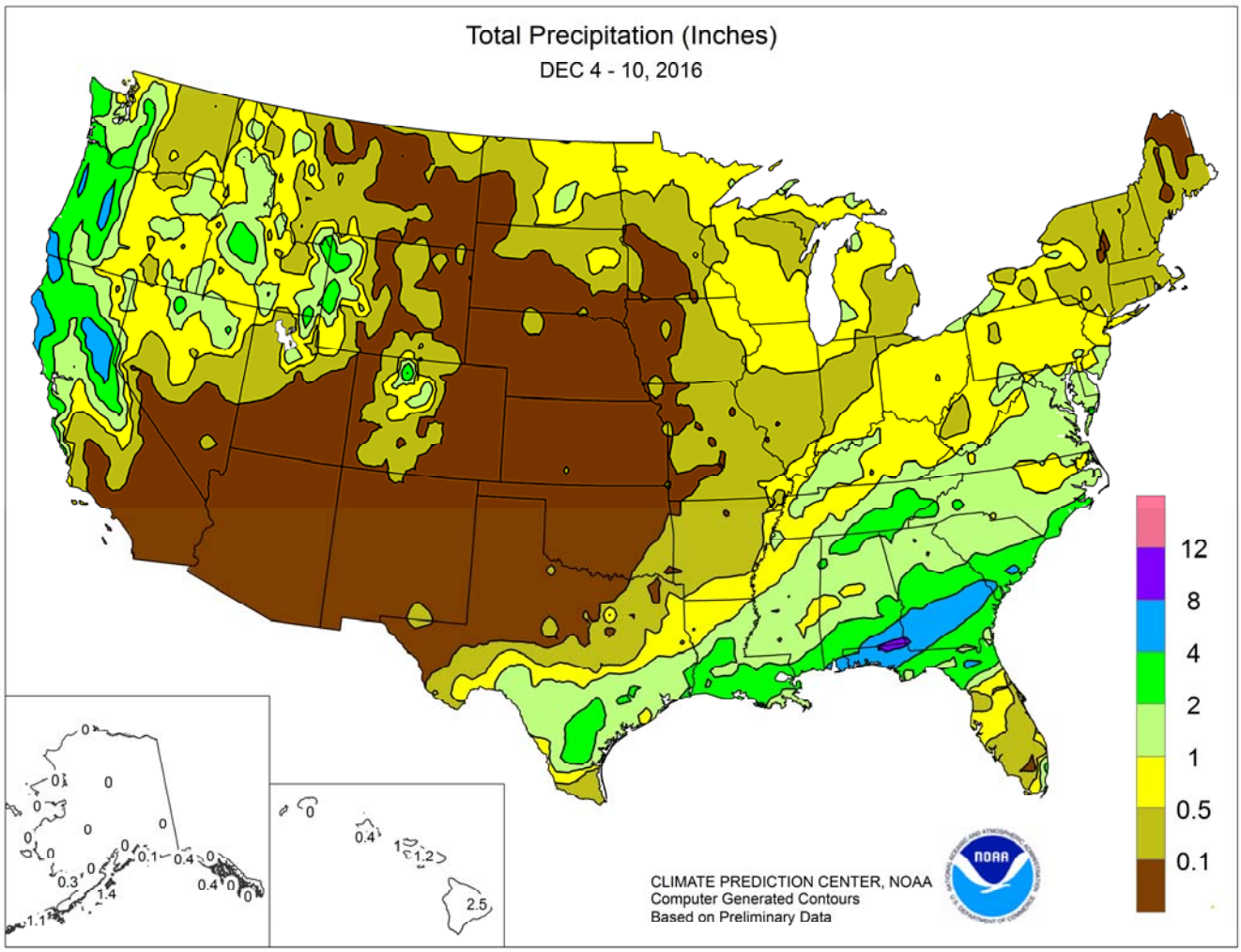
Volume 103, No. 50 http://www.usda.gov/oce/weather December 13, 2016

WEEKLY WEATHER AND CROP BULLETIN

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

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



HIGHLIGHTS

December 4 – 10, 2016

Highlights provided by USDA/WAOB

Dry weather covered the **central and southern Plains** and the **Southwest**, but stormy conditions dominated the remainder of the U.S. Across the **nation's northern tier**, the unsettled weather led to widespread snow accumulations, as well as significant travel disruptions. However, the snow (and other wintry precipitation) also provided beneficial moisture and insulation for winter wheat. Farther south, however, ongoing dryness—accompanied by sharply colder weather—maintained drought stress on a portion of the winter wheat crop across

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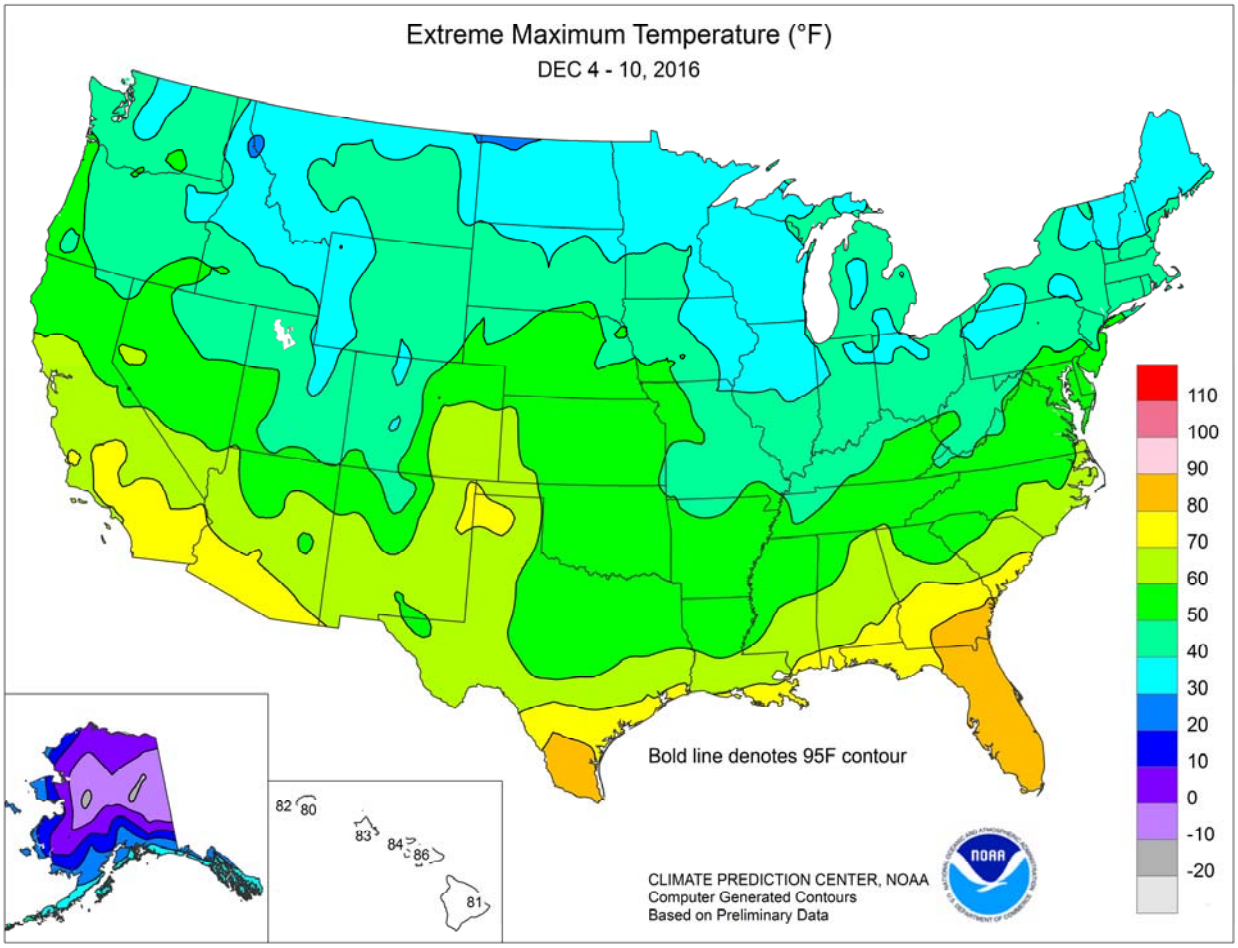
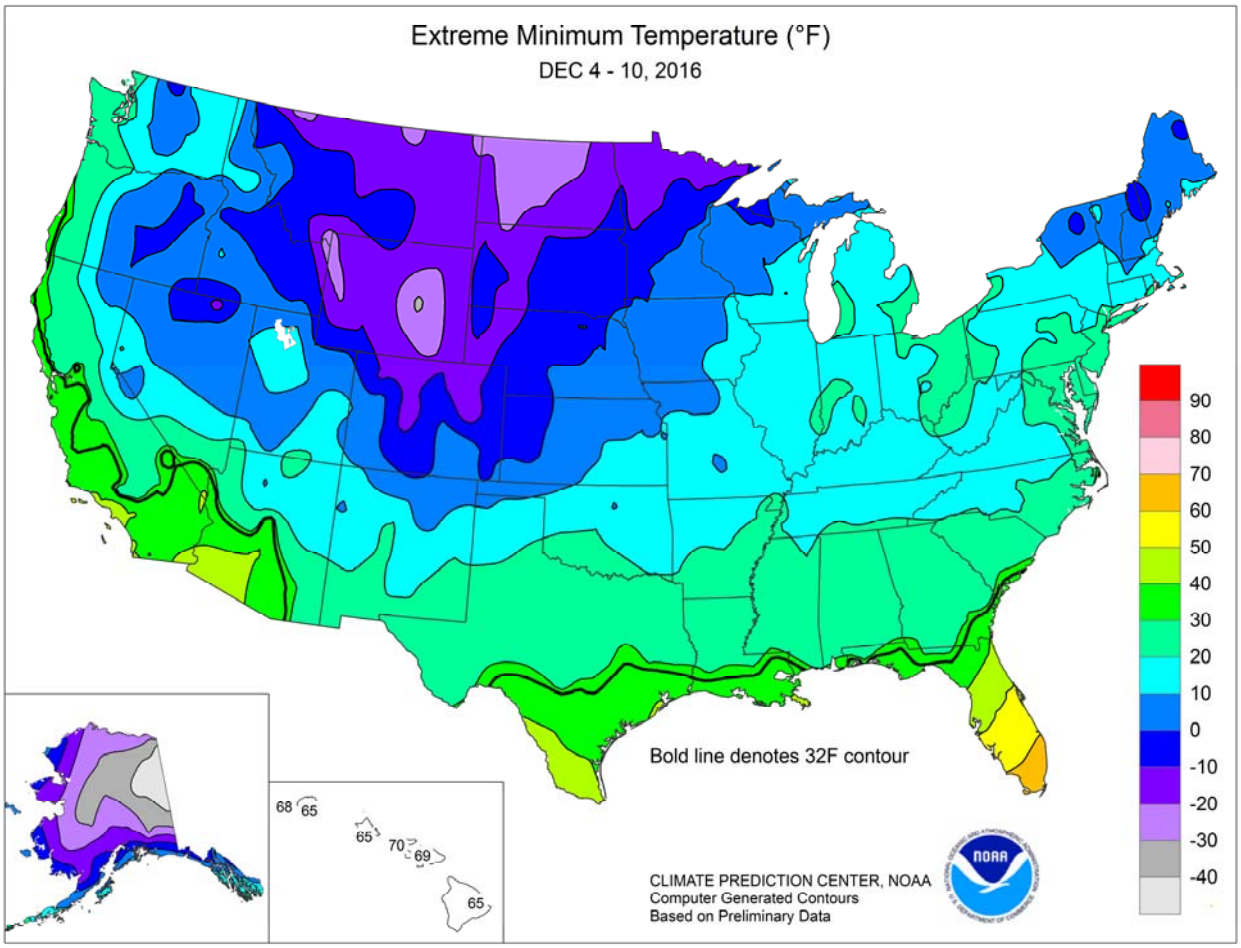
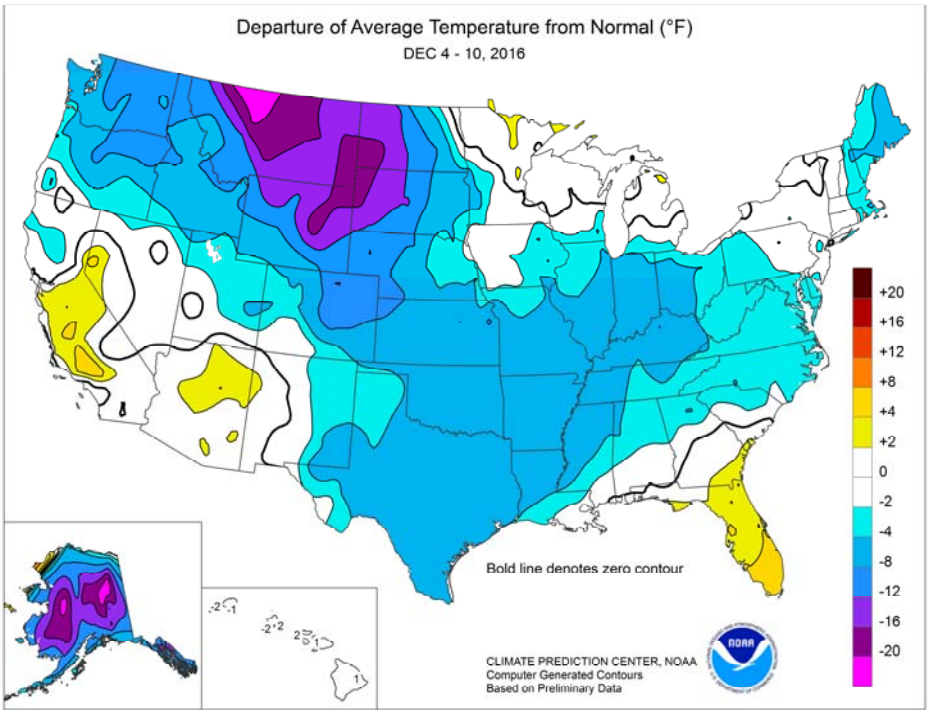

Extreme Maximum Temperature (°F)
DEC 4 - 10, 2016
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95F contour
82
80
83
84
86
81
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Minimum Temperature (°F)
DEC 4 - 10, 2016
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32F contour
68
65
65
70
69
65
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data

(Continued from front cover)

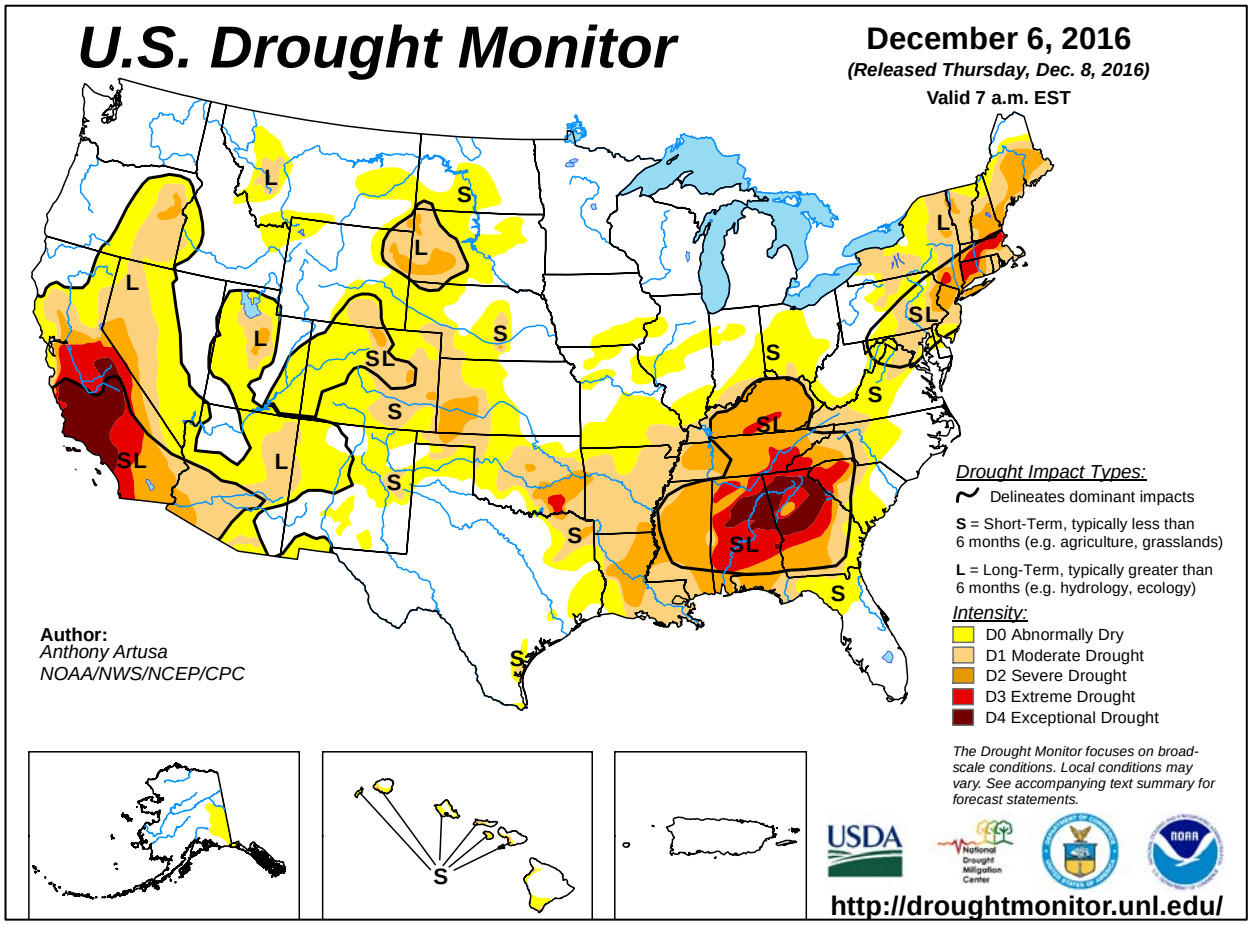
the **central and southern Plains**. In fact, the coldest weather on the season engulfed much of the nation, pushing winter wheat into dormancy except in **California** and across the **Deep South**. Conditions were especially harsh across the **northern Plains**, where temperatures averaged as much as 10 to 20°F below normal. Across the **northern Plains** and environs, frigid conditions—nighttime temperatures locally below -20°F—along with periods of wind and snow, increased livestock stress. On December 8, widespread readings below 0°F were noted as far south as the **central High Plains**. Meanwhile, precipitation continued to chisel away at summer and autumn precipitation deficits across the **Southeast**, although the turn toward colder weather limited pasture re-growth and establishment of fall-sown crops. Elsewhere, **Northeastern** rain and snow further eased lingering drought, while **Western** precipitation was mostly confined to the northwestern half of the region. As a result, there was a widening gap between **northern California's** drought recovery and **southern California's** ongoing impacts from the 5-year drought.

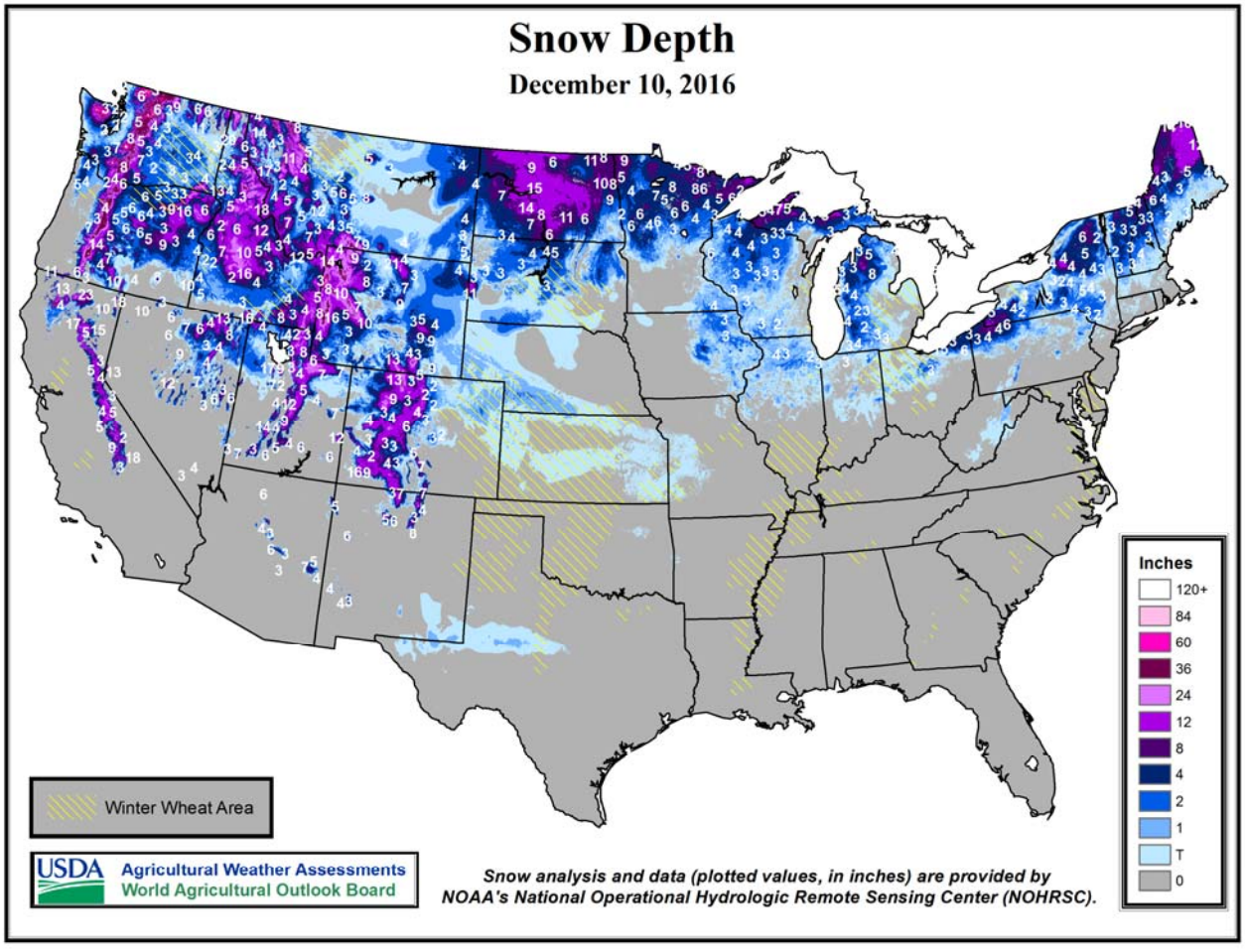


Aside from lingering warmth across **Florida**, cold weather dominated much of the nation. On December 4-5, **Fort Myers, FL**, posted consecutive daily-record highs (87°F both days). Similarly, **Key West, FL**, notched consecutive daily-record highs of 85°F on December 7-8. Elsewhere in **Florida**, daily-record highs for December 6 included 88°F in **Fort Lauderdale** and 87°F in **Miami** and **West Palm Beach**. And, **Jacksonville, FL**, tied a monthly record with a high of 85°F on December 5. In stark contrast, frigid air settled across the **northern Plains** and the **Northwest**. **La Grande, OR**, tallied a low of 2°F, setting a record for December 7. The following day, **Casper, WY**, registered a daily-record low of -33°F. For **Casper**, it was the lowest reading on record during the first half of December (previously, -29°F on December 8, 2009), and the earliest-ever temperature below -30°F (previously, -31°F on December 16, 1964). However, **Casper's** all-time lowest temperature remains -41°F on December 21, 1990. By week's end, some of the cold air pushed into the **eastern U.S.**, where **Danville, VA**, noted a daily-record low (16°F on December 10).

