MWOBS®
MOUNT WASHINGTON OBSERVATORY

SUMMER 2024 | VOL 65 NO 2

WINDswept

The Bulletin of the Nonprofit Mount Washington Observatory

- **Remembering Guy Gosselin**
- **24th Annual Seek the Peak**

MWOBS
MOUNT WASHINGTON OBSERVATORY

24TH ANNUAL

APRÈS HIKE EXPO • JULY 20

Seek *your* peak. Any hike. Any day.

Meet & celebrate at the Expo at Great Glen Trails

Live music, catered meal by Hart's Turkey Farm, rock-climbing wall, gear raffle, games and more!

Learn more & register at seekthepeak.org

Our Hike & Make Friends option is back!

WINDswept

SUMMER 2024 | VOL 65 NO 2

FEATURES

NEWS

* *The previous Spring 2024 edition's volume and number were incorrect; the correct notation has been updated on the digital version (Vol. 65, No. 1).*

EDUCATION

WEATHER

DEPARTMENTS

Mount Washington Observatory® is a private, nonprofit, member-supported institution with a mission to advance understanding of the natural systems that create Earth's weather and climate. It serves this mission by maintaining a weather station on the summit of Mount Washington, performing weather and climate research, conducting innovative science education programs, and interpreting the heritage of the Mount Washington region.

Membership in the Observatory is open to all. Members who donate at least $60/year or $5/month receive: Tours of our famous mountaintop weather station (generally mid-May through mid-October); a one-year subscription to *Windswept™: The Bulletin of the Mount Washington Observatory*; meteorology and climate research news from the summit of Mount Washington, straight to your inbox; free admission to *Extreme Mount Washington*™ museum; advanced notice of special events; a 15% discount on all purchases in our museum and online shop; and free admission to more than 300 science centers through the ASTC Passport Program (restrictions apply, please see the ASTC website for details).

Members will receive the three issues of *Windswept* for the year following the quarter in which they join. Please make checks payable to the Mount Washington Observatory and send to: Mount Washington Observatory, PO Box 2310, North Conway, NH 03860-2310, or join at mountwashington.org.

Windswept: The Bulletin of the Mount Washington Observatory (ISSN 1098-7215, USPS 330-710) is published three times a year (spring, summer, fall/winter) by the Mount Washington Observatory. Periodical postage paid at North Conway, NH, and additional mailing offices. Editorial office to which all correspondence and address changes should be mailed is PO Box 2310, North Conway, NH 03860-2310 or submit via email to eestabrook@mountwashington.org

Mount Washington Observatory
2779 White Mountain Highway | PO Box 2310
North Conway, NH 03860-2310
603-356-2137 | email@mountwashington.org | MountWashington.org

Administrative Offices
2779 White Mountain Highway
North Conway, NH 03860-2310
603-356-2137 phone

Summit Facility
Mount Washington
603-356-2137 phone

WINDswept

Editor: Ellen Estabrook
Graphic Design: Brenda Court
Phone: 603-356-2137
Email: eestabrook@mountwashington.org

Contributors:
Wendy Almeida and Karl Philippoff
Cover Image: Weather Station summit staff take in the northern lights on May 10, 2024. Photo by Charlie Peachey

Staff

Wendy Almeida *Membership & Events Coordinator*
Jackie Bellefontaine *School Programs Coordinator*
Alexandra Branton *Weather Observer & Education Specialist*
Jay Broccolo *Director of Weather Operations*
Drew Fulton Bush, Ph.D. *Executive Director*
Charlie Buterbaugh *Director of External Affairs*
Amy Cotter *Lead School Programs Educator*
Peter Crane, Ph.D. *Curator*
Linda & Hank Dresch *Volunteer Coordinators*
Ellen Estabrook *Communications Manager*
Brian Fitzgerald *Director of Education*
Keith Garrett *Director of Technology*
Alexis George *Weather Observer & Meteorologist*
Amelia Gross *AmeriCorps School Programs Educator*
Arron Hammack *Administrative Assistant*
Ryan Knapp *Weather Observer & Meteorologist*
Nimbus *Resident Summit Cat*
Charlie Peachey *Weather Observer & IT Specialist*
Karl Philippoff *Weather Observer & Research/IT Specialist*
Jon Powers *Transportation Coordinator*
Brenda Sullivan *Director of Finance & Administration*
Francis Tarasiewicz *Weather Observer & Education Specialist*
Brandi Webb *Museum Operations and Retail Manager*

Officers and Board of Trustees

Chair: Erica Broman, Ed.D. *Newbury, NH*
Vice Chair: Lourdes B. Avilés, Ph.D. *Campton, NH*
Immediate Past Chair: Robert C. Kirsch *Concord, NH*
Treasurer: Beth Newhouse *Berlin, NH*
Secretary: Jeannie Oliver *Turnbridge, VT*

Teresa S. Bowers, Ph.D. *Meredith, NH*
Michelle Cruz *Conway, NH*
Lesley-Ann Dupigny-Giroux, Ph.D. *Burlington, VT*
John Gorman *Boston, MA*
Drew Landry *Keene, NH*
Hayley LaPoint Politis *Windham, NH*
Gary MacDonald *Conway, NH*
Michael Matty *South Hadley, MA*
Peter Middleton *Portsmouth, NH*
Ken Rancourt *Center Conway, NH*
Karen Umberger *Kearsarge, NH*

Life Trustees

Brian K. Fowler *Grantham, NH*
Christopher Hawkins *Lancaster, NH*
Kenneth Jones *Amherst, NH*
Gail Langer *Harpswell, ME*
Jack Middleton *Freedom, NH*
Gail Paine *Intervale, NH*
Leslie Schomaker *Jackson, NH*
Bryant F. Tolles, Jr., Ph.D. *Concord, NH*
Mark Van Baalen, Ph.D. *Rockport, ME*

Seeking the Peak & Celebrating Our Supporters

Ellen Estabrook

BY **ELLEN ESTABROOK,** WINDSWEPT EDITOR

Spring brought with it the 90th Anniversary of the summit's world record wind, a total solar eclipse, a record-breaking late-season snowstorm, and an earthquake (plus, the breathtaking northern lights that grace the cover of this issue).

In the few months since, the Observatory team has been in high gear for the 24th Annual Seek the Peak. Leading up to and on July 20th, hundreds of hikers will take to trails across New Hampshire and in their own regions to support the Observatory's work in promoting recreation safety in the White Mountains through forecasting and sharing important weather data.

The Observatory staff is proud to have four fundraising teams for Seek the Peak this year. The Weather Observers are currently the fundraising frontrunner, with Nimbus trailing closely behind. Team Cosmic Kismet consists of Trustees, MWOBS staff, and members who were inspired after their time together on the summit for the 2024 Total Solar Eclipse, and the Valley Gals team is headed by our education coordinators. If you are unable to participate this year and would like to contribute to our largest annual fundraiser, please consider a donation to one of our teams, searchable by team name on seekthepeak.org.

With all that is going on with daily operations, weather events, education programs, research, and outreach activities, I am finding *Windswept* to be an opportunity to step back, appreciate all of the exciting developments, and express gratitude to those who make it all possible—you!

In these pages, you'll find dedications to supporters (p. 40) and legacy holders (p. 42), origin stories and key players (p. 36), all coming together to illustriously create the Observatory's living history. With that said, if you are a friend of the Observatory with a story, or you want to introduce yourself or share an experience, we'd love to hear from you. Please feel free to email me at eestabrook@mountwashington.org with "*Windswept*" in the subject line.

Also, please be on the lookout for a feedback survey coming your way soon—we appreciate any input on this publication in terms of layout, content, readability, etc., as we make updates. Thank you so much for all you do, and we look forward to hearing from you.

Help Us Celebrate A Legend This Summer

Drew Bush

BY **DREW BUSH,** EXECUTIVE DIRECTOR

This past winter a true legend of the Observatory left us. On March 7, 2024, Guy Gosselin passed away at 90-years-old. I was fortunate to visit and talk over the phone with Guy during my first year here.

Many of you may know that Guy served the Observatory in various roles for 35 years, transforming our operations to include the summit museum and moving our weather station into the Mount Washington State Park Sherman Adams Visitor Center. He first joined us in February 15, 1961 for a short-term weather observer position and later, after stints as Chief Observer and Executive Director, served on the Board of Trustees.

We will miss him greatly, but you can read more about his legacy in this issue. And please stay tuned for a full hour interview with Guy we'll be sending to your inboxes digitally.

In my time talking with Guy, he voiced strong support for the direction the Observatory has taken. I would like to think he would approve of the renewed urgency with which we have brought cutting-edge research back to Mount Washington. In the past year, we have created new opportunities for student internships that have helped to galvanize our research programs. Led by our two Weather Observers and Research Specialists, Charlie Peachey and Karl Philippoff, we have undertaken novel work into understanding rain on snow events and changes to lapse rates as the weather on New England's highest peak shifts with climate. You can read more on Karl's work in this edition.

Our Director of Weather Operations, Jay Broccolo, has also has led a new partnership with the United States Air Force's Weather Branch that will make us a long-term testing site for their meteorological instrumentation. We've also begun laying the foundation to become a center for research into numerical weather modeling with the National Weather Service and others to improve the utility of forecasts for human communities. Federal support from United States Senator Jeanne Shaheen and Congressman Chris Pappas means we'll be modernizing and expanding all of our essential weather technology, including the Mount Washington Regional Mesonet. In fact, we're involved with more new partnerships and research projects than I have space to report on here.

Scientific excellence in research remains core to our work. It's essential to making sure we can continue to provide the most accurate daily weather observations and forecasts for our partners in the meteorological and recreational communities. Research also drives our educational mission, allowing us to inspire scores of young children to seek the skills needed to succeed in the science, technology, engineering, and math (STEM) careers of the future.

At this year's 24th Annual Seek the Peak, we welcome these same young students and their families to get inspired by the outdoors and hike with us. We encourage you to sign up for this year's event with anyone you know who is under 15-years-old—we'll even waive their registration fee.

Even if you don't have children with whom to hike, we hope you will join us for an energized event that has been re-oriented to focus on appreciating your support for the Observatory through many more raffle and hiker prizes, a catered meal with Harts Turkey Farm Restaurant, a rock-climbing wall, live music, free giveaways, and many more surprises. Visit SeekthePeak.org today, register to hike (or even just to celebrate), and join us. All are welcome.

Guy Gosselin is shown in an earlier photo during one of his many trips to the summit weather station.

Purr-suing my Purr-sonal Goals

TRANSLATED BY **ALEXIS GEORGE**

Nimbus

Hello my human admirers, meow you doin'? The Observers have been keeping me entertained recently. I have a meowntain of cat toys, but they know that my favorite is the one with the feathers on the end. Most of all though, I enjoy hiding and ambushing the Observers when they go through the living quarters. After playtime, I'll start feline tired and will take a catnap. Cat naps are the ultimate purr-suit of relaxation and I have an uncanny knack for turning any place into the perfect nap zone. And I swear, I'm not lazy— I'm just keeping my paw-sition as a professional sleeper.

