Foivos G. Karakostas

PhD Geophysicist - Research IT Engineer

CONTACT DETAILS

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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 Propulson Laboratory
Black Forest Observatory
École Nationale des Ponts et Chaussées

PROFESSIONAL ROLES

Institut de Physique du Globe de Paris - Research IT Engineer — 2/2026 - now
- IT support for Planetology and Space Sciences & Geodesy teams
- Science support for Planetology and Space Sciences

Université de Liège - Postdoctoral Fellow — 3/2025 - 1/2026
- 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 Mediterrannean. | 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"