

# New USGS report describes flow from ice-dammed lake

The storage and release of water from ice-dammed "Russell Lake" near Yakutat in Southeast Alaska is described in a new report by the U.S. Geological Survey.

The 34-mile-long lake was created when the advancing Hubbard Glacier blocked the entrance to Russell Fiord in late May 1986.

Measurements and observations of the filling and draining of the lake were a joint effort of the Geological Survey and the U.S. Forest Service. The Forest Service administers the Tongass National Forest where Russell Fiord is located.

Runoff from melting snow and glacier ice and rainfall filled the lake to an altitude of 83 feet above sea level by Oct. 8, when the ice dam failed. The lake level rose at an average rate of six-tenths of a foot each day, according to Harold Seitz, chief of the USGS Water Resource Division office in Juneau and senior author of the report.

"The lake level declined very rapidly following the ice dam breakout, dropping to the former high tide level

of Russell Fiord within 24 hours," Seitz added.

Just prior to the lake breakout, a recording gauge was installed about five miles south of the ice dam, so that a continuous record of the falling water level was obtained. During one four-hour period outflow from the lake during that period is estimated to have been between 3.5 million and 4 million cubic feet per second, and the plume of turbid water from the lake was visible as far as the mouth of Yakutat Bay.

Scientists expect the cycle of filling and draining of Russell Lake to be repeated as Hubbard Glacier continues to advance. The timing of such a repeat occurrence cannot be predicted, however.

The report, entitled "The storage and release of water from a large glacier-dammed lake; Russell Lake near Yakutat, Alaska, 1986," by H.R. Seitz, D.S. Thomas and Bud Tomlinson is published as U.S. Geological Survey Open-File Report 86-545. It can be purchased from the Geological Survey Books and Open-File Reports Section, Box 25425, Federal Center, Denver, Colo. 80225.