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# New geochronological constraints from Mill, Salisbury, and Nottingham islands, Nunavut

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**Abstract:** New U-Pb results refine our understanding of the area north of the exposed limit of the Superior Craton in eastern Nunavut. On Salisbury Island, gneissic tonalite was emplaced between 2983 and 2939 Ma. A crosscutting monzogranite dyke contains zircon grains dated at 1894 ± 7 and 1856 ± 3 Ma, and minor amounts of Archean inherited zircon. A late syenogranite dyke contains two age populations at 1843 ± 8 and 1804 ± 13 Ma.

On Mill Island, tonalite gneiss, crystallized at 2816 ± 31 Ma, contains 2.97 Ga inherited zircon grains and 1870 ± 5 Ma zircon grains. A crosscutting monzogranite contains 1.88 Ga zircon grains, a younger population at 1852 ± 5 Ma and evidence of a post-tectonic fluid event at 1.76 Ga.

Detrital zircon from Nottingham Island range in age from 2.3 to 1.85 Ga, with a prominent mode at ca. 1.90 Ga. The maximum age of deposition is constrained between 1.90 and 1.88 Ga. A similar provenance with the Lake Harbour Group and Tasiuyak paragneiss on Baffin Island is proposed.

**Résumé :** De nouveaux résultats de datation U-Pb viennent raffiner notre compréhension de la région située au nord de la limite d'affleurement du craton du lac Supérieur dans l'est du Nunavut. Dans l'île Salisbury, nous évaluons l'âge de mise en place de la tonalite gneissique entre 2983 et 2939 Ma. Un dyke de monzogranite recoupant l'unité précédente contient des zircons datés à 1894 ± 7 Ma et à 1856 ± 3 Ma, ainsi que de faibles quantités de zircons hérités de l'Archéen. Un dyke tardif de syénogranite contient deux populations âgées respectivement de 1843 ± 8 et de 1804 ± 13 Ma.

Dans l'île Mill, le gneiss tonalitique, qui a livré un âge de cristallisation de 2816 ± 31 Ma, contient des zircons hérités de 2,97 Ga ainsi que des zircons de 1870 ± 5 Ma. Un monzogranite qui recoupe le gneiss renferme des zircons datant de 1,88 Ga, une population plus récente datant de 1852 ± 5 Ma et des indices d'un épisode post-tectonique de circulation de fluides remontant à 1,76 Ga.

Les âges des zircons détritiques de l'île Nottingham varient de 2,3 à 1,85 Ga, avec une prédominance à environ 1,90 Ga. L'âge maximal de dépôt se situe entre 1,90 et 1,88 Ga. Nous émettons l'hypothèse d'une provenance similaire à celle déduite pour le Groupe de Lake Harbour et le paragneiss de Tasiuyak dans l'île de Baffin.

# INTRODUCTION

Mill, Salisbury, and Nottingham islands are located in the Hudson Strait south of Cape Dorset (Kingnait) and were mapped by Blackadar in 1964 (Blackadar, 1970) (Fig. 1). In 1994 the islands were briefly visited by D.J. Scott for the purpose of sampling the dominant lithologies for U-Pb geochronology; the results of which have a bearing on our understanding of the pre- and syn-collisional history of the eastern Trans-Hudson Orogen (THO). Determination of basement ages may assist in assigning an affinity to one or the other of the bounding cratons (Superior or Meta Incognita; Fig. 1). Paleoproterozoic ages, such as magmatic crystallization or metamorphic overprint, help constrain the tectonic evolution of the major components of the THO and the location of the trace of major crustal boundaries, in particular the ca. 1845 Ma Soper River suture and the 1820 to 1795 Ma Bergeron suture (e.g. St-Onge et al., 2002, 2006b). The south-verging Bergeron suture separates the lower-plate Superior Craton from allochthonous crustal elements (e.g. Narsajuaq terrane and Meta Incognita microcontinent) of the upper Churchill plate to the north. The Soper River Suture separates Narsajuaq arc from the Meta Incognita microcontinent (St-Onge et al., 1999, 2001, 2002). Recent compilation maps (St-Onge et al., 2006a) ascribe the islands to the Superior Craton in the immediate footwall of the Bergeron suture (Fig. 1). The association of Mill, Salisbury, and Nottingham islands with the Superior Craton is largely based on their position relative to Big Island, for which U-Pb geochronological results indicate a Superior affinity (Wodicka and Scott, 1997; Scott et al., 2002). New geochronological data presented here allows this hypothesis to be tested.

# GEOLOGICAL BACKGROUND

The geology of Mill, Salisbury, and Nottingham islands has been subdivided into three main lithological units originally ascribed to the Paleoproterozoic (Blackadar, 1970),

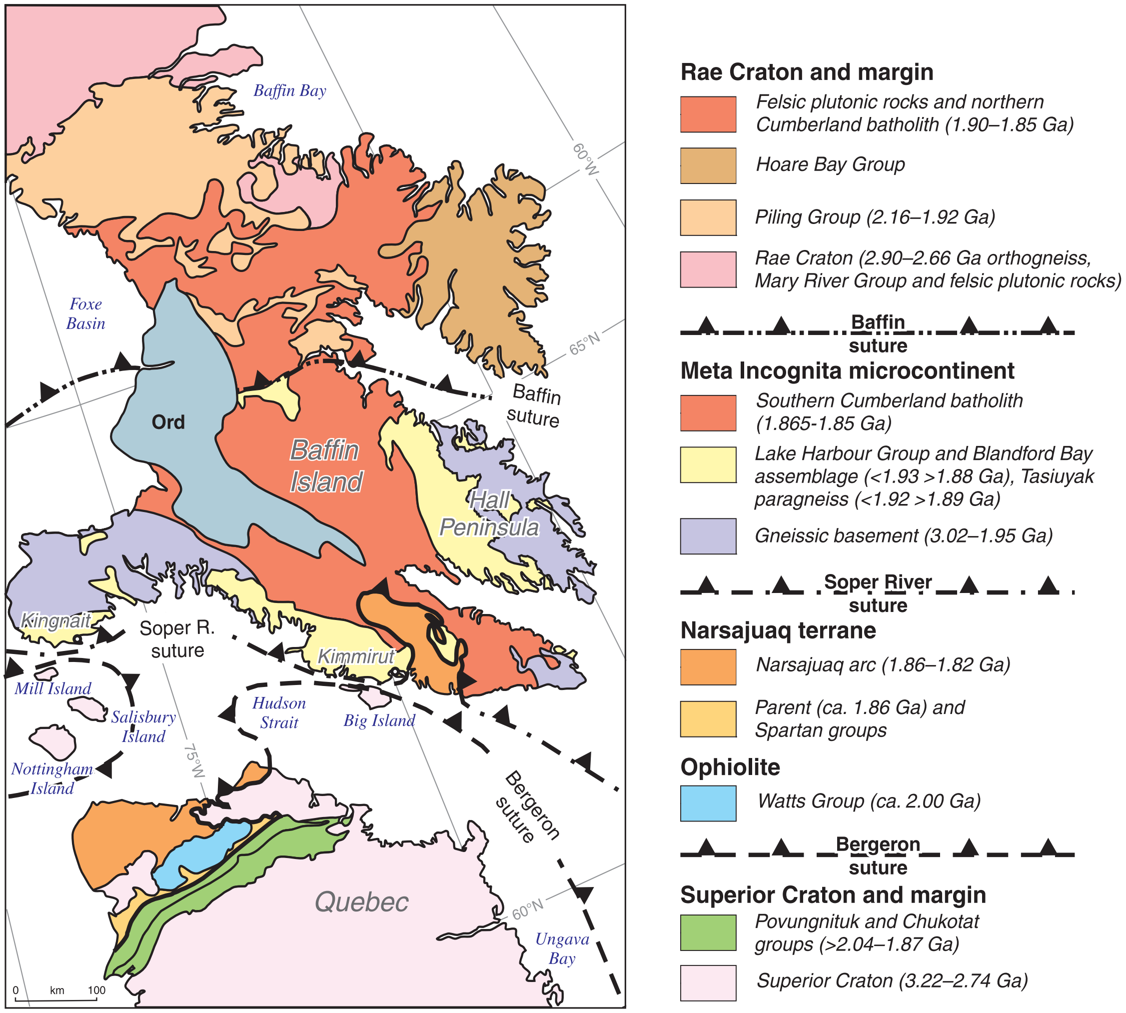

**Figure 1.** Regional geological map for central-southern Baffin Island and surroundings (adapted from St-Onge et al., 2006a). Major tectonostratigraphic assemblages and bounding crustal sutures are after St-Onge et al. (2006b). Ord, Ordovician cover.

but more recently they have been ascribed to the Archean (St-Onge et al., 2006a). Unit 1 is a quartz-feldspar gneiss composing the majority of the map area and is further divided in some areas into 5 subunits all containing variable amounts of garnet. Unit 2 is a hornblende-quartz-feldspar gneiss found mainly as localized domains on Mill Island; Blackadar (1970) suggested that it may be related to unit 1e (mafic-rich gneiss). Unit 3 consists of diabase dykes that occur as map-scale units on Mill Island and as several narrow bodies on Salisbury Island. None are reported on Nottingham Island.

Salisbury Island is largely mapped as granular gneiss or veined gneiss (Blackadar, 1970). Three samples were collected from one outcrop on this island on the basis of their relative ages. Sample SAL-A is a tonalite gneiss and represents the oldest recognized phase. SAL-B is a monzogranite cutting the fabric of the tonalite. SAL-C, a crosscutting syenogranite, is the youngest observed phase. Mill Island is mapped as veined gneiss (unit 1c) with two small enclaves of hornblende-quartz-feldspar gneiss (unit 2, Blackadar, 1970), one of which is within 2.5 km of the sampling site. A suite of three samples, similar to those from Salisbury Island, was collected from Mill Island. The oldest phase, MIL-A, is a tonalite gneiss. MIL-B is intermediate in relative age and monzogranitic in composition. A younger syenogranite phase was collected, but has not been dated. All five subunits of quartz-feldspar gneiss (Unit 1) have been observed on Nottingham Island (Blackadar, 1970) suggesting that it is more lithologically diverse than Mill or Salisbury Islands. Sample NOT-A was identified as a metasedimentary gneiss during the 1994 visit.

## ANALYTICAL METHODS

All crushing and mineral separation was performed at the GEOTOP Laboratory at the Université du Québec à Montréal using standard crushing, heavy-liquid, and magnetic-separation techniques. Mineral selection and analytical work were performed at the Geological Survey of Canada Geochronology Laboratory in Ottawa, Ontario. Zircon grains were dated using the Sensitive High-Resolution Ion Micro Probe (SHRIMP II). SHRIMP analytical procedures followed those described by Stern (1997), with standards and U-Pb calibration methods following Stern and Amelin (2003). SHRIMP analytical and calibration details can be found in the footnotes to Table 1. The internal features of the zircon grains, such as zoning, structures, and alteration, were characterized with back-scattered electrons (BSE) using a Zeiss Evo 50 scanning electron microscope. Monazite and titanite were dated using the isotope dilution – thermal ionization mass spectrometry (ID-TIMS) technique. ID-TIMS analytical procedures for titanite followed those of Parrish et al. (1992) and Davis et al. (1997). Procedures for monazite ID-TIMS analyses followed the sample dissolution and chemical methods as described in Parrish et al. (1987) and Davis et al. (1998).

## U-Pb RESULTS

SHRIMP data are presented in Table 1 with age errors reported at the 1σ uncertainty level. TIMS data are presented in Table 2 with age errors reported at 2 σ uncertainty level. Isoplot v. 3.00 (Ludwig, 2003) was used to generate concordia plots (error ellipses 2 σ). Errors quoted in the text are at the 95% confidence level unless otherwise noted.

### SAL-A (GSC lab # 4111)

Twenty-eight analyses were carried out on 19 separate zircon grains from tonalite gneiss sample SAL-A and the data are presented in Figure 2a and Table 1. The data are arrayed in two clusters, as well as an indistinct smear of non-reproducible results. The six oldest analyses yield a weighted mean age of 2983 ± 8 Ma (unfilled ellipses, n = 6, MSWD = 1.6, probability of fit [POF] = 0.16). This is statistically distinct from a younger group at 2939 ± 8 Ma (light grey ellipses, n = 9, MSWD = 1.6, POF = 0.12 Ma). The remaining analyses not included in the calculation of the weighted mean (dark grey ellipses) include non-reproducible replicate analyses within individual zircon grains indicating that this sample has experienced ancient Pb-loss. These data can be interpreted as either crystallization at 2983 Ma with variable Pb-loss, or 2983 Ma inherited zircon with tonalite crystallization at 2939 Ma. The predominance of the 2939 Ma zircon population (*see also* SAL-B results) makes the latter the preferred interpretation. Two single-grain fractions of monazite give TIMS ages of 1862 and 1867 Ma (Fig. 2b, Table 2).

### SAL-B (GSC lab # 4112)

Thirty-one analyses were carried out on individual zircon grains from monzogranite sample SAL-B (Fig. 2c). The four oldest analyses give a weighted mean age of 2947 ± 25 Ma (MSWD = 1.9, POF = 0.13). This age is identical within error to that of the younger population of zircon grains from SAL-A, and likely represents inheritance from that source. A subset of clear, colourless, low-U zircon gives a weighted mean age of 1894 ± 7 Ma (unfilled ellipses, n = 12, MSWD = 0.87, POF = 0.5), while pale brown, high-U zircon grains give a weighted mean age of 1856 ± 3 Ma (light grey ellipses, n = 14, MSWD = 0.94, POF = 0.5). These two ages are statistically distinct and suggest that the younger age cannot be the result of Pb-loss from the older, higher U population. One single grain monazite fraction analyzed by TIMS gives an age of 1875 ± 1 Ma (Fig. 2b).

