

Opportunity Title: Earth Science: Interactions of Aerosols with Regional Water Cycle

Opportunity Reference Code: 0012-NPP-NOV23-GSFC-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 objective of this research is improve understanding of interactions of aerosols with components of the water cycle, i.e., rain, evaporation, moisture convergence, and large scale atmospheric circulation through modeling and satellite data analysis. Specific topics include : (1) impacts of dust and black carbon on the water cycle dynamics of the Asian monsoon, including possible feedback processes leading to redistribution, and altered rainfall characteristics, (2) impacts of black carbon and dust on deposition on early melting of snowpack in high mountain, or continental regions, e.g., Himalayas/Tibetan Plateau, Eurasia and North America, and influence on regional water cycle, (3) interaction of Saharan dust, including both direct and indirect effects, on climate and water cycle of West Africa, and tropical cyclogenesis over the North Atlantic, and (4) effects of biomass burning aerosols on the regional water cycles of Southeast Asia, Amazons, and Africa. The research will make use of a hierarchy of models ranging in complexity from one dimensional theoretical model, atmospheric general circulation model, to coupled system model, as well as high-resolution WRF model, and cloud resolving model to carry out numerical experiments and validation studies.

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 pending status



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Eligibility Requirements • **Degree:** Doctoral Degree.