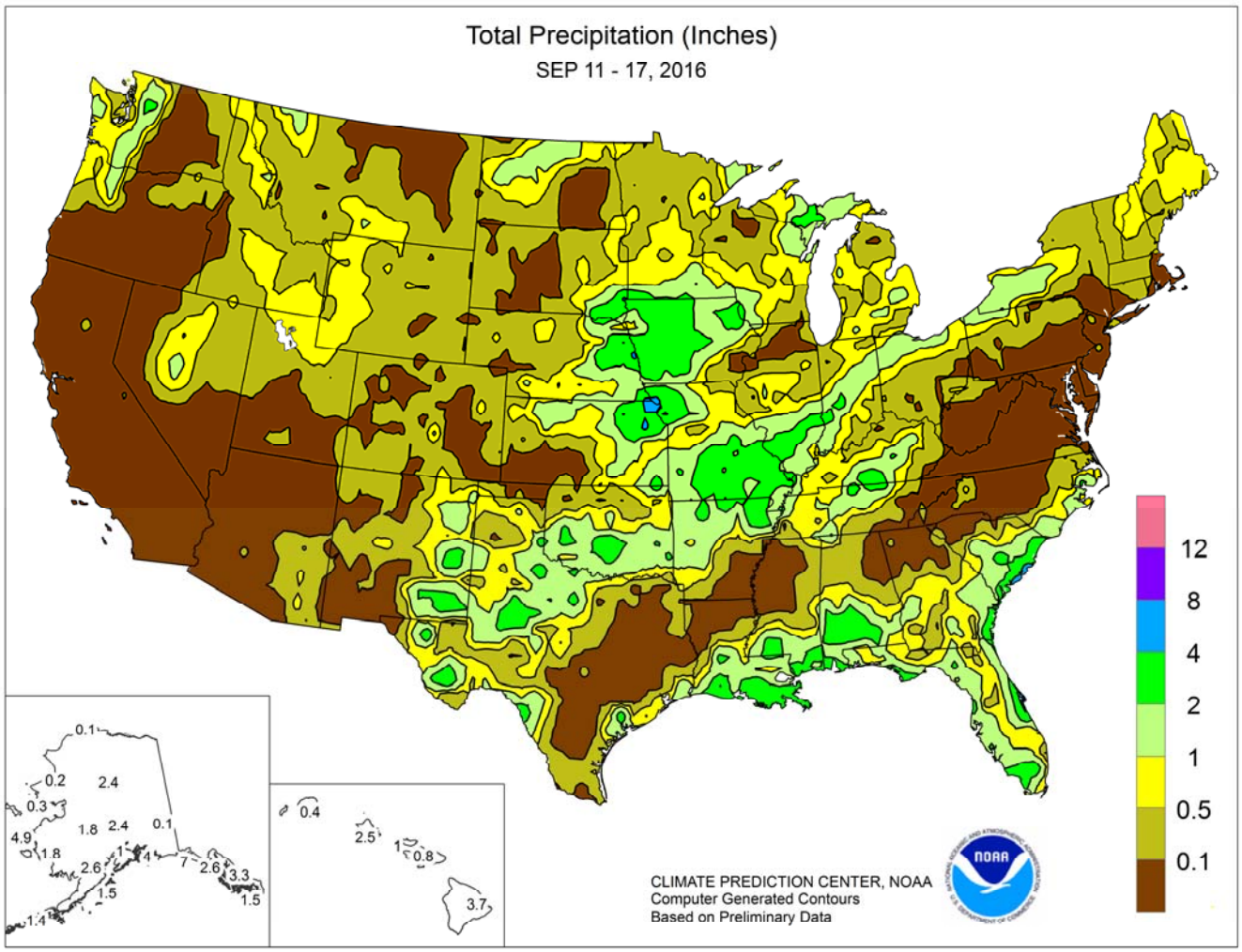
Volume 103, No. 38 http://www.usda.gov/oce/weather September 20, 2016

WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service
and World Agricultural Outlook Board



HIGHLIGHTS

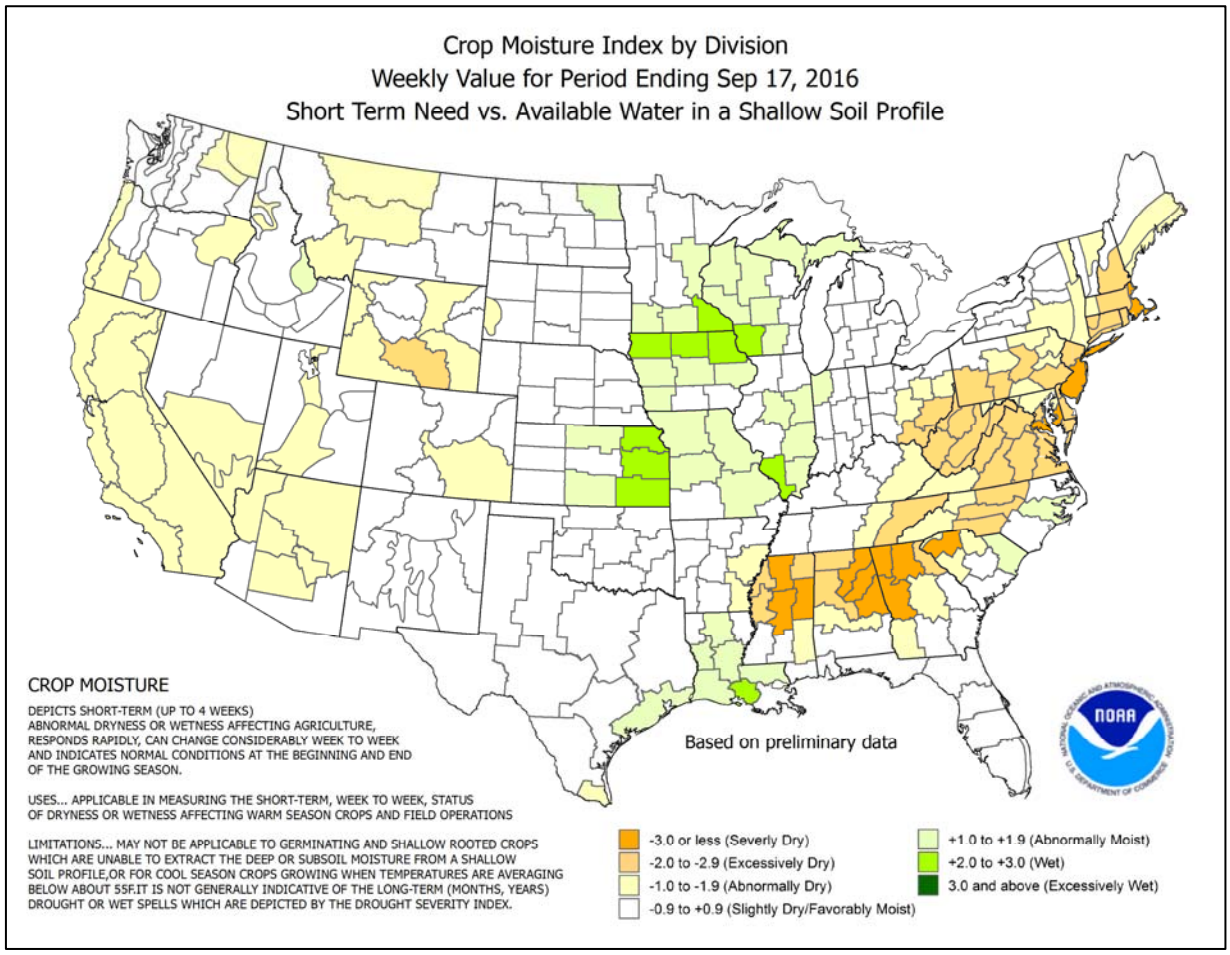
September 11 – 17, 2016

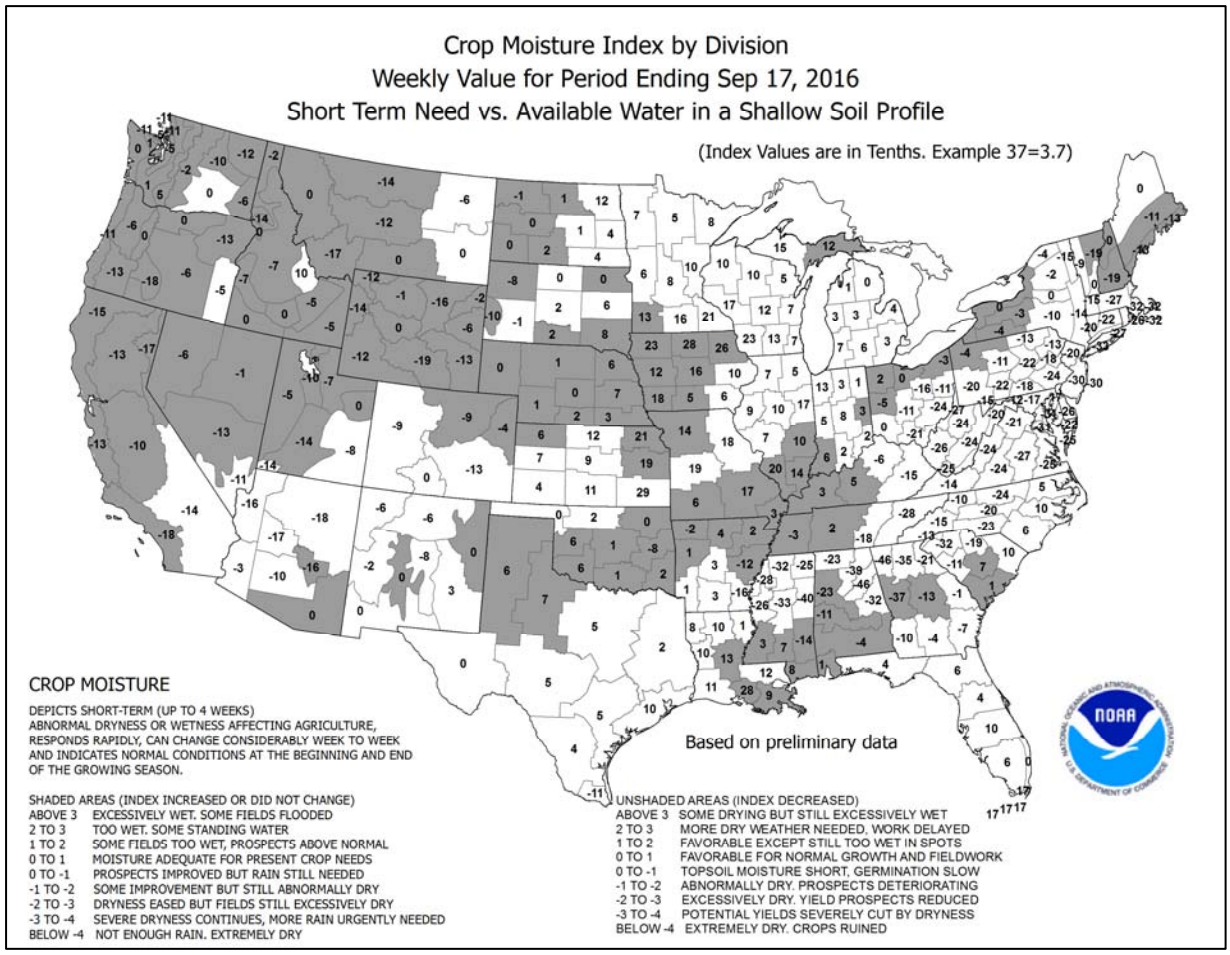
Highlights provided by USDA/WAOB

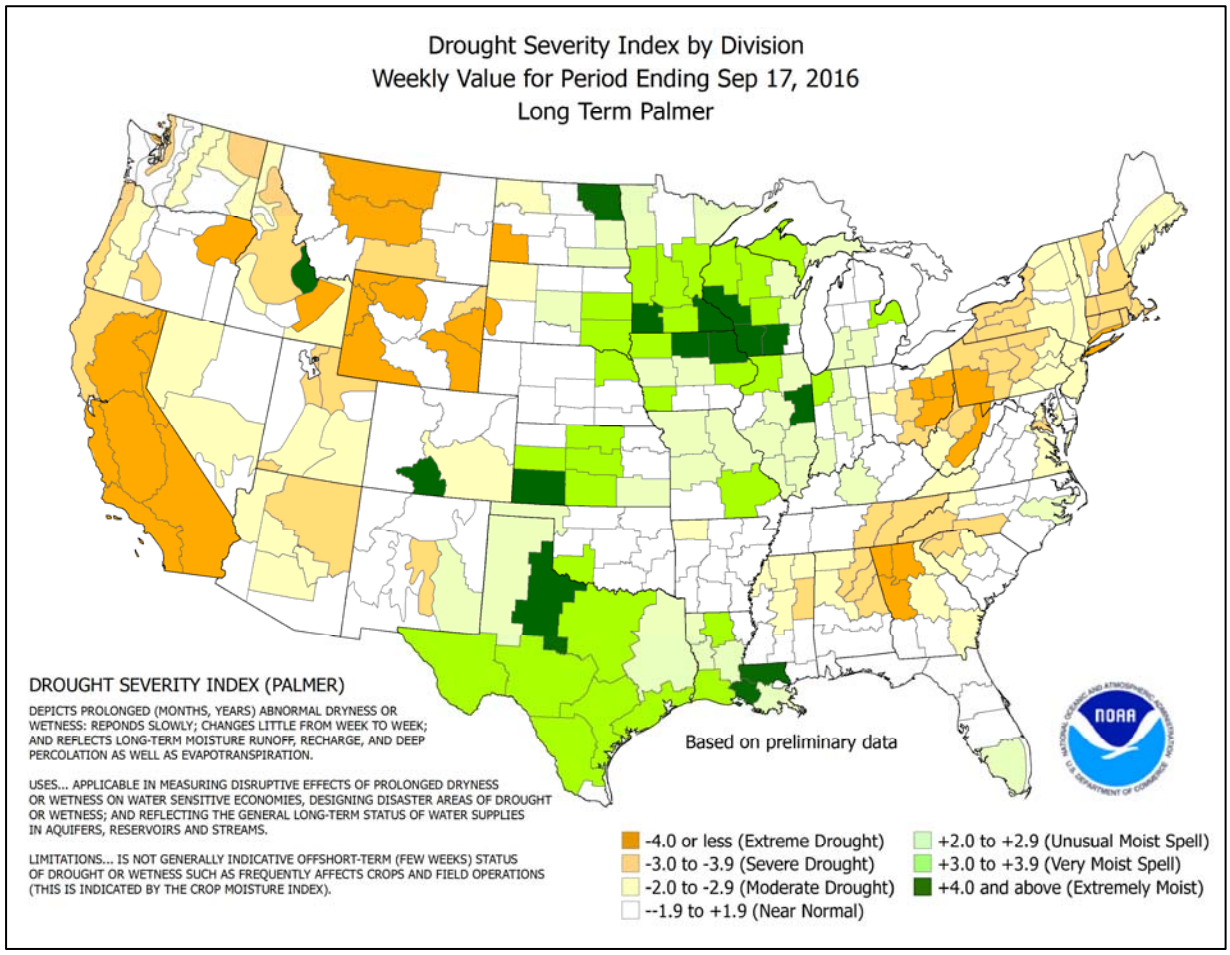
Late-season warmth subsided in the **Northeast** but persisted in most other areas across the **eastern half of the nation**. Weekly temperatures averaged at least 5°F above normal from the **northern Mississippi Delta into the Mid-Atlantic States**. Meanwhile, cooler-than-normal conditions prevailed from **California to the northern High Plains**. From the **western Gulf Coast region to the Mid-Atlantic States**, hot, dry weather promoted summer crop maturation and harvesting. Just to the south, scattered showers stretched from the **central Gulf Coast**

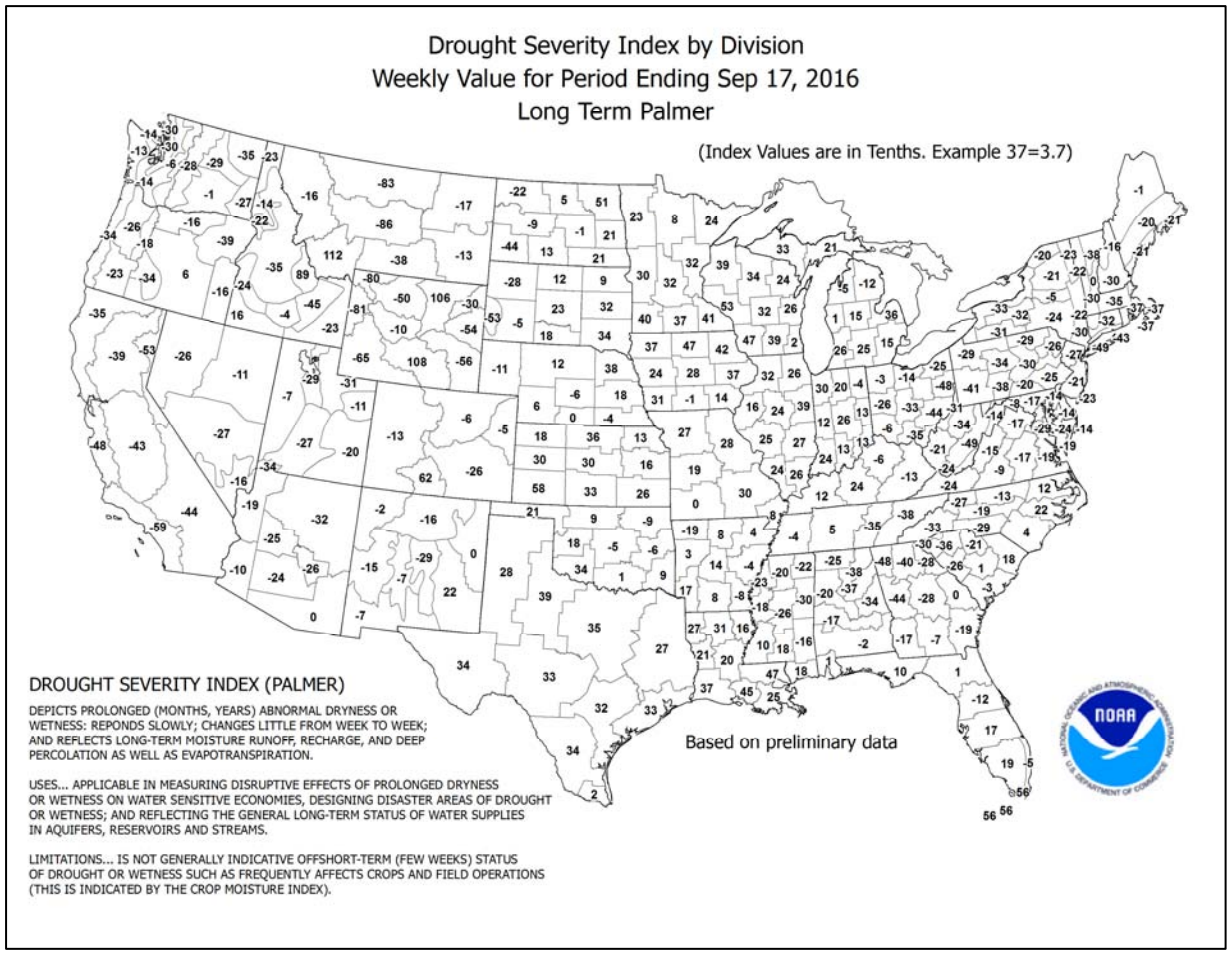
(Continued on page 5)

Contents


Crop Moisture Index by Division
Weekly Value for Period Ending Sep 17, 2016
Short Term Need vs. Available Water in a Shallow Soil Profile
CROP MOISTURE
DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.
USES... APPLICABLE IN MEASURING THE SHORT-TERM, WEEK TO WEEK, STATUS OF DRYNESS OR WETNESS AFFECTING WARM SEASON CROPS AND FIELD OPERATIONS
LIMITATIONS... MAY NOT BE APPLICABLE TO GERMINATING AND SHALLOW ROOTED CROPS WHICH ARE UNABLE TO EXTRACT THE DEEP OR SUBSOIL MOISTURE FROM A SHALLOW SOIL PROFILE,OR FOR COOL SEASON CROPS GROWING WHEN TEMPERATURES ARE AVERAGING BELOW ABOUT 55F.IT IS NOT GENERALLY INDICATIVE OF THE LONG-TERM (MONTHS, YEARS) DROUGHT OR WET SPELLS WHICH ARE DEPICTED BY THE DROUGHT SEVERITY INDEX.
Based on preliminary data
-3.0 or less (Severly Dry)
-2.0 to -2.9 (Excessively Dry)
-1.0 to -1.9 (Abnormally Dry)
-0.9 to +0.9 (Slightly Dry/Favorably Moist)
+1.0 to +1.9 (Abnormally Moist)
+2.0 to +3.0 (Wet)
3.0 and above (Excessively Wet)


Crop Moisture Index by Division
Weekly Value for Period Ending Sep 17, 2016
Short Term Need vs. Available Water in a Shallow Soil Profile
(Index Values are in Tenths. Example 37=3.7)
CROP MOISTURE
DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.
SHADED AREAS (INDEX INCREASED OR DID NOT CHANGE)
ABOVE 3 EXCESSIVELY WET. SOME FIELDS FLOODED
2 TO 3 TOO WET. SOME STANDING WATER
1 TO 2 SOME FIELDS TOO WET, PROSPECTS ABOVE NORMAL
0 TO 1 MOISTURE ADEQUATE FOR PRESENT CROP NEEDS
0 TO -1 PROSPECTS IMPROVED BUT RAIN STILL NEEDED
-1 TO -2 SOME IMPROVEMENT BUT STILL ABNORMALLY DRY
-2 TO -3 DRYNESS EASED BUT FIELDS STILL EXCESSIVELY DRY
-3 TO -4 SEVERE DRYNESS CONTINUES, MORE RAIN URGENTLY NEEDED
BELOW -4 NOT ENOUGH RAIN. EXTREMELY DRY
UNSHADED AREAS (INDEX DECREASED)
ABOVE 3 SOME DRYING BUT STILL EXCESSIVELY WET
2 TO 3 MORE DRY WEATHER NEEDED. WORK DELAYED
1 TO 2 FAVORABLE EXCEPT STILL TOO WET IN SPOTS
0 TO 1 FAVORABLE FOR NORMAL GROWTH AND FIELDWORK
0 TO -1 TOPSOIL MOISTURE SHORT. GERMINATION SLOW
-1 TO -2 ABNORMALLY DRY. PROSPECTS DETERIORATING
-2 TO -3 EXCESSIVELY DRY. YIELD PROSPECTS REDUCED
-3 TO -4 POTENTIAL YIELDS SEVERELY CUT BY DRYNESS
BELOW -4 EXTREMELY DRY. CROPS RUINED
Based on preliminary data


Drought Severity Index by Division
Weekly Value for Period Ending Sep 17, 2016
Long Term Palmer
DROUGHT SEVERITY INDEX (PALMER)
DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS: REPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP PERCOLATION AS WELL AS EVAPOTRANSPIRATION.
USES... APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES, DESIGNING DISASTER AREAS OF DROUGHT OR WETNESS; AND REFLECTING THE GENERAL LONG-TERM STATUS OF WATER SUPPLIES IN AQUIFERS, RESERVOIRS AND STREAMS.
LIMITATIONS... IS NOT GENERALLY INDICATIVE OFFSHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).
Based on preliminary data
NOAA
-4.0 or less (Extreme Drought)
-3.0 to -3.9 (Severe Drought)
-2.0 to -2.9 (Moderate Drought)
--1.9 to +1.9 (Near Normal)
+2.0 to +2.9 (Unusual Moist Spell)
+3.0 to +3.9 (Very Moist Spell)
+4.0 and above (Extremely Moist)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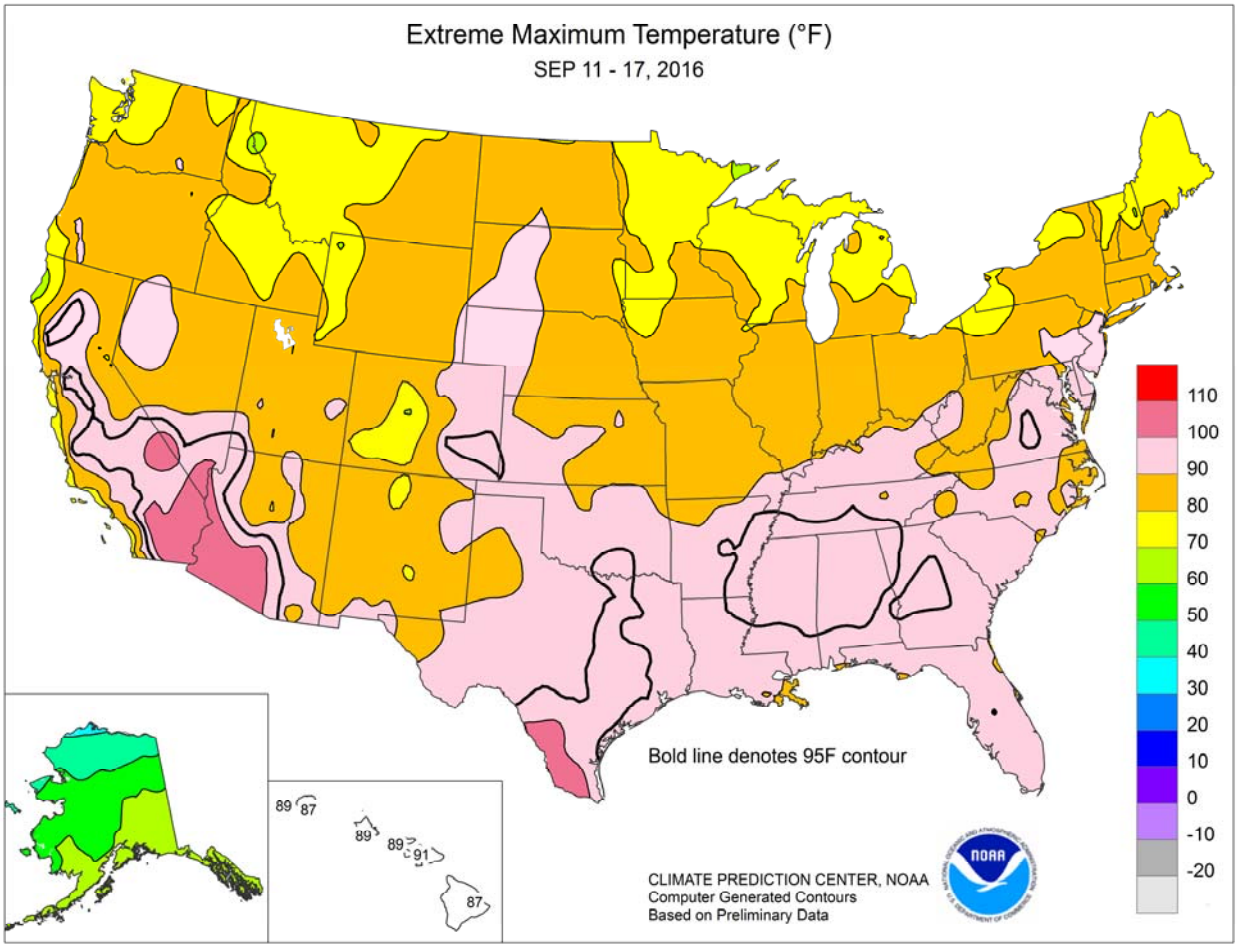
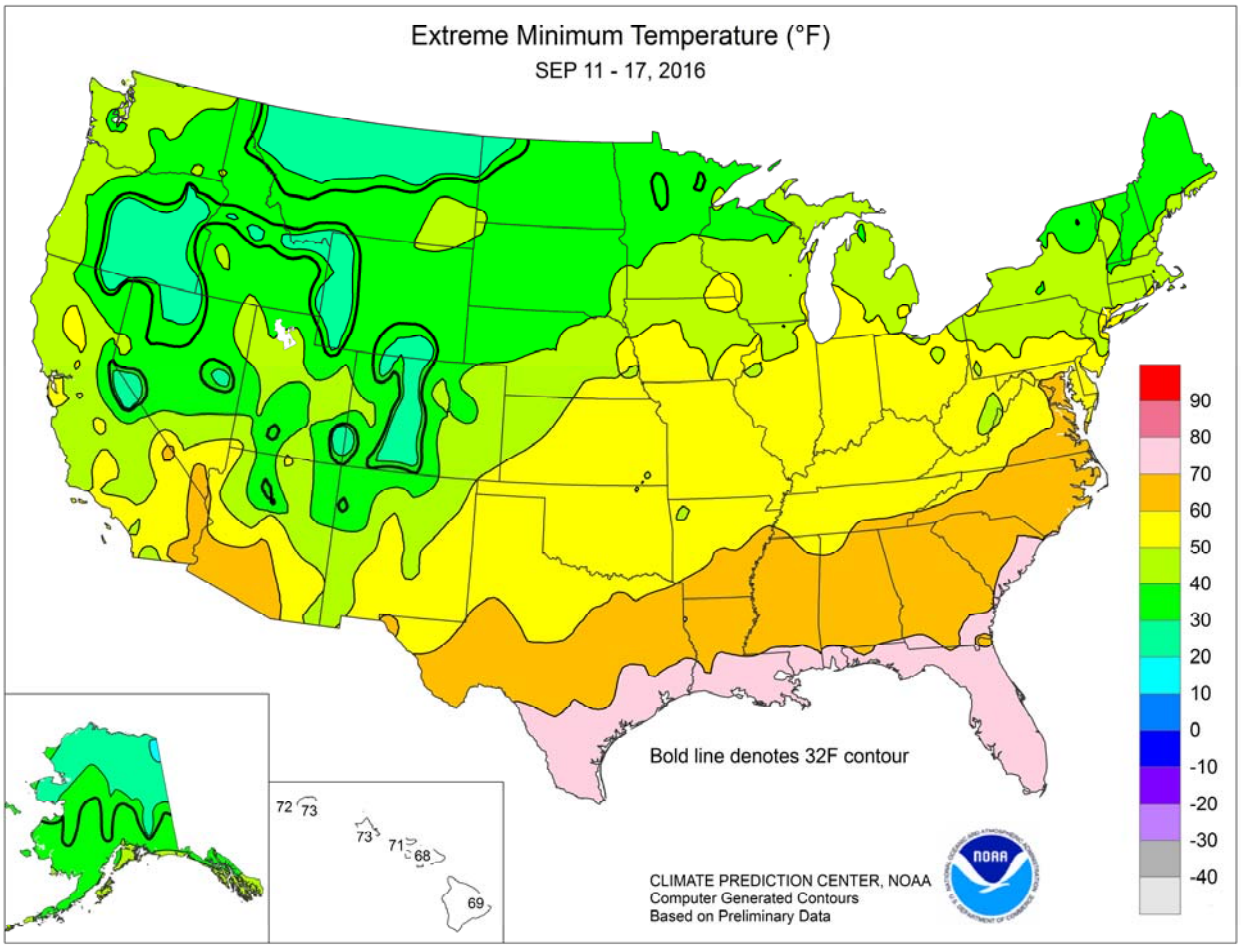
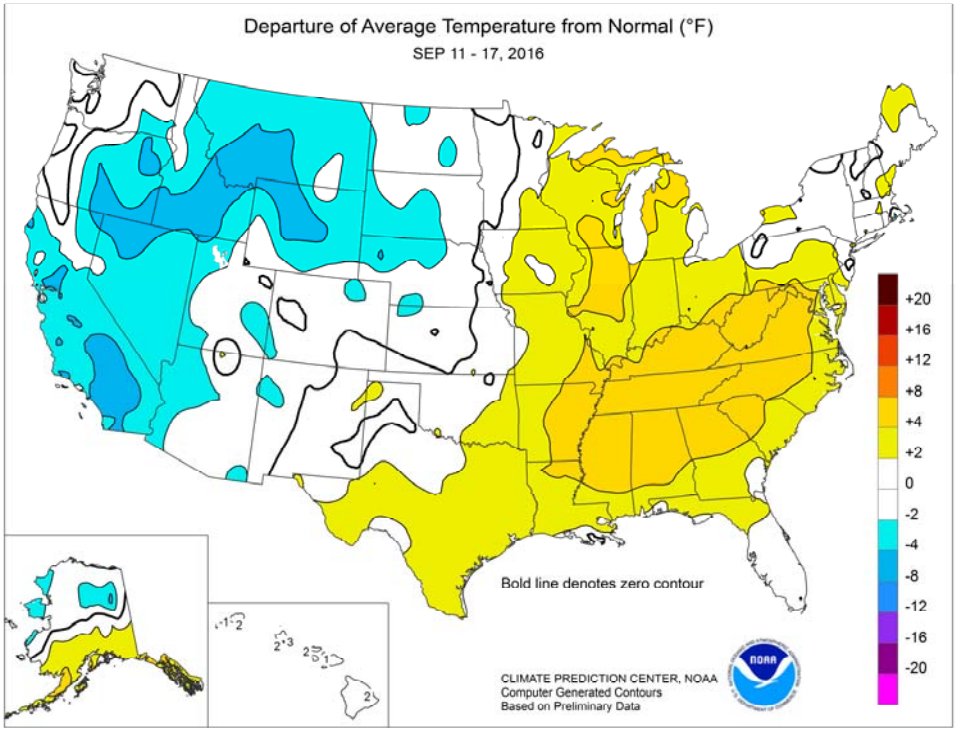

Extreme Maximum Temperature (°F)
SEP 11 - 17, 2016
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95F contour
89
87
89
89
91
87
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Minimum Temperature (°F)
SEP 11 - 17, 2016
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32F contour
72
73
73
71
68
69
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data

(Continued from front cover)

to the southern Atlantic region. Tropical Storm Julia, which formed along the coast of **northeastern Florida** on September 13 before drifting northward, contributed to the heavy rain along the **southern Atlantic Coast**. The other area of significant rainfall covered portions of the **Plains** and **Midwest**, slowing fieldwork, maintaining soggy conditions, and increasing crop disease pressure. Weekly rainfall locally totaled 2 to 4 inches or more across the **southern and eastern Plains** and the **western Corn Belt**. In contrast, only scattered showers dotted the **High Plains** and the **eastern Corn Belt**. Elsewhere, scattered showers accompanied the cool conditions in the **West**, except in **California** and the **Desert Southwest**. In the latter areas, dry weather favored fieldwork, including early-season rice harvesting in **California** and cotton harvesting in **Arizona**.



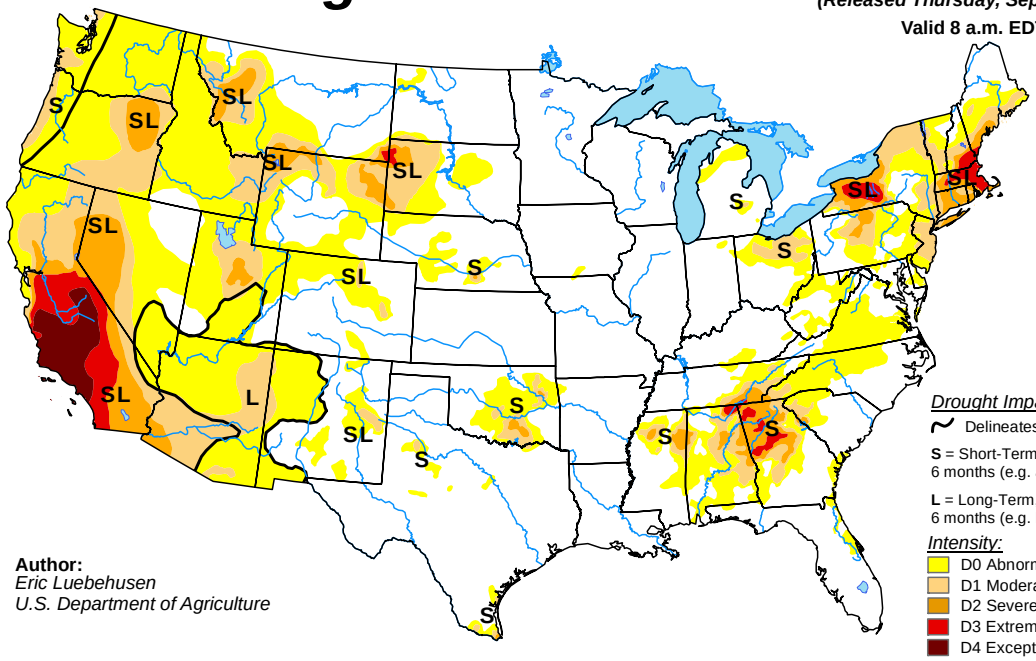
The season's first freeze **east of the Rockies** covered **northern Montana** and **northwestern North Dakota** on September 13. There were minimal impacts in the freeze-affected region, as spring-sown small grains were either mature or had been already harvested. Nevertheless, **Great Falls, MT**, collected a daily-record low of 27°F on the 13th. Other **Western** daily-record lows included 25°F (on September 14) in **Meacham, OR**, and 46°F (on September 13) in **Merced, CA**. Later, **Douglas, AZ**, noted lows of 48°F from September 16-18, setting a daily record each day. Gusty winds accompanied the surges of cool air into the **West**. For example, **Buffalo, WY**, clocked a wind gust to 60 mph on September 11. Two days later, peak gusts on September 13 reached 60 mph in **Ely, NV**, and 56 mph in **Grand Junction, CO**. Farther east, however, **McAllen, TX**, experienced triple-digit heat each day starting September 5, peaking with a daily-record high of 104°F on the 17th. Elsewhere in the **South**, daily-record highs on September 15 reached 99°F in **Anniston, AL**, and 98°F in **Memphis, TN**. A day earlier, a surge of heat into the **Mid-Atlantic States** had resulted in record-setting highs for September 14 in locations such as **Washington, DC** (95°F), and **Newark, NJ** (94°F).

Tropical Storm Julia unexpectedly formed near **Jacksonville, FL**, on September 13. On that date, a wind gust to 48 mph was recorded near **Jacksonville** at **Naval Station Mayport**, while daily-record rainfall totals reached 4.43 inches at **St. Simons Island, GA**, and 3.51 inches in **Melbourne, FL**. **St. Simons Island's** September 13-14 sum measured 6.49 inches. However, Julia later drifted offshore, with diminishing coastal impacts. Meanwhile, torrential rainfall erupted across the **east-central Plains** and environs. **St. Joseph, MO**, tallied a weekly sum of 6.40 inches, most (4.74 inches) of which fell on September 13. In **Muscotah, KS**, the **Delaware River** climbed 2.21 feet above flood stage on September 14—the highest level in that location since June 2001. Later, heavy rain developed across the **upper Midwest**. **Sioux Falls, SD**, endured its second-wettest September day on record on the 15th, when 3.61 inches fell, behind only 4.02 inches on September 11, 1966. Toward week's end, locally heavy showers shifted into the **South** and **East**. Daily-record totals for September 15 included 3.17 inches in **Beaumont-Port Arthur, TX**, and 2.22 inches in **Springfield, MO**. The following day in **Indiana**, record-breaking totals for September 16 reached 1.89 inches in **South Bend** and 1.09 inches in **Indianapolis**.

