

Opportunity Title: Planetary Cloud Chamber Instrumentation and Experimental Methods Development

Opportunity Reference Code: 0279-NPP-MAR24-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0279-NPP-MAR24-JPL-PlanetSci

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

Application Deadline 3/1/2024 6:00:59 PM Eastern Time Zone

Description Description:

Clouds are significant portions of solid body atmospheres and play a significant role in the radiative balance between a planetary or moon surface and the space environment. The Decadal Strategy for Planetary Science and Astrobiology 2023 – 2032 describes a number of strategic questions relative to research related to cloud formation such as “What chemical and microphysical processes govern the clouds, hazes, chemistry and trace gas composition of solid body atmospheres?” The action to address this question is to “Investigate the microphysical parameters that influence the formation of clouds in planetary atmospheres by determining the distribution, nature and abundance of clouds and the composition and particle size of droplets comprising them and the cloud condensation nuclei around which they form.”

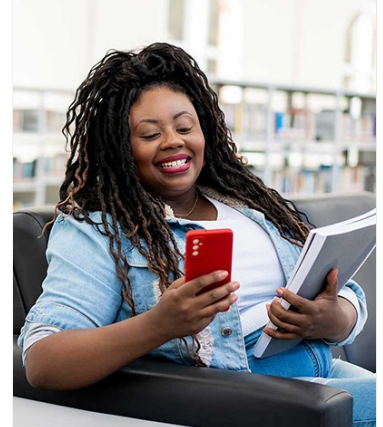
Our research group is developing a new Planetary Cloud Aerosol Research Facility (PCARF) specifically for performing experimental studies on cloud formation. This facility would produce the thermodynamic, chemical, and microphysics environments to enable cloud formation research for many different planetary environments. Investigations using this facility would be able to corroborate and validate numerical modelling simulations, in situ measurements for future missions, and support investigations that use remote sensing techniques.

Our team is looking for researchers to participate in developing and adapting laboratory instrumentation for measuring cloud particle properties, cloud and gas chemical compositions, and fluid flow velocities, and temperatures. These instruments would be the fundamental investigative tools for researchers performing cloud study experiments. The researcher would also participate in developing a meaningful experimental program to collect data, perform analysis and write peer reviewed publications to demonstrate the cloud chamber and its instrumentation is ready for future use by the wider planetary science community.

Candidates should have experience in areas closely related to aerosol or cloud particle research, instrumentation, experimental techniques, and data analysis.

Field of Science:

- Planetary Science



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Applications from 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

Qualifications Candidates should have a background in any of the following fields: Chemistry, Environmental Science, Physics, Chemical, Electrical, or Mechanical Engineering. Other closely related fields can be considered. Experience with general laboratory practices and physical or chemical experimental instruments, procedures and processes are desired.

Eligibility Requirements

- **Degree:** Doctoral Degree.