CONSTANZA RODRIGUEZ PICEDA

• Postdoctoral fellow in geocomputing and earthquake hazard •

ABOUT ME

Subsurface modeler focusing on the thermal and rheological scale of the lithosphere through data assimilation, gravity and numerical modelling. I use these models to assess seismic geohazards and the link of the lithospheric structure with present-day deformation. I am also interested in paleogeographic reconstructions with paleomagnetism.

EDUCATION

2018-2022 **PhD in Geophysics**, University of Potsdam, Germany
Advisors: Manfred Strecker and Magdalena Scheck-Wenderoth (Grade *summa cum laude*)

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

2016 **Degree in Geological Engineer**, Autonomous National University of Mexico, 6- month academic exchange

EXPERIENCE

Since 2022 **Postdoctoral fellow** at University of Plymouth
• Develop numerical models to investigate the role of fault networks with complex geometries in earthquake cycles

2018-2022 **Graduate student researcher** in GFZ German Research Centre for Geosciences/University of Potsdam
• Conducted research in Geophysics to understand the link between the thermal and rheological state of the lithosphere and present-day deformation processes in the southern Central Andes
• Performed integration of geological and geophysical data into 3D subsurface models
• Carried out gravity-based, thermal and rheological modelling
• Publish findings in peer-reviewed journals and professional society meetings

2021 **Teaching assistant** at University of Potsdam
• Assisted in the master course 'Neotectonics and Geodynamics'

2016-2017 **Student field assistant at** University of Buenos Aires
• Carried out geological and paleomagnetic surveys
• Sample processing using different paleomagnetic techniques (MSA, AF, HT, IRM)

SCIENTIFIC BACKGROUND

• PUBLICATIONS IN REFEREED JOURNALS

Under review **Rodriguez Piceda, C.,** Gao, Y., Cacace M., Scheck-Wenderoth, M., Bott, J., Tilmann, F., & Strecker M., The role of mantle hydration and flexure on slab seismicity in the southern Central Andes. *Submitted to Nature Communications Earth and Environment*

2022 **Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Cacace M., Bott, J., & Strecker M., Long-term lithospheric strength and intraplate seismicity in the southern Central Andes (29°S-39°S). *Geochemistry, Geophysics, Geosystems*

2022 **Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Bott, J., Cacace, M., Gomez Dacal, M.L., Pons, M., Prezzi, C.B. & Strecker M., Controlling factors of an oceanic-continental subduction zone: the southern Central Andes. *Lithosphere*

2021 Barrionuevo, M., Liu, S., Mescua J., Yagupsky D., Quinteros, J., Giambiagi L., Sobolev, V., Strecker, M., **Rodriguez Piceda C.,** The influence of variations in crustal composition and lithospheric strength on the evolution of the Southern Central Andean deformation: Insights from geodynamic models*. International Journal of Earth Sciences*

2021 **Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Gomez Dacal, M.L., Bott, J., Prezzi, C.B. & Strecker M., Lithospheric density structure of the southern Central Andes constrained by 3D data-integrative gravity modelling. *International Journal of Earth Sciences*

2020 Franceschinis, P. R., Escayola, M. P., Rapalini, A. E., **Rodriguez Piceda, C**., Age constraints on the Cambrian Mesón Group (NW Argentina) based on detrital zircons U–Pb geochronology and magnetic polarity bias. *Journal of South American Earth Sciences*

2020 Franceschinis, P. R., Fazzito, S., Rapalini, A. E., Escayola, M. P., Geuna, S., **Rodriguez Piceda, C**. Permian remagnetization of the Early Cambrian Guachos Formation, Eastern Cordillera, Argentina. *Journal of South American Earth Sciences*

2020 Franceschinis, P.R., Rapalini, A.E., Escayola, M.P. & **Rodriguez Piceda, C**. Paleogeographic and tectonic evolution of the Pampia Terrane in the Cambrian: New paleomagnetic constraints. *Tectonophysics*

2018 **Rodriguez Piceda, C.,** Franceschinis, P., Escayola, M., & Rapalini, A. Paleomagnetismo del Grupo Santa Victoria en la sierra de Mojotoro, Salta: aportes a la reconstrucción paleogeográfica de Pampia en el Paleozoico temprano. *Revista de la Asociación Geológica Argentina*

• OTHER PUBLICATIONS

2022 **Rodriguez Piceda, C.,** Gao, Y., Cacace M., Scheck-Wenderoth, M., Bott, J., Tilmann, F., & Strecker M., Contributions of lithospheric structure, mantle hydration and slab flexure in seismic localization in the southern Central Andes [conference-abstract], PATADays 2022

