

**Opportunity Title:** Ice Sheet Modeling Initiative

**Opportunity Reference Code:** 0054-NPP-NOV23-JPL-EarthSci

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0054-NPP-NOV23-JPL-EarthSci

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

**Description** Research opportunities exist within the JPL/UC Irvine Ice Sheet Modeling Initiative to develop numerical models capable of more reliable projections of glacier and ice sheet evolution in a warming climate. The numerical models are high-resolution, higher-order, three-dimensional finite element models, coupled with airborne (thickness, surface elevation) and satellite observations (interferometric radar measurements of ice velocity, laser elevation), forced by output products from regional atmospheric (surface mass balance) and oceanic (basal melt) circulation models. Our research focuses on the utilization of massively parallelized techniques for ice sheet modeling, the study of ice motion and grounding line dynamics using spaceborne radar interferometry, and the numerical simulation of ice-ocean interactions in tidewater glaciers and beneath ice shelves. Research opportunities exist in both the development of these techniques and in their utilization to improve our understanding of the evolution of glaciers and large ice masses to improve projections of ice sheet evolution in a warming climate.

E. Rignot, S. Jacobs, J. Mouginot, B. Scheuchl, Ice shelf melting around Antarctica, *Science*, 341(6643), 266-270 (2013).

E. Larour, H. Seroussi, M. Morlighem, E. Rignot, Continental scale, high-order, high spatial resolution, ice sheet modeling using the Ice Sheet System Model (ISSM), *J. Geophys. Res.* 117, F01022 (2012).

E. Rignot, J. Bamber, M. van den Broeke, C. Davis, Y. Li, W. van de Berg, E. van Meijgaard, Recent mass loss of the Antarctic Ice Sheet from dynamic thinning, *Nature Geoscience* doi: 10.1038/ngeo102 (2008).

E. Rignot, P. Kanagaratnam, Changes in the velocity structure of the Greenland Ice Sheet, *Science* 311, 986-989 (2006).

**Location:**

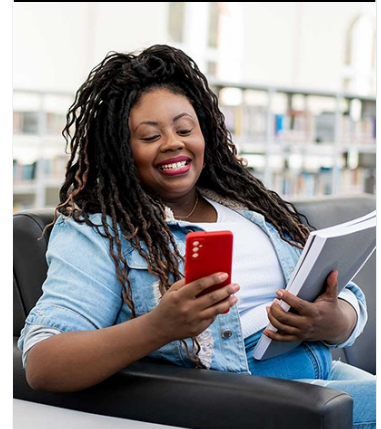
Jet Propulsion Laboratory  
Pasadena, California

**Field of Science:**Earth Science

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818-354-1640

**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.