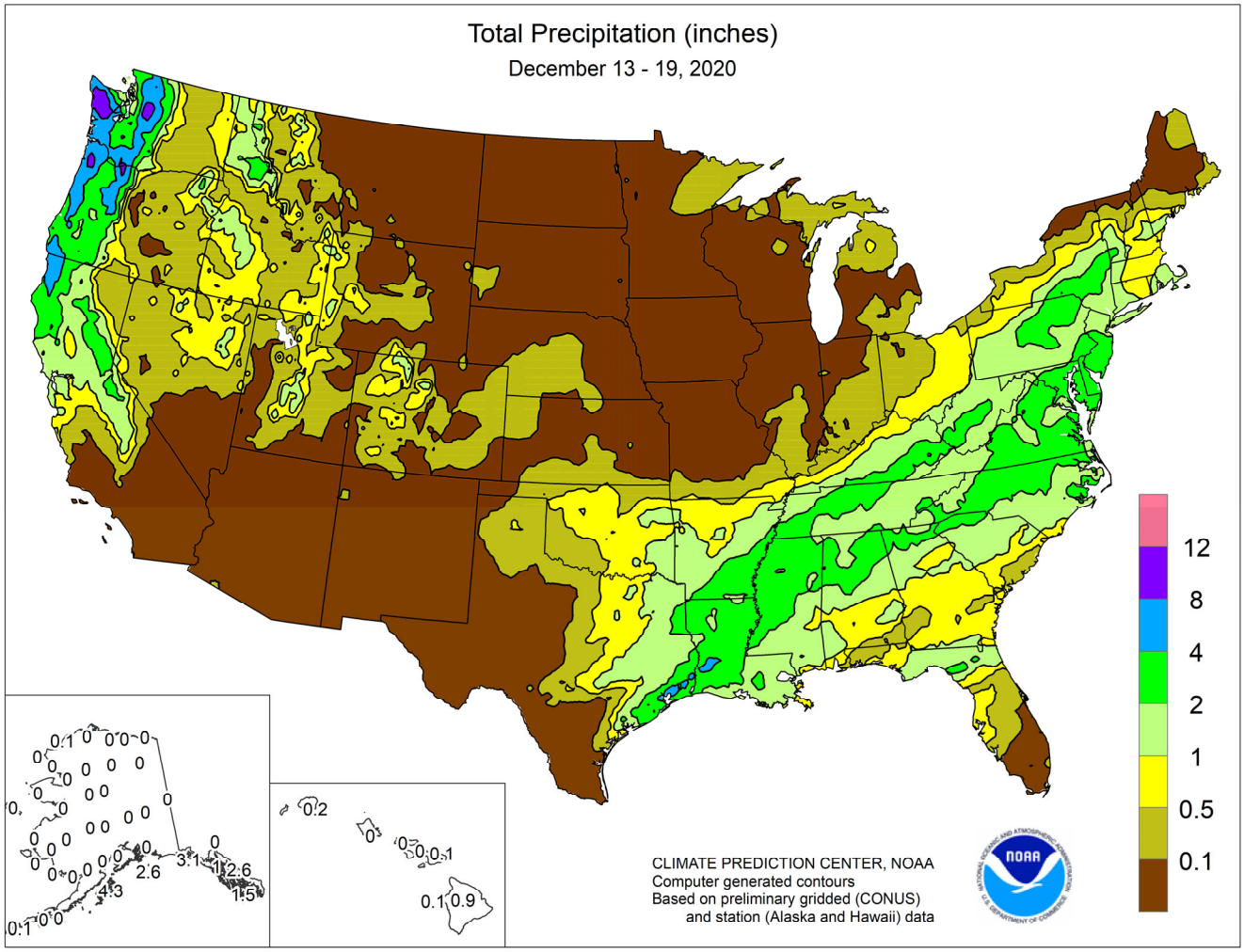
Volume 107, No. 51 www.usda.gov/oce/weather-drought-monitor December 22, 2020

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
December 13 – 19, 2020

Highlights provided by USDA/WAOB

Periods of stormy weather affected the **South**, **East**, and **Northwest**, while generally dry weather covered the **Southwest**, **northern Plains**, and **upper Midwest**. On December 16-17, the most significant and widespread snowfall of the season blanketed the **Northeast**, affecting major cities such as **Philadelphia**, **New York**, and **Boston**, as well as many interior locations. Record-setting snowfall totals (locally 1 to 3 feet or more) buried large sections of **New York** and **Pennsylvania**, as well as portions of neighboring states. Meanwhile, rain (locally 1

