Depositional constraints from detrital zircon geochronology of strata from multiple lithotectonic belts in south-central Maine, USA

Samuel F. A. Cartwright, David P. West, Jr.[*], and William H. Amidon

Department of Geology, Middlebury College, Middlebury, Vermont 05753, USA
[*]Corresponding Author: dwest@middlebury.edu

Date received: 05 October 2018 ¶ Date accepted: 21 January 2019

ABSTRACT

The bedrock geology of south-central Maine is characterized by a series of fault-bounded lithotectonic belts that were accreted onto the Laurentian margin during Silurian-Devonian orogenesis. The multiple phases of deformation and metamorphism associated with this tectonism obscured most primary features in the protolith rocks, leading to uncertainties in their pre-accretionary history. Here we present the results of detrital zircon geochronology from five of these belts and make interpretations of their depositional ages, sediment provenance, and tectonic setting of deposition.

Detrital zircon from Silurian rocks of the Vassalboro Group from the easternmost structural margin of the Central Maine basin indicate sediment input in an extensional setting from both Laurentian and Ordovician volcanic arc sources. Results from Ordovician rocks of the Casco Bay Group of the Liberty-Orrington belt support earlier findings that these rocks have strong Gondwanan affinities. Detrital zircon from the Appleton Ridge Formation and Ghent Phyllite of the Fredericton trough are consistent with a sediment source of Gondwanan affinity with no evidence of Laurentian sediment input. These findings are consistent with that of Dokken *et al.* (2018) for older Fredericton trough strata (i.e., Digdeguash Formation) east of the Fredericton fault in southern New Brunswick. Two samples from the Jam Brook Complex reveal extreme differences in depositional age (Ordovician vs. Mesoproterozoic) and tectonic affinity and support the hypothesis that this narrow belt represents a fault complex containing a wide variety of stratigraphic units. Detrital zircon from Ordovician rocks of the Benner Hill Sequence indicate a sediment source of Gondwanan affinity with no Laurentian input.

Collectively, the pre-Silurian rocks of the Liberty-Orrington belt, Jam Brook Complex, Benner Hill Sequence, and Late Ordovician-Early Silurian strata from the Appleton Ridge and Ghent Phyllite in the Fredericton trough show Gondwanan affinities with no evidence of Laurentian sediment input. This information suggests that a barrier existed between the Laurentian margin and sources of Gondwanan sediment prior to about 435 Ma. In contrast, Silurian strata from the eastern structural margin of the Central Maine basin do show evidence of Laurentian sediment input, along with deposition in an extensional setting, thus signaling a fundamental change in tectonic regime.

RÉSUMÉ

La géologie du substratum rocheux dans le sud de la région centrale du Maine se caractérise par une série de ceintures lithotectoniques délimitées par des failles jadis accrétées à la marge laurentienne durant l'orogenèse siluro-dévonienne. Les multiples phases de déformation et de métamorphisme associées à ce tectonisme ont masqué la majeure partie des caractéristiques primaires des roches métamorphiques, entraînant des incertitudes à l'égard de leurs antécédents préaccrétionnaires. Nous présentons ici les résultats de la géochronologie des zircons détritiques de cinq de ces ceintures et des interprétations sur l'âge de leurs dépôts sédimentaires, la provenance des sédiments et le cadre tectonique des dépôts.

Les zircons détritiques des roches siluriennes du groupe de Vassalboro provenant de la marge structurale la plus orientale du bassin du centre du Maine indiquent un apport de sédiment dans un milieu techtonique d'extension en provenance de sources d'arc volcanique laurentiennes et ordoviciennes. Les résultats obtenus sur les roches ordoviciennes du groupe de la baie de Casco de la ceinture Liberty Orrington appuient les constatations antérieures prêtant à ces roches d'importantes affinités gondwaniennes. Les zircons détritiques de la formation d'Appleton Ridge et de Ghent Phyllite, dans la fosse de Fredericton, concordent avec une source sédimentaire ayant des affinités gondwaniennes, mais ne présentent aucune trace d'apport sédimentaire laurentien. Ces

doi:10.4138/atlgeol.2019.003

constatations concordent avec celles de Dokken *et coll.* (2018) à l'égard de strates plus anciennes de la fosse de Fredericton (c.-à-d. la formation de Digdeguash), à l'est de la faille de Fredericton, dans le sud du Nouveau-Brunswick. Deux échantillons du complexe de Jam Brook révèlent des différences extrêmes en lien avec l'âge des dépôts sédimentaires (ordovicien et mésoprotérozoïque) ainsi que l'affinité tectonique, appuyant ainsi l'hypothèse selon laquelle cette étroite ceinture représenterait un complexe de failles comportant une grande diversité d'unités stratigraphiques. Les zircons détritiques des roches ordoviciennes de la séquence de Benner Hill indiquent une source sédimentaire ayant des affinités gondwaniennes, mais exempte d'apports d'origine laurentienne.

Collectivement, les roches présiluriennes de la ceinture Liberty Orrington, du complexe de Jam Brook, de la séquence de Benner Hill ainsi que des strates d'Appleton Ridge et de Ghent Phyllite dans la fosse de Fredericton datant de la fin de l'Ordovicien et du début du Silurien présentent des affinités gondwaniennes, mais sont exemptes d'apports sédimentaires d'origine laurentienne. Cette information porte à croire à l'existence d'une barrière entre la marge laurentienne et les sources de sédiments gondwaniens avant les quelque 435 millions d'années. Par contre, les strates siluriennes de la marge structurale orientale du bassin du centre du Maine présentent, pour leur part, des traces d'apports sédimentaires laurentiens, ainsi que des dépôts dans un milieu techtonique d'extension, ce qui révèle un changement fondamental du régime tectonique.

[*Traduit par la redaction*]

INTRODUCTION

Detrital zircon geochronology has proven to be a powerful tool in unraveling the depositional histories of sedimentary basins preserved within orogenic belts. As pointed out by Gehrels (2014), the past two decades have seen an "explosion of publications" that report detrital zircon data, and the application of the technique to studies of northern Appalachian tectonics can be seen in numerous recently published papers (e.g., Bradley and O'Sullivan 2017; Karabinos *et al.* 2017; Kuiper *et al.* 2017; Dokken *et al.* 2018; Ludman *et al.* 2018; Reusch *et al.* 2018; Waldron *et al.* 2018). The area of south-central Maine west of Penobscot Bay (Fig. 1) contains a number of poorly understood lithotectonic belts that originated outboard of the North American continent (Laurentia) and were accreted during Silurian-Devonian mountain-building events (Tucker *et al.* 2001; Gerbi and West 2007). That accretionary process superimposed multiple episodes of ductile deformation and high-grade metamorphism on the sedimentary rocks in these terranes, obscuring much of their pre-accretionary history (e.g., their depositional ages, sediment provenance, and the tectonic settings of the basins themselves). However, the remarkable robustness of detrital zircon grains preserved in the metasedimentary rocks in these terranes can provide insight into this heretofore lost history. When combined with additional information from the geologic record, this knowledge can inform a more detailed understanding of the tectonic history of this portion of the northern Appalachian orogen.

The purpose of this paper is to present new detrital zircon geochronology from several enigmatic lithotectonic belts in south-central Maine with the goal of gleaning information on their pre-accretionary origins. This information consists of: (1) placing constraints on the depositional ages of rocks within each of the belts, (2) determining their sediment provenances (e.g., derived from Laurentian, Gondwanan, or Iapetus/Rheic Ocean volcanic arc sources), and (3) combining this information with previously published data to place constraints on the histories of these rock units prior to Silurian-Devonian orogenesis.

GEOLOGIC OVERVIEW

The study area is located in south-central Maine just west of Penobscot Bay (Fig. 1) where stratified rocks were multiply deformed, metamorphosed, and intruded by several generations of plutons during Silurian–Devonian orogenic activity (Tucker *et al.* 2001; Gerbi and West 2007). Based on differences in age and internal stratigraphy, these stratified rocks are divided into several different lithotectonic sequences separated from one another by faults and/or shear zones (Fig. 2, Table 1). These include four regionally extensive lithotectonic belts (Central Maine, Liberty-Orrington, Fredericton, and St. Croix), as well as three enigmatic less extensive belts (Jam Brook, Clarry Hill, and Benner Hill). The geology within each of these belts has been described elsewhere, but a general overview of each is provided in the following sub-sections, progressing across strike from northwest to southeast. The reader is referred to Figure 2 for the spatial distribution of these lithotectonic belts in the study area, and Table 1 provides an overview of the stratigraphy within each. The interested reader is referred to Berry and Osberg (1989), West *et al.* (2003), and Berry *et al.* (2016) for additional details on the stratigraphy in the area of Figure 2.

Central Maine basin

The Central Maine basin underlies the western portion of the study area and represents a regionally extensive, Late Ordovician to Early Devonian assemblage of marine sedimentary rocks (Osberg 1988). The basin, as presently preserved in central Maine, is up to 100 km wide and interpreted to have originally formed between the Taconic orogeny-modified margin of eastern North America (Laurentia) and a series of outboard pre-Silurian Gondwana-derived terranes (Robinson *et al.* 1998; van Staal *et al.* 2009). In our study area (Fig. 2), only the eastern structural margin of the Central Maine basin is exposed and it contains deformed and metamorphosed turbidites of the Late Ordovician (?) to Silurian Vassalboro Group (Marvinney *et al.*

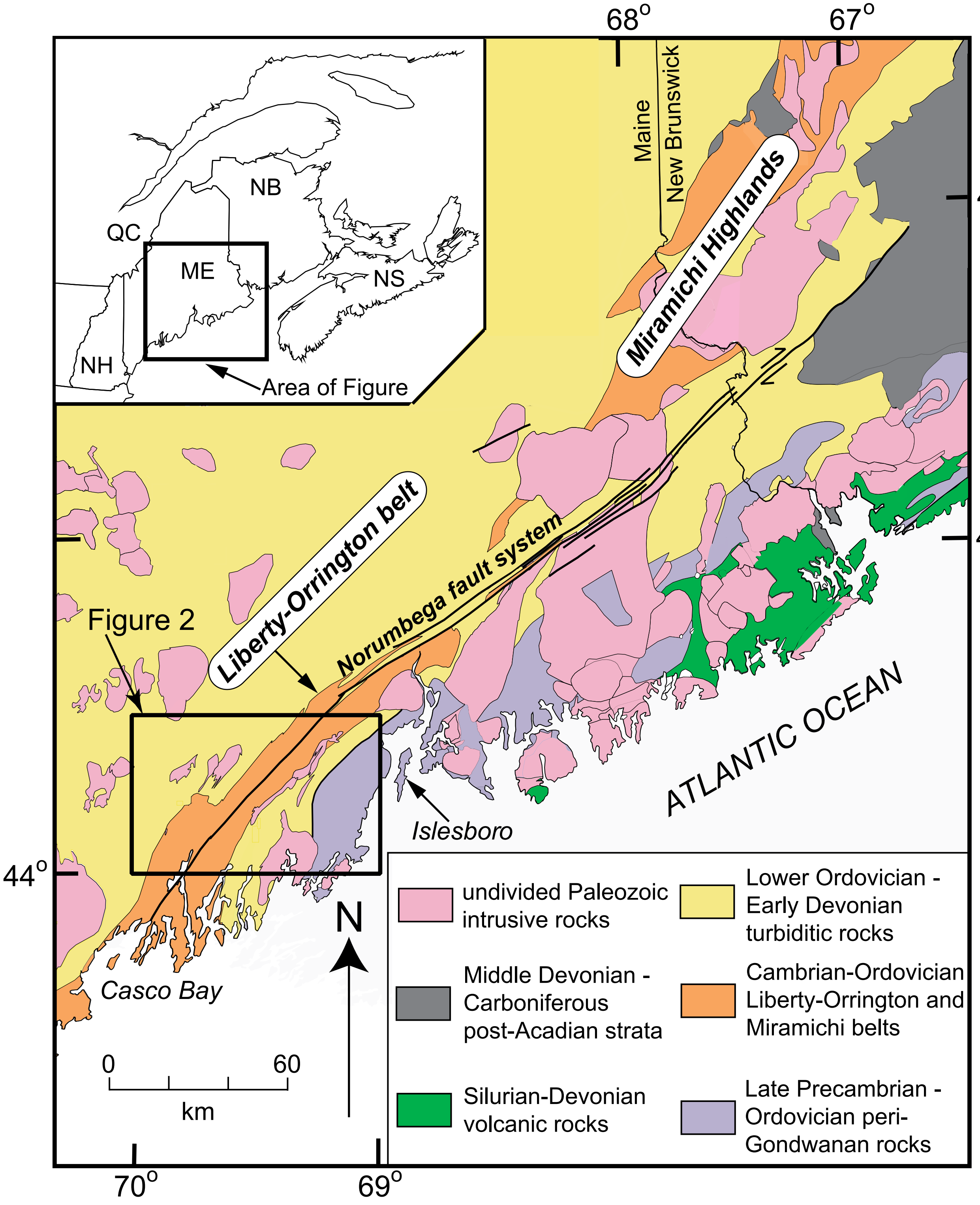


Figure 1. Generalized geologic map of part of Maine and New Brunswick (modified from Bradley *et al.* 2000). Box outlines the area of Figure 2.

2010). Importantly, fossils from the Waterville Formation within the Vassalboro Group contain Llandoverian to Wenlockian fossils (Pankiwskyj *et al.* 1976; Orr and Pickerill 1995). Lithologically similar but unfossiliferous rocks of the Hutchins Corner and Mayflower Hill formations conformably underlie and overlie the Waterville Formation, respectively (Marvinney *et al.* 2010). Where the stratigraphic position of rocks relative to the Waterville Formation cannot be ascertained, they are simply assigned to the Vassalboro Group. One sample (SC-9) was collected and analyzed from

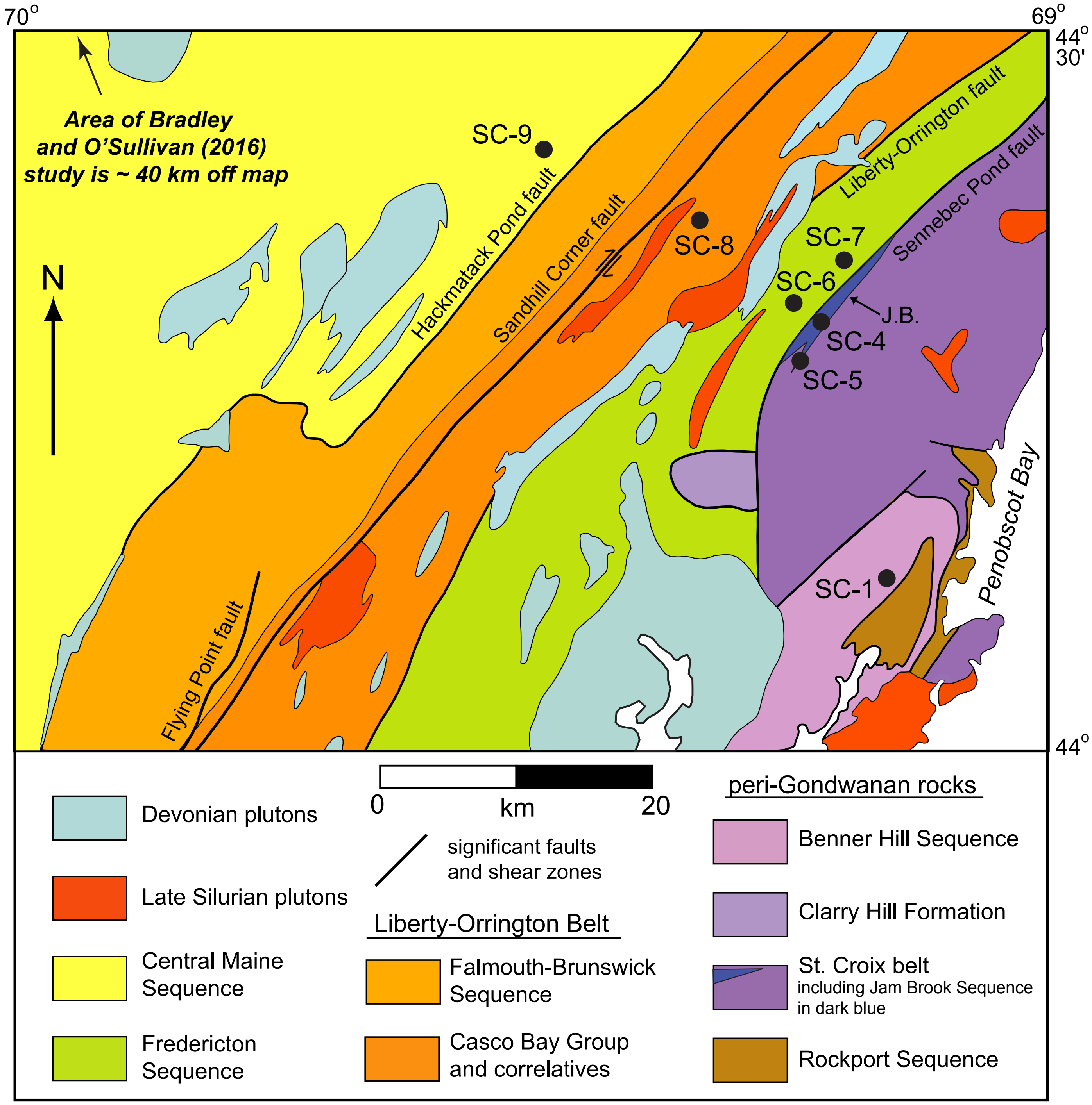


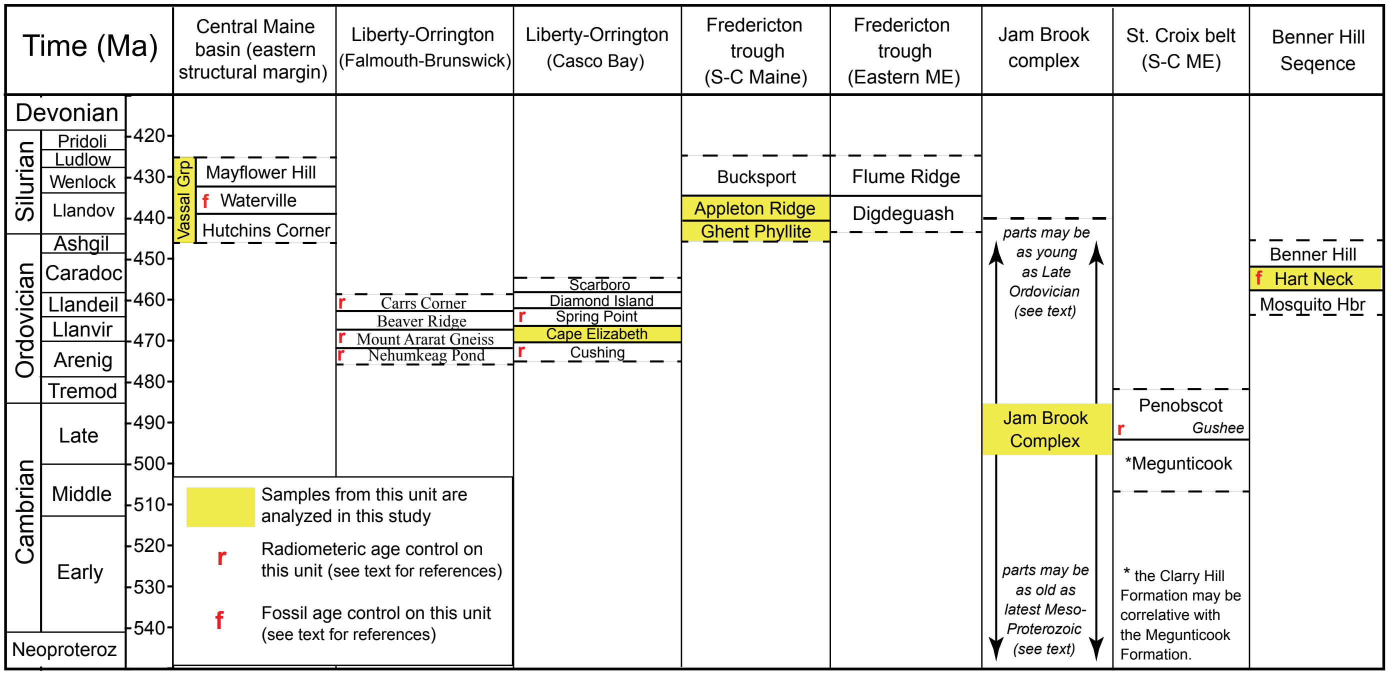
Figure 2. Generalized geologic map of south-central Maine showing lithotectonic belts, bounding faults, and sample locations (modified from Tucker *et al.* 2001; Gerbi and West 2007).

the easternmost part of the belt preserved in the study area. Bradley and O'Sullivan (2017) recently completed a detailed detrital zircon study of strata from the northwestern margin of the Central Maine basin, and Ludman *et al.* (2018) present detrital zircon data from the easterly portions of the basin. The results of these studies will be compared with our findings later in the paper.

Liberty-Orrington belt

The Liberty-Orrington belt is exposed immediately to the southeast of the Central Maine basin and is a relatively narrow (< 25 km), approximately 175 km-long belt that contains metamorphosed Middle to Upper Ordovician volcanic and volcanogenic sedimentary rocks of the Falmouth-Brunswick Group and Casco Bay Group (Hussey *et*

Table 1. Simplified stratigraphic chart of the units discussed in this paper.



al. 2010). In south-central Maine, these rocks are interpreted to represent an assemblage of volcanic arc to backarc rocks of Gondwanan affinity (i.e., Ganderia) that were accreted to the Laurentian margin during the Silurian (West *et al.* 2003, 2004). One sample (SC-8) analyzed in this study was collected from the Cape Elizabeth Formation of the Casco Bay Group. Metasedimentary rocks of the Cape Elizabeth Formation are conformably overlain by metavolcanic rocks of the Spring Point Formation – the protoliths of which were erupted at 469 ± 3 Ma (based on a U–Pb zircon crystallization age from Tucker *et al.* 2001). Detrital zircon ages from the Wilson Cove Member of the underlying Cushing Formation are reported in West *et al.* (2008).

Fredericton trough

The Fredericton trough in south-central Maine consists of metamorphosed metasedimentary rocks of the Bucksport Formation, Appleton Ridge Formation, and Ghent Phyllite. These rocks have been tentatively correlated with Silurian rocks of the Kingsclear Group in southwestern New Brunswick (McKerrow and Ziegler 1971; Fyffe *et al.* 2011). In this study, detrital zircon from one sample of the Appleton Ridge Formation (SC-6) and one sample of the Ghent Phyllite (SC-7) were analyzed. Detrital zircon ages have recently been published from various formations in the Kingsclear Group in New Brunswick (Dokken *et al.* 2018) and adjacent eastern Maine (Ludman *et al.* 2018); these results will be discussed later in the paper.

Jam Brook Complex

The Jam Brook Complex, located just to the east of the Sennebec Pond fault, contains a wide variety of relatively thin (<100 m) fault-bounded metasedimentary units contained within a belt up to 2 km wide and 15 km long. These rocks were originally interpreted by Bickel (1976) to represent a single stratigraphic unit (the Jam Brook Formation), but they are currently interpreted to represent different stratigraphic units juxtaposed by a complex series of strike-parallel faults (Berry *et al.* 2016). Rock types within what is now viewed as a structural complex associated with the Sennebec Pond fault include quartzite, metaconglomerate, marble, calc-silicate gneiss, mica schist, and felsic gneiss. Depositional age control on these individual rock types is lacking, but lithologic similarities suggest correlations with stratigraphic units to the east (e.g., parts of the Rockport Group and Cookson Group) suggesting an age range of Precambrian to Ordovician for the various rock types within the complex (Berry *et al.* 2016). Detrital zircon from two quartzite samples (SC-4 and SC-5) within the Jam Brook Complex were analyzed in this study. No other age control (fossils or geochronology) is available from rocks of the Jam Brook Complex.

St. Croix belt (Cookson Group)

The St. Croix belt extends over 200 km from the present study area along the western side of Penobscot Bay through eastern Maine (Ludman 1987) and into southern New Brunswick (Fyffe and Riva 1990; Fyffe *et al.* 2011). The belt contains the rocks of the Cookson Group, which are dominated by Middle Cambrian to Late Ordovician metasedimentary and minor metavolcanic rocks. In the study area, the Cookson Group contains rocks of the Penobscot and Megunticook formations and these units have been tentatively correlated with the Calais and Crocker Hill formations, respectively, in eastern Maine and coastal New Brunswick. U–Pb dating of igneous zircon crystallization in metavolcanic rocks from the upper part of the Penobscot Formation in the study area reveal latest Cambrian to earliest Ordovician eruptive ages (Tucker *et al.* 2001; Berry *et al.* 2016), consistent with fossil evidence in southern New Brunswick (Fyffe and Riva 1990). In addition, immobile trace element geochemistry in mafic metavolcanic rocks of the Penobscot Formation is consistent with formation in an island arc system generated through ocean-ocean subduction (Burke 2016). Unfortunately, a sample collected from the Megunticook Formation (SC-3) did not yield a sufficient number of zircon grains for analysis.

Clarry Hill Formation

The Clarry Hill Formation consists of migmatitic schist contained within a thrust fault bounded klippe that is structurally above the Kingsclear Group of the Fredericton trough (Tucker *et al.* 2001; Berry *et al.* 2016); these rocks have been correlated with the Megunticook Formation of the St. Croix Group (previous references). Unfortunately, a sample collected from the Clarry Hill Formation (SC-2) did not yield a sufficient number of zircon grains for analysis. No other age control (i.e., fossils or geochronology) is available from rocks of the Clarry Hill Formation and thus proposed correlations with the Megunticook Formation remain untested.

Benner Hill Sequence

The Benner Hill Sequence (Osberg and Guidotti 1974) is a spatially restricted, fault-bounded assemblage of Ordovician metasedimentary rocks that have unclear relationships with surrounding terranes (Berry *et al.* 2000, 2016). The sequence contains the Benner Hill, Hart Neck, and Mosquito Harbor formations and, importantly, the Hart Neck Formation contains deformed brachiopods which indicate a Caradocian depositional age (Boucot *et al.* 1972). One sample analyzed in this study was collected from the fossiliferous Hart Neck Formation (SC-1).

METHODS

Nine ~10 kg samples were collected from metasandstone/siltstone lithologies from the different lithotectonic belts described above (Fig. 3 shows representative rock types). The sample locations are plotted on Figure 2 and corresponding UTM coordinates and notes on the collected rock types are provided in Appendix A. After thin sections were made for petrographic description (details in Cartwright 2018), each sample was disaggregated by standard crushing and milling techniques. This material was then sieved to obtain a <250 μm fraction which was washed to remove dust and dried before magnetic minerals were removed, first with a hand magnet, and then with the aid of a Frantz Isodynamic Magnetic Separator. The non-magnetic fraction was then subjected to heavy liquid settling separation using Methylene Iodide, which has a specific gravity of 3.3. To remove remaining high density, low magnetism minerals such as pyrite and rutile, the mineral separates were subjected to 45-minute HF-nitric acid baths, leaving separates that in most cases largely consisted of zircon.

The purified zircon separates were mounted in epoxy and polished to reveal cross-sections parallel to the c-axis. Each separate was then imaged using cathodoluminescence on a Tescan Vega3 Scanning Electron Microscope to reveal the details of internal zonation and the presence of cracks and alteration zones, which were avoided during analysis (examples shown in Fig. 4; the details of all the samples are provided in Cartwright 2018). The abundance of ^{238}U, ^{235}U, ^{206}Pb, and ^{207}Pb were measured from the unknowns and a suite of standards using an Elemental Scientific NWR-213 laser attached to a Thermo Scientific iCAP-Q quadrupole mass spectrometer at Middlebury College in Vermont. Analysis spots were randomly chosen so that the data collected would not be biased towards zircons of a particular size or texture. For large zoned grains, a priority was placed on targeting apparent xenocrystic cores because, unlike secondary growth, they are indicative of the age of original crystallization.

The primary zircon standard 91500 was analyzed during each analysis session to correct for isotopic fractionation (Wiedenbeck *et al.* 2004). Four secondary standards (94-35, Plešovice, R33, and Tan-BrA) were also analyzed to assess the accuracy and precision of the calculated U–Pb dates. These standards were analyzed in blocks interspersed between sets of six or eight unknowns. Each block consisted of two primary (91500) and two secondary (varied depending on available surface area for new laser spots) zircon standards; every other block also included an analysis of NIST SRM610 glass used to monitor the long-term performance of the instrument. The zircon standards used have the following confirmed ages: 91500 = 1065.4 ± 0.5 Ma, 94-35 = 55.5 ± 1.5 Ma, Plešovice = 337.16 ± 0.11 Ma, R33 = 419.3 ± 0.4 Ma, Tan-BrA = 2512.24 ± 0.71 Ma (Wiedenbeck *et al.* 2004, Klepeis *et al.* 1998; Sláma *et al.* 2008; Black *et al.* 2004; Gehrels 2018). Analyses made during our study yielded the following weighted mean ages and 2σ errors calculated from ^{206}Pb/^{238}U ratios: 94-35 = 55.5 ± 0.8 Ma (n = 32), Plesovice = 345.9 ± 2.6 Ma (n = 57), R33 = 420.8 ± 2.5 Ma (n = 92), Tan-BrA = 2510 ± 14 Ma (n = 66).

A laser spot size of 22 μm was used for each ablation, preceded by a two-second 50 μm "cleaning shot". We used a laser energy of 4.00 J/cm^2, a frequency of 10 Hz, dwell time of 20 seconds, and a blank collection of roughly 20 seconds. Initial data reduction was accomplished using the Iolite data reduction package. Laser-shot time series showing multiple isotopic domains or strongly increasing or decreasing signals were discarded. Likewise, analyses >15% discordant were eliminated from the final dataset, resulting in 64-164 accepted U–Pb dates for each sample.

The data of interest in this output are the averaged ^{207}Pb/^{235}U, ^{206}Pb/^{238}U, and ^{207}Pb/^{206}Pb isotope ratios for each

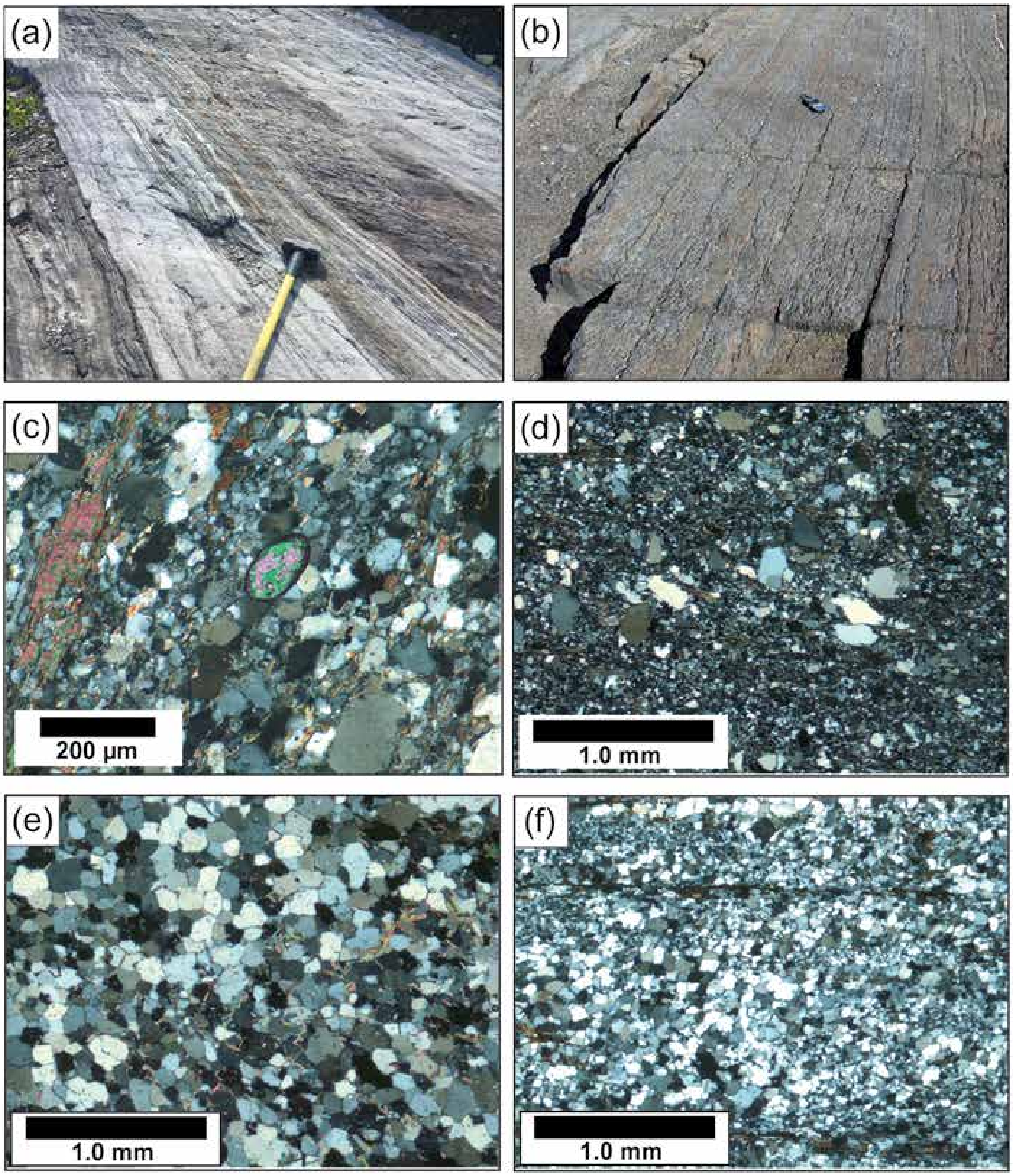


Figure 3. Representative outcrop photographs and thin section photomicrographs from the samples analyzed. (a) SC-8 sample location: interlayered quartzite (beneath hammer handle) and mica schist (beneath hammer head) of the Cape Elizabeth Formation of the Casco Bay Group. (b) SC-6 sample location: interlayered feldspathic quartzite and staurolite schist of the Appleton Ridge Formation of the Fredericton trough. (c) SC-9 photomicrograph (XPL) of biotite granofels from the Vassalboro Group of the Central Maine basin (note the large highly birefringent zircon grain in the center). (d) SC-7 photomicrograph (XPL) of metasiltstone of the Ghent Phyllite of the Fredericton trough. (e) SC-5 photomicrograph (XPL) of quartzite from the Jam Brook Complex. (f) SC-4 photomicrograph (XPL) of quartzite from the Jam Brook Complex.

