

CURRICULUM VITAE

Costanza Bonadonna

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EDUCATION

1998-2001	<u>PhD, Physical Volcanology</u>	University of Bristol, UK
1990-1997	<u>Degree, Geology</u> (110 out of 110, cum laude)	University of Pisa, Italy

PROFESSIONAL APPOINTMENTS

since 2019	<u>Full Professor</u>	University of Geneva (Switzerland)
2006-2018	<u>Associate Professor</u>	University of Geneva (Switzerland)
2004-2006	<u>Assistant Professor</u>	University of South Florida, Tampa (USA)
2002-2004	<u>SOEST Young Investigator</u>	University of Hawaii, Manoa (USA)
2001-2002	<u>Research Associate</u>	University of Bristol (UK)
1997-1998	<u>Member of scientific team</u>	Montserrat Volcano Observatory (WI)
1998-2001	<u>Graduate Fellowship</u>	University of Bristol (UK)
1997-1998	<u>Research Assistant</u>	University of Bristol (UK)

INSTITUTIONAL RESPONSABILITIES

since 2018	Vice-Dean of the Faculty of Sciences of the University of Geneva
since 2018	Member of Natural Sciences Policy Group of the League of European Research Universities
since 2018	President of the Commission for Health and Safety of the Faculty of Sciences (UNIGE)
since 2019	Member of the Commission Égalité of the Faculty of Sciences (UNIGE)
since 2007	Development and Direction of the Master in Geology – Orientation Geological Risk – of the University of Geneva (ELSTE), Switzerland
since 2007	Director of the CERG-C (<i>Specialisation certificate for the assessment and management of geological and climate related risk</i> ; University of Geneva; www.unige.ch/hazards/)
2014-2019	Vice-President of ELSTE, Joint Geneva and Lausanne School of Earth Sciences
2012-2019	Member of the Steering Committee of the Centre for Education and Research in Humanitarian Action (CERAH; http://www.cerahgeneve.ch/home/)

AWARDS

2020	Woman Scientist of the Month (April 2020) European Platform of Women Scientists
2005	Outstanding Faculty Research Achievement Award . Univ. of South Florida (USA)
2004	Outstanding Woman in Science Award . Geological Society of America (USA)
2004	George Walker Award . International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)
2001	President's Award . Geological Society of London (UK)
2001	Outstanding Student Paper Award . AGU Fall Meeting. San Francisco, USA
1998-2001	Marie Curie Fellow (European Commission Mobility Program Grant for PhD)

ORGANIZATION OF INTERNATIONAL WORKSHOPS AND CONFERENCES

2019	Co-organizer of the workshop on <i>Wind-remobilisation processes of volcanic ash</i> (Argentina; https://www.unige.ch/hazards/international-conferences/ash-remobilisation-2019/)
2018	Co-organizer of the 1 st GVM-IAVCEI international workshop on <i>From hazard to volcanic risk</i> (Geneva; https://www.unige.ch/hazards/international-conferences/iavcei-gvm-workshop-2018/)
2017-2018	Member of the Scientific Committee of the International Conference <i>Cities on Volcanoes 10</i> (https://www.citiesonvolcanoes10.com/ ; 2-7 Sept. 2018, Naples, Italy)
2015	Co-organizer of the workshop on <i>Building resilient communities through urban planning and the integration of natural sciences</i> (Geneva; http://www.unece.org/index.php?id=37512#/)
2014	Co-organizer of the MeMoVolc workshop on <i>The dynamics of volcanic explosive eruptions</i> (Geneva; https://www.unige.ch/hazards/international-conferences/memovolc-workshop/)
2011	Organizer of the workshop on <i>Risk management: which strategies in a world of increasing complexity?</i> (https://www.unige.ch/hazards/international-conferences/riskmanagement/)
2010-2013	Co-organizer of the 1 st and 2 nd IUGG-WMO international workshops on <i>Ash Dispersal Forecast and Civil Aviation</i> (Geneva; https://www.unige.ch/hazards/international-conferences/workshop2/)
2006	Organizer of the IAVCEI Tephra Hazard Modelling Commission field workshop on <i>Field measurements for the characterization of tephra deposits</i> (Saucedo, Ecuador, 16-18 Jan. 2006)

PROFESSIONAL SOCIETY MEMBERSHIPS

Life member of the International Association of Volcanology and Chemistry of the Earth's Interior; **Member** of the European Geophysical Union; **Member** of the American Geophysical Union.

