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Article abstract

Granitoid plutons are a major component of pre-Carboniferous rocks in Cape Breton Island and knowledge of the time and tectonic setting of their emplacement is crucial for understanding the geological history of the island, guiding exploration for granite-related economic mineralization, and making along-orogen correlations. The distribution of these plutons and their petrological characteristics have been used in the past for recognizing both Laurentian and peri-Gondwanan components in Cape Breton Island, and for subdividing the peri-Gondwanan components into Ganderian and Avalonian terranes. However, ages of many plutons were assumed on the basis of field relations and petrological features compared to those of the relatively few reliably dated plutons. Seventeen new U–Pb (zircon) ages from igneous units reported here provide enhanced understanding of the distribution of pluton ages. Arc-related plutons in the Aspy terrane with ages of ca. 490 to 475 Ma likely record the Penobscottian tectonomagmatic event recognized in the Exploits subzone of central Newfoundland and New Brunswick but not previously recognized in Cape Breton Island. Arc-related Devonian plutonic activity in the same terrane is more widespread, continuous, and protracted (445 Ma to 395 Ma) than previously known. Late Devonian magmatism in the Ganderian Aspy terrane is similar in age to that in the Avalonian Mira terrane (380 to 360 Ma) but the tectonic settings are different. In contrast, magmatic activity in the Bras d'Or terrane is almost exclusively arc-related in the Late Ediacaran (580 to 540 Ma) and rift-related in the Late Cambrian (520 to 490 Ma). The new data support the terrane distinctions previously documented.

Granitoid plutons in peri-Gondwanan terranes of Cape Breton Island, Nova Scotia, Canada: new U–Pb (zircon) age constraints

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ABSTRACT

Granitoid plutons are a major component of pre-Carboniferous rocks in Cape Breton Island and knowledge of the time and tectonic setting of their emplacement is crucial for understanding the geological history of the island, guiding exploration for granite-related economic mineralization, and making along-orogen correlations. The distribution of these plutons and their petrological characteristics have been used in the past for recognizing both Laurentian and peri-Gondwanan components in Cape Breton Island, and for subdividing the peri-Gondwanan components into Ganderian and Avalonian terranes. However, ages of many plutons were assumed on the basis of field relations and petrological features compared to those of the relatively few reliably dated plutons. Seventeen new U–Pb (zircon) ages from igneous units reported here provide enhanced understanding of the distribution of pluton ages. Arc-related plutons in the Aspy terrane with ages of ca. 490 to 475 Ma likely record the Penobscottian tectonomagmatic event recognized in the Exploits subzone of central Newfoundland and New Brunswick but not previously recognized in Cape Breton Island. Arc-related Devonian plutonic activity in the same terrane is more widespread, continuous, and protracted (445 Ma to 395 Ma) than previously known. Late Devonian magmatism in the Ganderian Aspy terrane is similar in age to that in the Avalonian Mira terrane (380 to 360 Ma) but the tectonic settings are different. In contrast, magmatic activity in the Bras d'Or terrane is almost exclusively arc-related in the Late Ediacaran (580 to 540 Ma) and rift-related in the Late Cambrian (520 to 490 Ma). The new data support the terrane distinctions previously documented.

RÉSUMÉ

Les plutons granitoïdes sont des composants importants des roches précarbonifères de l'île du Cap Breton, et il est crucial de connaître le moment et le cadre tectonique de leur mise en place pour comprendre l'évolution géologique de l'île, orienter l'exploration de la minéralisation économique liée au granite et établir des corrélations le long de l'orogène. La distribution des plutons et leurs caractéristiques pétrologiques ont été utilisées dans le passé pour reconnaître les composants laurentiens et périgondwaniens dans l'île du Cap Breton et pour subdiviser les composants périgondwaniens entre les terranes gandériens et les terranes avaloniens. Cependant, l'âge de bon nombre de plutons a été présumé en fonction des observations sur le terrain et de leurs caractéristiques pétrologiques comparativement à celles des plutons datés de manière fiable, relativement peu nombreux. Dix sept nouveaux âges U-Pb sur zircon fondés sur des unités ignées et déclarés dans le présent document permettent de mieux comprendre la répartition selon l'âge des plutons. Dans le terrane d'Aspy, des plutons liés à l'arc dont les âges se situent environ entre 490 et 475 Ma illustrent vraisemblablement l'événement tectonomagmatique penobscottien reconnu dans la sous-zone de la rivière Exploits dans le centre de Terre Neuve, mais qui n'a pas été reconnu auparavant à l'île du Cap-Breton. L'activité plutonique Dévonien liée à l'arc dans le même terrane est plus répandue, continue et prolongée (445 Ma à 395 Ma) qu'on ne le croyait antérieurement. Le magmatisme du Dévonien tardif dans le terrane gandérien d'Aspy est d'un âge semblable à celui du terrane de Mira de l'Avalonien (380 Ma à 360 Ma); toutefois, les milieux tectoniques sont différents. En revanche, l'activité magmatique dans le terrane de Bras d'Or est quasi exclusivement liée à l'arc dans l'Édiacarien tardif (580 Ma à 540 Ma) et liée au

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rift dans le Cambrien tardif (520 Ma à 490 Ma). Les nouvelles données appuient les distinctions documentées antérieurement au sujet des terranes.

[Traduit par la redaction]

INTRODUCTION

Cape Breton Island, Nova Scotia, is a granite-lover's paradise. Granitoid plutons constitute more than half of pre-Carboniferous rocks on the island and more than 120 different plutons, many of them composite, have been named, ranging in age from Mesoproterozoic to Late Devonian (Barr and White 2017a). They formed in a variety of tectonic settings, are compositionally varied, and display diversity in isotopic characteristics (e.g., Barr 1990, 2010; Barr and Hegner 1992; Potter *et al.* 2008a, b). This granitoid diversity reflects the complex geology and geological evolution of the island. Cape Breton Island is made up of four lithotectonic divisions named (from north to south) the Blair River Inlier and Aspy, Bras d'Or, and Mira terranes (Fig. 1). The Blair River Inlier is interpreted to be of Laurentian affinity whereas the three terranes are of Gondwanan origin (Fig. 1, inset; Hibbard *et al.* 2006, 2007). The terranes, in themselves composite, were juxtaposed with the Blair River Inlier by the late Devonian because Carboniferous clastic and carbonate rocks correlate across the island (Fig. 1), although faulting (including strike-slip faults, thrust faults, and extensional detachment faults) continued during the Late Paleozoic and likely even into the Mesozoic (Waldron *et al.* 2015).

Until the mid-1970s, the granites of Cape Breton Island were assumed to be mainly Devonian, like those in southern Nova Scotia (e.g., Geological map of Nova Scotia 1965). The pioneering Rb–Sr dating by Cormier (1972) gave strong evidence that such was not the case, although U–Pb dating was required (beginning in the late 1980s) to establish a clear pattern, and petrological characteristics alone gave strong hints (e.g., Barr *et al.* 1982). Williams (1978) included all of Cape Breton Island in his Avalon Zone because his classic map was made before much was known about the geology of the island. Geological mapping, petrological studies, and geochronology subsequently revealed the geological complexity (Barr and Raeside 1989). It is now widely recognized that Cape Breton Island preserves a compressed cross-section of the Appalachian orogen from Avalonia in the southeast to Laurentian (Grenvillian) basement in the northwest (Hibbard *et al.* 2006), a fortunate circumstance that has been attributed to promontory-promontory collision between elements of Laurentia and Gondwana (Lin *et al.* 1994).

Differences in age and petrological character of granitoid rocks played a major role in the initial recognition of terranes in Cape Breton Island (e.g., Barr and Raeside 1989; Barr 1990). In some cases (Blair River Inlier vs. Aspy terrane) the differences are glaring; in other cases (Bras d'Or and Mira terranes) the contrast are subtle, with overlaps and similarities in ages and tectonic settings (e.g., Barr and White 1996). Although much progress has been made in knowledge of the ages of granitoid plutons in Cape Breton Island, ages of many plutons have been inferred based on apparent petrological similarity to dated plutons. Hence, geological interpretations continue to be hampered by lack of reliable dates.

The purpose of this paper is to present 17 new U–Pb LA-ICPMS (zircon) ages mainly from plutonic units in the Aspy, Bras d'Or, and Mira terranes (Fig. 2) and discuss how they affect our understanding of the geological history of Cape Breton Island and its place in the northern Appalachian orogen. This paper provides an update on the publications by Lin *et al.* (2007) and Slaman *et al.* (2017), White *et al.* (2016), and Willner *et al.* (2013), the most recent compilations and interpretations of dates in northern, central, and southern Cape Breton Island, respectively.

METHODS

With one exception, the samples for this study were sent to Overburden Drilling Management (ODM) in Ottawa, Ontario, for electro-pulse disaggregation and initial zircon separation. Zircon grains for dating were then picked from the zircon concentrates at Cape Breton University. Selected grains were mounted in an epoxy-covered thin section at the University of New Brunswick, Fredericton, polished to expose the centres of the zircon grains, and imaged using cold cathodoluminescence to identify internal zoning and inclusions. These images were used to select ablation points (30 μm diameter), avoiding any visible inclusions, cracks, or other imperfections. In the exceptional sample, 11F16c-1115, zircon grains were dated in situ in a polished thin section following methods described in Archibald *et al.* (2013).

U and Pb isotopic compositions were measured using the Resonetics S-155-LR 193 nm Excimer laser ablation system connected to an Agilent 7700× quadrupole inductively coupled plasma – mass spectrometer in the Department of Earth Sciences at the University of New Brunswick, following the procedure outlined by McFarlane and Luo (2012) and Archibald *et al.* (2013). Data reduction was done in-house using Iolite software (Paton *et al.* 2011) to process the laser output into data files, and further reduced for U–Pb geochronology using VizualAge (Petrus and Kamber 2012). VizualAge outputs included uncorrected U–Pb ratios that were used to calculate ^{204}Pb-based corrections (Anderson 2002) and ^{208}Pb-based corrections. Data were filtered using ^{204}Pb as a monitor

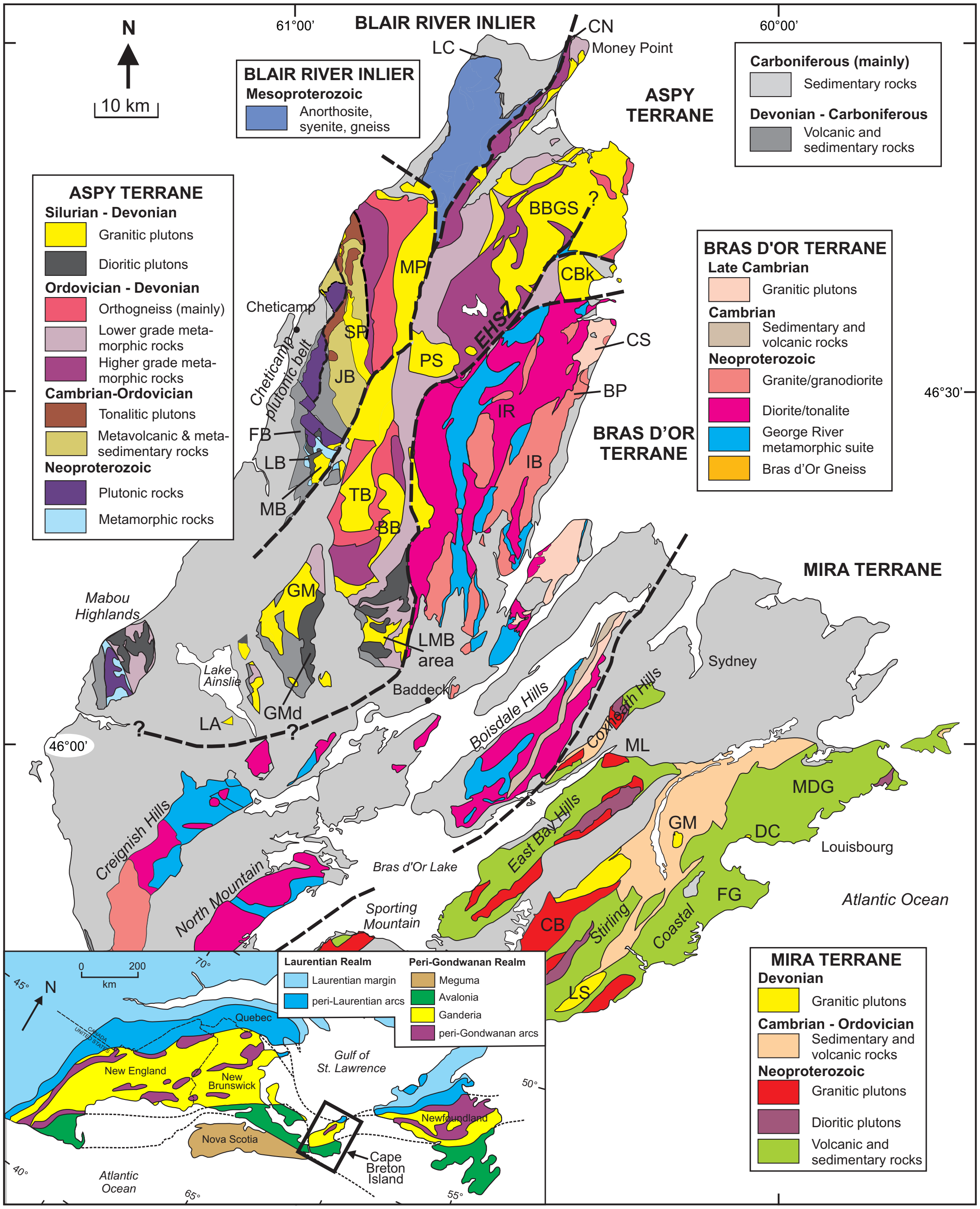

Figure 1. **Simplified geological map of Cape Breton Island showing major geological components of the Blair River Inlier and Aspy, Bras d'Or, and Mira terranes. Areas and units referred to in the text are labelled. Abbreviations: BB, Bothan Brook pluton; BBGS, Black Brook Granitic Suite; BP, Birch Plain pluton; CB, Chisholm Brook plutonic suite; CBk, Cameron Brook pluton; CN, Cape North pluton; CS, Cape Smoky pluton; DC, Deep Cove pluton; EHSZ. Eastern Highlands Shear Zone; FB, Fisset Brook Formation; GF, Gisborne Flowage quartz diorite; FG, Fourchu Group; GM, Gillanders Mountain pluton; GMd, Gillanders Mountain diorite; GI, Gillis Mountain pluton; IB, Indian Brook granodiorite; IR, Ingonish River tonalite; JB, Jumping Brook metamorphic suite; LA, Lake Ainslie pluton; LB, Lavis Brook pluton; LC, Lowland Cove rhyolite; LMB, Leonard MacLeod Brook; LS, Lower St. Esprit pluton; MB, MacLean Brook pluton; MDG, Main-a-Dieu Group; ML, MacEachern Lake pluton; MP, Margaree pluton; SP, Salmon Pool pluton; SR, Salmon River pluton; TB, Taylors Barren pluton. Inset map shows divisions of the northern Appalachian orogen after Hibbard *et al.* (2006).**

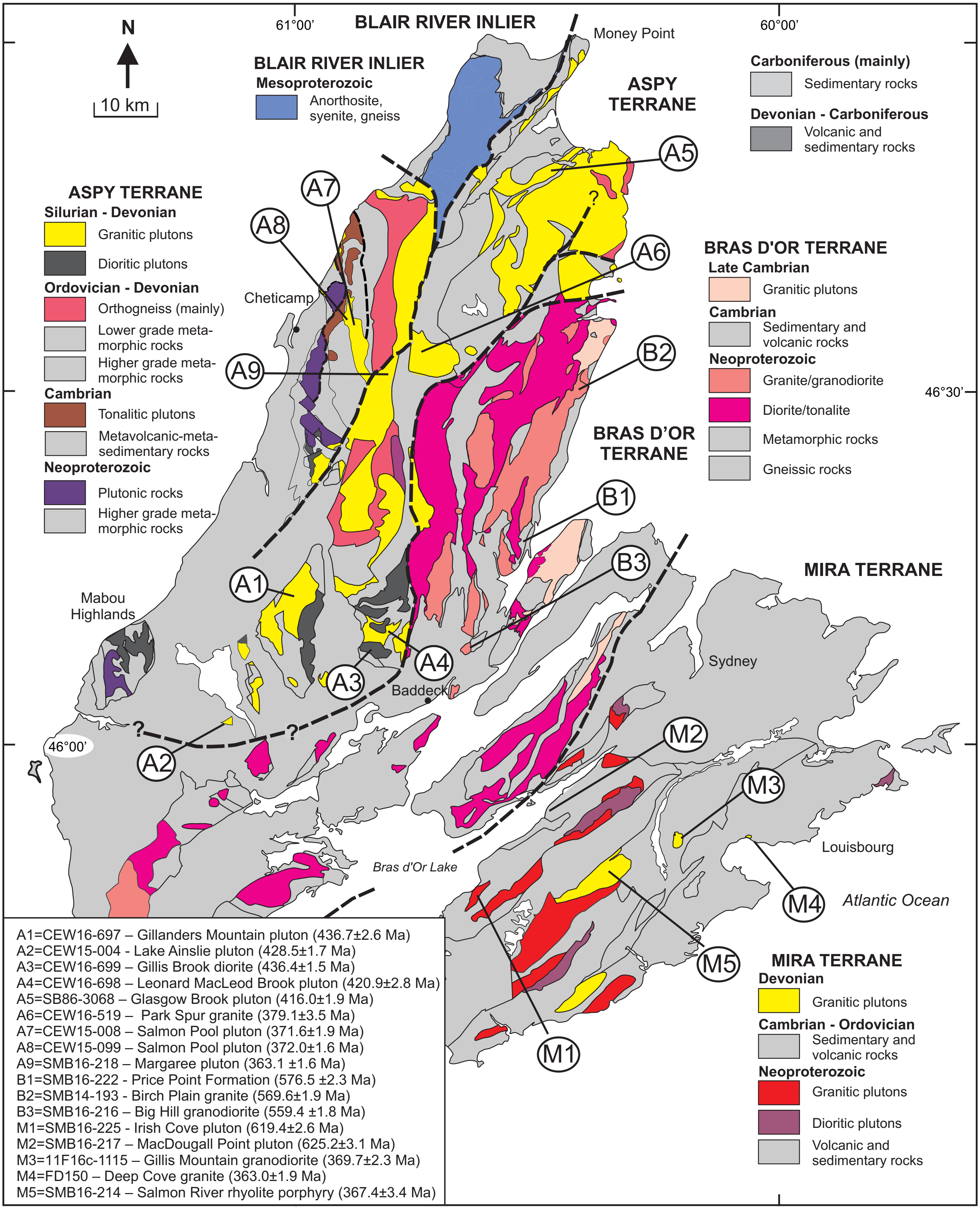

Figure 2. Simplified geological map of Cape Breton Island showing only plutonic units in colour and locations of samples for which ages are reported in this paper. Other units in grey are the same as in Figure 1. Samples are numbered by terrane (A series 1 to 9 for Aspy terrane samples, B series 1 to 3 for Bras d'Or terrane, and M series 1 to 5 for Mira terrane samples).

For grains with <80 counts/s ^{204}Pb, data are uncorrected; for grains where the percentage error on the ^{204}Pb counts per second was <20%, we used a ^{204}Pb-based correction (Andersen 2002), and for grains where the percentage of radiogenic Pb (PB* in file) is less than 98.5% we used a ^{208}Pb-based correction (Petrus and Kam-ber 2012). After these corrections were applied, data were sorted by concordance (^{206}Pb/^{238}U versus ^{207}Pb/^{235}U), and by the percentage of radiogenic Pb in the grains as calculated using VizualAge. All analytical data are presented in Appendix A and B.

Concordia ages were calculated for clusters of three or more near-concordant points using Isoplot versions 3.75 and 4.15 (Ludwig 2003, 2012), and as many grains as possible that fit the criteria for inclusion in concordia calculations. All ages are reported at 95% confidence, with decay-constant errors included in the calculations. Data points included in the concordia calculations and reported here are grains that are 98% to 101% concordant and do not require a correction for common Pb (^{204}Pb < 80 counts per second). The approach in this study was to calculate concordia ages using as many grains as possible, and hence the MSWD (mean square of weighted deviates) which measures the amount of scatter in the points used to calculate concordia and the reported probability of concordance could in some cases be improved by using fewer grains. In all cases the calculated concordia ages overlap with the weighted mean ages for the samples using all near-concordant data. ^{206}Pb/^{238}U ages are used in all the probability distribution calculations.

Concordia ages for standard 91500 were 1051.0 ± 8.1 Ma and 1048.1 ± 4.8 Ma in two runs, 413.5 ± 3.3 Ma for the Temora standard in one run, and 694.4 ± 4.2 Ma for Tanzania standard in one run. Concordia ages for standard FC1 were 1099.0 ± 3.2 Ma, 1099.1 ± 3.4 Ma, 1099.1 ± 3.2 Ma, 1098.1 ± 3.4 Ma, 1099.1 ± 2.7 Ma, 1098.8 ± 2.5 Ma, 1098.9 ± 2.1 Ma, 1098.9 ± 2.8 Ma, 1098.6 ± 3.7 Ma, 1098.7 ± 3.0 Ma, 1098.9 ± 2.9 Ma, and 1099.1 ± 4.7 Ma during twelve separate runs. Concordia ages for standard Plesovice were 336.9 ± 2.3 Ma, 337.1 ± 2.1 Ma, 337.0 ± 2.1 Ma, 335.7 ± 2.0 Ma, 337.9 ± 1.6 Ma, 336.1 ± 2.0 Ma, 337.03 ± 0.94 Ma, 337.0 ± 1.5 Ma, 339.5 ± 1.9 Ma, 339.5 ± 1.5 Ma, 339.0 ± 1.4 Ma, and 333.5 ± 1.9 Ma during twelve separate runs. NIST610 glass was used as a concentration standard. Standard data are presented in Appendix B.

BLAIR RIVER INLIER

Although no new ages were obtained from the Blair River Inlier in the present study, a short summary is included here for comparison with the adjacent Aspy terrane. The Blair River Inlier forms the northwestern part of Cape Breton Island (Fig. 2) and consists mainly of several composite orthogneissic units, intruded by less deformed plutons of varied compositions including anorthosite, gabbro, syenite, and granite. Miller *et al.* (1996) and Miller and Barr (2000) reported U–Pb ages confirming that major units in the inlier are Mesoproterozoic, including the Sailor Brook gneiss (>1217 Ma), Lowland Brook Syenite (1080 +5/-3 Ma), Red River Anorthosite Suite (>1095Ma), and Otter Brook gneiss (978 +6/-5 Ma). They also showed that high-grade metamorphism of the Sailor Brook gneiss occurred at 1035 +12/-10 Ma, and that the Red River Anorthosite Suite was metamorphosed at 996+6/-5 Ma. The Mesoproterozoic units of the Blair River Inlier are distinct in both age and composition from rocks in other parts of Cape Breton Island and in northern Appalachian outboard terranes in general. They contain rock types and ages similar to those typical of the Grenville Province of Laurentia and similar to those in other Grenvillian basement inliers in the Appalachian orogen, such as the Steel Mountain, Indian Head, and Long Range inliers in western Newfoundland (e.g., Heaman *et al.* 2002). Thus, the Blair River Inlier is interpreted to be an exposure of Laurentian Grenvillian basement that was deformed, metamorphosed, and intruded by granite during Appalachian orogenic events (Miller *et al.* 1996; Barr *et al.* 1995, 1998).

Minor Paleozoic igneous activity in the Blair River Inlier is indicated by the presence of a small granite pluton with an age of 435 +7/-3 Ma (Miller *et al.* 1996). In addition, Paleozoic amphibolite-facies metamorphism is reflected in ca. 425 Ma titanite ages from the Proterozoic units, and subsequent cooling through hornblende, muscovite, and phlogopite (^{40}Ar/^{39}Ar) and rutile (U–Pb) closure temperatures continued until ca. 410 Ma (Barr *et al.* 1995; Miller *et al.* 1996). A later, probably Devonian, greenschist-facies overprint is most intense near chlorite-grade shear zones and brittle fault zones. The inlier is fringed by Late Devonian volcanic and sedimentary rocks of the Lowland Cove Formation, rhyolite from which has yielded a U–Pb (zircon) age of 365 ± 2 Ma (Dunning *et al.* 2002). Mylonitic fault zones separate the Blair River Inlier from the adjacent Aspy terrane (Raeside and Barr 1992).

ASPY TERRANE

Geological setting

The Aspy terrane contains widespread low- to high-grade metavolcanic and metasedimentary rocks and large areas of orthogneiss and less abundant paragneiss, all metamorphosed in the late Silurian to early Devonian (ca. 420–400 Ma) (Dunning *et al.* 1990; Reynolds *et al.* 1989; Barr *et al.* 1998; Horne *et al.* 2003; Lin *et al.* 2007). Older plutonic and metamorphic rocks with ages of ca. 620, 567, and 480–490 Ma occur in the western part of the terrane (Lin *et al.* 2007; Slaman *et al.* 2017). These older rocks have difficult-to-demonstrate relationships with the younger mid-Paleozoic metamorphic rocks (and associated plutons) that dominate in the rest of the terrane, but are likely to constitute their basement. The younger metamorphic rocks include metavolcanic, metasedimentary, and gneissic rocks of Ordovician and Silurian (ca. 450–430 Ma) age. They were involved in high-pressure amphibolite-facies metamorphism in the late Silurian - early Devonian (Plint and Jamieson 1989; Reynolds *et al.* 1989; Price *et al.* 1999). The protolith ages for these metamorphic rocks are somewhat uncertain, but they appear to include both Neoproterozoic and Ordovician-Silurian components (Lin *et al.* 2007; Slaman *et al.* 2017). They have been subdivided into map units that are separated by plutons, faults, and/or Carboniferous rocks and assigned local names because of the difficulty of making correlations throughout the area (e.g., Barr and Jamieson 1991; Lin *et al.* 2007). Lin (1993) and Chen *et al.* (1995) reported detrital zircon ages from meta-conglomerate in the eastern part of the Aspy terrane and suggested that the presence of grains with ages of ca. 495 Ma suggests an original depositional link with the Bras d'Or terrane which contains plutons of late Cambrian to early Ordovician age (Barr *et al.* 1990; Dunning *et al.* 1990).

The metamorphic rocks in the Aspy terrane have been intruded by abundant plutons with ages based on earlier work of ca. 440 Ma, 430 Ma, 400 Ma, and 375–365 Ma (Dunning *et al.*1990; Barr *et al.*1990; Horne *et al.* 2003). Such plutons are mainly absent from the Bras d'Or terrane, although the location of the boundary is uncertain in its eastern part, where the Eastern Highlands Shear Zone is inferred to branch; one branch appears to be stitched by the ca. 375 Ma Black Brook Granitic Suite (Yaowanoiyothin and Barr 1991) but branches to the south split around the mid-Devonian Cameron Brook pluton (Fig. 1).

In simplistic terms, Aspy terrane plutons include all of I-type, S-type, and A-type (Barr 1990). The oldest plutons are orthogneissic and foliated dioritic, tonalitic, and granitic plutons with ages of ca. 440 to 425 Ma and petrological features consistent with formation in a subduction zone setting. Together with volcanic rocks of similar ages, they are inferred to have formed in a volcanic-arc setting offshore from the Bras d'Or terrane and on Bras d'Or terrane crust (e.g., Barr *et al.* 1996a; Price *et al.* 1999). Younger ca. 400 Ma plutons such as Cameron Brook mainly occur within branches of the Eastern Highlands Shear Zone (Fig. 2) and may have formed in conjunction with early stages of juxtaposition with the Bras d'Or terrane. They also have volcanic-arc characteristics (Barr 1990). In contrast, the Black Brook Granitic Suite with an age of ca. 375 Ma has S-type characteristics and likely formed in a syn-collisional setting (Yaowanoiyothin and Barr 1991). At a similar time but elsewhere in the Aspy terrane, large A-type plutons were emplaced, apparently related to extension and the opening of rift basins in which bimodal volcanic rocks were formed, as well as nonmarine sedimentary successions (e.g., Dunning *et al.* 2002). The bimodal volcanic rocks have within-plate characteristics (e.g., Barr *et al.* 1995; Barr and Peterson 1998), as do the related granitic plutons which include the megacrystic Margaree pluton with its distinctive Rapakivi texture (O'Beirne-Ryan *et al.* 1986).

New ages from the Aspy terrane (Appendix A)

A1. Sample CEW16-697 – Gillanders Mountain pluton (436.7 ± 2.6 Ma)

Sample CEW16-697 is medium-grained biotite monzogranite from the Gillanders Mountain pluton. This rock unit previously yielded a Devonian Rb–Sr age (French 1985). The dated sample consists of approximately equal amounts of plagioclase, microcline, and quartz, and less than 10% biotite. As is typical of the pluton (French 1985), the quartz is interstitial and recrystallized into a mosaic of small anhedral grains. The zircon grains in this sample are mostly elongate euhedral crystals and bipyramidal terminations and a 3:1 to 5:1 aspect ratio. The grains are typically cloudy and stained brown. Ten grains yield a calculated concordia age of 436.7 ± 2.6 Ma, interpreted as the main age of crystallization with an MSWD of 0.46, and probability of concordance of 0.50 (Fig. 3a). Younger ages from 6 grains do not make an overlapping cluster, and are interpreted as resulting from Pb loss.

The age of 436.7 ± 2.6 Ma is similar to early Silurian ages reported by Slaman *et al.* (2017) for the MacLean Brook and Lavis Brook plutons in the Cheticamp plutonic belt to the north (Figs. 1, 2), and confirms that Silurian plutonic rocks are widespread in Aspy terrane. It is somewhat older than the previously dated Silurian Gillanders Moun-tain diorite (428.6 ± 1.9 Ma; Lin *et al.* 2007), and is significantly older than rhyolite of the adjacent Fisset Brook Formation dated at 373 ± 4 Ma by Dunning *et al.* (2002).

A2. Sample CEW15-004 – Lake Ainslie pluton (428.5 ± 1.7 Ma; older grains at 440.3 ± 1.9 Ma)

Granite occurs in a small area southwest of Lake Ainslie (French 1985). Outcrop is limited but logging roads have provided new outcrops which confirm the presence of both monzogranite and flow-banded rhyolite (C. White, unpublished data, 2015). The dated sample is medium-grained pink biotite-hornblende monzogranite with a distinctive texture of subhedral plagioclase, biotite, and less abundant amphibole with interstitial orthoclase and quartz. This sample contains abundant clear, euhedral zircons from 20 to 150 μm. Most of the grains are rectangular with bipyramidal terminations but some are more rounded. Most are inclusion free. In CL the grains show oscillatory zoning.

The probability distribution for this sample shows a large peak of ages between 425 and 430 Ma, and a secondary peak between 435 and 445 Ma (Fig. 3b). The younger peak has a calculated concordia age of 428.5 ± 1.7 Ma with an MSWD of 0.83, and a probability of concordance of 0.36 using 11 grains in the calculation (Fig. 3c). The older population has a calculated concordia age of 440.3 ± 1.9 Ma with an MSWD of 2.8, and a probability of concordance of 0.093 using 5 grains in the calculation (Fig. 3d). We interpret the younger age of 428.5 ± 1.7 Ma as the main age of crystallization of the monzogranite, and the older age of 440.3 ± 1.9 Ma as representing inherited or anacrystic grains.

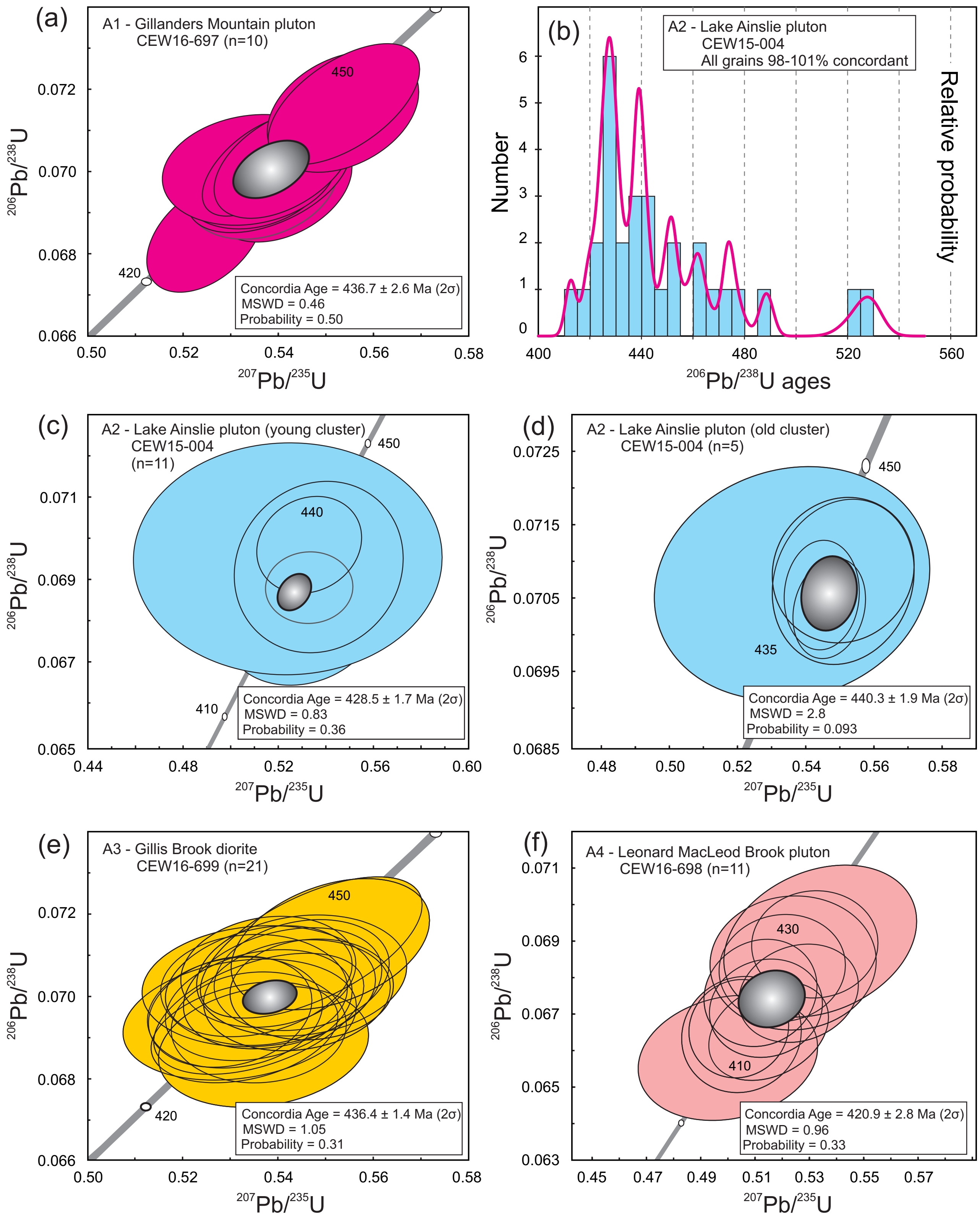

Figure 3. Concordia diagrams and probability plots for plutons in the Aspy terrane: (a) concordia diagram for zircon from monzogranite of the Gillanders Mountain pluton; (b) probability plot and histogram for monzogranite of the Lake Ainslie pluton; (c) concordia diagram showing the youngest 11 concordant and near-concordant zircon grains from monzogranite of the Lake Ainslie pluton; (d) concordia diagram showing 5 older concordant and near-concordant zircon grains from monzogranite of the Lake Ainslie pluton; (e) concordia diagram for zircon grains from the Gillis Brook diorite; (f) concordia diagram for monzogranite of the Leonard MacLeod Brook pluton.

The similarity of the younger crystallization age to that of the Gillanders Mountain diorite (428.6 ± 1.9 Ma; Lin *et al.* 2007) and Taylors Barren pluton (430 ± 2 Ma; Horne *et al.* 2003) and the older age to that of the Gillanders Mountain monzogranite (A1; Fig. 3a) supports the interpretation that this small area of granite and rhyolite is indeed part of the Aspy terrane, and hence lies north of the boundary with Bras d'Or terrane (Fig. 2). The position of the terrane boundary is otherwise poorly constrained in this area due to Carboniferous cover rocks.

As shown in the probability distribution (Fig. 3b), sample CEW15-004 also contains even older inherited grains in the 460 to 480 Ma range and 520 to 530 Ma range. These ages are all represented by igneous events documented elsewhere in the Aspy terrane (e.g., Slaman *et al.* 2017).

A3. Sample CEW16-699 – Gillis Brook diorite (436.1 ± 1.4 Ma)

The Gillis Brook diorite was mapped by O'Neill (1996) as a separate component within the area of the Leonard MacLeod Brook complex of Barr *et al.* (1992). He described the unit to consist of fine- to medium-grained dioritic rocks. The dated sample is from the southern part of the unit and is more gabbroic than dioritic. It consists of medium-grained plagioclase and relict clinopyroxene with abundant secondary minerals including biotite, chlorite, epidote, iron oxides/hydroxides, sericite, and carbonate minerals.

Zircons in this sample are transparent, inclusion-free, and tabular, with rounded edges. Some are subhedral and have clear facets. Some grains show brownish-red surface staining. In CL most grains show oscillatory zoning. Twenty-one grains yielded a calculated concordia age of 436.1 ± 1.4 Ma, interpreted as the main age of crystallization (Fig. 3e), with MSWD of 1.05, and a probability of concordance of 0.31. The age of 436.1 ± 1.4 Ma shows that the diorite is Silurian, similar in age to the Lavis Brook diorite and MacLean Brook granite in the Cheticamp belt reported by Slaman *et al.* (2017) and somewhat older than the nearby diorite at Gillanders Mountain (428.6 ± 1.9 Ma; Lin *et al.* 2007). However, it is similar to the age of Gillanders Mountain monzogranite sample CEW16-697 (436.7 ± 2.6 Ma; A1, Fig. 3a). It is older than the Leonard MacLeod Brook monzogranite with which it is closely associated (see A4 below), and 70 million years older than the nearby Bothan Brook pluton dated at 376 ± 3 Ma (Horne *et al.* 2003).

A4. Sample CEW16-698 – Leonard MacLeod Brook monzoganite (420.9 ± 2.8 Ma)

Several types of granite occur in the enigmatic Leonard MacLeod Brook complex of Barr *et al.* (1992). O'Neill (1996) mapped and named the component plutons, as well as recognizing volcanic rocks which he assumed to be Silurian. Dated sample CEW16-698 is a fine-grained monzogranite from the Leonard MacLeod Brook plutonic suite of O'Neill (1996), which he inferred to be Devonian, like the associated Bothan Brook pluton which has an age of 376 ± 3 Ma (Horne *et al.* 2003). The sample consists of a fine- to medium-grained mosaic of recrystallized K-feldspar and plagioclase; quartz is much less abundant than feldspar and is fine-grained and recrystallized in the interstices. Flakes of green biotite are also present, as well as scattered phenocrysts of plagioclase.

Zircon grains in this sample are all small, between 30 and 50 μm, and are short and stubby with euhedral shapes. About half are transparent and colourless and half are cloudy with inclusions. The larger grains show oscillatory zoning in CL but the smaller ones do not have distinct zones. Eleven grains yield a calculated concordia age of 420.9 ± 2.8 Ma (Fig. 3f) interpreted as the main age of crystallization (Fig. 3f) with an MSWD of 0.96, and a probability of concordance of 0.33.

This age shows that the granite is Silurian, but younger than both the associated Gillis Brook diorite (436.1 ± 1.4 Ma; Fig. 3e) and the nearby diorite at Gillanders Mountain (428.6 ± 1.9 Ma; Lin *et al.* 2007), as well as monzogranite samples CEW16-697 (436.7 ± 2.6 Ma; Fig. 3a) and CEW15-004 (428.5 ± 1.7 Ma; Fig. 3c) from the Gillanders Mountain and Lake Ainslie plutons, respectively. The Leonard MacLeod Brook granite is also younger than the Taylors Barren pluton to the north which has an age of 430 ± 2 Ma (Horne *et al.* 2003). Thus, Silurian plutonism in this part of the Aspy terrane appears to be both more widespread and more protracted than previously recognized.

A5. Sample SB86-3068 – Glasgow Brook pluton (416.0 ± 1.9 Ma)

The Glasgow Brook pluton is an elongate intrusion located near the northwestern margin of the Devonian Black Brook Granitic Suite. The extent of the pluton as defined by Wiebe (1975) was essentially confirmed by Raeside and Barr (1992). On its northern margin the pluton intruded schist of the Money Point Group, in which it occurs as sheets adjacent to contacts. A narrow band of mica schist separates the pluton from the Black Brook Granitic Suite. Dioritic and semipelitic xenoliths are locally abundant in the pluton, which consists of strongly foliated medium- to coarse-grained hornblende-biotite tonalite to granodiorite. The rock is gneissic in appearance, with mafic minerals concentrated on foliation planes, separated by quartzofeldspathic layers with augen of feldspar and quartz. The relative proportions of hornblende and biotite vary from dominantly hornblende to exclusively biotite. More biotite-rich rocks contain abundant myrmekite. Feldspars are oligoclase-andesine and microcline. Apatite, titanite, and zircon are variably abundant accessory minerals, together with minor opaque minerals. Garnet is rarely present. Epidote is an abundant secondary mineral. The dated sample is tonalitic, with only minor K-feldspar and amphibole.

This sample contained abundant zircons, generally acicular to elongate and euhedral. Most of the grains are <30 μm, but many are in the 50 to 100 μm range. Most of the grains are transparent and inclusion free but some are more yellow. In CL the grains show clear oscillatory zoning and bright fluorescence. The sample has a calculated concordia age of 416.0 ± 1.9 Ma with an MSWD of 8.0, and a probability of concordance of 0.005 when 13 grains are included in the calculation (Fig. 4a). The MSWD and probability of concordance could be improved by using fewer grains to calculate them, but as noted in the Methods section, our procedure is to calculate ages with as many near-concordant grains as possible. The probability distribution (Fig. 4b) for this sample shows two indistinct peaks with very little separation between them, both between 410 and 420 Ma. Because there is no clear separation between the peaks (with larger bin sizes the two peaks become one) we interpret the crystallization age of the sample to be the 416.0 ± 1.9 Ma age presented above, which overlaps with the weighted mean age of all the 98 to 101% concordant grains at 412.4 ± 3.9 at 95% confidence level.

This early Devonian age is a new one for the Aspy terrane, except for a U–Pb (zircon) age of 414 ± 3 interpreted to be the igneous crystallization age of a small granitic pluton in the Cape North Group near Money Point reported by Keppie *et al.* (1992).

A6. Sample CEW16-519 – Park Spur granite (379.1 ± 3.5 Ma)

The Park Spur granite is located in the Aspy terrane close to the Eastern Highlands Shear Zone, the bound-ary between Aspy and Bras d'Or terranes. It is a fine- to medium-grained granite with both muscovite and biotite. It was previously undated but assumed to be mid-Devo-nian and related to the Black Brook Granitic Suite (Rae-side and Barr 1992). The dated sample is medium-grained monzogranite with minor (<5%) muscovite and biotite. Quartz is polygranular and interstitial to feldspar, which includes both plagioclase and microcline.

The sample contains few zircon grains and every grain that could be picked was analysed. Grains vary in shape from euhedral to rounded. In CL the grains do not show bright fluorescence but zoning is visible in the larger grains. The calculated concordia age of 379.1 ± 3.5 Ma is interpreted as the main age of crystallization (Fig. 4c) with an MSWD of 0.084, with a probability of concordance of 0.77. In this case only three grains are in the concordia age calculation, but they overlap, and make a peak in the frequency distribution. No other clusters occur in the dataset, which includes very few concordant grains. The age of 379.1 ± 3.5 Ma confirms the inferred Late Devonian age based on petrographic similarities previously proposed (Raeside and Barr 1992), and is within error of the U–Pb zircon (375 +5/-4 Ma) and monazite (372 to 373 Ma) ages from the Black Brook Granitic Suite (Dunning *et al*. 1990).

A7. Sample CEW15-008 – Salmon Pool quartz monzonite (371.6 ± 1.7 Ma)

The Salmon Pool pluton consists of granite and gabbro; new mapping has shown that the pluton extends farther south than previously mapped and cross-cuts the Western Highlands (Pigeon Cove) shear zone (White *et al.* 2017). It has also shown that the gabbro and granite component can be mapped as separate units, although they are mingled in some outcrops. The pluton intruded the eastern margin of the Cambrian(?) Jumping Brook Metamorphic Suite. The Salmon Pool pluton has long been known to be Devonian based on an imprecise U–Pb (zircon) age of 365 +10/-5 Ma reported by Jamieson *et al.* (1986). The pluton is well exposed in Cheticamp River where two varieties of granite – quartz monzonite and monzogranite – are mingled with and/or contain xenoliths of varied mafic rocks, including gabbro, diorite, and amphibolite. Both the quartz monzonite and monzogranite were dated to check whether or not they are the same age.

Dated sample CEW15-008 is quartz monzonite with abundant amphibolitic xenoliths likely derived from the Faribault Brook Formation of the Jumping Brook Metamorphic Suite. The dated sample is medium-grained and consists of abundant subhedral plagioclase and less abundant interstitial K-feldspar. Interstitial quartz is less abundant than K-feldspar and forms less than 10% of the rock. Green amphibole and minor bioitite form about 10% of the rock, and accessory titanite is abundant.

This sample contains abundant zircons in the 50 to 120 μm size range. All grains are short, rectangular, and euhedral, and most have bipyramidal terminations. They are reddish to brown or cloudy with inclusions; only a few grains are transparent. In CL the grains fluoresced clearly showing oscillatory zoning in most grains, although some of the smaller grains are not zoned. The analyzed grains yielded a calculated concordia age of 371.6 ± 1.7 Ma with an MSWD of 3.7, and a probability of concordance of 0.053 with 12 grains included in the calculation (Fig. 4d).

These data provide a more precise age for the pluton than the date by Jamieson *et al.* (1986) which has large errors. The age is consistent with a comagmatic relationship of the pluton with the mafic and felsic volcanic rocks of the ca. 374 Ma Fisset Brook Formation (Barr and Peterson 1998).

A8. Sample CEW15-099 – Salmon Pool monzogranite (372.0 ± 1.6 Ma)

A second sample from the Salmon Pool pluton was also dated to determine if the petrographically different felsic components of the pluton are of similar age. The dated sample consists of approximately equal amounts of quartz, K-feldspar, and plagioclase, and is the most abundant rock type in the felsic part of the pluton. The ferromagnesian mineral is biotite which forms about 5% of the rock.

This sample contains abundant zircons in the 50 to 100 μm range, with more small grains than in the quartz monzonite sample CEW15-008. All grains are short, rectangular, and euhedral, and most have bipyramidal terminations. Most grains are reddish to brown or cloudy with inclusions, and clear grains were very few. In CL the grains fluoresce less well than the grains in CEW15-008, but still show oscillatory zoning in most grains except for smaller grains which are not clearly zoned.