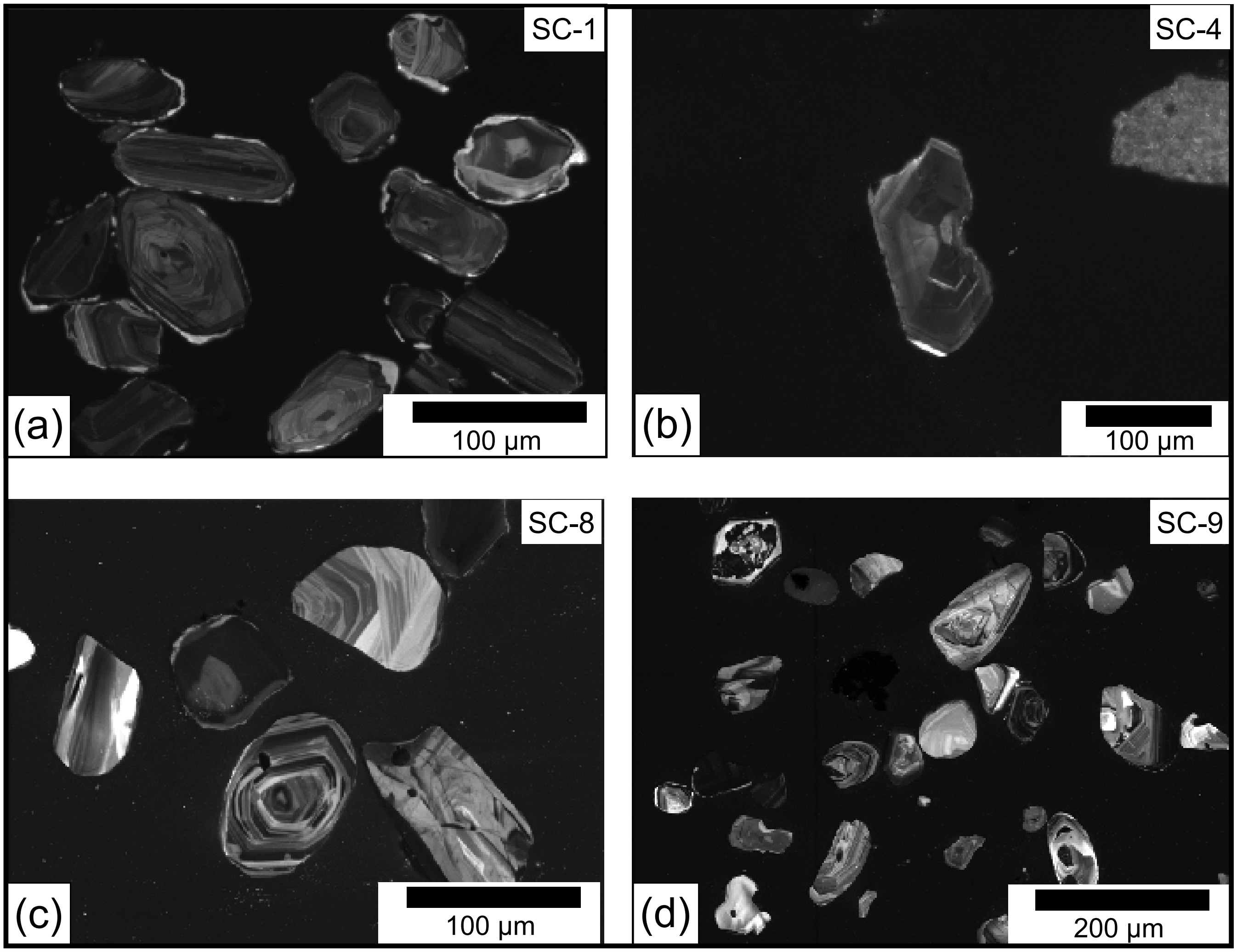


Figure 4. Representative cathodoluminescence images of selected zircons from samples analyzed. Sample numbers are shown in the upper right corner of each image.

analyzed grain as well as their associated errors and ages. Quoted uncertainties reflect the 2σ propagated uncertainties as exported from Iolite, which includes a propagated term for excess scatter in the secondary standards (e.g., step 5 in Horstwood *et al.* 2016). Quoted uncertainties do not include propagated uncertainties for long-term variance of the secondary standards, decay constant, or common-Pb correction. Concordia diagrams were constructed using the Isoplot 4.1 add-in for Microsoft Excel (Ludwig 2012).

RESULTS

A table of U–Pb LA-ICP-MS analytical results from each sample is provided in Appendix B. Probability density plots (PDPs) for each sample, the standard way that detrital zircon data are portrayed, are shown in Figure 5. Hand sample photographs, thin section photomicrographs, cathodoluminescence images, U–Pb concordia diagrams, and kernel density plots from each of the analyzed samples are available in Cartwright (2018). Basic information on the results are provided below, with analysis and interpretations of these results provided in the Discussion.

Eastern Central Maine basin (Vassalboro Group)

Sample SC-9 is a calcareous granofels (Fig. 3c) from well-bedded biotite and calc-silicate granofels of the Vassalboro Group exposed near the eastern structural margin of the Central Maine basin. Mineral separation yielded abundant detrital zircon displaying a variety of sizes, external morphologies, and internal textures (Fig. 4d). U–Pb isotopic ratios were obtained for 168 detrital zircon grains from the sample and of the 167 successful analyses, 161 plotted within 15% of concordia. The distribution of calculated zircon ages (Fig. 5a) shows prominent peaks at ~ 460 Ma, 1060 Ma, and 1600 Ma with a minor peak at ~2670 Ma. The three youngest detrital zircon dates from the sample are between 420–425 Ma.

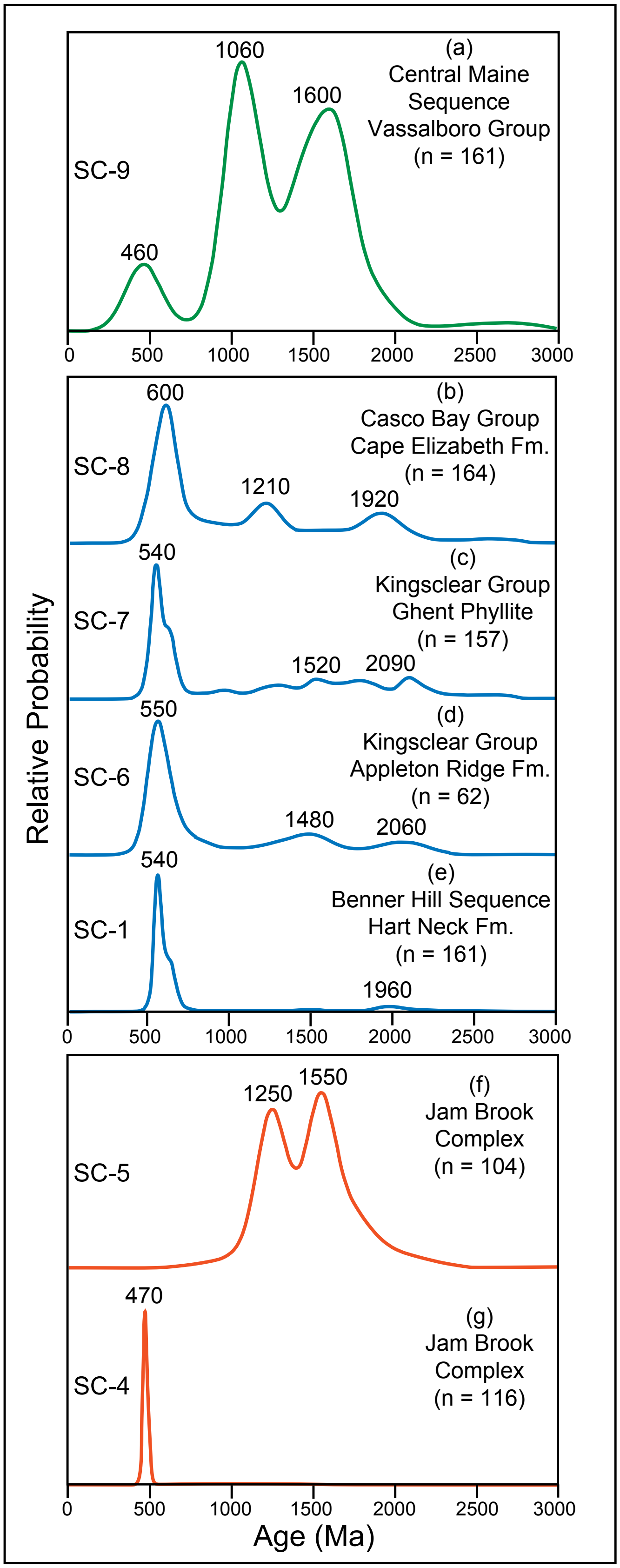


Figure 5. Normalized detrital zircon probability density plots of samples in this study. The sample locations are shown in Figure 2 and the data is provided in the Appendix B.

Liberty-Orrington belt (Cape Elizabeth Formation)

Sample SC-8 is a mica- and feldspar-bearing quartzite from interlayered quartzite and sillimanite-bearing schist of the Cape Elizabeth Formation of the Casco Bay Group (Fig. 3a). Mineral separation yielded an abundance of detrital zircon displaying a variety of sizes (up to 100 µm across), external morphologies, and internal textures (Fig. 4c). U–Pb isotopic ratios were obtained for 176 detrital zircon grains from the sample and of the 175 successful analyses, 164 plotted within 15% of concordia. The distribution of calculated zircon ages (Fig. 5b) shows a very prominent peak at ~600 Ma, with broader, smaller peaks centered at ~1210 and 1920 Ma. The three youngest detrital zircon dates from the sample are 469 and 481(2) Ma.

Fredericton trough (Ghent Phyllite)

Sample SC-7 is a fine-grained metasiltstone (Fig. 3d) collected from interlayered phyllite and metasiltstone of the Ghent Phyllite (garnet zone) near the eastern margin of the Fredericton trough. Mineral separation provided a large number of mostly clear, internally zoned zircons in the 50–100 µm size range. U–Pb isotopic ratios were obtained for 200 detrital zircon grains from the sample and of the 195 successful analyses, 157 plotted within 15% of concordia. The distribution of calculated zircon ages (Fig. 5c) shows a very prominent peak at ~540 Ma with a noticeable shoulder at ~600 Ma. Numerous zircons have older dates in the 900–2200 Ma range with the larger of these small broad peaks being at ~1520 and 2090 Ma. The three youngest detrital zircon dates are 435, 468, and 480 Ma.

Fredericton trough (Appleton Ridge Formation)

Sample SC-6 is from a cordierite-bearing, feldspathic metasandstone from interlayered feldspathic metasandstone and staurolite-bearing schist of the Appleton Ridge Formation (Fig. 3b). Mineral separation produced a large number of fragmented grains that display complex internal zoning. U–Pb isotopic ratios were obtained for 96 detrital zircon grains from the sample and of the 87 successful analyses, only 62 plotted within 15% of concordia. The distribution of calculated zircon dates (Fig. 5d) shows a very prominent peak at ~550 Ma with older, smaller broad peaks being at ~1480 and 2060 Ma. The three youngest detrital zircon dates are 422, 494, and 499 Ma.

Jam Brook Complex (two samples)

Sample SC-5 is a light grey to white quartzite (Fig. 3e) displaying flattened quartz clasts up to 3 cm in length. Zircons separated from this sample showed more size and shape variability than other samples in the study, with a large proportion of the grains being <20 µm fragments which were too small to analyze. U–Pb isotopic ratios were obtained for 114 detrital zircon grains from the sample and of the 106 successful analyses, 104 plotted within 15% of concordia. The distribution of calculated zircon dates (Fig. 5f) shows two prominent peaks at ~1250 and 1550 Ma. Only two detrital zircon dates from this sample are less than 1000 Ma (960 and 969 Ma).

Sample SC-4 is a light grey orthoquartzite (Fig. 3f). Mineral separation yielded unusually euhedral zircon as compared with other samples in the study and xenocrystic cores are uncommon in the zircons imaged (Fig. 4b). U–Pb isotopic ratios were obtained for 120 detrital zircon grains (all successful), with 116 of these analyses plotting within 15% of concordia. The distribution of calculated zircon dates (Fig. 5g) shows a very prominent narrow peak at ~470 Ma with only two dates (952 and 1216 Ma) outside the 439–529 Ma age range associated with this peak.

Benner Hill Sequence (Hart Neck Formation)

Sample SC-1 is a rusty-weathering quartzite from the top of the Hart Neck Formation. Mineral separation produced the cleanest zircon separate of the study, which consists of grains with uniform sizes and morphologies (Fig. 4a). U–Pb isotopic ratios were obtained for 168 detrital zircon grains (all successful) with 161 of these analyses plotting within 15% of concordia. The distribution of calculated zircon dates (Fig. 5e) shows a very prominent narrow peak at ~540 Ma with a noticeable shoulder at ~600 Ma. Much smaller peaks are found at ~1470 and 1960 Ma. The three youngest dates calculated are 302, 410, and 466 Ma, though the vast majority of the dates are between 500 and 600 Ma.

DISCUSSION

Constraints on depositional ages

With the exception of the Hart Neck Formation of the Benner Hill Sequence, none of the metasedimentary rocks exposed in the study area contain fossils that can be used to constrain their original depositional ages. Although U–Pb crystallization ages from conformable metavolcanic units can provide absolute age control on deposition (discussed for relevant samples below), most of the age assignments for stratified rocks in the study area are based on along-strike correlations to the northeast where the rocks have not been extensively recrystallized by the combined effects of ductile deformation and amphibolite-facies metamorphism. Berry and Osberg (1989) provided a comprehensive overview of many of the individual units in the study area and discuss likely correlatives, but depositional age assignments for many of the stratified rocks exposed in the area of Figure 2 have few constraints.

Detrital zircon geochronology can provide an independent means for constraining the depositional ages of sedimentary/metasedimentary rocks. These constraints are based on the "law of detrital zircons" which states that a sedimentary unit cannot be any older than the youngest zircon grain it contains (Gehrels 2014). In other words, the youngest detrital zircon age obtained from a sample provides a maximum depositional age. However, the single youngest detrital zircon age acquired from a sample should be interpreted with caution as post-crystallization Pb-loss or post-depositional zircon growth during metamorphism can lead to anomalously young ages in detrital zircon populations, resulting in underestimates of maximum depositional age (Gehrels 2014).

In order to determine best practices for the interpretation of maximum depositional ages from detrital zircon data, Dickinson and Gehrels (2009) compared several different methods for determining the "youngest grain" against known, biostratigraphically constrained depositional ages of Mesozoic sandstone from the Colorado Plateau. They found the greatest precision in a method that involved taking the weighted mean age (incorporating analytical and systematic errors) of the youngest cluster of three or more grains that overlapped in age within errors of 2σ. In this study, to provide an independent estimate of the maximum depositional age of a sampled unit, we have adopted the Dickinson and Gehrels (2009) approach and use a weighted mean (weighted by the inverse square of 2σ) of the three youngest grain ages overlapping in 2σ that are not considered outliers given known age constraints. The maximum depositional ages determined using this method are presented in Table 2 and discussion of additional constraints for individual units is provided below.

Eastern Central Maine basin Vassalboro Group (SC-9)

The Central Maine basin can generally be divided into a western section (focus of the detrital zircon study of Bradley and O'Sullivan, 2017) and an eastern section (focus of the detrital zircon study of Ludman *et al.* 2018, and the location of our sample SC-9). The stratigraphy in the eastern section includes the Vassalboro Group which contains (from oldest to youngest) the Hutchins Corner, Waterville, and Mayflower Hill formations (Marvinney *et al.* 2010). The Waterville Formation contains Late Llandovery to Wenlock fossils (438–427 Ma using the time scale of Melchin *et al.* 2012); however, the unfossiliferous Hutchins Corner and Mayflower Hill formations are lithologically similar and cannot be distinguished from one another unless depositional relationships with the Waterville Formation can be determined using primary sedimentary features. Due to structural complexity and the effects of overprinting high-grade metamorphism, these relationships are rarely available in south-central Maine and thus a general designation of "Vassalboro Group" is used when the Waterville Formation cannot serve as a direct stratigraphic marker (Marvinney *et al.* 2010). Detrital zircon from our sample SC-9, collected from the undivided Vassalboro Group, provides a maximum depositional age of 422 ± 20 Ma using the conservative approach of Dickinson and Gehrels (2009). Given the >427 Ma depositional age of the Waterville Formation, it seems likely, but not required (given the uncertainty range), that the rocks

Table 2. Maximum depositional ages of sampled formations as indicated by youngest individual grains and grain clusters (additional information on independent depositional age constraints are discussed in the text).

Sample	Lithotectonic Belt	Formation/Unit	Youngest Grain (Ma)	Error (2σ)	Youngest Cluster* (Ma)	Error (2σ)
SC-9	Central Maine	Vassalboro Group	420	±34	422	±20
SC-8	Liberty-Orrington	Cape Elizabeth Fm.	469	±43	478	±20
SC-7	Fredericton	Ghent Phyllite	435	±32	476	±18
SC-6	Fredericton	Appleton Ridge Fm.	422	±23	489	±16
SC-5	Jam Brook	Jam Brook	960	±170	975	±64
SC-4	Jam Brook	Jam Brook	439	±18	440	±13
SC-1	Benner Hill	Hart Neck Fm.	466**	±24	501	±12

* weighted mean of the three youngest grains with ages overlapping in 2σ error, weighted by the inverse square of 2σ (after Dickinson and Gehrels, 2009).
** two younger ages of 302 Ma and 410 Ma are interpreted to reflect Pb loss and were excluded from consideration due to the presence of Ordovician fossils in the unit.

along the eastern-most margin of the Central Maine basin where sample SC-9 was collected should be assigned to the Mayflower Hill Formation rather than the Hutchins Corner Formation.

Cape Elizabeth Formation (SC-8)

The depositional age of the Cape Elizabeth Formation of the Casco Bay Group is independently and tightly constrained between a 465 ± 4 Ma zircon from a volcanic rock in the underlying Cushing Formation (Hussey *et al.* 2010) and a 469 ± 3 Ma zircon from a volcanic rock in the overlying Spring Point Formation (Tucker *et al.* 2001). The maximum depositional age determined in this study (478 ± 20 Ma) is consistent with the ~465–470 Ma depositional age constraint provided by these previously determined U–Pb ages.

Ghent Phyllite and Appleton Ridge Formation (SC-7 and SC-6)

Depositional ages of formations within the Fredericton trough in south-central Maine (the Appleton Ridge Formation, Bucksport Formation, and Ghent Phyllite) are based primarily on tentative correlations with rocks of the Kingsclear Group in southern New Brunswick (McKerrow and Ziegler 1971; Fyffe *et al.* 2011; Dokken *et al.* 2018). The Digdeguash Formation of the Kingsclear Group in New Brunswick, a suggested correlative for the Appleton Ridge Formation, contains early Llandovery graptolites (441.6 to 440.8 Ma using the time scale of Melchin *et al.* 2012). In south-central Maine, the only depositional age constraint on rocks in the Fredericton trough is a lower age limit provided by the North Union granite gneiss, the protolith of which intruded the Bucksport and Appleton Ridge formations at 422 ± 2 Ma (Tucker *et al.* 2001). For this study, we feel that the maximum depositional age of the Ghent Phyllite (476 ± 18 Ma), which was calculated from 157 analyzed grains, provides a more robust constraint for rocks of the Fredericton trough in south-central Maine than the maximum age determined for the Appleton Ridge Formation (489 ± 16 Ma), which is based on only 62 analyses. Ludman *et al.* (2018) also provide detrital zircon data (n = 56) for an Appleton Ridge sample from south-central Maine and report a “youngest grain cluster” at ~468 Ma (no uncertainty provided) which is consistent with our findings.

Jam Brook Complex (SC-5 and SC-4)

As discussed previously, the Jam Brook Complex is interpreted to represent a collage of thin stratigraphic units juxtaposed by faults (Berry *et al.* 2016). Although potential correlatives for some of these individual units have been proposed, there are no direct constraints on the depositional ages of any of the units within the fault complex. The wildly disparate maximum depositional ages of 440 ± 13 Ma and 975 ± 64 Ma determined for the two Jam Brook Complex samples analyzed in this study appear to confirm the structural mélange interpretation. As discussed in more detail below, this analysis of Jam Brook Complex detrital zircon indicates that the complex may contain some of the oldest rocks in the state of Maine.

Hart Neck Formation (SC-1)

The Hart Neck Formation of the Benner Hill Sequence contains deformed Caradocian brachiopods (Boucot *et al.* 1972) and using the detailed timescale of Cooper and Sadler (2012), deposition is constrained to the time interval between 458–448 Ma. The two youngest detrital zircon ages determined from this sample (410 and 302 Ma) are clearly anomalously young and likely reflect the effects of post-crystallization Pb-loss. The next youngest individual age is 466 ± 24 Ma and serves as our preferred maximum depositional age given that the age provided by the method of

Dickinson and Gehrels (2009) is significantly older (501 ± 12 Ma) than the known depositional age based on preserved fossils.

Detrital zircon provenance

One of the more powerful interpretive tools made possible by detrital zircon geochronology is the determination of sediment provenance (e.g., Gehrels *et al.* 2011). By linking detrital zircon populations found in samples of sedimentary rock to known sources of igneous zircon, these interpretations can indicate the location of initial sedimentary deposition relative to sources of detrital zircon. The basis of detrital zircon provenance interpretation is the fact that for a given depositional setting, detrital zircon could be sourced from any number of different surrounding landmasses (e.g., continents and island arcs) with unique tectonic histories which introduced zircon into the sediment cycle at varying rates over time (Gehrels 2014). By matching the distribution of detrital zircon ages from a sample (i.e., peaks at particular ages) to known periods of magmatism in potential sources, a link is drawn between the crystallization of zircon in a particular region and its deposition as detrital zircon in an adjacent sedimentary basin (Thomas 2011).

Lithostratigraphic belts preserved in the south-central Maine portion of the northern Appalachians (Fig. 2) initially formed in the Iapetus and Rheic Oceans before being accreted to the Laurentian margin during Silurian-Devonian orogenesis (e.g., van Staal *et al.* 2012; van Staal and Barr 2012; Domeier 2016). Sedimentary basins in these oceans were surrounded by a number of potential sources of detrital zircon including the large continental landmasses of Laurentia and Gondwana, smaller Gondwana-derived continental landmasses (e.g., Ganderia, Avalonia, Meguma), and numerous evolving early Paleozoic volcanic arc terranes (e.g., Penobscot and Popelogan–Victoria arc terranes). Waldron *et al.* (2018) recently summarized many of the first-order differences between detrital zircon populations derived from these different sources. These major differences include: (1) Laurentian sources are characterized by high concentrations of detrital zircons between 900 and 1100 Ma, with a broad range of much less abundant Mesoproterozoic and Paleoproterozoic zircons (i.e., subdued peaks in an age distribution); (2) Gondwana-derived sources (including Ganderian basement), although variable depending on the specifics of origin (e.g., Ganderia versus Avalonia), have large concentrations of zircon in the 540 to 650 Ma age range, generally lack 900 to 1100 Ma zircons, and many samples have zircons in the 1900 to 2200 Ma age range; and (3) intra-oceanic volcanic arc terranes contain zircon populations corresponding to the time of volcanism in the arcs (e.g., 515–485 Ma for Penobscottian arcs and 475–455 Ma for Popelogan-Victoria arc terranes).

Lithotectonic belts exhibiting Gondwanan signatures

Zircon geochronology results from the Benner Hill Sequence (SC-1), Fredericton trough (SC-6 and SC-7), and the Casco Bay Group (SC-8) indicate strong Gondwanan affinities for rocks in these terranes (Figs. 5b–e). Each age distribution displays prominent peaks between 540 to 600 Ma, a lack of zircons in the 900 to 1100 Ma age range, and less prominent older peaks that correlate well with known signatures of Gondwana-derived sediment (Pollock *et al.* 2007; Waldron *et al.* 2018).

The zircon age population derived from sample SC-1 of the Hart Neck Formation of the Benner Hill Sequence (Fig. 5e) displays a very pronounced peak at ~540 Ma with much smaller secondary peaks at ~1470 Ma and ~1960 Ma. Though the distinction is not definitive, ages between 600–650 Ma are thought to be typical of Avalonian sources while ages around 550 Ma are more indicative of Ganderian detritus (Waldron *et al.* 2018), suggesting the distribution observed from our Benner Hill sample represents material primarily sourced from Ganderia as opposed to Avalonia.

Our two samples from the Fredericton trough in south-central Maine (SC-6 and SC-7, Figs. 5c–d) are remarkably similar with pronounced peaks at ~550 Ma, very few zircon grains in the 900 to 1100 Ma age range, and several small secondary peaks in the Mesoproterozoic and Paleoproterozoic. These findings are very similar to those reported by Dokken *et al.* (2018) for the early Llandovery Digdeguash Formation in the Fredericton trough in southern New Brunswick, a potential Appleton Ridge Formation correlative. Dokken *et al.* (2018) showed that younger Fredericton trough strata (e.g., Flume Ridge Formation) from this region exhibit a ~1000 Ma peak suggestive of later Laurentian input into the Fredericton trough. Comparisons of our results with those of Dokken *et al.* (2018) suggest that both the Appleton Ridge Formation and Ghent Phyllite in south-central Maine represent the early stages of Fredericton trough sediment fill that lacks a Laurentian input.

Ludman *et al.* (2018) presented detrital zircon data from a different Appleton Ridge sample and their results are notably different from what we have presented here for sample SC-6. Specifically, the Ludman *et al.* (2018) Appleton Ridge age spectrum reveals a significant ~1000 Ma peak that is not present in our Appleton Ridge sample, or our Ghent Phyllite sample from the same belt (see Fig. 5). It should be noted that both the Ludman *et al.* (2018) (n = 56) and our (n = 62) Appleton Ridge samples contain less than an optimal number of grains needed to reveal the main age groupings within an individual sample (Vermeesch 2004 suggested that at least 117 grains are needed). Therefore, additional sampling and a more robust number of analyses within individual samples will be required to resolve the provenance complexities within the Fredericton Trough that are suggested from recent studies (Dokken *et al.* 2018; Ludman *et al.* 2018).

Our sample from the Ordovician Cape Elizabeth Formation of the Casco Bay Group (Fig. 5b) displays a pronounced ~600 Ma peak in addition to a series of older peaks often associated with Amazonian signatures (Pollock *et al.* 2007; Waldron *et al.* 2018). West *et al.* (2008) reported a similar late Neoproterozoic detrital zircon peak from the underlying

Cushing Formation of the Casco Bay Group. Additionally, based on trace element and Nd isotopic signatures, West *et al.* (2003) suggested that volcanic rocks of the overlying Spring Point Formation of the Casco Bay Group were generated through partial melting of Gondwana-derived crustal material. Thus, all available evidence from rocks of the Casco Bay Group is consistent with Gondwanan affinity.

Lithotectonic belts exhibiting a Laurentian signature

Unlike the clear Gondwanan distributions of detrital zircon ages described in the previous section, zircons from the Vassalboro Group (SC-9, Fig. 5a) indicate a different provenance for the rocks now exposed on the eastern structural margin of the Central Maine basin. The age distribution for SC-9 does not show the prominent ~540–650 Ma peak associated with source terranes of Gondwanan affinity, but rather a high density of Neoproterozoic grains (peaks at ~1080 Ma and ~1560 Ma) that match well with Laurentian origin (Pollock *et al.* 2007; Waldron *et al.* 2018). Meanwhile, the smaller but prominent ~460 Ma peak suggests an additional source of detritus derived from a Middle to Late Ordovician volcanic arc terrane, possibly the Ordovician arc volcanic rocks of the Falmouth-Brunswick Group or Casco Bay Group in the Liberty-Orrington belt which are exposed immediately to the east of the Central Maine belt (Fig. 2). Thus, our data from the easternmost portion of the Central Maine basin suggest that these Silurian sedimentary rocks had input from a Laurentian source supplemented with detritus from an actively eroding Ordovician arc. These findings are similar to those determined for more westerly portions of the Central Maine basin where sediments also exhibit Laurentian and early Paleozoic detrital input (Bradley and O'Sullivan 2017). Ludman *et al.* (2018) provided an alternative hypothesis and suggested that sediment input into the Central Maine Basin was from recycled Ganderian basement sources, with little input from external terranes (e.g., Laurentia or Avalonia).

The Jam Brook Complex

The Jam Brook Complex has been interpreted to represent a structural complex that contains a variety of thin units juxtaposed along faults (Berry *et al.* 2016). This interpretation is supported by the radically different detrital zircon age populations obtained from the two samples collected from the complex (SC-4 and SC-5, Figs. 5f-g). The distribution of SC-4 detrital zircon (Fig. 5g) is dominated by a pronounced narrow peak centered on ~470 Ma with only two outlying older grains. The result strongly suggests a very restricted source of Ordovician detritus for the sedimentary protolith, such as an actively eroding Ordovician volcanic arc terrane. In stark contrast, sample SC-5 displays a broad distribution of Mesoproterozoic ages with two peaks at ~1270 Ma and ~1550 Ma (Fig. 5f). These peaks do not match well with Laurentian signatures (e.g., no 900–1100 Ma peak), but rather are more similar to those found in the West African craton (e.g., Assabet of Bradley *et al.* 2015). This association is tentative, but what is clear from our Jam Brook Complex findings is that the strata contained in the complex have widely varying origins.

Tectonic environments of deposition

An additional interpretive method applied to detrital zircon geochronology is the determination of the tectonic setting of sediment deposition. Similar to the interpretation of sediment provenance, the technique works by exploiting known signatures in zircon age distributions. However, rather than reflecting particular events in the geologic record, the signatures used in this method result from different sets of conditions unique to each tectonic regime which affect how detrital zircon is introduced into the sediment cycle. These differences are primarily controlled by two factors: the volume and preservation potential of zircon-producing magma generated in the system, and the degree to which that magmatic material is available for erosion of detrital zircon (Cawood *et al.* 2012). For example, a basin developed on a convergent plate boundary (e.g., a forearc or backarc basin) is likely to receive zircon that crystallized relatively recently during arc volcanism, resulting in a small difference between the age of deposition and the crystallization age of detrital zircons. In contrast, a basin in a collisional regime (e.g., a foreland basin) is more likely to receive detrital zircon eroded from relatively old intrusive igneous bodies that only recently reached the surface, resulting in a pronounced difference between the timing of zircon crystallization and deposition.

These differences in crystallization ages and depositional ages can be observed in probability density distributions. For instance, the narrow, isolated peak in the age distribution from SC-4 (Fig. 5f) represents a small difference between these ages and is suggestive of sedimentary deposition in a convergent regime proximal to active zircon-producing felsic to intermediate magmatism. However, as demonstrated by Cawood *et al.* (2012), this metric is best visualized by a cumulative proportion curve (CPC) that shows which percentages of the analyzed zircon population correspond to particular differences between crystallization and sedimentation age. These authors compiled detrital zircon data from a number of different types of basins within three endmember tectonic settings and plotted the corresponding CPCs to identify signatures that could link other zircon age distributions to potential tectonic environments (Fig. 6a). There is overlap in the generalized regions of the plot occupied by the CPCs of each of these endmembers, but gaps between them provide two percentage thresholds at which tectonic designations can be assigned. If the difference between crystallization age and depositional age (CA–DA) is >150 Ma in 5% of the sample, this indicates an extensional setting (labeled "C" in Fig. 6a). If CA–DA is <100 Ma in 30% of the sample, a convergent regime is assigned (labeled "A" in Fig. 6a). If 30% of the sample has a CA–DA >100 Ma, it is given a collisional setting designation (labeled "B" in Fig. 6a).

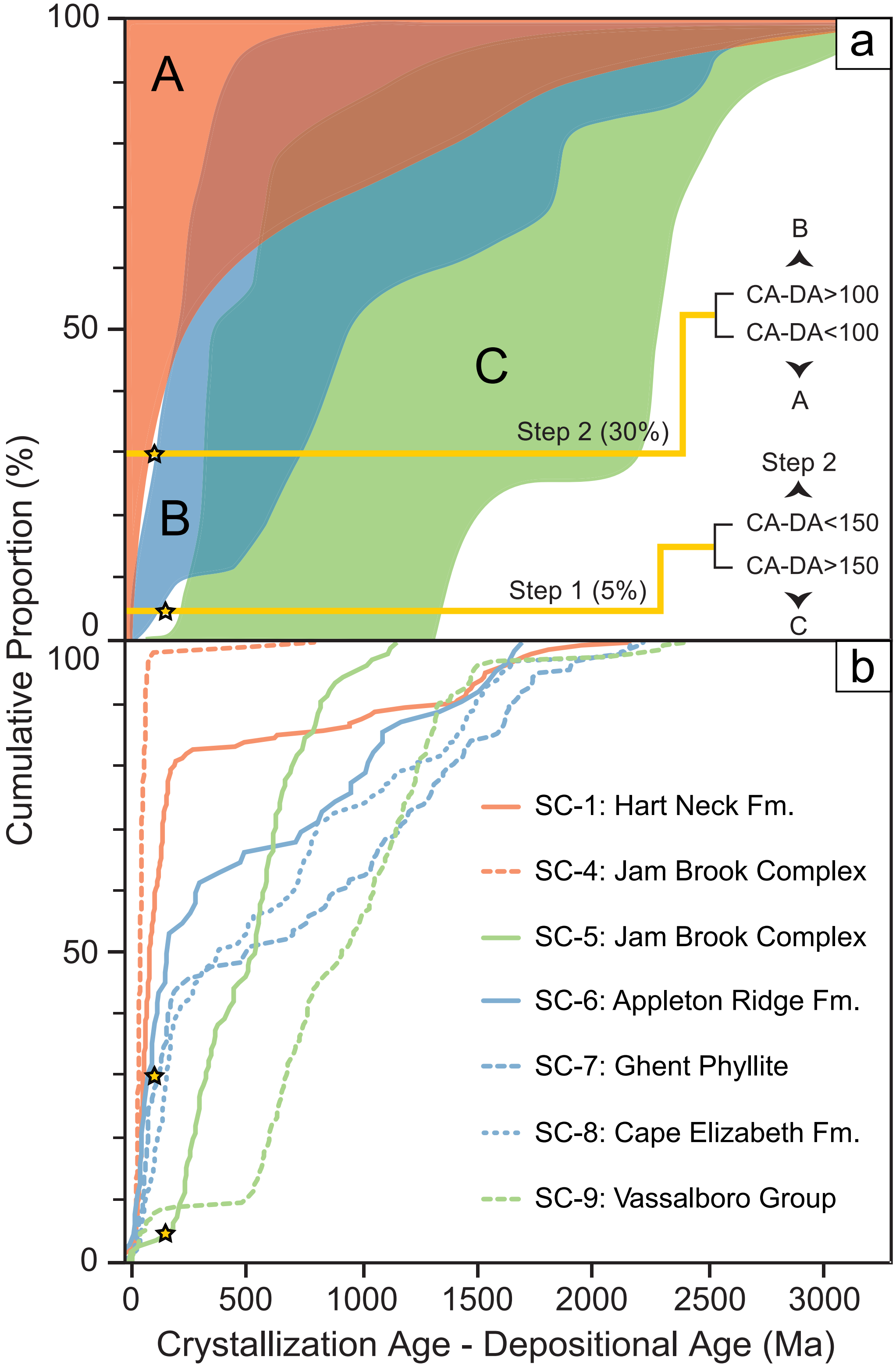


Figure 6. Tectonic settings of sediment deposition as indicated by the delay between original crystallization and subsequent deposition of detrital zircon. (a) Cawood *et al.* (2012) summary of fields for convergent (A, orange), collisional (B, blue), and extensional (C, green) basins. These fields are based on the difference between measured crystallization ages (CA) of detrital zircon and the estimated depositional ages (DA) of the samples from which they were sourced, plotted as cumulative proportion curves and grouped based on known depositional settings. Annotations show the thresholding scheme used for the determination of tectonic setting for samples of unknown origin; see Cawood *et al.* (2012, Fig. 3) for details. (b) Cumulative proportion curves of samples analyzed in this study, color-coded by the tectonic setting indicated by Cawood *et al.* (2012) thresholds (yellow stars) and/or overall distribution shape. See text for details.

Figure 6b presents a compilation of cumulative proportion curves associated with the detrital zircon age distributions of each sample analyzed in this study. In comparing these curves to the signature thresholds of endmember tectonic settings provided by Cawood *et al.* (2012) in Figure 6a, the following assignments can be made: (1) convergent settings are clearly exemplified by samples SC-1 and SC-4 from the Hart Neck Formation and Jam Brook Complex, respectively; (2) sample SC-5 of the Jam Brook Complex shows an extensional setting; and (3) collisional settings are displayed by samples from the Ghent Phyllite of the Fredericton trough (SC-7) and Cape Elizabeth Formation of the Casco Bay Group (SC-8).

