

Opportunity Title: Heliophysics Science: Magnetospheric State and Space
Radiation Environment Modeling

Opportunity Reference Code: 0050-NPP-NOV23-GSFC-HelioSci

Organization National Aeronautics and Space Administration (NASA)

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

Description Opportunities exist in the Geospace Physics Laboratory of the Heliophysics Science Division to develop and validate magnetospheric state-based trapped particle radiation models. In the past, the National Space Science Data Center (NSSDC) has developed two series of empirical radiation belt models (the NASA AE 1-8 and AP 1-8) based on spacecraft data from before the 1980s. Recent energetic particle data archived at the Space Physics Data Facility and elsewhere, up-to-date ionosphere models, and more realistic magnetic field models can be used to construct better radiation belt models that depend on geomagnetic conditions (e.g., to include dynamic effects). These models are important for radiation belt studies, spacecraft instrument design, space mission planning and operations, and for the reduction and analysis of high-energy astrophysical data sets. Anticipated work includes empirical and theoretical model development and validation, global magnetospheric simulations, as well as coordination and collaboration with other groups pursuing related efforts. In conjunction with the space radiation modeling, opportunities also exist in studying the physics of space radiation (sources, sink, acceleration, and transport) and the evolution of global magnetospheric states using a variety of data mining techniques to analyze magnetospheric state driver and response parameters, such as the measurements of solar wind, IMF, and geomagnetic indices.

Location:

Goddard Space Flight Center
Greenbelt, Maryland

Field of Science:Heliophysics Science

Advisors:

Shing F. Fung
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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,



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- 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.