After I have recharged my purr-sonal battery, I make frequent visits to the Observers in the weather room. It's pawsitively awesome to hang out in the weather room! I get to help out with the higher summits fur-cast and I meaw-deliciously demand scratches and cuddles from my Observers. I also enjoy the meow-nificant views of the mountains from the weather room. I'm really not kitten you, the view is simply purr-fect for a meow-tain climber like myself. It's the cat's whiskers, really! I'm looking forward to the warmer days though. I was feline quite chilly this past winter and its was purr-plexing how cold it was outside. Fur-tunately summer will arrive soon, be-claws I was not feline the winter weather at the summit at all! I tried going outside to explore recently, but there was no way I was going to stay out there for long, because it was it was just too fur-eezing for me! I am still eager to get out and explore though, because I'm not just a cat, I'm a meow-tain explorer! After all, a little cold and snow can't keep a cool cat like myself down!

For the 3rd year, I'm purrtaking in Seek the Peak, the Observatory's largest annual fundraiser. Will you help me surpass last year's $6,754 total? Use this QR code to donate and I'll send you a personal thank-you all by meowself.

Welcome Membership & Events Coordinator Wendy Almeida!

Mount Washington Observatory is thrilled to welcome Wendy Almeida to the team as Membership & Events Coordinator.

Wendy joins our organization's outreach efforts with backgrounds in project management, event planning, and communications, and has previously volunteered at the summit as a friend and member of the Observatory. Wendy's hard work, collaborative spirit, and desire to help the organization thrive has already played a key role in our upcoming Seek the Peak fundraising event, and we're excited for all that is to come in having her on the team. Join us in welcoming Wendy by reaching out to her at walmeida@mountwashington.org.

Wendy Almeida

Amelia Gross Joins Education Team for Summer/Fall Programming

The Observatory Education team is excited to be joined by Amelia Gross through the Lakes Region Conservation Corps program, where she will assist in school programs including field trips, school and after-school activities, as well as the launch of the Observatory's first summer camp in partnership with Conway School District's Project SUCCEED. Amelia is passionate about the connection between science literacy and environmental justice, and she is excited to help students of all ages and backgrounds access meaningful science and environmental education.


Amelia Gross

Guy Gosselin Remembered & Trustees Honored at 2024 Annual Meeting

Our 2024 Annual Meeting at McAuliffe-Shepard Discovery Center brought together friends, Trustees, and members on June 1, 2024. The Board of Trustees approved two new positions to support summit operations and educational programs and unanimously nominated Trustee Lourdes Aviles to serve as new Vice President. Later, members, partners, and friends convened for a heartfelt ceremony led by Board of Trustees President Erica Broman, where she presented on the Board's approach to recruitment and Trustees into the organization. Drew and our Education department presented on 2023 projects and progress, and a true legend of Mount Washington Observatory, Guy Gosselin, was honored, as well as five outgoing Board of Trustees members who gave a lifetime to our historic organization.

To read the full blog post by Drew Bush visit mountwashington.org/journal.

FATALITIES ON MOUNT WASHINGTON

Skier Dies in Tuckerman Ravine

On Saturday March 9, 2024, a skier died in a catastrophic fall in Tuckerman Ravine.

Madison Saltsburg, 20, of Dillsburg, PA, was traversing the Ravine Headwall with a companion when both fell. Saltsburg suffered significant traumatic injuries which resulted in her death. Her companion sustained serious injuries.

Staff of the Mount Washington Avalanche Center (U.S. Forest Service Snow Rangers), volunteers from the Mount Washington Volunteer Ski Patrol, and bystanders responded to the tragic incident.

Snow conditions at the time were hard and icy. Saltsburg fell an estimated 600 feet.

Our condolences go out to Ms. Saltsburg's family and friends, her fellow students at the University of Vermont, and her comrades in the UVM ROTC program in which she served.

Grim Recovery in the Dry River Wilderness

On Monday, May 13, NH Fish and Game Conservation Officers and volunteers recovered the body of William Donovan from the Dry River Wilderness south of Mount Washington.

Donovan, 65, of Cambridge, MA, started out on or about April 16. His car was located at the Crawford Path parking lot. It wasn't until April 28 that authorities were notified he was apparently missing.

A search was initiated, focusing around Mounts Eisenhower and Pierce. The search was hampered by lack of itinerary and extended time. No clues were found after several searches.

The weekend of May 11-12, passing hikers found clothing and gear about 2.5 miles from the Dry River Trail trailhead. As a result, the search was resumed on May 13. Donovan's body was found later that day.

FEATURE

Deadline Driven: The 12-Hour Shifts that Power Weather Forecasting from the Northeast's Highest Peak

BY **WENDY ALMEIDA**

As a new member of the Mount Washington Observatory team, I wanted to gain a deeper understanding of the unique operations of the weather station and the meticulous work of observers to help better explain to our members how our summit team works. Having previously volunteered at the summit to cook for our EduTrips, I was familiar with the general rhythm. But this time, I shadowed an observer for a couple of 12-hour shifts. My goal was to delve into the nuances of their work, the pressure of hourly deadlines, and the coding language used for weather observations at the summit.

Many who follow the MWOBS social media and blog know that weather observers brave harsh conditions to collect weather data. What may not be as clear is that this data collection and reporting operates on a constant timer of deadlines.

Having worked at a daily newspaper, I understand the pressure of deadlines to get pages off to the presses for printing and distribution. Those were tight daily and weekly deadlines that required quick work and accuracy.

While shadowing observers at the summit, I witnessed that same pressure of deadlines, but on an hourly basis for 12 hours straight. They must record and submit observations before :15 past the hour. So, while the observation can take 2 to 10 minutes for non-synoptic observations, it can take another 5 to 10 minutes to fill in and code all the data correctly. An observer needs to be a hardy soul who enjoys the challenge of facing all sorts of harsh weather; it's also a person who thrives under pressure.

Daily Observations and Data Reporting

Observations are conducted hourly, but the level of data collection varies. In addition to these hourly observations, there are "mini" reports every 3 hours and more comprehensive synoptic reports four times daily, each requiring a different level of detail and analysis.

A typical hourly observation involves venturing outside with a sling psychrometer. This device resembles a double thermometer, with a dry bulb to take the current temperature and the other with a "wet bulb" to get the evaporative temperature. The wet bulb is left in

distilled water and, when brought outside to "sling," measures the temperature as it evaporates. Using both the dry and wet bulb calculates the dew point and relative humidity. However, it is not used when the summit is in the clouds because the conditions are already at 100% saturation.

A Sling psychometer: the wet bulb is wrapped in a cloth "sock" and stored in distilled water.

After noting the current temperature and humidity, observers assess the visibility from the deck in each direction to determine the most dominant visibility conditions. Then there are the clouds. Various cloud types can be present at different levels, and the type of cloud informs the general height of the clouds, but experience provides the best estimate of cloud cover height.

The observation starts as a 2-minute task outside, but sometimes it can take longer, especially if "slinging" takes several minutes or multiple cloud layers need to be assessed. Once inside the station, the observations are recorded through a METAR coded report.

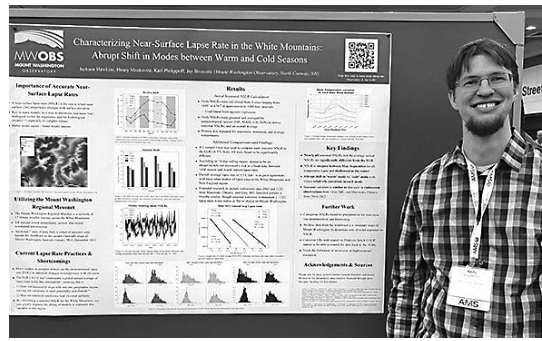
In addition to recording the hourly observations, the synoptic report is submitted every 6 hours and shared with the National Weather Service for use in nationwide forecasting models and regional reports. These data helps NWS update models by informing them of current conditions, including precipitation and pressure changes. These data also produces specialized forecasts for the higher summits of the White Mountains and the greater White Mountains region.

The Observatory has been diligently recording hourly observations since 1932, making it one of North America's longest continuous historical climate record maintained by human observation. This invaluable data allows us to gain deeper insights into weather patterns and their changes.

FEATURE

Overview of Lapse Rate Research

BY **KARL PHILIPPOFF**



Karl Philippoff presenting his research at the American Meteorological Society's 104th Annual Meeting.

As a weather observer and research specialist on top of Mount Washington, in addition to my usual observer duties such as taking hourly observations, releasing forecasts, thoroughly checking our daily observations and keeping our weather instruments calibrated and in good working condition, I also look into the data that we collect both on the summit and in other weather stations we have set up around the White Mountains to investigate how the data that we collect are connected to other research projects conducted in other mountainous areas. One of the projects that I have become involved in my time on the summit involves the calculation of near-surface lapse rates for Mount Washington over daily, monthly, seasonal, and annual time scales.

Before proceeding further, what, exactly, is a lapse rate? Any lapse rate in atmospheric sciences involve the change in a desired parameter, usually, but not always, temperature with a change in height. Diagnosing in the atmosphere is key parameter in determining the stability characteristic of the atmosphere, with greater changes in temperature with height corresponding to a greater degree of instability, and lesser changes with greater stability. Especially in the summer season in New England, the lapse rate is one of a few key parameters that meteorologists look to evaluate whether thunderstorms will form on a given day (along with low-level moisture and a lifting mechanism). These lapse rates are known as free-air lapse rates, as they are usually taken to be vertical profiles of temperature above a flat ground surface.