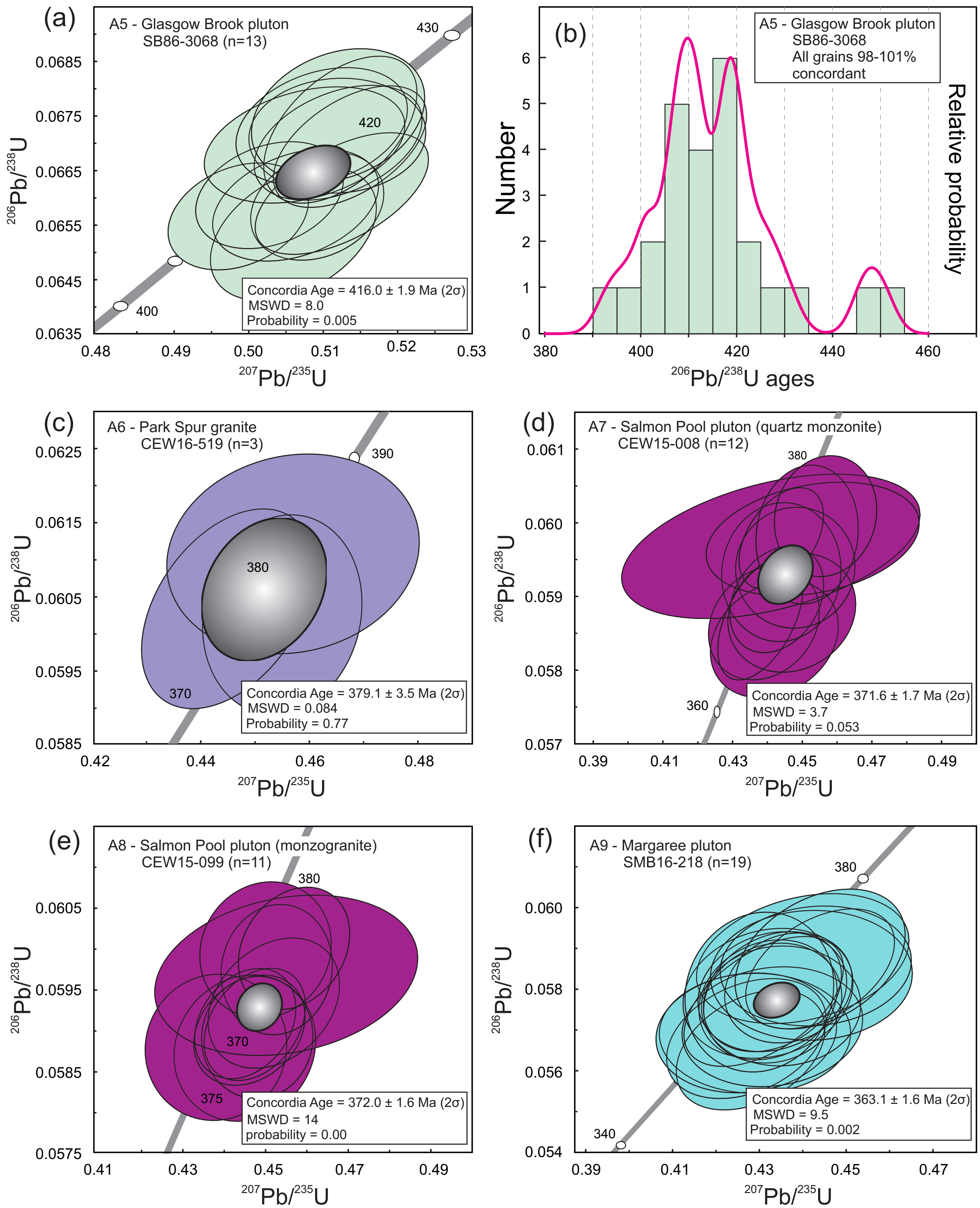

Figure 4. Concordia diagrams and probability plots for plutons in the Aspy terrane: (a) concordia diagram for zircon from tonalite of the Glasgow Brook pluton; (b) probability plot and histogram for zircon from tonalite of the Glasgow Brook pluton; (c) concordia diagram for the Park Spur granite; (d) concordia diagram for quartz monzonite sample CEW16-008 of the Salmon Pool pluton; (e) concordia diagram for granite sample CEW16-009 of the Salmon Pool pluton; (f) concordia diagram for megacrystic granite of the Margaree pluton.

The sample has a calculated concordia age of 372.0 ± 1.6 Ma with an MSWD of 14, and a probability of concordance of 0.000 when 11 grains are included in the calculation (Fig. 4e). The weighted mean age of all the 98 to 101% concordant grains is 372.5 ± 3.2 at 95% confidence level. Both these ages overlap with the calculated concordia age of the Salmon Pool quartz monzonite (CEW15-008) discussed previously and show that the two varieties are co-magmatic.

A9. Sample SMB16-218 – Margaree pluton (363.1 ± 1.6 Ma)

The Margaree pluton is the largest pluton in the Aspy terrane and consists mostly of distinctive megacrystic granite with plagioclase-rimmed K-feldspar (O'Beirne-Ryan *et al.* 1986). The pluton was previously dated by the Rb–Sr method and yielded a date of 353 ± 13 Ma (O'Beirne-Ryan *et al.* 1986). It was assumed to be the same age as the ca. 375 Ma rhyolite of the bimodal Fisset Brook Formation (Dunning *et al.* 2002) and the 365 +10/-5 Ma granite of the Salmon Pool pluton (Jamieson *et al.* 1986), and like them related to post-orogenic extension (Barr and Jamieson 1991).

Sample SMB16-218 is syenogranite with megacrysts of K-feldspar and smaller grains of quartz and plagioclase, typical of much of the pluton. Biotite forms 5% of the rock, and allanite is an accessory component. Zircon crystals in this sample are generally elongate euhedral to subhedral grains. The finer zircon crystals in the sample (<100 μm) are mostly euhedral, showing bipyramidal terminations. Most grains are transparent but some show orange and black staining. Nineteen grains yielded a calculated concordia age of 363.1 ± 1.6 Ma interpreted as the main age of crystallization (Fig. 4f) with an MSWD of 9.5, and probability of concordance of 0.002. As mentioned in the methods, the MSWD and probability of concordance could be improved by using fewer grains to calculate them, but this age is calculated with as many near-concordant grains as possible.

This is the youngest igneous age yet reported in the Aspy terrane, and is especially significant because of the large size of the Margaree pluton. The pluton straddles the prominent Aspy Fault, and also appears to "stitch" the shear zones that separate the Grenville-age Blair River Inlier from the rest of the highlands. The new age is the same within error as the age of 365 ± 2 Ma reported by Dunning *et al.* (2002) from rhyolite in the Lowland Cove Formation in the Blair River Inlier. The new U–Pb age is at the upper limit of the error range of an Rb–Sr date of 353 ± 13 Ma (O'Beirne-Ryan *et al.* 1986). It is significantly younger than the Fisset Brook rhyolite. Hence the Late Devonian magmatic history of the Aspy terrane is more protracted than previously assumed; the young events recorded in both the Aspy terrane and Blair River Inlier suggest that those two areas were in proximity by that time.

BRAS D'OR TERRANE

Geological setting

In contrast to the Aspy terrane, the Bras d'Or terrane is dominated by Neoproterozoic and Cambrian rocks (Fig. 1). It contains fault-bounded blocks of Neoproterozoic low-pressure amphibolite-facies gneiss, much more extensive belts of greenschist-facies (and in places higher grade) quartzite, marble, meta-greywacke, and minor volcanic rocks, and abundant Ediacaran and Cambrian plutons (Raeside and Barr 1990; White *et al.* 1994, 2003, 2016). The relationship between the two suites of metamorphic rocks is uncertain but recent dating and petrological studies suggest that they are equivalent units at different metamorphic grades (White *et al.* 2016; van Rooyen *et al.* 2017).

Both low- and high-grade units are intruded by plutons with published ages mainly between ca. 560 and 553 Ma. They are subduction zone-related dioritic, tonalitic, granodioritic, and granitic plutons. Plutonic rocks are especially abundant in the eastern Cape Breton Highlands, where several of the plutons contain high-Al hornblende and magmatic epidote, indicative of crystallization at pressures of over 800 MPa (25 km depth) (Farrow and Barr 1992). These rocks are interpreted to represent the deep levels of an Andean-type continental margin subduction zone, whereas plutons and in places volcanic rocks assumed to be co-magmatic in the southern part of the terrane represent higher level parts of the same subduction zone igneous assemblage. Post-orogenic late Cambrian granitic plutons are also present, and middle Cambrian to Early Ordovician volcanic and sedimentary rocks are preserved in a down-faulted block in the Boisdale Peninsula. Although similar to the Cambrian sequence on Mira terrane, the Cambrian rocks in the Boisdale Peninsula are firmly linked to Bras d'Or terrane and hence to Ganderia. Similar rocks also occur in Ganderia in southern New Brunswick (Fyffe *et al.* 2009).

Barr *et al.* (1998) proposed that Neoproterozoic rocks of the Bras d'Or terrane and inferred equivalent units exposed in southern New Brunswick and locally in central Newfoundland represent the "basement" on which Paleozoic Ganderian sedimentary rocks were deposited, and these Paleozoic rocks, which dominate Ganderia elsewhere, were assumed to have been formed mainly from sediments eroded from Neoproterozoic units like those preserved in the Bras d'Or terrane.

The Bras d'Or terrane is separated from the Aspy terrane to the north by a major mylonitic high-strain zone known as the Eastern Highlands Shear Zone (Lin 1995, 2001). This boundary has a long and complex history, and the original relationship between Bras d'Or and Aspy terranes may have been basement and cover (Chen *et al.* 1995). The Bras d'Or terrane appears to have been thrust to the northwest over the Aspy terrane, and much of the original terrane is missing – the part of Bras d'Or terrane now adjacent to the Aspy terrane was unaffected by and hence probably far away from the Silurian to Devonian events which are so prominently recorded in the Aspy terrane. These mid-Paleozoic events are not generally recorded in Bras d'Or terrane rocks, except near the Eastern Highlands Shear Zone, where $^{40}Ar/^{39}Ar$ dating revealed overprinting in Neoproterozoic rocks by younger thermal events associated with Bras d'Or-Aspy terrane collision (Reynolds *et al.* 1989). Although not corroborated by subsequent work (White *et al.* 2016), Keppie *et al.* (1998, 2000) reported a Silurian age for a gabbroic-dioritic pluton in the Creignish Hills.

New ages from the Bras d'Or terrane (Appendix A)

B1. Sample SMB16-222 – Price Point Formation dacitic tuff (576.5 ± 2.3 Ma)

The Price Point Formation occurs in the southeastern Cape Breton Highlands and consists of mainly intermediate lithic and lithic-crystal tuff with minor andesitic and dacitic flows (Macdonald and Barr 1985). The volcanic rocks were interpreted initially to be of Devonian- Carboniferous age because of inferred correlation with the Fisset Brook Formation (Kelley and Mackasey 1965). However, Macdonald and Barr (1985) suggested a Neoproterozoic age based on interpreted intrusive contacts with plutonic rocks in the area, in particular the Indian Brook granodiorite which yielded a U–Pb (titanite) age of 564 ± 4 Ma interpreted to be the approximate crystallization age of the granodiorite (Dunning *et al.* 1990).

Sample SMB16-222 is a black dacitic lithic tuff. Most of the clasts in the tuff consist of plagioclase phenocrysts in very fine-grained quartzofeldspathic groundmass. Zircons in this sample are small, stubby grains and some are very rounded. Zircons are mostly transparent, with oscillatory zoning visible in CL. Some grains have facets and are euhedral. Sample SMB16-222 has a calculated concordia age of 576.5 ± 2.3 Ma interpreted as the main age of crystallization with an MSWD of 0.090, and a probability of concordance of 0.76. This age includes 18 grains in the concordia calculation (Fig. 5a).

This age supports the inferred co-magmatic relationship between the volcanic rocks and associated plutons (Grecco and Barr 1999), although it is somewhat older than the dated plutons which have ages between 570 Ma (Birch Plain granite – see below) and 555 Ma (Ingonish River tonalite; Dunning *et al.* 1990).

B2. Sample SMB14-193 – Birch Plain granite (569.6 ± 1.9 Ma)

The Birch Plain granite is in the northern part of the eastern highlands plutonic belt, intruded by the Cape Smokey pluton dated at 493 ± 2 Ma (Dunning *et al.* 1990). Based on map distribution, the presence of variably weak to strong foliation, and the presence of xenoliths in the Indian Brook granodiorite that appear to have been derived from the Birch Plain granite, the Birch Plain granite has been assumed to be older than the Indian Brook unit (Raeside and

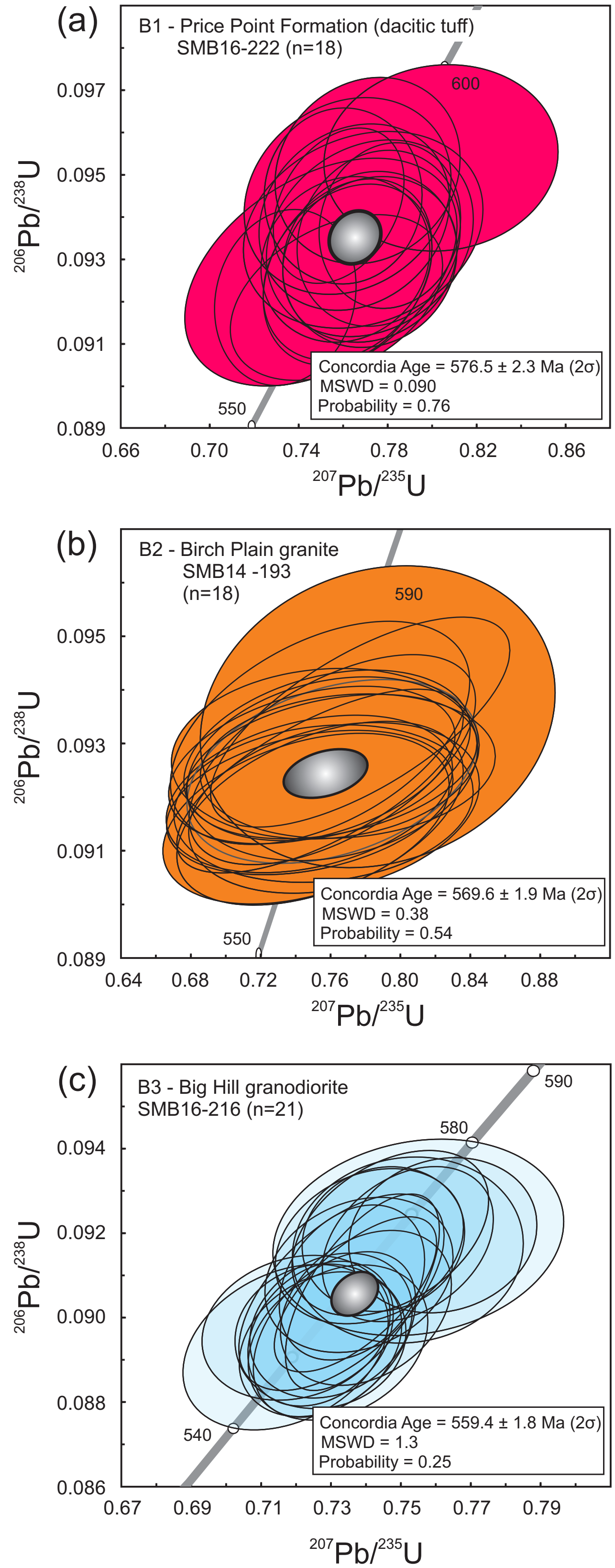

Figure 5. Concordia diagrams for plutons in the Bras d'Or terrane: (a) concordia diagram for zircon from dacitic tuff of the Price Point Formation; (b) concordia diagram for the Birch Plain granite; (c) concordia diagram for the Big Hill granodiorite.

Barr 1992; Grecco and Barr 1999). It is cut by mafic dykes of unknown age with sharp contacts and well developed chilled margins; possible magma mingling relationships are developed in places.

Sample SMB14-193 was collected from typical roadside outcrops along the access road to the Wreck Cove Hydroelectric Station. It is medium-grained biotite monzogranite typical of the pluton. Mineralogy includes plagioclase, perthitic orthoclase, interstitial deformed polycrystalline quartz, and biotite, mainly altered to chlorite. Allanite and zircon are abundant accessory phases, together with titanite, apatite, and magnetite. Most of the zircons in this sample are in the 10 to ~70 μm range. All the grains bigger than 20 μm were picked for analysis. The smaller grains are generally euhedral with bipyramidal terminations, and the larger grains rounded or euhedral. Many of the grains contain darker inclusions and are cloudy. In CL most of the grains show oscillatory zoning.

The sample has a calculated concordia age of 569.6 ± 1.9 Ma with an MSWD of 0.38, and a probability of concordance of 0.54 using 18 grains included in the concordia calculation (Fig. 5b). Younger ages from 6 grains do not make an overlapping cluster, and are interpreted as resulting from Pb loss.

The calculated age of 569.6 ± 1.9 Ma is slightly younger than the Price Point Formation but overlaps within error the titanite age from the Indian Brook granodiorite.

B3. Sample SMB16-216 – Big Hill granodiorite (559.4 ± 1.8 Ma)

The Big Hill granodiorite is part of an elongate plutonic belt west of the belt containing the Price Point Formation, Indian Brook granodiorite, and Birch Plain granite. Raeside and Barr (1992) included it in the Goose Cove pluton but Barr and White (2017a) split the area into a northern Goose Cove pluton and a southern Big Hill pluton, although they are probably of similar age. The pluton intruded the Glen Tosh Formation at Big Hill (Barr *et al.* 2013). It consists of hornblende-biotite granodiorite gradational to granite, locally with microcline megacrysts. Dated sample SMB16-216 is monzogranite with plagioclase and chloritized biotite enclosed in interstitial quartz and K-feldspar.

Zircons from this sample are mainly elongate crystals with bipyramidal terminations, although a few rounded grains are present. Grain size varies widely from 50 to 200 μm. The grains are slightly cloudy and about one fourth have a yellowish tint. In CL the grains show clear oscillatory zoning. The calculated concordia age of 559.4 ± 1.8 Ma is interpreted as the main age of crystallization (Fig. 5c), with an MSWD of 1.3, and probability of concordance of 0.25. This concordia calculation includes 21 grains. A few near-concordant grains that could be inherited occur at 1.3 1.5, and 1.8 Ga but they are single grains so do not provide unequivocal evidence for inherited ages.

The concordia age of 559.4 ± 1.8 Ma is slightly younger than the U–Pb (titanite) age from the Indian Brook granodiorite (Dunning *et al.* 1990), although the ages barely overlap within error. Like the ages from the Price Point Formation and Birch Plain granite, this age supports the inferred broadly co-magmatic relationship among the volcanic rocks and plutons in the eastern highlands. Including the new data, these volcanic and plutonic rocks are now represented by 7 U–Pb zircon ages, oldest of which is the Price Point Formation at ca. 576 Ma and youngest of which is Ingonish River tonalite at 555 Ma.

MIRA TERRANE

Geological setting

Mira terrane is the only part of Cape Breton Island included in Avalonia (Hibbard *et al.* 2006). In the northern Appalachian orogen, Avalonian rocks occur in southeastern New England (USA), the Caledonian Highlands of southern New Brunswick, the Cobequid and Antigonish highlands of northern mainland Nova Scotia, the Mira terrane, and the Avalon platform of eastern Newfoundland (Fig. 1 inset). Some authors refer to these areas collectively as West Avalonia, to distinguish them from East Avalonia in the UK and elsewhere in Europe which may be at least in part Ganderian (Schofield *et al.* 2016). The characteristic rocks of Avalonia are Middle to Late Neoproterozoic volcanic, sedimentary, and plutonic rocks, although specific ages vary from area to area. Most Avalonian areas also include overlying Cambrian to Lower Ordovician clastic sedimentary units. They differ from those in Bras d'Or terrane in composition and age, and hence Bras d'Or is interpreted to be part of Ganderia, not Avalonia (Barr *et al.* 1998; Hibbard *et al.* 2006).

In the Mira terrane, the Neoproterozoic rocks form three belts which previous U–Pb dating suggested to be of 3 different ages: Stirling belt (ca. 680 Ma), Sporting Mountain – East Bay Hills – Coxheath Hills belt (ca. 620 Ma), and Coastal belt (575 to 550 Ma). However, the age interpretation was based on relatively few U–Pb ages (Barr *et al.* 1996a) and more recent work had suggested some unrecognized complexities such as detrital zircon grains as young as ~ 620 Ma in a wacke unit in the Stirling belt and the presence of tuffaceous rocks with an age of ~ 580 Ma in the East Bay Hills (Willner *et al.* 2013). All three belts are dominated by mafic to felsic volcanic and volcaniclastic rocks and varying abundances of inter-stratified epiclastic and clastic sedimentary rocks. The Stirling belt has been interpreted to represent an intra-arc or back-arc basin. In contrast, the ca. 620 Ma volcanic, volcaniclastic, and plutonic rocks of the Coxheath Hills, Sporting Mountain, and East Bay Hills belts have petrochemical features typical of high-K calc-alkalic suites formed at continental margin subduction zones (Barr *et al.* 1996a). However, the presence of plutonic rocks of this age in the Stirling belt indicates that these two belts were juxtaposed by that time (Fig. 2). These composite dioritic to granitic ca. 620 Ma plutons are the most extensive plutons in the Mira terrane. Similar $^{40}Ar/^{39}Ar$ (hornblende) cooling ages from some of these plutons (Keppie *et al.* 1990) are consistent with high-level emplacement and rapid cooling.

The ca. 575 Ma mainly tuffaceous volcanic rocks of the Coastal belt (Fourchu Group) appear to be transitional between calc-alkalic and tholeiitic chemical affinity. They are inferred to represent magmas derived early in the development of a ca. 575 Ma northwest-dipping (present coordinates) subduction zone (Barr *et al.* 1996b). High-level plutonic rocks are only a minor component of the Coastal belt. The other major component of the Coastal belt, the Main-a-Dieu Group, contains lava flows, tuffs, debris flows, and fine-grained epiclastic rocks interpreted to have been deposited in intra-arc basins developed adjacent to the stratovolcanoes represented by the tuffs and flows of the Fourchu Group (Barr 1993; Barr *et al.* 1996a). The Main-a-Dieu Group is overlain by mainly clastic marine sedimentary rocks of Cambrian to Early Ordovician age (Barr *et al.* 1996a).

Devonian plutons are also present in the Mira terrane. They are shallow intrusions with associated porphyry-type, greisen-hosted, and vein-hosted Cu-Mo-Pb-Ag-Bi mineralization (Barr and O'Beirne 1981; Barr and Macdonald 1992). Petrological characteristics suggest that they are subduction-related plutons, but no other evidence of a Devonian magmatic arc occurs in southern Cape Breton Island. The apparent arc-signatures could reflect the nature of their source rocks in the roots of a Neoproterozoic arcs, or they could be associated with a more outboard subduction zone relating to juxtaposition of Gondwana with the Meguma terrane (e.g., Moran *et al.* 2007).

The boundary of the Mira terrane with the Bras d'Or terrane to the north is a "cryptic suture", buried beneath Carboniferous sedimentary rocks or located under water in the Bras d'Or Lakes (Fig. 1). On land, it is rather arbitrarily placed at conveniently located Carboniferous faults through the Boisdale Peninsula. The presence of clasts derived from both Mira terrane and Bras d'Or terrane units in a Middle Devonian conglomerate unit (McAdams Lake Formation) south of this fault shows that the two areas were in proximity by that time (White and Barr 1998). Magnetic and gravity models across the boundary suggest that the Mira terrane has been thrust under Bras d'Or terrane at the boundary (King 2002).

Although a detailed tectonomagmatic history had been developed for the Mira terrane, it was based on ages from relatively few igneous units (Fig. 2). Hence, 5 plutonic units were dated to enhance the database, in particular to provide better age constraints on the Devonian plutons, only one of which had been reliably dated using U–Pb in zircon (Lower St. Esprit, 378 +5/-1 Ma; Bevier *et al.* 1993).

New ages from the Mira terrane (Appendix A)

M1. Sample SMB16-225 – Irish Cove granodiorite (619.4 ± 2.6 Ma)

Sample SMB16-225 is typical medium-grained granodiorite to monzogranite of the Irish Cove pluton. It consists of subhedral to euhedral plagioclase in a finer-grained assemblage of K-feldspar, quartz, biotite, and hornblende. Minor interstitial granophyre is also present. The granodiorite occurs in close association with and contains abundant xenoliths of volcanic and volcaniclastic rocks of the East Bay Hills Group. It was previously undated but assumed to have an age of ca. 620 Ma based on its petrological similarities to granodiorite of the Chisholm Brook Plutonic Suite in the Stirling belt which yielded U–Pb (zircon) crystallization age of 620 +3/-2 Ma (McMullin 1984; Barr *et al.* 1990, 1996a). However, a metarhyolite sample from the Rear Irish Cove Formation inferred to have been intruded by the Irish Cove pluton yielded a concordia age of 582 ± 6 Ma, interpreted as the age of extrusion of the rhyolite (Willner *et al.* 2013).

Zircons from sample SMB16-225 are euhedral and clear, rectangular bipyramidal terminations. In CL most grains have well-defined oscillatory zoning. The sample has a calculated concordia age of 619.4 ± 2.6 Ma with an MSWD of 4.6, and probability of concordance of 0.032, with 18 grains included in the concordia calculation (Fig. 6a).

The reported age is consistent with its correlation with the Chisholm Brook suite but at odds with the age of its host rocks reported by Willner *et al.* (2013). Additional field mapping is needed to resolve this enigma.

M2. Sample SMB16-217 – MacDougall Point pluton (625.2 ± 3.1 Ma with older population at 645.6 ± 2.7 Ma)

The MacDougall Point pluton is well exposed in new roadcuts produced by widening of Highway #4 along the western margin of the East Bay Hills. As mapped by Barr and White (2017b), this small pluton consists of a northern monzodiorite and a southern granitic porphyry. The pluton intruded the Ben Eoin Formation of the East Bay Hills Group. The dated sample is quartz monzodiorite with abundant plagioclase and amphibole and less abundant biotite with interstitial quartz, K-feldspar, and granophyre forming 10–15% of the rock.

Most of the zircon grains in this sample are clear, euhedral grains in the 20 to 75 μm size range. Zircons in the 75 to 150 μm range are generally euhedral but with faint reddish staining. In CL most grains show oscillatory zoning. The grains in this sample fall into two clusters that each present as a peak in the probability distribution with a clear separation between them using a 5 Ma bin width (Fig. 6b). The younger cluster has a calculated concordia age of 625.2 ± 3.1 Ma with an MSWD of 0.12, and a probability of concordance of 0.73 with 15 grains included in the calculation (Fig. 6c). The older cluster has a calculated concordia age of 645.6 ± 2.7 Ma with an MSWD of 0.20, and a probability of concordance of 0.66 with 12 grains included in the calculation (Figure 6d). We interpret these data as evidence that there are two periods of zircon crystallization represented in the sample, the older zircons representing either anac-

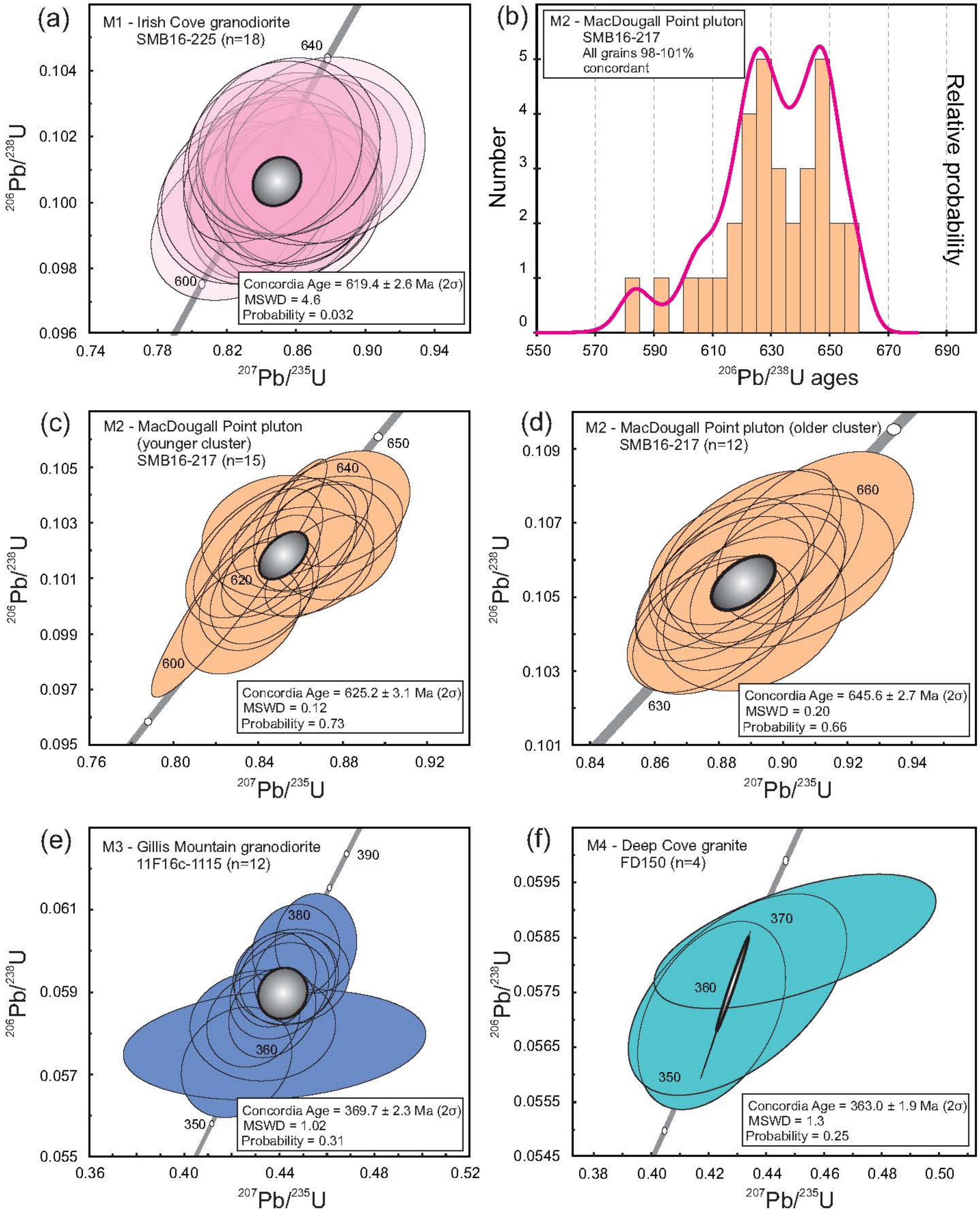

Figure 6. Concordia diagrams and probability plots for plutons in the Mira terrane: (a) concordia diagram for granodiorite of the Irish Cove pluton; (b) probability plot and histogram for quartz granodiorite of the MacDougall Point pluton showing two age peaks; (c) concordia diagram for the younger cluster of 15 zircon grains from the MacDougall Point granodiorite; (d) concordia diagram for the older cluster of 12 zircon grains from the MacDougall Point granodiorite; (e) concordia diagram for porphyritic granite sample 11F16c-1115 from the Gillis Mountain pluton; (f) concordia diagram for granite sample FD150 from the Deep Cove pluton.

rystic or inherited grains.

The interpreted age of crystallization for the MacDougall Point pluton is consistent with its correlation with the other ca. 620 Ma plutons in the Mira terrane. This date provides a minimum age for the host rocks of the Ben Eoin Formation. Based on location and petrologic similarities, it is probably related to the undated MacEachern Lake pluton farther northeast in the East Bay Hills. Combined with the new age of the Irish Cove pluton reported here (Fig. 6a) and previously published U–Pb ages from volcanic and plutonic units, this new age supports the interpretation that most of the volcanic, epiclastic, and plutonic rocks in the East Bay Hills, Sporting Mountain, and Coxheath Hills belts are ca. 620 Ma or older, although the ca. 580 Ma date of Willner *et al.* (2013) remains the exception.

M3. Sample 11F16c-1115 – Gillis Mountain granodiorite (370.5 ± 2.4 Ma)

The Gillis Mountain pluton intruded and contact metamorphosed shale, siltstone, and sandstone of early to middle Cambrian age. The contact metamorphic mineral assemblages, together with petrographic features of the pluton, suggest that the pluton was emplaced at a shallow depth (O'Beirne 1979). Gillis Mountain pluton is composite and consists of monzodiorite, porphyritic granite, and fine-grained granite as well as dykes of granitic porphyry, fine-grained granite, and aplite that occur in the quartz monzodiorite and porphyritic granite units (O'Beirne 1979; Barr and O'Beirne 1981). A previous date of 384 ± 10 Ma was based on a 12-point Rb–Sr isochron (Cormier 1979).

Sample 11F16c-1115 is a typical porphyritic granodiorite sample. It contains large plagioclase and smaller biotite phenocrysts in a fine-grained granular groundmass of quartz and feldspar. It contains abundant, unusually large, >200 μm, euhedral zircon grains, which were dated in situ in a polished section by the method described by Archibald *et al.* (2013). This sample was not imaged with CL. This sample has a calculated concordia age of 369.7 ± 2.3 Ma with an MSWD of 1.02, and a probability of concordance of 0.31 with 12 grains included in the calculation (Fig. 6e). This is barely within error of the Rb–Sr date and slightly younger than the U–Pb (zircon) age of 378 +5/-1 Ma reported from the Lower St. Esprit pluton (Bevier *et al.* 1993), the only other Devonian pluton dated by the U–Pb method in the Mira terrane prior to the present study.

*M4. Sample FD150 – Deep Cove granite (*363.0 ± 1.9 Ma*)*

The Deep Cove pluton is a small pluton (exposed area of less than 0.1 km^2) that intruded and contact metamorphosed tuffs and flows of the Coastal belt (Ervine 1981; Dennis 1988). The pluton is composed of seriate porphyritic granite with associated granite and granodiorite/tonalite porphyry dykes and aplite dykes (Dennis 1988; Sheard 2007). A whole rock - mineral Rb–Sr isochron previously indicated an age of 342 ± 25 Ma (Cormier 1972; Keppie and Smith 1978), but its petrological similarity to the Gillis Mountain pluton suggests that they should be the same age (O'Beirne 1979; Barr and Macdonald 1992).

Two samples (FD203A and FD150) from the Deep Cove pluton, both selected from the thesis collection of Dennis (1988), were dated. Both samples consist of porphyritic monzogranite, similar in texture and mineralogy to the dated sample from Gillis Mountain pluton described above, except with more abundant K-feldspar and quartz phenocrysts in addition to plagioclase and biotite.

Zircon grains from sample FD203A contain a large amount of common Pb as seen in the ^{204}Pb values recorded, which ranged between 200 and 35000 cps. The data are highly discordant in most of the grains. Data from this sample are not useful in determining the crystallization age of the unit so another sample was analyzed. Because the data are highly discordant it was not considered to be appropriate to combine the two datasets from the different samples.

The second sample (FD150) contains more zircon grains than sample FD203A, mostly in the 50 to 100 μm size range. Only a few grains are transparent and most are cloudy to brown with abundant inclusions and staining. In CL most grains show oscillatory zoning whereas others are very dark and fluoresce poorly. This sample also contains a large number of grains with common Pb as determined from the ^{204}Pb values recorded, which ranged between 0 cps and 2200 cps, significantly less than the values obtained from sample FD203A. Only 17 out of the 67 grains analyzed are between 98 and 101% concordant. The $^{206}Pb/^{238}U$ ages show the peak of the distribution around 360 Ma. Four grains (three uncorrected, one Anderson-corrected) were used to calculate a concordia age and produced an age of 363.0 ± 1.9 Ma (Fig. 6f) with an MSWD of 1.3 and a probability of concordance of 0.25.

Given the complexity of the data obtained from this unit and the large and extremely variable quantities of common Pb contained in the zircon grains, this is the most robust interpretation that can be made using the available data.

M5. Sample SMB16-214 – Salmon River rhyolite porphyry (367.4 ± 3.4 Ma with inheritance of 612.7 ± 5.3 Ma)

The Salmon River pluton outcrops over a large area in the northern part of the Stirling belt. It consists of relatively homogeneous rhyolite porphyry (or porphyritic fine-grained granite). Phenocrysts include sanidine, quartz, plagioclase, and rarely altered muscovite of possible xenocrystic origin, given the abundance of mica in the Cambrian host rocks. The groundmass is fine-grained and granular and consists of K-feldspar, quartz, biotite (mostly altered to chlorite), and abundant sericite. The pluton intruded granodioritic rocks of the ca. 620 Ma Chisholm Brook suite and Ediacaran-Cambrian coarse clastic rocks. Detrital muscovite in the latter rocks has undergone Silurian or younger partial argon loss (P. Reynolds, unpublished data, 1991). Locally concordant intrusive contacts and satellite sills in the Cambrian clastic rocks suggest that the pluton has laccolithic or sheet-like form (McMullin 1984). A Devonian (or younger) age was indicated previously by an Rb–Sr isochron at 368 ± 30 Ma (Barr *et al.* 1984). U–Pb dating of zircon from the porphyry was attempted but yielded only sparse xenocrystic zircons of Archean age (Doig *et al.* 1990). The pluton is nonconformably overlain by Upper Carboniferous sandstone of the Silver Mine Formation which hosts the Yava stratabound lead deposit, mined in the 1980s. The lead in the deposits has been interpreted to have been derived from the rhyolite porphyry and/or the Chisholm Brook suite (Sangster and Vaillancourt 1990).

Three samples from the Salmon River pluton were dated: DM141 (data only in Supplementary Files), SMB14-192, and SMB16-214; the last sample was the most successful, both in terms of zircon recovery and data quality and is discussed here first.

Sample SMB16-214 contained few zircon grains and most are tiny (<30 µm) and acicular. Grains in the 50 to 100 µm range were picked for analysis. They are rectangular with some euhedral crystals, and range from transparent to brown with abundant dark inclusions and staining. Some larger fragments of broken crystals were also picked for analysis. In CL some of the grains are dark with little internal definition, but most show faint oscillatory zoning. This sample has a calculated concordia age of 367.4 ± 3.4 Ma with an MSWD of 2.1, and a probability of concordance of 0.15 with 11 grains included in the calculation (Fig. 7a). A spread of younger ages (3 grains) does not make an overlapping cluster, and is interpreted as resulting from Pb loss.

Zircons obtain from sample DM141 contained a large amount of common Pb as seen in the ^{204}Pb values recorded, which ranged between 200 and 33000 cps (Supplementary Data File). The data are highly discordant, and only two out of 44 grains are 98 to 101% concordant. Data from this sample are not useful in determining the crystallization age of the unit and because the data are highly discordant it was not appropriate to combine this dataset with those from the other samples.

The third sample, SMB14-192, contained very few zircon grains and most are in the size range 10 to 20 µm and too small for analysis. All grains bigger than 20 µm were picked for analysis. They are mostly euhedral, with bipyramidal terminations, but also included a few rounded or broken grains. In CL the grains show oscillatory zoning. Only 12 grains could be analyzed, four of which are 98 to 101% concordant. Of those grains, the three that overlap within error give a concordia age 612.7 ± 5.3 Ma with an MSWD of 1.3, and a probability of concordance of 0.25 (Fig. 7b). These data are interpreted as representing an inherited population of zircons with an age older than the interpreted date of crystallization as described above for sample SMB16-214 from the same unit.

The combined probability distribution diagram for samples SMB16-214 and SMB14-192 (Fig. 7c) suggests a history of at least two episodes of zircon crystallization, where inherited zircons were erupted together with newly crystallized grains in the younger episode of igneous activity.

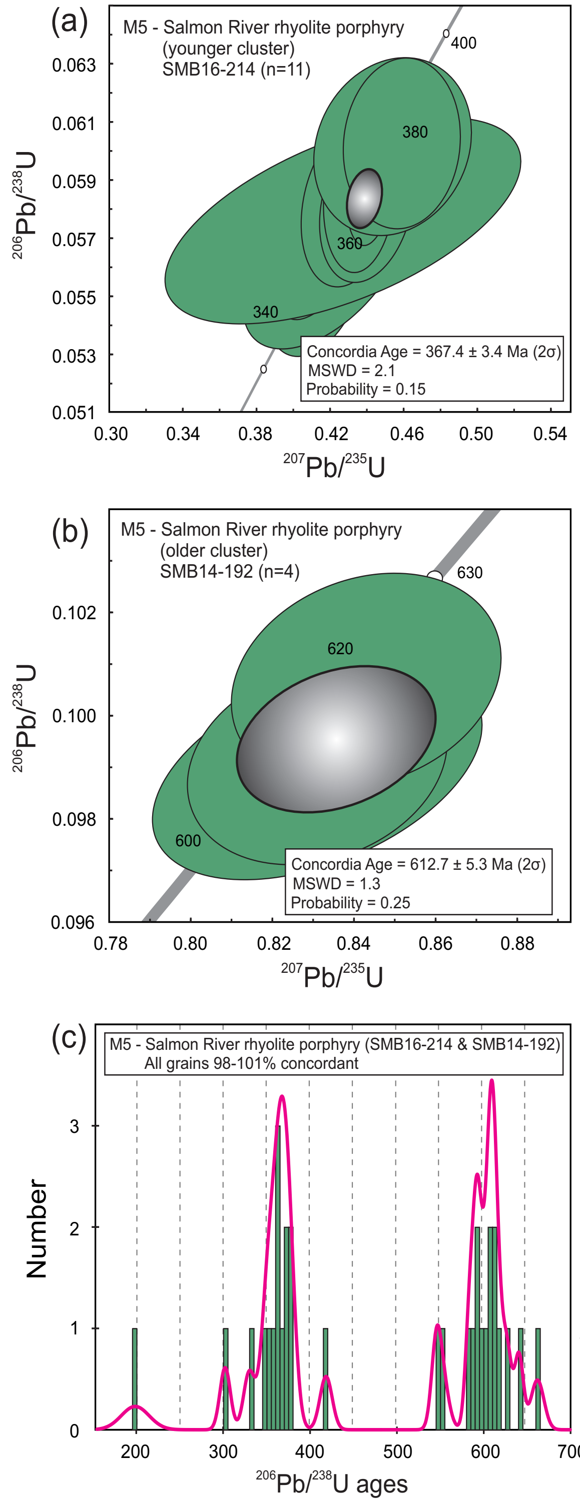

Figure 7. Concordia diagrams and probability plot for the Salmon River pluton in the Mira terrane: (a) concordia diagram for the young cluster of 11 zircon grains in rhyolite porphyry sample SMB16-214; (b) concordia diagram for the older cluster of 4 zircon grains from rhyolite porphyry sample SMB14-192; (c) concordia diagram for all concordant and near-concordant zircon grains in samples SMB16-214 and SMB14-192 combined showing two age peaks.

The two different age populations and the variability of the common Pb content in the different samples also serve as a reminder of the natural variability in chemistry and zircon crystallization history that can be present in one mapped unit. However, we found no evidence for the Archean ages reported by Doig *et al.* (1990).

DISCUSSION

Aspy terrane

The new U–Pb ages from Aspy terrane reported here, combined with those reported by Slaman *et al.* (2017), provide a new perspective on Aspy terrane evolution. The new data corroborate the interpretation that the terrane is dominated by Silurian and Devonian igneous rocks and show that the Early Silurian and Late Devonian were times of abundant activity, with a gap in the mid-Devonian – only one pluton has an age between 400 Ma and 380 Ma (Fig. 8a). The previous imprecise age of ca. 550 Ma is now better constrained by two ages of 567 Ma from the former Cheticamp pluton (Slaman *et al.* 2017). These ca. 567 Ma plutonic units in the Chéticamp area are similar in age and tectonic setting to a suite of ca. 565 to 563 Ma bimodal volcanic rocks (Sandy Brook Group) and comagmatic plutonic units (Crippleback Lake, Valentine Lake, and Lemottes Lake plutons) that occur along the western margin of Ganderia in the Exploits Subzone of central Newfoundland (Rogers *et al.* 2006; van Staal 2007). They may be related to fault-bounded areas of coeval igneous rocks in the Hermitage Flexure in southern Newfoundland (Lin *et al.* 2007). Like rocks of similar ages in the Bras d'Or and Brookville terranes, these rocks have been considered part of Ganderian basement (e.g., van Staal *et al.* 1996; Barr *et al.* 1998; van Staal and Barr 2012; White *et al.* 2016). Other components of that pluton have been shown to be Ordovician, with 5 ages in the range 490–475 Ma (Slaman *et al.* 2017; this study). These are the first such ages to be obtained in the Aspy terrane. They coincide with the age suggested for the Penobscot arc, identified in the Exploits Subzone in Newfoundland and New Brunswick (e.g., van Staal 2007; Zagorevski *et al.* 2007, 2010; van Staal and Barr 2012).

Although the petrographic features and tectonic settings of these rocks are still being assessed, comparison with earlier interpretations (e.g., Barr 1990; Slaman *et al.* 2017; Barr and Jamieson 1991) indicate that the Aspy terrane records at least 4 separate (in time) subduction/collision-related magmatic events that overlap in space, as well as more widespread post-orogenic magmatism that overlaps in time with the youngest (mid-Devonian) collisional events.

Bras d'Or terrane

The new U–Pb results confirm the importance of a Late Ediacaran (570 to 540 Ma) subduction-related magmatic event throughout the Bras d'Or terrane (Fig. 8b). The overlap in age with plutons in the western part of the Aspy terrane supports a link between Aspy and Bras d'Or terranes as previously proposed (Lin 1993; Slaman *et al.* 2017), although the overall age pattern in the two terranes is very different (Fig. 8b). An important result is the confirmation that the volcanic rocks of the Price Point Formation are cogenetic with the abundant plutons of the southeastern highlands, thus supporting the interpretation that the area preserved a depth-section of the crust from >25 km in the north adjacent to the Eastern Highlands Shear Zone to epizonal plutons and volcanic rocks in the south (Farrow and Barr 1992). The new results also confirm the importance of a younger magmatic event in the Bras d'Or terrane at about 500 Ma, now represented by 7 ages from both volcanic and plutonic rocks between 520 and 490 Ma (Fig. 8b). So far, this magmatic event is recorded only in the eastern part of the terrane, and has been attributed to rifting of Ganderia from Gondwana.

The only younger date in the Bras d'Or terrane is a Silurian age of 438 ± 2 Ma reported by Keppie *et al.* (1998, 2000) for a sample from a gabbro-diorite body in the Skye Mountain pluton in the Creignish Hills. However, the specific sample location was not reported, and the significance of this age remains uncertain (White *et al.* 2016).

Mira terrane

The new U–Pb data from Mira terrane support previous work which indicated 3 belts of volcanic-plutonic rocks with ages of ca. 680 Ma, 620 Ma, and 560 Ma dominate the terrane (Fig. 8c). However, considering the size of the terrane, more dating is needed to better constrain the distribution of rocks of the three age groups, in particular the extent of ca. 580 Ma volcanic rocks detected by Willner *et al.* (2013) in the East Bay Hills belt.

The new data provide much improved constraints on the timing of Devonian magmatism in the Mira terrane, with 4 ages between 370 and 363 Ma. Because of the association of this magmatic event with economic mineralization, more petrological work is needed to better constrain the tectonic setting of these apparently subduction-related plutons (Barr and Macdonald 1992).

CONCLUSIONS

The new ages reported here are a major step toward understanding the geological history of Cape Breton Island and its role in the development of the northern Appalachian orogen. They provide the basis for further petrological studies and tectonic interpretations now in progress (e.g., Moning *et al.* 2018). Without reliable age constraints, tectonic interpretations and regional correlations are only speculations. It is apparent from the range of ages that rocks with similar petrological features formed in similar tectonic settings but at different times. Because plutonic rocks provide record of not only tectonic setting but also their

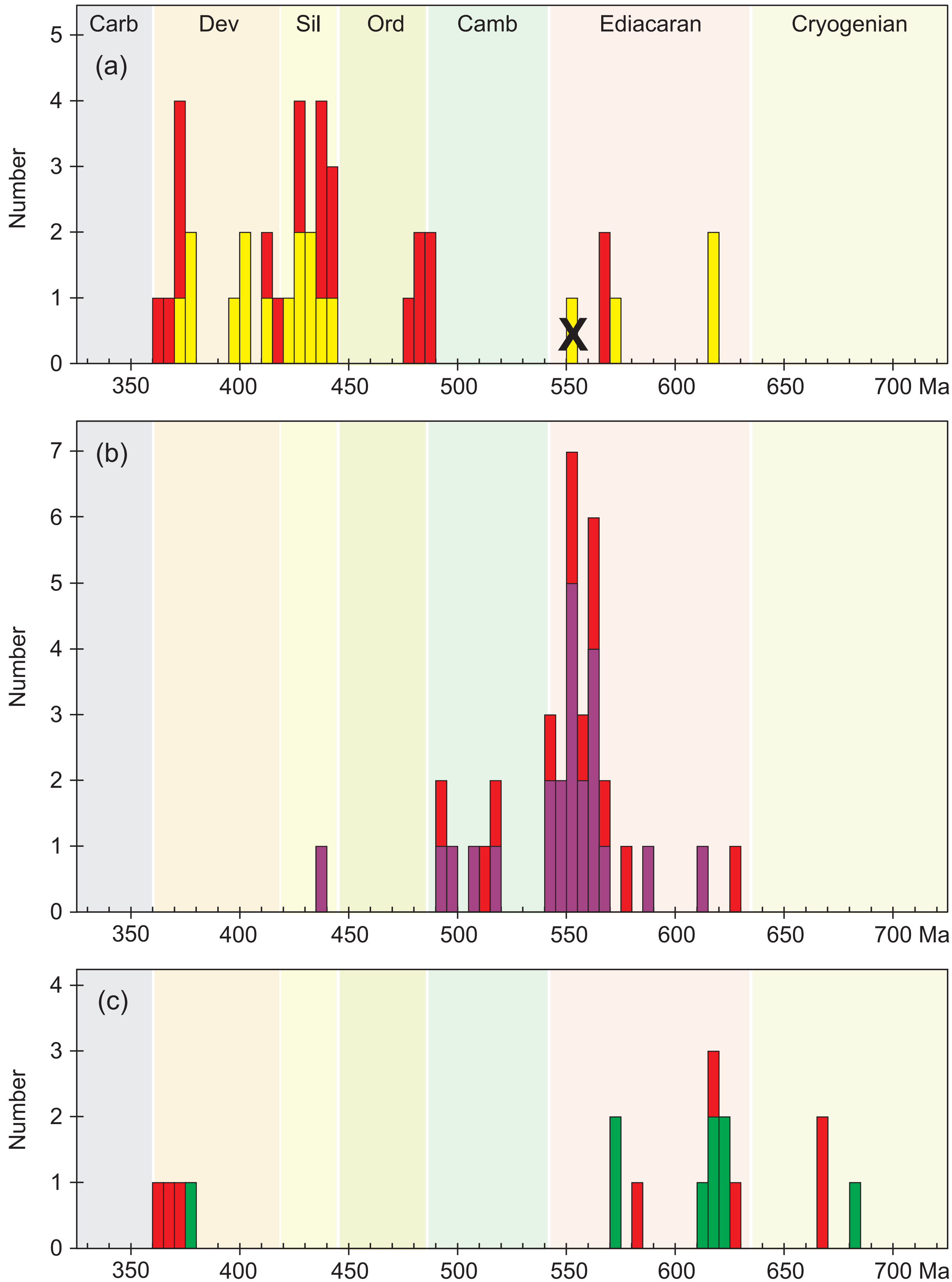

Figure 8. Histograms showing pre-2010 (in yellow, purple, and green) and current (in red) U–Pb igneous crystallization ages, including those reported here, for igneous rock units in the (a) Aspy terrane, (b) Bras d'Or terrane, and (c) Mira terrane. Current Bras d'Or terrane compilation also includes new ages from van Rooyen *et al.* (2017) and van Rooyen, personal communication, 2018).

crustal sources, ultimately these data will provide the answers that we are seeking. It is apparent that ages are needed from almost every pluton, because even with careful mapping and petrological studies, plutons of different ages can appear very similar.

