

Foivos G. Karakostas

PhD Geophysicist

CONTACT DETAILS

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📍 Liège, Belgium

RESEARCH EXPERIENCE

- 1 - Forward modeling of seismic waves using normal mode summation and spectral element method.
- 2 - Hybrid seismic modeling in global and regional scale for box tomography.
- 3 - Seismology focused on extraterrestrial worlds. Comparative analysis on Earth, Mars, Moon.
- 4 - Study of seismic wave excitation in solid planets by meteor impacts.
- 5 - Inversion of meteors as seismic sources.
- 6 - Investigation of seismic attenuation.
- 7 - Laboratory measurements of elastic properties of soils.

PUBLICATIONS

Publication record

16 papers in peer reviewed journals

🆔 0000-0001-5751-5900

- Scopus h-index: 11 | Citations: 637 | ID: 57190980415
- Google Scholar h-index: 12 | Citations: 917 (including other than journal articles)

Other scientific communication

- 18 abstracts in conference proceedings
- 26 seminars and oral presentations
- 21 poster presentations

VISITS & COOPERATION

🇺🇸 Los Alamos National Lab
🇺🇸 NASA Jet Propulsion Laboratory
🇩🇪 Black Forest Observatory
🇫🇷 École Nationale des Ponts et Chaussées

ACADEMIC AND RESEARCH POSITIONS

- 🇧🇪 **Université de Liège** - Postdoctoral Fellow 3/2025 - now
 - Working for the *Einstein Telescope*
 - Numerical modelling of Newtonian Noise.
- 🇬🇧 **University College London** - Research Fellow in Seismology 9/2023 - 2/2025
 - Computational frameworks for large seismological datasets tomographic inversion.
- 🇮🇹 **INGV Bologna** - Postdoctoral Researcher 3/2021 - 8/2023
 - Working for the *NEWTON ERC project*.
 - Regional seismic tomography in the Mediterranean. | Constraining the upper mantle structure of the Ionian subduction. | Computational seismology.
- 🇺🇸 **University of Maryland, College Park** - Postdoctoral Associate 3/2019 - 2/2021
 - Working for the *NASA InSight mission*.
 - Martian Seismology | Scattering characteristics of the Martian lithosphere. | Modeling and inversion of meteoroid impacts on Mars. | InSight seismic data processing.

EDUCATION

Ph.D. Planetary Seismology | 🎓 September 2018 | 🇫🇷 **Université Paris Diderot - IPGP**

Supervisors: P. Lognonné, C. Larmat

- PhD Thesis: "Analysis and modeling of meteor impact and airburst generated seismic waves on terrestrial planets with atmosphere."

M.Sc. Geophysics | 🎓 July 2014 | 🇫🇷 **Université Paris Diderot - IPGP**

- Dissertation 2: "Comparative shock waves analysis between Earth and Lunar meteor impacts." Supervisors: P. Lognonné, K. Miljković
- Dissertation 1: "Study of the efficiency of a wind and thermal shield (WTS) for a Martian seismometer." Supervisor: P. Lognonné
- Internship: July 2012 - June 2013: "Characterization of the properties of Martian Simulant Soil" (CERMES, ENPS, Champs-sur-Marne, France) for InSight Mission (NASA, JPL, IPGP, DLR)

B.Sc. Geology | 🎓 July 2010 | 🇬🇷 **Aristotle University of Thessaloniki**

- Dissertation: "Seismic and tectonic characteristics of the Gulf of Corinth" - Supervisor: E. Skordilis
- Internship: July 2008: "Seismological data analysis of the earthquake of NW Peloponnesus of June 8th, 2008" (EPPO - Earthquake Planning and Protection Organization, Athens, Greece)

SKILLS AND EXPERTISE

Scientific skills

- **Forward modeling** Synthetic seismograms softwares (SPECFEM3D & AxiSEM - Spectral Element Method, MINOS - Normal Modes Summation)
- **Geotechnical engineering** Experience on soil mechanics laboratory (ENPC, France)
- **Seismic data experience** Acquisition via WebRequest and command line packages, metadata information extraction and generation
- **Signal processing** Packages of MATLAB and Python
- **Scientific work evaluation** Reviewer for NASA research proposal panel and top tiered peer-reviewed journals
- **Teaching experience** 3 B.Sc. courses at UCL (2023-2024) | 3 B.Sc. and M.Sc. courses at Univ. Paris-Diderot (2017-2018) | 1 B.Sc. course at Univ. of Maryland, College Park (2019) | Supervision: 3 B.Sc. theses at Univ. of Athens & Aristotle Univ. of Thessaloniki (2023)

Technical skills and languages

- **Tools** MATLAB, Python, Fortran, LaTeX, OpenMP, MS Office, Shell
- **Data Science** Seismic data processing software (ObsPy), Generic Mapping Tools (pyGMT), GUI development (tkinter)
- **Statistical modelling** Seismic data analysis, Forward modelling, Geophysical Surveying, Site Characterization
- **Web-based computing** Google Colab, Jupyter Notebook, High Performance Computing (HPC)
- **Data Visualisation** ParaView, Matplotlib
- **Operating Systems** UNIX, Linux, Windows
- **Version Control** Github
- **Website building** Wordpress, MediaWiki
- **Languages** English, French, Italian, Greek

Leadership and interpersonal skills

- **Scientific teams coordinator** NASA InSight mission Impacts WG co-chair (2020-2021)
- **Community and networking** EGU Seismology Division EC Representative (2024) | EuroPlanet EC Early Career Support WG co-chair & Communications WG member (2020 - 2023)
- **Conference organisation** IPGP PhD Congress (2015)
- **Scientific podcast coordinator** "Scientia Publica" | "Stairway to Space"