

Javier Ojeda

Ph.D., M.Sc., Researcher at Universidad de Chile

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 Scholar

 ANID Research Profile

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RESEARCH STATEMENT

Geophysicist with experience in applying seismology and geodesy techniques to study crustal deformation processes caused by geological hazards, including earthquakes in subduction zones and active fault systems, volcanic activity, and landslides. My research also bridges into engineering seismology, focusing on strong ground motion simulation and seismic hazard assessment. These multidisciplinary interests have allowed me to collaborate with leading researchers in France, Italy, Japan, and the United States, strengthening my network and enriching my research perspective. Over the past five years, I have contributed to 10 peer-reviewed articles (h-index 5, WoS citations: 241) and presented over 30 times at national and international conferences. In addition, I have 9 years of university teaching experience, I have mentored students, led geophysical measurement campaigns, and supported knowledge transfer through outreach programs tailored for university students, schoolchildren, and the broader public.

EDUCATION

• Université Paris Cité, Institut de Physique du Globe de Paris <i>Ph.D. in Earth and Environmental Sciences</i>	Oct 2021 - Dec 2024 Paris, France
• Universidad de Chile, Departamento de Geología <i>PhD. in Geology</i>	Mar 2020 - Dec 2024 Santiago, Chile
• Universidad de Chile, Departamento de Geofísica <i>M.Sc. in Geophysics</i>	Mar 2017 - Sep 2018 Santiago, Chile
• Universidad de Chile, Departamento de Geofísica <i>B.S. in Geophysics</i>	Mar 2011 - Jun 2016 Santiago, Chile

RESEARCH VISITS

• University of California Berkeley, EPS Department & Berkeley Seismology Laboratory <i>Study of transient deformation along the Chilean subduction margin. Supervisor: Roland Bürgmann</i>	Sep 2024 - Oct 2024 California, United States
• University of California Berkeley, EPS Department & Berkeley Seismology Laboratory <i>Analysis of transient deformation on a global scale. Supervisor: Roland Bürgmann</i>	Dec 2023 - Mar 2024 California, United States
• Université Côte d'Azur, Géoazur, équipe Séismes - Cycles <i>Development of methods for detecting short-time transient deformation. Supervisor: Jean-Mathieu Nocquet</i>	Nov 2022 - Dec 2022 Valbonne, France
• Istituto Nazionale di Geofisica e Vulcanologia, Centro Pericolosità Sismica <i>Simulation of strong motion of the Norcia 2016 earthquake. Supervisor: Aybige Akinci and Elisa Tinti</i>	Jul 2019 & Dec 2019 Rome, Italy
• Institute de Physique du Globe de Paris, équipe de Sismologie <i>Implementation of transfer functions in finite fault stochastic methodology. Supervisor: Fabian Bonilla</i>	Nov 2017 - Feb 2018 Paris, France

PUBLICATIONS

†=EQUAL AUTHORSHIP CONTRIBUTION

- [11] Kondo, Y., Obayashi, M., Sugioka, H., Shiobara, H., Ito, A., Shinohara, M., Iwamori, H., Kinoshita, M., Miller, M., Tassara, C., Ojeda, J. (2024). **Seismic Image of the Central to Southern Andean Subduction Zone Through Finite-Frequency Tomography**. *J. Geophys. Res.: Solid Earth*, 129(11), e2024JB028844.
- [10] Vigny, C., Klein, E., Ojeda, J. (2024). **In search for the lost truth about the 1922 & 1918 Atacama earthquakes in Chile**. *J. South Am. Earth Sci.*, 143, 104983.
- [9] Flores, C., Ojeda, J., Otarola, C., Arriola, S., Ruiz, S. (2023). **Stochastic strong ground motion simulation in the Santiago Metropolitan region considering an Mw 7.8 intraplate intermediate-depth earthquake**. *J. South Am. Earth Sci.*, 130, 104501.
- [8] Ito, A., Shiobara, H., Miller, M., Sugioka, H., Ojeda, J., Tassara, C., Shinohara, M., Kinoshita, M., Iwamori, H. (2023). **Long-term Array Observation by Ocean Bottom Seismometers at the Chile Triple Junction**. *J. South Am. Earth Sci.*, 124, 104285.
- [7] Ojeda, J., Morales-Yáñez, C., Ducret, G., Ruiz, S., Grandin, R., Doin, M.-P., Vigny, C., Nocquet, J.-M. (2023). **Seismic and aseismic slip during the 2006 Copiapó swarm in North-Central Chile**. *J. South Am. Earth Sci.*, 123, 104198.
- [6] Tissandier, R., Nocquet, J.-M., Klein, E., Vigny, C., Ojeda, J., Ruiz, S. (2023). **Afterslip of the Mw8.3 2015 Illapel earthquake imaged through a time-dependent inversion of continuous and survey GNSS data**. *J. Geophys. Res.: Solid Earth*, 128(2), e2022JB024778.



