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Opportunity Title: Using in situ and remote sensing data to study plant traits
Opportunity Reference Code: 0287-NPP-NOV26-GSFC-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 11/1/2026 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

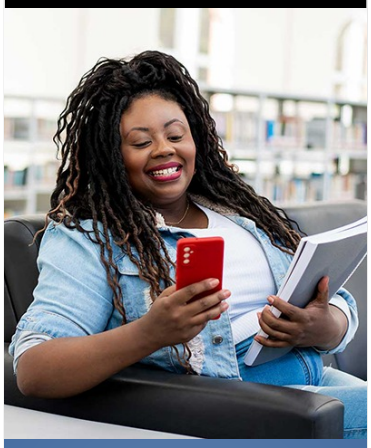
The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to 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).

Plant traits --- including leaf traits like leaf nitrogen content and leaf mass per area and canopy/whole-plant traits like allometric coefficients and canopy clumping factor --- are useful for understanding how plants function (including how they respond to short- and long-term environmental changes) as individuals and as communities comprising larger ecosystems. Traits are also often used as parameters in computer models of terrestrial ecosystems and even the entire Earth System (such as climate models used in the IPCC). Direct measurements of plant traits are expensive and labor-intensive even in easily accessible environments (let alone in remote environments like tropical and boreal regions, where many of the most interesting and important environmental changes are taking place), and are typically destructive to the target plants. Remote sensing methods --- ranging from handheld and drone-based measurements of specific sites to landscape scale airborne campaigns to regional and global satellite observations --- are a promising complement to these direct measurements, and there is a growing body of literature on using a variety of remote sensing techniques (especially, spectroscopy) to characterize plant traits.

This research project has three interrelated major focus areas around the

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general theme of plant traits and remote sensing:

1. Developing innovative new methods --- including both data-driven and physics-based approaches --- for estimating traits from different kinds of remote sensing data (especially, novel ways to combine multiple different types of remote sensing; e.g., combining spectroscopy, LiDAR, and SAR). Where appropriate, this research area may include opportunities to conduct field work near GSFC and at more remote locations.

2. Deriving new understanding of plant physiology and ecology from plant trait estimates. This includes studying the causes and consequences of trait variation at different spatial, temporal, and phylogenetic scales (especially, within species vs. across species), characterizing the ability of plant traits to predict plant functional responses to abiotic changes, and studying the role of plant traits in driving plant community assembly.

3. Incorporating information about plant traits --- including both the trait estimates themselves and new understanding of plant traits as predictors of plant function and community assembly --- into predictive computer models of terrestrial ecosystems, land-atmosphere interactions, and the Earth System.

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

Qualifications This position is open candidates with a wide variety of backgrounds and skillsets, including (but not necessarily limited to) any combination of the following:

- Plant biology and physiological ecology

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- Terrestrial ecology, including ecosystem ecology, community ecology, theoretical ecology, biodiversity, and biogeography

- Dynamic modeling and model-data fusion, especially in the context of dynamic vegetation modeling, land surface modeling, and Earth System modeling

- Statistics and data science (especially, multivariate statistics, Bayesian statistics) - Remote sensing theory (e.g., radiative transfer physics; algorithm development)

- Remote sensing measurements and instrumentation, including calibration and validation, experience using remote sensing technologies (including UAVs) in the field, etc.

- Remote sensing applications, including image analysis and Geographic Information Systems (GIS)

- Computer science and informatics, including HPC, cloud computing, and data architecture

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.