Opportunity Title: Understanding solid Earth deformation beneath Greenland
Opportunity Reference Code: 0253-NPP-MAR26-JPL-EarthSci

Organization	National Aeronautics and Space Administration (NASA)
Reference Code	0253-NPP-MAR26-JPL-EarthSci
How to Apply	All applications must be submitted in [Zintellect](#)

Please visit the NASA Postdoctoral Program website for application instructions and requirements: [How to Apply | NASA Postdoctoral Program (orau.org)](#)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

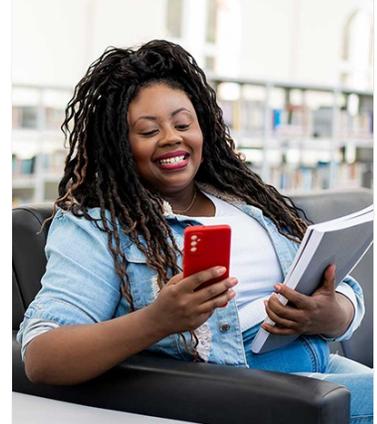**Application Deadline** 4/2/2026 6:00:59 PM Eastern Time Zone

Description

About the [NASA Postdoctoral Program](#)

The [NASA Postdoctoral Program (NPP)](#) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

Melting of the Greenland Ice Sheet and peripheral glaciers causes the underlying solid Earth to deform. The Greenland GNSS Network (GNET) has uncovered intriguing patterns of solid Earth deformation, including the widespread crustal uplift, albeit with significant spatiotemporal variability (Bevis et al., 2012; 2019). Accurate prediction of the crustal uplift rate is a testament to glacial isostatic adjustment (GIA) models. While some GIA models can predict local/regional uplift rates within uncertainties (Kappelsberger et al., 2021), many models fail to predict the Greenland-wide signals (Khan et al., 2016; Milne et al., 2018). In particular, high uplift rates in the southeast, center-west, and northwest Greenland remain poorly understood. Recent modeling efforts point to the critical role of the Little Ice Age (LIA) in conjunction with a relatively weak mantle strength than is supported by the paleo sea level data (Khan et al., 2016; Adhikari et al., 2021). Therefore, reconciling paleo sea-level records and modern GNSS data within the GIA modeling framework has remained a great challenge, with implications for interpreting satellite remote sensing data, constraining ice sheet and solid Earth models, and predicting past and future sea level change. To this end, significant progress can be made in GIA modeling by (1) capturing high spatiotemporal variability of glacier evolution and (2) considering a broadband rheological model of mantle relaxation.

JPL has invested in developing and maintaining the Ice-Sheet and Sea-

level System Model (ISSM: https://issm.jpl.nasa.gov/), capable of a coupled simulation of ice-sheet dynamics, solid-Earth deformation, and sea-level variability (Larour et al., 2019). The model can deal with variable spatial resolution critical to capturing km-scale glacial processes while also capturing inherently global phenomena of Earth's gravitation, rotation, and deformation (Larour et al., 2012; Adhikari et al., 2016). The model can run at extremely high temporal resolution yet is feasible for long-timescale simulations (Cuzzone et al., 2019). The code allows data assimilation and high-performance computation. An ongoing ISSM effort of particular interest is the development of a higher-order rheological model for mantle deformation featuring Extended Burgers rheology (Ivins et al., 2020; 2022).

We seek a candidate interested in using NASA resources to make significant strides toward our understanding of solid Earth deformation beneath Greenland. The successful candidate will use ISSM capabilities to assimilate the existing and emerging data on the paleo ice sheet and sea level (e.g., Briner et al., 2020; Larsen et al., 2022; Woodruff et al., 2023). The proposed effort aligns with several active research projects at the Jet Propulsion Laboratory, funded by the NASA Cryosphere, ESI (Earth Surface and Interior), and MAP (Modeling, Analysis, and Prediction) programs. It directly addresses a key science and application area -- sea level rise -- recommended in the 2017 Earth Science Decadal Survey and vouched for by the NASA Science Mission Directorate.

The appointee will be hosted and advised by Dr. Surendra Adhikari at JPL's Earth Surface and Interior (ESI) group (https://tinyurl.com/2w57y7u7) and collaborate with the ESI and Sea Level and Ice group (https://tinyurl.com/43fp9bbp) members. If you are interested and have questions regarding this position, please get in touch with Dr. Adhikari (adhikari@jpl.nasa.gov).

Field of Science: Earth Science

Advisors:

Surendra Adhikari

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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);

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- 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

Questions about this opportunity? Please email npp@orau.org

Point of Contact	[Mikeala](#)
Eligibility Requirements	• **Degree:** Doctoral Degree.