Opportunity Title: Data-constrained Air Quality Modeling
Opportunity Reference Code: 0070-NPP-NOV23-ARC-EarthSci

Organization	National Aeronautics and Space Administration (NASA)
Reference Code	0070-NPP-NOV23-ARC-EarthSci
Application Deadline	11/1/2023 6:00:59 PM Eastern Time Zone

Description

Chemistry transport model (CTM) predictions and air quality (AQ) forecasts are vital tools used to understand tropospheric chemical composition, AQ, and human health. This research opportunity (RO) focuses on the investigation of how CTMs and AQ models, combined with in situ and remote-sensing data, can be used to evaluate and forecast tropospheric chemistry and AQ. Two of the main atmospheric constituents which CTMs and AQ models are used to simulate, and would be of interest for this RO, is ozone (O_3) and particulate matter (PM). These species are strictly enforced by the United States (US) Environmental Protection Agency (EPA) under the National Ambient Air Quality Standards (NAAQS) and it is important to understand emission sources, chemical processes, and transport leading to observed atmospheric concentrations.

This RO focuses on using the vast global and regional in situ measurement networks of O_3 and PM (e.g., e.g., SouthEastern Aerosol Research and Characterization (SEARCH) Network, EPA Air Quality System (AQS)), satellite products (e.g., Ozone Monitoring Instrument (OMI), Tropospheric Emission Spectrometer (TES), TROPOspheric Monitoring Instrument (TROPOMI), synthetic Tropospheric Emissions: Monitoring of Pollution (TEMPO)), ground-based remote-sensing (e.g., Tropospheric Ozone Lidar Network (TOLNet)) and ozonesondes, field campaign data (e.g., Deriving Information on Surface Conditions from COlumn and VERtically Resolved Observations Relevant to Air Quality (DISCOVER-AQ)), and a wide variety of CTMs (e.g., GEOS-Chem, WRF-Chem) and AQ models (e.g., CMAQ). These data products and models will be combined to investigate processes leading to interesting tropospheric chemistry or AQ events. Furthermore, an emphasis should be placed on how in situ and remote-sensing data can improve the ability of CTMs and AQ models to replicate and forecast tropospheric chemistry and AQ.
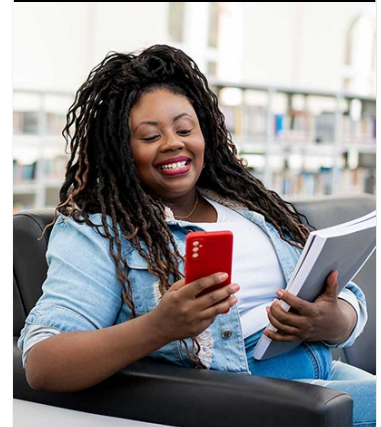
Position Requirements:

- PhD in an Earth Science related field.
- Experience with running and developing 3D atmospheric CTMs and data assimilation techniques.
- Strong analytical skills and computer programming ability.
- Good written and verbal communication skills.

Location:
Ames Research Center
Moffet Field, California

Field of Science: Earth Science

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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/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

Eligibility Requirements

- **Degree:** Doctoral Degree.