Tectonic settings for the remaining two samples are less clear as there is a difference between the settings indicated by their ages at the 5% and 30% thresholds and the settings indicated by the overall shape of their respective CPCs. The Appleton Ridge Formation sample from the Fredericton trough (SC-6) has CA−DA <100 Ma in 30% of zircon grains suggesting a convergent setting, but the extent of its CPC fits better with a collisional setting. Similarly, the CPC for the Vassalboro Group sample from the Central Maine basin (SC-9) fails to meet the CA−DA >150 Ma threshold in 5% of grains but otherwise appears most similar to an extensional setting. This general designation is consistent with previous tectonic interpretations of the Central Maine basin (Bradley *et al.* 2000; Bradley and O'Sullivan 2017), although details remain unresolved (e.g., whether this extensive basin was floored by oceanic lithosphere). The ambiguous nature of these two CPCs is likely due to a combination of non-ideal sample characteristics (i.e., low n-value in SC-6 and dual sediment sources in SC-9).

Regional tectonic significance

The previously presented interpretations of depositional age, sediment provenance, and tectonic setting are summarized in Table 3 and provide key insights into the origins of the different lithotectonic belts currently juxtaposed in south-central Maine. These insights demonstrate that the bedrock geology preserved in this region resulted from the accretion of multiple terranes containing sedimentary rocks that formed in a variety of basins proximal to several distinct sediment sources over the course of hundreds of millions of years. Pre-Silurian rocks (Casco Bay Group, Benner Hill Sequence, Jam Brook Complex) show no significant evidence of Laurentian-derived detritus, and our samples from what one might presume to be the lower portions of the Fredericton trough also show no evidence of Laurentian input (this presumption is based on comparisons with the findings of Dokken *et al.* 2018). In contrast, Silurian rocks from the eastern margin of the Central Maine basin have zircon populations suggestive of Laurentian input, similar to findings in the western portions of this same basin (Bradley *et al.* 2015), and the younger portions (post-Llandovery) of the Fredericton trough (Dokken *et al.* 2018). These findings support the hypothesis that a barrier existed between the Laurentian margin and Gondwana-derived terranes prior to about 435 Ma (Dokken *et al.* 2018). Alternatively, Ludman *et al.* (2018) suggested that little sediment input into the Central Maine basin or Fredericton trough was derived from Laurentian or Avalonian sources, but rather was largely derived from Ganderian basement that became emergent following Late Ordovician orogenesis. Clearly additional detailed sediment provenance studies in the thick, largely post-Ordovician sedimentary basins in the northern Appalachians (e.g., Connecticut Valley, Central Maine/Aroostook-Matapedia, Fredericton) are needed to fully understand the sediment sources of these basins, the pathways for sediment transport into them, and ultimately, Silurian–Early Devonian paleogeography.

CONCLUSIONS

New detrital zircon ages from metasedimentary rocks of the eastern structural margin of the Central Maine basin, Liberty-Orrington belt, Fredericton trough, Jam Brook Complex, and Benner Hill Sequence in south-central Maine reveal the following:

Table 3. Summary of Interpretative Findings.

Sample	Lithotectonic Belt	Formation/Unit	Maximum Age (Ma)	Affinity*	Tectonic Setting
SC-9	Central Maine	Vassalboro Group	422 ± 20	L,V	Extensional
SC-8	Liberty-Orrington	Cape Elizabeth Fm.	478 ± 20	G	Collisional
SC-7	Fredericton	Ghent Phyllite	476 ± 18	G	Collisional
SC-6	Fredericton	Appleton Ridge Fm.	489 ± 16	G	Collisional
SC-5	Jam Brook	Jam Brook	975 ± 64	WA	Extensional
SC-4	Jam Brook	Jam Brook	440 ± 13	V	Convergent
SC-1	Benner Hill	Hart Neck Fm.	466 ± 24	G	Convergent

*G = Gondwanan affinity, V = early Paleozoic volcanic arc, L = Laurentian, WA = West Africa

1. Detrial zircon ages from the Silurian Vassalboro Group along the eastern structural margin of the Central Maine basin indicate sediment input from both Ordovician volcanic arc terrane and Laurentian sources and deposition in an extensional setting.

2. Results from Ordovician rocks of the Casco Bay Group in the Liberty-Orrington belt which indicate detritus derived from terranes of a Gondwanan origin are supportive of previous findings (West *et al.* 2003, 2008).

3. Detrital zircon from the Appleton Ridge Formation and Ghent Phyllite of the Fredericton trough are consistent with a sediment source of Gondwanan affinity and we find no evidence of Laurentian sediment input in these rocks. These findings are consistent with that of Dokken *et al.* (2018) for older Fredericton trough strata (i.e., Digdeguash Formation) east of the Fredericton fault in southern New Brunswick, but differ from those of Ludman *et al.* (2018).

4. Two samples from the Jam Brook Complex show extreme differences in depositional age and tectonic affinity, and support the Berry *et al.* (2016) hypothesis that rocks of the Jam Brook Complex represent a structural complex rather than a single stratigraphic unit. Detrital zircon from one sample suggests a West African sediment source and deposition in the late Mesoproterozoic or earliest Neoproterozoic while the other displays evidence for direct deposition proximal to an eroding Ordovician volcanic arc terrane.

5. Detrital zircon from Ordovician rocks of the Benner Hill Sequence indicate a sediment source of Gondwanan affinity with no Laurentian input.

6. Collectively, pre-Silurian rocks and strata from the Appleton Ridge Formation and Ghent Phyllite in the Fredericton trough show no evidence of Laurentian sediment input, suggesting that a barrier to this sediment input existed between the Laurentian margin and Gondwana-derived sediment sources (e.g., Ganderian terranes) prior to about 435 Ma.

ACKNOWLEDGEMENTS

Funding for this work was provided by the Maine Geological Survey through the STATEMAP program, and by the Middlebury College Geology Department. We thank Atticus Proctor for assistance in the field, Kristina Walowski for sharing sample preparation techniques and laboratory equipment, and Jody Smith and Ray Coish for help with U–Pb data acquisition. DPW is indebted to Henry Berry of the Maine Geological Survey for many discussions over the years of the geology of this region, and in particular his more recent thoughts concerning the complexities of the Jam Brook Complex. The authors sincerely thank Paul Karabinos and Allan Ludman for their thorough reviews of the initial manuscript.

REFERENCES

Berry, H.N. IV and Osberg, P.H. 1989. A stratigraphic synthesis of eastern Maine and western New Brunswick. *In* Studies in Maine Geology. vol. 2. *Edited by* R.D. Tucker and R.G. Marvinney. Maine Geological Survey, Augusta, Maine, pp. 1–29.

Berry, H.N. IV, Schoonmaker, A., and Guidotti, C.V. 2000. The Benner Hill sequence. *In* Guidebook for field trips in coastal and east-central Maine. 92nd New England Intercollegiate Geological Conference Guidebook. *Edited by* M.G. Yates, D.R. Lux, and J.T. Kelley. pp. 187–207.

Berry, H.N. IV, West, D.P., Jr., and Burke, W. 2016. Bedrock relationships along the Sennebec Pond fault: A structural puzzle, a stratigraphic enigma, and a tectonic riddle. *In* Guidebook for Field Trips along the Maine Coast from Maquoit Bay to Muscongus Bay. 108th New England Intercollegiate Geological Conference Guidebook, *Edited by* H.N. Berry IV and D.P. West, Jr. pp. 43–70.

Bickel, C. E. 1976. Stratigraphy of the Belfast quadrangle, Maine. *In* Contributions to the stratigraphy of New England. *Edited by* L.R. Page. Geological Society of America Memoir 148, pp. 97–128. https://doi.org/10.1130/MEM148-p97

Black, L. P., Kamo, S. L., Allen, C. M., Davis, D. W., Aleinikoff, J. N., Valley, J. W., Mundil, R., Campbell, I. H., Korsch, R. J., Williams, I. S., Foudoulis, C. 2004. Improved ^{206}Pb/^{238}U microprobe geochronology by the monitoring of a trace-element-related matrix effect; SHRIMP, ID–TIMS, ELA–ICP–MS and oxygen isotope documentation for a series of zircon standards. Chemical Geology, 205, pp. 115–140. https://doi.org/10.1016/j.chemgeo.2004.01.003

Boucot, A. J., Brookins, D., Forbes, W., and Guidotti, C. V. 1972. Staurolite zone Caradoc (Middle-Late Ordovician) age, Old World Province brachiopods from Penobscot Bay, Maine: Geological Society of America, Bulletin, 83, pp. 1953–1960. https://doi.org/10.1130/0016-7606(1972)83[1953:SZCMOA]2.0.CO;2

Bradley, D. C. and O'Sullivan, P. 2017. Detrital zircon geochronology of pre- and syncollisional strata, Acadian orogen, Maine Appalachians. Basin Research, 29, pp. 571–590. https://doi.org/10.1111/bre.12188

Bradley, D.C., Tucker, R.D., Lux, D.R., Harris, A.G., and McGregor, D.C. 2000. Migration of the Acadian orogeny and foreland basin across the northern Appalachians of Maine and adjacent areas. United States Geological Survey Professional Paper 1624, 49 p.

Bradley, D.C., O'Sullivan, P., Cosca, M.A., Motts, H.A., Horton, J.D., Taylor, C.D., Beaudoin, G., Lee, G.K., Ramezani, J., Bradley, D.B., Jones, J.V., and Bowring, S. 2015. Synthesis of geological, structural, and geochronological data. *In* Second projet de renforcement institutional de secteur minier de la République Islamique de Mauritanie (PRISM-II). *Edited by* C.D. Taylor. United States Geological Survey Open-File Report 2013-1280-A, 328 p. [In English and French].

Burke, W.B. 2016. Petrology, geochemistry, and U–Pb zircon ages of metamorphosed Cambrian-Ordovician volcanic rocks of the St. Croix Belt, western Penobscot Bay, Maine. Unpublished Middlebury College Thesis, Middlebury, Vermont, 109 p.

Cartwright, S.F.A. 2018. Detrital zircon geochronology of strata from multiple accreted terranes in south-central Maine. Unpublished Middlebury College thesis, Middlebury, Vermont, 145 p.

Cawood, P.A., Hawkesworth, C.J., and Dhuime, B. 2012. Detrital zircon record and tectonic setting. Geology, 113, pp. 1234–1246.

Cooper, R.A. and Sadler, P.M. 2012. The Ordovician Period. *In* The geologic time scale 2012. *Edited by* F.M. Gradstein, J.G. Ogg, M.D. Schmitz, and G.M. Ogg. Elsevier Publishers, pp. 489–423. https://doi.org/10.1016/B978-0-444-59425-9.00020-2

Dickinson, W. and Gehrels, G. 2009. Use of U–Pb ages of detrital zircons to infer maximum depositional ages of strata: A test against a Colorado Plateau Mesozoic database. Earth and Planetary Science Letters, 288, pp. 115–125. https://doi.org/10.1016/j.epsl.2009.09.013

Dokken, R,J, Waldron, J.W.F., and Dufrane, S.A. 2018. Detrital zircon geochronology of the Fredericton trough, New Brunswick, Canada: Constraints on the Silurian closure of remnant Iapetus Ocean. American Journal of Science, 318, pp. 684–725. https://doi.org/10.2475/06.2018.03

Domeier, M. 2016. A plate tectonic scenario for the Iapetus and Rheic Oceans. Gondwana Research, 36, pp. 275–295. https://doi.org/10.1016/j.gr.2015.08.003

Fyffe, L. and Riva, J. 1990. Revised stratigraphy of the Cookson Group of southwestern New Brunswick and adjacent Maine. Atlantic Geology, 26, pp. 271–276. https://doi.org/10.4138/1709

Fyffe, L.R., Johnson, S.C., and van Staal, C.R. 2011. A review of Proterozoic to early Paleozoic lithotectonic terranes in the northeastern Appalachian orogeny of New Brunswick Canada, and their tectonic evolution during Penobscot, Taconic, Salinic, and Acadian orogenesis. Atlantic Geology, 47, pp. 211–248. https://doi.org/10.4138/atlgeol.2011.010

Gehrels, G. 2014. Detrital zircon U–Pb geochronology applied to tectonics. Annual Review of Earth and Planetary Sciences, 42, pp. 127–149. https://doi.org/10.1146/annurev-earth-050212-124012

Gehrels, G. 2018. Zircon Standards Table [Chart]. From Arizona Laserchron Center. URL <https://drive.google.com/file/d/1BHwKmBbkg_8iyWM-Ht3qFJ1hz1cjfU2a/view>, 14 January 2019.

Gehrels, G. E., Blakey, R., Karlstrom, K. E., Timmons, J. M., Dickinson, B., and Pecha, M. 2011. Detrital zircon U–Pb geochronology of Paleozoic strata in the Grand Canyon, Arizona. Lithosphere, 3, pp. 183–200. https://doi.org/10.1130/L121.1

Gerbi, C. and West, D.P., Jr. 2007. Use of U–Pb geochronology to identify successive, spatially overlapping tectonic episodes during Silurian-Devonian orogenesis in south-central Maine, USA. Geological Society of America Bulletin, 119, pp. 1218–1231. https://doi.org/10.1130/B26162.1

Horstwood, M.S.A., Kosler, J., Gehrels, G., Jackson, S.E., McLean, N.M., Paton, C., Pearson, N.J., Sircombe, K., Slyvester, P., Vermeesch, P., Bowring, J.F., Condon, D.J., and Schoene, B. 2016. Community-derived standards for LA-ICP-MS U-(Th-)Pb geochronology – Uncertainty propagation, age interpretation, and data reporting. Geostandards and Geoanalytical Research, 40, pp. 311–332. https://doi.org/10.1111/j.1751-908X.2016.00379.x

Hussey, A.M., II, Bothner, W.A., and Aleinikoff, J. 2010. The tectono-stratigraphic framework and evolution of southwestern Maine and southeastern New Hampshire, *In* From Rodinia to Pangea: The Lithotectonic Record of the Appalachian Region. *Edited by* R.P. Tollo, M.J. Bartholomew, J.P. Hibbard, and P.M. Karabinos. Geological Society of America Memoir 206, pp. 205–230. https://doi.org/10.1130/2010.1206(10)

Karabinos, P., Macdonald, F.A., and Crowley, J.L. 2017. Bridging the gap between the foreland and hinterland I: Geochronology and plate tectonic geometry of Ordovician magmatism and terrane accretion on the Laurentian margin of New England. American Journal of Science, 317, pp. 515–554. https://doi.org/10.2475/05.2017.01

Klepeis, K. A., Crawford, M. L., and Gehrels, G. 1998. Structural history of the crustal-scale Coast shear zone north of Portland Canal, southeast Alaska and British Columbia. Journal of Structural Geology, 20, pp. 883–904. https://doi.org/10.1016/S0191-8141(98)00020-0

Kuiper, Y.D., Thompson, M.D., Barr, S.M., White, C.E., Hepburn, J.C., and Crowley, J.L. 2017. Detrital zircon evidence for Paleoproterozoic West African crust along the eastern North American continental margin, Georges Bank, offshore Massachusetts, USA. Geology, 45, pp. 811–814. https://doi.org/10.1130/G39203.1

Ludman, A. 1987. Pre-Silurian stratigraphy and tectonic significance of the St. Croix Belt, southeastern Maine. Canadian Journal of Earth Sciences, 24, pp. 2459–2469. https://doi.org/10.1139/e87-230

Ludman, A., Aleinikoff, J., Berry, H.N. IV, and Hopeck, J.T. in 2018. U–Pb zircon SHRIMP evidence for age and provenance of Early Paleozoic rocks on the Ganderian Plate, east-central Maine. Atlantic Geology, 54, pp. 335–387. https://doi.org/10.4138/atlgeol.2018.013

Ludwig, K.R. 2012. Isoplot: A geochronological toolkit for Microsoft Excel: Berkeley Geochronology Center Special Publication No. 5, University of California at Berkley. URL <http://www.bgc.org/isoplot_etc/isoplot/Isoplot3_75-4_15manual.pdf>, 01 June, 2018.

Marvinney, R.G., West, D.P., Jr., Grover, T.W., and Berry, H.N. IV. 2010. A stratigraphic review of the Vassalboro Group in a portion of central Maine. *In* Guidebook for Field Trips in Coastal and Interior Maine, 102nd New England Intercollegiate Geological Conference Guidebook. *Edited by* C. Gerbi, M. Yates, and D. Lux. pp. 61–76.

McKerrow, W. S. and Ziegler, A. M. 1971. The lower Silurian paleogeography of New Brunswick and adjacent areas: Journal of Geology, 79, pp. 635–646. https://doi.org/10.1086/627695

Melchin, M.J., Sadler, P.M., and Cramer, B.D. 2012. The Silurian Period. *In* The geologic time scale 2012. *Edited by* F.M. Gradstein, J.G. Ogg, M.D. Schmitz, and G.M. Ogg. Elsevier Publishers, pp. 525–558. https://doi.org/10.1016/B978-0-444-59425-9.00021-4

Osberg, P.H. 1988. Geologic relations within the shale-wacke sequence in south-central Maine. *In* Studies in Maine Geology: Structure and Stratigraphy. *Edited by* R.D. Tucker, R.D. and R.G. Marvinney. Maine Geological Survey, 1, pp. 51–73.

Osberg, P.H. and Guidotti, C.V. 1974. The geology of the Camden-Rockland area. *In* Guidebook for field trips in east-central and north-central Maine. *Edited by* P.H. Osberg. New England Intercollegiate Guidebook, pp. 48–60.

Orr, P. and Pickerill, R., 1995, Trace fossils from Early Silurian flysch of the Waterville Formation, Maine, USA. Northeastern Geology and Environmental Sciences, 17, pp. 394–414.

Pankiwskyj, K., Ludman, A., Griffin, J., and Berry, W. 1976. Stratigraphic relationships on the southeast limb of the Merrimack Synclinorium in central and west-central Maine. *In* Studies in New England Geology. *Edited by* A. Brownlow and P. Lyons. Geological Society of America Memoir 146, pp. 263–280.

Pollock, J. C., Wilton, D. H. C., van Staal, C. R., and Morrissey, K. D. 2007. U–Pb detrital zircon geochronological constraints on the Early Silurian collision of Ganderia and Laurentia along the Dog Bay Line: The terminal Iapetan suture in the Newfoundland Appalachians. American Journal of Science, 307, pp. 399–433. https://doi.org/10.2475/02.2007.04

Reusch, D.N., Holm-Denoma, C.S., and Slack, J.F. 2018. U–Pb zircon geochronology of Proterozoic and Paleozoic rocks, North Islesboro, coastal Maine (USA): links to West Africa and Penobscottian orogenesis in southeastern Ganderia? Atlantic Geology, 54, pp. 189–224. https://doi.org/10.4138/atlgeol.2018.008

Robinson, P., Tucker, R.D., Bradley, D., Berry, H.N., IV, and Osberg, P.H. 1998, Paleozoic orogens in New England, USA. GFF, Geological Society of Sweden, 120, pp. 119–148.

Sláma, J., Košler, J., Condon, D. J., Crowley, J. L., Gerdes, A., Hanchar, J. M., Whitehouse, M. J. 2008. Plešovice zircon - A new natural reference material for U–Pb and Hf isotopic microanalysis. Chemical Geology, 249, pp. 1–35. https://doi.org/10.1016/j.chemgeo.2007.11.005

Thomas, W. A. 2011. Detrital-zircon geochronology and sedimentary provenance. Lithosphere, 3, pp. 304–308. https://doi.org/10.1130/RF.L001.1

Tucker, R.D., Osberg, P.H., and Berry, H.N., IV. 2001. The geology of a part of Acadia and the nature of the Acadian Orogeny across central and eastern Maine. American Journal of Science, 301, pp. 205–260. https://doi.org/10.2475/ajs.301.3.205

Van Staal, C.R. and Barr, S.M. 2012. Lithospheric architecture and tectonic evolution of the Canadian Appalachians and associated Atlantic margin. *In* Tectonic Styles in Canada: the LITHOPROBE Perspective. *Edited by* J.A. Percival, F.A. Cook, and R.M. Clowes. Geological Association of Canada, Special Papers, 49, pp. 41–95.

Van Staal, C., Whalen, J., Valverde-Vaquero, P., Zagorevski, A., and Rogers, N. 2009. Pre-Carboniferous, episodic accretion-related, orogenesis along the Laurentian margin of the Northern Appalachians. *In* Ancient orogens and modern analogues. *Edited by B.* Murphy, D. Keppie, and A. Hynes. Geological Society of London, Special Publications, 327, pp. 271–316. https://doi.org/10.1144/SP327.13

Van Staal, C.R., Barr, S.M., and Murphy, J.B. 2012. Provenance and tectonic evolution of Ganderia: constraints on the evolution of the Iapetus and Rheic oceans. Geology, 40, pp. 987–990. https://doi.org/10.1130/G33302.1

Vermeesch, P. 2004. How many grains are needed for a provenance study? Earth and Planetary Science Letters, 224, pp. 441–451. https://doi.org/10.1016/j.epsl.2004.05.037

Waldron, J. W. F., Schofield, D. I., and Murphy, J. B., 2018, Diachronous Paleozoic accretion of peri-Gondwanan terranes at the Laurentian margin, *In* Fifty years of the Wilson cycle concept in plate tectonics. *Edited by* R.W. Wilson, G.A. Houseman, K.J.W. McCaffrey, A.G. Dore´, and S.J.H. Buiter. Geological Society of London, Special Publication, 470, online version. https://doi.org/10.1144/SP470.11

Wiedenbeck, M., Hanchar, J. M., Peck, W. H., Sylvester, P., Valley, J., Whitehouse, M., Kronz, A., Morishita, Y., Nasdala, L., Fiebig, J., Franchi, I., Girard, J., Greenwood, R., Hinton, R., Kita, N., Mason, P., Norman, M., Ogasawara, M., Piccoli, P., Rhede, D., Satoh, H., Schulz-Dobrick, B., Skår, O., Spicuzza, M., Terada, K., Tindle, A., Togashi, S., Vennemann, T., Xie, Q., and Zheng, Y. 2004. Further characterization of the 91500 zircon crystal. Geostandards and Geoanalytical Research, 28, pp. 9–39. https://doi.org/10.1111/j.1751-908X.2004.tb01041.x

West, D.P., Jr. 1995. The Norumbega fault zone in south-central Maine: A trip through 80 million years of dextral shear deformation. *In* Guidebook for field trips in southern Maine and adjacent New Hampshire. 87th New England Intercollegiate Geological Conference Guidebook. *Edited by* A.M. Hussey, II and R.A. Johnston. pp. 125–143.

West, D.P., Jr., Senese, M.P., and Sterrett, J.B. 2000. Structural Geology and tectonics of Silurian-Devonian terrane accretion in south-central Maine. *In* Guidebook for field trips in coastal and east-central Maine. 92nd New England Intercollegiate Geological Conference Guidebook. *Edited by* M.G. Yates, D.R. Lux, and J.T. Kelley. pp. 107–128.

West, D.P., Jr., Beal, H.M., and Grover, T.W. 2003. Silurian deformation and metamorphism of Ordovician arc rocks of the Casco Bay Group, south-central Maine. Canadian Journal of Earth Sciences, 40, pp. 887–905. https://doi.org/10.1139/e03-021

West, D.P., Jr., Coish, R.A., and Tomascak, P.B. 2004. Tectonic setting and regional correlation of Ordovician metavolcanic rocks of the Casco Bay Group, Maine: Evidence from trace element and isotope geochemistry. Geological Magazine, 141, pp. 125–140. https://doi.org/10.1017/S0016756803008562

West, D.P., Jr., Yates, M.G., Gerbi, C., and Barnard, N.Q. 2008. Metamorphosed Ordovician iron- and manganese-rich rocks in south-central Maine: from peri-Gondwanan deposition through Acadian metamorphism. American Mineralogist, 93, pp. 270–283. https://doi.org/10.2138/am.2008.2592

Editorial responsibility: Sandra M. Barr

APPENDIX A

Sample information

(Locations in UTM coordinates using datum NAD83/WGS84, Zone 19T)

Sample SC-1: Hart Neck Formation of the Benner Hill sequence

UTM: 0487391 4885309. Sample collected from a location approximately 4 km WNW of Rockland, Maine near the southern end of Bog Road. The sampling location is near Stop 2 of Berry *et al.* (2000) – being approximately 400 m north of the Power Line traverse described in Stop 2 of that field trip. The rock collected is a rusty weathering quartzite and several moderately sized blocks of an identical lithology containing deformed brachiopods were found immediately adjacent to the sampled outcrop. This strongly suggests the rock collected correlates with outcrop G described at Stop 2 of Berry *et al.* (2000) and thus is from the top of the Hart Neck Formation of the Benner Hill Sequence.

Sample SC-4: Jam Brook Complex

UTM: 0482181 4904441. Sample collected from a location approximately 10 km NNW of Union, Maine – approximately 150 m west of Peabody Road. The sampling location is well-documented in "Optional Stop 0" of Berry *et al.* (2016) and corresponds to "Unit D" in Figure 3 of that field trip guide. The sample was collected from a low outcrop just to the north of the trail (shown in figure 3, of Berry *et al.* 2016) and consists of a fine-grained, orange-brown weathering, light grey quartzite (see Fig. 3c).

Sample SC-5: Jam Brook Complex

UTM: 0479797 4901625. Sample collected from a location approximately 6 km NNW of Union, Maine – approximately 50 m west of Sennebec Road, approximately one km north of the intersection with Gurneytown Road. The sample is from a low woods outcrop and consists of a white quartzite with some rusty weathering breakage surfaces. The sample is from a mappable quartzite unit within the Jam Brook Formation.

Sample SC-6: Appleton Ridge Formation of the Fredericton Trough

UTM: 0479432 4904863. Sample collected from a location approximately 9 km SSW of Searsmont, Maine – about 1 km northwest of Appleton in a blueberry field just east of the Appleton Ridge Road. The sample is from a 25 cm thick micaeous feldspathic quartzite bed within staurolite-bearing schists of the Appleton Ridge Formation (Fig. 3b). Sample is near Stop 8 of West *et al.* (2000).

Sample SC-7: Ghent Phyllite of the Fredericton Trough

UTM: 0483349 4908439. Sample collected from a location approximately 4 km SSW of Searsmont Maine just east of Rt. 131 at the entrance road to Robbins lumber company (a low road-cut on the north side of the entrance road). Sample is from a 25 cm thick medium grey color metasiltstone bed within what are otherwise dark grey garnet-bearing phyllites. Sample is from NEIGC Stop 12 of West *et al.* (2000).

Sample SC-8: Cape Elizabeth Formation of the Casco Bay Group

UTM: 0472664 4912743. Sample collected from a location approximately 12 km west of Searsmont, Maine – off the Stickney Road approximately 800 m south of Lake St. George. The sample is from a low blueberry field exposure approximately 100 m from Stickney Road. The sample is from a 35 cm thick light grey quartzite bed within sillimanite-bearing mica schists of the Cape Elizabeth Formation (Fig. 3a). The sample is from near NEIGC Stop 7 of West (1995).

Sample SC-9: Vassalboro Group of the Central Maine sequence

UTM: 0460627 4917653. Sample collected from a location approximately 1.75 km west of Palermo, Maine – from a road cut on the north side of Rt. 3. The sample is from a 15 cm thick light grey metasiltstone bed within calcareous biotite granofels and calc-silicate granofels of the Vassalboro Group.

Appendix B. U–Pb Laser ablation-ICP-MS detrital zircon isotopic data.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
Sample SC-1: Hart Neck Formation of the Benner Hill sequence																		
SC-1-Spot-5	0.817	0.067	0.1060	0.0130	9.433962	1.156995	0.0598	0.0047	0.42367	599	37	643	73	570	160	0.07	643	73
SC-1-Spot-6	0.759	0.047	0.0877	0.0051	11.402510	0.663088	0.0610	0.0036	0.46715	569	28	541	30	620	130	0.05	541	30
SC-1-Spot-7	3.820	0.180	0.2720	0.0220	3.676471	0.297362	0.1038	0.0059	0.84596	1588	37	1560	110	1671	98	0.02	1671	98
SC-1-Spot-8	0.691	0.039	0.0826	0.0057	12.106540	0.835439	0.0604	0.0038	0.75111	530	23	516	33	610	120	0.03	516	33
SC-1-Spot-9	0.820	0.033	0.0995	0.0062	10.050250	0.626247	0.0606	0.0027	0.71475	609	19	610	36	605	91	0.00	610	36
SC-1-Spot-10	0.936	0.035	0.1068	0.0059	9.363296	0.517261	0.0630	0.0020	0.74857	669	18	653	34	703	70	0.02	653	34
SC-1-Spot-11	0.675	0.033	0.0832	0.0037	12.019230	0.534509	0.0580	0.0025	0.35696	522	20	515	22	513	90	0.01	515	22
SC-1-Spot-12	0.406	0.016	0.0480	0.0026	20.833330	1.128472	0.0589	0.0022	0.68410	347	11	302	16	569	84	0.15	302	16
SC-1-Spot-38	0.741	0.034	0.0893	0.0049	11.198210	0.614459	0.0602	0.0032	0.71305	560	20	555	28	570	110	0.01	555	28
SC-1-Spot-39	0.702	0.036	0.0890	0.0053	11.235960	0.669107	0.0588	0.0025	0.55087	537	22	549	31	543	98	0.02	549	31
SC-1-Spot-40	0.734	0.036	0.0884	0.0047	11.312220	0.601441	0.0624	0.0032	0.57886	556	21	546	28	700	110	0.02	546	28
SC-1-Spot-41	0.738	0.039	0.0890	0.0045	11.235960	0.568110	0.0600	0.0034	0.41058	558	23	549	26	570	130	0.02	549	26
SC-1-Spot-42	0.834	0.037	0.0971	0.0053	10.298660	0.562131	0.0640	0.0031	0.60882	613	20	596	31	740	100	0.03	596	31
SC-1-Spot-43	0.698	0.028	0.0890	0.0047	11.235960	0.593359	0.0601	0.0024	0.66518	536	17	549	28	621	85	0.02	549	28
SC-1-Spot-44	6.950	0.270	0.3740	0.0190	2.673797	0.178730	0.1397	0.0058	0.45434	2127	43	2041	92	2210	71	0.04	2210	71
SC-1-Spot-45	7.780	0.340	0.4070	0.0240	2.457002	0.144885	0.1449	0.0064	0.67531	2197	40	2210	110	2288	72	0.01	2288	72
SC-1-Spot-46	0.848	0.033	0.1068	0.0060	9.363296	0.526028	0.0603	0.0027	0.74725	622	18	653	35	597	93	0.05	653	35
SC-1-Spot-47	5.490	0.190	0.3470	0.0140	2.881844	0.116270	0.1161	0.0034	0.45550	1899	28	1916	65	1894	54	0.01	1894	54
SC-1-Spot-48	0.826	0.040	0.1040	0.0063	9.615385	0.490015	0.0594	0.0031	0.54876	609	22	637	37	610	110	0.04	637	37
SC-1-Spot-49	0.799	0.031	0.0943	0.0043	10.604450	0.551027	0.0620	0.0023	0.62721	597	17	580	25	676	75	0.03	580	25
SC-1-Spot-50	0.772	0.038	0.0957	0.0058	10.449320	0.709724	0.0595	0.0029	0.67483	579	22	588	34	570	100	0.02	588	34
SC-1-Spot-51	0.820	0.043	0.1016	0.0059	9.842520	0.571564	0.0583	0.0023	0.51129	605	24	630	36	546	85	0.04	630	36
SC-1-Spot-52	0.682	0.030	0.0867	0.0064	11.534030	0.851416	0.0594	0.0036	0.77753	526	18	541	39	570	130	0.03	541	39
SC-1-Spot-53	0.778	0.044	0.0898	0.0048	11.135860	0.595235	0.0640	0.0026	0.29419	585	26	554	28	745	86	0.06	554	28
SC-1-Spot-54	11.500	2.900	0.3600	0.0330	2.777778	0.231482	0.2240	0.0400	0.21589	2410	210	1960	160	2760	270	0.23	---	---
SC-1-Spot-55	0.745	0.042	0.0930	0.0056	10.752690	0.647474	0.0586	0.0034	0.52978	566	24	572	33	540	130	0.01	572	33
SC-1-Spot-56	4.370	0.230	0.2660	0.0150	3.759398	0.211996	0.1194	0.0048	0.15241	1695	43	1515	76	1962	65	0.12	1962	65
SC-1-Spot-57	1.540	0.160	0.1250	0.0140	8.000000	0.896000	0.0889	0.0075	0.45237	969	66	754	79	1380	180	0.29	---	---
SC-1-Spot-58	0.840	0.039	0.1018	0.0075	9.823183	0.723712	0.0625	0.0032	0.75960	620	22	623	43	680	110	0.00	623	43
SC-1-Spot-59	1.683	0.074	0.1640	0.0110	6.097561	0.408983	0.0718	0.0029	0.40903	997	29	977	62	979	83	0.02	977	62
SC-1-Spot-60	0.733	0.048	0.0916	0.0060	10.917030	0.715089	0.0595	0.0030	0.21643	554	28	564	35	550	110	0.02	564	35
SC-1-Spot-61	0.837	0.041	0.1079	0.0059	9.267841	0.506768	0.0579	0.0023	0.43506	623	25	659	34	511	92	0.05	659	34
SC-1-Spot-62	0.717	0.034	0.0892	0.0052	11.210760	0.653542	0.0577	0.0027	0.68232	547	20	550	30	500	100	0.01	550	30
SC-1-Spot-63	0.752	0.041	0.0925	0.0045	10.810810	0.525931	0.0588	0.0040	0.56035	566	24	570	27	500	150	0.01	570	27
SC-1-Spot-64	0.961	0.043	0.1129	0.0071	8.857396	0.557020	0.0627	0.0030	0.69003	681	22	688	41	688	99	0.01	688	41
SC-1-Spot-65	0.814	0.036	0.1021	0.0052	9.794319	0.498829	0.0599	0.0025	0.58457	605	20	626	31	584	92	0.03	626	31
SC-1-Spot-66	0.856	0.050	0.0932	0.0055	10.729610	0.633185	0.0721	0.0036	0.46142	638	28	574	32	985	99	0.11	574	32
SC-1-Spot-67	0.743	0.035	0.0908	0.0051	11.013220	0.618584	0.0598	0.0031	0.61542	562	20	559	30	610	110	0.01	559	30
SC-1-Spot-68	0.762	0.060	0.0914	0.0070	10.940920	0.837926	0.0592	0.0029	0.60447	570	33	563	41	540	100	0.01	563	41
SC-1-Spot-69	6.830	0.280	0.3750	0.0220	2.666667	0.156444	0.1339	0.0056	0.69344	2087	36	2040	100	2138	71	0.02	2138	71

