The Alaska Volcano Observatory

30 years of protecting Alaskans from the effects of volcanic activity (1988–2018)

In 2018, the Alaska Volcano Observatory (AVO) celebrates its thirtieth year!

Pavlof volcano in eruption on March 28, 2016. Photo taken at 20,000 feet elevation by Nahshon Almandmoss, U.S. Coast Guard.

AVO was established in 1988 as a collaborative effort between three institutions:

- **University of Alaska Fairbanks Geophysical Institute**
- **State of Alaska Division of Geological & Geophysical Surveys**
- **U.S. Geological Survey**

Volcanic eruptions in Alaska can impact aviation, property, economic well-being, and lives. For 30 years, scientists at AVO have worked to reduce these impacts by providing timely warnings of volcanic activity to the public and stakeholders. Through monitoring and study, AVO works towards better characterization of volcanic hazards; the most significant of which are volcanic ash clouds and ashfall.

What Does AVO Do?

AVO has three objectives:

- **Monitor and conduct scientific investigations** in order to assess the nature, timing, and likelihood of volcanic eruptions
- **Assess volcanic hazards** associated with anticipated eruptions, including types of events, their effects, and areas at risk
- **Provide timely and accurate information on volcanic hazards**, and warnings of impending dangerous activity, to local, state, and federal officials and the public

Monitor & Study

- Monitor data streams (e.g., satellite, seismic, infrasound, GPS, gas)
- Install and maintain field instruments
- Manage data streams and internal data flow

Assess Hazards

- Conduct field studies and scientific investigations to better understand the nature of volcanic activity and the hazards posed
- Publish hazard assessments and geological studies

Communicate

- Provide notifications and warnings to the public to mitigate social and economic risk resulting from volcanic activity
- Develop AVO website and Geologic Database of Information on Volcanoes in Alaska (GeoDIVA)
- Develop inter-agency relationships, such as with the Federal Aviation Administration and National Weather Service

AVO staff at the annual coordination meeting Fairbanks, Alaska, January, 2018.

To learn more, visit **www.avo.alaska.edu**
Follow AVO on **Facebook** (Alaska Volcano Observatory) and **Twitter** (@alaska_avo)
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USGS science for a changing world

