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Opportunity Title: Inner Magnetosphere Response to Solar Wind Structures
Opportunity Reference Code: 0154-NPP-MAR26-GSFC-HelioSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0154-NPP-MAR26-GSFC-HelioSci

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 3/1/2026 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:

The response of the Earth's inner magnetosphere ring current and radiation belts to solar wind structures such as Coronal Mass Ejections (CMEs), Corotating Interaction Regions (CIRs), high-speed streams and other structures is highly variable. There are many competing pathways by which these structures can increase or decrease inner magnetospheric populations. For example, dayside reconnection sets up the convection electric field that directly drives the ring current populations. As ring current particles drift into regions of stronger magnetic field, pitch-angle anisotropies can generate electromagnetic ion cyclotron (EMIC) and whistler mode chorus waves. EMIC and whistler waves can interact with energetic ion and electron populations, respectively, resulting in radiation belt dropouts and/or enhancements. Similarly, the position of the magnetopause, which results from pressure balance and reconnection, controls the effectiveness of magnetopause shadowing, another known source of radiation belt dropouts. The generation of ULF waves is directly driven by the dayside interaction leading to outward radial transport of outer radiation belt populations. This research opportunity involves modeling both the solar wind magnetopause interaction (reconnection, pressure balance, …) and the inner magnetospheric response (radiation belts, ring current, and the wave environment) using tools such as global MHD simulations, and coupled bounce averaged Vlasov kinetic models of the radiation belts.

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Location:
Goddard Space Flight Center
Greenbelt, Maryland

Field of Science: Heliophysics 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:

- 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

Point of Contact Mikeala

Eligibility Requirements
- **Degree:** Doctoral Degree.