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**Neruokpuk Formation, northern Yukon: U-Pb Detrital  
zircon and Ar-Ar sample descriptions, geochronology data  
tables and imagery**

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**L.S. Lane<sup>1</sup>, G.E. Gehrels<sup>2</sup>, P.W. Layer<sup>3</sup>**

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## ABSTRACT

The Neruokpuk Formation of northern Yukon and adjacent Alaska is a succession of Ediacaran to Cambrian turbiditic sandstones, siltstones and shales comprising part of the northeastern Arctic Alaska terrane. Its provenance and original paleogeographic position with respect to NW Laurentia is a focus of study and debate. This report provides sample and site descriptions, field photos, thin section micrographs and images of zircon grain mounts for a suite of samples processed and analysed for detrital zircon U-Pb ages and detrital muscovite Ar-Ar ages. The complete filtered and sorted data tables for both the U-Pb and Ar-Ar results and U-Pb concordia plots are also presented here. These data document a provenance consistent with derivation from a NW Laurentian source area.

## INTRODUCTION

The provenance and paleogeography of the Neruokpuk Formation, and by extension the northeastern part of the Arctic Alaska terrane are the subject of study and debate (e.g., Miller et al., 2006; Lane, 2007). The data presented here form the analytical basis that underpins the detrital geochronology argument contained in an integrated synthesis of the region (Lane et al., 2015). In that synthesis, it is argued that the original paleogeographic position of the eastern part of Arctic Alaska terrane is approximately where it currently is located, although it has been displaced some 100-200 km eastward by Tertiary orogenesis (Lane, 1998). Contained herein are photographs of the field settings (Fig. 1), thin section micrographs (Fig. 2) and zircon grain mount micrographs (Fig. 3). Also included are the detrital zircon U-Pb concordia plots (Fig. 4) detrital zircon data tables (Tables 1 and 2), and the  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  detrital muscovite and whole rock data tables (Table 3).

## NERUOKPUK FORMATION SAMPLE DESCRIPTIONS

*Field No. 94LHA10-7; Curation No. C-247180; Collector: L.S. Lane*

Age: Ediacaran - Cambrian; NTS Map Area 117C/08 (69° 20' 30.53" N; 140° 53' 35.67" W)  
The zircon sample consists of light greenish-grey quartzite containing medium grained clasts in a finer matrix (Fig. 2e). In outcrop this lithology is interbedded with rusty-weathering quartz-lithic sandstone, locally calcareous, and locally containing light green argillite chips and graded quartz sandstone with clasts up to 2 mm. Siltstone is abundant in the talus (Fig. 1a).

Zircons: grains to 150 microns in length, clear and colorless, to light pink in color; a small percentage is darker pink; highly variable rounding, from perfectly euhedral to well-rounded; highly variable sphericity, from highly elongate grains to well-rounded shapes (Fig. 3b).

*Field No. 94LHA14-3; Curation No. C-247188; Collector: L.S. Lane*

Age: Ediacaran - Cambrian; NTS Map Area 117C/08 (69° 21' 0.08" N; 140° 45' 1.31" W)  
White to locally yellowish-pink weathering, medium grey to light green quartzite weathers into large blocks. Grain sizes are less than 1 mm. Beds are 2 m thick. In the talus are pieces of

medium grey and light green slate and cleaved sandy siltstone that are presumably interbedded with the quartzite. The quartzite unit is underlain by a 25-30 m thick unit of red and tan-weathering siltstone and slate (Fig. 2f).

Zircons: grains to 150 microns in length, clear and colorless, to light pink in color; a small percentage is darker pink; highly variable rounding, from perfectly euhedral to well-rounded; highly variable sphericity, from highly elongate grains to well-rounded shapes (Fig. 3c).

Field No. 87LHA27-5; Curation No. C-154683; Collector: L.S. Lane

Age: Cambrian; NTS Map Area 117D/05 (69° 16'49.03" N; 139° 49' 48.24" W)

Rusty weathering lithic sandstone, medium to fine quartz grains in a finer lithic matrix. Common coarse detrital muscovite and local shale chips. Frost-heaved outcrop – nothing firmly in place. Sampled for detrital muscovite (Fig. 2a), also analysed for detrital zircon (Fig. 3a).

This locality is part of a south-dipping succession of interbedded sandstones, quartzites, siltstones and slaty argillite. Matrix-rich lithic sandstones similar to that sampled are most common. The siltstones commonly contain ripple crosslamination. More resistant, blocky quartzites vary in colour from white to black. Argillites are locally red and contain the early Cambrian trace fossil *Oldhamia* at localities along strike.

Field No. 94LHA20-7; Curation No. C-247209; Collector: L.S. Lane

Age: Proterozoic; NTS Map Area 117C/08 (69° 19' 57.63" N; 140° 58' 26.79" W)

This succession of argillite, siltstone and limestone, approximately 55 m thick consists of 20 m of limestone, grey and blocky to rusty and platey, in contact with 35 m of red and green argillite, siltstone, rusty-weathering limestone and minor light green quartzite. The silty fine-grained quartzite contains detrital muscovite to 0.5 mm diameter. Siltstones are ripple crosslaminated. Many of the ripples have asymptotic terminations at both top and bottom. Where truncated, the ripples give tops facing southward. The bedding dips steeply northeastward on the southern overturned limb of a large asymmetric anticline.

In thin section, the fine muscovite-bearing quartzite consists of 40-45% quartz in equant to elongate grains less than 0.01 mm, with rounded to angular, and overgrown grain boundaries. Turbid mats that are dominated by sericite and form elliptical grain shapes comprise another 40-45% of the thin section. These grains are presumed to be altered feldspars. Micas, comprising ~ 10% of the section are predominantly aligned within and commonly across the primary lamination fabric. Most are very fine, brown and pleochroic (biotite or oxidized chlorite). Large muscovite grains form a smaller proportion of the mica population (Fig. 2d). Accessories include opaque grains, deep red iron oxides, and zircons that are typically well rounded, 20-50 µm long.

Field No. 90LHA39-4C; Curation No. C-194503; Collector: L.S. Lane

Age: Proterozoic; NTS Map Area 117C/08 (69° 21' 38.27" N; 140° 54' 14.53" W)

The sample is a white quartzite containing minor muscovite and sparse argillite chips. The

outcrop consists of the white quartzite unit overlying light grey to reddish lithic-quartzite containing argillite chips to 2 cm. Its matrix is fine grained, quartz rich, weathers rusty in some beds, and contains common muscovite as well as larger quartz grains to ~ 1 mm (see Fig. 2b). Beds are up to 1m thick, graded and locally have scoured bases. Brick red siltstone is present in the talus. Underlying this outcrop is a mixed carbonate and clastic succession represented by mixed talus of grey argillite, orange weathering limy siltstone, granular lithic sandstone (grit), chert, black limestone locally with suspended 1 mm quartz sand grains, black quartzite and white quartzite.

*Field No. 93LHA13-4; Curation No. C-247243; Collector: L.S. Lane*

Age: Cambrian; NTS Map Area 117D/04 (69° 08' 34.58" N; 139° 29' 57.91" W)

The outcrop consists of blocky, clean, light grey quartzite forming a prominent rib. Beds dip steeply to the southwest (Fig. 1b). Adjacent, less resistant beds contain a greater lithic component. In thin section, quartz grains are well rounded to sub-angular and overgrown. The large grain fraction is ~0.5-0.75 mm diameter, grading into a finer matrix largely 0.0-0.2 mm. Quartz grains commonly have subgrains, undulose extinction, and deformation lamellae. Some are multicrystalline (Fig. 2c).

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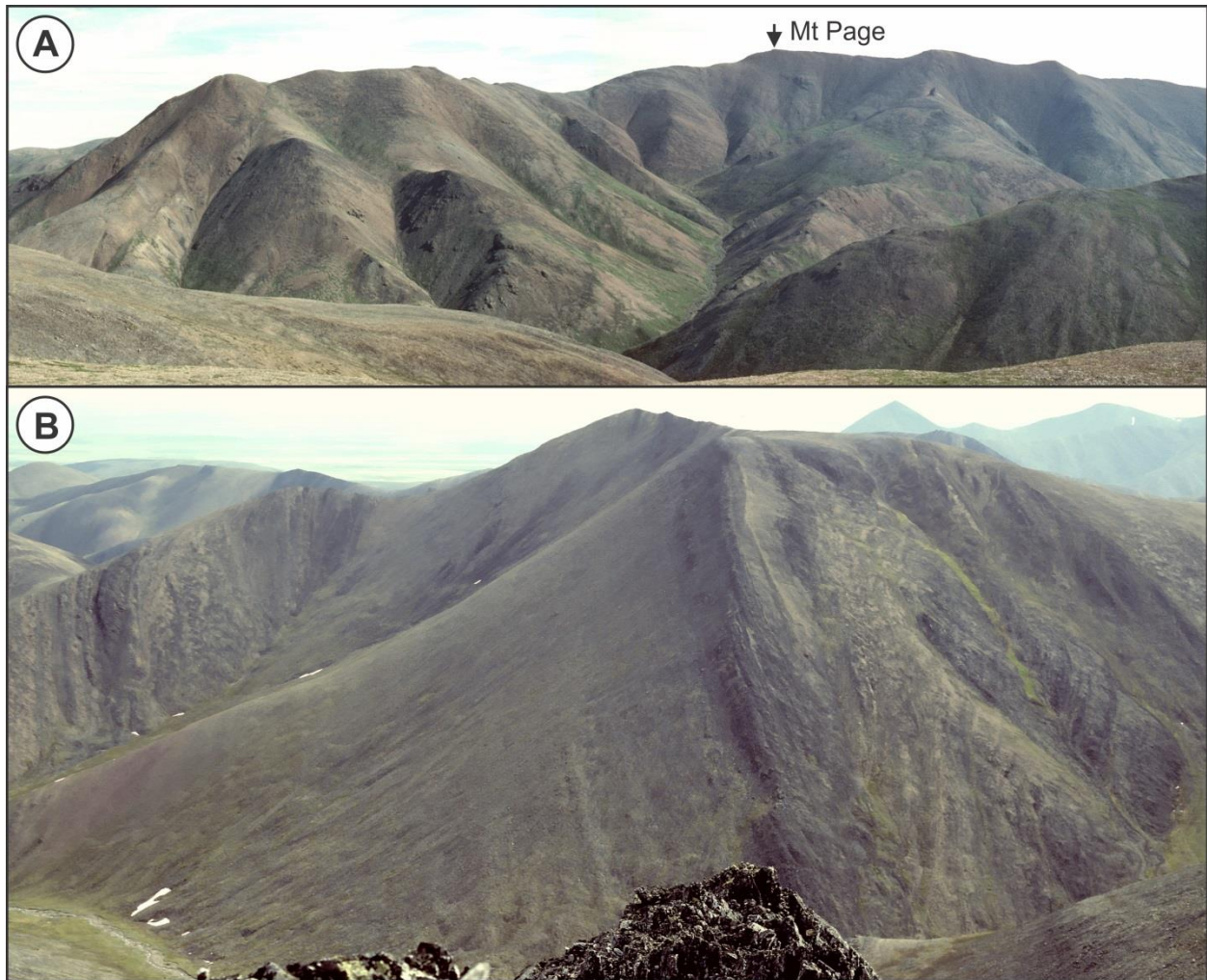


Figure 1. Field exposures typical of sampling areas. (A) View northeastward from Yukon-Alaska border at 94LHA10-7A locality (Mt Page). Beds dip gently to the right. Peak is underlain by a local scale thrust fault that duplicates the lower part of the Neruokpuk Formation. (B) View southeastward from sampling locality 93LHA13-4 toward the equivalent section across the valley. The resistant, dark (lichen covered) quartzite unit was sampled. The view consists of steeply southwestward dipping fault slices of Cambrian quartzite and argillite of the upper part of the Neruokpuk Formation. What appears to be a small fault in the unit is a small ledge projecting outward from the slope.



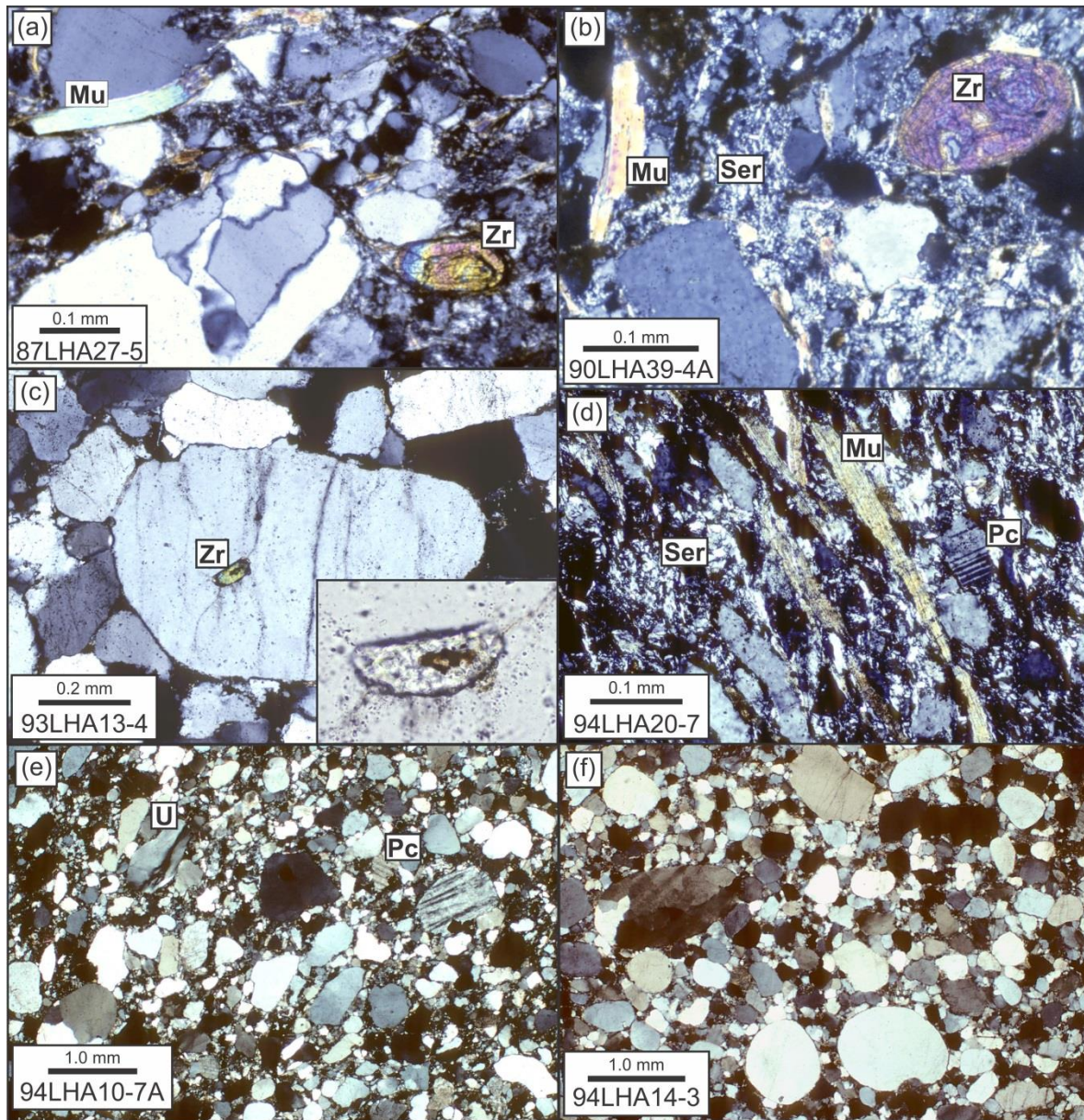


Figure 2. Thin-section micrographs of Neruokpuk Formation sandstones: (a), Cambrian quartzite sample with zircon (Zr), detrital muscovite (Mu), and large multicrystalline quartz grain (crossed Nicols). (b), Ediacaran quartzite from muscovite sample outcrop, showing detrital muscovite (Mu), abundant sericite (Ser) in the matrix, and large zircon (crossed Nicols). (c), Cambrian bimodal quartz arenite zircon sample (crossed Nicols). Inset shows the embedded 86 $\mu$ m zircon grain with pink core (plane light). (d), Muscovite sample from sub-Neruokpuk siltstone sequence showing large detrital muscovite (Mu), abundant sericite (Ser) and twinned plagioclase (Pc). (e) Ediacaran zircon sample. Fine grained quartzite with silty matrix; grains are well rounded to sub-angular. Quartz grain showing undulose extinction (U) is labeled. (f) Ediacaran zircon sample, bimodal grainsize distribution with moderately well rounded fine sand in coarse silty matrix. Large multicrystalline quartz grain is at center-left of image.



