Dumitru et al., 2013, Geology

Data Repository Table DR1: Depositional age data and detrital muscovite concentrations of sedimentary rock units. These data were used to construct Figure 2.

Introduction: Depositional age data

Depositional ages of various units are important in constraining changing patterns of sediment transport and deposition. Much of this information is difficult to access, so it is compiled and synthesized here.

Hosford Scheirer and Magoon (2007) presented a detailed synthesis of stratigraphic age data from the San Joaquin oil and gas province, which forms the southern half of the Great Valley forearc basin (see also Hosford Scheirer, 2007). They used the biostratigraphic zonation synthesis of McDougall (2007), which used the time scales of Gradstein et al. (2004) and Gradstein and Ogg (2005). In this table, we have used McDougall's framework for all absolute ages, after minor updates. Those updates (McDougall, written communications, 2012) change unit ages no more than 0.15 m.y., insignificant for the purposes of this paper.

Introduction: Detrital muscovite content

Detrital muscovite appears to be a useful indicator of sediment sources in the Idaho batholith region. In contrast, muscovite is quite rare in the Sierra Nevada (Heller et al., 1985).

Quantitative determination of muscovite concentrations is problematic and beyond the scope of this paper. Mica flakes are sorted from more equant grains by sedimentary processes, so muscovite concentrations are highly sensitive to grain size, sedimentary facies, and the vagaries of sediment transport paths and processes. This treatment is therefore necessarily qualitative.

Post-Tyee Formations of Tyee forearc basin (western Oregon)

Age:

In the Tyee Basin, the Bateman Formation overlies the Elkton Formation, which in turn overlies the Tyee Formation.

Ryu et al. (1996) place the Elkton within the uppermost Ulatisian and lower Narizian foraminiferal stages (ca. 44 Ma to 38 Ma). Wells et al. (2000) place the Elkton within the upper CP12b, CP13, and CP14a? calcareous nanofossil zones (ca. 47 to 39.3 Ma).

Ryu et al. (1996) show the Bateman within the Narizian (42.5-35.2 Ma).

There are no reports of a significant hiatus between the Tyee and the Elkton. Therefore, for the combined Elkton-Bateman, we use an age range of 46.5 Ma (top of Tyee, see below) to ca. 36 Ma. Post-Batman strata are not exposed in the Tyee Basin and significant thicknesses may or may not have covered the area (Ryu et al., 1996).

Elkton-Bateman sedimentation rates were probably much slower than Tyee sedimentation rates (e.g., Ryu et al., 1996, Fig. 5.1).

Muscovite content:

Ryu et al. (1996) reported 5% and 4% mean mica in thin sections of the Elkton and Bateman, respectively. In thin section point count data, they did not break out biotite from muscovite. They say that coarse to very coarse flakes of both muscovite and biotite characterize sandstones in both formations.

Tyee Formation of Tyee forarc basin

Age:

The Tyee has yielded coccoliths from zones CP12a (49.3-48.8 Ma) and CP12b (48.8-46.5 Ma) (Wells et al., 2000) and we use this age range.

Paleomagnetic polarity of the Tyee is NRN upsection (Simpson and Cox, 1977), which, combined with the CP12a-12b coccoliths, suggests the Tyee was deposited during Chrons 22n, 21r, and 21n (Wells et al., 2000).

Muscovite content:

Muscovite is abundant and highly obvious in many hand samples at many outcrops (our observations). Large flakes (>2 mm) are common. Chan and Dott (1983) reported ≈0.9% mean muscovite and 2.8% mean biotite in 68 thin sections of Tyee and Flournoy rocks. Ryu et al. (1996) reported 5% mean mica (muscovite plus biotite) in thin sections of Tyee and say that coarse to very coarse flakes of both muscovite and biotite characterize Tyee sandstones. Heller et al. (1985) dated muscovite using multigrain K-Ar methods and noted their samples contained ≈1% muscovite.

Umpqua Group (Pre-Tyee Strata)

Age:

The Umpqua Group underlies the Tyee Formation and is subdivided into four formation. Ryu et al. (1996) placed the base of the group within the Bulitian foram stage (56.6-54.6 Ma). Wells et al. (2000) show the base at ca. 54 Ma and we use that age. We place the top of the group at 49.4 Ma, using the age of the base of the Tyee.

Ryu et al. (1996) may imply that the Rasler Creek Tongue within the Umpqua Group has detrital muscovite (see below). The tongue is in the uppermost part of the group and is probably only slightly older than the base of the Tyee, perhaps somewhere between 0.0 and 0.7 m.y. older.

Muscovite content:

Ryu et al. (1996) say "pre-Tyee units (other than the Rasler Creek Tongue) generally lack coarse mica flakes and contain less than 1% fine sand-size mica." This suggests muscovite is very rare to absent in the Umpqua, but is not clear as to whether the Rasler Creek contains detrital muscovite. The Rasler Creek might represent an initial incursion of Idaho-derived sands shortly before basal Tyee deposition.

We were unable to identify muscovite at outcrop in the Umpqua Group, despite examining large numbers of blocks in rubble piles in rock cuts. We did not examine Rasler Creek strata.

Introduction: Coastal Belt of Franciscan accretionary complex

The Coastal belt has been subdivided into the two terranes of interest here, the Yager and Coastal terranes, plus a few smaller terranes (Underwood and Bachman, 1986; McLaughlin et al., 1994, 2000). Age control is difficult due to very poor preservation of fossils and lack of continuous sections due to pervasive faulting and folding. Most successful microfossil samples are limestone concretions where preservation is sometimes better. The discussion below considers only the ages of terrigenous sedimentary rocks apparently deposited near the subduction zone and does not consider small bodies of older accreted allochthonous oceanic sedimentary and volcanic rocks (Sliter et al., 1986; McLaughlin et al., 1994, 2000). Jayko et al.

(1989) and McLaughlin et al. (1994, 2000) plot most of the fossil localities on 1:100000-scale maps. McLaughlin et al. (1994) is the best discussion of the micropaleontology data. Table 1 in McLaughlin et al. (2000) list many of the fossil samples, but some of the age assignments differ from McLaughlin et al. (1994) due to previously undetected errors that occurred while compiling the new table (R. McLaughlin, pers. comm., 2012).

Yager Terrane of Coastal Belt

Age:

For the Yager, ages are based entirely on dinoflagellates, pollen, and spores, as the Yager has proven barren of foraminifera and radiolarians. In a brief, preliminary report, Evitt and Pierce (1975) reported about 8 samples as Eocene, 11 as undifferentiated early Tertiary, and none as Cretaceous. From dinoflagellates, O'Day (1974) and Bachman (1978) reported 2 samples as Eocene-Oligocene, 3 as Eocene, 4 as early Tertiary, 1 as Tertiary, and 1 as Cretaceous (as compiled by Jayko et al., 1989).

Damassa (1979a, 1979b) described well-preserved dinoflagellates from limestone blocks in mélanges about 8 km SW Ukiah, "which may … be correlative with a part of the Yager terrane" according to McLaughlin et al. (1994). About 9 blocks yielded early to middle Eocene ages and one yielded earliest Paleocene (Danian) ages.

Frederiksen (1989) reported detailed data from eight pollen samples. He preferred ages of "Paleocene(?)" (1 sample), "probably early Eocene" (1 sample), "probably early middle Eocene" (1 sample), and "tentatively middle middle to late middle Eocene" (five samples). Age assignments were based mainly on comparison to limited data on age ranges of taxa in a few areas of southern California. The middle middle to late middle Eocene assignments were based to a significant degree on the absence of two older, early middle Eocene taxa perhaps only known from southern California(?). However, much of the sediment in the Yager was apparently sourced from Idaho about 1000 km north of southern California, so this might be a provincial effect. Overall we consider these samples very helpful but unfortunately not definite as to the precise age of the Yager.

McLaughlin et al. (1994) complied Frederiksen's samples and included 3 within a "late and middle Eocene" age grouping, 1 within an "early Eocene or late Paleocene" grouping, and omitted 4. McLaughlin et al. (2000, Table 1) included about 5 additional samples and assigned ages of Late Cretaceous(?), Paleocene and Eocene (2 samples), Eocene, and Cenozoic. Summarizing the available data, McLaughlin et al. (1994) assigned the Yager a "Paleocene(?) through early(?) to late Eocene age", which corresponds to ca. 65-34 Ma. Working in the northern Yager, McLaughlin et al. (2000) considered the terrane "Paleocene(?) through late Eocene … (and that) most of the Yager could have been deposited in the middle to late Eocene". However, none of the samples were assigned late Eocene ages by their original authors and Frederiksen (1989) remarked that "none of (his) samples are upper Eocene because they do not contain abundant *Quercoidites* pollen…"

Overall, the microfossil data seem to indicate that the Yager contains rocks of Eocene age, plus possibly rocks of Paleocene and Late Cretaceous age. Some samples might be incorrectly dated due to incomplete knowledge of the age range of included taxa and/or due to provinciality. The ages of samples within the Eocene appear to be poorly known and the relative volumes of rocks of various ages poorly known.

The youngest populations of zircons in our three Yager samples are ca. 54, 55, and 58 and Challis-age grains are absent. Because the Tyee Formation (49.3-46.5 Ma) contains abundant Challis-age grains (ca. 49 Ma), our preferred interpretation is that our Yager samples were deposited prior to the peak of Challis magmatism. If so, these samples are early Eocene, perhaps extending into the earliest middle Eocene (48 Ma). This is just slightly older that the tentative middle middle to late middle Eocene age range (ca. 46-36 Ma) of Frederiksen (1989). A less likely alternative is that detritus in these samples was sourced from an area with few Challis rocks, in which case the samples are early Eocene or younger.

In Figure 2, we show the Yager terrane as including early Eocene rocks, plus possible Paleocene rocks and middle Eocene rocks.

Muscovite content:

According to Underwood and Bachman (1986) and McLaughlin et al. (1994, 2000), muscovite is present in trace amounts. Ernst and McLaughlin (2012) estimated ≈4% mean white mica (probably almost entirely muscovite) and 4% mean biotite+stilpnomelane in 9 thin sections. Subsequently, during brief fieldwork, we were able to find common muscovite in a small proportion of blocks in rubble piles at many road cuts. In some cases, millimeter-size muscovite flakes were obvious, concentrated on certain bedding planes.

Coastal Terrane of Coastal Belt

Age:

Working in the central part of the Coastal terrane (as opposed to the north or south part), Evitt and Pierce (1975) reported about 18 samples as Eocene, 12 as undifferentiated early Tertiary, and 6 as Cretaceous. In the same area, Frederiksen (1989) reported one pollen sample as "could be late Paleocene or Eocene."

Working in the same general area using dinoflagellates, O'Day (1974) and Bachman (1978) reported 1 sample as late Eocene with reworked Cretaceous, 2 as Eocene-Oligocene, 8 as Eocene, 2 as Eocene(?), 1 as Paleocene-Eocene, 1 as Cretaceous-Paleocene, 3 as Cretaceous, and 6 as early Tertiary (as compiled by Jayko et al, 1989).

Working in the northern end of the Coastal terrane (40°14' to 40°29' N), Sliter et al. (1986) reported two samples as middle Eocene (foraminifera zones P11-12), one as late middle Eocene (P14), one as likely middle to late Eocene, and two as probable Eocene. In the same area, Frederiksen (1989) reported two pollen samples as probably middle middle to late middle Eocene.

Farther south, Berry (1982) reported early Eocene plankton and McLaughlin et al. (1994) reported late early Eocene plankton (P9).

For the Coastal terrane, McLaughlin et al. (1994) state "the collective fossil evidence indicates that the terrigenous strata...of (the northwestern quarter of) the Coastal terrane (north of about latitude 40°N: Fig. 1) are predominately middle to late Eocene in age. The presence of strata of Paleocene and early Eocene age from about Usal (39°50') southward suggests the Coastal terrane becomes older to the south." In a study of the Cape Mendocino region, McLaughlin et al. (2000) state "the fossils collectively indicate a predominately middle to late Eocene age. Somewhat older (early Eocene and Paleocene) strata are present (farther south on) the Covelo sheet." However, none of the fossil sites seem to specifically require a Paleocene age.

Our single Type B Coastal terrane sample with a 35-Ma zircon population (CR-52) was collected in the northern part of the Coastal terrane, ≈1 km from a dinoflagellate sample (Sliter et al., 1986) of likely middle to late Eocene age (34.0-48.5 Ma). Our single Type A2 Coastal terrane sample with apparent Challis-age zircon (CR-55) was collected ≈4 km west of CR-52.

Our single Coastal terrane sample of Type A1 (lacking Challis-age zircon; CR-2) was collected in the central part of the terrane, about 4 km from Eocene and Eocene-Oligocene fossil sites (Jayko et al., 1989).

In Figure 2, we show the Central terrane as including early Eocene to late Eocene rocks, plus possible Paleocene rocks. The relative volumes of rocks of various ages remain poorly known. Coastal terrane rocks may tend to be younger in the north than in the south.

Muscovite content:

Underwood and Bachman (1986) and McLaughlin et al. (1994, 2000) did not note muscovite. Ernst and McLaughlin (2012) estimated ≈4% mean white mica (probably almost entirely muscovite) and 4% mean biotite+stilpnomelane in 32 thin sections. Subsequently, during brief fieldwork, we were able to find common muscovite in a small proportion of blocks in rubble piles at many road cut. In some cases, millimeter-scale muscovite flakes were obvious, concentrated on certain bedding planes.

San Bruno Mountain terrane of Coastal Belt

Age:

Blake et al. (1984, 2000) defined the San Bruno Mountain terrane. Numerous samples proved barren of fossils, so its age was unknown and they did not include it within the Coastal belt.

The terrane has yielded a detrital zircon age distribution (Snow et al., 2010) essentially identical to our Type A1 samples from the Coastal belt (CB), so we consider at least the large outcrop belt around San Bruno Mountain itself to be part of the Coastal belt. The nearest outcrops of the main CB are about 110 km NNW of San Bruno Mountain.

In Figure 2, we show the terrane as early Eocene(?), although it could span a longer age range.

Muscovite content:

Jayko and Blake (1984) reported 5% total mica, but did not break out muscovite. During brief fieldwork along Radio Road at San Bruno Mountain, we found sparse to common muscovite is a very small proportion of rubble blocks in road cuts.

Markley Formation of Great Valley forearc basin (California)

Age:

Fulmer (1956) and Milam (1985) discuss this unit. The Markley depositionally overlies the Nortonville Shale and is divisible into three members, the Lower Markley Sandstone, the Sidney Flat Shale, and the Upper Markley Sandstone. Milam (1985) reports that unpublished industry data indicate that the Sidney Flat is CP14a (39.7-42.6 Ma).

Almgren et al. (1988) says one well indicates that the Lower Markley SS is CP13 (42.6-46.5 Ma) and CP14a and overlying shale (correlated to Sidney Flat) is CP14a. The Upper Markley SS is barren of nanofossils and is probably upper CP14 (CP14 is 36.9-42.6Ma).

We therefore use ages of 44.6-41.5 Ma for the Lower SS, 41.5-39.7 Ma for the Sidney Flat, and 39.7-36.9 for the Upper SS. Both our zircon samples are from the Lower SS.

Muscovite content:

In some Markeley sandstones, muscovite is common (our observations). Fulmer (1956) described about 29 samples of Markley sandstone; most had "minor amounts" muscovite and biotite. Colborn (1961) stated: "The lower and upper sandstone intervals have the same mineral composition, and the striking feature is the abundance of large muscovite flakes and hornblende grains. The muscovite flakes are so large and abundant that the Markley sandstone literally glistens in the sun when the observer stands within 20 feet of the outcrops."

Nortonville Formation of Great Valley forearc basin

Age:

Brabb et al. (2008) described about 200 feet of Nortonville overlying Capay Formation at Oakdale School, about 22 miles S of the main Capay outcrops west of Capay Valley. This section consists of a lower shale member and an upper coarse-grained sandstone member. Microfossil yielded ages in the CP12 (49.3-46.4 Ma) and CP13 (46.4-42.6 Ma) zones.

Using his access to unpublished industry data, Milam (1985) summarized that the Nortonville at its type section was CP12b (48.8-46.4 Ma), CP13a (46.4-45.2), and possibly CP13b (45.2-42.6).

Hosford Scheirer and Magoon (2007) considered the Nortonville equivalent to the Canoas Siltstone Member of the Kreyenhagen Formation to the south. Based on extensive industry subsurface data, they assigned an age of 48.5 to 45.5 Ma to the Canoas.

Almgren et al. (1988) assigned a CP13 age north of Mt Diablo and stated: "a hiatus/condensed section is suggested herein for the upper CP12B subzone..."

Based on CP12b and Chron 21r in the underlying Domengine at Mt Diablo, we use an age of 47.2-44.6 Ma.

Muscovite content:

Fulmer (1956) described about 4 samples of Nortonville sandstone as having very minor or minor amounts muscovite and biotite.

Domengine Formation of Great Valley forearc basin

Age:

This unit is present in the northern San Joaquin Valley and on Mt. Diablo, but absent in Capay Valley and at Oakdale School (see Nortonville Formation).

Prothero (2001) concluded that the Domengine was deposited entirely during Chron 21r (48.5-47.2 Ma). Almgren et al. (1988) reported a CP12b (46.5-47.8 Ma) assemblage from the upper Domengine on the north side of Mt Diablo. In other areas, CP12a is reported (Almgren et al., 1988; Hosford Scheirer and Magoon, 2007). Hosford Scheirer and Magoon (2007) reviewed extensive industry data on this unit.

Schulein (1993) reported data from 53 samples processed for calcareous nannofossils, forams, pollen, and/or macrofossils from the Vallecitos syncline in the San Joaquin basin. He concluded the Domengene spans the upper CP11 through upper(?) CP12a zones (ca. 49.5-48 Ma), but noted that the unit was probably time-transgressive.

We use an age of 48.5-47.2 Ma.

Muscovite content:

Detrital muscovite is apparently rare or absent in the Domengene Formation. Colborn (1961, p. 64) stated: in Member 1, "there is a conspicuous absence of biotite or mica."

Schulein (1993) reported point count data from 29 thin sections and found a mean of about 0.4% mica (biotite vs. muscovite not broken out). He discussed intense tropical weathering strongly altering the bulk composition of the Domengine during deposition and making it unusually quartzose.

Capay Formation of Great Valley forearc basin

Age:

The Capay Formation comprises two contrasting facies associations with overlapping ages. One association is the backfill of the Princeton submarine canyon and is comprised of conglomerates, sandstones, and shales. The second association was deposited on shelves outside the canyon area and is generally referred to as the Capay Shale in the petroleum geology literature (Redwine, 1972, 1984).

Brabb et al. (2008) described an 1800-foot-thick section of Capay at Oakdale School, about 22 miles S of the main Capay outcrops west of Capay Valley. This section is predominately mudstones with some interbeds of laminated micaceous siltstone near the top. Microfossils yielded CP10 (53.2-50.4 Ma) and CP11 (50.4-49.3 Ma) assemblages. Based on its large thickness and location, this section apparently represents canyon fill. Based on this, we use an age of 53.2-49.3 Ma for the Capay facies that filled the canyon. In our preferred model, substantial volumes of the Coastal belt sediments transited the canyon before the canyon was back filled. The youngest zircons populations in our Type A1 samples are about 52 Ma. Therefore, we interpret an age for the canyon fill of about 51-49.4 Ma, which is consistent with the CP10 and CP11 microfossils and the zircon ages, although it is an overinterpretation beyond the resolution of the age data.

Almgren et al. (1988) discussed the Vacaville Shale and Capay Shale near Vaca Valley. They assigned the Capay to CP10 and Laiming B-4.

Muscovite content:

Our observations along Yolo County Road 53 in Pierce Canyon indicate the muscovite is common in many Capay sandstones.

Redwine (1984) states: "the thicker (sandstone) beds have … locally common, large muscovite flakes ... Locally the claystone beds have thin carbonaceous and micaceous lamination".

Baker (1975) states: sandstones "contain abundant, often large, plates of mica ... silty mudstone...are characteristically...micromicaceous" ... From point counting 14 thin sections of sandstone, "muscovite and biotite constitute about 12% of the total framework grains." He did not distinguish between the two micas.

Meganos Formation of Great Valley forearc basin

Age:

The Meganos C member is assigned to the CP9 zone and emended Laiming D zone. The Meganos D member is assigned to the CP9 zone and the emended Laming C zone. The Meganos E member ("=Capay Shale") is assigned to the upper CP9 to CP11 zones and the emended Laiming C through B-2/B-3 zones (Almgren et al., 1988).

Based on this, we use an age of 54.5-49.4 Ma for the Meganos and show it as interfingered with the Capay Formation in its middle and upper parts.

Muscovite content:

No information.

Martinez Formation of Great Valley forearc basin

Age:

This unit is assigned an age range of CP4 through CP8 and to the emended Laiming E zone (Almgren et al., 1988).

Hosford Scheirer and Magoon (2007) state: "In the Sacramento Basin, the Martinez Formation ranges in age from above the base of planktonic foraminiferal zone P4 to the lower part of zone P5 (about 58 to 56 Ma) (Almgren, 1984). The San Carlos sand in the San Joaquin Basin is essentially coeval with the more northerly Martinez Formation; in the Vallecitos area ... the San Carlos sand overlies unnamed shale containing flora of … CP4 (58.5 to 60 Ma) and underlies the Cerros Shale, which contains flora of … CP8b and CP9b (about 55.5 to 53 Ma) (Anderson, 1998). We thus use an age of 58.5 (base) to 55.5 (top) Ma for this basal sand member of the Lodo Formation."

Based on this, we use the broader age range of 60.6-54.5 Ma from Almgren et al. (1988) for the Martinez.

Muscovite content:

No information.

Montgomery Creek Formation (northern California)

Age:

Renne et al. (1990) state: "Up to nearly 1000 m thick, the formation is readily divided into a thinner, conglomeratic basal member and an arkosic sandstone-dominated upper member… Palynologic data (Higinbotham, 1987; Aalto, 1988) from the lower member indicate a Late Cretaceous to Eocene age. Age of the upper member is more precisely known, because lignitic interbeds from several horizons contain palynomorphs dated by Smith (1987) as early middle Eocene, corresponding to the upper part of the Lutetian Stage."

Based on this, we assume an approximate age range of 48.5 to 40.4 Ma for the upper unit and >66 Ma to 48.5 Ma for the lower unit. However, actual ages could be significantly different.

Renne et al. (1990) state: "Paleocurrent data (Higinbotham, 1987; Aalto, 1988) indicate that sediment transport within the Montgomery Creek Formation was from the north or north-northeast (present-day coordinates)."

Muscovite content:

Renne et al. (1990) state that erosion from Klamath sources "cannot account for the abundance of micas, garnet, and K-feldspar found in Montgomery Creek sandstones (upper member) … the relative abundance of several minerals (e.g., white mica and K-feldspar) in the upper member are much higher … than anywhere in the exposed Klamath orogen."

Renne et al. (1990) determined single grain 40Ar/39Ar ages on 33 muscovite grains. 32 grains yielded ages of 47-80 Ma and one grain 116 Ma.

Our observations during a brief visit confirm that muscovite is common in sandstones, although exposures are very poor.

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Data Repository Table DR2: Detrital zircon U-Pb age data and methods for Eocene sandstones

The zircon data were collected in four different laboratories and the data sheets here follow the formats used by the various laboratories:

- •3 Tyee Formation samples analyzed ca. 1997 by SHRIMP-II at Australian National University.
- •Additional grains from 2 Tyee samples analyzed in 1999 by SHRIMP-RG at U.S. Geological Survey–Stanford University Microisotopic Analytical Center.
- •1 Franciscan Coastal belt San Bruno Mountain sample also analyzed by SHRIMP-RG, previously published by Snow et al. (2010).
- •7 Tyee and related samples analyzed ca. 2008 by laser ablation ICPMS at Oregon State University. All 7 samples are included in this data repository, although only 4 are discussed in the paper.
- •1 Markley Formation sample (Great Valley forearc basin) analyzed in 2010 by laser ablation ICPMS at the University of Arizona LaserChron Center (ALC).
- •6 Franciscan Coastal belt samples and 1 Markley sample analyzed in 2011 by laser ablation ICPMS at ALC.

Plots in Figure 3 were constructed using Isoplot (Ludwig, 2008). Ages of youngest zircon populations in Franciscan Type A1 and A2 samples cited in the text were calculated using the same approach as Dumitru et al. (2010, Table S2).

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Zircon Sample Locations

Sample	Unit	Lat (°N) (WGS84)	Long (°W) (WGS84)	Letter code in Fig. 1 and 3	Comment
Tyee forearc basin (Oregon State University; Farmer et al., 2009)					
"Tyee"	Tyee Fm	44.61745	123.73233	c	
LF020	Tyee Fm	43.37805	123.51219	f	
LF024	Tyee Fm	43.43895	123.57603	d	Approximate location
LF023	Tyee Fm	43.40801	123.54211	e	
LF021	Tyee Fm	43.38328	123.52385	--	n=9 grains dated, ages not plotted
"Ona Beach"	modern sand	44.52166	124.07629	--	Modern beach sand, ages not plotted
"Nuestra"	Nestucca Fm	44.80979	123.96964	--	Not Tyee Formation, ages not plotted
Franciscan Coastal belt (petrographic data in Ernst and McLaughlin, 2012)					
CR-2	Coastal terrane	39.55970	123.76650	m	
CR-25	Yager terrane	40.11745	123.88483	k	
CR-85	Yager terrane	40.27242	123.87750	j	
CR-90	Yager terrane	39.83307	123.64167	l	
CR-52	Coastal terrane	40.24785	124.12100	h	Volcanolithic-rich sandstone
CR-55	Coastal terrane	40.27928	124.06933	i	
Great Valley forearc basin					
GVG09-18	Markley Fm	37.95997	121.86167	p	Lower Markley Sandstone Member
TD-1F-105	Markley Fm	37.96618	121.92786	o	Lower Markley Sandstone Member
San Bruno Mountain terrane of Franciscan Coastal belt					
SBM 767-3	SBMT	37.70000	122.44944	n	Data published by Snow et al. (2010). Location not known, estimated from Snow et al. map.
Tyee forearc basin (US Geological Survey; Wooden et al., 1999)					
JV395	Tyee Fm	42.82440	124.01410	g	Originally collected by J.A. Vance for zircon fission track dating
JV437	Tyee Fm	44.59510	123.91160	b	Same as above
JW290	Tyee Fm	45.49652	123.60128	a	Mapped by Wells et al. (1995)
Franciscan Coastal terrane zircon fission track samples (Tagami and Dumitru, 1996)					
8697-140	Coastal terrane	39.64375	123.61439	--	Precise location redetermined from original field maps.
8697-141	Coastal terrane	39.67114	123.66697	--	Same as above
8697-142	Coastal terrane	39.66006	123.78575	--	Same as above

Best Ages from all zircon samples

"Tyee"		LF020		LF024		LF023		767-3		JV-395		JV-437		JV-437		JV-395		JW96-290	
OSU		OSU		OSU		OSU		2008 ShrRG		1999 ShrRG		1999 ShrRG		ANU		ANU		ANU	
c		f		d		e		n		g		b		b		g		a	
Tyee		Tyee		Tyee		Tyee		San Bruno		Tyee		Tyee		Tyee		Tyee		Tyee	
6/38 Age	±1s	6/38 Age	±1s	6/38 Age	±1s	6/38 Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s
40.2	4.0	46.0	3.5	41.2	3.1	44.4	3.0	52.6	1.0	47.2	0.9	46.2	0.8	38.8	4.4	41.5	2.7	44.6	1.5
41.9	4.7	48.0	1.9	41.8	2.3	46.6	3.1	52.7	2.2	47.5	1.1	48.7	1.1	41.4	2.9	43.2	3.2	47.2	3.0
42.5	5.1	48.3	1.9	42.3	1.8	46.6	3.7	52.7	1.4	48.8	0.5			44.2	4.2	46.0	1.8	47.9	2.6
43.8	2.7	49.2	3.4	44.9	2.3	47.9	2.4	55.3	0.7	49.1	0.6			45.1	3.2	48.6	2.3	49.0	3.0
44.5	3.3	50.6	7.5	46.2	3.0	47.9	4.6	57.0	1.3	49.7	0.3			45.8	3.4	48.8	3.0	49.2	2.8
46.9	11.4	52.8	0.8	46.4	2.5	49.7	4.5	57.5	2.8	76.9	1.0			46.5	3.9	49.2	1.9	49.5	2.0
47.3	3.0	53.4	1.1	47.0	3.1	54.2	3.5	58.7	1.1	96.6	0.9			47.3	0.5	51.4	3.0	50.9	2.9
47.5	3.2	55.6	4.5	47.1	1.7	77.7	3.0	59.3	1.5	100.7	0.9			49.2	1.8	51.8	0.7	53.2	2.1
47.6	5.8	56.9	3.2	48.0	2.2	81.2	3.8	60.3	1.1	117.1	1.5			49.2	1.9	52.0	1.1	57.3	2.9
48.1	1.8	57.4	3.4	49.3	2.1	81.2	2.9	61.4	0.7	125.2	2.5			49.5	1.7	52.0	2.0	77.5	3.1
48.4	4.1	58.9	3.6	49.9	2.3	82.3	3.9	62.1	0.9	160.9	2.0			49.8	3.8	52.6	2.4	78.4	3.1
49.0	2.5	62.8	2.7	50.6	4.3	84.8	15.0	64.5	1.1	~~984.9~~	~~3.9~~			55.1	4.5	54.6	2.5	80.9	2.6
49.1	4.3	75.8	7.7	52.7	3.4	87.8	4.1	65.5	1.5	1367	21			62.9	10.1	57.8	5.7	88.3	2.0
49.6	3.4	77.4	2.3	53.3	2.9	89.6	3.5	65.9	1.8	1624	7			73.3	1.6	86.6	2.4	98.0	2.2
50.3	1.0	81.0	4.4	79.4	5.0	94.7	4.6	67.5	1.3	1626	8			86.7	2.4	99.3	2.8	103.0	5.1
50.4	2.4	82.2	21.9	84.9	3.4	113.3	5.8	69.1	0.6	1618	18			88.3	2.1	100.2	1.2	103.9	3.3
51.3	3.7	82.3	12.7	91.4	3.4	118.7	7.8	72.4	1.7					89.1	1.9	102.2	1.7	124.7	2.3
52.7	3.9	83.5	12.0	92.6	4.9	124.2	5.6	73.0	1.5					93.3	2.8	102.2	2.9	163.0	5.7
53.1	4.4	84.3	3.2	102.0	4.9	126.4	6.2	74.2	0.8					97.2	9.0	102.4	3.0	171.3	3.2
53.1	5.0	84.5	1.5	596.2	27.0	137.0	6.1	75.1	0.6					98.1	3.5	109.6	1.7	181.5	5.1
53.3	1.9	85.4	3.1	1312.2	51.3	170.4	6.7	77.4	0.5					114.6	4.7	123.3	3.6	186.3	6.8
53.6	4.8	85.9	2.4	1504.4	48.7	216.8	12.9	77.7	0.8					117.7	2.8	131.0	6.0	187.4	5.4
54.8	3.4	88.4	3.1	1552.6	66.7	229.5	32.9	77.7	1.8					125.6	9.2	133.4	11.3	213.5	7.3
55.6	2.5	92.4	4.1	1585.7	68.5	231.2	8.8	80.4	1.1					127.9	6.7	181.4	3.9	506.8	18.8
56.1	2.0	95.9	3.6			1286.5	41.1	81.0	2.6					149.0	6.2	1038.9	76.9	562.0	18.6
56.3	3.6	106.1	8.3			1499.1	58.2	81.6	1.2					153.2	3.7	1385.6	22.2	600.7	8.4
57.2	4.1	109.7	14.7					85.4	1.4					174.6	3.6	1338.6	34.2	847.6	25.7
60.9	6.2	112.1	10.5					86.5	1.4					185.7	10.6	1567.4	17.5	~~1802.8~~	~~22.0~~
64.8	3.6	118.3	5.3					87.5	1.7					207.1	8.8	1478.6	29.2	1321.3	17.7
86.0	3.8	120.1	28.8					87.7	1.3					211.9	6.7	1624.3	92.2	1371.3	31.0
89.0	3.8	122.8	6.0					91.3	1.1					214.7	7.9	1643.2	41.0	1548.5	29.2
89.4	51.5	125.6	8.2					91.3	2.2					215.6	9.2	~~3009.1~~	~~17.5~~	1744.0	15.0
90.9	14.1	153.8	3.8					91.4	2.8					258.2	10.9	1773.9	22.0	1766.4	23.9
91.2	6.7	161.1	3.2					98.7	0.9					366.7	17.9	1809.2	23.8	1824.8	26.3
108.1	5.6	181.5	8.7					100.1	0.7					377.1	9.1	1794.8	33.2	1740.0	42.2
112.6	5.6	196.1	10.4					102.7	1.2					422.0	10.8	1775.4	13.7	1738.0	68.9
113.7	6.9	218.6	15.8					107.2	1.1					1110.5	33.2	1795.9	30.3	1705.8	17.2
129.0	10.2	664.4	10.6					115.1	0.9					1374.0	17.3	1865.8	16.9	1717.7	49.0
180.5	12.6	1272.4	35.2					139.7	0.9					1388.1	54.1	2400.6	17.3	2471.5	16.1
216.8	32.4	1339.2	33.4					140.4	2.3					1384.0	13.4				
464.8	12.1	1400.5	21.4					149.4	1.8					1344.6	34.4				
1359.5	29.0	1414.3	26.7					153.7	4.2					1473.9	78.2				
1364.9	24.4	1430.9	15.1					157.4	1.9					1395.5	27.1				
1368.2	27.9	1437.4	42.7					157.5	3.5					1663.5	24.9				
1511.7	30.5	1534.8	41.4					166.1	2.1					1766.4	27.9				
1664.7	45.3	1567.1	23.1					166.8	2.1					1727.1	29.4				
1723.0	50.7	1615.8	25.8					173.9	2.1					2522.3	33.9				
1959.6	61.5	1631.2	35.6					180.1	2.6					2982.2	14.2				
		1883.1	24.0					181.6	2.2					2557.7	10.4				
								185.2	2.4										
								355.6	2.8										
								485.2	5.1										
								1600.0	18.0										
								2252.0	46.0										
								2679.0	14.0										

