

223-7 - PROVENANCE AND TECTONIC TRANSLATION OF THE CHUGACH-PRINCE WILLIAM TERRANE BASED ON GEOCHRONOLOGY OF DETRITAL ZIRCON



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304A (Anaheim Convention Center)

Abstract

The Chugach and Prince William (CPW) terranes are traditionally viewed as a composite terrane (CPW) that was an accretionary complex to Wrangellia (*s. lato*). For decades, the site of deposition and translation history has been both complicated and controversial. We suggest that zircon provenance provides the key to understanding the original source and translation history. The CPW, as defined in the literature, contains several distinct tectonostratigraphic clastic units (here simplified by stratigraphic units): 1) McHugh Complex, an older suite of arc-proximal units (mid K and older, includes old Sitka); and 2) Valdez and equivalents (mainly Campanian to Paleocene) that are mainly turbidites (also Shumagin, Kodiak, and Sitka, but not Yakutat); 3) Orca and equivalents include Paleocene-Eocene turbidites and mafic volcanics of the Prince William terrane (also Ghost Rocks, upper Sitka). We have dated 180 samples (~42k detrital zircons) from the length of the 2000-km-long belt. Several observations concerning correlation of units and overall provenance emerge from the zircon data: 1) there is stratigraphic continuity in much of the belt; 2) the source was a volcanic arc built on a metaplutonic complex; and 3) Orca-like clastic rocks contain significant material recycled from the underlying Valdez-like rocks. Older Chugach clastic units (mid K) have a provenance alliance and stratigraphic tie with WR/AX/PN (Wrangellia superterrane). Valdez-like rocks (Camp-Maas) are dominated by grain ages of 71-73 Ma, that are slightly radiogenic (but positive eHf), which rules out the Coast Plutonic Complex and Idaho Batholith as a source. The Sierra Madre Occidental in Mexico is a candidate source terrane for the voluminous sediment in the Valdez and equivalents given the age and crustal component of other candidate batholithic in the Cordillera. If correct, this provenance tie would suggest sediment and/or tectonic transport of >3000 km.

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