Cool weather in **northern Alaska** contrasted with lingering warmth farther south. In the **Aleutians**, **Cold Bay** posted a daily-record high of 61°F on September 11. However, wet weather covered nearly the entire state. **McGrath** netted a daily-record rainfall (1.08 inches) for September 11. Weekly rainfall totaled 6.96 inches in **Yakutat**, aided by a daily-record sum of 3.74 inches on September 12. And, in **Juneau**, month-to-date rainfall through September 17 climbed to 8.01 inches, 171 percent of normal. Meanwhile in **Hawaii**, mid-week downpours resulted in local flooding. On **Oahu**, **Honolulu** noted consecutive daily-record rainfall amounts on September 13-14, totaling 2.25 inches. During a 48-hour period from September 13-15, rainfall reached 6.19 inches in **Glenwood**, on the **Big Island**.

U.S. Drought Monitor

September 13, 2016
(Released Thursday, Sep. 15, 2016)
Valid 8 a.m. EDT



Author:
Eric Luebehusen
U.S. Department of Agriculture

Drought Impact Types:
Delineates dominant impacts
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

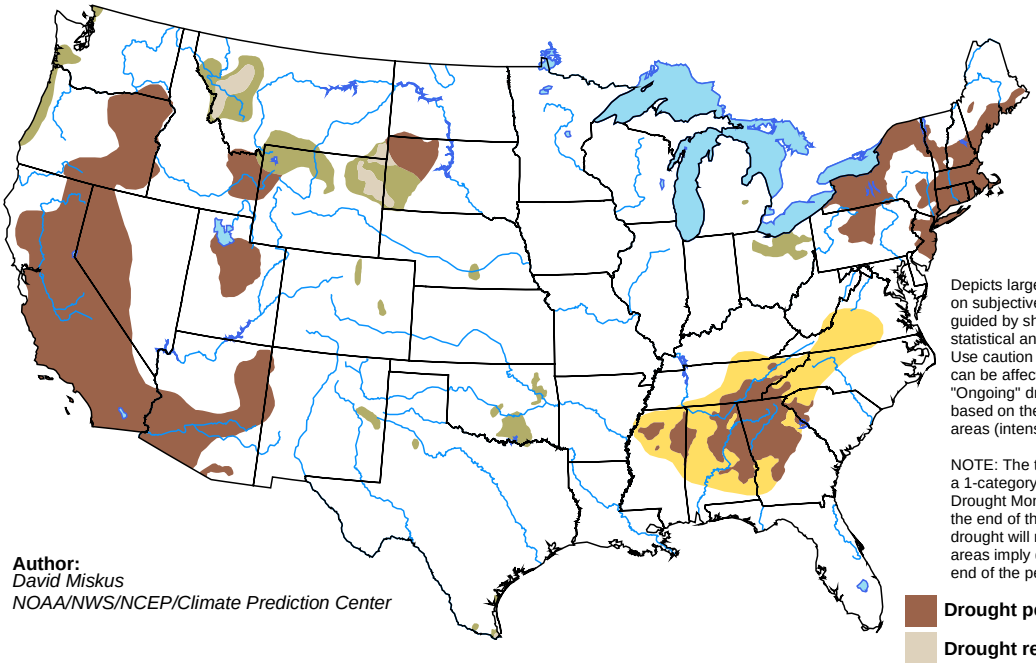
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/

U.S. Seasonal Drought Outlook

Valid for September 15 - December 31, 2016
Released September 15, 2016

Drought Tendency During the Valid Period



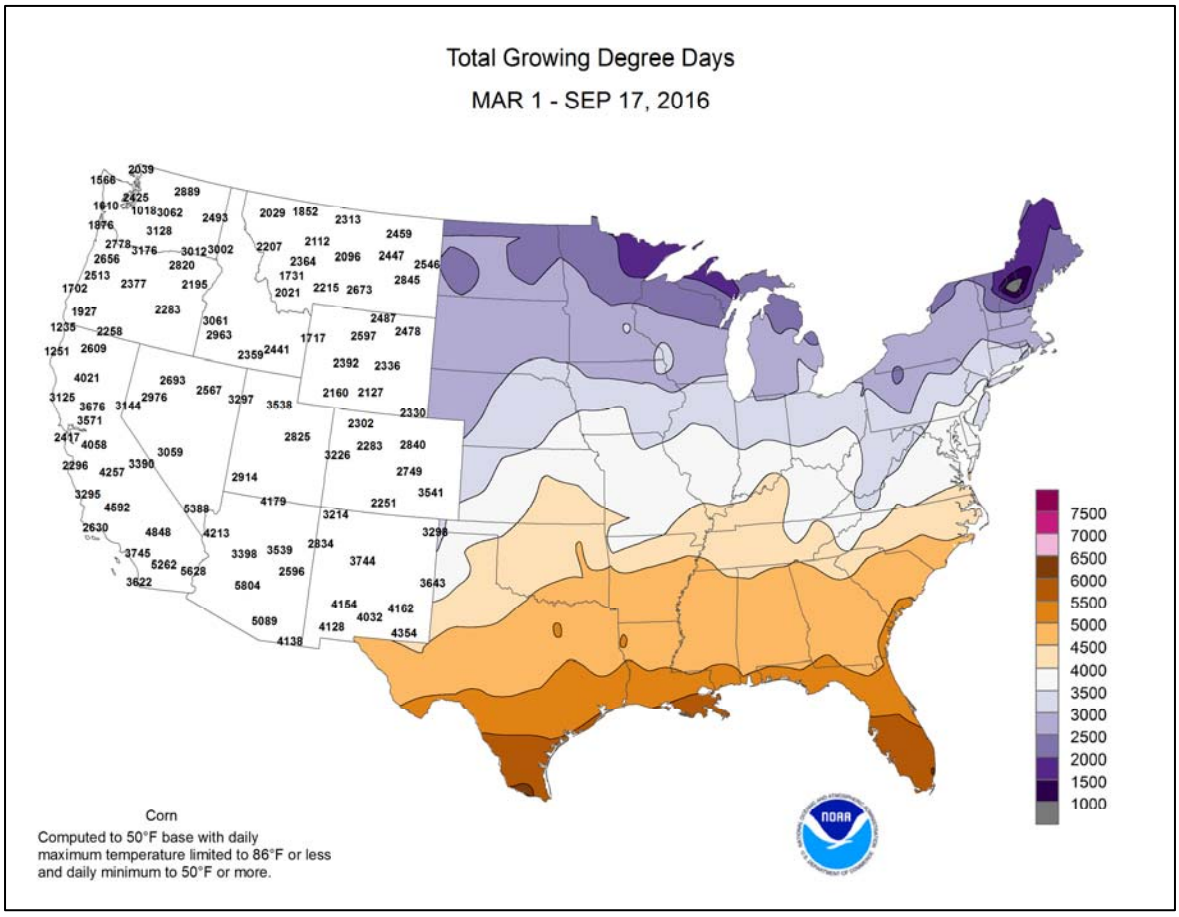
Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

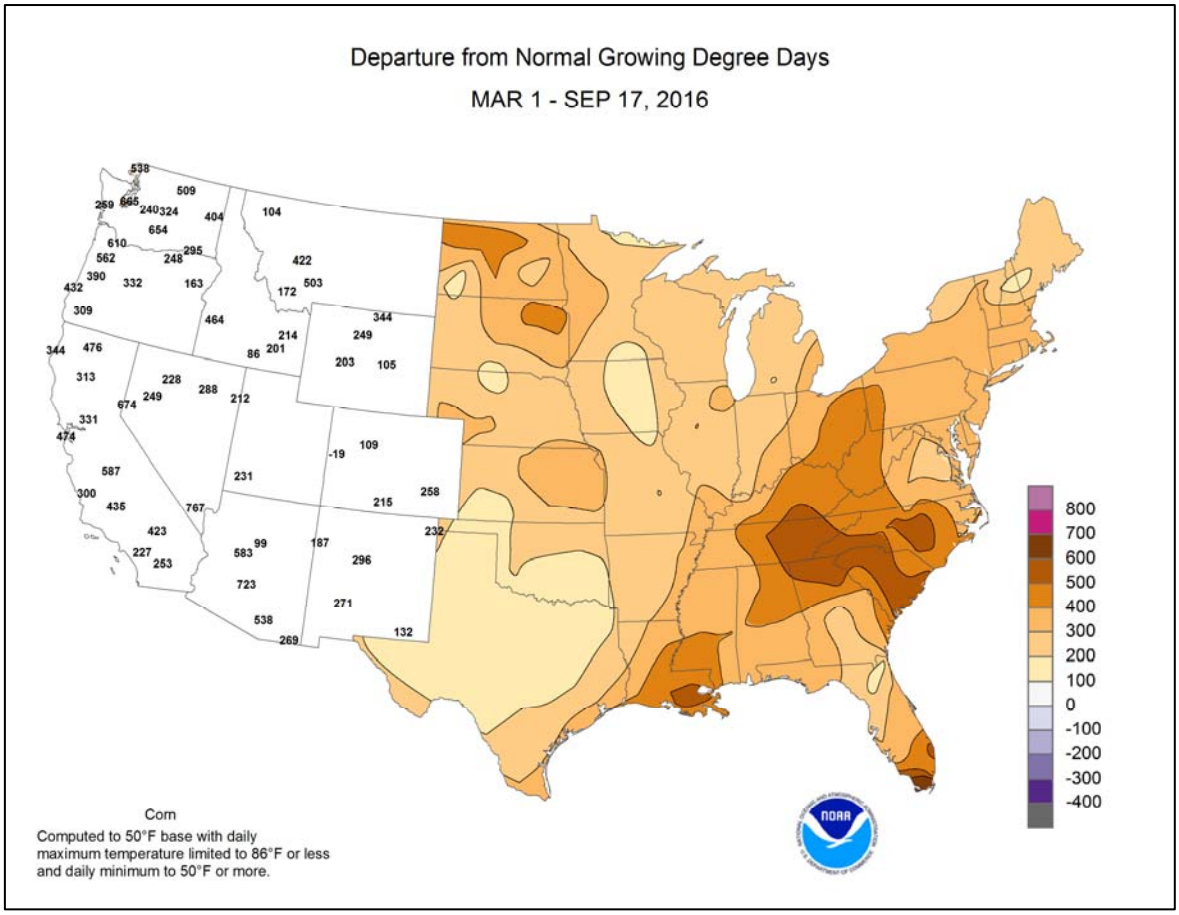
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

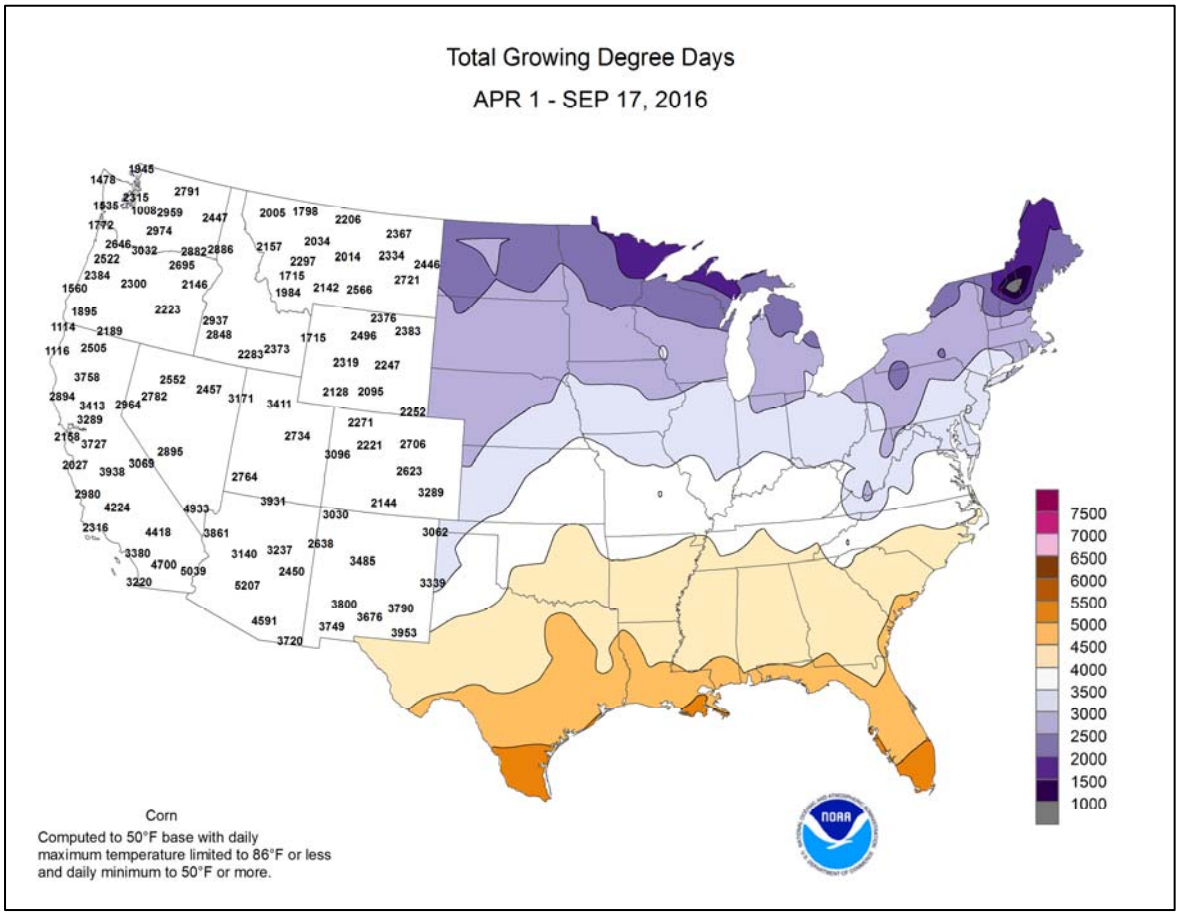
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

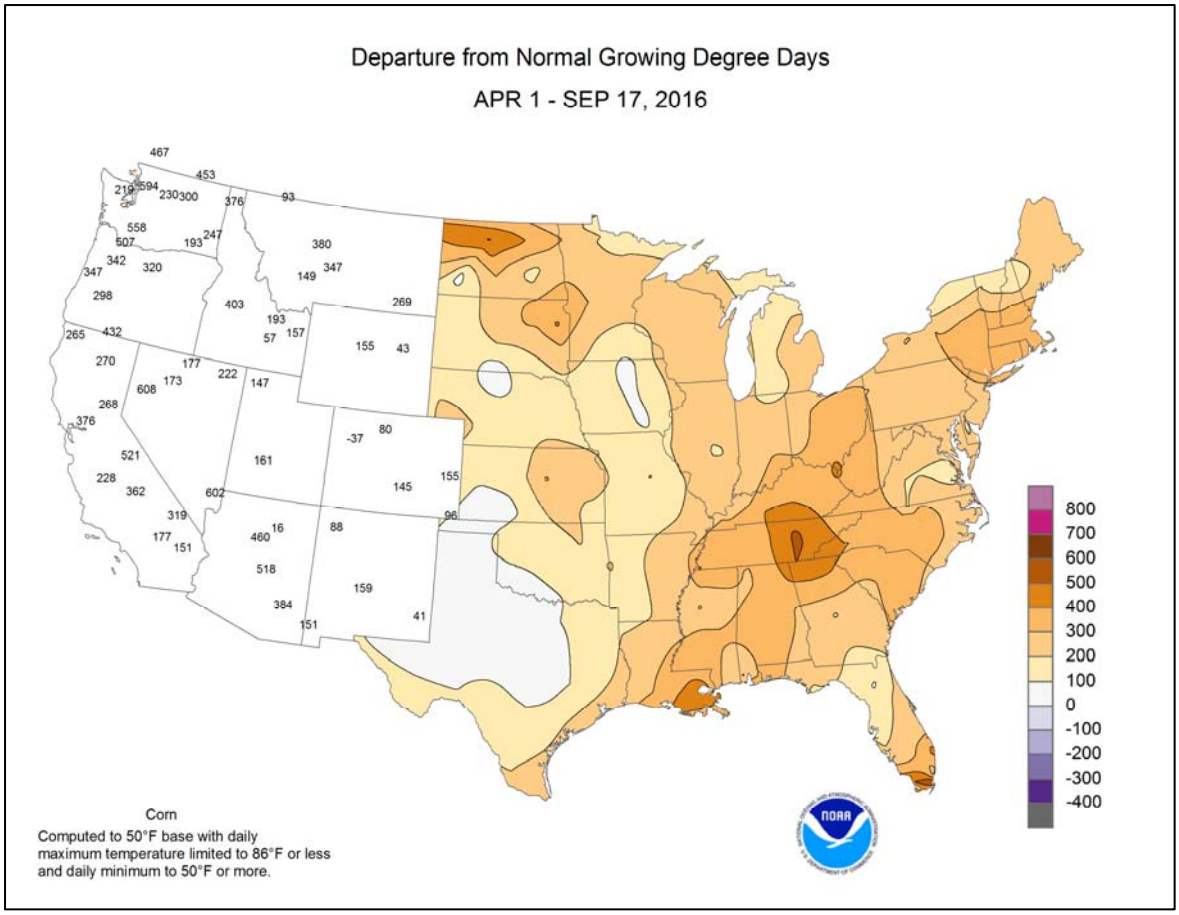
- **Drought persists**
- **Drought remains but improves**
- **Drought removal likely**
- **Drought development likely**

http://go.usa.gov/3eZ73


Total Growing Degree Days
MAR 1 - SEP 17, 2016
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.


Departure from Normal Growing Degree Days
MAR 1 - SEP 17, 2016
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.


Total Growing Degree Days
APR 1 - SEP 17, 2016
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.


Departure from Normal Growing Degree Days
APR 1 - SEP 17, 2016
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.

National Weather Data for Selected Cities

Weather Data for the Week Ending September 17, 2016

Data Provided by Climate Prediction Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE SEP 1	PCT. NORMAL SINCE SEP 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	92	72	98	69	82	7	0.08	-0.90	0.04	0.36	16	35.53	89	89	43	6	0	4	0
	HUNTSVILLE	92	69	97	62	81	8	0.03	-1.01	0.03	0.34	14	32.84	80	87	45	5	0	1	0
	MOBILE	89	73	92	70	81	3	1.68	0.16	1.03	3.59	96	50.57	100	96	72	4	0	4	2
	MONTGOMERY	95	72	98	70	84	7	1.79	0.74	1.78	1.79	74	34.97	86	84	40	7	0	2	1
AK	ANCHORAGE	59	48	65	44	54	5	0.98	0.31	0.26	1.63	98	13.43	126	87	74	0	0	6	0
	BARROW	35	30	37	28	32	-1	0.13	-0.02	0.05	0.27	66	3.94	123	83	64	0	7	4	0
	FAIRBANKS	57	39	61	34	48	2	0.62	0.37	0.23	1.74	260	13.43	178	95	84	0	0	5	0
	JUNEAU	58	48	63	37	53	3	2.55	0.85	0.97	7.83	203	44.15	124	94	88	0	0	5	1
	KODIAK	59	48	65	43	54	4	1.50	-0.29	1.03	2.96	74	54.95	112	93	78	0	0	4	1
	NOME	47	34	52	27	41	-3	0.31	-0.29	0.18	0.31	20	10.58	90	82	71	0	2	2	0
AZ	FLAGSTAFF	72	40	77	30	56	-3	0.00	-0.48	0.00	0.09	7	17.28	105	77	22	0	3	0	0
	PHOENIX	99	76	105	70	88	1	0.00	-0.17	0.00	0.04	11	4.09	75	36	23	7	0	0	0
	PRESCOTT	81	52	86	44	66	0	0.00	-0.49	0.00	0.92	72	11.68	80	59	18	0	0	0	0
	TUCSON	94	69	98	63	81	-1	0.02	-0.30	0.02	1.29	157	9.89	115	59	32	7	0	1	0
AR	FORT SMITH	90	66	93	55	78	3	0.29	-0.55	0.26	1.42	74	28.07	93	90	42	6	0	2	0
	LITTLE ROCK	93	71	96	63	82	7	0.04	-0.83	0.03	0.04	2	45.99	133	84	44	6	0	2	0
CA	BAKERSFIELD	88	62	97	56	75	-2	0.00	-0.03	0.00	0.00	0	4.10	86	46	30	4	0	0	0
	FRESNO	88	60	96	54	74	-1	0.00	-0.05	0.00	0.00	0	9.08	114	62	37	4	0	0	0
	LOS ANGELES	72	61	74	58	66	-4	0.01	-0.05	0.01	0.01	8	6.01	62	80	64	0	0	1	0
	REDDING	90	55	100	52	73	-1	0.00	-0.08	0.00	0.00	0	30.63	137	67	33	4	0	0	0
	SACRAMENTO	83	53	94	52	68	-4	0.00	-0.08	0.00	0.00	0	12.75	104	85	30	1	0	0	0
	SAN DIEGO	74	63	75	61	69	-3	0.00	-0.04	0.00	0.00	0	5.01	64	78	61	0	0	0	0
	SAN FRANCISCO	70	55	74	53	62	-2	0.00	-0.03	0.00	0.00	0	12.44	92	82	67	0	0	0	0
	STOCKTON	86	52	96	46	69	-4	0.00	-0.06	0.00	0.00	0	12.12	131	80	45	2	0	0	0
CO	ALAMOSA	74	35	80	28	54	-1	0.09	-0.11	0.09	0.15	29	7.50	139	84	31	0	3	1	0
	CO SPRINGS	77	50	88	45	64	4	0.04	-0.24	0.04	0.05	5	14.71	96	74	22	0	0	1	0
	DENVER INTL	78	48	90	39	63	1	0.25	0.03	0.18	0.28	50	11.01	97	75	28	1	0	2	0
	GRAND JUNCTION	82	51	89	42	67	1	0.00	-0.19	0.00	0.16	36	6.41	102	42	22	0	0	0	0
	PUEBLO	84	51	96	46	68	2	0.05	-0.14	0.04	0.05	8	10.36	98	69	37	2	0	2	0
CT	BRIDGEPORT	79	60	88	55	69	2	0.00	-0.83	0.00	0.75	37	25.51	80	76	48	0	0	0	0
	HARTFORD	80	51	90	47	66	2	0.46	-0.50	0.46	0.95	41	23.29	71	86	40	1	0	1	0
DC	WASHINGTON	85	68	95	66	76	4	0.00	-0.89	0.00	0.06	3	25.00	88	83	44	1	0	0	0
DE	WILMINGTON	83	60	93	55	72	3	0.00	-0.96	0.00	0.12	5	29.57	94	85	38	1	0	0	0
FL	DAYTONA BEACH	88	75	91	73	81	1	3.04	1.44	2.12	5.40	138	33.03	91	98	68	2	0	4	2
	JACKSONVILLE	88	71	93	68	80	2	1.72	-0.23	1.47	4.02	85	26.36	65	100	65	2	0	5	1
	KEY WEST	88	80	89	75	84	0	1.00	-0.29	0.94	3.16	97	28.50	103	86	73	0	0	2	1
	MIAMI	90	78	92	76	84	1	0.28	-1.73	0.28	1.67	33	48.67	112	89	63	4	0	1	0
	ORLANDO	91	76	92	74	83	1	1.47	0.04	1.26	4.72	132	46.40	120	93	63	5	0	6	1
	PENSACOLA	86	77	90	74	81	2	0.95	-0.45	0.91	1.66	48	52.44	106	87	65	1	0	2	1
	TALLAHASSEE	92	75	95	73	83	3	0.46	-0.77	0.22	2.89	91	50.19	100	92	60	6	0	3	0
	TAMPA	91	78	95	76	85	3	0.02	-1.61	0.02	3.43	82	49.86	138	89	59	6	0	1	0
	WEST PALM BEACH	90	78	93	77	84	2	0.50	-1.50	0.48	2.56	53	36.75	84	86	59	5	0	2	0
GA	ATHENS	92	67	95	64	80	6	0.00	-0.83	0.00	0.18	9	31.14	88	98	52	7	0	0	0
	ATLANTA	90	71	93	69	80	6	0.00	-0.99	0.00	2.66	116	31.78	85	87	52	4	0	0	0
	AUGUSTA	90	69	92	64	79	4	0.33	-0.51	0.31	4.57	212	31.14	91	96	55	3	0	2	0
	COLUMBUS	91	70	95	70	81	4	0.33	-0.41	0.28	0.33	18	28.25	77	90	42	5	0	2	0
	MACON	90	68	98	65	79	4	1.61	0.82	0.91	2.00	102	26.21	77	95	52	2	0	2	2
	SAVANNAH	87	72	94	70	80	2	0.32	-0.92	0.20	3.60	108	37.97	96	91	63	1	0	2	0
HI	HILO	85	71	87	69	78	2	3.72	1.49	2.00	8.59	156	76.72	88	92	80	0	0	5	3
	HONOLULU	86	75	89	73	81	-1	2.50	2.39	2.26	2.89	1445	11.42	109	84	71	0	0	4	1
	KAHULUI	88	72	91	68	80	1	0.79	0.71	0.62	0.89	445	10.70	87	83	75	3	0	2	1
	LIHUE	86	76	87	73	81	1	0.35	-0.23	0.20	0.48	38	11.21	46	84	75	0	0	7	0
ID	BOISE	74	49	83	44	61	-4	0.00	-0.17	0.00	0.00	0	4.97	60	62	35	0	0	0	0
	LEWISTON	77	50	86	42	64	-1	0.10	-0.07	0.10	0.49	123	10.12	111	56	32	0	0	1	0
	POCATELLO	72	40	84	36	56	-4	0.55	0.36	0.55	0.67	152	7.92	89	78	46	0	0	1	1
IL	CHICAGO/O'HARE	80	60	85	51	70	5	0.14	-0.64	0.09	0.59	28	27.56	102	88	53	0	0	3	0
	MOLINE	81	59	84	52	70	4	0.03	-0.71	0.03	0.89	45	30.31	104	89	57	0	0	1	0
	PEORIA	81	61	85	52	71	4	0.86	0.13	0.80	3.86	222	28.87	109	98	56	0	0	3	1
	ROCKFORD	80	58	84	50	69	5	0.04	-0.79	0.04	1.53	71	27.95	100	90	55	0	0	1	0
	SPRINGFIELD	84	62	88	52	73	5	0.32	-0.34	0.30	1.45	87	37.30	142	93	50	0	0	2	0
IN	EVANSVILLE	85	63	90	54	74	4	2.16	1.45	1.59	2.43	140	40.89	126	94	57	2	0	4	1
	FORT WAYNE	78	56	84	52	67	2	1.32	0.67	0.91	4.08	240	27.89	103	93	55	0	0	3	1
	INDIANAPOLIS	81	62	87	55	71	4	1.48	0.80	1.08	3.02	176	38.03	125	91	57	0	0	2	1
	SOUTH BEND	78	57	83	52	67	3	1.89	0.99	1.89	3.05	136	37.46	132	93	61	0	0	1	1
IA	BURLINGTON	80	60	85	50	70	3	0.08	-0.77	0.08	0.37	19	24.61	86	97	57	0	0	1	0
	CEDAR RAPIDS	77	57	83	49	67	2	1.29	0.50	1.08	4.26	206	34.65	132	99	60	0	0	4	1
	DES MOINES	78	60	85	54	69	3	2.64	1.90	1.07	3.85	195	29.18	106	88	63	0	0	3	3
	DUBUQUE	75	55	79	48	65	2	0.92	0.06	0.62	3.22	142	32.38	118	93	65	0	0	3	1
	SIOUX CITY	75	56	81	50	66	2	0.76	0.19	0.48	0.82	58	25.17	120	83	63	0	0	2	0
	WATERLOO	76	55	83	48	66	2	2.06	1.37	1.50	3.43	187	32.06	122	94	58	0	0	3	1
KS	CONCORDIA	78	59	88	55	68	-1	0.74	0.15	0.54	1.72	119	27.93	120	92	73	0	0	2	1
	DODGE CITY	83	56	91	51	69	-1	0.00	-0.39	0.00	0.29	28	22.30	121	93	45	3	0	0	0
	GOODLAND	77	49	90	45	63	-2	0.70	0.46	0.50	2.37	349	16.41	96	89	52	1	0	3	1
	TOPEKA	81	62	85	54	72	3	3.80	2.93	2.30	5.44	251	38.33	140	92	73	0	0	3	2

Based on 1971-2000 normals ***** Not Available**

Weather Data for the Week Ending September 17, 2016

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE SEP 1	PCT. NORMAL SINCE SEP 1	TOTAL, IN., SINCE JAN01	PCT. NORMAL SINCE JAN01	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	82	62	88	54	72	0	0.69	0.00	0.39	9.65	578	45.99	196	92	73	0	0	2	0
KY	JACKSON	86	64	90	58	75	6	0.35	-0.55	0.35	0.52	24	41.52	115	92	44	1	0	1	0
	LEXINGTON	87	62	93	55	75	6	0.43	-0.30	0.43	0.65	36	35.66	104	86	45	3	0	1	0
	LOUISVILLE	86	66	92	61	76	5	0.21	-0.51	0.11	0.68	39	34.35	104	84	43	2	0	2	0
	PADUCAH	88	63	94	54	75	5	0.52	-0.31	0.50	0.66	34	44.32	126	93	47	3	0	3	1
LA	BATON ROUGE	91	73	93	71	82	4	0.83	-0.34	0.66	1.90	64	76.12	161	97	59	5	0	5	1
	LAKE CHARLES	89	74	92	71	82	3	1.05	-0.41	0.55	3.03	87	59.94	144	96	63	4	0	4	1
	NEW ORLEANS	90	78	93	74	84	4	2.53	1.13	1.87	4.33	121	59.74	122	87	65	5	0	5	1
	SHREVEPORT	92	73	94	71	82	4	0.00	-0.71	0.00	0.16	10	50.53	140	97	54	6	0	0	0
ME	CARIBOU	70	45	77	38	58	3	0.78	0.02	0.42	1.24	64	32.34	121	91	53	0	0	3	0
	PORTLAND	76	49	86	44	62	2	0.16	-0.60	0.16	0.23	13	23.76	77	91	46	0	0	1	0
MD	BALTIMORE	83	62	93	60	73	4	0.00	-0.94	0.00	0.09	4	31.18	102	80	41	1	0	0	0
MA	BOSTON	77	58	90	54	68	2	0.09	-0.71	0.06	0.36	19	20.62	70	83	43	1	0	2	0
	WORCESTER	74	53	83	50	64	3	0.11	-0.87	0.09	0.49	21	23.88	70	90	40	0	0	2	0
MI	ALPENA	75	50	81	44	63	6	0.21	-0.45	0.11	1.73	104	22.42	107	91	51	0	0	3	0
	GRAND RAPIDS	77	55	80	52	66	4	0.31	-0.74	0.31	1.19	46	32.94	124	89	50	0	0	1	0
	HOUGHTON LAKE	73	51	77	40	62	4	0.80	0.05	0.53	1.96	101	25.57	121	91	57	0	0	4	1
	LANSING	76	55	82	49	65	4	0.67	-0.18	0.64	1.43	66	24.90	108	87	51	0	0	2	1
	MUSKEGON	76	57	83	52	67	6	0.30	-0.55	0.27	4.79	221	29.94	131	91	59	0	0	2	0
	TRAVERSE CITY	75	56	80	48	65	4	0.47	-0.38	0.23	2.20	105	21.67	91	90	48	0	0	3	0
MN	DULUTH	68	50	76	40	59	4	0.25	-0.77	0.12	2.46	97	26.39	111	93	66	0	0	3	0
	INT'L FALLS	68	45	76	33	56	2	0.28	-0.45	0.16	1.31	72	21.85	117	96	61	0	0	3	0
	MINNEAPOLIS	74	57	81	47	66	4	0.93	0.29	0.85	2.60	149	28.91	123	82	58	0	0	2	1
	ROCHESTER	74	54	82	50	64	4	1.49	0.74	1.19	4.67	239	32.94	132	96	60	0	0	4	1
	ST. CLOUD	70	49	80	39	59	1	0.75	0.05	0.46	1.60	85	26.43	122	99	57	0	0	2	0
MS	JACKSON	92	71	96	68	81	4	0.20	-0.56	0.19	0.28	15	53.47	131	92	52	6	0	2	0
	MERIDIAN	94	71	98	69	83	6	0.34	-0.53	0.21	0.55	28	37.88	87	88	52	6	0	2	0
	TUPELO	93	69	97	61	81	7	0.03	-0.76	0.02	0.03	2	35.87	90	87	44	5	0	2	0
MO	COLUMBIA	82	62	87	53	72	4	0.63	-0.17	0.57	7.30	369	35.65	120	96	60	0	0	2	1
	KANSAS CITY	79	62	84	51	71	2	2.75	1.65	1.47	4.31	172	43.74	153	89	60	0	0	3	2
	SAINT LOUIS	84	66	91	58	75	4	1.32	0.63	1.32	4.68	282	33.15	118	83	54	1	0	1	1
	SPRINGFIELD	84	63	88	51	74	4	2.53	1.34	2.22	3.70	132	29.32	92	87	59	0	0	3	1
MT	BILLINGS	67	46	83	40	57	-3	0.65	0.35	0.59	1.01	155	8.76	77	80	45	0	0	3	1
	BUTTE	60	35	70	32	48	-4	0.26	0.01	0.26	0.83	130	6.89	66	84	34	0	2	1	0
	CUT BANK	65	36	78	25	50	-3	0.30	0.02	0.30	0.60	77	8.86	81	88	32	0	2	1	0
	GLASGOW	68	42	82	27	55	-3	0.00	-0.22	0.00	0.53	96	16.26	174	84	47	0	1	0	0
	GREAT FALLS	66	39	78	27	53	-3	0.27	-0.01	0.20	1.33	180	10.63	87	83	31	0	1	2	0
	HAVRE	69	39	82	28	54	-3	0.01	-0.23	0.01	0.96	160	14.45	153	87	43	0	1	1	0
	MISSOULA	70	38	77	30	54	-3	0.00	-0.25	0.00	0.52	83	8.74	84	82	48	0	1	0	0
NE	GRAND ISLAND	75	54	84	48	64	-1	0.99	0.40	0.93	2.33	153	21.73	102	89	64	0	0	3	1
	LINCOLN	78	56	86	50	67	0	1.85	1.15	0.78	3.03	174	25.42	111	92	64	0	0	5	1
	NORFOLK	74	54	82	49	64	0	0.69	0.16	0.35	1.54	116	26.41	120	85	61	0	0	4	0
	NORTH PLATTE	77	49	89	41	63	0	0.05	-0.24	0.05	0.81	109	19.97	120	87	45	0	0	1	0
	OMAHA	78	59	85	55	69	3	1.94	1.18	1.18	3.00	164	29.32	123	87	65	0	0	4	2
	SCOTTSBLUFF	75	44	95	38	60	-1	0.33	0.05	0.29	0.43	67	13.74	103	85	48	1	0	2	0
	VALENTINE	76	46	91	37	61	-1	0.13	-0.23	0.13	1.36	156	23.89	145	82	45	1	0	1	0
NV	ELY	74	35	83	27	55	-3	0.13	-0.06	0.12	***	***	8.99	123	62	26	0	4	2	0
	LAS VEGAS	93	70	101	63	82	0	0.00	-0.06	0.00	0.00	0	3.71	110	22	12	5	0	0	0
	RENO	81	50	91	45	65	2	0.00	-0.11	0.00	0.00	0	5.25	102	45	23	1	0	0	0
	WINNEMUCCA	76	37	91	30	57	-4	0.24	0.13	0.24	0.24	92	4.82	83	65	28	1	3	1	0
NH	CONCORD	81	45	87	39	63	3	0.34	-0.38	0.34	0.40	23	18.61	71	89	34	0	0	1	0
NJ	NEWARK	81	60	94	57	71	2	0.00	-0.96	0.00	0.22	10	24.83	73	76	40	1	0	0	0
NM	ALBUQUERQUE	82	59	87	56	71	1	0.04	-0.19	0.04	0.17	27	3.53	51	71	27	0	0	1	0
NY	ALBANY	78	50	83	43	64	2	0.10	-0.67	0.10	0.80	41	24.24	88	87	43	0	0	1	0
	BINGHAMTON	73	48	80	44	61	1	0.01	-0.84	0.01	0.13	6	24.08	87	91	53	0	0	1	0
	BUFFALO	75	56	80	50	65	3	1.67	0.75	1.62	2.67	116	21.19	75	86	51	0	0	2	1
	ROCHESTER	77	54	85	46	65	3	1.06	0.23	1.04	1.19	57	18.84	77	89	50	0	0	2	1
	SYRACUSE	76	50	83	43	63	1	0.56	-0.43	0.45	2.11	89	25.52	91	93	48	0	0	2	0
NC	ASHEVILLE	84	63	87	61	73	6	0.00	-0.89	0.00	0.01	0	28.46	81	90	46	0	0	0	0
	CHARLOTTE	88	67	92	65	78	4	0.00	-0.89	0.00	1.25	59	22.79	72	89	45	3	0	0	0
	GREENSBORO	87	67	93	65	77	6	0.00	-1.02	0.00	0.09	4	30.88	97	94	48	1	0	0	0
	HATTERAS	86	72	87	63	79	3	0.11	-1.23	0.11	6.45	190	58.71	144	92	60	0	0	1	0
	RALEIGH	89	67	91	64	78	6	0.00	-1.02	0.00	1.58	66	38.31	120	91	46	4	0	0	0
	WILMINGTON	85	71	92	70	78	2	1.19	-0.49	0.96	9.05	218	50.83	115	96	65	1	0	4	1
ND	BISMARCK	71	44	90	38	57	-2	0.51	0.14	0.29	1.02	110	19.56	142	90	66	1	0	2	0
	DICKINSON	67	46	85	40	57	-1	0.53	0.17	0.52	1.68	191	13.62	102	90	42	0	0	2	1
	FARGO	72	50	84	37	61	2	0.57	0.07	0.56	2.07	167	17.53	105	87	46	0	0	2	1
	GRAND FORKS	69	47	83	36	58	0	0.16	-0.29	0.16	3.63	313	22.65	146	90	50	0	0	1	0
	JAMESTOWN	68	43	84	35	56	-3	0.02	-0.37	0.02	3.28	331	22.11	146	94	52	0	0	1	0
	WILLISTON	71	43	83	29	57	0	0.58	0.28	0.58	1.44	195	13.19	115	83	49	0	1	1	1
OH	AKRON-CANTON	78	56	82	52	67	3	0.99	0.17	0.71	3.12	156	26.72	94	86	55	0	0	2	1
	CINCINNATI	82	60	88	54	71	2	0.45	-0.20	0.23	1.50	88	34.58	109	91	58	0	0	4	0
	CLEVELAND	79	58	83	54	68	4	1.20	0.29	1.09	3.40	151	26.76	96	84	47	0	0	2	1
	COLUMBUS	80	59	86	55	70	2	0.74	0.04	0.73	2.11	120	30.37	105	91	54	0	0	2	1
	DAYTON	80	59	86	55	69	3	0.90	0.29	0.77	1.90	119	29.42	100	90	52	0	0	2	1
	MANSFIELD	77	56	82	51	67	3	0.72	-0.11	0.37	2.37	108	25.99	80	96	50	0	0	2	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending September 17, 2016