### SAL-C (GSC lab # 4113)

Thirty analyses were carried out on twenty-nine zircon grains from syenogranite sample SAL-C (Fig. 2d). The three oldest analyses yield ages between 2.65 and 1.98 Ga and are between 7 and 10% discordant. These analyses are

**Table 1.** U-Pb SHRIMP analytical data.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Apparent ages (Ma) |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spot name | U (ppm) | Th (ppm) | Th/U | Pb* (ppm) | $^{204}$Pb (ppb) | $^{204}$Pb/$^{206}$Pb | ± $^{204}$Pb/$^{206}$Pb | f(206)$^{204}$ | $^{208*}$Pb/$^{206*}$Pb | ± $^{208}$Pb/$^{206}$Pb | $^{207*}$Pb/$^{235}$U | ± $^{207}$Pb/$^{235}$U | $^{206*}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | Corr Coeff | $^{207*}$Pb/$^{206*}$Pb | ± $^{207}$Pb/$^{206}$Pb | $^{206}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | $^{207}$Pb/$^{206}$Pb | ± $^{207}$Pb/$^{206}$Pb | Disc. (%) |
| **SAL-A (Z4111; 63.3831°N 76.8458°E)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4111-33.2 | 579 | 65 | 0.12 | 306 | 3 | 1.23E-05 | 5.58E-06 | 0.00021 | 0.02821 | 0.00067 | 13.334 | 0.182 | 0.5027 | 0.0061 | 0.9332 | 0.1924 | 0.0010 | 2625 | 26 | 2763 | 8 | 5.0 |
| 4111-35.1 | 505 | 157 | 0.32 | 314 | 4 | 1.52E-05 | 6.28E-06 | 0.00026 | 0.08381 | 0.00077 | 15.699 | 0.189 | 0.5605 | 0.0060 | 0.9314 | 0.2031 | 0.0009 | 2869 | 25 | 2852 | 7 | -0.6 |
| 4111-15.1 | 700 | 126 | 0.19 | 412 | 3 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.04896 | 0.00054 | 15.477 | 0.208 | 0.5454 | 0.0068 | 0.9604 | 0.2058 | 0.0008 | 2806 | 28 | 2873 | 6 | 2.3 |
| 4111-35.2 | 466 | 236 | 0.52 | 270 | 2 | 9.12E-06 | 4.27E-06 | 0.00016 | 0.13545 | 0.00096 | 14.341 | 0.180 | 0.5010 | 0.0058 | 0.9572 | 0.2076 | 0.0008 | 2618 | 25 | 2887 | 6 | 9.3 |
| 4111-18.1 | 370 | 134 | 0.38 | 227 | 2 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.10456 | 0.00079 | 15.666 | 0.176 | 0.5447 | 0.0057 | 0.9601 | 0.2086 | 0.0007 | 2803 | 24 | 2895 | 5 | 3.2 |
| 4111-20.2 | 347 | 282 | 0.84 | 224 | 3 | 1.70E-05 | 1.07E-05 | 0.00029 | 0.22979 | 0.00158 | 15.079 | 0.243 | 0.5208 | 0.0077 | 0.9566 | 0.2100 | 0.0010 | 2702 | 33 | 2906 | 8 | 7.0 |
| 4111-33.1 | 562 | 76 | 0.14 | 327 | 4 | 1.47E-05 | 5.60E-06 | 0.00025 | 0.03890 | 0.00065 | 15.665 | 0.191 | 0.5409 | 0.0058 | 0.9290 | 0.2101 | 0.0010 | 2787 | 24 | 2906 | 7 | 4.1 |
| 4111-73.1 | 158 | 87 | 0.57 | 102 | 1 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.15102 | 0.00176 | 16.007 | 0.231 | 0.5510 | 0.0064 | 0.8642 | 0.2107 | 0.0015 | 2829 | 27 | 2911 | 12 | 2.8 |
| 4111-1.1 | 241 | 168 | 0.72 | 162 | 0 | 4.06E-06 | 1.67E-05 | 0.00007 | 0.19356 | 0.00246 | 16.145 | 0.212 | 0.5540 | 0.0065 | 0.9402 | 0.2114 | 0.0010 | 2842 | 27 | 2916 | 7 | 2.5 |
| 4111-54.1 | 465 | 107 | 0.24 | 277 | 2 | 8.96E-06 | 8.71E-06 | 0.00016 | 0.06121 | 0.00058 | 15.920 | 0.191 | 0.5446 | 0.0057 | 0.9192 | 0.2120 | 0.0010 | 2803 | 24 | 2921 | 8 | 4.0 |
| 4111-10.1 | 116 | 68 | 0.60 | 77 | 1 | 1.78E-05 | 2.80E-05 | 0.00031 | 0.16189 | 0.00232 | 16.318 | 0.291 | 0.5570 | 0.0075 | 0.8298 | 0.2125 | 0.0021 | 2854 | 31 | 2924 | 16 | 2.4 |
| 4111-80.1 | 210 | 154 | 0.76 | 144 | 1 | 1.34E-05 | 8.92E-06 | 0.00023 | 0.20468 | 0.00228 | 16.472 | 0.256 | 0.5603 | 0.0075 | 0.9104 | 0.2132 | 0.0014 | 2868 | 31 | 2930 | 11 | 2.1 |
| 4111-15.2 | 383 | 220 | 0.59 | 248 | 0 | 2.27E-06 | 4.71E-06 | 0.00004 | 0.16305 | 0.00107 | 16.093 | 0.249 | 0.5469 | 0.0082 | 0.9853 | 0.2134 | 0.0006 | 2812 | 34 | 2932 | 4 | 4.1 |
| 4111-18.2 | 491 | 104 | 0.22 | 300 | 1 | 3.68E-06 | 4.22E-06 | 0.00006 | 0.05706 | 0.00053 | 16.516 | 0.236 | 0.5589 | 0.0071 | 0.9300 | 0.2143 | 0.0011 | 2862 | 29 | 2938 | 9 | 2.6 |
| 4111-44.1 | 609 | 189 | 0.32 | 392 | 2 | 5.51E-06 | 6.95E-06 | 0.00010 | 0.08415 | 0.00087 | 17.052 | 0.217 | 0.5760 | 0.0064 | 0.9222 | 0.2147 | 0.0011 | 2933 | 26 | 2941 | 8 | 0.3 |
| 4111-11.1 | 157 | 84 | 0.55 | 105 | 0 | 7.00E-08 | 1.60E-05 | 0.00000 | 0.15226 | 0.00210 | 16.743 | 0.220 | 0.5656 | 0.0065 | 0.9196 | 0.2147 | 0.0011 | 2890 | 27 | 2941 | 8 | 1.8 |
| 4111-43.1 | 149 | 70 | 0.48 | 96 | 1 | 1.97E-05 | 1.78E-05 | 0.00034 | 0.13334 | 0.00171 | 16.522 | 0.278 | 0.5570 | 0.0074 | 0.8530 | 0.2151 | 0.0019 | 2854 | 31 | 2945 | 14 | 3.1 |
| 4111-64.1 | 184 | 119 | 0.67 | 124 | 1 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.18155 | 0.00239 | 16.704 | 0.223 | 0.5605 | 0.0063 | 0.8922 | 0.2161 | 0.0013 | 2869 | 26 | 2952 | 10 | 2.8 |
| 4111-20.1 | 353 | 225 | 0.66 | 240 | 3 | 1.77E-05 | 1.70E-05 | 0.00031 | 0.17814 | 0.00213 | 16.959 | 0.220 | 0.5668 | 0.0065 | 0.9295 | 0.2170 | 0.0011 | 2895 | 27 | 2959 | 8 | 2.2 |
| 4111-16.2 | 208 | 78 | 0.39 | 125 | 4 | 4.31E-05 | 1.32E-05 | 0.00075 | 0.10403 | 0.00115 | 15.869 | 0.244 | 0.5295 | 0.0069 | 0.8967 | 0.2174 | 0.0015 | 2739 | 29 | 2961 | 11 | 7.5 |
| 4111-41.2 | 969 | 1708 | 1.82 | 762 | 4 | 8.15E-06 | 4.71E-06 | 0.00014 | 0.48644 | 0.00136 | 16.216 | 0.186 | 0.5344 | 0.0059 | 0.9828 | 0.2201 | 0.0005 | 2760 | 25 | 2981 | 3 | 7.4 |
| 4111-23.1 | 370 | 179 | 0.50 | 249 | 1 | 6.38E-06 | 1.29E-05 | 0.00011 | 0.13845 | 0.00101 | 17.509 | 0.230 | 0.5771 | 0.0062 | 0.8819 | 0.2201 | 0.0014 | 2937 | 26 | 2981 | 10 | 1.5 |
| 4111-23.2 | 357 | 183 | 0.53 | 240 | 0 | 2.48E-06 | 9.82E-06 | 0.00004 | 0.14523 | 0.00178 | 17.379 | 0.294 | 0.5722 | 0.0088 | 0.9494 | 0.2203 | 0.0012 | 2917 | 36 | 2983 | 9 | 2.2 |
| 4111-41.1 | 913 | 1568 | 1.77 | 784 | 1 | 1.90E-06 | 1.84E-06 | 0.00003 | 0.47909 | 0.00250 | 17.857 | 0.207 | 0.5860 | 0.0060 | 0.9339 | 0.2210 | 0.0009 | 2973 | 25 | 2988 | 7 | 0.5 |
| 4111-16.1 | 292 | 117 | 0.41 | 192 | 0 | 2.69E-06 | 9.30E-06 | 0.00005 | 0.10967 | 0.00092 | 17.588 | 0.206 | 0.5748 | 0.0060 | 0.9407 | 0.2219 | 0.0009 | 2927 | 25 | 2995 | 6 | 2.3 |
| **SAL-B (Z4112; 63.3831°N 76.8459°E)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4112-43.1 | 1733 | 28 | 0.02 | 558 | 1 | 1.17E-06 | 3.99E-06 | 0.00002 | 0.00477 | 0.00017 | 5.187 | 0.055 | 0.3351 | 0.0034 | 0.9790 | 0.1123 | 0.0003 | 1863 | 16 | 1836 | 4 | -1.5 |
| 4112-58.1 | 725 | 249 | 0.35 | 246 | 4 | 1.91E-05 | 1.11E-05 | 0.00033 | 0.10248 | 0.00085 | 5.039 | 0.058 | 0.3246 | 0.0034 | 0.9543 | 0.1126 | 0.0004 | 1812 | 17 | 1842 | 6 | 1.6 |
| 4112-25.1 | 790 | 449 | 0.59 | 287 | 2 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.17174 | 0.00096 | 5.120 | 0.057 | 0.3289 | 0.0034 | 0.9589 | 0.1129 | 0.0004 | 1833 | 17 | 1847 | 6 | 0.7 |
| 4112-23.1 | 664 | 377 | 0.59 | 234 | 1 | 7.64E-06 | 1.80E-05 | 0.00013 | 0.17135 | 0.00175 | 4.967 | 0.067 | 0.3189 | 0.0037 | 0.9174 | 0.1130 | 0.0006 | 1784 | 18 | 1848 | 10 | 3.4 |
| 4112-65.1 | 832 | 372 | 0.46 | 294 | 1 | 2.95E-06 | 8.76E-06 | 0.00005 | 0.13328 | 0.00084 | 5.150 | 0.062 | 0.3297 | 0.0035 | 0.9330 | 0.1133 | 0.0005 | 1837 | 17 | 1853 | 8 | 0.9 |
| 4112-62.1 | 1073 | 321 | 0.31 | 360 | 4 | 1.31E-05 | 7.53E-06 | 0.00023 | 0.08764 | 0.00068 | 5.072 | 0.064 | 0.3244 | 0.0034 | 0.8993 | 0.1134 | 0.0006 | 1811 | 17 | 1855 | 10 | 2.3 |
| 4112-34.1 | 613 | 257 | 0.43 | 217 | 3 | 1.57E-05 | 1.65E-05 | 0.00027 | 0.12228 | 0.00115 | 5.219 | 0.070 | 0.3335 | 0.0041 | 0.9553 | 0.1135 | 0.0005 | 1855 | 20 | 1856 | 7 | 0.1 |
| 4112-86.1 | 1387 | 990 | 0.74 | 524 | 1 | 2.40E-06 | 4.34E-06 | 0.00004 | 0.21578 | 0.00079 | 5.164 | 0.056 | 0.3299 | 0.0034 | 0.9771 | 0.1135 | 0.0003 | 1838 | 17 | 1857 | 4 | 1.0 |
| 4112-24.1 | 937 | 500 | 0.55 | 338 | 3 | 1.22E-05 | 1.12E-05 | 0.00021 | 0.16214 | 0.00087 | 5.152 | 0.058 | 0.3288 | 0.0034 | 0.9546 | 0.1136 | 0.0004 | 1833 | 17 | 1858 | 6 | 1.4 |
| 4112-33.1 | 488 | 934 | 1.98 | 231 | 1 | 8.51E-06 | 1.39E-05 | 0.00015 | 0.57555 | 0.00282 | 5.083 | 0.065 | 0.3243 | 0.0036 | 0.9186 | 0.1137 | 0.0006 | 1811 | 18 | 1859 | 9 | 2.6 |
| 4112-10.1 | 708 | 189 | 0.28 | 239 | 0 | 2.80E-07 | 7.69E-06 | 0.00000 | 0.07949 | 0.00080 | 5.166 | 0.060 | 0.3295 | 0.0034 | 0.9424 | 0.1137 | 0.0004 | 1836 | 17 | 1860 | 7 | 1.3 |
| 4112-32.1 | 804 | 313 | 0.40 | 281 | 1 | 4.67E-06 | 1.06E-05 | 0.00008 | 0.11706 | 0.00098 | 5.180 | 0.058 | 0.3303 | 0.0034 | 0.9590 | 0.1137 | 0.0004 | 1840 | 17 | 1860 | 6 | 1.1 |
| 4112-17.1 | 475 | 727 | 1.58 | 211 | 0 | 3.68E-06 | 2.33E-05 | 0.00006 | 0.46790 | 0.00241 | 5.120 | 0.065 | 0.3264 | 0.0036 | 0.9139 | 0.1138 | 0.0006 | 1821 | 18 | 1860 | 9 | 2.1 |
| 4112-61.1 | 1275 | 1032 | 0.84 | 491 | 0 | 2.70E-07 | 4.88E-06 | 0.00000 | 0.24480 | 0.00090 | 5.169 | 0.056 | 0.3295 | 0.0034 | 0.9740 | 0.1138 | 0.0003 | 1836 | 16 | 1861 | 4 | 1.3 |
| 4112-51.1 | 947 | 403 | 0.44 | 333 | 3 | 1.17E-05 | 6.21E-06 | 0.00020 | 0.12687 | 0.00070 | 5.179 | 0.074 | 0.3298 | 0.0045 | 0.9778 | 0.1139 | 0.0003 | 1837 | 22 | 1862 | 5 | 1.3 |
| 4112-4.1 | 97 | 114 | 1.21 | 40 | 2 | 5.88E-05 | 8.85E-05 | 0.00102 | 0.33779 | 0.00513 | 5.235 | 0.108 | 0.3326 | 0.0044 | 0.7214 | 0.1142 | 0.0017 | 1851 | 21 | 1867 | 26 | 0.8 |
| 4112-46.1 | 304 | 178 | 0.60 | 113 | 4 | 4.15E-05 | 1.91E-05 | 0.00072 | 0.17289 | 0.00162 | 5.288 | 0.082 | 0.3344 | 0.0038 | 0.8018 | 0.1147 | 0.0011 | 1860 | 18 | 1875 | 17 | 0.8 |
| 4112-79.1 | 88 | 73 | 0.85 | 34 | 3 | 1.34E-04 | 7.83E-05 | 0.00232 | 0.24487 | 0.00510 | 5.253 | 0.108 | 0.3319 | 0.0039 | 0.6651 | 0.1148 | 0.0018 | 1847 | 19 | 1877 | 28 | 1.6 |
| 4112-26.1 | 158 | 300 | 1.96 | 75 | 1 | 2.75E-05 | 4.11E-05 | 0.00048 | 0.55472 | 0.00393 | 5.232 | 0.072 | 0.3296 | 0.0036 | 0.8544 | 0.1151 | 0.0008 | 1836 | 17 | 1882 | 13 | 2.4 |
| 4112-1.1 | 469 | 253 | 0.56 | 173 | 1 | 7.62E-06 | 1.44E-05 | 0.00013 | 0.16070 | 0.00156 | 5.334 | 0.072 | 0.3358 | 0.0038 | 0.8923 | 0.1152 | 0.0007 | 1866 | 18 | 1883 | 11 | 0.9 |
| 4112-2.1 | 92 | 271 | 3.04 | 51 | 2 | 7.10E-05 | 8.55E-05 | 0.00123 | 0.86909 | 0.00734 | 5.190 | 0.105 | 0.3266 | 0.0042 | 0.7222 | 0.1153 | 0.0016 | 1822 | 20 | 1884 | 26 | 3.3 |
| 4112-63.1 | 84 | 322 | 3.97 | 54 | 0 | 1.00E-05 | 1.00E-05 | 0.00017 | 1.15512 | 0.01297 | 5.289 | 0.089 | 0.3321 | 0.0043 | 0.8351 | 0.1155 | 0.0011 | 1849 | 21 | 1888 | 17 | 2.1 |

