

Opportunity Title: Earth Science: Atmospheric Dynamics and Cloud Remote Sensing

Opportunity Reference Code: 0121-NPP-NOV23-GSFC-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0121-NPP-NOV23-GSFC-EarthSci

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

Description Fast dynamical and cloud processes present great challenges to remote sensing from space. Embedded in and interacting with mesoscale and synoptic scale atmospheric flows, these processes play important roles in redistributing energy, momentum, and trace gases. It requires satellite sensors with high spatial and temporal resolutions to adequately capture physical properties of the fast processes. To explore and advance new capability of spaceborne instruments, our research has been focusing on: 1) atmospheric/ionospheric wave dynamics, 2) cloud remote sensing, and 3) atmospheric wind sounding techniques. For wave dynamics research, we developed novel methods using advanced satellite sensors (e.g., MLS, AMSU-A, AIRS, GPS Radio Occultation) to detect and map perturbations of atmospheric temperature and density induced by gravity waves. For cloud remote sensing, new sounding methods and algorithms with mm and submm-wave radiometry are sought. The current research focuses on analysis of A-Train data from Aqua AIRS, Aura MLS, CloudSat and CALIPSO. To develop new wind measurement techniques, we are studying i) passive low mass-power-noise mm and submm-wave receivers for Earth and planetary atmospheres, and ii) multi-angle visible/IR cloud imaging for 3-D tropospheric winds.

Location:

Goddard Space Flight Center
Greenbelt, Maryland

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



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pending status

Eligibility Requirements

- **Degree:** Doctoral Degree.