Weather Briefing
Excessive Heat Event this week
plus a review of
Drought information

Prepared 200 PM EDT – Tuesday, July 17th, 2012

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Weather.gov/phi

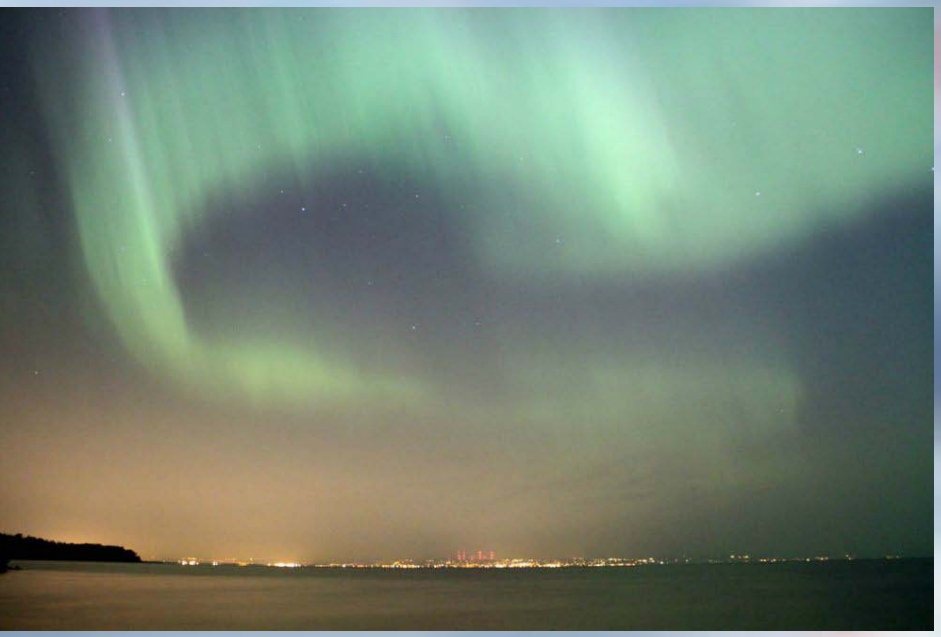
Purpose of briefing

- Briefing #2 for event
- Promote situational awareness for emergency management community & partners
- Provide guidance for planning efforts
- Briefing applies to Mount Holly service area – shaded in green on map

Executive Summary

- Quick review of last weekend Solar Weather event. Event reached G2 (moderate) levels; aurora were seen in portions of northern U.S.; no other significant impacts. NOAA forecast was very accurate.
- Worst of the heat this week will be today (Tuesday) and tomorrow (Wednesday).
- Heat index values will approach 105 degrees on both days.
- Drought is affecting much of the country. Our region has been impacted somewhat less than other parts of the country. Where we stand locally and how things look for the future will be reviewed.
- At this point in time, no additional briefing packages are scheduled.
- Monitor our website at weather.gov/phi

Observed solar weather impacts



- Geomagnetic storms are rated from G1 (minor) to G5 (extreme)
- Official NOAA Space Weather Center forecast was for G1 to G2 conditions starting Saturday, July 14th
- G2 storm conditions were observed. Aurora was visible over northern portions of the U.S.
- Photo on left was from Duluth Minnesota.
- Geomagnetic storm has ebbed. Space weather conditions have returned to near normal.
- Next slide shows the Geomagnetic storm rating levels

