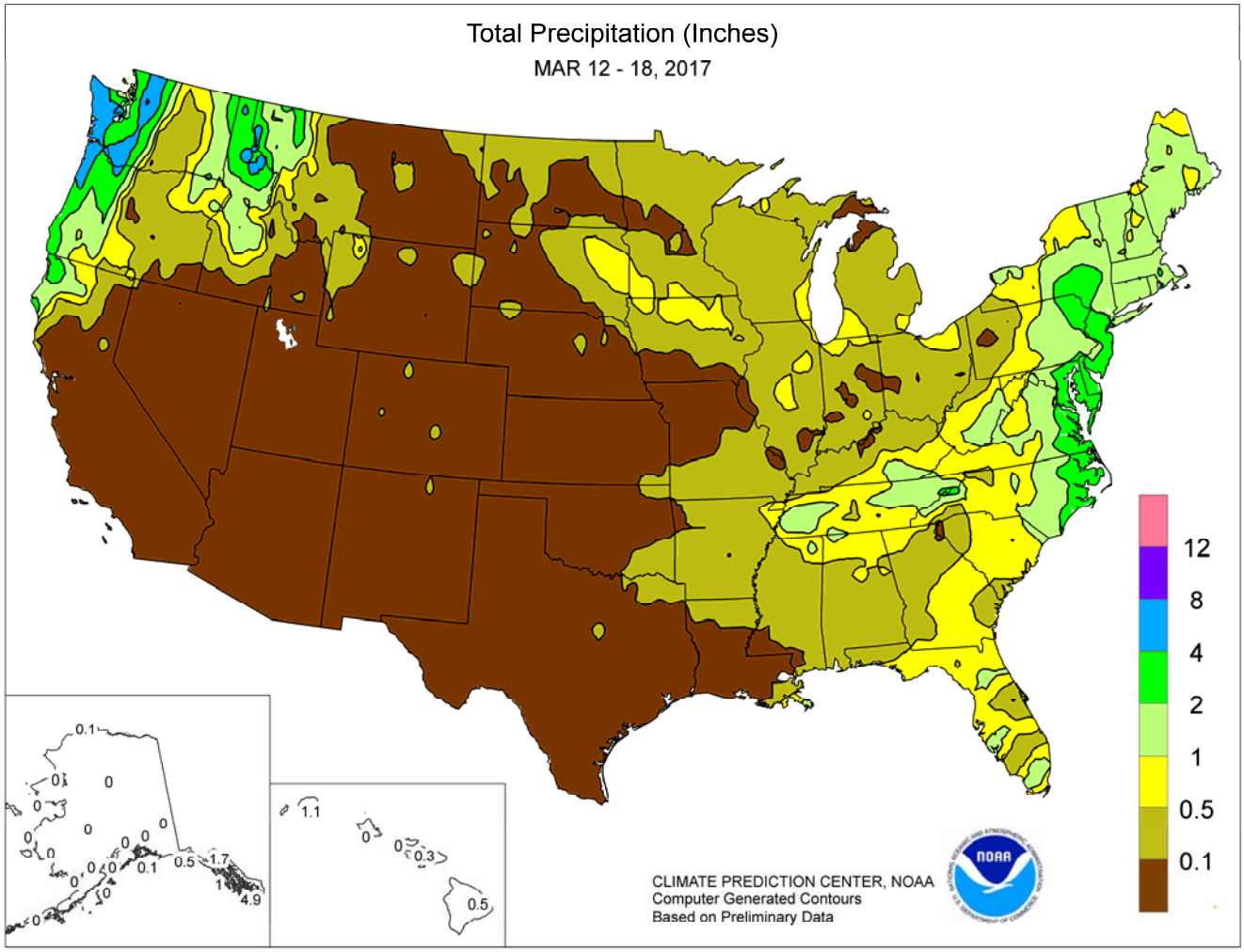
Volume 104, No. 12 http://www.usda.gov/oce/weather March 21, 2017

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

March 12 – 18, 2017

Highlights provided by USDA/WAOB

A storm sliced across the **Midwest**, depositing a stripe of snow before intensifying along the **middle and northern Atlantic Coast**. Subsequently, portions of the **Northeast** were battered by wind and wintry precipitation, including snow, sleet, and freezing rain. The bulk of the **Northeastern** precipitation fell from March 13-15. In the storm's wake, a sudden cold spell threatened **Southeastern** fruit and nuts crops, winter wheat, and ornamentals. In addition, recently emerged **Southern** crops such as corn and watermelons may have been

(Continued on page 7)

Contents

Water Supply Forecast for the Western United States

Highlights

La Niña continued to fade away during February, but a pool of anomalously cool water persisted across the northeastern Pacific Ocean. Regardless of February developments over the Pacific, storminess continued nearly unabated across the western U.S. In particular, frequent February precipitation along and north of a line from the Sierra Nevada to Wyoming maintained favorable water-supply prospects—even to the point of excess in some river basins—across the middle one-third of the West.

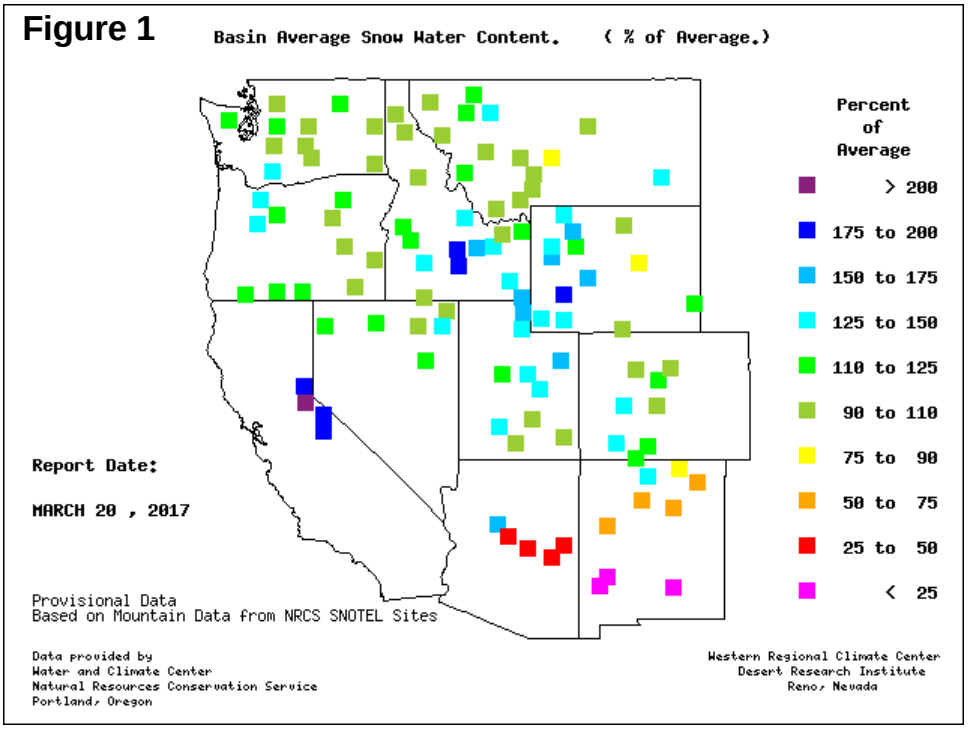
The Sierra Nevada received an average of 40 inches of precipitation—well above its annual normal—during the first 2 months of 2017, pushing northern and central California into flood-control mode. In fact, drought concerns throughout the West have greatly diminished, except for lingering surface water and groundwater shortages across the region's southern tier.

Snowpack and Precipitation

By March 20, 2017, most basins in the central one-third of the West—including the Sierra Nevada and the Wasatch Range—were reporting much-above-normal snowpack for this time of year (figure 1). In contrast, many Southwestern basins have lost much of their snow due to recent and ongoing warmth. Meanwhile, many Northwestern basins have experienced improvements in snowpack—at least into the normal range—in recent weeks.

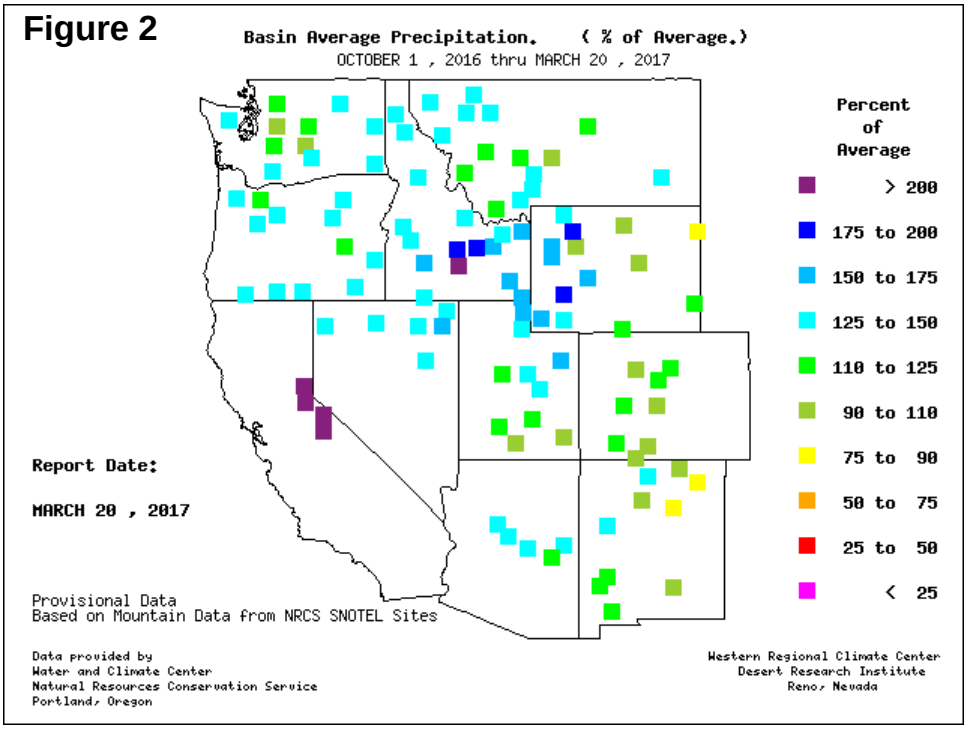
SNOTEL – River Basin Snow Water Content

Figure 1



SNOTEL – River Basin Precipitation

Figure 2



Season-to-date precipitation (October 1, 2016 – March 20, 2017) was near or above normal throughout the West. Amid an overall impressive Western winter wet season, precipitation totals have been truly exceptional (at least 150 to 200 percent of normal) in many watersheds stretching from the Sierra Nevada into western Wyoming (figure 2).

Spring and Summer Streamflow Forecasts

By March 1, 2017, projections for spring and summer streamflow were indicating the likelihood of near- or above-normal runoff in most Western watersheds, except in a few northern and southeastern basins. In particular, runoff in excess of 180 percent of average can be expected in many basins from the Sierra Nevada to the Wasatch Range and environs (figure 3). In contrast, runoff volumes of less than 90 percent of average should occur in scattered watersheds from the Cascades to the northern Rockies, as well as the southernmost Rockies.

Reservoir Storage

On March 1, 2017, reservoir storage as a percent of average for the date was near or above average in all Western States except New Mexico and Washington (figure 4). New Mexico's low storage was a combination of several factors, including the effects of a multi-decadal drought and overtaxed water supplies. Hydrologically, Washington has fewer concerns, and in fact continued to prepare for robust spring and summer runoff by keeping some reservoirs low. Meanwhile, California's statewide storage reached 122 percent of average for the date by March 1, topping 120 percent for the first time since December 2011.

For More Information

The National Water and Climate Center homepage provides the latest available snowpack and water supply information. Please visit: http://www.wcc.nrcs.usda.gov

Figure 3

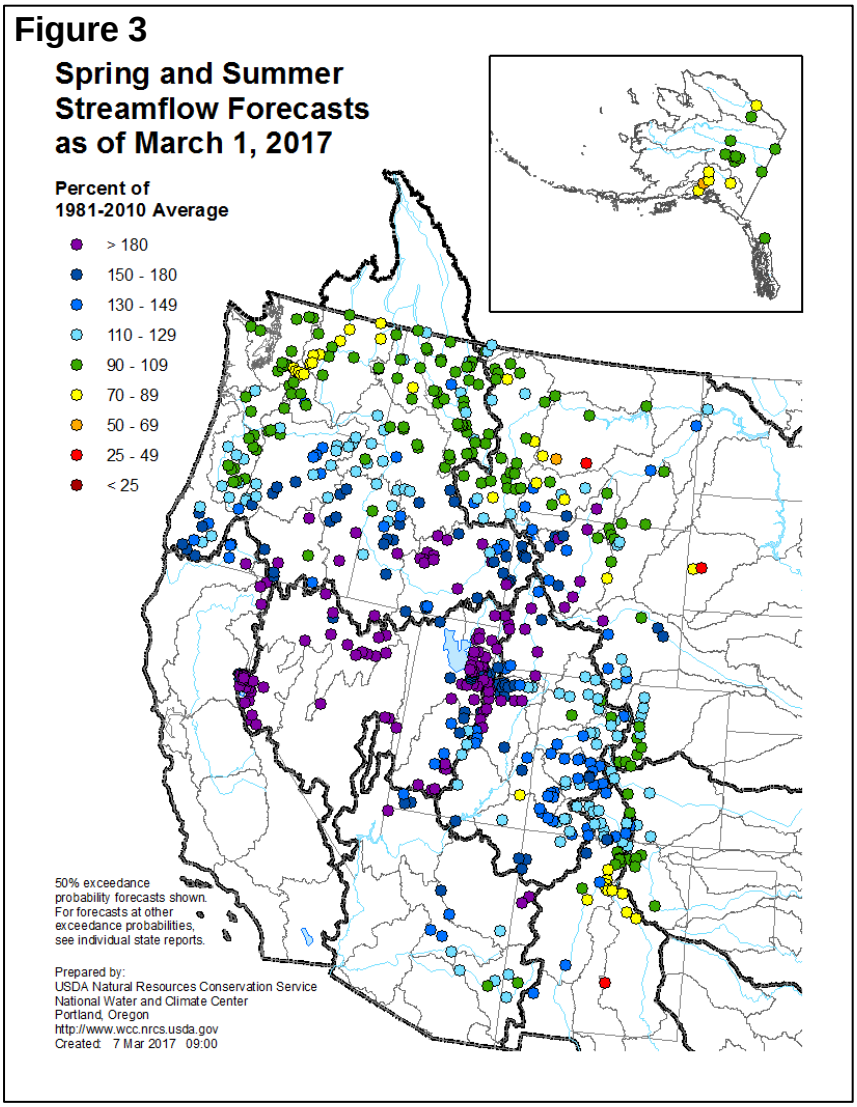
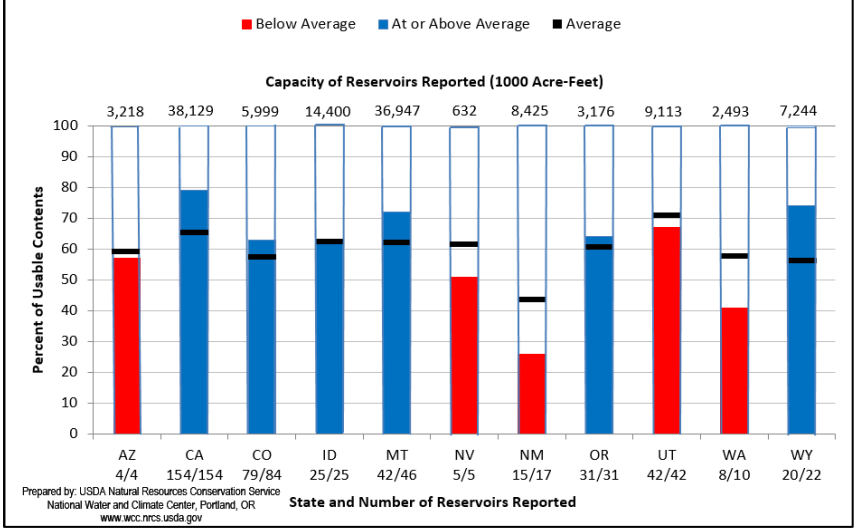
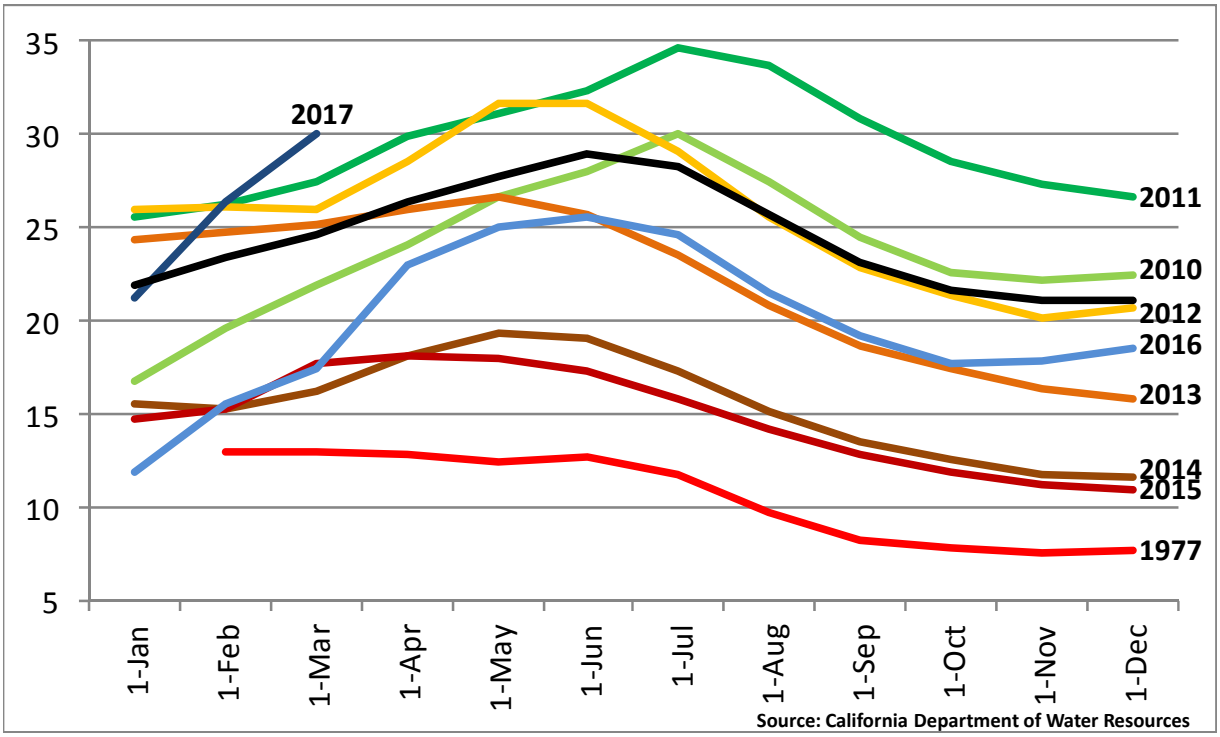


Figure 4 Reservoir Storage as of March 1, 2017



California Reservoir Storage, Million Acre-Feet, 1977 and 2010-17



Note: One acre-foot is equal to 325,851 gallons, or the amount of water it takes to cover one acre to a depth of one foot.

End-of-month statewide reservoir storage topped 30 million acre-feet (above) for the first time since May 31, 2012. Through February 28, California's reservoirs have added 12.34 million acre-feet of storage (below), with the melt season still ahead.

California Reservoirs, Recharge and Withdrawal

Million Acre-Feet and Percent of Average

	Recharge		Withdrawal
2010-11	12.47 (158%)	**2011**	8.78 (111%)
2011-12	5.79 (73%)	**2012**	11.54 (146%)
2012-13	6.52 (83%)	**2013**	11.49 (145%)
2013-14	4.17 (53%)	**2014**	7.75 (98%)
2014-15	6.46 (82%)	**2015**	7.12 (90%)
2015-16	14.67 (186%)	**2016**	7.87 (100%)
2016-17	12.34	**2017**	N/A
Avg.	**7.90**	**Avg.**	**7.90**

Notes: Recharge and withdrawal values are based on end-of-month statistics, not daily readings. Recharge data for 2016-17 is valid through February 28.

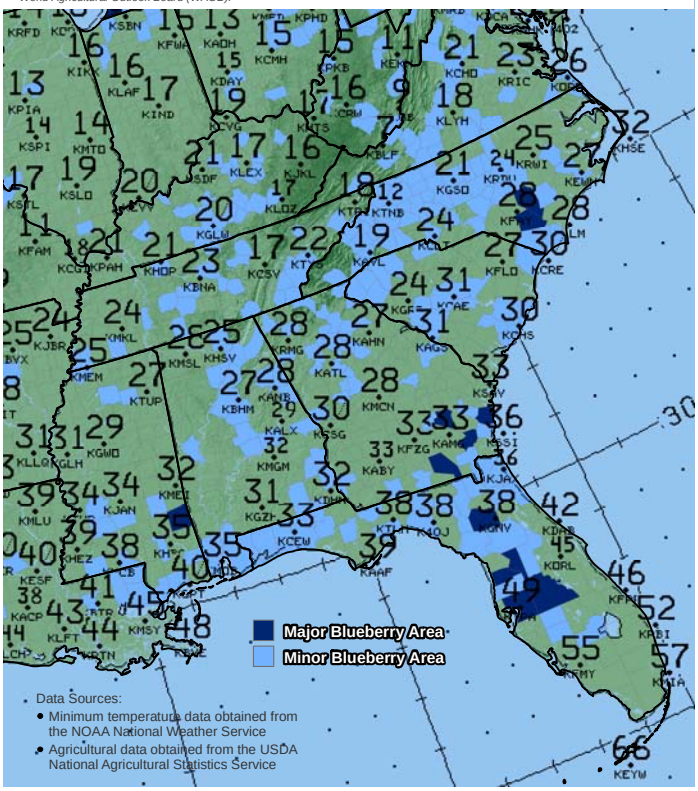
United States Department of Agriculture

Cold Weather in the Southeast

Minimum Temperatures (°F)

March 15, 2017

This product was prepared by the USDA Office of the Chief Economist (OCE) World Agricultural Outlook Board (WAOB).



- Data Sources:
  - Minimum temperature data obtained from the NOAA National Weather Service
  - Agricultural data obtained from the USDA National Agricultural Statistics Service

United States Department of Agriculture

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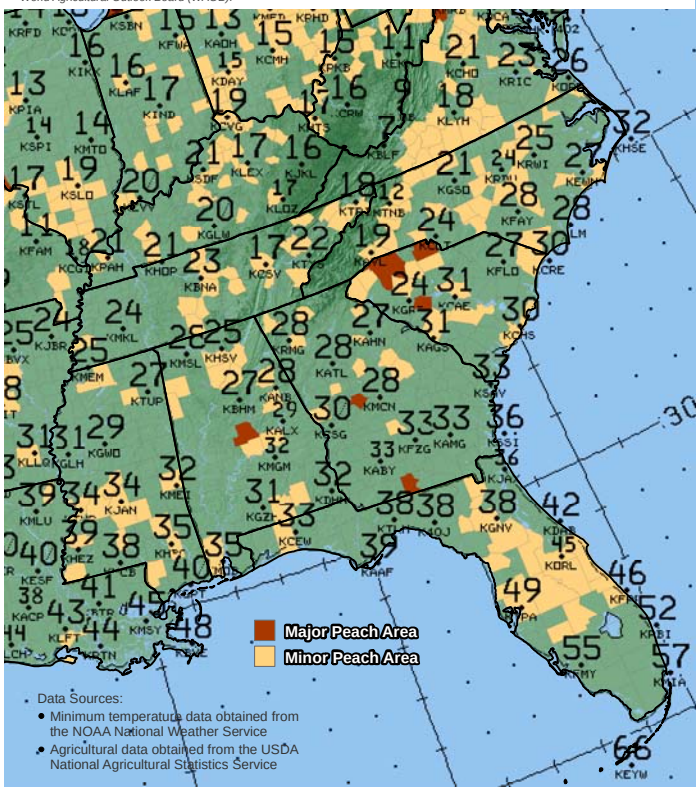

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Cold Weather in the Southeast

Minimum Temperatures (°F)

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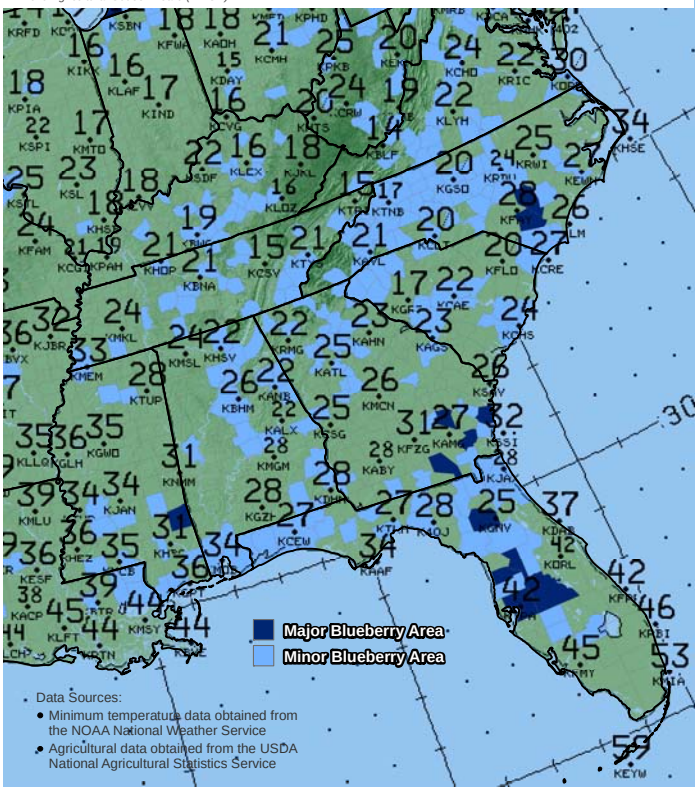

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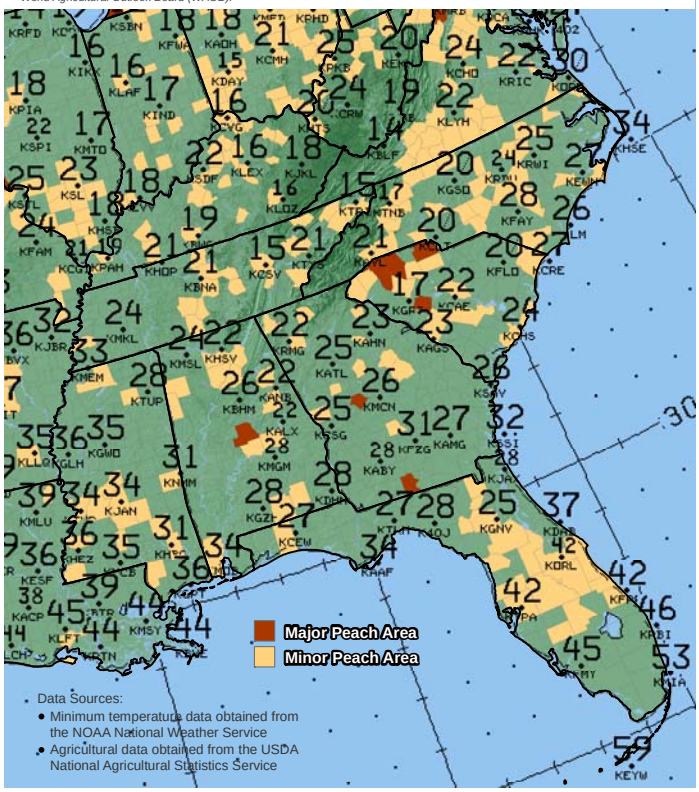

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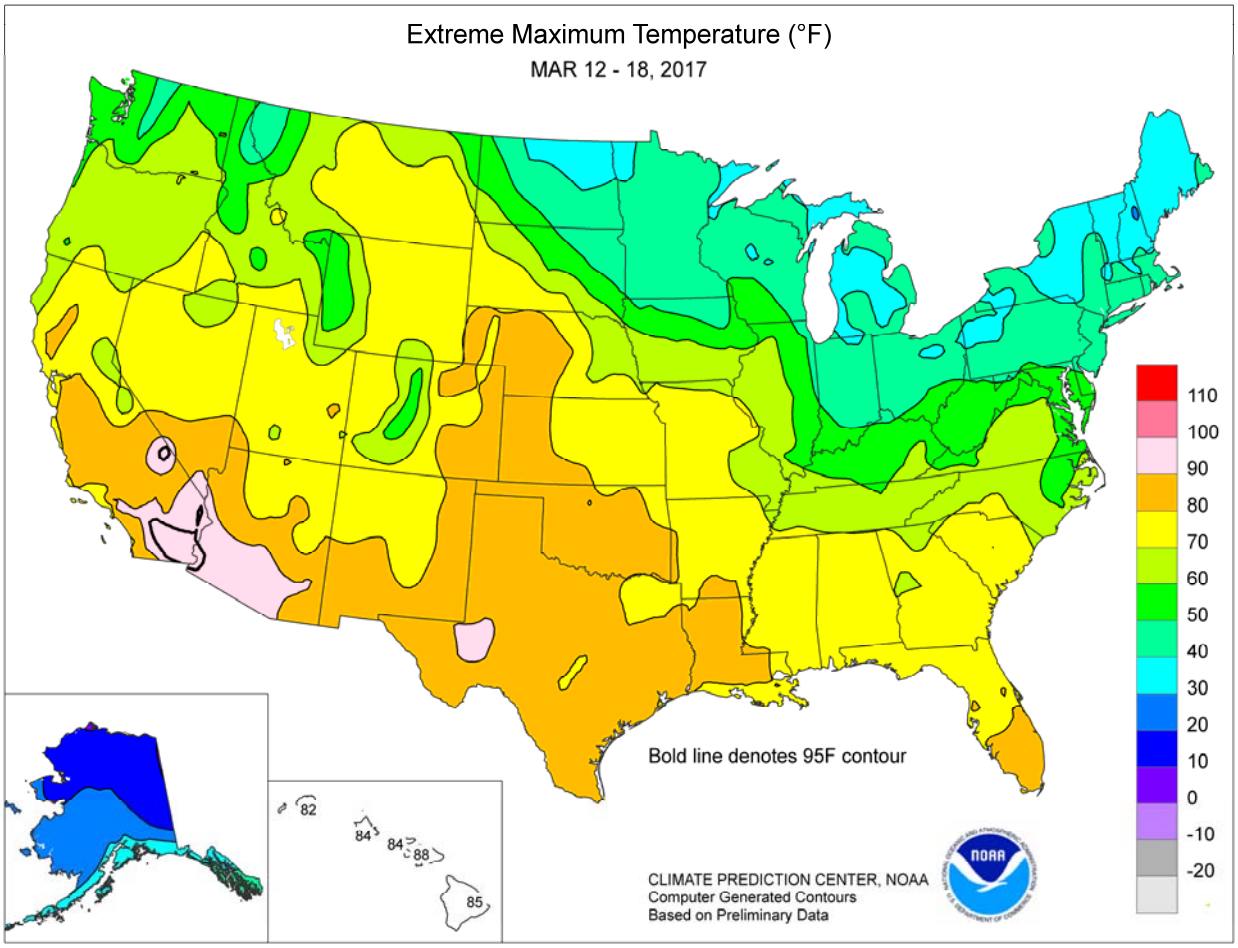
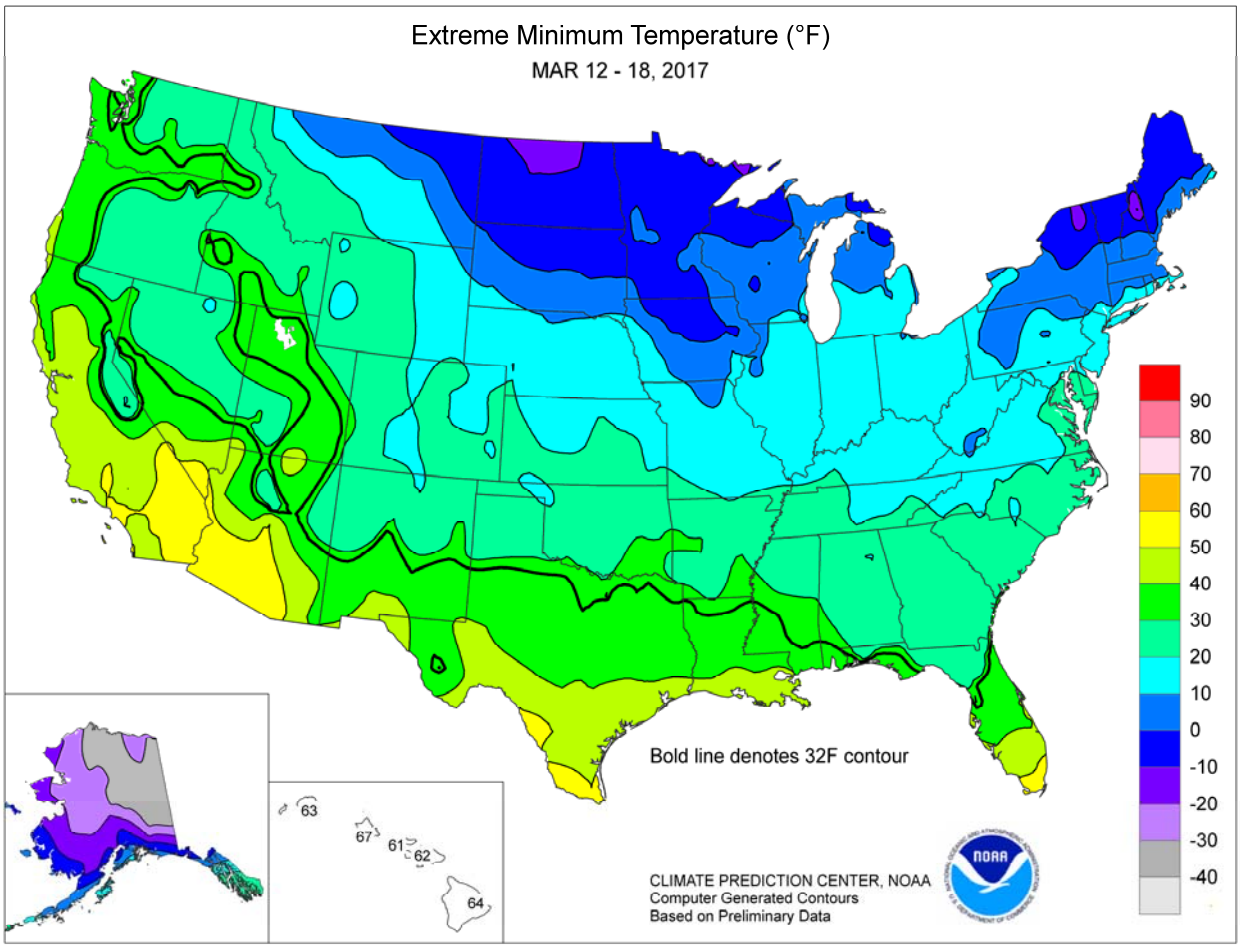
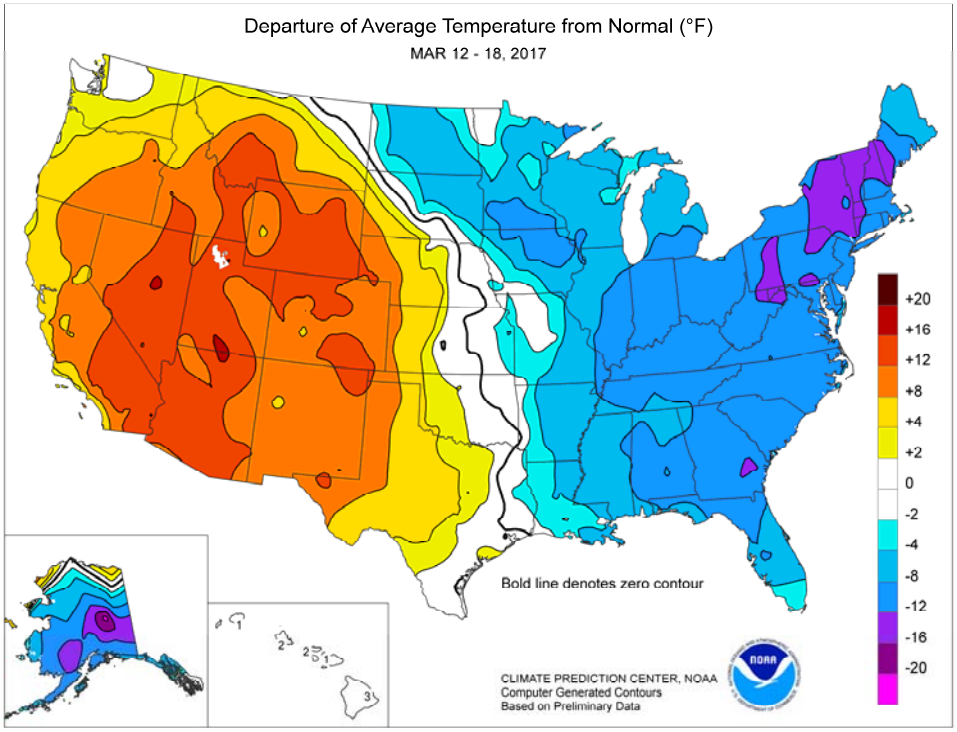