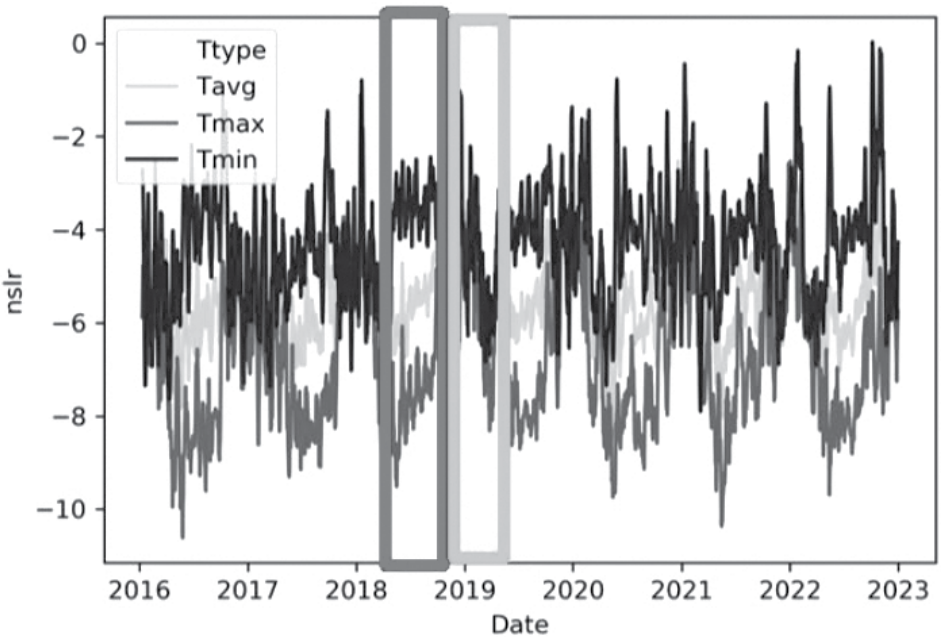
Measuring lapse rates close to surfaces, rather than in free-air, is important as this is where organisms, snow, and

glaciers tend to be found. Determining the rain/snow line as well as accurate snow hydrological and ecological modeling depend on accurate temperature estimates along surfaces to determine an organism's ecological niche, as well as how much snow would be expected to melt at each elevation during the spring melt season. As surfaces can be variable (e.g. different vegetation coverage, face different directions (north-facing vs. south-facing, windward vs. leeward), it is not always trivial to extrapolate the vertical temperature profile measured in the free-atmosphere to that measured along a significant gradient, as from the base to the summit of Mount Washington. Temperature itself is also a key factor controlling many environmental processes, making estimations of this quantity useful for a variety of fields, not only for meteorology or climatology.

Usually this research is done by using stations in valley locations and then extrapolating the temperatures measured in that location to higher elevations by using what is usually called the environmental lapse rate. This lapse rate has been found to be the typical temperature change with height in the lower atmosphere across the globe. Right away, you should notice a few problems with this methodology. First, this lapse rate is average rate of change in the free atmosphere, not along a sloped surface, so this ignores any consideration for the changes to this lapse rate that might occur due to varied surface characteristics. And second, that this is a globally averaged value which eliminates any contributions that may be caused by seasonality or different climates. As you might imagine, the lapse rate over a tropical rainforest and over the tundra in the winter may be quite different! While it may be acceptable as a first approximation, using data collected in the region of interest is always preferable, especially if it collected over a substantial length of time to more accurately give a representation of its average and its variability.

In this particular study, I was looking at temperature changes along the surface between the base of the mountain and the summit using data taken at weather stations arranged at regular intervals, roughly every 1,000 feet, along the Mount Washington Auto Road. These stations are all measuring temperature at the same height above the local ground surface. If you've ever seen the Auto Road Vertical Temperature Profile displayed on the left side of our current conditions page, it is a real-time glance at how these temperatures are changing with elevation every minute of every day. Additional benefits of using these data include:

- It consists of 7 full years of data (Jan 1st 2016- Dec. 31st 2022) while most other comparable studies use only 1 to 2 years data
- The stations are consistently facing toward the east-facing side of the mountain within short distance of one another, which minimizes discrepancies based on different aspects, exposure to winds (prevailing from the W to NW) and that experience similar weather at about the same time with regard to frontal systems.



10-day running mean of the calculated daily lapse rates using the Auto Road weather stations. This figure displays the running means of the maximum, minimum, and average temperatures measured at each station, and then using a best-fit line to find a singular lapse rate between the base and the summit. The dark gray rectangle highlights the 'warm' season, while the light gray rectangle highlights the 'cold' season.

- Data availability within study period is excellent, with most stations having >99% data availability every minute over the full period.
- No other data set over a comparable length time at this kind of time resolution exists for the Northeast, making this dataset unique.

The lapse rates reported in the literature usually determined with respect to daily maximum, minimum, and average temperatures, so each of each station's maximum, minimum, and average temperatures were calculated for each of the Auto Road weather stations. Then a best-fit line was fit through the remaining stations to determine the daily lapse rate with respect to the three different temperature data points. Once the daily lapse rates were calculated, the data was averaged to determine daily, monthly, seasonal, and overall averages.

Some of the more important results we found were:

The daily data, as grouped by season, were organized into a histogram, with every day being shown , with each showed that was substantial variation around the average lapse rates for each season, with the greatest amount of variation seen in the winter season, and

narrower, more peaked distribution during the winter season. Both the spring and fall seasons showed distributions somewhat in between either of these two extremes.

All seasonal lapse rates were found to be significantly different from the environmental lapse rate, making it a poor estimator of temperature with height in the White Mountains.

The overall average lapse rate of 5.5 C/km was in good agreement with most of studies of lapse rates in the White Mountains and greater New England.

When the daily data were grouped by month, this began to show somewhat of a dichotomy between cold season and warm season patterns. In this case the 'warm season' begins in May and lasts until September and is characterized by steep lapse rates, especially of the maximum temperatures. Between November and March, the lapse rates of the maximum, minimum, and average temperatures much closer together and they also vary in concert, though maximum temperature lapse rate always exceeds the minimum temperature lapse rate. March and October are transition months that exist somewhere in between these seasons, with a larger spread between the maximum and the minimum lapse rates than the 'cold' season, but a smaller spread than the 'warm' season. This flip between 'warm' and 'cold' modes becomes even more distinct when smoothing the daily using a 10-day running mean (Figure 1). During the warm season, the minimum, maximum, and average lapse rates are spread well apart, with very little crossover between three different lapse rate flavors. During the cold season, however, the variation between the three flavors is much more tightly constrained, and also substantially more variable.

While this particular phase of the project has been completed, there are still multiple avenues for future research concerning lapse rates within the White Mountains. These include:

- Categorizing lapse rates according to precipitation events, especially those close to freezing, to better understand the variation of temperature with elevation and determine the rain/snow line for future higher summits forecasts and avalanche forecasts.

- Expand the weather station network to include stations on the westward slopes to determine the role of wind exposure on the temperature profiles measured, and strengthen the interpretation of the existing data.

- Calculating the lapse rates with respect to the Pinkham Notch COOP station so that lapse can be estimated back into the 1930s.

WINTER 2023/SPRING 2024 WEATHER DATA

	DEC	JAN	FEB	MAR
Temperature (°F)				
Average	20.7	11.6	11.91	19.5
Departure	+8.9	+5.8	+6.0	+6.6
Maximum	41	34	37	43
Date(s)	18th	25th	28th	27th
Minimum	-7	-11	-15	-17
Date(s)	14th	17th, 18th	29th	1st
Precipitation (inches)				
Monthly	10.92	10.25	3.23	11.92
Departure	+3.57	+4.51	-2.22	+5.20
24-hour Maximum	3.97	3.90	0.76	1.79
Date(s)	17th/18th	9th/10th	28th	23rd
Snowfall (inches)				
Monthly	35.6	71.8	27.8	83.3
Departure	-12.1	+30.4	-15.5	+37.1
24-hour Maximum	15.6	20.7	5.1	17.4
Date(s)	3rd/4th	9th/10th	14th	23rd
Season Total	83.3	155.1	182.9	266.2
Departure	-20.3	+10.1	-5.4	+31.7
Wind (mph)				
Average	35.9	40.2	39.9	41.5
Departure	-8.1	-5.4	-4.7	+1.7
Peak Gust/Direction	132 S	111 SE	147 W	150 W
Date(s)	18th	13th	29th	11th
Days 73+	13	17	15	19
Days 100+	3	4	5	7
Other				
% Sunshine	35	34	42	26
Clear Days	3	0	2	1
Partly Cloudy Days	3	8	8	4
Cloudy Days	25	23	19	26
Days with Fog	29	29	25	29
Days with Rain	9	5	2	6
Days with Snow	20	25	19	21

Winter 2023/Spring 2024 Overview

BY **RYAN KNAPP**

The period saw plenty of snow but in the mix was also plenty of warmth and rain. It continuously felt like for every gain we made with the snowpack, it was quickly diminished not long after. The season also brought notable winds and the first thunderstorm of 2024.

December 2023

A Panhandle Low raced Northeast on the 1st providing fog, light snow, and gusty winds. A shortwave trough continued wintery weather into the 2nd. A double-barreled system on the 3rd provided 13.1 inches of snow. The coastal low shifted east and the Great Lakes low passed on the 4th providing colder/windier conditions and 4.4 inches of snow. High pressure on the 5th provided a clearing pattern. The ridge crested on the 6th providing fair skies and low winds. A warm front on the 7th provided intermittent fog, clouds, and milder temperatures. Clear skies and increasing winds returned on the 8th. An approaching trough from the west on the 9th returned fog and snow. Temperatures warmed on the 10th resulting in a rainy day. A cold front on the 11th caused rain to transition to freezing rain, sleet, and eventually snow. The upper-level trough continued snow on the 12th prior to clearing late. A cold front on the 12th provided snow and temperatures below 0F. Snow and fog lingered into the 13th. High pressure built from the west on the 14th providing high winds and clearing. The 16th started with winds of around 90 mph then bottomed out around 10 mph by sunset.

High pressure departed on the 17th and a coastal low slid north. The low rapidly strengthened and temperatures rose to a new daily high of 41F on the 18th. The warmth resulted in over 4 inches of precipitation and significant melting of the snowpack on the 17th/18th resulting in significant flooding around the region with strong winds leading to widespread power outages. A trough provided snow on the 19th then high pressure provided clearing on the 20th.

A blocking ridge remained from the 21st through the 23rd. A shortwave provided snow/sleet on the 24th/25th. A boundary pushed south on the 26th as a weak coastal low lifted north for the 27th providing a wet pattern. Another coastal low on the 28th/29th continued a wintery mix. Snow returned on the 30th as a low stalled in the Gulf of Maine. High pressure on the 31st provided a clearing pattern.

January 2024

High pressure provided cold but dry conditions for the 1st/2nd. A cold front on the 3rd provided snow and fog which lingered into the 4th. A low on the 5th provided additional snowfall with an upper-level trough providing additional snowfall on the 6th. Low pressure slid offshore and deepened on the 7th/8th providing nearly a foot of snowfall. A low on the 9th/10th provided an additional 21.5 inches of snowfall. A cold front provided additional snow and colder temperatures on the 11th. High pressure late on the 11th into the 12th provided an undercast layer. A low on the 13th provided 13.2 inches of snowfall with an additional 3.1 inches on the 14th. High pressure on the 15th provided rising temperatures, clearing skies, and decreasing winds.

A coastal low on the 16th/17th provided light snow. Low pressure to the north on the 18th provided continued fog and snow. High pressure on the 19th allowed for clearing and decreasing winds. Northerly flow on the 20th provided fog and snow. High pressure moved north on the 21st providing a clearing pattern that lingered into the 22nd. A moisture-starved cold front passed late on the 22nd then high pressure rebuilt for the 23rd. A warm front overnight delivered snow early on the 24th before warming resulted in rain. A low to our south on the 25th provided a wintery mix that ended in rain. Clearing returned overnight then a warm front lifted north on the 26th providing snow that ended in freezing drizzle and thick glaze ice. Precipitation tapered and clearing returned with high pressure on the 27th. A coastal low on the 28th/29th provided snow. Then, clearing returned, and undercast conditions developed which would persist through the end of the month.

