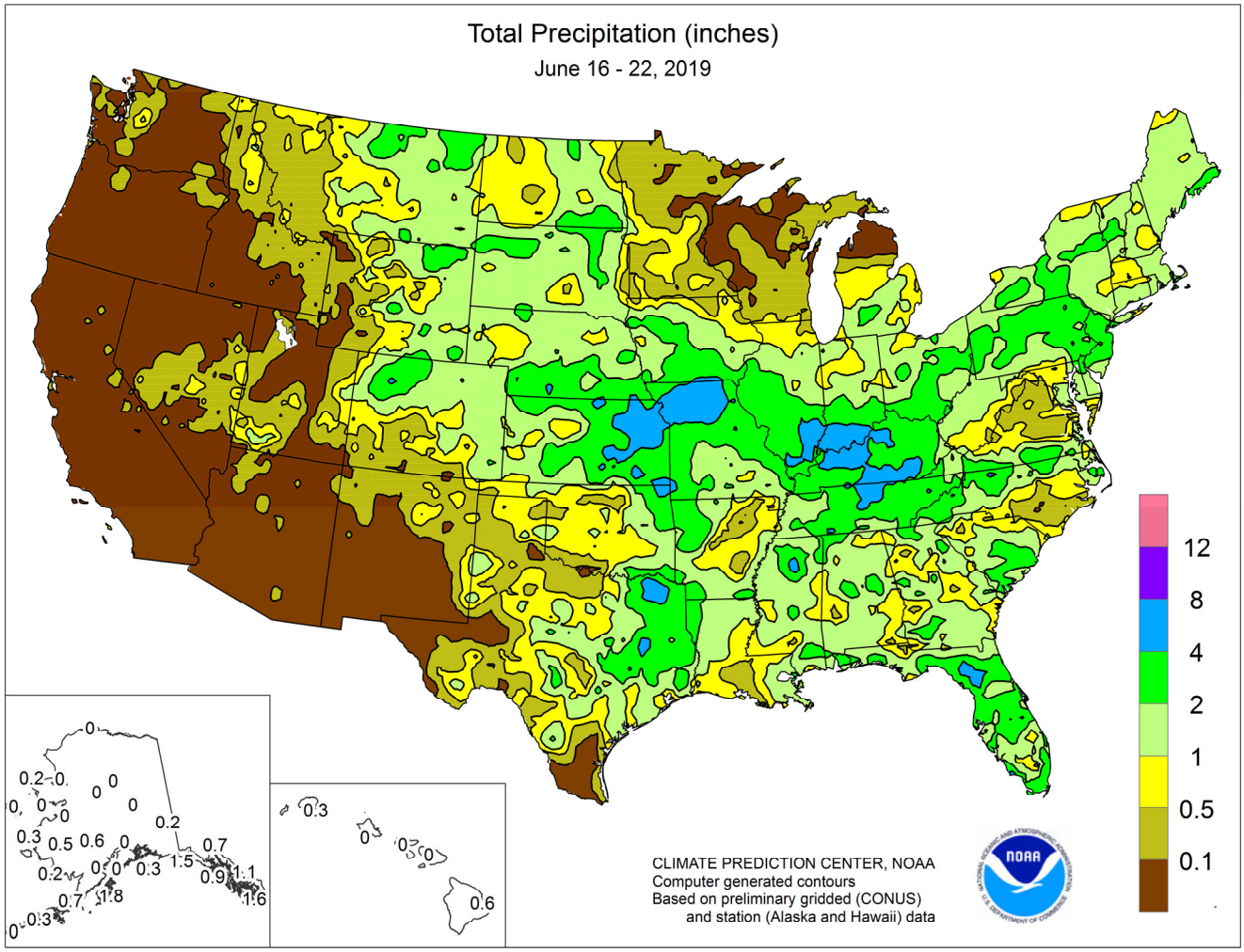
Volume 106, No. 26 http://www.usda.gov/oce/weather June 25, 2019

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
June 16 – 22, 2019

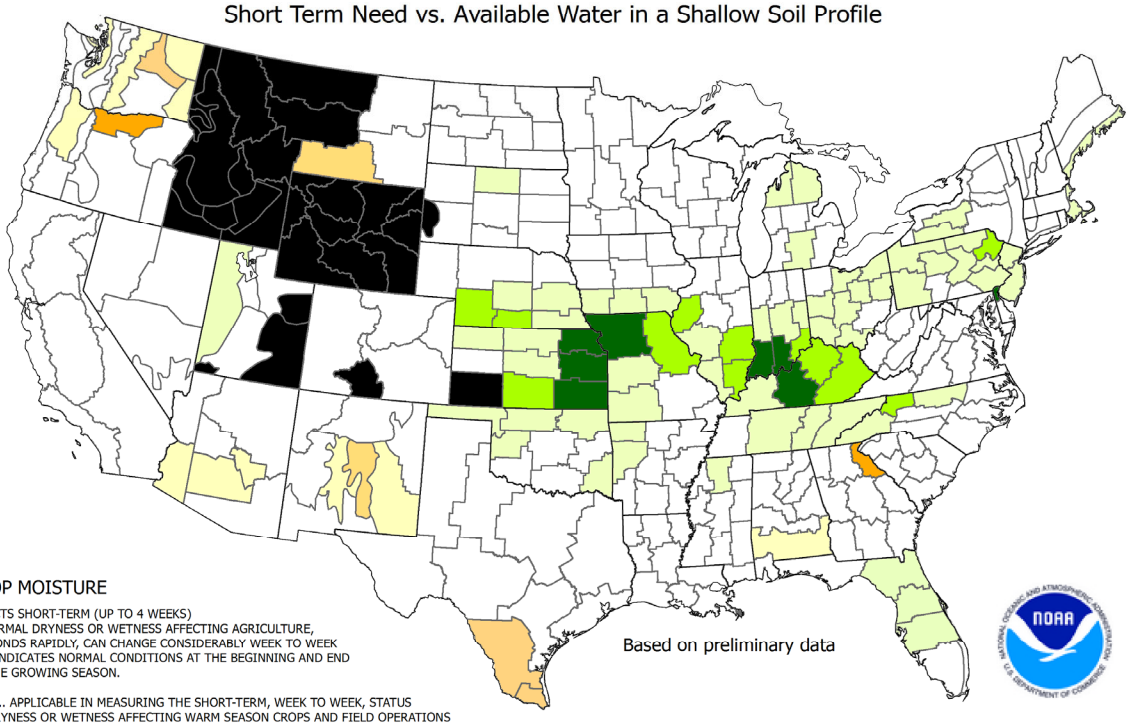
Highlights provided by USDA/WAOB

Worsening wetness across parts of the **nation's mid-section**, primarily from the **east-central Plains into the lower Ohio Valley**, triggered new rounds of flooding, halted late-season planting efforts, and washed out some already emerged summer crops. The rain, which totaled 2 to 4 inches or more in a broad area, also largely curtailed the soft red winter wheat harvest. Widespread showers slowed fieldwork across a much larger area of the **Plains**, **Midwest**, **South**, and **East**. However, a few spots, including the **upper Great Lakes region** and the

(Continued on page 5)

Contents

Crop Moisture Index by Division
Weekly Value for Period Ending Jun 22, 2019
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.

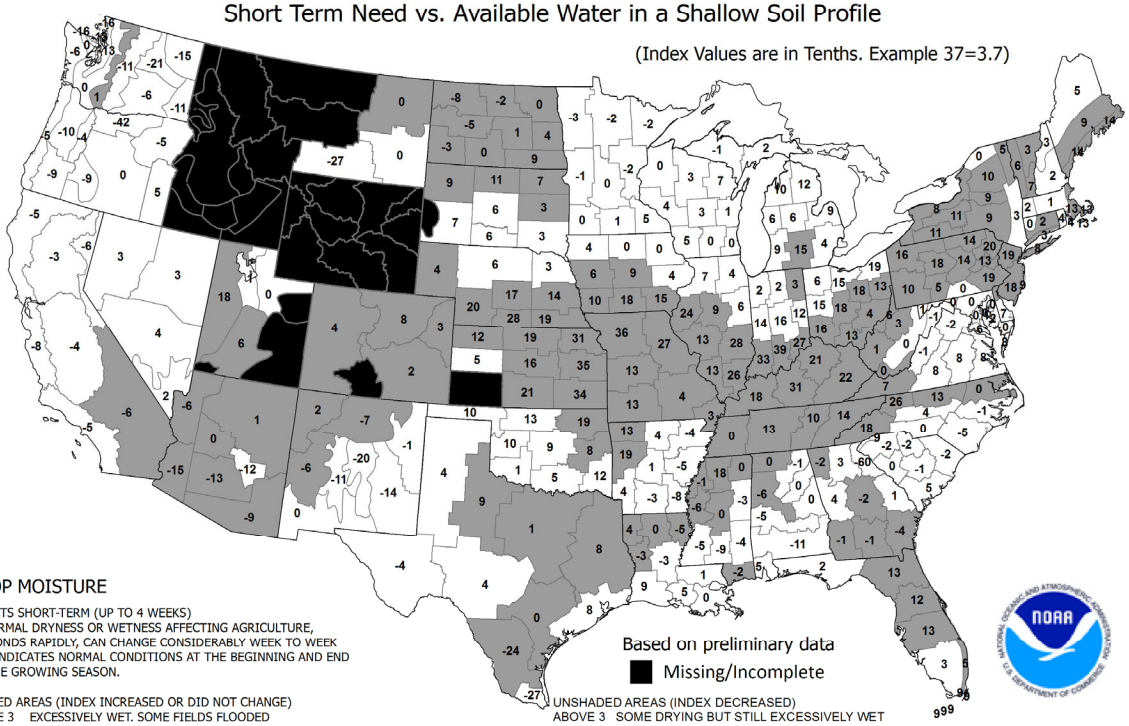
USES... APPLICABLE IN MEASURING THE SHORT-TERM, WEEK TO WEEK, STATUS OF DRYNESS OR WETNESS AFFECTING WARM SEASON CROPS AND FIELD OPERATIONS

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.

- -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)
- Missing/Incomplete

Crop Moisture Index by Division
Weekly Value for Period Ending Jun 22, 2019
Short Term Need vs. Available Water in a Shallow Soil Profile

(Index Values are in Tenths. Example 37=3.7)



CROP MOISTURE

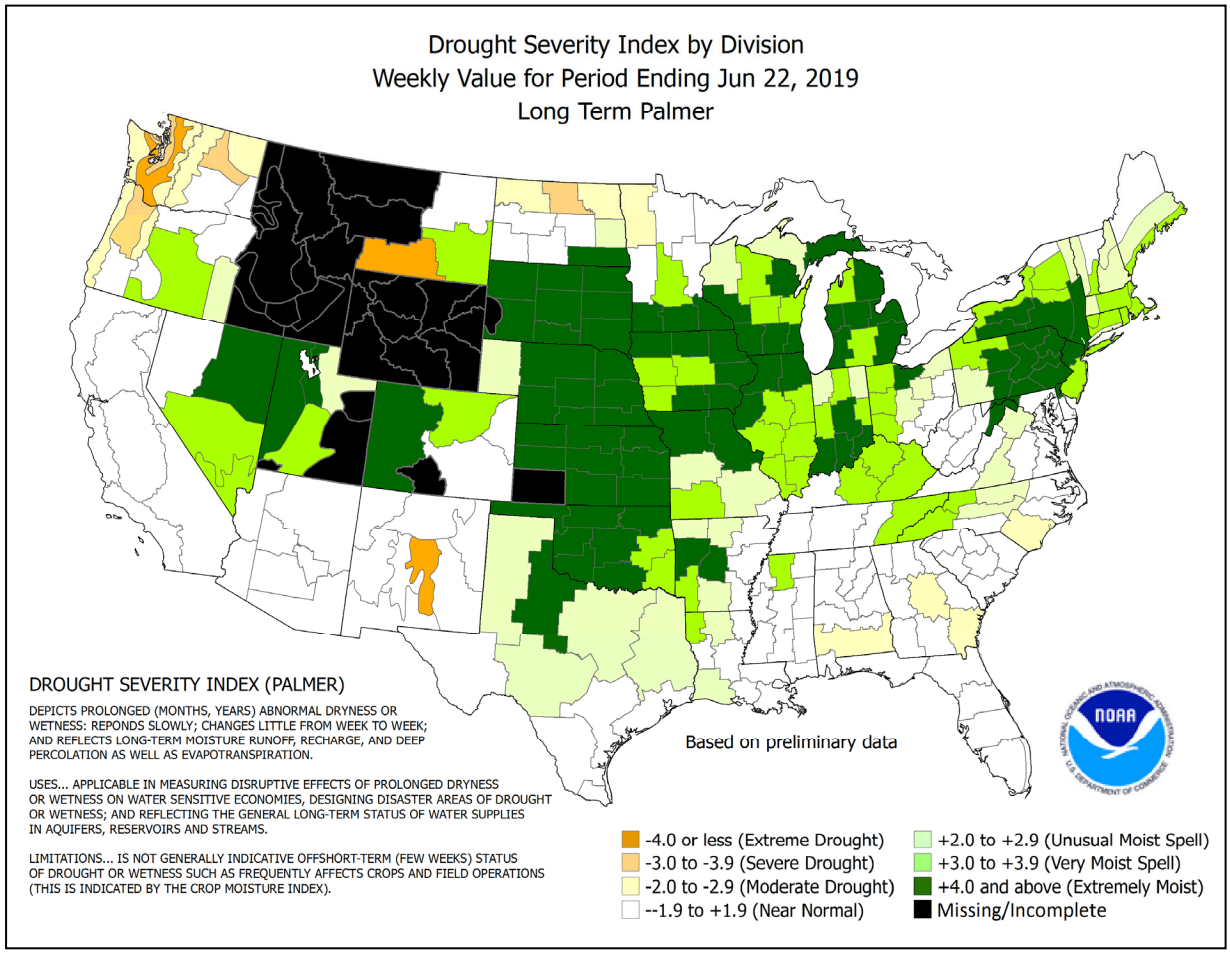
DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

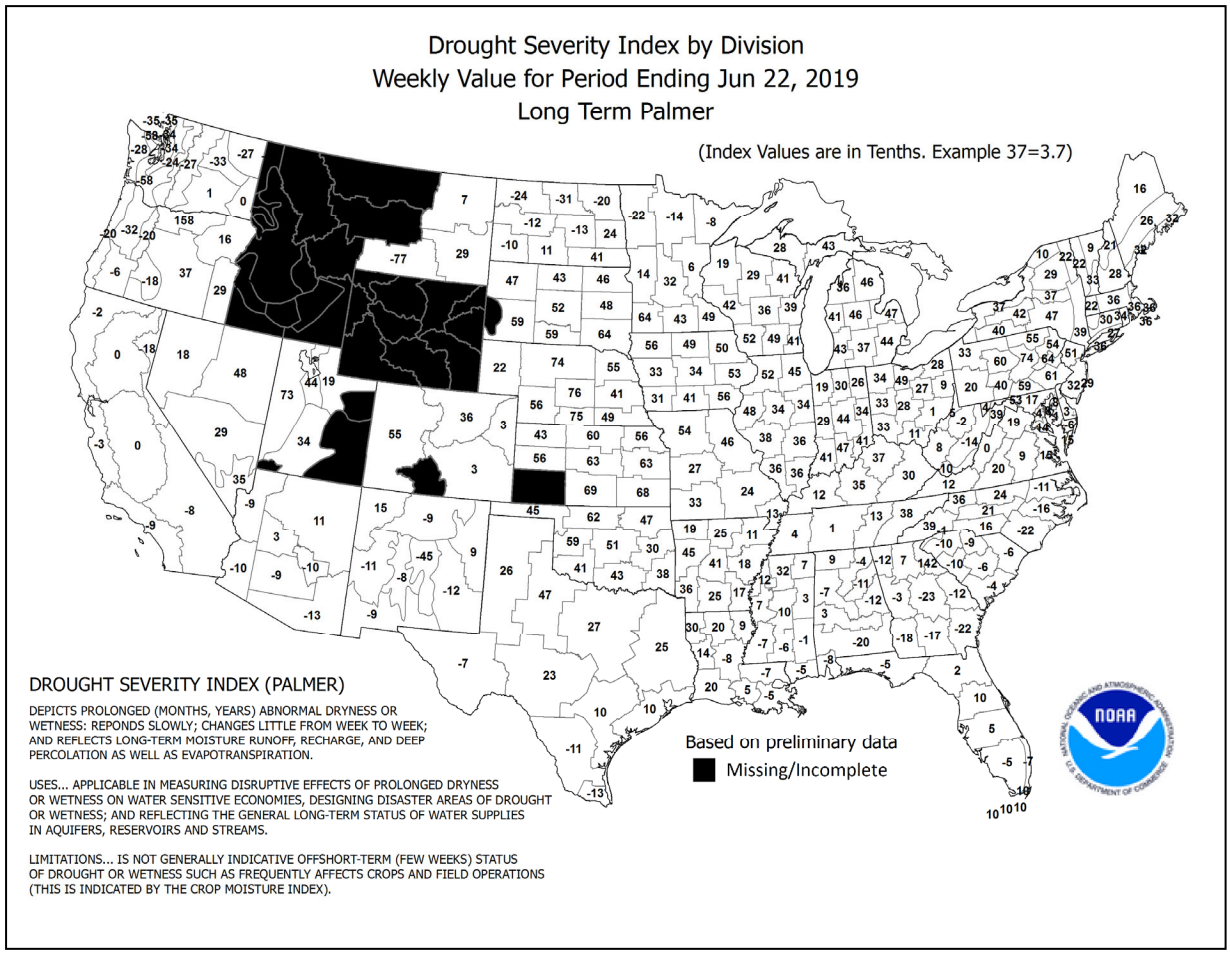
SHADED AREAS (INDEX INCREASED OR DID NOT CHANGE)

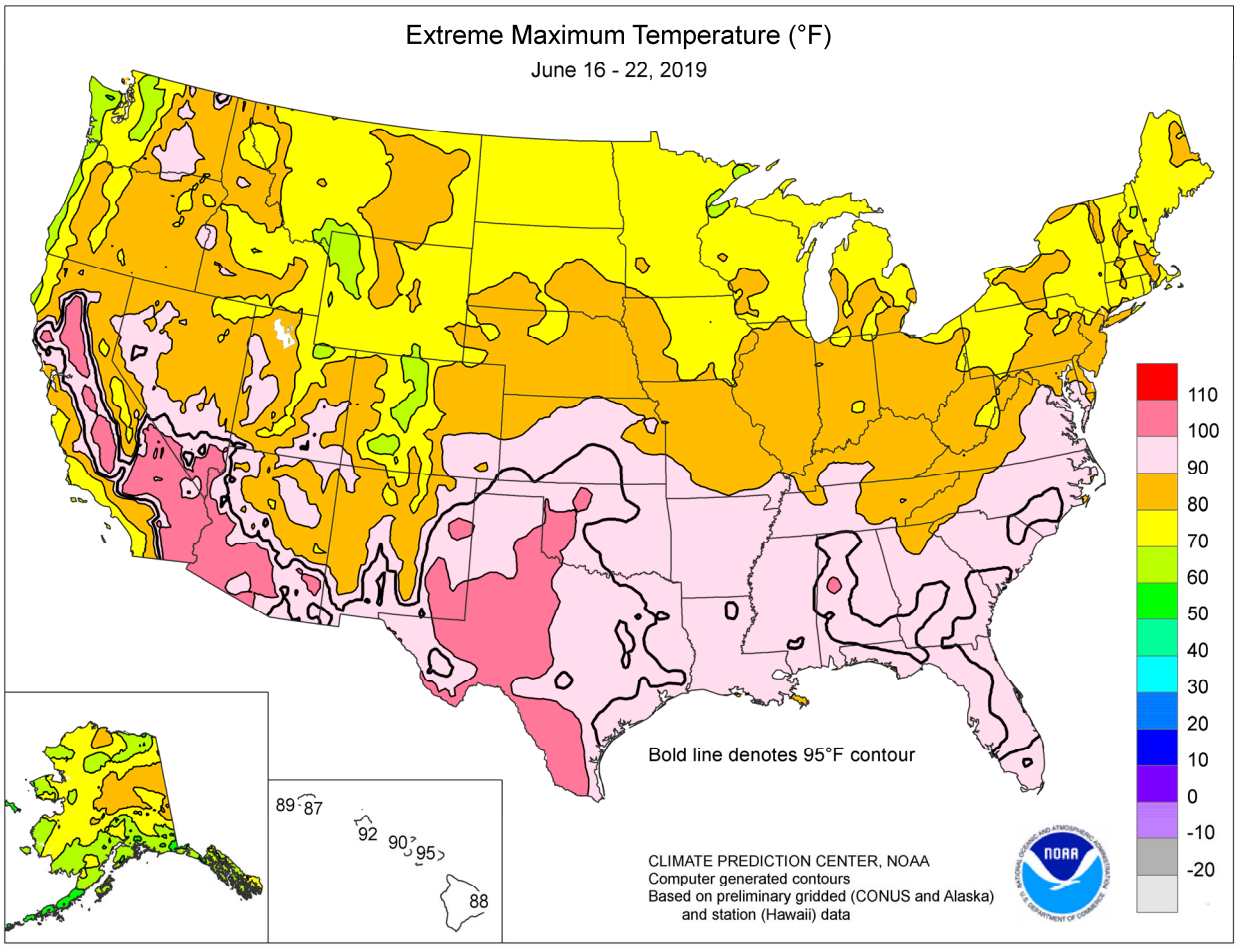
ABOVE 3	EXCESSIVELY WET. SOME FIELDS FLOODED
2 TO 3	TOO WET. SOME STANDING WATER
1 TO 2	SOME FIELDS TOO WET, PROSPECTS ABOVE NORMAL
0 TO 1	MOISTURE ADEQUATE FOR PRESENT CROP NEEDS
0 TO -1	PROSPECTS IMPROVED BUT RAIN STILL NEEDED
-1 TO -2	SOME IMPROVEMENT BUT STILL ABNORMALLY DRY
-2 TO -3	DRYNESS EASED BUT FIELDS STILL EXCESSIVELY DRY
-3 TO -4	SEVERE DRYNESS CONTINUES, MORE RAIN URGENTLY NEEDED
BELOW -4	NOT ENOUGH RAIN. EXTREMELY DRY

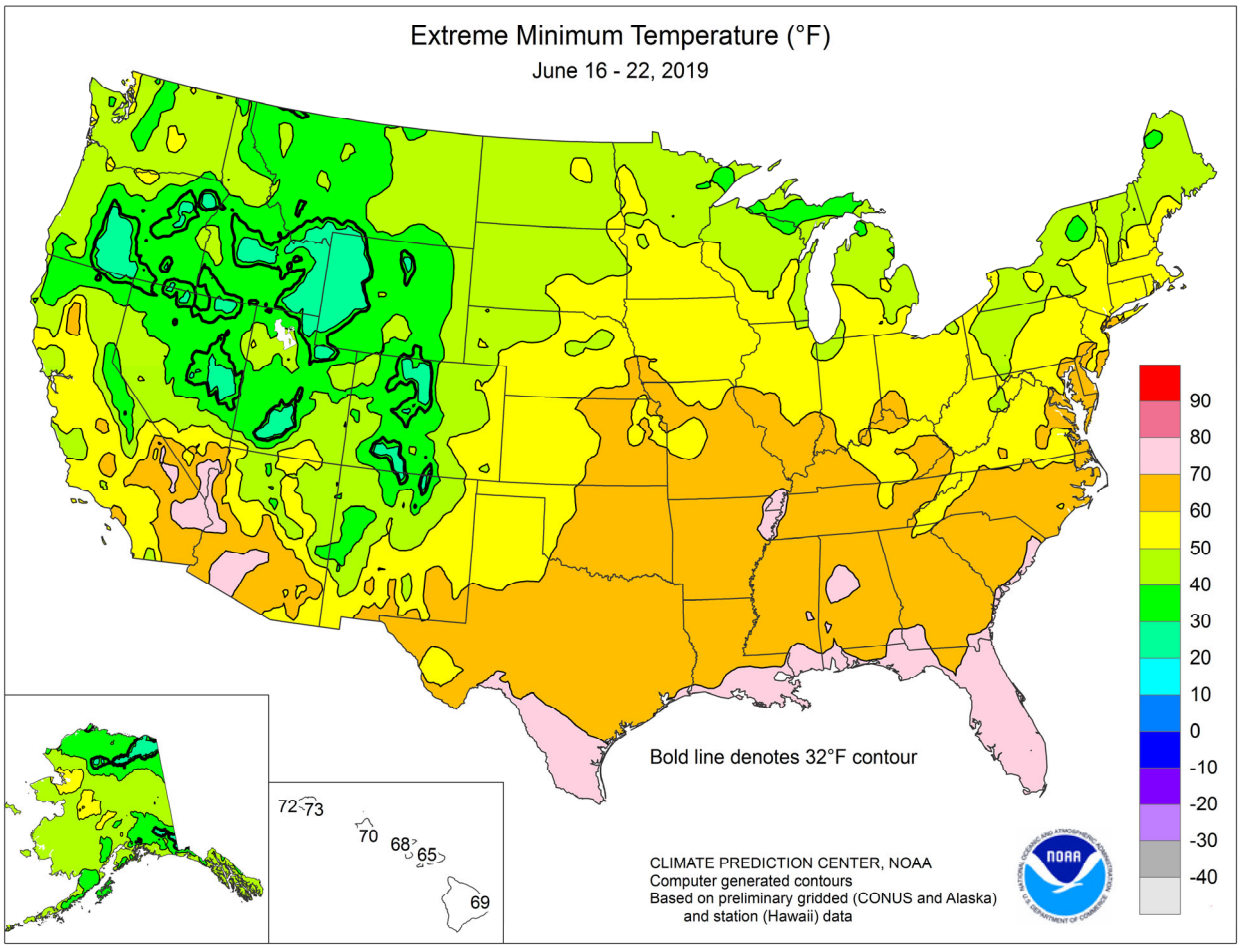
UNSHADED AREAS (INDEX DECREASED)

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


Drought Severity Index by Division
Weekly Value for Period Ending Jun 22, 2019
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
-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)
Missing/Incomplete
NOAA

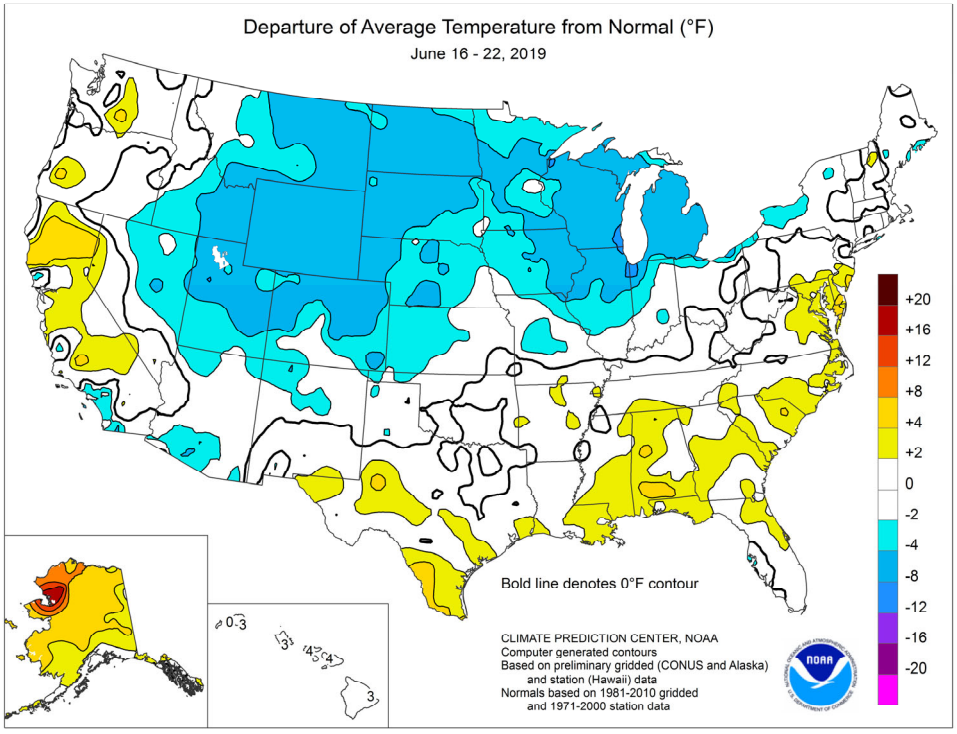

Drought Severity Index by Division
Weekly Value for Period Ending Jun 22, 2019
Long Term Palmer
(Index Values are in Tenths. Example 37=3.7)
DROUGHT SEVERITY INDEX (PALMER)
DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS: REPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM 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
Missing/Incomplete
NOAA


Extreme Maximum Temperature (°F)
June 16 - 22, 2019
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
89
87
92
90
95
88
Bold line denotes 95°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Extreme Minimum Temperature (°F)
June 16 - 22, 2019
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
72
73
70
68
65
69
Bold line denotes 32°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data

(Continued from front cover)

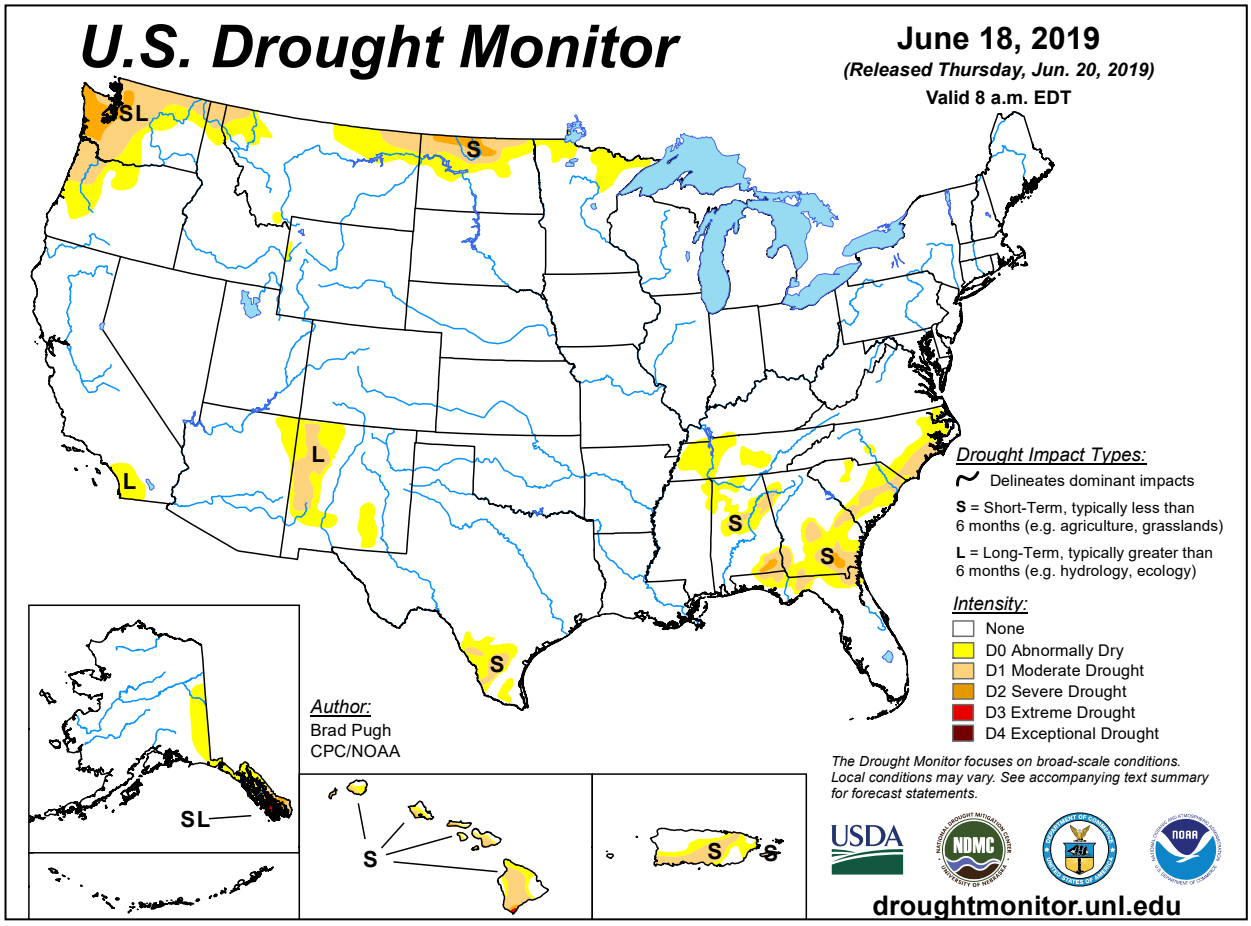
southern High Plains, avoided most of the rain. Meanwhile, mostly dry weather prevailed **west of the Rockies**, although chilly conditions across the **Intermountain West** contrasted with periods of heat in the **Pacific Coast States** and the **Desert Southwest**. In fact, cooler-than-normal weather—with temperatures locally averaging more than 5°F below normal—stretched from the **Intermountain West into the Great Lakes region**, maintaining a slow pace of crop growth. Temperatures failed to reach 80°F during the week in most areas from the **northern Plains to New England**. In contrast, near- or above-normal temperatures dominated the **Pacific Coast States**, the **South**, and the **Mid-Atlantic States**.