Extreme Maximum Temperature (°F)
MAR 12 - 18, 2017
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95F contour
82
84
84
88
85
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Minimum Temperature (°F)
MAR 12 - 18, 2017
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32F contour
63
67
61
62
64
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data

(Continued from front cover)

harmed by the cold snap, which peaked from March 15-17. Although initial assessments indicated damage to a variety of crops, full impacts may not be known for several weeks. Weekly temperatures were at least 10 to 15°F below normal in much of the **eastern U.S.**, but averaged more than 10°F above normal at numerous locations in the **Rockies**, **Great Basin**, **Intermountain West**, **Southwest**, and **southern California**. Late in the week, a new storm brought additional precipitation to the **Midwestern and Mid-Atlantic States**, as well as the **mid-South**. As a result, weekly precipitation totaled 2 inches or more at some locations in the **Atlantic Coast States** from **North Carolina northward**. Farther west, however, dry weather dominated areas from **central and southern California to the central and southern Plains**, accompanied at times by record-setting warmth. In areas experiencing drought, such as portions of the **central and southern High Plains**, the warm, dry weather further reduced soil moisture and maintained stress on rangeland, pastures, and winter wheat. Elsewhere, showery weather persisted from the **Pacific Northwest to the northern Plains**. The latter region received some snow, but rain showers and melting snow in the **Northwest** contributed to local flooding.



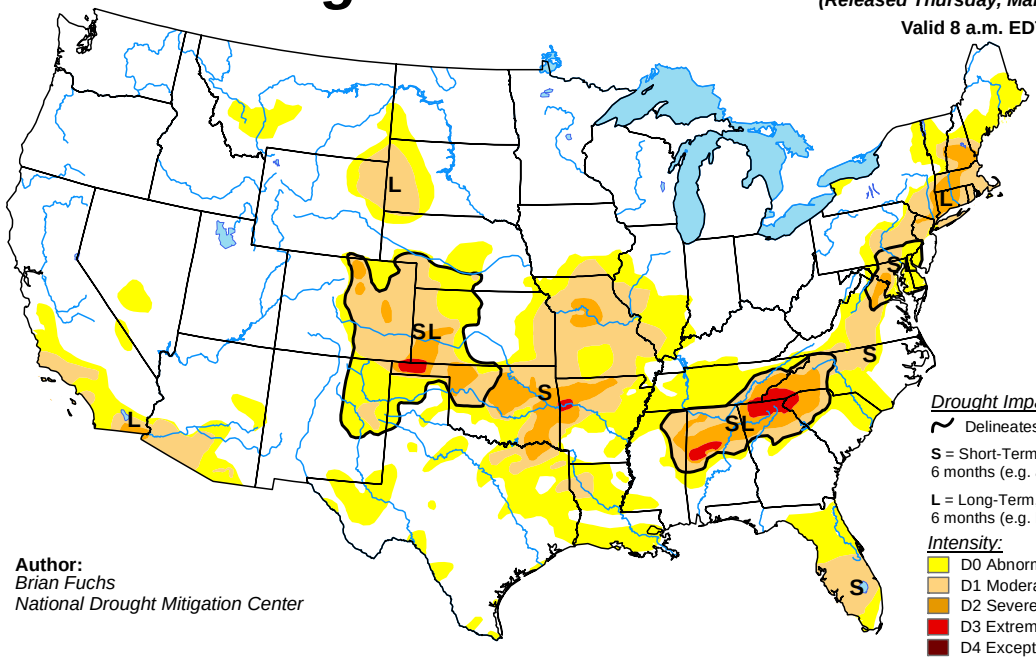
Even before the **Southeastern** freezes struck, cold weather dominated the **Northeast**. **Portland, ME**, posted a daily-record low of 1°F on March 12. The following day, record-setting lows for March 13 included 6°F in **Binghamton, NY**, and 14°F in **Reading, PA**. By March 15, sub-zero temperatures were reported as far south as **Iowa**, where daily-record lows plunged to -6°F in **Mason City** and -5°F in **Waterloo**. **Memphis, TN**, noted its lowest reading during the cold snap, a daily-record low of 25°F, on March 15. For much of the **Southeast**, however, the lowest temperatures occurred on March 16, when record-setting lows dipped to 19°F in **Paducah, KY**; 20°F in **Florence, SC**; 22°F in **Anniston, AL**; 23°F in **Augusta, GA**; and 25°F in **Gainesville, FL**. Very cold weather persisted in the **Atlantic Coast States** through March 17, when daily-record lows were also the outbreak's lowest temperatures in locations such as **Watertown, NY** (-5°F); **Danville, VA** (19°F); and **Daytona Beach, FL** (37°F). In contrast, record-setting warmth covered the **western half of the U.S.** In **southern California**, **Thermal** opened the week with consecutive daily-record highs (97 and 100°F, respectively) on March 12-13. Similarly, consecutive daily-record lows occurred on March 14-15 in **Yuma, AZ** (95 and 96°F), and **Palm Springs, CA** (98 and 97°F). **Grand Junction, CO**, reported five consecutive daily-record highs (73, 76, 75, 76, and 80°F) from March 14-18. Elsewhere, **El Paso, TX**, notched a trio of daily-record highs (85, 86, and 85°F) from March 14-16, while **Salt Lake City, UT**, logged four records in 6 days from March 15-20—including a high of 79°F on the 18th. At week's end, warmth intensified on the **High Plains**, where record-setting highs for March 18 reached 85°F in **Pueblo, CO**; 83°F in **Scottsbluff, NE**; and 78°F in **Miles City, MT**. In addition, **Yuma, AZ**, matched its earlier reading with a high of 96°F on March 18, while **Las Vegas, NV**, attained the 90-degree mark for the first time this year.

Early in the week, snow spread across the **northern Plains** and the **Midwest**. In **South Dakota**, record-setting snowfall totals for March 12 included 10.0 inches in **Watertown** and 9.1 inches in **Aberdeen**. A separate area of snow affected the **southern Mid-Atlantic region**, where **Wilmington, NC**, received 1.1 inches on the 12th. By March 13, daily-record snowfall totals affected **Midwestern** locations such as **Milwaukee, WI** (8.7 inches), and **Springfield, IL** (4.4 inches). **Baltimore, MD**, which had received a season-to-date snowfall of 0.7 inch, noted 2.2 inches of snow and sleet on March 13-14. In **Hartford, CT**, March 14 featured 15.8 inches of snow and became the snowiest March day on record (previously, 14.7 inches on March 19, 1956). **Binghamton, NY**, received 31.3 inches of snow in a 24-hour period on March 14-15, supplanting the former record of 23.0 inches on February 3-4, 1961. In addition, **Binghamton's** season-to-date snowfall climbed to 132.6 inches, edging the 1993-94 mark of 131.3 inches. Peak gusts on March 14-15 topped 40 mph, while 2-day snowfall reached 35.3 inches in **Binghamton**; 18.4 inches in **Williamsport, PA**; and 15.6 inches in **Concord, NH**. During the same period, **Portland, ME**, measured 16.4 inches of snow and clocked a wind gust to 59 mph, while **Worcester, MA**, received 14.4 inches and reported a gust to 55 mph. Other March 14-15 snowfall amounts reached 30.4 inches in **Burlington, VT**; 24.4 inches in **Syracuse, NY**; and 23.6 inches in **Scranton, PA**. Major **Northeastern** cities "escaped" with a mix of snow, sleet, and rain that limited accumulations to 7.6 inches in **New York City**, 6.6 inches in **Boston**, 6.0 inches in **Philadelphia**, and 2.0 inches in **Washington, DC**. **Atlantic City, NJ**, collected 3.23 inches of precipitation from March 13-15, but had only a trace of snow. Elsewhere, precipitation highlights were mostly limited to the **Northwest**, where **Troutdale, OR**, tallied daily-record rainfall totals (0.74 and 0.81 inch, respectively) on March 13 and 18—and netted a weekly sum of 3.03 inches.

Very cold, dry weather continued to dominate the **Alaskan mainland**. Weekly temperatures averaged at least 10°F below normal across much of **central and southern Alaska**. The cold weather extended into **southeastern Alaska**, where widespread precipitation occurred. **Juneau** received 23.5 inches of snow from March 12-16, with a peak depth of 20 inches reported on the 15th. Similarly, **Annette Island's** weekly precipitation totaled 4.93 inches, including 13.4 inches of snow. Meanwhile, **Fairbanks** reported a low of -20°F or below on 14 of the first 18 days of the month—and each day during the week except March 16. Farther south, most of **Hawaii** experienced warm weather and little rain. Some of the heavier showers occurred on **Kauai**, where **Lihue's** weekly rainfall totaled 1.11 inches. In contrast, March 1-18 rainfall in **Hilo**, on the **Big Island**, totaled just 0.82 inch (11 percent of normal).

U.S. Drought Monitor

March 14, 2017
(Released Thursday, Mar. 16, 2017)
Valid 8 a.m. EDT



Author:
Brian Fuchs
National Drought Mitigation Center

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

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

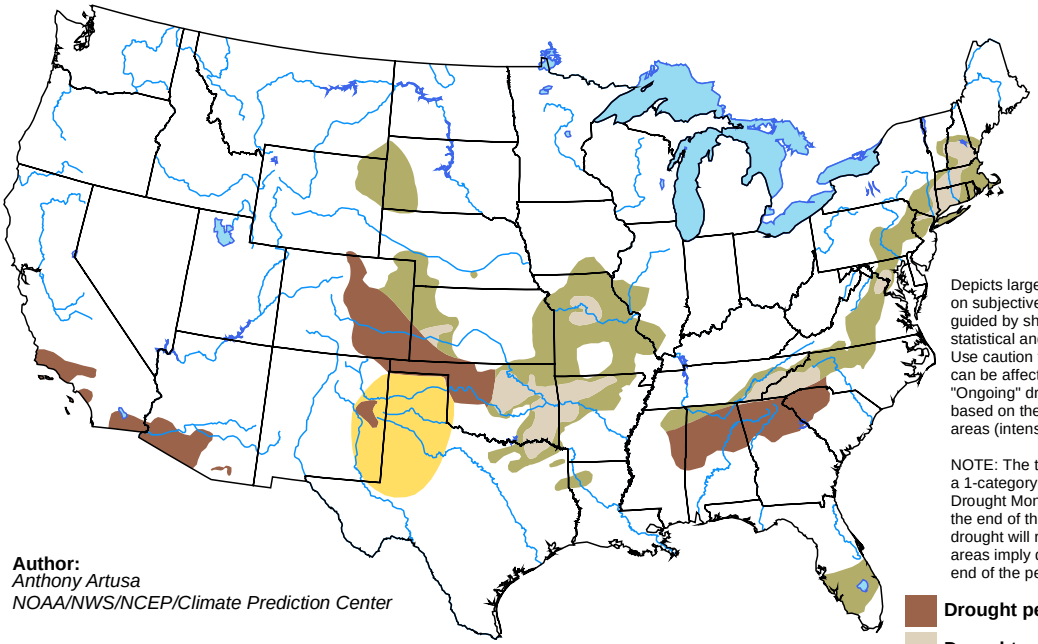
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for March 16 - June 30, 2017
Released March 16, 2017

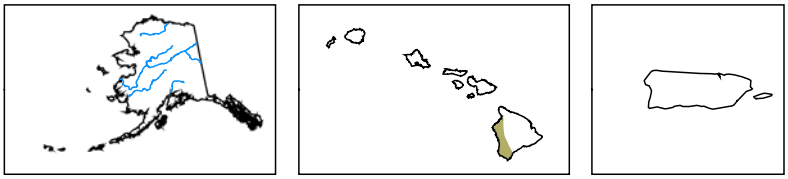


Author:
Anthony Artusa
NOAA/NWS/NCEP/Climate Prediction Center

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

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

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



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

National Weather Data for Selected Cities

Weather Data for the Week Ending March 18, 2017

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 MAR 1	PCT. NORMAL SINCE MAR 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	56	37	75	26	46	-8	0.68	-0.73	0.35	2.78	81	12.44	95	86	40	0	3	3	0
	HUNTSVILLE	54	34	71	21	44	-8	0.71	-0.86	0.41	1.74	44	10.62	74	80	54	0	3	3	0
	MOBILE	63	42	78	34	52	-8	0.22	-1.48	0.13	1.68	40	13.89	93	87	53	0	0	2	0
	MONTGOMERY	60	41	76	28	50	-7	0.53	-0.97	0.28	2.53	66	17.23	120	77	42	0	2	3	0
AK	ANCHORAGE	25	10	31	3	18	-7	0.00	-0.14	0.00	0.00	0	2.70	149	55	44	0	7	0	0
	BARROW	-9	-21	9	-33	-15	0	0.12	0.12	0.08	0.26	2600	1.10	458	83	68	0	7	3	0
	FAIRBANKS	9	-21	15	-29	-6	-15	0.00	-0.06	0.00	0.11	79	2.31	218	76	67	0	7	0	0
	JUNEAU	32	22	37	11	27	-6	1.75	0.95	0.66	2.01	91	12.59	114	95	84	0	7	5	1
	KODIAK	31	22	37	16	27	-5	0.00	-1.16	0.00	0.00	0	5.55	33	59	51	0	7	0	0
	NOME	12	-10	21	-18	1	-8	0.01	-0.10	0.01	0.02	6	1.47	74	85	75	0	7	1	0
AZ	FLAGSTAFF	68	28	71	26	48	12	0.00	-0.62	0.00	0.00	0	6.89	107	83	16	0	7	0	0
	PHOENIX	92	62	95	58	77	15	0.00	-0.26	0.00	0.00	0	2.34	103	44	23	6	0	0	0
	PRESCOTT	77	41	80	39	59	16	0.00	-0.46	0.00	0.00	0	3.46	73	66	13	0	0	0	0
	TUCSON	91	57	94	54	74	15	0.00	-0.19	0.00	0.00	0	1.37	57	29	15	6	0	0	0
AR	FORT SMITH	60	40	81	31	50	-2	0.11	-0.79	0.10	1.04	47	5.85	82	83	42	0	2	2	0
	LITTLE ROCK	57	38	79	28	48	-5	0.22	-0.84	0.22	2.86	112	7.86	83	89	46	0	3	1	0
CA	BAKERSFIELD	82	54	90	51	68	11	0.00	-0.33	0.00	0.04	5	4.26	131	81	56	1	0	0	0
	FRESNO	81	53	87	51	67	12	0.00	-0.52	0.00	0.29	21	8.31	147	89	65	0	0	0	0
	LOS ANGELES	68	53	70	50	61	3	0.00	-0.58	0.00	0.02	1	11.50	149	98	75	0	0	0	0
	REDDING	73	47	82	41	60	8	0.30	-0.92	0.19	1.37	42	20.40	134	93	66	0	0	2	0
	SACRAMENTO	74	49	79	44	62	8	0.00	-0.67	0.00	0.19	10	18.36	199	99	43	0	0	0	0
	SAN DIEGO	71	57	80	54	64	4	0.00	-0.54	0.00	0.01	1	6.73	118	89	63	0	0	0	0
	SAN FRANCISCO	70	51	77	48	61	7	0.00	-0.78	0.00	1.15	54	17.91	169	85	60	0	0	0	0
	STOCKTON	77	48	83	43	63	9	0.00	-0.54	0.00	0.25	17	11.73	178	95	64	0	0	0	0
CO	ALAMOSA	67	22	73	19	45	13	0.00	-0.08	0.00	0.02	10	1.67	253	75	23	0	7	0	0
	CO SPRINGS	71	34	80	23	52	15	0.00	-0.21	0.00	0.00	0	0.39	35	58	12	0	4	0	0
	DENVER INTL	70	35	81	19	53	15	0.00	-0.22	0.00	0.02	4	0.79	81	55	20	0	2	0	0
	GRAND JUNCTION	73	37	80	29	55	12	0.00	-0.22	0.00	0.00	0	1.55	96	54	24	0	1	0	0
	PUEBLO	77	31	85	24	54	13	0.00	-0.20	0.00	0.00	0	0.92	90	59	24	0	4	0	0
CT	BRIDGEPORT	37	22	47	15	29	-10	1.35	0.43	1.35	1.99	90	7.18	81	60	43	0	7	1	1
	HARTFORD	34	16	43	9	25	-12	2.48	1.61	2.48	2.84	135	8.82	99	66	37	0	7	1	1
DC	WASHINGTON	45	28	59	22	36	-10	1.67	0.82	0.76	1.87	89	5.30	67	73	37	0	6	4	1
DE	WILMINGTON	39	24	46	19	31	-11	2.15	1.24	1.86	2.62	116	6.64	78	80	46	0	6	3	1
FL	DAYTONA BEACH	68	47	78	37	57	-7	0.65	-0.22	0.43	0.87	41	4.88	61	96	44	0	0	2	0
	JACKSONVILLE	63	39	79	28	51	-10	0.75	-0.13	0.60	1.06	49	6.46	72	94	45	0	3	2	1
	KEY WEST	77	66	82	59	71	-2	0.74	0.35	0.74	0.93	98	3.98	85	81	56	0	0	1	1
	MIAMI	77	61	83	53	69	-3	1.73	1.21	1.33	1.91	152	6.62	127	78	44	0	0	3	1
	ORLANDO	72	50	80	38	61	-6	0.09	-0.72	0.06	0.09	5	3.02	45	81	37	0	0	2	0
	PENSACOLA	62	47	78	39	54	-6	0.16	-1.34	0.13	0.20	5	15.55	113	76	49	0	0	2	0
	TALLAHASSEE	64	39	79	27	52	-9	0.56	-0.98	0.55	1.05	28	10.98	80	85	42	0	2	2	1
	TAMPA	71	54	78	42	62	-5	0.97	0.32	0.97	0.97	56	3.89	58	77	40	0	0	1	1
	WEST PALM BEACH	75	55	82	46	65	-5	0.87	0.07	0.61	0.96	52	4.50	55	83	46	0	0	2	1
GA	ATHENS	54	32	71	23	43	-10	0.65	-0.52	0.31	1.47	49	9.17	76	81	47	0	6	4	0
	ATLANTA	53	35	72	25	44	-10	0.58	-0.68	0.20	1.87	58	11.92	92	78	50	0	3	4	0
	AUGUSTA	59	32	74	23	46	-9	0.88	-0.19	0.48	1.00	37	13.23	117	84	52	0	4	4	0
	COLUMBUS	55	37	70	25	46	-11	0.26	-1.09	0.15	1.03	30	15.29	121	85	47	0	2	4	0
	MACON	57	36	70	26	47	-9	0.67	-0.47	0.46	1.25	43	14.45	116	86	45	0	3	4	0
	SAVANNAH	61	37	80	26	49	-10	0.24	-0.55	0.24	0.35	18	9.18	105	71	39	0	2	1	0
HI	HILO	83	67	85	64	75	3	0.47	-2.74	0.47	1.23	16	19.74	75	85	68	0	0	1	0
	HONOLULU	82	70	84	67	76	2	0.00	-0.44	0.00	4.08	332	11.39	181	79	70	0	0	0	0
	KAHULUI	84	64	88	62	74	1	0.32	-0.20	0.32	4.12	317	6.60	89	84	76	0	0	1	0
	LIHUE	80	67	82	63	73	1	1.12	0.31	0.67	5.76	278	12.24	123	88	78	0	0	3	1
ID	BOISE	67	44	74	37	56	13	0.14	-0.16	0.09	0.37	49	4.55	138	67	42	0	0	2	0
	LEWISTON	58	43	61	34	50	6	0.89	0.66	0.28	2.57	443	5.35	200	83	65	0	0	4	0
	POCATELLO	63	35	71	29	49	12	0.00	-0.30	0.00	0.24	31	6.19	212	84	50	0	2	0	0
IL	CHICAGO/O'HARE	38	24	50	16	31	-5	0.51	-0.02	0.24	0.84	68	5.23	113	71	51	0	6	4	0
	MOLINE	40	21	63	11	31	-6	0.33	-0.28	0.18	0.94	68	3.35	75	73	48	0	6	4	0
	PEORIA	41	23	65	13	32	-7	0.41	-0.20	0.37	0.92	63	3.58	77	80	48	0	6	2	0
	ROCKFORD	39	21	59	14	30	-5	0.21	-0.27	0.18	0.48	44	4.51	118	71	51	0	6	3	0
	SPRINGFIELD	44	25	68	14	35	-6	0.57	-0.13	0.36	1.36	81	3.03	59	83	45	0	6	3	0
IN	EVANSVILLE	45	27	54	18	36	-9	0.35	-0.61	0.22	2.05	86	5.32	63	77	41	0	6	2	0
	FORT WAYNE	35	21	41	14	28	-9	0.21	-0.39	0.12	1.11	77	7.58	139	80	51	0	6	2	0
	INDIANAPOLIS	38	24	46	17	31	-10	0.16	-0.60	0.10	1.68	89	7.13	105	80	43	0	5	2	0
	SOUTH BEND	33	20	41	12	26	-11	0.51	-0.09	0.18	1.38	97	8.37	147	88	65	0	6	4	0
IA	BURLINGTON	43	24	67	13	33	-6	0.15	-0.49	0.06	0.72	47	2.58	59	84	41	0	5	3	0
	CEDAR RAPIDS	37	17	58	2	27	-8	0.15	-0.30	0.14	0.73	72	2.90	91	93	51	0	6	2	0
	DES MOINES	45	24	66	10	34	-3	0.24	-0.20	0.12	0.61	61	3.12	97	71	50	0	6	2	0
	DUBUQUE	34	17	52	5	26	-8	0.32	-0.22	0.22	0.39	31	4.20	107	76	56	0	6	2	0
	SIOUX CITY	45	22	63	14	33	-2	0.31	-0.11	0.29	0.35	38	2.94	139	77	56	0	5	2	0
	WATERLOO	34	11	50	-5	23	-11	0.58	0.15	0.53	1.11	114	5.04	176	79	54	0	7	2	1
KS	CONCORDIA	53	29	71	20	41	0	0.00	-0.54	0.00	0.07	6	1.92	74	78	51	0	4	0	0
	DODGE CITY	64	30	82	21	47	4	0.00	-0.39	0.00	0.00	0	2.57	119	80	30	0	4	0	0
	GOODLAND	68	28	84	22	48	9	0.00	-0.28	0.00	0.02	3	0.95	63	71	43	0	5	0	0
	TOPEKA	53	29	73	21	41	-2	0.08	-0.48	0.08	0.35	27	1.74	51	83	59	0	5	1	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending March 18, 2017

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 MAR 1	PCT. NORMAL SINCE MAR 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	58	34	78	23	46	1	0.02	-0.60	0.02	0.02	1	3.64	111	76	51	0	4	1	0
KY	JACKSON	46	25	62	16	36	-10	0.67	-0.34	0.49	2.37	91	9.94	101	84	33	0	6	4	0
	LEXINGTON	45	24	53	16	34	-11	0.14	-0.88	0.09	1.36	53	9.46	103	74	42	0	6	2	0
	LOUISVILLE	45	28	52	21	37	-9	0.11	-0.91	0.06	1.16	45	7.43	82	74	31	0	5	2	0
	PADUCAH	48	30	62	19	39	-8	0.27	-0.67	0.16	2.80	115	7.63	78	84	36	0	5	2	0
LA	BATON ROUGE	69	46	82	39	57	-3	0.15	-0.95	0.15	1.53	54	12.96	92	93	47	0	0	1	0
	LAKE CHARLES	69	47	80	41	58	-2	0.00	-0.79	0.00	0.55	28	7.50	70	92	56	0	0	0	0
	NEW ORLEANS	67	50	80	44	58	-4	0.21	-0.93	0.21	1.33	45	8.97	63	86	64	0	0	1	0
	SHREVEPORT	67	46	82	34	57	-1	0.21	-0.72	0.16	1.25	51	5.39	48	83	50	0	0	2	0
ME	CARIBOU	27	9	40	-5	18	-5	0.79	0.22	0.63	2.04	146	7.66	119	80	52	0	7	3	1
	PORTLAND	31	12	36	1	21	-12	0.99	0.08	0.99	1.34	61	9.54	101	72	41	0	7	1	1
MD	BALTIMORE	41	24	55	20	33	-10	1.63	0.72	1.00	1.84	80	5.99	68	68	46	0	6	3	1
MA	BOSTON	34	20	42	9	27	-11	0.66	-0.19	0.66	0.97	46	8.44	90	66	43	0	7	1	1
	WORCESTER	30	14	38	4	22	-11	1.54	0.59	1.54	1.83	79	8.18	86	66	34	0	7	1	1
MI	ALPENA	31	12	43	-6	22	-5	0.15	-0.31	0.08	0.79	72	6.64	158	88	52	0	7	3	0
	GRAND RAPIDS	33	18	41	12	25	-8	0.56	0.03	0.28	0.94	78	6.50	137	85	52	0	6	3	0
	HOUGHTON LAKE	30	15	38	7	22	-6	0.23	-0.20	0.16	0.98	98	6.46	167	82	54	0	7	2	0
	LANSING	33	17	40	12	25	-8	0.43	-0.03	0.19	0.81	76	7.09	172	79	56	0	6	3	0
	MUSKEGON	34	21	40	16	28	-5	0.35	-0.14	0.16	0.62	54	6.32	128	84	57	0	6	4	0
	TRAVERSE CITY	32	19	41	6	25	-5	0.05	-0.34	0.03	1.03	114	7.19	127	83	49	0	6	2	0
MN	DULUTH	31	11	39	-3	21	-3	0.54	0.19	0.31	0.78	103	3.74	138	79	53	0	7	4	0
	INT'L FALLS	30	7	43	-6	18	-4	0.37	0.18	0.29	0.43	102	3.18	167	81	45	0	7	2	0
	MINNEAPOLIS	34	18	43	9	26	-5	0.25	-0.14	0.24	0.39	47	2.01	76	69	48	0	7	2	0
	ROCHESTER	31	14	43	1	22	-7	0.33	-0.04	0.30	1.41	181	5.18	210	82	62	0	7	2	0
	ST. CLOUD	32	11	42	-7	22	-5	0.15	-0.14	0.15	0.50	85	2.02	104	87	46	0	7	1	0
MS	JACKSON	61	41	78	34	51	-5	0.37	-0.89	0.20	2.23	72	12.44	94	84	52	0	0	2	0
	MERIDIAN	59	39	75	31	49	-8	0.74	-0.85	0.38	3.84	97	13.41	88	90	65	0	2	2	0
	TUPELO	55	35	75	27	45	-7	0.00	-1.46	0.00	1.07	29	9.54	71	75	52	0	4	0	0
MO	COLUMBIA	50	30	74	14	40	-3	0.11	-0.58	0.10	1.38	81	2.90	52	79	44	0	5	2	0
	KANSAS CITY	51	29	73	19	40	-3	0.01	-0.53	0.01	0.42	32	1.87	50	81	44	0	5	1	0
	SAINT LOUIS	48	30	72	16	39	-6	0.26	-0.54	0.18	1.43	74	3.72	58	68	46	0	5	2	0
	SPRINGFIELD	52	32	74	19	42	-3	0.18	-0.64	0.12	1.32	68	5.78	91	77	52	0	4	2	0
MT	BILLINGS	57	30	73	14	43	7	0.02	-0.21	0.02	0.99	190	2.75	145	73	42	0	2	1	0
	BUTTE	56	30	66	25	43	13	0.19	0.02	0.16	0.64	156	1.43	101	85	31	0	6	3	0
	CUT BANK	47	24	65	2	36	6	0.06	-0.05	0.06	0.06	25	1.33	146	84	49	0	4	1	0
	GLASGOW	42	19	69	-2	30	0	0.17	0.09	0.17	0.36	180	1.38	170	88	75	0	6	1	0
	GREAT FALLS	57	30	75	11	44	12	0.02	-0.19	0.02	0.39	80	1.81	108	73	31	0	4	1	0
	HAVRE	47	22	75	5	35	4	0.04	-0.10	0.02	0.15	44	1.53	131	86	63	0	6	2	0
	MISSOULA	53	35	58	25	44	7	0.39	0.19	0.13	1.60	314	4.90	209	94	70	0	2	5	0
NE	GRAND ISLAND	51	23	70	16	37	0	0.09	-0.35	0.06	0.09	9	1.41	64	85	56	0	7	2	0
	LINCOLN	51	26	70	17	38	0	0.05	-0.43	0.05	0.06	6	1.71	72	72	55	0	6	1	0
	NORFOLK	46	23	66	15	34	-2	0.11	-0.31	0.11	0.11	12	2.35	104	78	57	0	6	1	0
	NORTH PLATTE	60	23	86	11	41	4	0.00	-0.26	0.00	0.05	8	2.04	136	77	34	0	7	0	0
	OMAHA	48	26	68	18	37	-1	0.03	-0.43	0.03	0.10	10	2.20	85	67	50	0	5	1	0
	SCOTTSBLUFF	67	29	83	18	48	12	0.01	-0.23	0.01	0.10	19	2.32	140	74	47	0	4	1	0
	VALENTINE	56	22	81	10	39	5	0.13	-0.10	0.06	0.13	25	2.54	194	79	56	0	7	4	0
NV	ELY	68	31	70	28	50	15	0.00	-0.24	0.00	1.10	186	4.35	209	71	25	0	6	0	0
	LAS VEGAS	87	60	90	57	74	16	0.00	-0.14	0.00	0.00	0	1.46	87	30	17	1	0	0	0
	RENO	73	40	77	35	57	14	0.00	-0.20	0.00	0.34	60	9.33	347	60	33	0	0	0	0
	WINNEMUCCA	70	30	74	27	50	9	0.03	-0.16	0.03	0.22	50	2.81	149	81	36	0	5	1	0
NH	CONCORD	31	12	38	4	22	-10	0.96	0.29	0.96	1.06	65	6.29	90	70	37	0	7	1	1
NJ	NEWARK	36	23	47	20	30	-11	1.20	0.24	1.13	1.71	74	8.44	91	61	44	0	7	3	1
NM	ALBUQUERQUE	76	44	78	35	60	13	0.00	-0.14	0.00	0.00	0	1.39	110	39	12	0	0	0	0
NY	ALBANY	31	13	42	6	22	-12	1.61	0.94	1.58	1.82	112	7.80	124	68	38	0	7	2	1
	BINGHAMTON	26	12	38	5	19	-13	2.37	1.74	1.40	3.18	201	9.44	143	82	58	0	7	5	2
	BUFFALO	29	17	43	12	23	-10	1.18	0.53	0.64	2.23	139	7.41	103	82	51	0	7	5	1
	ROCHESTER	29	17	42	12	23	-10	0.57	0.02	0.34	1.23	91	6.31	110	76	53	0	7	4	0
	SYRACUSE	27	14	38	6	21	-11	1.30	0.65	0.96	2.02	130	8.60	137	82	54	0	7	4	1
NC	ASHEVILLE	48	26	66	19	37	-8	0.61	-0.44	0.20	0.91	34	5.33	50	76	46	0	6	5	0
	CHARLOTTE	53	28	71	20	41	-11	0.95	-0.07	0.38	1.84	71	8.75	86	76	31	0	6	5	0
	GREENSBORO	51	27	70	20	39	-9	0.71	-0.17	0.35	1.55	70	7.16	81	84	29	0	6	4	0
	HATTERAS	54	39	66	32	46	-6	2.83	1.68	1.14	3.29	117	9.60	76	77	45	0	1	4	3
	RALEIGH	51	28	64	23	40	-10	1.37	0.42	0.64	2.39	98	6.82	69	72	41	0	6	5	1
	WILMINGTON	54	33	64	25	43	-11	1.87	0.88	1.26	1.96	77	7.50	70	92	40	0	5	4	1
ND	BISMARCK	32	16	48	-7	24	-4	0.14	-0.03	0.09	0.29	76	2.09	156	84	68	0	7	2	0
	DICKINSON	36	14	58	-8	25	-4	0.05	-0.05	0.05	0.06	32	0.84	85	88	63	0	6	1	0
	FARGO	32	13	42	-2	23	-3	0.13	-0.11	0.08	0.14	25	1.91	100	86	59	0	7	2	0
	GRAND FORKS	32	14	40	2	23	-1	0.30	0.12	0.30	0.31	74	1.56	93	76	47	0	7	1	0
	JAMESTOWN	30	11	41	-8	20	-7	0.00	-0.18	0.00	0.00	0	1.11	72	90	62	0	7	0	0
	WILLISTON	36	19	58	-4	28	0	0.37	0.22	0.22	0.63	185	1.77	139	81	68	0	6	4	0
OH	AKRON-CANTON	32	20	40	15	26	-11	0.60	-0.10	0.28	2.62	151	11.12	171	75	58	0	6	6	0
	CINCINNATI	40	24	48	16	32	-11	0.19	-0.68	0.12	2.64	125	9.86	127	81	48	0	6	2	0
	CLEVELAND	35	24	43	19	29	-8	0.44	-0.19	0.17	2.20	142	11.06	175	73	46	0	6	5	0
	COLUMBUS	38	22	47	15	30	-11	0.18	-0.45	0.09	2.46	158	8.92	142	80	49	0	6	3	0
	DAYTON	36	21	41	15	28	-11	0.11	-0.59	0.09	1.55	92	6.89	105	84	48	0	6	2	0
	MANSFIELD	32	19	39	11	25	-11	0.50	-0.21	0.26	2.21	132	10.07	156	89	52	0	6	4	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending March 18, 2017