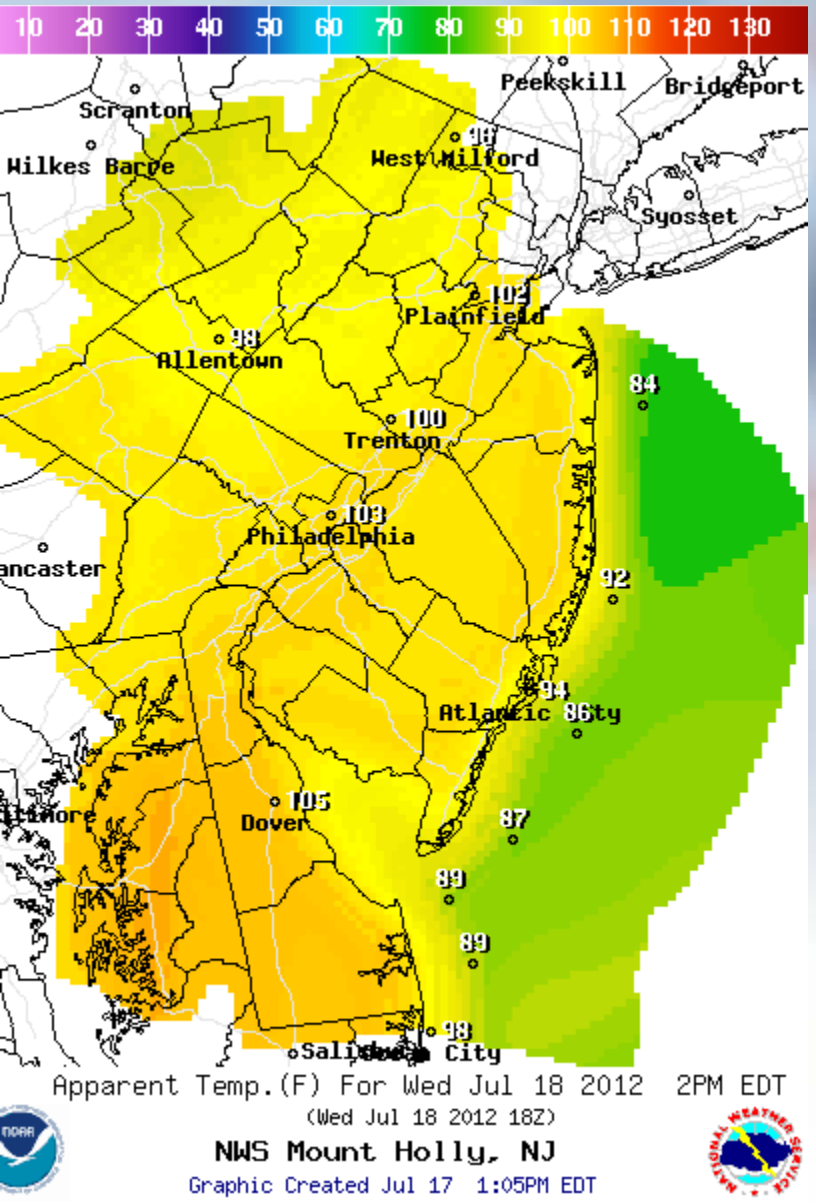
NOAA Space Weather Scales

Category		Effect	Physical measure	Average Frequency (1 cycle = 11 years)
Scale	Descriptor	Duration of event will influence severity of effects		
Geomagnetic Storms			Kp values* determined every 3 hours	Number of storm events when Kp level was met; (number of storm days)
G 5	Extreme	Power systems: widespread voltage control problems and protective system problems can occur, some grid systems may experience complete collapse or blackouts. Transformers may experience damage. Spacecraft operations: may experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites. Other systems: pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora has been seen as low as Florida and southern Texas (typically 40° geomagnetic lat.).**	Kp=9	4 per cycle (4 days per cycle)
G 4	Severe	Power systems: possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid. Spacecraft operations: may experience surface charging and tracking problems, corrections may be needed for orientation problems. Other systems: induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.).**	Kp=8	100 per cycle (60 days per cycle)
G 3	Strong	Power systems: voltage corrections may be required, false alarms triggered on some protection devices. Spacecraft operations: surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems. Other systems: intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat.).**	Kp=7	200 per cycle (130 days per cycle)
G 2	Moderate	Power systems: high-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage. Spacecraft operations: corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions. Other systems: HF radio propagation can fade at higher latitudes, and aurora has been seen as low as New York and Idaho (typically 55° geomagnetic lat.).**	Kp=6	600 per cycle (360 days per cycle)
G 1	Minor	Power systems: weak power grid fluctuations can occur. Spacecraft operations: minor impact on satellite operations possible. Other systems: migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).**	Kp=5	1700 per cycle (900 days per cycle)

Based on this measure, but other physical measures are also considered.

