

**Opportunity Title:** Modeling and remote sensing of the global methane cycle, sources, sinks, and their temporal dynamics

**Opportunity Reference Code:** 0212-NPP-NOV23-GSFC-EarthSci

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

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

**Description** Understanding the global methane budget represents unique challenges given the large variety of methane sources from thermogenic, biogenic and pyrogenic processes, and given the complexity of methane removal from the atmosphere by a combination of chemical sinks and methanotrophy. Integrating land and atmospheric models with remote sensing and inventory information can help address these challenges to better attribute drivers of interannual and decadal scale trends, constrain uncertainties, and reveal areas for future research. This research opportunity seeks proposals that address natural and/or anthropogenic components of the global methane budget that use modeling, remote sensing, or inventory data to quantify sources or sinks. Empirical, process-based, and box-modeling approaches are included in the possible techniques for addressing and investigating the global methane cycle. In particular, questions related to quantifying methane emissions from oil and gas activities, natural wetlands, agriculture, landfills, and minor sources like termites, wildlife, fire are of interest. The isotopic information of methane is a useful tool for partitioning sources to categories and Earth system models are gradually incorporating isotopes as independent tracers. The time frame of interest can range from pre-industrial to present day, or the past two decades where atmospheric methane concentrations show a period of stability followed by renewed growth, or the time frame can consider century scale climate feedbacks.

**Location:**

Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:**Earth Science

**Advisors:**

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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,



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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.