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Editorial responsibility: David P. West, Jr.

Appendix A. LA-ICP-MS U-Pb isotopic analyses of zircon samples. Samples in grey are used in concordia age calculations.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb$[a]	*Pb %	C[b]	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
A1. Sample CEW16-697 – Gillanders Mountain pluton (UTM: 651866E, 5121118N; NAD83, Grid Zone 20T)																							
CEW16-697-1	1722	1220	1.4	14	10	72	6146	99.7	1	0.540	0.012	0.069	0.001	0.042	0.0571	0.0015	493	61	438	8	428	6	97.6
CEW16-697-2	2774	536	5.2	25	10	40	4624	99.6	1	0.476	0.010	0.060	0.001	0.403	0.0573	0.0014	500	55	396	7	377	6	95.1
CEW16-697-3	1541	352	4.4	36	9	25	2096	99.3	1	0.547	0.016	0.067	0.002	0.579	0.0599	0.0018	588	65	444	11	415	9	93.6
CEW16-697-4	2187	941	2.3	83	15	18	1207	98.3	3	0.453	0.026	0.060	0.001	0.380	0.0544	0.0030	525	89	380	18	376	7	99.0
CEW16-697-5	1394	651	2.1	60	13	22	948	97.8	1	0.490	0.012	0.051	0.001	0.329	0.0701	0.0020	923	59	405	9	319	6	78.7
CEW16-697-6	7218	670	10.8	74	15	20	4265	99.6	1	0.525	0.011	0.066	0.001	0.535	0.0581	0.0014	530	52	428	7	409	6	95.6
CEW16-697-7	532	255	2.1	24	10	40	975	98.4	1	0.563	0.017	0.061	0.001	0.122	0.0670	0.0024	813	75	452	11	383	6	84.6
CEW16-697-8	1243	957	1.3	94	19	20	565	97.1	3	0.511	0.059	0.071	0.002	0.611	0.0530	0.0067	670	190	422	44	443	10	105.0
CEW16-697-9	1677	1594	1.1	34	14	41	2490	99.5	1	0.544	0.013	0.067	0.001	0.516	0.0593	0.0015	576	57	441	8	415	7	94.2
CEW16-697-10	1726	930	1.9	47	13	28	1226	98.0	1	0.436	0.018	0.047	0.002	0.877	0.0680	0.0021	863	62	366	13	296	13	80.9
CEW16-697-11	2190	1620	1.4	53	11	21	2058	99.0	1	0.602	0.014	0.069	0.001	0.638	0.0630	0.0016	708	52	478	9	432	7	90.3
CEW16-697-12	2759	450	6.1	6	10	167	23800	99.9	1	0.541	0.012	0.070	0.001	0.478	0.0560	0.0014	453	52	439	8	437	7	99.6
CEW16-697-13	1947	2540	0.8	84	16	19	639	96.4	3	0.286	0.031	0.037	0.001	0.425	0.0563	0.0067	680	190	252	25	231	6	91.8
CEW16-697-14	3060	572	5.4	14	8	61	9964	99.7	1	0.480	0.011	0.062	0.001	0.571	0.0563	0.0014	458	55	398	7	387	6	97.3
CEW16-697-15	1748	571	3.1	42	12	29	2060	99.3	1	0.580	0.013	0.069	0.001	0.391	0.0609	0.0016	635	59	464	8	431	6	92.7
CEW16-697-16	1230	1170	1.1	4	11	275	15250	99.8	1	0.538	0.014	0.070	0.001	0.457	0.0559	0.0016	443	64	437	9	435	7	99.7
CEW16-697-17	2225	1425	1.6	56	16	29	1659	98.9	1	0.544	0.017	0.062	0.001	0.469	0.0632	0.0020	721	60	441	11	390	8	88.4
CEW16-697-18	1330	733	1.8	68	13	19	592	96.0	1	0.557	0.015	0.049	0.001	0.110	0.0842	0.0033	1267	76	449	10	309	8	68.8
CEW16-697-19	3090	1235	2.5	45	10	22	2804	99.3	1	0.490	0.010	0.060	0.001	0.537	0.0597	0.0015	589	54	405	7	373	7	92.1
CEW16-697-20	3310	810	4.1	20	13	65	8005	99.7	1	0.515	0.011	0.065	0.001	0.195	0.0572	0.0015	506	58	422	8	407	6	96.6
CEW16-697-21	746	696	1.1	3	10	333	12633	99.7	1	0.535	0.013	0.070	0.001	0.205	0.0555	0.0016	419	65	435	9	436	6	100.3
CEW16-697-22	1144	365	3.1	18	11	61	3069	99.6	1	0.548	0.013	0.069	0.001	0.170	0.0576	0.0016	506	62	444	9	432	6	97.2
CEW16-697-23	1950	294	6.6	74	11	15	1268	98.7	1	0.633	0.014	0.069	0.001	0.459	0.0661	0.0017	815	50	498	9	433	7	87.0
CEW16-697-24	2690	2740	1.0	64	11	17	1578	98.6	1	0.518	0.025	0.058	0.003	0.931	0.0647	0.0018	756	57	421	17	363	15	86.2
CEW16-697-25	1361	580	2.3	2	11	550	34850	99.7	1	0.505	0.013	0.065	0.001	0.271	0.0561	0.0017	450	68	415	9	408	7	98.2
CEW16-697-26	1287	923	1.4	34	17	50	1500	98.5	1	0.470	0.012	0.052	0.001	0.352	0.0651	0.0020	771	65	391	9	329	7	84.3
CEW16-697-27	4750	839	5.7	171	18	11	626	96.6	3	0.230	0.017	0.031	0.001	0.550	0.0528	0.0039	532	110	209	14	199	5	95.1
CEW16-697-28	10030	16190	0.6	618	61	10	538	96.4	3	0.363	0.020	0.049	0.002	0.822	0.0535	0.0021	403	67	313	15	308	10	98.3
CEW16-697-29	550	291	1.9	16	10	63	1538	99.8	1	0.470	0.015	0.063	0.001	0.373	0.0549	0.0019	391	78	390	10	392	8	100.3
CEW16-697-30	1349	639	2.1	24	10	42	2267	99.4	1	0.532	0.012	0.065	0.001	0.262	0.0593	0.0016	570	60	433	8	408	6	94.3
CEW16-697-31	1055	73	14.5	7	8	120	7894	99.7	1	0.537	0.013	0.070	0.001	0.242	0.0559	0.0016	439	62	436	9	434	7	99.7
CEW16-697-32	2020	382	5.3	29	13	45	3741	99.6	1	0.573	0.014	0.071	0.001	0.188	0.0586	0.0016	547	59	459	9	442	6	96.1
CEW16-697-33	1628	383	4.3	8	9	106	10268	99.7	1	0.554	0.013	0.071	0.001	0.329	0.0564	0.0015	459	59	447	9	445	7	99.5
CEW16-697-34	1877	1600	1.2	29	11	38	3068	99.3	1	0.543	0.012	0.066	0.001	0.044	0.0598	0.0017	587	61	440	8	411	6	93.5
CEW16-697-35	2311	242	9.5	20	11	55	5550	99.5	1	0.549	0.012	0.068	0.001	0.606	0.0588	0.0014	561	51	444	8	422	7	95.0
CEW16-697-36	637	354	1.8	16	18	113	2181	99.6	1	0.556	0.018	0.070	0.001	0.415	0.0575	0.0019	500	75	448	12	438	8	97.8
CEW16-697-37	448	341	1.3	29	13	45	841	98.5	1	0.664	0.027	0.071	0.001	0.216	0.0677	0.0029	834	92	516	17	445	7	86.2
CEW16-697-38	3892	489	8.0	14	10	71	13221	99.8	1	0.525	0.010	0.068	0.001	0.431	0.0556	0.0014	434	55	428	7	427	7	99.6
CEW16-697-39	3629	531	6.8	5	12	240	35940	99.9	1	0.510	0.010	0.067	0.001	0.296	0.0557	0.0014	436	56	419	7	416	6	99.3

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CEW16-697-40	1112	146	7.6	15	11	73	3760	99.6	1	0.571	0.014	0.071	0.001	0.440	0.0580	0.0016	519	61	458	9	443	7	96.8
CEW16-697-41	1840	656	2.8	8	13	163	11950	99.7	1	0.545	0.013	0.069	0.001	0.435	0.0574	0.0016	500	61	442	9	431	8	97.5
CEW16-697-42	4356	891	4.9	10	9	86	20245	99.9	1	0.520	0.011	0.068	0.001	0.532	0.0555	0.0013	427	55	425	7	424	6	99.8
CEW16-697-43	4860	419	11.6	8	10	117	28452	99.9	1	0.536	0.010	0.070	0.001	0.585	0.0554	0.0013	430	54	436	7	437	6	100.3
CEW16-697-44	328	97	3.4	4	9	205	4395	99.9	1	0.585	0.022	0.077	0.002	0.356	0.0554	0.0022	404	83	465	14	476	10	102.3
CEW16-697-45	1141	340	3.4	25	10	39	2207	99.2	1	0.558	0.016	0.066	0.001	0.583	0.0610	0.0017	641	62	449	10	414	7	92.1
CEW16-697-46	1664	311	5.3	17	10	59	4743	99.7	1	0.522	0.011	0.067	0.001	0.119	0.0564	0.0015	459	60	426	8	419	6	98.3
CEW16-697-47	560	175	3.2	19	10	51	1493	99.3	1	0.610	0.018	0.073	0.001	0.223	0.0603	0.0020	596	74	483	12	456	7	94.6
CEW16-697-48	3697	291	12.7	412	49	12	406	95.5	3	0.404	0.019	0.054	0.001	0.354	0.0546	0.0025	506	74	342	14	340	7	99.3
CEW16-697-49	1773	339	5.2	40	11	28	2073	99.2	1	0.554	0.012	0.066	0.001	0.276	0.0612	0.0016	639	56	447	8	411	6	91.9
CEW16-697-50	16300	1700	9.6	69	18	26	10087	99.7	1	0.397	0.008	0.052	0.001	0.647	0.0550	0.0013	409	54	339	6	329	6	97.0
CEW16-697-51	1072	264	4.1	22	10	45	1795	99.4	1	0.522	0.014	0.065	0.001	0.432	0.0588	0.0017	554	65	427	10	403	7	94.4
CEW16-697-52	1808	631	2.9	84	16	19	1129	98.5	3	0.558	0.032	0.074	0.002	0.618	0.0547	0.0030	523	88	447	21	461	10	103.1
CEW16-697-53	1979	605	3.3	5	17	340	20700	99.7	1	0.510	0.014	0.066	0.001	0.058	0.0561	0.0018	448	70	418	9	412	7	98.5
CEW16-697-54	862	538	1.6	4	9	207	9841	99.8	1	0.534	0.015	0.070	0.001	0.163	0.0553	0.0017	411	70	434	10	436	7	100.6
CEW16-697-55	2025	439	4.6	37	12	32	2200	99.0	1	0.493	0.012	0.058	0.001	0.344	0.0620	0.0018	663	62	407	8	362	6	89.1
CEW16-697-56	2052	326	6.3	16	13	81	6813	99.8	1	0.541	0.012	0.070	0.001	0.351	0.0564	0.0015	465	59	439	8	434	7	98.9
CEW16-697-57	3608	1824	2.0	10	15	150	18360	99.8	1	0.522	0.012	0.068	0.001	0.452	0.0562	0.0015	456	58	427	8	421	7	98.7
CEW16-697-58	2423	396	6.1	25	14	56	5220	99.9	1	0.554	0.013	0.072	0.001	0.574	0.0561	0.0014	454	57	447	9	446	7	99.7
CEW16-697-59	18440	1902	9.7	62	13	21	10919	99.7	1	0.388	0.007	0.051	0.001	0.676	0.0550	0.0013	409	52	333	5	322	5	96.8
CEW16-697-60	2617	422	6.2	-4	11	-275	-32775	99.8	1	0.489	0.011	0.064	0.001	0.335	0.0555	0.0015	426	59	404	7	400	6	99.0
A2. Sample CEW15-004 - Lake Ainslie pluton (light grey for younger cluster, dark grey for older) (UTM: 644527E, 5103843N; NAD83, Grid Zone 20T)																							
CEW15-004-1	170	167	1.0	-11	12	109	-1264	99.7	1	0.551	0.017	0.07072	0.0009	0.134	0.0567	0.0018	461	70	445	11	441	6	99.0
CEW15-004-2	824	661	0.8	82	15	18	805	98.0	3	0.678	0.011	0.0697	0.0007	0.07	0.0712	0.0013	957	38	525.6	6.8	434	4	82.6
CEW15-004-3	144	213	1.5	26	11	42	432	97.9	1	0.689	0.022	0.06928	0.0009	0.054	0.0719	0.0022	980	61	530	13	432	6	81.5
CEW15-004-4	794	341	0.4	345	46	13	202	89.7	3	1.5	0.14	0.0774	0.0013	0.889	0.136	0.011	1980	160	888	58	481	8	54.1
CEW15-004-5	97	71	0.7	2	16	800	3975	99.6	1	0.551	0.026	0.0698	0.0013	0.079	0.0576	0.003	470	110	446	18	435	8	97.6
CEW15-004-6	254	272	1.1	4	12	300	4990	99.6	1	0.53	0.015	0.0687	0.0008	0.14	0.0562	0.0017	443	66	431.9	9.8	428	5	99.2
CEW15-004-7	442	350	0.8	18	15	83	1946	99.4	1	0.568	0.014	0.06903	0.0007	0.039	0.0595	0.0015	595	56	456.3	8.9	430	4	94.3
CEW15-004-8	259	246	1.0	14	13	93	1507	98.4	1	0.667	0.021	0.07127	0.0008	0.269	0.068	0.0021	859	62	518	13	444	5	85.7
CEW15-004-9	842	476	0.6	-2	13	650	-35150	99.8	1	0.5469	0.0087	0.07036	0.0006	0.185	0.0561	0.0009	453	36	442.7	5.7	438	3	99.0
CEW15-004-10	281	283	1.0	121	49	40	210	91.1	2	0.525	0.01	0.0687	0.001	0.765	0.0566	0.0005	475	19	431	6.9	428	6	99.4
CEW15-004-11	104	82	0.8	11	15	136	751	96.2	1	0.838	0.033	0.0713	0.0012	0.264	0.0853	0.0034	1343	75	617	18	444	7	72.0
CEW15-004-12	685	464	0.7	-2	13	650	-27695	99.8	1	0.5447	0.009	0.07054	0.0006	0.054	0.0558	0.001	447	38	441.2	5.9	439	4	99.6
CEW15-004-13	670	200	0.3	1210	170	14	64	74.1	3	3.84	0.41	0.1008	0.0038	0.99	0.265	0.017	3294	90	1535	72	618	22	40.3
CEW15-004-14	163	172	1.1	33	12	36	397	96.9	1	0.754	0.027	0.06921	0.001	0.044	0.0793	0.0031	1148	77	568	15	432	6	76.1
CEW15-004-15	373	371	1.0	6	40	667	5267	99.5	1	0.58	0.037	0.074	0.0016	0.501	0.057	0.0034	500	120	463	23	460	9	99.4
CEW15-004-16	362	376	1.0	28	14	50	1025	97.5	1	0.736	0.018	0.0705	0.0011	0.518	0.0753	0.0016	1066	43	559	11	439	7	78.6
CEW15-004-17	269	260	1.0	4	13	325	5220	99.8	1	0.514	0.015	0.06723	0.0008	0.061	0.0554	0.0017	404	67	421.2	9.6	419	5	99.6
CEW15-004-18	117	87	0.7	-11	23	209	-887	99.9	1	0.536	0.033	0.0707	0.0013	0.122	0.0556	0.0038	400	140	443	22	440	8	99.3

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb$[a]	*Pb %	C[b]	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
CEW15-004-19	174	136	0.8	11	12	109	1272	99.7	1	0.551	0.017	0.07088	0.0008	0.074	0.0563	0.0017	441	67	444	11	441	5	99.4
CEW15-004-20	638	441	0.7	17	12	71	3465	99.7	1	0.619	0.013	0.07873	0.0009	0.378	0.0574	0.0011	503	44	488.5	8	489	5	100.0
CEW15-004-21	151	163	1.1	9	13	144	1313	99.7	1	0.533	0.018	0.06984	0.001	0.149	0.0555	0.002	435	79	433	12	435	6	100.5
CEW15-004-22	114	108	0.9	13	12	92	689	98.3	1	0.668	0.026	0.0699	0.0012	0.128	0.0685	0.0028	901	81	517	16	436	7	84.3
CEW15-004-23	44	31	0.7	6	16	267	560	100.3	1	0.524	0.053	0.0695	0.0023	0.012	0.0528	0.0054	360	200	435	33	433	14	99.5
CEW15-004-24	487	360	0.7	37	15	41	1143	98.7	1	0.667	0.015	0.07289	0.0007	0.301	0.0672	0.0015	844	44	517.9	9.2	454	4	87.6
CEW15-004-25	489	374	0.8	96	19	20	381	95.1	3	1.009	0.044	0.07697	0.0008	0.461	0.0961	0.004	1511	79	703	23	478	5	68.0
CEW15-004-26	1022	1546	1.5	717	37	5	129	85.6	3	1.821	0.051	0.07923	0.0008	0.765	0.17	0.0037	2560	36	1056	18	492	5	46.5
CEW15-004-27	826	333	0.4	10	16	160	6880	99.8	1	0.587	0.015	0.07615	0.0007	0.005	0.0566	0.0014	474	56	468.2	9.4	473	4	101.0
CEW15-004-28	155	100	0.6	7	19	271	2014	99.7	1	0.591	0.036	0.0753	0.0022	0.37	0.0577	0.0035	480	130	469	23	468	13	99.8
CEW15-004-29	753	576	0.8	110	16	15	554	96.8	3	0.749	0.024	0.06874	0.0006	0.317	0.0799	0.0025	1203	63	568	14	429	4	75.5
CEW15-004-30	1251	958	0.8	167	17	10	604	97.0	3	0.771	0.01	0.07116	0.0006	0.073	0.0793	0.0011	1175	27	580.1	5.9	443	3	76.4
CEW15-004-31	127	135	1.1	-2	16	800	-4855	99.9	1	0.52	0.021	0.06885	0.0009	0.09	0.0545	0.0022	381	89	428	14	429	6	100.3
CEW15-004-32	202	172	0.9	3	13	433	5833	99.7	1	0.59	0.018	0.0767	0.0011	0.238	0.0565	0.0017	454	63	472	12	476	7	100.9
CEW15-004-33	609	446	0.7	630	27	4	83	77.5	3	2.404	0.046	0.0756	0.0011	0.669	0.2301	0.0037	3048	26	1243	14	470	7	37.8
CEW15-004-34	1220	769	0.6	77	17	22	1256	98.2	1	0.6871	0.01	0.07185	0.0008	0.552	0.0694	0.001	909	29	530.7	6.3	447	5	84.3
CEW15-004-35	1046	1109	1.1	125	19	15	674	97.4	3	0.75	0.016	0.072	0.0008	0.061	0.0753	0.0017	1082	49	567.4	9.2	448	5	79.0
CEW15-004-36	77	53	0.7	17	20	118	352	99.5	1	0.537	0.029	0.0693	0.0017	0.101	0.0567	0.0032	440	120	434	20	432	10	99.5
CEW15-004-37	369	302	0.8	51	21	41	616	97.1	1	0.804	0.027	0.07421	0.0009	0.225	0.0788	0.0028	1158	67	598	15	461	5	77.2
CEW15-004-38	618	313	0.5	13	16	123	4392	99.8	1	0.691	0.017	0.0856	0.0015	0.677	0.0585	0.0012	549	42	533.2	10	529	9	99.2
CEW15-004-39	443	340	0.8	98	20	20	305	94.3	2	0.5072	0.0051	0.0661	0.0007	0.995	0.0557	0.0001	438.5	4.2	416.5	3.4	413	4	99.1
CEW15-004-40	318	264	0.8	2	12	600	13500	99.7	1	0.58	0.014	0.07431	0.0008	0.328	0.0567	0.0013	470	51	463.7	9.3	462	5	99.6
CEW15-004-41	678	385	0.6	7	14	200	8086	99.8	1	0.561	0.011	0.07262	0.0006	0.133	0.056	0.0011	456	45	452.5	7.1	452	4	99.9
CEW15-004-42	219	329	1.5	-4	13	325	-4213	99.8	1	0.525	0.015	0.0683	0.0008	0.301	0.0559	0.0015	425	61	428.5	9.9	426	5	99.4
CEW15-004-43	504	342	0.7	17	14	82	2346	98.9	1	0.605	0.016	0.0699	0.0012	0.678	0.0645	0.0014	765	44	479.7	10	435	7	90.7
CEW15-004-44	133	139	1.0	8	13	163	1290	99.6	1	0.523	0.018	0.06832	0.0009	0.106	0.0565	0.0022	457	83	426	12	426	5	100.0
CEW15-004-45	610	383	0.6	11	17	155	4145	99.8	1	0.533	0.015	0.0688	0.0007	0.027	0.0553	0.0015	446	67	433.6	9.6	429	4	98.9
CEW15-004-46	148	135	0.9	-1	14	1400	-11270	99.7	1	0.524	0.02	0.06813	0.001	0.191	0.0565	0.0021	448	82	428	13	425	6	99.3
CEW15-004-47	215	70	0.3	1	15	1500	19500	99.6	1	0.674	0.021	0.0848	0.0021	0.496	0.0589	0.0015	549	58	523	13	524	12	100.2
CEW15-004-48	414	336	0.8	10	12	120	3510	99.1	1	0.614	0.015	0.07188	0.0007	0.132	0.0621	0.0016	678	58	485.2	9.5	448	4	92.2
CEW15-004-50	259	318	1.2	8	14	175	2528	98.8	1	0.628	0.015	0.07058	0.0007	0.106	0.0645	0.0017	757	53	494.1	9.5	440	4	89.1
CEW15-004-51	116	123	1.1	-7	16	229	-1217	99.7	1	0.53	0.026	0.0679	0.0012	0.158	0.0558	0.0029	420	110	429	18	424	7	98.8
CEW15-004-52	558	349	0.6	21	13	62	1985	99.0	1	0.56	0.012	0.06513	0.0006	0.243	0.062	0.0013	677	46	451.2	7.9	407	4	90.1
CEW15-004-53	662	486	0.7	88	15	17	590	97.0	3	0.781	0.03	0.07113	0.0011	0.806	0.0788	0.0024	1164	60	583	17	443	6	76.0
CEW15-004-54	1337	628	0.5	20	22	110	5630	99.8	1	0.6009	0.01	0.07625	0.0007	0.338	0.0569	0.001	489	36	477.6	6.6	474	4	99.2
CEW15-004-55	89	69	0.8	15	13	87	474	97.6	1	0.717	0.03	0.0696	0.0011	0.078	0.0739	0.0032	1016	90	545	18	434	7	79.7
CEW15-004-56	260	297	1.1	1	13	1300	20900	99.7	1	0.561	0.017	0.07215	0.0008	0.11	0.0563	0.0017	447	68	453	11	449	5	99.1
CEW15-004-57	119	98	0.8	15	18	120	677	98.1	1	0.719	0.033	0.0745	0.0015	0.469	0.071	0.003	931	86	550	19	463	9	84.2
CEW15-004-58	119	94	0.8	-3	15	500	-3260	99.7	1	0.559	0.024	0.0729	0.0012	0.066	0.0557	0.0026	430	98	451	15	454	7	100.6
CEW15-004-59	365	242	0.7	55	14	25	545	97.0	1	0.842	0.026	0.07592	0.0008	0.319	0.0793	0.0022	1170	56	620	14	472	5	76.1

Appendix A. Continued.

										Isotopic ratios							Calculated ages						
Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CEW15-004-60	324	341	1.1	1	15	1500	23880	99.6	1	0.531	0.018	0.06801	0.0009	0.009	0.0565	0.0021	472	85	433	12	424	5	97.9
A3. Sample CEW16-699 – Gillis Brook diorite (UTM: 664218E, 5114482N; NAD83, Grid Zone 20T)																							
CEW16-699-1	485	201	2.4	14	10	71	1943	99.7	1	0.535	0.016	0.0702	0.0011	0.033	0.0554	0.0014	409	56	434	11	437	7	100.6
CEW16-699-2	470	696	0.7	16	11	69	1654	99.4	1	0.590	0.017	0.0716	0.0012	0.385	0.0598	0.0012	583	45	470	11	446	7	94.9
CEW16-699-3	567	308	1.8	11	14	127	2688	99.7	1	0.537	0.018	0.0688	0.0012	0.194	0.0565	0.0016	452	62	435	12	429	7	98.5
CEW16-699-4	695	213	3.3	16	13	81	2526	99.8	1	0.536	0.018	0.0696	0.0012	0.460	0.0559	0.0014	435	54	435	12	434	7	99.7
CEW16-699-5	501	491	1.0	3	11	367	9387	99.6	1	0.551	0.017	0.0698	0.0012	0.286	0.0573	0.0014	485	52	445	11	435	7	97.8
CEW16-699-6	546	128	4.3	4	13	325	7950	99.8	1	0.536	0.020	0.0703	0.0012	0.104	0.0555	0.0018	414	73	435	13	438	7	100.6
CEW16-699-7	1649	5289	0.3	19	18	95	4237	99.9	1	0.556	0.021	0.0725	0.0016	0.651	0.0555	0.0014	426	56	449	14	451	9	100.5
CEW16-699-8	542	178	3.0	-6	12	-200	-5017	99.8	1	0.531	0.015	0.0696	0.0011	0.146	0.0554	0.0012	413	48	432	10	434	7	100.4
CEW16-699-9	467	228	2.0	-6	15	-250	-4617	99.8	1	0.547	0.019	0.0712	0.0014	0.603	0.0560	0.0014	444	56	442	13	443	8	100.3
CEW16-699-10	545	223	2.4	5	12	240	5798	99.7	1	0.502	0.015	0.0662	0.0011	0.274	0.0552	0.0012	405	51	413	10	413	6	100.1
CEW16-699-11	623	179	3.5	-10	10	-93	-3309	99.8	1	0.530	0.014	0.0696	0.0011	0.204	0.0551	0.0011	404	43	431	10	434	7	100.6
CEW16-699-12	669	459	1.5	-1	14	-1400	-38120	99.8	1	0.538	0.015	0.0706	0.0011	0.145	0.0553	0.0011	414	45	437	10	440	7	100.6
CEW16-699-13	992	2876	0.3	12	11	92	4517	99.7	1	0.542	0.013	0.0688	0.0010	0.289	0.0572	0.0009	491	34	439	9	429	6	97.7
CEW16-699-14	572	182	3.1	9	10	111	3510	99.7	1	0.541	0.017	0.0702	0.0012	0.302	0.0558	0.0013	427	53	438	11	437	7	99.9
CEW16-699-15	640	186	3.4	4	10	250	8925	99.7	1	0.545	0.015	0.0705	0.0011	0.209	0.0560	0.0011	441	44	441	10	439	7	99.5
CEW16-699-16	589	262	2.2	3	17	567	11907	99.5	1	0.570	0.021	0.0710	0.0012	0.191	0.0584	0.0018	531	68	457	13	442	7	96.8
CEW16-699-17	539	308	1.8	9	10	111	3378	99.7	1	0.544	0.016	0.0700	0.0011	0.147	0.0563	0.0012	450	47	441	10	436	7	99.0
CEW16-699-18	524	821	0.6	120	29	24	245	92.8	2	0.477	0.092	0.0711	0.0011	0.573	0.0493	0.0082	1020	170	399	62	443	7	111.0
CEW16-699-19	539	148	3.6	5	11	220	5700	99.7	1	0.513	0.014	0.0674	0.0011	0.078	0.0552	0.0011	412	46	420	9	421	7	100.1
CEW16-699-20	598	182	3.3	6	10	167	5507	99.7	1	0.533	0.016	0.0691	0.0010	0.310	0.0558	0.0012	430	47	433	10	431	6	99.5
CEW16-699-21	419	410	1.0	9	12	133	2606	99.6	1	0.582	0.020	0.0741	0.0013	0.111	0.0567	0.0017	458	65	464	13	461	8	99.3
CEW16-699-22	622	268	2.3	2	10	436	16091	99.7	1	0.536	0.016	0.0704	0.0011	0.301	0.0551	0.0011	404	46	435	10	438	7	100.7
CEW16-699-23	358	160	2.2	12	10	83	1683	99.7	1	0.561	0.019	0.0722	0.0016	0.497	0.0564	0.0015	447	56	451	12	449	10	99.6
CEW16-699-24	947	2175	0.4	10	10	100	5490	99.6	1	0.584	0.017	0.0736	0.0011	0.180	0.0572	0.0012	486	46	466	11	458	7	98.2
CEW16-699-25	546	584	0.9	1	13	1300	28640	99.8	1	0.527	0.017	0.0689	0.0011	0.079	0.0550	0.0014	394	58	429	11	429	7	100.0
CEW16-699-26	635	252	2.5	-3	14	-467	-12683	99.7	1	0.551	0.017	0.0713	0.0013	0.362	0.0560	0.0013	439	51	445	11	444	8	99.8
CEW16-699-27	478	200	2.4	8	19	238	3575	99.8	1	0.521	0.023	0.0708	0.0016	0.366	0.0537	0.0020	344	86	425	16	441	10	103.8
CEW16-699-28	434	157	2.8	-20	10	-50	-1210	99.7	1	0.567	0.020	0.0727	0.0014	0.364	0.0564	0.0016	446	61	455	13	452	8	99.4
CEW16-699-29	494	189	2.6	4	11	275	6683	99.7	1	0.519	0.016	0.0680	0.0011	0.222	0.0552	0.0012	403	50	424	10	424	7	100.0
CEW16-699-30	634	1269	0.5	1	11	1100	34240	99.8	1	0.536	0.016	0.0698	0.0011	0.256	0.0555	0.0012	416	48	435	10	435	7	100.0
CEW16-699-31	527	153	3.4	7	10	143	4176	99.8	1	0.521	0.015	0.0693	0.0011	0.215	0.0544	0.0012	374	49	426	10	432	7	101.3
CEW16-699-32	510	127	4.0	-9	15	-167	-3311	99.7	1	0.532	0.020	0.0694	0.0012	0.220	0.0554	0.0018	409	70	432	13	433	7	100.2
CEW16-699-33	232	240	1.0	0	11			99.9	1	0.570	0.025	0.0744	0.0016	0.367	0.0554	0.0020	396	79	456	16	463	10	101.4
CEW16-699-34	514	141	3.6	-9	11	-122	-3156	99.7	1	0.541	0.017	0.0691	0.0011	0.278	0.0563	0.0013	455	53	438	11	431	7	98.3
CEW16-699-35	570	156	3.7	-9	10	-114	-3576	99.6	1	0.536	0.015	0.0693	0.0011	0.051	0.0562	0.0012	445	48	436	10	432	7	99.1
CEW16-699-36	355	430	0.8	6	11	183	3240	99.7	1	0.558	0.019	0.0714	0.0012	0.072	0.0564	0.0016	446	62	449	12	445	7	99.0
CEW16-699-37	528	147	3.6	4	13	325	7300	99.7	1	0.512	0.021	0.0663	0.0013	0.386	0.0556	0.0019	415	72	419	14	414	8	98.7
CEW16-699-38	403	210	1.9	-5	15	-300	-3136	99.2	1	0.530	0.022	0.0637	0.0012	0.108	0.0599	0.0024	570	86	431	15	398	7	92.3

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CEW16-699-39	619	207	3.0	19	11	58	1667	99.1	1	0.549	0.016	0.0651	0.0014	0.373	0.0610	0.0013	631	48	444	11	407	8	91.6
CEW16-699-40	820	387	2.1	-6	17	-283	-7682	99.6	1	0.544	0.018	0.0688	0.0011	0.183	0.0571	0.0015	481	59	440	12	429	6	97.4
CEW16-699-41	419	145	2.9	-11	11	-100	-2127	99.8	1	0.567	0.021	0.0733	0.0016	0.535	0.0560	0.0014	433	56	455	14	456	9	100.2
CEW16-699-42	647	927	0.7	22	12	55	1583	98.8	1	0.624	0.033	0.0702	0.0012	0.603	0.0643	0.0028	696	85	491	21	437	8	89.0
CEW16-699-1-1	502	1095	0.5	-9	21	-233	-3300	99.5	1	0.552	0.023	0.0699	0.0015	0.070	0.0577	0.0023	503	89	446	15	436	9	97.6
CEW16-699-43	529	144	3.7	5	9	200	6162	99.7	1	0.546	0.015	0.0695	0.0011	0.015	0.0566	0.0012	469	49	442	10	433	6	98.0
CEW16-699-44	515	1101	0.5	8	16	200	3664	99.7	1	0.585	0.022	0.0744	0.0013	0.007	0.0564	0.0018	453	73	467	14	463	8	99.0
CEW16-699-45	1057	930	1.1	20	11	55	2850	99.7	1	0.547	0.014	0.0702	0.0010	0.082	0.0562	0.0010	452	37	443	9	437	6	98.8
CEW16-699-46	419	199	2.1	3	12	400	7833	99.9	1	0.563	0.020	0.0759	0.0019	0.441	0.0539	0.0015	348	59	453	13	472	11	104.1
CEW16-699-47	526	139	3.8	-4	12	-300	-7208	99.7	1	0.525	0.018	0.0681	0.0012	0.020	0.0557	0.0016	418	65	428	12	425	7	99.2
CEW16-699-48	778	1272	0.6	34	13	38	1271	98.9	1	0.640	0.034	0.0719	0.0012	0.575	0.0639	0.0027	706	82	502	21	447	7	89.1
CEW16-699-49	387	162	2.4	13	10	75	1667	99.7	1	0.545	0.018	0.0705	0.0012	0.151	0.0557	0.0015	428	59	441	12	439	7	99.6
CEW16-699-50	373	141	2.6	6	12	200	3367	99.7	1	0.555	0.021	0.0719	0.0014	0.488	0.0558	0.0017	428	68	449	14	447	9	99.6
CEW16-699-51	683	265	2.6	24	18	75	1644	99.8	1	0.500	0.017	0.0658	0.0012	0.134	0.0551	0.0016	404	65	411	12	411	7	99.8
A4. Sample CEW16-698 – Leonard MacLeod Brook monzogranite (UTM: 667595E, 5119757N; NAD83, Grid Zone 20T)																							
CEW16-698-1	282	323	0.9	8	9	107	1654	99.9	1	0.510	0.019	0.068	0.001	0.105	0.0545	0.0022	376	90	417	13	424	7	101.7
CEW16-698-2	237	147	1.6	10	10	102	1028	99.0	1	0.588	0.030	0.068	0.002	0.582	0.0623	0.0028	639	95	466	19	427	13	91.6
CEW16-698-3	482	309	1.6	26	10	38	227	97.7	1	0.697	0.045	0.068	0.002	0.618	0.0732	0.0040	980	110	530	26	422	10	79.6
CEW16-698-4	334	325	1.0	11	9	82	1437	99.5	1	0.550	0.020	0.068	0.001	0.240	0.0584	0.0022	528	82	443	13	423	7	95.4
CEW16-698-5	347	262	1.3	-2	9	-443	-8233	99.5	1	0.556	0.019	0.069	0.001	0.054	0.0586	0.0022	522	83	447	12	430	7	96.2
CEW16-698-6	184	123	1.5	9	9	99	973	98.9	1	0.556	0.023	0.065	0.001	0.284	0.0623	0.0026	643	90	447	15	405	8	90.5
CEW16-698-7	2009	1137	1.8	27	10	36	2768	99.1	1	0.434	0.011	0.052	0.001	0.665	0.0602	0.0017	607	58	365	8	327	7	89.6
CEW16-698-8	402	388	1.0	-2	8	-500	-12947	99.7	1	0.541	0.018	0.070	0.001	0.105	0.0562	0.0021	435	83	438	12	436	7	99.6
CEW16-698-9	294	274	1.1	13	10	77	1096	99.1	1	0.576	0.021	0.068	0.001	0.068	0.0619	0.0025	634	87	461	13	422	7	91.6
CEW16-698-10	335	343	1.0	-1	9	-1243	-22543	99.6	1	0.561	0.019	0.071	0.001	0.043	0.0577	0.0022	489	84	451	12	440	7	97.5
CEW16-698-11	620	642	1.0	21	10	48	1475	98.9	1	0.579	0.017	0.066	0.001	0.331	0.0634	0.0021	702	70	463	11	414	6	89.3
CEW16-698-12	215	184	1.2	7	9	131	1459	100.0	1	0.504	0.021	0.068	0.001	0.186	0.0536	0.0023	339	96	413	14	426	7	103.1
CEW16-698-13	262	211	1.2	7	8	115	1797	99.8	1	0.551	0.021	0.071	0.001	0.034	0.0556	0.0022	429	91	444	14	442	7	99.5
CEW16-698-14	255	411	0.6	3	9	304	4161	99.9	1	0.507	0.018	0.067	0.001	0.030	0.0548	0.0022	377	88	415	12	421	8	101.4
CEW16-698-15	189	165	1.1	4	9	216	1693	99.5	1	0.496	0.025	0.063	0.002	0.183	0.0577	0.0030	467	110	406	17	392	9	96.5
CEW16-698-16	144	144	1.0	4	10	221	1676	99.8	1	0.525	0.024	0.069	0.001	0.017	0.0551	0.0027	376	100	426	16	432	8	101.5
CEW16-698-16b-1	352	445	0.8	12	9	79	1417	99.7	1	0.526	0.018	0.068	0.001	0.166	0.0566	0.0021	451	79	428	12	422	7	98.5
CEW16-698-17	188	139	1.4	5	8	152	1844	99.5	1	0.530	0.023	0.067	0.001	0.285	0.0576	0.0026	474	95	430	15	416	7	96.7
CEW16-698-18	164	147	1.1	5	10	176	1531	99.8	1	0.522	0.027	0.069	0.001	0.026	0.0553	0.0030	380	110	423	18	431	8	101.8
CEW16-698-19	321	290	1.1	10	9	85	1549	99.6	1	0.538	0.018	0.068	0.001	0.085	0.0573	0.0022	473	82	436	12	426	7	97.6
CEW16-698-20	289	303	1.0	2	8	553	9093	99.7	1	0.505	0.018	0.066	0.001	0.070	0.0554	0.0022	401	87	414	12	415	8	100.1
CEW16-698-21	262	267	1.0	11	9	78	1047	99.6	1	0.558	0.024	0.071	0.002	0.369	0.0575	0.0025	472	93	448	15	441	9	98.5
CEW16-698-22	325	266	1.2	-2	8	-500	-9163	99.4	1	0.514	0.018	0.064	0.001	0.144	0.0579	0.0023	493	87	420	12	402	7	95.6
CEW16-698-23	152	171	0.9	7	9	132	1152	100.0	1	0.519	0.022	0.070	0.001	0.132	0.0541	0.0024	342	94	423	14	435	8	102.8
CEW16-698-24	348	534	0.7	12	12	100	1294	99.1	1	0.574	0.025	0.068	0.002	0.271	0.0612	0.0028	619	98	459	16	425	9	92.7

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CEW16-698-25	410	313	1.3	7	9	134	2957	99.8	1	0.504	0.015	0.067	0.001	0.067	0.0549	0.0019	393	76	416	10	416	7	100.0
CEW16-698-26	1560	656	2.4	21	12	57	3557	99.5	1	0.524	0.012	0.065	0.001	0.286	0.0587	0.0016	549	61	428	8	406	6	94.8
CEW16-698-27	338	344	1.0	11	9	77	1436	99.7	1	0.532	0.018	0.068	0.001	0.270	0.0570	0.0021	468	81	432	12	422	7	97.7
CEW16-698-28	1354	3840	0.4	22	11	50	2452	99.2	1	0.490	0.012	0.059	0.001	0.390	0.0602	0.0017	613	60	404	8	369	6	91.2
CEW16-698-29	376	209	1.8	25	12	48	761	98.2	1	0.666	0.025	0.070	0.001	0.339	0.0692	0.0026	890	84	516	15	433	8	83.9
CEW16-698-30	2480	530	4.7	23	11	48	5235	99.6	1	0.510	0.011	0.065	0.001	0.367	0.0573	0.0014	497	56	418	7	404	6	96.6
CEW16-698-31	206	172	1.2	11	12	109	953	99.7	1	0.534	0.029	0.069	0.002	0.260	0.0563	0.0032	430	120	432	20	430	10	99.5
CEW16-698-32	476	550	0.9	20	10	50	1046	98.7	1	0.595	0.026	0.066	0.001	0.176	0.0652	0.0029	747	98	473	16	415	7	87.7
CEW16-698-33	376	293	1.3	6	8	143	3078	99.6	1	0.528	0.019	0.067	0.001	0.169	0.0570	0.0022	475	85	429	13	416	7	96.9
CEW16-698-34	343	317	1.1	8	9	118	1564	99.4	1	0.521	0.022	0.065	0.001	0.146	0.0584	0.0026	503	96	426	15	407	7	95.6
CEW16-698-35	431	415	1.0	8	10	124	2708	99.2	1	0.512	0.016	0.062	0.001	0.153	0.0600	0.0021	588	78	419	11	389	7	92.8
CEW16-698-36	413	430	1.0	13	10	73	1512	99.7	1	0.514	0.017	0.067	0.001	0.094	0.0556	0.0020	409	81	420	11	419	7	99.7
CEW16-698-37	188	142	1.3	7	10	143	1326	99.1	1	0.571	0.023	0.068	0.001	0.111	0.0611	0.0028	611	96	456	15	421	8	92.3
CEW16-698-38	551	561	1.0	8	10	120	3509	99.9	1	0.531	0.014	0.071	0.001	0.060	0.0544	0.0017	374	68	432	9	441	7	102.2
CEW16-698-39	1525	529	2.9	14	12	86	5543	99.7	1	0.528	0.013	0.067	0.001	0.489	0.0572	0.0016	493	61	432	9	420	7	97.3
CEW16-698-40	263	253	1.0	5	8	156	2222	98.5	1	0.581	0.025	0.064	0.001	0.359	0.0659	0.0028	762	93	463	16	401	8	86.7
CEW16-698-41	211	153	1.4	7	9	132	1484	99.8	1	0.552	0.022	0.071	0.001	0.185	0.0564	0.0025	431	98	444	14	444	8	100.0
CEW16-698-42	494	1696	0.3	28	15	54	845	98.2	1	0.629	0.026	0.066	0.002	0.068	0.0693	0.0032	907	90	495	16	413	10	83.4
CEW16-698-43	396	336	1.2	7	9	132	2872	99.8	1	0.512	0.017	0.068	0.001	0.119	0.0551	0.0020	391	80	419	11	422	7	100.6
CEW16-698-44	235	225	1.0	2	10	500	5545	99.3	1	0.515	0.020	0.063	0.001	0.037	0.0594	0.0026	564	99	421	14	395	8	93.8
CEW16-698-45	175	185	0.9	-2	9	-518	-4988	100.2	1	0.495	0.024	0.069	0.001	0.257	0.0522	0.0025	281	100	406	16	429	8	105.5
CEW16-698-46	429	681	0.6	0	8	-8200	-167700	99.5	1	0.534	0.017	0.067	0.001	0.230	0.0580	0.0021	504	77	435	12	419	7	96.3
CEW16-698-47	285	237	1.2	-3	12	-400	-3920	99.6	1	0.524	0.025	0.068	0.002	0.029	0.0559	0.0029	410	110	426	16	426	9	100.0
CEW16-698-48	276	238	1.2	9	14	156	1603	99.8	1	0.500	0.027	0.066	0.001	0.172	0.0552	0.0029	400	120	411	18	411	9	100.0
CEW16-698-49	321	306	1.0	6	9	155	2330	99.4	1	0.530	0.018	0.066	0.001	0.060	0.0584	0.0023	512	85	431	12	413	7	95.7
CEW16-698-50	1354	558	2.4	16	9	55	4282	99.8	1	0.552	0.014	0.071	0.001	0.688	0.0563	0.0015	457	58	446	9	443	7	99.4
CEW16-698-51	1211	894	1.4	12	9	71	2613	99.2	1	0.596	0.020	0.071	0.002	0.667	0.0611	0.0020	631	72	473	13	439	10	92.9
CEW16-698-52	334	380	0.9	0	8	-2050	-39000	99.8	1	0.478	0.016	0.063	0.001	0.006	0.0549	0.0020	389	82	396	11	395	7	99.9
CEW16-698-53	299	240	1.2	10	8	81	1292	99.7	1	0.550	0.023	0.070	0.001	0.292	0.0569	0.0024	457	91	443	15	438	8	98.9
CEW16-698-54	405	413	1.0	6	9	154	3198	99.5	1	0.542	0.018	0.068	0.001	0.010	0.0577	0.0021	505	84	438	12	423	7	96.5
CEW16-698-55	343	320	1.1	18	10	54	913	99.6	1	0.523	0.020	0.066	0.001	0.223	0.0572	0.0023	467	86	426	13	414	7	97.3
CEW16-698-56	331	299	1.1	0	10			99.7	1	0.515	0.018	0.067	0.001	0.286	0.0562	0.0021	440	82	421	12	415	7	98.6
CEW16-698-57	687	706	1.0	7	9	136	5099	99.7	1	0.540	0.015	0.069	0.001	0.200	0.0565	0.0017	456	68	437	10	432	6	98.8
CEW16-698-58	294	223	1.3	10	8	75	1391	99.9	1	0.520	0.019	0.068	0.001	0.056	0.0553	0.0023	395	90	424	13	426	7	100.4
CEW16-698-59	357	295	1.2	2	8	390	8429	99.7	1	0.539	0.018	0.070	0.001	0.242	0.0559	0.0020	427	77	437	12	436	7	99.8
CEW16-698-60	255	197	1.3	8	8	100	1556	99.7	1	0.532	0.019	0.069	0.001	0.025	0.0565	0.0023	437	88	432	13	430	7	99.4
CEW16-698-61	286	282	1.0	7	9	143	2085	99.7	1	0.545	0.023	0.070	0.002	0.406	0.0562	0.0024	435	92	440	15	439	10	99.7
A5. Sample SB86-3068– Glasgow Brook pluton (UTM: 692693E, 5090472N; NAD83, Grid Zone 20T)																							
SB-86-3068-1	1265	32	0.0	32	15	47	4119	99.5	1	0.5416	0.0093	0.06633	0.0008	0.321	0.0591	0.0012	521	38	439.3	6.1	414	5	94.2
SB-86-3068-2	526	40	0.1	63	15	24	652	97.2	1	0.729	0.021	0.06806	0.0009	0.343	0.077	0.0022	571	44	555	12	425	5	76.5

