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**Title: MESOZOIC AND CENOZOIC TECTONIC GROWTH OF
SOUTHERN ALASKA: A SEDIMENTARY BASIN
PERSPECTIVE**

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Abstract: Mesozoic and Cenozoic sedimentary strata exposed throughout southern Alaska contain a rich archive of information on the growth of collisional continental margins through the processes of terrane accretion, magmatism, and accretionary prism development. Two major collisional events define the tectonic growth of southern Alaska: Mesozoic collision of the Wrangellia composite terrane and Cenozoic collision of the Yakutat terrane. The sedimentary record of these two collisional events can be summarized as follows: (1) Middle Jurassic volcanoclastic and sedimentary strata represent shallow marine deposition in narrow sub-basins adjacent to the south-facing, intraoceanic Talkeetna arc; (2) Upper Jurassic syndepositional regional shortening resulted in thick sections of conglomerate in proximal parts of both retroarc and forearc basins. In distal retroarc depocenters, fine-grained turbidite sedimentation commenced in a series of basins that presently extend for >2,000 km along strike. This time interval also marked cessation of magmatism and rapid exhumation of the Talkeetna oceanic arc. We interpret these observations to reflect initial oblique collision, younging to the

northwest, of the Wrangellia composite terrane with the continental margin of western North America; (3) During Early Cretaceous time, Jurassic retroarc basin strata were incorporated into an expanding north-verging thrust belt and sediment was bypassed into more distal collisional retroarc basins located within the suture zone; (4) Late Early Cretaceous to early Late Cretaceous time was characterized by regional deformation of retroarc collisional basin strata by south-verging thrust faults that are part of a regional thrust belt; (5) Latest Cretaceous time was characterized by marine and nonmarine synorogenic sedimentation in forearc and retroarc basins related to regional shortening and exhumation of a coeval continental-margin arc and older collisional basinal strata; (6) Growth of the southern Alaska continental margin during Paleocene-Early Eocene time is defined by regional nonmarine deposition, magmatism within the suture zone, metamorphism, and expansion of the accretionary prism; (7) Regional transpressive deformation characterized southern Alaska during Middle Eocene-Oligocene time; (8) A second major phase of terrane collision and basin development shaped the southern margin of Alaska during latest Oligocene to Holocene time. Northward translation and collision of the Yakutat terrane prompted growth of the largest coastal mountain range on Earth, construction of a new magmatic arc, widespread deposition in adjacent basins, and renewed exhumation of mountain ranges.

Comments: Part of session chaired by Steve Graham