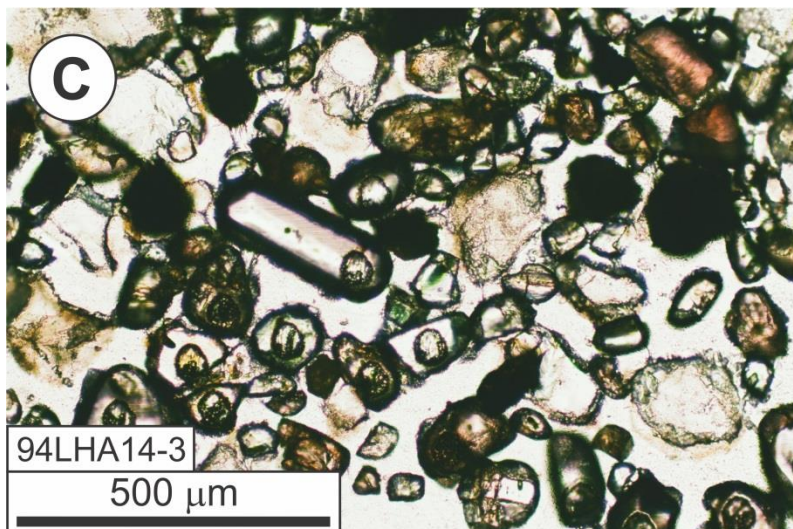
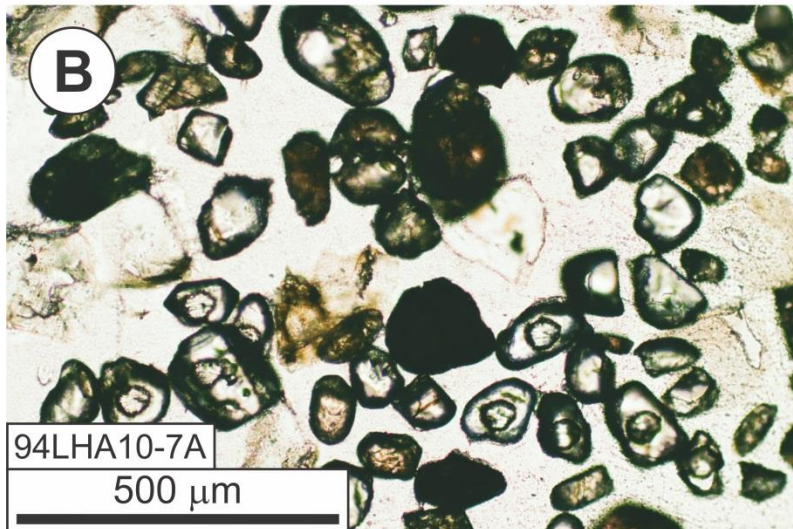
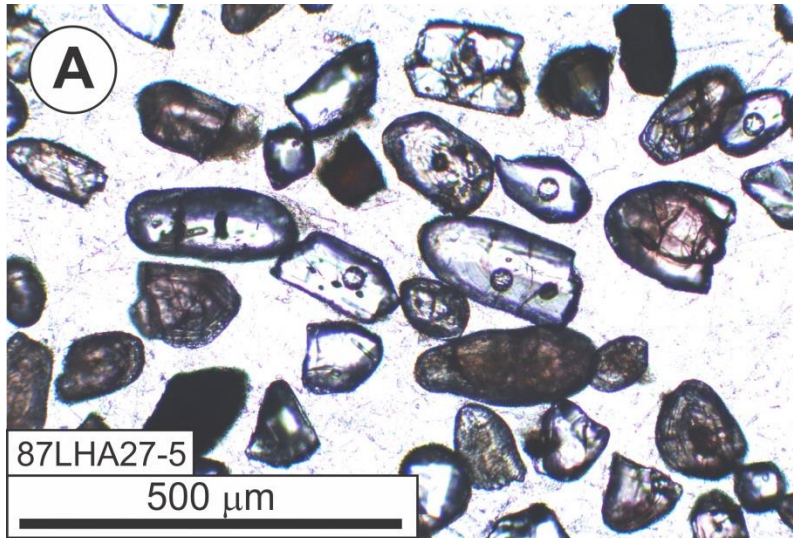


Figure 3. Micrographs of typical zircons from the laser ablation grain mounts. (A), Cambrian sample 87LHA27-5, large grains, well rounded to angular and colorless to pink; cores are common. (B), Proterozoic sample. 94LHA10-7A, most grains are clear, colorless and well rounded, rarely euhedral, commonly light pink; typically less than 150  $\mu\text{m}$  long. (C), Proterozoic sample 94LHA14-3, most grains are clear and colorless, commonly light pink, rarely green; typically they are well rounded to elongate; a few grains exceed 150  $\mu\text{m}$  in length.



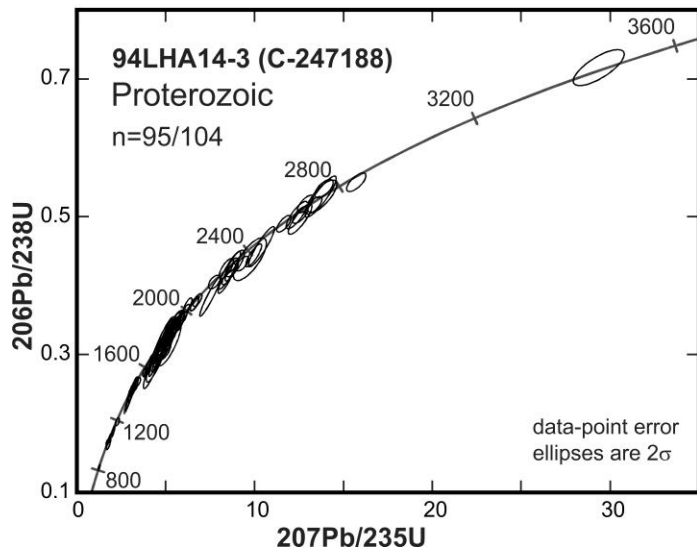
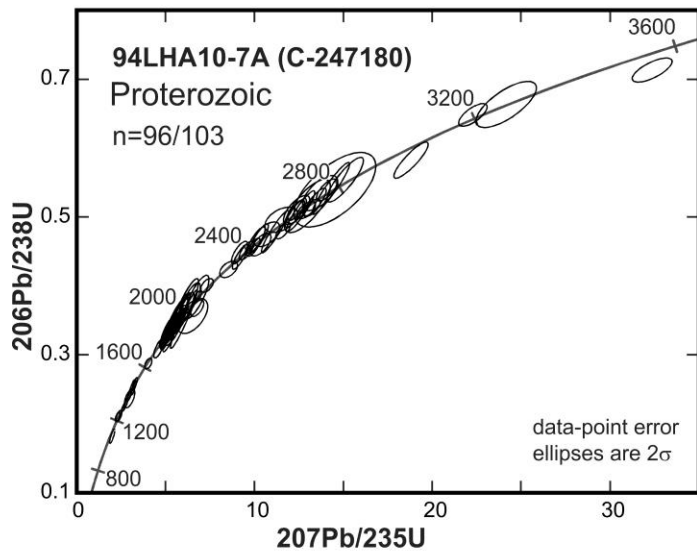
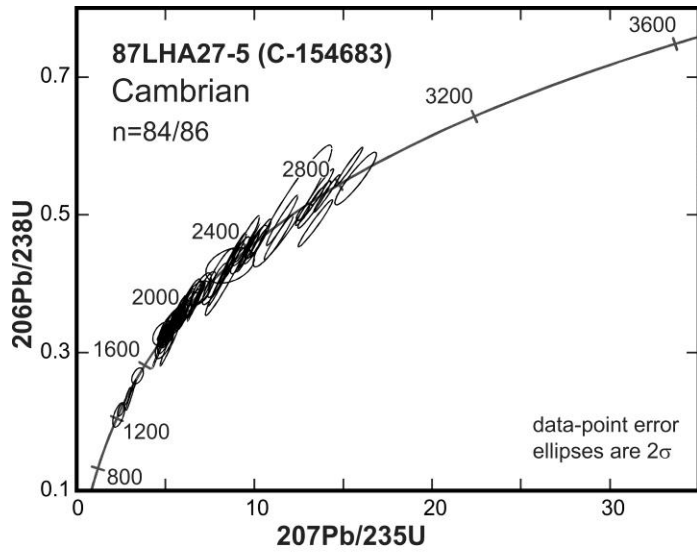


Figure 4. Concordia plots of the filtered zircon analyses for three Neruokpuk Formation quartzite samples (plots created using Isoplot 3; Ludwig, 2003).

**Table 1a. U-Pb (zircon) analyses of 94LHA14-3 (C- 247188) by LA-MC-ICPMS**

Analysis	Isotopic ratios								Apparent ages (Ma)						Best age (Ma)	± (Ma)	Error %	Disc. %
	U	206Pb	U/Th	207Pb*	±	206Pb*	±	error	206Pb*	±	207Pb*	±	206Pb*	±				
	(ppm)	204Pb		235U	(%)	238U	(%)	corr.	238U	(Ma)	235U	(Ma)	207Pb*	(Ma)				
247188-85	152	9498	0.9	1.25612	1.9	0.13636	1.3	0.67	824.1	9.7	826.2	10.6	831.8	28.8	<b>824.1</b>	<b>9.7</b>	1.18	0.93
247188-10	109	14483	1.7	1.72658	1.8	0.17253	1.0	0.56	1026.0	9.5	1018.5	11.4	1002.3	29.8	<b>1002.3</b>	<b>29.8</b>	2.97	-2.37
247188-89	89	7362	1.0	1.84808	1.8	0.17816	1.5	0.83	1056.9	14.5	1062.7	11.9	1074.7	20.4	<b>1074.7</b>	<b>20.4</b>	1.90	1.66
247188-3	48	4714	1.3	1.79791	3.0	0.17189	2.3	0.75	1022.5	21.4	1044.7	19.8	1091.4	40.4	<b>1091.4</b>	<b>40.4</b>	3.70	6.31
247188-21	158	12958	1.1	2.04636	2.0	0.18801	1.8	0.87	1110.6	18.1	1131.1	13.9	1170.6	19.9	<b>1170.6</b>	<b>19.9</b>	1.70	5.13
247188-33	289	52615	3.1	2.29021	2.1	0.20262	1.2	0.56	1189.4	12.5	1209.3	14.5	1244.9	33.3	<b>1244.9</b>	<b>33.3</b>	2.68	4.46
247188-76	112	16235	1.6	3.05214	1.7	0.24628	1.0	0.62	1419.3	13.1	1420.8	12.6	1423.0	24.7	<b>1423.0</b>	<b>24.7</b>	1.74	0.27
247188-16	56	7757	1.1	3.01753	2.4	0.24254	1.9	0.78	1399.9	24.0	1412.1	18.7	1430.4	29.3	<b>1430.4</b>	<b>29.3</b>	2.05	2.13
247188-97	125	14727	1.3	2.96719	4.1	0.23756	3.9	0.97	1374.0	48.8	1399.3	30.9	1437.9	19.2	<b>1437.9</b>	<b>19.2</b>	1.33	4.45
247188-51	410	52163	1.1	3.14042	2.2	0.24954	1.5	0.68	1436.1	19.1	1442.7	16.9	1452.3	30.6	<b>1452.3</b>	<b>30.6</b>	2.11	1.12
247188-17	71	9918	1.3	2.97732	3.1	0.23651	2.9	0.94	1368.5	35.9	1401.8	23.4	1452.9	19.3	<b>1452.9</b>	<b>19.3</b>	1.33	5.80
247188-77	146	14292	1.5	3.05962	2.0	0.24179	1.7	0.87	1396.0	21.9	1422.6	15.4	1462.7	19.1	<b>1462.7</b>	<b>19.1</b>	1.31	4.56
247188-1	144	27315	1.8	3.27038	2.4	0.25638	1.8	0.77	1471.3	24.1	1474.0	18.4	1478.0	28.5	<b>1478.0</b>	<b>28.5</b>	1.93	0.46
247188-100	225	34803	1.5	3.18876	1.5	0.24882	1.1	0.73	1432.4	13.8	1454.4	11.4	1486.8	19.0	<b>1486.8</b>	<b>19.0</b>	1.28	3.66
247188-4	217	33686	1.5	3.29508	1.7	0.25419	1.0	0.61	1460.0	13.3	1479.9	13.0	1508.5	24.9	<b>1508.5</b>	<b>24.9</b>	1.65	3.21
247188-64	315	9585	2.1	3.43292	1.9	0.26068	1.0	0.54	1493.3	13.3	1512.0	14.6	1538.2	29.3	<b>1538.2</b>	<b>29.3</b>	1.90	2.92
247188-26	323	29549	4.5	3.87863	1.7	0.27707	1.3	0.76	1576.6	18.0	1609.2	13.7	1652.3	20.4	<b>1652.3</b>	<b>20.4</b>	1.23	4.58
247188-69	171	14873	0.7	4.08468	2.3	0.28625	2.1	0.90	1622.8	29.7	1651.2	18.8	1687.7	18.5	<b>1687.7</b>	<b>18.5</b>	1.10	3.84
247188-24	182	24098	0.9	3.93722	1.5	0.27440	1.1	0.73	1563.1	14.9	1621.4	11.9	1697.8	18.4	<b>1697.8</b>	<b>18.4</b>	1.09	7.94
247188-86	218	20614	0.8	4.42121	6.2	0.29152	5.7	0.92	1649.1	83.0	1716.3	51.1	1799.3	42.8	<b>1799.3</b>	<b>42.8</b>	2.38	8.35
247188-41	32	8976	0.4	4.59231	2.6	0.30275	2.3	0.86	1704.9	33.7	1747.9	21.9	1799.6	24.6	<b>1799.6</b>	<b>24.6</b>	1.37	5.26
247188-87	70	17343	1.0	4.51371	4.0	0.29614	3.8	0.95	1672.1	56.5	1733.5	33.4	1808.4	21.9	<b>1808.4</b>	<b>21.9</b>	1.21	7.53
247188-7	69	6737	0.6	5.06284	2.8	0.33167	2.6	0.93	1846.5	41.8	1829.9	23.7	1811.1	18.7	<b>1811.1</b>	<b>18.7</b>	1.03	-1.95
247188-88	68	18217	0.5	4.98483	1.4	0.32599	1.0	0.71	1818.9	15.8	1816.8	12.0	1814.3	18.2	<b>1814.3</b>	<b>18.2</b>	1.00	-0.26
247188-53	51	7824	0.4	5.05263	1.6	0.33041	1.0	0.64	1840.4	16.0	1828.2	13.2	1814.3	21.8	<b>1814.3</b>	<b>21.8</b>	1.20	-1.43
247188-18	30	6582	0.9	4.71207	6.9	0.30752	6.3	0.92	1728.5	95.8	1769.4	57.6	1818.0	49.3	<b>1818.0</b>	<b>49.3</b>	2.71	4.92
247188-14	101	12903	1.0	4.65124	2.0	0.30270	1.8	0.87	1704.7	26.3	1758.5	16.9	1823.1	18.2	<b>1823.1</b>	<b>18.2</b>	1.00	6.49
247188-29	75	5011	0.3	4.52009	2.0	0.29403	1.6	0.83	1661.6	24.0	1734.7	16.3	1823.9	19.7	<b>1823.9</b>	<b>19.7</b>	1.08	8.90
247188-15	60	12809	0.6	4.83676	1.5	0.31357	1.1	0.71	1758.3	16.8	1791.3	12.9	1830.0	19.6	<b>1830.0</b>	<b>19.6</b>	1.07	3.92
247188-35	76	27196	1.0	4.77881	2.2	0.30919	1.2	0.55	1736.7	18.8	1781.2	18.8	1833.7	33.7	<b>1833.7</b>	<b>33.7</b>	1.84	5.29
247188-28	67	10191	0.8	4.75757	1.6	0.30773	1.1	0.69	1729.5	17.3	1777.4	13.8	1834.2	21.5	<b>1834.2</b>	<b>21.5</b>	1.17	5.70
247188-6	46	12649	1.4	4.84798	1.5	0.31338	1.1	0.73	1757.3	16.8	1793.3	12.5	1835.3	18.3	<b>1835.3</b>	<b>18.3</b>	1.00	4.25
247188-8	57	10811	1.0	4.91354	1.8	0.31730	1.1	0.65	1776.5	17.8	1804.6	14.9	1837.1	24.3	<b>1837.1</b>	<b>24.3</b>	1.32	3.30
247188-43	165	27569	0.8	4.75706	4.5	0.30664	4.4	0.97	1724.2	66.0	1777.4	37.9	1840.4	20.8	<b>1840.4</b>	<b>20.8</b>	1.13	6.32
247188-66	161	32308	1.4	5.15048	1.9	0.33196	1.6	0.84	1847.9	25.9	1844.5	16.3	1840.6	18.9	<b>1840.6</b>	<b>18.9</b>	1.02	-0.39