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE SEP 1	PCT. NORMAL SINCE SEP 1	TOTAL, IN., SINCE JAN01	PCT. NORMAL SINCE JAN01	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	77	55	83	50	66	1	1.32	0.64	1.32	2.19	126	25.50	105	100	59	0	0	1	1
	YOUNGSTOWN	76	53	81	48	65	3	0.20	-0.75	0.16	2.38	105	30.88	111	92	57	0	0	2	0
OK	OKLAHOMA CITY	86	64	92	54	75	1	2.01	1.09	1.05	3.37	166	23.28	89	93	52	2	0	4	2
	TULSA	87	64	92	56	76	2	0.18	-0.95	0.18	1.64	65	22.33	74	97	66	2	0	1	0
OR	ASTORIA	69	51	80	45	60	1	0.74	0.16	0.74	1.82	140	42.67	109	89	65	0	0	1	1
	BURNS	75	31	82	26	53	-3	0.00	-0.11	0.00	0.05	21	4.44	62	52	24	0	3	0	0
	EUGENE	81	46	87	40	63	0	0.00	-0.36	0.00	0.73	82	21.69	72	76	41	0	0	0	0
	MEDFORD	87	49	93	45	68	1	0.00	-0.17	0.00	0.00	0	10.00	92	58	18	1	0	0	0
	PENDLETON	76	47	87	39	62	-2	0.14	0.00	0.14	0.49	148	7.88	94	59	34	0	0	1	0
	PORTLAND	78	52	83	49	65	0	0.87	0.50	0.87	1.65	192	23.56	107	78	55	0	0	1	1
	SALEM	79	49	86	45	64	1	0.67	0.35	0.67	1.02	140	23.17	99	74	48	0	0	1	1
PA	ALLENTOWN	83	53	91	47	68	4	0.03	-1.03	0.03	0.23	9	27.54	84	80	39	1	0	1	0
	ERIE	75	57	80	52	66	1	1.81	0.69	1.81	4.47	161	32.53	111	82	61	0	0	1	1
	MIDDLETOWN	82	60	90	56	71	3	0.00	-0.83	0.00	1.05	52	31.82	109	89	44	1	0	0	0
	PHILADELPHIA	84	63	92	59	74	4	0.00	-0.94	0.00	0.45	20	25.90	83	79	36	1	0	0	0
	PITTSBURGH	79	57	83	51	68	3	0.11	-0.67	0.06	1.13	59	24.26	85	93	50	0	0	2	0
	WILKES-BARRE	79	52	87	49	65	2	0.66	-0.27	0.58	0.89	41	22.56	83	90	44	0	0	2	1
	WILLIAMSPORT	81	54	90	48	68	4	0.01	-0.95	0.01	0.40	18	24.42	81	88	46	1	0	1	0
RI	PROVIDENCE	79	55	90	50	67	2	0.08	-0.79	0.07	0.75	34	26.59	81	82	43	1	0	2	0
SC	BEAUFORT	87	73	95	71	80	3	1.64	0.34	1.62	6.34	180	33.60	85	94	62	2	0	2	1
	CHARLESTON	87	72	94	71	80	3	6.53	5.05	3.67	8.86	234	40.86	101	93	69	2	0	6	3
	COLUMBIA	89	72	94	70	80	4	1.76	0.82	1.49	6.33	255	29.26	78	88	59	2	0	3	1
	GREENVILLE	89	69	92	67	79	7	0.00	-0.92	0.00	0.69	32	28.90	78	89	45	3	0	0	0
SD	ABERDEEN	73	47	84	35	60	-1	0.65	0.24	0.63	1.06	101	15.12	91	84	55	0	0	2	1
	HURON	72	50	84	37	61	-1	0.22	-0.19	0.21	1.23	123	17.18	100	93	53	0	0	2	0
	RAPID CITY	73	43	90	36	58	-3	0.13	-0.09	0.10	0.38	66	11.35	83	83	38	1	0	3	0
	SIOUX FALLS	71	54	80	42	63	1	3.61	3.00	3.61	6.38	409	24.23	122	89	67	0	0	1	1
TN	BRISTOL	90	60	92	56	75	7	0.00	-0.74	0.00	0.61	35	25.56	82	92	33	5	0	0	0
	CHATTANOOGA	93	69	97	64	81	8	0.00	-1.05	0.00	0.25	10	23.59	59	80	43	5	0	0	0
	KNOXVILLE	92	66	94	58	79	7	0.00	-0.72	0.00	0.35	21	31.17	87	86	33	6	0	0	0
	MEMPHIS	94	72	98	66	83	7	0.08	-0.72	0.07	0.66	35	50.46	131	76	41	6	0	2	0
	NASHVILLE	89	66	94	56	78	6	1.01	0.14	1.01	1.32	63	32.92	95	89	41	4	0	1	1
TX	ABILENE	88	66	90	59	77	1	1.45	0.79	0.81	2.94	183	30.05	177	93	60	1	0	3	1
	AMARILLO	80	59	89	55	70	0	0.16	-0.27	0.08	0.84	71	15.72	97	91	52	0	0	2	0
	AUSTIN	93	70	96	68	82	2	0.00	-0.63	0.00	1.00	70	45.88	199	88	55	7	0	0	0
	BEAUMONT	92	75	94	72	83	4	3.28	1.81	3.17	3.56	102	61.08	143	94	57	6	0	5	1
	BROWNSVILLE	95	76	98	74	86	5	0.47	-0.80	0.40	0.77	26	14.44	78	94	73	7	0	3	0
	CORPUS CHRISTI	94	76	95	75	85	4	0.35	-0.83	0.34	0.48	17	25.76	114	95	58	7	0	2	0
	DEL RIO	90	72	93	70	81	0	2.13	1.67	1.89	2.21	213	24.06	178	95	62	5	0	2	1
	EL PASO	90	66	93	62	78	2	0.05	-0.33	0.05	1.16	125	6.83	101	63	24	5	0	1	0
	FORT WORTH	94	73	96	65	83	5	0.00	-0.48	0.00	0.12	12	28.79	119	79	39	6	0	0	0
	GALVESTON	90	79	91	77	84	2	1.07	-0.36	0.40	1.30	38	41.99	136	93	66	4	0	6	0
	HOUSTON	93	75	96	72	84	4	0.13	-0.88	0.12	0.48	20	54.05	161	94	58	7	0	2	0
	LUBBOCK	83	62	88	59	73	1	0.98	0.37	0.70	1.46	99	11.38	78	92	63	0	0	3	1
	MIDLAND	90	67	93	62	79	4	1.13	0.60	0.61	1.99	166	12.34	116	86	55	5	0	2	2
	SAN ANGELO	91	67	93	60	79	3	0.00	-0.68	0.00	2.23	141	27.75	186	90	63	6	0	0	0
	SAN ANTONIO	93	73	95	70	83	3	0.00	-0.66	0.00	0.19	12	29.64	128	88	48	7	0	0	0
	VICTORIA	93	72	97	71	82	1	0.57	-0.60	0.57	2.20	82	31.78	112	97	61	7	0	1	1
	WACO	93	70	98	64	82	3	0.03	-0.59	0.03	0.05	4	32.04	141	95	53	6	0	1	0
	WICHITA FALLS	90	66	94	59	78	2	2.66	1.94	1.80	3.68	215	26.06	125	93	61	4	0	3	2
UT	SALT LAKE CITY	78	54	91	49	66	0	0.25	-0.04	0.17	0.26	41	8.58	74	66	29	1	0	2	0
VT	BURLINGTON	76	51	82	43	63	3	0.52	-0.40	0.47	0.63	28	19.83	76	83	40	0	0	2	0
VA	LYNCHBURG	84	64	93	62	74	6	0.00	-0.91	0.00	0.00	0	33.71	106	89	48	1	0	0	0
	NORFOLK	83	70	90	66	76	3	0.00	-0.95	0.00	3.24	138	45.61	132	85	61	1	0	0	0
	RICHMOND	85	64	92	61	74	3	0.00	-0.93	0.00	1.72	78	35.14	109	90	52	1	0	0	0
	ROANOKE	84	63	94	58	74	5	0.00	-0.91	0.00	0.33	15	34.10	108	87	51	1	0	0	0
	WASH/DULLES	84	64	93	62	74	6	0.00	-0.90	0.00	0.17	8	28.16	93	79	49	2	0	0	0
WA	OLYMPIA	75	44	80	38	59	0	0.53	0.07	0.53	1.31	124	28.95	98	92	64	0	0	1	1
	QUILLAYUTE	67	46	76	39	57	0	0.92	0.06	0.92	3.26	171	61.45	102	91	65	0	0	1	1
	SEATTLE-TACOMA	73	53	78	51	63	1	0.22	-0.14	0.22	0.94	111	24.67	114	83	63	0	0	1	0
	SPOKANE	74	48	81	41	61	1	0.11	-0.06	0.11	0.19	48	8.99	84	58	22	0	0	1	0
	YAKIMA	81	47	86	40	64	3	0.00	-0.08	0.00	0.16	80	6.05	118	67	28	0	0	0	0
WV	BECKLEY	81	58	86	52	70	6	0.01	-0.75	0.01	0.40	22	37.45	119	87	51	0	0	1	0
	CHARLESTON	89	61	93	52	75	8	0.00	-0.83	0.00	0.05	2	32.59	99	93	38	4	0	0	0
	ELKINS	83	54	87	49	68	5	0.08	-0.84	0.08	0.11	5	31.09	89	92	39	0	0	1	0
	HUNTINGTON	88	62	93	55	75	7	0.03	-0.62	0.03	0.11	7	36.28	114	93	41	3	0	1	0
WI	EAU CLAIRE	74	53	81	46	63	3	0.04	-0.87	0.00	1.79	75	28.85	113	94	53	0	0	1	0
	GREEN BAY	76	54	79	46	65	5	0.60	-0.15	0.36	2.41	124	24.03	108	100	57	0	0	3	0
	LA CROSSE	77	58	82	53	67	3	1.00	0.17	0.53	5.62	263	36.46	142	95	54	0	0	4	1
	MADISON	75	56	78	49	66	5	1.33	0.59	0.76	3.16	158	35.53	138	91	66	0	0	2	2
	MILWAUKEE	78	61	85	54	69	5	0.11	-0.68	0.05	1.78	86	22.43	86	84	56	0	0	3	0
WY	CASPER	68	40	86	36	54	-4	0.36	0.15	0.17	0.92	214	14.31	145	86	60	0	0	4	0
	CHEYENNE	70	42	88	38	56	-1	0.51	0.17	0.24	0.56	66	15.22	117	76	42	0	0	3	0
	LANDER	68	41	85	37	54	-5	0.46	0.22	0.25	0.58	116	18.12	185	81	32	0	0	3	0
	SHERIDAN	70	44	89	40	57	-1	0.54	0.23	0.43	0.83	124	12.53	113	75	48	0	0	3	0

Based on 1971-2000 normals ***** Not Available**

Summer Weather Review

Weather summary provided by USDA/WAOB

Highlights: As El Niño faded to ENSO-neutral conditions, warm, wet conditions persisted across the nation's mid-section through August. However, hot summer weather was often accompanied by drier-than-normal conditions in the eastern and western U.S. In the Midwest, showery weather and the absence of extreme heat fueled record-high U.S. corn and soybean yield and production, based on preliminary estimates by USDA. The record-setting agricultural output occurred in spite of pockets of drought in the western (e.g. South Dakota) and eastern Corn Belt (e.g. Michigan and Ohio).

Generally favorable growing weather extended to the Plains, although a July heat wave adversely affected cotton and other rain-fed crops in western Texas and environs. Meanwhile, the worst drought in more than a decade tightened its grip in parts of the Northeast, which endured a very hot summer. Drought also affected portions of the interior Southeast, broadly centered on the southern Appalachians. Farther west, hot, dry weather and underlying drought issues contributed to an active wildfire season in parts of California and the Northwest. The Southwestern monsoon circulation provided beneficial rainfall at times, mainly across Arizona and New Mexico.

According to the Drought Monitor, U.S. drought coverage peaked at nearly 22 percent on August 9, up from 13 percent at the beginning of summer. Following that peak, widespread rainfall triggered by the interaction between the Southwestern monsoon circulation, several cold fronts, and an unnamed low-pressure system along the Gulf Coast reduced drought coverage to 19 percent within 2 weeks. However, the wet spell also resulted in excessive rainfall and catastrophic flooding in parts of southern Louisiana, with crop-quality issues occurring in crops such as rice, sorghum, and soybeans across a broader area of the South.

Historical Perspective: A warm, wet theme carried through the summer of 2016. The Lower 48 states experienced near-record heat (fifth-warmest summer with an average temperature of 73.5°F, 2.1°F above the long-term mean), along with significant wetness in the Mississippi Valley and the Midwest. Overall, it was the nation's 24th-wettest summer during the 122-year period of record, with precipitation averaging 8.92 inches (107 percent of normal).

It was the hottest summer on record in California, Connecticut, and Rhode Island, and among the ten hottest in Arizona, Nevada, New Mexico, Utah, and every state along and east of a line from Mississippi to Ohio, except Maine (figure 1). The "coolest" state was Nebraska, which experienced its 32nd-warmest summer. Meanwhile, variable precipitation totals led to top-ten rankings for summer dryness in Massachusetts, South Carolina, and Wyoming, while top-ten rankings for wetness affected Arkansas, Illinois, Indiana, Kentucky, Louisiana, Michigan, Minnesota, and Wisconsin (figure 2).

June: The nation experienced its warmest June on record, according to preliminary climate data, although periods of extreme heat were mostly confined to the West and portions of the nation's southern tier. Above-normal temperatures covered the Midwest, with the most consistent warmth occurring in the southwestern Corn Belt. Pockets of dryness accompanied the June warmth, leading to drought development in several Midwestern areas—including parts of South Dakota, Iowa, and Michigan. Nevertheless, crops primarily grown in the Midwest were overall in better condition on July 3, 2016, than the same time a year ago, with three-quarters of the U.S. corn and 70 percent of the soybeans rated good to excellent.

Dry conditions stretched eastward from the lower Great Lakes region, extending into parts of the Northeast. Meanwhile, intensifying drought across the interior Southeast, from northern and central Mississippi to the southern Appalachians, led to increased crop stress and diminishing soil moisture reserves. Between Northeastern and Southeastern drought areas, a late-month deluge triggered deadly flooding in southern West Virginia. Farther west, most of the Plains remained free of drought, despite a warm June, courtesy of scattered showers and thunderstorms and the lingering benefits of a wet spring. However, June rain was neither heavy nor sustained enough to prevent rapid northward progress of the winter wheat harvest, which had gotten off to a slow start across the southern Plains. By July 3, more than half (58 percent) of the nation's winter wheat had been harvested, compared to the 5-year average of 55 percent.

Figure 1 Statewide Average Temperature Ranks
June–August 2016
Period: 1895–2016

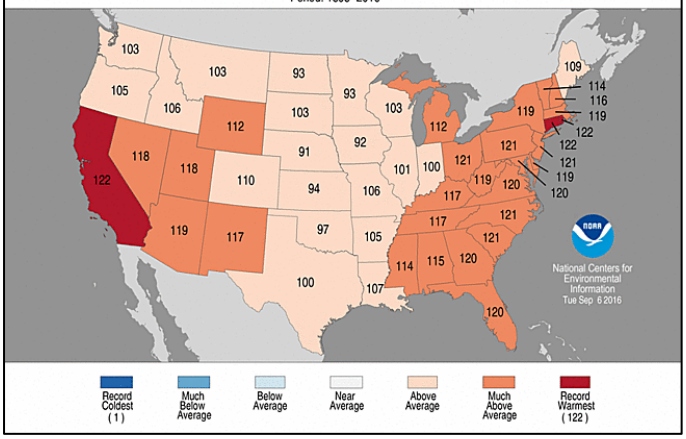
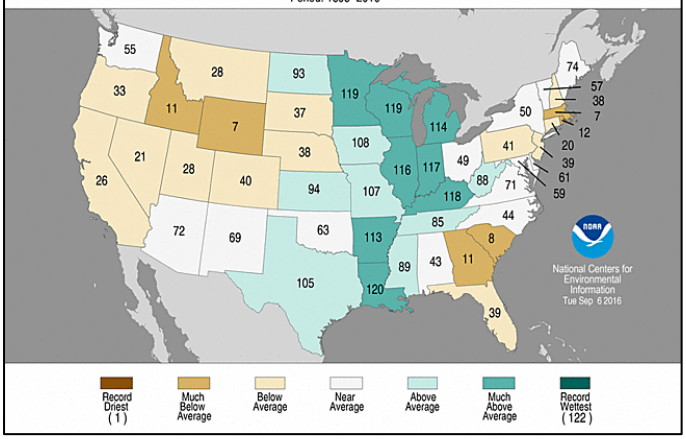


Figure 2 Statewide Precipitation Ranks
June–August 2016
Period: 1895–2016



Elsewhere, hot, mostly dry weather resulted in rapid winter wheat maturation in the Northwest, where the harvest began ahead of schedule. The remainder of the western U.S. also experienced a hot month, with record-setting high temperatures occurring at times—especially in the Southwest. However, the Southwestern monsoon arrived a few days early, leading to a late-month increase in shower activity. Prior to the monsoon's arrival, wildfires were a problem in parts in the Southwest. Southern California, completing a fifth consecutive year of drought, also contended with several large fires.

According to NCEI, the contiguous U.S. experienced its hottest June during the 122-year period of record. The nation's monthly average temperature of 71.8°F (3.3°F above the 20th century mean) clipped the June 1933 standard of 71.6°F. Arizona (80.3°F, or 5.9°F above normal) toppled a June average temperature record that had been set with 79.5°F in 2006 and 2013. Utah's monthly average temperature of 71.0°F was 7.0°F above the 1901-2000 mean, obliterating the June 2015 record of 70.1°F. Meanwhile, June precipitation averaged just 2.46 inches, 84 percent of normal. Despite late-month flooding in southern West Virginia, the nation experienced its 14th-driest June—and driest since 2012.

July: Extreme heat arrived during July, but rarely strayed from the Deep South. However, southern sections of the Rockies and High Plains suffered through a month-long heat wave, leading to topsoil moisture depletion as well as an increase in stress on rangeland, pastures, and rain-fed summer crops. Texas cotton rated very poor to poor doubled, to 20 percent, during the 4 weeks ending July 31.

Meanwhile, hot weather and spotty showers led to drought persistence across the interior Southeast, mainly from northern and central Mississippi to the southern Appalachians. On July 31, more than one-third (37 percent) of the pastures were rated very poor to poor in Georgia and South Carolina.

Farther north, Midwestern growing conditions remained mostly favorable, despite a brief, mid-month surge of heat and humidity that increased discomfort levels for humans and livestock. On July 31, more than three-quarters (76 percent) of the U.S. corn and 72 percent of the soybeans were rated in good to excellent condition. Showery July weather prevailed across the heart of the Midwest, although drought remained a problem in parts of Michigan, Ohio, and South Dakota.

Drought in the lower Great Lakes region extended eastward to the northern Atlantic Coast, resulting in significant agricultural consequences in parts of the Northeast. At the end of July, pastures were rated at least half very poor to poor in Connecticut (78 percent), Rhode Island (69 percent), and New Hampshire (60 percent).

In contrast, abundant showers dotted the northern and central Plains, while an erratic Southwestern monsoon grew stronger as the month progressed. The Plains' rain aided immature summer crops but was neither heavy nor sustained enough to slow the progression of small grain harvesting. Late-month Southwestern showers provided beneficial moisture but had little effect on long-term precipitation deficits. Notably, monsoon-related showers largely did not reach the northern Intermountain West—a region that experienced a sharp increase in wildfire activity as the month progressed.

Elsewhere, typical summer dryness prevailed in California, which also endured a few large wildfires, while scattered showers accompanied near-normal Northwestern temperatures.

The U.S. experienced its 14th-warmest, 52nd-wettest July during the 1895-2016 period of record. With an average temperature of 75.3°F, 1.6°F above the 20th century mean, it was overall the nation's hottest July since 2012. However, statistically significant July heat was confined to the southern and eastern U.S. Meanwhile, July rainfall averaged 2.87 inches (103 percent of normal) across the Lower 48 states, marking the 52nd-wettest July during the 122-year period of record. However, patches of wet and dry conditions tended to offset each other. In Illinois, it was the third-wettest July. Conversely, it was the second-driest July in Georgia and the third-driest July in Florida.

August: Mid-August downpours from an unnamed disturbance caused extensive flooding in southern Louisiana and soaked a much broader area stretching from the western Gulf Coast region into parts of the Midwest. The Southern rain and flooding led to degradations in quality for a variety of unharvested summer crops, including rice and sorghum.

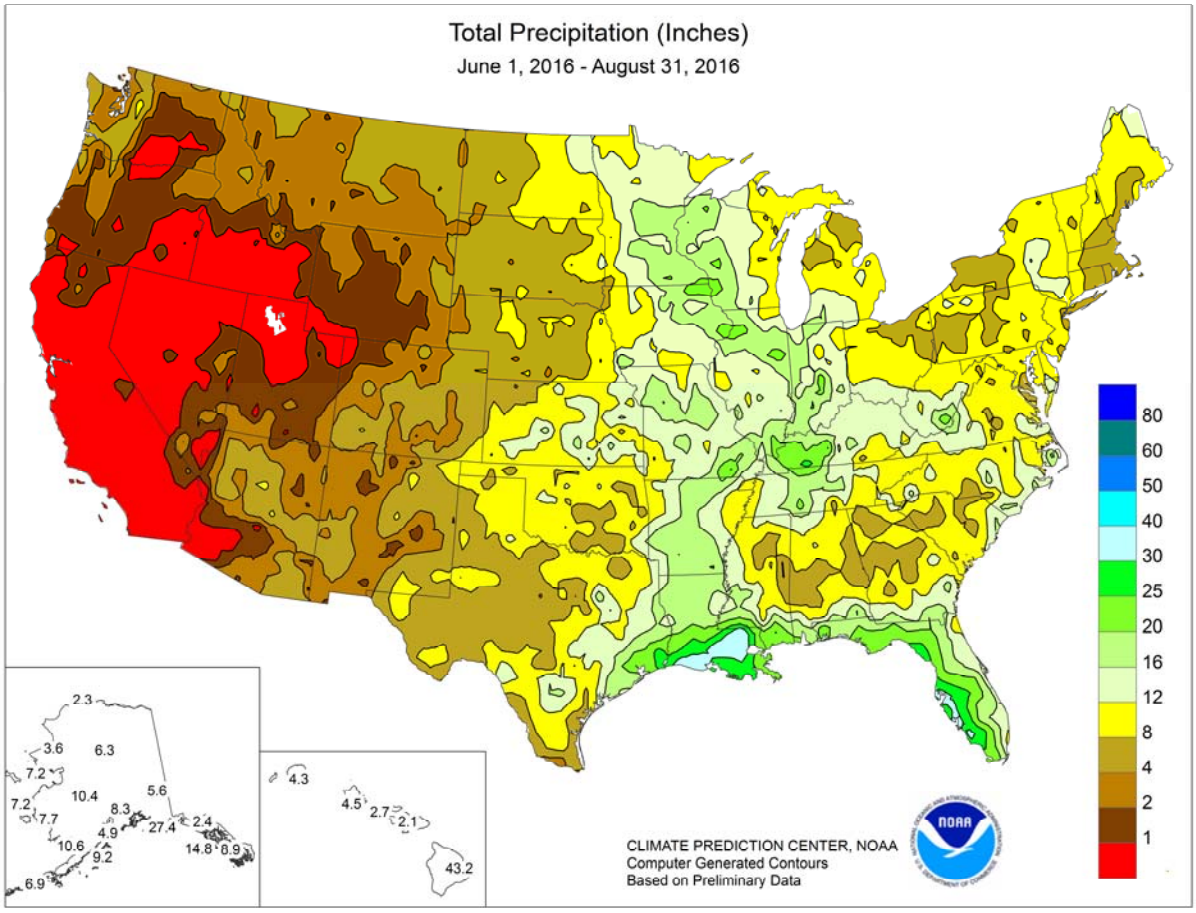
Farther north, widespread, occasionally heavy showers brought drought relief to the eastern Corn Belt but increased disease pressure for some Midwestern corn and soybeans. Wet conditions also reached into parts of the Southwest. In contrast, hot, dry weather persisted from the Pacific Coast to the Intermountain West, stressing rain-fed crops but promoting fieldwork and crop maturation. At times, the hot, dry weather also hampered wildfire containment efforts.

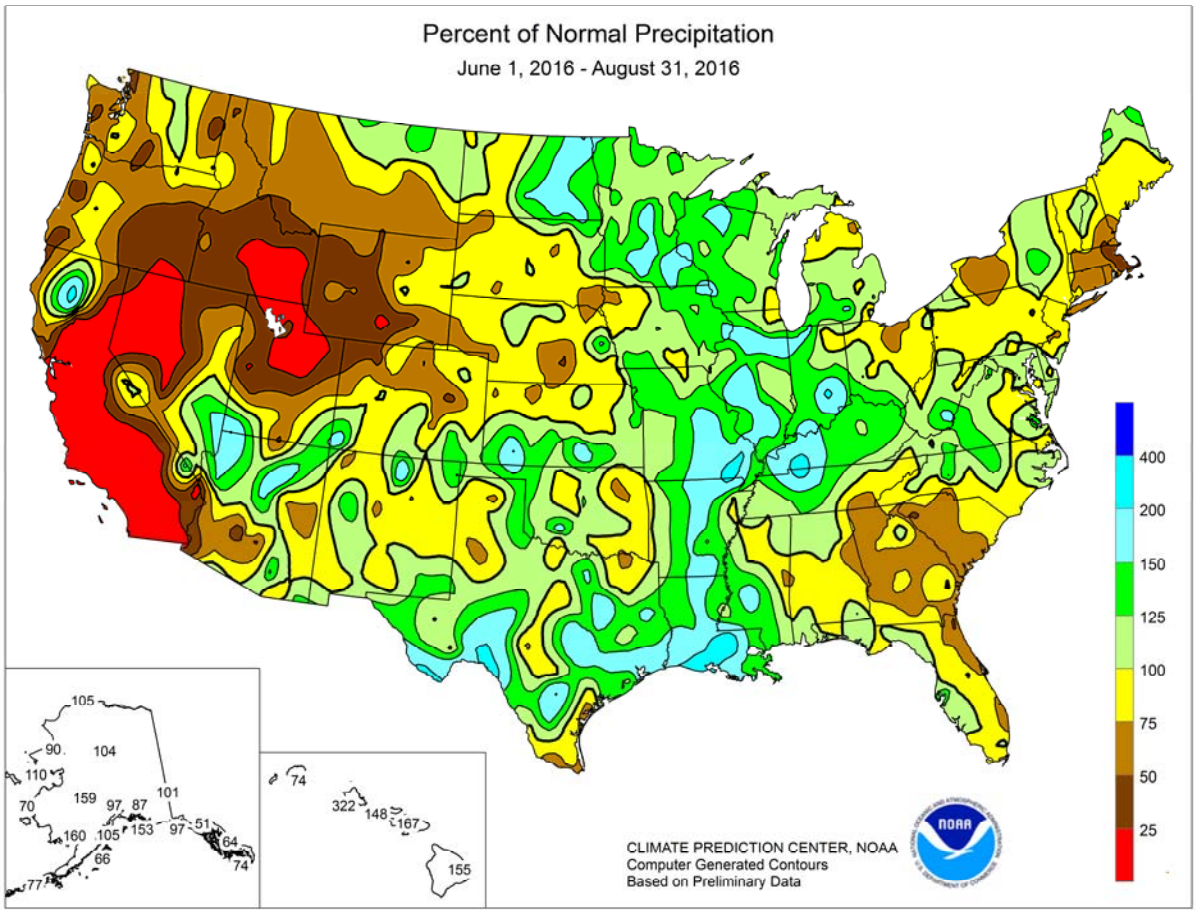
Across the nation's mid-section, scattered showers and near- or slightly below-normal temperatures provided generally favorable growing conditions. In spite of minor fieldwork delays on the northern Plains, small grain harvesting neared completion by month's end.

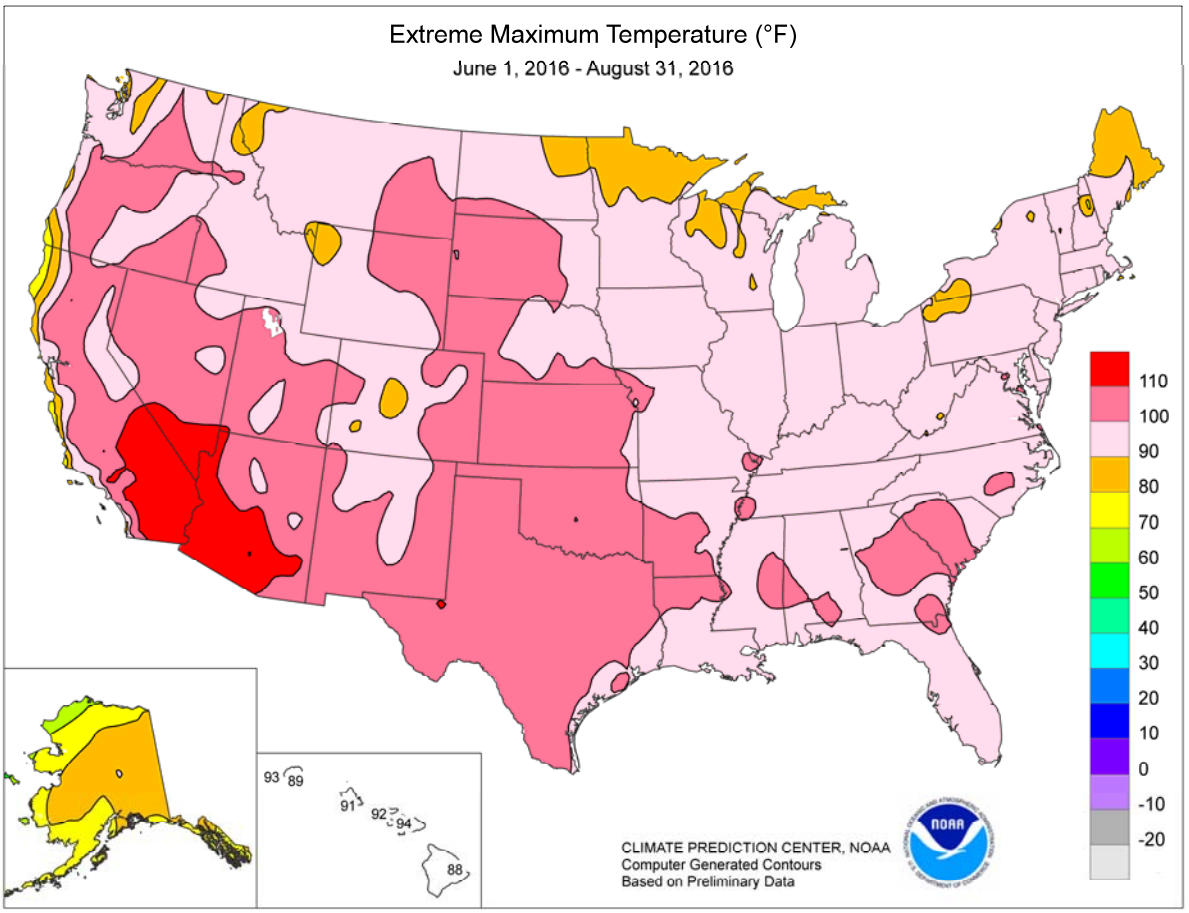
Meanwhile, the worst Northeastern drought since 2002 persisted or intensified, despite a few August showers. Record-setting August heat aggravated the effects of drought, reducing water availability in some communities and leaving more than half of the pastures rated in very poor to poor condition on September 4 in Massachusetts (88 percent), Connecticut (69 percent), New Hampshire (68 percent), and Rhode Island (65 percent). Heat's footprint extended much further, affecting nearly all areas east of the Mississippi River.

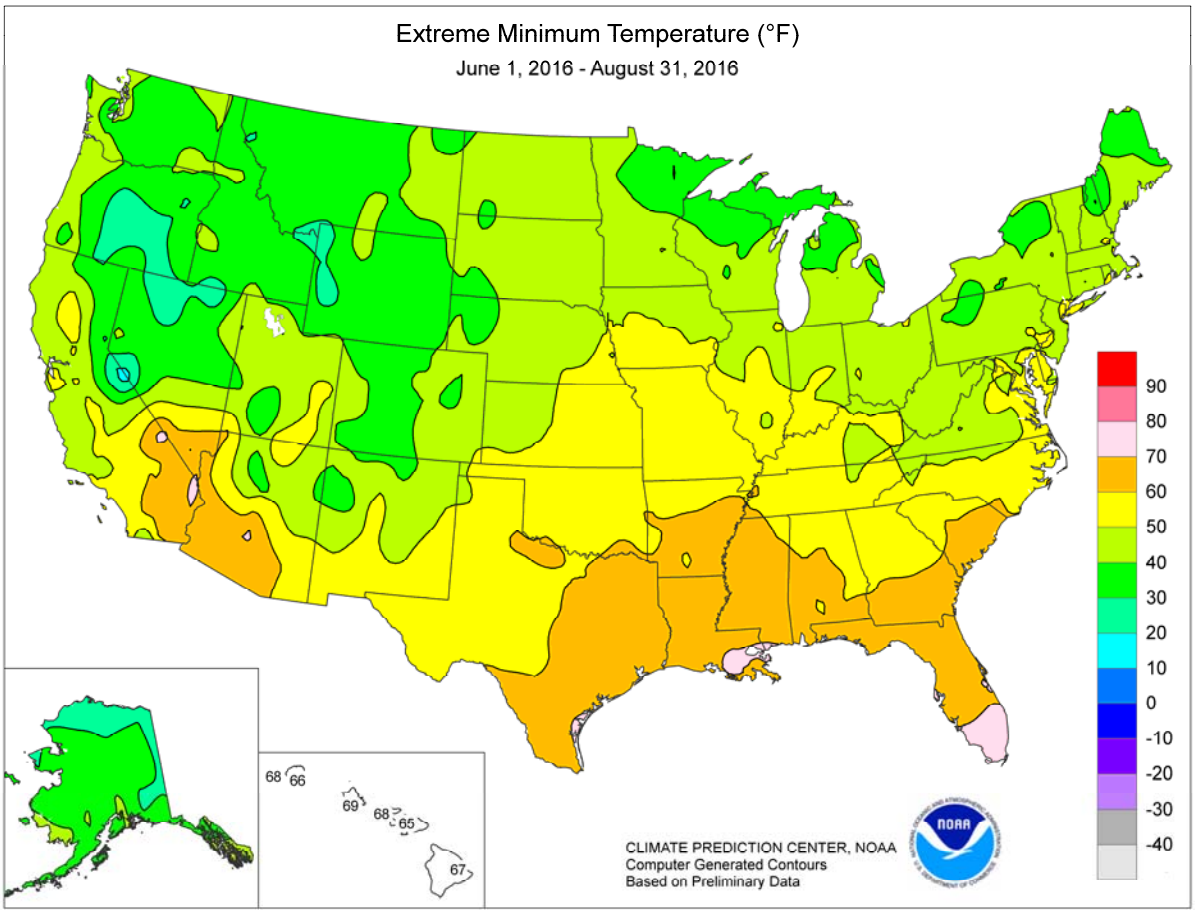
Elsewhere, August rain provided some drought relief in the interior Southeast. At month's end, Tropical Storm Hermine—later a Category 1 hurricane—formed over the eastern Gulf of Mexico. In early September, Hermine's heavy rain and gusty winds threatened the quality of unharvested crops, including open-boll cotton, in the southern Atlantic region.

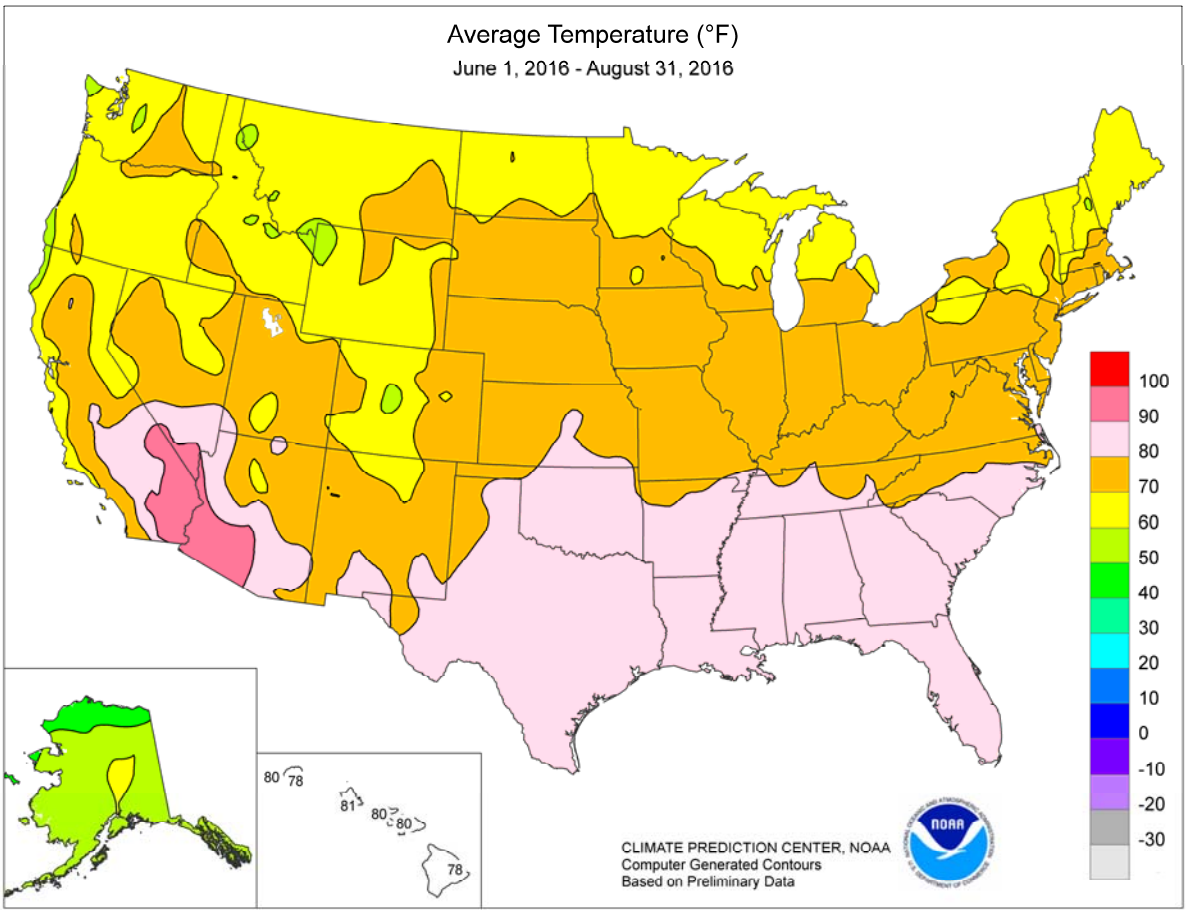
The U.S. experienced its 17th-warmest, second-wettest August during the 1895-2016 period of record. The nation's monthly average temperature of 73.6°F was 1.5°F above the 20th century mean, while precipitation averaged 3.47 inches, 132 percent of normal. The only wetter August occurred in 1977, when an average of 3.55 inches fell. Monthly rainfall averaged 12.90 inches (278 percent of normal) in Louisiana, demolishing the August 1940 standard of 9.71 inches.

