

ON-LINE CLIMATE INFORMATION

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Lowell, MA

Considerable climate information is freely available online, including historical data, climate monitoring estimates, and seasonal forecasts. This information can be very useful – for putting local extreme events into historical perspective, looking at global drought patterns, or getting the latest El Nino forecast, for instance. But it should be used with caution. I will review some of the available data and its limitations.

PRESENTER'S BIO

Mathew Barlow is an Assistant Professor in the Department of Environmental, Earth, and Atmospheric Sciences at the University of Massachusetts – Lowell. His research focuses on understanding the influence of large-scale climate variability and change on local conditions of societal importance, with an emphasis on severe drought. He is a member of the Applied Climatology Committee of the American Meteorological Society (AMS), is an Associate Editor of the Journal of Climate, and served on the writing team for the recently-released AMS Statement on Water Resources.

Put Some Meteors in Your Meteorology

J. Kelly Beatty
Clay Center Observatory
Sky & Telescope Magazine

Meteors, or “shooting stars,” are among the night sky's most captivating phenomena. Yet few people understand what they are, where they come from, or how often they hit the ground. This primer will provide an easy-to-grasp understanding of meteors and meteorites, with emphasis on annual meteor showers such as the Perseids and Leonids. (Special bonus: attend this talk and get a free sample of “simulated meteors” for use during your broadcasts!)

PRESENTER'S BIO

Kelly Beatty is a veteran science journalist who has covered space exploration for four decades. He is a faculty astronomer for the Clay Center Observatory at the Dexter and Southfield Schools in Brookline, Massachusetts, as well as a Senior Contributing Editor for *Sky & Telescope* Magazine. Specializing in planetary science, Kelly enjoys writing for a wide spectrum of audiences, from children to professional astronomers. You'll occasionally hear his interviews and guest commentaries for National Public Radio's “All Things Considered.” He observes when he can through one of his eight telescopes, and he is active nationally in the fight against light pollution.

High School Preparation for a Meteorology Career: The Future of Meteorology - Bright, Exciting, and Different

Dr. Bruce Berryman & Dr. Jason Shafer
Lyndon State College

Everyone associates "meteorology" with "weather," usually monitoring major storms streaking across weather maps and forecasting the violent weather they produce. Fortunately, this has not changed! However, now in addition to studying weather, the discipline has broadened out to include monitoring, forecasting, and studying weather effects, weather applications, and weather impacts on society. In fact, more and more often "meteorology" is being called "atmospheric sciences" in recognition of this increased breadth of study. On the one hand this means that basic high school preparation for a weather-related career has not changed. On the other hand, this preparation can now also include other supporting courses.

High school study in mathematics (at least through pre-calculus) and physics, and an ability to use computers as an aid in studying those subjects, is still essential. After all, atmospheric motions are governed by physics, math is the language of physics, and computers are required to apply mathematical and physical laws to forecasting the storms and weather events we are all so interested in. Some meteorologists will spend their entire careers watching and forecasting storms, informing the public about tomorrow's weather, and enjoying every minute of it!

Now, in addition to that career, there is a broad range of careers open to atmospheric scientists. These include careers in space weather, emergency management, and the impacts of climate change on society, business, and agriculture. For those careers, in addition to the science skills needed to understand atmospheric behavior, non-science skills in applying your weather knowledge to political, social, and economic areas will be required. This includes the ability to interact effectively within multi-disciplinary teams solving environmental problems, with community and governmental leaders implementing those solutions, and with the general public as they demand more information on the impacts of weather on their daily activities. In these career areas, ability and interest in business, the social sciences, and human relations is also important.

The "bottom line": enjoy weather AND helping society.

PRESENTERS' BIOS

Dr. Berryman grew up in the farming and logging country of central Wisconsin and attended the University at Madison for his academic training (B.S., M.S., Ph.D. – Meteorology). He was at the Earth and Environmental Sciences Department at Wilkes University in PA for about nine years (seven as Chair) and has now been at the Atmospheric Sciences Department at Lyndon State for 27 years (13 as Chair). The department has recently upgraded its curriculum to put it in line with the trends he will talk about in his seminar and added the Institute of Applied Meteorology to the department to provide students with work experience before graduation. Most of Dr. Berryman's teaching and research has been in the areas of climate, climate change, human impact on climate (and vice versa), and air pollution. He and his wife have been married for 40 years, have two grown daughters, and live in a house tucked away in the deep woods in northeastern Vermont.

Ever since he was a boy, **Jay Shafer** has been drawn to the most changeable element of the natural world, weather. Whenever exciting weather (especially snowstorms) occurred in his hometown of Wanaque, New Jersey, Jay was glued to The Weather Channel or outside eagerly shoveling on snow days. This passion has led Jay to his current position as an Assistant Professor in Lyndon State College's Atmospheric Sciences Department. His teaching focuses on analysis and forecasting - teaching students how to analyze and forecast the weather, and effectively communicate this information to various users.

