

**Opportunity Title:** Imaging and Modeling Crustal Deformation using Space

Geodesy

**Opportunity Reference Code:** 0101-NPP-NOV23-JPL-EarthSci

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

**Reference Code** 0101-NPP-NOV23-JPL-EarthSci

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

**Description** Space geodetic measurements such as InSAR and GPS provide capability to image crustal deformation processes at various spatiotemporal scales. Data acquisitions from multiple satellite SAR sensors (e.g, ERS, Envisat, ALOS, Radarsat, TerrarSAR-X, Cosmo-SkyMed, Sentinel-1A/B etc.) now allow us to image time-variable deformation with fine spatial resolution over different time scale. The airborne UAVSAR has been acquiring data along the San Andreas Fault system and captured a spectrum of deformation signals associated with fault creep/locking, earthquake and anthropogenic sources, and landslide. Integration of InSAR and GPS allows noise reduction and reveals deformation signals that are otherwise not possible. These deformation measurements can be combined with numerical modeling to better constrain fault/volcano source parameters, mechanical and rheological properties, and lead to improved understanding of earthquake and volcano source processes, strain accumulation, transient fault slip, and postseismic deformation. Interested candidates are sought to work on one or more of the following (but not limited to) research opportunities: 1) Develop novel techniques to separate geophysical signals from noises using InSAR and GPS; 2) Combine GNSS GPS and InSAR data to image transient slip and investigate their spatiotemporal relation with earthquake, tremor, and tectonic loading; 3) Utilize multiple satellite and airborne InSAR data to develop time series and deformation map to better resolve fault slip/locking, transient faulting and mechanical processes; 4) Integrate time variable surface deformation observations with state-of-the-art numerical modeling techniques to model fault mechanics and earthquake cycle dynamics.

**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 at: <https://www.nasa.gov/oiir/export-control>.

Eligibility is currently open to:

- U.S. Citizens;



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- 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.