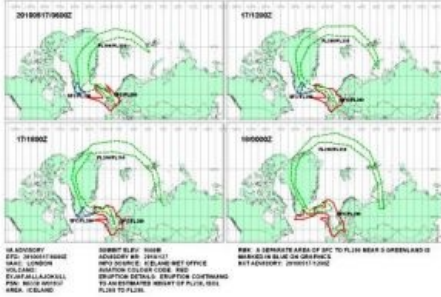


Techniques for Ash Cloud Mapping



An ash cloud from the Icelandic volcano Eyjafjallajökull blocks the air traffic in parts of the UK and northern Europe. The UK Met Office has made available methods used for measuring and mapping the ash cloud, and predict it in the near future.

Dust and ash can be measured by satellite, Lidar, weather balloons, aircraft and photometers to name a few. Each method of measuring has its own characteristics, pros and cons. They are [described and observations of the UK are displayed](#) on a map.

A dedicated volcanic ash detection tool facilitates distinguishing an ash cloud from water-containing clouds. The collection of polar orbiter and geostationary satellites provide global coverage and their data enable forecasters to track a volcanic ash cloud over long

distances as long as it can be distinguished from water-bearing clouds.

In standard visible and infrared satellite imagery volcanic ash clouds can resemble water-bearing clouds. However, the radiative absorption properties of the silicate in the volcanic ash are different to those of water in the infrared wavelength range 10-12 microns. An image showing the brightness temperature difference between channels at 10.8 and 12.0 microns (BT10.8 - BT12.0) can be used to distinguish volcanic ash from water-bearing clouds.

UK Met Office forecasters operating the London Volcanic Ash Advisory Centre (VAAC) service currently use BT10.8 - BT12.0 imagery from the Advanced Very High Resolution Radiometer (AVHRR) on board polar orbiting satellites to monitor and track the movement and dispersion of volcanic ash clouds in their area of responsibility. The Met Office is now also producing BT10.8 - BT12.0 images every 15 minutes from the geostationary satellite series, Meteosat Second Generation.

Doing so, it is possible to make forecasts of the ash cloud movements (see image for 17 May).