

WORLD METEOROLOGICAL ORGANIZATION
Seventh International Volcanic Ash Workshop
Anchorage, Alaska, October 19-23

SCIENTIFIC AGENDA



Redoubt Volcano from Anchorage, April 20, 2009 (Sam Shea, U.S. National Weather Service)

Monday, October 19

The Partnership between Science and Aviation

- 8:00-9:00 Registration
- 9:00-9:30 Welcome and opening remarks by sponsors and organizers
World Meteorological Organization
NOAA National Weather Service
U.S. Geological Survey

Overview of the hazard

Larry Mastin, moderator

- 9:30-10:00 Case studies that illustrate the hazard
Andrew Tupper, Australian Bureau of Meteorology
- 10:00-10:30 A history of ash avoidance
Thomas Casadevall, U.S. Geological Survey (emeritus)
- 10:30-10:35 Announcements

10:35-11:00 Coffee break

- 11:00-11:30 How the Eyjafjallajökull crisis influenced developments in volcanic ash forecasting science
Matthew Hort, U.K. Met. Office
- 11:30-12:00 Panel discussion
Andrew Tupper, Thomas Casadevall, Matthew Hort, panel members

12:00-1:15 Lunch

Aviation Perspective: Panel on “Challenges in Managing Aviation Risk from Ash Hazards”

Marianne Guffanti, moderator

- 1:15-2:30 5-minute summaries of challenges by aviation representatives
Betty Bollert, Alaska Airlines
Rory Clarkson, Rolls Royce
Thomas Fahey, Delta Airlines
Charles Haldeman, Pratt Whitney
Douglas Kihm, Boeing
Graham Rennie, Qantas Airlines
Mike Stills, United Airlines

- 2:30-3:00 Panel discussion

3:00-3:30 Coffee break

VAAC Perspective: Panel on “How the VAACs are Working Together to Better Meet Aviation Industry Expectations”

Ian Lisk, moderator

- 3:30-3:45 VAAC collaboration activities including the development of a common web site
Dov Bensimon (Montreal VAAC), Donald Moore (Anchorage VAAC)
- 3:45-4:00 Volcanic Ash Advisories: how the VAACs use the ‘Discernable Ash’ definition to draw their lines now and in the future
Eleanor Crompton (London VAAC), Philippe Husson (Toulouse VAAC)
- 4:00-4:15 Volcanic Ash Advisories: How to introduce the confidence assessments
Adele Bear-Crozier (Melbourne VAAC), Paula Acethorpe (Wellington VAAC)
- 4:15-4:30 VAAC challenges and opportunities: monitoring volcanic ash with the next generation of satellite platforms
Yohko Igarashi (Tokyo VAAC), Jamie Kibler (Washington VAAC)
- 4:30-4:45 Future priorities and plans for the VAAC best practice
Miriam Andrioli (Buenos Aires VAAC), Ian Lisk (WMO CAeM)
- 4:45-5:15 Panel discussion
- 5:30-6:30 Ice-breaker (cash bar)**

Tuesday, October 20

Bringing Research to Ops in the Modeling Realm

Larry Mastin, organizer

- 8:30-8:50 Modeling innovations at the London VAAC
Matthew Hort, U.K. Met. Office
- 8:50-9:10 HYSPLIT volcanic ash dispersion modeling R&D, NOAA NWS NCEP operations, and transfer to operations
Barbara Stunder, U.S. NOAA Air Resources Laboratory
- 9:10-9:30 Dispersion modeling and science into operations at the Icelandic Met. Office
Sara Barsotti, Icelandic Met. Office
- 9:30-9:50 Innovations in dispersion modeling using Fall3d and operations at the Buenos Aires VAAC
Arnau Folch, Barcelona Supercomputing Centre
- 9:50-10:10 Research and development advances at Montréal VAAC since the 2010 Eyjafjallajökull eruption: remote sensing, transport and dispersion modelling, statistical validation and meteorological data
Dov Bensimon, Met. Service of Canada (Montreal VAAC)
- 10:10-10:40 Coffee break**
- 10:40-11:00 Operational use of numerical dispersion-fallout models at the USGS
Hans Schwaiger, U.S. Geological Survey, Alaska Volcano Observatory

- 11:00-11:20 Use of inverse and ensemble modeling techniques for improved volcanic ash forecasts
Meelis Zikikheri, Australian Bureau of Meteorology
- 11:20-11:40 Intercomparison of volcanic eruption column models
Yujiro Suzuki, Earthquake Research Institute, Tokyo
- 11:40-12:00 Stratospheric volcanic ash emissions from the 13 February 2014 Kelut eruption
Nina I. Kristiansen, A.J. Prata, A. Stohl, and S.A. Carn
- 12:00-1:00 Lunch**
- 1:00-2:00 Panel discussion: “What recent modeling advances offer the most promise for operations?”
Panel members: Matthew Hort, Barbara Stunder, Sara Barsotti, Arnau Folch, Dirk Engelbart
- 2:00-2:30 Coffee Break**
- 2:30-5:00 Poster Session (Held at the USGS conference room in Glenn Olds Hall)

