**Daniel Williams MRes, BSc (Hons.)** *Curriculum Vitae*

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*University of Pittsburgh,*

*Pittsburgh, PA, 15260*

**Education**

**University of Pittsburgh**, PhD, 2012 - Present

Thesis: Insights into ash cloud composition and transport using high spatial resolution imagery

Advisor: Dr Michael Ramsey; External Advisor: Dr Vincent Realmuto (NASA Jet Propulsion Laboratory)

**University of Bristol**, Master of Research, 2009 - 2010

Thesis: Development of a multi-sensor chronology of the 2009 eruption of Sarychev Peak Volcano

Advisors: Dr. Matthew Watson and Dr Helen Thomas

**University of Birmingham**, Bachelor of Science with Honors, 2006 - 2009

Thesis: A palaeoenvironmental analysis of the boundary between the Portland and Purbeck Limestones, the Isle of Portland, Dorset

Advisors: Dr Ivan Sansom and Dr Joanna Renshaw

**Research Experience**

**University of Pittsburgh, Graduate Student Researcher**

* NASA NESSF funded research student studying the emissive properties of volcanic ash plumes
* Have created and developed the ASTER Volcanic Ash Library (AVAL); a thermal infrared laboratory spectral emission library for use with ASTER image data
* Developed and designed a filter system designed to turn a thermal camera into a multispectral imager
* Created and designed a chamber to take emission spectra of ash particles in suspension
* Managed and maintain the spectroscopy laboratory, and take spectral measurements for clients
* Conduct fieldwork in both Guatemala and Japan studying explosive volcanism
* Became a National Geographic Explorer after being awarded a fieldwork research grant

**Teaching Experience**

**University of Pittsburgh, Teaching Fellow**, **August** **2012 - Present**

 Natural Disasters (GEOL 0820):

* Taught recitations to over 120 students, covering a number of different exercises on the processes behind and monitoring of natural hazards
* Aided in creation of course recitation manual

 GIS GPS and Computer Methods (GEOL 1445):

* Created new homework exercises for the course
* Created and supervised a graduate level projects, involving using GIS as a tool for their own original research

 Introduction to Remote Sensing (GEOL 1460):

* Ran remote sensing laboratory class to teach image processing
* Developed a scientific writing guide to help students created academic journal style laboratory reports

**Internships**

**Volcano Monitoring Internship, Feb - March 2012**

 Montserrat Volcano Observatory

* Carried out fieldwork on Soufriere Hills Volcano, studying the Belham valley lahar deposits
* Maintained equipment, and aided in replacement of monitoring stations
* Conducted research on strain data collected prior to ash venting episodes

**Publications**

**Williams, D.B.** and Ramsey, M.S., 2017, Detecting the properties of volcanic ash plumes using high spatial resolution thermal infrared data, Journal of Geophysical Research *(In Prep.)*

**Williams, D.B.**, Ramsey, M.S., Wickens., D.J., and Karimi, B., 2017, Identifying eruptive sources of drifting volcanic ash clouds using back-trajectory modelling and satellite data, Bulletin of Volcanology *(In Prep.)*

**Williams, D.B.** and Thomas H.E., 2011, An assessment of volcanic hazards to aviation - a case study from the 2009 Sarychev Peak eruption, Geomatics, Natural Hazards and Risk, Special Issue: Passive satellite techniques and ground-based investigations for volcanic activity monitoring, 2(3), 233-246

#### **Presentations**

**Williams, D.B.** and Ramsey, M.S., 2016, AVAL – The ASTER Volcanic Ash Library, AGU Fall Meeting, San Francisco, CA

**Williams, D.B.** and Ramsey, M.S., 2015, Ground-based analysis of volcanic ash plumes using a new multispectral thermal infrared camera approach, AGU Fall Meeting, San Francisco, CA

**Williams, D.B.** and Ramsey, M.S., 2014, Analzying proximal volcanic ash emissions using high spatial resolution thermal infrared imagery, Tephra 2014 Meeting: Maximizing the potential of Tephra for multidisciplinary science, Portland, OR

**Williams, D.B,** Ramsey, M.S. and Karimi, B., 2013, Identifying the volcanic source of disconnected ash clouds using the HYSPLIT dispersion model, AGU Fall Meeting, San Francisco, CA

Ramsey, M.S., Reath, K.A. and **Williams, D.B**., 2013, Threshold considerations for future volcanic hotspot and ash detection using HyspIRI, 2013 HyspIRI Science Workshop*,* Pasadena, CA,

**Williams, D.B,** Thomas, H. E. and Watson, I.M., 2010, A multi-sensor analysis of the 2009 eruption of Sarychev Peak, Kuril Islands: A case study for hazards to aviation, AGU Fall Meeting San Francisco, CA

**Seminars & Colloquia**

**2016** Volcanic Ash – Formation, Hazards and Monitoring of Explosive Eruptions, SUNY Oswego, NY

**2015** Volcanic ash plumes – Using high resolution imagery to understand explosive volcanism, Slippery Rock University

**Research Funding & Awards**

**2016** GSPG Travel Award

**2016** Deans Tuition Scholarship, University of Pittsburgh

**2016** NASA Earth and Space Sciences Graduate Fellowship Program Scholarship (Renewal); Title – “Analysis of proximal volcanic emissions”

**2015** Deans Tuition Scholarship, University of Pittsburgh

**2015** National Geographic CRE Grant; Title – “Mapping volcanic ash plumes using ground and satellite thermal imaging: A new approach to understanding explosive eruptions and reducing population risks” (Co-PIs: Michael Ramsey and Daniel Williams)

**2015** NASA Earth and Space Sciences Graduate Fellowship Program Scholarship; Title – “Analysis of proximal volcanic emissions”

**2014** Travel grant awardee for Tephra 2014 Meeting – SUNY Buffalo

**2013** NASA The Science of Terra and Aqua; Title – “Near-real time data acquisition and modelling of volcanic processes using a multi-instrument approach: Effects on climate, the solid earth and the prospect of eruption forecasting” (PI: Michael Ramsey, Co-I: Daniel Williams)

**2006** University of Birmingham Chamberlain Award

**Undergraduates Mentored**

**2017/18** Gabriella Green (SUNY Oswego), Mapping the aerial extent of volcanic ash deposits using apparent thermal inertia

**2014/15** Daniel Wickens (University of Pittsburgh), Synthesis of multiple data sources in a Geographic Information Systems framework to track volcanic ash clouds in the Kamchatka Peninsula, Russia

**Academic Service**

**2013/15** Department of Geology and Planetary Science Graduate Student Organization, University of Pittsburgh

* Helped in founding the Department of Geology and Planetary Science’s own Graduate Student Organization
* Organization of social events for new faculty and graduate students
* Developed and organized the first intra-departmental research fair
* Formed and captained the department intramural soccer team

**Professional Organizations**

**2012** American Geophysical Union

**2012** International Association of Volcanology and Chemistry of the Earth’s Interior

**2008**  Elected to Fellow of the Geological Society of London

**References available upon request**