February 2024

An upper-level cold front slowly approached from the north with a series of shortwaves moving east along the front on the 1st. The cold front dropped down on the 2nd providing colder air and snow that persisted through the 3rd. High pressure built from the west on the 4th and then remained through the 8th. Low pressure from the west on the 9th returned fog and a cold front on the 10th provided a wintery mix. Upslope snow showers early on the 11th tapered and a clearing pattern developed with a weak ridge that lingered into the 12th. A coastal low provided snow on the 13th/14th. Cold air wrapped on the backside of the low and upslope snow showers developed on the 15th.

Low pressure passed on the 16th with a trailing cold front passing on the 17th providing snow both days. A Clipper and upslope flow continued snowfall on the 18th/19th. Upslope snow continued into the 20th then high pressure on the 21st allowed for a fair weather day. High pressure exited on the 22nd as a cold front approached from the west. Fog and snow returned overnight and continued into the 23rd. A secondary cold front on the 24th reinforced cold air, however, snow tapered and eventually clearing returned overnight as high pressure built. The ridge remained for the 25th then exited. Low pressure to the north provided a cold front with snow for the 26th. A warm front on the 27th provided milder temperatures and snow/sleet. A low on the 28th/29th provided rain that gradually transitioned to snow.

March 2024

High pressure built north on the 1st then exited on the 2nd as a coastal low moved north providing mixed precipitation on the 3rd. A ridge provided clearing on the 4th then another coastal low provided rain on the 5th. A ridge on the 6th provided a new daily record high of 40F ahead of a cold front. Rain transitioned to snow overnight and snow lingered into the 7th. High pressure and clearing returned on the 8th. A low from the southwest returned fog/snow on the 9th. Deepening low pressure over southern New England on the 10th/11th provided 19.3 inches of sleet/snow and a peak gust of 150 mph. Century winds and fog lingered into the 12th before conditions improved overnight. Clearing early on the 13th gave way to a weak low providing snow showers. A low from the west provided snow for the 14th/15th then upslope snow showers lingered into the 16th.

A low to our north on the 17th provided snow and the season's first thunderstorm. Upslope snow and fog lingered on the backside of the low from the 18th through the 20th. A Clipper passed on the 20th and strengthened in the Gulf of Maine on the 21st providing continued snowfall and high winds. An Arctic ridge on the 22nd provided cold temperatures and a brief break from precipitation. The 23rd saw a low strengthen offshore and tap into tropical moisture dumping 17.4 inches of snow. Snow ended by the 24th as the low exited and high pressure built in providing high winds. Clear conditions returned on the 25th and remained into the morning of the 26th. Fog and drizzle returned for the 26th/27th. Rain late on the 27th transitioned to snow on the 28th and continued until the 29th. High pressure provided clearing on the 30th then a low ended the month with fog and snow.

Microburst: Tiny but Mighty

BY **FRANCIS TARASIEWICZ**

I once attended a yearly SKYWARN training session hosted by a skilled meteorologist from the National Weather Service (NWS) in Burlington Vermont. During this hour-long session he taught us the basics about spotting and reporting significant severe weather from hail, floods, and even tornadoes. His tour of the severe weather world made a quick stop at a particular phenomenon that is sure to make any pilot sweat, a microburst. His hands-on demonstration of how exactly a microburst works is something that I will never forget. For demonstration purposes he asked the crowd if anyone had a full water bottle. Next, he took said water bottle and proceeded to pour it upside down, and its contents of course, spilled radially outward. He looked down at the ground with a half-smirk, clearly somewhat amused, and said "yep, that's pretty much a microburst". If you're finding yourself somewhat confused at this explanation then allow me to spend the next few paragraphs explaining what a microburst is, and why forecasters and pilots alike find themselves nervous when talking about them.

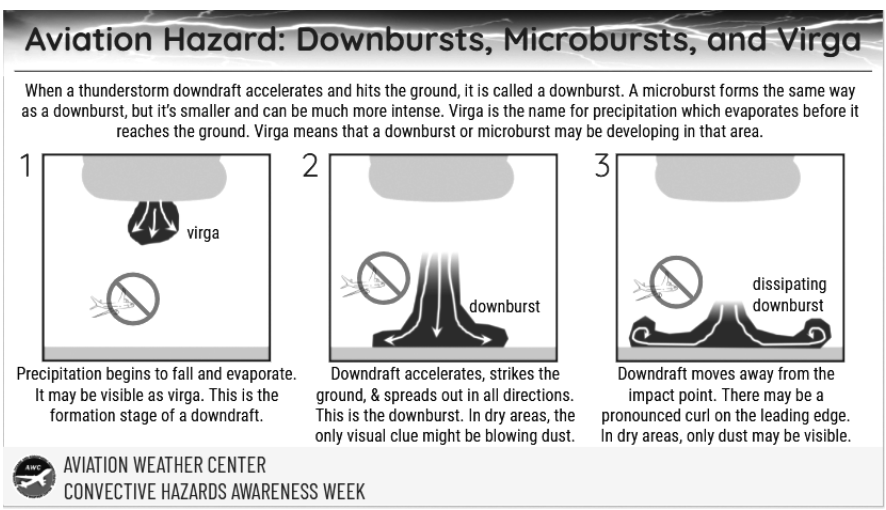
A microburst fits within a broader category of severe weather that is driven by thunderstorms. A thunderstorm has two principle components, an updraft, where warm, moist, and less dense air rises, and condenses into clouds. The strongest of thunderstorms, known as supercells have rotating updrafts that can tower to well over 50,000 feet (15 km)! Of course, what comes up must also come down, and meteorologists have come up with a somewhat intuitive name for the downward moving part of a thunderstorm – the downdraft. A downdraft is an area of a storm that is sufficiently cooled by falling and evaporating rain or hail. The precipitation and evaporation can make the air over a localized area much denser than the surrounding environment. This dense air rushes to the surface and can result in a slew of hazards. Typically, the formation of a strong enough downdraft spells the end for a thunderstorm as rain-cooled air shuts down the storm's updraft. This isn't always the case, however, especially with those supercells that I mentioned earlier, but those are a whole other story.

Microbursts are a type of downdraft, and are generally less than 2 ¼ miles in horizontal diameter. What separates these tiny but mighty phenomena is

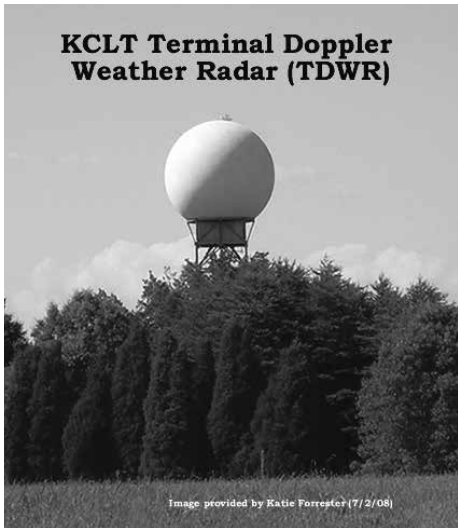
their intensity. Within the core of a microburst it is not entirely uncommon for winds to accelerate to 100 mph or greater, or the equivalent of an EF-1 tornado. Winds in a microburst, much like the meteorologist's water bottle, originate at the base of a thunderstorm, rapidly rush to the surface, and then spread out horizontally in a circular pattern. Tornadic winds on the other hand tend to show evidence of violent rotation. This tidbit is useful when NWS meteorologists perform storm surveys to determine if a tornado had caused damage. In the case of a microburst, meteorologists would see damage occurring in a straight-line path as if a bomb had detonated.

As microbursts are a subtype of downdraft, so too are there subtypes of microbursts. Wet and dry varieties. East of the Mississippi, or in the world's wetter regions a so-called wet microburst may be more common. With a wet microburst, the downdraft itself is likely caused by precipitation overloading a storm's updraft and then violently falling as wind driven heavy rain and/or hail. These types of microbursts can bring about zero visibility with little to no warning at all. In the desert southwest, or the more arid parts of the world, dry microbursts tend to rule. In these situations, the parent downdraft forms as the result of drier air near the surface evaporating precipitation near the base of a thunderstorm. This evaporation results in rapid cooling, and when a sufficiently cold and dense pocket of air builds up below a storm, it violently accelerates towards the surface. The unique calling card of a dry microburst is a relatively rain-free thunderstorm base with a curl of dust or sand spreading out near the surface. This may also be visible with wet microbursts but the driving rain or hail with these events can obscure any raised sand or dust.

What both types have in common is



Shows the stages of a microburst from beginning to end. Source: NOAA



"TDWR" An image of a Terminal Doppler Weather Radar (TDWR) scanning the skies near one of America's busiest airports (Charlotte, North Carolina). Source: NWS

their ability to create hazardous conditions for pilots. Microbursts produce both tremendous downward motion as well as turbulence when they arrive at the surface. This combination can quickly cause a pilot to lose control. Before the widespread adoption of Doppler radar, microbursts were estimated to have caused as many as 20 major airline crashes and over 500 deaths. Thankfully in the modern era, the skies are significantly safer from this hazard as a result of Doppler radar located near airport terminals. These TDWRs scan the skies above the nation's 46 busiest airports. They're a secret weapon against microbursts as they can detect them at their earliest stages. While microburst detection from TDWRs may result in a delayed flight, they have unquestionably saved countless lives.

New Summer Learning Opportunities Abound at the Obs

BY **BRIAN FITZGERALD**

With an exciting school year now in the rearview mirror, it's a great time to reflect on the accomplishments of the last several months and think about what the future has in store for learners of all ages at Mount Washington Observatory (MWOBS). Starting with a backpack giveaway in the fall of 2023, the education team at MWOBS successfully re-launched school programs in a major way. School Programs Coordinator Jackie Bellefontaine visited 22 area middle schools, giving away 800 backpacks stuffed with weather and climate learning resources and instruments, all while sharing about the work of MWOBS and the unique climate of our region. In our initial year of offering, seven schools from across New Hampshire and Maine signed on as MWOBS school members to work with MWOBS educators in their classrooms, through virtual programs, and in most cases, culminating in field

School Programs Coordinator Jackie Bellefontaine (right) and Lead School Programs Educator Amy Cotter (left) at Coleman State Park for the eclipse gathering.

School Programs Coordinator Jackie Bellefontaine at a Citizen CATE training at the Southwest Research Institute in San Antonio, Texas.

trip programs to the summit weather station. These enrichment experiences alone totaled over 130 hours of programming with K-12 students.

