Opportunity Title: Advancing Terrestrial Ecology, Wildfire Fuel Monitoring, or Agricultural Applications, or Associated Activities through VSWIR Imaging Spectroscopy
Opportunity Reference Code: 0335-NPP-MAR26-JPL-EarthSci

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:

Overview
The Earth's terrestrial biosphere is a dynamic system where vegetation physiology, soil biogeochemistry, and anthropogenic management intersect to drive global carbon, water, and nutrient cycles. Understanding these complex interactions requires measurements that go beyond traditional multi-spectral imaging. Imaging spectroscopy—capturing the full contiguous spectrum from the Visible to Shortwave Infrared (VSWIR, ~380–2510 nm)—provides the "chemical fingerprinting" necessary to quantify plant functional traits, crop stress, and soil properties at scale.

Research Focus
This NPP opportunity invites research proposals that utilize high-fidelity imaging spectroscopy data to address critical questions in terrestrial ecosystem function, biodiversity and conservation, precision agriculture, wildland fire risk and recovery, or biogeochemical cycling. We are particularly interested in candidates who seek to develop use cases or pipelines for actionable information leveraging imaging spectroscopy retrievals, such as:

- Plant Functional Traits: Mapping canopy biochemistry (e.g., nitrogen, LMA, chlorophyll, and non-photosynthetic vegetation) to understand

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ecosystem response to climate stressors.
- Agricultural Dynamics: Quantifying crop physiological status, nutrient use efficiency, or water stress to enhance food security models.
- Biogeochemical Processes: Investigating the fluxes of carbon and nutrients at the land-atmosphere interface or mapping soil mineralogy and organic matter content.

Data and Methodology
The project will leverage NASA's imaging spectroscopy archives and current activities. Candidates should have interest in using:

- AVIRIS Program Data: high-resolution airborne data across diverse biomes (e.g., ABoVE, SHIFT, GEMx, AVIRIS4Acres, etc.).
- EMIT (Earth Surface Mineral Dust Source Investigation): Utilizing the VSWIR spectrometer on the International Space Station.

Research can include activities that aim not only to answer immediate science questions but also to pave the way for future global VSWIR missions (e.g., Surface Biology and Geology - SBG). This could involve advancing atmospheric correction, dimensionality reduction, or machine learning approaches for handling big data in order to improve scientific insight and actionable information derived from NASA datasets. Candidates interested in leveraging multi-mission datasets including PACE, NISAR, ECOSTRESS, GEDI, etc, are strongly encouraged.

Field of Science: Earth Science

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

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Qualifications

Desired Qualifications

We seek a motivated researcher with a PhD in remote sensing, ecology, agronomy, geography or other relevant field. Proficiency in Python, R, or similar environments is essential for handling large-scale imaging spectroscopy/hyperspectral datasets. The successful candidate will be expected to publish in peer-reviewed journals and contribute to the broader NASA Earth Science community's preparation for the next generation of orbital imaging spectrometers.

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.