Silvia Brizzi

Postdoctoral research fellow

Contact

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Interests

My research interests are within the fields of subduction dynamics and seismotectonics. I enjoy studying the mechanisms of large scale tectonic processes and their link with both mantle dynamics and surface processes. My current research project focuses on understanding the relationship between mountain building, erosion and mantle dyanamics with analog models. I am also focusing on studying the influence of sediment subduction on megathrust sesimicity using numerical models.

About me

I am an enthusiastic, responsible and hardworking individual. I am always eager to learn new skills and undertake new challenges. I am a good team worker, but also confident working independently. I also have strong interest in science outreach and teaching. Since 2015, I have been involved in developing hands-on activities for the *European Researchers' Night* to make the general audience familiar with the earthquake phenomenon.

Education

2014-2017   **Ph.D.** in Earth Sciences   University of Roma Tre
Geodynamics and Volcanology section, Department of Science
Analysis of the controlling factors able to generate mega-earthquakes along the subduction thrust fault

2011-2014   **M.Sc. cum laude** in Earth Sciences   University of Roma Tre
Geodynamics and Volcanology section, Department of Science
Mega-earthquakes: analogue modelling of the subduction thrust fault seismicity

2007-2011   **B.Sc. cum laude** in Earth Sciences   University of Roma Tre
Department of Science
Geological map of the Monteleone Sabino area (RI, Italy)
Petrographic characterization of the magmatic products of the San Venanzo volcano (PG, Italy)

Experience

2020-...   **Postdoctoral researcher**   The University of Texas at Austin
(February-present)
Jackson School of Geoscience & Institute for Geophysics
Modeling the relationship between mountain building, mantle dynamics and surface processes

2018-2020   **Postdoctoral researcher**   University of Parma
(May-January)
Natural and Experimental Tectonics resarch group
Rheological characterization of magnetorheological materials for analog modelling purposes

2017-2018   **Postdoctoral researcher**   University of Roma Tre
(April-November)
Laboratory of Experimental Tectonics
Analog and numerical modelling of megathrust seismicity

Publications

- **Brizzi S.**, 2019. On the relationships between gedoynamics and megathrust seismicity. Reference Module in Earth Systems and Environmental Sciences, Elsevier. doi:10.1016/B978-0-12-409548-9.11666-5

- Corbi F., Sandri L., Bedford J., Funiciello F., **Brizzi S.**, Rosenau M., Lallemand S., 2019. Machine learning can predict the timing and size of analog earthquakes. Geophysical Research Letters, 46, 1303-1311. doi:10.1029/2018GL081251

- **Brizzi S.**, Sandri L., Funiciello F., Corbi F., Piromallo F., Heuret A., 2018. Multivariate statistical analysis of the parameters favoring the occurrence of giant subduction megathrust earthquakes. Tectonophysics, 726, 92-103. doi:10.1016/j.tecto.2018.01.027

Skills

OS

MacOs, Linux, Windows

Programming

MATLAB

Unix

C, C++, Phyton

Softwares

LaTeX

Adobe Illustrator

Corel Draw

Rheoplus

Image analysis

PIV, PTV

Lab instruments

Rheometer

Languages

- Italian (Native)
- English (Professional proficiency)
- French (Elementary proficiency)
- Spanish (Elementary proficiency)

Awards

2017 **Renato Funiciello Award.** Best 2017 PhD Thesis. Awarded by University of Roma Tre, Science Department.

2017 **AGU Fall Meeting General Student Travel Grant.** Awarded by the American Geophysical Union

Publications

- **Brizzi S.**, Funiciello F., Corbi F., Di Giuseppe E., Mojoli G., 2017. Rheometric measurements of salted type A gelatins. GFZ Data Services. doi:10.5880/fidgeo.2017.007

- Corbi F., Funiciello F., **Brizzi S.**, Lallemand S., Rosenau M., 2017. Control of asperities size and spacing on seismic behavior of subduction megathrusts. Geophysical Research Letters, 44. doi:10.1002/2017GL074182

- **Brizzi S.**, Funiciello F., Corbi F., Di Giuseppe E., Mojoli G., 2016. Salt matters: how salt affects rheological and physical properties of gelatine for analogue modelling. Tectonophysics, 679, 88-101. doi:10.1016/j.tecto.2016.04.021

(Some) Contributions to conferences

- **Brizzi S.**, van Zelst I., Funciello F., Corbi F., van Dinther Y., 2019. Sediment thickness and its influence on subduction dynamics and seismicity. AGU 2019 Fall Meeting, San Francisco (oral).

- van Zelst I., **Brizzi S.**, van Rijsingen E., van Dinther Y., Funiciello F., 2019. Tsunamigenic earthquakes preferentially occur in sediment-starved subduction zones with a rough incoming seafloor. AGU 2019 Fall Meeting, San Francisco (invited oral).

- **Brizzi S.**, van Zelst I., van Dinther Y., Funiciello F., Corbi F., 2017. How long-term dynamics of sediment subduction controls short-term dynamics of seismicity. AGU Fall Meeting, New Orleans (oral).

- **Brizzi S.**, Funiciello F., Corbi F., Sandri L., Piromallo C., Heuret A., 2017. What favors the occurrence of subduction mega-earthquakes? EGU General Assembly, Wien (oral).

- Corbi F., Funiciello F., **Brizzi S.**, Lallemand S., 2017. Asperities synchronization and triggering of subduction mega-earthquakes: insights from 3d analog models. EGU General Assembly, Wien (poster).

- van Zelst I., **Brizzi S.**, van Dinther Y., Heuret A., Funiciello F., 2017. Identifying tectonic parameters that affect tsunamigenesis. EGU General Assembly, Wien (poster).

- **Brizzi S.**, Funiciello F., Corbi F., Di Giuseppe E., Mojoli G., 2016. Salt matters: modifying gelatine rheology for subduction thrust fault seismicity models. EGU General Assembly 2016, Wien (poster).

- Corbi F., Funiciello F., **Brizzi S.**, van Rijsingen E., Lallemand S., Dominguez S., Cattin R., 2016. Control of barrier width on asperities synchronization and genesis of great subduction megathrust earthquakes: insights from 3D analogue models. GeoMOD, La Grande Motte (poster).

Teaching and Outreach

- **Lecturer** at *"Introduction to Matlab"* short-course for PhD students, University of Roma Tre (March 2019).

- **Lecturer** during the summer school *"Thermal convection in complex fluids: from laboratory to mantle dynamics"* of ITN CREEP project at Université Paris-Sud (September 2016).

- **Editor and Writer** for *EGU Tectonics and Structural Geology blog*. Responsible for communication with guest authors, writing blogs, managing Twitter account (March 2019-present).

- **Experiments and hands-on activities** during the *European Researchers' Night* at University of Roma Tre (2014-2017) and University of Parma (2018-2019).