Notes (*see* Stern, 1997):

Analytical details: ion probe mount IP394, spot size = 35μm, beam current = 10nA, 6 scans, no Pb fractionation correction

Spot name follows the convention x-y.z; where x = sample number, y = grain number and z = spot number. Multiple analyses in an individual spot are labelled as x-y.z.z

Uncertainties reported at 1s (absolute) and are calculated by numerical propagation of all known sources of error

f206$^{204}$ refers to mole fraction of total 206Pb that is due to common Pb, calculated using the 204Pb-method; common Pb composition used is the surface blank (4/6: 0.05770; 7/6: 0.89500; 8/6: 2.13840)

* refers to radiogenic Pb (corrected for common Pb)

Discordance relative to origin = 100 * (1-($^{206}$Pb/$^{238}$U age)/($^{207}$Pb/$^{206}$Pb age))

Calibration standard 6266; U = 910 ppm; Age = 559 Ma; $^{206}$Pb/$^{238}$U = 0.09059

Error in $^{206}$Pb/$^{238}$U calibration 1.0%

Th/U calibration: F = 0.03900*UO + 0.85600

**Table 1.** (cont.)

| | | | | | | | | | | | | | | | | | | Apparent ages (Ma) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spot name | U (ppm) | Th (ppm) | Th/U | Pb* (ppm) | $^{204}$Pb (ppb) | $^{204}$Pb/$^{206}$Pb | ± $^{204}$Pb/$^{206}$Pb | f(206)$^{204}$ | $^{208*}$Pb/$^{206*}$Pb | ± $^{208}$Pb/$^{206}$Pb | $^{207*}$Pb/$^{235}$U | ± $^{207}$Pb/$^{235}$U | $^{206*}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | Corr Coeff | $^{207*}$Pb/$^{206*}$Pb | ± $^{207}$Pb/$^{206}$Pb | $^{206}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | $^{207}$Pb/$^{206}$Pb | ± $^{207}$Pb/$^{206}$Pb | Disc. (%) |
| 4112-59.1 | 770 | 1036 | 1.39 | 339 | 5 | 2.09E-05 | 1.60E-05 | 0.00036 | 0.40768 | 0.00179 | 5.355 | 0.064 | 0.3352 | 0.0037 | 0.9478 | 0.1159 | 0.0005 | 1864 | 18 | 1894 | 7 | 1.6 |
| 4112-11.1 | 206 | 408 | 2.04 | 100 | 2 | 3.69E-05 | 3.05E-05 | 0.00064 | 0.60001 | 0.00556 | 5.241 | 0.073 | 0.3279 | 0.0037 | 0.8670 | 0.1159 | 0.0008 | 1828 | 18 | 1894 | 13 | 3.5 |
| 4112-85.1 | 102 | 316 | 3.19 | 59 | 1 | 2.31E-05 | 4.78E-05 | 0.00040 | 0.91368 | 0.01205 | 5.234 | 0.088 | 0.3269 | 0.0039 | 0.7898 | 0.1161 | 0.0012 | 1823 | 19 | 1897 | 19 | 3.9 |
| 4112-64.1 | 158 | 315 | 2.06 | 78 | 2 | 4.84E-05 | 5.17E-05 | 0.00084 | 0.59192 | 0.00371 | 5.401 | 0.082 | 0.3363 | 0.0039 | 0.8272 | 0.1165 | 0.0010 | 1869 | 19 | 1903 | 16 | 1.8 |
| 4112-50.1 | 172 | 95 | 0.57 | 62 | 0 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.16580 | 0.00355 | 5.242 | 0.068 | 0.3247 | 0.0038 | 0.9323 | 0.1171 | 0.0006 | 1813 | 18 | 1912 | 9 | 5.2 |
| 4112-28.1 | 244 | 186 | 0.79 | 164 | 3 | 2.38E-05 | 1.29E-05 | 0.00041 | 0.22005 | 0.00227 | 16.002 | 0.259 | 0.5455 | 0.0072 | 0.8708 | 0.2128 | 0.0017 | 2806 | 30 | 2927 | 13 | 4.1 |
| 4112-8.1 | 73 | 59 | 0.84 | 48 | 6 | 1.75E-04 | 9.58E-05 | 0.00303 | 0.22966 | 0.00436 | 15.636 | 0.262 | 0.5322 | 0.0066 | 0.8165 | 0.2131 | 0.0021 | 2751 | 28 | 2929 | 16 | 6.1 |
| 4112-19.1 | 122 | 135 | 1.15 | 92 | 0 | 8.90E-07 | 2.41E-05 | 0.00002 | 0.31848 | 0.00474 | 17.139 | 0.302 | 0.5746 | 0.0081 | 0.8602 | 0.2163 | 0.0020 | 2927 | 33 | 2954 | 15 | 0.9 |
| 4112-20.1 | 166 | 171 | 1.07 | 120 | 1 | 8.06E-06 | 3.00E-05 | 0.00014 | 0.29940 | 0.00400 | 16.625 | 0.229 | 0.5561 | 0.0069 | 0.9392 | 0.2168 | 0.0010 | 2851 | 29 | 2957 | 8 | 3.6 |
| **SAL-C (Z4113; 63.3831°N 76.8459°E)** | | | | | | | | | | | | | | | | | | | | | | |
| 4113-18.1 | 719 | 78 | 0.11 | 219 | 11 | 5.64E-05 | 1.35E-05 | 0.00098 | 0.02948 | 0.00063 | 4.594 | 0.070 | 0.3116 | 0.0043 | 0.9471 | 0.1069 | 0.0005 | 1749 | 21 | 1748 | 9 | -0.1 |
| 4113-7.1 | 258 | 93 | 0.37 | 89 | 46 | 6.22E-04 | 7.00E-05 | 0.01078 | 0.10837 | 0.00405 | 4.913 | 0.115 | 0.3320 | 0.0054 | 0.7723 | 0.1074 | 0.0016 | 1848 | 26 | 1755 | 28 | -5.3 |
| 4113-47.1 | 419 | 78 | 0.19 | 137 | 63 | 5.32E-04 | 9.64E-05 | 0.00922 | 0.05564 | 0.00367 | 4.875 | 0.097 | 0.3255 | 0.0038 | 0.6795 | 0.1086 | 0.0016 | 1817 | 19 | 1776 | 27 | -2.3 |
| 4113-14.1 | 991 | 93 | 0.10 | 312 | 23 | 8.52E-05 | 1.43E-05 | 0.00148 | 0.02672 | 0.00062 | 4.840 | 0.064 | 0.3222 | 0.0038 | 0.9352 | 0.1090 | 0.0005 | 1800 | 19 | 1782 | 9 | -1.0 |
| 4113-22.1 | 677 | 74 | 0.11 | 216 | 14 | 7.69E-05 | 1.82E-05 | 0.00133 | 0.03563 | 0.00086 | 4.908 | 0.060 | 0.3248 | 0.0036 | 0.9411 | 0.1096 | 0.0005 | 1813 | 17 | 1793 | 8 | -1.2 |
| 4113-35.1 | 1034 | 100 | 0.10 | 328 | 2 | 7.90E-06 | 7.28E-06 | 0.00014 | 0.02925 | 0.00073 | 4.919 | 0.060 | 0.3233 | 0.0036 | 0.9523 | 0.1104 | 0.0004 | 1806 | 17 | 1805 | 7 | 0.0 |
| 4113-22.2 | 765 | 453 | 0.61 | 279 | 11 | 5.01E-05 | 1.03E-05 | 0.00087 | 0.17499 | 0.00096 | 5.026 | 0.060 | 0.3298 | 0.0035 | 0.9225 | 0.1106 | 0.0005 | 1837 | 17 | 1808 | 9 | -1.6 |
| 4113-33.1 | 460 | 322 | 0.72 | 172 | 60 | 4.66E-04 | 5.21E-05 | 0.00808 | 0.23011 | 0.00242 | 4.946 | 0.072 | 0.3241 | 0.0034 | 0.8009 | 0.1107 | 0.0010 | 1810 | 17 | 1810 | 16 | 0.0 |
| 4113-17.1 | 457 | 727 | 1.64 | 193 | 18 | 1.43E-04 | 3.11E-05 | 0.00247 | 0.45082 | 0.00316 | 4.803 | 0.066 | 0.3146 | 0.0036 | 0.8852 | 0.1107 | 0.0007 | 1763 | 17 | 1812 | 12 | 2.7 |
| 4113-19.1 | 179 | 63 | 0.36 | 60 | 2 | 3.75E-05 | 2.43E-05 | 0.00065 | 0.10389 | 0.00190 | 4.923 | 0.074 | 0.3216 | 0.0039 | 0.8590 | 0.1110 | 0.0009 | 1797 | 19 | 1817 | 14 | 1.1 |
| 4113-1.1 | 784 | 1285 | 1.69 | 348 | 1 | 5.33E-06 | 8.00E-06 | 0.00009 | 0.49143 | 0.00277 | 4.923 | 0.057 | 0.3211 | 0.0034 | 0.9556 | 0.1112 | 0.0004 | 1795 | 17 | 1819 | 6 | 1.3 |
| 4113-57.1 | 836 | 512 | 0.63 | 301 | 2 | 1.02E-05 | 7.96E-06 | 0.00018 | 0.18228 | 0.00172 | 4.961 | 0.058 | 0.3231 | 0.0035 | 0.9533 | 0.1114 | 0.0004 | 1805 | 17 | 1822 | 7 | 0.9 |
| 4113-2.1 | 1018 | 89 | 0.09 | 319 | 6 | 2.02E-05 | 1.09E-05 | 0.00035 | 0.02529 | 0.00049 | 4.938 | 0.061 | 0.3208 | 0.0033 | 0.8926 | 0.1116 | 0.0006 | 1794 | 16 | 1826 | 10 | 1.8 |
| 4113-52.1 | 418 | 461 | 1.14 | 166 | 73 | 6.45E-04 | 8.63E-05 | 0.01118 | 0.37151 | 0.00391 | 4.783 | 0.085 | 0.3107 | 0.0034 | 0.6940 | 0.1116 | 0.0015 | 1744 | 16 | 1826 | 24 | 4.5 |
