NOAA Climate Science & Services
Monthly Climate Update

Jake Crouch
Climate Scientist, NOAA’s National Centers for Environmental Information

Jessica Spaccio
Climatologist
Cornell University & the Northeast Regional Climate Center

Anthony Artusa
Meteorologist and Seasonal Forecaster
NOAA’s Climate Prediction Center
Global Temperature: July 2016

• July: +0.87°C above 20th century average
  – Warmest July and month on record
  – 15th consecutive record warm month

• Land: +1.10°C
  – Ties 1998 as warmest July on record

• Ocean: +0.79°C
  – Warmest July on record
  – 9th largest departure from average of any month

The global temperature record dates to 1880 (137 years)
Global Temperature: Jan-Jul 2016

Year-to-Date Global Temperatures
for 2016 and the other seven warmest years on record

January-July 2016: +1.03°C above average, surpassing 2015 by 0.19°C
Contiguous U.S. July

Temperature: 75.3°F, +1.6°F, 14th warmest July
Precipitation: 2.87”, +0.09”, near average July

- Above-average temperatures across the South and East
- Florida and New Mexico were both record warm
- Above-average precipitation suppressed daytime temperatures in the Northwest and Northern Plains to Midwest

- Below-average precipitation across the Southwest, Central Rockies, Southern Plains, Southeast, and Northeast
- Above-average precipitation across the Northwest, Midwest, and parts of Great Plains
- Significant flooding impacted western Kentucky with more than 16” observed in parts of the state
Contiguous U.S. Jan-July temperature was 53.4°F. 3.0°F above average, the 3rd warmest
Only Jan-July of 2012 (55.6°F) and 2006 (54.4°F) were warmer
Every state was warmer than average
Alaska continues to be record warm for 2016
Current U.S. Drought

19.9% of Contiguous U.S. in Drought
(2.1 percentage points since early July)

- Improvement: Parts of the Midwest and Southeast
- Degradation: Southeast, Northern Plains and Rockies, Southern Plains, and Northeast
- Outside CONUS: Drought improved in Hawaii with help from Darby

U.S. Drought Monitor

August 16, 2016
(Released Thursday, Aug. 18, 2016)
Valid 8 a.m. EDT

Drought Impact Types:
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/
Northeast Drought

- Majority of region in precipitation deficit since March
- Dark orange < 75% of normal

Record Low Precipitation

<table>
<thead>
<tr>
<th>Station</th>
<th>2016</th>
<th>Normal</th>
<th>% of Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geneva, NY</td>
<td>7.69</td>
<td>17.09</td>
<td>45</td>
</tr>
<tr>
<td>Lawrence, MA</td>
<td>10.71</td>
<td>23.20</td>
<td>46</td>
</tr>
<tr>
<td>Elmira, NY</td>
<td>9.43</td>
<td>18.91</td>
<td>50</td>
</tr>
<tr>
<td>Avon, NY</td>
<td>8.28</td>
<td>16.42</td>
<td>50</td>
</tr>
<tr>
<td>Lowville, NY</td>
<td>10.50</td>
<td>18.13</td>
<td>58</td>
</tr>
</tbody>
</table>
Northeast Drought

- Summer rains for some, other areas go farther into deficit
- Dark orange < 75% of normal
- Red < 50% or normal

Record Low Precipitation

<table>
<thead>
<tr>
<th>June 1 - August 16 Precipitation (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Boston, MA</td>
</tr>
<tr>
<td>Geneva, NY</td>
</tr>
<tr>
<td>Walpole, MA</td>
</tr>
</tbody>
</table>
Northeast Drought

- August 16 Drought Monitor
- 7-Day Precipitation totals
- Expect some improvement where heavy precipitation has fallen
- Expect expansion and introduction of extreme drought where precipitation has missed
Northeast Drought

**Impacts**
- Below normal stream flow
- Low well & reservoir levels
- Wildlife & recreation impacted
- Increased fire risk
- State declarations of drought watches, advisories, and warnings

**Agriculture Impacts**
- Some corn total loss
- Loss of alfalfa, pumpkins
- Low hay yields
- Combine & tractor fire risk
- Shallow live stock ponds

Photos: Cornell University Cooperative Extension
Sea Surface Temperatures and ENSO

• Sea surface temperatures
  – Below normal SSTs across much of the central & eastern equatorial Pacific
  – Above normal SSTs off coast of southern California/Baja, and most of Alaska
  – La Niña Watch in place

• ENSO forecast
  – ENSO is in its “Neutral” phase
  – A transition to weak La Niña event is anticipated during the autumn & winter 2016-17
  – Borderline or weak La Niña expected during autumn/winter 2016-17
Monthly Forecast (September)

September Average Temperature Probability

September Total Precipitation Probability
Seasonal Forecast (Sep–Oct–Nov)

Sep-Oct-Nov Average Temperature Probability

Sep-Oct-Nov Total Precipitation Probability
U.S. Drought Outlook

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for August 18 - November 30, 2016
Released August 18, 2016

Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

This map depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

http://go.usa.gov/3eZ73
TODAY’S PRESENTATION:

- http://www.ncdc.noaa.gov/sotc/briefings

NOAA’s National Centers for Environmental Information:
www.ncdc.noaa.gov

- Dates for upcoming reports: http://www.ncdc.noaa.gov/monitoring-references/dyk/monthly-releases

NOAA’s Climate Prediction Center: www.cpc.ncep.noaa.gov

Northeast Regional Climate Center: http://www.nrcc.cornell.edu/


Climate Portal: www.climate.gov

NOAA Media Contacts:

- John.Leslie@noaa.gov, 301-713-0214 (NOAA Office of Communications/NESDIS)
- Brady.Phillips@noaa.gov, 202-482-2365 (NOAA Office of Communications/HQ)