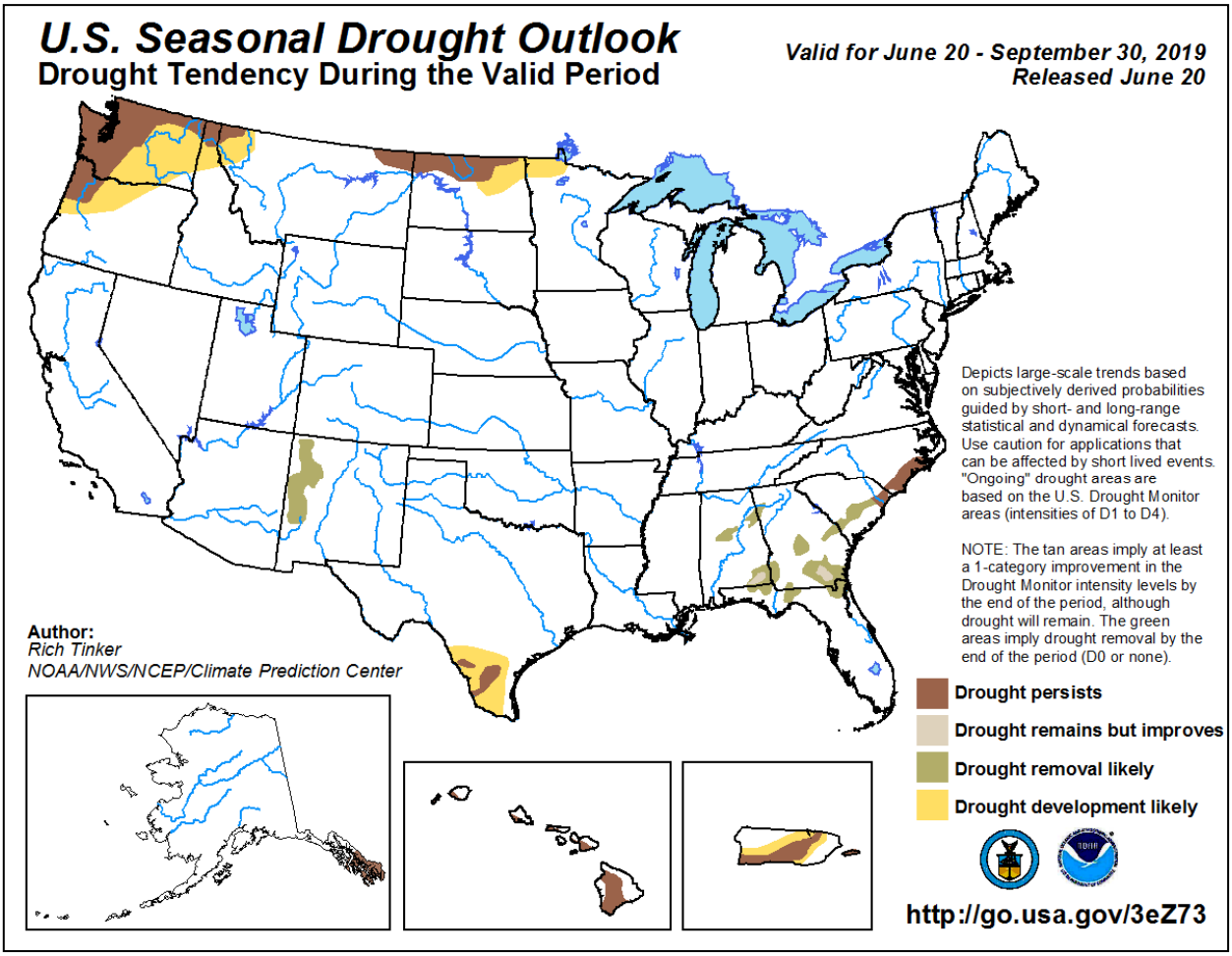


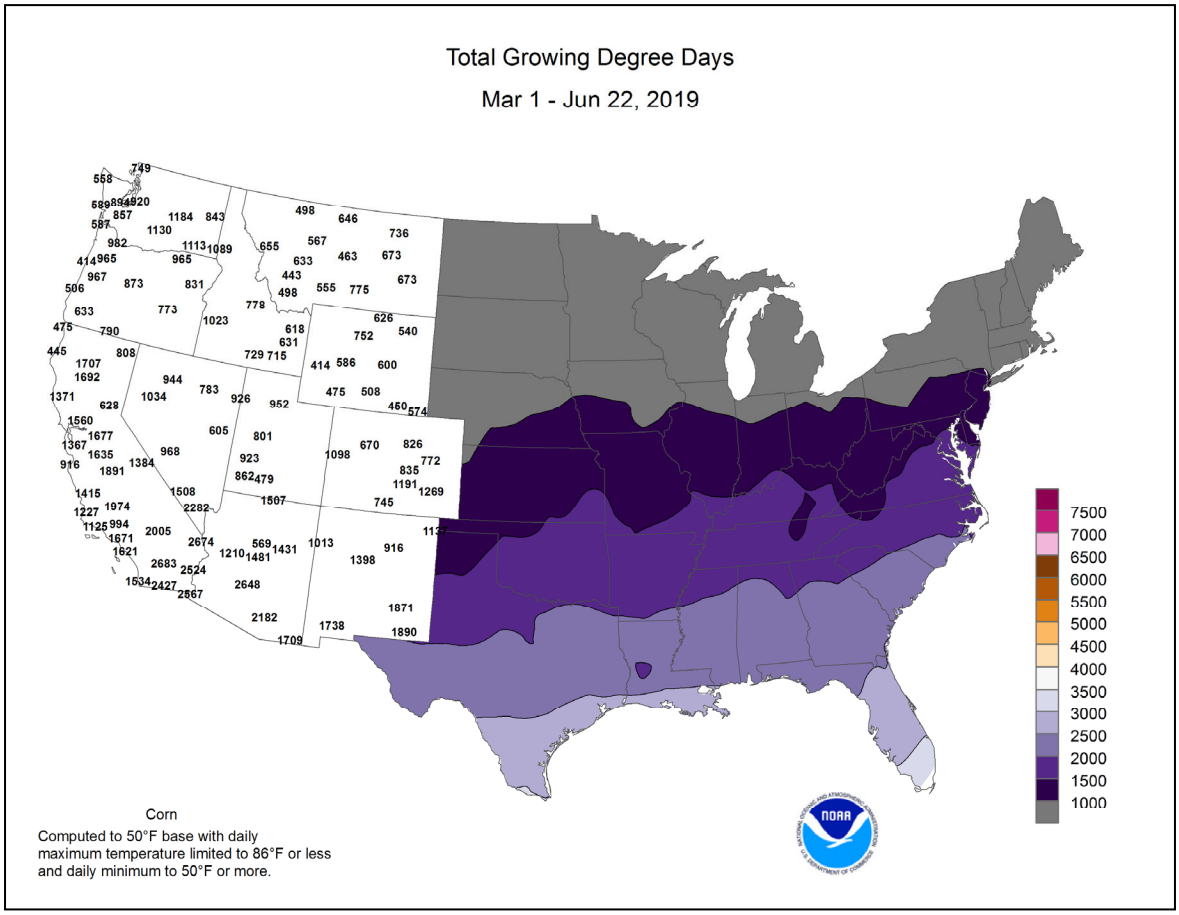
Record-setting heat was confined to parts of the **Deep South**, where **McAllen, TX**, posted a high of 103°F on June 19. **McAllen** reported highs of 100°F or greater each day from June 6-9 and 18-20. Late in the week, overnight low temperatures remained above 80°F in parts of the **Gulf Coast region**. On the 22nd, a low of 82°F in **Houston, TX**, tied a June record for highest minimum temperature, most recently achieved on June 21, 2011. In contrast, a late-week surge of cool air chilled the **Northwest**. On June 22, daily-record lows dipped below the freezing mark in locations such as **Lake Yellowstone, WY** (23°F); **Stanley, ID** (24°F); and **Ely, NV** (27°F). Consecutive daily-record lows occurred on June 21-22 in **Alta, UT** (28 and 29°F), and **Idaho Falls, ID** (32°F both days). The cool weather extended southward into **California**, where **Paso Robles** (44°F) notched a daily-record low for June 22.

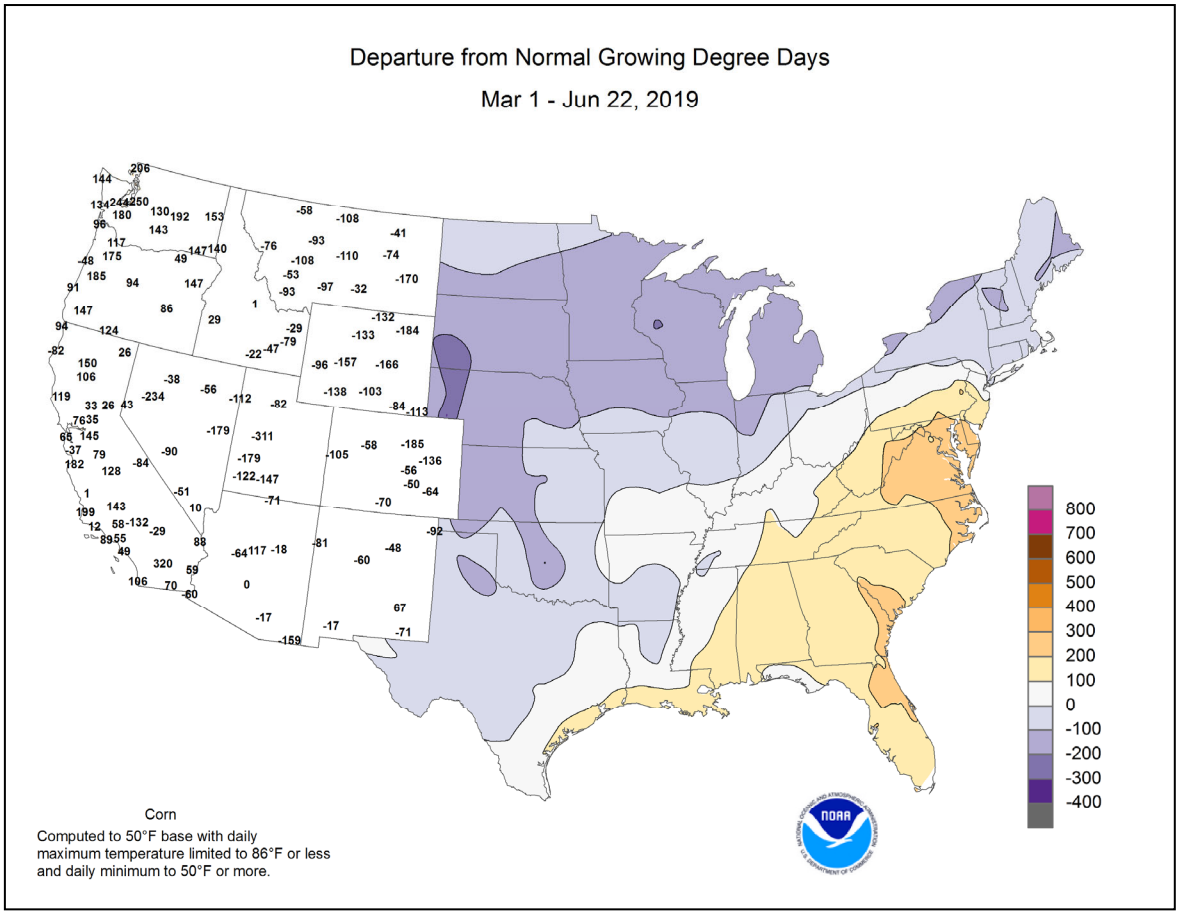
The week began in the midst of a heavy-rainfall event from the **southern Plains into the lower Midwest**. In **Texas**, record-setting rainfall totals for June 16 reached 3.42 inches in **Tyler**, 3.10 inches in **Waco**, and 2.42 inches in **Dallas-Fort Worth**. On the same date, record-setting amounts in the **Ohio Valley** included 3.12 inches in **Evansville, IN**, and 2.38 inches in **Cincinnati, OH**. Heavy rain also soaked parts of the **Plains**, where **Imperial, NE**, received 4.14 inches on June 16-17. By mid-week, heavy showers persisted in the **eastern Corn Belt** and spread to parts of the **northern Plains** and the **Northeast**. Daily-record totals for June 19 included 2.65 inches in **Columbus, OH**; 2.52 inches in **Reading, PA**; and 2.06 inches in **Mobridge, SD**. The following day, record-setting **Northeastern** rainfall amounts for June 20 topped the 2-inch mark in **Philadelphia, PA** (2.87 inches), and **Montpelier, VT** (2.55 inches). In **Michigan**, **Kalamazoo** netted 3.08 inches on June 19-20. From June 21-23, impressive rainfall drenched the **east-central Plains**, with more than an inch occurring each day in **Kansas** locations such as **Lawrence** and **Topeka**. Three-day totals reached 5.02 inches in **Lawrence** and 4.28 inches in **Topeka**. During the same June 21-23 period, amounts in **Missouri** totaled 5.84 inches in **Kirksville**, 5.56 inches in **Kansas City**, and 4.48 inches in **Saint Joseph**. Finally, snow blanketed parts of the **northern and central Rockies**, starting on June 20 and continuing into the first weekend of astronomical summer. Totals in excess of a foot were noted at a few sites in **western Colorado** at elevations above 9,000 feet, while as much as a half-foot fell in **Gallatin County, MT**.

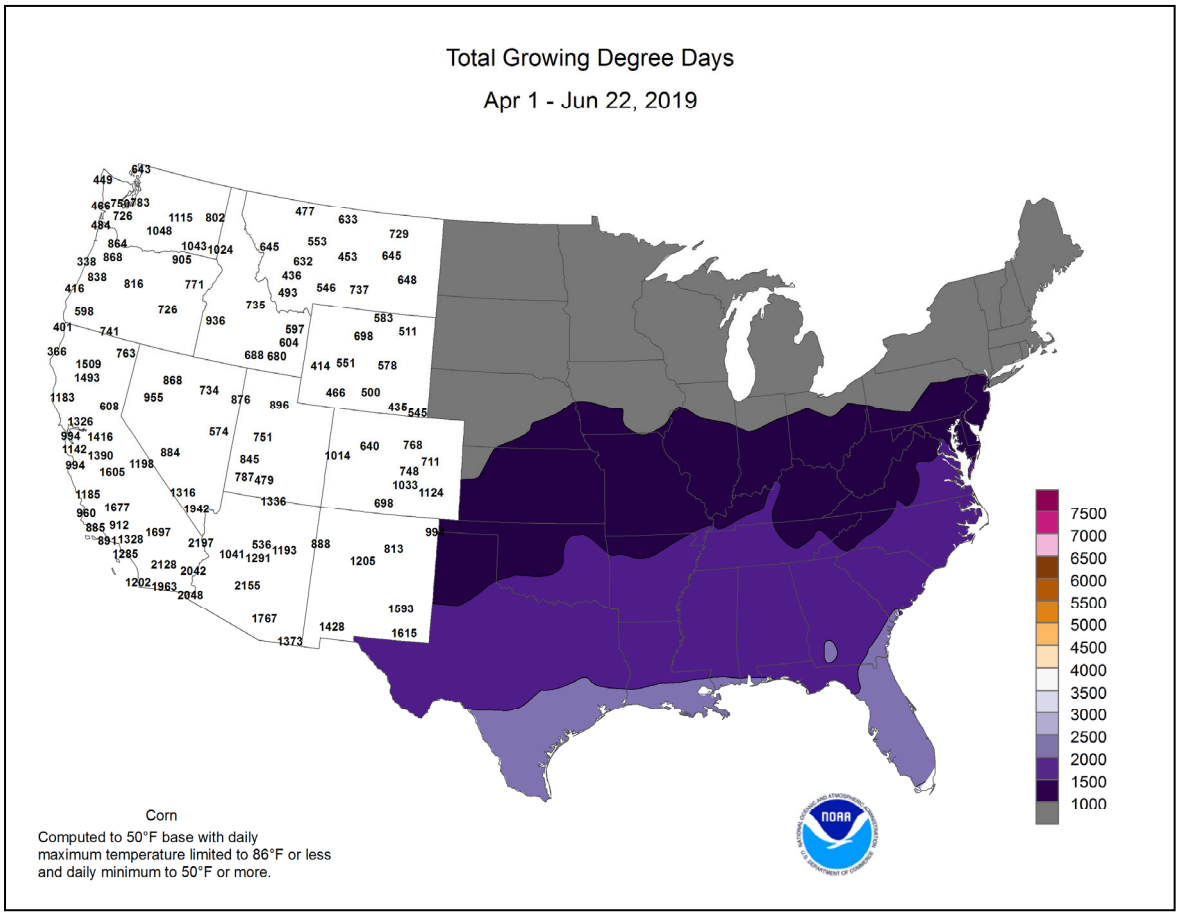
Occasional showers in **southern Alaska** contrasted with mostly dry weather across the state's northern tier. However, weekly temperatures averaged at least 5°F above normal statewide, except across **southern Alaska**. Warmth was particularly impressive in **northern Alaska**, where **Utqiagvik (Barrow)** posted a monthly record high of 73°F on June 20. The previous record in that location had been 72°F on June 18, 1996. Meanwhile, beneficial precipitation in drought-affected **southeastern Alaska** resulted in daily-record totals for June 17 in locations such as **Juneau** (1.17 inches) and **Haines** (1.08 inches). **Sitka** received 2.03 inches of rain from June 15-18. Farther south, **Hawaii's** record-breaking hot spell continued, courtesy of warm oceanic conditions in the vicinity of the state. On **Maui**, **Kahului's** temperature reached or exceeded the 90-degree mark on 20 of the month's first 22 days, peaking at 95°F on June 6, 7, and 22. Prior to this year, **Kahului's** highest June reading had been 94°F, set on June 12, 1996, and several earlier dates. **Honolulu, Oahu**, reported several daily-record highs during the week, with the temperature topping out on June 19 at 92°F—tying a monthly mark most recently achieved on June 11, 1996. Through June 22, rainfall at the state's major airport observation sites ranged from 0.03 inch (21 percent of normal) in **Kahului** to 3.29 inches (64 percent) in **Hilo**, on the **Big Island**.

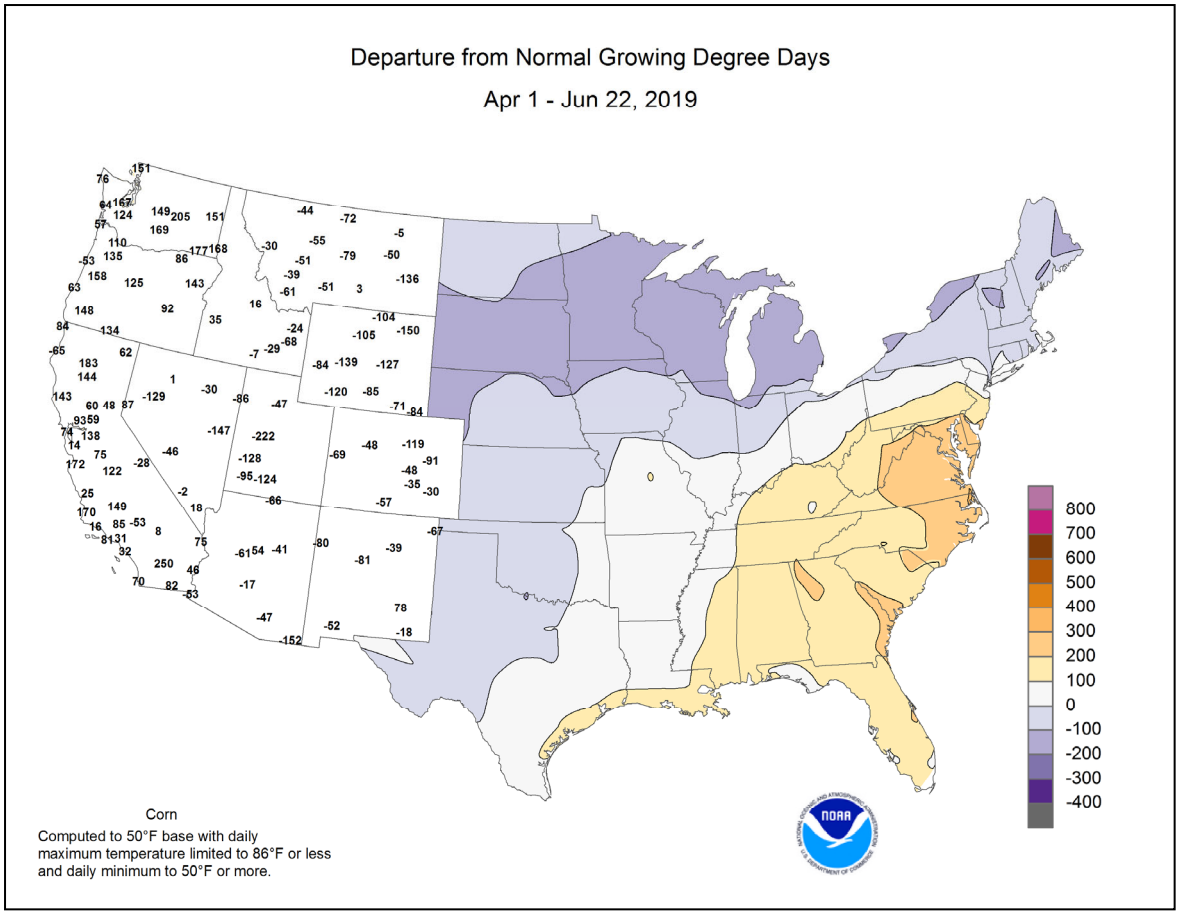

U.S. Drought Monitor
June 18, 2019
(Released Thursday, Jun. 20, 2019)
Valid 8 a.m. EDT
SL
S
L
L
S
S
S
S
SL
S
S
Drought Impact Types:
Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
Intensity:
None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought
Author:
Brad Pugh
CPC/NOAA
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
USDA
NDMC
droughtmonitor.unl.edu


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for June 20 - September 30, 2019
Released June 20
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
Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center
http://go.usa.gov/3eZ73


Total Growing Degree Days
Mar 1 - Jun 22, 2019
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
NOAA
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 - Jun 22, 2019
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
NOAA
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 - Jun 22, 2019
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 - Jun 22, 2019
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 June 22, 2019

