Climate Science Research Internship with Mount Washington Observatory, Appalachian Mountain Club, and Hubbard Brook Ecosystem Study
Updated: July 2024

Education and Experience
Interns should either have completed or be in process with an undergraduate or graduate degree in weather, climate, environmental sciences, science communication, science education, or a related discipline.

About the Position
This unique internship is a collaborative effort between the Mount Washington Observatory (MWOBS), Appalachian Mountain Club (AMC), and Hubbard Brook Ecosystem Study. Each organization contributes to public understanding of the weather, climate, and ecology of the White Mountains region of New Hampshire. The focus of this internship will be on creating a yearly almanac that effectively communicates changes to the climatology and biology of the White Mountains to a general audience.

This is an immersive internship for 14 weeks, with participants expected to know they will work multiple weeks in a row. Interns will be given one week off per month but may choose to remain in housing from the AMC or MWOBS during this time, or with our partners in Mount Washington Valley where MWOBS has a home share program. Time off will also be given weekly on an ad hoc basis as each organization's work flow and schedules allow.

Candidates will be hired to work collaboratively with a Climate Science Communications Intern. Your role will be to compile and analyze the scientific data from each organization to feature in an annual almanac on the climatology and biology of the White Mountains region of New Hampshire. Please clearly specify in the second two essay questions of your application the name of the internship for which you are applying.

Each Organization Will Provide
An opportunity at the ***Appalachian Mountain Club (AMC)*** to participate in ongoing research related to climate change in the White Mountains, to provide context for the implications of potential changes in climatology that the almanac and supporting analyses may reveal. Climate-related projects occurring in the autumn or spring season include plant phenology, White Mountain stream water sampling, and snow observations. Candidates will participate in these activities outdoors in varied conditions, often in the backcountry. As noted above, AMC provides staff housing and meals for the position and shared office space for computation and production of communications products.

At ***Mount Washington Observatory (MWOBS)*** interns will take part in daily operational duties of our summit observation team, help with generating forecasts, aid in education and communications tasks, and work on the production of the almanac. Interns at MWOBS live and work with one of two weekly shifts of MWOBS summit staff, with all meals and food provided. All interns will have a working goal of gaining competency performing daily meteorological observations as well as learning basic rules to coding METAR observations. Opportunities for professional development and career advancement exist with this position.

MWOBS' primary focus is the hourly observations that make up the historical record of the summit station. However, our mission statement highlights three main areas of activity: observation, research,

and education. As an intern at MWOBS, your main goals will be directed toward competency in a variety of tasks that help support the mission and make up general summit operations.

At ***Hubbard Brook,*** over the course of several day-long visits, the intern will interact with scientists and technicians who are responsible for maintaining continuous long-term records of air, water, snow, and vegetation. The intern will have an opportunity to learn, first-hand, about environmental monitoring techniques and to gather information relevant to the almanac project.

Duties

Duties of Appalachian Mountain Club (AMC) Interns

- Work schedule is 40 hours per week, with some options for flexibility within a pay period to accommodate longer fieldwork days.
- Fieldwork is not the primary focus of this position; occasional fieldwork supports the goal of a broader understanding of climate-relevant patterns and impacts.
- Manage climate and phenological datasets contributed by AMC, MWOBS, and partners.
- Conduct or become proficient at conducting statistical and GIS analyses that document key climate metrics to be defined by the project team. Familiarity with R or other statistical and data management tools preferred.
- Participate in periodic AMC Research Team meetings, as shared scheduling allows
- Duties include day hikes in the Appalachians on trails, or into remote Wilderness to collect samples and observe plants
- Experience and comfort with backcountry navigation and working in remote field settings
- Other duties as needed and assigned by a supervisor.

Duties of Mount Washington Observatory (MWOBS) Interns

- Work a full ten-hour work day while on shift, including attending weekly meetings, recording hours and (with staff) setting and revising personal goals.
- Gaining competency performing observations and learning basic rules to coding METAR observations. This will involve a careful study of both the KMWN Station Weather Manual and the FMH-1 as well as shadowing observers.
- Learning the procedure to independently provide MWOBS weather station tours.
- Aiding in Extreme Mount Washington Museum operations including interpretation of exhibits and general interaction with visitors.
- Participating in discussions with staff from each partner organization to plan and execute research outcomes for the almanac.
- Taking part in both map discussions and the recording of forecasts under the tutelage of the summit staff, with an eye toward contributing to the White Mountains Higher Summits and other regional forecasts.
- Helping with making the summit presentable for visitors, guests, and members.
- Planning and completing the annual almanac in collaboration with MWOBS, AMC, and other partner staff.
- Exploring the summit, the buildings, and the surrounding mountains and trails.
- Other duties as needed and assigned by a supervisor.

Key Responsibilities

Research and Almanac Creation

- Aid in the collection and synthesizing of report materials including from instrumental temperature records, biological data, phenological data, photographs, archival materials, or other climate related data

Outreach and Information Dissemination

- Support AMC and MWOBS outreach and educational efforts around the almanac and identify new partnership opportunities

Forecasting and Scientific Support

- Interpret and analyze weather data to inform forecasts
- Collaborate with MWOBS staff at shift change meetings and on shift
- Participate in selected fieldwork related to climate change research and monitoring conducted by AMC and partners

Community Engagement and Education

- Develop and present higher summits and valley weather reports to stakeholders

Data Management and Analysis

- Maintain collected meteorological and biological data
- Produce a final, synthesized dataset with metadata for future use by partners

Software and Technology

- Assist/instruct in the use of meteorological software including weather models, Python, and SQL
- Develop scripts (for example, using R or Python) to synthesize and analyze climate data to underpin almanac

Professional Development

- Attend professional development with Hubbard Brook Ecosystem Study
- Identify other opportunities with MWOBS and/or AMC on research and publications

Qualities and Skills

The below qualities and skills are not required from applicants and many will be taught during the course of the internship. All interested students are encouraged to apply. However, candidates with pre-existing competencies in these areas will be given preference in the application process.

General

- Curious and inquisitive, with a willingness to ask questions. Takes the initiative to help the team when needed, good at problem-solving.
- Ability to be on-call for both day and night shifts.
- Friendly and clear with public requests for help, excellent communication skills.
- Good at observation of surroundings, safety, and the natural environment.
- Strong quantitative and analytic skills, with ability to analyze charts, tables, and data with a focus on synthesizing a report.
- Willing to understand METAR code, know why it is used, and how to code weather conditions.
- Strong verbal and written communication skills for effective interactions with team members and the public.

- Familiarity with software tools relevant to meteorology, including weather modeling software, GIS systems for terrain analysis, or data logging software.
- Proficiency in Microsoft Office suite
- Knowledge of R or other statistical analysis software, and/or ESRI products a plus
- Valid driver's license and personal vehicle (mileage reimbursement provided).
- Experience and comfort with backcountry navigation and working in remote field settings.
- Passion for conservation of the outdoors and commitment to all of our organization's mission.

Benefits

All internships are supported by a generous stipend to cover travel and living costs. Payment is spread equally across this 14-week internship. This internship also comes with housing and meals when you are on shift with MWOBS or AMC.

AMC's Youth Protection Language

AMC and MWOBS have zero tolerance for child abuse or placing children in danger. The AMC requires all employees who work in a program or facility which serves children, disabled persons, or the elderly to have a criminal background record check performed on their name annually with employment contingent upon satisfactory results.