* For specific locations around the globe, use geomagnetic latitude to determine likely sightings (see www.swpc.noaa.gov/Aurora)

Excessive heat has returned



- Maximum heat index values will exceed 100 for much of the region both today (Tuesday, July 17th) as well as tomorrow (Wednesday, July 18th)
- Excessive heat warnings and advisories are in effect for many areas
- An approaching cold front will lower temperatures and humidity levels for later this week

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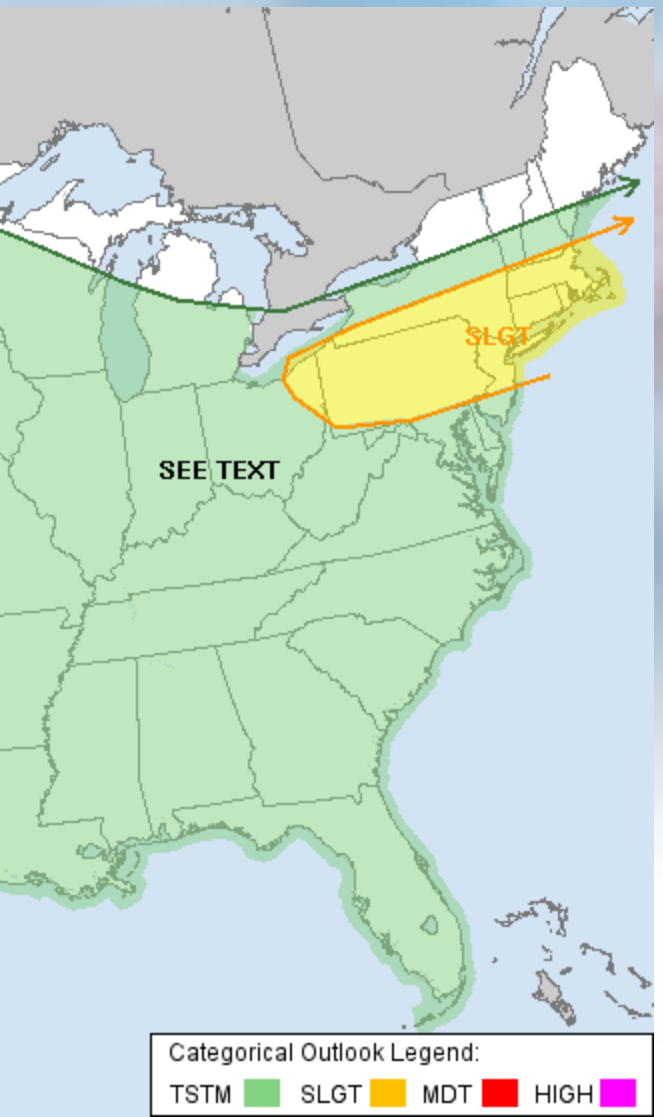
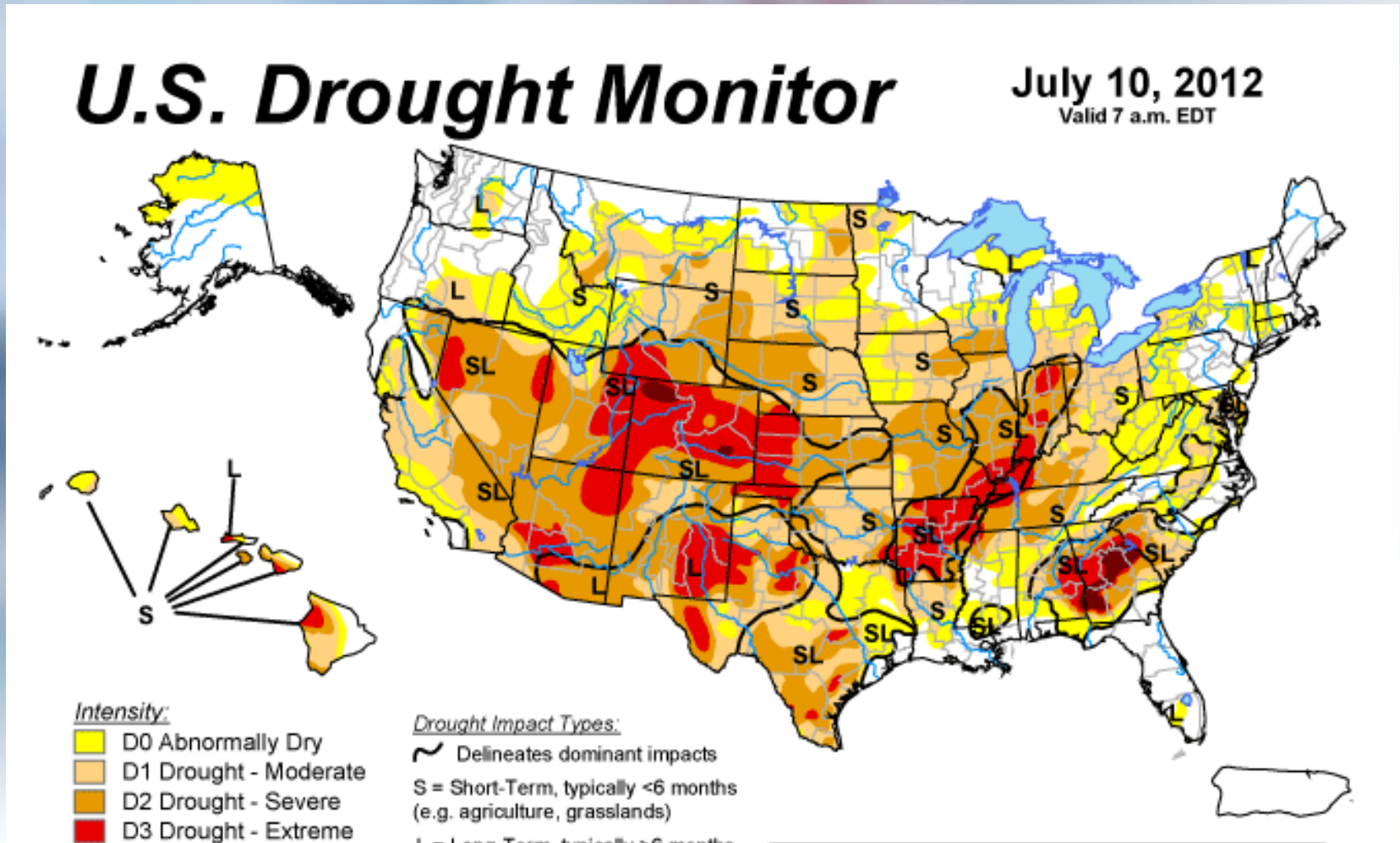
Threat of severe weather

