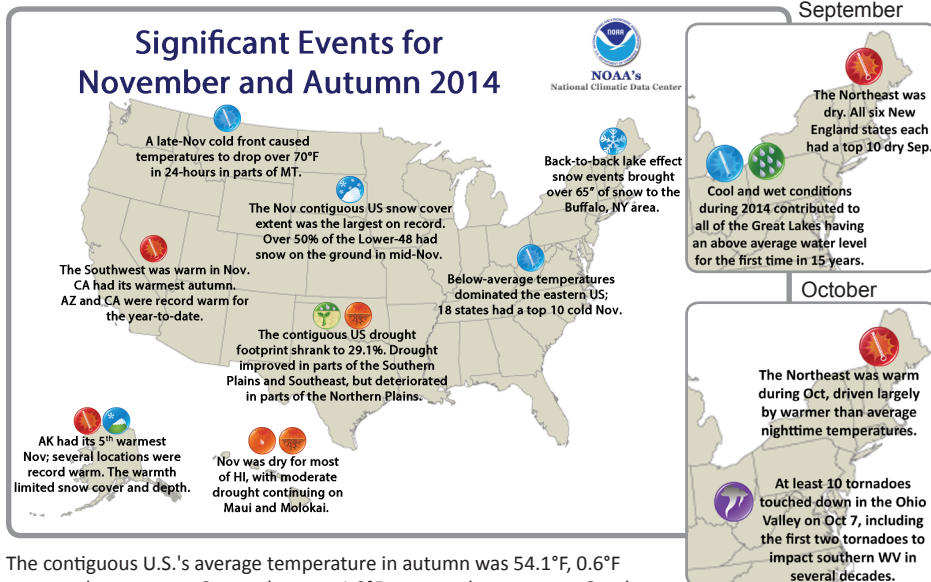


National - Significant Events for September–November 2014



The contiguous U.S.'s average temperature in autumn was 54.1°F, 0.6°F warmer than average. September was 1.3°F warmer than average. October was 3.0°F warmer than average, making it the fourth warmest October on record. November was 2.4°F colder than average, making it the 16th coldest November on record. The contiguous U.S.'s precipitation total for autumn was 7.12 inches, 0.24 inches above average. September and October were wetter than average at 0.09 inches above average and 0.17 inches above average, respectively. November was 0.16 inches drier than average. The contiguous U.S. snow cover extent in November was the largest on record (since 1949) at 400,000 square miles above average.

Highlights for the East

Severe storms in September and October produced 15 tornadoes, damaging straight line winds, and flash flooding across the region.

From October 21 to 22, a coastal low brought up to 6 inches of rain to the Northeast. Strong winds and flooding accompanied the storm. The rain helped ease dryness in parts of New England.

A state record was set for earliest measurable snowfall in Pelion, SC, on November 1. Columbia, SC, had its earliest trace snowfall, with nearby sites seeing 2 to 4 inches. On the 2nd, Caribou, ME, had its earliest snowfall greater than 10 inches.

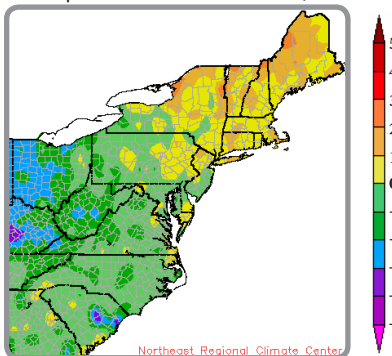
A large temperature difference between Lake Erie and the air above it, and strong winds parallel to the lake, set up one of the Buffalo, NY, area's largest lake effect snow events in history. On November 17–21, up to 88 inches of snow fell, with extreme snowfall rates of up to 6 inches per hour. The storm resulted in 14 deaths, major roads being shut down, thousands of stranded motorists, and hundreds of roof collapses.

From November 26 to 27, a Nor'easter dropped up to 20 inches of snow on the Northeast, causing hundreds of flight delays and hazardous road conditions the day before Thanksgiving. More than 300,000 customers lost power in New England.