CR2		CR25		CR55		CR90		CR52		CR85		TD1F-105		GVG09-18	
Ariz LC		Ariz LC		Ariz LC		Ariz LC		Ariz LC		Ariz LC		Ariz LC		Ariz LC	
m		k		i		l		h		j		o		p	
Coastal Ter		Yager		Coastal Ter		Yager		Coastal Ter		Yager		Markley		Markley	
Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s	Best Age	±1s
51.8	4.4	47.8	9.1	46.9	1.7	51.4	7.6	33.5	2.9	50.7	2.8	44.2	4.4	39.8	1.3
52.5	3.1	54.6	1.7	48.1	0.9	51.5	2.3	33.6	2.1	51.9	2.8	46.0	4.8	44.1	1.2
53.4	1.0	55.7	1.1	48.3	3.3	51.5	1.7	33.9	2.8	52.4	2.4	50.4	3.1	44.1	1.7
54.1	0.8	58.4	1.4	48.4	1.9	51.8	1.5	34.3	0.5	52.6	2.9	50.5	2.1	44.3	3.0
56.0	3.5	58.6	2.6	49.6	1.9	54.3	1.2	34.9	1.0	52.8	1.8	52.6	2.3	45.2	0.8
58.7	1.3	58.7	8.7	49.9	1.6	54.4	2.1	35.0	1.0	53.0	2.0	53.6	4.5	46.6	1.9
60.4	3.0	59.8	5.2	50.0	1.5	54.6	3.5	35.0	0.6	53.7	6.0	60.8	3.7	47.7	3.6
60.6	3.4	60.0	1.9	52.0	1.7	55.2	3.5	35.4	0.5	53.8	1.1	77.2	4.1	48.2	1.3
61.0	1.6	60.6	3.0	52.2	3.1	55.3	7.9	38.2	1.4	53.9	4.2	83.3	0.9	49.7	1.9
62.5	10.1	61.6	5.0	52.3	4.7	56.4	4.4	40.6	2.4	54.1	9.2	84.2	3.8	49.9	1.7
63.6	6.5	61.7	2.4	57.1	0.8	56.7	3.1	41.1	1.2	54.7	3.3	85.6	2.7	50.3	2.3
66.6	3.0	62.4	2.5	57.7	1.9	56.8	4.8	42.2	1.8	54.7	1.5	85.6	2.1	51.5	0.5
67.1	1.1	65.5	3.8	59.2	3.2	56.8	3.9	44.4	1.4	55.0	2.6	86.1	3.0	53.9	0.9
68.7	8.0	67.4	5.3	59.4	5.2	56.9	2.4	44.7	2.2	55.4	1.6	87.5	1.7	60.2	4.3
70.1	1.3	67.5	1.9	60.6	2.1	57.7	3.1	46.0	2.8	55.8	3.5	87.6	1.7	61.7	3.4
70.2	1.9	68.0	2.5	62.0	4.1	58.3	1.1	46.0	1.4	58.6	6.0	89.3	7.7	61.7	1.9
70.6	3.3	69.3	7.9	62.1	3.6	59.1	2.5	46.3	2.0	58.7	1.7	90.3	9.2	68.7	1.1
71.4	1.0	72.3	6.5	67.1	2.1	59.6	5.2	46.8	2.9	58.8	3.0	91.3	6.5	71.1	0.9
71.7	13.2	73.3	1.3	67.1	2.2	60.1	1.1	48.6	1.5	59.4	3.4	92.1	2.6	71.3	2.1
72.0	2.4	74.4	3.6	71.9	1.1	60.3	2.2	65.9	1.9	60.5	5.2	94.4	8.5	82.8	3.2
75.2	5.8	76.0	4.0	72.4	1.4	60.4	5.0	71.7	1.6	62.0	2.8	97.1	1.1	87.0	1.1
75.3	3.0	77.2	3.2	74.1	3.7	60.8	4.9	81.4	6.4	62.9	4.1	100.2	2.2	92.6	2.3
75.4	5.0	78.5	2.8	75.4	7.8	61.2	5.6	88.1	2.2	64.6	1.4	103.7	5.8	94.7	1.9
75.6	5.9	78.6	2.1	77.2	6.4	61.5	5.9	91.9	2.6	64.7	4.0	104.0	2.5	98.6	3.1
75.6	1.6	79.1	2.5	78.0	9.1	65.2	2.3	92.1	5.5	65.1	5.7	106.0	4.2	99.4	2.0
76.4	1.2	79.3	2.4	78.3	3.8	66.8	2.1	92.3	14.1	67.5	3.8	106.1	6.5	100.6	0.9
76.7	5.6	83.3	3.9	80.8	1.9	69.1	1.6	92.6	1.6	67.8	3.4	107.7	4.8	101.7	1.2
77.1	2.6	83.5	9.4	80.9	2.0	69.1	2.7	92.9	1.7	69.5	2.5	108.1	2.2	102.1	6.0
77.2	3.5	85.0	3.1	81.0	1.7	69.4	3.1	93.3	3.6	69.9	2.7	108.9	3.0	102.9	1.6
78.0	2.6	85.1	2.6	82.4	3.1	69.7	1.6	93.3	4.7	70.3	4.1	109.2	3.6	104.9	2.3
78.5	14.3	86.4	1.8	84.6	2.8	70.4	2.9	93.3	1.1	75.4	1.7	112.9	2.0	105.2	3.7
79.0	2.4	86.5	4.5	85.7	2.4	71.5	1.0	93.8	1.3	77.3	2.1	113.3	3.3	105.8	1.3
81.4	1.2	87.5	5.0	85.7	3.3	72.0	2.1	93.9	1.2	77.8	8.2	115.6	7.1	108.6	1.7
81.8	5.8	87.6	1.4	85.9	2.7	73.6	5.7	95.0	2.5	78.0	2.5	116.1	4.3	109.5	9.3
81.8	5.6	88.1	1.1	86.3	1.4	73.9	4.5	95.0	2.6	78.8	2.4	117.7	2.9	111.4	2.6
81.9	1.8	90.6	4.8	86.9	2.1	74.0	2.9	96.6	2.0	78.9	2.4	119.2	2.7	111.7	1.9
82.0	6.1	90.7	1.1	89.4	7.8	74.9	1.8	97.7	3.0	79.1	1.6	124.5	5.2	112.2	1.8
84.5	1.4	92.1	3.5	89.8	4.6	76.3	5.2	98.5	6.7	79.3	2.2	124.7	7.8	115.3	2.9
84.8	5.6	92.3	1.6	90.8	4.0	79.4	4.3	99.3	1.8	79.7	3.2	128.1	5.1	117.8	1.1
86.2	1.4	92.6	1.3	90.9	4.6	79.9	4.2	100.4	2.9	80.0	3.7	132.5	4.0	121.5	2.4
86.4	1.5	92.7	4.1	91.1	8.2	81.9	8.9	100.4	1.7	80.5	1.1	135.5	5.6	121.7	4.9
86.4	2.4	92.9	8.2	91.9	1.3	87.4	4.5	100.9	4.5	80.6	1.3	143.9	8.1	139.2	11.5
86.5	1.6	93.6	5.3	92.9	7.3	87.7	10.8	101.0	2.4	80.7	4.6	146.1	6.0	151.9	5.0
87.2	5.2	95.7	8.0	93.4	3.2	89.4	1.0	101.2	5.0	81.1	4.4	148.7	6.6	155.8	5.7
87.6	1.2	96.0	3.2	94.7	2.2	89.7	3.4	101.2	1.8	81.4	2.6	150.2	2.5	161.0	1.7
88.7	1.2	96.3	1.8	95.2	4.4	90.1	1.2	102.6	1.1	82.2	16.0	150.9	13.0	161.6	5.6
89.8	4.4	97.2	1.8	98.3	2.5	90.6	2.3	102.6	3.2	83.7	1.7	161.0	5.1	171.0	2.4
90.2	1.1	98.7	1.4	100.0	4.7	90.7	2.1	103.6	2.1	84.4	3.1	161.0	5.8	172.2	2.1
90.5	2.5	100.2	1.8	100.0	1.5	91.7	10.9	103.7	3.3	85.9	3.4	162.3	2.8	181.6	4.5
90.6	3.2	101.1	1.9	100.5	3.2	91.9	1.9	103.7	1.4	86.2	2.1	163.9	3.5	183.9	3.2
91.0	2.2	101.4	3.6	101.3	6.9	92.6	3.1	103.7	4.7	87.7	3.3	165.0	4.5	184.5	4.4
91.1	3.4	105.6	2.1	103.3	2.1	96.4	1.2	104.0	2.9	89.2	4.3	165.3	3.1	184.8	4.9
91.5	14.1	123.1	3.3	105.1	8.1	97.5	1.3	104.1	2.4	91.2	4.5	165.5	11.6	185.0	4.6
92.9	2.3	145.5	3.3	108.0	9.4	98.1	3.8	104.6	4.4	91.8	1.7	165.6	3.0	185.4	1.7
93.0	4.1	145.6	3.9	113.5	1.7	102.4	1.6	105.7	4.6	93.1	1.4	165.8	4.4	186.4	1.4
94.7	1.7	146.5	15.3	125.2	3.1	114.5	6.2	107.2	3.2	95.0	3.3	168.9	2.8	190.5	2.3
94.8	2.3	147.3	2.8	131.0	3.5	115.1	8.5	107.5	4.9	95.1	7.5	170.9	2.8	193.3	5.9
95.1	1.2	154.8	2.5	132.9	13.4	124.1	9.2	109.5	1.6	95.2	2.5	173.6	2.2	229.2	2.1
98.1	4.7	155.6	4.9	136.8	7.0	127.1	1.8	110.4	1.4	96.6	2.1	178.6	2.9	356.3	30.9
101.8	2.6	164.4	2.3	139.7	6.4	141.8	6.5	110.9	6.3	96.9	2.5	191.4	3.6	371.3	11.5
102.8	2.4	164.7	7.6	142.7	6.6	153.0	3.4	111.0	3.5	98.1	4.7	194.4	4.1	412.5	3.7
110.4	4.3	166.4	15.5	143.0	6.4	155.4	5.7	112.0	2.4	99.2	10.4	196.9	4.8	481.1	3.6
113.5	6.5	166.8	10.0	145.6	13.9	156.2	4.0	112.0	5.0	101.0	4.5	457.1	7.8	496.5	5.5
119.8	5.7	167.3	6.2	145.6	4.8	157.0	5.1	112.5	4.5	104.3	10.7	472.8	9.6	643.0	8.2
125.4	2.6	169.0	4.5	146.6	3.5	157.2	3.3	112.5	4.0	104.6	2.9	508.8	6.7	1297.5	6.0
140.3	1.9	170.6	26.8	148.7	4.5	158.4	10.3	115.1	1.1	105.4	9.2	540.7	7.5	1370.3	92.6
140.7	8.2	171.8	3.9	150.6	11.5	160.4	5.2	133.2	6.9	106.1	6.8	543.4	98.3	1386.3	11.7
144.2	3.9	173.0	2.1	155.5	3.5	164.6	5.9	135.4	5.4	111.0	7.9	615.1	8.0	1391.4	14.1
145.2	2.5	177.5	2.9	162.2	2.6	165.0	1.9	142.5	5.2	117.3	2.4	654.4	7.0	1394.6	27.0
145.9	4.8	184.3	5.1	164.0	6.3	165.6	2.7	153.9	2.0	127.6	6.4	660.8	8.4	1444.0	5.1
149.2	6.4	185.7	4.2	178.4	3.2	166.9	6.4	155.5	4.7	141.7	6.1	706.8	11.9	1459.1	9.7
150.1	1.8	185.9	4.6	183.5	5.1	168.3	2.1	158.4	3.0	141.8	4.7	1284.3	26.3	1519.4	6.6
151.2	4.1	190.1	6.1	185.1	1.5	168.7	1.7	159.7	4.0	147.8	3.2	1368.8	3.6	1534.5	42.7
152.8	8.1	191.5	7.0	191.8	3.4	168.9	3.7	160.0	3.7	148.7	4.0	1368.8	31.9	1613.9	7.0
154.1	2.9	191.6	3.9	221.8	5.9	170.6	23.2	160.5	21.4	149.8	5.2	1379.2	9.7	1632.2	32.1
168.0	4.5	195.6	5.0	233.0	6.1	172.3	2.6	160.8	4.8	150.9	4.2	1382.9	2.5	1671.1	32.9
174.1	5.3	199.4	8.5	239.0	10.2	174.1	6.4	160.9	2.6	151.5	3.1	1383.0	13.3	1703.8	166.2
182.1	3.5	208.0	4.2	364.6	5.2	176.3	2.5	162.6	3.7	152.4	23.0	1461.6	12.1	1704.7	9.3
184.4	4.6	209.4	5.4	405.1	6.6	177.9	3.5	162.8	2.6	154.3	2.9	1482.4	13.8	1752.3	13.3
187.0	4.7	216.4	8.1	1361.1	11.7	178.1	6.2	163.2	6.4	154.8	4.9	~~1641.2~~	~~9.8~~	1754.0	3.3
188.2	4.1	304.2	14.7	1382.0	3.3	178.4	2.6	164.0	2.0	155.9	4.9	1692.9	9.1	1758.3	8.8
193.6	2.2	368.3	4.5	1396.4	60.7	178.6	3.3	164.7	6.4	157.3	1.5	1716.5	36.8	1763.6	63.6
218.1	5.1	417.0	13.6	1602.3	12.7	183.2	3.5	165.6	3.0	158.6	22.2	1783.0	9.7	1778.5	21.8
222.1	1.6	461.3	65.8	~~1613.9~~	~~56.4~~	183.5	4.2	183.4	6.2	162.0	4.4	1786.6	4.5	1786.5	9.6
280.4	3.1	501.3	19.6	1621.3	10.5	184.3	3.3	183.4	2.6	164.4	4.5	1789.5	8.4	1788.6	9.7
365.2	4.1	1370.2	15.8	1729.3	6.1	188.6	3.0	183.8	3.6	170.3	4.9	1800.9	2.8	2101.5	83.2
~~1321.2~~	~~6.7~~	1375.5	7.2	1732.3	4.5	195.0	2.7	185.2	4.9	178.2	6.8	2103.0	4.5	~~2682.2~~	~~10.8~~
1474.9	21.3	1378.9	4.9	1738.5	8.8	406.7	10.2	186.1	5.0	178.6	3.1	2639.1	5.1	2686.0	4.1
1632.5	8.1	1382.6	5.1	1767.7	5.2	~~1350.1~~	~~6.1~~	189.0	7.8	197.8	2.8	2675.6	7.1		
1720.5	3.7	1460.7	4.6	1785.0	9.0	1366.0	10.6	192.1	2.2	289.0	5.3	~~3186.5~~	~~87.1~~		
1741.3	6.9			2404.5	2.5	1464.3	33.1	196.6	3.6	371.4	4.8				
1806.2	8.6			2933.6	6.0	1614.6	8.2	197.7	6.0	426.7	9.9				
2670.0	3.6					1739.3	12.2	229.9	11.4						
						1754.5	2.4	267.8	4.0						
						1809.6	18.9	416.0	5.9						
						1879.7	1.4	1146.5	75.7						
								1735.3	6.4						

This table compiles "Best Ages" for all grains from all samples (except for 3 OSU samples not discussed in paper). For samples analysed at Arizona LaserChron Center, ages more than 20% discordent are rejected and Best Age is 206Pb/238U age for grains younger than 1000 Ma and 207Pb/206Pb age for older grains. For ANU samples , ages more than 17% discordent are rejected and Best Age is 206Pb/238U age for grains younger than 1000 Ma and 207Pb/206Pb age for older grains. For SHRIMP-RG samples, ages more than 20% discordent are rejected and Best Age is 206Pb/238U age for grains younger than 1000 Ma and 207Pb/206Pb age for older grains. For OSU samples, analyses that were more than 20% discordant as well as those with > 150 ppm U and discordance in excess of 10% were rejected and Best Age is always 206Pb/238U age. See Gehrels et al. (2006, 2008) for discussion of these criteria.

ANU SHRIMP-II U-Pb zircon ages from Tyee Formation samples JV-437, JV-395, and JW-290

Analysis Order	Spot number	206U/238U Age (Ma)	±1s (Ma)	207U/235U Age (Ma)	±1s (Ma)	207U/206U Age (Ma)	±1s (Ma)	Discordance
178	437-47.1	38.8	4.4	44.5	20.3	361.8	1480.5	
179	437-48.1	41.4	2.9	18.5	8.7	0.0	0.0	
14	437-11.1	44.2	4.2	0.0	0.0	0.0	0.0	
173	437-43.1	45.1	3.2	29.0	29.5	0.0	0.0	
13	437-10.1	45.8	3.4	5.5	31.2	0.0	0.0	
170	437-41.1	46.5	3.9	13.7	51.1	0.0	0.0	
172	437-42.1	47.3	0.5	0.4	1.2	0.0	0.0	
42	437-39.1	49.2	1.8	76.9	18.1	1056.7	563.0	
6	437-5.1	49.2	1.9	24.7	13.9	0.0	0.0	
21	437-18.1	49.5	1.7	46.6	11.3	0.0	0.0	
40	437-37.1	49.8	3.8	90.4	63.4	1361.0	2942.4	
19	437-16.1	55.1	4.5	84.4	84.4	1021.1	1295.1	
177	437-9.2	62.9	10.1	13.6	25.2	0.0	0.0	
29	437-26.1	73.3	1.6	55.1	17.4	0.0	0.0	
176	437-46.1	86.7	2.4	85.7	10.6	58.4	266.4	
8	437-6.1	88.3	2.1	73.4	8.2	0.0	0.0	
31	437-28.1	89.1	1.9	100.6	7.0	382.9	156.4	
175	437-45.1	93.3	2.8	69.9	21.1	0.0	0.0	
27	437-24.1	97.2	9.0	101.1	10.5	192.2	111.9	
34	437-31.1	98.1	3.5	109.6	20.1	367.7	367.7	
28	437-25.1	114.6	4.7	120.6	22.2	241.6	375.8	
25	437-22.1	117.7	2.8	136.4	10.0	476.7	166.0	
32	437-29.1	125.6	9.2	166.6	16.2	796.7	143.9	
18	437-15.1	127.9	6.7	227.3	24.2	1442.2	200.3	
174	437-44.1	149.0	6.2	127.2	23.0	0.0	0.0	
5	437-4.1	153.2	3.7	150.1	19.3	100.7	285.8	
4	437-3.1	174.6	3.6	193.6	15.3	431.9	191.1	
3	437-2.1	185.7	10.6	173.0	113.3	6.9	3974.1	
38	437-35.1	207.1	8.8	268.8	48.6	847.6	457.5	
11	437-8.1	211.9	6.7	189.6	38.5	0.0	0.0	
39	437-36.1	214.7	7.9	260.3	36.3	693.5	347.3	
33	437-30.1	215.6	9.2	307.3	43.5	1078.9	332.7	
41	437-38.1	258.2	10.9	305.4	81.4	683.9	683.8	
37	437-34.1	366.7	17.9	474.6	27.8	1037.2	96.2	
30	437-27.1	377.1	9.1	623.7	17.6	1663.1	47.4	
9	437-7.1	422.0	10.8	655.2	15.5	1570.7	28.1	
35	437-32.1	1130.7	29.5	1123.8	23.8	1110.5	33.2	-2%
17	437-14.1	1243.3	12.4	1292.0	11.0	1374.0	17.3	10%
23	437-20.1	1326.2	26.9	1350.1	28.6	1388.1	54.1	4%
26	437-23.1	1329.7	32.7	1350.7	21.8	1384.0	13.4	4%
24	437-21.1	1484.0	24.4	1427.7	20.9	1344.6	34.4	-10%
15	437-12.1	1491.8	70.2	1484.4	56.0	1473.9	78.2	-1%
20	437-17.1	1540.2	29.4	1480.3	21.3	1395.5	27.1	-10%
22	437-19.1	1789.2	49.4	1732.0	30.1	1663.5	24.9	-8%
16	437-13.1	1794.8	31.9	1781.7	22.8	1766.4	27.9	-2%
36	437-33.1	1885.0	42.5	1811.1	27.4	1727.1	29.4	-9%
171	437-40.2	2218.1	58.8	2380.3	36.5	2522.3	33.9	12%

169	437-40.1	2477.9	49.4	2591.9	25.0	2982.2	14.2	17%
2	437-1.1	2646.2	44.6	2596.4	21.0	2557.7	10.4	-3%
78	395-33.1	41.5	2.7	53.4	15.3	627.7	627.7	
68	395-24.1	43.2	3.2	24.6	57.7	0.0	0.0	
50	395-6.1	46.0	1.8	26.9	13.1	0.0	0.0	
83	395-38.1	48.6	2.3	54.6	23.5	326.0	1456.3	
63	395-19.1	48.8	3.0	79.9	21.5	1150.3	636.2	
64	395-20.1	49.2	1.9	51.5	2.4	160.2	59.1	
58	395-14.1	51.4	3.0	66.8	40.2	663.2	2458.0	
84	395-39.1	51.8	0.7	52.1	1.5	66.1	54.6	
53	395-9.1	52.0	1.1	51.5	4.1	28.1	174.3	
71	395-27.1	52.0	2.0	58.8	7.6	341.9	302.9	
57	395-13.1	52.6	2.4	35.6	18.3	0.0	0.0	
52	395-8.1	54.6	2.5	60.3	24.7	294.2	1365.1	
79	395-34.1	57.8	5.7	116.2	41.8	1579.0	845.6	
47	395-3.1	86.6	2.4	108.9	4.5	629.2	64.0	
54	395-10.1	99.3	2.8	11.7	23.5	383.3	421.2	
49	395-5.1	100.2	1.2	107.3	3.3	269.5	65.5	
65	395-21.1	102.2	1.7	106.7	8.2	209.0	186.8	
81	395-36.1	102.2	2.9	112.7	8.7	339.3	174.4	
66	395-22.1	102.4	3.0	103.1	12.4	120.4	258.2	
48	395-4.1	109.6	1.7	112.0	2.9	164.2	48.1	
75	395-31.1	123.3	3.6	132.2	7.4	296.3	113.6	
61	395-17.1	131.0	6.0	153.2	17.1	511.4	246.8	
45	395-1.1	133.4	11.3	296.3	163.7	1918.4	1707.2	
69	395-25.1	181.4	3.9	215.2	11.4	603.7	116.5	
82	395-37.1	1135.0	48.3	1102.5	43.2	1038.9	76.9	-9%
56	395-12.1	1297.7	14.7	1331.2	13.4	1385.6	22.2	6%
55	395-11.1	1335.4	18.9	1336.6	18.7	1338.6	34.2	0%
70	395-26.1	1435.1	20.0	1489.4	15.0	1567.4	17.5	8%
67	395-23.1	1456.8	25.8	1465.7	20.7	1478.6	29.2	1%
46	395-2.1	1604.7	35.4	1613.2	47.0	1624.3	92.2	1%
74	395-30.1	1625.7	42.5	1633.3	32.0	1643.2	41.0	1%
~~77~~	~~395-32.1~~	~~1668.5~~	~~67.5~~	~~2350.2~~	~~45.1~~	~~3009.1~~	~~17.5~~	45%
80	395-35.1	1755.1	47.6	1763.7	29.2	1773.9	22.0	1%
59	395-15.1	1787.4	39.8	1797.5	25.6	1809.2	23.8	1%
72	395-28.1	1854.7	51.1	1826.7	33.0	1794.8	33.2	-3%
51	395-7.1	1874.0	23.9	1827.7	14.8	1775.4	13.7	-6%
60	395-16.1	1880.8	27.6	1840.8	21.5	1795.9	30.3	-5%
62	395-18.1	1912.6	36.3	1890.3	21.5	1865.8	16.9	-3%
73	395-29.1	2041.8	90.6	2226.3	49.5	2400.6	17.3	15%
103	290-18.1	44.570	1.450	59.550	4.980	712.750	169.240	
94	290-9.1	47.230	2.950	44.960	26.580	0.000	0.000	
117	290-32.1	47.870	2.600	55.330	33.080	391.670	2617.700	
113	290-28.1	48.970	3.030	67.800	36.180	796.020	1872.600	
99	290-14.1	49.200	2.810	63.100	9.430	628.480	322.060	
107	290-22.1	49.520	2.030	42.850	4.430	0.000	0.000	
101	290-16.1	50.860	2.860	18.620	28.910	0.000	0.000	
104	290-19.1	53.160	2.100	30.110	20.410	0.000	0.000	

91	290-6.1	57.340	2.880	81.750	17.650	870.470	511.200	
108	290-23.1	77.510	3.080	70.240	21.080	0.000	0.000	
97	290-12.1	78.360	3.050	113.850	17.660	938.980	350.030	
89	290-4.1	80.900	2.570	94.720	18.500	458.430	458.180	
124	290-38.1	88.260	2.010	99.210	18.320	370.980	375.390	
114	290-29.1	98.020	2.180	94.700	5.620	13.800	125.790	
109	290-24.1	103.040	5.050	108.640	15.230	233.000	279.520	
106	290-21.1	103.880	3.330	109.440	21.210	232.110	398.440	
123	290-37.1	124.740	2.340	141.890	9.480	439.290	154.820	
121	290-36.1	162.980	5.730	153.330	49.690	9.670	1095.300	
118	290-33.1	171.300	3.170	173.740	5.070	206.990	54.810	
87	290-2.1	181.540	5.100	182.510	8.280	195.100	88.230	
92	290-7.1	186.250	6.770	230.140	22.520	706.200	221.470	
111	290-26.1	187.360	5.390	196.250	11.680	304.540	129.500	
112	290-27.1	213.530	7.320	220.360	16.310	293.920	167.320	
100	290-15.1	506.790	18.800	670.510	22.420	1268.100	38.140	
119	290-34.1	561.980	18.600	572.290	19.250	613.480	49.730	
116	290-31.1	600.710	8.380	768.560	11.070	1293.500	24.630	
96	290-11.1	847.630	25.670	933.210	24.750	1141.200	40.420	
115	290-30.1	1472.300	28.790	1613.400	21.380	1802.800	21.980	18%
88	290-3.1	1484.800	31.740	1418.900	20.520	1321.300	17.670	-12%
110	290-25.1	1516.500	24.530	1457.000	20.000	1371.300	31.040	-11%
93	290-8.1	1594.900	42.920	1575.000	28.930	1548.500	29.240	-3%
98	290-13.1	1621.200	26.640	1675.400	17.510	1744.000	14.980	7%
86	290-1.1	1643.800	32.340	1698.300	22.600	1766.400	23.880	7%
125	290-39.1	1667.000	37.210	1738.100	25.770	1824.800	26.280	9%
120	290-35.1	1755.100	52.880	1748.200	36.870	1740.000	42.240	-1%
102	290-17.1	1764.200	46.930	1752.200	42.980	1738.000	68.850	-2%
105	290-20.1	1773.400	26.910	1742.600	17.340	1705.800	17.160	-4%
90	290-5.1	1881.100	94.830	1804.800	57.530	1717.700	48.970	-10%
126	290-40.1	2264.600	103.410	2375.200	52.440	2471.500	16.080	8%
76	SL13-8	540.9	24.6	568.5	28.5	680.4	84.6	21%
0	SL13-1	562.4	10.6	548.7	16.4	492.3	69.0	-14%
1	SL13-2	570.0	14.1	548.3	16.4	458.9	57.3	-24%
44	SL13-7	580.4	14.5	635.0	78.7	834.6	361.5	30%
7	SL13-3	586.0	19.2	531.0	29.7	300.9	137.3	-95%
10	SL13-4	589.4	12.4	561.7	29.8	451.0	143.2	-31%
168	SL13-1	591.8	7.5	581.5	12.3	541.4	50.4	-9%
12	SL13-5	606.3	13.3	600.4	21.6	577.8	85.8	-5%
122	A3-10.2	1045.400	30.920	1088.700	34.890	1176.300	73.760	11%

Zircon separates JV-437 and JV-395 provided by Joseph A. Vance. Ages determined using SHRIMP-II at Australian National University in approximately 1997, using standard methods in use at that time (further details no longer available). SL13 is Sri Lanka zircon secondary standard. A3 is AS3 Duluth Complex zircon secondary standard. Data presented in abstract form by Wooden et al. (1999).

US Geological Survey-Stanford University SHRIMP-RG zircon analyses from two Tyee Formation samples

Errors are 1σ unless otherwise specified

																---------------- 204 corrected ----------------								
Spot Name	% comm 206	ppm U	ppm Th	232Th /238U	Corr 206 /238	% err	207corr 206Pb /238U Age	1σ err	204corr 207Pb /206Pb Age	1σ err	% Dis-cor-dant	Total 238 /206	% err	Total 207 /206	% err	238/ 206r	% err	207r /206r	% err	207r /235	% err	206r /238	% err	err corr
JV395-24R	**1.55**	**173**	**102**	0.61	.007	1.9	**47.2**	**0.9**	**-868**	**1100**	-1970	133.85	1.9	.0593	6.7	138.35	2.3	.0331	38.2	0.03	38.3	.0072	2.3	.061
JV395-41	**2.39**	**108**	**67**	0.64	.008	2.3	**47.5**	**1.1**	**802**	**137**	1548	131.95	2.3	.0659	6.5	131.95	2.3	.0659	6.5	0.07	6.9	.0076	2.3	.333
JV395-50	**1.33**	**509**	**373**	0.76	.008	1.1	**48.8**	**0.5**	**-296**	**415**	-711	129.91	1.1	.0575	3.2	132.68	1.3	.0409	16.3	0.04	16.3	.0075	1.3	.080
JV395-33R	**0.91**	**522**	**266**	0.53	.008	1.1	**49.1**	**0.6**	**-290**	**467**	-695	129.73	1.1	.0542	6.3	131.91	1.3	.0410	18.3	0.04	18.4	.0076	1.3	.071
JV395-47	**0.38**	**1234**	**662**	0.55	.008	0.7	**49.7**	**0.3**	**-105**	**160**	-311	128.66	0.7	.0500	2.2	129.62	0.7	.0441	6.5	0.05	6.6	.0077	0.7	.114
JV395-44	**0.93**	**239**	**137**	0.59	.012	1.3	**76.9**	**1.0**	**763**	**185**	872	82.60	1.3	.0549	3.8	81.57	1.4	.0647	8.8	0.11	8.9	.0123	1.4	.160
JV395-51	**0.44**	**400**	**245**	0.63	.015	0.9	**96.6**	**0.9**	**-1080**	**609**	-1242	65.92	0.9	.0514	2.6	67.65	1.1	.0308	20.2	0.06	20.2	.0148	1.1	.055
JV395-48	**0.47**	**451**	**97**	0.22	.016	0.8	**100.7**	**0.9**	**-63**	**191**	-163	63.19	0.8	.0518	3.2	63.75	0.9	.0449	7.8	0.10	7.9	.0157	0.9	.117
JV395-46	**0.89**	**186**	**101**	0.56	.018	1.2	**117.1**	**1.5**	**953**	**226**	691	54.07	1.2	.0554	3.6	53.02	1.5	.0708	11.0	0.18	11.1	.0189	1.5	.137
JV395-42	**2.02**	**69**	**56**	0.84	.020	2.0	**125.2**	**2.5**	**-788**	**1337**	-740	49.96	2.0	.0646	5.2	51.92	2.7	.0340	47.3	0.09	47.3	.0193	2.7	.056
JV395-45	**0.57**	**146**	**87**	0.62	.025	1.2	**160.9**	**2.0**	**137**	**179**	-15	39.34	1.2	.0538	3.4	39.59	1.3	.0488	7.6	0.17	7.7	.0253	1.3	.165
~~**JV395-49**~~	~~**3.67**~~	~~**495**~~	~~**203**~~	~~0.42~~	~~.171~~	~~0.4~~	~~**984.9**~~	~~**3.9**~~	~~**1670**~~	~~**17**~~	~~64~~	~~5.84~~	~~0.4~~	~~.1026~~	~~0.9~~	~~5.84~~	~~0.4~~	~~.1025~~	~~0.9~~	~~2.42~~	~~1.0~~	~~.1713~~	~~0.4~~	~~.388~~
JV395-40	**-0.13**	**164**	**121**	0.76	.246	0.7	**1420.5**	**9.1**	**1367**	**21**	-4	4.06	0.7	.0886	0.9	4.07	0.7	.0873	1.1	2.96	1.3	.2458	0.7	.512
JV395-53	**0.46**	**659**	**658**	1.03	.274	0.3	**1555.5**	**4.8**	**1624**	**7**	4	3.65	0.3	.1004	0.4	3.65	0.3	.1000	0.4	3.78	0.5	.2740	0.3	.620
JV395-52	**-0.05**	**454**	**488**	1.11	.289	0.4	**1637.1**	**6.3**	**1626**	**8**	-1	3.46	0.4	.1003	0.4	3.46	0.4	.1001	0.5	3.99	0.6	.2889	0.4	.653
JV395-43	**-0.24**	**101**	**99**	1.01	.291	0.8	**1652.3**	**13.5**	**1618**	**18**	-2	3.43	0.8	.0995	1.0	3.43	0.8	.0997	1.0	4.01	1.3	.2915	0.8	.652

																---------------- 204 corrected ----------------								
Spot Name	% comm 206	ppm U	ppm Th	232Th /238U	Corr 206 /238	% err	207corr 206Pb /238U Age	1σ err	204corr 207Pb /206Pb Age	1σ err	% Dis-cor-dant	Total 238 /206	% err	Total 207 /206	% err	238/ 206r	% err	207r /206r	% err	207r /235	% err	206r /238	% err	err corr
JV437-48R	**1.88**	**231**	**111**	0.50	.007	1.6	**46.2**	**0.8**				136.34	1.6	.0619	4.7	141.99	2.5	.0297	56.9	0.03	57.0	.0070	2.5	.044
JV437-47R	**2.10**	**142**	**60**	0.44	.008	2.1	**48.7**	**1.1**	**-1039**	**1691**	-2276	129.17	2.1	.0636	9.0	134.57	2.8	.0312	56.5	0.03	56.6	.0074	2.8	.049

Samples previously analysed by SHRIMP-II at Australian National University. Additional zircon grains listed here analyzed in 1999 by SHRIMP-RG at U.S. Geological Survey-Stanford University Microisotopic Analytical Center, using standard methods in use at that time. ANU and USGS-Stanford ages combined for plotting in Figure 3.