247188-65	161	29251	1.3	5.14176	1.5	0.33115	1.1	0.72	1843.9	17.3	1843.0	12.8	1842.0	18.8	<b>1842.0</b>	<b>18.8</b>	1.02	-0.10		
247188-105	120	27051	1.0	5.09623	1.6	0.32781	1.3	0.78	1827.7	20.0	1835.5	13.7	1844.3	18.1	<b>1844.3</b>	<b>18.1</b>	0.98	0.90		
247188-20	64	5452	0.6	4.90653	2.5	0.31549	1.3	0.53	1767.7	20.7	1803.4	21.3	1844.9	38.7	<b>1844.9</b>	<b>38.7</b>	2.10	4.19		
247188-39	114	14797	1.1	4.80389	3.0	0.30880	2.7	0.90	1734.8	41.8	1785.6	25.6	1845.4	23.4	<b>1845.4</b>	<b>23.4</b>	1.27	6.00		
247188-5	34	8673	0.7	5.19186	3.0	0.33360	2.3	0.78	1855.8	37.0	1851.3	25.2	1846.2	33.7	<b>1846.2</b>	<b>33.7</b>	1.83	-0.52		
247188-70	122	24565	0.8	5.26850	1.4	0.33833	1.0	0.71	1878.6	16.3	1863.8	12.1	1847.2	18.1	<b>1847.2</b>	<b>18.1</b>	0.98	-1.70		
247188-63	213	20383	1.2	5.13094	1.8	0.32935	1.5	0.83	1835.2	23.7	1841.2	15.2	1848.0	18.2	<b>1848.0</b>	<b>18.2</b>	0.98	0.69		
247188-90	184	40619	0.9	5.04900	1.4	0.32408	1.0	0.71	1809.6	15.8	1827.6	12.0	1848.1	18.1	<b>1848.1</b>	<b>18.1</b>	0.98	2.08		
247188-78	52	12110	0.5	5.11230	1.7	0.32718	1.2	0.74	1824.7	19.8	1838.2	14.4	1853.4	20.7	<b>1853.4</b>	<b>20.7</b>	1.12	1.55		
247188-72	144	17560	0.5	5.08354	2.1	0.32520	1.9	0.88	1815.1	29.9	1833.4	18.1	1854.2	18.1	<b>1854.2</b>	<b>18.1</b>	0.98	2.11		
247188-61	63	9116	0.6	5.24430	2.0	0.33511	1.4	0.71	1863.1	22.5	1859.8	16.7	1856.2	24.7	<b>1856.2</b>	<b>24.7</b>	1.33	-0.37		
247188-84	175	35969	0.8	5.40637	1.4	0.34423	1.0	0.70	1907.0	16.5	1885.9	12.3	1862.7	18.6	<b>1862.7</b>	<b>18.6</b>	1.00	-2.38		
247188-12	46	4419	0.3	4.97399	2.9	0.31444	1.2	0.40	1762.5	18.0	1814.9	24.9	1875.6	48.8	<b>1875.6</b>	<b>48.8</b>	2.60	6.03		
247188-98	285	26709	1.3	4.90585	3.3	0.30668	1.9	0.60	1724.3	29.5	1803.3	27.6	1895.8	47.3	<b>1895.8</b>	<b>47.3</b>	2.50	9.04		
247188-81	270	53810	1.1	5.63853	1.6	0.35174	1.1	0.68	1942.9	18.2	1922.0	13.7	1899.5	20.9	<b>1899.5</b>	<b>20.9</b>	1.10	-2.28		
247188-101	87	16498	0.4	5.53943	1.5	0.34514	1.2	0.76	1911.4	19.1	1906.7	13.2	1901.7	18.0	<b>1901.7</b>	<b>18.0</b>	0.95	-0.51		
247188-102	91	19735	0.9	5.23287	1.4	0.32497	1.0	0.70	1814.0	15.8	1858.0	12.3	1907.6	18.5	<b>1907.6</b>	<b>18.5</b>	0.97	4.91		
247188-91	80	19594	0.4	5.34783	3.0	0.33194	2.7	0.90	1847.8	43.7	1876.5	26.0	1908.5	24.3	<b>1908.5</b>	<b>24.3</b>	1.27	3.18		
247188-38	123	42647	1.5	5.28507	1.6	0.32684	1.2	0.77	1823.1	19.1	1866.5	13.4	1915.1	18.0	<b>1915.1</b>	<b>18.0</b>	0.94	4.81		
247188-49	65	15826	3.6	5.39587	1.4	0.33309	1.0	0.70	1853.3	16.1	1884.2	12.2	1918.4	18.1	<b>1918.4</b>	<b>18.1</b>	0.94	3.39		
247188-2	96	15588	0.6	5.48760	2.3	0.33838	1.5	0.65	1878.9	24.4	1898.7	19.9	1920.3	31.6	<b>1920.3</b>	<b>31.6</b>	1.64	2.16		
247188-31	58	20935	0.6	5.41797	2.4	0.33321	2.2	0.91	1853.9	35.3	1887.7	20.7	1925.1	18.0	<b>1925.1</b>	<b>18.0</b>	0.94	3.70		
247188-54	48	9277	0.6	5.76740	2.1	0.35442	1.1	0.53	1955.7	19.4	1941.5	18.6	1926.5	32.5	<b>1926.5</b>	<b>32.5</b>	1.69	-1.52		
247188-71	213	20193	0.7	5.26511	3.6	0.32321	3.4	0.94	1805.4	53.5	1863.2	30.8	1928.4	22.1	<b>1928.4</b>	<b>22.1</b>	1.15	6.38		
247188-67	90	14774	0.4	5.38295	4.4	0.32972	4.3	0.97	1837.0	68.6	1882.1	37.8	1932.3	17.9	<b>1932.3</b>	<b>17.9</b>	0.93	4.93		
247188-80	111	22768	0.5	5.65729	1.4	0.34647	1.0	0.71	1917.7	16.6	1924.9	12.2	1932.6	18.0	<b>1932.6</b>	<b>18.0</b>	0.93	0.77		
247188-36	84	23120	1.3	5.38483	2.4	0.32939	2.1	0.86	1835.4	32.9	1882.4	20.4	1934.7	21.5	<b>1934.7</b>	<b>21.5</b>	1.11	5.13		
247188-40	276	21891	0.8	5.20229	5.3	0.31633	4.2	0.80	1771.8	65.3	1853.0	44.9	1945.4	56.7	<b>1945.4</b>	<b>56.7</b>	2.91	8.92		
247188-42	168	56198	1.7	5.65863	2.2	0.34317	1.3	0.61	1901.9	22.2	1925.1	19.2	1950.1	31.6	<b>1950.1</b>	<b>31.6</b>	1.62	2.47		
247188-83	129	24603	0.3	5.76940	1.9	0.34756	1.4	0.73	1922.9	23.5	1941.8	16.7	1962.1	23.4	<b>1962.1</b>	<b>23.4</b>	1.19	1.99		
247188-58	120	22713	0.6	6.25130	1.5	0.37184	1.2	0.76	2038.1	20.1	2011.7	13.4	1984.6	17.8	<b>1984.6</b>	<b>17.8</b>	0.90	-2.69		
247188-73	91	21097	0.7	6.09961	1.6	0.36154	1.3	0.79	1989.5	22.4	1990.2	14.4	1990.9	17.8	<b>1990.9</b>	<b>17.8</b>	0.89	0.07		
247188-96	50	11775	0.6	5.99217	1.4	0.35382	1.0	0.70	1952.8	16.8	1974.7	12.4	1997.7	17.9	<b>1997.7</b>	<b>17.9</b>	0.90	2.25		
247188-50	73	17418	0.9	6.62434	1.5	0.37411	1.1	0.75	2048.7	20.2	2062.6	13.5	2076.5	17.7	<b>2076.5</b>	<b>17.7</b>	0.85	1.34		
247188-48	40	11556	0.6	6.62818	1.4	0.37293	1.0	0.70	2043.2	17.5	2063.1	12.5	2083.0	17.7	<b>2083.0</b>	<b>17.7</b>	0.85	1.91		
247188-9	81	16172	0.7	6.79599	1.5	0.37933	1.0	0.68	2073.2	17.7	2085.2	13.1	2097.1	19.2	<b>2097.1</b>	<b>19.2</b>	0.91	1.14		
247188-55	38	7761	0.6	7.74085	1.8	0.40540	1.0	0.57	2193.9	18.6	2201.4	15.8	2208.3	25.0	<b>2208.3</b>	<b>25.0</b>	1.13	0.66		
247188-93	85	6329	1.2	7.52457	3.3	0.38496	3.1	0.95	2099.4	55.3	2175.9	29.1	2248.9	17.5	<b>2248.9</b>	<b>17.5</b>	0.78	6.65		
247188-82	73	20426	0.6	8.41278	1.9	0.42471	1.4	0.73	2281.8	27.2	2276.6	17.6	2271.8	22.8	<b>2271.8</b>	<b>22.8</b>	1.00	-0.44		
247188-94	46	17590	0.6	8.59306	3.0	0.42245	2.7	0.90	2271.6	51.0	2295.8	26.9	2317.4	21.8	<b>2317.4</b>	<b>21.8</b>	0.94	1.98		



247188-95	34	10165	0.8	8.75610	1.4	0.42974	1.0	0.71	2304.6	19.4	2312.9	12.9	2320.3	17.2	<b>2320.3</b>	<b>17.2</b>	0.74	0.68
247188-19	103	29372	0.8	8.55668	1.8	0.41666	1.5	0.83	2245.3	28.4	2292.0	16.4	2333.8	17.1	<b>2333.8</b>	<b>17.1</b>	0.73	3.79
247188-22	68	10022	0.8	8.34978	2.0	0.40581	1.7	0.86	2195.7	31.4	2269.7	17.8	2337.1	17.2	<b>2337.1</b>	<b>17.2</b>	0.74	6.05
247188-52	42	13646	0.6	8.91462	2.4	0.43220	1.8	0.77	2315.6	35.4	2329.3	21.5	2341.3	25.7	<b>2341.3</b>	<b>25.7</b>	1.10	1.10
247188-62	106	26133	1.4	8.72707	1.8	0.42174	1.4	0.82	2268.4	27.7	2309.9	16.0	2346.8	17.1	<b>2346.8</b>	<b>17.1</b>	0.73	3.34
247188-23	142	30409	0.7	9.31727	1.5	0.43207	1.0	0.66	2315.0	19.4	2369.7	14.0	2417.1	19.5	<b>2417.1</b>	<b>19.5</b>	0.81	4.22
247188-37	8	2099	1.1	9.73910	3.9	0.43860	2.9	0.74	2344.3	56.7	2410.4	36.0	2466.7	44.5	<b>2466.7</b>	<b>44.5</b>	1.80	4.96
247188-11	129	38291	2.0	9.95606	1.8	0.44409	1.5	0.84	2368.9	30.4	2430.7	16.9	2482.9	16.9	<b>2482.9</b>	<b>16.9</b>	0.68	4.59
247188-57	161	38628	0.7	10.39638	2.9	0.45664	2.6	0.91	2424.7	52.7	2470.7	26.6	2508.8	20.0	<b>2508.8</b>	<b>20.0</b>	0.80	3.35
247188-79	92	31839	0.9	11.65519	1.4	0.48988	1.0	0.71	2570.2	21.2	2577.1	13.2	2582.6	16.7	<b>2582.6</b>	<b>16.7</b>	0.65	0.48
247188-68	87	14007	0.7	12.38170	2.0	0.50241	1.6	0.82	2624.1	34.8	2633.8	18.5	2641.2	18.6	<b>2641.2</b>	<b>18.6</b>	0.70	0.65
247188-92	39	16604	2.6	12.86429	1.4	0.51855	1.0	0.71	2693.0	22.0	2669.8	13.3	2652.2	16.6	<b>2652.2</b>	<b>16.6</b>	0.63	-1.54
247188-103	16	7981	0.8	12.57558	1.4	0.50282	1.0	0.71	2625.9	21.6	2648.4	13.3	2665.6	16.6	<b>2665.6</b>	<b>16.6</b>	0.62	1.49
247188-30	65	25485	0.7	12.56846	2.2	0.49657	1.8	0.84	2599.0	38.8	2647.9	20.2	2685.4	19.2	<b>2685.4</b>	<b>19.2</b>	0.71	3.22
247188-56	82	28354	0.2	13.90911	1.5	0.54081	1.0	0.66	2786.8	22.6	2743.5	14.4	2711.8	18.8	<b>2711.8</b>	<b>18.8</b>	0.69	-2.77
247188-47	68	25518	1.1	13.33591	1.4	0.51667	1.0	0.71	2685.1	22.0	2703.7	13.4	2717.7	16.5	<b>2717.7</b>	<b>16.5</b>	0.61	1.20
247188-60	227	32654	1.0	13.72635	2.6	0.52914	2.3	0.89	2737.8	51.5	2731.0	24.6	2726.0	19.6	<b>2726.0</b>	<b>19.6</b>	0.72	-0.44
247188-75	37	3227	0.7	13.79446	2.4	0.52980	1.8	0.74	2740.6	40.3	2735.7	23.2	2732.1	27.2	<b>2732.1</b>	<b>27.2</b>	0.99	-0.31
247188-104	162	54536	1.3	15.72510	1.4	0.55005	1.0	0.71	2825.4	22.9	2860.2	13.5	2884.9	16.2	<b>2884.9</b>	<b>16.2</b>	0.56	2.06
247188-46	217	96885	1.1	29.36326	2.0	0.71627	1.5	0.75	3482.0	40.0	3465.7	19.6	3456.3	20.6	<b>3456.3</b>	<b>20.6</b>	0.60	-0.74
247188-32	106	14147	0.7	1.65645	3.2	0.15925	2.9	0.89	952.6	25.3	992.0	20.4	1080.2	29.9	<del>1080.2</del>	<del>29.9</del>	2.77	11.81
247188-13	363	9502	1.5	3.91850	4.1	0.26905	3.2	0.78	1536.0	44.1	1617.5	33.5	1725.3	47.5	<del>1725.3</del>	<del>47.5</del>	2.76	10.97
247188-27	76	6452	0.4	4.40228	2.9	0.28767	2.7	0.94	1629.9	39.1	1712.8	24.0	1815.7	18.3	<del>1815.7</del>	<del>18.3</del>	1.01	10.24
247188-34	78	8615	0.6	4.42557	2.0	0.28258	1.5	0.78	1604.4	22.0	1717.1	16.5	1857.5	22.7	<del>1857.5</del>	<del>22.7</del>	1.22	13.63
247188-44	124	10326	0.8	4.72272	8.7	0.29081	8.4	0.97	1645.6	122.6	1771.3	73.4	1922.8	41.0	<del>1922.8</del>	<del>41.0</del>	2.13	14.42
247188-74	80	10368	0.5	4.75378	6.3	0.29248	6.2	0.97	1653.9	89.8	1776.8	53.3	1924.3	27.7	<del>1924.3</del>	<del>27.7</del>	1.44	14.05
247188-25	192	13620	1.3	5.19362	2.4	0.30902	1.7	0.74	1735.9	26.6	1851.6	20.2	1984.1	28.5	<del>1984.1</del>	<del>28.5</del>	1.43	12.51
247188-99	296	15672	1.2	4.76186	5.2	0.27235	5.1	0.98	1552.7	70.8	1778.2	43.9	2054.2	17.7	<del>2054.2</del>	<del>17.7</del>	0.86	24.41
247188-45	195	35801	1.1	9.60478	5.3	0.40105	4.9	0.94	2173.9	91.3	2397.6	48.6	2593.5	31.0	<del>2593.5</del>	<del>31.0</del>	1.20	16.18