| 4113-46.1 | 252 | 195 | 0.80 | 92 | 3 | 4.48E-05 | 2.26E-05 | 0.00078 | 0.23078 | 0.00324 | 4.874 | 0.082 | 0.3166 | 0.0041 | 0.8438 | 0.1117 | 0.0010 | 1773 | 20 | 1827 | 17 | 3.0 |
| 4113-6.1 | 44 | 46 | 1.07 | 17 | 1 | 1.01E-04 | 2.23E-04 | 0.00175 | 0.30847 | 0.01163 | 4.951 | 0.249 | 0.3215 | 0.0083 | 0.6101 | 0.1117 | 0.0045 | 1797 | 40 | 1827 | 75 | 1.7 |
| 4113-16.1 | 224 | 109 | 0.50 | 79 | 2 | 2.76E-05 | 4.45E-05 | 0.00048 | 0.14671 | 0.00252 | 5.042 | 0.107 | 0.3262 | 0.0046 | 0.7473 | 0.1121 | 0.0016 | 1820 | 22 | 1834 | 26 | 0.8 |
| 4113-34.1 | 55 | 71 | 1.35 | 23 | 1 | 5.11E-05 | 1.36E-04 | 0.00088 | 0.38677 | 0.00870 | 4.974 | 0.160 | 0.3216 | 0.0046 | 0.5461 | 0.1122 | 0.0031 | 1797 | 22 | 1835 | 50 | 2.0 |
| 4113-4.1 | 258 | 263 | 1.05 | 99 | 1 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.30350 | 0.00278 | 4.889 | 0.064 | 0.3159 | 0.0036 | 0.9141 | 0.1122 | 0.0006 | 1770 | 18 | 1836 | 10 | 3.6 |
| 4113-30.1 | 852 | 151 | 0.18 | 278 | 0 | 2.70E-07 | 1.07E-05 | 0.00000 | 0.05329 | 0.00060 | 5.052 | 0.060 | 0.3261 | 0.0035 | 0.9440 | 0.1124 | 0.0004 | 1819 | 17 | 1838 | 7 | 1.0 |
| 4113-64.1 | 569 | 257 | 0.47 | 193 | 4 | 2.68E-05 | 1.48E-05 | 0.00046 | 0.13203 | 0.00113 | 4.913 | 0.056 | 0.3168 | 0.0033 | 0.9380 | 0.1125 | 0.0005 | 1774 | 16 | 1840 | 7 | 3.6 |
| 4113-8.1 | 162 | 88 | 0.56 | 57 | 1 | 2.67E-05 | 2.90E-05 | 0.00046 | 0.16049 | 0.00218 | 4.963 | 0.081 | 0.3197 | 0.0039 | 0.8191 | 0.1126 | 0.0011 | 1788 | 19 | 1842 | 17 | 2.9 |
| 4113-59.1 | 37 | 44 | 1.22 | 15 | 0 | 3.47E-05 | 2.66E-04 | 0.00060 | 0.34452 | 0.01308 | 5.045 | 0.231 | 0.3242 | 0.0059 | 0.5072 | 0.1129 | 0.0045 | 1810 | 29 | 1846 | 74 | 2.0 |
| 4113-42.1 | 60 | 60 | 1.03 | 24 | 0 | 1.72E-05 | 9.80E-05 | 0.00030 | 0.29708 | 0.00686 | 5.118 | 0.159 | 0.3266 | 0.0064 | 0.7172 | 0.1137 | 0.0025 | 1822 | 31 | 1859 | 40 | 2.0 |
| 4113-20.1 | 82 | 116 | 1.46 | 35 | 0 | 1.66E-05 | 4.85E-05 | 0.00029 | 0.43151 | 0.00642 | 5.009 | 0.116 | 0.3191 | 0.0051 | 0.7680 | 0.1138 | 0.0017 | 1785 | 25 | 1862 | 27 | 4.1 |
| 4113-11.1 | 160 | 104 | 0.67 | 58 | 0 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.19818 | 0.00198 | 5.102 | 0.071 | 0.3223 | 0.0037 | 0.8769 | 0.1148 | 0.0008 | 1801 | 18 | 1877 | 12 | 4.1 |
| 4113-37.1 | 93 | 55 | 0.61 | 33 | 0 | 1.55E-05 | 4.31E-05 | 0.00027 | 0.18298 | 0.00447 | 5.109 | 0.139 | 0.3211 | 0.0060 | 0.7661 | 0.1154 | 0.0020 | 1795 | 29 | 1886 | 32 | 4.9 |
| 4113-31.1 | 779 | 121 | 0.16 | 262 | 82 | 3.67E-04 | 3.42E-05 | 0.00636 | 0.05565 | 0.00142 | 5.585 | 0.073 | 0.3324 | 0.0036 | 0.8842 | 0.1218 | 0.0008 | 1850 | 17 | 1983 | 11 | 6.7 |
| 4113-28.1 | 171 | 110 | 0.66 | 67 | 2 | 4.36E-05 | 3.37E-05 | 0.00076 | 0.18948 | 0.00410 | 6.179 | 0.115 | 0.3429 | 0.0053 | 0.8925 | 0.1307 | 0.0011 | 1901 | 26 | 2107 | 15 | 9.8 |
| 4113-26.1 | 486 | 102 | 0.22 | 240 | 31 | 1.60E-04 | 3.90E-05 | 0.00277 | 0.06116 | 0.00189 | 11.447 | 0.144 | 0.4623 | 0.0052 | 0.9319 | 0.1796 | 0.0008 | 2450 | 23 | 2649 | 8 | 7.5 |
| **MIL-A (Z4114; 64.0047°N 77.8900°E)** | | | | | | | | | | | | | | | | | | | | | | |
| 4114-15.1 | 21 | 1 | 0.03 | 7 | 2 | 3.73E-04 | 1.77E-04 | 0.00647 | -0.00147 | 0.00695 | 5.144 | 0.164 | 0.3290 | 0.0047 | 0.5487 | 0.1134 | 0.0031 | 1834 | 23 | 1855 | 49 | 1.1 |
| 4114-11.1 | 2195 | 143 | 0.07 | 728 | 2 | 3.36E-06 | 5.59E-06 | 0.00006 | 0.01888 | 0.00029 | 5.351 | 0.062 | 0.3405 | 0.0037 | 0.9642 | 0.1140 | 0.0004 | 1889 | 18 | 1864 | 6 | -1.4 |
| 4114-8.1 | 578 | 32 | 0.06 | 180 | 6 | 3.95E-05 | 1.28E-05 | 0.00068 | 0.00843 | 0.00072 | 5.073 | 0.077 | 0.3228 | 0.0040 | 0.8857 | 0.1140 | 0.0008 | 1804 | 20 | 1864 | 13 | 3.2 |
| 4114-28.1 | 4514 | 540 | 0.12 | 1581 | 1 | 8.70E-07 | 8.60E-07 | 0.00002 | 0.03518 | 0.00018 | 5.576 | 0.071 | 0.3545 | 0.0043 | 0.9865 | 0.1141 | 0.0002 | 1956 | 21 | 1866 | 4 | -4.8 |
| 4114-29.1 | 635 | 21 | 0.03 | 199 | 5 | 2.86E-05 | 1.23E-05 | 0.00050 | 0.00885 | 0.00053 | 5.094 | 0.081 | 0.3238 | 0.0043 | 0.8997 | 0.1141 | 0.0008 | 1808 | 21 | 1866 | 13 | 3.1 |
| 4114-12.1 | 1609 | 242 | 0.16 | 540 | 11 | 2.29E-05 | 6.11E-06 | 0.00040 | 0.04536 | 0.00070 | 5.322 | 0.061 | 0.3367 | 0.0036 | 0.9711 | 0.1146 | 0.0003 | 1871 | 17 | 1874 | 5 | 0.2 |
| 4114-90.1 | 32 | 1 | 0.02 | 9 | 2 | 1.88E-04 | 1.57E-04 | 0.00326 | 0.00540 | 0.00592 | 4.941 | 0.176 | 0.3120 | 0.0073 | 0.7449 | 0.1149 | 0.0028 | 1751 | 36 | 1878 | 44 | 6.8 |
| 4114-67.1 | 706 | 62 | 0.09 | 223 | 1 | 2.75E-06 | 8.59E-06 | 0.00005 | 0.02675 | 0.00047 | 5.112 | 0.061 | 0.3223 | 0.0035 | 0.9614 | 0.1150 | 0.0004 | 1801 | 17 | 1880 | 6 | 4.2 |
| 4114-83.1 | 368 | 103 | 0.29 | 192 | 0 | 1.60E-06 | 1.53E-05 | 0.00003 | 0.08239 | 0.00097 | 11.642 | 0.156 | 0.4818 | 0.0060 | 0.9620 | 0.1753 | 0.0007 | 2535 | 26 | 2608 | 6 | 2.8 |
| 4114-47.1 | 423 | 105 | 0.26 | 220 | 41 | 2.34E-04 | 5.80E-05 | 0.00405 | 0.07446 | 0.00229 | 11.728 | 0.179 | 0.4843 | 0.0059 | 0.8556 | 0.1756 | 0.0014 | 2546 | 25 | 2612 | 13 | 2.5 |
| 4114-45.1 | 477 | 70 | 0.15 | 237 | 3 | 1.55E-05 | 1.48E-05 | 0.00027 | 0.04041 | 0.00079 | 11.654 | 0.178 | 0.4730 | 0.0062 | 0.9088 | 0.1787 | 0.0012 | 2497 | 27 | 2641 | 11 | 5.5 |
| 4114-21.1 | 293 | 124 | 0.44 | 160 | 4 | 3.23E-05 | 1.98E-05 | 0.00056 | 0.11959 | 0.00208 | 12.266 | 0.180 | 0.4886 | 0.0057 | 0.8581 | 0.1821 | 0.0014 | 2565 | 25 | 2672 | 13 | 4.0 |
| 4114-40.1 | 278 | 109 | 0.41 | 150 | 3 | 2.80E-05 | 1.95E-05 | 0.00049 | 0.11300 | 0.00262 | 12.167 | 0.191 | 0.4840 | 0.0063 | 0.8913 | 0.1823 | 0.0013 | 2545 | 28 | 2674 | 12 | 4.8 |
| 4114-48.1 | 521 | 82 | 0.16 | 266 | 4 | 2.08E-05 | 1.93E-05 | 0.00036 | 0.04324 | 0.00087 | 12.177 | 0.151 | 0.4840 | 0.0055 | 0.9606 | 0.1825 | 0.0006 | 2545 | 24 | 2675 | 6 | 4.9 |
| 4114-16.1 | 554 | 80 | 0.15 | 289 | 2 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.04098 | 0.00051 | 12.473 | 0.150 | 0.4956 | 0.0055 | 0.9622 | 0.1825 | 0.0006 | 2595 | 24 | 2676 | 5 | 3.0 |
| 4114-83.2 | 297 | 122 | 0.42 | 162 | 1 | 6.24E-06 | 2.42E-05 | 0.00011 | 0.11935 | 0.00139 | 12.350 | 0.167 | 0.4881 | 0.0056 | 0.9055 | 0.1835 | 0.0011 | 2563 | 24 | 2685 | 10 | 4.6 |