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-1-Spot-70	0.714	0.041	0.0904	0.0056	11.061950	0.881040	0.0566	0.0024	0.56626	545	24	558	33	468	96	0.02	558	33
SC-1-Spot-89	2.880	0.130	0.2330	0.0110	4.291845	0.202619	0.0849	0.0033	0.60171	1370	34	1358	56	1317	78	0.01	1317	78
SC-1-Spot-90	5.350	0.250	0.3110	0.0170	3.215434	0.175763	0.1239	0.0067	0.76474	1874	41	1752	88	2008	92	0.07	2008	92
SC-1-Spot-92	0.720	0.038	0.0857	0.0048	11.668610	0.653551	0.0566	0.0031	0.49605	548	22	530	28	460	110	0.03	530	28
SC-1-Spot-93	0.883	0.049	0.1039	0.0057	9.624639	0.528012	0.0618	0.0036	0.48874	644	28	636	33	640	130	0.01	636	33
SC-1-Spot-94	0.773	0.034	0.0897	0.0046	11.148270	0.571706	0.0612	0.0026	0.57355	579	19	553	27	670	93	0.05	553	27
SC-1-Spot-95	0.773	0.043	0.0932	0.0069	10.729610	0.794360	0.0596	0.0035	0.62584	578	25	573	40	570	130	0.01	573	40
SC-1-Spot-96	6.160	0.260	0.3520	0.0200	2.840909	0.161415	0.1230	0.0041	0.68162	1996	37	1966	95	1995	62	0.02	1995	62
SC-1-Spot-97	0.733	0.032	0.0852	0.0043	11.737090	0.592365	0.0608	0.0028	0.63468	562	20	531	24	610	100	0.06	531	24
SC-1-Spot-98	0.741	0.033	0.0864	0.0060	11.574070	0.803755	0.0590	0.0031	0.76030	561	19	533	35	580	110	0.05	533	35
SC-1-Spot-99	0.774	0.033	0.0875	0.0058	11.428570	0.757551	0.0613	0.0028	0.79291	580	19	540	34	635	94	0.07	540	34
SC-1-Spot-100	5.560	0.180	0.3270	0.0170	3.058104	0.158984	0.1169	0.0050	0.81464	1914	27	1817	80	1884	78	0.05	1884	78
SC-1-Spot-101	0.756	0.026	0.0845	0.0038	11.834320	0.532194	0.0602	0.0029	0.72977	573	15	523	23	570	100	0.10	523	23
SC-1-Spot-102	0.873	0.034	0.0999	0.0043	10.010010	0.430861	0.0607	0.0022	0.52449	635	18	613	25	617	79	0.04	613	25
SC-1-Spot-103	0.792	0.043	0.0907	0.0042	11.025360	0.510546	0.0613	0.0033	0.57381	589	24	559	25	640	120	0.05	559	25
SC-1-Spot-104	0.867	0.035	0.0993	0.0049	10.070490	0.496933	0.0599	0.0023	0.51495	632	19	609	29	587	81	0.04	609	29
SC-1-Spot-105	0.689	0.040	0.0834	0.0056	11.990410	0.805111	0.0602	0.0034	0.63756	529	23	515	33	580	120	0.03	515	33
SC-1-Spot-106	0.800	0.052	0.0916	0.0059	10.917030	0.703171	0.0610	0.0037	0.70741	592	29	564	35	580	130	0.05	564	35
SC-1-Spot-107	0.678	0.039	0.0833	0.0060	12.004800	0.864692	0.0594	0.0034	0.68265	522	23	514	36	530	120	0.02	514	36
SC-1-Spot-108	2.020	0.110	0.1910	0.0130	5.235602	0.411173	0.0780	0.0040	0.81016	1122	36	1122	69	1110	100	0.00	1110	100
SC-1-Spot-109	0.649	0.041	0.0820	0.0081	12.195120	1.204640	0.0610	0.0051	0.81749	504	25	506	48	540	170	0.00	506	48
SC-1-Spot-110	0.804	0.045	0.0915	0.0076	10.928960	0.907761	0.0646	0.0040	0.73978	603	25	562	44	780	130	0.07	562	44
SC-1-Spot-111	0.856	0.043	0.0989	0.0099	10.111220	1.012145	0.0644	0.0050	0.86378	625	23	605	58	680	160	0.03	605	58
SC-1-Spot-112	1.016	0.073	0.1205	0.0088	8.298755	0.606050	0.0614	0.0037	0.44765	711	35	731	50	640	120	0.03	731	50
SC-1-Spot-113	0.746	0.049	0.0924	0.0066	10.822510	0.773037	0.0571	0.0033	0.43563	566	30	568	39	510	120	0.00	568	39
SC-1-Spot-114	1.047	0.043	0.1170	0.0065	8.547009	0.474834	0.0655	0.0032	0.68189	725	21	712	38	750	100	0.02	712	38
SC-1-Spot-115	0.752	0.038	0.0932	0.0062	10.729610	0.713773	0.0584	0.0032	0.75046	571	20	573	37	510	120	0.00	573	37
SC-1-Spot-116	0.846	0.047	0.1009	0.0071	9.910803	0.697391	0.0606	0.0033	0.57148	618	26	625	43	610	120	0.01	625	43
SC-1-Spot-117	0.831	0.035	0.0957	0.0067	10.449320	0.731562	0.0620	0.0027	0.84942	615	19	588	39	669	97	0.05	588	39
SC-1-Spot-118	0.705	0.047	0.0847	0.0054	11.806380	0.752709	0.0586	0.0035	0.61670	546	28	529	33	520	120	0.03	529	33
SC-1-Spot-119	2.820	0.170	0.2320	0.0140	4.310345	0.260107	0.0897	0.0037	0.41955	1364	45	1355	72	1432	82	0.01	1432	82
SC-1-Spot-120	0.717	0.047	0.0865	0.0047	11.560690	0.628153	0.0599	0.0035	0.31023	550	25	538	29	570	120	0.02	538	29
SC-1-Spot-139	0.203	0.011	0.0231	0.0018	43.290040	3.373250	0.0598	0.0032	0.66537	187	9.4	147	11	580	120	0.27	---	---
SC-1-Spot-140	10.570	0.590	0.4760	0.0400	2.100840	0.176541	0.1577	0.0084	0.72273	2479	51	2510	170	2430	83	0.01	2430	83
SC-1-Spot-142	0.815	0.046	0.0950	0.0096	10.526320	0.764543	0.0643	0.0061	0.90966	609	28	583	56	660	190	0.04	583	56
SC-1-Spot-143	3.630	0.170	0.2750	0.0190	3.636364	0.251240	0.0945	0.0036	0.68018	1565	34	1559	95	1522	71	0.00	1522	71
SC-1-Spot-144	0.634	0.029	0.0751	0.0040	13.315580	0.709219	0.0579	0.0027	0.61697	499	17	466	24	520	110	0.07	466	24
SC-1-Spot-145	0.702	0.042	0.0880	0.0058	11.363640	0.748967	0.0569	0.0034	0.60610	540	24	543	34	450	130	0.01	543	34
SC-1-Spot-146	0.668	0.037	0.0820	0.0056	12.195120	0.832838	0.0599	0.0039	0.56601	517	22	507	33	530	140	0.02	507	33
SC-1-Spot-147	5.590	0.280	0.3400	0.0230	2.941176	0.198962	0.1193	0.0049	0.59593	1912	41	1870	110	1937	76	0.02	1937	76
SC-1-Spot-148	11.820	0.810	0.4710	0.0430	2.123142	0.193833	0.1800	0.0110	0.75018	2574	66	2450	190	2640	100	0.05	2640	100

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-1-Spot-149	1.143	0.067	0.1256	0.0083	7.961783	0.526137	0.0657	0.0026	0.44799	768	31	761	48	784	86	0.01	761	48
SC-1-Spot-150	0.906	0.052	0.1086	0.0072	9.208103	0.610482	0.0593	0.0030	0.56211	651	27	663	42	570	120	0.02	663	42
SC-1-Spot-151	0.514	0.026	0.0657	0.0036	15.220700	0.834011	0.0554	0.0028	0.60094	420	17	410	22	390	110	0.02	410	22
SC-1-Spot-152	0.711	0.034	0.0863	0.0046	11.587490	0.617641	0.0583	0.0031	0.62253	543	20	533	27	510	120	0.02	533	27
SC-1-Spot-153	1.660	0.093	0.1760	0.0150	5.681818	0.484246	0.0700	0.0036	0.76583	992	33	1036	84	940	100	0.04	940	100
SC-1-Spot-154	0.889	0.066	0.0971	0.0076	10.298660	0.806074	0.0666	0.0046	0.50690	639	34	596	44	770	150	0.07	596	44
SC-1-Spot-155	6.310	0.440	0.3740	0.0340	2.673797	0.243072	0.1198	0.0070	0.65928	2006	61	2030	160	1930	110	0.01	1930	110
SC-1-Spot-156	6.600	0.470	0.3550	0.0350	2.816901	0.277723	0.1383	0.0083	0.68733	2057	58	1930	170	2180	110	0.07	2180	110
SC-1-Spot-157	0.729	0.051	0.0875	0.0057	11.428570	0.744490	0.0591	0.0045	0.50315	559	30	540	34	570	170	0.04	540	34
SC-1-Spot-158	0.619	0.037	0.0808	0.0046	12.376240	0.704588	0.0557	0.0027	0.32898	490	22	500	27	420	100	0.02	500	27
SC-1-Spot-159	0.810	0.044	0.1029	0.0069	9.718173	0.651656	0.0579	0.0030	0.60274	599	24	630	40	500	110	0.05	630	40
SC-1-Spot-160	3.470	0.220	0.2610	0.0220	3.831418	0.322955	0.0979	0.0063	0.61561	1514	48	1480	110	1540	120	0.02	1540	120
SC-1-Spot-161	0.733	0.039	0.0930	0.0065	10.752690	0.751532	0.0577	0.0030	0.53765	560	22	572	38	540	120	0.02	572	38
SC-1-Spot-162	0.719	0.035	0.0856	0.0058	11.682240	0.791554	0.0605	0.0030	0.70189	550	20	529	34	622	97	0.04	529	34
SC-1-Spot-163	0.766	0.058	0.0868	0.0059	11.520740	0.783092	0.0626	0.0033	0.27500	571	32	536	35	660	120	0.07	536	35
SC-1-Spot-164	6.710	0.400	0.3750	0.0260	2.666667	0.184889	0.1290	0.0068	0.56036	2059	53	2060	120	2066	96	0.00	2066	96
SC-1-Spot-165	3.470	0.230	0.2260	0.0230	4.424779	0.391573	0.1149	0.0077	0.73316	1519	48	1300	120	1830	120	0.17	---	---
SC-1-Spot-166	0.886	0.043	0.1024	0.0062	9.765625	0.591278	0.0635	0.0033	0.60925	645	22	627	36	680	110	0.03	627	36
SC-1-Spot-167	0.884	0.077	0.0970	0.0069	10.309280	0.733340	0.0672	0.0042	0.51846	646	43	595	41	780	130	0.09	595	41
SC-1-Spot-168	0.767	0.049	0.0929	0.0058	10.764260	0.672042	0.0601	0.0035	0.45853	579	27	572	34	580	120	0.01	572	34
SC-1-Spot-169	0.737	0.035	0.0902	0.0051	11.086470	0.626841	0.0584	0.0033	0.58120	565	20	561	31	530	120	0.01	561	31
SC-1-Spot-170	0.798	0.045	0.1022	0.0093	9.784736	0.890392	0.0609	0.0041	0.79358	604	28	625	55	590	130	0.03	625	55
SC-1-Spot-189	0.734	0.043	0.0906	0.0068	11.037530	0.828424	0.0584	0.0040	0.68746	555	25	558	40	470	150	0.01	558	40
SC-1-Spot-190	0.701	0.045	0.0882	0.0062	11.337870	0.796993	0.0581	0.0032	0.50264	535	27	544	37	520	110	0.02	544	37
SC-1-Spot-191	3.190	0.150	0.2660	0.0180	3.759398	0.254395	0.0915	0.0045	0.68415	1448	36	1511	90	1434	93	0.04	1434	93
SC-1-Spot-192	0.694	0.044	0.0941	0.0077	10.626990	0.869584	0.0562	0.0038	0.63210	531	26	578	45	400	140	0.08	578	45
SC-1-Spot-193	0.689	0.039	0.0900	0.0067	11.111110	0.827161	0.0564	0.0028	0.66797	529	23	554	39	450	100	0.05	554	39
SC-1-Spot-194	0.833	0.050	0.0999	0.0060	10.010010	0.601202	0.0602	0.0034	0.39137	616	27	613	35	580	130	0.00	613	35
SC-1-Spot-195	0.836	0.043	0.1069	0.0073	9.354537	0.638804	0.0584	0.0028	0.67932	614	24	653	42	500	100	0.06	653	42
SC-1-Spot-196	0.850	0.060	0.0960	0.0069	10.416670	0.651042	0.0645	0.0043	0.46027	620	33	590	41	720	150	0.05	590	41
SC-1-Spot-197	0.674	0.040	0.0851	0.0049	11.750880	0.676608	0.0559	0.0025	0.19878	520	24	526	29	484	94	0.01	526	29
SC-1-Spot-198	6.300	0.320	0.3630	0.0270	2.754821	0.204904	0.1264	0.0063	0.78897	2014	45	1980	120	2014	91	0.02	2014	91
SC-1-Spot-199	0.682	0.037	0.0872	0.0069	11.467890	0.907436	0.0581	0.0036	0.68434	529	21	538	41	500	120	0.02	538	41
SC-1-Spot-200	0.745	0.040	0.0960	0.0077	10.416670	0.835504	0.0582	0.0034	0.75734	562	23	596	46	480	130	0.06	596	46
SC-1-Spot-201	6.540	0.280	0.3720	0.0230	2.688172	0.166204	0.1307	0.0052	0.73444	2055	38	2030	110	2098	75	0.01	2098	75
SC-1-Spot-202	0.728	0.034	0.0933	0.0066	10.718110	0.758195	0.0587	0.0035	0.77447	553	20	574	39	500	130	0.04	574	39
SC-1-Spot-203	1.080	0.120	0.0972	0.0074	10.288070	0.783248	0.0851	0.0089	0.07488	726	54	603	42	1160	160	0.20	---	---
SC-1-Spot-204	0.717	0.034	0.0884	0.0048	11.312220	0.614238	0.0587	0.0034	0.55917	546	20	545	28	540	130	0.00	545	28
SC-1-Spot-205	0.742	0.029	0.0863	0.0044	11.587490	0.590787	0.0605	0.0025	0.68487	562	17	533	26	607	94	0.05	533	26
SC-1-Spot-206	0.708	0.041	0.0844	0.0055	11.848340	0.772108	0.0596	0.0029	0.62769	535	22	522	33	590	100	0.02	522	33
SC-1-Spot-207	0.821	0.038	0.0942	0.0056	10.615710	0.631083	0.0616	0.0022	0.65730	606	21	580	33	652	79	0.04	580	33

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-1-Spot-208	0.722	0.046	0.0871	0.0040	11.481060	0.527259	0.0599	0.0031	0.25378	547	27	538	23	580	100	0.02	538	23
SC-1-Spot-209	0.902	0.044	0.1060	0.0075	9.433962	0.667497	0.0605	0.0029	0.69186	650	24	648	43	610	110	0.00	648	43
SC-1-Spot-210	0.704	0.029	0.0855	0.0048	11.695910	0.656612	0.0571	0.0025	0.61871	539	17	528	28	522	93	0.02	528	28
SC-1-Spot-211	0.703	0.033	0.0824	0.0045	12.135920	0.662763	0.0598	0.0033	0.67689	541	19	510	27	570	110	0.06	510	27
SC-1-Spot-212	0.491	0.028	0.0547	0.0033	18.281540	1.102908	0.0610	0.0028	0.55375	406	20	343	20	646	89	0.18	---	---
SC-1-Spot-213	0.924	0.061	0.1049	0.0081	9.532888	0.736095	0.0625	0.0034	0.60515	664	33	641	47	660	110	0.04	641	47
SC-1-Spot-214	0.743	0.042	0.0896	0.0055	11.160710	0.685089	0.0586	0.0032	0.44707	561	24	552	32	510	120	0.02	552	32
SC-1-Spot-215	0.743	0.032	0.0902	0.0072	11.086470	0.884951	0.0590	0.0033	0.74469	566	18	555	43	510	120	0.02	555	43
SC-1-Spot-216	0.879	0.053	0.0976	0.0071	10.245900	0.745347	0.0635	0.0036	0.57640	640	30	599	42	670	120	0.07	599	42
SC-1-Spot-217	0.693	0.043	0.0866	0.0052	11.547340	0.693374	0.0560	0.0031	0.54480	540	27	535	31	430	110	0.01	535	31
SC-1-Spot-218	0.924	0.055	0.1071	0.0083	9.337068	0.723601	0.0611	0.0032	0.67873	671	29	653	48	610	110	0.03	653	48
SC-1-Spot-219	0.753	0.047	0.0905	0.0065	11.049720	0.793627	0.0623	0.0047	0.57632	566	28	557	38	720	160	0.02	557	38
SC-1-Spot-220	0.714	0.044	0.0881	0.0066	11.350740	0.850339	0.0580	0.0029	0.56098	543	26	543	39	520	110	0.00	543	39
SC-1-Spot-239	0.732	0.047	0.0952	0.0087	10.504200	0.739266	0.0552	0.0030	0.74356	554	27	584	51	390	120	0.05	584	51
SC-1-Spot-240	0.796	0.041	0.0958	0.0065	10.438410	0.708243	0.0595	0.0030	0.70453	595	22	596	40	610	110	0.00	596	40
SC-1-Spot-241	0.719	0.051	0.0880	0.0057	11.363640	0.736054	0.0608	0.0037	0.45831	549	31	543	33	640	140	0.01	543	33
SC-1-Spot-242	0.751	0.045	0.0890	0.0065	11.235960	0.820604	0.0624	0.0033	0.55133	570	25	548	38	640	110	0.04	548	38
SC-1-Spot-243	6.060	0.250	0.3710	0.0230	2.695418	0.167101	0.1199	0.0062	0.73577	1983	38	2030	110	1953	96	0.02	1953	96
SC-1-Spot-244	0.691	0.040	0.0876	0.0069	11.415530	0.899168	0.0612	0.0033	0.68549	535	25	540	41	630	120	0.01	540	41
SC-1-Spot-245	0.766	0.060	0.0872	0.0047	11.467890	0.618109	0.0647	0.0041	0.08293	571	34	538	28	760	130	0.06	538	28
SC-1-Spot-246	0.713	0.049	0.0882	0.0061	11.337870	0.784138	0.0585	0.0032	0.39363	542	29	543	36	560	120	0.00	543	36
SC-1-Spot-247	0.647	0.033	0.0847	0.0061	11.806380	0.850282	0.0583	0.0023	0.64901	508	19	523	36	542	83	0.03	523	36
SC-1-Spot-248	0.680	0.044	0.0858	0.0059	11.655010	0.801452	0.0578	0.0030	0.54709	532	25	537	37	520	120	0.01	537	37
SC-1-Spot-249	0.682	0.036	0.0874	0.0038	11.441650	0.497463	0.0579	0.0020	0.26820	525	22	540	23	505	78	0.03	540	23
SC-1-Spot-250	0.711	0.029	0.0869	0.0044	11.507480	0.582657	0.0619	0.0029	0.44315	558	19	537	26	630	100	0.04	537	26
SC-1-Spot-251	0.682	0.042	0.0944	0.0062	10.593220	0.695741	0.0568	0.0030	0.59089	524	26	586	37	440	120	0.11	586	37
SC-1-Spot-252	0.913	0.044	0.1080	0.0063	9.259259	0.540124	0.0606	0.0027	0.59771	655	23	660	37	650	97	0.01	660	37
SC-1-Spot-253	0.737	0.046	0.0928	0.0073	10.775860	0.847670	0.0598	0.0036	0.64201	566	27	570	43	580	130	0.01	570	43
SC-1-Spot-254	0.683	0.039	0.0879	0.0043	11.376560	0.556533	0.0575	0.0026	0.41302	532	24	543	26	519	87	0.02	543	26
SC-1-Spot-255	0.720	0.031	0.0919	0.0057	10.881390	0.674907	0.0585	0.0026	0.76619	555	18	566	33	550	88	0.02	566	33
SC-1-Spot-256	0.912	0.048	0.1057	0.0057	9.460738	0.510182	0.0633	0.0036	0.66136	654	26	647	34	720	120	0.01	647	34
SC-1-Spot-257	3.620	0.170	0.2900	0.0190	3.448276	0.225922	0.0932	0.0035	0.69826	1552	38	1649	89	1482	68	0.06	1482	68
SC-1-Spot-258	0.847	0.038	0.1010	0.0054	9.900990	0.529360	0.0607	0.0033	0.73497	624	22	619	32	600	110	0.01	619	32
SC-1-Spot-259	0.808	0.047	0.1028	0.0062	9.727626	0.586686	0.0566	0.0034	0.47100	597	27	630	36	440	130	0.05	630	36
SC-1-Spot-260	0.669	0.032	0.0845	0.0063	11.834320	0.882322	0.0586	0.0036	0.71713	518	20	522	37	520	120	0.01	522	37
SC-1-Spot-261	0.838	0.048	0.1005	0.0068	9.950249	0.673251	0.0622	0.0035	0.48406	614	26	616	40	640	120	0.00	616	40
SC-1-Spot-262	0.677	0.045	0.0863	0.0072	11.587490	0.966743	0.0569	0.0029	0.60961	525	26	532	42	450	110	0.01	532	42
SC-1-Spot-263	0.778	0.051	0.0830	0.0053	12.048190	0.769342	0.0657	0.0040	0.39817	579	30	513	31	820	140	0.13	513	31
SC-1-Spot-264	0.863	0.043	0.1119	0.0066	8.936550	0.527089	0.0575	0.0031	0.66525	628	23	682	38	520	120	0.08	682	38
SC-1-Spot-265	0.705	0.042	0.0923	0.0067	10.834240	0.786451	0.0586	0.0032	0.70223	543	26	568	40	500	120	0.04	568	40
SC-1-Spot-266	0.827	0.038	0.1021	0.0071	9.794319	0.681094	0.0573	0.0034	0.71963	613	22	625	41	450	130	0.02	625	41

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-1-Spot-267	2.240	0.140	0.2190	0.0160	4.566210	0.312754	0.0781	0.0036	0.52265	1202	43	1272	84	1122	94	0.06	1122	94
SC-1-Spot-268	0.769	0.050	0.1024	0.0070	9.765625	0.667572	0.0568	0.0047	0.67790	574	29	627	41	440	170	0.08	627	41
SC-1-Spot-269	0.727	0.035	0.0885	0.0063	11.299440	0.804367	0.0602	0.0030	0.66984	553	20	546	37	610	110	0.01	546	37
SC-1-Spot-270	0.940	0.120	0.1034	0.0086	9.671180	0.804373	0.0692	0.0075	0.08033	654	59	632	50	790	230	0.03	632	50
Sample SC-4: Jam Brook Complex																		
SC-4-Spot-8	0.606	0.025	0.0755	0.0040	13.245030	0.789439	0.0584	0.0019	0.58169	480	16	469	24	538	69	0.02	469	24
SC-4-Spot-9	0.574	0.021	0.0755	0.0041	13.245030	0.719267	0.0559	0.0022	0.80194	464	15	468	25	422	86	0.01	468	25
SC-4-Spot-10	0.596	0.022	0.0761	0.0034	13.140600	0.587097	0.0569	0.0017	0.71195	474	14	473	20	471	67	0.00	473	20
SC-4-Spot-11	0.584	0.023	0.0737	0.0033	13.568520	0.607546	0.0578	0.0018	0.67950	468	14	458	20	502	69	0.02	458	20
SC-4-Spot-12	0.587	0.024	0.0740	0.0041	13.513510	0.748722	0.0582	0.0021	0.56127	468	16	460	25	511	82	0.02	460	25
SC-4-Spot-13	0.595	0.024	0.0756	0.0034	13.227510	0.594888	0.0572	0.0017	0.54734	476	16	469	20	481	67	0.01	469	20
SC-4-Spot-14	0.656	0.026	0.0801	0.0036	12.484390	0.561096	0.0587	0.0023	0.54512	510	16	496	21	553	87	0.03	496	21
SC-4-Spot-15	0.598	0.019	0.0752	0.0036	13.297870	0.636600	0.0579	0.0018	0.75297	477	12	467	22	521	68	0.02	467	22
SC-4-Spot-34	0.600	0.028	0.0731	0.0027	13.679890	1.104122	0.0569	0.0032	0.61715	476	18	454	16	510	110	0.05	454	16
SC-4-Spot-35	0.592	0.024	0.0755	0.0031	13.245030	0.543836	0.0570	0.0019	0.41147	471	16	469	18	508	72	0.00	469	18
SC-4-Spot-36	0.585	0.025	0.0739	0.0039	13.531800	0.805682	0.0568	0.0019	0.53398	466	16	459	23	467	75	0.02	459	23
SC-4-Spot-37	0.586	0.033	0.0765	0.0052	13.071900	0.888547	0.0560	0.0023	0.56361	470	22	475	31	455	91	0.01	475	31
SC-4-Spot-38	0.583	0.019	0.0749	0.0032	13.351130	0.570409	0.0566	0.0017	0.71960	466	12	465	19	460	65	0.00	465	19
SC-4-Spot-39	0.604	0.017	0.0740	0.0031	13.513510	0.566107	0.0576	0.0020	0.64256	479	11	460	19	503	74	0.04	460	19
SC-4-Spot-40	0.593	0.023	0.0754	0.0036	13.262600	0.633228	0.0578	0.0015	0.52677	474	15	468	22	509	59	0.01	468	22
SC-4-Spot-41	0.613	0.027	0.0752	0.0048	13.297870	0.848800	0.0581	0.0025	0.74255	484	17	467	29	516	94	0.04	467	29
SC-4-Spot-42	0.590	0.026	0.0719	0.0044	13.908210	0.831784	0.0569	0.0023	0.74239	469	17	447	26	476	91	0.05	447	26
SC-4-Spot-43	0.573	0.023	0.0713	0.0046	14.025250	0.904855	0.0578	0.0023	0.69050	459	15	443	28	541	84	0.04	443	28
SC-4-Spot-44	0.581	0.020	0.0734	0.0031	13.623980	0.575400	0.0563	0.0020	0.62822	466	13	460	19	460	84	0.01	460	19
SC-4-Spot-45	0.610	0.025	0.0757	0.0038	13.210040	0.663120	0.0585	0.0021	0.55073	482	16	470	22	539	81	0.03	470	22
SC-4-Spot-46	0.583	0.028	0.0755	0.0041	13.245030	0.719267	0.0567	0.0023	0.53806	465	18	468	25	451	87	0.01	468	25
SC-4-Spot-47	0.602	0.027	0.0732	0.0045	13.661200	0.839828	0.0590	0.0020	0.73776	477	17	454	27	574	68	0.05	454	27
SC-4-Spot-48	0.594	0.024	0.0736	0.0040	13.586960	0.738422	0.0581	0.0023	0.68456	475	15	457	24	516	90	0.04	457	24
SC-4-Spot-49	0.626	0.039	0.0791	0.0065	12.642230	1.038868	0.0552	0.0035	0.68369	491	24	489	39	420	150	0.00	489	39
SC-4-Spot-50	0.589	0.031	0.0776	0.0052	12.886600	1.295302	0.0551	0.0029	0.56972	469	20	481	31	410	120	0.02	481	31
SC-4-Spot-51	1.880	0.087	0.1720	0.0110	5.813953	0.371823	0.0804	0.0029	0.66706	1069	31	1020	61	1216	69	0.05	1216	69
SC-4-Spot-52	0.555	0.026	0.0707	0.0049	14.144270	0.980296	0.0558	0.0024	0.78712	447	17	440	29	416	95	0.02	440	29
SC-4-Spot-53	0.571	0.023	0.0759	0.0048	13.175230	0.833216	0.0553	0.0024	0.77817	457	15	471	28	410	100	0.03	471	28
SC-4-Spot-54	0.586	0.026	0.0746	0.0050	13.404830	0.898447	0.0583	0.0022	0.74906	467	17	463	30	547	80	0.01	463	30
SC-4-Spot-55	0.587	0.019	0.0752	0.0035	13.297870	0.618917	0.0558	0.0019	0.66295	468	12	467	21	443	79	0.00	467	21
SC-4-Spot-56	0.584	0.029	0.0740	0.0039	13.513510	0.712199	0.0575	0.0025	0.49683	468	20	460	23	510	100	0.02	460	23
SC-4-Spot-57	0.580	0.024	0.0752	0.0046	13.297870	0.813434	0.0567	0.0022	0.73928	469	15	467	28	480	86	0.00	467	28
SC-4-Spot-58	0.555	0.019	0.0706	0.0031	14.164310	0.621945	0.0567	0.0020	0.62730	447	13	439	18	470	77	0.02	439	18
SC-4-Spot-59	0.589	0.026	0.0761	0.0041	13.140600	0.707970	0.0570	0.0022	0.65410	468	16	476	25	465	84	0.02	476	25
SC-4-Spot-60	0.578	0.023	0.0733	0.0043	13.642560	0.800314	0.0580	0.0022	0.72188	462	15	455	26	504	84	0.02	455	26
SC-4-Spot-61	0.614	0.034	0.0749	0.0056	13.351130	0.998216	0.0568	0.0029	0.72253	483	21	465	34	523	97	0.04	465	34

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-4-Spot-62	0.593	0.026	0.0726	0.0041	13.774100	0.777876	0.0584	0.0018	0.66258	471	17	451	25	528	68	0.04	451	25
SC-4-Spot-63	0.609	0.038	0.0753	0.0046	13.280210	0.811275	0.0580	0.0035	0.33983	479	23	467	27	500	120	0.03	467	27
SC-4-Spot-64	0.606	0.021	0.0768	0.0047	13.020830	0.796848	0.0572	0.0025	0.78160	480	13	476	28	521	99	0.01	476	28
SC-4-Spot-65	0.604	0.018	0.0734	0.0030	13.623980	0.556838	0.0593	0.0020	0.65975	479	12	456	18	567	75	0.05	456	18
SC-4-Spot-84	0.576	0.029	0.0740	0.0042	13.513510	0.766983	0.0564	0.0025	0.63993	463	18	460	25	476	99	0.01	460	25
SC-4-Spot-85	0.597	0.034	0.0742	0.0058	13.477090	1.053465	0.0600	0.0026	0.63695	473	22	460	35	600	95	0.03	460	35
SC-4-Spot-86	0.598	0.018	0.0738	0.0027	13.550140	0.495737	0.0584	0.0017	0.59187	475	12	459	16	529	63	0.03	459	16
SC-4-Spot-87	0.602	0.017	0.0722	0.0031	13.850420	0.594685	0.0577	0.0021	0.79349	478	11	449	18	507	79	0.06	449	18
SC-4-Spot-88	0.586	0.023	0.0721	0.0038	13.869630	0.730993	0.0593	0.0022	0.60267	467	14	448	23	552	85	0.04	448	23
SC-4-Spot-89	0.579	0.022	0.0740	0.0038	13.513510	0.693937	0.0558	0.0021	0.65558	463	14	460	23	449	82	0.01	460	23
SC-4-Spot-90	0.593	0.022	0.0754	0.0037	13.262600	0.650817	0.0575	0.0017	0.60837	474	14	468	22	490	69	0.01	468	22
SC-4-Spot-91	0.603	0.021	0.0770	0.0039	12.987010	0.657784	0.0560	0.0020	0.71258	478	13	478	23	446	76	0.00	478	23
SC-4-Spot-92	0.591	0.027	0.0755	0.0047	13.245030	0.824525	0.0574	0.0023	0.61353	473	18	468	28	476	87	0.01	468	28
SC-4-Spot-93	0.609	0.034	0.0768	0.0054	13.020830	0.915527	0.0582	0.0024	0.56373	480	21	476	32	534	93	0.01	476	32
SC-4-Spot-94	0.612	0.023	0.0771	0.0039	12.970170	0.656079	0.0585	0.0023	0.66650	489	15	478	23	532	88	0.02	478	23
SC-4-Spot-95	0.601	0.028	0.0771	0.0051	12.970170	0.857949	0.0578	0.0019	0.66957	476	18	478	31	539	76	0.00	478	31
SC-4-Spot-96	0.596	0.028	0.0789	0.0056	12.674270	0.899568	0.0559	0.0026	0.54989	473	18	494	32	420	110	0.04	494	32
SC-4-Spot-97	0.603	0.027	0.0774	0.0052	12.919900	0.868003	0.0565	0.0025	0.65895	481	16	480	31	466	86	0.00	480	31
SC-4-Spot-98	0.610	0.027	0.0760	0.0039	13.157890	0.675208	0.0593	0.0020	0.55452	482	17	472	23	593	72	0.02	472	23
SC-4-Spot-99	0.598	0.023	0.0782	0.0038	12.787720	0.621398	0.0572	0.0017	0.68302	477	15	485	23	494	70	0.02	485	23
SC-4-Spot-100	0.600	0.027	0.0776	0.0038	12.886600	0.631045	0.0584	0.0022	0.50006	479	18	481	23	534	77	0.00	481	23
SC-4-Spot-101	0.577	0.021	0.0742	0.0044	13.477090	0.799181	0.0581	0.0024	0.75814	463	13	461	26	517	93	0.00	461	26
SC-4-Spot-102	0.623	0.018	0.0796	0.0032	12.562810	0.505038	0.0574	0.0018	0.70051	491	11	497	20	513	68	0.01	497	20
SC-4-Spot-103	0.621	0.025	0.0797	0.0052	12.547050	0.818628	0.0582	0.0021	0.76394	489	16	493	31	512	80	0.01	493	31
SC-4-Spot-104	0.584	0.023	0.0766	0.0036	13.054830	0.613543	0.0572	0.0021	0.58219	468	15	475	21	500	83	0.01	475	21
SC-4-Spot-105	0.607	0.026	0.0768	0.0038	13.020830	0.644260	0.0572	0.0017	0.47027	480	17	476	23	503	65	0.01	476	23
SC-4-Spot-106	0.585	0.024	0.0760	0.0044	13.157890	0.761773	0.0571	0.0023	0.68090	469	16	471	26	480	91	0.00	471	26
SC-4-Spot-107	0.638	0.025	0.0818	0.0041	12.224940	0.612741	0.0580	0.0027	0.39634	500	15	507	24	496	98	0.01	507	24
SC-4-Spot-126	0.596	0.029	0.0765	0.0056	13.071900	1.315733	0.0566	0.0029	0.65792	473	19	474	33	440	110	0.00	474	33
SC-4-Spot-127	0.614	0.027	0.0756	0.0042	13.227510	0.734862	0.0602	0.0025	0.66484	487	17	469	25	604	88	0.04	469	25
SC-4-Spot-128	0.634	0.032	0.0801	0.0048	12.484390	0.748129	0.0575	0.0024	0.49406	499	19	496	28	478	91	0.01	496	28
SC-4-Spot-129	0.705	0.039	0.0856	0.0051	11.682240	1.637698	0.0617	0.0056	0.47397	540	22	529	30	580	180	0.02	529	30
SC-4-Spot-130	0.615	0.024	0.0793	0.0039	12.610340	0.620181	0.0569	0.0020	0.58012	486	15	492	23	477	75	0.01	492	23
SC-4-Spot-131	0.626	0.031	0.0789	0.0049	12.674270	0.787122	0.0577	0.0026	0.56124	492	19	489	29	480	100	0.01	489	29
SC-4-Spot-132	0.605	0.022	0.0750	0.0039	13.333330	0.693333	0.0592	0.0024	0.67413	480	14	466	23	556	87	0.03	466	23
SC-4-Spot-133	0.632	0.026	0.0770	0.0042	12.987010	0.708383	0.0598	0.0023	0.62979	496	16	477	25	586	82	0.04	477	25
SC-4-Spot-134	0.637	0.039	0.0803	0.0076	12.453300	1.178644	0.0575	0.0035	0.77439	497	23	496	45	520	110	0.00	496	45
SC-4-Spot-135	0.623	0.028	0.0801	0.0043	12.484390	0.670199	0.0558	0.0022	0.64460	495	18	501	27	430	90	0.01	501	27
SC-4-Spot-136	0.626	0.026	0.0761	0.0039	13.140600	0.673434	0.0572	0.0022	0.51718	492	16	473	23	506	84	0.04	473	23
SC-4-Spot-137	0.625	0.032	0.0775	0.0046	12.903230	0.765869	0.0580	0.0027	0.21762	491	20	480	27	490	100	0.02	480	27
SC-4-Spot-138	0.627	0.025	0.0803	0.0046	12.453300	0.713390	0.0566	0.0020	0.65682	493	16	497	27	481	76	0.01	497	27

