (did not converge)

Ns / Ni = 0.397 ± 0.036
Mean Ratio = 0.335 ± 0.054

Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.238E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 92.8 ± 8.7 Ma
CENTRAL AGE = 92.8 ± 8.7 Ma

A:



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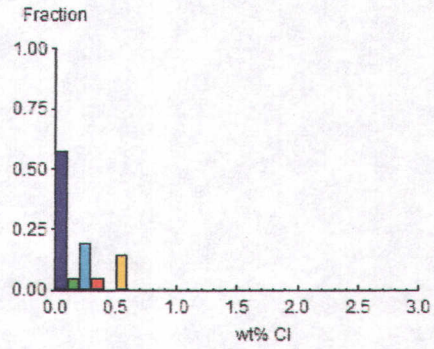

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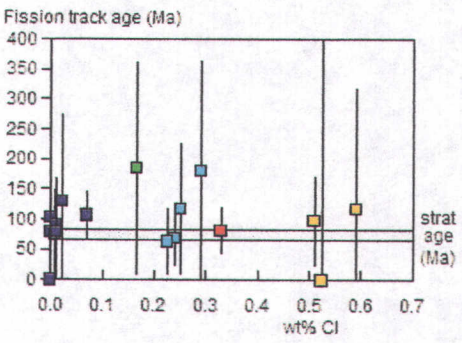
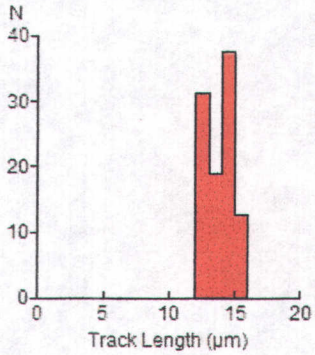


D:



Mean track length 13.82 ± 0.24 µm Std. Dev. 0.95 µm 16 tracks

GMC DATA REPORT 3 3 3

Amethyst-1 3000-3750'

GC763-32 Apatite
Counted by: COB

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-6	3	23	44	12	3.046E+06	5.827E+06	0.523	52.9	0.10	123.6 ± 32.0
G823-6	4	10	23	12	1.324E+06	3.046E+06	0.435	27.7	0.05	102.9 ± 39.1
G823-6	5	2	3	21	1.513E+05	2.270E+05	0.667	2.1	0.00	157.2 ± 143.5
G823-6	6	0	1	15	0.000E+00	1.059E+05	0.000	1.0	0.01	0.0 ± 1716.7
G823-6	7	19	35	25	1.208E+06	2.225E+06	0.543	20.2	0.51	128.3 ± 36.7
G823-6	8	9	18	15	9.534E+05	1.907E+06	0.500	17.3	0.00	118.2 ± 48.4
G823-6	9	7	10	8	1.390E+06	1.986E+06	0.700	18.0	0.01	164.9 ± 81.4
G823-6	11	16	41	12	2.119E+06	5.429E+06	0.390	49.3	0.20	92.5 ± 27.4
G823-6	12	0	10	9	0.000E+00	1.766E+06	0.000	16.0	0.00	0.0 ± 41.4
G823-6	13	6	7	4	2.384E+06	2.781E+06	0.857	25.3	0.24	201.4 ± 112.2
G823-6	14	2	2	5	6.356E+05	6.356E+05	1.000	5.8	0.31	234.3 ± 234.4
G823-6	15	16	56	30	8.475E+05	2.966E+06	0.286	27.0	0.18	67.8 ± 19.3
G823-6	16	3	8	16	2.980E+05	7.945E+05	0.375	7.2	0.00	88.9 ± 60.2
G823-6	17	3	6	18	2.648E+05	5.297E+05	0.500	4.8	0.35	118.2 ± 83.7
G823-6	18	0	1	20	0.000E+00	7.945E+04	0.000	0.7	0.02	0.0 ± 1716.7
		116	265		8.303E+05	1.897E+06		17.2		

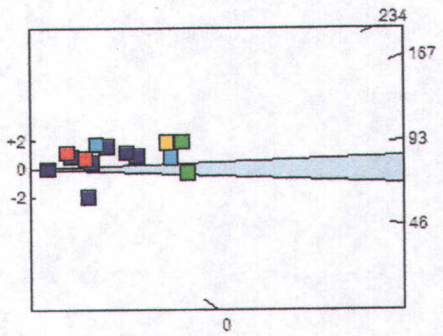
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 12.325 with 14 degrees of freedom
P(χ^2) =58.0%
Age Dispersion =3.130% (did not converge)

Ns / Ni = 0.438 ± 0.049
Mean Ratio = 0.452 ± 0.077

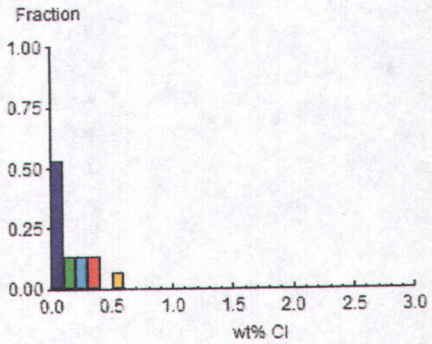
Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.255E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 103.6 ± 11.9 Ma
CENTRAL AGE = 103.7 ± 11.9 Ma

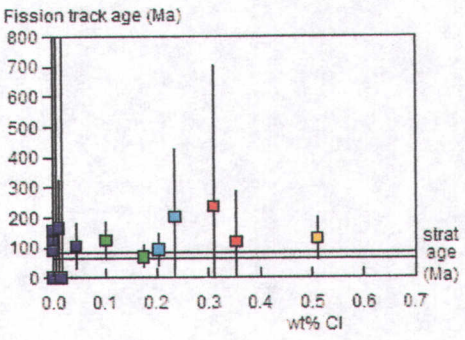
A:



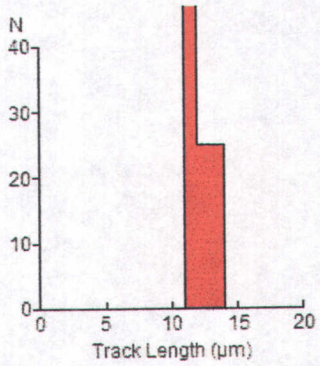
B:



C:



D:



Mean track length 12.31 ± 0.49 µm Std. Dev. 0.98 µm 4 tracks

GMC DATA REPORT 3 3 3

GC763-33 Apatite
Counted by: COB

Amethyst-1 5450-6200'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-7	3	2	18	18	1.766E+05	1.589E+06	0.111	14.2	0.04	26.8 ± 20.0
G823-7	4	4	42	20	3.178E+05	3.337E+06	0.095	29.9	0.04	23.0 ± 12.0
G823-7	5	1	23	13	1.222E+05	2.811E+06	0.043	25.2	0.08	10.5 ± 10.7
G823-7	6	4	8	9	7.063E+05	1.413E+06	0.500	12.7	0.49	119.8 ± 73.4
G823-7	7	10	20	12	1.324E+06	2.648E+06	0.500	23.7	0.06	119.8 ± 46.5
G823-7	8	2	12	20	1.589E+05	9.534E+05	0.167	8.5	0.26	40.2 ± 30.7
G823-7	9	4	17	9	7.063E+05	3.002E+06	0.235	26.9	0.00	56.7 ± 31.5
G823-7	10	7	28	15	7.416E+05	2.966E+06	0.250	26.6	0.03	60.2 ± 25.5
G823-7	11	1	9	15	1.059E+05	9.534E+05	0.111	8.5	0.27	26.8 ± 28.3
G823-7	12	8	32	32	3.973E+05	1.589E+06	0.250	14.2	0.09	60.2 ± 23.8
G823-7	13	11	39	70	2.497E+05	8.853E+05	0.282	7.9	0.30	67.9 ± 23.2
G823-7	14	4	18	16	3.973E+05	1.788E+06	0.222	16.0	0.09	53.5 ± 29.6
G823-7	15	9	39	40	3.575E+05	1.549E+06	0.231	13.9	0.69	55.6 ± 20.6
G823-7	17	2	6	25	1.271E+05	3.814E+05	0.333	3.4	0.73	80.1 ± 65.5
G823-7	18	2	7	25	1.271E+05	4.449E+05	0.286	4.0	0.34	68.7 ± 55.1
G823-7	20	6	27	32	2.980E+05	1.341E+06	0.222	12.0	0.32	53.5 ± 24.2
G823-7	21	3	22	9	5.297E+05	3.884E+06	0.136	34.8	0.37	32.9 ± 20.3
G823-7	23	6	45	15	6.356E+05	4.767E+06	0.133	42.7	0.00	32.2 ± 14.0
G823-7	24	34	120	15	3.602E+06	1.271E+07	0.283	114.0	0.08	68.2 ± 13.4
G823-7	29	2	5	27	1.177E+05	2.943E+05	0.400	2.6	0.23	96.0 ± 80.4
		122	537		4.436E+05	1.953E+06		17.5		

