zintellect
climb higher

Opportunity Title: Geophysical Investigations of Habitability in Icy Ocean Worlds
Opportunity Reference Code: 0218-NPP-MAR26-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0218-NPP-MAR26-JPL-PlanetSci

How to Apply All applications must be submitted in Zintellect

Please visit the NASA Postdoctoral Program website for application instructions and requirements: How to Apply | NASA Postdoctoral Program (orau.org)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 4/2/2026 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

Geophysical measurements can reveal the structures and thermal states of icy ocean worlds (Vance et al. 2018, Styczinski et al. 2021). The interior density, temperature, sound speed, and electrical conductivity thus characterize their habitability (Vance et al. 2016, Vance et al. 2021, Vance et al. 2024). Recent modeling and laboratory measurements of physical properties enable more detailed views into the possible configurations of ocean worlds and predictions for future measurements. Further work is needed to predict the seismic, gravity structure, and magnetic properties of ocean worlds.

Forward modeling results relating geophysics to habitability are essential to NASA's objective of understanding the Earth, the Solar System, and the Universe, as they relate to the workings of planetary bodies and the nature of life. Such predictions are needed for planning observations and data synthesis for future missions such as Europa Clipper, which has the express goal of investigating Europa to understand its habitability. Such predictions are also important to the formulation of future missions, where defining testable objectives requires assessing whether key hypothesized features can be measured.

We seek diverse expertise relevant to these topics. There is significant work happening in the realm of applied theoretical and experimental aqueous chemistry where a new project would be welcomed. There is also a current need for an individual with a strong background in solid earthgeophysics or geochemistry, and in programming in python and matlab. The preferred candidate would demonstrate a commitment to open source (FAIR) practices and knowledge of tools such as github and sphinx.

Opportunity Title: Geophysical Investigations of Habitability in Icy Ocean Worlds
Opportunity Reference Code: 0218-NPP-MAR26-JPL-PlanetSci

Styczinski, S. D. Vance, and M. Melwani Daswani (2023) PlanetProfile: Self-consistent interior structure modeling for ocean worlds and rocky dwarf planets in Python. Earth and Space Science, 10(8). http://dx.doi.org/10.1029/2022EA002748

Vance, S. D., K. P. Hand, and R. T. Pappalardo (2016), Geophysical controls of chemical disequilibria in Europa, Geophys. Res. Lett., 43, 4871-4879. https://doi.org/10.1002/2016GL068547

Vance, S. D., Panning, M. P., Stähler, S., Cammarano, F., Bills, B. G., Tobie, G., Banerdt, B. (2018). Geophysical investigations of habitability in ice-covered ocean worlds. Journal of Geophysical Research: Planets Planets, 123, 180-205. https://doi.org/10.1002/2017JE005341

Vance, S. D., Styczinski, M. J., Bills, B.G., Cochrane, C. J., Soderlund, K. M., Gómez-Pérez, N., & Paty, C. (2021). Magnetic induction responses of Jupiter's ocean moons including effectsfrom adiabatic convection. Journalof Geophysical Research: Planets,126, e2020JE006418. https://doi.org/10.1029/2020JE006418

Vance, S. D., K. L. Craft, E. Shock, B. E. Schmidt, J. Lunine, K. P. Hand, W. B. McKinnon, E. M. Spiers, C. Chivers, J. D. Lawrence, N. Wolfenbarger, E. J. Leonard, K. J. Robinson, M. J. Styczinski, D. M. Persaud, G. Steinbru ¨gge, M. Y. Zolotov, L. C. Quick, J. E. C. Scully, T. M. Becker, S. M. Howell, R. N. Clark, A. J. Dombard, C. R. Glein, O. Mousis, M. A. Sephton, J. Castillo-Rogez, F. Nimmo, A. S. McEwen, M. S. Gudipati, I. Jun, X. Jia, F. Postberg, K. M. Soderlund, and C. M. Elder (2023) Investigating Europa's habitability with the Europa Clipper. Space Science Reviews, 219(8):81. https://doi.org/10.1007/s11214-023-01025-2

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Planetary Science

Advisors:
Steven Vance
svance@jpl.nasa.gov
(626) 437-6200

Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States. A complete list of Designated Countries can be found at: https://www.nasa.gov/oiir/export-control.

Opportunity Title: Geophysical Investigations of Habitability in Icy Ocean Worlds
Opportunity Reference Code: 0218-NPP-MAR26-JPL-PlanetSci

Eligibility is currently open to:

- U.S. Citizens;
- U.S. Lawful Permanent Residents (LPR);
- Foreign Nationals eligible for an Exchange Visitor J-1 visa status; and,
- Applicants for LPR, asylees, or refugees in the U.S. at the time of application with 1) a valid EAD card and 2) I-485 or I-589 forms in pending status

This opportunity may require the following: 1- Mandatory drug testing; 2-Random drug testing; 3- Testing prior to initiation of fellowship appointment.

Questions about this opportunity? Please email npp@orau.org

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.