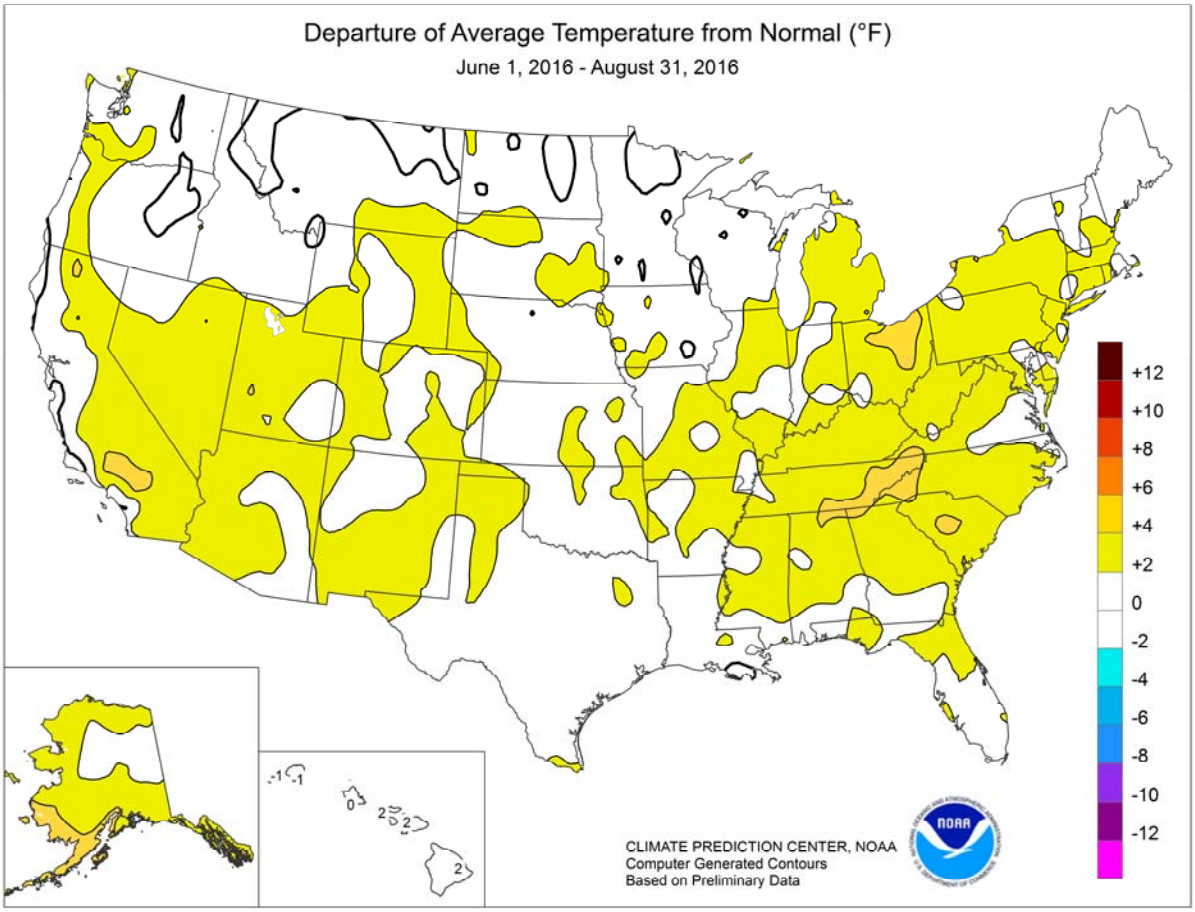

Total Precipitation (Inches)
June 1, 2016 - August 31, 2016
80
60
50
40
30
25
20
16
12
8
4
2
1
2.3
3.6
6.3
7.2
10.4
5.6
7.2
8.3
7.7
4.9
27.4
2.4
10.6
9.2
14.8
8.9
6.9
4.3
4.5
2.7
2.1
43.2
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


Percent of Normal Precipitation
June 1, 2016 - August 31, 2016
400
200
150
125
100
75
50
25
105
90
104
110
159
97
87
101
70
153
97
51
64
160
105
66
74
77
74
322
148
167
155
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


Extreme Maximum Temperature (°F)
June 1, 2016 - August 31, 2016
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
93
89
91
92
94
88
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Minimum Temperature (°F)
June 1, 2016 - August 31, 2016
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
68
66
69
68
65
67
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Average Temperature (°F)
June 1, 2016 - August 31, 2016
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
80
78
81
80
80
78
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Departure of Average Temperature from Normal (°F)
June 1, 2016 - August 31, 2016
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
-1
-1
0
2
2
2
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data

National Weather Data for Selected Cities

Summer 2016

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP, °F		PRECIP.		STATES AND STATIONS	TEMP, °F		PRECIP.		STATES AND STATIONS	TEMP, °F		PRECIP.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	83	4	13.56	1.21	LEXINGTON	77	3	16.08	2.93	COLUMBUS	76	3	13.53	1.13
HUNTSVILLE	82	4	14.20	2.26	LONDON-CORBIN	77	3	15.74	3.75	DAYTON	75	3	11.31	-0.14
MOBILE	82	1	18.81	1.06	LOUISVILLE	80	3	14.61	3.14	MANSFIELD	73	4	7.22	-6.12
MONTGOMERY	84	3	10.81	-2.26	PADUCAH	80	4	19.46	7.51	TOLEDO	73	2	9.55	-0.24
AK ANCHORAGE	61	4	9.64	3.95	LA BATON ROUGE	83	2	44.02	26.87	YOUNGSTOWN	72	4	13.40	1.96
BARROW	41	3	2.33	0.10	LAKE CHARLES	83	1	26.59	10.55	OK OKLAHOMA CITY	81	1	7.50	-2.55
COLD BAY	54	5	6.90	-2.11	NEW ORLEANS	86	4	26.09	6.91	TULSA	83	2	6.84	-3.69
FAIRBANKS	62	3	9.81	4.94	SHREVEPORT	84	2	16.14	4.39	OR ASTORIA	62	3	3.62	-1.32
JUNEAU	58	2	13.53	0.66	ME BANGOR	69	2	7.78	-1.86	BURNS	64	1	0.54	-0.97
KING SALMON	58	4	10.64	3.90	CARIBOU	65	2	15.18	3.83	EUGENE	67	3	1.03	-2.13
KODIAK	58	5	9.22	-4.76	PORTLAND	69	3	8.02	-1.63	MEDFORD	74	4	1.02	-0.49
NOME	52	2	7.19	0.67	MD BALTIMORE	77	3	13.25	2.23	PENDLETON	70	0	1.80	0.05
AZ FLAGSTAFF	64	0	10.17	4.45	MA BOSTON	73	2	3.92	-5.73	PORTLAND	69	2	2.17	-1.07
PHOENIX	94	3	2.17	0.15	WORCESTER	70	2	7.68	-4.62	SALEM	68	3	1.86	-0.84
TUCSON	88	3	6.07	1.46	MI ALPENA	68	4	5.90	-3.30	PA ALLENTOWN	75	4	10.58	-2.03
AR FORT SMITH	83	3	9.44	-0.59	DETROIT	75	3	8.49	-1.32	ERIE	73	3	14.29	2.52
LITTLE ROCK	84	3	16.76	6.57	FLINT	74	6	8.32	-1.35	MIDDLETOWN	77	3	13.58	2.83
CA BAKERSFIELD	85	4	0.00	-0.20	GRAND RAPIDS	73	4	14.74	3.73	PHILADELPHIA	79	4	7.45	-4.05
EUREKA	56	-2	0.60	-0.59	HOUGHTON LAKE	67	2	9.54	0.14	PITTSBURGH	74	3	9.51	-1.95
FRESNO	82	3	0.06	-0.19	LANSING	72	4	10.56	0.82	WILKES-BARRE	73	3	8.85	-1.96
LOS ANGELES	70	1	0.00	-0.25	MUSKEGON	71	3	11.21	2.54	WILLIAMSPORT	74	4	12.08	0.17
REDDING	81	2	2.46	1.50	TRAVERSE CITY	70	3	7.88	-1.97	PR SAN JUAN	83	1	13.03	0.13
SACRAMENTO	75	1	0.00	-0.31	MN DULUTH	65	2	13.81	1.14	RI PROVIDENCE	73	2	7.70	-2.75
SAN DIEGO	71	1	0.00	-0.21	INT'L FALLS	63	-1	12.76	2.27	SC CHARLESTON	84	4	11.24	-7.72
SAN FRANCISCO	63	0	0.00	-0.21	MINNEAPOLIS	73	2	17.39	4.96	COLUMBIA	85	5	9.01	-6.93
STOCKTON	76	0	0.00	-0.19	ROCHESTER	70	2	16.58	3.64	FLORENCE	83	3	12.07	-2.81
CO ALAMOSA	64	2	2.98	0.26	ST. CLOUD	69	2	18.46	6.68	GREENVILLE	81	4	10.68	-1.97
CO SPRINGS	71	4	6.73	-1.94	MS JACKSON	83	3	20.75	8.58	MYRTLE BEACH	83	4	14.54	0.11
DENVER	73	3	2.91	-2.77	MERIDIAN	84	3	12.34	-0.44	SD ABERDEEN	71	1	7.12	-1.71
GRAND JUNCTION	77	3	1.28	-0.63	TUPELO	82	3	13.74	2.60	HURON	73	2	7.14	-1.07
PUEBLO	77	4	3.14	-2.50	MO COLUMBIA	78	3	18.21	6.64	RAPID CITY	71	2	6.33	-0.14
CT BRIDGEPORT	75	3	9.22	-1.87	JOPLIN	80	2	15.68	2.89	SIOUX FALLS	73	3	6.36	-3.07
HARTFORD	74	3	8.40	-3.10	KANSAS CITY	78	2	18.90	6.50	TN BRISTOL	77	4	8.04	-3.06
DC WASHINGTON	80	3	9.60	-0.63	SPRINGFIELD	79	3	14.37	2.42	CHATTANOOGA	82	4	6.10	-6.21
DE WILMINGTON	77	3	11.59	0.21	ST JOSEPH	78	2	16.99	5.09	JACKSON	80	1	8.63	-4.18
FL DAYTONA BEACH	83	2	7.63	-9.32	ST LOUIS	81	3	15.43	4.79	KNOXVILLE	80	4	11.55	-0.09
FT LAUDERDALE	84	2	18.63	-4.96	MT BILLINGS	72	3	2.35	-1.67	MEMPHIS	84	3	14.71	3.19
FT MYERS	84	1	32.61	4.32	BUTTE	60	0	2.53	-2.37	NASHVILLE	81	4	17.16	6.03
JACKSONVILLE	83	2	7.88	-10.33	GLASGOW	68	0	7.45	2.22	TX ABILENE	83	1	9.31	1.93
KEY WEST	84	0	13.69	0.45	GREAT FALLS	65	1	3.28	-2.06	AMARILLO	79	3	8.99	0.09
MELBOURNE	83	2	16.59	-0.40	HELENA	69	4	3.08	-1.37	AUSTIN	84	1	16.59	8.50
MIAMI	84	1	26.60	3.64	KALISPELL	63	1	3.93	-1.03	BEAUMONT	84	2	28.02	11.36
ORLANDO	84	2	21.59	0.84	MILES CITY	73	2	2.80	-2.39	BROWNSVILLE	86	2	3.67	-4.02
PENSACOLA	83	1	26.52	5.26	MISSOULA	65	0	3.10	-0.87	COLLEGE STATION	85	1	11.74	3.40
ST PETERSBURG	84	1	27.24	6.17	NE GRAND ISLAND	75	2	4.72	-5.22	CORPUS CHRISTI	85	2	7.07	-2.00
TALLAHASSEE	84	2	23.91	1.92	HASTINGS	76	2	4.74	-5.84	DALLAS/FT WORTH	86	3	11.91	4.53
TAMPA	84	2	30.53	10.94	LINCOLN	77	2	10.08	-0.32	DEL RIO	86	2	13.24	7.29
WEST PALM BEACH	85	3	12.81	-7.39	MCCOOK	76	2	7.93	-1.39	EL PASO	85	3	5.03	0.92
GA ATHENS	82	4	15.79	3.66	NORFOLK	73	0	8.42	-2.37	GALVESTON	84	0	20.15	8.44
ATLANTA	82	3	9.98	-2.44	NORTH PLATTE	73	1	7.98	-0.51	HOUSTON	85	2	24.62	12.26
AUGUSTA	83	4	7.84	-4.90	OMAHA/EPPLEY	77	3	13.33	2.31	LUBBOCK	81	3	4.65	-2.81
COLUMBUS	83	2	8.48	-3.85	SCOTTSBLUFF	73	3	4.20	-1.77	MIDLAND	84	3	6.61	1.24
MACON	83	3	6.25	-5.40	VALENTINE	73	2	8.61	0.03	SAN ANGELO	84	3	9.89	4.22
SAVANNAH	84	3	11.70	-7.03	NV ELKO	70	4	0.87	-0.46	SAN ANTONIO	84	1	7.63	-1.27
HI HILO	78	2	43.19	15.34	ELY	66	2	2.06	-0.11	VICTORIA	84	1	9.36	-1.55
HONOLULU	81	0	4.48	3.09	LAS VEGAS	93	4	0.86	-0.11	WACO	85	1	9.34	2.18
KAHULUI	80	1	2.08	0.83	RENO	75	6	0.04	-0.94	WICHITA FALLS	83	0	5.89	-1.76
LIHUE	78	-1	4.30	-1.55	WINNEMUCCA	70	1	0.01	-1.30	UT SALT LAKE CITY	80	6	0.67	-1.58
ID BOISE	74	2	0.45	-0.98	NH CONCORD	70	2	5.48	-4.20	VT BURLINGTON	71	3	8.35	-3.06
LEWISTON	73	2	2.82	0.19	NJ ATLANTIC CITY	75	2	12.24	1.40	VA LYNCHBURG	76	3	14.06	2.47
POCATELLO	68	1	0.44	-1.83	NEWARK	78	3	9.41	-2.69	NORFOLK	80	3	20.14	6.41
IL CHICAGO/O'HARE	74	3	13.34	1.58	NM ALBUQUERQUE	78	2	2.17	-1.48	RICHMOND	78	2	12.79	0.40
MOLINE	75	2	19.42	6.35	NY ALBANY	72	3	12.69	1.80	ROANOKE	77	3	16.04	4.62
PEORIA	76	3	15.90	4.88	BINGHAMTON	69	3	11.16	0.52	WASH/DULLES	77	3	10.33	-1.09
ROCKFORD	74	3	14.36	1.25	BUFFALO	72	3	7.28	-3.55	WA OLYMPIA	63	1	2.26	-1.44
SPRINGFIELD	77	3	22.26	11.55	ROCHESTER	73	4	6.04	-3.79	QUILLAYUTE	60	2	6.36	-2.15
IN EVANSVILLE	79	2	16.71	5.72	SYRACUSE	71	2	8.65	-2.64	SEATTLE-TACOMA	66	2	2.66	-0.64
FORT WAYNE	74	3	9.62	-1.60	NC ASHEVILLE	76	5	13.57	1.02	SPOKANE	69	3	0.94	-1.68
INDIANAPOLIS	76	2	17.51	5.14	CHARLOTTE	81	2	6.25	-4.68	YAKIMA	72	5	0.44	-0.76
SOUTH BEND	72	1	19.30	7.40	GREENSBORO	79	3	11.82	0.14	WV BECKLEY	72	3	18.02	5.87
IA BURLINGTON	75	1	13.39	0.60	HATTERAS	80	2	18.20	2.87	CHARLESTON	76	4	12.64	-0.42
CEDAR RAPIDS	73	1	19.87	7.11	RALEIGH	80	3	17.13	5.64	ELKINS	71	3	12.56	-1.14
DES MOINES	77	3	14.09	0.83	WILMINGTON	81	2	19.10	-1.19	HUNTINGTON	77	3	16.45	4.23
DUBUQUE	71	1	18.21	5.81	ND BISMARCK	69	1	11.36	4.04	WI EAU CLAIRE	70	1	14.64	1.75
SIOUX CITY	75	3	8.62	-1.19	DICKINSON	67	0	7.21	0.28	GREEN BAY	70	2	10.44	-0.20
WATERLOO	72	0	18.20	5.10	FARGO	70	1	9.99	1.08	LA CROSSE	74	2	18.24	5.71
KS CONCORDIA	78	1	13.34	1.95	GRAND FORKS	68	1	12.13	3.32	MADISON	71	2	18.45	6.14
DODGE CITY	78	0	10.89	1.84	JAMESTOWN	68	0	12.92	4.32	MILWAUKEE	73	3	8.84	-2.33
GOODLAND	75	2	6.68	-2.65	MINOT	71	4	6.71	-1.09	WAUSAU	69	1	13.69	0.86
HILL CITY	78	2	6.59	-3.35	WILLISTON	70	3	6.68	0.56	WY CASPER	68	1	3.93	0.48
TOPEKA	79	3	13.58	1.06	OH AKRON-CANTON	74	4	8.93	-2.29	CHEYENNE	69	4	4.80	-1.40
WICHITA	82	3	20.78	10.28	CINCINNATI	76	2	13.47	1.51	LANDER	70	2	1.39	-1.17
KY JACKSON	76	3	18.19	4.80	CLEVELAND	75	5	7.43	-3.67	SHERIDAN	70	4	2.35	-1.58

Based on 1971-2000 normals ***** Not Available**

National Agricultural Summary

September 12 – 18, 2016

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

Temperatures were well above normal for the week across most of the eastern U.S., promoting maturation and continued harvest of many row crops. In contrast, temperatures were generally below normal in the West, with some areas in California, Idaho, Montana, Nevada, and Oregon recording temperatures more than 6°F below normal. Precipitation was within 1.5 inches of normal across the U.S., except in the western Corn Belt. Portions of the Kansas, Missouri, and Nebraska received weekly rainfall totaling 4 inches or more.

Corn: By September 18, ninety-three percent of the nation's corn was dented or beyond, slightly ahead of last year and 2 percentage points ahead of the 5-year average. By week's end, 53 percent of the corn was mature, 5 percentage points ahead of both last year and the 5-year average. Generally warm weather in the Corn Belt accelerated corn maturity, which advanced by 20 percentage points or more during the week in Illinois, Indiana, Iowa, Kansas, Minnesota, South Dakota, and Wisconsin. Producers had harvested 9 percent of the nation's crop by September 18, equal to last year but 3 percentage points behind the 5-year average. Overall, 74 percent of the corn was reported in good to excellent condition, unchanged from last week but 6 percentage points above the same time last year.

Soybeans: Forty-six percent of this year's soybean crop was at or beyond the leaf-dropping stage by September 18, four percentage points behind last year but 3 points ahead of the 5-year average. Warm weather in the upper Mississippi Valley led to the rapid acceleration of soybean progress, with the percent of the crop dropping leaves advancing 33 percentage points in Minnesota and 27 points in Iowa. By week's end, 4 percent of the U.S. soybeans were harvested, 2 percentage points behind last year and slightly behind the 5-year average. Significant harvest progress was limited to the Mississippi Delta, but soybean harvest had begun in several Midwestern States. Overall, 73 percent of the soybean crop was reported in good to excellent condition, unchanged from last week but 10 percentage points above the same time last year.

Winter Wheat: Producers had sown 17 percent of the 2017 winter wheat by week's end, slightly ahead of both last year and the 5-year average. Planting progress advanced 26 percentage points during the week in Nebraska, reaching 45 percent overall.

Cotton: By week's end, 48 percent of this year's cotton acreage was at or beyond the boll-opening stage, 6 percentage points behind last year and 8 points behind the 5-year average. Producers in northeastern Texas were preparing for defoliation in the coming week. Nationwide, producers had harvested 6 percent of the cotton by September 18, equal to last year but slightly behind the 5-year average. Overall, 48 percent of the cotton was reported in good to excellent condition, up slightly from last week but 4 percentage points lower than at the same time last year.

Sorghum: By September 18, eighty-eight percent of the sorghum was at or beyond the coloring stage, equal to last year but 7 percentage points ahead of the 5-year average. Nationally, sorghum maturity advanced to 51 percent complete by week's end, 2 percentage points ahead of last year and 7 points ahead of the 5-year average. Nationwide, harvest advanced to 29 percent complete by week's end, slightly behind last year but equal to the 5-year average. Overall, 66 percent of the sorghum was reported in good to excellent condition, up slightly from last week but equal to the same time last year.

Rice: Producers had harvested 64 percent of this year's rice by week's end, 12 percentage points ahead of last year and 15 points ahead of the 5-year average. Double-digit harvest progress was observed during the week in Arkansas, Mississippi, and Missouri.

Other Small Grains: Ninety-eight percent of the spring wheat was harvested by September 18, slightly behind last year but 5 percentage points ahead of the 5-year average.

Other Crops: Peanut producers had harvested 9 percent of this year's crop by September 18, slightly ahead of last year and 3 percentage points ahead of the 5-year average. The peanut harvest continued in northern Florida, but some fields were still too wet to harvest. Overall, 62 percent of the peanut crop was reported in good to excellent condition, down 2 percentage points from last week and 9 points lower than at the same time last year.

Eleven percent of the nation's sugarbeet crop was harvested by week's end, 2 percentage points behind last year but 3 points ahead of the 5-year average. Despite cool, wet weather, the sugarbeet harvest was 15 percent complete in Idaho by September 18, eight percentage points ahead of the 5-year average.

Crop Progress and Condition

Week Ending September 18, 2016

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Corn Percent Dented

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
CO	93	77	88	89
IL	99	91	95	95
IN	86	88	95	88
IA	93	90	95	92
KS	95	88	96	95
KY	95	90	94	93
MI	81	65	79	78
MN	96	90	96	91
MO	96	95	100	98
NE	91	89	95	95
NC	100	98	100	99
ND	88	77	88	84
OH	91	78	89	84
PA	85	74	85	81
SD	87	82	89	90
TN	97	98	99	99
TX	87	83	93	92
WI	81	81	90	76
18 Sts	92	87	93	91

These 18 States planted 93% of last year's corn acreage.

Corn Percent Mature

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
CO	38	13	22	31
IL	73	42	63	62
IN	47	35	56	45
IA	42	29	52	49
KS	65	42	65	64
KY	80	74	83	77
MI	24	17	26	26
MN	35	18	45	34
MO	65	64	82	73
NE	41	28	45	41
NC	95	94	98	96
ND	23	23	40	30
OH	41	27	39	28
PA	55	22	40	40
SD	40	18	41	38
TN	83	85	93	84
TX	72	67	75	79
WI	23	29	49	25
18 Sts	48	33	53	48

These 18 States planted 93% of last year's corn acreage.

Corn Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
CO	1	0	0	3
IL	11	3	9	14
IN	6	3	7	7
IA	1	1	2	7
KS	22	8	17	29
KY	31	27	41	35
MI	0	0	1	2
MN	1	0	0	4
MO	23	18	25	31
NE	4	1	2	7
NC	66	66	82	66
ND	0	1	2	3
OH	2	0	3	2
PA	14	3	8	7
SD	1	0	3	6
TN	36	38	61	47
TX	59	58	63	63
WI	1	0	1	1
18 Sts	9	5	9	12

These 18 States harvested 95% of last year's corn acreage.

Corn Condition by Percent

	VP	P	F	G	EX
CO	1	3	22	60	14
IL	1	2	12	60	25
IN	3	6	18	54	19
IA	1	3	13	57	26
KS	2	6	26	55	11
KY	2	5	19	56	18
MI	3	10	28	46	13
MN	1	3	12	56	28
MO	2	5	19	53	21
NE	1	5	20	57	17
NC	3	7	24	50	16
ND	1	3	17	63	16
OH	6	14	36	39	5
PA	7	13	33	39	8
SD	4	13	30	45	8
TN	3	8	25	45	19
TX	2	11	31	45	11
WI	1	2	9	44	44
18 Sts	2	5	19	54	20
Prev Wk	2	5	19	54	20
Prev Yr	3	7	22	49	19

Peanuts Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AL	8	1	5	4
FL	18	16	27	18
GA	6	3	9	5
NC	1	0	2	3
OK	0	0	0	1
SC	4	4	10	9
TX	11	0	1	3
VA	4	0	1	1
8 Sts	8	4	9	6

These 8 States harvested 97% of last year's peanut acreage.

Peanut Condition by Percent

	VP	P	F	G	EX
AL	0	1	51	42	6
FL	0	4	20	66	10
GA	4	10	27	42	17
NC	0	4	16	67	13
OK	0	0	11	86	3
SC	0	5	22	65	8
TX	1	6	35	42	16
VA	0	18	17	65	0
8 Sts	2	7	29	49	13
Prev Wk	2	7	27	51	13
Prev Yr	0	4	25	54	17

Crop Progress and Condition

Week Ending September 18, 2016

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Soybeans Percent Dropping Leaves

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	45	47	60	42
IL	48	14	31	37
IN	56	26	45	52
IA	39	19	46	33
KS	30	12	19	32
KY	35	14	24	33
LA	83	63	74	79
MI	53	16	35	38
MN	63	23	56	50
MS	71	46	66	63
MO	15	7	21	21
NE	57	29	51	44
NC	31	18	30	19
ND	80	53	74	69
OH	54	25	48	46
SD	67	45	67	65
TN	43	36	54	39
WI	29	25	50	30
18 Sts	50	26	46	43

These 18 States planted 95% of last year's soybean acreage.

Soybeans Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	20	13	21	19
IL	2	NA	0	2
IN	4	NA	2	3
IA	1	NA	0	3
KS	1	NA	0	1
KY	3	2	7	3
LA	63	31	44	54
MI	1	NA	0	1
MN	9	NA	2	7
MS	43	20	34	35
MO	1	NA	1	1
NE	2	NA	2	3
NC	1	NA	4	1
ND	7	NA	2	9
OH	4	NA	1	2
SD	2	NA	2	6
TN	4	NA	5	4
WI	0	NA	0	1
18 Sts	6	NA	4	5

These 18 States harvested 95% of last year's soybean acreage.

Soybean Condition by Percent

	VP	P	F	G	EX
AR	8	10	24	42	16
IL	2	3	15	59	21
IN	2	5	18	55	20
IA	1	3	15	57	24
KS	1	4	25	55	15
KY	2	5	18	56	19
LA	5	11	32	47	5
MI	2	6	24	53	15
MN	1	4	16	55	24
MS	1	7	22	44	26
MO	2	4	20	55	19
NE	1	3	19	60	17
NC	2	6	29	49	14
ND	2	6	19	60	13
OH	2	9	33	47	9
SD	3	10	26	51	10
TN	0	3	19	56	22
WI	1	2	12	46	39
18 Sts	2	5	20	54	19
Prev Wk	2	5	20	55	18
Prev Yr	3	8	26	48	15

Cotton Percent Bolls Opening

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AL	67	65	82	54
AZ	74	70	82	82
AR	68	78	88	75
CA	68	40	50	57
GA	76	69	79	69
KS	27	15	23	32
LA	93	92	96	92
MS	82	65	83	76
MO	53	37	51	49
NC	72	40	66	65
OK	28	19	39	43
SC	77	43	60	60
TN	53	54	67	56
TX	43	29	31	48
VA	60	24	38	55
15 Sts	54	41	48	56

These 15 States planted 99% of last year's cotton acreage.

Cotton Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AL	1	0	1	1
AZ	9	10	13	9
AR	1	0	3	2
CA	0	0	0	0
GA	1	1	4	2
KS	2	1	2	0
LA	11	2	10	22
MS	5	1	4	6
MO	0	0	0	2
NC	1	0	2	1
OK	0	0	0	0
SC	1	0	1	2
TN	1	1	4	2
TX	12	8	9	13
VA	0	0	0	0
15 Sts	6	4	6	7

These 15 States harvested 98% of last year's cotton acreage.

Cotton Condition by Percent

	VP	P	F	G	EX
AL	1	4	42	44	9
AZ	4	0	3	53	40
AR	6	6	18	43	27
CA	0	0	30	30	40
GA	4	11	31	44	10
KS	1	2	29	64	4
LA	2	13	50	31	4
MS	1	7	32	43	17
MO	5	14	51	27	3
NC	3	8	32	50	7
OK	0	0	48	47	5
SC	0	0	55	42	3
TN	1	3	17	57	22
TX	5	15	38	35	7
VA	0	5	33	62	0
15 Sts	4	12	36	39	9
Prev Wk	4	12	37	38	9
Prev Yr	2	10	36	43	9

Crop Progress and Condition

Week Ending September 18, 2016

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Sorghum Percent Coloring

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	100	100	100	100
CO	80	78	86	79
IL	86	83	85	90
KS	89	84	92	75
LA	100	100	100	100
MO	90	87	91	88
NE	92	95	98	88
NM	46	44	55	39
OK	90	73	92	80
SD	90	86	92	91
TX	88	81	82	86
11 Sts	88	83	88	81

These 11 States planted 98% of last year's sorghum acreage.

Sorghum Percent Mature

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	97	100	100	96
CO	31	8	19	25
IL	47	36	43	51
KS	33	19	29	19
LA	100	100	100	100
MO	52	35	58	46
NE	28	22	42	21
NM	6	10	16	2
OK	47	33	52	44
SD	18	29	47	25
TX	71	77	78	76
11 Sts	49	44	51	44

These 11 States planted 98% of last year's sorghum acreage.

Sorghum Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	79	91	97	72
CO	0	0	0	2
IL	5	0	4	5
KS	6	1	5	3
LA	94	97	99	96
MO	9	2	8	8
NE	1	0	0	1
NM	0	0	0	0
OK	23	15	24	18
SD	2	0	3	7
TX	61	60	61	64
11 Sts	30	26	29	29

These 11 States harvested 98% of last year's sorghum acreage.

Sorghum Condition by Percent

	VP	P	F	G	EX
AR	5	18	33	37	7
CO	0	5	30	58	7
IL	2	5	21	63	9
KS	1	3	21	58	17
LA	0	15	30	43	12
MO	0	2	28	60	10
NE	0	1	14	63	22
NM	0	2	75	22	1
OK	0	1	30	66	3
SD	0	3	41	54	2
TX	2	8	34	41	15
11 Sts	1	5	28	52	14
Prev Wk	1	5	29	51	14
Prev Yr	2	6	26	54	12

Winter Wheat Percent Planted

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	0	0	1	1
CA	1	0	0	1
CO	39	17	36	30
ID	23	5	22	20
IL	2	0	0	1
IN	2	2	3	2
KS	9	4	9	9
MI	4	2	8	4
MO	1	0	0	2
MT	32	3	23	30
NE	40	19	45	37
NC	0	0	0	0
OH	1	0	1	1
OK	4	1	19	11
OR	8	5	9	11
SD	41	7	20	29
TX	14	5	14	15
WA	50	32	44	52
18 Sts	16	6	17	16

These 18 States planted 90% of last year's winter wheat acreage.

Spring Wheat Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
ID	99	93	98	98
MN	100	100	100	96
MT	99	89	94	88
ND	97	95	98	91
SD	100	97	100	99
WA	100	96	100	99
6 Sts	99	94	98	93

These 6 States harvested 99% of last year's spring wheat acreage.

Rice Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
AR	52	52	73	48
CA	14	4	7	8
LA	95	84	92	94
MS	55	42	63	53
MO	17	40	53	26
TX	96	96	99	96
6 Sts	52	50	64	49

These 6 States harvested 100% of last year's rice acreage.

Sugarbeets Percent Harvested

	Prev Year	Prev Week	Sep 18 2016	5-Yr Avg
ID	9	6	15	7
MI	14	5	9	7
MN	14	10	12	8
ND	14	8	9	9
4 Sts	13	8	11	8

These 4 States harvested 84% of last year's sugarbeet acreage.

