

September, 2017

Key Points:

- Abnormally dry (D0) conditions are currently observed in the Northeast (NE) with over 22% of the region affected.
- Mild drought conditions appear to have first originated in northeastern in July, affecting most the domain by the end of September.
- Our Drought Atlas maps mostly agree with the US • drought monitor
- Neutral to mild drought conditions are predicted for • the late fall (October-November-December) throughout much of the region using state-of-the-art models.

Our 4km-PDSI drought Atlas (Fig. 1) shows the evolution of dry and wet conditions over the last three months (July, August, and September). By the end of September incipient (-1) and mild (-2) drought conditions are present in at least some portion of all states, including the southeastern sector of NYS. These conditions began in the extreme northeastern part of Maine, then expanded along much of the eastern coast.

According to the U.S. Drought Monitor, abnormally dry (D0) and moderated drought (D1) conditions were reported by local observers in 20% of the NE region (Fig. 2). Moderate drought (D1) conditions are localized along a narrow section at the eastern edge of Maine, while patches of abnormally dry conditions are present in every state. Analysis of other drought indicators suggests that the observed patterns are not solely the result of precipitation deficits, but instead arise from a combination of temperature, moisture, and local effects [1].

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Figure 1. NYS/NE Drought atlas maps from the most recent three months.



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Drought Monitor



Figure 2. US Drought monitor map for the Northeast (http://droughtmonitor.unl.edu/).



Figure 3. Seasonal drought outlook from the National Weather Service's Climate Prediction Center.

The U.S. seasonal drought outlook does not project any change in the NE drought conditions except for a possibility of drought subsidence in a small area in the northern region. By contrast, our 32km-NMME-PDSI product shows a moderate drought for the entire NE region (Fig. 3). In part because our projections do not agree well with the U.S. seasonal drought for the region, and also because the projected anomalies are very weak, we have "low confidence" in the predictions themselves.

At continental scales, droughts in two key regions (Southern Arizona-California and Montana-South Dakota-North Dakota) have not only persisted since the early summer, but also have expanded. Another region, the Great Plains, received anomalously high precipitation, and accordingly exhibits drought conditions of the opposite sign from the dry southwest and it is opposite synchronized with the dry Southwest in early summer (June-July). This pattern is a dominant characteristic in early summer that have potentially steered convection in late summer (August-September).



Figure 4. US drought monitor, updated September 28th.

References cited:

[1] http://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/spi.shtml

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