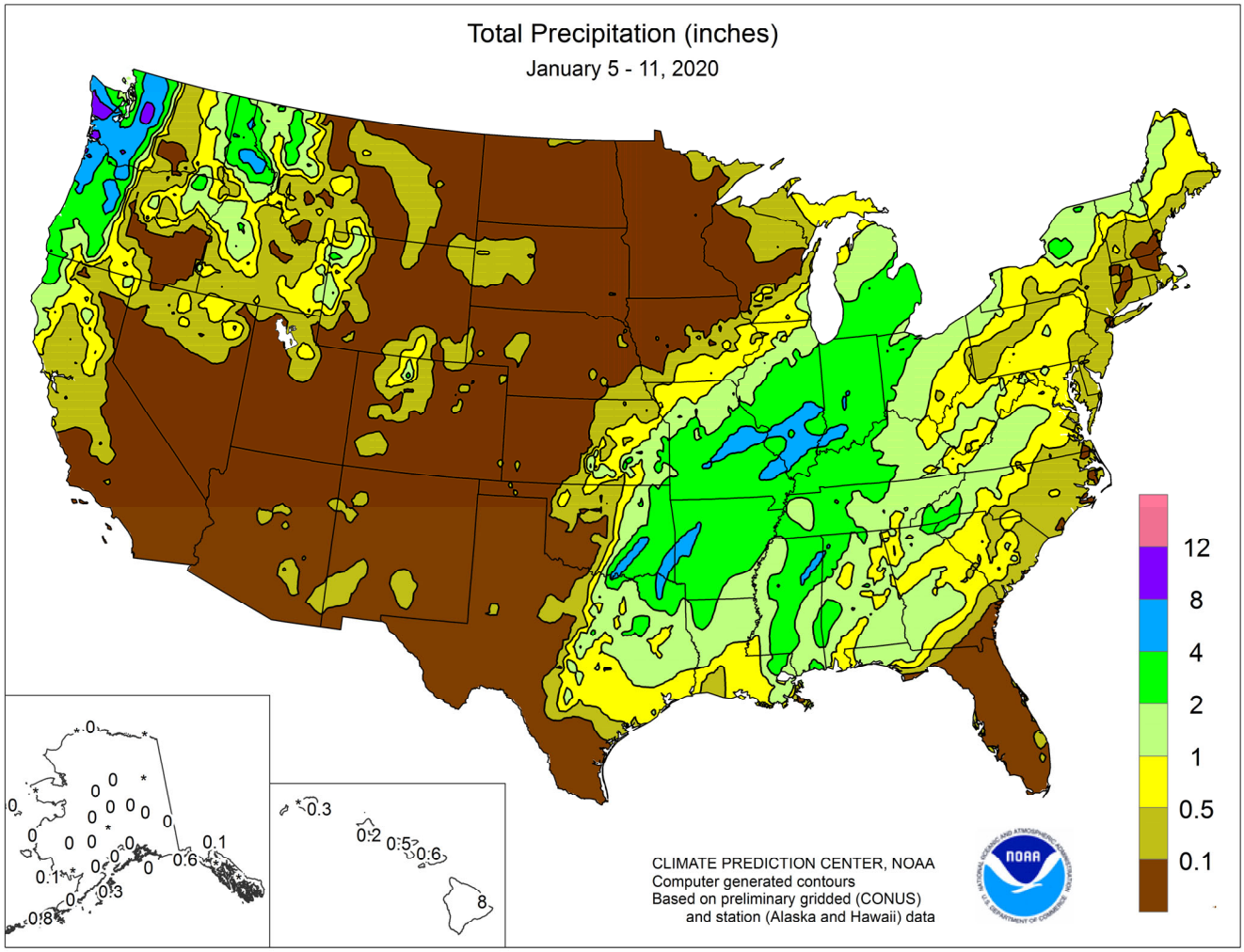
Volume 107, No. 2 http://www.usda.gov/oce/weather January 14, 2020

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
January 5 – 11, 2020

Highlights provided by USDA/WAOB

During the second half of the week, a winter storm produced a variety of weather hazards—including heavy precipitation (rain and snow), large-scale flooding, and severe thunderstorms—from **eastern sections of the central and southern Plains to the Appalachians**. Flash flooding and river flooding developed from the **mid-South into the lower Great Lakes region**, as heavy rain fell on already saturated soils. In fact, minor to moderate flooding unfolded across the **middle Mississippi and lower Ohio Valleys**. From January 10-12, thunderstorms

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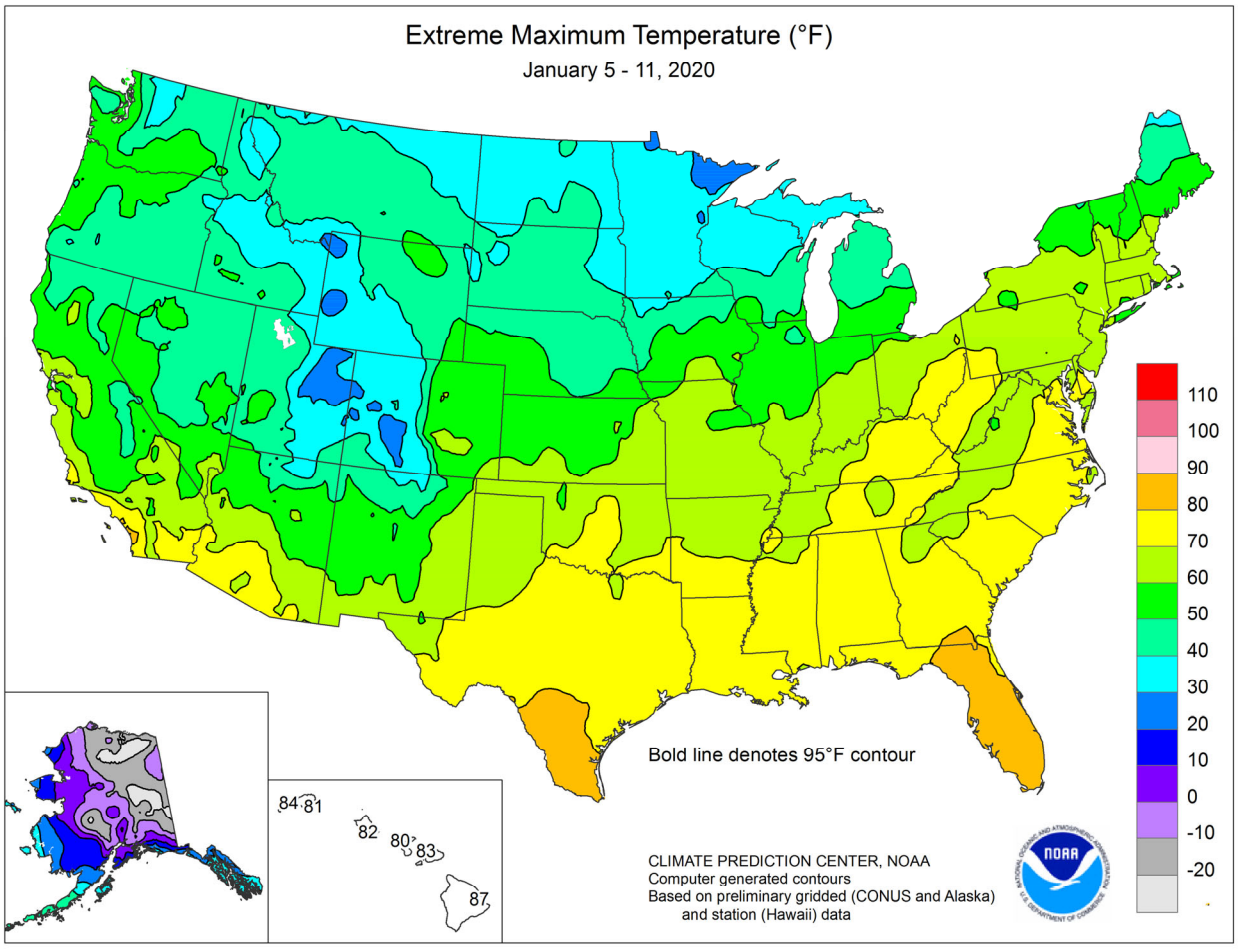
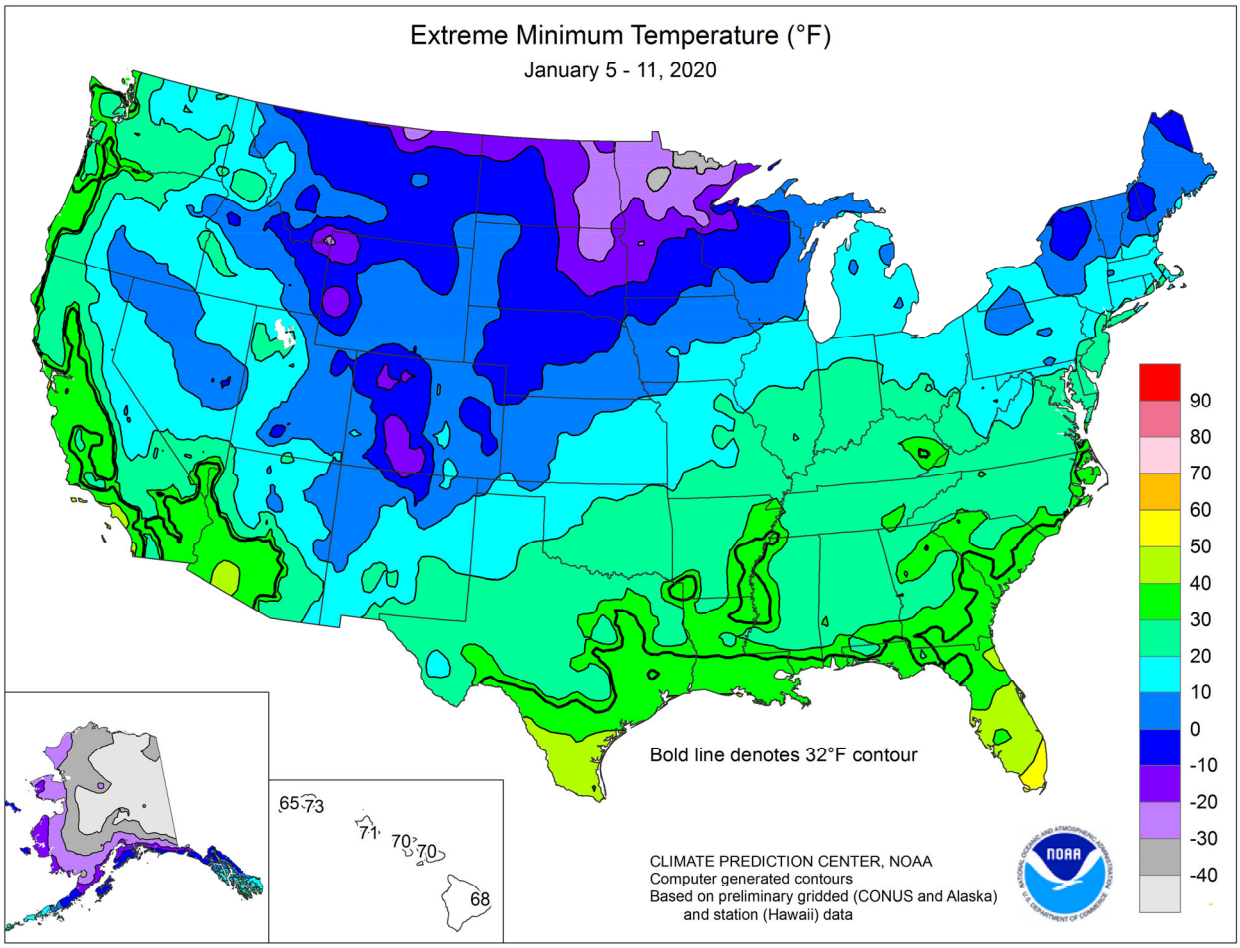
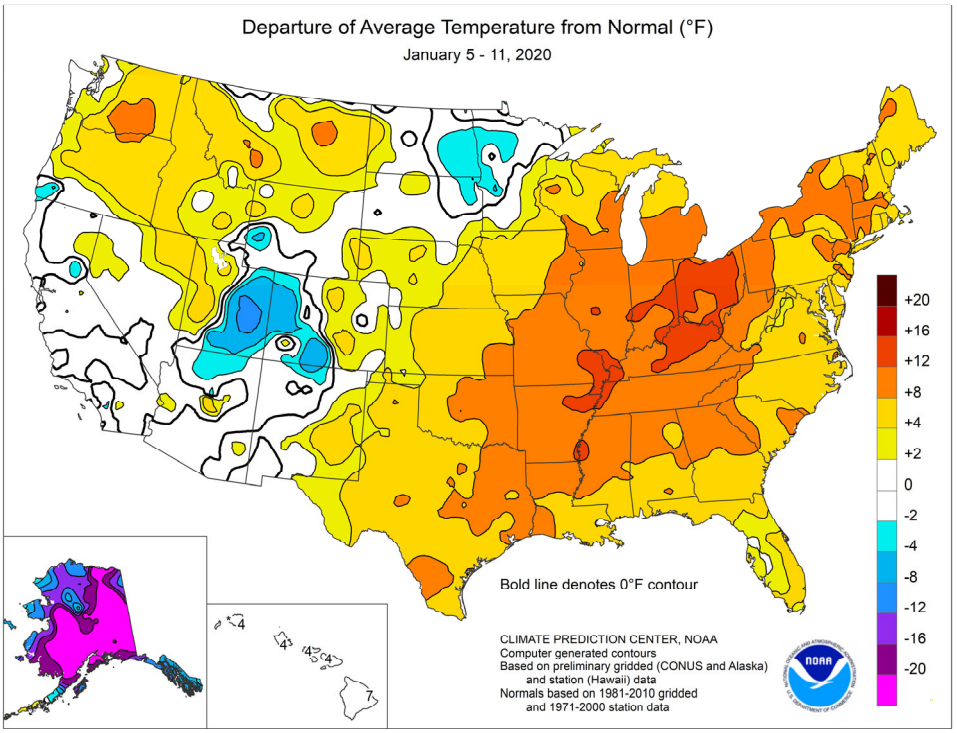

Extreme Maximum Temperature (°F)
January 5 - 11, 2020
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
84
81
82
80
83
87
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Extreme Minimum Temperature (°F)
January 5 - 11, 2020
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
65
73
71
70
70
68
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA

(Continued from front cover)

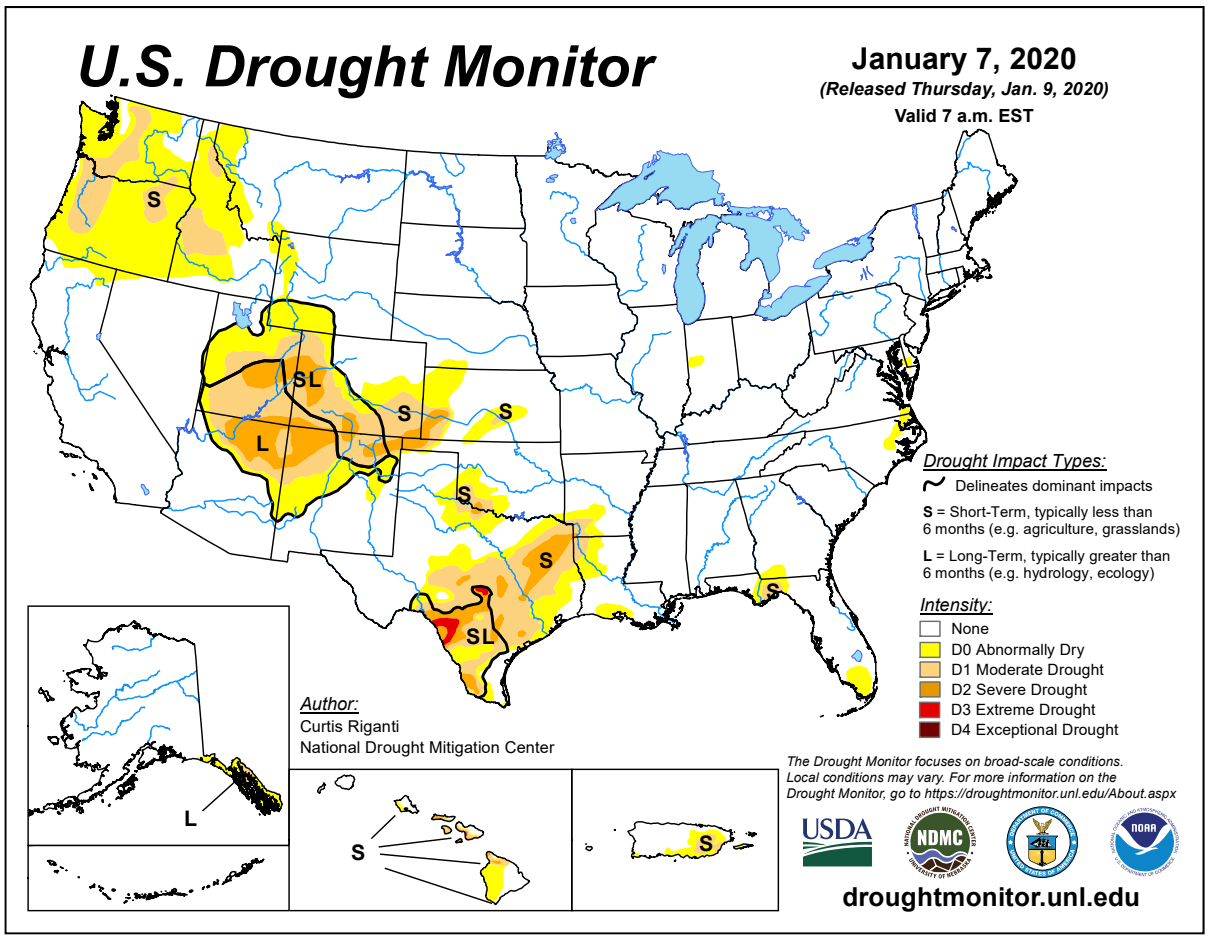
sweeping across the **southeastern Plains** and the **Southeast** produced widespread wind damage and spawned isolated tornadoes. Meanwhile, late-week snow blanketed areas from the **southeastern Plains into the Great Lakes region**, as colder air supplanted record-setting warmth. Despite the late-week cooling trend, above-normal temperatures prevailed for the third consecutive week across the **eastern half of the country**. The core area of **Eastern** warmth stretched from the **mid-South into the lower Great Lakes region**, where readings averaged 10 to 15°F above normal. In contrast, temperatures plunged below -20°F on the nights of January 7-8 and 10-11 from the **Red River Valley into northern Minnesota**. On the **Plains**, January 11 temperatures briefly dipped below 0°F as far south as **northeastern Colorado** and the **northwestern corner of Kansas**. Elsewhere, mostly dry weather prevailed from the **Southwest to the northern Plains and upper Midwest**, while occasional rain and snow showers spread inland across the **Pacific Northwest** and the **northern Rockies**.