Crop Progress and Condition

Week Ending September 18, 2016

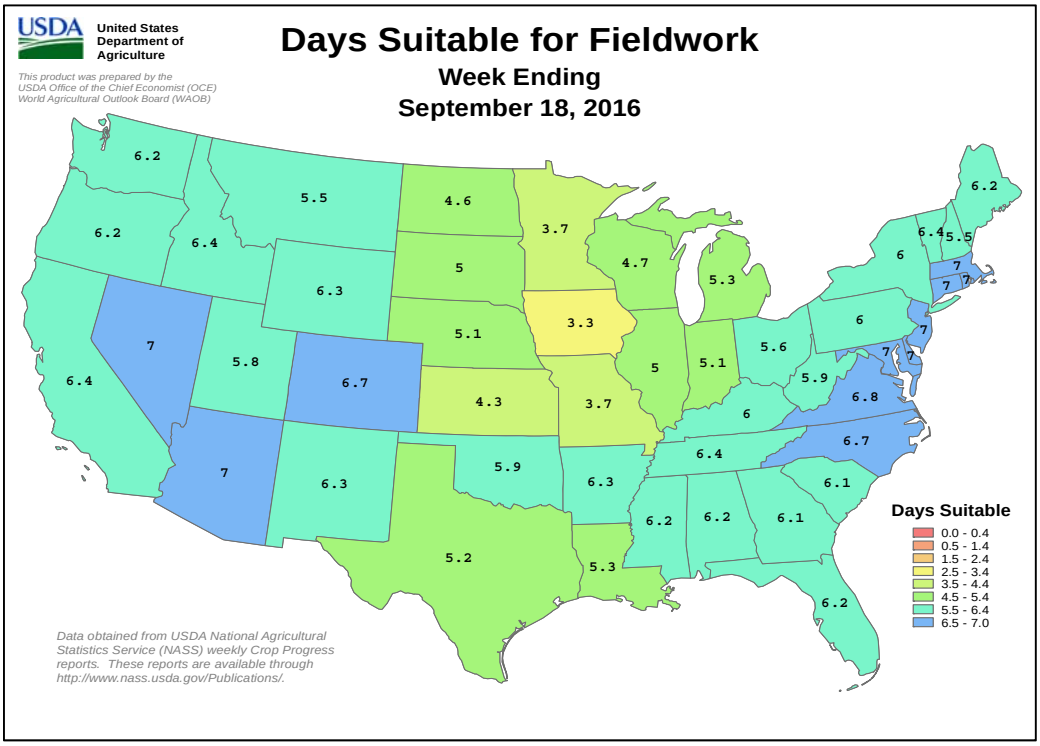
Weekly U.S. Progress and Condition Data provided by USDA/NASS

Pasture and Range Condition by Percent
Week Ending Sep 18, 2016

	VP	P	F	G	EX		VP	P	F	G	EX
AL	10	16	34	37	3	NH	40	24	36	0	0
AZ	10	14	31	35	10	NJ	2	12	45	37	4
AR	1	7	34	46	12	NM	2	20	45	29	4
CA	20	20	25	30	5	NY	5	12	39	37	7
CO	3	6	29	54	8	NC	7	25	33	30	5
CT	0	51	49	0	0	ND	5	11	28	52	4
DE	16	31	25	23	5	OH	9	17	33	36	5
FL	2	1	25	58	14	OK	2	10	39	43	6
GA	15	23	36	23	3	OR	34	22	25	16	3
ID	5	23	38	29	5	PA	21	18	38	19	4
IL	1	2	14	58	25	RI	10	50	40	0	0
IN	2	6	26	57	9	SC	4	21	27	44	4
IA	1	6	27	55	11	SD	8	18	35	37	2
KS	1	4	23	59	13	TN	9	20	36	30	5
KY	2	8	25	56	9	TX	3	8	29	44	16
LA	2	14	38	42	4	UT	4	15	39	36	6
ME	40	27	15	18	0	VT	0	35	50	15	0
MD	3	16	34	41	6	VA	10	18	37	32	3
MA	40	50	10	0	0	WA	11	17	26	42	4
MI	5	12	31	42	10	WV	11	15	29	41	4
MN	1	5	19	57	18	WI	1	4	17	52	26
MS	2	9	34	48	7	WY	13	18	30	34	5
MO	0	3	29	57	11	48 Sts	6	12	31	42	9
MT	13	21	38	23	5						
NE	3	8	25	56	8	Prev Wk	5	11	31	44	9
NV	15	20	30	35	0	Prev Yr	6	14	34	39	7

VP - Very Poor; P - Poor;
F - Fair;
G - Good; EX - Excellent

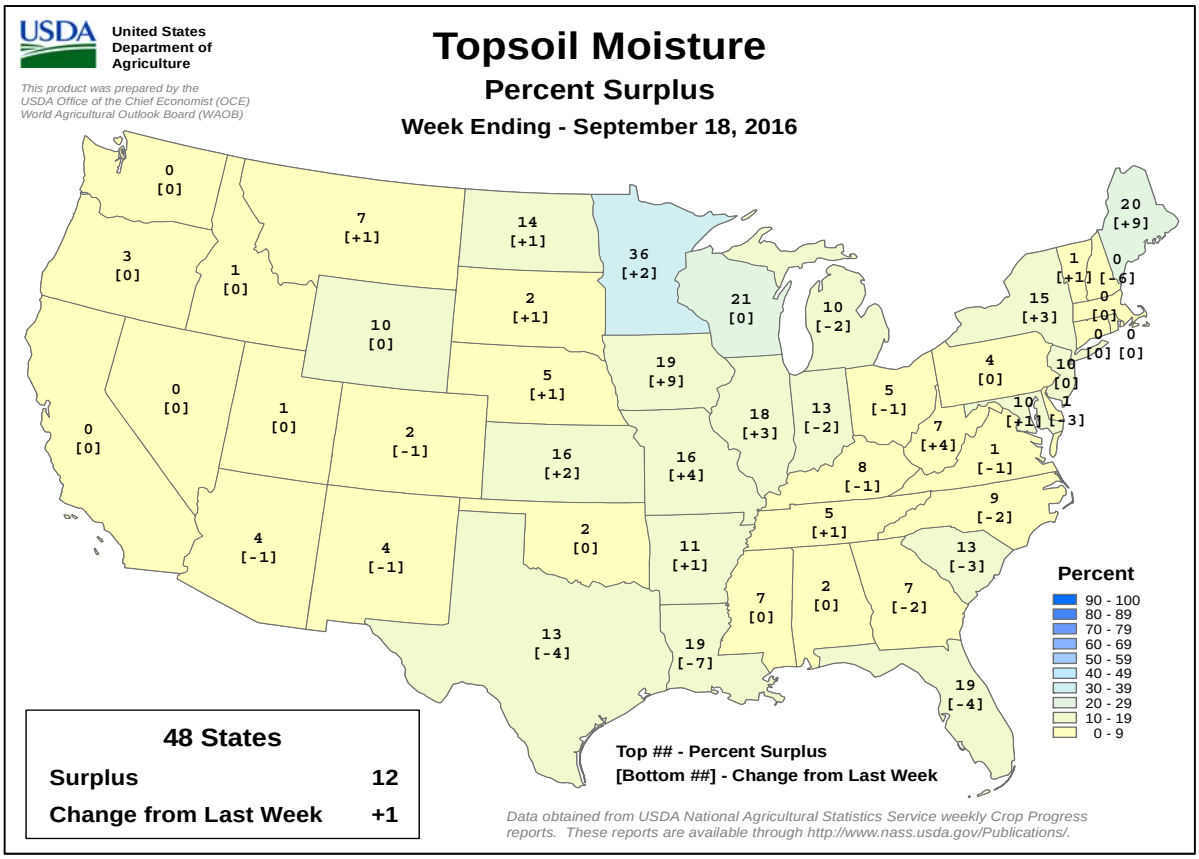
NA - Not Available
*** Revised**

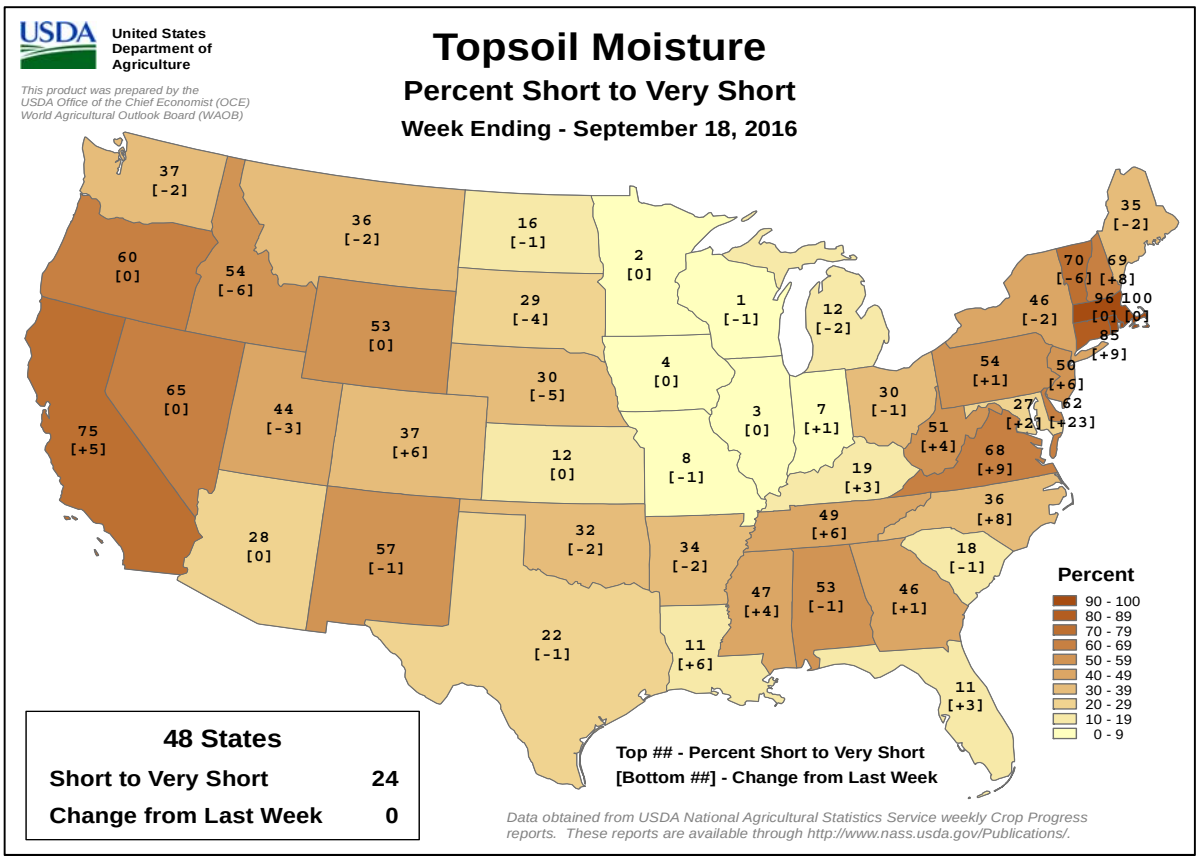


Crop Progress and Condition

Week Ending September 18, 2016

Weekly U.S. Progress and Condition Data provided by USDA/NASS

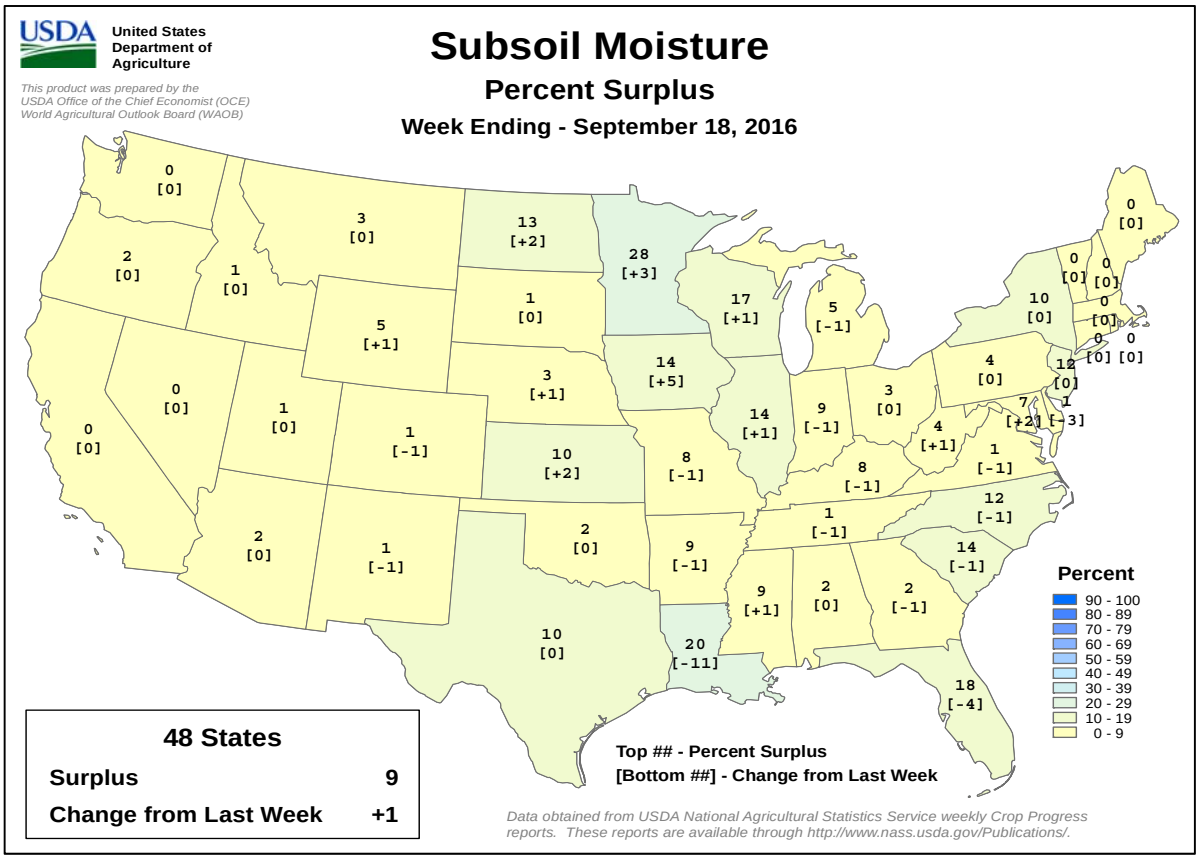


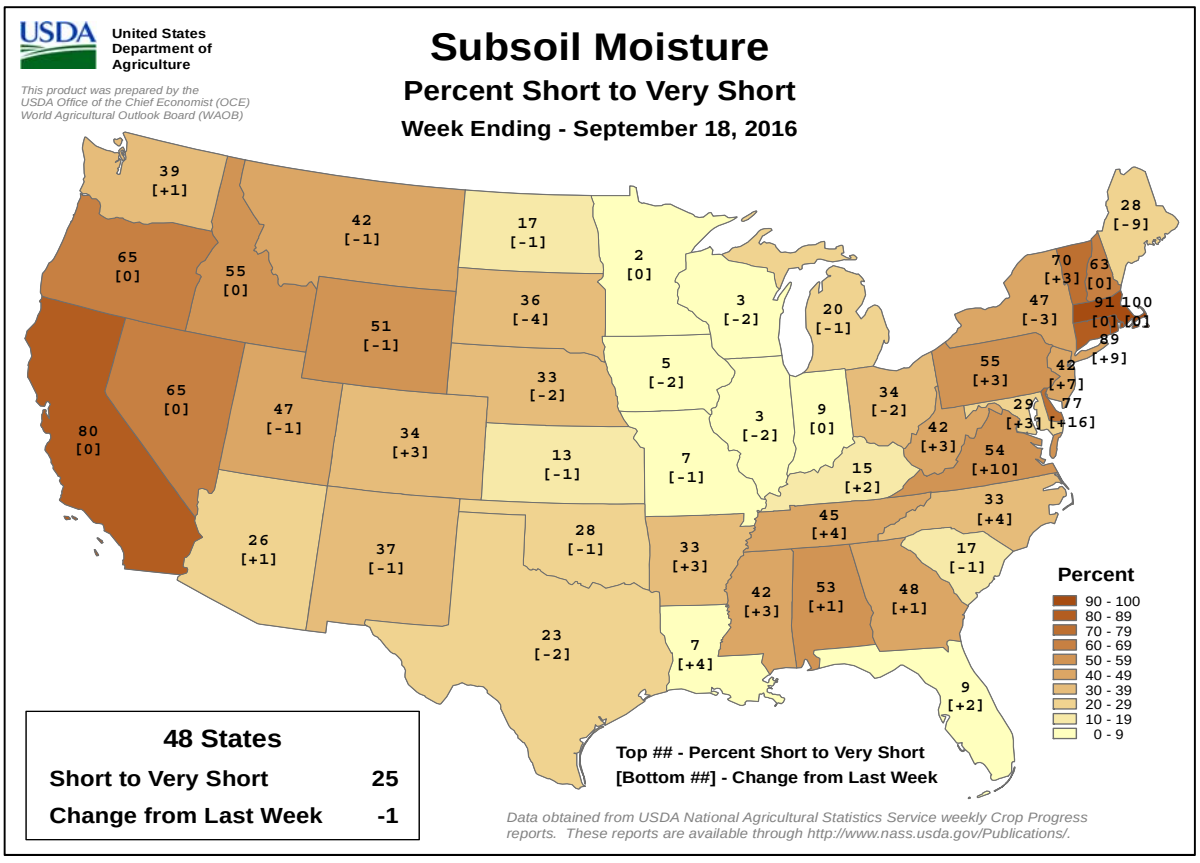


Crop Progress and Condition

Week Ending September 18, 2016

Weekly U.S. Progress and Condition Data provided by USDA/NASS





International Weather and Crop Summary

September 11-17, 2016

International Weather and Crop Highlights and Summaries provided by USDA/WAOB

HIGHLIGHTS

EUROPE: Much-needed rainfall improved soil moisture for winter crops in France and parts of Germany, while dry weather promoted a rapid pace of fieldwork over eastern Europe.

WESTERN FSU: Warm, dry weather sustained rapid summer crop harvesting and winter wheat planting.

EASTERN FSU: Showers slowed spring wheat harvesting in western portions of the region.

MIDDLE EAST: Scattered albeit locally heavy showers caused some fieldwork delays in Turkey.

SOUTH ASIA: The monsoon began withdrawing from northwestern India, bringing beneficially drier weather to saturated soybean fields.

EAST ASIA: Super Typhoon Meranti brought high winds and heavy rainfall to southern Taiwan and southeastern China.

SOUTHEAST ASIA: Seasonably heavy showers benefited reproductive rice throughout the region.

AUSTRALIA: Widespread, locally heavy rain caused some flooding and likely slowed summer crop planting but maintained overall good to excellent yield prospects for winter crops.

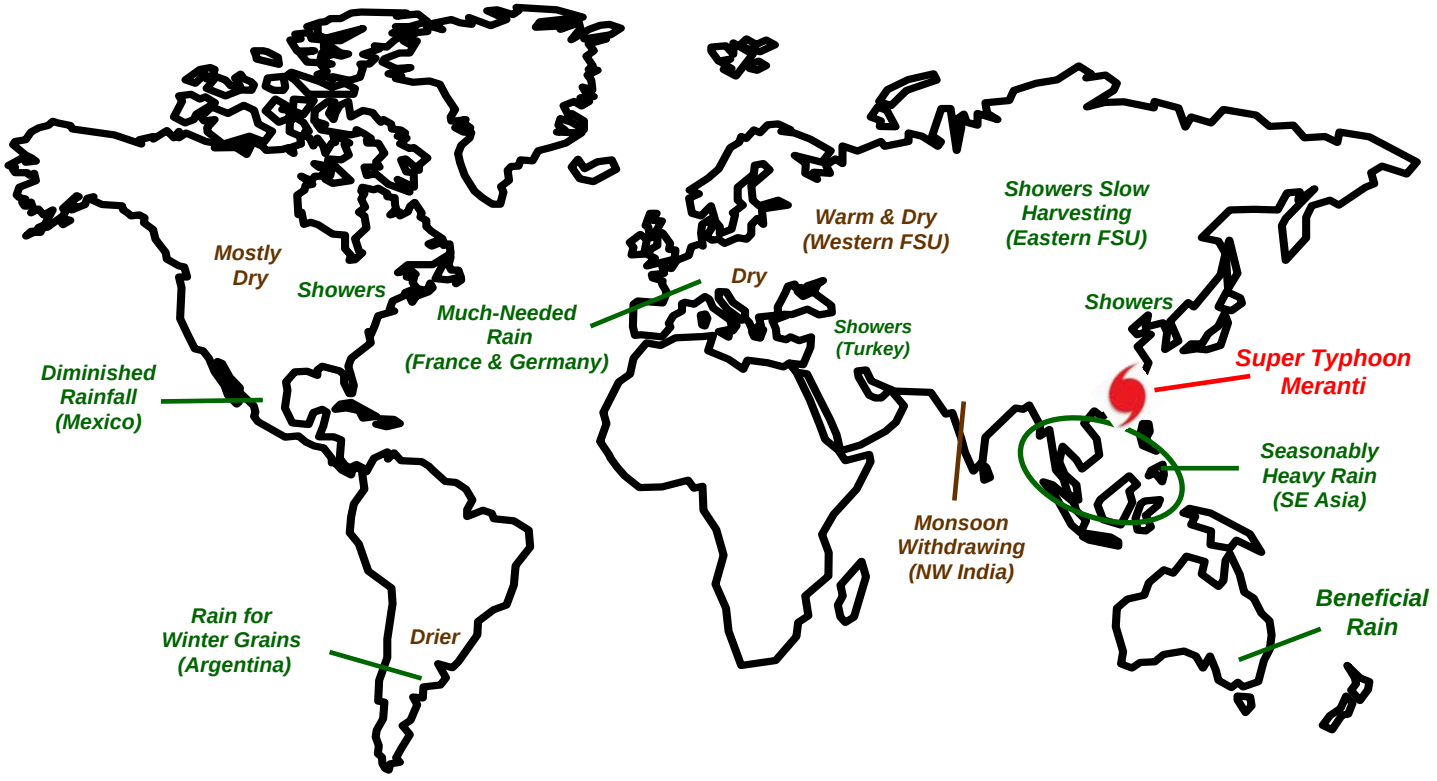
ARGENTINA: Rain boosted moisture for vegetative winter grains in key southern production areas.

BRAZIL: Favorably dry weather benefited maturing wheat.

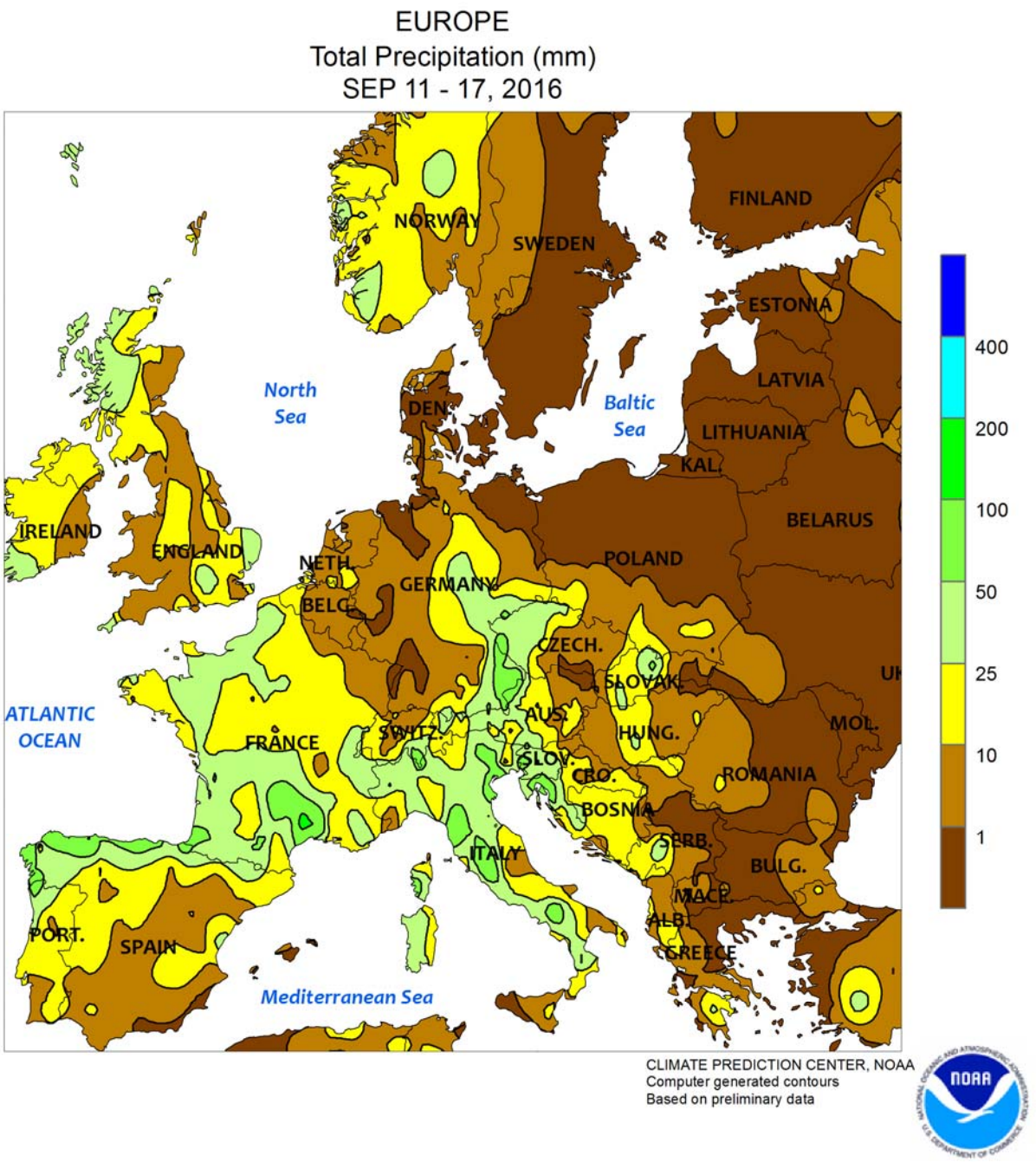
MEXICO: Showers diminished from the previous week.

CANADIAN PRAIRIES: Cool, mostly dry weather supported spring crop harvesting.

SOUTHEASTERN CANADA: Light showers provided mostly favorable levels of topsoil moisture for winter wheat germination.



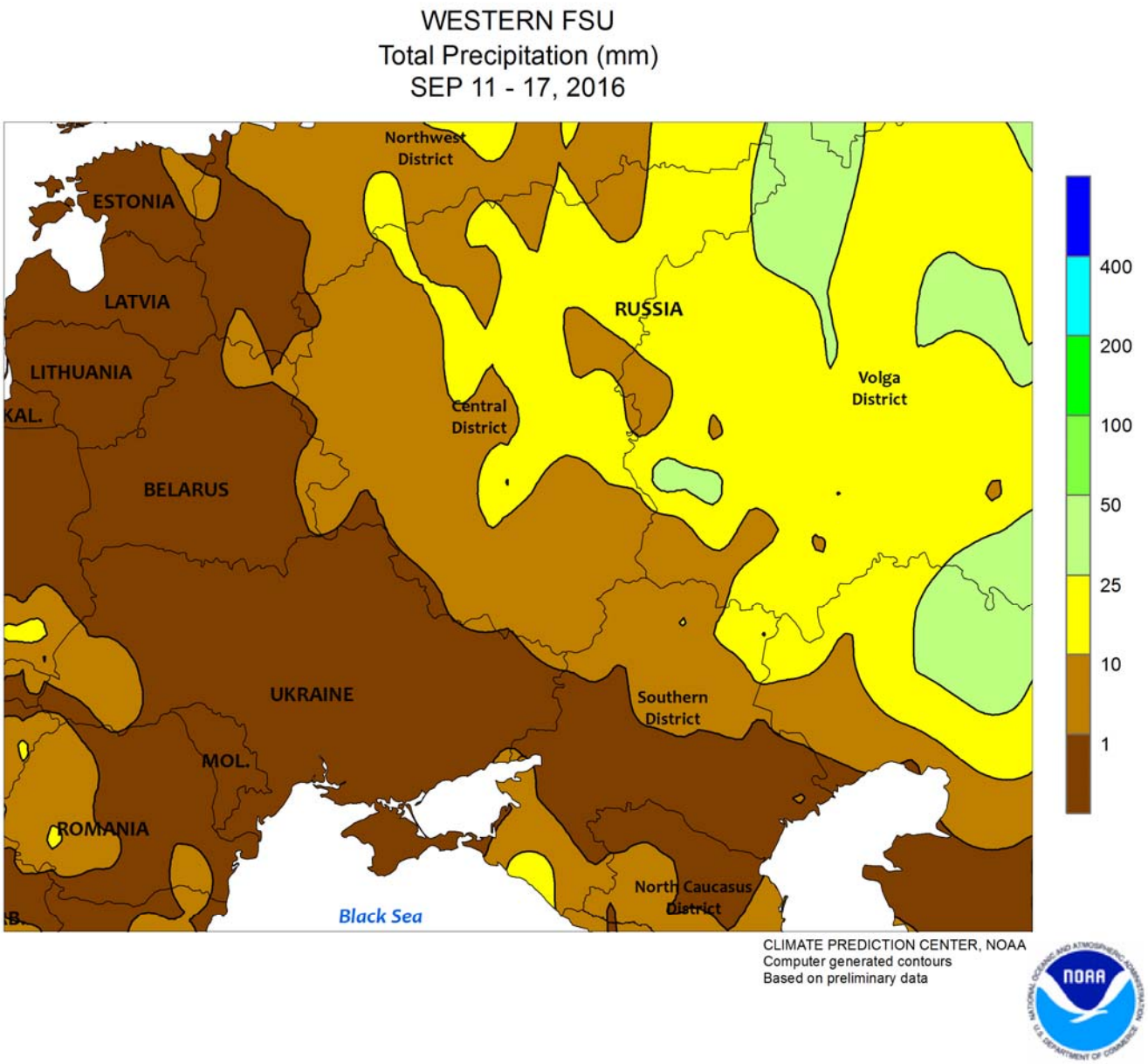
For additional information contact: mbrusberg@oce.usda.gov



EUROPE

Much-needed rain over western portions of the continent contrasted with dry weather in eastern growing areas. A slow-moving storm system produced 10 to 60 mm of rain from north-central Spain into France and England, improving soil moisture for winter crop planting and establishment. The rain was particularly beneficial in western and northern France, where a protracted dry spell since mid-July depleted soil moisture supplies. Highly variable showers (1-70 mm) were also reported in Germany, though the rain coverage and intensity was not sufficient to completely ease moisture deficits brought on by dry weather since early August. Winter rapeseed is typically planted during the latter half of August in France and Germany, and producers likely either dusted in crops or delayed sowing operations altogether due to the lack of rain. Locally heavy rainfall (20-90 mm) in Italy delayed corn harvesting but improved irrigation supplies and soil moisture for early winter wheat planting. Meanwhile, sunny, warm weather (4-7°C above normal) from the Baltic States southward into the Balkans favored small grain and summer crop harvesting. However, short-term drought continued to plague the lower Danube River Valley, further delaying winter wheat planting and establishment.

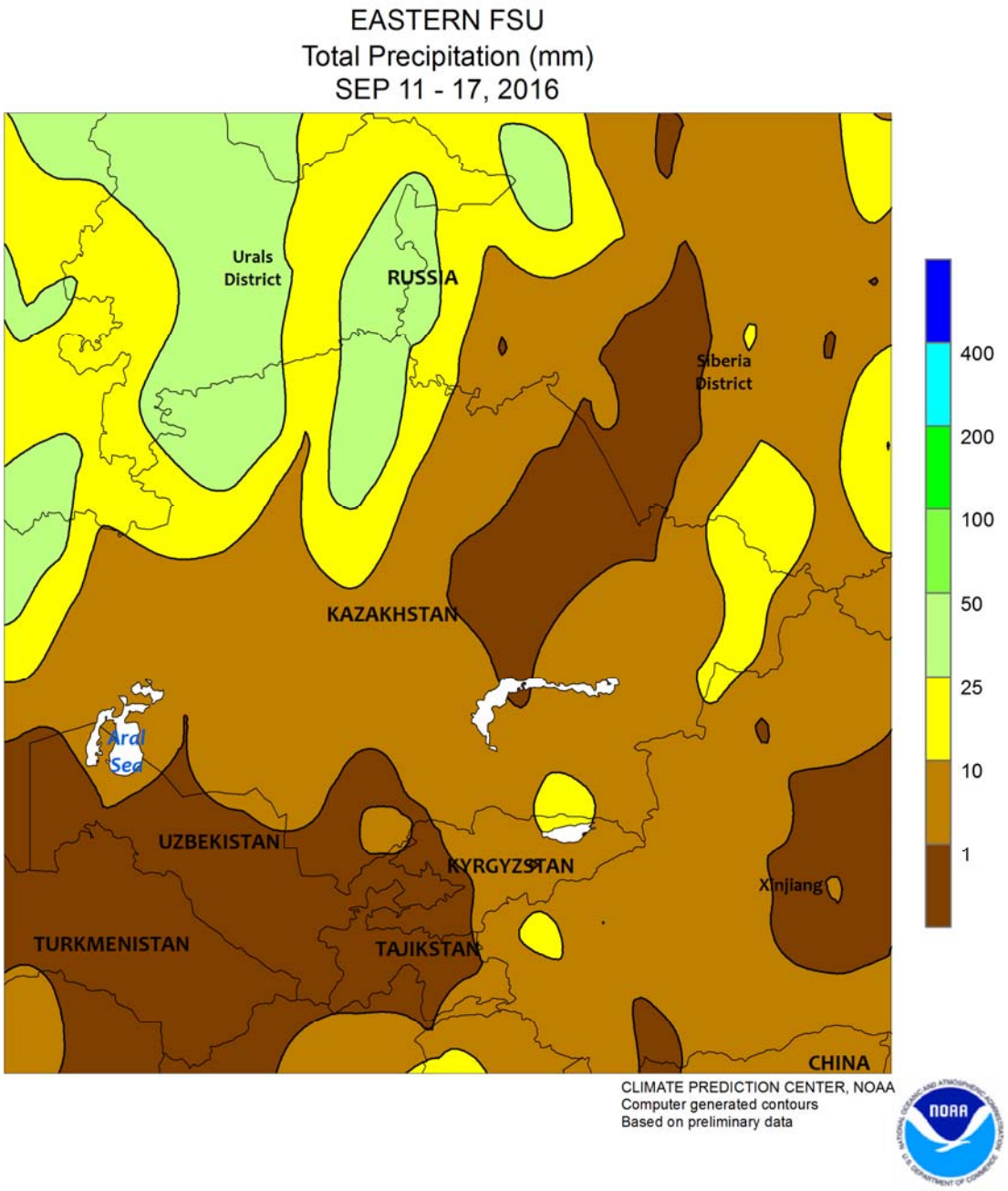
For additional information contact: mbrusberg@oce.usda.gov



WESTERN FSU

Dry, warm weather favored a rapid pace for seasonal fieldwork. Most primary growing areas received little — if any — rain during the period, promoting summer crop harvesting (corn, sunflowers, and soybeans) as well as winter wheat planting. However, for the second consecutive year, parts of Ukraine have descended into drought concurrent with winter wheat planting; key southern growing areas have reported no rain since August 25. In contrast to the intensifying short-term drought over southeastern and western Ukraine, most primary winter wheat areas in southern Russia have received near- to above-normal rainfall over the past 60 days. Farther east, 10 to 35 mm of rain improved soil moisture for winter wheat establishment in the Volga District but slowed late spring wheat harvesting.

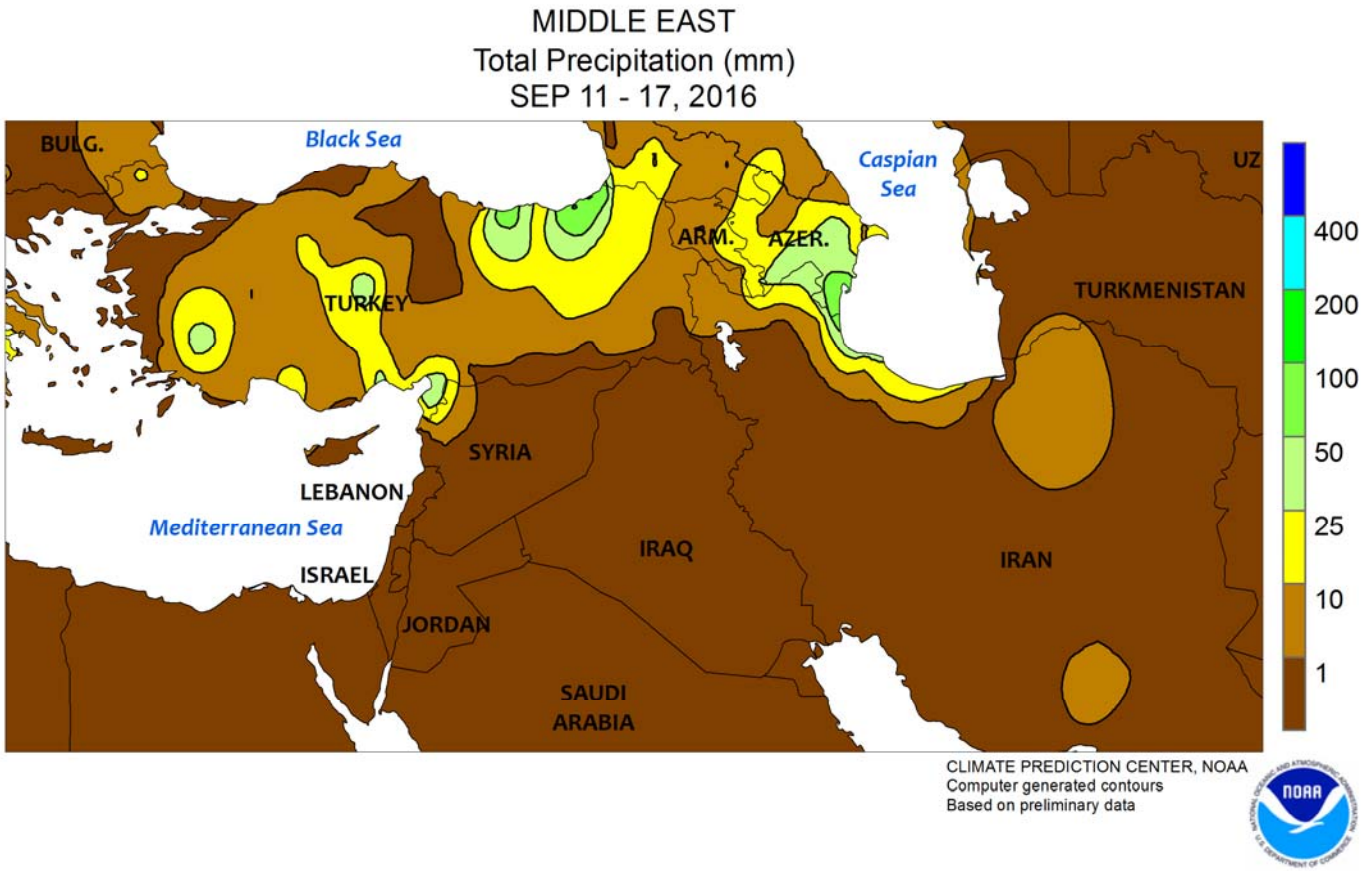
For additional information contact: mbrusberg@oce.usda.gov



EASTERN FSU

Rain slowed wheat harvesting in the west, while sunny, warm weather promoted eastern spring wheat harvesting and southern cotton maturation. Periods of rain rotated through western portions the region as a storm system remained nearly stationary west of the Urals District; weekly totals averaged 10 to 45 mm over northern Kazakhstan and neighboring portions of central Russia. The wet weather slowed or halted spring wheat drydown and harvesting, though western crop areas typically harvest in late August. In contrast, spring wheat drydown and harvesting proceeded with only local delays in Russia's Siberia District, with rain (10-18 mm) confined to southern- and eastern-most portions of the region. Farther south, seasonable warmth (30-36°C) and dryness in Uzbekistan accelerated cotton toward maturity; the cotton harvest typically begins during the latter half of September.

For additional information contact: mbrusberg@oce.usda.gov



MIDDLE EAST

Scattered, locally heavy showers in Turkey caused some fieldwork interruptions. Highly variable, unseasonable showers (5-50 mm, locally more) in Turkey caused some corn and cotton harvest delays. However, the rain was not widespread, and therefore impacts were localized and brief. The showers provided early-season moisture for winter wheat; winter grain planting will commence in mid-autumn with the arrival of cooler weather and seasonal rains.

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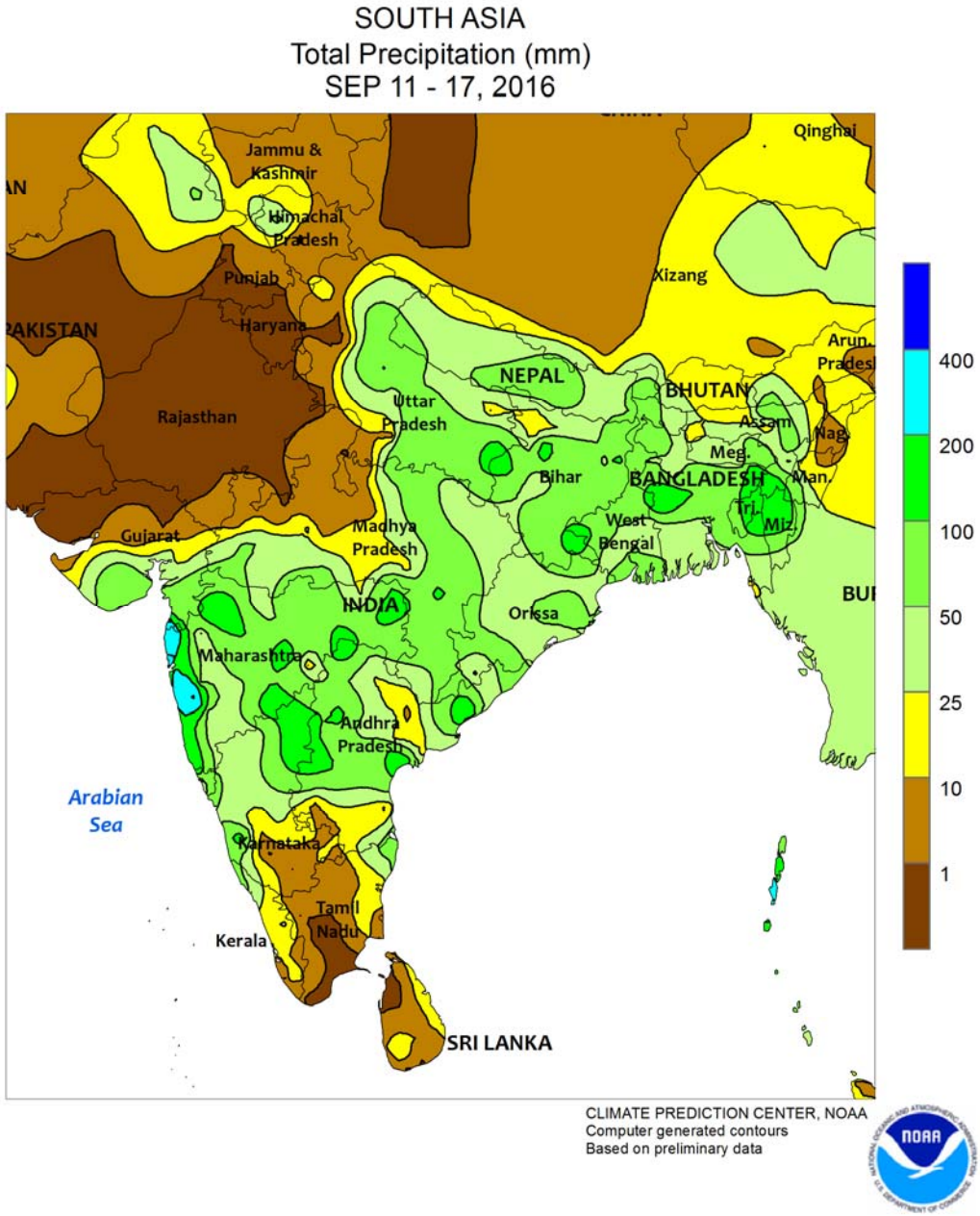

SOUTH ASIA

The summer monsoon began withdrawing from northwestern India, indicated by satellite imagery and reported by the Indian Meteorological Department. The cessation of showers was occurring, about 2 to 3 weeks later than normal. The drier conditions in Rajasthan and western Madhya Pradesh eased excessive wetness for soybeans and improved field conditions, but likely came too late to improve yields. Meanwhile, showers (25-100 mm) continued across the remainder of India, keeping rice in the east adequately watered and improving soil moisture for cotton in Maharashtra and southern Gujarat. In other parts of the region, showers benefited rice in Bangladesh, with dry weather aiding rice harvesting in Sri Lanka as well as maturing rice and cotton in Pakistan.

