

# Dr. Thomas J. Aubry

Postdoctoral Research Associate & Sessional Lecturer

University of British Columbia, Department of Earth, Ocean and Atmospheric Sciences

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## EDUCATION

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**PhD in Geophysics** 2014-2018

University of British Columbia

*My dissertation will be nominated for the 2019 Governor General's Gold Medal of UBC*

**MSc. in Dynamics of the Ocean and the Atmosphere** 2011-2013

University Pierre and Marie Curie & École Normale Supérieure de Paris

*With high distinction*

**Diploma in Physics** 2010-2013

École Normale Supérieure de Cachan

**BSc. in Physics** 2010-2011

University Pierre and Marie Curie & École Normale Supérieure de Cachan

*With distinction*

## RESEARCH EXPERIENCE

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**Postdoctoral Research Associate** June 2018 - present

University of British Columbia

*Climate-volcano interactions*

**Doctoral Thesis** 2014-2018

University of British Columbia

*Interactions between climate and the rise of explosive volcanic plumes: A new feedback in the Earth system*

Supervised by Prof. A. Mark Jellinek

*Final dissertation submitted in May 2018, graduation in November 2018*

**Research Assistant** 2013

Institut de Physique du Globe

*Impact of wind stresses on the rise of buoyant jets and implications for volcanic plume dynamics*

Supervised by Dr. Guillaume Carazzo

**MSc. thesis** 2013

Université Pierre et Marie Curie, Institut Pierre Simon Laplace

*Impact of Mt Pinatubo 1991 eruption on climate as simulated by IPSL-CM5A*

Supervised by Dr. Myriam Khodri

**Research assistant** 2012

University of British Columbia

*Quantifying Iron flux from hydrothermal vents*

Supervised by Prof. A. Mark Jellinek

**BSc. thesis**

2011

Université Pierre et Marie Curie, Institut Jean Le Rond d'Alembert

*Collapse of granular columns*

Supervised by Dr. Pierre-Yves Lagree

## TEACHING AND SUPERVISING EXPERIENCE

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**Sessional lecturer**

2016-present

University of British Columbia

Vancouver Summer Program science package B course 2: Introduction to Ocean and Atmosphere Systems

*My teaching duties include ca. 28 hours of lectures and labs at a level equivalent to first to second year university, grading, administrative management and organization of social activities. I made ca. 70% of the teaching material of my lectures. We generally have 40-50 students taking this course.*

**Computer lab instructor**

2016-2017

University of British Columbia

EOSC442: Climate measurements and analysis

*My teaching duties included ca. 30 hours of computer lab for which I made ca. 80% of the teaching material, grading and evaluation of final projects. We generally have 25-40 students taking this course.*

*I received the Outstanding Teaching Assistant Award for my contributions to this course and exceptional teaching evaluations.*

**Teaching assistant**

2014-2016

University of British Columbia

EOSC114, EOSC212, EOSC250, EOSC314, EOSC450, and Climate1x (Massive Open Online Course)

*My teaching duties included grading, assisting students online and in-person, and invited lectures.*

**Graduate advisor**

2012-present

University of British Columbia

*Supervisor of 8 undergraduate students. 5 of them authored their first peer-reviewed publication under my supervision.*

**Graduate mentor**

2014-2016

University of British Columbia

*Graduate mentor for the Research Experience Program pairing, where undergraduate mentees design their first research project under the supervision of a graduate mentor.*

**Teaching assistant**

2011

Maximilien Sorre High School

Teaching assistant in mathematics in a “priority education” area (France).

## ACADEMICS AWARDS & GRANTS

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### Governor General's Gold Medal

future nomination

University of British Columbia

Following an unanimous decision of my doctoral evaluation committee in April 2018, my doctoral dissertation will be nominated for the Governor General's Gold Medal of the University of British Columbia which will be awarded in May 2019.

### Outstanding Teaching Assistant Award

2017

University of British Columbia

Outstanding Teaching Assistant Award of the Earth, Ocean and Atmospheric Sciences department (500 CAD).

### W.H. Mathews Scholarship

2015

University of British Columbia

Scholarship rewarding academic excellence of a graduate student in the Earth, Ocean and Atmospheric Sciences department (500 CAD).

### 4-Year Fellowship

2014

University of British Columbia

Competitive university scholarship for doctoral students (18200 CAD/year for four years).

### Stipendiary studentship

2010

École Normale Supérieure de Cachan

Stipendiary student of the École Normale Supérieure de Cachan ( $\simeq$  1300 EUR/month for 4 years). *Stipendiary studentship at an École Normale Supérieure is the most prestigious post-secondary scholarship in France.*

## Other academic experience

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- **Convener:** "MJCJ" research group meetings (2015-2018), American Geophysical Union 2018 fall meeting.
- **Summer school:** "Convective and volcanic clouds detecting, monitoring and modeling" (2017).
- **"Tephra certificate":** delivered by the International Focus Group on Tephrochronology (2017).
- **Writer/interviewer:** "Earth Matters" annual magazine of the Earth, Ocean and Atmospheric Sciences department of the University of British Columbia (2014-2015).