In addition to the growing school member relationships, MWOBS educators delivered 35 virtual programs throughout the school year to over 1,200 students to K-12 schools in our backyard to schools in places like Ohio, Texas, Ontario, Canada, and beyond. In the build-up to the 2023 Solar Eclipse, 12 programs alone were dedicated to helping students understand how weather and climate play a factor into your likelihood of witnessing this grand astronomical event. And while we're talking about the eclipse, MWOBS was able to offer another two free virtual eclipse programs through the Science in the Mountains lecture series, along with two school-day eclipse programs and all the programs that led up to the eclipse day itself. On the weekend of the eclipse, MWOBS staff went all-in by providing multiple programs at the Omni Mount Washington Hotel, by coordinating a NASA-funded citizen science eclipse measuring team in Pittsburg, and finally by joining in on the fun themselves with tabletop activities at the Coleman State Park viewing party in West Stewartstown, New Hampshire.

As if that weren't enough, the school year also saw:

- 12 teachers participate in the Arctic Wednesdays program
- 15 field trips (including 3 winter field trips) in partnership with the Mount Washington Cog Railway and Mt. Washington Auto Road
- 36 after school programs across New Hampshire and Vermont
- 8 gatherings (including two in-person field trips) of the White Mountain Connected Learning Ecosystem for formal and informal educators in our region working to build knowledge of climate and

data literacy skills and resources

While we're still taking these experiences all in, the education team has been working hard launching our summer programming. In addition to field trip programs, and outreach to area summer camps, two brand new programs for K-12 youth and teachers have been unveiled. MWOBS will run two week-long sessions of the first ever "Storm Scouts" summer day camp for area youth from August 5-9 and 12-16 in partnership with Project SUCCEED, an enrichment program run through the Conway School District. Each session will accommodate up to 15 campers rising to grades fifth through eighth with a focus on fun activities related to extreme weather and weather preparedness. Thanks to support from the Dorr Family Foundation, this camp program will be offered free to campers with donations graciously accepted. With five days in each session, campers will engage in several indoor and outdoor learning opportunities based at our administrative offices in North Conway and town forest of Whitaker Woods, with three field trip days to the summit of Mount Washington.

Beyond our camp program, K-12 teachers will have opportunities to learn with us as well during our summit overnight program "Peak Perspectives: Professional Learning in Weather & Climate Education" offered this July and August. Each of our two sessions will focus on how weather and climate data are collected, the types of instruments used in the process, and how to identify and work with local sources of weather data to localize learning in the classroom. If you are a teacher or know one who is looking to reinvigorate their weather and climate teaching, be sure to check out our summer and winter professional learning opportunities.

There are also many ways for adults and families to engage in MWOBS this summer, including through our Science in the Mountains lecture series, tours of the summit weather station, and through a visit of our summit museum and North Conway Gladys Brooks Memorial Library. This summer we'll be hosting speakers from Project Drawdown, discussing science-based climate change solutions, and presentations from our own staff providing an update on current research at the Observatory. In addition to the virtual space, we welcome you to come visit the summit, especially if it's been a while. As always, tours of the weather station are a free benefit to current MWOBS members. This summer we'll also open fee-based weather station tours to the public to increase access to our work on Mount Washington. While you're visiting, don't forget to check out the Extreme Mount Washington Museum where students from Worcester Polytechnic Institute will be helping us craft a visit experience survey. Feedback from this effort will help MWOBS staff develop our next interpretative plan for learning experiences on the summit, so thank you in advance for your feedback!

There's so much more happening across the education space, but in the meantime, don't hesitate to reach out if you're looking for different ways to engage with us. Happy learning!

Elevating Excellence: Innovations and Operations at Mount Washington Observatory

BY **JAY BROCCOLO**

Perched atop New England's highest peak, the Mount Washington Observatory stands as a cornerstone of meteorological research and education. This season not only marks the successful completion of numerous education and media trips facilitated by our trusty snow tractor, but also celebrates significant operational milestones with over 2,800 observations and 230 forecasts since the last issue of Windswept. The observatory staff expertly managed 17 shift changes, underscoring our unwavering commitment to monitoring severe weather. A recent NOAA inspection report complemented these achievements by affirming the high standards at which our weather station operates, reflecting our dedication to delivering reliable and precise weather data.

Lead School Programs EducatorTheir additional hands and brainpower support a burgeoning agenda of projects and daily operations. With two interns per shift, our weather observers can ensure continuous coverage of weather operations and delegate tasks effectively, allowing them to focus on their research and education roles. Additionally, the interns take a leading role in conducting weather station tours, expanding the opportunity for more people to experience the station firsthand.

A significant technological upgrade this season includes the design and construction of a new, heated wind vane to replace the now dismantled Vane B. This advanced equipment promises improved measurement accuracy and durability against harsh conditions. We are also incorporating a small pitot tube in future iterations for enhanced wind speed measurement and have added a new HMP-155a temperature probe to our fleet. This probe, along with a newly replaced summit data logger, helps maintain our measurement accuracy, including checks against our sling psychrometer and other manual observations.

Addressing infrastructural needs, the Summit Task Force has been proactive in tackling long-standing issues and collaborating with our partners for comprehensive progress. Efforts include installing safer fire egress routes from the bunkrooms, updating thermostats, replacing storm-damaged windows, and renewing ceiling tiles. These renovations are critical to ensuring the safety and comfort of both staff and visitors in the harsh mountain climate. Furthermore, steps are being taken to address future needs as we expand

Summit team photo taken on the Observation deck on June 5, 2024. Pictured left to right: Karl Philippoff, Francis Tarasiewicz, Joshua Elms, George Mousmoules, Maya Hartley, Charlie Peachey, Alex Branton, Alexis George. Front (left to right): Jacob Garside, Ryan Knapp.

our weather and research operations.

In an effort to promote sustainability, we have established a new summit composting method. We collect compostable material separately and transport it down during shift changes to the Admin Offices. Staff may then use it as feed for their chickens or add it to their own compost or to a local farm. This initiative exemplifies our commitment to environmental stewardship and community support.

Additionally, the formation of the Synoptic Syndicate—a team comprising of valley staff and select volunteers—enhances our operational flexibility and cohesion. This group will be trained to back up summit operations as needed, ensuring uninterrupted monitoring of dynamic weather patterns. This opportunity not only maintains the integrity of our data but also fosters camaraderie. As the observation team primarily remains on the summit, having staff and others join them enhances understanding and appreciation of each member's role through day-to-day interactions.

Finally, as Nimbus, our resident cat, comfortably finds his spots around the station—from couches to piles of weather forms—it's clear that the Mount Washington Observatory is more than just a research facility; it's a home to a dedicated team committed to understanding and sharing the complexities of weather. With each upgrade and initiative, we strive to enhance our scientific and educational impact along with operational safety, ensuring that the observatory continues to serve as a vital resource for weather enthusiasts and scientists alike.

Recent Scientific Endeavors and Collaborative Efforts at Mount Washington Observatory

BY **JAY BROCCOLO**

Over the past four months, Mount Washington Observatory has been a hub of scientific activity, marked by significant advancements in research and strategic collaborations. Here, we recap the key developments and ongoing projects that highlight our commitment to understanding and mitigating extreme weather phenomena.

One of our major initiatives has been enhancing the efficiency and effectiveness of our Science Committee. We've transitioned from quarterly 90-minute meetings to bi-monthly 60-minute sessions, allowing for more frequent and focused discussions. This shift has improved our responsiveness and engagement with ongoing projects. To streamline our efforts, we have also established specific task teams within the committee, focusing on research mentorship, manuscript review, training processes, product testing contracts, research contracts, and the development of research templates and checklists. A new dashboard and sharable folder system have been implemented to facilitate communication and file sharing, ensuring transparency and organization in our scientific endeavors.

Our Rain on Snow (ROS) research has culminated in a white paper manuscript, soon to be submitted to Synoptic Data and later to an American Meteorological Society journal. The study reveals critical insights into the impact of climate change on precipitation patterns at the summit. While the total annual precipitation hasn't changed significantly, the proportion falling as rain rather than snow has increased. An upward trend in the number of ROS days suggests that winter storms are warming, causing more rain instead of snow. The peak of ROS days is shifting later into the year, weakening the snowpack earlier in the winter. The December 18-19, 2023, ROS event was one of the most impactful flooding events recorded, with rainfall nearly eradicating the snowpack and causing significant flooding. Understanding these trends is crucial for forecasting and mitigating the impacts of future ROS events, which are expected to increase in frequency.

We are advancing our mesonet expansion project across Coos County, funded by the Northern Borders Regional Commission (NBRC). Most environmental assessments and permits are in place, with ongoing discussions for a few remaining locations. Key developments include the establishment of stations along the

Mount Washington Cog Railway, set to begin construction this summer, and a collaboration with Dartmouth to build a new mesonet station on Mount Moosilauke. Additionally, we secured Congressionally Directed Spending for a new snow tractor, scanning LiDAR, and other instrumentation, including air quality measurements. This expansion will enhance our data collection capabilities, contributing to better weather monitoring and forecasting.

MWOBS/MWAC Intern Laura Wilson de-icing instruments at the top of the tower.

The new internship program with the Mount Washington Avalanche Center (MWAC) has proven successful. Laura Wilson, our first intern, has been instrumental in bridging communication between the Observatory and the Avalanche Center. Her work has improved our understanding of terrain effects on snow and enhanced collaboration between the two entities. This coordinated effort better supports outdoor recreationalists through improved forecasting and educational initiatives.

We are committed to making our research accessible. Our communications and development team, in collaboration with observers and interns, have been working to update our website with past and current research. This initiative aims to provide a comprehensive resource for the public and scientific community.

As we continue into the summer, the Observatory is poised for further advancements. Upcoming projects include studying the interaction between unique weather patterns and forest ecosystems and enhancing long-term climate monitoring capabilities. The past four months have underscored our role as a leader in meteorological research and education. Through continuous innovation and collaboration, the Mount Washington Observatory remains dedicated to uncovering the complexities of our planet's weather and climate, ensuring a safer and more informed community.

Total Solar Eclipse, NBRC Updates, & Instrumentation Progress

BY **KEITH GARRETT**

Have you heard enough about April's eclipse yet? Has it faded from your memory? It has not faded from mine! I was lucky enough to travel to Colebrook, NH to view totality. For those who did not get to see totality, and have heard from those who did that it was spectacular, spectacular is an understatement. One bit of advice I had seen pushed repeatedly on the interwebs was to enjoy the eclipse as if it was your first and to not bother with trying to photograph it unless you had seen one. I wanted to photograph it, and enjoy it. Having dabbled in astrophotography for a long time, I had some tools that would allow me to automate my photography, while I got to just enjoy. My goal was a detailed high dynamic range image showing both coronal detail and the surface of the moon illuminated by reflected light from Earth. Over the course of several weeks prior, I set up my equipment and tested it thoroughly. I used a program called Astro Photo Tool which allows imaging plans to be created for many types of cameras, including DSLRs. I created two plans, one for a Nikon D7100, and one for a Canon t6. The exposure plans captured images starting at 1/4000 of a second @ iso 100 and 200, and stepped through a sequence of increasingly longer exposures to 4 seconds. When it finished the 30 or so image sequence, it repeated.