Regional - Climate Overview for September–November 2014

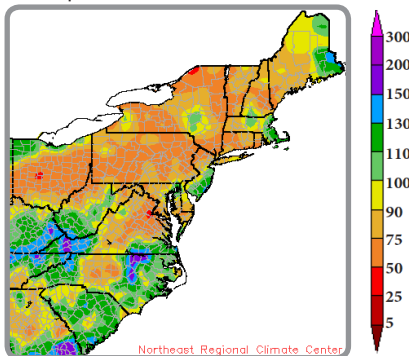
Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F)
September 1–November 30, 2014



The Eastern Region's average fall temperature was 53.2°F, 0.4°F colder than normal. However, 9 of the 16 states were warmer than normal, with three ranking this fall among their top 20 warmest. The region was 0.7°F warmer than normal in September. Fifteen states saw above-normal temperatures, with two having top 20 warmest Septembers. October was 2.2°F warmer than normal. All states saw above-normal temperatures, with nine ranking the month among their top 20 warmest. This November was the region's 17th coldest on record at 4.0°F below normal. All states had below-normal temperatures, with five ranking the month among their top 20 coldest.

Percent of Normal Precipitation (%)
September 1–November 30, 2014

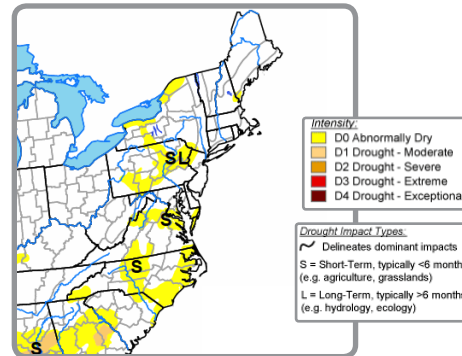


The Eastern Region received 87% of normal precipitation during fall. Fourteen of the sixteen states were drier than normal, with Pennsylvania having its 19th driest fall. The region saw 72% of normal rainfall in September. All states but the Carolinas were drier than normal, with eight ranking the month among their top 15 driest. The region received 108% of normal precipitation in October. Nine states were wetter than normal, with four having top 20 wettest Octobers. The region picked up 83% of normal precipitation in November. Ten states were drier than normal, but South Carolina had its 15th wettest November.

Normals based on 1981–2010

Drought in the East

U.S. Drought Monitor
December 16, 2014



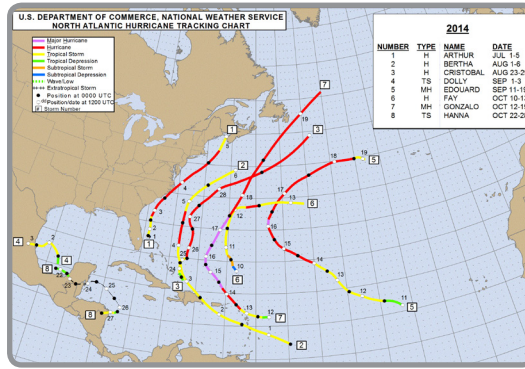
In early September, 10 states had areas of abnormal dryness. During the month, moderate drought was introduced in four states. In October and November, dryness eased in some areas but expanded in others. All states had areas of dryness sometime during those months. U.S. Geological Survey data showed that in September and October some New England waterways were at record or near-record low levels, with streamflows at 10% of normal or less. Massachusetts Energy and Environmental Affairs issued a Drought Advisory for the Cape Cod and Southeast regions, indicating the need for closer monitoring of water resources. Dryness improved in New England in December, but lingered elsewhere.

Regional - Impacts for September–November 2014

Ocean Conditions

Sea surface temperatures and bottom temperatures generally remained above the long-term mean in the Northeast Shelf Large Marine Ecosystem (Gulf of Maine to Cape Hatteras, NC). The trend towards earlier arrival of spring-like temperatures continued, and 2014 was one of the earliest springs in the last 30 years. Projections indicate that over the next 75 years spring-like temperatures will occur three to four weeks earlier and extend later into the fall—increasing the summer season by about two months.

With the current fishable stock the smallest on record, the northern shrimp season was cancelled in the Gulf of Maine for a second consecutive year. The Gulf of Maine cod stock is also at record low levels. Emergency measures were implemented in early November that close more fishing grounds, limit cod catches, and ban recreational cod fishing for at least six months. The Gulf of Maine is near the southern limit for both cod and shrimp. Warmer waters have been implicated in the decline in shrimp and have likely compounded the management challenges for cod.



Hurricane Season

The 2014 Atlantic hurricane season was below average, as predicted, with eight named storms, six hurricanes, and two major hurricanes (see graphic above). The first storm of the season, Hurricane Arthur, was the only landfalling hurricane on the East Coast. An average hurricane season, based on 30 years of data, has twelve named storms, six hurricanes, and three major hurricanes. Increased atmospheric stability, along with strong vertical wind shear, helped suppress the hurricane season.