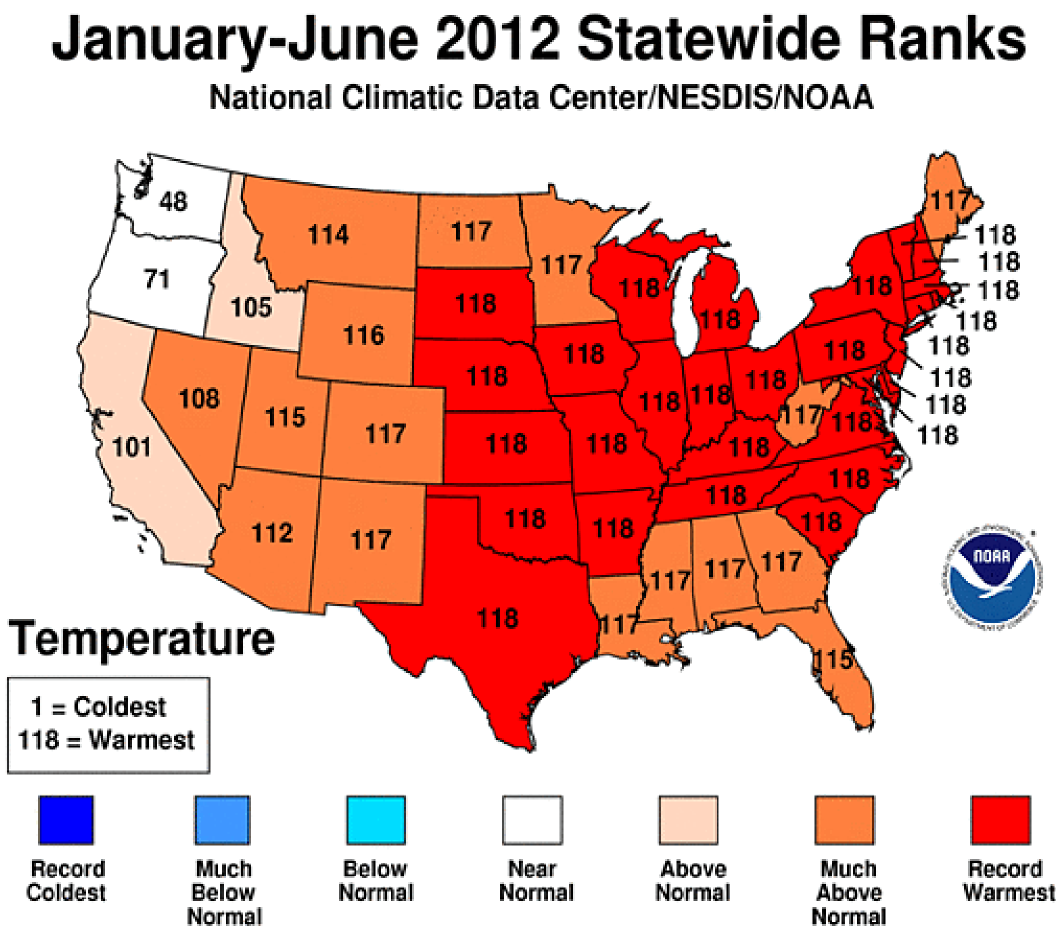


- With extreme heat comes the threat of severe weather, particularly strong damaging straight line winds from severe thunderstorms
- Graphic on the left shows the threat area for severe weather on Wednesday, July 18th as a cold front advances on our region.

Drought affects the nation



Record heat over much of the nation



- As well as our region
- Much of the country as well as all our local area has had the record warmest temperatures for the January through June time period (first six months of the year)

Drought conditions locally

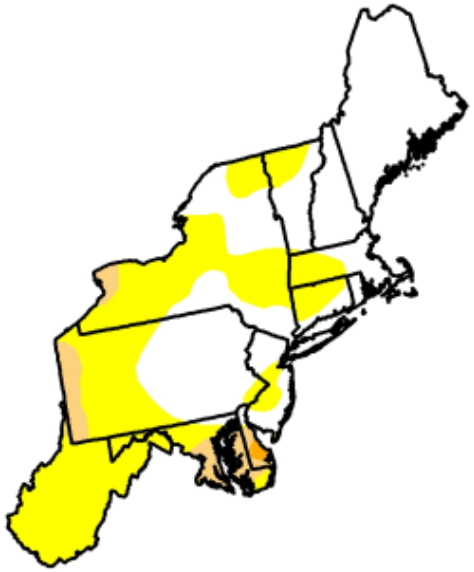
U.S. Drought Monitor

Northeast

July 10, 2012
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	51.88	48.12	6.17	0.33	0.00	0.00
Last Week (07/03/2012 map)	68.41	31.59	4.55	0.19	0.00	0.00
3 Months Ago (04/10/2012 map)	33.88	66.12	27.68	7.35	0.00	0.00
Start of Calendar Year (12/27/2011 map)	96.69	3.31	0.00	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	97.24	2.76	0.00	0.00	0.00	0.00
One Year Ago (07/05/2011 map)	92.63	7.37	1.73	0.48	0.00	0.00



Intensity:

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

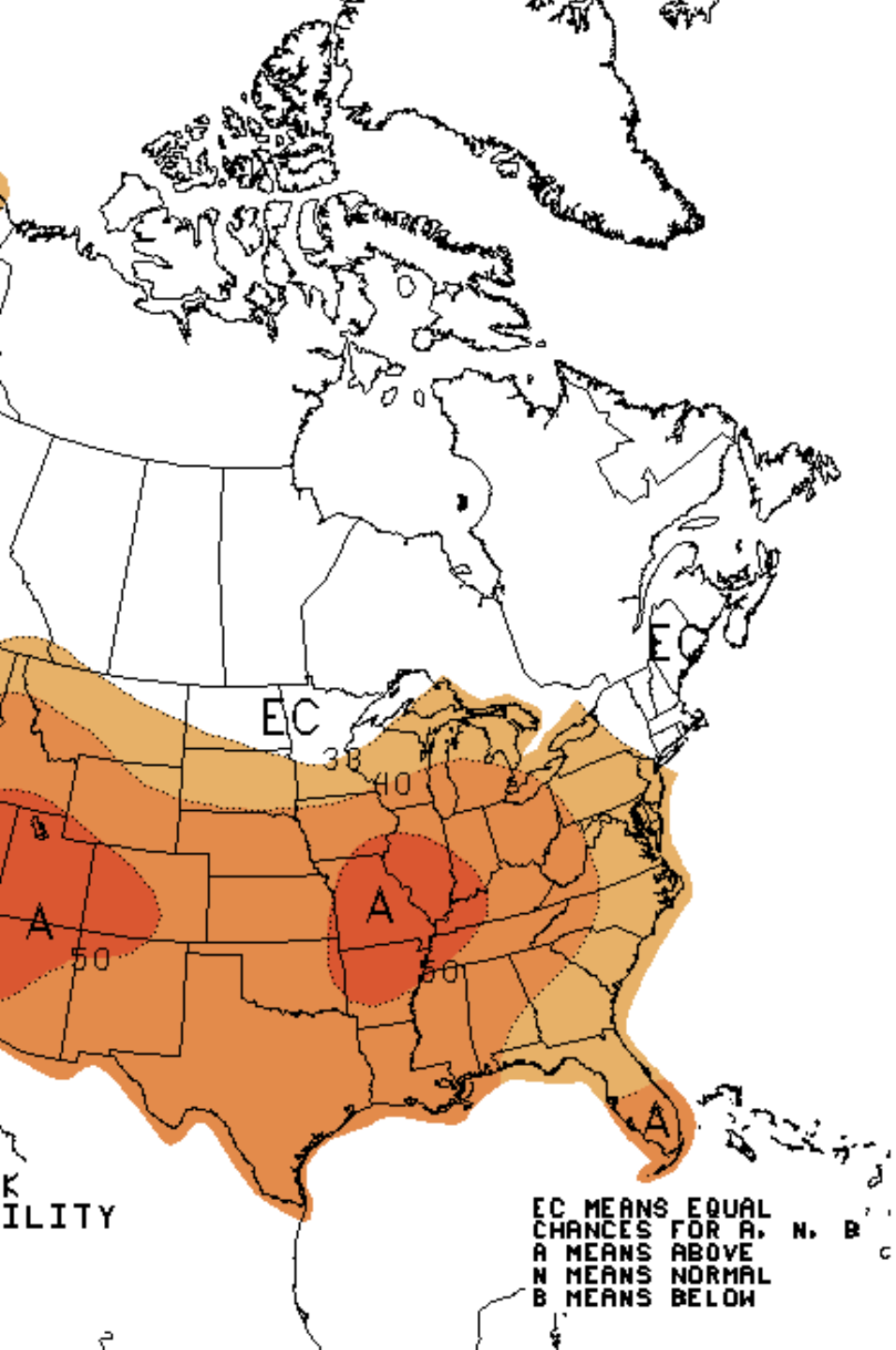
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

USDA National Drought Mitigation Center

Released Thursday, July 12, 2012
Rich Tinker, Climate Prediction Center/NCEP/NWS/NOAA

- Portions of Delaware and northeast Maryland are in moderate to severe drought
- Portions of New Jersey and eastern Pennsylvania have gotten abnormally dry but have not yet reached drought status



The outlook for our region

- Temperatures are expected to be warmer than normal for the remainder for the summer.
- Unless we receive substantial rainfall for the remainder of the summer, there is a significant risk that drought conditions will worsen due to the expected hot temperatures.

National Weather Service
Philadelphia/Mt. Holly

Questions?

- For the latest information, visit our website at weather.gov/phi
- If you have any questions, please contact us.
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