**Table 1b. U-Pb (zircon) analyses of 94LHA10-7A (C-247180) by LA-MC-ICPMS**

Analysis	Isotopic ratios								Apparent ages (Ma)						Best age (Ma)	± (Ma)	Error %	Disc. %
	U	206Pb	U/Th	207Pb*	±	206Pb*	±	error	206Pb*	±	207Pb*	±	206Pb*	±				
	(ppm)	204Pb		235U	(%)	238U	(%)	corr.	238U	(Ma)	235U	(Ma)	207Pb*	(Ma)				
247180-54	153	3449	1.0	2.00519	2.8	0.18225	2.3	0.81	1079.2	22.9	1117.3	19.2	1192.0	32.9	<b>1192.0</b>	<b>32.9</b>	2.76	9.46
247180-71	67	9063	1.6	2.31173	2.3	0.20997	1.3	0.56	1228.7	14.1	1215.9	16.0	1193.3	37.0	<b>1193.3</b>	<b>37.0</b>	3.10	-2.96
247180-29	22	3445	0.7	2.38290	2.7	0.21156	1.5	0.58	1237.1	17.3	1237.5	19.0	1238.1	42.5	<b>1238.1</b>	<b>42.5</b>	3.43	0.07
247180-87	175	23584	2.5	2.65652	1.5	0.22394	1.0	0.67	1302.7	11.8	1316.5	11.1	1338.9	21.7	<b>1338.9</b>	<b>21.7</b>	1.62	2.71
247180-55	183	14290	1.3	2.77074	1.6	0.22964	1.3	0.79	1332.6	15.3	1347.7	12.1	1371.7	19.3	<b>1371.7</b>	<b>19.3</b>	1.40	2.85
247180-20	113	18369	1.9	3.06037	2.8	0.24830	2.6	0.93	1429.7	33.1	1422.8	21.3	1412.6	19.7	<b>1412.6</b>	<b>19.7</b>	1.39	-1.21
247180-67	317	12378	1.1	2.98135	4.0	0.23704	2.4	0.59	1371.3	29.3	1402.9	30.3	1451.2	61.0	<b>1451.2</b>	<b>61.0</b>	4.21	5.50
247180-20A	77	12004	1.2	3.24301	1.4	0.25511	1.0	0.72	1464.8	13.6	1467.5	11.2	1471.5	19.1	<b>1471.5</b>	<b>19.1</b>	1.30	0.46
247180-100	236	39872	1.9	3.28853	1.7	0.25866	1.3	0.80	1483.0	17.7	1478.3	13.0	1471.6	19.0	<b>1471.6</b>	<b>19.0</b>	1.29	-0.77
247180-31	196	18433	1.4	3.15284	1.5	0.24787	1.0	0.68	1427.5	12.8	1445.7	11.3	1472.6	20.3	<b>1472.6</b>	<b>20.3</b>	1.38	3.06
247180-21	140	13391	0.7	4.03410	2.0	0.28750	1.1	0.54	1629.0	15.8	1641.1	16.6	1656.6	31.9	<b>1656.6</b>	<b>31.9</b>	1.93	1.67
247180-90	25	6364	0.7	4.62104	2.5	0.30925	1.8	0.72	1737.0	27.1	1753.1	20.6	1772.3	31.2	<b>1772.3</b>	<b>31.2</b>	1.76	1.99
247180-40	29	5852	0.6	5.04946	2.9	0.33229	2.5	0.87	1849.5	40.2	1827.7	24.5	1802.9	26.1	<b>1802.9</b>	<b>26.1</b>	1.45	-2.59
247180-86	35	10393	0.5	4.86107	1.6	0.31967	1.2	0.74	1788.1	19.1	1795.5	13.8	1804.1	20.0	<b>1804.1</b>	<b>20.0</b>	1.11	0.89
247180-24	54	5730	0.5	4.87216	1.7	0.31928	1.0	0.58	1786.2	15.7	1797.5	14.6	1810.5	25.7	<b>1810.5</b>	<b>25.7</b>	1.42	1.34
247180-42	47	5819	0.5	5.08570	2.8	0.33301	2.5	0.89	1852.9	40.3	1833.7	23.9	1812.0	23.3	<b>1812.0</b>	<b>23.3</b>	1.28	-2.26
247180-11	28	8303	1.2	5.01067	1.4	0.32791	1.0	0.70	1828.2	15.9	1821.1	12.1	1813.0	18.5	<b>1813.0</b>	<b>18.5</b>	1.02	-0.84
247180-94	34	10168	1.1	4.90192	1.6	0.32063	1.0	0.64	1792.8	15.7	1802.6	13.3	1813.9	22.1	<b>1813.9</b>	<b>22.1</b>	1.22	1.16
247180-17	42	6958	0.6	5.04311	1.9	0.32964	1.6	0.85	1836.6	26.0	1826.6	16.3	1815.1	18.5	<b>1815.1</b>	<b>18.5</b>	1.02	-1.18
247180-47	65	15667	0.8	5.06536	2.5	0.32699	2.3	0.91	1823.8	35.9	1830.3	21.0	1837.8	18.2	<b>1837.8</b>	<b>18.2</b>	0.99	0.76
247180-91	50	14727	0.9	5.36067	2.1	0.34528	1.1	0.54	1912.0	18.3	1878.6	17.7	1841.8	31.5	<b>1841.8</b>	<b>31.5</b>	1.71	-3.81
247180-16	164	28584	0.6	5.13335	2.4	0.33041	2.2	0.91	1840.4	35.4	1841.6	20.6	1843.1	18.1	<b>1843.1</b>	<b>18.1</b>	0.98	0.15
247180-5	81	7021	0.5	5.24515	1.8	0.33760	1.5	0.83	1875.1	24.2	1860.0	15.3	1843.1	18.2	<b>1843.1</b>	<b>18.2</b>	0.99	-1.74
247180-38	20	5176	0.6	5.26956	2.1	0.33901	1.4	0.68	1881.9	23.0	1863.9	17.8	1844.0	27.8	<b>1844.0</b>	<b>27.8</b>	1.51	-2.06
247180-57	146	33497	1.7	5.09823	2.1	0.32755	1.8	0.88	1826.5	29.3	1835.8	17.8	1846.4	18.1	<b>1846.4</b>	<b>18.1</b>	0.98	1.08
247180-72	76	28663	0.9	5.37946	1.9	0.34560	1.6	0.84	1913.6	26.6	1881.6	16.3	1846.5	18.5	<b>1846.5</b>	<b>18.5</b>	1.00	-3.63
247180-34	50	12731	0.7	4.91414	1.5	0.31547	1.0	0.68	1767.6	15.8	1804.7	12.7	1847.8	20.0	<b>1847.8</b>	<b>20.0</b>	1.08	4.34
247180-35	155	8754	0.8	4.98113	1.5	0.31953	1.1	0.75	1787.4	17.9	1816.1	13.0	1849.2	18.4	<b>1849.2</b>	<b>18.4</b>	1.00	3.34
247180-59	49	9008	1.1	5.29358	2.7	0.33952	2.5	0.93	1884.3	40.8	1867.8	23.0	1849.5	18.3	<b>1849.5</b>	<b>18.3</b>	0.99	-1.89
247180-58	247	67343	1.7	5.29375	2.3	0.33792	2.1	0.90	1876.7	34.2	1867.9	19.9	1858.0	18.1	<b>1858.0</b>	<b>18.1</b>	0.97	-1.00
247180-18	71	10955	0.8	5.40966	1.6	0.34457	1.0	0.63	1908.6	16.5	1886.4	13.6	1862.0	22.2	<b>1862.0</b>	<b>22.2</b>	1.19	-2.50
247180-37	69	17651	0.7	5.30906	1.4	0.33805	1.0	0.71	1877.3	16.3	1870.3	12.1	1862.6	18.1	<b>1862.6</b>	<b>18.1</b>	0.97	-0.79
247180-95	74	14464	0.9	5.19680	1.4	0.33069	1.0	0.70	1841.7	16.0	1852.1	12.1	1863.8	18.2	<b>1863.8</b>	<b>18.2</b>	0.98	1.18
247180-61	63	14809	0.8	5.11610	1.8	0.32474	1.1	0.62	1812.8	17.4	1838.8	15.1	1868.3	25.1	<b>1868.3</b>	<b>25.1</b>	1.35	2.97
247180-76	22	10852	0.5	5.51290	3.5	0.34980	3.3	0.94	1933.6	55.7	1902.6	30.5	1868.9	21.9	<b>1868.9</b>	<b>21.9</b>	1.17	-3.46

247180-78	34	14472	0.9	5.50237	2.3	0.34838	1.4	0.60	1926.9	23.6	1901.0	20.2	1872.8	33.8	<b>1872.8</b>	<b>33.8</b>	1.80	-2.89		
247180-22	95	20963	1.2	5.47555	1.6	0.34606	1.2	0.78	1915.7	20.5	1896.8	13.7	1876.1	18.1	<b>1876.1</b>	<b>18.1</b>	0.96	-2.12		
247180-2	207	12816	1.1	5.48054	2.7	0.34197	1.6	0.57	1896.2	25.7	1897.6	23.5	1899.1	40.3	<b>1899.1</b>	<b>40.3</b>	2.12	0.15		
247180-96	213	39758	1.3	5.81360	3.4	0.36252	3.0	0.87	1994.1	50.8	1948.4	29.5	1900.2	30.0	<b>1900.2</b>	<b>30.0</b>	1.58	-4.94		
247180-100A	100	19205	0.6	5.33405	1.8	0.33237	1.1	0.60	1849.9	17.1	1874.3	15.3	1901.6	25.8	<b>1901.6</b>	<b>25.8</b>	1.36	2.72		
247180-51	157	22110	3.0	5.59723	4.9	0.34827	4.1	0.83	1926.3	67.5	1915.7	42.3	1904.1	49.8	<b>1904.1</b>	<b>49.8</b>	2.62	-1.17		
247180-70	75	23142	1.2	5.34177	1.6	0.33175	1.0	0.62	1846.8	16.1	1875.6	13.8	1907.5	22.7	<b>1907.5</b>	<b>22.7</b>	1.19	3.18		
247180-68	100	20599	0.6	5.15441	2.4	0.32005	2.0	0.83	1790.0	30.6	1845.1	20.0	1907.9	23.4	<b>1907.9</b>	<b>23.4</b>	1.23	6.18		
247180-10	218	23775	0.7	5.54532	1.9	0.34413	1.6	0.85	1906.5	26.4	1907.7	16.2	1908.9	18.0	<b>1908.9</b>	<b>18.0</b>	0.94	0.12		
247180-65	49	16593	0.4	5.54254	2.1	0.34342	1.6	0.78	1903.1	26.5	1907.2	17.7	1911.7	23.1	<b>1911.7</b>	<b>23.1</b>	1.21	0.45		
247180-43	315	56300	2.7	5.72419	1.6	0.35412	1.0	0.64	1954.2	16.9	1935.0	13.4	1914.5	21.4	<b>1914.5</b>	<b>21.4</b>	1.12	-2.07		
247180-62	65	11648	0.7	5.52484	1.5	0.34155	1.1	0.75	1894.1	18.8	1904.5	13.1	1915.7	18.2	<b>1915.7</b>	<b>18.2</b>	0.95	1.13		
247180-14	72	16834	0.7	5.46291	1.4	0.33698	1.0	0.71	1872.1	16.6	1894.8	12.3	1919.7	18.0	<b>1919.7</b>	<b>18.0</b>	0.94	2.48		
247180-4	162	13788	0.9	5.48753	2.3	0.33843	2.0	0.90	1879.1	33.3	1898.6	19.6	1920.1	18.0	<b>1920.1</b>	<b>18.0</b>	0.94	2.13		
247180-15	121	21754	0.6	5.48606	1.4	0.33696	1.0	0.71	1872.0	16.2	1898.4	12.2	1927.4	17.9	<b>1927.4</b>	<b>17.9</b>	0.93	2.87		
247180-12	40	7158	0.5	5.40311	2.2	0.33166	1.0	0.46	1846.4	16.1	1885.3	18.5	1928.5	34.2	<b>1928.5</b>	<b>34.2</b>	1.77	4.25		
247180-53	76	16136	1.2	5.88995	3.0	0.36101	2.3	0.77	1986.9	39.1	1959.8	25.6	1931.1	33.5	<b>1931.1</b>	<b>33.5</b>	1.74	-2.89		
247180-75	125	38632	0.9	5.98699	2.8	0.36671	2.6	0.92	2013.9	45.0	1974.0	24.6	1932.3	20.1	<b>1932.3</b>	<b>20.1</b>	1.04	-4.22		
247180-49	218	46524	0.8	5.83962	1.8	0.35650	1.2	0.66	1965.6	19.5	1952.3	15.2	1938.3	23.6	<b>1938.3</b>	<b>23.6</b>	1.22	-1.41		
247180-41	71	15545	0.2	5.95142	1.4	0.36309	1.0	0.71	1996.8	17.2	1968.8	12.3	1939.4	17.9	<b>1939.4</b>	<b>17.9</b>	0.93	-2.96		
247180-77	82	32809	2.3	6.10725	5.1	0.37037	4.4	0.88	2031.1	77.5	1991.3	44.1	1950.2	42.9	<b>1950.2</b>	<b>42.9</b>	2.20	-4.15		
247180-48	194	5826	0.5	5.80175	2.4	0.35104	1.9	0.77	1939.6	31.3	1946.7	20.9	1954.2	27.3	<b>1954.2</b>	<b>27.3</b>	1.40	0.75		
247180-81	41	19632	1.4	6.11315	3.4	0.36574	2.8	0.84	2009.3	48.8	1992.1	29.4	1974.3	32.7	<b>1974.3</b>	<b>32.7</b>	1.65	-1.77		
247180-101	28	9498	0.3	6.44935	3.3	0.38201	2.4	0.73	2085.7	42.8	2039.0	29.0	1992.1	40.3	<b>1992.1</b>	<b>40.3</b>	2.02	-4.69		
247180-13	136	21800	0.6	6.07551	1.8	0.35763	1.0	0.55	1970.9	17.0	1986.7	15.9	2003.2	27.2	<b>2003.2</b>	<b>27.2</b>	1.36	1.61		
247180-93	102	8850	1.7	6.21739	2.1	0.36230	1.6	0.74	1993.1	27.2	2006.9	18.7	2021.2	25.3	<b>2021.2</b>	<b>25.3</b>	1.25	1.39		
247180-39	61	4557	0.8	6.04087	5.1	0.35188	4.9	0.96	1943.5	82.5	1981.8	44.6	2021.8	24.7	<b>2021.8</b>	<b>24.7</b>	1.22	3.87		
247180-92	26	10877	0.4	6.75843	4.2	0.38389	3.4	0.81	2094.4	60.2	2080.3	36.9	2066.3	43.5	<b>2066.3</b>	<b>43.5</b>	2.10	-1.36		
247180-44	89	19731	1.0	6.77980	1.4	0.38348	1.0	0.71	2092.5	17.9	2083.1	12.5	2073.8	17.6	<b>2073.8</b>	<b>17.6</b>	0.85	-0.91		
247180-97	83	991	1.2	6.52028	5.4	0.35650	2.9	0.54	1965.5	49.1	2048.6	47.2	2133.3	78.9	<b>2133.3</b>	<b>78.9</b>	3.70	7.87		
247180-74	22	5395	0.8	7.34139	1.9	0.40087	1.0	0.51	2173.0	18.4	2153.9	17.4	2135.6	29.2	<b>2135.6</b>	<b>29.2</b>	1.37	-1.75		
247180-56	46	8149	1.8	6.78773	2.2	0.36778	1.3	0.61	2019.0	23.2	2084.1	19.4	2149.1	30.4	<b>2149.1</b>	<b>30.4</b>	1.42	6.06		
247180-50	52	18471	0.6	8.55474	2.4	0.42409	1.1	0.48	2279.0	21.9	2291.8	21.7	2303.1	35.9	<b>2303.1</b>	<b>35.9</b>	1.56	1.05		
247180-7	48	13235	1.0	9.16811	2.0	0.44838	1.5	0.74	2388.0	29.8	2354.9	18.5	2326.4	23.2	<b>2326.4</b>	<b>23.2</b>	1.00	-2.65		
247180-69	193	57297	1.6	9.21014	2.0	0.44224	1.7	0.85	2360.7	32.8	2359.1	18.0	2357.8	17.9	<b>2357.8</b>	<b>17.9</b>	0.76	-0.12		
247180-66	121	38325	1.3	9.55889	1.7	0.45136	1.2	0.70	2401.3	24.0	2393.2	15.8	2386.3	20.9	<b>2386.3</b>	<b>20.9</b>	0.88	-0.63		
247180-36	61	19418	0.8	10.09889	2.0	0.46620	1.7	0.83	2466.9	34.7	2443.9	18.9	2424.8	19.4	<b>2424.8</b>	<b>19.4</b>	0.80	-1.74		
247180-25	112	23528	1.5	9.95007	1.5	0.45613	1.2	0.76	2422.4	23.7	2430.2	14.2	2436.6	16.9	<b>2436.6</b>	<b>16.9</b>	0.70	0.58		
247180-45	33	11990	1.4	10.25660	2.1	0.46902	1.8	0.87	2479.3	37.5	2458.2	19.5	2440.8	17.9	<b>2440.8</b>	<b>17.9</b>	0.73	-1.58		
247180-83	52	29537	0.9	10.36898	2.2	0.46004	1.5	0.65	2439.7	29.7	2468.3	20.7	2491.9	28.5	<b>2491.9</b>	<b>28.5</b>	1.14	2.09		