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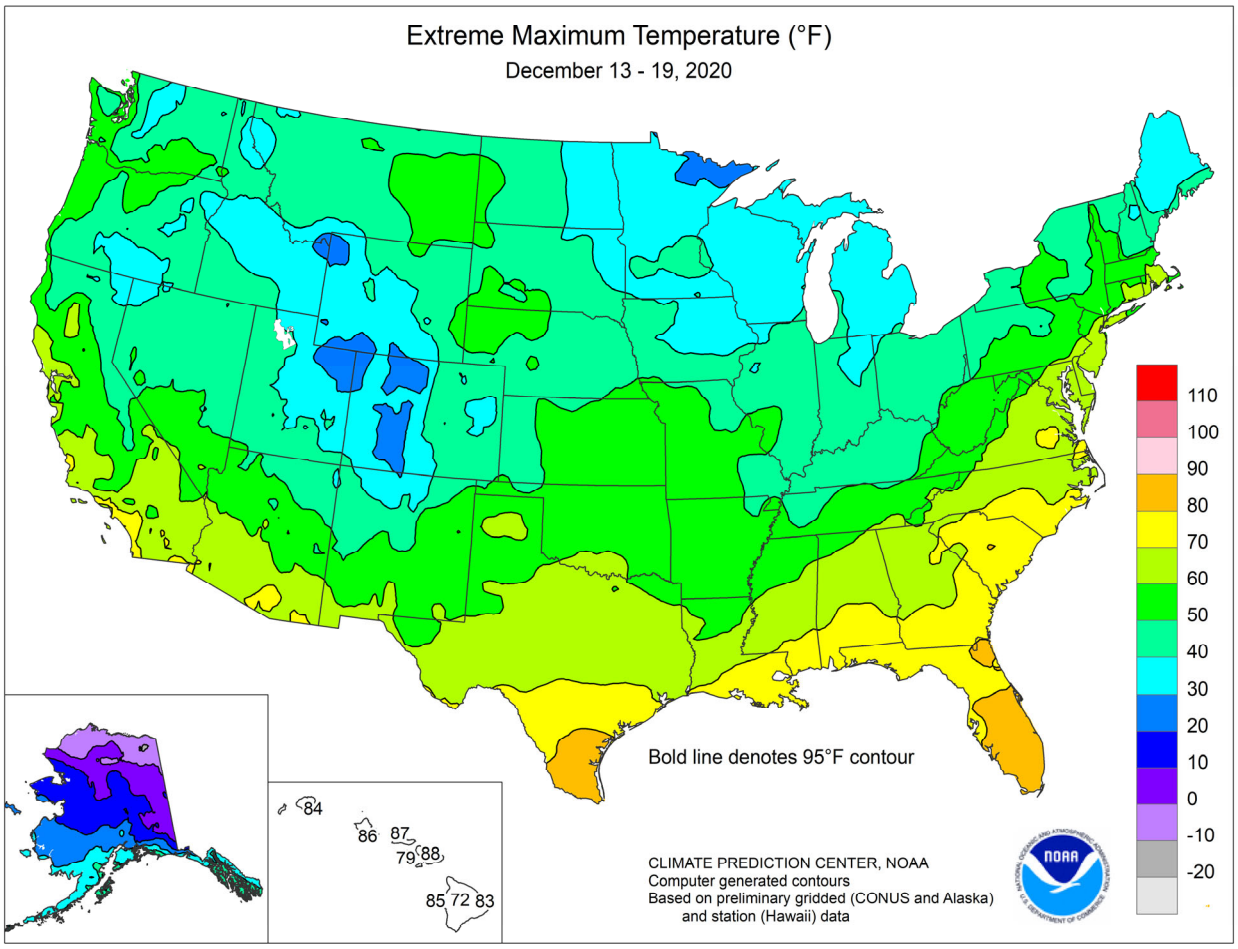
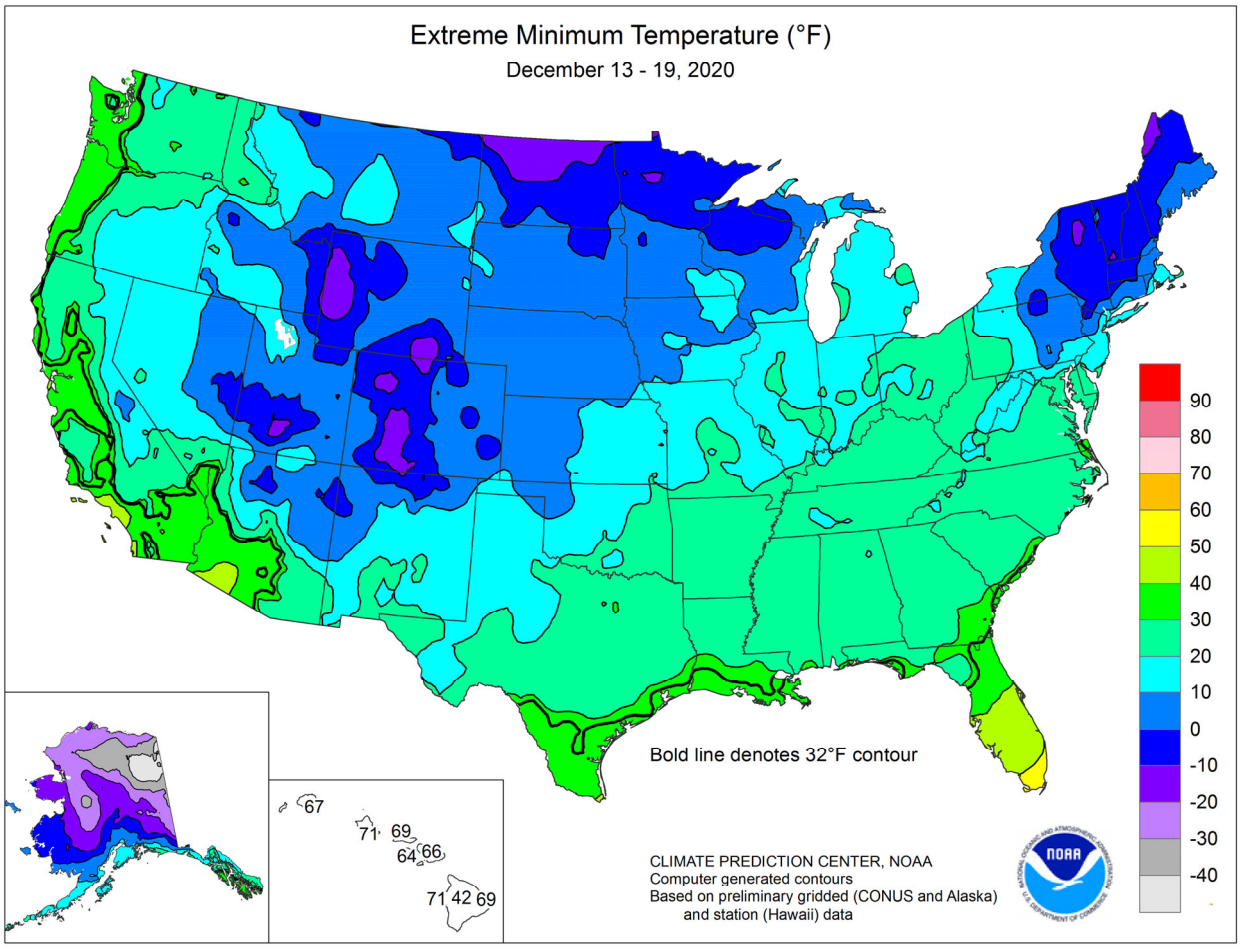
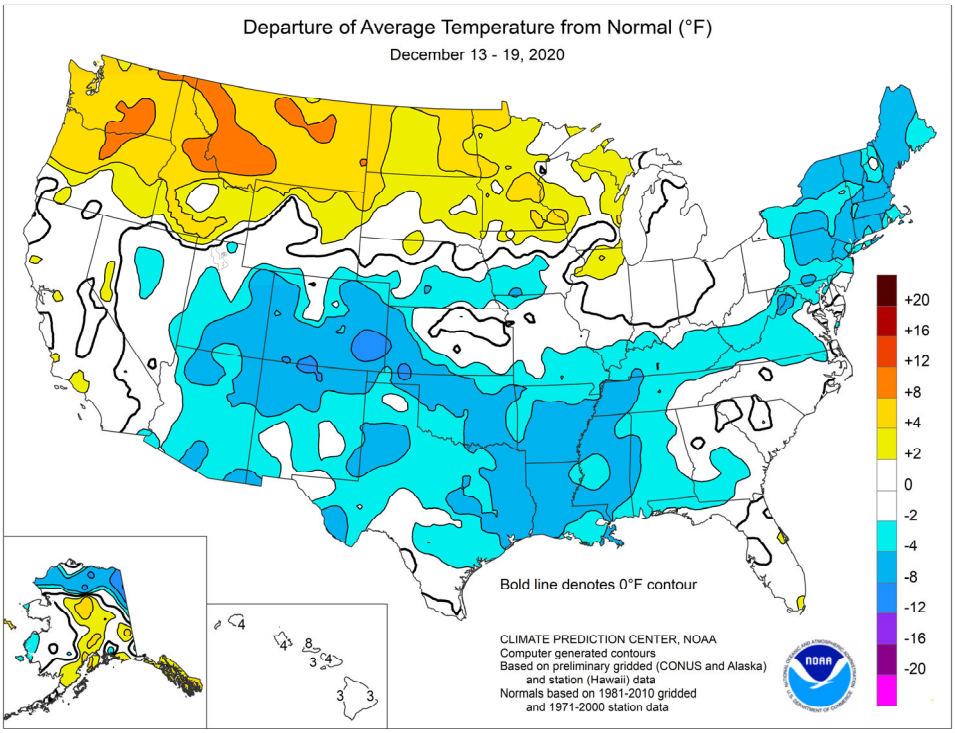

