Dr. Santiago Rubén Soler

Postdoctoral Research Fellow

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Professional Appointments

2022–on	**Postdoctoral Research Fellow** Department of Earth, Ocean and Atmospheric Sciences University of British Columbia
2022	**Coding Trainer** Code to Communicate Initiative NSF-funded bilingual program for grad-students
2017–2019	**Assistant Professor of Practice** Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de San Juan, San Juan, Argentina
2013–2015	**Student Teacher** Facultad de Ciencias Exactas, Ingeniería y Agrimensura, Universidad Nacional de Rosario, Rosario, Argentina

Education

2017–2022	**PhD in Geophysics** Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de San Juan, San Juan, Argentina
2009–2015	**Licentiate in Physics** Facultad de Ciencias Exactas, Ingeniería y Agrimensura, Universidad Nacional de Rosario, Rosario, Argentina

Certifications

2021	Certified Software Carpentry Instructor

Awards and Scholarships

2017–2022	PhD Scholarship from CONICET
2019	Early Career Scientist's Travel Support for EGU2020 General Assembly
2016	Fundación Josefina Prats Award: Licenciatura en Física
2012	University Scholarship granted by Fundación del Banco de Santa Fe
2012	Santander Río National Award to Academic Merit 2012
2012	Josefina Prats Award: IFIR 2012

Teaching Experience

UNDERGRADUATE COURSES

2022-2023	**EOSC 350: Environmental, Geotechnical, and Exploration Geophysics I** Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia
2017–2019	**Statistical Mechanics** Department of Geophysics and Astronomy, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de San Juan
2017–2019	**Physics I** Department of Geophysics and Astronomy, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de San Juan
2013–2015	**Physics I** Physics Department, Escuela de Ciencias Exactas y Naturales Facultad de Ciencias Exactas, Ingeniería y Agrimensura, Universidad Nacional de Rosario
2013–2015	**Introduction to Science** Physics Department, Escuela de Ciencias Exactas y Naturales Facultad de Ciencias Exactas, Ingeniería y Agrimensura, Universidad Nacional de Rosario

WORKSHOPS AND TUTORIALS

2023 **BIRS 2-day Workshop: *Open-Source Tools to Enable Geophysical Data Processing and Inversion***
Santiago Soler, Lindsey Heagy, Craig Miller and Leonardo Uieda
Workshop organizers
https://birs-2023.softwareunderground.org

2021 **Tutorial: Processing gravity and magnetic data with Harmonica**
Santiago Soler, Andrea Balza Morales and Agustina Pesce
Transform21, Software Underground
https://youtu.be/0bxZcCAr6bw

2020 **Introducción a Python para Científicxs**
Universidad Nacional de San Juan, San Juan, Argentina
https://youtu.be/LS_e9gqTM2s

2020 **Tutorial: From scattered data to gridded products using Verde**
Leonardo Uieda and Santiago Soler
Transform 2020, Software Underground
https://youtu.be/-xZdNdvzm3E

2017 **Taller Introductorio a LaTeX: Cómo producir documentos de calidad**
Agustina Pesce and Santiago Soler
Universidad Nacional de San Juan, San Juan, Argentina

Publications

PEER-REVIEWED SCIENTIFIC ARTICLES

2021 **Gradient-boosted equivalent sources**, *Geophysical Journal International*
Santiago Soler and Leonardo Uieda
doi: 10.1093/gji/ggab297

2020 **Pooch: A friend to fetch your data files**, *Journal of Open-Source Software*
Leonardo Uieda, Santiago Soler, Rémi Rampin, Hugo vanKemenade, Matthew Turk, Daniel Shapero, Anderson Banihirwe and John Leeman
doi: 10.21105/joss.01943

2019 **Gravitational field calculation in spherical coordinates using variable densities in depth**, *Geophysical Journal International*
Santiago Soler, Agustina Pesce, Mario Giménez and Leonardo Uieda
doi: 10.1093/gji/ggz277

2018 **Transient plate contraction between two simultaneous slab windows: Insights from Paleogene tectonics of the Patagonian Andes**, *Journal of Geodynamics*
Guido M. Gianni, Agustina Pesce and Santiago Soler
doi: 10.1016/j.jog.2018.07.008

2017 **Analysis of the Illapel MW=8.3 thrust earthquake rupture zone using GOCE-derived gradients**, *Pure and Applied Geophysics*
Orlando Álvarez, Agustina Pesce, Mario Giménez, Andrés Folguera, Santiago Soler and Wenjin Chen
doi: 10.1007/s00024-016-1376-y

2017 **Effective elastic thickness in the Central Andes. Correlation to orogenic deformation styles and lower crust high-gravity anomaly**, *Journal of South American Earth Sciences*
Héctor P.A. García, Guido M. Gianni, Marianela N. Lupari, Marcos A. Sánchez, Santiago Soler, Francisco Ruiz and Federico G. Lince Klinger
doi: 10.1016/j.jsames.2017.11.021

NON-REVIEWED ARTICLES

2023 **Fatiando a Terra: a journey into open-source software for Geophysics**, *EGU Geodynamics Blog*
Santiago Soler
https://blogs.egu.eu/divisions/gd/2023/07/19/fatiando-a-terra

Presentations

INVITED SPEAKER

2023 **Fatiando a Terra: software libre para geofísica**, *Instituto de Geociencias Básicas, Aplicadas y Ambientales (IGeBA), Universidad de Buenos Aires*
Slides: https://www.santisoler.com/2023-fatiando-igeba/

