

Opportunity Title: Stratospheric Composition in a Changing Climate

Opportunity Reference Code: 0303-NPP-MAR25-JPL-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0303-NPP-MAR25-JPL-EarthSci

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

Please visit the NASA Postdoctoral Program website for application instructions and requirements: [How to Apply | NASA Postdoctoral Program \(orau.org\)](#).

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 3/1/2025 6:00:59 PM Eastern Time Zone

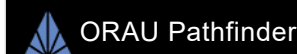
Description About the [NASA Postdoctoral Program](#)

The [NASA Postdoctoral Program \(NPP\)](#) offers unique research opportunities to highly-talented U.S. and non-U.S. scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

In recent years, Earth's stratospheric composition has been significantly perturbed, with potential implications for climate and ozone layer stability. Among the most notable events were the Australian New Year's fires and the Hunga eruption. The record-breaking injection of smoke plumes into the stratosphere by the 2019/2020 Australian bushfires led to a prolonged and widespread perturbation in stratospheric chlorine behavior. The Hunga eruption in January 2022 not only caused the largest increase in stratospheric aerosol loading in the past 30 years but also injected 150 Tg of water directly into the stratosphere, instantaneously increasing stratospheric water vapor mass by around 10%. This significantly altered the stratosphere, leaving it in an unprecedented anomalous state.

We are seeking a postdoctoral scholar to conduct in-depth analysis of stratospheric data, using data from the Microwave Limb Sounder (MLS) as well as complementary datasets like the Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS) and the Stratospheric Aerosol and Gas Experiment (SAGE) on the International Space Station (ISS). Potential research areas include, but are not limited to, the impact of large wildfires on the stratosphere, effects of volcanic eruptions, long-term trends in atmospheric composition, and the transport of pollutants into the stratosphere during the Asian Summer Monsoon.



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Santee, M. L., Lambert, A., Manney, G. L., Livesey, N. J., Froidevaux, L., Neu, J. L., et al. (2022). Prolonged and pervasive perturbations in the composition of the Southern Hemisphere midlatitude lower stratosphere from the Australian New Year's fires.

Geophysical Research Letters, 49, e2021GL096270.

<https://doi.org/10.1029/2021GL096270>

Millán, L., Read, W. G., Santee, M. L., Lambert, A., Manney, G. L., Neu, J. L., et al. (2024). The Evolution of the Hunga hydration in a moistening stratosphere. Geophysical Research Letters, 51, e2024GL110841.

<https://doi.org/10.1029/2024GL110841>

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/oair/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

Questions about this opportunity? Please email npp@orau.org

Point of Contact [Mikeala](#)

Eligibility Requirements • **Degree:** Doctoral Degree.