OSU LA-ICPMS U-Pb zircon ages from seven Oregon samples

Sample	Corrected Ratios								U ppm	Th ppm	Percent discor-dant	206Pb/238 U Age	± (1s)	Dis-cor-dant?
	206Pb/238U	±	207Pb/235U	±	207Pb/206Pb	±	238U/206Pb	±						
Ona-58	0.0062	0.0005	0.0622	0.0179	0.0750	0.0224	160.6859	13.8693	591	407	3.56	39	4	OK
Ona-64	0.0071	0.0008	0.0579	0.0049	0.0597	0.0079	141.7119	15.1735	505	215	1.68	45	5	OK
Ona-29	0.0077	0.0008	0.0787	0.0118	0.0802	0.0145	129.8915	13.8977	153	70	4.21	47	6	OK
Ona-71	0.0077	0.0007	0.0821	0.0156	0.0756	0.0156	129.1847	10.9788	497	178	3.64	48	5	OK
Ona-31	0.0077	0.0011	0.0587	0.0242	0.0633	0.0272	130.2829	18.5258	143	105	2.12	48	9	OK
Ona-2	0.0081	0.0005	0.0904	0.0105	0.0862	0.0111	123.3301	8.1553	868	150	4.94	50	4	OK
Ona-98	0.0087	0.0006	0.0828	0.0094	0.0709	0.0089	114.9767	8.0335	697	682	3.06	54	4	OK
Ona-26	0.0143	0.0018	0.6285	0.1442	0.3437	0.0894	70.1479	8.9002	152	189	36.57	58	18	Disc.
Ona-61	0.0113	0.0007	0.0788	0.0165	0.0514	0.0111	88.3508	5.4243	472	159	0.66	72	5	OK
Ona-20	0.0118	0.0006	0.0941	0.0105	0.0593	0.0065	84.4766	4.0991	294	120	1.63	75	4	OK
Ona-22	0.0143	0.0008	0.1468	0.0295	0.0881	0.0177	69.7070	3.9359	138	74	5.17	87	7	OK
Ona-75	0.0147	0.0008	0.1096	0.0214	0.0504	0.0100	67.9520	3.7447	107	50	0.54	94	6	OK
Ona-88a	0.0149	0.0005	0.1051	0.0084	0.0505	0.0039	66.9180	2.2326	1138	177	0.55	95	4	OK
Ona-79	0.0149	0.0005	0.0992	0.0093	0.0489	0.0046	67.0088	2.3074	457	231	0.36	95	4	OK
Ona-62	0.0155	0.0008	0.1485	0.0260	0.0731	0.0121	64.6890	3.3997	177	55	3.33	96	6	OK
Ona-37	0.0153	0.0007	0.1179	0.0215	0.0634	0.0115	65.2830	3.0904	225	174	2.14	96	6	OK
Ona-99	0.0158	0.0006	0.0927	0.0112	0.0435	0.0051	63.3013	2.3373	726	222	-0.30	101	4	OK
Ona-88b	0.0160	0.0007	0.0905	0.0256	0.0383	0.0106	62.5544	2.6777	133	23	-0.94	103	6	OK
Ona-16	0.0164	0.0008	0.1175	0.0244	0.0537	0.0110	61.1507	3.1109	281	120	0.95	104	7	OK
Ona-12	0.0188	0.0015	0.2106	0.0594	0.0960	0.0260	53.0661	4.2686	75	29	6.14	113	13	OK
Ona-30	0.0183	0.0007	0.1094	0.0140	0.0439	0.0057	54.5715	2.1888	626	31	-0.26	117	5	OK
Ona-60	0.0232	0.0009	0.1947	0.0431	0.0553	0.0112	43.1122	1.6181	134	84	1.14	146	7	OK
Ona-90	0.0240	0.0013	0.1415	0.0183	0.0437	0.0054	41.7510	2.2781	181	72	-0.29	153	9	OK
Ona-96	0.0250	0.0011	0.1767	0.0216	0.0535	0.0051	39.9283	1.7765	296	177	0.92	158	8	OK
Ona-87	0.0250	0.0016	0.1358	0.0310	0.0417	0.0097	40.0408	2.6419	108	26	-0.53	160	12	OK
Ona-28	0.0299	0.0024	0.2147	0.0201	0.0551	0.0060	33.4061	2.7259	237	69	1.12	188	17	OK
Ona-4	0.0319	0.0013	0.2494	0.0317	0.0568	0.0069	31.3392	1.2471	249	76	1.32	200	10	OK
Ona-52	0.0331	0.0012	0.1988	0.0213	0.0513	0.0050	30.2157	1.0765	450	205	0.65	209	9	OK
Ona-84	0.0336	0.0025	0.2077	0.0377	0.0464	0.0088	29.8022	2.1873	183	64	0.05	213	18	OK
Ona-11	0.0344	0.0030	0.2424	0.0900	0.0567	0.0215	29.0818	2.4987	825	74	1.31	215	24	OK
Ona-13	0.0399	0.0066	0.5637	0.1690	0.1008	0.0339	25.0452	4.1137	206	51	6.73	236	50	OK
Ona-74	0.0718	0.0052	0.7778	0.0773	0.0799	0.0086	13.9201	1.0053	173	104	4.16	429	35	OK
Ona-25	0.1572	0.0085	1.9522	0.1585	0.0991	0.0091	6.3614	0.3426	667	256	6.52	941	51	OK
Ona-77	0.2078	0.0076	2.9834	0.2201	0.1023	0.0075	4.8128	0.1752	576	199	6.92	1217	44	OK
Ona-43a	0.2287	0.0355	3.0719	0.4003	0.0963	0.0180	4.3725	0.6788	355	105	6.18	1328	206	OK
Ona-47	0.2290	0.0077	2.9065	0.2732	0.0902	0.0065	4.3662	0.1462	288	130	5.43	1330	45	OK
Ona-76	0.2332	0.0118	3.2154	0.2686	0.0993	0.0088	4.2886	0.2171	763	45	6.55	1351	68	OK
Ona-66	0.2335	0.0102	2.5409	0.2499	0.0824	0.0079	4.2829	0.1879	419	77	4.47	1353	59	OK
Ona-91a	0.2375	0.0123	3.4026	0.3968	0.0957	0.0090	4.2111	0.2189	249	77	6.11	1374	71	OK
Ona-68	0.2480	0.0187	2.9305	0.3019	0.0896	0.0110	4.0321	0.3037	342	293	5.36	1428	108	OK
Ona-91b	0.2487	0.0104	3.3528	0.2955	0.0981	0.0087	4.0207	0.1686	149	57	6.40	1432	60	OK
Ona-48	0.2496	0.0076	3.2720	0.2691	0.0892	0.0069	4.0064	0.1222	415	260	5.31	1437	44	OK
Ona-43b	0.2513	0.0236	3.3027	0.3044	0.0936	0.0118	3.9789	0.3731	402	135	5.84	1446	136	OK
Ona-5b	0.3182	0.0142	5.4924	0.5003	0.1085	0.0088	3.1431	0.1407	138	68	7.68	1781	80	OK
Ona-24	0.3299	0.0140	5.1093	0.3990	0.1155	0.0090	3.0311	0.1283	596	168	8.53	1838	78	OK
Ona-5a	0.3315	0.0119	4.2617	0.5434	0.1078	0.0081	3.0169	0.1082	159	81	7.59	1846	66	OK
Ona-1	0.3392	0.0125	6.1456	0.6533	0.1263	0.0099	2.9481	0.1086	188	107	9.86	1883	69	OK
Ona-32	0.5068	0.0179	13.2344	1.3851	0.1842	0.0133	1.9732	0.0699	122	77	16.97	2643	94	OK
Nestucca-39	0.0057	0.0002	0.0570	0.0395	0.0738	0.0517	174.8953	6.7670	723	340	3.42	36	4	OK
Nestucca-33	0.0062	0.0003	0.0387	0.0588	0.0438	0.1215	162.2798	7.8516	422	157	-0.27	40	8	OK
Nestucca-23A	0.0062	0.0003	0.0326	0.0658	0.0368	0.5412	160.5720	7.8283	227	70	-1.13	40	29	OK
Nestucca-23B	0.0064	0.0005	0.0384	0.1067	0.0485	0.5890	156.6093	11.4978	91	22	0.31	41	33	OK
Nestucca-48	0.0071	0.0005	0.0304	0.0700	0.0312	0.3693	140.6377	9.5572	449	182	-1.82	47	24	OK
Nestucca-54	0.0078	0.0009	0.0710	0.1259	0.0632	0.1817	128.4495	15.5500	500	259	2.11	49	17	OK
Nestucca-1B	0.0085	0.0003	0.0621	0.0471	0.0565	0.1353	118.3100	4.1498	480	223	1.29	54	11	OK
Nestucca-1A	0.0087	0.0003	0.0482	0.0444	0.0391	0.1283	115.0321	4.2250	500	241	-0.85	56	11	OK
Nestucca-91A	0.0113	0.0033	0.1018	0.3006	0.0612	0.3399	88.3806	25.9776	580	99	1.87	71	56	OK
Nestucca-16	0.0124	0.0005	0.1018	0.0504	0.0622	0.0908	80.5273	3.4860	1896	705	1.98	78	12	OK
Nestucca-28	0.0135	0.0007	0.0988	0.0569	0.0571	0.0990	74.0521	3.7911	245	80	1.37	85	15	OK
Nestucca-49A	0.0140	0.0008	0.1070	0.0707	0.0570	0.1046	71.5000	4.1164	1083	211	1.35	88	17	OK
Nestucca-37B	0.0145	0.0005	0.1465	0.0360	0.0726	0.1457	68.9478	2.3613	1019	234	3.27	90	20	OK
Nestucca-82A	0.0143	0.0008	0.0920	0.0640	0.0476	0.0859	69.8853	4.0545	1116	56	0.20	91	15	OK
Nestucca-13	0.0152	0.0008	0.1253	0.0559	0.0575	0.0862	65.6021	3.5910	1216	739	1.41	96	16	OK
Nestucca-30	0.0150	0.0010	0.0882	0.0693	0.0431	0.0896	66.6856	4.3253	423	347	-0.36	96	17	OK
Nestucca-31A	0.0150	0.0009	0.0897	0.0705	0.0420	0.1278	66.6745	4.1946	3023	362	-0.49	96	21	OK
Nestucca-31B	0.0153	0.0006	0.1128	0.0470	0.0507	0.0614	65.3023	2.5479	1341	88	0.58	97	11	OK
Nestucca-91B	0.0154	0.0028	0.0868	0.1895	0.0428	0.3549	65.1349	11.9739	370	127	-0.39	99	62	OK
Nestucca-49B	0.0159	0.0008	0.1308	0.1044	0.0510	0.0959	63.0505	3.3640	1088	308	0.61	101	17	OK
Nestucca-14	0.0172	0.0011	0.1342	0.0730	0.0545	0.1007	58.2186	3.7901	568	138	1.04	109	21	OK
Nestucca-88	0.0175	0.0007	0.1327	0.0604	0.0553	0.0668	57.1214	2.4230	787	240	1.15	111	14	OK
Nestucca-55	0.0175	0.0008	0.1236	0.0481	0.0515	0.0900	57.2178	2.6789	714	217	0.67	111	17	OK
Nestucca-92	0.0179	0.0041	0.1249	0.2326	0.0537	0.2960	56.0153	12.8400	518	349	0.95	113	70	OK
Nestucca-52	0.0183	0.0008	0.1470	0.0596	0.0563	0.0793	54.5715	2.4811	565	104	1.26	116	17	OK
Nestucca-73	0.0188	0.0039	0.1505	0.2196	0.0614	0.2780	53.1879	10.9010	151	38	1.89	118	67	OK
Nestucca-82B	0.0186	0.0020	0.1126	0.1350	0.0479	0.6610	53.7790	5.9278	910	52	0.24	119	110	OK
Nestucca-77	0.0198	0.0027	0.1411	0.1517	0.0539	0.1522	50.6024	7.0126	389	136	0.97	125	41	OK
Nestucca-68	0.0218	0.0008	0.2530	0.0363	0.0838	0.0708	45.8774	1.6337	812	46	4.64	133	17	OK
Nestucca-19	0.0230	0.0015	0.2268	0.0687	0.0729	0.2141	43.4690	2.8652	153	41	3.30	142	48	OK
Nestucca-2	0.0228	0.0011	0.1775	0.0782	0.0548	0.1063	43.9260	2.0371	221	90	1.08	144	25	OK
Nestucca-81	0.0236	0.0021	0.1105	0.0905	0.0368	0.1600	42.2937	3.7238	167	66	-1.13	152	43	OK
Nestucca-89	0.0259	0.0031	0.1543	0.1246	0.0418	0.2047	38.6055	4.6140	899	402	-0.52	166	61	OK
Nestucca-76	0.0265	0.0026	0.1638	0.1148	0.0407	0.2528	37.6927	3.6372	129	38	-0.65	170	68	OK
Nestucca-12	0.0761	0.0164	0.8504	0.2169	0.0839	0.3935	13.1363	2.8354	530	87	4.66	452	327	OK
Nestucca-37A	0.0872	0.0029	1.4257	0.0842	0.1023	0.0399	11.4668	0.3811	363	79	6.91	503	42	OK
Nestucca-59	0.1667	0.0105	1.8121	0.0675	0.0838	0.1258	5.9975	0.3783	265	47	4.65	994	63	OK
Nestucca-50	0.1782	0.0525	14.3430	0.3091	0.7244	0.4042	5.6107	1.6533	197	42	83.34	1057	312	Disc.
Nestucca-58	0.2304	0.0135	2.3454	0.1620	0.0903	0.0717	4.3400	0.2539	138	93	5.44	1337	78	OK
Nestucca-17	0.2666	0.0115	3.0330	0.0489	0.0856	0.0659	3.7515	0.1612	238	80	4.87	1524	65	OK
Nestucca-85	0.2788	0.0159	3.7241	0.0729	0.1055	0.0920	3.5864	0.2046	329	70	7.31	1586	90	OK
Nestucca-72	0.2820	0.0172	3.5501	0.0647	0.0937	0.0793	3.5466	0.2159	957	261	5.86	1601	97	OK
Nestucca-36	0.2988	0.0215	4.1512	0.1003	0.1012	0.0884	3.3467	0.2406	235	115	6.78	1686	121	OK
Nestucca-53	0.4011	0.0602	7.8420	0.1656	0.1393	0.2141	2.4929	0.3740	151	114	11.46	2175	326	Disc.
Nestucca-38	0.4992	0.0171	12.1138	0.0618	0.1712	0.0353	2.0032	0.0685	493	121	15.38	2611	89	Disc.
Nestucca-44	0.5289	0.0220	13.5602	0.0501	0.1796	0.0657	1.8906	0.0787	236	133	16.41	2737	114	Disc.
Tyee-59	0.0063	0.0005	0.0498	0.0158	0.0580	0.0188	157.6762	11.8189	166	118	1.48	40	4	OK
Tyee-62	0.0067	0.0006	0.0682	0.0130	0.0723	0.0150	148.4004	13.7785	325	187	3.23	42	5	OK

Tyee-50	0.0068	0.0007	0.0623	0.0100	0.0658	0.0112	147.5596	15.3502	267	149	2.43	42	5	OK
Tyee-101	0.0069	0.0002	0.0509	0.0187	0.0577	0.0209	144.5120	5.0980	65	28	1.44	44	3	OK
Tyee-70	0.0071	0.0004	0.0600	0.0115	0.0645	0.0122	141.0280	8.4187	268	63	2.27	45	3	OK
Tyee-87	0.0073	0.0015	0.0450	0.0184	0.0465	0.0213	136.7822	28.3935	152	155	0.06	47	11	OK
Tyee-49	0.0071	0.0004	0.0134	0.0072	0.0155	0.0083	140.8340	7.6153	152	65	-3.74	47	3	OK
Tyee-100	0.0075	0.0004	0.0587	0.0075	0.0550	0.0075	133.8214	7.8313	128	72	1.10	47	3	OK
Tyee-68	0.0075	0.0008	0.0564	0.0128	0.0561	0.0140	133.1528	13.8495	281	260	1.24	48	6	OK
Tyee-96A	0.0075	0.0002	0.0492	0.0066	0.0463	0.0062	133.5128	4.0065	682	347	0.03	48	2	OK
Tyee-15	0.0077	0.0005	0.0624	0.0124	0.0677	0.0135	129.1544	8.6197	499	530	2.67	48	4	OK
Tyee-72	0.0076	0.0003	0.0506	0.0096	0.0456	0.0086	131.2470	5.2001	571	250	-0.04	49	2	OK
Tyee-77B	0.0076	0.0005	0.0440	0.0142	0.0458	0.0149	130.8548	9.0409	254	159	-0.03	49	4	OK
Tyee-93	0.0078	0.0005	0.0593	0.0051	0.0544	0.0057	128.1852	7.8173	1478	714	1.03	50	3	OK
Tyee-94	0.0078	0.0001	0.0479	0.0034	0.0444	0.0031	128.0142	2.1156	1894	746	-0.19	50	1	OK
Tyee-83	0.0078	0.0003	0.0404	0.0074	0.0381	0.0071	128.7509	5.0532	733	317	-0.97	50	2	OK
Tyee-13	0.0081	0.0005	0.0587	0.0075	0.0534	0.0075	123.9857	7.8703	297	133	0.91	51	4	OK
Tyee-96B	0.0086	0.0005	0.1104	0.0222	0.0841	0.0163	116.2315	6.0844	199	86	4.68	53	4	OK
Tyee-60	0.0081	0.0006	0.0364	0.0086	0.0323	0.0079	123.0299	9.0267	555	352	-1.68	53	4	OK
Tyee-71	0.0084	0.0005	0.0667	0.0369	0.0587	0.0324	119.0149	6.4922	173	141	1.56	53	5	OK
Tyee-92B	0.0082	0.0002	0.0428	0.0071	0.0382	0.0064	121.7197	3.3600	893	568	-0.96	53	2	OK
Tyee-92A	0.0081	0.0005	0.0259	0.0224	0.0227	0.0196	123.2800	8.1039	270	112	-2.87	54	5	OK
Tyee-77A	0.0084	0.0003	0.0306	0.0191	0.0282	0.0176	119.6434	4.8443	217	107	-2.19	55	3	OK
Tyee-8	0.0085	0.0003	0.0353	0.0059	0.0284	0.0049	117.9360	4.6183	553	249	-2.16	56	2	OK
Tyee-67	0.0086	0.0002	0.0386	0.0070	0.0330	0.0060	116.2511	3.2680	407	262	-1.60	56	2	OK
Tyee-73	0.0087	0.0005	0.0493	0.0095	0.0386	0.0075	115.0334	6.2805	175	98	-0.91	56	4	OK
Tyee-19	0.0090	0.0005	0.0668	0.0119	0.0564	0.0103	110.7902	6.5419	376	313	1.27	57	4	OK
Tyee-89	0.0097	0.0005	0.0879	0.0491	0.0664	0.0373	102.7441	5.5915	177	99	2.51	61	6	OK
Tyee-51	0.0102	0.0005	0.0760	0.0060	0.0544	0.0048	97.9226	4.8555	1546	84	1.04	65	4	OK
Tyee-7	0.0134	0.0005	0.0815	0.0067	0.0455	0.0040	74.5026	2.9106	601	71	-0.06	86	4	OK
Tyee-53	0.0139	0.0005	0.0790	0.0059	0.0466	0.0036	71.8689	2.7435	507	60	0.07	89	4	OK
Tyee-69D	0.0147	0.0060	0.1594	0.0884	0.0859	0.0585	68.0901	27.8573	58	23	4.91	89	52	OK
Tyee-69C	0.0157	0.0017	0.2495	0.0690	0.1244	0.0354	63.6587	6.7397	75	21	9.63	91	14	OK
Tyee-74	0.0142	0.0007	0.0840	0.0360	0.0452	0.0192	70.2598	3.5368	105	51	-0.10	91	7	OK
Tyee-95	0.0176	0.0008	0.2418	0.0252	0.0775	0.0063	56.8430	2.4952	118	63	3.87	108	6	OK
Tyee-82	0.0181	0.0006	0.1424	0.0261	0.0658	0.0118	55.3582	1.9315	106	27	2.43	113	6	OK
Tyee-29	0.0180	0.0009	0.1361	0.0163	0.0544	0.0069	55.6083	2.9126	332	165	1.03	114	7	OK
Tyee-54	0.0202	0.0014	0.1429	0.0403	0.0445	0.0095	49.5609	3.3578	115	54	-0.18	129	10	OK
Tyee-16	0.0285	0.0018	0.1897	0.0297	0.0477	0.0072	35.1494	2.1734	95	38	0.21	181	13	OK
Tyee-22	0.0336	0.0045	0.1728	0.0601	0.0325	0.0119	29.7308	4.0167	175	57	-1.66	217	32	OK
Tyee-102	0.0752	0.0017	0.5398	0.0483	0.0507	0.0039	13.2995	0.2936	105	151	0.57	465	12	OK
Tyee-69A	0.2347	0.0050	3.2474	0.2072	0.0960	0.0053	4.2599	0.0909	248	107	6.14	1360	29	OK
Tyee-99B	0.2358	0.0042	2.8092	0.1793	0.0883	0.0051	4.2412	0.0759	285	117	5.19	1365	24	OK
Tyee-99A	0.2364	0.0048	2.4763	0.1522	0.0832	0.0045	4.2300	0.0862	784	134	4.57	1368	28	OK
Tyee-69B	0.2642	0.0053	2.9001	0.3396	0.0801	0.0080	3.7847	0.0763	124	56	4.19	1512	30	OK
Tyee-97A	0.2946	0.0080	4.5900	0.3168	0.1028	0.0066	3.3946	0.0923	210	66	6.98	1665	45	OK
Tyee-97B	0.3064	0.0090	4.2233	0.3093	0.1078	0.0069	3.2642	0.0961	187	53	7.59	1723	51	OK
Tyee-103	0.3552	0.0112	5.9076	0.3559	0.1177	0.0074	2.8154	0.0884	461	41	8.81	1960	62	OK

LF020- 48	0.0086	0.0007	0.4225	0.1269	0.3500	0.1088	115.6092	9.3775	89	85	37.35	35	10	Disc.
LF020- 5	0.0080	0.0003	0.3074	0.1300	0.2766	0.1170	125.6955	4.3006	111	48	28.33	37	9	Disc.
LF020- 25	0.0075	0.0004	0.0780	0.0107	0.0808	0.0119	133.8357	8.0542	493	48	4.27	46	3	OK
LF020- 7	0.0076	0.0002	0.0693	0.0085	0.0653	0.0082	130.7628	3.9705	1184	601	2.38	48	2	OK
LF020- 8	0.0076	0.0003	0.0535	0.0032	0.0521	0.0036	131.9612	4.6396	1839	759	0.75	48	2	OK
LF020- 52	0.0079	0.0004	0.0788	0.0180	0.0699	0.0160	126.8154	6.1396	114	55	2.93	49	3	OK
LF020- 32	0.0111	0.0007	0.4305	0.1870	0.2949	0.1291	90.1076	5.7831	159	59	30.57	49	14	Disc.
LF020- 40	0.0078	0.0009	0.0388	0.0310	0.0351	0.0282	128.5294	14.5804	359	160	-1.34	51	8	OK
LF020- 29	0.0083	0.0001	0.0579	0.0042	0.0518	0.0036	120.6397	1.3818	1827	512	0.71	53	1	OK
LF020- 44	0.0083	0.0001	0.0556	0.0070	0.0459	0.0057	120.1461	1.6582	555	258	-0.01	53	1	OK
LF020- 31	0.0089	0.0005	0.0924	0.0291	0.0640	0.0197	112.8560	6.2595	281	117	2.21	56	4	OK
LF020- 36	0.0090	0.0004	0.0722	0.0093	0.0571	0.0077	111.2638	5.2124	1421	516	1.36	57	3	OK
LF020- 21-2	0.0089	0.0004	0.0565	0.0114	0.0452	0.0093	111.8423	5.4246	1772	788	-0.10	57	3	OK
LF020- 2	0.0093	0.0003	0.0676	0.0281	0.0549	0.0228	107.7884	3.4855	684	158	1.09	59	4	OK
LF020- 21	0.0101	0.0003	0.0959	0.0153	0.0722	0.0105	98.8333	2.9013	719	164	3.21	63	3	OK
LF020- 47	0.0133	0.0006	0.2592	0.0758	0.1371	0.0405	75.0755	3.4594	118	55	11.19	76	8	OK
LF020- 26	0.0121	0.0003	0.0743	0.0083	0.0440	0.0046	82.9662	2.0077	177	83	-0.25	77	2	OK
LF020- 28	0.0132	0.0005	0.1696	0.0271	0.0798	0.0112	75.8417	3.0641	98	27	4.15	81	4	OK
LF020- 34	0.0149	0.0024	0.3204	0.1707	0.1600	0.0696	67.0552	10.8749	117	17	14.01	82	22	OK
LF020- 6	0.0153	0.0010	0.3844	0.1332	0.1747	0.0614	65.5132	4.2762	88	43	15.81	82	13	OK
LF020- 13	0.0126	0.0013	0.0202	0.0428	0.0145	0.0308	79.6771	8.4989	124	29	-3.87	84	12	OK
LF020- 37	0.0130	0.0004	0.0612	0.0100	0.0337	0.0056	77.1237	2.3893	2887	549	-1.51	84	3	OK
LF020- 41	0.0132	0.0002	0.0883	0.0047	0.0474	0.0026	75.6955	1.0914	2376	593	0.18	84	1	OK
LF020- 11	0.0134	0.0004	0.0934	0.0062	0.0496	0.0032	74.6257	2.3958	1311	130	0.44	85	3	OK
LF020- 28-2	0.0134	0.0003	0.0948	0.0140	0.0467	0.0065	74.4830	1.4977	140	47	0.09	86	2	OK
LF020- 43	0.0138	0.0004	0.0857	0.0135	0.0479	0.0076	72.3006	1.8600	453	84	0.24	88	3	OK
LF020- 50	0.0151	0.0003	0.1627	0.0408	0.0805	0.0202	66.3708	1.2254	2166	656	4.24	92	4	OK
LF020- 17	0.0152	0.0004	0.1268	0.0156	0.0589	0.0068	65.6596	1.8952	390	113	1.59	96	4	OK
LF020- 46	0.0182	0.0006	0.3349	0.0969	0.1184	0.0336	54.8977	1.8655	97	28	8.90	106	8	OK
LF020- 15	0.0192	0.0012	0.3379	0.1088	0.1375	0.0439	51.9868	3.3694	177	24	11.24	109	14	Disc.
LF020- 30	0.0177	0.0021	0.1787	0.0180	0.0724	0.0108	56.3977	6.7219	486	293	3.25	110	15	OK
LF020- 49	0.0186	0.0013	0.2437	0.0448	0.0911	0.0172	53.8684	3.8471	166	61	5.53	112	10	OK
LF020- 12	0.0185	0.0007	0.0992	0.0160	0.0449	0.0057	54.0877	2.0644	139	18	-0.13	118	5	OK
LF020- 33	0.0250	0.0025	1.1120	0.3904	0.2486	0.0855	39.9316	3.9964	129	33	24.89	120	29	OK
LF020- 12-2	0.0197	0.0008	0.1668	0.0213	0.0644	0.0065	50.8377	2.0763	139	22	2.26	123	6	OK
LF020- 53	0.0206	0.0007	0.2368	0.0744	0.0812	0.0243	48.6546	1.6805	109	18	4.32	126	8	OK
LF020- 10	0.0244	0.0005	0.1998	0.0197	0.0550	0.0047	40.9616	0.7831	1037	972	1.11	154	4	OK
LF020- 19	0.0254	0.0004	0.1773	0.0158	0.0502	0.0042	39.3133	0.5840	346	160	0.51	161	3	OK
LF020- 39	0.0284	0.0012	0.1565	0.0198	0.0430	0.0056	35.1522	1.4613	194	41	-0.37	182	9	OK
LF020- 14	0.0309	0.0011	0.2890	0.1195	0.0477	0.0134	32.3190	1.2002	108	28	0.21	196	10	OK
LF020- 35	0.0348	0.0021	0.2710	0.0574	0.0536	0.0115	28.7285	1.6988	89	22	0.94	219	16	OK
LF020- 20	0.1085	0.0017	0.9432	0.0534	0.0624	0.0035	9.2127	0.1465	651	384	2.02	664	11	OK
LF020- 9	0.2182	0.0060	3.0083	0.1842	0.0964	0.0062	4.5835	0.1269	140	83	6.19	1272	35	OK
LF020- 18	0.2309	0.0058	2.4724	0.1896	0.0846	0.0052	4.3317	0.1081	453	194	4.74	1339	33	OK
LF020- 16	0.2426	0.0037	2.9187	0.3347	0.0838	0.0065	4.1219	0.0630	75	9	4.65	1400	21	OK
LF020- 4	0.2453	0.0046	2.8787	0.1754	0.0835	0.0049	4.0771	0.0770	511	99	4.60	1414	27	OK
LF020- 27	0.2485	0.0026	2.8837	0.1629	0.0867	0.0046	4.0242	0.0424	277	82	5.00	1431	15	OK
LF020- 45	0.2497	0.0074	2.9470	0.1633	0.0862	0.0052	4.0041	0.1189	1247	838	4.94	1437	43	OK
LF020- 38	0.2688	0.0072	3.5008	0.2987	0.0878	0.0060	3.7206	0.1003	625	230	5.13	1535	41	OK
LF020- 1	0.2751	0.0041	3.4004	0.3502	0.0821	0.0071	3.6345	0.0535	181	44	4.44	1567	23	OK
LF020- 24	0.2848	0.0046	3.5860	0.2621	0.0836	0.0045	3.5110	0.0562	867	27	4.62	1616	26	OK
LF020- 23	0.2879	0.0063	3.4649	0.2040	0.0857	0.0051	3.4737	0.0757	502	111	4.88	1631	36	OK
LF020- 42	0.3392	0.0043	3.7643	0.3115	0.0879	0.0049	2.9481	0.0375	121	38	5.15	1883	24	OK
LF020- 3	0.4346	0.0091	9.0492	0.4880	0.1534	0.0085	2.3011	0.0480	932	331	13.20	2327	49	Disc.

LF024-21	0.0069	0.0004	0.0946	0.0094	0.1032	0.0112	145.1021	8.6388	1394	1698	7.03	41	3	OK
LF024-9	0.0067	0.0003	0.0582	0.0083	0.0646	0.0094	150.1868	6.3616	662	510	2.29	42	2	OK
LF024-8	0.0066	0.0002	0.0471	0.0044	0.0524	0.0049	150.6200	5.5370	1825	1107	0.79	42	2	OK

LF024-13	0.0072	0.0003	0.0652	0.0064	0.0657	0.0066	139.5014	5.9413	1281	621	2.42	45	2	OK
LF024-20	0.0078	0.0003	0.1160	0.0184	0.1080	0.0170	128.4910	5.4457	356	187	7.62	46	3	OK
LF024-15	0.0080	0.0003	0.1332	0.0158	0.1226	0.0140	125.4526	4.3228	465	349	9.40	46	2	OK
LF024-17	0.0075	0.0004	0.0670	0.0094	0.0639	0.0094	133.7057	7.3355	696	319	2.20	47	3	OK
LF024-22	0.0073	0.0002	0.0493	0.0043	0.0471	0.0040	136.2603	4.2328	1456	390	0.13	47	2	OK
LF024-5	0.0079	0.0003	0.0975	0.0123	0.0858	0.0107	127.2830	4.1549	473	291	4.89	48	2	OK
LF024-7	0.0079	0.0003	0.0716	0.0081	0.0653	0.0068	127.2200	4.3017	1256	590	2.37	49	2	OK
LF024-1	0.0077	0.0003	0.0459	0.0077	0.0420	0.0070	129.3648	4.8155	184	100	-0.49	50	2	OK
LF024-11	0.0084	0.0003	0.1120	0.0378	0.0979	0.0331	118.8509	4.9308	415	364	6.38	51	4	OK
LF024-6	0.0086	0.0003	0.0978	0.0220	0.0834	0.0187	116.2449	4.6130	483	197	4.59	53	3	OK
LF024-3	0.0083	0.0004	0.0523	0.0107	0.0449	0.0093	120.5310	5.1758	581	510	-0.13	53	3	OK
LF024-19	0.0122	0.0005	0.0502	0.0248	0.0317	0.0156	82.0858	3.6206	1524	1471	-1.76	79	5	OK
LF024-10	0.0134	0.0005	0.0964	0.0077	0.0544	0.0042	74.7042	2.6315	755	110	1.03	85	3	OK
LF024-18	0.0142	0.0004	0.0803	0.0094	0.0433	0.0049	70.2777	2.1868	746	387	-0.33	91	3	OK
LF024-16	0.0153	0.0006	0.2099	0.0318	0.0921	0.0135	65.2300	2.3457	340	124	5.66	93	5	OK
LF024-24	0.0166	0.0007	0.3215	0.0730	0.1382	0.0316	60.3932	2.4959	348	109	11.33	94	8	Disc.
LF024-25	0.0171	0.0006	0.2374	0.0220	0.1010	0.0084	58.5014	2.1796	173	95	6.76	102	5	OK
LF024-23	0.0989	0.0040	0.8543	0.0750	0.0627	0.0054	10.1102	0.4106	379	195	2.05	596	27	OK
LF024-14	0.2257	0.0088	2.5373	0.2125	0.0883	0.0073	4.4303	0.1731	1609	232	5.20	1312	51	OK
LF024-4	0.2628	0.0085	3.9278	0.3347	0.1076	0.0088	3.8051	0.1232	415	165	7.57	1504	49	OK
LF024-2	0.2723	0.0117	3.4822	0.3508	0.0952	0.0087	3.6728	0.1579	62	30	6.04	1553	67	OK
LF024-12	0.2788	0.0121	4.0434	0.3100	0.1039	0.0083	3.5865	0.1550	469	52	7.11	1586	69	OK
LF023-17	0.0075	0.0003	0.1545	0.0244	0.1112	0.0178	133.1789	5.8369	251	112	8.00	44	3	OK
LF023-25	0.0075	0.0004	0.0933	0.0181	0.0717	0.0141	133.5637	6.4727	138	101	3.16	47	3	OK
LF023-20	0.0072	0.0005	0.0538	0.0106	0.0434	0.0086	138.2515	9.4728	646	193	-0.32	47	4	OK
LF023-8	0.0075	0.0003	0.0645	0.0084	0.0490	0.0065	133.7174	5.6585	403	181	0.37	48	2	OK
LF023-11	0.0073	0.0004	0.0360	0.0509	0.0280	0.0396	136.9710	6.6517	361	280	-2.21	48	5	OK
LF023-18	0.0081	0.0005	0.1199	0.0356	0.0856	0.0256	122.9974	7.0704	147	114	4.86	50	4	OK
LF023-22	0.0084	0.0004	0.0716	0.0205	0.0454	0.0129	118.6223	5.7377	312	430	-0.08	54	3	OK
LF023-14-2	0.0122	0.0004	0.1135	0.0094	0.0509	0.0042	82.0037	2.7106	1732	459	0.60	78	3	OK
LF023-15	0.0129	0.0005	0.1499	0.0185	0.0614	0.0070	77.4237	2.9627	306	105	1.89	81	4	OK
LF023-19	0.0126	0.0004	0.0898	0.0085	0.0381	0.0033	79.6679	2.5803	2085	69	-0.97	81	3	OK
LF023-12	0.0129	0.0005	0.1123	0.0188	0.0496	0.0082	77.5375	2.8867	736	675	0.44	82	4	OK
LF023-2	0.0131	0.0017	0.0677	0.0631	0.0383	0.0359	76.2160	10.0010	99	19	-0.95	85	15	OK
LF023-9	0.0136	0.0005	0.0904	0.0158	0.0383	0.0067	73.6377	2.8929	1261	176	-0.94	88	4	OK
LF023-14	0.0138	0.0005	0.0864	0.0062	0.0367	0.0027	72.2575	2.6177	4883	249	-1.15	90	4	OK
LF023-10	0.0148	0.0006	0.1130	0.0200	0.0457	0.0081	67.6358	2.6445	515	165	-0.03	95	5	OK
LF023-24	0.0180	0.0007	0.2141	0.0333	0.0576	0.0085	55.6090	2.2797	167	80	1.43	113	6	OK
LF023-1	0.0196	0.0007	0.2536	0.0665	0.0870	0.0218	51.1128	1.9481	214	41	5.04	119	8	OK
LF023-21	0.0196	0.0008	0.1703	0.0165	0.0520	0.0051	51.0345	1.9794	602	222	0.74	124	6	OK
LF023-23	0.0200	0.0008	0.2259	0.0401	0.0536	0.0094	50.0465	1.9097	145	91	0.94	126	6	OK
LF023-13	0.0213	0.0007	0.1365	0.0329	0.0399	0.0096	46.9191	1.5473	224	114	-0.75	137	6	OK
LF023-5	0.0266	0.0008	0.2001	0.0393	0.0400	0.0077	37.6089	1.1480	205	115	-0.74	170	7	OK
LF023-3	0.0367	0.0013	0.6156	0.1264	0.1011	0.0200	27.2656	0.9300	154	77	6.76	217	13	OK
LF023-6	0.0427	0.0039	1.1918	0.2651	0.1690	0.0372	23.4271	2.1315	134	60	15.11	230	33	OK
LF023-16	0.0366	0.0012	0.3081	0.0257	0.0477	0.0040	27.3326	0.9204	1461	487	0.21	231	9	OK
LF023-7	0.2208	0.0071	2.6282	0.2207	0.0700	0.0059	4.5283	0.1447	328	202	2.95	1286	41	OK
LF023-4	0.2618	0.0102	3.3255	0.3010	0.0752	0.0058	3.8204	0.1484	635	99	3.59	1499	58	OK
LF021-5	0.0075	0.0004	0.0401	0.0263	0.0000	0.0000	134.0563	6.6872	211	120	-5.65	51	3	OK
LF021-6	0.0081	0.0004	0.1104	0.0192	0.0012	0.0002	123.8991	6.1851	336	190	-5.50	55	3	OK
LF021-7	0.0118	0.0008	0.1242	0.0314	0.0009	0.0002	85.0662	5.9629	239	166	-5.54	79	6	OK
LF021-1	0.0138	0.0007	0.1048	0.0160	0.0438	0.0067	72.5377	3.7295	645	292	-0.27	89	5	OK
LF021-2	0.0159	0.0007	0.2540	0.0334	0.0000	0.0000	62.7763	2.6249	423	131	-5.65	108	4	OK
LF021-3	0.0176	0.0017	0.6788	0.1007	0.0000	0.0000	56.7119	5.3348	414	94	-5.65	119	11	OK
LF021-8	0.0187	0.0011	0.0616	0.0254	0.0004	0.0001	53.3740	3.2640	363	141	-5.61	126	8	OK
LF021-4	0.0754	0.0037	0.5898	0.0667	0.0000	0.0000	13.2643	0.6496	490	238	-5.65	494	23	OK
LF021-9	0.3175	0.0125	5.8304	0.4368	0.0016	0.0001	3.1497	0.1243	750	477	-5.46	1778	70	OK

Sample Colllection and Preparation

Sample LF020, LF021, LF023 and LF024 were collected from the same area that Snavely et al. (1964) used to first describe the type section of the Tyee formation, and to be able to sample each internal member of the formation. These are more proximal to the source and may represent shelf facies. Sample "Tyee" was taken from a roadcut on Hwy 20, ~30 Mi west of Corvallis, OR, and represents a more distal, deep-water part of the Tyee basin.