Extreme Maximum Temperature (°F)
December 13 - 19, 2020
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
84
86
87
79
88
85
72
83
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Extreme Minimum Temperature (°F)
December 13 - 19, 2020
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
67
71
69
64
66
71
42
69
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA

(Continued from front cover)

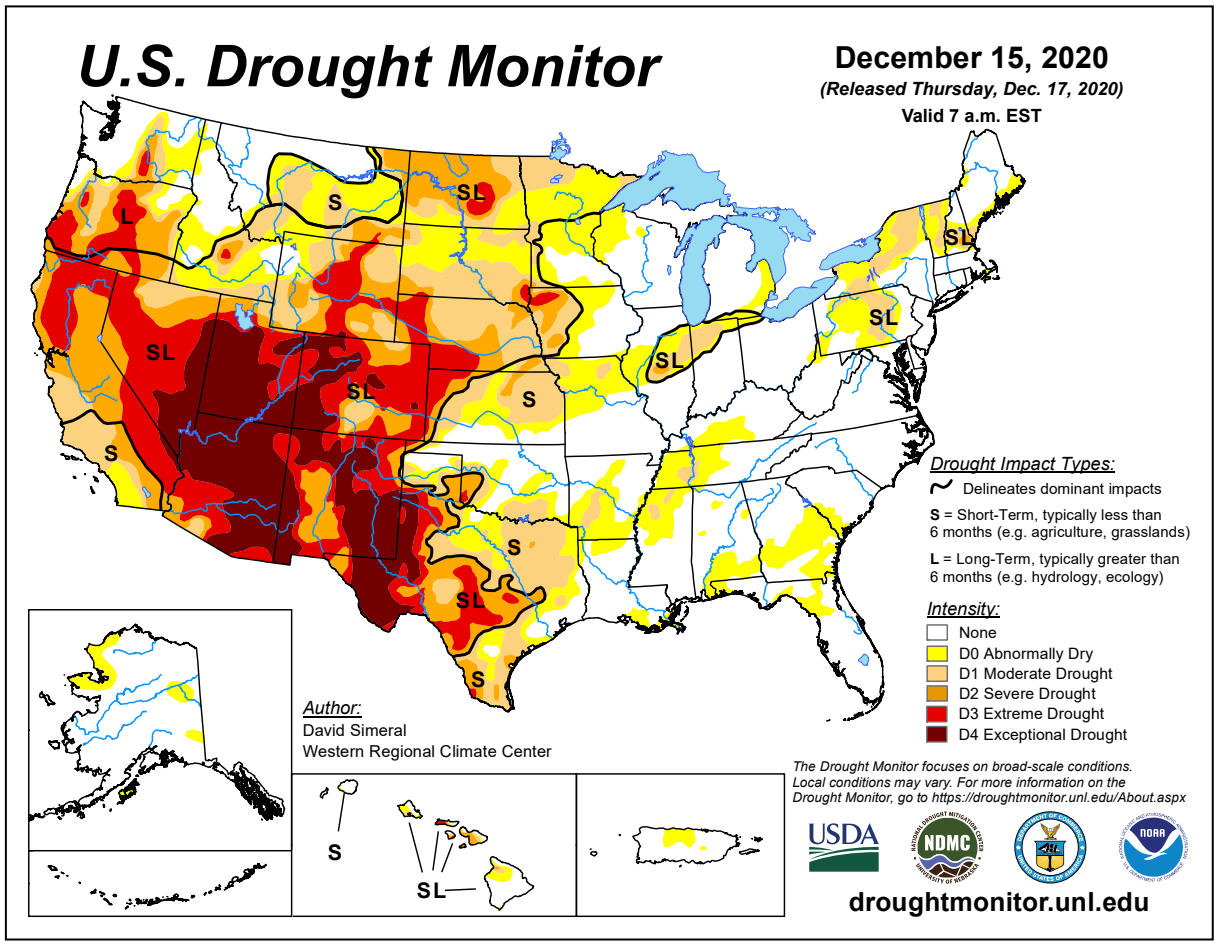
to 2 inches or more) hampered final harvest efforts in the **South**, especially in parts of **North Carolina** and **Virginia**. However, rain in the **lower Mississippi Valley** reversed a recent drying trend. In the **Northwest**, occasional precipitation boosted soil moisture and chipped away at long-term drought. Rain and snow showers briefly pushed as far south as **central California** and parts of the **Great Basin**. Elsewhere, punishing drought persisted in the **Southwest**, while dry weather across the **north-central U.S.** continued to promote off-season farm activities. Although warmer-than-normal weather prevailed from the **Pacific Northwest to the northern Plains**, near- or below-normal temperatures covered most other areas of the country. Weekly temperatures averaged at least 5 to 10°F above normal from **Washington and northern Oregon to Montana**—but were 5 to 10°F below normal in many locations from the **Four Corners region to the lower Mississippi Valley**. Readings also averaged more than 5°F below normal in parts of the **Northeast**. Following early-week snow, numerous readings below 10°F were reported on the **High Plains** as far south as **western Kansas** and **eastern Colorado**, as well as **northwestern Oklahoma** and **extreme northern Texas**. In the wake of the **Northeastern** snow, late-week temperatures plunged to 0°F or below throughout **eastern New York** and **interior sections of New England**.