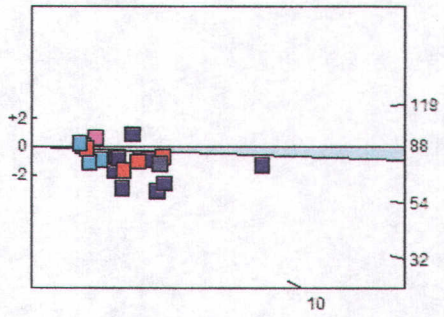
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 18.773 with 19 degrees of freedom
P(χ^2) =47.2%
Age Dispersion =11.894% (did not converge)

Ns / Ni = 0.227 ± 0.023
Mean Ratio = 0.240 ± 0.028

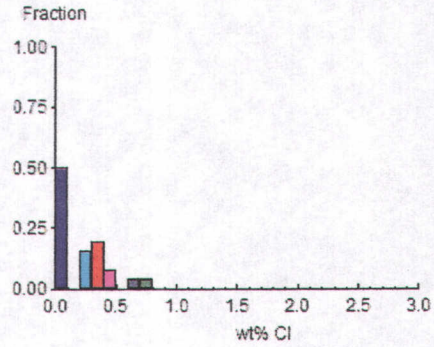
Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.272E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 54.7 ± 5.7 Ma
CENTRAL AGE = 54.2 ± 6.0 Ma

A:



B:



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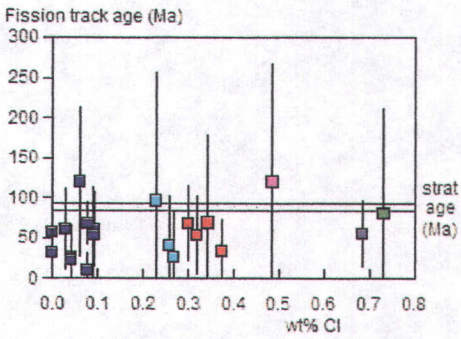
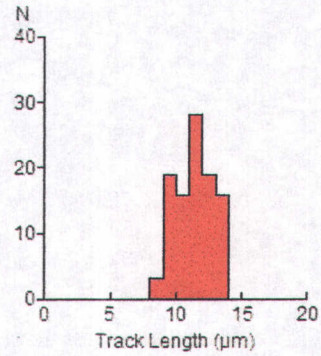


D:



Mean track length 11.28 ± 0.24 µm Std. Dev. 1.38 µm 32 tracks

GMC DATA REPORT 3 3 3

GC763-34 Apatite
Counted by: COB

Amethyst-1 8000-8750'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-8	3	6	35	24	3.973E+05	2.317E+06	0.171	20.5	0.19	41.9 ± 18.5
G823-8	4	2	7	16	1.986E+05	6.952E+05	0.286	6.1	0.97	69.7 ± 55.9
G823-8	5	2	11	20	1.589E+05	8.740E+05	0.182	7.7	0.37	44.4 ± 34.2
G823-8	6	7	37	35	3.178E+05	1.680E+06	0.189	14.9	0.47	46.2 ± 19.1
G823-8	7	3	31	30	1.589E+05	1.642E+06	0.097	14.5	0.40	23.7 ± 14.3
G823-8	8	18	65	21	1.362E+06	4.919E+06	0.277	43.5	1.06	67.5 ± 18.1
G823-8	9	7	31	48	2.317E+05	1.026E+06	0.226	9.1	0.43	55.1 ± 23.1
G823-8	10	0	4	20	0.000E+00	3.178E+05	0.000	2.8	0.15	0.0 ± 133.8
G823-8	11	2	3	16	1.986E+05	2.980E+05	0.667	2.6	0.62	161.4 ± 147.4
G823-8	12	6	44	45	2.119E+05	1.554E+06	0.136	13.7	0.22	33.3 ± 14.5
G823-8	13	1	5	24	6.621E+04	3.311E+05	0.200	2.9	1.12	48.8 ± 53.5
G823-8	14	4	34	24	2.648E+05	2.251E+06	0.118	19.9	0.16	28.8 ± 15.2
G823-8	15	11	12	21	8.324E+05	9.080E+05	0.917	8.0	0.20	220.9 ± 92.4
G823-8	16	2	10	60	5.297E+04	2.648E+05	0.200	2.3	0.56	48.8 ± 37.9
G823-8	17	5	84	40	1.986E+05	3.337E+06	0.060	29.5	0.21	14.6 ± 6.7
G823-8	18	8	26	25	5.085E+05	1.653E+06	0.308	14.6	0.17	75.0 ± 30.4
G823-8	19	2	42	24	1.324E+05	2.781E+06	0.048	24.6	0.08	11.7 ± 8.4
G823-8	20	6	13	40	2.384E+05	5.164E+05	0.462	4.6	0.52	112.2 ± 55.4
G823-8	21	3	9	18	2.648E+05	7.945E+05	0.333	7.0	0.72	81.2 ± 54.2
G823-8	22	3	36	24	1.986E+05	2.384E+06	0.083	21.1	0.23	20.4 ± 12.3
		98	539		2.708E+05	1.490E+06		13.2		

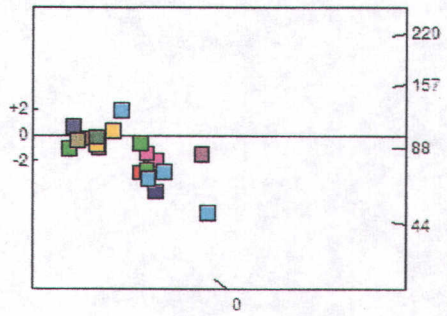
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 45.755 with 19 degrees of freedom
P(χ^2) =0.1%
Age Dispersion =53.844%

Ns / Ni = 0.182 ± 0.020
Mean Ratio = 0.248 ± 0.049

Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.289E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 44.4 ± 5.0 Ma
CENTRAL AGE = 49.2 ± 8.5 Ma

A:



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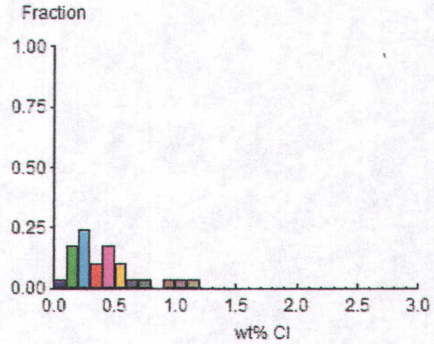

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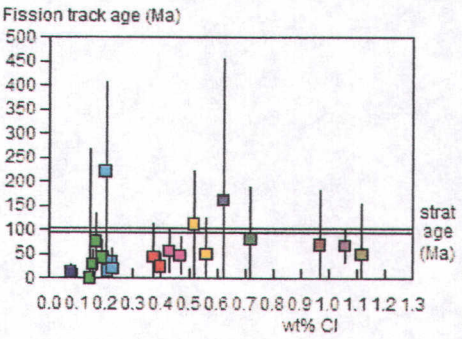
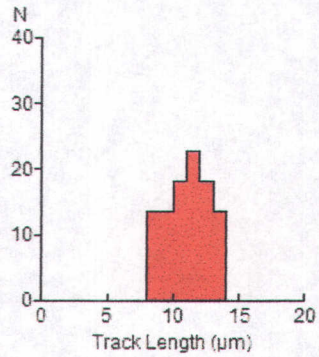


D:



Mean track length 11.07 ± 0.34 µm Std. Dev. 1.59 µm 22 tracks

GMC DATA REPORT 3 3 3

GC763-35 Apatite
Counted by: COB

Amethyst-1 10000-10750'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G823-9	3	1	8	20	7.945E+04	6.356E+05	0.125	5.5	0.00	31.0 ± 32.9
G823-9	4	1	8	30	5.297E+04	4.238E+05	0.125	3.7	0.92	31.0 ± 32.9
G823-9	5	2	22	32	9.932E+04	1.092E+06	0.091	9.5	1.29	22.5 ± 16.7
G823-9	6	2	32	40	7.945E+04	1.271E+06	0.063	11.1	0.42	15.5 ± 11.3
G823-9	7	0	7	20	0.000E+00	5.562E+05	0.000	4.9	0.62	0.0 ± 65.7
G823-9	8	1	4	24	6.621E+04	2.648E+05	0.250	2.3	0.12	61.8 ± 69.1
G823-9	9	0	38	35	0.000E+00	1.725E+06	0.000	15.1	0.04	0.0 ± 10.2
G823-9	10	3	59	40	1.192E+05	2.344E+06	0.051	20.5	0.11	12.6 ± 7.5
G823-9	11	1	74	40	3.973E+04	2.940E+06	0.014	25.7	0.08	3.4 ± 3.4
G823-9	12	5	44	40	1.986E+05	1.748E+06	0.114	15.3	0.39	28.2 ± 13.3
G823-9	13	5	66	40	1.986E+05	2.622E+06	0.076	22.9	1.36	18.8 ± 8.7
G823-9	14	0	12	24	0.000E+00	7.945E+05	0.000	6.9	0.37	0.0 ± 35.0
G823-9	16	3	13	45	1.059E+05	4.591E+05	0.231	4.0	1.26	57.1 ± 36.6
G823-9	17	0	55	35	0.000E+00	2.497E+06	0.000	21.8	0.13	0.0 ± 6.9
G823-9	18	1	12	20	7.945E+04	9.534E+05	0.083	8.3	0.08	20.7 ± 21.5
G823-9	19	0	16	30	0.000E+00	8.475E+05	0.000	7.4	0.00	0.0 ± 25.5
G823-9	20	4	133	24	2.648E+05	8.806E+06	0.030	76.9	0.00	7.5 ± 3.8
G823-9	21	3	46	9	5.297E+05	8.122E+06	0.065	70.9	0.02	16.2 ± 9.6
G823-9	24	0	86	42	0.000E+00	3.254E+06	0.000	28.4	0.16	0.0 ± 4.4
G823-9	27	0	45	36	0.000E+00	1.986E+06	0.000	17.3	0.09	0.0 ± 8.5
		32	780		8.123E+04	1.980E+06		17.3		

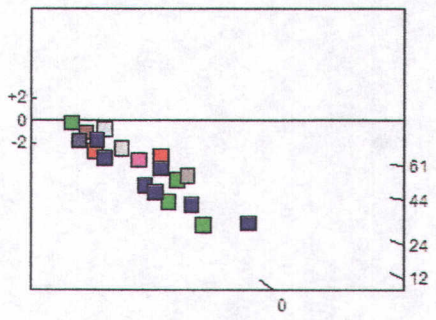
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 37.145 with 19 degrees of freedom
P(χ^2) =0.8%
Age Dispersion =60.253%

Ns / Ni = 0.041 ± 0.007
Mean Ratio = 0.066 ± 0.017

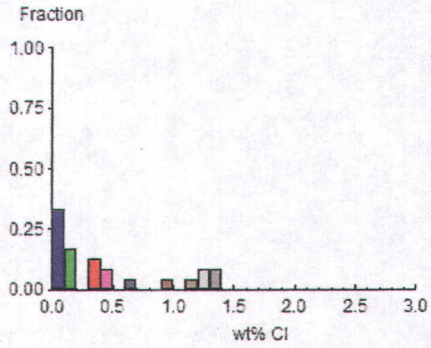
Ages calculated using a zeta of 380.4 ± 5.7 for CN5 glass
ρ_D = 1.306E+06cm^{-2} ND =1974
ρ_D interpolated between top of can; ρ_D = 1.170E+06cm^{-2} ND =920
bottom of can; ρ_D = 1.340E+06cm^{-2} ND =1054

POOLED AGE = 10.2 ± 1.9 Ma
CENTRAL AGE = 11.4 ± 2.7 Ma

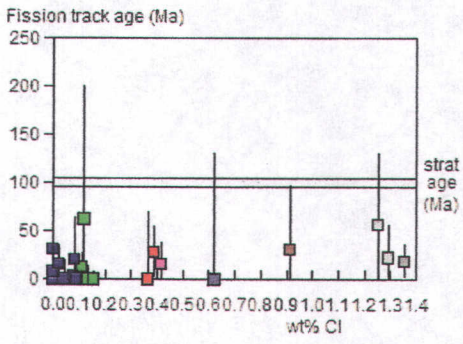
A:



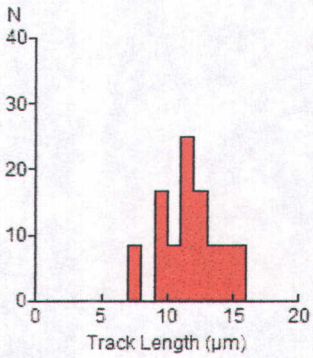
B:



C:



D:



Mean track length 11.56 ± 0.63 µm Std. Dev. 2.18 µm 12 tracks

GMC DATA REPORT 3 3 3

GC763-98 Apatite
Counted by: HJG

Awuna-1 1800-2550'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-1	5	24	89	14	2.724E+06	1.010E+07	0.270	85.4	0.11	70.0 ± 16.2
G824-1	6	0	7	30	0.000E+00	3.708E+05	0.000	3.1	0.36	0.0 ± 68.9
G824-1	8	2	10	24	1.324E+05	6.621E+05	0.200	5.6	0.20	52.0 ± 40.3
G824-1	9	3	5	30	1.589E+05	2.648E+05	0.600	2.2	0.72	154.7 ± 113.0
G824-1	10	1	4	20	7.945E+04	3.178E+05	0.250	2.7	0.60	64.9 ± 72.6
G824-1	12	3	20	24	1.986E+05	1.324E+06	0.150	11.2	0.35	39.0 ± 24.2
G824-1	14	3	15	16	2.980E+05	1.490E+06	0.200	12.6	0.00	52.0 ± 32.9
G824-1	16	0	6	24	0.000E+00	3.973E+05	0.000	3.4	0.36	0.0 ± 83.4
G824-1	17	0	5	20	0.000E+00	3.973E+05	0.000	3.4	0.30	0.0 ± 105.3
G824-1	19	7	9	42	2.648E+05	3.405E+05	0.778	2.9	0.12	199.8 ± 100.8
G824-1	20	13	53	16	1.291E+06	5.264E+06	0.245	44.5	0.03	63.7 ± 19.8
G824-1	21	2	27	36	8.828E+04	1.192E+06	0.074	10.1	0.00	19.3 ± 14.2
G824-1	22	8	22	20	6.356E+05	1.748E+06	0.364	14.8	0.15	94.2 ± 39.0
G824-1	23	2	10	12	2.648E+05	1.324E+06	0.200	11.2	0.05	52.0 ± 40.3
G824-1	24	3	14	50	9.534E+04	4.449E+05	0.214	3.8	0.16	55.7 ± 35.5
G824-1	25	2	14	25	1.271E+05	8.899E+05	0.143	7.5	0.02	37.2 ± 28.1
G824-1	27	3	10	24	1.986E+05	6.621E+05	0.300	5.6	0.01	77.8 ± 51.3
G824-1	29	19	67	24	1.258E+06	4.436E+06	0.284	37.5	0.18	73.6 ± 19.2
G824-1	30	33	82	50	1.049E+06	2.606E+06	0.402	22.0	0.36	104.2 ± 21.7
G824-1	33	7	13	40	2.781E+05	5.164E+05	0.538	4.4	0.83	139.0 ± 65.3
		135	482		3.965E+05	1.416E+06		12.0		

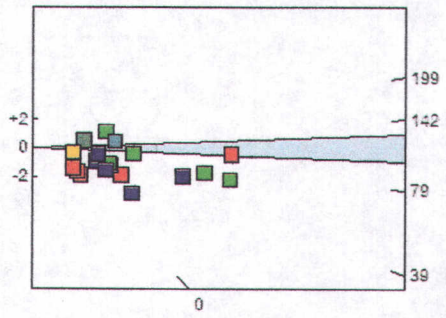
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 22.966 with 19 degrees of freedom
P(χ^2) =23.9%
Age Dispersion =14.310% (did not converge)