Each sample was then crushed using a jaw crusher and/or disk mill, sieved to a 100-500 µm size fraction, cleaned in a sonic bath and then dried. Cleaned material was then run through Franz magnetic separator and heavy liquids to concentrate zircon. Zircon grains were then hand picked, mounted in epoxy and polished.

Analytical Method

Zircon analyses were conducted in the W.M. Keck Collaboratory for Plasma Spectroscopy at Oregon State University, using a NewWave DUV 193 ArF Excimer laser and VG ExCell quadrupole ICP-MS. Analysis was conducted under a He flow of ~0.80 L/min, and employed a stationary circular spot of 45 µm diameter and a pulse rate of 4 Hz. Measured 206Pb/238U, 207Pb/235U and 207Pb/206Pb ratios were corrected for laser-induced fractionation and instrumental bias via analysis of PL-1 standard zircon using accepted values of 0.0537, 0.3935 and 0.0532. Ratios for individual analyses were obtained using the analysis-intercept method to further minimize the effects of laser induced fractionation. PL-1 analyses were made every 4-5 analyses. Standard 91-500 was also analyzed throughout each analysis session (about one per ~20-30 unknowns). The long term average value of 206Pb/235U in 91-500 is within 95% confidence limits of the accepted value. The long term reproducibility of corrected 206Pb/235U ratios from 91-500 is 3-4% at the 1 standard deviation level. Given the low U contents of this zircon this is a conservative estimate for the uncertainty associated with individual unknown analyses. Common Pb contributions were corrected for by projecting analyses from 207Pb/206Pb = 0.86 back to Concordia on a Terra-Wasserburg plot. Following the approach of DeGraaff-Surpless et al. (2002), we discarded analyses that were more than 20% discordant as well as those with > 150 ppm U and discordance in excess of 10%. This criteria led us to discard ~5% of zircons analyzed. 204Pb was not measured, so 207Pb/206Pb ages were not calculated.

Notes:

-Samples "Ona Beach" and "Nestucca" are not from the Tyee Formation and are not discussed in this paper. Ona Beach is a sample of modern beach sand taken form the Oregon Coast. The Nestucca Formation is a sandstone that overlies the Tyee conformably.

-Sample LF021 was not included in Figure 3 due to the small number of zircon grains that were dated (n= 9).

-Analyses completed in approximately 2009.

-Data reported in abstract form by Farmer et al. (2009).

767-3 San Bruno Mountain sample of Snow et al. (2010), analyzed by SHRIMP-RG

See Snow et al. (2010) for details.

Grain	Best Age	1-sigma	206Pb/238U Age	1-sigma	207Pb/206Pb Age	1-sigma	238U/206Pb	% error	207Pb/206Pb	%error	207Pb/235U	%error
767-3-r1-41	52.6	1.0	52.6	1.0			125.58	2.47	0.02	60.03	0.03	60.08
767-3-r1-2	52.7	2.2	52.7	2.2	476	336	120.45	4	0.06	15.21	0.06	15.73
767-3-r1-39	52.7	1.4	52.7	1.4			125.9	4.47				
767-3-r1-28	55.3	0.7	55.3	0.7	246	164	115.6	1.26	0.05	7.13	0.06	7.24
767-3-r1-1	57.0	1.3	57.0	1.3	-400	632	113.62	2.43	0.04	24.24	0.05	24.36
767-3-r1-7	57.5	2.8	57.5	2.8	1273	281	106.73	4.62	0.08	14.41	0.11	15.13
767-3-r1-10	58.7	1.1	58.7	1.1	-1067	958	111.42	2.13	0.03	31.84	0.04	31.91
767-3-r1-31	59.3	1.5	59.3	1.5	726	180	106.01	2.43	0.06	8.5	0.08	8.84
767-3-r1-26	60.3	1.1	60.3	1.1	263	157	105.91	1.74	0.05	6.86	0.07	7.08
767-3-r1-13	61.4	0.7	61.4	0.7	115	114	104.41	1.17	0.05	4.84	0.06	4.98
767-3-r1-18	62.1	0.9	62.1	0.9	-41	230	103.6	1.45	0.05	9.46	0.06	9.57
767-3-r1-44	64.5	1.1	64.5	1.1	202	154	99.12	1.64	0.05	6.62	0.07	6.82
767-3-r1-34	65.5	1.5	65.5	1.5	-493	692	98.98	2.51	0.04	26.02	0.05	26.14
767-3-r1-49	65.9	1.8	65.9	1.8	-933	1416	99.08	3.2	0.03	48.49	0.05	48.6
767-3-r1-14	67.5	1.3	67.5	1.3	115	172	94.93	1.81	0.05	7.28	0.07	7.51
767-3-r1-48	69.1	0.6	69.1	0.6	-386	212	93.75	0.88	0.04	8.14	0.06	8.19
767-3-r1-3	72.4	1.7	72.4	1.7	91.55	2.93	0.02	78.99	0.03	79.04		
767-3-r1-9	73.0	1.5	73.0	1.5	72	187	87.8	1.99	0.05	7.87	0.07	8.12
767-3-r1-33	74.2	0.8	74.2	0.8	238	92	86.06	1.02	0.05	4	0.08	4.13
767-3-r1-37	75.1	0.6	75.1	0.6	-18	125	85.55	0.82	0.05	5.15	0.07	5.22
767-3-r1-15	77.4	0.5	77.4	0.5	44	78	82.81	0.6	0.05	3.25	0.08	3.3
767-3-r1-51	77.7	0.8	77.7	0.8	-97	103	82.79	1.02	0.04	4.21	0.07	4.33
767-3-r2-54	77.7	1.8	77.7	1.8	1459	489	77.99	3.77	0.09	25.72	0.16	25.99
767-3-r1-12	80.4	1.1	80.4	1.1	-161	209	80.16	1.33	0.04	8.4	0.07	8.5
767-3-r1-20	81.0	2.6	81.0	2.6			82.55	5.04				
767-3-r1-23	81.6	1.2	81.6	1.2	-66	258	78.74	1.56	0.04	10.56	0.08	10.67
767-3-r1-40	85.4	1.4	85.4	1.4	342	135	74.48	1.55	0.05	5.96	0.1	6.16
767-3-r2-55	86.5	1.4	86.5	1.4	475	200	73.21	1.69	0.06	9.06	0.11	9.22
767-3-r1-27	87.5	1.7	87.5	1.7	-50	630	73.43	2.28	0.05	25.89	0.08	25.99
767-3-r1-8	87.7	1.3	87.7	1.3	210	128	72.81	1.41	0.05	5.54	0.1	5.72
767-3-r1-29	91.3	1.1	91.3	1.1	77	112	70.15	1.19	0.05	4.72	0.09	4.87
767-3-r1-19	91.3	2.2	91.3	2.2	-493	985	70.93	2.84	0.04	37.06	0.07	37.17
767-3-r1-36	91.4	2.8	91.4	2.8	72.02	3.91	0.02	90.76	0.05	90.84		
767-3-r1-30	98.7	0.9	98.7	0.9	-246	182	65.34	0.92	0.04	7.21	0.09	7.27
767-3-r1-47	100.1	0.7	100.1	0.7	151	63	63.79	0.69	0.05	2.7	0.11	2.79
767-3-r2-53	102.7	1.2	102.7	1.2	62	210	62.33	1.24	0.05	8.81	0.1	8.9
767-3-r1-4	107.2	1.1	107.2	1.1	7	129	59.81	1.02	0.05	5.35	0.11	5.45
767-3-r1-45	115.1	0.9	115.1	0.9	14	161	55.62	0.81	0.05	6.71	0.11	6.76
767-3-r1-17	139.7	0.9	139.7	0.9	725	42	44.83	0.6	0.06	1.97	0.2	2.06
767-3-r1-42	140.4	2.3	140.4	2.3	250	142	45.27	1.63	0.05	6.15	0.16	6.36
767-3-r1-16	149.4	1.8	149.4	1.8	67	105	42.75	1.17	0.05	4.41	0.15	4.56
767-3-r1-35	153.7	4.2	153.7	4.2	675	385	40.78	2.88	0.06	17.99	0.21	18.22
767-3-r1-32	157.4	1.9	157.4	1.9	375	92	40.21	1.17	0.05	4.11	0.19	4.27
767-3-r1-50	157.5	3.5	157.5	3.5	-309	512	40.86	2.37	0.04	20	0.14	20.14
767-3-r1-38	166.1	2.1	166.1	2.1	309	100	38.17	1.27	0.05	4.41	0.19	4.58
767-3-r1-43	166.8	2.1	166.8	2.1	-378	262	38.6	1.3	0.04	10.11	0.14	10.19
767-3-r1-22	173.9	2.1	173.9	2.1	67	436	36.67	1.57	0.05	18.33	0.18	18.4
767-3-r1-11	180.1	2.6	180.1	2.6	326	158	35.15	1.43	0.05	6.94	0.21	7.09
767-3-r1-25	181.6	2.2	181.6	2.2	576	220	34.59	1.4	0.06	10.13	0.24	10.22
767-3-r1-46	185.2	2.4	185.2	2.4	-1018	1140	35.09	1.89	0.03	38.3	0.12	38.35
767-3-r1-5	355.6	2.8	355.6	2.8	425	57	17.6	0.78	0.06	2.54	0.43	2.65
767-3-r1-6	485.2	5.1	485.2	5.1	593	58	12.75	1.05	0.06	2.69	0.65	2.89
767-3-r1-21	1600.0	18.0	1548.4	11.4	1600	18	3.67	0.74	0.1	0.99	3.71	1.23
767-3-r1-24	2252.0	46.0	1955.5	19.1	2252	46	2.74	0.8	0.14	2.64	7.15	2.76
767-3-r1-52	2679.0	14.0	2729.9	39.6	2679	14	1.91	1.08	0.18	0.84	13.18	1.37

Arizona LaserChron Center analyses of CR-85, CR-52

				Isotope ratios								Apparent ages (Ma)							
Analysis	U (ppm)	206Pb/204Pb	U/Th	206Pb*/207Pb*	± (%)	207Pb*/235U*	± (%)	206Pb*/238U	± (%)	error corr.	206Pb*/238U*	± (Ma)	207Pb*/235U	± (Ma)	206Pb*/207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
CR-85-12	287	8938	2.7	20.0441	22.2	0.0543	22.9	0.0079	5.6	0.24	50.7	2.8	53.7	12.0	189.9	521.2	50.7	2.8	NA
CR-85-81	789	16253	1.8	20.8548	7.8	0.0537	9.5	0.0081	5.4	0.57	52.2	2.8	53.1	4.9	96.8	185.1	52.2	2.8	NA
CR-85-50	513	7273	3.3	21.2578	13.6	0.0529	14.4	0.0082	4.7	0.33	52.4	2.4	52.3	7.3	51.3	325.8	52.4	2.4	NA
CR-85-15	391	10637	4.4	26.0894	22.0	0.0433	22.7	0.0082	5.5	0.24	52.6	2.9	43.1	9.6	-462.3	587.5	52.6	2.9	NA
CR-85-43	258	7308	3.1	24.4058	40.4	0.0465	40.5	0.0082	3.4	0.08	52.8	1.8	46.1	18.3	-289.2	1066.8	52.8	1.8	NA
CR-85-95	297	8845	3.8	25.3835	35.2	0.0449	35.4	0.0083	3.8	0.11	53.0	2.0	44.6	15.5	-390.4	941.6	53.0	2.0	NA
CR-85-23	104	2039	2.9	~~17.1777~~	~~37.0~~	~~0.0671~~	38.6	0.0084	11.3	0.29	53.7	6.0	~~65.9~~	~~24.7~~	537.9	835.4	53.7	6.0	NA
CR-85-28	474	12237	3.3	20.2435	12.9	0.0571	13.1	0.0084	2.1	0.16	53.8	1.1	56.4	7.2	166.8	303.1	53.8	1.1	NA
CR-85-66	209	3661	3.5	25.7168	39.9	0.0450	40.6	0.0084	7.9	0.19	53.9	4.2	44.7	17.8	-424.5	1080.8	53.9	4.2	NA
CR-85-90	76	2284	3.3	51.4556	88.2	0.0226	89.9	0.0084	17.0	0.19	54.0	9.2	22.6	20.1	-2763.6	1254.1	54.0	9.2	NA
CR-85-75	105	1426	4.5	16.8007	89.9	0.0699	90.5	0.0085	10.5	0.12	54.7	5.7	68.6	60.1	586.2	513.3	54.7	5.7	NA
CR-85-5	155	2453	3.3	23.8847	30.1	0.0492	30.7	0.0085	6.1	0.20	54.7	3.3	48.8	14.6	-234.5	773.1	54.7	3.3	NA
CR-85-6	526	9746	2.6	21.5419	12.5	0.0546	12.8	0.0085	2.8	0.22	54.7	1.5	53.9	6.7	19.6	301.8	54.7	1.5	NA
CR-85-19	246	4783	2.7	22.1943	28.3	0.0532	28.7	0.0086	4.8	0.17	55.0	2.6	52.6	14.7	-52.6	701.4	55.0	2.6	NA
CR-85-51	283	7846	3.6	22.5542	22.9	0.0528	23.1	0.0086	3.0	0.13	55.4	1.6	52.2	11.8	-91.9	567.8	55.4	1.6	NA
CR-85-88	244	4822	3.6	16.2234	70.1	0.0737	70.4	0.0087	6.3	0.09	55.7	3.5	72.2	49.1	661.6	1744.8	55.7	3.5	NA
CR-85-97	137	3358	3.4	27.8327	30.3	0.0452	31.9	0.0091	10.3	0.32	58.6	6.0	44.9	14.0	-636.3	844.5	58.6	6.0	NA
CR-85-57	593	12058	9.0	21.2932	9.6	0.0593	10.0	0.0092	2.9	0.29	58.7	1.7	58.5	5.7	47.4	230.3	58.7	1.7	NA
CR-85-99	194	5123	1.9	29.2835	19.8	0.0432	20.5	0.0092	5.0	0.25	58.8	3.0	42.9	8.6	-777.6	564.3	58.8	3.0	NA
CR-85-20	132	3764	3.2	23.3009	37.3	0.0548	37.8	0.0093	5.8	0.15	59.4	3.4	54.2	19.9	-172.4	959.1	59.4	3.4	NA
CR-85-44	184	3581	2.6	28.2096	25.1	0.0461	26.6	0.0094	8.6	0.32	60.5	5.2	45.7	11.9	-673.3	702.6	60.5	5.2	NA
CR-85-36	628	16819	3.4	22.0972	10.0	0.0603	11.0	0.0097	4.5	0.41	62.0	2.8	59.5	6.3	-41.9	243.6	62.0	2.8	NA
CR-85-3	171	4591	2.3	24.8193	37.5	0.0545	38.0	0.0098	6.6	0.17	62.9	4.1	53.9	20.0	-332.2	993.4	62.9	4.1	NA
CR-85-54	472	8863	5.3	20.5202	6.3	0.0676	6.6	0.0101	2.1	0.32	64.6	1.4	66.5	4.3	135.0	147.9	64.6	1.4	NA
CR-85-91	169	5018	4.2	23.7652	22.0	0.0585	22.9	0.0101	6.2	0.27	64.7	4.0	57.8	12.8	-221.8	559.0	64.7	4.0	NA
CR-85-48	69	342	8.2	16.9908	28.7	0.0824	30.1	0.0101	8.8	0.29	65.1	5.7	80.4	23.2	561.8	638.5	65.1	5.7	NA
CR-85-34	184	6041	2.6	21.8590	22.9	0.0664	23.6	0.0105	5.6	0.24	67.5	3.8	65.3	14.9	-15.6	560.5	67.5	3.8	NA
CR-85-17	741	14711	34.4	20.9540	10.9	0.0695	12.0	0.0106	5.0	0.42	67.8	3.4	68.3	7.9	85.6	260.2	67.8	3.4	NA
CR-85-59	170	5420	4.2	20.0427	21.5	0.0746	21.8	0.0108	3.6	0.16	69.5	2.5	73.0	15.4	190.1	506.1	69.5	2.5	NA
CR-85-29	193	6109	3.1	25.8545	34.3	0.0582	34.5	0.0109	3.9	0.11	69.9	2.7	57.4	19.3	-438.5	923.5	69.9	2.7	NA
CR-85-52	286	6714	2.0	23.5316	18.5	0.0642	19.5	0.0110	5.9	0.30	70.3	4.1	63.2	11.9	-197.0	467.8	70.3	4.1	NA
CR-85-84	387	17648	10.4	21.2730	14.1	0.0764	14.2	0.0118	2.2	0.16	75.6	1.7	74.8	10.3	49.6	337.1	75.6	1.7	NA
CR-85-16	178	5394	3.8	24.5139	35.3	0.0678	35.4	0.0121	2.7	0.08	77.3	2.1	66.6	22.8	-300.5	927.1	77.3	2.1	NA
CR-85-39	176	6847	3.6	25.1086	25.2	0.0667	27.4	0.0121	10.6	0.39	77.8	8.2	65.6	17.4	-362.1	661.7	77.8	8.2	NA
CR-85-40	355	34827	5.5	21.9280	10.8	0.0766	11.3	0.0122	3.3	0.29	78.0	2.5	74.9	8.2	-23.3	262.6	78.0	2.5	NA
CR-85-70	720	22068	1.7	21.5216	6.5	0.0788	6.8	0.0123	2.0	0.29	78.8	1.6	77.0	5.0	21.8	156.0	78.8	1.6	NA
CR-85-53	324	7786	3.4	23.9333	14.0	0.0709	14.3	0.0123	3.1	0.22	78.8	2.4	69.5	9.6	-239.6	353.9	78.8	2.4	NA
CR-85-62	382	8749	5.1	21.4698	7.8	0.0791	8.4	0.0123	3.0	0.36	78.9	2.4	77.3	6.2	27.6	187.5	78.9	2.4	NA
CR-85-9	278	14669	3.2	22.2845	17.5	0.0766	17.7	0.0124	2.8	0.16	79.3	2.2	74.9	12.8	-62.5	429.2	79.3	2.2	NA
CR-85-100	297	8364	4.0	22.9112	12.3	0.0749	13.0	0.0124	4.0	0.31	79.7	3.2	73.3	9.2	-130.6	305.6	79.7	3.2	NA
CR-85-31	172	6735	2.9	29.6875	40.8	0.0580	41.1	0.0125	4.7	0.11	80.0	3.7	57.2	22.9	-816.5	1203.3	80.0	3.7	NA
CR-85-49	448	9405	4.1	20.8590	10.8	0.0831	10.9	0.0126	1.4	0.13	80.5	1.1	81.0	8.5	96.4	257.3	80.5	1.1	NA
CR-85-94	142	6564	2.4	23.8458	33.5	0.0728	34.0	0.0126	5.7	0.17	80.7	4.6	71.4	23.5	-230.4	866.1	80.7	4.6	NA
CR-85-64	409	8404	3.7	21.2359	12.2	0.0818	12.3	0.0126	1.6	0.13	80.7	1.3	79.8	9.5	53.8	292.6	80.7	1.3	NA
CR-85-10	198	9241	2.3	21.7257	21.8	0.0804	22.5	0.0127	5.4	0.24	81.1	4.4	78.5	17.0	-0.9	532.0	81.1	4.4	NA
CR-85-42	885	32457	5.6	20.8279	3.3	0.0842	4.6	0.0127	3.3	0.70	81.4	2.6	82.1	3.7	99.9	77.9	81.4	2.6	NA
CR-85-46	70	2941	4.0	21.6602	42.8	0.0817	47.1	0.0128	19.6	0.42	82.2	16.0	79.8	36.1	6.4	1075.0	82.2	16.0	NA
CR-85-93	275	9500	3.0	21.5278	14.3	0.0837	14.4	0.0131	2.0	0.14	83.7	1.7	81.6	11.3	21.1	343.8	83.7	1.7	NA
CR-85-25	189	5737	2.9	21.8412	20.9	0.0832	21.2	0.0132	3.7	0.18	84.4	3.1	81.1	16.5	-13.7	509.3	84.4	3.1	NA
CR-85-79	290	15932	2.8	20.8891	15.2	0.0889	15.7	0.0135	4.0	0.26	86.3	3.5	86.5	13.0	93.0	361.7	86.3	3.5	NA
CR-85-83	451	15294	15.5	20.5194	6.9	0.0908	7.4	0.0135	2.5	0.34	86.5	2.1	88.3	6.2	135.1	163.1	86.5	2.1	NA
CR-85-45	460	26721	3.2	20.5947	7.9	0.0917	8.8	0.0137	3.8	0.43	87.7	3.3	89.1	7.5	126.5	186.5	87.7	3.3	NA
CR-85-7	154	12186	2.2	22.0481	23.4	0.0871	23.9	0.0139	4.9	0.20	89.2	4.3	84.8	19.5	-36.5	575.6	89.2	4.3	NA
CR-85-86	140	8158	2.6	24.3396	28.3	0.0808	28.7	0.0143	5.0	0.17	91.3	4.5	78.9	21.8	-282.3	731.9	91.3	4.5	NA
CR-85-69	379	10555	4.4	21.2983	8.9	0.0925	9.1	0.0143	1.9	0.21	91.5	1.7	89.9	7.8	46.8	212.2	91.5	1.7	NA
CR-85-58	266	7198	4.4	23.6250	16.0	0.0849	16.1	0.0145	1.6	0.10	93.1	1.4	82.7	12.8	-207.0	403.8	93.1	1.4	NA
CR-85-13	90	3941	2.0	16.7756	35.7	0.1221	36.6	0.0149	7.9	0.22	95.1	7.5	117.0	40.4	589.4	798.2	95.1	7.5	NA
CR-85-85	147	5617	2.8	25.3749	29.6	0.0808	29.8	0.0149	3.5	0.12	95.1	3.3	78.9	22.6	-389.5	783.6	95.1	3.3	NA
CR-85-8	315	16618	2.8	23.2194	18.2	0.0884	18.4	0.0149	2.7	0.14	95.2	2.5	86.0	15.2	-163.7	455.8	95.2	2.5	NA
CR-85-14	696	31833	2.1	21.1652	4.9	0.0983	5.4	0.0151	2.2	0.40	96.6	2.1	95.2	4.9	61.7	117.0	96.6	2.1	NA
CR-85-76	242	12028	2.5	19.3849	16.5	0.1086	16.7	0.0153	2.6	0.15	97.7	2.5	104.7	16.6	267.1	379.7	97.7	2.5	NA
CR-85-2	114	7226	3.4	25.2816	29.1	0.0836	29.5	0.0153	4.9	0.16	98.1	4.7	81.5	23.1	-379.9	768.5	98.1	4.7	NA
CR-85-41	108	4973	1.8	24.6375	34.7	0.0868	36.3	0.0155	10.6	0.29	99.2	10.4	84.5	29.5	-313.4	913.3	99.2	10.4	NA
CR-85-98	157	5713	2.4	22.3349	20.3	0.0975	20.8	0.0158	4.4	0.21	101.0	4.5	94.5	18.8	-68.0	500.7	101.0	4.5	NA
CR-85-1	65	3593	1.8	16.9565	28.9	0.1327	30.7	0.0163	10.4	0.34	104.3	10.7	126.5	36.6	566.2	642.4	104.3	10.7	NA
CR-85-38	303	17001	2.9	21.0359	9.5	0.1072	9.9	0.0164	2.8	0.28	104.6	2.9	103.4	9.7	76.3	225.6	104.6	2.9	NA
CR-85-92	1983	54686	2.2	21.0791	1.2	0.1079	8.9	0.0165	8.8	0.99	105.4	9.2	104.0	8.8	71.4	29.4	105.4	9.2	NA
CR-85-89	193	8503	5.3	20.9667	19.8	0.1090	20.9	0.0166	6.5	0.31	106.0	6.8	105.0	20.8	84.1	474.1	106.0	6.8	NA
CR-85-11	115	3773	5.8	29.2328	28.0	0.0820	28.9	0.0174	7.2	0.25	111.0	7.9	80.0	22.2	-772.7	802.2	111.0	7.9	NA
CR-85-24	220	7621	7.5	18.5131	10.4	0.1367	10.6	0.0184	2.0	0.19	117.3	2.4	130.1	12.9	371.7	234.6	117.3	2.4	NA
CR-85-26	68	4482	3.1	27.6393	41.3	0.0997	41.6	0.0200	5.0	0.12	127.6	6.4	96.5	38.4	-617.2	1169.6	127.6	6.4	NA
CR-85-96	89	4460	2.4	23.6209	21.1	0.1298	21.6	0.0222	4.4	0.20	141.7	6.1	123.9	25.2	-206.5	535.4	141.7	6.1	NA
CR-85-18	224	7583	1.8	22.6053	11.8	0.1357	12.2	0.0222	3.4	0.28	141.8	4.7	129.2	14.8	-97.4	289.8	141.8	4.7	NA
CR-85-73	53	4309	3.6	26.2619	48.3	0.1192	49.3	0.0227	10.0	0.20	144.7	14.3	114.3	53.4	-479.8	1348.5	144.7	14.3	NA
CR-85-61	213	1521	1.7	21.2417	13.8	0.1505	13.9	0.0232	2.2	0.16	147.8	3.2	142.3	18.5	53.1	330.1	147.8	3.2	NA
CR-85-4	189	10135	2.2	19.3604	10.8	0.1662	11.1	0.0233	2.7	0.25	148.7	4.0	156.1	16.1	270.0	248.0	148.7	4.0	NA
CR-85-65	98	11918	4.4	20.5415	19.5	0.1579	19.8	0.0235	3.5	0.18	149.9	5.2	148.9	27.4	132.5	461.3	149.9	5.2	NA
CR-85-47	334	25710	2.5	20.9686	4.9	0.1564	5.3	0.0238	2.1	0.39	151.5	3.1	147.5	7.2	83.9	115.4	151.5	3.1	NA
CR-85-77	231	22489	3.1	20.6834	11.5	0.1593	11.9	0.0239	2.8	0.24	152.2	4.3	150.1	16.6	116.3	272.7	152.2	4.3	NA
CR-85-35	37	1932	3.2	24.2354	34.2	0.1361	37.5	0.0239	15.3	0.41	152.4	23.0	129.6	45.7	-271.4	892.3	152.4	23.0	NA
CR-85-37	161	8438	3.1	21.9163	10.2	0.1524	10.3	0.0242	1.9	0.18	154.3	2.9	144.0	13.9	-22.0	246.4	154.3	2.9	NA
CR-85-55	97	13771	3.2	20.9251	17.2	0.1602	17.4	0.0243	3.2	0.18	154.8	4.9	150.8	24.5	88.9	409.2	154.8	4.9	NA
CR-85-30	160	11317	4.8	21.2960	14.2	0.1584	14.5	0.0245	3.2	0.22	155.9	4.9	149.3	20.2	47.0	340.5	155.9	4.9	NA
CR-85-68	377	45473	1.9	20.7120	4.7	0.1640	4.8	0.0246	1.0	0.20	156.9	1.5	154.2	6.8	113.1	110.1	156.9	1.5	NA
CR-85-21	85	3287	3.9	21.0253	43.8	0.1633	46.0	0.0249	14.2	0.31	158.6	22.2	153.6	65.7	77.5	1087.7	158.6	22.2	NA
CR-85-82	462	22016	6.8	20.3934	3.2	0.1729	4.3	0.0256	2.8	0.65	162.8	4.4	161.9	6.4	149.5	76.1	162.8	4.4	NA
CR-85-22	164	11193	2.4	21.5550	10.8	0.1652	11.1	0.0258	2.8	0.25	164.4	4.5	155.2	16.0	18.1	259.9	164.4	4.5	NA
CR-85-32	347	37089	2.6	20.7128	5.6	0.1782	6.3	0.0268	2.9	0.47	170.3	4.9	166.5	9.7	113.0	131.5	170.3	4.9	NA
CR-85-56	153	11433	1.2	20.3907	11.4	0.1896	12.1	0.0280	3.9	0.32	178.2	6.8	176.3	19.5	149.8	268.8	178.2	6.8	NA
CR-85-27	1773	87271	1.2	20.0926	1.3	0.1928	2.2	0.0281	1.8	0.81	178.6	3.1	179.0	3.6	184.2	29.4	178.6	3.1	NA
CR-85-74	134	8737	3.2	20.4003	6.5	0.2050	7.0	0.0303	2.4	0.34	192.6	4.5	189.3	12.0	148.7	153.5	192.6	4.5	NA