**Table 1.** (cont.)

| Spot name | U (ppm) | Th (ppm) | Th/U | Pb* (ppm) | $^{204}$Pb (ppb) | $^{204}$Pb/$^{206}$Pb | ± $^{204}$Pb/$^{206}$Pb | f(206)$^{204}$ | $^{208*}$Pb/$^{206*}$Pb | ± $^{208}$Pb/$^{206}$Pb | $^{207*}$Pb/$^{235}$U | ± $^{207}$Pb/$^{235}$U | $^{206*}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | Corr Coeff | $^{207*}$Pb/$^{206*}$Pb | ± $^{207}$Pb/$^{206}$Pb | $^{206}$Pb/$^{238}$U | Apparent ages (Ma)<br>± $^{206}$Pb/$^{238}$U | $^{207}$Pb/$^{206}$Pb | ± $^{207}$Pb/$^{206}$Pb | Disc. (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4114-47.2 | 367 | 99 | 0.28 | 181 | 1 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.07604 | 0.00077 | 11.546 | 0.145 | 0.4543 | 0.0050 | 0.9264 | 0.1843 | 0.0009 | 2414 | 22 | 2692 | 8 | 10.3 |
| 4114-1.1 | 312 | 137 | 0.46 | 179 | 4 | 2.92E-05 | 1.82E-05 | 0.00051 | 0.12116 | 0.00129 | 12.946 | 0.180 | 0.5093 | 0.0061 | 0.9165 | 0.1844 | 0.0010 | 2653 | 26 | 2693 | 9 | 1.5 |
| 4114-4.1 | 245 | 101 | 0.43 | 136 | 13 | 1.22E-04 | 6.18E-05 | 0.00211 | 0.11859 | 0.00342 | 12.672 | 0.219 | 0.4935 | 0.0066 | 0.8392 | 0.1862 | 0.0018 | 2586 | 28 | 2709 | 16 | 4.6 |
| 4114-73.2 | 148 | 124 | 0.86 | 90 | 2 | 2.97E-05 | 3.32E-05 | 0.00051 | 0.22813 | 0.00259 | 12.810 | 0.215 | 0.4956 | 0.0075 | 0.9460 | 0.1875 | 0.0010 | 2595 | 33 | 2720 | 9 | 4.6 |
| 4114-13.1 | 545 | 68 | 0.13 | 289 | 5 | 2.09E-05 | 2.11E-05 | 0.00036 | 0.03422 | 0.00106 | 13.173 | 0.160 | 0.5035 | 0.0055 | 0.9414 | 0.1898 | 0.0008 | 2629 | 24 | 2740 | 7 | 4.1 |
| 4114-73.1 | 173 | 122 | 0.73 | 107 | 0 | 4.67E-06 | 1.79E-05 | 0.00008 | 0.20261 | 0.00191 | 13.569 | 0.194 | 0.5167 | 0.0058 | 0.8468 | 0.1905 | 0.0015 | 2685 | 25 | 2746 | 13 | 2.2 |
| 4114-23.1 | 785 | 67 | 0.09 | 432 | 4 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.02396 | 0.00046 | 14.068 | 0.160 | 0.5252 | 0.0056 | 0.9710 | 0.1943 | 0.0005 | 2721 | 24 | 2779 | 4 | 2.1 |
| 4114-23.2 | 379 | 67 | 0.18 | 201 | 1 | 7.04E-06 | 9.47E-06 | 0.00012 | 0.04935 | 0.00096 | 13.753 | 0.198 | 0.4929 | 0.0067 | 0.9773 | 0.2024 | 0.0006 | 2583 | 29 | 2845 | 5 | 9.2 |
| 4114-13.2 | 361 | 46 | 0.13 | 201 | 1 | 8.68E-06 | 1.35E-05 | 0.00015 | 0.03526 | 0.00079 | 14.636 | 0.232 | 0.5243 | 0.0077 | 0.9622 | 0.2025 | 0.0009 | 2717 | 33 | 2846 | 7 | 4.5 |
| 4114-34.1 | 365 | 95 | 0.27 | 218 | 12 | 7.28E-05 | 2.18E-05 | 0.00126 | 0.06964 | 0.00108 | 15.534 | 0.208 | 0.5422 | 0.0062 | 0.9044 | 0.2078 | 0.0012 | 2792 | 26 | 2888 | 9 | 3.3 |
| 4114-25.1 | 248 | 88 | 0.37 | 148 | 3 | 2.65E-05 | 3.34E-05 | 0.00046 | 0.09612 | 0.00156 | 15.431 | 0.187 | 0.5281 | 0.0057 | 0.9386 | 0.2119 | 0.0009 | 2733 | 24 | 2920 | 7 | 6.4 |
| 4114-38.1 | 458 | 123 | 0.28 | 272 | 4 | 1.92E-05 | 1.36E-05 | 0.00033 | 0.07440 | 0.00087 | 15.718 | 0.209 | 0.5370 | 0.0065 | 0.9488 | 0.2123 | 0.0009 | 2771 | 27 | 2923 | 7 | 5.2 |
| 4114-77.1 | 276 | 113 | 0.42 | 175 | 1 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.11248 | 0.00231 | 16.470 | 0.286 | 0.5552 | 0.0082 | 0.9021 | 0.2152 | 0.0016 | 2847 | 34 | 2945 | 12 | 3.3 |
| 4114-83.3 | 335 | 133 | 0.41 | 216 | 0 | 2.01E-06 | 9.02E-06 | 0.00003 | 0.11036 | 0.00105 | 16.914 | 0.242 | 0.5624 | 0.0073 | 0.9497 | 0.2181 | 0.0010 | 2876 | 30 | 2967 | 7 | 3.1 |
| **MIL-B (Z4115; 64.0047°N 77.8900°E)** | | | | | | | | | | | | | | | | | | | | | | |
| 4115-71.2 | 4144 | 216 | 0.05 | 1281 | 2 | 1.50E-06 | 2.16E-06 | 0.00003 | 0.01538 | 0.00014 | 4.746 | 0.050 | 0.3202 | 0.0033 | 0.9873 | 0.1075 | 0.0002 | 1790 | 16 | 1758 | 3 | -1.9 |
| 4115-71.1 | 4590 | 192 | 0.04 | 1457 | 6 | 4.53E-06 | 2.00E-06 | 0.00008 | 0.01223 | 0.00016 | 4.916 | 0.063 | 0.3296 | 0.0041 | 0.9925 | 0.1082 | 0.0002 | 1836 | 20 | 1769 | 3 | -3.8 |
| 4115-2.1.2 | 1084 | 131 | 0.13 | 332 | 6 | 2.03E-05 | 5.66E-06 | 0.00035 | 0.03294 | 0.00052 | 4.686 | 0.055 | 0.3125 | 0.0034 | 0.9564 | 0.1088 | 0.0004 | 1753 | 17 | 1779 | 6 | 1.4 |
| 4115-1.1 | 1294 | 153 | 0.12 | 394 | 4 | 1.22E-05 | 1.02E-05 | 0.00021 | 0.03446 | 0.00065 | 4.650 | 0.054 | 0.3098 | 0.0033 | 0.9613 | 0.1089 | 0.0004 | 1740 | 16 | 1781 | 6 | 2.3 |
| 4115-2.1 | 1040 | 121 | 0.12 | 316 | 2 | 8.21E-06 | 1.71E-05 | 0.00014 | 0.03446 | 0.00072 | 4.666 | 0.053 | 0.3095 | 0.0032 | 0.9438 | 0.1094 | 0.0004 | 1738 | 16 | 1789 | 7 | 2.8 |
| 4115-8.1 | 1167 | 131 | 0.12 | 361 | 1 | 4.69E-06 | 7.36E-06 | 0.00008 | 0.03328 | 0.00043 | 4.839 | 0.056 | 0.3146 | 0.0033 | 0.9476 | 0.1116 | 0.0004 | 1763 | 16 | 1825 | 7 | 3.4 |
| 4115-1.2 | 920 | 226 | 0.25 | 313 | 2 | 6.01E-06 | 4.78E-06 | 0.00010 | 0.07138 | 0.00091 | 5.160 | 0.068 | 0.3336 | 0.0042 | 0.9815 | 0.1122 | 0.0003 | 1856 | 20 | 1835 | 5 | -1.1 |
| 4115-57.1 | 839 | 196 | 0.24 | 277 | 4 | 1.76E-05 | 7.04E-06 | 0.00031 | 0.06746 | 0.00091 | 5.031 | 0.070 | 0.3250 | 0.0037 | 0.8779 | 0.1123 | 0.0008 | 1814 | 18 | 1836 | 12 | 1.2 |
| 4115-13.1 | 696 | 197 | 0.29 | 231 | 3 | 1.33E-05 | 2.08E-05 | 0.00023 | 0.08432 | 0.00102 | 5.000 | 0.064 | 0.3226 | 0.0037 | 0.9306 | 0.1124 | 0.0005 | 1802 | 18 | 1839 | 9 | 2.0 |
| 4115-76.1 | 87 | 2 | 0.03 | 27 | 2 | 7.28E-05 | 1.27E-04 | 0.00126 | 0.00945 | 0.00488 | 5.019 | 0.140 | 0.3228 | 0.0052 | 0.6699 | 0.1128 | 0.0024 | 1803 | 25 | 1844 | 38 | 2.2 |
| 4115-9.1 | 1021 | 170 | 0.17 | 332 | 8 | 2.65E-05 | 1.32E-05 | 0.00046 | 0.04915 | 0.00082 | 5.058 | 0.061 | 0.3251 | 0.0034 | 0.9049 | 0.1129 | 0.0006 | 1814 | 16 | 1846 | 9 | 1.7 |
| 4115-3.1 | 1607 | 356 | 0.23 | 535 | 5 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.06512 | 0.00060 | 5.127 | 0.060 | 0.3287 | 0.0035 | 0.9518 | 0.1131 | 0.0004 | 1832 | 17 | 1850 | 7 | 1.0 |
| 4115-18.1 | 1494 | 276 | 0.19 | 483 | 5 | 1.20E-05 | 1.20E-05 | 0.00021 | 0.05318 | 0.00059 | 5.023 | 0.065 | 0.3220 | 0.0035 | 0.8899 | 0.1131 | 0.0007 | 1800 | 17 | 1850 | 11 | 2.7 |
| 4115-78.1 | 671 | 232 | 0.36 | 224 | 2 | 1.09E-05 | 9.18E-06 | 0.00019 | 0.10423 | 0.00188 | 4.976 | 0.067 | 0.3189 | 0.0038 | 0.9192 | 0.1132 | 0.0006 | 1784 | 18 | 1851 | 10 | 3.6 |
| 4115-61.1 | 779 | 194 | 0.26 | 257 | 1 | 6.68E-06 | 5.23E-06 | 0.00012 | 0.07424 | 0.00106 | 5.053 | 0.057 | 0.3238 | 0.0034 | 0.9602 | 0.1132 | 0.0004 | 1808 | 17 | 1851 | 6 | 2.3 |
| 4115-21.1 | 627 | 231 | 0.38 | 211 | 1 | 5.15E-06 | 2.35E-05 | 0.00009 | 0.11145 | 0.00126 | 4.981 | 0.062 | 0.3189 | 0.0034 | 0.9017 | 0.1133 | 0.0006 | 1784 | 16 | 1852 | 10 | 3.7 |
| 4115-77.1 | 1573 | 361 | 0.24 | 543 | 5 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.06870 | 0.00055 | 5.307 | 0.059 | 0.3395 | 0.0036 | 0.9713 | 0.1134 | 0.0003 | 1884 | 17 | 1854 | 5 | -1.6 |
| 4115-65.1 | 1054 | 235 | 0.23 | 345 | 3 | 1.16E-05 | 1.02E-05 | 0.00020 | 0.06589 | 0.00123 | 5.039 | 0.066 | 0.3223 | 0.0037 | 0.9173 | 0.1134 | 0.0006 | 1801 | 18 | 1855 | 10 | 2.9 |
| 4115-55.1 | 1073 | 179 | 0.17 | 371 | 4 | 1.28E-05 | 5.01E-06 | 0.00022 | 0.04982 | 0.00045 | 5.399 | 0.076 | 0.3452 | 0.0047 | 0.9856 | 0.1134 | 0.0003 | 1912 | 23 | 1855 | 4 | -3.0 |
| 4115-23.1 | 1179 | 237 | 0.21 | 386 | 0 | 5.60E-07 | 4.14E-06 | 0.00001 | 0.05910 | 0.00042 | 5.082 | 0.061 | 0.3248 | 0.0034 | 0.9220 | 0.1135 | 0.0005 | 1813 | 17 | 1856 | 8 | 2.3 |
| 4115-5.2 | 1115 | 160 | 0.15 | 371 | 3 | 9.95E-06 | 5.13E-06 | 0.00017 | 0.04237 | 0.00048 | 5.238 | 0.060 | 0.3346 | 0.0036 | 0.9594 | 0.1135 | 0.0004 | 1861 | 17 | 1856 | 6 | -0.2 |
| 4115-67.1 | 933 | 236 | 0.26 | 308 | 3 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.07398 | 0.00085 | 5.067 | 0.066 | 0.3229 | 0.0036 | 0.9099 | 0.1138 | 0.0006 | 1804 | 18 | 1861 | 10 | 3.1 |
| 4115-72.1 | 799 | 214 | 0.28 | 262 | 4 | 1.60E-05 | 1.19E-05 | 0.00028 | 0.07743 | 0.00086 | 5.028 | 0.066 | 0.3202 | 0.0038 | 0.9459 | 0.1139 | 0.0005 | 1791 | 19 | 1863 | 8 | 3.9 |
| 4115-48.1 | 95 | 4 | 0.04 | 30 | 1 | 2.99E-05 | 5.92E-05 | 0.00052 | 0.01338 | 0.00231 | 5.205 | 0.129 | 0.3312 | 0.0049 | 0.6917 | 0.1140 | 0.0021 | 1844 | 24 | 1864 | 33 | 1.1 |
| 4115-14.1 | 1102 | 218 | 0.20 | 363 | 2 | 6.65E-06 | 8.30E-06 | 0.00012 | 0.05904 | 0.00075 | 5.125 | 0.057 | 0.3260 | 0.0033 | 0.9546 | 0.1140 | 0.0004 | 1819 | 16 | 1864 | 6 | 2.4 |
| 4115-57.2 | 136 | 4 | 0.03 | 43 | 2 | 6.44E-05 | 2.86E-05 | 0.00112 | 0.00790 | 0.00144 | 5.213 | 0.083 | 0.3309 | 0.0046 | 0.9239 | 0.1143 | 0.0007 | 1843 | 23 | 1868 | 11 | 1.4 |
| 4115-5.1 | 130 | 2 | 0.01 | 40 | 0 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.00500 | 0.00053 | 5.137 | 0.080 | 0.3191 | 0.0039 | 0.8517 | 0.1168 | 0.0010 | 1785 | 19 | 1907 | 15 | 6.4 |

Notes (*see* Stern, 1997):

Analytical details: ion probe mount IP394, spot size = 35µm, beam current = 10nA, 6 scans, no Pb fractionation correction

Spot name follows the convention x-y.z; where x = sample number, y = grain number and z = spot number. Multiple analyses in an individual spot are labelled as x-y.z.z

Uncertainties reported at 1s (absolute) and are calculated by numerical propagation of all known sources of error

f206$^{204}$ refers to mole fraction of total 206Pb that is due to common Pb, calculated using the 204Pb-method; common Pb composition used is the surface blank (4/6: 0.05770; 7/6: 0.89500; 8/6: 2.13840)

* refers to radiogenic Pb (corrected for common Pb)

Discordance relative to origin = 100 * (1-($^{206}$Pb/$^{238}$U age)/($^{207}$Pb/$^{206}$Pb age))

Calibration standard 6266; U = 910 ppm; Age = 559 Ma; $^{206}$Pb/$^{238}$U = 0.09059