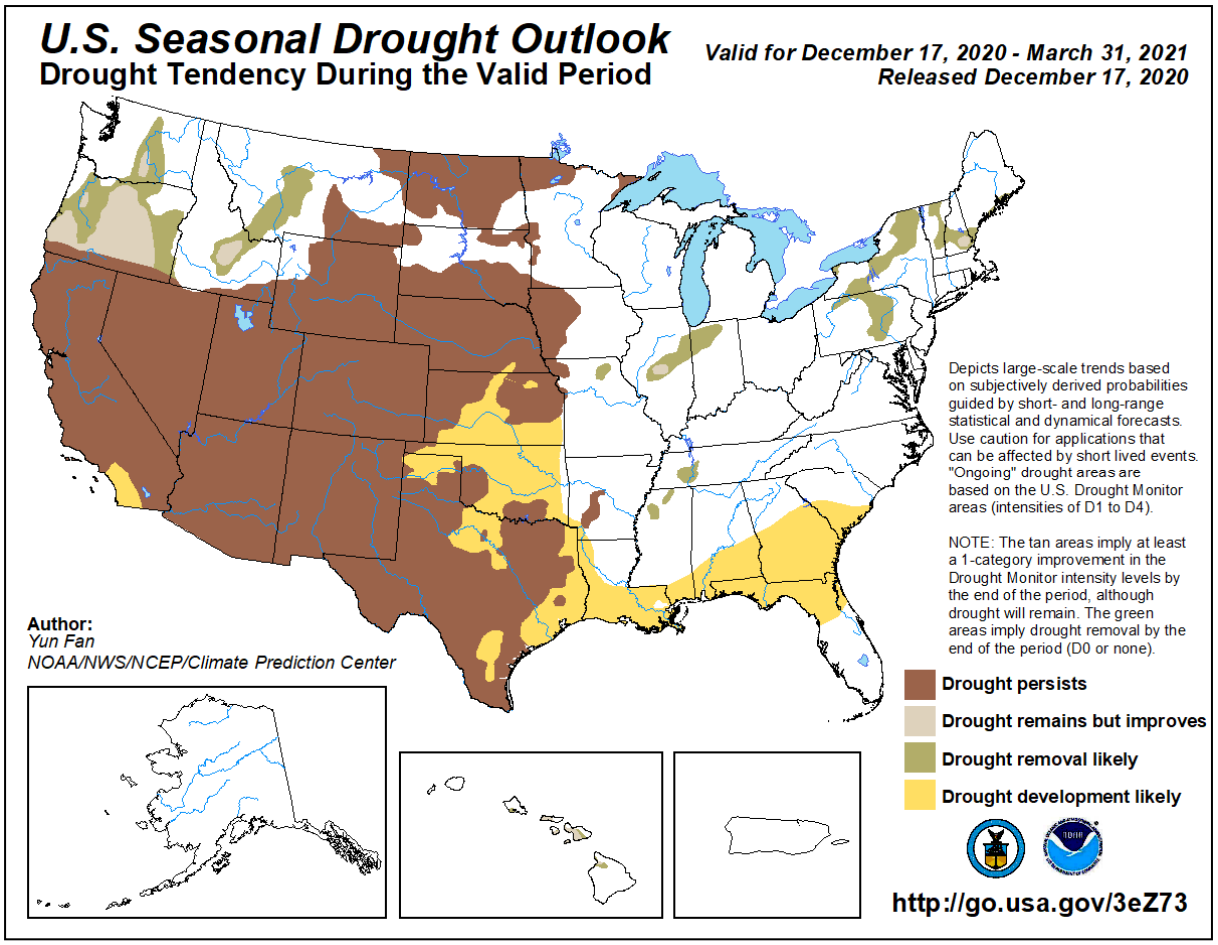


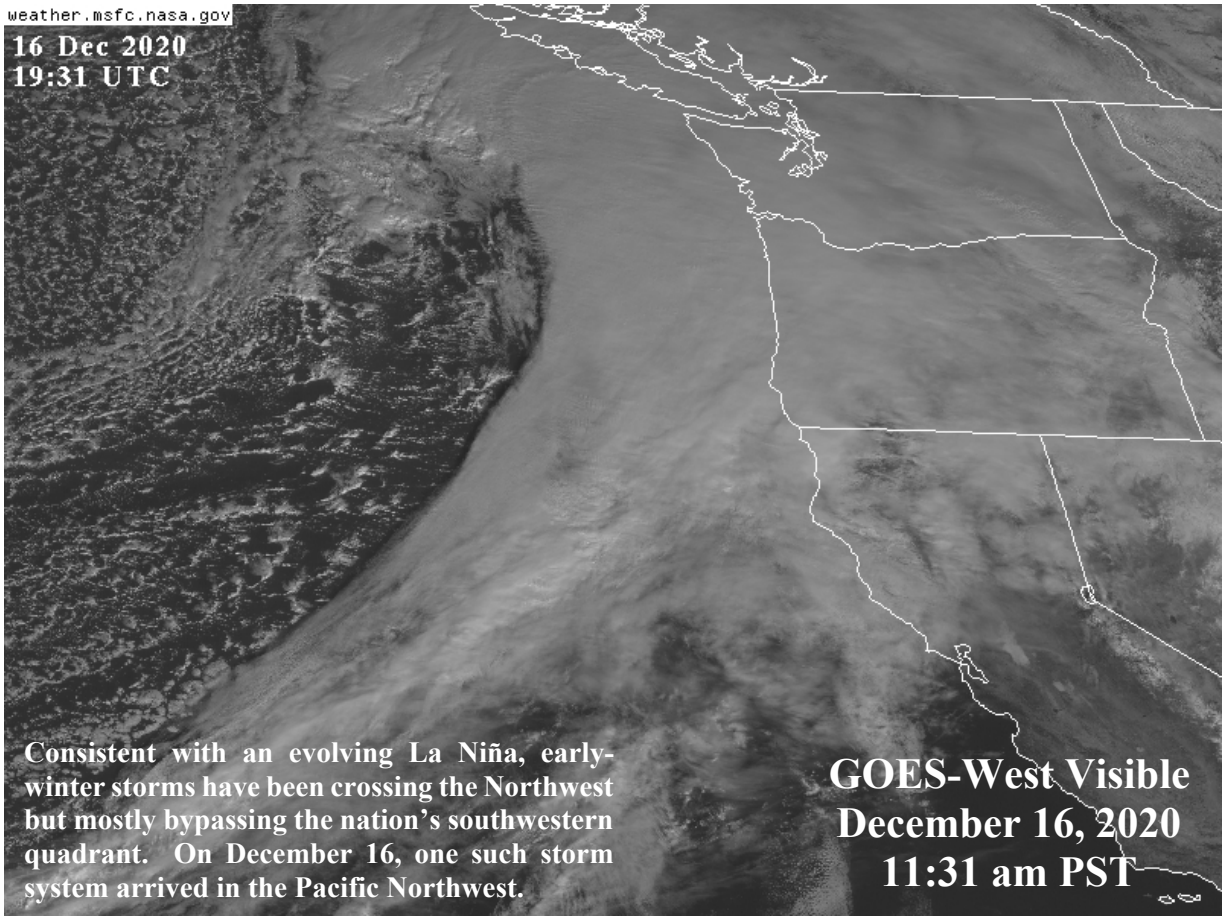
Early-week warmth in the **East** was quickly swept away, following a cold front's passage. In **New England**, lingering mild weather on December 13 produced daily-record highs in **Providence, RI** (63°F), and **Hartford, CT** (61°F). Meanwhile in **Wyoming**, temperatures on the 13th dipped to daily-record levels in **Laramie** (-17°F) and **Big Piney** (-16°F). Despite a quick shot of cold air across the **north-central U.S.**, mild weather quickly returned. **Grand Forks, ND**, reported its first sub-zero reading of the year (-9°F on December 14), but experienced an average temperature of 24.8°F (11.8°F above normal) during the first 3 weeks of the month. Elsewhere in **North Dakota**, **Fargo's** December 1-21 average temperature of 25.9°F was 10.4°F above normal. In addition, **Fargo** last reported a snow depth of an inch or greater on the morning of October 28. Late in the week, warmth overspread the **West** in advance of a **Pacific** storm system. By December 19, a daily record-tying high of 56°F occurred in **The Dalles, OR**.