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 JUN 1	PCT. NORMAL SINCE JUN 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	90	72	95	70	81	4	1.58	0.76	0.78	4.70	178	28.89	104	91	52	5	0	4	2
	HUNTSVILLE	92	71	97	69	82	6	0.16	-0.77	0.09	1.46	47	36.39	121	90	57	6	0	2	0
	MOBILE	91	75	92	70	83	3	1.50	0.41	1.41	4.47	124	25.75	78	94	66	6	0	4	1
	MONTGOMERY	93	73	95	69	83	4	1.03	0.09	0.62	3.61	131	24.18	86	94	54	6	0	4	1
AK	ANCHORAGE	67	51	70	49	59	4	0.03	-0.21	0.02	0.06	9	5.09	128	80	61	0	0	2	0
	BARROW	51	34	73	30	42	6	0.00	-0.06	0.00	0.57	438	3.53	512	94	54	0	2	0	0
	FAIRBANKS	80	56	85	50	68	8	0.02	-0.31	0.02	1.41	155	4.89	168	79	50	0	0	1	0
	JUNEAU	63	50	75	45	57	3	1.95	1.18	0.90	3.49	145	21.19	100	97	78	0	0	4	2
	KODIAK	57	47	70	37	52	2	1.83	0.60	0.96	3.29	81	31.71	91	89	80	0	0	5	2
	NOME	65	48	74	44	57	9	0.00	-0.26	0.00	0.13	19	7.27	167	83	63	0	0	0	0
AZ	FLAGSTAFF	76	42	79	40	59	-2	0.00	-0.06	0.00	0.00	0	15.17	158	61	16	0	0	0	0
	PHOENIX	104	78	107	76	91	2	0.00	0.00	0.00	0.00	0	3.02	98	23	11	7	0	0	0
	PRESCOTT	86	58	90	55	72	4	0.00	-0.05	0.00	0.11	157	8.91	130	41	11	1	0	0	0
	TUCSON	100	69	102	67	85	0	0.00	-0.03	0.00	0.00	0	5.03	156	25	14	7	0	0	0
AR	FORT SMITH	90	71	95	68	80	2	0.55	-0.41	0.55	5.35	162	31.92	149	90	56	4	0	1	1
	LITTLE ROCK	89	70	92	65	80	1	1.05	0.16	1.05	2.50	85	37.15	147	95	53	4	0	1	1
CA	BAKERSFIELD	96	71	103	65	83	5	0.00	0.00	0.00	0.23	288	6.51	142	53	36	6	0	0	0
	FRESNO	94	68	102	63	81	5	0.00	-0.03	0.00	0.00	0	9.52	122	63	38	6	0	0	0
	LOS ANGELES	71	63	72	62	67	0	0.00	0.00	0.00	0.00	0	12.81	136	81	73	0	0	0	0
	REDDING	99	72	105	65	86	10	0.00	-0.12	0.00	0.00	0	31.08	142	45	22	6	0	0	0
	SACRAMENTO	91	56	100	53	74	2	0.00	-0.03	0.00	0.00	0	19.36	163	89	27	4	0	0	0
	SAN DIEGO	68	63	72	61	66	-2	0.01	0.01	0.01	0.01	20	8.42	111	82	73	0	0	1	0
	SAN FRANCISCO	73	56	81	54	64	3	0.00	0.00	0.00	0.00	0	18.42	138	82	68	0	0	0	0
	STOCKTON	93	60	99	54	77	3	0.00	0.00	0.00	0.00	0	12.48	139	75	43	5	0	0	0
CO	ALAMOSA	76	44	82	39	60	0	0.26	0.15	0.26	0.41	108	5.09	200	78	28	0	0	1	0
	CO SPRINGS	74	50	85	48	62	-3	0.73	0.21	0.36	1.76	101	7.45	100	82	38	0	0	4	0
	DENVER INTL	75	50	83	45	63	-3	1.78	1.45	0.97	2.13	163	9.47	147	90	41	0	0	6	1
	GRAND JUNCTION	82	54	92	46	68	-4	0.72	0.66	0.42	0.76	245	6.60	155	68	45	1	0	4	0
	PUEBLO	83	53	92	50	68	-2	1.79	1.51	1.67	2.24	243	6.67	128	86	44	1	0	4	1
CT	BRIDGEPORT	75	64	82	62	70	2	1.68	0.88	0.91	2.59	99	24.48	114	88	74	0	0	6	2
	HARTFORD	77	63	82	56	70	1	0.66	-0.21	0.25	1.86	65	26.66	122	83	67	0	0	4	0
DC	WASHINGTON	88	70	92	66	79	4	2.23	1.54	1.16	4.02	174	22.04	120	84	48	2	0	3	2
DE	WILMINGTON	84	68	88	60	76	4	4.33	3.53	2.06	8.15	317	28.21	139	94	56	0	0	5	2
FL	DAYTONA BEACH	91	74	96	72	83	3	2.19	0.82	1.13	5.35	133	16.69	85	100	62	5	0	4	2
	JACKSONVILLE	92	72	97	70	82	3	0.85	-0.43	0.38	4.15	114	16.71	79	94	59	4	0	4	0
	KEY WEST	88	81	89	76	84	0	0.46	-0.63	0.45	0.88	25	11.66	80	85	71	0	0	2	0
	MIAMI	90	77	95	72	84	1	3.76	1.68	2.43	10.31	162	23.52	108	86	59	5	0	3	3
	ORLANDO	92	74	95	70	83	2	4.04	2.26	1.79	7.89	157	19.52	100	89	61	6	0	5	3
	PENSACOLA	91	78	93	74	84	3	1.51	0.01	1.43	5.99	139	20.90	72	97	66	4	0	2	1
	TALLAHASSEE	91	74	96	71	83	2	1.64	0.02	0.62	4.03	83	16.34	55	97	69	4	0	4	2
	TAMPA	90	77	93	72	84	2	2.33	1.00	1.29	8.23	222	24.68	153	89	65	6	0	4	1
	WEST PALM BEACH	90	76	94	74	83	2	1.76	-0.05	0.75	5.20	95	26.22	107	86	66	4	0	5	1
GA	ATHENS	89	69	92	64	79	2	0.66	-0.23	0.40	6.84	243	22.87	95	88	56	4	0	4	0
	ATLANTA	89	71	92	69	80	3	0.32	-0.48	0.17	5.19	213	26.35	105	83	60	3	0	3	0
	AUGUSTA	93	70	95	63	82	4	0.67	-0.32	0.44	6.03	200	20.51	92	92	57	6	0	3	0
	COLUMBUS	92	73	95	69	82	2	1.74	0.96	1.73	6.39	271	23.95	96	90	49	7	0	2	1
	MACON	93	71	95	67	82	4	2.55	1.73	1.55	3.97	165	17.38	76	90	48	7	0	4	2
	SAVANNAH	93	73	97	70	83	4	1.08	-0.23	0.43	11.41	296	22.08	104	90	57	6	0	4	0
HI	HILO	86	71	88	69	78	3	0.62	-1.07	0.26	3.33	68	37.86	65	85	71	0	0	6	0
	HONOLULU	89	75	92	70	82	2	0.11	0.03	0.08	0.14	45	3.22	35	75	65	4	0	2	0
	KAHULUI	92	71	95	65	81	3	0.00	-0.03	0.00	0.03	27	9.31	85	74	60	6	0	0	0
	LIHUE	86	75	87	73	80	2	0.25	-0.14	0.12	0.64	47	9.10	49	85	74	0	0	5	0
ID	BOISE	79	52	89	42	65	-3	0.00	-0.15	0.00	0.01	2	12.08	172	61	33	0	0	0	0
	LEWISTON	80	57	91	48	68	2	0.01	-0.24	0.01	0.73	81	8.67	124	66	42	1	0	1	0
	POCATELLO	75	43	83	34	59	-3	0.00	-0.18	0.00	0.38	53	8.92	128	73	32	0	0	0	0
IL	CHICAGO/O'HARE	71	55	79	52	63	-6	0.54	-0.31	0.29	1.99	75	23.21	148	90	66	0	0	3	0
	MOLINE	76	60	83	56	68	-4	1.40	0.31	1.04	3.56	104	28.74	164	87	67	0	0	2	1
	PEORIA	77	61	82	58	69	-3	2.61	1.74	2.05	4.24	155	28.54	173	90	64	0	0	3	2
	ROCKFORD	75	56	82	54	66	-3	0.57	-0.56	0.41	2.47	72	24.84	153	90	67	0	0	3	0
	SPRINGFIELD	78	63	84	61	70	-3	3.53	2.67	1.90	6.59	235	29.70	177	99	69	0	0	4	3
IN	EVANSVILLE	83	67	89	61	75	0	5.12	4.20	3.12	6.56	215	36.31	159	97	72	0	0	6	2
	FORT WAYNE	79	62	84	57	71	1	1.41	0.47	0.84	2.39	82	21.25	124	91	60	0	0	3	2
	INDIANAPOLIS	78	65	83	57	71	-1	2.00	1.06	1.69	7.30	245	30.43	158	97	72	0	0	5	1
	SOUTH BEND	75	57	80	48	66	-4	1.12	0.13	0.81	3.91	131	24.44	142	94	69	0	0	3	1
IA	BURLINGTON	76	62	82	57	69	-4	2.62	1.60	1.46	3.98	124	26.67	157	91	63	0	0	3	3
	CEDAR RAPIDS	73	58	77	55	66	-5	0.16	-0.89	0.06	1.42	44	19.81	135	99	68	0	0	3	0
	DES MOINES	77	62	81	57	70	-2	3.52	2.45	2.41	4.53	135	22.58	145	92	73	0	0	4	2
	DUBUQUE	72	57	78	55	65	-4	0.69	-0.25	0.42	3.81	125	21.57	135	91	73	0	0	4	0
	SIOUX CITY	78	59	86	52	69	-2	1.31	0.49	0.83	1.40	52	15.77	127	93	71	0	0	3	1
	WATERLOO	75	59	81	55	67	-4	1.32	0.19	0.46	3.01	86	19.06	128	90	67	0	0	4	0
KS	CONCORDIA	85	65	93	62	75	1	2.56	1.68	1.51	3.43	118	18.52	139	86	62	1	0	4	2
	DODGE CITY	84	62	94	58	73	-2	1.78	1.06	1.68	2.70	118	14.50	136	95	50	2	0	3	1
	GOODLAND	79	56	86	51	67	-3	1.53	0.80	0.85	2.30	95	10.11	107	97	59	0	0	5	1
	TOPEKA	86	65	90	61	75	0	2.79	1.66	1.27	3.68	99	22.84	139	91	63	1	0	4	2

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending June 22, 2019

STATES AND STATIONS		TEMPERATURE ˚F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
																	TEMP. ˚F		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 JUN 1	PCT. NORMAL SINCE JUN 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	87	67	98	62	77	1	3.36	2.39	1.58	5.21	162	24.91	172	88	60	3	0	4	3
KY	JACKSON	80	65	87	61	73	1	3.98	2.92	1.56	7.07	204	30.30	126	100	71	0	0	7	4
	LEXINGTON	82	65	88	60	74	1	4.37	3.32	1.39	6.59	197	29.96	131	88	68	0	0	7	3
	LOUISVILLE	85	68	91	63	76	1	3.69	2.86	1.99	6.38	229	33.75	150	89	58	1	0	6	2
	PADUCAH	87	68	90	66	77	2	2.39	1.34	0.86	4.11	130	42.65	174	89	63	2	0	5	3
LA	BATON ROUGE	93	75	95	70	84	4	0.37	-0.87	0.19	6.21	165	33.86	109	94	54	6	0	2	0
	LAKE CHARLES	91	77	93	70	84	3	1.08	-0.31	0.92	6.47	143	34.94	132	90	63	6	0	2	1
	NEW ORLEANS	92	78	94	75	85	4	1.00	-0.66	0.71	4.15	88	31.18	101	86	66	6	0	2	1
	SHREVEPORT	90	71	95	66	80	0	2.69	1.52	1.26	4.55	121	27.27	103	93	62	5	0	3	2
ME	CARIBOU	72	52	80	46	62	1	1.41	0.67	1.09	2.49	105	21.10	133	86	47	0	0	3	1
	PORTLAND	71	57	80	55	64	1	1.48	0.74	1.09	4.34	183	25.80	118	92	62	0	0	3	1
MD	BALTIMORE	87	68	92	59	78	6	0.90	0.14	0.37	2.58	103	21.28	107	83	52	2	0	5	0
MA	BOSTON	74	62	83	60	68	-1	1.77	1.03	1.19	3.21	138	23.40	116	88	66	0	0	4	1
	WORCESTER	71	61	76	58	66	1	1.17	0.26	0.59	2.45	83	25.70	114	96	68	0	0	4	1
MI	ALPENA	71	46	75	42	58	-4	0.01	-0.57	0.01	2.53	139	18.74	156	92	51	0	0	1	0
	GRAND RAPIDS	74	56	81	55	65	-3	1.62	0.76	1.54	3.89	152	23.72	153	92	56	0	0	2	1
	HOUGHTON LAKE	73	48	77	43	60	-3	0.09	-0.59	0.09	3.16	148	18.66	157	88	49	0	0	1	0
	LANSING	73	55	81	52	64	-3	2.50	1.63	1.23	6.95	269	22.55	164	93	70	0	0	3	2
	MUSKEGON	74	57	82	55	65	0	0.30	-0.29	0.23	2.75	140	24.94	178	77	55	0	0	3	0
	TRAVERSE CITY	72	49	77	45	60	-5	0.03	-0.77	0.03	2.83	125	20.16	144	91	49	0	0	1	0
MN	DULUTH	70	50	74	47	60	0	0.14	-0.87	0.13	1.21	41	13.84	119	76	54	0	0	2	0
	INT'L FALLS	72	46	79	41	59	-3	0.34	-0.62	0.31	1.56	55	10.49	114	94	45	0	0	2	0
	MINNEAPOLIS	77	59	79	55	68	-1	0.29	-0.73	0.29	0.83	27	18.24	148	80	50	0	0	1	0
	ROCHESTER	71	56	75	53	63	-4	0.10	-0.83	0.07	2.50	90	23.72	184	85	66	0	0	4	0
	ST. CLOUD	75	55	76	49	65	-1	0.55	-0.54	0.52	1.52	46	16.59	147	92	46	0	0	2	1
MS	JACKSON	92	73	93	69	82	3	0.48	-0.38	0.16	2.06	77	31.30	106	92	52	7	0	5	0
	MERIDIAN	93	74	95	71	84	5	0.59	-0.29	0.28	2.47	92	35.32	113	90	58	7	0	4	0
	TUPELO	91	72	95	70	81	4	2.04	0.95	1.08	3.44	93	41.42	136	88	56	5	0	6	1
MO	COLUMBIA	80	66	85	62	73	0	3.85	2.94	1.74	5.26	175	27.95	146	93	69	0	0	5	3
	KANSAS CITY	83	65	89	60	74	0	5.16	4.17	2.82	6.92	210	31.47	185	96	60	0	0	4	2
	SAINT LOUIS	81	69	86	65	75	-1	1.93	1.08	1.09	4.36	161	30.73	166	87	70	0	0	5	2
	SPRINGFIELD	84	66	90	61	75	1	2.28	1.09	1.16	3.19	87	30.47	147	91	71	2	0	4	2
MT	BILLINGS	76	52	86	46	64	-2	0.46	0.05	0.32	1.48	102	10.29	126	81	35	0	0	6	0
	BUTTE	66	41	76	32	54	-2	0.25	-0.22	0.09	0.55	35	6.78	105	84	32	0	1	4	0
	CUT BANK	69	43	78	35	56	-2	0.42	-0.15	0.22	0.50	26	5.39	86	89	35	0	0	4	0
	GLASGOW	72	51	82	48	61	-4	1.50	0.99	0.80	1.64	103	6.20	121	84	52	0	0	5	1
	GREAT FALLS	71	45	78	38	58	-3	0.13	-0.37	0.06	0.38	21	9.91	125	93	34	0	0	5	0
	HAVRE	72	45	80	36	59	-4	1.11	0.68	0.61	1.34	95	6.05	107	90	53	0	0	6	1
	MISSOULA	71	48	83	41	60	-1	0.07	-0.31	0.06	0.42	31	8.23	115	80	43	0	0	2	0
NE	GRAND ISLAND	79	61	86	57	70	-2	2.01	1.17	0.96	3.93	139	19.76	155	90	69	0	0	6	2
	LINCOLN	83	62	88	58	72	-1	1.56	0.78	1.01	3.61	137	18.88	142	89	61	0	0	5	1
	NORFOLK	78	58	86	48	68	-3	0.46	-0.52	0.20	1.41	45	16.87	131	88	76	0	0	4	0
	NORTH PLATTE	76	56	84	52	66	-3	1.20	0.48	0.32	3.50	151	16.36	167	91	57	0	0	6	0
	OMAHA	81	65	86	62	73	0	0.77	-0.12	0.39	2.02	69	17.25	123	89	66	0	0	3	0
	SCOTTSBLUFF	75	52	83	50	64	-4	0.49	-0.12	0.18	1.01	52	16.32	187	93	69	0	0	6	0
	VALENTINE	79	56	83	49	68	0	1.75	1.08	0.70	2.29	107	18.03	196	84	50	0	0	6	2
NV	ELY	76	41	84	27	58	-2	0.04	-0.08	0.04	0.22	40	11.56	219	82	30	0	1	1	0
	LAS VEGAS	100	79	106	74	90	4	0.00	0.00	0.00	0.00	0	4.60	202	25	14	6	0	0	0
	RENO	87	59	95	50	73	8	0.00	-0.09	0.00	0.00	0	8.51	198	43	23	4	0	0	0
	WINNEMUCCA	82	44	91	33	63	-2	0.00	-0.14	0.00	0.09	16	7.11	149	56	20	3	0	0	0
NH	CONCORD	74	57	80	52	66	1	0.69	0.00	0.41	2.94	133	19.35	114	96	60	0	0	3	0
NJ	NEWARK	79	66	84	62	73	1	2.80	2.07	1.23	4.95	205	28.90	132	87	71	0	0	5	3
NM	ALBUQUERQUE	89	59	93	52	74	-2	0.01	-0.13	0.01	0.04	9	3.49	114	42	14	4	0	1	0
NY	ALBANY	77	61	80	55	69	2	1.20	0.33	0.75	4.01	145	20.33	116	85	58	0	0	4	1
	BINGHAMTON	71	57	76	51	64	0	2.72	1.83	1.07	4.79	177	22.91	129	94	69	0	0	5	2
	BUFFALO	74	57	82	52	65	-1	0.68	-0.22	0.61	4.14	148	22.46	126	87	57	0	0	3	1
	ROCHESTER	74	56	81	49	65	-1	1.66	0.86	1.04	3.52	145	16.51	110	91	62	0	0	4	1
	SYRACUSE	76	56	85	48	66	0	1.34	0.48	0.81	4.29	169	22.74	133	90	57	0	0	4	1
NC	ASHEVILLE	83	64	86	61	74	4	1.42	0.42	0.56	6.24	189	33.38	141	87	60	0	0	6	1
	CHARLOTTE	89	70	92	65	80	3	0.84	0.07	0.60	4.30	171	25.77	122	85	51	1	0	3	1
	GREENSBORO	86	68	91	63	77	3	1.81	1.03	0.79	9.10	370	29.36	144	92	57	1	0	5	2
	HATTERAS	85	74	88	67	79	4	0.09	-0.76	0.06	2.26	80	30.81	124	93	67	0	0	3	0
	RALEIGH	89	68	93	63	78	3	0.41	-0.34	0.30	2.50	103	22.93	112	90	53	3	0	4	0
	WILMINGTON	92	71	95	63	82	5	0.34	-0.88	0.26	2.26	63	13.65	59	92	45	6	0	4	0
ND	BISMARCK	71	52	77	46	61	-4	1.04	0.43	0.40	2.01	110	9.49	130	88	60	0	0	4	0
	DICKINSON	69	47	75	44	58	-6	0.54	-0.26	0.27	1.17	50	9.98	126	93	49	0	0	4	0
	FARGO	70	53	76	49	61	-5	1.25	0.42	0.52	1.89	74	11.91	131	94	64	0	0	4	1
	GRAND FORKS	72	52	77	47	62	-4	0.33	-0.39	0.19	1.47	69	9.48	123	93	53	0	0	3	0
	JAMESTOWN	68	52	74	48	60	-6	0.24	-0.47	0.15	1.60	77	9.80	128	97	64	0	0	3	0
	WILLISTON	72	52	78	44	62	-2	0.91	0.36	0.44	1.44	88	5.61	90	86	56	0	0	3	0
OH	AKRON-CANTON	78	62	83	52	70	2	3.41	2.61	0.96	7.54	297	26.40	148	84	64	0	0	6	4
	CINCINNATI	81	65	92	63	73	1	3.72	2.70	1.66	7.26	217	35.17	164	89	72	1	0	5	3
	CLEVELAND	75	60	79	55	67	-1	2.25	1.34	1.61	7.09	256	25.50	147	90	63	0	0	3	2
	COLUMBUS	79	65	83	60	72	0	4.35	3.41	2.65	5.62	197	27.91	159	87	64	0	0	5	3
	DAYTON	80	65	84	59	72	1	0.71	-0.27	0.40	3.31	107	27.77	143	90	63	0	0	5	0
	MANSFIELD	76	60	82	56	68	1	3.02	1.97	0.97	7.88	240	28.37	142	98	61	0	0	5	3

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

Weather Data for the Week Ending June 22, 2019

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 JUN 1	PCT. NORMAL SINCE JUN 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	59	85	55	68	-1	0.86	-0.05	0.60	4.01	145	21.80	140	85	67	0	0	2	1
	YOUNGSTOWN	77	60	83	50	68	2	2.22	1.31	1.00	7.78	290	29.91	177	90	69	0	0	6	2
OK	OKLAHOMA CITY	87	67	93	62	77	0	1.39	0.35	0.76	5.13	141	29.02	163	99	59	3	0	2	2
	TULSA	88	71	95	65	80	1	0.54	-0.52	0.47	4.04	107	31.21	149	93	65	3	0	3	0
OR	ASTORIA	63	53	65	51	58	1	0.22	-0.37	0.16	0.64	32	22.64	65	90	75	0	0	3	0
	BURNS	76	42	85	34	59	1	0.00	-0.13	0.00	0.28	53	10.32	173	66	31	0	0	0	0
	EUGENE	78	48	84	45	63	3	0.00	-0.33	0.00	0.14	11	22.21	81	84	54	0	0	0	0
	MEDFORD	84	53	91	49	69	3	0.00	-0.13	0.00	0.01	2	13.86	146	64	23	3	0	0	0
	PENDLETON	79	52	90	46	66	0	0.04	-0.12	0.03	0.09	15	9.37	136	65	37	1	0	2	0
	PORTLAND	74	56	82	54	65	2	0.07	-0.28	0.07	0.23	18	13.15	68	74	58	0	0	1	0
	SALEM	76	52	83	47	64	3	0.00	-0.32	0.00	0.09	8	18.64	88	79	54	0	0	0	0
PA	ALLENTOWN	80	65	82	58	72	3	2.44	1.55	1.86	3.94	134	30.31	146	85	64	0	0	5	1
	ERIE	72	58	77	53	65	-3	1.52	0.50	1.19	3.53	114	20.15	114	89	76	0	0	4	1
	MIDDLETOWN	82	68	83	60	75	4	2.05	1.18	0.82	4.33	152	26.66	137	90	57	0	0	6	1
	PHILADELPHIA	82	67	87	64	75	2	4.83	4.11	3.17	7.76	337	28.94	147	90	60	0	0	5	2
	PITTSBURGH	76	61	80	51	69	0	2.83	1.88	1.06	4.01	136	24.97	139	97	62	0	0	6	3
	WILKES-BARRE	76	61	80	55	69	1	3.27	2.34	1.59	5.32	190	24.71	145	94	66	0	0	6	2
	WILLIAMSPORT	78	63	85	54	71	3	3.09	2.04	1.29	5.85	188	26.35	138	92	65	0	0	6	2
RI	PROVIDENCE	75	63	81	58	69	1	1.24	0.46	0.37	3.53	142	27.33	121	93	64	0	0	5	0
SC	CHARLESTON	91	72	95	69	81	3	1.46	0.04	0.69	7.43	179	15.14	70	92	53	4	0	5	1
	COLUMBIA	92	71	93	65	81	2	1.77	0.58	1.15	8.01	233	19.92	88	88	50	6	0	3	1
	FLORENCE	94	72	97	65	83	5	1.23	0.24	0.78	3.41	114	16.75	83	91	44	7	0	3	1
	GREENVILLE	89	69	91	65	79	4	0.49	-0.37	0.42	4.44	154	25.48	102	86	51	3	0	3	0
SD	ABERDEEN	73	54	78	49	64	-3	2.56	1.73	1.37	3.90	154	14.74	158	89	63	0	0	4	2
	HURON	76	54	81	47	65	-3	2.52	1.75	2.06	2.89	133	17.57	173	91	54	0	0	5	1
	RAPID CITY	71	50	77	44	60	-5	1.49	0.84	0.57	2.06	95	19.32	219	93	56	0	0	6	1
	SIOUX FALLS	78	58	84	53	68	0	0.57	-0.24	0.35	1.50	58	19.56	171	88	61	0	0	3	0
TN	BRISTOL	82	64	89	59	73	2	1.85	0.98	0.66	7.38	264	33.79	160	93	58	0	0	6	1
	CHATTANOOGA	89	70	92	67	79	3	1.52	0.63	0.71	4.34	156	38.91	140	93	62	3	0	5	1
	KNOXVILLE	83	67	89	64	75	1	2.50	1.61	0.91	5.96	208	38.16	151	91	61	0	0	6	3
	MEMPHIS	89	71	92	70	80	1	1.92	0.94	1.10	6.30	206	37.01	132	93	61	3	0	4	2
	NASHVILLE	89	69	92	66	79	4	2.78	1.88	1.01	5.91	191	35.93	146	87	51	4	0	6	2
TX	ABILENE	94	71	102	65	82	2	0.28	-0.43	0.25	3.06	128	17.40	167	87	57	5	0	3	0
	AMARILLO	88	59	100	56	74	-1	0.05	-0.72	0.03	2.72	111	10.49	122	81	33	2	0	2	0
	AUSTIN	95	75	96	70	85	4	0.88	0.03	0.62	2.82	89	22.00	131	85	61	7	0	3	1
	BEAUMONT	93	76	95	70	84	3	1.42	-0.12	0.90	8.62	177	32.38	119	88	59	6	0	3	2
	BROWNSVILLE	96	81	98	77	89	6	0.04	-0.66	0.04	0.99	46	6.67	66	94	63	7	0	1	0
	CORPUS CHRISTI	94	78	96	72	86	4	0.06	-0.76	0.05	2.47	89	12.12	90	90	63	7	0	2	0
	DEL RIO	96	74	100	71	85	2	1.14	0.59	1.14	7.81	468	13.22	162	81	62	7	0	1	1
	EL PASO	97	73	99	67	85	2	0.00	-0.20	0.00	0.97	194	1.68	76	21	9	7	0	0	0
	FORT WORTH	92	72	97	64	82	1	2.85	2.16	2.42	3.64	133	23.42	127	86	54	5	0	2	1
	GALVESTON	89	77	92	65	83	1	0.11	-0.83	0.11	2.78	95	19.90	107	91	72	4	0	1	0
	HOUSTON	93	76	96	67	84	2	1.53	0.28	1.46	4.09	99	21.22	93	94	66	6	0	3	1
	LUBBOCK	94	66	101	59	80	2	0.55	-0.15	0.55	1.77	81	8.67	112	77	34	5	0	1	1
	MIDLAND	101	70	107	62	86	6	0.00	-0.39	0.00	0.29	24	8.34	158	69	33	7	0	0	0
	SAN ANGELO	97	69	106	65	83	4	0.67	0.10	0.67	3.11	150	12.74	131	81	50	7	0	1	1
	SAN ANTONIO	94	73	97	66	83	1	0.70	-0.29	0.39	2.39	69	11.72	73	89	52	6	0	2	0
	VICTORIA	93	77	94	68	85	3	1.30	0.15	1.26	3.55	93	13.59	73	91	64	7	0	3	1
	WACO	92	71	97	65	81	-1	3.17	2.59	3.09	3.19	136	22.50	135	***	***	4	0	2	1
	WICHITA FALLS	91	70	97	62	80	0	0.13	-0.72	0.12	2.62	89	17.64	122	92	55	5	0	2	0
UT	SALT LAKE CITY	80	58	87	48	69	-1	0.04	-0.09	0.03	0.15	23	14.36	153	60	25	0	0	2	0
VT	BURLINGTON	77	57	82	50	67	1	1.40	0.62	1.40	3.84	160	20.45	138	87	46	0	0	1	1
VA	LYNCHBURG	85	64	89	58	74	2	0.24	-0.61	0.15	3.44	129	20.74	100	93	59	0	0	4	0
	NORFOLK	88	70	93	63	79	4	0.56	-0.29	0.39	3.79	145	22.53	107	85	53	4	0	3	0
	RICHMOND	88	68	93	61	78	4	0.09	-0.69	0.08	5.14	204	25.52	126	83	53	2	0	2	0
	ROANOKE	85	66	91	60	75	3	0.49	-0.34	0.18	5.03	188	22.77	110	86	54	1	0	4	0
	WASH/DULLES	87	66	91	56	76	5	0.06	-0.87	0.06	1.30	42	21.18	107	86	47	2	0	1	0
WA	OLYMPIA	71	49	77	45	60	2	0.00	-0.41	0.00	0.08	6	15.10	58	87	67	0	0	0	0
	QUILLAYUTE	62	51	67	49	57	2	0.01	-0.77	0.01	0.67	24	32.32	61	93	76	0	0	1	0
	SEATTLE-TACOMA	71	54	77	50	62	1	0.70	0.36	0.43	0.81	73	14.78	80	82	67	0	0	3	0
	SPOKANE	76	53	87	44	64	2	0.09	-0.17	0.08	0.32	35	8.00	92	66	31	0	0	2	0
	YAKIMA	83	57	92	47	70	7	0.00	-0.14	0.00	0.00	0	5.89	142	53	31	2	0	0	0
WV	BECKLEY	75	61	81	54	68	1	0.31	-0.56	0.19	2.43	88	25.67	126	89	65	0	0	6	0
	CHARLESTON	80	65	86	57	72	2	1.21	0.29	0.46	3.23	111	25.82	124	94	63	0	0	5	0
	ELKINS	78	59	82	49	69	3	1.02	-0.03	0.52	3.63	108	24.30	109	87	57	0	0	6	1
	HUNTINGTON	80	65	85	58	73	1	1.91	1.05	0.75	4.00	140	25.06	121	94	67	0	0	5	1
WI	EAU CLAIRE	74	52	80	46	63	-4	0.06	-0.94	0.05	0.27	9	18.64	139	93	48	0	0	2	0
	GREEN BAY	72	54	77	51	63	-3	0.63	-0.17	0.55	2.29	95	18.22	152	85	53	0	0	2	1
	LA CROSSE	77	58	82	56	67	-3	0.01	-0.93	0.01	2.34	84	19.25	140	81	47	0	0	1	0
	MADISON	73	55	79	53	64	-3	0.60	-0.36	0.34	2.05	72	19.76	138	85	63	0	0	2	0
	MILWAUKEE	67	52	74	51	59	-8	0.56	-0.29	0.27	2.83	115	20.64	134	83	69	0	0	3	0
WY	CASPER	73	45	81	36	59	-4	0.44	0.15	0.21	0.54	49	10.76	151	93	46	0	0	5	0
	CHEYENNE	65	47	75	42	56	-6	0.78	0.31	0.70	1.28	83	13.84	184	80	68	0	0	2	1
	LANDER	71	45	81	35	58	-6	0.14	-0.09	0.12	0.16	17	13.54	176	79	29	0	0	3	0
	SHERIDAN	71	45	80	35	58	-4	0.76	0.30	0.35	1.38	89	12.23	152	89	51	0	0	6	0

Based on 1971-2000 normals

***** Not Available**

Spring Weather Review

Weather summary provided by USDA/WAOB

Highlights: The continuation of El Niño through the Northern Hemisphere spring contributed to an excessively wet pattern across much of the United States. Drought coverage dipped to a U.S. Drought Monitor-era record low of 2.28 percent on April 23. Subsequently, drought coverage in the continental United States increased to 5.28 percent by June 4, courtesy of increasingly dry conditions in parts of the Southeast and Pacific Northwest. By the end of spring, developing drought also extended south of the Canadian border into parts of Montana and North Dakota.

However, the more significant agricultural and hydrological story during the spring of 2019 was the incessant wetness across large sections of the mid-South, Midwest, Plains, and West. Flooding began early in the spring, when a mid-March storm delivered heavy precipitation across the western Corn Belt atop frozen soils and an extensive snow cover. In parts of the middle Missouri Valley and environs, record-high water levels engulfed communities and agricultural land—and led to the March 14 destruction of the Spencer Dam along the Niobrara River in northern Nebraska.

Flooding returned to parts of the Plains and Midwest starting in late April, as frequent storms dumped copious rainfall. Major flooding persisted for 2 months (62 days from March 16 – May 16) along the Mississippi River at Burlington, IA, breaking the 1993 record of 41 consecutive days. In late May and early June, record flooding affected the Arkansas River in Oklahoma and Arkansas, while the Mississippi River between Quincy, IL, and Chester, MO, climbed to its second-highest level on record, behind 1993.

