

**Opportunity Title:** Heliophysics Science: Advanced analysis of observational data to predict solar activity

**Opportunity Reference Code:** 0102-NPP-NOV23-ARC-HelioSci

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

**Reference Code** 0102-NPP-NOV23-ARC-HelioSci

**How to Apply** All applications must be submitted in [Zintellect](#)

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

**Description Description:**

Understanding how the Sun operates is the cornerstone of our ability to predict solar activity on long and short time scales. The project aims to study the solar activity phenomena from the interior to the corona through a comprehensive analysis of observational data from space and ground-based observatories, such as magnetograms, subsurface flows, solar oscillations, and others. This research will enable the development of a new generation of data assimilation models to predict solar activity. The project goal will be achieved through state-of-the-art data analysis and modeling techniques, machine-learning approaches, principal component analysis, and others. The research plan includes collecting and analyzing observational data in the form of a data processing pipeline, including data from Solar Dynamics Observatory and other space missions, with possible extension to historical (e.g., Solar and Heliospheric Observatory) and ground-based observations. In addition, advanced mathematical methods of data analysis, theoretical models, and simulations will be employed to cross-analyze the diverse data sets and models and investigate various aspects of solar activity. Therefore, this opportunity encourages collaborations of researchers from heliophysics, magnetohydrodynamics, computational physics, and data and computer sciences.

**Field of Science:** Heliophysics Science

**Advisors:**

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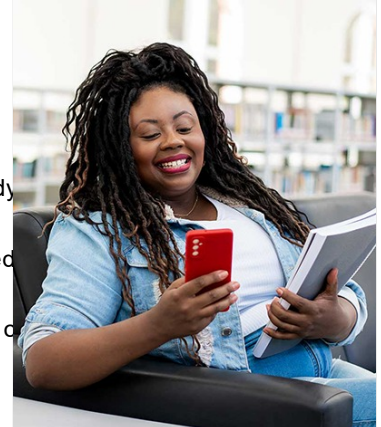
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**Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States.** A complete list of Designated Countries can be found at:

<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.