



## **Multi-sensor satellite monitoring of ash and SO<sub>2</sub> volcanic plume in support to aviation control**

Hugues Brenot (1), Nicolas Theys (1), Lieven Clarisse (2), Jos van Geffen (3), Jeroen van Gent (1), Michel Van Roozendael (1), Ronald van der A (3), Daniel Hurtmans (2), Pierre-Francois Coheur (2), Cathy Clerbaux (2,4), Pieter Valks (5), Pascal Hedelt (5), Fred Prata (6), Olivier Rasson (1), Klaus Sievers (7), and Claus Zehner (8)

(1) Belgisch Instituut voor Ruimte-Aeronomie - Institut d'Aéronomie Spatiale de Belgique (BIRA-IASB), Brussels, Belgium (brenot@oma.be, +32 2 373 0 369), (2) Spectroscopie de l'Atmosphère, Service de Chimie Quantique et Photophysique, Université Libre de Bruxelles (ULB), Brussels, Belgium, (3) Koninklijk Nederlands Meteorologisch Instituut (KNMI), De Bilt, The Netherlands, (4) UPMC Univ. Paris 6; Université de Versailles St.-Quentin ; CNRS/INSU, LATMOS-IPSL, Paris, France, (5) Institut für Methodik der Fernerkundung (IMF), Deutsches Zentrum für Luft und Raumfahrt (DLR), Oberpfaffenhofen, Germany, (6) Norsk Institutt for Luftforskning (NILU), Kjeller, Norway, (7) German ALPA, Frankfurt, Germany, (8) European Space Agency (ESA-ESRIN), Frascati, Italy

The “Support to Aviation Control Service” (SACS; <http://sacs.aeronomie.be>) is an ESA-funded project hosted by the Belgian Institute for Space Aeronomy since 2007. The service provides near real-time (NRT) global volcanic ash and SO<sub>2</sub> observations, as well as notifications in case of volcanic eruptions (success rate >95% for ash and SO<sub>2</sub>). SACS is based on the combined use of UV-visible (OMI, GOME-2 MetOp-A, GOME-2 MetOp-B) and infrared (AIRS, IASI MetOp-A, IASI MetOp-B) satellite instruments. The SACS service is primarily designed to support the Volcanic Ash Advisory Centers (VAACs) in their mandate to gather information on volcanic clouds and give advice to airline and air traffic control organisations. SACS also serves other users that subscribe to the service, in particular local volcano observatories, research scientists and airliner pilots. When a volcanic eruption is detected, SACS issues a warning that takes the form of a notification sent by e-mail to users. The SACS notification points to a dedicated web page where all relevant information is available and can be visualised with user-friendly tools. Information about the volcanic plume height from GOME-2 (MetOp-A and MetOp-B) are also available. The strength of a multi-sensor approach relies in the use of satellite data with different overpasses times, minimising the time-lag for detection and enhancing the reliability of such alerts. This presentation will give an overview of the SACS service, and of the different techniques used to detect volcanic plumes (ash, SO<sub>2</sub> and plume height). It will also highlight the strengths and limitations of the service and measurements, and some perspectives.