Jay's formal meteorological education started at Plymouth State College, where he earned a B.S. in Meteorology (2000), and soon found out there was far more to learn about the atmosphere. This led him to graduate school at the University of Utah, where he earned a M.S. (2002) and Ph.D. (2005) in Meteorology. In graduate school, Jay's research focused on Intermountain weather. His doctorate involved examining strong Intermountain cold fronts, developing a climatology of where and when they occur, and determining the large and small-scale controls that are important for their rapid intensification. He has published multiple papers on Intermountain weather.

Jay enjoys experiencing the cold confines of Vermont's Northeast Kingdom, where he continues to enjoy snow removal, and its outdoor recreational activities.

CANADIAN HURRICANE CENTRE REFLECTIONS *Two Decades of Lessons Learned*

Peter J. Bowyer
Canadian Hurricane Centre
Environment Canada
Halifax, Nova Scotia

For more than twenty years the Canadian Hurricane Centre (CHC) has been Canada's authoritative source of information on tropical cyclones: past, present and future. During that time there has been a great maturing of both the CHC and the people of eastern Canada in all matters relating to tropical cyclones. On the inside, we are better at observing them, understanding them, predicting them, and communicating about them. On the outside, Canadians are better at being aware of them, preparing for them, and responding to messages about them.

This animated presentation will look back over 20-years of CHC enlightenment and enterprise spawned by the "lessons-learned" from some notable tropical cyclones. Accordingly, this presentation will be brought to you by: Gloria (1985); Luis (1995); Hortense (1996); Danielle (1998); Harvey and Gert (1999); Michael (2000); Gabrielle (2001); Gustav (2002); Isabel and Juan (2003); Noel (2007); Hanna and Kyle (2008).

PRESENTER'S BIO

After earning a physics degree from the University of Toronto, **Peter Bowyer** joined the Meteorological Service of Canada in 1981. He became a senior meteorologist in 1985 and served as the primary marine outreach meteorologist in Atlantic Canada for more than a decade, assisting the marine schools by developing a practical and comprehensive meteorology curriculum. In 1999, Peter was appointed as the program manager of the Canadian Hurricane Centre and the national spokesperson on issues relating to tropical cyclones. As the author of two books on marine weather and two scientific journal papers on extreme waves with hurricanes, Peter's work was recognized nationally when he won the 2004 Canadian Meteorological and Oceanographic Society's Andrew Thompson Prize in Applied Meteorology.

GOES, Lows, and Jet Streams

Jonathan Byrne
Advanced Math and Science Academy Charter School
Marlborough, MA

This workshop will be designed to promote *active learning* in atmospheric science through a hands-on weather analysis using live data from the NOAA/NWS website. The data will include GOES satellite imagery, colorized temperature maps, and upper atmospheric charts. The goal will be to develop a weather map that will display high and low pressure systems, fronts, air mass types, and jet streams. The workshop will culminate with a *weather briefing* by a group willing to volunteer to present their analysis to the class. We will also discuss how the weather briefing can be utilized as an assessment tool in the classroom. We will provide *tornadoes in a bottle* and give examples about how this popular, hands-on tool can also be employed in the classroom to enhance active learning. Members of the *AMSA Weather Team* will assist in the workshop and share their experience as veteran *junior meteorologists* working in our school Weather Center.

PRESENTER'S BIO

A meteorologist and science teacher, **Jonathan Byrne** currently teaches physics and earth/space science at the Advanced Math and Science Academy Charter School in Marlborough, MA, where he also serves as Science Department Co-Chair and member of the Academic Board of Directors. A former student of Arthur Eisenkraft (founder of the *Active Physics* and *Active Chemistry* textbook series), Jonathan is currently entering his twelfth year of teaching science and math on the secondary level. Jonathan has also written and presented numerous articles and monographs on science education and dynamic meteorology, and was a contributing author to *The Life Cycles of Extratropical Cyclones*, a textbook currently utilized in undergraduate and graduate programs in meteorology and atmospheric science worldwide. Jonathan holds a B.S. in Earth and Atmospheric Science from Boston University, and a M. Ed, in Secondary Science Education from the University of Massachusetts.

RADAR CHARACTERISTICS OF THE JULY 2008 NEW HAMPSHIRE TORNADO: PRECURSOR AND TORNADOGENESIS STAGES

John Cannon
National Weather Service
Gray, ME

Bill Minsinger
Blue Hill Observatory and Science
Center – Milton, MA

Mish Michaels
Meteorologist/Weather Reporter
Boston, MA

From the National Weather Service – Gray, ME

On 24 July 2008, a long-lived tornado raced across eastern New Hampshire. The 52 mi (84 km) path was the longest continuous tornado track ever recorded in New England. This path length eclipsed other well known historical New England storms such as the Worcester, Great Barrington and Stockbridge tornadoes. One death occurred and hundreds of homes were damaged by the rain wrapped EF-2 (Enhanced Fujita Scale) tornado. Detailed storm track information and storm damage photos can be viewed at <http://www.erh.noaa.gov/er/gyx/>.

