

## **DETERMINATION OF BEDROCK WEATHERING RATES IN THE JUNEAU AREA, NORTHERN SOUTHEAST ALASKA**

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Stainless steel bolts (7.94 x 38.10 mm) were drilled and epoxied into bedrock study areas in the Gravina, Taku, and Great Tonalite Sill/Yukon Tanana terranes in the Auke Bay and Mendenhall Valley areas of Juneau, Alaska in the spring of 2006. These lithologies vary from zeolite facies andesite flows and graywackes, greenschist facies metabasalts and turbidites, to amphibolite facies sheared tonalite, quartzite and marble.

Baseline data consisting of bolthead-to-rock surface distances were collected and georeferenced with GPS to create an initial dataset from which to compare future measurements. A specially designed micrometer Rock Erosion Meter (REM) (Allred, 2004) was utilized to measure the lowering of rock surfaces adjacent to the bolts. This measuring tool was built from a Brown and Sharp 608 model micrometer by Allred. The carbide-tipped measuring rod is able to measure depths between 25.4-76.2 mm from the rock bolt head. Comparative studies in southern southeast on karst surfaces in the Alexander terrane carbonates have yielded dissolution rates ranging from 31 mm/ka in forested terrains to 38 mm/ka in alpine settings. Runoff from acid peat bogs produced dissolution rates of 1.66 m/ka, which are amongst the highest rates in the world. We anticipate much lower rates for the weathering of newly deglaciated, mostly siliclastic rocks in the Juneau Area.

Allred, K., 2004. Some Carbonate Erosion Rates of Southeast Alaska. In: *Jour. Cave and Karst Studies*, v. 66, no. 3, p 89-97.