Eclipse photo taken by Keith Garrett

The night before I was able to set up my Losmandy G11 equatorial mount and get it polar aligned. (During this time we saw the 2nd stage de-orbit burn of a SpaceX second stage, which was awesome in and of itself!) The next day, both my 600mm scope and 300mm (equal to 450mm on my crop sensor Nikon) lens were focused using a solar filter.

When totality started, I took the cover off my equipment (a big towel), and hit the 'Start' button. I then walked away, and did not touch it again until after totality, when I put the cover back over it, and hit stop. Success!

As for general IT news, The opening of the summit Extreme Mount Washington Museum brings with it the replacement of four museum exhibits. The Search and Rescue, Rime Ice, Weather Observers, and Big Wind exhibits all ran on outdated and failing technology. The first three were old Mac mini computers, with 1080p h264 video converted to Flash video, running within a custom flash player utilizing touchscreen controls. Shortly after these exhibits were deployed, Macromedia/Adobe flash was deprecated. When these systems needed to be replaced with the original software, system clocks had to be set to a date prior to 2016 to get them to work! These exhibits have been replaced with standard inexpensive PC's, running Google Chrome in kiosk mode, with very basic custom html/css/javascript web interfaces, along with new ELO touchscreens. While the original content is being maintained, this also allows us to replace or add any content to these exhibits that we wish as well as run these on any device with a modern web browser. The Big Wind exhibit is a standard digital signage player with a single pushbutton for visitors to start the video playing. This unit is being upgraded to a newer digital signage player. New sound amplifiers are being put in to replace the old and unreliable amps that keep smoking their power adapters at low output levels. The longevity of these new, but inexpensive amp units will be determined this summer.

The server changes mentioned in the last edition are complete. The project of updating all of our observation code, database, and subsystems took a bit longer than I had hoped, but it is now online. The only change likely visible to the summit observers will be an increase in speed, and I added a 'night mode' to their observation submission page – *just for fun*…

Work on the mesonet buildout is ongoing; I would expect to read quite a bit about it over the next few years. With permitting in place, the green light was given to proceed. The first round of equipment orders will begin shortly. Due to it taking a year from the initial proposal, we have decided to modify the equipment list on each station in order to use the newest technology that suits our research and communications needs. Not only has the tech changed in the last year, unsurprisingly, so has pricing…

Soon, we will begin the process of designing and constructing a new directional vane. I have a small prototype built which contains some proof of concept tech that is unnecessary in a deployed version. It can measure wind speed and direction using a small pitot static tube, transmits the data wirelessly, and on top of that has no power cable (maybe more on this in the future). While it is very *cool* in my opinion, I am a strong believer in simplifying things to their most basic components when possible. The production version will be wired with power and data through a slipring, allowing us to add heat to the unit. I would like to add a friendly reminder here: crowbars and sledgehammers do not mix well with instrumentation on the parapet!

Mt. Washington Auto Road

MT. WASHINGTON AUTO ROAD & GREAT GLEN TRAILS OUTDOOR CENTER

2024 SUMMER/FALL EVENT OVERVIEW

MAY

Spring Trail Running/Walking Series
Thursdays — May 9, 16, 23, 30

Alton Weagle Day Saturday — May 25

JUNE

Spring Trail Running/Walking Series
Thursdays — June 6, 13 = Final race + Potluck

Black Fly Trail Run and Relay
Saturday — June 8

Delta Dental Mt. Washington Road Race
Saturday — June 15

Minis on Top
Saturday — June 15

NH ATV Day
Saturday — June 29

Summer Mountain Bike Race Series
Tuesdays — June 25

JULY

Summer Mountain Bike Race Series
Tuesdays — July 2, 9, 16, 23 + Potluck, 30

Sunset Drive & Guided Tours
Saturday — July 6

Rotary Club Highway Clean-up
Saturday — July 20

Seek the Peak
Saturday — July 20

Summit Salute
Sunday — July 21

Sunrise Drive & Guided Tours
Sunday — July 21

White Mountain Jeep Invasion
Saturday — July 27

Adaptive Sunrise Ascent on Mount Washington
Sunday — July 28

AUGUST

Moat Mountain 24 Hours of Great Glen
Friday, Saturday & Sunday — August 2, 3, 4

163rd Birthday of Mt. Washington Auto Road
Thursday — August 8

Sunset Drive & Guided Tours
Saturday — August 10

MWAR Bicycle Hillclimb
Saturday — August 17
RAIN DATE: Sunday — August 18

Sunrise Drive & Guided Tours
Sunday — August 25

125th Anniversary Stanley Steamer Ascent (1899)
Saturday — August 31

SEPTEMBER

Fall Trail Running/Walking Series
Thursdays — September 5, 12, 19, 26

Muster in the Mountains
Friday, Saturday & Sunday — September 6, 7, 8

Paul LeTarte Memorial XC Meet (Berlin High School)
Saturday — September 7

OCTOBER

Fall Trail Running/Walking Series
Thursday — October 3, = Final race + Potluck

MT. WASHINGTON AUTO ROAD

*For more information, visit **mt-washington.com** and **greatglentrails.com**.*

Great Glen Trails OUTDOOR CENTER

155 years at the Cog Railway!

BY **RANDALL ARMOR**

It's been a busy Spring at the Railway– April arrived in typical fashion (with a joke) followed by a much rarer occurrence: a (near) total eclipse of the sun on April 8. Two full trainloads of guests joined us at Waumbek Station to view the celestial event, or at least 99.4% of it, from our spectacular winter vantage point at 4000'. It proved to be a thoroughly enjoyable and comfortable alternative to the congestion in the zone of totality just a few miles further north. Afterwards, though, nobody could avoid perhaps the most memorable experience of the day– the unprecedented, hours-long gridlocked exodus from the region. Miles upon miles of slow-moving southbound traffic proved once again that what goes up must come down!

Our summit season kicked off earlier than ever this year, on May 4, with frequent daily departures to the top of New England. We shortened layovers a bit so that each train could remain at the summit with its passengers to provide warm shelter. May 24 marked the official opening of the Mount Washington State Park visitor facilities, and with it our regular Summer/Fall schedule. All systems are GO for another very busy season!

Finally, on September 14, we're marking our 155th year of operation with a very special celebration, featuring steam train rides, guest speakers, shop tours, a catered buffet dinner, and FIREWORKS! Everyone is invited, but space is limited– visit ***www.thecog.com/sept14-event*** for tickets and details.

The Story of Seek Your Peak

BY **ELLEN ESTABROOK**

The tagline Seek Your Peak has over the years become synonymous with the Observatory's largest fundraiser. It captures the very spirit of what the hiking event aims to achieve: inspire participants to take on a personal challenge outdoors on behalf of the nonprofit anywhere, any day, in whatever way works best for the individual. Though many hikers do choose to take on Mount Washington for their adventure, hiking Mount Washington is not required, and at its core, the campaign's goal is to bring together outdoor recreationalists from all over to celebrate a shared appreciation of Mount Washington, the weather research happening there, and the White Mountain region as a whole.

While the pandemic solidified the anytime, anywhere nature of Seek the Peak, the "hike your hike" approach to the event goes back much further. In tracing the origins of "Seek your Peak," I was referred to Daniel (Dan) Poor, who has been participating in the event for over eleven years and is a longtime supporter of the Observatory.

Dan recalls the 2013 Seek the Peak kick-off gathering where reassurance from acquaintance and MWOBS Life Trustee Gail Paine served as impetus to make Seek the Peak his own. He had concerns about being able to reach the summit and descend in time for the hiker dinner, and Gail explained that the organization encouraged participants to do any outdoor exercise.

The next day, Dan and his wife Rickey hiked Mount Washington, resolving to be back in time for dinner, which turned out to mean that they turned around a mile short of the summit and consequently began their own tradition for the event that has taken many forms over the years. Hiking the Randolph Trail System, kayaking on Lake Champlain, biking, and walking a favorite conservation area near home, are a few of the summer activities they've taken on for the fundraiser.

"Every year we're usually on Lake Champlain during July," Dan said. "So every summer, Seek Your Peak became my way of doing it."

Dan politely declined to take credit for coining the Seek Your Peak slogan, but our team was grateful to learn more about his connection with it, as the invitation to hike any time, anywhere over the summer for Seek the Peak has become a defining characteristic of the event, and it is the participants and their experiences that craft the very identity of Seek the Peak year after year.

Dan and Rickey have hiked all 4,000 footers and enjoy sharing experiences in the White Mountains with their children and grandchildren. They are also members and volunteer Land Stewards for the Society for the Protection of New Hampshire Forests as well as longtime Appalachian Mountain Club supporters with over ten years of experience as hut croo volunteers and naturalists.

Thank-you to Dan Poor for his collaboration in this feature and for his contribution and stewardship to Seek the Peak and MWOBS.

A Season of Giving and Gratitude

BY **LINDA AND HANK DRESCH,** VOLUNTEER COORDINATORS

Spring is in full swing here in the Mount Washington Valley. It's a treat to experience the changes the warmer weather and greater amount of daylight bring to our surroundings.

We were all saddened to lose one of our very long-time volunteers, Bill Housum, who passed away in February just a few days after a membership mailing. In fact, we had just celebrated his 93rd birthday at a previous monthly membership mailing. Bill was an expert at folding letters and we had a difficult time keeping up with him. He is deeply missed. Immediately following his passing, many of our volunteers (listed on p. 45) gave donations to the Observatory in memory of Bill, requesting that these gifts support educational programs, one of his passions.

Over this past season our activities have included Membership Mailings every second Thursday of the month at the Observatory's North Conway offices. These take place at 9:00AM and new volunteers are always welcome to participate. We have also been busy sending out personal thank you letters to Observatory contributors and assisting Peter Crane with his library archiving projects. In addition, Museum Operations and Retail Manager Brandi Webb asked for our help with preparations for opening the summit museum and gift shop.

We have also been supporting the Observatory's weather observation and reporting in North Conway by supplementing the staff primarily on weekends and holidays. Daily readings are taken of temperatures, barometric pressure, precipitation, and cloud cover which are then reported to the National Weather Service in Gray, Maine. Anyone interested in helping should contact Brian Fitzgerald directly at *bfitzgerald@mountwashington.org.*

In April, we received the news that Hannah Babineau, the Membership and Events coordinator, would be leaving the Obs. Hannah has been the staff member with whom we've worked most closely over this past year. We will miss her, and we all wish her well in her new endeavors. Wendy Almeida has been hired as Hannah's replacement and is already involved with planning and organizing the annual Seek the Peak fundraising event scheduled July 20. Volunteers will again be deeply involved in all phases of the event this year. For Seek the Peak volunteer opportunities, contact Wendy at *walmeida@mountwashington.org.*

Our intrepid gardeners Barbara Althen and Bill Ofsiany have already returned

with their green thumbs. The bulbs planted last fall, along with those from previous years have blossomed with a brilliant show of color.