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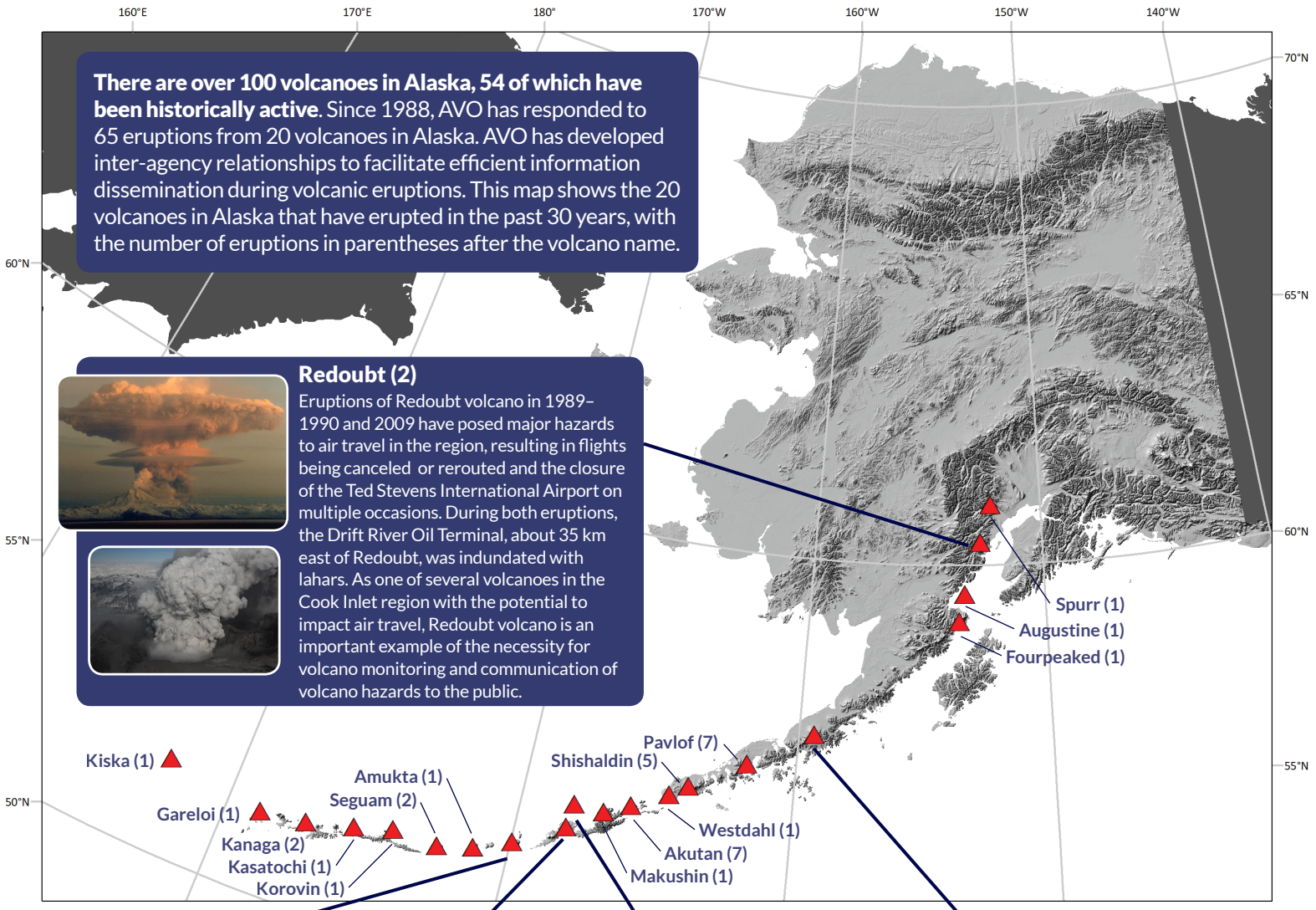
There are over 100 volcanoes in Alaska, 54 of which have been historically active. Since 1988, AVO has responded to 65 eruptions from 20 volcanoes in Alaska. AVO has developed inter-agency relationships to facilitate efficient information dissemination during volcanic eruptions. This map shows the 20 volcanoes in Alaska that have erupted in the past 30 years, with the number of eruptions in parentheses after the volcano name.

Redoubt (2)

Eruptions of Redoubt volcano in 1989–1990 and 2009 have posed major hazards to air travel in the region, resulting in flights being canceled or rerouted and the closure of the Ted Stevens International Airport on multiple occasions. During both eruptions, the Drift River Oil Terminal, about 35 km east of Redoubt, was indundated with lahars. As one of several volcanoes in the Cook Inlet region with the potential to impact air travel, Redoubt volcano is an important example of the necessity for volcano monitoring and communication of volcano hazards to the public.



Cleveland (16)

Cleveland volcano is one of the most active volcanoes in Alaska. It had explosive eruptions in 1989, 1994, 1997, 2001, 2005, 2006, 2007, twice in 2009, 2010, 2011, 2013, 2014, twice in 2016, and 2017–2018. Cleveland often alternates between lava dome extrusion and explosions that destroy lava domes.

Okmok (2)

Okmok erupted in 1997 and 2008. The 2008 eruption disrupted air travel to Aleutian communities for several weeks and was the first dominantly hydromagmatic eruption (involving groundwater- magma interaction) in the United States since 1977.

Bogoslof (2)

Bogoslof, a small island volcano, erupted in 1992 and 2016–2017. The recent eruption had more than 60 explosions, resulting in numerous flight cancellations in and out of Unalaska and disrupted air freight between Asia and the United States.

Veniaminof (10)

Veniaminof volcano has erupted 10 times since 1988. Because Veniaminof's caldera is ice-filled, its eruptions often exhibit fascinating lava-ice interactions.

Image of Cleveland explosion (above) is courtesy of the Image Science and Analysis Laboratory, NASA-Johnson Space Center. Redoubt eruption plume image above is courtesy of Robert Clucas and the USGS. All other images are courtesy of AVO.

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