**Table 1c. U-Pb (zircon) analyses of 1987LHA27-5 (C-154683) by LA-ICPMS**

Analysis	Isotope ratios										Apparent ages (Ma)									
	U	206Pb	U/Th	206Pb*	±	207Pb*	±	206Pb*	±	error	206Pb*	±	207Pb*	±	206Pb*	±	Best age	±	Error	Disc.
	(ppm)	204Pb		207Pb*	(%)	235U*	(%)	238U	(%)	corr.	238U*	(Ma)	235U	(Ma)	207Pb*	(Ma)	(Ma)	(Ma)	(%)	(%)
1987LHA27-5 - 6	28	14003	2.8	12.1719	4.7	2.3775	5.8	0.2099	3.4	0.59	1228.2	38.5	1235.9	41.7	1249.2	92.0	<b>1249.2</b>	<b>92.0</b>	7.4	98.3
1987LHA27-5 - 76	96	36937	4.0	12.0279	2.5	2.4873	2.9	0.2170	1.6	0.55	1265.9	18.6	1268.4	21.3	1272.5	47.9	<b>1272.5</b>	<b>47.9</b>	3.8	99.5
1987LHA27-5 - 78	108	54580	2.4	11.3446	1.2	2.8787	2.5	0.2369	2.2	0.88	1370.3	27.1	1376.3	18.8	1385.7	23.1	<b>1385.7</b>	<b>23.1</b>	1.7	98.9
1987LHA27-5 - 29	175	118968	3.2	10.8145	0.8	3.2216	1.5	0.2527	1.3	0.86	1452.3	16.8	1462.4	11.6	1477.0	14.4	<b>1477.0</b>	<b>14.4</b>	1.0	98.3
1987LHA27-5 - 98	229	19867	1.0	10.7178	0.6	2.9918	2.9	0.2326	2.8	0.98	1347.9	33.9	1405.5	21.7	1494.0	11.6	<b>1494.0</b>	<b>11.6</b>	0.8	90.2
1987LHA27-5 - 64	56	27175	2.0	10.7053	3.4	3.4306	3.9	0.2664	1.8	0.46	1522.3	24.1	1511.4	30.5	1496.2	65.1	<b>1496.2</b>	<b>65.1</b>	4.3	101.7
1987LHA27-5 - 16	23	18803	1.0	9.2158	4.7	4.9059	5.2	0.3279	2.2	0.42	1828.2	34.8	1803.3	43.7	1774.5	85.6	<b>1774.5</b>	<b>85.6</b>	4.8	103.0
1987LHA27-5 - 15	69	60287	0.9	9.1202	0.9	4.8966	2.0	0.3239	1.7	0.88	1808.7	27.6	1801.7	16.7	1793.5	17.0	<b>1793.5</b>	<b>17.0</b>	0.9	100.8
1987LHA27-5 - 38	31	25515	0.5	9.0702	2.7	4.8961	2.9	0.3221	1.0	0.34	1799.9	15.7	1801.6	24.6	1803.5	49.8	<b>1803.5</b>	<b>49.8</b>	2.8	99.8
1987LHA27-5 - 71	62	56984	1.4	9.0169	1.0	5.0150	1.6	0.3280	1.2	0.78	1828.5	19.9	1821.9	13.6	1814.2	18.4	<b>1814.2</b>	<b>18.4</b>	1.0	100.8
1987LHA27-5 - 24	32	22144	1.3	9.0057	2.8	5.0916	4.2	0.3326	3.0	0.73	1850.8	48.8	1834.7	35.3	1816.5	51.7	<b>1816.5</b>	<b>51.7</b>	2.8	101.9
1987LHA27-5 - 5	303	18115	5.5	8.9853	0.4	4.7023	3.9	0.3064	3.9	0.99	1723.1	58.6	1767.6	32.6	1820.6	7.6	<b>1820.6</b>	<b>7.6</b>	0.4	94.6
1987LHA27-5 - 56	29	12296	1.5	8.9571	2.7	5.1227	3.2	0.3328	1.7	0.54	1851.9	27.8	1839.9	27.3	1826.3	49.1	<b>1826.3</b>	<b>49.1</b>	2.7	101.4
1987LHA27-5 - 80	41	19611	0.8	8.9423	2.5	5.0707	2.8	0.3289	1.3	0.47	1832.9	21.5	1831.2	24.2	1829.3	45.5	<b>1829.3</b>	<b>45.5</b>	2.5	100.2
1987LHA27-5 - 20	67	87630	1.7	8.9231	1.5	5.1133	2.5	0.3309	2.0	0.80	1842.8	31.5	1838.3	21.0	1833.2	27.1	<b>1833.2</b>	<b>27.1</b>	1.5	100.5
1987LHA27-5 - 1	237	161548	2.9	8.8921	0.6	5.2951	2.7	0.3415	2.6	0.98	1893.8	42.8	1868.1	22.8	1839.5	10.2	<b>1839.5</b>	<b>10.2</b>	0.6	103.0
1987LHA27-5 - 101	98	54224	2.1	8.8876	1.1	5.1931	2.0	0.3347	1.7	0.84	1861.3	27.7	1851.5	17.4	1840.4	20.4	<b>1840.4</b>	<b>20.4</b>	1.1	101.1
1987LHA27-5 - 66	180	170161	2.7	8.8760	0.4	5.1650	1.0	0.3325	0.9	0.90	1850.5	14.7	1846.9	8.6	1842.8	8.0	<b>1842.8</b>	<b>8.0</b>	0.4	100.4
1987LHA27-5 - 73	51	33498	1.6	8.8582	2.5	5.1344	4.6	0.3299	3.9	0.84	1837.7	61.7	1841.8	39.2	1846.4	45.5	<b>1846.4</b>	<b>45.5</b>	2.5	99.5
1987LHA27-5 - 30	22	11932	1.5	8.8450	2.9	5.0222	3.2	0.3222	1.4	0.43	1800.3	21.5	1823.1	27.3	1849.1	52.8	<b>1849.1</b>	<b>52.8</b>	2.9	97.4
1987LHA27-5 - 67	98	170697	1.1	8.8275	0.9	5.2667	2.7	0.3372	2.6	0.95	1873.1	41.6	1863.5	23.1	1852.7	15.8	<b>1852.7</b>	<b>15.8</b>	0.9	101.1
1987LHA27-5 - 36	32	23669	1.4	8.7986	2.3	5.1075	3.3	0.3259	2.4	0.72	1818.6	37.2	1837.3	27.7	1858.6	41.0	<b>1858.6</b>	<b>41.0</b>	2.2	97.8
1987LHA27-5 - 63	26	16317	1.6	8.7715	3.1	4.9455	4.3	0.3146	3.0	0.69	1763.4	46.1	1810.1	36.4	1864.2	56.1	<b>1864.2</b>	<b>56.1</b>	3.0	94.6
1987LHA27-5 - 77	103	92739	2.3	8.7651	1.0	5.2155	2.3	0.3316	2.1	0.90	1845.9	33.3	1855.2	19.7	1865.5	18.4	<b>1865.5</b>	<b>18.4</b>	1.0	98.9
1987LHA27-5 - 55	66	5988	1.7	8.7191	1.0	5.4881	2.9	0.3471	2.7	0.94	1920.5	45.1	1898.7	24.8	1875.0	17.6	<b>1875.0</b>	<b>17.6</b>	0.9	102.4
1987LHA27-5 - 35	25	28554	0.7	8.6688	2.9	5.5302	3.6	0.3477	2.0	0.57	1923.6	33.8	1905.3	30.5	1885.4	52.4	<b>1885.4</b>	<b>52.4</b>	2.8	102.0
1987LHA27-5 - 51	143	140560	0.8	8.6190	0.6	5.5343	2.8	0.3460	2.8	0.98	1915.3	45.9	1905.9	24.4	1895.8	10.4	<b>1895.8</b>	<b>10.4</b>	0.5	101.0
1987LHA27-5 - 74	51	51906	1.0	8.6143	1.3	5.6373	3.8	0.3522	3.5	0.94	1945.1	59.5	1921.8	32.6	1896.8	23.8	<b>1896.8</b>	<b>23.8</b>	1.3	102.5
1987LHA27-5 - 95	102	97922	1.5	8.6126	1.2	5.6710	3.3	0.3542	3.1	0.93	1954.8	52.0	1927.0	28.5	1897.1	21.4	<b>1897.1</b>	<b>21.4</b>	1.1	103.0
1987LHA27-5 - 49	46	48605	0.7	8.5923	1.6	5.5860	2.3	0.3481	1.7	0.72	1925.5	27.9	1914.0	19.9	1901.4	28.7	<b>1901.4</b>	<b>28.7</b>	1.5	101.3
1987LHA27-5 - 86	122	59246	1.3	8.5659	0.7	5.7322	2.0	0.3561	1.8	0.94	1963.8	31.1	1936.2	16.9	1906.9	12.2	<b>1906.9</b>	<b>12.2</b>	0.6	103.0
1987LHA27-5 - 104	159	119367	3.5	8.5476	0.9	5.7284	2.1	0.3551	1.9	0.90	1959.0	31.6	1935.7	18.0	1910.8	16.4	<b>1910.8</b>	<b>16.4</b>	0.9	102.5