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 MAR 1	PCT. NORMAL SINCE MAR 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	33	19	42	13	26	-10	0.37	-0.17	0.22	1.00	76	6.77	132	86	68	0	6	3	0
	YOUNGSTOWN	32	19	40	14	25	-11	0.62	-0.04	0.27	2.90	182	10.78	181	76	59	0	7	6	0
OK	OKLAHOMA CITY	64	41	83	28	53	3	0.01	-0.65	0.01	0.01	1	4.70	105	84	43	0	2	1	0
	TULSA	61	38	83	28	49	-1	0.02	-0.79	0.02	0.80	41	5.39	98	78	54	0	3	1	0
OR	ASTORIA	56	42	58	35	49	3	4.74	3.05	1.19	11.32	253	29.20	133	92	80	0	0	7	5
	BURNS	59	33	63	24	46	9	0.14	-0.14	0.11	0.49	65	5.49	181	90	64	0	3	3	0
	EUGENE	58	43	64	35	51	5	0.86	-0.49	0.37	3.46	97	16.84	96	97	86	0	0	4	0
	MEDFORD	63	44	70	40	54	7	0.42	0.00	0.38	0.76	67	9.77	171	94	56	0	0	4	0
	PENDLETON	60	42	72	35	51	6	0.42	0.14	0.13	1.18	166	5.10	151	88	66	0	0	6	0
	PORTLAND	55	44	61	37	49	2	2.57	1.72	0.66	4.83	212	19.32	168	91	80	0	0	5	3
	SALEM	57	44	64	35	51	5	2.42	1.46	0.89	5.42	205	24.23	178	90	75	0	0	5	2
PA	ALLENTOWN	35	19	44	14	27	-11	1.49	0.69	1.30	2.84	144	7.93	96	62	46	0	7	3	1
	ERIE	31	21	44	17	26	-9	0.41	-0.26	0.18	1.54	94	8.96	139	77	64	0	7	4	0
	MIDDLETOWN	37	21	44	17	29	-11	4.06	3.32	3.63	5.15	270	9.53	124	83	48	0	6	4	1
	PHILADELPHIA	38	25	45	21	32	-10	1.68	0.81	1.46	2.02	96	6.23	74	65	44	0	6	3	1
	PITTSBURGH	36	20	45	15	28	-11	0.22	-0.49	0.20	2.45	141	8.75	128	85	52	0	7	3	0
	WILKES-BARRE	32	16	42	9	24	-13	2.58	2.01	2.38	3.70	266	9.93	167	80	48	0	7	4	1
	WILLIAMSPORT	35	19	48	14	27	-10	1.35	0.65	1.12	2.34	137	7.64	107	78	53	0	7	4	1
RI	PROVIDENCE	37	20	46	11	28	-10	1.60	0.63	1.60	2.22	94	9.40	92	62	45	0	7	1	1
SC	BEAUFORT	61	37	79	27	49	-8	0.44	-0.37	0.36	0.57	29	6.48	71	90	41	0	3	2	0
	CHARLESTON	59	34	76	24	47	-10	0.41	-0.50	0.31	0.51	23	4.69	50	81	38	0	3	2	0
	COLUMBIA	57	33	72	22	45	-10	1.06	0.01	0.57	1.36	52	10.00	90	75	46	0	5	4	1
	GREENVILLE	53	30	73	23	42	-9	0.55	-0.71	0.30	2.01	62	7.73	65	75	35	0	6	4	0
SD	ABERDEEN	30	12	45	-5	21	-8	0.57	0.30	0.57	0.67	114	1.85	119	77	67	0	7	1	1
	HURON	34	17	52	-2	26	-5	0.39	0.04	0.37	0.80	107	2.21	123	92	63	0	7	2	0
	RAPID CITY	56	23	75	9	40	6	0.00	-0.20	0.00	0.03	7	1.14	88	82	40	0	6	0	0
	SIOUX FALLS	35	18	51	6	27	-4	0.29	-0.08	0.29	0.43	56	2.28	127	86	65	0	7	1	0
TN	BRISTOL	48	24	64	15	36	-10	0.99	0.08	0.60	3.65	156	8.74	94	86	31	0	6	4	1
	CHATTANOOGA	54	33	70	24	43	-8	0.65	-0.80	0.50	2.07	57	10.49	76	74	43	0	3	3	1
	KNOXVILLE	51	29	67	21	40	-9	1.64	0.43	0.82	3.84	126	10.38	89	80	31	0	5	4	2
	MEMPHIS	54	37	73	25	45	-8	0.49	-0.74	0.29	2.93	95	8.59	74	80	43	0	2	2	0
	NASHVILLE	52	30	67	21	41	-8	0.47	-0.66	0.33	3.07	108	7.97	76	80	36	0	5	4	0
TX	ABILENE	73	48	83	37	61	5	0.00	-0.30	0.00	0.00	0	3.38	117	89	60	0	0	0	0
	AMARILLO	75	36	89	25	56	9	0.00	-0.24	0.00	0.00	0	3.68	213	84	27	0	3	0	0
	AUSTIN	75	50	84	39	63	2	0.05	-0.44	0.02	1.95	147	9.26	178	89	64	0	0	3	0
	BEAUMONT	72	50	85	42	61	-1	0.24	-0.59	0.24	0.70	34	2.75	25	91	50	0	0	1	0
	BROWNSVILLE	77	61	83	54	69	1	0.02	-0.14	0.02	1.84	449	3.38	115	95	70	0	0	1	0
	CORPUS CHRISTI	74	58	81	49	66	0	0.03	-0.34	0.02	4.83	469	7.67	171	95	74	0	0	2	0
	DEL RIO	76	58	86	50	67	4	0.00	-0.19	0.00	0.16	31	1.13	55	88	71	0	0	0	0
	EL PASO	83	50	88	47	67	11	0.00	-0.05	0.00	0.00	0	1.20	120	35	10	0	0	0	0
	FORT WORTH	71	51	85	37	61	4	0.01	-0.69	0.01	0.19	10	6.91	113	81	50	0	0	1	0
	GALVESTON	72	59	79	51	66	3	0.30	-0.31	0.30	1.20	79	5.47	67	88	63	0	0	1	0
	HOUSTON	72	51	84	43	62	0	0.04	-0.70	0.04	2.67	144	11.18	131	89	62	0	0	1	0
	LUBBOCK	76	42	87	34	59	9	0.00	-0.14	0.00	0.00	0	2.92	184	84	46	0	0	0	0
	MIDLAND	79	49	91	40	64	9	0.00	-0.09	0.00	0.01	4	1.85	133	83	47	1	0	0	0
	SAN ANGELO	77	51	87	36	64	8	0.04	-0.16	0.04	0.04	7	2.75	106	78	56	0	0	1	0
	SAN ANTONIO	74	54	81	45	64	3	0.01	-0.40	0.01	1.24	115	7.57	169	90	59	0	0	1	0
	VICTORIA	75	55	83	46	65	2	0.01	-0.49	0.01	4.13	323	12.73	221	93	64	0	0	1	0
	WACO	69	50	80	35	60	2	0.04	-0.52	0.04	2.42	156	8.58	146	90	73	0	0	1	0
	WICHITA FALLS	70	43	86	31	56	3	0.04	-0.46	0.04	0.09	7	4.05	103	84	56	0	2	1	0
UT	SALT LAKE CITY	71	45	79	38	58	15	0.00	-0.41	0.00	0.27	26	3.93	105	60	26	0	0	0	0
VT	BURLINGTON	26	12	40	4	19	-11	1.13	0.64	0.79	1.74	150	6.41	127	69	42	0	7	2	1
VA	LYNCHBURG	48	25	68	18	37	-8	1.08	0.20	0.48	1.44	65	5.82	66	67	34	0	6	4	0
	NORFOLK	50	33	56	26	41	-7	2.07	1.13	0.99	2.38	102	7.45	78	71	39	0	3	4	2
	RICHMOND	50	27	64	22	39	-8	1.75	0.80	0.88	1.93	81	6.93	78	70	38	0	6	4	2
	ROANOKE	47	26	67	16	37	-9	0.63	-0.24	0.25	0.97	44	5.61	66	62	38	0	6	4	0
	WASH/DULLES	43	23	57	17	33	-9	1.34	0.54	0.60	1.62	81	5.06	65	70	40	0	6	4	1
WA	OLYMPIA	53	40	57	31	46	3	3.33	2.13	0.83	8.23	254	21.23	125	99	93	0	2	7	3
	QUILLAYUTE	50	41	53	34	45	1	5.15	2.60	1.63	12.79	185	32.84	100	99	89	0	0	7	5
	SEATTLE-TACOMA	53	43	57	37	48	2	2.92	2.07	0.82	5.37	238	18.43	159	94	79	0	0	7	3
	SPOKANE	52	38	60	30	45	6	1.41	1.07	0.49	2.57	282	8.81	208	93	59	0	1	5	0
	YAKIMA	61	40	66	33	50	8	0.17	0.03	0.08	0.46	121	5.02	214	81	55	0	0	3	0
WV	BECKLEY	40	19	56	9	29	-12	1.06	0.23	0.78	2.13	101	8.50	102	70	51	0	7	5	1
	CHARLESTON	46	23	59	16	35	-9	0.47	-0.44	0.36	1.72	74	10.02	115	77	36	0	6	3	0
	ELKINS	40	16	53	11	28	-11	1.21	0.31	0.58	2.39	105	9.64	108	84	39	0	6	4	1
	HUNTINGTON	45	24	58	17	34	-11	0.43	-0.45	0.36	1.72	76	9.52	111	83	37	0	6	3	0
WI	EAU CLAIRE	34	13	44	3	24	-6	0.22	-0.15	0.12	0.83	108	4.90	188	91	43	0	6	3	0
	GREEN BAY	34	19	43	10	27	-3	0.26	-0.17	0.19	0.81	86	4.16	132	86	54	0	7	4	0
	LA CROSSE	37	18	53	7	28	-5	0.31	-0.07	0.25	0.90	113	4.75	159	82	41	0	6	3	0
	MADISON	35	16	54	5	26	-6	0.38	-0.07	0.14	1.04	103	5.74	162	79	52	0	7	4	0
	MILWAUKEE	34	23	43	16	29	-5	0.99	0.48	0.60	1.48	128	5.49	118	69	54	0	5	5	1
WY	CASPER	63	32	75	19	48	14	0.02	-0.17	0.02	0.23	48	1.78	105	65	36	0	4	1	0
	CHEYENNE	63	33	76	20	48	15	0.00	-0.22	0.00	0.16	32	1.60	115	63	29	0	3	0	0
	LANDER	63	34	72	25	49	14	0.00	-0.25	0.00	0.02	4	2.50	154	58	20	0	2	0	0
	SHERIDAN	61	30	76	20	45	11	0.03	-0.16	0.03	0.59	137	2.89	163	79	44	0	6	1	0

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

Winter Weather Review

Weather summary provided by USDA/WAOB

Highlights: La Niña quickly faded, disappearing altogether by winter's end. However, a pool of cool water persisted over the northeastern Pacific Ocean, possibly contributing to an active Pacific jet stream that led to the nation's wettest December-February period since 1997-98. And, despite a few sharp, short-lived cold snaps, general winter warmth dominated all but the nation's northwestern corner. The warmth intensified as winter progressed, culminating in the nation's warmest February since 1954.

Aside from fleeting Arctic outbreaks in mid-December and early January, cold weather was largely confined to the Northwest. (The persistent Northwestern chill, accompanied by periods of precipitation, resulted in winter hardship for livestock and wildlife, as well as damage to some storage facilities due to heavy snow loads.) Across the Plains and Midwest, enough snow preceded the two cold snaps in most areas to limit concerns about adverse impacts on winter wheat. In fact, across the central and southern Plains, drought rather than cold was a greater concern with respect to wheat. Between the end of November and the end of February, the portion of the winter wheat crop rated very poor to poor increased from 15 to 27% in Colorado; 13 to 21% in Kansas; 16 to 20% in Texas; and 12 to 15% in Oklahoma.

Wetness across the northern and western U.S. highlighted an overall stormy winter, although many storms bypassed the mid-South and the mid-Atlantic. Winter precipitation was particularly impressive from northern and central California to the northern Intermountain West. In fact, flooding developed on both sides of the Sierra Nevada crest in early January, followed by extensive flooding and flood-control efforts during February in parts of California.

According to the Drought Monitor, U.S. drought covered just 14.08% of the country by the end of February, down from 31.46% on November 29, 2016. Most of the drought eradication occurred in the West, including California, which experienced a winter decline in drought coverage from 73 to 9%. In contrast, winter precipitation was insufficient to erase drought from the southern Appalachians to southern New England, while pockets of drought developed, persisted or intensified from the central and southern Plains into the middle Mississippi Valley.

Historical Perspective: According to preliminary information provided by the National Centers for Environmental Information, the contiguous U.S. experienced its sixth-warmest, eighth-wettest winter during the 122-year period of record. The general warmth of the winter of 2016-17 followed the nation's warmest winter on record (in 2015-16), while widespread storminess resulted in the wettest winter since 1997-98. The nation's winter average temperature of 35.9°F was 3.7°F above the 20th century mean, while precipitation averaged 8.22 inches—121 percent of normal.

Statewide temperature rankings ranged from the 15th-coldest winter in Washington to the warmest winter on record in Louisiana and Texas (figure 1). It was among the ten warmest winters in Arizona, New Mexico, and Oklahoma, as well as every state bordering the Mississippi River to the Atlantic Coast. Meanwhile, precipitation rankings ranged from the tenth-driest winter in Missouri to the wettest winter on record in Nevada and Wyoming (figure 2). Top-ten rankings for winter wetness occurred in five Western and three Northern States. For California, it was the second-wettest winter behind only 1968-69.

Figure 1 Statewide Average Temperature Ranks
December 2016–February 2017
Period: 1895–2017

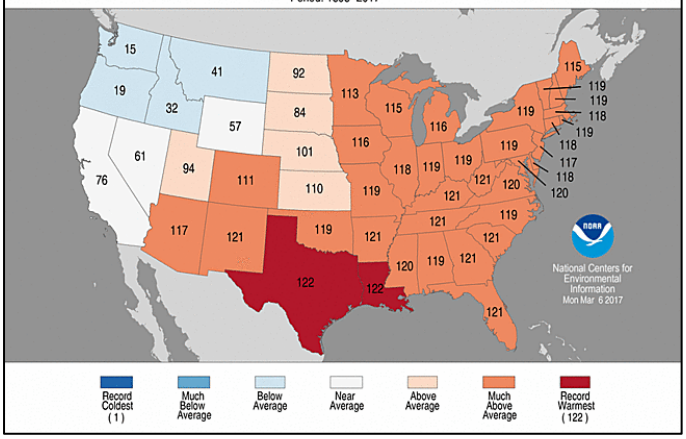
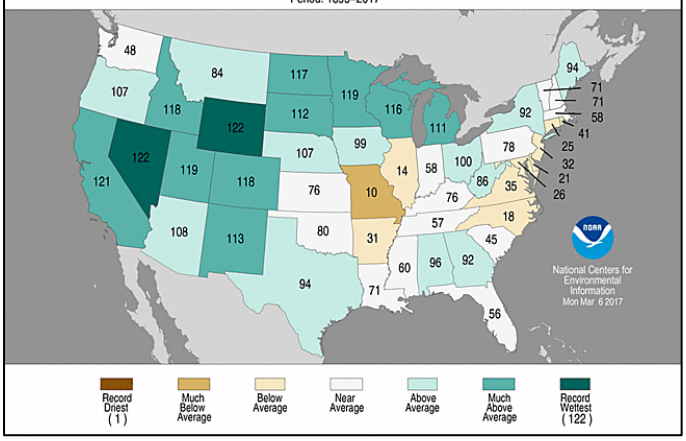


Figure 2 Statewide Precipitation Ranks
December 2016–February 2017
Period: 1895–2017



December: Stormy weather dominated the nation, easing or eradicating drought in the East and West. In particular, multiple storms in California chiseled away at long-term drought, while soaking rains in the Southeast dented summer and autumn precipitation deficits. The Northeast also experienced drought relief in the form of rain and snow.

However, pockets of dryness persisted across the central and southern Plains, leading to agricultural impacts such as low pond levels and poor pasture, rangeland, and winter wheat conditions. A coating of snow preceded a sharp, mid-month cold snap across portions of the central and southern Plains, providing wheat with some beneficial moisture and insulation.

Farther north, cold, stormy weather dominated the northern Plains and the Northwest, leading to periodic travel disruptions and increased livestock stress. One of the most significant storms struck the Dakotas on Christmas Day, resulting in blizzard conditions. The same system produced a wintry mix, including rain, freezing rain, sleet, and snow, across the upper Midwest.

Elsewhere, much-above-normal temperatures covered the Deep South, including the Southwest and the Gulf Coast States. Florida was especially warm, with the peninsula missing out on most of the rain that fell in other parts of the Southeast. As a result of the warm, dry weather, irrigation demands increased for Florida's citrus, vegetables, and strawberries.

January: Aside from persistently cold weather across the northern Plains and the Northwest, the nation experienced spring-like temperatures. Conditions were especially mild across the eastern half of the U.S., where cold outbreaks were fleeting and mostly limited to a few days in early January. In fact, monthly temperatures averaged more than 8°F above normal in parts of the Southeast, promoting some early-season growth of pastures and winter grains, but raising concerns about potential impacts on blooming fruit crops if spring freezes materialize.

Widespread storminess accompanied the general warmth, especially in the western and central U.S. In fact, phenomenally wet January storms added an average of 2 feet of liquid to the Sierra Nevada snowpack—more than 80 percent of the normal seasonal total. Periods of wintry precipitation plagued the northern Plains and the Northwest, leading to ample moisture and insulation for winter wheat but resulting in hardship for livestock and rural travel difficulties. Monthly temperatures averaged more than 10°F below normal in parts of the interior Northwest.

Farther east, a mid-January storm produced the bulk of the month's precipitation (mainly rain and freezing rain) in drought-affected areas of the central and southern Plains, benefiting winter wheat. Still, at least one-fifth of the wheat crop was rated in very poor to poor condition at month's end in Texas (27 percent), Colorado (21 percent), and Kansas (20 percent). In contrast, less than one-tenth of the wheat was rated very poor to poor in Nebraska (9 percent), Montana (4 percent), and South Dakota (1 percent).

Meanwhile, pockets of dryness lingered across the middle Mississippi Valley, but most of the remainder of the Midwest received plenty of rain and snow. In fact, muddy conditions were a concern at times in the central and eastern Corn Belt, especially during a mid- to late-month spell of warm, showery weather. Nevertheless, less than 5 percent of the winter wheat was rated very poor to poor at month's end in Illinois, Indiana, and Ohio.

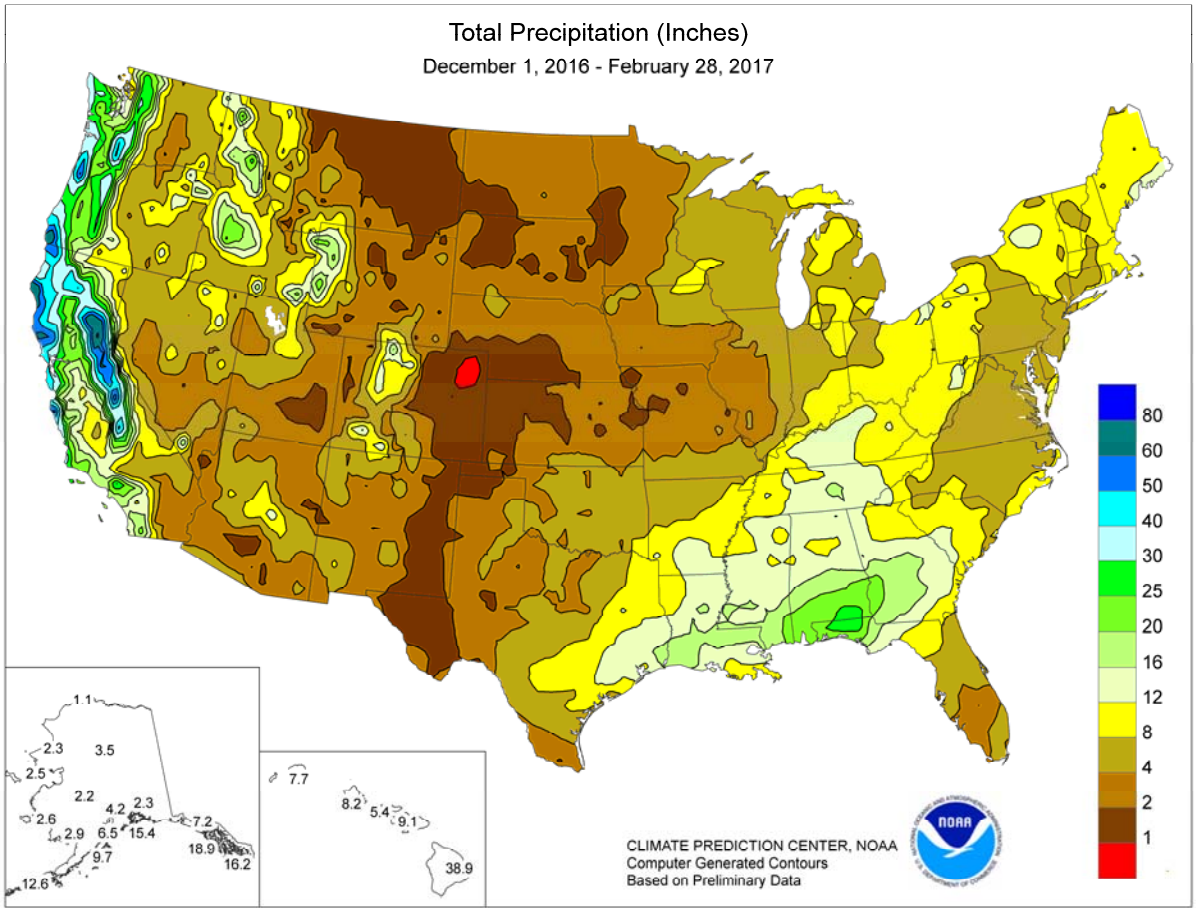
Elsewhere, pockets of long-term drought lingered across the interior Southeast and the northern Atlantic States, while short-term dryness affected Deep South Texas and Florida's peninsula. In winter agricultural areas of Texas and Florida, the warm, dry weather maintained irrigation demands for crops such as citrus and vegetables. The remainder of the South reported warm, showery weather.

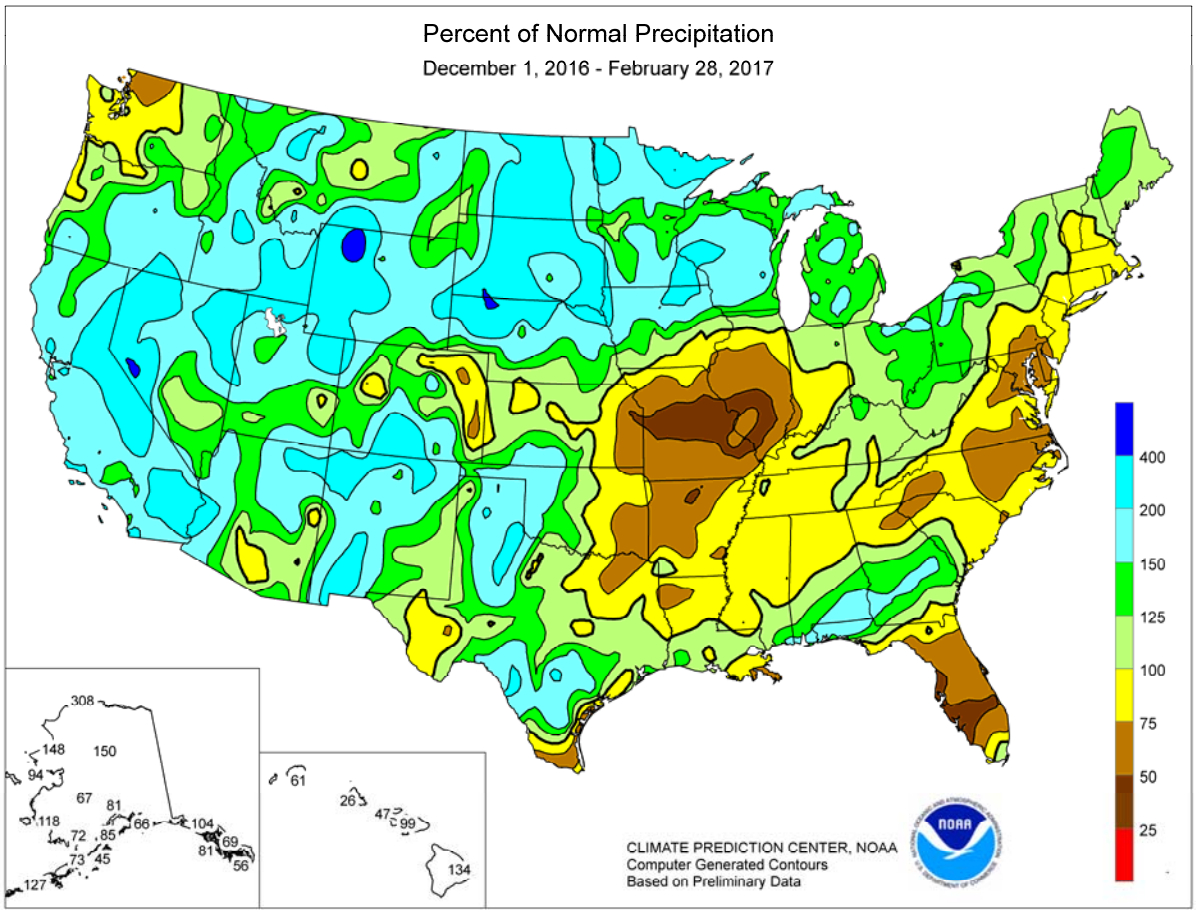
February: Historic February warmth brought winter wheat out of dormancy as far north as the central Plains and the lower Midwest, and left many fruits in bloom by month's end across the South. Monthly temperatures averaged at least 10°F above normal at many locations across the eastern half of the U.S., shattering February average temperature records that had been set as far back as 1882, 1890, 1925, 1930, and 1932. Only the northwestern corner of the country, including Washington, was cooler than average, but even there February was far less harsh than December and January.