Cold air streaming across the unfrozen **Great Lakes** led to significant lake-effect snow accumulations. In particular, December 8-11 snowfall totaled 3 feet or more in parts of **westernmost New York**, downwind of **Lake Erie**. In **Michigan**, **Marquette** received 12.7 inches of snow during the first 10 days of the month, aided by a daily-record total of 9.2 inches on December 8. Meanwhile, the week began and ended with **Midwestern** snow storms. On December 4, daily-record snowfall totals included 6.4 inches in **Chicago, IL**, and 5.7 inches in **Madison, WI**. Six days later, as precipitation returned to the **Midwest**, **Watertown, SD**, collected a daily-record snowfall (5.3 inches) for December 10. The storm system responsible for the early-week **Midwestern** also contributed to an extended period of wind-blown snow across the **north-central U.S. Grand Forks, ND**, was blanketed by 17.3 inches of snow from December 5-8, accompanied by a peak northwesterly wind gust to 47 mph on the 6th. Other peak gusts in the **Dakotas** included 59 mph (on December 5) in **Pierre, SD**, and 57 mph (on December 6) in **Jamestown, ND**. Farther south, early-week downpours shifted from **coastal Texas** into the **Southeast**. During a 72-hour period ending on December 5, rainfall topped a foot in parts of **Galveston County, TX**; the city of **Galveston** measured 9.83 inches from December 2-5. **Southeastern** daily-record totals reached 4.09 inches (on December 5) in **Pensacola, FL**; 3.08 inches (on December 4) in **Baton Rouge, LA**; 2.16 inches (on December 5) in **Alma, GA**; and 1.95 inches (on December 6) in **Crossville, TN**. On December 5-6, **Charleston, SC**, reported consecutive daily-record amounts, totaling 4.02 inches. During the second half of the week, moisture overran cold air in the **West**. **San Francisco, CA**, reported 2.44 inches of rain from December 7-10, aided by a daily-record sum (1.32 inches) on the 8th. Both **Portland, OR**, and **Seattle, WA**, received an inch of snow on December 8-9. Significant freezing rain was noted in parts of the **Northwest**, with ice accretions of an inch or more reported in the **Columbia River Gorge** at **Corbett, OR**. Elsewhere, **Western** daily-record precipitation totals for December 10 included 1.05 inches in **Elko, NV**, and 0.65 inch in **Salt Lake City, UT**. In Idaho, December 8-10 precipitation totaled 1.36 inches in **Stanley** and 0.78 inch in **Boise**.

Very cold weather persisted across **Alaska**, where temperatures averaged 10 to 25°F below normal at many interior locations. Mid-week temperatures plunged to -51°F in **Chalkyitsik** and -48°F in **Fort Yukon**. With a reading of -36°F on December 4, **Fairbanks** experienced its lowest temperature since March 15, 2015. Across most of **Alaska**, dry weather accompanied the frigid conditions. In **southern Alaska**, however, weekly precipitation totaled 1.20 inches in **Cold Bay** and 1.44 inches in **Kodiak**. **Cold Bay** also netted a daily-record snowfall (5.4 inches) on December 9. Farther south, locally heavy, late-week showers—especially on **Maui**—ended a spell of tranquil **Hawaiian** weather. **Kahului, Maui**, received 3.05 inches of rain on December 10-11, aided by a daily-record total (1.67 inches) on the 10th. Earlier, locally heavy showers had ended across windward sections of the **Big Island**, where **Hilo** had collected 2.46 inches of rain on December 4-5.


U.S. Drought Monitor
December 6, 2016
(Released Thursday, Dec. 8, 2016)
Valid 7 a.m. EST
Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC
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.
USDA
http://droughtmonitor.unl.edu/


Snow Depth
December 10, 2016
Inches
120+
84
60
36
24
12
8
4
2
1
T
0
Winter Wheat Area
USDA Agricultural Weather Assessments
World Agricultural Outlook Board
Snow analysis and data (plotted values, in inches) are provided by
NOAA's National Operational Hydrologic Remote Sensing Center (NOHRSC).

National Weather Data for Selected Cities

Weather Data for the Week Ending December 10, 2016

Data Provided by Climate Prediction Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE DEC 1	PCT. NORMAL SINCE DEC 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	51	38	61	22	45	-3	1.26	0.27	0.76	1.40	97	39.33	77	91	62	0	2	3	1
	HUNTSVILLE	49	37	60	23	43	-2	2.77	1.49	1.31	3.04	164	41.56	77	81	70	0	3	3	2
	MOBILE	61	46	72	29	53	-1	3.17	2.06	1.95	3.22	198	57.49	91	82	53	0	1	2	2
	MONTGOMERY	58	44	68	27	51	0	1.91	0.72	1.15	1.91	111	39.43	77	77	49	0	2	3	2
AK	ANCHORAGE	17	6	22	-8	12	-6	0.03	-0.20	0.03	0.54	169	15.50	101	73	59	0	7	1	0
	BARROW	-5	-19	7	-23	-12	-3	0.00	0.00	0.00	0.00	0	5.05	125	81	66	0	7	0	0
	FAIRBANKS	-18	-30	-14	-36	-24	-20	0.00	-0.14	0.00	0.18	90	14.26	146	81	73	0	7	0	0
	JUNEAU	24	12	33	6	18	-12	0.60	-0.59	0.42	3.21	191	60.40	111	86	72	0	7	2	0
	KODIAK	34	27	38	13	31	0	1.44	-0.16	0.60	1.47	65	79.33	113	87	79	0	4	6	2
	NOME	16	-10	28	-15	3	-8	0.00	-0.24	0.00	0.01	3	14.98	94	70	49	0	7	0	0
AZ	FLAGSTAFF	47	22	51	15	35	3	0.00	-0.39	0.00	0.00	0	21.38	99	85	38	0	7	0	0
	PHOENIX	69	45	72	41	57	1	0.00	-0.18	0.00	0.00	0	5.25	69	61	36	0	0	0	0
	PRESCOTT	56	28	61	23	42	3	0.00	-0.28	0.00	0.00	0	14.85	81	87	33	0	6	0	0
	TUCSON	70	41	75	34	56	3	0.00	-0.19	0.00	0.00	0	10.80	95	59	37	0	0	0	0
AR	FORT SMITH	46	32	51	18	39	-4	0.38	-0.54	0.28	0.66	49	31.10	74	82	51	0	2	4	0
	LITTLE ROCK	45	32	56	20	39	-6	0.43	-0.78	0.18	0.99	56	52.72	110	92	60	0	3	3	0
CA	BAKERSFIELD	63	44	71	35	53	5	0.04	-0.10	0.04	0.04	20	4.76	80	79	67	0	0	1	0
	FRESNO	58	42	67	32	50	4	0.39	0.14	0.38	0.39	111	11.52	113	93	79	0	1	2	0
	LOS ANGELES	65	51	67	46	58	0	0.00	-0.33	0.00	0.00	0	7.48	63	91	66	0	0	0	0
	REDDING	52	36	58	29	44	-2	2.13	1.19	1.11	2.13	159	45.46	151	97	77	0	2	4	1
	SACRAMENTO	55	39	61	34	47	0	1.20	0.70	0.69	1.20	167	19.78	122	100	74	0	0	4	1
	SAN DIEGO	65	52	70	46	59	1	0.00	-0.22	0.00	0.00	0	6.01	62	79	61	0	0	0	0
	SAN FRANCISCO	58	48	63	42	53	3	2.44	1.86	1.60	2.44	294	19.20	106	88	75	0	0	4	2
	STOCKTON	58	42	67	31	50	3	0.59	0.21	0.32	0.59	109	16.76	133	98	87	0	1	3	0
CO	ALAMOSA	40	-2	54	-9	19	-1	0.00	-0.06	0.00	0.07	70	8.16	116	85	47	0	7	0	0
	CO SPRINGS	39	11	64	2	25	-5	0.10	0.04	0.05	0.13	163	15.02	88	74	34	0	7	3	0
	DENVER INTL	41	5	55	-10	23	-8	0.05	-0.01	0.04	0.06	67	11.85	88	76	39	0	7	2	0
	GRAND JUNCTION	37	16	47	9	26	-5	0.01	-0.08	0.01	0.01	7	8.11	94	84	54	0	7	1	0
	PUEBLO	43	12	66	7	28	-4	0.00	-0.07	0.00	0.00	0	11.15	92	71	49	0	7	0	0
CT	BRIDGEPORT	45	32	50	23	38	0	0.47	-0.29	0.37	0.50	46	36.47	87	74	56	0	4	2	0
	HARTFORD	41	25	46	13	33	-1	0.20	-0.61	0.12	0.36	31	30.35	69	81	61	0	6	3	0
DC	WASHINGTON	47	35	57	26	41	-1	1.27	0.61	1.03	1.43	151	30.53	82	81	46	0	2	3	1
DE	WILMINGTON	45	32	52	23	39	0	0.78	0.03	0.63	0.81	75	39.19	97	84	49	0	4	4	1
FL	DAYTONA BEACH	75	56	85	46	65	3	0.60	0.02	0.56	0.60	71	44.54	94	97	58	0	0	2	1
	JACKSONVILLE	72	49	85	37	61	4	1.93	1.38	1.76	1.99	252	38.22	76	94	51	0	0	2	1
	KEY WEST	82	74	85	68	78	5	0.03	-0.41	0.01	0.46	72	36.06	96	94	79	0	0	3	0
	MIAMI	81	70	87	62	76	5	1.68	1.15	0.84	1.95	253	65.56	115	93	71	0	0	2	2
	ORLANDO	78	57	87	50	68	4	0.76	0.23	0.76	0.76	99	52.53	112	91	62	0	0	1	1
	PENSACOLA	64	52	74	36	58	2	3.86	3.01	2.05	3.86	309	58.86	96	82	54	0	0	3	2
	TALLAHASSEE	67	47	78	30	57	2	2.88	2.05	2.49	2.91	243	58.52	97	90	63	0	2	2	1
	TAMPA	76	60	84	50	68	3	0.20	-0.32	0.16	0.20	27	52.33	121	88	59	0	0	2	0
	WEST PALM BEACH	80	69	87	62	74	4	1.48	0.63	0.98	1.92	151	49.51	83	90	68	0	0	3	1
GA	ATHENS	50	37	53	23	44	-3	1.80	1.01	0.80	1.87	165	36.32	80	91	69	0	2	3	2
	ATLANTA	53	39	64	26	46	-1	1.91	1.04	0.93	2.00	159	37.69	79	87	62	0	2	3	2
	AUGUSTA	57	41	63	24	49	0	2.73	2.14	1.23	2.74	330	36.59	87	89	61	0	2	3	2
	COLUMBUS	56	42	68	29	49	-2	1.97	0.98	1.07	1.97	138	33.75	74	83	49	0	2	3	2
	MACON	59	41	74	24	50	0	3.37	2.54	1.57	3.37	286	31.11	74	89	46	0	2	3	3
	SAVANNAH	65	46	80	29	55	2	3.34	2.82	1.86	3.40	466	54.55	115	86	57	0	1	2	2
HI	HILO	79	68	81	65	73	0	2.52	-0.33	2.45	12.82	303	120.86	101	91	82	0	0	3	1
	HONOLULU	79	69	83	65	74	-2	0.42	-0.17	0.16	0.60	72	12.89	79	92	83	0	0	4	0
	KAHULUI	80	71	86	69	75	1	1.17	0.57	0.75	1.51	178	13.79	83	88	83	0	0	5	1
	LIHUE	79	67	80	65	73	-1	0.04	-1.01	0.01	0.59	39	12.84	35	88	82	0	0	4	0
ID	BOISE	32	21	45	13	27	-5	0.82	0.50	0.26	0.82	178	7.51	67	83	72	0	7	5	0
	LEWISTON	33	22	45	11	27	-8	0.39	0.16	0.13	0.39	115	13.86	115	84	72	0	6	5	0
	POCATELLO	31	12	40	-9	21	-6	0.88	0.64	0.37	0.98	288	14.02	119	88	74	0	5	7	0
IL	CHICAGO/O'HARE	30	23	41	17	26	-5	0.63	0.02	0.50	0.63	71	34.82	100	86	73	0	7	3	1
	MOLINE	30	24	37	16	27	-3	0.69	0.15	0.61	0.69	90	35.53	97	80	69	0	7	2	1
	PEORIA	31	25	39	18	28	-3	0.40	-0.23	0.38	0.40	43	36.42	105	85	67	0	7	2	0
	ROCKFORD	29	22	35	15	25	-3	0.57	0.04	0.48	0.63	81	34.41	97	85	75	0	7	2	0
	SPRINGFIELD	34	27	41	19	30	-4	0.44	-0.19	0.44	0.44	48	42.31	125	83	65	0	6	1	0
IN	EVANSVILLE	40	29	46	18	35	-3	0.87	-0.04	0.70	0.87	65	46.53	111	80	60	0	4	2	1
	FORT WAYNE	33	24	39	19	29	-3	0.47	-0.20	0.35	0.47	48	35.53	102	85	68	0	7	3	0
	INDIANAPOLIS	36	25	43	19	31	-4	0.43	-0.32	0.27	0.43	39	44.84	115	86	66	0	5	2	0
	SOUTH BEND	30	24	40	18	27	-5	0.61	-0.15	0.43	0.63	58	45.24	120	90	78	0	7	4	0
IA	BURLINGTON	31	24	37	15	27	-4	0.51	-0.04	0.51	0.51	64	32.12	88	88	66	0	7	1	1
	CEDAR RAPIDS	27	20	34	10	23	-4	0.49	0.10	0.47	0.49	84	42.93	132	96	79	0	7	2	0
	DES MOINES	33	21	51	9	27	-1	0.52	0.18	0.47	0.61	122	33.73	100	78	68	0	7	2	0
	DUBUQUE	26	19	33	11	22	-4	0.59	0.15	0.48	0.60	92	40.03	116	90	82	0	7	2	0
	SIOUX CITY	33	18	51	4	25	0	0.08	-0.08	0.08	0.13	54	30.90	121	78	61	0	7	1	0
	WATERLOO	27	19	34	8	23	-2	0.73	0.43	0.53	0.74	164	40.65	125	86	77	0	7	2	1
KS	CONCORDIA	37	19	53	7	28	-5	0.06	-0.14	0.03	0.48	155	30.26	109	81	62	0	6	2	0
	DODGE CITY	40	18	59	3	29	-6	0.00	-0.17	0.00	0.34	142	23.12	106	82	42	0	7	0	0
	GOODLAND	38	8	62	-6	23	-8	0.07	-0.01	0.07	0.07	58	16.85	86	79	50	0	7	1	0
	TOPEKA	37	21	52	10	29	-5	0.51	0.14	0.47	0.60	109	42.78	123	80	61	0	7	2	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending December 10, 2016

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 DEC 1	PCT. NORMAL SINCE DEC 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	41	22	54	12	32	-4	0.16	-0.16	0.16	0.37	80	50.31	171	74	57	0	7	1	0
KY	JACKSON	42	30	54	16	36	-5	0.83	-0.20	0.70	0.83	56	47.57	102	87	57	0	4	2	1
	LEXINGTON	40	29	49	16	34	-5	0.86	-0.05	0.78	0.86	66	39.71	92	79	60	0	4	2	1
	LOUISVILLE	41	31	49	20	36	-5	1.01	0.13	0.93	1.01	80	39.26	93	75	51	0	4	2	1
	PADUCAH	43	28	48	14	35	-5	0.71	-0.41	0.62	0.82	51	48.30	104	85	51	0	4	3	1
LA	BATON ROUGE	60	45	66	30	53	-1	4.06	2.90	3.09	4.60	279	84.50	142	91	62	0	1	3	2
	LAKE CHARLES	57	45	65	32	51	-4	1.83	0.82	0.99	8.49	582	72.32	134	93	64	0	1	3	2
	NEW ORLEANS	61	50	68	39	55	-2	3.16	1.94	2.31	3.31	187	66.17	109	90	78	0	0	2	2
	SHREVEPORT	51	41	56	29	46	-4	0.40	-0.64	0.36	2.62	176	58.49	121	90	66	0	2	4	0
ME	CARIBOU	23	7	33	-1	15	-5	0.02	-0.68	0.01	1.28	128	41.03	116	86	72	0	7	2	0
	PORTLAND	35	21	42	10	28	-3	0.19	-0.79	0.16	1.25	89	38.05	88	84	55	0	7	2	0
MD	BALTIMORE	46	32	54	24	39	0	1.11	0.39	0.81	1.20	115	38.94	98	85	51	0	4	3	1
MA	BOSTON	40	30	44	21	35	-3	0.22	-0.62	0.14	0.44	37	30.25	76	78	51	0	4	2	0
	WORCESTER	35	25	40	15	30	-2	0.30	-0.54	0.17	0.65	54	37.77	81	83	55	0	7	2	0
MI	ALPENA	35	24	42	15	30	3	0.38	-0.03	0.30	0.45	76	28.34	104	86	60	0	7	5	0
	GRAND RAPIDS	33	25	39	20	29	-2	0.62	-0.09	0.46	0.75	72	44.29	125	86	69	0	7	3	0
	HOUGHTON LAKE	32	24	40	14	28	1	0.55	0.14	0.22	0.56	95	32.06	118	86	70	0	7	5	0
	LANSING	35	25	42	20	30	0	0.43	-0.14	0.36	0.44	53	33.62	111	84	63	0	7	3	0
	MUSKEGON	36	28	44	22	32	1	0.63	-0.02	0.37	0.72	77	38.05	122	80	66	0	6	4	0
	TRAVERSE CITY	35	27	44	19	31	1	0.41	-0.17	0.21	0.52	63	29.36	93	87	62	0	6	4	0
MN	DULUTH	24	15	36	0	20	2	0.37	0.10	0.20	0.38	93	31.97	105	85	78	0	7	3	0
	INT'L FALLS	23	11	34	-16	17	4	0.74	0.56	0.26	0.74	274	27.89	119	88	74	0	7	6	0
	MINNEAPOLIS	28	17	40	4	23	1	0.31	0.06	0.16	0.31	84	38.48	134	81	68	0	7	2	0
	ROCHESTER	24	15	34	2	20	-1	0.60	0.32	0.25	0.63	150	42.11	137	92	85	0	7	4	0
	ST. CLOUD	25	13	39	-2	19	1	0.14	-0.02	0.08	0.15	63	32.43	122	90	72	0	7	3	0
MS	JACKSON	54	40	61	26	47	-3	2.38	1.18	2.21	2.99	174	60.63	116	90	63	0	2	2	1
	MERIDIAN	56	40	64	26	48	-3	1.07	-0.13	0.66	1.44	83	43.27	79	81	58	0	2	3	1
	TUPELO	48	34	57	20	41	-4	1.74	0.35	0.67	2.52	127	43.88	85	82	65	0	3	3	3
MO	COLUMBIA	36	23	46	13	30	-5	0.38	-0.29	0.38	0.39	40	39.45	102	82	57	0	7	1	0
	KANSAS CITY	37	22	52	11	29	-5	0.64	0.21	0.61	0.66	105	48.12	130	78	49	0	7	2	1
	SAINT LOUIS	39	27	46	17	33	-4	0.27	-0.48	0.27	0.27	25	40.56	110	71	58	0	6	1	0
	SPRINGFIELD	39	23	45	11	31	-7	0.15	-0.75	0.15	0.17	13	35.80	83	83	60	0	7	1	0
MT	BILLINGS	21	7	43	-3	14	-14	0.28	0.17	0.20	0.28	165	13.50	95	78	58	0	7	2	0
	BUTTE	20	1	35	-10	11	-8	0.02	-0.09	0.01	0.03	19	10.19	82	86	54	0	7	2	0
	CUT BANK	10	-5	37	-17	2	-21	0.01	-0.05	0.01	0.01	13	10.86	89	87	67	0	7	1	0
	GLASGOW	14	-1	43	-9	7	-12	0.22	0.16	0.18	0.26	325	20.83	190	80	70	0	7	2	0
	GREAT FALLS	12	-1	42	-7	6	-20	0.07	-0.04	0.05	0.22	138	13.78	96	85	65	0	7	2	0
	HAVRE	13	-1	40	-13	6	-16	0.12	0.03	0.12	0.19	158	19.00	172	79	69	0	7	1	0
	MISSOULA	24	14	39	5	19	-6	0.39	0.14	0.18	0.49	140	13.01	100	83	67	0	7	4	0
NE	GRAND ISLAND	34	15	51	2	24	-4	0.02	-0.16	0.02	0.11	39	23.53	92	81	58	0	7	1	0
	LINCOLN	34	18	53	3	26	-3	0.00	-0.22	0.00	0.53	161	28.81	103	74	58	0	7	0	0
	NORFOLK	31	14	50	0	22	-4	0.11	-0.07	0.11	0.13	46	30.71	117	75	59	0	7	1	0
	NORTH PLATTE	35	10	58	-2	23	-5	0.01	-0.07	0.01	0.01	8	22.44	116	78	39	0	7	1	0
	OMAHA	34	19	52	7	26	-3	0.06	-0.20	0.03	0.49	126	33.67	113	72	60	0	7	3	0
	SCOTTSBLUFF	33	5	51	-10	19	-8	0.06	-0.07	0.06	0.06	32	15.24	95	72	52	0	7	1	0
	VALENTINE	28	6	50	-7	17	-9	0.19	0.11	0.19	0.19	146	27.43	142	75	53	0	7	1	0
NV	ELY	42	10	53	1	26	-1	0.00	-0.08	0.00	0.00	0	10.17	106	74	48	0	7	0	0
	LAS VEGAS	58	41	62	36	49	1	0.00	-0.06	0.00	0.00	0	3.94	94	29	21	0	0	0	0
	RENO	53	29	62	22	41	6	0.39	0.20	0.35	0.39	139	8.22	120	76	58	0	5	3	0
	WINNEMUCCA	41	18	51	0	30	-1	1.00	0.83	0.69	1.00	417	8.17	105	89	68	0	6	5	1
NH	CONCORD	36	20	42	8	28	-2	0.30	-0.39	0.21	0.94	94	30.71	86	81	55	0	7	2	0
NJ	NEWARK	45	33	50	23	39	0	0.65	-0.16	0.45	0.66	56	36.96	84	77	52	0	2	3	0
NM	ALBUQUERQUE	48	27	54	23	37	-1	0.00	-0.08	0.00	0.00	0	6.17	68	65	36	0	7	0	0
NY	ALBANY	38	25	44	16	31	-1	0.23	-0.40	0.11	0.43	47	32.05	88	87	58	0	7	3	0
	BINGHAMTON	32	24	38	14	28	-2	0.77	0.02	0.49	1.25	116	34.16	93	89	75	0	7	6	0
	BUFFALO	38	29	42	23	34	1	0.50	-0.40	0.22	0.88	68	30.69	81	85	57	0	4	3	0
	ROCHESTER	38	26	43	17	32	0	0.65	0.00	0.38	0.77	83	28.57	89	90	60	0	7	5	0
	SYRACUSE	36	25	42	15	31	-1	0.58	-0.22	0.32	0.83	72	38.41	101	94	63	0	7	6	0
NC	ASHEVILLE	47	32	58	17	40	-1	1.84	1.08	1.10	1.85	167	32.94	74	81	60	0	3	3	1
	CHARLOTTE	50	34	58	18	42	-5	1.58	0.92	0.66	1.58	165	32.23	78	84	53	0	2	3	2
	GREENSBORO	48	32	59	20	40	-3	1.17	0.51	0.64	1.17	122	39.11	95	87	49	0	3	3	1
	HATTERAS	56	44	67	36	50	-2	1.76	0.84	1.15	1.82	138	70.05	129	81	60	0	0	3	2
	RALEIGH	50	35	60	20	43	-2	1.29	0.66	0.54	1.29	142	50.33	123	82	56	0	2	3	1
	WILMINGTON	57	39	67	25	48	-3	2.27	1.44	1.07	2.49	211	69.00	127	96	57	0	2	3	2
ND	BISMARCK	14	-1	35	-21	6	-13	4.50	4.42	3.63	4.53	3485	25.95	157	88	78	0	7	5	2
	DICKINSON	9	-5	32	-21	2	-19	0.05	-0.03	0.02	0.05	42	17.43	108	85	72	0	7	3	0
	FARGO	22	9	36	-8	16	0	0.20	0.09	0.13	0.20	125	22.44	108	82	71	0	7	3	0
	GRAND FORKS	21	11	35	-11	16	1	0.43	0.32	0.21	0.47	294	26.09	136	87	75	0	7	4	0
	JAMESTOWN	15	2	35	-17	9	-8	0.19	0.11	0.11	0.19	158	25.32	139	88	78	0	7	2	0
	WILLISTON	12	-4	35	-19	4	-12	0.35	0.23	0.23	0.40	222	16.98	123	79	73	0	7	4	0
OH	AKRON-CANTON	35	27	41	22	31	-3	0.60	-0.12	0.50	0.61	59	36.26	99	78	65	0	7	3	1
	CINCINNATI	37	28	44	18	32	-5	0.69	-0.07	0.58	0.69	63	40.69	101	84	63	0	4	2	1
	CLEVELAND	37	29	42	24	33	-1	0.60	-0.19	0.49	0.69	61	34.49	94	77	57	0	6	2	0
	COLUMBUS	36	27	44	21	32	-4	0.62	-0.10	0.42	0.62	60	36.30	99	86	70	0	5	2	0
	DAYTON	35	25	42	17	30	-5	0.79	0.06	0.57	0.79	75	34.57	92	89	66	0	7	2	1
	MANSFIELD	33	24	39	18	29	-4	0.63	-0.18	0.46	0.64	55	32.73	80	92	70	0	7	3	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending December 10, 2016

