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Reader in Natural Hazards

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Summary

My research involves inversion of remotely-sensed data to retrieve physical parameters of volcanic plumes and clouds over several spatial scales, using both ground- and satellite-based techniques. These include ultraviolet (DOAS) and thermal infrared (ASTER) gas spectroscopy, and visible, near infrared (Sun-photometers) and thermal infrared aerosol retrievals (MODIS, AIRS).

My current research includes investigation of SO2 and SO42- retrievals, generation of an aerosol forward model, atmospheric correction of ash retrievals; spectrally independent calibration of SO2 retrievals using TOMS, ASTER, MODIS and AIRS, and the use of the ASTER, MODIS and AIRS in the retrieval of volcanic SO2, SO42-, and silicate ash burdens.

Keywords

- geoengineering
- Volcanology
- volcanic plumes

Memberships

Organisations

School of Earth Sciences

Earth Sciences staff

- Earth Sciences academic staff including research fellows

Research themes

- Crustal Magmatism, Volcanism and Geological Risk

Recent publications

- Naismith, AK, Watson, IM, Escobar-Wolf, R, Chigna, G, Thomas, H, Coppola, D & Chun, C, 2019, 'Eruption frequency patterns through time for the current (1999–2018) activity cycle at Volcán de Fuego derived from remote sensing data: Evidence for an accelerating cycle of explosive paroxysms and potential implications of eruptive activity'. *Journal of Volcanology and Geothermal Research*, vol 371., pp. 206-219
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- Braddock, M, Biggs, J, Watson, IM, Hutchison, W, Pyle, DM & Mather, TA, 2017, 'Satellite observations of fumarole activity at Aluto volcano, Ethiopia: Implications for geothermal monitoring and volcanic hazard'. *Journal of Volcanology and Geothermal Research*, vol 341., pp. 70-83
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- Wilkins, KL, Western, LM & Watson, M, 2016, 'Simulating atmospheric transport of the 2011 Grímsvötn ash cloud using a data insertion update scheme'. *Atmospheric Environment*, vol 141., pp. 48-59
- Eliasson, J, Watson, IM & Weber, K, 2016, 'In Situ Observations of Airborne Ash From Manned Aircraft'. in: *Volcanic Ash: Hazard Observation*. Elsevier Inc., pp. 89-98

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