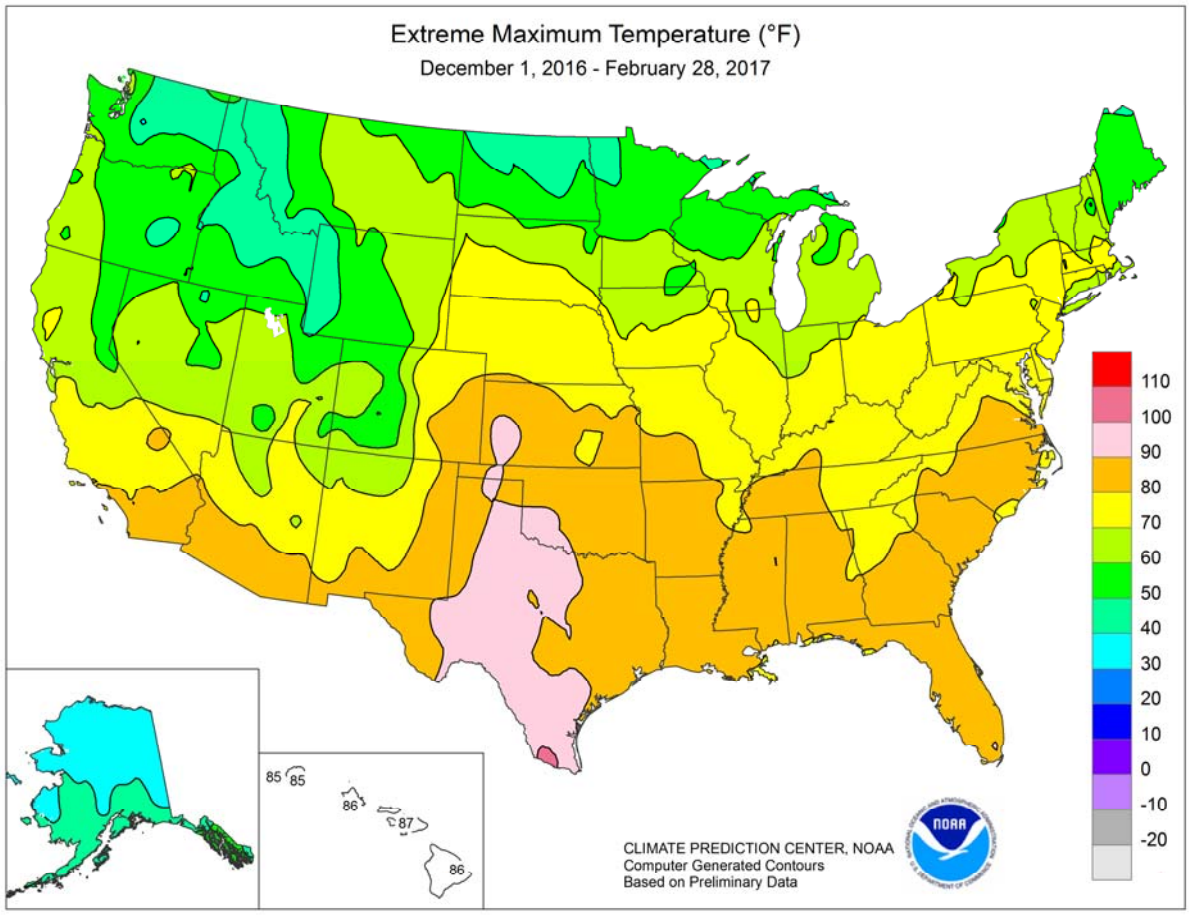
The U.S. warmth was in part supported by the continuation of an active Pacific jet stream that often took aim on northern and central California. As a result, California's 5-year drought all but disappeared, replaced by waves of heavy precipitation that threatened the auxiliary spillway of the nation's tallest dam (Oroville); pressured and sometimes overtopped levees in the Central Valley; and sparked some of the worst flooding on record in San Jose. By the end of February, the average water content of the Sierra Nevada snowpack stood at 45 inches, 185 percent of normal. The bounty extended beyond California to most other areas of the West, maintaining favorable spring and summer water-supply prospects in many river basins.

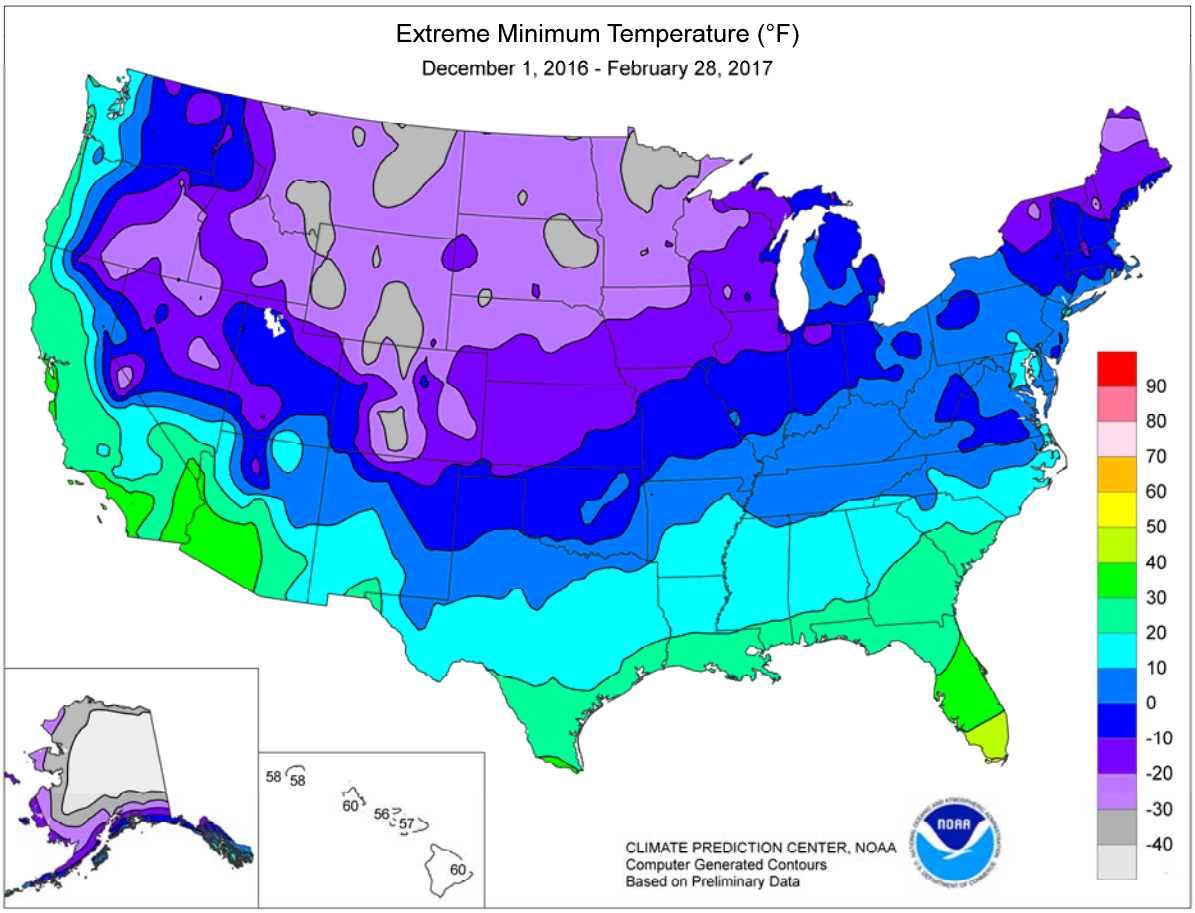
While parts of the central and eastern U.S. also experienced periods of stormy weather, erratic showers (and early-season warmth) contributed to some drought development or intensification from the central and southern Plains to the middle and southern Atlantic States. By February 26, at least one-fifth of the winter wheat was rated very poor to poor in Colorado (27 percent), Kansas (21 percent), and Texas (20 percent), accompanied by a general increase in late-winter wildfires across the central and southern Plains. Farther east, drought worsened anew in the southern Appalachians and neighboring areas, where winter rainfall failed to vanquish long-term precipitation deficits. And, a warm, mostly dry winter across Florida's peninsula maintained heavy agricultural irrigation demands.

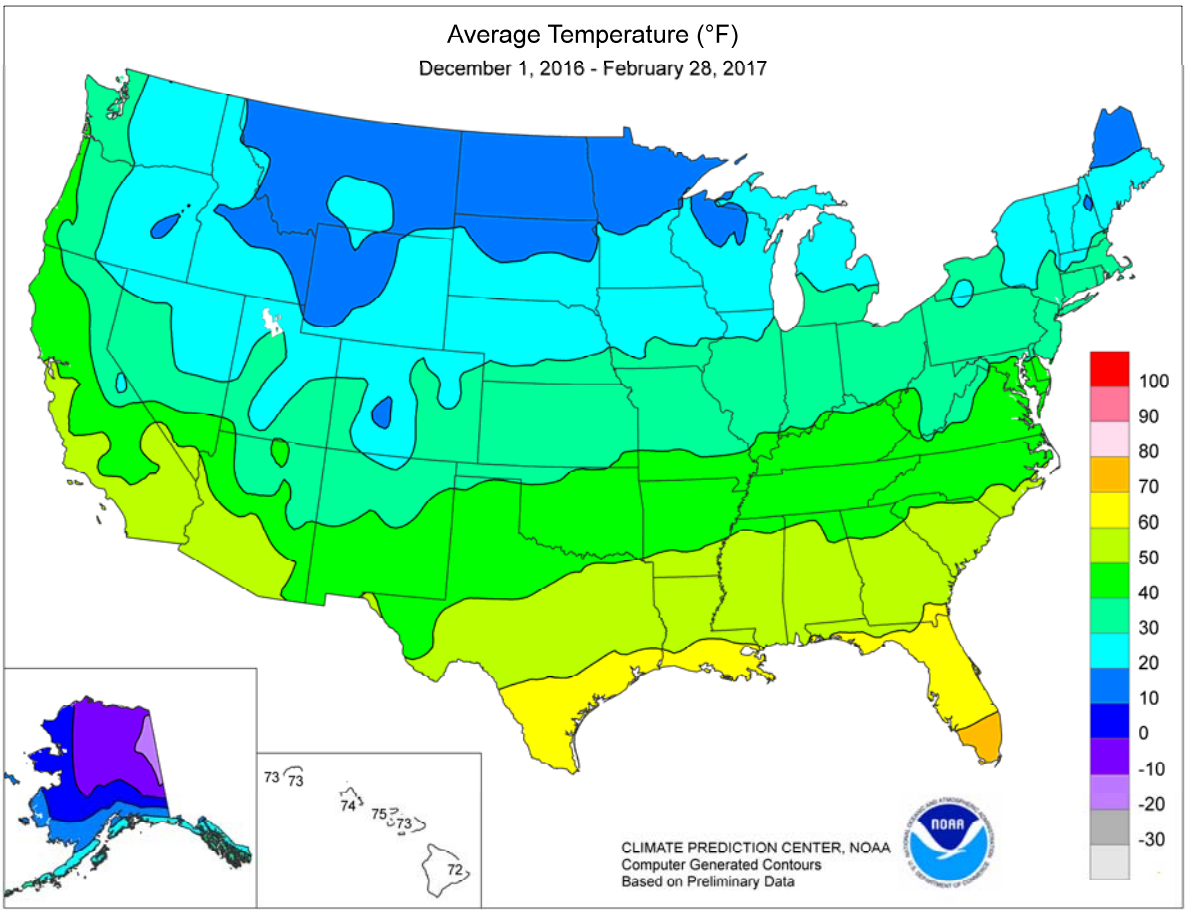
Most of the Midwest continued to experience a relatively benign winter, with periods of record warmth interspersed with brief episodes of rain or snow. Although the Midwest remained largely free of drought, topsoil moisture shortages were becoming more apparent in the southern Corn Belt. Elsewhere, New England endured a period of wintry weather, culminating in major snow accumulations on February 9 and 12-13. However, only a few days later, sudden warmth melted much of New England's snow.

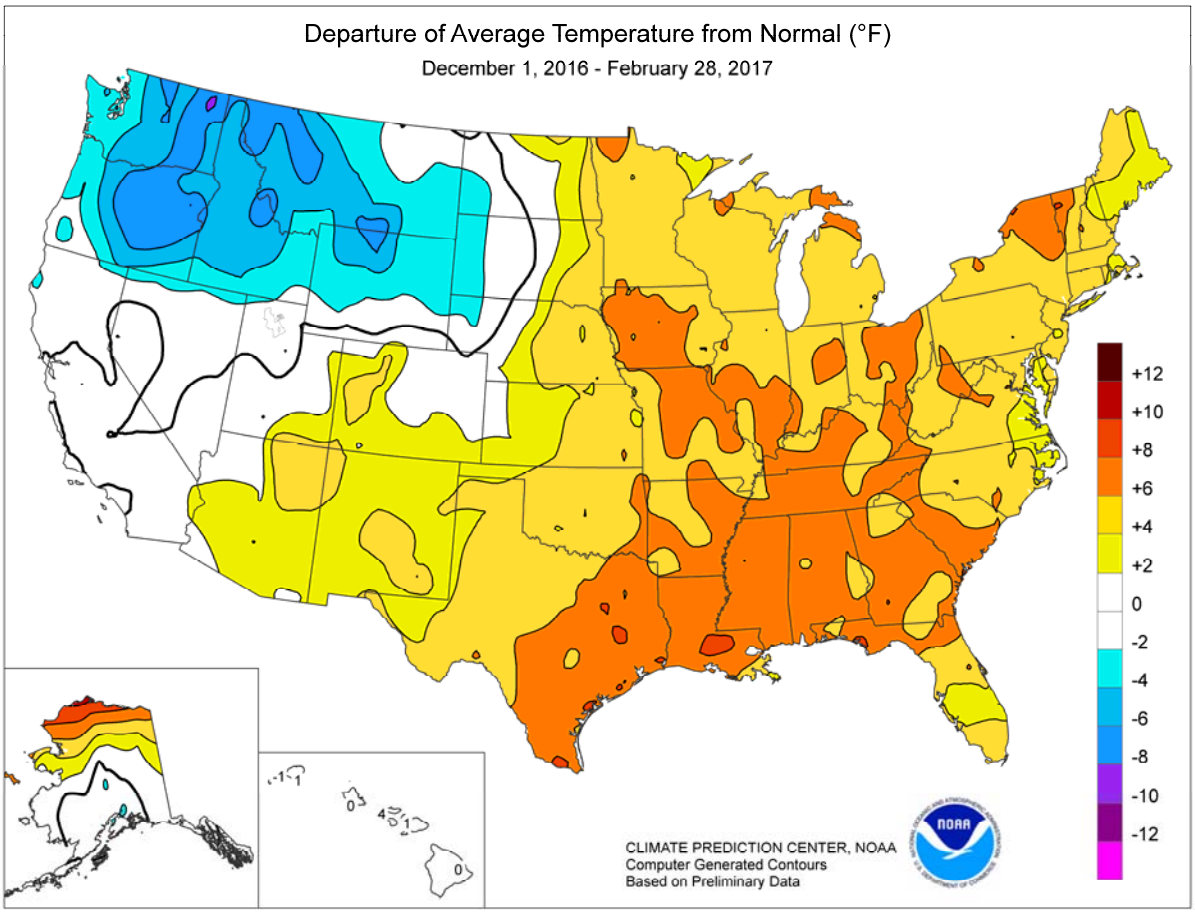

Total Precipitation (Inches)
December 1, 2016 - February 28, 2017
80
60
50
40
30
25
20
16
12
8
4
2
1
1.1
2.3
3.5
2.5
2.2
4.2
2.3
2.6
2.9
6.5
15.4
7.2
18.9
9.7
16.2
12.6
7.7
8.2
5.4
9.1
38.9
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Percent of Normal Precipitation
December 1, 2016 - February 28, 2017
400
200
150
125
100
75
50
25
308
148
150
94
67
81
118
72
85
66
104
73
45
69
81
56
127
61
26
47
99
134
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Maximum Temperature (°F)
December 1, 2016 - February 28, 2017
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
85
85
86
87
86
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Minimum Temperature (°F)
December 1, 2016 - February 28, 2017
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
58
58
60
56
57
60
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Average Temperature (°F)
December 1, 2016 - February 28, 2017
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
73
73
74
75
73
72
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Departure of Average Temperature from Normal (°F)
December 1, 2016 - February 28, 2017
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
-1
1
0
0
1
0
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data

National Weather Data for Selected Cities

Winter 2016-17

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP, ˚F		PRECIP.		STATES AND STATIONS	TEMP, ˚F		PRECIP.		STATES AND STATIONS	TEMP, ˚F		PRECIP.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	52	7	12.05	-2.08	LEXINGTON	41	6	14.28	3.64	COLUMBUS	37	6	9.55	1.89
HUNTSVILLE	50	8	14.79	-1.27	LONDON-CORBIN	42	5	11.62	-0.42	DAYTON	35	6	8.33	0.36
MOBILE	59	7	20.54	5.03	LOUISVILLE	42	6	11.57	1.35	MANSFIELD	34	7	11.00	2.94
MONTGOMERY	56	7	18.81	3.35	PADUCAH	43	7	10.84	-0.94	TOLEDO	32	5	8.25	1.80
AK ANCHORAGE	16	-1	4.17	1.70	LA BATON ROUGE	60	8	21.14	4.59	YOUNGSTOWN	33	5	11.45	4.12
BARROW	-2	11	1.09	0.74	LAKE CHARLES	60	7	19.00	5.60	OK OKLAHOMA CITY	44	5	5.48	0.75
COLD BAY	29	0	12.65	2.65	NEW ORLEANS	61	7	15.50	-0.91	TULSA	44	5	5.03	-0.95
FAIRBANKS	-6	1	4.19	2.53	SHREVEPORT	56	7	7.28	-6.08	OR ASTORIA	41	-2	28.23	0.34
JUNEAU	29	1	17.31	3.07	ME BANGOR	24	3	9.66	0.45	BURNS	19	-7	6.72	3.13
KING SALMON	16	0	2.28	-0.86	CARIBOU	17	4	9.81	1.59	EUGENE	39	-2	18.48	-3.81
KODIAK	30	0	9.66	-11.87	PORTLAND	29	4	13.51	2.04	MEDFORD	40	0	13.57	6.10
NOME	8	1	2.52	-0.16	MD BALTIMORE	40	5	6.92	-2.92	PENDLETON	29	-6	6.21	2.06
AZ FLAGSTAFF	33	2	11.31	4.74	MA BOSTON	35	3	10.72	-0.23	PORTLAND	37	-4	19.10	4.14
PHOENIX	58	3	3.29	0.77	WORCESTER	30	4	10.15	-0.82	SALEM	38	-3	23.96	6.57
TUCSON	56	3	2.45	-0.45	MI ALPENA	27	7	7.89	2.95	PA ALLENTOWN	36	6	7.52	-2.12
AR FORT SMITH	47	6	5.58	-2.77	DETROIT	33	6	7.24	0.94	ERIE	34	5	11.30	2.76
LITTLE ROCK	47	4	9.39	-2.26	FLINT	30	6	7.64	2.54	MIDDLETOWN	37	6	6.73	-2.28
CA BAKERSFIELD	52	3	6.63	3.48	GRAND RAPIDS	30	5	8.52	2.26	PHILADELPHIA	40	5	6.93	-2.64
EUREKA	46	-2	29.48	11.65	HOUGHTON LAKE	26	5	7.70	3.09	PITTSBURGH	36	6	9.73	1.80
FRESNO	50	3	10.53	4.91	LANSING	31	7	8.44	3.21	WILKES-BARRE	34	5	8.29	1.20
LOS ANGELES	57	0	14.26	6.38	MUSKEGON	32	6	8.92	2.48	WILLIAMSPORT	35	7	8.26	-0.14
REDDING	47	0	25.06	8.40	TRAVERSE CITY	29	6	9.82	2.39	PR SAN JUAN	79	2	7.91	-1.98
SACRAMENTO	48	0	21.78	11.95	MN DULUTH	18	6	5.03	2.14	RI PROVIDENCE	35	4	10.32	-1.64
SAN DIEGO	59	1	10.93	5.30	INT'L FALLS	13	6	4.94	2.76	SC CHARLESTON	56	6	8.96	-1.44
SAN FRANCISCO	52	2	21.39	10.04	MINNEAPOLIS	24	7	3.76	0.93	COLUMBIA	53	7	11.99	0.11
STOCKTON	49	2	13.58	6.59	ROCHESTER	21	5	5.84	3.13	FLORENCE	52	5	9.44	-1.14
CO ALAMOSA	21	3	2.73	1.94	ST. CLOUD	21	8	3.10	1.06	GREENVILLE	49	6	8.41	-4.10
CO SPRINGS	33	4	1.07	0.02	MS JACKSON	56	9	15.95	0.44	MYRTLE BEACH	54	6	7.82	-2.79
DENVER	32	2	1.55	0.78	MERIDIAN	55	7	13.47	-3.11	SD ABERDEEN	17	2	3.15	1.81
GRAND JUNCTION	34	5	2.28	0.66	TUPELO	50	7	13.37	-2.57	HURON	21	3	2.80	1.36
PUEBLO	35	4	1.68	0.70	MO COLUMBIA	37	6	2.53	-3.87	RAPID CITY	22	-3	1.88	0.65
CT BRIDGEPORT	38	6	8.62	-1.50	JOPLIN	42	6	4.57	-2.48	SIOUX FALLS	24	6	3.77	2.23
HARTFORD	33	5	8.70	-1.70	KANSAS CITY	35	5	2.64	-1.46	TN BRISTOL	43	7	10.45	0.14
DC WASHINGTON	44	6	6.04	-2.85	SPRINGFIELD	41	6	5.08	-2.48	CHATTANOOGA	48	6	13.47	-1.59
DE WILMINGTON	39	5	6.61	-3.03	ST JOSEPH	33	3	2.56	-0.89	JACKSON	47	6	12.41	-1.53
FL DAYTONA BEACH	64	4	4.71	-3.87	ST LOUIS	40	7	3.42	-3.86	KNOXVILLE	46	6	13.50	0.43
FT LAUDERDALE	73	5	6.87	-1.42	MT BILLINGS	22	-5	3.43	1.38	MEMPHIS	49	6	12.99	-1.24
FT MYERS	71	5	2.49	-3.42	BUTTE	15	-4	1.23	-0.30	NASHVILLE	47	7	11.84	-0.36
JACKSONVILLE	61	6	7.69	-1.79	GLASGOW	15	0	1.38	0.40	TX ABILENE	49	3	4.77	1.40
KEY WEST	75	4	4.79	-1.08	GREAT FALLS	19	-5	2.31	0.45	AMARILLO	42	4	3.95	2.16
MELBOURNE	67	5	5.21	-2.07	HELENA	17	-6	2.58	1.22	AUSTIN	58	6	10.42	4.10
MIAMI	74	5	7.04	0.91	KALISPELL	18	-6	5.50	1.23	BEAUMONT	62	8	15.07	0.78
ORLANDO	67	5	5.45	-1.64	MILES CITY	18	-3	2.08	0.79	BROWNSVILLE	69	8	3.21	-0.44
PENSACOLA	61	7	24.96	10.97	MISSOULA	20	-5	4.79	1.81	COLLEGE STATION	59	7	9.77	0.84
ST PETERSBURG	67	4	1.70	-6.53	NE GRAND ISLAND	30	5	2.30	0.42	CORPUS CHRISTI	65	7	5.04	-0.17
TALLAHASSEE	60	7	14.12	0.03	HASTINGS	31	4	2.21	0.26	DALLAS/FT WORTH	54	7	7.32	0.48
TAMPA	68	6	3.35	-3.89	LINCOLN	31	5	3.27	1.08	DEL RIO	57	4	3.45	1.17
WEST PALM BEACH	71	4	7.01	-2.43	MCCOOK	31	2	1.58	-0.09	EL PASO	51	4	2.06	0.45
GA ATHENS	51	7	10.12	-2.67	NORFOLK	27	4	3.28	1.30	GALVESTON	64	7	15.35	5.13
ATLANTA	52	7	13.05	-0.47	NORTH PLATTE	29	3	2.61	1.31	HOUSTON	61	7	12.07	1.72
AUGUSTA	55	8	16.64	4.89	OMAHA/EPPLEY	31	6	3.67	1.18	LUBBOCK	46	6	3.41	1.53
COLUMBUS	54	5	18.63	4.97	SCOTTSBLUFF	28	1	2.83	1.15	MIDLAND	51	6	2.25	0.49
MACON	54	7	19.15	5.67	VALENTINE	24	0	3.45	2.34	SAN ANGELO	52	5	3.45	0.52
SAVANNAH	58	7	13.12	3.44	NV ELKO	28	0	6.88	3.93	SAN ANTONIO	59	7	12.55	7.18
HI HILO	72	0	38.91	9.81	ELY	26	-1	4.41	2.42	VICTORIA	62	7	11.61	4.66
HONOLULU	74	0	8.18	0.25	LAS VEGAS	51	2	2.29	0.61	WACO	54	6	7.43	0.34
KAHULUI	73	1	9.09	-0.09	RENO	37	2	10.20	7.20	WICHITA FALLS	47	4	4.79	0.42
LIHUE	73	1	7.67	-4.96	WINNEMUCCA	31	-1	4.79	2.53	UT SALT LAKE CITY	32	1	5.64	1.71
ID BOISE	27	-5	6.17	2.26	NH CONCORD	29	6	8.55	0.26	VT BURLINGTON	29	8	7.01	0.90
LEWISTON	31	-4	4.37	1.23	NJ ATLANTIC CITY	40	6	8.83	-0.77	VA LYNCHBURG	41	4	7.48	-2.39
POCATELLO	23	-3	8.81	5.56	NEWARK	39	5	9.64	-0.87	NORFOLK	47	5	7.61	-2.69
IL CHICAGO/O'HARE	30	5	6.16	0.35	NM ALBUQUERQUE	42	4	1.90	0.48	RICHMOND	44	5	7.80	-1.85
MOLINE	31	6	4.03	-1.26	NY ALBANY	31	6	7.93	0.60	ROANOKE	43	5	7.43	-1.74
PEORIA	33	7	3.88	-1.69	BINGHAMTON	29	5	9.85	1.78	WASH/DULLES	40	6	5.79	-3.10
ROCKFORD	29	6	5.91	1.10	BUFFALO	32	5	9.24	-0.14	WA OLYMPIA	37	-2	19.39	-2.21
SPRINGFIELD	36	7	3.16	-2.80	ROCHESTER	33	7	7.99	0.88	QUILLAYUTE	38	-3	33.18	-7.32
IN EVANSVILLE	40	6	7.19	-2.36	SYRACUSE	31	6	9.82	1.99	SEATTLE-TACOMA	39	-3	16.93	2.00
FORT WAYNE	33	6	8.78	2.02	NC ASHEVILLE	44	6	6.73	-4.55	SPOKANE	24	-5	7.73	2.15
INDIANAPOLIS	36	6	6.97	-0.95	CHARLOTTE	48	4	9.82	-0.91	YAKIMA	27	-4	5.43	2.08
SOUTH BEND	31	5	9.18	1.84	GREENSBORO	46	6	7.31	-2.39	WV BECKLEY	38	5	11.01	1.73
IA BURLINGTON	32	6	3.30	-1.65	HATTERAS	53	6	11.32	-3.02	CHARLESTON	42	6	12.13	2.37
CEDAR RAPIDS	28	6	3.42	-0.21	RALEIGH	48	6	6.62	-3.91	ELKINS	37	6	12.15	2.08
DES MOINES	31	7	3.92	0.37	WILMINGTON	52	4	10.90	-1.06	HUNTINGTON	42	6	11.81	2.14
DUBUQUE	26	5	5.35	0.96	ND BISMARCK	15	1	3.86	2.46	WI EAU CLAIRE	21	5	6.31	3.44
SIOUX CITY	28	6	4.07	2.20	DICKINSON	15	-3	1.94	0.80	GREEN BAY	26	7	5.60	1.97
WATERLOO	26	6	5.80	2.80	FARGO	18	7	3.54	1.62	LA CROSSE	27	7	6.04	2.63
KS CONCORDIA	34	4	2.78	0.53	GRAND FORKS	15	5	3.41	1.60	MADISON	26	5	6.73	2.54
DODGE CITY	36	3	3.19	1.14	JAMESTOWN	15	2	3.40	1.82	MILWAUKEE	30	6	5.94	0.22
GOODLAND	31	1	1.53	0.26	MINOT	16	2	2.65	0.84	WAUSAU	21	4	6.59	3.27
HILL CITY	33	3	1.45	-0.09	WILLISTON	14	2	2.10	0.60	WY CASPER	23	-1	3.46	1.62
TOPEKA	36	5	2.43	-1.12	OH AKRON-CANTON	34	6	11.50	3.75	CHEYENNE	29	2	2.07	0.72
WICHITA	38	5	4.28	1.07	CINCINNATI	38	5	11.64	2.69	LANDER	19	-3	3.38	1.71
KY JACKSON	43	6	13.73	2.22	CLEVELAND	36	8	12.01	4.10	SHERIDAN	20	-3	3.30	1.28

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

National Agricultural Summary

March 13 – 19, 2017

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

Conditions were generally dry across the U.S., with virtually no measurable precipitation from the southern Pacific Coast to the Great Plains. The major exceptions occurred in the Northeast and Pacific Northwest, with some areas recording more than 2 inches of precipitation. Weekly temperatures were above normal across the western U.S., averaging more than 10°F above normal in parts of the Great Basin and the Rocky Mountains. Conversely, most areas east of the Mississippi Valley recorded weekly temperatures more than 5°F below average.

Arizona: Alfalfa conditions were rated mostly fair to good, depending on location, with harvesting taking place on three-quarters of the state's acreage. Barley heading was estimated at 12 percent complete, while conditions were rated mostly good to excellent. Cotton planting was estimated at 8 percent complete. Durum wheat heading was estimated at 10 percent complete, while conditions were rated mostly good to excellent. Central Arizona growers shipped anise, beets, bok choy, broccoli, cabbage (green and red), carrots, cauliflower, celery, cilantro, collard greens, kale greens, kohlrabi, green onions, parsley, and Swiss chard. In western Arizona, growers shipped anise, arugula, bok choy, broccoli, cabbage (green and red), cauliflower, celery, Chinese cabbage, cilantro, endive, escarole, frisee, kale greens, lettuce (Boston, green leaf, iceberg, red leaf, romaine and other), parsley, radicchio, and spinach. Pasture and range conditions were mostly fair to good. In the northwestern part of the state, some areas were still wet and forage was growing rapidly.

California: It was a warm week across the state, as most areas were well-entrenched into a dry pattern. Fog developed across the northern Central Valley early in the week, which helped to supply a bit of moisture. Rainfall was limited to the northern one-third of the state. The heaviest rain fell in the northern mountains, which received around one-quarter inch each day. Winter forage crops were maturing well. Some growers were starting to harvest silage. Alfalfa was making good growth as a result of the warmer weather. Drier, warmer weather was ideal for small grains. Fieldwork in vineyards continued with pruning, tying, berm sanitation, and brush shredding. Cherries and late varieties of stone fruit continued to bloom. Kiwifruit were being packed and shipped to domestic and foreign markets. The citrus harvest picked up with the improved weather. Late Navel orange harvest started in some areas. Navel oranges, Mandarins, Minneola tangelos, lemons, and late harvest Finger limes were being exported mostly to foreign markets. Orange groves were being hedge-rowed and skirted. Growers were starting to net the seedless tangerines to prevent cross pollination by bees during the coming bloom. Bee colonies continued to be moved into nut orchards for pollination. Almonds and pistachios were being exported. In Tulare County, squash and cucumbers were being planted. In Monterey County, strawberry production was picking up and harvest crews were working. Rangeland and dryland pasture quality continued to improve with the recent rainfall. Some cattle ranchers have increased their herd size in order to take advantage of the improved forage conditions.

Florida: There were 6.6 days suitable for fieldwork. Precipitation ranged from 0.20 inch in Clewiston (Hendry County) to 1.69 inches in North Port (Sarasota County). Average temperatures ranged from 50.8°F in Mayo (Lafayette County) to 67.6°F in Ft. Lauderdale (Broward County). Daily temperatures in the citrus region were average or below average for most of the week. Valencia orange harvest was rapidly gaining speed, but was still behind the pace of last season's harvest. White and red grapefruit harvest decreased, with some packing houses finishing those varieties for the season. Other grove activity included irrigating,

hedging, fertilizing, and general grove maintenance. Strawberry harvest continued in Brevard, Hillsborough, and Manatee Counties. Frosts caused significant damage to most fruit and vegetable crops across northern and central Florida, with planting expected to pick up this week. Cabbage, broccoli, and leafy greens were being harvested in Putnam and Flagler Counties. Crops coming to market this week included avocado, bitter melon, boniato, cabbage, eggplant, green beans, malanga, peppers, radishes, squash, sweet corn, tomato, zucchini, and other tropical fruits. Hard freezes across northern and central Florida slowed field activities and set back any corn already planted. Sugarcane harvest continued on schedule in Glades, Hendry, and Palm Beach Counties. Cattle producers continued to use supplemental feeding, as pastures remained dry and quality continued its seasonal decline. Hard frosts in central and northern Florida, low temperatures, and continually dry conditions hurt pastures across the state. Cattle remained in mostly fair to good condition.

Kansas: Temperatures averaged 4 to 6°F above normal in western counties but a few degrees below normal in the eastern half of the state. Kansas remained dry, with limited amounts of precipitation in a few eastern counties. Dry, windy conditions continued to pose a threat of wildfires across the state. There were 6.7 days suitable for fieldwork. Topsoil moisture was rated 29 percent very short, 45 percent short, and 26 percent adequate. Subsoil moisture was rated 21 percent very short, 40 percent short, and 39 percent adequate. Winter wheat condition was rated 7 percent very poor, 17 percent poor, 38 percent fair, 36 percent good, and 2 percent excellent. 5Winter wheat was 10 percent jointed, near the 5-year average of 8 percent. Cattle and calf conditions were rated 2 percent poor, 23 percent fair, 68 percent good, and 7 percent excellent. Calving progress was 64 percent complete. Cattle and calf death loss was rated 1 percent heavy, 57 percent average, and 42 percent light. Hay and roughage supplies were rated 1 percent very short, 5 percent short, 88 percent adequate, and 6 percent surplus. Stock water supplies were 4 percent very short, 13 percent short, 82 percent adequate, and 1 percent surplus.

