NOAA OFFICE OF EDUCATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Student Scholarship Internship Opportunity (SSIO) Online System

SSIO 2022 Internship Opportunity Position

Internship Information

Project title: An Economic Valuation of a Multi-Seasonal Atmospheric River Frequency Forecast for the Western United States (for CSC Student)

NOAA mission goal: Integrated Across All NOAA Goals

Hypothesis or objectives: Atmospheric rivers are narrow filaments of concentrated moisture in the atmosphere that bring heavy precipitation and flooding. Atmospheric rivers are especially impactful along the western coast of the United States where they are estimated to account for about 30% of the annual precipitation. Current forecast products used to predict atmospheric rivers focus on the subseasonal to seasonal timescale. A new model out of NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) shows potential in predicting atmospheric river frequency on a multi-seasonal timescale. The objective of this project is to determine the economic and societal benefits associated with the investments in the development of a seasonal to multi-seasonal forecast of atmospheric river frequency.

Academic status: Graduate

Estimated start - end date: May 2022 - July 2022

Duration: 3 months

Area(s) of discipline: Atmospheric Science, Economics, Environmental Science Studies, Social Sciences

Internship location: Princeton, NJ

Duties and responsibilities: This is a virtual internship.

The selected intern will work with the Geophysical Fluid Dynamics Laboratory (GFDL) Economic Valuation Team to:

(1) Develop a value chain for atmospheric river forecasts and use it to identify stakeholders of atmospheric river forecasts.
(2) Modify and distribute (as needed) the existing end-user survey.
(3) Conduct a benefit-cost analysis and economic impact analysis utilizing the results from the end-user survey and other NOAA data.
(4) Use the results from the economic analyses to determine the societal benefit of a multi-seasonal atmospheric river frequency forecast.
(5) Provide regular progress updates at team meetings.
(6) Interface with the project scientists as needed.
(7) Co-author a report documenting methods and findings. This report may turn into a peer-reviewed publication in a professional journal, if appropriate.
(8) Present on findings and internship experience at an informal GFDL seminar at the conclusion of the internship.

The intern is expected to work independently as much as possible and proceed through the timeline to be established prior to the start of the internship. The internship will be 40 hours per week and is

expected to be conducted virtually given NOAA's current operating status. Access to the NOAA Google Suite and to relevant NOAA data will be provided.

Special skills/training required: The applicant should be a PhD student who is proficient in benefit-cost analyses and economic impact analyses. They should also have a general understanding of environmental sciences. Experience with statistical and data visualization software is a plus.

Expected outcomes: The intern is expected to co-author a report detailing the economic and societal benefits of a multi-seasonal atmospheric river frequency forecast. The report may turn into a formal peer-reviewed publication, depending on the significance of the findings. The intern is also expected to present on their findings and experience at an informal seminar for GFDL staff.

Outcomes are expected to be mutually beneficial to the intern and GFDL. The internship will allow the student to acquire real-time experience in determining the value of a future NOAA product, while forging relationships with expert scientists in the agency. GFDL will be able to use the intern's work to shape the development of its product to better fit the needs of end users and to inform future economic valuations.

Guidance and supervision: Kristen Schepel (GFDL) will serve as the main mentor on the project. Gina Eosco (Weather Program Office) will serve as a secondary mentor to provide guidance on the social sciences aspect of the project. Mentors will communicate with the intern on a regular basis to provide an experience that is both challenging and rewarding. The mentors will also provide opportunities for the intern to build their professional network and enhance their resume by including them in all relevant NOAA activities and meetings.

Application package: Resume
Unofficial transcript
Cover letter

Posted or modified date/time: Friday, February 4, 2022 - 1:39:00 PM

Internship Travel Information

Purpose (student's role): Travel is not necessary for this internship. If the intern desires (if/when facilities re-open), they may request a short trip to NOAA's Geophysical Fluid Dynamics Laboratory in Princeton, New Jersey, to see the facility and meet with their mentor in person.

Mode of transportation: ---

Date(s): ---

Destination: ---

Estimated cost: ---

Source of funding: ---

Mentors Contact Information

Name: Kristen Schepel

Organization: Office of Oceanic and Atmospheric Research (OAR)

Program office: Geophysical Fluid Dynamics Laboratory

Mailing address: 201 Forrestal Road
Princeton, NJ 8540

Fax number: None

Phone number: 609-668-3875

Email: kristen.schepel@noaa.gov

Co-Mentor name: Kristen Schepel

Co-Mentor email: kristen.schepel@noaa.gov

Agency or organization: NOAA/Geophysical Fluid Dynamics Laboratory

Admin Approval Information

Comments: Accepted for a minimum 3-month EPP/MSI NERTO internship. Requires: a workplan developed by CSC and NOAA mentor; substantial engagement with NOAA mentor(s); and, NOAA-aligned professional development. Queries are sent to: oed.epp10@noaa.gov. Thanks.

Initials: AT

Approval date/time: 2/4/2022 4:39:55 PM

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