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE DEC 1	PCT. NORMAL SINCE DEC 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	34	24	38	20	29	-3	0.50	-0.15	0.31	0.51	55	32.36	103	94	72	0	7	4	0
	YOUNGSTOWN	35	26	40	22	31	-2	0.56	-0.18	0.39	0.58	54	41.34	114	83	67	0	7	5	0
OK	OKLAHOMA CITY	44	28	54	20	36	-6	0.09	-0.32	0.09	0.62	105	26.12	76	84	49	0	4	1	0
	TULSA	44	29	55	15	37	-5	0.10	-0.55	0.10	0.18	19	27.92	68	82	55	0	4	1	0
OR	ASTORIA	46	35	52	30	41	-3	3.67	1.18	1.63	4.50	125	81.00	134	77	68	0	2	5	2
	BURNS	33	14	46	-1	23	-4	1.17	0.89	0.89	1.17	300	7.48	77	90	76	0	7	4	1
	EUGENE	42	32	50	27	37	-4	1.99	-0.03	0.53	2.04	70	38.26	84	92	84	0	4	6	1
	MEDFORD	45	34	51	24	40	1	1.04	0.34	0.43	1.04	102	18.18	110	99	79	0	3	6	0
	PENDLETON	31	15	46	5	23	-12	0.49	0.15	0.20	0.49	98	11.79	100	92	79	0	7	6	0
	PORTLAND	41	31	48	27	36	-5	1.94	0.57	0.61	2.11	107	40.85	123	90	78	0	5	5	2
	SALEM	43	32	50	29	38	-3	2.24	0.67	0.56	2.30	102	44.14	123	90	80	0	4	6	1
PA	ALLENTOWN	43	27	48	19	35	0	0.70	-0.08	0.45	0.81	71	36.10	84	79	54	0	6	3	0
	ERIE	38	30	43	23	34	-2	1.50	0.58	0.76	2.28	173	45.06	112	81	61	0	4	7	1
	MIDDLETOWN	43	32	51	23	37	0	0.89	0.09	0.71	0.93	81	39.54	103	88	51	0	4	3	1
	PHILADELPHIA	45	34	51	26	40	0	0.91	0.17	0.75	0.94	89	34.14	86	78	52	0	3	4	1
	PITTSBURGH	38	29	44	23	33	-2	0.49	-0.20	0.37	0.49	49	32.07	89	85	59	0	6	2	0
	WILKES-BARRE	40	28	46	21	34	0	0.47	-0.16	0.31	0.69	74	30.04	84	83	54	0	5	3	0
	WILLIAMSPORT	43	31	51	22	37	3	0.60	-0.14	0.40	0.65	60	32.77	82	79	59	0	4	4	0
RI	PROVIDENCE	41	28	46	18	35	-2	0.27	-0.67	0.17	0.40	30	37.27	85	79	54	0	6	3	0
SC	BEAUFORT	64	46	78	32	55	2	3.33	2.74	2.54	3.36	400	51.64	109	90	56	0	1	2	2
	CHARLESTON	63	45	76	31	54	1	4.02	3.38	2.22	4.13	454	58.99	120	85	55	0	1	2	2
	COLUMBIA	54	41	61	24	47	-2	1.56	0.91	0.73	1.56	170	37.76	82	89	63	0	2	3	1
	GREENVILLE	50	36	58	22	43	-3	1.39	0.56	0.79	1.43	121	33.15	70	85	57	0	2	3	1
SD	ABERDEEN	21	5	41	-9	13	-6	0.11	0.05	0.10	0.11	138	18.92	95	77	64	0	7	2	0
	HURON	23	7	44	-5	15	-7	0.33	0.25	0.32	0.34	262	19.86	96	86	67	0	7	2	0
	RAPID CITY	21	4	49	-6	12	-14	0.03	-0.03	0.02	0.03	38	12.53	77	78	51	0	7	2	0
	SIOUX FALLS	27	12	45	-1	20	-2	0.27	0.14	0.26	0.27	129	30.57	125	84	70	0	7	2	0
TN	BRISTOL	46	31	54	14	39	0	1.75	0.98	1.04	1.75	158	33.06	85	91	51	0	3	3	2
	CHATTANOOGA	49	36	61	23	43	-2	2.80	1.69	1.33	2.89	180	33.42	65	78	61	0	3	3	2
	KNOXVILLE	47	34	57	16	41	-2	2.01	1.00	1.16	2.06	142	40.26	89	81	59	0	3	3	2
	MEMPHIS	46	34	52	23	40	-6	1.98	0.54	1.78	2.32	112	56.57	111	84	58	0	3	3	1
	NASHVILLE	46	33	57	19	39	-4	0.88	-0.21	0.61	1.04	66	36.81	82	83	56	0	3	3	1
TX	ABILENE	47	34	59	26	41	-6	0.20	-0.05	0.13	1.19	340	36.81	161	85	72	0	3	4	0
	AMARILLO	48	23	71	13	36	-3	0.00	-0.09	0.00	0.17	131	17.10	89	88	38	0	7	0	0
	AUSTIN	54	38	60	30	46	-8	1.09	0.56	0.55	3.03	399	53.78	168	83	70	0	1	2	2
	BEAUMONT	59	45	71	35	52	-4	1.61	0.48	0.90	8.43	524	73.41	131	88	60	0	0	3	2
	BROWNSVILLE	69	49	82	41	59	-4	1.25	0.99	0.95	1.42	364	22.57	84	92	80	0	0	3	1
	CORPUS CHRISTI	62	47	79	39	55	-5	0.99	0.62	0.84	2.00	385	32.53	105	88	79	0	0	4	1
	DEL RIO	54	41	65	37	48	-6	1.69	1.52	0.79	2.49	1038	32.47	183	85	68	0	0	2	2
	EL PASO	57	36	64	29	47	0	0.00	-0.16	0.00	0.24	109	8.41	95	72	41	0	4	0	0
	FORT WORTH	48	37	53	24	43	-6	0.17	-0.37	0.14	0.55	72	35.43	108	81	57	0	2	3	0
	GALVESTON	62	49	74	42	56	-4	2.02	1.22	1.11	7.35	639	52.78	127	90	67	0	0	3	2
	HOUSTON	57	44	70	34	50	-5	1.83	0.99	0.94	2.78	230	60.18	133	86	77	0	0	4	2
	LUBBOCK	48	27	61	23	38	-3	0.00	-0.14	0.00	0.43	215	13.40	74	86	57	0	6	0	0
	MIDLAND	50	34	62	26	42	-4	0.02	-0.12	0.02	0.36	189	15.13	106	86	67	0	3	1	0
	SAN ANGELO	51	35	58	27	43	-5	0.33	0.14	0.31	0.74	264	35.72	176	83	74	0	3	2	0
	SAN ANTONIO	55	41	66	35	48	-6	1.33	0.89	1.02	5.83	925	43.53	138	86	61	0	0	3	1
	VICTORIA	60	44	73	37	52	-5	2.29	1.74	1.63	2.64	334	38.88	101	85	76	0	0	3	2
	WACO	51	39	55	29	45	-5	0.27	-0.36	0.21	1.12	124	38.41	122	86	71	0	3	2	0
	WICHITA FALLS	47	29	54	23	38	-7	0.16	-0.21	0.16	0.83	160	37.17	134	80	57	0	5	1	0
UT	SALT LAKE CITY	40	25	49	20	32	0	0.63	0.36	0.60	0.65	167	13.51	86	80	47	0	7	3	1
VT	BURLINGTON	35	26	39	19	31	2	0.31	-0.24	0.22	0.76	95	26.15	76	82	61	0	7	4	0
VA	LYNCHBURG	46	28	57	14	37	-3	1.62	0.90	1.25	1.62	159	41.60	101	89	52	0	5	3	1
	NORFOLK	50	38	61	27	44	-3	1.63	1.02	1.12	1.63	187	67.95	156	84	56	0	1	4	1
	RICHMOND	47	33	56	22	40	-3	1.53	0.89	1.22	1.71	186	51.63	124	81	57	0	2	3	1
	ROANOKE	46	31	59	18	38	-3	1.87	1.21	1.61	1.87	197	45.89	113	76	57	0	3	3	1
	WASH/DULLES	44	30	55	22	37	-2	1.29	0.59	1.03	1.30	130	34.26	86	80	50	0	5	3	1
WA	OLYMPIA	40	29	48	19	35	-4	1.87	-0.03	0.62	2.45	89	53.52	117	98	79	0	5	6	1
	QUILLAYUTE	41	30	46	27	36	-5	2.47	-0.97	0.84	5.08	103	114.24	124	90	78	0	6	4	3
	SEATTLE-TACOMA	40	32	46	28	36	-5	0.96	-0.40	0.35	1.39	71	42.69	128	92	72	0	4	5	0
	SPOKANE	28	18	41	13	23	-6	0.28	-0.26	0.19	0.32	41	17.13	113	84	62	0	7	2	0
	YAKIMA	34	20	49	8	27	-3	0.33	0.03	0.27	0.33	77	9.44	129	85	64	0	7	3	0
WV	BECKLEY	38	27	47	16	32	-5	0.79	0.10	0.67	0.79	81	45.71	116	79	62	0	5	2	1
	CHARLESTON	42	31	52	23	37	-3	0.39	-0.41	0.28	0.39	33	41.52	99	82	52	0	5	2	0
	ELKINS	38	26	47	14	32	-3	1.05	0.25	0.85	1.05	91	42.22	96	86	52	0	5	4	1
	HUNTINGTON	42	32	51	23	37	-3	0.58	-0.19	0.51	0.58	53	42.95	107	79	52	0	3	3	1
WI	EAU CLAIRE	27	17	37	8	22	0	0.26	-0.01	0.13	0.26	63	39.40	125	91	70	0	7	4	0
	GREEN BAY	32	24	39	17	28	3	0.34	-0.03	0.32	0.37	66	31.24	110	85	65	0	6	2	0
	LA CROSSE	30	22	39	9	26	0	0.51	0.18	0.31	0.51	102	45.20	143	83	65	0	5	2	0
	MADISON	28	21	35	12	25	-2	0.63	0.20	0.46	0.63	100	48.59	152	86	75	0	7	3	0
	MILWAUKEE	32	24	41	18	28	-2	0.38	-0.18	0.32	0.39	48	31.10	93	77	65	0	6	2	0
WY	CASPER	22	-8	41	-33	7	-18	0.40	0.26	0.39	0.41	205	15.89	126	81	65	0	7	2	0
	CHEYENNE	33	7	49	-16	20	-8	0.10	-0.01	0.06	0.11	69	16.33	108	67	45	0	7	2	0
	LANDER	26	3	45	-5	15	-8	0.04	-0.10	0.04	0.05	24	22.44	172	83	46	0	7	1	0
	SHERIDAN	21	1	41	-13	11	-13	0.21	0.07	0.09	0.21	105	18.34	129	80	67	0	7	4	0

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

November Weather Summary

Weather

Weather summary provided by USDA/WAOB

Highlights: Punishing Southeastern drought culminated in a late-November wildfire disaster in Gatlinburg, TN, just as rain began to fall across the Great Smoky Mountains. However, before rain helped to douse the flames, howling southerly winds in advance of a cold front on November 28-29 downed power lines and spread embers from the Chimney Tops 2 fire across more than 17,000 acres, resulting in the tragic loss of 14 lives and nearly 2,500 structures, according to preliminary reports. Dozens of other large Southeastern fires burned in November before rain arrived, causing reductions in air quality and charring well over 100,000 acres of timber and brush.

Effects of the Southeastern drought extended to agriculture and included supplemental feed requirements for livestock due to abysmal pasture conditions; surface water shortages such as dried-up ponds and creeks; and a lack of soil moisture for germination of winter grains and cover crops. By November 27, pastures were rated at least three-quarters very poor to poor in Alabama (95%), Georgia (81%) and Tennessee (79%). Only 12% of Alabama's winter wheat had emerged, compared to the 5-year average of 54%. And, topsoil moisture in Alabama was 100% very short to short, along with 98% in Georgia, 81% in Tennessee, and 76% in Kentucky and Mississippi.

Meanwhile, developing drought was a concern with respect to winter wheat establishment across portions of the central and southern Plains. By November 27, the portion of the wheat crop rated very poor to poor ranged from 12 to 16% in all of the Plains States from Nebraska southward. Topsoil moisture was more than one-half very short to short in Colorado (60%) and Oklahoma (55%), and ranged from 61 to 80% very short to short across the western one-third of Kansas.

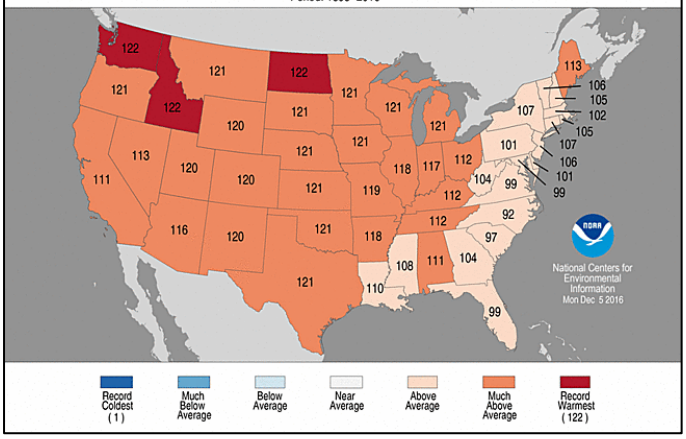
Farther north, however, ample moisture—including rain and snow—benefited winter wheat but limited late-season fieldwork. Specifically, at least two-thirds of the winter wheat was rated in good to excellent condition on November 27 in the Great Lakes States and the Northwest, ranging from 68% in Indiana and Michigan to 91% in Washington. Meanwhile, Northern fieldwork was largely complete by the end of autumn, despite sporadic delays. Among Midwestern States, harvest progress by the 27th was slowest in Michigan—88% complete for corn and 94% for soybeans.

Elsewhere, somewhat drier weather prevailed across the Northwest, following record-setting October wetness, while beneficial precipitation fell in parts of the Southwest. Still, Western snowpack was lacking in many areas due to unusual warmth, which dominated not only the western U.S. but also nearly the entire country. In fact, parts of the central and northwestern U.S. experienced record-setting November warmth, with monthly temperatures averaging 5 to 10°F above normal across a large area.

Historical Perspective: According to preliminary information provided by the National Centers for Environmental Information, the U.S. experienced its second-warmest, 25th-driest November during the 122-year period of record. The nation's monthly average temperature of 48.0°F was 6.3°F above the 1901-2000 mean, ranking behind only 48.1°F in November 1999. All four of the nation's highest November average temperatures have occurred in the last 20 years; previously, records had been set in 1913 with 45.1°F (now sixth warmest) and 1949 with 45.3°F (now fifth warmest). All states ranked in the warmest one-third of the distribution; the "coolest" state, North Carolina, experienced its 31st-warmest November (figure 1). Temperatures were among the ten highest November values in 25 states, with Idaho, North Dakota, and Washington reporting their warmest November.

Meanwhile, November precipitation averaged just 1.73 inches (78% of normal) across the Lower 48 states. Dryness was prominent across the eastern U.S., where it was the driest November in Florida (figure 2). Other states in the top ten for November dryness were Delaware, Georgia, Maryland, and South Carolina. In contrast, November wetness affected portions of the north-central and southwestern U.S. New Mexico, with its 12th-wettest November, achieved the highest rank of any state, followed by North Dakota (24th wettest).

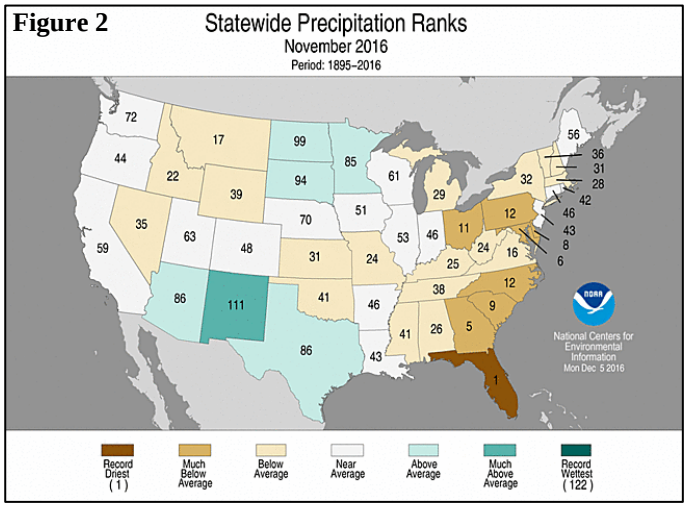
Figure 1 Statewide Average Temperature Ranks
November 2016
Period: 1895–2016



Summary: Autumn warmth, so prominent while the contiguous U.S. experienced its third-warmest October, largely continued through November. La Crosse, WI, set an all-time record for its latest first autumn freeze, which had been November 7, 1900. A freeze finally occurred in La Crosse on November 9. Similarly, Rockford, IL, experienced a record-late first autumn freeze on November 11. Rockford's previous record had been set on November 4, 1973. Across the South and Midwest, November 1 featured monthly record highs in locations such as Austin, TX (91°F); Montgomery, AL (91°F); Meridian, MS (89°F); Evansville, IN (86°F); Paducah, KY (85°F); Cape Girardeau, MO (84°F); Cincinnati, OH (82°F); and Milwaukee, WI (77°F). Montgomery had never before attained the 90-degree mark in November; the monthly record

had been 88°F on November 6, 2015. Louisville, KY, reached 85°F on November 1 and 2; the previous monthly record in that location had been 84°F on November 17, 1958. Other monthly record highs set on November 2 included 84°F in Jackson, KY, and 83°F in Roanoke, VA. In contrast, the first day of November featured daily-record lows in Binghamton, NY (27°F), and Bridgeport, CT (32°F). Later, warmth shifted to the north-central U.S. From November 4-6, a trio of daily-record highs occurred in Duluth, MN (69, 70, and 70°F). Other record-setting highs for November 5 included 80°F in Pierre, SD; 76°F in Bismarck, ND; and 73°F in Minneapolis-St. Paul, MN.

