Opportunity Title: Geodetic Imaging of Earthquakes and Landslides
Opportunity Reference Code: 0102-NPP-NOV23-JPL-EarthSci

Organization	National Aeronautics and Space Administration (NASA)
Reference Code	0102-NPP-NOV23-JPL-EarthSci
Application Deadline	11/1/2023 6:00:59 PM Eastern Time Zone
Description	This research spans several aspects of understanding the dynamics and structure of the Earth's crust and mantle to assess and mitigate hazards from earthquakes, landslides, and land subsidence. The main techniques include measurements of surface deformation and topography with synthetic aperture radar (SAR) interferometry with both satellite and airborne SAR (NASA UAVSAR), pixel offset tracking on SAR and optical images, GPS, seismometer waveforms, and gravity measurements. Time series analysis of the SAR interferometry and other data is a key part of the research. We then infer the structure and dynamics at depth using viscoelastic and elastic models, wave propagation, and flexure modeling. Much of the research involves understanding what has been called the earthquake cycle: interseismic strain accumulation within the crust, coseismic slip on faults during earthquakes, and postseismic deformation due to the response of the Earth's lithosphere to the redistribution of stress after earthquakes. This includes characterization of the properties of fault zones and the surrounding rocks. The goal of this research is to understand how faults interact with each other and the Earth's crust and mantle to better assess the hazard of earthquakes, including the probability of future events and their probable size distributions. Another area of study is the mechanics of landslides, where rock and soil move largely on subhorizontal surfaces that have similarities to faults. The goal is to understand the processes that control the rate of landslide motion, including the catastrophic failure that is a major natural hazard worldwide. Results from both earthquake and landslide research are provided to operational agencies, including the USGS, to enable the broad use for decision-making activities and provide benefits to society.

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Earth Science

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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:

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- 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.