

Preserving the Weather Since 1885: The History and Climate Record of the Blue Hill Observatory

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ABSTRACT

For more than 130 years, the Blue Hill Meteorological Observatory (BHO) has maintained an extensive record of local climate that is among the longest, most accurate, and most consistent in North America. During its earliest decades, BHO was also the site of pioneering contributions to the development of meteorology, while in recent years its mission has expanded to promote atmospheric science education. Though its primary focus remains the meticulous recording of local weather, BHO is committed to applying this unique and underutilized resource for the benefit of science and society. Using traditional instrumentation and observing methods, BHO preserves the long-term continuity of numerous weather parameters to ensure their value for understanding the local climate. For example, careful steps are currently being taken to continue measurements of wind speed and direction and sunshine duration during the pending Observatory renovations expected in 2019.

Since the last century, BHO data show a significant increase in mean temperature and a decrease in wind speed that reflect global and national trends, while smaller changes are also apparent in the records of precipitation, atmospheric moisture, sunshine and other parameters. Changes are also becoming more apparent in temperature and precipitation extremes. The extensive BHO record provides a detailed picture of local weather and presents a unique opportunity to study, understand, and illustrate trends in regional climate.

PRESENTER'S BIO

Mike Iacono is a Senior Staff Scientist at Atmospheric and Environmental Research in Lexington, MA where he has worked since 1987. He has also volunteered for more than 30 years at the Blue Hill Observatory, where he is currently the Chief Scientist. As a member of the Radiation and Climate Group at AER, Mike has contributed to developing accurate models of atmospheric radiation and he has worked with scientists at NOAA, NCAR, NASA, and ECMWF to improve the treatment of radiation in many of the major weather forecasting and climate prediction models. At Blue Hill, Mike serves as a weather observer, climatologist, and administrator of the web site (bluehill.org), and he is currently leading an effort to digitize the extensive collection of daily climate data.

Mike was born in Providence, Rhode Island, and he studied geology, astronomy and physics before completing a Master's Degree in Atmospheric Science at the State University of New York at Albany and settling on a career in meteorology. His interests also include genealogy, photography, and hiking in Colorado.

Forecast for Boston in January, 2020: 100% Chance of Celebrating the AMS's First 100 Years

Maureen McCann
AMS Commissioner on Professional Affairs – Boston, MA
Spectrum News 13 – Orlando, FL

ABSTRACT

The American Meteorological Society (AMS) is about to kick off its Centennial celebration, honoring 100 years advancing the weather, water and climate community. Starting in January 2019, events will take place throughout the year, culminating with the 100th Annual Meeting right here in Boston, in January 2020. Maureen McCann, AMS Commissioner on Professional Affairs and broadcast meteorologist at Spectrum News 13 in Orlando, FL, will take a look at the Society's rich history from its local roots to nationwide current initiatives. A native of Arlington, MA, she graduated from Cornell University and has been on a career path in broadcasting that has taken her around the country. While her first position within AMS started with being Co-President of the Cornell chapter, Maureen believes her involvement with the AMS started by knocking on the door of nearby 45 Beacon Street and writing to them, sending away for weather booklets, as a kid. This presentation will also provide some insight on how hobbyists, students, and professionals can get involved with the Society.

PRESENTER'S BIO

Maureen McCann knew she wanted to be a broadcast meteorologist since the age of 4 when Hurricane Gloria blew through her New England hometown. So, it's fitting that Maureen has landed in Florida, since it was a hurricane that sparked her interest in weather in the first place. Maureen is currently the weekday morning meteorologist at Spectrum News 13 in Orlando, the 24-hour station serving Central Florida. Her TV career has taken her around the country to experience a wide range of weather patterns starting in Bangor, Maine, followed by stations in Syracuse, NY, Austin TX, and Denver, CO. It was in Denver that her storm chase adventures with the late Tim Samaras and his

research group TWISTEX transformed into a special which was honored with an Emmy Award and a Colorado Broadcasters Association award. An active member of the American Meteorological Society (AMS), Maureen holds both the Certified Broadcast Meteorologist and Certified Consulting Meteorologist seals. She serves as the AMS Commissioner on Professional Affairs, overseeing the society's certification programs. The National Weather Association also has awarded her with their Television Seal of Approval. Originally from Arlington, Massachusetts, Maureen graduated from Cornell University with a B.S. in Atmospheric Science. She is currently enrolled in a Masters program at University of Central Florida focusing on geographic information systems and emergency management.