Wednesday, October 21

Research to Ops for Remote Sensing and In Situ Sampling

Mike Pavolonis organizer

- 8:30-9:00 The WMO Satellite-derived Volcanic Ash Intercomparison Activity - Capabilities and Challenges for Operational Applications
Mike Pavolonis, U.S. NOAA National Environmental Satellite, Data, and Information Service
- 9:00-9:20 Volcanic ash remote sensing products at EUMETSAT for Near Real-time Applications - Present and Future Outlook
Rosemary Munro, EUMETSAT
- 9:20-9:40 Volcanic cloud remote sensing products at the Met Office for Near Real-time Applications - Present and Future Outlook
Pete Francis, U.K. Met. Office
- 9:40-10:00 Added value to VAAC guidance by secondary observations and simulations in Germany
Dirk Engelbart, German Federal Ministry of Transport and Digital Infrastructure
- 10:00-10:30 Coffee break**
- 10:30-10:50 Introduction to Himawari-8 and its Application to Volcanic Cloud Monitoring
Yuta Hayashi, Japanese Meteorological Agency

- 10:50-11:10 Satellite images uncertainty: eruption or resuspension? The importance of the multidisciplinary approach. The case of June 13th, 2015 Ojos del Salado false volcanic eruption
Estella Collini, Servicio de Hidrografia Naval, Argentina
- 11:10-11:30 Nadir and limb UV-visible satellite observations of volcanic clouds
Simon Carn, Michigan Technological University
- 11:30-11:50 Volcanic ash detection with lidar: Minimizing false positives and false negatives
Mike Fromm, Naval Research Laboratory
- 11:50-1:00 Lunch**
- 1:00-2:00 Panel discussion: “What are the most promising research tools to move into operations in satellite remote sensing”
Panel members: Pete Francis, Kenneth Holmlund, Don Moore, Mike Pavolonis, Dave Schneider
- 2:00-2:30 Coffee break**
- 2:30-5:00 Tours of Anchorage VAAC (virtual), Alaska Volcano Observatory (Grace Hall)

Thursday, October 22

Engine Testing and Encounters

Andrew Tupper, organizer

- 8:40-9:00 Experiment to test low concentration volcanic-ash ingestion by a jet engine
John Lekki, NASA Glenn Research Center
- 9:00-9:30 The 2015 understanding of engine volcanic ash susceptibility
Rory Clarkson, Rolls Royce
- 9:30-9:50 Volcanic ash: just another solid matter in the atmosphere?
Ulrich Kueppers, Ludwig Maximillians University, Munich
- 9:50-10:20 Coffee break**
- 10:20-10:40 Recent encounters of aircraft with volcanic ash clouds
Carsten Christmann, German Aerospace Center (DLR)
- 10:40-11:00 An operator’s view to obtaining a realistic understanding of the volcanic ash hazard and some of the challenges in using an evidence based risk approach
Graham Rennie, Qantas, Australia
- 11:00-12:00 Panel discussion: “What can operators do to reduce risk?”
Panel members: Rory Clarkson, Charles Haldeman, Carsten Christmann, John Lekki, Douglas Kihm, and Graham Rennie
- 12:00-1:00 Lunch**

New methods of Detecting & Measuring Eruptions

David Schneider, organizer

- 1:00-1:20 Monitoring volcanoes in Iceland: improvements over the past three to four years
Sigrún Karlsdottir, Icelandic Met. Office
- 1:20-1:40 Recent progress and future opportunities in volcano monitoring using infrasound
David Fee, University of Alaska, Fairbanks
- 1:40-2:00 Towards a volcanic notification system with infrasound data
Pierrick Mialle, Comprehensive Test-Ban Treaty Organization (CTBTO)
- 2:00-2:20 Estimating plumes from seismic data: what we can and cannot do
Matt Haney, USGS Alaska Volcano Observatory
- 2:20-3:00 Coffee break**
- 3:00-3:20 Rapid eruption detection and volcanic ash cloud characterization using weather radar: current capabilities and limitations
David Schneider, USGS, Alaska Volcano Observatory
- 3:20-3:40 How can advances in aircraft measurements of volcanic plumes be transformed into operational capabilities
Konradin Weber, Duesseldorf University of Applied Sciences
- 3:40-4:00 The April 2015 eruption of Calbuco volcano, southern Chile
Alvaro Amigo, Servicio Nacional de Geología y Minería (SERNAGEOMIN), Chile
- 4:00-5:00 Panel discussion: “What are the most cost-effective new methods of detecting and measuring eruptions in volcano observatory response?”
Panel Members: David Schneider, Sigrún Karlsdottir, Alvaro Amigo, Stefano Corradini