CR-85-67	380	35047	2.2	20.0374	3.4	0.2147	3.7	0.0312	1.4	0.39	198.0	2.8	197.5	6.6	190.7	78.6	198.0	2.8	NA
CR-85-60	154	21887	2.7	19.0258	4.7	0.3323	5.1	0.0459	1.9	0.37	289.0	5.3	291.3	12.9	309.9	107.8	289.0	5.3	NA
CR-85-63	407	113687	3.7	18.5731	1.3	0.4407	1.8	0.0594	1.3	0.71	371.8	4.8	370.8	5.7	364.4	29.2	371.8	4.8	NA
CR-85-R33-8	173	30243	1.7	17.9053	3.8	0.5129	4.1	0.0666	1.5	0.37	415.7	6.0	420.4	14.0	446.4	84.2	~~415.7~~	~~6.0~~	NA
CR-85-R33-9	158	11962	1.7	17.8985	4.8	0.5133	5.6	0.0666	3.0	0.53	415.8	11.9	420.7	19.4	447.2	106.6	~~415.8~~	~~11.9~~	NA
CR-85-33	184	29349	1.7	17.8575	2.2	0.5284	3.3	0.0684	2.4	0.73	426.7	9.9	430.7	11.5	452.3	49.4	426.7	9.9	NA
CR52-38	111	1356	1.3	14.8674	52.0	0.0483	52.8	0.0052	8.8	0.17	33.5	2.9	47.9	24.7	845.9	1163.6	33.5	2.9	NA
CR52-75	255	8568	2.0	20.7361	33.0	0.0348	33.6	0.0052	6.3	0.19	33.6	2.1	34.7	11.5	110.3	797.6	33.6	2.1	NA
CR52-40	182	5316	1.8	23.2537	51.5	0.0313	52.2	0.0053	8.2	0.16	33.9	2.8	31.3	16.1	-167.4	1364.8	33.9	2.8	NA
CR52-31	1111	17076	3.8	21.6552	4.4	0.0339	4.6	0.0053	1.5	0.32	34.3	0.5	33.9	1.5	7.0	105.6	34.3	0.5	NA
CR52-12	804	7386	1.8	25.6243	11.7	0.0293	12.0	0.0054	2.7	0.23	34.9	1.0	29.3	3.5	-415.0	306.8	34.9	1.0	NA
CR52-64	1234	13216	2.6	21.4098	8.2	0.0350	8.7	0.0054	2.9	0.34	35.0	1.0	34.9	3.0	34.3	196.4	35.0	1.0	NA
CR52-26	4643	60954	1.6	21.1396	2.5	0.0355	3.1	0.0054	1.8	0.58	35.0	0.6	35.4	1.1	64.6	59.8	35.0	0.6	NA
CR52-15	2277	48444	2.0	21.5233	6.1	0.0353	6.3	0.0055	1.5	0.25	35.4	0.5	35.2	2.2	21.6	146.0	35.4	0.5	NA
CR52-66	544	15357	2.7	25.3116	9.7	0.0324	10.4	0.0059	3.6	0.35	38.2	1.4	32.4	3.3	-383.0	253.4	38.2	1.4	NA
CR52-39	216	2987	2.6	22.0511	46.8	0.0395	47.2	0.0063	6.0	0.13	40.6	2.4	39.3	18.2	-36.8	1194.8	40.6	2.4	NA
CR52-41	373	1849	1.8	20.4607	24.0	0.0431	24.1	0.0064	3.0	0.12	41.1	1.2	42.8	10.1	141.8	569.4	41.1	1.2	NA
CR52-30	1620	24272	1.9	21.3494	3.4	0.0424	5.5	0.0066	4.3	0.78	42.2	1.8	42.2	2.3	41.1	82.0	42.2	1.8	NA
CR52-84	231	3371	1.2	20.9628	32.3	0.0454	32.4	0.0069	3.2	0.10	44.4	1.4	45.1	14.3	84.6	783.6	44.4	1.4	NA
CR52-73	294	9877	2.3	24.4908	19.4	0.0391	20.1	0.0070	5.0	0.25	44.7	2.2	39.0	7.7	-298.1	500.7	44.7	2.2	NA
CR52-95	149	4010	1.6	20.4525	37.8	0.0482	38.3	0.0072	6.1	0.16	46.0	2.8	47.8	17.9	142.7	916.4	46.0	2.8	NA
CR52-53	577	16191	3.1	21.6689	13.2	0.0456	13.5	0.0072	3.1	0.23	46.0	1.4	45.3	6.0	5.4	317.8	46.0	1.4	NA
CR52-2	285	2990	1.5	24.0760	16.5	0.0413	17.0	0.0072	4.2	0.25	46.3	2.0	41.1	6.8	-254.6	419.3	46.3	2.0	NA
CR52-35	104	1679	1.1	12.9552	112.2	0.0776	112.4	0.0073	6.2	0.06	46.8	2.9	75.9	82.4	1126.1	301.6	46.8	2.9	4.2
CR52-6	289	4339	1.8	22.5476	42.4	0.0463	42.5	0.0076	3.1	0.07	48.6	1.5	46.0	19.1	-91.2	1083.2	48.6	1.5	NA
CR52-90	387	8613	14.6	23.1318	17.0	0.0612	17.2	0.0103	3.0	0.17	65.9	1.9	60.4	10.1	-154.3	423.5	65.9	1.9	NA
CR52-23	345	12590	2.3	~~21.6460~~	~~10.2~~	~~0.0713~~	10.5	0.0112	2.3	0.22	71.7	1.6	~~69.9~~	~~7.1~~	7.9	247.0	71.7	1.6	NA
CR52-76	104	1995	1.8	27.4553	53.9	0.0638	54.5	0.0127	7.9	0.14	81.4	6.4	62.8	33.2	-599.1	1565.2	81.4	6.4	NA
CR52-72	222	6532	4.9	21.1283	11.5	0.0898	11.7	0.0138	2.5	0.21	88.1	2.2	87.3	9.8	65.9	273.5	88.1	2.2	NA
CR52-68	403	19250	2.4	21.2685	10.9	0.0931	11.3	0.0144	2.8	0.25	91.9	2.6	90.4	9.8	50.2	262.0	91.9	2.6	NA
CR52-25	508	27515	4.5	~~21.8240~~	~~9.2~~	~~0.0909~~	11.0	0.0144	6.0	0.55	92.1	5.5	~~88.4~~	~~9.3~~	-11.8	222.8	92.1	5.5	NA
CR52-87	121	4256	1.4	21.5392	42.4	0.0924	45.1	0.0144	15.4	0.34	92.3	14.1	89.7	38.7	19.9	1060.7	92.3	14.1	NA
CR52-92	1007	48151	2.7	21.6018	6.0	0.0923	6.3	0.0145	1.7	0.28	92.6	1.6	89.7	5.4	12.9	144.5	92.6	1.6	NA
CR52-49	281	14729	3.4	20.7927	7.7	0.0962	7.9	0.0145	1.8	0.23	92.9	1.7	93.3	7.1	103.9	182.2	92.9	1.7	NA
CR52-94	357	12599	2.7	21.8478	8.7	0.0920	9.5	0.0146	3.9	0.41	93.3	3.6	89.3	8.1	-14.4	210.0	93.3	3.6	NA
CR52-22	343	39638	2.8	21.9426	16.3	0.0916	17.1	0.0146	5.1	0.30	93.3	4.7	89.0	14.5	-24.9	396.5	93.3	4.7	NA
CR52-55	638	14271	7.8	20.8867	5.1	0.0963	5.3	0.0146	1.2	0.23	93.3	1.1	93.3	4.7	93.2	121.7	93.3	1.1	NA
CR52-96	252	12415	2.3	22.7041	11.3	0.0890	11.4	0.0147	1.4	0.12	93.8	1.3	86.6	9.5	-108.2	279.1	93.8	1.3	NA
CR52-71	538	35262	3.2	21.3694	5.2	0.0947	5.3	0.0147	1.3	0.24	93.9	1.2	91.9	4.7	38.8	123.6	93.9	1.2	NA
CR52-24	426	28406	12.9	~~19.7230~~	~~8.3~~	~~0.1038~~	8.7	0.0148	2.6	0.30	95.0	2.5	~~100.3~~	~~8.3~~	227.3	192.1	95.0	2.5	NA
CR52-67	449	14721	2.4	19.7963	9.5	0.1034	9.9	0.0148	2.7	0.28	95.0	2.6	99.9	9.4	218.8	219.6	95.0	2.6	NA
CR52-13	168	6630	1.8	21.9317	20.2	0.0949	20.3	0.0151	2.1	0.10	96.6	2.0	92.1	17.9	-23.7	493.8	96.6	2.0	NA
CR52-60	491	20686	2.2	21.1070	6.2	0.0998	7.0	0.0153	3.1	0.45	97.7	3.0	96.6	6.4	68.3	148.2	97.7	3.0	NA
CR52-7	129	12164	2.7	27.6517	28.9	0.0767	29.7	0.0154	6.9	0.23	98.5	6.7	75.1	21.5	-618.5	802.4	98.5	6.7	NA
CR52-28	484	21732	2.3	20.6703	6.4	0.1035	6.7	0.0155	1.8	0.27	99.3	1.8	100.0	6.4	117.8	151.7	99.3	1.8	NA
CR52-43	301	27750	3.1	20.5927	10.9	0.1051	11.3	0.0157	2.9	0.26	100.4	2.9	101.5	10.9	126.7	257.9	100.4	2.9	NA
CR52-65	304	8492	1.7	21.9628	7.3	0.0986	7.5	0.0157	1.7	0.23	100.4	1.7	95.4	6.8	-27.1	177.0	100.4	1.7	NA
CR52-11	114	8037	2.7	23.4424	56.8	0.0928	57.0	0.0158	4.5	0.08	100.9	4.5	90.1	49.1	-187.5	1534.5	100.9	4.5	NA
CR52-56	504	26237	2.5	20.1260	6.4	0.1081	6.9	0.0158	2.4	0.35	101.0	2.4	104.3	6.8	180.4	150.3	101.0	2.4	NA
CR52-86	101	3919	2.8	22.7284	20.6	0.0960	21.2	0.0158	5.0	0.24	101.2	5.0	93.1	18.9	-110.8	512.4	101.2	5.0	NA
CR52-48	357	16145	3.1	20.4305	9.8	0.1068	10.0	0.0158	1.8	0.18	101.2	1.8	103.0	9.8	145.2	230.3	101.2	1.8	NA
CR52-100	1674	60227	2.7	20.7886	2.3	0.1064	2.5	0.0160	1.1	0.43	102.6	1.1	102.6	2.5	104.4	54.1	102.6	1.1	NA
CR52-36	174	7653	2.0	19.7094	12.5	0.1122	12.9	0.0160	3.1	0.24	102.6	3.2	108.0	13.2	228.9	290.6	102.6	3.2	NA
CR52-1	233	9104	3.3	22.4178	12.8	0.0997	12.9	0.0162	2.0	0.16	103.6	2.1	96.5	11.9	-77.0	313.9	103.6	2.1	NA
CR52-78	198	10510	1.9	21.4904	14.9	0.1040	15.2	0.0162	3.2	0.21	103.7	3.3	100.5	14.6	25.3	358.5	103.7	3.3	NA
CR52-14	278	6664	1.7	21.3102	14.8	0.1049	14.9	0.0162	1.4	0.09	103.7	1.4	101.3	14.4	45.5	356.1	103.7	1.4	NA
CR52-81	87	3414	3.7	22.0868	34.1	0.1013	34.4	0.0162	4.6	0.13	103.7	4.7	98.0	32.1	-40.8	848.8	103.7	4.7	NA
CR52-99	344	19173	3.5	20.6044	7.9	0.1088	8.3	0.0163	2.8	0.33	104.0	2.9	104.9	8.3	125.3	185.4	104.0	2.9	NA
CR52-51	430	30074	4.9	21.1372	6.6	0.1062	7.0	0.0163	2.3	0.33	104.1	2.4	102.5	6.8	64.9	156.4	104.1	2.4	NA
CR52-10	466	30760	2.1	21.4225	5.2	0.1053	6.7	0.0164	4.2	0.63	104.6	4.4	101.6	6.5	32.9	124.2	104.6	4.4	NA
CR52-8	111	3934	1.8	19.5329	37.8	0.1166	38.0	0.0165	4.4	0.12	105.7	4.6	112.0	40.3	249.6	898.3	105.7	4.6	NA
CR52-3	324	14665	2.6	19.8394	5.6	0.1165	6.4	0.0168	3.0	0.47	107.2	3.2	111.9	6.8	213.7	130.7	107.2	3.2	NA
CR52-57	248	6065	2.5	18.5919	9.4	0.1247	10.4	0.0168	4.6	0.44	107.5	4.9	119.3	11.7	362.1	212.0	107.5	4.9	NA
CR52-63	283	9135	1.9	22.3774	8.6	0.1055	8.8	0.0171	1.5	0.17	109.5	1.6	101.9	8.5	-72.6	211.4	109.5	1.6	NA
CR52-91	686	40880	2.0	20.7299	5.0	0.1149	5.2	0.0173	1.3	0.25	110.4	1.4	110.4	5.4	111.0	117.8	110.4	1.4	NA
CR52-69	140	7465	2.1	19.6706	15.6	0.1216	16.6	0.0174	5.7	0.34	110.9	6.3	116.5	18.3	233.5	362.2	110.9	6.3	NA
CR52-61	161	7716	2.2	18.3079	16.3	0.1308	16.6	0.0174	3.2	0.19	111.0	3.5	124.8	19.5	396.7	366.9	111.0	3.5	NA
CR52-74	259	19507	3.4	21.2171	11.6	0.1139	11.8	0.0175	2.2	0.18	112.0	2.4	109.5	12.2	55.9	276.9	112.0	2.4	NA
CR52-82	179	7979	1.7	23.9747	15.1	0.1008	15.7	0.0175	4.5	0.28	112.0	5.0	97.5	14.6	-244.0	382.5	112.0	5.0	NA
CR52-58	152	4446	2.4	28.6984	47.4	0.0846	47.6	0.0176	4.1	0.09	112.5	4.5	82.4	37.7	-721.0	1387.7	112.5	4.5	NA
CR52-93	163	9005	2.1	19.5627	17.9	0.1241	18.2	0.0176	3.5	0.19	112.5	4.0	118.8	20.5	246.1	415.1	112.5	4.0	NA
CR52-85	604	50528	2.4	20.2703	4.0	0.1225	4.1	0.0180	1.0	0.24	115.1	1.1	117.3	4.6	163.7	93.3	115.1	1.1	NA
CR52-5	222	11975	7.2	21.7272	11.5	0.1325	12.7	0.0209	5.3	0.41	133.2	6.9	126.4	15.1	-1.0	279.2	133.2	6.9	NA
CR52-29	178	10143	2.5	20.4801	13.8	0.1429	14.4	0.0212	4.0	0.28	135.4	5.4	135.6	18.3	139.6	326.4	135.4	5.4	NA
CR52-46	86	8719	2.5	20.9694	23.8	0.1470	24.1	0.0224	3.7	0.15	142.5	5.2	139.3	31.3	83.8	571.1	142.5	5.2	NA
CR52-4	468	31833	1.5	21.0419	4.9	0.1583	5.1	0.0242	1.3	0.26	153.9	2.0	149.2	7.0	75.6	116.2	153.9	2.0	NA
CR52-62	164	24205	2.2	19.6396	13.6	0.1714	13.9	0.0244	3.0	0.22	155.5	4.7	160.6	20.7	237.1	315.0	155.5	4.7	NA
CR52-27	188	27522	1.8	19.6132	11.4	0.1748	11.6	0.0249	1.9	0.17	158.4	3.0	163.6	17.5	240.2	264.6	158.4	3.0	NA
CR52-52	183	6071	2.2	18.9701	15.6	0.1823	15.8	0.0251	2.5	0.16	159.7	4.0	170.1	24.7	316.5	355.8	159.7	4.0	NA
CR52-18	108	11157	2.6	20.5421	14.7	0.1687	14.9	0.0251	2.3	0.16	160.0	3.7	158.3	21.8	132.5	346.4	160.0	3.7	NA
CR52-20	46	10306	4.4	18.7970	36.3	0.1850	38.7	0.0252	13.5	0.35	160.5	21.4	172.3	61.4	337.3	847.9	160.5	21.4	NA
CR52-37	326	29180	2.5	20.7227	9.3	0.1681	9.7	0.0253	3.0	0.31	160.8	4.8	157.8	14.2	111.8	219.1	160.8	4.8	NA
CR52-98	294	16468	2.4	20.6037	5.6	0.1692	5.8	0.0253	1.7	0.29	160.9	2.6	158.7	8.5	125.4	130.8	160.9	2.6	NA
CR52-21	169	12206	2.2	21.1463	7.3	0.1666	7.7	0.0255	2.3	0.30	162.6	3.7	156.5	11.1	63.9	174.9	162.6	3.7	NA
CR52-59	398	28498	2.2	20.2622	4.7	0.1740	5.0	0.0256	1.6	0.33	162.8	2.6	162.9	7.6	164.6	110.9	162.8	2.6	NA
CR52-16	74	639	2.7	25.0614	18.5	0.1411	18.9	0.0256	4.0	0.21	163.2	6.4	134.0	23.7	-357.3	481.2	163.2	6.4	NA
CR52-89	304	20910	1.9	19.9795	6.8	0.1778	6.9	0.0258	1.2	0.18	164.0	2.0	166.2	10.5	197.4	157.1	164.0	2.0	NA
CR52-50	210	11037	2.0	19.7291	5.5	0.1808	6.8	0.0259	3.9	0.58	164.7	6.4	168.8	10.5	226.6	127.7	164.7	6.4	NA
CR52-42	210	16284	1.9	21.4634	9.3	0.1672	9.5	0.0260	1.8	0.19	165.6	3.0	157.0	13.8	28.3	223.4	165.6	3.0	NA
CR52-77	120	9888	8.8	21.4915	14.7	0.1851	15.1	0.0289	3.4	0.23	183.4	6.2	172.4	23.9	25.2	354.4	183.4	6.2	NA
CR52-47	889	82040	26.1	20.0109	1.7	0.1989	2.2	0.0289	1.4	0.64	183.4	2.6	184.2	3.7	193.7	39.2	183.4	2.6	NA
CR52-88	249	27238	13.3	20.4704	5.6	0.1948	5.9	0.0289	2.0	0.34	183.8	3.6	180.7	9.8	140.7	130.5	183.8	3.6	NA
CR52-54	143	16991	2.2	21.4418	13.2	0.1874	13.5	0.0291	2.7	0.20	185.2	4.9	174.4	21.6	30.7	318.4	185.2	4.9	NA
CR52-45	145	8816	12.0	20.4655	12.4	0.1974	12.6	0.0293	2.7	0.21	186.1	5.0	182.9	21.2	141.2	290.9	186.1	5.0	NA
CR52-19	96	9106	11.2	21.0203	16.8	0.1952	17.3	0.0298	4.2	0.24	189.0	7.8	181.0	28.8	78.1	402.1	189.0	7.8	NA
CR52-97	1711	147447	226.6	20.0069	0.9	0.2084	1.5	0.0302	1.2	0.81	192.1	2.2	192.2	2.5	194.2	19.9	192.1	2.2	NA
CR52-34	153	36586	6.7	20.3740	6.9	0.2095	7.1	0.0310	1.9	0.26	196.6	3.6	193.2	12.6	151.8	161.7	196.6	3.6	NA

CR52-32	107	9389	3.7	19.8756	13.4	0.2160	13.7	0.0311	3.1	0.22	197.7	6.0	198.6	24.8	209.5	311.2	197.7	6.0	NA
CR52-80	83	10054	2.7	19.3364	13.8	0.2589	14.7	0.0363	5.0	0.34	229.9	11.4	233.8	30.7	272.8	318.2	229.9	11.4	NA
CR52-44	133	26533	2.9	20.0277	5.6	0.2920	5.8	0.0424	1.5	0.26	267.8	4.0	260.1	13.3	191.8	130.5	267.8	4.0	NA
CR52-70	472	120043	2.6	17.5406	2.1	0.5240	2.5	0.0667	1.5	0.58	416.0	5.9	427.8	8.9	492.0	45.6	416.0	5.9	NA
CR52-R33-11	90	17727	1.8	18.8429	8.7	0.4973	9.0	0.0680	2.4	0.26	423.9	9.8	409.9	30.5	331.8	197.8	~~423.9~~	~~9.8~~	NA
CR52-R33-12	136	26545	1.7	18.0633	6.0	0.5220	6.2	0.0684	1.7	0.27	426.4	7.0	426.5	21.6	426.8	133.5	~~426.4~~	~~7.0~~	NA
CR52-R33-13	75	12518	1.8	17.9095	6.5	0.5373	7.9	0.0698	4.5	0.57	434.9	18.9	436.6	28.0	445.8	144.3	~~434.9~~	~~18.9~~	NA
CR52-17	785	387805	22.0	12.8232	3.8	1.9037	5.4	0.1770	3.9	0.71	1050.8	37.5	1082.4	36.1	1146.5	75.7	1146.5	75.7	91.7
CR52-33	412	773303	2.1	9.4154	0.4	4.0792	1.1	0.2786	1.1	0.95	1584.1	15.4	1650.2	9.4	1735.3	6.4	1735.3	6.4	91.3

Arizona LaserChron Center analyses of CR-2, CR-25, CR-55, CR-90

Analysis	U	206Pb	U/Th	206Pb*	±	207Pb*	±	206Pb*	±	error	206Pb*	±	207Pb*	±	206Pb*	±	Best age	±	Conc
						Isotope ratios							Apparent ages (Ma)						
	(ppm)	204Pb		207Pb*	(%)	235U*	(%)	238U	(%)	corr.	238U*	(Ma)	235U	(Ma)	207Pb*	(Ma)	(Ma)	(Ma)	(%)
CR2-71	135	3541	3.4	19.8605	26.7	0.0560	28.1	0.0081	8.6	0.31	51.8	4.4	55.3	15.1	211.2	628.9	51.8	4.4	NA
CR2-96	363	8935	2.3	23.0532	18.6	0.0490	19.6	0.0082	6.0	0.31	52.5	3.1	48.5	9.3	-145.8	465.1	52.5	3.1	NA
CR2-19	1400	30172	1.1	20.4413	8.6	0.0561	8.8	0.0083	2.0	0.22	53.4	1.0	55.4	4.8	144.0	202.2	53.4	1.0	NA
CR2-94	2222	54370	26.2	20.8094	2.5	0.0558	2.9	0.0084	1.6	0.54	54.1	0.8	55.1	1.6	102.0	58.5	54.1	0.8	NA
CR2-25	164	3523	2.4	21.4600	35.0	0.0560	35.6	0.0087	6.3	0.18	56.0	3.5	55.4	19.2	28.7	862.8	56.0	3.5	NA
CR2-8	669	16184	2.9	21.4909	5.5	0.0587	5.9	0.0091	2.2	0.38	58.7	1.3	57.9	3.3	25.2	132.2	58.7	1.3	NA
CR2-66	220	6651	2.8	22.3716	24.3	0.0581	24.8	0.0094	5.0	0.20	60.4	3.0	57.3	13.8	-72.0	601.7	60.4	3.0	NA
CR2-24	319	3015	1.4	19.7095	13.8	0.0661	14.9	0.0095	5.6	0.38	60.6	3.4	65.0	9.4	228.9	319.9	60.6	3.4	NA
CR2-93	536	19471	2.6	20.9563	11.8	0.0625	12.1	0.0095	2.6	0.22	61.0	1.6	61.6	7.2	85.4	281.6	61.0	1.6	NA
CR2-65	104	5945	2.8	20.1972	32.1	0.0666	35.9	0.0097	16.2	0.45	62.5	10.1	65.4	22.8	172.1	766.0	62.5	10.1	NA
CR2-75	206	9181	2.1	21.9206	30.3	0.0623	32.0	0.0099	10.3	0.32	63.6	6.5	61.4	19.0	-22.4	747.4	63.6	6.5	NA
CR2-28	470	27943	1.6	22.7031	13.2	0.0631	13.9	0.0104	4.5	0.32	66.6	3.0	62.1	8.4	-108.0	326.3	66.6	3.0	NA
CR2-13	2624	60393	3.2	21.3985	1.7	0.0674	2.4	0.0105	1.6	0.68	67.1	1.1	66.2	1.5	35.5	41.6	67.1	1.1	NA
CR2-58	133	5399	3.0	18.6907	31.9	0.0790	34.0	0.0107	11.7	0.34	68.7	8.0	77.2	25.3	350.2	738.9	68.7	8.0	NA
CR2-60	1075	33948	2.6	20.6398	6.1	0.0730	6.4	0.0109	1.9	0.30	70.1	1.3	71.6	4.4	121.3	144.4	70.1	1.3	NA
CR2-42	269	11873	5.6	21.8574	13.6	0.0690	13.9	0.0109	2.7	0.19	70.2	1.9	67.8	9.1	-15.5	331.1	70.2	1.9	NA
CR2-72	377	8033	2.1	24.0150	17.5	0.0632	18.2	0.0110	4.8	0.26	70.6	3.3	62.2	11.0	-248.2	446.3	70.6	3.3	NA
CR2-16	1103	23500	2.1	20.2154	2.7	0.0760	3.1	0.0111	1.4	0.47	71.4	1.0	74.4	2.2	170.0	63.1	71.4	1.0	NA
CR2-15	107	1758	1.8	19.7342	50.8	0.0781	54.1	0.0112	18.6	0.34	71.7	13.2	76.4	39.8	226.0	1251.0	71.7	13.2	NA
CR2-46	1553	69338	4.4	20.9163	4.0	0.0740	5.2	0.0112	3.4	0.64	72.0	2.4	72.5	3.7	89.9	95.3	72.0	2.4	NA
CR2-50	79	2217	3.1	15.5602	26.5	0.1040	27.6	0.0117	7.7	0.28	75.2	5.8	100.4	26.4	750.4	568.4	75.2	5.8	NA
CR2-63	165	5228	1.4	19.9619	19.7	0.0811	20.1	0.0117	4.0	0.20	75.3	3.0	79.2	15.3	199.4	461.1	75.3	3.0	NA
CR2-29	120	3246	2.1	29.9549	47.4	0.0542	47.8	0.0118	6.7	0.14	75.4	5.0	53.6	25.0	-842.1	1422.3	75.4	5.0	NA
CR2-78	147	5151	5.9	19.5492	34.7	0.0832	35.6	0.0118	7.8	0.22	75.6	5.9	81.2	27.8	247.7	821.7	75.6	5.9	NA
CR2-67	777	31309	2.3	22.1121	5.0	0.0736	5.5	0.0118	2.2	0.40	75.6	1.6	72.1	3.8	-43.5	121.3	75.6	1.6	NA
CR2-37	349	17278	2.7	22.8707	18.1	0.0719	18.1	0.0119	1.6	0.09	76.4	1.2	70.5	12.3	-126.2	448.9	76.4	1.2	NA
CR2-69	127	3651	2.7	22.0046	26.9	0.0750	27.9	0.0120	7.4	0.26	76.7	5.6	73.4	19.8	-31.7	662.5	76.7	5.6	NA
CR2-57	280	8994	1.1	22.0040	14.5	0.0754	14.9	0.0120	3.5	0.23	77.1	2.6	73.8	10.6	-31.6	354.2	77.1	2.6	NA
CR2-41	104	4519	2.5	15.5116	16.9	0.1070	17.5	0.0120	4.6	0.26	77.2	3.5	103.3	17.2	757.0	358.9	77.2	3.5	NA
CR2-17	187	6982	2.9	19.1308	14.7	0.0877	15.0	0.0122	3.3	0.22	78.0	2.6	85.3	12.3	297.3	336.4	78.0	2.6	NA
CR2-44	34	1168	249.2	23.6025	183.1	0.0716	184.0	0.0122	18.3	0.10	78.5	14.3	70.2	125.4	-204.6	0.0	78.5	14.3	NA
CR2-54	503	10850	1.2	20.7030	16.6	0.0821	16.8	0.0123	3.1	0.18	79.0	2.4	80.1	13.0	114.1	392.8	79.0	2.4	NA
CR2-14	607	28422	3.4	21.4826	12.0	0.0816	12.1	0.0127	1.4	0.12	81.4	1.2	79.6	9.2	26.2	288.1	81.4	1.2	NA
CR2-80	108	4561	2.4	30.4559	37.5	0.0578	38.2	0.0128	7.2	0.19	81.8	5.8	57.0	21.2	-889.8	1116.5	81.8	5.8	NA
CR2-100	126	6712	3.1	26.4936	31.3	0.0665	32.1	0.0128	6.8	0.21	81.8	5.6	65.3	20.3	-503.1	851.9	81.8	5.6	NA
CR2-97	685	22907	2.2	21.0758	4.9	0.0836	5.4	0.0128	2.2	0.40	81.9	1.8	81.5	4.2	71.9	117.7	81.9	1.8	NA
CR2-33	128	2401	2.3	22.5213	31.4	0.0784	32.2	0.0128	7.5	0.23	82.0	6.1	76.6	23.8	-88.3	785.8	82.0	6.1	NA
CR2-23	614	16619	2.0	21.2894	7.2	0.0855	7.4	0.0132	1.7	0.23	84.5	1.4	83.3	5.9	47.8	171.3	84.5	1.4	NA
CR2-32	79	2205	2.3	23.7571	93.4	0.0769	93.6	0.0132	6.6	0.07	84.8	5.6	75.2	67.9	-221.0	1139.8	84.8	5.6	NA
CR2-30	622	38440	19.7	21.6950	7.4	0.0855	7.6	0.0135	1.6	0.21	86.2	1.4	83.3	6.1	2.5	178.6	86.2	1.4	NA
CR2-53	483	19557	3.2	21.6757	8.8	0.0858	8.9	0.0135	1.8	0.20	86.4	1.5	83.6	7.2	4.7	211.4	86.4	1.5	NA
CR2-77	211	9330	4.1	22.3344	11.3	0.0833	11.7	0.0135	2.8	0.24	86.4	2.4	81.2	9.1	-67.9	277.8	86.4	2.4	NA
CR2-95	230	10663	2.5	20.0001	16.0	0.0931	16.1	0.0135	1.8	0.11	86.5	1.6	90.4	13.9	195.0	374.0	86.5	1.6	NA
CR2-61	215	8613	7.6	24.8729	18.4	0.0755	19.4	0.0136	6.0	0.31	87.2	5.2	73.9	13.8	-337.8	478.0	87.2	5.2	NA
CR2-86	508	14431	2.7	20.5200	10.3	0.0919	10.4	0.0137	1.4	0.13	87.6	1.2	89.3	8.9	135.0	241.8	87.6	1.2	NA
CR2-31	1003	58611	3.9	20.9321	1.9	0.0913	2.4	0.0139	1.4	0.58	88.7	1.2	88.7	2.0	88.1	45.9	88.7	1.2	NA
CR2-72	284	8814	2.0	20.4222	8.3	0.0947	9.7	0.0140	4.9	0.50	89.8	4.4	91.9	8.5	146.2	196.0	89.8	4.4	NA
CR2-43	1247	52665	3.2	20.4587	2.8	0.0950	3.1	0.0141	1.3	0.41	90.2	1.1	92.1	2.7	142.0	65.5	90.2	1.1	NA
CR2-90	595	92476	11.4	21.6532	6.6	0.0900	7.1	0.0141	2.7	0.38	90.5	2.5	87.5	6.0	7.2	158.7	90.5	2.5	NA
CR2-52	428	20449	2.3	21.3802	10.2	0.0912	10.9	0.0141	3.6	0.33	90.6	3.2	88.7	9.2	37.6	245.8	90.6	3.2	NA
CR2-3	1226	35328	3.9	20.5236	2.2	0.0955	3.3	0.0142	2.4	0.75	91.0	2.2	92.6	2.9	134.6	51.0	91.0	2.2	NA
CR2-99	192	11082	2.3	24.4238	30.3	0.0804	30.5	0.0142	3.7	0.12	91.1	3.4	78.5	23.0	-291.1	787.6	91.1	3.4	NA
CR2-91	62	1387	2.4	17.6350	34.9	0.1118	38.2	0.0143	15.5	0.41	91.5	14.1	107.6	39.0	480.1	793.4	91.5	14.1	NA
CR2-26	293	15420	2.7	21.2040	10.7	0.0944	11.0	0.0145	2.5	0.22	92.9	2.3	91.6	9.6	57.4	255.7	92.9	2.3	NA
CR2-84	538	16344	5.0	21.2771	5.4	0.0942	7.0	0.0145	4.4	0.64	93.0	4.1	91.4	6.1	49.1	127.9	93.0	4.1	NA
CR2-39	569	26098	3.0	20.7300	5.7	0.0985	6.0	0.0148	1.8	0.30	94.7	1.7	95.4	5.4	111.0	134.8	94.7	1.7	NA
CR2-45	1581	90988	1.6	20.5506	2.6	0.0994	3.5	0.0148	2.4	0.68	94.8	2.3	96.2	3.3	131.5	61.1	94.8	2.3	NA
CR2-85	849	28234	1.5	21.0575	3.9	0.0973	4.1	0.0149	1.3	0.31	95.1	1.2	94.3	3.7	73.9	92.4	95.1	1.2	NA
CR2-12	137	3240	2.9	22.3159	29.3	0.0948	29.7	0.0153	4.9	0.16	98.1	4.7	92.0	26.1	-65.9	728.7	98.1	4.7	NA
CR2-1	428	21909	3.6	20.8254	5.4	0.1054	6.0	0.0159	2.6	0.43	101.8	2.6	101.7	5.8	100.2	127.5	101.8	2.6	NA
CR2-92	428	10782	2.0	19.8824	8.7	0.1115	9.0	0.0161	2.4	0.26	102.8	2.4	107.3	9.2	208.7	202.9	102.8	2.4	NA
CR2-11	144	15933	1.7	23.3394	23.5	0.1021	23.8	0.0173	3.9	0.17	110.4	4.3	98.7	22.4	-176.5	592.6	110.4	4.3	NA
CR2-20	518	43639	2.5	19.8751	4.9	0.1232	7.5	0.0178	5.7	0.76	113.5	6.5	118.0	8.4	209.5	113.4	113.5	6.5	NA
CR2-49	111	5276	1.8	26.2607	22.0	0.0985	22.5	0.0188	4.8	0.21	119.8	5.7	95.4	20.5	-479.6	589.0	119.8	5.7	NA
CR2-9	155	5868	2.5	23.3982	18.1	0.1157	18.2	0.0196	2.1	0.11	125.4	2.6	111.2	19.2	-182.8	454.7	125.4	2.6	NA
CR2-48	191	13109	1.7	23.9671	14.6	0.1266	14.6	0.0220	1.4	0.09	140.3	1.9	121.0	16.7	-243.2	370.0	140.3	1.9	NA
CR2-79	87	7180	3.5	23.4173	22.6	0.1299	23.4	0.0221	5.9	0.25	140.7	8.2	124.0	27.3	-184.8	571.4	140.7	8.2	NA
CR2-64	136	5210	3.0	25.6205	23.7	0.1218	23.8	0.0226	2.8	0.12	144.2	3.9	116.7	26.3	-414.7	626.0	144.2	3.9	NA
CR2-82	286	13488	2.5	21.0067	14.0	0.1495	14.1	0.0228	1.7	0.12	145.2	2.5	141.5	18.7	79.6	334.5	145.2	2.5	NA
CR2-56	106	8636	1.7	21.7394	30.9	0.1452	31.1	0.0229	3.3	0.11	145.9	4.8	137.6	40.1	-2.4	761.7	145.9	4.8	NA
CR2-62	149	9346	3.9	20.6149	15.4	0.1566	16.0	0.0234	4.4	0.27	149.2	6.4	147.7	22.0	124.1	364.4	149.2	6.4	NA
CR2-81	120	9132	2.9	18.6774	17.1	0.1739	17.2	0.0236	1.2	0.07	150.1	1.8	162.8	25.8	351.8	389.3	150.1	1.8	NA
CR2-87	83	7414	2.5	23.7219	25.4	0.1379	25.5	0.0237	2.7	0.11	151.2	4.1	131.2	31.4	-217.2	647.0	151.2	4.1	NA
CR2-5	84	4129	2.1	20.4393	17.1	0.1618	17.9	0.0240	5.3	0.30	152.8	8.1	152.3	25.4	144.2	404.5	152.8	8.1	NA
CR2-98	489	35213	1.8	20.6259	5.2	0.1617	5.5	0.0242	1.9	0.34	154.1	2.9	152.2	7.8	122.9	122.1	154.1	2.9	NA
CR2-34	267	23558	3.9	22.0781	6.4	0.1649	7.0	0.0264	2.7	0.39	168.0	4.5	155.0	10.0	-39.8	155.7	168.0	4.5	NA
CR2-68	103	7420	2.1	21.8745	23.5	0.1726	23.7	0.0274	3.1	0.13	174.1	5.3	161.6	35.4	-17.4	574.6	174.1	5.3	NA
CR2-70	1196	83537	2.0	19.9600	1.4	0.1979	2.4	0.0287	1.9	0.80	182.1	3.5	183.4	4.0	199.6	33.1	182.1	3.5	NA
CR2-36	252	26255	1.8	21.0371	7.3	0.1902	7.7	0.0290	2.5	0.33	184.4	4.6	176.8	12.5	76.2	173.5	184.4	4.6	NA
CR2-55	125	7581	1.7	23.0268	22.7	0.1762	22.9	0.0294	2.6	0.11	187.0	4.7	164.8	34.8	-143.0	569.4	187.0	4.7	NA
CR2-4	145	6841	1.7	21.4683	16.1	0.1903	16.2	0.0296	2.2	0.14	188.2	4.1	176.9	26.4	27.8	387.7	188.2	4.1	NA
CR2-88	494	41587	4.0	19.3768	4.4	0.2169	4.6	0.0305	1.2	0.26	193.6	2.2	199.3	8.2	268.1	101.0	193.6	2.2	NA
CR2-89	94	2937	3.3	19.2694	13.0	0.2462	13.2	0.0344	2.4	0.18	218.1	5.1	223.5	26.4	280.8	297.5	218.1	5.1	NA
CR2-18	491	53119	2.1	19.5593	3.4	0.2471	3.5	0.0351	0.8	0.22	222.1	1.6	224.2	7.0	246.5	78.2	222.1	1.6	NA
CR2-76	377	36320	3.3	18.9832	2.5	0.3229	2.7	0.0445	1.1	0.41	280.4	3.1	284.1	6.8	314.9	57.0	280.4	3.1	NA
CR2-51	387	62904	2.7	18.3345	1.9	0.4383	2.2	0.0583	1.2	0.53	365.2	4.1	369.0	6.8	393.5	41.8	365.2	4.1	NA
CR2-R331	163	35740	1.6	17.7416	5.0	~~0.5207~~	~~5.1~~	~~0.0670~~	~~0.9~~	~~0.18~~	418.0	3.8	425.6	17.6	466.7	110.3	~~418.0~~	~~3.8~~	NA
CR2-R33-2	714	46741	1.3	17.9603	1.4	~~0.5164~~	~~1.7~~	~~0.0673~~	~~1.0~~	~~0.58~~	419.6	4.0	422.7	5.8	439.5	30.3	~~419.6~~	~~4.0~~	NA
CR2-R33-3	203	34523	1.6	17.8171	4.4	~~0.5241~~	~~4.6~~	~~0.0677~~	~~1.4~~	~~0.29~~	422.4	5.6	427.9	16.2	457.4	98.4	~~422.4~~	~~5.6~~	NA
CR2-6	523	160668	2.2	11.7302	0.3	1.6892	4.3	0.1437	4.3	1.00	865.6	34.6	1004.5	27.3	1321.2	6.7	1321.2	6.7	65.5
CR2-74	120	80844	1.3	10.8264	1.1	2.5603	4.0	0.2010	3.8	0.96	1180.9	41.4	1289.4	29.2	1474.9	21.3	1474.9	21.3	80.1