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SB-86-3068-3	747	133	0.2	13	11	85	6577	99.9	1	0.5314	0.0088	0.06907	0.001	0.338	0.0557	0.001	431	40	432.5	5.8	431	6	99.5
SB-86-3068-4	810	105	0.1	124	14	11	725	97.5	3	0.477	0.028	0.06408	0.0009	0.563	0.0541	0.0035	428	38	393	19	400	6	101.9
SB-86-3068-5	746	211	0.3	12	11	92	6925	99.8	1	0.5198	0.0077	0.06651	0.0008	0.242	0.0567	0.001	541	53	424.9	5.2	415	5	97.7
SB-86-3068-6	1344	274	0.2	19	13	68	7795	99.8	1	0.5084	0.007	0.0648	0.0008	0.015	0.0568	0.001	540	35	417.3	4.7	405	5	97.0
SB-86-3068-7	835	71	0.1	52	15	29	1560	98.6	1	0.612	0.024	0.06647	0.001	0.765	0.0667	0.0022	440	40	480	13	415	6	86.4
SB-86-3068-8	615	135	0.2	19	11	58	3626	99.7	1	0.5418	0.0092	0.06812	0.0009	0.191	0.0578	0.0011	465	43	439.8	6	425	5	96.6
SB-86-3068-9	520	82	0.2	-2.9	9.6	-331	-20834	99.9	1	0.5179	0.01	0.06849	0.0009	0.071	0.0551	0.0012	464	47	423.3	6.7	427	5	100.9
SB-86-3068-10	921	135	0.1	4	11	275	26000	99.9	1	0.496	0.0075	0.0652	0.0008	0.171	0.0553	0.001	513	37	409.2	5.1	407	5	99.5
SB-86-3068-11	975	183	0.2	12	12	100	8767	99.6	1	0.5094	0.0075	0.06422	0.0008	0.047	0.0578	0.001	204	171	417.8	5	401	5	96.0
SB-86-3068-12	937	150	0.2	54	18	33	1954	98.9	1	0.583	0.013	0.06605	0.0008	0.261	0.0642	0.0015	479	39	465.6	8.4	412	5	88.6
SB-86-3068-13	463	46	0.1	138	22	16	291	92.2	3	0.487	0.075	0.06462	0.001	0.636	0.055	0.0074	420	49	385	51	404	6	104.8
SB-86-3068-14	759	91	0.1	34	13	38	2162	99.1	1	0.5719	0.0096	0.06699	0.0008	0.194	0.0623	0.0013	482	39	458.9	6.2	418	5	91.1
SB-86-3068-15	677	101	0.1	18	11	61	4183	99.7	1	0.5614	0.011	0.07058	0.0009	0.12	0.0578	0.0012	560	41	452	7.3	440	5	97.3
SB-86-3068-16	906	94	0.1	17	11	65	5858	99.7	1	0.5132	0.0082	0.0655	0.0008	0.048	0.0568	0.0011	451	38	420.4	5.5	409	5	97.3
SB-86-3068-17	912	198	0.2	1	11	1100	100400	99.9	1	0.4955	0.0075	0.06521	0.0008	0.201	0.055	0.001	625	103	408.4	5.1	407	5	99.7
SB-86-3068-18	729	132	0.2	8	11	138	10313	99.9	1	0.5028	0.0081	0.06605	0.0008	0.29	0.0554	0.001	620	39	413.3	5.5	412	5	99.8
SB-86-3068-19	1534	331	0.2	51	12	24	3404	99.7	1	0.5196	0.0074	0.06576	0.0008	0.25	0.0574	0.001	456	38	424.7	4.8	411	5	96.7
SB-86-3068-20	865	74	0.1	32	10	31	2806	99.6	1	0.5086	0.0091	0.06373	0.0009	0.069	0.0579	0.0012	485	43	418.2	6	398	5	95.2
SB-86-3068-21	1052	249	0.2	19	12	63	6095	99.8	1	0.5132	0.01	0.06578	0.0008	0.062	0.0562	0.0013	482	43	421	6.4	411	5	97.6
SB-86-3068-22	849	174	0.2	174	21	12	552	97.2	3	0.444	0.036	0.06412	0.0011	0.673	0.0502	0.0037	392	54	369	25	401	7	108.6
SB-86-3068-23	1146	165	0.1	15	12	80	8340	99.7	1	0.5023	0.0086	0.06392	0.0008	0.192	0.0567	0.0011	464	43	413.1	5.8	399	5	96.7
SB-86-3068-24	401	53	0.1	8	10	125	5449	99.7	1	0.5156	0.011	0.06496	0.0009	0.136	0.057	0.0013	433	38	421.7	7.1	406	5	96.2
SB-86-3068-25	1158	219	0.2	7	12	171	16843	99.9	1	0.5092	0.0073	0.06585	0.0008	0.234	0.0555	0.001	462	43	417.8	4.9	411	5	98.4
SB-86-3068-26	597	204	0.3	25	11	44	2419	99.5	1	0.558	0.01	0.06868	0.0008	0.042	0.0588	0.0013	684	45	450.5	6.7	428	5	95.0
SB-86-3068-27	867	128	0.1	19	10	53	5016	99.8	1	0.4937	0.0079	0.06362	0.0008	0.106	0.056	0.001	420	39	407.2	5.4	398	5	97.6
SB-86-3068-28	605	109	0.2	15	10	67	4374	99.8	1	0.5177	0.0093	0.06643	0.0008	0.3	0.0563	0.0011	490	43	423.8	6.1	415	5	97.8
SB-86-3068-29	1099	140	0.1	25	11	44	4164	99.8	1	0.4994	0.0073	0.06424	0.0008	0.246	0.0561	0.001	444	44	411.1	4.9	401	5	97.6
SB-86-3068-30	737	109	0.1	26.6	9.2	35	2969	99.8	1	0.5027	0.0095	0.06464	0.0008	0.294	0.0563	0.0011	482	43	413.7	6.5	404	5	97.6
SB-86-3068-31	937	168	0.2	18	11	61	5650	99.9	1	0.5123	0.0084	0.06725	0.0011	0.506	0.0555	0.001	505	46	419.8	5.7	420	6	99.9
SB-86-3068-32	1011	78	0.1	16	10	63	6229	99.7	1	0.511	0.0077	0.06449	0.0008	0.381	0.0574	0.001	479	43	419.4	5.1	403	5	96.1
SB-86-3068-33	1611	327	0.2	32	11	34	5225	99.5	1	0.4957	0.0066	0.06215	0.0008	0.392	0.0583	0.0009	521	46	408.7	4.5	389	5	95.1
SB-86-3068-34	750	18	0.0	31	11	35	2208	99.5	1	0.5338	0.0098	0.06535	0.0009	0.343	0.0595	0.0012	426	39	435.7	6.6	408	5	93.7
SB-86-3068-35	826	131	0.2	20	14	70	4290	99.8	1	0.506	0.0091	0.06534	0.001	0.389	0.0563	0.001	432	48	416.2	6.1	408	6	98.0
SB-86-3068-36	893	124	0.1	26	11	42	3592	99.5	1	0.5298	0.0083	0.06581	0.0009	0.487	0.0588	0.0011	412	301	432.6	5.8	411	5	95.0
SB-86-3068-37	1122	194	0.2	2.6	9.7	373	44846	99.8	1	0.4937	0.0072	0.06441	0.0008	0.381	0.056	0.001	419	39	407.7	4.8	402	5	98.7
SB-86-3068-38	1026	169	0.2	3	9.8	327	35600	99.8	1	0.5049	0.0073	0.06452	0.0008	0.103	0.0567	0.001	466	39	414.8	4.9	403	5	97.2
SB-86-3068-39	1211	175	0.1	27	11	41	3958	99.6	1	0.5264	0.0081	0.06567	0.0008	0.187	0.0581	0.0011	412	39	429.2	5.4	410	5	95.5
SB-86-3068-40	465	23	0.0	36	17	47	1031	98.1	1	0.695	0.27	0.07115	0.0069	0.301	0.0708	0.0058	1121	57	534	57	443	32	83.0
SB-86-3068-41	1042	152	0.1	7	11	157	15571	99.7	1	0.4995	0.0077	0.06372	0.0008	0.156	0.0568	0.0011	432	40	411.2	5.1	398	5	96.8
SB-86-3068-42	568	110	0.2	3.1	9.9	319	19387	99.8	1	0.512	0.0092	0.06701	0.0009	0.396	0.056	0.0011	411	45	419.4	6.2	418	5	99.7

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios: ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages: ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SB-86-3068-43	737	117	0.2	5.7	8.5	149	13439	99.8	1	0.5087	0.0081	0.06513	0.0008	0.162	0.0568	0.0011	534	41	417.3	5.4	407	5	97.5
SB-86-3068-44	714	132	0.2	20	13	65	3770	99.9	1	0.5063	0.0091	0.06587	0.0008	0.347	0.0558	0.0011	468	51	415.6	6.1	411	5	98.9
SB-86-3068-45	725	56	0.1	16	11	69	4781	99.9	1	0.4986	0.0077	0.06566	0.0008	0.291	0.0552	0.001	650	53	410.5	5.2	410	5	99.9
SB-86-3068-46	565	21	0.0	18	11	61	3083	99.5	1	0.5221	0.011	0.06441	0.0008	0.282	0.0583	0.0014	748	49	426.9	7.2	402	5	94.3
SB-86-3068-47	701	92	0.1	11	11	100	6709	99.8	1	0.5125	0.0095	0.06608	0.0009	0.561	0.0558	0.001	426	44	420.4	6.4	413	6	98.1
SB-86-3068-48	969	80	0.1	11	12	109	8964	99.6	1	0.4884	0.0079	0.06168	0.0008	0.103	0.057	0.0011	428	40	403.7	5.3	386	5	95.6
SB-86-3068-49	876	126	0.1	22	12	55	3541	99.7	1	0.5265	0.0088	0.06661	0.0009	0.229	0.057	0.0011	506	38	429.2	5.9	416	5	96.9
SB-86-3068-50	779	175	0.2	8	12	150	9813	99.7	1	0.4989	0.0084	0.06334	0.0008	0.251	0.0568	0.0011	452	40	410.7	5.7	396	5	96.4
SB-86-3068-51	349	40	0.1	-5	20	-400	-8106	99.6	1	0.591	0.088	0.0725	0.007	0.652	0.0586	0.002	525	45	471	43	451	40	95.8
SB-86-3068-52	453	36	0.1	8	12	150	5514	99.6	1	0.527	0.014	0.0661	0.0009	0.416	0.0579	0.0014	492	50	429	8.9	413	6	96.2
SB-86-3068-53	1100	193	0.2	10.7	9.2	86	10383	99.9	1	0.4893	0.0074	0.0642	0.0008	0.255	0.0552	0.001	526	53	404.3	5	401	5	99.2
SB-86-3068-54	1864	381	0.2	36	12	33	5211	99.6	1	0.5057	0.0067	0.06359	0.0008	0.089	0.0576	0.001	506	38	415.4	4.5	397	5	95.7
SB-86-3068-55	926	135	0.1	38	14	37	1739	99.3	1	0.548	0.033	0.06538	0.001	0.373	0.0606	0.0029	523	42	442.9	19	408	6	92.2
SB-86-3068-56	309	23	0.1	25.3	9.1	36	1275	99.7	1	0.538	0.012	0.06727	0.001	0.184	0.0576	0.0014	461	51	437.3	8.2	420	6	96.0
SB-86-3068-57	466	83	0.2	5	11	220	9876	99.9	1	0.5119	0.0097	0.06714	0.0009	0.055	0.0555	0.0012	484	43	421.3	6.5	419	5	99.4
SB-86-3068-58	1210	139	0.1	45	12	27	2511	99.2	1	0.528	0.014	0.06262	0.0009	0.736	0.0613	0.0015	828	69	429.5	9.3	392	5	91.2
SB-86-3068-59	992	187	0.2	16.6	9	54	6102	99.8	1	0.4849	0.0082	0.06261	0.0008	0.389	0.0562	0.0011	453	44	401.2	5.7	392	5	97.6
SB-86-3068-60	417	57	0.1	17	10	59	2477	99.8	1	0.4903	0.01	0.06353	0.0008	0.123	0.0564	0.0013	491	43	405.4	7	397	5	97.9
SB-86-3068-core-1	1127	353	0.3	36	10	28	3122	99.3	1	0.5317	0.0079	0.06405	0.0008	0.203	0.0605	0.0011	415	49	432.7	5.3	400	5	92.5
SB-86-3068-core-2	1199	266	0.2	12	12	100	10392	99.9	1	0.4829	0.01	0.06364	0.0009	0.186	0.0554	0.0011	552	74	400.4	6.9	398	5	99.3
SB-86-3068-core-3	623	101	0.2	57	15	26	1114	98.6	1	0.651	0.024	0.07053	0.001	0.706	0.067	0.0022	375	146	507	14	439	6	86.6
SB-86-3068-core-4	472	77	0.2	9	12	133	5543	99.7	1	0.514	0.01	0.06592	0.0008	0.109	0.0568	0.0012	952	168	422.1	6.7	412	5	97.5
SB-86-3068-core-5	590	167	0.3	13	11	85	4838	99.9	1	0.5098	0.0094	0.06731	0.0009	0.295	0.055	0.0011	426	48	418	6.3	420	5	100.5
SB-86-3068-core-6	800	175	0.2	24	11	46	3521	99.8	1	0.5087	0.017	0.06502	0.0016	0.257	0.0568	0.0011	479	39	417.3	11	406	10	97.3
SB-86-3068-core-7	863	234	0.3	17	10	59	5329	99.7	1	0.515	0.01	0.06551	0.001	0.685	0.0574	0.0012	584	44	421.4	6.7	409	6	97.1
SB-86-3068-core-8	564	111	0.2	1.2	9.5	792	50492	99.9	1	0.5187	0.0098	0.06803	0.0009	0.263	0.0554	0.0012	483	35	424.5	6.5	425	5	100.0
SB-86-3068-core-9	536	110	0.2	3.1	9.4	303	17906	99.9	1	0.4982	0.011	0.06525	0.0008	0.344	0.0552	0.0012	515	53	410.8	7.1	408	5	99.2
SB-86-3068-core-10	1538	339	0.2	13.5	9.2	68	12919	99.9	1	0.563	0.0077	0.07173	0.0009	0.502	0.0568	0.0009	483	47	453.7	4.9	447	6	98.4
SB-86-3068-core-11	399	262	0.7	15	12	80	3023	99.9	1	0.558	0.011	0.07234	0.001	0.278	0.0563	0.0012	441	38	450.7	7.1	450	6	99.9
SB-86-3068-core-12	967	189	0.2	26	13	50	3850	99.9	1	0.5136	0.0084	0.06694	0.0009	0.519	0.0555	0.001	838	68	421.4	5.6	418	6	99.1
SB-86-3068-core-13	596	158	0.3	10.6	8.6	81	5793	99.7	1	0.51	0.01	0.06444	0.0008	0.154	0.0568	0.0012	561	48	418	6.9	403	5	96.3
SB-86-3068-core-14	1116	220	0.2	16	10	63	6856	99.8	1	0.4873	0.0072	0.06303	0.0008	0.203	0.0557	0.001	442	40	403.3	5	394	5	97.7
SB-86-3068-core-15	1089	222	0.2	4.6	9.8	213	23739	99.9	1	0.4849	0.0082	0.06294	0.0009	0.375	0.0554	0.0009	482	43	401.3	5.5	394	6	98.1
SB-86-3068-core-16	738	150	0.2	12.9	9.6	74	5984	99.9	1	0.512	0.0095	0.06751	0.001	0.261	0.0552	0.0012	420	49	419.4	6.4	421	6	100.4
SB-86-3068-core-17	420	90	0.2	13	10	77	3380	99.9	1	0.5075	0.011	0.06697	0.0009	0.328	0.0545	0.0013	484	47	416.2	7.4	418	5	100.4
A6. Sample CEW16-519 – Park Spur granite (UTM: 671007E, 5163879N; NAD83, Grid Zone 20T)																							
CEW16-519-15	75000	48000	1.6	28	10	36	10	50.8	1	26.100	8.800	0.294	0.086	0.857	0.6450	0.0830	4590	200	3100	430	1610	430	28.7
CEW16-519-1	590	445	1.3	8	10	125	3444	99.7	1	0.445	0.014	0.059	0.001	0.344	0.0553	0.0019	404	76	373	10	367	6	98.2
CEW16-519-2	675	185	3.6	28	11	39	1164	98.7	1	0.557	0.017	0.063	0.001	0.160	0.0646	0.0023	738	75	448	11	391	6	87.2
CEW16-519-3	760	339	2.2	8	12	150	4031	99.4	1	0.479	0.015	0.059	0.001	0.125	0.0584	0.0022	530	81	397	10	372	6	93.8

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb^{a}	*Pb %	C^{b}	Isotopic ratios: ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages: ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CEW16-519-4	1770	1012	1.7	7	14	200	11286	99.8	1	0.491	0.013	0.065	0.001	0.385	0.0547	0.0016	392	66	405	9	406	7	100.1
CEW16-519-5	4300	474	9.1	108	17	16	1764	99.2	3	0.460	0.021	0.063	0.001	0.246	0.0528	0.0031	381	95	384	15	394	6	102.6
CEW16-519-6	1158	555	2.1	18	13	72	3257	99.8	1	0.455	0.012	0.060	0.001	0.113	0.0547	0.0018	392	71	380	9	377	6	99.2
CEW16-519-7	2521	769	3.3	71	14	20	1837	99.0	1	0.606	0.016	0.070	0.001	0.762	0.0632	0.0016	709	55	481	10	435	9	90.6
CEW16-519-7b-1	415	322	1.3	94	12	13	117	83.4	3	0.255	0.110	0.032	0.001	0.729	0.0500	0.0240	1740	280	184	91	201	8	109.4
CEW16-519-8	832	401	2.1	135	16	12	259	92.9	3	0.410	0.062	0.054	0.001	0.563	0.0530	0.0085	1000	150	332	47	341	8	102.6
CEW16-519-8b-1	306	110	2.8	32	13	41	453	98.2	1	0.591	0.023	0.063	0.001	0.247	0.0688	0.0033	854	100	470	15	391	7	83.3
CEW16-519-9	1156	806	1.4	89	13	15	569	97.0	3	0.393	0.040	0.054	0.001	0.508	0.0517	0.0060	630	180	332	29	341	7	102.8
CEW16-519-10	1792	1132	1.6	45	10	21	1947	99.1	1	0.545	0.013	0.064	0.001	0.472	0.0616	0.0017	649	60	441	9	401	6	90.8
CEW16-519-11	1257	151	8.4	21	10	48	2976	99.6	1	0.495	0.012	0.063	0.001	0.414	0.0568	0.0015	484	60	408	8	394	6	96.5
CEW16-519-12	1952	646	3.0	-9	12	-133	-10489	99.9	1	0.445	0.013	0.060	0.001	0.410	0.0534	0.0016	341	69	374	9	378	7	101.0
CEW16-519-13	1298	885	1.5	21	10	48	3243	99.6	1	0.563	0.013	0.070	0.001	0.440	0.0585	0.0015	540	57	453	8	435	7	96.0
CEW16-519-14	1778	638	2.8	287	24	8	278	93.6	3	0.412	0.038	0.057	0.001	0.404	0.0519	0.0049	634	110	345	28	355	7	102.8
CEW16-519-16	239	145	1.7	13	9	64	814	99.8	1	0.457	0.019	0.061	0.001	0.119	0.0541	0.0024	348	92	380	13	382	7	100.6
CEW16-519-17	407	361	1.1	34	10	29	517	98.4	1	0.508	0.019	0.056	0.001	0.196	0.0656	0.0026	758	86	416	13	352	6	84.6
CEW16-519-18	1400	769	1.8	32	9	28	2108	99.4	1	0.509	0.012	0.062	0.001	0.146	0.0591	0.0017	562	63	417	8	390	6	93.5
CEW16-519-19	1487	579	2.6	21	16	76	3810	99.5	1	0.512	0.020	0.064	0.001	0.584	0.0579	0.0021	517	81	419	14	400	9	95.3
CEW16-519-20	629	393	1.6	22	10	45	1556	98.9	1	0.619	0.020	0.070	0.001	0.519	0.0641	0.0021	724	70	488	13	435	7	89.2
CEW16-519-21	4000	830	4.8	20	18	90	10450	99.9	1	0.476	0.010	0.063	0.001	0.541	0.0546	0.0014	393	58	395	7	395	7	99.8
CEW16-519-22	211	194	1.1	13	9	66	940	99.7	1	0.601	0.024	0.076	0.002	0.272	0.0576	0.0024	481	90	476	15	471	9	98.9
CEW16-519-23	2280	1680	1.4	42	20	48	2929	99.6	1	0.529	0.022	0.066	0.002	0.918	0.0578	0.0016	519	61	431	14	413	13	95.8
CEW16-519-24	744	255	2.9	9	9	93	3660	99.6	1	0.451	0.012	0.059	0.001	0.227	0.0558	0.0017	435	72	378	9	368	7	97.4
CEW16-519-25	2570	480	5.4	43	10	23	2570	99.4	1	0.480	0.009	0.059	0.001	0.325	0.0589	0.0014	559	54	398	7	370	5	93.0
A7. Sample CEW15-008 – Salmon Pool monzonite (UTM: 661905, 5166978N; NAD83, Grid Zone 20T)																							
CW15-008-1	416	247	0.6	5	12	240	2464		1	0.444	0.015	0.0578	0.0008	0.252	0.0559	0.0022	449	84	374	11	362	5	96.8
CW15-008-2	2534	2105	0.8	2	15	750	39850		1	0.4503	0.011	0.05763	0.0006	0.032	0.057	0.0018	483	67	377.3	7.5	361	4	95.7
CW15-008-3	594	283	0.5	-27	21	-78	-684		1	0.427	0.013	0.0575	0.0006	0.28	0.0535	0.0022	342	82	361	9.4	360	4	99.8
CW15-008-4	2105	1107	0.5	41	19	46	1561		1	0.477	0.011	0.05445	0.0007	0.065	0.0637	0.002	727	67	395.9	7.6	343	4	86.6
CW15-008-5	530	511	1.0	8	10	125	2075		1	0.508	0.017	0.06052	0.0008	0.236	0.0598	0.0024	603	86	417	11	379	5	90.8
CW15-008-6	496	663	1.3	69	19	28	231		1	1.017	0.037	0.06087	0.0009	0.152	0.1199	0.005	1969	70	713	18	381	6	53.4
CW15-008-7	3590	1656	0.5	9	10	111	10944		1	0.438	0.01	0.0587	0.0007	0.509	0.0547	0.0016	397	69	369.2	7.1	368	4	99.6
CW15-008-8	815	682	0.8	1	11	1100	23850		1	0.468	0.014	0.05994	0.0007	0.328	0.0566	0.002	482	79	389.9	9.5	375	4	96.3
CW15-008-9	423	269	0.6	8	10	125	1665		1	0.442	0.015	0.06017	0.0008	0.211	0.053	0.0021	323	89	372.2	11	377	5	101.2
CW15-008-10	724	558	0.8	-1	12	-1200	-20160		1	0.496	0.016	0.05664	0.0007	0.186	0.0637	0.0024	725	79	409.3	11	355	4	86.8
CW15-008-11	618	271	0.4	-12	20	-167	-1359		1	0.38	0.3	0.04855	0.0039	0.373	0.058	0.022	527	280	330	110	306	24	92.6
CW15-008-12	696	688	1.0	2	10	500	10490		1	0.447	0.015	0.05878	0.0007	0.143	0.0558	0.0021	443	84	375.7	10	368	4	98.0
CW15-008-13	870	852	1.0	6	11	183	4350		1	0.4995	0.013	0.06042	0.0007	0.098	0.0601	0.002	609	78	411	8.8	378	4	92.0
CW15-008-14	737	334	0.5	1	12	1200	22150		1	0.439	0.013	0.05864	0.0006	0.197	0.055	0.0019	395	81	368.8	9	367	4	99.6
CW15-008-15	4707	1748	0.4	45	13	29	2964		1	0.4629	0.0098	0.05895	0.0006	0.222	0.0578	0.0017	519	64	386.6	6.8	369	4	95.5
CW15-008-16	1260	811	0.6	15	16	107	2691		1	0.467	0.032	0.05953	0.0009	0.32	0.0573	0.0039	506	110	389	21	373	6	95.8

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U[2]	2σ	^{206}Pb/^{238}U	2σ	% C
CW15-008-17	2143	1373	0.6	-11	11	-100	-5855		1	0.4427	0.011	0.05896	0.0006	0.271	0.0546	0.0017	392	69	371.9	7.7	369	4	99.3
CW15-008-18	302	162	0.5	-3	11	-367	-3733		1	0.578	0.022	0.07424	0.001	0.067	0.0572	0.0024	485	96	465	14	462	6	99.3
CW15-008-19	1191	564	0.5	26	13	50	1364		1	0.565	0.015	0.06185	0.0007	0.133	0.0666	0.0023	822	73	454	9.3	387	4	85.2
CW15-008-20	1356	382	0.3	37	18	49	711		1	0.473	0.014	0.0419	0.0013	0.572	0.0804	0.0029	1219	75	393	10	265	8	67.3
CW15-008-21	777	328	0.4	8.5	8.6	101	2881		1	0.463	0.017	0.06145	0.0009	0.307	0.0555	0.0022	416	87	385	12	384	6	99.8
CW15-008-22	2083	193	0.1	16	11	69	3694		1	0.4574	0.011	0.0605	0.001	0.545	0.0561	0.0018	461	68	383.6	7.9	379	6	98.7
CW15-008-23	3253	2040	0.6	28	18	64	2939		1	0.453	0.025	0.05978	0.0006	0.27	0.0561	0.0038	465	110	381.1	17	374	4	98.2
CW15-008-23rim	1430	814	0.6	23	12	52	1635		1	0.483	0.025	0.05336	0.0006	0.26	0.0658	0.0037	781	100	400	17	335	4	83.8
CW15-008-24rim	499	302	0.6	2	14	700	7650		1	0.512	0.017	0.05762	0.0009	0.399	0.0645	0.0024	776	84	419	11	361	5	86.2
CW15-008-24-1	1187	775	0.7	13	11	85	2838		1	0.4566	0.012	0.061	0.0007	0.09	0.0548	0.0018	398	75	382.4	8.4	382	4	99.8
CW15-008-24-2	1731	995	0.6	36	11	31	1383		1	0.5072	0.013	0.05783	0.0006	0.14	0.0639	0.0021	741	68	416.2	8.5	362	3	87.1
CW15-008-25	2009	449	0.2	-2	18	-900	-28575		1	0.467	0.012	0.05882	0.0007	0.211	0.0579	0.002	528	67	388.9	8.2	368	4	94.7
CW15-008-26	409	219	0.5	1	25	2500	12930		1	0.501	1.8	0.05866	0.017	0.094	0.0619	0.041	660	170	412	210	367	93	89.2
CW15-008-27	2740	427	0.2	30	17	57	2547		1	0.438	0.02	0.05215	0.0009	0.388	0.0621	0.0028	675	87	370.4	13	328	5	88.5
CW15-008-28	434	329	0.8	1	17	1700	13180		1	0.512	0.024	0.058	0.001	0.011	0.0645	0.0036	740	95	422	15	363	6	86.1
CW15-008-29	871	303	0.3	2	13	650	12055		1	0.448	0.014	0.05939	0.0007	0.023	0.055	0.002	398	78	375.1	9.4	372	4	99.1
CW15-008-30	841	287	0.3	22	16	73	1077		1	0.563	0.019	0.0616	0.0009	0.366	0.0661	0.0027	819	78	455	13	385	6	84.7
CW15-008-31	606	432	0.7	7	11	157	2597		1	0.442	0.015	0.05842	0.0007	0.226	0.0549	0.0021	396	86	371.1	10	366	4	98.6
CW15-008-32	2490	882	0.4	40	25	63	1600		1	0.582	0.022	0.06235	0.0007	0.076	0.0685	0.0031	875	89	465	14	390	5	83.8
CW15-008-33	1776	1736	1.0	20	17	85	2415		1	0.462	0.012	0.06058	0.0007	0.011	0.0557	0.0018	454	68	385.5	8.2	379	4	98.4
CW15-008-34	2410	1810	0.8	10	13	130	7500		1	0.495	0.02	0.0651	0.0027	0.749	0.0555	0.0017	430	65	408.1	15	407	16	99.7
CW15-008-35	3571	1957	0.5	20	11	55	5170		1	0.444	0.0099	0.05979	0.0006	0.45	0.0543	0.0016	382	67	372.9	7	374	3	100.4
CW15-008-36	2067	841	0.4	2	16	800	29900		1	0.493	0.012	0.0648	0.0009	0.584	0.0557	0.0017	433	69	406	7.9	405	5	99.7
CW15-008-37	2650	977	0.4	35	16	46	1680		1	0.4728	0.014	0.0543	0.0008	0.034	0.0642	0.0024	734	81	392.9	9.2	341	5	86.7
CW15-008-38	860	285	0.3	74	18	24	286		1	0.802	0.034	0.05725	0.0008	0.156	0.1008	0.0043	1648	77	598	18	359	5	60.0
CW15-008-39	3227	1610	0.5	34	11	32	2382		1	0.4561	0.011	0.05627	0.0005	0.34	0.0588	0.0018	565	66	381.3	7.8	353	3	92.6
CW15-008-40	623	895	1.4	11	12	109	1556		1	0.466	0.014	0.05861	0.0007	0.031	0.0571	0.0022	482	83	387.6	10	367	5	94.7
CW15-008-41	2590	616	0.2	105	19	18	599		2	0.449	0.027	0.06054	0.001	0.516	0.0536	0.0087	690	160	376	19	379	6	100.8
CW15-008-42	940	256	0.3	-22	16	-73	-1345		1	0.462	0.019	0.0628	0.0011	0.417	0.0543	0.0027	370	99	389	13	393	7	101.0
CW15-008-43	343	204	0.6	13	8.9	68	758		1	0.449	0.015	0.06103	0.0009	0.034	0.0546	0.0022	380	89	376	11	382	5	101.6
CW15-008-44	2010	1540	0.8	82	19	23	676		2	0.441	0.035	0.05968	0.0008	0.438	0.0543	0.0051	550	130	373	71	374	5	100.2
CW15-008-45	720	378	0.5	132	14	11	181		2	0.403	0.032	0.061	0.0011	0.776	0.048	0.018	1120	360	341	50	382	7	111.9
CW15-008-46	614	363	0.6	-10	14	-140	-1653		1	0.452	0.016	0.05907	0.0008	0.029	0.0561	0.0024	430	92	378	12	370	5	97.9
CW15-008-47	476	292	0.6	-8	14	-175	-1839		1	0.506	0.02	0.06019	0.0009	0.072	0.0606	0.0025	607	86	415	13	377	6	90.8
CW15-008-48	979	240	0.2	22	16	73	1245		1	0.518	0.016	0.05836	0.0008	0.4	0.0634	0.0023	730	75	425	11	366	5	86.0
CW15-008-49	573	588	1.0	4	9.7	243	4125		1	0.444	0.014	0.05933	0.0008	0.041	0.0546	0.0021	392	82	373.2	9.9	372	5	99.5
CW15-008-49rim	389	195	0.5	25	19	76	512		1	0.508	0.02	0.0656	0.001	0.127	0.0568	0.0025	460	96	415	14	409	6	98.6
CW15-008-50	785	655	0.8	0.9	9.6	1067	24322		1	0.436	0.013	0.05748	0.0007	0.282	0.0548	0.0019	395	76	367.8	8.9	360	4	98.0
CW15-008-51	931	565	0.6	27.9	9.8	35	970		1	0.568	0.015	0.06047	0.0007	0.14	0.0674	0.0023	853	68	456.3	10	379	4	82.9
CW15-008-52	746	397	0.5	-17.3	9.3	-54	-1185		1	0.44	0.015	0.05771	0.0008	0.083	0.0556	0.0022	444	86	370.2	11	362	5	97.7

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb^{a}	*Pb %	C^{b}	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CW15-008-53	542	393	0.7	-6	16	-267	-2392		1	0.454	0.015	0.0551	0.0013	0.443	0.0593	0.0027	577	97	382	11	345	8	90.4
CW15-008-54	1019	728	0.7	11	15	136	2605		1	0.452	0.013	0.0588	0.0007	0.107	0.0561	0.0019	434	77	378	9.1	368	4	97.4
CW15-008-55	469	395	0.8	-1	10	-1000	-14510		1	0.44	0.016	0.06002	0.0008	0.036	0.0523	0.0022	315	95	371	12	376	5	101.3
CW15-008-56	3650	2730	0.7	-6	15	-250	-14533		1	0.4707	0.019	0.0622	0.0015	0.344	0.0544	0.0041	381	110	391.5	12	389	9	99.3
CW15-008-57	1301	889	0.7	39	22	56	821		1	0.701	0.19	0.0629	0.0019	0.361	0.0801	0.015	1204	170	539	71	393	11	72.9
CW15-008-58	3925	1731	0.4	-9	16	-178	-10720		1	0.4514	0.012	0.05984	0.0008	0.086	0.0544	0.002	381	75	378.1	8.1	375	5	99.1
CW15-008-59	799	1038	1.3	10	11	110	2340		1	0.526	0.016	0.06607	0.0009	0.286	0.0579	0.0021	503	82	428.5	11	412	5	96.2
CW15-008-60	772	627	0.8	6	14	233	3722		1	0.485	0.015	0.06195	0.0007	0.058	0.0566	0.0021	457	83	400.7	10	388	4	96.7
CW15-008-61	669	1028	1.5	25	16	64	793		1	0.72	0.022	0.06163	0.0007	0.18	0.0829	0.003	1288	66	550	13	386	4	70.1
CW15-008-62	955	875	0.9	1	11	1100	28710		1	0.4567	0.012	0.06009	0.0007	0.103	0.0539	0.0018	366	78	383.2	8.7	376	4	98.2
CW15-008-63	1498	1083	0.7	5	13	260	9020		1	0.484	0.014	0.06125	0.0007	0.162	0.0566	0.0019	476	71	400.7	9.6	383	4	95.6
A8. Sample CEW15-099 – Salmon Pool monzogranite (UTM: 664624E, 5160032N; NAD83, Grid Zone 20T)																							
CW15-099-1	1695	3070	1.8	26	17	65	1915		1	0.456	0.03	0.0556	0.0009	0.561	0.0595	0.0033	582	92	384	19	349	5	90.8
CW15-099-2	567	767	1.4	3	11	367	5877		1	0.438	0.014	0.0588	0.0007	0.036	0.0537	0.002	347	83	368	9.9	368	5	100.1
CW15-099-3	1109	1336	1.2	17	11	65	1972		1	0.545	0.015	0.06137	0.0008	0.094	0.0638	0.0021	731	75	441	9.7	384	5	87.1
CW15-099-4	2080	1695	0.8	159	25	16	361		2	0.443	0.19	0.05747	0.0007	0.333	0.0507	0.0066	790	160	375	23	360	4	96.1
CW15-099-5	1061	964	0.9	1	11	1100	33600		1	0.472	0.014	0.06091	0.0006	0.175	0.0558	0.002	428	79	391.7	9.4	381	4	97.3
CW15-099-6	1460	1150	0.8	16	11	69	2959		1	0.469	0.011	0.06253	0.0007	0.255	0.0538	0.0017	364	69	391.4	7.6	391	5	99.9
CW15-099-7	1749	1665	1.0	34	13	38	1388		1	0.506	0.062	0.05896	0.0009	0.044	0.0625	0.0088	701	170	415.4	36	369	5	88.9
CW15-099-8	1664	604	0.4	20	15	75	2350		1	0.491	0.012	0.06157	0.0007	0.378	0.0568	0.0017	479	66	406.6	8.2	385	4	94.7
CW15-099-9	1208	1466	1.2	10	22	220	3713		1	0.452	0.013	0.05934	0.0007	0.285	0.0552	0.0019	408	77	378.3	8.8	372	4	98.2
CW15-099-10	2273	2042	0.9	-5	19	-380	-15620		1	0.449	0.14	0.06112	0.0023	0.058	0.0537	0.011	347	200	376.1	66	382	14	101.7
CW15-099-11	2037	1739	0.9	-15	12	-80	-4227		1	0.4379	0.01	0.05828	0.0006	0.246	0.0542	0.0016	376	68	368.5	7.2	365	4	99.1
CW15-099-12	1698	1166	0.7	25	13	52	1992		1	0.4675	0.011	0.0556	0.0006	0.169	0.0613	0.0021	642	72	389.2	8	349	4	89.6
CW15-099-13	1145	700	0.6	15	12	80	2427		1	0.49	0.014	0.05993	0.0007	0.121	0.059	0.0021	555	76	404.2	9.5	375	4	92.8
CW15-099-14	1336	1001	0.7	8	11	138	5288		1	0.462	0.012	0.06136	0.0007	0.068	0.0543	0.0018	381	73	385.4	8	384	4	99.6
CW15-099-15	1389	950	0.7	40	14	35	1028		1	0.484	0.014	0.05512	0.0006	0.132	0.0639	0.0023	743	71	401.8	9.4	346	4	86.1
CW15-099-16	1774	1367	0.8	10.7	9.7	91	5068		1	0.4545	0.011	0.0603	0.0006	0.003	0.0546	0.0018	399	72	380.2	7.7	377	4	99.3
CW15-099-17	1340	995	0.7	-1	10	-1000	-42100		1	0.4667	0.011	0.06136	0.0006	0.129	0.055	0.0018	398	72	388.6	7.9	384	4	98.8
CW15-099-18	2304	2038	0.9	10	10	100	7000		1	0.4619	0.011	0.06134	0.0007	0.235	0.0548	0.0017	401	68	385.4	7.3	384	4	99.6
CW15-099-19	5360	2680	0.5	89	14	16	1607		2	0.453	0.012	0.06036	0.0006	0.355	0.0545	0.0035	467	120	379	22	378	4	99.7
CW15-099-20	2773	2770	1.0	41	14	34	1905		1	0.4533	0.012	0.05386	0.0006	0.43	0.0614	0.002	645	72	379.3	8.3	339	4	89.3
CW15-099-21	2183	7400	3.4	75	19	25	833		1	0.556	0.021	0.05771	0.0006	0.149	0.0703	0.0027	925	81	448.2	13	362	4	80.7
CW15-099-22	2704	3134	1.2	12	13	108	6883		1	0.4451	0.01	0.05909	0.0006	0.276	0.0547	0.0016	401	66	373.6	7.2	370	3	99.1
CW15-099-23	1663	1539	0.9	24.6	9.9	40	2026		1	0.4464	0.011	0.05745	0.0006	0.141	0.0563	0.0018	462	71	375.1	7.6	360	4	96.0
CW15-099-24	1622	1239	0.8	1	13	1300	49800		1	0.4448	0.011	0.0583	0.0006	0.304	0.0556	0.0017	431	71	373.4	7.5	365	4	97.8
CW15-099-25	739	478	0.6	29	32	110	850		1	0.468	0.41	0.06081	0.0049	0.368	0.055	0.023	430	240	389	120	381	29	97.8
CW15-099-26	888	332	0.4	12	14	117	2325		1	0.449	0.015	0.0603	0.0007	0.16	0.0539	0.0023	372	88	375.9	11	377	4	100.4
CW15-099-27	1659	1182	0.7	5	16	320	11234		1	0.4648	0.013	0.06119	0.0006	0.208	0.0555	0.0019	434	71	387.4	9	383	4	98.8
CW15-099-28	2597	2385	0.9	14	11	79	5336		1	0.4347	0.0099	0.0574	0.0006	0.354	0.0552	0.0017	420	67	366.8	7	360	4	98.1

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
CW15-099-29	1852	3810	2.1	20	12	60	2770		1	0.4699	0.011	0.05932	0.0007	0.312	0.0579	0.0018	517	69	390.9	7.8	372	5	95.0
CW15-099-30	1013	1146	1.1	12	10	83	2642		1	0.45	0.013	0.05999	0.0007	0.087	0.0542	0.0019	380	81	377.1	9	376	4	99.6
CW15-099-31	1328	870	0.7	-3	10	-333	-13413		1	0.4684	0.012	0.06046	0.0006	0.209	0.0562	0.0019	460	71	389.7	8.5	379	4	97.2
CW15-099-32	1565	1442	0.9	45	16	36	980		1	0.488	0.013	0.05902	0.0013	0.188	0.0617	0.0021	654	70	403.1	8.8	370	8	91.7
CW15-099-33	999	551	0.6	16	11	69	1874		1	0.4914	0.013	0.05937	0.0007	0.233	0.0602	0.0021	605	76	406.1	9.3	372	4	91.6
CW15-099-34	1647	1208	0.7	22	17	77	2432		1	0.4615	0.012	0.06022	0.0006	0.038	0.0558	0.0019	445	73	385.1	8.5	377	4	97.9
CW15-099-35	1413	1220	0.9	18	15	83	2411		1	0.487	0.015	0.05811	0.0006	0.128	0.0618	0.0024	656	73	405.9	10	364	4	89.7
CW15-099-36	1260	1041	0.8	10	24	240	3984		1	0.448	0.095	0.0579	0.0015	0.331	0.0568	0.0084	470	140	379	43	363	9	95.7
CW15-099-37	1975	931	0.5	13	10	77	4600		1	0.4258	0.011	0.0553	0.0007	0.585	0.0559	0.0017	449	67	359.9	7.4	347	4	96.4
CW15-099-38	1475	1304	0.9	8	13	163	5488		1	0.4513	0.011	0.05872	0.0006	0.206	0.0561	0.0018	446	71	378.8	8	368	4	97.1
CW15-099-39	661	689	1.0	14	19	136	1325		1	0.455	0.026	0.05968	0.0008	0.212	0.0557	0.0039	428	130	380	17	374	5	98.3
CW15-099-40	1663	1259	0.8	4.9	9.8	200	10145		1	0.4733	0.011	0.05956	0.0006	0.177	0.0583	0.0018	538	67	393.2	7.6	373	4	95.0
CW15-099-41	1822	1976	1.1	6	11	183	8777		1	0.4661	0.011	0.0595	0.0005	0.342	0.0567	0.0017	488	69	388.2	7.7	373	3	96.0
CW15-099-42	3102	1160	0.4	182	22	12	170		2	0.215	0.023	0.0211	0.0004	0.609	0.074	0.013	1330	170	198	50	135	2	68.0
CW15-099-43	1047	664	0.6	3	13	433	11060		1	0.4527	0.011	0.05975	0.0007	0.066	0.0548	0.0019	410	74	379.8	8	374	4	98.5
CW15-099-44	790	409	0.5	-4	11	-275	-5908		1	0.445	0.014	0.05879	0.0007	0.107	0.0551	0.0021	396	81	373.2	9.4	368	5	98.7
CW15-099-45	2614	2514	1.0	8	12	150	10175		1	0.4474	0.01	0.05908	0.0006	0.326	0.0547	0.0016	401	67	375.3	7.4	370	3	98.6
CW15-099-46	873	950	1.1	-8.7	9.4	-108	-3057		1	0.4294	0.012	0.0582	0.0006	0.004	0.0535	0.0019	331	79	362.2	8.6	365	4	100.7
CW15-099-47	1919	1968	1.0	-5.7	9.8	-172	-9895		1	0.4439	0.01	0.05615	0.0005	0.153	0.0573	0.0017	504	70	373.9	7.2	352	3	94.2
CW15-099-48	2729	3300	1.2	77	15	19	272		1	0.3501	0.016	0.02334	0.0004	0.312	0.1092	0.0047	1792	74	306.2	11	149	2	48.6
CW15-099-49	3766	7820	2.1	91	15	16	1054		2	0.406	0.014	0.05416	0.0005	0.325	0.0539	0.0039	511	130	345	9.5	340	3	98.6
CW15-099-50	2521	2808	1.1	13	11	85	6008		1	0.4461	0.011	0.05901	0.0006	0.249	0.0551	0.0017	415	65	374.3	7.4	370	3	98.7
CW15-099-51	1853	1450	0.8	8	10	125	6970		1	0.448	0.011	0.05892	0.0006	0.015	0.055	0.0018	400	72	375.6	7.6	369	4	98.2
CW15-099-52	2779	1196	0.4	52	17	33	1008		1	0.554	0.015	0.06032	0.0008	0.443	0.0664	0.002	814	70	447.5	10	378	5	84.4
CW15-099-53	2239	2154	1.0	7	13	186	9466		1	0.4569	0.011	0.06001	0.0006	0.238	0.0553	0.0017	428	67	381.9	7.5	376	4	98.4
CW15-099-54	1048	1155	1.1	11	13	118	2806		1	0.48	0.058	0.06054	0.001	0.071	0.0578	0.0058	511	150	397.3	35	379	6	95.4
CW15-099-55	1357	776	0.6	48	17	35	722		1	0.661	0.028	0.06005	0.0007	0.011	0.0804	0.0035	1204	77	514.5	16	376	4	73.1
CW15-099-56	2148	1585	0.7	13	12	92	4823		1	0.4336	0.011	0.05732	0.0006	0.451	0.0544	0.0017	396	67	366.2	7.5	360	3	98.3
CW15-099-57	2470	1625	0.7	75	18	24	624		1	0.517	0.015	0.0502	0.0022	0.058	0.0766	0.0057	1070	130	424.8	10	315	13	74.2
CW15-099-58	1833	1507	0.8	6	16	267	9657		1	0.4724	0.043	0.05931	0.0008	0.071	0.0578	0.0048	521	120	393.6	26	371	5	94.4
CW15-099-59	175	131	0.8	0.3	9.3	3100	17533		1	0.454	0.026	0.0603	0.0011	0.13	0.0544	0.0032	360	120	379	18	377	7	99.6
CW15-099-60	1058	1930	1.8	23	12	52	1273		1	0.524	0.015	0.05824	0.0006	0.188	0.0649	0.0022	765	73	428.2	9.6	365	4	85.2
A9. Sample SMB16-218 – Margaree pluton (UTM: 666347E, 5159009N; NAD83, Grid Zone 20T)																							
SMB16-218-1	725	424	1.7	9	10	110	3659	99.7	1	0.444	0.014	0.059	0.001	0.441	0.0547	0.0012	385	48	372	10	367	8	98.4
SMB16-218-2	506	346	1.5	6	10	163	3853	99.8	1	0.435	0.015	0.058	0.001	0.023	0.0543	0.0016	363	64	366	11	361	7	98.6
SMB16-218-3	298	192	1.6	14	9	66	975	99.5	1	0.424	0.018	0.054	0.001	0.017	0.0561	0.0021	421	81	358	13	342	7	95.4
SMB16-218-4	392	248	1.6	3	13	433	5260	99.8	1	0.406	0.019	0.055	0.001	0.058	0.0533	0.0017	345	71	346	13	344	9	99.3
SMB16-218-5	894	456	2.0	9	12	133	4470	99.7	1	0.418	0.012	0.056	0.001	0.019	0.0541	0.0012	362	50	354	9	348	7	98.4
SMB16-218-6	754	309	2.4	9	13	144	3856	99.7	1	0.444	0.016	0.059	0.001	0.351	0.0542	0.0014	368	53	373	11	368	8	98.8
SMB16-218-7	744	219	3.4	-7	10	-143	-4729	99.8	1	0.427	0.015	0.057	0.001	0.331	0.0540	0.0014	355	56	360	10	356	8	98.8

