

FORMATO EUROPEO PER IL CURRICULUM VITAE



INFORMAZIONI PERSONALI

Nome
E-mail
Nazionalità

ERIKA RONCHIN

Erika.ronchin@uniroma1.it
Italian

ESPERIENZA LAVORATIVA

- October 2016 – today
 - Nome e indirizzo del datore di lavoro
 - Tipo di impiego
- Principali mansioni e responsabilità

- February 2016 – September 2016
 - Nome e indirizzo del datore di lavoro
 - Tipo di impiego
- Principali mansioni e responsabilità

- September 2010 – January 2015
 - Nome e indirizzo del datore di lavoro
 - Tipo di impiego
- Principali mansioni e responsabilità

Department of Earth Sciences at Uppsala University, Uppsala, Sweden

Postdoc

Research with focus on COMSOL Multiphysics Finite Element Method models of magma emplacement in the shallow crust to understand the mechanism of magma intrusions and the formation of laccoliths and cryptodomes (full time: 90% research, 10% teaching).

Scientific Fabrication Laboratory of the International Centre for Theoretical Physics (ICTP), Trieste, Italy

Technical Manager

My role was taking care of projects of visiting public and researchers of the ICTP, and of activities and events organized by the SciFabLab (scifablab.ictp.it). The SciFabLab is a space devoted to creativity and research with a focus on the application on the fields of science, education, science dissemination, and sustainable development.

Institute of Earth Sciences Jaume Almera of the Consejo Superior de Investigaciones Cientificas (CSIC), Barcelona, Spain

Ph.D. candidate

Development of strategies of inversion of geodetic data from active volcanoes based on Finite Elements Method Models for the understanding of volcanic unrest.

ISTRUZIONE E FORMAZIONE

- September 2010 – January 2015
Tipo di istituto di istruzione o formazione
 - Principali materie / abilità professionali oggetto dello studio

- Qualifica conseguita

- September 2008 – July 2009
Tipo di istituto di istruzione o formazione
 - Principali materie / abilità

University, Department of Structural Geology

Doctoral thesis title: "Finite Element Models of volcano deformational systems having structural complexity." Thesis directors: Joan Martí Molist and Timothy Masterlark. (JAE-Predoc fellowship of Spanish National Research Council, CSIC). 3D modelling, Finite Elements Method models, inversion of geodetic data (InSAR, levelling, GPS), InSAR data reduction, IDL and Python coding.

Ph.D. in Earth Sciences

University

Thesis title: Lava flow hazard assessment: an application to the NOAA Mauna Loa Observatory

professionali oggetto dello studio

- Qualifica conseguita

• September 1999 – December 2006

Tipo di istituto di istruzione o formazione

- Principali materie / abilità professionali oggetto dello studio

- Qualifica conseguita

CAPACITÀ E COMPETENZE PERSONALI

MADRELINGUA

ALTRE LINGUE

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

CAPACITÀ E COMPETENZE RELAZIONALI

CAPACITÀ E COMPETENZE ORGANIZZATIVE

CAPACITÀ E COMPETENZE TECNICHE

ADDITIONAL INFORMATION

HONORS AND AWARDS

(MLO) area, Hawai'i." Thesis director: Joan Martí Molist. (JAE-Predoc fellowship of Spanish National Research Council, CSIC). Lava flow hazard assessment based on Geographic Information System.

M.Sc. in Geology-Geological hazards

University

Thesis title: "Geologic survey, petrography, and lava paths forecast for Mauna Loa Weather Observatory, Hawai'i, USA." Thesis director: Silvano Sinigoi in collaboration with Frank Trusdell (Hawaiian Volcano Observatory, USGS). Geologic mapping, collection of lava samples, petrographic study, map production, identification of main inundation zones and lava path based on Geographic Information System.

M.Sc. in Geology

Italian

ENGLISH

C1

C1

C1

SPANISH

C1

B2

C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Good relational and intercultural skills acquired during short and long stays in international research institutes. Good team-working capabilities acquired during the development of multi- and inter-disciplinary projects having both academic and outreach purposes.

Good communication skills for a broad audience gained at academic institutes and at the Scientific Fabrication Laboratory through my experience of teaching, oral presentations to scientific audiences, and public dissemination of scientific results.

Good organizational and managerial skills acquired during the co-leading, organization, and performance of mapping field projects and gravity surveys at volcanic areas.

IT knowledge / research instruments:

Finite Elements Method models software (Abaqus, COMSOL Multiphysics) acquired during my Ph.D. studies; IDL used to write the scripts for the preparation, reduction, and inversion of geodetic data during my PhD studies; Design suites (Photoshop, Adobe Illustrator, InDesign); GIS (ArcMap, QuantumGIS) used during my masters studies for volcanic hazard assessment; Surfer; Microsoft Office; OpenOffice; Lyx, ParaView. Basic level: Fortran, Python, CSS, HTML, Arduino

Data acquisition instruments:

X-ray fluorescence spectrometer used for petrographic studies during my master studies, LaCoste & Romberg gravity meter, Burris Gravity Meter used during regional gravity and high-precision gravity campaigns.

