

Opportunity Title: Using models and observations to advance understanding of the role of cloud processes in Earth's climate system

Opportunity Reference Code: 0005-NPP-NOV23-GISS-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0005-NPP-NOV23-GISS-EarthSci

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

Description Climate-motivated studies of Earth's clouds and aerosols frequently focus on their impacts on radiative budgets, distinguishing them from weather- and health-motivated studies. Our chief objective, serving development of the ModelE general circulation model at GISS, is to advance the fidelity of ModelE's representation of stratiform and convective cloud systems by advancing understanding of biases relative to observations and improving parameterization of cloud physics to reduce them. At the core of many of our studies are three-dimensional cloud simulations that resolve cloud-scale motions, where the details of cloud microphysics and its coupling with dynamics and aerosols may be relatively well resolved and compared with fine-scale observations. We maintain and extend the single-column model version of ModelE to allow apples-to-apples comparisons with large-eddy simulations. Our studies generally focus on the intersection of model simulations with observations, including airborne-, satellite- and ground-based remote sensing and in situ measurements. We use measurements to evaluate and improve models; we also use models to integrate and understand observations and to better characterize remote-sensing retrievals. In support of ModelE development, we study all cloud types relevant to climate, ranging from marine and continental shallow, warm clouds, through mixed-phase stratiform and convective clouds, and convective and synoptic cirrus ice clouds. We also invite applicants who are interested to study energy and water cycles, tropical rainfall, or other more specific topics where climate model cloud and convection parameterization plays an important role.

Location:

Goddard Institute for Space Studies
New York City, New York

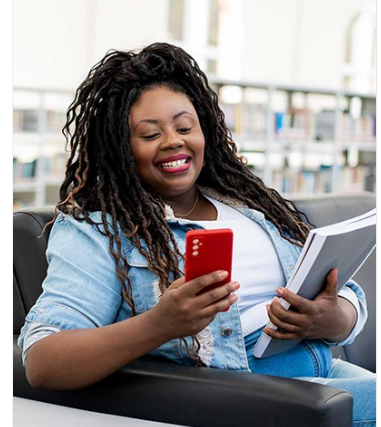
Field of Science:Earth Science

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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



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at: <https://www.nasa.gov/oiiir/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.