Figure 2



Cool air returned to the East by November 13, when Danville, VA (20°F), and Elizabeth City, NC (25°F), posted daily-record lows. (Elizabeth City's lowest temperature during the month, a daily-record minimum of 20°F, occurred on November 22.) For the remainder of the country, there was an early- to mid-month parade of record-high temperatures. Bellingham, WA, reached 73°F on November 8, eclipsing its monthly record of 69°F set on November 4, 1949. Also on the 8th, Needles, CA (92°F), tied a monthly record most recently achieved on November 3, 2010. San Diego, CA, collected several daily-record maxima, including a high of 96°F on November 9. Elsewhere in southern California, consecutive daily-record highs were set on November 8-9 in locations such as Long Beach (93 and 96°F) and Elsinore (96 and 92°F). By November 9, record-setting warmth again pushed across the northern Plains, where daily-record highs surged to 76°F in Lemmon, SD, and Choteau, MT. On the same date, Bismarck, ND, reported a daily-record high of 75°F. Record-setting highs for November 10 reached 69°F in La Crosse, WI, and 66°F in Marquette, MI. Four days earlier, on November 6, daily-record highs had also been set in La Crosse and Marquette (both 71°F). The last time Marquette attained the 70-degree mark in November had been November 9, 1999, when it was 73°F.

Precipitation was relatively scarce for much of November, although early- to mid-month highlights included showers in the Pacific Northwest and the south-central U.S. For example, Quillayute, WA, collected a daily-record total of 2.39 inches on November 2. Three days later, record-setting Washington totals for November 5 included 2.05 inches in Bellingham and 1.31 inches in Seattle. Farther south, daily-record amounts for November 5 included 0.69 inch in Roswell, NM, and 0.35 inch in Phoenix, AZ. The following day in Texas, record-setting totals for November 6 reached 1.29 inches in College Station and 1.13 inches in Dalhart. Showery weather in Texas lingered for several days, with daily-record totals reaching 1.49 inches (on November 8) in Victoria and 0.81 inch (on November 10) in San Angelo. Meanwhile, rain also spread northward across the Plains. In Nebraska, record-setting precipitation totals for November 7 included 0.82 inch in Hastings and 0.53 inch in Grand Island. For both locations, it marked the first measurable rain since October 12—and for Hastings it was the wettest day since April 27. Farther east, however, light showers provided little, if any, relief from an historic autumn drought. In Pensacola, FL, the second-longest dry spell on record ended at 41 days, when rainfall totaled 0.36 inch on November 8-9. Pensacola's streak without measurable rain, which lasted from September 28 – November 7, ranked behind only a 49-day dry spell (September 22 – November 9) in 1952. Parts of southwestern Kansas remained similarly dry, with Garden City recording just 0.26 inch from September 1 – November 30. (Garden City also received no measurable rain from September 7 – November 5 and from November 7-30.) By mid-November, more than three dozen wildfires—in various stages of containment—were actively burning in the Southeast (KY, NC, TN, GA, VA, SC, and AL). At that time, the largest of the blazes was the 22,000-acre Rough Ridge fire near Blue Ridge, GA, followed by the 14,000-acre Tellico fire south of Almond, NC. (Eventually, the Rough Ridge fire would burn nearly 28,000 acres.)

At mid-month, record-setting warmth prevailed across the western and southern U.S. On November 14, Elsinore, CA, notched a daily-record high of 94°F. In Idaho, Pocatello posted consecutive daily-record highs (66 and 68°F, respectively) on November 14-15. Similarly, November 14-15 featured consecutive daily-record highs in locations such as Pueblo, CO (81 and 82°F); Borger, TX (84 and 85°F); and Ashland, KS (85 and 89°F). However, sharply cooler air soon followed, resulting in the first autumn freeze of the season in Salt Lake City, UT, on November 17; Lubbock, TX, on November 18; and Cleveland, OH, on November 20. For Cleveland, it was the latest first freeze since November 21, 1935—and just a week shy of the all-time record set on November 27, 1902. High winds accompanied the surge of cold air, resulting in peak gusts that were clocked to 95 mph (on November 17) on Whitaker Peak in southern California; 69 mph (on November 17) in Las Vegas, NM; and 59 mph (on November 18) in Minneapolis-St. Paul, MN. In advance of the cold front, warmth expanded eastward. On November 17, maxima of 87°F in Dallas-Ft. Worth, TX; 83°F in St. Louis, MO; and 80°F in Evansville, IN, were among dozens of daily-record highs. Lansing, MI, experienced its latest-ever reading above the 70-degree mark on November 18, when the high reached 72°F (previously, 71°F on November 16, 1931). Other record-breaking highs for the 18th included 91°F in McAllen, TX, and 81°F in Louisville, KY. On November 19, a final day of warmth in the East resulted in daily-record highs in Georgetown, DE (74°F), and Watertown, NY (72°F).

Later on November 19, however, Northeastern rain and warmth yielded to snow, wind, and cold. Binghamton, NY, received 4.0 inches of snow on November 19—the beginning of a multi-day storm that included lake-effect snow. In New York, November 19-22 snowfall totaled 14.9 inches in Rochester; 25.1 inches in Syracuse; and 27.6 inches in Binghamton. For Binghamton, it was the snowiest 4-day period on record, surpassing 25.1 inches on February 19-22, 1972. Snow also fell in parts of New England, where Caribou, ME, received 10.5 inches from November 21-27. When snow began to fall in Caribou on November 21, it marked the second-latest date of the season's first accumulation, behind only November 23, 1994. Farther west, the storm system responsible for the Northeast's quick transition had produced wind-blown snow—locally a foot or more—in the upper Midwest and environs. In Minnesota, November 18 snowfall totals included 4.1 inches in St. Cloud and 3.5 inches in Duluth. Earlier, Lander, WY, had been blanketed by 13.5 inches of snow on November 17. Along the storm's trailing cold front, record-setting rainfall totals in Texas for November 18 reached 2.06 inches in Victoria and 1.02 inches in Corpus Christi. Although no records were set, post-storm temperatures by the morning of November 19 fell to 3°F in Valentine, NE, and 5°F in Bismarck ND. Elsewhere, mid-month precipitation highlights included drought-easing rain in the Northeast and periodic showers in the Pacific Northwest. On November 15, daily-record totals in New York reached 1.78 inches in Poughkeepsie and 1.61 inches at LaGuardia Airport. In Oregon, Troutdale collected a daily-record rainfall of 1.38 inches on November 14. Later, in northern California, record-setting amounts for the 19th totaled 2.06 inches in Redding and 1.72 inches in Ukiah.

In the Southeast, late-month warmth aggravated the effects of drought. Southeastern daily-record highs climbed to 82°F (on Thanksgiving Day, November 24) in Montgomery, AL, and 80°F (on November 25) in Macon, GA. Record-setting streaks without measurable rain were terminated by insignificant showers in locations such as Birmingham, AL (61 days from September 19 – November 18), and Savannah, GA (41 days from October 16 – November 25). Birmingham's streak ended with barely measurable rain—0.01 inch on November 19; Savannah's streak ended with a light shower—0.06 inch on November 26. Previous records had been 52 days (September 30 – November 20, 1924) in Birmingham and 41 days (September 25 – November 4, 2000) in Savannah. Even as rain spread across the South at month's end, record-setting warmth continued. On the 28th, McAllen, TX (99°F), reported its second-highest November temperature on record, behind only 102°F on November 4, 1988. On November 29-30, the month ended with consecutive daily-record highs in locations such as Montgomery, AL (81 and 80°F), and Savannah, GA (82 and 83°F). Parts of the lower Southeast did not receive much, if any, rain before the November ended; as a result, the late-month warmth capped the driest November on record in locations such as Naples, FL (a trace) and St. Simons Island, GA (0.04 inch).

A tremendously active weather pattern developed across the U.S. as the month drew to a close. From November 27-30, a multi-day severe weather outbreak resulted in dozens of tornadoes, including several in Nebraska (on the 27th) and Iowa (on the 28th). The most active severe weather cycle occurred on November 29-30, when tornadoes were reported from north-central Louisiana to the southern Appalachians. Just after midnight on the 30th, the first U.S. tornado-related fatalities since May 9 occurred in Jackson County, AL. That tornado, which traveled nearly 14 miles and caused three deaths, was rated EF-3 with sustained winds estimated near 145 mph. Later the same night, an EF-3 twister cut a nearly 5-mile swath across Polk County, TN, resulting in two fatalities and bringing the nation's year-to-date total to 17 tornado-related fatalities. Meanwhile, Southeastern rain fell in two waves, starting on November 28. However, high winds preceded the first drops of rain, fanning the Chimney Tops 2 fire that had been started in the Great Smoky Mountains on November 23. As a result, November 28 featured the rapid and catastrophic northward expansion of the Chimney Tops 2 fire, encompassing more than 17,000 acres due to flying embers and downed power lines. At least 14 fatalities were reported in the Gatlinburg area, and nearly 2,500 structures were destroyed. Official southerly wind gusts on the 28th were clocked to 53 mph in Tuscaloosa, AL, and 49 mph in Knoxville, TN, although much higher gusts were reported in the southern Appalachians. Following the Southeastern showers of November 28-29, much heavier rain fell on the 30th. In Tennessee, more than one-eighth (13 percent) of the year-to-date precipitation fell on November 30 in Knoxville (4.87 inches) and Chattanooga (4.01 inches). Other daily-record totals across the southern and eastern U.S. included 2.91 inches (on November 28) in Meridian, MS, and 2.20 inches (on November 29) in New York's Central Park. The Southeastern rain abruptly ended record-setting dry spell in locations such as Tuscaloosa, AL, and Atlanta, GA. Tuscaloosa's streak without measurable rain ended at 71 days (September 18 – November 27), while Atlanta's streak was halted at 43 days (October 17 – November 28).

Elsewhere, late-month highlights included some wind, rain, and snow in the north-central U.S. and widespread precipitation in the West. Rochester, MN, received snowfall totaling 0.7 inch on November 23—the tenth-latest first seasonal accumulation on record in that location and the latest since November 27, 2004. However, many parts of the western Corn Belt merely received cold rain; Sioux City, IA, netted a daily-record total of 1.22 inches on

November 22. Farther west, several Pacific storms provided significant precipitation. Amid periods of Northwestern storminess, daily-record totals included 3.01 inches (on November 24, Thanksgiving Day) in McMinnville, OR, and 2.51 inches (on November 25) in North Bend, OR. By November 26, cold air surging into the Southwest led to a daily-record low of 11°F in Bishop, CA. The cool weather was preceded by gusty winds that on November 27 in Mexico gusted to 64 mph in Las Vegas and 63 mph in Gallup. Another round of late-month storminess led to impressive snowfall across the Intermountain West and parts of the northern Plains. Some 2- to 4-foot totals occurred from November 27-29 in Utah's Wasatch Range, with 40 inches reported in Alta. In Colorado, more than 20 inches blanketed Gothic and Crested Butte. During the last 4 days of November, Bismarck, ND, received 18.7 inches of snow. Aberdeen, SD, set a November barometric pressure record on the 28th, with 28.82 inches, or 975.9 millibars. The only lower pressure on record in Aberdeen occurred on October 10, 1949, with 28.74 inches (973.2 millibars). East of the storm's center, in Wisconsin, record-setting rainfall totals for November 28 included 1.10 inches in Wausau and 1.08 inches in Milwaukee.

Cold weather engulfed southwestern Alaska after mid-month and soon covered much of the state. However, the month began as mild as the previous one had ended, with consecutive daily-record highs (39 and 38°F, respectively) on October 31 – November 1 in Kotzebue. Later, impressive warmth led to several daily-record highs, including 62°F (on November 10) on Annette Island; 55°F (on November 10) in Juneau; and 45°F (on November 11) in Delta Junction. In some areas, periods of heavy precipitation accompanied the mild weather. November 1-12 precipitation totaled 4.41 inches in Juneau, following its driest October on record. Eventually, Juneau's monthly precipitation climbed to 6.55 inches (109 percent of normal), following an October total of just 2.59 inches (30 percent). Other November totals included 11.61 inches (94 percent of normal) on Annette Island; 14.34 inches (99 percent) in Yakutat; and 9.32 inches (136 percent) in Kodiak.

The disparity between locally heavy showers in windward locations and mostly dry weather at leeward sites grew during November. Monthly rainfall totaled just 0.40 inch (9 percent of normal) in Lihue, Kauai; 0.56 inch (25 percent) in Kahului, Maui; and 0.73 inch (30 percent) in Honolulu, Oahu. Lihue also experienced several warm days, including daily-record highs of 84°F on November 15-16. Lihue was especially dry during the autumn months, with September-November rainfall totaling just 1.49 inches (14 percent of normal). On the Big Island, however, Hilo's autumn rainfall totaled 39.91 inches (113 percent of normal), despite a slightly below-average November sum of 10.04 inches. Hilo turned wetter during the second half of the month and beyond, with 8.57 inches falling from November 16-30, and 9.48 inches occurring from December 1-3.

Fieldwork

Fieldwork summary provided by USDA/NASS

Above-normal temperatures blanketed virtually all of the U.S. during November. Most notably, temperatures averaged more than 9°F above normal across most of the northern High Plains and into the upper Mississippi Valley. Only scattered areas along the southern Atlantic Coast recorded below-normal monthly temperatures. November precipitation across most of the nation was within 3 inches of normal. A large portion of the Southeast recorded less than 25 percent of normal rainfall during the month, resulting in intensifying drought conditions in Alabama, Georgia, Mississippi, and Tennessee. In contrast, parts of Texas and Washington were wet, with precipitation departures in excess of 3 inches.

With significantly warmer-than-normal conditions in the Midwest during November, the nation's corn harvest progressed slightly ahead of the 5-year average pace. Nationally, corn producers had harvested three-quarters of this year's crop by October 30, seven percentage points behind last year but equal to the 5-year average. By November 6, eighty-six percent of the corn was harvested, five percentage points behind last year but slightly ahead of the 5-year average. Relatively dry conditions in major corn-producing regions allowed for double-digit harvest progress in 11 of the 18 estimating states during the first week of the month. The corn harvest was complete or nearly complete in Kansas, Kentucky, Missouri, North Carolina, Tennessee, and Texas by November 6. Ninety-seven percent of the nation's corn was harvested by November 20, equal to last year but slightly ahead of the 5-year average.

Soybean producers nationwide had harvested 87 percent of this year's crop by October 30, four percentage points behind last year but 2 points ahead of the 5-year average. The soybean harvest was nearly complete in Louisiana, Minnesota, North Dakota, and South Dakota by the end of October. Ninety-three percent of the soybean crop was harvested by November 6, slightly behind last year but 2 percentage points ahead of the 5-year average. By November 13, producers had harvested 97 percent of this year's soybeans, equal to last year but 2 percentage points ahead of the 5-year average. By mid-month, more than 90 percent of the soybean crop had been harvested in all estimating states except Michigan and North Carolina.

Nationwide, 95 percent of the cotton had open bolls by October 30, four percentage points behind last year and slightly behind the 5-year average. By October 30, forty-six percent of the cotton was harvested, 2 percentage points behind both last year and the 5-year average. Overall, 49 percent of the cotton was rated in good to excellent condition on October 30, two percentage points better than at the same time last year. Producers had harvested 61 percent of the nation's cotton by November 13, slightly behind last year and 8 percentage points behind the 5-year average. The greatest advances in cotton harvest progress that week were noted in Arizona, Kansas, North Carolina, Oklahoma, South Carolina, and Virginia, where farmers made double-digit gains. Nationally, producers had harvested 77 percent of the cotton by November 27, equal to last year but 7 percentage points behind the 5-year average. In Texas, cotton harvest was ongoing in the Plains and Trans Pecos and finishing up on the Edwards Plateau during the week ending November 27. Texas farmers harvested 15 percent of the cotton during the last full week of November, bringing the overall total to 62 percent harvested by week's end—14 percentage points behind the state's 5-year average.

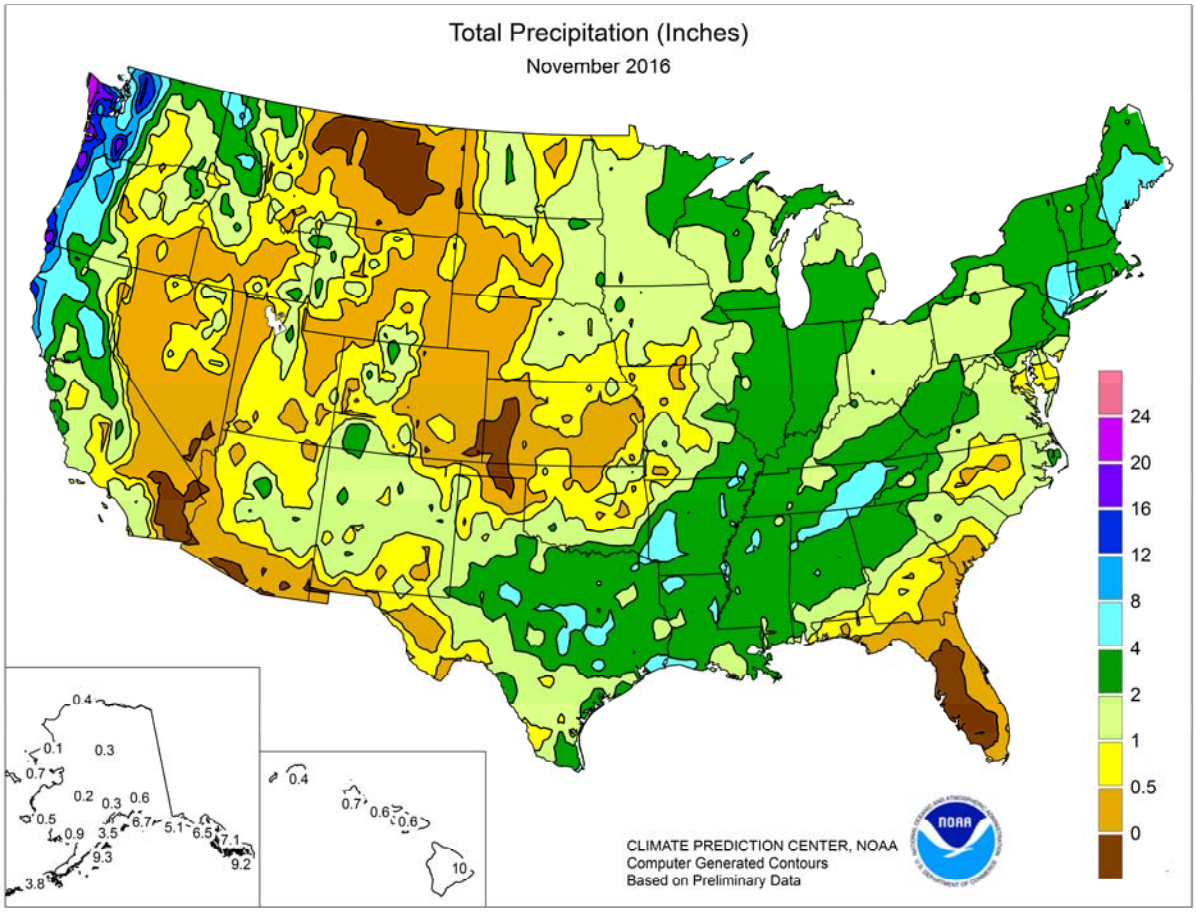
Ninety-six percent of the nation's sorghum was mature by October 30, three percentage points behind last year but slightly ahead of the 5-year average. Producers had harvested 76 percent of the nation's sorghum by October 30, slightly behind last year but 8 percentage points ahead of the 5-year average. Nationally, 90 percent of the sorghum was harvested by November 13, slightly ahead of last year and 4 percentage points ahead of the 5-year average. By November 20, sorghum harvest was more than 90 percent complete in all estimating states except New Mexico. Nationally, 96 percent of the sorghum was harvested by November 27, slightly behind last year but equal to the 5-year average. By November 27, harvest was complete in Arkansas, Louisiana, Missouri, Nebraska, and South Dakota.

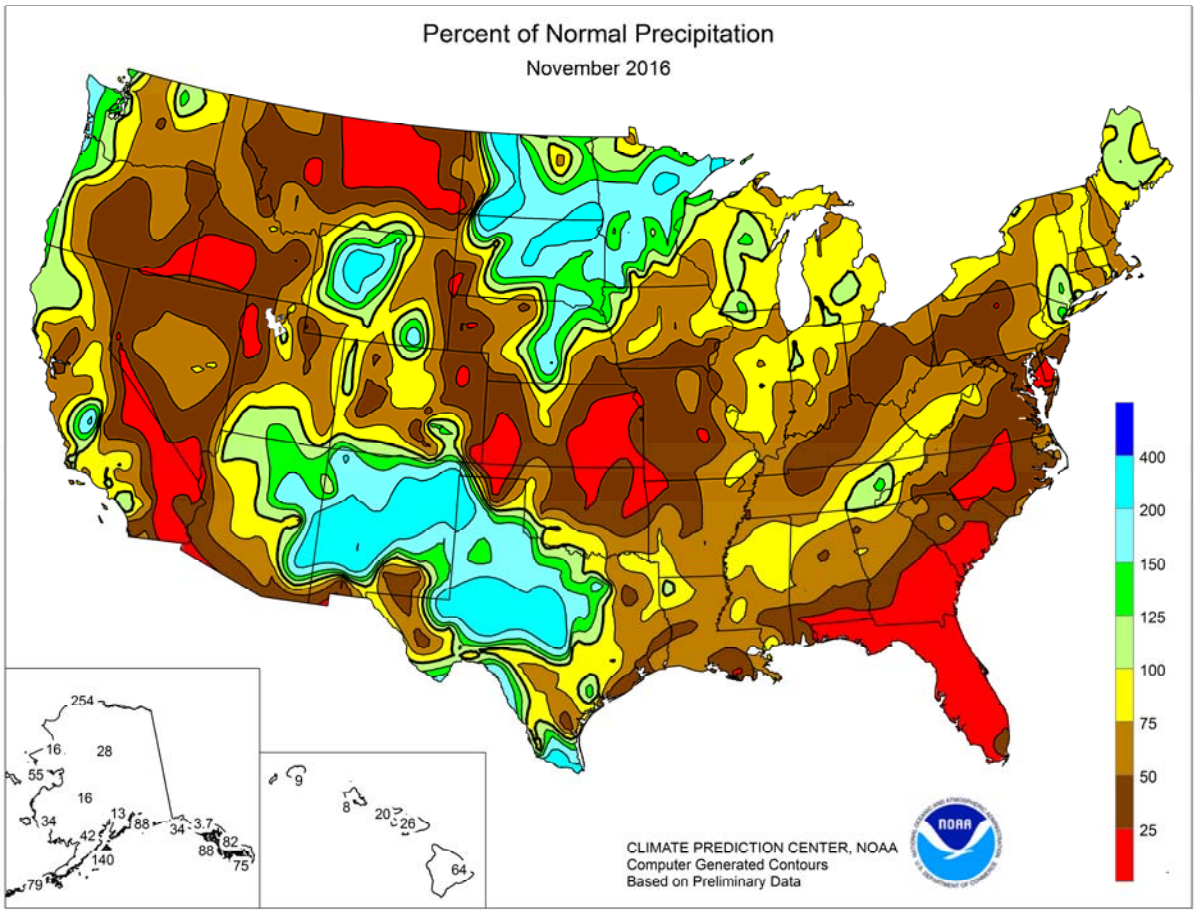
Producers had seeded 86 percent of the 2017 winter wheat by October 30, slightly behind last year and 2 percentage points behind the 5-year average. Thirteen of the 18 estimating states were behind the 5-year average planting pace by the end of October. Nationally, 70 percent of the crop had emerged by October 30, slightly ahead of both last year and the 5-year average. Ninety-seven percent of the nation's 2017 winter wheat was sown by November 20, two percentage points ahead of last year but 2 points behind the 5-year average. By November 20, eighty-nine percent of the nation's winter wheat was emerged, equal to last year but slightly ahead of the 5-year average. The greatest advances in emergence were observed in Arkansas, California, Missouri, North Carolina, and Oregon, where emergence made double-digit gains during that week. By November 27, ninety-two percent of the nation's winter wheat was emerged, equal to both last year and the 5-year average. Emergence was at least 92 percent complete in 12 of the 18 estimating states. Overall, 58 percent of the winter wheat was reported in good to excellent condition, 3 percentage points above the same time last year. On November 27, the Northwestern and Great Lake States generally had better condition ratings than the Southern States.

