

**Opportunity Title:** Earth Science: Biological and Optical Oceanography

**Opportunity Reference Code:** 0007-NPP-NOV23-GSFC-EarthSci

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

**Reference Code** 0007-NPP-NOV23-GSFC-EarthSci

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

**Description** The objectives of this laboratory, airborne, and satellite research are to develop methods for (1) accurately measuring the inherent and apparent optical properties of the ocean; (2) inferring biological and geochemical constituents from the optical properties; (3) using surface layer constituent maps to understand the marine biosphere, global biogeochemical cycles, and climate variability; (4) investigation of the interactions between physical and biological processes; and (5) comparison studies of products from OCTS, POLDER, MOS, SeaWiFS, and MODIS. Prime considerations include the role of marine primary production and dissolved/particulate organic matter in the global carbon budget and the couplings between physical and biological processes. Current research focuses on the analysis of satellite SeaStar/SeaWiFS (Sea-viewing Wide-Field-of-View Sensor) data, preparations for MODIS, development of new instruments and techniques for making *in situ* measurements and for calibrating optical instruments, and use of Airborne Oceanographic Lidar and Ocean Data-Acquisition System data to estimate phytoplankton and organic matter distributions and their variability on local to global time scales. Global, basin, and regional time-series data are used for investigating the coupling between physical and biological processes in time scales of days to years. We use laboratory and airborne programs to develop new active (laser) and passive (solar) remote-sensing techniques for measuring oceanic optical properties and inferring corresponding constituents. Potential research areas include ship- and ground-based laboratory sample analysis, optical sensor design, calibration, and deployment; oceanic radiance modeling and algorithm development; ocean ecosystem modeling; and primary productivity modeling.

#### References

Hoge FE, et al: Journal of Geophysical Research 106(C12): 31129, 2001

Hoge FE, et al: Applied Optics 42: 2767, 2003

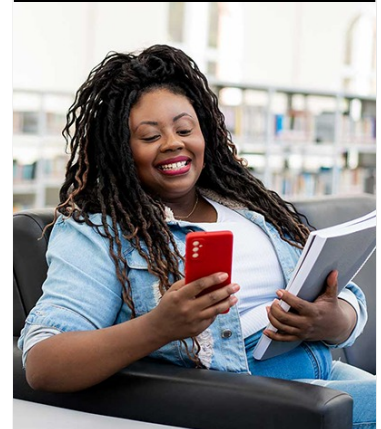
#### Location:

Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:**Earth Science

#### Advisors:

John Moisan  
John.R.Moisan@nasa.gov



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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/oiiir/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

**Eligibility Requirements**

- **Degree:** Doctoral Degree.