

# Dr. Santiago Rubén Soler

## Postdoctoral Research Fellow

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## Professional Appointments

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

## Education

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| 2017–2022 | <b>PhD in Geophysics</b><br>Facultad de Ciencias Exactas, Físicas y Naturales,<br>Universidad Nacional de San Juan, San Juan, Argentina        |
| 2009–2015 | <b>Licentiate in Physics</b><br>Facultad de Ciencias Exactas, Ingeniería y Agrimensura,<br>Universidad Nacional de Rosario, Rosario, Argentina |

## Certifications

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| 2021 | Certified <a href="#">Software Carpentry</a> Instructor |
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## Open-source and Community Involvement

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- Since 2015     **Fatiando a Terra: Open source tools for geophysics**  
Maintainer and Project Leader  
<https://www.fatiando.org>
- Since 2023     **SimPEG: Simulation and Parameter Estimation in Geophysics**  
Maintainer  
<https://simpeg.xyz>
- Since 2023     **Software Underground**  
Board member  
<https://softwareunderground.org>

## Awards and Scholarships

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- 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

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### UNDERGRADUATE COURSES

- 2022-2025     **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

- 2024            **Tutorial: Introduction to SimPEG at Agrogeo24**  
 Devin C. Cowan, [Santiago Soler](#) and [Lindsey Heagy](#)  
 Instructor  
<https://doi.org/10.62329/PMXX7343>
- 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 organizer  
<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 Científicos**  
 Universidad Nacional de San Juan, San Juan, Argentina  
[https://youtu.be/LS\\_e9gqTM2s](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

## Supervision

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- 2025      **Kelly Baker**, *University of British Columbia*  
Summer Research Project.  
*Open-source implementation of gravity and magnetic forward model of ellipsoids.*  
Co-advised with [Lindsey Heagy](#).

## Publications

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### PEER-REVIEWED SCIENTIFIC ARTICLES

- 2022      **New procedure to estimate plasma parameters through the q-Weibull distribution by using a Langmuir probe in a cold plasma**, *Plasma Research Express*  
F.J. Gonzalez, J.I. Gonzalez, [Santiago Soler](#), C.E. Repetto, B.J. Gómez and D.B. Berdichevsky  
doi: [10.1088/2516-1067/ac4f35](https://doi.org/10.1088/2516-1067/ac4f35)
- 2021      **Gradient-boosted equivalent sources**, *Geophysical Journal International*  
[Santiago Soler](#) and [Leonardo Uieda](#)  
doi: [10.1093/gji/ggab297](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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

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### INVITED SPEAKER

- 2024      **Modernizing gravity processing: use the gravity disturbance**, *University of Houston*  
Invited by Dr. Jiajia Sun  
doi: [10.6084/m9.figshare.25676571](https://doi.org/10.6084/m9.figshare.25676571)
- 2023      **Processing potential field data with Fatiando a Terra**, *AGU Fall Meeting 2023*  
Abstract: <https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1443596>  
doi: [10.6084/m9.figshare.24687573](https://doi.org/10.6084/m9.figshare.24687573)
- 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

- 2026 **Open-source gravity and magnetic forward model of ellipsoids**, *EGU 2026, General Assembly*  
Poster: [10.5281/zenodo.19834998](https://zenodo.org/record/19834998)  
doi: [10.5194/egusphere-egu26-8366](https://doi.org/10.5194/egusphere-egu26-8366)
- 2025 **3D geophysical inversions to characterize carbon sequestration potential of ultramafic rocks**, *EGU 2025, General Assembly*  
Poster: [10.6084/m9.figshare.28811126](https://figshare.com/record/item?id=28811126)  
doi: [10.5194/egusphere-egu25-13551](https://doi.org/10.5194/egusphere-egu25-13551)
- 2024 **Pooch: A friend to fetch your data files**, *SciPy 2024*  
Talk: <https://www.youtube.com/watch?v=91q1HadI9uI>  
Slides: [10.6084/m9.figshare.26312236.v1](https://figshare.com/record/item?id=26312236)
- 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](https://figshare.com/record/item?id=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](https://figshare.com/record/item?id=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](https://figshare.com/record/item?id=14515188) Slide: [10.6084/m9.figshare.14461792](https://figshare.com/record/item?id=14461792)  
doi: [10.5194/egusphere-egu21-1276](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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

## Reviewer

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[Geophysics](#)

[Journal of Open Research Software](#)

[Journal of Applied Geophysics](#)

[Journal of Open-Source Software](#)

Proposals for [BIRS](#) workshops

## Technical Skills

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**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

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**Spanish** Native

**English** Advanced

**Italian** Beginner