Over the past few months our fabulous Volunteers have included:

Barbara Althen
Mark Assaro
Floyd Corson
Peter Crane
Marietta Deegan
Linda Denis
Linda & Hank Dresch
Peter Fisk
Karen Franke
Kim Henry
Ava Honan
Marie Kapsar
Joan & Sandy Kurtz
Karen & Gary MacDonald
Bill Ofsiany
Jane & Ken Rancourt
Mary Ann Sledzinski

MEMBER MILESTONES

Celebrating 10 Years of Member Support

BY **WENDY ALMEIDA**

The Mount Washington Observatory honors its dedicated members who have reached a significant milestone: 10 years of continuous support!

Some members are drawn to our scientific research at the summit to maintain one of North America's longest-running alpine climate records which provides a vital link for meteorologists and climate scientists.

Educators and children are a growing area of member interest, connecting with the Observatory through our many field trips to the summit, professional development opportunities for teachers, and school programs aligned with Next Generation Science Standards partnerships.

Other members become supporters because they are hikers and outdoor enthusiasts, like Mel Elam, who celebrated her 10-year membership with the Observatory in April.

Elam became an Observatory member on April 17, 2014, with a goal in mind—register for Seek the Peak to hike Mount Washington and focus on fitness. Although the mountain intimidated her, she focused on training and used the Higher Summit Forecasts to stay safe in the mountains while building her courage and fitness.

"Some people didn't think I could do it [hike Mount Washington]. I did not think I could do it. I wanted to show myself how strong I could be. I wanted to start climbing the NH 48 4,000 Footers and Mount Washington was number one

Mel Elam and her hiking companion, Floki.

for me." said Elam of her early training motivators.

"I look back and remember how scared I was hiking the higher peaks. Now it's no big deal because I am comfortable out there. With experience, training and the online resources provided by MWOBS and others I learned valuable skills and about the necessary gear you need to have to feel safe."

Mel Elam's story is one of many that exemplifies our members' passion for Mount Washington. The Observatory's work keeps people safe while recreating in the mountains and educates the next generation about the alpine climate and the research that benefits our meteorological and scientific partners.

For our 10-year milestone members, your continued support is invaluable. It allows the Observatory to keep pushing the boundaries of weather science and inspire others to appreciate the wonders of Mount Washington. Thank you for being a part of our mission.

10 YEAR MILESTONE MEMBERS

Robert & Kristina Zuidema
Penny Kenyon
Erik & Mary Lenz
Richard Leonard
Thomas Brooks
April Shaw & Alexandor Granok
Willie DiFabio
Joseph Aveni
Donna Gray
David Unger
Linda Fairchild
Dr. Donald Schoengold
Robert Nichols
Charles & Vicki Bauroth
Brenda Mccartney
Bruce Hobaugh
Geoffrey Hopper
Glenn Kiedaisch
Jared Poor
B Owen Williams
Rebecca Sykes & Mary Cove
Elizabeth Norton
Judith Waters
William Hawkins
Lyn Norris-Baker
Elizabeth Fraser
Zoe Zaloudek
Thomas Goodwin
Jeff Bodeur
Janet Charest
Donald Maurer
Eugene Boullain
Robert Scala
Carol Pfister
Joseph Massery
Marc Vachon
William Hoffman
Donald Reny
Dennis Reeves
Stephen Richards
Deborah Holtorf
Joseph Kubiak
Werner Kanner
Carolyn Parsons
Paul Horovitz
Janet & Paul Damiano
Allan Ames
Edward Crocker
Todd Foisy
Ingrid Kvam
Mary Thayer
Caroline & Bob Newkirk
Robert Elmes
Dr. Emory E. Prescott & Greg Martin
Lawrence Steere
Jillian Reynolds
Joseph Prior
Thomas Zabek
John Scala
Shanlee Linney
Robert St Pierre
Stephen Baker
Karen Harrison
Arline Cochrane
Dr. Kenneth A. Horn
Alexander Falk
Annie Hickey
Debra Calhoun
Ayla Queiroga
Patricia Pollock
Mel Elam

Meet Seek the Peak Steward Chris Nichols

BY **MWOBS STAFF**

It is a great honor and pleasure to learn about the individuals who make this event an immense success year after year and the stories behind their involvement. For some, it is about getting together with friends and family in the great Granite State; for others, it is about setting a personal goal to explore their region; and for many, it is about meeting others in the outdoor community who also have an affinity for Mount Washington, the Northeast's highest peak.

For most participants, it's a mix of some of the above, but every year, Seek the Peak participants never fail to make it their own, like one of the stewards of this year's event, Chris Nichols.

Chris, a husband, father, and grandfather from Massachusetts, climbed Mount Washington for the first time in 1978 with his Boy Scout Troop. Many years later, on a summer vacation in North Conway in 2005, he had the familiar feeling of longing to "get back into the woods." The following year, he began tackling the 4,000 footers. It was on a Mount Washington hike in 2008 with his younger brother when Chris learned about Seek the Peak and wanted to get involved.

"2009 was my first year participating in the Seek the Peak, and I have participated every year since," he said.

Chris' alignment with the Observatory stems from his interest in engineering, weather science, and climate research. "The consistency with which the Observatory has tracked weather and climate information for more than 90 years provides a historical record of the changing climate and will help lead to insights on how we can change things for the better," he said. "Science for science sake has led to many of the things we take for granted today, and the unfettered ability to follow a question to its end without a need to turn a profit often leads to knowledge that benefits everyone. From my perspective, there aren't a lot of enterprises left who do research just because. "

Over the years, Chris has gotten together with friends, family, and sometimes just himself for unforgettable hut hikes, sunrises, socked-in views, surprise news crews, and memories with loved ones no longer with us.

"In 2011, I started doing STP with members of my family and some friends," he said. "My oldest Son Jacob climbed with me many times, along with my older Brother Geoff and his kids, my niece, my

Chris Nichols, right, in 2018 with his brother Geoff, his son Philip, and their niece Danyelle.

wife, and asasorted other friends."

The Nichols Clan is one of the top fundraising teams for the event, last year raising a whopping $17,000 to help the Observatory reach its goal.

"In 2018, I climbed with my brother Geoff, his son Philip, and our niece Danyelle. Geoff passed away from a sudden heart attack on September 11, 2018. He was 56. The 2018 Seek the Peak was the last time I saw him. Geoff was an avid hiker and backpacker and lived in North Conway."

The following year, Chris and a large group hiked from Lakes of the Clouds hut at 3:00 am to summit for sunrise, spread ashes, and celebrate Geoff's life.

Chris has hiked Mount Washington just about every year for Seek the Peak (he hiked the Kinsman's in 2020 during the pandemic), 16 Mount Washington summits in total, and has taken just about every path to get there (all except Huntington Ravine). This year, now retired, he is taking on sections of the Appalachian Trail while hiking more 4,000-footers.

"I love hiking in the White Mountains and feel a great deal of peace when I am alone in the woods," Nichols explains. "What better way to bring attention to the Observatory than to walk a path that passes within yards of the Observatory itself?"

Chris shared that he has survived two bouts with Thyroid Cancer, the last of which (in 2020) resulted in a paralyzed left vocal cord. "They consider me cured of Thyroid Cancer at this point and my voice has been stable since my last surgery in early 2022."

To prepare, Chris tries to hike a few smaller mountains in months/weeks leading up to Seek the Peak weekend, a few suggestions including Pack Monadnock, Mount Monadnock, and Kearsarge South.

"You need to know your limits, and understand that getting to a summit is just half the trip," Nichols says. "I've always believed that anyone who sets their mind to it can climb Mount Washington, but training determines how you feel the next day."

"These days," Chris continues, "Seek the Peak offers lots of options to mix with a group of like-skilled hikers, and a real beginner should consider taking advantage of one of those groups."

Thank you, Chris, and the Nichols Clan, for all that you do, and we look forward to seeing you on July 20th!

In Remembrance: Guy Gosselin

BY **ROB KIRSCH,** IMMEDIATE PAST CHAIR

Quodumque Est Durus, Nobis Maxime Placet

Life Trustee and Former Executive Director Guy Gosselin died during the early morning on March 7, 2024. He was a lifelong resident of Gorham, NH, a consistent contributor to his community and state, a father of three, a grandfather and great grandfather to more, an intellect in the spirit of the renaissance and a friend and mentor to hundreds who had the privilege to cross paths with him. Guy was influential in more ways than this brief remembrance can describe, and he was a consistent and critical force in the transformation of the Observatory into the institution we know today.

Guy was born on May 18, 1933 at the home he would share with his parents and grandparents in Gorham, New Hampshire. He lived there until 2021, raising Debbie, Eustis and Emil with Betty, and, for decades, running the Observatory from his upstairs office. During his youth, Guy attended the University of New Hampshire, served in the U.S. Army in Germany, and worked in the paper industry and as a fire watcher.

Perhaps pre-ordained by that lifetime home address - 1 Washington Street, Mount Washington and the Observatory formally came into Guy's life in early 1961, when he accepted a "temporary" position at the Observatory. What was to be three months of fill-in work on the summit, however, became a 36 plus year career and a lifetime involvement.

Life Trustee Jack Middleton, left, with Guy Gosselin.

The Observatory Guy joined had a tenuous existence. There were fewer than 1,000 members, the staff was thin, and the organization's finances were even thinner. For a time, conditions were so dire that Guy and Betty shared a meager weather observer's salary with the family of fellow observer Casey Hodgdon and his wife Julie. Once referring to the 1960s as the Observatory's "dark ages," Guy applied his vision and good-natured discipline to the survival and growth of the institution.

Guy's drive and ability were apparent, and soon he was Chief Observer (1963),

Observatory Director (1971), Trustee (1978) and ultimately Executive Director, the position he held throughout his career. The Observatory and the summit quickly began to benefit from his dedication and insight. Guy fit in quickly, forming close ties with the staff and a warm friendship with WMTW engineer and Mount Washington author Lee Vincent. Under Guy, the modest "goofer room," where visitors could learn about the summit and the Observatory, grew into the Summit Museum, visited by tens of thousands of visitors annually beginning in the 1970's. The quiescent research work on the summit was revitalized including with projects relating to atmospheric sciences as well as both wind and solar energy. In 1979 Guy added Ken Rancourt to the staff, simultaneously increasing the breadth and depth of what the Observatory could offer, and the investment paid dividends. Throughout all of this period, Guy mentored and led the growing staff with his personal example of integrity, humility and vision.