2021	Götze, H.J., Bott, J., Gomez Dacal, M.L., Gomez Garcia A., **Rodriguez Piceda, C**., Meeßen, C., Plonka, C., Spooner, C., Scheck-Wenderoth, M., Schmidt S. & Anikiev, D., Interdisciplinary data-constrained 3-D potential field modelling with IGMAS+ [conference-abstract], DGG 2021
2021	Anikiev, D., Götze, H.J., Bott, J., Gómez-García, À., Gomez Dacal, M. L., Meeßen, C., Spooner, C., **Rodriguez Piceda, C**., Plonka, C., Schmidt, S., Scheck-Wenderoth, M. Interdisciplinary data-constrained 3-D potential field modelling with IGMAS+ [conference-abstract], EGU 2021 General Assembly
2021	**Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Bott, J., Gomez Dacal, M.L., Pons, M., Prezzi, C.B. & Strecker M., Unravelling the thermal state of the southern Central Andes and its controlling factors [conference-abstract], EGU 2021
2020	**Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Gomez Dacal, M.L., Bott, J., Prezzi, C.B. & Strecker M., Lithospheric density structure of the Southern Central Andes and their forelands constrained by 3D gravity modelling [conference-abstract], EGU 2020 General Assembly
2020	Schmidt S., Anikiev, D., Götze, H.J., Gomez Garcia A., Gomez Dacal, M.L., Meeßen, C., Plonka, C., **Rodriguez Piceda, C.,** Spooner, C. & Scheck-Wenderoth, M., IGMAS+ – a tool for interdisciplinary 3D potential field modelling of complex geological structures [conference-abstract], EGU 2020 General Assembly
2020	**Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Gomez Dacal, M.L., Bott, J., Prezzi, C.B. & Strecker M., Lithospheric-scale 3D model of the Southern Central Andes [dataset], GFZ data services
2019	**Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Gomez Dacal, M.L., Bott, J., Prezzi, C.B. & Strecker M., Lithospheric-scale 3D configuration of the Southern Central Andes [conference-abstract], 5th International Young Earth Scientists (YES) Congress, Berlin, Germany
2019	**Rodriguez Piceda, C.,** Scheck-Wenderoth, M., Gomez Dacal, M.L., Bott, J., Prezzi, C.B. & Strecker M., Insights on the lithospheric density structure of the Southern Central Andes and their foreland [conference-abstract], 25th Latin-American Colloquium (LAC), Hamburg, Germany
2018	**Rodriguez Piceda, C.,** Geología y paleomagnetismo del Grupo Santa Victoria en la Sierra de Mojotoro, provincia de Salta (Geology and paleomagnetism of Santa Victoria Group in the Mojotoro range, Salta Province), University of Buenos Aires [dissertation for degree]

AWARDS AND SCHOLARSHIPS

2012-2017	**Roberto Rocca Foundation Scholarship** for new Engineering and Geoscience students with high academic degrees
2016	**Santander Iberoamérica Scholarship** for students with high academic degrees to carry out an academic exchange in the National Autonomous university of Mexico (UNAM)
2015	**First mention** in poster competition meeting of Geology and Paleontology students, University of Buenos Aires, Buenos Aires, Argentina

LANGUAGES

Spanish Native
English Professional
German Intermediate (B1), University of Potsdam, Germany

IT SKILLS

Python, MATLAB (notions), reservoir software (Petrel), data analysis software (Paraview), Finite Element Method software (GOLEM, LYNX), boundary element method software (QDYN), forward gravity modelling software (IGMAS+), Geographic Information Systems (QGIS, Global Mapper, ArcGIS), design tools (Adobe Illustrator, Inkscape)

OUTREACH

2016-2018	**Science Communicator** in Centro Cultural de la Ciencia, 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
2015-2018	**Science communicator** in University of Buenos Aires Argentina Lecture on climate change, Sedimentology and Geophysics adressed to middle-school students in outreach events organized by the university
2017	**Mentor** in the 'Science Challenge' Hackathon, Buenos Aires, Argentina • Mentored senior-school students which were asked to make a project related with space sciences
2014-2015	**Science Communicator** in Tecnópolis, Buenos Aires, Argentina • Organized guided tours in science theme park.
2013-2015	**Volunteering.** Tuition for senior school and university students in disadvantaged neighborhoods organized by the University Torcuato Di Tella, Buenos Aires, Argentina

TRAINING

WORKSHOPS AND COURSES

2021	**MATLAB recipes for Earth Sciences,** University of Potsdam, Potsdam, Germany
2020	**Tectonics modelling tutorial** with ASPECT, Computational Infrastructure for Geodynamics (CIG)
2019	**Solid Earth Summer School** University of Grenoble, Barcelonette, France
2019	**DeArGeoNet - LIDAR field methods and digital data analysis**, University of Potsdam, Buenos Aires, Argentina
2018	**Educational Problems**, University of Buenos Aires, Buenos Aires, Argentina
2018	**Magnetic fabric of natural materials**, University of Buenos Aires, Buenos Aires, Argentina

2017	**3GEO Hazard & risk analysis**, CITEDEF and University of Potsdam, Buenos Aires Argentina
2015	**Core analysis**, YPF Foundation, Buenos Aires Argentina

FIELD COURSES

2019	IRTG StRATEGy, NW Argentina: geomorphology and neotectonics in the Andes
2015	Neuquén Basin, Argentina: mapping, seismic and log data analysis
2015	Martín García Island, Argentina: Geophysical Prospection
2015	San Juan, Argentina: Tectonics
2013	Tandil, Argentina: mapping
2014	Neuquén Basin, Argentina: mineralogy, paleontology and structural geology
2012	Mendoza, Argentina: sedimentology and petrology