Ns / Ni = 0.280 ± 0.027
Mean Ratio = 0.261 ± 0.045

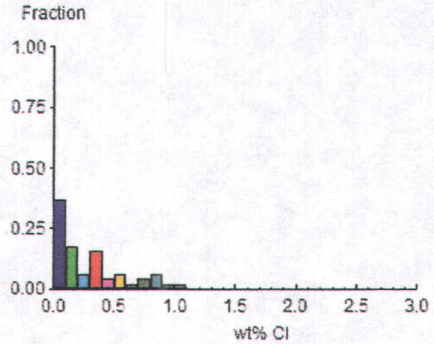
Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.349E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 72.7 ± 7.3 Ma
CENTRAL AGE = 71.4 ± 8.0 Ma

A:



B:



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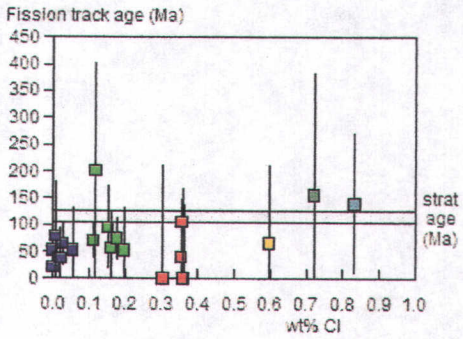
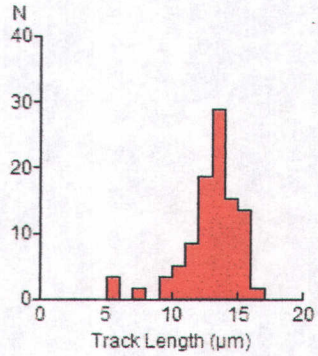


D:



Mean track length 12.92 ± 0.29 µm Std. Dev. 2.23 µm 59 tracks

GMC DATA REPORT 3 3 3

GC763-99 Apatite
Counted by: HJG

Awuna-1 3000-3750'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-2	4	3	11	50	9.534E+04	3.496E+05	0.273	2.9	0.45	71.8 ± 46.8
G824-2	6	7	22	16	6.952E+05	2.185E+06	0.318	18.2	0.35	83.7 ± 36.4
G824-2	8	3	26	60	7.945E+04	6.886E+05	0.115	5.7	0.00	30.5 ± 18.6
G824-2	10	12	59	60	3.178E+05	1.563E+06	0.203	13.0	1.01	53.6 ± 17.0
G824-2	12	5	12	21	3.783E+05	9.080E+05	0.417	7.6	0.00	109.3 ± 58.3
G824-2	13	9	25	20	7.151E+05	1.986E+06	0.360	16.6	0.09	94.6 ± 36.9
G824-2	16	17	91	40	6.754E+05	3.615E+06	0.187	30.1	0.36	49.2 ± 13.1
G824-2	23	2	25	80	3.973E+04	4.966E+05	0.080	4.1	0.37	21.1 ± 15.5
G824-2	27	15	91	28	8.513E+05	5.164E+06	0.165	43.0	0.06	43.5 ± 12.2
G824-2	28	2	8	30	1.059E+05	4.238E+05	0.250	3.5	0.05	65.8 ± 52.1
G824-2	30	14	84	50	4.449E+05	2.670E+06	0.167	22.2	0.08	44.0 ± 12.7
G824-2	31	3	27	25	1.907E+05	1.716E+06	0.111	14.3	0.03	29.3 ± 17.9
G824-2	33	5	24	20	3.973E+05	1.907E+06	0.208	15.9	0.12	54.9 ± 27.0
G824-2	35	5	23	20	3.973E+05	1.827E+06	0.217	15.2	0.00	57.3 ± 28.3
G824-2	38	9	49	16	8.939E+05	4.867E+06	0.184	40.6	0.00	48.4 ± 17.6
G824-2	39	4	32	28	2.270E+05	1.816E+06	0.125	15.1	0.01	33.0 ± 17.5
G824-2	41	12	26	20	9.534E+05	2.066E+06	0.462	17.2	0.88	121.0 ± 42.4
G824-2	43	4	21	50	1.271E+05	6.674E+05	0.190	5.6	0.69	50.2 ± 27.4
G824-2	44	2	9	40	7.945E+04	3.575E+05	0.222	3.0	0.00	58.5 ± 45.8
G824-2	45	2	7	50	6.356E+04	2.225E+05	0.286	1.9	0.17	75.2 ± 60.3
		135	672		2.963E+05	1.475E+06		12.3		

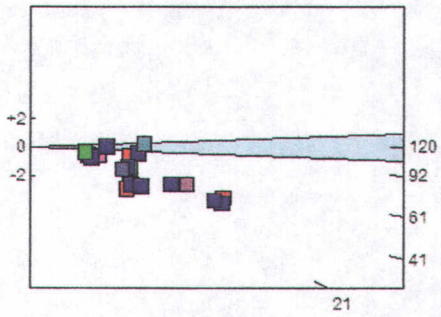
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 17.376 with 19 degrees of freedom
P(χ^2) =56.4%
Age Dispersion =1.706% (did not converge)

Ns / Ni = 0.201 ± 0.019
Mean Ratio = 0.227 ± 0.023

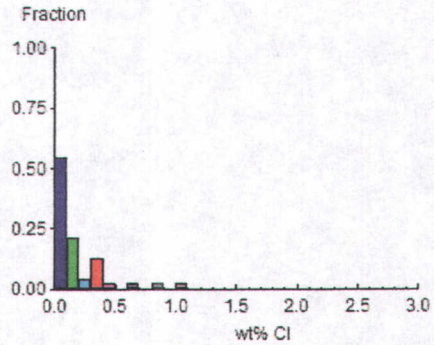
Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.368E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 52.9 ± 5.2 Ma
CENTRAL AGE = 53.0 ± 5.2 Ma

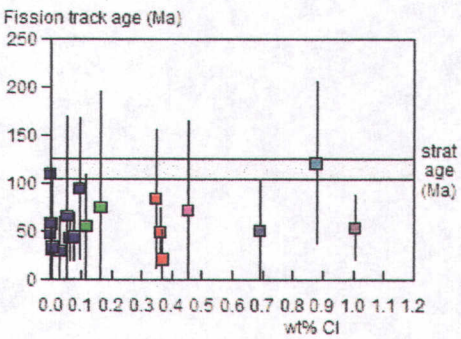
A:



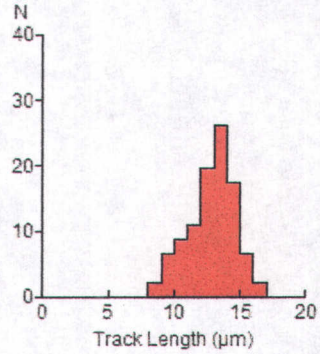
B:



C:



D:



Mean track length 12.91 ± 0.27 µm Std. Dev. 1.80 µm 46 tracks

GMC DATA REPORT 3 3 3

GC763-100 Apatite
Counted by: HJG

Awuna-1 5750-6500'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-3	3	3	30	25	1.907E+05	1.907E+06	0.100	15.7	0.12	26.8 ± 16.2
G824-3	4	8	84	16	7.945E+05	8.343E+06	0.095	68.6	0.05	25.5 ± 9.5
G824-3	8	6	57	20	4.767E+05	4.529E+06	0.105	37.2	0.03	28.2 ± 12.1
G824-3	9	0	5	25	0.000E+00	3.178E+05	0.000	2.6	0.48	0.0 ± 108.3
G824-3	10	0	6	16	0.000E+00	5.959E+05	0.000	4.9	0.22	0.0 ± 85.7
G824-3	12	13	82	30	6.886E+05	4.343E+06	0.159	35.7	0.10	42.4 ± 12.7
G824-3	13	1	2	24	6.621E+04	1.324E+05	0.500	1.1	1.02	132.8 ± 162.7
G824-3	14	6	43	9	1.059E+06	7.592E+06	0.140	62.4	0.42	37.3 ± 16.3
G824-3	18	0	7	16	0.000E+00	6.952E+05	0.000	5.7	0.27	0.0 ± 70.9
G824-3	19	2	19	18	1.766E+05	1.677E+06	0.105	13.8	0.16	28.2 ± 21.0
G824-3	20	0	6	16	0.000E+00	5.959E+05	0.000	4.9	0.85	0.0 ± 85.7
G824-3	21	5	33	20	3.973E+05	2.622E+06	0.152	21.5	0.00	40.5 ± 19.5
G824-3	24	0	10	30	0.000E+00	5.297E+05	0.000	4.4	0.49	0.0 ± 46.5
G824-3	30	1	12	24	6.621E+04	7.945E+05	0.083	6.5	0.00	22.3 ± 23.2
G824-3	31	0	7	16	0.000E+00	6.952E+05	0.000	5.7	0.46	0.0 ± 70.9
G824-3	34	0	2	9	0.000E+00	3.531E+05	0.000	2.9	0.02	0.0 ± 435.1
G824-3	35	15	103	20	1.192E+06	8.184E+06	0.146	67.3	0.42	39.0 ± 10.8
G824-3	36	0	5	24	0.000E+00	3.311E+05	0.000	2.7	0.53	0.0 ± 108.3
G824-3	40	2	5	10	3.178E+05	7.945E+05	0.400	6.5	0.00	106.5 ± 89.1
G824-3	44	1	6	16	9.932E+04	5.959E+05	0.167	4.9	0.19	44.6 ± 48.2
		63	524		2.607E+05	2.168E+06		17.8		