SCIENTIFIC ACHIEVEMENTS

Since her Masters project, a collaboration between the University of Pisa and the University of Bristol, Costanza Bonadonna has made significant breakthroughs in the understanding of volcanic tephra dispersal and sedimentation and the assessment of associated hazards and risks. Thanks to a combination of numerical modelling and field observations, she helped explain the pattern of tephra deposit thinning that improved determination of erupted tephra volumes, crucial to the characterization of the behaviour of active volcanoes (Bonadonna et al. 1998). During her PhD, she pioneered the integration of volcanic-cloud gravitational spreading and particle aggregation in the numerical description of tephra dispersal and sedimentation (e.g., Bonadonna and Phillips, 2003). Over the years, Costanza Bonadonna has developed fundamental strategies for the characterization of tephra deposits and explosive eruptions that are now widely used, namely the determination of whole deposit grain-size distribution, erupted volume, mass eruption rate and plume height (Bonadonna and Houghton 2005; Bonadonna and Costa 2012,2013; Bonadonna et al. 2013; Degruyter and Bonadonna 2012; Rossi et al. 2019). She also implemented innovative strategies for the probabilistic assessment of tephra hazard (e.g. Bonadonna et al. 2005) and cascading hazards (e.g. Baumann et al. 2019).

Since joining the University of Geneva, Costanza Bonadonna has promoted state-of-the-art strategies for the characterization of tephra dispersal and sedimentation that combine field observations, geophysical monitoring, numerical models and analytical experiments. Thanks to this new multi-disciplinary approach, and in collaboration with the group she built, she could better describe the settling dynamics of volcanic particles (e.g. Bagheri and Bonadonna 2016) as well as fundamental processes that control sedimentation of fine ash, such as particle aggregation and gravitational instabilities occurring at the bottom of volcanic clouds (e.g. Manzella et al. 2015). As a result of her contribution to the study of the 2010 eruption of the Eyjafjallajökull (Iceland) that paralyzed global aviation traffic (e.g. Bonadonna et al. 2011), and her active involvement in bridging the gap between scientific understating and operational strategies, she has become a recognized international expert on the effect of volcanic ash on aviation. The outcomes of two timely workshops she co-organized in 2010 and 2013 in Geneva in collaboration with the World Meteorological Organization and the Volcanic Ash Advisory Centers have been used as benchmarks in improved strategies for real-time forecasting of volcanic ash worldwide (e.g. Bonadonna et al. 2012; Bonadonna 2014). Costanza Bonadonna is now also at the forefront of eruption impact assessment and volcanic risk analysis (e.g. Bonadonna et al. in press-a,b).

References

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- Baumann V., Bonadonna C., et al. (2019) Mapping the susceptibility of rain-triggered lahars at Vulcano island (Italy) combining field characterization, geotechnical analysis, and numerical modelling, NHESS
- Bonadonna C., et al. (*in press*) Assessment of volcanic risk, *In: Recommendations for National Risk Assessment for Disaster Risk Management report of the EU Disaster Risk Management Knowledge Centre*
- Bonadonna C., et al. (*in press*) Assessment of risk associated with tephra-related hazards, *In: Forecasting and planning for volcanic hazards, risks, and disasters*, Ed: P. Papale, Elsevier, ISBN; 978-0-12-818082-2
- Bonadonna, C. (2014). Future Developments and New Directions in Modeling and Monitoring Volcanic Ash Clouds. *Eos, Trans. AGU*
- Bonadonna C., Costa A. (2013) Plume height, volume and classification of volcanic eruptions based on the Weibull function, *Bull. Volcanol.*
- Bonadonna C., et al. (2013) Determination of the largest clast sizes of tephra deposits for the characterization of explosive eruptions: a study of the IAVCEI Commission on Tephra Hazard Modelling, *Bull. Volcanol.*
- Bonadonna C., Costa A. (2012) Estimating the volume of tephra deposits: A new simple strategy, *Geology*
- Bonadonna C., Folch A., Loughlin S, Puempel H, (2012) Future developments in modelling and monitoring of volcanic ash clouds, *Short Scientific Communication, Bull. Volcanol.*
- Bonadonna C., et al. (2011) Tephra sedimentation during the 2010 Eyjafjallajökull eruption (Iceland) from deposit, radar, and satellite observations, *J. Geophys. Res.*
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- Bonadonna C., et al. (2005) Probabilistic modeling of tephra dispersion: hazard assessment of a multi-phase eruption at Tarawera, New Zealand. *J. Geophys. Res.*
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- Rossi E., Bonadonna C., Degruyter W. (2019) A new strategy for the estimation of plume height from clast dispersal in various atmospheric and eruptive conditions, *Earth Plan. Sci. Lett.*