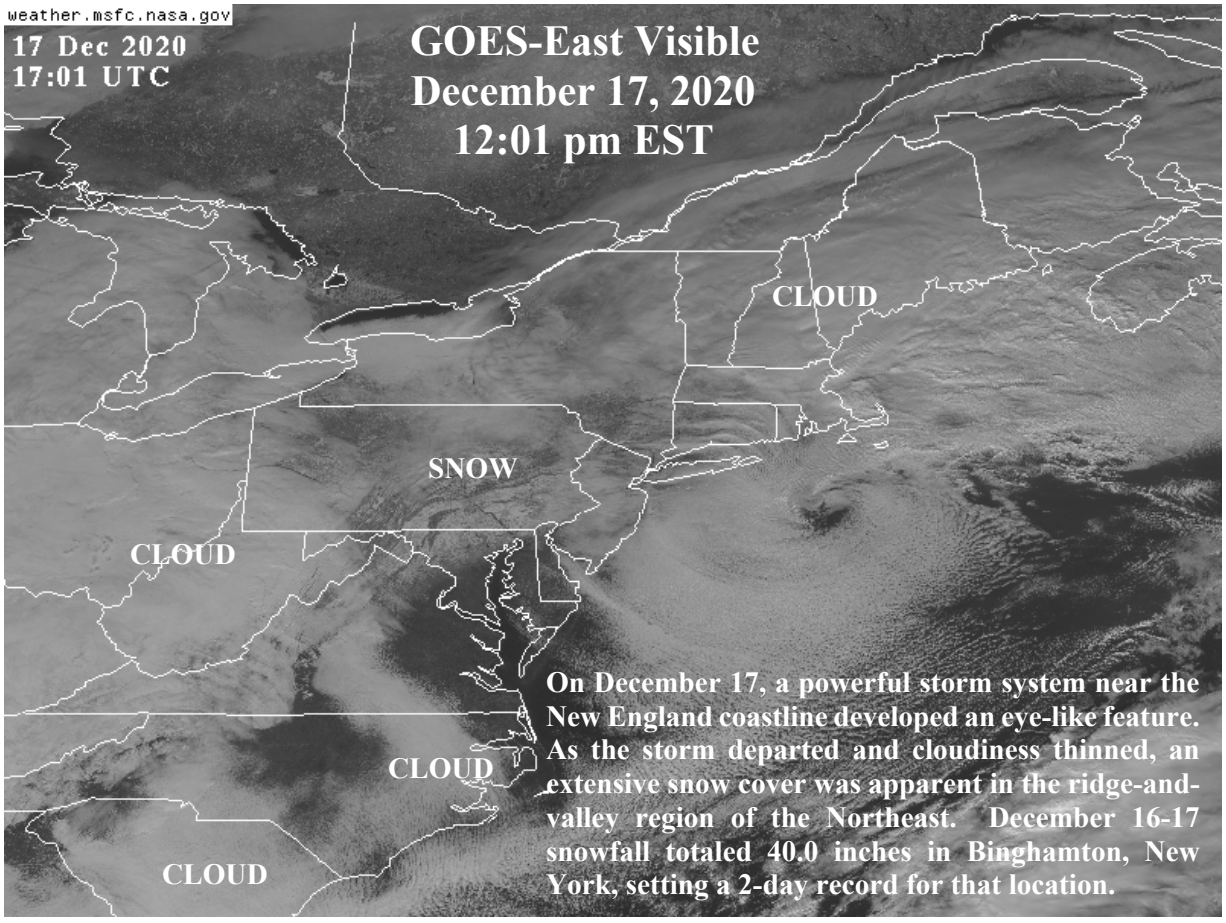
As the week begin, snow blanketed portions of the **central and southern Plains**. In **Kansas**, December 13 snowfall totaled 1.9 inches in **Goodland** and 1.2 inches in **Wichita**. Daily-record snowfall amounts for the 13th included 3.4 inches in **Oklahoma City, OK**, and 3.0 inches in **Dalhart, TX**. On the same date but elsewhere in **Texas**, **Houston's Hobby Airport** netted a daily-record rainfall of 2.65 inches. Parts of the **West** also received early-week precipitation; **Stockton, CA**, collected a daily-record total of 0.83 inch on December 13. The following day, heavy rain swept into the **East**, where daily-record rainfall totals for December 14 included 1.58 inches in **Richmond, VA**, and 1.18 inches in **London, KY**. Two days later, an historic snowstorm engulfed the **Northeast**. On December 16-17, **Binghamton, NY**, received a staggering 40.0 inches of snow. Previously, **Binghamton's** highest 2-day snowfall had been 35.3 inches on March 14-15, 2017. **Williamsport, PA**, also set a 2-day snowfall record, with 24.7 inches (previously, 24.1 inches on January 12-13, 1964). Consecutive daily snowfall records were broken on December 16-17 in locations such as **Binghamton** (13.6 and 26.4 inches, respectively); **Williamsport** (13.7 and 11.0 inches); **Newark, NJ** (5.5 and 5.9 inches); and **New York's JFK Airport** (3.8 and 3.4 inches). With a 9.3-inch total on the 16th, **Harrisburg, PA**, experienced its snowiest December day since December 23, 1963, when 10.1 inches fell. On December 17, daily-record snowfall topped a foot in **Albany, NY** (19.7 inches), and **Boston, MA** (12.3 inches). December 16-17 official snowfall totals included 22.9 inches in **Albany**; 12.7 inches in **Boston**; 10.5 inches in **New York's Central Park**; and 6.6 inches in **Philadelphia**. **Binghamton** set a record for any date with a 39-inch snow depth at daybreak on December 17; the previous standard had been 35 inches on March 15, 1993. Farther west, a new **Pacific** storm system delivered daily-record precipitation amounts on December 17 in **Jerome, ID** (0.55 inch), and **Winnemucca, NV** (0.37 inches). **Logan, UT**, received 4.0 inches of snow in a 24-hour period on December 17-18. On the 18th, **Quillayute, WA**, measured a daily-record rainfall of 2.40 inches. Meanwhile, record-breaking dry spells finally ended in **Las Vegas, NV**, and **Bishop, CA**. In **Las Vegas**, where rainfall totaled 0.04 inch on December 17, measurable rain did not fall for 240 consecutive days (April 21 – December 16). The previous record of 150 days had been set from February 22 – July 21, 1959. A similar streak in **Bishop, CA**, had ended days earlier at 239 days (April 18 – December 12), when rainfall on December 13 totaled 0.01 inch. Previously, **Bishop's** longest spell without measurable rain had been 199 days, from April 23 – November 7, 2003.

Frigid weather engulfed **eastern sections of interior Alaska**, where temperatures locally fell below -40°F, but mild conditions lingered across the southern tier of the state. Meanwhile, several episodes of stormy weather occurred in **south-central and southeastern Alaska**. **Juneau** received 6.0 inches of snow from December 14-17. **Anchorage** reported 3.1 inches of snow on December 15-16, followed by a daily-record sum (8.0 inches) on December 19. **Kodiak** netted 2.36 inches of precipitation, a record for the date, on December 13, and 1.44 inches on December 17. Farther south, **Hawaii's** warm spell continued. Daily-record highs were set or tied in locations such as **Kahului, Maui** (89°F on December 14), and **Lihue, Kauai** (84°F on December 13). Some windward locations experienced a notable, late-week increase in rainfall, with 24-hour totals on December 17-18 topping 4 inches in **Big Island** locations such as **Glenwood** (4.39 inches) and **Mountain View** (4.24 inches). Elsewhere on the **Big Island**, **Hilo's** weekly rainfall climbed to 10.48 inches, aided by totals of 3.17 and 4.68 inches, respectively, on December 18-19. End-of-week rainfall also increased on **Kauai**, where **Lihue** received 1.01 inches on December 19. In contrast, December 1-19 rainfall totaled 0.06 inch in **Honolulu, Oahu**, and 0.07 inch in **Kahului**—just 3 percent of normal in both locations.