An anomalously vigorous (three standard deviations from the atmospheric mean), cut-off, upper level low pressure system and strong low level winds provided favorable dynamics to produce the tornadic storm. Tornadogenesis occurred despite modest atmospheric instability and limited cloud to ground lightning. Rather, a series of storm scale interactions likely enhanced the evolving tornadic cell, which was evident in radar animations.

High resolution radar products from the National Weather Service WSR-88Ds in Brookhaven, New York, Taunton, Massachusetts and Gray, Maine were collected to further examine storm morphology. The imagery revealed two unique stages to the convective lifecycle of the storm, which will be defined as a “precursor stage” and a “tornadogenesis stage”.

The “precursor stage” was associated with storm scale dynamics that preceded the development of the tornadic cell. This period was initially characterized by a pulse of inbound velocities approaching Long Island, New York early on 24 July. Subtle, but distinct cell mergers occurred as this storm entered Connecticut. Radar reflectivity images showed this enhanced convection triggered the formation of a bowing segment which propagated to the right of the mean atmospheric flow.

During the formative “tornadogenesis stage,” the convective cell which eventually produced the tornado evolved. A circulation formed near the apex of the bow echo. Rotation increased as the cell intersected the junction of the Merrimack Valley and surrounding hill towns and continued to fluctuate as the storm traversed northeast at 40 kts across complex terrain. A final cell merger was then coincident with the development of a second bow echo and a rapid increase in low-level shear. A tornado touchdown soon followed.

Radar animations detailing the storm morphology which produced the long-lived tornado will be presented. A conceptual diagram will be displayed to demonstrate that complex and discrete storm scale interactions accompanied the organized convection and tornadogenesis.

From WBZ – Boston, MA

On July 24th, 2008, a severe storm cut a path of destruction through central New Hampshire. The damage was so extensive that most assumed a tornado must be to blame, yet no one reported seeing a circulation. Although survivors recalled the loud roar of a train, no one saw a tornado. Perhaps only straight line winds were at fault? Or could it have been that New England's variable topography, thickly forested landscape, and heavy rains during the storm had hidden the truth? There was a mystery to solve.

On the morning of July 25th, I joined NWS (Gray, ME) Warning Coordination Meteorologist John Jensenius at the start of his field survey to determine the nature of the damaging winds. This story is an exclusive look at John's analysis and the initial discovery that, in fact, a tornado had a hand in all of the destruction.

PRESENTERS' BIOS

John Cannon grew up in Maine and upstate New York. He received a Bachelor of Science in Meteorology from the State University of New York at Oswego, where he enjoyed researching lake effect snowstorms. He is currently a senior forecaster at the National Weather Service in Gray, Maine and has also worked at the NWS Albany office. John can be reached by phone at (207) 688-3216 or by email at john.w.cannon@noaa.gov

Mish Michaels has worked as a meteorologist in Boston since 1992, first for WHDH, then for a show called Atmospheres on The Weather Channel, and then for WBZ. Mish has a BS in Meteorology from Cornell University and a MEd from Harvard. She is a contributor to Weatherwise magazine and published an article with John Jensenius in the current September/October issue titled--"CSI New Hampshire: Hunting for Tornado Clues."

Dr. Bill Minsinger has recently retired from a 26 year practice of Orthopedic surgery. He remains as President of the Blue Hill Observatory and Science Center, having held the position since 1980. He has long been interested in the weather and has authored 5 books on New England hurricanes/floods as well as numerous articles on historic weather events and the history of the Blue Hill Observatory. He has been instrumental in establishing the non-profit corporation which now runs all aspects of research, teaching, and programming at Blue Hill Observatory. This includes the initiation of the award-winning Women in Natural Science (WINS) program which is now in its 9th year at Blue Hill. This program serves underprivileged, inner-city girls, ages 12-17. He also led the campaign to designate Blue Hill as a National Historic Landmark. It was declared as such in 1989. Besides weather, his interests include Civil War history with an emphasis on Vermont's participation in the Civil War, Vermont History, railroading, and Civil War re-enacting.

Trying to Minimize Weather Impacts at a Commercial Airline

Rick Curtis
Chief Meteorologist
Southwest Airlines
Dallas, TX

Anyone who regularly relies on airlines to get them from one location to another in a timely fashion can be frequently disappointed by weather disruptions, delays, and cancellations. Airline travel is by far the safest means of travel; however weather plays a huge role in strategic planning, operational efficiency, and the cost of doing business for all commercial carriers. Maintaining efficient airline operations is more than just having the weather observations above the required landing and takeoff minimums. All facets of potential weather impacts need to be monitored and incorporated into strategic planning decisions to provide our Customers the most efficient travel means possible. This presentation will provide insight into how weather information is used to make strategic planning decisions at Southwest Airlines to provide our Customers with the safest and highest level of service possible under the most challenging conditions.