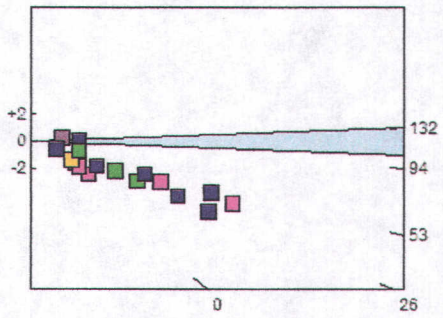
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 12.229 with 19 degrees of freedom
P(χ^2) =87.6%
Age Dispersion =0.031% (did not converge)

Ns / Ni = 0.120 ± 0.016
Mean Ratio = 0.108 ± 0.030

Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.387E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 32.2 ± 4.4 Ma
CENTRAL AGE = 32.2 ± 4.4 Ma

A:



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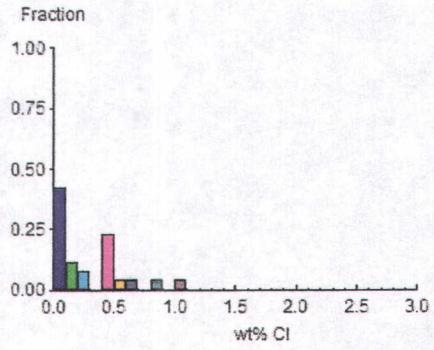

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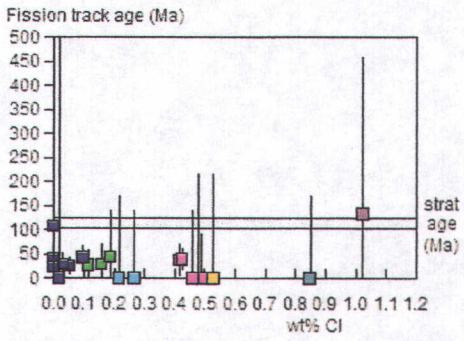

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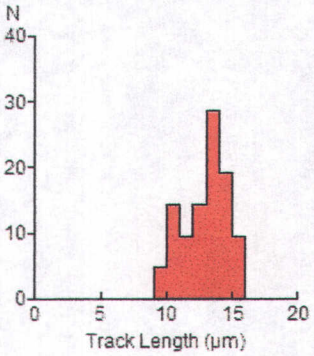


Mean track length 12.97 ± 0.37 µm Std. Dev. 1.69 µm 21 tracks

GMC DATA REPORT 3 3 3

GC763-101 Apatite
Counted by: HJG

Awuna-1 8300-8900'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-4	3	10	11	30	5.297E+05	5.827E+05	0.909	4.7	0.01	242.7 ± 106.2
G824-4	4	1	27	16	9.932E+04	2.682E+06	0.037	21.7	0.63	10.1 ± 10.3
G824-4	5	62	85	14	7.037E+06	9.648E+06	0.729	78.2	0.00	195.4 ± 33.1
G824-4	6	2	7	18	1.766E+05	6.180E+05	0.286	5.0	0.00	77.3 ± 62.0
G824-4	7	1	44	15	1.059E+05	4.661E+06	0.023	37.8	0.12	6.2 ± 6.3
G824-4	11	1	6	9	1.766E+05	1.059E+06	0.167	8.6	0.00	45.2 ± 48.8
G824-4	12	21	20	25	1.335E+06	1.271E+06	1.050	10.3	0.01	279.5 ± 87.7
G824-4	13	0	9	40	0.000E+00	3.575E+05	0.000	2.9	0.00	0.0 ± 53.3
G824-4	17	2	21	24	1.324E+05	1.390E+06	0.095	11.3	0.08	25.9 ± 19.1
G824-4	18	7	81	16	6.952E+05	8.045E+06	0.086	65.2	0.68	23.5 ± 9.3
G824-4	20	1	18	15	1.059E+05	1.907E+06	0.056	15.5	0.19	15.1 ± 15.5
G824-4	21	0	9	15	0.000E+00	9.534E+05	0.000	7.7	0.22	0.0 ± 53.3
G824-4	22	0	5	16	0.000E+00	4.966E+05	0.000	4.0	0.14	0.0 ± 109.7
G824-4	25	2	10	20	1.589E+05	7.945E+05	0.200	6.4	0.01	54.2 ± 42.0
G824-4	28	0	4	40	0.000E+00	1.589E+05	0.000	1.3	0.00	0.0 ± 148.2
G824-4	29	0	5	15	0.000E+00	5.297E+05	0.000	4.3	0.00	0.0 ± 109.7
		110	362		5.329E+05	1.754E+06		14.2		

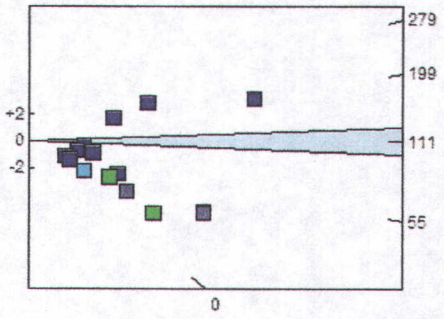
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 99.553 with 15 degrees of freedom
P(χ^2) =0.0%
Age Dispersion =127.121%

Ns / Ni = 0.304 ± 0.033
Mean Ratio = 0.227 ± 0.087

Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.406E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 82.1 ± 9.2 Ma
CENTRAL AGE = 49.4 ± 17.9 Ma

A:



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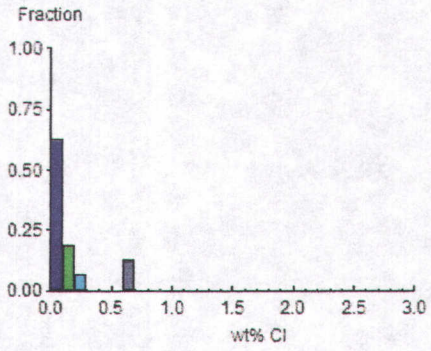

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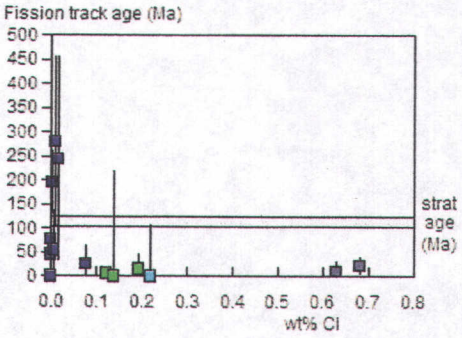

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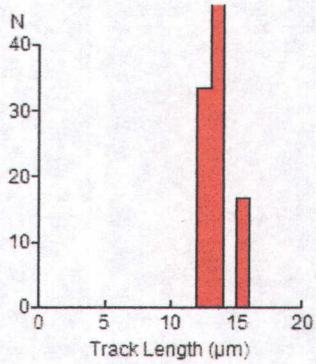