In addition to the high river levels, which caused extensive closings and delays for barges and other waterway traffic, extensive wetness resulted in a record-slow planting pace for U.S. corn, soybeans, and rice. By June 2, only 67 percent of the intended U.S. corn acreage and 39 percent of the soybeans had been planted, compared to the 1995 records of 77 and 40 percent, respectively.

Across the Plains and upper Midwest, cool spring weather (as much as 2 to 4°F below normal) accompanied the relentless precipitation. In fact, some northern crop production areas experienced frequent snow through the end of April. In contrast, spring temperatures averaged more than 2°F above normal in the southern Atlantic States.

Historical Perspective: The National Centers for Environmental Information reported that the meteorological spring of 2019 was very wet with variable temperatures. For the Lower 48 States, it was the sixth-wettest spring during the 125-year period of record, behind 1957, 1973, 1983, 1991, and 1995. With an average of 9.85 inches (124 percent of normal, it was the nation's wettest spring since 1995, when 9.92 inches fell. Meanwhile, the nation's spring average temperature of 50.9°F was less than 0.1°F below the 20th century mean. It was the coolest spring since 2013, and the 62nd-coolest spring going back to 1895.

State temperature rankings ranged from the ninth-coolest spring in South Dakota to the seventh-warmest spring in Delaware and South Carolina (figure 1). Top-ten rankings for spring warmth were also observed in Florida, Georgia, Maryland, South Carolina, and Virginia. Meanwhile, state precipitation rankings ranged from the 13th-driest spring in Washington to the wettest spring on record in Kansas (figure 2). In addition to Kansas, top-ten rankings for spring wetness were noted in two Western States (NV and UT); three Plains States (NE, OK, and SD); and five Midwestern States (IL, IN, IA, MO, and WI).

Figure 1 Statewide Average Temperature Ranks
March–May 2019
Period: 1895–2019

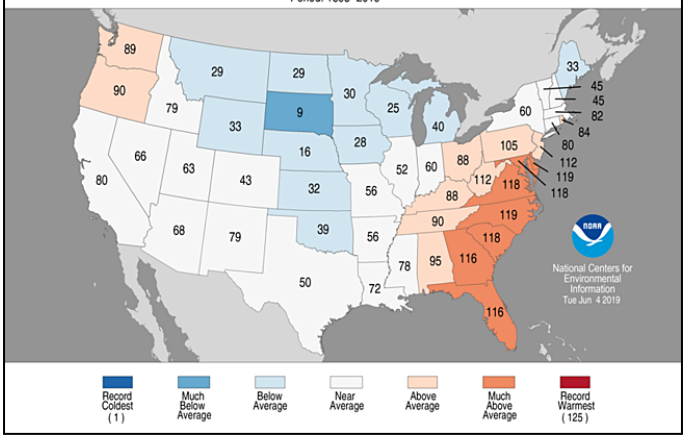
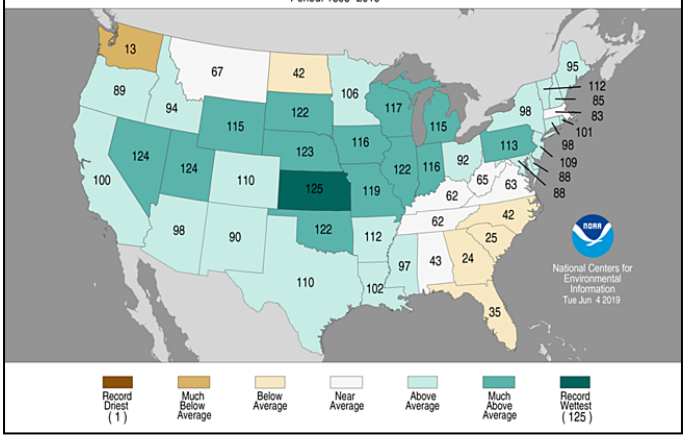


Figure 2 Statewide Precipitation Ranks
March–May 2019
Period: 1895–2019



March: Historic flooding engulfed parts of the middle Missouri Valley, following a mid-March storm that maximized runoff due to rapidly melting snow and heavy rain falling on still-frozen soils. The storm also blasted areas from eastern Colorado into parts of the Dakotas with blizzard conditions, greatly stressing livestock. Mostly tranquil weather trailed the powerhouse storm, allowing recovery efforts to begin.

Prior to the storm's arrival, winter-like cold gripped most of the country. In fact, record-setting low temperatures blanketed the northern Plains and upper Midwest, while frigid conditions also persisted in the Northwest. Periods of warmth developed in most areas as the month progressed, but March temperatures averaged at least 10°F below normal across portions of the northern Plains. Above-normal monthly temperatures were mostly limited to the lower Southeast and parts of the Southwest. However, the Southeast also experienced a sharp cold spell in early March, following a warm February.

Much of the Deep South noted drier-than-normal weather, favoring spring planting efforts. March precipitation was also lacking from the Pacific Northwest to the northernmost Rockies, leading to water-supply concerns in the northern Cascades and neighboring areas. However, large sections of the West—especially from the Sierra Nevada to the central Rockies—continued to benefit from widespread precipitation and favorable runoff prospects. By late March, the California Department of Water Resources reported that the average water equivalency of the Sierra Nevada snowpack stood at 45 inches, approximately 160 percent of the normal peak value.

Farther east, drier-than-normal March weather covered large sections of the eastern U.S., allowing previously wet fields to begin drying out in preparation for spring planting. Elsewhere, many rivers across the northern Plains and upper Midwest experienced significant rises in late March, as an extensive snow cover began to melt. However, mostly dry weather prevailed across the northern U.S. late in the month, leading to an orderly start to the melt season.

April: Most of the country remained wet in April, with drought coverage across the Lower 48 States reaching a modern-era record low of 2.28 percent late in the month, according to the U.S. Drought Monitor. As a result, soggy soils disrupted planting activities in a multitude of regions, including the northern and southern Plains, the Mississippi Delta, and much of the Midwest and Northwest. In addition, runoff from rain and melting snow led to widespread lowland flooding, especially in the eastern Dakotas and the Mississippi Valley.

By April 28, only 15 percent of the intended corn acreage had been planted—the slowest early-season planting pace since 2013, when 5 percent had been sown on that date. Meanwhile, spring wheat planting progress was extremely slow for the second year in a row, with just 13 percent of the crop planted by April 28. Other recent years with sluggish April spring wheat planting progress included 2011 (8 percent planted by the 28th), 2018 (9 percent), and 2013 (12 percent).

Only a few regions, such as the central Plains and the lower Southeast, received near- or below-normal April precipitation. In those areas, planting progressed at a slightly faster pace. In California and the Desert Southwest, seasonably dry weather favored an acceleration of fieldwork, following some early-season planting delays.

One of the month's most impressive storms struck the upper Midwest from April 10-12, resulting in blizzard conditions due to wind-driven snow that locally accumulated to a depth of 1 to 2 feet or more. Additional Midwestern snow fell as late as April 27, helping to lower soil temperatures and further delay the onset of widespread spring fieldwork.

Cooler-than-normal conditions lingered for much of the month across the nation's northern tier, while above-normal April temperatures dominated California, the Great Basin, the Four Corners States, and much of the eastern U.S.

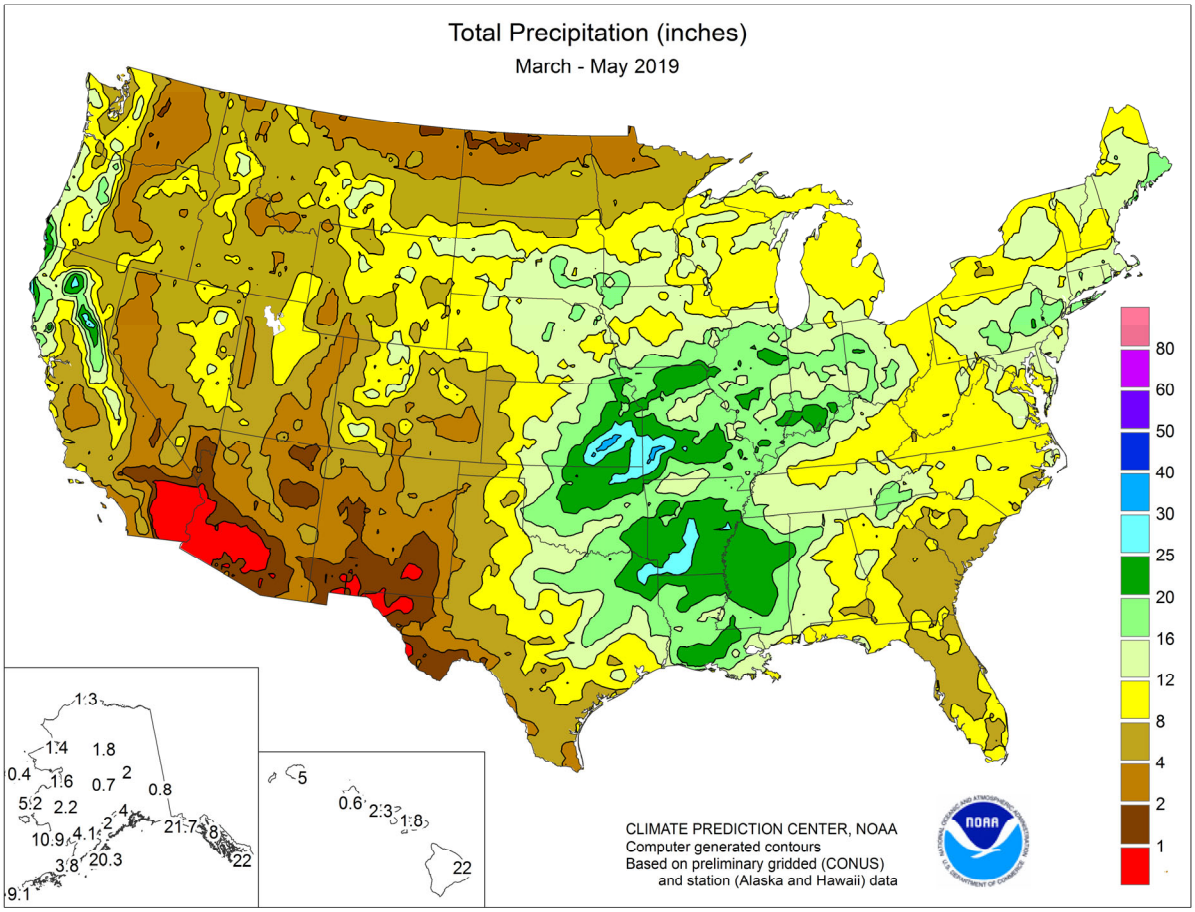
May: Merciless rains pounded the Plains and Midwest, triggering new rounds of flooding and leading to a record-slow planting pace for U.S. corn and soybeans. By June 2, only 67 percent of the nation's corn and 39 percent of the soybeans had been planted, breaking 1995 records of 77 and 40 percent, respectively. Late in the month, record flooding developed in the Arkansas River Basin, while rivers in parts of the mid-Mississippi Valley surged to their second-highest levels on record, behind 1993.

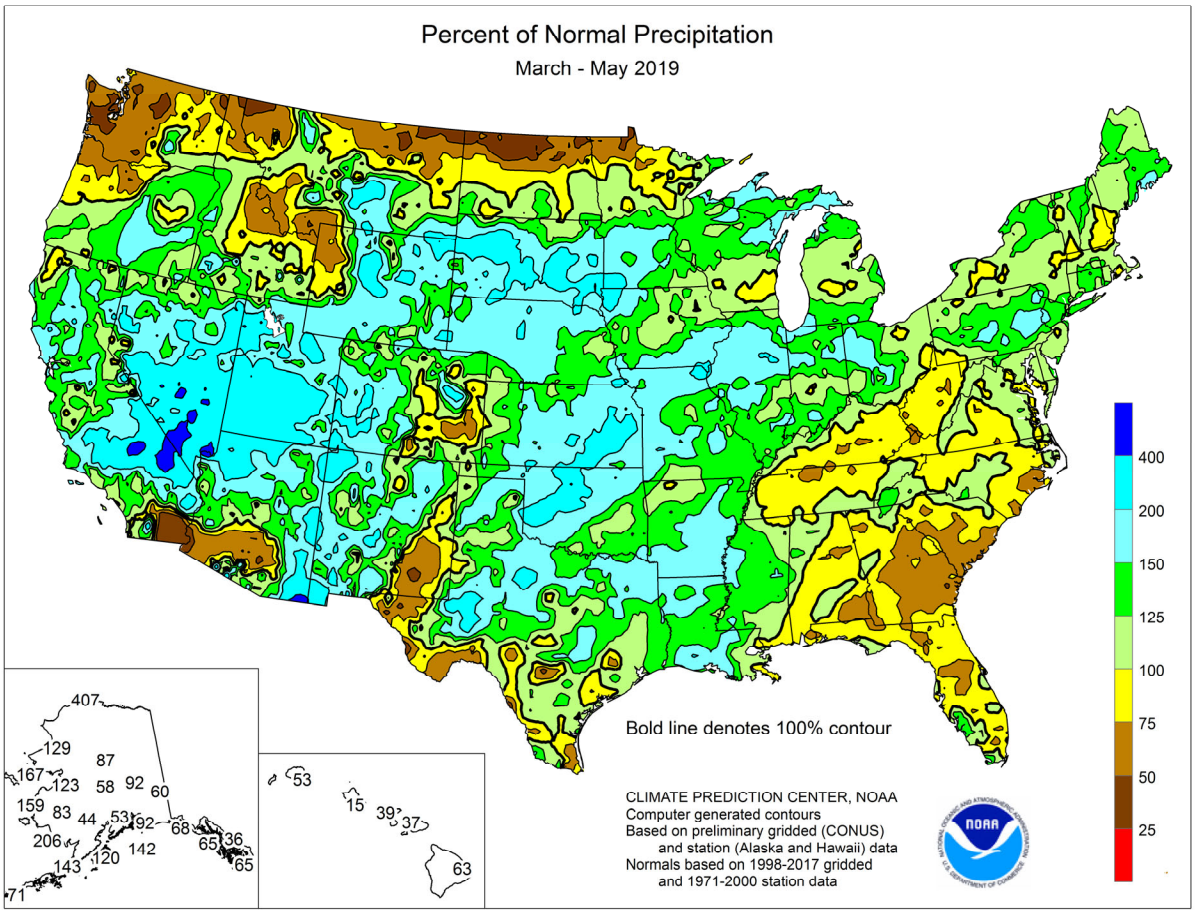
The incessantly wet conditions were accompanied by significantly below-normal temperatures, resulting in developmental delays and quality concerns with respect to winter wheat. Furthermore, late-planted summer crops were slow to emerge and become established amid the cool, rainy conditions.

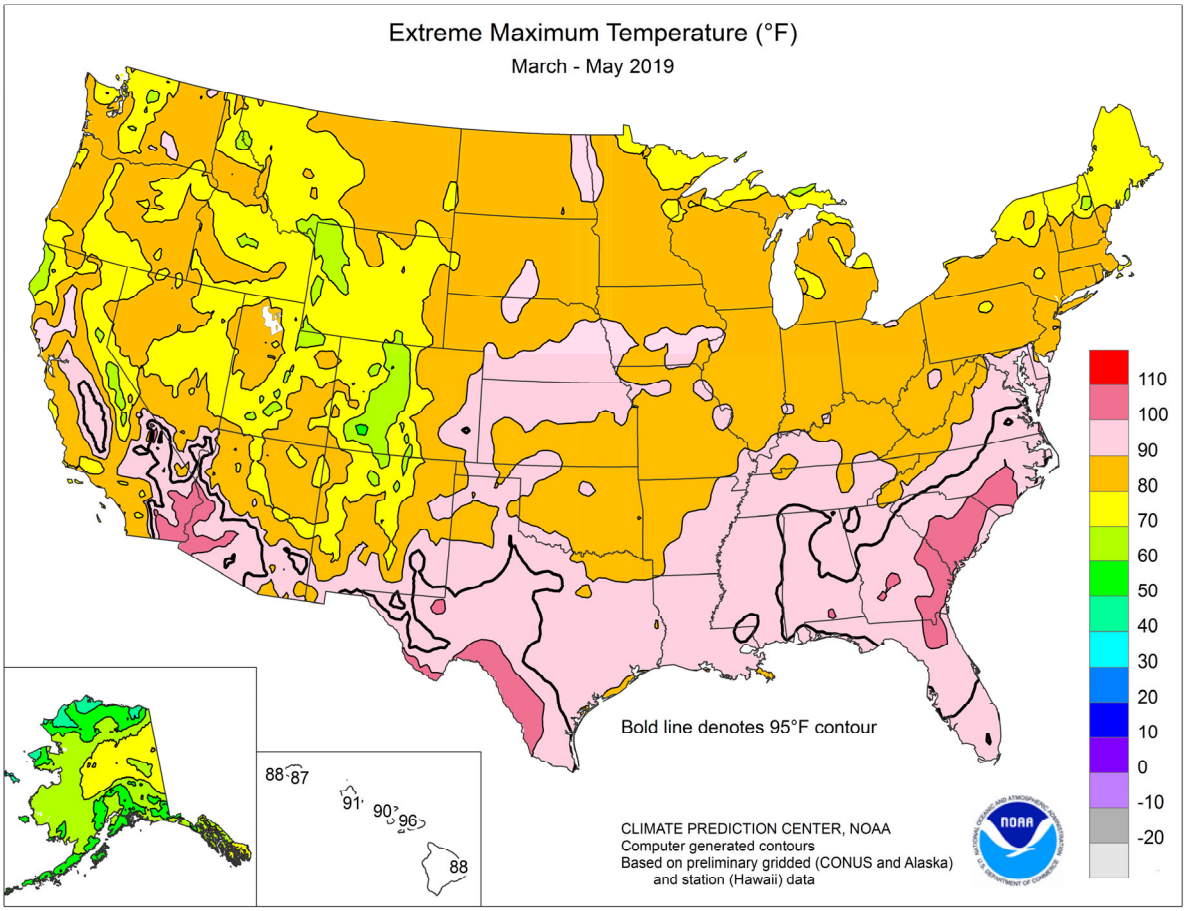
Unseasonably wet weather extended into parts of the West. From California into the Four Corners States, cooler-than-normal conditions accompanied the frequent showers, slowing fieldwork and crop development. In contrast, warmer- and drier-than-normal weather stretched from the Pacific Northwest to the northernmost Rockies, fostering some drought expansion.

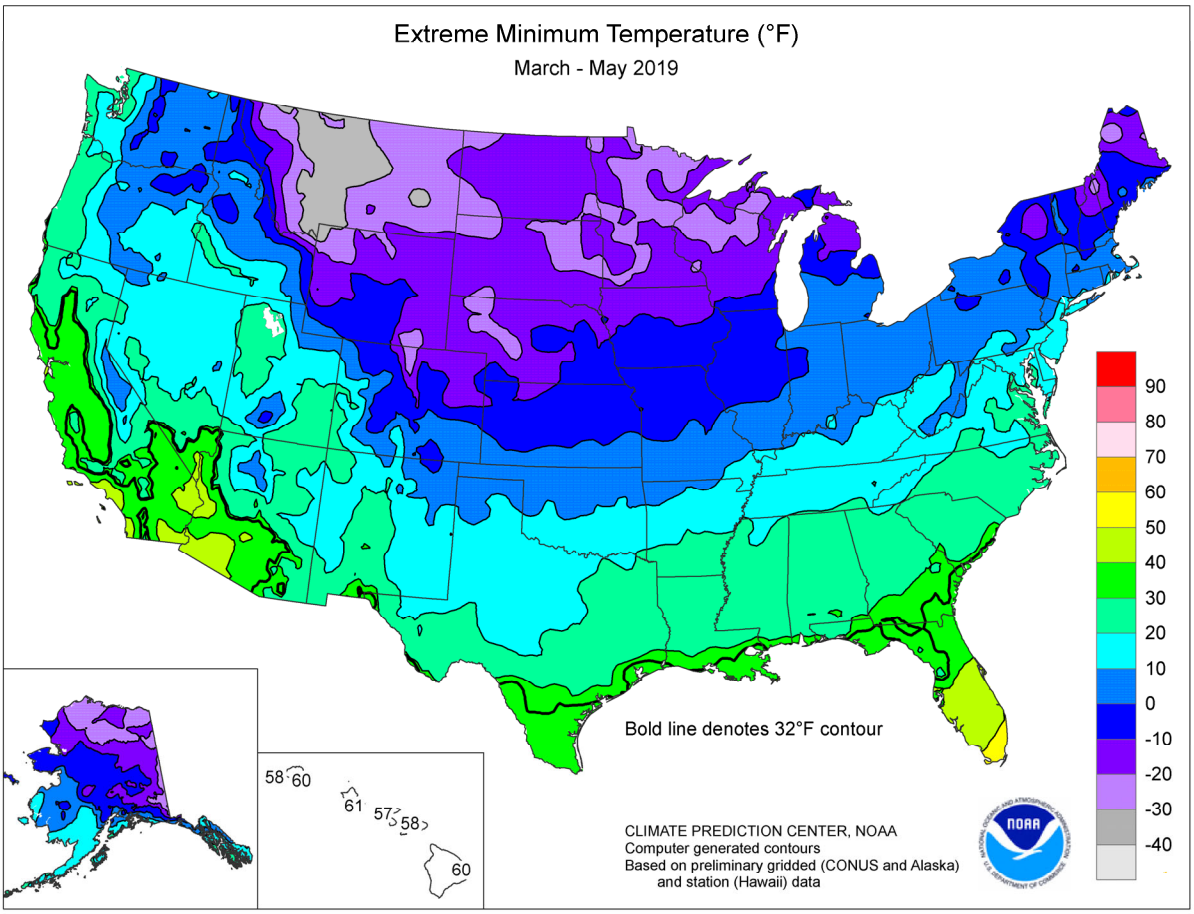
Meanwhile, hot, dry weather developed in the Southeast, particularly in the southern Atlantic States, substantially reducing soil moisture and increasing stress on summer crops, such as corn. A late-month Southeastern hot spell boosted temperatures to 100°F or higher in many locations, contributing to further drought intensification.

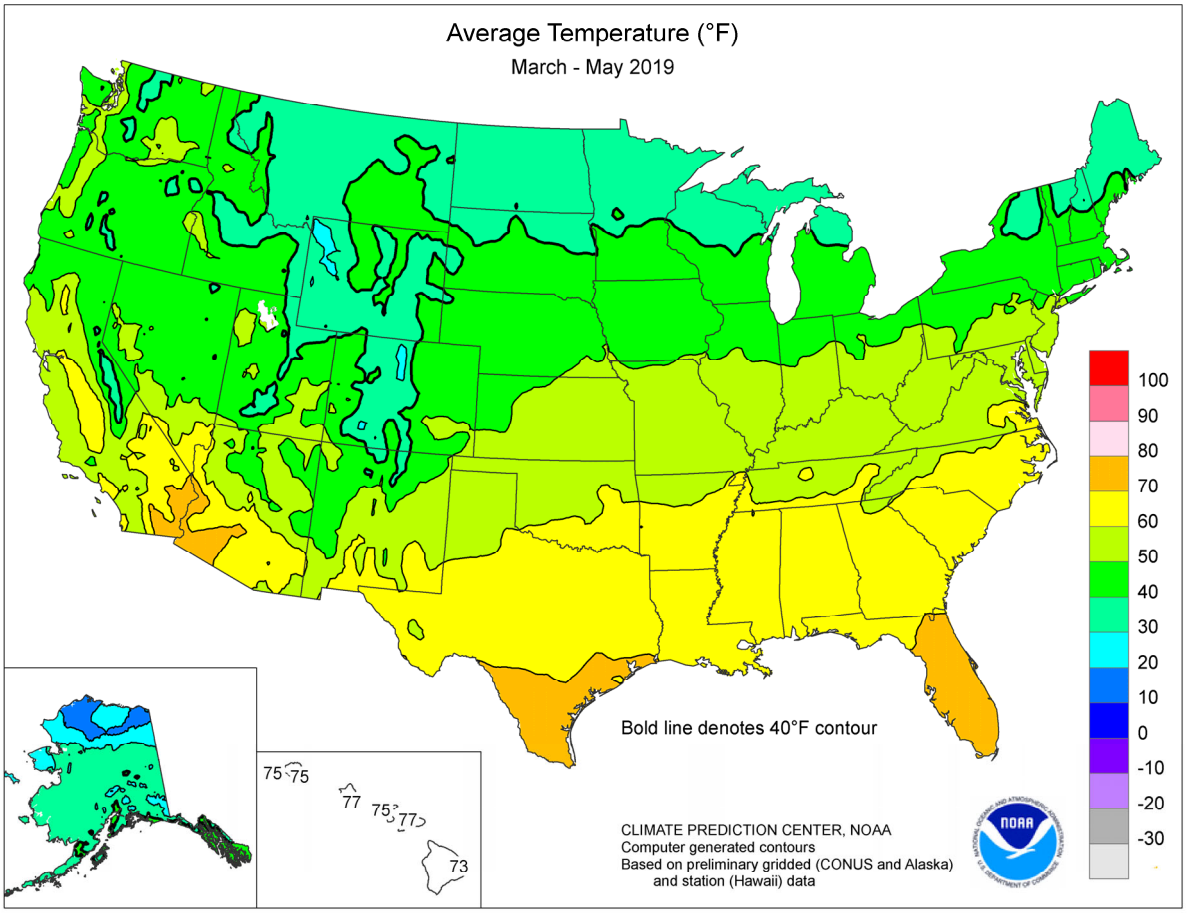
Elsewhere, showers that fell in the nation's mid-section often swept into the Northeast, maintaining soggy conditions in the latter region. However, precipitation mostly bypassed some locations along the Canadian border, stretching as far east as northern Minnesota, leaving a sharp gradient between that area and saturated sections of the Plains and Midwest just to the south.

