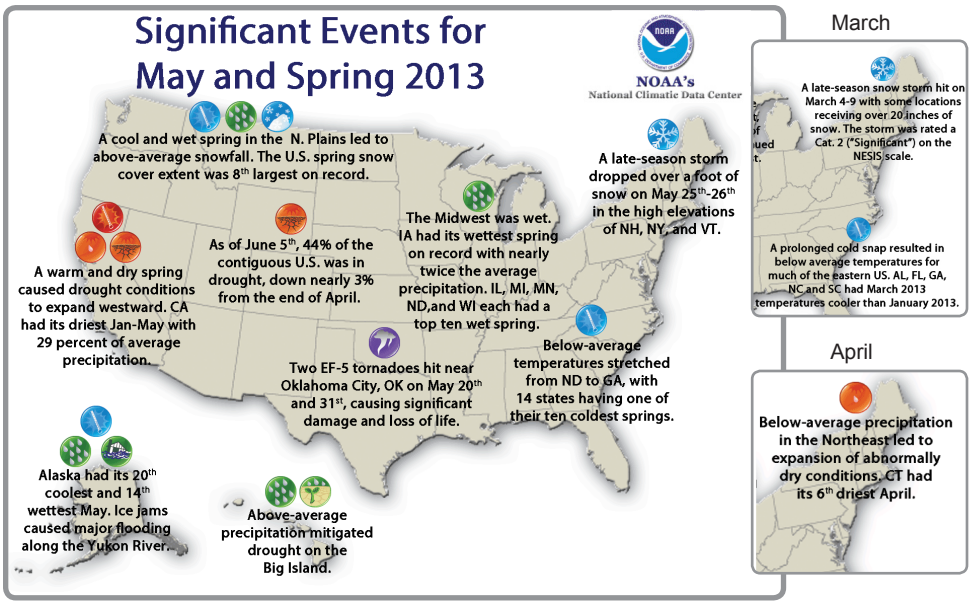
Quarterly Climate Impacts and Outlook

Eastern Region

June 2013

National - *Significant Events for March–May 2013*



With an average spring temperature of 50.5°F, the continental United States was 0.5°F below the 20th century average, making this spring the coolest spring since 1996. The contiguous United States received 7.92 inches of precipitation during spring, 0.21 inches above the 20th century average. The below-average temperatures and above-average precipitation helped contribute to a spring snow cover extent that was the eighth largest on record and the largest since 1984.

Highlights for the East

The early March storm that dropped 20+ inches of snow in New England also brought wind gusts up to 70 mph. Wind-driven waves caused flooding and erosion in several coastal areas from Maine to Delaware. On March 6, a buoy southeast of Cape May, NJ, recorded its second highest wave height, 25.6 feet, since it began recording data in 1984.

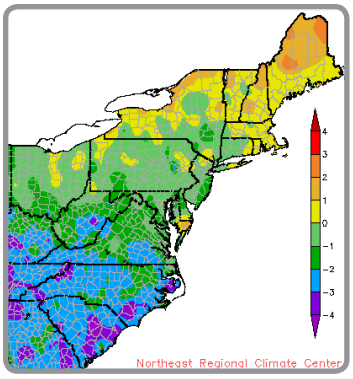
Eleven tornadoes touched down in the region in April and May: an EF-0 in Maryland, an EF-0 in Massachusetts, an EF-1 in Virginia, an EF-0 and three EF-1s in Pennsylvania, and three EF-1s and a mile-wide EF-2 in New York. Straight-line winds, hail up to 2.5 inches in diameter, and flash flooding were also reported. The storms caused structural damage and downed trees.

From May 25–26 Mount Mansfield, VT, received 13.2 inches of snow, making it the latest in the season that the peak has received a foot. Mount Mansfield also set a record (and tied the New England record) for most consecutive days with 1 inch of precipitation with five such days from May 22–26. Also in May, Burlington, VT, set a new record for greatest monthly precipitation with 8.74 inches.