1987LHA27-5 - 11	85	128906	1.1	8.5213	0.8	5.5862	2.3	0.3452	2.1	0.93	1911.8	35.1	1914.0	19.6	1916.3	14.8	<b>1916.3</b>	<b>14.8</b>	0.8	99.8
1987LHA27-5 - 25	89	86517	1.1	8.5121	1.2	5.5781	2.1	0.3444	1.7	0.83	1907.7	28.5	1912.7	18.0	1918.2	21.2	<b>1918.2</b>	<b>21.2</b>	1.1	99.4
1987LHA27-5 - 18	106	59427	0.8	8.4895	0.9	5.5456	1.8	0.3415	1.6	0.87	1893.7	25.8	1907.7	15.5	1923.0	15.7	<b>1923.0</b>	<b>15.7</b>	0.8	98.5
1987LHA27-5 - 19	124	50633	1.5	8.4851	0.8	5.8587	3.3	0.3605	3.2	0.97	1984.8	55.0	1955.1	28.7	1923.9	13.6	<b>1923.9</b>	<b>13.6</b>	0.7	103.2
1987LHA27-5 - 94	192	140968	1.4	8.4800	0.4	5.7215	2.1	0.3519	2.0	0.99	1943.6	34.1	1934.6	17.8	1925.0	6.4	<b>1925.0</b>	<b>6.4</b>	0.3	101.0
1987LHA27-5 - 39	156	82157	2.1	8.4702	0.5	5.8278	2.4	0.3580	2.3	0.97	1972.7	39.0	1950.6	20.5	1927.1	9.8	<b>1927.1</b>	<b>9.8</b>	0.5	102.4
1987LHA27-5 - 75	33	35960	2.5	8.4581	2.7	5.7500	3.5	0.3527	2.3	0.65	1947.6	38.6	1938.9	30.5	1929.6	47.9	<b>1929.6</b>	<b>47.9</b>	2.5	100.9
1987LHA27-5 - 17	46	159334	0.6	8.4045	2.3	5.7420	3.5	0.3500	2.7	0.76	1934.6	44.5	1937.7	30.3	1941.0	40.6	<b>1941.0</b>	<b>40.6</b>	2.1	99.7
1987LHA27-5 - 68	42	35887	1.4	8.4009	1.1	5.7805	2.3	0.3522	2.0	0.89	1945.1	34.1	1943.5	19.8	1941.8	18.8	<b>1941.8</b>	<b>18.8</b>	1.0	100.2
1987LHA27-5 - 70	94	55224	2.2	8.2492	0.9	6.0596	3.1	0.3625	3.0	0.96	1994.2	51.7	1984.5	27.4	1974.3	15.6	<b>1974.3</b>	<b>15.6</b>	0.8	101.0
1987LHA27-5 - 84	111	27408	1.5	8.2482	1.2	6.2163	2.6	0.3719	2.3	0.88	2038.2	40.5	2006.7	23.0	1974.5	22.0	<b>1974.5</b>	<b>22.0</b>	1.1	103.2
1987LHA27-5 - 52	162	4431	2.0	8.2296	1.0	5.3962	5.3	0.3221	5.2	0.98	1799.9	82.0	1884.3	45.6	1978.5	17.7	<b>1978.5</b>	<b>17.7</b>	0.9	91.0
1987LHA27-5 - 44	52	70248	2.0	8.1730	1.4	5.8523	2.3	0.3469	1.7	0.77	1919.8	29.0	1954.2	19.6	1990.8	25.5	<b>1990.8</b>	<b>25.5</b>	1.3	96.4
1987LHA27-5 - 105	29	80085	3.5	8.1254	2.1	6.3507	4.2	0.3743	3.6	0.86	2049.4	62.7	2025.5	36.5	2001.2	38.0	<b>2001.2</b>	<b>38.0</b>	1.9	102.4
1987LHA27-5 - 60	59	47968	1.6	8.1090	1.6	6.1507	2.2	0.3617	1.6	0.71	1990.4	27.1	1997.5	19.5	2004.8	27.8	<b>2004.8</b>	<b>27.8</b>	1.4	99.3
1987LHA27-5 - 53	197	68256	2.1	8.0699	0.5	5.9133	1.2	0.3461	1.1	0.92	1915.9	19.0	1963.2	10.8	2013.4	8.4	<b>2013.4</b>	<b>8.4</b>	0.4	95.2
1987LHA27-5 - 21	32	42777	0.9	7.8939	1.9	6.4779	2.6	0.3709	1.8	0.68	2033.5	31.3	2042.9	23.2	2052.4	34.0	<b>2052.4</b>	<b>34.0</b>	1.7	99.1
1987LHA27-5 - 58	64	25903	2.2	7.8569	1.0	6.6832	1.6	0.3808	1.3	0.80	2080.2	22.7	2070.4	14.1	2060.7	16.8	<b>2060.7</b>	<b>16.8</b>	0.8	100.9
1987LHA27-5 - 88	89	64644	2.2	7.8112	1.2	6.6494	3.1	0.3767	2.8	0.92	2060.9	50.2	2065.9	27.3	2071.0	21.3	<b>2071.0</b>	<b>21.3</b>	1.0	99.5
1987LHA27-5 - 82	16	7767	2.7	7.7482	3.4	6.8774	3.9	0.3865	1.9	0.48	2106.5	33.9	2095.8	34.5	2085.2	60.0	<b>2085.2</b>	<b>60.0</b>	2.9	101.0
1987LHA27-5 - 3	186	52353	2.0	7.7197	0.5	6.8787	2.1	0.3851	2.1	0.97	2100.2	37.4	2095.9	19.0	2091.7	8.5	<b>2091.7</b>	<b>8.5</b>	0.4	100.4
1987LHA27-5 - 83	41	40908	1.4	7.7173	2.2	7.0036	3.3	0.3920	2.5	0.76	2132.1	45.2	2111.9	29.3	2092.3	38.0	<b>2092.3</b>	<b>38.0</b>	1.8	101.9
1987LHA27-5 - 37	110	92312	14.5	7.6533	0.4	6.7394	3.1	0.3741	3.1	0.99	2048.6	54.0	2077.8	27.4	2106.9	7.1	<b>2106.9</b>	<b>7.1</b>	0.3	97.2
1987LHA27-5 - 26	54	44669	1.5	7.4718	1.7	7.2890	2.9	0.3950	2.4	0.82	2146.0	43.6	2147.5	26.0	2148.9	28.9	<b>2148.9</b>	<b>28.9</b>	1.3	99.9
1987LHA27-5 - 9	27	19407	2.3	7.1157	2.0	7.9509	4.5	0.4103	4.0	0.90	2216.4	75.6	2225.5	40.5	2233.8	34.0	<b>2233.8</b>	<b>34.0</b>	1.5	99.2
1987LHA27-5 - 42	76	180452	1.9	7.0405	1.4	7.9360	2.9	0.4052	2.5	0.88	2193.1	46.7	2223.8	25.8	2252.1	23.6	<b>2252.1</b>	<b>23.6</b>	1.0	97.4
1987LHA27-5 - 34	170	186655	2.5	6.9039	0.5	8.5609	2.8	0.4287	2.7	0.98	2299.7	52.3	2292.4	25.1	2285.9	9.1	<b>2285.9</b>	<b>9.1</b>	0.4	100.6
1987LHA27-5 - 40	95	146990	1.5	6.8714	0.9	8.7885	3.5	0.4380	3.4	0.97	2341.6	67.5	2316.3	32.4	2294.1	15.1	<b>2294.1</b>	<b>15.1</b>	0.7	102.1
1987LHA27-5 - 50	176	8074	1.7	6.8372	0.5	8.0166	3.1	0.3975	3.1	0.99	2157.7	56.0	2232.9	28.0	2302.6	9.1	<b>2302.6</b>	<b>9.1</b>	0.4	93.7
1987LHA27-5 - 103	10	21214	2.3	6.8132	6.0	8.6369	6.5	0.4268	2.5	0.38	2291.2	47.6	2300.5	58.8	2308.6	102.5	<b>2308.6</b>	<b>102.5</b>	4.4	99.2
1987LHA27-5 - 91	101	238025	0.9	6.7778	0.5	8.7183	2.2	0.4286	2.2	0.98	2299.3	42.4	2309.0	20.5	2317.6	8.4	<b>2317.6</b>	<b>8.4</b>	0.4	99.2
1987LHA27-5 - 14	89	18026	1.2	6.7097	1.5	8.7627	7.1	0.4264	6.9	0.98	2289.6	133.4	2313.6	64.6	2334.9	25.4	<b>2334.9</b>	<b>25.4</b>	1.1	98.1
1987LHA27-5 - 54	87	13940	2.3	6.6919	1.0	9.2706	1.9	0.4499	1.7	0.87	2395.0	33.7	2365.1	17.7	2339.5	16.3	<b>2339.5</b>	<b>16.3</b>	0.7	102.4
1987LHA27-5 - 28	51	34771	1.5	6.6746	1.3	9.2357	2.3	0.4471	1.9	0.83	2382.3	38.1	2361.7	21.0	2343.9	21.8	<b>2343.9</b>	<b>21.8</b>	0.9	101.6
1987LHA27-5 - 2	191	145799	1.7	6.5410	0.2	9.7968	2.1	0.4648	2.1	1.00	2460.5	43.8	2415.8	19.8	2378.4	3.4	<b>2378.4</b>	<b>3.4</b>	0.1	103.5
1987LHA27-5 - 85	53	47112	1.8	6.5397	1.2	9.1649	2.3	0.4347	1.9	0.84	2326.8	36.9	2354.6	20.7	2378.7	21.1	<b>2378.7</b>	<b>21.1</b>	0.9	97.8
1987LHA27-5 - 43	124	146635	2.7	6.3626	0.4	9.6656	2.7	0.4460	2.6	0.99	2377.5	52.2	2403.4	24.5	2425.4	7.5	<b>2425.4</b>	<b>7.5</b>	0.3	98.0
1987LHA27-5 - 33	44	36626	2.2	6.2977	1.1	10.0809	2.4	0.4604	2.2	0.89	2441.5	44.3	2442.2	22.6	2442.8	18.6	<b>2442.8</b>	<b>18.6</b>	0.8	99.9



1987LHA27-5 - 65	50	70068	2.7	6.2447	1.0	10.1903	3.0	0.4615	2.9	0.95	2446.3	58.3	2452.2	28.0	2457.1	16.3	<b>2457.1</b>	<b>16.3</b>	0.7	99.6
1987LHA27-5 - 97	232	43859	3.9	6.1982	0.4	10.2082	1.8	0.4589	1.8	0.97	2434.7	36.3	2453.8	17.0	2469.7	7.3	<b>2469.7</b>	<b>7.3</b>	0.3	98.6
1987LHA27-5 - 27	40	50599	1.3	5.8667	0.7	11.5620	3.1	0.4920	3.0	0.97	2579.1	64.4	2569.6	29.1	2562.1	12.2	<b>2562.1</b>	<b>12.2</b>	0.5	100.7
1987LHA27-5 - 99	165	15347	2.3	5.8348	0.5	10.6132	5.2	0.4491	5.2	1.00	2391.4	104.0	2489.9	48.6	2571.2	8.7	<b>2571.2</b>	<b>8.7</b>	0.3	93.0
1987LHA27-5 - 81	39	36988	1.0	5.8242	2.4	12.1430	7.4	0.5129	7.0	0.94	2669.1	153.6	2615.5	69.9	2574.3	40.8	<b>2574.3</b>	<b>40.8</b>	1.6	103.7
1987LHA27-5 - 57	112	63152	1.8	5.6691	0.7	11.3678	2.9	0.4674	2.8	0.97	2472.1	58.1	2553.8	27.3	2619.3	12.2	<b>2619.3</b>	<b>12.2</b>	0.5	94.4
1987LHA27-5 - 96	75	71727	1.7	5.4575	0.7	12.7306	1.2	0.5039	1.0	0.82	2630.5	21.4	2659.9	11.4	2682.3	11.5	<b>2682.3</b>	<b>11.5</b>	0.4	98.1
1987LHA27-5 - 93	44	81572	2.4	5.4143	0.7	13.3869	3.3	0.5257	3.2	0.98	2723.2	70.9	2707.3	30.8	2695.5	11.2	<b>2695.5</b>	<b>11.2</b>	0.4	101.0
1987LHA27-5 - 102	59	129885	1.3	5.3673	0.4	13.5301	1.1	0.5267	1.0	0.92	2727.5	21.8	2717.4	10.1	2709.9	7.0	<b>2709.9</b>	<b>7.0</b>	0.3	100.7
1987LHA27-5 - 90	48	53894	1.6	5.3103	0.8	13.3721	2.8	0.5150	2.7	0.96	2678.0	59.7	2706.3	26.7	2727.5	12.4	<b>2727.5</b>	<b>12.4</b>	0.5	98.2
1987LHA27-5 - 87	104	113438	1.2	5.2059	0.4	14.0594	2.1	0.5308	2.1	0.98	2745.0	46.9	2753.7	20.3	2760.1	7.2	<b>2760.1</b>	<b>7.2</b>	0.3	99.5
1987LHA27-5 - 10	91	69863	1.3	5.1293	0.4	15.3205	2.0	0.5699	2.0	0.98	2907.6	47.0	2835.4	19.5	2784.4	6.7	<b>2784.4</b>	<b>6.7</b>	0.2	104.4
1987LHA27-5 - 72	68	50224	1.3	5.0075	0.7	13.4308	2.9	0.4878	2.9	0.97	2561.0	60.5	2710.4	27.8	2823.8	10.9	<b>2823.8</b>	<b>10.9</b>	0.4	90.7
1987LHA27-5 - 41	90	41282	2.3	4.8554	1.2	15.6963	3.0	0.5527	2.8	0.92	2836.6	64.7	2858.5	29.1	2874.0	18.8	<b>2874.0</b>	<b>18.8</b>	0.7	98.7
1987LHA27-5 - 59	27	6766	1.2	<i>13.8103</i>	7.3	<i>1.7053</i>	8.8	<i>0.1708</i>	5.0	<i>0.56</i>	<i>1016.5</i>	46.6	<i>1010.5</i>	56.3	997.5	147.6	<del>997.5</del>	<del>147.6</del>	14.8	<i>101.9</i>
1987LHA27-5 - 13	58	42787	1.8	<i>8.1111</i>	1.9	<i>5.2402</i>	7.5	<i>0.3083</i>	7.3	<i>0.97</i>	<i>1732.2</i>	110.4	<i>1859.2</i>	64.2	2004.3	34.5	<del>2004.3</del>	<del>34.5</del>	1.7	86.4

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Analyses in italics exceed the discordance limits of 10% to -5%, or the uncertainty limit of 5%, and are not considered further in the interpretation.

All uncertainties are reported at the 1-sigma level, and include only measurement errors. Systematic errors would increase age uncertainties by 1-2%.

U concentration and U/Th are calibrated relative to NIST SRM 610 and are accurate to ~20%.

Common Pb correction is from  $^{204}\text{Pb}$ , with composition interpreted from Stacey and Kramers (1975) and uncertainties of 1.0 for  $^{206}\text{Pb}/^{204}\text{Pb}$ , 0.3 for  $^{207}\text{Pb}/^{204}\text{Pb}$ , and 2.0 for  $^{208}\text{Pb}/^{204}\text{Pb}$ .

U/Pb and  $^{206}\text{Pb}/^{207}\text{Pb}$  fractionation is calibrated relative to fragments of a large Sri Lanka zircon of  $564 \pm 4$  Ma (2-sigma).

U decay constants and composition as follows:  $^{238}\text{U} = 9.8485 \times 10^{-10}$ ,  $^{235}\text{U} = 1.55125 \times 10^{-10}$ ,  $^{238}\text{U}/^{235}\text{U} = 137.88$

1000 Ma used as best age cutoff between  $^{206}\text{Pb}/^{238}\text{U}$  and  $^{206}\text{Pb}/^{207}\text{Pb}$



**Table 3: Data Table for  $^{40}\text{Ar}/^{39}\text{Ar}$  ages from Neruokpuk muscovite and whole-rock samples**

**87LHA27-5 White Mica**

Weighted average of J from standards = 0.007800 +/- 0.000020

Laser (mW)	Cum. $^{39}\text{Ar}$	$^{40}\text{Ar}/^{39}\text{Ar}$ measured	+/-	$^{37}\text{Ar}/^{39}\text{Ar}$ measured	+/-	$^{36}\text{Ar}/^{39}\text{Ar}$ measured	+/-	% Atm. $^{40}\text{Ar}$	Ca/K	+/-	Cl/K	+/-	$^{40}\text{Ar}^*/^{39}\text{Ar}_K$	+/-	Age (Ma)	+/- (Ma)
150	0.0024	131.23	3.04	-0.3159	0.1456	0.2679	0.0137	60.3	-0.5795	0.2670	0.01558	0.00344	52.013	3.840	614.3	38.4
300	0.0140	149.05	1.37	-0.0488	0.0273	0.0476	0.0014	9.4	-0.0895	0.0501	0.00671	0.00074	134.955	1.379	1297.3	9.5
450	0.0353	189.74	1.84	-0.0350	0.0204	0.0085	0.0011	1.3	-0.0643	0.0374	0.00207	0.00057	187.182	1.845	1623.9	10.6
600	0.0946	204.42	4.18	-0.0139	0.0055	0.0020	0.0006	0.3	-0.0255	0.0101	0.00048	0.00015	203.813	4.185	1716.6	22.7
750	0.2015	317.36	6.46	-0.0019	0.0036	0.0021	0.0003	0.2	-0.0035	0.0066	0.00047	0.00012	316.703	6.463	2244.7	26.2
900	0.3587	223.02	4.54	-0.0001	0.0022	0.0014	0.0002	0.2	-0.0002	0.0039	0.00157	0.00008	222.579	4.544	1815.8	23.4
1050	0.5021	241.82	4.92	-0.0025	0.0018	0.0015	0.0001	0.2	-0.0046	0.0033	0.00027	0.00006	241.344	4.921	1909.9	24.0
1200	0.5905	265.56	5.44	-0.0001	0.0022	0.0003	0.0002	0.0	-0.0002	0.0040	0.00031	0.00012	265.454	5.438	2023.9	24.9
1400	0.6677	218.68	4.56	-0.0038	0.0039	0.0007	0.0003	0.1	-0.0071	0.0071	0.00049	0.00013	218.436	4.563	1794.4	23.8
1600	0.7172	209.48	4.32	-0.0036	0.0044	-0.0002	0.0005	0.0	-0.0067	0.0080	0.00018	0.00010	209.519	4.324	1747.4	23.1
2000	0.7570	235.13	5.01	0.0011	0.0067	-0.0002	0.0005	0.0	0.0021	0.0124	0.00027	0.00021	235.159	5.012	1879.4	24.9
2500	0.7839	283.27	5.98	-0.0076	0.0087	-0.0005	0.0006	-0.1	-0.0140	0.0160	0.00002	0.00019	283.391	5.985	2104.3	26.2
3500	0.8870	200.66	4.13	-0.0017	0.0022	0.0009	0.0002	0.1	-0.0031	0.0041	0.00048	0.00006	200.364	4.132	1697.8	22.7
8500	0.9326	229.44	4.73	-0.0072	0.0040	-0.0002	0.0009	0.0	-0.0132	0.0073	0.00005	0.00013	229.470	4.734	1850.9	23.9
9000	1.0000	210.17	4.43	0.0061	0.0031	0.0012	0.0003	0.2	0.0113	0.0056	0.00192	0.00013	209.781	4.433	1748.8	23.7
Integrated		234.88	1.53	-0.0042	0.0011	0.0024	0.0001	0.3	-0.0078	0.0021	0.00079	0.00004	234.151	1.528	1874.4	8.2