Marie Skłodowska-Curie Actions Seal of Excellence 2018

Marie Skłodowska-Curie Actions Seal of Excellence 2016

FUNDING RECEIVED SO FAR

“Premio extraordinario de master de la Universidad de Barcelona 2008-2009” (Honors Degree award)
 Ph.D. Fellowship Award, Spanish National Research Council (CSIC), 2008-2012
 Marie Skłodowska-Curie fellowship 2019-2021
 The Royal Swedish Academy of Sciences (KVA) Scholarship in Geosciences, 2017
 Nordic Volcanological Center (NordVulk) Summer school scholarship, 2017
 JAE-Predoc fellowship (Spanish National Research Council, CSIC), 2008-2012
 JAE short-term visiting fellowship (Spanish National Research Council, CSIC), January-June 2011
 JAE short-term visiting fellowship (Spanish National Research Council, CSIC), February-august 2010

PUBLICATION LIST

Mattson, T., Burchardt, S., Almqvist, B., **Ronchin, E.** (2018). Syn-Emplacement Fracturing in the Sandfell Laccolith, Eastern Iceland: Implications for Rhyolite Intrusion Growth and Volcanic Hazards. *Frontiers in earth science*, 6: 5
Ronchin E., T. Masterlark, J. Dawson, S. Saunders, J. Martí Molist (2017). Imaging the complex geometry of a magma reservoir using FEM-based linear inverse modeling of InSAR data: application to Rabaul caldera, Papua New Guinea, *Geophysical Journal International*, 209 (3): 1746-1760.
 Tao W., T. Masterlark, Z.-K. Shen, and **E. Ronchin** (2015), Impoundment of the Zippingpu Reservoir and Triggering of the 2008 Mw 7.9 Wenchuan Earthquake, China, *J. Geophys. Res. Solid Earth*, 120.
Ronchin E., A. Geyer, and J. Martí (2015) Evaluating topographic effects on ground deformation: Insights from finite element modeling, *Surveys in Geophysics*. Volume 36, Issue 4.
 Wei Tao, Timothy Masterlark, Zheng-Kang Shen and **Erika Ronchin** (2014) The Zippingpu Reservoir Triggering of the 2008 Mw 7.9 Wenchuan Earthquake, China, due to Poroelastic Coupling. *Chinese Journal of Geophysics*.
 Barde-Cabusson S., Gottsmann J., Martí J., Bolós X., Camacho A., Geyer A., Planagumà Ll., **Ronchin E.**, Sánchez A. (2014) Structural control of monogenetic volcanism in the Garrotxa Volcanic Field (North-eastern Spain) from gravity and self-potential measurements. *Bulletin of Volcanology*. 76: 788.
Ronchin E., T. Masterlark, J. Martí Molist, Steve Saunders, Wei Tao (2013). Solid modeling techniques to build 3D finite element models (FEM) of volcanic systems. An example from Rabaul caldera system, Papua New Guinea. *Computers & Geosciences*, 52, 325-333.
 Masterlark, T., K. L. Feigl, M. Haney, J. Stone, C. Thurber, and **E. Ronchin** (2012). Nonlinear estimation of geometric parameters in FEMs of volcano deformation: Integrating tomography models and geodetic data for Okmok volcano, Alaska, *J. Geophys. Res.*, 117.

SELECTED POSTERS

Ronchin E., A. Geyer, S. Burchardt, T. Mattsson, C. Hieronymus (2019) Internal aspects of a growing shallow reservoir: modelling viscous magma flow and heat transfer. The Volcanic and Magmatic Studies Group (VMSG) annual meeting (St. Andrews, UK, January 2019)
Ronchin E., S. Burchardt, T. Mattsson, C. Hieronymus (2017) Modeling of magma emplacement processes during laccolith growth. IAVCEI Scientific Assembly (Portland, OR, USA, August 2017)
Ronchin E., T. Masterlark, J. Dawson, S. Saunders, J. Martí Molist (2016) FEM-based 3D geodetic image of a free-geometry magma reservoir using linear inverse modeling of InSAR data: application to Rabaul Caldera, Papua New Guinea, Advanced School on Physics of Volcanoes, ICTP, Trieste, Italy, October 17 – 21, 2016
Ronchin E., Adelina Geyer, and Joan Martí Evaluating topographic effects on ground deformation: Insights from finite element modeling, *Geophysical Research Abstracts*, Vol. 17, EGU2015-2511. Poster at EGU 2015 (April 2015)
Ronchin, E., Masterlark T., Dawson J., Saunders S., and Martí Molist J., FEM-based linear inverse modeling using a 3D source array to image magma chambers with free geometry. Application to InSAR data from Rabaul Caldera (PNG), *Geophysical Research Abstracts*, Vol. 17, EGU2015-728. Poster at EGU 2015 (April 2015)
Ronchin E., Adelina Geyer, Steve Saunders, John Dawson, Joan Martí Molist, “Structures of Rabaul caldera: new insights from analogue and numerical models.” Poster at IV Collapse Caldera Workshop, Bolsena, Italy (September 23-29, 2012)

