

UAF scientists collaborate to study Eyjafjallajokull lightning

May 25 2010

For travelers in Europe, the recent eruption of Iceland's Eyjafjallajokull [AY-uh-fyat-luh-YOE-kuutl-uh] meant a major disruption in business and travel plans. For Alaska volcano researchers, the eruption has offered a chance to learn more about the way volcanoes work.

In the wake of the [eruption](#), the University of Alaska Fairbanks Geophysical Institute and the New Mexico Institute of Mining and Technology have teamed up again to study the lightning produced during volcanic eruptions. Past collaborations have found researchers studying the eruptions of Augustine, Pavlof and Redoubt volcanoes in Alaska, as well as Chaiten Volcano in Chile.

To study Eyjafjallajokull, researchers from New Mexico Tech have set up six instruments near the volcano as part of a lightning-mapping array. The sensor stations consist of an omnidirectional antenna hooked up to an electronics package, a data recorder, a GPS clock and other components.

The Eyjafjallajokull research is still in its infancy, but project member Steve McNutt, Alaska Volcano Observatory coordinating scientist at the Geophysical Institute, notes the research team has already observed some unusual and understudied phenomena, such as lightning that is propagated upward from the volcano's vent toward the sky and into the [ash plume](#). Iceland's glacial terrain has also created some unique volcanic activity.

"Something relatively new with Iceland is that (the eruption) occurred under glacial ice," McNutt said. "Ice is interesting because it's the most electro-positive substance known."

[Water droplets](#) have a negative charge, so eruption through the [glacial ice](#) creates some dynamic electrical conditions in the atmosphere.

Lightning is just one element of volcanic activity that scientists are trying to better understand. More pressing for stranded travelers, for instance, is that the scientific and aviation communities are still uncertain about the dangers posed by ash clouds, so caution tends to rule the day.

"We don't really know what a safe level of ash in the atmosphere is," McNutt said. "Your only safe choice is to completely avoid it."

The collaboration between UAF and New Mexico Tech on Eyjafjallajokull offers the chance to continue gathering data for the foreseeable future. The collaboration is in the final year of a three-year National Science Foundation grant.

Provided by University of Alaska Fairbanks

Citation: UAF scientists collaborate to study Eyjafjallajokull lightning (2010, May 25) retrieved 27 April 2024 from

<https://phys.org/news/2010-05-uaf-scientists-collaborate-eyjafjallajokull-lightning.html>

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