Error in $^{206}$Pb/$^{238}$U calibration 1.0%

Th/U calibration: F = 0.03900*UO + 0.85600

**Table 1.** (cont.)

| | | | | | | | | | | | | | | | | | | Apparent ages (Ma) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spot name | U (ppm) | Th (ppm) | Th/U | Pb* (ppm) | $^{204}$Pb (ppb) | $^{204}$Pb/$^{206}$Pb | ± $^{204}$Pb/$^{206}$Pb | f(206)$^{204}$ | $^{208*}$Pb/$^{206*}$Pb | ± $^{208}$Pb/$^{206}$Pb | $^{207*}$Pb/$^{235}$U | ± $^{207}$Pb/$^{235}$U | $^{206*}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | Corr Coeff | $^{207*}$Pb/$^{206*}$Pb | ± $^{207}$Pb/$^{206}$Pb | $^{206}$Pb/$^{238}$U | ± $^{206}$Pb/$^{238}$U | $^{207}$Pb/$^{206}$Pb | ± $^{207}$Pb/$^{206}$Pb | Disc. (%) |
| **NOT-A (Z4117; 63.1591°N 78.0119°E)** | | | | | | | | | | | | | | | | | | | | | | |
| non-detrital zircon | | | | | | | | | | | | | | | | | | | | | | |
| 4117-7.1 | 44 | 30 | 0.69 | 19 | 4 | 2.47E-04 | 1.40E-04 | 0.00429 | 0.18389 | 0.00843 | 5.937 | 0.273 | 0.3814 | 0.0088 | 0.6031 | 0.1129 | 0.0042 | 2083 | 41 | 1846 | 68 | -12.8 |
| 4117-71.1 | 335 | 83 | 0.26 | 115 | 2 | 1.90E-05 | 2.20E-05 | 0.00033 | 0.07543 | 0.00152 | 5.239 | 0.083 | 0.3360 | 0.0046 | 0.9129 | 0.1131 | 0.0007 | 1868 | 22 | 1849 | 12 | -1.0 |
| 4117-71.1.2 | 331 | 76 | 0.24 | 107 | 1 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.06976 | 0.00086 | 4.994 | 0.090 | 0.3193 | 0.0053 | 0.9524 | 0.1135 | 0.0006 | 1786 | 26 | 1855 | 10 | 3.7 |
| 4117-71.1.3 | 278 | 64 | 0.24 | 86 | 5 | 6.51E-05 | 1.66E-05 | 0.00113 | 0.07010 | 0.00107 | 4.758 | 0.122 | 0.3035 | 0.0072 | 0.9612 | 0.1137 | 0.0008 | 1709 | 36 | 1859 | 13 | 8.1 |
| 4117-2.1 | 345 | 126 | 0.38 | 121 | 6 | 6.06E-05 | 1.97E-05 | 0.00105 | 0.10760 | 0.00120 | 5.202 | 0.080 | 0.3329 | 0.0042 | 0.8810 | 0.1133 | 0.0008 | 1853 | 20 | 1853 | 13 | 0.1 |
| 4117-2.1.2 | 335 | 123 | 0.38 | 109 | 3 | 3.03E-05 | 2.35E-05 | 0.00052 | 0.10907 | 0.00136 | 4.893 | 0.076 | 0.3107 | 0.0041 | 0.9009 | 0.1142 | 0.0008 | 1744 | 20 | 1867 | 12 | 6.6 |
| 4117-50.1 | 214 | 109 | 0.52 | 78 | 2 | 2.62E-05 | 2.14E-05 | 0.00045 | 0.15299 | 0.00202 | 5.270 | 0.080 | 0.3328 | 0.0044 | 0.9302 | 0.1149 | 0.0006 | 1852 | 22 | 1877 | 10 | 1.4 |
| 4117-50.2 | 225 | 114 | 0.52 | 83 | 2 | 2.93E-05 | 2.36E-05 | 0.00051 | 0.15085 | 0.00224 | 5.275 | 0.083 | 0.3372 | 0.0046 | 0.9166 | 0.1135 | 0.0007 | 1873 | 22 | 1856 | 11 | -0.9 |
| 4117-45.2 | 967 | 13 | 0.01 | 310 | 4 | 1.30E-05 | 7.89E-06 | 0.00023 | 0.00360 | 0.00033 | 5.241 | 0.072 | 0.3334 | 0.0042 | 0.9487 | 0.1140 | 0.0005 | 1855 | 20 | 1865 | 8 | 0.5 |
| detrital zircon | | | | | | | | | | | | | | | | | | | | | | |
| 4117-4.1 | 1926 | 394 | 0.21 | 684 | 3 | 5.49E-06 | 3.74E-06 | 0.00010 | 0.06164 | 0.00080 | 5.565 | 0.077 | 0.3509 | 0.0047 | 0.9795 | 0.1150 | 0.0003 | 1939 | 22 | 1880 | 5 | -3.1 |
| 4117-67.1 | 287 | 107 | 0.38 | 103 | 3 | 4.08E-05 | 1.43E-05 | 0.00071 | 0.11029 | 0.00210 | 5.437 | 0.078 | 0.3410 | 0.0044 | 0.9342 | 0.1156 | 0.0006 | 1892 | 21 | 1890 | 9 | -0.1 |
| 4117-62.1 | 1702 | 260 | 0.16 | 593 | 3 | 5.67E-06 | 2.62E-06 | 0.00010 | 0.04544 | 0.00030 | 5.560 | 0.076 | 0.3487 | 0.0043 | 0.9354 | 0.1156 | 0.0006 | 1929 | 20 | 1890 | 9 | -2.0 |
| 4117-98.1 | 620 | 24 | 0.04 | 203 | 5 | 2.96E-05 | 1.44E-05 | 0.00051 | 0.01134 | 0.00063 | 5.408 | 0.236 | 0.3388 | 0.0077 | 0.6201 | 0.1158 | 0.0040 | 1881 | 37 | 1892 | 63 | 0.6 |
| 4117-98.2 | 452 | 15 | 0.04 | 150 | 1 | 6.75E-06 | 1.32E-05 | 0.00012 | 0.01054 | 0.00055 | 5.476 | 0.083 | 0.3421 | 0.0048 | 0.9632 | 0.1161 | 0.0005 | 1897 | 23 | 1897 | 7 | 0.0 |
| 4117-28.1 | 470 | 178 | 0.39 | 169 | 4 | 2.71E-05 | 1.12E-05 | 0.00047 | 0.11422 | 0.00119 | 5.442 | 0.080 | 0.3402 | 0.0044 | 0.9267 | 0.1160 | 0.0006 | 1888 | 21 | 1896 | 10 | 0.4 |
| 4117-34.1 | 2168 | 1314 | 0.63 | 866 | 5 | 6.81E-06 | 4.36E-06 | 0.00012 | 0.18345 | 0.00492 | 5.715 | 0.181 | 0.3572 | 0.0083 | 0.8038 | 0.1161 | 0.0022 | 1969 | 39 | 1896 | 35 | -3.8 |
| 4117-94.1 | 2718 | 754 | 0.29 | 993 | 3 | 4.10E-06 | 3.01E-06 | 0.00007 | 0.08242 | 0.00060 | 5.683 | 0.074 | 0.3544 | 0.0044 | 0.9830 | 0.1163 | 0.0003 | 1955 | 21 | 1900 | 4 | -2.9 |
| 4117-24.1 | 2891 | 783 | 0.28 | 1060 | 1 | 1.64E-06 | 1.50E-06 | 0.00003 | 0.07970 | 0.00032 | 5.723 | 0.077 | 0.3564 | 0.0046 | 0.9850 | 0.1165 | 0.0003 | 1965 | 22 | 1903 | 4 | -3.3 |
| 4117-48.1 | 3872 | 1199 | 0.32 | 1479 | 2 | 1.52E-06 | 1.63E-06 | 0.00003 | 0.09205 | 0.00105 | 5.904 | 0.128 | 0.3675 | 0.0063 | 0.8584 | 0.1165 | 0.0013 | 2018 | 30 | 1904 | 20 | -6.0 |
| 4117-43.1 | 2670 | 401 | 0.16 | 940 | 5 | 5.59E-06 | 2.03E-06 | 0.00010 | 0.04427 | 0.00026 | 5.672 | 0.075 | 0.3525 | 0.0045 | 0.9792 | 0.1167 | 0.0003 | 1947 | 21 | 1906 | 5 | -2.1 |
| 4117-52.1 | 474 | 186 | 0.40 | 172 | 1 | 1.06E-05 | 1.03E-05 | 0.00018 | 0.11739 | 0.00182 | 5.502 | 0.077 | 0.3417 | 0.0045 | 0.9659 | 0.1168 | 0.0004 | 1895 | 21 | 1907 | 7 | 0.7 |
| 4117-23.1 | 648 | 17 | 0.03 | 222 | 2 | 8.59E-06 | 2.00E-05 | 0.00015 | 0.00836 | 0.00077 | 5.853 | 0.081 | 0.3529 | 0.0044 | 0.9442 | 0.1203 | 0.0006 | 1948 | 21 | 1961 | 8 | 0.6 |
| 4117-23.3 | 647 | 20 | 0.03 | 231 | 5 | 2.25E-05 | 7.61E-06 | 0.00039 | 0.00928 | 0.00036 | 5.952 | 0.095 | 0.3681 | 0.0049 | 0.8922 | 0.1173 | 0.0009 | 2020 | 23 | 1915 | 13 | -5.5 |
| 4117-23.2 | 796 | 29 | 0.04 | 270 | 2 | 1.00E-05 | 1.00E-05 | 0.00017 | 0.01087 | 0.00043 | 5.663 | 0.083 | 0.3496 | 0.0046 | 0.9362 | 0.1175 | 0.0006 | 1933 | 22 | 1918 | 9 | -0.7 |
| 4117-23.1.3 | 526 | 13 | 0.03 | 150 | 6 | 4.75E-05 | 1.46E-05 | 0.00082 | 0.00638 | 0.00058 | 4.813 | 0.169 | 0.2956 | 0.0066 | 0.7227 | 0.1181 | 0.0029 | 1669 | 33 | 1928 | 44 | 13.4 |
| 4117-23.1.2 | 608 | 15 | 0.03 | 193 | 5 | 2.73E-05 | 1.35E-05 | 0.00047 | 0.00677 | 0.00054 | 5.351 | 0.108 | 0.3274 | 0.0056 | 0.9065 | 0.1185 | 0.0010 | 1826 | 27 | 1934 | 15 | 5.6 |
| 4117-3.1 | 109 | 3 | 0.02 | 37 | 7 | 2.03E-04 | 5.66E-05 | 0.00351 | 0.00260 | 0.00215 | 5.719 | 0.105 | 0.3498 | 0.0049 | 0.8350 | 0.1186 | 0.0012 | 1934 | 24 | 1935 | 18 | 0.1 |
| 4117-3.3 | 164 | 4 | 0.02 | 56 | 1 | 1.29E-05 | 2.10E-05 | 0.00022 | 0.00916 | 0.00102 | 5.825 | 0.113 | 0.3544 | 0.0054 | 0.8532 | 0.1192 | 0.0012 | 1956 | 26 | 1944 | 18 | -0.6 |
| 4117-3.2 | 80 | 2 | 0.03 | 27 | 5 | 2.30E-04 | 6.42E-05 | 0.00398 | 0.00353 | 0.00247 | 5.461 | 0.129 | 0.3437 | 0.0059 | 0.7962 | 0.1152 | 0.0017 | 1905 | 28 | 1883 | 26 | -1.1 |
| 4117-1.1 | 573 | 191 | 0.34 | 233 | 3 | 1.70E-05 | 6.03E-06 | 0.00029 | 0.09772 | 0.00114 | 6.816 | 0.107 | 0.3858 | 0.0055 | 0.9457 | 0.1281 | 0.0007 | 2103 | 25 | 2073 | 9 | -1.5 |
| 4117-69.1 | 196 | 57 | 0.30 | 80 | 6 | 9.04E-05 | 2.80E-05 | 0.00157 | 0.08553 | 0.00356 | 7.004 | 0.425 | 0.3878 | 0.0139 | 0.6824 | 0.1310 | 0.0059 | 2112 | 65 | 2111 | 81 | -0.1 |
| 4117-51.1 | 263 | 365 | 1.43 | 131 | 4 | 4.31E-05 | 2.27E-05 | 0.00075 | 0.39914 | 0.00521 | 6.812 | 0.105 | 0.3771 | 0.0050 | 0.9138 | 0.1310 | 0.0008 | 2063 | 23 | 2112 | 11 | 2.3 |
| 4117-49.1 | 191 | 102 | 0.55 | 84 | 5 | 7.90E-05 | 3.62E-05 | 0.00137 | 0.15676 | 0.00196 | 7.291 | 0.119 | 0.3965 | 0.0054 | 0.8878 | 0.1334 | 0.0010 | 2153 | 25 | 2143 | 13 | -0.5 |
| 4117-93.1 | 216 | 101 | 0.48 | 95 | 4 | 5.47E-05 | 2.41E-05 | 0.00095 | 0.13827 | 0.00157 | 7.497 | 0.279 | 0.4019 | 0.0055 | 0.4803 | 0.1353 | 0.0045 | 2178 | 26 | 2168 | 59 | -0.5 |
| 4117-68.1 | 242 | 194 | 0.83 | 119 | 1 | 1.16E-05 | 1.80E-05 | 0.00020 | 0.23439 | 0.00223 | 8.049 | 0.130 | 0.4135 | 0.0053 | 0.8558 | 0.1412 | 0.0012 | 2231 | 24 | 2242 | 15 | 0.5 |
| 4117-30.1 | 476 | 290 | 0.63 | 232 | 3 | 1.54E-05 | 9.19E-06 | 0.00027 | 0.18139 | 0.00173 | 8.595 | 0.122 | 0.4266 | 0.0055 | 0.9469 | 0.1461 | 0.0007 | 2290 | 25 | 2301 | 8 | 0.5 |
| 4117-45.1 | 42 | 34 | 0.84 | 22 | 3 | 2.12E-04 | 9.05E-05 | 0.00367 | 0.25957 | 0.00655 | 8.674 | 0.260 | 0.4237 | 0.0091 | 0.7948 | 0.1485 | 0.0027 | 2277 | 42 | 2329 | 32 | 2.2 |
| 4117-45.3 | 112 | 131 | 1.21 | 58 | 1 | 1.95E-05 | 4.82E-05 | 0.00034 | 0.35755 | 0.00409 | 7.811 | 0.161 | 0.4039 | 0.0071 | 0.9041 | 0.1403 | 0.0012 | 2187 | 33 | 2230 | 15 | 1.9 |

Notes (*see* Stern, 1997):
Analytical details: ion probe mount IP412, spot size = 25µm, beam current = 8nA, 6 scans, no Pb fractionation correction
Spot name follows the convention x-y.z; where x = sample number, y = grain number and z = spot number. Multiple analyses in an individual spot are labelled as x-y.z.z
Uncertainties reported at 1s (absolute) and are calculated by numerical propagation of all known sources of error
f206$^{204}$ refers to mole fraction of total 206Pb that is due to common Pb, calculated using the 204Pb-method; common Pb composition used is the surface blank (4/6: 0.05770; 7/6: 0.89500; 8/6: 2.13840)
* refers to radiogenic Pb (corrected for common Pb)
Discordance relative to origin = 100 * (1-($^{206}$Pb/$^{238}$U age)/($^{207}$Pb/$^{206}$Pb age))
Calibration standard 6266; U = 910 ppm; Age = 559 Ma; $^{206}$Pb/$^{238}$U = 0.09059
Error in $^{206}$Pb/$^{238}$U calibration 1.0%
Th/U calibration: F = 0.03900*UO + 0.85600