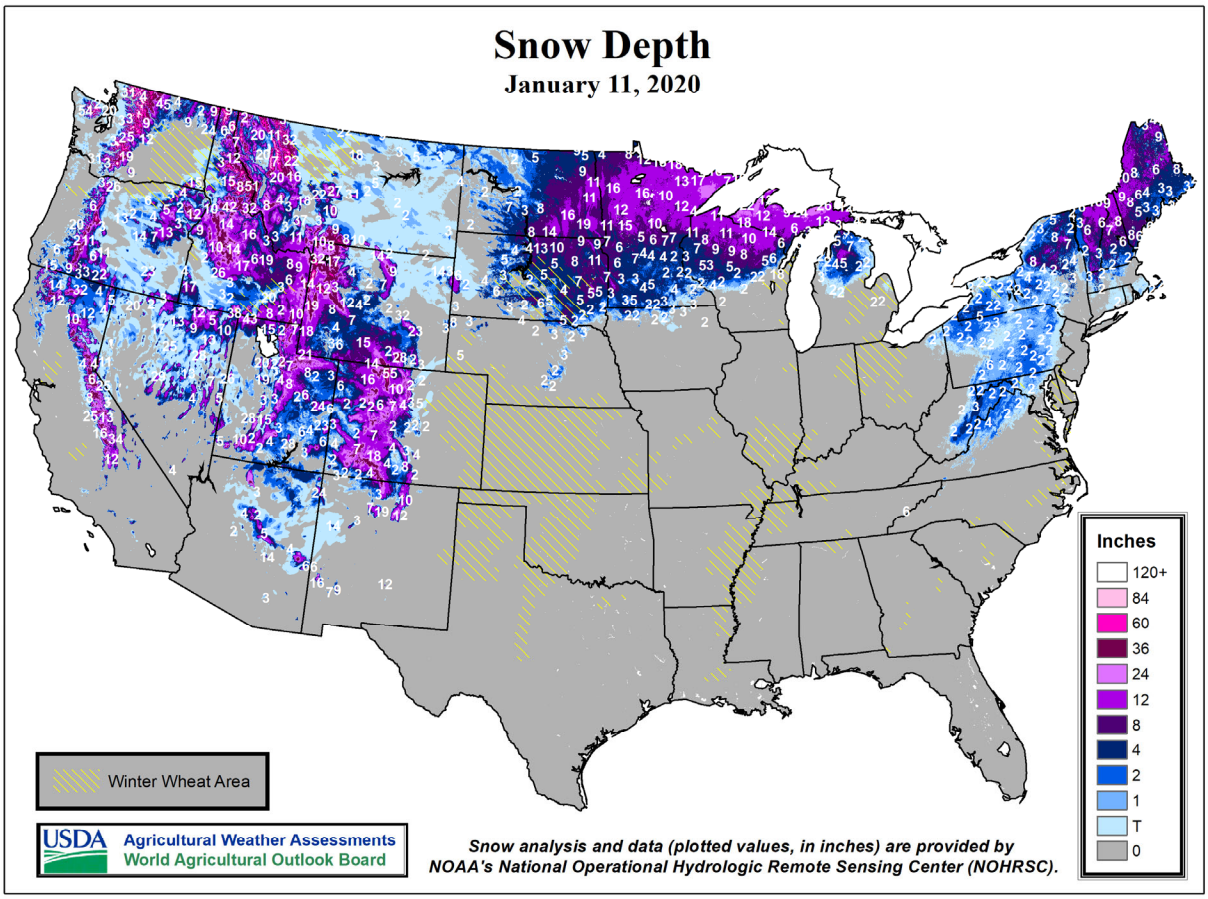


For much of the week, rather tranquil weather prevailed. Some heavy precipitation fell, however, in **western Washington**, where daily-record totals for January 6 included 3.01 inches in **Olympia** and 2.57 inches in **Hoquiam**. Weekly totals in those locations reached 5.75 and 5.40 inches, respectively. Precipitation returned to the **Northwest** on January 10, when **Spokane, WA**, received a daily-record snowfall of 7.0 inches. Meanwhile, heavy rain and severe thunderstorms erupted across the **southeastern Plains** and swept eastward. Record-setting rainfall amounts for January 10 included 3.82 inches in **McAlester, OK**; 3.63 inches in **Springfield, MO**; and 3.27 inches in **Fayetteville, AR**. In **Missouri**, January 9-11 precipitation totaled more than 4 inches—ending as accumulating snow—in locations such as **Springfield** (4.11 inches, with 1.1 inches of snow) and **St. Louis** (4.33 inches, with 2.5 inches of snow). The **Southern** deluge continued through January 11, when daily-record amounts topped the 3-inch mark in locations such as **Stuttgart, AR** (3.41 inches); **Paducah, KY** (3.09 inches); and **Greenwood, MS** (3.06 inches). From January 10-12, there were more than 700 reports of wind damage and nearly five dozen tornadoes across the **South**, according to preliminary reports from the National Weather Service. Among the most significant tornadoes was an EF-2 twister (estimated winds in excess of 130 mph), which struck **Pickens County, AL**, on the morning of January 11. That tornado, which cut a 6.3-mile swath and had a maximum width of more than 1,000 yards, resulted in three fatalities. Elsewhere on the 11th, heavy rain also expanded into the **lower Great Lakes region**, where daily-record amounts totaled 2.42 inches in **South Bend, IN**, and 2.38 inches in **Lansing, MI**. Elsewhere in **Michigan**, totals on the 11th of 2.42 inches in **Flint** and 2.06 inches in **Detroit** represented the highest January daily amounts on record. Previous records had been 1.34 inches (on January 18, 1949) in **Flint** and 1.76 inches (on January 12, 1908) in **Detroit**.

Warmth accompanied the early week storminess in the **Northwest**, where record-setting highs for January 6 included 59°F in **Yakima, WA**, and **The Dalles, OR**. On January 7, **Troutdale, OR**, also noted a daily-record high of 59°F. A few days later, warmth rapidly developed across the **central and eastern U.S.** By January 9, daily-record highs surged to 66°F in **Kansas City, MO**, and 62°F in **Ottumwa, IA**. On January 10-11, the week ended with consecutive daily-record highs in locations such as **Huntington, WV** (68 and 78°F); **Lexington, KY** (67 and 75°F); and **Cincinnati, OH** (61 and 67°F). Other record-breaking highs for January 11 included 87°F in **Naples, FL**; 80°F in **Charleston, WV**; and 70°F in **Cleveland, OH**, and **Boston, MA**. **Charleston** had not attained an 80-degree reading in January since January 15, 1932, when the high reached 81°F.

Frigid, mostly dry weather persisted across the **Alaskan mainland** and overspread the southeastern part of the state. On January 6-7, **Kodiak** posted consecutive daily-record lows (2 and -1°F, respectively). In **McGrath**, the temperature stayed continuously below -15°F from January 2-11; the lowest reading during that time was -51°F on the 9th. From January 3-12, **Fairbanks'** low temperatures ranged from -33 to -43°F. In stark contrast, warmth overspread the **Aleutians**, where **Cold Bay** notched a daily-record high of 50°F on January 10. During the transition to colder weather, snow fell in **southeastern Alaska**; **Juneau** received 6.1 inches on January 6-7. Farther south, warmth continued across **Hawaii**, while heavy rain developed in many windward (and a few leeward) locations. On the **Big Island**, **Hilo** collected a daily record-tying high of 87°F on January 10, accompanied by a daily-record rainfall of 3.21 inches. **Hilo's** weekly rainfall reached 7.77 inches. Some of the **Big Island's** heaviest rain fell on January 11-12, when 24-hour totals included 21.84 inches at **Saddle Quarry** and 20.38 inches at **Hakalau**. Elsewhere on the **Big Island**, **Glenwood's** weekly total reached 31.29 inches. On **Kauai**, famously wet **Mount Waialeale** netted a weekly sum of 17.18 inches.


U.S. Drought Monitor
January 7, 2020
(Released Thursday, Jan. 9, 2020)
Valid 7 a.m. EST
Drought Impact Types:
Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
Intensity:
None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought
Author:
Curtis Riganti
National Drought Mitigation Center
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx
droughtmonitor.unl.edu


Snow Depth
January 11, 2020
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 January 11, 2020

Data Provided by Climate Prediction Center

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 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	65	40	73	29	53	10	1.41	0.21	1.35	9.85	164	4.75	308	86	39	0	2	2	1
	HUNTSVILLE	61	39	72	29	50	10	1.11	-0.16	1.08	12.64	175	4.91	301	68	53	0	2	3	1
	MOBILE	67	42	75	31	55	5	0.52	-0.69	0.51	9.07	146	3.19	207	91	56	0	1	2	1
	MONTGOMERY	68	40	77	29	54	8	0.47	-0.59	0.47	7.69	121	2.19	161	84	43	0	3	1	0
AK	ANCHORAGE	2	-10	5	-11	-4	-20	0.00	-0.16	0.00	1.28	101	0.36	164	75	72	0	7	0	0
	BARROW	-13	-27	-3	-33	-20	-7	0.00	0.00	0.00	0.13	100	0.00	0	80	70	0	7	0	0
	FAIRBANKS	-27	-39	-21	-43	-33	-24	0.00	-0.14	0.00	0.01	1	0.00	0	***	***	0	7	0	0
	JUNEAU	27	18	32	8	22	-4	0.33	-0.82	0.11	8.25	119	0.75	50	81	71	0	7	4	0
	KODIAK	28	12	36	-1	20	-10	0.27	-1.62	0.15	10.57	105	0.54	22	81	69	0	7	4	0
	NOME	5	-10	17	-22	-3	-9	0.12	-0.07	0.12	0.52	41	0.15	58	67	59	0	7	1	0
AZ	FLAGSTAFF	39	11	50	2	25	-4	0.42	-0.02	0.42	3.56	148	0.42	74	89	38	0	7	1	0
	PHOENIX	68	43	73	40	55	2	0.00	-0.19	0.00	0.70	59	0.00	0	60	35	0	0	0	0
	PRESCOTT	52	23	62	15	38	2	0.16	-0.15	0.16	1.62	96	0.16	39	80	25	0	7	1	0
	TUCSON	67	37	74	32	52	1	0.04	-0.20	0.02	1.27	94	0.06	19	57	32	0	1	2	0
AR	FORT SMITH	62	37	70	28	49	12	3.66	3.13	2.18	4.53	111	3.66	523	93	50	0	5	3	3
	LITTLE ROCK	63	38	68	29	51	11	3.67	2.86	2.77	5.86	101	4.25	397	90	48	0	3	3	2
CA	BAKERSFIELD	52	40	57	36	46	0	0.05	-0.19	0.05	1.58	148	0.05	16	88	80	0	0	1	0
	FRESNO	53	40	59	36	46	1	0.22	-0.21	0.20	2.57	135	0.22	39	95	89	0	0	2	0
	LOS ANGELES	69	50	79	46	59	2	0.00	-0.57	0.00	4.42	175	0.00	0	61	48	0	0	0	0
	REDDING	55	36	63	30	46	1	0.42	-0.96	0.40	8.11	126	0.46	26	88	74	0	1	2	0
	SACRAMENTO	54	38	61	35	46	1	0.41	-0.34	0.41	4.99	146	0.50	52	98	64	0	0	1	0
	SAN DIEGO	68	47	79	43	58	1	0.05	-0.41	0.05	4.10	216	0.05	8	82	53	0	0	1	0
	SAN FRANCISCO	57	44	59	41	51	2	0.22	-0.67	0.16	3.96	99	0.22	19	83	71	0	0	4	0
	STOCKTON	56	38	61	34	47	2	0.35	-0.19	0.33	3.83	153	0.36	52	94	82	0	0	2	0
CO	ALAMOSA	29	-12	34	-16	9	-5	0.00	-0.06	0.00	0.52	127	0.00	0	81	63	0	7	0	0
	CO SPRINGS	48	20	59	12	34	6	0.01	-0.07	0.01	0.33	62	0.01	9	59	19	0	7	1	0
	DENVER INTL	47	20	62	7	34	6	0.00	-0.07	0.00	0.22	52	0.00	0	61	27	0	7	0	0
	GRAND JUNCTION	27	12	33	7	19	-6	0.00	-0.14	0.00	0.69	97	0.13	68	84	75	0	7	0	0
	PUEBLO	52	19	63	11	36	7	0.00	-0.08	0.00	0.31	61	0.00	0	63	33	0	7	0	0
CT	BRIDGEPORT	45	31	59	22	38	7	0.12	-0.73	0.11	7.71	169	0.35	32	77	60	0	3	2	0
	HARTFORD	45	26	68	17	35	9	0.01	-0.85	0.01	7.88	167	0.23	21	71	52	0	6	1	0
DC	WASHINGTON	52	35	72	29	43	8	0.48	-0.26	0.32	4.34	108	1.04	108	78	46	0	3	2	0
DE	WILMINGTON	49	31	69	21	40	8	0.17	-0.63	0.13	5.34	121	0.66	64	80	43	0	4	2	0
FL	DAYTONA BEACH	70	49	80	39	60	1	0.03	-0.66	0.03	3.69	103	0.35	39	98	51	0	0	1	0
	JACKSONVILLE	72	45	81	35	59	6	0.00	-0.76	0.00	2.68	74	0.07	7	88	45	0	0	0	0
	KEY WEST	77	68	81	64	72	2	0.00	-0.52	0.00	7.71	272	0.00	0	79	61	0	0	0	0
	MIAMI	78	65	83	56	72	4	0.02	-0.37	0.02	6.52	242	0.08	16	71	49	0	0	1	0
	ORLANDO	74	53	84	45	63	2	0.01	-0.51	0.01	5.43	182	0.42	62	82	46	0	0	1	0
	PENSACOLA	68	47	74	35	58	6	0.85	-0.28	0.80	8.90	164	1.72	119	88	58	0	0	2	1
	TALLAHASSEE	70	41	79	29	56	4	0.56	-0.63	0.56	4.40	78	0.85	56	79	47	0	3	1	1
	TAMPA	75	55	85	48	65	4	0.00	-0.47	0.00	4.76	164	1.04	170	71	40	0	0	0	0
	WEST PALM BEACH	77	63	84	52	70	4	0.06	-0.69	0.06	9.46	231	0.09	9	74	53	0	0	1	0
GA	ATHENS	64	40	71	30	52	10	0.80	-0.19	0.78	8.87	178	3.11	243	68	43	0	2	2	1
	ATLANTA	62	42	70	32	52	10	1.30	0.27	1.28	8.48	165	3.33	254	75	46	0	1	2	1
	AUGUSTA	69	39	78	28	54	9	0.50	-0.45	0.45	10.01	230	1.88	154	89	44	0	2	3	0
	COLUMBUS	67	42	74	31	54	7	1.47	0.42	1.47	10.85	189	2.79	207	85	41	0	1	1	1
	MACON	67	39	74	27	53	8	1.27	0.21	1.27	10.81	204	2.09	154	87	42	0	3	1	1
	SAVANNAH	70	45	79	35	57	8	0.03	-0.83	0.03	7.12	182	0.30	27	86	49	0	0	1	0
HI	HILO	86	71	89	68	79	8	7.91	5.85	2.71	19.62	149	8.43	319	77	69	0	0	7	4
	HONOLULU	82	72	83	70	77	4	0.22	-0.41	0.10	2.13	58	0.38	46	77	69	0	0	3	0
	KAHULUI	82	71	84	70	77	5	0.58	-0.27	0.22	3.35	80	1.14	105	80	73	0	0	4	0
	LIHUE	79	73	82	72	76	4	0.28	-0.80	0.16	6.84	111	0.69	49	***	***	0	0	4	0
ID	BOISE	42	30	53	23	36	7	0.41	0.11	0.16	1.84	103	0.61	153	86	65	0	5	5	0
	LEWISTON	46	34	53	25	40	7	0.06	-0.18	0.03	1.47	108	0.11	35	76	60	0	2	4	0
	POCATELLO	36	22	49	11	29	5	0.26	0.01	0.11	1.24	87	0.32	97	81	65	0	7	4	0
IL	CHICAGO/O'HARE	41	25	50	14	33	11	1.23	0.84	0.83	2.82	96	1.26	242	80	67	0	6	3	1
	MOLINE	41	23	58	14	32	11	0.85	0.48	0.70	2.59	96	1.01	202	78	62	0	6	2	1
	PEORIA	44	25	54	17	34	11	1.75	1.40	1.28	4.29	150	1.86	404	85	62	0	6	3	1
	ROCKFORD	41	23	50	13	32	13	0.87	0.56	0.71	2.57	104	0.89	212	81	64	0	6	3	1
	SPRINGFIELD	49	29	59	23	39	14	2.43	2.03	1.57	3.18	103	2.46	456	86	57	0	5	3	2
IN	EVANSVILLE	54	33	64	25	44	13	3.91	3.28	2.15	7.58	173	4.64	559	78	54	0	4	3	2
	FORT WAYNE	47	27	59	19	37	13	2.44	1.96	1.62	5.29	156	2.46	390	88	65	0	5	3	2
	INDIANAPOLIS	50	29	64	24	40	13	3.50	2.95	1.75	6.99	186	3.97	544	89	53	0	5	3	2
	SOUTH BEND	47	28	57	20	37	13	3.00	2.47	2.20	5.15	136	3.11	444	80	68	0	6	2	2
IA	BURLINGTON	43	25	59	17	34	11	0.83	0.52	0.76	1.87	75	0.84	205	83	53	0	6	2	1
	CEDAR RAPIDS	36	19	58	9	28	10	0.49	0.27	0.48	1.67	94	0.52	173	92	61	0	7	2	0
	DES MOINES	39	21	59	11	30	10	0.32	0.10	0.32	1.40	86	0.33	110	75	58	0	7	1	0
	DUBUQUE	35	19	54	9	27	10	0.67	0.39	0.67	1.15	56	0.67	181	83	68	0	7	1	1
	SIOUX CITY	34	17	43	2	25	7	0.02	-0.12	0.02	1.88	221	0.04	21	79	61	0	7	1	0
	WATERLOO	35	17	56	8	26	10	0.04	-0.13	0.04	1.09	82	0.18	82	74	58	0	7	1	0
KS	CONCORDIA	47	25	57	10	36	9	0.22	0.05	0.22	2.20	204	0.22	100	74	53	0	6	1	0
	DODGE CITY	50	23	62	10	36	6	0.00	-0.16	0.00	1.33	134	0.00	0	75	33	0	7	0	0
	GOODLAND	46	15	59	0	30	3	0.02	-0.09	0.02	0.32	58	0.02	13	72	46	0	7	1	0
	TOPEKA	49	25	63	14	37	10	0.79	0.57	0.75	3.02	176	0.79	263	78	56	0	6	2	1

