

Hazy Ash Cloud Forecast Complicates Air Travel

by RICHARD HARRIS

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Forecasters can see the volcanic ash cloud on satellite images, and they can forecast which way it's going. But they can't tell exactly how much ash is in the air -- or at what point it poses a hazard to airplanes. That's complicating efforts to decide how much of Europe's airspace can be reopened to travel.

Weather services around the world are geared up to detect volcanic eruptions and to figure out where a potentially hazardous cloud of ash might spread. In most cases, volcanoes are in remote spots, like the Aleutian Islands, or they can be otherwise avoided.

So Mark Ruminski of the National Oceanic and Atmospheric Administration says drawing up a no-fly zone is not usually too tricky.

"The fact is, if there's going to be any ash, it's enough to issue the alert and to cut out airspace they want to fly around, or not fly through," he says.

But with an ash cloud drifting over large swaths of Europe, that abundance of caution is causing real headaches -- to travelers and airlines alike. And it's casting a spotlight on how much forecasters actually know about the hazards.



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MODIS Rapid Response Team/NASA via Getty Images

The MODIS instrument on NASA's Terra satellite captured an ash plume from the Eyjafjallajökull volcano on Friday. Though satellite images can tell scientists where the ash is, they don't help forecasters determine how much ash is in the air — or at what point it becomes a hazard to airplanes.

The thickest part of the volcanic plume is clearly visible in satellite images. Forecasters also can judge by winds where the cloud is likely to be 18 hours later.

"The forecasts are usually quite good in terms of where the ash is going to be," says Marcus Bursik at the University of Buffalo. "What we can't say is how much ash is actually up there."

And that's a huge problem right now. Forecasters know that a lot of the air mass now over Europe had blown down from Iceland. A few research flights have sampled the air to look for ash. But, in fact, there's no really good way to measure how much is really up there, and whether the air is safe enough for jets.

Bursik says this isn't just an air sampling problem. "We don't even know what the concentration level is that well that affects jet engines," he says.

And that problem is compounded because airplanes and ash clouds often end up in the same layer of the atmosphere.

"Ash actually gets preferentially drawn into the jet stream," Bursik says, "so you not only have a high concentration of ash in the jet stream, but it's the place that's transporting the ash the fastest."

In fact, the jet stream is what carried a lot of the ash from Iceland to much of Europe. And, of course, the ash isn't just moving high up in the jet stream; it's drifting down to lower altitudes. Ruminski of NOAA says the question now is how long it will persist in the air.

It can literally fall out of the air, thanks to gravity, or rain can wash it out. So, he says, people in Europe should be hoping for rain.

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