

The Record Rain and Floods of March 2010: Southern New England's *WaterWorld*

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

Hemispheric and synoptic weather features converged across southern New England during mid and late March 2010 to bring an excessive amount of rainfall, especially across eastern Massachusetts and Rhode Island. Some locations received over 20 inches of rain during March, which is more typical of a season's rainfall rather than a single month.

The winter and early spring of 2009-2010 featured a highly amplified upper level flow pattern across North America thanks to a moderate El Niño across the tropical Pacific, which was starting to decay during March, along with a very strong negative North Atlantic Oscillation (NAO) over the northern Atlantic. In these cases, synoptic features tend to slow their movement across the contiguous United States as upper level cutoff lows develop.

Computer forecast models indicated a rather ominous repetitive pattern across southern New England during the middle and latter portions of March. They showed not one or two, but three successive cutoff 500 hPa low pressure areas developing across the Ohio Valley and mid Atlantic states, which would ultimately move off the New Jersey coast. Ensemble and operational model forecasts performed well in signaling the potential for excessive rainfall, indicating very strong low and mid level moisture convergence and onshore flow into the region. One deficient aspect of the operational models was the quantitative precipitation forecast (QPF). While there was an indication of the potential for excessive rainfall for two of the three events, and the placement of the axis of heaviest rainfall was reasonable, what actually occurred was up to double the amount of the model forecasts.

This presentation will show the hemispheric pattern in place during March, with a synoptic review of the three events as they came to fruition. A QPF model review will be included, along with rainfall reports for the three events showing the deficiencies of this model parameter. Photographs of the flooding will be shown, as well as the March rainfall records.

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 Equal Employment Opportunity 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 and two kitties, Charly and Christy.