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending January 11, 2020

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
	WICHITA	52	26	61	16	39	9	1.03	0.80	1.02	2.82	170	1.04	335	77	49	0	6	2	1
KY	JACKSON	55	38	74	32	47	13	1.31	0.50	1.09	8.58	161	2.31	218	79	41	0	2	2	1
	LEXINGTON	58	38	75	31	48	16	0.96	0.16	0.95	7.79	154	1.85	178	64	42	0	3	2	1
	LOUISVILLE	58	37	70	30	48	15	1.89	1.15	1.17	6.52	140	2.88	297	72	37	0	3	2	2
	PADUCAH	58	35	67	26	47	14	3.54	2.81	3.09	6.49	122	4.38	456	78	54	0	4	3	1
LA	BATON ROUGE	71	44	78	33	58	8	0.71	-0.60	0.66	6.12	88	3.29	195	91	44	0	0	2	1
	LAKE CHARLES	72	47	77	37	60	9	0.75	-0.48	0.75	3.72	60	2.74	173	89	52	0	0	1	1
	NEW ORLEANS	71	52	78	42	61	8	0.77	-0.39	0.60	5.87	90	2.99	202	82	56	0	0	2	1
	SHREVEPORT	70	42	75	30	56	10	2.00	1.01	1.94	4.64	79	2.84	220	86	47	0	1	2	1
ME	CARIBOU	27	11	39	-1	19	9	0.64	-0.07	0.47	3.60	87	0.68	73	83	66	0	7	4	0
	PORTLAND	39	21	63	14	30	8	0.13	-0.81	0.10	8.49	155	0.31	25	77	48	0	6	2	0
MD	BALTIMORE	51	31	72	23	41	8	0.42	-0.38	0.42	4.44	101	0.86	83	71	52	0	5	1	0
MA	BOSTON	46	31	70	22	39	9	0.13	-0.73	0.11	6.09	126	0.26	23	70	45	0	5	3	0
	WORCESTER	39	24	63	13	32	8	0.06	-0.87	0.03	7.34	147	0.33	28	84	49	0	6	2	0
MI	ALPENA	35	18	46	13	27	8	0.80	0.39	0.53	3.20	135	0.82	152	87	65	0	7	4	1
	GRAND RAPIDS	42	28	49	17	35	12	2.07	1.63	1.63	5.69	173	2.07	351	80	60	0	6	4	1
	HOUGHTON LAKE	34	20	44	14	27	8	0.76	0.40	0.59	4.02	181	0.78	166	83	73	0	7	4	1
	LANSING	42	25	51	11	33	11	2.58	2.24	2.12	6.40	244	2.58	573	78	65	0	6	4	1
	MUSKEGON	42	27	49	15	35	11	1.08	0.58	0.72	4.57	138	1.09	163	76	65	0	6	4	1
	TRAVERSE CITY	37	24	48	17	31	9	0.44	-0.22	0.20	3.64	104	0.44	52	80	60	0	6	4	0
MN	DULUTH	22	2	31	-12	12	4	0.04	-0.16	0.03	4.01	334	0.10	38	75	62	0	7	2	0
	INT'L FALLS	18	-9	31	-33	5	3	0.15	0.00	0.11	1.34	149	0.18	90	83	62	0	7	3	0
	MINNEAPOLIS	28	11	38	-1	20	7	0.01	-0.21	0.01	1.85	143	0.01	3	71	61	0	7	1	0
	ROCHESTER	28	12	40	-1	20	8	0.02	-0.17	0.02	1.26	99	0.03	12	80	69	0	7	1	0
	ST. CLOUD	23	4	35	-10	13	4	0.00	-0.15	0.00	3.94	443	0.02	10	81	57	0	7	0	0
MS	JACKSON	68	41	73	30	54	9	2.08	0.82	1.81	12.36	177	6.51	399	83	48	0	2	2	1
	MERIDIAN	68	40	74	30	54	8	2.37	1.08	1.90	9.66	139	5.70	345	88	54	0	2	2	1
	TUPELO	64	39	71	30	52	12	3.04	1.80	2.63	11.37	147	5.33	329	76	56	0	2	2	1
MO	COLUMBIA	51	31	60	21	41	13	2.69	2.33	2.45	4.32	146	2.69	560	82	50	0	5	2	1
	KANSAS CITY	47	27	66	14	37	10	1.67	1.41	1.36	3.40	171	1.67	477	79	51	0	5	2	1
	SAINT LOUIS	53	34	61	26	43	13	4.33	3.86	2.14	6.24	179	4.33	698	73	55	0	5	3	3
	SPRINGFIELD	54	31	64	21	42	10	4.11	3.67	3.62	5.42	145	4.11	709	79	59	0	5	3	1
MT	BILLINGS	38	20	50	1	29	5	0.08	-0.10	0.08	0.25	27	0.10	42	73	40	0	7	1	0
	BUTTE	33	16	42	-5	24	7	0.00	-0.11	0.00	0.11	16	0.00	0	76	47	0	6	0	0
	CUT BANK	31	12	41	-6	22	3	0.01	-0.07	0.01	0.08	18	0.01	8	84	57	0	7	1	0
	GLASGOW	29	13	38	-7	21	10	0.02	-0.06	0.01	0.41	84	0.05	42	72	67	0	7	2	0
	GREAT FALLS	37	17	49	-4	27	5	0.03	-0.14	0.02	0.20	22	0.03	14	71	44	0	7	2	0
	HAVRE	32	14	42	-3	23	8	0.05	-0.06	0.05	0.51	77	0.17	113	77	66	0	7	1	0
	MISSOULA	37	25	46	14	31	8	0.09	-0.16	0.06	1.14	77	0.47	142	90	77	0	7	3	0
NE	GRAND ISLAND	40	19	47	3	30	8	0.00	-0.11	0.00	1.44	178	0.00	0	80	56	0	7	0	0
	LINCOLN	42	19	51	6	30	8	0.01	-0.16	0.01	2.58	239	0.01	5	80	51	0	7	1	0
	NORFOLK	37	16	46	-1	27	7	0.01	-0.10	0.01	1.09	136	0.02	13	79	57	0	7	1	0
	NORTH PLATTE	43	15	57	-1	29	6	0.02	-0.06	0.02	0.98	188	0.03	25	86	45	0	7	1	0
	OMAHA	40	20	49	6	30	9	0.02	-0.15	0.02	2.14	188	0.02	9	80	62	0	7	1	0
	SCOTTSBLUFF	44	19	54	5	32	8	0.01	-0.10	0.01	0.35	49	0.01	7	72	50	0	7	1	0
	VALENTINE	39	15	47	-8	27	6	0.06	0.00	0.06	0.95	232	0.06	75	79	59	0	7	1	0
NV	ELY	41	11	51	0	26	1	0.04	-0.11	0.03	0.67	96	0.13	65	77	53	0	7	2	0
	LAS VEGAS	58	39	62	34	49	3	0.00	-0.11	0.00	0.93	169	0.00	0	45	32	0	0	0	0
	RENO	49	26	59	19	38	5	0.00	-0.20	0.00	1.70	148	0.00	0	67	50	0	6	0	0
	WINNEMUCCA	44	17	52	4	30	1	0.26	0.07	0.20	1.61	150	0.30	115	71	57	0	7	3	0
NH	CONCORD	38	19	61	12	29	8	0.06	-0.60	0.04	5.75	151	0.34	40	83	57	0	6	2	0
NJ	NEWARK	48	32	70	23	40	8	0.03	-0.86	0.02	6.59	140	0.16	14	74	51	0	5	2	0
NM	ALBUQUERQUE	47	23	52	17	35	0	0.02	-0.09	0.02	0.32	50	0.02	13	65	27	0	7	1	0
NY	ALBANY	43	26	67	13	34	11	0.03	-0.52	0.02	4.91	145	0.35	49	71	46	0	6	2	0
	BINGHAMTON	37	23	62	9	30	7	0.27	-0.28	0.12	4.35	116	0.49	68	84	68	0	6	5	0
	BUFFALO	44	30	67	16	37	12	1.10	0.36	0.48	6.66	140	1.30	135	82	57	0	5	4	0
	ROCHESTER	41	26	64	12	34	9	0.68	0.16	0.37	4.48	131	0.93	135	85	64	0	5	5	0
	SYRACUSE	41	27	67	9	34	10	0.49	-0.09	0.18	5.05	130	0.91	120	84	55	0	6	6	0
NC	ASHEVILLE	55	36	66	26	46	10	1.72	0.87	1.52	6.90	154	2.62	238	68	49	0	3	3	1
	CHARLOTTE	60	36	70	28	48	6	0.65	-0.22	0.53	7.15	166	1.84	164	82	42	0	4	3	1
	GREENSBORO	55	35	68	29	45	7	0.87	0.11	0.69	6.24	154	2.31	233	84	45	0	5	2	1
	HATTERAS	62	46	71	37	54	7	0.01	-1.32	0.01	7.03	112	0.73	43	86	53	0	0	1	0
	RALEIGH	59	36	72	29	47	7	0.31	-0.55	0.24	5.75	139	2.39	217	75	49	0	4	2	0
	WILMINGTON	64	41	75	33	53	7	0.00	-0.99	0.00	4.47	89	0.60	47	89	43	0	0	0	0
ND	BISMARCK	23	4	41	-6	13	3	0.01	-0.07	0.01	0.74	132	0.11	92	79	61	0	7	1	0
	DICKINSON	25	12	37	-2	18	4	0.00	-0.06	0.00	0.08	19	0.08	100	84	55	0	7	0	0
	FARGO	18	-5	37	-24	7	0	0.00	-0.17	0.00	1.31	166	0.08	36	84	63	0	7	0	0
	GRAND FORKS	18	-9	38	-27	4	-1	0.03	-0.11	0.03	0.76	103	0.09	47	83	60	0	7	1	0
	JAMESTOWN	19	-4	42	-21	8	-1	0.00	-0.11	0.00	0.37	62	0.02	13	86	64	0	7	0	0
	WILLISTON	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	0	0	0	0
OH	AKRON-CANTON	48	30	69	15	39	13	0.84	0.27	0.57	5.25	141	1.43	193	70	59	0	5	3	1
	CINCINNATI	53	33	67	27	43	13	1.39	0.72	0.71	6.18	149	2.59	298	74	56	0	5	2	2
	CLEVELAND	50	32	70	20	41	15	1.10	0.55	0.92	4.37	113	1.51	210	76	51	0	5	3	1
	COLUMBUS	50	33	71	22	42	13	1.07	0.52	0.55	5.01	137	2.20	301	74	54	0	5	2	2
	DAYTON	50	31	67	22	41	14	1.14	0.55	0.76	5.59	145	2.28	292	78	52	0	5	2	1
	MANSFIELD	49	31	69	17	40	15	1.36	0.76	0.94	5.42	134	1.85	234	83	49	0	5	4	1

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

Weather Data for the Week Ending January 11, 2020

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	48	29	61	18	39	15	1.46	1.03	0.83	3.93	122	1.48	255	76	55	0	5	2	2
	YOUNGSTOWN	46	29	70	10	38	12	0.87	0.35	0.49	5.50	151	1.43	207	71	63	0	5	4	0
OK	OKLAHOMA CITY	59	31	70	21	45	9	0.09	-0.24	0.09	0.76	32	0.09	20	84	45	0	6	1	0
	TULSA	58	34	65	24	46	10	2.00	1.63	2.00	2.96	101	2.00	408	75	56	0	5	1	1
OR	ASTORIA	49	40	52	31	44	2	5.75	3.60	2.75	17.67	134	7.10	255	92	85	0	1	7	4
	BURNS	40	22	45	16	31	7	0.10	-0.17	0.06	1.49	90	0.16	44	85	73	0	7	3	0
	EUGENE	49	41	53	36	45	6	1.31	-0.38	0.38	7.06	67	1.87	86	84	77	0	0	6	0
	MEDFORD	46	34	50	30	40	2	0.42	-0.13	0.13	3.44	95	0.61	85	94	73	0	2	6	0
	PENDLETON	50	34	58	28	42	9	0.06	-0.24	0.03	0.96	51	0.18	45	68	58	0	3	2	0
	PORTLAND	49	41	58	36	45	6	1.51	0.38	0.37	6.22	87	1.96	132	85	76	0	0	6	0
	SALEM	48	40	53	33	44	4	2.07	0.79	0.50	7.57	93	2.65	160	89	77	0	0	7	1
PA	ALLENTOWN	46	28	68	18	37	9	0.11	-0.67	0.06	3.82	87	0.41	41	71	50	0	6	3	0
	ERIE	47	31	71	19	39	11	1.05	0.44	0.63	6.26	138	1.38	173	70	59	0	5	5	1
	MIDDLETOWN	46	28	69	19	37	8	0.62	0.01	0.36	4.59	114	0.94	119	81	48	0	5	2	0
	PHILADELPHIA	48	33	67	23	40	7	0.13	-0.67	0.13	5.71	132	0.49	48	62	46	0	4	1	0
	PITTSBURGH	47	31	71	16	39	11	0.22	-0.37	0.14	4.81	133	1.46	190	81	46	0	4	2	0
	WILKES-BARRE	42	28	68	16	35	8	0.27	-0.25	0.12	3.15	98	0.65	97	81	52	0	6	5	0
	WILLIAMSPORT	41	26	66	12	33	7	0.57	-0.02	0.31	3.72	101	0.92	121	79	59	0	6	5	0
RI	PROVIDENCE	44	27	65	20	36	7	0.07	-0.90	0.07	8.34	154	0.22	17	77	60	0	6	1	0
SC	CHARLESTON	68	44	78	34	56	8	0.06	-0.85	0.06	6.73	153	0.15	13	88	44	0	0	1	0
	COLUMBIA	64	38	74	29	51	7	0.02	-0.99	0.02	11.07	237	1.74	135	73	51	0	2	1	0
	FLORENCE	66	40	78	31	53	8	0.08	-0.88	0.06	7.66	162	0.98	78	84	39	0	1	2	0
	GREENVILLE	60	35	68	28	47	6	1.12	0.14	0.95	10.61	207	3.59	285	84	41	0	4	3	1
SD	ABERDEEN	23	-2	42	-21	11	0	0.03	-0.08	0.03	0.99	187	0.15	100	77	66	0	7	1	0
	HURON	26	6	40	-18	16	2	0.04	-0.05	0.04	0.59	116	0.10	83	84	69	0	7	1	0
	RAPID CITY	35	15	42	-1	25	3	0.13	0.05	0.10	0.38	73	0.13	108	85	59	0	7	3	0
	SIOUX FALLS	30	12	41	-6	21	7	0.02	-0.08	0.02	1.09	165	0.02	14	73	63	0	7	1	0
TN	BRISTOL	56	35	76	24	46	12	1.00	0.24	0.57	5.71	130	2.53	256	87	42	0	5	2	1
	CHATTANOOGA	62	39	73	31	51	12	0.58	-0.59	0.51	7.98	126	3.07	205	81	46	0	2	2	1
	KNOXVILLE	60	39	77	29	49	12	1.22	0.18	0.62	9.14	157	4.28	319	77	40	0	3	2	2
	MEMPHIS	64	41	72	33	52	12	1.83	0.87	1.80	7.50	108	3.46	277	83	50	0	0	3	1
	NASHVILLE	61	39	71	29	50	13	1.66	0.75	1.51	8.32	145	3.31	281	77	39	0	2	3	1
TX	ABILENE	65	36	75	26	51	8	0.14	-0.10	0.14	1.12	70	0.14	44	69	42	0	3	1	0
	AMARILLO	56	27	63	16	42	7	0.00	-0.16	0.00	1.00	120	0.00	0	69	24	0	5	0	0
	AUSTIN	72	39	79	24	56	6	0.45	-0.01	0.43	1.25	41	0.47	76	61	44	0	2	2	0
	BEAUMONT	73	48	76	36	60	8	0.78	-0.54	0.78	2.57	37	1.50	88	89	56	0	0	1	1
	BROWNSVILLE	77	55	81	43	66	7	0.02	-0.22	0.02	0.99	70	0.25	81	81	52	0	0	1	0
	CORPUS CHRISTI	73	51	78	42	62	6	0.05	-0.30	0.04	4.38	197	0.36	77	91	59	0	0	2	0
	DEL RIO	73	44	81	36	59	8	0.00	-0.09	0.00	0.05	6	0.00	0	61	44	0	0	0	0
	EL PASO	61	33	67	24	47	3	0.01	-0.10	0.01	0.77	83	0.05	31	55	20	0	5	1	0
	FORT WORTH	64	39	70	30	52	8	1.54	1.06	1.47	2.73	85	1.54	237	81	46	0	1	2	1
	GALVESTON	71	56	74	49	63	7	0.12	-0.77	0.12	1.62	35	0.64	56	94	59	0	0	1	0
	HOUSTON	73	47	76	35	60	8	1.12	0.29	0.94	2.58	54	1.43	134	84	53	0	0	2	1
	LUBBOCK	61	30	65	20	45	8	0.04	-0.05	0.04	0.69	86	0.04	31	71	36	0	5	1	0
	MIDLAND	65	34	73	26	50	7	0.08	-0.03	0.08	0.62	78	0.11	73	71	32	0	3	1	0
	SAN ANGELO	69	37	76	24	53	9	0.00	-0.17	0.00	1.30	112	0.00	0	70	41	0	3	0	0
	SAN ANTONIO	73	45	81	34	59	9	0.43	0.06	0.43	0.95	39	0.43	86	75	38	0	0	1	0
	VICTORIA	73	47	78	33	60	7	0.46	-0.09	0.43	1.35	42	0.63	88	81	51	0	0	3	0
	WACO	69	38	78	24	54	8	0.80	0.35	0.77	1.52	45	0.80	133	81	49	0	4	3	1
	WICHITA FALLS	64	34	75	24	49	9	0.01	-0.26	0.01	0.60	29	0.01	3	79	45	0	4	1	0
UT	SALT LAKE CITY	41	28	49	20	34	5	0.15	-0.14	0.08	1.96	122	0.33	87	85	49	0	7	3	0
VT	BURLINGTON	37	19	59	6	28	9	0.77	0.29	0.63	2.61	92	0.97	156	83	56	0	6	4	1
VA	LYNCHBURG	52	31	68	24	41	6	1.30	0.52	1.04	4.78	113	1.92	190	72	47	0	6	2	1
	NORFOLK	59	39	76	31	49	9	0.15	-0.70	0.13	3.17	77	1.09	99	79	41	0	1	2	0
	RICHMOND	55	33	72	24	44	8	0.34	-0.47	0.33	4.18	100	0.91	86	73	51	0	6	2	0
	ROANOKE	51	34	67	27	42	6	1.08	0.40	0.89	4.21	113	1.37	156	63	47	0	4	3	1
	WASH/DULLES	49	30	70	24	40	8	0.59	-0.10	0.32	4.25	107	1.27	143	75	54	0	5	2	0
WA	OLYMPIA	46	39	51	31	42	4	5.70	4.05	2.98	16.38	163	6.94	326	94	88	0	1	7	4
	QUILLAYUTE	47	38	50	32	42	2	6.54	3.51	2.46	24.08	131	9.38	240	97	84	0	2	7	4
	SEATTLE-TACOMA	47	39	55	32	43	3	2.25	1.12	1.02	10.93	154	2.95	202	89	84	0	1	7	1
	SPOKANE	39	29	45	20	34	8	0.80	0.39	0.49	3.01	108	0.86	159	85	68	0	6	6	0
	YAKIMA	49	29	59	20	39	11	0.00	-0.28	0.00	0.82	47	0.16	43	79	67	0	6	0	0
WV	BECKLEY	47	31	69	23	39	8	0.52	-0.20	0.31	4.13	103	1.13	122	71	57	0	5	3	0
	CHARLESTON	55	34	80	23	44	10	1.10	0.40	0.84	7.02	166	2.27	249	73	40	0	5	2	1
	ELKINS	48	26	71	10	37	8	1.04	0.29	0.73	7.15	162	1.93	197	63	52	0	5	2	1
	HUNTINGTON	56	36	78	26	46	13	0.91	0.19	0.91	7.82	182	1.95	210	74	40	0	4	1	1
WI	EAU CLAIRE	29	13	37	-4	21	9	0.00	-0.20	0.00	1.36	105	0.00	0	79	50	0	7	0	0
	GREEN BAY	35	21	45	7	28	12	0.06	-0.19	0.04	2.27	130	0.06	18	75	55	0	7	3	0
	LA CROSSE	34	18	43	4	26	10	0.01	-0.21	0.01	1.47	96	0.03	10	73	48	0	7	1	0
	MADISON	37	20	49	6	29	11	0.51	0.26	0.47	2.04	102	0.51	150	79	61	0	7	3	0
	MILWAUKEE	41	25	51	11	33	12	0.77	0.38	0.46	2.73	100	0.77	151	75	56	0	6	3	0
WY	CASPER	34	18	43	3	26	4	0.07	-0.04	0.07	0.66	86	0.07	47	70	50	0	7	1	0
	CHEYENNE	39	20	54	9	30	4	0.09	0.01	0.08	0.52	90	0.09	75	67	41	0	7	2	0
	LANDER	34	12	40	5	23	3	0.00	-0.11	0.00	0.09	12	0.00	0	75	41	0	7	0	0
	SHERIDAN	39	15	54	-2	27	6	0.24	0.07	0.12	0.48	53	0.26	118	76	50	0	7	2	0

Based on 1971-2000 normals

***** Not Available**

December Weather and Crop Summary

Weather

Weather summary provided by USDA/WAOB

Highlights: Active December weather prevailed across most of the country, especially in the Southeast and a broad area stretching from California and the Southwest to the northern Plains and upper Great Lakes region. Across the far upper Midwest, including the Dakotas, a persistently deep snow cover hampered final harvest efforts for crops such as corn and sunflowers. In the last national report, dated December 8, only 92 percent of the U.S. corn and 73 percent of the sunflowers had been harvested. In North Dakota, 43 percent of the corn had been cut on that date, while 60 percent of the sunflowers had been harvested. By the end of December, North Dakota's harvest had advanced to just 48 percent complete for corn and 66 percent complete for sunflowers. Snow also remained on the ground for much (or all) of the month in parts of the Northeast, where an early-December storm dumped heavy snow.

In contrast, drier-than-normal weather prevailed across portions of the southern Plains, as well as the western Gulf Coast region. Several factors, including drought and periodic cold snaps, continued to adversely affect winter wheat in parts of Colorado, Kansas, Oklahoma, and Texas. During December, as much as 15 percent of the nation's winter wheat production area was in drought, according to the U.S. Drought Monitor. However, a late-month storm system provided some of the Plains' driest wheat areas with highly beneficial moisture.

Portions of the Northwest also experienced drier-than-normal conditions, despite a late-month increase in precipitation. In addition, Northwestern snow accumulations were limited by mild weather, leaving high-elevation snowpack 25 to 75 percent of the late-December average in much of Idaho, Oregon, and Washington. Elsewhere, snowpack was near or above average from the Sierra Nevada to the central and southern Rockies, as well as the eastern slopes of the northern Rockies, courtesy of multiple storms in late November and throughout December.

Above-normal December temperatures dominated the country, despite periodic cold spells. The warmest weather, relative to normal, stretched from the central and southern Plains into the lower Midwest and the Southeast. East of the Rockies, impressive warmth developed late in the month, causing U.S. snow coverage to retreat to 25.5 percent by December 24, down from a peak of 48.4 percent just 7 days earlier.

Historical Perspective: According to preliminary data provided by the National Centers for Environmental Information, the U.S. experienced its sixth-warmest, 53rd-wettest December during the 125-year period of record. The nation's monthly average temperature of 36.5°F was 3.8°F above the 20th century mean. December average temperatures were higher in 2015 (38.7°F), 1939 (37.7°F), 1957 (37.0°F), 2014 (36.8°F), and 2006 (36.6°F). Meanwhile, precipitation averaged across the Lower 48 States averaged 2.53 inches (108 percent of normal).