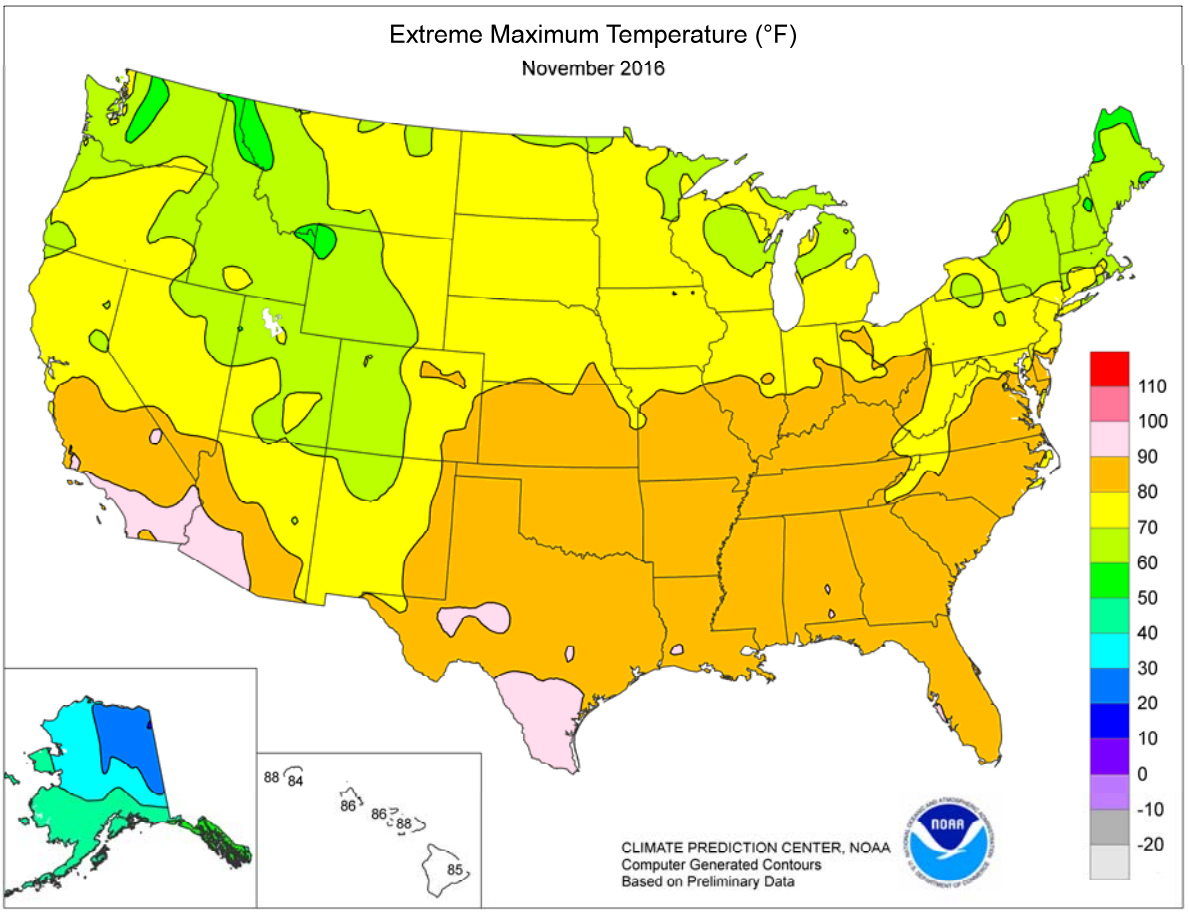
By October 30, producers had dug and combined 77 percent of the nation's peanut crop, 9 percentage points ahead of last year and 3 points ahead of the 5-year average. By November 13, producers had harvested 92 percent of this year's peanut crop, 11 percentage points ahead of last year and 2 points ahead of the 5-year average. By mid-month, the peanut harvest was virtually complete in Alabama, Florida, and Virginia. Nationally, peanut producers had harvested 96 percent of the crop by November 20, ten percentage points ahead of last year and slightly ahead of the 5-year average. Harvest progress in all estimating states except Texas was ahead of last year's pace by November 20.

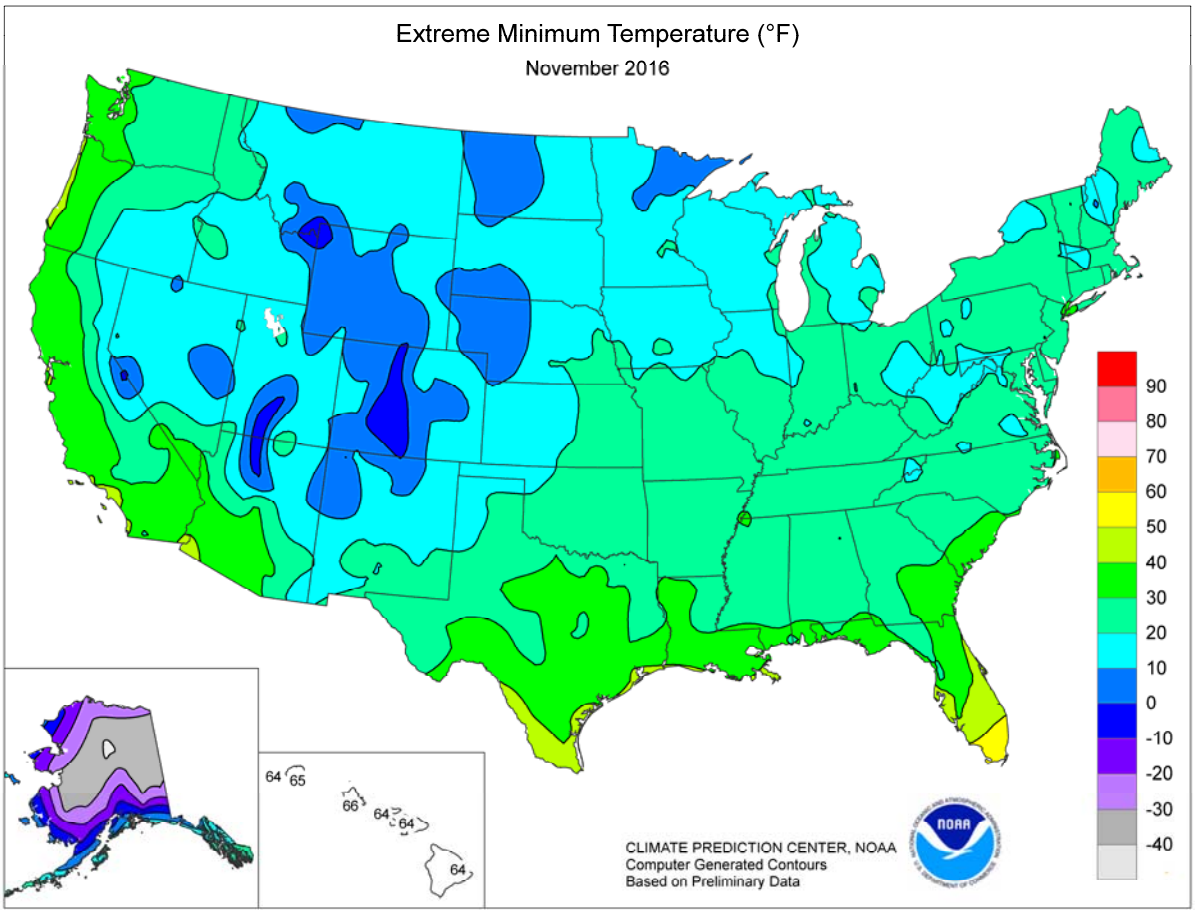
Eighty-six percent of this year's sugarbeet crop had been dug by October 30, four percentage points behind last year and slightly behind the 5-year average. By November 13, ninety-four percent of this year's sugarbeet crop had been dug, 4 percentage points behind last year and 5 points behind the 5-year average. All estimating states were behind their respective 5-year harvest averages by mid-month. Nationally, 98 percent of this year's sugarbeet crop had been dug by November 20, two percentage points behind both last year and the 5-year average.

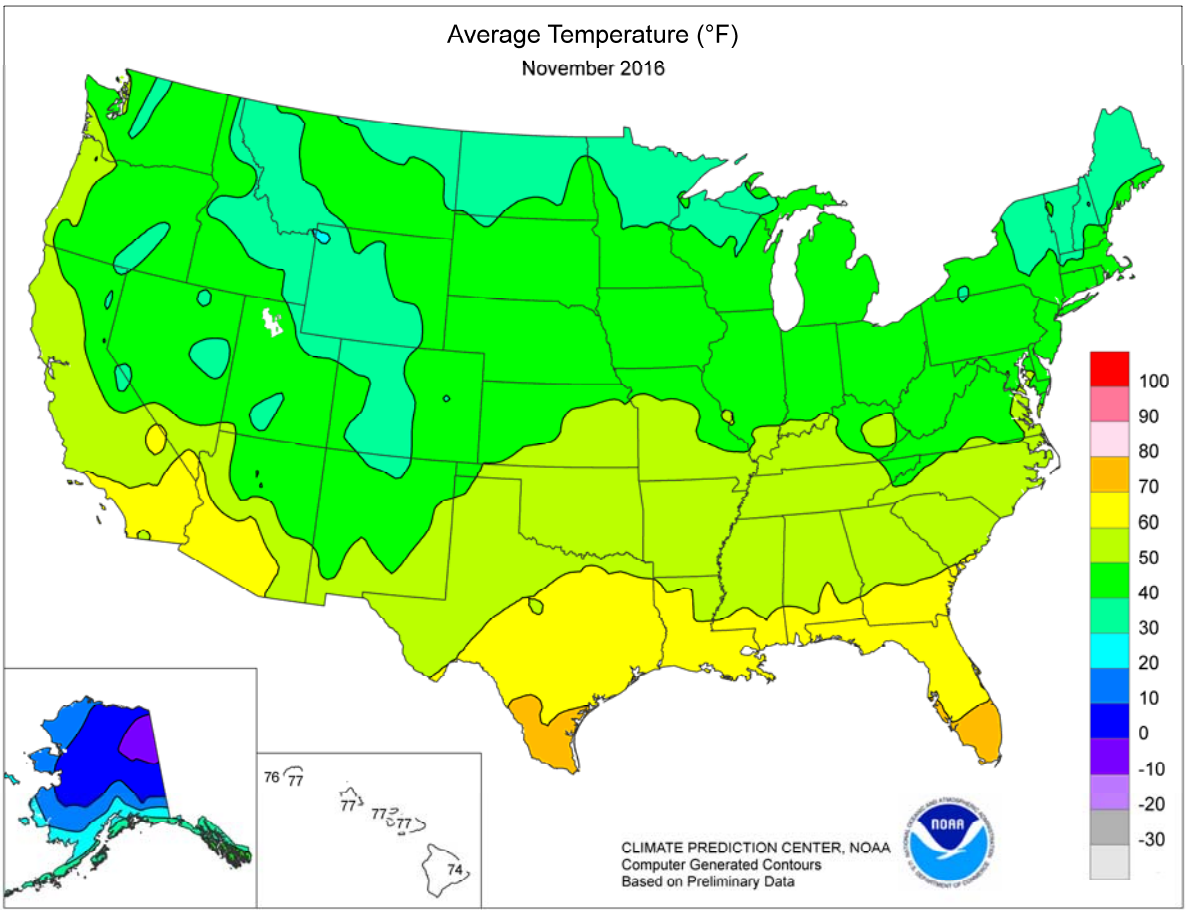
Sunflower producers had harvested 62 percent of this year's crop by October 30, three percentage points behind last year but 5 points ahead of the 5-year average. By November 13, eighty-nine percent of the sunflowers were harvested, 3 percentage points ahead of last year and 8 percentage points ahead of the 5-year average. Above-normal temperatures and mostly dry conditions supported sunflower harvest activities in all estimating states during the week ending November 13. Nationally, 98 percent of the sunflower crop was harvested by November 27, equal to last year but 4 percentage points ahead of the 5-year average. All estimating states were ahead of their respective 5-year harvest averages by November 27.

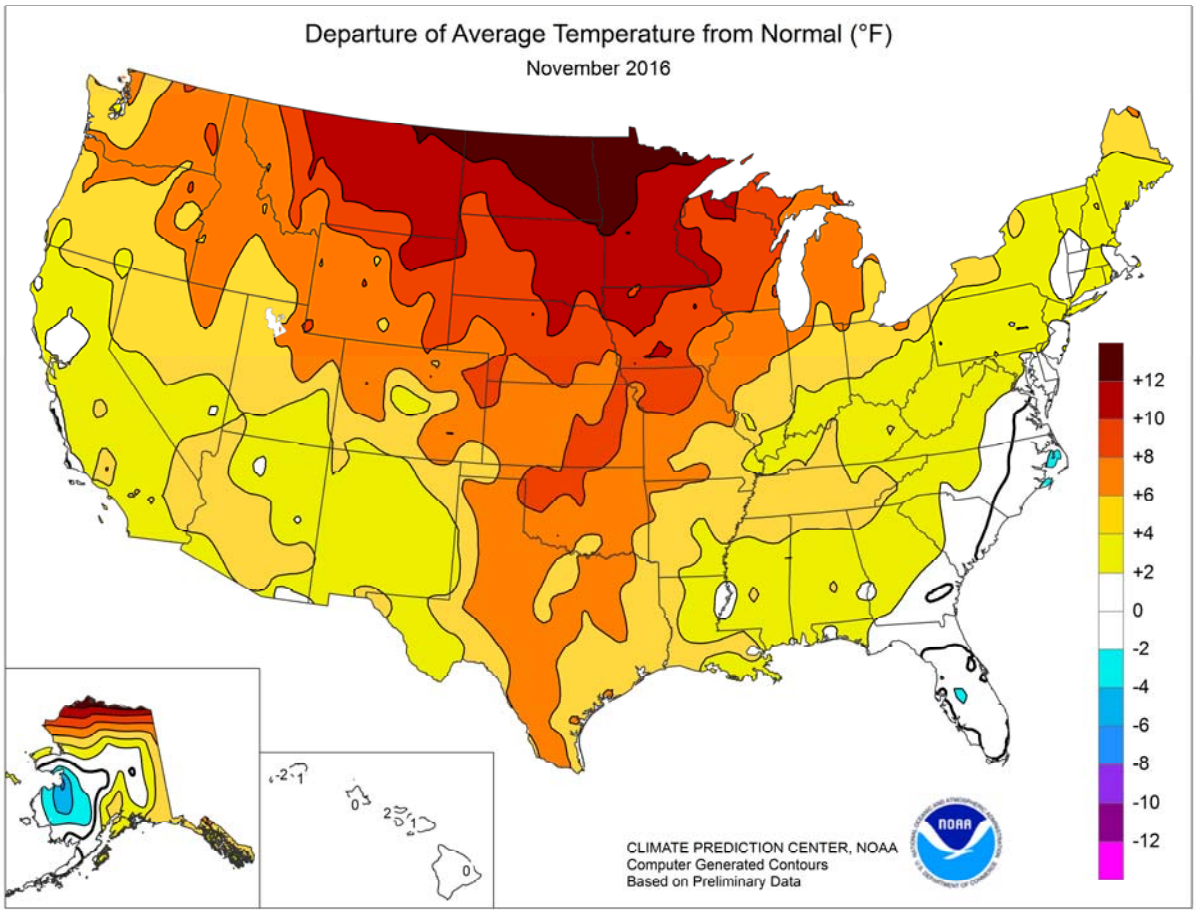

Total Precipitation (Inches)
November 2016
24
20
16
12
8
4
2
1
0.5
0
0.4
0.1
0.3
0.7
0.2
0.3
0.6
0.5
0.9
3.5
6.7
5.1
6.5
7.1
9.3
9.2
3.8
0.4
0.7
0.6
0.6
10
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


Percent of Normal Precipitation
November 2016
400
200
150
125
100
75
50
25
254
16
28
55
16
34
13
88
34
3.7
42
140
88
82
79
75
9
8
20
26
64
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


Extreme Maximum Temperature (°F)
November 2016
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
88
84
86
86
88
85
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


Extreme Minimum Temperature (°F)
November 2016
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
64
65
66
64
64
64
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


Average Temperature (°F)
November 2016
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
76
77
77
77
77
74
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data
NOAA


