Opportunity Title: 612 lab opportunity: Remote Sensing of Precipitation
Opportunity Reference Code: 0052-NPP-NOV23-GSFC-EarthSci

Organization	National Aeronautics and Space Administration (NASA)
Reference Code	0052-NPP-NOV23-GSFC-EarthSci
Application Deadline	11/1/2023 6:00:59 PM Eastern Time Zone
Description	

Precipitating cloud systems are a key component of the global water and energy cycles and have major impacts on the global and regional climate, and on humankind as precipitation provides freshwater resources and yet can be involved in severe weather events. The latent heat released from precipitation is a major source of atmospheric heating that drives the general circulation of the atmosphere and the climate system. One focus for this research opportunity involves the analysis of data and the development and application of models to study cloud and precipitation processes in the atmosphere with an emphasis on deep convective cloud systems and tropical weather systems, especially hurricanes (Braun). In another focused area, state-of-the-art dynamical cloud system and regional models, the Goddard Cumulus Ensemble model (GCE) and the Weather Research and Forecasting model (WRF), with representations of physical process including various cloud physics packages, radiative transfer processes (and satellite simulator modules), land and ocean surface exchange processes, and chemical transport processes are utilized to study the effects of cloud systems on climate, and the effects of climate on cloud systems including changes to the land surface and oceanic conditions. GCE has been incorporated into a global model - Multiscale Modeling Framework. We also study mid-latitude weather systems, such as cyclones and frontal systems (Braun), including blizzards and systems with frozen precipitation (Braun, Adams) and convection (Heymsfield), and we work to summarize the global climatology of mean and extreme precipitation, examine its place in the global energy and water cycles, and apply it to critically examining climate model results (Huffman). Algorithm development and scientific analysis to take active and passive remotely-sensed observations from aircraft (Heymsfield) and satellite sensors (Adams, Huffman, Braun) such as the Global Precipitation Measurement (GPM) mission and convert them into precipitation estimates is of special relevance to this opportunity. Finally, validating remotely sensed precipitation estimates is also an opportunity associated with all sponsors.

Location:
Goddard Space Flight Center
Greenbelt, Maryland

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

Eligibility Requirements

- **Degree:** Doctoral Degree.