

Cloud warnings



One of the world's most active volcanoes, Mount Etna on the island of Sicily, Italy, has been in the news again. Volcanic ash advisory centres have been tracking the plume from Etna, alerting pilots to the hazards associated with it.

Each year, the centres monitor some 60 eruptions, three or four of which blast ash to flight altitudes.

Aircraft try to steer clear of these noxious plumes of silicate dust and sulfuric acid. In the past 30 years, more than 90 jet aircraft have inadvertently found themselves in a volcanic ash plume. Seven of the planes lost power as their engines clogged up. Thankfully each landed safely.

Ash clouds look just like normal clouds, so crews cannot detect volcanic ash from their aircraft. So ash advisory centres have to rely on satellite images and local reports for their information.

Now CSIRO has developed a way of scanning infrared or heat signals given out by the clouds ahead of a plane. Using some clever programming, the invention can do what the human eye and even radar cannot – differentiate between weather clouds and volcanic ash clouds.

CSIRO is collaborating with an Australian company, Integrated Avionic Systems, to commercialise the world-first detector.

The collaborative project, Airborne Hazard Detection Technologies, is working to produce an instrument that will give pilots five to 10 minutes to take evasive action should an ash cloud appear ahead of their plane.

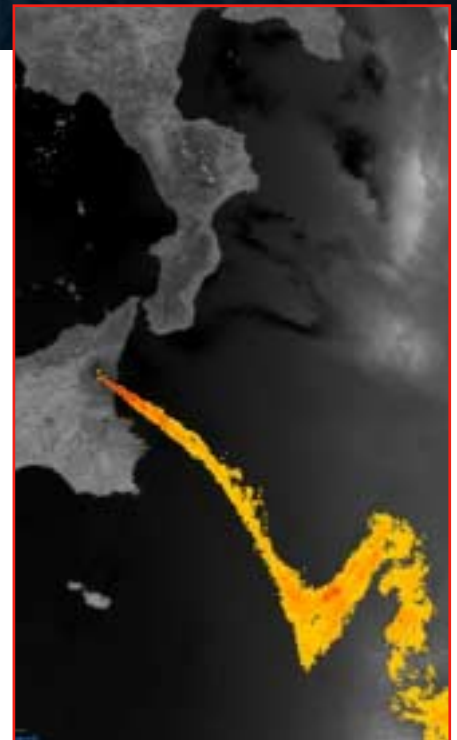
'This project represents a major step forwards in aviation technology, with a huge international market,' lead engineer, Mitchell Lennard says.

The volcanic ash detector may also be suitable for sensing clear air turbulence and low-level wind shear.

Clear air turbulence is so-called as it is not signposted by cumulus and cumulonimbus clouds. Wind shear, local variations in wind speed or direction, represents a hazard for aircraft during take-off and landing.

Contact: Paul Holper, communication manager, CSIRO Atmospheric Research, (03) 9239 4661, Paul.Holper@dar.csiro.au.

Paul Holper



Top: Ash clouds look just like normal clouds, so crews cannot detect volcanic ash from their aircraft.

Inset: The world's first volcanic ash detector is being developed in Australia.

Above: A satellite image of the plume from Italy's Mt Etna, one of the world's most active volcanos.