

27-9 - REEVALUATION OF THE CHUGACH, PRINCE WILLIAM TERRANES BASED ON GEOCHRONOLOGY OF DETRITAL ZIRCON AND PLUTON AGES FROM CHICAGOF, YAKOBI, AND THE FAIRWEATHER RANGE IN GLACIER BAY NATIONAL PARK, ALASKA



Friday, May 19, 2023



11:00 AM - 11:15 AM



Whitney Peak Ballroom 1 (The Whitney Peak Hotel)

Abstract

The Chugach and Prince William terranes are thought to be a composite terrane (CPW) that was an accretionary complex to Wrangellia (s. lato). The adjacent Yakutat terrane has age-correlative but dissimilar rocks that are a separate and distinct terrane. New field observations and dating of rocks on Baranof, Chichagof, Yakobi, the Fairweather Range, and also from the Yakutat block east of the Fairweather fault provide new constraints on stratigraphic units, and the timing of terrane juxtaposition. We report new detrital zircon results from 19 samples of the Sitka Graywacke, Chugach Metamorphic Complex, and Yakutat Group. We also report ten new dates on intrusive rocks in this belt. Together these data allow for new insights into the tectonic history of the northern part of Southeast Alaska, and Glacier Bay National Park. Several observations concerning correlation of units fall out of the new UPb dataset: 1) The Sitka Graywacke is a composite unit with two basic stratigraphic units that are unlikely to be related - old Sitka (mainly Albian) and young Sitka (mainly Campanian to Paleocene). The old Sitka appears to be allied with Wrangellia, and has a similar grain-age distribution to the western Gravina Belt. Young Sitka (MDA range of c. 75-58 Ma) has young grain ages and grain-age distributions that are similar to both the Valdez and Orca Group farther to the north in PWS. 2) The Sitka Graywacke extends northward with increasing metamorphic grade across the Cross Sound into the Chugach Metamorphic Complex (CMC). 3) Many of the newly dated granitic rocks that intrude the CPW in this study area are between 52 and 48 Ma, which is consistent with them being part of the Sanak-Baranof belt of plutonic rocks. An exception is the Squid Bay pluton, which is younger. 4) Flysch and mélange of the Yakutat Group are distinct and different from all CPW rocks, and these rocks have their own tectonic trajectory, and thus reconstructions based on CPW-YAK correlation are suspect. We suggest that the Border Ranges fault, as mapped on Yakobi-Baranof, needs revision.

Geological Society of America Abstracts with Programs. Vol. 55, No. 4, 2023
doi: 10.1130/abs/2023CD-387694

© Copyright 2023 The Geological Society of America (GSA), all rights reserved.

Author



John Garver
Union College

Authors



Cameron Davidson
Carleton College



Maya Feldberg-Bannatyne
Carleton College



Sofia Barth
University of Oklahoma



Rachel P. Bryan
Union College

View Related