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

National Weather Data for Selected Cities

November 2016

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP, °F		PRECIP.		STATES AND STATIONS	TEMP, °F		PRECIP.		STATES AND STATIONS	TEMP, °F		PRECIP.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	58	5	2.07	-2.56	LEXINGTON	50	4	1.34	-2.10	COLUMBUS	47	3	1.02	-2.17
HUNTSVILLE	58	7	4.78	-0.44	LONDON-CORBIN	50	3	2.59	-1.31	DAYTON	47	5	1.08	-2.22
MOBILE	63	4	2.05	-3.36	LOUISVILLE	53	5	1.65	-2.15	MANSFIELD	46	6	1.29	-2.47
MONTGOMERY	61	5	1.99	-2.54	PADUCAH	52	5	2.65	-1.88	TOLEDO	45	5	1.80	-0.98
AK ANCHORAGE	26	4	0.25	-0.84	LA BATON ROUGE	64	5	2.59	-2.17	YOUNGSTOWN	45	4	1.96	-1.11
BARROW	13	14	0.41	0.25	LAKE CHARLES	65	5	3.20	-1.41	OK OKLAHOMA CITY	56	7	0.52	-1.59
COLD BAY	36	1	3.78	-1.01	NEW ORLEANS	66	5	2.77	-2.32	TULSA	56	6	1.88	-1.59
FAIRBANKS	4	2	0.29	-0.39	SHREVEPORT	62	6	4.36	-0.32	OR ASTORIA	53	6	17.20	6.70
JUNEAU	37	4	6.51	1.08	ME BANGOR	40	3	4.16	0.47	BURNS	39	6	0.69	-0.42
KING SALMON	24	1	1.92	0.38	CARIBOU	37	6	3.63	0.51	EUGENE	51	6	4.30	-4.14
KODIAK	37	3	9.31	2.68	PORTLAND	41	3	4.06	-0.66	MEDFORD	50	6	1.64	-1.29
NOME	16	-1	0.71	-0.57	MD BALTIMORE	49	3	1.51	-1.61	PENDLETON	47	6	0.91	-0.72
AZ FLAGSTAFF	39	2	1.98	0.12	MA BOSTON	46	1	2.70	-1.28	PORTLAND	53	7	6.83	1.22
PHOENIX	67	5	0.68	-0.05	WORCESTER	42	2	3.89	-0.45	SALEM	51	6	6.90	0.51
TUCSON	64	5	0.50	-0.17	MI ALPENA	43	8	1.84	-0.24	PA ALLENTOWN	46	4	3.33	-0.37
AR FORT SMITH	57	6	1.59	-3.21	DETROIT	46	5	2.09	-0.57	ERIE	48	5	2.52	-1.44
LITTLE ROCK	55	3	2.56	-3.17	FLINT	44	6	2.71	0.06	MIDDLETOWN	47	3	2.16	-1.36
CA BAKERSFIELD	59	4	0.38	-0.21	GRAND RAPIDS	45	7	3.24	-0.11	PHILADELPHIA	50	3	2.17	-0.99
EUREKA	53	2	6.98	1.20	HOUGHTON LAKE	41	6	2.06	-0.08	PITTSBURGH	46	4	1.43	-1.59
FRESNO	58	5	1.38	0.28	LANSING	45	7	3.16	0.50	WILKES-BARRE	44	2	2.08	-1.04
LOS ANGELES	65	3	1.11	-0.02	MUSKEGON	46	7	2.48	-0.75	WILLIAMSPORT	45	4	1.20	-2.42
REDDING	54	3	4.92	0.89	TRAVERSE CITY	46	9	1.98	-0.69	PR SAN JUAN	81	1	17.65	11.48
SACRAMENTO	55	2	1.12	-1.07	MN DULUTH	40	12	2.60	0.48	RI PROVIDENCE	46	2	3.46	-0.94
SAN DIEGO	66	4	0.61	-0.46	INT'L FALLS	37	13	1.80	0.44	SC CHARLESTON	60	2	0.11	-2.55
SAN FRANCISCO	58	3	1.54	-0.95	MINNEAPOLIS	44	11	2.98	1.04	COLUMBIA	56	1	2.01	-0.87
STOCKTON	57	4	1.66	-0.11	ROCHESTER	43	12	1.37	-0.64	FLORENCE	56	1	0.93	-1.66
CO ALAMOSA	34	6	0.44	-0.04	ST. CLOUD	40	11	1.69	0.15	GREENVILLE	56	5	2.08	-1.71
CO SPRINGS	45	9	0.07	-0.45	MS JACKSON	59	4	3.63	-1.41	MYRTLE BEACH	57	0	1.43	-1.54
DENVER	46	9	0.52	-0.08	MERIDIAN	59	3	3.93	-1.02	SD ABERDEEN	40	11	1.71	0.96
GRAND JUNCTION	45	7	0.81	0.10	TUPELO	57	6	4.65	-0.36	HURON	42	11	1.24	0.35
PUEBLO	46	8	0.78	0.20	MO COLUMBIA	51	8	1.80	-1.67	RAPID CITY	42	9	0.23	-0.38
CT BRIDGEPORT	49	4	4.23	0.58	JOPLIN	54	7	0.87	-3.19	SIOUX FALLS	42	11	1.81	0.45
HARTFORD	44	2	3.06	-1.00	KANSAS CITY	51	8	0.51	-1.79	TN BRISTOL	49	3	3.05	-0.03
DC WASHINGTON	53	4	0.76	-2.27	SPRINGFIELD	52	6	2.32	-2.14	CHATTANOOGA	56	6	5.48	0.60
DE WILMINGTON	49	3	1.91	-1.28	ST JOSEPH	49	7	0.54	-1.62	JACKSON	54	4	2.82	-2.08
FL DAYTONA BEACH	67	0	0.10	-2.93	ST LOUIS	52	7	3.73	0.02	KNOXVILLE	53	4	5.78	1.80
FT LAUDERDALE	75	1	1.04	-3.53	MT BILLINGS	44	10	0.38	-0.37	MEMPHIS	57	5	2.56	-3.20
FT MYERS	71	-1	0.00	-1.71	BUTTE	35	8	0.47	-0.13	NASHVILLE	55	6	1.87	-2.58
JACKSONVILLE	63	1	0.02	-2.32	GLASGOW	40	12	0.06	-0.33	TX ABILENE	60	6	2.51	1.21
KEY WEST	76	0	0.11	-2.53	GREAT FALLS	44	12	0.28	-0.31	AMARILLO	52	7	1.10	0.42
MELBOURNE	70	1	0.27	-2.85	HELENA	41	10	0.02	-0.46	AUSTIN	65	5	2.43	-0.25
MIAMI	74	0	0.94	-2.49	KALISPELL	38	7	0.62	-0.83	BEAUMONT	66	5	3.05	-1.70
ORLANDO	69	0	0.06	-2.26	MILES CITY	42	10	0.00	-0.52	BROWNSVILLE	73	5	4.42	2.67
PENSACOLA	66	5	0.86	-3.60	MISSOULA	38	6	0.34	-0.62	COLLEGE STATION	65	5	2.73	-0.45
ST PETERSBURG	69	-1	0.00	-2.04	NE GRAND ISLAND	45	9	1.37	-0.04	CORPUS CHRISTI	72	7	1.25	-0.49
TALLAHASSEE	64	4	0.49	-3.37	HASTINGS	46	9	1.46	0.00	DALLAS/FT WORTH	64	9	3.22	0.65
TAMPA	71	2	0.01	-1.61	LINCOLN	47	9	0.65	-0.93	DEL RIO	65	5	2.10	1.14
WEST PALM BEACH	73	0	1.00	-4.55	MCCOOK	45	7	0.49	-0.60	EL PASO	58	5	0.39	-0.03
GA ATHENS	57	4	2.24	-1.47	NORFOLK	44	9	1.34	-0.10	GALVESTON	71	6	1.26	-2.38
ATLANTA	59	6	2.98	-1.12	NORTH PLATTE	43	8	0.79	0.03	HOUSTON	67	6	1.99	-2.20
AUGUSTA	57	3	0.62	-2.06	OMAHA/EPPLEY	47	9	0.77	-1.05	LUBBOCK	54	6	0.54	-0.17
COLUMBUS	60	3	2.18	-1.79	SCOTTSBLUFF	43	9	0.17	-0.63	MIDLAND	59	7	2.01	1.36
MACON	58	3	1.15	-2.07	VALENTINE	42	9	0.29	-0.43	SAN ANGELO	61	7	2.73	1.63
SAVANNAH	61	2	0.20	-2.20	NV ELKO	41	6	0.50	-0.55	SAN ANTONIO	66	6	1.79	-0.79
HI HILO	74	0	10.04	-5.54	ELY	38	5	0.50	-0.13	VICTORIA	68	5	4.05	1.41
HONOLULU	77	-1	0.73	-1.53	LAS VEGAS	61	6	0.00	-0.31	WACO	62	5	4.36	1.75
KAHULUI	77	1	0.56	-1.61	RENO	47	6	0.15	-0.65	WICHITA FALLS	58	6	1.82	0.14
LIHUE	77	1	0.40	-4.30	WINNEMUCCA	42	5	0.40	-0.40	UT SALT LAKE CITY	47	7	1.76	0.36
ID BOISE	47	7	0.23	-1.15	NH CONCORD	41	3	2.36	-1.21	VT BURLINGTON	41	4	2.13	-0.93
LEWISTON	47	7	0.63	-0.58	NJ ATLANTIC CITY	48	2	1.08	-2.18	VA LYNCHBURG	49	2	1.16	-2.02
POCATELLO	41	6	0.47	-0.66	NEWARK	49	3	6.52	2.64	NORFOLK	52	0	0.98	-2.00
IL CHICAGO/O'HARE	47	8	1.69	-1.32	NM ALBUQUERQUE	48	4	1.03	0.41	RICHMOND	50	1	1.08	-1.98
MOLINE	47	8	1.53	-1.20	NY ALBANY	41	2	3.10	-0.18	ROANOKE	51	4	1.08	-2.13
PEORIA	48	8	2.52	-0.47	BINGHAMTON	40	2	2.10	-1.22	WASH/DULLES	47	2	1.77	-1.54
ROCKFORD	46	9	2.67	0.04	BUFFALO	45	5	3.35	-0.57	WA OLYMPIA	48	6	9.28	1.15
SPRINGFIELD	49	7	2.14	-0.73	ROCHESTER	45	5	2.60	-0.24	QUILLAYUTE	49	5	25.72	10.90
IN EVANSVILLE	51	5	2.70	-1.48	SYRACUSE	42	2	2.78	-0.99	SEATTLE-TACOMA	51	6	6.48	0.58
FORT WAYNE	46	5	2.16	-0.82	NC ASHEVILLE	50	4	1.54	-2.28	SPOKANE	44	9	1.57	-0.67
INDIANAPOLIS	48	5	2.77	-0.84	CHARLOTTE	53	1	0.88	-2.48	YAKIMA	46	9	0.62	-0.43
SOUTH BEND	46	6	2.98	-0.41	GREENSBORO	53	4	1.02	-1.94	WV BECKLEY	47	4	2.59	-0.29
IA BURLINGTON	47	6	1.75	-0.97	HATTERAS	53	-5	2.08	-2.85	CHARLESTON	49	3	2.65	-1.01
CEDAR RAPIDS	45	8	2.36	0.12	RALEIGH	53	2	0.60	-2.37	ELKINS	43	2	2.39	-1.03
DES MOINES	49	11	1.38	-0.72	WILMINGTON	55	-1	2.09	-1.17	HUNTINGTON	50	4	2.08	-1.24
DUBUQUE	44	8	2.59	0.10	ND BISMARCK	40	12	1.42	0.72	WI EAU CLAIRE	42	10	1.16	-0.76
SIOUX CITY	45	10	2.04	0.64	DICKINSON	39	10	0.39	-0.20	GREEN BAY	45	11	2.29	0.02
WATERLOO	44	9	1.48	-0.62	FARGO	42	15	1.80	0.74	LA CROSSE	46	11	1.16	-0.94
KS CONCORDIA	49	8	0.57	-0.88	GRAND FORKS	41	15	1.34	0.35	MADISON	44	9	2.17	-0.14
DODGE CITY	50	8	0.37	-0.64	JAMESTOWN	40	13	1.04	0.33	MILWAUKEE	47	9	2.21	-0.49
GOODLAND	46	9	0.21	-0.61	MINOT	40	13	1.91	1.05	WAUSAU	41	9	2.89	0.69
HILL CITY	47	7	0.45	-0.29	WILLISTON	38	12	0.24	-0.41	WY CASPER	41	9	0.38	-0.44
TOPEKA	51	8	0.19	-2.12	OH AKRON-CANTON	46	5	1.75	-1.29	CHEYENNE	42	9	0.48	-0.16
WICHITA	53	9	0.26	-1.56	CINCINNATI	48	3	1.51	-1.95	LANDER	37	7	2.19	1.20
KY JACKSON	52	4	2.91	-1.29	CLEVELAND	49	7	2.10	-1.28	SHERIDAN	40	9	1.28	0.48

Based on 1971-2000 normals

***** Not Available**

National Agricultural Summary

December 5 – 11, 2016

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

Below-average weekly temperatures prevailed across the majority of the U.S. for the first time since late August. The northern Plains recorded temperatures more than 5°F below normal, with parts of Montana, Wyoming, and the Dakotas averaging more than 15°F below normal. Precipitation was generally close to average except in parts of the Southeast and Pacific Northwest. An early-week rain event across Alabama, Florida, and Georgia brought as much as 7.5 inches of precipitation.

Arizona: Alfalfa conditions were rated mostly good to excellent, depending on location. Harvesting continued on almost three-quarters of the alfalfa acreage across the state. Cotton harvest was 88 percent complete, behind the previous year of 89 percent but ahead of the 5-year average of 82 percent. Central Arizona growers shipped anise, beets, broccoli, cabbage (green and red), cantaloupes, cauliflower, cilantro, collard greens, kale greens, kohlrabi, Swiss chard, green onions, and parsley. In western Arizona, growers shipped anise, arugula, broccoli, cantaloupes, cauliflower, celery, Chinese cabbage, cilantro, endive, escarole, frisee, kale greens, Boston lettuce, iceberg lettuce, green leaf lettuce, processed lettuce, romaine lettuce, red leaf lettuce, bok choy, oranges, parsley, radicchio, and spinach. Windy weather has been causing a reduction in soil moisture in northwestern Arizona. Rangeland conditions varied widely depending on location, but were rated mostly good to fair. No precipitation was reported in the state during the week. The highest temperature during the week was 78°F at Paloma, Roll, and Yuma North Gila. The lowest temperature was 12°F at Canyon De Chelly.

California: Several shortwaves rotated around a large-scale trough, bringing multiple rounds of heavy rain to the west coast. Very heavy precipitation fell in the northern valley, northwestern mountains, and northern/central Sierras. The mountainous areas saw snow and rain, with some areas receiving 4 to 6 inches of rain. Mountain snowpack has built up across the state, particularly in the northern mountains and the northern/central Sierras. Rain helped newly planted forage crops to germinate, and provided a boost to those already up and growing. Fields continued to be prepared and planted for winter wheat and barley forage. Cotton harvest was completed. Alfalfa underwent the last cutting for the season, and alfalfa seed was exported to Turkey. For fruit crops, kiwi, pomegranate, Asian pear, and persimmon harvest continued. Apple harvest was in full swing. Guava and Bartlett pears were harvested. Navel orange, grapefruit, lime, lemon, Satsuma mandarin, and pomelo harvest continued. Clementine mandarin harvest continued in the San Joaquin Valley. Pruning and clean up continued in stone fruit and olive orchards. Pulling of some older orchards continued. Pruning began in some vineyards. Pecan harvest began. In harvested walnut and almond orchards, pruning and shredding continued. Zinc sulfate and boron were applied to some harvested almond and pistachio orchards. In San Joaquin County, winter farmers' market vegetables were harvested. In Fresno County, carrots were harvested while fungicides were applied to later fields. Onion and garlic fields have shown good growth. Asparagus fields continued to fern nicely and parsley harvest was ongoing. Broccoli for seed was planted. In Tulare County, winter vegetables continued to develop. Strawberries were being planted and growing well. Blueberry plants were being received and planted. Non-irrigated pasture and rangeland in the northern half of the state was mostly in fair condition due to autumn precipitation. San Joaquin Valley and southern Sierra foothill range recovery was lagging, as recent storms have not brought significant moisture that far south. Considerably more precipitation is needed to recover from the state's extended drought. Supplemental feeding of cattle continued to compensate for the poor forage condition. Lambing was wrapping up for the season. Sheep grazed on alfalfa, fallowed, and retired cropland. Some bees were moved into the state to overwinter and in anticipation of the almond bloom.

Florida: There were 5.9 days suitable for fieldwork. Precipitation ranged from 0.04 inch in North Port (Sarasota County) to 8.09 inches in Marianna (Jackson County). Average temperatures ranged from 50.9°F in Jay (Santa Rosa County) to 76.2°F in Ft. Lauderdale (Broward County). More rain fell across the state this week, bringing some much-needed moisture. Some areas reported significant increases to the overall soil moisture level, while others reported runoff as opposed to rain soaking into the ground. Temperatures were elevated most of the week in the citrus-growing region. Cooler weather over the weekend dropped lows to the upper 40s to mid-50s. For the first time in several weeks, the citrus region had significant rainfall. Eight of eighteen monitored weather stations recorded rainfall of one-half inch or more. The highest total was in Lake Alfred (Polk County) at 0.80 inch. Canals and ditches are still at low levels due of the lack of rain over the past 2 months. Growers continued to irrigate regularly to keep moisture in the ground and on the trees. According to the December 6 U.S. Drought Monitor, abnormal dryness and drought conditions are present in northern Florida, but have not yet reached the citrus-growing region. Most varieties were being harvested for the fresh market. Red grapefruit was being spot picked in order to get larger sizes. White grapefruit was being harvested in limited quantities, mostly for fresh market. Other fruit harvested for the fresh market included Sunburst tangerines, early and mid-oranges, Navel oranges, and tangelos. Field run fruit for processing was being picked-up on early and midseason oranges. Growers were continuing to spray in order to lower the psyllid population. Mowing was mostly before harvest. Other grove practices occurring included fertilizing, herbiciding, spraying supplemental miticides, and general grove care. Growers in Orange County reported harvesting sweet corn, cabbage, and pickling cucumbers. Crops coming to market included avocado, bitter melon, boniato, eggplant, green beans, herbs, malanga, pepper, squash, tomato, zucchini, and other tropical fruits. Cattle condition was reported to be in mostly fair to good condition. Winter forages were planted in Washington County. Supplemental cattle feeding continued in several counties. Many areas received good rainfall, bringing drought relief. Some cover crops were planted this week in Washington County. Sugarcane harvest continued in Broward, Glades, Hendry, and Palm Beach Counties.

December 8 ENSO Update

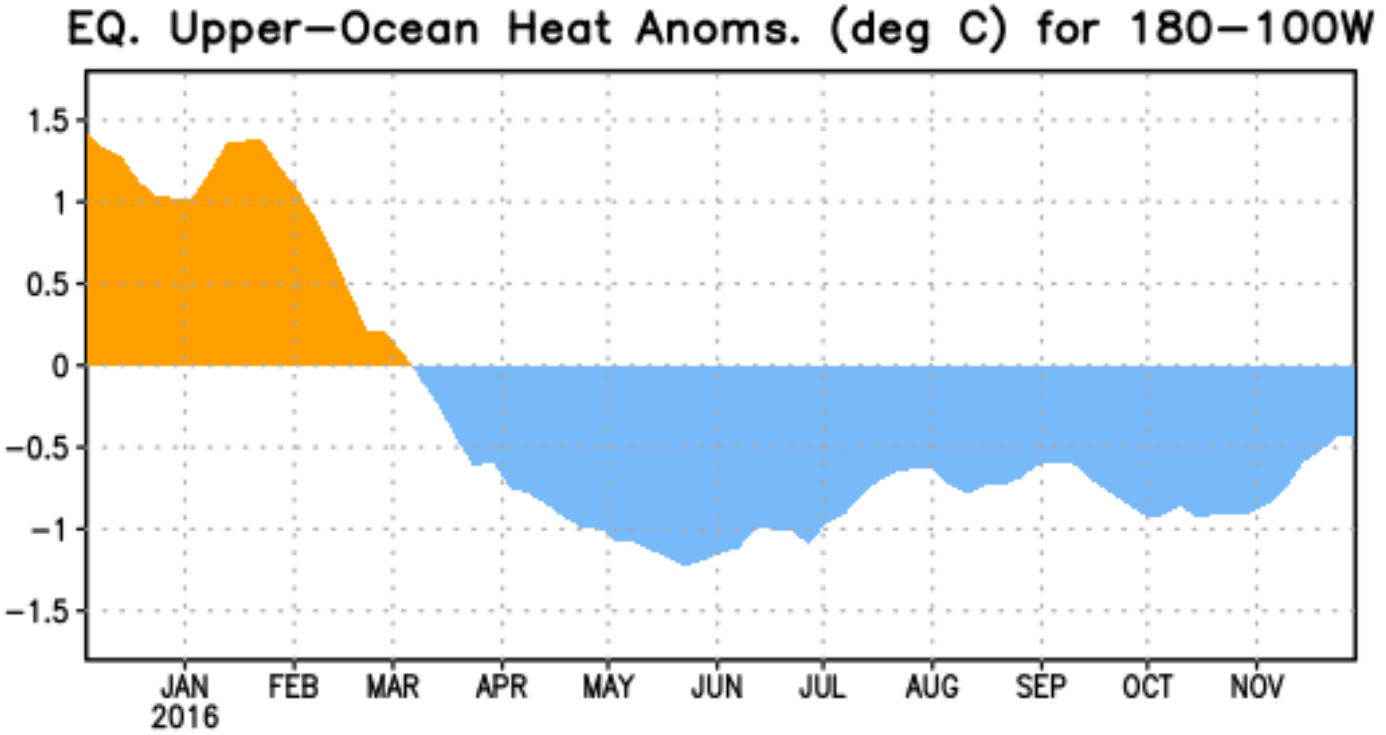


Figure 1: Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180º-100ºW). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

ENSO Alert System Status: La Niña Advisory

Synopsis: La Niña conditions are present, with a transition to ENSO-neutral favored during January-March 2017.

La Niña conditions persisted during November, with negative sea surface temperature (SST) anomalies present across most of the central and eastern equatorial Pacific. The Niño indices remained negative during November, except for the Niño1+2 index which reflected near-average SSTs in the extreme eastern Pacific late in the month. Also, the upper-ocean heat content remained below average (Fig. 1) in association with cooler temperatures at depth, although this cooling lessened somewhat during the month. Atmospheric convection remained suppressed over the central tropical Pacific and enhanced over part of Indonesia. The low-level easterly winds remained enhanced in the west-central tropical Pacific, and upper-level westerly winds persisted across the tropical Pacific. However, these signals were masked at times by intra-seasonal activity. Overall, the ocean and atmosphere system during November reflected a continuation of weak La Niña conditions.

The multi-model averages favor La Niña (3-month average Niño-3.4 index ≤ -0.5°C) to continue through December – February (DJF) 2016-17. Given the current conditions and the model forecasts, the forecaster consensus also favors the continuation of weak La Niña conditions through DJF 2016-17. In summary, La Niña conditions are present, with a transition to ENSO-neutral favored during January – March 2017 (click CPC/IRI consensus forecast for the chance of each outcome for each 3-month period).

La Niña is anticipated to affect temperature and precipitation across the United States during the upcoming months (NOAA's 3-month seasonal outlook will be updated on Thursday December 15th). The current seasonal outlook for DJF 2016-17 favors above-average temperatures and below-median precipitation across much of the southern tier of the U.S., and below-average temperatures and above-median precipitation in portions of the northern tier of the U.S.

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site (El Niño/La Niña Current Conditions and Expert Discussions). Forecasts are also updated monthly in the Forecast Forum of CPC's Climate Diagnostics Bulletin. Additional perspectives and analysis are also available in an ENSO blog. The next ENSO Diagnostics Discussion is scheduled for **12 January 2017**. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.enso-update@noaa.gov.

International Weather and Crop Summary

December 4-10, 2016

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

HIGHLIGHTS

EUROPE: Sunny, mild weather maintained favorable conditions for dormant winter crops across central and northern Europe.

WESTERN FSU: Cold, unsettled weather prevailed, though dormant winter wheat was devoid of a protective snow cover in key southern growing areas.

MIDDLE EAST: Following recent much-needed rain, dry albeit cold weather returned to winter crop areas from Turkey into Iran.

NORTHWESTERN AFRICA: Additional showers in Morocco and Algeria further improved winter grain prospects following autumn drought.

EASTERN ASIA: Unseasonably mild weather continued across eastern China, promoting development of vegetative rapeseed.

SOUTHEAST ASIA: Unseasonably wet weather continued in northern sections of the region, while heavy showers kept rice well watered in Indonesia.

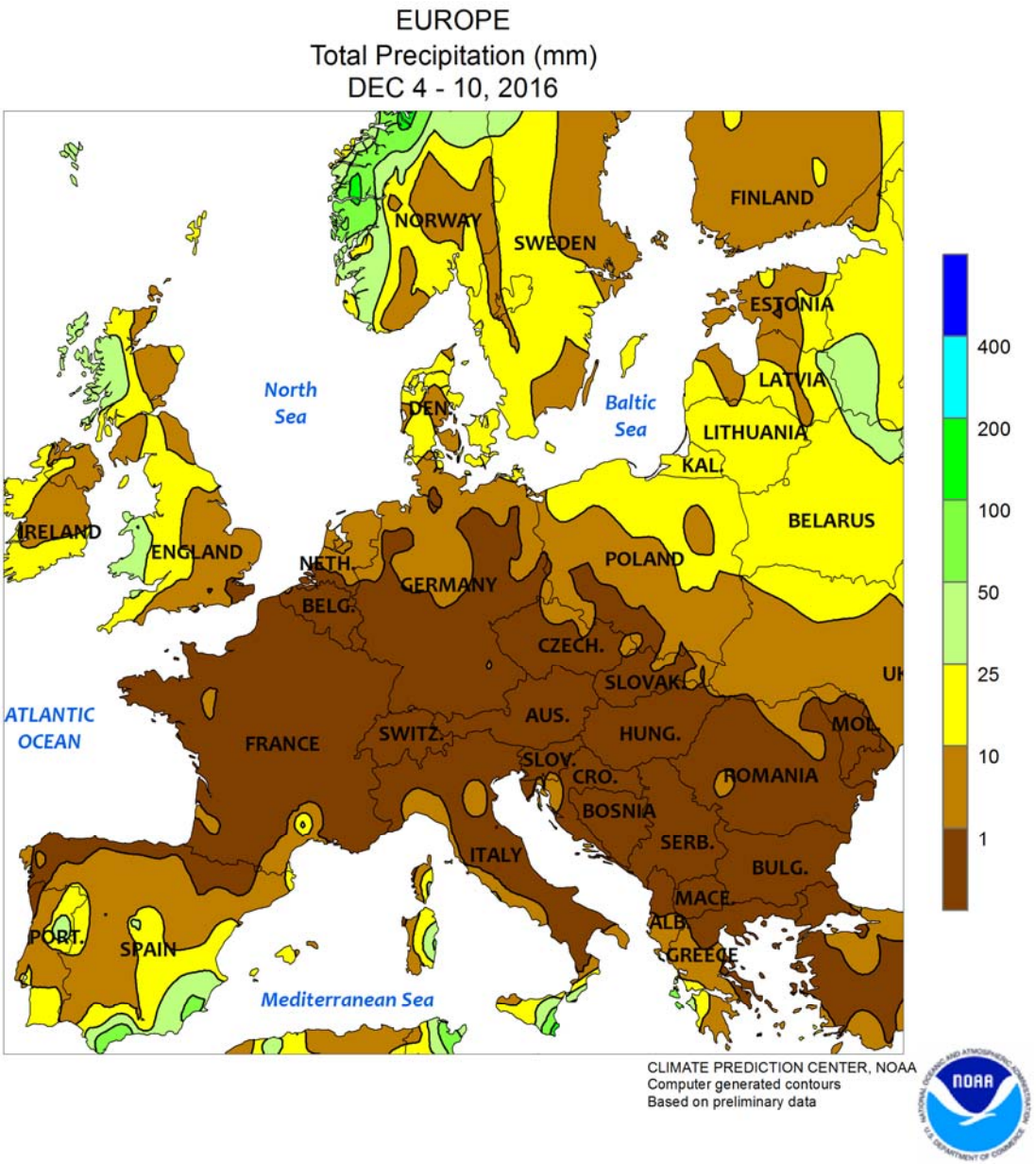
AUSTRALIA: Showers caused temporary delays in winter crop harvesting, while hot weather elevated water requirements for vegetative summer crops.