Regional - *Climate Overview for March–May 2013*

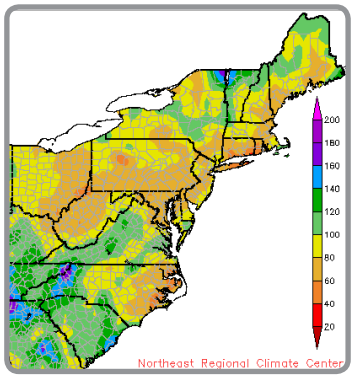
Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F)
March 1–May 31, 2013



With an average temperature of 49.4°F, the Eastern Region was 0.8°F below normal for spring 2013. Eleven of the sixteen states were cooler than normal. South Carolina had the greatest departure, -2.8°F, making it their fourth coolest spring on record while North Carolina had a departure of -2.5°F, making it their seventh coolest spring. Departures for the rest of the cool states ranged from -1.4°F in Virginia to -0.1°F in Pennsylvania and New York. As for the five warm states, departures ranged from +0.1°F in Rhode Island to +1.6°F in Maine.

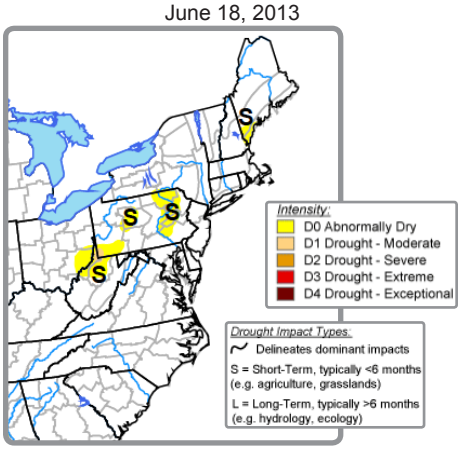
Percent of Normal Precipitation (%)
March 1–May 31, 2013



The Eastern Region received 10.00 inches of precipitation, 90% of normal, during spring. Fourteen of sixteen states were drier than normal. In terms of percent of normal, Rhode Island was the driest state at 59%, making it their 17th driest spring on record. Connecticut was also dry at 63% of normal precipitation, making it their 20th driest spring. Departures for the other dry states ranged from 75% of normal in Pennsylvania to 99.8% in Vermont. South Carolina (117% of normal) and Virginia (104% of normal) were the wettest states.

Drought in the East

U.S. Drought Monitor
June 18, 2013



While the Carolinas started spring with D0–D2 conditions, abundant precipitation eased dryness there. Areas of D0–D1 were introduced in Pennsylvania and West Virginia and remained through spring. A lack of precipitation led to the expansion of D0–D1 conditions in New England and New York; however, recent precipitation helped ease dryness in all but southern Maine. The Drought Outlook indicates improving conditions for the Eastern Region.

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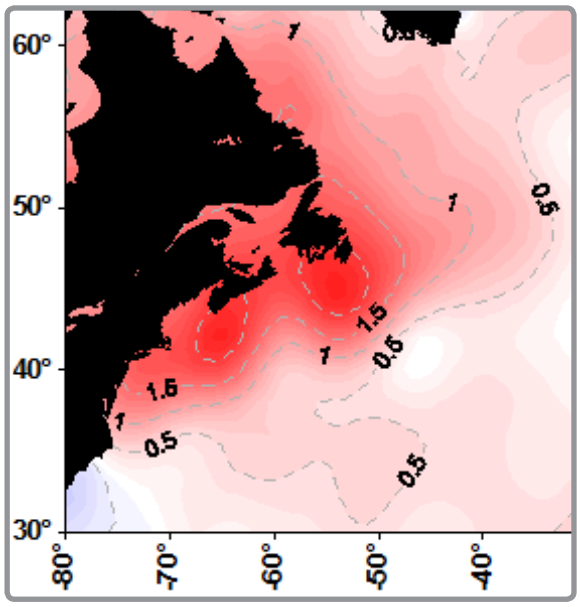
Regional - *Impacts for March–May 2013*



The map shows 2012 sea surface temperature anomaly in degrees Celsius compared to the mean of the last 100 years. The Gulf of Maine's sea surface temperatures were around 2°C (3.6°F) above the long-term mean. The record temperatures in U.S. waters were part of a broad "ocean heat wave" that extended from North Carolina to Iceland. (image courtesy of Northeast Fisheries Science Center)