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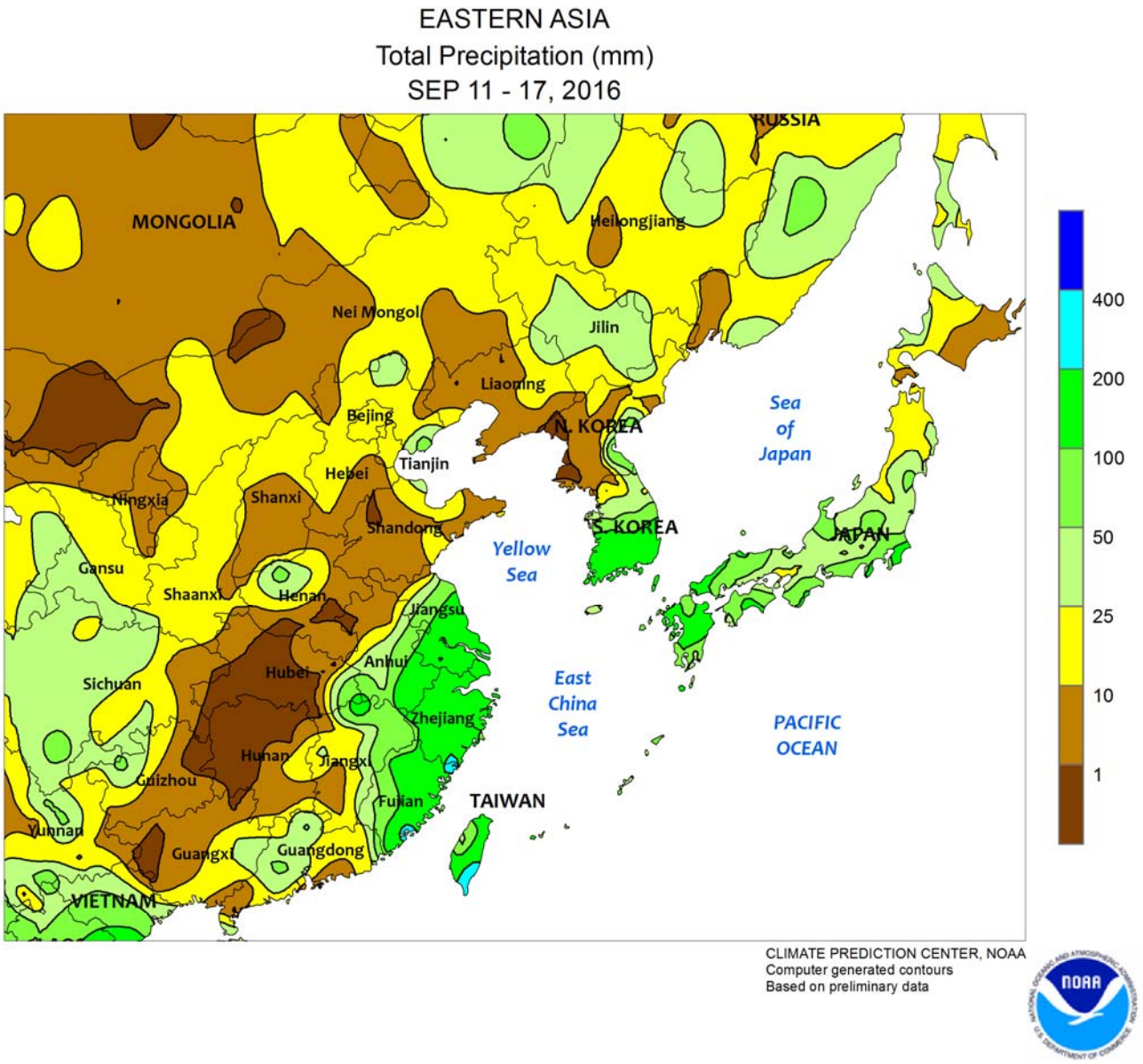

EASTERN ASIA

Super Typhoon Meranti skimmed the southern tip of Taiwan during the middle part of the week, bringing high winds and localized flooding. Meranti's peak sustained winds reached 165 knots and diminished rapidly after passing by Taiwan. Landfall occurred in southeastern China (Fujian) with winds estimated at 90 knots or more. Nearly 300 mm of rain were reported in southern Taiwan and over 200 mm in parts of southeastern China (amounts between 100-200 mm were more common). In addition, showers (over 100 mm) related to Meranti's remnants were reported in South Korea and much of southern Japan. The impact on agriculture in Taiwan was likely negligible given the path of the storm, while the showers in China were likely beneficial to immature late-crop rice. Following a similar path, Typhoon Malakas was approaching southeastern Taiwan by the end of the period (more information will appear in next week's *Weekly Weather and Crop Bulletin*). Meanwhile in other parts of the region, dry weather on the North China Plain and in the central Yangtze River Basin aided cotton and other summer crop harvesting. Though, corn was in the latter stages of reproduction on the North China Plain and would benefit from more rainfall. In northeastern China, showers (10-25 mm or more) increased water supplies depleted by summer drought but were generally unwelcome for maturing corn and soybeans.

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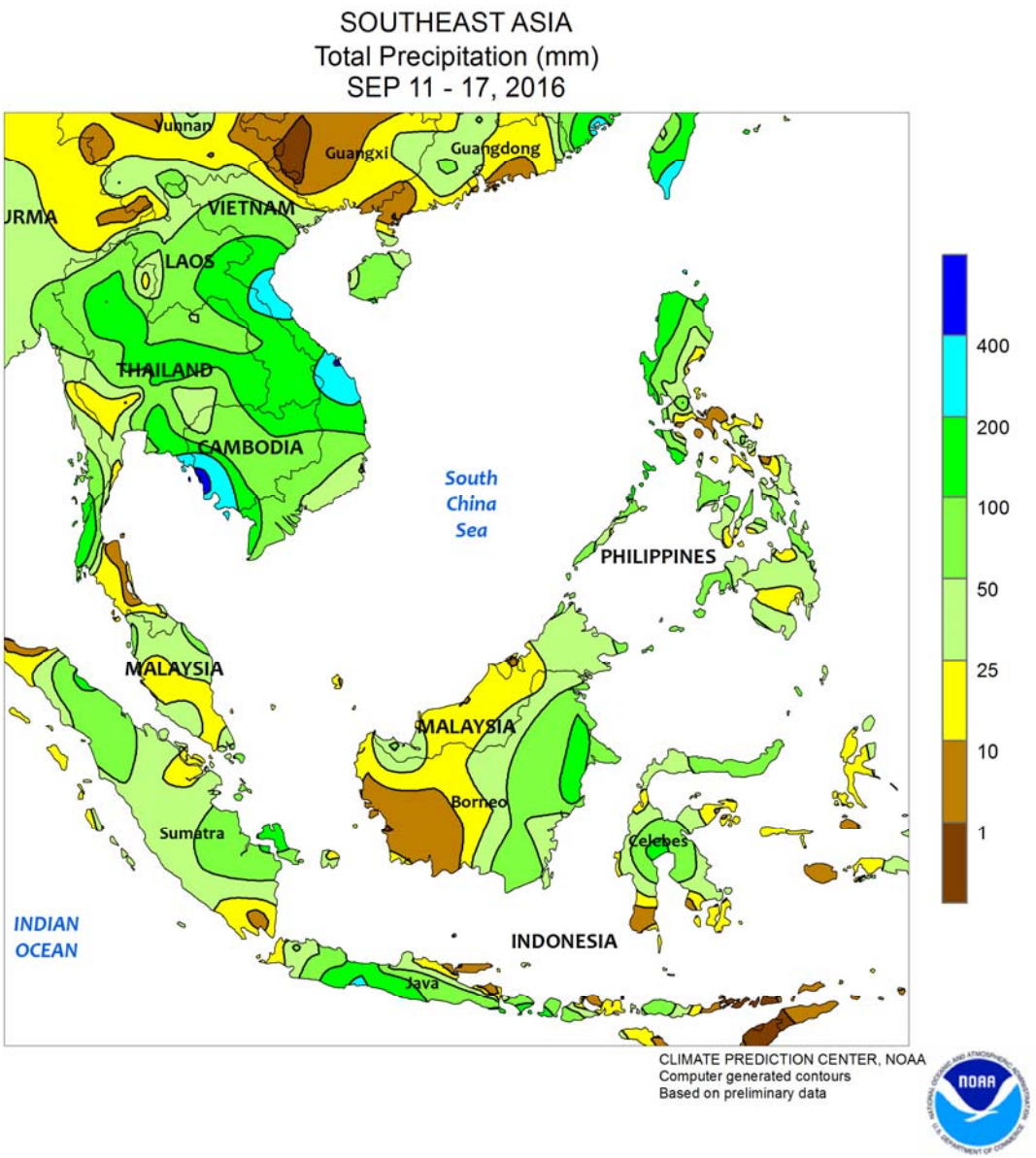

SOUTHEAST ASIA

The seasonal transition of the Intertropical Convergence Zone (ITCZ) southward enhanced monsoon showers across Thailand and environs as well as throughout much of the Philippines. Rainfall totals surpassing 50 mm (locally over 200 mm) kept water supplies adequate to abundant for reproductive rice in Thailand, Laos, Cambodia, and the Philippines while also benefiting vegetative winter rice in Vietnam. Seasonal rainfall typically peaks in September which represents the wettest month in many locales. In southern sections of the region, showers (25-50 mm or more) in oil palm areas of Malaysia and Indonesia maintained favorable short-term soil moisture without causing major harvest delays.

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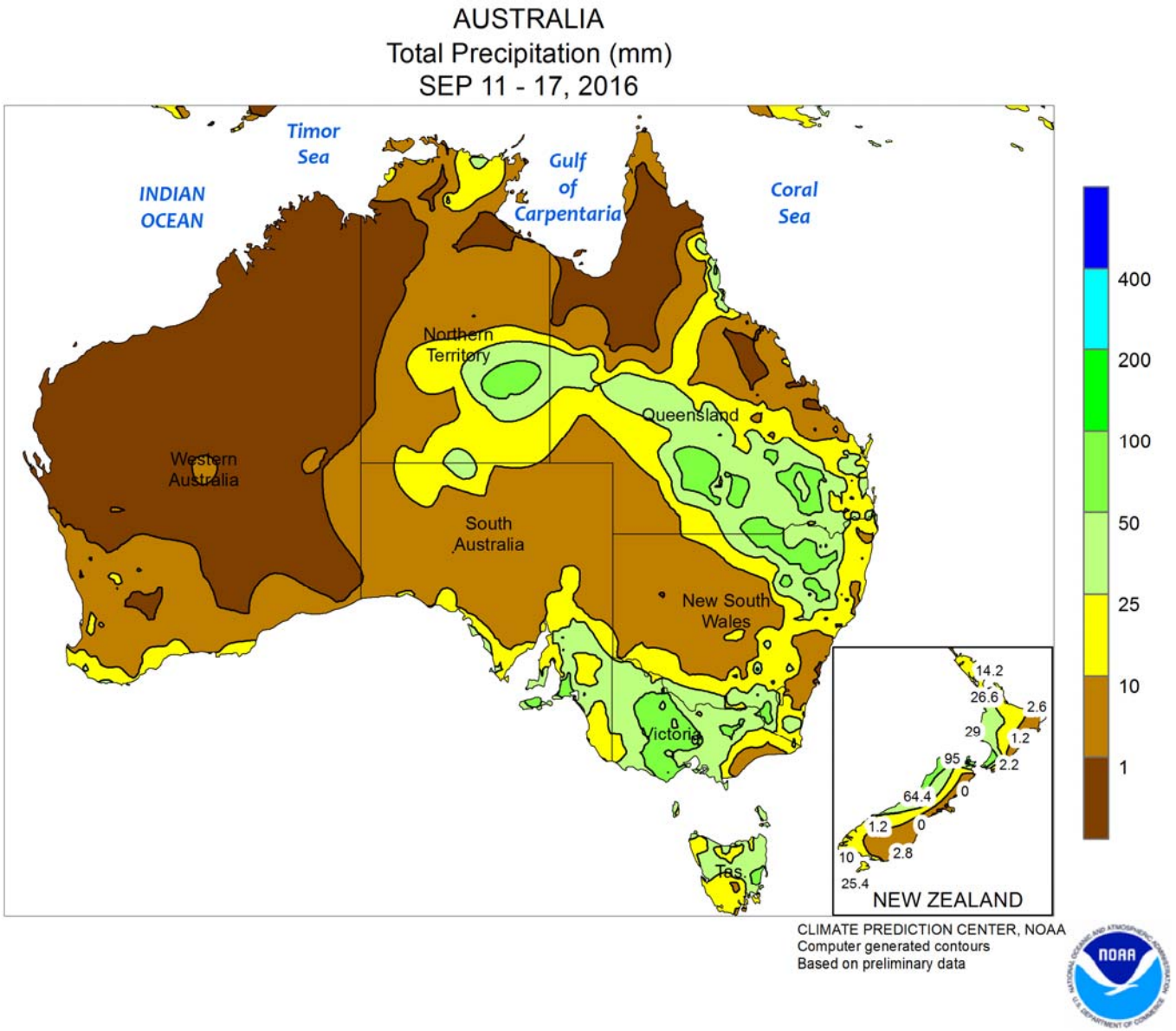
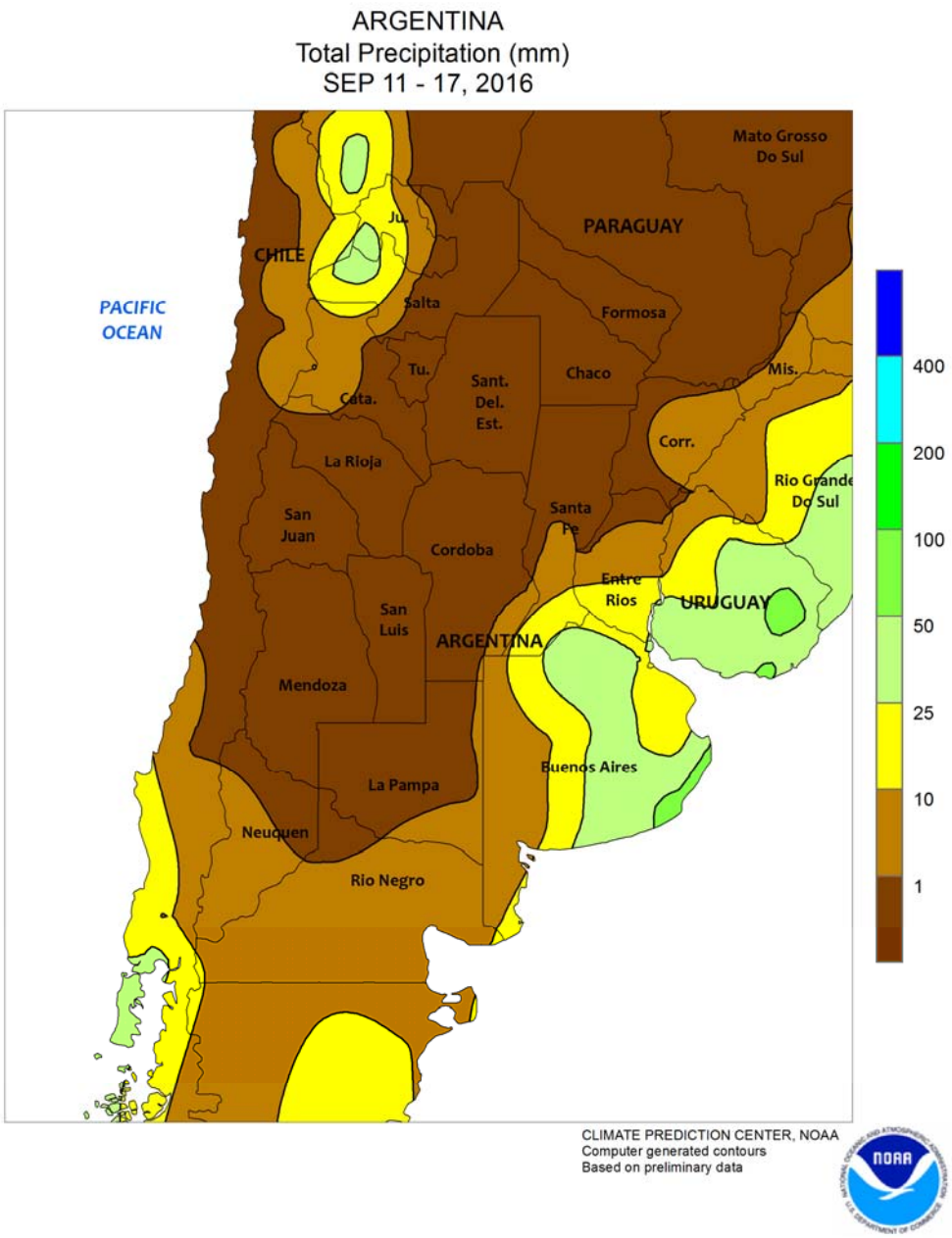


AUSTRALIA

Widespread rain in southern and eastern Australia maintained abundant to locally excessive soil moisture for winter grains and oilseeds. The heaviest rain (25-100 mm or more) fell in southeastern South Australia, Victoria, northeastern New South Wales, and southern Queensland. The heavy rain caused local flooding and likely slowed summer crop planting, but maintained overall good to excellent yield prospects for the majority of winter crops. The persistent wetness has reportedly raised concerns about crop quality as winter grains and oilseeds advance toward the latter stages of development. However, the bulk of winter crop harvesting is typically completed in November and December, suggesting that final crop quality will likely not be determined for several more weeks. Winter wheat is generally in the filling stage of development in southern Queensland and northern New South Wales and mostly in the reproductive stages of development in southeastern Australia. Elsewhere in the wheat belt, scattered showers in Western Australia benefited winter grains and oilseeds, but isolated sub-freezing temperatures (as low as -3°C) during the morning of September 17 may have trimmed local yield prospects for flowering wheat and other reproductive winter crops. For the week as a whole, temperatures averaged 2 to 3°C below normal in Western Australia and near normal in southern and eastern sections of the wheat belt.

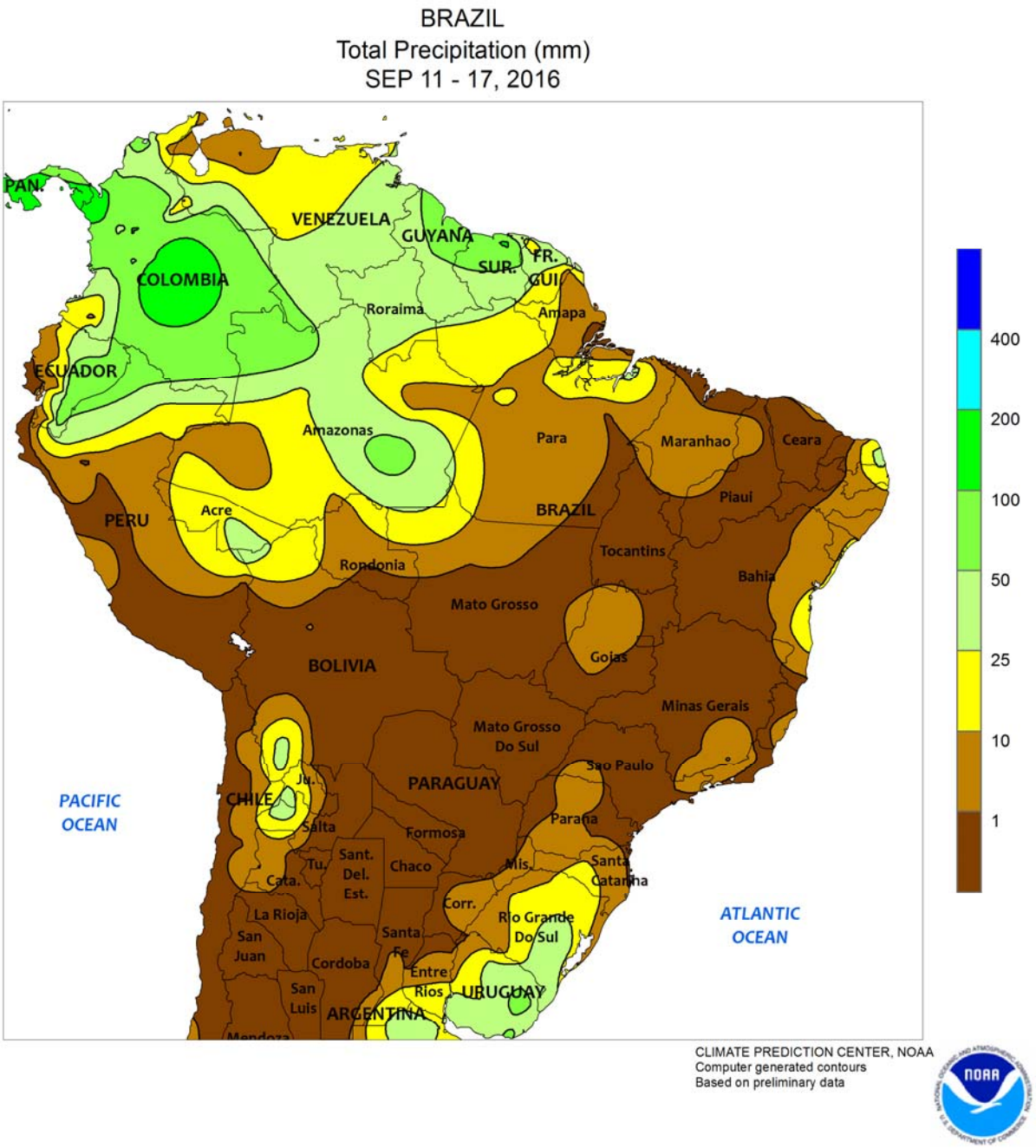
For additional information contact: mbrusberg@oce.usda.gov



ARGENTINA

Showers boosted moisture for winter grains in key southern production areas. Rainfall totaled 10 to 50 mm over the eastern two-thirds of Buenos Aires, including important production areas in the southeastern part of the province (the delegations of Tandil and Tres Arroyos). The rain extended northward into farmlands of the lower Parana River Valley (southern Entre Rios and neighboring areas of southern Santa Fe and northern Buenos Aires). Dry weather dominated the remainder of Argentina, favoring the late stages of corn harvesting. Weekly temperatures averaged 1 to 3°C above normal throughout major agricultural districts of central and northern Argentina, with daytime highs reaching the middle and upper 30s (degrees C) north and eastward of Santiago del Estero. Sub-freezing nighttime lows were generally confined to traditionally cooler locations of southern Buenos Aires. According to Argentina's Ministry of Agriculture, corn and soybeans were 97 percent harvested as of September 15 compared with 100 percent last year.

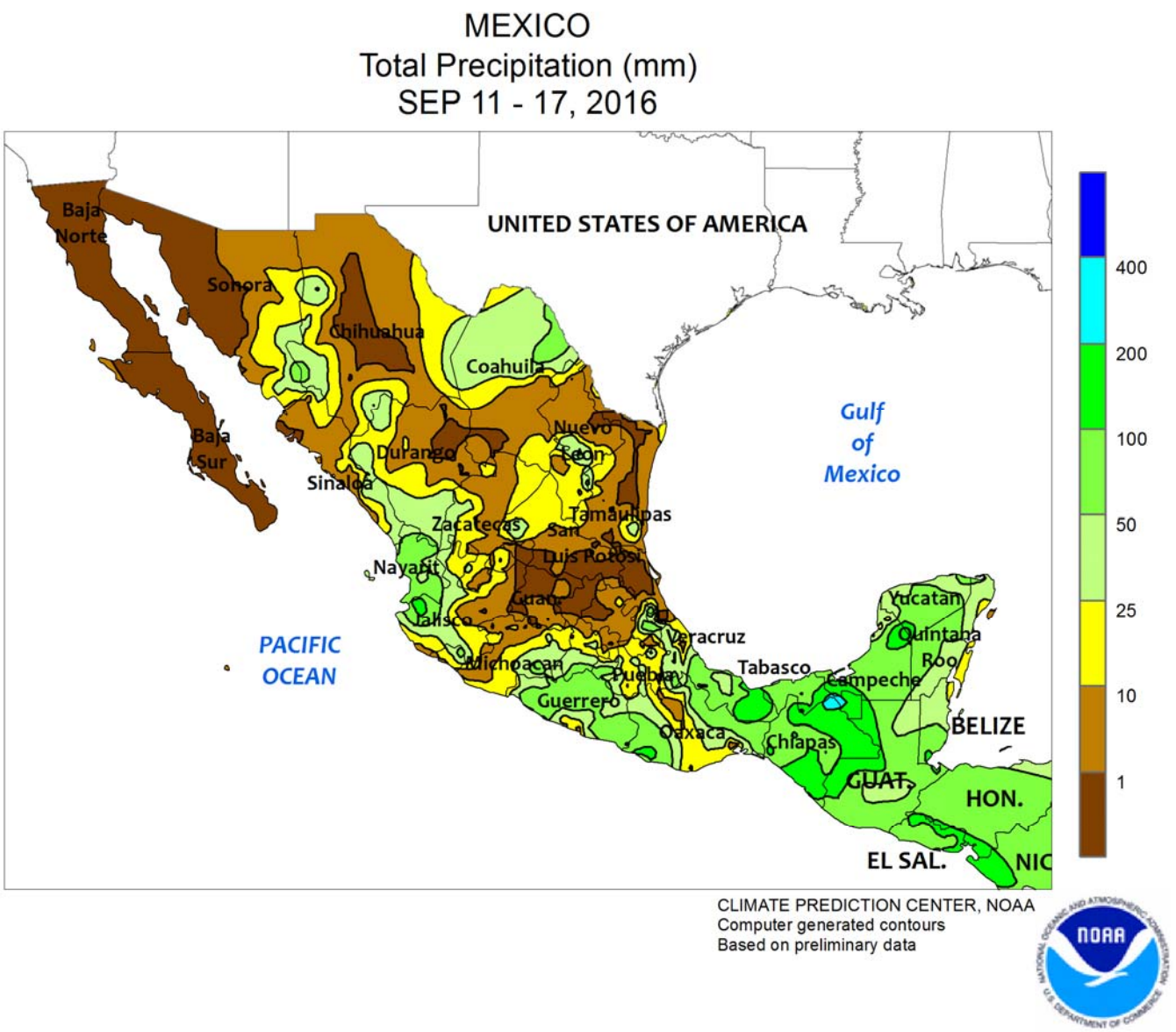
For additional information contact: mbrusberg@oce.usda.gov



BRAZIL

Warm, mostly dry weather benefited maturing wheat after several weeks of unseasonable wetness. Rainfall totaling more than 10 mm was confined to southern farming areas of Rio Grande do Sul. According to reports emanating from Brazil, harvesting was underway in northern production areas (notably Parana, Brazil's largest wheat producer), with a significant portion of the remaining crop in filling to maturing stages. However, crops were farther behind in development in Rio Grande do Sul, traditionally Brazil's number 2 producer. The dryness also favored harvesting of sugarcane and coffee in key production areas of the southeast (Sao Paulo, Minas Gerais, and Espirito Santo). Drier weather continued in most central and northeastern interior production areas (Mato Grosso eastward to western Bahia and environs) as farmers await the start of the rainy season to begin planting corn and soybeans in volume. An exception was in northern Mato Grosso, which recorded light to moderate showers (rainfall totaling 10-25 mm, with locally higher amounts). Weekly temperatures averaged 2 to 4°C above normal throughout Brazil, with daytime highs approaching 40°C from Mato Grosso to Piaui, maintaining high evaporative losses and limiting opportunities for early corn and soybean planting.

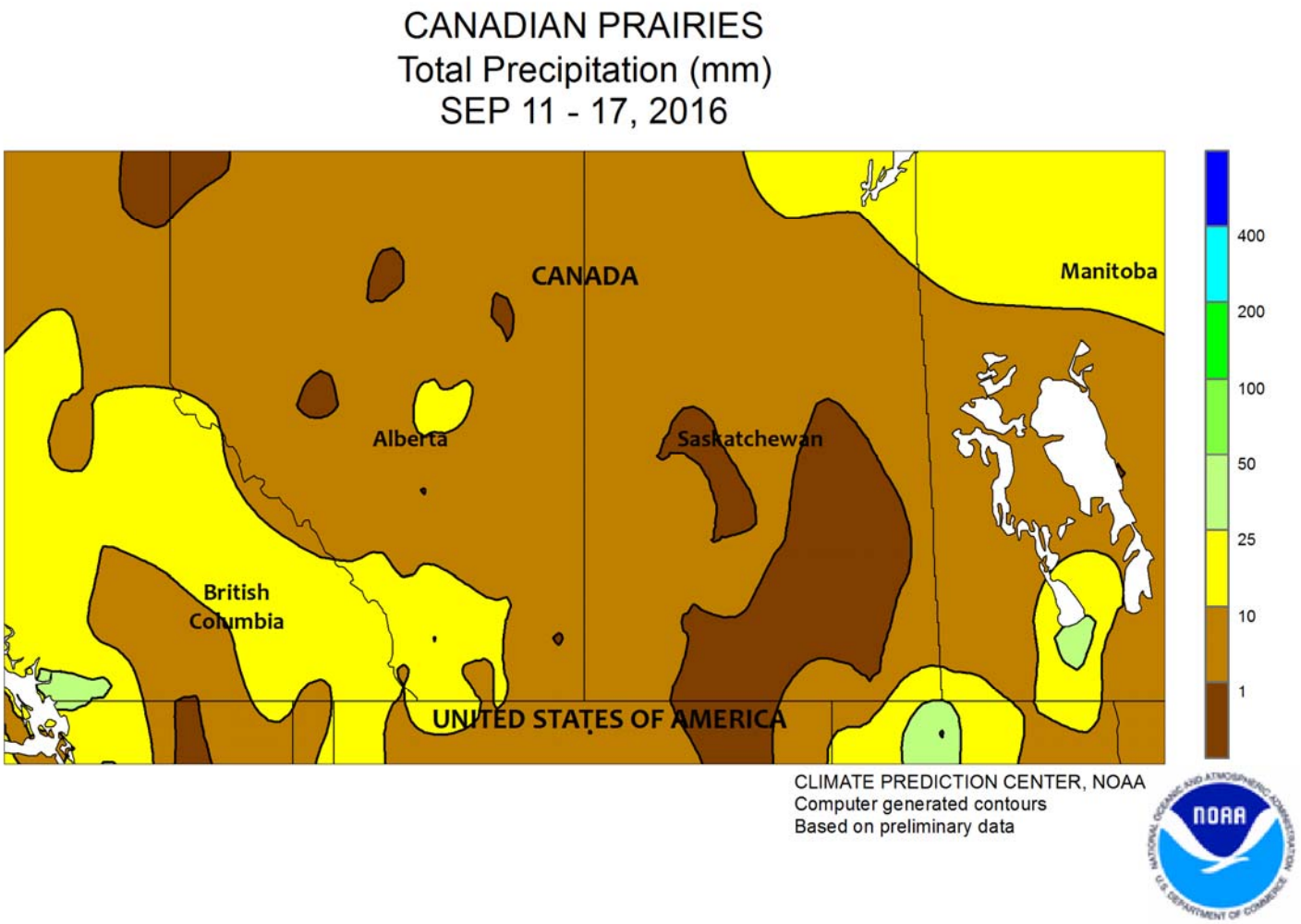
For additional information contact: mbrusberg@oce.usda.gov



MEXICO

Seasonal rainfall diminished in most regions. In the north, showers were generally scattered and light (locally exceeding 25 mm), providing a late-season boost to local watersheds. Above-normal temperatures (daytime highs in excess of 35°C) maintained high moisture demands of northeastern crops and livestock. At week's end, however, Tropical Storm Paine was positioned off the western coast, providing an influx of tropical moisture that generated showers in western vegetable areas in and around Nayarit (additional information will appear in next week's *Weekly Weather and Crop Bulletin*). Elsewhere, showers also tapered off over the southern plateau (Jalisco to Puebla), with many locations recording less than 10 mm. In contrast, locally heavy rain (greater than 25 mm) continued along the southern Pacific Coast (Michoacan to Oaxaca), with heavier rain (50-100 mm, locally higher) in the southeast, from southern Veracruz and Chiapas northeastward through the Yucatan Peninsula.

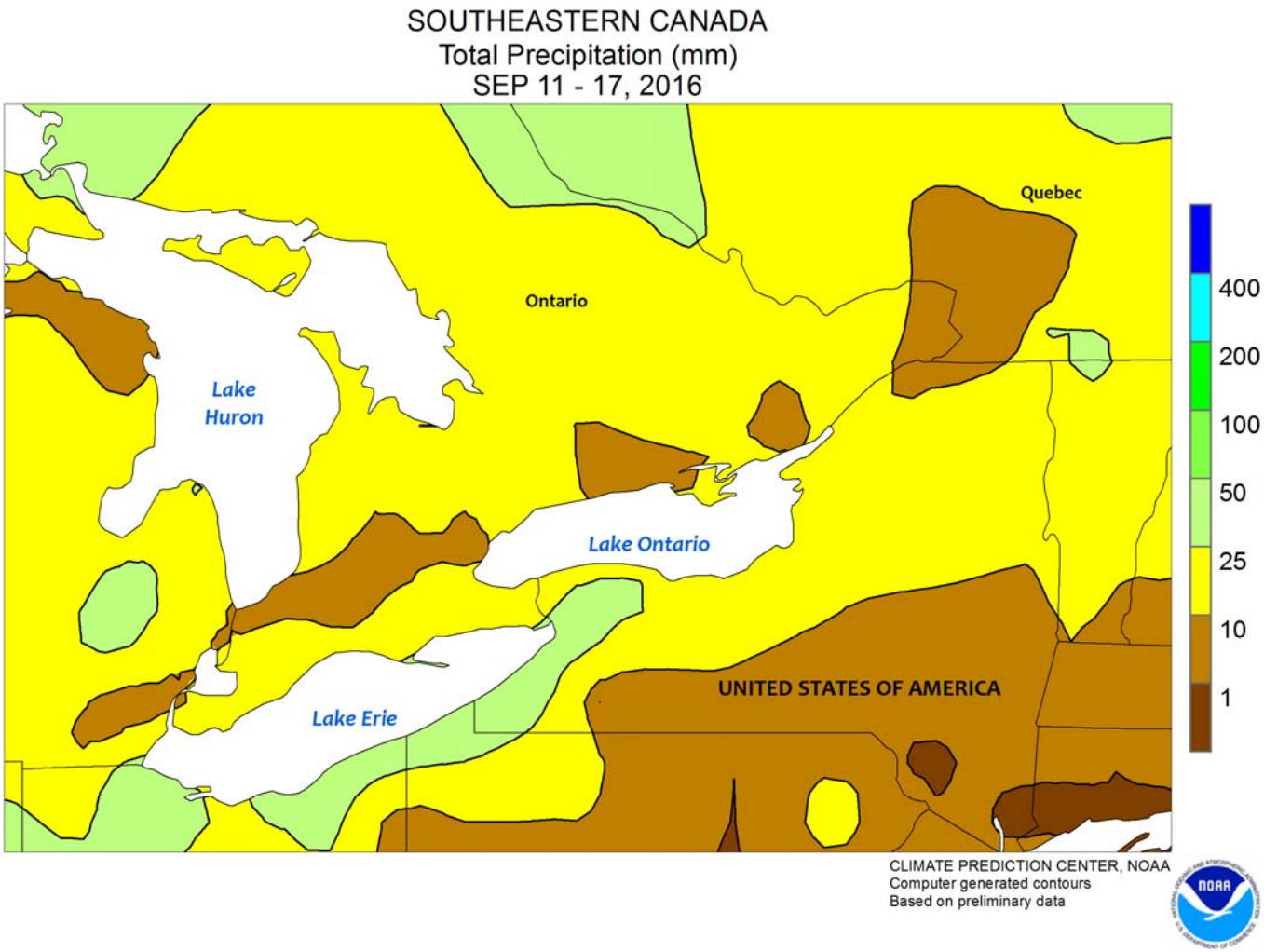
For additional information contact: mbrusberg@oce.usda.gov



CANADIAN PRAIRIES

Mostly dry weather supported fieldwork in most agricultural districts. Significant rainfall (greater than 10 mm) was generally confined to the southeast (southern Manitoba and neighboring locations in Saskatchewan) and parts of Alberta. Weekly temperatures averaged near to slightly below normal across the southern Prairies and slightly above normal in outlying eastern and northwestern farming areas. Nighttime lows fell below freezing across large parts of the southern Prairies, aiding drydown of maturing spring grains and oilseeds but coming too late to cause damage; the first autumn freeze typically occurs in late August or early September, depending on the locale. Meanwhile, daytime highs reaching the lower and middle 20s (degrees C) fostered maturation of spring crops.