**Table 2.** U-Pb TIMS analytical data.

| | | | | | | Isotopic Ratios[5] | | | | | | | | | Ages (Ma)[7] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fraction[1] | Wt. µg | U ppm | Pb[2] ppm | $^{206}\text{Pb}$[3]/$^{204}\text{Pb}$ | Pb[4] pg | $^{208}\text{Pb}/^{206}\text{Pb}$ | $^{207}\text{Pb}/^{235}\text{U}$ | ±1SE Abs | $^{206}\text{Pb}/^{238}\text{U}$ | ±1SE Abs | Corr.[6] Coeff. | $^{207}\text{Pb}/^{206}\text{Pb}$ | ±1SE Abs | $^{206}\text{Pb}/^{238}\text{U}$ | ±2SE | $^{207}\text{Pb}/^{235}\text{U}$ | ±2SE | $^{207}\text{Pb}/^{206}\text{Pb}$ | ±2SE | % Disc |
| **SAL-A (Z4111; 63.3831°N 76.8458°E)** | | | | | | | | | | | | | | | | | | | | |
| 4111-1 (M) | 8 | 562 | 3898 | 13277 | 7 | 22.82 | 5.26069 | 0.00518 | 0.33417 | 0.00028 | 0.938 | 0.11418 | 0.00004 | 1858.5 | 2.7 | 1862.5 | 1.7 | 1866.9 | 1.3 | 0.5 |
| 4111-M2 (M) | 9 | 311 | 4671 | 5555 | 11 | 50.70 | 5.24372 | 0.00523 | 0.33400 | 0.00029 | 0.926 | 0.11387 | 0.00004 | 1857.7 | 2.8 | 1859.8 | 1.7 | 1862.0 | 1.4 | 0.3 |
| **SAL-B (Z4112; 63.3831°N 76.8459°E)** | | | | | | | | | | | | | | | | | | | | |
| 4112-1 (M) | 5 | 674 | 6321 | 10564 | 6 | 30.93 | 5.34146 | 0.00532 | 0.33775 | 0.00029 | 0.930 | 0.11470 | 0.00004 | 1875.9 | 2.8 | 1875.5 | 1.7 | 1875.1 | 1.3 | 0.0 |
| **SAL-C (Z4113; 63.3831°N 76.8459°E)** | | | | | | | | | | | | | | | | | | | | |
| 4113-T1 (T) | 56 | 77 | 48 | 546 | 158 | 1.22 | 4.57094 | 0.01149 | 0.31116 | 0.00036 | 0.693 | 0.10654 | 0.00020 | 1746.4 | 3.6 | 1744.0 | 4.2 | 1741.0 | 7.0 | -0.4 |
| 4113-T2 (T) | 46 | 70 | 47 | 325 | 201 | 1.42 | 4.48889 | 0.01775 | 0.30576 | 0.00039 | 0.674 | 0.10648 | 0.00034 | 1719.8 | 3.9 | 1728.9 | 6.6 | 1740.0 | 11.8 | 1.3 |
| **MIL-A (Z4114; 64.0047°N 77.8900°E)** | | | | | | | | | | | | | | | | | | | | |
| 4114-T1 (T) | 49 | 52 | 25 | 282 | 180 | 0.72 | 4.41920 | 0.02002 | 0.30326 | 0.00043 | 0.665 | 0.10569 | 0.00040 | 1707.4 | 4.3 | 1715.9 | 7.5 | 1726.3 | 13.7 | 1.3 |
| 4114-T2 (T) | 42 | 39 | 20 | 256 | 129 | 0.90 | 4.32654 | 0.02209 | 0.29927 | 0.00047 | 0.651 | 0.10485 | 0.00045 | 1687.7 | 4.7 | 1698.4 | 8.4 | 1711.7 | 15.6 | 1.6 |
| 4114-T2 (T) | 53 | 123 | 75 | 876 | 145 | 1.23 | 4.42152 | 0.00742 | 0.30440 | 0.00027 | 0.724 | 0.10535 | 0.00013 | 1713.1 | 2.7 | 1716.4 | 2.8 | 1720.4 | 4.4 | 0.5 |
| **MIL-B (Z4115; 64.0047°N 77.8900°E)** | | | | | | | | | | | | | | | | | | | | |
| 4115-T1 (T) | 70 | 73 | 37 | 637 | 155 | 0.86 | 4.35326 | 0.00997 | 0.30170 | 0.00037 | 0.719 | 0.10465 | 0.00017 | 1699.7 | 3.6 | 1703.5 | 3.8 | 1708.2 | 6.1 | 0.6 |
| 4115-T3 (T) | 24 | 101 | 54 | 620 | 77 | 0.93 | 4.43679 | 0.00995 | 0.30390 | 0.00031 | 0.668 | 0.10589 | 0.00018 | 1710.6 | 3.0 | 1719.2 | 3.7 | 1729.8 | 6.4 | 1.3 |

**Notes:**

[1] T=titanite fraction, M=monazite fraction

[2] Radiogenic Pb

[3] Measured ratio, corrected for spike and fractionation

[4] Total common Pb in analysis corrected for fractionation and spike

[5] Corrected for blank Pb and U and common Pb, errors quoted are 1 sigma absolute; procedural blank values for this study ranged from 0.3–0.5 pg U and 3–5 pg Pb for monazite analyses and 1–2 pg U and 10–14 pg Pb for titanite analyses; Pb blank isotopic composition is based on the analysis of procedural blanks; corrections for common Pb were made using Stacey-Kramers compositions.

[6] Correlation coefficient

[7] Corrected for blank and common Pb, errors quoted are 2 sigma in Ma

The error on the calibration of the GSC $^{205}\text{Pb}$-$^{233}\text{U}$-$^{235}\text{U}$ spike utilized in this study is 0.22% (2σ).

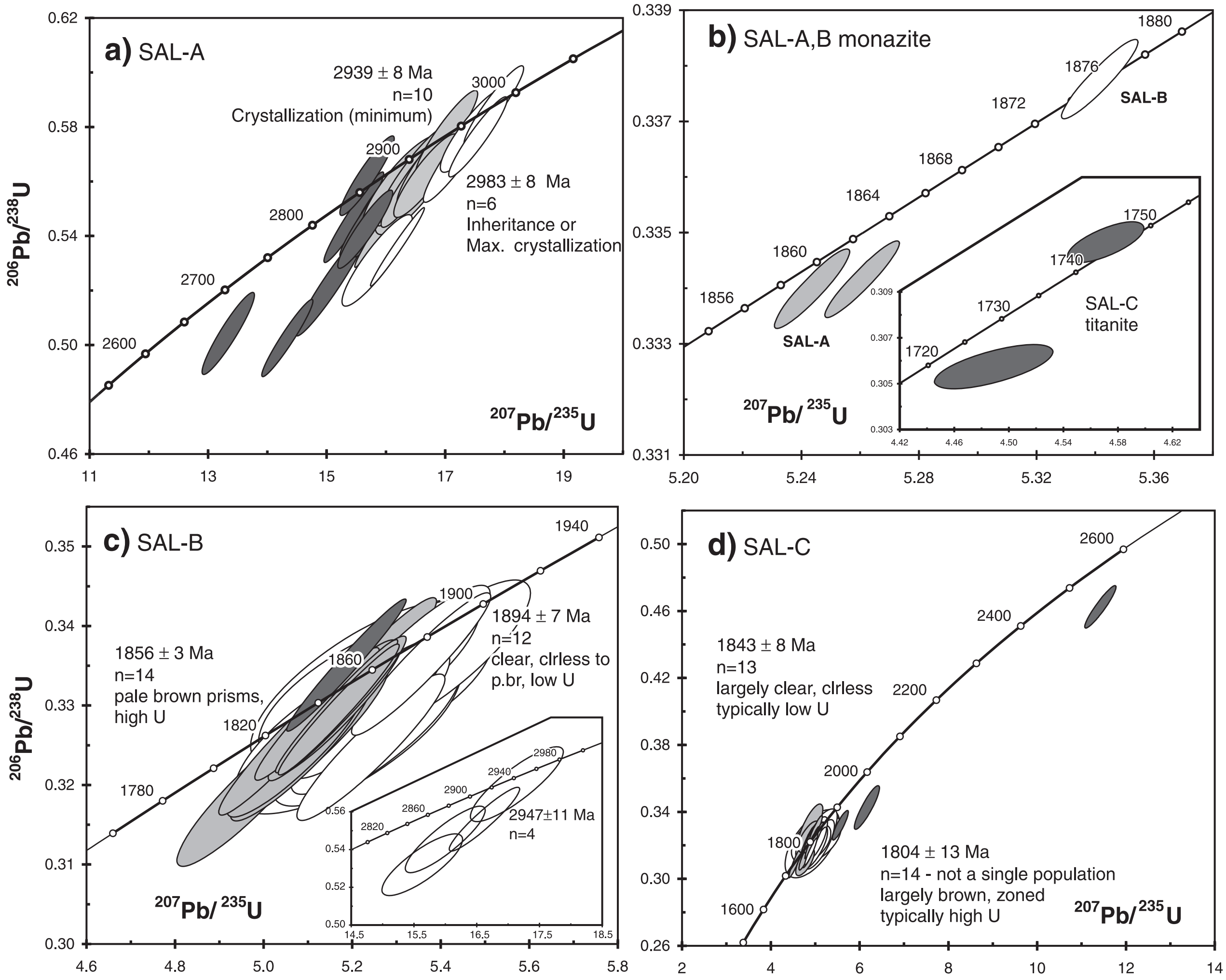

**Figure 2.** Concordia diagrams for U-Pb results from Salisbury Island. Error ellipses at 2σ. *See* text for interpretation. **a)** SHRIMP zircon results from tonalite SAL-A. White ellipses are plotted for oldest zircon population. Light grey ellipses illustrate younger zircon population. Dark grey ellipses represent analyses not included in the weighted mean and illustrate the effect of ancient Pb loss. **b)** TIMS monazite and titanite results from samples from Salisbury Island. Monazite data from SAL-A are shown as light grey ellipses, and those from SAL-B as a white ellipse. Titanite data from SAL-C are shown as dark grey ellipses. **c)** SHRIMP zircon results from monzogranite SAL-B. Older 2.9 Ga inherited zircon data are as inset. *See* data table for details. White ellipses indicate a clear, colourless, low-U zircon population. Light grey ellipses illustrate a younger, pale brown, high-U zircon population. One grain (dark grey ellipse) has exceptionally high U concentration and exceptionally low Th/U ratio. **d)** SHRIMP zircon results from syenogranite SAL-C. Oldest, discordant zircon grains are shown by dark grey ellipses. White ellipses represent a population of largely clear, colourless, low-U zircon grains. Light grey ellipses illustrate a group of dominantly brown, zoned, high-U zircon grains.

interpreted to represent inherited Archean zircon grains that have experienced Pb-loss during a Paleoproterozoic heating event. As observed in sample SAL-B, there are two morphologically and temporally distinct suites of zircon. Dominantly low-U, clear, colourless zircon grains yield a weighted mean age of 1843 ± 8 Ma (unfilled ellipses, n = 13, MSWD = 1.04, POF = 0.41), whereas typically higher U, pale brown zircon grains give a poorly constrained mean age of 1804 ± 13 Ma (n = 14, MSWD = 5.6, POF = 0.0, light grey ellipses). These younger zircon analyses exhibit excess scatter in their ages suggesting that they do not represent a single population. Two multigrain titanite TIMS analyses from sample SAL-C yield a weighted mean age of 1741 ± 6 Ma (MSWD = 0.021, POF = 0.88, Fig. 2b).

## MIL-A (GSC lab # 4114)

Thirty analyses were carried out on twenty-five zircon grains from tonalite gneiss sample MIL-A (Fig. 3a). Three age groupings are observed. The oldest group extends up to 2.97 Ga and is interpreted as inherited. A regression through the slightly younger group of analyses and a forced lower intercept of 1.87 Ga (*see* below) gives an upper intercept age of 2816 ± 31 Ma (n = 14, MSWD = 2.0, POF = 0.01), which is interpreted as the best estimate for the crystallization age of the tonalite. The youngest group of 8 analyses gives a weighted mean age of 1870 ± 5 Ma (MSWD = 0.97, POF = 0.45). This group is composed of two low-U, imprecise analyses and six high-U, more precise analyses (light grey and dark grey ellipses, respectively; Fig. 3a). It is possible that these low-U analyses are distinct and slightly older in age (1.89 Ga), as observed in monzogranite SAL-B. However, this cannot be conclusively resolved due to the limited number and low precision of the analyses. Three multigrain titanite analyses from sample MIL-A yield a weighted mean $^{207}Pb/^{206}Pb$ age of 1720 ± 4 Ma by TIMS (MSWD = 0.99, POF = 0.37 Table 2, Fig. 3b).

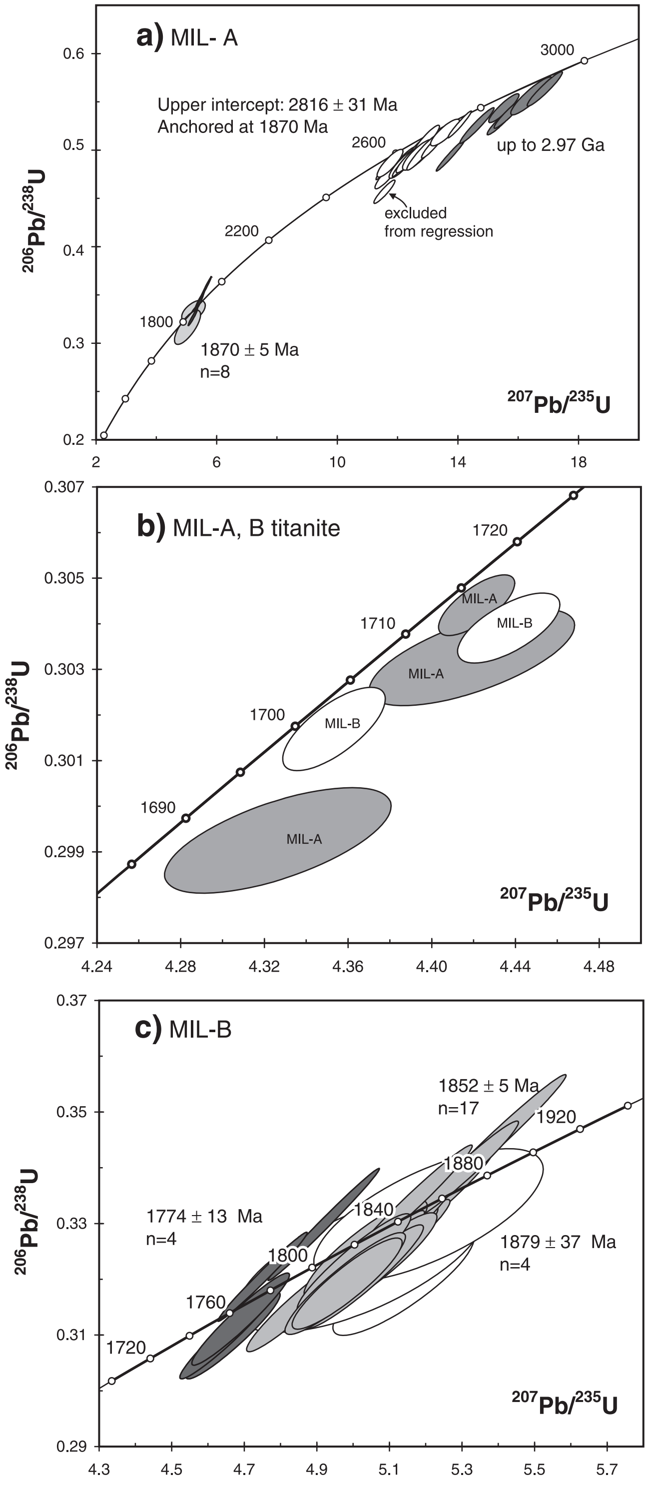

**Figure 3.** Concordia diagrams for U-Pb results from Mill Island. Error ellipses at 2 σ. *See* text for interpretation. **a)** SHRIMP zircon results from tonalite MIL-A. Medium grey ellipses are plotted for an inherited zircon population. White ellipses illustrate the population regressed to define the crystallization age of MIL-A. Light grey ellipses indicate two clear, colourless, low-U zircon grains which may be distinctly older than a population of brown, high-U zircon shown as dark grey ellipses. **b)** TIMS titanite results from samples from Mill Island. Data from MIL-A are shown as light grey ellipses and from MIL-B as white ellipses. **c)** SHRIMP zircon results from monzogranite MIL-B. White ellipses indicate a clear, colourless, low-U zircon population. Light grey ellipses illustrate a younger, pale brown, high-U zircon population. Dark grey ellipses are also high U but give significantly younger $^{207}Pb/^{206}Pb$ ages.