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-4-Spot-139	0.635	0.029	0.0769	0.0045	13.003900	0.760957	0.0582	0.0027	0.58666	497	18	477	27	535	99	0.04	477	27
SC-4-Spot-140	0.597	0.038	0.0796	0.0077	12.562810	1.215247	0.0559	0.0038	0.70669	472	23	492	46	410	150	0.04	492	46
SC-4-Spot-141	0.624	0.020	0.0769	0.0039	13.003900	0.659496	0.0578	0.0017	0.69292	493	12	477	23	525	62	0.03	477	23
SC-4-Spot-142	0.604	0.027	0.0790	0.0046	12.658230	0.737061	0.0535	0.0027	0.59959	478	17	489	27	350	110	0.02	489	27
SC-4-Spot-143	0.612	0.031	0.0772	0.0048	12.953370	0.805391	0.0563	0.0028	0.69730	483	19	483	28	440	110	0.00	483	28
SC-4-Spot-144	0.630	0.031	0.0782	0.0050	12.787720	0.817629	0.0565	0.0028	0.60851	500	19	485	30	430	110	0.03	485	30
SC-4-Spot-145	0.599	0.024	0.0757	0.0042	13.210040	0.732922	0.0583	0.0020	0.59152	481	17	470	25	532	78	0.02	470	25
SC-4-Spot-146	0.618	0.025	0.0747	0.0044	13.386880	0.788518	0.0579	0.0025	0.72274	487	16	464	27	525	87	0.05	464	27
SC-4-Spot-147	1.620	0.100	0.1600	0.0110	6.250000	0.429688	0.0713	0.0037	0.56572	982	41	952	58	950	100	0.03	952	58
SC-4-Spot-148	0.579	0.015	0.0742	0.0031	13.477090	0.563059	0.0565	0.0019	0.76855	465	11	461	19	472	78	0.01	461	19
SC-4-Spot-149	0.602	0.027	0.0738	0.0043	13.550140	0.789507	0.0557	0.0020	0.68799	477	17	458	26	431	85	0.04	458	26
SC-4-Spot-150	0.593	0.037	0.0767	0.0071	13.037810	1.206890	0.0566	0.0037	0.68494	474	22	474	42	460	140	0.00	474	42
SC-4-Spot-151	0.668	0.041	0.0824	0.0076	12.135920	1.119333	0.0594	0.0039	0.61863	516	25	509	45	520	130	0.01	509	45
SC-4-Spot-152	0.628	0.038	0.0750	0.0047	13.333330	0.835556	0.0579	0.0024	0.44754	492	24	466	28	497	91	0.06	466	28
SC-4-Spot-153	0.591	0.030	0.0744	0.0044	13.440860	0.794890	0.0573	0.0023	0.52314	473	20	462	26	488	93	0.02	462	26
SC-4-Spot-154	0.587	0.022	0.0734	0.0042	13.623980	0.779574	0.0566	0.0024	0.70370	470	15	456	25	459	93	0.03	456	25
SC-4-Spot-155	0.599	0.025	0.0722	0.0040	13.850420	0.767336	0.0571	0.0018	0.64270	478	15	449	24	512	66	0.06	449	24
SC-4-Spot-156	0.750	0.160	0.0755	0.0058	13.245030	1.017499	0.0630	0.0170	0.33424	513	46	468	34	350	130	0.10	468	34
SC-4-Spot-157	0.599	0.022	0.0773	0.0048	12.936610	0.803308	0.0549	0.0024	0.79924	478	14	479	29	408	89	0.00	479	29
SC-4-Spot-158	0.593	0.035	0.0736	0.0050	13.586960	0.923027	0.0573	0.0029	0.52998	474	23	457	30	510	110	0.04	457	30
SC-4-Spot-159	0.602	0.023	0.0749	0.0044	13.351130	0.784312	0.0567	0.0023	0.67738	482	15	465	26	483	93	0.04	465	26
SC-4-Spot-160	0.628	0.057	0.0774	0.0073	12.919900	1.218543	0.0629	0.0078	0.17815	488	35	479	43	590	210	0.02	479	43
SC-4-Spot-161	0.600	0.027	0.0727	0.0043	13.755160	0.813579	0.0592	0.0026	0.68742	476	17	452	26	555	92	0.05	452	26
SC-4-Spot-162	0.624	0.027	0.0778	0.0048	12.853470	0.793016	0.0579	0.0021	0.60042	493	17	483	28	528	85	0.02	483	28
SC-4-Spot-163	0.633	0.027	0.0760	0.0039	13.157890	0.675208	0.0577	0.0022	0.63675	499	16	472	24	505	88	0.06	472	24
SC-4-Spot-164	0.637	0.026	0.0764	0.0045	13.089010	0.770949	0.0585	0.0028	0.63062	499	16	474	27	540	110	0.05	474	27
SC-4-Spot-165	0.594	0.029	0.0746	0.0048	13.404830	0.862509	0.0574	0.0021	0.62254	471	18	463	29	482	80	0.02	463	29
SC-4-Spot-166	0.601	0.026	0.0767	0.0034	13.037810	0.577947	0.0579	0.0020	0.45492	479	17	480	21	502	77	0.00	480	21
SC-4-Spot-167	0.604	0.027	0.0808	0.0057	12.376240	0.873076	0.0556	0.0026	0.64605	478	17	500	34	430	110	0.04	500	34
SC-4-Spot-168	0.653	0.028	0.0795	0.0039	12.578620	0.617064	0.0590	0.0026	0.49435	515	19	493	23	533	95	0.04	493	23
SC-4-Spot-169	0.616	0.031	0.0790	0.0053	12.658230	0.849223	0.0562	0.0031	0.70617	485	19	489	32	440	120	0.01	489	32
SC-4-Spot-170	0.615	0.028	0.0784	0.0049	12.755100	0.797194	0.0583	0.0026	0.61203	485	17	486	29	520	98	0.00	486	29
SC-4-Spot-171	0.590	0.024	0.0771	0.0044	12.970170	0.740191	0.0556	0.0025	0.61118	469	15	478	26	440	93	0.02	478	26
SC-4-Spot-172	0.575	0.026	0.0748	0.0038	13.368980	0.679173	0.0556	0.0029	0.66102	462	17	464	23	450	100	0.00	464	23
SC-4-Spot-173	0.607	0.026	0.0800	0.0045	12.500000	0.703125	0.0562	0.0024	0.72220	483	16	495	27	446	94	0.02	495	27
SC-4-Spot-174	0.602	0.027	0.0769	0.0044	13.003900	1.116070	0.0577	0.0024	0.53855	477	17	482	28	511	98	0.01	482	28
SC-4-Spot-175	0.628	0.035	0.0810	0.0047	12.345680	0.716354	0.0575	0.0032	0.53047	499	23	501	28	500	120	0.00	501	28
SC-4-Spot-176	0.625	0.029	0.0815	0.0061	12.269940	1.008694	0.0579	0.0026	0.66475	491	18	504	36	510	100	0.03	504	36
SC-4-Spot-177	0.592	0.030	0.0792	0.0052	12.626260	0.828997	0.0562	0.0025	0.59371	470	19	490	31	423	98	0.04	490	31

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
Sample SC-5: Jam Brook Complex																		
SC-5-Spot-38	4.180	0.310	0.2670	0.0210	3.745318	0.350685	0.1081	0.0047	0.64829	1666	57	1520	110	1781	68	0.09	1781	68
SC-5-Spot-39	3.580	0.240	0.2610	0.0180	3.831418	0.322955	0.0978	0.0048	0.44592	1534	52	1508	95	1577	91	0.02	1577	91
SC-5-Spot-40	3.880	0.210	0.2910	0.0190	3.436426	0.283417	0.0969	0.0023	0.47052	1637	42	1650	100	1562	48	0.01	1562	48
SC-5-Spot-41	2.540	0.130	0.1880	0.0120	5.319149	0.424400	0.0944	0.0036	0.42678	1292	43	1108	63	1502	69	0.14	1502	69
SC-5-Spot-44	2.440	0.100	0.2180	0.0100	4.587156	0.315630	0.0803	0.0021	0.40837	1248	30	1270	55	1200	54	0.02	1200	54
SC-5-Spot-45	1.890	0.190	0.1870	0.0220	5.347594	0.686322	0.0748	0.0053	0.10855	1059	63	1090	120	1000	130	0.03	1000	130
SC-5-Spot-46	6.850	0.370	0.3940	0.0300	2.538071	0.231905	0.1284	0.0052	0.46354	2113	48	2120	140	2070	65	0.00	2070	65
SC-5-Spot-48	3.780	0.380	0.2380	0.0260	4.201681	0.494315	0.1148	0.0087	0.37753	1599	84	1380	140	1810	120	0.14	1810	120
SC-5-Spot-49	3.500	0.230	0.2700	0.0200	3.703704	0.329218	0.0948	0.0043	0.39834	1529	56	1530	100	1503	85	0.00	1503	85
SC-5-Spot-51	1.970	0.160	0.1860	0.0160	5.376344	0.520291	0.0760	0.0030	0.22557	1096	58	1091	87	1073	78	0.00	1073	78
SC-5-Spot-53	3.730	0.300	0.2460	0.0130	4.065041	0.297442	0.1085	0.0092	0.23849	1557	62	1413	67	1700	140	0.09	1700	140
SC-5-Spot-54	3.870	0.270	0.2870	0.0280	3.484321	0.388496	0.0977	0.0062	0.65258	1593	55	1600	140	1580	120	0.00	1580	120
SC-5-Spot-55	1.757	0.086	0.1714	0.0080	5.834306	0.408470	0.0722	0.0030	0.47849	1025	32	1019	44	969	82	0.01	969	82
SC-5-Spot-56	3.300	0.270	0.2640	0.0230	3.787879	0.387397	0.0892	0.0024	0.35049	1470	61	1500	120	1407	54	0.02	1407	54
SC-5-Spot-57	2.460	0.120	0.2230	0.0150	4.484305	0.382071	0.0819	0.0031	0.57504	1264	34	1312	74	1249	65	0.04	1249	65
SC-5-Spot-59	2.930	0.180	0.2060	0.0130	4.854369	0.377038	0.0999	0.0037	0.38699	1374	47	1212	66	1608	70	0.12	1608	70
SC-5-Spot-60	4.300	0.540	0.3150	0.0420	3.174603	0.453515	0.1002	0.0040	0.46985	1650	100	1740	200	1629	72	0.05	1629	72
SC-5-Spot-64	5.110	0.190	0.3450	0.0170	2.898551	0.201638	0.1085	0.0028	0.67476	1847	28	1915	81	1783	48	0.04	1783	48
SC-5-Spot-65	2.110	0.300	0.1790	0.0200	5.586592	0.686620	0.0830	0.0084	0.2865	1120	96	1060	110	1200	170	0.05	1200	170
SC-5-Spot-84	2.420	0.160	0.1940	0.0100	5.154639	0.371984	0.0912	0.0057	0.27278	1243	44	1140	55	1390	110	0.08	1390	110
SC-5-Spot-85	3.120	0.220	0.2370	0.0190	4.219409	0.391675	0.0963	0.0039	0.53083	1422	54	1361	96	1532	76	0.04	1532	76
SC-5-Spot-87	4.050	0.230	0.3090	0.0240	3.236246	0.303725	0.0980	0.0053	0.60173	1636	45	1730	120	1577	95	0.06	1577	95
SC-5-Spot-88	4.850	0.200	0.3270	0.0170	3.058104	0.215096	0.1071	0.0030	0.48261	1796	35	1828	79	1750	52	0.02	1750	52
SC-5-Spot-89	2.300	0.120	0.2080	0.0140	4.807692	0.416050	0.0822	0.0031	0.61848	1214	35	1234	80	1246	74	0.02	1246	74
SC-5-Spot-90	3.160	0.160	0.2400	0.0140	4.166667	0.312500	0.0949	0.0035	0.6596	1449	36	1388	72	1557	72	0.04	1557	72
SC-5-Spot-91	4.470	0.560	0.2220	0.0210	4.504505	0.486974	0.1450	0.0170	0.028006	1700	110	1280	110	2160	220	0.25	---	---
SC-5-Spot-92	2.300	0.110	0.2170	0.0110	4.608295	0.339782	0.0788	0.0022	0.46053	1214	35	1263	61	1169	54	0.04	1169	54
SC-5-Spot-93	2.230	0.110	0.2040	0.0120	4.901961	0.384468	0.0808	0.0034	0.65194	1194	33	1192	64	1223	86	0.00	1223	86
SC-5-Spot-94	4.060	0.200	0.2980	0.0160	3.355705	0.247737	0.1004	0.0033	0.52098	1639	38	1697	86	1630	59	0.04	1630	59
SC-5-Spot-95	2.480	0.140	0.2190	0.0150	4.566210	0.396155	0.0808	0.0028	0.49807	1259	43	1285	83	1206	65	0.02	1206	65
SC-5-Spot-96	4.980	0.450	0.2810	0.0350	3.558719	0.481250	0.1305	0.0080	0.6476	1772	77	1530	160	2110	110	0.14	2110	110
SC-5-Spot-97	4.480	0.280	0.3120	0.0290	3.205128	0.339004	0.1075	0.0052	0.76113	1721	52	1720	140	1763	91	0.00	1763	91
SC-5-Spot-98	3.740	0.190	0.2760	0.0170	3.623188	0.275677	0.1002	0.0033	0.48326	1576	39	1577	80	1607	61	0.00	1607	61
SC-5-Spot-99	2.580	0.120	0.2350	0.0130	4.255319	0.325939	0.0824	0.0026	0.46388	1292	35	1356	69	1264	58	0.05	1264	58
SC-5-Spot-100	2.530	0.160	0.2190	0.0140	4.566210	0.375305	0.0850	0.0033	0.21212	1272	46	1275	75	1312	73	0.00	1312	73
SC-5-Spot-101	3.920	0.220	0.2900	0.0260	3.448276	0.356718	0.1003	0.0055	0.81443	1617	46	1630	130	1617	97	0.01	1617	97
SC-5-Spot-102	2.240	0.120	0.2040	0.0120	4.901961	0.384468	0.0800	0.0032	0.38221	1184	37	1191	65	1167	79	0.01	1167	79
SC-5-Spot-103	4.320	0.180	0.3010	0.0170	3.322259	0.253860	0.1066	0.0042	0.67918	1699	35	1686	84	1716	68	0.01	1716	68
SC-5-Spot-104	2.337	0.097	0.2100	0.0110	4.761905	0.340136	0.0798	0.0034	0.59443	1219	29	1224	57	1199	79	0.00	1199	79
SC-5-Spot-105	3.400	0.190	0.2600	0.0150	3.846154	0.281065	0.0967	0.0038	0.48161	1504	44	1482	75	1545	73	0.01	1545	73

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-5-Spot-106	3.810	0.220	0.2890	0.0190	3.460208	0.287353	0.0988	0.0036	0.6318	1593	44	1624	97	1589	66	0.02	1589	66
SC-5-Spot-107	2.990	0.160	0.2560	0.0160	3.906250	0.305176	0.0861	0.0031	0.50667	1400	40	1461	82	1326	72	0.04	1326	72
SC-5-Spot-126	2.510	0.100	0.2170	0.0120	4.608295	0.339782	0.0843	0.0031	0.69041	1272	28	1273	68	1311	63	0.00	1311	63
SC-5-Spot-127	2.390	0.200	0.2050	0.0160	4.878049	0.452112	0.0830	0.0038	0.24287	1212	53	1197	84	1243	85	0.01	1243	85
SC-5-Spot-128	3.920	0.220	0.2980	0.0260	3.355705	0.337823	0.0945	0.0040	0.59843	1613	48	1660	130	1524	89	0.03	1524	89
SC-5-Spot-129	5.210	0.230	0.3420	0.0200	2.923977	0.222291	0.1131	0.0043	0.61468	1866	40	1887	94	1844	68	0.01	1844	68
SC-5-Spot-130	2.140	0.150	0.1820	0.0170	5.494505	0.573602	0.0873	0.0059	0.36065	1155	48	1074	92	1330	130	0.07	1330	130
SC-5-Spot-131	4.520	0.580	0.2940	0.0340	3.401361	0.428062	0.1120	0.0100	0.53912	1700	100	1670	160	1770	150	0.02	1770	150
SC-5-Spot-132	3.700	0.170	0.2840	0.0170	3.521127	0.272763	0.0961	0.0037	0.7518	1571	39	1606	86	1547	70	0.02	1547	70
SC-5-Spot-133	2.560	0.140	0.2250	0.0170	4.444444	0.395062	0.0844	0.0041	0.68279	1283	40	1300	89	1276	94	0.01	1276	94
SC-5-Spot-134	2.390	0.130	0.2150	0.0130	4.651163	0.367766	0.0807	0.0026	0.45639	1243	36	1253	69	1208	67	0.01	1208	67
SC-5-Spot-135	3.070	0.250	0.2440	0.0320	4.098361	0.571083	0.1002	0.0095	0.77363	1403	64	1380	160	1610	170	0.02	1610	170
SC-5-Spot-136	3.580	0.480	0.2310	0.0170	4.329004	0.374806	0.1015	0.0092	0.037504	1488	97	1334	87	1590	160	0.10	1590	160
SC-5-Spot-137	3.450	0.230	0.2380	0.0180	4.201681	0.370737	0.1031	0.0049	0.43991	1505	51	1369	93	1659	87	0.09	1659	87
SC-5-Spot-138	4.530	0.270	0.3210	0.0250	3.115265	0.291146	0.1024	0.0049	0.62088	1724	49	1780	120	1654	86	0.03	1654	86
SC-5-Spot-139	2.220	0.110	0.1990	0.0130	5.025126	0.404030	0.0821	0.0036	0.6386	1187	36	1167	68	1266	84	0.02	1266	84
SC-5-Spot-140	2.940	0.180	0.2340	0.0150	4.273504	0.346994	0.0879	0.0034	0.54839	1386	47	1350	80	1407	75	0.03	1407	75
SC-5-Spot-141	5.010	0.270	0.3330	0.0230	3.003003	0.252505	0.1048	0.0037	0.65065	1818	46	1860	110	1709	63	0.02	1709	63
SC-5-Spot-142	3.000	0.160	0.2540	0.0160	3.937008	0.310001	0.0857	0.0025	0.46784	1419	43	1450	81	1330	59	0.02	1330	59
SC-5-Spot-143	2.590	0.130	0.2340	0.0120	4.273504	0.310468	0.0813	0.0027	0.65216	1289	37	1360	67	1207	66	0.06	1207	66
SC-5-Spot-144	3.400	0.300	0.2350	0.0270	4.255319	0.525125	0.1068	0.0071	0.68595	1493	64	1350	140	1760	120	0.10	1760	120
SC-5-Spot-145	2.590	0.110	0.2300	0.0140	4.347826	0.340265	0.0801	0.0037	0.78126	1294	31	1326	74	1230	100	0.02	1230	100
SC-5-Spot-146	2.550	0.220	0.2070	0.0160	4.830918	0.443418	0.0892	0.0079	0.54252	1271	58	1226	92	1380	160	0.04	1380	160
SC-5-Spot-147	3.850	0.190	0.2780	0.0190	3.597122	0.310543	0.0987	0.0041	0.72106	1602	38	1576	96	1579	78	0.02	1579	78
SC-5-Spot-148	2.560	0.160	0.2290	0.0190	4.366812	0.419519	0.0794	0.0035	0.59867	1291	46	1353	92	1186	77	0.05	1186	77
SC-5-Spot-149	2.410	0.110	0.2200	0.0130	4.545455	0.351240	0.0794	0.0030	0.70987	1242	31	1287	71	1178	77	0.04	1178	77
SC-5-Spot-150	2.520	0.130	0.2280	0.0140	4.385965	0.346260	0.0815	0.0039	0.61846	1275	35	1329	75	1220	90	0.04	1220	90
SC-5-Spot-151	6.230	0.280	0.3900	0.0230	2.564103	0.197239	0.1127	0.0041	0.6279	2007	40	2120	110	1821	66	0.06	1821	66
SC-5-Spot-152	2.560	0.130	0.2160	0.0120	4.629630	0.342936	0.0853	0.0035	0.43875	1281	36	1257	65	1301	77	0.02	1301	77
SC-5-Spot-153	2.700	0.160	0.2280	0.0140	4.385965	0.346260	0.0831	0.0036	0.42722	1320	45	1332	77	1261	81	0.01	1261	81
SC-5-Spot-154	3.780	0.170	0.2910	0.0180	3.436426	0.271608	0.0944	0.0033	0.66541	1582	36	1639	88	1514	71	0.04	1514	71
SC-5-Spot-155	3.220	0.220	0.2570	0.0210	3.891051	0.378507	0.0940	0.0051	0.39297	1477	63	1460	110	1500	110	0.01	1500	110
SC-5-Spot-156	2.840	0.170	0.2210	0.0160	4.524887	0.409492	0.0947	0.0040	0.59561	1358	44	1280	87	1518	76	0.06	1518	76
SC-5-Spot-157	3.810	0.170	0.2980	0.0200	3.355705	0.281519	0.0953	0.0035	0.76434	1592	34	1670	100	1533	71	0.05	1533	71
SC-5-Spot-158	2.760	0.160	0.2210	0.0160	4.524887	0.389017	0.0922	0.0043	0.59555	1335	43	1277	83	1458	88	0.04	1458	88
SC-5-Spot-159	2.700	0.130	0.2360	0.0160	4.237288	0.359092	0.0813	0.0029	0.77411	1334	35	1355	85	1253	71	0.02	1253	71
SC-5-Spot-160	5.730	0.230	0.3540	0.0250	2.824859	0.247375	0.1169	0.0054	0.82239	1942	34	1960	120	1880	83	0.01	1880	83
SC-5-Spot-161	3.300	0.360	0.2090	0.0300	4.784689	0.732584	0.1179	0.0096	0.35299	1464	85	1200	150	1900	140	0.18	---	---
SC-5-Spot-176	3.030	0.140	0.2450	0.0120	4.081633	0.283215	0.0879	0.0028	0.2452	1410	36	1408	64	1368	63	0.00	1368	63
SC-5-Spot-177	6.130	0.510	0.3710	0.0420	2.695418	0.334203	0.1270	0.0100	0.66557	1973	74	2010	200	2000	140	0.02	2000	140
SC-5-Spot-178	2.990	0.140	0.2570	0.0170	3.891051	0.317946	0.0847	0.0037	0.64356	1394	36	1476	85	1301	89	0.06	1301	89

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-5-Spot-179	2.960	0.150	0.2430	0.0210	4.115226	0.423377	0.0915	0.0055	0.8483	1392	38	1400	110	1470	120	0.01	1470	120
SC-5-Spot-180	6.400	0.360	0.4060	0.0310	2.463054	0.224466	0.1205	0.0053	0.68167	2020	50	2170	140	1930	80	0.07	1930	80
SC-5-Spot-181	1.900	0.150	0.1800	0.0160	5.555556	0.586420	0.0787	0.0052	0.69395	1072	49	1076	86	1150	120	0.00	1150	120
SC-5-Spot-182	3.610	0.200	0.2840	0.0200	3.521127	0.297560	0.0945	0.0037	0.50022	1544	47	1598	99	1502	72	0.03	1502	72
SC-5-Spot-183	2.410	0.180	0.1940	0.0180	5.154639	0.531406	0.0938	0.0084	0.61457	1228	53	1136	94	1430	160	0.07	1430	160
SC-5-Spot-184	2.120	0.140	0.1920	0.0140	5.208333	0.461155	0.0834	0.0052	0.559	1140	44	1136	71	1290	120	0.00	1290	120
SC-5-Spot-185	3.490	0.240	0.2690	0.0280	3.717472	0.428408	0.0973	0.0075	0.81417	1517	53	1520	140	1550	140	0.00	1550	140
SC-5-Spot-186	3.460	0.190	0.2500	0.0190	4.000000	0.352000	0.0978	0.0044	0.78395	1515	41	1429	96	1592	74	0.06	1592	74
SC-5-Spot-187	1.770	0.160	0.1770	0.0180	5.649718	0.638386	0.0788	0.0072	0.60761	1045	56	1045	99	1120	170	0.00	1120	170
SC-5-Spot-188	3.160	0.240	0.2540	0.0230	3.937008	0.418501	0.0878	0.0041	0.6021	1439	61	1450	120	1410	100	0.01	1410	100
SC-5-Spot-189	5.210	0.260	0.3180	0.0240	3.144654	0.286777	0.1225	0.0047	0.78597	1854	40	1760	120	1982	67	0.05	1982	67
SC-5-Spot-190	1.720	0.140	0.1730	0.0110	5.780347	0.467774	0.0714	0.0062	0.5493	1007	51	1025	60	960	170	0.02	960	170
SC-5-Spot-191	3.830	0.440	0.3070	0.0440	3.257329	0.488069	0.0926	0.0059	0.77803	1620	110	1700	220	1520	130	0.05	1520	130
SC-5-Spot-192	3.100	0.180	0.2450	0.0210	4.081633	0.399833	0.0943	0.0044	0.61172	1432	50	1400	100	1476	87	0.02	1476	87
SC-5-Spot-193	2.900	0.220	0.2290	0.0210	4.366812	0.457657	0.0912	0.0045	0.4889	1393	55	1320	110	1472	92	0.05	1472	92
SC-5-Spot-194	2.560	0.170	0.2190	0.0150	4.566210	0.396155	0.0851	0.0037	0.56514	1281	50	1272	81	1343	87	0.01	1343	87
SC-5-Spot-195	2.460	0.130	0.2150	0.0160	4.651163	0.411033	0.0829	0.0033	0.73859	1257	38	1249	84	1261	77	0.01	1261	77
SC-5-Spot-196	6.000	0.300	0.3240	0.0200	3.086420	0.247676	0.1310	0.0056	0.7359	1968	42	1816	95	2082	73	0.08	2082	73
SC-5-Spot-197	2.530	0.300	0.1980	0.0220	5.050505	0.612182	0.0845	0.0066	0.08557	1257	79	1150	120	1290	130	0.09	1290	130
SC-5-Spot-199	2.730	0.340	0.2640	0.0400	3.787879	0.602617	0.0815	0.0063	0.84247	1294	89	1480	200	1150	160	0.14	1150	160
SC-5-Spot-200	3.710	0.190	0.2870	0.0210	3.484321	0.315653	0.0943	0.0034	0.62029	1572	42	1610	100	1512	65	0.02	1512	65
SC-5-Spot-202	3.040	0.230	0.2080	0.0140	4.807692	0.392936	0.1063	0.0084	0.44404	1411	55	1214	72	1680	140	0.14	1680	140
SC-5-Spot-204	3.640	0.190	0.2690	0.0210	3.717472	0.345490	0.0980	0.0045	0.81365	1547	41	1520	110	1549	86	0.02	1549	86
SC-5-Spot-206	2.290	0.120	0.1980	0.0160	5.050505	0.484644	0.0818	0.0030	0.61159	1211	36	1157	84	1234	77	0.04	1234	77
SC-5-Spot-208	3.760	0.240	0.2520	0.0240	3.968254	0.425170	0.1061	0.0075	0.78367	1593	52	1460	130	1670	120	0.08	1670	120
Sample SC-6: Appleton Ridge Formation of the Fredericton Trough																		
SC-6-Spot-1	0.686	0.025	0.0849	0.0039	11.778560	0.541065	0.0582	0.0023	0.64004	534	14	525	23	521	85	0.02	525	23
SC-6-Spot-2	1.660	0.280	0.0806	0.0041	12.406950	0.631123	0.1410	0.0210	-0.30658	940	110	499	24	1980	310	0.88	---	---
SC-6-Spot-3	0.906	0.059	0.0853	0.0050	11.723330	0.687182	0.0787	0.0068	0.79302	655	30	527	29	1070	170	0.24	---	---
SC-6-Spot-4	0.791	0.093	0.0842	0.0035	11.876480	0.493678	0.0719	0.0093	0.14051	579	45	521	21	810	190	0.11	521	21
SC-6-Spot-5	0.726	0.043	0.0859	0.0045	11.641440	0.609854	0.0613	0.0031	0.22073	552	25	531	27	620	110	0.04	531	27
SC-6-Spot-6	0.832	0.035	0.0972	0.0038	10.288070	0.402208	0.0621	0.0020	0.45007	612	20	597	23	679	70	0.03	597	23
SC-6-Spot-7	0.736	0.033	0.0807	0.0033	12.391570	0.506719	0.0644	0.0027	0.50381	558	19	500	20	725	87	0.12	500	20
SC-6-Spot-8	3.100	0.094	0.2310	0.0110	4.329004	0.206143	0.0954	0.0029	0.74674	1433	24	1337	58	1522	56	0.07	1522	56
SC-6-Spot-36	0.777	0.043	0.0887	0.0050	11.273960	0.635511	0.0644	0.0040	0.14686	580	24	547	29	670	110	0.06	547	29
SC-6-Spot-37	0.960	0.130	0.0890	0.0037	11.235960	0.467113	0.0766	0.0073	-0.33134	638	44	553	21	990	170	0.15	---	---
SC-6-Spot-38	0.759	0.042	0.0900	0.0046	11.111110	0.567901	0.0619	0.0025	0.36570	585	25	555	27	652	90	0.05	555	27
SC-6-Spot-39	0.841	0.042	0.0822	0.0045	12.165450	0.665992	0.0741	0.0042	0.48348	617	24	513	28	1050	120	0.20	---	---
SC-6-Spot-40	1.162	0.040	0.1280	0.0046	7.812500	0.280762	0.0656	0.0018	0.47651	781	19	776	26	779	58	0.01	776	26
SC-6-Spot-42	1.571	0.069	0.1596	0.0074	6.265664	0.290513	0.0720	0.0040	0.73921	959	27	953	41	980	110	0.01	953	41
SC-6-Spot-43	3.670	0.140	0.2650	0.0160	3.773585	0.227839	0.1001	0.0034	0.76196	1570	28	1507	81	1642	65	0.04	1642	65

Appendix B. Continued.

Sample and analysis number	Isotopic Ratios									Final Isotopic Ages (Ma)						Con.	Plot Age	2σ
	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ			
SC-6-Spot-45	1.099	0.093	0.0797	0.0054	12.547050	0.850114	0.1012	0.0062	0.41005	742	45	494	32	1630	110	0.50	---	---
SC-6-Spot-47	1.170	0.087	0.0846	0.0039	11.820330	0.544909	0.0979	0.0071	0.37153	776	41	523	23	1560	140	0.48	---	---
SC-6-Spot-48	5.540	0.380	0.0927	0.0077	10.787490	0.896048	0.4340	0.0230	0.64977	1902	61	570	45	4026	80	2.34	---	---
SC-6-Spot-49	10.230	0.770	0.1320	0.0120	7.575758	0.688705	0.5580	0.0350	0.58340	2436	70	794	65	4428	88	2.07	---	---
SC-6-Spot-50	0.694	0.071	0.0718	0.0048	13.927580	0.931092	0.0682	0.0071	0.44156	536	44	446	29	750	210	0.20	---	---
SC-6-Spot-51	0.680	0.036	0.0797	0.0040	12.547050	0.629714	0.0612	0.0030	0.41507	524	21	494	24	671	95	0.06	494	24
SC-6-Spot-52	2.270	0.140	0.1920	0.0140	5.208333	0.379774	0.0845	0.0041	0.55456	1216	43	1129	77	1283	98	0.08	1283	98
SC-6-Spot-53	1.340	0.077	0.0979	0.0052	10.214500	0.542548	0.1021	0.0066	0.53866	857	34	602	31	1640	120	0.42	---	---
SC-6-Spot-54	0.754	0.041	0.0922	0.0056	10.845990	0.658758	0.0590	0.0024	0.51658	571	24	573	32	567	84	0.00	573	32
SC-6-Spot-55	5.610	0.200	0.3280	0.0170	3.048780	0.158016	0.1213	0.0037	0.71924	1917	30	1837	83	1972	53	0.04	1972	53
SC-6-Spot-56	0.544	0.023	0.0677	0.0038	14.771050	0.829099	0.0581	0.0024	0.64132	440	15	422	23	517	88	0.04	422	23
SC-6-Spot-57	0.888	0.097	0.0827	0.0042	12.091900	0.614099	0.0749	0.0078	0.47605	632	47	512	25	930	180	0.23	---	---
SC-6-Spot-58	2.960	0.150	0.2190	0.0130	4.566210	0.271054	0.0978	0.0049	0.48587	1396	39	1270	71	1562	90	0.10	1562	90
SC-6-Spot-59	5.080	0.210	0.2870	0.0170	3.484321	0.206388	0.1267	0.0040	0.75190	1831	33	1621	85	2050	53	0.13	2050	53
SC-6-Spot-61	0.878	0.033	0.1024	0.0053	9.765625	0.505447	0.0622	0.0021	0.74915	638	18	628	31	673	75	0.02	628	31
SC-6-Spot-62	2.270	0.140	0.1890	0.0130	5.291005	0.363932	0.0875	0.0036	0.55447	1200	41	1110	68	1360	75	0.08	1360	75
SC-6-Spot-63	0.773	0.041	0.0936	0.0061	10.683760	0.696271	0.0595	0.0025	0.47083	578	23	576	36	584	99	0.00	576	36
SC-6-Spot-64	1.624	0.090	0.1680	0.0130	5.952381	0.460601	0.0718	0.0036	0.76367	974	35	1009	70	970	110	0.03	970	110
SC-6-Spot-65	1.940	0.340	0.0848	0.0099	11.792450	1.376713	0.1690	0.0270	0.16067	1030	100	522	59	2340	240	0.97	---	---
SC-6-Spot-84	1.090	0.069	0.1251	0.0084	7.993605	0.536741	0.0659	0.0025	0.36438	749	31	758	48	812	81	0.01	758	48
SC-6-Spot-85	5.620	0.240	0.3400	0.0200	2.941176	0.173010	0.1244	0.0043	0.65164	1911	37	1876	98	2012	60	0.02	2012	60
SC-6-Spot-86	0.905	0.045	0.1033	0.0060	9.680542	0.562277	0.0635	0.0028	0.54369	651	24	633	35	740	100	0.03	633	35
SC-6-Spot-87	0.960	0.120	0.0885	0.0061	11.299440	0.778831	0.0767	0.0081	0.23907	663	57	546	36	970	180	0.21	---	---
SC-6-Spot-88	2.470	0.440	0.1570	0.0110	6.369427	0.446266	0.1080	0.0150	-0.20364	1190	110	938	63	1620	230	0.27	---	---
SC-6-Spot-90	1.060	0.160	0.1058	0.0058	9.451796	0.518151	0.0716	0.0072	-0.21728	686	49	647	34	850	170	0.06	647	34
SC-6-Spot-91	0.879	0.050	0.1032	0.0070	9.689922	0.657262	0.0674	0.0046	0.69817	638	27	632	41	800	140	0.01	632	41
SC-6-Spot-92	0.808	0.026	0.0970	0.0048	10.309280	0.510150	0.0618	0.0021	0.63957	602	14	596	28	646	75	0.01	596	28
SC-6-Spot-93	0.772	0.034	0.0926	0.0053	10.799140	0.618093	0.0621	0.0024	0.54205	579	19	570	31	662	83	0.02	570	31
SC-6-Spot-94	4.660	0.350	0.2550	0.0280	3.921569	0.430604	0.1351	0.0068	0.51632	1747	67	1450	140	2180	100	0.20	---	---
SC-6-Spot-95	0.642	0.035	0.0823	0.0040	12.150670	0.590555	0.0596	0.0036	0.49047	511	22	509	24	550	120	0.00	509	24
SC-6-Spot-96	1.540	0.100	0.1430	0.0100	6.993007	0.489022	0.0824	0.0051	0.55492	949	42	859	58	1210	110	0.10	859	58
SC-6-Spot-97	1.000	0.180	0.0857	0.0095	11.668610	1.293487	0.0804	0.0088	-0.04059	653	58	528	56	1070	190	0.24	---	---
SC-6-Spot-98	1.760	0.140	0.1340	0.0120	7.462687	0.668300	0.0980	0.0110	0.76462	1022	49	809	66	1540	210	0.26	---	---
SC-6-Spot-99	0.669	0.044	0.0764	0.0051	13.089010	0.873743	0.0631	0.0041	0.58501	516	26	474	30	670	140	0.09	474	30
SC-6-Spot-100	3.520	0.340	0.2140	0.0200	4.672897	0.436719	0.1240	0.0130	0.64759	1499	73	1240	100	1890	170	0.21	---	---
SC-6-Spot-102	2.150	0.430	0.1000	0.0200	10.000000	2.000000	0.1770	0.0280	0.28538	1190	150	600	110	2400	270	0.98	---	---
SC-6-Spot-103	0.952	0.092	0.0808	0.0048	12.376240	0.735222	0.0842	0.0070	0.13083	670	46	500	29	1280	170	0.34	---	---
SC-6-Spot-104	0.729	0.038	0.0810	0.0051	12.345680	0.777321	0.0656	0.0036	0.68216	554	22	502	30	750	120	0.10	502	30
SC-6-Spot-105	0.911	0.078	0.0948	0.0079	10.548520	0.879044	0.0724	0.0078	0.72212	661	36	583	47	850	150	0.13	583	47
SC-6-Spot-106	1.052	0.041	0.1151	0.0068	8.688097	0.513285	0.0666	0.0028	0.75263	727	20	701	39	821	93	0.04	701	39
SC-6-Spot-107	4.160	0.200	0.2610	0.0150	3.831418	0.220196	0.1179	0.0059	0.68410	1661	40	1508	74	1903	93	0.10	1903	93