For additional information contact: mbrusberg@oce.usda.gov

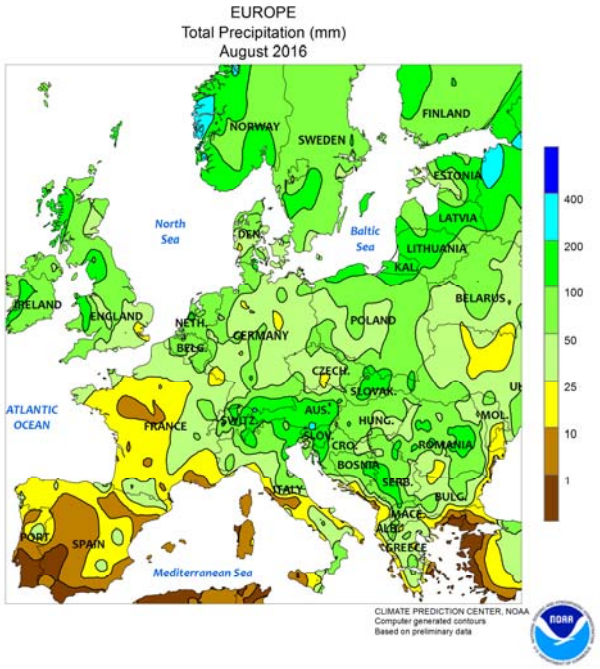


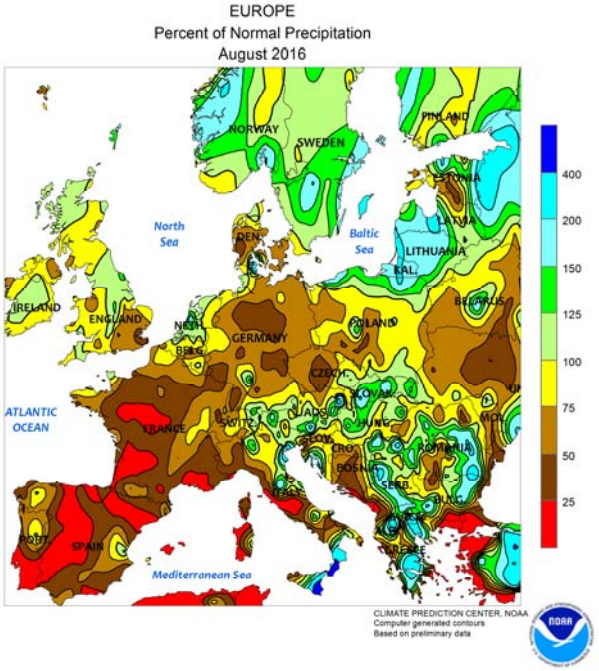
SOUTHEASTERN CANADA

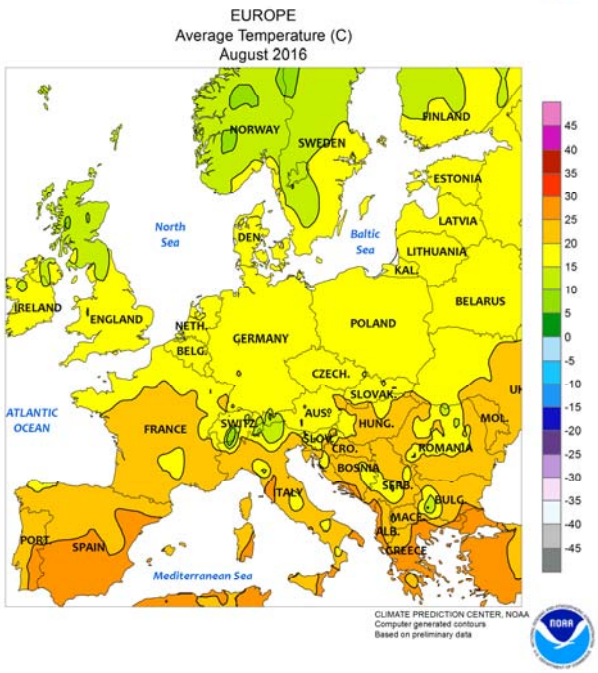
Light showers accompanied seasonal warmth across the region. Although generally light (5-25 mm), the rainfall provided a timely boost in moisture for germinating winter wheat. Meanwhile, weekly temperatures averaged within 1°C of normal at most locations, with daytime highs reaching more seasonable levels (lower to middle 20s degrees C) than in recent weeks. Nighttime lows fell below 5°C on several mornings in Quebec and Ontario's eastern agricultural districts, though no widespread freeze was recorded.

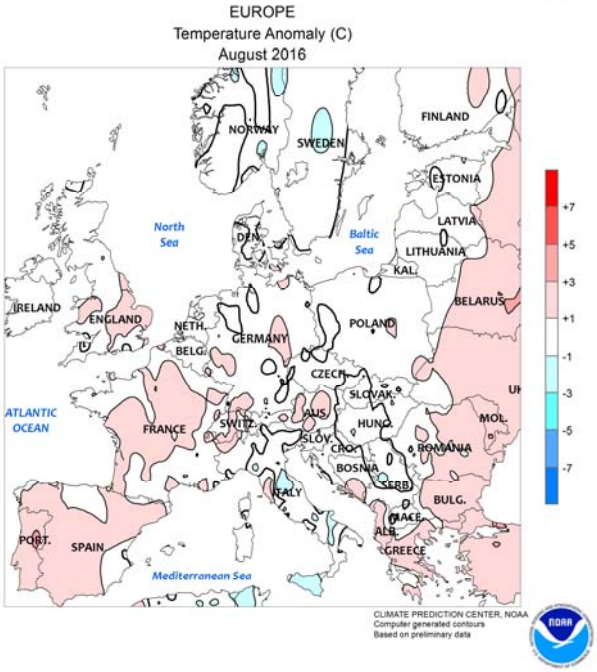
For additional information contact: mbrusberg@oce.usda.gov

August International Temperature and Precipitation Maps





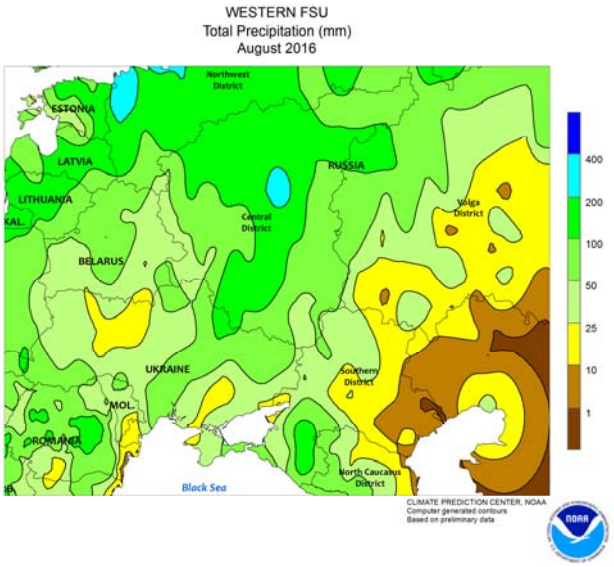


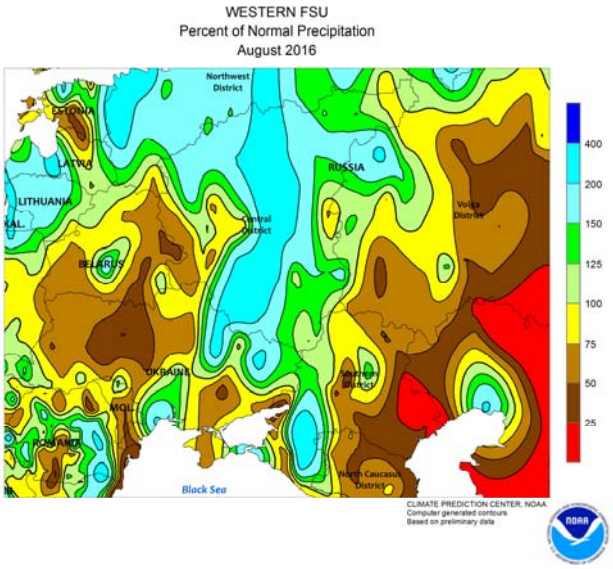


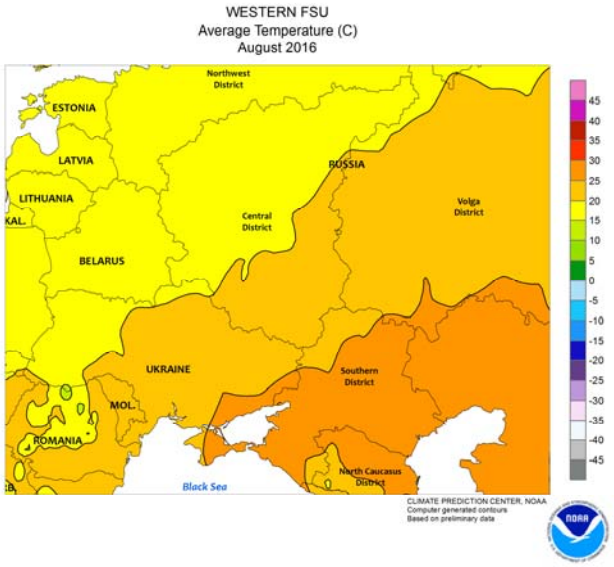
EUROPE

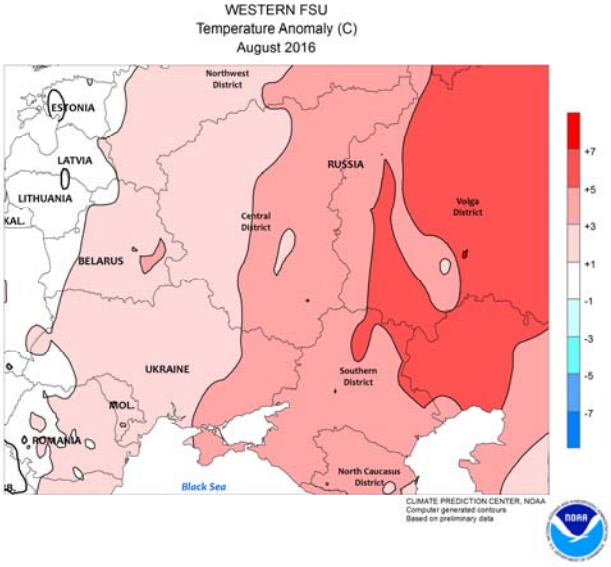
Warm, dry weather during August promoted late winter crop harvesting as well as summer crop drydown over much of the continent. However, dry, hot conditions in Spain and France reduced soil moisture for winter crop planting and trimmed prospects for late-filling corn and sunflowers; rainfall during the month totaled less than 30 percent of normal, with daytime highs routinely eclipsing 35°C during the latter half of the month. Showers (35-70 mm) in northern Italy and the lower Balkans improved topsoil moisture for winter wheat planting while improving prospects for late-filling corn, soybeans, and sunflowers; however, impacts of this summer's localized drought lingered in southern Romania and northern Bulgaria, as depicted in satellite-derived vegetation health imagery. In contrast, periods of rain in far northern Europe slowed fieldwork but benefited filling small grains.

For additional information contact: mbrusberg@oce.usda.gov





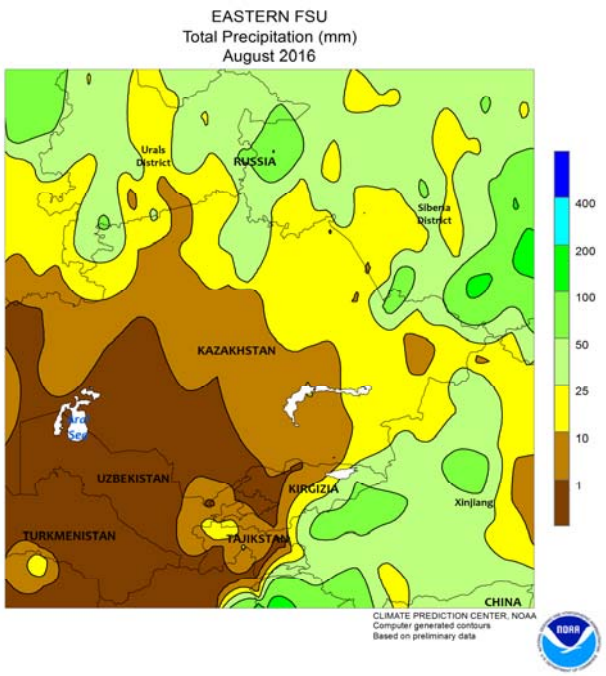


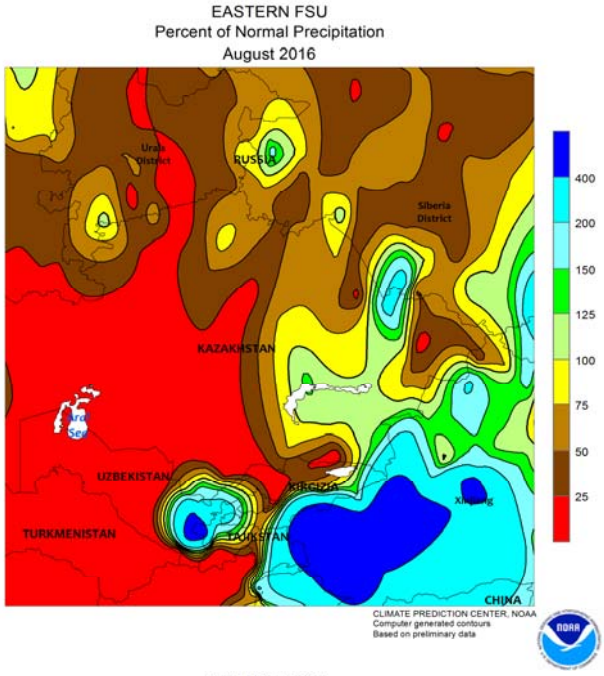


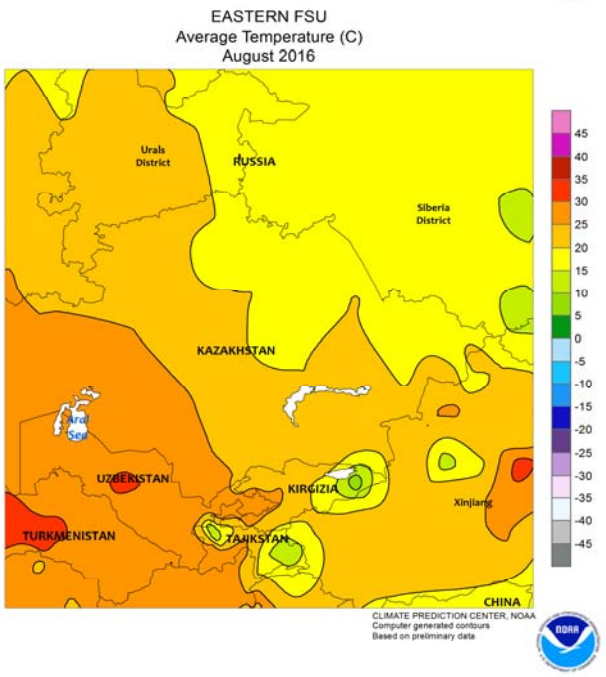
WESTERN FSU

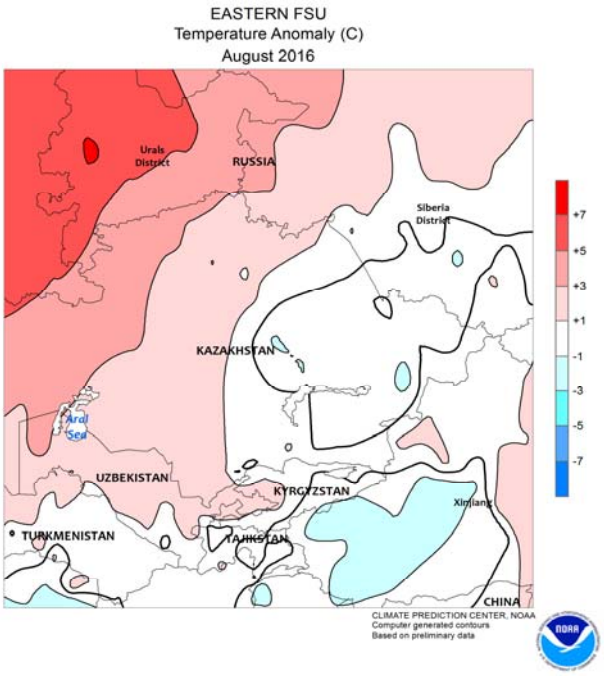
In August, drier- and warmer-than-normal weather trimmed yields for late-reproductive to filling summer crops but facilitated final winter wheat harvesting. Nevertheless, corn and sunflower prospects remained overall favorable due to abundant spring and early-summer rainfall despite the occasional heat (as high as 38°C). However, locally heavy showers (100 mm or more) were observed in parts of western and southern Russia, which helped ensure sufficient moisture supplies for winter wheat planting. In contrast, soil moisture remained in short supply for filling summer crops in western and southeastern Ukraine, with monthly rainfall averaging locally less than 40 percent of normal.

For additional information contact: mbrusberg@oce.usda.gov



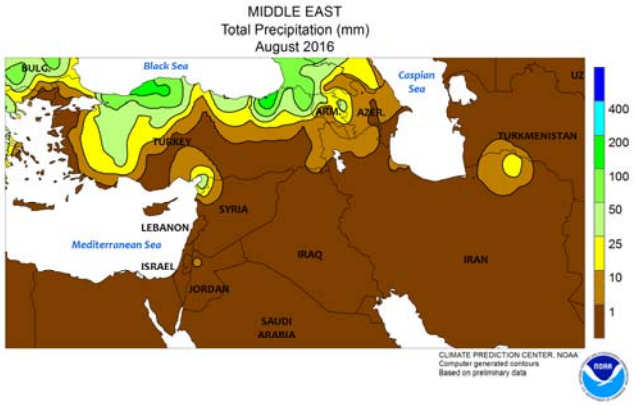


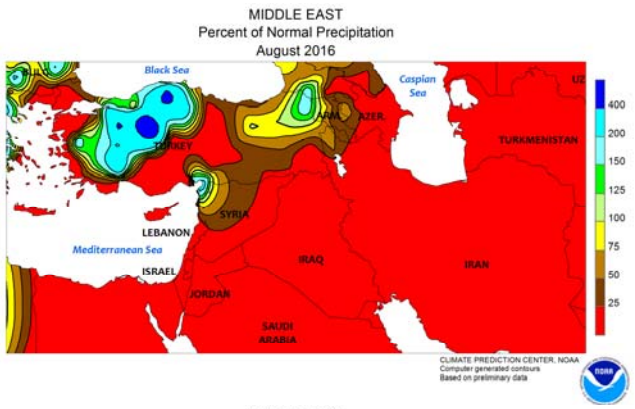


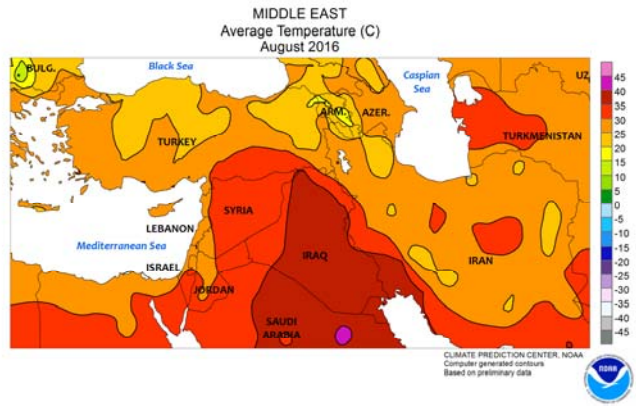


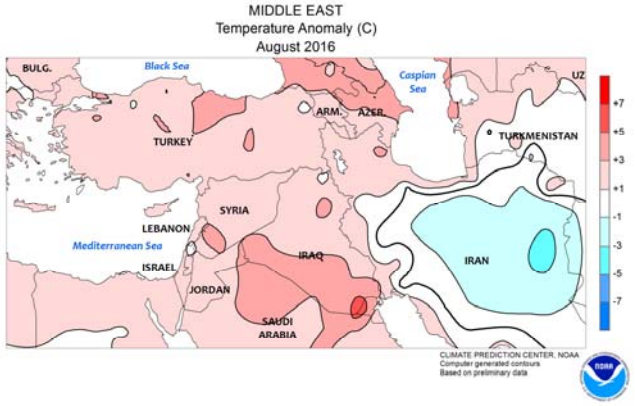
EASTERN FSU

Dry, warm weather during August accelerated spring wheat drydown and harvesting across Kazakhstan and neighboring portions of Russia. However, locally hot, dry conditions adversely impacted filling spring wheat in the southeastern Volga District, where temperatures climbed into the upper 30s (degrees C). Seasonable warmth in southern portions of the region favored cotton maturation.



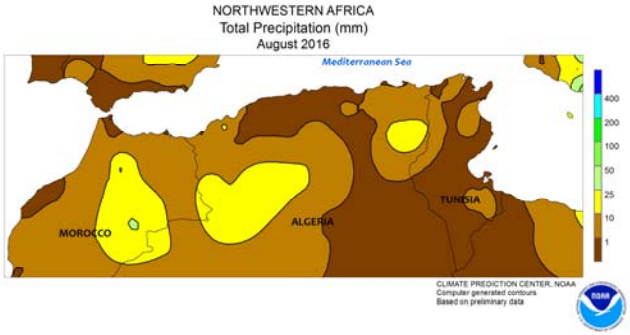


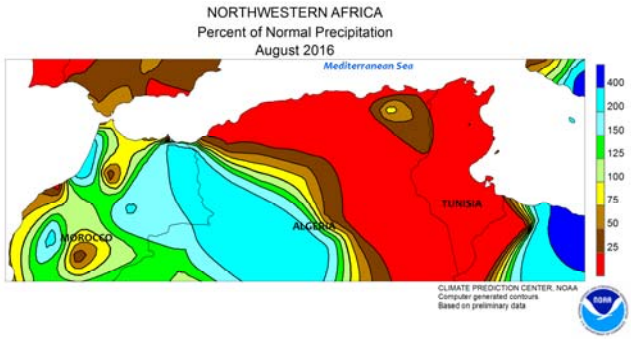


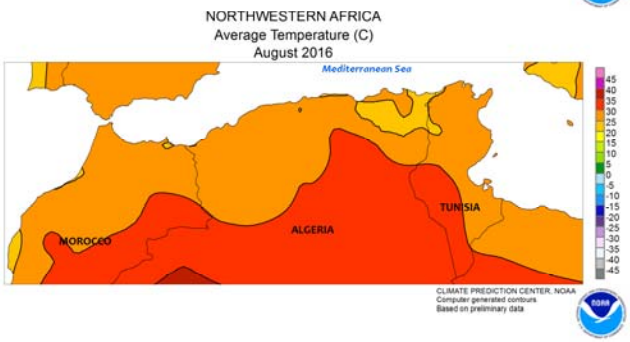


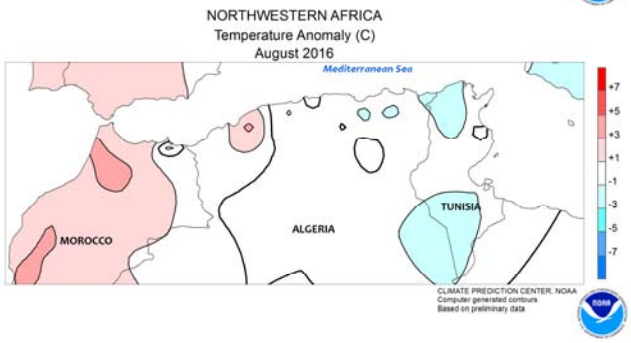
MIDDLE EAST

During August, seasonably dry, hot weather promoted fieldwork and summer crop maturation in Turkey. Despite the mostly dry weather, unseasonable showers (30-70 mm, locally more 700 percent of normal for the month) were reported over parts of west-central and northern Turkey, though the rain generally fell outside of the major summer crop areas. Harvesting of corn and sunflowers was underway, while cotton harvesting began by early September.



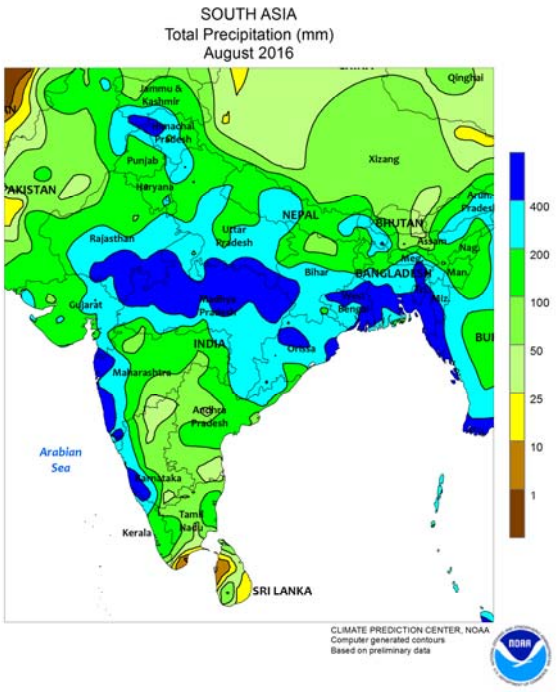


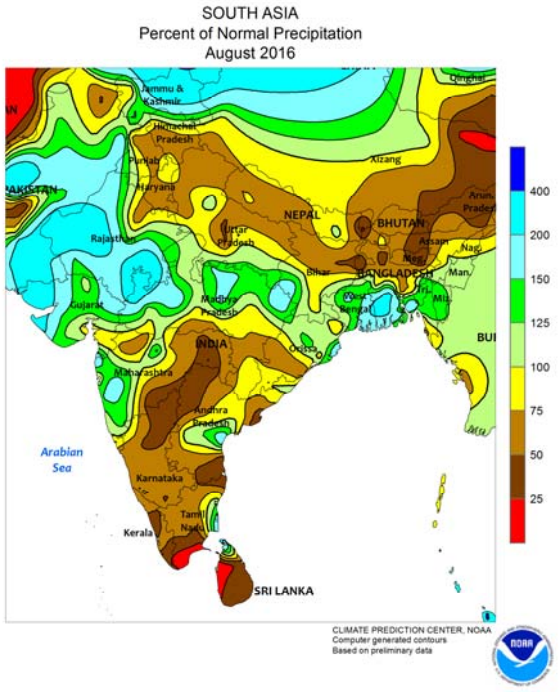


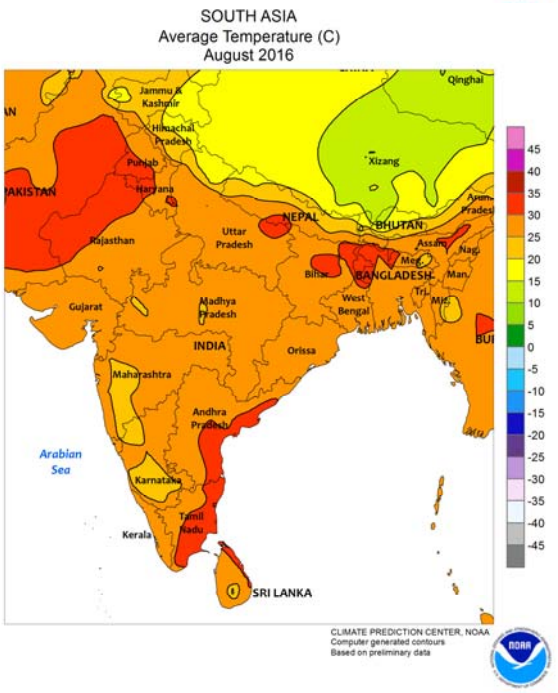


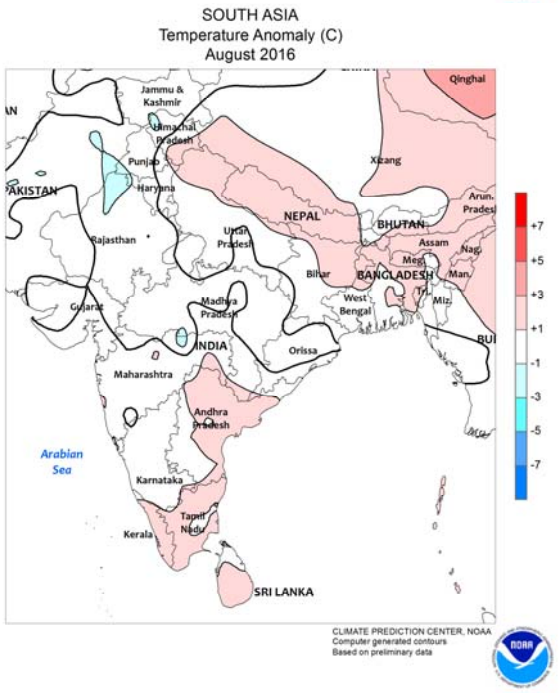
NORTHWESTERN AFRICA

Seasonably dry, hot weather prevailed over much of the region during August. Agricultural activity is minimal during July and August in northern Africa, although the region does grow irrigated specialty crops (vegetables, fruits, grapes, and olives) during the summer. Despite the mostly dry weather, unseasonable showers (10-30 mm, locally more than 500 percent of normal) were reported over the Atlas Mountains.



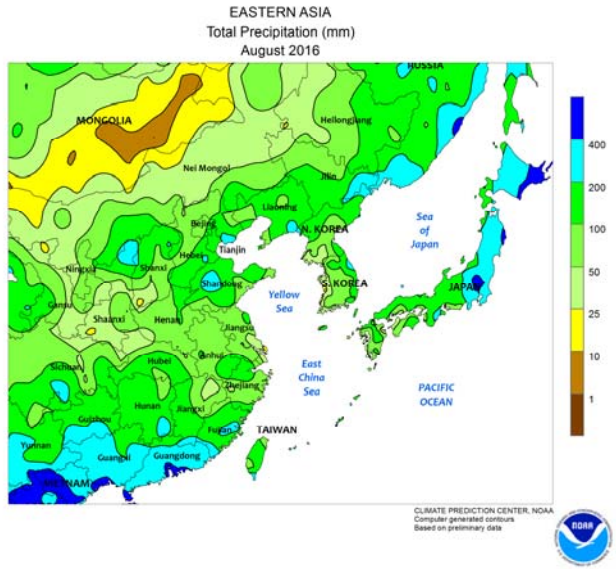


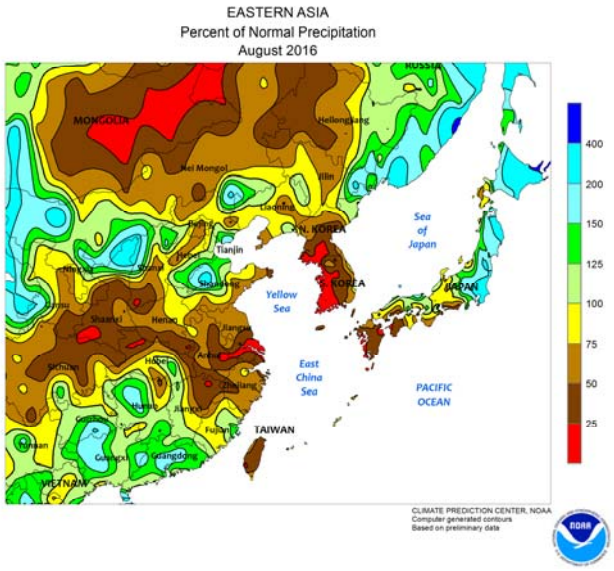


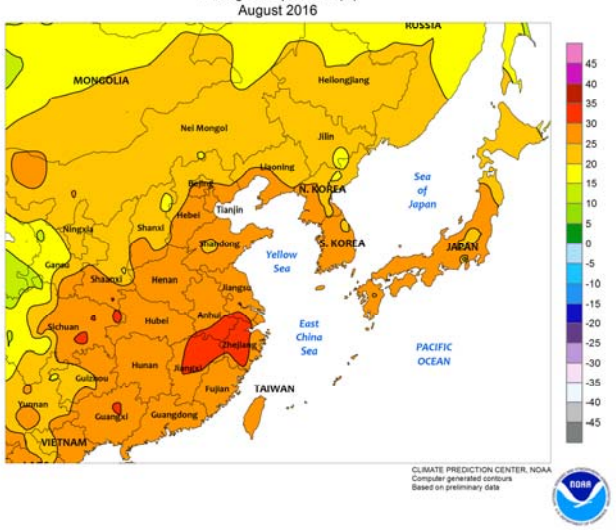


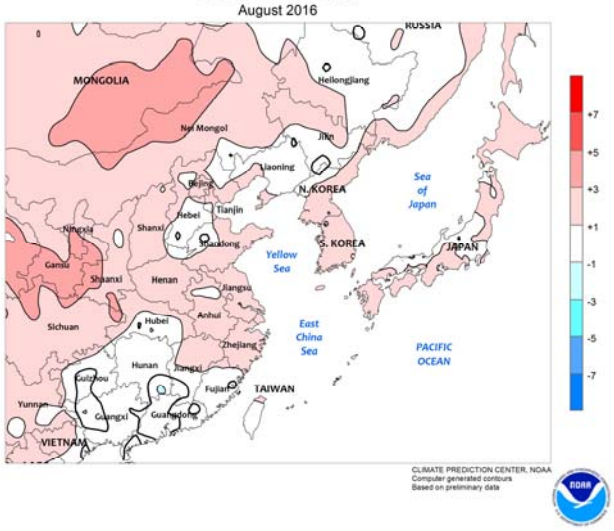
SOUTH ASIA

Heavy monsoon showers continued in India, with the highest monthly totals (locally over 600 mm) occurring in central parts of the country. Most eastern rice areas received near- to above-normal rainfall, maintaining adequate to abundant soil moisture and water supplies. Meanwhile, excessively wet weather continued in central and western India, maintaining saturated soybean fields and lowering yield prospects. In contrast, monsoon showers diminished in nearby cotton areas to the south, with most areas receiving below-normal rainfall for August. In other parts of the region, irrigation supplies remained favorable for rice and cotton in Pakistan, as well as for rice in Bangladesh. However, unseasonably dry weather limited available water for rice in Sri Lanka.





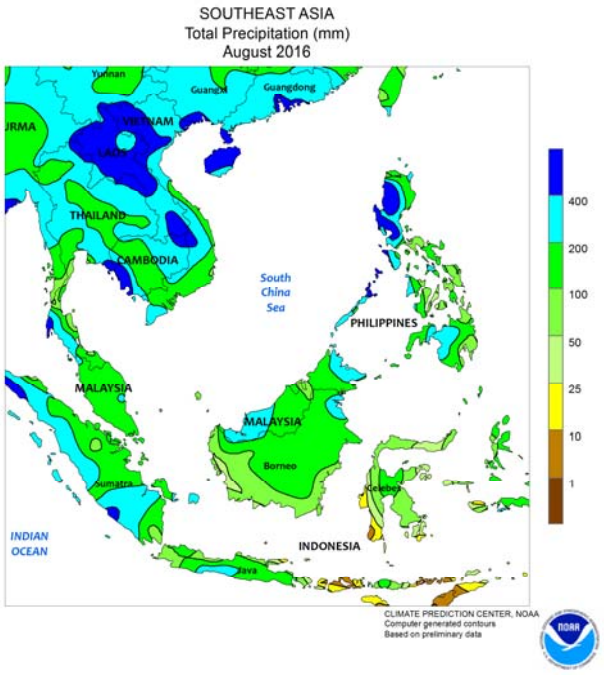


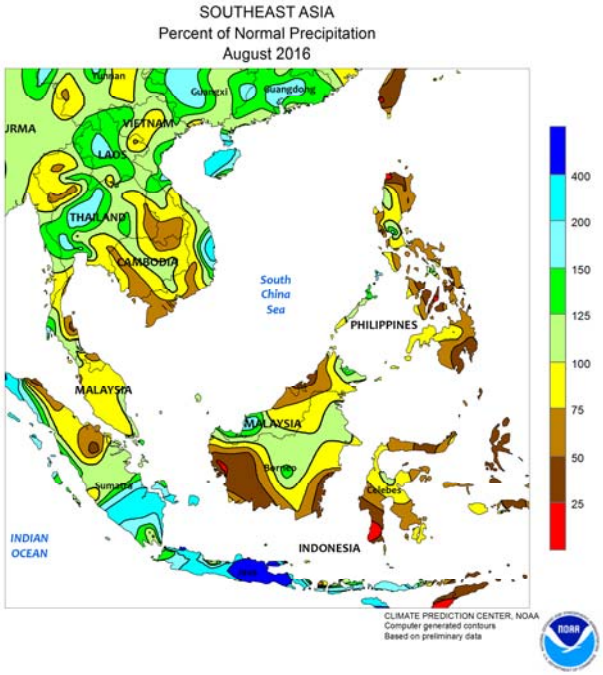


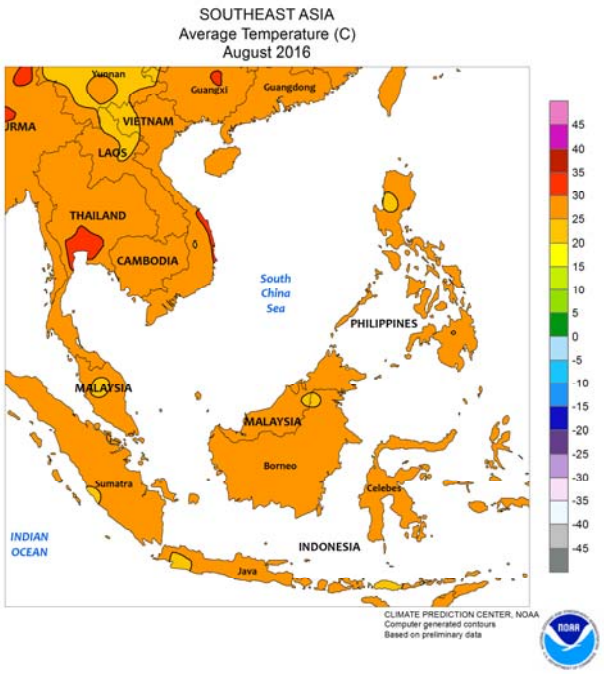
EASTERN ASIA

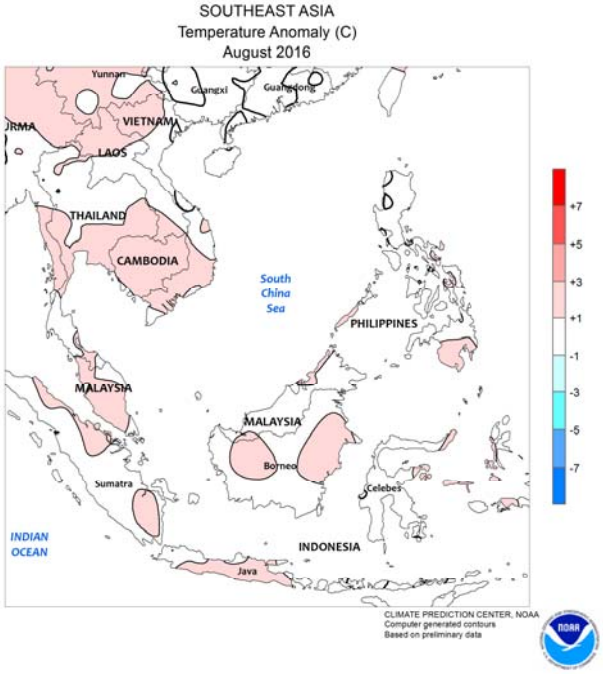
Untimely dryness continued in parts of northeastern China during August, increasing stress on reproductive corn and soybeans in western sections of Heilongjiang and neighboring areas of Inner Mongolia and Jilin. To the south, mostly drier-than-normal weather aided maturation and harvesting of summer crops in the Yangtze Valley and parts of the North China Plain. In southern China, above-normal rainfall maintained adequate to abundant soil moisture and water supplies for vegetative late-crop rice. Meanwhile, unusual tropical activity along the eastern seaboard of Japan featured five tropical cyclones in a span of seven days (Typhoon Lionrock being the most severe) and six for the month, pushing monthly rainfall totals well above normal.