- [5] Ojeda, J.[†], Akinci, A.[†], Tinti, E., Arriola, S., Ruiz, S. (2021). **Hybrid Broadband Strong-Motion Simulation to investigate the near-source Characteristics of the M6.5, 30 October 2016 Norcia, Italy Earthquake.** *Soil Dyn. Earthq. Eng.*, 149, 106866.
- [4] Ojeda, J., Ruiz, S. (2021). **Seismic noise variability as an indicator of urban mobility during the COVID-19 pandemic in the Santiago metropolitan region, Chile.** *Solid Earth*, 12, pp. 1075-1085.
- [3] Lecocq, T., et al., including Ojeda, J. (2020). **Global quieting of high-frequency seismic noise due to COVID-19 pandemic lockdown measures.** *Science*, 369(6509), 1338-1343.
- [2] Ojeda, J., Ruiz, S., del Campo, F., Carvajal, M. (2020). **The 1960 May 21 Mw 8.1 Concepción earthquake: A deep megathrust foreshock that started the 1960 central-south Chilean seismic sequence.** *Seismol. Res. Lett.*, 91(3), 1617-1627.
- [1] Ruiz, S.[†], Ojeda, J.[†], Otarola, C., Pastén, C., Silva, R. (2018). **Stochastic strong motion simulation in borehole and on surface for the Mw 9.0 Tohoku-Oki 2011 mega-earthquake considering P, SV and SH amplification transfer functions.** *Bull. Seismol. Soc. Am.*, 108(5A), 2333-2346.

SEMINARS AND CONFERENCES (SELECTED)

S=SEMINARS, C=CONFERENCES, FULL LIST: 52 PRESENTATIONS



- [S.2] Exploring the spatial distribution of transient deformation in continuous GPS data. **Reuniones Geocientíficas, DGEO, Universidad de Concepción**, 31 May 2024.
- [S.1] Seismic and aseismic slip during the 2006 Copiapó swarm in North-Central Chile. **Mardi Séismes, Géoazur, Université Côte d'Azur**, 29 November 2022.
- [C.2] An (a)seismic tale of the 2006 Copiapó swarm in Atacama, Chile. *VI Colloquium on GSEV* 2024.
- [C.1] Global search of short-term transient in cGPS time series. *AGU Annual Meeting* 2023. [Invited Talk]

AWARDS, GRANTS, AND FUNDING

- **International research funding** 2024 - 2025
Istituto Nazionale di Geofisica e Vulcanologia; Centro per la Pericolosità Sismica number 0304.011
 ◦ Project: "High-frequency strong ground motion simulations, stochastic scenarios from small to large earthquakes"
- **Travel grant for research visit in the United States** 2024
SZNet Chile & US Exchange Program; SZ4D; NSF; AccelNet program 2301732 
- **International mobility grant** 2023
Service des Études Doctorales de l'IPGP
- **Student travel grant** 2020
American Geophysical Union 
- **National doctoral scholarship & benefits: operating expenses, cotutelle, internship, and extension** 2020 - 2024
Agencia Nacional de Investigación y Desarrollo, numbers 2020-21200903, 242210066, 78210012, 752230189, 232240155
- **Travel grant for short stay in Japan** 2018
Japan Student Services Organization & Science and Engineering Exchange Program with Latin America
- **Travel grant for short stay in France** 2017
Vicerrectoría de Asuntos Académicos, Universidad de Chile
- **Outstanding student award** 2014 & 2015
Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile
- **Academic excellence scholarship & financial assistance grant** 2011 - 2016
Ministerio de Educación, Chile & Universidad de Chile