U.S. Drought Monitor
December 15, 2020
(Released Thursday, Dec. 17, 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:
David Simeral
Western Regional Climate 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
USDA
NDMC
NOAA
droughtmonitor.unl.edu


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for December 17, 2020 - March 31, 2021
Released December 17, 2020
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
Drought persists
Drought remains but improves
Drought removal likely
Drought development likely
Author:
Yun Fan
NOAA/NWS/NCEP/Climate Prediction Center
http://go.usa.gov/3eZ73


weather.msfc.nasa.gov
16 Dec 2020
19:31 UTC
Consistent with an evolving La Niña, early-winter storms have been crossing the Northwest but mostly bypassing the nation's southwestern quadrant. On December 16, one such storm system arrived in the Pacific Northwest.
GOES-West Visible
December 16, 2020
11:31 am PST


weather.msfc.nasa.gov
17 Dec 2020
17:01 UTC
GOES-East Visible
December 17, 2020
12:01 pm EST
CLOUD
SNOW
CLOUD
CLOUD
CLOUD
On December 17, a powerful storm system near the New England coastline developed an eye-like feature. As the storm departed and cloudiness thinned, an extensive snow cover was apparent in the ridge-and-valley region of the Northeast. December 16-17 snowfall totaled 40.0 inches in Binghamton, New York, setting a 2-day record for that location.