All states experienced top-50 warmth during December. The "coolest" states—Arizona, Massachusetts, Nevada, and North Dakota—reported their 45th-warmest December (figure 1). In contrast, top-ten values for December warmth were noted in Missouri, Oklahoma, and Tennessee. Meanwhile, state precipitation rankings ranged from the eighth-driest December in Louisiana to the fourth-wettest December in Minnesota (figure 2). Top-ten rankings for December wetness also occurred in Connecticut, Massachusetts, Michigan, Rhode Island, South Carolina, South Dakota, and Wisconsin.

Figure 1 Statewide Average Temperature Ranks
December 2019
Period: 1895–2019

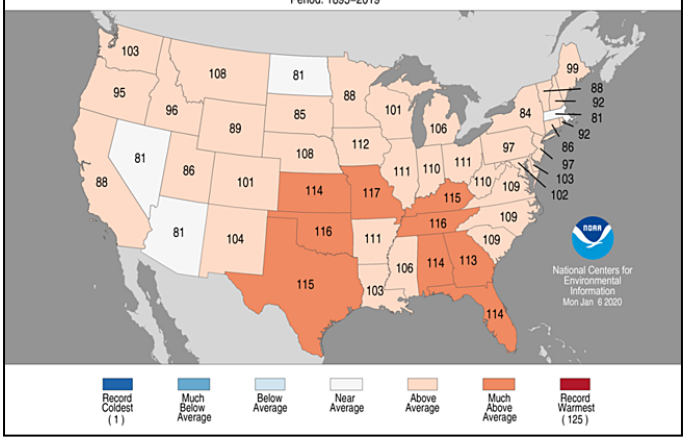
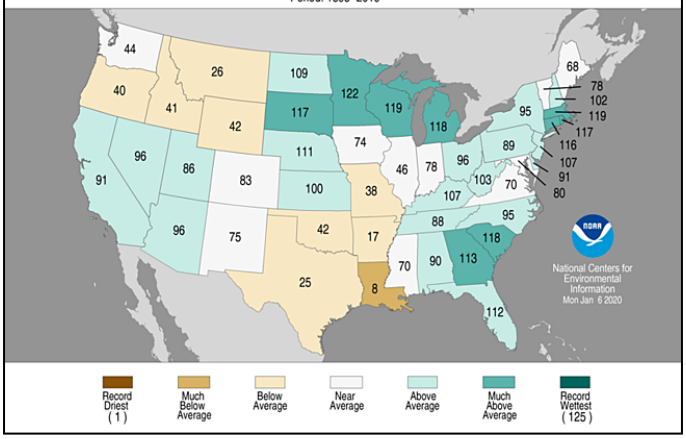


Figure 2 Statewide Precipitation Ranks
December 2019
Period: 1895–2019



Summary: From December 1-3, an impressive, early-season snowstorm unfolded across the Northeast. Three-day snowfall totals reached 22.6 inches in Albany, NY; 20.8 inches in Manchester, NH; 17.0 inches in Worcester, MA; and 16.5 inches in Hartford, CT. Closer to the Atlantic Seaboard, snowfall included 8.6 inches in Portland, ME; 7.1 inches in Boston, MA; 5.5 inches in Providence, RI; and 1.6 inches in New York's Central Park. For Albany, where the 22.6-inch snowfall represented the greatest single-storm total since March 1993, snow fell continuously for more than 39 hours. Albany also reported

consecutive daily-record totals (13.3 and 6.8 inches, respectively) on December 1-2. Other daily-record snowfall amounts included 8.9 inches (on December 1) in Worcester; 9.6 inches (on December 2) in Binghamton, NY; and 4.8 inches (on December 3) in Boston. Farther west, widespread precipitation arrived on December 4, when daily-record totals included 1.27 inches in Paso Robles, CA, and 0.81 inch in Tonopah, NV. During the first 8 days of December, precipitation in Paso Robles totaled 3.19 inches. Another round of rain and snow arrived in California on December 7, when record-setting precipitation amounts totaled 2.72 inches in Redding and 2.22 inches in Mount Shasta City. In the Sierra Nevada foothills, Blue Canyon, CA, netted precipitation totaling 8.50 inches from December 1-8.

As the month began, cold weather lingered in several areas, including the Intermountain West. Record-setting lows for December 1 plunged to -18°F in Big Piney, WY, and -12°F at Utah's Bryce Canyon Airport. Before warmer weather arrived, La Grande, OR, posted a daily-record low of 8°F on December 3. Meanwhile, chilly air also settled across Florida, where temperatures on December 3 remained below the 60-degree mark as far south as Daytona Beach (high of 58°F). Later, however, warmth developed across the Plains and South. In Texas, record-setting highs for December 5 rose to 84°F in San Angelo and 83°F in Abilene. On December 6 in Louisiana, daily-record highs climbed to 84°F in New Orleans and 81°F in Lake Charles. Warmth also developed in California's Central Valley, where Sacramento posted consecutive daily-record highs (68 and 67°F, respectively) on December 6-7. Stockton, CA, with a high of 70°F, also notched a daily-record high for December 7. Elsewhere on the 7th, mild weather on the High Plains resulted in a daily-record high of 57°F in Miles City, MT.

Much of the country continued to experience mild weather through the second week of December. On the 8th in Texas, daily-record highs climbed to 81°F in Abilene and 76°F in Childress. The following day, Houston, TX, registered a high of 84°F, just one degree shy of the monthly record originally set on December 3, 1995. Elsewhere in Texas, record-setting highs for December 9 soared to 88°F in Del Rio and 82°F in Waco. By December 10, warmth briefly shifted into the Southeast, where daily-record highs included 88°F in Fort Myers, FL, and 80°F in Florence, SC. December records were tied on the 10th in Jacksonville, FL (85°F), and Savannah, GA (83°F). Later, unusual warmth returned across Texas. From December 13-15, Del Rio, TX, tallied a trio of daily-record highs (86, 91, and 89°F). Del Rio had never previously topped the 90-degree mark in December; the monthly record had been 90°F on December 4, 1977. Other daily-record highs in Texas on the 14th included 93°F in McAllen; 91°F in Laredo; and 90°F in Brownsville and Harlingen. From December 14-16, McAllen reported three consecutive daily-record highs (93, 91, and 89°F). On the 15th, record-setting highs in Texas soared to 90°F in Laredo and 89°F in San Angelo. Farther east, daily-record high for December 16 included 87°F in Fort Myers, FL, and 81°F in Lake Charles, LA. Fort Myers posted another daily record on December 17, with a high of 86°F. In stark contrast, frigid conditions intensified across the northern Plains and upper Midwest. By December 15, Hibbing, MN, logged a daily-record low of -26°F. Subsequently, daily-record lows were established in Big Piney, WY (-15°F on December 16), and Crested Butte, CO (-28°F on December 17). As cold air briefly dove southward, lows in Texas plunged to daily-record levels on December 18 in Del Rio (24°F) and Corpus Christi (29°F). Del Rio had recorded the previously noted monthly record high of 91°F just 4 days earlier. Corpus Christi had experienced consecutive daily-record highs (89 and 86°F, respectively) on December 14-15.

Amid an overall mild weather pattern, snow briefly blanketed several areas around mid-month. On December 10, rain changed to snow in parts of the South, where Huntsville, AL, collected a daily-record snowfall of 0.7 inch. Mid-Atlantic snow on December 11 resulted in daily-record totals in locations such as Bridgeport, CT (2.4 inches), and Islip, NY (1.9 inches). Later, periods of snow affected the North, while heavy rain soaked the Southeast. Duluth, MN, reported a daily-record snowfall (4.1 inches) on December 12, boosting its season-to-date total to 48.2 inches. Through the end of December, Duluth's seasonal snowfall climbed to 56.3 inches (167 percent of normal). Farther south, the 12th was the wettest December day on record in Vero Beach, FL, where 4.49 inches fell. Previously, Vero Beach had received a maximum daily sum of 2.80 inches on December 10, 2011. Elsewhere in Florida, the 12th was the second-wettest December day in Melbourne (3.71 inches) and third-wettest December day in Fort Pierce (3.64 inches). Eventually, heavy rain spread northward through the Atlantic Coast States. Record-setting totals for December 13 reached 4.16 inches in Columbia, SC; 3.11 inches in Macon, GA; and 2.22 inches in Fayetteville, NC. For Columbia, it was the wettest December day on record (previously, 3.27 inches on December 3, 1927). On the 14th, Portland, ME, experienced its third-wettest December day, with a total of 3.40 inches. Portland had reported 3.50-inch amounts on December 4, 1990, and December 18, 2012. Another storm system quickly followed, allowing snow to spread from the central Rockies into the lower Midwest. Record-setting snowfall totals for December 15 included 4.3 inches in Indianapolis, IN; 3.8 inches in Alamosa, CO; and 3.3 inches in Kansas City, MO. From December 15-17, storm-total snowfall in Indianapolis reached 7.6 inches.

The same storm responsible for the mid-month snow also spawned severe weather across the South. On December 16, several dozen tornadoes struck Louisiana, Mississippi, and Alabama, based on preliminary reports. In Louisiana, the nation's first deadly tornado since May 27 carved a 62-mile path, up to 400 yards wide, across Beauregard, Vernon (one fatality), and Rapides Parishes from near DeRidder to Pineville, including the Alexandria area. On the 16th, Alexandria reported 1.91 inches of rain and a peak wind gust to 50 mph. Later in the day, a tornado cut across nearly 19 miles of Limestone and Lawrence Counties in northern

Alabama, resulting in two fatalities in the latter county. Meanwhile in West Virginia, record-setting rainfall totals for December 16 included 1.61 inches in Charleston and 1.51 inches in Parkersburg. On December 17, a few more tornadoes were spotted across southeastern Alabama and southern Georgia. In the Atlantic Coast States, daily-record rainfall amounts for the 17th reached 1.08 inches in Augusta, GA, and 1.03 inches in Newark, NJ. As Northeastern rain made a transition to snow showers, Newark netted a daily-record snowfall (1.0 inch) for December 18.

The next storm system to take aim on the South originated in the Northwest. From December 19-21, rainfall topped the 5-inch mark in western Washington locations such as Olympia (5.53 inches) and Seattle (5.40 inches). December 20 was particularly wet, with 2.87 inches in Olympia and 3.25 inches in Seattle. Other daily-record amounts for the 20th included 3.42 inches in Astoria, OR, and 2.35 inches in Hoquiam, WA. As precipitation began to shift southward along the Pacific Coast, a record-setting rainfall amount (2.49 inches) for December 21 was reported in Crescent City, CA. The start of last full week in December featured record-setting rains along the southern Atlantic Coast. The 22nd was the wettest December and winter day on record at Saint Simons Island, GA, where 4.01 inches fell. Previous records had been 3.27 inches on December 15, 1997, and 3.92 inches on February 18, 1981, respectively. Key West, FL, received 5.48 inches of rain on the 22nd, representing the second-wettest December day in that location behind 6.66 inches on December 8, 1986. Drenching rainfall continued into December 23, when Fort Lauderdale, FL, experienced its wettest December day (7.13 inches; previously, 6.62 inches on December 17, 2009. Daily-record amounts for December 23 included 2.76 inches in Greenville-Spartanburg, SC; 2.60 inches in Miami, FL; and 2.11 inches in Savannah, GA. Savannah collected 4.71 inches from December 22-24. In South Carolina, downtown Charleston received exactly six inches of rain and (on December 23) clocked a peak wind gust to 48 mph.

Meanwhile, locally heavy showers developed across southern California, where Long Beach measured a daily-record total (1.28 inches) for December 23. Snow fell farther inland; snowfall in Utah totaled 6.1 inches in Hanksville and 5.2 inches in Panguitch in a 48-hour period from December 23-25. From December 24-26, heavy snow also fell in western Montana. With a 13-inch depth on the 26th, the airport in Dillon, MT, reported its deepest snow since February 15, 1949. Starting on December 25, a larger area of stormy weather arrived in southern California and the Southwest. Long Beach again received more than an inch of rain on December 25 and 26, boosting its 4-day total to 3.45 inches. Elsewhere in southern California, daily-record totals for December 26 included 1.76 inches in Barstow-Daggett; 1.65 inches in Ontario; 1.57 inches in Lancaster; and 1.45 inches in Fullerton. It was Barstow-Daggett's third wettest day on record, behind 2.28 inches on September 10, 1978, and 2.06 inches on August 7, 1958. San Diego, CA, reported winds to 45 mph on December 26—the highest gust in that location since February 14. Farther east, Flagstaff, AZ, reported measurable snow on 6 consecutive days from December 23-28, totaling 19.9 inches.

late December, heavy precipitation erupted across the nation's mid-section—a fitting finish to an incredibly wet year. The 28th was the wettest December day on record in Sioux City, IA (1.38 inches; previously, 1.14 inches on December 9, 1899), and the second-wettest December day in Lincoln, NE (2.12 inches; behind only 2.13 inches on December 15, 1984). Daily-record amounts for December 28 reached 1.84 inches in Topeka, KS; 1.76 inches in Omaha, NE; and 1.50 inches in Kansas City, MO. Ulysses, KS, received storm-total precipitation of 1.09 inches, nearly twice the 0.55 inch that fell from September 1 – December 26. In South Dakota, a multi-day (December 28-30) snow event dumped 15.0 inches in Mitchell, 10.1 inches in Aberdeen, and 10.0 inches in Watertown. Most of Mitchell's snow, 12.2 inches, fell on December 29. Elsewhere, 3-day snowfall reached 12.3 inches in Fargo, ND, and 8.8 inches in International Falls, MN. Daily-record snowfall totals for the 29th included 9.4 inches in Grand Forks, ND, and 7.8 inches in International Falls. Elsewhere on December 29, Duluth, MN, clocked a wind gust to 63 mph amid a 3-day snowfall of 7.1 inches. Midwestern snow lingered into December 30, when daily-record amounts totaled 9.8 inches in Marquette, MI, and 8.2 inches in Eau Claire, WI.

Prior to the end-of-year storminess, warmth dominated the Plains, Midwest, and Northwest. On December 20-21, consecutive daily-record highs were set in Montana locations such as Missouri (54 and 58°F) and Kalispell (51 and 54°F). Other daily-record highs for December 21 included 63°F in Reno, NV, and Walla Walla, WA. December 22 featured daily-record highs in locations such as Goodland, KS (71°F), and Oshkosh, WI (50°F). From December 24-26, Rockford, IL, tallied a trio of daily-record highs (55, 59, and 56°F). It was the warmest Christmas Day on record in several Midwestern communities, including Quincy, IL (66°F); Saint Joseph, MO (65°F); and Burlington, IA (63°F). During a final day of record-setting Midwestern warmth on December 26, highs rose to 65°F in Lincoln, IL; 64°F in Youngstown, OH; and 63°F in South Bend, IN. With the mild weather, there was only a trace of snow on the ground on the morning of December 25 in locations such as Burlington, VT, and Green Bay, WI, and no snow at all in Buffalo, NY, and La Crosse, WI. Later, warmth made another strong push across the South and East, resulting in record-setting highs for December 28 in Lake Charles, LA (79°F), and Paducah, KY (70°F). December 29 featured daily-record highs of 78°F in Knoxville, TN; 77°F in Montgomery, AL; and 58°F in Muskegon, MI. Along the Atlantic Seaboard, lingering warmth on the 30th led to daily-record highs in Norfolk, VA (78°F), and Salisbury, MD (72°F). In fact, the warmest year on record occurred in several Eastern communities, including Key West, FL, with an annual average temperature of 80.3°F; Savannah, GA (69.8°F); and Elkins, WV (53.5°F). Previous records had been 79.9°F (in 2015) in Key West; 69.7°F (in 2017) in Savannah; and 53.3°F (in 1921) in Elkins.

With a late-year burst of rain and snow, many annual precipitation records were broken (or further demolished) across the Midwest and environs. In Michigan, Muskegon's 2.42-inch total (6.1 inches of snow) from December 29-31 capped its wettest year on record. Muskegon's annual total of 47.97 inches was 143 percent of normal, surpassing its 2008 standard of 45.98 inches. Annual precipitation records were established in many other Midwestern locations, including Rochester, MN (55.16 inches; previously, 43.94 inches in 1990); Grand Rapids, MI (51.37 inches; previously, 48.80 inches in 2008); Green Bay, WI (48.63 inches; previously, 39.21 inches in 2018); and Sioux Falls, SD (39.54 inches; previously, 39.17 inches in 2018). The list of communities setting annual precipitation records also included Huron (37.30 inches), Mitchell (36.47 inches), and Rapid City (28.43 inches) in South Dakota; Appleton (49.03 inches); Wausau (48.10 inches), and Milwaukee (46.04 inches) in Wisconsin; Faribault (50.55 inches), Minneapolis-Saint Paul (43.17 inches), and Saint Cloud (41.92 inches) in Minnesota; and Muskegon (47.97 inches), Gaylord (47.29), and Houghton Lake (38.05 inches) in Michigan. Among the oldest annual precipitation records to be broken were those in Kennebec and Mobridge, SD. Kennebec's 2019 total of 35.74 inches surpassed a 1915 standard by 5.49 inches. Similarly, Mobridge's 1915 record of 26.86 inches was shattered by 2.65 inches. Saint Cloud, MN, edged its 1897 annual mark of 41.01 inches. At year's end, heavy precipitation began to overspread the Pacific Northwest, where Quillayute, WA, netted a daily-record sum of 3.89 inches on December 31. Quillayute received an additional 3.10 inches of rain during the first four days of 2020.

Markedly colder air engulfed mainland Alaska, but warmth (and occasional wetness) prevailed across the southern tier of the state. Frigid air first appeared early in the month, when Bettles reported lows of -30, -31, and -30°F, respectively, from December 5-7. In contrast, Anchorage posted daily-record highs (46, 51, and 45°F, respectively) on December 8, 9, and 14. Daily-record highs were also set in locations such as Kodiak (48°F on December 9) and Kotzebue (34°F on December 10). Meanwhile, Kodiak netted a monthly precipitation total of 10.01 inches (115 percent of normal), of which 9.48 inches fell by the 18th. Ketchikan's December precipitation totaled 20.85 inches, 147 percent of normal. Monthly snowfall in Anchorage totaled 20.2 inches (121 percent of normal), of which more than half (12.2 inches) fell from December 24-31. During the second half of the month, bitterly cold air fully invaded most mainland locations. From December 20-22, Fairbanks reported its first 3 days of the season with temperatures below -30°F, including a low of -35°F on the 21st. Elsewhere on December 21, Fort Yukon registered a low of -50°F. Bettles, with a low of -60°F on December 27, tied a monthly record originally set on December 15, 1946. Bettles dropped to -50°F or below on 4 consecutive days, starting December 25. Unofficially, a reading of -65°F was reported on December 28 near Manley Hot Springs. Despite the late-month cold wave, Anchorage completed its warmest year on record, with an annual average temperature of 42.5°F (previously, 41.5°F in 2016).

December was another warm Hawaiian month—fueled by above-average sea surface temperatures—with typical, early-winter precipitation patterns. Early in the month, snow blanketed the Big Island peaks, mainly at elevations above 12,000 feet. On December 6 on Maui, Kahului's 0.36-inch rainfall exceeded the total of 0.24 inch that had occurred in the preceding 9 weeks (63 days), from October 4 – December 5. Later, Kahului logged a high of 90°F on the 24th—tying a December record most recently set in 1995. It was also Kahului's 162nd day in 2019 with a high of 90°F or greater, demolishing the 1968 annual record of 94 days. Not surprisingly, Kahului completed its warmest December and warmest year on record, with average temperatures of 76.5 and 78.4°F, respectively. Kahului's previous records had been 75.9 and 77.8°F, respectively, with both marks having been set in 1980. Elsewhere, December rainfall at the state's major airport observation sites ranged from 1.69 inches (52 percent of normal in Honolulu, Oahu, to 11.19 inches (97 percent) in Hilo, on the Big Island. Kahului's monthly total of 2.20 inches—aided by a sum of 1.31 inches on December 25—exceeded the 2.01-inch amount observed during the preceding 7 months, from May-November 2019.