Oklahoma: The week began with cold, wet weather but ended warm and dry. Parts of the state suffered a hard freeze due to temperatures dropping into the lower 20s. Drought conditions were rated 74 percent moderate, unchanged from last week and 41 percent severe, down 1 point from last week. Topsoil and subsoil moisture conditions were rated mostly short to adequate. There were 6.5 days suitable for fieldwork. Winter wheat jointing reached 38 percent, 3 percentage points ahead of the 5-year average. Canola blooming reached 18 percent, 7 percentage points ahead of the 5-year average. Rye jointing reached 25 percent, 6 percentage points behind last year and 7 points behind the 5-year average. Oats jointing reached 16 percent, equal to the previous year but 11 percentage points ahead of the 5-year average. Rangeland and pastures were rated at 65 percent fair to good. Livestock were rated at 89 percent fair to good.

Texas: Precipitation across the state was scarce. Most of Texas received less than one-tenth of an inch of rain. There were 6.3 days suitable for fieldwork. Winter wheat was rated 74 percent fair to good. Wheat in the Northern and Southern High Plains continued to progress through the jointing stage. In some areas of the Blacklands, wheat reached the heading stage. The lack of moisture caused concerns for some wheat producers on the Plains. Oats were rated 80 percent fair to good, down 2 percentage points from the previous week. Producers in the northern part of the state continued field preparations for cotton and other row crops. Some of the cotton in the Coastal Bend emerged. Cotton planting continued in South Texas and the Lower Valley. Corn was being planted in the Blacklands, North East Texas, South Central, South Texas, and the Upper Coast. Cattle were rated mostly fair to good. Supplemental feeding continued in the Plains and the Cross Timbers. Rangeland and pastures were rated mostly fair to good.

International Weather and Crop Summary

March 12-18, 2017

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

HIGHLIGHTS

EUROPE: Mild, dry weather for much of the week encouraged winter crop development, while late-week rain improved soil moisture supplies over France and Germany.

WESTERN FSU: Sunny skies and above-normal temperatures further accelerated winter wheat development and other seasonal fieldwork.

MIDDLE EAST: Additional showers improved soil moisture supplies for winter grains in Turkey, while late-week rain maintained good to excellent soil moisture for spring growth in Iran.

NORTHWESTERN AFRICA: Mostly sunny skies accelerated wheat and barley development, though topsoil moisture continued to decline in Algeria.

EAST ASIA: Showers across southern China increased soil moisture for rapeseed and recently sown rice.

SOUTHEAST ASIA: Seasonal rainfall in eastern and southern portions of the region maintained favorable soil moisture for spring-sown rice, as seasonal heat was building in Thailand.

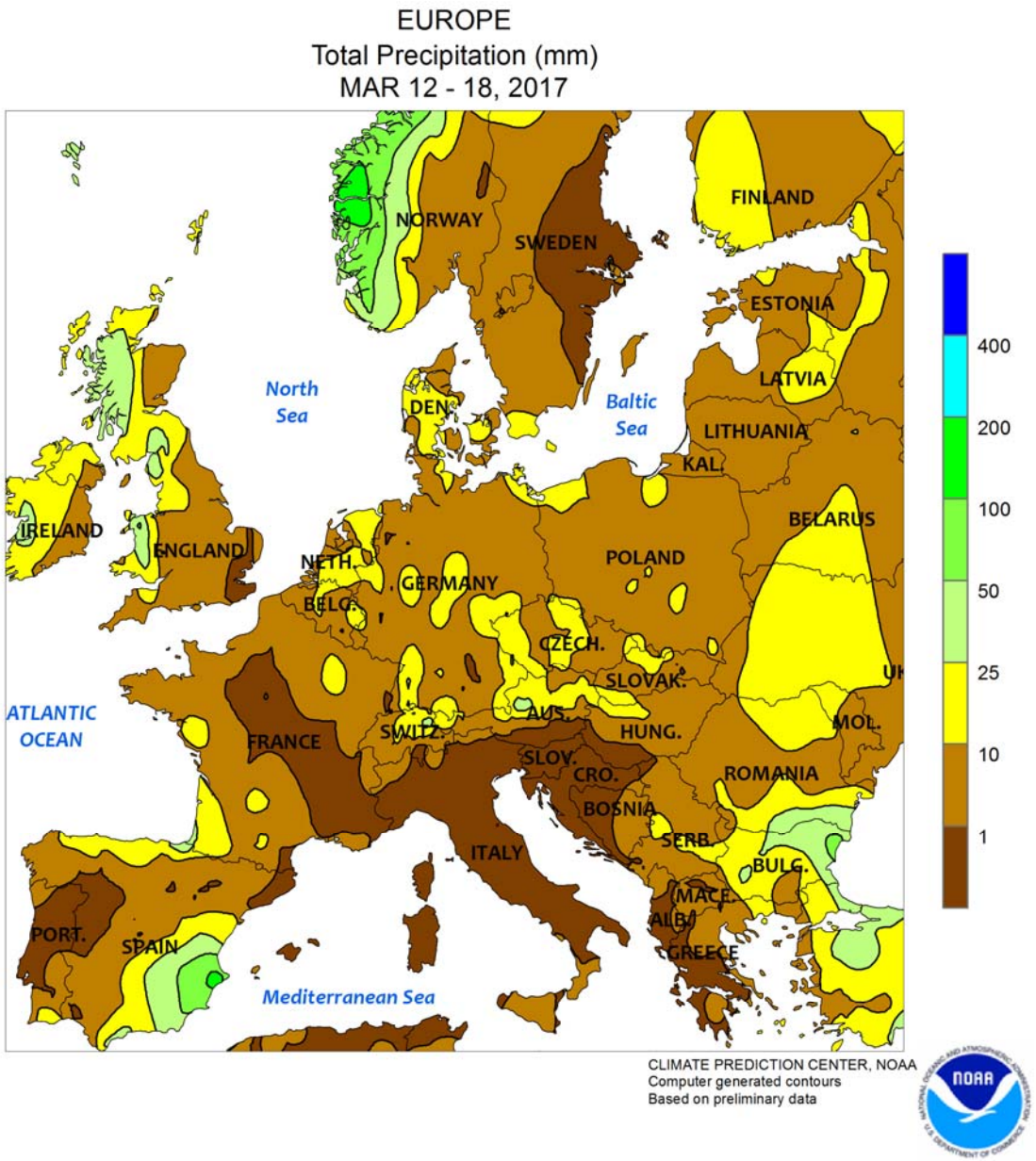
AUSTRALIA: Soaking rains slowed dry down and harvesting of early-maturing cotton and sorghum but benefited immature crops.

SOUTH AFRICA: Warm, sunny weather spurred rapid development of corn and other filling to maturing summer crops.

ARGENTINA: Rain continued across northern farming areas, as favorably drier conditions developed farther south.

BRAZIL: Widespread, locally heavy showers maintained favorable conditions for corn, cotton, and other summer crops in most major agricultural areas.

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



EUROPE

Mild, dry weather continued to promote earlier-than-normal winter crop development, though late-week showers boosted moisture supplies in key northern growing areas. Winter crops over northern and eastern Europe broke dormancy two to four weeks ahead of average, and were now advancing through the vegetative stage of development in mostly good condition. Winter dryness had been a concern in France and parts of Germany, though early-March rain coupled with this week's late-arriving scattered showers (2-20 mm) eased lingering dryness concerns and improved soil moisture supplies for spring development. Sunny, mild conditions (1-3°C above normal) also promoted winter crop development in Poland and the northern Balkans before light to moderate showers (2-15 mm) returned at the end of the period. Meanwhile, a pair of slow-moving storms triggered widespread showers across southern Europe. One storm produced 5 to 50 mm of rain (locally more) in southern Spain and southwestern France, while the other brought moderate to heavy showers (10-60 mm) to the southern Danube River Valley. In the former, the moisture was beneficial for vegetative to heading winter grains in Spain, though northern parts of the country (Castilla y León) missed out and are in need of moisture. In the lower Danube River Valley, the rain maintained adequate to abundant moisture supplies for wheat and rapeseed development.

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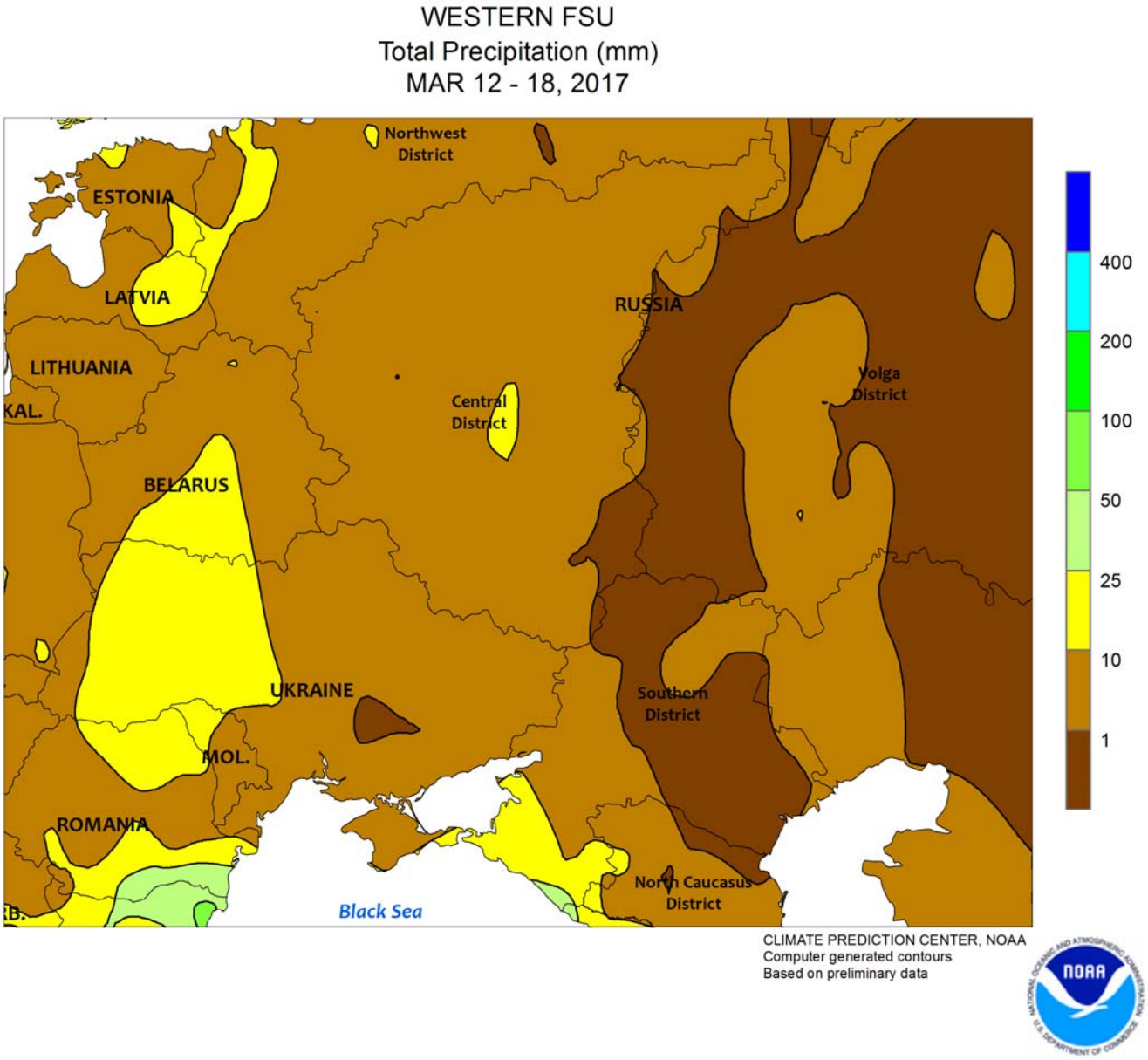

WESTERN FSU

Unseasonable warmth eroded the region's remaining snowpack and accelerated winter wheat development in southern growing areas. For the third consecutive week, above-normal temperatures (4-8°C above normal) prevailed, with daytime highs topping 10°C (above 15°C along the Black Sea Coast) in Ukraine and Russia's winter wheat areas. As a result, crops continued to develop up to 4 weeks ahead of average in the south, while spring grain planting progressed rapidly farther north. At week's end, the region's snowpack was confined to Russia's Volga District, more on par with the typical early-April extent. Moisture reserves remained generally favorable for winter wheat development, though short-term dryness (less than 50 percent-of-normal precipitation over the past 60 days) in central and southern Ukraine reduced topsoil moisture for vegetative winter wheat. Rain during the period was generally confined to western-most portions of Ukraine (10-22 mm) and Belarus (5-15 mm), though light showers (2-8 mm) dotted central and eastern Ukraine and western Russia. However, key winter wheat areas of southwestern Russia (Krasnodar Krai in the Southern District) benefited from 5 to 15 mm of rain at week's end.

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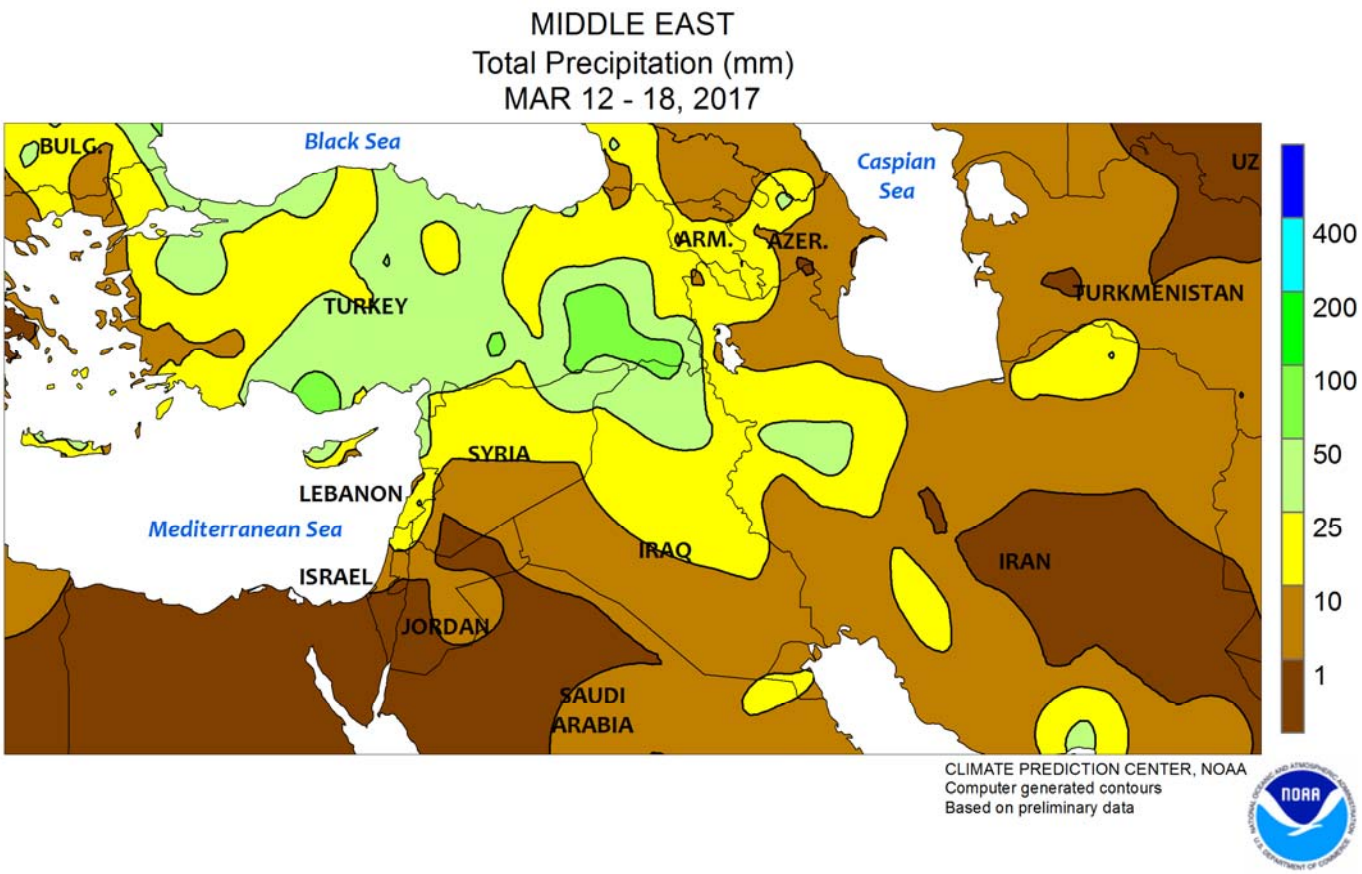
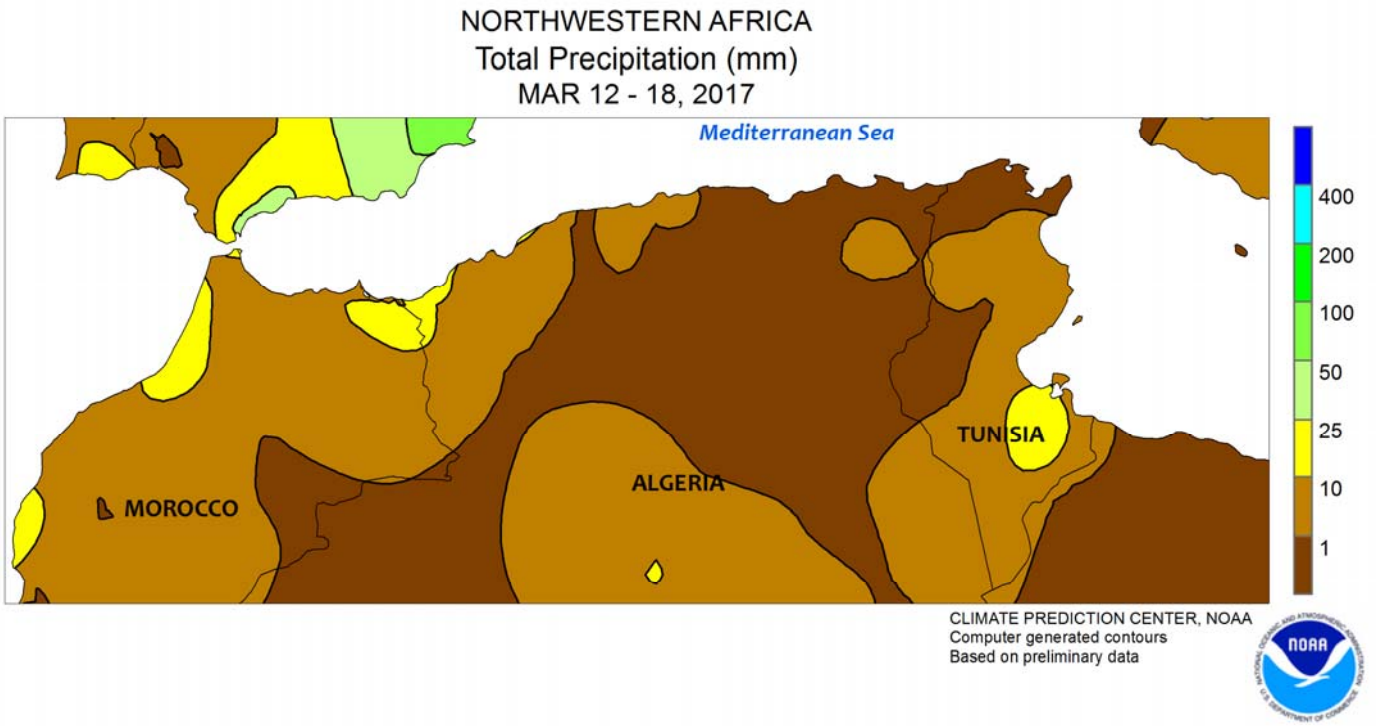


MIDDLE EAST

Warm, wet weather improved winter grain prospects across much of the region. Temperatures up to 3°C above normal accelerated winter grain green up in Iran and crop development across Iraq and the eastern Mediterranean Coast. Cooler readings (near-normal temperatures for the week) returned to Turkey, slowing wheat and barley development somewhat after unseasonably early green up. More notably, moderate to heavy rain (10-40 mm, locally more) boosted soil moisture from central Turkey's Anatolian Plateau (a key wheat and barley area) into Syria, Iraq, and northern Iran. At week's end, a vigorous storm coupled with a renewed influx of moisture was producing moderate to heavy rainfall across Iraq and Iran, with preliminary rainfall totals ranging from 25 to 60 mm on March 20; more information on this system will appear in next week's *Bulletin*.

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



NORTHWESTERN AFRICA

Mostly sunny skies and near- to above-normal temperatures maintained overall favorable winter grain prospects across the region. Temperatures averaged up to 3°C above normal in Algeria and Tunisia, promoting faster-than-normal crop development. In Morocco, somewhat cooler conditions brought on by late-week clouds and showers (1-22 mm) slowed crop growth, though wheat and barley were progressing through the heading and flowering stages of development one to two weeks ahead of average. Winter grain prospects remained good to excellent in Morocco due to near-normal season-to-date rainfall (since October 1), in sharp contrast to last year's drought-ravaged crop. Conditions also remained favorable for vegetative winter grains in Tunisia, where growing-season precipitation has averaged near to above normal. In Algeria, conditions are mixed, with short-term drought (10-25 percent of normal rainfall over the past 30 days) trimming yield potential for jointing to heading winter crops in northeastern portions of the country, while heavy January rainfall has helped carry winter grains through the recent dry spell in central and western Algeria.

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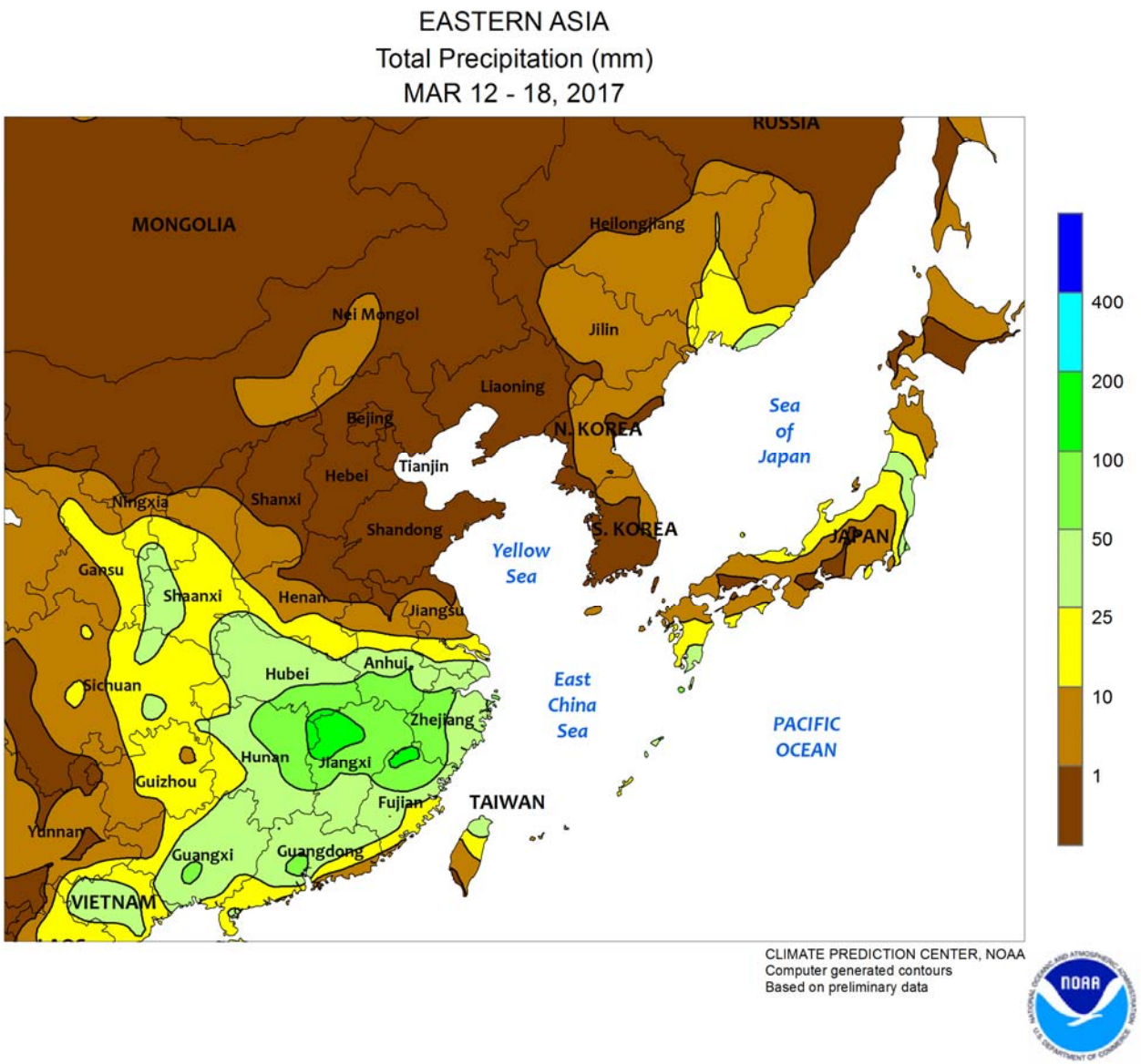
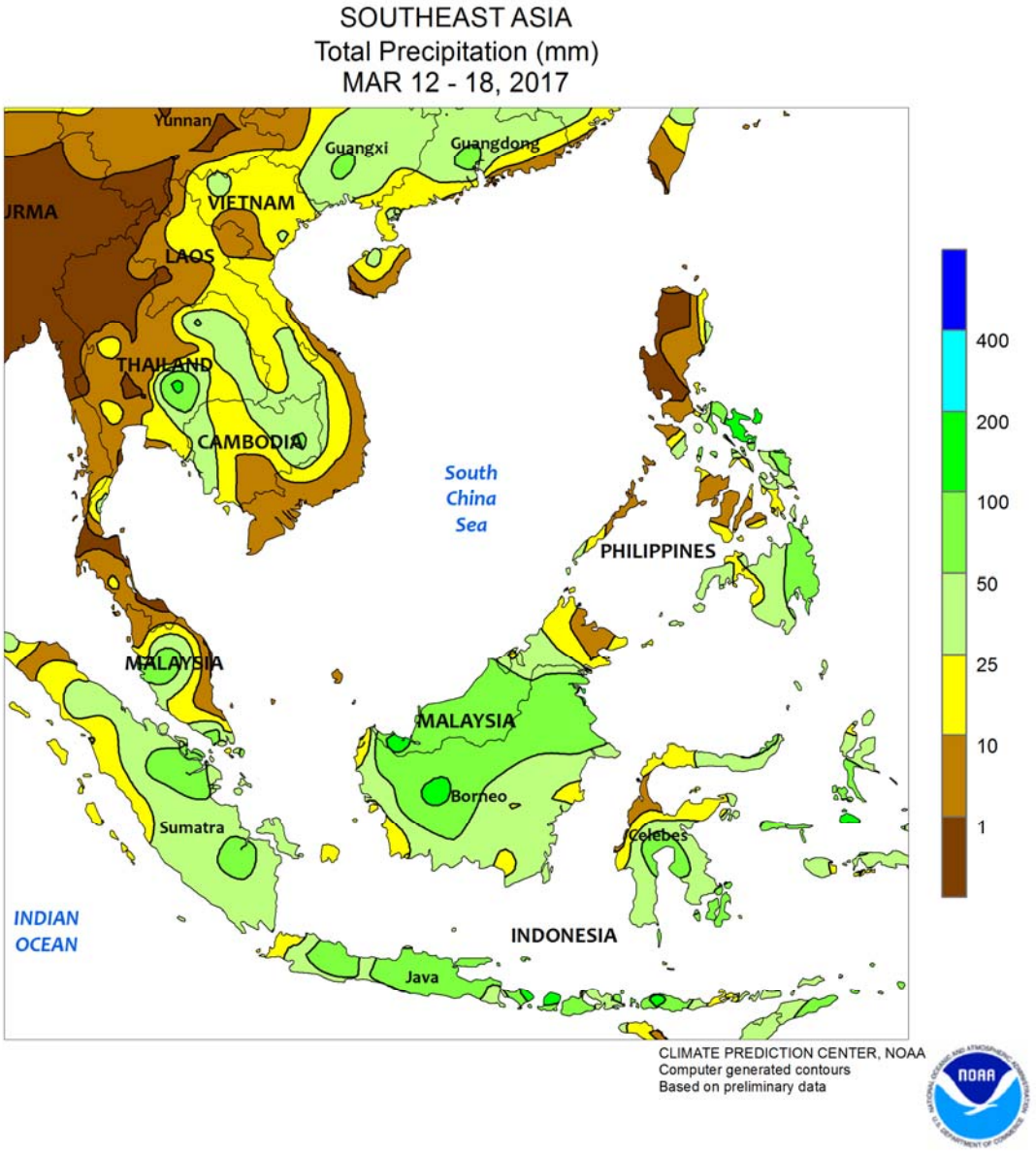


EASTERN ASIA

Showers overspread southern China including much of the Yangtze Valley. Rainfall totals of 10 to 25 mm were reported in the western-most areas (Sichuan and Guizhou), while 25 to 75 mm (locally over 100 mm) occurred farther east and to the south. The moisture benefited vegetative to reproductive rapeseed and newly sown early-crop rice. Meanwhile, sunny, mild weather across the North China Plain promoted wheat development, with adequate soil moisture and irrigation supplies sustaining good yield prospects.

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



SOUTHEAST ASIA

Seasonal rainfall continued across eastern and southern sections of the region. Showers (25-100 mm or more) in the eastern and southern Philippines maintained favorable moisture conditions for spring-sown corn and rice. Similar rainfall amounts throughout Indonesia kept oil palm and recently sown spring rice well watered. Showers were more scattered in Malaysia, with rainfall amounts varying between 10 and 50 mm over most districts. Though, rainfall totals over the last 90 days have been near to above normal, maintaining good yield prospects for fruit bunches harvested in the summer. Meanwhile farther north, seasonal heat was building in Thailand and surrounding environs, as daytime temperatures peaked above 40°C and spurred locally heavy rainfall (over 100 mm) in southern Thailand. Dry-season rice harvesting was underway in most of Indochina.

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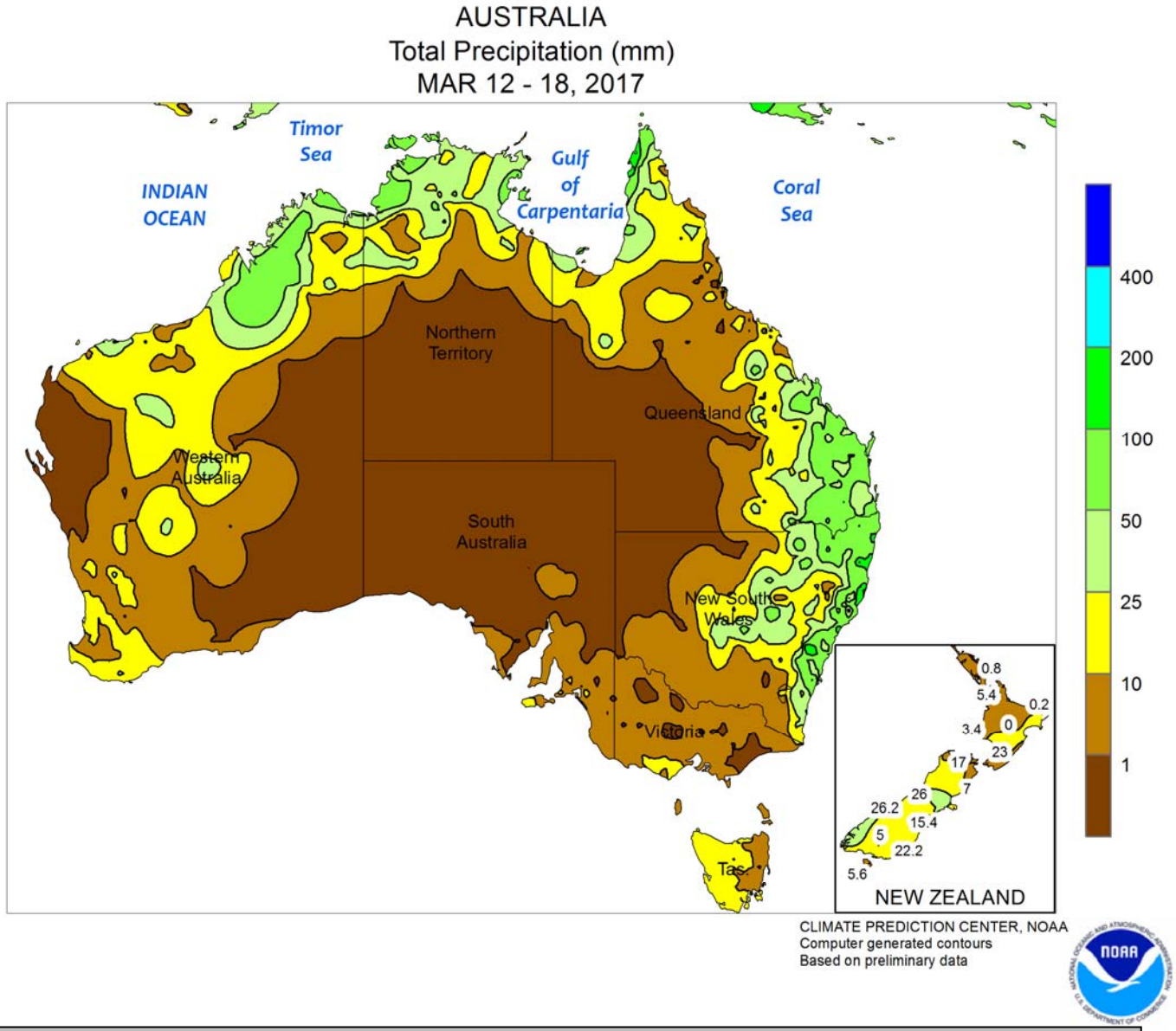

AUSTRALIA

In southern Queensland and northern New South Wales, soaking rains (10-50 mm, locally near 100 mm) hampered dry down and likely delayed harvesting of early-maturing cotton and sorghum. Although the wet weather was unfavorable for crops awaiting harvest, the rain benefited cotton and sorghum that were sown later in the growing season, boosting topsoil moisture and easing irrigation requirements for immature crops. Unseasonably warm weather accelerated crop development in major summer crop producing areas, with temperatures averaging about 1 to 2ºC above normal. Stressful heat was absent from the region, however, with daily maximum temperature generally ranging from the upper 20s to middle 30s degrees C.

