

**Opportunity Title:** Continental Deformation, Earthquake Strain Accumulation, Plate Motion, and Postglacial Rebound From a Combination of Space Geodetic Techniques

**Opportunity Reference Code:** 0015-NPP-NOV23-JPL-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:** Apply NASA technology (GPS, INSAR, VLBI, SLR, and GRACE) to a range of Earth phenomena, including earthquake strain accumulation, metropolitan Los Angeles deformation, western North America plate tectonics, plate motion, postglacial rebound, ice sheet changes, sea level rise, the earth's reference frame, spin axis wander, and earth center motion. Analyze positions of the 250 Global Positioning System receivers in the metropolitan Los Angeles SCIGN array, distinguish motion due to man managing water and oil resources from earthquake strain accumulation (building upon the study of Argus et al. [2005], and evaluate which faults are going to slip in moderate and large earthquakes to release the strain. Evaluate the slip rate and locking depth of the Puente Hills fault beneath Los Angeles and the Mojave segment of the San Andreas fault due north of Los Angeles (building also upon the study of Argus and Gordon [2001]). The research will result in a more accurate assessment of seismic hazard in metropolitan Los Angeles (bringing societal benefit, Strategic Sub-Goal 3A.7). Help build a model of postglacial rebound of Canada, Fennoscandia, and Antarctica using space geodesy, which will allow gravity change observed with GRACE due to current ice sheet changes in Greenland and Antarctica to be distinguished from gravity change due to postglacial rebound. This will allow the rate at which Greenland and Antarctic ice is disappearing into ocean water to be determined.

References: Argus, D. F., M. B. Heflin, G. Peltzer, F. H. Webb, and F. Crampe (2005), Interseismic strain accumulation and anthropogenic motion in metropolitan Los Angeles, *J. Geophys. Res.* 101, B04401, doi:10.1029/2003JB002934. Argus, D. F., and R. G. Gordon, (2001) Present tectonic motion across the Coast ranges and San Andreas fault system in central California, *Geol. Soc. Am. Bull.* 113, 1580-1592.

**Location:**

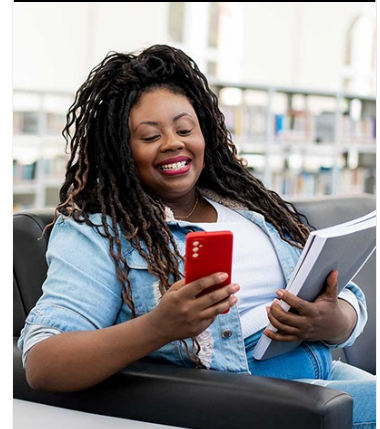
Jet Propulsion Laboratory  
Pasadena, California

**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



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at: <https://www.nasa.gov/oin/explor-contin01>.

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.