Constanza Rodriguez Piceda

Plymouth, United Kingdom

Personal website | LinkedIn | GitHub | ORCID

Postdoctoral Researcher in Geocomputing and Earthquake hazard

I am a geophysicist with a research focus on the role of stress interactions in complex fault networks and the influence of lithospheric structure on seismic deformation. My work spans multiple scales, from simulating seismic cycles on faults to investigating the thermal and rheological properties of the lithosphere using data-driven numerical modeling. I am particularly interested in how lithospheric structure and fault geometry influence present-day deformation, and in applying these insights to improve our understanding of seismic geohazards.

Professional Experience

Postdoctoral Researcher Jun 2022 – Present
University pf Plymouth *Plymouth, United Kingdom*

- Built numerical models to investigate the role of fault networks on with complex geometries in earthquake cycles in the Apennines using QDYN
- Developed new features for the numerical code QDYN, including meshing and postprocessing functions, model restart capabilities, and the ability to prescribe faults with differing depths
- Investigated differences between physics-based and fault-based seismic hazard approaches by using FISH and OpenQuake
- Conducted field work to survey active faults in the Apennines (Italy)
- Supervised a MSc student for a six-week research placement
- Teaching demonstrator for lectures and practicals about Geophysics and Tectonics in BSc; assisted in 4 undergraduate field trips to South-West England

Graduate student researcher Oct 2018 – Apr 2022
GFZ Helmoltz Centre for Geosciences/University of Potsdam *Potsdam, Germany*

- Investigated the relationship between the thermal and rheological structure of the lithosphere and present-day deformation in the southern Central Andes (Argentina)
- Integrated geological and geophysical datasets into 3D subsurface models to constrain lithospheric architecture
- Conducted gravity-based, thermal, and rheological modeling using finite element methods (FEM)
- Teaching demonstrator during practical in Msc Course on Neotectonics and Geodynamics at University of Potsdam

Student assistant June 2016 – Dec 2017
University of Buenos Aires *Buenos Aires, Argentina*

- Carried out geological and paleomagnetic surveys and Sample processing using different paleomagnetic techniques (MSA, AF, HT, IRM) in Northwest and Central Argentina
- Reconstructed Ordovician paleogeography and geological history of Northwest Argentina

Science Communicator Mar 2016 – Oct 2018
Centro Cultural de la Cienca *Buenos Aires, Argentina*

- Organized lectures, guided tours and workshops addressed to students and public in general in an interactive science museum
- Had weekly training about didactics and science popularization

Education

University of Potsdam Potsdam, Germany
PhD in Geophysics - Grade: summa cum laude *2018 – 2022*

University of Buenos Aires Buenos Aires, Argentina
Degree in Geological Science - Grade: 8.9/10 *2011 – 2017*

Scientific background

Publications *2018 – Present*
11 peer-reviewed publications (6 first-author), 2 under-review articles (1 first-author), and 6 data publications (5 first-author). See details on my on my publication list, website or ORCID page.

Scientific Meetings *2018 – Present*
11 conference/workshop participations and 20 contributions (including 2 keynote talk and 2 online seminars), see details on my publication list, website or ORCID page.

Technical Skills

Languages	:	Python, MATLAB, Fortran (notions)
Dev tools	:	Linux, bash scripting, High Performance Computing (SLURM), Git, Visual Studio Code
Numerical Modelling	:	QDYN, GOLEM, LYNX, ASPECT
Seismic hazard assessment	:	FISH, OpenQuake
Other software	:	Paraview, Petrel, Gravity modelling sofware IGMAS+
GIS	:	QGIS, Global Mapper, ArcGIS
Design Tools	:	Adobe Ilustrator, Inkscape

Grants, awards and scholarships

ARIES Summer Research Experience Placement *2024*
Grant to supervise a research placement experience for a MSc Student for six weeks at University of Plymouth (£4200)

Roberto Rocca Foundation Scholarship *2012-2017*
Scholarship for undergraduate students with high academic degrees (USD12000)

Santander Iberoamérica Scholarship *2016*
Scholarship for undergraduate students with high academic degrees to carry out a 6-month academic exchange in the National Autonomous University of Mexico (€3000)

Services to the scientific community

Peer-reviews completed for scientific journals *2023-Present*
Nature communications Earth and Environment, Journal of Geophysical Research: Solid Earth, Tectonics, Geophysical Research Letters, Tectonophysics and International Journal of Earth Sciences

Session organization and chairing at EGU Gen. Assembly *2024*
session “Integrated approaches to seismotectonic studies”

Student poster/PICO award judge at EGU Gen. Assembly (Vienna) *2024*
Judged and provided feedback to graduate and undergraduate student talk and poster presentations

Outreach

I have extensive experience in scientific outreach, including volunteering, mentoring, and demonstrating for students across various academic levels and economic backgrounds. Additionally, I serve as the co-editor in-chief of the **EGU Blog of the Geodynamics Division**, managing a team of > 15 people and editing and writing weekly posts. See details on my website.