PRESENTER'S BIO

Rick Curtis has been at Southwest Airlines for twelve years and serves as Chief Meteorologist for the Southwest Airlines Operations Coordination Center. He graduated with a B.S. in Meteorology from Lyndon State College. He concentrates on strategic weather forecasting, weather information integration into operational planning, weather instruction, and weather related strategic planning efforts at Southwest Airlines.

Past experience includes Account Management and Product Development at Sonalysts Inc. of Waterford, CT, Director of Weather Services at Surface Systems Inc. (SSI) of St. Louis, MO, and various technical and marketing positions at WSI Corporation of Andover, MA. While at SSI, Rick led a team of meteorologists' focused on forecasting efforts relating to airport operations and highway maintenance activities.

Rick is a member of both the American Meteorological Society and the National Weather Association.

Have We Entered a New Regime?

Joseph D'Aleo
Executive Director, Icecap.us
Nashua, NH

2008/09 Winter was another snowy and cold one (especially in mid-winter) here in the northeast, as La Nina reprised. What will the ENSO state be this winter and what will the hyper long solar cycle and aerosols from Mt. Redoubt mean for the upcoming winter? Have the "Old Fashioned" winters of the 1960s returned?

PRESENTER'S BIO

Joseph D'Aleo received his B.S. and M.S. in Meteorology from the University of Wisconsin and was in the doctoral program at NYU. He was a professor of Meteorology and Climatology at Lyndon State College.

Joe left Lyndon to become First Director of Meteorology and co-founder of the cable TV Weather Channel in 1981. He left The Weather Channel to become Chief Meteorologist at WSI in 1988. He also designed the content for Intellicast.com and did weekly stories on weather and climate as "Dr. Dewpoint." He also was involved in product development for systems and data at WSI and worked R&D for statistical climate models used operationally in their energy and agriculture seasonal and long range forecasting.

He partnered with 6 others in a commodity hedge fund that traded in energy and agriculture for 4 years. He did weekly and daily agriculture forecasts for WSI and seasonal outlooks and has resumed weekly climate and weather stories for their web site Intellicast in 2008.

He is a fellow of the American Meteorological Society and a Certified Consulting Meteorologist. He was also a Councilor and Chair of the Committee on Weather Analysis and Forecasting. He has chaired or co-chaired national conferences for the AMS and the National Weather Association.

Joe is Executive Director of ICECAP (<http://icecap.us>), a very popular web site devoted to climate change and a meteorological advisor to Science and Public Policy Institute. ICECAP and SPPI co-sponsored and Joe was a speaker at both the first and second annual International Conference on Climate Change organized by the Heartland Institute and featuring over 700 attendees from 24 countries.

Ice Storm of 2008

Joe DelliCarpini
NOAA/National Weather Service
Taunton, MA

Christine Sullivan
U.S. Department of Agriculture, Region I
Boston, MA

Bob Kearns
National Grid
Waltham, MA

Jim Palmer
North Shore SKYWARN Coordinator
Peabody, MA

From the National Weather Service – Taunton, MA...

A destructive ice storm affected interior southern New England on 11-12 December 2008. Widespread ice accumulations of 0.50 to 1.00 inch, with locally up to 1.50 inches, were observed across interior portions of northern Massachusetts and southern New Hampshire. The hardest hit areas in the WFO Taunton County Warning Area (WFO BOX CWA) were the higher terrain of north central Massachusetts and southern New Hampshire. Large amounts of ice accumulated on wires and trees, resulting in numerous downed trees and power outages. The power outages were so extensive that it took weeks in some areas for power to be restored. Although the 1998 ice storm impacted a larger area from northern New England into southeast Canada, this event appears to have had a larger impact across the WFO BOX CWA.

This presentation will describe how several meteorological ingredients came together to produce a rare and destructive ice storm. Special focus is given to one of the more unusual aspects to this storm. In most cases when rainfall rates are high, surface temperatures below 30F are required for a considerable amount of ice accretion and subsequent damage. In this event, heavy freezing rain produced significant icing with temperatures between 29F and 32F.

From National Grid...

National Grid initiated its Emergency Restoration Plan prior to the onset of the Ice Storm of 2008. The company pre-staged personnel and resources in areas forecast to be impacted most severely by the accretion of ice. Upon the storm's impact, National Grid ramped up its emergency operations, secured hundreds of supplemental crews from mutual aid utilities and outside contractors throughout the US and responded swiftly and aggressively to restore electric service to customers impacted by the ice storm.

