Opportunity Title: Synergy between Global Navigation Satellite System and Very Long Baseline Interferometry space geodesy techniques.
Opportunity Reference Code: 0321-NPP-MAR26-GSFC-EarthSci

Organization National Aeronautics and Space Administration (NASA)

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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:

This opportunity is closed to applicants who are Senior Fellows (5-years or more past PhD).

Historically, data analysis of two space geodesy techniques, very long baseline interferometry (VLBI) and global navigation satellite systems (GNSS) developed independently. Recent advanced in space geodesy instrumentation and data analysis allowed to blurred the line between these two techniques. It was demonstrated that it feasible (1) to observe GNSS satellites with VLBI, (2) to use a GNSS receiver as an element of a VLBI array and (3) to determine pseudo-ranges from voltage data of GNSS satellites recorded with a radio telescope. These capabilities have a potential to develop VLBI+GNSS technique that mitigates weakness of individual techniques. The VLBI+GNSS technique involves observations and data analysis of any of these three observing modes.

The focus of the proposed research is to develop methods of data analysis of an emerging VLBI+GNSS technique, identify the area of the strengths and weaknesses of the new technique, to optimize observing programs, to process data, and present evidence that substantiate claims about strengths and weaknesses.

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This is a new research area that falls into a category high risk, high reward.

NASA heavily contributes to the on-going international geodetic VLBI observing program for determination of terrestrial coordinate system, celestial coordinate system, and determination of the Earth orientation parameters with the highest accuracy. The agency is interested in mitigation of systematic errors in results of these observations and in investigation of biases between VLBI and GNSS results. Efforts to that direction will contribute to a success of NASA mission.

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 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

Qualifications Applicants with a hand-on experience in developing software for processing GNSS or VLBI data will receive favorable consideration. The proposed research involves heavy computation under Linux environment. The successful applicant knows Fortran or C and is willing to master his or her skill in modern Fortran programming language.

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.

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