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-6-Spot-108	0.646	0.029	0.0807	0.0055	12.391570	0.844531	0.0571	0.0027	0.71995	504	18	499	33	478	97	0.01	499	33
SC-6-Spot-109	0.817	0.065	0.0876	0.0065	11.415530	0.847042	0.0681	0.0060	0.52265	601	36	540	39	790	170	0.11	540	39
SC-6-Spot-110	0.856	0.081	0.0933	0.0084	10.718110	0.964975	0.0695	0.0065	0.34205	617	42	573	48	870	170	0.08	573	48
SC-6-Spot-111	0.900	0.041	0.1026	0.0059	9.746589	0.560476	0.0643	0.0021	0.54401	649	22	629	34	741	75	0.03	629	34
SC-6-Spot-112	2.235	0.097	0.1970	0.0110	5.076142	0.283439	0.0838	0.0039	0.63961	1203	31	1155	60	1301	93	0.04	1301	93
SC-6-Spot-113	2.980	0.250	0.1920	0.0170	5.208333	0.461155	0.1117	0.0044	0.58184	1389	61	1143	87	1804	73	0.22	---	---
SC-6-Spot-114	3.050	0.160	0.1840	0.0130	5.434783	0.383979	0.1171	0.0061	0.40817	1412	41	1097	69	1910	98	0.29	---	---
SC-6-Spot-115	2.850	0.150	0.2230	0.0130	4.484305	0.261417	0.0905	0.0039	0.35606	1358	39	1294	67	1424	79	0.05	1424	79
SC-6-Spot-116	4.400	0.180	0.2940	0.0180	3.401361	0.208247	0.1105	0.0035	0.77851	1711	34	1653	91	1804	56	0.04	1804	56
SC-6-Spot-135	3.490	0.140	0.2610	0.0120	3.831418	0.176157	0.0976	0.0038	0.54660	1519	32	1493	64	1559	69	0.02	1559	69
SC-6-Spot-136	3.260	0.130	0.2500	0.0150	4.000000	0.240000	0.0937	0.0033	0.79286	1466	32	1434	78	1486	66	0.02	1486	66
SC-6-Spot-137	2.156	0.091	0.1970	0.0120	5.076142	0.309207	0.0805	0.0029	0.73095	1166	28	1157	65	1190	71	0.01	1190	71
SC-6-Spot-138	6.170	0.280	0.3420	0.0260	2.923977	0.222291	0.1354	0.0077	0.84227	2017	45	1880	130	2160	100	0.07	2160	100
SC-6-Spot-139	0.712	0.044	0.0837	0.0046	11.947430	0.656609	0.0629	0.0044	0.56329	542	26	518	27	670	140	0.05	518	27
SC-6-Spot-140	0.983	0.056	0.0979	0.0062	10.214500	0.646884	0.0709	0.0047	0.51376	690	27	601	37	860	110	0.15	601	37
SC-6-Spot-141	1.710	0.230	0.1080	0.0150	9.259259	1.286008	0.1140	0.0160	0.50572	985	79	658	84	1720	260	0.50	---	---
SC-6-Spot-142	0.743	0.075	0.0883	0.0051	11.325030	0.654107	0.0623	0.0062	0.14008	542	33	545	30	550	200	0.01	545	30
SC-6-Spot-143	2.840	0.110	0.2360	0.0150	4.237288	0.269319	0.0911	0.0035	0.73738	1366	30	1359	76	1425	77	0.01	1425	77
SC-6-Spot-144	0.684	0.042	0.0855	0.0041	11.695910	0.560856	0.0598	0.0042	0.51410	534	26	528	24	520	160	0.01	528	24
SC-6-Spot-145	0.663	0.038	0.0855	0.0044	11.695910	0.601895	0.0552	0.0026	0.44538	516	23	528	26	380	100	0.02	528	26
SC-6-Spot-146	2.045	0.071	0.1851	0.0096	5.402485	0.280194	0.0808	0.0029	0.71436	1128	24	1092	52	1211	74	0.03	1211	74
SC-6-Spot-147	0.882	0.042	0.1045	0.0056	9.569378	0.512809	0.0606	0.0020	0.42994	643	22	640	33	626	73	0.00	640	33
SC-6-Spot-148	0.740	0.047	0.0838	0.0050	11.933170	0.712003	0.0626	0.0027	0.14047	558	27	518	30	662	93	0.08	518	30
SC-6-Spot-149	6.720	0.230	0.3750	0.0230	2.666667	0.163556	0.1313	0.0051	0.82513	2070	31	2040	110	2106	71	0.01	2106	71
SC-6-Spot-150	1.148	0.054	0.1256	0.0079	7.961783	0.500781	0.0664	0.0028	0.65759	772	25	761	45	815	83	0.01	761	45
SC-6-Spot-151	6.250	0.240	0.3420	0.0180	2.923977	0.153894	0.1330	0.0038	0.65130	2010	35	1901	87	2127	50	0.06	2127	50
SC-6-Spot-152	0.719	0.040	0.0872	0.0061	11.467890	0.802226	0.0599	0.0038	0.60959	547	24	537	36	570	130	0.02	537	36
SC-6-Spot-153	1.085	0.038	0.1209	0.0059	8.271299	0.403645	0.0648	0.0023	0.67086	748	19	735	34	758	76	0.02	735	34
SC-6-Spot-154	1.244	0.079	0.1092	0.0084	9.157509	0.704424	0.0797	0.0043	0.44125	822	33	676	46	1150	110	0.22	---	---
SC-6-Spot-155	1.080	0.120	0.0853	0.0057	11.723330	0.783388	0.0910	0.0140	0.71673	728	57	527	34	1260	280	0.38	---	---
SC-6-Spot-157	3.220	0.110	0.2470	0.0130	4.048583	0.213083	0.0938	0.0030	0.71970	1459	26	1418	64	1498	64	0.03	1498	64
Sample SC-7: Ghent Phyllite of the Fredericton Trough																		
SC-7-Spot-187	0.707	0.023	0.0853	0.0025	11.723330	0.343591	0.0609	0.0017	0.38610	542	13	527	15	644	61	0.03	527	15
SC-7-Spot-189	3.210	0.260	0.2229	0.0079	4.486317	0.159004	0.1028	0.0081	0.42887	1442	59	1296	42	1620	130	0.10	1620	130
SC-7-Spot-192	4.480	0.150	0.2885	0.0093	3.466205	0.111736	0.1111	0.0027	0.44820	1723	27	1640	45	1809	44	0.05	1809	44
SC-7-Spot-193	2.153	0.067	0.1871	0.0069	5.344735	0.197107	0.0815	0.0017	0.61098	1163	22	1104	38	1234	43	0.05	1234	43
SC-7-Spot-194	5.010	0.140	0.3120	0.0110	3.205128	0.113001	0.1129	0.0027	0.56249	1823	22	1746	54	1854	44	0.04	1854	44
SC-7-Spot-202	1.141	0.099	0.1100	0.0100	9.090909	0.826446	0.0778	0.0084	0.17119	764	45	669	57	1090	180	0.12	669	57
SC-7-Spot-203	6.980	0.270	0.3390	0.0200	2.949853	0.174033	0.1515	0.0048	0.64281	2104	34	1878	93	2355	55	0.11	2355	55
SC-7-Spot-204	7.900	1.700	0.3700	0.0340	2.702703	0.248357	0.1550	0.0310	0.07324	2103	58	1956	93	2190	230	0.07	2190	230
SC-7-Spot-205	0.971	0.097	0.0967	0.0035	10.341260	0.374296	0.1010	0.0580	-0.12562	679	39	595	20	920	120	0.12	595	20

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-7-Spot-206	5.590	0.330	0.2610	0.0200	3.831418	0.293595	0.1590	0.0120	0.72997	1939	55	1490	110	2400	120	0.23	---	---
SC-7-Spot-207	0.645	0.025	0.0808	0.0033	12.376240	0.505465	0.0571	0.0014	0.51089	504	16	501	20	487	56	0.01	501	20
SC-7-Spot-227	7.580	0.350	0.3530	0.0200	2.832861	0.160502	0.1544	0.0059	0.27103	2175	42	1941	95	2380	69	0.11	2380	69
SC-7-Spot-228	5.610	0.280	0.3050	0.0240	3.278689	0.257995	0.1346	0.0066	0.72501	1909	43	1710	120	2133	83	0.10	2133	83
SC-7-Spot-229	0.843	0.072	0.0980	0.0050	10.204080	0.520616	0.0635	0.0041	0.00816	602	24	602	30	690	120	0.00	602	30
SC-7-Spot-230	1.404	0.054	0.0783	0.0033	12.771390	0.538258	0.1321	0.0046	0.06553	888	23	485	20	2112	59	0.45	---	---
SC-7-Spot-231	0.755	0.046	0.0813	0.0040	12.300120	0.605172	0.0661	0.0035	0.07612	568	26	503	24	770	110	0.11	503	24
SC-7-Spot-232	1.934	0.083	0.1744	0.0074	5.733945	0.243298	0.0820	0.0031	0.30652	1094	29	1035	41	1224	71	0.05	1224	71
SC-7-Spot-233	2.280	0.460	0.0930	0.0140	10.752690	1.618684	0.1750	0.0260	0.24121	1140	120	569	84	2450	230	0.50	---	---
SC-7-Spot-235	2.171	0.081	0.1830	0.0130	5.464481	0.388187	0.0849	0.0037	0.67976	1169	26	1079	70	1322	84	0.08	1322	84
SC-7-Spot-236	3.590	0.550	0.1162	0.0094	8.605852	0.696171	0.2190	0.0250	0.04438	1520	110	707	54	2890	170	0.53	---	---
SC-7-Spot-237	1.624	0.061	0.1580	0.0081	6.329114	0.324467	0.0748	0.0023	0.71521	976	23	944	45	1071	56	0.03	944	45
SC-7-Spot-238	0.671	0.051	0.0882	0.0041	11.337870	0.527044	0.0547	0.0039	0.00836	518	31	544	24	360	150	0.05	544	24
SC-7-Spot-239	5.800	0.190	0.3230	0.0150	3.095975	0.143776	0.1293	0.0041	0.69880	1946	29	1798	72	2075	55	0.08	2075	55
SC-7-Spot-240	1.390	0.084	0.1082	0.0054	9.242144	0.461253	0.0903	0.0055	0.44948	878	35	661	31	1390	110	0.25	---	---
SC-7-Spot-241	0.768	0.046	0.0880	0.0042	11.363640	0.542355	0.0617	0.0033	0.17334	569	21	543	25	630	100	0.05	543	25
SC-7-Spot-234	10.730	0.640	0.4500	0.0240	2.222222	0.118519	0.1719	0.0070	0.37718	2503	51	2390	110	2576	73	0.05	2576	73
SC-7-Spot-242	1.730	0.410	0.1062	0.0070	9.416196	0.620653	0.1120	0.0200	-0.43190	900	110	649	41	1550	310	0.28	---	---
SC-7-Spot-244	8.000	2.100	0.3050	0.0330	3.278689	0.354743	0.1630	0.0240	0.50413	2080	130	1700	160	2400	190	0.18	---	---
SC-7-Spot-245	4.440	0.300	0.3070	0.0220	3.257329	0.233424	0.1073	0.0037	0.14597	1707	47	1693	91	1751	58	0.01	1751	58
SC-7-Spot-246	0.814	0.030	0.0945	0.0041	10.582010	0.459114	0.0619	0.0024	0.70723	603	17	582	24	673	83	0.03	582	24
SC-7-Spot-247	1.190	0.120	0.1075	0.0085	9.302326	0.735533	0.0813	0.0067	-0.06474	783	55	657	49	1180	140	0.16	---	---
SC-7-Spot-248	6.440	0.360	0.3410	0.0180	2.932551	0.154797	0.1392	0.0066	0.13613	2025	47	1902	82	2192	78	0.06	2192	78
SC-7-Spot-249	3.980	0.340	0.2150	0.0110	4.651163	0.237967	0.1320	0.0120	0.58310	1608	71	1253	60	2100	160	0.22	---	---
SC-7-Spot-250	4.680	0.480	0.2430	0.0290	4.115226	0.491118	0.1600	0.0320	0.85185	1738	81	1390	150	2210	290	0.20	---	---
SC-7-Spot-251	4.520	0.140	0.2980	0.0130	3.355705	0.146390	0.1102	0.0027	0.68967	1739	24	1679	65	1794	44	0.03	1794	44
SC-7-Spot-252	0.765	0.028	0.0903	0.0050	11.074200	0.613189	0.0618	0.0024	0.72474	575	16	556	29	672	82	0.03	556	29
SC-7-Spot-253	2.069	0.099	0.1773	0.0099	5.640158	0.314933	0.0835	0.0035	0.52882	1138	32	1050	54	1309	77	0.08	1309	77
SC-7-Spot-254	0.643	0.033	0.0789	0.0044	12.674270	0.706804	0.0592	0.0025	0.54144	502	20	489	26	545	90	0.03	489	26
SC-7-Spot-255	1.110	0.130	0.0956	0.0043	10.460250	0.470493	0.0804	0.0079	-0.07373	736	58	588	25	1170	190	0.20	---	---
SC-7-Spot-256	1.186	0.082	0.0765	0.0038	13.071900	0.649323	0.1123	0.0069	0.45207	786	38	475	23	1830	110	0.40	---	---
SC-7-Spot-257	0.980	0.140	0.0972	0.0056	10.288070	0.592728	0.0750	0.0089	-0.27025	673	61	597	33	930	190	0.11	597	33
SC-7-Spot-274	2.770	0.098	0.2228	0.0098	4.488330	0.197422	0.0891	0.0027	0.59695	1344	27	1305	55	1405	61	0.03	1405	61
SC-7-Spot-275	1.210	0.260	0.0918	0.0042	10.893250	0.498384	0.0910	0.0140	-0.25405	713	49	565	25	1210	160	0.21	---	---
SC-7-Spot-276	0.750	0.120	0.0785	0.0054	12.738850	0.876303	0.0632	0.0055	0.04842	554	58	487	32	650	150	0.12	487	32
SC-7-Spot-278	0.676	0.030	0.0796	0.0024	12.562810	0.378778	0.0599	0.0022	0.16360	529	17	494	14	591	81	0.07	494	14
SC-7-Spot-279	3.870	0.580	0.2050	0.0170	4.878049	0.404521	0.1300	0.0170	0.61262	1540	110	1197	89	1920	200	0.22	---	---
SC-7-Spot-280	1.750	0.160	0.0953	0.0044	10.493180	0.484470	0.1360	0.0100	-0.01035	1007	59	586	26	2160	120	0.42	---	---
SC-7-Spot-282	0.780	0.140	0.0803	0.0058	12.453300	0.899491	0.0689	0.0079	-0.30821	572	66	498	34	810	200	0.13	498	34
SC-7-Spot-283	10.190	0.390	0.4220	0.0270	2.369668	0.151614	0.1756	0.0073	0.86884	2448	36	2260	120	2598	69	0.08	2598	69
SC-7-Spot-284	2.210	0.650	0.1340	0.0190	7.462687	1.058142	0.1140	0.0240	-0.03652	1070	170	800	110	1570	330	0.25	---	---

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-7-Spot-285	0.788	0.026	0.0936	0.0047	10.683760	0.536471	0.0604	0.0019	0.72800	589	15	576	28	627	70	0.02	576	28
SC-7-Spot-286	1.360	0.410	0.0896	0.0065	11.160710	0.809650	0.1050	0.0250	-0.52688	790	100	552	38	1430	220	0.30	---	---
SC-7-Spot-287	1.640	0.180	0.1296	0.0079	7.716049	0.470346	0.0859	0.0061	-0.10369	961	63	784	45	1270	130	0.18	---	---
SC-7-Spot-288	1.680	0.190	0.1078	0.0091	9.276438	0.783076	0.1110	0.0120	0.25431	976	67	658	52	1690	180	0.33	---	---
SC-7-Spot-289	8.130	0.790	0.2560	0.0350	3.906250	0.534058	0.2370	0.0140	0.60651	2241	90	1440	170	3091	88	0.36	---	---
SC-7-Spot-290	2.810	0.330	0.1750	0.0290	5.714286	0.946939	0.1350	0.0210	0.63205	1380	100	1030	160	2030	260	0.25	---	---
SC-7-Spot-291	1.596	0.096	0.1001	0.0050	9.990010	0.499002	0.1203	0.0062	0.32768	968	37	614	30	1976	87	0.37	---	---
SC-7-Spot-292	1.180	0.840	0.0855	0.0046	11.695910	0.629253	0.1060	0.0560	-0.33826	571	38	529	27	730	140	0.07	529	27
SC-7-Spot-294	1.890	0.120	0.1650	0.0110	6.060606	0.404040	0.0851	0.0058	0.49334	1088	43	981	59	1250	130	0.10	981	59
SC-7-Spot-295	3.250	0.100	0.2480	0.0100	4.032258	0.162591	0.0933	0.0019	0.72527	1466	25	1426	54	1496	37	0.03	1496	37
SC-7-Spot-296	5.030	0.140	0.3150	0.0140	3.174603	0.141094	0.1167	0.0042	0.81362	1825	22	1772	65	1899	63	0.03	1899	63
SC-7-Spot-297	3.800	0.190	0.2600	0.0110	3.846154	0.162722	0.1078	0.0063	0.51825	1584	38	1496	56	1723	99	0.06	1723	99
SC-7-Spot-298	0.691	0.061	0.0754	0.0046	13.262600	0.809124	0.0660	0.0037	0.12259	533	36	468	28	800	120	0.12	468	28
SC-7-Spot-299	1.830	0.590	0.0961	0.0062	10.405830	0.671344	0.1280	0.0350	0.05247	890	160	590	36	1520	400	0.34	---	---
SC-7-Spot-300	1.163	0.052	0.0851	0.0056	11.750880	0.773266	0.0978	0.0062	0.72049	780	24	526	33	1560	120	0.33	---	---
SC-7-Spot-302	0.714	0.038	0.0851	0.0046	11.750880	0.635183	0.0600	0.0028	0.68885	545	22	526	27	570	100	0.03	526	27
SC-7-Spot-303	5.120	0.210	0.3070	0.0170	3.257329	0.180373	0.1174	0.0050	0.75681	1834	34	1719	84	1929	78	0.06	1929	78
SC-7-Spot-305	0.691	0.030	0.0843	0.0055	11.862400	0.773940	0.0601	0.0024	0.76108	535	18	521	32	578	90	0.03	521	32
SC-7-Spot-138	0.806	0.058	0.1020	0.0079	9.803922	0.759323	0.0565	0.0048	0.60436	594	33	624	46	510	190	0.05	624	46
SC-7-Spot-139	3.770	0.120	0.2760	0.0130	3.623188	0.170657	0.0993	0.0032	0.76356	1583	25	1568	66	1617	55	0.01	1617	55
SC-7-Spot-140	3.390	0.130	0.2560	0.0160	3.906250	0.244141	0.0956	0.0030	0.77552	1505	31	1482	80	1531	60	0.02	1531	60
SC-7-Spot-141	0.715	0.025	0.0868	0.0044	11.520740	0.584001	0.0609	0.0023	0.64481	546	15	536	26	611	81	0.02	536	26
SC-7-Spot-142	5.180	0.220	0.3170	0.0170	3.154574	0.169173	0.1169	0.0035	0.58382	1854	35	1780	81	1897	54	0.04	1897	54
SC-7-Spot-143	0.667	0.037	0.0849	0.0049	11.778560	0.679799	0.0580	0.0038	0.59264	517	22	524	29	520	140	0.01	524	29
SC-7-Spot-144	3.550	0.190	0.2470	0.0130	4.048583	0.213083	0.1005	0.0046	0.37946	1529	41	1448	75	1650	88	0.05	1650	88
SC-7-Spot-145	0.660	0.035	0.0852	0.0052	11.737090	0.716348	0.0574	0.0032	0.64680	516	22	526	31	530	120	0.02	526	31
SC-7-Spot-146	0.741	0.075	0.0782	0.0057	12.787720	0.932098	0.0686	0.0061	0.24388	554	43	484	34	830	170	0.13	484	34
SC-7-Spot-147	6.560	0.300	0.3700	0.0270	2.702703	0.197224	0.1302	0.0057	0.79494	2059	40	2020	120	2089	74	0.02	2089	74
SC-7-Spot-148	3.100	0.140	0.2320	0.0160	4.310345	0.297265	0.0997	0.0045	0.72341	1434	32	1341	85	1595	86	0.06	1595	86
SC-7-Spot-149	0.700	0.033	0.0859	0.0059	11.641440	0.799587	0.0612	0.0030	0.67448	537	20	530	35	620	110	0.01	530	35
SC-7-Spot-150	11.400	1.900	0.2700	0.0430	3.703704	0.589849	0.3140	0.0400	0.35237	2520	160	1510	210	3510	200	0.40	---	---
SC-7-Spot-151	6.450	0.300	0.3750	0.0240	2.666667	0.170667	0.1267	0.0051	0.74665	2044	44	2080	120	2058	71	0.02	2058	71
SC-7-Spot-152	5.610	0.240	0.3090	0.0240	3.236246	0.251359	0.1354	0.0074	0.81349	1918	39	1720	120	2136	99	0.10	2136	99
SC-7-Spot-153	0.852	0.054	0.0918	0.0063	10.893250	0.747576	0.0667	0.0031	0.37479	620	30	565	37	840	100	0.09	565	37
SC-7-Spot-165	0.863	0.069	0.0993	0.0092	10.070490	0.933017	0.0637	0.0060	0.69975	630	35	608	54	720	190	0.03	608	54
SC-7-Spot-166	3.210	0.140	0.2480	0.0160	4.032258	0.260146	0.0923	0.0040	0.68807	1459	35	1422	83	1467	77	0.03	1467	77
SC-7-Spot-167	0.867	0.098	0.0833	0.0060	12.004800	0.864692	0.0731	0.0072	0.30425	619	51	515	36	880	190	0.17	---	---
SC-7-Spot-168	1.360	0.210	0.0942	0.0075	10.615710	0.845200	0.1080	0.0150	0.47087	835	78	588	40	1610	220	0.30	---	---
SC-7-Spot-169	0.970	0.068	0.0969	0.0069	10.319920	0.734855	0.0713	0.0046	0.21384	684	35	595	41	920	130	0.13	595	41
SC-7-Spot-170	0.778	0.046	0.0987	0.0085	10.131710	0.872539	0.0563	0.0029	0.61328	581	26	605	50	480	120	0.04	605	50
SC-7-Spot-171	3.200	0.150	0.2500	0.0160	4.000000	0.256000	0.0940	0.0038	0.64536	1449	36	1447	85	1496	77	0.00	1496	77

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-7-Spot-172	1.980	0.300	0.1030	0.0110	9.708738	1.036856	0.1310	0.0150	0.06611	1050	100	631	65	1960	220	0.40	---	---
SC-7-Spot-173	0.756	0.053	0.0940	0.0074	10.638300	0.837483	0.0588	0.0034	0.53982	567	30	578	44	530	120	0.02	578	44
SC-7-Spot-174	0.692	0.040	0.0872	0.0053	11.467890	0.697016	0.0575	0.0026	0.41159	534	25	538	31	476	98	0.01	538	31
SC-7-Spot-175	0.825	0.025	0.0976	0.0046	10.245900	0.482901	0.0602	0.0023	0.77572	609	14	600	27	584	83	0.01	600	27
SC-7-Spot-176	0.555	0.034	0.0699	0.0053	14.306150	1.084730	0.0578	0.0033	0.64039	446	22	435	32	490	120	0.02	435	32
SC-7-Spot-177	0.978	0.074	0.1018	0.0079	9.823183	0.762310	0.0708	0.0043	0.46120	698	40	623	46	930	140	0.11	623	46
SC-7-Spot-178	0.701	0.054	0.0836	0.0045	11.961720	0.643873	0.0593	0.0043	0.28028	539	34	517	27	570	160	0.04	517	27
SC-7-Spot-179	2.440	0.590	0.1050	0.0110	9.523810	0.997732	0.1510	0.0320	0.09983	1180	180	640	65	2200	430	0.46	---	---
SC-7-Spot-180	1.617	0.088	0.1620	0.0110	6.172840	0.419143	0.0725	0.0028	0.52291	987	32	965	63	1004	77	0.02	965	63
SC-7-Spot-197	5.200	0.230	0.3270	0.0230	3.058104	0.215096	0.1161	0.0040	0.79782	1845	37	1810	110	1915	58	0.02	1915	58
SC-7-Spot-198	0.699	0.042	0.0865	0.0059	11.560690	0.788533	0.0594	0.0036	0.50757	543	23	539	36	560	140	0.01	539	36
SC-7-Spot-199	2.810	0.150	0.2040	0.0120	4.901961	0.288351	0.1016	0.0057	0.54619	1357	39	1192	65	1660	110	0.12	1660	110
SC-7-Spot-200	6.060	0.350	0.3320	0.0300	3.012048	0.272173	0.1350	0.0067	0.74655	1972	51	1830	140	2169	93	0.07	2169	93
SC-7-Spot-201	0.888	0.057	0.1044	0.0088	9.578544	0.807387	0.0600	0.0029	0.69819	645	30	638	51	580	110	0.01	638	51
SC-7-Spot-202	4.510	0.280	0.2910	0.0250	3.436426	0.295226	0.1109	0.0061	0.63799	1719	52	1640	120	1810	100	0.05	1810	100
SC-7-Spot-203	0.740	0.047	0.0877	0.0057	11.402510	0.741098	0.0623	0.0042	0.53153	558	27	541	34	630	140	0.03	541	34
SC-7-Spot-204	0.675	0.042	0.0876	0.0074	11.415530	0.964325	0.0599	0.0038	0.57666	526	27	539	43	530	130	0.02	539	43
SC-7-Spot-205	6.590	0.420	0.3680	0.0280	2.717391	0.206758	0.1306	0.0053	0.61445	2042	54	2010	130	2112	68	0.02	2112	68
SC-7-Spot-206	2.730	0.520	0.1180	0.0160	8.474576	1.149095	0.1680	0.0250	0.54704	1260	150	709	92	2230	330	0.44	---	---
SC-7-Spot-207	4.350	0.260	0.2860	0.0180	3.496503	0.220060	0.1113	0.0043	0.40890	1698	50	1617	89	1824	73	0.05	1824	73
SC-7-Spot-208	4.510	0.430	0.2980	0.0250	3.355705	0.281519	0.1051	0.0056	0.42684	1701	72	1690	130	1679	97	0.01	1679	97
SC-7-Spot-209	0.910	0.082	0.1045	0.0079	9.569378	0.723427	0.0645	0.0045	0.27561	659	45	646	48	720	140	0.02	646	48
SC-7-Spot-210	3.560	0.290	0.2710	0.0260	3.690037	0.354026	0.0969	0.0049	0.53264	1556	65	1540	130	1550	99	0.01	1550	99
SC-7-Spot-211	8.050	0.400	0.3980	0.0270	2.512563	0.170450	0.1518	0.0055	0.61739	2242	50	2190	130	2351	62	0.02	2351	62
SC-7-Spot-212	3.440	0.210	0.2620	0.0200	3.816794	0.291358	0.0948	0.0033	0.55616	1517	48	1490	100	1519	71	0.02	1519	71
SC-7-Spot-213	0.822	0.043	0.1016	0.0070	9.842520	0.678126	0.0600	0.0031	0.66233	610	25	622	41	580	110	0.02	622	41
SC-7-Spot-214	2.930	0.370	0.1041	0.0092	9.606148	0.848958	0.2030	0.0150	-0.13716	1347	99	636	54	2810	130	0.53	---	---
SC-7-Spot-215	2.960	0.170	0.2310	0.0150	4.329004	0.281104	0.0887	0.0029	0.41701	1400	44	1336	78	1403	64	0.05	1403	64
SC-7-Spot-216	0.711	0.060	0.0869	0.0084	11.507480	1.112346	0.0601	0.0041	0.45342	539	35	535	50	570	140	0.01	535	50
SC-7-Spot-217	7.030	0.350	0.3730	0.0230	2.680965	0.165314	0.1384	0.0054	0.53131	2130	43	2030	110	2219	60	0.05	2219	60
SC-7-Spot-218	5.110	0.250	0.3260	0.0210	3.067485	0.197599	0.1149	0.0038	0.62802	1834	41	1824	99	1863	61	0.01	1863	61
SC-7-Spot-219	0.658	0.058	0.0833	0.0058	12.004800	0.835869	0.0583	0.0037	0.15538	513	34	515	35	490	130	0.00	515	35
SC-7-Spot-220	2.100	0.140	0.2000	0.0160	5.000000	0.400000	0.0779	0.0036	0.53515	1161	44	1172	83	1134	89	0.01	1134	89
SC-7-Spot-221	3.410	0.170	0.2610	0.0190	3.831418	0.278916	0.0968	0.0032	0.63506	1506	37	1486	96	1558	63	0.01	1558	63
SC-7-Spot-222	4.640	0.290	0.3130	0.0250	3.194888	0.255183	0.1091	0.0046	0.59259	1753	49	1770	130	1763	77	0.01	1763	77
SC-7-Spot-223	7.230	0.500	0.4090	0.0290	2.444988	0.173361	0.1301	0.0032	0.34126	2132	60	2190	130	2092	43	0.03	2092	43
SC-7-Spot-224	0.612	0.044	0.0775	0.0059	12.903230	0.982310	0.0579	0.0023	0.23737	481	28	480	35	499	88	0.00	480	35
SC-7-Spot-225	1.188	0.083	0.1303	0.0099	7.674597	0.583105	0.0663	0.0035	0.37428	793	41	787	56	810	110	0.01	787	56
SC-7-Spot-226	0.784	0.046	0.0907	0.0058	11.025360	0.705040	0.0603	0.0029	0.43541	584	27	559	34	615	99	0.04	559	34
SC-7-Spot-228	0.903	0.096	0.1020	0.0082	9.803922	0.788158	0.0635	0.0050	0.00734	640	50	624	48	680	170	0.03	624	48
SC-7-Spot-247	0.898	0.059	0.1075	0.0089	9.302326	0.770146	0.0610	0.0025	0.46657	645	32	656	52	636	91	0.02	656	52

