

Geologic Map of the Prince William Sound and Kenai Peninsula Region, Alaska

C.P Hults., (chults@usgs.gov), F.H Wilson, (fwilson@usgs.gov),
and Nora Shew (nshew@usgs.gov), U.S. Geological Survey, Anchorage, AK, 99508

The geology of the Prince William Sound and Kenai Peninsula region (PWS-KP), Alaska, is the result of accretionary tectonics that involved Jurassic, Upper Cretaceous, and Cenozoic magmatic arcs of the Alaska Peninsula on the west, a Lower Jurassic blueschist terrane on the Kenai Peninsula, an Upper Cretaceous to Paleogene accretionary complex in Prince William Sound, which incorporates Tertiary ophiolitic rocks and near trench intrusions related to subduction of a spreading ridge, and actively accreting Cenozoic rocks of the Yakutat terrane on the east. The oldest rocks of the PWS-KP are Paleozoic chert and limestone within the mélangé of the McHugh Complex; however, the protolith age of greenschist- and blueschist-facies within the Border Ranges Fault zone are unknown and could be older. The youngest units include glacial deposits that mantle the Kenai Peninsula and the lowlands elsewhere in the PWS-KP.

The new PWS-KP geologic map was compiled from existing mapping and new or revised data. Geologic data from the original sources were integrated within the map area and matched to surrounding areas. The map is presented here at 1:350,000 scale but all detail from the original sources (from 1:63,360 to 1:250,000 scale) is preserved either on the printed map or in the digital data. This compilation adds new surficial mapping on the west side of Cook Inlet and surficial mapping of the Kenai Peninsula by Karlstrom (1964). We also show the ophiolitic rocks of Knight Island and the Resurrection Peninsula as a single package. Included with the map and detailed unit descriptions is a table listing all available radiometric ages for the PWS-KP.

The PWS-KP geologic map is one of a series of integrated geologic map databases of the entire United States developed as part of the US Geological Survey National Surveys and Analysis project. The growth in the use of Geographic Information Systems (GIS) for geologic interpretation has highlighted the need for digital geologic maps that are attributed with information about age and lithology. Such attributed maps can be used to generate derivative maps for special purposes such as mineral-resource assessment, metallogenic studies, tectonic studies, and hazard and environmental research.