Mean track length 13.47 ± 0.44 µm Std. Dev. 1.09 µm 6 tracks

GMC DATA REPORT 3 3 3

GC763-102 Apatite
Counted by: HJG

Susie Unit-1 1300-2000'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-5	8	3	9	30	1.589E+05	4.767E+05	0.333	3.8	0.30	91.3 ± 60.9
G824-5	9	58	66	20	4.608E+06	5.244E+06	0.879	41.9	0.08	237.9 ± 43.3
G824-5	10	6	41	60	1.589E+05	1.086E+06	0.146	8.7	0.00	40.2 ± 17.6
G824-5	12	0	4	32	0.000E+00	1.986E+05	0.000	1.6	0.02	0.0 ± 150.1
G824-5	13	1	17	30	5.297E+04	9.005E+05	0.059	7.2	0.16	16.2 ± 16.7
G824-5	14	7	38	24	4.635E+05	2.516E+06	0.184	20.1	0.00	50.6 ± 20.9
G824-5	15	0	1	30	0.000E+00	5.297E+04	0.000	0.4	0.00	0.0 ± 1917.3
G824-5	17	15	31	50	4.767E+05	9.852E+05	0.484	7.9	0.11	132.1 ± 41.7
G824-5	18	5	10	50	1.589E+05	3.178E+05	0.500	2.5	0.99	136.4 ± 74.8
G824-5	19	0	3	36	0.000E+00	1.324E+05	0.000	1.1	0.00	0.0 ± 228.1
G824-5	20	1	4	25	6.356E+04	2.543E+05	0.250	2.0	0.50	68.6 ± 76.7
G824-5	21	1	2	30	5.297E+04	1.059E+05	0.500	0.8	0.00	136.4 ± 167.1
G824-5	22	0	4	12	0.000E+00	5.297E+05	0.000	4.2	0.30	0.0 ± 150.1
G824-5	23	4	12	30	2.119E+05	6.356E+05	0.333	5.1	0.92	91.3 ± 52.8
G824-5	27	22	91	30	1.165E+06	4.820E+06	0.242	38.5	0.09	66.3 ± 15.9
G824-5	28	1	8	30	5.297E+04	4.238E+05	0.125	3.4	0.32	34.4 ± 36.5
G824-5	30	0	2	36	0.000E+00	8.828E+04	0.000	0.7	0.00	0.0 ± 446.3
G824-5	32	0	2	28	0.000E+00	1.135E+05	0.000	0.9	0.00	0.0 ± 446.3
G824-5	33	2	19	36	8.828E+04	8.387E+05	0.105	6.7	0.07	29.0 ± 21.5
G824-5	35	0	7	25	0.000E+00	4.449E+05	0.000	3.6	0.23	0.0 ± 72.8
		126	371		3.109E+05	9.154E+05		7.3		

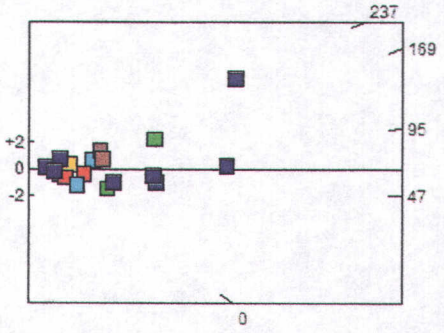
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 55.598 with 19 degrees of freedom
P(χ^2) =0.0%
Age Dispersion =70.098%

Ns / Ni = 0.340 ± 0.035
Mean Ratio = 0.207 ± 0.053

Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.425E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 93.0 ± 9.9 Ma
CENTRAL AGE = 65.2 ± 15.0 Ma

A:



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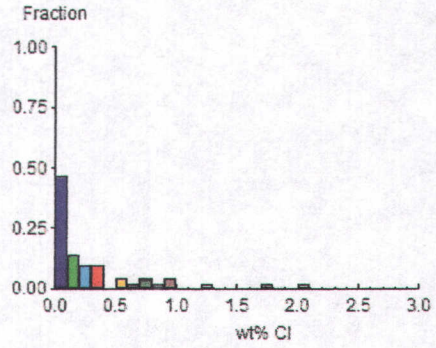

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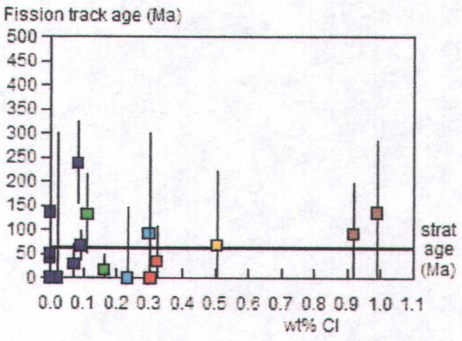

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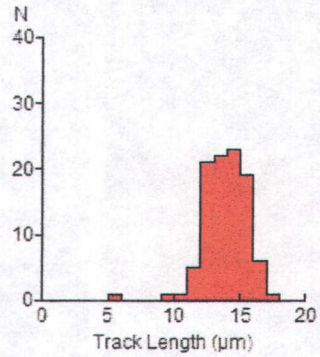


Mean track length 13.83 ± 0.17 µm Std. Dev. 1.71 µm 100 tracks

GMC DATA REPORT 3 3 3

GC763-103 Apatite
Counted by: HJG

Susie Unit-1 3100-3850'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-6	3	3	35	20	2.384E+05	2.781E+06	0.086	21.9	0.00	23.9 ± 14.4
G824-6	4	5	8	42	1.892E+05	3.027E+05	0.625	2.4	0.00	172.3 ± 98.4
G824-6	7	1	4	21	7.567E+04	3.027E+05	0.250	2.4	0.49	69.5 ± 77.7
G824-6	9	0	1	25	0.000E+00	6.356E+04	0.000	0.5	0.00	0.0 ±1936.7
G824-6	10	3	20	20	2.384E+05	1.589E+06	0.150	12.5	0.05	41.8 ± 25.9
G824-6	11	1	2	15	1.059E+05	2.119E+05	0.500	1.7	0.03	138.2 ± 169.3
G824-6	13	7	23	15	7.416E+05	2.437E+06	0.304	19.2	0.25	84.5 ± 36.5
G824-6	15	1	4	21	7.567E+04	3.027E+05	0.250	2.4	0.00	69.5 ± 77.7
G824-6	16	9	34	16	8.939E+05	3.377E+06	0.265	26.6	0.11	73.6 ± 27.6
G824-6	17	3	8	40	1.192E+05	3.178E+05	0.375	2.5	0.30	104.0 ± 70.4
G824-6	19	0	7	24	0.000E+00	4.635E+05	0.000	3.7	0.35	0.0 ± 73.8
G824-6	20	2	22	50	6.356E+04	6.992E+05	0.091	5.5	0.00	25.4 ± 18.7
G824-6	21	12	73	50	3.814E+05	2.320E+06	0.164	18.3	0.02	45.8 ± 14.3
G824-6	26	1	6	40	3.973E+04	2.384E+05	0.167	1.9	0.00	46.4 ± 50.1
G824-6	27	0	6	40	0.000E+00	2.384E+05	0.000	1.9	0.00	0.0 ± 89.2
G824-6	31	0	2	24	0.000E+00	1.324E+05	0.000	1.0	0.00	0.0 ± 451.9
G824-6	32	0	3	24	0.000E+00	1.986E+05	0.000	1.6	0.09	0.0 ± 231.1
G824-6	34	17	143	30	9.005E+05	7.575E+06	0.119	59.8	0.37	33.1 ± 8.5
G824-6	42	14	93	50	4.449E+05	2.956E+06	0.151	23.3	0.13	41.9 ± 12.1
G824-6	44	0	1	30	0.000E+00	5.297E+04	0.000	0.4	0.00	0.0 ±1936.7
		79	495		2.103E+05	1.318E+06		10.4		

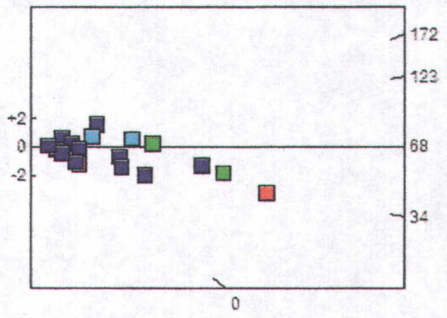
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 20.125 with 19 degrees of freedom
P(χ^2) =38.7%
Age Dispersion =9.259% (did not converge)

Ns / Ni = 0.160 ± 0.019
Mean Ratio = 0.175 ± 0.039

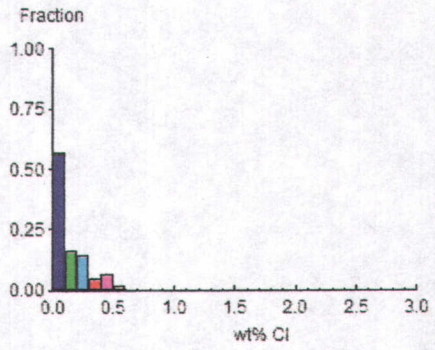
Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.445E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 44.4 ± 5.5 Ma
CENTRAL AGE = 44.9 ± 5.8 Ma

A:



B:



