

The advance of Hubbard Glacier

May 21 2015



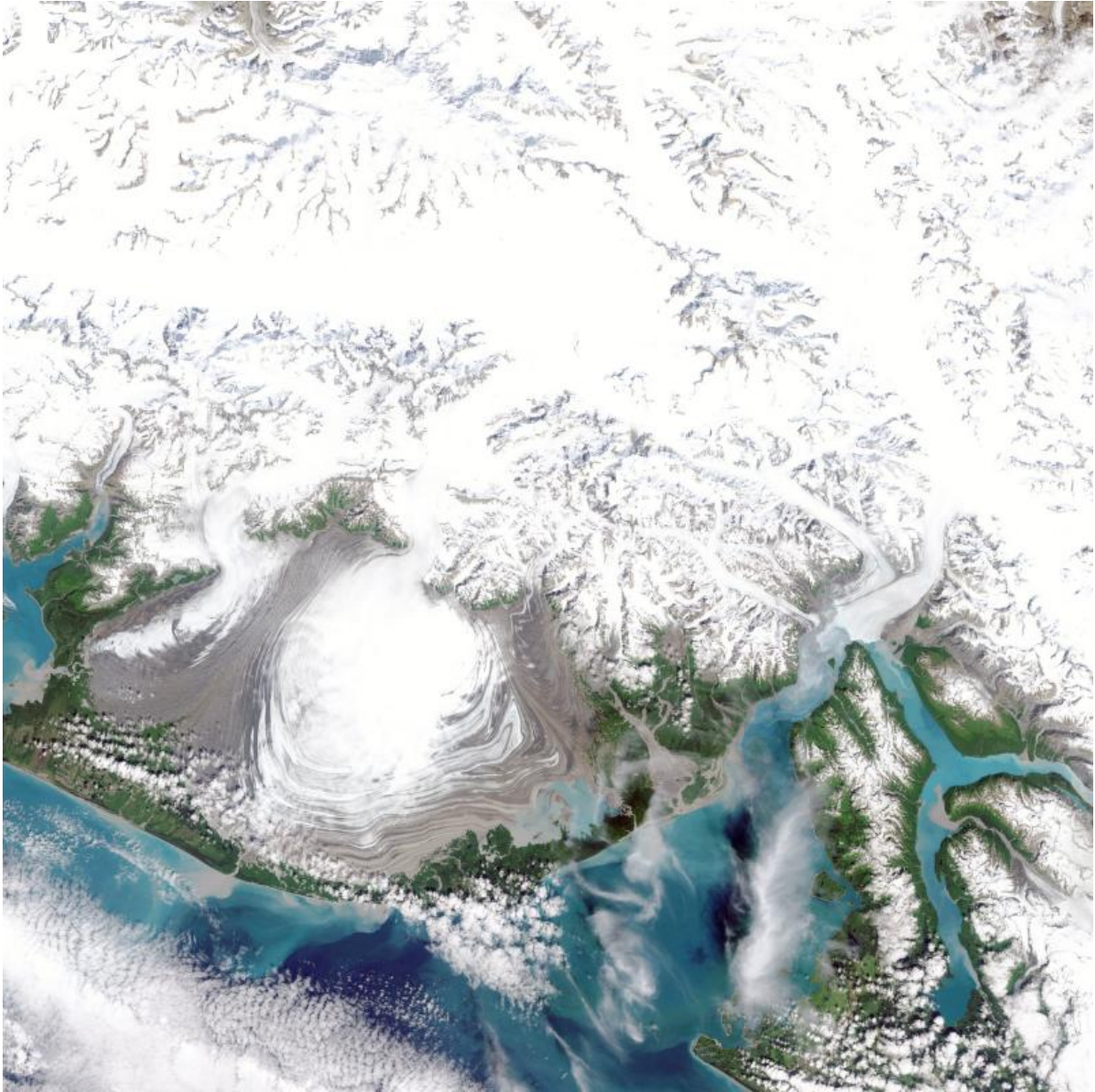
Credit: NASA/Earth Observatory

Since measurements began in 1895, Alaska's Hubbard Glacier has been thickening and steadily advancing into Disenchantment Bay. The advance runs counter to so many thinning and retreating glaciers nearby in Alaska and around the world.

This image, acquired by the Operational Land Imager (OLI) on Landsat 8, shows Hubbard Glacier on July 22, 2014.

According to Leigh Stearns, a glaciologist at the University of Kansas, Hubbard's advance is due to its large accumulation area; the glacier's catchment basin extends far into the Saint Elias Mountains. Snow that falls in the basin either melts or flows down to the terminus, causing Hubbard to steadily grow. In addition, Hubbard is building up a large moraine, shoveling sediment, rock, and other debris from Earth's surface onto the glacier's leading edge. The moraine at the front gives the glacier stability and allows it to advance more easily because the ice does not need to be as thick to stay grounded. (If it is thin, it can start floating and will not necessarily advance.)

Twice in the past hundred years—in 1986 and again in 2002—the moraine has made contact with Gilbert Point and blocked the entrance to Russell Fjord. With nowhere to drain, runoff caused the water level in the fjord to rise rapidly.



This image, acquired on July 13, 2002 by the Enhanced Thematic Mapper Plus on Landsat 7, shows the glacier the last time that it sealed the fjord. Water levels rose 0.24 meters (0.8 feet) per day. However, the closure was temporary, as water pressure overpowered the encroaching ice and debris and burst through the natural dam, returning the fjord to normal levels.

Provided by NASA

Citation: The advance of Hubbard Glacier (2015, May 21) retrieved 26 April 2024 from <https://phys.org/news/2015-05-advance-hubbard-glacier.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.