

**Opportunity Title:** Climate change impact on global soil moisture distribution

**Opportunity Reference Code:** 0156-NPP-NOV23-JPL-EarthSci

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

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

**Description** The accumulated spaceborne observations at low microwave frequencies enable soil moisture retrieval with reasonable spatial resolution since 2002. This results in a timescale which is applicable for resolving climate change impact on soil moisture. In order to investigate these changes at the appropriate timescales the observations of multiple spaceborne microwave radiometers need to be combined and soil moisture retrieval algorithms developed accounting for the differences in these instruments. The analysis of the resulting global decadal soil moisture data record will require development of techniques to both enable agile handling of the large volume of the data set, and to identify soil moisture patterns and trends in a quantified way. The validation of the observed changes in the soil moisture distribution and water cycle will also require new approaches to quantifiably connect long term soil moisture record with energy cycle, plant activity and extreme weather events.

This research offers an opportunity to participate in the development of this data set and analysis of the climate change impacts using the data. The study utilizes microwave radiometer data from NASA SMAP, ESA SMOS, and JAXA AMSR-E and AMSR2 instruments. Candidates should have PhD in Hydrology, Geosciences, Environmental Sciences, or a related field. Previous experience in processing and analyzing spaceborne microwave radiometer data is expected. The work will be carried out as a member of a team but ability to work independently is essential and strong motivation for publishing is required.

**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;



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- 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.