**Opportunity Title:** Hyperspectral Investigations of the Composition of Volcanic Plumes
**Opportunity Reference Code:** 0139-NPP-MAR26-JPL-EarthSci

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0139-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 venting of sulfur dioxide (SO2) from the summit of Kilauea Volcano, Hawaii, leads to the formation of volcanic smog, or vog, which is a noxious and corrosive suspension of SO2, fine-scaled (PM2.5) sulfate (SO4) aerosols, and water droplets. To improve our understanding of the generation and dispersion of vog in Hawaii, NASA will conduct an airborne campaign over Kilauea in early 2017, deploying AVIRIS-Classic, MASTER, and the new Hyperspectral Thermal Emission Spectrometer (HyTES). We will use MASTER TIR and HyTES data to map the initial concentrations of SO2 emitted from the summit of Kilauea, while AVIRIS-C data will be used to estimate changes in the mass concentration of SO4 aerosols downwind of the summit through changes in the aerosol optical depth (AOD) of the plumes. This experiment will provide better constraints on the rates of SO2/SO4 conversion, and map spatial variations in this conversion rate with topography and local meteorological conditions. In addition, our data products will be used to initialize and validate a vog forecasting model operated at the University of Hawaii.

The successful candidate will participate in the processing and analysis of the hyperspectral AVIRIS and HyTES data, with a focus on the development and validation of techniques to estimate AOD from the AVIRIS VSWIR radiance spectra. The estimation of AOD is challenging, given the interaction between surface reflectance, solar zenith angles, and local

atmospheric conditions. The estimation techniques developed for this project be applicable to a wide variety of hyperspectral imaging applications.

**Location:**
Jet Propulsion Laboratory
Pasadena, California

**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

**Point of Contact** Mikeala

**Eligibility Requirements**

- **Degree:** Doctoral Degree.