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Accretionary Growth of Western North America: Examples from Alaska

It is now recognized that much of the Cordillera of western North America was assembled during Mesozoic time by accretion of allochthonous terranes. These terranes include: oceanic island arcs, scraps of ocean basins with ophiolitic basement, and fragments of continental margins, some with Precambrian basement, as well as composite terranes composed of two or more unlike elements joined together before accretion. Approximately 200 separate terranes have now been recognized in the Cordillera, each of which contains a distinctive stratigraphic record that differs strongly from that of its neighbor. Combined geologic, paleontologic, and geophysical (paleomagnetic) data substantiate that some of these terranes have been displaced thousands of kilometers northward from low paleolatitudes. As a result of these movements, paleobiogeographic provinces have been disrupted, and non-indigenous faunal elements transported to North America. A similar pattern of accretionary terranes characterizes much of the circum-Pacific margin, including China, eastern Australia, New Zealand, and parts of Antarctica. The great number and diversity of the displaced terranes found throughout this region suggest that the paleogeography of Panthalassa was extremely complex.