At the height of the storm, a peak of 550,000 customers were interrupted, throughout all of National Grid's US territory. While enduring precarious conditions, the people of National Grid worked methodically to prioritize the damage and restore service to customers in an expedient manner. A significant team of behind-the-scenes employees supported the front lines throughout the event. In total, over 7,400 employees participated in the restoration process. Customers and government agencies expressed gratitude and complimented National Grid for an impressive response to the ice storm.

From the U.S. Department of Agriculture...

Ms. Sullivan will discuss the Agriculture and Natural Resources Emergency Support Function (ESF # 11) response to the December, 2008 ice storm and debris issues complicated by the Asian Longhorned Beetle infestation in Worcester County.

From the North Shore Skywarn Team...

A video slide show will be shown, showcasing amateur radio's role in collecting disaster intelligence during the Ice Storm. This information was fed directly to the National Weather Service in Taunton. This video can be viewed online at: <http://video.nsradio.org> .

PRESENTERS' BIOS

Joe DelliCarpini is the Science and Operations Officer at the National Weather Service in Taunton, MA. He received a Bachelor of Science degree in Meteorology from the State University of New York at Oswego in 1991. His career with the National Weather Service began as a Student Trainee in Boston before going to the Binghamton, NY office as a Meteorologist Intern. He returned to Southern New England in 1996 as a Hydrologic Forecaster at the Northeast River Forecast Center in Taunton, before heading back to the Weather Forecast Office as both a General Forecaster and a Senior Forecaster. Joe lives in Norwood, MA with his wife, Kelly, and their two children, Jessica and Jason.

Bob Kearns is the Director of Emergency Planning at National Grid. His responsibilities include preparing the company's U.S. operations to respond effectively to major electric system emergencies and storms, as well as a variety of business continuity threats, such as facility disasters and pandemic influenza. Bob received a Bachelor Degree in Mechanical Engineering from Manhattan College in 1986. He has 23 years of experience in all aspects of electric utility system design, construction, operation and emergency response. Over Bob's career, he has managed the company's response to a variety of major storms, ranging from Hurricane Bob in 1991 to the Ice Storm of 2008. Bob is presently embracing the opportunity to integrate a variety of emergency plans that existed within National Grid's legacy companies – into one universal set of emergency plans, incorporating the Incident Command System (ICS), for all of National Grid, U.S.

Christine Sullivan is the Emergency Support Function # 11 Coordinator for Region I (New England). She was USDA's coordination lead to FEMA for ice storm response within the Asian Longhorned Beetle quarantine zone. Ms. Sullivan is a graduate of the University of Massachusetts at both Amherst and Boston. She worked in emergency programs for the United States Coast Guard for 18 years before coming to USDA.

Jim Palmer is the Production Coordinator at Danvers Community Access Television where he has worked for several years helping Danvers residents create their own local television programming. He is a graduate of Emerson College in Boston, MA where he earned both a B.A. in the Television/Video Production and a Minor in Public Relations. He has earned several awards from the "Alliance for Community Media – Northeast Region" for projects created from showcasing the Danvers Police Department to producing DCAT's LIVE Election Night Coverage.

In his spare time, he is an avid Amateur Radio (Ham Radio) operator under the call-sign KB1KQW. He is currently the Assistant Section Emergency Coordinator for the Amateur Radio Emergency Service (ARES) in Eastern Massachusetts and assists with providing emergency communications when all else fails. Recently, he spent several days coordinating emergency communications for the city of Gardner which suffered severe communications infrastructure damage during the December ice storm. Jim is also an enthusiastic weather spotter and coordinates weather spotters around the North Shore to provide real time severe weather information both to the National Weather Service offices in Taunton, MA and Gray, ME.

Jim is the Lead Advisor for Venturing Crew 47, a youth scouting unit in Peabody which specializes in Ham Radio. He earned his Eagle Scout award and proudly joined the Eagle Scout class of 1999, and currently serves as a counselor for several activity merit badges from Radio to Weather to Communications. Jim can be found working at numerous district and council events and proudly fulfilled the role of "Program Director" for Camp MoonRaker 2009 in Topsfield.

Causes and Effects of Global Warming

Dr. Kerry Emanuel
Massachusetts Institute of Technology
Cambridge, MA

The talk will begin with a brief tutorial on the physics of climate and will present the evidence that has led climate scientists to conclude that increasing greenhouse gas content has led to a measureable increase in global surface temperature and to other changes, such as retreat of mountain glaciers and summer sea ice. The strengths and limitations of global climate modeling will be discussed together with the problem of assessing and conveying the rather large and perhaps irreducible uncertainty in projections using such models. Finally, we will discuss possible implications of anthropogenic climate change for southern New England weather.

