Johan T. Gilchrist

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Research

- Dynamics of explosive volcanic eruptions and ash clouds
- Architecture of volcanic tephra deposits
- Radar applications to the study of volcanic ash clouds and glaciers

Education

B.Sc. – Earth, Ocean and Atmospheric Sciences (EOAS) **September, 2010 - May, 2014**

- Major in Geophysics, University of British Columbia

Ph.D. Candidate (Transfer from M.Sc. in 2017)– Faculty of Science, Dept. EOAS **September, 2015 - Present**

- University of British Columbia, degree expected in November, 2021
- Thesis: Sediment waves and the gravitational stability of explosive eruption columns and ash clouds

Awards and Achievements

- **Governor General's Gold Medal Nomination** **2021**
  - Annual national award for most outstanding Ph.D. dissertation in Canada
- **Brock Lecture Award** **2020/2021**
  - Dept. award for most innovative and inspiring senior Ph.D. student – UBC
- **W.H. Mathews Graduate Award** **June, 2017**
  - Dept. Scholarship for Graduate Research Related to Subglacial Eruptions and Volcano-Ice Interactions – UBC

Publications

- **Gilchrist, J. T.** & Jellinek, A. M. (2021). *Sediment waves and the gravitational stability of volcanic jets*. Bulletin of Volcanology, 83(10), 1-59.
- Freret-Lorgeril, Valentin, **Gilchrist, J.**, et al. (2020). *Ash sedimentation by fingering and sediment thermals from wind-affected volcanic plumes*. Earth and Planetary Science Letters, 534, 116072.
- Jessop, D. E., **Gilchrist, J.**, Jellinek, A. M., & Roche, O. (2016). *Are eruptions from linear fissures and caldera ring dykes more likely to produce pyroclastic flows?* Earth and Planetary Science Letters, 454, 142-153.

Submitted to peer-reviewed journal

- Poppe, S., **Gilchrist, J.**, Breard, E. C. P., Graettinger, A. and Pansino, S.. (submitted Oct 15, 2021). *Analog experiments in volcanology: towards quantitative, upscaled and integrated models*. Bulletin of Volcanology, submission #: BUVO-D-21-00130.

Conferences

- **Gilchrist, J.** et al.,(2020), *Modeling the formation of axisymmetric terraces in submarine explosive eruption deposits with analog experiments*, Presented at 2020 AGU Fall Meeting, Online, Dec 1-17.
- **Gilchrist, J.** et al., (2020), *Characterization of source unsteadiness and entrainment into explosive eruptions using laboratory- and field-based methods*, Presented at 2020 AGU Fall Meeting, Online, Dec 1-17.
- **Gilchrist, J.**, Jellinek, A.M. (2019), *From vent to deposit: The role of sediment waves in the collapse of explosive eruption columns*, Presented at 2019 AGU Fall Meeting, San Francisco, CA, Dec 9-13.

Teaching

Teaching Assistant - UBC, Vancouver, BC **September, 2015 - Present**

- Supervise MATLAB based computer classes, grading scientific writing assignments, lecturing, managing class websites (e.g. Connect), and holding office hours for:
    - EOSC 442: Climate Measurement and Analysis
    - EOSC 212: Topics in the Earth and Planetary Sciences
    - SCIE 113: First Year Seminar in Science

Past Experience

EOAS Climate Emergency Committee member – UBC, Vancouver, BC **April, 2020 – Present**

- Contributions include brainstorming organization, design and content of EOAS dept. climate website, writing dept. climate action guidance reports for university, planning and convening dept. climate change outreach events and developing climate content for courses (https://www.eoas.ubc.ca/climate-crisis).

Tour Guide and Workshop Leader (Pacific Museum of the Earth) – UBC, Vancouver, BC **April, 2017 – Present**

- Work includes guiding tours of the museum, leading K-12 workshops on a wide variety of Earth Science topics, brainstorming volcanology museum exhibits, design and content of workshop activities and presentations, participating in museum public outreach events including presenting research and conducting experiments for a live audience (https://pme.ubc.ca/).

Research Assistant - UBC, Vancouver, BC **May, 2011 - August, 2015**

- Geophysical research work including database construction, review of scientific literature, design and conducting laboratory experiments, processing data, computer modelling and field work

Writer for Earth Matters Magazine - UBC, Vancouver, BC **February, 2014-May, 2016**

- Contributions include brainstorming organization, design and content of magazine, conducting interviews and writing news, profile and research articles (http://www.eos.ubc.ca/home/ematters/).

Skills

Technical: MATLAB computer coding, Python computer coding, Microsoft Office applications, Adobe Illustrator and Photoshop, image processing and analysis, radar data processing, seismic data processing and laboratory experiments (design and conducting).

Field: Basic Mountaineering, Basic First Aid, Wilderness First Aid (2015), Backcountry Travel (Summer and Winter), Glacier Travel and Avalanche Skills Training 1 (AST-1)

Languages: English, Spanish

References

Dr. A. M. Jellinek
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