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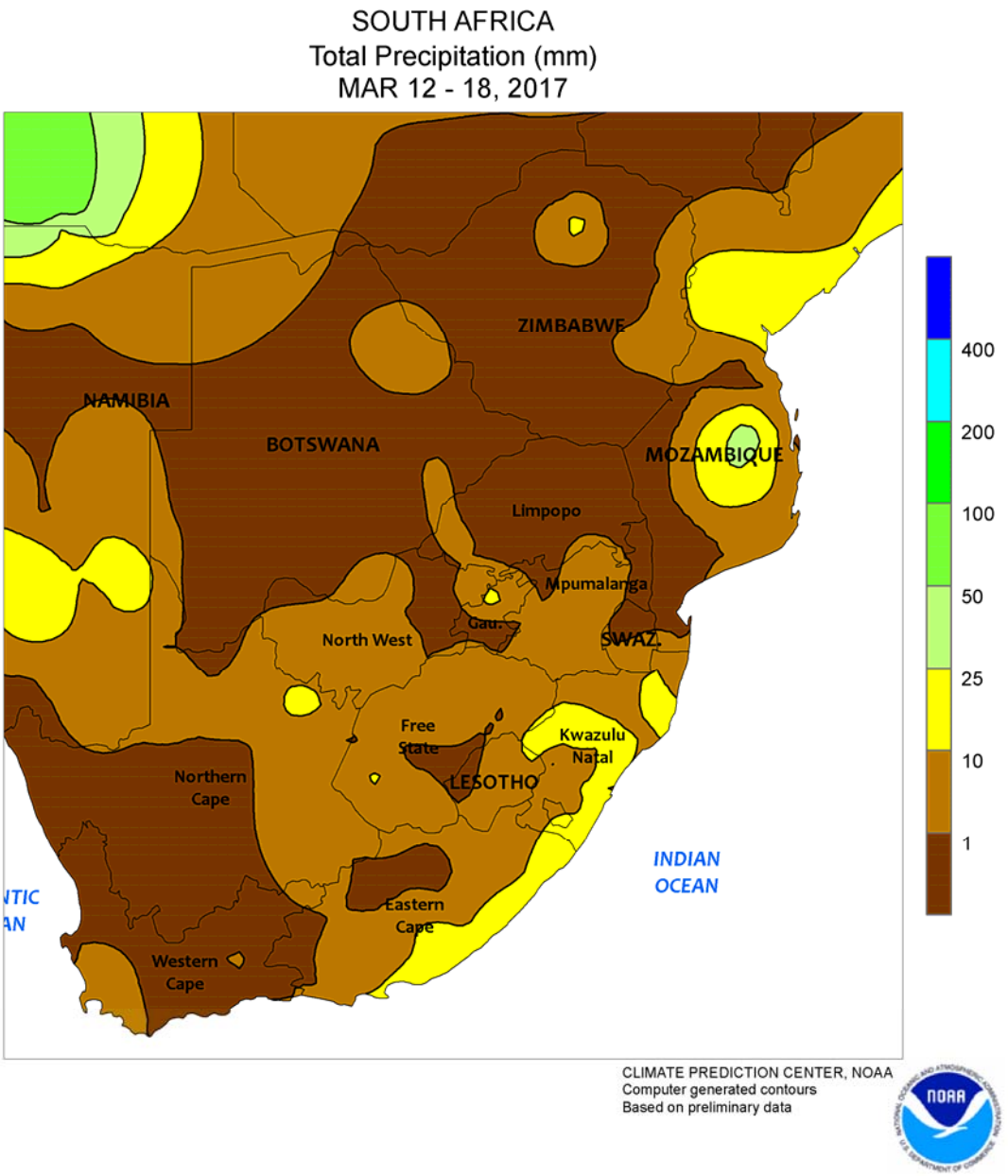

SOUTH AFRICA

Warm, mostly dry weather dominated major agricultural areas, spurring rapid development of filling to maturing summer crops. Across the corn belt (North West and Free State to Mpumalanga, including neighboring locations in Limpopo and KwaZulu-Natal), weekly temperatures averaged up to 2°C above normal, with daytime highs reaching the upper 20s and lower 30s (degrees C) and just a few locations recording rainfall totaling more than 10 mm. Mostly dry, sunny weather also spurred rapid growth of irrigated sugarcane in eastern Mpumalanga and northern KwaZulu-Natal; rain-fed production areas of southern KwaZulu-Natal recorded 5 to 25 mm, though summer warmth (temperatures reaching the lower and middle 30s) maintained high crop moisture requirements. The rain extended westward along the coast of Eastern Cape but elsewhere in the Cape Provinces, warm, mostly dry conditions fostered rapid development of irrigated row crops — including corn and cotton in the Orange River Valley — as sunshine and warmth promoted harvesting of tree and vine crops in Western Cape.

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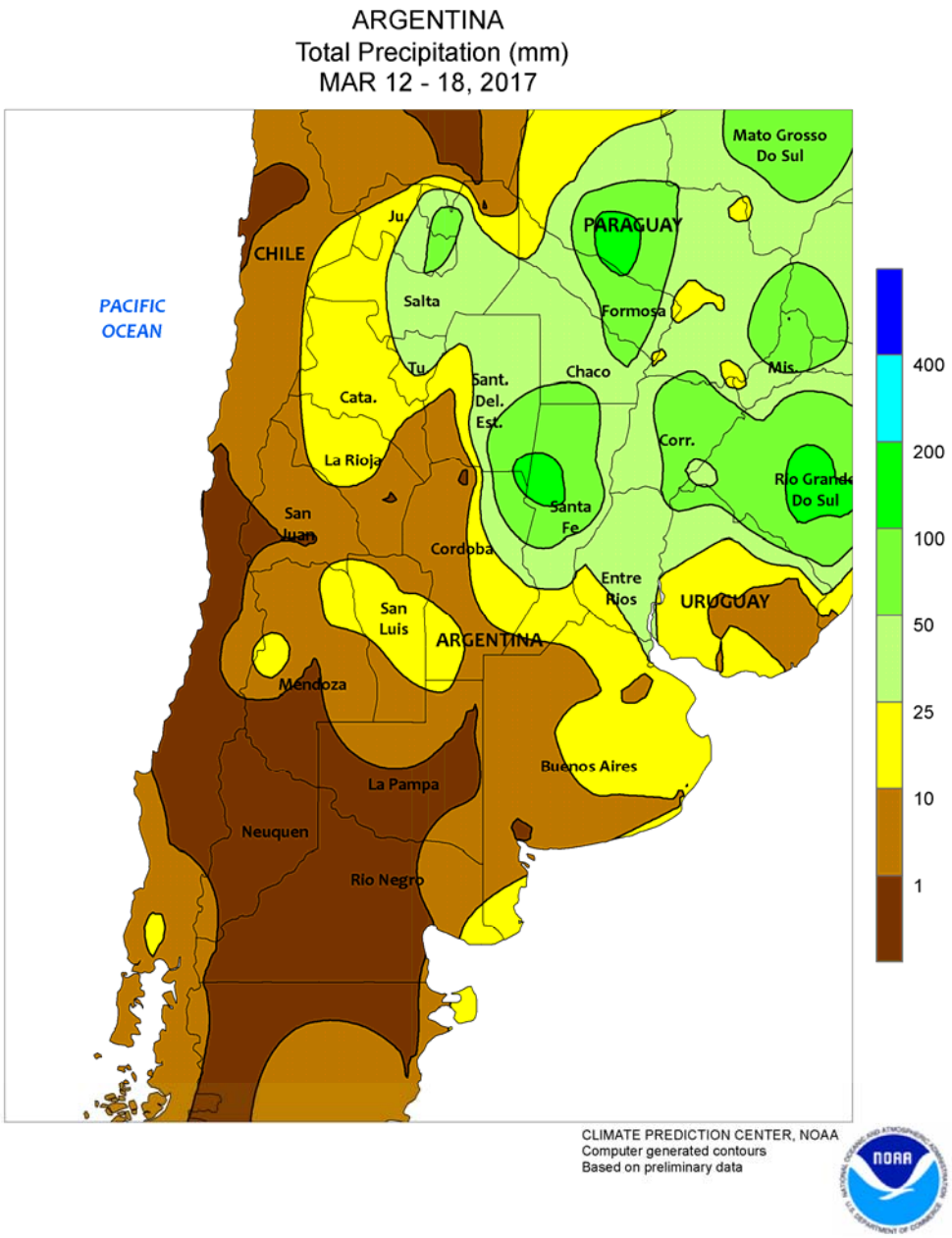
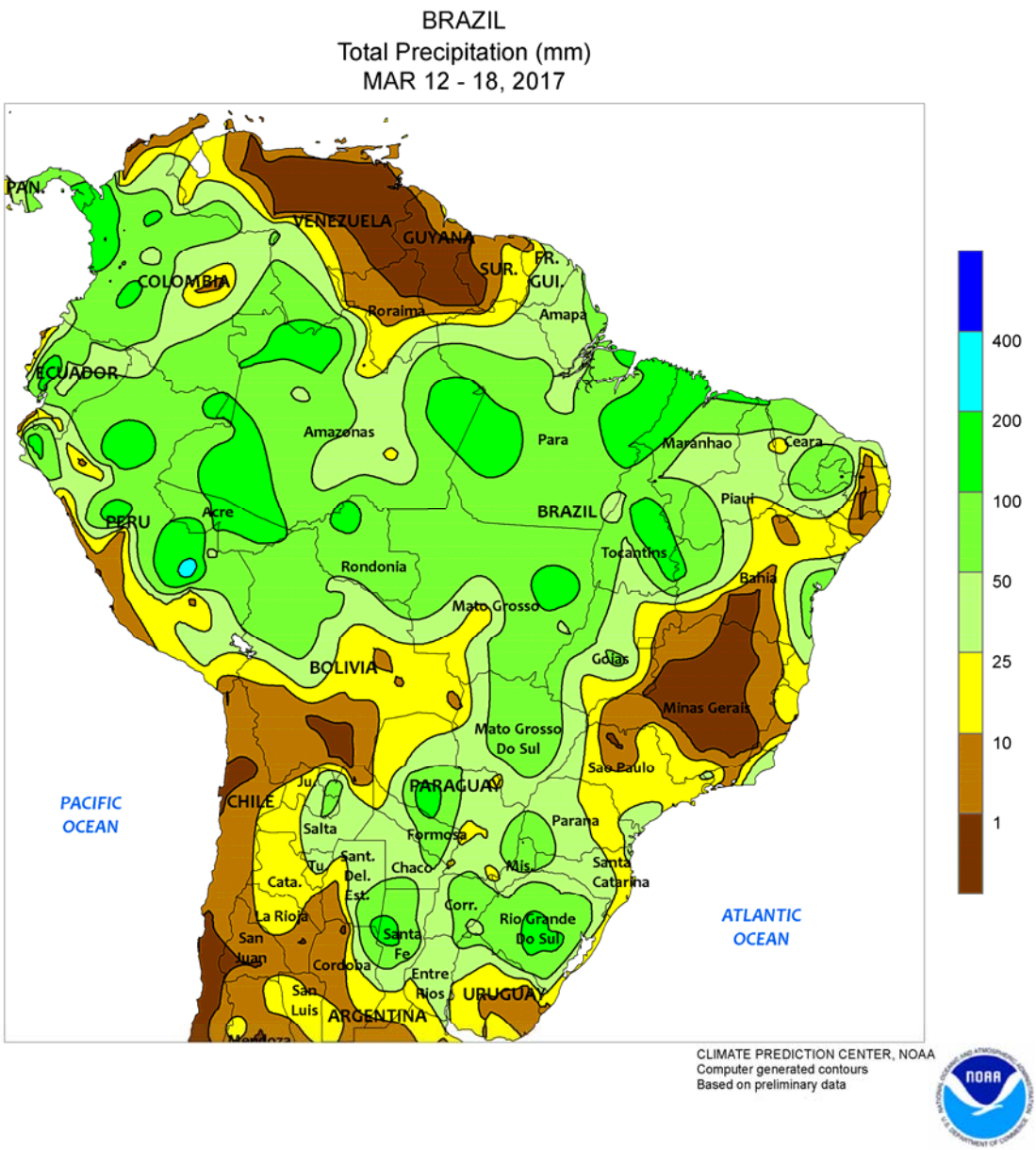


ARGENTINA

Showers continued across northern farming areas as favorably drier conditions developed in Buenos Aires. Moderate to heavy rain (10-50 mm, locally higher) covered a large area spreading from Salta southeastward through Corrientes and Entre Rios. The area receiving the rainfall included the cotton belt (Santiago del Estero, northern Santa Fe, Chaco, and Formosa), which could benefit from drier weather following several weeks with heavy rain. In contrast, drier conditions prevailed in recently wet southern farming areas. Much of Buenos Aires recorded little to no rain, with most locations receiving 15 mm or less; similar amounts were recorded in eastern Cordoba and southern Santa Fe. Virtually no rain fell in La Pampa, with less than 10 mm of rainfall recorded in western sections of both Buenos Aires and Cordoba. The sunny weather in southwestern farmlands benefited late-season growth of corn and soybeans and helped to alleviate wetness that had been hampering fieldwork. After a brief warm up (daytime highs reaching the upper 20s and lower 30s), the frontal system driving the northern rainfall ushered cooler weather into the region, with nighttime lows falling below 10°C as far north as Santiago del Estero. As the cool days and nights outweighed the brief period of warmth, weekly temperatures averaged 1 to 4°C below normal throughout the region. According to the government of Argentina, sunflowers were 50 percent harvested as of March 16, compared with 67 percent last year, with delays attributed to the recent periods of wetness.

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

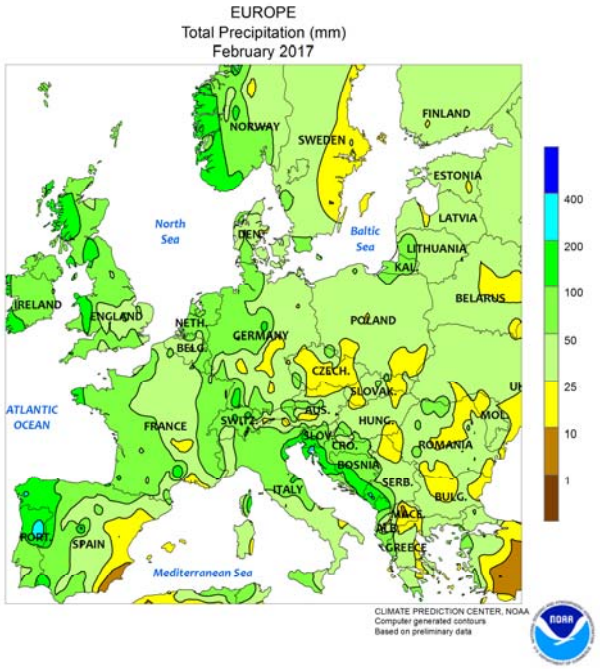


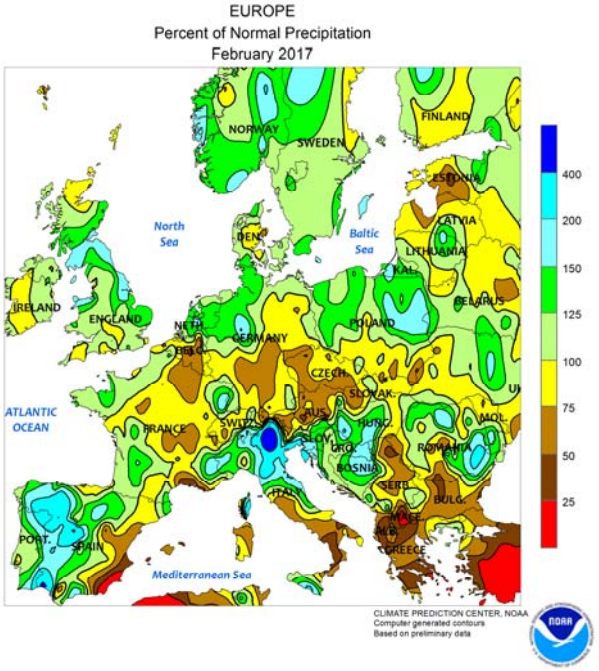
BRAZIL

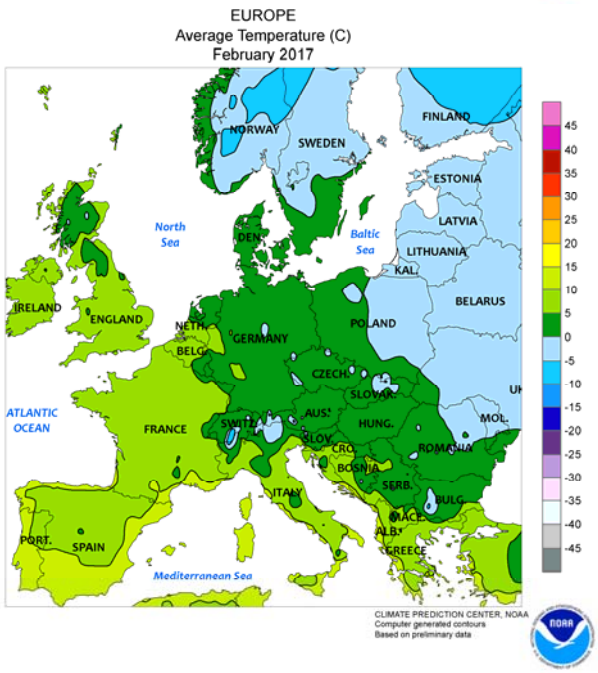
Widespread, locally heavy showers maintained overall favorable prospects of corn, cotton, and many other summer crops. Rainfall totaling 25 to 100 mm in the Center-West and northeastern interior regions (Mato Grosso and Mato Grosso do Sul northeastward through Tocantins) maintained favorable prospects of second-crop corn and cotton, with near- to above-normal temperatures (daytime highs reaching the middle 30s degrees C) fostering rapid development of well-watered crops. The rainfall was particularly welcomed in western Bahia, following a brief return to unfavorable dryness. Despite the rainfall, the final stages of fieldwork advanced; according to the government of Mato Grosso, corn planting was virtually finished as of March 17, and soybeans were nearly 95 percent harvested, more than 9 points ahead of last year's pace. Elsewhere, drier weather (rainfall totaling less than 10 mm in some areas) and unseasonable warmth (daytime highs in the middle 30s) returned to much of Sao Paulo and Minas Gerais, reducing moisture for sugarcane and coffee, as well as immature summer row crops. Meanwhile, moderate to heavy rain (25-50 mm, locally approaching 100 mm) maintained adequate to abundant levels of moisture for immature summer row crops in southern Brazil, including late-planted soybeans in Parana and Rio Grande do Sul.

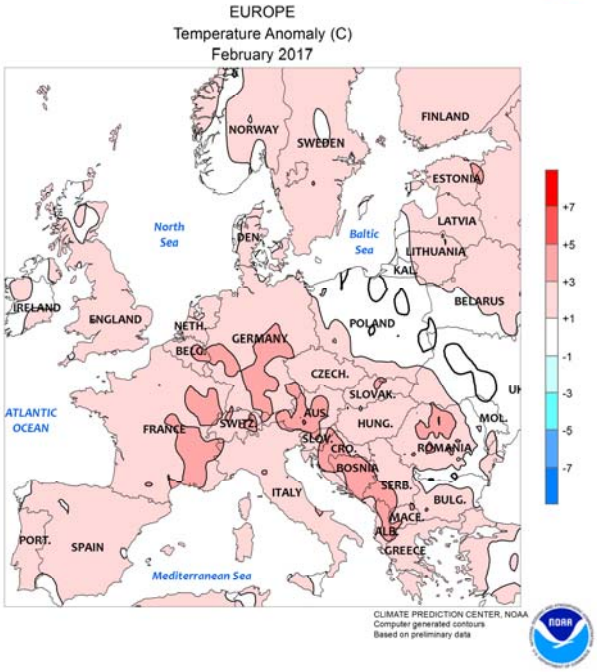
For additional information contact: mbrusberg@oce.usda.gov

February International Temperature and Precipitation Maps



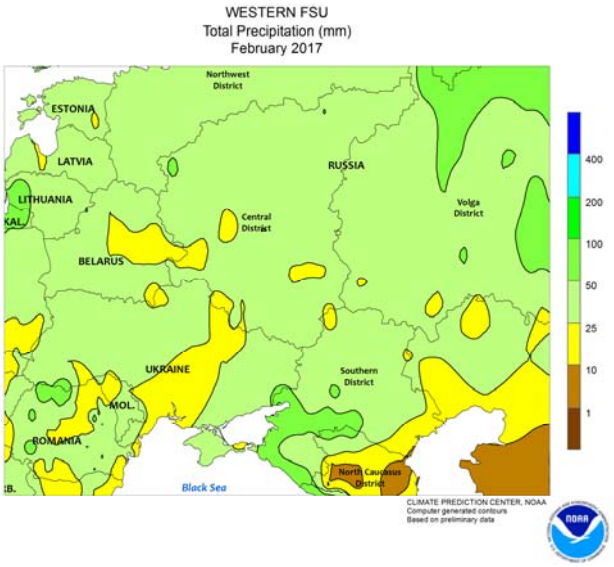


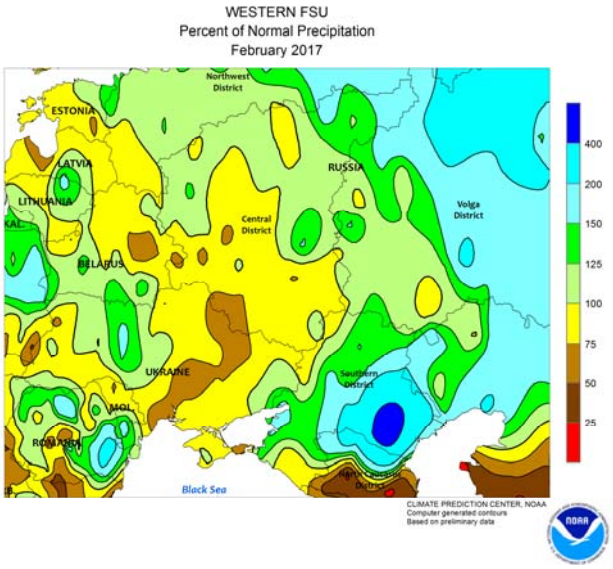


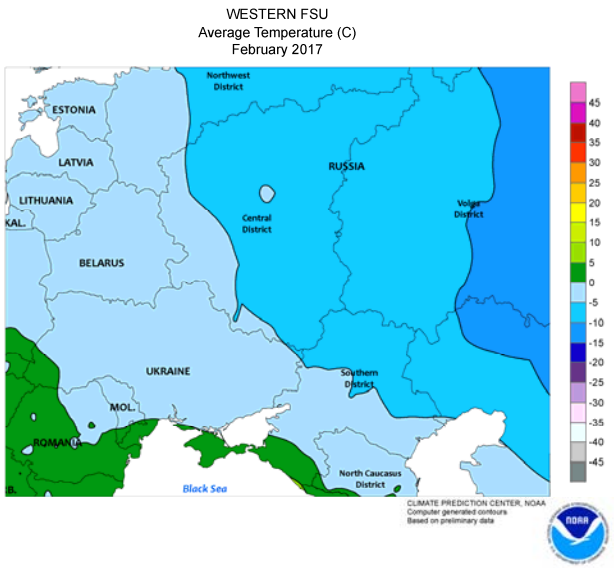


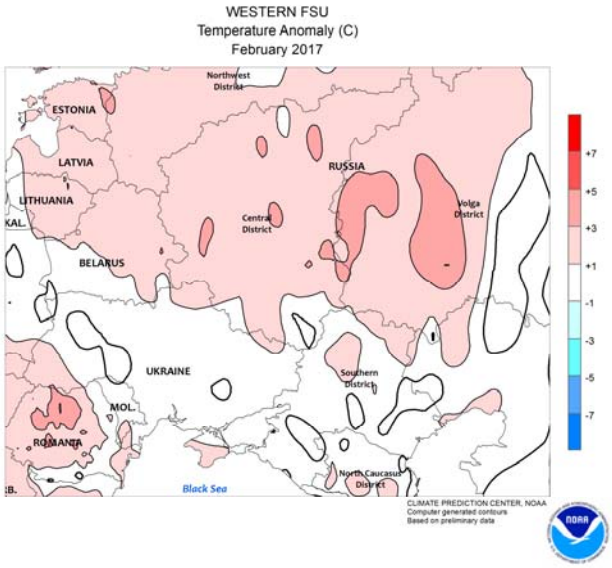
EUROPE

A much warmer-than-normal February accelerated wheat and rapeseed out of dormancy over all but the coldest eastern growing areas. Temperatures averaged 2 to 5°C above normal from France to the western Balkans, with near-normal readings confined to the lower Danube River Valley and Poland. Drier-than-normal winter weather lingered into February in France, Germany, and the Balkans, though rain by month's end improved soil moisture for spring development. Farther south, moderate to heavy rain (50-180 mm) improved winter grain prospects in Spain and boosted irrigation reserves and spring runoff prospects in northern Italy. By early March, winter grains and oilseeds broke dormancy over eastern portions of the continent, while beneficial showers continued in previously-dry portions of France, Germany, and the Balkans.





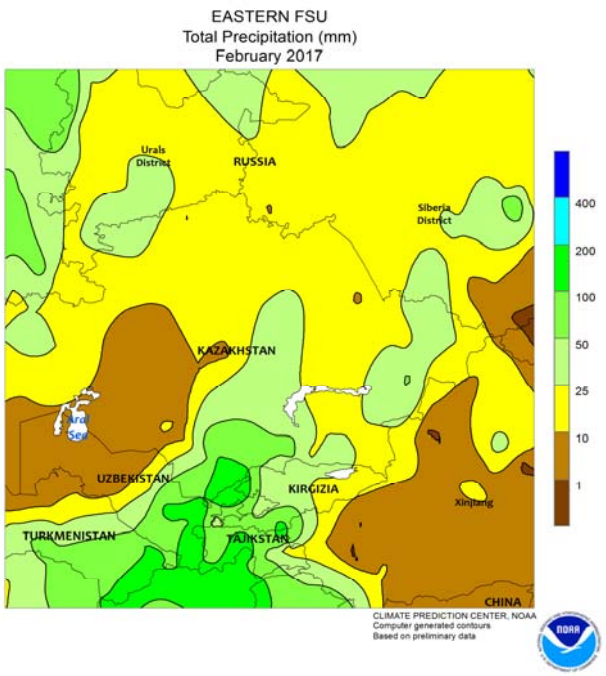


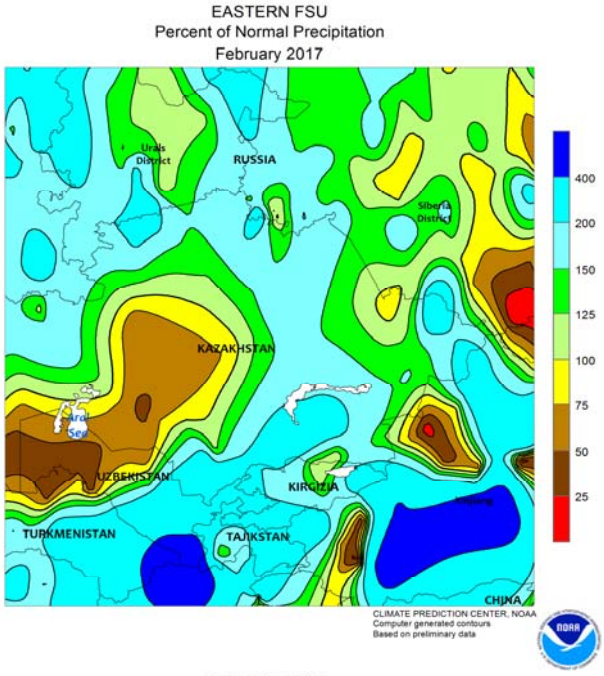


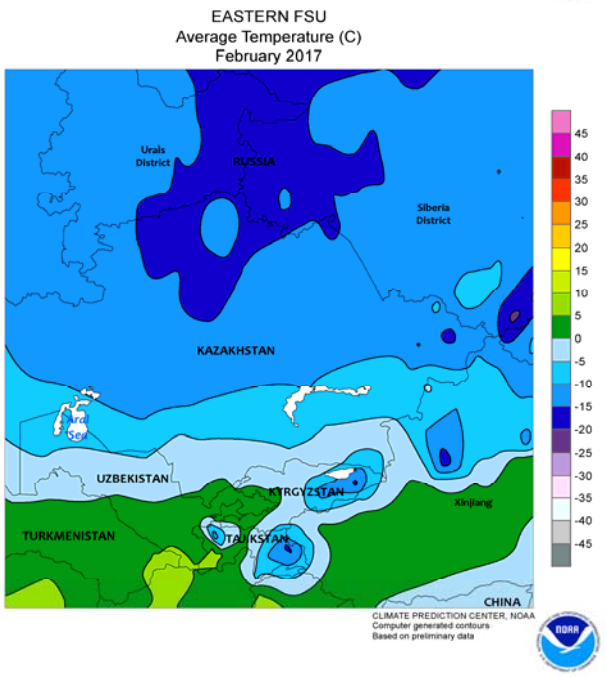
WESTERN FSU

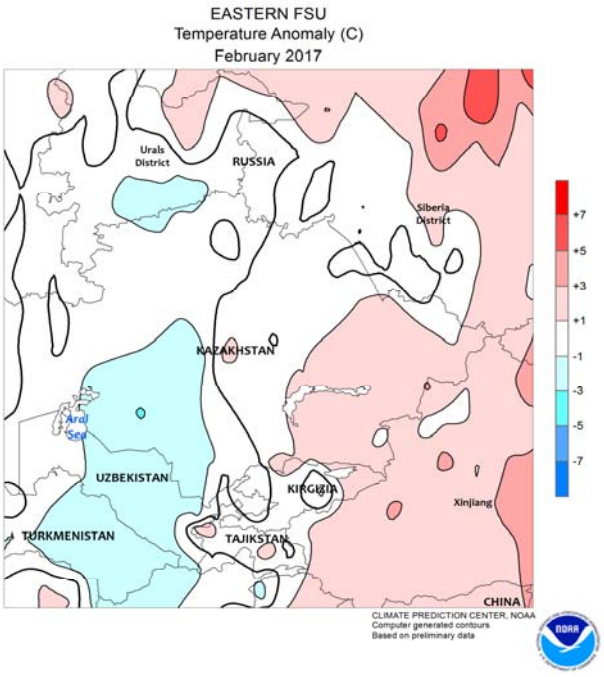
Conditions for dormant winter wheat were good to excellent over the region during February. A bitter cold first half of the month had little — if any — impact on winter crops due to widespread deep snow cover. A pronounced warm up during the latter half of the month rapidly melted the region's snowpack and accelerated winter wheat out of dormancy in southern portions of Ukraine and Russia. The sharply contrasting temperature regimes resulted in monthly values near normal, though daytime highs in the teens (degrees C) in southern Russia at the end of February were more typical of readings observed in late March and early April. Precipitation was favorable in southern Russia (100-200 percent of normal), while drier-than-normal conditions (locally less than 75 percent of normal) developed during February in central Ukraine's winter wheat areas.