Fieldwork

Fieldwork summary provided by USDA/NASS

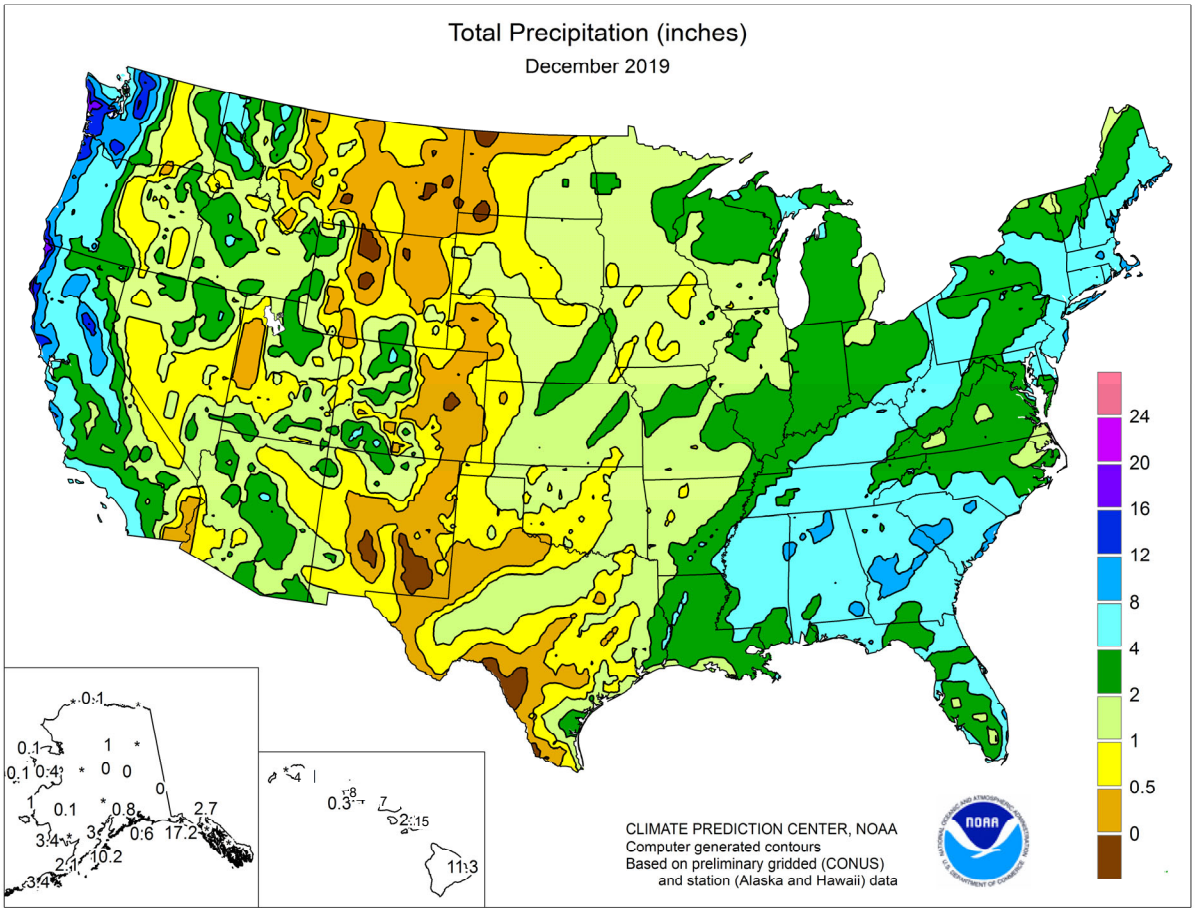
December was warmer than average for most of the nation. Temperatures averaged at least 6°F above normal at a few locations across the northern Plains, Midwest, and South. In contrast, a few areas in New England and the Four Corners States reported below-normal temperatures. December precipitation was above average in the upper Midwest and much of the Southwest, Southeast, and southern New England. Meanwhile, below-average precipitation was noted in the lower Mississippi Valley, the northern Rocky Mountain States, the Pacific Northwest, and much of Texas. Portions of Alabama, Georgia, Kentucky, Mississippi, South Carolina, and Tennessee received more than 7 inches of rain during December.

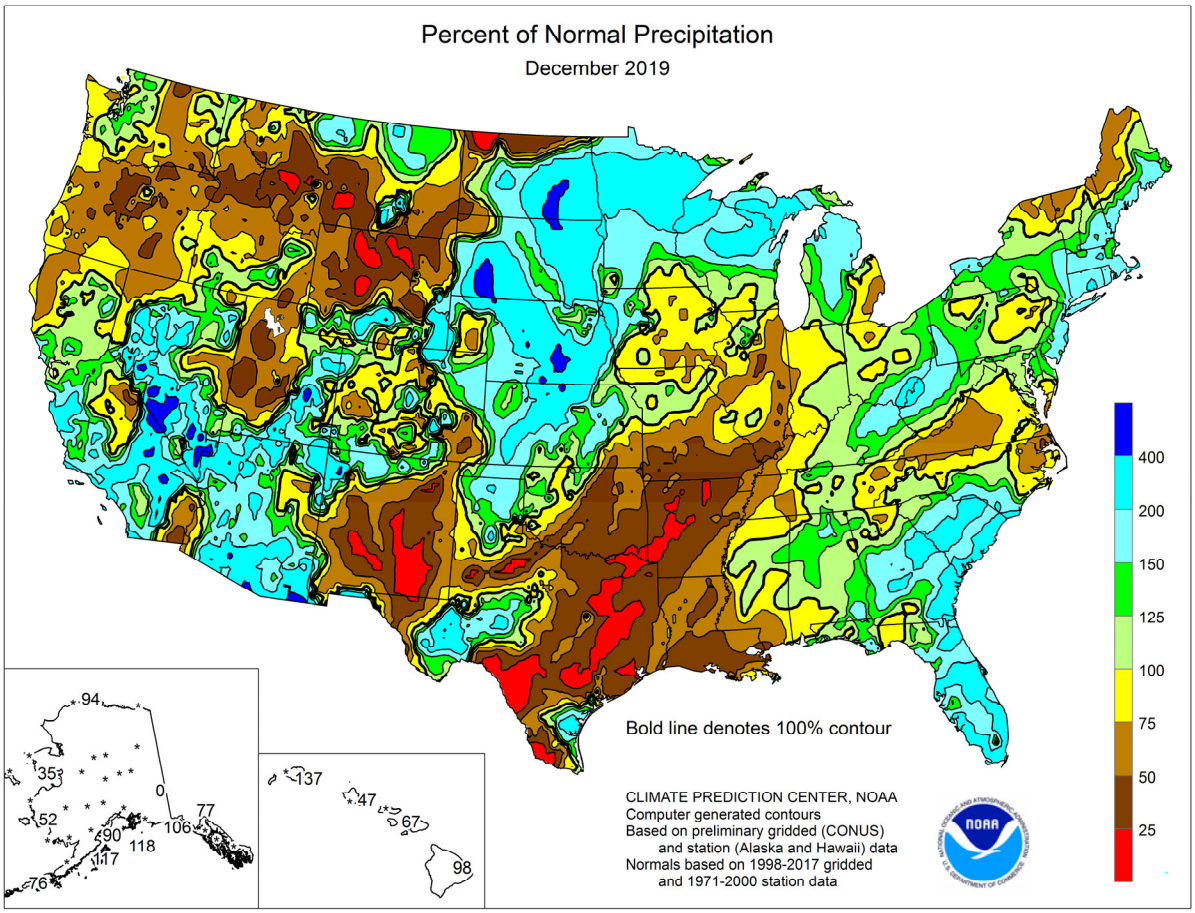
By December 1, eighty-nine percent of the nation's corn was harvested, 8 percentage points behind last year and 9 points behind the 5-year average. Ninety-two percent of the 2019 acreage was harvested by December 8, eight percentage points behind 2018 and 8 points behind average.

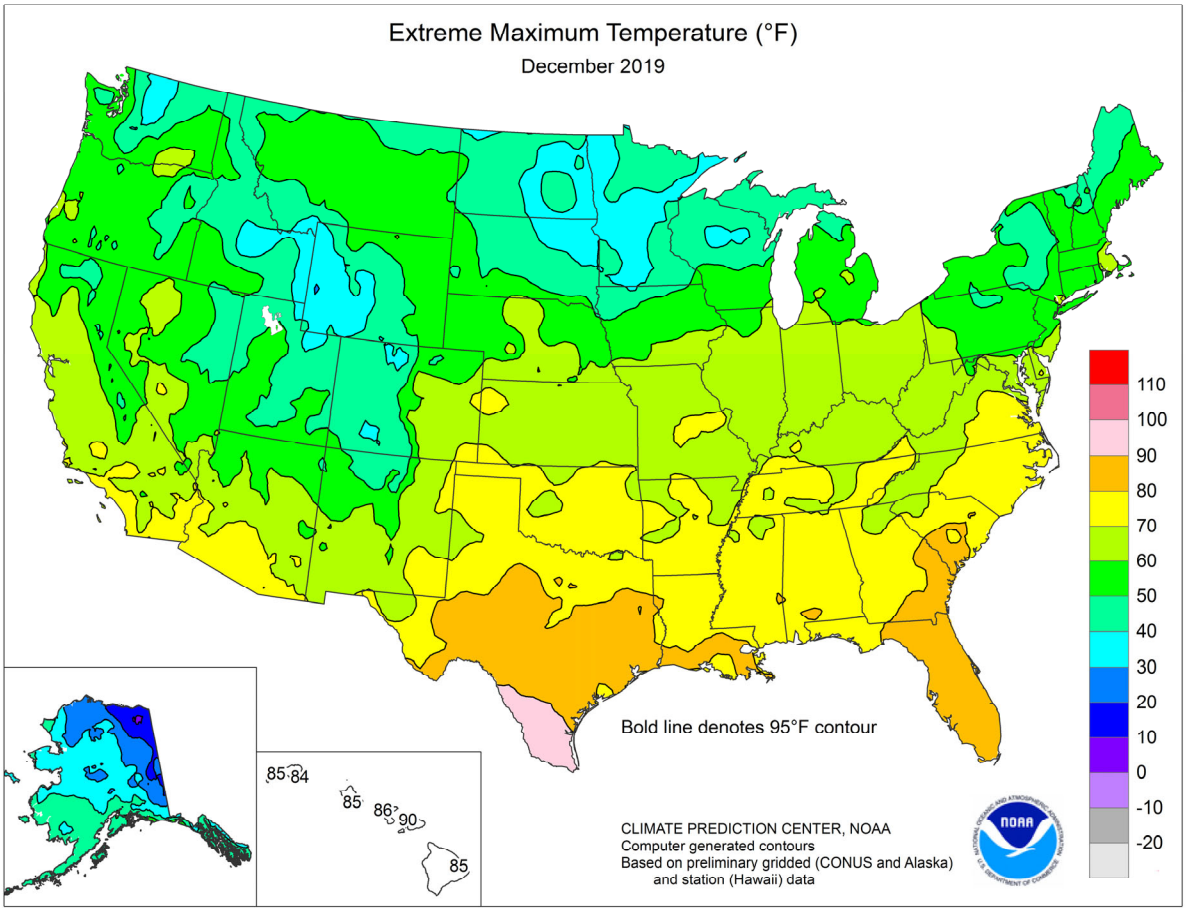
Soybean harvest across the nation was 96 percent complete by December 1, one percentage point behind the previous year and 3 points behind the 5-year average.

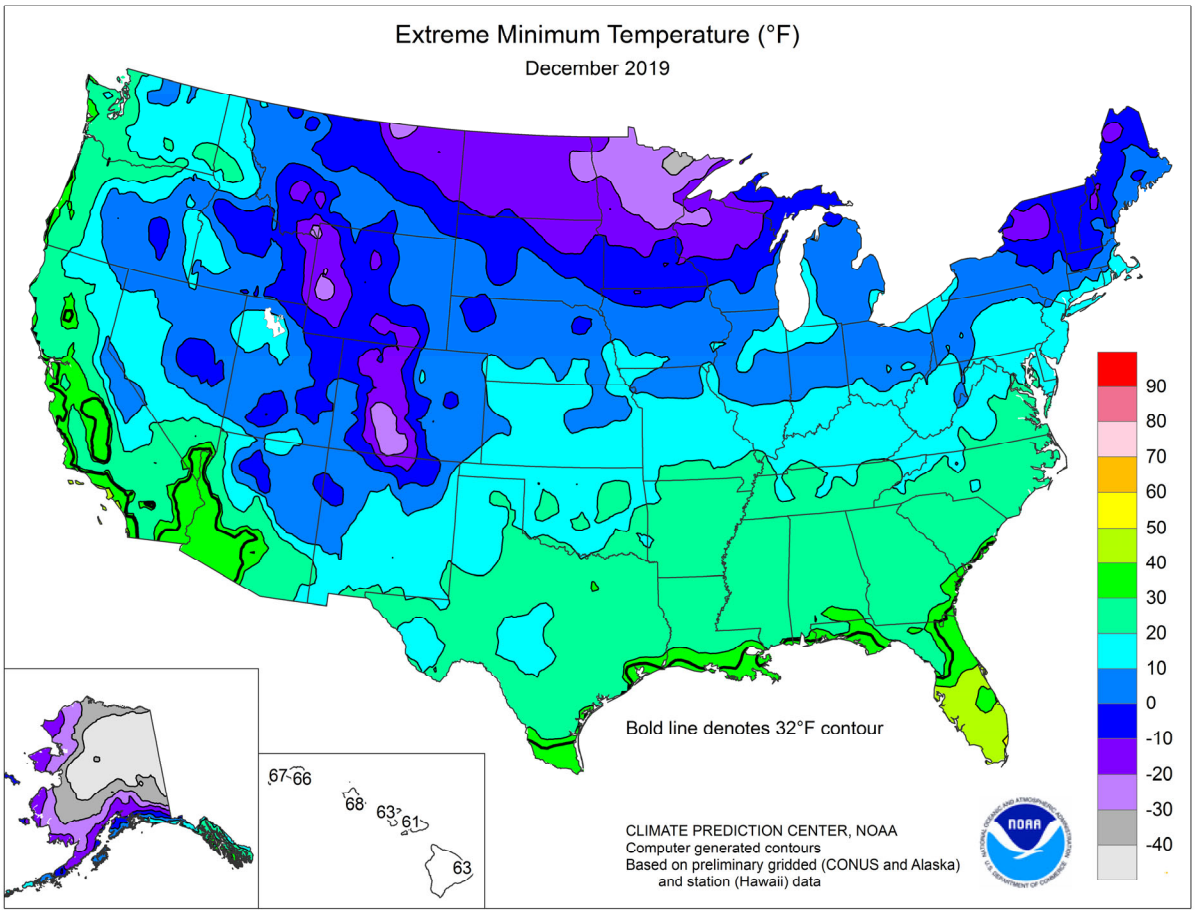
Eighty-three percent of the nation's cotton was harvested by December 1, nine percentage points ahead of ;ast year and 2 points ahead of the 5-year average. By December 8, eighty-nine percent of the nation's cotton acreage was harvested.

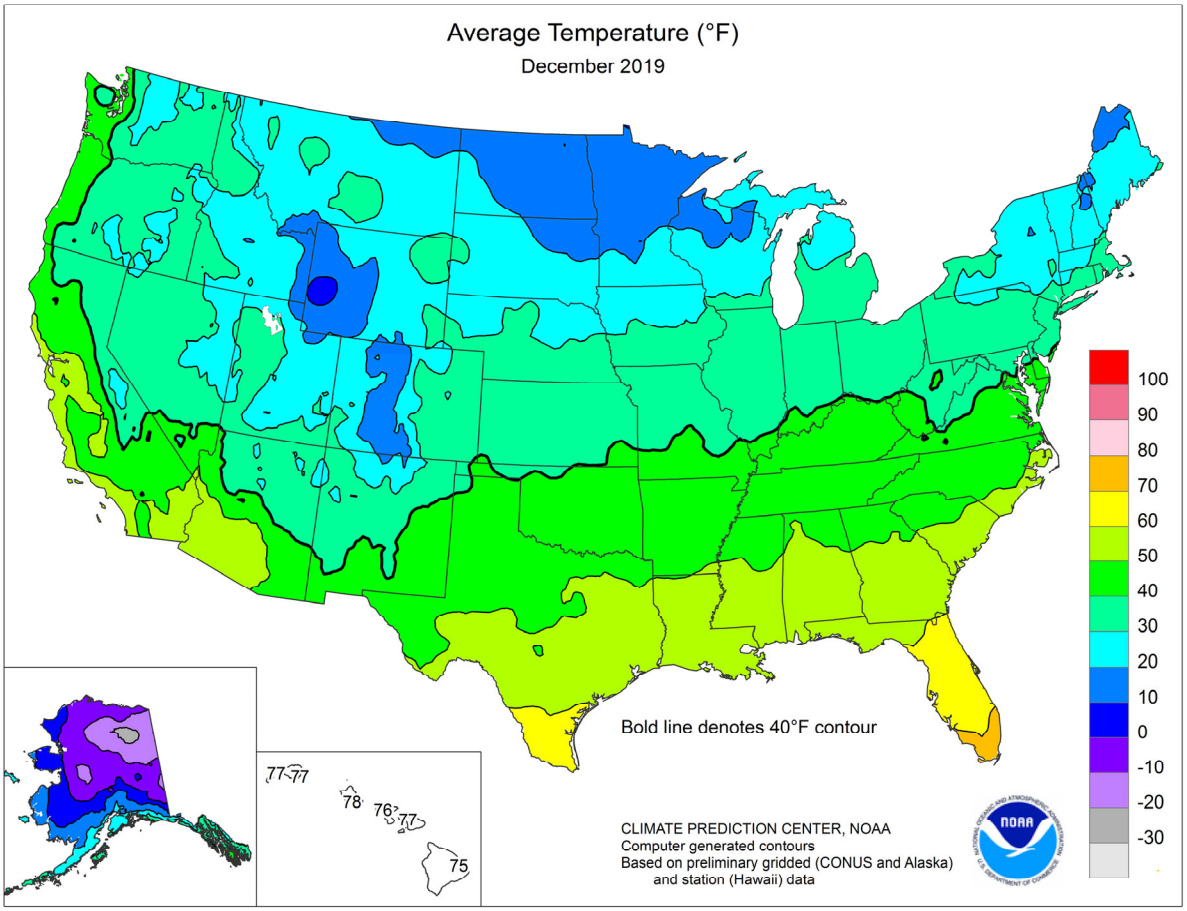
Sixty-five percent of the sunflowers were harvested by December 1, sixteen percentage points behind last year and 29 points behind the 5-year average. By the 8th, seventy-three percent of this year's sunflowers were harvested.