PRESENTER'S BIO

Dr. Kerry Emanuel is a professor of atmospheric science at the Massachusetts Institute of Technology, where he has been on the faculty since 1981, after spending three years as a faculty member at UCLA. Professor Emanuel's research interests focus on tropical meteorology and climate, with a specialty in hurricane physics. His interests also include cumulus convection, and advanced methods of sampling the atmosphere in aid of numerical weather prediction. He is the author or co-author of over 100 peer-reviewed scientific papers, and two books, including *Divine Wind: The History and Science of Hurricanes*, recently released by Oxford University Press and aimed at a general audience, and *What We Know about Climate Change*, published by the MIT Press.

Breakfast with Hayden

Hayden Frank
NOAA / National Weather Service
Taunton, MA

Breakfast with Hayden will be an exciting discussion on many websites that professional meteorologists use on a daily basis to monitor and issue weather forecasts. This will be an interactive talk in which attendees can ask questions at any time during the demonstration. A lot of the websites presented will give you access to computer model data, along with real-time data and observations. I plan on showing ensemble model data to explain how using a probabilistic approach to weather forecasting can allow you to have the most success in the long run. This talk will also explain the products that are issued by the National Weather Service and exactly where to find them.

At the end of the presentation, I plan to call on a couple of volunteers to work together as a team and prepare a 72 hour weather forecast for a city somewhere in the United States. The city I pick will be announced that morning and then we will compare the forecast prepared by our volunteers to the city's local National Weather Service Forecast Office. Another city will then be chosen at random (based on the weather) for which everyone can create a forecast – as part of a forecast contest.

A list of links developed for this presentation will be available as a separate handout, on the day of the conference.

PRESENTER'S BIO

Hayden Frank is a meteorologist with the National Weather Service in Taunton, MA. He is the Doppler Radar and Fire Weather Focal Points at the office. He also works on various other programs, including StormReady, research, and many different outreach projects.

Hayden was born in Philadelphia, PA and has had a love for meteorology from a very young age. He graduated from the Pennsylvania State University in 1998 with a Bachelor's Degree in Meteorology. After graduation, Hayden accepted a temporary job with the National Weather Service in Tulsa, OK. Six months later, he became a permanent National Weather Service employee with the office in Wichita, KS before transferring to Taunton in 2003. Hayden loves all kinds of weather, but always had a special interest in snowstorms, so living in New England is a perfect fit for him. In November 2008, he married Sara Vecchio Frank in Cassenovia, New York. The couple resides happily in Boston, Massachusetts.

Decision Support Services: NWS Buffalo Operations Following the Crash of Flight 3407

Judith Levan
Warning Coordination Meteorologist
NOAA National Weather Service
Buffalo, NY

Late in the evening of February 12, 2009, Continental Flight 3407 crashed into a house during an instrument approach to Buffalo-Niagara International Airport. NWS Buffalo provided decision-support during the critical period immediately after the event and throughout the recovery operations.

How the National Weather Service's Forecast Office in Buffalo responded to the crash will be discussed. Relying on pre-existing office procedures, training, and outreach activities, the offices' team approach allowed the NWS to provide critical decision-making information to Federal, State, and local officials. A chronology of events and lessons learned will be addressed.

PRESENTER'S BIO

Ms. Levan began her career with the National Weather Service in 1980 as an intern at the Buffalo office. She considers herself fortunate to have been able to rise through the positions of general forecaster and lead forecaster to her current position as Warning Coordination Meteorologist all at the Buffalo Office. Ms. Levan, a native western New Yorker, is a graduate of the State University of College at Oswego (1981) with a B.S. in Meteorology and a Minor in Physics.

She is the editor of the office Newsletter "The Lake Breeze." She works with Junior Girl Scouts to earn their "Weather Watch" badge. She is a member of the American Meteorological Society, National Weather Association, and Federally Employed Women. She chairs the Erie County Disaster Preparedness Advisory Board, is treasurer of the Villa Maria Academy Alumnae Association, and as amateur radio operator, N2TEZ, is financial secretary of the Southtowns Amateur Radio Society.

Ham Radio and the National Hurricane Center

Julio Ripoll, WD4R
WX4NHC Amateur Radio Assistant Coordinator
Miami, FL

Ham Radio Operators are an integral part of operations at the National Hurricane Center. This presentation will provide an introduction into who WX4NHC is and what they do at the National Hurricane Center. This will include the different communications modes and networks used, including Hurricane Watch Net, Local Skywarn Nets and others. WX4NHC operates as a backup emergency communications system at NHC. But, Ham Radio Operators do not act merely as a communication tool for forecasters. They also provide important surface reports, using various methods and equipment. Finally, we will discuss how Ham Radio Operators and non-Hams can help the NHC during hurricanes. A couple of short video segments will be shown to illustrate what WX4NHC does at the National Hurricane Center.