Guy was committed to taking the steps that would allow the Observatory to thrive. He supported the transformation of the summit observatory from a male dominated bastion into a more diverse, welcoming place. Always possessing a sense of history, Guy spearheaded both the move of the Observatory into its current facility and simultaneously led the unsuccessful effort to disassemble and preserve the 1937-19780 Observatory structure. When it was clear that summit-based revenues alone would not be sufficient to sustain the Observatory, he established an off-mountain office and oversaw the creation of positions and programs that generated income for the summit facility and laid the foundation for the Observatory to play a growing role educating students about weather, atmospheric sciences and the summit environment.

Guy's efforts on the Observatory's behalf extended far beyond the mountain itself. By the 1970s one Washington Street had become the organization's hub. Guy and Betty converted their second-floor study into the Observatory's de-facto headquarters. Betty organized and professionalized our membership function, strengthening connections and fostering the expansion of membership that supports us today. Guy hosted meetings, retrieved and delivered equipment and supplies, saw to the care and feeding of staff and Trustees, and through his incredible ability and force of will, helped make the Obs the institution we know today. Whether through a more professional staff, strengthened relationships with summit partner organizations, expanded research relationships, the fundraising and logistics supporting the Observatory's move from its long-term home into the (then) new Sherman Adams building, or the birth and growth of the Observatory's "valley" presence in support of the summit operation, Guy's support and vision were instrumental and constant.

Throughout his life Guy maintained a tireless intellectual curiosity and personal humility. That also benefited the Observatory extensively. Influenced by local legends including Doug Philbrook of the Auto Road, Guy became an authority on Mount Washington and White Mountain history. With Susan Hawkins he published a book about famed local photographer Guy Shorey. Guy's reputation led numerous donors to spontaneously send materials and information to the Observatory, leading to the creation of the Gladys

Brooks Memorial Library that continues to make materials available to researchers and visitors today. Through his interest and reputation, Guy was a founder of the Gorham Historical Society. Even when innovation was challenged by tight budgets, he supported and nurtured Observatory entrepreneurs, leading to the launch of the cutting-edge Weather Notebook program on National Public Radio. And it was never about him.

His kind, thoughtful demeanor allowed Guy to serve, seemingly without effort, as a leader, mentor and friend to scores of Observatory crew members as well as the staffs and leadership of organizations including the Mount Washington State Park, Appalachian Mountain Club, WMTW-TV, the Cog Railway, the U.S. Forest Service and others. The innumerable relationships Guy formed benefitted the Observatory, establishing connections with individuals and strengthening ties with organizations. Guy's influence still resonates today in the ranks of Observatory members, Trustees and Life Trustees.

In 1997, Guy retired as Executive Director, and continued to support the Observatory through new roles that he maintained through the remaining decades of his life. He served as managing editor of our Windswept publication, was elected a Life Trustee, regularly attended Observatory meetings and events, supported his beloved summit staff through weekly grocery pickups that he personally delivered to the shift-change crew on Wednesdays, and never failed to make himself available when asked by a staff member, Trustee or other volunteer.

Nor did Guy go quietly into "retirement." He propelled himself into new, significant directions which more than filled his time. He earned a degree in counselling, and for years served the North Country as a substance abuse counselor as the Clinical Director of Friendship House in Bethlehem, NH. Guy was fascinated with the ability and function of the human brain and the concept of consciousness. He pursued Buddhist teaching, became a practitioner of meditation, and through perseverance and force of will, convinced the state Corrections Department to let him establish and conduct a meditation program within the State Prison to reduce recidivism among the inmate population.

Writing also remained a passion throughout Guy's life. He consistently maintained multiple streams of correspondence on topics ranging from classic philosophy, theories of human consciousness and debates about unidentified aerial phenomena to issues of current politics and world affairs. During his "retirement," Guy self-published four novels, exploring and building on the relationships and history of his community. And through it all he stayed current on politics at all levels, contributing poignant editorials that inspired his community to pause and reflect.

Following Betty's passing in 2019, Guy sold his life-long home, ultimately settling into a cozy apartment just a stone's throw away where he had the daily support of his niece Tracey Drouin. The celebration of his 90th birthday in 2023 brought together friends and family from across the country and weather observers spanning eight decades! Into the final weeks of his life, Guy hosted a regular stream of well-wishing visitors. He passed away in Jefferson, NH, with a view of the mountains he loved.

We miss him.

TRIBUTES & MEMORIAL GIFTS

Robert Keeley ..... In Memory of Jay Constant
Edwin W. Rhodes III ..... In Memory of Jay Constant
Michelle Young ..... In Memory of Richard Houle
Victor Kordish ..... In Memory of Dennis E. Kordish
William deCamp Jr. Fund ..... In Honor of Edwin O'Malley
Annette Lawlor ..... In Memory of Robert B. Coleman

In Memory of Caryl Brensinger

Evelyn Aissa
Deborah Blagg
Peter & Linda Bornstein
Cam Brensinger
Barry Brensinger
Timothy Brochu
Ron & Sherri Brochu
Howard Brodsky
David S Brown
Melissa Bruneau
Central Insurance Companies
Elenore and David Cochran
Brad & Kathy Cook
The Derryfield School
Mario Donovan
Stephen Eldridge and Company
Feng Yi Outdoor Leisure Equipment Enterprise Co., LTD
Jim and Sarah Fleischer
Steve and Elizabeth Forcier
Diane Gilbert
Emmy Grant
Arnold P. Hanson Jr.
Talmira Hill
Natalie Jutras
Manchester Proud
Karan Kozelko
Peter Lavallee
Elizabeth Lavallee
Lavallee Brensinger Architects
Marc Lehoullier
William E Marvin
McLane Middleton Law Firm
Jack Middleton
Walter Milne
Spiros Mitsopoulos
NEMO Senior Leadership Team
Chau Ngo
Pawn Nitichan
Alice O'Connor
Tracey Pelton
Rob Prunier
Alan Reische
Marsha Rich
Leah Rounds
Dennis and Maureen Ryan
Linda and Craig Rydin
Mary Jo Serfass
Michael Shearin
James and Deborah Somes
Alison Stebbins
Mark and Sally Stebbins
William Steele
Phyllis L Stibler
James Truncellito
Fred & Jill Urtz
Joel & Felicia Vargas
Virginia Wolstromer
Natalie Jutras

In Memory of Sam Gawel

Cate Beaton
Joseph Bernstein
Jessica Bryan
Eowyn Garfinkle Plymesser
Randy Gawel
Jess, Ramon and Ooma Gawel
Leah Gawel
Danielle Grumski
Aditi Gupta
Beth Isola
Emilie and Matthew Knisley
Kara and Annika and Nils Morgan
Norman Silverman
Bernadette Smith
Lauren Sterling

In Memory of Guy Gosselin

George H. Diller
Chris Hawkins
Ava Honan
Robert C Kirsch
Jeffrey Leich
Doug Mayer

In Memory of William T. Housum

Mark Asaro
Floyd Corson
Marietta Deegan
Linda & Hank Dresch
Kimberly Henry
Ava Honan
Joan M. Kurtz
Gary & Karen MacDonald
Judith Meagher

IN-KIND GIFTS

Robert Averill
Ava Honan
David Raizen
Eastern Mountain Sports
Minus33
Mt. Washington Radio Group
Oboz Footwear LLC
Peter Limmer & Sons
Righteous Vices Coffee Roasters
Tuckerman Brewing Company

UPCOMING EVENTS

SEEK THE PEAK

Seek the Peak, Mount Washington Observatory's largest annual fundraiser, will take place Sat., July 20. All outdoor and Observatory enthusiasts are invited to register at seekthepeak.org, raise funds, set goals, and earn gear – all in support of the Observatory's work. Participants can register as an individual or a team. The "Hike and Make Friends" optionpairs solo hikers with others in our awesome outdoor community.

The Après Hike Expo, taking place at Great Glen Trails at the base of the Mt. Washington Auto Road from 4:00 to 7:00 p.m., will feature a catered meal by Hart's Turkey Farm Restaurant, outdoor gear vendors, live music, rock climbing wall, beer garden with Tuckerman Brewing Company, and more. Registration includes a meal voucher and pair of Minus33 Merino socks, and sets each hiker on their way to earning a lot more gear as well as tickets to the epic raffle. The Après Hike Expo is also open to the public for a $20/per car at the door. Visit **seekthepeak.org** to learn more.

Founding Day

Join us on the summit of Mount Washington this October 15, 2024 for our Founding Day. We'll have free tours and an Open House at our world famous mountaintop weather station.

On October 15, 1932, Bob Monahan, Sal Pagliuca, Alex MacKenzie, and Joe Dodge set up a permanent presence on the summit. Using funds obtained from a research grant and a few private donors, Mount Washington Observatory was formally established, with a mission of advancing the understanding of weather, climate, and the mountain itself. Learn more at **mountwashington.org/events**.

Dine-to-Donate at Flatbread Pizza

Join the Mount Washington Observatory team at Flatbread Pizza Company in Portsmouth, NH from 4:00-9:00 PM on September 3, 2024 to try your favorite kind of pie. Or order a few for pickup. A portion of all proceeds will be donated to support our work in weather and climate science. Our staff will be on-hand to make special presentations, hold raffles, and giveaway free gear. You can find our event at 138 Congress Street, Portsmouth, NH 03801.

CORPORATE SUPPORT

McLane Middleton

CML Cranmore Mountain Lodge

Cabot Creamery

Cormack Construction Management, Inc.

Gordini

Global Rescue

AMC

Mt. Washington Auto Road

The Mount Cog Railway Washington

EMS Eastern Mountain Sports Est. 1967

Righteous Vices Coffee Roasters

Minus 33 Merino Wool

Eversource

Northway Bank The right bank makes a real difference

M&P 1862 Melcher & Prescott Insurance Knowledge. Trust. Confidence.

Big Dave's Bagels & Deli

BNH Bank of New Hampshire

Peter Limmer & Sons Custom Bootmaker . Intervale, New Hampshire Since 1919

Lakeside Security Systems We install peace of mind 603-539-5600

McKenzie and Pagliuca Family Members Tour Weather Station on the eve of the 90th Big Wind Day. Pictured (left to right): Marcia Koegel, Albert William Pagliuca Salvatore, Weather Observer & Education Specialist Alex Branton, Alex McKenzie, Sally Viola Pagliuca McIntire, Jo McIntire, and Keith McKenzie.

MWOBS

MOUNT WASHINGTON OBSERVATORY

SCIENCE IN THE MOUNTAINS

A FREE VIRTUAL LECTURE SERIES

Join Mount Washington Observatory staff each month as we bring experts from across the fields of weather, climate and beyond to the comfort of your home screen.

Join us via Zoom* or Facebook/MWObs
Varying Tuesdays
7:00PM

Visit mountwashington.org/SITM for program updates and to register today.

The Zoom call has limited space available.
If you are unable to attend via Zoom please join us on Facebook/MWObs for the live presentation.

MWOBS®
MOUNT WASHINGTON OBSERVATORY

WINDswept

PO Box 2310
North Conway, NH 03860
603.356.2137