**90LHA39-4C White Mica**

Weighted average of J from standards = 0.007800 +/- 0.000020

Laser (mW)	Cum. $^{39}\text{Ar}$	$^{40}\text{Ar}/^{39}\text{Ar}$ measured	+/-	$^{37}\text{Ar}/^{39}\text{Ar}$ measured	+/-	$^{36}\text{Ar}/^{39}\text{Ar}$ measured	+/-	% Atm. $^{40}\text{Ar}$	Ca/K	+/-	Cl/K	+/-	$^{40}\text{Ar}^*/^{39}\text{Ar}_K$	+/-	Age (Ma)	+/- (Ma)
150	0.0036	392.65	6.29	-0.0463	0.0575	1.2218	0.0222	92.0	-0.0849	0.1056	0.02549	0.00252	31.574	3.561	397.2	40.2
300	0.0168	114.15	1.11	-0.0130	0.0183	0.1334	0.0032	34.6	-0.0239	0.0336	0.00318	0.00059	74.688	1.169	828.1	10.4
400	0.0359	147.07	1.23	-0.0103	0.0110	0.0390	0.0014	7.8	-0.0188	0.0202	0.00090	0.00027	135.525	1.216	1301.2	8.3
450	0.0567	185.54	1.04	-0.0262	0.0135	0.0184	0.0011	2.9	-0.0481	0.0248	0.00044	0.00033	180.055	1.069	1582.7	6.3
475	0.0714	200.60	1.83	-0.0225	0.0147	0.0088	0.0014	1.3	-0.0412	0.0269	0.00081	0.00058	197.970	1.855	1684.6	10.3
500	0.0871	213.43	2.56	-0.0453	0.0141	0.0045	0.0021	0.6	-0.0831	0.0259	-0.00028	0.00029	212.078	2.622	1761.0	13.9
525	0.1092	223.74	1.72	-0.0384	0.0131	0.0037	0.0013	0.5	-0.0705	0.0239	0.00018	0.00039	222.607	1.755	1816.0	9.0
550	0.1405	217.99	4.59	-0.0037	0.0048	0.0053	0.0007	0.7	-0.0067	0.0087	0.00049	0.00020	216.390	4.594	1783.7	24.1
575	0.1735	227.91	4.73	-0.0054	0.0053	0.0056	0.0006	0.7	-0.0098	0.0097	0.00005	0.00016	226.234	4.733	1834.5	24.1
600	0.2012	243.68	5.16	0.0031	0.0074	0.0091	0.0007	1.1	0.0057	0.0136	0.00055	0.00021	240.979	5.162	1908.1	25.2
625	0.2242	262.81	5.55	-0.0206	0.0092	0.0023	0.0011	0.3	-0.0379	0.0170	-0.00013	0.00025	262.085	5.558	2008.4	25.7
635	0.2516	271.54	6.06	-0.0129	0.0089	0.0031	0.0006	0.3	-0.0236	0.0163	0.00035	0.00018	270.587	6.057	2047.2	27.4



645	0.2763	279.49	5.71	-0.0033	0.0090	0.0019	0.0009	0.2	-0.0061	0.0165	0.00039	0.00011	278.902	5.719	2084.5	25.4
655	0.3033	279.34	5.68	-0.0154	0.0082	0.0020	0.0007	0.2	-0.0283	0.0151	0.00032	0.00016	278.703	5.686	2083.6	25.2
675	0.3342	270.63	5.86	-0.0216	0.0083	0.0018	0.0006	0.2	-0.0396	0.0152	0.00065	0.00024	270.069	5.865	2044.9	26.6
685	0.3632	271.15	5.84	0.0033	0.0091	0.0008	0.0007	0.1	0.0061	0.0166	0.00026	0.00025	270.886	5.843	2048.6	26.4
695	0.3914	266.97	5.58	0.0065	0.0120	0.0006	0.0005	0.1	0.0119	0.0219	0.00050	0.00017	266.755	5.579	2029.8	25.5
705	0.4139	275.93	5.71	0.0050	0.0132	0.0008	0.0007	0.1	0.0091	0.0243	0.00051	0.00023	275.679	5.713	2070.1	25.5
715	0.4396	287.78	6.03	-0.0113	0.0148	0.0012	0.0007	0.1	-0.0206	0.0272	0.00064	0.00011	287.406	6.033	2121.8	26.2
725	0.4632	281.98	5.95	0.0117	0.0136	-0.0007	0.0007	-0.1	0.0214	0.0249	0.00030	0.00041	282.168	5.954	2098.9	26.2
735	0.4824	277.98	6.27	0.0095	0.0149	0.0005	0.0008	0.1	0.0174	0.0274	0.00085	0.00043	277.788	6.272	2079.5	27.9
745	0.4967	266.86	1.68	-0.0261	0.0209	-0.0062	0.0012	-0.7	-0.0479	0.0383	-0.00011	0.00030	268.662	1.727	2038.5	7.9
750	0.5056	248.76	3.09	0.0114	0.0561	-0.0039	0.0017	-0.5	0.0209	0.1030	-0.00008	0.00042	249.888	3.150	1951.1	15.0
755	0.5249	235.38	1.20	-0.0386	0.0145	0.0018	0.0012	0.2	-0.0708	0.0267	-0.00019	0.00028	234.827	1.249	1877.8	6.2
760	0.5349	235.55	1.88	-0.0284	0.0278	-0.0049	0.0026	-0.6	-0.0522	0.0510	-0.00074	0.00062	236.958	2.040	1888.3	10.1
765	0.5400	243.90	3.03	-0.0347	0.0504	-0.0057	0.0027	-0.7	-0.0637	0.0925	-0.00060	0.00072	245.549	3.150	1930.3	15.2
770	0.5459	233.54	4.19	0.0141	0.0530	-0.0064	0.0036	-0.8	0.0258	0.0973	-0.00002	0.00067	235.386	4.358	1880.5	21.6
775	0.5520	228.93	1.36	0.0488	0.0382	-0.0008	0.0031	-0.1	0.0896	0.0701	-0.00116	0.00086	229.151	1.632	1849.3	8.2
780	0.5578	225.78	3.21	0.0077	0.0396	-0.0001	0.0040	0.0	0.0142	0.0727	-0.00027	0.00098	225.791	3.416	1832.3	17.4
785	0.5640	226.78	2.01	0.0321	0.0345	-0.0007	0.0034	-0.1	0.0588	0.0633	-0.00030	0.00069	226.975	2.258	1838.3	11.5
790	0.5697	224.13	2.05	0.0078	0.0449	-0.0066	0.0051	-0.9	0.0142	0.0825	-0.00006	0.00130	226.066	2.560	1833.7	13.0
795	0.5758	229.62	2.01	0.0405	0.0376	-0.0037	0.0031	-0.5	0.0743	0.0689	0.00078	0.00099	230.680	2.216	1857.0	11.1
800	0.5819	222.55	4.67	-0.0788	0.0346	-0.0085	0.0043	-1.1	-0.1446	0.0634	-0.00005	0.00092	225.017	4.882	1828.3	24.9
805	0.5870	231.14	2.40	-0.1322	0.0313	-0.0085	0.0053	-1.1	-0.2425	0.0574	0.00019	0.00088	233.590	2.884	1871.6	14.4
810	0.5933	221.58	2.86	-0.0594	0.0503	-0.0067	0.0040	-0.9	-0.1089	0.0922	-0.00033	0.00079	223.509	3.119	1820.6	16.0
815	0.5978	229.09	5.81	-0.0863	0.0497	-0.0155	0.0072	-2.0	-0.1583	0.0912	-0.00072	0.00131	233.605	6.298	1871.7	31.4
820	0.6032	221.18	1.11	-0.1208	0.0522	-0.0089	0.0048	-1.2	-0.2217	0.0957	0.00016	0.00107	223.767	1.800	1821.9	9.2
825	0.6086	227.75	5.75	-0.1555	0.0381	-0.0099	0.0043	-1.3	-0.2852	0.0700	-0.00101	0.00119	230.598	5.962	1856.6	30.0
830	0.6133	229.93	5.05	-0.1336	0.0555	-0.0096	0.0061	-1.2	-0.2452	0.1018	-0.00065	0.00103	232.711	5.420	1867.2	27.1
840	0.6187	219.47	4.45	-0.0218	0.0443	-0.0006	0.0039	-0.1	-0.0400	0.0812	-0.00286	0.00117	219.614	4.599	1800.5	23.9
850	0.6247	222.49	2.48	-0.0643	0.0485	-0.0031	0.0029	-0.4	-0.1180	0.0890	-0.00163	0.00089	223.361	2.635	1819.9	13.5
860	0.6308	216.92	2.84	-0.0382	0.0553	0.0002	0.0032	0.0	-0.0702	0.1014	-0.00181	0.00137	216.826	2.992	1786.0	15.6
870	0.6362	224.21	2.85	-0.0208	0.0664	-0.0018	0.0024	-0.2	-0.0381	0.1219	-0.00114	0.00120	224.704	2.942	1826.7	15.0
880	0.6443	225.18	4.20	0.0015	0.0353	-0.0042	0.0013	-0.5	0.0028	0.0648	-0.00048	0.00084	226.390	4.243	1835.3	21.6
890	0.6487	237.14	5.10	-0.0104	0.0589	-0.0090	0.0035	-1.1	-0.0191	0.1082	0.00075	0.00098	239.766	5.259	1902.1	25.8
900	0.6570	222.63	2.15	-0.0609	0.0305	-0.0091	0.0024	-1.2	-0.1117	0.0560	-0.00087	0.00066	225.265	2.286	1829.6	11.7
910	0.6655	219.35	1.79	-0.0432	0.0361	-0.0091	0.0017	-1.2	-0.0793	0.0663	-0.00048	0.00061	222.010	1.885	1812.9	9.7
920	0.6711	226.71	4.42	0.0350	0.0380	-0.0064	0.0020	-0.8	0.0643	0.0696	0.00049	0.00102	228.575	4.498	1846.4	22.7
930	0.6797	218.80	2.32	-0.0260	0.0269	-0.0063	0.0025	-0.8	-0.0478	0.0494	-0.00048	0.00049	220.609	2.456	1805.7	12.7

940	0.6866	226.08	5.22	-0.0616	0.0365	-0.0074	0.0017	-1.0	-0.1130	0.0670	0.00084	0.00061	228.229	5.295	1844.7	26.8
950	0.6926	235.99	2.51	-0.1606	0.0654	-0.0102	0.0026	-1.3	-0.2947	0.1199	0.00089	0.00092	238.942	2.652	1898.1	13.0
960	0.6989	233.26	4.39	-0.1050	0.0362	-0.0058	0.0028	-0.7	-0.1926	0.0665	0.00069	0.00168	234.913	4.502	1878.2	22.4
970	0.7046	243.63	3.56	-0.1529	0.0633	-0.0100	0.0027	-1.2	-0.2805	0.1161	0.00021	0.00097	246.508	3.691	1934.9	17.8
980	0.7109	234.94	3.37	-0.0848	0.0462	-0.0056	0.0020	-0.7	-0.1556	0.0847	0.00089	0.00078	236.527	3.440	1886.2	17.0
990	0.7173	228.94	3.02	-0.1201	0.0429	-0.0083	0.0030	-1.1	-0.2204	0.0786	-0.00076	0.00098	231.341	3.171	1860.3	15.9
1000	0.7244	231.53	2.30	-0.0751	0.0380	-0.0076	0.0021	-1.0	-0.1378	0.0696	0.00050	0.00075	233.714	2.403	1872.2	12.0
1020	0.7531	209.16	4.46	-0.0010	0.0099	0.0019	0.0010	0.3	-0.0018	0.0181	0.00082	0.00024	208.588	4.465	1742.4	23.9
1040	0.7661	217.18	1.88	-0.0512	0.0230	-0.0024	0.0021	-0.3	-0.0940	0.0422	-0.00017	0.00022	217.837	1.984	1791.3	10.3
1060	0.7746	221.08	3.91	0.0056	0.0360	0.0017	0.0042	0.2	0.0102	0.0660	-0.00106	0.00051	220.556	4.095	1805.4	21.2
1080	0.7833	223.71	3.73	-0.0211	0.0374	-0.0023	0.0036	-0.3	-0.0386	0.0686	0.00018	0.00071	224.367	3.890	1825.0	19.9
1100	0.7915	225.54	3.43	-0.0218	0.0297	0.0021	0.0033	0.3	-0.0400	0.0546	-0.00061	0.00072	224.888	3.559	1827.7	18.2
1150	0.8066	229.73	1.22	-0.0211	0.0162	-0.0042	0.0011	-0.5	-0.0387	0.0296	0.00059	0.00054	230.947	1.264	1858.4	6.4
1200	0.8189	230.15	1.20	-0.0315	0.0171	-0.0028	0.0015	-0.4	-0.0578	0.0314	-0.00037	0.00053	230.942	1.279	1858.3	6.4
1275	0.8277	229.53	2.07	-0.0336	0.0281	-0.0038	0.0020	-0.5	-0.0616	0.0516	-0.00015	0.00084	230.613	2.158	1856.7	10.9
1350	0.8384	222.80	1.44	-0.0328	0.0198	-0.0012	0.0017	-0.2	-0.0602	0.0363	0.00014	0.00061	223.133	1.521	1818.7	7.8
1450	0.8509	225.59	2.02	0.0068	0.0139	-0.0030	0.0014	-0.4	0.0124	0.0256	0.00024	0.00064	226.444	2.065	1835.6	10.5
1550	0.8668	204.37	1.69	-0.0741	0.0177	-0.0026	0.0016	-0.4	-0.1359	0.0324	0.00013	0.00034	205.106	1.761	1723.7	9.5
2000	0.8763	223.29	2.09	-0.0227	0.0371	-0.0037	0.0019	-0.5	-0.0417	0.0681	-0.00005	0.00044	224.341	2.167	1824.9	11.1
2500	0.8813	196.26	2.09	0.0108	0.0655	0.0008	0.0031	0.1	0.0198	0.1203	-0.00039	0.00093	195.988	2.285	1673.6	12.7
3500	0.9200	246.12	5.11	-0.0130	0.0078	0.0008	0.0003	0.1	-0.0239	0.0143	0.00002	0.00016	245.835	5.112	1931.6	24.7
8500	0.9988	198.79	4.07	-0.0060	0.0035	0.0013	0.0003	0.2	-0.0110	0.0064	0.00039	0.00012	198.394	4.068	1687.0	22.5
9000	1.0000	231.97	7.66	-0.4358	0.2472	0.0045	0.0118	0.6	-0.7994	0.4533	-0.00042	0.00332	230.512	8.378	1856.2	42.1
Integrated		235.07	0.71	-0.0209	0.0023	0.0071	0.0002	0.9	-0.0383	0.0043	0.00030	0.00005	232.935	0.708	1868.3	4.7