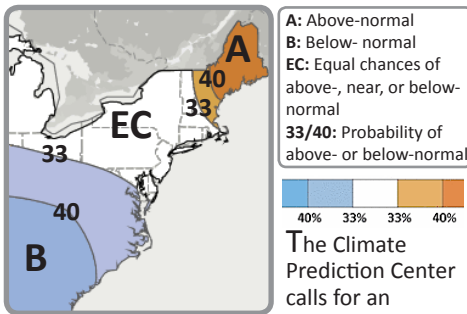
New Tools and Resources

The U.S. Climate Resilience Toolkit features case studies and interactive tools, such as maps of storm surge flooding and predicted drought conditions, to help users understand and address climate change risks and opportunities. NOAA's Lake Level Viewer allows users to see how various Great Lakes water levels impact shoreline position, water depth, society, and business. New Jersey's NJADAPT website, which helps communities understand their vulnerabilities to coastal hazards and measures that can be taken to increase local resilience, features three major products: a self assessment tool, local coastal flooding impacts maps, and an interactive map to visualize coastal flooding hazards and sea level rise. NOAA Fisheries and Rutgers University launched the OceanAdapt web tool to help managers, scientists, fishing sectors, and others track shifts in the distribution of marine species with changes in ocean and climate conditions. The New York State Climate Change Science Clearinghouse, which is slated for public beta-release in spring 2015, will feature a unique blend of interactively searchable climate data, GIS mapping, and text-based documents relevant to climate change impacts, adaptation, and mitigation in the state.

Regional - Outlook for Winter 2014-15

Temperature

Valid for January–March 2015

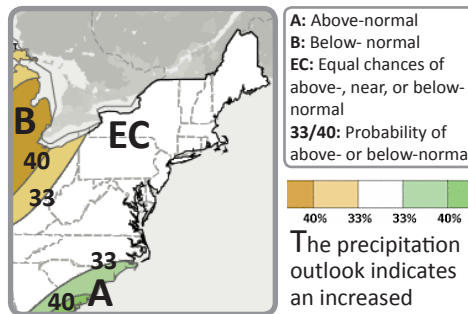


The potential for El Niño was factored into the temperature forecast. With El Niño, temperatures tend to be below normal in the Mid-Atlantic and Carolinas. A weak El Niño, like what is predicted, favors more variable temperature conditions elsewhere.

Also, the Arctic Oscillation (AO) is forecast to possibly become negative. The AO refers to the difference in strength of atmospheric pressure over the Arctic and middle latitudes. When pressure is higher than average over the Arctic and lower than average over the middle latitudes, the AO is negative. The jetstream shifts southward, allowing cold polar air to move southward, too. In New England, long-term trends indicate above-normal temperatures are most likely.

Precipitation

Valid for January–March 2015



While sea surface temperatures in the equatorial Pacific Ocean became increasingly warm in November, ENSO-neutral conditions continued as of early December. A clear link between expected atmospheric conditions during El Niño and the warm waters has not been established. Computer models continue to indicate the emergence of a weak El Niño event, though. The Climate Prediction Center says there is a 65% chance of El Niño during winter and lasting through spring 2015.

El Niño

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Eastern Region Partners

National Oceanic and Atmospheric Administration
www.noaa.gov

National Climatic Data Center

www.ncdc.noaa.gov

National Weather Service, Eastern Region

www.weather.gov

NOAA Fisheries Science Centers and Regional Offices, Atlantic

www.nmfs.noaa.gov

Office for Coastal Management

www.oceanservice.noaa.gov

NOAA Research, Climate Program Office and Geophysical Fluid Dynamics Lab

www.research.noaa.gov

NOAA National Sea Grant Office

www.seagrant.noaa.gov

NOAA's North Atlantic, South Atlantic, and Great Lakes Regional Collaboration Teams

www.regions.noaa.gov

Climate Prediction Center

www.cpc.noaa.gov

National Operational Hydrologic Remote Sensing Center

www.nohrsc.noaa.gov

Northeast Regional Climate Center

www.nrcc.cornell.edu

Southeast Regional Climate Center

www.sercc.com

National Integrated Drought Information System

www.drought.gov

Carolinas Integrated Sciences and Assessments

www.cisa.sc.edu

Consortium on Climate Risk in the Urban Northeast

www.ccrun.org

Cooperative Institute for North Atlantic Research

www.cinar.org

Eastern Region State Climatologists

www.stateclimate.org