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/[2] ^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SMB16-218-8	390	125	3.1	21	11	52	867	99.7	1	0.433	0.017	0.057	0.001	0.125	0.0547	0.0018	386	72	364	12	358	8	98.3
SMB16-218-9	865	436	2.0	11	10	91	3462	99.3	1	0.464	0.014	0.057	0.001	0.171	0.0582	0.0013	530	47	387	10	359	7	92.8
SMB16-218-10	218	130	1.7	16	11	69	593	99.2	1	0.448	0.020	0.055	0.001	0.330	0.0590	0.0022	528	81	374	14	343	8	91.7
SMB16-218-11	277	202	1.4	11	10	87	1177	100.0	1	0.437	0.019	0.060	0.001	0.052	0.0530	0.0021	319	86	367	14	374	8	102.0
SMB16-218-12	386	187	2.1	22	10	46	755	98.7	1	0.470	0.018	0.054	0.001	0.343	0.0626	0.0019	668	65	390	12	341	7	87.3
SMB16-218-13	459	300	1.5	15	11	73	1360	99.7	1	0.429	0.018	0.057	0.001	0.007	0.0547	0.0020	368	76	362	12	357	8	98.6
SMB16-218-14	398	194	2.1	20	10	50	828	98.5	1	0.499	0.030	0.056	0.001	0.493	0.0645	0.0033	711	100	409	20	350	8	85.6
SMB16-218-15	716	314	2.3	8	9	110	476	98.2	1	0.507	0.040	0.053	0.002	0.209	0.0674	0.0044	890	140	413	27	330	10	79.9
SMB16-218-16	244	202	1.2	7	8	127	1677	99.9	1	0.438	0.021	0.059	0.001	0.105	0.0538	0.0023	339	91	369	15	370	8	100.3
SMB16-218-17	522	230	2.3	6	10	167	4183	99.7	1	0.459	0.014	0.061	0.001	0.122	0.0552	0.0014	401	56	384	10	380	8	99.0
SMB16-218-18	363	204	1.8	11	10	91	1561	100.0	1	0.427	0.017	0.059	0.001	0.291	0.0525	0.0017	289	68	360	12	371	8	103.2
SMB16-218-19	283	172	1.6	9	10	109	1428	100.0	1	0.434	0.020	0.059	0.001	0.113	0.0539	0.0021	336	83	365	14	369	8	101.1
SMB16-218-20	162	101	1.6	2	10	485	4000	99.8	1	0.486	0.028	0.064	0.002	0.207	0.0560	0.0027	410	100	402	18	400	10	99.6
SMB16-218-21	476	286	1.7	3	12	400	7100	99.8	1	0.491	0.017	0.065	0.002	0.566	0.0557	0.0013	422	50	404	11	404	10	100.0
SMB16-218-22	1096	508	2.2	15	19	127	2867	99.8	1	0.433	0.013	0.058	0.001	0.271	0.0547	0.0011	385	46	365	9	363	7	99.5
SMB16-218-23	715	297	2.4	42	28	67	857	99.8	1	0.436	0.021	0.059	0.002	0.059	0.0543	0.0018	375	62	367	14	372	9	101.5
SMB16-218-24	937	529	1.8	41	10	24	641	97.2	1	0.418	0.014	0.042	0.001	0.608	0.0745	0.0017	1046	49	354	10	262	9	74.0
SMB16-218-25	490	367	1.3	15	10	67	1298	99.0	1	0.459	0.016	0.055	0.001	0.015	0.0614	0.0019	639	68	384	11	346	7	89.9
SMB16-218-26	1083	561	1.9	7	11	157	6714	99.8	1	0.434	0.013	0.059	0.001	0.391	0.0542	0.0010	371	43	365	9	369	7	100.9
SMB16-218-27	412	235	1.8	-13	14	-108	-1324	99.8	1	0.403	0.015	0.055	0.001	0.191	0.0540	0.0017	350	67	342	11	345	8	100.8
SMB16-218-28	16930	38400	0.4	1620	110	7	363	94.7	3	0.329	0.012	0.045	0.001	0.717	0.0540	0.0011	380	44	289	9	285	9	98.6
SMB16-218-29	616	230	2.7	9	9	109	3200	99.6	1	0.418	0.014	0.054	0.001	0.171	0.0570	0.0014	473	56	354	10	340	7	96.0
SMB16-218-30	303	202	1.5	6	20	333	2288	99.7	1	0.454	0.530	0.059	0.005	0.273	0.0574	0.0310	490	280	380	140	368	29	96.7
SMB16-218-31	314	109	2.9	8	9	121	1897	99.8	1	0.408	0.017	0.055	0.001	0.309	0.0543	0.0019	356	75	346	12	345	8	99.7
SMB16-218-32	631	258	2.4	4	10	250	6975	99.6	1	0.415	0.015	0.054	0.001	0.373	0.0559	0.0016	427	60	352	11	341	8	97.0
SMB16-218-33	280	215	1.3	8	13	163	1863	99.8	1	0.500	0.024	0.066	0.002	0.245	0.0558	0.0022	420	88	410	16	410	9	100.0
SMB16-218-34	228	98	2.3	6	9	156	1778	99.8	1	0.440	0.020	0.059	0.001	0.279	0.0545	0.0021	361	81	368	14	368	8	100.0
SMB16-218-35	883	388	2.3	5	15	300	7212	99.7	1	0.432	0.013	0.058	0.001	0.176	0.0543	0.0012	384	46	366	9	362	7	98.9
SMB16-218-36	357	193	1.9	13	9	69	1237	99.7	1	0.457	0.018	0.060	0.001	0.037	0.0555	0.0018	403	72	381	12	374	8	98.2
SMB16-218-37	1319	690	1.9	4	9	261	16389	99.7	1	0.437	0.012	0.058	0.001	0.153	0.0544	0.0010	379	40	368	9	364	7	98.9
SMB16-218-38	177	106	1.7	17	13	76	436	99.3	1	0.449	0.027	0.056	0.001	0.229	0.0583	0.0032	510	100	374	18	349	8	93.4
SMB16-218-39	358	122	2.9	11	10	91	1452	99.6	1	0.457	0.017	0.059	0.001	0.033	0.0557	0.0017	414	67	381	12	371	8	97.3
SMB16-218-40	559	244	2.3	20	11	55	1245	99.1	1	0.489	0.041	0.059	0.001	0.400	0.0600	0.0045	575	110	403	24	368	8	91.2
SMB16-218-41	1122	656	1.7	13	15	115	3469	99.5	1	0.445	0.015	0.057	0.001	0.390	0.0561	0.0011	465	44	374	10	357	8	95.4
SMB16-218-42	427	225	1.9	11	12	109	1873	99.8	1	0.466	0.019	0.061	0.001	0.410	0.0547	0.0017	382	68	387	13	381	9	98.5
SMB16-218-43	239	167	1.4	8	10	127	1477	99.5	1	0.451	0.020	0.058	0.001	0.216	0.0555	0.0021	396	80	376	14	365	8	96.9
SMB16-218-44	729	362	2.0	17	11	65	1871	99.3	1	0.449	0.015	0.056	0.001	0.191	0.0574	0.0014	489	53	376	11	353	8	93.9
SMB16-218-45	654	364	1.8	5	9	191	6369	99.8	1	0.433	0.013	0.058	0.001	0.114	0.0537	0.0012	342	52	365	10	361	7	99.1
SMB16-218-46	300	233	1.3	2	11	550	7150	99.7	1	0.461	0.020	0.060	0.002	0.185	0.0547	0.0021	374	83	384	14	377	9	98.2
SMB16-218-47	1160	437	2.7	16	11	69	3513	99.8	1	0.453	0.017	0.060	0.001	0.415	0.0537	0.0014	347	53	379	11	376	8	99.3

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SMB16-218-48	974	596	1.6	12	10	83	3675	99.6	1	0.426	0.012	0.056	0.001	0.152	0.0545	0.0011	382	44	360	9	350	7	97.2
SMB16-218-49	224	201	1.1	6	10	167	1762	99.7	1	0.442	0.019	0.058	0.001	0.028	0.0544	0.0022	356	86	370	14	366	8	98.8
SMB16-218-50	636	344	1.9	5	9	174	5366	99.7	1	0.434	0.014	0.057	0.001	0.249	0.0546	0.0013	387	55	365	10	355	7	97.2
SMB16-218-51	1259	435	2.9	8	18	225	7588	99.8	1	0.431	0.015	0.058	0.001	0.514	0.0536	0.0011	347	45	363	10	362	8	99.5
SMB16-218-52	782	414	1.9	13	10	77	2662	99.6	1	0.432	0.013	0.056	0.001	0.115	0.0554	0.0012	414	46	364	9	352	7	96.7
SMB16-218-53	592	283	2.1	11	12	109	2585	99.7	1	0.428	0.014	0.057	0.001	0.358	0.0546	0.0016	379	61	361	10	354	8	98.2
SMB16-218-54	365	214	1.7	5	16	320	3424	99.7	1	0.443	0.018	0.059	0.001	0.092	0.0547	0.0018	374	70	371	13	367	8	98.9
SMB16-218-55	422	301	1.4	-5	10	-211	-4021	99.8	1	0.441	0.016	0.059	0.001	0.112	0.0541	0.0016	352	65	370	11	371	7	100.1
SMB16-218-56	457	361	1.3	5	14	280	3830	99.8	1	0.427	0.017	0.057	0.001	0.105	0.0538	0.0018	362	69	360	12	357	7	99.1
SMB16-218-57	285	167	1.7	13	12	92	975	99.8	1	0.474	0.020	0.062	0.002	0.286	0.0553	0.0015	397	62	392	13	390	11	99.4
SMB16-218-58	409	284	1.4	14	9	68	1343	99.7	1	0.432	0.016	0.058	0.001	0.164	0.0548	0.0017	384	66	364	11	363	8	99.8
SMB16-218-59	240	209	1.1	12	11	92	935	99.8	1	0.481	0.025	0.063	0.001	0.179	0.0556	0.0027	398	98	397	17	394	8	99.3
SMB16-218-60	715	395	1.8	-10	10	-104	-3420	99.8	1	0.430	0.014	0.058	0.002	0.089	0.0541	0.0014	373	55	363	11	363	10	100.0
SMB16-218-61	302	155	1.9	9	10	107	1589	99.9	1	0.461	0.018	0.062	0.001	0.007	0.0547	0.0019	385	76	384	13	385	8	100.4
SMB16-218-62	461	306	1.5	23	12	52	917	99.4	1	0.490	0.016	0.061	0.001	0.342	0.0591	0.0014	553	53	404	11	382	8	94.4
SMB16-218-63	1420	990	1.4	-4	11	-275	-16425	99.8	1	0.476	0.016	0.064	0.002	0.688	0.0550	0.0011	404	43	395	11	399	10	101.0
SMB16-218-64	392	259	1.5	3	10	346	5639	98.6	1	0.492	0.020	0.056	0.002	0.457	0.0652	0.0018	751	62	407	13	353	10	86.7
SMB16-218-65	181	141	1.3	17	10	59	448	98.3	1	0.586	0.038	0.063	0.002	0.476	0.0684	0.0037	846	100	466	23	395	10	84.7
SMB16-218-66	151	115	1.3	20	12	60	330	99.8	1	0.437	0.027	0.059	0.002	0.099	0.0553	0.0034	360	120	365	19	367	9	100.6
SMB16-218-67	545	478	1.1	7	11	157	3300	99.4	1	0.434	0.015	0.056	0.002	0.376	0.0580	0.0017	505	64	365	11	349	9	95.5
SMB16-218-68	396	216	1.8	26	14	54	638	99.8	1	0.411	0.016	0.056	0.001	0.152	0.0543	0.0016	360	63	348	11	348	7	100.1
SMB16-218-69	317	193	1.6	4	10	250	3775	99.9	1	0.462	0.019	0.062	0.001	0.370	0.0551	0.0017	392	69	384	13	386	9	100.6
SMB16-218-70	519	265	2.0	14	11	79	1646	99.8	1	0.463	0.016	0.062	0.001	0.274	0.0549	0.0014	386	57	386	11	390	8	101.0
SMB16-218-71	532	386	1.4	40	16	40	587	98.2	1	0.494	0.027	0.053	0.001	0.189	0.0681	0.0026	849	75	407	18	335	8	82.4
SMB16-218-72	669	263	2.5	6	14	233	5397	99.7	1	0.433	0.014	0.058	0.001	0.168	0.0551	0.0014	397	54	365	10	363	7	99.5
SMB16-218-73	394	235	1.7	-6	10	-162	-2967	99.9	1	0.417	0.018	0.057	0.001	0.233	0.0541	0.0019	352	72	353	13	355	8	100.7
SMB16-218-74	1482	774	1.9	7	13	186	10257	99.8	1	0.448	0.017	0.060	0.002	0.420	0.0544	0.0012	380	49	376	11	378	10	100.7
SMB16-218-75	5890	3150	1.9	36	16	44	6781	99.7	1	0.428	0.027	0.056	0.001	0.283	0.0558	0.0030	442	82	362	17	351	7	96.9
B1. Sample SMB16-222 - Price Point dacitic tuff (UTM: 661905E, 5166978N; NAD83, Grid Zone 20T)																							
SMB16-222-1	87	98	0.9	-9	9	-98	-721	99.5	1	0.804	0.043	0.0954	0.0018	0.064	0.0621	0.0032	610	110	593	25	587	11	99.1
SMB16-222-2	163	241	0.7	7	11	157	1683	99.7	1	0.761	0.031	0.0930	0.0016	0.119	0.0602	0.0022	574	80	572	18	573	9	100.2
SMB16-222-3	183	223	0.8	10	14	140	1406	99.7	1	0.772	0.032	0.0930	0.0017	0.099	0.0606	0.0026	594	94	579	19	573	10	99.0
SMB16-222-4	384	668	0.6	17	11	65	1669	99.8	1	0.749	0.024	0.0940	0.0016	0.288	0.0583	0.0015	529	56	567	14	579	9	102.1
SMB16-222-5	353	599	0.6	19	18	95	1247	99.7	1	0.757	0.039	0.0921	0.0016	0.387	0.0601	0.0026	587	97	571	22	568	10	99.5
SMB16-222-6	217	262	0.8	572	65	11	47	64.1	3	0.980	0.490	0.0996	0.0043	0.896	0.0690	0.0290	1650	300	680	250	612	25	90.0
SMB16-222-7	168	213	0.8	-8	11	-138	-1569	99.4	1	0.783	0.031	0.0918	0.0017	0.031	0.0624	0.0023	661	79	584	18	566	10	96.9
SMB16-222-8	72	76	0.9	-11	12	-109	-485	99.6	1	0.769	0.044	0.0937	0.0019	0.207	0.0607	0.0036	550	120	577	24	579	11	100.3
SMB16-222-9	183	198	0.9	-12	10	-83	-1155	99.8	1	0.768	0.028	0.0963	0.0017	0.073	0.0587	0.0019	526	69	576	16	592	10	102.8
SMB16-222-10	148	155	1.0	-6	12	-200	-1822	99.6	1	0.762	0.031	0.0927	0.0017	0.263	0.0604	0.0021	580	74	573	18	572	10	99.7
SMB16-222-11	233	405	0.6	1	23	2300	18870	99.8	1	0.750	0.050	0.0927	0.0022	0.404	0.0598	0.0034	570	120	566	29	571	13	100.9

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	C^{b}	Isotopic ratios: $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages: $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{2}$ ^{35}U	2σ	$^{206}Pb/^{238}U$	2σ	% C
SMB16-222-12	179	190	0.9	4	10	271	3843	99.6	1	0.772	0.032	0.0930	0.0016	0.148	0.0609	0.0022	598	78	578	18	573	10	99.2
SMB16-222-13	160	225	0.7	66	12	18	192	91.7	1	1.780	0.120	0.1010	0.0022	0.725	0.1278	0.0063	2013	85	1022	41	620	13	60.7
SMB16-222-14	106	114	0.9	7	11	157	1120	99.7	1	0.728	0.033	0.0907	0.0017	0.076	0.0593	0.0026	530	92	555	20	560	10	100.8
SMB16-222-15	81	110	0.7	7	12	171	867	99.8	1	0.762	0.038	0.0945	0.0019	0.176	0.0599	0.0031	530	110	574	23	582	11	101.4
SMB16-222-16	133	181	0.7	8	11	138	1296	99.7	1	0.776	0.031	0.0961	0.0019	0.135	0.0593	0.0021	569	82	581	18	591	11	101.8
SMB16-222-17	96	146	0.7	0	12			100.0	1	0.728	0.039	0.0924	0.0020	0.085	0.0577	0.0030	470	110	551	23	570	12	103.4
SMB16-222-18	178	271	0.7	-11	9	-84	-1232	99.7	1	0.736	0.026	0.0914	0.0015	0.238	0.0590	0.0017	539	62	558	15	564	9	101.0
SMB16-222-19	410	709	0.6	234	24	10	153	88.3	3	0.850	0.200	0.0982	0.0028	0.822	0.0610	0.0110	1140	210	592	120	604	16	102.0
SMB16-222-20	223	308	0.7	-2	10	-500	-8390	99.8	1	0.742	0.027	0.0929	0.0016	0.027	0.0586	0.0019	522	71	561	16	572	9	102.0
SMB16-222-21	148	188	0.8	0	11			99.5	1	0.776	0.030	0.0935	0.0017	0.127	0.0609	0.0021	599	74	581	17	576	10	99.2
SMB16-222-22	137	165	0.8	-5	10	-200	-1998	99.6	1	0.754	0.032	0.0911	0.0018	0.397	0.0605	0.0021	588	76	568	19	562	11	98.9
SMB16-222-23	412	960	0.4	147	22	15	214	92.2	3	0.740	0.160	0.0961	0.0022	0.719	0.0530	0.0110	1180	190	530	96	591	13	111.6
SMB16-222-24	184	187	1.0	1	11	1100	13610	99.6	1	0.735	0.030	0.0898	0.0017	0.279	0.0598	0.0021	571	77	557	17	554	10	99.5
SMB16-222-25	248	391	0.6	136	16	12	151	88.4	3	0.730	0.180	0.0935	0.0026	0.828	0.0560	0.0120	1350	190	510	120	576	15	112.9
SMB16-222-26	411	607	0.7	-5	9	-173	-6067	99.7	1	0.758	0.024	0.0943	0.0015	0.319	0.0587	0.0014	540	49	572	14	581	9	101.5
SMB16-222-27	198	291	0.7	355	40	11	53	68.6	3	1.000	0.310	0.0957	0.0033	0.726	0.0610	0.0220	1820	210	660	160	589	20	89.2
SMB16-222-28	437	869	0.5	199	22	11	172	90.6	3	0.691	0.110	0.0890	0.0019	0.750	0.0539	0.0076	990	160	489	72	550	11	112.4
SMB16-222-29	144	207	0.7	193	18	9	70	77.0	3	0.530	0.340	0.0933	0.0033	0.830	0.0310	0.0230	1640	220	470	200	575	20	122.3
SMB16-222-30	100	96	1.0	12	11	92	613	99.7	1	0.772	0.038	0.0935	0.0019	0.195	0.0603	0.0027	564	94	577	22	576	11	99.8
SMB16-222-31	954	2310	0.4	324	33	10	228	93.1	3	0.684	0.093	0.0958	0.0016	0.495	0.0509	0.0060	810	120	520	57	590	10	113.4
SMB16-222-32	203	230	0.9	8	10	125	1941	99.8	1	0.769	0.028	0.0964	0.0017	0.236	0.0586	0.0018	524	68	579	17	593	10	102.4
SMB16-222-33	207	269	0.8	7	12	171	2199	99.5	1	0.781	0.026	0.0938	0.0016	0.093	0.0607	0.0017	606	62	585	15	578	10	98.8
SMB16-222-34	106	140	0.8	-4	12	-300	-1960	100.0	1	0.718	0.038	0.0920	0.0018	0.289	0.0564	0.0026	440	100	545	23	567	11	104.1
SMB16-222-35	788	2070	0.4	259	25	10	232	92.0	3	0.712	0.060	0.0914	0.0011	0.639	0.0556	0.0045	770	110	538	40	564	7	104.8
SMB16-222-36	212	276	0.8	-10	10	-100	-1575	99.6	1	0.734	0.026	0.0921	0.0017	0.128	0.0585	0.0018	521	68	557	15	568	10	101.9
SMB16-222-37	301	331	0.9	-1	20	-2000	-23450	99.7	1	0.731	0.030	0.0900	0.0019	0.116	0.0598	0.0023	584	81	557	17	556	11	99.8
SMB16-222-38	123	143	0.9	30	12	40	304	93.2	1	1.568	0.098	0.0989	0.0022	0.627	0.1147	0.0058	1814	90	943	38	608	13	64.5
SMB16-222-39	118	114	1.0	14	15	107	586	99.7	1	0.649	0.044	0.0808	0.0022	0.262	0.0585	0.0037	500	130	504	27	501	13	99.4
SMB16-222-40	127	193	0.7	0	11			99.7	1	0.771	0.034	0.0951	0.0018	0.134	0.0592	0.0023	547	79	580	18	585	10	100.9
SMB16-222-41	218	195	1.1	-2	11	-550	-8250	99.3	1	0.771	0.030	0.0897	0.0017	0.269	0.0626	0.0021	663	70	578	17	554	10	95.8
SMB16-222-42	151	168	0.9	4	12	300	2535	99.7	1	0.743	0.034	0.0904	0.0017	0.275	0.0597	0.0023	555	85	561	20	558	10	99.5
SMB16-222-43	124	124	1.0	7	11	157	1337	99.7	1	0.782	0.033	0.0955	0.0018	0.171	0.0597	0.0023	549	80	583	19	588	10	100.9
SMB16-222-44	131	152	0.9	8	12	150	1293	100.0	1	0.741	0.036	0.0941	0.0018	0.142	0.0575	0.0026	479	96	561	21	580	11	103.4
SMB16-222-45	205	246	0.8	-5	12	-240	-2890	99.6	1	0.762	0.031	0.0927	0.0018	0.284	0.0596	0.0021	562	73	573	18	571	11	99.7
SMB16-222-46	111	151	0.7	17	12	71	485	98.4	1	0.840	0.038	0.0868	0.0019	0.096	0.0706	0.0031	894	89	616	21	537	11	87.1
SMB16-222-47	660	432	1.5	696	69	10	81	77.4	3	0.920	0.170	0.0901	0.0022	0.747	0.0694	0.0091	1260	150	633	92	556	13	87.9
SMB16-222-48	233	338	0.7	3	10	333	5687	99.6	1	0.723	0.027	0.0888	0.0015	0.212	0.0596	0.0020	555	72	553	17	548	9	99.2
SMB16-222-49	191	277	0.7	5	11	220	2886	99.8	1	0.760	0.029	0.0945	0.0017	0.013	0.0586	0.0020	530	75	574	17	582	10	101.4
SMB16-222-50	112	135	0.8	52	17	33	120	83.6	1	2.720	0.130	0.1017	0.0033	0.750	0.1916	0.0058	2746	50	1327	35	624	19	47.0
SMB16-222-51	164	178	0.9	14	12	86	859	99.8	1	0.731	0.028	0.0908	0.0015	0.004	0.0581	0.0020	509	75	555	16	560	9	100.9

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{2} ^{35}U	2σ	^{206}Pb/^{238}U	2σ	% C
SMB16-222-52	156	169	0.9	32	13	41	378	95.1	1	1.247	0.047	0.0922	0.0017	0.370	0.0981	0.0029	1566	55	819	21	569	10	69.4
SMB16-222-52b-1	156	218	0.7	-6	12	-200	-1935	99.7	1	0.765	0.035	0.0940	0.0018	0.177	0.0586	0.0026	525	91	574	20	579	11	100.9
SMB16-222-53	92	138	0.7	34	14	41	220	91.2	1	1.870	0.090	0.1033	0.0021	0.339	0.1314	0.0054	2087	73	1061	32	634	12	59.7
B2. Sample SMB14-193 - Birch Plain granite (UTM: 697088E, 5155770N; NAD83, Grid Zone 20T)																							
SMB14-193-S-1	239	252	1.1	24	19	79	1701	99.1	1	0.834	0.078	0.0918	0.0014	0	0.0663	0.0022	816	69	615	43	566	9	92.0
SMB14-193-S-2	177	93	0.5	19	13	68	1596	99.0	1	0.812	0.075	0.0895	0.0014	0.367	0.0674	0.0017	850	52	604	42	553	9	91.5
SMB14-193-S-3	718	1060	1.5	25	21	84	5644	99.9	1	0.801	0.072	0.0978	0.0014	0.5	0.0605	0.0008	623	29	598.9	40	602	8	100.5
SMB14-193-S-4	713	1007	1.4	13	11	85	9262	99.9	1	0.7481	0.067	0.0919	0.0011	0.321	0.06	0.0009	602	31	567.4	38	567	7	99.9
SMB14-193-S-5	401	358	0.9	16	18	113	4500	99.8	1	0.803	0.076	0.0963	0.0029	0.785	0.0603	0.0014	614	50	597	43	593	17	99.3
SMB14-193-S-6	457	459	1.0	19	16	84	3768	99.9	1	0.754	0.07	0.0932	0.0017	0.459	0.06	0.001	602	34	571.1	41	574	10	100.6
SMB14-193-S-7	188	200	1.1	5	12	240	6670	99.9	1	0.719	0.065	0.08939	0.0012	0.389	0.0582	0.001	538	37	549.4	38	552	7	100.5
SMB14-193-S-8	209	207	1.0	6	12	200	6543	99.8	1	0.858	0.078	0.102	0.002	0.652	0.0613	0.0011	650	39	628.9	44	626	12	99.5
SMB14-193-S-9	182	106	0.6	6	13	217	6047	99.9	1	0.861	0.078	0.10266	0.0015	0.506	0.0611	0.0011	642	39	629.9	42	631	9	100.1
SMB14-193-S-10	181	175	1.0	1	15	1500	30690	99.9	1	0.756	0.07	0.09188	0.0012	0.148	0.0599	0.0012	600	43	570.8	40	567	7	99.3
SMB14-193-S-11	436	366	0.8	6	11	183	12633	99.9	1	0.7479	0.067	0.09206	0.0012	0.324	0.0593	0.0009	577	34	567.1	38	568	7	100.2
SMB14-193-S-12	1846	3990	2.2	89	17	19	3530	99.6	3	0.686	0.15	0.08591	0.0014	0.623	0	0			529.7	88	531	8	100.3
SMB14-193-S-13	474	547	1.2	-3	13	-433	-30667	99.9	1	0.807	0.072	0.09832	0.0013	0.358	0.0598	0.001	596	35	600.6	41	605	8	100.6
SMB14-193-S-14	1431	1790	1.3	1	15	1500	229600	99.9	1	0.6752	0.063	0.0833	0.0014	0.843	0.0592	0.0008	573	29	523.5	38	516	8	98.6
SMB14-193-S-14C	82	85	1.0	-16	12	-75	-907	99.8	1	0.764	0.071	0.0936	0.0017	0.322	0.0591	0.0016	571	59	577	42	577	10	100.0
SMB14-193-S-15	685	307	0.4	3	13	433	38400	99.8	1	0.689	0.06	0.08488	0.0011	0.606	0.0595	0.001	586	35	531.9	37	525	7	98.7
SMB14-193-S-16	600	629	1.0	-11	15	-136	-8836	99.9	1	0.758	0.067	0.09278	0.0013	0.309	0.0598	0.0009	596	31	572.9	39	572	8	99.8
SMB14-193-S-17	416	548	1.3	-36	11	-31	-2017	99.9	1	0.7699	0.069	0.09258	0.0011	0.135	0.06	0.0009	602	34	580.4	40	571	7	98.3
SMB14-193-S-18	282	435	1.5	-6	19	-317	-8198	99.9	1	0.757	0.072	0.09281	0.0013	0.102	0.0598	0.0013	596	47	571.7	41	572	8	100.1
SMB14-193-S-19	159	166	1.0	-7	16	-229	-3933	99.8	1	0.754	0.067	0.0917	0.0014	0.462	0.0599	0.0013	600	47	572	41	566	8	98.9
SMB14-193-S-20	367	606	1.7	23	15	65	2422	99.4	1	0.688	0.064	0.08136	0.0014	0.258	0.0616	0.001	660	33	532	38	504	9	94.8
SMB14-193-S-21	347	187	0.5	33	12	36	1906	99.2	1	0.801	0.072	0.08896	0.0014	0.666	0.0653	0.001	785	31	596.6	41	549	8	92.1
SMB14-193-S-22	143	177	1.2	1	17	1700	25410000	99.7	1	0.762	0.068	0.0918	0.0013	0.282	0.0607	0.0012	629	43	576.1	40	566	8	98.2
SMB14-193-S-23	569	287	0.5	11	12	109	8782	99.9	1	0.6944	0.062	0.0868	0.0015	0.642	0.0586	0.0007	553	27	535.1	37	537	9	100.3
SMB14-193-S-24	1256	1662	1.3	-1	11	-1100	-216800	99.9	1	0.7606	0.068	0.09257	0.0011	0.323	0.0599	0.0007	598	24	574.2	39	571	6	99.4
SMB14-193-S-25	163	165	1.0	7	13	186	3463	98.4	1	0.951	0.09	0.0948	0.002	0.661	0.0731	0.0018	1017	50	679	47	584	12	86.0
SMB14-193-S-26	767	739	1.0	34	15	44	3497	99.5	1	0.7196	0.064	0.085	0.0014	0.685	0.0619	0.0008	671	27	550.6	39	526	8	95.5
SMB14-193-S-27	1047	2073	2.0	8	12	150	21875	99.8	1	0.7366	0.066	0.08817	0.0011	0.553	0.0607	0.0007	628	25	560.2	38	545	6	97.2
SMB14-193-S-28	156	166	1.1	-4	14	-350	-6400	99.4	1	0.76	0.068	0.088	0.0015	0.446	0.0631	0.0013	712	44	575	39	544	9	94.5
SMB14-193-S-29	345	340	1.0	6	13	217	9100	99.9	1	0.761	0.068	0.09248	0.0014	0.353	0.0601	0.001	606	36	574.1	39	570	8	99.3
SMB14-193-S-30	692	657	0.9	-2	12	-600	-59450	100.0	1	0.7493	0.067	0.0926	0.0012	0.366	0.0592	0.0008	573	28	568	39	571	7	100.5
SMB14-193-S-31	334	377	1.1	25	36	144	2165	99.5	1	0.843	0.076	0.0969	0.0015	0.174	0.063	0.0013	708	44	620	41	596	9	96.2
SMB14-193-S-32	1564	2738	1.8	23	20	87	11343	99.9	1	0.7117	0.063	0.08721	0.0011	0.479	0.0601	0.0007	608	24	545.6	38	539	7	98.8
SMB14-193-S-33	478	1055	2.2	26	13	50	2854	99.4	1	0.736	0.066	0.0845	0.0015	0.771	0.0636	0.0009	728	31	559.5	38	523	9	93.5
SMB14-193-S-34	346	531	1.5	4	15	375	14553	99.9	1	0.754	0.067	0.0923	0.0014	0.679	0.0602	0.001	611	34	571	39	570	9	99.8
SMB14-193-S-35	239	269	1.1	28	11	39	1421	99.6	1	0.792	0.073	0.09224	0.0012	0.167	0.0621	0.0015	678	52	587.5	37	569	7	96.8

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	C^{b}	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
SMB14-193-S-36	211	217	1.0	2	12	600	18750	99.9	1	0.746	0.067	0.0916	0.0013	0.38	0.0604	0.0012	618	43	565.5	39	565	7	99.9
SMB14-193-S-37	115	136	1.2	51	15	29	338	95.8	1	1.192	0.11	0.093	0.0016	0.15	0.093	0.0037	1488	75	797	52	573	9	71.9
SMB14-193-S-38	436	429	1.0	-1	15	-1500	-69100	99.7	1	0.755	0.067	0.0899	0.0013	0.348	0.0607	0.001	629	34	570.3	39	555	8	97.3
SMB14-193-S-39	452	388	0.9	24	12	50	3321	99.4	1	0.762	0.069	0.0877	0.0019	0.835	0.0626	0.0009	695	30	575	40	542	11	94.2
SMB14-193-S-40	248	326	1.3	4	14	350	11025	99.8	1	0.761	0.068	0.09253	0.0014	0.228	0.0597	0.0011	593	40	573.7	39	570	8	99.4
SMB14-193-S-41	1094	1613	1.5	19	13	68	9989	99.8	1	0.7379	0.067	0.0887	0.0011	0.342	0.0598	0.0007	595	26	561	39	548	6	97.6
SMB14-193-S-42	375	291	0.8	7	14	200	9514	99.8	1	0.777	0.07	0.0934	0.0016	0.682	0.0599	0.0009	599	33	583	40	576	9	98.8
SMB14-193-S-43	78	96	1.2	6	20	333	2202	99.8	1	0.787	0.083	0.0935	0.0023	0.159	0.0606	0.0029	625	103	587	50	576	14	98.1
SMB14-193-S-44	191	195	1.0	-1	9	-900	-16440	99.4	1	0.781	0.073	0.09049	0.0012	0.076	0.0621	0.0019	678	65	585	41	558	7	95.5
SMB14-193-S-45	740	759	1.0	11.3	9.9	88	5920	99.8	1	0.761	0.067	0.0927	0.0016	0.562	0.0604	0.001	618	35	575.2	39	571	10	99.3
SMB14-193-S-46	1682	2300	1.4	14	12	86	10707	99.8	1	0.712	0.064	0.08633	0.0012	0.454	0.0606	0.001	625	35	545.8	38	534	7	97.8
B3. Sample SMB16-216 – Big Hill granodiorite (UTM: 679335E, 5115865N; NAD83, Grid Zone 20T)																							
SMB16-216-1	1091	1507	0.7	18	16	89	3263	99.6	1	0.676	0.021	0.083	0.001	0.279	0.0589	0.0020	553	73	524	12	514	8	98.1
SMB16-216-2	386	342	1.1	11	10	92	2442	99.6	1	0.789	0.022	0.095	0.002	0.348	0.0602	0.0019	593	68	589	13	585	10	99.4
SMB16-216-3	314	133	2.4	13	14	108	1713	99.6	1	0.774	0.042	0.093	0.003	0.566	0.0603	0.0029	592	100	580	24	572	15	98.6
SMB16-216-4	143	100	1.4	10	13	130	904	99.6	1	0.769	0.040	0.093	0.002	0.300	0.0603	0.0032	580	120	576	23	573	13	99.5
SMB16-216-5	661	408	1.6	8	9	108	5062	99.7	1	0.730	0.019	0.090	0.001	0.218	0.0589	0.0018	550	67	555	11	554	8	99.8
SMB16-216-6	679	417	1.6	3	9	332	16054	99.7	1	0.727	0.019	0.089	0.001	0.269	0.0590	0.0017	563	62	554	11	552	8	99.7
SMB16-216-7	343	123	2.8	-4	8	-217	-14556	94.7	1	4.070	0.450	0.215	0.016	0.991	0.1281	0.0065	2018	96	1555	94	1245	83	64.6
SMB16-216-8	740	156	4.7	15	10	67	3180	99.7	1	0.739	0.018	0.091	0.002	0.634	0.0593	0.0016	571	58	561	11	559	11	99.6
SMB16-216-9	515	680	0.8	3	10	333	10087	99.7	1	0.707	0.020	0.088	0.001	0.110	0.0584	0.0019	531	71	543	12	542	9	99.9
SMB16-216-10	445	179	2.5	-1	10	-1980	-57260	99.6	1	0.694	0.020	0.086	0.002	0.376	0.0588	0.0019	542	69	534	12	529	10	99.1
SMB16-216-10b	388	180	2.2	7	9	135	13169	99.7	1	5.034	0.120	0.326	0.006	0.696	0.1120	0.0028	1829	45	1824	20	1819	29	99.5
SMB16-216-11	446	281	1.6	8	10	124	3685	99.7	1	0.738	0.022	0.091	0.002	0.226	0.0587	0.0019	543	71	560	13	562	9	100.3
SMB16-216-12	1088	450	2.4	11	10	84	4982	99.7	1	0.680	0.018	0.084	0.002	0.737	0.0588	0.0015	556	55	526	11	519	9	98.6
SMB16-216-12b	69	56	1.2	7	9	125	688	99.8	1	0.767	0.052	0.094	0.002	0.261	0.0595	0.0039	500	130	569	29	576	12	101.2
SMB16-216-13	356	248	1.4	14	9	66	906	99.6	1	0.710	0.029	0.087	0.002	0.212	0.0597	0.0026	556	92	542	17	536	10	98.8
SMB16-216-14	382	590	0.6	-1	10	-864	-21000	99.6	1	0.706	0.024	0.087	0.002	0.253	0.0589	0.0022	539	79	541	14	537	9	99.2
SMB16-216-15	245	182	1.3	1	9	677	12046	99.6	1	0.736	0.029	0.089	0.002	0.249	0.0598	0.0024	568	89	558	17	550	9	98.5
SMB16-216-16	737	162	4.6	10	12	120	4520	99.5	1	0.728	0.042	0.087	0.004	0.861	0.0607	0.0021	615	73	552	24	537	26	97.3
SMB16-216-17	273	149	1.8	10	10	94	1628	99.7	1	0.752	0.027	0.092	0.002	0.070	0.0597	0.0024	568	88	568	15	565	11	99.4
SMB16-216-18	507	615	0.8	16	10	63	1406	99.4	1	0.718	0.024	0.085	0.002	0.349	0.0611	0.0021	632	79	548	14	525	9	95.8
SMB16-216-19	668	267	2.5	7	9	119	6061	99.8	1	0.695	0.017	0.086	0.001	0.432	0.0587	0.0016	547	60	535	10	532	8	99.3
SMB16-216-20	186	147	1.3	11	11	100	1205	99.8	1	0.755	0.032	0.094	0.002	0.026	0.0586	0.0028	519	100	569	19	577	10	101.4
SMB16-216-21	359	132	2.7	-1	10	-679	-19157	99.7	1	0.819	0.031	0.101	0.002	0.505	0.0590	0.0021	554	82	605	17	619	13	102.2
SMB16-216-22	103	91	1.1	1	8	1400	11783	99.7	1	0.759	0.039	0.094	0.002	0.132	0.0590	0.0032	510	110	569	23	577	12	101.4
SMB16-216-23	1350	302	4.5	5	10	200	18200	99.8	1	0.700	0.019	0.087	0.002	0.352	0.0587	0.0018	549	67	539	11	535	10	99.4
SMB16-216-24	298	114	2.6	9	13	144	2404	99.7	1	0.796	0.035	0.096	0.002	0.351	0.0603	0.0027	592	100	593	20	589	13	99.3
SMB16-216-25	603	375	1.6	19	13	68	2189	99.7	1	0.732	0.021	0.089	0.002	0.277	0.0598	0.0019	585	71	559	13	552	9	98.7
SMB16-216-26	222	67	3.3	11	11	100	3973	98.8	1	4.270	0.130	0.282	0.007	0.802	0.1100	0.0030	1794	50	1685	25	1602	36	88.0

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb$ [a]	*Pb %	C[b]	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
SMB16-216-27	582	350	1.7	15	12	80	2611	99.6	1	0.762	0.022	0.092	0.002	0.130	0.0602	0.0019	596	71	574	12	567	9	98.8
SMB16-216-28	535	303	1.8	9	10	111	3989	99.7	1	0.752	0.020	0.092	0.002	0.324	0.0596	0.0018	585	61	570	11	566	9	99.2
SMB16-216-29	161	99	1.6	6	9	168	1864	99.8	1	0.731	0.027	0.092	0.002	0.118	0.0580	0.0023	498	87	555	16	565	10	101.7
SMB16-216-30	405	281	1.4	4	9	224	6610	99.7	1	0.741	0.022	0.092	0.002	0.245	0.0586	0.0019	533	71	562	13	566	9	100.6
SMB16-216-31	433	218	2.0	1	12	1200	29850	99.8	1	0.717	0.024	0.089	0.002	0.308	0.0582	0.0021	523	78	548	14	552	9	100.6
SMB16-216-32	456	217	2.1	16	9	59	1857	99.6	1	0.713	0.020	0.088	0.002	0.301	0.0592	0.0018	558	68	546	12	541	9	99.2
SMB16-216-33	283	200	1.4	2	9	424	8695	99.6	1	0.717	0.024	0.088	0.002	0.094	0.0592	0.0022	545	81	547	14	544	9	99.5
SMB16-216-34	612	399	1.5	7	8	109	5204	99.7	1	0.731	0.019	0.090	0.002	0.410	0.0589	0.0017	554	61	556	11	553	9	99.5
SMB16-216-35	436	155	2.8	1	9	708	22462	99.6	1	0.713	0.021	0.087	0.002	0.275	0.0589	0.0018	556	71	545	12	540	9	99.1
SMB16-216-36	557	292	1.9	3	9	294	11855	99.5	1	0.708	0.020	0.086	0.001	0.291	0.0602	0.0018	594	68	543	12	529	8	97.5
SMB16-216-36b	318	254	1.3	9	10	102	8366	98.8	1	5.795	0.120	0.336	0.006	0.634	0.1249	0.0030	2028	41	1944	18	1869	26	91.0
SMB16-216-37	830	218	3.8	12	11	92	7842	99.6	1	2.017	0.083	0.190	0.008	0.900	0.0768	0.0021	1119	51	1116	28	1120	41	99.7
SMB16-216-38	554	331	1.7	10	9	94	3855	99.8	1	0.736	0.017	0.091	0.002	0.294	0.0588	0.0016	550	60	560	10	560	9	100.1
SMB16-216-39	601	429	1.4	-10	12	-120	-4028	99.7	1	0.727	0.020	0.090	0.001	0.066	0.0590	0.0019	555	70	554	12	553	8	99.7
SMB16-216-40	771	588	1.3	9	8	89	5457	99.8	1	0.737	0.019	0.091	0.002	0.661	0.0590	0.0016	557	61	560	11	559	9	99.8
SMB16-216-41	114	104	1.1	9	9	98	810	99.6	1	0.755	0.034	0.092	0.002	0.160	0.0598	0.0029	560	100	568	19	567	11	99.8
SMB16-216-42	410	386	1.1	2	9	489	14237	99.7	1	0.740	0.020	0.090	0.002	0.302	0.0596	0.0018	575	70	562	12	557	9	99.1
SMB16-216-43	1700	495	3.4	21	10	48	4810	99.6	1	0.660	0.019	0.080	0.002	0.768	0.0598	0.0016	594	57	514	12	497	12	96.7
SMB16-216-44	473	290	1.6	20	11	55	1548	99.7	1	0.745	0.019	0.092	0.001	0.101	0.0591	0.0018	553	67	566	12	567	9	100.1
SMB16-216-45	374	431	0.9	13	10	77	944	99.2	1	0.754	0.029	0.087	0.002	0.205	0.0631	0.0026	689	86	568	17	536	10	94.4
SMB16-216-46	266	192	1.4	-1	9	-725	-14833	99.6	1	0.772	0.028	0.094	0.002	0.253	0.0594	0.0023	551	84	578	16	581	11	100.4
SMB16-216-47	736	482	1.5	-3	14	-467	-17233	99.8	1	0.733	0.024	0.091	0.002	0.577	0.0587	0.0019	548	71	558	14	559	11	100.1
SMB16-216-48	317	67	4.7	-1	10	-1000	-36570	97.4	1	1.950	0.073	0.155	0.004	0.671	0.0910	0.0030	1439	63	1096	25	929	22	62.4
SMB16-216-49	756	519	1.5	13	9	75	3981	99.8	1	0.727	0.017	0.090	0.001	0.276	0.0588	0.0016	558	57	554	10	553	9	99.8
SMB16-216-50	172	78	2.2	18	10	52	651	99.8	1	0.761	0.029	0.094	0.002	0.286	0.0585	0.0023	532	86	575	17	581	11	101.1
SMB16-216-51	221	205	1.1	10	11	110	1393	99.5	1	0.715	0.031	0.085	0.002	0.007	0.0607	0.0028	609	100	546	18	526	10	96.4
SMB16-216-52	486	247	2.0	2	10	500	16850	99.7	1	0.747	0.023	0.092	0.002	0.397	0.0589	0.0019	562	67	566	14	567	9	100.2
SMB16-216-53	542	332	1.6	2	9	358	15225	99.6	1	0.700	0.022	0.086	0.002	0.362	0.0595	0.0020	580	70	540	12	530	9	98.1
SMB16-216-54	379	295	1.3	6	9	136	3836	99.7	1	0.720	0.022	0.090	0.001	0.187	0.0581	0.0019	515	74	549	13	554	8	100.9
SMB16-216-55	62	76	0.8	6	10	155	1847	99.3	1	3.491	0.100	0.267	0.005	0.134	0.0957	0.0033	1523	65	1522	23	1524	25	99.7
SMB16-216-56	145	95	1.5	-1	10	-900	-8727	99.6	1	0.767	0.034	0.094	0.002	0.171	0.0595	0.0027	540	100	574	20	577	11	100.6
SMB16-216-57	235	148	1.6	9	11	122	1867	99.6	1	0.767	0.032	0.094	0.003	0.220	0.0597	0.0027	561	99	576	18	577	15	100.2
SMB16-216-58	449	240	1.9	3	9	318	10643	99.7	1	0.690	0.018	0.087	0.002	0.228	0.0581	0.0018	527	71	532	11	535	9	100.5
SMB16-216-59	639	569	1.1	-2	10	-500	-20945	99.7	1	0.672	0.017	0.083	0.001	0.267	0.0585	0.0017	555	70	522	10	515	8	98.7
SMB16-216-60	97	36	2.7	1	10	1000	13660	99.5	1	2.309	0.085	0.206	0.005	0.508	0.0814	0.0030	1211	76	1215	28	1209	24	99.4
SMB16-216-61	594	347	1.7	4	12	300	9785	99.6	1	0.715	0.019	0.087	0.001	0.155	0.0597	0.0019	578	69	549	12	539	8	98.3
M1. Sample SMB16-225 - Irish Cove granodiorite (UTM: 681674E, 5075495N; NAD83, Grid Zone 20T)																							
SMB16-225-1	93	108	0.9	-11	9	-81	-694	99.8	1	0.883	0.041	0.1076	0.0023	0.275	0.0604	0.0026	565	91	641	23	658	14	102.7
SMB16-225-1	114	143	0.8	8	10	125	1034	99.5	1	0.859	0.039	0.1002	0.0019	0.035	0.0626	0.0027	640	91	625	21	615	11	98.4
SMB16-225-2	173	271	0.6	3	17	567	4543	98.5	1	0.937	0.044	0.0964	0.0023	0.134	0.0715	0.0032	963	88	669	23	593	14	88.6

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb^{a}	*Pb %	C^{b}	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SMB16-225-3	139	93	1.5	9	11	122	1196	99.7	1	0.828	0.035	0.1004	0.0018	0.367	0.0600	0.0021	570	75	610	19	617	10	101.1
SMB16-225-4	151	189	0.8	7	12	171	1600	99.7	1	0.838	0.035	0.1010	0.0018	0.339	0.0605	0.0021	587	75	615	19	620	10	100.8
SMB16-225-5	91	108	0.8	10	11	110	670	99.6	1	0.849	0.041	0.1000	0.0020	0.075	0.0617	0.0028	620	100	619	22	615	12	99.3
SMB16-225-6	112	135	0.8	2	10	475	4005	99.6	1	0.860	0.038	0.1006	0.0020	0.069	0.0620	0.0024	644	87	627	21	618	11	98.6
SMB16-225-7	109	120	0.9	3	12	400	2640	99.6	1	0.812	0.039	0.0965	0.0019	0.101	0.0615	0.0027	604	94	599	22	594	11	99.1
SMB16-225-8	142	136	1.0	-1	11	-1100	-10910	99.6	1	0.810	0.035	0.0971	0.0018	0.170	0.0609	0.0023	596	83	599	20	597	11	99.7
SMB16-225-9	125	155	0.8	14	12	86	648	99.0	1	0.860	0.035	0.0946	0.0018	0.032	0.0665	0.0026	778	80	627	19	582	11	92.9
SMB16-225-10	72	71	1.0	-3	12	-400	-1800	99.6	1	0.829	0.040	0.1000	0.0020	0.132	0.0606	0.0027	571	94	609	22	614	12	100.8
SMB16-225-11	395	984	0.4	307	39	13	92	81.6	3	0.630	0.160	0.0808	0.0023	0.617	0.0560	0.0130	1390	180	474	110	501	14	105.7
SMB16-225-12	88	93	0.9	2	12	600	3165	99.4	1	0.844	0.045	0.0988	0.0022	0.032	0.0621	0.0031	620	110	616	25	607	13	98.5
SMB16-225-13	113	135	0.8	-4	12	-300	-1940	99.3	1	0.833	0.039	0.0968	0.0022	0.177	0.0630	0.0028	653	94	611	22	596	13	97.5
SMB16-225-13b1	102	138	0.7	0	10			99.4	1	0.861	0.040	0.0999	0.0020	0.140	0.0629	0.0027	654	91	626	22	614	12	98.1
SMB16-225-14	106	106	1.0	-2	10	-505	-4484	99.6	1	0.872	0.037	0.1044	0.0020	0.106	0.0610	0.0024	594	84	633	20	640	12	101.2
SMB16-225-15	103	142	0.7	1	14	1400	8390	99.6	1	0.876	0.054	0.1027	0.0024	0.143	0.0624	0.0037	630	130	634	30	630	14	99.4
SMB16-225-16	204	319	0.6	-8	14	-175	-2058	99.5	1	0.891	0.044	0.1032	0.0024	0.364	0.0630	0.0026	685	90	644	24	633	14	98.3
SMB16-225-17	80	80	1.0	11	11	100	548	99.5	1	0.873	0.044	0.1013	0.0021	0.198	0.0628	0.0029	657	99	635	25	622	13	98.0
SMB16-225-18	92	112	0.8	4	10	216	1561	99.8	1	0.850	0.042	0.1038	0.0021	0.084	0.0598	0.0028	560	100	623	24	636	13	102.2
SMB16-225-19	133	156	0.9	-5	11	-220	-1966	99.5	1	0.821	0.037	0.0981	0.0019	0.124	0.0611	0.0025	592	89	605	20	603	11	99.7
SMB16-225-20	156	226	0.7	7	11	157	1661	99.2	1	0.859	0.031	0.0972	0.0017	0.102	0.0645	0.0021	725	70	627	17	598	10	95.4
SMB16-225-21	125	177	0.7	4	13	325	2193	99.5	1	0.879	0.043	0.1046	0.0022	0.134	0.0612	0.0030	600	100	637	23	641	13	100.6
SMB16-225-22	89	95	0.9	-8	12	-150	-905	99.5	1	0.861	0.044	0.1021	0.0021	0.025	0.0615	0.0031	620	100	630	23	627	12	99.5
SMB16-225-23	130	178	0.7	-5	11	-220	-1980	99.5	1	0.850	0.039	0.1012	0.0018	0.128	0.0612	0.0027	590	94	621	21	621	10	100.0
SMB16-225-24	111	134	0.8	-2	9	-388	-3288	99.5	1	0.820	0.038	0.0971	0.0022	0.163	0.0616	0.0027	607	94	604	22	597	13	98.8
SMB16-225-25	130	167	0.8	6	11	183	1577	99.2	1	0.911	0.039	0.1019	0.0019	0.064	0.0652	0.0025	737	85	654	21	625	11	95.6
SMB16-225-26	263	463	0.6	9	11	122	2263	99.6	1	0.862	0.029	0.1019	0.0017	0.182	0.0612	0.0015	635	58	629	16	625	10	99.4
SMB16-225-27	82	78	1.1	-11	9	-82	-606	99.7	1	0.876	0.047	0.1042	0.0025	0.224	0.0608	0.0029	600	100	633	25	639	14	100.9
SMB16-225-28	140	203	0.7	-1	10	-1000	-10080	99.5	1	0.834	0.033	0.0988	0.0019	0.006	0.0620	0.0023	648	77	616	17	607	11	98.6
SMB16-225-29	174	260	0.7	7	12	171	1703	99.6	1	0.768	0.033	0.0918	0.0019	0.258	0.0602	0.0021	596	79	576	19	566	11	98.2
SMB16-225-30	133	140	1.0	9	13	144	1104	99.4	1	0.848	0.049	0.0982	0.0027	0.606	0.0632	0.0027	680	88	619	27	604	16	97.6
SMB16-225-30b1	133	194	0.7	-8	12	-150	-1231	99.4	1	0.811	0.043	0.0960	0.0020	0.253	0.0615	0.0030	630	100	599	24	591	12	98.6
SMB16-225-31	64	66	1.0	5	19	380	1034	99.4	1	0.887	0.061	0.1015	0.0034	0.051	0.0638	0.0046	680	160	641	33	623	20	97.2
SMB16-225-32	73	76	1.0	-3	11	-367	-1870	99.2	1	0.912	0.047	0.1023	0.0023	0.081	0.0651	0.0032	710	110	652	25	628	13	96.3
SMB16-225-33	117	149	0.8	-17	9	-55	-547	99.6	1	0.812	0.038	0.0981	0.0021	0.385	0.0601	0.0024	583	85	604	22	603	12	99.9
SMB16-225-34	87	124	0.7	7	14	200	980	99.7	1	0.846	0.052	0.1003	0.0023	0.130	0.0613	0.0035	590	120	618	28	616	13	99.7
SMB16-225-35	89	114	0.8	14	14	100	478	99.7	1	0.857	0.042	0.1015	0.0020	0.115	0.0614	0.0028	599	97	623	23	623	12	100.0
SMB16-225-36	77	75	1.0	11	12	109	573	99.6	1	0.881	0.051	0.1044	0.0023	0.194	0.0615	0.0033	580	110	634	28	640	13	100.9
SMB16-225-37	149	207	0.7	3	11	367	3797	99.4	1	0.864	0.037	0.1004	0.0019	0.199	0.0625	0.0024	646	84	629	20	617	11	98.1
SMB16-225-38	83	110	0.7	6	11	183	1063	99.5	1	0.856	0.043	0.1017	0.0022	0.099	0.0614	0.0029	590	100	623	24	624	13	100.2
SMB16-225-39	106	117	0.9	16	12	75	509	99.6	1	0.842	0.042	0.1014	0.0019	0.130	0.0603	0.0028	557	98	615	23	623	11	101.2
SMB16-225-40	87	91	1.0	2	12	600	3420	99.7	1	0.839	0.036	0.1009	0.0023	0.040	0.0607	0.0026	591	92	616	20	619	13	100.5

