

Opportunity Title: Heliophysics Science: Heliophysics: Solar Wind Connections with Magnetized Plasmas and Gases

Opportunity Reference Code: 0029-NPP-NOV23-GSFC-HelioSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0029-NPP-NOV23-GSFC-HelioSci

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

Description Orbiting spacecraft observations are complemented by sounding rockets, ground based observations, and modeling to diagnose and understand the ionization, heating and flow of gases, driven by solar wind electromagnetic and kinetic energy fluxes connected via magnetic fields to ionospheres and atmospheres. Spacecraft data sets used include those from Wind, Polar, Geotail, Cluster, FAST, IMAGE, THEMIS, IBEX, and soon, MMS. Energy fluxes are traced from regions producing reconnected magnetic fields, into structured ionospheric flows and dissipation mechanisms. Resulting plasma outflows are tracked through the global circulation, where they provide feedback by mass loading and pressurizing those flows. For example, plasmaspheric material convects to the dayside magnetopause where in active times it dominates the plasma density there and loads reconnection. We also explore the behavior of magnetized plasmas through our Global Ion Kinetic simulations, using single particle trajectory tracing, kinetic modeling, and multifluid magnetohydrodynamic models. Opportunities exist to develop new instruments, analyze existing data sets, and conduct modeling experiments.

Location:

Goddard Space Flight Center
Greenbelt, Maryland

Field of Science:Heliophysics Science

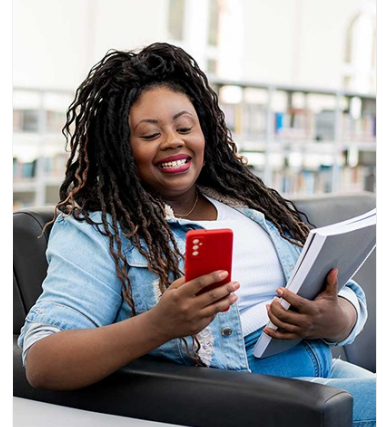
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Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States. A complete list of Designated Countries can be found at: <https://www.nasa.gov/oiir/export-control>.



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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

Eligibility Requirements

- **Degree:** Doctoral Degree.