

A BSC's paper selected as AGU Research Spotlight

Barcelona, May 20, 2011.- A recent publication for the AGU's Journal of Geophysical Research- Atmosphere paper by Dr. Simona Scollo (from the Istituto Nazionale di Geofisica e Vulcanologia) and Dr. Arnau Folch (from the CASE department at the BSC), has been selected to feature in the Research Spotlight section and also in a Eos column (on the back page of the newspaper).

The paper is entitled "Three-dimensional volcanic aerosol dispersal: A comparison between Multiangle Imaging Spectroradiometer (MISR) data and numerical simulations" and was written in the framework of Dr. Scollo's visit to the BSC (December 2009), thanks to the HPC-Europa Transnational Access programme.

The three dimensional reconstruction of volcanic plumes is a central goal to enhance the understanding on dispersal processes. In this paper it has been used data from the Multiangle Imaging Spectroradiometer (MISR) on board NASA's Terra spacecraft combined with a stereo matching retrieval procedure. The potential of MISR in capturing important features of volcanic plumes like column height, optical depth, type, and shape of the finest particles of two highly explosive eruptions occurring on Mount Etna in 2001 and 2002 has been shown. This work tests how tephra dispersal models reconstruct the 3D shape of volcanic clouds. MISR data with FALL3D, an Eulerian model for the transport and deposition of volcanic ash and aerosols coupled with the Weather Research and Forecasting mesoscale meteorological model have been compared. Agreement between simulations and MISR data is good regarding both events, although it could be improved by increasing the accuracy of the meteorological data, a better constraint on volcanological input parameters like the height of the eruptive column and improving our understanding of processes such as aggregation phenomena and volcanic cloud microphysics.

"The results show the potential capability of MISR in reconstructing 3D volcanic clouds, a crucial aspect for aeronautics during emergency management", says Dr. Folch.

Further information:

- Paper: <http://www.bsc.es/media/4392.pdf>
- Eos column: <http://www.bsc.es/media/4393.pdf>