Record High Sea Surface Temperatures

According to the NOAA Northeast Fisheries Science Center's latest Ecosystem Advisory, sea surface temperatures during 2012 were the highest recorded in 150 years in the Northeast Shelf Large Marine Ecosystem, which extends from the Gulf of Maine to Cape Hatteras, North Carolina. Habitat for warm-water species expanded to record areas of the shelf, while the extent of areas suitable for cold-water species decreased to record lows. This has affected the distribution of fish populations–black sea bass, summer flounder, longfin squid, and butterfish all showed a northeastward shift. To put these shifts in distribution in context, the center of the black sea bass population shifted from Maryland to northern New Jersey and the center of butterfish distribution shifted from southern New Jersey to Massachusetts. (http://www.nefsc.noaa.gov/ecosys/advisory/current/advisory.html)

Spring to Arrive Earlier?

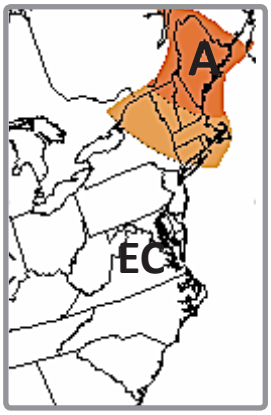
A NOAA-funded study predicts that the biological onset of spring may arrive 7 to 38 days earlier by 2100 due to a warming climate. Scientists looked at budburst or when emerging leaves are visible on at least three parts of a plant. The budburst data were entered into climate models, which then predicted how changes in temperature would likely affect leaf emergence over the next century. The change was most pronounced in northern states like Maine and New York and depended on the plant species. In addition, the latitudinal gradient of budburst, or the time between budburst in Florida to budburst in Maine, is expected to change from 74.7 days currently to 59.1 days in the future.

[*Jeong, S.-J., D. Medvigy, E. Shevliakova, and S. Malyshev (2013), Predicting changes in temperate forest budburst using continental-scale observations and models, Geophys. Res. Lett., 40, doi:10.1029/2012GL054431*]

Regional - *Outlook for Summer 2013*

Three-Month Temperature Outlook

Valid for July–September 2013



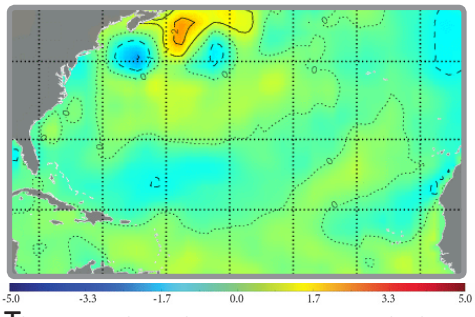
EC: Equal chances of above, near, or below normal
A: Above normal

33% 40% 50% 60%
Probability of above

With models indicating very weak temperature anomalies in equatorial Pacific waters, El Niño/Southern Oscillation (ENSO) neutral conditions are forecast to continue through summer 2013. Without a clear ENSO signal, long-term trends played an important role in the temperature outlook. The average temperature for the season over the past 15 years was compared to the 30-year normal. These trends, along with computer models, indicated an enhanced likelihood of warmer-than-average temperatures. The models were even more consistent with indicating an increased chance of above normal sea surface temperatures in the northwest Atlantic.

2013 Atlantic Hurricane Season Outlook

Sea Surface Temperature Anomaly (°C)
June 15, 2013 (Credit: National Hurricane Center)



The 2013 Atlantic hurricane season outlook indicates that an above-normal season is most likely with a 70% chance of each of the following: 13-20 named storms, 7-11 hurricanes, and 3-6 major hurricanes. In comparison, the 1981-2010 averages are 12 named storms, 6 hurricanes, and 3 major hurricanes. The main climate factors for the 2013 outlook were: ongoing atmospheric conditions that have been producing increased Atlantic hurricane activity, an expected continuation of above-average sea surface temperatures in the main development region, and a likely continuation of ENSO-neutral conditions. Due in part to the likelihood of an active hurricane season, the July–September outlook indicated an increased chance of above-normal precipitation for parts of the Eastern Region.

Eastern Region Partners

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