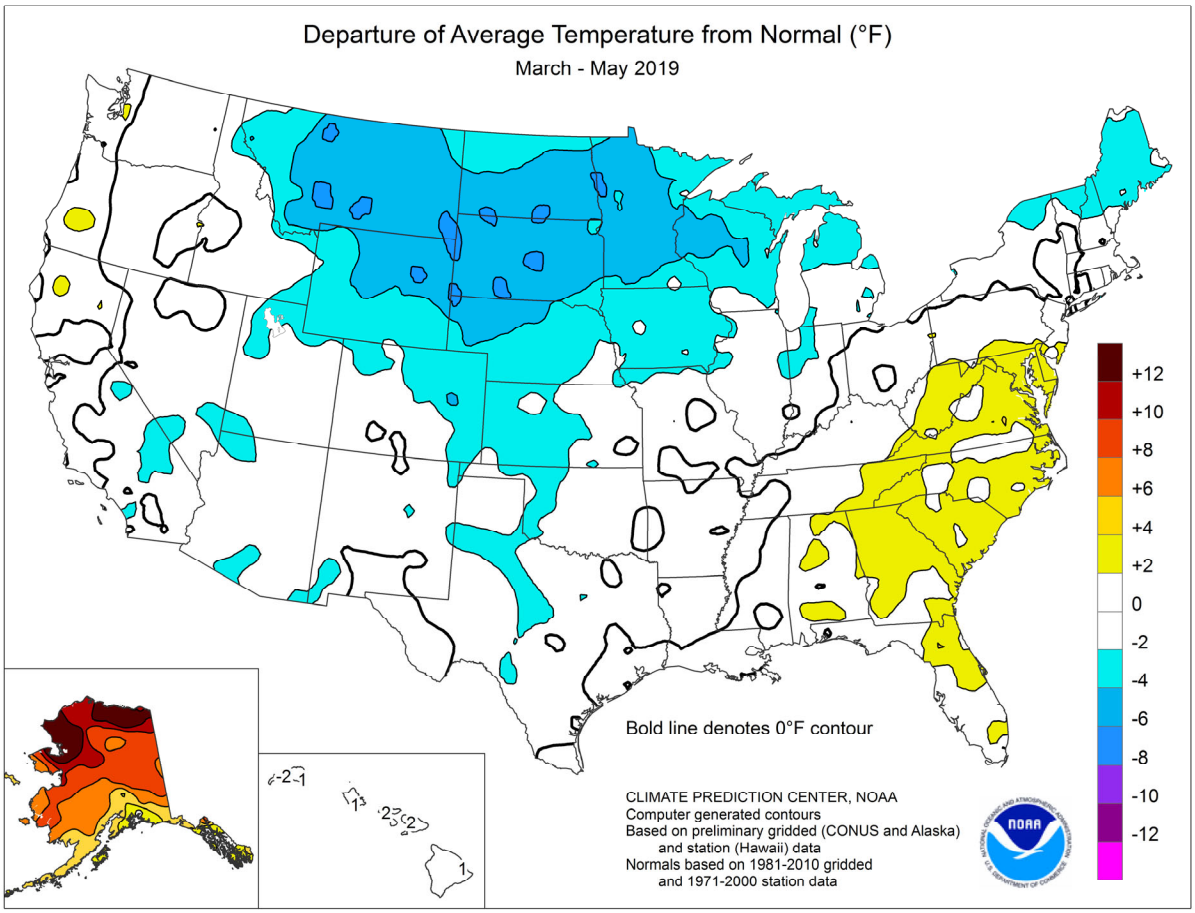

Total Precipitation (inches)
March - May 2019
80
60
50
40
30
25
20
16
12
8
4
2
1
1.3
1.4
1.8
0.4
1.6
0.7
2
0.8
5.2
2.2
4
10.9
4.1
2
21.7
8
3.8
20.3
22
9.1
5
0.6
2.3
1.8
22
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data


Percent of Normal Precipitation
March - May 2019
400
200
150
125
100
75
50
25
407
129
87
167
123
58
92
60
159
83
44
53
92
68
65
36
206
142
120
143
71
65
53
15
39
37
63
Bold line denotes 100% contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data
Normals based on 1998-2017 gridded
and 1971-2000 station data


Extreme Maximum Temperature (°F)
March - May 2019
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
88
87
91
90
96
88
Bold line denotes 95°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Extreme Minimum Temperature (°F)
March - May 2019
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
58
60
61
57
58
60
Bold line denotes 32°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Average Temperature (°F)
March - May 2019
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
75
75
77
75
77
73
Bold line denotes 40°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Departure of Average Temperature from Normal (°F)
March - May 2019
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
-2
-1
1
2
2
1
Bold line denotes 0°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
Normals based on 1981-2010 gridded
and 1971-2000 station data
NOAA

National Weather Data for Selected Cities

Spring 2019

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP, °F		PRECIP.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	65	3	11.57	-4.03
HUNTSVILLE	63	3	14.06	-2.40
MOBILE	68	1	11.79	-6.57
MONTGOMERY	67	2	13.57	-1.34
AK ANCHORAGE	42	6	3.35	1.49
BARROW	14	12	1.33	1.00
COLD BAY	39	5	10.21	2.78
FAIRBANKS	39	9	2.04	0.95
JUNEAU	44	3	8.00	-1.95
KING SALMON	40	7	4.54	1.46
KODIAK	41	3	20.34	3.33
NOME	29	7	3.31	1.32
AZ FLAGSTAFF	43	0	6.27	1.56
PHOENIX	72	1	0.49	-0.99
TUCSON	67	0	1.91	0.58
AR FORT SMITH	62	1	17.58	4.44
LITTLE ROCK	61	-1	23.46	8.06
CA BAKERSFIELD	64	0	3.69	1.59
EUREKA	52	1	9.91	-0.17
FRESNO	64	2	4.03	0.68
LOS ANGELES	61	0	2.87	-0.40
REDDING	61	2	15.29	6.08
SACRAMENTO	59	-1	7.70	3.35
SAN DIEGO	63	1	2.19	-1.02
SAN FRANCISCO	57	1	6.66	1.85
STOCKTON	61	0	5.59	1.85
CO ALAMOSA	42	1	3.15	1.45
CO SPRINGS	46	0	4.73	-0.34
DENVER	45	-1	5.87	1.21
GRAND JUNCTION	52	0	4.40	1.56
PUEBLO	50	0	3.69	-0.02
CT BRIDGEPORT	49	0	14.30	2.13
HARTFORD	49	0	15.75	3.62
DC WASHINGTON	60	4	11.20	1.01
DE WILMINGTON	55	3	12.23	0.72
FL DAYTONA BEACH	71	1	6.54	-3.10
FT LAUDERDALE	77	3	7.61	-5.43
FT MYERS	75	1	8.74	0.91
JACKSONVILLE	70	3	6.36	-4.19
KEY WEST	79	2	7.73	0.33
MELBOURNE	74	3	10.47	1.53
MIAMI	78	2	9.68	-1.76
ORLANDO	74	2	6.37	-3.33
PENSACOLA	69	1	9.80	-4.89
ST PETERSBURG	74	1	7.44	-0.57
TALLAHASSEE	69	2	7.72	-7.29
TAMPA	75	3	9.33	1.84
WEST PALM BEACH	76	2	9.70	-2.94
GA ATHENS	64	3	7.08	-5.12
ATLANTA	66	4	10.79	-2.16
AUGUSTA	67	4	8.94	-1.68
COLUMBUS	67	2	10.41	-2.80
MACON	66	3	5.89	-5.12
SAVANNAH	69	3	7.23	-3.34
HI HILO	73	0	22.03	-12.93
HONOLULU	77	1	0.58	-3.20
KAHULUI	77	3	1.78	-2.98
LIHUE	75	1	5.00	-4.45
ID BOISE	52	1	7.28	3.33
LEWISTON	51	0	3.95	-0.03
POCATELLO	45	-1	4.94	0.87
IL CHICAGO/O'HARE	47	-1	16.35	6.64
MOLINE	50	0	18.40	7.41
PEORIA	51	0	18.65	8.09
ROCKFORD	47	-1	16.07	6.04
SPRINGFIELD	52	-1	17.08	6.51
IN EVANSVILLE	56	0	18.36	4.58
FORT WAYNE	49	0	14.32	4.17
INDIANAPOLIS	52	0	15.64	4.24
SOUTH BEND	46	-3	15.54	5.53
IA BURLINGTON	50	-2	18.08	7.11
CEDAR RAPIDS	46	-3	13.52	4.22
DES MOINES	49	-1	14.24	4.20
DUBUQUE	45	-2	11.11	0.93
SIOUX CITY	46	-3	12.73	4.23
WATERLOO	46	-2	11.88	2.37
KS CONCORDIA	52	-1	12.72	3.72
DODGE CITY	52	-2	10.19	3.10
GOODLAND	47	-2	6.64	0.47
HILL CITY	50	-1	10.33	3.16
TOPEKA	54	0	15.67	5.11
WICHITA	55	0	17.56	8.12
KY JACKSON	58	2	10.10	-3.23
LEXINGTON	57	2	11.63	-1.23
LONDON-CORBIN	57	1	10.11	-3.20
LOUISVILLE	59	3	14.97	1.77
PADUCAH	58	1	23.34	9.37
LA BATON ROUGE	69	2	20.75	4.78
LAKE CHARLES	69	1	20.55	7.31
NEW ORLEANS	71	2	16.52	1.64
SHREVEPORT	65	-1	15.08	1.23
ME BANGOR	40	-3	12.69	2.53
CARIBOU	36	-2	10.05	1.57
PORTLAND	43	-1	11.98	-0.24
MD BALTIMORE	57	4	11.51	0.69
MA BOSTON	49	0	12.82	2.13
WORCESTER	44	-1	14.69	2.19
MI ALPENA	39	-1	11.08	4.03
DETROIT	47	-1	11.89	3.27
FLINT	45	0	9.44	1.35
GRAND RAPIDS	45	-1	12.94	3.52
HOUGHTON LAKE	39	-3	10.49	3.58
LANSING	45	-1	10.72	2.59
MUSKEGON	44	-1	14.41	6.19
TRAVERSE CITY	41	-2	10.37	3.37
MN DULUTH	38	-1	9.55	2.82
INT'L FALLS	35	-4	5.98	1.09
MINNEAPOLIS	43	-3	13.89	6.48
ROCHESTER	41	-3	16.32	7.89
ST. CLOUD	39	-4	12.71	6.11
MS JACKSON	65	1	19.60	3.02
MERIDIAN	66	2	20.75	3.33
TUPELO	63	2	16.96	-0.08
MO COLUMBIA	55	1	15.73	3.49
JOPLIN	56	-1	24.76	11.75
KANSAS CITY	53	-1	20.32	9.11
SPRINGFIELD	56	0	21.54	8.84
ST JOSEPH	52	-2	14.36	3.82
ST LOUIS	56	0	19.88	8.48
MT BILLINGS	44	-2	5.86	0.52
BUTTE	36	-3	5.05	1.18
GLASGOW	40	-4	2.56	-0.38
GREAT FALLS	39	-4	5.97	1.03
HELENA	39	-5	4.70	1.38
KALISPELL	41	-2	3.65	-0.72
MILES CITY	40	-6	5.21	1.04
MISSOULA	42	-3	5.16	1.16
NE GRAND ISLAND	48	-2	14.38	5.66
HASTINGS	48	-2	13.86	4.32
LINCOLN	49	-2	12.29	2.95
MCCOOK	48	-2	8.90	2.01
NORFOLK	46	-3	13.76	5.28
NORTH PLATTE	45	-3	12.10	5.55
OMAHA/EPPLEY	51	0	12.08	2.57
SCOTTSBLUFF	44	-3	14.65	9.00
VALENTINE	44	-2	14.52	8.24
NV ELKO	46	1	6.20	3.33
ELY	42	-1	8.69	5.45
LAS VEGAS	67	0	1.51	0.53
RENO	53	4	1.75	-0.08
WINNEMUCCA	48	0	4.34	1.57
NH CONCORD	44	-1	9.87	0.43
NJ ATLANTIC CITY	54	3	11.68	0.79
NEWARK	53	1	16.27	3.68
NM ALBUQUERQUE	56	0	2.28	0.57
NY ALBANY	48	1	9.35	-0.71
BINGHAMTON	44	0	11.89	1.88
BUFFALO	44	-2	9.33	-0.05
ROCHESTER	45	0	7.52	-0.63
SYRACUSE	46	1	12.35	2.55
NC ASHEVILLE	58	4	14.95	2.45
CHARLOTTE	62	1	10.94	-0.06
GREENSBORO	60	2	10.36	-0.87
HATTERAS	64	4	18.54	6.38
RALEIGH	61	2	12.74	2.12
WILMINGTON	65	2	7.56	-4.00
ND BISMARCK	40	-3	5.68	1.15
DICKINSON	38	-5	6.42	1.69
FARGO	38	-5	7.45	2.30
GRAND FORKS	36	-6	5.14	0.81
JAMESTOWN	37	-6	6.37	1.91
MINOT	40	-2	2.46	-2.45
WILLISTON	39	-3	2.24	-1.43
OH AKRON-CANTON	50	2	11.45	0.95
CINCINNATI	55	1	16.57	4.12
CLEVELAND	50	2	11.24	1.43
COLUMBUS	53	1	13.71	3.69
DAYTON	53	2	14.06	2.57
MANSFIELD	49	2	13.02	1.07
TOLEDO	49	1	13.42	4.42
YOUNGSTOWN	49	2	14.67	4.84
OK OKLAHOMA CITY	58	-2	21.35	10.01
TULSA	60	-1	22.10	8.47
OR ASTORIA	50	1	9.42	-6.16
BURNS	46	2	5.80	2.66
EUGENE	52	2	10.84	-1.28
MEDFORD	55	3	5.86	1.49
PENDLETON	49	-2	4.43	0.82
PORTLAND	54	2	6.03	-2.70
SALEM	53	2	8.53	-0.53
PA ALLENTOWN	53	4	18.57	7.05
ERIE	46	-1	9.84	-0.01
MIDDLETOWN	54	2	15.45	4.67
PHILADELPHIA	56	3	13.89	2.71
PITTSBURGH	51	1	12.67	2.69
WILKES-BARRE	50	1	13.15	3.49
WILLIAMSPORT	51	2	13.23	2.74
PR SAN JUAN	81	2	6.06	-5.08
RI PROVIDENCE	48	-1	13.38	1.13
SC CHARLESTON	67	2	5.35	-5.09
COLUMBIA	66	3	7.96	-2.78
FLORENCE	66	3	8.83	-1.27
GREENVILLE	63	4	8.79	-4.64
MYRTLE BEACH	65	3	7.42	-1.48
SD ABERDEEN	39	-6	8.40	2.54
HURON	41	-5	12.60	5.64
RAPID CITY	39	-6	15.78	9.93
SIOUX FALLS	44	-1	15.54	7.69
TN BRISTOL	58	3	11.65	0.19
CHATTANOOGA	63	3	16.26	1.56
JACKSON	59	-1	13.50	-2.38
KNOXVILLE	61	3	14.14	0.30
MEMPHIS	62	0	17.18	0.66
NASHVILLE	61	2	11.61	-2.26
TX ABILENE	64	-1	13.24	7.33
AMARILLO	55	-1	7.43	2.47
AUSTIN	68	0	15.31	5.62
BEAUMONT	70	1	14.24	0.82
BROWNSVILLE	76	2	3.78	-1.59
COLLEGE STATION	68	0	14.70	3.61
CORPUS CHRISTI	73	1	7.24	-0.02
DALLAS/FT WORTH	65	0	16.91	5.50
DEL RIO	71	0	5.16	0.18
EL PASO	67	2	0.49	-0.38
GALVESTON	70	0	9.24	0.22
HOUSTON	70	1	11.02	-1.09
LUBBOCK	59	-1	6.84	2.48
MIDLAND	64	0	7.91	4.97
SAN ANGELO	64	-1	9.03	3.35
SAN ANTONIO	69	0	7.23	-1.98
VICTORIA	70	0	5.25	-5.08
WACO	65	-1	13.73	3.80
WICHITA FALLS	61	-2	13.13	4.32
UT SALT LAKE CITY	51	0	11.19	5.17
VT BURLINGTON	44	0	10.99	2.47
VA LYNCHBURG	58	3	9.65	-1.75
NORFOLK	62	4	10.24	-0.96
RICHMOND	60	3	12.77	1.55
ROANOKE	59	3	9.22	-2.47
WASH/DULLES	56	3	12.42	1.43
WA OLYMPIA	50	2	4.97	-6.17
QUILLAYUTE	49	2	10.58	-13.35
SEATTLE-TACOMA	54	3	5.52	-2.59
SPOKANE	47	0	3.53	-0.88
YAKIMA	50	1	2.06	0.32
WV BECKLEY	54	3	11.78	0.34
CHARLESTON	57	3	13.46	2.01
ELKINS	53	4	12.95	0.73
HUNTINGTON	57	2	11.88	0.31
WI EAU CLAIRE	40	-5	13.57	5.11
GREEN BAY	42	-2	10.88	3.51
LA CROSSE	45	-3	11.71	2.95
MADISON	44	-2	11.61	2.73
MILWAUKEE	44	-1	12.03	2.60
WAUSAU	39	-5	13.18	4.88
WY CASPER	40	-3	9.24	4.44
CHEYENNE	41	-1	11.71	6.63
LANDER	41	-3	12.13	6.44
SHERIDAN	40	-4	9.44	4.26

Based on 1971-2000 normals

*** Not Available

National Agricultural Summary

June 17 – 23, 2019

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

Rain was mostly confined to the eastern two-thirds of the U.S., and was heaviest in parts of Florida, Kansas, Texas, and the Mississippi Valley; some areas received more than 4 inches. Below-normal temperatures were noted across much of the country. Parts of the Great Lakes, northern Great Plains, and Rocky Mountains recorded temperatures 6°F or more below normal. However, temperatures were at least 2°F above normal in parts of California, Texas, the Southeast, and the mid Atlantic.

Corn: By June 23, producers had planted 96 percent of the nation's corn acreage, 4 percentage points behind both last year and the 5-year average. Eighty-nine percent of the corn had emerged by June 23, eleven percentage points behind last year and 10 points behind average. Emergence was behind average by 20 percentage points or more in Michigan, Ohio, and South Dakota. Ninety-six percent of Iowa's corn had emerged by June 23, four percentage points behind both last year and the average. On June 23, fifty-six percent of the corn was rated in good to excellent condition, 3 percentage points behind the previous week and 21 points below the same time last year.

Soybean: Eighty-five percent of the nation's soybean acreage was planted by June 23, fifteen percentage points behind last year and 12 points behind the 5-year average. Seventy-one percent of the soybeans had emerged by June 23, twenty-three percentage points behind last year and 20 points behind average. Emergence in seven of the 18 estimating states was behind average by 26 percentage points or more. Sixty-seven percent of Illinois' soybean acreage had emerged by June 23, twenty-nine percentage points behind last year and 26 points behind average. On June 23, fifty-four percent of the soybeans were reported in good to excellent condition, a decrease of 19 percentage points from a year ago.

Winter Wheat: By June 23, ninety-four percent of the nation's winter wheat acreage had reached the headed stage, 4 percentage points behind last year and 5 points behind the 5-year average. Fifteen percent of the 2019 winter wheat acreage was harvested by June 23, twenty-four percentage points behind last year and 19 points behind average. Harvesting was at or behind average in all estimating states. Forty-three percent of Oklahoma's winter wheat was harvested by June 23, forty-six percentage points behind last year and 35 points behind average. On June 23, sixty-one percent of the 2019 winter wheat acreage was reported in good to excellent condition, 3 percentage points below the previous week but 24 points above the same time last year.

Cotton: Nationwide, 96 percent of the cotton acreage had been planted by June 23, three percentage points behind last year and 2 points behind the 5-year average. In Texas, 95 percent of the 2019 cotton acreage was planted by June 23, unchanged from both the previous year and the average. Thirty percent of the nation's cotton had reached the squaring stage by June 23, one percentage point behind last year but 2 points ahead of average. By June 23, three percent of the cotton had begun setting bolls, 3 percentage points behind last year and 2 points behind average. On June 23, fifty percent of the 2019 cotton acreage was rated in good to excellent condition, 1 percentage point above the previous week and 8 points above the same time last year.

Sorghum: Eighty-four percent of the nation's sorghum acreage was planted by June 23, ten percentage points behind the previous year and 7 points behind the 5-year average. Planting progress in Kansas, Nebraska, and Oklahoma was behind the average pace by 11, 7, and 18 percentage points, respectively. By June 23, seventeen percent of the nation's sorghum had reached the headed stage, 3 percentage points behind both last year and the average. Fifty-three percent of Texas' sorghum acreage had reached the headed stage by June 23, four percentage points behind last year but 1 point ahead of average. On June 23, seventy-two percent of the sorghum was rated in good to excellent condition, 16 percentage points above the same time last year.

Rice: By June 23, ninety-seven percent of the nation's rice acreage had emerged, 3 percentage points behind both last year and the 5-year average. Emergence was at or behind the average pace in five of the six estimating states. Five percent of the rice had reached the headed stage by June 23, one percentage point behind the previous year and 3 points behind average. By week's end, Louisiana was the furthest along with 31 percent headed, 3 percentage points ahead of last year and 1 point ahead of average. On June 23, sixty-six percent of the rice was rated in good to excellent condition, 3 percentage points above last week but 4 points below the same time last year.

Small Grains: Ninety-seven percent of the nation's oat acreage had emerged by June 23, three percentage points behind both last year and the 5-year average. Emergence in Ohio and Wisconsin was behind the average pace by 11 and 9 percentage points, respectively. Forty-three percent of the oats had headed by June 23, twenty-two percentage points behind last year and 25 points behind average. Heading was behind average pace by 22 percentage points or more in six of the nine estimating states. On June 23, sixty-four percent of the oats were rated in good to excellent condition, 2 percentage points below last week and 8 points below the same time last year.

Ninety-seven percent of the nation's barley acreage emerged by June 23, two percentage points behind both last year and the 5-year average. Nine percent of the barley had reached the headed stage by June 23, sixteen percentage points behind last year and 21 points behind average. On June 23, seventy-two percent of the barley was rated in good to excellent condition, 4 percentage points below last week and 11 points below the same time last year.

By June 23, seven percent of the nation's spring wheat had reached the headed stage, twenty-three percentage points behind last year and 22 points behind the 5-year average. On June 23, seventy-five percent of the spring wheat was rated in good to excellent condition, 2 percentage points below both last week and the same time last year.

Other Crops: Nationally, peanut producers had planted 97 percent of the 2019 peanut acreage by June 23, two percentage points behind both last year and the 5-year average. By June 23, thirty-four percent of the nation's peanuts had reached the pegging stage, 9 percentage points ahead of last year and 10 points ahead of average. On June 23, sixty-seven percent of the peanuts were rated in good to excellent condition, 3 percentage points above the previous week and 2 points above the same time last year.

Eighty-five percent of the nation's intended 2019 sunflower acreage was planted by June 23, five percentage points behind last year and 4 points behind the 5-year average. Sunflower planting was behind average in all estimating states.

Crop Progress and Condition

Week Ending June 23, 2019

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

Corn Percent Planted

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
CO	100	93	95	100
IL	100	88	92	100
IN	100	84	91	100
IA	100	98	100	100
KS	100	96	99	100
KY	100	97	100	100
MI	96	84	91	99
MN	100	99	100	99
MO	100	89	92	99
NE	100	98	100	100
NC	100	100	100	100
ND	100	98	99	100
OH	100	68	80	100
PA	96	94	96	95
SD	100	78	95	100
TN	100	100	100	100
TX	100	100	100	100
WI	100	87	93	99
18 Sts	100	92	96	100

These 18 States planted 92% of last year's corn acreage.

Corn Percent Emerged

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
CO	99	86	93	99
IL	100	74	84	100
IN	100	61	79	98
IA	100	88	96	100
KS	100	83	92	98
KY	99	91	95	98
MI	91	48	63	98
MN	100	87	96	99
MO	100	80	85	98
NE	100	90	95	100
NC	100	100	100	100
ND	99	86	95	98
OH	99	50	66	99
PA	87	86	91	93
SD	100	56	79	99
TN	100	99	100	99
TX	99	90	94	98
WI	99	66	81	98
18 Sts	100	79	89	99

These 18 States planted 92% of last year's corn acreage.

Corn Condition by Percent

	VP	P	F	G	EX
CO	0	4	27	63	6
IL	5	12	36	41	6
IN	4	14	39	38	5
IA	2	6	30	52	10
KS	3	10	37	43	7
KY	2	4	18	62	14
MI	4	20	36	37	3
MN	2	6	33	50	9
MO	8	25	39	26	2
NE	1	3	19	66	11
NC	3	8	41	43	5
ND	0	5	22	68	5
OH	5	15	41	34	5
PA	1	4	24	59	12
SD	1	5	38	48	8
TN	1	3	22	54	20
TX	1	3	25	57	14
WI	3	10	35	41	11
18 Sts	3	9	32	48	8
Prev Wk	2	8	31	52	7
Prev Yr	1	4	18	58	19

Soybeans Percent Planted

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AR	99	79	89	95
IL	100	70	79	97
IN	100	64	75	97
IA	100	89	95	99
KS	97	74	84	90
KY	91	74	80	87
LA	100	98	99	99
MI	91	53	69	98
MN	100	94	98	99
MS	99	91	96	97
MO	97	57	66	87
NE	100	91	96	99
NC	88	74	82	85
ND	100	96	98	100
OH	99	46	65	98
SD	100	70	84	99
TN	92	85	90	86
WI	99	77	88	98
18 Sts	100	77	85	97

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

Soybeans Percent Emerged

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AR	96	65	80	89
IL	96	50	67	93
IN	97	38	56	92
IA	99	63	81	96
KS	90	45	68	78
KY	80	56	65	74
LA	100	94	98	97
MI	84	34	48	93
MN	97	70	87	97
MS	96	80	87	93
MO	92	36	51	79
NE	99	73	85	96
NC	76	62	71	74
ND	96	74	92	95
OH	93	29	45	92
SD	97	36	57	96
TN	80	72	79	72
WI	94	47	68	94
18 Sts	94	55	71	91

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

Soybean Condition by Percent

	VP	P	F	G	EX
AR	3	8	34	37	18
IL	4	14	40	36	6
IN	5	12	42	35	6
IA	1	4	32	55	8
KS	4	9	44	39	4
KY	1	2	21	67	9
LA	0	5	38	48	9
MI	2	15	45	36	2
MN	1	3	30	56	10
MS	1	9	35	45	10
MO	4	11	49	34	2
NE	0	3	22	68	7
NC	1	4	41	50	4
ND	0	4	26	65	5
OH	4	22	44	27	3
SD	1	4	40	49	6
TN	1	3	21	59	16
WI	2	8	31	46	13
18 Sts	2	8	36	47	7
Prev Wk	NA	NA	NA	NA	NA
Prev Yr	1	4	22	58	15

Crop Progress and Condition

Week Ending June 23, 2019

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

Cotton Percent Planted

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AL	97	98	99	98
AZ	100	100	100	100
AR	100	99	100	100
CA	100	100	100	100
GA	96	96	98	99
KS	99	91	98	89
LA	100	99	100	100
MS	99	94	97	99
MO	100	85	89	100
NC	99	96	99	99
OK	95	64	91	93
SC	99	99	100	99
TN	100	99	100	100
TX	95	86	95	95
VA	100	99	100	99
15 Sts	99	89	96	98

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

Cotton Percent Squaring

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AL	29	28	46	38
AZ	43	31	40	53
AR	74	46	66	70
CA	33	25	35	42
GA	40	29	43	38
KS	27	0	1	9
LA	81	12	37	61
MS	37	9	16	39
MO	56	8	10	36
NC	35	22	36	30
OK	17	0	15	17
SC	22	25	42	25
TN	51	27	36	36
TX	22	17	27	19
VA	40	15	26	36
15 Sts	31	19	30	28

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

Cotton Percent Setting Bolls

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AL	1	NA	0	1
AZ	10	0	10	14
AR	6	0	1	4
CA	0	NA	0	1
GA	1	NA	2	1
KS	0	NA	0	0
LA	6	0	0	7
MS	0	NA	2	2
MO	0	NA	0	0
NC	0	NA	0	0
OK	0	NA	0	0
SC	0	NA	1	1
TN	1	0	0	1
TX	10	NA	4	7
VA	0	NA	0	0
15 Sts	6	NA	3	5

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

Cotton Condition by Percent

	VP	P	F	G	EX
AL	0	5	38	55	2
AZ	0	1	9	87	3
AR	0	2	11	50	37
CA	0	0	100	0	0
GA	2	8	33	52	5
KS	7	19	44	27	3
LA	0	2	38	56	4
MS	1	7	41	42	9
MO	7	8	55	30	0
NC	2	4	35	52	7
OK	0	1	20	77	2
SC	0	6	30	61	3
TN	4	8	25	48	15
TX	6	19	34	38	3
VA	0	1	9	90	0
15 Sts	4	13	33	45	5
Prev Wk	4	11	36	42	7
Prev Yr	1	18	39	35	7

Sorghum Percent Planted

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
CO	93	77	90	90
KS	94	55	77	88
NE	99	80	91	98
OK	68	53	62	80
SD	94	68	92	91
TX	100	93	96	96
6 Sts	94	69	84	91

These 6 States planted 97% of last year's sorghum acreage.

Sorghum Condition by Percent

	VP	P	F	G	EX
CO	2	2	22	67	7
KS	0	3	30	62	5
NE	0	2	18	76	4
OK	0	1	12	85	2
SD	0	1	26	71	2
TX	0	3	20	51	26
6 Sts	0	3	25	61	11
Prev Wk	NA	NA	NA	NA	NA
Prev Yr	3	9	32	51	5

Sorghum Percent Headed

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
CO	0	0	0	0
KS	4	0	2	2
NE	2	0	5	1
OK	4	0	5	2
SD	0	0	0	1
TX	57	50	53	52
6 Sts	20	15	17	20

These 6 States planted 97% of last year's sorghum acreage.

Crop Progress and Condition

Week Ending June 23, 2019

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

Peanuts Percent Planted

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AL	96	95	98	96
FL	100	99	100	100
GA	99	98	99	100
NC	100	93	99	99
OK	100	82	95	98
SC	99	100	100	99
TX	96	78	87	96
VA	100	99	100	98
8 Sts	99	94	97	99

These 8 States planted 96% of last year's peanut acreage.

Peanuts Percent Pegging

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AL	26	28	46	27
FL	16	18	42	27
GA	36	21	44	27
NC	16	1	10	16
OK	11	0	1	8
SC	22	17	38	32
TX	4	0	0	7
VA	9	4	13	8
8 Sts	25	16	34	24

These 8 States planted 96% of last year's peanut acreage.

Peanut Condition by Percent

	VP	P	F	G	EX
AL	0	7	56	32	5
FL	2	10	27	59	2
GA	1	5	28	58	8
NC	0	1	41	53	5
OK	0	0	31	63	6
SC	0	0	31	63	6
TX	0	0	6	93	1
VA	0	5	10	85	0
8 Sts	1	4	28	62	5
Prev Wk	1	6	29	59	5
Prev Yr	1	3	31	58	7

Rice Percent Emerged

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AR	100	93	96	100
CA	100	95	99	97
LA	100	100	100	100
MS	100	94	97	99
MO	100	85	92	98
TX	95	97	98	98
6 Sts	100	94	97	100

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

Rice Percent Headed

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AR	0	0	0	1
CA	0	NA	0	5
LA	28	10	31	30
MS	7	2	6	10
MO	0	NA	0	0
TX	26	4	7	19
6 Sts	6	NA	5	8

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

Rice Condition by Percent

	VP	P	F	G	EX
AR	2	9	31	39	19
CA	0	0	0	90	10
LA	1	5	28	58	8
MS	1	3	30	56	10
MO	3	6	44	31	16
TX	0	0	49	46	5
6 Sts	1	6	27	52	14
Prev Wk	1	6	30	51	12
Prev Yr	0	5	25	57	13

Oats Percent Emerged

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
IA	100	98	100	100
MN	100	99	100	100
NE	100	94	95	100
ND	96	91	97	98
OH	100	85	89	100
PA	99	100	100	98
SD	100	91	95	100
TX	100	100	100	100
WI	100	80	91	100
9 Sts	100	94	97	100

These 9 States planted 66% of last year's oat acreage.

Oats Percent Headed

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
IA	81	41	58	80
MN	38	9	32	48
NE	89	43	53	84
ND	18	1	2	25
OH	79	18	33	72
PA	44	37	57	59
SD	74	3	16	72
TX	100	90	95	100
WI	46	9	19	49
9 Sts	65	33	43	68

These 9 States planted 66% of last year's oat acreage.

