

Opportunity Title: Mapping subsidence of urban areas and critical infrastructure along the US East Coast using time-series InSAR analysis

Opportunity Reference Code: 0154-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 Detailed subsidence maps of urban regions along the US East Coast are critical to support decision-making at the local level, given the recurrent flooding risks associated with extreme weather, high tides, and the threat of coastal inundation by tropical cyclones. Current subsidence maps based on GPS are too coarse. The proposed research aims to resolve the gaps in our current state of knowledge, by combining GPS with available satellite SAR data (TerrarSAR-X, Cosmo-SkyMed, Sentinel-1A/B etc.) to produce the high-spatial resolution, high accuracy, subsidence maps of urban and critical infrastructure. For example, the Hampton Roads area in the southern Chesapeake Bay region is experiencing the highest rate of relative sea level rise on the Atlantic coast of the United States (~50 cm over the last century). It is home to 1.6 million people and many assets of national interest including the largest naval installation in the world. Local, state, and federal efforts are underway to develop adaptation and mitigation strategies needed to address the many negative socioeconomic impacts posed by this threat, for which high resolution subsidence maps are an essential input. The candidate is envisioned to use state of the art time-series InSAR processing methods to extract high resolution subsidence rates, develop and apply methodologies to quantify the uncertainties, and further integrate observations with GPS measurements.

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;
- 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



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application with 1) a valid EAD card and 2) I-485 or I-589 forms in pending status

Eligibility Requirements

- **Degree:** Doctoral Degree.