RESEARCH WORK EXPERIENCE





P=PROJECT

- **Researcher** Jul 2024 - Dec 2024
Programa de Riesgo Sísmico, Universidad de Chile 
 ◦ P1. Identification of transient deformation in tectonic and volcanic environments Santiago, Chile
- **Part-time Research Assistant** Oct 2020 & Jun 2022
Departamento de Geofísica, Universidad de Chile 
 ◦ P2. Synthetic accelerograms for seismic hazard studies in the mining industry Santiago, Chile
 ◦ P1. Analysis of ambient seismic noise in stations of the Metropolitan Region
- **Part-time Research Assistant** Apr 2016 - Aug 2019
Programa de Riesgo Sísmico, Universidad de Chile 
 ◦ P2. Generation of strong motion records for shallow-source crustal earthquakes Santiago, Chile
 ◦ P1. Slip inversions of the Mw 8.1 and Mw 9.5 events in south-central Chile in May 1960
- **Intern** Apr 2015
Centro Sismológico Nacional, Universidad de Chile 
 ◦ P1. Data analysis and instrumental response of CSN stations Santiago, Chile




UNIVERSITY TEACHING EXPERIENCE

- **Lecturer: weekly lectures, direction of semester-long project** Aug 2023 - Dec 2023
Departamento de Geofísica, Universidad de Chile
◦ Course: Geophysics Postgraduate Workshop Santiago, Chile
- **Teaching assistant: weekly class; homework, control and exam corrections** Mar 2015 - Jul 2024
Departamento de Geofísica, Universidad de Chile
◦ Undergraduate: Seismology, Applied Seismology, Introduction to Meteorology and Oceanography
◦ Postgraduate: Theoretical Seismology, Earthquakes in Chile, GNSS and its application to the study of earthquakes
◦ Postgraduate Degree: Postgraduate Diploma in Seismology Santiago, Chile
- **Teaching assistant: control and exam correction** Aug 2014 - Dec 2014
Escuela de Pregrado, Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile
◦ Course: Ordinary Differential Equations Santiago, Chile

FIELD WORK EXPERIENCE

- **S5 project ANR-19-CE31-0003, Agence nationale de la recherche, France**  Nov 2023
Geodesy Región de Atacama, Chile
◦ GPS measurement campaign and maintenance of continuous GPS systems
- **EPIC project: East/Central Pacific International Campaign, JAMSTEC, Japan**  Feb 2021
Ocean Floor Seismology Chile Triple Junction, Chile
◦ Recovery of 12 ocean bottom seismometers (broad-band OBS and long-term OBS)
- **INSUD project ACT172002, PIA-Anillo, Chile**  Oct 2018
Exploration geophysics Región de Antofagasta, Chile
◦ Measurement of magnetic field profiles in the Domeyko and Salar de Atacama pre-cordillera
- **PICTURES project MGL1610, National Science Foundation, United States**  Nov 2016
Seismology Región de Tarapacá, Chile
◦ Installation of 50 short-period seismometers for complementary records to scientific cruises

OUTREACH EXPERIENCE

- **Fundación Geonautas**  Jul 2021 - Now
Co-founder of non-profit organization
◦ Composed of Earth science professionals, we aim to promote geoscience outreach and foster a culture of disaster risk reduction within the community
- **Explora ANID, Ministerio de Ciencia, Tecnología, Conocimiento e Innovación de Chile** 2016 - 2024
Scientific advisor, collaborator and coordinator
◦ Advisor in school research initiatives (IIE)
◦ Collaborator of “camp Explora VA!”, science festivals FECI20, FECI21, FECI22, and the school seminar program 1000C1000A and Ciencia Abierta. More than 25 talks in schools of the RM and Los Lagos.
◦ Coordinator of “Exposismos” in Parque Metropolitano de Santiago and Mall Paseo Quilín
- **Rocadictos Radio Show**  Dec 2021 - Apr 2024
Member of the editorial committee and panelist. Broadcast by Universidad de Chile radio station (102.5 FM)
- **Tatemblando, podcast**  2020 - 2023
Co-creator of podcast on seismology. Broadcast on Spotify

MENTORING EXPERIENCE

- **Undergraduate students** Mar 2024 - Nov 2024
Universidad de Chile
◦ Kim Araya Espinoza. Civil Engineer. Function: Co-guiding Professor.
Project: “Generation of artificial accelerograms for moderate magnitude earthquakes”
- **Advisor in school research initiatives (IIE)**
Explora ANID
◦ Seismic safety of nuclear reactors in case of earthquake. Ascensión Nicol School, Estación Central. 2023
◦ Reducing the use of water resources with Zeolite. Cristobal Colón School, Melipilla. 2022
◦ Academy of Seismological Sciences. Nosedal School, La Pintana. 2018