Oat Condition by Percent

	VP	P	F	G	EX
IA	1	3	33	51	12
MN	1	4	26	58	11
NE	1	5	20	64	10
ND	0	1	19	76	4
OH	2	10	51	33	4
PA	0	7	22	62	9
SD	0	1	40	50	9
TX	7	10	32	46	5
WI	2	5	22	53	18
9 Sts	2	5	29	56	8
Prev Wk	2	4	28	58	8
Prev Yr	3	3	22	59	13

Crop Progress and Condition

Week Ending June 23, 2019

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

Winter Wheat Percent Headed

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AR	100	100	100	100
CA	100	100	100	100
CO	99	92	95	99
ID	94	74	89	91
IL	100	97	100	100
IN	100	94	96	99
KS	100	97	98	100
MI	94	64	79	95
MO	100	100	100	100
MT	61	16	45	78
NE	98	83	94	99
NC	100	100	100	100
OH	100	92	96	99
OK	100	100	100	100
OR	100	97	100	100
SD	93	53	80	94
TX	100	99	100	100
WA	99	91	95	98
18 Sts	98	89	94	99

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

Winter Wheat Percent Harvested

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
AR	98	59	80	85
CA	49	40	55	59
CO	5	0	0	2
ID	0	0	0	0
IL	61	6	15	47
IN	25	4	10	21
KS	48	1	5	36
MI	0	0	0	0
MO	63	11	18	51
MT	0	0	0	0
NE	1	0	0	1
NC	72	44	61	73
OH	3	0	0	3
OK	89	16	43	78
OR	0	0	0	0
SD	0	0	0	0
TX	70	42	58	72
WA	0	0	0	0
18 Sts	39	8	15	34

These 18 States harvested 91% of last year's winter wheat acreage.

Winter Wheat Condition by Percent

	VP	P	F	G	EX
AR	4	12	39	38	7
CA	0	0	10	60	30
CO	1	3	16	51	29
ID	0	5	31	56	8
IL	9	17	47	24	3
IN	5	12	35	42	6
KS	4	12	28	43	13
MI	6	17	39	33	5
MO	5	17	45	31	2
MT	1	7	21	49	22
NE	1	5	24	44	26
NC	6	8	36	47	3
OH	12	24	36	24	4
OK	3	8	28	51	10
OR	4	11	17	48	20
SD	1	5	27	61	6
TX	1	2	38	41	18
WA	1	3	19	66	11
18 Sts	3	8	28	46	15
Prev Wk	2	7	27	51	13
Prev Yr	15	19	29	28	9

Barley Percent Emerged

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
ID	100	96	98	99
MN	98	99	100	99
MT	97	86	96	98
ND	100	96	98	99
WA	99	91	96	99
5 Sts	99	92	97	99

These 5 States planted 78% of last year's barley acreage.

Barley Percent Headed

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
ID	40	3	23	47
MN	24	2	18	33
MT	15	0	1	20
ND	19	0	1	24
WA	71	17	48	61
5 Sts	25	2	9	30

These 5 States planted 78% of last year's barley acreage.

Barley Condition by Percent

	VP	P	F	G	EX
ID	0	3	21	71	5
MN	1	1	18	70	10
MT	2	7	28	50	13
ND	0	1	20	76	3
WA	1	1	24	63	11
5 Sts	1	4	23	64	8
Prev Wk	1	6	17	63	13
Prev Yr	1	3	13	65	18

Spring Wheat Percent Headed

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
ID	31	5	18	40
MN	32	1	14	35
MT	20	0	0	13
ND	23	1	2	25
SD	64	5	10	57
WA	76	13	64	66
6 Sts	30	2	7	29

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

Spring Wheat Condition by Percent

	VP	P	F	G	EX
ID	6	7	21	65	1
MN	0	2	15	68	15
MT	1	7	37	50	5
ND	0	1	17	75	7
SD	0	1	22	68	9
WA	1	2	31	56	10
6 Sts	0	3	22	67	8
Prev Wk	1	1	21	69	8
Prev Yr	2	3	18	63	14

Sunflowers Percent Planted

	Prev Year	Prev Week	Jun 23 2019	5-Yr Avg
CO	77	61	71	75
KS	80	58	73	76
ND	98	84	93	97
SD	85	56	82	84
4 Sts	90	68	85	89

These 4 States planted 87% of last year's sunflower acreage.

Crop Progress and Condition

Week Ending June 23, 2019

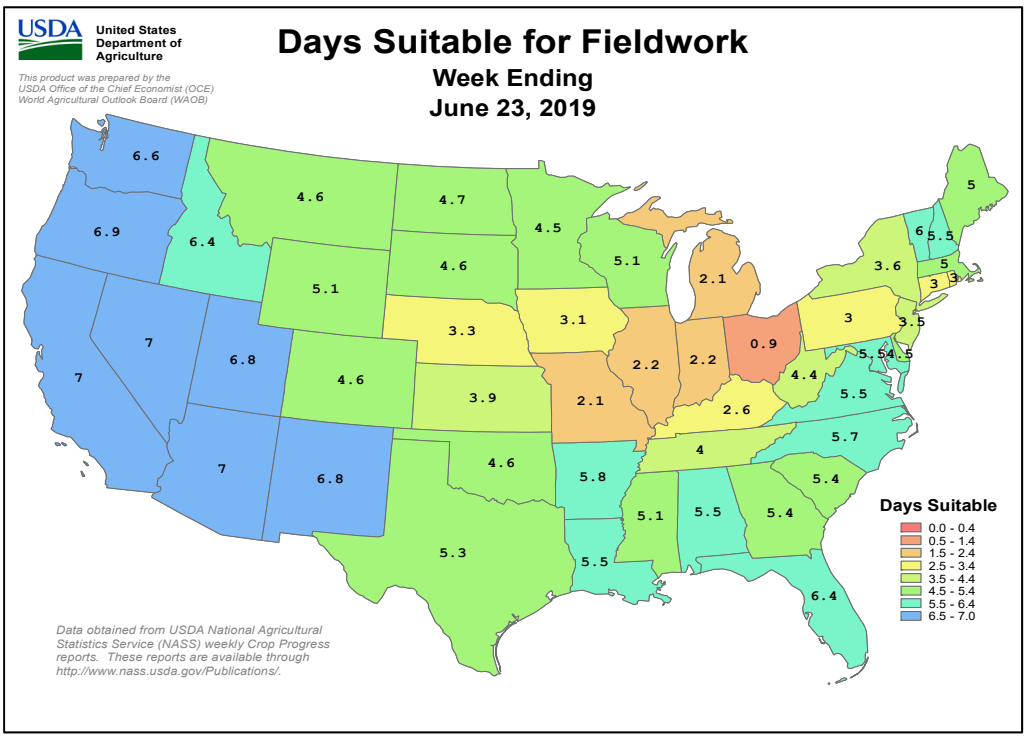
Weekly U.S. Progress and Condition Data provided by USDA/NASS

Pasture and Range Condition by Percent
Week Ending Jun 23, 2019

	VP	P	F	G	EX		VP	P	F	G	EX
AL	3	12	29	54	2	NH	0	0	18	61	21
AZ	1	12	30	56	1	NJ	0	1	8	84	7
AR	1	6	30	45	18	NM	14	27	39	19	1
CA	15	15	20	50	0	NY	2	6	24	52	16
CO	1	3	19	58	19	NC	1	5	26	63	5
CT	0	0	0	100	0	ND	2	8	24	58	8
DE	1	1	8	80	10	OH	1	17	36	39	7
FL	2	7	27	57	7	OK	1	3	23	62	11
GA	3	15	40	39	3	OR	2	9	16	39	34
ID	0	2	13	70	15	PA	0	5	18	66	11
IL	2	5	24	46	23	RI	0	15	25	40	20
IN	2	8	35	42	13	SC	0	13	48	34	5
IA	1	4	26	51	18	SD	1	2	15	61	21
KS	0	2	20	61	17	TN	1	5	31	54	9
KY	2	5	19	62	12	TX	1	5	21	52	21
LA	1	11	39	44	5	UT	0	0	5	51	44
ME	0	0	21	72	7	VT	0	0	13	65	22
MD	1	8	48	33	10	VA	0	10	36	42	12
MA	0	0	10	70	20	WA	1	8	52	38	1
MI	1	9	29	42	19	WV	1	4	28	63	4
MN	1	3	28	56	12	WI	3	9	27	42	19
MS	1	6	36	47	10	WY	0	5	20	62	13
MO	0	2	27	60	11	48 Sts	2	6	24	54	14
MT	1	4	26	57	12						
NE	0	1	8	69	22	Prev Wk	1	5	23	56	15
NV	10	10	40	40	0	Prev Yr	6	14	31	41	8

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

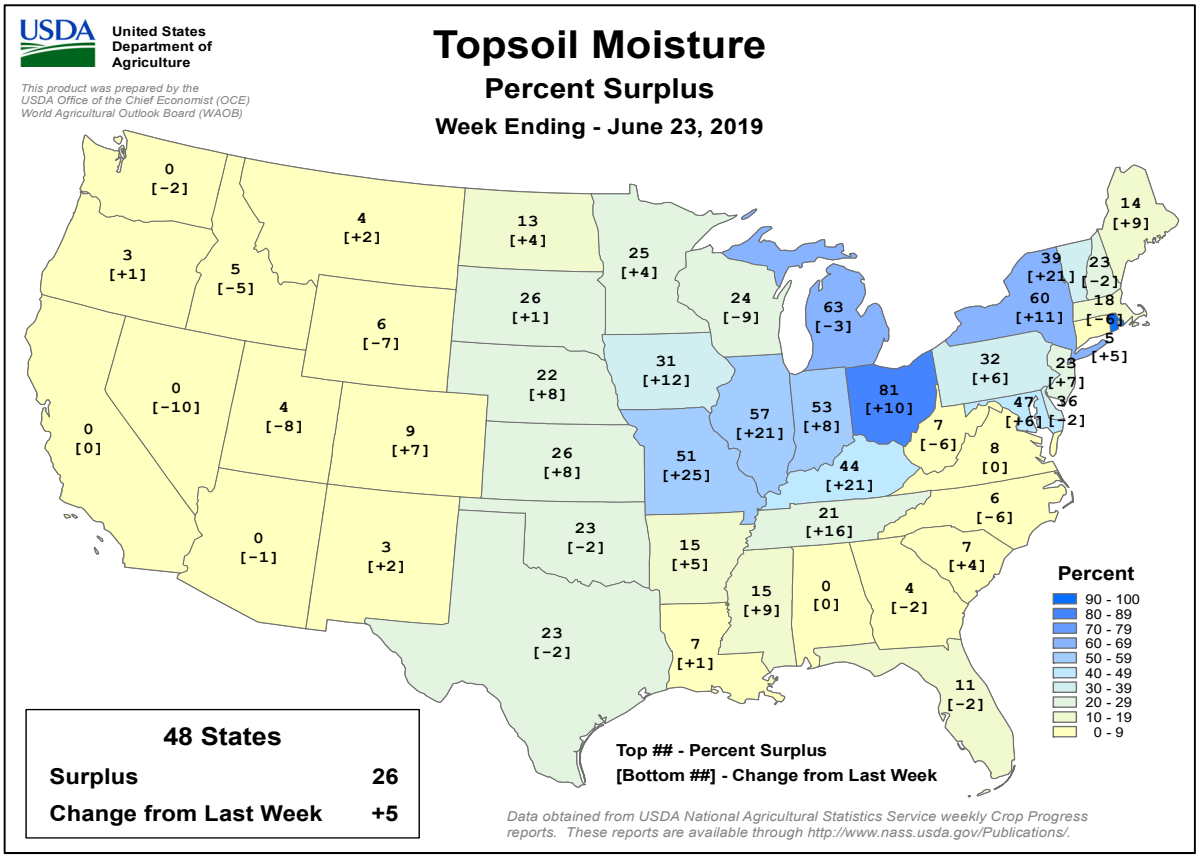
NA - Not Available
*** Revised**

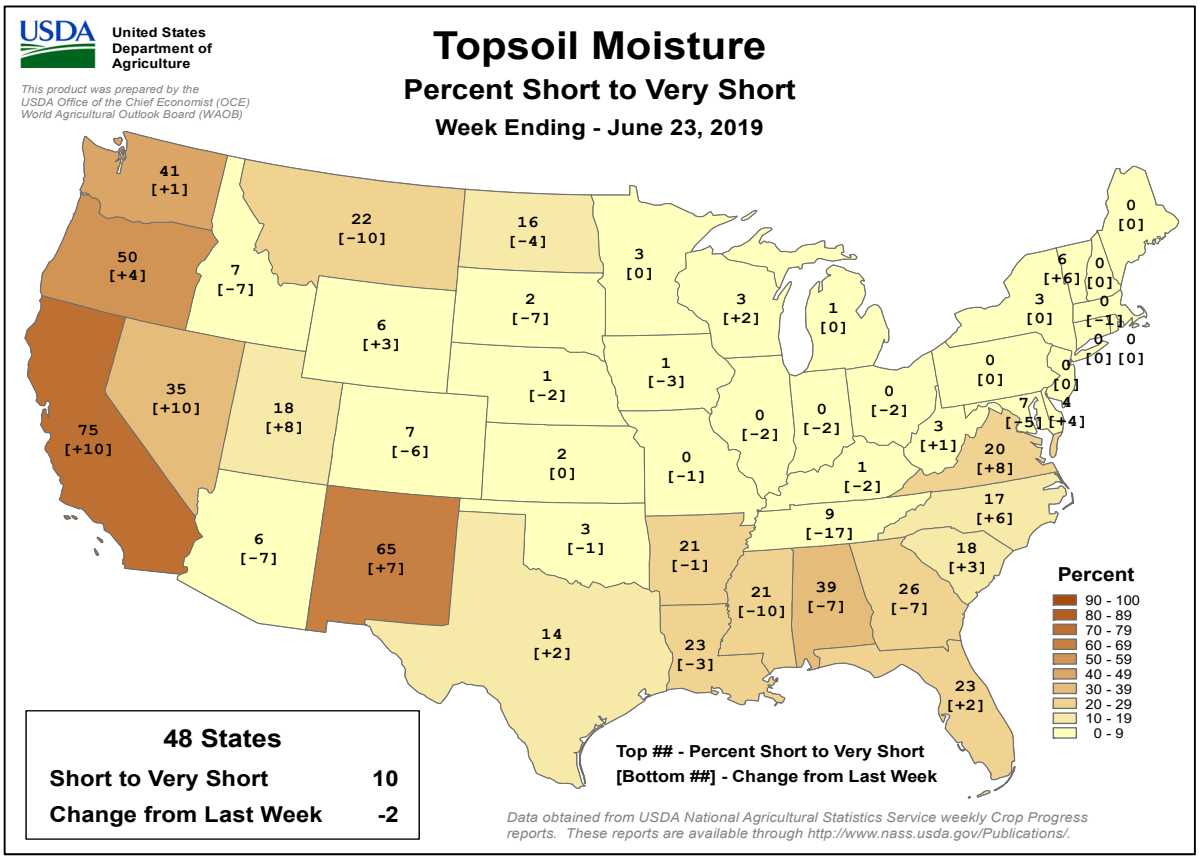


Crop Progress and Condition

Week Ending June 23, 2019

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

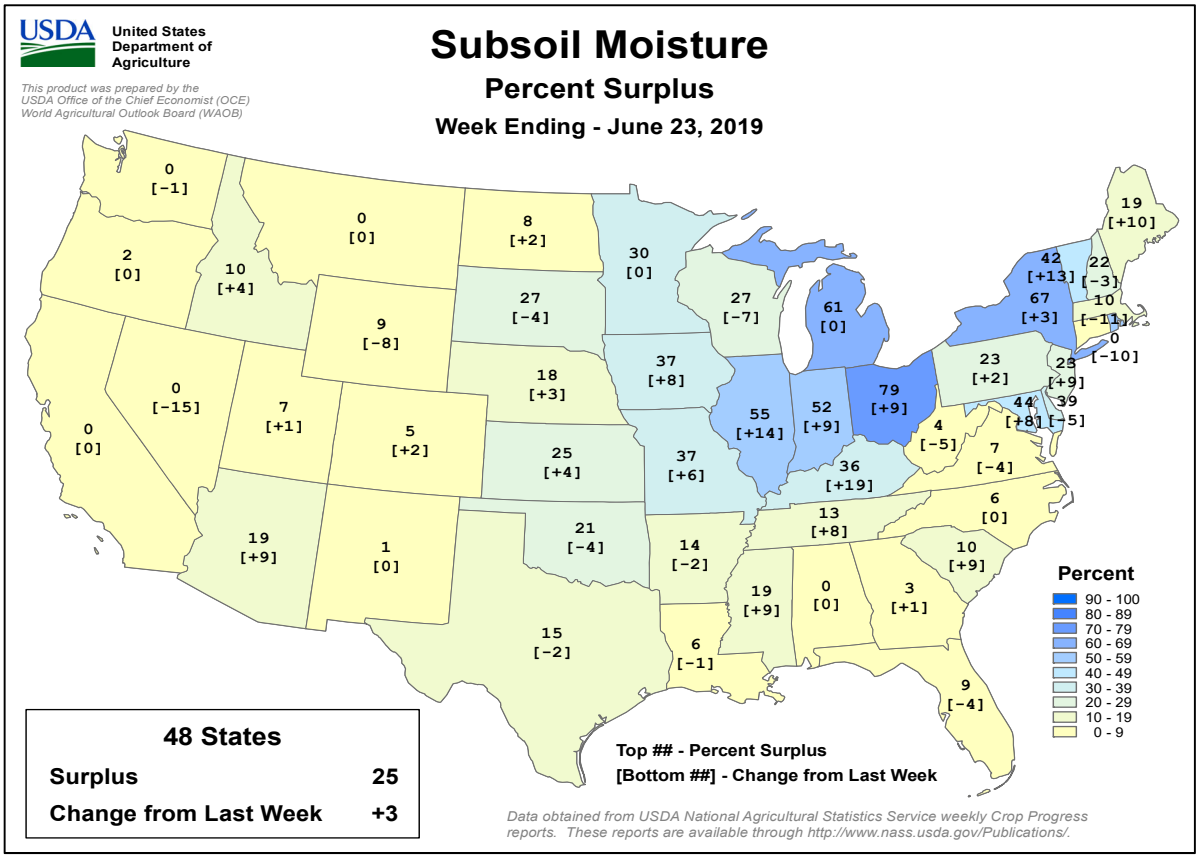


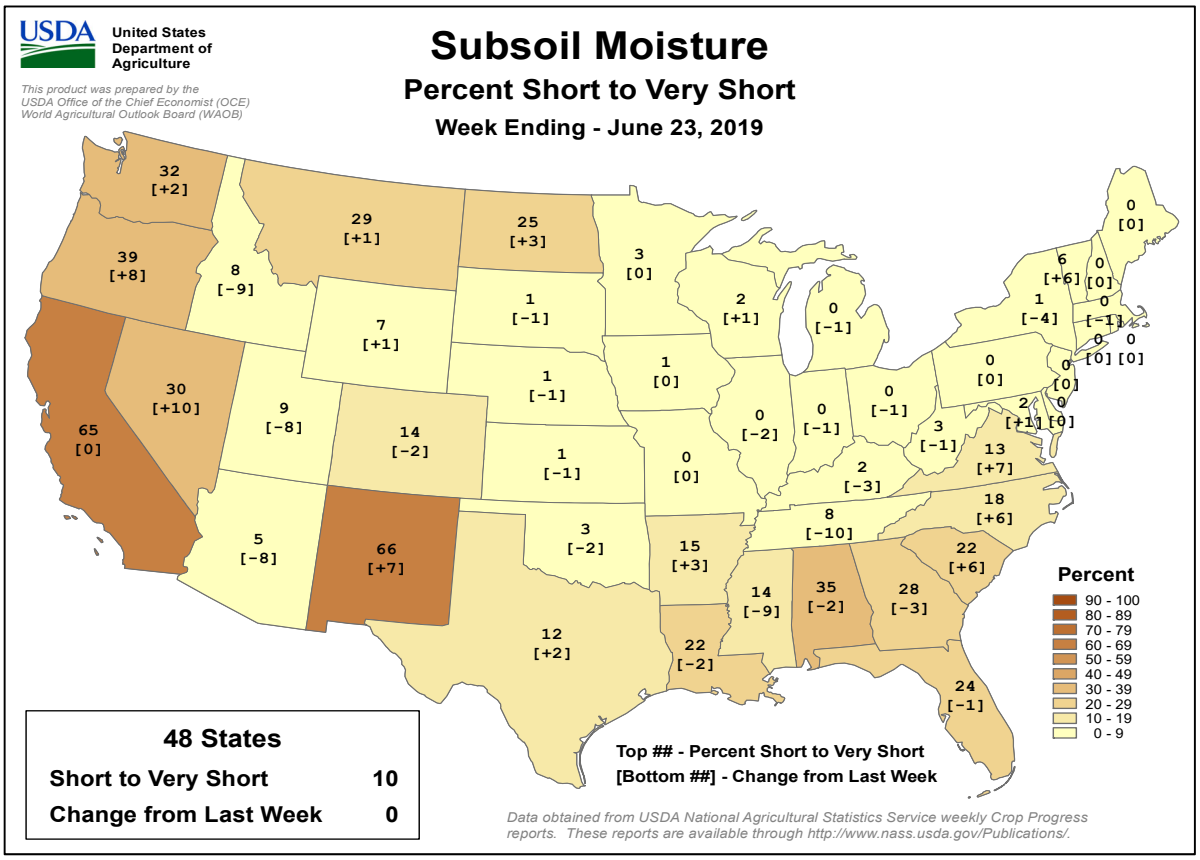


Crop Progress and Condition

Week Ending June 23, 2019

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





International Weather and Crop Summary

June 16-22, 2019

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

HIGHLIGHTS

EUROPE: Increasing heat accelerated crop development in southern and eastern growing areas, while widespread showers maintained or improved soil moisture most everywhere save for Spain.

WESTERN FSU: Hot weather accelerated winter wheat drydown but hastened summer crops toward reproduction near the Black Sea Coast.

EASTERN FSU: Drought limited spring grain establishment in western growing areas, while rain benefited wheat and barley development in the east.

MIDDLE EAST: Widespread showers in Turkey favored vegetative summer crops, though southeastern crop areas missed the rain.

SOUTH ASIA: The delayed onset of monsoon showers in western India discouraged cotton and oilseed sowing.

EASTERN ASIA: Rainfall across southern China benefited rice and other summer crops, while hot, dry weather promoted drydown and harvesting of wheat in the east.

SOUTHEAST ASIA: Poor monsoon showers in Thailand and environs reduced early-season moisture supplies for rice.

AUSTRALIA: Dry weather returned to the drought-plagued northeast, while soaking rain fell in the south and west.

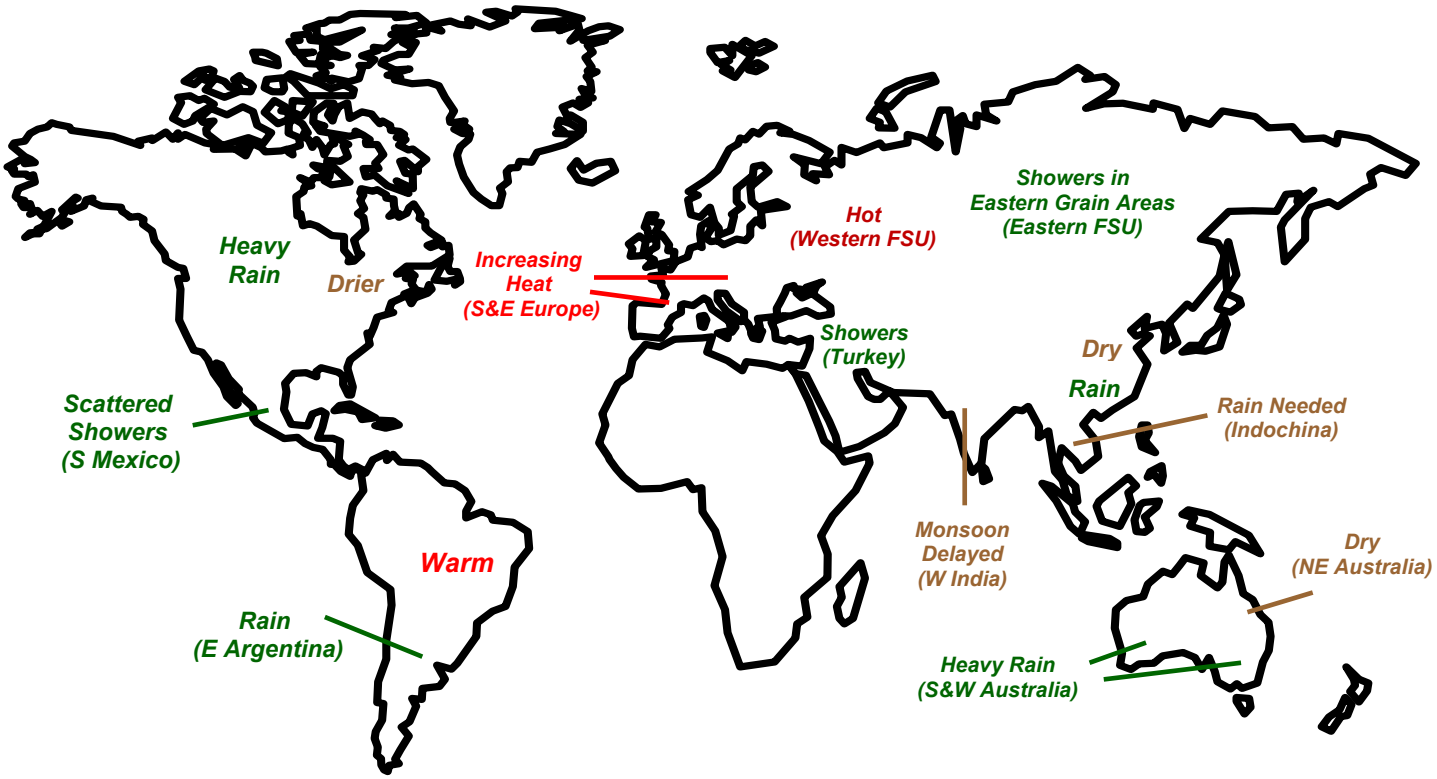
ARGENTINA: Showers increased moisture for germination and establishment of winter grains.

BRAZIL: Warmth and dryness prompted rapid development of corn and cotton.

MEXICO: Scattered showers benefited corn and other emerging summer crops.

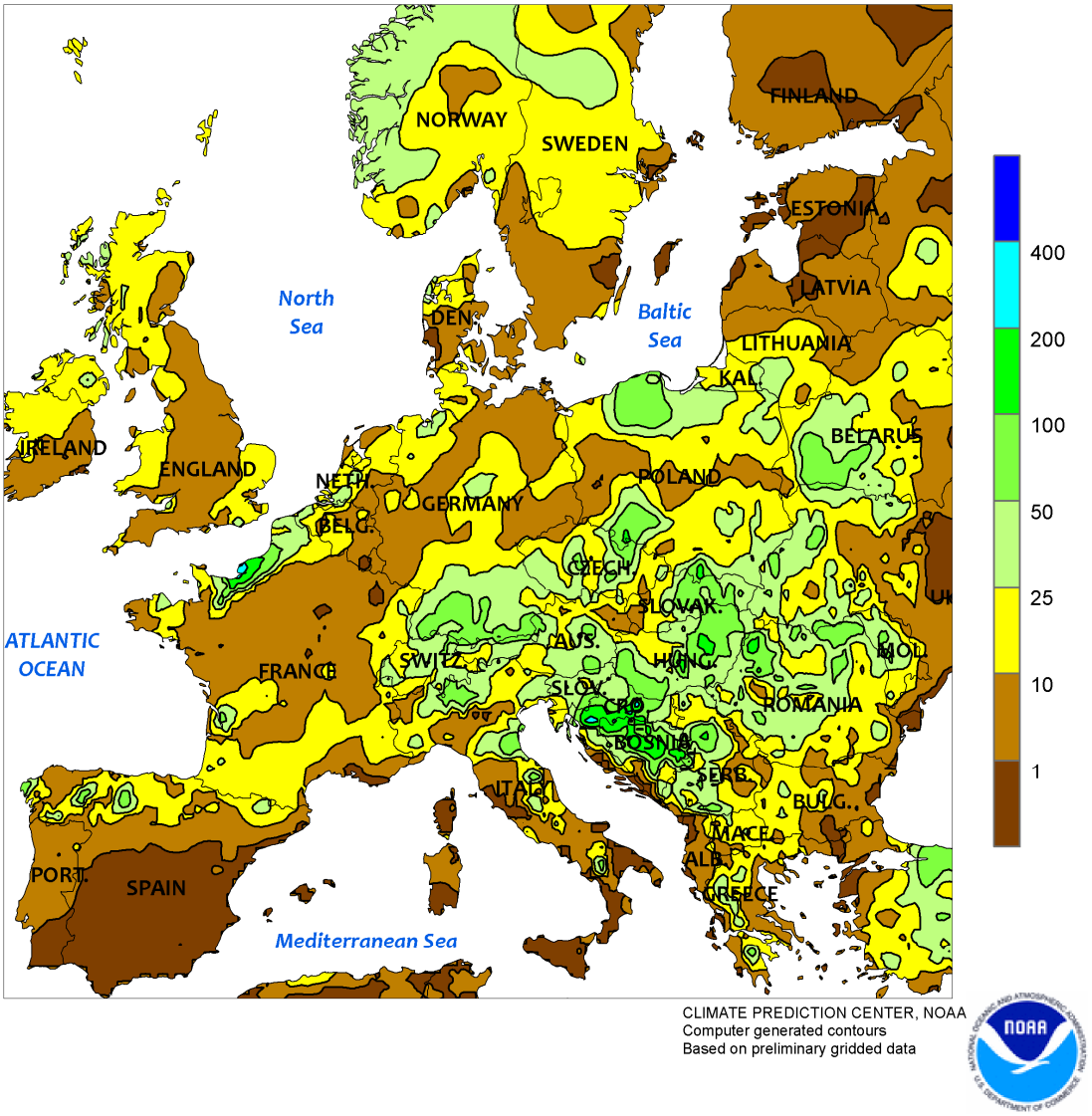
CANADIAN PRAIRIES: Locally heavy rain provided much-needed moisture for establishment of spring grains and oilseeds.