Ronchin E., Julie A. Herrick, Frank A. Trusdell. "Lava inundation probability for the North flank of Mauna Loa." Poster at AGU Chapman Conference on Hawaiian Volcanoes: From Source to Surface (August 23, 2012)

Masterlark, T., K. L. Feigl, M. Haney, J. Stone, C. Thurber, and **E. Ronchin**, "Nonlinear estimation of geometric parameters in finite element models of volcano deformation: Application to the 1997 eruption of Okmok volcano, Alaska". Invited at AGU Fall meeting (December 5-9, 2011)

INVITED PRESENTATIONS

July 14, 2015: Seminar at the INGV (Rome): "Imaging 3D free-geometry volcano reservoirs using FEM-based linear inverse modeling. Application to InSAR data from Rabaul Caldera (PNG)"

RESEARCH STAYS

January–June 2011: Geodynamic and active deformation laboratory, The University of Alabama, USA (supervisor: Timothy Masterlark). Objectives: Learning how to design and execute FEM-based and InSAR inverse analysis to calibrate volcano source parameters.

February–August 2010: Geodynamic and active deformation laboratory, The University of Alabama, USA (supervisor: Timothy Masterlark). Objectives: Learning the finite element software Abaqus, FEM design and simulation of quasi-static behavior of volcanoes.

January–May 2005: Mauna Loa Geology Volunteer Program, U.S. Geological Survey, Hawaiian Volcano Observatory (HVO) (Supervisor: Frank Trusdell). Objectives: geological survey, map production, volcano monitoring.

SELECTED COLLABORATIONS AND FIELDWORK EXPERIENCE

Joan Martí, Physical volcanology of the calc-alkaline volcanism of the Cabo de Gata (GATAVOLC). Instituto de Ciencias de la Tierra, CSIC.

María José Jurado, Geological risks on Tenerife (TENERISK), Instituto de Ciencias de la Tierra, CSIC.

Carlos Soriano Clemente, Hazard assessment of explosive activity at Teide (EXPLOTEI), Instituto de Ciencias de la Tierra, CSIC.

Joan Martí Molist, Revision of the structure and volcanology of Deception Island, Antarctica, Instituto de Ciencias de la Tierra, CSIC.

Antonio Castro Dorado, Joan Martí Molist, Understanding the plutonic-volcanic connection in supervolcanoes, Universidad de Huelva-Instituto de Ciencias de la Tierra, CSIC.

Joan Martí Molist, Determinación experimental de las propiedades reológicas de magmas de baja viscosidad en el volcán Teide: Investigación preliminar sobre su importancia en la dinámica eruptiva, Instituto de Ciencias de la Tierra, CSIC.

October 2007 and March 2008: Collaborator in Gravimetric survey. Density distribution beneath the Garrotxa volcanic zone, Catalunya, Spain (Scientist in charge: Dr Joachim H. Gottsmann; project partners: Parc natural de la Zona Volcanica de la Garrotxa)

September 16–29, 2007: Collaborator in Gravimetric survey. Time-lapse microgravity and ground deformation survey of the Central Volcanic Complex on Tenerife, Spain (Scientist in charge: Dr Joachim H. Gottsmann; project partners: Alicia Garcia, CSIC, Museu de Ciencias naturales, Madrid, Maria Jose Blanco IGN, Tenerife, Manuel Berracoso, University of Cadiz, Joan Marti, CSIC, Barcelona)

May 14–27, 2007: Collaborator in Gravimetric survey and GPS survey. Fieldwork for the characterization of a geothermal activity of a quiescent caldera and possible precursors for new eruptive events. International research project "Nisyros" (Project coordinator: Dr Joachim H. Gottsmann. In partnership with the Bristol University, Università degli Studi di Udine, Open University, University of Neuchatel)

March–May 2005: Co-leader with Julie Herrick of the Mauna Loa Weather Observatory (MLO) Mapping project. Mapping, collecting rock samples of lava flows, and production of ArcGIS geodatabase for Mauna Loa Mapping Project of the Hawaiian Volcano Observatory (HVO) projects for volunteers, USGS.

SELECTED WORKSHOPS ATTENDED

August 12–13, 2017. Using GPS To Monitor Volcanoes: From Field Data to Modeling (IAVCEI Scientific Assembly, Portland, Or, USA)

June 18–27, 2017. NordVulk Summer School: Magmatic Plumbing Systems (Reykjavik, Iceland)

September 2–6, 2013: Conference and workshop on Synthetic Aperture Radar: A Global Solution for monitoring Geological Disasters (International Center of Theoretical Physics, Trieste, Italy)

September 24–29, 2009: International Summer School of Volcanology (Nisyros, Greece)

August 17 – 28, 2009: Advanced Workshop on evaluating, monitoring and communicating volcanic and seismic hazards in East Africa (International Center of Theoretical Physics, Trieste, Italy)

October 3 – 9, 2008: II Collapse Caldera Workshop – Reconstructing the evolution of collapse caldera: Magma storage, mobilization and eruption (Querétaro, Mexico)