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	C[b]	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$[2]	2σ	$^{206}Pb/^{238}U$	2σ	% C
SMB16-225-41	171	261	0.7	-4	10	-250	-3258	99.8	1	0.827	0.034	0.1014	0.0018	0.187	0.0591	0.0021	537	75	609	18	623	10	102.2
SMB16-225-42	87	100	0.9	9	11	122	746	99.4	1	0.910	0.045	0.1038	0.0021	0.199	0.0642	0.0027	697	91	655	23	637	12	97.2
SMB16-225-43	152	199	0.8	1	10	1000	11140	99.4	1	0.829	0.031	0.0980	0.0018	0.070	0.0616	0.0021	624	73	611	17	603	11	98.6
SMB16-225-44	62	67	0.9	5	13	260	892	99.4	1	0.944	0.073	0.1088	0.0029	0.365	0.0633	0.0045	640	140	666	38	666	17	100.0
SMB16-225-45	77	90	0.9	-8	10	-125	-743	99.7	1	0.829	0.043	0.0995	0.0020	0.304	0.0604	0.0027	564	96	608	24	612	12	100.6
SMB16-225-46	228	305	0.7	-4	12	-300	-4313	99.7	1	0.829	0.026	0.0998	0.0017	0.083	0.0603	0.0016	591	58	614	14	613	10	99.9
SMB16-225-47	95	130	0.7	-1	11	-1100	-6936	99.8	1	0.820	0.047	0.1006	0.0021	0.087	0.0593	0.0034	520	120	603	26	618	12	102.4
SMB16-225-48	81	86	0.9	12	11	92	510	98.6	1	0.942	0.045	0.0986	0.0020	0.042	0.0700	0.0033	864	99	672	24	606	12	90.1
SMB16-225-49	70	78	0.9	8	10	125	653	99.6	1	0.862	0.046	0.1010	0.0023	0.218	0.0621	0.0031	610	110	625	25	620	13	99.2
SMB16-225-50	110	150	0.7	8	10	125	1019	99.4	1	0.820	0.041	0.0955	0.0018	0.143	0.0627	0.0030	637	97	606	23	588	11	97.0
SMB16-225-50b1	175	264	0.7	3	16	533	4023	99.5	1	0.848	0.041	0.1016	0.0022	0.149	0.0609	0.0027	608	99	622	23	624	13	100.3
SMB16-225-51	69	73	0.9	0	11			99.4	1	0.877	0.047	0.1016	0.0023	0.090	0.0632	0.0035	630	110	633	25	624	13	98.6
SMB16-225-52	109	137	0.8	0	12			99.6	1	0.823	0.039	0.0981	0.0021	0.230	0.0610	0.0026	592	92	605	22	603	12	99.7
M2. Sample SMB16-217 – MacDougall Point pluton (dark grey for older cluster, light grey for younger) (UTM: 695381E, 5092306N; NAD83, Grid Zone 20T))																							
SMB16-217-1	1114	1460	0.8	13	11	85	6885	99.8	1	0.891	0.023	0.1051	0.0017	0.552	0.0612	0.0008	642	29	648	13	644	10	99.4
SMB16-217-2	705	618	1.1	11	12	109	5055	99.7	1	0.910	0.025	0.1066	0.0019	0.465	0.0617	0.0012	654	39	656	13	653	11	99.5
SMB16-217-3	634	1132	0.6	-5	13	-260	-9160	99.5	1	0.803	0.024	0.0933	0.0015	0.346	0.0617	0.0013	654	45	597	13	575	9	96.3
SMB16-217-4	1231	1593	0.8	4	10	255	25921	99.7	1	0.869	0.021	0.1014	0.0015	0.538	0.0618	0.0007	663	26	634	12	623	9	98.2
SMB16-217-5	1773	3479	0.5	8	12	150	17900	99.8	1	0.917	0.022	0.1075	0.0016	0.545	0.0615	0.0007	651	25	660	12	658	9	99.7
SMB16-217-6	1529	2040	0.7	27	13	48	4737	99.9	1	0.898	0.022	0.1058	0.0017	0.609	0.0612	0.0008	641	28	651	12	649	10	99.7
SMB16-217-7	1970	1640	1.2	-9	23	-256	-20000	99.9	1	0.913	0.030	0.1095	0.0027	0.745	0.0609	0.0011	632	37	658	16	670	15	101.8
SMB16-217-8	623	402	1.5	-20	17	-85	-1800	99.6	1	0.833	0.026	0.0974	0.0017	0.245	0.0622	0.0016	671	56	617	16	599	10	97.1
SMB16-217-9	820	1240	0.7	1	11	1100	69000	99.7	1	0.890	0.024	0.1045	0.0017	0.241	0.0611	0.0011	641	39	647	12	641	10	99.1
SMB16-217-10	1091	574	1.9	18	17	94	4600	99.2	1	0.891	0.026	0.0990	0.0018	0.454	0.0655	0.0014	780	46	646	14	609	11	94.2
SMB16-217-11	1075	1900	0.6	-4	11	-275	-22775	99.8	1	0.890	0.023	0.1063	0.0017	0.504	0.0604	0.0009	611	32	646	12	651	10	100.9
SMB16-217-12	2233	3642	0.6	22	13	59	7523	99.5	1	0.894	0.024	0.1014	0.0017	0.776	0.0638	0.0008	731	25	648	13	622	10	96.0
SMB16-217-13	2292	4770	0.5	4	9	230	45475	99.9	1	0.846	0.019	0.1014	0.0015	0.548	0.0602	0.0006	609	21	622	11	623	9	100.1
SMB16-217-14	1584	2680	0.6	10	9	94	12684	99.8	1	0.879	0.021	0.1042	0.0015	0.439	0.0610	0.0007	633	26	641	11	639	9	99.7
SMB16-217-15	1001	1590	0.6	-4	13	-325	-20900	99.8	1	0.904	0.023	0.1076	0.0017	0.111	0.0607	0.0010	620	35	653	12	659	10	100.9
SMB16-217-16	1003	1560	0.6	-18	13	-72	-4611	99.8	1	0.832	0.023	0.0995	0.0016	0.367	0.0606	0.0010	619	36	615	12	612	9	99.5
SMB16-217-17	1238	2001	0.6	17	14	82	5894	99.8	1	0.865	0.022	0.1025	0.0016	0.476	0.0610	0.0008	635	27	632	12	629	10	99.5
SMB16-217-18	669	980	0.7	0	12			99.8	1	0.896	0.030	0.1080	0.0020	0.476	0.0593	0.0012	583	49	648	16	661	11	102.0
SMB16-217-19	346	421	0.8	0	13			99.6	1	0.868	0.033	0.1026	0.0017	0.352	0.0612	0.0018	625	64	633	18	630	10	99.5
SMB16-217-20	463	702	0.7	-2	11	-550	-17650	99.6	1	0.875	0.025	0.1023	0.0017	0.080	0.0622	0.0013	668	46	639	13	628	10	98.3
SMB16-217-21	1532	2241	0.7	-3	27	-900	-43300	99.8	1	0.846	0.033	0.1019	0.0022	0.509	0.0612	0.0018	638	63	622	18	626	13	100.6
SMB16-217-22	1680	2210	0.8	8	10	125	16888	99.9	1	0.889	0.020	0.1069	0.0016	0.451	0.0604	0.0006	613	22	645	11	655	9	101.4
SMB16-217-23	794	1059	0.7	3	13	433	17767	99.7	1	0.780	0.026	0.0947	0.0017	0.627	0.0594	0.0013	573	47	585	15	583	10	99.7
SMB16-217-24	356	493	0.7	-6	11	-183	-4750	99.6	1	0.880	0.026	0.1035	0.0017	0.290	0.0616	0.0014	644	49	640	14	635	10	99.2
SMB16-217-25	489	748	0.7	-3	12	-400	-12000	99.7	1	0.839	0.022	0.1004	0.0016	0.320	0.0608	0.0011	622	41	618	13	617	9	99.8
SMB16-217-26	1800	1510	1.2	14	9	70	10889	99.9	1	0.885	0.025	0.1060	0.0020	0.747	0.0605	0.0008	621	29	643	14	649	12	101.0

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SMB16-217-27	687	1030	0.7	11	10	91	5155	99.8	1	0.889	0.025	0.1056	0.0016	0.421	0.0611	0.0011	631	38	645	13	647	10	100.3
SMB16-217-28	1608	2930	0.5	6	12	200	21583	99.9	1	0.906	0.022	0.1083	0.0016	0.487	0.0605	0.0006	624	25	655	11	663	9	101.2
SMB16-217-29	617	909	0.7	7	11	157	6843	99.8	1	0.866	0.023	0.1032	0.0017	0.511	0.0609	0.0008	635	30	633	12	633	10	100.1
SMB16-217-30	1664	3181	0.5	-1	11	-1100	-130300	99.9	1	0.871	0.021	0.1051	0.0015	0.491	0.0601	0.0007	604	25	635	11	644	9	101.3
SMB16-217-31	1285	1649	0.8	-7	18	-257	-14686	99.9	1	0.840	0.025	0.1019	0.0019	0.540	0.0605	0.0011	628	42	619	14	625	11	101.0
SMB16-217-32	951	1192	0.8	-2	11	-550	-37000	99.9	1	0.881	0.022	0.1052	0.0016	0.521	0.0609	0.0007	632	26	641	12	645	10	100.6
SMB16-217-33	619	602	1.0	11	12	109	4000	99.3	1	0.829	0.026	0.0936	0.0018	0.604	0.0643	0.0011	756	37	612	14	576	11	94.2
SMB16-217-34	268	333	0.8	6	12	200	3370	99.3	1	0.894	0.029	0.1005	0.0017	0.234	0.0648	0.0017	745	56	647	16	617	10	95.4
SMB16-217-35	214	264	0.8	4	13	325	4263	99.6	1	0.850	0.030	0.1025	0.0018	0.127	0.0606	0.0018	611	63	625	17	630	11	100.8
SMB16-217-36	2670	1950	1.4	31	24	77	7323	99.9	1	0.831	0.034	0.1010	0.0035	0.940	0.0603	0.0008	614	27	614	19	620	20	101.0
SMB16-217-37	943	1102	0.9	-6	13	-217	-12950	99.9	1	0.882	0.023	0.1073	0.0016	0.212	0.0598	0.0010	589	35	642	12	657	10	102.4
SMB16-217-38	642	1159	0.6	-3	15	-500	-15367	99.8	1	0.838	0.025	0.1017	0.0017	0.247	0.0599	0.0014	590	51	617	14	624	10	101.2
SMB16-217-39	779	1042	0.7	-7	12	-171	-9443	99.8	1	0.880	0.026	0.1064	0.0017	0.291	0.0602	0.0013	600	46	640	14	652	10	101.9
SMB16-217-40	1381	2020	0.7	-5	12	-240	-22760	99.9	1	0.886	0.022	0.1068	0.0016	0.451	0.0604	0.0008	620	29	645	12	654	9	101.3
SMB16-217-41	2840	1247	2.3	18	18	100	13056	99.9	1	0.809	0.023	0.0981	0.0023	0.885	0.0598	0.0007	595	24	601	13	603	13	100.3
SMB16-217-42	1935	2622	0.7	-6	11	-183	-25367	99.9	1	0.885	0.020	0.1066	0.0016	0.521	0.0604	0.0005	617	20	644	11	653	9	101.5
SMB16-217-43	799	850	0.9	7	12	171	8300	99.7	1	0.826	0.024	0.0984	0.0015	0.326	0.0612	0.0012	635	43	611	13	605	9	99.1
SMB16-217-44	1193	1834	0.7	13	11	85	7069	99.8	1	0.843	0.021	0.1006	0.0016	0.401	0.0608	0.0008	628	27	620	11	618	9	99.6
SMB16-217-45	1278	2280	0.6	8	10	122	13152	99.9	1	0.884	0.021	0.1058	0.0015	0.339	0.0609	0.0007	632	25	643	11	649	9	100.9
SMB16-217-46	737	1107	0.7	-4	11	-275	-14275	99.9	1	0.873	0.023	0.1055	0.0017	0.482	0.0603	0.0009	607	33	637	12	646	10	101.5
SMB16-217-47	571	300	1.9	-11	12	-109	-3300	99.6	1	0.799	0.033	0.0961	0.0035	0.788	0.0608	0.0013	627	49	594	18	591	21	99.5
SMB16-217-48	1434	2384	0.6	-11	10	-91	-10209	99.8	1	0.876	0.020	0.1043	0.0015	0.450	0.0613	0.0007	647	24	639	11	639	9	100.1
SMB16-217-49	273	357	0.8	-3	12	-400	-6890	99.7	1	0.858	0.030	0.1016	0.0016	0.154	0.0616	0.0017	633	63	627	16	624	10	99.5
SMB16-217-50	355	351	1.0	-3	11	-367	-9100	99.7	1	0.836	0.027	0.1016	0.0016	0.327	0.0602	0.0015	590	54	616	15	624	10	101.3
SMB16-217-51	2445	2780	0.9	0	16			99.9	1	0.864	0.022	0.1051	0.0019	0.611	0.0600	0.0007	600	26	632	12	646	10	102.2
SMB16-217-52	331	453	0.7	-7	10	-134	-3649	99.7	1	0.899	0.029	0.1057	0.0017	0.295	0.0619	0.0015	653	51	649	15	648	10	99.8
SMB16-217-53	144	134	1.1	14	11	79	692	96.2	1	1.314	0.061	0.1043	0.0023	0.482	0.0914	0.0034	1429	70	846	27	639	13	75.5
M3. Sample 11F16c-1115 – Gillis Mountain granodiorite (no U or Th ppb available) (UTM: 712781E, 5085905N; NAD83, Grid Zone 20T)																							
11f-16c_1115_3_Sp15-Zr1c2				1.4	9	643	20364		1	0.437	0.015	0.05849	0.0009	0.214	0.0541	0.0015	363	56	367.9	10	366	5	99.6
11f-16c_1115_3_Sp15-Zr1r				3	9.2	307	4833		1	0.449	0.021	0.04491	0.0012	0.157	0.0723	0.0027	958	69	374.9	14	283	8	75.5
11f-16c_1115_3_Sp15-Zr1c1				-5.3	7	-132	-1194		1	0.433	0.025	0.05818	0.0011	0.02	0.0539	0.0029	338	95	364	17	365	7	100.1
11f-16c_1115_3_Sp16-Zr1c				15	15	100	3473		1	0.529	0.013	0.0679	0.0013	0.589	0.0564	0.0008	469	32	430.4	9	424	8	98.5
11f-16c_1115_3_Sp17-Zr1r				6.1	8.4	138	1962		1	0.445	0.02	0.05937	0.001	0.095	0.054	0.002	358	74	374	13	372	6	99.4
11f-16c_1115_3_Sp17-Zr1c				-3	12	-400	-4457		1	0.438	0.052	0.05772	0.0011	0.184	0.0543	0.0045	365	110	367	24	362	7	98.7
11f-16c_1115_3_Sp-18-Zr1r				10.2	7.7	75	2107		1	0.444	0.017	0.05932	0.0009	0.116	0.0541	0.0017	369	62	372.6	11	372	6	99.7
11f-16c_1115_3_Sp18-Zr1c				11.5	8.3	72	1203		1	0.456	0.021	0.05926	0.001	0.134	0.0561	0.0021	464	77	382	14	371	6	97.1
11f-16c_1115_3_SP19-Zr1r				53	11	21	578		1	0.595	0.02	0.06117	0.001	0.477	0.0706	0.0019	942	55	474	13	383	6	80.7
11f-16c_1115_3_Sp19-Zr1c				4.2	8.1	193	7000		1	0.4383	0.014	0.0593	0.0009	0.164	0.0534	0.0014	332	51	370	9.7	371	6	100.4
11f-16c_1115_3_Sp10-Zr1c				3.9	7.9	203	6031		1	0.422	0.019	0.05729	0.0011	0.209	0.0536	0.002	335	66	356.5	13	359	6	100.7
11f-16c_1115_3_Sp21-Zr1c				7.7	8.7	113	5597		1	0.4836	0.013	0.06348	0.001	0.244	0.0556	0.0011	429	42	400	8.8	397	6	99.2

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{2}^{35}U	2σ	^{206}Pb/^{238}U	2σ	% C
11F-16C_1115_2_SP1-Zr1r				-2	10	-500	-11435		1	0.501	0.019	0.05886	0.0009	0.118	0.0621	0.0018	647	58	413.2	11	369	6	89.2
11F-16C_1115_2_Sp1-Zr1c				22	11	50	1155		1	0.513	0.055	0.06087	0.0011	0.003	0.0609	0.0041	648	87	419	22	381	7	90.9
11F-16C_1115_2_Sp2-Zr1r				21.8	9.7	44	983		1	0.45	0.017	0.05585	0.0012	0.071	0.0594	0.0024	573	68	376.8	11	350	7	93.0
11F-16C_1115_2_Sp3-Zr1r				14	14	100	3546		1	0.4113	0.013	0.05332	0.001	0.28	0.0557	0.0013	448	46	349.5	8.9	335	6	95.8
11F-16C_1115_2_SP4-Zr1r				1	7.8	780	26600		1	0.4465	0.014	0.05934	0.0009	0.093	0.0548	0.0015	396	55	374.6	9.9	372	6	99.2
11F-16C_1115_2_Sp6-Zr1r				-7.8	9.5	-122	-3667		1	0.4554	0.014	0.06019	0.001	0.02	0.0548	0.0014	403	54	381	9.6	377	6	98.9
11F-16C_1115_2_Sp7-Zr1r				4	10	250	2438		1	0.47	0.025	0.05917	0.0011	0.126	0.0584	0.0024	506	77	390	14	371	7	95.1
11F-16C_1115_2_Sp8-Zr1c				16.8	7.5	45	1119		1	0.429	0.016	0.0583	0.0009	0.168	0.0535	0.0016	335	60	361.8	11	365	6	101.0
11F-16C_1115_2_Sp9-Zr1r				-1.4	7.5	-536	-14029		1	0.44	0.017	0.05903	0.001	0.24	0.0543	0.0016	381	60	370.6	11	370	6	99.8
11F-16C_1115_2_Sp9-Zr1r2				18.3	7.8	43	1105		1	0.447	0.015	0.06	0.0009	0.058	0.0539	0.0015	355	56	375	11	376	6	100.2
11F-16C_1115_2_Sp9-Zr1c				11.4	8.8	77	953		1	0.442	0.035	0.0572	0.0012	0.088	0.0556	0.0025	432	78	373	14	359	8	96.1
11F-16C_1115_2_Sp11-Zr1c				1	12	1200	15890		1	0.504	0.053	0.06324	0.003	0.192	0.0576	0.0089	480	160	412	26	395	19	95.9
11F-16C_1115_2_Sp12-Zr1c				-5	11	-220	-1040		1	0.491	0.032	0.0626	0.0012	0.098	0.0565	0.0036	450	110	403	20	391	7	97.1
11F-16C_1115_2_Sp13-Zr1c				8	11	138	11763		1	0.838	0.031	0.09989	0.003	0.221	0.0614	0.0032	661	61	618.8	16	614	18	99.2
M4. Sample FD150 – Deep Cove granite (UTM: 723652E, 5085375N; NAD83, Grid Zone 20T)																							
FD-150-1	865	304	0.4	100	19	19	744	98.0	3	0.411	0.028	0.05672	0.0013	0.413	0.0734	0.0076	1025	209	347	20	356	8	102.5
FD-150-2	527	213	0.4	14	16	114	3500	99.4	1	0.491	0.014	0.0598	0.001	0.012	0.0594	0.0017	582	62	405.6	9.6	374	6	92.3
FD-150-3	709	321	0.5	117	14	12	553	97.2	3	0.422	0.035	0.0609	0.0012	0.552	0.0583	0.0042	541	158	357	25	381	7	106.8
FD-150-4	1202	510	0.4	118	25	21	892	98.1	2	0.4258	0.0071	0.05727	0.0011	1	0.0546	0.0001	394	5	359.9	5	359	7	99.7
FD-150-5	589	278	0.5	14	14	100	3529	99.4	1	0.459	0.012	0.05724	0.0009	0.361	0.0578	0.0014	522	53	384.1	8.5	359	6	93.4
FD-150-6	1149	559	0.5	31	14	45	3101	99.4	1	0.4385	0.0082	0.05508	0.0009	0.352	0.0582	0.001	537	38	370	5.8	346	6	93.4
FD-150-7	1107	458	0.4	1320	110	8	81	78.6	3	0.307	0.057	0.05231	0.0015	0.628	0.0529	0.0029	325	124	270	43	329	9	121.7
FD-150-8	742	369	0.5	26	13	50	2564	99.1	1	0.492	0.012	0.05877	0.0009	0.016	0.061	0.0015	639	53	405.8	8.4	368	6	90.7
FD-150-9	960	522	0.5	196	30	15	495	96.3	3	0.457	0.04	0.06214	0.0013	0.489	0.0544	0.0036	388	149	382	30	389	8	101.7
FD-150-10	918	321	0.3	149	16	11	485	96.4	3	0.349	0.027	0.04911	0.0009	0.289	0.0549	0.004	408	163	305	20	309	6	101.3
FD-150-11	927	507	0.5	183	24	13	450	96.5	3	0.394	0.029	0.0582	0.001	0.497	0.0519	0.0037	281	163	340	21	365	6	107.3
FD-150-12	980	549	0.6	1068	97	9	97	81.8	3	0.412	0.047	0.0569	0.0012	0.401	0.0499	0.0034	190	159	349	36	357	7	102.2
FD-150-13	1368	739	0.5	36	15	42	3311	99.2	1	0.4776	0.013	0.05754	0.0012	0.601	0.0603	0.001	615	35	396.3	8.7	361	7	91.0
FD-150-14	1061	519	0.5	76	14	18	1158	97.9	1	0.552	0.017	0.0568	0.001	0.497	0.0702	0.0018	934	53	445.8	11	356	6	79.9
FD-150-15	652	320	0.5	17	15	88	3506	99.8	1	0.4496	0.01	0.05923	0.001	0.437	0.0556	0.0011	436	44	376.6	7.1	371	6	98.5
FD-150-16	1933	792	0.4	169	27	16	981	98.3	3	0.408	0.016	0.05523	0.0011	0.408	0.0532	0.0041	337	175	347	12	347	7	99.9
FD-150-17	1276	590	0.5	175	21	12	565	96.5	3	0.364	0.023	0.0506	0.0013	0.531	0.054	0.0018	371	75	316	18	318	8	100.7
FD-150-18	1011	430	0.4	198	22	11	416	95.7	3	0.391	0.037	0.05383	0.0012	0.579	0.0528	0.003	320	129	336	27	338	8	100.6
FD-150-19	657	339	0.5	-9	12	-133	-6374	99.5	1	0.4552	0.011	0.05697	0.0009	0.285	0.0578	0.0013	523	49	380.6	7.8	357	6	93.9
FD-150-20	1353	881	0.7	49	14	29	2469	98.9	1	0.4991	0.011	0.05756	0.0009	0.254	0.0628	0.0012	702	41	410.9	7.2	361	6	87.8
FD-150-21	778	411	0.5	142	19	13	468	95.7	3	0.423	0.036	0.05613	0.0012	0.666	0.0563	0.0023	464	91	358	27	352	7	98.4
FD-150-22	829	638	0.8	281	25	9	260	93.2	3	0.378	0.04	0.05883	0.0013	0.641	0.0551	0.004	416	162	330	29	369	8	111.7
FD-150-23	940	728	0.8	107	17	16	721	97.3	3	0.43	0.031	0.05746	0.0015	0.538	0.0491	0.0046	153	219	359	23	360	9	100.3
FD-150-24	702	369	0.5	364	48	13	189	90.3	3	0.43	0.042	0.05825	0.0008	0.627	0.0548	0.0036	404	147	352	31	365	5	103.7
FD-150-25	701	389	0.6	102	15	15	630	97.0	3	0.45	0.04	0.05843	0.001	0.598	0.0554	0.0049	428	197	373	27	366	6	98.2

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U[2]	2σ	^{206}Pb/^{238}U	2σ	% C
FD-150-26	1340	837	0.6	2180	200	9	61	71.4	3	0.295	0.053	0.05397	0.0006	0.775	0.0556	0.0043	436	172	274	43	339	4	123.6
FD-150-27	602	294	0.5	24	14	58	2254	99.3	1	0.496	0.014	0.06053	0.0013	0.337	0.0593	0.0019	578	70	408.2	9.3	379	8	92.8
FD-150-28	1406	498	0.4	92	19	21	1300	98.8	2	0.4221	0.0082	0.05674	0.0013	0.99	0.0542	0.0002	378	6	357.2	5.9	356	8	99.6
FD-150-29	1195	634	0.5	117	14	12	896	97.6	3	0.441	0.023	0.0572	0.001	0.257	0.053	0.002	329	86	369	17	359	6	97.3
FD-150-30	986	441	0.4	423	27	6	168	88.8	3	0.371	0.045	0.05046	0.001	0.518	0.0558	0.0025	444	100	316	33	318	6	100.5
FD-150-31	492	233	0.5	10	11	110	4292	99.7	1	0.437	0.01	0.05726	0.0009	0.109	0.056	0.0013	452	52	368.4	7.3	359	6	97.4
FD-150-32	862	354	0.4	17	11	65	4382	99.7	1	0.4507	0.0087	0.0585	0.001	0.422	0.0563	0.001	463	38	378	6.2	367	6	97.0
FD-150-33	1426	575	0.4	260	25	10	240	91.5	3	0.264	0.035	0.03418	0.0009	0.534	0.0523	0.0035	299	153	231	28	217	6	93.8
FD-150-34	1110	482	0.4	53	16	30	1919	99.0	1	0.4991	0.011	0.05858	0.0009	0.048	0.062	0.0013	674	45	410.7	7.3	367	6	89.4
FD-150-35	973	366	0.4	339	29	9	243	92.4	3	0.392	0.041	0.05306	0.0015	0.587	0.0544	0.0028	388	116	331	30	333	9	100.7
FD-150-36	953	581	0.6	-12	16	-133	-6871	99.9	1	0.4383	0.009	0.05891	0.0009	0.142	0.054	0.001	371	42	368.8	6.3	369	6	100.1
FD-150-37	1165	520	0.4	318	54	17	329	94.4	3	0.385	0.028	0.05537	0.0008	0.513	0.0559	0.0028	448	111	330	21	347	5	105.3
FD-150-38	1358	700	0.5	715	52	7	167	88.7	3	0.391	0.042	0.05442	0.0009	0.665	0.0526	0.0032	312	138	340	33	342	6	100.5
FD-150-39	940	499	0.5	70	16	23	1171	98.4	1	0.5393	0.012	0.05862	0.001	0.061	0.067	0.0015	838	47	437.6	7.9	367	6	83.9
FD-150-40	777	365	0.5	29	14	48	2383	99.5	1	0.4701	0.01	0.06017	0.0013	0.606	0.0577	0.0012	517	46	391.5	7.3	377	8	96.2
FD-150-41	665	323	0.5	12	12	100	4834	99.7	1	0.4512	0.0096	0.0577	0.0009	0.091	0.0569	0.0012	489	47	377.8	6.7	362	6	95.7
FD-150-42	1172	619	0.5	241	29	12	409	95.2	3	0.409	0.03	0.05428	0.0013	0.482	0.054	0.0038	371	158	350	21	341	8	97.4
FD-150-43	1273	523	0.4	503	66	13	221	92.5	3	0.376	0.027	0.05387	0.0015	0.472	0.0564	0.0036	468	141	320	20	338	9	105.7
FD-150-44	1153	635	0.6	64	15	23	1502	98.9	1	0.5049	0.0089	0.05823	0.001	0.042	0.0629	0.0011	706	37	414.9	6	365	6	87.9
FD-150-45	1094	529	0.5	136	20	15	724	97.2	3	0.467	0.025	0.0626	0.0011	0.46	0.054	0.0034	371	142	386	18	391	6	101.4
FD-150-46	731	302	0.4	804	45	6	104	82.0	3	0.496	0.051	0.06671	0.0013	0.426	0.0551	0.0027	416	109	411	36	416	8	101.3
FD-150-47	1531	771	0.5	281	26	9	449	95.7	3	0.421	0.021	0.05708	0.0014	0.403	0.0583	0.0057	541	214	357	16	358	9	100.2
FD-150-48	1512	808	0.5	363	44	12	367	95.2	3	0.41	0.025	0.05731	0.0011	0.463	0.0548	0.0025	404	102	346	18	359	7	103.8
FD-150-49	805	405	0.5	22	15	68	3224	98.9	1	0.5072	0.01	0.05813	0.001	0.055	0.0631	0.0013	712	44	416.9	7.1	364	6	87.4
FD-150-50	1524	898	0.6	153	21	14	764	97.4	3	0.375	0.018	0.05102	0.0012	0.646	0.0592	0.0037	574	136	322	13	321	7	99.6
FD-150-51	269	181	0.7	659	78	12	44	64.5	3	0.35	0.14	0.0554	0.0013	0.842	0.0543	0.0023	384	95	260	110	347	8	133.6
FD-150-52	999	515	0.5	592	96	16	152	89.8	3	0.323	0.033	0.05307	0.0015	0.584	0.063	0.018	708	608	276	26	333	9	120.8
FD-150-53	771	613	0.8	25	14	56	2682	99.2	1	0.4958	0.011	0.05935	0.001	0.03	0.0607	0.0013	629	46	408.5	7.3	372	6	91.0
FD-150-54	1011	726	0.7	1866	98	5	60	68.7	3	0.388	0.065	0.05442	0.0008	0.756	0.0542	0.004	379	166	315	50	342	5	108.4
FD-150-55	942	494	0.5	642	32	5	137	86.6	3	0.36	0.041	0.05434	0.0012	0.456	0.0621	0.008	678	275	323	31	341	8	105.6
FD-150-56	773	357	0.5	55	20	36	1191	99.3	1	0.484	0.48	0.0597	0.0059	0.405	0.0602	0.024	611	862	400	130	374	34	93.5
FD-150-57	928	601	0.6	568	56	10	154	88.3	3	0.375	0.038	0.0552	0.0018	0.337	0.05	0.0059	195	274	314	29	346	11	110.3
FD-150-58	820	343	0.4	86	18	21	815	97.7	2	0.4418	0.0047	0.05912	0.001	1	0.0545	7E-05	391	3	371.5	3.3	370	6	99.7
FD-150-59	799	745	0.9	507	28	6	155	88.7	3	0.389	0.045	0.05876	0.0012	0.52	0.0543	0.0047	384	195	330	33	368	7	111.5
FD-150-60	753	319	0.4	278	31	11	201	90.6	3	0.459	0.054	0.05796	0.0017	0.756	0.0517	0.0051	272	226	379	38	363	10	95.8
FD-150-core-1	569	455	0.8	99	18	18	431	95.4	3	0.373	0.068	0.04985	0.0011	0.731	0.0535	0.0054	350	228	312	54	314	7	100.5
FD-150-core-2	1456	2160	1.5	615	90	15	207	90.6	3	0.4	0.031	0.05606	0.0005	0.456	0.0553	0.0084	424	339	338	23	352	3	104.0
FD-150-core-1	500	245	0.5	471	25	5	115	82.6	3	0.514	0.057	0.06429	0.0009	0.691	0.0591	0.006	571	221	411	40	402	6	97.7
FD-150-core-2	792	622	0.8	1785	59	3	53	66.8	3	0.32	0.091	0.06622	0.0012	0.703	0.0633	0.0061	718	205	254	82	413	7	162.7
FD-150-core-3	706	402	0.6	130	17	13	458	96.3	3	0.424	0.035	0.05886	0.001	0.495	0.0483	0.0098	114	479	352	26	369	6	104.9

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb[a]	*Pb %	C[b]	Isotopic ratios ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U[2]	2σ	^{206}Pb/^{238}U	2σ	% C
FD-150-core-4	412	204	0.5	6	13	217	5632	99.3	1	0.5006	0.012	0.0605	0.001	0.266	0.0602	0.0013	611	47	411.6	7.9	379	6	92.0
FD-150-core-5	397	229	0.6	7	11	157	5086	99.7	1	0.48	0.012	0.06148	0.001	0.164	0.057	0.0014	492	54	398.6	8.1	385	6	96.5
M4. Sample FD-203A Deep Cove granite (UTM: 702719E, 50802392N; NAD83, Grid Zone 20T)																							
FD-203AL-1	879	369	0.4	1436	51	4	91	79.1	3	0.457	0.035	0.05672	0.0015	0.66	0.0593	0.0038	578	139	386	24	356	9	92.1
FD-203AL-2	736	338	0.5	5870	140	2	33	53.8	3	0.74	0.089	0.0694	0.0012	0.655	0.081	0.0088	1221	214	515	64	432	7	83.9
FD-203AL-3	648	318	0.5	8010	410	5	28	53.0	3	1.04	0.16	0.0819	0.0021	0.575	0.098	0.014	1586	267	646	99	507	12	78.5
FD-203AL-4	1412	556	0.4	26690	520	2	25	49.7	3	1.42	0.37	0.0944	0.0047	0.635	0.119	0.016	1941	240	889	95	581	27	65.4
FD-203AL-5	738	333	0.5	5740	120	2	34	50.7	3	0.7	0.12	0.06968	0.0047	0.748	0.0777	0.0096	1139	246	509	72	434	27	85.3
FD-203AL-6	906	471	0.5	1760	130	7	87	77.5	3	0.443	0.085	0.0567	0.001	0.494	0.057	0.0092	492	356	350	52	356	6	101.6
FD-203AL-7	648	335	0.5	2450	130	5	50	62.2	3	0.55	0.075	0.0634	0.0013	0.759	0.063	0.0076	708	257	410	53	396	8	96.6
FD-203AL-8	1144	609	0.5	27300	1800	7	22	47.4	3	3.14	0.4	0.1243	0.0083	0.92	0.189	0.017	2733	148	1375	100	751	47	54.6
FD-203AL-8core	214	135	0.6	628	52	8	64	73.1	3	0.43	0.092	0.0628	0.0012	0.65	0.05	0.011	195	511	280	86	393	8	140.2
FD-203AL-9	1150	1470	1.3	271000	28000	10	20	79.0	3	55	0.96	0.59	0.013	0.976	0	0.021			4040	160	2970	72	73.5
FD-203AL-10	791	350	0.4	4900	160	3	40	52.4	3	0.7	0.11	0.0646	0.0019	0.562	0.08	0.011	1197	271	546	66	403	11	73.9
FD-203AL-11	796	402	0.5	3370	180	5	47	61.2	3	0.47	0.079	0.05795	0.0014	0.585	0.063	0.0086	708	290	386	56	363	9	94.1
FD-203AL-12	807	517	0.6	25500	1700	7	23	49.8	3	3.64	0.35	0.1452	0.0071	0.873	0.181	0.013	2662	119	1480	99	870	41	58.8
FD-203AL-13	1228	697	0.6	8800	270	3	35	53.8	3	0.716	0.073	0.0678	0.0016	0.547	0.0802	0.0074	1202	182	534	45	423	10	79.2
FD-203AL-14	2288	2121	0.9	28600	1400	5	28	54.6	3	1.03	1.1	0.0796	0.016	0.722	0.0991	0.024	1607	451	702	170	494	85	70.3
FD-203AL-15	1577	575	0.4	3960	210	5	66	70.9	3	0.463	0.073	0.0521	0.0019	0.481	0.0672	0.0069	844	214	379	46	327	11	86.3
FD-203AL-16	992	431	0.4	15580	330	2	22	47.8	3	2.75	0.21	0.1263	0.0052	0.749	0.168	0.012	2538	120	1384	84	766	30	55.3
FD-203AL-17	1065	563	0.5	21980	540	2	24	49.2	3	2.01	0.16	0.1063	0.0028	0.742	0.146	0.013	2300	153	1125	58	651	16	57.9
FD-203AL-17core	1096	1058	1.0	23000	1400	6	24	51.8	3	2.15	0.22	0.1139	0.0046	0.851	0.144	0.011	2276	132	1144	72	694	27	60.7
FD-203AL-18	816	335	0.4	5660	260	5	32	55.6	3	0.78	0.31	0.0755	0.0045	0.875	0.071	0.028	957	806	640	100	469	23	73.3
FD-203AL-19	869	643	0.7	2355	96	4	62	70.0	3	0.414	0.062	0.05577	0.0012	0.798	0.0547	0.0067	400	274	343	44	350	7	102.0
FD-203AL-20	528	224	0.4	34200	3200	9	20	52.1	3	14	2.6	0.257	0.027	0.984	0.349	0.04	3703	175	2460	180	1460	130	59.3
FD-203AL-21core	852	209	0.2	249	52	21	373	96.0	2	0.465	0.005	0.0611	0.0006	0.984	0.0545	0.0004	393	16	387	3.5	382	4	98.7
FD-203AL-21	896	612	0.7	11570	380	3	28	53.0	3	1.23	0.19	0.0806	0.003	0.674	0.118	0.015	1926	228	780	82	499	18	64.0
FD-203AL-22	1185	553	0.5	19840	490	2	24	48.2	3	1.51	0.58	0.0885	0.011	0.594	0.131	0.018	2111	241	929	120	547	60	58.9
FD-203AL-23	950	431	0.5	16140	870	5	26	52.0	3	1.4	0.35	0.09	0.0059	0.499	0.121	0.017	1971	250	874	120	555	34	63.5
FD-203AL-24	911	385	0.4	6890	210	3	35	52.4	3	0.63	0.12	0.066	0.0022	0.679	0.074	0.01	1041	273	482	66	412	13	85.4
FD-203AL-25	1056	499	0.5	25130	590	2	23	47.5	3	2.93	0.21	0.1249	0.0041	0.825	0.182	0.013	2671	118	1381	53	758	24	54.9
FD-203AL-26core	1195	554	0.5	101000	8900	9	20	57.6	3	30.6	3.7	0.419	0.031	0.99	0.357	0.092	3737	392	3390	130	2250	140	66.4
FD-203AL-26	788	342	0.4	3820	120	3	42	56.8	3	0.5	0.072	0.0604	0.0007	0.692	0.066	0.0078	806	247	415	45	378	4	91.1
FD-203AL-27	992	506	0.5	41330	670	2	21	50.0	3	7.19	0.55	0.2024	0.011	0.597	0.2637	0.016	3269	95	2131	130	1191	64	55.9
FD-203AL-28	1136	634	0.6	1280	120	9	139	87.0	3	0.445	0.042	0.05949	0.0009	0.553	0.0555	0.0048	432	193	369	36	373	5	100.9
FD-203AL-29	828	354	0.4	9400	1100	12	26	51.9	3	1.53	0.32	0.0854	0.0035	0.777	0.137	0.033	2190	419	850	110	526	21	61.9
FD-203AL-30	1092	742	0.7	25760	490	2	24	51.9	3	2.13	0.21	0.116	0.0043	0.841	0.145	0.011	2288	131	1139	75	707	25	62.1
M5. Sample SMB16-214 – Salmon River rhyolite porphyry (UTM: 702719E, 5080239N; NAD83, Grid Zone 20T)																							
SMB16-214-1	232	270	0.9	68	13	19	145	87.2	1	1.079	0.061	0.0537	0.0028	0.097	0.154	0.0071	2280	140	736	34	337	17	45.8
SMB16-214-2	469	609	0.8	39	13	33	652	97.3	1	0.63	0.026	0.06058	0.0023	0.15	0.0756	0.0024	1064	66	495	16	379	14	76.6

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	^{206}Pb/^{204}Pb^{a}	*Pb %	C^{b}	Isotopic ratios: ^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	ρ	^{207}Pb/^{206}Pb	2σ	Calculated ages: ^{207}Pb/^{206}Pb	2σ	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	% C
SMB16-214-3	952	1028	0.9	235	25	11	231	92.1	3	0.405	0.072	0.05839	0.0031	0.344	0.0501	0.007	720	180	348	51	366	19	105.1
SMB16-214-4	4700	3750	1.3	28	11	39	8779	99.9	1	0.4431	0.012	0.05944	0.0022	0.317	0.0543	0.0006	378	23	372.3	8.7	372	13	100.0
SMB16-214-5	1179	1581	0.7	72	12	17	886	98.3	1	0.5769	0.02	0.06157	0.0023	0.37	0.0681	0.0015	865	46	462	13	385	14	83.4
SMB16-214-6	2907	13320	0.2	7820	110	1	23	39.4	3	0.289	0.34	0.0276	0.0033	0.829	0.056	0.037	1870	230	244	270	176	21	71.9
SMB16-214-7	806	840	1.0	209	30	14	230	92.4	3	0.394	0.12	0.0564	0.0034	0.57	0.05	0.01	730	250	345	74	354	21	102.6
SMB16-214-8	2725	15370	0.2	4830	110	2	22	35.0	3	0.231	0.18	0.01744	0.0017	0.616	0.078	0.044	2120	390	186	150	111	11	59.9
SMB16-214-9	4600	3750	1.2	263	32	12	722	97.5	3	0.395	0.037	0.05467	0.0025	0.555	0.0524	0.0028	450	86	337	27	343	15	101.8
SMB16-214-10	104	57	1.8	10.2	9.8	96	496	99.6	1	0.46	0.031	0.0595	0.0025	0.069	0.0566	0.0037	410	130	381	22	373	15	97.8
SMB16-214-11	703	862	0.8	489	48	10	91	78.8	3	0.48	0.24	0.0542	0.0038	0.709	0.062	0.019	1400	380	370	170	340	23	91.9
SMB16-214-12	5614	7030	0.8	209	29	14	1430	98.7	3	0.412	0.022	0.0555	0.0021	0.352	0.054	0.0019	357	76	350	16	348	13	99.5
SMB16-214-13	1143	4830	0.2	2390	180	8	31	51.6	3	0.4	0.26	0.03812	0.0032	0.738	0.067	0.036	1830	270	284	210	241	20	84.9
SMB16-214-13b1	166	1160	0.1	174	20	11	64	73.3	3	0.39	0.44	0.0591	0.0071	0.811	0.037	0.042	1750	270	290	280	370	43	127.6
SMB16-214-14	6912	8230	0.8	258	32	12	1135	98.5	3	0.387	0.033	0.05364	0.0021	0.482	0.0524	0.0017	339	62	332	25	337	13	101.4
SMB16-214-15	181	134	1.4	5.8	9.6	166	1576	99.8	1	0.43	0.021	0.05814	0.0023	0.234	0.0539	0.0023	330	87	362	15	364	14	100.6
SMB16-214-16	192	171	1.1	18.5	8.3	45	532	98.9	1	0.5	0.029	0.05872	0.0023	0.25	0.0622	0.0032	641	120	412	19	368	14	89.3
SMB16-214-17	6790	8390	0.8	369	27	7	810	97.0	3	0.352	0.018	0.04802	0.002	0.291	0.0533	0.0011	369	44	305.7	13	302	12	98.9
SMB16-214-18	514	411	1.3	35.2	9.2	26	628	97.1	1	0.538	0.02	0.05148	0.002	0.288	0.0761	0.0024	1065	72	436	14	324	12	74.2
SMB16-214-19	272	164	1.7	48	11	23	306	94.9	1	0.768	0.039	0.05932	0.0023	0.683	0.094	0.0043	1487	110	578	24	372	14	64.3
SMB16-214-20	2940	2670	1.1	272	42	15	559	96.9	3	0.418	0.037	0.05625	0.0025	0.533	0.0537	0.0026	443	82	353	27	353	15	99.9
SMB16-214-21	631	645	1.0	6.7	8.8	131	5328	99.8	1	0.511	0.018	0.0671	0.0024	0.721	0.0554	0.0013	416	54	420	13	419	14	99.6
SMB16-214-22	1333	6310	0.2	4360	110	3	29	53.3	3	0.56	0.28	0.052	0.0052	0.776	0.072	0.018	1720	220	380	210	326	32	85.9
SMB16-214-23	126	83	1.5	10	9	90	667	96.4	1	0.652	0.037	0.0583	0.0023	0.141	0.0821	0.0045	1170	100	506	22	365	14	72.2
SMB16-214-24	3808	3690	1.0	234	35	15	721	97.3	3	0.392	0.04	0.05254	0.0022	0.081	0.0533	0.0035	460	120	335	29	330	13	98.5
SMB16-214-27	252	585	0.4	85	15	18	181	90.9	1	1.307	0.052	0.074	0.0031	0.508	0.1275	0.0035	2048	53	846	23	460	19	54.4
SMB16-214-28	4530	4120	1.1	771	58	8	222	91.5	3	0.315	0.046	0.04455	0.0021	0.606	0.0506	0.005	550	120	275	37	281	13	102.1
SMB16-214-29	1069	1411	0.8	49	11	22	1129	98.5	1	0.5424	0.017	0.05967	0.0022	0.004	0.0653	0.0012	771	42	439.5	11	374	14	85.0
SMB16-214-30	464	479	1.0	4.2	8.1	193	5802	99.8	1	0.451	0.017	0.05979	0.0022	0.056	0.0544	0.0017	368	66	376.9	12	374	14	99.3
SMB16-214-31	212	170	1.2	10.1	9.1	90	987	99.3	1	0.451	0.027	0.05625	0.0022	0.05	0.058	0.0032	485	110	376	18	353	14	93.8
SMB16-214-32	1395	2136	0.7	53	13	25	1402	98.7	1	0.5441	0.017	0.06152	0.0023	0.125	0.0639	0.0011	735	37	440.8	11	385	14	87.3
SMB16-214-34	1321	7560	0.2	3670	130	4	29	54.3	3	0.67	0.37	0.0577	0.0039	0.787	0.085	0.022	1700	290	465	240	362	24	77.8
SMB16-214-35	511	1196	0.4	151	28	19	198	91.2	3	0.41	0.16	0.0594	0.004	0.846	0.048	0.015	930	310	323	120	372	24	115.1
SMB16-214-36	8470	4904	1.7	264	28	11	1573	98.8	3	0.4201	0.023	0.05689	0.0022	0.655	0.0533	0.001	356	44	355.6	16	357	13	100.3
SMB16-214-37	150	101	1.5	0.4	9.1	2275	19175	99.8	1	0.454	0.035	0.06015	0.0025	0.157	0.0547	0.0037	376	150	378	24	377	15	99.6
SMB16-214-38	473	217	2.2	6.4	8.6	134	3872	99.8	1	0.436	0.016	0.05851	0.0022	0.147	0.0544	0.0016	367	63	367.2	12	367	13	99.8
SMB16-214-39	1582	8610	0.2	1656	63	4	51	64.2	3	0.28	0.15	0.04069	0.0028	0.656	0.049	0.013	1110	240	232	120	257	17	110.8
SMB16-214-39b1	473	592	0.8	10.2	9.8	96	2275	99.7	1	0.44	0.021	0.05817	0.0022	0.253	0.055	0.0025	390	95	369.1	15	365	13	98.8
SMB16-214-40	1397	1766	0.8	1240	61	5	67	69.6	3	0.421	0.099	0.05883	0.0029	0.734	0.052	0.0084	1050	260	334	68	368	17	110.3
SMB16-214-41	178	129	1.4	4.8	9.3	194	1919	99.7	1	0.459	0.026	0.06026	0.0024	0.078	0.0551	0.0028	376	110	382	18	377	15	98.7
SMB16-214-42	672	1109	0.6	657	42	6	61	70.3	3	0.34	0.26	0.0477	0.0033	0.767	0.053	0.028	1320	270	259	230	300	21	116.0
SMB16-214-43	399	365	1.1	24	12	50	892	97.8	1	0.621	0.023	0.06258	0.0025	0.093	0.0722	0.0019	968	60	490	14	391	15	79.9