SOUTH AFRICA: Beneficial rain returned to the corn belt, providing timely moisture for emerging summer crops.

ARGENTINA: Mostly dry, occasionally warm weather reduced moisture for newly-sown corn and soybeans in central Argentina.

BRAZIL: Showers benefited most agricultural areas of central and southern Brazil.

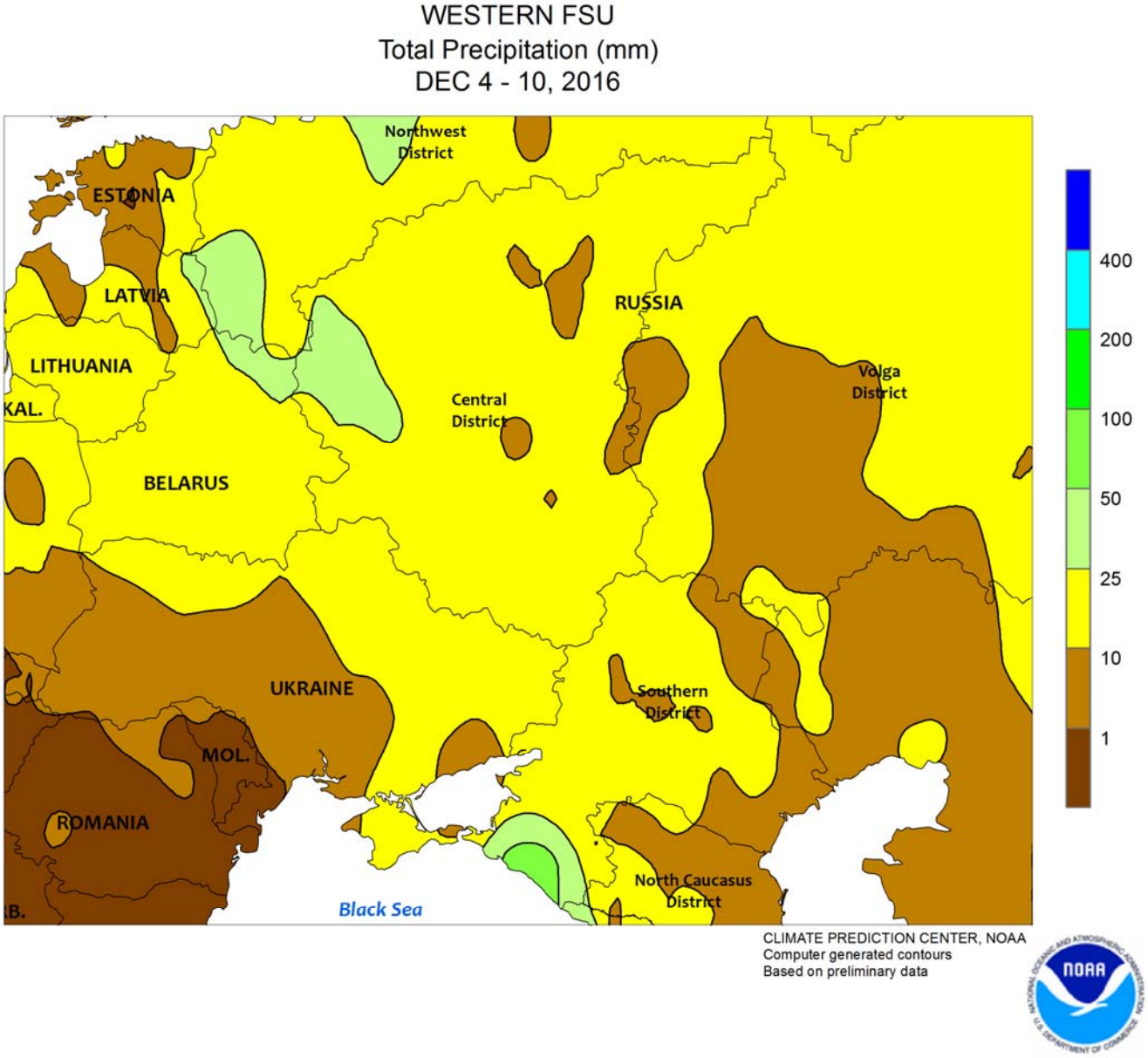
For additional information contact: mbrusberg@oce.usda.gov



EUROPE

A large area of high pressure maintained mostly dry, mild weather across the continent. From France and southeastern England into southwestern Poland and the Balkans, sunny skies and near- to above-normal temperatures (save for readings up to 3°C below normal in southeastern Europe) were favorable for dormant winter wheat and rapeseed. Rain and wet snow (5-22 mm liquid equivalent) in the Baltic States improved moisture reserves for spring growth following a dry autumn. In Spain and Portugal, variable showers (2-50 mm) sustained favorable moisture supplies for winter wheat and barley establishment.

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



WESTERN FSU

Moisture reserves remained favorable for dormant winter crops, though many key southern growing areas remained devoid of a protective snow cover. Widespread precipitation — rain in the south and snow in the north — maintained adequate to abundant moisture reserves for spring growth. Temperatures averaged 2 to 6°C below normal in the region's key winter wheat areas from central and southern Ukraine into southern Russia, though these same areas remained devoid of a protective snow cover. At week's end, snow cover (2-20 cm) extended from northern Ukraine and Russia's Central District east into the Volga District as well as northern portions of the Southern District. Key winter wheat areas in the southwestern Southern District remained exposed to potential incursions of bitter cold.

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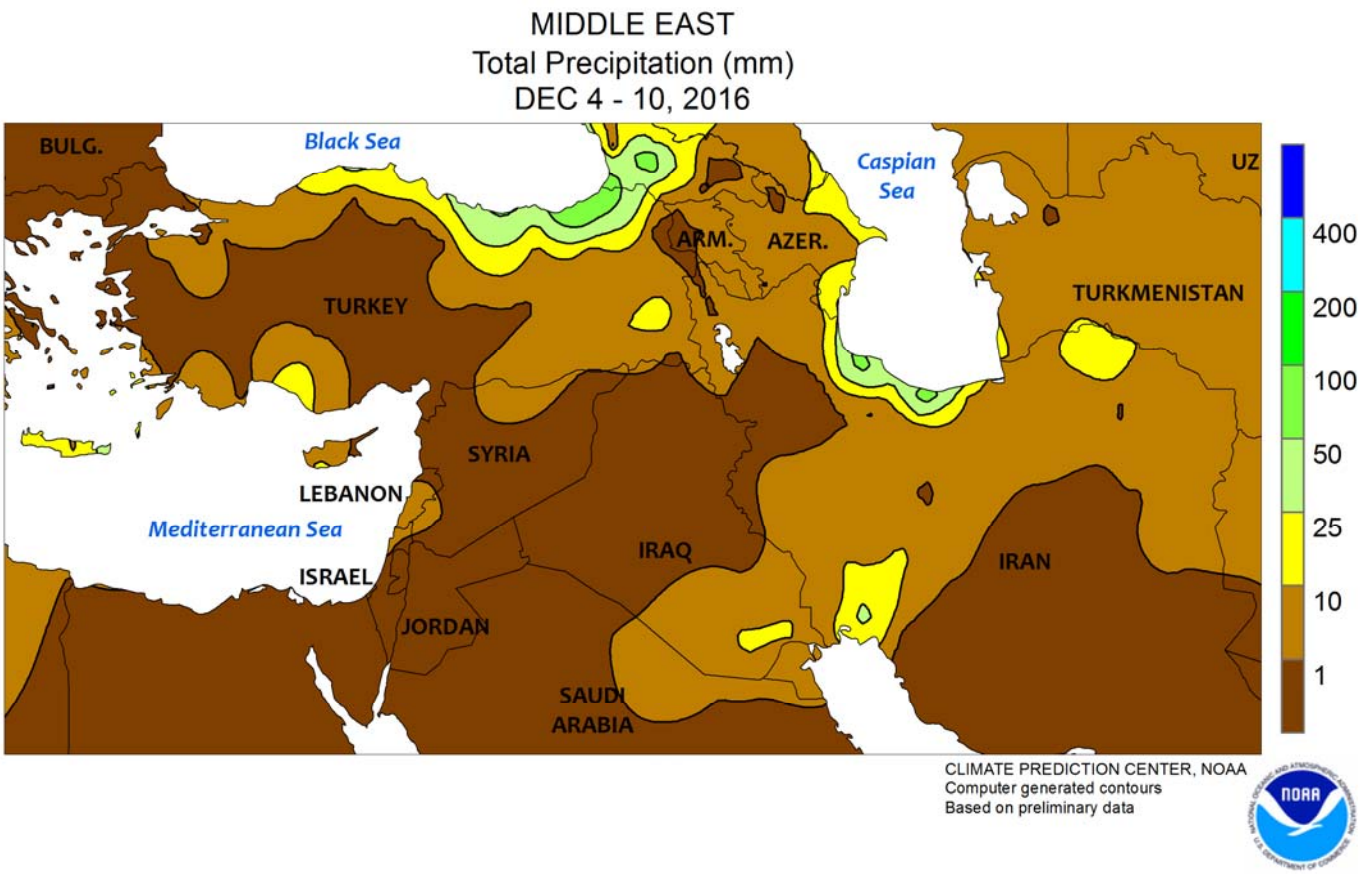

MIDDLE EAST

After recent beneficial rain and snow, drier conditions returned to much of the region. In central Turkey, last week's precipitation was too late to benefit winter grain establishment, as crops were dormant. However, rain aided winter wheat and barley establishment in the warmer Mediterranean coastal areas. Similarly, winter crops in the climatologically colder growing areas of western Iran were mostly dormant and did not benefit from last week's rain, while this week's showers (3-30 mm) were favorable for winter grains in warmer southwestern growing areas. Drought-easing rain mostly bypassed crop areas from the southeastern Mediterranean Coast into Iraq, with many wheat and barley areas yet to report any significant precipitation in the current winter crop growing season. However, rain was approaching these drought-afflicted areas as of December 12. Colder-than-normal conditions prevailed in Turkey and northwestern Iran, though nighttime readings (-15 to -7°C) were above the threshold for winterkill.

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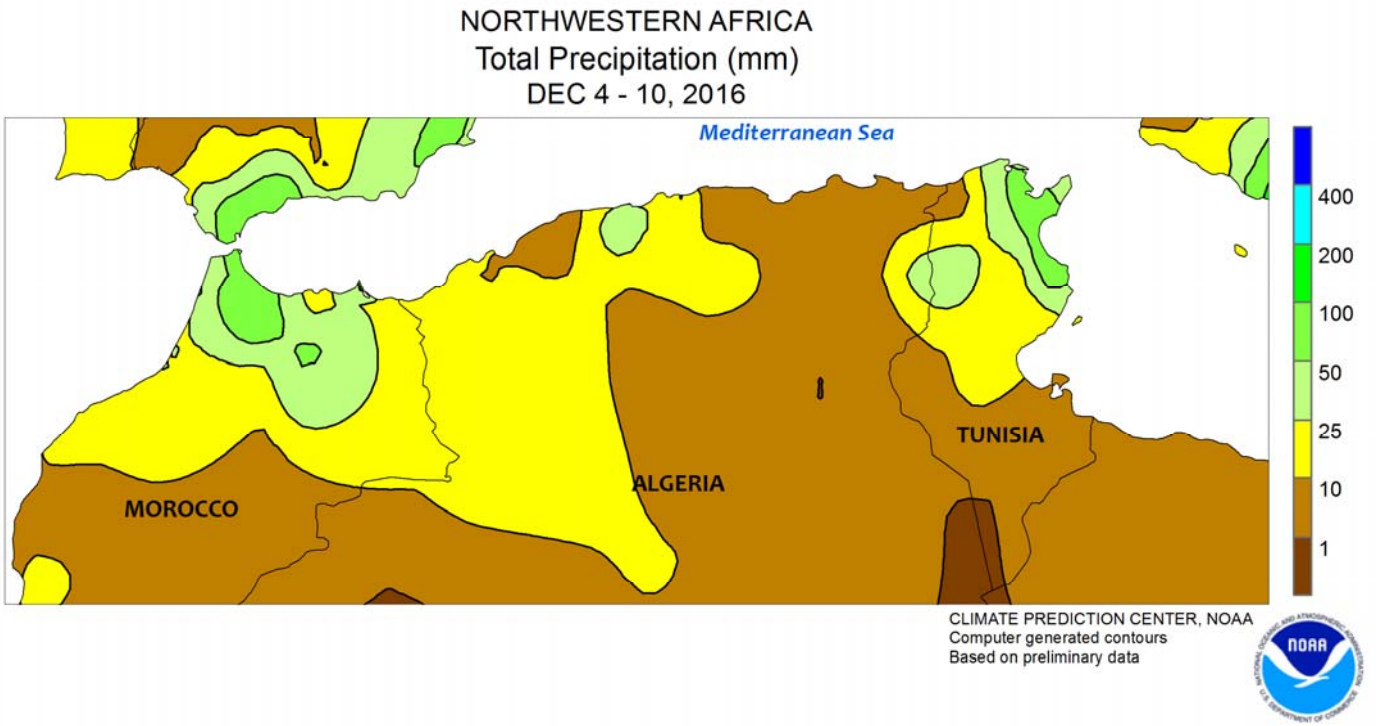

NORTHWESTERN AFRICA

Additional showers further improved crop prospects in western growing areas and maintained good to excellent conditions in the east. Another round of moderate to heavy showers (5-100 mm) from Morocco into central Algeria increased soil moisture supplies for winter wheat and barley establishment on the heels of this autumn's drought. Farther east — where autumn drought has not been an issue — 10 to 50 mm of rain (locally more) in Tunisia maintained favorable conditions for early winter grain development.

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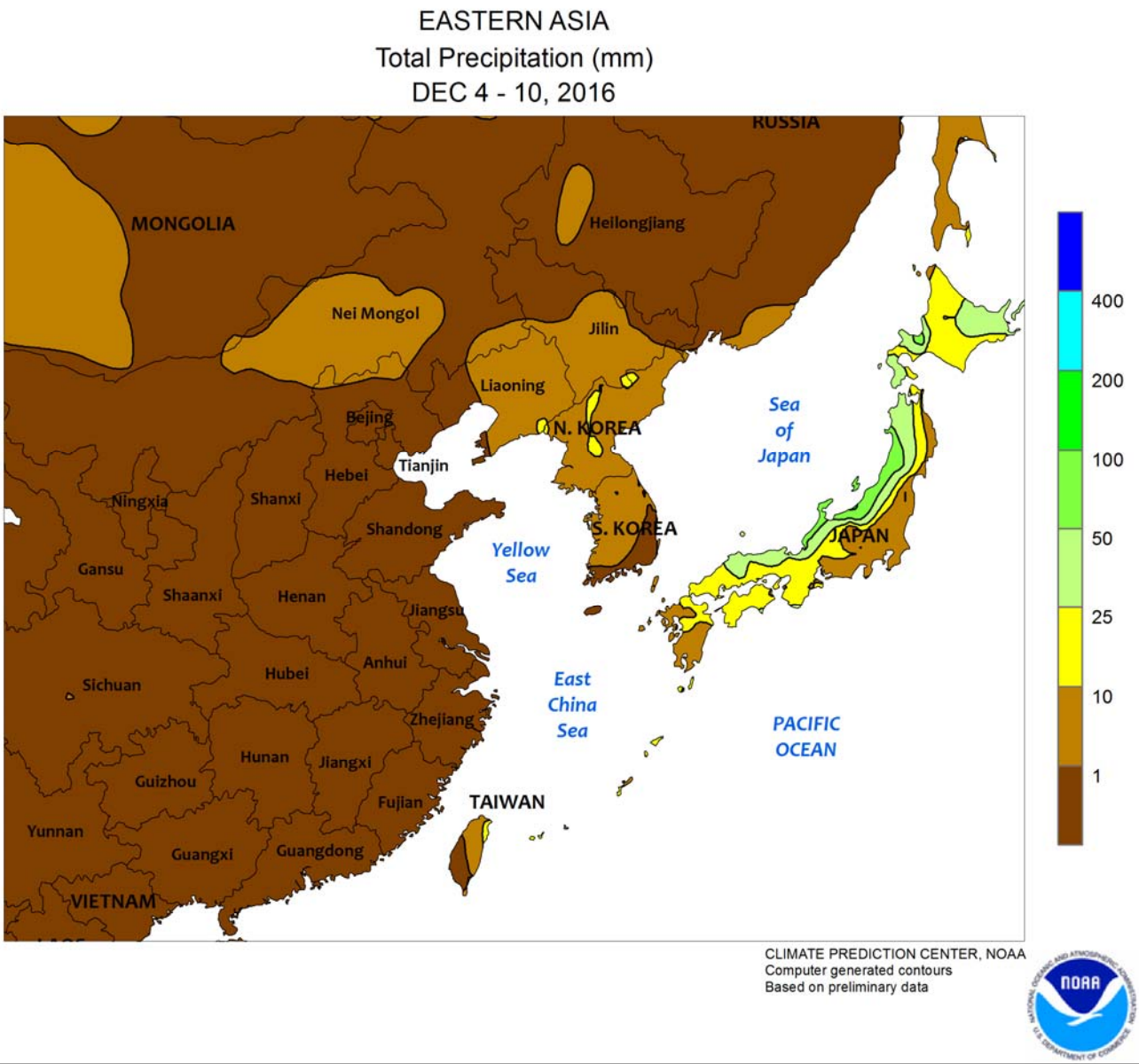

EASTERN ASIA

Seasonably dry weather continued across much of eastern China's winter wheat and rapeseed areas. The dryness was more unseasonable in traditionally wetter areas to the south. Nevertheless, soil moisture conditions remained favorable for crops. In addition, unseasonably warm weather (temperatures averaging as much as 5°C above normal) promoted vegetative growth for rapeseed in the Yangtze Valley and also benefited overwintering wheat.

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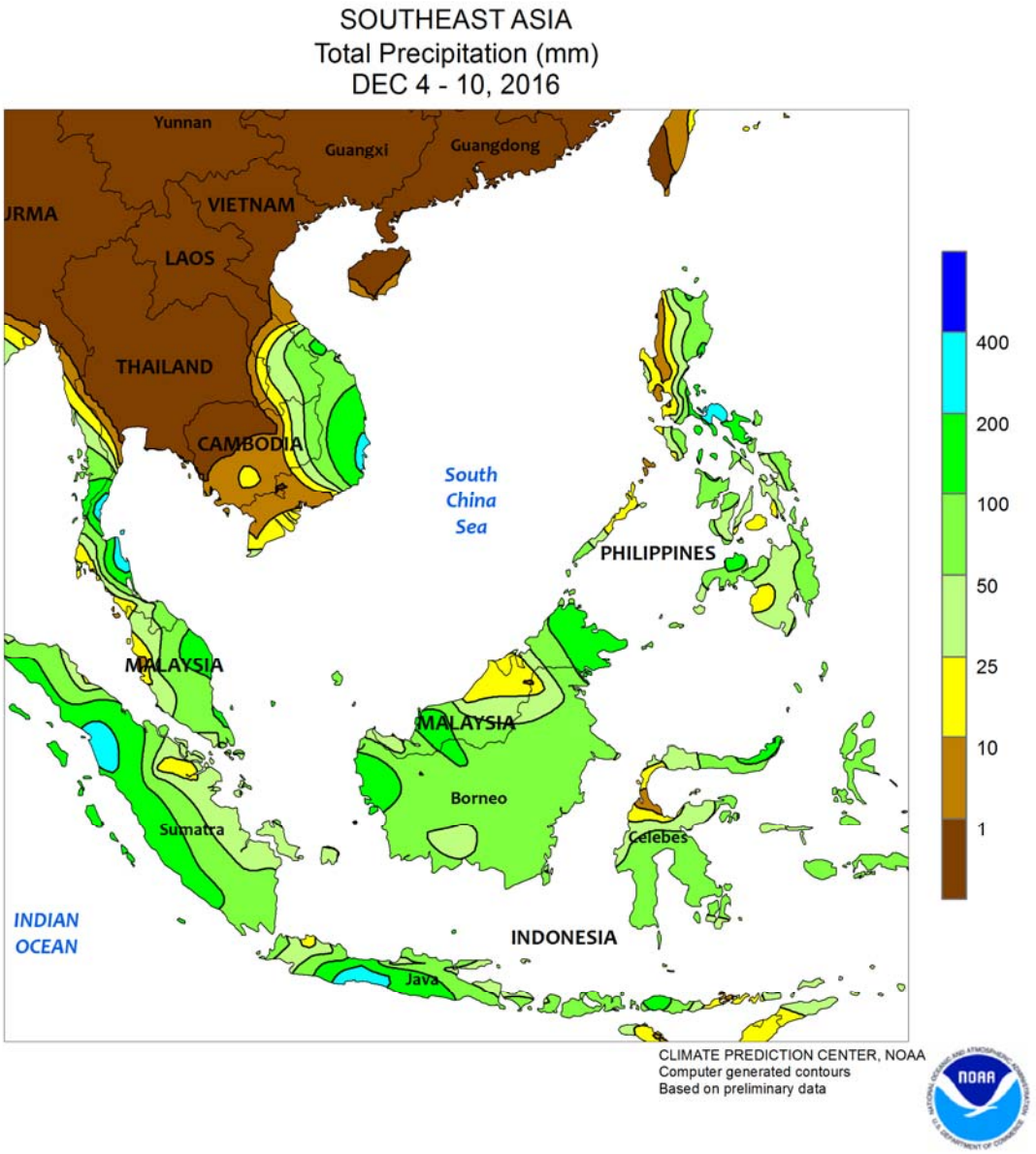

SOUTHEAST ASIA

Unseasonably wet weather continued across central Vietnam where some locations have received more than 1,000 mm of rainfall over the last four weeks. Much of the Philippines also remained unseasonably wet (50-100 mm, locally over 200 mm), although amounts over the last few weeks were less excessive than in Vietnam. The moisture conditions in the Philippines have benefited rice and corn and maintained favorable prospects. Farther south, heavy showers (50-100 mm or more) continued in Indonesia, maintaining ample soil moisture for rice and oil palm. Similar rainfall amounts in Malaysia also maintained good soil moisture for oil palm.