CR2-10	183	96292	2.2	9.9546	0.4	3.8639	1.5	0.2790	1.4	0.96	1586.2	20.0	1606.2	12.0	1632.5	8.1	1632.5	8.1	97.2
CR2-83	276	212140	5.8	9.4918	0.2	4.4072	1.0	0.3034	1.0	0.98	1708.1	15.1	1713.7	8.5	1720.5	3.7	1720.5	3.7	99.3
CR2-7	296	307183	2.3	9.3847	0.4	4.3266	1.2	0.2945	1.1	0.95	1663.9	16.5	1698.4	9.8	1741.3	6.9	1741.3	6.9	95.6
CR2-59	96	35748	1.5	9.0571	0.5	4.8393	1.3	0.3179	1.2	0.93	1779.4	18.6	1791.8	10.8	1806.2	8.6	1806.2	8.6	98.5
CR2-2	283	165333	1.2	5.4985	0.2	11.9954	1.3	0.4784	1.2	0.99	2520.1	25.8	2604.0	11.8	2670.0	3.6	2670.0	3.6	94.4
CR25-68	92	2034	4.7	16.9396	91.2	0.0606	93.2	0.0075	19.2	0.21	47.8	9.1	59.8	54.1	568.3	535.6	47.8	9.1	NA
CR25-39	584	9363	2.9	21.9180	11.4	0.0536	11.9	0.0085	3.2	0.27	54.6	1.7	53.0	6.1	-22.2	277.8	54.6	1.7	NA
CR25-90	701	10382	1.9	18.9607	7.0	0.0631	7.3	0.0087	2.0	0.28	55.7	1.1	62.2	4.4	317.6	158.9	55.7	1.1	NA
CR25-69	604	14630	1.8	22.1224	11.4	0.0567	11.6	0.0091	2.4	0.20	58.4	1.4	56.0	6.3	-44.7	277.7	58.4	1.4	NA
CR25-79	215	6420	2.1	26.0014	26.8	0.0484	27.1	0.0091	4.4	0.16	58.6	2.6	48.0	12.7	-453.4	716.7	58.6	2.6	NA
CR25-62	107	2323	3.3	10.4149	239.9	0.1212	240.3	0.0092	14.9	0.06	58.7	8.7	116.1	269.9	1548.1	673.7	58.7	8.7	3.8
CR25-80	169	2369	1.8	19.3662	38.2	0.0663	39.2	0.0093	8.7	0.22	59.8	5.2	65.2	24.8	269.3	907.0	59.8	5.2	NA
CR25-45	1414	37603	6.5	21.2585	2.6	0.0606	4.1	0.0093	3.2	0.77	60.0	1.9	59.8	2.4	51.3	62.6	60.0	1.9	NA
CR25-74	205	3758	3.2	21.9966	30.7	0.0592	31.1	0.0094	4.9	0.16	60.6	3.0	58.4	17.6	-30.8	758.8	60.6	3.0	NA
CR25-76	109	4761	2.0	21.7832	57.4	0.0607	57.9	0.0096	8.2	0.14	61.6	5.0	59.9	33.7	-7.3	1503.1	61.6	5.0	NA
CR25-3	377	10597	4.0	24.4275	21.5	0.0543	21.8	0.0096	3.9	0.18	61.7	2.4	53.7	11.4	-291.5	553.6	61.7	2.4	NA
CR25-82	447	7140	3.7	17.9369	25.6	0.0748	25.9	0.0097	4.0	0.16	62.4	2.5	73.3	18.3	442.4	578.2	62.4	2.5	NA
CR25-75	235	4839	2.5	22.0198	21.8	0.0640	22.5	0.0102	5.8	0.26	65.5	3.8	62.9	13.8	-33.4	533.7	65.5	3.8	NA
CR25-67	221	7302	2.3	21.8403	13.3	0.0664	15.5	0.0105	7.9	0.51	67.4	5.3	65.2	9.8	-13.6	323.0	67.4	5.3	NA
CR25-40	715	14255	1.9	21.6311	11.0	0.0671	11.3	0.0105	2.8	0.25	67.5	1.9	66.0	7.2	9.6	264.9	67.5	1.9	NA
CR25-31	162	12361	3.3	24.4245	49.0	0.0599	49.1	0.0106	3.6	0.07	68.0	2.5	59.0	28.2	-291.2	1320.9	68.0	2.5	NA
CR25-98	76	3577	1.9	19.0485	42.1	0.0782	43.6	0.0108	11.5	0.26	69.3	7.9	76.5	32.1	307.1	999.9	69.3	7.9	NA
CR25-51	187	3411	2.5	24.7468	23.9	0.0628	25.6	0.0113	9.1	0.36	72.3	6.5	61.9	15.4	-324.7	621.8	72.3	6.5	NA
CR25-29	375	10683	7.1	22.6490	11.4	0.0696	11.5	0.0114	1.8	0.16	73.3	1.3	68.4	7.6	-102.2	280.3	73.3	1.3	NA
CR25-6	168	10074	1.7	24.2592	30.0	0.0659	30.4	0.0116	4.9	0.16	74.4	3.6	64.8	19.1	-273.9	777.6	74.4	3.6	NA
CR25-9	171	6578	1.8	21.2362	28.3	0.0770	28.8	0.0119	5.3	0.18	76.0	4.0	75.3	20.9	53.7	687.6	76.0	4.0	NA
CR25-48	147	6609	2.5	26.1776	26.0	0.0634	26.3	0.0120	4.1	0.16	77.2	3.2	62.4	15.9	-471.2	696.4	77.2	3.2	NA
CR25-23	214	5302	2.1	20.6267	25.2	0.0819	25.5	0.0123	3.6	0.14	78.5	2.8	79.9	19.6	122.8	602.4	78.5	2.8	NA
CR25-59	188	8351	4.1	21.9024	31.5	0.0772	31.6	0.0123	2.7	0.08	78.6	2.1	75.5	23.0	-20.4	779.2	78.6	2.1	NA
CR25-27	342	18264	7.8	21.3405	16.0	0.0798	16.3	0.0123	3.2	0.20	79.1	2.5	77.9	12.3	42.1	385.5	79.1	2.5	NA
CR25-100	174	4035	9.1	25.2730	39.1	0.0675	39.3	0.0124	3.1	0.08	79.3	2.4	66.3	25.2	-379.1	1050.7	79.3	2.4	NA
CR25-46	335	9060	5.6	22.5291	22.3	0.0796	22.8	0.0130	4.7	0.21	83.3	3.9	77.8	17.1	-89.2	553.2	83.3	3.9	NA
CR25-70	424	11853	23.5	20.1602	13.7	0.0908	14.1	0.0133	3.6	0.26	85.0	3.1	88.2	11.9	176.4	319.8	85.0	3.1	NA
CR25-52	646	29310	2.8	22.1010	8.2	0.0829	8.7	0.0133	3.0	0.35	85.1	2.6	80.8	6.8	-42.3	199.7	85.1	2.6	NA
CR25-47	211	11086	3.2	24.7957	41.2	0.0750	41.2	0.0135	2.1	0.05	86.4	1.8	73.5	29.2	-329.8	1098.2	86.4	1.8	NA
CR25-95	120	5680	2.3	31.0856	34.7	0.0599	35.1	0.0135	5.2	0.15	86.5	4.5	59.1	20.1	-949.4	1041.8	86.5	4.5	NA
CR25-8	212	6973	2.6	23.4011	24.6	0.0806	25.2	0.0137	5.8	0.23	87.5	5.0	78.7	19.1	-183.1	621.1	87.5	5.0	NA
CR25-58	1089	26666	1.0	21.4696	3.4	0.0879	3.8	0.0137	1.7	0.44	87.6	1.4	85.5	3.1	27.6	81.2	87.6	1.4	NA
CR25-11	1131	67396	25.2	21.1671	3.5	0.0896	3.7	0.0138	1.3	0.35	88.1	1.1	87.1	3.1	61.6	82.4	88.1	1.1	NA
CR25-73	219	9086	2.2	22.9917	20.8	0.0849	21.5	0.0142	5.3	0.25	90.6	4.8	82.8	17.1	-139.2	520.8	90.6	4.8	NA
CR25-26	471	12311	1.8	21.9279	10.8	0.0891	10.9	0.0142	1.2	0.11	90.7	1.1	86.7	9.0	-23.2	262.4	90.7	1.1	NA
CR25-64	202	6270	3.9	23.4375	9.5	0.0846	10.2	0.0144	3.9	0.38	92.1	3.5	82.5	8.1	-187.0	237.6	92.1	3.5	NA
CR25-66	308	8904	2.6	21.1889	8.6	0.0939	8.8	0.0144	1.7	0.20	92.3	1.6	91.1	7.7	59.1	206.5	92.3	1.6	NA
CR25-33	492	23951	2.7	23.0304	7.6	0.0866	7.8	0.0145	1.5	0.19	92.6	1.3	84.3	6.3	-143.4	189.6	92.6	1.3	NA
CR25-24	209	7312	2.7	25.4588	23.1	0.0784	23.6	0.0145	4.5	0.19	92.7	4.1	76.7	17.4	-398.1	609.6	92.7	4.1	NA
CR25-83	104	2177	2.7	18.8625	34.7	0.1061	35.8	0.0145	8.9	0.25	92.9	8.2	102.3	34.9	329.4	809.9	92.9	8.2	NA
CR25-42	156	7333	2.0	20.3990	22.0	0.0988	22.8	0.0146	5.7	0.25	93.6	5.3	95.7	20.8	148.9	522.1	93.6	5.3	NA
CR25-19	123	9200	3.4	20.0862	27.1	0.1026	28.3	0.0149	8.4	0.30	95.7	8.0	99.2	26.8	185.0	640.4	95.7	8.0	NA
CR25-35	347	22394	4.6	19.2560	8.4	0.1075	9.1	0.0150	3.4	0.37	96.0	3.2	103.6	9.0	282.4	193.3	96.0	3.2	NA
CR25-43	1010	25339	2.9	20.7116	4.0	0.1001	4.4	0.0150	1.9	0.42	96.3	1.8	96.9	4.1	113.1	95.1	96.3	1.8	NA
CR25-18	1861	39357	14.1	20.7026	1.8	0.1012	2.6	0.0152	1.9	0.71	97.2	1.8	97.8	2.5	114.1	43.5	97.2	1.8	NA
CR25-87	1544	57566	6.6	20.6327	2.5	0.1031	2.9	0.0154	1.4	0.48	98.7	1.4	99.7	2.7	122.1	59.6	98.7	1.4	NA
CR25-16	466	25660	3.7	21.0696	7.6	0.1025	7.9	0.0157	1.8	0.23	100.2	1.8	99.1	7.4	72.5	182.0	100.2	1.8	NA
CR25-36	457	18372	1.7	21.7991	9.3	0.1000	9.4	0.0158	1.9	0.20	101.1	1.9	96.8	8.7	-9.0	223.9	101.1	1.9	NA
CR25-20	235	8832	3.7	22.0261	10.9	0.0993	11.4	0.0159	3.5	0.31	101.4	3.6	96.1	10.5	-34.1	264.0	101.4	3.6	NA
CR25-37	928	39504	1.3	21.1398	4.4	0.1077	4.8	0.0165	2.0	0.42	105.6	2.1	103.8	4.7	64.6	103.7	105.6	2.1	NA
CR25-17	669	51945	3.1	21.2112	4.7	0.1253	5.4	0.0193	2.7	0.50	123.1	3.3	119.9	6.1	56.6	112.1	123.1	3.3	NA
CR25-44	127	19579	1.9	21.8265	18.9	0.1442	19.1	0.0228	2.3	0.12	145.5	3.3	136.8	24.4	-12.0	460.6	145.5	3.3	NA
CR25-54	675	34361	20.9	20.3332	3.1	0.1549	4.1	0.0228	2.7	0.65	145.6	3.9	146.2	5.6	156.5	73.1	145.6	3.9	NA
CR25-86	34	1579	6.2	16.9080	85.2	0.1875	85.8	0.0230	10.6	0.12	146.5	15.3	174.5	138.4	572.4	2436.6	146.5	15.3	NA
CR25-10	287	18061	3.7	21.0808	15.3	0.1512	15.5	0.0231	1.9	0.12	147.3	2.8	143.0	20.6	71.3	366.9	147.3	2.8	NA
CR25-5	363	36255	2.3	20.5502	4.2	0.1630	4.5	0.0243	1.7	0.37	154.8	2.5	153.4	6.4	131.6	98.1	154.8	2.5	NA
CR25-49	124	3432	2.6	24.9727	16.0	0.1349	16.3	0.0244	3.2	0.20	155.6	4.9	128.5	19.7	-348.1	415.4	155.6	4.9	NA
CR25-99	312	37304	2.3	20.6885	8.8	0.1722	8.9	0.0258	1.4	0.16	164.4	2.3	161.3	13.3	115.8	208.5	164.4	2.3	NA
CR25-1	54	2402	3.4	30.2436	49.5	0.1180	49.7	0.0259	4.7	0.09	164.7	7.6	113.3	53.3	-869.6	1502.0	164.7	7.6	NA
CR25-84	60	1988	3.3	16.4511	36.2	0.2192	37.4	0.0262	9.4	0.25	166.4	15.5	201.2	68.4	631.7	804.5	166.4	15.5	NA
CR25-53	41	3462	2.9	24.0688	48.6	0.1501	49.0	0.0262	6.1	0.12	166.8	10.0	142.0	65.0	-253.9	1298.9	166.8	10.0	NA
CR25-4	180	9823	3.2	19.6726	13.8	0.1842	14.3	0.0263	3.7	0.26	167.3	6.2	171.7	22.6	233.2	320.4	167.3	6.2	NA
CR25-32	198	13075	1.9	20.3994	11.3	0.1795	11.6	0.0266	2.7	0.23	169.0	4.5	167.6	18.0	148.9	266.0	169.0	4.5	NA
CR25-81	194	4081	1.6	31.4252	10.6	0.1177	19.1	0.0268	15.9	0.83	170.6	26.8	113.0	20.4	-981.4	313.9	170.6	26.8	NA
CR25-28	419	38540	1.7	20.4056	6.2	0.1825	6.6	0.0270	2.3	0.35	171.8	3.9	170.2	10.3	148.1	145.4	171.8	3.9	NA
CR25-25	462	88338	1.7	19.6959	5.0	0.1904	5.1	0.0272	1.2	0.24	173.0	2.1	177.0	8.4	230.5	115.4	173.0	2.1	NA
CR25-14	329	21428	1.4	20.6239	8.0	0.1867	8.2	0.0279	1.7	0.20	177.5	2.9	173.8	13.1	123.1	189.7	177.5	2.9	NA
CR25-96	123	17113	2.3	18.2108	13.2	0.2195	13.5	0.0290	2.8	0.21	184.3	5.1	201.5	24.7	408.6	296.5	184.3	5.1	NA
CR25-97	165	7659	2.4	19.6938	17.3	0.2046	17.4	0.0292	2.3	0.13	185.7	4.2	189.0	30.0	230.7	401.2	185.7	4.2	NA
CR25-77	249	19164	3.0	19.9426	5.3	0.2023	5.9	0.0293	2.5	0.43	185.9	4.6	187.0	10.0	201.7	123.2	185.9	4.6	NA
CR25-30	264	20943	2.4	20.9052	4.2	0.1974	5.3	0.0299	3.2	0.61	190.1	6.1	182.9	8.9	91.1	100.1	190.1	6.1	NA
CR25-72	143	9290	2.5	21.8016	15.0	0.1907	15.5	0.0301	3.7	0.24	191.5	7.0	177.2	25.2	-9.3	364.2	191.5	7.0	NA
CR25-38	355	36528	4.0	20.5448	4.1	0.2024	4.6	0.0302	2.1	0.45	191.6	3.9	187.2	7.8	132.2	95.9	191.6	3.9	NA
CR25-63	129	13190	3.7	20.5172	18.6	0.2070	18.8	0.0308	2.6	0.14	195.6	5.0	191.0	32.7	135.3	439.8	195.6	5.0	NA
CR25-61	117	13372	3.3	22.4825	22.9	0.1927	23.3	0.0314	4.3	0.19	199.4	8.5	178.9	38.2	-84.1	567.1	199.4	8.5	NA
CR25-94	176	14094	8.0	20.6435	7.5	0.2190	7.7	0.0328	2.0	0.26	208.0	4.2	201.1	14.1	120.9	175.8	208.0	4.2	NA
CR25-34	73	5993	2.9	23.3329	23.1	0.1951	23.2	0.0330	2.6	0.11	209.4	5.4	181.0	38.5	-175.8	582.1	209.4	5.4	NA
CR25-13	54	6389	2.9	19.5809	16.6	0.2404	17.0	0.0341	3.8	0.22	216.4	8.1	218.8	33.5	244.0	384.4	216.4	8.1	NA
CR25-71	98	13125	1.7	19.2909	9.4	0.3453	10.6	0.0483	4.9	0.46	304.2	14.7	301.2	27.7	278.3	215.8	304.2	14.7	NA
CR25-2	896	204810	3.4	18.6191	0.6	0.4354	1.4	0.0588	1.2	0.90	368.3	4.5	367.0	4.3	358.8	13.3	368.3	4.5	NA
CR25-R33-4	172	25975	1.7	17.8979	3.5	0.5060	3.7	0.0657	1.2	0.32	410.1	4.6	415.7	12.5	447.3	77.1	~~410.1~~	~~4.6~~	NA
CR25-60	58	14666	4.4	16.8328	14.9	0.5474	15.3	0.0668	3.4	0.22	417.0	13.6	443.3	55.0	582.1	325.7	417.0	13.6	NA
CR25-R33-5	60	9468	2.9	18.8578	13.4	0.5004	13.9	0.0684	3.3	0.24	426.7	13.7	411.9	46.9	330.0	306.2	~~426.7~~	~~13.7~~	NA
CR25-12	800	14182	4.7	13.7937	2.8	0.7415	15.1	0.0742	14.8	0.98	461.3	65.8	563.3	65.2	999.9	57.3	461.3	65.8	46.1
CR25-22	241	83126	1.2	17.4500	2.1	0.6390	4.6	0.0809	4.1	0.89	501.3	19.6	501.7	18.1	503.4	46.4	501.3	19.6	99.6
CR25-57	248	227592	1.9	11.4361	0.8	2.8171	1.5	0.2337	1.3	0.84	1353.6	15.4	1360.1	11.3	1370.2	15.8	1370.2	15.8	98.8
CR25-50	554	313631	10.7	11.4052	0.4	2.7777	1.2	0.2298	1.2	0.95	1333.3	14.0	1349.6	9.1	1375.5	7.2	1375.5	7.2	96.9
CR25-92	928	896031	37.6	11.3849	0.3	2.8610	1.5	0.2362	1.5	0.99	1367.1	18.7	1371.7	11.6	1378.9	4.9	1378.9	4.9	99.1
CR25-21	522	419345	7.7	11.3626	0.3	3.1216	2.1	0.2572	2.1	0.99	1475.7	28.1	1438.0	16.5	1382.6	5.1	1382.6	5.1	106.7
CR25-91	598	241176	3.9	10.9078	0.2	3.0221	2.4	0.2391	2.4	1.00	1381.9	30.3	1413.2	18.7	1460.7	4.6	1460.7	4.6	94.6

CR25-78	65	2990	3.0	2.4763	1111.3	0.7258	1111.3	0.0130	11.4	0.01	83.5	9.4	554.1	#NUM!	3923.4	422.9	3923.4	422.9	2.1
CR55-73	333	11280	2.2	23.3933	34.9	0.0430	35.1	0.0073	3.7	0.11	46.9	1.7	42.8	14.7	-182.3	893.9	46.9	1.7	NA
CR55-77	510	13244	3.1	23.3363	17.5	0.0442	17.6	0.0075	1.8	0.10	48.1	0.9	43.9	7.6	-176.2	438.7	48.1	0.9	NA
CR55-21	330	11477	2.9	21.9542	23.8	0.0472	24.8	0.0075	6.9	0.28	48.3	3.3	46.9	11.3	-26.1	583.2	48.3	3.3	NA
CR55-62	494	13310	2.4	20.0788	7.8	0.0517	8.8	0.0075	4.0	0.45	48.4	1.9	51.2	4.4	185.8	182.7	48.4	1.9	NA
CR55-38	306	5473	3.4	22.8489	25.1	0.0466	25.4	0.0077	3.9	0.15	49.6	1.9	46.2	11.5	-123.8	627.5	49.6	1.9	NA
CR55-45	602	10462	4.8	22.7773	9.3	0.0470	9.8	0.0078	3.3	0.33	49.9	1.6	46.7	4.5	-116.1	229.3	49.9	1.6	NA
CR55-90	269	7981	2.0	23.0894	19.0	0.0465	19.2	0.0078	3.0	0.16	50.0	1.5	46.2	8.7	-149.7	475.1	50.0	1.5	NA
CR55-82	288	5571	1.9	21.3855	14.3	0.0522	14.7	0.0081	3.4	0.23	52.0	1.7	51.7	7.4	37.0	342.9	52.0	1.7	NA
CR55-19	246	7674	2.5	25.6853	24.8	0.0437	25.5	0.0081	5.9	0.23	52.2	3.1	43.4	10.8	-421.3	658.5	52.2	3.1	NA
CR55-50	119	2576	2.5	17.5175	38.2	0.0641	39.2	0.0081	9.1	0.23	52.3	4.7	63.1	24.0	494.8	870.8	52.3	4.7	NA
CR55-39	1243	30921	3.3	21.5778	4.6	0.0568	4.8	0.0089	1.5	0.31	57.1	0.8	56.1	2.6	15.6	109.7	57.1	0.8	NA
CR55-74	407	8151	3.1	22.1382	11.6	0.0560	12.0	0.0090	3.3	0.27	57.7	1.9	55.3	6.5	-46.4	282.1	57.7	1.9	NA
CR55-86	143	4737	2.4	29.2788	77.0	0.0435	77.2	0.0092	5.5	0.07	59.2	3.2	43.2	32.7	-777.2	2563.8	59.2	3.2	NA
CR55-34	188	4222	4.0	20.4099	33.6	0.0625	34.7	0.0093	8.7	0.25	59.4	5.2	61.6	20.8	147.6	808.7	59.4	5.2	NA
CR55-83	230	7454	2.2	23.2889	30.6	0.0560	30.8	0.0095	3.5	0.11	60.6	2.1	55.3	16.6	-171.1	778.3	60.6	2.1	NA
CR55-4	411	4559	3.5	17.9574	25.3	0.0741	26.1	0.0097	6.6	0.25	62.0	4.1	72.6	18.3	439.9	571.0	62.0	4.1	NA
CR55-56	150	2165	3.4	26.0219	29.7	0.0513	30.3	0.0097	5.8	0.19	62.1	3.6	50.8	15.0	-455.5	798.4	62.1	3.6	NA
CR55-63	1200	28101	2.7	20.6430	4.4	0.0699	5.4	0.0105	3.1	0.58	67.1	2.1	68.6	3.6	120.9	103.2	67.1	2.1	NA
CR55-26	309	10859	10.2	23.4310	21.4	0.0616	21.6	0.0105	3.2	0.15	67.1	2.2	60.7	12.8	-186.3	539.8	67.1	2.2	NA
CR55-47	335	9733	3.4	26.2846	18.6	0.0589	18.6	0.0112	1.5	0.08	71.9	1.1	58.1	10.5	-482.1	496.4	71.9	1.1	NA
CR55-49	441	7782	1.9	23.0390	13.0	0.0676	13.1	0.0113	2.0	0.15	72.4	1.4	66.4	8.5	-144.3	323.2	72.4	1.4	NA
CR55-97	292	9984	5.0	24.9289	15.0	0.0640	15.8	0.0116	5.0	0.31	74.1	3.7	63.0	9.7	-343.6	389.3	74.1	3.7	NA
CR55-32	153	1625	3.1	19.9059	29.8	0.0815	31.6	0.0118	10.4	0.33	75.4	7.8	79.5	24.2	205.9	706.0	75.4	7.8	NA
CR55-92	80	4133	2.8	22.1896	42.4	0.0749	43.2	0.0121	8.3	0.19	77.2	6.4	73.3	30.6	-52.1	1076.2	77.2	6.4	NA
CR55-2	111	6590	4.1	26.1472	38.6	0.0642	40.4	0.0122	11.7	0.29	78.0	9.1	63.1	24.7	-468.2	1055.2	78.0	9.1	NA
CR55-84	137	5565	3.1	30.8271	71.8	0.0547	72.0	0.0122	4.9	0.07	78.3	3.8	54.1	37.9	-925.0	2387.9	78.3	3.8	NA
CR55-3	480	13932	1.6	22.4526	7.4	0.0774	7.8	0.0126	2.4	0.31	80.8	1.9	75.7	5.7	-80.8	180.9	80.8	1.9	NA
CR55-100	411	15280	1.3	19.7869	10.0	0.0880	10.4	0.0126	2.5	0.24	80.9	2.0	85.6	8.5	219.8	232.9	80.9	2.0	NA
CR55-12	243	7254	3.0	22.8315	11.6	0.0764	11.7	0.0126	2.1	0.18	81.0	1.7	74.7	8.5	-121.9	285.9	81.0	1.7	NA
CR55-93	473	16224	2.5	20.5116	6.5	0.0865	7.5	0.0129	3.8	0.50	82.4	3.1	84.2	6.1	136.0	152.5	82.4	3.1	NA
CR55-85	227	5653	1.8	24.3331	20.2	0.0749	20.5	0.0132	3.3	0.16	84.6	2.8	73.3	14.5	-281.6	519.8	84.6	2.8	NA
CR55-78	713	15289	1.7	22.3221	8.4	0.0826	8.9	0.0134	2.9	0.32	85.7	2.4	80.6	6.9	-66.6	205.1	85.7	2.4	NA
CR55-89	196	11409	2.6	19.5049	19.9	0.0946	20.2	0.0134	3.8	0.19	85.7	3.3	91.8	17.8	253.0	460.8	85.7	3.3	NA
CR55-55	267	7718	5.1	24.0538	12.9	0.0769	13.3	0.0134	3.1	0.24	85.9	2.7	75.2	9.6	-252.3	328.4	85.9	2.7	NA
CR55-64	846	44028	2.8	21.1779	4.0	0.0878	4.3	0.0135	1.6	0.37	86.3	1.4	85.4	3.6	60.3	95.9	86.3	1.4	NA
CR55-67	271	8031	2.3	21.3933	10.2	0.0874	10.5	0.0136	2.5	0.24	86.9	2.1	85.1	8.6	36.1	244.9	86.9	2.1	NA
CR55-8	222	6286	5.1	24.3518	23.3	0.0791	24.9	0.0140	8.8	0.35	89.4	7.8	77.3	18.5	-283.6	600.4	89.4	7.8	NA
CR55-42	134	3985	3.5	45.6035	46.4	0.0424	46.7	0.0140	5.2	0.11	89.8	4.6	42.2	19.3	-2250.6	145.7	89.8	4.6	NA
CR55-80	170	7129	2.4	22.6808	20.1	0.0862	20.5	0.0142	4.4	0.21	90.8	4.0	84.0	16.6	-105.6	497.6	90.8	4.0	NA
CR55-31	140	5476	3.8	21.0519	20.2	0.0930	20.8	0.0142	5.1	0.25	90.9	4.6	90.3	18.0	74.5	483.5	90.9	4.6	NA
CR55-30	748	20168	3.7	20.8007	5.2	0.0943	10.5	0.0142	9.1	0.87	91.1	8.2	91.5	9.2	103.0	122.7	91.1	8.2	NA
CR55-14	968	52269	6.2	20.8206	2.1	0.0951	2.5	0.0144	1.4	0.54	91.9	1.3	92.3	2.2	100.7	50.0	91.9	1.3	NA
CR55-13	95	3070	2.9	15.0245	34.3	0.1332	35.2	0.0145	7.9	0.23	92.9	7.3	126.9	42.0	824.0	736.5	92.9	7.3	NA
CR55-5	211	8358	2.5	20.6172	14.9	0.0976	15.3	0.0146	3.5	0.23	93.4	3.2	94.6	13.8	123.9	351.8	93.4	3.2	NA
CR55-15	318	16386	2.4	20.8312	8.0	0.0979	8.3	0.0148	2.4	0.28	94.7	2.2	94.9	7.5	99.5	189.1	94.7	2.2	NA
CR55-87	103	1922	2.0	35.7591	54.1	0.0574	54.3	0.0149	4.6	0.08	95.2	4.4	56.7	29.9	-1380.2	1862.6	95.2	4.4	NA
CR55-99	296	21072	4.1	20.0882	14.1	0.1055	14.3	0.0154	2.6	0.18	98.3	2.5	101.9	13.9	184.7	329.1	98.3	2.5	NA
CR55-7	167	5516	3.5	25.0437	22.7	0.0861	23.2	0.0156	4.7	0.20	100.0	4.7	83.8	18.7	-355.4	593.2	100.0	4.7	NA
CR55-11	354	18632	1.7	22.0653	10.7	0.0977	10.8	0.0156	1.6	0.14	100.0	1.5	94.6	9.8	-38.4	260.5	100.0	1.5	NA
CR55-35	1043	13903	2.0	20.6432	4.5	0.1050	5.5	0.0157	3.2	0.58	100.5	3.2	101.3	5.3	120.9	106.6	100.5	3.2	NA
CR55-75	113	4262	3.3	17.1717	17.2	0.1272	18.6	0.0158	6.8	0.37	101.3	6.9	121.6	21.3	538.6	379.8	101.3	6.9	NA
CR55-79	478	20565	3.4	20.8412	9.0	0.1069	9.2	0.0162	2.0	0.22	103.3	2.1	103.1	9.0	98.4	213.1	103.3	2.1	NA
CR55-6	90	3920	2.4	21.0067	38.0	0.1079	38.8	0.0164	7.8	0.20	105.1	8.1	104.1	38.4	79.6	933.3	105.1	8.1	NA
CR55-23	79	4200	2.8	20.4129	27.3	0.1141	28.7	0.0169	8.7	0.31	108.0	9.4	109.7	29.8	147.3	650.4	108.0	9.4	NA
CR55-68	430	23882	2.5	20.2762	5.7	0.1207	5.9	0.0178	1.5	0.25	113.5	1.7	115.7	6.5	163.0	134.0	113.5	1.7	NA
CR55-27	495	23847	1.6	21.1816	4.3	0.1277	5.0	0.0196	2.5	0.50	125.2	3.1	122.0	5.7	59.9	103.0	125.2	3.1	NA
CR55-22	747	34716	1.1	20.3816	5.0	0.1389	5.7	0.0205	2.7	0.47	131.0	3.5	132.0	7.1	150.9	117.9	131.0	3.5	NA
CR55-91	486	27292	2.2	21.0024	10.1	0.1368	14.3	0.0208	10.2	0.71	132.9	13.4	130.2	17.5	80.1	240.6	132.9	13.4	NA
CR55-20	203	7457	2.4	20.6506	11.4	0.1432	12.5	0.0215	5.2	0.42	136.8	7.0	135.9	15.9	120.1	268.7	136.8	7.0	NA
CR55-29	80	2899	2.5	29.2612	38.3	0.1032	38.6	0.0219	4.6	0.12	139.7	6.4	99.8	36.6	-775.5	1113.1	139.7	6.4	NA
CR55-37	139	5958	2.7	22.8747	22.9	0.1349	23.3	0.0224	4.7	0.20	142.7	6.6	128.5	28.2	-126.6	570.8	142.7	6.6	NA
CR55-72	135	14918	2.7	26.3859	21.6	0.1172	22.0	0.0224	4.5	0.21	143.0	6.4	112.5	23.5	-492.3	578.6	143.0	6.4	NA
CR55-17	66	3694	3.1	24.6081	38.6	0.1279	39.8	0.0228	9.6	0.24	145.6	13.9	122.3	45.9	-310.3	1021.1	145.6	13.9	NA
CR55-52	103	6130	2.4	19.6697	16.4	0.1601	16.7	0.0228	3.3	0.20	145.6	4.8	150.8	23.4	233.6	379.8	145.6	4.8	NA
CR55-71	267	25430	2.0	19.7469	10.2	0.1606	10.5	0.0230	2.4	0.23	146.6	3.5	151.2	14.8	224.5	237.2	146.6	3.5	NA
CR55-33	118	7254	2.1	20.3313	20.5	0.1582	20.7	0.0233	3.0	0.15	148.7	4.5	149.1	28.8	156.7	484.3	148.7	4.5	NA
CR55-18	328	19266	4.9	21.5280	12.8	0.1514	15.0	0.0236	7.7	0.52	150.6	11.5	143.1	20.0	21.1	308.8	150.6	11.5	NA
CR55-41	322	24554	2.6	22.3950	6.1	0.1503	6.5	0.0244	2.3	0.35	155.5	3.5	142.2	8.6	-74.5	148.5	155.5	3.5	NA
CR55-70	220	14400	2.1	21.2411	14.0	0.1654	14.1	0.0255	1.6	0.12	162.2	2.6	155.4	20.3	53.2	335.0	162.2	2.6	NA
CR55-9	175	15131	1.7	19.2798	15.0	0.1842	15.5	0.0258	3.9	0.25	164.0	6.3	171.7	24.5	279.6	345.9	164.0	6.3	NA
CR55-60	484	29402	2.8	19.8057	2.7	0.1954	3.3	0.0281	1.8	0.55	178.4	3.2	181.2	5.4	217.6	63.1	178.4	3.2	NA
CR55-59	115	34305	2.2	21.0497	14.3	0.1891	14.6	0.0289	2.8	0.19	183.5	5.1	175.9	23.6	74.8	342.2	183.5	5.1	NA
CR55-24	464	26509	2.4	20.3458	3.2	0.1975	3.3	0.0291	0.8	0.25	185.1	1.5	183.0	5.6	155.0	75.9	185.1	1.5	NA
CR55-95	350	19824	2.9	20.3060	5.5	0.2050	5.8	0.0302	1.8	0.31	191.8	3.4	189.4	10.1	159.6	129.8	191.8	3.4	NA
CR55-69	125	15571	3.5	21.1784	12.4	0.2279	12.7	0.0350	2.7	0.21	221.8	5.9	208.5	24.0	60.3	297.6	221.8	5.9	NA
CR55-43	191	15874	2.7	20.0703	5.9	0.2529	6.5	0.0368	2.7	0.41	233.0	6.1	228.9	13.2	186.8	136.9	233.0	6.1	NA
CR55-16	73	5687	2.2	30.5682	37.6	0.1703	37.9	0.0378	4.4	0.11	239.0	10.2	159.7	56.0	-900.5	1123.3	239.0	10.2	NA
CR55-61	184	23217	3.4	18.8392	4.5	0.4259	4.7	0.0582	1.5	0.31	364.6	5.2	360.2	14.4	332.2	102.3	364.6	5.2	NA
CR55-R33-5	234	53944	1.3	17.9217	3.9	0.4941	4.1	0.0642	1.4	0.34	401.3	5.5	407.7	13.9	444.3	86.3	~~401.3~~	~~5.5~~	NA
CR55-10	228	21325	1.3	17.3734	4.3	0.5147	4.6	0.0649	1.7	0.37	405.1	6.6	421.6	15.8	513.0	93.5	405.1	6.6	NA
CR55-R33-6	156	24715	1.5	18.8596	5.6	0.4835	6.0	0.0661	2.2	0.37	412.9	9.0	400.5	19.8	329.8	126.1	~~412.9~~	~~9.0~~	NA
CR55-40	218	79995	3.3	11.4906	0.6	2.6596	1.4	0.2216	1.3	0.91	1290.6	15.4	1317.3	10.7	1361.1	11.7	1361.1	11.7	94.8
CR55-57	895	352300	14.0	11.3666	0.2	2.8885	1.4	0.2381	1.4	0.99	1376.9	17.3	1378.9	10.6	1382.0	3.3	1382.0	3.3	99.6
CR55-44	197	103078	4.8	11.2813	3.2	2.4232	6.3	0.1983	5.5	0.86	1166.0	58.2	1249.5	45.4	1396.4	60.7	1396.4	60.7	83.5
CR55-51	172	132655	1.7	10.1173	0.7	3.8514	2.2	0.2826	2.1	0.95	1604.5	29.8	1603.6	17.8	1602.3	12.7	1602.3	12.7	100.1
CR55-96	345	96908	2.2	10.0547	3.0	1.9277	11.3	0.1406	10.9	0.96	847.9	86.5	1090.8	75.7	1613.9	56.4	1613.9	56.4	52.5
CR55-66	180	174576	1.7	10.0149	0.6	3.9404	1.5	0.2862	1.3	0.92	1622.6	19.2	1622.0	11.8	1621.3	10.5	1621.3	10.5	100.1
CR55-94	210	136954	1.8	9.4465	0.3	4.2831	0.6	0.2934	0.5	0.84	1658.7	7.7	1690.1	5.1	1729.3	6.1	1729.3	6.1	95.9
CR55-53	571	504311	3.7	9.4309	0.2	4.2946	3.0	0.2937	3.0	1.00	1660.2	43.3	1692.3	24.5	1732.3	4.5	1732.3	4.5	95.8
CR55-36	140	152614	2.5	9.3989	0.5	4.5041	1.9	0.3070	1.9	0.97	1726.1	28.4	1731.7	16.1	1738.5	8.8	1738.5	8.8	99.3
CR55-25	243	137363	3.5	9.2501	0.3	4.6189	0.8	0.3099	0.8	0.94	1740.1	11.6	1752.7	6.8	1767.7	5.2	1767.7	5.2	98.4
CR55-76	150	94518	1.5	9.1632	0.5	4.6594	1.7	0.3097	1.6	0.96	1739.0	24.4	1760.0	14.0	1785.0	9.0	1785.0	9.0	97.4
CR55-46	263	404651	1.9	6.4413	0.1	9.6536	1.2	0.4510	1.2	0.99	2399.6	24.1	2402.3	11.2	2404.5	2.5	2404.5	2.5	99.8
CR55-65	78	125908	2.2	4.6800	0.4	16.7202	1.8	0.5675	1.7	0.98	2897.6	40.5	2918.9	17.0	2933.6	6.0	2933.6	6.0	98.8
CR90-56	73	1390	3.0	-19.2225	184.7	-0.0574	185.3	0.0080	14.8	0.08	51.4	7.6	-60.0	-115.1	0.0	326.4	51.4	7.6	NA
CR90-51	176	6203	3.0	19.5935	23.6	0.0564	24.0	0.0080	4.6	0.19	51.5	2.3	55.7	13.0	242.5	550.4	51.5	2.3	NA

