

**Opportunity Title:** Imaging Spectroscopy Data Analysis for the EMIT Mission

**Opportunity Reference Code:** 0176-NPP-NOV23-JPL-EarthSci

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

**Reference Code:** 0176-NPP-NOV23-JPL-EarthSci

**Application Deadline:** 11/1/2023 6:00:59 PM Eastern Time Zone

**Description:** NASA's EMIT mission (anticipated launch 2022) will use imaging spectroscopy, also known as hyperspectral imaging, to measure the composition of the Earth's mineral dust source regions. It will measure Earth's solar-reflected energy in the UV through Shortwave Infrared at approximately 7 nm spectral resolution, similar to precursor instruments like Hyperion and AVIRIS.

We seek a researcher who will collaborate with our science team to develop and refine our science data analyses. These analyses could potentially include but are not limited to probabilistic and Bayesian retrieval methods for modeling surface, atmosphere, and instrument, and high-fidelity instrument radiometric and spectral calibration. The ideal candidate will have strong mathematics and computer science expertise, with an interest in Earth surface science, remote sensing, physics, and imaging spectroscopy.

JPL's imaging spectroscopy group includes a wide range of expertise ranging from Earth science to instrument design, optical layout, software and electronics, mechanical design, deployment, and science data analysis. Spectroscopy is a diverse, interdisciplinary field with an intellectually stimulating and fun stock of challenges to engage and overcome!

**References:**

Carmon, N., Thompson, D. R., Bohn, N., Susiluoto, J., Turmon, M., Brodrick, P. G., ... & Gunson, M. (2020). Uncertainty quantification for a global imaging spectroscopy surface composition investigation. *Remote Sensing of Environment*, 251, 112038.

Li, L., Mahowald, N. M., Miller, R. L., Pérez García-Pando, C., Klose, M., Hamilton, D. S., ... & Kalashnikova, O. (2020). Quantifying the range of the dust direct radiative effect due to source mineralogy uncertainty. *Atmospheric Chemistry and Physics Discussions*, 1-58.

Thompson, D. R., Braverman, A., Brodrick, P. G., Candela, A., Carmon, N., Clark, R. N., ... & Mahowald, N. (2020). Quantifying uncertainty for remote spectroscopy of surface composition. *Remote Sensing of Environment*, 247, 111898.

**Location:**

Jet Propulsion Laboratory  
Pasadena, California

**Field of Science:**Earth Science



Whether you are just starting your career or already at a senior level, ORAU offers internships, fellowships, research opportunities, and contract positions that can provide you with invaluable experience. Download the ORAU Pathfinder mobile app and find the right opportunity to propel you along your career path!

Visit ORAU Pathfinder [↗](#)



**Opportunity Title:** Imaging Spectroscopy Data Analysis for the EMIT Mission

**Opportunity Reference Code:** 0176-NPP-NOV23-JPL-EarthSci

**Advisors:**

David R Thompson

david.r.thompson@jpl.nasa.gov

412-983-4024

**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

**Eligibility Requirements**

- **Degree:** Doctoral Degree.