SOUTHEASTERN CANADA: Somewhat drier conditions brought some relief from excessive moisture impacting winter wheat and summer crop planting activities.



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

EUROPE
Total Precipitation (mm)
June 16 - 22, 2019

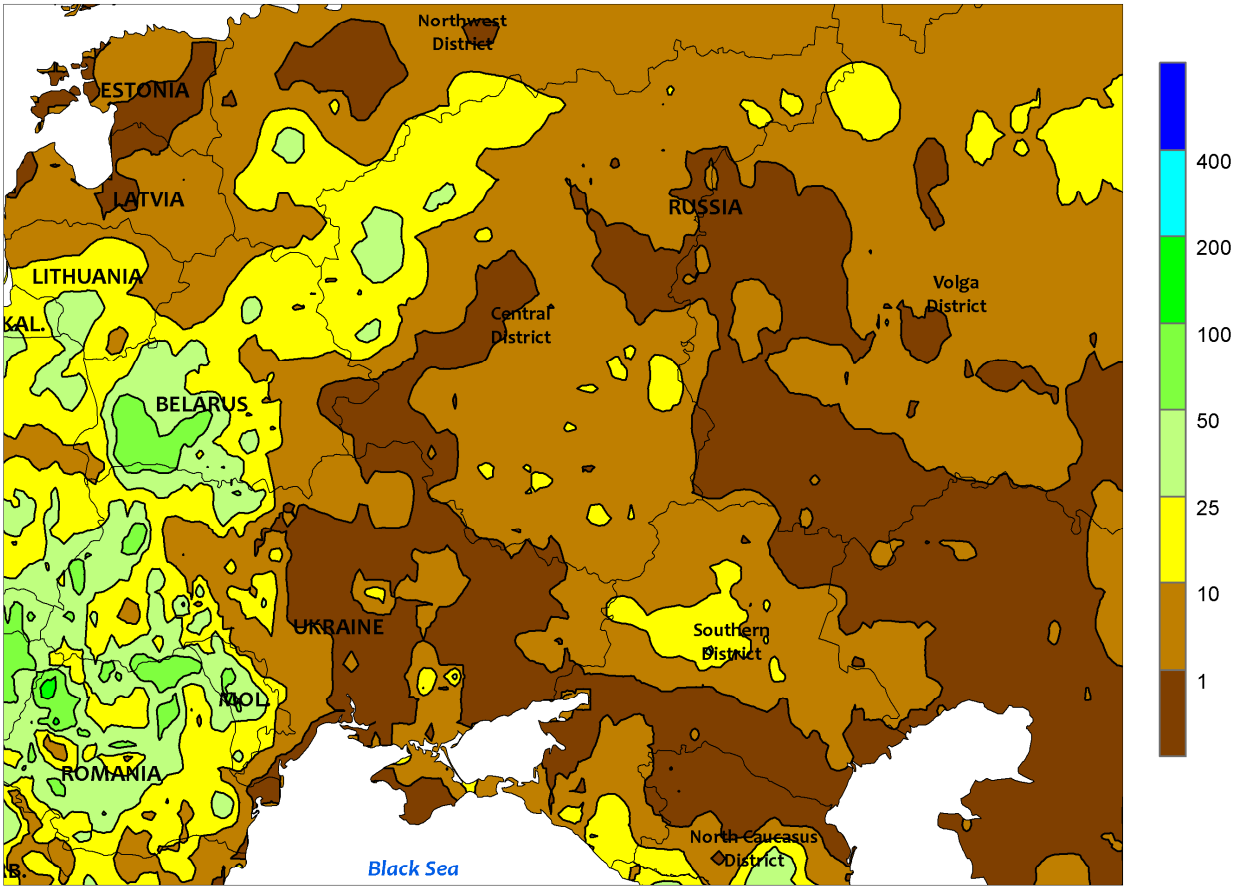


EUROPE

Increasingly warm, showery weather prevailed across most of Europe, though drought lingered on the Iberian Peninsula. Building heat (3-6°C above normal) was noted from Germany and Italy eastward, with daytime highs in excess of 30°C (locally as high as 34°C) accelerating summer crop development. However, corn, sunflowers, and soybeans were not yet at the temperature-sensitive flowering stage of development; Balkans' summer crops will enter reproduction over the next several weeks. Furthermore, locally heavy rain (10-90 mm) in southeastern Europe maintained abundant soil moisture and mitigated early heat impacts. Farther north, widespread albeit highly variable showers (2-55 mm) from Germany into the Baltic States boosted soil moisture for filling winter wheat and rapeseed. Showers interspersed with periods of sunny weather favored winter crop maturation and drydown in northern France and southeastern England, while well-placed rain (10-30 mm) across southern France improved soil moisture for summer crops approaching reproduction. In contrast, drought continued over most of Spain and Portugal; maturing winter grains have been irreversibly impacted by the drought, and moisture will be needed soon to prevent yield declines for corn and sunflowers. Moisture shortages are most dire across the central and southern Iberian Peninsula where crops are nearly flowering, while some showers (2-22 mm) in the more northerly growing areas have provided limited topsoil moisture improvements.

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

WESTERN FSU
Total Precipitation (mm)
June 16 - 22, 2019



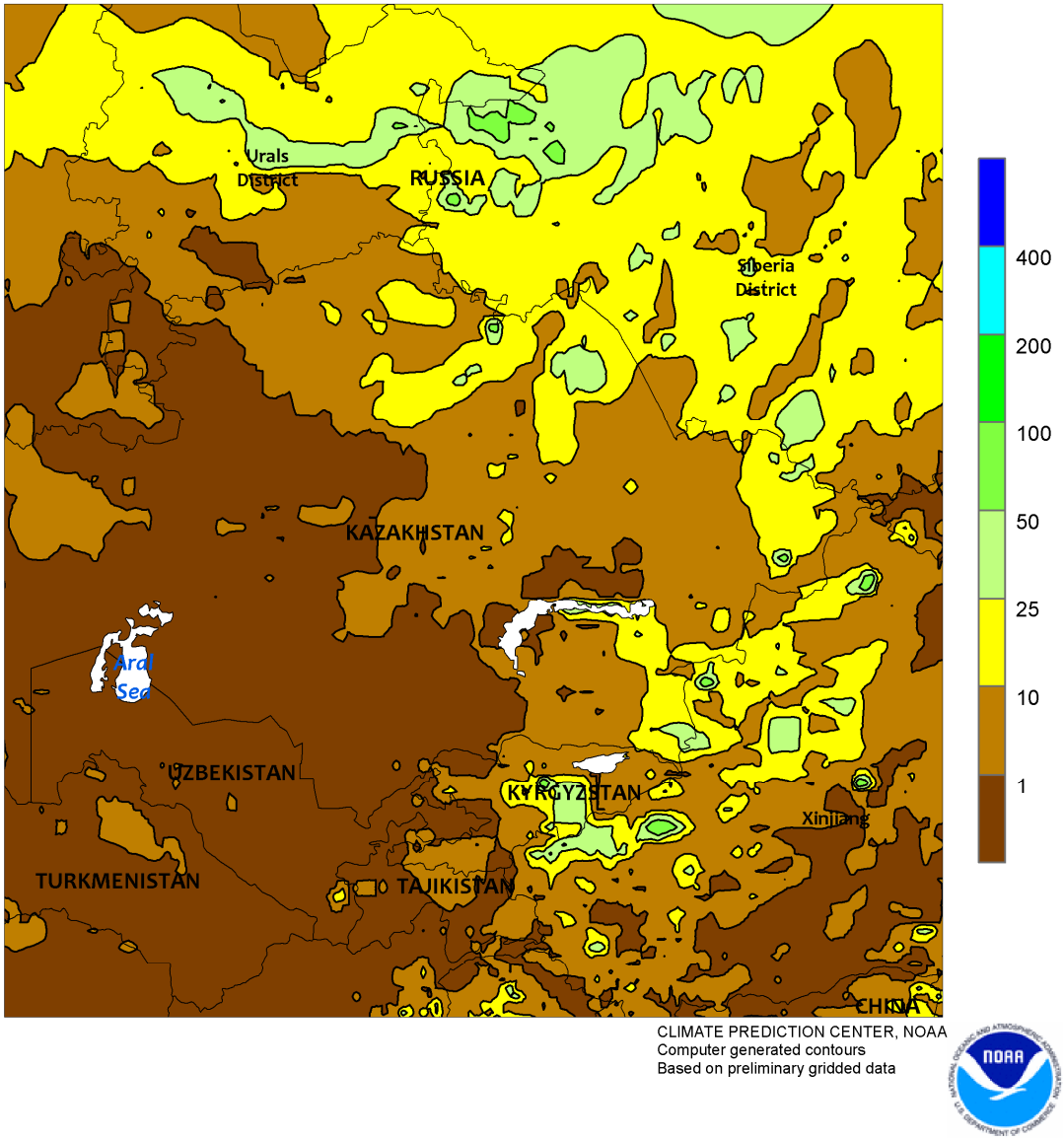
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

WESTERN FSU

Hot, dry weather accelerated winter wheat drydown and summer crop development, though showers returned at week's end. An area of high pressure remained anchored over western Russia, resulting in sunny skies and increasing heat nearly region wide. Temperatures for the week averaged 4 to 7°C above normal, with daytime highs at or above 35°C in western and southern Russia hastening corn toward reproduction up to two weeks ahead of normal. However, showers began to spread northward from the eastern Black Sea Coast at the end of the period, with 2 to 25 mm of rain reported in parts of southwestern Russia. Weather radar imagery indicated the showers intensifying and expanding on June 23 and 24, providing timely moisture and heat relief for corn approaching or entering reproduction. The rain also worked into corn areas of central and northern Ukraine after the end of the period, though localized dryness remained a concern in northern-most portions of the country. Nevertheless, the hot, dry conditions were favorable for winter wheat drydown and early harvesting. Farther west, moderate to heavy rain (15-85 mm) in Moldova benefited vegetative sunflowers, while widespread showers in western and northern Belarus (10-75 mm) favored spring-sown crops.

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

EASTERN FSU
Total Precipitation (mm)
June 16 - 22, 2019



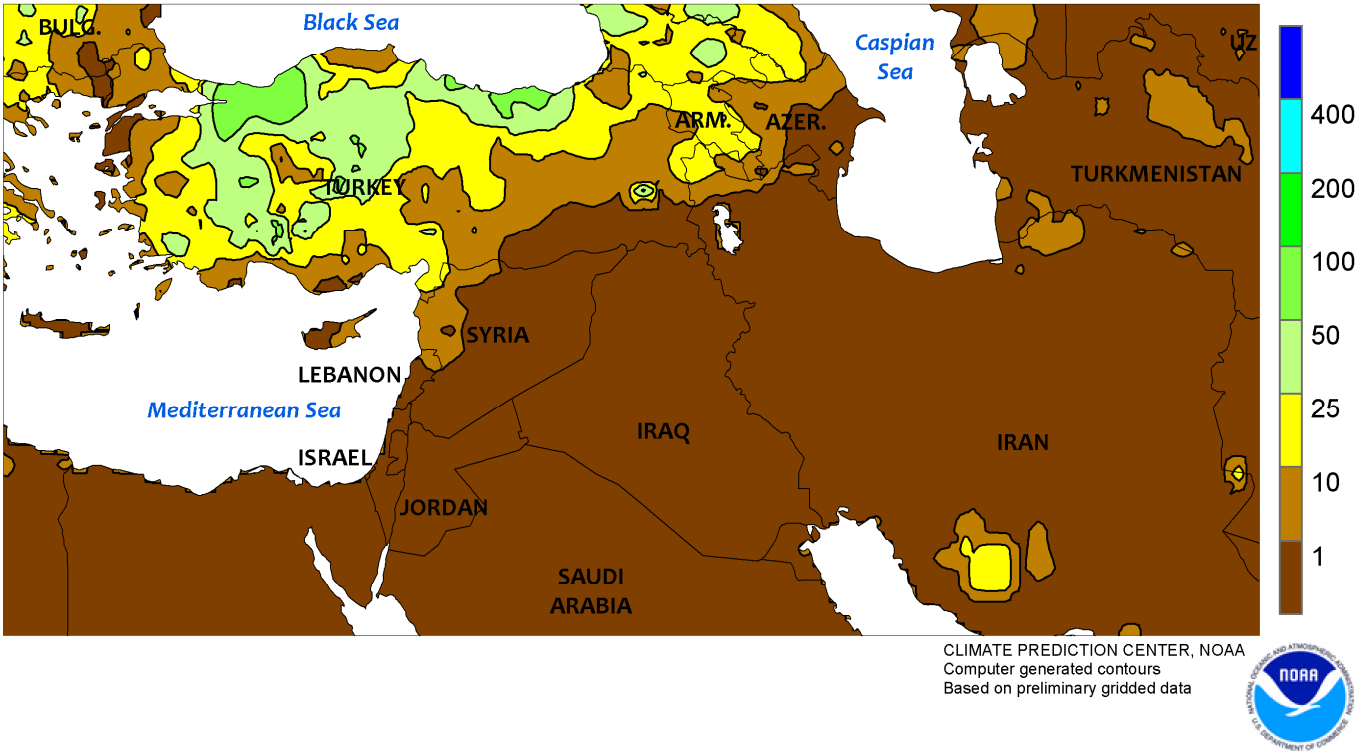
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

EASTERN FSU

Despite the arrival of cool weather nearly region wide, drought in the west contrasted with widespread showers in the east. Across spring wheat areas of northern Kazakhstan and central Russia, sharply cooler weather (up to 5°C below normal) replaced recent heat and benefited spring grain development in areas with sufficient soil moisture. However, showers continued to bypass northwestern Kazakhstan and adjacent portions of central Russia, where 60-day rainfall has tallied a meager 10 to 50 percent of normal. As a result, spring grain establishment has likely been severely impacted in these westerly crop regions, with rain needed soon to stave off potential losses to either crop area or yield. Conversely, widespread moderate to heavy rainfall (10-45 mm) across eastern Kazakhstan and Russia's Siberia District favored spring wheat and barley establishment. Farther south, sunny skies and near-normal temperatures promoted the development of irrigated cotton in Uzbekistan and environs. Cotton typically progresses through the temperature-sensitive flowering stage of development in July, when extreme heat (lower 40s, degrees C) is most detrimental.

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

MIDDLE EAST
Total Precipitation (mm)
June 16 - 22, 2019



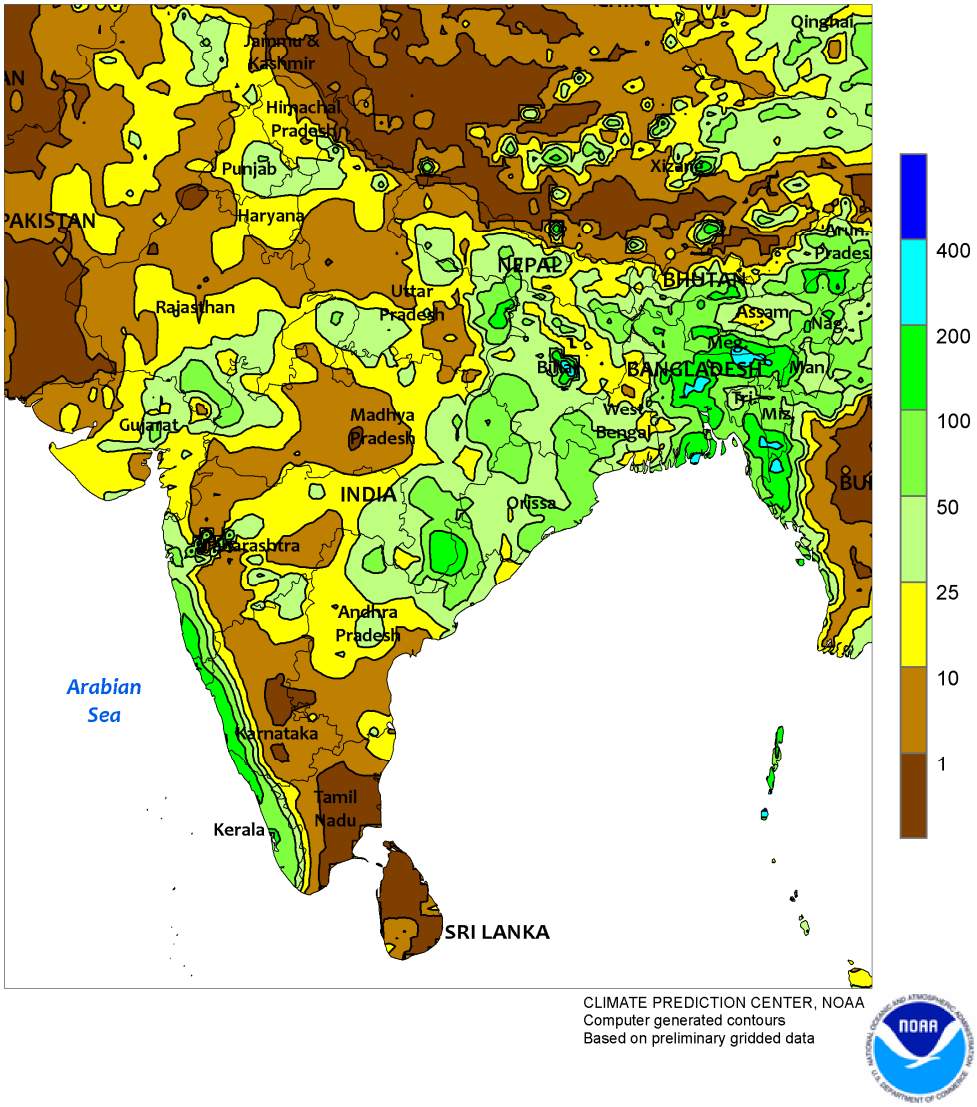
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

MIDDLE EAST

Unsettled conditions in Turkey contrasted with seasonably sunny weather elsewhere. The recent hot spell abated somewhat, with warmer-than-normal conditions (up to 4°C above normal) confined to the region's northern tier. Sunny skies from the eastern Mediterranean Coast into Iran favored winter grain drydown and harvesting. In contrast, a stationary upper-air low over central Turkey maintained periods of moderate to heavy rain (10-90 mm) across much of the country. Moisture supplies remained overall favorable in Turkey for vegetative sunflowers in the northwest (Thrace), vegetative to flowering cotton in the west (Aegean) and southeast (GAP Region), as well as vegetative to reproductive corn along the Black Sea Coast and in the southeast (Adana). However, localized dryness was likely increasing irrigation requirements for summer crops in southeastern Turkey (GAP region), though long-term moisture prospects remained favorable due to a wet spring.

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

SOUTH ASIA
Total Precipitation (mm)
June 16 - 22, 2019



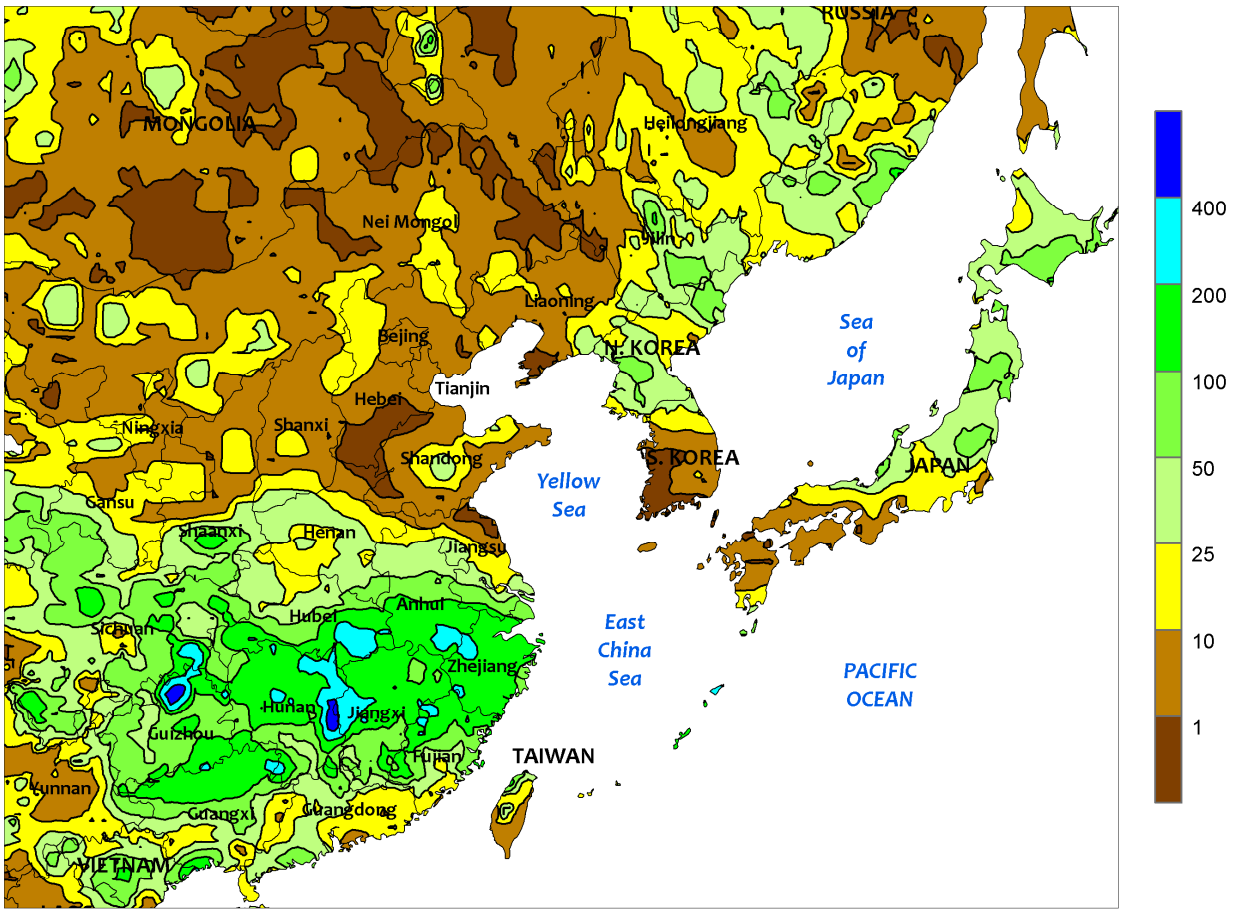
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

SOUTH ASIA

Monsoon showers continued to slowly progress northward in India but were delayed by almost two weeks in some western crop areas. The heaviest rainfall (over 100 mm) was concentrated in the seasonally wetter western coastal areas of India and parts of the east (including Bangladesh), boosting moisture supplies for rice. However, many key cotton and oilseed areas in the west (Gujarat, Maharashtra, and Madhya Pradesh) remained dry. Growers in these areas will typically forgo planting until rain arrives.

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

EASTERN ASIA
Total Precipitation (mm)
June 16 - 22, 2019



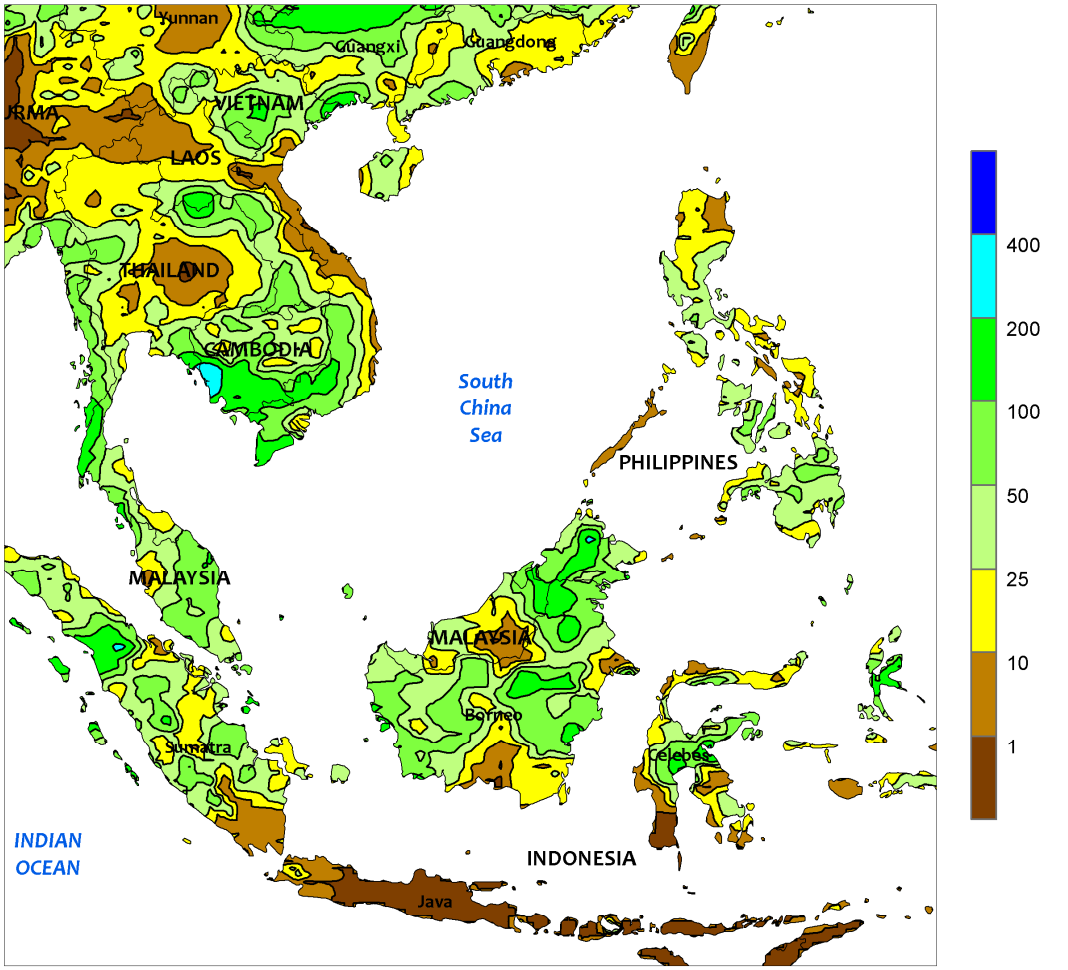
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

EASTERN ASIA

Heavy showers prevailed across southern China, with most areas receiving 25 to 100 mm (over 100 mm in sections of the Yangtze Valley). The wet weather boosted moisture supplies for vegetative single-crop rice and other summer crops. Some of the rainfall extended onto southwestern portions of the North China Plain (Henan), creating unfavorably wet conditions for wheat harvesting. However, the remainder of the North China Plain remained dry and unseasonably hot (temperatures over 35°C), aiding drydown and harvesting of wheat but lowering moisture supplies for vegetative summer crops. Meanwhile in northeastern China, 10 to 25 mm of rain was recorded in eastern prefectures of Jilin and Heilongjiang with lesser totals in other parts of the northeast. The moisture maintained good to excellent corn, soybean, and rice conditions. Elsewhere in the region, showers (10-50 mm) in North Korea, northern South Korea, and the northern half of Japan eased developing dryness for unirrigated summer crops, but significant short-term moisture deficits remained in many areas.

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

SOUTHEAST ASIA
Total Precipitation (mm)
June 16 - 22, 2019

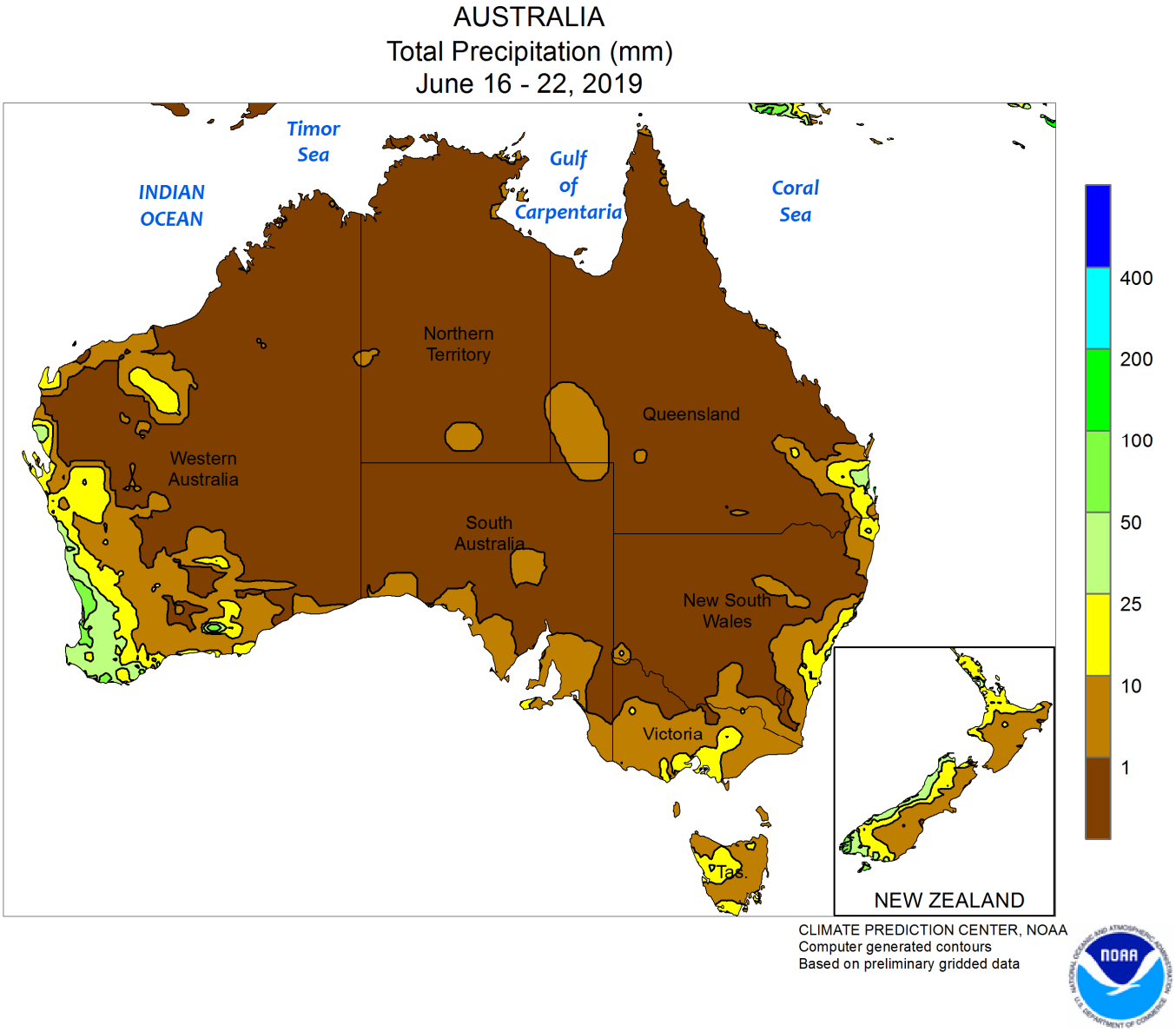


CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

SOUTHEAST ASIA

Monsoon showers remained unseasonably light across much of Thailand and environs. Most areas totaled less than 25 mm of rain, with isolated higher amounts. The lack of consistent rainfall has left much of Thailand with significant moisture deficits, especially in the North Region. More rain is needed to aid rice establishment and development, particularly the rain-fed areas in the Northeast Region, but also to replenish irrigation supplies. In the Philippines, showers have been more consistent, with only a few areas experiencing short-term moisture deficits. Over the past week, most of the country received 25 to 50 mm of rain, adding to seasonal totals (beginning May 1) and benefiting rice and corn. Meanwhile, continued rainfall (25-100 mm) in oil palm areas of Malaysia and Indonesia maintained adequate soil moisture for the crop.