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



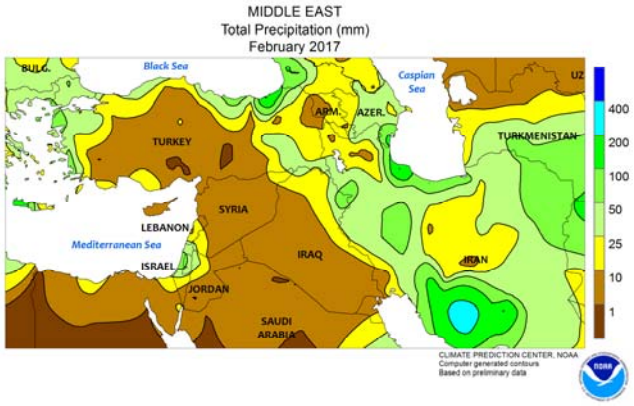


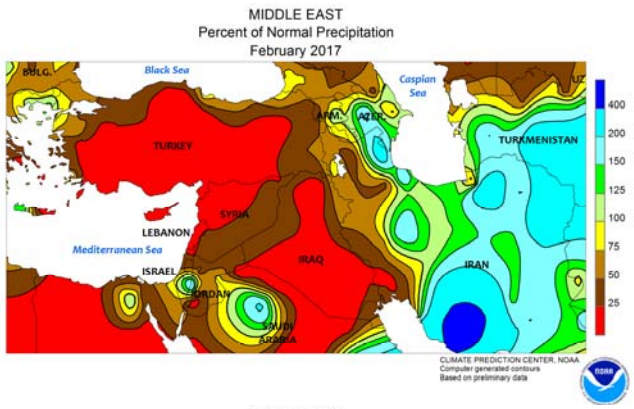


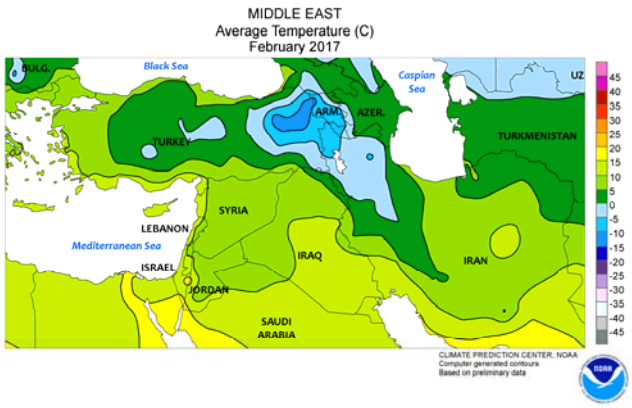


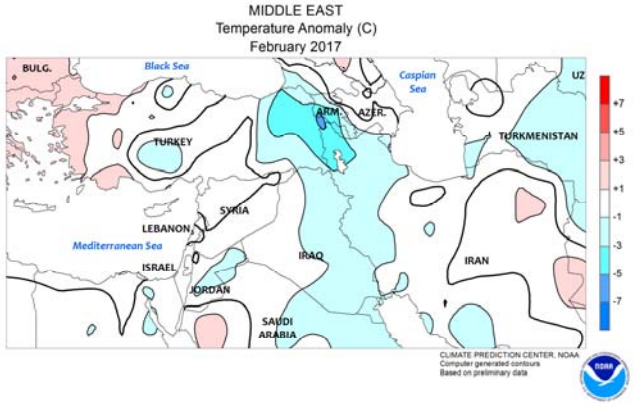
EASTERN FSU

During February, seasonably cold, snowy conditions prevailed in the north while rain and snow boosted moisture supplies for dormant winter wheat in the south. Central Russia and neighboring portions of northern Kazakhstan were encased in a deep snowpack as bitter cold (-40 to -30°C) prevailed over the region. Farther south, moderate to heavy rain and snow (100-270 percent of normal) maintained adequate to abundant moisture reserves for dormant winter wheat in Uzbekistan.



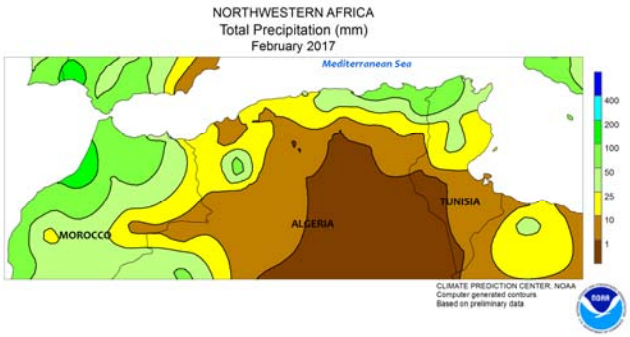


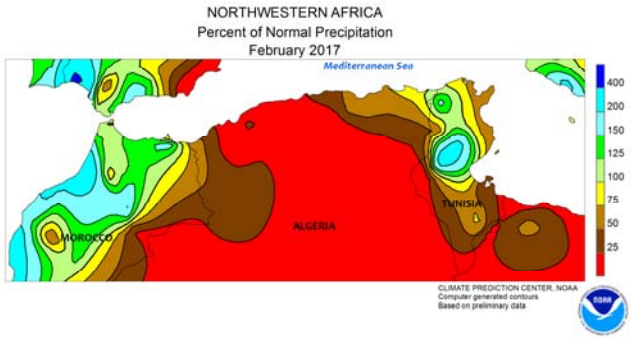


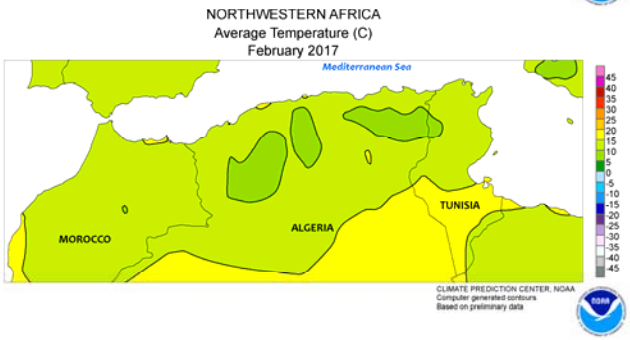


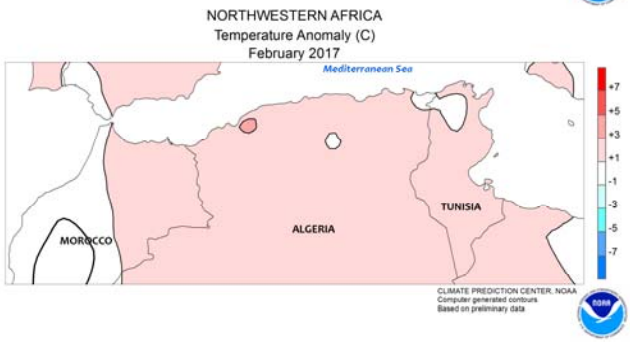
MIDDLE EAST

Expanding dryness over the western half of the region contrasted with soaking rainfall in the east. Dryness was most pronounced in central and southeastern Turkey, where precipitation during February totaled a meager 1 to 4 mm (less than 10 percent of normal, making this the driest February over the past 30 years). Winter crops on central Turkey's Anatolian Plateau broke dormancy by month's end, heightening the need for moisture to maintain current yield prospects. The dry weather extended southeast into Syria and southern Iraq, lowering soil moisture supplies for vegetative wheat and barley. Meanwhile, a series of slow-moving storms produced widespread moderate to heavy rain (25-100 mm) in Iran, with amounts as high as 305 mm in typically-arid southwestern portions of the country. As a result, current yield prospects for Iran's winter wheat are good to excellent as the crop enters the spring growing season.



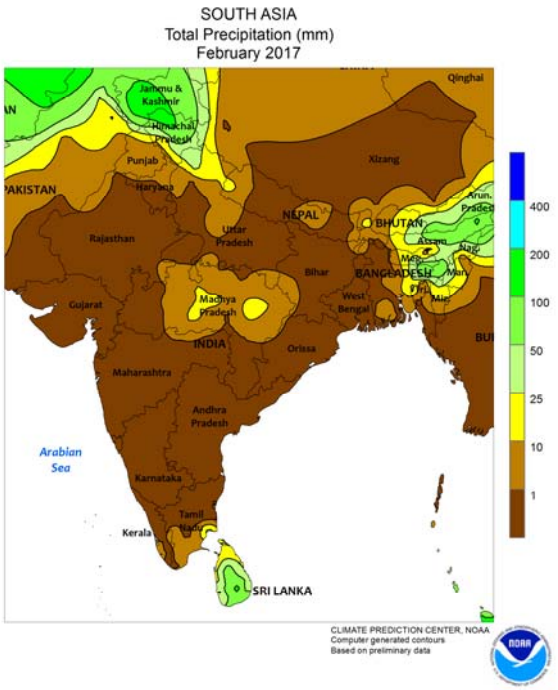


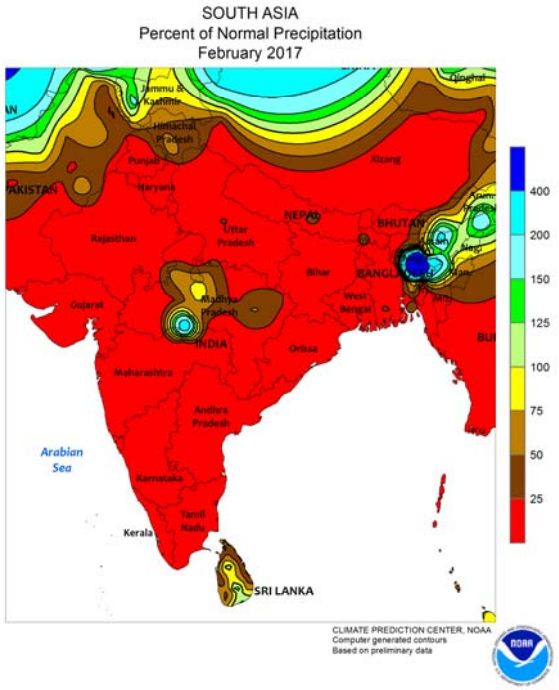


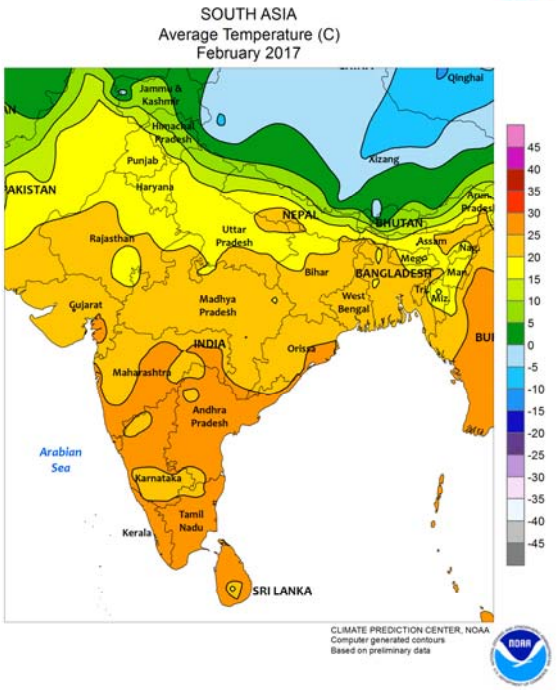


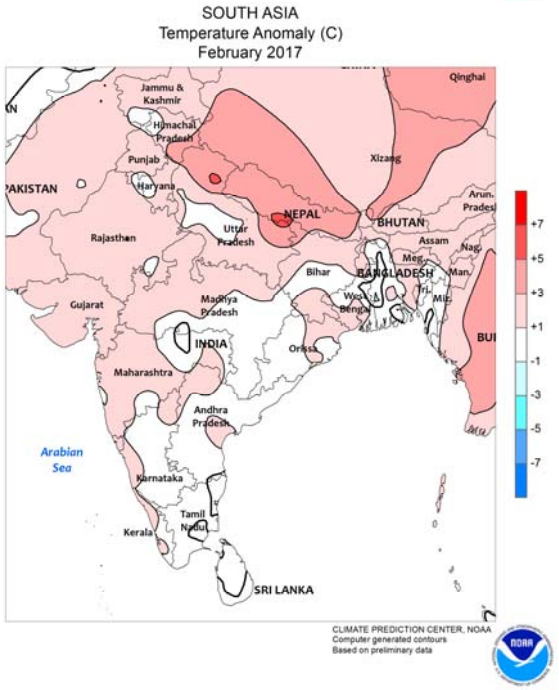
NORTHWESTERN AFRICA

Despite developing dryness in central growing areas, winter grain prospects remained better than average and much improved over last year. Showers maintained moisture supplies for vegetative winter grains in Morocco, with locally more than 100 mm observed in key northwestern growing areas. Likewise, 50 to 100 mm of rain sustained good to excellent prospects for vegetative wheat and barley in northeastern Algeria and northern Tunisia. Dry, warm weather settled over Algeria, promoting crop development after January's heavy to excessive rainfall but diminishing topsoil moisture.



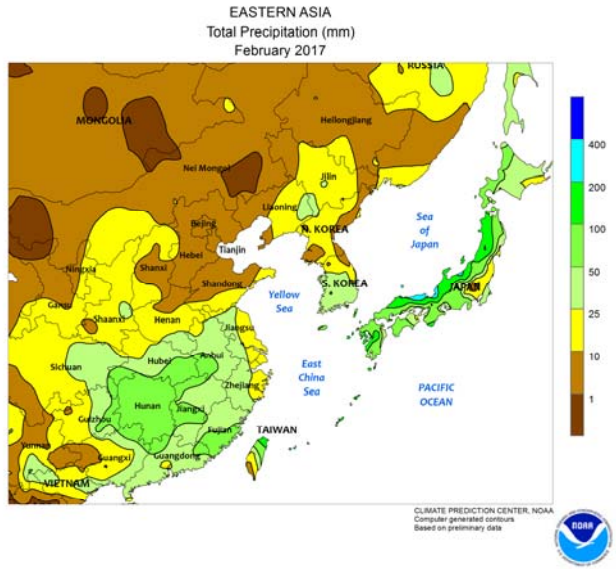


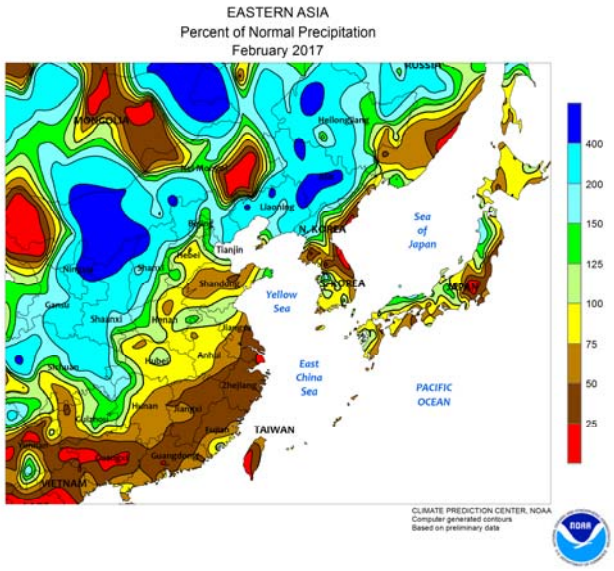


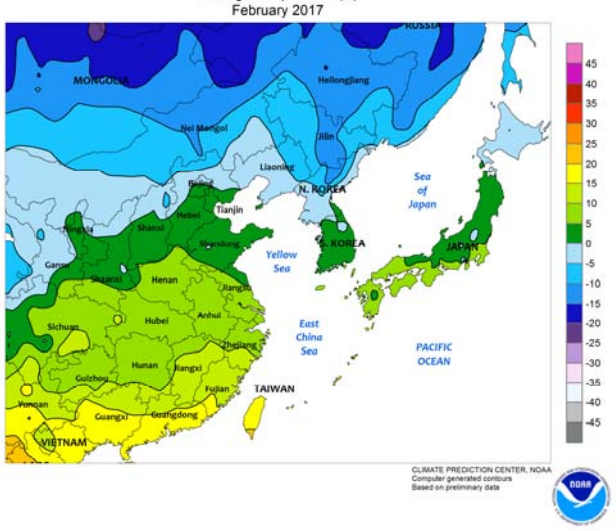


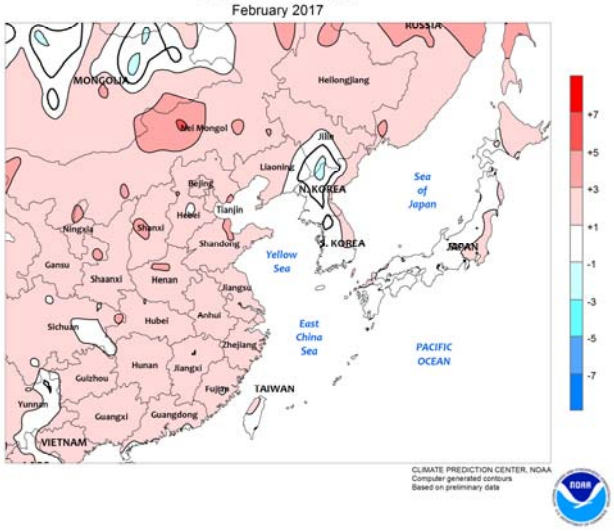
SOUTH ASIA

Seasonably dry weather continued in India during February. The dry conditions along with building seasonal heat (daytime temperatures in the 30s degrees C across central and southern areas) promoted drydown of winter (rabi) crops sown early in the season. The warmer weather, however, increased irrigation demands on crops sown later in the season. Wheat grown in northern areas was maturing and generally unaffected by the warmer weather. In fact, yield prospects are better than last year based on satellite-derived vegetative health. In Sri Lanka, 50 to 100 mm of rain was reported in southern portions of the country, aiding immature winter (maha) rice, while drier conditions elsewhere supported ripening of the earliest planted rice.



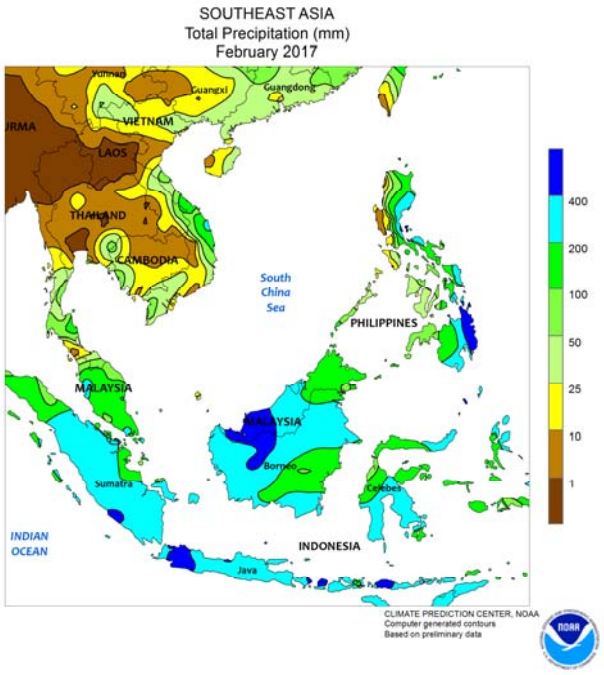


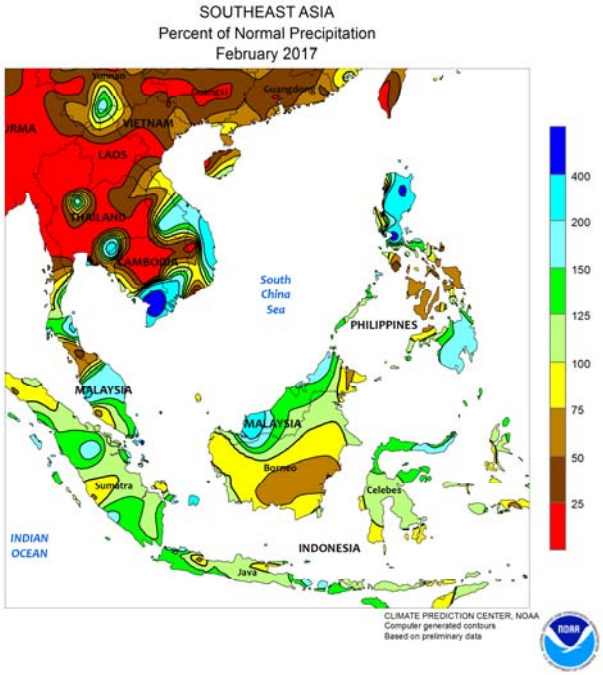


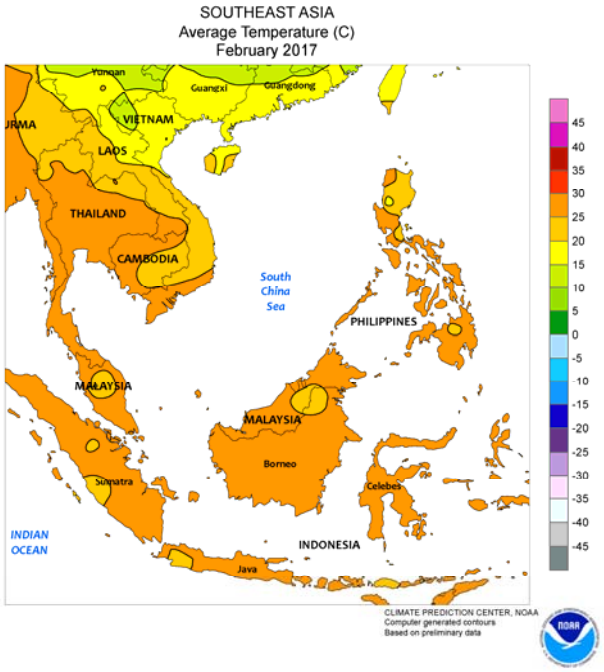


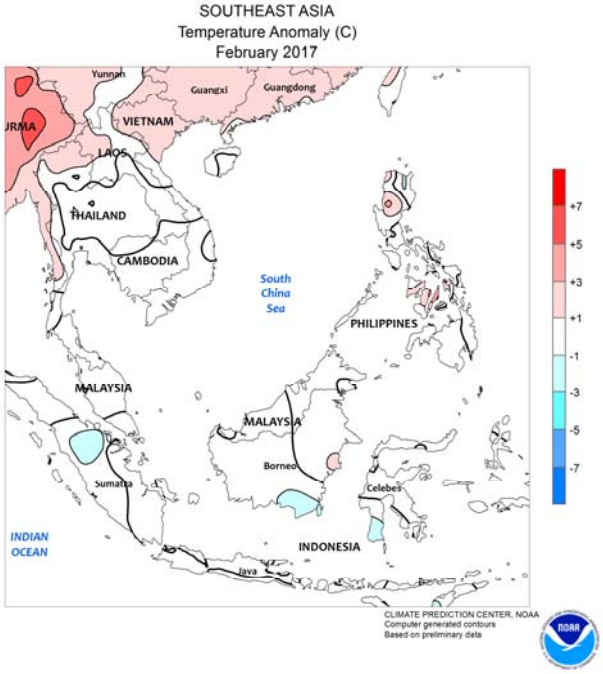
EASTERN ASIA

Near- to above-normal rainfall was reported across winter crop areas of eastern China during February. Showers on the North China Plain (10-25 mm) and within the Yangtze Valley (25-50 mm) maintained favorable soil moisture for wheat and rapeseed. Crops began breaking dormancy by month's end, 2 to 4 weeks earlier than normal, aided by temperatures 2 to 4°C above normal. Meanwhile in southeastern China, rainfall totals (25-50 mm) were nearly half the normal amount, limiting recharge of irrigation supplies for early-crop rice sown in the spring.



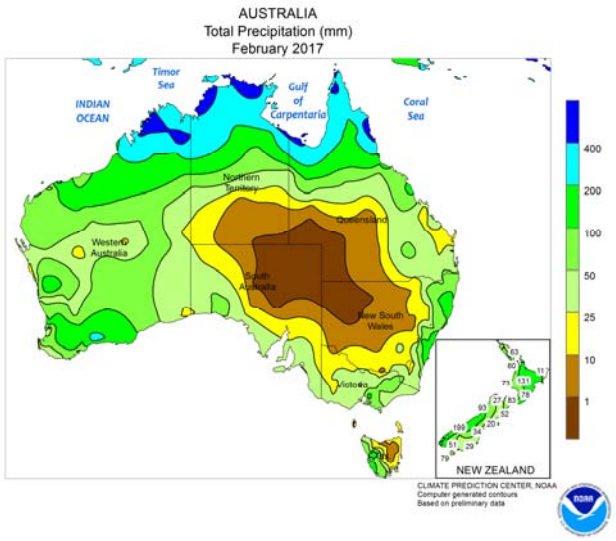


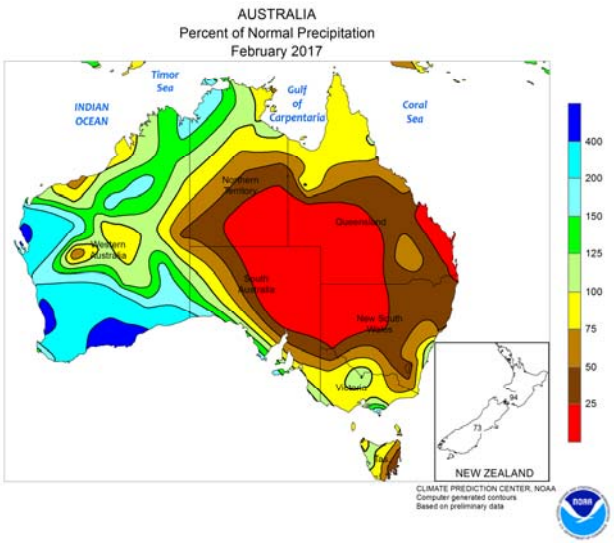


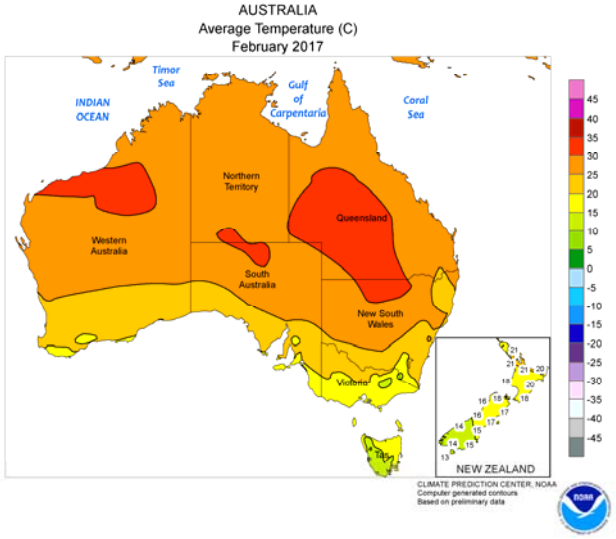


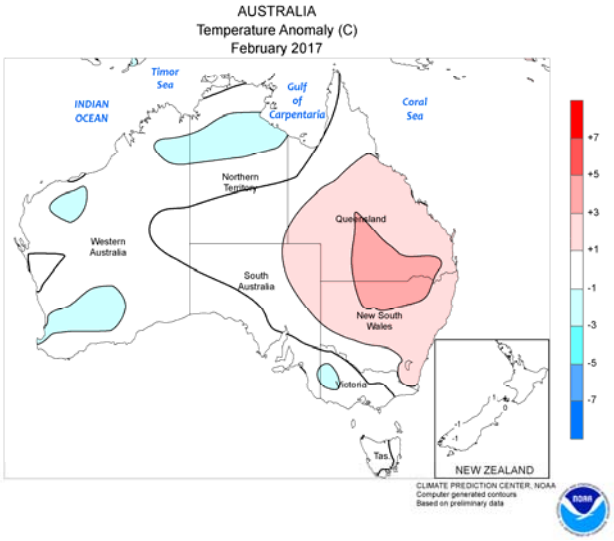
SOUTHEAST ASIA

In February, most of the seasonally wetter areas received near- to above-normal rainfall. The eastern and southern Philippines totaled 100 to 200 mm or more of rain for the month (100-200 percent of normal), while most of Malaysia and Indonesia recorded in excess of 200 mm (100-150 percent of normal). The earliest sown rice in the Philippines and Indonesia was ripening and little benefited from the wet weather. However, the wet weather was still favorable for later planted rice while boosting irrigation supplies for spring-sown varieties. Additionally, the showers maintained good moisture conditions for oil palm in Malaysia and Indonesia, improving summer yield prospects.



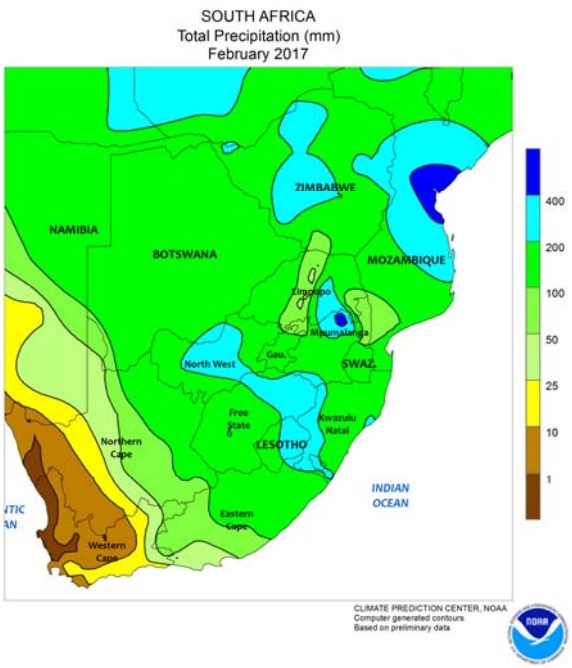


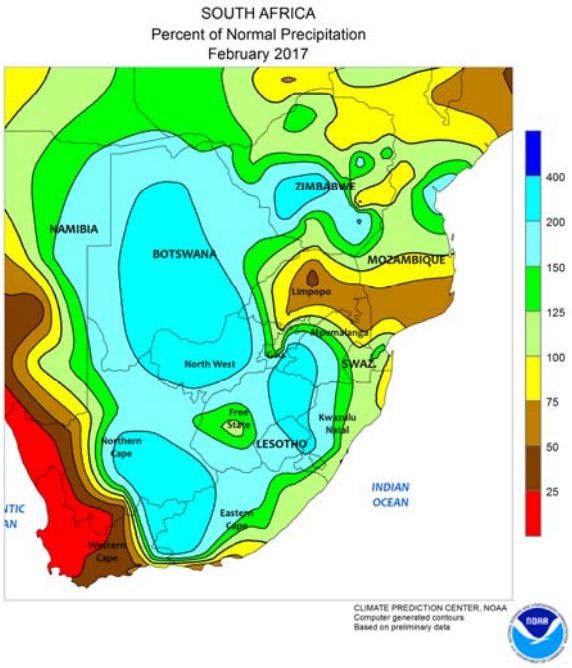


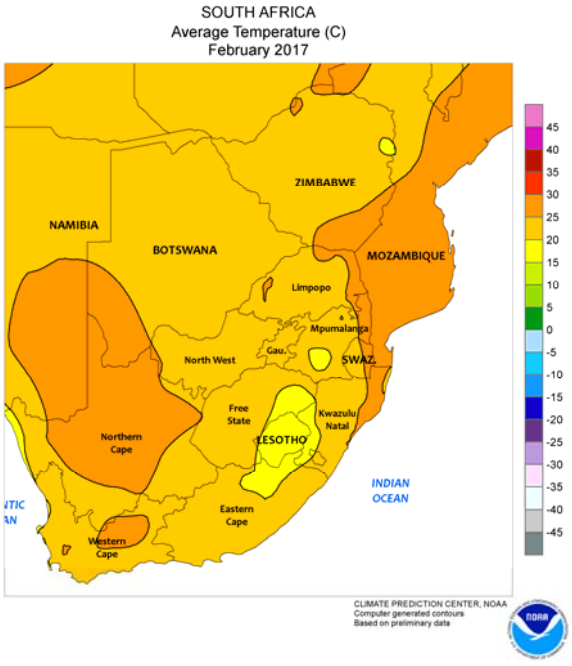


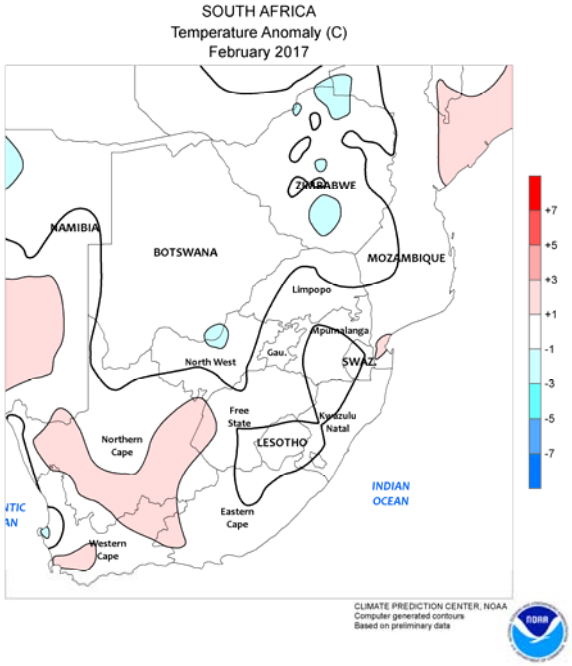
AUSTRALIA

During the first half of February, hot, dry weather in southern Queensland and northern New South Wales decreased soil moisture for cotton and sorghum and increased water requirements for irrigated crops. The heat and dryness likely trimmed yield prospects for some summer crops, with dryland crops the most likely impacted. Occasional showers and seasonably warm weather returned during the latter half of the month, helping to stabilize yield prospects for immature summer crops.