National Weather Data for Selected Cities

Weather Data for the Week Ending December 19, 2020

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
AK	ANCHORAGE	25	19	30	13	22	3	0.57	0.32	0.35	6.02	87	17.64	108	86	66	0	7	3	0
	BARROW	-5	-9	-1	-19	-7	0	0.01	-0.02	0.01	2.84	184	6.12	127	77	67	0	7	1	0
	FAIRBANKS	5	-8	15	-20	-2	0	0.01	-0.13	0.01	3.46	114	12.90	120	71	52	0	7	1	0
	JUNEAU	36	29	42	20	33	3	1.24	-0.09	0.41	29.38	108	76.20	126	96	78	0	5	5	0
	KODIAK	37	27	43	16	32	1	4.28	2.22	2.56	30.20	108	53.91	72	93	75	0	6	5	2
	NOME	14	3	25	-15	9	-1	0.17	-0.09	0.17	7.07	118	17.37	105	74	58	0	7	1	0
AL	BIRMINGHAM	53	33	65	26	43	-3	1.95	1.00	1.02	11.31	75	71.79	137	90	57	0	4	3	2
	HUNTSVILLE	50	30	60	23	40	-4	1.88	0.57	0.81	15.19	95	69.71	133	94	58	0	4	4	2
	MOBILE	58	37	71	27	48	-5	0.57	-0.53	0.27	13.42	79	56.44	88	99	65	0	3	4	0
	MONTGOMERY	59	35	72	25	47	-1	0.52	-0.58	0.28	13.24	90	64.46	125	92	58	0	3	4	0
AR	FORT SMITH	46	30	58	25	38	-3	0.63	-0.09	0.62	17.94	119	59.83	135	92	59	0	5	2	1
	LITTLE ROCK	44	30	56	24	37	-5	1.15	0.02	0.92	9.73	58	54.98	114	93	62	0	6	3	1
AZ	FLAGSTAFF	42	12	55	5	27	-3	0.00	-0.41	0.00	0.96	13	9.59	45	79	27	0	7	0	0
	PHOENIX	64	41	68	39	52	-3	0.00	-0.22	0.00	0.45	18	5.09	64	62	18	0	0	0	0
	PRESCOTT	50	19	56	11	35	-3	0.00	-0.22	0.00	0.22	5	6.68	48	71	23	0	7	0	0
	TUCSON	66	37	75	32	51	0	0.00	-0.24	0.00	0.39	11	4.24	36	56	13	0	1	0	0
CA	BAKERSFIELD	59	39	65	34	49	1	0.01	-0.22	0.01	0.40	24	5.16	83	82	44	0	0	1	0
	EUREKA	53	40	57	35	46	-1	1.99	0.06	0.88	5.95	44	23.30	62	96	84	0	0	6	2
	FRESNO	55	41	58	36	48	2	0.46	0.07	0.38	1.07	37	5.74	52	93	62	0	0	3	0
	LOS ANGELES	67	49	70	47	58	1	0.01	-0.44	0.01	0.11	3	7.48	62	79	25	0	0	1	0
	REDDING	55	36	62	31	46	0	1.41	-0.04	0.88	3.16	29	17.33	54	92	52	0	2	3	1
	SACRAMENTO	56	38	58	33	47	1	1.09	0.36	0.78	1.88	35	6.63	38	94	61	0	0	2	1
	SAN DIEGO	68	47	72	43	57	1	0.03	-0.30	0.03	0.43	16	7.44	76	88	37	0	0	1	0
	SAN FRANCISCO	59	46	62	43	53	2	0.83	-0.09	0.44	1.44	24	5.74	30	87	57	0	0	2	0
	STOCKTON	57	40	61	36	49	4	1.12	0.62	0.81	1.66	40	5.80	44	92	61	0	0	2	1
CO	ALAMOSA	28	-8	33	-11	10	-7	0.03	-0.07	0.03	1.62	75	4.55	63	93	49	0	7	1	0
	CO SPRINGS	43	14	62	10	28	-1	0.00	-0.09	0.00	0.79	28	9.49	57	73	37	0	7	0	0
	DENVER INTL	37	13	47	5	25	-4	0.12	0.03	0.06	1.95	67	8.64	60	81	46	0	7	3	0
	GRAND JUNCTION	33	17	38	9	25	-3	0.03	-0.10	0.02	1.98	58	5.06	53	82	50	0	7	2	0
	PUEBLO	38	10	46	4	24	-6	0.01	-0.09	0.01	1.59	70	5.52	43	85	48	0	7	1	0
CT	BRIDGEPORT	38	26	60	17	32	-3	0.86	0.15	0.49	13.27	106	40.09	97	85	47	0	6	3	0
	HARTFORD	35	19	61	1	26	-5	0.63	-0.11	0.36	15.91	111	37.09	83	84	48	0	7	3	0
DC	WASHINGTON	44	32	66	28	38	-1	1.94	1.28	0.99	18.69	152	55.10	143	84	57	0	5	2	2
DE	WILMINGTON	40	27	65	19	33	-3	1.65	0.87	0.94	16.44	126	49.94	119	85	53	0	6	3	2
FL	DAYTONA BEACH	71	51	80	37	61	1	0.17	-0.44	0.17	17.99	117	46.43	95	100	68	0	0	1	0
	JACKSONVILLE	65	45	81	32	55	0	0.96	0.32	0.96	14.27	89	52.57	102	97	65	0	1	1	1