PRESENTER'S BIO

Julio Ripoll is a Licensed Architect specializing in Healthcare Facilities and Laboratory design. Ripoll is a consulting Architect for the University of Miami Miller School of Medicine for the past 15 years, designing over 300 projects on and off campus, including all of the satellite clinics for nationally recognized Bascom Palmer Eye Institute. Ripoll is a member of the American Institute of Architects and the National Council of Architectural Registration Boards.

He graduated from the University of Miami in 1981. He is proud to be a "Hurricane Alumni." Ripoll holds an Amateur Radio "Extra Class" FCC License "WD4R" and was first licensed in 1976 as "WD4JNS" and then "WD4JR" in the 1990s.

Julio Ripoll was born in Matanzas, Cuba and immigrated to the U.S. when he was 5 years old, with his family in 1961. Ripoll is very proud to be an American citizen. He lived in Dallas, TX in the 1960s and moved to Miami, FL in 1964. His first memorable experience with hurricanes was in 1965, at the impressionable age of 9, when Hurricane Betsy made landfall over South Florida and tore a large gaping crack in the roof of their small wooden house and the wind and rain poured in for hours in the darkness. The noise and the damaged neighborhood are his most vivid memories.

Ripoll's first Hurricane Communications activity was as a volunteer for Miami-Dade Civil Defense and for the American Red Cross during Hurricane David in 1979. In 1980 he helped co-found the Amateur Radio Station at the National Hurricane Center "W4EHW" (now known as WX4NHC) and was appointed as the first Amateur Radio Coordinator. For the first couple of hurricane seasons, Ripoll would hand carry the Radio equipment and a wire antenna from the University of Miami's Club station in a cardboard box, across US-1, and install it at one of the Hurricane Forecaster's desks -- for each hurricane. The WX4NHC Team started with 3 operators in 1980 and now has 33 specially trained operators that operate 3-hour shifts and that have been active for over 80 hurricanes. Ripoll has served under six NHC Directors as a volunteer for the past 29 years and is currently the Assistant Amateur Radio Coordinator.

Julio married his high school sweetheart, Susan (KA4UVI) and they have one son, Jason (W4JRR). His other interests are SCUBA diving and photography.

Extreme Tornado Research and Photography... The Real Life Version of the Movie “Twister”

Reed Timmer
Extreme Storm Chaser, Meteorologist
Specializing in severe weather forecasting, survival, and research

An action-packed presentation full of extreme tornado intercept videos and robust scientific research from storm chaser/meteorologist Reed Timmer of Discovery Channel's Storm Chasers. Reed will talk about what it's like to drive into the heart of strong tornadoes with his bullet-proof tornado research vehicle (Storm Research Vehicle - SRV). Wind data collected by the SRV from inside two particularly strong tornadoes during the 2009 season will also be presented.

PRESENTER'S BIO

Having intercepted over 250 tornadoes and a dozen powerful hurricanes during the last decade, Reed Timmer is well-known as the most successful and extreme storm chaser in the world. Not only is Reed one of the few people in existence to document both an F5 tornado, and the most devastating hurricane in U.S. history (Hurricane Katrina), but he also graduated with a PhD in Meteorology from the University of Oklahoma in 2009.

Reed's “hands-on” experience with a vast assortment of hazardous weather and natural disasters, as well as his extensive education in the science of meteorology, have made him one of the world's most respected experts on severe weather forecasting, safety, and survival. Reed is a strong advocate for extreme weather and disaster education, and conducts storm spotter seminars for the National Weather Service, emergency managers, and the general public.

Growing up in the ever-changing climate of western Michigan, Reed's passion for extreme weather has dominated his life for as long as he can remember. His illustrious storm chasing career began at the age of 12, when he destroyed the family video camera in his front yard while being pelted by quarter-size hail in a severe thunderstorm. At the age of 18, Reed decided to pursue his ultimate dream, and enrolled at the University of Oklahoma to study meteorology and chase storms in Tornado Alley.

As a star on Discovery Channel's *Storm Chasers* in 2008, Reed became the first person in history to capture High Definition video inside a tornado. The eight episode series had a record 19 million viewers during the 2008 season, and was one of the highest rated shows on Discovery Channel.

You may have also seen Reed on Discovery Channel's *When Nature Strikes* in Fall, 2008, which featured his intercept of Hurricane Ike on Galveston Island as a deadly 15 foot storm surge threatened their position on the sea wall. Reed has also appeared on all major news networks, including Good Morning America with Diane Sawyer, CNN with Wolf Blitzer, CBS, NBC, and The Weather Channel.

Reed is CEO of Weather Fusion, LLC and Extreme Tornado Tours, LLC, offering forensic meteorology and consulting services, extreme weather media, and storm chasing tours. His tornado, hurricane, and blizzard footage has been licensed to over 100 production companies and television networks since 1997, and has been seen by hundreds of millions of people worldwide on television, internet, and mobile video devices.

