Opportunity Title: Weather and winds in outer planet atmospheres
Opportunity Reference Code: 0294-NPP-MAR26-GSFC-PlanetSci

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 3/1/2026 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:

The atmospheres of the outer planets and some of their moons (Jupiter, Saturn, Uranus, Neptune, Titan, Triton) have remarkable differences and similarities to those of the inner planets. The giant planets and ice giants (J, S, U, N) are worlds with no surface, blisteringly fast winds, and occasional dramatic storms, as well as polar cyclones and myriad clouds decks of different hues. Their atmospheres are dominated by hydrogen, but with significant mixtures of other hydrogenated ices such as methane, ammonia, hydrogen sulfide and other gases that condense at different levels. Titan and Triton on the other hand have nitrogen-dominated atmospheres like the Earth, with solid surfaces that form substrates for condensation; lakes, seas and rivers; and re-evaporation to form clouds and rain.

Much of our knowledge of these worlds has come from visits by spacecraft missions such as Voyager 1&2, Galileo, Cassini-Huygens and more recently Juno; while future visitors in the next decade will include Europa Clipper, JUICE and Dragonfly. These have provided a powerful combination of global remote sensing coverage (imaging, spectroscopy) along with some in situ data (Galileo probe, Huygens lander) that together have revealed the climates of these planets in some detail. Further imaging from ground and space-based telescopes, and Doppler wind mapping from

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interferometric arrays, has provided additional temporal data on winds and weather with which to constrain climate simulations.

The gradual accumulation of data, along with new observations constantly being added from JWST, and soon from thirty-meter class ground-based observatories has generated a vast and deep dataset on the climates of the outer planets which has yet to be fully explored. In this NPP solicitation, various investigations of outer planet climates are possible: from projects focusing mainly at acquiring and/or reducing observational data, to projects focused on data modeling through radiative transfer, laboratory work on ices, and modeling of global or local climates, atmospheric chemistry and cloud microphysics.

Field of Science: Planetary 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 The candidate should have completed - or will have soon completed - a doctoral degree in math, physics, astronomy, chemistry, computer science or a related field. The field of prior study would be closely aligned with the intended subject of the NPP project, e.g. an experimental chemistry-focused proposal would require someone with prior laboratory experience. The candidate should also completed an undergraduate degree in math, computer or physical science with a high GPA and strong reference letters.

The candidate should be able to demonstrate an intense interest and likely future career in space science. The candidate must be able to work independently at times, be a problem solver, and able to work well either alone or in small team environments. Presentation of results at workshops

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and conferences is necessary, so prior presentation experience is helpful. The candidate must have excellent written and spoken English, organizational and communication skills. The applicant must be respectful and considerate of others in interactions at all times and contribute positively to culture at NASA.

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.