



UNIVERSITY
of HAWAI'I*
MĀNOA

Undergraduate 2026 Summer Research Internship in Atmospheric Sciences

Prof. [Hongwei Sun](#) (Department of Atmospheric Sciences) and Prof. [Chuang Xu](#) (Department of Mathematics) are seeking an undergraduate research assistant to work on a project using Lagrangian trajectory modeling to study stratospheric transport and turbulence. The selected student will receive a summer research stipend of \$4,000-\$5,000 to support this 12-week project (May-July 2026), culminating in a short-written report and a final presentation (including slides and poster, see an example [here](#)). The position is funded by the 2026 Mentoring Grant for Summer Undergraduate Research and Creative Work, sponsored by the Undergraduate Research Opportunities Program ([UROP](#)) in the Office of the Vice Provost for Research and Scholarship.

Project Overview

In this project, you will use a Lagrangian trajectory model (LAGRANTO) to track air-parcel or particle motion in the stratosphere and compare model results with high-resolution observational datasets (e.g., radiosondes). By combining modeling and observations, the project aims to improve understanding of stratospheric transport and turbulence. You will gain hands-on experience running numerical models, analyzing data, and interpreting results in a physical and mathematical context while contributing to ongoing research in atmospheric science.

What You Will Do

- Run and test Lagrangian trajectory simulations of stratospheric transport.
- Process, analyze, and visualize model output and observational data.
- Compare simulations with observations to assess turbulence and uncertainties.
- Read and discuss scientific literature related to the project (e.g., Sun et al., [2023](#); [2024](#)).
- Create figures, presentations, and a short-written research summary.
- Present your work at the end of the internship.

Who Should Apply

We seek motivated undergraduates interested in atmospheric research. Ideal applicants have:

- Major in atmospheric science, mathematics, physics, computer science, or related fields.
- Experience in programming (e.g., Python, Fortran, C++, MATLAB, or similar).
- Interest in numerical modeling, statistical analysis, or climate/atmospheric science.
- Ability to work independently and communicate progress clearly.

Students considering graduate study in STEM fields are especially encouraged to apply.

Mentoring & Learning Environment

You will work closely with faculty mentors through weekly meetings and regular feedback. The internship emphasizes:

- Supportive and inclusive research environment
- Training in modeling, statistical analysis, and scientific reasoning
- Development of problem-solving and communication skills
- Guidance on research pathways and graduate school preparation

Benefits to Students

- Hands-on experience in computational modeling and data science
- Exposure to interdisciplinary research in mathematics and atmospheric science
- Training in scientific communication and visualization
- Mentorship and graduate school advising
- Contribution to real research outcomes and reproducible workflows

How to Apply

Applicants should email both Prof. Hongwei Sun (hongwei8@hawaii.edu) and Prof. Chuang Xu (chuangxu@hawaii.edu) with:

- CV.
- Unofficial transcript.
- A paragraph of intent telling us why you would like to apply.

Review of applications will begin on March 23, 2026, and continue until the position is filled.