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb$[a]	*Pb %	C[b]	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{2}$ ^{35}U	2σ	$^{206}Pb/^{238}U$	2σ	% C
SMB16-214-43b1	4700	6750	0.7	3810	140	4	58	65.9	3	0.317	0.094	0.04445	0.002	0.716	0.0512	0.015	950	230	261	90	280	13	107.4
SMB16-214-44	3042	5480	0.6	269	24	9	319	93.8	3	0.22	0.27	0.0313	0.0051	0.311	0.0513	0.037	500	120	201	79	199	32	98.9
SMB16-214-45	408	804	0.5	198	27	14	98	83.3	3	0.32	0.23	0.0522	0.0036	0.738	0.04	0.029	1300	350	262	160	328	22	125.2
SMB16-214-47	875	1626	0.5	100	14	14	462	95.8	3	0.427	0.079	0.0576	0.0029	0.575	0.0532	0.0066	750	120	361	59	361	18	100.0
SMB16-214-48	204	177	1.2	9.1	9.6	105	1220	99.4	1	0.464	0.029	0.05897	0.0024	0.061	0.0575	0.0035	460	140	385	21	369	15	95.9
SMB16-214-49	3250	3320	1.0	574	50	9	289	93.7	3	0.402	0.053	0.05539	0.0025	0.486	0.0527	0.0042	510	120	341	39	348	15	101.9
SMB16-214-50	99	146	0.7	41	13	32	134	87.4	1	1.315	0.072	0.0621	0.0028	0.553	0.1536	0.0066	2356	73	846	32	388	17	45.9
SMB16-214-50b1	57	56	1.0	13	14	108	224	97.6	1	0.569	0.068	0.0579	0.0029	0.242	0.0721	0.0081	840	230	447	44	363	17	81.2
M5. Sample SMB14-192 Salmon River rhyolite porphyry (UTM: 701015E, 5081248N; NAD83, Grid Zone 20T)																							
SMB14-192-S-8	186	144	0.8	23	11	48	1183	98.0	1	0.995	0.031	0.0956	0.0019	0.021	0.0753	0.002	1077	53	702.7	16	588	11	83.7
SMB14-192-S-10	187	148	0.8	43	11	26	718	98.5	1	0.954	0.032	0.09635	0.0016	0.307	0.0718	0.0018	980	51	678	17	593	10	87.4
SMB14-192-S-3	239	97	0.4	25	12	48	1461	98.9	1	0.987	0.03	0.1022	0.0018	0.437	0.0692	0.0014	905	42	695.8	15	627	10	90.1
SMB14-192-S-15	249	155	0.6	24	11	46	1802	98.8	1	0.941	0.03	0.0994	0.0017	0.098	0.0696	0.002	917	59	670	16	611	10	91.2
SMB14-192-S-14	227	88	0.4	18.1	9.9	55	1983	99.1	1	0.803	0.024	0.0883	0.0018	0.442	0.0658	0.0014	800	45	597.4	14	545	11	91.3
SMB14-192-S-12	186	135	0.7	14	10	71	2448	99.1	1	0.921	0.029	0.09974	0.0016	0.115	0.0668	0.0016	832	50	662.5	15	613	9	92.5
SMB14-192-S-6	260	127	0.5	34	20	59	1503	99.2	1	1.003	0.13	0.1081	0.0026	0.542	0.0675	0.0076	853	234	704	48	662	15	94.0
SMB14-192-S-9	792	200	0.3	40.2	9.9	25	3502	99.5	1	0.8547	0.023	0.09736	0.0017	0.694	0.0638	0.0009	736	31	626.8	13	599	10	95.5
SMB14-192-S-4	157	159	1.0	4	11	275	6935	99.6	1	0.811	0.026	0.0947	0.0016	0.034	0.0623	0.0014	684	48	604.5	14	583	10	96.5
SMB14-192-S-13	174	153	0.9	25	11	44	1238	99.7	1	0.823	0.027	0.09628	0.0016	0.189	0.0615	0.0014	657	49	609	15	593	9	97.3
SMB14-192-S-1	156	138	0.9	16	11	69	1712	99.7	1	0.839	0.027	0.0983	0.0018	0.402	0.0624	0.0013	688	44	620.5	15	605	10	97.4
SMB14-192-S-11	112	78	0.7	7	11	157	3000	99.9	1	0.831	0.033	0.0989	0.0017	0.441	0.0608	0.002	632	71	616	18	608	10	98.6
SMB14-192-S-5	174	125	0.7	-2	12	-600	-16355	99.8	1	0.831	0.026	0.09907	0.0016	0.212	0.0606	0.0014	625	50	615	14	609	10	99.0
SMB14-192-S-core	120	141	1.2	-3	14	-467	-7560	99.8	1	0.885	0.028	0.1045	0.0018	0.313	0.061	0.0015	639	53	645	15	641	10	99.3
SMB14-192-S-7	142	95	0.7	14	10	71	1851	99.8	1	0.843	0.027	0.10068	0.0017	0.21	0.0605	0.0014	622	50	619	15	618	10	99.9
SMB14-192-S-2	149	77	0.5	83	13	16	266	94.1	3	0.53	0.14	0.0895	0.0026	0.553	0	0			413	99	552	15	133.7
M5. Sample DM141 Salmon River rhyolite porphyry (UTM: 703153E, 5083646N; NAD83, Grid Zone 20T)																							
DM141-1	1439	738	0.5	2880	150	5	64	71.2	3	0.44	0.048	0.06254	0.0009	0.394	0.0571	0.0035	495	135	377	35	391	5	103.7
DM141-2	5920	3840	0.6	639	49	8	24	55.7	3	7.6	2.3	0.225	0.02	0.93	0.0577	0.0049	518	186	2470	210	1310	110	53.0
DM141-3	1281	809	0.6	9890	220	2	30	58.0	3	0.611	0.11	0.07874	0.0011	0.634	0.198	0.051	2810	421	472	74	489	7	103.5
DM141-4	2446	1468	0.6	3000	170	6	88	79.3	3	0.418	0.054	0.06086	0.0008	0.639	0.0721	0.0079	989	223	352	38	381	5	108.2
DM141-5	174	129	0.7	1646	83	5	28	57.4	3	0.78	0.31	0.104	0.0035	0.819	0.0532	0.0056	337	238	770	140	637	21	82.7
DM141-6	2645	3980	1.5	24900	1000	4	27	55.1	3	0.923	0.1	0.0872	0.0021	0.756	0.062	0.021	674	724	649	54	539	12	83.1
DM141-7	95	72	0.8	242	44	18	52	74.6	3	0.37	0.24	0.062	0.0022	0.689	0.092	0.0069	1467	142	420	150	387	13	92.1
DM141-8	156	160	1.0	756	93	12	36	60.3	3	0.29	0.23	0.0706	0.003	0.756	0.04	0.027	-351	1743	470	140	439	18	93.4
DM141-9	243	189	0.8	1530	330	22	32	59.3	3	1.09	0.2	0.0725	0.0038	0.985	0.093	0.011	1488	224	632	71	450	22	71.2
DM141-10	470	327	0.7	4110	240	6	30	56.7	3	0.99	0.27	0.1108	0.0075	0.711	0.045	0.021	-56	1137	650	140	673	43	103.5
DM141-11	107	75	0.7	416	51	12	42	63.0	3	0.45	0.26	0.0676	0.0025	0.593	0.07	0.014	928	411	480	150	421	15	87.7
DM141-12	139	102	0.7	1183	54	5	29	57.5	3	0.84	0.44	0.0884	0.0048	0.768	0.051	0.026	241	1175	650	170	546	28	84.0
DM141-13	115	112	1.0	2210	100	5	23	52.5	3	1.98	0.43	0.1312	0.0055	0.771	0.071	0.022	957	633	1140	170	794	32	69.6
DM141-15	705	1520	2.2	490	33	7	18	79.0	3	58	13	0.612	0.076	0.799	0	1.1			4130	240	3060	310	74.1

Appendix A. Continued.

Sample number-Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb cps	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^a$	*Pb %	C^b	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
DM141-16	2260	5620	2.5	130	16	12	25	54.8	3	6.9	3.7	0.156	0.027	0.881	0.013	0.015			2710	220	930	150	34.3
DM141-17	5390	5920	1.1	612	76	12	22	53.9	3	3.2	1.3	0.1554	0.0097	0.619	0.41	0.26	3946	951	1940	180	931	56	48.0
DM141-19	1170	609	0.5	999	36	4	117	84.1	3	0.436	0.036	0.05822	0.0006	0.355	0	1.2			364	25	365	4	100.2
DM141-20	1220	1290	1.1	26200	1100	4	23	54.2	3	4.42	0.39	0.183	0.011	0.954	0.0559	0.0035	448	139	1600	120	1077	64	67.3
DM141-21	227	166	0.7	1650	130	8	31	54.4	3	0.77	0.3	0.0837	0.0024	0.768	0.168	0.012	2538	120	650	140	518	14	79.7
DM141-22	202	158	0.8	1280	110	9	33	54.2	3	0.7	0.28	0.0794	0.0023	0.878	0.067	0.023	838	715	640	150	492	14	76.9
DM141-23	7630	21000	2.8	1148	57	5	20	86.3	3	42.9	6.4	0.574	0.035	0.835	0.053	0.023	329	985	3790	160	2920	140	77.0
DM141-24	1426	937	0.7	4750	230	5	44	58.7	3	0.44	0.068	0.06391	0.0011	0.569	0.022	0.019			367	51	399	7	108.8
DM141-25	351	319	0.9	4620	110	2	25	52.0	3	1.35	0.15	0.108	0.0041	0.647	0.055	0.0066	412	268	880	88	660	24	75.0
DM141-26	155	111	0.7	776	49	6	31	56.7	3	0.73	0.26	0.0891	0.0026	0.806	0.102	0.011	1661	200	800	120	550	15	68.8
DM141-27	315	170	0.5	1290	100	8	41	59.3	3	0.38	0.17	0.0706	0.0014	0.845	0.07	0.02	928	587	370	130	440	9	118.9
DM141-28	434	297	0.7	6010	160	3	23	52.9	3	2.56	0.37	0.1471	0.0048	0.67	0.034	0.014	-790	1166	1280	120	883	27	69.0
DM141-29	1132	222	0.2	476	27	6	19	66.0	3	34	11	0.497	0.077	0.849	0.135	0.016	2164	207	3530	340	2560	340	72.5
DM141-30	1692	997	0.6	707	50	7	228	92.0	3	0.388	0.069	0.05944	0.0026	0.381	0.023	0.017			338	55	372	15	110.1
DM141-31	416	1183	2.8	806	62	8	19	39.0	3	26	36	0.32	0.099	1	0.0484	0.0061	119	297	3100	1500	1790	480	57.7
DM141-32	587	525	0.9	556	28	5	19	75.0	3	41	40	0.48	0.25	0.985	0	1.1			3600	1400	2400	1100	66.7
DM141-34	1948	1855	1.0	15580	540	3	28	54.0	3	0.72	0.14	0.0785	0.0029	0.635	0	1.1			520	79	487	17	93.7
DM141-35	1342	425	0.3	32600	1900	6	20	43.7	3	3.56	0.36	0.1344	0.0037	0.701	0.082	0.0097	1246	232	1559	99	812	21	52.1
DM141-36	132	118	0.9	1236	49	4	28	55.8	3	0.77	0.48	0.0873	0.0034	0.867	0.222	0.017	2995	123	910	170	539	20	59.2
DM141-37	411	267	0.6	856	67	8	71	75.5	3	0.58	0.1	0.0786	0.0016	0.476	0.069	0.033	899	987	435	72	487	10	112.0
DM141-38	329	175	0.5	124	21	17	252	93.8	3	0.439	0.056	0.06014	0.0009	0.589	0.055	0.009	412	366	357	41	376	5	105.4
DM141-39	52000	11280	0.2	180	19	11	81	76.7	3	0.65	0.26	0.0744	0.003	0.748	0.0529	0.0062	325	266	400	150	462	18	115.5
DM141-40	349	179	0.5	970	110	11	54	70.0	3	0.51	0.11	0.0704	0.0015	0.603	0.064	0.028	742	925	395	85	440	9	111.3
DM141-core-1	853	771	0.9	7050	170	2	29	56.4	3	0.94	0.15	0.0866	0.0016	0.618	0.056	0.01	452	396	654	83	535	10	81.8
DM141-core-2	95	63	0.7	334	31	9	46	62.7	3	0.34	0.2	0.0729	0.0024	0.845	0.096	0.01	1548	196	580	110	453	14	78.1
DM141-core-3	117	119	1.0	-6	13	-217	-1772	99.6	1	0.485	0.021	0.06327	0.001	0.032	0.0558	0.0021	444	84	400	13	396	6	98.9
DM141-core-4	544	567	1.0	7740	460	6	25	53.7	3	1.79	0.23	0.1175	0.0039	0.712	0.05	0.013	195	604	1000	110	716	23	71.6

Notes: Pb^a = in counts per second. C^b = lead correction: 1 = no correction applied; 2 = a ^{208}Pb-based correction used (Petrus and Kamber 2012); 3 = a ^{204}Pb-based correction used (Anderson 2002). % C = % concordant.

Appendix B. LA-ICP-MS U-Pb isotopic analyses of zircon reference materials by date.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^a$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
08/03/2014 (7) 12:16:39.56	91500-3				0.9	6.9	767	10578		1.817	0.064	0.1763	0.003	0.044231	0.0747	0.0024	1043	62	1052	24	1047	17	99.5
08/03/2014 (7) 11:06:49.87	91500-2				-0.7	7.2	-1029	-14314		1.836	0.066	0.1778	0.0029	0.13913	0.075	0.0023	1047	61	1057	24	1056	16	99.9
08/03/2014 (7) 11:29:10.87	91500-1				6	7.2	120	1713		1.79	0.062	0.1773	0.003	0.10961	0.0719	0.0021	1022	53	1041	22	1052	16	101.0
21/05/2015 (5) 12:46:49.09	91500 - 1	75	26	0.34	3.3	9.2	279	6691	99.8	1.803	0.053	0.1752	0.0024	0.029406	0.0742	0.0017	1047	46	1045	19	1041	13	99.6
21/05/2015 (5) 13:20:25.41	91500 - 2	78	27	0.35	14	11	79	1573	99.9	1.788	0.054	0.175	0.0025	0.30418	0.0741	0.0016	1044	44	1043	20	1040	14	99.7
21/05/2015 (5) 13:56:13.49	91500 - 3	81	28	0.35	13.3	9.4	71	1623	99.8	1.803	0.053	0.1761	0.0026	0.11106	0.074	0.0017	1041	46	1045	19	1045	14	100.0
21/05/2015 (5) 14:17:27.14	91500 - 4	81	28	0.35	8.8	8.2	93	2478	99.8	1.85	0.05	0.1779	0.0025	0.24716	0.075	0.0014	1069	38	1062	18	1056	14	99.4
21/05/2015 (5) 14:48:55.64	91500 - 5	88	30	0.35	1.1	8.6	782	20755	99.8	1.814	0.05	0.1776	0.0024	0.012537	0.0742	0.0016	1047	43	1053	19	1054	13	100.1
21/05/2015 (5) 15:23:32.67	91500 - 6	89	30	0.34	3.5	8.9	254	6483	99.8	1.81	0.047	0.1766	0.0025	0.20104	0.0747	0.0015	1060	40	1047	18	1048	14	100.1
14/ 01/2015 (4) 13:32:20.03	Temora - 1	110	35	0.32	-1	13	-1300	-15360	99.9	0.499	0.016	0.0669	0.0015	0.17333	0.0546	0.0017	396	70	411.9	10	418	9.3	101.4
14/ 01/2015 (4) 14:06:53.20	Temora - 2	333	176	0.53	5	11	220	8904	99.9	0.498	0.012	0.0666	0.0015	0.17477	0.05463	0.001	397	41	410.2	7.9	416	8.8	101.3
14/ 01/2015 (4) 14:48:13.99	Temora - 3	77	26	0.34	4	12	300	2468	99.9	0.484	0.017	0.0668	0.0016	0.10649	0.053	0.0017	329	73	399	12	417	9.5	104.5
14/ 01/2015 (4) 15:32:41.75	Temora - 4	99	30	0.30	3	14	467	4457	99.8	0.499	0.018	0.0669	0.0015	0.054038	0.0546	0.0019	396	78	414	12	418	9.4	100.9
14/ 01/2015 (4) 16:04:59.29	Temora - 5	108	35	0.32	8	12	150	1795	99.9	0.496	0.016	0.067	0.0015	0.046526	0.0535	0.0016	350	68	408.7	11	418	9.2	102.3
21/ 05/2015 (5) 12:49:04.79	Tanzania - 1	19	3	0.16	18.7	9.8	52	189	99.6	0.945	0.055	0.1094	0.0022	0.071919	0.0628	0.0037	701	125	675	29	669	13	99.1
21/ 05/2015 (5) 13:22:41.11	Tanzania - 2	110	31	0.28	6.2	9.7	156	3387	99.8	0.992	0.028	0.1146	0.0017	0.26584	0.0628	0.0013	701	44	699	15	700	9.9	100.1
21/05/2015 (5) 13:58:29.34	Tanzania - 3	93	7	0.08	-0.8	9.7	-1213	-20775	99.7	0.99	0.029	0.1131	0.0016	0.12613	0.0628	0.0015	701	51	700	15	692	9.4	98.8
21/05/2015 (5) 14:15:11.30	Tanzania - 4	33	6	0.18	0.2	8.4	4200	29485	99.5	1.027	0.047	0.115	0.002	0.13552	0.0649	0.0029	771	94	713	24	702	11	98.4
21/05/2015 (5) 14:47:46.19	Tanzania - 5	15	2	0.12	8.7	9.7	111	304	99.5	1.02	0.065	0.1139	0.0024	0.026206	0.0629	0.0038	705	129	706	32	695	14	98.4
21/05/2015 (5) 15:21:16.68	Tanzania - 6	56	11	0.20	1	10	1000	9647	99.5	1.019	0.036	0.1134	0.0018	0.15821	0.065	0.002	774	65	711	18	692	11	97.4
08/03/2014 (7) 10:15:42.76	FC1-17				-8.7	8.3	-95	-7908		1.948	0.045	0.1858	0.0027	0.32089	0.07611	0.001	1099	18	1098	16	1098	15	100.0
08/03/2014 (7) 10:23:14.61	FC1-16				4.8	7.6	158	15208		1.956	0.045	0.1862	0.0027	0.24908	0.07622	0.001	1096	20	1100	16	1101	15	100.0
08/03/2014 (7) 10:34:37.31	FC1-15				5.7	7.5	132	11456		1.948	0.046	0.1859	0.0027	0.171	0.07594	0.0011	1097	21	1099	15	1099	15	100.0
08/03/2014 (7) 10:29:31.97	FC1-14				13.5	7.9	59	3497		1.952	0.048	0.1857	0.0027	0.27879	0.07629	0.0012	1103	24	1099	16	1098	15	99.9
08/03/2014 (7) 10:44:30.65	FC1-13				-0.5	7	-1400	-113600		1.953	0.048	0.1859	0.0027	0.1953	0.0763	0.0013	1098	27	1099	17	1099	15	100.0
08/03/2014 (7) 10:56:52.86	FC1-12				3.6	7	194	12083		1.953	0.049	0.1858	0.0028	0.20909	0.0763	0.0013	1095	28	1099	17	1099	15	100.0
08/03/2014 (7) 11:05:33.32	FC1-11				12.9	7.7	60	5798		1.952	0.045	0.186	0.0027	0.30271	0.07604	0.001	1099	19	1098	16	1100	15	100.1
08/03/2014 (7) 11:14:18.42	FC1-10				3.1	7.2	232	13323		1.953	0.05	0.1857	0.0028	0.084775	0.0763	0.0013	1105	29	1098	17	1098	15	100.0
08/03/2014 (7) 11:27:54.51	FC1-09				-3.2	7.4	-231	-12656		1.969	0.049	0.1863	0.0028	0.25057	0.07646	0.0012	1106	26	1107	16	1102	15	99.6
08/03/2014 (7) 11:21:44.50	FC1-08				9.1	7.2	79	3811		1.939	0.05	0.1857	0.0028	0.2987	0.0758	0.0013	1088	30	1093	17	1098	15	100.4
08/03/2014 (7) 11:34:09.61	FC1-07				9.2	7.5	82	3346		1.943	0.051	0.1855	0.0028	0.16021	0.076	0.0015	1089	34	1095	18	1097	16	100.2
08/03/2014 (7) 11:45:20.11	FC1-06				-1.7	6.7	-394	-14906		1.954	0.052	0.186	0.0029	0.21175	0.0761	0.0015	1107	34	1099	18	1100	16	100.1
08/03/2014 (7) 11:56:31.29	FC1-05				8.7	6.8	78	2448		1.933	0.053	0.1856	0.0029	0.26173	0.0756	0.0015	1074	35	1092	18	1097	16	100.5
08/03/2014 (7) 12:06:35.39	FC1-04				-3.4	7.3	-215	-6491		1.95	0.054	0.1854	0.0028	0.20477	0.076	0.0015	1092	36	1097	19	1097	15	100.0
08/03/2014 (7) 12:01:35.20	FC1-03				7	7.4	106	4510		1.97	0.05	0.1866	0.0028	0.19067	0.0766	0.0014	1103	30	1104	17	1103	15	99.9
08/03/2014 (7) 12:11:36.89	FC1-02				18.3	7.6	42	1852		1.945	0.052	0.1859	0.0028	0.18847	0.0764	0.0014	1092	32	1096	18	1099	15	100.3
08/ 03/2014 (7) 12:17:56.26	FC1-1_1				7.1	7.4	104	13352		1.955	0.045	0.186	0.0027	0.44514	0.07609	0.001	1095	18	1100	15	1100	15	100.0
14/ 01/2015 (4) 13:30:02.53	FC1 - 1	285	172	0.60	2	11	550	55300	99.9	1.94	0.037	0.1854	0.004	0.31632	0.07638	0.0009	1105	24	1094	13	1097	22	100.2
14/ 01/2015 (4) 13:30:02.53	FC1 - 2	213	136	0.64	-5	11	-220	-16342	100.0	1.959	0.037	0.1867	0.004	0.30745	0.07553	0.0009	1183	25	1102	13	1103	22	100.1

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	%C
14/01/2015 (4) 13:49:03.60	FC1 - 3	271	169	0.62	1	14	1400		100.0	1.976	0.038	0.1861	0.004	0.33598	0.07673	0.001	1114	25	1107	13	1100	22	99.4
14/01/2015 (4) 13:56:51.77	FC1 - 4	257	163	0.63	8	12	150	12343	99.9	1.938	0.036	0.1852	0.004	0.099369	0.07605	0.001	1096	25	1095	13	1096	22	100.1
14/01/2015 (4) 14:18:07.62	FC1 - 6	329	202	0.62	6	17	283	21600	100.0	1.93	0.036	0.1856	0.004	0.23925	0.07595	0.001	1094	25	1091	13	1097	22	100.6
14/01/2015 (4) 14:27:01.04	FC1 - 7	250	153	0.61	7	11	157	13269	100.0	1.969	0.036	0.1867	0.004	0.18747	0.07637	0.001	1105	25	1106	13	1104	22	99.8
14/01/2015 (4) 14:35:54.30	FC1 - 8	119	70	0.58	12	12	100	3735	99.8	1.933	0.043	0.1854	0.004	0.13371	0.0761	0.0013	1098	34	1091	15	1096	22	100.5
14/01/2015 (4) 14:45:56.83	FC1 - 9	181	72	0.40	-2	13	-650	-34000	100.0	1.938	0.038	0.1853	0.004	0.19517	0.07611	0.0011	1098	29	1094	13	1096	22	100.2
14/01/2015 (4) 15:00:23.84	FC1 - 10	198	99	0.50	-9	11	-122	-8261	100.0	1.973	0.038	0.1867	0.004	0.35129	0.07618	0.001	1100	26	1106	13	1103	22	99.7
14/01/2015 (4) 15:11:28.53	FC1 - 11	389	266	0.68	-3	10	-333	-48893	100.0	1.957	0.035	0.1852	0.004	0.40912	0.07614	0.0008	1099	21	1100	12	1095	22	99.5
14/01/2015 (4) 15:20:22.21	FC1 - 12	154	61	0.40	-4	11	-275	-14390	99.9	1.975	0.04	0.1874	0.0041	0.23205	0.07588	0.0011	1092	29	1107	14	1107	22	100.0
14/01/2015 (4) 15:30:24.45	FC1 - 13	126	63	0.50	-4	12	-300	-11735	99.8	1.963	0.041	0.1851	0.004	0.33002	0.07642	0.0011	1106	29	1102	14	1094	22	99.3
14/01/2015 (4) 15:41:34.48	FC1 - 14	319	201	0.63	2	11	550	60250	100.0	1.942	0.037	0.1856	0.004	0.34412	0.0762	0.0009	1100	25	1096	13	1098	22	100.2
14/01/2015 (4) 15:49:21.87	FC1 - 15	439	264	0.60	8	12	150	20925	100.0	1.952	0.036	0.1861	0.004	0.41794	0.07611	0.0009	1098	23	1099	13	1100	22	100.1
14/01/2015 (4) 16:07:16.67	FC1 - 17	196	72	0.37	2	13	650	35920	100.0	1.937	0.037	0.1858	0.004	0.25632	0.07614	0.001	1099	26	1094	13	1099	22	100.4
15/01/2015 (5) 10:42:22.13	FC1 - 1	254	145	0.57	7	12	171	11863	99.9	1.952	0.17	0.186	0.0022	0.21028	0.07627	0.001	1102	26	1099	60	1099	12	100.1
15/01/2015 (5) 10:52:20.98	FC1 - 2	106	33	0.31	-1	14	-1400	-35600	99.8	1.95	0.18	0.1855	0.0024	0.090978	0.0768	0.0014	1116	36	1097	60	1097	13	100.0
15/01/2015 (5) 11:02:25.40	FC1 - 3	271	162	0.60	-5	12	-240	-18138	99.9	1.952	0.17	0.1861	0.0022	0.22177	0.07612	0.001	1098	26	1099	60	1100	12	100.1
15/01/2015 (5) 11:11:13.94	FC1 - 4	321	199	0.62	-2	12	-600	-53840	99.9	1.953	0.17	0.1859	0.0022	0.31136	0.07644	0.001	1107	25	1100	61	1099	12	99.9
15/01/2015 (5) 11:20:04.18	FC1 - 5	349	207	0.59	-3	13	-433	-38667	99.9	1.952	0.17	0.186	0.0022	0.15139	0.07623	0.0009	1101	25	1099	61	1100	12	100.0
15/01/2015 (5) 11:28:54.64	FC1 - 6	335	170	0.51	9	11	122	12444	100.0	1.952	0.17	0.1858	0.0022	0.34697	0.07576	0.0009	1089	23	1099	60	1098	12	100.0
15/01/2015 (5) 11:40:06.05	FC1 - 7	252	152	0.60	-11	13	-118	-7645	100.0	1.949	0.17	0.1859	0.0022	0.40107	0.07586	0.0009	1091	25	1098	61	1099	12	100.1
15/01/2015 (5) 11:48:56.07	FC1 - 8	297	168	0.57	8	11	138	12400	100.0	1.956	0.18	0.186	0.0021	0.21797	0.07586	0.001	1091	26	1102	61	1100	12	99.8
15/01/2015 (5) 12:05:26.49	FC1 - 9	216	137	0.63	2	11	550	35270	99.9	1.951	0.17	0.1858	0.0022	0.16498	0.07682	0.0011	1117	29	1099	61	1099	12	100.0
15/01/2015 (5) 12:25:32.51	FC1 - 11	367	271	0.74	5	12	240	24360	99.9	1.953	0.17	0.1859	0.0021	0.079447	0.0765	0.001	1108	25	1100	60	1099	12	99.9
15/01/2015 (5) 12:35:35.11	FC1 - 12	346	216	0.62	1	12	1200	112900	100.0	1.95	0.17	0.186	0.0022	0.44368	0.07586	0.0009	1091	25	1098	60	1100	12	100.1
15/01/2015 (5) 12:45:35.22	FC1 - 13	364	215	0.59	10	11	110	11570	100.0	1.952	0.17	0.1859	0.0021	0.18393	0.0759	0.0009	1092	24	1099	60	1099	12	100.0
15/01/2015 (5) 12:54:26.48	FC1 - 14	307	168	0.55	6	12	200	16092	99.9	1.953	0.17	0.1859	0.0021	0.12067	0.07685	0.001	1117	26	1099	60	1099	11	100.0
15/01/2015 (5) 13:03:17.48	FC1 - 15	154	79	0.51	6	11	183	8160	99.9	1.952	0.17	0.186	0.0023	0.19631	0.07561	0.001	1085	27	1100	62	1099	13	100.0
15/01/2015 (5) 13:45:24.37	FC1 - 16	140	82	0.58	-2.7	8.7	-322	-8474	99.9	1.936	0.18	0.1859	0.0025	0.27292	0.0751	0.0016	1071	43	1094	60	1099	13	100.5
15/01/2015 (5) 13:49:55.21	FC1 - 17	176	75	0.43	1.3	9.6	738	23415	99.8	1.959	0.18	0.1859	0.0024	0.046417	0.0774	0.0014	1132	36	1101	62	1099	13	99.8
15/01/2015 (5) 14:40:02.75	FC1 - 1	458	248	0.54	14	11	79	10586	100.0	1.962	0.05	0.1863	0.0028	0.20978	0.07602	0.0011	1096	29	1102	17	1101	15	99.9
15/01/2015 (5) 14:50:02.39	FC1 - 2	331	203	0.61	11.5	9.2	80	9078	100.0	1.969	0.051	0.187	0.0029	0.17267	0.07622	0.0011	1101	29	1106	17	1105	16	99.9
15/01/2015 (5) 15:00:05.15	FC1 - 3	183	66	0.36	7.4	8.5	115	7673	100.0	1.934	0.055	0.1843	0.0029	0.29051	0.076	0.0014	1095	37	1093	19	1090	16	99.7
15/01/2015 (5) 15:08:56.05	FC1 - 4	133	44	0.33	8.8	8.7	99	4719	100.0	1.907	0.053	0.1851	0.003	0.12008	0.0753	0.0014	1077	37	1083	19	1095	16	101.0
15/01/2015 (5) 15:17:46.52	FC1 - 5	119	77	0.64	4	10	250	9255	99.8	1.956	0.054	0.1849	0.003	0.1102	0.0775	0.0014	1134	36	1100	19	1093	16	99.4
15/01/2015 (5) 15:28:58.24	FC1 - 6	403	230	0.57	22.7	9.6	42	5653	99.9	1.948	0.051	0.1857	0.0029	0.21785	0.0767	0.0011	1113	29	1098	17	1098	16	100.0
15/01/2015 (5) 15:46:39.38	FC1 - 8	83	31	0.37	5.3	7.5	142	4781	99.8	1.94	0.059	0.1849	0.0031	0.18487	0.0764	0.0017	1106	44	1094	21	1094	17	100.0
15/01/2015 (5) 16:04:20.22	FC1 - 9	251	161	0.64	16.6	9.7	58	4722	99.9	1.922	0.051	0.1849	0.0028	0.24389	0.07554	0.0012	1083	32	1088	18	1094	15	100.5
15/01/2015 (5) 16:14:22.87	FC1 - 10	418	257	0.61	5.3	8.4	158	24660	100.0	1.974	0.051	0.188	0.0029	0.36566	0.07605	0.0011	1096	29	1107	18	1110	16	100.3
15/01/2015 (5) 16:23:13.65	FC1 - 11	234	110	0.47	-3	9.8	-327	-24253	100.0	1.93	0.051	0.1854	0.0029	0.12618	0.07553	0.0012	1083	32	1091	18	1097	16	100.5
15/01/2015 (5) 16:23:13.65	FC1 - 12	268	169	0.63	15.2	9.3	61	5469	99.9	1.958	0.052	0.1862	0.0029	0.020199	0.07629	0.0012	1103	31	1100	18	1101	16	100.0

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^a$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
15/01/2015 (5) 16:43:16.49	FC1 - 13	312	179	0.57	11.5	8.8	77	8557	99.9	1.961	0.051	0.1861	0.0029	0.21315	0.0764	0.0012	1106	31	1102	18	1100	16	99.8
15/01/2015 (5) 16:53:19.37	FC1 - 14	185	98	0.53	19.7	9.7	49	2934	99.9	1.917	0.053	0.1849	0.0029	0.29835	0.07536	0.0013	1078	35	1087	18	1094	16	100.6
15/01/2015 (5) 17:02:09.91	FC1 - 15	288	177	0.62	5.6	8.7	155	15920	99.9	1.974	0.051	0.1873	0.0029	0.14729	0.07637	0.0011	1105	29	1106	18	1106	16	100.0
15/01/2015 (5) 17:12:09.09	FC1 - 16	281	124	0.44	4	10	250	21733	99.9	1.965	0.052	0.187	0.0029	0.21547	0.07618	0.0012	1100	32	1103	18	1105	16	100.2
15/01/2015 (5) 17:13:15.34	FC1 - 17	227	122	0.54	5	10	200	13774	99.9	1.945	0.052	0.1841	0.0028	0.12971	0.07655	0.0012	1109	31	1096	18	1089	15	99.4
21/05/2015 (5) 12:45:41.23	FC-1 - 1	341	206	0.60	-3.1	9.3	-300	-35194	100.0	1.956	0.042	0.1861	0.0023	0.32723	0.07628	0.0007	1102	19	1100	14	1100	13	100.0
21/05/2015 (5) 12:54:40.57	FC-1 - 2	351	212	0.60	-5.1	8.7	-171	-21490	100.0	1.937	0.041	0.1852	0.0023	0.42195	0.07593	0.0007	1093	18	1093	14	1095	13	100.2
21/05/2015 (5) 13:02:29.96	FC-1 - 3	439	256	0.58	18.5	8.7	47	7346	100.0	1.971	0.041	0.1872	0.0024	0.36734	0.07626	0.0007	1102	18	1105	14	1106	13	100.1
21/05/2015 (5) 13:12:30.97	FC-1 - 4	554	277	0.50	3.1	9.5	306	54548	99.9	1.944	0.04	0.1848	0.0023	0.26907	0.07632	0.0006	1103	17	1098	14	1093	13	99.6
21/05/2015 (5) 13:19:17.41	FC-1 - 5	486	252	0.52	9.2	9.8	107	16337	100.0	1.943	0.04	0.1861	0.0023	0.37837	0.07582	0.0007	1090	17	1097	14	1100	13	100.2
21/05/2015 (5) 13:34:52.74	FC-1 - 6	359	206	0.57	2.2	9.2	418	48318	99.9	1.96	0.041	0.1857	0.0023	0.18264	0.07643	0.0008	1106	20	1101	14	1098	13	99.7
21/05/2015 (5) 13:41:35.95	FC-1 - 7	340	197	0.58	8	11	138	12625	100.0	1.961	0.042	0.1865	0.0023	0.2684	0.07617	0.0008	1100	20	1102	14	1102	13	100.0
21/05/2015 (5) 13:47:13.07	FC-1 - 8	345	192	0.56	5.5	8.9	162	18422	99.9	1.956	0.042	0.1863	0.0023	0.43152	0.07605	0.0007	1096	19	1101	15	1101	13	100.1
21/05/2015 (5) 13:55:05.70	FC-1 - 9	276	158	0.57	11.2	9	80	7085	100.0	1.933	0.043	0.1852	0.0024	0.36431	0.07615	0.0009	1099	23	1093	15	1095	13	100.2
21/05/2015 (5) 14:08:29.38	FC-1 - 10	260	151	0.58	13.6	9.2	68	5436	99.9	1.963	0.043	0.1857	0.0023	0.27653	0.07652	0.0009	1109	23	1102	15	1098	13	99.6
21/05/2015 (5) 14:18:37.68	FC-1 - 11	261	148	0.57	-1.5	8.4	-560	-49227	99.9	1.932	0.044	0.1846	0.0024	0.3712	0.07566	0.0009	1086	25	1092	15	1093	13	100.0
21/05/2015 (5) 14:25:22.17	FC-1 - 12	228	139	0.61	6.3	9.3	148	10163	99.9	1.955	0.045	0.1869	0.0024	0.28484	0.07596	0.001	1094	26	1100	16	1105	13	100.4
21/05/2015 (5) 14:35:24.04	FC-1 - 13	265	164	0.62	26.3	9.7	37	2880	99.9	1.959	0.042	0.1866	0.0025	0.25133	0.0763	0.0009	1103	23	1101	15	1103	13	100.2
21/05/2015 (5) 14:45:28.89	FC-1 - 14	450	278	0.62	5.1	9.1	178	25118	99.9	1.95	0.041	0.1854	0.0024	0.31084	0.07621	0.0008	1101	20	1098	14	1097	13	99.8
21/05/2015 (5) 14:55:37.91	FC-1 - 15	219	138	0.63	-9	10	-111	-6724	99.9	1.953	0.045	0.1853	0.0024	0.21069	0.07631	0.001	1103	26	1101	16	1096	13	99.5
21/05/2015 (5) 15:02:21.56	FC-1 - 16	141	45	0.32	6	8.4	140	6455	99.9	1.961	0.046	0.1866	0.0024	0.27662	0.0762	0.001	1100	26	1101	16	1103	13	100.2
21/05/2015 (5) 15:14:34.53	FC-1 - 17	209	78	0.37	0.3	8.6	2867	192167	99.9	1.948	0.043	0.1861	0.0024	0.25889	0.07606	0.0009	1097	24	1097	15	1100	13	100.3
21/05/2015 (5) 15:24:40.49	FC-1 - 18	206	76	0.37	18.6	9.1	49	3027	99.9	1.951	0.046	0.1857	0.0024	0.23914	0.07608	0.001	1097	26	1100	16	1098	13	99.9
22/05/2015 (6) 10:10:20.80	FC-1 - 1	202	58	0.29	5	11	220	12030	99.9	1.947	0.03	0.1851	0.0023	0.2445	0.07615	0.0014	1099	37	1099	11	1095	12	99.6
22/05/2015 (6) 10:20:39.97	FC-1 - 2	161	71	0.44	15.9	9.6	60	3146	100.0	1.966	0.033	0.1873	0.0023	0.19319	0.0762	0.0015	1100	39	1104	11	1107	13	100.3
22/05/2015 (6) 10:29:52.61	FC-1 - 3	429	304	0.71	12	12	100	10283	100.0	1.949	0.026	0.1859	0.0023	0.46608	0.07614	0.0012	1099	32	1098	9.1	1099	12	100.1
22/05/2015 (6) 10:50:27.69	FC-1 - 5	286	178	0.62	16.8	9	54	5143	99.9	1.956	0.03	0.1852	0.0022	0.38846	0.07631	0.0013	1103	34	1100	10	1095	12	99.5
22/05/2015 (6) 10:56:37.59	FC-1 - 6	336	194	0.58	10	11	110	10139	99.9	1.945	0.027	0.1862	0.0022	0.38211	0.07599	0.0012	1095	32	1096	9.3	1101	12	100.4
22/05/2015 (6) 11:08:55.43	FC-1 - 7	218	103	0.47	6	11	183	10847	100.0	1.956	0.031	0.1858	0.0024	0.42121	0.07618	0.0014	1100	37	1100	11	1098	13	99.9
22/05/2015 (6) 11:17:13.30	FC-1 - 8	105	33	0.31	-3.3	8.7	-264	-9212	99.9	1.955	0.04	0.1852	0.0024	0.19263	0.0766	0.0018	1111	47	1100	14	1095	13	99.6
22/05/2015 (6) 11:28:28.12	FC-1 - 9	290	143	0.50	6	11	183	14132	99.9	1.957	0.028	0.187	0.0023	0.19674	0.07595	0.0013	1094	34	1100	9.6	1105	13	100.5
22/05/2015 (6) 11:34:40.54	FC-1 - 10	275	167	0.61	14	12	86	5871	99.9	1.935	0.032	0.1841	0.0023	0.027749	0.0764	0.0015	1106	39	1093	11	1090	13	99.7
22/05/2015 (6) 11:41:52.41	FC-1 - 11	470	313	0.67	9.6	9.4	98	14740	100.0	1.956	0.026	0.1868	0.0022	0.29226	0.07611	0.0012	1098	32	1100	9	1104	12	100.3
22/05/2015 (6) 11:55:15.51	FC-1 - 12	205	121	0.59	1.4	9.6	686	41686	99.9	1.953	0.033	0.1852	0.0024	0.26785	0.07637	0.0014	1105	37	1100	11	1096	13	99.6
22/05/2015 (6) 12:01:25.95	FC-1 - 13	325	213	0.66	4.8	9.8	204	19688	100.0	1.956	0.029	0.1864	0.0022	0.42048	0.07604	0.0013	1096	34	1100	10	1102	12	100.2
22/05/2015 (6) 12:13:44.43	FC-1 - 14	190	81	0.42	24	11	46	2252	99.9	1.94	0.03	0.1855	0.0024	0.38374	0.07614	0.0014	1099	37	1094	10	1098	13	100.3
22/05/2015 (6) 12:22:01.69	FC-1 - 15	181	82	0.45	4.8	8.2	171	10650	99.9	1.952	0.034	0.185	0.0023	0.21203	0.076	0.0015	1095	40	1098	12	1094	13	99.7
22/05/2015 (6) 12:28:12.14	FC-1 - 16	168	72	0.43	14.1	8.5	60	3355	99.8	1.963	0.033	0.1854	0.0025	0.24315	0.0764	0.0014	1106	37	1102	11	1096	13	99.5
22/05/2015 (6) 12:40:33.16	FC-1 - 17	228	113	0.49	-3	11	-367	-21983	99.9	1.95	0.029	0.1865	0.0023	0.11335	0.0761	0.0014	1098	37	1099	9.8	1103	12	100.4

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	Isotopic ratios: $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages: $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	%C
11/12/2015 (6) 10:28:15.62	FC-1 - 1	473	298	0.63	1	12	1200	104500	99.9	1.952	0.023	0.186	0.0014	0.18441	0.07615	0.0009	1100	25	1099	7.9	1100	7.7	100.1
11/12/2015 (6) 10:38:42.90	FC-1 - 2	239	147	0.62	14	12	86	3691	99.7	1.944	0.033	0.1866	0.0016	0.15214	0.0761	0.0014	1091	36	1099	11	1104	8.3	100.4
11/12/2015 (6) 10:49:09.98	FC-1 - 3	287	168	0.58	6	12	200	10283	99.8	1.963	0.03	0.1859	0.0015	0.37597	0.07619	0.0011	1097	30	1103	10	1099	8.3	99.7
11/12/2015 (6) 10:58:38.86	FC-1 - 4	139	48	0.34	3	13	433	9950	99.8	1.929	0.04	0.1851	0.0019	0.17088	0.0761	0.0016	1088	42	1090	14	1095	10	100.4
11/12/2015 (6) 11:10:11.31	FC-1 - 5	521	288	0.55	1	17	1700	113310	99.9	1.957	0.025	0.187	0.0016	0.11302	0.07576	0.0011	1090	28	1102	8.8	1105	8.8	100.3
11/12/2015 (6) 11:11:09.56	FC-1 - 6	222	133	0.60	1	12	1200	46290	99.7	1.957	0.03	0.1854	0.0016	0.20592	0.0767	0.0012	1110	32	1101	10	1096	8.5	99.6
11/12/2015 (6) 11:21:37.31	FC-1 - 7	182	106	0.58	-4	12	300	-9523	99.8	1.946	0.034	0.1855	0.0016	0.12484	0.0761	0.0013	1097	34	1097	11	1097	8.8	100.0
11/12/2015 (6) 11:30:04.30	FC-1 - 8	215	138	0.64	-1	13	1300	-45070	99.8	1.936	0.034	0.1854	0.0017	0.22104	0.0761	0.0013	1091	34	1094	12	1097	9.1	100.2
11/12/2015 (6) 11:39:29.71	FC-1 - 9	225	140	0.62	-4	13	325	-11800	99.8	1.956	0.03	0.1851	0.0017	0.27712	0.0762	0.0012	1103	31	1100	11	1096	9.3	99.6
11/12/2015 (6) 11:49:59.59	FC-1 - 10	197	68	0.35	4	13	325	10250	99.7	1.965	0.034	0.1857	0.002	0.17823	0.0762	0.0013	1100	35	1105	12	1098	11	99.4
11/12/2015 (6) 12:01:36.43	FC-1 - 11	126	76	0.61	5	15	300	5092	99.8	1.933	0.044	0.1854	0.0021	0.17693	0.0761	0.0018	1093	48	1095	16	1096	11	100.1
11/12/2015 (6) 12:23:32.09	FC-1 - 13	181	78	0.43	5	20	400	7392	99.7	1.955	0.037	0.186	0.0018	0.24367	0.0762	0.0015	1095	41	1102	13	1099	9.7	99.8
11/12/2015 (6) 12:33:51.63	FC-1 - 14	249	128	0.51	5	12	240	10148	99.8	1.952	0.031	0.1851	0.0016	0.13053	0.0761	0.0012	1096	31	1099	10	1095	8.6	99.6
11/12/2015 (6) 12:45:21.51	FC-1 - 16	379	223	0.59	10	12	120	7817	99.9	1.954	0.026	0.1872	0.0015	0.28087	0.07614	0.001	1100	28	1101	9.1	1106	8.3	100.5
11/12/2015 (6) 12:55:47.17	FC-1 - 17	256	151	0.59	3	12	400	17073	99.8	1.95	0.026	0.1855	0.0016	0.22633	0.07615	0.0011	1097	28	1098	8.9	1097	8.7	99.9
11/12/2015 (6) 13:06:13.73	FC-1 - 18	174	73	0.42	5	11	220	7006	99.8	1.952	0.034	0.1862	0.0019	0.32025	0.0762	0.0013	1096	33	1100	12	1101	10	100.1
13/05/2016 (6) 09:04:29.84	FC-1 - 1	149	59	0.39	7.9	9.2	116	1847	100.0	1.94	0.062	0.186	0.0026	0.30022	0.0749	0.0028	1092	22	1099	14	1080	78	100.6
13/05/2016 (6) 09:16:50.22	FC-1 - 2	196	118	0.61	4	11	275	4755	100.0	1.984	0.056	0.1861	0.0022	0.25971	0.0773	0.0026	1111	19	1101	12	1120	68	99.1
13/05/2016 (6) 09:23:04.90	FC-1 - 3	309	172	0.56	1	12	1200	30220	100.0	1.96	0.053	0.1862	0.0021	0.44639	0.0762	0.0025	1103	19	1101	12	1089	67	99.8
13/05/2016 (6) 09:30:20.70	FC-1 - 4	177	77	0.43	-1	11	-1100	-17090	100.0	1.962	0.06	0.1846	0.0023	0.24922	0.0773	0.0028	1099	21	1093	13	1127	74	99.5
13/05/2016 (6) 09:42:47.12	FC-1 - 5	244	155	0.63	-16.4	9.7	-59	-1431	100.0	1.942	0.049	0.1869	0.0022	0.0533	0.0754	0.0026	1097	18	1104	12	1086	70	100.7
13/05/2016 (6) 09:49:02.22	FC-1 - 6	276	171	0.62	-18	11	-61	-1475	100.0	1.912	0.049	0.1852	0.0022	0.0697	0.0753	0.0026	1085	17	1095	12	1078	67	100.9
13/05/2016 (6) 10:01:23.02	FC-1 - 7	389	221	0.57	6	12	200	6155	100.0	1.975	0.046	0.1859	0.0019	0.29398	0.0767	0.0024	1107	15	1099	10	1114	60	99.3
13/05/2016 (6) 10:08:42.83	FC-1 - 8	413	242	0.59	-1.1	9.6	-873	-36245	100.0	1.948	0.043	0.1864	0.002	0.19649	0.0757	0.0023	1098	15	1102	11	1089	63	100.3
13/05/2016 (6) 10:26:17.87	FC-1 - 10	332	125	0.38	-6	10	-167	-5233	100.0	1.97	0.046	0.186	0.0021	0.073022	0.0768	0.0024	1106	15	1100	11	1112	63	99.5
13/05/2016 (6) 10:35:36.08	FC-1 - 11	183	88	0.48	15	11	73	1141	100.0	1.923	0.057	0.1846	0.0024	0.1722	0.0761	0.0028	1086	20	1092	13	1086	74	100.6
13/05/2016 (6) 10:46:01.51	FC-1 - 12	181	81	0.45	-13.1	9.9	-76	-1289	100.0	1.916	0.063	0.1863	0.0024	0.21175	0.0744	0.0027	1085	21	1101	13	1052	73	101.5
13/05/2016 (6) 10:52:16.75	FC-1 - 13	319	163	0.51	-4	11	-275	-7398	100.0	1.95	0.052	0.1865	0.0022	0.42529	0.0761	0.0025	1098	18	1102	12	1088	65	100.4
13/05/2016 (6) 11:03:36.66	FC-1 - 14	245	112	0.46	-17.3	9.7	-56	-1303	100.0	1.949	0.049	0.1855	0.002	0.32599	0.077	0.0024	1099	17	1097	11	1117	61	99.8
13/05/2016 (6) 11:12:00.40	FC-1 - 15	203	117	0.57	11	9.7	88	1669	100.0	1.963	0.06	0.1854	0.0025	0.10632	0.0764	0.0029	1102	21	1096	14	1092	75	99.5
13/05/2016 (6) 11:20:17.14	FC-1 - 16	428	302	0.71	2	10	500	19655	100.0	1.943	0.047	0.1862	0.0018	0.24467	0.0756	0.0024	1095	16	1101	10	1089	63	100.5
13/05/2016 (6) 11:29:35.01	FC-1 - 17	121	77	0.64	3	8.2	273	3630	100.0	1.908	0.069	0.1863	0.0027	0.22046	0.0737	0.0032	1082	24	1101	15	1013	88	101.8
13/05/2016 (6) 11:35:50.30	FC-1 - 18	206	130	0.63	2	10	500	9370	100.0	1.981	0.052	0.1854	0.0023	0.38125	0.0771	0.0026	1107	18	1096	12	1121	67	99.0
13/05/2016 (6) 11:45:09.43	FC-1 - 19	235	83	0.35	1	17	1700	22070	100.0	1.982	0.076	0.1865	0.0035	0.30896	0.0763	0.0029	1107	26	1102	19	1097	75	99.5
15/12/2016 (5) 09:53:03.91	FC-1 - 1	608	371	1.64	3	10	306	30806	99.8	1.953	0.049	0.186	0.004	0.501	0.0762	0.0009	1098	25	1099	17	1100	20	99.8
15/12/2016 (5) 09:54:10.24	FC-1 - 2	181	68	2.67	13	10	75	2065	99.7	1.944	0.067	0.186	0.004	0.564	0.0762	0.0017	1087	46	1093	23	1096	23	98.6
15/12/2016 (5) 10:08:39.90	FC-1 - 3	143	49	2.93	17	10	59	1269	99.6	1.944	0.067	0.186	0.004	0.323	0.0772	0.0020	1108	51	1093	23	1099	21	98.3
15/12/2016 (5) 10:24:12.50	FC-1 - 4	124	39	3.16	0	10			99.6	1.947	0.064	0.186	0.004	0.243	0.0765	0.0019	1090	49	1094	22	1099	21	98.9
15/12/2016 (5) 10:37:25.13	FC-1 - 5	156	61	2.55	9	10	104	2509	99.6	1.963	0.061	0.186	0.004	0.334	0.0761	0.0017	1085	44	1100	21	1099	21	97.3