## MIL-B (GSC lab # 4115)

Twenty-seven analyses were carried out on 22 zircon grains from monzogranite sample MIL-B (Fig. 3c). A population of four clear, colourless, low-U zircon grains gives an imprecise weighted mean age of 1879 ± 37 Ma (unfilled ellipses, MSWD = 1.9, POF = 0.13). Pale brown, high-U zircons give a weighted mean age of 1852 ± 5 Ma (light grey ellipses, n = 17, MSWD = 1.7, POF = 0.05). As observed in SAL-B and MIL-A, a slightly older (ca. 1.89 Ga), chemically distinct component is observed, but low U has hampered our ability to precisely determine this age. Within the group of high-U zircon grains there is a further subcomponent that gives even younger $^{207}Pb/^{206}Pb$ ages ranging from 1.83 to 1.76 Ga (Fig. 3c dark grey ellipses). This subcomponent typically has lower Th/U than the 1852 Ma population and is interpreted to represent high-U zircon from that population that has lost Pb by partial resetting during a Paleoproterozoic metamorphic fluid event. The timing of this late heating/fluid event is constrained between 1.76 Ga (the youngest zircon date) and 1708 Ma, a cooling age determined by TIMS titanite analysis (Table 2, Fig. 3b).

## NOT-A (GSC lab # 4117)

The dominant population of zircon grains from metasedimentary gneiss sample NOT-A consists of large, dark brown, elongate to stubby prisms, most having large quartz inclusions and fractures. Less common are dark to pale brown, slightly faceted to rounded, equant crystals commonly with cores or concentric zoning. Thirty-eight analyses were carried out on twenty-four zircon grains from sample NOT-A (Table 1, Fig. 4a, b). The probability distribution curve for detrital zircon grains (Fig. 4b) displays a dominant mode at 1.90 Ga and older detritus ranging from 1.93 to 2.35 Ga. The youngest five zircon grains are all morphologically similar (subhedral, equant prisms), dominantly pale brown and are not shown on the probability density diagram. They may represent either the youngest detrital population or some younger addition of zircon, such as metamorphic growth or geological contamination from the thin leucosomes observed at the sampling site. These zircon grains form a single statistical population with a weighted mean age of 1861 ± 8 Ma (n = 9 includes replicates, MSWD = 0.62, POF = 0.76, light grey ellipses in Fig. 4a). This age is similar to the emplacement age of the Cumberland Batholith, an extensive 1865 to 1848 Ma felsic plutonic suite documented across southern and central Baffin Island, and a known time of tectonometamorphism (Jackson et al., 1990; Scott and Wodicka, 1998; Wodicka and Scott, 1997; Rayner et al., 2008). We interpret the 1.86 Ga zircon as non-detrital and likely leucosome-related on the basis of the presence of partial melt in the sample and well known 1.86 Ga plutonism and metamorphism in the region. The youngest detrital zircon (grain 4117–4.1) is 1880 ± 5 Ma in age (Table 1). This analysis falls within a group of zircon grains whose age falls between 1.90 and 1.88 Ga and currently represents our best estimate of the maximum age of deposition of the metasedimentary gneiss on Nottingham Island.

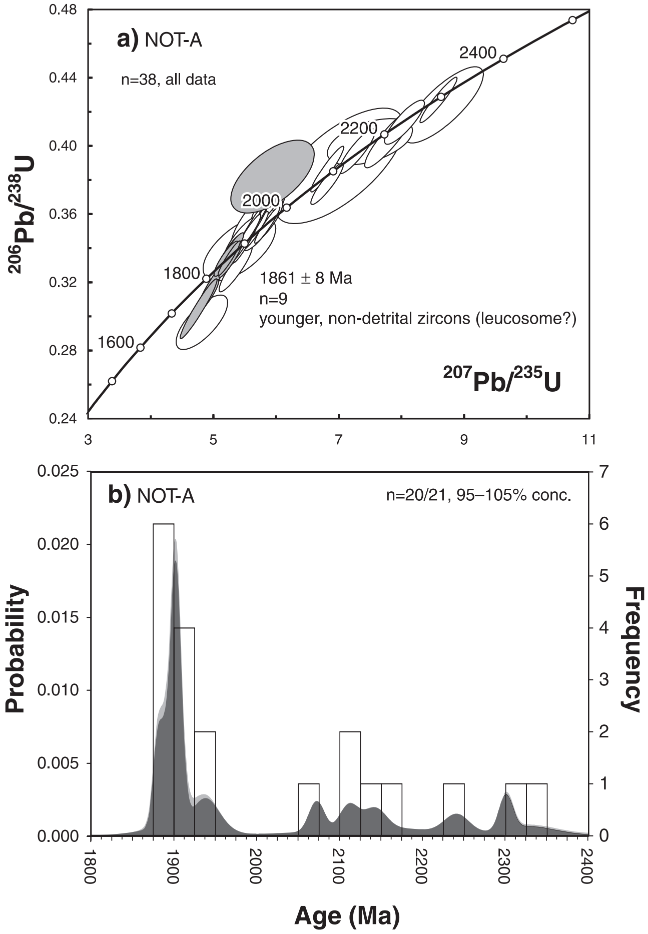

**Figure 4.** Concordia diagram and cumulative probability curve of U-Pb results from Nottingham Island, sample NOT-A. Error ellipses at 2 σ. *See* text for interpretation. **a)** Detrital zircon data shown as white ellipses and leucosome data as grey ellipses. All data illustrated including replicates and discordant results. **b)** Cumulative probability curve and overlain histogram of detrital zircon results. Ca. 1861 Ma, non-detrital analyses are excluded in the probability distribution curve – binned frequency histogram plot. All data are illustrated in the light grey curve. Only data within ±5% of concordia are presented in the dark grey curve and histogram. In the instance of multiple analyses of a single detrital crystal, only the oldest analysis or the average was included in the diagram.

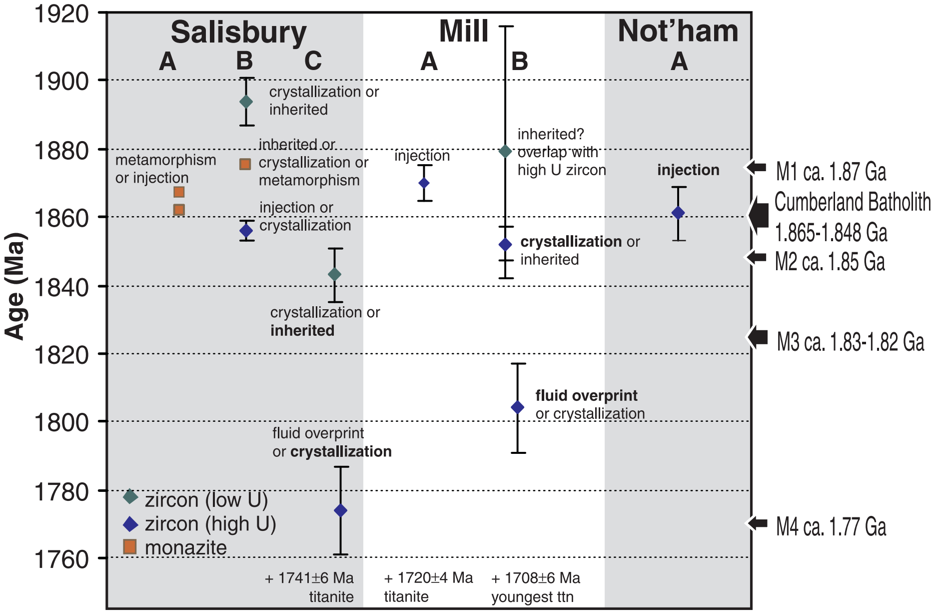

**Figure 5.** Summary of Paleoproterozoic ages from Mill, Salisbury and Nottingham islands. Text in bold indicates preferred interpretation; ttn = titanite. *See* text for explanation. Reference ages of Cumberland batholith across Baffin Island (Jackson et al., 1990; Scott and Wodicka, 1998; Wodicka and Scott, 1997) and metamorphism in southwest Baffin Island (Rayner et al., 2008) are provided for comparison.

## DISCUSSION AND INTERPRETATION

The analytical data presented above for samples from Mill and Salisbury islands are extremely complex, with alternate interpretations possible for each phase. The data for the more complex Paleoproterozoic components are summarized in Figure 5. Tonalite crystallization on Salisbury Island occurred at 2939 Ma, or possibly as early as 2983 Ma (SAL-A). The SAL-B monzogranite may have intruded the tonalite at 1894 Ma, with addition of 1856 Ma zircon through the injection of a subsequent melt phase, the generation of in situ melt, or the effects of hydrothermal fluids. Alternatively, the 1894 Ma component is inherited within a 1856 Ma monzogranite. Both scenarios are equally plausible. The oldest coherent age group from the undeformed SAL-C syenogranite is 1843 Ma and may represent the crystallization age of the unit. However, on southwest Baffin Island, regional deformation is ongoing at this time (Rayner et al., 2008). Assuming a correlation between these units, the lack of strain in SAL-C is inconsistent with this observation and would suggest that these zircon grains are inherited. A poorly defined group of ages at ca. 1804 Ma is considered to be a better estimate for the time of syenogranite emplacement, with a lower limit defined by a titanite cooling age of 1741 Ma.

On Mill Island we interpret the tonalite MIL-A to have crystallized at 2816 Ma with 2.97 Ga inheritance. The presence of 1870 Ma zircon (± minor, low U, 1.89 Ga zircon) in MIL-A is attributed to the injection of a later igneous phase, the generation of in situ melt or the effects of hydrothermal fluids. In MIL-B the dominant zircon age of 1852 Ma is the best estimate for the crystallization age of the monzogranite. An imprecise grouping of ca. 1.88 Ga, low U zircon grains cannot be confidently separated from the 1852 Ma population but, if taken to be distinct based on unique chemistry would be interpreted as inherited. A subset of the high-U zircon grains from MIL-B show ages as young as 1.76 Ga. This younger population is interpreted to record a fluid overprint or the age of the late syenogranite intrusion (not dated). The minimum age of this late event is constrained by titanite cooling ages as young as 1708 Ma.

Despite the difficulty in assigning specific ages to particular intrusive phases from these complex outcrops, the Paleoproterozoic zircon ages (1894, 1852–1856, and 1843 Ma) recorded in the meta-igneous rocks provide some insight into the cratonic affinity of Mill and Salisbury islands. These ages contrast markedly with an absence of precollisional (i.e. ≥ ca. 1820 Ma) deformation, magmatic, and metamorphic events of Paleoproterozoic age in the Archean Superior Craton of northern Quebec (e.g. St-Onge et al., 2006b; their Fig. 8), thereby precluding a lower plate position for Mill and Salisbury islands with respect to the Bergeron suture. However, the possibility that these islands represent a rifted fragment of the Superior Craton cannot be excluded. Alternatively, similarities in age and lithologies between Mill and Salisbury islands and Hall Peninsula (Scott, 1999) provide evidence that the islands may form part of the upper plate Meta Incognita microcontinent as recently defined by St-Onge et al. (2006b). Current data are insufficient to distinguish between these two hypotheses.

The detrital profile from the Nottingham Island metasedimentary gneiss, dominated by Paleoproterozoic ages at ca. 1.90 Ga with sparse older ages, is similar to that for a Tasiuyak paragneiss from Hall Peninsula and to those for Lake Harbour Group siliciclastic rocks, which are characterized by dominantly 1.9 to 2.0 Ga detritus and a sparse early Paleoproterozoic to late Archean component (Scott et al., 2002; their Fig. 9). These similarities suggest that similar source region(s) were involved in the generation of the sedimentary detritus from these samples, but the linkage in space between these metasedimentary packages at the time of deposition, if any, is not yet well understood. Due to their proximity, it may be tempting to suggest that the Archean rocks on Mill and Salisbury islands form the depositional basement to the metasedimentary rocks on Nottingham Island. However, this is not consistent with the detrital profile for NOT-A, which shows a distinct absence of basement-aged detritus (2.8–2.98 Ga). This apparent conflict suggests that the Nottingham Island metasedimentary rocks either are detached from their basement or developed in an off-craton position.

## SUMMARY AND CONCLUSIONS

Archean inherited and basement ages of 2.97 Ga, 2983 to 2935 Ma, and 2819 Ma are not uniquely associated to one of the bounding cratons (Superior or Meta Incognita; Fig. 1). Multiple Paleoproterozoic events between 1.89 and 1.71 Ga have been identified. Evidence for an 1894 Ma event is recorded in low-U zircon grains from monzogranite SAL-B. Weak indications of this same event on Mill Island is present as few, low-U, imprecise analyses. Statistically indistinguishable ages of 1852 ± 5 Ma and 1856 ± 3 Ma representing igneous crystallization from in situ melt or mobilizate are present on both Mill and Salisbury islands. There is evidence for still younger zircon growth at 1843 ± 8 Ma from syenogranite SAL-C, and zircon growth and/or resetting at ca. 1.80 Ga (SAL-C) to as young as 1.76 Ga (MIL-B). Monazite ages range from 1875 to 1862 Ma and could represent inheritance, peak metamorphic, or cooling ages. Titanite ages, which likely represent cooling ages, range from 1740 Ma on Salisbury Island to 1730 to 1708 Ma on Mill Island. Intrusive and metamorphic ages older than 1.82 Ga exclude a direct linkage of the Archean rocks on Mill and Salisbury islands with the contiguous Superior Craton. The detrital profile from the Nottingham Island metasedimentary gneiss compares well with Tasiuyak paragneiss from Hall Peninsula and Lake Harbour Group siliciclastic rocks on southern Baffin Island.

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