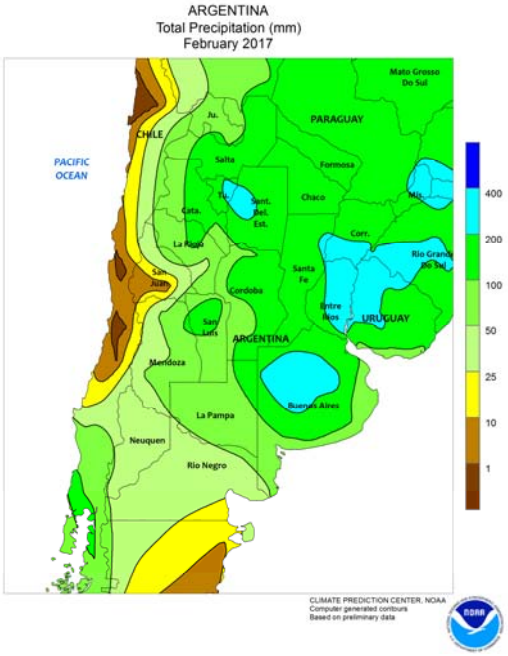


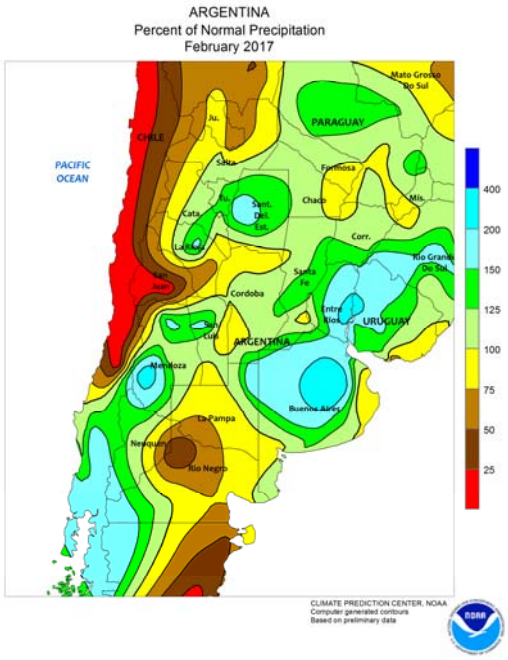


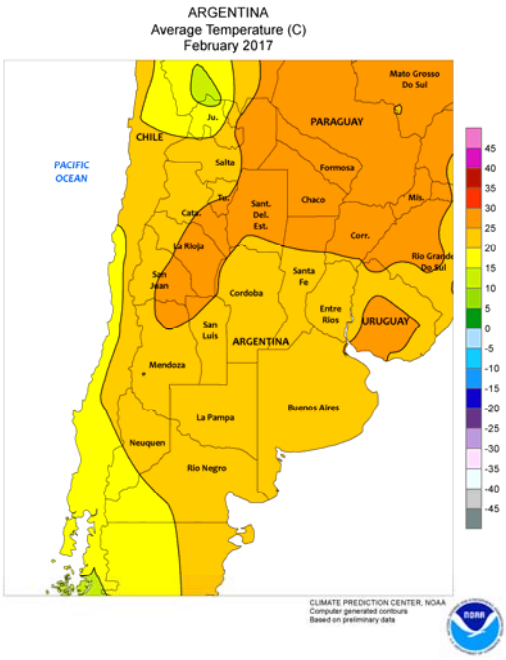


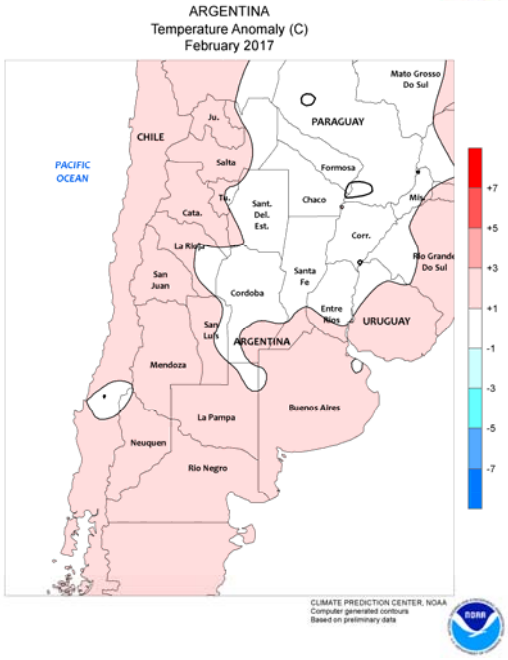
SOUTH AFRICA

In February, ample rainfall sustained favorable yield prospects for rain-fed summer crops throughout the corn belt. Monthly accumulations totaled well above 100 mm in most farming areas from North West and Free State eastward through Mpumalanga, with many locations recording more than 200 mm. Similar amounts were recorded in southern sugarcane areas of southern KwaZulu-Natal, providing a late-season boost in moisture for sugar production. Meanwhile, more seasonable amounts of rainfall (monthly accumulations totaling less than 100 mm) reduced irrigation requirements of sugarcane in northern KwaZulu-Natal and eastern Mpumalanga. Monthly average temperatures were within 1°C of normal throughout major eastern commercial farming areas, with daytime highs generally reaching the upper 20s and lower 30s (degrees C) in the corn belt. Farther west, frequent showers supplemented irrigation for summer crops in the Cape Provinces, including cotton and corn in the Orange River Valley. In contrast, dryness and periodic heat (daytime highs reaching the middle and upper 30s) favored late development and harvesting of tree and vine crops in Western Cape.



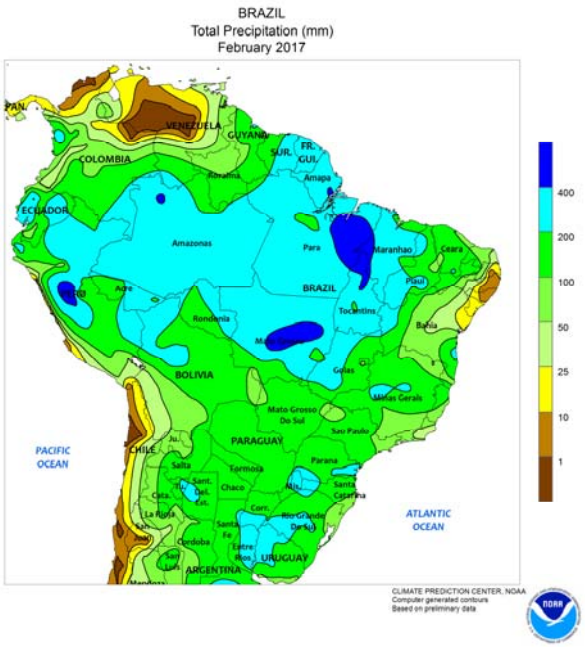


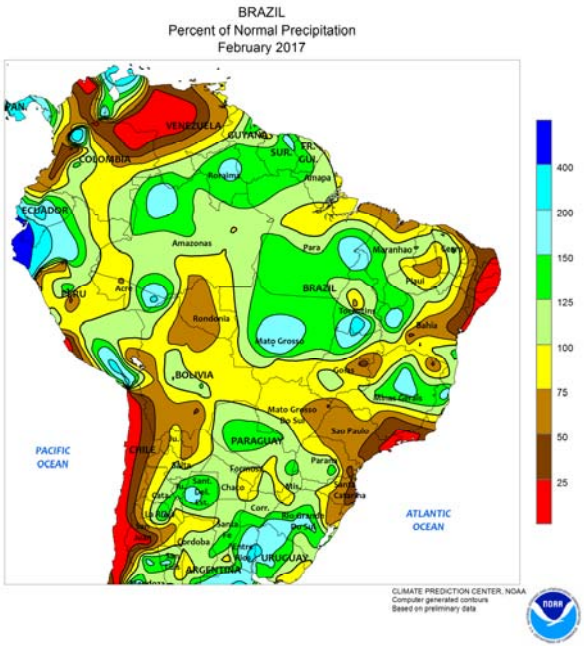


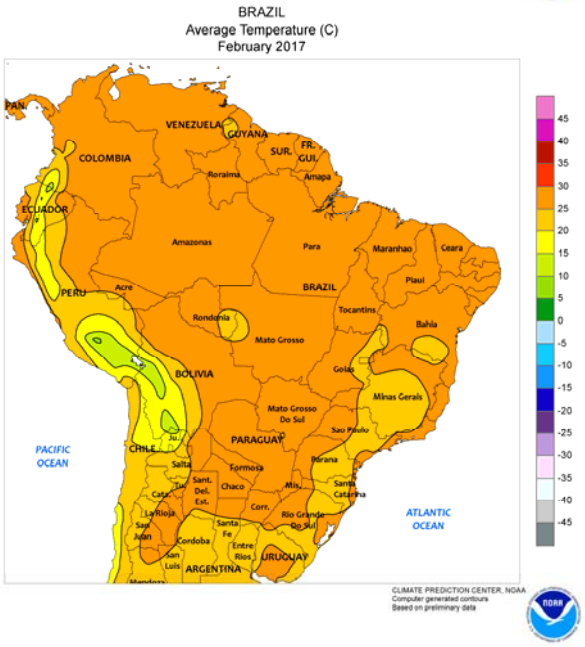


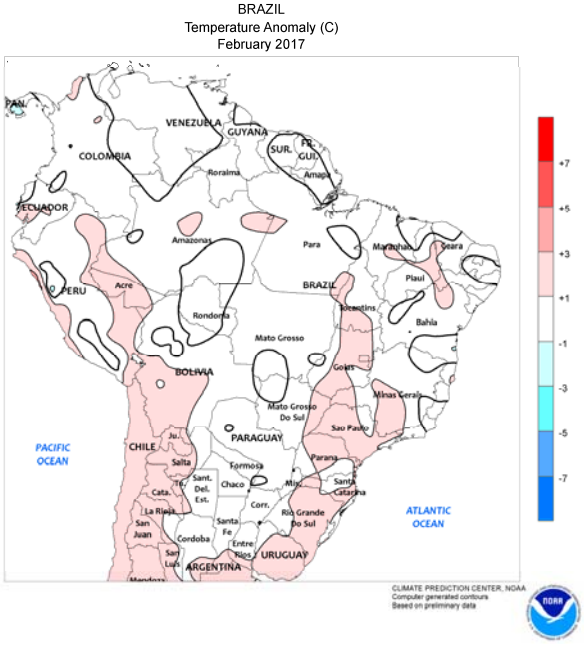
ARGENTINA

A generally wet weather pattern prevailed for much of February, maintaining adequate to locally excessive levels of moisture for immature summer grains, oilseeds, and cotton. Monthly accumulations in excess of 200 mm were concentrated over central Buenos Aires and Entre Rios, renewing concerns for potential damage to corn and soybeans from flooding of lower-lying fields. However, the consistency of the rainfall maintained high yield prospects elsewhere, including traditionally lower yielding farmlands in northern Argentina and across southern Buenos Aires. February average temperatures were 1 to 2°C above normal throughout agricultural areas of both northern and central Argentina. In southern production areas, daytime highs occasionally reached the middle 30s (degrees C), fostering rapid development of well-watered crops. Temperatures in traditionally warmer northern areas approached 40°C on several days.



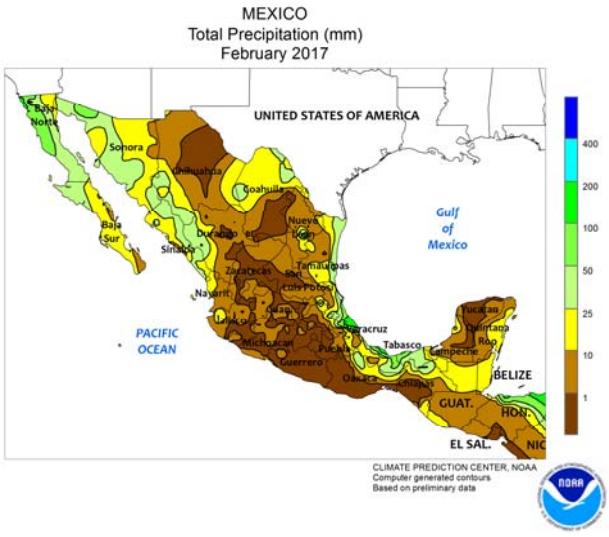


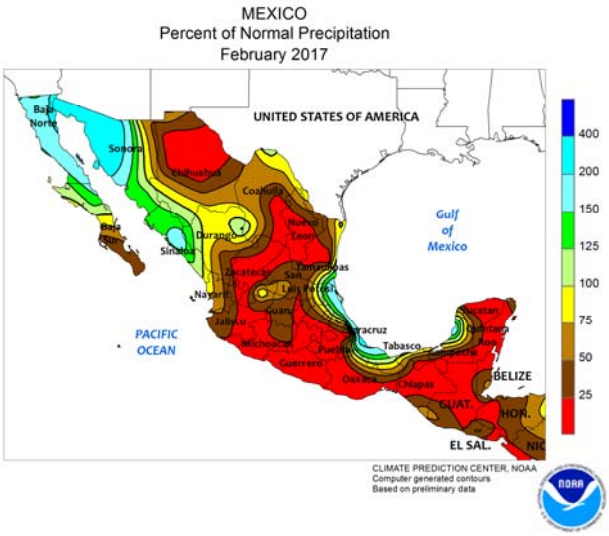


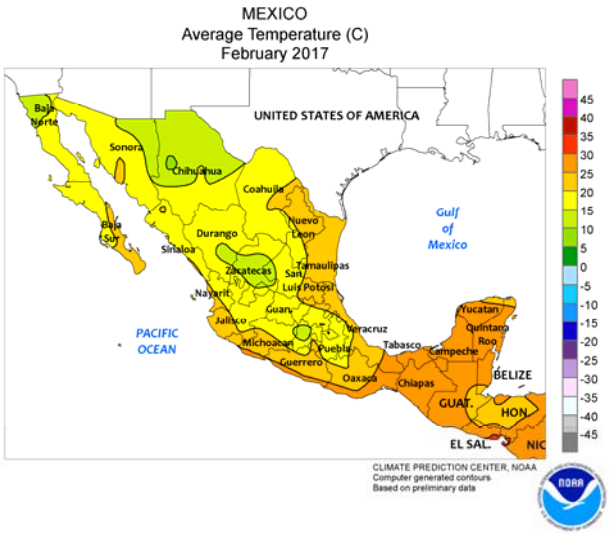


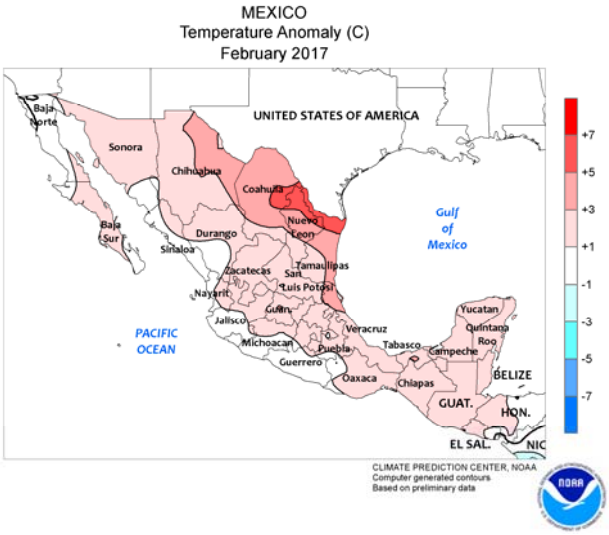
BRAZIL

During February, frequent, near- to above-normal rainfall maintained favorable summer crop prospects throughout primary production areas of southern and central Brazil. The heaviest amounts (monthly accumulations totaling more than 400 mm) were concentrated over Mato Grosso, with other locations in the Center-West and northeastern interior (Goias to Maranhao) receiving well over 200 mm; this included soybean and cotton areas of western Bahia that had experienced earlier periods of unseasonable dryness. Weekly temperatures averaging up to 2°C above normal (daytime highs often reaching the middle 30s degrees C) maintained rapid rates of crop development in the aforementioned areas. February rainfall was also near to above normal in most of southern Brazil, with periods of dry, sunny weather benefiting filling to maturing corn and soybeans from Mato Grosso do Sul southward through Rio Grande do Sul. As in central Brazil, summer warmth (highs reaching the lower and middle 30s) fostered rapid development of the generally well-watered crops. In contrast to the wetness in the southern soybean and corn belt, unseasonably drier conditions prevailed for much of the month in Sao Paulo and neighboring locations in Minas Gerais, reducing moisture for sugarcane and coffee.



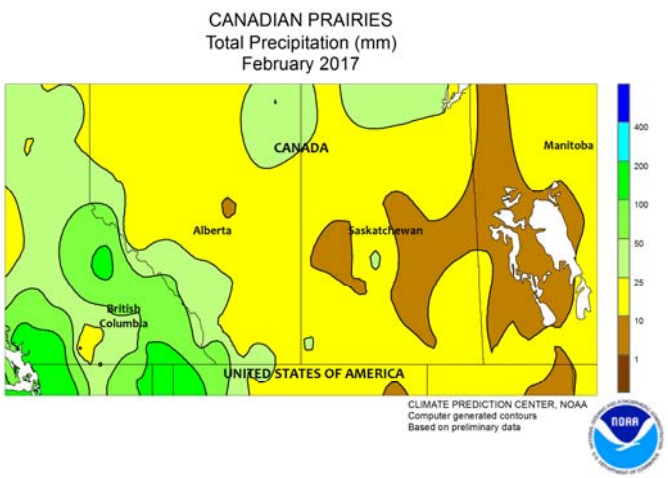


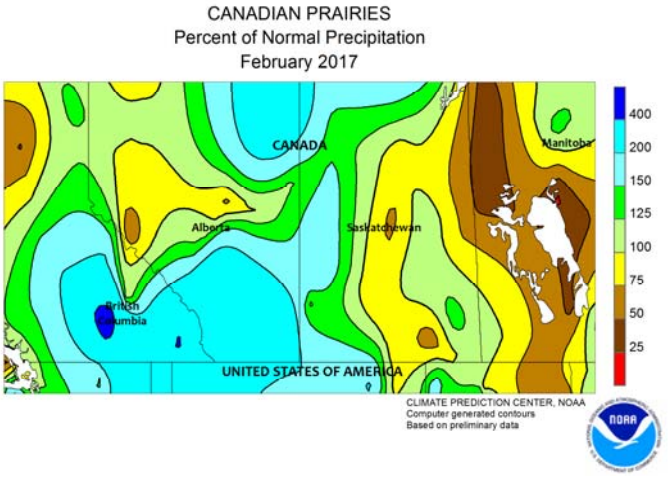


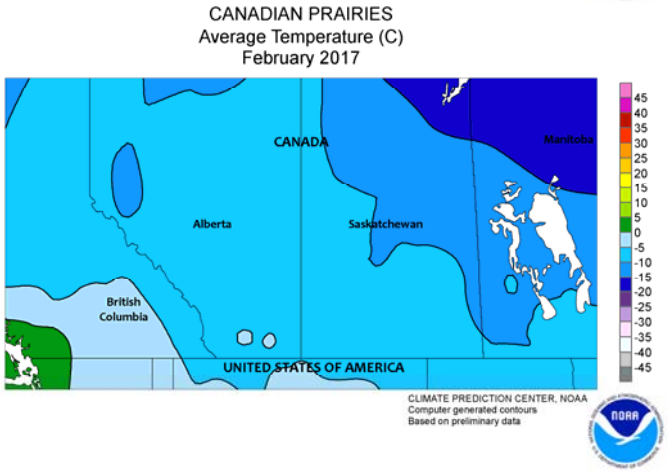


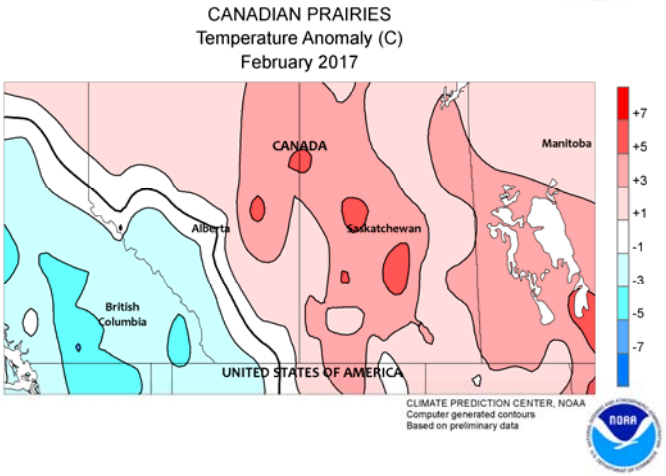
MEXICO

During February, showers boosted local moisture reserves for winter cropping in some northwestern and eastern coastal agricultural areas. The heaviest rainfall (monthly accumulations exceeding 100 mm) was reported locally in Veracruz and Tabasco, with most other locations reporting 10 to 25 mm or more. In the northwest, periods of unseasonably heavy rain boosted reservoirs serving winter grains — including corn — in Sinaloa, Sonora, and Durango. In the northeast (notably Tamaulipas), showers benefited rain-fed winter sorghum, though amounts diminished with distance from the coast. Meanwhile, seasonable dryness favored the final stages of corn harvesting across the southern plateau. According to the government of Mexico, national reservoir levels stood at 69.1 percent on February 28, compared with 70.8 percent last year and 71.9 percent in 2015. In the northwestern winter grain areas (notably Sinaloa and Sonora), reservoirs were at 67.7 percent capacity versus 69.0 last year and 65.3 in 2015.



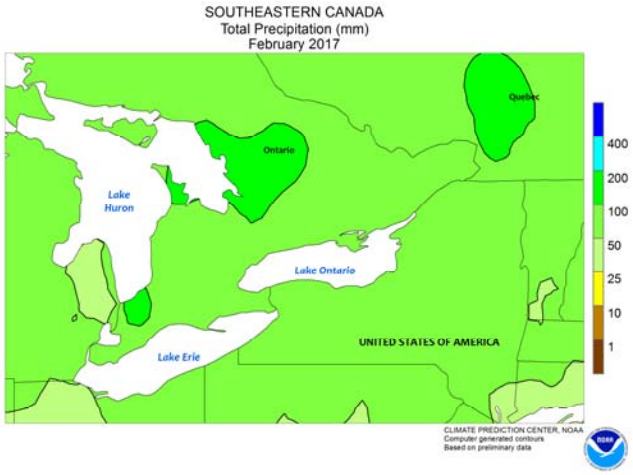


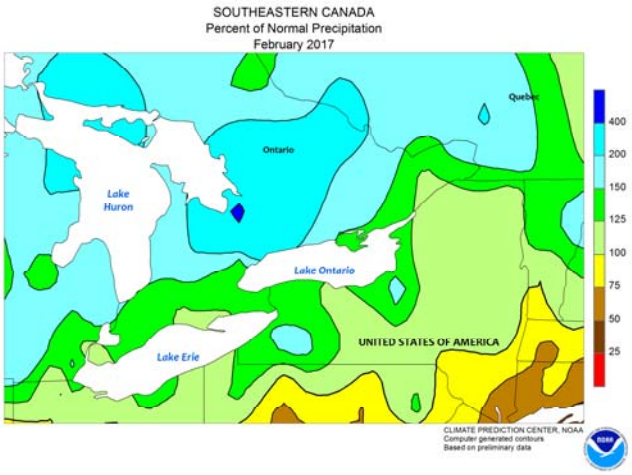


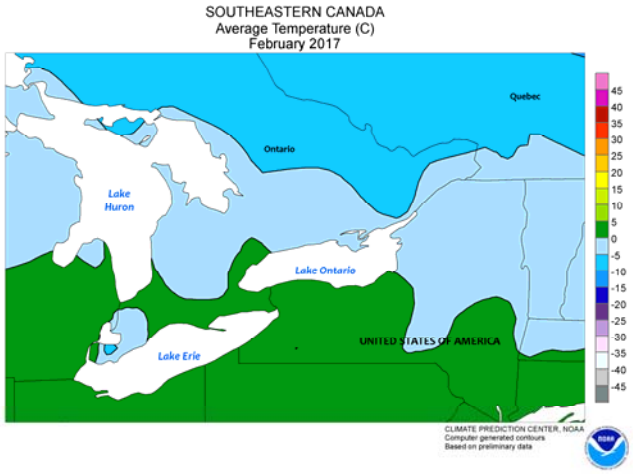


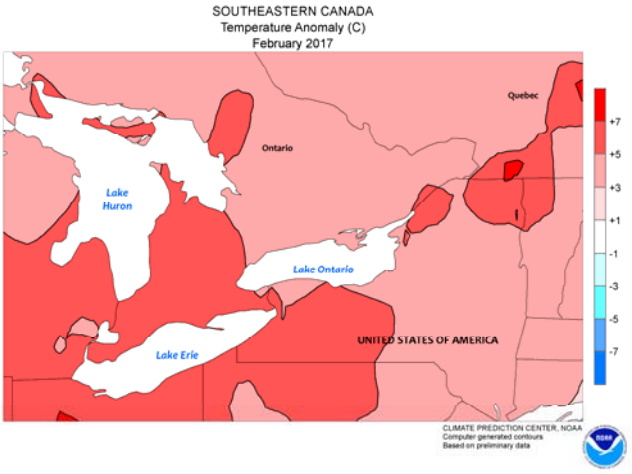
CANADIAN PRAIRIES

Above-normal temperatures dominated the Prairies for much of February, despite an early-month outbreak of arctic cold (nighttime lows falling below -30°C on several consecutive evenings). Large sections of the southwest (farming areas of southern Alberta and southwestern Saskatchewan) were void of snow cover prior to the onset of the bitter cold; however, most locations gained a protective layer of snow upon passage of the cold front, offering some protection to overwintering grains and pastures. Protective snow cover was quickly lost over large sections of Alberta and Saskatchewan with the onset of unseasonable warmth (daytime highs exceeding 10°C on several days). Several weeks later, another outbreak of cold weather dropped temperatures as low as -20°C in snow-free agricultural districts of south-central Saskatchewan, raising concerns for potential winterkill on overwintering grains. Light precipitation (monthly accumulations of 5-25 mm, Prairie wide) added to a sufficient snow cover in winter grain areas of southern Manitoba, where crops enjoyed a protective layer of snow cover throughout the month.







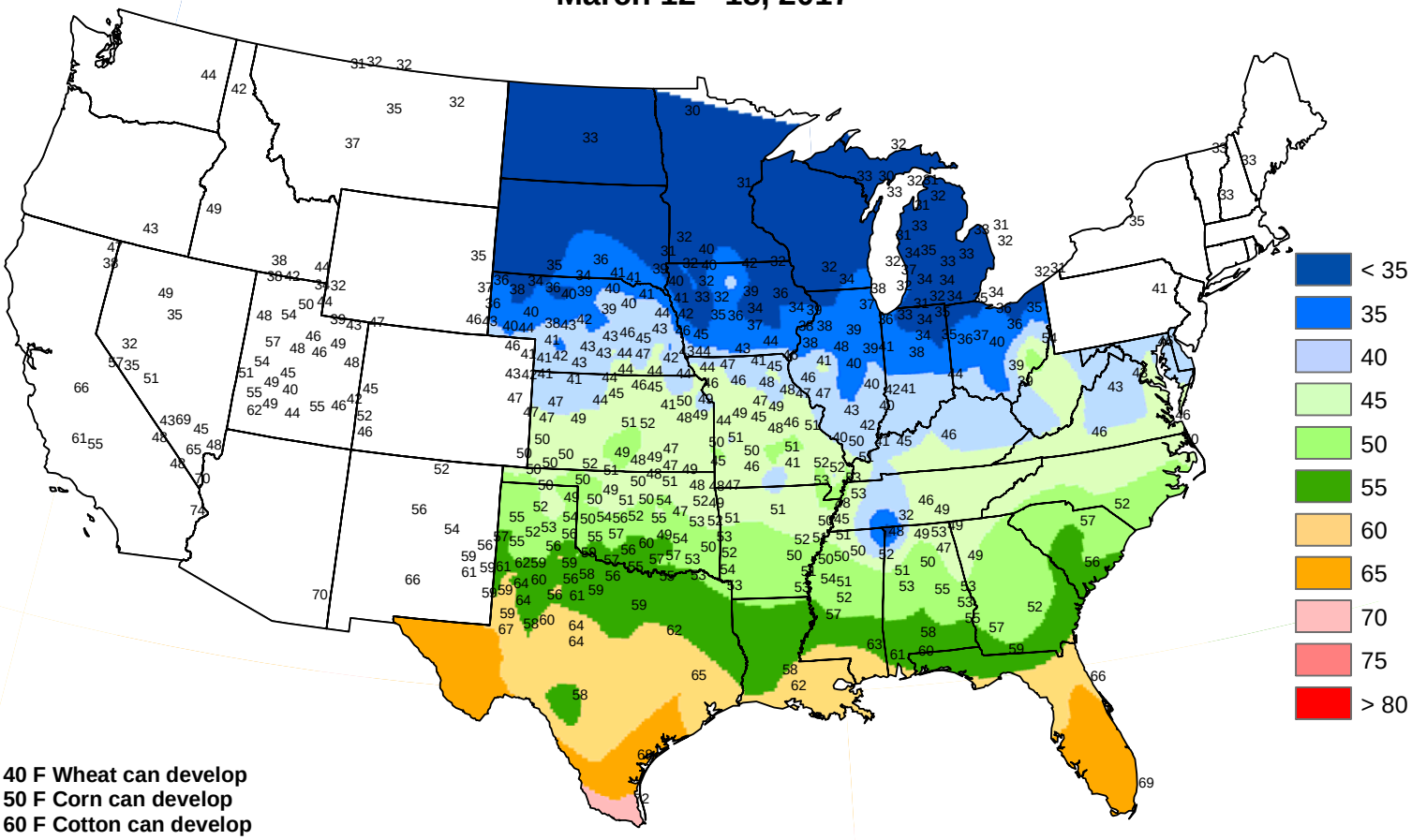


SOUTHEASTERN CANADA

Milder- and wetter-than-normal weather dominated agricultural districts across Ontario and Quebec throughout the month of February. Monthly temperatures averaged 2 to 5°C above normal, with large parts of the region recording more than twice the normal precipitation (more than 100 mm liquid equivalent, locally in excess of 200 mm). By month's end, much of Ontario was void of snow cover, leaving winter wheat exposed to potential outbreaks of a killing freeze. Nighttime lows dropped below -10°C during the latter half of the month — ahead of the warmest weather — but locations recording the lowest temperatures (nighttime lows at or below -17°C) still had some snow. The loss of snow was accelerated by periods of warm, rainy weather, at which time daytime highs rose above 10°C. While some loss of winter hardiness was likely, however, temperatures did not reach the threshold for crops breaking dormancy.

Average Soil Temperature (Deg. F, 4" Bare)

March 12 - 18, 2017



40 F Wheat can develop
50 F Corn can develop
60 F Cotton can develop

Based on preliminary data.

Supplemental data provided by Alabama A&M University, Bureau of Reclamation - Pacific Northwest Region AgriMet Program, High Plains Regional Climate Center, Illinois State Water Survey, Iowa State University, Louisiana Agriclimatic Information System, Mississippi State Univeristy, Oklahoma Mesonet, Purdue University, University of Missouri and USDA/NRCS Soil Climate Analysis Network.

United States Department of Agriculture

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