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

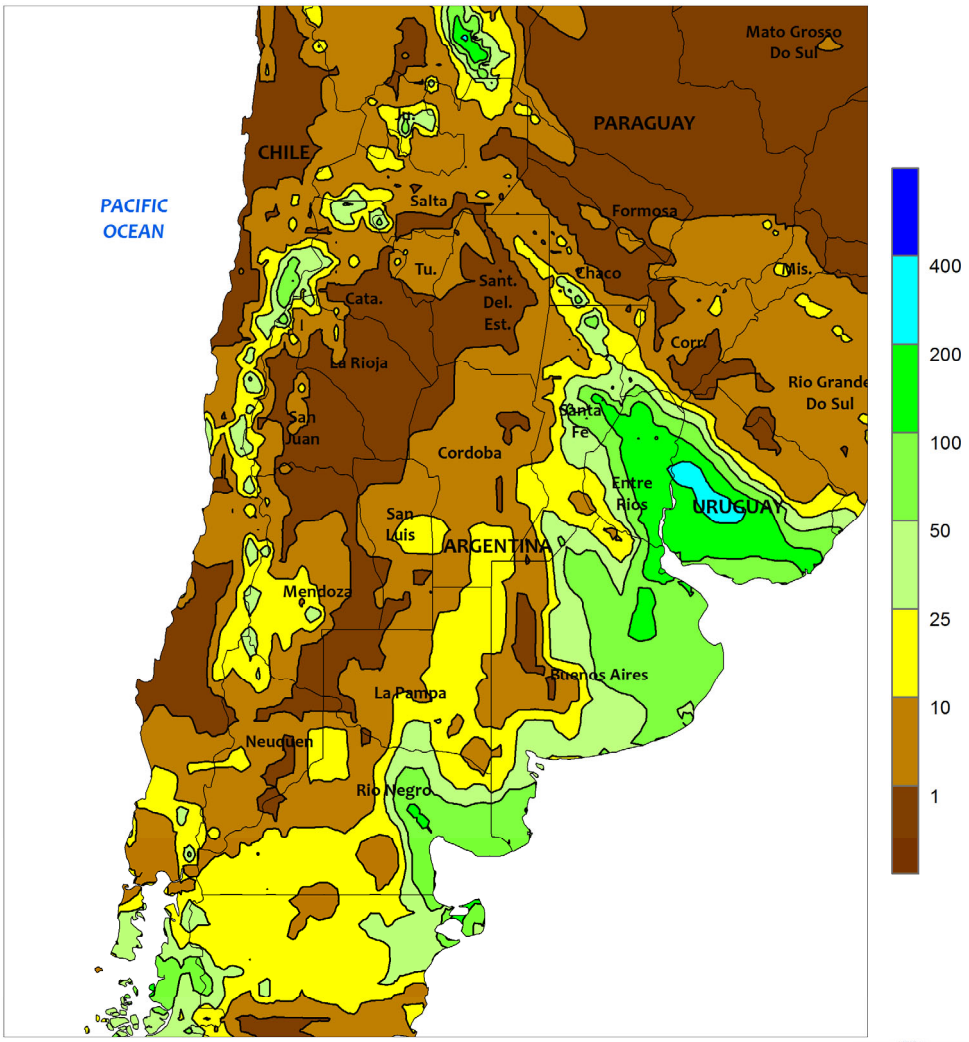


AUSTRALIA

A narrow band of showers (2-10 mm, locally more) early in the week brought little drought relief to southern Queensland. Indeed, dry weather dominated much of southern Queensland and northern New South Wales, slowly but steadily increasing concerns about winter wheat yield prospects. Mostly dry weather covered major winter crop producing areas in southern New South Wales and Victoria as well. However, a combination of sunny skies and adequate topsoil moisture promoted wheat, barley, and canola development, maintaining generally good crop conditions in these states. Similarly, scattered showers (5-25 mm) in South Australia sustained good early-season yield prospects for vegetative winter grains and oilseeds. Elsewhere, following the previous week's soaking rain, late-week showers (5-25 mm) further benefited wheat, barley, and canola emergence and establishment in Western Australia. Temperatures averaged within 1°C of normal throughout the entire wheat belt, spurring crop development in areas where adequate soil moisture was available.

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

ARGENTINA
Total Precipitation (mm)
June 16 - 22, 2019

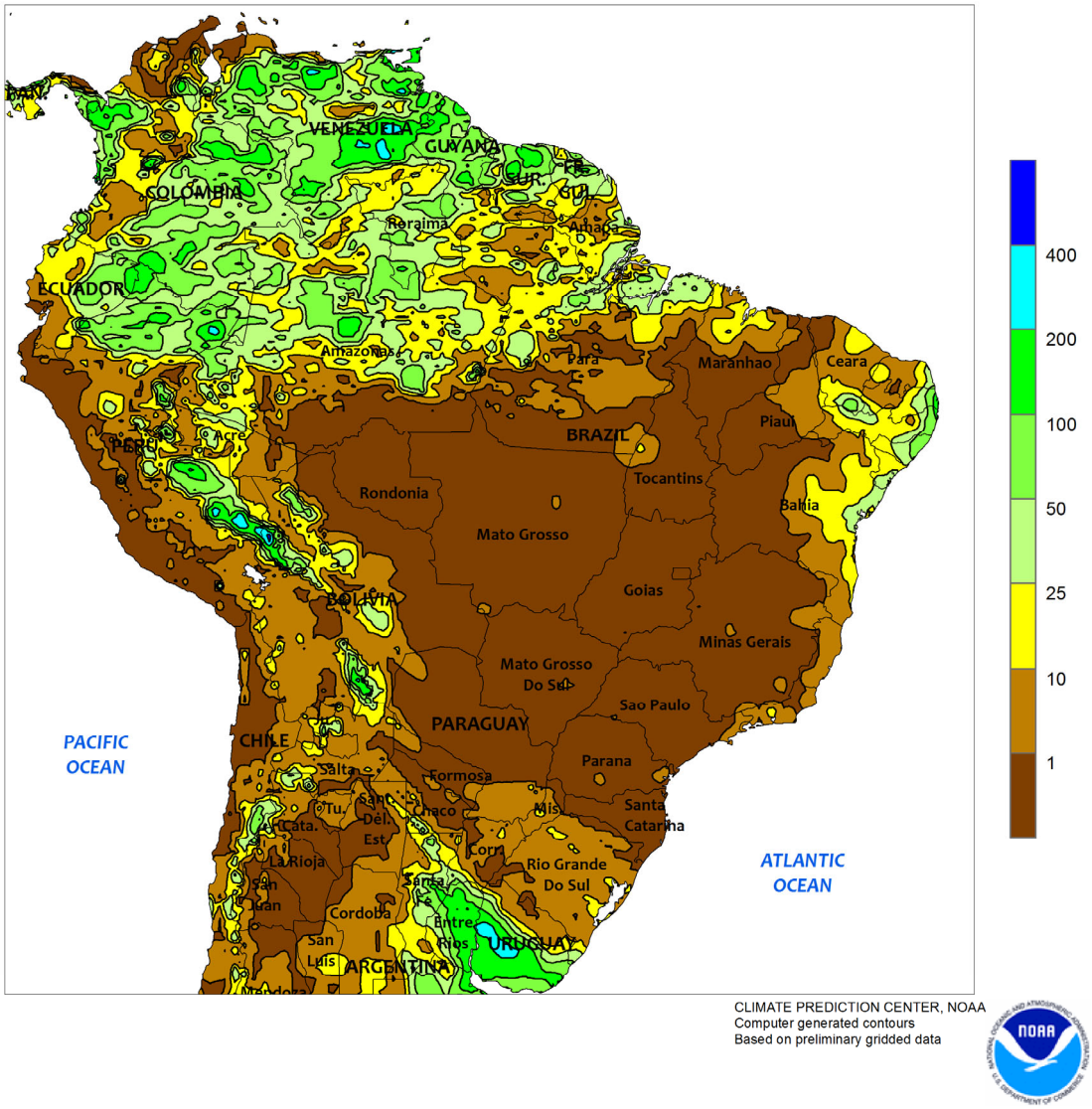


ARGENTINA

Showers intensified over Argentina's southeastern farming areas, hampering seasonal fieldwork but providing abundant moisture for winter grain germination. Rainfall totaled more than 50 mm (locally exceeding 100 mm) in Entre Rios and eastern Buenos Aires, and from 10 to 50 mm from La Pampa and western Buenos Aires northeastward through Santa Fe. Dry weather prevailed elsewhere, however, aiding the final stages of summer crop harvesting and winter grain planting. Weekly temperatures averaged near to above normal, with temperatures averaging 2 to 4°C above normal in southern and eastern agricultural areas (La Pampa and Buenos Aires northeastward through Corrientes). Daytime highs ranged from the upper 10s (degrees C) in the south to the lower 30s in the far north, with patchy frost in traditionally cooler southern and western locations. According to the government of Argentina, corn was 61 percent harvested as of June 21; soybean harvesting was virtually complete at 96 percent. In addition, wheat planting was 39 percent planted nationally, lagging last year's pace by 9 points.

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

BRAZIL
Total Precipitation (mm)
June 16 - 22, 2019



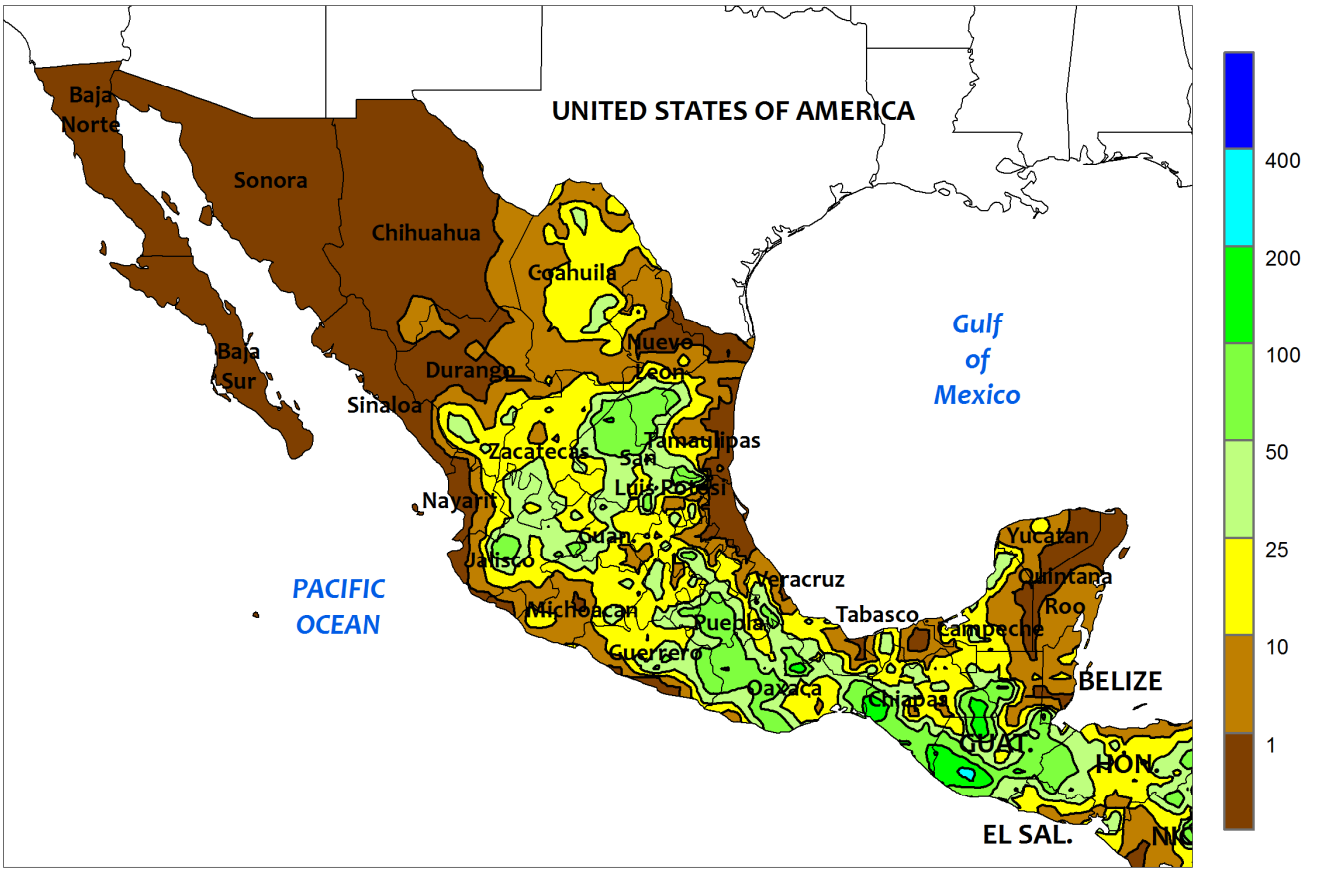
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

BRAZIL

For a second week, warm, sunny weather dominated major agricultural areas of central, southern, and northeastern Brazil, advancing summer row crops toward maturation and sustaining overall favorable conditions for fieldwork. Most agricultural areas reported little to no rain (0-5 mm), the exception being outlying northern areas that typically receive seasonal rainfall this time of year. Weekly temperatures averaged 3 to 5°C above normal in southern Brazil (Mato Grosso do Sul and Sao Paulo southward through Rio Grande do Su), with daytime highs reaching the upper 20s and lower 30s (degrees C); despite the trend of warmth, however, nighttime lows dropped into the low single digits in the vicinity of northeastern Rio Grande do Sul, though no widespread freeze was recorded. According to the government of Parana, second-crop corn was 21 percent harvested as of June 17, with over 60 percent of the remaining crop maturing; meanwhile, wheat was 87 percent planted.

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

MEXICO
Total Precipitation (mm)
June 16 - 22, 2019



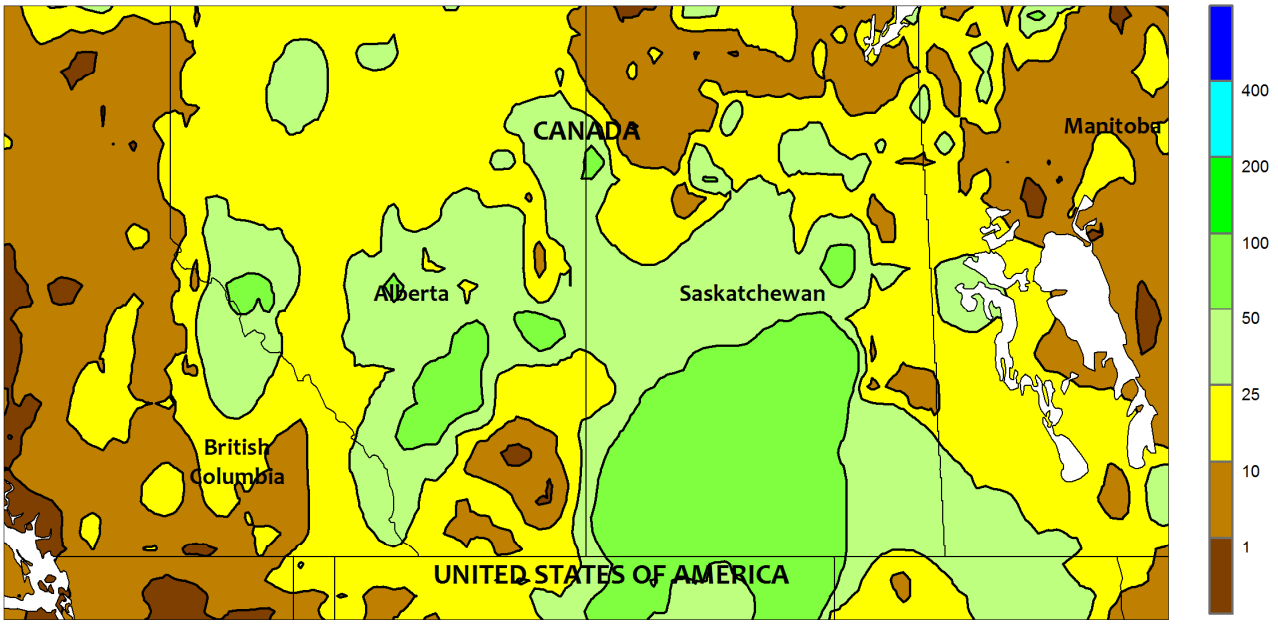
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

MEXICO

Scattered showers overspread much of central and southern Mexico, though pockets of dryness persisted in spots. On the southern plateau, rainfall totaled more than 50 mm in the vicinity of Puebla, but rain was patchy in nature in western production areas (notably Jalisco and Michoacan), with lingering pockets of dryness. Farther east, rainfall diminished from the previous week in production areas along the Gulf Coast, including most sugarcane areas of Veracruz and irrigated farming areas of Tabasco and Campeche. In contrast, locally heavy rain (greater than 50 mm) fell in Oaxaca and Chiapas, maintaining generally favorable levels of moisture for coffee and other crops. Elsewhere, showers (5-50 mm, locally higher) fell in central Mexico from Guanajuato northward through Coahuila but dry, periodically hot weather (daytime highs reaching the lower 40s degrees C) dominated other northern farming areas, hastening winter grain maturation and sustaining high water requirements of livestock.

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

CANADIAN PRAIRIES
Total Precipitation (mm)
June 16 - 22, 2019



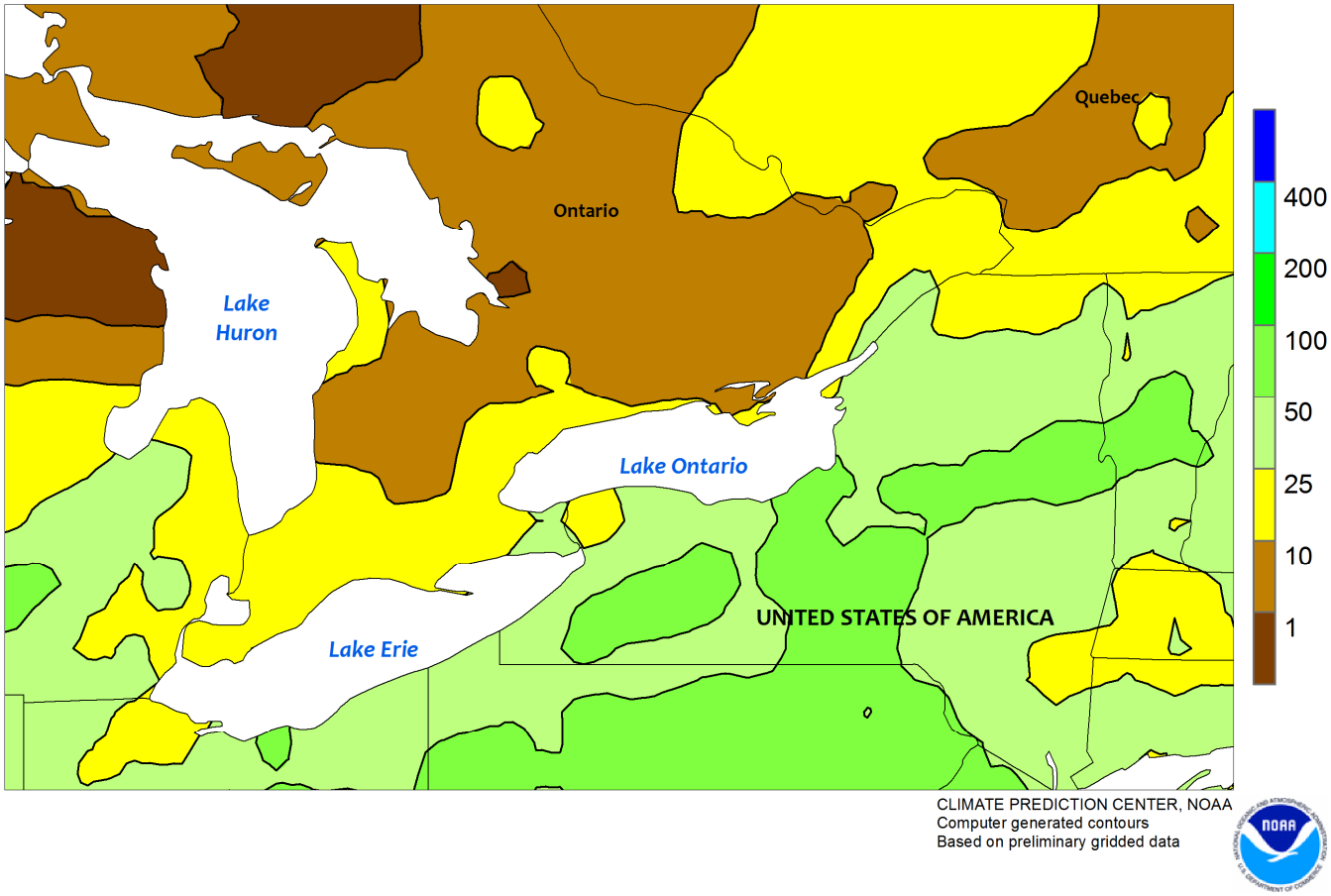
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

CANADIAN PRAIRIES

Widespread, locally heavy showers overspread the Prairies, providing much-needed moisture for crops and pastures. Nearly all locations recorded at least 10 mm, exceptions being agricultural districts in southeastern Alberta and the Peace River Valley, where little to no rain fell (5 mm or less). The heaviest rain (50-100 mm or more) fell in Alberta between Calgary and Edmonton, in addition to a large section of southwestern Saskatchewan. According to the government of Saskatchewan, topsoil moisture was rated 85 percent short to very short in Saskatchewan's southwestern agricultural districts for the week ending June 17, making the moisture extremely welcome. Weekly average temperatures varied from near to above normal in the drier locations to 3°C below normal in the wetter locations, with daytime highs reaching the middle and upper 20s (degrees C) in most areas. No widespread freeze was reported but nighttime lows dropped into the lower single digits.

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

SOUTHEASTERN CANADA
Total Precipitation (mm)
June 16 - 22, 2019



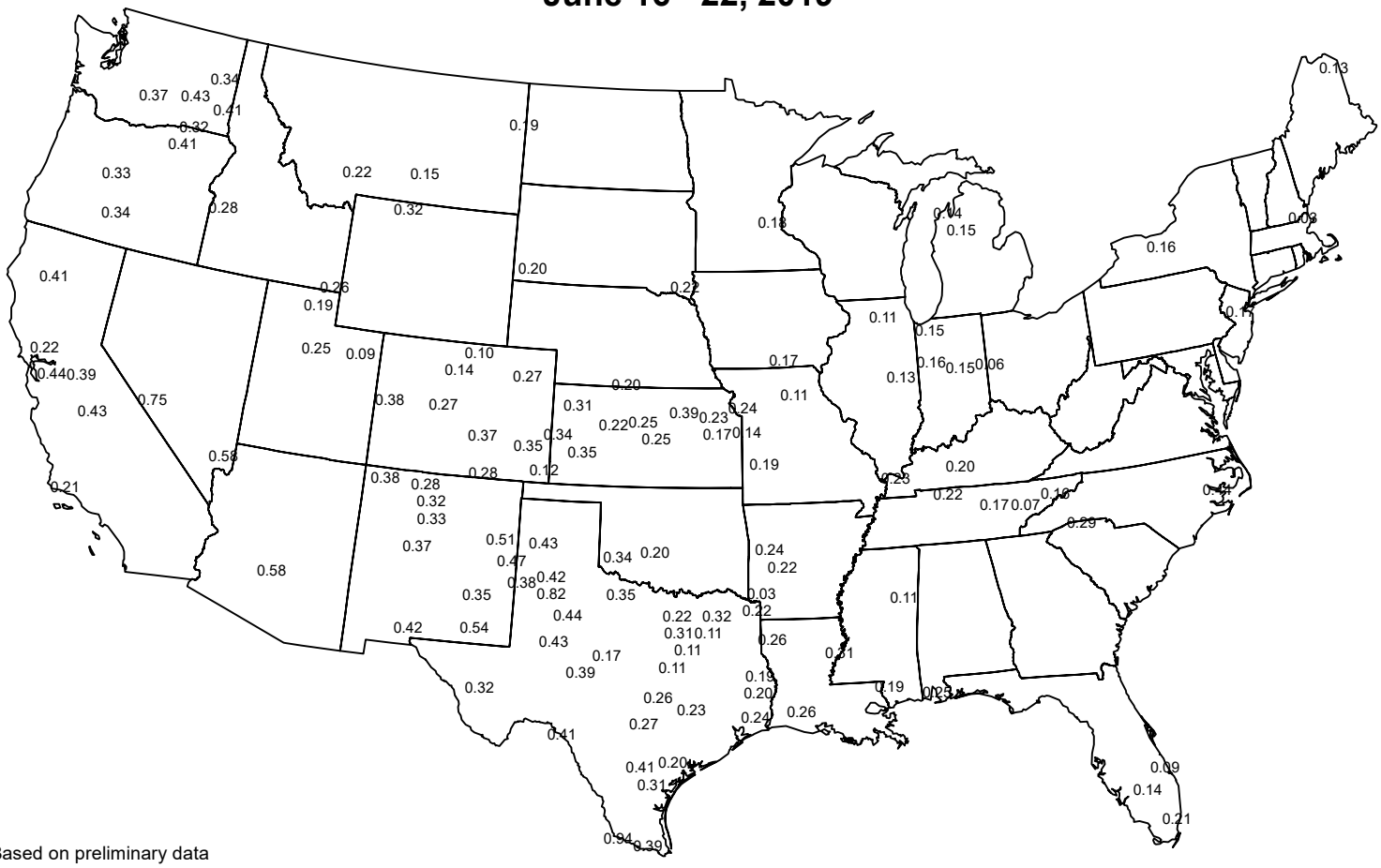
SOUTHEASTERN CANADA

Favorably drier conditions prevailed across the region, bringing some relief from excessive wetness to developing crops and allowing some drainage of saturated fields. Most locations recorded rainfall totaling 2 to 20 mm, though one area recording the heavier amounts (greater than 10 mm) included Ontario's southern-most agricultural districts (south of London); consequently, weekly average temperatures in these areas were near to slightly below normal, with daytime highs capped at the middle 20s (degrees C). Temperatures reached the upper 20s on several days in Quebec westward toward Lake Ontario. Nighttime lows fell into the low single digits in northern-most farming areas but no widespread freeze was reported. According to the government of Ontario, corn planting was nearing completion and overall soybean planting ranged 40 to 60 percent complete as of June 17.

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

Average Pan Evaporation (inches/day)

June 16 - 22, 2019



Based on preliminary data

USDA Agricultural Weather Assessments

Data obtained from the NWS Cooperative Observer Network.

The *Weekly Weather and Crop Bulletin* (ISSN 0043-1974) is jointly prepared by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Agriculture (USDA). Publication began in 1872 as the *Weekly Weather Chronicle*. It is issued under general authority of the Act of January 12, 1895 (44-USC 213), 53rd Congress, 3rd Session. The contents may be redistributed freely with proper credit.

Correspondence to the meteorologists should be directed to:
***Weekly Weather and Crop Bulletin*, NOAA/USDA, Joint Agricultural Weather Facility, USDA South Building, Room 4443B, Washington, DC 20250.**
Internet URL: **http://www.usda.gov/oce/weather**
E-mail address: ***brippey@oce.usda.gov***

The *Weekly Weather and Crop Bulletin* and archives are maintained on the following USDA Internet URL:
http://www.usda.gov/oce/weather/pubs/Weekly/Wwcb/index.htm