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-7-Spot-248	0.723	0.055	0.0884	0.0072	11.312220	0.921357	0.0623	0.0030	0.27987	547	32	544	43	680	110	0.01	544	43
SC-7-Spot-249	2.760	0.170	0.2320	0.0150	4.310345	0.278686	0.0842	0.0033	0.33521	1340	48	1338	81	1273	79	0.00	1273	79
SC-7-Spot-250	0.845	0.091	0.0975	0.0093	10.256410	0.978304	0.0654	0.0070	0.46166	626	50	597	55	670	230	0.05	597	55
SC-7-Spot-251	4.520	0.390	0.3000	0.0260	3.333333	0.288889	0.1073	0.0042	0.32596	1736	66	1680	130	1768	63	0.03	1768	63
SC-7-Spot-252	2.290	0.160	0.1940	0.0120	5.154639	0.318844	0.0845	0.0037	0.35786	1192	52	1140	67	1344	83	0.04	1344	83
SC-7-Spot-253	0.865	0.075	0.1050	0.0110	9.523810	0.997732	0.0617	0.0028	0.61071	623	41	651	63	700	110	0.04	651	63
SC-7-Spot-254	1.970	0.310	0.1017	0.0098	9.832842	0.947511	0.1420	0.0170	-0.11881	1090	110	622	58	2140	210	0.43	---	---
SC-7-Spot-255	0.853	0.051	0.1013	0.0055	9.871668	0.535974	0.0619	0.0025	0.17003	632	28	621	32	656	90	0.02	621	32
SC-7-Spot-256	2.330	0.200	0.2190	0.0220	4.566210	0.458706	0.0808	0.0035	0.45959	1204	62	1270	110	1191	86	0.05	1191	86
SC-7-Spot-257	1.180	0.120	0.1180	0.0120	8.474576	0.861821	0.0737	0.0045	0.36749	775	54	716	72	1050	120	0.08	716	72
SC-7-Spot-258	4.510	0.290	0.2970	0.0220	3.367003	0.249408	0.1073	0.0033	0.26215	1728	50	1690	110	1760	56	0.02	1760	56
SC-7-Spot-259	3.380	0.240	0.2630	0.0200	3.802281	0.289147	0.0923	0.0036	0.40355	1498	57	1490	100	1502	71	0.01	1502	71
SC-7-Spot-260	2.120	0.130	0.2060	0.0180	4.854369	0.424168	0.0790	0.0033	0.64835	1146	42	1201	92	1165	77	0.05	1165	77
SC-7-Spot-261	0.878	0.049	0.1016	0.0058	9.842520	0.561876	0.0627	0.0029	0.40857	636	25	623	34	660	100	0.02	623	34
SC-7-Spot-262	0.721	0.040	0.0868	0.0058	11.520740	0.769819	0.0614	0.0029	0.51944	548	24	541	33	636	97	0.01	541	33
SC-7-Spot-263	0.747	0.074	0.0856	0.0064	11.682240	0.873439	0.0612	0.0047	0.25414	557	41	528	38	560	160	0.05	528	38
SC-7-Spot-264	0.720	0.060	0.0891	0.0072	11.223340	0.906937	0.0597	0.0040	0.38234	543	35	549	42	580	140	0.01	549	42
SC-7-Spot-265	0.678	0.061	0.0851	0.0090	11.750880	1.242749	0.0587	0.0032	0.43494	530	36	524	53	540	120	0.01	524	53
SC-7-Spot-266	13.200	0.850	0.5250	0.0420	1.904762	0.152381	0.1821	0.0069	0.48745	2692	65	2690	180	2666	60	0.00	2666	60
SC-7-Spot-267	9.840	0.570	0.4460	0.0330	2.242152	0.165899	0.1628	0.0058	0.57694	2438	53	2360	140	2470	59	0.03	2470	59
SC-7-Spot-268	1.690	0.110	0.1560	0.0110	6.410256	0.452005	0.0792	0.0057	0.43887	997	41	941	65	1120	130	0.06	941	65
SC-7-Spot-269	0.734	0.050	0.0880	0.0046	11.363640	0.594008	0.0596	0.0033	-0.08881	554	28	543	27	540	120	0.02	543	27
SC-7-Spot-270	3.990	0.140	0.2860	0.0120	3.496503	0.146706	0.1025	0.0032	0.80598	1628	29	1616	62	1658	58	0.01	1658	58
SC-7-Spot-271	0.654	0.031	0.0813	0.0044	12.300120	0.665689	0.0579	0.0022	0.50972	512	18	503	26	515	87	0.02	503	26
SC-7-Spot-272	4.220	0.180	0.3030	0.0190	3.300330	0.206951	0.1008	0.0041	0.69270	1678	35	1697	95	1630	73	0.01	1630	73
SC-7-Spot-273	0.818	0.060	0.1030	0.0066	9.708738	0.622113	0.0589	0.0034	0.26015	608	32	630	39	540	130	0.04	630	39
SC-7-Spot-274	6.330	0.250	0.3620	0.0210	2.762431	0.160252	0.1270	0.0050	0.72824	2022	34	2000	100	2073	61	0.01	2073	61
SC-7-Spot-275	3.180	0.270	0.1200	0.0100	8.333333	0.694444	0.1950	0.0120	0.47921	1435	61	729	58	2753	96	0.49	---	---
SC-7-Spot-276	1.184	0.080	0.0974	0.0060	10.266940	0.632460	0.0882	0.0047	0.32959	786	37	598	35	1365	97	0.24	---	---
SC-7-Spot-277	0.859	0.038	0.1039	0.0066	9.624639	0.611382	0.0603	0.0023	0.74248	627	21	636	39	605	79	0.01	636	39
SC-7-Spot-278	6.430	0.560	0.3250	0.0200	3.076923	0.189349	0.1403	0.0082	0.16075	2022	73	1840	98	2194	94	0.09	2194	94
SC-7-Spot-297	1.097	0.045	0.1267	0.0080	7.892660	0.498353	0.0631	0.0030	0.75327	749	22	767	46	696	94	0.02	767	46
SC-7-Spot-298	0.768	0.061	0.0879	0.0064	11.376560	0.828328	0.0601	0.0040	0.44436	584	35	542	38	570	140	0.07	542	38
SC-7-Spot-299	0.741	0.071	0.0842	0.0084	11.876480	1.184827	0.0620	0.0041	0.26852	563	40	519	50	670	140	0.08	519	50
SC-7-Spot-300	1.055	0.054	0.0957	0.0059	10.449320	0.644211	0.0803	0.0033	0.22923	734	28	589	35	1212	85	0.20	---	---
SC-7-Spot-301	2.320	0.180	0.1970	0.0120	5.076142	0.309207	0.0852	0.0053	0.06324	1204	55	1158	66	1300	110	0.04	1300	110
SC-7-Spot-302	2.980	0.230	0.2410	0.0220	4.149378	0.378781	0.0903	0.0048	0.53813	1397	60	1380	110	1400	100	0.01	1400	100
SC-7-Spot-303	0.943	0.073	0.1019	0.0075	9.813543	0.722292	0.0647	0.0039	0.50202	674	37	624	44	720	120	0.07	624	44
SC-7-Spot-304	0.613	0.040	0.0805	0.0064	12.422360	0.987616	0.0563	0.0021	0.56786	482	25	498	38	457	81	0.03	498	38
SC-7-Spot-305	0.714	0.068	0.0871	0.0065	11.481060	0.856795	0.0579	0.0050	0.29327	538	40	537	38	430	180	0.00	537	38
SC-7-Spot-306	0.875	0.054	0.1010	0.0071	9.900990	0.696010	0.0636	0.0026	0.43358	635	29	619	42	722	84	0.03	619	42

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-7-Spot-307	1.500	0.300	0.0952	0.0057	10.504200	0.628928	0.1160	0.0220	-0.06161	880	110	586	34	1620	290	0.33	---	---
SC-7-Spot-308	0.971	0.046	0.1133	0.0067	8.826125	0.521933	0.0614	0.0025	0.41960	690	25	696	38	668	91	0.01	696	38
SC-7-Spot-309	6.370	0.150	0.3660	0.0160	2.732240	0.119442	0.1269	0.0040	0.69758	2030	22	2004	77	2042	57	0.01	2042	57
SC-7-Spot-310	3.430	0.120	0.2580	0.0150	3.875969	0.225347	0.0950	0.0031	0.68241	1506	29	1472	78	1524	58	0.02	1524	58
SC-7-Spot-311	1.834	0.069	0.1776	0.0097	5.630631	0.307529	0.0740	0.0022	0.67969	1063	26	1060	51	1040	62	0.00	1040	62
SC-7-Spot-312	1.680	0.100	0.1600	0.0100	6.250000	0.390625	0.0765	0.0046	0.49432	993	38	954	56	1120	110	0.04	954	56
SC-7-Spot-313	5.850	0.190	0.3510	0.0220	2.849003	0.178570	0.1238	0.0056	0.85177	1954	28	1930	100	2010	77	0.01	2010	77
SC-7-Spot-314	2.630	0.120	0.2250	0.0130	4.444444	0.256790	0.0850	0.0037	0.65674	1303	32	1303	68	1318	89	0.00	1318	89
SC-7-Spot-315	7.230	0.240	0.3960	0.0190	2.525253	0.121161	0.1296	0.0040	0.70062	2146	28	2145	86	2083	53	0.00	2083	53
SC-7-Spot-316	1.231	0.053	0.1346	0.0078	7.429421	0.430531	0.0661	0.0026	0.68186	815	25	813	45	800	87	0.00	813	45
SC-7-Spot-317	12.140	0.490	0.4930	0.0230	2.028398	0.094631	0.1804	0.0064	0.58495	2620	35	2580	100	2651	57	0.02	2651	57
SC-7-Spot-318	2.280	0.110	0.2020	0.0130	4.950495	0.318596	0.0816	0.0038	0.73683	1199	33	1183	69	1220	88	0.01	1220	88
SC-7-Spot-319	5.320	0.260	0.3340	0.0200	2.994012	0.179282	0.1167	0.0041	0.62784	1878	44	1850	96	1891	65	0.01	1891	65
SC-7-Spot-320	0.790	0.048	0.0736	0.0051	13.586960	0.941488	0.0766	0.0042	0.58400	594	28	457	30	1080	110	0.23	---	---
SC-7-Spot-321	0.725	0.042	0.0921	0.0059	10.857760	0.695557	0.0573	0.0021	0.61624	550	24	567	35	524	79	0.03	567	35
SC-7-Spot-322	6.330	0.290	0.3570	0.0210	2.801120	0.164772	0.1272	0.0039	0.68501	2020	39	1960	100	2067	49	0.03	2067	49
SC-7-Spot-323	0.690	0.034	0.0856	0.0047	11.682240	0.641432	0.0589	0.0025	0.43990	531	20	529	28	570	100	0.00	529	28
SC-7-Spot-324	3.630	0.170	0.2740	0.0160	3.649635	0.213117	0.0945	0.0029	0.64498	1548	37	1558	79	1504	59	0.01	1504	59
SC-7-Spot-325	2.290	0.150	0.2090	0.0150	4.784689	0.343399	0.0797	0.0036	0.36435	1222	43	1218	78	1164	86	0.00	1164	86
SC-7-Spot-326	1.570	0.150	0.0956	0.0063	10.460250	0.689326	0.1190	0.0110	0.32002	975	61	587	37	1910	180	0.40	---	---
SC-7-Spot-327	0.744	0.051	0.0843	0.0046	11.862400	0.647296	0.0614	0.0044	0.54724	564	30	521	27	650	140	0.08	521	27
SC-7-Spot-328	4.380	0.220	0.2990	0.0210	3.344482	0.234897	0.1074	0.0033	0.69899	1707	44	1680	100	1742	58	0.02	1742	58
Sample SC-8: Cape Elizabeth Formation of the Casco Bay Group																		
SC-8-Spot-347	5.790	0.310	0.3350	0.0210	2.985075	0.187124	0.1218	0.0044	0.52205	1941	45	1856	99	1989	65	0.04	1989	65
SC-8-Spot-348	0.802	0.067	0.0931	0.0069	10.741140	0.796067	0.0638	0.0047	0.38133	597	36	573	40	710	150	0.04	573	40
SC-8-Spot-349	3.200	0.310	0.1980	0.0220	5.050505	0.561167	0.1191	0.0099	0.42124	1455	76	1160	120	1890	140	0.20	---	---
SC-8-Spot-350	2.240	0.140	0.1950	0.0130	5.128205	0.341880	0.0828	0.0030	0.44461	1184	43	1145	69	1247	69	0.03	1247	69
SC-8-Spot-351	1.149	0.064	0.1279	0.0093	7.818608	0.568515	0.0657	0.0021	0.60774	772	30	774	53	792	69	0.00	774	53
SC-8-Spot-352	2.240	0.100	0.1920	0.0120	5.208333	0.325521	0.0865	0.0034	0.64621	1187	32	1127	66	1329	79	0.05	1329	79
SC-8-Spot-353	0.826	0.046	0.1017	0.0070	9.832842	0.676793	0.0590	0.0020	0.55148	612	25	623	41	590	73	0.02	623	41
SC-8-Spot-354	1.231	0.084	0.1320	0.0100	7.575758	0.573921	0.0680	0.0041	0.60712	806	38	794	59	900	120	0.01	794	59
SC-8-Spot-355	2.510	0.170	0.2110	0.0180	4.739336	0.404304	0.0867	0.0040	0.68814	1262	47	1227	94	1344	84	0.03	1344	84
SC-8-Spot-356	0.864	0.067	0.0997	0.0071	10.030090	0.714279	0.0631	0.0029	0.08584	631	37	611	42	716	89	0.03	611	42
SC-8-Spot-357	2.090	0.120	0.1940	0.0170	5.154639	0.451695	0.0802	0.0042	0.76204	1138	39	1137	90	1240	100	0.00	1240	100
SC-8-Spot-358	2.360	0.160	0.2050	0.0170	4.878049	0.404521	0.0810	0.0033	0.60013	1224	47	1197	89	1212	85	0.02	1212	85
SC-8-Spot-359	0.942	0.072	0.1043	0.0094	9.587728	0.864091	0.0670	0.0029	0.61330	674	39	637	55	812	92	0.05	637	55
SC-8-Spot-360	5.240	0.330	0.3260	0.0270	3.067485	0.254056	0.1195	0.0047	0.56303	1858	54	1810	130	1941	70	0.03	1941	70
SC-8-Spot-361	2.250	0.120	0.1990	0.0130	5.025126	0.328275	0.0816	0.0024	0.41908	1196	42	1178	67	1233	59	0.02	1233	59
SC-8-Spot-362	10.600	0.780	0.4330	0.0310	2.309469	0.165343	0.1760	0.0060	0.10192	2491	67	2310	140	2624	61	0.07	2624	61
SC-8-Spot-363	5.130	0.300	0.3140	0.0230	3.184713	0.233275	0.1172	0.0040	0.69130	1826	50	1750	110	1909	64	0.04	1909	64
SC-8-Spot-364	2.150	0.130	0.1960	0.0150	5.102041	0.390462	0.0804	0.0024	0.68346	1160	44	1148	81	1194	59	0.01	1194	59

Appendix B. Continued.

Sample and analysis number	Isotopic Ratios									Final Isotopic Ages (Ma)						Con.	Plot Age	2σ
	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ			
SC-8-Spot-365	1.610	0.130	0.1640	0.0100	6.097561	0.371803	0.0722	0.0049	0.24722	961	50	976	55	950	130	0.02	976	55
SC-8-Spot-366	1.730	0.180	0.1650	0.0150	6.060606	0.550964	0.0776	0.0055	0.21117	1017	63	996	80	1100	140	0.02	996	80
SC-8-Spot-367	0.736	0.080	0.0854	0.0095	11.709600	1.302590	0.0631	0.0048	0.32684	553	46	527	56	700	150	0.05	527	56
SC-8-Spot-368	4.340	0.430	0.3050	0.0360	3.278689	0.386993	0.1034	0.0054	0.31309	1702	94	1730	190	1698	91	0.02	1698	91
SC-8-Spot-369	1.090	0.110	0.1210	0.0120	8.264463	0.819616	0.0643	0.0037	0.28199	732	52	735	68	690	120	0.00	735	68
SC-8-Spot-370	0.880	0.100	0.1020	0.0120	9.803922	1.153403	0.0606	0.0046	0.26856	623	55	622	68	570	170	0.00	622	68
SC-8-Spot-371	0.789	0.069	0.0835	0.0062	11.976050	0.889240	0.0664	0.0038	0.34332	589	39	523	39	810	120	0.11	523	39
SC-8-Spot-372	1.674	0.097	0.1680	0.0120	5.952381	0.425170	0.0730	0.0037	0.63014	998	38	995	68	1029	99	0.00	995	68
SC-8-Spot-373	0.887	0.059	0.0999	0.0078	10.010010	0.781562	0.0632	0.0032	0.40093	644	33	612	46	670	110	0.05	612	46
SC-8-Spot-375	0.738	0.046	0.0822	0.0057	12.165450	0.843590	0.0641	0.0037	0.48582	561	26	509	34	710	120	0.09	509	34
SC-8-Spot-376	0.765	0.051	0.0918	0.0064	10.893250	0.759442	0.0608	0.0020	0.33025	577	30	565	38	628	72	0.02	565	38
SC-8-Spot-377	0.908	0.072	0.1051	0.0080	9.514748	0.724243	0.0644	0.0028	0.12148	657	40	642	47	753	95	0.02	642	47
SC-8-Spot-378	0.956	0.061	0.1115	0.0069	8.968610	0.555008	0.0650	0.0032	0.51788	681	31	680	40	750	100	0.00	680	40
SC-8-Spot-397	5.890	0.490	0.3520	0.0380	2.840909	0.306689	0.1215	0.0074	0.57451	1945	74	1980	180	1980	110	0.02	1980	110
SC-8-Spot-398	0.880	0.085	0.1100	0.0130	9.090909	1.074380	0.0597	0.0024	0.56786	637	47	665	75	602	98	0.04	665	75
SC-8-Spot-399	0.830	0.095	0.1100	0.0130	9.090909	1.074380	0.0580	0.0051	0.39401	607	55	668	74	500	170	0.10	668	74
SC-8-Spot-400	0.817	0.090	0.1000	0.0110	10.000000	1.100000	0.0602	0.0035	0.44845	593	50	608	62	610	120	0.03	608	62
SC-8-Spot-401	2.180	0.180	0.2090	0.0210	4.784689	0.480758	0.0789	0.0042	0.42931	1167	57	1210	110	1160	110	0.04	1160	110
SC-8-Spot-402	1.650	0.140	0.1420	0.0130	7.042254	0.644713	0.0826	0.0044	0.47499	989	58	851	75	1260	100	0.14	851	75
SC-8-Spot-403	5.210	0.500	0.3290	0.0330	3.039514	0.304875	0.1149	0.0051	0.35948	1831	85	1810	160	1898	83	0.01	1898	83
SC-8-Spot-404	0.656	0.066	0.0859	0.0096	11.641440	1.301023	0.0568	0.0033	0.41189	503	40	528	57	450	130	0.05	528	57
SC-8-Spot-405	10.370	0.600	0.4240	0.0240	2.358491	0.133500	0.1765	0.0051	0.24212	2479	49	2270	110	2610	48	0.08	2610	48
SC-8-Spot-406	0.936	0.058	0.1050	0.0085	9.523810	0.770975	0.0673	0.0027	0.57420	665	30	641	49	834	83	0.04	641	49
SC-8-Spot-407	0.662	0.038	0.0844	0.0045	11.848340	0.631724	0.0578	0.0028	0.37015	513	23	522	27	510	100	0.02	522	27
SC-8-Spot-408	1.660	0.150	0.0913	0.0069	10.952900	0.827766	0.1350	0.0120	0.41212	982	60	561	41	2140	170	0.43	---	---
SC-8-Spot-409	1.066	0.095	0.1230	0.0150	8.130081	0.991473	0.0643	0.0041	0.65399	723	46	740	87	680	140	0.02	740	87
SC-8-Spot-410	1.750	0.100	0.1620	0.0100	6.172840	0.381040	0.0788	0.0048	0.46907	1020	37	967	58	1160	110	0.05	967	58
SC-8-Spot-411	0.906	0.073	0.1032	0.0069	9.689922	0.647873	0.0607	0.0034	0.36278	652	38	631	40	600	120	0.03	631	40
SC-8-Spot-412	5.100	0.340	0.3220	0.0250	3.105590	0.241117	0.1156	0.0046	0.48444	1827	56	1780	120	1893	76	0.03	1893	76
SC-8-Spot-413	0.944	0.093	0.1130	0.0120	8.849558	0.939776	0.0614	0.0036	0.41720	664	48	685	67	630	130	0.03	685	67
SC-8-Spot-414	0.709	0.061	0.0871	0.0086	11.481060	1.133606	0.0585	0.0032	0.44574	531	33	536	50	550	120	0.01	536	50
SC-8-Spot-415	2.080	0.140	0.1950	0.0180	5.128205	0.473373	0.0788	0.0034	0.41145	1131	45	1139	95	1152	87	0.01	1152	87
SC-8-Spot-416	6.250	0.810	0.3560	0.0480	2.808989	0.378740	0.1243	0.0076	0.43437	1950	110	1960	230	2040	100	0.01	2040	100
SC-8-Spot-417	2.250	0.200	0.2030	0.0170	4.926108	0.412531	0.0811	0.0042	0.20557	1205	64	1185	92	1246	85	0.02	1246	85
SC-8-Spot-418	0.906	0.070	0.1045	0.0096	9.569378	0.879101	0.0644	0.0031	0.48632	648	36	638	55	750	100	0.02	638	55
SC-8-Spot-419	0.834	0.069	0.0931	0.0086	10.741140	0.992200	0.0655	0.0038	0.39888	607	38	572	50	780	120	0.06	572	50
SC-8-Spot-420	5.920	0.460	0.3360	0.0310	2.976190	0.274589	0.1311	0.0055	0.58079	1953	63	1850	150	2093	73	0.05	2093	73
SC-8-Spot-421	0.841	0.042	0.0938	0.0054	10.660980	0.613745	0.0643	0.0033	0.59599	617	23	577	32	750	110	0.06	577	32
SC-8-Spot-422	0.690	0.140	0.0823	0.0057	12.150670	0.841541	0.0546	0.0035	-0.16153	485	30	509	34	340	140	0.05	509	34
SC-8-Spot-423	4.950	0.190	0.3110	0.0190	3.215434	0.196441	0.1180	0.0040	0.72369	1822	31	1739	91	1910	63	0.05	1910	63
SC-8-Spot-424	0.771	0.042	0.0920	0.0052	10.869570	0.614367	0.0613	0.0030	0.43197	577	24	572	29	610	110	0.01	572	29

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-8-Spot-425	2.010	0.110	0.1880	0.0100	5.319149	0.282934	0.0773	0.0036	0.37932	1115	40	1109	57	1126	98	0.01	1126	98
SC-8-Spot-426	0.786	0.056	0.0840	0.0047	11.904760	0.666100	0.0692	0.0042	0.32664	594	29	524	27	860	130	0.12	524	27
SC-8-Spot-427	1.600	0.110	0.1570	0.0120	6.369427	0.486835	0.0741	0.0042	0.48676	961	43	935	67	1050	110	0.03	935	67
SC-8-Spot-428	0.909	0.059	0.1062	0.0083	9.416196	0.735917	0.0625	0.0032	0.55276	651	31	649	48	700	100	0.00	649	48
SC-8-Spot-448	3.430	0.220	0.2550	0.0180	3.921569	0.276817	0.0977	0.0033	0.32707	1513	48	1454	90	1596	66	0.04	1596	66
SC-8-Spot-449	1.990	0.180	0.1770	0.0120	5.649718	0.383032	0.0845	0.0063	0.15200	1078	40	1044	66	1270	120	0.03	1270	120
SC-8-Spot-450	2.680	0.230	0.1740	0.0230	5.747126	0.759678	0.1180	0.0098	0.72656	1350	69	1030	120	1870	150	0.24	---	---
SC-8-Spot-451	1.700	0.140	0.1620	0.0140	6.172840	0.533455	0.0740	0.0031	0.30109	1002	52	976	77	1033	80	0.03	976	77
SC-8-Spot-452	3.340	0.210	0.2490	0.0170	4.016064	0.274189	0.0971	0.0034	0.51656	1477	49	1429	88	1552	65	0.03	1552	65
SC-8-Spot-453	3.340	0.170	0.2370	0.0200	4.219409	0.356068	0.0999	0.0051	0.77899	1501	42	1360	110	1626	99	0.09	1626	99
SC-8-Spot-454	0.882	0.062	0.0962	0.0076	10.395010	0.821227	0.0678	0.0037	0.56973	636	33	590	45	830	110	0.07	590	45
SC-8-Spot-455	0.798	0.057	0.0894	0.0049	11.185680	0.613086	0.0663	0.0043	0.07203	590	31	551	29	760	120	0.07	551	29
SC-8-Spot-456	0.848	0.032	0.0983	0.0052	10.172940	0.538141	0.0647	0.0022	0.68051	622	18	604	30	747	72	0.03	604	30
SC-8-Spot-457	5.520	0.360	0.3100	0.0230	3.225806	0.239334	0.1320	0.0051	0.68504	1896	56	1730	110	2106	68	0.09	2106	68
SC-8-Spot-458	4.390	0.210	0.2830	0.0220	3.533569	0.274694	0.1133	0.0055	0.71755	1702	39	1590	110	1880	86	0.07	1880	86
SC-8-Spot-459	2.040	0.110	0.1890	0.0130	5.291005	0.363932	0.0794	0.0029	0.64584	1128	35	1109	71	1198	76	0.02	1198	76
SC-8-Spot-460	2.420	0.140	0.2120	0.0170	4.716981	0.378249	0.0834	0.0047	0.78285	1238	40	1270	100	1270	100	0.03	1270	100
SC-8-Spot-461	1.330	0.130	0.1400	0.0110	7.142857	0.561225	0.0699	0.0068	0.40022	843	53	840	63	910	200	0.00	840	63
SC-8-Spot-462	2.110	0.140	0.1890	0.0160	5.291005	0.447916	0.0799	0.0040	0.48820	1149	47	1107	86	1180	100	0.04	1180	100
SC-8-Spot-463	4.650	0.340	0.2810	0.0230	3.558719	0.291283	0.1204	0.0050	0.52973	1739	59	1590	110	1956	71	0.09	1956	71
SC-8-Spot-464	11.090	0.640	0.4530	0.0470	2.207506	0.229035	0.1710	0.0110	0.58903	2526	56	2410	200	2570	100	0.05	2570	100
SC-8-Spot-465	2.070	0.120	0.1990	0.0170	5.025126	0.429282	0.0764	0.0032	0.56279	1142	43	1180	88	1084	85	0.03	1084	85
SC-8-Spot-466	0.735	0.057	0.0872	0.0064	11.467890	0.841680	0.0620	0.0050	0.52302	553	33	538	38	640	170	0.03	538	38
SC-8-Spot-467	4.960	0.280	0.2810	0.0220	3.558719	0.278619	0.1272	0.0059	0.73113	1834	46	1627	97	2051	75	0.11	2051	75
SC-8-Spot-468	2.220	0.120	0.1970	0.0160	5.076142	0.412276	0.0833	0.0044	0.64773	1182	38	1153	86	1303	99	0.02	1303	99
SC-8-Spot-469	1.580	0.085	0.1640	0.0110	6.097561	0.408983	0.0719	0.0031	0.56064	956	34	974	61	983	84	0.02	974	61
SC-8-Spot-470	4.850	0.270	0.3140	0.0210	3.184713	0.212990	0.1144	0.0041	0.60015	1813	46	1750	100	1867	61	0.03	1867	61
SC-8-Spot-471	4.760	0.220	0.3080	0.0200	3.246753	0.210828	0.1126	0.0044	0.60050	1772	38	1720	100	1826	70	0.03	1826	70
SC-8-Spot-472	0.830	0.044	0.0987	0.0065	10.131710	0.667235	0.0616	0.0027	0.66137	610	25	611	37	663	96	0.00	611	37
SC-8-Spot-473	0.675	0.041	0.0802	0.0053	12.468830	0.824000	0.0616	0.0035	0.49277	530	25	497	31	630	130	0.06	497	31
SC-8-Spot-474	0.719	0.057	0.0904	0.0070	11.061950	0.856567	0.0581	0.0041	0.15859	543	33	556	41	460	150	0.02	556	41
SC-8-Spot-475	0.652	0.051	0.0827	0.0075	12.091900	1.096605	0.0568	0.0032	0.46102	509	30	510	44	460	120	0.00	510	44
SC-8-Spot-476	0.869	0.062	0.0988	0.0090	10.121460	0.921995	0.0619	0.0033	0.67890	641	36	605	52	680	110	0.06	605	52
SC-8-Spot-477	0.990	0.100	0.0989	0.0088	10.111220	0.899684	0.0718	0.0068	0.35726	690	49	606	52	880	180	0.12	606	52
SC-8-Spot-478	2.140	0.100	0.1950	0.0120	5.128205	0.315582	0.0796	0.0031	0.52813	1158	32	1145	66	1203	73	0.01	1203	73
SC-8-Spot-479	1.098	0.061	0.1277	0.0094	7.830854	0.576429	0.0638	0.0026	0.69864	748	29	772	54	724	82	0.03	772	54
SC-8-Spot-498	2.870	0.180	0.2400	0.0300	4.166667	0.520833	0.0908	0.0083	0.90849	1376	49	1370	150	1460	170	0.00	1460	170
SC-8-Spot-499	11.780	0.620	0.4770	0.0380	2.096436	0.167012	0.1767	0.0086	0.80318	2597	52	2490	160	2615	75	0.04	2615	75
SC-8-Spot-500	0.842	0.048	0.1019	0.0062	9.813543	0.597095	0.0592	0.0031	0.65894	620	26	625	36	550	110	0.01	625	36
SC-8-Spot-501	5.670	0.310	0.3490	0.0230	2.865330	0.188833	0.1232	0.0066	0.68131	1934	50	1920	110	2020	96	0.01	2020	96
SC-8-Spot-502	4.910	0.300	0.3160	0.0200	3.164557	0.200288	0.1160	0.0054	0.55132	1807	51	1764	97	1868	85	0.02	1868	85

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-8-Spot-503	1.473	0.076	0.1542	0.0096	6.485084	0.403741	0.0702	0.0031	0.75521	920	30	922	54	945	78	0.00	922	54
SC-8-Spot-504	1.383	0.094	0.1330	0.0110	7.518797	0.621855	0.0762	0.0038	0.53127	873	39	814	64	1106	89	0.07	814	64
SC-8-Spot-505	1.121	0.083	0.1270	0.0120	7.874016	0.744002	0.0646	0.0043	0.75702	755	39	767	68	780	110	0.02	767	68
SC-8-Spot-506	0.879	0.094	0.1044	0.0090	9.578544	0.825737	0.0648	0.0068	0.24357	627	50	637	52	690	220	0.02	637	52
SC-8-Spot-507	2.250	0.130	0.2010	0.0130	4.975124	0.321774	0.0800	0.0032	0.63946	1188	40	1192	72	1219	79	0.00	1219	79
SC-8-Spot-508	0.749	0.053	0.0946	0.0065	10.570820	0.726325	0.0600	0.0049	0.72999	562	31	582	38	540	180	0.04	582	38
SC-8-Spot-509	3.050	0.220	0.2520	0.0220	3.968254	0.346435	0.0889	0.0041	0.59633	1422	50	1440	110	1400	90	0.01	1400	90
SC-8-Spot-510	6.200	0.360	0.3850	0.0260	2.597403	0.175409	0.1222	0.0063	0.86674	1998	49	2110	120	1954	92	0.06	1954	92
SC-8-Spot-511	0.867	0.062	0.1066	0.0097	9.380863	0.853606	0.0590	0.0044	0.52363	634	32	650	56	610	160	0.03	650	56
SC-8-Spot-512	0.867	0.049	0.0989	0.0071	10.111220	0.725882	0.0641	0.0029	0.75742	630	26	607	42	711	97	0.04	607	42
SC-8-Spot-513	0.669	0.047	0.0821	0.0058	12.180270	0.860482	0.0570	0.0027	0.40125	515	29	514	36	470	100	0.00	514	36
SC-8-Spot-514	1.146	0.062	0.1223	0.0077	8.176615	0.514799	0.0666	0.0025	0.47522	770	29	742	44	814	84	0.04	742	44
SC-8-Spot-515	0.650	0.043	0.0838	0.0059	11.933170	0.840164	0.0569	0.0034	0.66275	513	26	517	35	460	120	0.01	517	35
SC-8-Spot-516	2.510	0.300	0.1570	0.0230	6.369427	0.933101	0.1250	0.0170	0.71358	1249	84	930	130	2040	270	0.26	---	---
SC-8-Spot-517	2.090	0.190	0.1580	0.0150	6.329114	0.600865	0.0993	0.0052	0.42405	1130	63	955	83	1583	98	0.15	---	---
SC-8-Spot-518	0.821	0.064	0.0927	0.0071	10.787490	0.826226	0.0641	0.0051	0.53603	607	36	570	42	730	160	0.06	570	42
SC-8-Spot-519	3.780	0.310	0.2430	0.0220	4.115226	0.372572	0.1160	0.0120	0.66696	1565	63	1390	120	1810	160	0.11	1810	160
SC-8-Spot-520	2.350	0.140	0.2040	0.0170	4.901961	0.408497	0.0831	0.0035	0.67639	1218	43	1220	95	1257	81	0.00	1257	81
SC-8-Spot-521	2.230	0.110	0.2070	0.0180	4.830918	0.420080	0.0777	0.0035	0.71229	1188	36	1219	96	1125	91	0.03	1125	91
SC-8-Spot-522	3.540	0.160	0.2370	0.0180	4.219409	0.320462	0.1124	0.0050	0.75406	1542	36	1363	91	1828	75	0.12	1828	75
SC-8-Spot-523	0.665	0.042	0.0832	0.0061	12.019230	0.881218	0.0578	0.0033	0.59223	518	25	514	36	470	120	0.01	514	36
SC-8-Spot-524	1.029	0.080	0.1010	0.0100	9.900990	0.980296	0.0769	0.0063	0.32935	711	38	615	59	1040	150	0.14	615	59
SC-8-Spot-525	0.583	0.045	0.0757	0.0071	13.210040	1.238987	0.0595	0.0042	0.54234	467	31	469	43	560	150	0.00	469	43
SC-8-Spot-526	0.810	0.190	0.0892	0.0079	11.210760	0.992881	0.0650	0.0120	0.06437	530	70	556	45	450	350	0.05	556	45
SC-8-Spot-527	6.030	0.340	0.3470	0.0250	2.881844	0.207626	0.1281	0.0071	0.55936	1986	53	1910	120	2073	89	0.04	2073	89
SC-8-Spot-528	2.800	0.180	0.2230	0.0170	4.484305	0.341853	0.0940	0.0042	0.53211	1353	50	1290	91	1482	88	0.05	1482	88
SC-8-Spot-529	3.430	0.290	0.2480	0.0290	4.032258	0.471514	0.0984	0.0049	0.79803	1488	65	1410	150	1580	100	0.05	1580	100
SC-8-Spot-548	2.660	0.350	0.2330	0.0320	4.291845	0.589438	0.0873	0.0079	0.40391	1290	110	1330	160	1270	170	0.03	1270	170
SC-8-Spot-549	1.970	0.180	0.1910	0.0180	5.235602	0.493408	0.0751	0.0034	0.32295	1083	65	1116	99	1065	96	0.03	1065	96
SC-8-Spot-550	5.590	0.660	0.2390	0.0330	4.184100	0.577721	0.1740	0.0140	0.59593	1933	98	1360	170	2580	140	0.30	---	---
SC-8-Spot-551	0.798	0.059	0.0962	0.0073	10.395010	0.788811	0.0615	0.0036	0.09466	590	32	590	43	630	120	0.00	590	43
SC-8-Spot-552	2.080	0.099	0.1860	0.0120	5.376344	0.346861	0.0799	0.0026	0.57640	1141	34	1108	66	1188	68	0.03	1188	68
SC-8-Spot-553	0.826	0.075	0.1050	0.0100	9.523810	0.907030	0.0565	0.0042	0.51323	608	42	641	58	480	160	0.05	641	58
SC-8-Spot-554	0.832	0.067	0.0969	0.0089	10.319920	0.947856	0.0633	0.0028	0.39655	607	37	594	52	724	92	0.02	594	52
SC-8-Spot-555	1.200	0.220	0.1400	0.0150	7.142857	0.765306	0.0627	0.0096	0.03073	770	100	837	87	600	310	0.09	837	87
SC-8-Spot-556	1.900	0.600	0.0960	0.0130	10.416670	1.410590	0.1610	0.0460	0.17651	920	170	586	74	1660	490	0.36	---	---
SC-8-Spot-557	0.880	0.055	0.1025	0.0087	9.756098	0.828079	0.0633	0.0038	0.70912	641	31	636	49	680	130	0.01	636	49
SC-8-Spot-558	4.680	0.310	0.3150	0.0240	3.174603	0.241875	0.1077	0.0039	0.60828	1747	54	1750	120	1754	70	0.00	1754	70
SC-8-Spot-559	0.933	0.060	0.1066	0.0077	9.380863	0.677605	0.0651	0.0036	0.53752	669	31	651	45	800	110	0.03	651	45
SC-8-Spot-560	0.838	0.043	0.0924	0.0061	10.822510	0.714473	0.0665	0.0024	0.49958	616	24	569	36	804	78	0.08	569	36
SC-8-Spot-561	2.720	0.190	0.1620	0.0140	6.172840	0.533455	0.1286	0.0065	0.46338	1318	54	962	78	2076	89	0.27	---	---