CR90-60	283	6770	1.9	25.5948	12.9	0.0432	13.3	0.0080	3.2	0.24	51.5	1.7	43.0	5.6	-412.0	337.6	51.5	1.7	NA
CR90-50	261	6711	3.6	23.0592	38.4	0.0482	38.5	0.0081	2.8	0.07	51.8	1.5	47.8	18.0	-146.5	984.0	51.8	1.5	NA
CR90-58	548	12924	2.1	23.0397	22.0	0.0506	22.1	0.0085	2.2	0.10	54.3	1.2	50.1	10.8	-144.4	550.7	54.3	1.2	NA
CR90-98	244	5753	2.1	23.1181	23.1	0.0506	23.4	0.0085	3.9	0.17	54.4	2.1	50.1	11.4	-152.8	578.9	54.4	2.1	NA
CR90-24	308	7932	3.4	21.1120	28.4	0.0555	29.1	0.0085	6.5	0.22	54.6	3.5	54.9	15.6	67.8	687.7	54.6	3.5	NA
CR90-75	299	4735	2.9	21.9696	23.7	0.0540	24.6	0.0086	6.5	0.26	55.2	3.5	53.4	12.8	-27.9	581.2	55.2	3.5	NA
CR90-100	71	2138	4.1	14.5826	45.0	0.0815	47.3	0.0086	14.4	0.30	55.3	7.9	79.5	36.2	886.0	980.4	55.3	7.9	NA
CR90-43	113	1267	3.0	15.5094	27.1	0.0782	28.2	0.0088	7.8	0.28	56.4	4.4	76.4	20.8	757.3	582.5	56.4	4.4	NA
CR90-65	149	3318	2.7	24.8905	21.8	0.0489	22.5	0.0088	5.6	0.25	56.7	3.1	48.5	10.6	-339.6	566.5	56.7	3.1	NA
CR90-53	130	4718	1.8	16.5800	36.4	0.0736	37.4	0.0088	8.6	0.23	56.8	4.8	72.1	26.1	614.8	812.6	56.8	4.8	NA
CR90-29	223	4675	2.9	25.3142	19.3	0.0482	20.5	0.0088	6.9	0.34	56.8	3.9	47.8	9.6	-383.3	504.9	56.8	3.9	NA
CR90-30	176	2862	2.9	18.2892	18.9	0.0668	19.4	0.0089	4.2	0.22	56.9	2.4	65.6	12.3	399.0	428.0	56.9	2.4	NA
CR90-57	105	2872	3.3	20.2007	31.0	0.0613	31.5	0.0090	5.4	0.17	57.7	3.1	60.4	18.5	171.7	739.3	57.7	3.1	NA
CR90-96	529	8223	2.2	22.4602	9.0	0.0558	9.1	0.0091	1.8	0.20	58.3	1.1	55.1	4.9	-81.7	219.5	58.3	1.1	NA
CR90-77	256	2593	1.6	20.6118	23.7	0.0616	24.1	0.0092	4.2	0.17	59.1	2.5	60.7	14.2	124.5	565.2	59.1	2.5	NA
CR90-22	207	4551	2.5	22.1241	26.7	0.0579	28.1	0.0093	8.7	0.31	59.6	5.2	57.1	15.6	-44.9	658.3	59.6	5.2	NA
CR90-23	1259	55500	2.0	20.8014	7.2	0.0621	7.5	0.0094	1.9	0.25	60.1	1.1	61.2	4.4	102.9	171.3	60.1	1.1	NA
CR90-10	384	2397	1.8	21.4841	12.3	0.0603	12.9	0.0094	3.7	0.28	60.3	2.2	59.5	7.4	26.0	296.8	60.3	2.2	NA
CR90-6	121	2552	1.8	22.5629	41.5	0.0576	42.3	0.0094	8.3	0.19	60.4	5.0	56.8	23.4	-92.8	1059.6	60.4	5.0	NA
CR90-87	93	2241	2.3	14.5508	39.0	0.0898	39.9	0.0095	8.0	0.20	60.8	4.9	87.3	33.3	890.5	838.0	60.8	4.9	NA
CR90-3	203	3220	2.8	28.0608	35.4	0.0469	36.6	0.0095	9.2	0.25	61.2	5.6	46.5	16.6	-658.7	1000.1	61.2	5.6	NA
CR90-45	50	1655	2.3	26.4561	118.3	0.0500	118.7	0.0096	9.7	0.08	61.5	5.9	49.5	57.4	-499.3	0.0	61.5	5.9	NA
CR90-19	249	4769	1.1	22.8185	15.6	0.0615	15.9	0.0102	3.5	0.22	65.2	2.3	60.6	9.4	-120.5	385.7	65.2	2.3	NA
CR90-31	283	5856	1.1	19.8257	12.1	0.0724	12.5	0.0104	3.2	0.26	66.8	2.1	71.0	8.6	215.3	280.9	66.8	2.1	NA
CR90-44	513	13159	2.6	22.6930	9.1	0.0655	9.4	0.0108	2.4	0.25	69.1	1.6	64.4	5.9	-107.0	223.9	69.1	1.6	NA
CR90-49	349	12787	1.2	19.4804	15.6	0.0763	16.0	0.0108	3.9	0.24	69.1	2.7	74.7	11.5	255.8	359.6	69.1	2.7	NA
CR90-72	206	10724	2.7	23.1208	36.3	0.0646	36.6	0.0108	4.5	0.12	69.4	3.1	63.5	22.5	-153.1	926.7	69.4	3.1	NA
CR90-70	487	18053	2.2	21.6632	10.0	0.0692	10.2	0.0109	2.2	0.22	69.7	1.6	67.9	6.7	6.1	240.3	69.7	1.6	NA
CR90-20	163	3995	2.1	23.6327	24.1	0.0641	24.5	0.0110	4.1	0.17	70.4	2.9	63.1	15.0	-207.8	612.6	70.4	2.9	NA
CR90-90	1716	45169	3.9	20.6477	2.8	0.0745	3.2	0.0112	1.4	0.43	71.5	1.0	72.9	2.2	120.4	67.2	71.5	1.0	NA
CR90-27	218	7917	1.5	21.7159	16.7	0.0713	17.0	0.0112	2.9	0.17	72.0	2.1	69.9	11.5	0.2	404.8	72.0	2.1	NA
CR90-34	91	2503	2.4	19.1269	55.6	0.0828	56.1	0.0115	7.8	0.14	73.6	5.7	80.8	43.6	297.8	1372.6	73.6	5.7	NA
CR90-46	157	4573	1.6	28.8320	41.0	0.0552	41.4	0.0115	6.1	0.15	73.9	4.5	54.5	22.0	-733.9	1187.9	73.9	4.5	NA
CR90-47	367	12660	3.6	24.1320	8.3	0.0660	9.2	0.0115	3.9	0.43	74.0	2.9	64.9	5.8	-260.5	210.7	74.0	2.9	NA
CR90-9	1883	21592	7.4	20.1893	2.9	0.0798	3.8	0.0117	2.5	0.65	74.9	1.8	78.0	2.8	173.0	66.8	74.9	1.8	NA
CR90-84	157	4955	3.6	19.6612	22.1	0.0835	23.2	0.0119	6.9	0.30	76.3	5.2	81.4	18.1	234.6	516.4	76.3	5.2	NA
CR90-14	97	5401	2.7	17.3674	39.5	0.0984	39.9	0.0124	5.5	0.14	79.4	4.3	95.3	36.3	513.8	901.3	79.4	4.3	NA
CR90-79	86	2886	2.9	11.5817	29.0	0.1486	29.5	0.0125	5.2	0.18	79.9	4.2	140.6	38.8	1345.9	573.1	79.9	4.2	5.9
CR90-80	121	6723	3.4	22.5692	33.1	0.0781	34.8	0.0128	10.9	0.31	81.9	8.9	76.4	25.6	-93.5	831.2	81.9	8.9	NA
CR90-74	157	6164	3.4	20.0146	34.6	0.0940	35.0	0.0137	5.2	0.15	87.4	4.5	91.3	30.5	193.3	826.1	87.4	4.5	NA
CR90-25	57	2081	3.2	19.4949	69.0	0.0969	70.1	0.0137	12.4	0.18	87.7	10.8	93.9	63.0	254.1	1819.0	87.7	10.8	NA
CR90-11	1952	134926	7.9	21.1534	1.7	0.0910	2.0	0.0140	1.1	0.56	89.4	1.0	88.4	1.7	63.1	39.7	89.4	1.0	NA
CR90-16	120	2855	2.3	29.6567	56.1	0.0651	56.2	0.0140	3.8	0.07	89.7	3.4	64.1	34.9	-813.5	1713.2	89.7	3.4	NA
CR90-52	528	21569	2.1	20.3593	6.8	0.0953	6.9	0.0141	1.3	0.19	90.1	1.2	92.4	6.1	153.5	158.9	90.1	1.2	NA
CR90-28	358	23302	2.9	20.7716	9.5	0.0940	9.8	0.0142	2.6	0.26	90.6	2.3	91.2	8.6	106.3	224.4	90.6	2.3	NA
CR90-93	418	10073	1.2	21.0413	8.6	0.0928	8.9	0.0142	2.3	0.26	90.7	2.1	90.2	7.7	75.7	203.7	90.7	2.1	NA
CR90-26	77	2878	4.2	41.4664	66.9	0.0476	67.9	0.0143	11.9	0.18	91.7	10.9	47.3	31.4	-1888.1	504.1	91.7	10.9	NA
CR90-68	268	8908	1.8	23.4942	7.9	0.0843	8.1	0.0144	2.0	0.25	91.9	1.9	82.2	6.4	-193.0	197.2	91.9	1.9	NA
CR90-92	701	10524	3.2	20.4625	5.6	0.0975	6.6	0.0145	3.3	0.51	92.6	3.1	94.5	5.9	141.6	132.6	92.6	3.1	NA
CR90-81	353	9828	1.6	21.1830	10.1	0.0981	10.2	0.0151	1.3	0.13	96.4	1.2	95.0	9.2	59.8	241.1	96.4	1.2	NA
CR90-15	1540	67900	0.9	20.9817	2.2	0.1002	2.6	0.0152	1.4	0.54	97.5	1.3	97.0	2.4	82.4	51.8	97.5	1.3	NA
CR90-66	680	15211	1.5	20.5248	4.6	0.1031	6.1	0.0153	3.9	0.64	98.1	3.8	99.6	5.7	134.5	109.2	98.1	3.8	NA
CR90-12	600	5741	3.3	20.1681	6.3	0.1095	6.5	0.0160	1.6	0.25	102.4	1.6	105.5	6.5	175.5	146.0	102.4	1.6	NA
CR90-89	174	23870	1.9	18.1533	6.4	0.1361	8.4	0.0179	5.4	0.65	114.5	6.2	129.6	10.2	415.7	142.7	114.5	6.2	NA
CR90-63	116	8451	2.4	19.3999	14.8	0.1280	16.6	0.0180	7.4	0.45	115.1	8.5	122.3	19.1	265.4	342.1	115.1	8.5	NA
CR90-4	52	2742	2.8	25.3014	41.6	0.1060	42.2	0.0194	7.5	0.18	124.1	9.2	102.3	41.1	-382.0	1121.5	124.1	9.2	NA
CR90-17	295	22784	6.0	21.5421	11.2	0.1274	11.3	0.0199	1.4	0.12	127.1	1.8	121.8	13.0	19.5	270.4	127.1	1.8	NA
CR90-40	310	18714	1.8	21.3209	5.8	0.1439	7.4	0.0222	4.6	0.63	141.8	6.5	136.5	9.5	44.3	138.2	141.8	6.5	NA
CR90-83	332	173377	2.1	20.7148	6.3	0.1598	6.7	0.0240	2.3	0.34	153.0	3.4	150.6	9.4	112.8	148.9	153.0	3.4	NA
CR90-38	210	12066	1.5	20.3860	9.3	0.1650	10.0	0.0244	3.7	0.37	155.4	5.7	155.1	14.4	150.4	218.3	155.4	5.7	NA
CR90-59	65	3860	3.8	24.8887	48.3	0.1358	48.4	0.0245	2.6	0.05	156.2	4.0	129.3	58.8	-339.4	1312.8	156.2	4.0	NA
CR90-73	155	6331	1.9	20.2435	10.6	0.1679	11.1	0.0246	3.3	0.30	157.0	5.1	157.6	16.2	166.8	247.8	157.0	5.1	NA
CR90-13	602	47565	2.4	20.3291	4.0	0.1675	4.5	0.0247	2.1	0.46	157.2	3.3	157.2	6.6	156.9	93.8	157.2	3.3	NA
CR90-5	84	6089	3.5	20.6056	13.3	0.1665	14.8	0.0249	6.6	0.44	158.4	10.3	156.4	21.4	125.2	313.2	158.4	10.3	NA
CR90-42	206	27095	1.4	19.5716	14.3	0.1775	14.7	0.0252	3.3	0.23	160.4	5.2	165.9	22.4	245.1	330.4	160.4	5.2	NA
CR90-54	82	6699	1.8	27.7002	33.6	0.1287	33.8	0.0259	3.6	0.11	164.6	5.9	122.9	39.2	-623.3	940.1	164.6	5.9	NA
CR90-55	991	53433	2.7	19.9926	1.2	0.1788	1.7	0.0259	1.2	0.70	165.0	1.9	167.0	2.6	195.9	28.1	165.0	1.9	NA
CR90-62	307	22855	2.2	19.2387	7.2	0.1865	7.4	0.0260	1.6	0.22	165.6	2.7	173.6	11.8	284.5	165.7	165.6	2.7	NA
CR90-18	285	24133	3.1	21.5244	8.1	0.1680	9.0	0.0262	3.9	0.43	166.9	6.4	157.7	13.1	21.5	194.7	166.9	6.4	NA
CR90-41	574	51519	2.6	20.2371	4.9	0.1802	5.1	0.0265	1.3	0.25	168.3	2.1	168.3	7.9	167.5	115.5	168.3	2.1	NA
CR90-33	429	44434	2.6	19.2606	5.8	0.1899	5.9	0.0265	1.1	0.18	168.7	1.7	176.5	9.5	281.9	132.1	168.7	1.7	NA
CR90-1	96	5125	2.5	21.7000	14.8	0.1687	14.9	0.0265	2.2	0.15	168.9	3.7	158.3	21.9	2.0	357.7	168.9	3.7	NA
CR90-67	53	3840	2.6	18.2302	73.2	0.2028	74.5	0.0268	13.8	0.18	170.6	23.2	187.5	128.3	406.3	1931.4	170.6	23.2	NA
CR90-94	3691	343755	4.6	20.1417	0.9	0.1855	1.7	0.0271	1.5	0.87	172.3	2.6	172.8	2.8	178.5	20.1	172.3	2.6	NA
CR90-2	180	3319	2.6	20.6429	11.2	0.1829	11.8	0.0274	3.7	0.31	174.1	6.4	170.5	18.5	120.9	264.8	174.1	6.4	NA
CR90-99	546	34361	2.8	19.9146	2.9	0.1920	3.2	0.0277	1.5	0.45	176.3	2.5	178.3	5.3	205.0	66.9	176.3	2.5	NA
CR90-69	590	17938	1.7	19.9864	4.4	0.1930	4.8	0.0280	2.0	0.42	177.9	3.5	179.2	7.9	196.6	101.3	177.9	3.5	NA
CR90-78	148	10289	1.1	20.4331	12.4	0.1890	12.9	0.0280	3.5	0.27	178.1	6.2	175.8	20.9	144.9	292.5	178.1	6.2	NA
CR90-36	235	21473	1.6	19.9431	7.6	0.1940	7.7	0.0281	1.5	0.19	178.4	2.6	180.1	12.7	201.6	175.8	178.4	2.6	NA
CR90-39	399	24369	1.4	20.3076	3.8	0.1907	4.3	0.0281	1.9	0.44	178.6	3.3	177.3	7.0	159.4	89.9	178.6	3.3	NA
CR90-48	171	14887	1.5	22.5335	9.3	0.1764	9.5	0.0288	1.9	0.20	183.2	3.5	164.9	14.4	-89.6	227.8	183.2	3.5	NA
CR90-76	297	27230	2.2	20.0940	5.0	0.1981	5.5	0.0289	2.3	0.42	183.5	4.2	183.6	9.3	184.1	117.0	183.5	4.2	NA
CR90-82	566	39689	1.2	20.0888	4.4	0.1991	4.7	0.0290	1.8	0.38	184.3	3.3	184.4	7.9	184.7	101.4	184.3	3.3	NA
CR90-95	1011	210003	1.4	20.1272	1.7	0.2034	2.4	0.0297	1.6	0.68	188.6	3.0	188.0	4.1	180.2	40.4	188.6	3.0	NA
CR90-71	297	23610	1.6	20.5687	3.8	0.2059	4.0	0.0307	1.4	0.35	195.0	2.7	190.1	7.0	129.4	89.0	195.0	2.7	NA
CR90-R33-7	214	74304	1.3	18.1217	2.3	0.4947	2.4	0.0650	0.7	0.29	406.1	2.7	408.1	7.9	419.6	50.3	~~406.1~~	~~2.7~~	NA
CR90-35	331	72765	1.5	17.9733	2.0	0.4995	3.3	0.0651	2.6	0.79	406.7	10.2	411.4	11.1	437.9	44.3	406.7	10.2	NA
CR90-R33-6	218	34037	1.2	18.0992	3.0	0.5130	3.4	0.0673	1.7	0.50	420.1	6.9	420.4	11.8	422.4	66.3	~~420.1~~	~~6.9~~	NA
CR90-7	1322	825676	47.8	11.5564	0.3	1.9906	6.4	0.1668	6.4	1.00	994.7	58.6	1112.3	43.0	1350.1	6.1	1350.1	6.1	73.7
CR90-61	353	589834	4.4	11.4611	0.5	2.7409	1.6	0.2278	1.5	0.94	1323.1	17.7	1339.6	11.7	1366.0	10.6	1366.0	10.6	96.9
CR90-85	53	54619	1.1	10.8872	1.7	3.1892	2.2	0.2518	1.3	0.59	1447.9	16.4	1454.6	16.7	1464.3	33.1	1464.3	33.1	98.9
CR90-64	151	90087	1.7	10.0511	0.4	3.9700	1.5	0.2894	1.5	0.96	1638.5	21.4	1628.1	12.5	1614.6	8.2	1614.6	8.2	101.5
CR90-37	166	241025	1.8	9.3948	0.7	4.3291	8.1	0.2950	8.1	1.00	1666.4	119.0	1698.9	67.1	1739.3	12.2	1739.3	12.2	95.8
CR90-91	740	380531	2.9	9.3175	0.1	4.3080	1.6	0.2911	1.6	1.00	1647.1	22.8	1694.9	13.0	1754.5	2.4	1754.5	2.4	93.9
CR90-97	53	27629	0.7	9.0402	1.0	4.8618	2.6	0.3188	2.3	0.91	1783.7	36.3	1795.7	21.5	1809.6	18.9	1809.6	18.9	98.6
CR90-88	638	474781	1.7	8.6965	0.1	5.3295	1.1	0.3361	1.1	1.00	1868.1	18.4	1873.6	9.7	1879.7	1.4	1879.7	1.4	99.4