January 4, 2018 Bomb Cyclone / Coastal Flood Event &

Wave Growth and Dynamic Fetch in the Jan. 3-5, 2018 Ocean Storm

Frank Nocera
NOAA / NWS WFO – Boston/Norton, MA

Joseph Sienkiewicz
NOAA / NWS NCEP – College Park, MD

ABSTRACT

(Frank Nocera) The 4 January 2018 Bomb Cyclone reached a minimum central pressure of 951 mb about 300 miles south of Boston -- an astounding low pressure value for this latitude. Perhaps more impressive was that the cyclone achieved a 59 mb pressure drop in 24 hrs! This ocean storm produced major coastal flooding, accompanied by a record breaking water level at the Boston tide gauge, surpassing water levels from the 1978 blizzard. In Boston, the T's Blue Line flooded for the first time in the subway's history. The Chatham upper air site on Morris Island flooded and was inaccessible for the first time since 1/2/87.

(Joseph Sienkiewicz) Nor'easters that impact New England can produce extreme wind and wave conditions over the western Atlantic. The January 3-5 storm was no exception. Extreme winds and waves developed south and southwest of the storm center and moved rapidly northeastward toward the shelf waters south of Nova Scotia. Significant wave heights were observed as high as 56 feet south of Nova Scotia. The rapid wave height growth and production of phenomenal seas was most likely due to a phenomena call "Dynamic" fetch or "Trapped" fetch. This paper will discuss the conditions necessary for dynamic fetch, illustrate those conditions in the evolution of Jan. 3-5 storm, and discuss the forecast capabilities of such extreme seas.

PRESENTERS' BIOS

Frank Nocera is a Senior Meteorologist at the National Weather Service Forecast Office in Norton/Boston, MA since 1998. He leads the office training program and also enjoys providing Impact Decision Support Services (IDSS) to our customers/partners. Frank has participated in several national IDSS events including the Sep 2015 Papal visit to NYC, 2016 Republican National Convention (Cleveland, OH) and the 2018 Boston Marathon.

Frank's favorite meteorological events to forecast are coastal storms and their multi facet hazards including blizzard conditions, high winds and coastal flooding. The blizzard of 1978 was the weather event that captured his interest in meteorology. Frank is a 1992 graduate of UAlbany.

Frank resides in Cumberland, RI with his wife and three children. In his spare time he enjoys spending time with his family, coaching youth sports, running, biking, fishing and playing golf.

Joseph Sienkiewicz is the Chief of the Ocean Applications Branch of the U.S. National Oceanic and Atmospheric Administration's (NOAA) Ocean Prediction Center (OPC). The OPC has international responsibility for weather warnings and forecasts for large portions of the North Atlantic and North Pacific. Joe has worked in operational marine meteorology with NOAA for nearly 30 years. His professional interests include the use of satellite derived information to improve marine weather forecasts, explosively developing storms, and the application of weather information in marine operations. He serves on an international training team with NOAA and European scientists to train marine meteorologists from across the globe on the application of satellite sensed ocean winds and waves to operational marine forecasting.

Mr. Sienkiewicz is a graduate of the State University of New York Maritime College (B.S.) and University of Washington (M.S.). He held a USCG Unlimited Third Mate License and worked 5 years as mate and relief captain on tugboats based in New York Harbor. Joe is a lifelong sailor and also enjoys fly fishing. He and his wife Carolyn live near the western Maryland shore of Chesapeake Bay.

The Effects of Climate Change on the Plants and Animals of Thoreau's Concord

Dr. Richard B. Primack
Boston University
Boston, MA

ABSTRACT

Henry David Thoreau was a climate change scientist! For the past 15 years, Professor Richard Primack (Boston U.) and his team have been using Thoreau's records from the 1850s and other data sources to document the earlier flowering and leafing out times of plants, the earlier flight times of insects, and the more variable response of migratory birds. Most noteworthy, plants in Concord are changing in abundance due to a warming climate. Climate change is also affecting other seasons, including summer heat waves, an extended frost-free period in autumn, and a lack of snow cover in winter. This work has received extensive media coverage, and has become an important case study of climate change. What would Thoreau tell us to do about global warming if he were alive today?

PRESENTER'S BIO

Richard B. Primack is a professor of plant ecology at Boston University and is the author of two widely used conservation biology textbooks; local co-authors have helped to produce 36 translations of these books with local examples. For nine years, he was the Editor-in-Chief of the journal *Biological Conservation*. Primack is the author and editor of books about tropical rainforests and has written a popular book about his Concord research that will be available for purchase at the conference: *Walden Warming: Climate Change Comes to Thoreau's Woods*.

Boston: A Coastal City in a Time of Sea-Level Rise

Carling Hay
Department of Earth and Environmental Sciences
Boston College
Chestnut Hill, MA

ABSTRACT

Since Boston was founded in the 1600s, the city's proximity to the ocean has played an important role in its development. With a lively port, Boston was once a center for shipping and fishing. While the demographics and economy of Boston have changed over the centuries and decades, the ocean and shoreline continue to play important roles in shaping the city. Historical observations indicate that sea level in Boston rose over the 20th century at a rate that exceeded the global average value. As the global climate changes, the rate of sea-level rise is projected to increase, which will expose the city during severe weather events and monthly high tides.