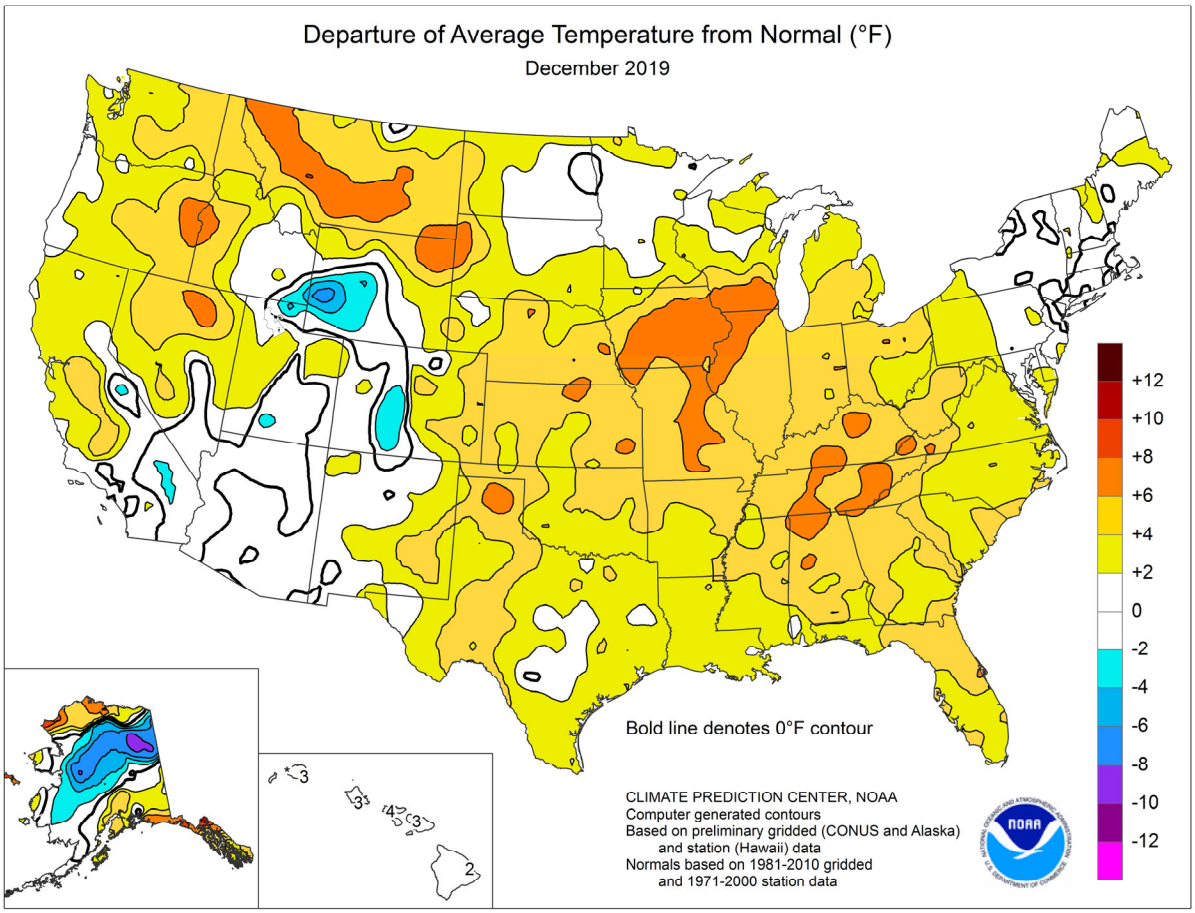

Total Precipitation (inches)
December 2019
24
20
16
12
8
4
2
1
0.5
0
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data


Percent of Normal Precipitation
December 2019
400
200
150
125
100
75
50
25
Bold line denotes 100% contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data
Normals based on 1998-2017 gridded
and 1971-2000 station data


Extreme Maximum Temperature (°F)
December 2019
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
85 84
85
86 90
85
Bold line denotes 95°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Extreme Minimum Temperature (°F)
December 2019
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
67 66
68
63 61
63
Bold line denotes 32°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Average Temperature (°F)
December 2019
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
77
77
78
76
77
75
Bold line denotes 40°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Departure of Average Temperature from Normal (°F)
December 2019
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
3
3
4
3
2
Bold line denotes 0°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
Normals based on 1981-2010 gridded
and 1971-2000 station data
NOAA

National Weather Data for Selected Cities

December 2019

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP, °F		PRECIP.		STATES AND STATIONS	TEMP, °F		PRECIP.		STATES AND STATIONS	TEMP, °F		PRECIP.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	52	6	5.10	0.63	LEXINGTON	44	8	5.94	1.91	COLUMBUS	37	4	2.81	-0.12
HUNTSVILLE	49	6	7.73	2.14	LONDON-CORBIN	44	6	6.18	1.87	DAYTON	38	7	3.31	0.23
MOBILE	55	3	5.88	1.22	LOUISVILLE	44	6	3.64	-0.05	MANSFIELD	37	7	3.57	0.31
MONTGOMERY	54	5	5.50	0.53	PADUCAH	43	6	2.11	-2.27	TOLEDO	36	7	2.45	-0.19
AK ANCHORAGE	25	8	0.92	-0.13	LA BATON ROUGE	57	5	2.83	-2.43	YOUNGSTOWN	35	5	4.07	1.11
BARROW	-1	10	0.13	0.01	LAKE CHARLES	58	5	0.98	-3.62	OK OKLAHOMA CITY	43	3	0.67	-1.22
COLD BAY	33	2	3.33	-1.00	NEW ORLEANS	60	5	2.88	-2.19	TULSA	45	5	0.96	-1.47
FAIRBANKS	-5	1	0.01	-0.73	SHREVEPORT	52	4	1.80	-2.75	OR ASTORIA	44	1	10.57	0.17
JUNEAU	37	8	7.50	2.09	ME BANGOR	26	2	3.00	-0.33	BURNS	30	5	1.33	0.03
KING SALMON	17	0	2.41	1.02	CARIBOU	21	5	2.92	-0.27	EUGENE	42	2	5.19	-3.10
KODIAK	35	4	10.03	2.39	PORTLAND	31	3	8.18	3.94	MEDFORD	41	3	2.83	-0.07
NOME	10	2	0.37	-0.64	MD BALTIMORE	40	3	3.58	0.23	PENDLETON	36	2	0.78	-0.70
AZ FLAGSTAFF	30	0	3.14	1.31	MA BOSTON	37	2	5.83	2.10	PORTLAND	43	3	4.26	-1.45
PHOENIX	56	2	0.70	-0.22	WORCESTER	29	0	7.01	3.21	SALEM	42	2	4.92	-1.54
TUCSON	54	2	1.21	0.18	MI ALPENA	29	5	2.38	0.55	PA ALLENTOWN	36	4	3.41	0.02
AR FORT SMITH	46	5	0.87	-2.52	DETROIT	35	5	2.29	-0.22	ERIE	37	4	4.88	1.15
LITTLE ROCK	46	3	1.61	-3.10	FLINT	34	7	2.11	-0.07	MIDDLETOWN	36	2	3.65	0.41
CA BAKERSFIELD	53	6	1.53	0.77	GRAND RAPIDS	33	5	3.62	0.92	PHILADELPHIA	39	2	5.22	1.91
EUREKA	49	1	5.98	-0.37	HOUGHTON LAKE	28	4	3.24	1.49	PITTSBURGH	35	2	3.35	0.49
FRESNO	51	6	2.35	1.01	LANSING	33	6	3.82	1.65	WILKES-BARRE	33	2	2.50	-0.05
LOS ANGELES	59	1	4.42	2.63	MUSKEGON	33	4	3.48	0.84	WILLIAMSPORT	33	2	2.80	-0.14
REDDING	48	3	7.65	2.98	TRAVERSE CITY	31	5	3.20	0.54	PR SAN JUAN	82	4	5.91	1.34
SACRAMENTO	50	4	4.49	2.04	MN DULUTH	17	3	3.91	2.97	RI PROVIDENCE	35	1	8.12	3.98
SAN DIEGO	59	1	4.05	2.74	INT'L FALLS	14	6	1.16	0.46	SC CHARLESTON	55	4	6.58	3.34
SAN FRANCISCO	54	5	3.74	0.85	MINNEAPOLIS	23	4	1.84	0.84	COLUMBIA	50	3	9.33	5.95
STOCKTON	52	7	3.47	1.65	ROCHESTER	22	5	1.23	0.21	FLORENCE	52	5	6.68	3.21
CO ALAMOSA	17	0	0.52	0.19	ST. CLOUD	18	4	3.92	3.23	GREENVILLE	47	3	7.02	3.16
CO SPRINGS	35	6	0.32	-0.10	MS JACKSON	52	4	5.85	0.51	MYRTLE BEACH	54	5	5.69	2.24
DENVER	34	5	0.22	-0.09	MERIDIAN	53	4	3.96	-1.35	SD ABERDEEN	18	2	0.84	0.46
GRAND JUNCTION	31	3	0.56	0.04	TUPELO	50	7	6.04	-0.08	HURON	22	3	0.49	0.10
PUEBLO	35	5	0.31	-0.08	MO COLUMBIA	39	7	1.63	-0.84	RAPID CITY	29	4	0.25	-0.15
CT BRIDGEPORT	36	1	7.36	3.89	JOPLIN	42	5	1.37	-1.59	SIOUX FALLS	24	6	1.07	0.55
HARTFORD	32	1	7.65	4.05	KANSAS CITY	38	7	1.73	0.09	TN BRISTOL	43	6	3.18	-0.21
DC WASHINGTON	42	2	3.30	0.25	SPRINGFIELD	41	5	1.31	-1.86	CHATTANOOGA	49	7	4.91	0.10
DE WILMINGTON	38	2	4.68	1.28	ST JOSEPH	36	5	1.40	-0.04	JACKSON	46	4	4.68	-0.68
FL DAYTONA BEACH	65	4	3.34	0.63	ST LOUIS	40	6	1.91	-0.95	KNOXVILLE	47	6	4.86	0.37
FT LAUDERDALE	72	3	9.67	7.02	MT BILLINGS	33	7	0.15	-0.52	MEMPHIS	48	5	4.04	-1.64
FT MYERS	71	5	5.71	4.13	BUTTE	21	3	0.11	-0.42	NASHVILLE	48	8	5.01	0.47
JACKSONVILLE	61	6	2.61	-0.03	GLASGOW	20	4	0.36	-0.01	TX ABILENE	50	5	0.98	-0.29
KEY WEST	75	3	7.71	5.57	GREAT FALLS	32	8	0.17	-0.50	AMARILLO	42	5	1.00	0.39
MELBOURNE	68	5	7.38	5.07	HELENA	30	9	0.04	-0.42	AUSTIN	53	1	0.78	-1.66
MIAMI	73	3	6.44	4.26	KALISPELL	31	8	0.93	-0.72	BEAUMONT	58	4	1.07	-4.18
ORLANDO	67	4	5.01	2.70	MILES CITY	27	6	0.04	-0.41	BROWNSVILLE	65	4	0.74	-0.37
PENSACOLA	58	4	7.18	3.21	MISSOULA	29	6	0.67	-0.48	COLLEGE STATION	56	4	0.57	-2.66
ST PETERSBURG	68	4	2.20	-0.40	NE GRAND ISLAND	32	6	1.44	0.78	CORPUS CHRISTI	61	3	4.02	2.27
TALLAHASSEE	58	4	3.55	-0.55	HASTINGS	32	5	1.59	0.86	DALLAS/FT WORTH	50	3	1.19	-1.38
TAMPA	68	5	3.72	1.42	LINCOLN	32	6	2.57	1.71	DEL RIO	57	5	0.05	-0.70
WEST PALM BEACH	72	4	9.37	6.23	MCCOOK	34	5	0.37	-0.16	EL PASO	48	3	0.72	-0.05
GA ATHENS	50	5	5.76	2.05	NORFOLK	29	5	1.07	0.42	GALVESTON	61	3	0.98	-2.55
ATLANTA	51	6	5.15	1.33	NORTH PLATTE	30	4	0.95	0.55	HOUSTON	58	4	1.15	-2.54
AUGUSTA	52	5	8.13	4.99	OMAHA/EPPLEY	32	6	2.12	1.20	LUBBOCK	45	5	0.65	-0.02
COLUMBUS	54	5	8.06	3.66	SCOTTSBLUFF	32	6	0.34	-0.22	MIDLAND	50	5	0.51	-0.14
MACON	52	4	8.72	4.79	VALENTINE	29	5	0.89	0.56	SAN ANGELO	51	5	1.30	0.36
SAVANNAH	57	6	6.82	4.01	NV ELKO	33	7	1.79	0.86	SAN ANTONIO	56	4	0.52	-1.44
HI HILO	75	3	11.19	0.69	ELY	28	2	0.54	0.04	VICTORIA	58	3	0.72	-1.75
HONOLULU	78	3	1.75	-1.10	LAS VEGAS	49	2	0.93	0.53	WACO	50	2	0.72	-2.04
KAHULUI	77	4	2.21	-0.87	RENO	38	4	1.70	0.82	WICHITA FALLS	47	4	0.59	-1.09
LIHUE	76	3	6.15	1.37	WINNEMUCCA	35	5	1.31	0.50	UT SALT LAKE CITY	34	4	1.63	0.40
ID BOISE	36	5	1.23	-0.15	NH CONCORD	27	1	5.41	2.45	VT BURLINGTON	27	2	1.64	-0.58
LEWISTON	39	5	1.36	0.31	NJ ATLANTIC CITY	41	4	4.26	1.11	VA LYNCHBURG	43	5	2.86	-0.37
POCATELLO	28	3	0.92	-0.18	NEWARK	38	2	6.43	2.86	NORFOLK	49	5	2.08	-0.95
IL CHICAGO/O'HARE	34	7	1.56	-0.87	NM ALBUQUERQUE	38	2	0.30	-0.19	RICHMOND	44	4	3.27	0.15
MOLINE	34	8	1.58	-0.62	NY ALBANY	30	2	4.56	1.89	ROANOKE	43	4	2.84	-0.02
PEORIA	35	7	2.43	0.03	BINGHAMTON	28	1	3.86	0.83	WASH/DULLES	39	3	2.98	-0.09
ROCKFORD	33	9	1.68	-0.38	BUFFALO	33	3	5.36	1.56	WA OLYMPIA	42	4	9.44	1.55
SPRINGFIELD	36	6	0.72	-1.82	ROCHESTER	31	2	3.55	0.82	QUILLAYUTE	43	2	14.70	0.20
IN EVANSVILLE	41	5	2.94	-0.60	SYRACUSE	30	1	4.14	1.02	SEATTLE-TACOMA	45	4	7.98	2.36
FORT WAYNE	34	5	2.83	0.06	NC ASHEVILLE	44	5	4.28	0.89	SPOKANE	33	6	2.15	-0.10
INDIANAPOLIS	37	5	3.02	-0.01	CHARLOTTE	47	3	5.31	2.13	YAKIMA	33	4	0.66	-0.72
SOUTH BEND	35	6	2.04	-1.05	GREENSBORO	45	4	3.93	0.87	WV BECKLEY	40	5	3.00	-0.09
IA BURLINGTON	35	7	1.03	-1.07	HATTERAS	56	6	6.30	1.74	CHARLESTON	42	4	4.75	1.43
CEDAR RAPIDS	30	6	1.15	-0.33	RALEIGH	47	4	3.36	0.32	ELKINS	38	5	5.22	1.78
DES MOINES	32	7	1.07	-0.26	WILMINGTON	53	4	3.87	0.09	HUNTINGTON	41	4	5.87	2.50
DUBUQUE	30	8	0.48	-1.21	ND BISMARCK	18	3	0.63	0.19	WI EAU CLAIRE	22	4	1.36	0.33
SIOUX CITY	27	5	1.84	1.18	DICKINSON	22	4	0.00	-0.34	GREEN BAY	26	5	2.21	0.80
WATERLOO	30	8	0.91	-0.20	FARGO	14	1	1.23	0.66	LA CROSSE	27	5	1.44	0.21
KS CONCORDIA	37	7	1.98	1.12	GRAND FORKS	9	-2	0.67	0.12	MADISON	30	7	1.53	-0.13
DODGE CITY	38	5	1.33	0.56	JAMESTOWN	15	1	0.35	-0.09	MILWAUKEE	33	7	1.96	-0.26
GOODLAND	35	5	0.30	-0.10	MINOT	19	4	0.80	0.17	WAUSAU	22	3	2.09	0.76
HILL CITY	35	4	1.15	0.68	WILLISTON	21	4	0.20	-0.20	WY CASPER	27	3	0.59	-0.03
TOPEKA	38	7	2.23	0.81	OH AKRON-CANTON	36	5	3.82	0.84	CHEYENNE	31	4	0.43	-0.03
WICHITA	39	5	1.78	0.43	CINCINNATI	40	5	3.59	0.31	LANDER	19	-2	0.09	-0.52
KY JACKSON	44	6	6.27	2.00	CLEVELAND	38	7	2.86	-0.28	SHERIDAN	29	7	0.22	-0.46

Based on 1971-2000 normals

*** Not Available

January 9 ENSO Diagnostic Discussion

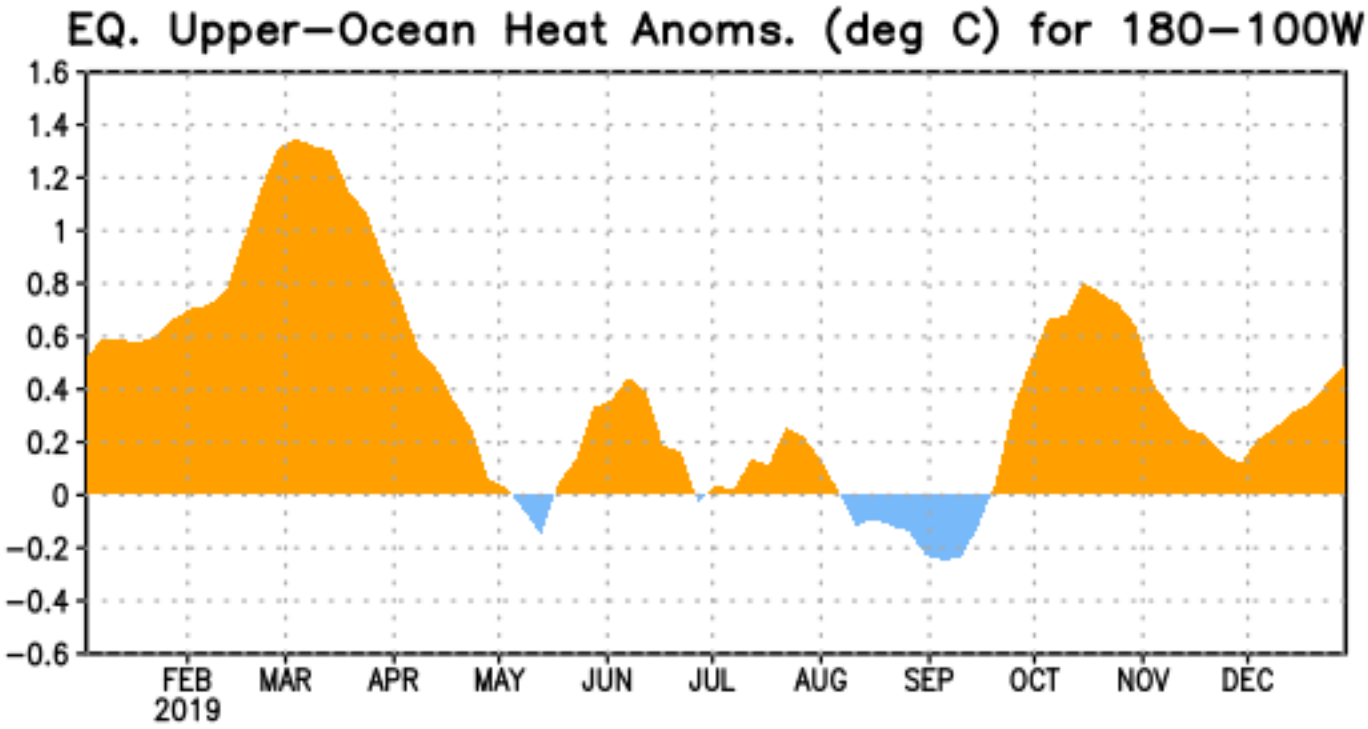


Figure 1: Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180º-100ºW). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

ENSO Alert System Status: Not Active

Synopsis: ENSO-neutral is favored through Northern Hemisphere spring 2020 (~60% chance), continuing through summer 2020 (~50% chance).

During December 2019, near-to-above-average sea surface temperatures (SSTs) were evident over the equatorial Pacific Ocean. Most SST indices increased in the past week, with the eastern Niño-1+2 and Niño-3 regions remaining near average (+0.1°C to +0.3°C), while the Niño-4 and Niño-3.4 regions were warmer at +1.2°C and +0.7°C, respectively. The recent increase in SST anomalies was partially driven by a combination of low-level westerly wind anomalies and the growth in positive equatorial subsurface temperature anomalies (averaged across 180°-100°W; Fig. 1). The latter indicates a downwelling Kelvin wave, which was evident in the above-average temperatures in the central and east-central Pacific Ocean. Over the month, westerly wind anomalies persisted over small regions of the western and eastern equatorial Pacific Ocean, while upper-level winds were near average over most of the equator. Tropical convection remained suppressed over Indonesia and east of the Date Line and was enhanced to the west of the Date Line. The overall oceanic and atmospheric system was consistent with ENSO-neutral, though recent observations reflected a trend toward warmer conditions that will be monitored.

The majority of models in the IRI/CPC plume continue to mostly favor ENSO-neutral (Niño-3.4 index between -0.5°C and +0.5°C) through the Northern Hemisphere summer. For the December 2019-February 2020 season, the Niño-3.4 index is predicted to be near +0.5°C, which is consistent with the latest observations. The forecasters also favor above-average ocean temperatures to continue in the next month or two, but, in alignment with most model guidance, do not foresee a continuation over several consecutive seasons or shifts in the atmospheric circulation that would indicate El Niño. In summary, ENSO-neutral is favored through Northern Hemisphere spring 2020 (~60% chance), continuing through summer 2020 (~50% chance; click CPC/IRI consensus forecast for the chance of each outcome for each 3-month period).

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 **13 February 2020**. 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

January 5-11, 2020

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

HIGHLIGHTS

EUROPE: Showers in northern Europe contrasted with dry conditions near the Mediterranean Coast.

MIDDLE EAST: Wet weather continued, boosting moisture supplies for dormant (north) to vegetative (central and south) winter crops.

