

Opportunity Title: Earth Science: Land Water Distribution with Changing Climate:

Flows between Lakes, Rivers, Soils, Vegetation, and Atmosphere

Opportunity Reference Code: 0021-NPP-JUL24-GISS-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0021-NPP-JUL24-GISS-EarthSci

How to Apply All applications must be submitted in [Zintellect](#)

Application Deadline 7/1/2024 6:00:59 PM Eastern Time Zone

Description Description:

The distribution of water on land in lakes, rivers, soils, aquifers, and vegetation varies not only seasonally but has changed through Earth's history and is undergoing shifts now with climate change as well as with human land use. These several components of land surface hydrology are not always clearly distinct from each other, as demonstrated by recent extreme climate events, like flooding, or by trends in human land use, such as draining of peatlands.

At NASA GISS, we develop and conduct experiments with an Earth System Model, ModelE, which has played a key role in predicting climate change. The land surface model in ModelE quantifies important metrics for impacts of climate change on surface temperature, precipitation, drought, lake water storage, river flow, snow, land biogeochemistry, and more.

Postdoctoral fellows are invited to propose research to investigate the role of land surface hydrology and its coupling with different aspects of the climate system. Studies could involve, but are not not limited to:

- (1) wetlands coupling of vegetation, soils, and peatlands
- (2) dynamics of lakes and rivers
- (3) flooding with climate change scenarios
- (4) model evaluation with remote sensing observations from missions such as SWOT, SMAP, GRACE, or others.

Successful applicants should have experience with mathematical modeling, computer programming, and analyzing field and remote sensing datasets. Background in the following is highly desirable: Earth, Physical, and/or Computing Sciences, advanced statistics, programming in a compiled language like C or FORTRAN95, and scripting with python or R.

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

Eligibility Requirements

- **Degree:** Doctoral Degree.