Arizona LaserChron Center analyses of GVG09-18

						Isotope ratios							Apparent ages (Ma)						
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
GVG18-65	192	1879	1.4	22.0308	26.8	0.0387	27.0	0.0062	3.2	0.12	39.8	1.3	38.6	10.2	-34.6	660.9	39.8	1.3	-114.9
GVG18-57	148	975	1.6	13.5475	218.6	0.0698	218.6	0.0069	2.7	0.01	44.1	1.2	68.5	145.8	1036.4	1018.5	44.1	1.2	4.3
GVG18-20	333	3954	1.7	21.5794	38.7	0.0439	38.9	0.0069	3.9	0.10	44.1	1.7	43.6	16.6	15.4	963.2	44.1	1.7	287.0
GVG18-82	187	3614	1.3	14.9515	50.9	0.0636	51.3	0.0069	6.7	0.13	44.3	3.0	62.6	31.1	834.1	1134.9	44.3	3.0	5.3
GVG18-16	667	5998	1.3	23.5875	15.0	0.0411	15.1	0.0070	1.7	0.11	45.2	0.8	40.9	6.0	-203.0	377.0	45.2	0.8	-22.3
GVG18-58	216	1856	3.8	24.1917	41.6	0.0414	41.8	0.0073	4.1	0.10	46.6	1.9	41.2	16.9	-266.8	1098.2	46.6	1.9	-17.5
GVG18-33	247	1745	1.8	24.5900	32.7	0.0417	33.6	0.0074	7.7	0.23	47.7	3.6	41.5	13.7	-308.4	857.6	47.7	3.6	-15.5
GVG18-63	716	5866	2.1	25.4750	13.6	0.0406	13.9	0.0075	2.6	0.19	48.2	1.3	40.4	5.5	-399.8	356.6	48.2	1.3	-12.0
GVG18-28	285	3011	1.0	19.1334	25.5	0.0558	25.8	0.0077	3.9	0.15	49.7	1.9	55.1	13.8	297.0	589.4	49.7	1.9	16.7
GVG18-14	248	1917	2.2	23.4150	27.0	0.0457	27.2	0.0078	3.4	0.13	49.9	1.7	45.4	12.1	-184.6	684.6	49.9	1.7	-27.0
GVG18-96	251	1886	0.6	-32.1553	261.9	-0.0336	261.9	0.0078	4.5	0.02	50.3	2.3	-34.7	-92.7	0.0	1408.6	50.3	2.3	
GVG18-91	194	2025	1.9	23.2412	47.3	0.0476	47.3	0.0080	0.9	0.02	51.5	0.5	47.2	21.8	-166.0	1239.4	51.5	0.5	-31.0
GVG18-69	2156	32037	1.0	20.8231	5.7	0.0555	5.9	0.0084	1.7	0.28	53.9	0.9	54.9	3.2	100.4	134.1	53.9	0.9	53.6
GVG18-4	178	1647	3.0	18.9990	41.1	0.0698	41.4	0.0096	5.6	0.13	61.7	3.4	68.5	27.4	313.1	972.0	61.7	3.4	19.7
GVG18-37	347	3883	2.2	21.2111	34.9	0.0625	35.1	0.0096	3.2	0.09	61.7	1.9	61.6	21.0	56.6	855.8	61.7	1.9	109.1
GVG18-51	116	1277	1.7	20.2986	73.0	0.0727	73.1	0.0107	1.6	0.02	68.7	1.1	71.3	50.3	160.5	2000.2	68.7	1.1	42.8
GVG18-74	166	1992	2.0	15.5791	27.7	0.0982	27.7	0.0111	1.2	0.04	71.1	0.9	95.1	25.1	747.8	595.3	71.1	0.9	9.5
GVG18-23	236	3052	4.4	24.5008	18.7	0.0626	18.9	0.0111	3.0	0.16	71.3	2.1	61.6	11.3	-299.1	480.0	71.3	2.1	-23.8
GVG18-71	135	1097	1.6	25.5262	32.8	0.0698	33.0	0.0129	3.9	0.12	82.8	3.2	68.5	21.9	-405.0	876.1	82.8	3.2	-20.4
GVG18-83	333	8793	5.6	20.8228	10.3	0.0900	10.4	0.0136	1.3	0.13	87.0	1.1	87.5	8.7	100.5	245.3	87.0	1.1	86.6
GVG18-10	465	2788	2.4	22.8051	24.1	0.0875	24.2	0.0145	2.5	0.10	92.6	2.3	85.2	19.8	-119.1	602.0	92.6	2.3	-77.8
GVG18-99	935	18306	2.9	20.4300	10.0	0.0999	10.3	0.0148	2.1	0.20	94.7	1.9	96.6	9.5	145.3	236.1	94.7	1.9	
GVG18-19	292	5160	1.6	20.4129	15.4	0.1041	15.7	0.0154	3.2	0.20	98.6	3.1	100.6	15.1	147.3	363.6	98.6	3.1	67.0
GVG18-7	382	4524	1.6	22.0603	15.1	0.0971	15.2	0.0155	2.0	0.13	99.4	2.0	94.1	13.7	-37.8	368.7	99.4	2.0	-262.7
GVG18-49	346	4327	2.8	26.5115	13.6	0.0818	13.6	0.0157	0.9	0.06	100.6	0.9	79.8	10.4	-504.9	363.3	100.6	0.9	-19.9
GVG18-88	466	5458	2.1	18.3708	10.7	0.1193	10.7	0.0159	1.2	0.11	101.7	1.2	114.5	11.6	389.0	239.7	101.7	1.2	26.1
GVG18-27	656	7869	0.7	20.4958	12.4	0.1074	13.8	0.0160	6.0	0.43	102.1	6.0	103.6	13.6	137.8	292.6	102.1	6.0	74.1
GVG18-81	768	9411	1.4	21.8699	11.1	0.1015	11.2	0.0161	1.6	0.14	102.9	1.6	98.1	10.4	-16.8	268.2	102.9	1.6	-611.2
GVG18-6	923	5328	3.3	19.7876	6.6	0.1143	7.0	0.0164	2.2	0.32	104.9	2.3	109.9	7.3	219.7	153.3	104.9	2.3	47.7
GVG18-42	578	10888	2.9	21.0159	4.5	0.1080	5.7	0.0165	3.5	0.62	105.2	3.7	104.1	5.6	78.6	106.2	105.2	3.7	133.9
GVG18-2	118	2505	1.8	30.5623	60.4	0.0747	60.4	0.0166	1.2	0.02	105.8	1.3	73.1	42.6	-899.9	1904.4	105.8	1.3	-11.8
GVG18-62	331	3839	2.0	21.5011	14.0	0.1090	14.1	0.0170	1.6	0.11	108.6	1.7	105.0	14.1	24.1	338.0	108.6	1.7	450.3
GVG18-86	92	2071	1.8	13.0824	127.3	0.1806	127.6	0.0171	8.6	0.07	109.5	9.3	168.6	200.8	1106.6	410.8	109.5	9.3	9.9
GVG18-15	156	4485	3.2	26.5649	61.6	0.0905	61.6	0.0174	2.4	0.04	111.4	2.6	87.9	52.0	-510.3	1801.7	111.4	2.6	-21.8
GVG18-72	220	5551	2.3	23.2494	15.7	0.1036	15.8	0.0175	1.7	0.11	111.7	1.9	100.1	15.1	-166.9	392.6	111.7	1.9	-66.9
GVG18-8	189	3403	2.2	24.5260	20.1	0.0987	20.2	0.0176	1.6	0.08	112.2	1.8	95.6	18.4	-301.7	519.1	112.2	1.8	-37.2
GVG18-52	236	4057	3.3	24.9679	24.0	0.0996	24.1	0.0180	2.5	0.10	115.3	2.9	96.4	22.2	-347.6	627.0	115.3	2.9	-33.2
GVG18-89	704	12402	1.8	20.8806	4.6	0.1218	4.7	0.0184	0.9	0.19	117.8	1.1	116.7	5.2	93.9	109.4	117.8	1.1	125.5
GVG18-93	1186	28436	6.7	18.2196	3.9	0.1440	4.4	0.0190	2.0	0.45	121.5	2.4	136.6	5.7	407.6	88.4	121.5	2.4	29.8
GVG18-78	92	2918	2.7	42.3028	69.5	0.0621	69.6	0.0191	4.0	0.06	121.7	4.9	61.2	41.4	-1961.6	565.8	121.7	4.9	-6.2
GVG18-17	225	8433	1.6	23.7917	33.7	0.1265	34.7	0.0218	8.4	0.24	139.2	11.5	121.0	39.6	-224.6	869.1	139.2	11.5	-62.0
GVG18-92	183	5962	2.0	21.8470	15.3	0.1505	15.6	0.0238	3.3	0.21	151.9	5.0	142.3	20.7	-14.3	370.6	151.9	5.0	-1061.6
GVG18-87	498	13431	1.8	20.2295	7.1	0.1667	8.0	0.0245	3.7	0.46	155.8	5.7	156.6	11.6	168.4	165.7	155.8	5.7	92.5
GVG18-77	353	8448	2.7	20.5689	9.6	0.1696	9.6	0.0253	1.1	0.11	161.0	1.7	159.0	14.2	129.4	225.3	161.0	1.7	124.4
GVG18-44	209	4846	1.1	20.4015	16.5	0.1716	16.9	0.0254	3.5	0.21	161.6	5.6	160.8	25.1	148.6	388.7	161.6	5.6	108.7
GVG18-53	496	14832	2.1	19.7375	5.0	0.1878	5.2	0.0269	1.4	0.27	171.0	2.4	174.7	8.4	225.6	116.4	171.0	2.4	75.8
GVG18-80	141	8269	3.1	21.1880	22.1	0.1761	22.2	0.0271	1.2	0.05	172.2	2.1	164.7	33.7	59.2	532.8	172.2	2.1	290.8
GVG18-1	574	17113	2.1	19.7198	3.3	0.1997	4.1	0.0286	2.5	0.61	181.6	4.5	184.9	7.0	227.7	75.7	181.6	4.5	79.8
GVG18-41	216	11649	1.8	21.3920	11.2	0.1865	11.4	0.0289	1.8	0.16	183.9	3.2	173.7	18.1	36.3	269.3	183.9	3.2	507.1
GVG18-5	232	7838	2.3	21.3085	10.0	0.1879	10.3	0.0290	2.4	0.24	184.5	4.4	174.8	16.5	45.7	238.8	184.5	4.4	404.0
GVG18-75	192	5153	2.0	21.0993	11.6	0.1901	11.9	0.0291	2.7	0.22	184.8	4.9	176.7	19.3	69.2	277.2	184.8	4.9	267.2
GVG18-73	63	2374	2.4	24.4698	27.7	0.1641	27.8	0.0291	2.5	0.09	185.0	4.6	154.2	39.8	-295.9	718.9	185.0	4.6	-62.5
GVG18-43	270	4281	2.0	19.0897	12.8	0.2107	12.8	0.0292	0.9	0.07	185.4	1.7	194.2	22.7	302.2	292.6	185.4	1.7	61.3
GVG18-59	162	5612	2.5	22.5384	19.6	0.1794	19.6	0.0293	0.8	0.04	186.4	1.4	167.6	30.3	-90.2	484.1	186.4	1.4	-206.7
GVG18-26	227	8570	3.8	19.9856	8.2	0.2069	8.2	0.0300	1.2	0.15	190.5	2.3	191.0	14.4	196.7	189.7	190.5	2.3	96.9
GVG18-34	1610	27923	82.0	20.2416	1.4	0.2073	3.4	0.0304	3.1	0.91	193.3	5.9	191.3	6.0	167.0	32.8	193.3	5.9	115.7
GVG18-48	305	17110	3.9	19.9509	7.5	0.2502	7.6	0.0362	0.9	0.12	229.2	2.1	226.7	15.4	200.7	174.8	229.2	2.1	114.2
GVG18-61	565	45126	1.4	17.5385	2.2	0.4468	9.2	0.0568	8.9	0.97	356.3	30.9	375.0	28.8	492.2	48.3	356.3	30.9	72.4
GVG18-66	575	31808	12.4	11.6479	2.5	0.7018	4.0	0.0593	3.2	0.79	371.3	11.5	539.8	17.0	1334.8	48.0	371.3	11.5	27.8
GVG18-95	197	21415	1.5	18.1024	4.1	0.5033	4.2	0.0661	0.9	0.22	412.5	3.7	413.9	14.3	422.0	91.5	412.5	3.7	97.7
GVG18-12	480	38924	1.2	17.6567	2.9	0.6051	3.0	0.0775	0.8	0.26	481.1	3.6	480.5	11.6	477.4	65.0	481.1	3.6	100.8
GVG18-11	56	4352	1.4	15.3294	11.8	0.7201	11.9	0.0801	1.1	0.10	496.5	5.5	550.8	50.5	781.9	248.9	496.5	5.5	63.5
GVG18-64	652	51634	2.0	15.7439	0.7	0.9186	1.5	0.1049	1.3	0.88	643.0	8.2	661.6	7.4	725.5	15.6	643.0	8.2	88.6
GVG18-3	1986	368130	52.8	11.8742	0.3	2.5501	2.3	0.2196	2.3	0.99	1279.9	26.6	1286.5	16.8	1297.5	6.0	1297.5	6.0	98.6
GVG18-9	64	25080	1.7	11.4361	4.8	2.8790	5.5	0.2388	2.7	0.49	1380.4	33.1	1376.4	41.5	1370.3	92.6	1370.3	92.6	100.7
GVG18-98	251	61617	2.6	11.3408	0.6	2.8416	1.1	0.2337	1.0	0.84	1354.0	11.8	1366.6	8.6	1386.3	11.7	1386.3	11.7	
GVG18-22	494	40408	4.0	11.3111	0.7	2.8943	2.7	0.2374	2.6	0.96	1373.4	32.1	1380.4	20.4	1391.4	14.1	1391.4	14.1	98.7
GVG18-47	158	42070	2.2	11.2918	1.4	2.8205	3.3	0.2310	3.0	0.90	1339.7	35.8	1361.0	24.6	1394.6	27.0	1394.6	27.0	96.1
GVG18-31	404	80472	3.5	11.0037	0.3	3.2267	0.9	0.2575	0.9	0.95	1477.1	11.4	1463.6	7.0	1444.0	5.1	1444.0	5.1	102.3
GVG18-40	588	127735	1.6	10.9171	0.5	3.1897	0.8	0.2526	0.7	0.80	1451.6	8.8	1454.7	6.5	1459.1	9.7	1459.1	9.7	99.5
GVG18-54	1192	272902	2.6	10.5745	0.4	3.4079	1.3	0.2614	1.3	0.97	1496.8	17.3	1506.2	10.5	1519.4	6.6	1519.4	6.6	98.5
GVG18-46	44	10799	1.7	10.4904	2.3	3.4333	3.5	0.2612	2.7	0.76	1496.1	35.5	1512.1	27.5	1534.5	42.7	1534.5	42.7	97.5
GVG18-67	286	76877	6.8	10.0547	0.4	3.8462	1.6	0.2805	1.6	0.97	1593.8	22.0	1602.5	12.9	1613.9	7.0	1613.9	7.0	98.8
GVG18-79	534	123376	1.2	9.9564	1.7	3.8397	2.1	0.2773	1.1	0.55	1577.6	16.0	1601.1	16.7	1632.2	32.1	1632.2	32.1	96.7
GVG18-55	702	48760	4.0	9.7495	1.8	3.6514	2.2	0.2582	1.3	0.59	1480.6	17.0	1560.8	17.5	1671.1	32.9	1671.1	32.9	88.6
GVG18-32	686	146982	10.4	9.5784	9.0	3.8982	9.0	0.2708	0.5	0.06	1544.9	6.9	1613.3	73.0	1703.8	166.2	1703.8	166.2	90.7
GVG18-36	232	82199	1.6	9.5738	0.5	4.0989	3.3	0.2846	3.2	0.99	1614.5	46.1	1654.1	26.7	1704.7	9.3	1704.7	9.3	94.7
GVG18-38	951	132417	2.7	9.3286	0.7	4.1312	3.4	0.2795	3.3	0.98	1588.9	46.3	1660.5	27.5	1752.3	13.3	1752.3	13.3	90.7
GVG18-45	579	145167	1.4	9.3201	0.2	4.3038	3.6	0.2909	3.6	1.00	1646.1	51.7	1694.1	29.3	1754.0	3.3	1754.0	3.3	93.9
GVG18-84	191	62358	1.6	9.2981	0.5	4.7714	3.0	0.3218	2.9	0.99	1798.3	46.0	1779.9	24.9	1758.3	8.8	1758.3	8.8	102.3
GVG18-24	148	45141	2.1	9.2710	3.5	4.5054	4.0	0.3029	2.0	0.50	1705.9	30.1	1732.0	33.4	1763.6	63.6	1763.6	63.6	96.7
GVG18-85	124	50320	2.5	9.1960	1.2	4.6665	2.8	0.3112	2.6	0.91	1746.8	39.4	1761.3	23.7	1778.5	21.8	1778.5	21.8	98.2
GVG18-25	272	79942	1.5	9.1552	0.5	4.7626	2.0	0.3162	1.9	0.96	1771.3	29.3	1778.3	16.5	1786.5	9.6	1786.5	9.6	99.1
GVG18-13	276	92589	2.4	9.1448	0.5	4.9054	1.3	0.3253	1.2	0.91	1815.8	18.4	1803.2	10.8	1788.6	9.7	1788.6	9.7	101.5
GVG18-30	160	1900	8.7	8.6516	98.9	0.1495	99.1	0.0094	7.1	0.07	60.2	4.3	141.5	131.6	1889.0	#VALUE!	1889.0	#VALUE!	3.2
GVG18-56	21	7713	2.0	7.6766	4.7	7.0248	5.1	0.3911	1.9	0.37	2128.0	34.5	2114.6	45.4	2101.5	83.2	2101.5	83.2	101.3
GVG18-35	117	25962	1.5	5.4579	0.7	8.6971	6.3	0.3443	6.3	0.99	1907.2	103.8	2306.8	57.6	2682.2	10.8	2682.2	10.8	71.1
GVG18-90	185	74978	2.5	5.4456	0.3	12.9322	0.6	0.5108	0.5	0.89	2659.9	10.8	2674.7	5.2	2686.0	4.1	2686.0	4.1	99.0

Arizona LaserChron Center analyses of TD-1F-105

Analysis	U (ppm)	206Pb/204Pb	U/Th	206Pb*/207Pb*	± (%)	Isotope ratios 207Pb*/235U*	± (%)	206Pb*/238U	± (%)	error corr.	Apparent ages (Ma) 206Pb*/238U*	± (Ma)	207Pb*/235U	± (Ma)	206Pb*/207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
TD1F105-68	230	4907	1.2	22.6343	24.2	0.0436	26.4	0.0072	10.5	0.40	46.0	4.8	43.4	11.2	-100.6	602.8	46.0	4.8	NA
TD1F105-28	224	3184	2.3	21.0052	26.3	0.0516	27.0	0.0079	6.2	0.23	50.4	3.1	51.0	13.4	79.8	633.4	50.4	3.1	NA
TD1F105-92	199	3376	1.2	19.5186	21.8	0.0555	22.2	0.0079	4.1	0.18	50.5	2.1	54.9	11.9	251.3	507.5	50.5	2.1	NA
TD1F105-1	325	8296	1.4	22.8936	20.2	0.0494	20.7	0.0082	4.4	0.21	52.6	2.3	48.9	9.9	-128.7	502.9	52.6	2.3	NA
TD1F105-50	94	1777	1.4	13.2714	190.8	0.0868	190.9	0.0084	8.5	0.04	53.6	4.5	84.5	156.1	1077.8	816.8	53.6	4.5	5.0
TD1F105-85	465	12438	3.9	19.9417	9.4	0.0656	11.2	0.0095	6.1	0.54	60.8	3.7	64.5	7.0	201.8	219.0	60.8	3.7	NA
TD1F105-73	105	2858	1.3	18.6061	45.8	0.0892	46.2	0.0120	5.3	0.12	77.2	4.1	86.8	38.4	360.4	1088.6	77.2	4.1	NA
TD1F105-61	1972	54742	16.1	21.0499	1.9	0.0852	2.2	0.0130	1.1	0.51	83.3	0.9	83.0	1.7	74.8	44.2	83.3	0.9	NA
TD1F105-40	137	5032	1.2	23.9789	32.6	0.0756	33.0	0.0132	4.5	0.14	84.2	3.8	74.0	23.5	-244.4	844.0	84.2	3.8	NA
TD1F105-78	152	4538	2.7	26.8222	18.3	0.0687	18.5	0.0134	3.2	0.17	85.6	2.7	67.5	12.1	-536.1	492.8	85.6	2.7	NA
TD1F105-21	289	7503	2.5	18.9501	20.6	0.0973	20.7	0.0134	2.5	0.12	85.6	2.1	94.2	18.7	318.9	472.6	85.6	2.1	NA
TD1F105-9	188	5144	2.6	23.1461	28.1	0.0801	28.4	0.0135	3.5	0.12	86.1	3.0	78.3	21.4	-155.8	711.0	86.1	3.0	NA
TD1F105-18	431	10325	17.3	22.6490	10.6	0.0832	10.8	0.0137	2.0	0.18	87.5	1.7	81.1	8.4	-102.2	262.2	87.5	1.7	NA
TD1F105-100	1652	45384	11.7	20.5325	2.9	0.0919	3.5	0.0137	2.0	0.56	87.6	1.7	89.2	3.0	133.6	67.2	87.6	1.7	NA
TD1F105-25	739	26800	5.0	21.8568	6.0	0.0880	10.6	0.0139	8.7	0.82	89.3	7.7	85.6	8.7	-15.4	145.9	89.3	7.7	NA
TD1F105-62	74	1725	1.7	18.8661	27.5	0.1031	29.3	0.0141	10.2	0.35	90.3	9.2	99.7	27.9	329.0	634.6	90.3	9.2	NA
TD1F105-75	106	12175	1.7	21.9333	25.8	0.0897	26.7	0.0143	7.1	0.27	91.3	6.5	87.2	22.4	-23.8	632.8	91.3	6.5	NA
TD1F105-54	272	8165	1.9	23.0480	14.7	0.0861	15.0	0.0144	2.8	0.19	92.1	2.6	83.8	12.0	-145.3	366.1	92.1	2.6	NA
TD1F105-30	132	4872	2.7	22.3132	26.8	0.0911	28.2	0.0148	9.1	0.32	94.4	8.5	88.6	24.0	-65.6	663.1	94.4	8.5	NA
TD1F105-47	1396	44619	127.3	20.7656	2.2	0.1007	2.5	0.0152	1.2	0.47	97.1	1.1	97.5	2.3	107.0	52.2	97.1	1.1	NA
TD1F105-2	278	21732	2.0	22.4069	9.6	0.0963	9.9	0.0157	2.2	0.22	100.2	2.2	93.4	8.8	-75.8	235.7	100.2	2.2	NA
TD1F105-8	776	26506	2.2	20.3983	11.6	0.1096	12.9	0.0162	5.7	0.44	103.7	5.8	105.6	12.9	149.0	271.5	103.7	5.8	NA
TD1F105-52	291	19900	2.8	20.9450	11.3	0.1070	11.5	0.0163	2.4	0.21	104.0	2.5	103.3	11.3	86.6	268.4	104.0	2.5	NA
TD1F105-24	134	5930	2.4	27.5169	28.3	0.0831	28.6	0.0166	4.0	0.14	106.0	4.2	81.0	22.3	-605.1	782.2	106.0	4.2	NA
TD1F105-41	71	3233	1.9	21.2186	42.7	0.1078	43.2	0.0166	6.2	0.14	106.1	6.5	104.0	42.7	55.8	1062.5	106.1	6.5	NA
TD1F105-27	219	7262	2.6	21.1717	18.9	0.1098	19.5	0.0169	4.5	0.23	107.7	4.8	105.7	19.5	61.0	454.4	107.7	4.8	NA
TD1F105-36	376	15507	1.4	21.6175	10.6	0.1079	10.8	0.0169	2.1	0.19	108.1	2.2	104.0	10.7	11.1	255.3	108.1	2.2	NA
TD1F105-97	180	8319	1.6	19.0291	15.1	0.1234	15.3	0.0170	2.8	0.18	108.9	3.0	118.1	17.1	309.5	345.0	108.9	3.0	NA
TD1F105-71	223	12173	1.6	21.2155	17.0	0.1111	17.4	0.0171	3.4	0.19	109.2	3.6	106.9	17.6	56.1	408.8	109.2	3.6	NA
TD1F105-43	329	13691	2.5	22.0876	10.9	0.1103	11.0	0.0177	1.7	0.16	112.9	2.0	106.3	11.1	-40.9	265.2	112.9	2.0	NA
TD1F105-19	146	4670	3.0	25.5423	25.7	0.0957	25.8	0.0177	2.9	0.11	113.3	3.3	92.8	22.9	-406.7	679.5	113.3	3.3	NA
TD1F105-12	124	8097	2.5	24.9881	33.0	0.0998	33.6	0.0181	6.2	0.19	115.6	7.1	96.6	30.9	-349.7	871.4	115.6	7.1	NA
TD1F105-14	123	6181	2.7	19.6285	17.2	0.1277	17.6	0.0182	3.7	0.21	116.1	4.3	122.0	20.2	238.4	398.9	116.1	4.3	NA
TD1F105-42	445	20169	1.5	19.9605	6.6	0.1273	7.0	0.0184	2.5	0.35	117.7	2.9	121.6	8.0	199.6	152.5	117.7	2.9	NA
TD1F105-98	208	11288	2.7	20.9985	13.9	0.1225	14.1	0.0187	2.3	0.16	119.2	2.7	117.3	15.6	80.5	331.9	119.2	2.7	NA
TD1F105-10	54	2381	2.6	38.4269	103.1	0.0700	103.2	0.0195	4.2	0.04	124.5	5.2	68.7	68.7	-1619.4	0.0	124.5	5.2	NA
TD1F105-88	73	6184	2.8	26.3040	41.1	0.1024	41.6	0.0195	6.3	0.15	124.7	7.8	99.0	39.2	-484.0	1130.7	124.7	7.8	NA
TD1F105-13	74	3085	1.8	28.4555	40.6	0.0972	40.8	0.0201	4.1	0.10	128.1	5.1	94.2	36.7	-697.3	1166.7	128.1	5.1	NA
TD1F105-22	129	6676	1.7	21.7140	19.3	0.1318	19.5	0.0208	3.0	0.16	132.5	4.0	125.7	23.1	0.4	468.5	132.5	4.0	NA
TD1F105-67	118	6087	2.8	20.6877	29.4	0.1415	29.7	0.0212	4.2	0.14	135.5	5.6	134.4	37.4	115.9	706.3	135.5	5.6	NA
TD1F105-86	50	5211	2.4	13.8182	110.0	0.2252	110.1	0.0226	5.7	0.05	143.9	8.1	206.2	208.4	996.3	376.0	143.9	8.1	14.4
TD1F105-7	82	5871	2.3	27.1055	47.8	0.1166	48.0	0.0229	4.2	0.09	146.1	6.0	112.0	50.9	-564.3	1355.7	146.1	6.0	NA
TD1F105-33	196	21136	3.7	21.9941	8.6	0.1463	9.7	0.0233	4.5	0.46	148.7	6.6	138.6	12.6	-30.5	208.5	148.7	6.6	NA
TD1F105-84	351	41447	1.5	20.2241	6.7	0.1607	7.0	0.0236	1.7	0.24	150.2	2.5	151.4	9.8	169.0	157.7	150.2	2.5	NA
TD1F105-99	53	2160	1.6	26.3294	51.9	0.1241	52.6	0.0237	8.7	0.17	150.9	13.0	118.8	59.0	-486.6	1464.6	150.9	13.0	NA
TD1F105-35	163	15399	1.8	20.9875	11.6	0.1662	12.0	0.0253	3.2	0.27	161.0	5.1	156.1	17.4	81.8	275.6	161.0	5.1	NA
TD1F105-48	278	15303	1.9	21.0370	10.0	0.1658	10.6	0.0253	3.7	0.34	161.0	5.8	155.8	15.4	76.2	237.7	161.0	5.8	NA
TD1F105-51	310	14796	1.3	19.5089	6.3	0.1802	6.5	0.0255	1.7	0.27	162.3	2.8	168.2	10.1	252.5	144.7	162.3	2.8	NA
TD1F105-55	236	33839	1.9	20.5377	9.5	0.1729	9.8	0.0258	2.2	0.22	163.9	3.5	162.0	14.6	133.0	224.1	163.9	3.5	NA
TD1F105-90	131	8918	2.0	22.2769	11.1	0.1605	11.5	0.0259	2.7	0.24	165.0	4.5	151.1	16.1	-61.6	272.4	165.0	4.5	NA
TD1F105-26	297	21924	2.2	21.3771	5.2	0.1675	5.5	0.0260	1.9	0.35	165.3	3.1	157.3	8.0	37.9	123.8	165.3	3.1	NA
TD1F105-20	65	3276	2.8	24.5696	20.8	0.1460	22.0	0.0260	7.1	0.32	165.5	11.6	138.3	28.4	-306.3	537.0	165.5	11.6	NA
TD1F105-66	328	34913	1.6	20.9139	7.0	0.1716	7.3	0.0260	1.8	0.25	165.6	3.0	160.8	10.8	90.1	166.9	165.6	3.0	NA
TD1F105-60	99	15492	3.1	22.3139	24.5	0.1609	24.6	0.0260	2.7	0.11	165.8	4.4	151.5	34.6	-65.7	604.5	165.8	4.4	NA
TD1F105-83	660	38172	4.8	20.0775	3.4	0.1823	3.8	0.0265	1.7	0.45	168.9	2.8	170.0	6.0	186.0	79.5	168.9	2.8	NA
TD1F105-4	237	12797	1.9	20.4538	4.7	0.1811	5.0	0.0269	1.6	0.33	170.9	2.8	169.0	7.8	142.6	110.4	170.9	2.8	NA
TD1F105-6	341	15961	2.0	19.9211	8.0	0.1889	8.1	0.0273	1.3	0.16	173.6	2.2	175.7	13.1	204.2	186.2	173.6	2.2	NA
TD1F105-87	206	26239	1.6	20.3487	9.6	0.1903	9.8	0.0281	1.6	0.17	178.6	2.9	176.9	15.8	154.7	225.5	178.6	2.9	NA
TD1F105-29	228	16595	2.9	20.1129	7.3	0.2066	7.6	0.0301	1.9	0.25	191.4	3.6	190.7	13.1	181.9	170.5	191.4	3.6	NA
TD1F105-80	167	17855	2.3	22.3546	12.7	0.1888	12.9	0.0306	2.2	0.17	194.4	4.1	175.6	20.8	-70.1	312.1	194.4	4.1	NA
TD1F105-38	157	22158	2.4	21.8247	10.9	0.1960	11.1	0.0310	2.5	0.22	196.9	4.8	181.7	18.6	-11.8	263.3	196.9	4.8	NA
TD1F105-R33-8	209	37861	1.6	18.7636	5.5	0.4928	5.7	0.0671	1.5	0.27	418.5	6.2	406.8	19.1	341.3	124.2	~~418.5~~	~~6.2~~	NA
TD1F105-R33-9	294	132584	1.6	18.0095	2.7	0.5202	3.0	0.0679	1.3	0.44	423.8	5.4	425.3	10.3	433.5	59.4	~~423.8~~	~~5.4~~	NA
TD1F105-44	1228	169225	1.5	16.9593	0.3	0.5974	1.8	0.0735	1.8	0.99	457.1	7.8	475.6	6.8	565.8	6.2	457.1	7.8	80.8
TD1F105-63	1496	347409	3.1	17.4935	0.4	0.5998	2.1	0.0761	2.1	0.98	472.8	9.6	477.1	8.1	497.9	8.5	472.8	9.6	NA
TD1F105-70	969	196932	2.4	17.4673	0.5	0.6482	1.5	0.0821	1.4	0.93	508.8	6.7	507.4	5.9	501.2	11.9	508.8	6.7	101.5
TD1F105-46	103	37035	1.9	17.3631	4.5	0.6948	4.7	0.0875	1.5	0.31	540.7	7.5	535.7	19.7	514.3	99.2	540.7	7.5	105.1
TD1F105-57	117	25429	2.9	11.8702	2.5	1.0216	19.0	0.0880	18.9	0.99	543.4	98.3	714.7	97.9	1298.2	48.7	543.4	98.3	41.9
TD1F105-76	674	157823	0.8	16.5110	0.7	0.8361	1.5	0.1001	1.4	0.89	615.1	8.0	617.0	7.1	623.8	14.8	615.1	8.0	98.6
TD1F105-17	645	373864	1.6	16.1861	0.4	0.9102	1.2	0.1069	1.1	0.95	654.4	7.0	657.2	5.8	666.6	8.3	654.4	7.0	98.2
TD1F105-15	260	63171	2.1	15.7817	1.4	0.9430	1.9	0.1079	1.3	0.70	660.8	8.4	674.5	9.4	720.5	29.2	660.8	8.4	91.7
TD1F105-31	54	12747	1.3	16.3379	5.6	0.9779	5.9	0.1159	1.8	0.30	706.8	11.9	692.5	29.6	646.5	120.8	706.8	11.9	109.3
TD1F105-69	181	105547	3.2	11.9551	1.4	2.4347	3.9	0.2111	3.7	0.94	1234.7	41.2	1252.9	28.2	1284.3	26.3	1284.3	26.3	96.1
TD1F105-49	1767	1066106	2.9	11.4447	0.2	2.3522	3.3	0.1952	3.3	1.00	1149.7	34.3	1228.2	23.3	1368.8	3.6	1368.8	3.6	84.0
TD1F105-45	79	50525	2.1	11.4445	1.7	2.9106	2.7	0.2416	2.2	0.80	1394.9	27.4	1384.7	20.7	1368.8	31.9	1368.8	31.9	101.9
TD1F105-37	251	138855	4.2	11.3830	0.5	2.9236	1.7	0.2414	1.6	0.96	1393.8	20.5	1388.0	12.9	1379.2	9.7	1379.2	9.7	101.1
TD1F105-39	1005	573800	1.0	11.3612	0.1	2.9864	0.8	0.2461	0.8	0.99	1418.2	10.5	1404.2	6.3	1382.9	2.5	1382.9	2.5	102.6
TD1F105-32	229	155233	3.7	11.3602	0.7	2.9027	2.1	0.2392	1.9	0.94	1382.3	24.1	1382.6	15.6	1383.0	13.3	1383.0	13.3	99.9
TD1F105-82	344	186662	5.1	10.9028	0.6	2.7843	2.0	0.2202	1.9	0.95	1282.8	22.7	1351.3	15.3	1461.6	12.1	1461.6	12.1	87.8
TD1F105-23	307	152631	3.4	10.7835	0.7	3.2989	1.9	0.2580	1.7	0.92	1479.6	22.9	1480.8	14.6	1482.4	13.8	1482.4	13.8	99.8
TD1F105-59	356	120229	4.6	9.9083	0.5	2.0234	4.6	0.1454	4.6	0.99	875.1	37.7	1123.4	31.5	1641.2	9.8	1641.2	9.8	53.3
TD1F105-93	189	113363	1.4	9.6351	0.5	4.3189	1.2	0.3018	1.1	0.91	1700.3	15.8	1697.0	9.6	1692.9	9.1	1692.9	9.1	100.4
TD1F105-53	99	32479	1.6	9.5123	2.0	3.9238	2.3	0.2707	1.2	0.50	1544.4	16.1	1618.6	18.8	1716.5	36.8	1716.5	36.8	90.0
TD1F105-5	178	227374	3.4	9.1732	0.5	4.8682	1.3	0.3239	1.2	0.91	1808.7	18.9	1796.8	11.0	1783.0	9.7	1783.0	9.7	101.4
TD1F105-65	430	591771	1.2	9.1548	0.2	4.9022	1.7	0.3255	1.6	0.99	1816.5	25.8	1802.6	13.9	1786.6	4.5	1786.6	4.5	101.7
TD1F105-74	193	263179	0.7	9.1405	0.5	4.8960	1.3	0.3246	1.2	0.94	1812.0	19.2	1801.6	11.0	1789.5	8.4	1789.5	8.4	101.3
TD1F105-3	582	323152	2.2	9.0832	0.2	4.9792	1.7	0.3280	1.7	1.00	1828.8	26.5	1815.8	14.1	1800.9	2.8	1800.9	2.8	101.5
TD1F105-64	450	666165	2.2	7.6703	0.3	7.0957	1.3	0.3947	1.2	0.98	2144.7	22.8	2123.5	11.3	2103.0	4.5	2103.0	4.5	102.0
TD1F105-81	111	2308	1.3	6.4947	278.9	0.1462	279.1	0.0069	9.9	0.04	44.2	4.4	138.5	377.9	2390.5	155.1	2390.5	155.1	1.9
TD1F105-77	215	324473	4.4	5.6018	0.3	12.5815	1.9	0.5112	1.9	0.99	2661.6	41.8	2648.8	18.3	2639.1	5.1	2639.1	5.1	100.9
TD1F105-11	118	162530	0.9	5.4798	0.4	13.1223	1.3	0.5215	1.2	0.94	2705.6	27.0	2688.5	12.2	2675.6	7.1	2675.6	7.1	101.1
TD1F105-34	39	1963	-399.9	3.9956	405.1	0.4690	405.3	0.0136	14.9	0.04	87.0	12.9	390.5	#NUM!	3186.5	87.1	3186.5	87.1	2.7

Methods for U-Pb geochronologic analyses of detrital zircon completed at Arizona LaserChron Center (ALC Nu HR ICPMS)

Zircon crystals are extracted from samples by traditional methods of crushing and grinding, followed by separation with a Gemeni table, heavy liquids, and Frantz magnetic separator. Samples are processed such that all zircons are retained in the final heavy mineral fraction. A large split of these grains is incorporated into a 1" epoxy mount together with fragments of ALC's Sri Lanka standard zircon. The mounts are sanded down to a depth of ~20 microns, polished, imaged, and cleaned prior to isotopic analysis.

U-Pb geochronology of zircons is conducted by laser ablation multicollector inductively coupled plasma mass spectrometry (LA-MC-ICPMS) at ALC (Gehrels et al., 2006, 2008). The analyses involve ablation of zircon with a New Wave UP193HE Excimer laser using a spot diameter of 30 microns. The ablated material is carried in helium into the plasma source of a Nu HR ICPMS, which is equipped with a flight tube of sufficient width that U, Th, and Pb isotopes are measured simultaneously. All measurements are made in static mode, using Faraday detectors with $3x10^{11}$ ohm resistors for ^{238}U, ^{232}Th, ^{208}Pb-^{206}Pb, and discrete dynode ion counters for ^{204}Pb and ^{202}Hg. Ion yields are ~0.8 mv per ppm. Each analysis consists of one 15-second integration on peaks with the laser off (for backgrounds), 15 one-second integrations with the laser firing, and a 30 second delay to purge the previous sample and prepare for the next analysis. The ablation pit is ~15 microns in depth.

For each analysis, the errors in determining $^{206}Pb/^{238}U$ and $^{206}Pb/^{204}Pb$ result in a measurement error of ~1-2% (at 2-sigma level) in the $^{206}Pb/^{238}U$ age. The errors in measurement of $^{206}Pb/^{207}Pb$ and $^{206}Pb/^{204}Pb$ also result in ~1-2% (at 2-sigma level) uncertainty in age for grains that are >1.0 Ga, but are substantially larger for younger grains due to low intensity of the ^{207}Pb signal. For most analyses, the cross-over in precision of $^{206}Pb/^{238}U$ and $^{206}Pb/^{207}Pb$ ages occurs at ~1.0 Ga.

^{204}Hg interference with ^{204}Pb is accounted for measurement of ^{202}Hg during laser ablation and subtraction of ^{204}Hg according to the natural $^{202}Hg/^{204}Hg$ of 4.35. This Hg is correction is not significant for most analyses because Hg backgrounds are low (generally ~150 cps at mass 204).

Common Pb correction is accomplished by using the Hg-corrected ^{204}Pb and assuming an initial Pb composition from Stacey and Kramers (1975). Uncertainties of 1.5 for $^{206}Pb/^{204}Pb$ and 0.3 for $^{207}Pb/^{204}Pb$ are applied to these compositional values based on the variation in Pb isotopic composition in modern crystal rocks.

Inter-element fractionation of Pb/U is generally ~5%, whereas apparent fractionation of Pb isotopes is generally <0.2%. In-run analysis of fragments of a large zircon crystal (generally every fifth measurement) with known age of 563.5 ± 3.2 Ma (2-sigma error) is used to correct for this fractionation. The uncertainty resulting from the calibration correction is generally 1-2% (2-sigma) for both $^{206}Pb/^{207}Pb$ and $^{206}Pb/^{238}U$ ages.

Concentrations of U and Th are calibrated relative to the ALC Sri Lanka zircon, which contains ~518 ppm of U and 68 ppm Th.

The analytical data are reported in 4 tables. Uncertainties shown in the tables are at the 1-sigma level, and include only measurement errors. Analyses that are >20% discordant (by comparison of $^{206}Pb/^{238}U$ and $^{206}Pb/^{207}Pb$ ages) or >5% reverse discordant are not considered further.

The resulting interpreted ages are shown and relative age-probability diagrams plotted using the routines in Isoplot (Ludwig, 2008). The age-probability diagrams show each age and its uncertainty (for measurement error only) as a normal distribution, and sum all ages from a sample into a single curve.

Notes for data tables:

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <500 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <1000 Ma and from 206Pb/207Pb age for analyses with 206Pb/238U age > 1000 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <500 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age > 500 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age > 500 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 1-sigma level, and include only measurement errors.
8. 206Pb/238U & 206Pb/207Pb systematic errors are as follows (at 2-sigma level): [CR-2, CR-25, CR-55, and CR-90: 1.2% & 0.9%]; [CR-85 spots 1-75: 1.4% & 0.8%]; [CR-85 spots 75-100 and CR-52: 1.2% & 0.8%]; TD-1F-105: 1.9% & 0.9%]; [GVG09-18: 1.8% and 1.2%].
9. Analyses conducted by LA-MC-ICPMS, as described by Gehrels et al. (2008).
10. U concentration and U/Th are calibrated relative to Sri Lanka zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of a large Sri Lanka zircon of 563.5 ± 3.2 Ma (2-sigma).
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.88.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).