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	%C
15/12/2016 (5) 11:06:17.98	FC-1 - 7	238	139	1.72	5	11	220	6940	99.7	1.940	0.058	0.186	0.004	0.475	0.0759	0.0014	1090	36	1095	19	1097	21	99.3
15/12/2016 (5) 11:20:45.75	FC-1 - 8	263	148	1.78	1	9	989	43744	99.7	1.965	0.054	0.186	0.004	0.315	0.0758	0.0013	1083	33	1102	18	1100	20	96.9
15/12/2016 (5) 11:35:11.01	FC-1 - 9	259	148	1.75	14	10	70	2737	99.7	1.954	0.054	0.186	0.004	0.363	0.0765	0.0013	1101	34	1099	19	1098	20	99.8
15/12/2016 (5) 11:48:32.19	FC-1 - 10	209	98	2.14	14	10	71	2208	99.7	1.949	0.059	0.186	0.004	0.324	0.0766	0.0016	1099	40	1096	20	1099	21	99.9
15/12/2016 (5) 12:04:09.98	FC-1 - 11	381	226	1.69	11	9	88	5194	99.7	1.969	0.052	0.186	0.004	0.242	0.0768	0.0012	1114	31	1105	17	1099	20	98.7
15/12/2016 (5) 12:17:30.28	FC-1 - 12	327	178	1.84	11	11	100	4320	99.8	1.917	0.050	0.186	0.004	0.305	0.0748	0.0011	1057	30	1086	17	1099	20	95.4
15/12/2016 (5) 12:33:00.28	FC-1 - 13	202	100	2.02	18	10	55	1620	99.7	1.930	0.056	0.186	0.004	0.189	0.0755	0.0016	1070	42	1090	19	1098	21	96.7
15/12/2016 (5) 12:47:32.20	FC-1 - 14	344	239	1.44	2	10	430	21957	99.7	1.998	0.054	0.186	0.004	0.430	0.0771	0.0012	1118	30	1114	18	1100	20	99.5
15/12/2016 (5) 13:01:53.83	FC-1 - 15	129	82	1.56	23	10	43	801	99.7	1.932	0.060	0.186	0.004	0.291	0.0760	0.0017	1088	43	1090	21	1099	22	99.4
15/12/2016 (5) 13:16:20.46	FC-1 - 16	187	82	2.28	9	11	122	2954	99.7	1.916	0.062	0.186	0.004	0.246	0.0760	0.0019	1082	49	1084	21	1098	21	99.3
15/12/2016 (5) 13:30:41.90	FC-1 - 17	491	303	1.62	6	10	154	11233	99.7	1.974	0.051	0.186	0.004	0.217	0.0762	0.0011	1095	29	1106	17	1100	20	98.3
15/12/2016 (5) 13:45:13.44	FC-1 - 18	460	286	1.61	8	11	138	8275	99.7	1.987	0.053	0.186	0.004	0.309	0.0766	0.0012	1105	30	1110	18	1100	20	99.1
15/12/2016 (5) 13:59:37.71	FC-1 - 19	178	103	1.73	16	10	63	1541	99.7	1.906	0.057	0.186	0.004	0.130	0.0757	0.0017	1074	45	1081	20	1098	21	98.6
15/12/2016 (5) 14:16:14.81	FC-1 - 20	276	173	1.59	11	10	87	3428	99.8	1.932	0.055	0.186	0.004	0.399	0.0761	0.0013	1089	35	1093	18	1099	20	99.5
20/12/2016 (3) 13:09:17.84	FC-1 - 1	185	70	2.63	0	12			99.7	1.945	0.057	0.1856	0.0034	0.212	0.0773	0.0018	1120	46	1095	20	1097	19	96.6
20/12/2016 (3) 13:25:56.57	FC-1 - 2	175	66	2.65	-5	13	-260	-5466	99.8	1.924	0.058	0.1866	0.0032	0.291	0.0755	0.0016	1080	44	1088	20	1103	17	98.6
20/12/2016 (3) 13:39:19.83	FC-1 - 3	176	66	2.66	1	11	1100	27220	99.7	1.908	0.054	0.1844	0.0033	0.177	0.0761	0.0018	1086	46	1085	20	1091	18	99.7
20/12/2016 (3) 13:59:15.23	FC-1 - 4	152	55	2.77	6	10	167	3778	99.6	1.962	0.058	0.1861	0.0031	0.287	0.0768	0.0016	1103	43	1100	20	1100	17	99.9
20/12/2016 (3) 14:08:16.65	FC-1 - 5	167	66	2.52	3	11	367	8593	99.7	1.970	0.052	0.1876	0.0030	0.144	0.0764	0.0014	1096	38	1104	18	1109	16	98.6
20/12/2016 (3) 14:23:47.30	FC-1 - 6	232	116	1.99	3	11	367	11687	99.7	1.937	0.051	0.1852	0.0028	0.161	0.0759	0.0013	1089	36	1093	17	1095	15	99.3
20/12/2016 (3) 14:37:14.64	FC-1 - 7	183	86	2.12	16	11	69	1713	99.8	1.906	0.053	0.1840	0.0029	0.367	0.0747	0.0015	1056	38	1081	19	1089	16	95.8
20/12/2016 (3) 14:51:45.77	FC-1 - 8	768	675	1.14	-8	9	-106	-13675	99.8	1.984	0.045	0.1875	0.0028	0.358	0.0765	0.0008	1104	22	1109	15	1108	15	99.1
20/12/2016 (3) 15:05:03.90	FC-1 - 9	242	148	1.63	4	11	275	9128	99.7	1.934	0.049	0.1843	0.0027	0.255	0.0758	0.0012	1089	33	1092	17	1090	15	99.4
20/12/2016 (3) 15:25:01.99	FC-1 - 10	480	269	1.78	13	29	223	5577	99.7	1.986	0.048	0.1870	0.0027	0.011	0.0763	0.0010	1096	28	1110	17	1105	15	97.8
20/12/2016 (3) 15:36:23.96	FC-1 - 11	325	174	1.87	-5	11	-220	-9692	99.7	1.972	0.050	0.1869	0.0029	0.198	0.0757	0.0013	1084	35	1105	17	1105	16	96.7
20/12/2016 (3) 15:51:57.73	FC-1 - 12	250	137	1.83	-17	11	-65	-2158	99.7	1.943	0.049	0.1852	0.0029	0.413	0.0761	0.0011	1092	30	1097	18	1095	16	99.4
20/12/2016 (3) 16:09:46.08	FC-1 - 13	202	112	1.80	10	11	110	2937	99.6	1.965	0.054	0.1853	0.0028	0.127	0.0771	0.0015	1112	40	1102	18	1096	15	98.8
20/12/2016 (3) 16:33:09.87	FC-1 - 14	93	35	2.63	-1	11	-1100	-13400	99.6	1.927	0.070	0.1865	0.0034	0.203	0.0754	0.0023	1052	62	1086	24	1102	18	94.0
20/12/2016 (3) 16:49:51.24	FC-1 - 15	281	177	1.59	-5	9	-174	-7363	99.7	1.932	0.053	0.1851	0.0029	0.206	0.0757	0.0014	1082	38	1090	18	1095	16	98.5
20/12/2016 (3) 17:06:33.40	FC-1 - 16	289	180	1.60	-8	11	-138	-5125	99.7	1.959	0.051	0.1859	0.0028	0.365	0.0766	0.0012	1104	33	1100	17	1099	15	99.6
20/12/2016 (3) 17:23:12.48	FC-1 - 17	294	184	1.60	-3	11	-367	-14027	99.8	1.944	0.048	0.1861	0.0029	0.311	0.0759	0.0011	1085	30	1095	17	1100	16	98.3
20/12/2016 (3) 17:40:02.61	FC-1 - 18	305	191	1.60	-5	10	-200	-8724	99.8	1.966	0.050	0.1869	0.0028	0.316	0.0763	0.0012	1095	31	1103	17	1105	15	98.7
20/12/2016 (3) 17:56:43.06	FC-1 - 19	298	127	2.35	-4	11	-275	-10703	99.7	1.940	0.050	0.1854	0.0030	0.167	0.0759	0.0013	1090	35	1094	17	1096	16	99.3
20/12/2016 (3) 18:12:18.60	FC-1 - 20	279	166	1.68	-8	11	-138	-4950	99.8	1.949	0.049	0.1856	0.0029	0.162	0.0766	0.0013	1103	33	1097	17	1097	16	99.3
20/12/2016 (3) 18:29:02.88	FC-1 - 21	202	98	2.06	5	11	220	5802	99.7	1.934	0.056	0.1859	0.0029	0.299	0.0761	0.0016	1085	41	1091	19	1099	16	98.8
21/12/2016 (4) 11:09:21.23	FC-1 - 2	136	87	1.56	7	9	131	2682	99.6	1.911	0.058	0.183	0.003	0.342	0.0759	0.0024	1078	65	1085	19	1085	18	99.0
21/12/2016 (4) 11:23:45.90	FC-1 - 3	348	235	1.48	12	10	78	4180	99.8	1.930	0.044	0.186	0.003	0.194	0.0749	0.0020	1059	54	1090	15	1102	15	95.0
21/12/2016 (4) 11:38:12.31	FC-1 - 4	207	102	2.03	4	8	200	7148	99.7	1.978	0.053	0.188	0.003	0.385	0.0763	0.0022	1091	59	1106	18	1110	16	97.4
21/12/2016 (4) 11:55:57.32	FC-1 - 5	240	145	1.65	4	9	230	8685	99.6	1.952	0.052	0.186	0.003	0.294	0.0762	0.0023	1090	59	1097	18	1097	16	98.6

Appendix B. Continued.

										Isotopic ratios							Calculated ages						
File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
21/12/2016 (4) 12:33:45.33	FC-1 - 7	370	215	1.72	4	9	207	12075	99.7	1.962	0.043	0.184	0.003	0.451	0.0774	0.0020	1126	51	1101	15	1088	15	96.6
21/12/2016 (4) 12:49:14.51	FC-1 - 8	319	172	1.86	12	8	66	3799	99.7	1.961	0.045	0.186	0.003	0.262	0.0765	0.0021	1102	54	1101	15	1098	16	100.0
21/12/2016 (4) 13:07:01.26	FC-1 - 9	324	158	2.05	4	8	218	12076	99.8	1.940	0.043	0.187	0.003	0.347	0.0753	0.0020	1076	51	1094	15	1106	15	97.1
21/12/2016 (4) 13:23:44.14	FC-1 - 10	346	193	1.80	7	12	171	7089	99.5	1.986	0.047	0.184	0.003	0.009	0.0786	0.0023	1154	58	1110	16	1086	15	93.9
21/12/2016 (4) 13:40:25.55	FC-1 - 11	301	153	1.96	7	9	120	6093	99.8	1.958	0.046	0.187	0.003	0.235	0.0760	0.0021	1092	53	1100	16	1104	15	98.6
21/12/2016 (4) 14:14:53.94	FC-1 - 13	299	165	1.81	6	10	163	6957	99.8	1.925	0.041	0.187	0.003	0.179	0.0749	0.0020	1069	52	1089	14	1102	15	96.8
21/12/2016 (4) 14:31:38.39	FC-1 - 14	186	97	1.92	17	10	59	1510	99.7	1.958	0.052	0.186	0.003	0.239	0.0761	0.0023	1092	58	1099	18	1097	16	98.6
21/12/2016 (4) 14:48:19.45	FC-1 - 15	104	42	2.50	5	8	177	3015	99.4	1.940	0.066	0.185	0.003	0.219	0.0764	0.0028	1080	77	1090	23	1091	17	97.7
21/12/2016 (4) 15:04:57.84	FC-1 - 16	265	167	1.59	2	11	550	18970	99.7	1.987	0.048	0.186	0.003	0.275	0.0780	0.0022	1139	58	1113	17	1098	17	96.0
21/12/2016 (4) 15:21:44.92	FC-1 - 17	280	177	1.59	9	9	100	4191	99.7	1.960	0.048	0.187	0.003	0.212	0.0759	0.0022	1084	58	1100	17	1105	16	97.3
21/12/2016 (4) 15:38:22.05	FC-1 - 18	309	190	1.62	7	9	125	5959	99.7	1.961	0.044	0.186	0.003	0.303	0.0765	0.0020	1103	54	1101	15	1099	16	99.9
21/12/2016 (4) 16:08:17.75	FC-1 - 20	276	142	1.94	6	9	157	6318	99.7	1.970	0.047	0.188	0.003	0.308	0.0759	0.0021	1091	55	1104	16	1110	16	97.8
21/12/2016 (4) 16:24:00.76	FC-1 - 21	120	38	3.14	2	9	447	8611	99.7	1.905	0.053	0.185	0.003	0.121	0.0749	0.0024	1059	63	1083	18	1092	17	96.3
21/12/2016 (4) 16:39:28.65	FC-1 - 22	544	327	1.67	11	10	89	6815	99.8	1.949	0.040	0.186	0.003	0.254	0.0761	0.0019	1093	51	1098	14	1100	16	99.2
21/12/2016 (4) 16:53:58.66	FC-1 - 23	283	198	1.43	-3	9	-332	-13857	99.8	1.918	0.047	0.185	0.003	0.411	0.0754	0.0021	1071	56	1088	16	1091	16	97.5
21/12/2016 (4) 17:09:32.20	FC-1 - 24	246	144	1.71	4	10	267	9242	99.7	1.971	0.049	0.186	0.003	0.179	0.0769	0.0022	1108	59	1104	17	1099	15	99.6
02/02/2017 (5) 10:42:14.14	FC-1 - 1	230	137	1.68	7.8	9.3	119	4655	99.7	1.957	0.061	0.186	0.007	0.28347	0.0761	0.0013	1089	34	1099	21	1100	38	98.2
02/02/2017 (5) 10:56:38.38	FC-1 - 2	218	101	2.16	6.6	8.3	126	5382	99.7	1.933	0.064	0.1856	0.007	0.27194	0.076	0.0015	1082	41	1090	22	1097	38	98.4
02/02/2017 (5) 11:24:26.49	FC-1 - 4	694	328	2.12	0.6	9.4	1567	189667	99.8	1.965	0.055	0.1863	0.0069	0.47385	0.0764	0.0008	1102	21	1103	19	1101	38	99.8
02/02/2017 (5) 11:37:50.22	FC-1 - 5	470	283	1.66	2.9	8.9	307	26069	99.9	1.935	0.057	0.1857	0.0069	0.48554	0.07585	0.0009	1087	24	1092	20	1098	37	99.1
02/02/2017 (5) 11:52:20.70	FC-1 - 6	271	152	1.78	2.5	9.1	364	17420	99.8	1.958	0.058	0.1858	0.0069	0.37525	0.0766	0.0011	1104	28	1100	20	1098	38	99.6
02/02/2017 (5) 12:05:37.31	FC-1 - 7	334	193	1.73	6.1	9.8	161	8815	99.8	1.952	0.059	0.1863	0.0069	0.18948	0.0754	0.0011	1071	31	1098	20	1101	38	95.7
02/02/2017 (5) 12:18:55.31	FC-1 - 8	328	144	2.27	-1.4	7.2	-514	-36500	99.7	1.951	0.058	0.1855	0.0069	0.23499	0.0764	0.0011	1101	28	1099	21	1097	38	99.7
02/02/2017 (5) 12:33:26.44	FC-1 - 9	202	102	1.97	1	10	1000	31230	99.7	1.95	0.064	0.1861	0.007	0.28115	0.0762	0.0015	1088	40	1096	22	1100	38	98.4
02/02/2017 (5) 12:46:45.56	FC-1 - 10	346	215	1.61	4.1	9.1	222	12949	99.8	1.959	0.059	0.186	0.0069	0.44216	0.0764	0.0011	1100	30	1100	20	1100	38	99.8
02/02/2017 (5) 13:01:13.74	FC-1 - 11	349	217	1.61	8.3	8.8	106	6383	99.8	1.944	0.06	0.1856	0.0069	0.4468	0.0761	0.0011	1092	29	1095	21	1097	38	99.3
02/02/2017 (5) 13:14:32.08	FC-1 - 12	148	110	1.34	5.3	9.5	179	4370	99.7	1.965	0.065	0.1868	0.0071	0.30616	0.0759	0.0015	1082	40	1104	22	1104	38	96.7
02/02/2017 (5) 13:29:05.96	FC-1 - 13	387	240	1.61	10	10	100	5750	99.7	1.946	0.057	0.1853	0.0069	0.23932	0.0762	0.0011	1095	29	1096	20	1096	38	99.7
02/02/2017 (5) 13:43:35.31	FC-1 - 14	326	204	1.60	5.7	8.4	147	8954	99.8	1.956	0.057	0.1863	0.0069	0.1013	0.0757	0.0012	1087	29	1100	19	1101	38	98.0
02/02/2017 (5) 13:56:54.51	FC-1 - 15	251	125	2.02	12.3	9.5	77	3127	99.7	1.949	0.059	0.1856	0.0069	0.16598	0.0762	0.0013	1094	33	1097	20	1098	38	99.4
02/02/2017 (5) 14:11:23.87	FC-1 - 16	281	155	1.81	5.5	9.1	165	8091	99.7	1.952	0.06	0.1858	0.0069	0.20153	0.076	0.0012	1090	31	1098	21	1099	38	98.6
02/02/2017 (5) 14:24:48.10	FC-1 - 17	262	148	1.77	11	11	100	3717	99.8	1.966	0.062	0.1867	0.007	0.27374	0.0758	0.0013	1086	34	1105	20	1103	38	97.3
02/02/2017 (5) 14:38:05.47	FC-1 - 18	387	211	1.83	6.7	9.1	136	8552	99.8	1.935	0.059	0.1848	0.007	0.44208	0.0769	0.0011	1113	29	1092	20	1093	38	97.1
02/02/2017 (5) 14:52:33.04	FC-1 - 19	268	163	1.65	8	8.7	109	5263	99.8	1.959	0.058	0.1864	0.007	0.24842	0.0763	0.0011	1096	29	1101	20	1102	38	99.2
02/02/2017 (5) 15:04:43.00	FC-1 - 20	175	86	2.05	5.8	7.8	134	4641	99.7	1.949	0.063	0.1857	0.007	0.27599	0.0756	0.0014	1074	37	1099	21	1098	38	96.3
14/01/2015 (4) 13:31:10.31	Ples - 1	602	52	0.09	-3	12	-400	-21767	99.9	0.4	0.0089	0.0541	0.0012	0.39521	0.05415	0.0008	377	34	341.6	6.4	339	7.2	99.4
14/01/2015 (4) 14:08:03.95	Ples - 2	639	54	0.09	14	15	107	5121	99.9	0.394	0.0088	0.054	0.0012	0.26249	0.0532	0.0009	337	38	338	6.5	339	7.3	100.2
14/01/2015 (4) 14:47:13.97	Ples - 3	591	50	0.08	9	11	122	6764	99.8	0.403	0.0085	0.0539	0.0012	0.22632	0.05452	0.0009	393	35	344.4	6.1	339	7.1	98.3
14/01/2015 (4) 15:31:47.61	Ples - 4	592	50	0.08	11	22	200	5636	99.9	0.396	0.0079	0.0536	0.0011	0.2298	0.0528	0.0007	320	32	338.3	5.8	336	7	99.4
14/01/2015 (4) 16:06:18.21	Ples - 5	592	51	0.09	-5	16	-320	-12418	99.9	0.384	0.0078	0.0522	0.0011	0.14551	0.05369	0.0008	358	34	330	5.7	328	7	99.5

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^{a}$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
15/01/2015 (5) 14:41:15.59	Plec - 1	626	55	0.09	9	11	122	6317	99.9	0.391	0.011	0.053	0.0008	0.001004	0.05337	0.0011	345	47	335	8.3	333	5.1	99.4
15/01/2015 (5) 15:18:54.23	Plec - 2	618	54	0.09	16.7	9.4	56	3359	99.9	0.396	0.011	0.054	0.0008	0.29051	0.05341	0.0009	346	39	338.4	7.9	339	5.1	100.1
15/01/2015 (5) 16:03:12.70	Plec - 3	615	54	0.09	7.9	8.8	111	7065	99.9	0.394	0.011	0.0538	0.0009	0.19385	0.05317	0.001	336	42	337	8.2	338	5.2	100.3
15/01/2015 (5) 16:42:08.75	Plec - 4	615	55	0.09	-8	12	-150	-7119	99.7	0.409	0.011	0.0531	0.0008	0.42145	0.05561	0.0009	437	37	348	8.1	334	5.2	96.0
15/01/2015 (5) 17:11:01.39	Plec - 5	604	53	0.09	16	10	63	3434	99.9	0.398	0.011	0.0541	0.0009	0.11274	0.05346	0.001	348	42	339.6	8.2	339	5.4	99.9
15/01/2015 (5) 10:43:30.22	Plec - 1	599	53	0.09	-1	10	-1000	-57100	99.8	0.397	0.036	0.054	0.0007	0.000368	0.05389	0.0009	366	39	339.4	26	339	4	100.0
15/01/2015 (5) 11:30:01.49	Plec - 2_Amd	573	51	0.09	24	15	63	2312	99.7	0.416	0.037	0.054	0.0007	0.087825	0.05597	0.0008	451	33	353.3	27	339	4.1	96.0
15/01/2015 (5) 12:08:00.83	Plec - 3	570	49	0.09	-6	14	-233	-8810	99.9	0.387	0.035	0.0532	0.0007	0.040201	0.05306	0.0009	331	39	332.2	27	334	4.2	100.7
15/01/2015 (5) 12:36:42.94	Plec - 4	596	52	0.09	-17	12	-71	-3353	99.9	0.399	0.036	0.0533	0.0007	0.30608	0.05413	0.0009	376	35	340.3	26	335	4.2	98.4
21/05/2015 (5) 12:48:01.46	Plesovice - 1	735	61	0.08	5.7	9.3	163	10912	100.0	0.385	0.0097	0.0534	0.0008	0.52851	0.05254	0.0007	309	31	330	7.1	335	5	101.6
21/05/2015 (5) 13:21:44.79	Plesovice - 2	527	43	0.08	1	12	1200	42090	99.9	0.393	0.01	0.0534	0.0007	0.28284	0.0531	0.001	333	41	336.8	7.7	335	4.5	99.6
21/05/2015 (5) 13:57:21.63	Plesovice - 3	1033	145	0.14	-5	11	-220	-15650	99.9	0.362	0.012	0.0502	0.0008	0.32747	0.0528	0.0011	320	47	313.4	8.7	316	4.6	100.8
21/05/2015 (5) 14:16:26.00	Plesovice - 4	958	102	0.11	2	12	600	35825	99.9	0.391	0.0091	0.0534	0.0008	0.48244	0.05285	0.0007	322	28	334.6	6.7	335	5	100.2
21/05/2015 (5) 14:46:41.70	Plesovice - 5	635	63	0.10	8.5	9.4	111	5622	99.9	0.39	0.01	0.0538	0.0008	0.2557	0.05214	0.0009	292	40	333.8	7.3	338	4.7	101.1
21/05/2015 (5) 15:22:30.51	Plesovice - 6	861	89	0.10	-1	10	-1000	-62820	99.9	0.391	0.0094	0.0537	0.0008	0.23817	0.0531	0.0008	333	33	336	6.8	337	4.7	100.3
22/05/2015 (6) 10:12:26.51	Plesovice - 1	599	47	0.08	6	11	183	8318	99.9	0.403	0.0084	0.0539	0.0007	0.25537	0.0535	0.0012	350	51	343.1	6.1	339	4.4	98.7
22/05/2015 (6) 10:41:21.69	Plesovice - 2	664	66	0.10	11	13	118	5093	99.9	0.389	0.0071	0.0539	0.0007	0.48561	0.05206	0.001	288	44	334.1	5.3	338	4.5	101.2
22/05/2015 (6) 11:11:13.23	Plesovice - 3	553	50	0.09	21	15	71	2082	100.0	0.39	0.0088	0.0539	0.0008	0.003616	0.0525	0.0013	307	56	335.2	6.5	338	4.6	101.0
22/05/2015 (6) 11:44:11.11	Plesovice - 4	647	63	0.10	5	14	280	9914	99.9	0.395	0.0077	0.0535	0.0007	0.084415	0.053	0.0012	329	51	337.7	5.7	336	4.4	99.4
22/05/2015 (6) 12:15:57.60	Plesovice - 5	2775	369	0.13	1	12	1200	211100	99.9	0.402	0.0057	0.0537	0.0007	0.43045	0.05413	0.0009	376	35	342.9	4.2	337	4.5	98.4
22/05/2015 (6) 12:38:32.37	Plesovice - 6	905	94	0.10	4	10	250	17383	99.9	0.39	0.0076	0.0538	0.0008	0.50617	0.05242	0.0011	304	48	333.7	5.6	338	5	101.3
22/05/2015 (6) 13:05:43.62	Plesovice - 1	624	51	0.08	1	15	1500	47540	100.0	0.39	0.0093	0.0535	0.0009	0.37908	*0.0525*	*0.0012*	*307*	*52*	335	6.7	336	5.5	100.3
22/05/2015 (6) 13:33:21.51	Plesovice - 2	528	43	0.08	8	11	138	5031	100.0	0.39	0.0091	0.0536	0.0009	0.29417	*0.0525*	*0.0012*	*307*	*52*	334.6	6.6	337	5.7	100.7
22/05/2015 (6) 14:04:04.09	Plesovice - 3	415	35	0.09	-4	11	-275	-7768	99.8	0.395	0.0099	0.0535	0.0009	0.11283	*0.0537*	*0.0013*	*358*	*55*	337.7	7.2	336	5.7	99.5
22/05/2015 (6) 14:37:03.51	Plesovice - 4	932	99	0.11	-2	13	-650	-34475	99.9	0.396	0.0088	0.0538	0.0009	0.43915	*0.0536*	*0.001*	*355*	*42*	338.9	6.5	338	5.8	99.6
22/05/2015 (6) 15:08:48.88	Plesovice - 5	834	92	0.11	1	12	1200	62590	99.9	0.388	0.0082	0.0536	0.001	0.36326	*0.0528*	*0.001*	*318*	*43*	332.5	6	336	5.8	101.1
22/05/2015 (6) 15:29:22.98	Plesovice - 6	879	129	0.15	6	11	183	10807	99.9	0.392	0.0084	0.0535	0.0009	0.52809	*0.0532*	*0.001*	*339*	*41*	336.4	6	336	5.6	99.9
11/12/2015 (6) 10:29:20.21	Plesovice - 1	616	53	0.09	-2	12	600	-19010	99.8	0.395	0.008	0.0536	0.0005	0.11455	0.05333	0.001	339	46	337.6	5.8	337	3.1	99.8
11/12/2015 (6) 13:05:10.94	Plesovice - 10	620	58	0.09	3	12	400	11693	99.8	0.393	0.0078	0.0534	0.0005	0.040794	0.0532	0.0011	331	49	336.4	5.7	336	3	99.7
11/12/2015 (6) 10:48:06.11	Plesovice - 2	868	72	0.08	8	11	138	6520	99.8	0.392	0.0063	0.0535	0.0005	0.007158	0.05266	0.0009	314	39	336.3	4.5	336	2.8	99.9
11/12/2015 (6) 10:59:42.21	Plesovice - 3	604	49	0.08	1	12	1200	36820	99.8	0.396	0.0077	0.0541	0.0004	0.089934	0.05357	0.001	342	44	338.9	5.5	340	2.7	100.2
11/12/2015 (6) 11:12:13.72	Plesovice - 4	981	150	0.15	-1	11	1100	-60210	99.8	0.4	0.0066	0.0545	0.0004	0.067194	0.05309	0.0009	325	39	341.6	4.7	342	2.5	100.1
11/12/2015 (6) 11:31:10.31	Plesovice - 5	712	67	0.09	11	14	127	3858	99.7	0.398	0.0087	0.0534	0.0005	0.071955	0.0544	0.0011	381	49	339.5	6.3	336	2.8	98.9
11/12/2015 (6) 12:02:32.27	Plesovice - 6	645	61	0.09	11	13	118	3415	99.7	0.395	0.0083	0.0533	0.0005	0.26826	0.05376	0.0011	359	47	338.4	6.2	335	2.8	99.0
11/12/2015 (6) 12:22:26.75	Plesovice - 7	595	47	0.08	-8	20	250	-4360	99.8	0.392	0.0095	0.0531	0.0006	0.044405	0.053	0.0013	331	61	335.7	7	333	3.4	99.3
11/12/2015 (6) 12:35:57.85	Plesovice - 8	461	40	0.09	6	14	233	4390	99.7	0.392	0.0095	0.0533	0.0005	0.11227	0.0536	0.0014	344	57	335.8	7	335	3	99.7
13/05/2016 (6) 09:05:32.65	Plesovice - 1	677	61	0.09	11	14	127	1785	100.0	0.396	0.013	0.0536	0.0006	0.15899	0.0529	0.002	338	9.7	336.5	3.9	320	83	99.6
13/05/2016 (6) 09:31:23.52	Plesovice - 2	587	51	0.09	-7	11	-157	-2313	100.0	0.395	0.012	0.054	0.0006	0.14358	0.0533	0.0021	338.5	9.1	339.3	3.9	332	86	100.2

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^a$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
13/05/2016 (6) 10:00:20.22	Plesovice - 3	675	63	0.09	10.7	8.5	79	1719	100.0	0.394	0.011	0.0537	0.0006	0.057525	0.0527	0.0019	337.2	8.5	336.9	3.8	322	81	99.9
13/05/2016 (6) 10:36:42.56	Plesovice - 4	873	93	0.11	6	10	167	3828	100.0	0.4	0.012	0.0535	0.0006	0.097931	0.0541	0.002	340.9	8.9	336	3.7	384	84	98.6
13/05/2016 (6) 11:10:57.68	Plesovice - 5	637	58	0.09	4	11	275	4123	100.0	0.392	0.013	0.0535	0.0006	0.14383	0.0533	0.002	334.8	9.2	336	3.9	336	82	100.4
13/05/2016 (6) 11:44:06.37	Plesovice - 6	631	58	0.09	-1	10	-1000	-16070	100.0	0.395	0.014	0.0535	0.0007	0.07907	0.0523	0.0022	338	10	336.2	4.1	301	94	99.5
15/12/2016 (5) 09:55:17.54	Plesovice - 1	797	81	9.88	1	14	1400	35390	99.9	0.395	0.014	0.054	0.001	0.516	0.0532	0.0013	322	55	337	10	340	7	101.0
15/12/2016 (5) 10:23:04.29	Plesovice - 2	673	74	9.10	20	14	70	1484	99.8	0.402	0.012	0.054	0.001	0.088	0.0542	0.0011	365	46	343	8	342	7	99.7
15/12/2016 (5) 10:52:55.07	Plesovice - 3	485	42	11.61	18	14	78	1138	99.8	0.405	0.015	0.054	0.001	0.101	0.0537	0.0016	341	64	344	10	341	7	99.2
15/12/2016 (5) 11:21:53.34	Plesovice - 4	856	91	9.39	5	11	220	7132	99.8	0.400	0.012	0.054	0.001	0.229	0.0532	0.0013	326	53	341	9	339	7	99.2
15/12/2016 (5) 11:49:38.09	Plesovice - 5	645	60	10.74	22	15	68	1228	99.7	0.406	0.013	0.054	0.001	0.330	0.0551	0.0014	401	54	346	10	339	7	98.0
15/12/2016 (5) 12:18:36.87	Plesovice - 6	561	51	11.08	6	12	200	3857	99.8	0.394	0.013	0.054	0.001	0.258	0.0534	0.0015	330	59	339	10	339	7	100.0
15/12/2016 (5) 12:48:39.52	Plesovice - 7	381	32	12.07	3	9	291	4659	99.9	0.390	0.015	0.053	0.001	0.036	0.0525	0.0018	282	71	333	11	336	7	100.8
15/12/2016 (5) 13:17:26.38	Plesovice - 8	749	75	10.01	23	17	74	1327	100.0	0.388	0.013	0.054	0.001	0.240	0.0528	0.0014	305	56	333	10	341	7	102.5
15/12/2016 (5) 13:46:19.67	Plesovice - 9	999	127	7.84	7	10	143	5669	99.8	0.401	0.012	0.054	0.001	0.417	0.0537	0.0010	349	43	342	9	337	7	98.5
15/12/2016 (5) 14:15:04.44	Plesovice - 10	716	69	10.45	12	10	80	2274	99.8	0.398	0.013	0.054	0.001	0.086	0.0542	0.0014	364	58	340	10	338	7	99.4
20/12/2016 (3) 13:10:26.07	Plesovice - 1	615	55	11.28	3	14	467	8833	99.9	0.394	0.016	0.0543	0.0010	0.198	0.0537	0.0019	338	79	337	12	341	6	101.1
20/12/2016 (3) 13:38:11.47	Plesovice - 2	414	34	12.27	2	11	550	9150	99.8	0.402	0.019	0.0539	0.0010	0.092	0.0542	0.0022	376	96	342	14	338	6	98.9
20/12/2016 (3) 14:07:08.32	Plesovice - 3	557	47	11.88	-8	13	-163	-2986	99.8	0.396	0.016	0.0541	0.0009	0.243	0.0534	0.0018	325	72	338	11	339	6	100.4
20/12/2016 (3) 14:36:06.17	Plesovice - 4	673	63	10.71	10	15	150	2913	99.8	0.395	0.014	0.0543	0.0009	0.033	0.0530	0.0017	313	71	339	11	341	5	100.5
20/12/2016 (3) 15:07:20.55	Plesovice - 5	625	57	10.89	7	12	171	3709	99.8	0.400	0.013	0.0539	0.0009	0.438	0.0536	0.0013	341	53	341	10	338	5	99.0
20/12/2016 (3) 15:35:09.39	Plesovice - 6	579	51	11.37	-2	11	-550	-11765	99.8	0.398	0.014	0.0536	0.0008	0.018	0.0537	0.0016	335	64	340	10	336	5	99.0
20/12/2016 (3) 16:08:35.54	Plesovice - 7	661	61	10.86	-8	11	-138	-3339	100.0	0.396	0.013	0.0545	0.0008	0.024	0.0530	0.0014	312	58	338	9	342	5	101.1
20/12/2016 (3) 16:34:16.76	Plesovice - 8	820	72	11.42	-5	13	-260	-6888	99.8	0.396	0.015	0.0543	0.0010	0.244	0.0535	0.0017	336	68	338	11	341	6	100.7
20/12/2016 (3) 17:07:39.07	Plesovice - 9	815	89	9.16	-10	13	-130	-3401	99.9	0.394	0.013	0.0542	0.0009	0.035	0.0532	0.0015	324	61	337	9	340	5	101.0
20/12/2016 (3) 17:41:07.69	Plesovice - 10	694	66	10.60	7	14	200	4083	99.7	0.399	0.014	0.0539	0.0010	0.274	0.0542	0.0016	362	64	341	10	338	6	99.3
20/12/2016 (3) 18:10:02.26	Plesovice - 11	707	67	10.57	6	12	200	4605	99.8	0.393	0.013	0.0541	0.0009	0.168	0.0529	0.0013	312	55	336	9	340	5	101.1
20/12/2016 (3) 18:27:52.88	Plesovice - 12	881	115	7.70	13	16	123	2817	99.9	0.394	0.013	0.0545	0.0009	0.261	0.0530	0.0014	320	59	337	10	342	6	101.6
21/12/2016 (4) 10:53:48.53	Plesovice - 1	842	89	9.46	11	12	109	3154	99.8	0.399	0.012	0.054	0.001	0.257	0.0536	0.0018	340	76	340	9	339	7	99.7
21/12/2016 (4) 11:22:37.97	Plesovice - 2	1471	149	9.87	36	9	26	1597	99.3	0.435	0.011	0.054	0.001	0.478	0.0582	0.0016	528	59	366	8	340	5	92.8
21/12/2016 (4) 11:54:48.86	Plesovice - 3	1299	169	7.67	13	9	70	3950	99.8	0.403	0.011	0.054	0.001	0.224	0.0542	0.0017	375	70	343	8	339	5	98.6
21/12/2016 (4) 12:32:36.74	Plesovice - 4	1407	144	9.76	11	15	136	5091	99.8	0.393	0.011	0.054	0.001	0.170	0.0529	0.0018	316	76	337	8	339	7	100.8
21/12/2016 (4) 12:51:31.46	Plesovice - 5	1084	95	11.36	15	12	80	2821	99.7	0.403	0.013	0.054	0.001	0.327	0.0541	0.0019	361	77	343	10	340	6	98.9
21/12/2016 (4) 13:22:35.67	Plesovice - 6	672	63	10.65	11	13	118	2410	99.8	0.402	0.013	0.054	0.001	0.262	0.0541	0.0021	359	84	343	10	341	6	99.7
21/12/2016 (4) 13:52:40.95	Plesovice - 7	600	50	12.07	3	9	259	6706	99.7	0.399	0.013	0.054	0.001	0.109	0.0542	0.0019	362	76	341	9	337	6	98.6
21/12/2016 (4) 14:16:02.12	Plesovice - 8	502	44	11.51	7	12	171	2770	99.7	0.403	0.016	0.054	0.001	0.256	0.0541	0.0023	354	92	343	12	339	6	98.8
21/12/2016 (4) 14:49:27.63	Plesovice - 9	570	50	11.33	14	11	79	1609	99.9	0.395	0.013	0.054	0.001	0.226	0.0531	0.0019	321	80	338	9	339	6	100.4
21/12/2016 (4) 15:22:52.32	Plesovice - 10	776	65	12.01	1	8	623	22431	99.9	0.394	0.011	0.054	0.001	0.070	0.0529	0.0017	308	72	337	8	340	5	101.0
21/12/2016 (4) 15:51:39.45	Plesovice - 11	557	50	11.13	15	11	73	1381	99.7	0.403	0.012	0.054	0.001	0.279	0.0543	0.0018	369	72	343	9	338	5	98.4
21/12/2016 (4) 16:22:52.86	Plesovice - 12	1411	171	8.24	7	8	117	7379	99.8	0.393	0.009	0.054	0.001	0.143	0.0528	0.0014	311	62	336	7	339	5	101.0
21/12/2016 (4) 16:52:50.09	Plesovice - 13	679	65	10.51	10	11	110	2535	99.8	0.391	0.012	0.054	0.001	0.230	0.0530	0.0018	312	72	334	8	337	5	100.8

Appendix B. Continued.

File: date and time	Sample # Grain	U (ppm)	Th (ppm)	Th/U	^{204}Pb	2σ int	% error ^{204}Pb	$^{206}Pb/^{204}Pb^a$	*Pb %	Isotopic ratios $^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	ρ	$^{207}Pb/^{206}Pb$	2σ	Calculated ages $^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	% C
21/12/2016 (4) 17:11:49.54	Plesovice - 14	1175	152	7.72	9	9	102	4751	99.8	0.397	0.010	0.054	0.001	0.395	0.0534	0.0015	338	62	339	7	338	5	99.8
21/12/2016 (4) 17:33:56.00	Plesovice - 15	520	45	11.50	8	9	114	2441	100.0	0.388	0.013	0.054	0.001	0.115	0.0520	0.0019	272	76	332	9	340	5	102.4
02/02/2017 (5) 10:43:22.25	Plesovice - 1	730	68	10.72	19	11	58	1789	99.9	0.385	0.014	0.0531	0.002	0.021717	0.0526	0.0014	295	58	330.5	10	333	12	100.8
02/02/2017 (5) 10:55:30.18	Plesovice - 2	605	54	11.17	7	11	157	4150	99.8	0.398	0.016	0.054	0.002	0.08912	0.0537	0.0016	340	65	339.6	11	339	12	99.8
02/02/2017 (5) 11:08:49.97	Plesovice - 3	619	54	11.38	13	11	85	2262	99.9	0.382	0.013	0.0528	0.002	0.18224	0.0526	0.0011	300	47	328.3	9.5	332	12	101.0
02/02/2017 (5) 11:23:18.25	Plesovice - 4	666	59	11.23	3.3	9	273	9288	99.8	0.375	0.013	0.0513	0.0019	0.099722	0.053	0.0013	314	52	323.1	9.6	322	12	99.8
02/02/2017 (5) 11:36:36.47	Plesovice - 5	587	51	11.44	10.5	9.4	90	2571	99.8	0.393	0.014	0.0529	0.002	0.16465	0.0541	0.0013	360	51	336.1	10	332	12	98.9
02/02/2017 (5) 11:51:12.85	Plesovice - 6	559	49	11.48	8	10	125	3161	99.9	0.39	0.014	0.0536	0.002	0.33787	0.053	0.0013	314	54	333.8	10	336	12	100.8
02/02/2017 (5) 12:04:28.56	Plesovice - 7	614	53	11.59	11	11	100	2635	99.7	0.394	0.015	0.0526	0.002	0.079987	0.054	0.0016	350	65	336.7	11	330	12	98.1
02/02/2017 (5) 12:17:47.39	Plesovice - 8	658	60	11.05	0.1	9.5	9500	293600	99.8	0.391	0.014	0.0533	0.002	0.017294	0.0534	0.0014	327	56	334.4	10	335	12	100.0
02/02/2017 (5) 12:32:13.17	Plesovice - 9	792	78	10.21	1.4	9.2	657	25464	99.9	0.386	0.013	0.0534	0.002	0.125	0.0525	0.0011	295	46	330.7	9.4	335	12	101.4
02/02/2017 (5) 12:45:37.78	Plesovice - 10	1185	159	7.44	11.4	9.3	82	4632	99.8	0.391	0.012	0.0533	0.002	0.1379	0.0533	0.0009	333	38	334.5	8.8	335	12	100.0
02/02/2017 (5) 13:00:06.14	Plesovice - 11	618	54	11.45	3.2	8.6	269	8459	99.8	0.391	0.014	0.0531	0.002	0.14932	0.0535	0.0013	333	54	334.8	10	334	12	99.7
02/02/2017 (5) 13:13:23.38	Plesovice - 12	749	71	10.48	-3	12	-400	-11450	99.7	0.389	0.015	0.0524	0.002	0.17864	0.0535	0.0014	334	59	333.5	11	330	12	98.8
02/02/2017 (5) 13:27:52.18	Plesovice - 13	474	39	12.17	15.8	9.5	60	1313	99.9	0.392	0.015	0.054	0.002	0.12558	0.0528	0.0015	303	61	335.2	11	339	12	101.1
02/02/2017 (5) 13:42:27.44	Plesovice - 14	412	37	11.05	8.7	9.1	105	2086	99.6	0.403	0.015	0.0527	0.002	0.092656	0.0554	0.0017	404	66	342.9	11	331	12	96.5
02/02/2017 (5) 13:55:46.31	Plesovice - 15	610	55	11.14	17.1	8.4	49	1560	99.8	0.388	0.013	0.053	0.002	0.24682	0.0532	0.0012	321	49	332.3	9.8	333	12	100.2
02/02/2017 (5) 14:10:16.02	Plesovice - 16	613	55	11.06	6.4	9.2	144	4202	99.7	0.395	0.015	0.0529	0.002	0.2612	0.054	0.0014	352	55	337.6	11	332	12	98.5
02/02/2017 (5) 14:23:33.94	Plesovice - 17	973	106	9.20	7.2	8.9	124	6025	99.8	0.393	0.013	0.0532	0.002	0.1737	0.0533	0.001	329	44	336.3	9.3	334	12	99.3
02/02/2017 (5) 14:36:57.30	Plesovice - 18	519	44	11.92	9	10	111	2609	99.8	0.397	0.016	0.0546	0.0021	0.26991	0.0537	0.0017	342	69	338.6	12	343	13	101.2
02/02/2017 (5) 14:51:25.20	Plesovice - 19	412	33	12.39	9	9.1	101	1989	100.1	0.381	0.015	0.0537	0.002	0.093581	0.0515	0.0015	250	62	326.8	11	337	12	103.2
02/02/2017 (5) 15:03:37.26	Plesovice - 20	676	62	10.82	0.9	8.3	922	32467	99.9	0.378	0.014	0.0521	0.0019	0.081255	0.0524	0.0014	291	57	325	10	328	12	100.8

Notes: No corrections applied to any standard data. For sample done in thin section U and Th concentrations are not available. Pb[a] = in counts per second. % C = %