Foivos G. Karakostas

PhD Seismology and Planetary Sciences

EDUCATION

Ph.D. Planetary Seismology
Université Paris Diderot - IPGP
September 2018
Supervisors: P. Lognonné, C. Larmat

M.Sc. Geophysics
Université Paris Diderot - IPGP
July 2014

B.Sc. Geology
Aristotle Univ. of Thessaloniki
July 2010

CONTACT DETAILS

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UCL, Earth Sciences
5 Gower Place, London WC1E 6BS
United Kingdom

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. Study of the finite source generated by the Chelyabinsk bolide. Investigation of shock wave generation and propagation. Nonlinear modeling.

6 - Planetary crust exploration through investigation of the seismic attenuation.

7 - Laboratory measurements of elastic properties of soils.

VISITS & COOPERATION

Los Alamos National Lab
NASA Jet Propulson Laboratory
Black Forest Observatory
École Nationale des Ponts et Chaussées

ACADEMIC AND RESEARCH POSITIONS

University College London - Research Fellow in Seismology 2023 -
- Computational frameworks for large seismological datasets tomographic inversion.

INGV Bologna - Postdoctoral Researcher 2021 - 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 2019 - 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.

SKILLS AND EXPERTISE

Scientific skills
- Forward modeling of synthetic seismograms softwares (Spectral Element Method, Normal Modes Summation)
- Seismic data processing software (ObsPy), Generic Mapping Tools (PyGMT), GUI development
- Programming languages: Python, Matlab, Fortran, Shell
- Reviewer: NASA research proposal panel, Top tiered peer-reviewed journals
- Teaching: 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)

Leadership and interpersonal skills
- NASA InSight mission Impacts WG co-chair (2020-2021)
- Community and networking: EGU Seismology ECRs | EPEC Early Career Support WG co-chair & Communications WG member
- Conference organisation: IPGP PhD Congress (2015)
- Scientific podcast coordinator: "Scientia Publica" | "Stairway to Space"

Other technical skills and languages
- Languages: English, French, Italian, Greek
- Website building (WordPress, MediaWiki)

PUBLICATIONS

Publication record - 16 papers in peer reviewed journals 0000-0001-5751-5900
- Scopus h-index: 10 | Citations: 467 | ID: 57190980415
- Google Scholar h-index: 10 | Citations: 696 (including other than journal articles)

Selected publications - Peer reviewed journals 147 co-authors
- Huang, Q., Schmerr, N.C., King, S.D., Kim, D., Rivoldini, A., Plesa, A.C., Samuel, H., Maguire, R.R., **Karakostas, F.**, et al., (2022). "Seismic detection of a deep mantle discontinuity within Mars by InSight." Proceedings of the National Academy of Sciences, 119(42), p.e2204474119. doi:10.1073/pnas.2204474119
- **Karakostas, F.**, Schmerr, N., Maguire, R., et al., (2021). "Scattering Attenuation of the Martian Interior through Coda-Wave Analysis". Bulletin of the Seismological Society of America, 111, 6, 3035-3054, doi:10.1785/0120210253
- **Karakostas, F.**, Rakoto, V., Lognonné, et al., (2018). "Inversion of meteor Rayleigh waves on Earth and modeling of air coupled Rayleigh waves on Mars". SpaceSci.Rev.,214:127, doi:10.1007/s11214-018-0566-6
- Delage, P., **Karakostas, F.**, Dhemaied, A., et al., (2017). "An Investigation of the Mechanical Properties of Some Martian Regolith Simulants with Respect to the Surface Properties at the InSight Mission Landing Site", Space Sci. Rev., pp 1-23, doi:10.1007/s11214-017-0339-7
- Lognonné, P., **Karakostas, F.**, Rolland, L., Nishikawa, Y. (2016). "Modeling of atmospheric-coupled Rayleigh waves on planets with atmosphere: From Earth observation to Mars and Venus perspectives", J. Acoust. Soc. Am. 140 (2), pp 1447-1468, doi:10.1121/1.4960788

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