NORTHWESTERN AFRICA: Rain continued in Algeria and Tunisia, while drought concerns intensified in Morocco.

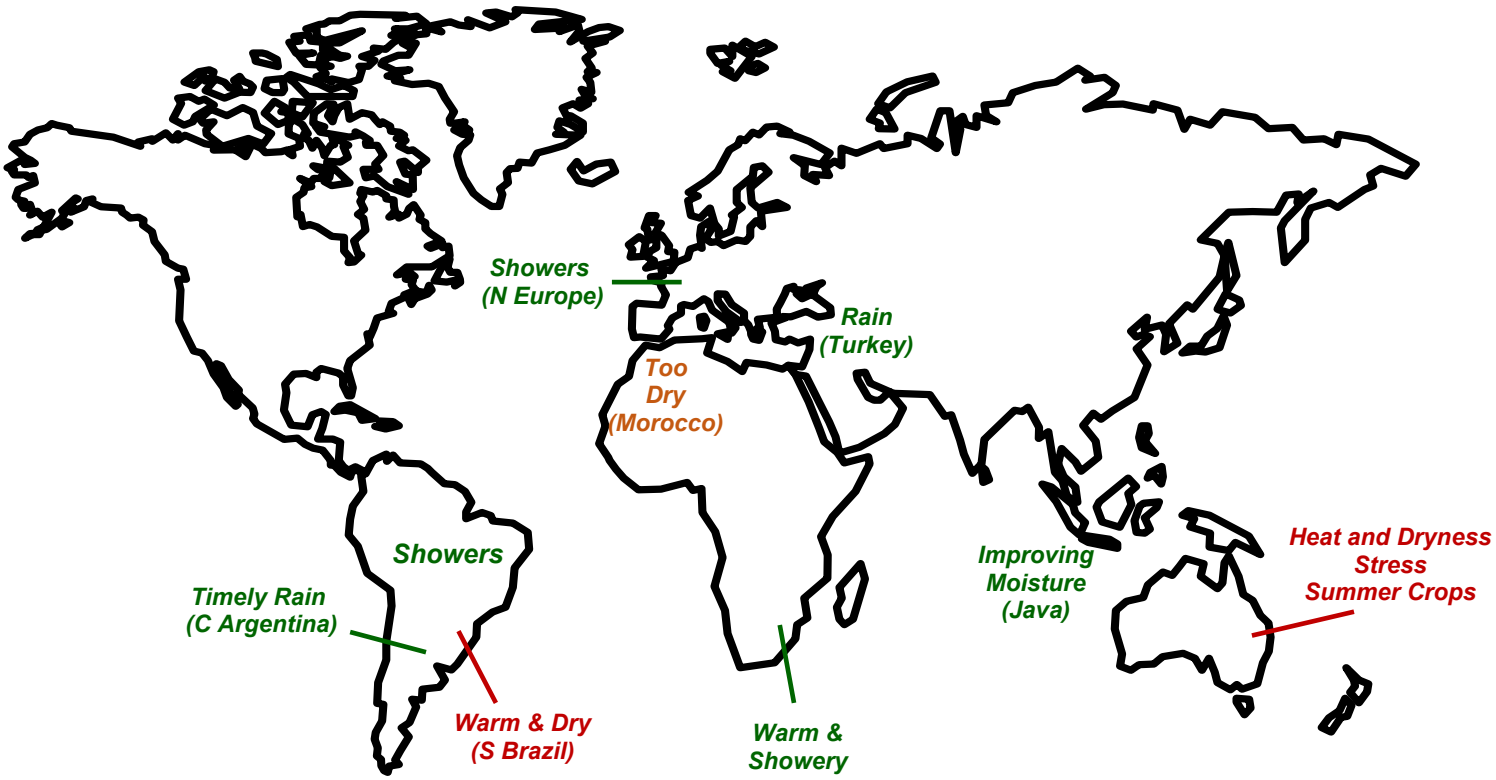
SOUTHEAST ASIA: Moisture conditions continued to improve for rice in Java, Indonesia.

AUSTRALIA: Isolated showers brought little drought relief to the east.

SOUTH AFRICA: Warm, showery weather benefited emerging to vegetative summer crops across the corn belt.

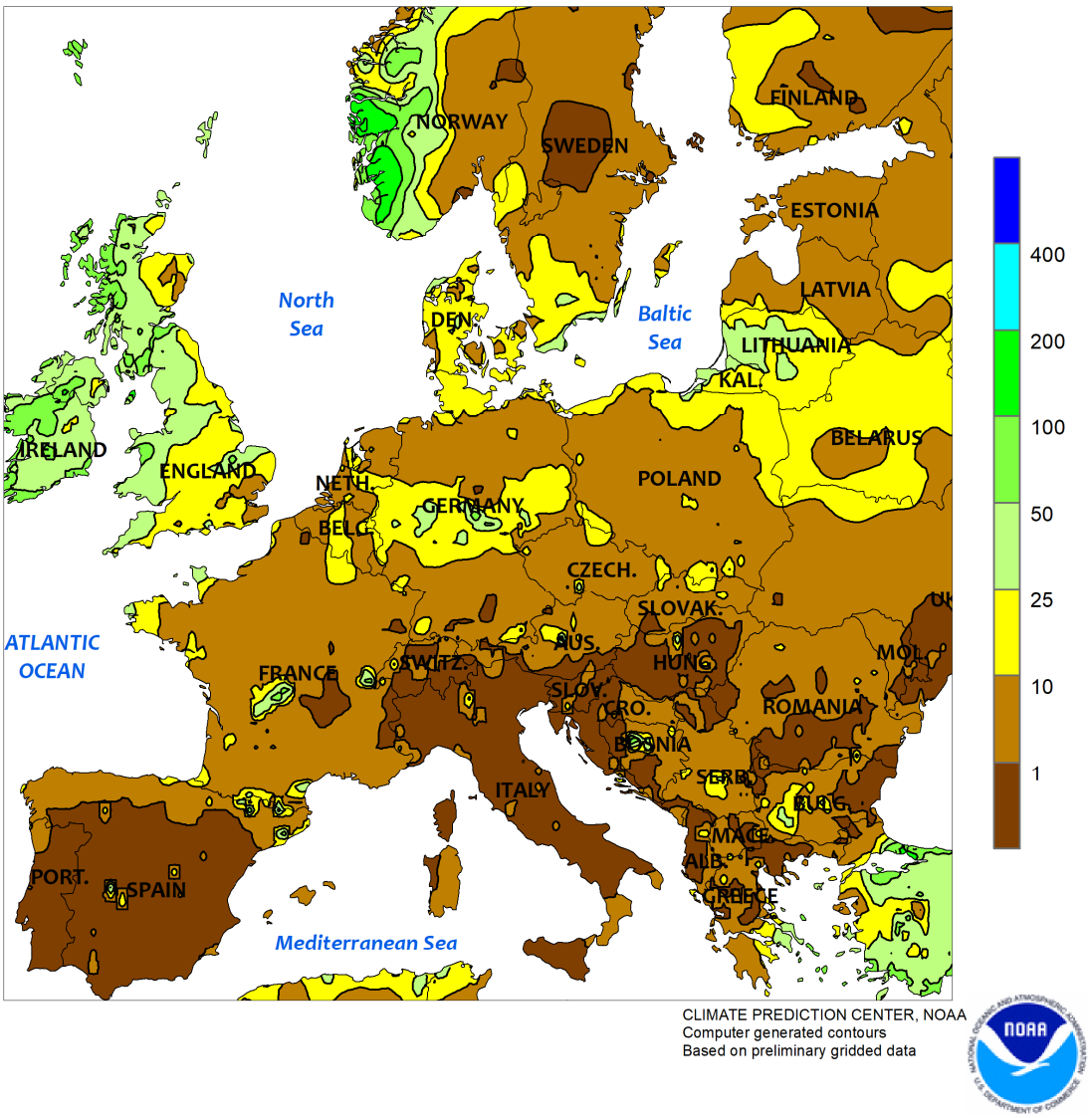
ARGENTINA: Showers improved moisture for corn and soybean planting in southern production areas but warmer, drier weather prevailed elsewhere.

BRAZIL: Seasonal showers benefited most soybeans and second-crop corn, though a few pockets of dryness returned to the south.



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

EUROPE
Total Precipitation (mm)
January 5 - 11, 2020

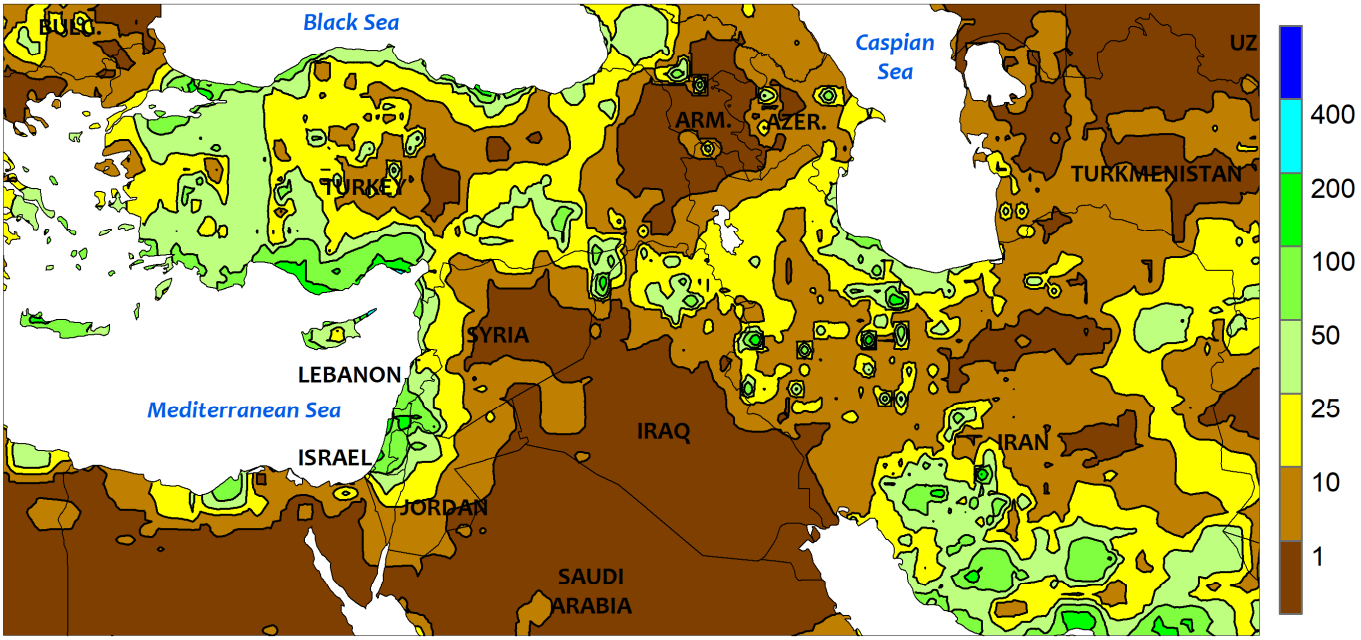


EUROPE

Widespread showers across northern Europe contrasted with dry weather in southern growing areas. A broad area of high pressure over the southern half of the continent maintained sunny skies and near-normal temperatures across the Mediterranean Basin, promoting winter grain development in Spain and Italy but sustaining drought concerns in the lower Danube River Valley. Farther north, a series of Atlantic disturbances traversing the perimeter of the high brought widespread albeit highly variable showers (2-50 mm, locally more in the far north) to much of central and northern Europe. The rain eased lingering drought concerns in Germany and Poland, particularly where amounts topped 10 mm. On the other hand, pockets of flooding were likely in western Norway and northern England where amounts approached 175 mm. The persistent influx of mild maritime air maintained warmer-than-normal conditions (up to 5°C above normal) in northern Europe, reducing winter crop cold hardiness and keeping primary growing areas devoid of a protective snow cover.

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

MIDDLE EAST
Total Precipitation (mm)
January 5 - 11, 2020



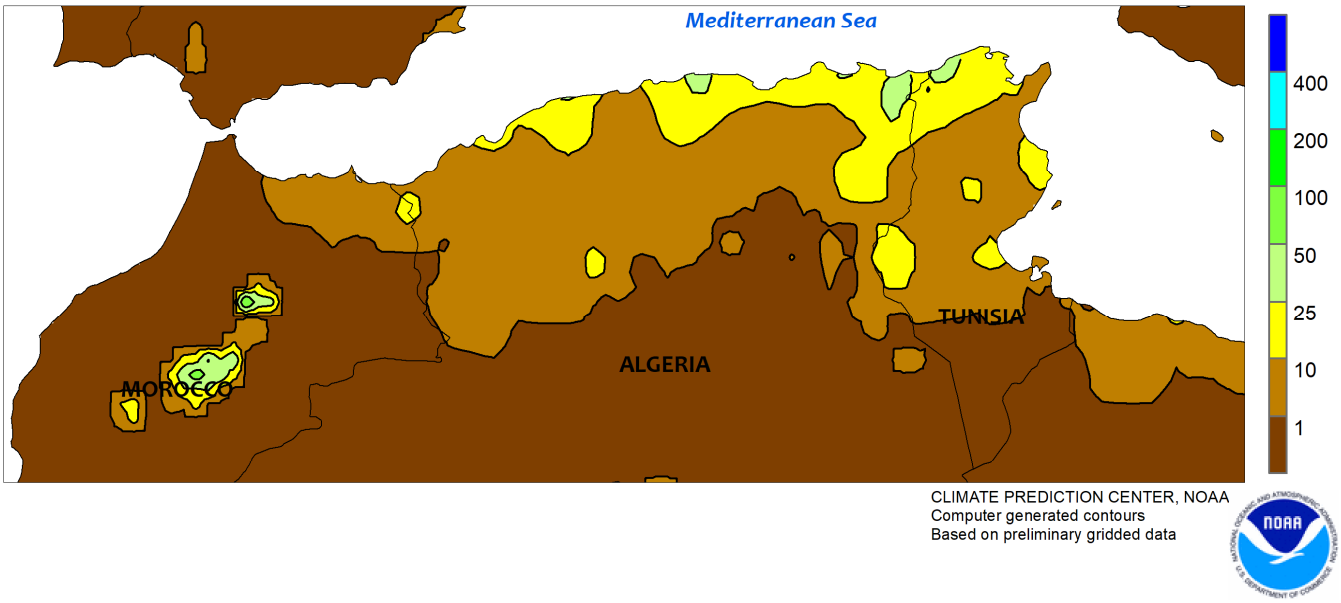
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

MIDDLE EAST

Another in a series of slow-moving Mediterranean storm systems produced widespread rain and snow across much of the region. The disturbance initially triggered rain and high-elevation snow across Turkey, easing lingering deficits on the Anatolian Plateau (4-50 mm liquid equivalent) but likely causing lowland flooding near the coast (locally more than 100 mm). Moderate to heavy rain (10-130 mm) was likewise reported across the remainder of the eastern and southeastern Mediterranean Coast, boosting moisture reserves for vegetative winter grains but likely causing some localized flooding. As the storm drifted eastward and weakened, precipitation in northern Iraq and western Iran was lighter (4-25 mm liquid equivalent) but still beneficial for dormant (north) to vegetative (central and south) wheat and barley. The dissipating disturbance spawned a new, vigorous storm system in southern Iran, which produced unusually heavy rain and mountain snow (10-175 mm liquid equivalent) from the Persian Gulf into northeastern Iran. The stormy weather kept temperatures near normal for the week.

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

NORTHWESTERN AFRICA
Total Precipitation (mm)
January 5 - 11, 2020

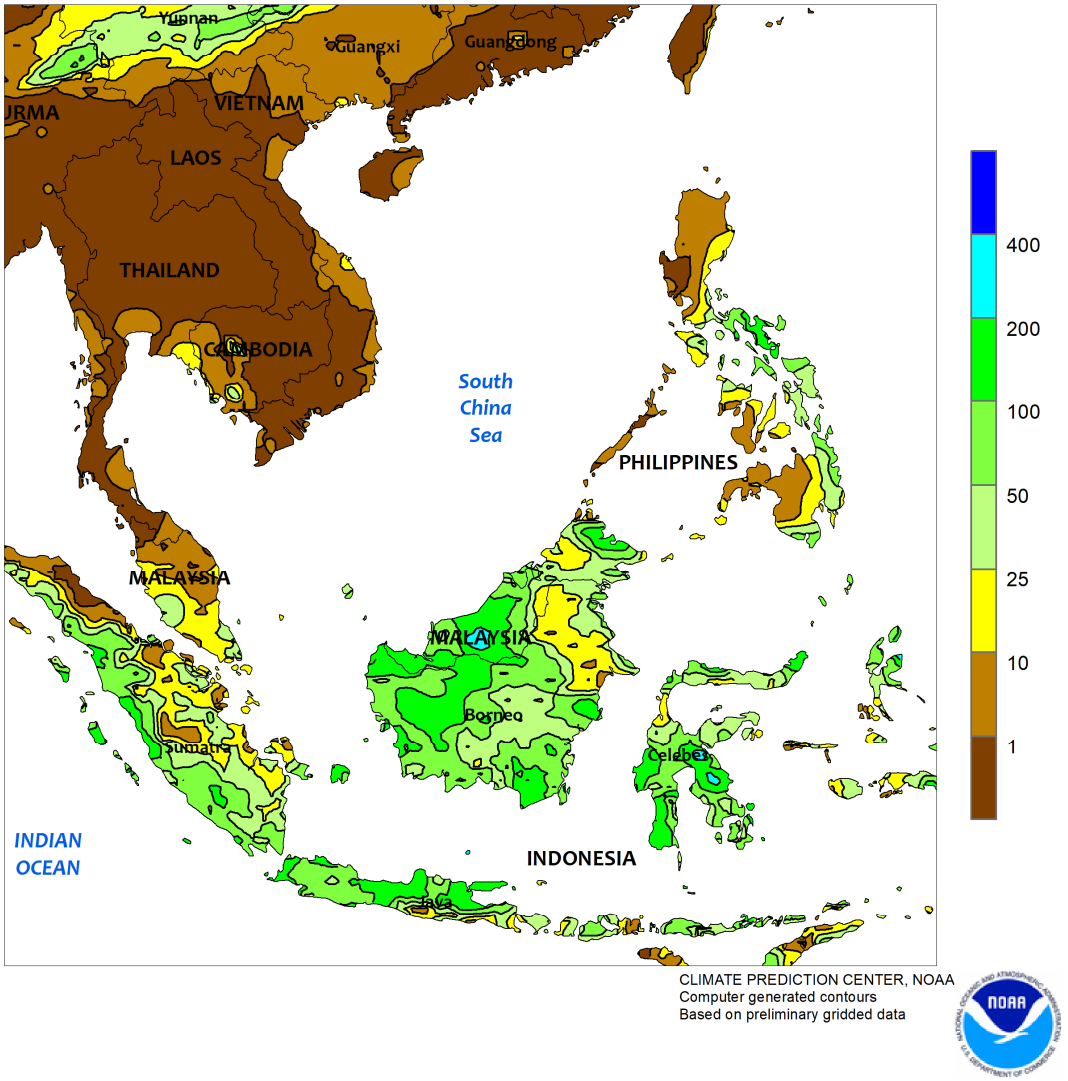


NORTHWESTERN AFRICA

Showers lingered in central and eastern growing areas, while increasingly dry weather prevailed in Morocco. An upper-air disturbance drifted south from the central Mediterranean Sea, producing widespread showers (2-30 mm) across Algeria and Tunisia. The rain eased short-term dryness and maintained favorable season-to-date (since September 1) moisture prospects for wheat and barley following a very wet autumn. In contrast, dry weather continued in Morocco, where a dearth of rainfall since early December has led to rapidly diminishing soil moisture supplies for vegetative winter grains.

