Opportunity Title: Enhancing information extraction from terrestrial remote sensing observations
Opportunity Reference Code: 0171-NPP-NOV23-GSFC-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0171-NPP-NOV23-GSFC-EarthSci

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

Description The Earth's land surface is characterized by tremendous natural heterogeneity and human engineered modifications, both of which are significantly challenging to represent in land surface models. Remote sensing is often the most practical and effective method for obtaining observations of such features over large geographical areas. Retrievals from satellite remote sensing are normally obtained through statistical models or inverse radiative transfer models (RTMs). The statistical models are typically based on regression analysis of limited field measurements. RTM-based approaches are more physical, but the parameterizations in the RTMs tend to be complex and are also often specified based on limited calibration at a few selected Cal/Val sites. As a result, their subsequent application at larger spatial extents tends to be limited in capturing the features of different climatic/vegetation/soils regimes and their cross correlation effects. The true information content of the retrievals is often not preserved in the higher level products.

The proposed research aims to develop strategies for evaluating and improving the information content of terrestrial remote sensing measurements. To achieve this goal, modern computing techniques founded in information and statistical theory that are effective in extracting inherent complex patterns and relationships are required. In addition, these techniques must also examine the levels of synergy across different remote sensing measurements. These enhancements are expected to develop products that are better suited for model evaluation and data assimilation studies.

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:

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- 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.