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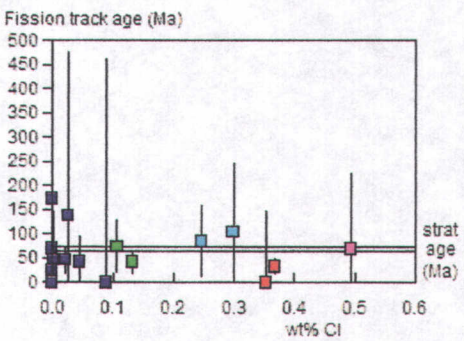
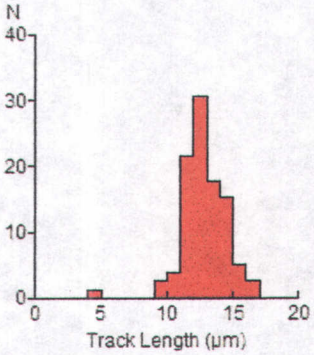


D:



Mean track length 12.77 ± 0.19 µm Std. Dev. 1.72 µm 79 tracks

GMC DATA REPORT 3 3 3

GC763-104 Apatite

Susie Unit-1 5900-6600'

Counted by: HJG

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-7	11	2	7	40	7.945E+04	2.781E+05	0.286	2.2	0.33	80.4 ± 64.5
G824-7	12	3	12	35	1.362E+05	5.448E+05	0.250	4.2	0.26	70.4 ± 45.5
G824-7	13	2	14	25	1.271E+05	8.899E+05	0.143	6.9	0.22	40.3 ± 30.5
G824-7	15	2	28	20	1.589E+05	2.225E+06	0.071	17.3	0.09	20.2 ± 14.8
G824-7	18	5	15	70	1.135E+05	3.405E+05	0.333	2.7	1.74	93.7 ± 48.5
G824-7	21	0	7	36	0.000E+00	3.090E+05	0.000	2.4	0.49	0.0 ± 74.7
G824-7	22	8	45	15	8.475E+05	4.767E+06	0.178	37.1	0.04	50.1 ± 19.3
G824-7	25	1	3	35	4.540E+04	1.362E+05	0.333	1.1	0.01	93.7 ± 108.2
G824-7	30	10	84	18	8.828E+05	7.416E+06	0.119	57.8	0.12	33.6 ± 11.3
G824-7	32	4	22	60	1.059E+05	5.827E+05	0.182	4.5	0.28	51.3 ± 27.9
G824-7	33	0	19	40	0.000E+00	7.548E+05	0.000	5.9	0.05	0.0 ± 24.1
G824-7	35	2	19	40	7.945E+04	7.548E+05	0.105	5.9	0.00	29.7 ± 22.1
G824-7	36	10	64	40	3.973E+05	2.543E+06	0.156	19.8	0.70	44.1 ± 15.0
G824-7	41	3	15	10	4.767E+05	2.384E+06	0.200	18.6	0.85	56.4 ± 35.7
G824-7	42	2	12	50	6.356E+04	3.814E+05	0.167	3.0	0.52	47.0 ± 35.9
G824-7	43	24	144	40	9.534E+05	5.721E+06	0.167	44.6	0.01	47.0 ± 10.4
G824-7	44	13	46	25	8.263E+05	2.924E+06	0.283	22.8	0.05	79.5 ± 25.1
G824-7	49	0	7	24	0.000E+00	4.635E+05	0.000	3.6	0.47	0.0 ± 74.7
G824-7	50	1	4	36	4.414E+04	1.766E+05	0.250	1.4	0.26	70.4 ± 78.7
G824-7	53	4	43	16	3.973E+05	4.271E+06	0.093	33.3	0.41	26.3 ± 13.8
		96	610		2.260E+05	1.436E+06		11.2		

Area of basic unit = 6.293E-07 cm^{-2}

χ^2 = 16.356 with 19 degrees of freedom

$P(\chi^2)$ =63.3%

Age Dispersion =1.605% (did not converge)

Ns / Ni = 0.157 ± 0.017

Mean Ratio = 0.166 ± 0.023

Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass

ρ_D = 1.464E+06cm^{-2} ND =2333

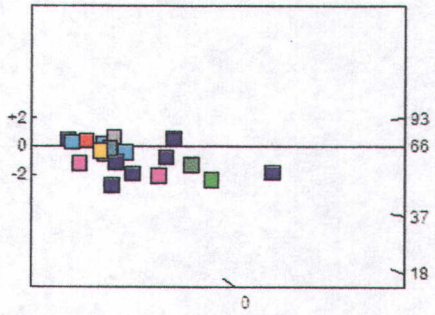
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061

bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 44.4 ± 5.0 Ma

CENTRAL AGE = 44.4 ± 5.0 Ma

A:



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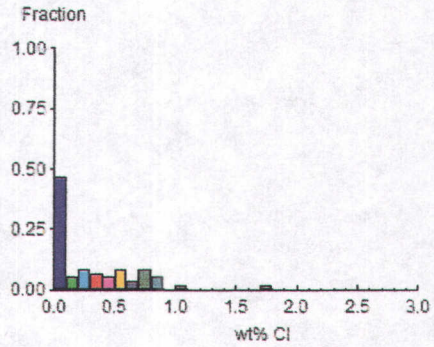

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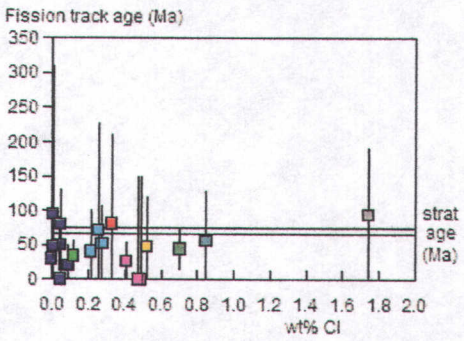
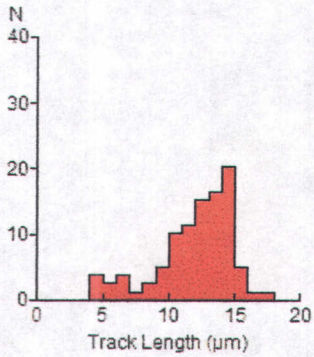


D:



Mean track length 11.99 ± 0.33 µm Std. Dev. 2.90 µm 79 tracks

GMC DATA REPORT 3 3 3

GC763-105 Apatite
Counted by: HJG

Susie Unit-1 7000-7750'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-8	6	13	134	25	8.263E+05	8.517E+06	0.097	65.5	0.00	27.8 ± 8.1
G824-8	8	1	7	14	1.135E+05	7.945E+05	0.143	6.1	1.01	40.9 ± 43.7
G824-8	9	6	20	25	3.814E+05	1.271E+06	0.300	9.8	0.25	85.5 ± 39.9
G824-8	13	2	4	16	1.986E+05	3.973E+05	0.500	3.1	0.36	141.9 ± 122.9
G824-8	15	17	86	30	9.005E+05	4.555E+06	0.198	35.0	0.04	56.5 ± 15.1
G824-8	17	1	2	10	1.589E+05	3.178E+05	0.500	2.4	0.34	141.9 ± 173.8
G824-8	18	1	6	20	7.945E+04	4.767E+05	0.167	3.7	0.31	47.6 ± 51.5
G824-8	19	1	8	36	4.414E+04	3.531E+05	0.125	2.7	0.37	35.8 ± 37.9
G824-8	21	0	5	25	0.000E+00	3.178E+05	0.000	2.4	0.25	0.0 ± 115.6
G824-8	23	2	5	20	1.589E+05	3.973E+05	0.400	3.1	1.04	113.7 ± 95.2
G824-8	24	2	29	30	1.059E+05	1.536E+06	0.069	11.8	0.03	19.8 ± 14.5
G824-8	28	4	15	50	1.271E+05	4.767E+05	0.267	3.7	0.64	76.0 ± 42.8
G824-8	33	18	89	30	9.534E+05	4.714E+06	0.202	36.2	0.04	57.8 ± 15.0
G824-8	34	0	9	25	0.000E+00	5.721E+05	0.000	4.4	0.00	0.0 ± 56.2
G824-8	36	0	3	25	0.000E+00	1.907E+05	0.000	1.5	0.31	0.0 ± 237.0
G824-8	37	6	11	25	3.814E+05	6.992E+05	0.545	5.4	0.14	154.6 ± 78.6
G824-8	40	0	9	25	0.000E+00	5.721E+05	0.000	4.4	0.39	0.0 ± 56.2
G824-8	42	2	7	15	2.119E+05	7.416E+05	0.286	5.7	0.98	81.4 ± 65.3
G824-8	43	12	39	50	3.814E+05	1.239E+06	0.308	9.5	0.52	87.7 ± 29.0
G824-8	46	1	10	20	7.945E+04	7.945E+05	0.100	6.1	0.21	28.6 ± 30.0
		89	498		2.741E+05	1.534E+06		11.8		