**94LHA20-7 White Mica**

Weighted average of J from standards = 0.007800 +/- 0.000020

Laser (mW)	Cum. <sup>39</sup> Ar	<sup>40</sup> Ar/ <sup>39</sup> Ar measured	+/-	<sup>37</sup> Ar/ <sup>39</sup> Ar measured	+/-	<sup>36</sup> Ar/ <sup>39</sup> Ar measured	+/-	% Atm. <sup>40</sup> Ar	Ca/K	+/-	Cl/K	+/-	<sup>40</sup> Ar*/ <sup>39</sup> Ar <sub>K</sub>	+/-	Age (Ma)	+/- (Ma)
150	0.0036	87.10	2.98	0.3176	0.2153	0.1608	0.0163	54.5	0.5828	0.3952	0.01128	0.00313	39.593	4.758	485.5	51.2
300	0.0155	125.27	2.20	0.0496	0.0813	0.0216	0.0046	5.1	0.0910	0.1491	0.00365	0.00248	118.868	2.492	1183.5	18.2
400	0.0328	155.12	1.85	-0.0090	0.0424	0.0127	0.0032	2.4	-0.0165	0.0779	0.00124	0.00068	151.332	2.031	1406.3	13.1
450	0.0499	185.47	1.50	-0.0310	0.0405	-0.0036	0.0036	-0.6	-0.0568	0.0744	-0.00058	0.00070	186.494	1.850	1620.0	10.6
500	0.0840	193.14	1.29	-0.0067	0.0280	-0.0027	0.0015	-0.4	-0.0123	0.0514	-0.00018	0.00045	193.912	1.365	1662.0	7.6
550	0.1667	167.02	3.35	0.0175	0.0084	0.0017	0.0006	0.3	0.0322	0.0154	0.00055	0.00016	166.489	3.356	1501.5	20.5
600	0.2151	186.04	1.63	-0.0238	0.0131	-0.0028	0.0011	-0.5	-0.0437	0.0241	0.00020	0.00034	186.845	1.666	1622.0	9.5
620	0.2302	185.23	1.18	-0.0833	0.0391	-0.0084	0.0025	-1.3	-0.1529	0.0717	0.00029	0.00069	187.674	1.402	1626.7	8.0
640	0.2505	190.57	2.09	-0.0682	0.0432	-0.0073	0.0023	-1.1	-0.1252	0.0792	-0.00031	0.00037	192.681	2.225	1655.1	12.5

660	0.2725	193.87	1.95	-0.0393	0.0446	-0.0071	0.0022	-1.1	-0.0721	0.0818	0.00039	0.00030	195.920	2.072	1673.2	11.5
680	0.2968	194.91	0.92	-0.0646	0.0269	-0.0066	0.0013	-1.0	-0.1186	0.0493	0.00040	0.00073	196.806	1.007	1678.2	5.6
700	0.3816	193.81	3.96	0.0041	0.0105	-0.0006	0.0004	-0.1	0.0075	0.0193	0.00023	0.00015	193.947	3.965	1662.2	22.2
720	0.4170	192.38	1.75	-0.0833	0.0303	-0.0055	0.0015	-0.8	-0.1528	0.0556	-0.00007	0.00057	193.969	1.814	1662.4	10.2
740	0.4342	227.25	3.46	-0.1259	0.0550	-0.0087	0.0022	-1.1	-0.2310	0.1009	0.00170	0.00092	229.760	3.555	1852.4	17.9
760	0.4450	205.65	4.87	-0.1358	0.0853	-0.0071	0.0057	-1.0	-0.2492	0.1565	0.00066	0.00171	207.683	5.200	1737.6	27.9
780	0.4553	188.39	3.82	-0.0216	0.0961	-0.0031	0.0039	-0.5	-0.0396	0.1763	0.00272	0.00169	189.281	4.001	1635.9	22.7
800	0.4642	197.52	5.75	0.0039	0.0957	-0.0006	0.0052	-0.1	0.0071	0.1755	0.00295	0.00209	197.681	5.960	1683.0	33.0
830	0.4741	198.61	3.58	-0.0165	0.0658	-0.0040	0.0044	-0.6	-0.0303	0.1207	0.00072	0.00162	199.761	3.822	1694.5	21.0
860	0.4848	200.93	3.38	-0.0169	0.0592	0.0025	0.0044	0.4	-0.0311	0.1086	-0.00094	0.00109	200.167	3.609	1696.7	19.8
890	0.4953	201.33	2.66	0.0046	0.0586	0.0039	0.0045	0.6	0.0084	0.1076	0.00147	0.00100	200.162	2.956	1696.7	16.2
920	0.5111	202.10	1.59	-0.0165	0.0437	-0.0032	0.0050	-0.5	-0.0302	0.0802	0.00015	0.00084	203.004	2.171	1712.2	11.8
950	0.5694	197.19	1.53	-0.0573	0.0140	-0.0036	0.0011	-0.5	-0.1052	0.0256	-0.00022	0.00023	198.223	1.567	1686.0	8.7
980	0.5879	202.81	2.49	0.0031	0.0496	-0.0049	0.0027	-0.7	0.0056	0.0910	0.00030	0.00062	204.233	2.635	1718.9	14.3
1010	0.6033	197.77	3.90	-0.1402	0.0657	-0.0049	0.0024	-0.7	-0.2573	0.1206	0.00151	0.00098	199.158	3.988	1691.2	22.0
1050	0.6192	200.83	2.64	-0.1817	0.0412	-0.0071	0.0015	-1.0	-0.3334	0.0756	0.00155	0.00110	202.858	2.704	1711.4	14.7
1090	0.6381	198.65	3.06	-0.0744	0.0481	-0.0078	0.0022	-1.2	-0.1364	0.0883	0.00193	0.00035	200.921	3.163	1700.9	17.3
1140	0.6648	203.38	2.88	-0.1388	0.0395	-0.0070	0.0022	-1.0	-0.2547	0.0724	0.00026	0.00055	205.382	2.973	1725.2	16.1
1200	0.6945	209.20	2.73	-0.1131	0.0266	-0.0055	0.0020	-0.8	-0.2076	0.0488	0.00058	0.00063	210.760	2.808	1754.0	14.9
1300	0.7349	215.62	2.41	-0.0835	0.0246	-0.0055	0.0011	-0.8	-0.1533	0.0452	0.00051	0.00041	217.193	2.446	1787.9	12.8
1500	0.8100	209.74	4.37	-0.0087	0.0121	0.0003	0.0007	0.0	-0.0159	0.0223	0.00083	0.00013	209.632	4.375	1748.0	23.4
2000	0.9011	226.73	4.70	-0.0082	0.0132	0.0001	0.0005	0.0	-0.0151	0.0243	0.00069	0.00018	226.662	4.703	1836.7	23.9
2500	0.9438	232.63	2.59	-0.0682	0.0263	-0.0053	0.0011	-0.7	-0.1251	0.0482	0.00078	0.00046	234.135	2.623	1874.3	13.1
3500	0.9681	230.97	2.71	-0.0413	0.0362	-0.0077	0.0020	-1.0	-0.0758	0.0665	-0.00038	0.00071	233.196	2.794	1869.6	14.0
8500	1.0000	196.77	1.88	-0.0324	0.0289	-0.0055	0.0016	-0.8	-0.0595	0.0531	0.00095	0.00063	198.368	1.955	1686.8	10.8
Integrated		199.05	0.75	-0.0375	0.0051	-0.0020	0.0003	-0.3	-0.0688	0.0093	0.00058	0.00009	199.603	0.759	1693.6	5.1

**94LHA20-7 Whole Rock**

Weighted average of J from standards = 0.007800 +/- 0.000020

Laser (mW)	Cum. <sup>39</sup> Ar	<sup>40</sup> Ar/ <sup>39</sup> Ar measured	+/-	<sup>37</sup> Ar/ <sup>39</sup> Ar measured	+/-	<sup>36</sup> Ar/ <sup>39</sup> Ar measured	+/-	% Atm. <sup>40</sup> Ar	Ca/K	+/-	Cl/K	+/-	<sup>40</sup> Ar*/ <sup>39</sup> Ar <sub>K</sub>	+/-	Age (Ma)	+/- (Ma)
150	0.0174	10.81	0.18	0.0529	0.0247	0.0037	0.0011	10.1	0.0971	0.0453	0.00220	0.00025	9.689	0.364	131.4	4.8
300	0.0522	15.96	0.11	0.0177	0.0106	0.0012	0.0006	2.3	0.0325	0.0195	0.00192	0.00016	15.566	0.192	206.7	2.4
400	0.0934	24.46	0.10	0.0117	0.0069	0.0013	0.0004	1.6	0.0214	0.0127	0.00114	0.00009	24.047	0.160	310.1	1.9
450	0.1661	29.93	0.15	0.0119	0.0041	0.0002	0.0003	0.2	0.0218	0.0075	0.00046	0.00013	29.844	0.181	377.5	2.1
500	0.2333	33.37	0.16	0.0055	0.0042	-0.0005	0.0003	-0.4	0.0101	0.0077	0.00041	0.00010	33.486	0.182	418.6	2.0
550	0.2938	35.92	0.22	0.0027	0.0050	0.0001	0.0004	0.0	0.0049	0.0091	0.00019	0.00011	35.876	0.256	445.1	2.8
600	0.3532	39.54	0.16	0.0040	0.0047	-0.0002	0.0002	-0.1	0.0073	0.0087	0.00033	0.00007	39.569	0.175	485.3	1.9

620	0.4000	41.58	0.22	0.0015	0.0065	-0.0006	0.0002	-0.4	0.0027	0.0120	0.00005	0.00009	41.724	0.224	508.3	2.4
640	0.4399	42.55	0.24	-0.0032	0.0063	-0.0010	0.0004	-0.7	-0.0058	0.0115	-0.00032	0.00015	42.817	0.274	519.9	2.9
660	0.4749	43.31	0.17	0.0005	0.0071	-0.0007	0.0005	-0.5	0.0010	0.0130	0.00002	0.00016	43.503	0.235	527.1	2.5
680	0.5055	43.33	0.21	-0.0021	0.0061	-0.0009	0.0005	-0.6	-0.0038	0.0112	0.00002	0.00015	43.566	0.252	527.7	2.6
700	0.5324	44.19	0.27	-0.0103	0.0111	-0.0005	0.0005	-0.3	-0.0188	0.0203	0.00017	0.00028	44.315	0.319	535.6	3.3
720	0.5585	44.85	0.47	0.0332	0.0133	-0.0010	0.0006	-0.7	0.0609	0.0245	0.00001	0.00020	45.121	0.502	544.0	5.2
740	0.5843	45.22	0.28	0.0149	0.0115	-0.0005	0.0006	-0.3	0.0274	0.0210	0.00044	0.00034	45.338	0.327	546.3	3.4
760	0.6102	45.19	0.21	0.0126	0.0165	-0.0006	0.0004	-0.4	0.0232	0.0303	-0.00007	0.00022	45.330	0.238	546.2	2.5
780	0.6355	44.90	0.21	0.0184	0.0130	-0.0006	0.0005	-0.4	0.0338	0.0238	-0.00007	0.00028	45.038	0.259	543.1	2.7
800	0.6596	45.79	0.39	0.0277	0.0173	-0.0004	0.0007	-0.2	0.0508	0.0318	0.00027	0.00038	45.870	0.433	551.8	4.5
830	0.6846	45.74	0.59	-0.0060	0.0147	-0.0017	0.0011	-1.1	-0.0110	0.0270	0.00031	0.00027	46.205	0.677	555.2	7.0
860	0.7109	45.23	0.38	0.0060	0.0120	-0.0017	0.0005	-1.1	0.0109	0.0220	0.00026	0.00029	45.703	0.413	550.0	4.3
890	0.7380	44.72	0.32	0.0190	0.0081	-0.0010	0.0008	-0.7	0.0348	0.0149	0.00068	0.00020	44.987	0.401	542.6	4.2
920	0.7647	44.27	0.32	0.0190	0.0132	-0.0010	0.0007	-0.6	0.0349	0.0242	0.00053	0.00029	44.531	0.375	537.8	3.9
950	0.7899	43.93	0.37	0.0003	0.0073	-0.0006	0.0008	-0.4	0.0005	0.0134	0.00062	0.00027	44.084	0.436	533.2	4.6
980	0.8137	43.83	0.35	0.0301	0.0118	-0.0010	0.0006	-0.7	0.0553	0.0217	0.00040	0.00036	44.114	0.398	533.5	4.2
1010	0.8341	45.07	0.22	0.0202	0.0192	-0.0014	0.0010	-0.9	0.0371	0.0353	0.00055	0.00027	45.442	0.376	547.3	3.9
1050	0.8520	47.86	0.42	0.0110	0.0173	-0.0008	0.0011	-0.5	0.0202	0.0318	0.00031	0.00030	48.075	0.532	574.5	5.4
1090	0.8673	49.37	0.59	0.0100	0.0261	0.0001	0.0013	0.0	0.0184	0.0478	0.00092	0.00026	49.320	0.698	587.2	7.1
1140	0.8813	51.68	0.46	0.0515	0.0278	0.0009	0.0011	0.5	0.0945	0.0510	0.00003	0.00021	51.381	0.556	608.0	5.6
1200	0.8940	52.42	0.60	0.0368	0.0284	-0.0018	0.0013	-1.0	0.0675	0.0520	0.00022	0.00032	52.929	0.712	623.5	7.1
1300	0.9064	57.45	0.47	0.0530	0.0335	-0.0017	0.0016	-0.9	0.0973	0.0615	0.00060	0.00038	57.922	0.658	672.5	6.4
1500	0.9197	71.67	0.32	0.1131	0.0299	-0.0018	0.0016	-0.7	0.2075	0.0549	0.00099	0.00029	72.180	0.565	805.7	5.1
2000	0.9478	85.47	0.48	0.1927	0.0180	0.0003	0.0007	0.1	0.3535	0.0331	0.00157	0.00031	85.371	0.524	920.7	4.4
2500	0.9744	58.73	0.34	0.1446	0.0183	-0.0006	0.0012	-0.3	0.2654	0.0336	0.00168	0.00020	58.901	0.493	682.0	4.8
3500	0.9865	56.43	0.33	0.1119	0.0244	0.0030	0.0017	1.5	0.2054	0.0449	0.00214	0.00049	55.543	0.598	649.3	5.9
8500	1.0000	77.19	0.82	0.0658	0.0204	0.0046	0.0019	1.7	0.1208	0.0375	0.00328	0.00054	75.825	0.976	838.2	8.6
Integrated		42.27	0.05	0.0234	0.0020	-0.0003	0.0001	-0.2	0.0429	0.0037	0.00054	0.00004	42.319	0.060	514.6	1.3