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Opportunity Title: Exoplanet Habitability and Biosignatures with 3D Climate Modeling and Observation Simulation
Opportunity Reference Code: 0020-NPP-MAR26-GISS-Astrobio

Organization National Aeronautics and Space Administration (NASA)

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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:

This opportunity is closed to applicants who are Senior Fellows (5-years or more past PhD).

The Habitable Worlds Observatory (HWO) is slated to be a space telescope able to measure the reflected light from Earth-size planets orbiting other stars for NASA's search for life outside our Solar System. The technical specifications for this "direct imaging" of exoplanets are now under development. Theoretical model investigations are needed to constrain telescope design, where to observe the best candidate habitable exoplanets, and how detectable atmospheric or surface features might be for diverse planets, orbiting different stellar types, at different distances from us.

Our group uses the ROCKE-3D (Resolving Orbital and Climate Keys for Earth and Exoplanet Environments with Dynamics) planetary general circulation model to understand planetary habitability. Simulated surface and atmospheric states may then be used as boundary conditions for telescope observation simulators to quantify detectability of phenomena of interest. The model can be used to study rocky planets in our Solar System at different stages of their history, scenarios of habitability for discovered exoplanets, and to explore theory with idealized exoplanet experiments.

Successful applicants should have background in physics, statistics, and experience analyzing observational and model datasets. Background in the

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following is highly desirable: astronomy, planetary science, computer science, mathematical modeling, C or FORTRAN95, python or R.

Field of Science: Astrobiology

Advisors:

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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.

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

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

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.