



**Dr Matthew Watson**  
**M.Sc.(Leic.), Ph.D.(Cantab.)**

Reader in Natural Hazards

Office G16  
Wills Memorial Building,  
Queens Road, Clifton BS8 1RJ  
([See a map](#))

+44 (0) 117 954 5417  
[matt.watson@bristol.ac.uk](mailto:matt.watson@bristol.ac.uk)

## 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 SO<sub>2</sub> and SO<sub>4</sub><sup>2-</sup> retrievals, generation of an aerosol forward model, atmospheric correction of ash retrievals; spectrally independent calibration of SO<sub>2</sub> retrievals using TOMS, ASTER, MODIS and AIRS, and the use of the ASTER, MODIS and AIRS in the retrieval of volcanic SO<sub>2</sub>, SO<sub>4</sub><sup>2-</sup>, 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

- Liu, EJ, Wood, K, Mason, E, Edmonds, M, Aiuppa, A, Giudice, G, Bitetto, M, Francofonte, V, Burrow, S, Richardson, T, Watson, M, Pering, TD, Wilkes, TC, Mcgonigle, AJS, Velasquez, G, Melgarejo, C & Bucarey, C, 2019, '[Dynamics of Outgassing and Plume Transport Revealed by Proximal Unmanned Aerial System \(UAS\) Measurements at Volcán Villarrica, Chile](#)'. *Geochemistry, Geophysics, Geosystems*, vol 20., pp. 730-750
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- Beven, K, Almeida, SM, Aspinall, W, Bates, P, Blazkova, S, Borgomeo, E, Goda, K, Phillips, J, Simpson, M, Smith, P, Stephenson, D, Wagener, T, Watson, M & Wilkins, K, 2018, '[Epistemic uncertainties and natural hazard risk assessment - Part 2: Different natural hazard areas](#)'. *Natural Hazards and Earth System Sciences*, vol 18., pp. 2769-2783

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