Friday, October 23

Breakout Sessions and Wrap-up

- 9:00-9:15 Organization of breakout groups
- 9:15-10:45 Breakout Group discussions to identify “The five biggest advances and challenges since 2010 in: (1) Model forecast accuracy; (2) Remote sensing measurement; (3) new ground-based techniques; (4) operational procedures.”
- 10:45-11:15 Coffee Break**
- 11:15-12:00 Synthesis of results & wrap up
- 12:00 Adjournment**

Poster Presentations (alphabetical by first author)

1. Statistical emulation of volcanic ash fall at ground level for regional-global scale analysis: Adaptation of Probabilistic seismic and tsunami hazard analysis (PSHA/PTHA) techniques for volcanic ash hazard
Adele Bear-Crozier, A.N. Miller, V. Newey, V. Horspool, and R. Weber
2. A multi-sensor approach for volcanic ash, SO₂ and ice retrievals and eruption characterization
Stefano Corradini, M. Montopoli, L. Guerrieri, M. Ricci, S. Scollo, L. Merucci, F. Marzano, S. Pugnaghi, M. Prestifilippo, L. Ventress, D. Grainger, E. Carboni, G. Salerno, G. Vulpiani, and M. Coltelli
3. Using satellite based volcanic ash products to improve HYSPLIT transport and dispersion model predictions
Alice Crawford, B. Stunder, J. Kibler, M. Pavolonis
4. A New Dispersion Modelling System at Wellington VAAC
Cory Davis, P. Shucksmith, G. Rye, I. Soltanzadeh, M. Bernard, and T. Hurst
5. Investigating the influence of grain-size distribution and its uncertainty on ash dispersal modelling
Mattia de'Michieli Vitturi, A. Neri, F. Pardini, M. Vittoria Salvetti, and A. Spanu
6. Efficient Forecasting of Volcanic Ash Clouds
Roger P. Denlinger, Hans Schwaiger
7. Design of a test bench for the investigation of the effect of volcanic ash on aircraft systems
T. Ebus, R.R. Nunes, and C. Christmann
8. Operative remote sensing monitoring of Kamchatkan volcanoes using the information system VolSatView
Olga Girina, E.A. Lupian, A.A. Sorokin, D.V. Melnikov, and A.A. Manevich
9. Detection of volcanic ash clouds in MSG-SEVIRI IR data based on a neural network approach and comparison with in situ measurement data of DLR-FALCON
Kaspar Graf, S. Kox, M. Schmid, J. Gasteiger, and H. Schlager
10. Extreme events through CTBT monitoring
Monika Krysta and P. Mialle
11. Using GPS signal strength data to detect characteristics of volcanic plumes
Kristine M. Larson
12. Stereoscopic estimation of volcanic ash cloud-top height from two geostationary satellites
Luca Merucci, Klemen Zakšek, Elisa Carboni, and Stefano Corradini
13. An algorithm for automated cloud pattern recognition and mass eruption rate estimation from umbrella cloud or downwind plume observed via satellite imagery
Solène Pouget, E. Jansons, R. Rustowicz, M.I. Bursik, A. Tupper, and P.W. Webley
14. Volcanic WRF-Chem Model Application Updates
Martin Stuefer, S. Egan, P. Webley, G. Grell, and S. Freitas
15. Remote infrasound in SE-Asia: A case study of the 2014 Kelud eruption and minimum detection threshold through space and time
Benoît Taisne, Corentin Caudron, Milton Garcés, Alexis Le Pichon, and Pierrick Mialle
16. Rapid estimation of source parameters from the April 2015 eruption of Calbuco Volcano, Chile, from satellite, lightning, and field observations
Alexa Van Eaton, Alvaro Amigo Ramos, Larry G. Mastin, Daniel Bertin, Raúl Giacosa, and Jerónimo González
17. Study of resuspended volcanic ash from the Katmai region to Kodiak Island

Kristi Wallace, Mark Hansen, David Schneider, and Hans Schwaiger

18. Probabilistic volcanic ash cloud simulations: characterizing the uncertainty and moving into the operational environment

Peter Webley, A. Prata, M. Bursik, E.B. Pitman, J. Dehn, T. Singh, P. Singla, E.R. Stefanescu, R. Madankan, S. Pouget, M.D. Jones, D. J. Morton, and C.G. Hughes