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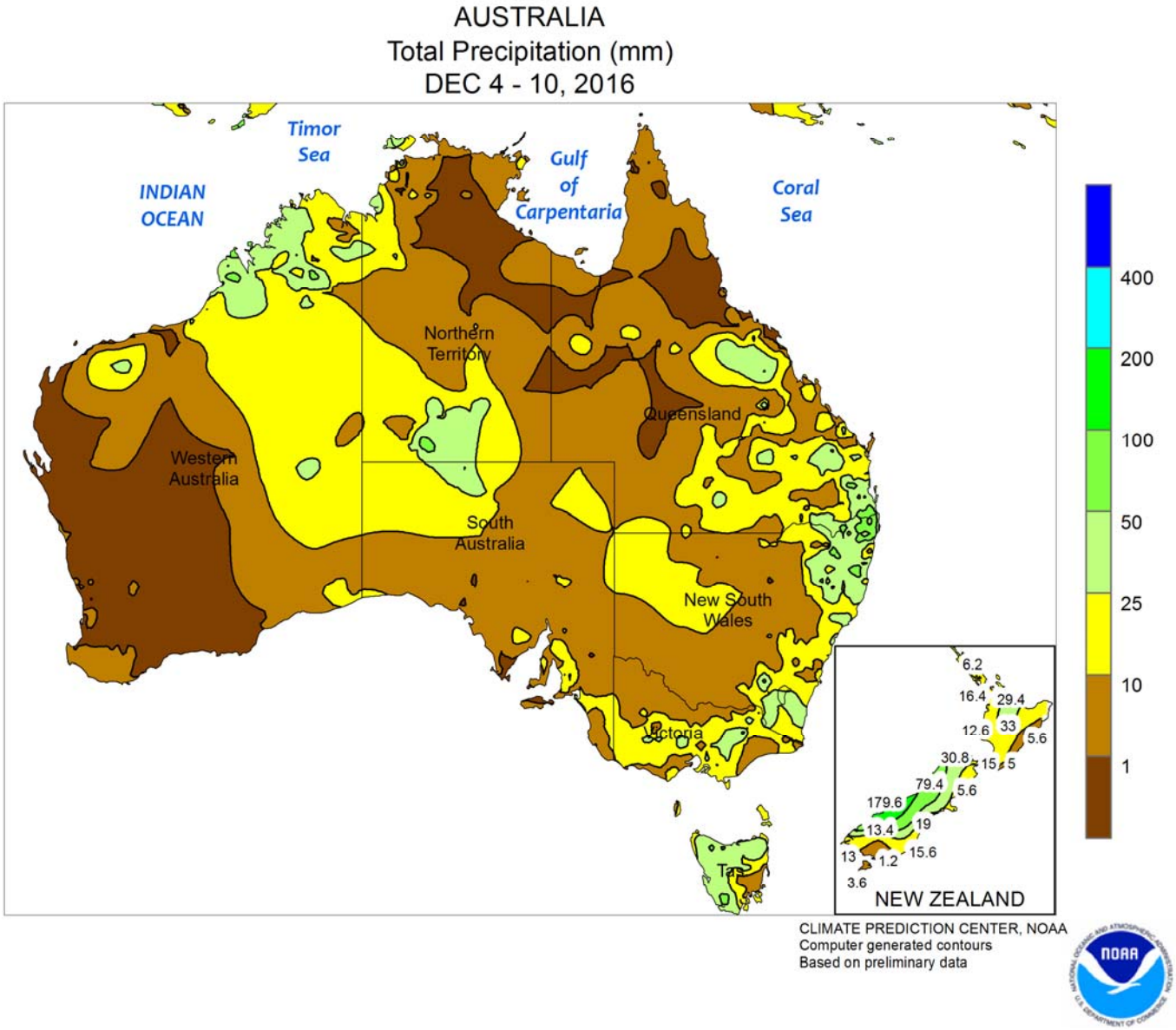

AUSTRALIA

In Western Australia, seasonably warm, dry weather promoted uninterrupted wheat, barley, and canola harvesting. In southern and eastern Australia, periodic showers (5-15 mm, locally more) through midweek may have caused some delays in winter crop harvesting. The showers were generally light, likely resulting in relatively brief delays. In northern New South Wales and southern Queensland, the rain provided a welcome boost in topsoil moisture for vegetative summer crops. However, hot weather during the first half of the week elevated crop water demands and may have stressed some crops, offsetting the benefits of the rainfall. Cooler weather by week's end helped ease evaporative losses, providing more favorable conditions for summer crop development. Temperatures averaged 2 to 4ºC above normal for the week, accelerating summer crop growth. Daily maximum temperatures frequently climbed into the upper 30s and lower 40s degrees C, before cooler weather filtered into the region during the latter half of the week.

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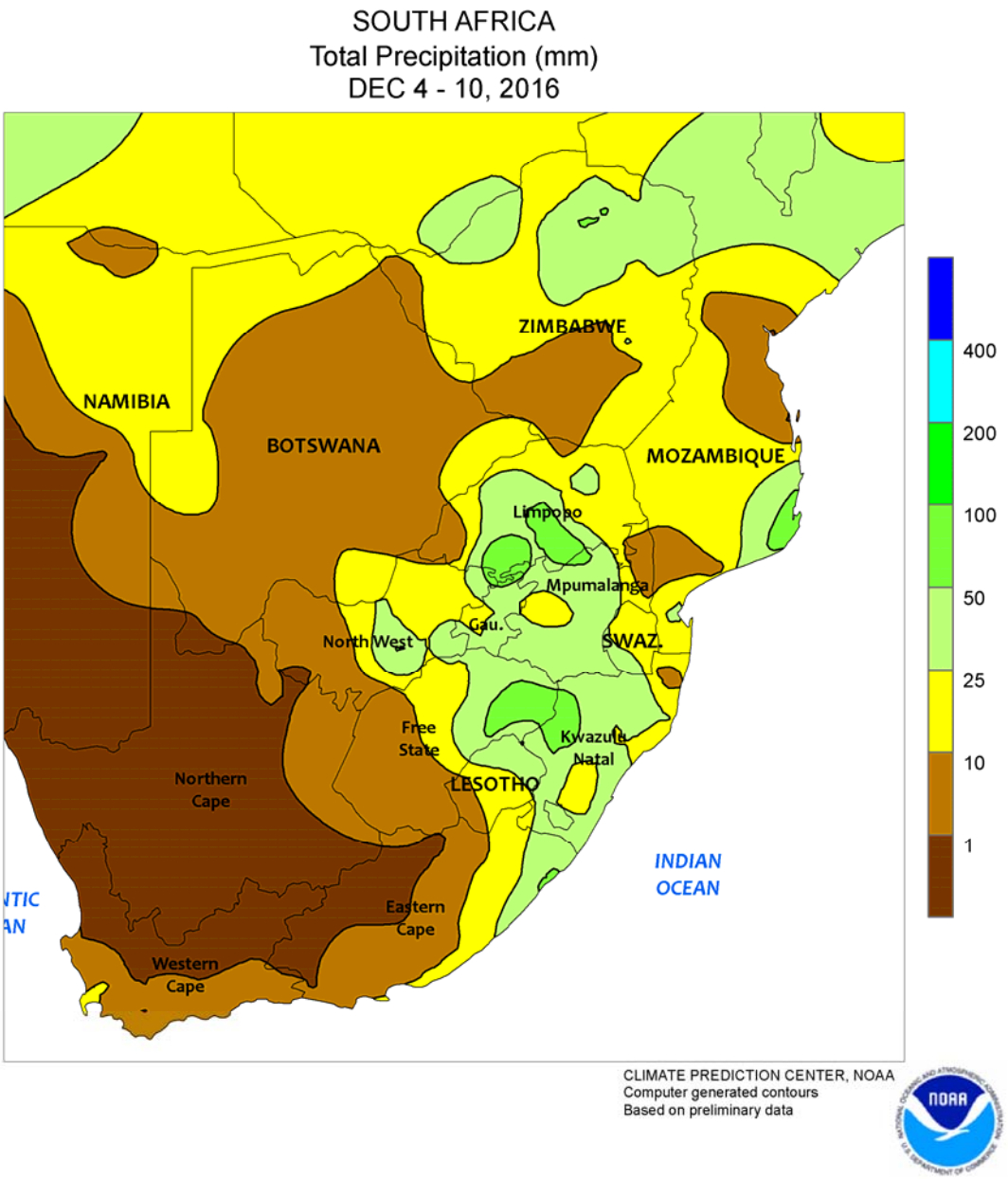

SOUTH AFRICA

A return to a wetter weather pattern benefited corn and other emerging summer crops in key commercial production areas in eastern sections of the country. Rainfall totaled more than 25 mm across a broad area stretching from Limpopo southward through KwaZulu-Natal and neighboring locations of Eastern Cape; amounts exceeding 50 mm were common in Limpopo and near the border of Free State and KwaZulu-Natal. Rainfall was generally lighter (10-50 mm) for production of rain-fed sugarcane in southern KwaZulu-Natal. Weekly temperatures averaged 2 to 3°C above normal throughout the aforementioned areas, with daytime highs reaching the middle 30s (degrees C) on several days in western sections of the corn belt (notably North West, Gauteng, and western growing areas in Free State). Despite the brief period of warmth, however, conditions remained overall favorable for vegetative development of emerged summer crops and prospects remained high for planting in western production areas, especially compared to last year's drought-plagued growing season. In contrast to the eastern rains, dry, warmer-than-normal weather dominated irrigated western farmlands, prompting rapid development of row crops, fruits, and vegetables. Daytime highs reached the upper 30s in cotton areas of the Orange River Valley (Northern Cape) and ranged from the lower to middle 30s — locally higher — in tree and vine crop areas of Western Cape.

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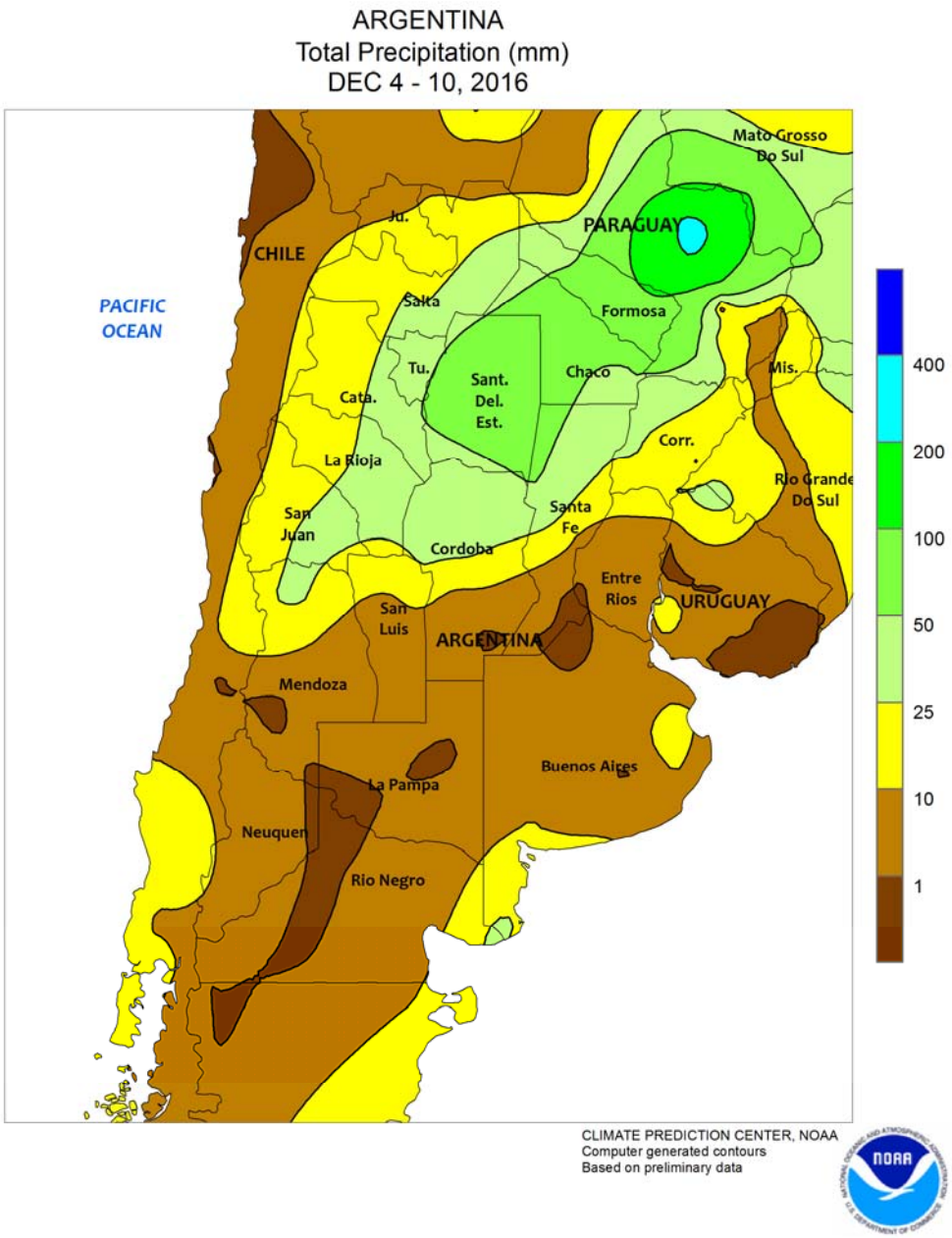

ARGENTINA

Dryness intensified in central Argentina, reducing levels of topsoil moisture for developing summer grains and oilseeds, while favoring harvesting of winter wheat and barley. Little to no rain fell over a large area encompassing La Pampa, most of Buenos Aires, and southern sections of Cordoba, Santa Fe, and Entre Rios, with just a few locations in southern and eastern Buenos Aires recording more than 10 mm. As expected, the dryness engendered weekly temperatures averaging near to slightly above normal, though daytime highs reached the middle 30s (degrees C) on just a few days, with the warmest weather (highs briefly reaching 37°C) in La Pampa and neighboring locations in Buenos Aires and Cordoba. Although conditions are still generally favorable for summer grains and oilseeds due to earlier periods of wetness, rain will be needed soon as early-planted corn enters reproduction. Meanwhile, beneficial rain (10-50 mm, locally higher) continued for a second week across Argentina's northern agricultural areas, increasing moisture levels for summer grains, oilseeds, and cotton but slowing the harvest of winter grains. Weekly temperatures averaged near to slightly below normal in the north, despite temperatures approaching 40°C on some days in western production areas (Santiago del Estero, eastern Salta, and western sections of both Chaco and Formosa) early in the week before the onset of the rain. According to the government of Argentina, sunflowers and corn were 94 and 56 percent planted, respectively, as of December 7, slightly lagging last year's pace. Soybeans were 61 percent planted, a full 10 points behind last year. Meanwhile, wheat was 39 percent harvested versus 43 percent last year.

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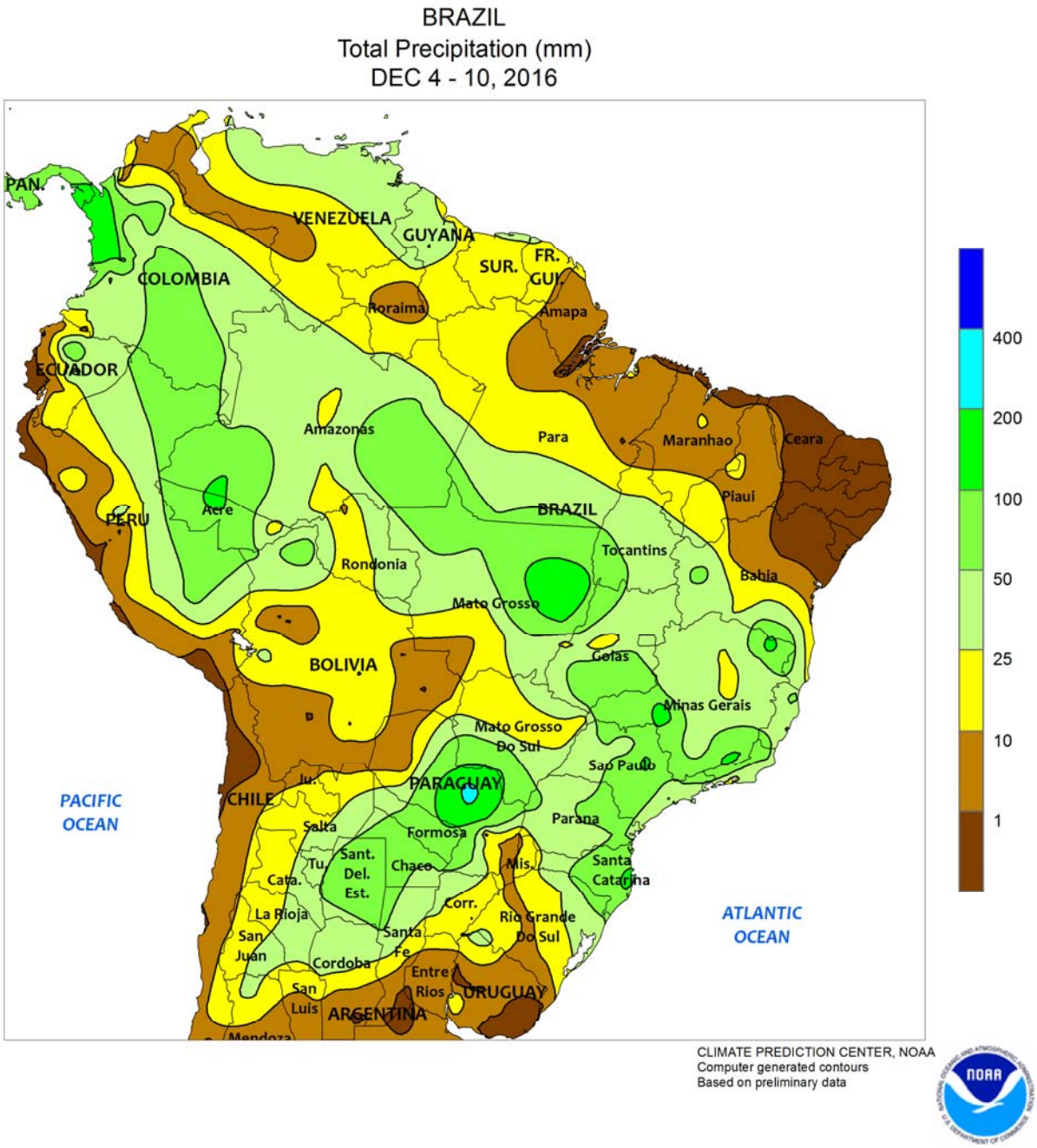

BRAZIL

Showers benefited summer crops throughout much of southern and central Brazil, though pockets of dryness lingered in some outlying production areas. Most locations reported at least 25 mm of rainfall, with amounts exceeding 50 mm in northern and eastern Mato Grosso, and over a large area extending from southern Goias and Minas Gerais to Santa Catarina. Notable exceptions included Rio Grande do Sul, southwestern Mato Grosso, and outlying production areas of the northeastern interior (Piaui and Maranhao), where amounts failed to reach 25 mm. In a report released on December 8, the government of Rio Grande do Sul indicated corn in areas with poor soils had shown some signs of stress but otherwise prospects were still good overall. In Parana, about 50 percent of the first-crop corn was reportedly in the flowering to filling stages of development, with soybeans just over 40 percent flowering to filling at the same time. Weekly average temperatures were near to above normal throughout Brazil, as most locations recorded daytime highs reaching the lower and middle 30s (degrees C) on most days; temperatures briefly approached 40°C in the far northeast.

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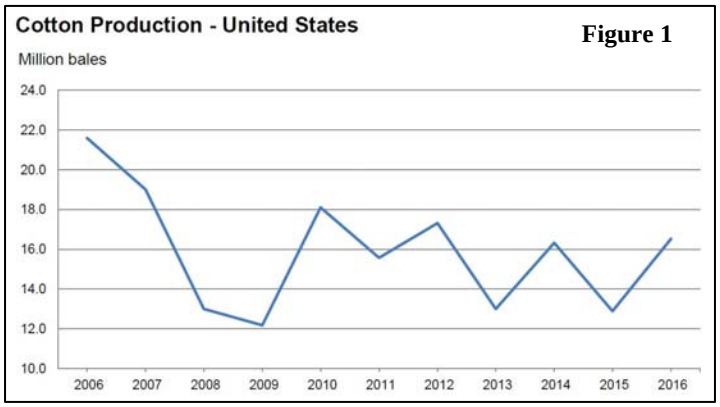
U.S. Crop Production Highlights

The following information was released by USDA Agricultural Statistics Board on Dec. 9, 2016. Forecasts refer to Dec. 1.

All cotton production is forecast at 16.5 million 480-pound bales (figure 1), up 2 percent from November and up 28 percent from last year. Yield is expected to average 821 pounds per harvested acre, up 55 pounds from last year. Upland cotton production is forecast at 16.0 million 480-pound bales, up 28 percent from 2015. Pima cotton production, forecast at 562,000 bales, was carried forward from last month.

The U.S. **all orange** forecast for the 2016-2017 season is 5.32 million tons, unchanged from last month but down 10 percent from the 2015-2016 final utilization. The Florida all orange forecast, at 72.0 million boxes (3.24 million tons), is unchanged from last month but down 12 percent from last season's final utilization. Early, midseason, and Navel varieties in Florida are forecast at 36.0 million boxes (1.62 million tons), unchanged from last month but down slightly from last season's final utilization. The Florida Valencia orange forecast, at 36.0 million boxes (1.62 million tons), is unchanged from last month but down 21 percent from last season's final utilization.



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

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