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-8-Spot-562	2.790	0.180	0.2110	0.0170	4.739336	0.381842	0.0954	0.0037	0.60198	1349	48	1228	91	1528	70	0.09	1528	70
SC-8-Spot-563	2.090	0.120	0.1970	0.0140	5.076142	0.360741	0.0778	0.0029	0.57430	1144	39	1153	76	1175	80	0.01	1175	80
SC-8-Spot-564	0.561	0.050	0.0776	0.0048	12.886600	0.797109	0.0518	0.0041	0.30413	452	33	481	29	280	150	0.06	481	29
SC-8-Spot-565	0.676	0.099	0.0860	0.0070	11.627910	0.946458	0.0569	0.0080	0.22600	506	58	530	41	490	260	0.05	530	41
SC-8-Spot-566	1.007	0.093	0.1018	0.0080	9.823183	0.771959	0.0703	0.0057	-0.00105	695	45	623	47	840	160	0.10	623	47
SC-8-Spot-567	0.636	0.042	0.0828	0.0071	12.077290	1.035613	0.0571	0.0029	0.47536	501	25	511	42	460	110	0.02	511	42
SC-8-Spot-568	3.160	0.200	0.2340	0.0200	4.273504	0.365257	0.0969	0.0055	0.79674	1434	47	1350	100	1550	100	0.06	1550	100
SC-8-Spot-569	0.733	0.068	0.0778	0.0065	12.853470	1.073876	0.0675	0.0045	0.11802	549	40	481	39	830	140	0.12	481	39
SC-8-Spot-570	1.080	0.140	0.1160	0.0170	8.620690	1.263377	0.0691	0.0059	0.40996	725	68	697	94	970	160	0.04	697	94
SC-8-Spot-571	3.240	0.180	0.2530	0.0190	3.952569	0.296833	0.0922	0.0040	0.72967	1455	44	1445	97	1499	78	0.01	1499	78
SC-8-Spot-572	0.781	0.070	0.0930	0.0110	10.752690	1.271823	0.0618	0.0056	0.52249	578	39	572	63	560	190	0.01	572	63
SC-8-Spot-573	4.800	0.400	0.2980	0.0340	3.355705	0.382866	0.1181	0.0063	0.84782	1757	68	1660	170	1912	92	0.06	1912	92
SC-8-Spot-574	5.340	0.340	0.3310	0.0320	3.021148	0.292075	0.1214	0.0062	0.74827	1868	56	1820	150	1981	81	0.03	1981	81
SC-8-Spot-575	0.682	0.055	0.0909	0.0053	11.001100	0.641428	0.0557	0.0046	0.27259	522	33	560	32	390	170	0.07	560	32
SC-8-Spot-576	6.640	0.400	0.3640	0.0300	2.747253	0.226422	0.1323	0.0052	0.60993	2056	52	1980	140	2112	66	0.04	2112	66
SC-8-Spot-577	1.310	0.210	0.1390	0.0110	7.194245	0.569329	0.0705	0.0099	0.00829	822	85	834	63	750	280	0.01	834	63
SC-8-Spot-578	1.153	0.086	0.1210	0.0096	8.264463	0.655693	0.0712	0.0054	0.44569	771	41	734	55	890	160	0.05	734	55
SC-8-Spot-579	2.141	0.091	0.1950	0.0120	5.128205	0.315582	0.0795	0.0026	0.82543	1157	29	1154	69	1194	64	0.00	1194	64
SC-8-Spot-598	2.110	0.150	0.1910	0.0180	5.235602	0.493408	0.0822	0.0064	0.69469	1139	49	1131	99	1250	160	0.01	1250	160
SC-8-Spot-599	0.800	0.110	0.1018	0.0097	9.823183	0.936001	0.0581	0.0089	0.46655	577	61	635	60	330	280	0.10	635	60
SC-8-Spot-600	1.057	0.074	0.1190	0.0100	8.403361	0.706165	0.0670	0.0031	0.49656	732	38	723	58	821	98	0.01	723	58
SC-8-Spot-601	0.822	0.057	0.1006	0.0086	9.940358	0.849772	0.0608	0.0043	0.59538	627	35	616	50	580	160	0.02	616	50
SC-8-Spot-602	4.140	0.310	0.2810	0.0300	3.558719	0.379934	0.1062	0.0077	0.66439	1657	60	1580	150	1700	130	0.05	1700	130
SC-8-Spot-603	3.070	0.180	0.2330	0.0190	4.291845	0.349979	0.0992	0.0045	0.73443	1433	44	1340	100	1607	80	0.06	1607	80
SC-8-Spot-604	1.070	0.530	0.1030	0.0098	9.708738	0.923744	0.0790	0.0330	0.16705	560	130	630	57	440	560	0.13	630	57
SC-8-Spot-605	2.790	0.450	0.1730	0.0120	5.780347	0.400949	0.1180	0.0180	0.10399	1290	110	1037	62	1730	260	0.20	---	---
SC-8-Spot-606	0.773	0.034	0.0944	0.0049	10.593220	0.549860	0.0610	0.0019	0.49305	580	19	581	29	647	66	0.00	581	29
SC-8-Spot-607	9.540	0.400	0.4160	0.0200	2.403846	0.115570	0.1669	0.0044	0.57021	2383	39	2253	85	2527	45	0.05	2527	45
SC-8-Spot-608	1.170	0.110	0.0957	0.0054	10.449320	0.589617	0.0916	0.0079	0.14440	771	53	588	32	1460	160	0.24	---	---
SC-8-Spot-609	4.580	0.280	0.2910	0.0180	3.436426	0.212562	0.1110	0.0052	0.49588	1732	52	1638	90	1806	90	0.05	1806	90
SC-8-Spot-610	0.820	0.110	0.0745	0.0062	13.422820	1.117067	0.0766	0.0078	0.02331	585	59	462	37	1070	200	0.21	---	---
SC-8-Spot-611	1.670	0.170	0.1590	0.0150	6.289308	0.593331	0.0731	0.0057	0.46969	990	61	948	81	990	170	0.04	948	81
SC-8-Spot-613	5.300	0.580	0.3360	0.0310	2.976190	0.274589	0.1184	0.0086	0.28542	1865	83	1860	150	1950	130	0.00	1950	130
SC-8-Spot-612	0.982	0.097	0.0998	0.0068	10.020040	0.682728	0.0704	0.0068	0.28085	681	48	612	40	850	180	0.10	612	40
Sample SC-9: Vassalboro Group of the Central Maine sequence																		
SC-9-Spot-10	1.870	0.120	0.1900	0.0170	5.263158	0.581718	0.0739	0.0032	0.70696	1083	43	1136	85	1022	90	0.05	1022	90
SC-9-Spot-11	2.820	0.110	0.2410	0.0130	4.149378	0.223825	0.0849	0.0028	0.79583	1371	27	1389	70	1307	65	0.01	1307	65
SC-9-Spot-12	2.149	0.089	0.2030	0.0140	4.926108	0.339732	0.0805	0.0028	0.73269	1165	30	1197	71	1190	70	0.03	1190	70
SC-9-Spot-13	1.886	0.080	0.1868	0.0099	5.353319	0.283714	0.0746	0.0024	0.74501	1076	27	1101	53	1063	61	0.02	1063	61
SC-9-Spot-14	1.656	0.066	0.1680	0.0100	5.952381	0.354308	0.0734	0.0036	0.73617	993	24	1001	57	1000	110	0.01	1000	110
SC-9-Spot-15	3.640	0.140	0.2750	0.0150	3.636364	0.198347	0.0971	0.0031	0.55902	1553	32	1563	77	1555	60	0.01	1555	60

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{238}U/^{206}Pb	2σ	^{207}Pb/^{206}Pb	2σ	EC	^{207}Pb/^{235}U	2σ	^{206}Pb/^{238}U	2σ	^{207}Pb/^{206}Pb	2σ	Con.	Plot Age	2σ
SC-9-Spot-16	3.800	0.130	0.2790	0.0140	3.584229	0.179854	0.0998	0.0032	0.66556	1587	29	1581	70	1625	55	0.00	1625	55
SC-9-Spot-17	3.050	0.120	0.2400	0.0120	4.166667	0.208333	0.0917	0.0030	0.52103	1420	31	1383	61	1457	61	0.03	1457	61
SC-9-Spot-34	2.808	0.099	0.2390	0.0120	4.184100	0.210080	0.0880	0.0032	0.77795	1358	26	1375	63	1372	69	0.01	1372	69
SC-9-Spot-35	2.670	0.160	0.2300	0.0180	4.347826	0.302458	0.0873	0.0048	0.36218	1338	35	1347	95	1390	100	0.01	1390	100
SC-9-Spot-36	3.140	0.120	0.2480	0.0130	4.032258	0.211368	0.0940	0.0032	0.74159	1441	29	1436	70	1490	63	0.00	1490	63
SC-9-Spot-37	1.810	0.140	0.1850	0.0130	5.405405	0.379839	0.0731	0.0044	0.20327	1060	54	1089	69	1050	120	0.03	1050	120
SC-9-Spot-38	1.650	0.130	0.1620	0.0180	6.172840	0.609663	0.0765	0.0046	0.72058	988	49	960	100	1140	110	0.03	960	100
SC-9-Spot-39	2.830	0.140	0.2310	0.0170	4.329004	0.318585	0.0887	0.0030	0.71421	1368	38	1333	86	1402	71	0.03	1402	71
SC-9-Spot-40	0.706	0.039	0.0875	0.0059	11.428570	0.679184	0.0615	0.0029	0.52393	541	23	540	35	630	100	0.00	540	35
SC-9-Spot-41	2.750	0.130	0.2310	0.0130	4.329004	0.243624	0.0872	0.0026	0.64623	1345	36	1336	69	1360	54	0.01	1360	54
SC-9-Spot-42	5.390	0.420	0.3170	0.0260	3.154574	0.258735	0.1208	0.0056	0.33828	1878	67	1780	130	1967	83	0.06	1967	83
SC-9-Spot-45	1.696	0.093	0.1740	0.0140	5.747126	0.462413	0.0705	0.0030	0.75548	1005	36	1029	76	939	89	0.02	939	89
SC-9-Spot-46	0.567	0.022	0.0730	0.0044	13.698630	0.825671	0.0566	0.0020	0.71741	457	13	454	26	464	82	0.01	454	26
SC-9-Spot-47	1.505	0.092	0.1650	0.0160	6.060606	0.587695	0.0658	0.0042	0.75130	932	36	979	85	750	140	0.05	979	85
SC-9-Spot-48	1.747	0.089	0.1730	0.0100	5.780347	0.334124	0.0722	0.0031	0.57613	1026	34	1023	55	985	91	0.00	985	91
SC-9-Spot-49	2.810	0.140	0.2240	0.0120	4.464286	0.239158	0.0885	0.0030	0.45698	1363	36	1300	64	1387	70	0.05	1387	70
SC-9-Spot-50	4.000	0.170	0.2920	0.0160	3.424658	0.187653	0.0973	0.0030	0.61499	1638	35	1647	78	1559	57	0.01	1559	57
SC-9-Spot-51	0.596	0.046	0.0765	0.0047	13.071900	0.803110	0.0567	0.0039	0.37426	479	31	474	28	490	150	0.01	474	28
SC-9-Spot-52	2.180	0.120	0.2000	0.0130	5.000000	0.325000	0.0803	0.0030	0.58678	1167	37	1180	69	1217	71	0.01	1217	71
SC-9-Spot-53	1.930	0.100	0.1780	0.0110	5.617978	0.347178	0.0801	0.0039	0.64609	1090	34	1050	59	1179	92	0.04	1179	92
SC-9-Spot-54	1.830	0.084	0.1820	0.0110	5.494505	0.332086	0.0755	0.0027	0.70719	1061	32	1076	61	1074	74	0.01	1074	74
SC-9-Spot-55	9.130	0.660	0.4010	0.0460	2.493766	0.286068	0.1716	0.0086	0.72585	2327	66	2090	170	2562	84	0.11	2562	84
SC-9-Spot-56	1.867	0.080	0.1820	0.0100	5.494505	0.301896	0.0762	0.0038	0.64991	1069	29	1075	56	1090	100	0.01	1090	100
SC-9-Spot-57	2.490	0.130	0.2110	0.0120	4.739336	0.269536	0.0859	0.0027	0.56492	1266	36	1230	65	1319	62	0.03	1319	62
SC-9-Spot-58	3.970	0.170	0.2840	0.0170	3.521127	0.210772	0.1029	0.0038	0.65778	1638	35	1606	87	1680	73	0.02	1680	73
SC-9-Spot-59	0.523	0.028	0.0697	0.0031	14.347200	0.638111	0.0568	0.0025	0.32749	425	19	434	19	483	97	0.02	434	19
SC-9-Spot-60	3.700	0.410	0.2840	0.0240	3.521127	0.285162	0.0920	0.0100	0.43379	1560	97	1600	120	1440	250	0.03	1440	250
SC-9-Spot-61	3.690	0.210	0.2700	0.0170	3.703704	0.233196	0.0989	0.0038	0.66828	1571	44	1535	87	1606	66	0.02	1606	66
SC-9-Spot-62	1.450	0.110	0.1490	0.0140	6.711409	0.630602	0.0705	0.0041	0.57752	906	47	892	76	910	120	0.02	892	76
SC-9-Spot-63	2.730	0.170	0.2310	0.0190	4.329004	0.356065	0.0869	0.0055	0.59894	1334	44	1344	98	1320	120	0.01	1320	120
SC-9-Spot-64	0.527	0.058	0.0701	0.0083	14.265340	1.058199	0.0535	0.0027	0.72590	442	38	449	55	330	110	0.02	449	55
SC-9-Spot-65	1.960	0.120	0.1920	0.0140	5.208333	0.379774	0.0732	0.0026	0.61493	1105	41	1138	81	1010	69	0.03	1010	69
SC-9-Spot-66	1.451	0.083	0.1511	0.0098	6.618134	0.429237	0.0688	0.0025	0.50513	903	35	913	54	884	75	0.01	913	54
SC-9-Spot-85	3.950	0.190	0.2880	0.0200	3.472222	0.241127	0.1020	0.0041	0.66197	1621	39	1624	98	1647	75	0.00	1647	75
SC-9-Spot-86	3.450	0.270	0.2900	0.0280	3.448276	0.332937	0.0916	0.0041	0.58153	1502	61	1620	140	1458	84	0.07	1458	84
SC-9-Spot-87	2.700	0.180	0.2400	0.0230	4.166667	0.399306	0.0829	0.0038	0.76600	1322	50	1390	120	1235	95	0.05	1235	95
SC-9-Spot-88	1.750	0.120	0.1780	0.0140	5.617978	0.441863	0.0739	0.0039	0.54390	1040	45	1049	77	1010	110	0.01	1010	110
SC-9-Spot-89	4.330	0.260	0.3070	0.0250	3.257329	0.265255	0.1044	0.0047	0.60916	1686	49	1730	120	1702	81	0.03	1702	81
SC-9-Spot-90	1.890	0.120	0.1840	0.0160	5.434783	0.472590	0.0751	0.0037	0.68363	1080	40	1080	85	1140	100	0.00	1140	100
SC-9-Spot-91	1.890	0.160	0.1820	0.0120	5.494505	0.362275	0.0745	0.0059	0.26381	1084	55	1076	65	1060	170	0.01	1060	170
SC-9-Spot-92	3.150	0.280	0.2660	0.0260	3.759398	0.367460	0.0919	0.0047	0.38803	1462	68	1500	130	1444	97	0.03	1444	97

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-9-Spot-93	1.637	0.099	0.1630	0.0120	6.134969	0.451654	0.0727	0.0031	0.64728	976	37	970	64	1003	85	0.01	970	64
SC-9-Spot-94	0.502	0.034	0.0667	0.0058	14.992500	1.303696	0.0571	0.0023	0.54874	418	23	420	34	492	89	0.00	420	34
SC-9-Spot-95	2.930	0.250	0.2410	0.0250	4.149378	0.430433	0.0925	0.0046	0.49481	1402	65	1380	130	1480	100	0.02	1480	100
SC-9-Spot-96	0.609	0.044	0.0808	0.0075	12.376240	1.148784	0.0566	0.0035	0.67907	479	28	499	45	470	140	0.04	499	45
SC-9-Spot-97	5.630	0.470	0.3430	0.0330	2.915452	0.280495	0.1155	0.0048	0.53694	1906	68	1910	160	1893	76	0.00	1893	76
SC-9-Spot-98	1.880	0.160	0.1900	0.0170	5.263158	0.470914	0.0710	0.0045	0.35336	1066	59	1114	89	1010	130	0.04	1010	130
SC-9-Spot-99	4.070	0.320	0.3010	0.0270	3.322259	0.298010	0.0994	0.0041	0.59335	1674	64	1680	130	1619	69	0.00	1619	69
SC-9-Spot-100	1.730	0.120	0.1750	0.0160	5.714286	0.522449	0.0738	0.0033	0.55664	1038	48	1048	89	1028	93	0.01	1028	93
SC-9-Spot-101	2.280	0.200	0.2200	0.0230	4.545455	0.475207	0.0755	0.0036	0.51818	1205	61	1270	120	1060	100	0.05	1060	100
SC-9-Spot-102	4.090	0.270	0.2920	0.0260	3.424658	0.304935	0.1009	0.0050	0.66236	1653	52	1660	130	1637	93	0.00	1637	93
SC-9-Spot-103	2.970	0.170	0.2420	0.0190	4.132231	0.324431	0.0863	0.0038	0.60483	1397	42	1388	97	1342	91	0.01	1342	91
SC-9-Spot-104	3.740	0.220	0.2840	0.0190	3.521127	0.235568	0.0910	0.0040	0.61521	1567	47	1618	94	1436	79	0.03	1436	79
SC-9-Spot-105	4.150	0.240	0.2880	0.0160	3.472222	0.192901	0.1028	0.0057	0.45754	1667	48	1624	82	1680	110	0.03	1680	110
SC-9-Spot-106	3.900	0.170	0.2830	0.0170	3.533569	0.212264	0.0972	0.0035	0.72935	1612	34	1598	85	1551	69	0.01	1551	69
SC-9-Spot-107	4.920	0.200	0.3280	0.0210	3.048780	0.195196	0.1054	0.0045	0.73658	1805	36	1860	110	1727	76	0.03	1727	76
SC-9-Spot-108	4.290	0.210	0.2900	0.0200	3.448276	0.237812	0.1061	0.0055	0.73589	1682	39	1632	98	1720	100	0.03	1720	100
SC-9-Spot-109	1.766	0.061	0.1776	0.0081	5.630631	0.275825	0.0707	0.0029	0.65543	1031	22	1053	44	925	87	0.02	925	87
SC-9-Spot-110	0.559	0.034	0.0726	0.0067	13.774100	1.271164	0.0550	0.0043	0.69158	452	21	450	40	400	170	0.00	450	40
SC-9-Spot-111	14.140	0.700	0.5370	0.0400	1.862197	0.138711	0.1829	0.0080	0.78624	2753	47	2740	170	2700	61	0.00	2700	61
SC-9-Spot-112	1.982	0.095	0.1850	0.0110	5.405405	0.321403	0.0747	0.0028	0.76809	1115	30	1116	52	1051	79	0.00	1051	79
SC-9-Spot-113	5.520	0.200	0.3360	0.0150	2.976190	0.132866	0.1136	0.0035	0.56135	1898	32	1861	74	1844	56	0.02	1844	56
SC-9-Spot-114	1.900	0.160	0.1870	0.0170	5.347594	0.486145	0.0750	0.0060	0.61384	1067	52	1114	90	1050	160	0.04	1050	160
SC-9-Spot-115	2.050	0.170	0.1930	0.0170	5.181347	0.429542	0.0763	0.0056	0.44043	1128	60	1132	91	1080	150	0.00	1080	150
SC-9-Spot-116	4.580	0.360	0.3070	0.0310	3.257329	0.328916	0.1045	0.0054	0.63081	1721	65	1710	150	1683	95	0.01	1683	95
SC-9-Spot-135	7.690	0.430	0.3480	0.0340	2.873563	0.231206	0.1606	0.0077	0.70528	2197	54	1970	160	2458	84	0.12	2458	84
SC-9-Spot-136	4.020	0.210	0.2970	0.0220	3.367003	0.249408	0.0987	0.0042	0.72327	1641	43	1680	100	1586	82	0.02	1586	82
SC-9-Spot-137	0.625	0.033	0.0815	0.0077	12.269940	0.918364	0.0561	0.0036	0.66288	498	23	504	46	420	140	0.01	504	46
SC-9-Spot-138	3.470	0.180	0.2660	0.0190	3.759398	0.268529	0.0961	0.0044	0.69486	1524	41	1512	97	1522	87	0.01	1522	87
SC-9-Spot-139	3.020	0.190	0.2460	0.0170	4.065041	0.280917	0.0906	0.0034	0.49591	1415	49	1412	88	1445	70	0.00	1445	70
SC-9-Spot-140	4.210	0.240	0.3020	0.0200	3.311258	0.219289	0.1010	0.0046	0.59224	1664	47	1691	97	1629	81	0.02	1629	81
SC-9-Spot-143	4.130	0.230	0.2890	0.0210	3.460208	0.251434	0.1052	0.0042	0.70090	1654	47	1620	110	1719	71	0.02	1719	71
SC-9-Spot-144	1.960	0.140	0.1820	0.0110	5.494505	0.332086	0.0775	0.0046	0.42641	1104	51	1083	65	1120	130	0.02	1120	130
SC-9-Spot-145	1.800	0.100	0.1780	0.0140	5.617978	0.441863	0.0760	0.0040	0.62983	1057	38	1053	73	1070	110	0.00	1070	110
SC-9-Spot-146	1.963	0.096	0.1811	0.0098	5.521811	0.298806	0.0785	0.0040	0.53624	1102	34	1070	53	1140	100	0.03	1140	100
SC-9-Spot-147	2.900	0.130	0.2310	0.0180	4.329004	0.337325	0.0925	0.0042	0.74936	1388	35	1332	94	1458	90	0.04	1458	90
SC-9-Spot-149	17.100	1.300	0.6000	0.0550	1.666667	0.141667	0.1988	0.0092	0.55070	2931	73	3000	220	2800	76	0.02	2800	76
SC-9-Spot-150	0.586	0.041	0.0775	0.0060	12.903230	0.998959	0.0537	0.0029	0.55494	464	26	480	36	350	120	0.03	480	36
SC-9-Spot-151	4.950	0.260	0.3240	0.0230	3.086420	0.219098	0.1150	0.0048	0.67052	1814	42	1830	110	1875	77	0.01	1875	77
SC-9-Spot-152	2.230	0.280	0.2100	0.0200	4.761905	0.453515	0.0785	0.0084	0.14957	1175	86	1220	110	1180	200	0.04	1180	200
SC-9-Spot-153	3.470	0.190	0.2690	0.0170	3.717472	0.234933	0.0965	0.0038	0.54550	1515	44	1527	85	1547	76	0.01	1547	76
SC-9-Spot-154	0.561	0.040	0.0677	0.0054	14.771050	1.178193	0.0589	0.0039	0.36185	448	27	422	32	510	150	0.06	422	32

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-9-Spot-155	0.757	0.049	0.0951	0.0083	10.515250	0.917735	0.0611	0.0052	0.80753	568	28	600	49	540	170	0.05	600	49
SC-9-Spot-156	2.720	0.160	0.2370	0.0190	4.219409	0.338265	0.0872	0.0037	0.65094	1337	45	1365	97	1351	81	0.02	1351	81
SC-9-Spot-157	1.959	0.088	0.1793	0.0099	5.577245	0.307946	0.0802	0.0036	0.59799	1102	29	1070	56	1170	91	0.03	1170	91
SC-9-Spot-158	4.200	0.200	0.2870	0.0210	3.484321	0.254950	0.1053	0.0035	0.75629	1664	40	1640	110	1728	67	0.01	1728	67
SC-9-Spot-159	3.210	0.160	0.2560	0.0150	3.906250	0.228882	0.0956	0.0032	0.50275	1469	39	1462	77	1533	67	0.00	1533	67
SC-9-Spot-160	3.200	0.190	0.2480	0.0190	4.032258	0.308923	0.0965	0.0053	0.66534	1447	44	1435	99	1549	97	0.01	1549	97
SC-9-Spot-161	1.980	0.120	0.1880	0.0140	5.319149	0.396107	0.0790	0.0038	0.59328	1107	40	1106	76	1155	99	0.00	1155	99
SC-9-Spot-162	1.900	0.120	0.1740	0.0110	5.747126	0.363324	0.0793	0.0045	0.63091	1072	39	1032	57	1150	110	0.04	1150	110
SC-9-Spot-163	1.790	0.110	0.1720	0.0150	5.813953	0.507031	0.0762	0.0033	0.72729	1052	40	1018	84	1097	85	0.03	1097	85
SC-9-Spot-164	0.513	0.032	0.0684	0.0060	14.619880	1.239698	0.0559	0.0035	0.73315	421	22	425	36	390	130	0.01	425	36
SC-9-Spot-165	4.070	0.280	0.2940	0.0280	3.401361	0.323939	0.1048	0.0071	0.58091	1654	61	1640	140	1710	130	0.01	1710	130
SC-9-Spot-166	0.568	0.054	0.0773	0.0056	12.936610	0.937193	0.0542	0.0042	0.07467	462	35	479	33	340	160	0.04	479	33
SC-9-Spot-185	4.040	0.330	0.2720	0.0210	3.676471	0.283845	0.1083	0.0053	0.47734	1641	65	1576	98	1784	97	0.04	1784	97
SC-9-Spot-186	1.940	0.110	0.1840	0.0130	5.434783	0.383979	0.0774	0.0030	0.59917	1086	37	1087	69	1121	79	0.00	1121	79
SC-9-Spot-187	1.710	0.170	0.1660	0.0130	6.024096	0.471767	0.0739	0.0060	0.16870	992	61	984	74	990	150	0.01	984	74
SC-9-Spot-188	2.710	0.160	0.2340	0.0200	4.273504	0.365257	0.0845	0.0039	0.60725	1320	45	1340	100	1283	95	0.01	1283	95
SC-9-Spot-189	5.000	0.280	0.3200	0.0250	3.125000	0.244141	0.1097	0.0056	0.63141	1815	49	1800	120	1788	98	0.01	1788	98
SC-9-Spot-190	4.380	0.300	0.3070	0.0270	3.257329	0.286475	0.1040	0.0052	0.70488	1690	57	1730	120	1694	87	0.02	1694	87
SC-9-Spot-192	2.350	0.240	0.2070	0.0170	4.830918	0.396742	0.0842	0.0047	0.13455	1212	74	1205	92	1250	110	0.01	1250	110
SC-9-Spot-193	2.620	0.150	0.2320	0.0170	4.310345	0.315844	0.0846	0.0048	0.60852	1303	45	1351	87	1300	110	0.04	1300	110
SC-9-Spot-194	2.030	0.110	0.1880	0.0120	5.319149	0.339520	0.0772	0.0044	0.66291	1124	36	1108	68	1150	110	0.01	1150	110
SC-9-Spot-195	3.000	0.180	0.2400	0.0170	4.166667	0.295139	0.0923	0.0044	0.61672	1396	44	1378	90	1453	91	0.01	1453	91
SC-9-Spot-196	2.610	0.120	0.2120	0.0120	4.716981	0.266999	0.0889	0.0034	0.70605	1303	32	1234	62	1409	74	0.06	1409	74
SC-9-Spot-197	3.410	0.180	0.2610	0.0240	3.831418	0.352314	0.0950	0.0043	0.76290	1504	39	1480	120	1526	90	0.02	1526	90
SC-9-Spot-198	1.714	0.080	0.1710	0.0100	5.847953	0.341986	0.0728	0.0032	0.56934	1008	30	1012	56	979	86	0.00	979	86
SC-9-Spot-199	2.580	0.160	0.2170	0.0170	4.608295	0.361019	0.0877	0.0047	0.65302	1298	46	1259	89	1400	110	0.03	1400	110
SC-9-Spot-200	1.690	0.077	0.1707	0.0089	5.858231	0.305438	0.0720	0.0031	0.63753	1004	28	1014	49	956	86	0.01	956	86
SC-9-Spot-201	1.730	0.110	0.1700	0.0110	5.882353	0.380623	0.0747	0.0050	0.55085	1010	39	1009	58	1110	120	0.00	1110	120
SC-9-Spot-202	3.050	0.100	0.2460	0.0120	4.065041	0.198295	0.0885	0.0046	0.67518	1417	26	1413	60	1370	100	0.00	1370	100
SC-9-Spot-203	5.100	0.370	0.3430	0.0360	2.915452	0.314495	0.1081	0.0064	0.79525	1834	62	1880	170	1740	110	0.02	1740	110
SC-9-Spot-204	3.000	0.110	0.2340	0.0160	4.273504	0.292205	0.0969	0.0039	0.77197	1404	28	1350	84	1570	74	0.04	1570	74
SC-9-Spot-205	0.586	0.047	0.0733	0.0050	13.642560	0.930598	0.0559	0.0046	0.33563	463	30	455	30	410	170	0.02	455	30
SC-9-Spot-206	4.180	0.190	0.2980	0.0210	3.355705	0.236476	0.1023	0.0046	0.74691	1667	39	1670	110	1650	85	0.00	1650	85
SC-9-Spot-207	3.250	0.130	0.2470	0.0130	4.048583	0.213083	0.0944	0.0033	0.56317	1464	32	1420	66	1519	68	0.03	1519	68
SC-9-Spot-208	3.810	0.250	0.2740	0.0180	3.649635	0.239757	0.0996	0.0066	0.61925	1605	52	1556	91	1580	120	0.03	1580	120
SC-9-Spot-209	1.910	0.110	0.1810	0.0110	5.524862	0.335765	0.0748	0.0039	0.29303	1076	39	1071	62	1090	100	0.00	1090	100
SC-9-Spot-210	3.280	0.130	0.2500	0.0160	4.000000	0.256000	0.0938	0.0038	0.78310	1470	31	1434	81	1502	78	0.03	1502	78
SC-9-Spot-211	2.120	0.100	0.1910	0.0120	5.235602	0.328938	0.0807	0.0036	0.62862	1154	33	1121	65	1195	92	0.03	1195	92
SC-9-Spot-212	2.530	0.140	0.2080	0.0140	4.807692	0.323595	0.0835	0.0036	0.64790	1270	40	1216	72	1268	90	0.04	1268	90
SC-9-Spot-213	5.250	0.180	0.3280	0.0140	3.048780	0.130131	0.1165	0.0033	0.70811	1860	29	1822	70	1901	50	0.02	1901	50
SC-9-Spot-214	3.840	0.190	0.2830	0.0170	3.533569	0.212264	0.1021	0.0039	0.56539	1598	41	1601	87	1640	72	0.00	1640	72

Appendix B. Continued.

	Isotopic Ratios									Final Isotopic Ages (Ma)								
Sample and analysis number	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{238}U/ ^{206}Pb	2σ	^{207}Pb/ ^{206}Pb	2σ	EC	^{207}Pb/ ^{235}U	2σ	^{206}Pb/ ^{238}U	2σ	^{207}Pb/ ^{206}Pb	2σ	Con.	Plot Age	2σ
SC-9-Spot-215	6.680	0.180	0.2830	0.0150	3.533569	0.187292	0.1722	0.0062	0.83085	2067	24	1602	77	2581	60	0.29	---	---
SC-9-Spot-216	2.960	0.120	0.2410	0.0190	4.149378	0.327129	0.0921	0.0041	0.82799	1391	31	1383	96	1453	89	0.01	1453	89
SC-9-Spot-235	3.340	0.160	0.2620	0.0210	3.816794	0.305926	0.0938	0.0042	0.82306	1482	36	1490	100	1505	83	0.01	1505	83
SC-9-Spot-236	3.810	0.170	0.2600	0.0150	3.846154	0.221894	0.1068	0.0038	0.63174	1594	36	1482	79	1726	67	0.08	1726	67
SC-9-Spot-237	3.880	0.170	0.2830	0.0190	3.533569	0.237236	0.1019	0.0041	0.70234	1602	35	1599	93	1635	76	0.00	1635	76
SC-9-Spot-238	5.030	0.210	0.3190	0.0190	3.134796	0.186712	0.1152	0.0044	0.78251	1818	35	1775	94	1876	67	0.02	1876	67
SC-9-Spot-239	4.040	0.180	0.2920	0.0200	3.424658	0.234566	0.1026	0.0043	0.65069	1648	37	1644	97	1659	82	0.00	1659	82
SC-9-Spot-240	2.072	0.091	0.1860	0.0130	5.376344	0.375766	0.0806	0.0034	0.69445	1150	30	1097	71	1197	86	0.05	1197	86
SC-9-Spot-241	2.650	0.220	0.2190	0.0150	4.566210	0.312754	0.0836	0.0068	0.52372	1312	60	1268	81	1210	170	0.03	1210	170
SC-9-Spot-242	2.070	0.100	0.1920	0.0120	5.208333	0.325521	0.0782	0.0037	0.66302	1133	33	1127	64	1170	93	0.01	1170	93
SC-9-Spot-243	4.480	0.150	0.3060	0.0180	3.267974	0.192234	0.1053	0.0043	0.82284	1723	29	1712	91	1721	74	0.01	1721	74
SC-9-Spot-244	5.430	0.250	0.3370	0.0260	2.967359	0.228936	0.1176	0.0070	0.83304	1883	40	1880	120	1880	100	0.00	1880	100
SC-9-Spot-245	1.854	0.098	0.1790	0.0110	5.586592	0.343310	0.0747	0.0039	0.51943	1058	35	1060	61	1040	110	0.00	1040	110
SC-9-Spot-246	3.870	0.130	0.2750	0.0140	3.636364	0.185124	0.0993	0.0033	0.61557	1615	26	1561	71	1603	64	0.03	1603	64
SC-9-Spot-247	1.920	0.120	0.1770	0.0120	5.649718	0.383032	0.0779	0.0044	0.55726	1080	42	1056	64	1170	110	0.02	1170	110
SC-9-Spot-248	1.678	0.077	0.1570	0.0110	6.369427	0.446266	0.0753	0.0042	0.56950	997	29	939	59	1050	110	0.06	939	59
SC-9-Spot-250	1.681	0.093	0.1686	0.0086	5.931198	0.302540	0.0725	0.0039	0.41552	1012	36	1003	47	1016	96	0.01	1016	96
SC-9-Spot-251	1.664	0.070	0.1638	0.0098	6.105006	0.365257	0.0727	0.0032	0.75565	991	27	975	54	975	90	0.02	975	54
SC-9-Spot-252	1.890	0.100	0.1800	0.0120	5.555556	0.370370	0.0753	0.0049	0.67245	1075	37	1063	68	1070	130	0.01	1070	130
SC-9-Spot-253	3.810	0.180	0.2770	0.0150	3.610108	0.195493	0.0972	0.0044	0.52672	1593	38	1571	74	1584	83	0.01	1584	83
SC-9-Spot-254	5.250	0.180	0.3370	0.0190	2.967359	0.167299	0.1136	0.0040	0.81363	1861	31	1863	91	1864	63	0.00	1864	63
SC-9-Spot-255	3.530	0.160	0.2630	0.0180	3.802281	0.260232	0.0988	0.0037	0.78826	1533	33	1496	91	1581	71	0.02	1581	71
SC-9-Spot-256	3.880	0.140	0.2760	0.0130	3.623188	0.170657	0.1009	0.0037	0.72094	1609	28	1568	65	1643	68	0.03	1643	68
SC-9-Spot-257	4.330	0.350	0.2740	0.0170	3.649635	0.226437	0.1084	0.0084	0.40660	1693	67	1553	84	1820	140	0.09	1820	140
SC-9-Spot-258	3.760	0.150	0.2670	0.0160	3.745318	0.224439	0.1028	0.0038	0.73597	1588	31	1518	80	1686	68	0.05	1686	68
SC-9-Spot-259	2.007	0.082	0.1870	0.0100	5.347594	0.285968	0.0766	0.0034	0.64733	1113	27	1103	54	1117	90	0.01	1117	90
SC-9-Spot-260	1.788	0.072	0.1726	0.0085	5.793743	0.285323	0.0740	0.0024	0.62078	1041	27	1024	47	1044	69	0.02	1044	69
SC-9-Spot-261	3.390	0.150	0.2610	0.0130	3.831418	0.190837	0.0946	0.0028	0.53354	1506	34	1492	67	1506	58	0.01	1506	58
SC-9-Spot-262	1.840	0.110	0.1771	0.0084	5.646527	0.267820	0.0752	0.0034	0.27340	1056	38	1049	46	1090	100	0.01	1090	100
SC-9-Spot-263	1.499	0.087	0.1580	0.0084	6.329114	0.336485	0.0682	0.0040	0.46595	922	36	944	47	840	120	0.02	944	47
SC-9-Spot-264	1.733	0.056	0.1657	0.0068	6.035003	0.247665	0.0749	0.0026	0.55259	1018	21	994	39	1068	68	0.02	994	39
SC-9-Spot-265	1.995	0.084	0.1890	0.0100	5.291005	0.279947	0.0781	0.0033	0.68572	1113	28	1121	54	1165	81	0.01	1165	81
SC-9-Spot-266	11.040	0.440	0.4310	0.0260	2.320186	0.139965	0.1869	0.0074	0.80790	2524	35	2300	120	2695	66	0.10	2695	66