## Personal details & skills

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- **Birth:** August 31, 1990
- **Citizenship:** French
- **Address:** Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia 2020-2207 Main Mall, Vancouver, BC Canada V6T 1Z4
- **Languages:** French (mother tongue), English (fluent), German (intermediate)
- **Computing skills:** MATLAB, FORTRAN, NCL, L<sup>A</sup>T<sub>E</sub>X, OFFICE SUITE
- **Research skills:** Numerical modeling, laboratory Modeling, advanced data analysis

## Co-curricular Activities & Interests

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- **Avid outdoor enthusiast:** Experienced in planning, organising and leading multi-day kayaking and outdoor trips. Check out some highlights on my [picture page](#)!
- **Sports:** I took advantage of nearly every opportunity I've had to participate in intramural competitions (e.g. swimming, badminton, soccer, futsal, ultimate frisbee, and softball) and sports events (e.g. "Storm the Wall" and "InterENS") at all schools and universities where I have been.
- **Vice-President** of the Student Sport Society of the École Normale Supérieure de Cachan (2012-2013)
- **Captain** of the École Normale Supérieure de Cachan badminton team (2012-2013)
- **Member** of the Student Society of the École Normale Supérieure de Cachan (2012-2013)
- **Volunteer** for the organization of the "La Mirabal" race, collecting funds to support women victim of violence (2013)

## PUBLICATIONS

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You can also check my [Google Scholar profile](#) and [personal website](#) for the most up-to-date list. The students I have supervised are highlighted by \*.

Manuscripts of submitted, accepted or in press papers can be provided upon request.

**Aubry, T. J.** and A. M. Jellinek (2018), New insights on entrainment and condensation in volcanic plumes: Constraints from independent observations of explosive eruptions and implications for assessing their impacts, *Earth and Planetary Science Letters*, 490, 132-142, doi:10.1016/j.epsl.2018.03.028

**Aubry, T. J.**, G. Carazzo and A. M. Jellinek (2017), Turbulent entrainment into volcanic plumes: New constraints from laboratory experiments on buoyant jets rising in a stratified crossflow, *Geophysical Research Letters*, doi:10.1002/2017GL075069

**Aubry, T. J.**, A. M. Jellinek, G. Carazzo, K. Hatcher\*, R. Gallo\* and J. Dunning\* (2017), A new analytical scaling for turbulent wind-bent plumes: Comparison of scaling laws with analog experiments and a new database of eruptive conditions for predicting the height of volcanic plumes, *Journal of Volcanology and Geothermal Research*, doi:10.1016/j.jvolgeores.2017.07.006

**Aubry, T. J.**, A. M. Jellinek, W. Degruyter, C. Bonadonna, V. Radic, M. Clyne\*, and A. Quainoo\* (2016), Impact of global warming on the rise of volcanic plumes and implications for future volcanic aerosol forcing, *J. Geophys. Res. Atmos.*, 121, 13,326–13,351, doi:10.1002/2016JD025405.

*This publication was selected as editors' highlight and featured in multiple blogs of the American Geophysical Union ([Geospace](#) and [Plainspoken Scientist](#)) and media outlets (e.g. [VICE](#), [Earth Magazine](#) and [Radio Canada](#)).*

Carazzo, G., F. Girault, **T. J. Aubry**, H. Bouquerel, and E. Kaminski (2014), Laboratory experiments of forced plumes in a density-stratified crossflow and implications for volcanic plumes, *Geophysical Research Letters*, 41, 8759–8766, doi:10.1002/2014GL061887

## Selected presentations

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*A complete list of my presentations can be provided upon request.*

**Aubry, T. J.**, M. Toohey, A. M. Jellinek, A. Schmidt (2018), Eruption plume height and its impact on volcanic forcing: Towards more realistic volcanic forcing reconstructions and scenarios for future climate projections, 2018 American Geophysical Union Chapman conference on “Stratospheric aerosol in the post-Pinatubo era: Processes, Interactions, and Importance”

**Aubry, T. J.** (2017), Interactions between climate and volcanic plumes from syneruptive to multidecadal timescales, and implications for a new climate-volcano, **Invited Seminar**, Laboratoire Magmas et Volcans, Observatoire de Physique du Globe de Clermont-Ferrand. [Link to seminar video](#) in French with slides in English.

**Aubry, T. J.** and A. M. Jellinek (2017), Evaluation of entrainment and condensation parameterizations in integral models of volcanic plumes using a new database of eruptive parameters, International Association of Volcanology and Chemistry of the Earth’s Interior 2017 Scientific Assembly

**Aubry, T. J.**, A. M. Jellinek, W. Degruyter, C. Bonadonna, V. Radic (2016), Will climate change lead to less frequent stratospheric eruptions?, 1<sup>st</sup> workshop of the Volcanic Impacts on Climate and Society PAGES working group, Lamont-Doherty Earth Observatory

**Aubry, T. J.**, A. M. Jellinek, W. Degruyter, C. Bonadonna, V. Radic, M. Clyne, and A. Quainoo (2015), How will climate change impact future explosive eruptions dynamics? , 26<sup>th</sup> General Assembly of the International Union of Geodesy and Geophysics, abstract # IUGG-1213