This talk will explore the processes that produced historical sea-level rise in Boston and examine how these factors will change through the 21st century. Using probabilistic projections of local sea level, we will examine how the city's exposure to coastal flooding will change over the century.

PRESENTER'S BIO

Carling Hay is an Assistant Professor in the Department of Earth and Environmental Sciences at Boston College. Carling received her Bachelor of Science in physics from McGill University and her PhD in physics from the University of Toronto. Her research has focused on using statistical techniques to better understand global mean sea level during current and past warm periods and to develop the tools necessary to use information from historical sea-level records to determine the sources of global and local sea-level rise. Recently, Carling worked with the Boston Research Advisory Group, part of Climate-Ready Boston, which was tasked with ascertaining the city's future risk to long-term sea-level rise.

Not Your Grandparents' State Climatologist

Dr. David A. Robinson
New Jersey State Climatologist
Rutgers University
Piscataway, NJ

ABSTRACT

State Climate Offices (SCO) across the nation continue to experience increased demand for their climate services, driven by society's increased vulnerability to climate and weather events and concerns of climate change. Credible climate information is vital for accurate flood forecasting, drought monitoring, environmental assessments, future projections of temperature means and extremes, and K through gray education. Climatic insights are also necessary for the economic health of our nation, be it farming, urban planning, energy production, transportation, commerce...
the list goes on.

State Climatologists lead their SCOs, which provide climate information, analysis, research, education, and climate-based decision support. SCOs are often a citizen's and stakeholder's primary point of contact for "all things climate." Therefore, State Climatologists must be skilled communicators, be it via interactions with students, decision makers, the media or the general public. Furthermore, climate information must be put into proper context for each client. Those on SCO teams are experts at doing this because they know the local climate, economy, and geography. This presentation will provide examples of the trusted relationships between SCOs and state and local communities that have developed over many years of service by those in the state climate community.

PRESENTER'S BIO

David Robinson is a Distinguished Professor of Geography at Rutgers University and, for the past 27 years, New Jersey's State Climatologist. He has expertise in the collection and archiving of accurate climatic data and is interested in climate change (particularly state and regional climate issues), hemispheric and regional snow cover dynamics, and interactions of snow cover with other climate elements. As state climatologist, he works with a wide array of user communities who require climatological expertise to solve problems. He oversees the Rutgers New Jersey Weather Network, a constellation of over 60 stations that observe a variety of variables every five minutes. He also sits on numerous state committees and provides public education through presentations and media interviews. Dave recently was a member on the National Academy of Sciences' Board on Atmospheric Sciences and Climate, is past president of the American Association of State Climatologists, is a Fellow of the American Meteorological Society, and has received the Lifetime Achievement award of the American Association of Geographers.

Challenges and Opportunities in Communicating Weather and Climate Information Using Digital Media

Jason Samenow
The Washington Post
Washington, D.C.

ABSTRACT

With the proliferation of platforms for communicating information over the internet and the popularity of weather, many news organizations are increasingly covering the subject. The platforms - including blogs, social media, and more traditional online articles - facilitate instant sharing of time-sensitive, important information leading up to and during hazardous situations. Their interactive features encourage engagement that can facilitate mutually beneficial exchange of information. But in their drive to attract readers and clicks in covering weather in a very competitive business environment, some organizations and/or individuals have crossed lines. They sensationalize headlines and social media posts. They post forecasts beyond the range of predictability. They omit important details, make errors and/or perpetuate misconceptions. This talk will address what's working well in online weather communication, best practices, and areas to improve.

PRESENTER'S BIO

Jason Samenow is currently the Washington Post's weather editor and chief meteorologist for the Capital Weather Gang. He also forecasts for WAMU, 88.5, Washington's NPR affiliate.

Jason has loved weather since he was a boy. At the University of Virginia, he earned a degree in environmental science, focusing in atmospheric science. He went on to earn a Masters' degree in atmospheric science at the University of Wisconsin-Madison in 2000.

From 2000 to September 2010, he worked as a climate change analyst for the federal government, monitoring, analyzing and communicating the science of

climate change. He founded CapitalWeather.com in early 2004, the first professional weather blog on the Internet, which became part of The Post in 2008.

Samenow is a past chairman of the Washington, D.C. Chapter of the American Meteorological Society and earned the Digital Seal of Approval from the National Weather Association.