For additional information contact: mbrusberg@oce.usda.gov





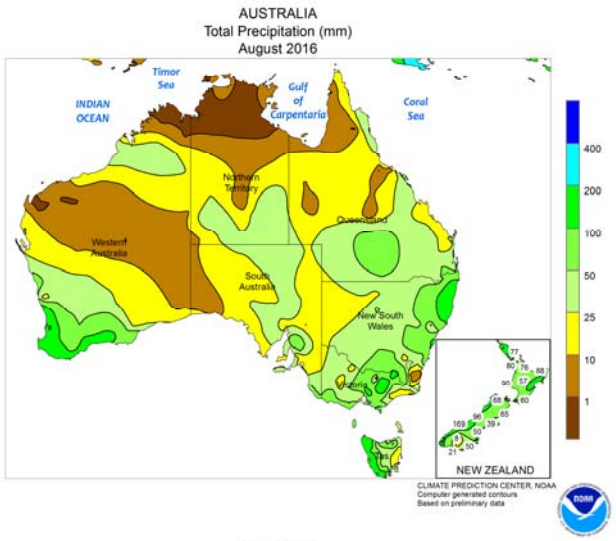


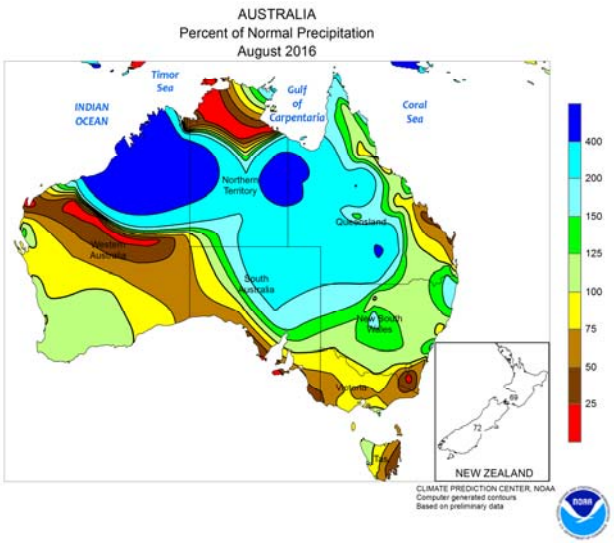


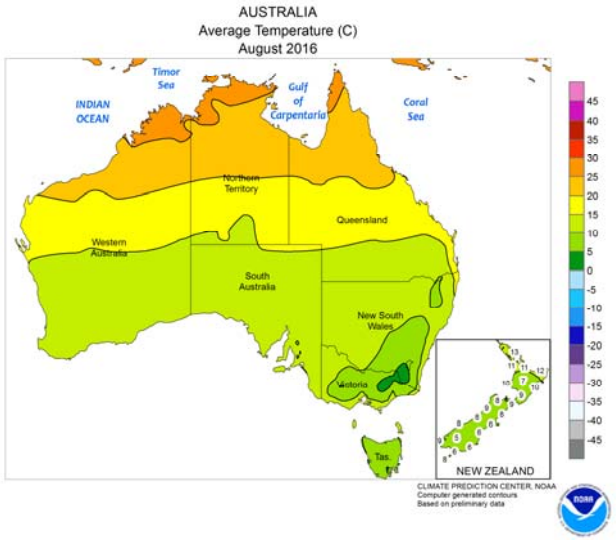
SOUTHEAST ASIA

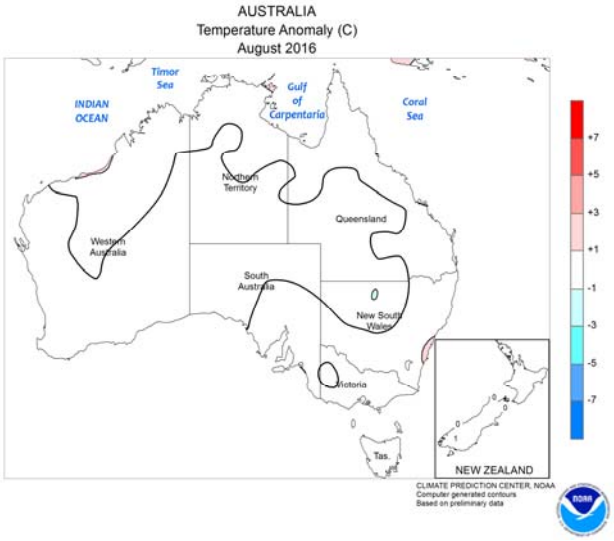
Most rice areas in Indochina received near-to above-normal rainfall during August, with Thailand, in particular, benefiting from improved rainfall compared to the past two years. The rainfall kept rainfed rice adequately watered while also increasing reservoir levels for irrigated rice. Much of the month's rainfall was a result of a tropical cyclone (Dianmu) making landfall in northern Vietnam. In the Philippines, heavier-than-normal monsoon showers in the northwest kept rice well watered but caused some minor flooding.

For additional information contact: mbrusberg@oce.usda.gov



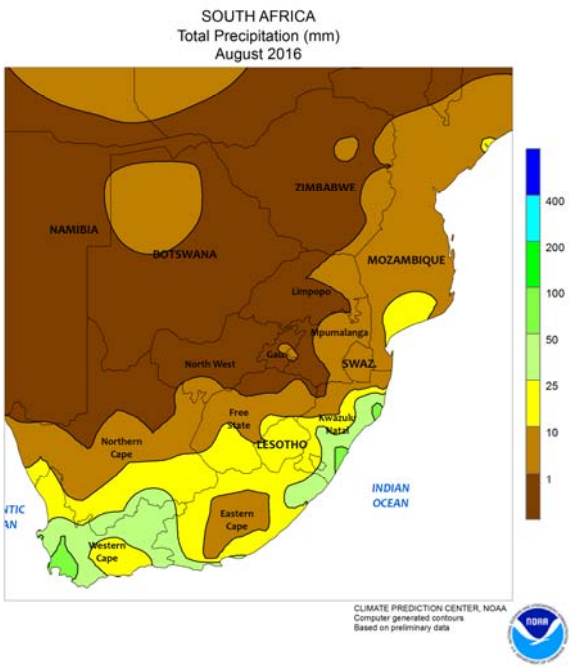


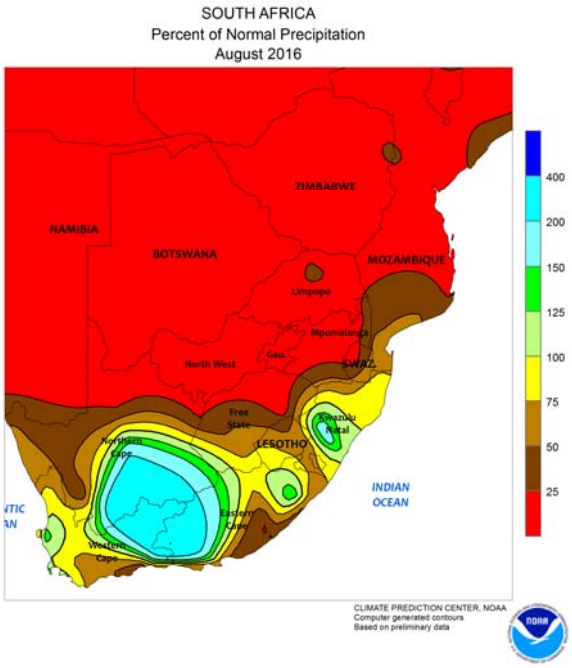


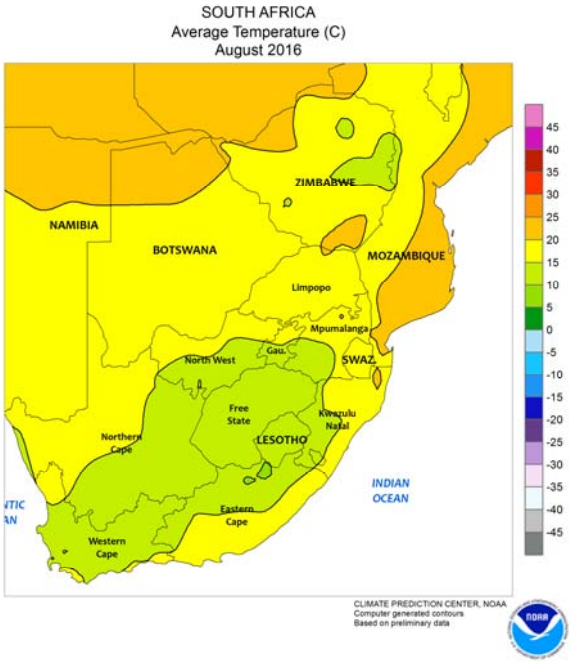


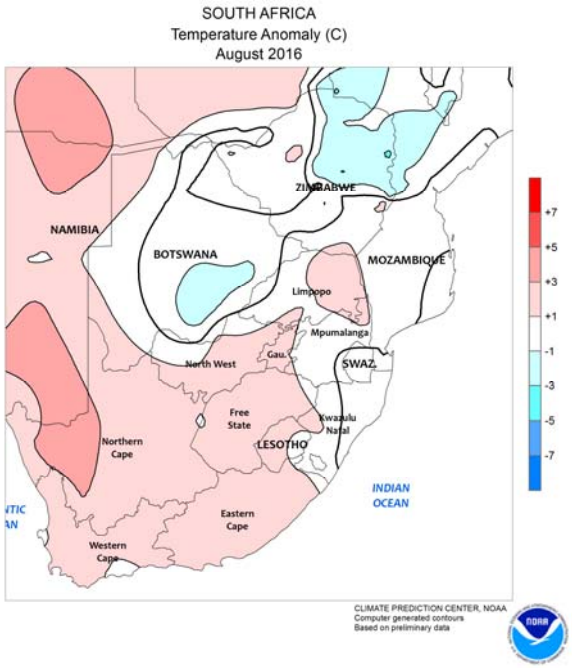
AUSTRALIA

In August, above-normal rainfall in southern Queensland and New South Wales kept soil moisture abundant to locally excessive. The rain caused local flooding but maintained good to excellent yield prospects for wheat, barley, and canola, while increasing irrigation supplies in advance of upcoming summer crop sowing. Elsewhere in the wheat belt, intermittent showers and sun continued to favor winter grain and oilseed development in southern and western Australia. Similar to eastern Australia, crop prospects were very good in these latter areas.



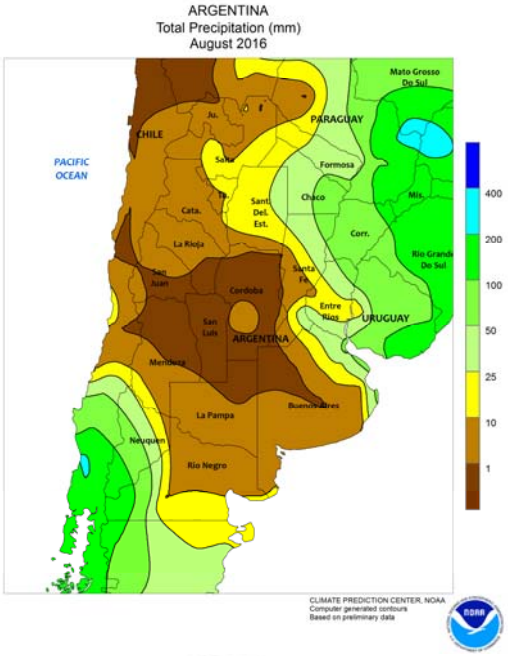


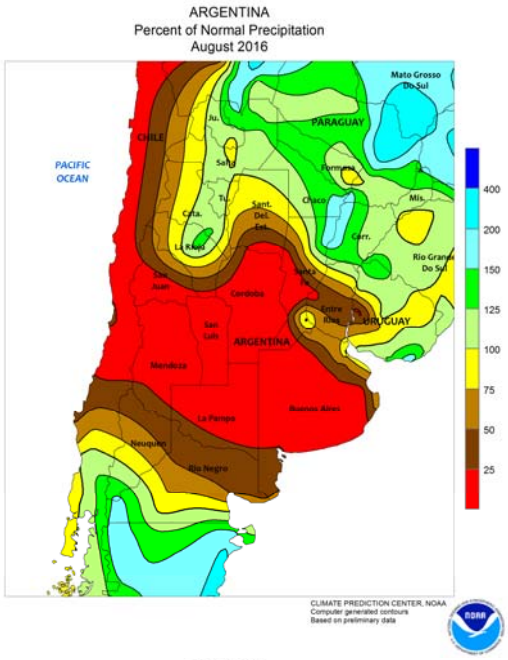


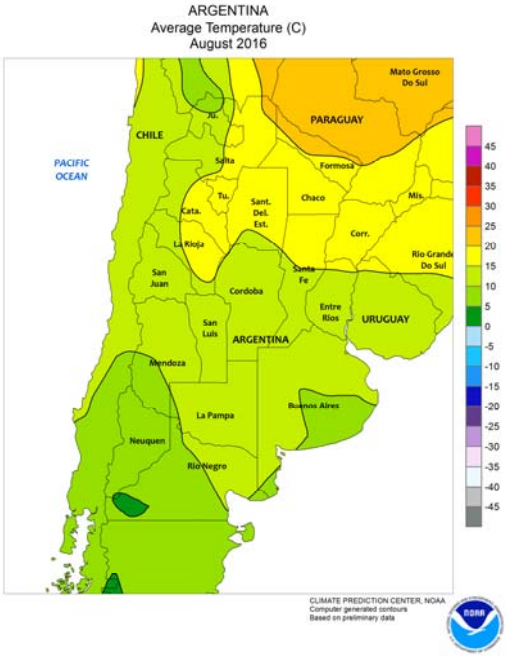


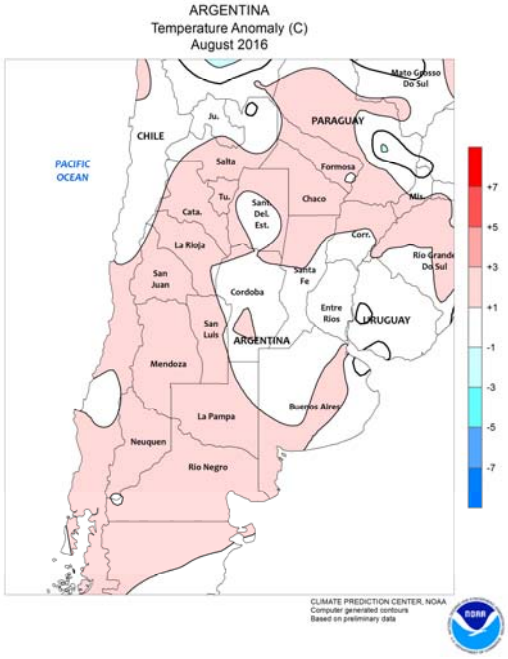
SOUTH AFRICA

During August, showers sweeping along the southern coast boosted moisture for winter crops, while helping to raise local reservoir levels. Rainfall totaling more than 10 mm was recorded across a broad region stretching from Western Cape to KwaZulu-Natal, with pockets of heavier rain (25-50 mm, locally higher) occurring closest to the coast. In KwaZulu-Natal, the rain likely caused only minor delays in sugarcane harvesting. However, drier conditions prevailed farther inland, including sugarcane areas of eastern Mpumalanga. Monthly temperatures averaged near to above normal, with daytime highs reaching the lower 30s (degrees C) at times in coastal farming areas, maintaining rapid growth rates of winter-grown crops in the coastal provinces (notably Western and eastern Cape). Freezes were common throughout the interior, however, slowing wheat development in Free State and North West.



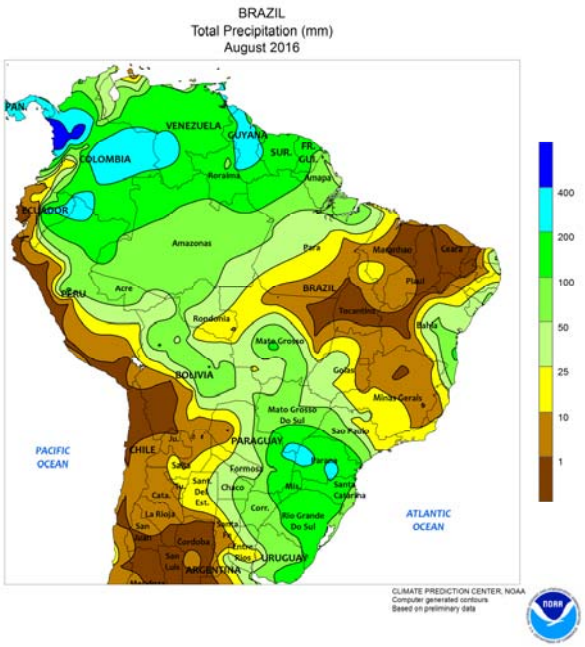


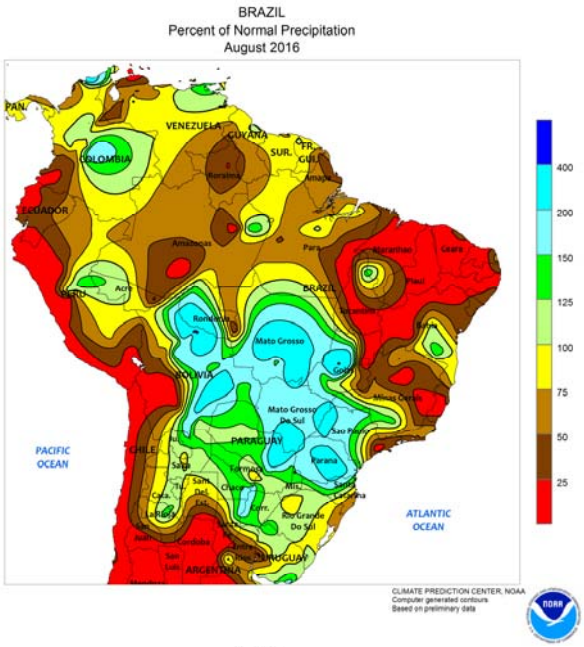


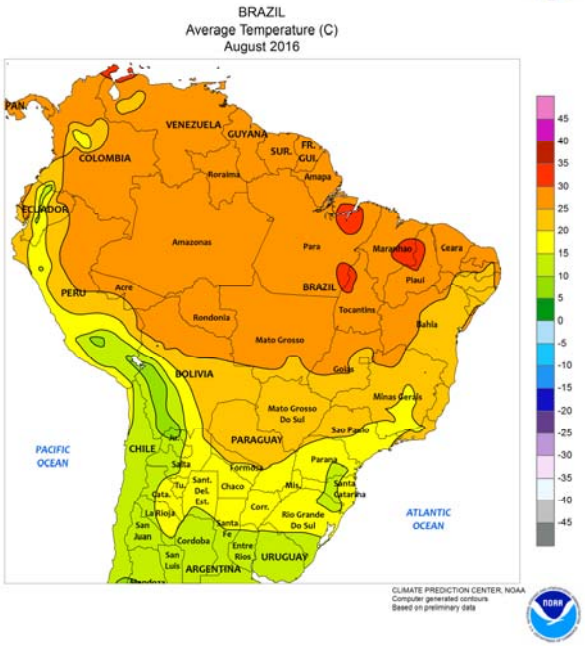


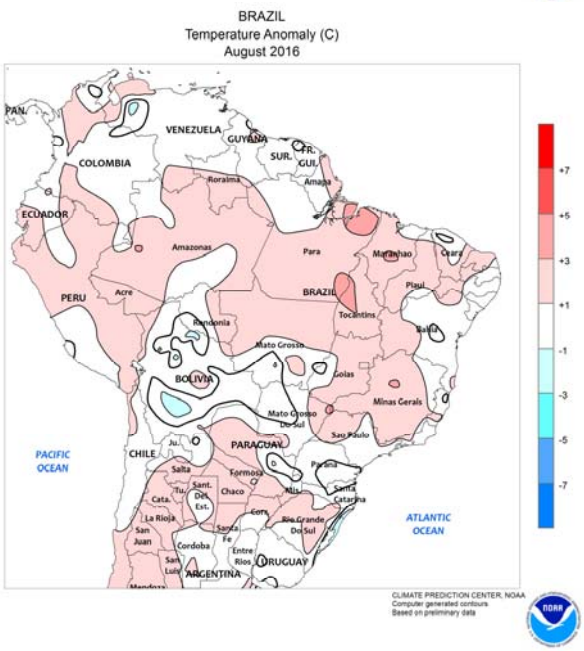
ARGENTINA

Dry weather prevailed for much of August, improving conditions for the latter stages of corn harvesting and winter grain planting. At month's end, rain returned to the northeast, with weekly rainfall amounts totaling 25 to 50 mm or more from northern sections of Santa Fe and Entre Rios to eastern Chaco and Formosa. Monthly temperatures averaged at least 1°C above normal throughout central and northern Argentina, with daytime highs reaching the middle 30s (degrees C) during the latter part of August in the far north (Santiago del Estero and northern Santa Fe northward). Freezes were common in southwestern farming areas (Buenos Aires, La Pampa, and southern Cordoba) for much of the month.



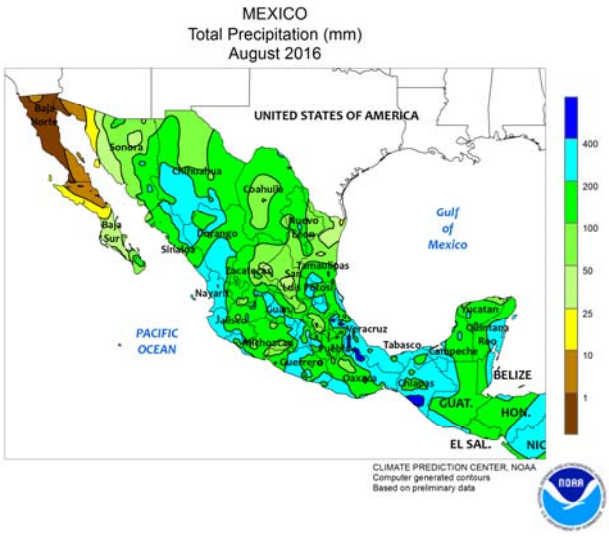


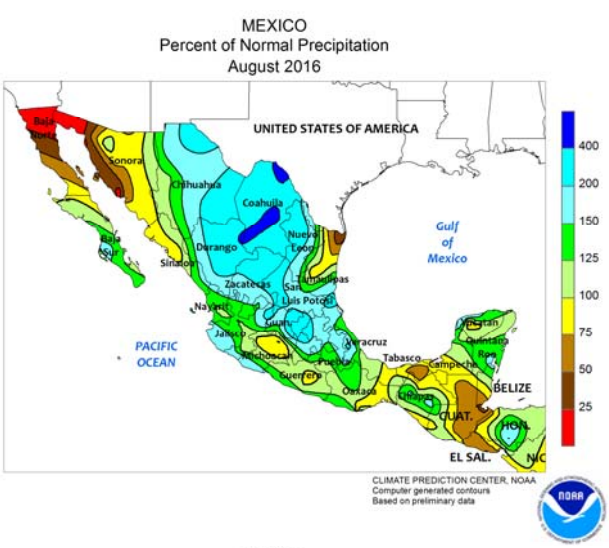


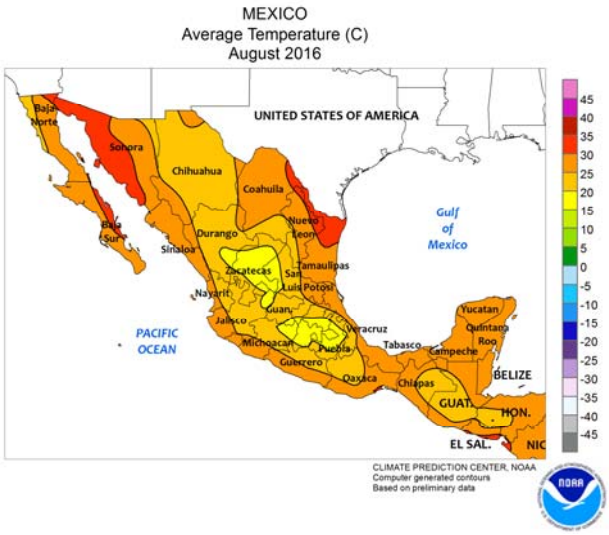


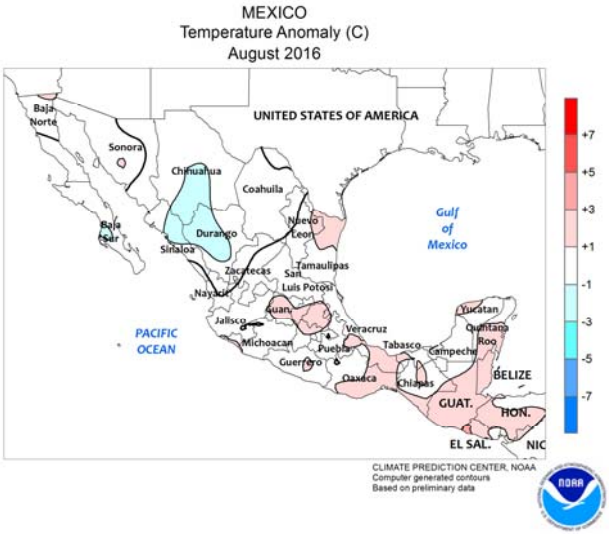
BRAZIL

During August, unseasonably heavy rainfall maintained adequate to locally excessive levels of moisture for wheat in southern production areas. The highest amounts (monthly totals exceeding 200 mm) were concentrated over Parana, traditionally Brazil's largest producer of wheat. Periodic showers also caused some late-season disruptions in Sao Paulo's sugarcane harvest, but lighter rain likely had a more minor impact on the coffee harvest in Minas Gerais. Elsewhere, unseasonable rainfall was recorded in Mato Grosso during the latter half of August, but the moisture came too early in the season to encourage significant planting of corn and other summer row crops. In addition, daytime highs reaching the upper 30s (degrees C) maintained high evaporative losses throughout central and northeastern Brazil, preventing a buildup of topsoil moisture necessary for germination and establishment; the rainy season typically begins during the latter half of September in these areas but warmth and dryness can linger into October.



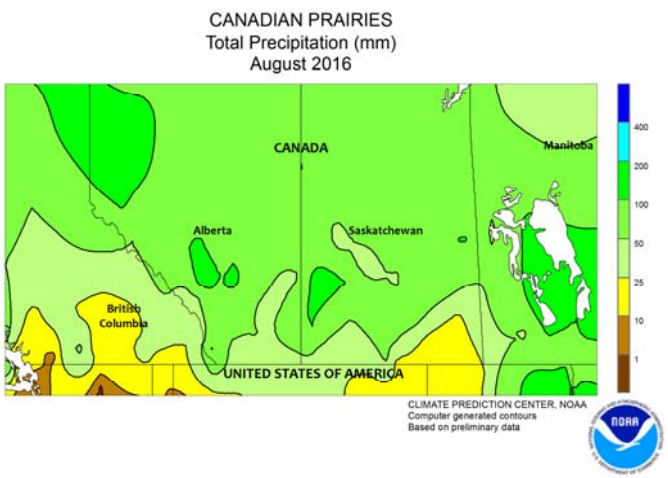


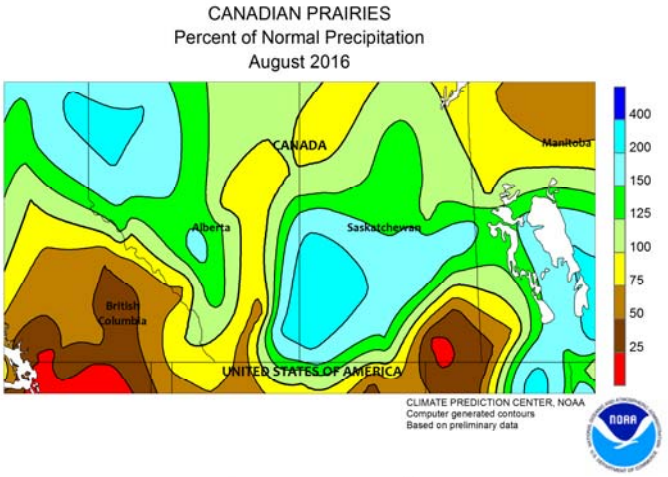


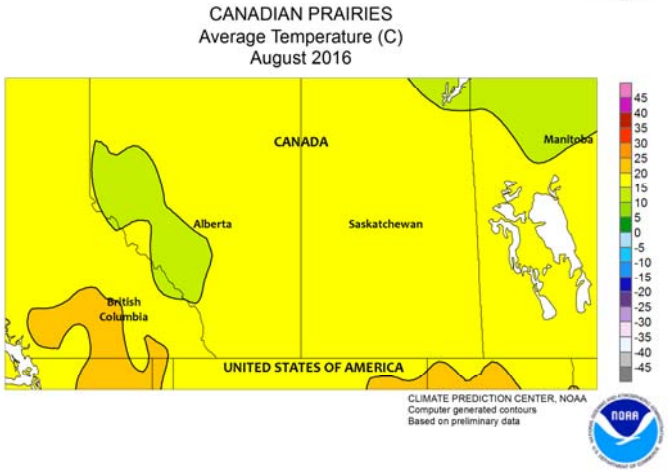


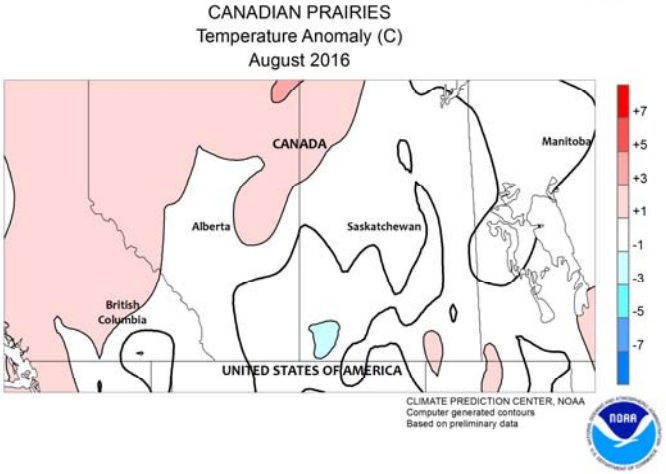
MEXICO

In August, abundant moisture maintained overall favorable conditions for rain-fed summer crops, while helping to further replenish long-term moisture reserves in northwestern watersheds. The remnants of several tropical storm systems contributed to the monthly rainfall, including Tropical Storm Earl, which generated heavy rain in the southeast, and Tropical Storm Javier, which injected a stream of moisture into the western monsoon circulation. With few exceptions, rainfall was frequent and above normal for the month in the south and west. Dry weather prevailed in northwestern Mexico (including Coahuila and Tamaulipas) during the first half of August; during the latter part of the month, rainy weather increased irrigation reserves for cotton and other row crops and provided some relief from the effects of summer heat (daytime highs at or above 40°C) on crops and livestock. According to the government of Mexico, national reservoir levels were 68.5 percent of capacity as of August 30, compared with 69.6 percent last year and 51.7 percent in 2014. Reservoirs in the northwest were at 82.9 percent of capacity for the same time period versus 81.1 percent last year and 60.4 percent in 2014.



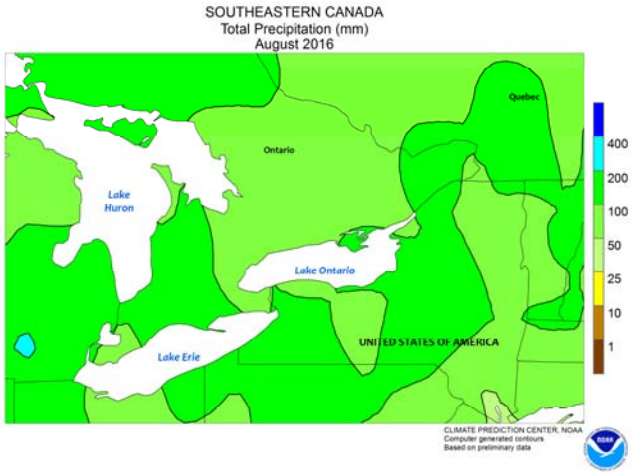


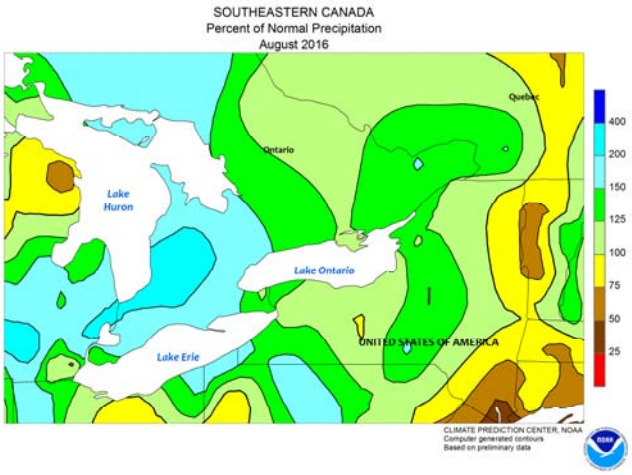


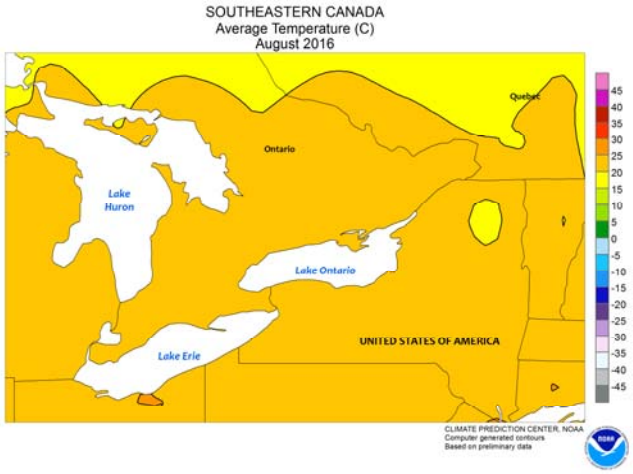


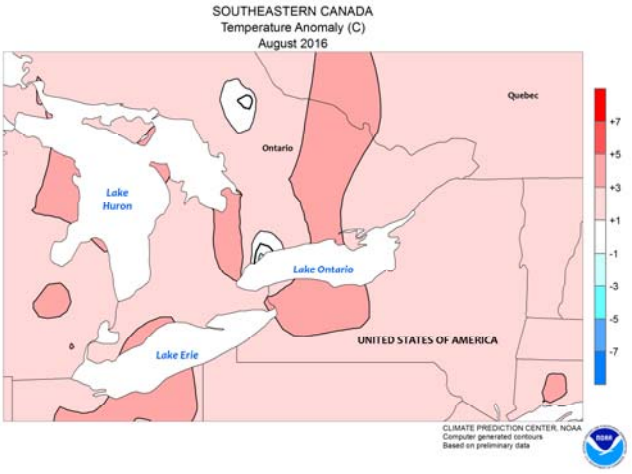
CANADIAN PRAIRIES

Mild, showery weather prevailed during early part of August, sustaining overall favorable conditions for immature spring grains and oilseeds. As the month progressed, drier conditions and a continuation of summer warmth (daytime highs occasionally reaching the lower 30s degrees C) fostered maturation of spring crops, while supporting the early stages of autumn fieldwork. Monthly temperatures averaged near to above normal throughout the Prairies from the combination of lingering summer warmth and the lack of a widespread freeze, aiding late development of spring crops.





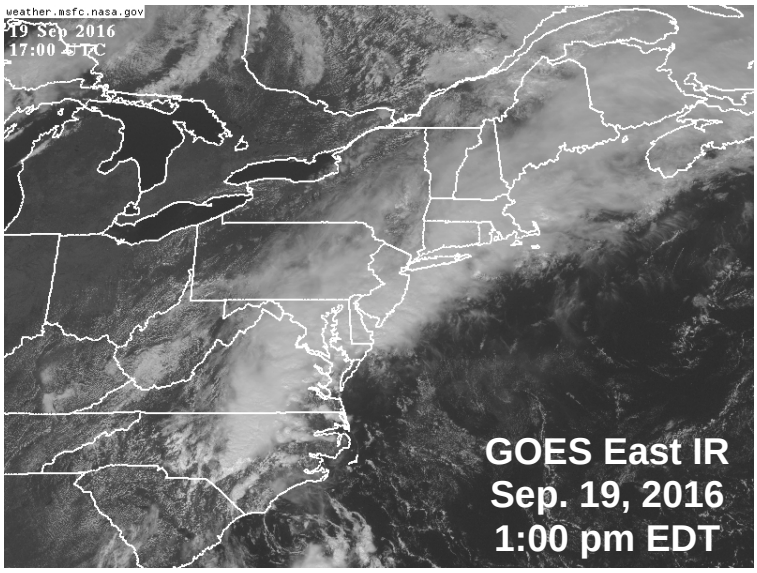




SOUTHEASTERN CANADA

During August, the general pattern of improved rainfall that developed in late July continued throughout the region, giving a late-season boost in moisture to later-developing crops, in particular soybeans. As a result, monthly rainfall was above normal in Ontario's southwestern farming areas and near to slightly above normal elsewhere in the region. Monthly average temperatures were 1 to 2°C above normal across the region — with daytime highs often reaching well into the 30s (degrees C) — promoting rapid development of maturing summer crops. No freezes were reported.

For additional information contact: mbrusberg@oce.usda.gov



At a time of year when tropical storms often merge with mid-latitude weather systems, two such interactions were on display across North America on September 19. Over the eastern Pacific Ocean, Hurricane Paine (left image) was moving northwestward around the western periphery of a ridge of high pressure. Deep-layer moisture associated with the hurricane was being drawn northward across northwestern Mexico ahead of a trough of low pressure approaching the U.S. Pacific Coast. More details on the interaction between Paine's remnants and the storm system over the western U.S. will appear in next week's *Bulletin*. Meanwhile, the pesky remnants of Tropical Storm Julia (right image) lingered near the coast of North Carolina on September 19, a day after the system was downgraded to a post-tropical cyclone. Despite the weak appearance of Julia's remnant circulation, tropically enhanced showers in the vicinity of a cold front provided relief from dry conditions in portions of the Mid-Atlantic region. Daily-record rainfall amounts were noted on September 19 in locations such as Georgetown, DE (2.78 inches), and Reading, PA (2.32 inches), compared to respective September 1-18 totals of 0.48 and 0.15 inch. Similarly, Baltimore, MD, received just 0.09 inch during the first 18 days of September, followed by a 0.64-inch total on the 19th.

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