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

SOUTHEAST ASIA
Total Precipitation (mm)
January 5 - 11, 2020



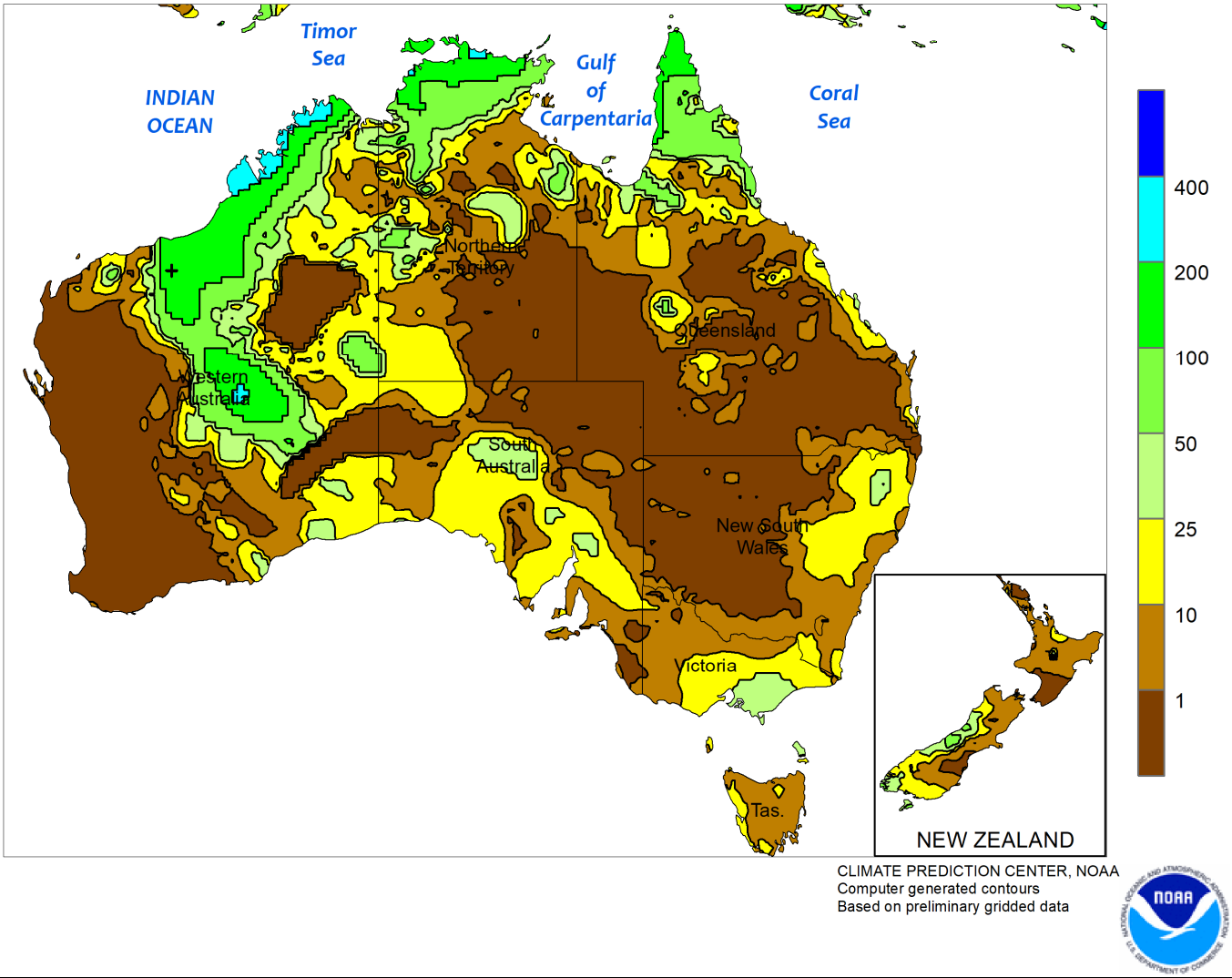
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

SOUTHEAST ASIA

Seasonal showers continued across Java, Indonesia, improving moisture conditions for rice. All but the eastern-most areas received over 50 mm of rain, with over 25 mm in the aforementioned areas. Rainfall totals since November 1 have normalized in western and central Java, while eastern areas were improving as well, but still well below normal (60 percent of normal). Elsewhere, a plume of tropical rainfall over eastern portions of the Philippines produced flooding in relatively minor rice producing areas. Meanwhile, the major producing areas in the northeast and far south received amounts that were more seasonable (10-50 mm).

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

AUSTRALIA
Total Precipitation (mm)
January 5 - 11, 2020



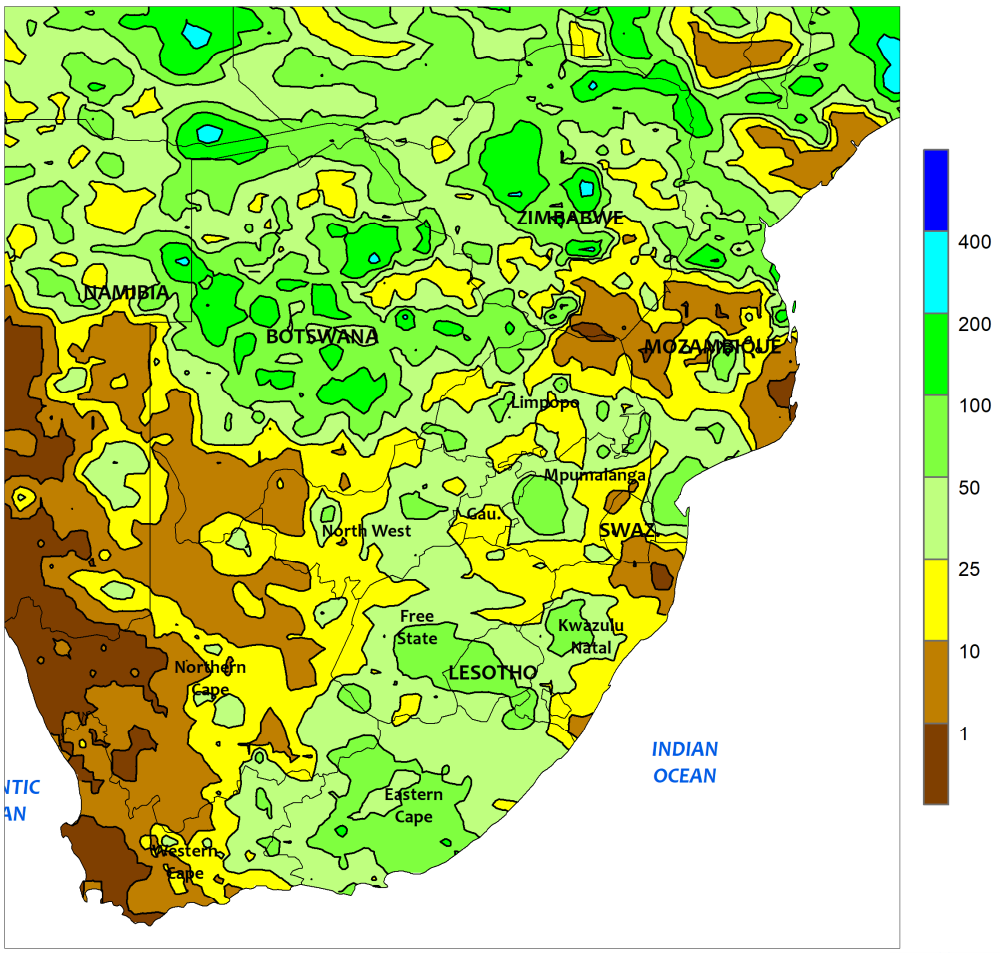
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

AUSTRALIA

Isolated showers (mostly less than 5 mm, locally more than 15 mm) brought little in the way of meaningful drought relief to southern Queensland and New South Wales. Passing showers helped moisten the topsoil locally, but the rain did not significantly improve the yield prospects of drought-plagued cotton, sorghum, and other summer crops. Temperatures continued to average above normal (2-6°C above normal) in these states, with maximum temperatures reaching into the lower 40s degrees C during mid-week. Somewhat cooler weather filtered into the region late in the week, reportedly aiding wildfire containment efforts in southern and eastern Australia.

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

SOUTH AFRICA
Total Precipitation (mm)
January 5 - 11, 2020

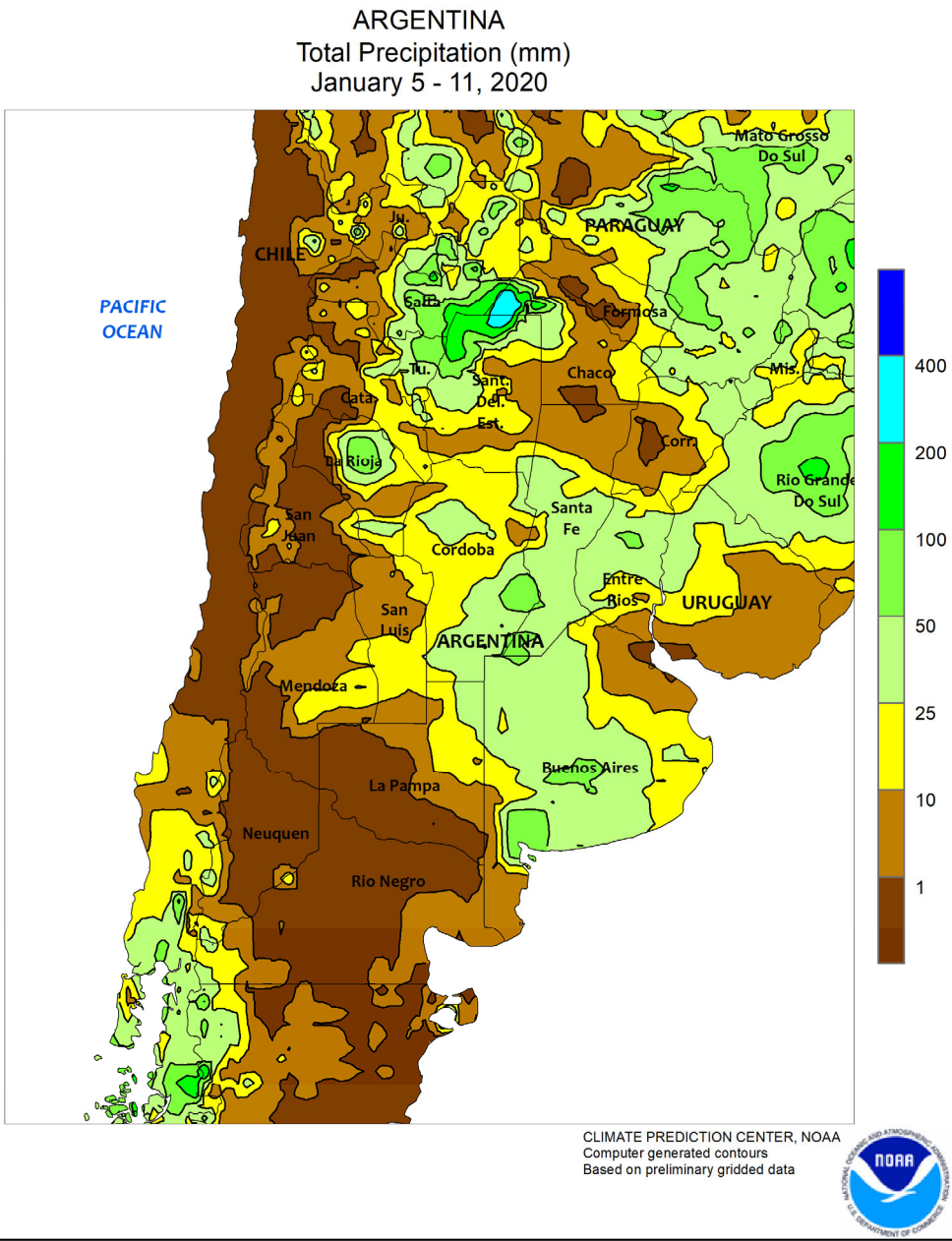


CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

SOUTH AFRICA

Moderate to heavy showers overspread much of the region, increasing moisture for rain-fed summer crops in many major farming areas. Rainfall totaled 25 to 50 mm or more across much of the corn belt, including commercial white corn areas in North West and Free State; seasonable warmth (daytime highs in the lower 30s degrees C) advanced development of emerging to vegetative summer crops without stress. In contrast, lighter amounts (less than 25 mm) were recorded in Limpopo, where the dryness was accompanied by unseasonable warmth (daytime highs reaching the upper 30s degrees C). Drier conditions (less than 25 mm) also prevailed in rain-fed sugarcane areas of southern KwaZulu-Natal. Elsewhere, wetter-than-normal weather (rainfall totaling 25-50 mm or more) dominated climatologically drier locations in the Cape Provinces centered over upper sections of the Orange River Valley bordering Free State and Eastern Cape. The unseasonable wetness provided a boost in irrigation reserves for corn and cotton as well as non-commercial crops grown locally. Meanwhile, warm, sunny weather promoted growth of tree and vine crops in Western Cape.

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

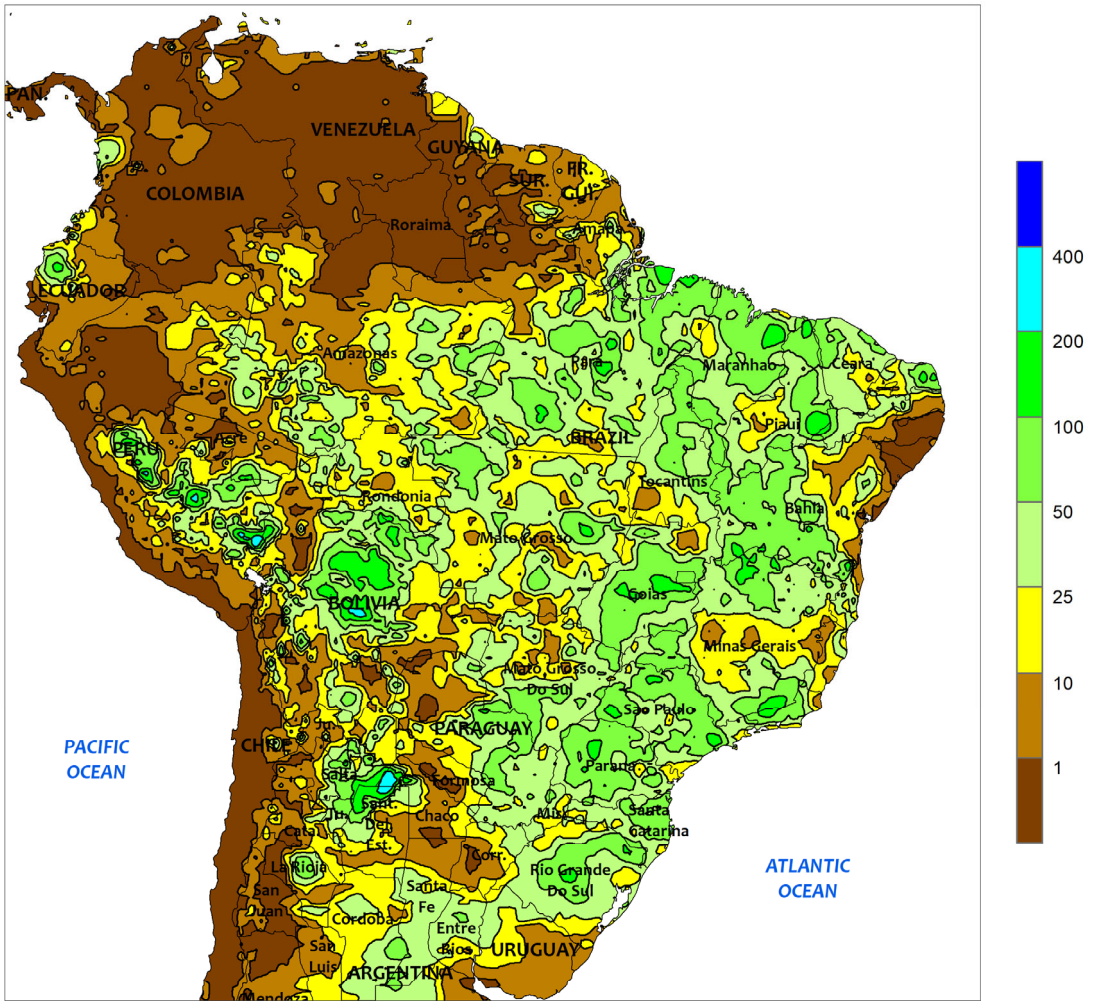


ARGENTINA

Moderate to heavy showers soaked previously dry farming areas in central and northwestern Argentina, increasing moisture for germination and establishment of corn and soybeans. Rainfall totaled 25 to 50 mm over a large area extending northward from Buenos Aires and eastern La Pampa into Salta, also reaching eastward across Santa Fe and Entre Rios. The rainfall was especially welcome in the vicinity of southern Cordoba and northeastern La Pampa. Somewhat drier weather (rainfall totaling below 25 mm) continued in northeastern cotton areas focused in Chaco and northern Santa Fe. Weekly temperatures averaged within 1°C of normal in central and northeastern agricultural areas, with daytime highs generally ranging from the lower to middle 30s (degrees C). Somewhat warmer conditions (anomalies of +2°C, with daytime highs in excess of 40°C) prevailed in the northwest, including Santiago del Estero. According to the government of Argentina, corn and soybeans were 88 and 92 percent planted, respectively, as of January 9 and cotton was 98 percent planted. Meanwhile, wheat was 94 percent harvested, slightly ahead of last year's pace (91 percent).

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

BRAZIL
Total Precipitation (mm)
January 5 - 11, 2020



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

BRAZIL

Widespread, locally heavy showers increased moisture for soybeans and other major summer crops in most regions. Rainfall totaled well over 25 mm in nearly all areas, with numerous locations recording more than 100 mm. The rain was particularly welcome in Rio Grande do Sul and other southern farming areas that had recently struggled with dryness and periods of heat. According to the government of Rio Grande do Sul, corn and soybean planting was virtually complete as of January 9, with 74 percent of corn having reached the reproductive to filling stages of development and soybeans 25 percent flowering and filling. In spite of the widespread rain, however, daytime highs occasionally reached the middle 30s (degrees C) in the aforementioned southern areas, maintaining high crop moisture demands. Meanwhile, more than 80 percent of first-crop corn had reached reproductive to filling stages of development in Parana as of January 6. Elsewhere, the rainfall in Mato Grosso maintained generally favorable levels of soil moisture as farmers begin sowing second-crop corn; in the northeastern interior, the rainfall improved conditions for soybean establishments after periods of heat and dryness. Temperatures in the traditionally warmer northern soybean areas were generally capped in the middle 30s owing to the beneficial rainfall.

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

U.S. Crop Production Highlights

The following information was released by USDA's Agricultural Statistics Board on January 10, 2020. Forecasts refer to January 1.

The U.S. **all orange** forecast for the 2019-2020 season is 5.40 million tons, up 1 percent from the previous forecast and up 1 percent from the 2018-2019 final utilization. The Florida all orange forecast, at 74.0 million boxes (3.33 million tons), is unchanged from the previous forecast but up 3 percent from last season. In Florida, early, midseason, and Navel varieties are forecast at 32.0 million boxes (1.44 million tons), unchanged from the previous forecast but up 5 percent from last season. The Florida Valencia orange forecast, at 42.0 million boxes (1.89 million tons), is unchanged from the previous forecast but up 2 percent from last season.

The California all orange forecast is 49.0 million boxes (1.96 million tons), up 4 percent from the previous forecast but down 2 percent from last season's final utilization. The California Navel orange forecast, at 40.0 million boxes (1.60 million tons), is up 5 percent from the previous forecast but down 2 percent from last season. The California Valencia orange forecast, at 9.00 million boxes (360,000 tons), is unchanged from both the previous forecast and last season's final utilization. The Texas all orange forecast, at 2.56 million boxes (109,000 tons), is down 5 percent from the previous forecast but up 2 percent from last season's final utilization.

Selected U.S. Annual Precipitation Records

This information was compiled by USDA's World Agricultural Outlook Board, based on data provided by NOAA's National Weather Service. Totals are listed in inches. Normal amounts and previous records are also provided in inches.

Location	Total	Normal	Previous Record
Rochester, MN	55.16	33.02	43.94 in 1990
Gr. Rapids, MI	51.37	38.27	48.80 in 2008
Green Bay, WI	48.63	29.52	39.21 in 2018
Muskegon, MI	47.97	33.49	45.98 in 2008
Gaylord, MI	47.29	31.24	45.73 in 1995
Milwaukee, WI	46.02	34.76	45.08 in 2018
Minneapolis, MN	43.17	30.61	40.32 in 2016
St. Cloud, MN	41.92	27.73	41.01 in 1897

Location	Total	Normal	Previous Record
Sioux Falls, SD	39.54	26.38	39.17 in 2018
Huron, SD	37.30	22.90	31.71 in 1962
Mitchell, SD	36.47	21.52	36.19 in 1993
Sisseton, SD	34.92	22.33	32.30 in 1993
Mobridge, SD	29.51	17.87	26.68 in 1915
Rapid City, SD	28.43	16.29	27.70 in 1946
Gr. Forks, ND	28.11	20.81	27.89 in 1944
Worland, WY	11.44	7.57	11.27 in 1967

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