

Opportunity Title: New challenges in Stratospheric Sciences: Asian Pollution and Extreme Wildfire Smoke

Opportunity Reference Code: 0039-NPP-NOV23-LRC-EarthSci

Organization National Aeronautics and Space Administration (NASA)

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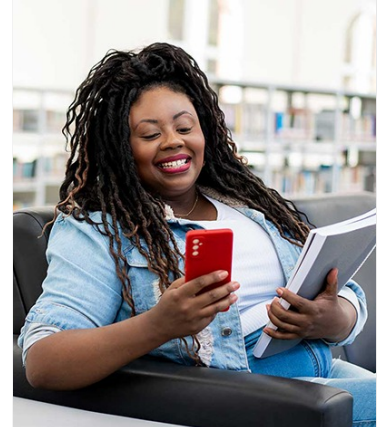
How to Apply All applications must be submitted in [Zintellect](#)

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

Description Description:

The stratosphere is a key component of the Earth's climate system. Extremely sensitive to anthropogenic emissions, the stratospheric ozone layer was threatened by ChloroFluoroCarbons (CFC) and could have disappeared in decades. However scientists worked with decision-makers to frame the Montreal protocol in the late 80's that led to limit CFH emissions. The first signs of the ozone recovery over Antarctica are now visible. The ozone "story" shows that mankind can work together to solve complicated and global problems giving hopes that global climate changes can also be tackled with the same approach. However, over the recent few years, major wildfires have injected smoke in the stratosphere at levels never observed before posing a new threat to the ozone recovery. Our team at LaRC has worked for more than a decade in understanding the stratosphere and more precisely how volcanic eruptions, extreme wildfires and anthropogenic emissions in Asia affect its concentration. Since Mt Pinatubo eruption in 1991, it is well known that large volcanic eruptions can affect climate for years by cooling surface temperature but also by influencing ozone chemistry. We showed that smaller volcanic events can also affect climate on decadal time scale using a combination of satellite observations and climate model simulations. Our group conducted key satellite analysis associated with balloon-borne observations to show how pollution in Asia affects aerosols in the upper troposphere and lower stratosphere. We discovered the so called "Asian Tropopause Aerosol Layer". Based upon a series of balloon deployments dedicated to study the properties of volcanic plumes across the world (Australia, France, Brazil, United States), our team combined those Opportunity ZORF Title: New challenges in Stratospheric Sciences: Asian Pollution and Extreme Wildfire Smoke measurements with satellite observations and modelling work to fully understand the impacts of those eruptions on climate and ozone chemistry.

We are looking for a Postdoctoral fellow with expertise in balloon-borne measurements and satellite observations to support the analysis of past balloon campaigns to study the Asian Tropopause Aerosol Layer and the more recent Honga-Tonga volcanic plume. The successful candidate will analyze data obtained from a new optical particle counter and compare those measurements to satellite observations for comparison/validation purposes. He will also be involved in analyzing numerical simulations from the GEOS[1]Chem simulation to understand transport pathways and the impacts of extreme wildfires, volcanic eruptions, and the ATAL on ozone chemistry. The successful candidate will be involved in future balloon deployments in India during the summers 2023 and 2024 as well as any



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deployments to make measurements in volcanic plumes or extreme wildfires reaching the stratosphere and should thus be available for around 1-2 international travels every year

Field of Science: Earth Science

Advisors:

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757-759-0835

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.