His media and client credits include:

National Oceanic and Atmospheric Association (NOAA)

Discovery Channel

National Geographic

The Weather Channel

History Channel

BBC

Fuji Television Japan

ABC

NBC

CBS

CNN

Fox News

Univision

Men's Journal Magazine

People Magazine

Ralph Magazine, Australia

Summer of the ‘Spouts: Analysis of Waterspout Development along the Southern New England Coast during the Summer of 2008

Eleanor Vallier-Talbot
NOAA/National Weather Service
Taunton, MA

The summer of 2008 proved to be a very busy one for the National Weather Service (NWS) office in Taunton, Massachusetts. From the months of June through September of 2008, a total of 451 severe weather events were reported across the NWS Taunton County Warning Area. Included in these statistics was one tornado, which started as a waterspout off Rumstick Point on Barrington Bay, Rhode Island, then moved ashore into Warren, Rhode Island and nearby Swansea, Massachusetts.

Waterspouts are an interesting weather phenomena, and not uncommon along coastal locations around the world. On the United States coastlines, they have been reported from the state of Washington to San Diego, California, from Maine to Florida, and along the Gulf of Mexico. Waterspouts have also been spotted on all five of the Great Lakes and on the Great Salt Lake in Utah. The “waterspout alley” of the United States is considered to be off the Florida coast. Near the Florida Keys, atmospheric conditions are nearly ideal for waterspout development. Dr. Joseph Golden spearheaded research during the 1960s and ‘70s and has written extensively about the mesoscale and synoptic processes necessary for waterspout formation.

This presentation will briefly discuss the types and life cycle of waterspouts. The surface and upper level diagnostic processes used during the summer of 2008 at the NWS Taunton office, which was an extraordinary severe weather season for the region, will then be shown. To assist NWS Taunton forecasters with the diagnosis of possible tornadic development, a “tornado playbook” was developed, based on research by NWS Taunton forecasters and student interns. The use of this playbook greatly assisted forecasters during the 2008 severe weather season, most notably on July 23 when the tornadic waterspout developed. Synoptic and upper air analyses of the four near-shore waterspouts that occurred will also be presented.

PRESENTER’S BIO

Eleanor Vallier-Talbot has been a meteorologist with the National Weather Service since 1985. She previously worked at NWS Taunton from 1993-98, then returned in August 2001 after a stint as a Senior Forecaster in Charleston, South Carolina. She has also worked at NWS offices in Portland, Maine and Providence, Rhode Island. Prior to her NWS career, she worked as weekend observer at the Blue Hill Observatory.

Eleanor has served as Outreach Program Leader at NWS Taunton since her first work assignment in 1993. She has visited numerous schools, scout troops, civic and philanthropic organizations, as well as presenting at educational and meteorological conferences. For her work with the AMS’ DataStreme Atmosphere Project, she became a Weather Education Resource “Teacher.” Eleanor is also a published author with her chapter in *“Weather: The Nature Company Guides,”* republished by Fog City Press under the title *“A Guide to Weather.”*

Eleanor has taken the lead as Satellite Program Leader for the office, serves as EEO Program Leader, and assists with SKYWARN spotter training and marine weather programs. She also serves as Co-Chair of the National Weather Association Education Committee.

Eleanor attended the University of Lowell (now the University of Massachusetts at Lowell) for two years before transferring to Lyndon State College, where she received her Bachelor of Science degree in meteorology in 1982. She resides in Taunton with her husband Dean.

Show Me The Weather! *Experiments In Your Classroom*

Joe Venuti
WCVB HDTV Channel 5
Needham, MA

Meteorology can be an intimidating subject to teach to any age group. I will touch upon some of the most basic principles in meteorology that I have brought to hundreds of classrooms over the last fifteen years.

I will explain some basic weather phenomena and combine this information with hands-on experiments that you can perform within your classroom. The subject matter and experiments are geared for grades pre-K through 6, but can be adapted through the high school level.

PRESENTER'S BIO

Joe Venuti is a weather producer and fill-in meteorologist for WCVB-TV Channel 5. He joined the station in 2006 after serving as the weekend/fill-in meteorologist at WLVI-TV, Boston for the previous five years.

Venuti launched his broadcast career as an intern in the Channel 5 weather office, working with the legendary Bob Copeland. Before returning to WCVB, he went on to do meteorological research for the US Air Force Geophysics Lab, MIT, and worked on-air at WPSX-TV, Pennsylvania. Venuti was the morning and noon meteorologist at WGME-TV, Portland, Maine prior to joining WLVI.

A frequent guest speaker in local schools on weather and other science related topics, Venuti is a graduate of the University of Massachusetts at Lowell. He earned his Masters of Science in Meteorology at Penn State. In 1997, Venuti was awarded the American Meteorological Society Seal of Approval in recognition of his professionalism in weather forecasting and reporting.

The Massachusetts native was born in Revere, MA and grew up in Reading, MA. He is married and has two sons.