

U/PB DATING OF DETRITAL ZIRCON FROM SEWARD TO BARANOF ISLAND PROVIDES DEPOSITIONAL LINKS ACROSS THE CHUGACH-PRINCE WILLIAM TERRANE IN SOUTHEASTERN ALASKARick¹, B.J., Frett¹, B.K., Davidson¹, C.M., and Garver², J.I.¹*Carleton College; MN;* ²*Union College, NY*

The southern Alaskan continental margin is defined by the Chugach-Prince William (CPW) terrane, a deformed ~2200 km long Mesozoic-Tertiary accretionary complex (Plafker et al., 1994). The outboard units of the CPW in the Prince William Sound area are comprised of the Maastrichtian Valdez Formation and Paleocene to Eocene Orca Group, primarily composed of deep-water graywacke turbidites (flysch) and volcanic rocks, including the 57 Ma Resurrection Ophiolite complex (Plafker et al., 1994; Bradley and Miller, 2006). The westernmost unit of the Chugach accretionary complex on southern Baranof Island in southeastern Alaska is the Sitka Graywacke, also composed of deep-water turbidites and its metamorphic equivalent the Baranof Schist. Paleocene to Eocene (60-49 Ma) near-trench plutons of the Sanak-Baranof belt intruded the terrane with a west-to-east migration from 61 Ma in the west to 51-49 Ma in the east (Bradley et al., 2003). Paleomagnetic data from the Resurrection Ophiolite requires that this element of the Prince William terrane formed $13\pm 9^\circ$ south of its present location, indicating nearly 1000 km of northward displacement (Bol et al., 1992). However, Haeussler et al. (2003) discount the paleomagnetic data and suggest that the Resurrection Ophiolite and Sanak-Baranof plutons were emplaced more or less in place. In this contribution, we present detrital zircon U/Pb ages from the Sitka Graywacke on Baranof Island, and the flysch of the Valdez and Orca groups that lie structurally, and locally stratigraphically, above the Resurrection Ophiolite near Seward. We show that the maximum depositional ages generally young inboard to outboard with some notable discontinuities, and that the youngest (most outboard) rocks of the Sitka Graywacke correlate to the Orca Group in Prince William Sound.

Using U/Pb dating of detrital zircon, previous work has shown that the Sitka Graywacke on Baranof Island just south of Sitka is Upper Cretaceous with an inboard older package of rocks with maximum depositional ages (MDA) of 97, 103, and 105 Ma and a younger outboard package with MDA's of 72, 74, 74, and 74 Ma (Haeussler et al., 2006). Five samples of metamorphosed Sitka Graywacke from our study collected along a SW-NE transect in Whale Bay (~52 km south of Sitka) yield maximum depositional ages of 60, 62, 62, 68, and 75 Ma, younging from inboard to outboard. This result means that a large fraction of the Baranof Schist is stratigraphically equivalent to the Orca Group in Prince William Sound. These new data from Baranof Island show that deposition of the Sitka Graywacke extended into the Paleocene, before being buried and metamorphosed to amphibolite facies (andalusite+garnet) due to the intrusion of the Crawfish Inlet pluton at ~50 Ma (Karl et al., 2014; this study).

Five new samples collected from the flysch of the CPW near Seward, Alaska yield MDA's of 58, 59, 65, 67, and 67 Ma, and thus deposition of rocks was likely coeval with those on Baranof Island. The youngest two samples are from Fox Island in Resurrection Bay and appear to correlate in age with samples reported by Pettiette (2013) from flysch interbedded with pillow basalts of the 57 Ma Resurrection Ophiolite. The other three samples come from adjacent but structurally higher (inboard) positions in the accretionary wedge and have slightly older (65 to 71 Ma) MDA's. Our new U/Pb date on the Aialik Pluton of 56.5 ± 1.0 Ma and the existing

constraints on the age of the Resurrection Peninsula Ophiolite (57 Ma, see Pettiette, 2013), would suggest near contemporaneous formation of the ophiolite and intrusion of the pluton. From these data we are left to conclude that either: 1) ophiolite formation, imbrication, and intrusion occurred in less than 1 Myr (at ~57 Ma); or 2) ophiolite formation and pluton intrusion occurred at different parts of the same margin, and were since juxtaposed along unidentified structures. Likewise our new U/Pb ages on detrital zircon from the Baranof Schist are much younger than previously thought, and our data require deposition as late as 60 Ma, and then imbrication and burial occurred in the 10 Myr interval before intrusion of the Crawfish Inlet Pluton at 50 Ma, at depths of 10 to 20 km (Zumsteg et al., 2003).

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