2022 **Fatiando a Terra: Open-source tools for geophysics**, *Geophysical Inversion Facility, Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia*
Slides: https://www.santisoler.com/2022-ubc-fatiando

2022 **Empowering science with open-source software**, *Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo*
Slides: https://www.santisoler.com/iag-usp-2022

2021 **Fatiando a Terra: Open-source tools for geophysics**, *Geophysical Society of Houston*
Leonardo Uieda, Santiago Soler and Agustina Pesce
Slides: https://www.fatiando.org/2021-gsh

CONFERENCE PROCEEDINGS

2023 **Pooch: A friend to fetch your data files**, *PyCascades 2023*
Lightning talk: https://www.youtube.com/watch?v=KvxBc4xUMyg
Slides: 10.6084/m9.figshare.22300822

2023 **Fatiando a Terra: Open-source tools for geophysics**, *Canadian Exploration Geophysical Society (KEGS)*
Santiago Soler and Lindsey Heagy
Slides: 10.6084/m9.figshare.22151357

2021 **Gradient-boosted equivalent sources for gridding large gravity and magnetic datasets**, *EGU21 General Assembly*
Santiago Soler and Leonardo Uieda
Talk: 10.6084/m9.figshare.14515188 Slide: 10.6084/m9.figshare.14461792
doi: 10.5194/egusphere-egu21-1276

2020 **How to grid gravmag data with Harmonica**, *Transform 2020, Software Underground*
Lightning talk: https://youtu.be/NtBDf7d7mwM?t=4245

2020 **A better strategy for interpolating gravity and magnetic data**, *EGU2020, General Assembly*
Santiago Soler and Leonardo Uieda
doi: 10.6084/m9.figshare.12217973

2020 **Evaluating the accuracy of equivalent-source predictions using cross-validation**, *EGU2020, General Assembly*
Santiago Soler and Leonardo Uieda
doi: 10.5194/egusphere-egu2020-15729

2019 **Experiencias en el desarrollo de Fatiando a Terra**, *Taller Argentino de Computación Científica*
doi: 10.6084/m9.figshare.10013006

2019 **Gravitational fields of tesseroids with variable density**, *LAPIS 2019*
Santiago Soler, Agustina Pesce, Mario Giménez and Leonardo Uieda
doi: 10.6084/m9.figshare.8242439

2017 **Tesseroides con densidad variable: modelo directo con software libre**, *I Congreso Binacional de Investigación Científica y V Encuentro de Jóvenes Investigadores*
Santiago Soler, Agustina Pesce, Leonardo Uieda and Mario Giménez

2017 **Magnetic characterization of the Loncopué trough, Argentina**, *XX Congreso Geológico Argentino*
Agustina Pesce, Mario Giménez, Andrés Folguera, Guido M. Gianni and Santiago Soler

2017 **Magnetic characterization of the Loncopué trough, Argentina**, *XX Congreso Geológico Argentino*
Agustina Pesce, Mario Giménez, Andrés Folguera, Guido M. Gianni and Santiago Soler

2017 **Anomalías gravimétricas y magnéticas corticales del sur de la provincia volcánica de La Payenia, asociadas al tearing de la Placa de Nazca y anomalías mantélicas**, *XX Congreso Geológico Argentino*
Ana Astort, Bruno Colavitto, Lucía Sagripanti, Héctor P.A. García, Santiago Soler, Francisco Ruiz and Andrés Folguera

2016 **Análisis flexural de la cuenca cretácico-paleógena del noroeste argentino. La subcuenca Lomas de Olmedo: zona de transición entre dos mecanismos de deformación distintos**, *Primer Simposio de Tectónica Sudamericana*
Héctor P.A. García, Santiago Soler, Guido M. Gianni and Francisco Ruiz

2016 **Crustal Magmatic Anomalies from the Southern Payenia Volcanic Plateau, Associated with The Nazca Plate Tearing and Plume Head from Gravimetric and Magnetic Data**, *Primer Simposio de Tectónica Sudamericana*
Ana Astort, Francisco Ruiz, Héctor P.A. García, Santiago Soler, Andrés Echaurren and Andrés Folguera

Open-source Software Development

Since 2023 **SimPEG: Simulation and Parameter Estimation in Geophysics**
Director of Operations
https://simpeg.xyz

Since 2015 **Fatiando a Terra: Open source tools for geophysics**
Developer and maintainer
https://www.fatiando.org

Reviewer

Geophysics

Journal of Open Research Software

Journal of Applied Geophysics

Journal of Open-Source Software

Proposals for BIRS workshops

Technical Skills

Programming Python, Rust, bash, FORTRAN, C

Scientific Python NumPy, Matplotlib, Pandas, Xarray, Numba, Dask, SimPEG, PyGMT

Markup Markdown, LaTeX, HTML, RST

WebDev CSS, Bootstrap, PicoCSS, Static Site Generators (jekyll, zola, urubu), Jinja2 and Tera

DevOps GNU/Linux, Unix terminal, VIM, Neovim, git, GNU Make, SSH, Ansible, nginx, ufw

Graphic Design Inkscape, GIMP, imagemagick, Darktable

Other tools Jupyter Notebooks, LibreOffice Suite, PGP, GitHub Actions, Nextcloud, maxima

Languages

Spanish Native

English Advanced

Italian Beginner