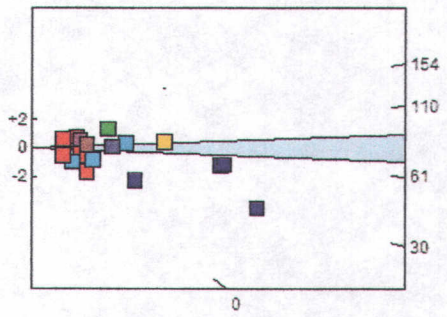
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 25.439 with 19 degrees of freedom
P(χ^2) = 14.7%
Age Dispersion = 28.330%

Ns / Ni = 0.179 ± 0.021
Mean Ratio = 0.210 ± 0.039

Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.483E+06cm^{-2} ND = 2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND = 1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND = 1272

POOLED AGE = 51.1 ± 6.0 Ma
CENTRAL AGE = 53.7 ± 8.1 Ma

A:



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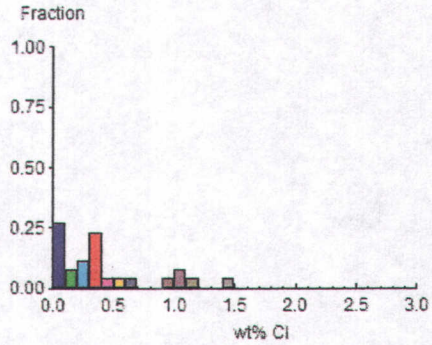

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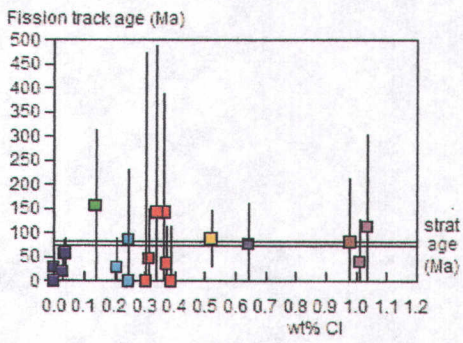

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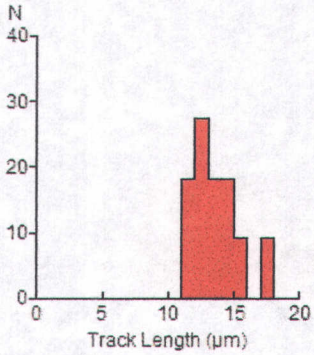


Mean track length 13.55 ± 0.57 µm Std. Dev. 1.90 µm 11 tracks

GMC DATA REPORT 3 3 3

GC763-106 Apatite
Counted by: HJG

Susie Unit-1 8910-9600'

Slide ref	Current grain no	N_s	N_i	N_a	ρ_s	ρ_i	RATIO	U (ppm)	Cl (wt%)	F.T. AGE (Ma)
G824-9	11	0	5	15	0.000E+00	5.297E+05	0.000	4.0	0.26	0.0 ± 117.1
G824-9	12	5	6	24	3.311E+05	3.973E+05	0.833	3.0	0.71	237.7 ± 144.1
G824-9	13	2	43	8	3.973E+05	8.541E+06	0.047	64.8	0.09	13.5 ± 9.8
G824-9	15	2	71	40	7.945E+04	2.821E+06	0.028	21.4	0.02	8.2 ± 5.9
G824-9	17	1	5	16	9.932E+04	4.966E+05	0.200	3.8	0.00	57.9 ± 63.4
G824-9	19	0	11	24	0.000E+00	7.283E+05	0.000	5.5	0.23	0.0 ± 45.2
G824-9	20	2	6	24	1.324E+05	3.973E+05	0.333	3.0	0.38	96.1 ± 78.5
G824-9	21	3	71	35	1.362E+05	3.224E+06	0.042	24.5	0.14	12.3 ± 7.2
G824-9	22	0	1	24	0.000E+00	6.621E+04	0.000	0.5	0.28	0.0 ± 1994.1
G824-9	23	12	117	28	6.810E+05	6.640E+06	0.103	50.4	0.02	29.7 ± 9.0
G824-9	24	2	8	30	1.059E+05	4.238E+05	0.250	3.2	0.25	72.2 ± 57.1
G824-9	25	6	94	30	3.178E+05	4.979E+06	0.064	37.8	0.30	18.5 ± 7.8
G824-9	26	2	15	24	1.324E+05	9.932E+05	0.133	7.5	0.22	38.6 ± 29.1
G824-9	30	0	4	24	0.000E+00	2.648E+05	0.000	2.0	0.30	0.0 ± 158.0
G824-9	31	5	28	20	3.973E+05	2.225E+06	0.179	16.9	0.02	51.7 ± 25.1
G824-9	32	27	265	40	1.073E+06	1.053E+07	0.102	79.9	0.03	29.5 ± 6.0
G824-9	33	1	13	40	3.973E+04	5.164E+05	0.077	3.9	0.28	22.3 ± 23.2
G824-9	35	7	20	10	1.112E+06	3.178E+06	0.350	24.1	0.39	100.9 ± 44.4
G824-9	47	1	20	32	4.966E+04	9.932E+05	0.050	7.5	0.40	14.5 ± 14.9
G824-9	49	1	3	25	6.356E+04	1.907E+05	0.333	1.4	0.79	96.1 ± 111.0
		79	806		2.447E+05	2.497E+06		18.9		

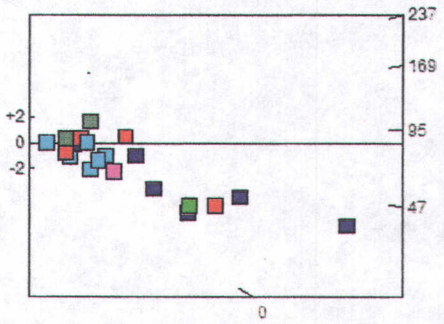
Area of basic unit = 6.293E-07 cm^{-2}
χ^2 = 45.540 with 19 degrees of freedom
P(χ^2) =0.1%
Age Dispersion =64.538%

Ns / Ni = 0.098 ± 0.012
Mean Ratio = 0.156 ± 0.044

Ages calculated using a zeta of 386.9 ± 6.9 for CN5 glass
ρ_D = 1.502E+06cm^{-2} ND =2333
ρ_D interpolated between top of can; ρ_D = 1.349E+06cm^{-2} ND =1061
bottom of can; ρ_D = 1.617E+06cm^{-2} ND =1272

POOLED AGE = 28.4 ± 3.4 Ma
CENTRAL AGE = 34.2 ± 7.5 Ma

A:



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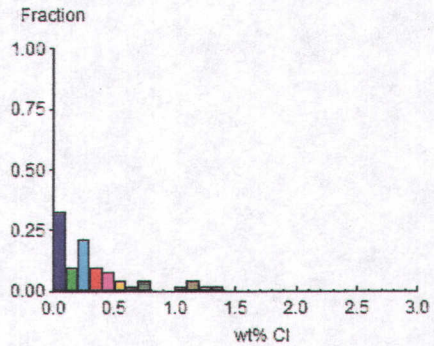

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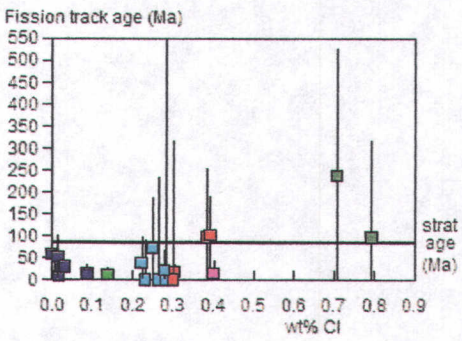

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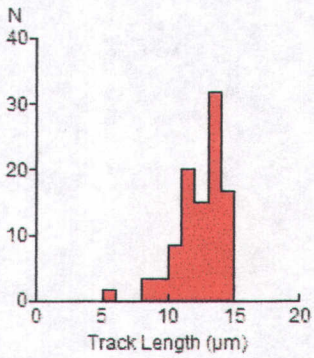

Mean track length 12.39 ± 0.23 µm Std. Dev. 1.80 µm 60 tracks