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Opportunity Title: Improving understanding of smoke and ice cloud properties resulting from pyroconvective activity by combining information from polarimetric, lidar, and TIR inst
Opportunity Reference Code: 0314-NPP-MAR26-JPL-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0314-NPP-MAR26-JPL-EarthSci

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:

The recently selected NASA INjected Smoke and PYRocumulonimbus Experiment (INSPYRE) Earth Venture Suborbital (EVS-4) mission will constrain the role of pyrocumulonimbus (pyroCb) in the warming climate system and characterize their physical links to extreme wildfire behavior. INSPYRE will test the hypothesis that "Increasing wildfire size and intensity in a warming climate will amplify pyroCb-driven smoke injection into the stratosphere and induce measurable changes to Earth's radiative balance." To test this hypothesis, the mission will employ NASA's ER-2 and WB-57 airborne platforms, along with ground-based monitors to obtain remotely-sensed and in situ measurements required to quantify the processes leading to pyroCb development, the downstream consequences of pyroCb-injected smoke on the upper troposphere and lower stratosphere (UTLS), and feedbacks between pyroCbs and extreme fire behavior. Observations will span the full spectrum of wildfire and pyroconvective activity, ranging from precursor pyrocumulus (pyroCu) to large pyroCbs that inject smoke directly into the stratosphere. The ER-2 payload will include remote sensing instrumentation, while the WB-57 payload will prioritize in situ and radiation instrumentation, with a smaller set of remote sensing measurements. Ground based sampling will include scanning active remote sensors and additional environmental measurements

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Understanding changes in aerosol properties and characterizing processes of ice cloud formation are among the important science questions that INSPYRE will address. The airborne sensors previously deployed on the NASA ER-2 high altitude aircraft acquired multiple observation near Pyro-cumulous events and could be used to study optimal configurations and important deliverables for the INSPYRE project. This NPP project aims to contribute to INSPYRE by creating retrieval and modeling frameworks that would combine data from multiple airborne and satellite sensors to better understand charges in aerosol and ice cloud formation and properties during pyroconvective activity relying on datasets acquired from multiple field campaigns (e.g., PODEX, SEAC4RS, IMPACT-PM, and FIREX-AQ). The synergetic use of multi-angle polarimetry and other types of remote sensing observational assets (such as ground based, active and thermal infrared measurements) as well as environmental constraints are encouraged.

Field of Science: Earth Science

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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

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Eligibility Requirements

- **Degree:** Doctoral Degree.