Emergency Management Panel: Using Weather Data/Forecasts to Promote a Common Operating Picture

Mary Rose Duberek
University of Connecticut – Storrs, CT

Derek May
Pomfret Emergency Management – Pomfret, CT

Sylvia Reeves (moderator)
CT Department of Emergency Services and Public Protection
Division of Emergency Management and Homeland Security–Hartford, CT

ABSTRACT

Two emergency managers, one from a local town in Connecticut and another from a major university, will discuss how they use weather data and forecasts products to create a common operating picture, prepare for storms, promote recovery safety and other public protection efforts.

PRESENTERS' BIOS

Mary Rose Duberek joined the University of Connecticut as an Emergency Management Specialist in January 2016 to help establish the University's first Office of Emergency Management. Mary Rose and the UConn OEM team are continuously working to enhance UConn's complex emergency management program by incorporating best practices in all emergency planning efforts, expanding stakeholder involvement, training, exercising, public education, threat and hazard analysis and continuity planning. Mary Rose came to UConn OEM after spending 18 years working for the Connecticut Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security as both an Emergency Management Program Specialist and Regional Coordinator. Mary Rose has worked on state and local emergency operations plans (EOPs), supported state-wide emergencies during activations of the State Emergency Operations Center and was assigned to the core team

that successfully prepared the State to achieve Emergency Management Accreditation Program (EMAP) accreditation in 2015. Mary Rose is a graduate of UConn with a BA in Communications.

Derek May has been the volunteer Emergency Management Director (EMD) for the rural Connecticut town of Pomfret since 2008. For more than 18 years he has also served with the Pomfret Volunteer Fire Department including two years as Fire Chief. He currently serves as the department's Safety Officer and is a volunteer Emergency Medical Technician (EMT) in both Pomfret and Woodstock. For more than ten years he has been employed as Emergency Preparedness Coordinator and for the Northeast District Department of Health, and this year began in the same capacity for the Eastern Highlands Health District. Derek leads the Medical Reserve Corps (MRC) at both those agencies. Derek is also a CERT instructor, a Red Cross disaster volunteer, and amateur radio operator - call sign KB1ZOY.

Sylvia Reeves (the moderator for this session) took a love of science and a fascination with tornadoes and began her professional career as an Air Force weather officer after graduating from Cornell University. Her military forecasting assignments focused on fixed and rotary winged aircraft as well as fixed assets associated with the Titan Missile system deactivation. After the Air Force she worked with several private weather information and forecast firms and taught her children to recognize wall clouds, read satellite imagery and prepare for natural hazards. Sylvia returned to graduate school at North Carolina State University for a degree in Science Policy but turned her interests toward Emergency Management in the aftermath of 9/11 and Hurricane Katrina. She became an Emergency Management Director for a small town in Connecticut, worked in Public Health Emergency Preparedness and then moved to the state level for assignments in Radiological Preparedness and weather decision support. Since 2012 she has worked in the state of CT Emergency Operations Center as a technical specialist during significant weather events. Sylvia loves the snow and enjoys downhill and cross country skiing, sledding and snowshoeing - when duty permits.

Winter Storm Bust – March 20, 2018 & Glimpse at New NWS-Norton Office

Matt Doody
NOAA / National Weather Service
Boston/Norton, MA

ABSTRACT

Although not THE perfect storm (especially after looking at the forecast in hindsight), with the confluence of poor model performance, an office move and still reeling from three previous storms, it may as well have been. As the National Weather Service in Taunton was transitioning to Norton a coastal storm was approaching from the south. Winter Storm Warnings were sent during the overnight on the last shift in the Taunton office, the team supporting Norton was transitioning to Gray, Maine and having to forecast and brief customers remotely. Anxiety in Southern New England was already high as this would be the fourth Nor'easter of the month, with some still without power.

On March 20th, the storm finally struck and although the winds and coastal flooding occurred as expected, the snow did not. In this presentation, we take a look at the meteorology, what went wrong and how the move made everything more difficult. We will also take a look at the new office in Norton.

PRESENTER'S BIO

Matt Doody is a meteorologist at the National Weather Service Office in Norton, Massachusetts. He was born and raised in Caribou, Maine. He credits his love for weather to his grandmother, who, at their family camp, used to stay up late at night and watch thunderstorms with him.

Matt went to Caribou High School in Caribou, and attended college at the University at Albany in Albany, New York. At the University at Albany, he earned his undergraduate degree in Atmospheric Science and went on to earn his M.S. in Atmospheric Science under Drs. Lance Bosart and Daniel Keyser. His thesis focused on climatology of strong anticyclones globally.

Matt began his career in meteorology when he volunteered as a student intern at both the Albany, New York and Caribou, Maine National Weather Service offices, and started his career with the National Weather Service as a Meteorologist Intern at the office in Caribou. He joined the team in Norton, Massachusetts in January of 2011. Matt lives in Massachusetts.