

Volcanic Ash Advisory for Transportation

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On April 2010, a series of eruptions from Eyjafjallajökull in the south of Iceland had an enormous impact on the European air traffic industry, and increased the needs and demands for accurate ash concentration forecasts and risk aversion information from the major airlines. From that moment Weathernews Inc. started the VAAT (Volcanic Ash Advisory for Transportation) project to support the needs of the transportation industry.

The VAAT project captured volcanic ash plume using WITH Radar (X-band Radar) in the recent Mt. Shinmoedake eruption in Japan. We estimate that the Radar captured lapilli more than 3mm in diameter. From that Radar return we were able to detect the eruption and to determine the height and the spread of the plume. Now, we are simulating the concentration of ash, monitoring the diffusion of ash using satellite imagery, and estimating the volume of the plume from web cameras.

Additionally, in the spring of this year, we began to develop a new system with the University of Oklahoma which is capable of real-time monitoring of airborne volcanic ash (the concentration more than $4\text{mg}/\text{m}^3$). The VAAT project will try to estimate stereoscopic ash concentration through the means of new technology and innovation including this new Radar and LIDAR (Laser radar). This presentation demonstrates both the results so far and the focus of future work.