	KEY WEST	77	68	80	62	73	1	0.00	-0.50	0.00	28.44	184	52.13	133	92	72	0	0	0	0
	MIAMI	81	64	85	55	72	2	0.00	-0.48	0.00	33.09	159	83.69	136	93	58	0	0	0	0
	ORLANDO	73	52	80	40	62	0	0.19	-0.43	0.19	19.09	145	52.52	105	97	60	0	0	1	0
	PENSACOLA	62	42	73	32	52	-1	0.56	-0.43	0.29	13.91	73	57.59	90	93	60	0	2	3	0
	TALLAHASSEE	63	42	74	28	52	-1	1.18	0.33	1.06	17.70	128	59.29	102	95	61	0	2	2	1
	TAMPA	72	54	78	41	63	0	0.91	0.32	0.85	13.28	114	44.53	98	89	59	0	0	2	1
	WEST PALM BEACH	80	60	84	50	70	2	0.36	-0.41	0.34	30.19	148	70.80	116	95	58	0	0	2	0
GA	ATHENS	55	36	71	27	45	0	0.55	-0.25	0.28	15.16	111	60.81	135	87	51	0	2	3	0
	ATLANTA	54	37	68	30	45	0	0.75	-0.09	0.43	17.80	123	66.06	136	87	52	0	3	3	0
	AUGUSTA	56	37	71	25	47	0	0.42	-0.34	0.25	9.55	84	54.45	129	91	54	0	3	3	0
	COLUMBUS	57	38	67	27	48	-1	0.70	-0.23	0.45	16.87	135	65.85	146	89	54	0	3	4	0
	MACON	55	37	68	24	46	-2	0.35	-0.54	0.15	15.32	126	58.39	132	91	61	0	3	3	0
	SAVANNAH	60	43	77	32	52	0	0.81	0.15	0.73	11.84	95	49.15	105	92	59	0	1	2	1
HI	HILO	80	70	83	69	75	3	8.80	6.13	3.94	39.35	92	114.43	93	89	67	0	0	7	3
	HONOLULU	85	73	86	71	79	4	0.02	-0.77	0.02	3.56	52	13.47	85	80	51	0	0	1	0
	KAHULUI	85	71	88	66	78	5	0.06	-0.74	0.04	0.87	14	11.54	69	81	54	0	0	3	0
	LIHUE	82	73	84	67	78	5	0.23	-1.00	0.10	9.63	70	39.96	114	87	68	0	0	4	0
IA	BURLINGTON	34	22	42	18	28	-1	0.00	-0.47	0.00	8.28	79	27.56	73	92	71	0	7	0	0
	CEDAR RAPIDS	28	16	37	8	22	-1	0.00	-0.30	0.00	10.81	122	29.51	86	89	75	0	7	0	0
	DES MOINES	29	17	43	11	23	-3	0.00	-0.31	0.00	11.46	130	32.31	90	90	70	0	7	0	0
	DUBUQUE	28	14	35	6	21	-1	0.00	-0.41	0.00	15.15	156	37.41	104	89	73	0	7	0	0
	SIOUX CITY	33	14	47	8	23	1	0.00	-0.16	0.00	4.91	70	19.49	71	88	57	0	7	0	0
	WATERLOO	30	15	38	9	23	1	0.00	-0.26	0.00	10.06	127	35.57	103	84	68	0	7	0	0
ID	BOISE	41	28	49	21	35	5	0.19	-0.18	0.11	2.33	63	13.13	116	92	61	0	5	4	0
	LEWISTON	45	37	53	28	40	7	0.15	-0.07	0.07	3.27	95	14.39	119	86	62	0	1	5	0
	POCATELLO	34	23	40	9	29	5	0.36	0.08	0.14	1.94	53	10.44	88	88	62	0	7	3	0
IL	CHICAGO/O_HARE	36	26	43	18	31	4	0.00	-0.48	0.00	10.20	93	37.33	103	77	61	0	6	0	0
	MOLINE	35	24	43	17	29	3	0.00	-0.49	0.00	12.02	120	32.24	86	84	63	0	7	0	0
	PEORIA	36	25	45	22	31	3	0.03	-0.49	0.03	10.44	97	39.99	112	85	63	0	6	1	0
	ROCKFORD	36	23	44	16	29	5	0.00	-0.44	0.00	11.60	117	33.53	94	76	54	0	6	0	0
	SPRINGFIELD	37	24	49	19	31	1	0.01	-0.53	0.01	6.19	57	37.19	102	94	66	0	6	1	0
IN	EVANSVILLE	41	28	45	20	34	-1	0.12	-0.68	0.07	13.03	100	59.30	135	83	57	0	5	2	0
	FORT WAYNE	34	25	39	20	30	1	0.08	-0.52	0.07	11.04	106	34.70	93	86	67	0	6	2	0
	INDIANAPOLIS	37	28	42	22	32	1	0.15	-0.52	0.14	9.26	78	43.52	106	92	67	0	6	2	0
	SOUTH BEND	35	26	42	18	30	2	0.05	-0.50	0.03	7.82	66	38.43	104	86	62	0	5	2	0
KS	CONCORDIA	41	23	52	13	32	2	0.00	-0.19	0.00	4.28	65	25.72	92	88	55	0	7	0	0
	DODGE CITY	38	19	51	8	29	-4	0.37	0.16	0.20	4.56	96	22.70	107	91	67	0	7	2	0
	GOODLAND	34	14	41	8	24	-5	0.43	0.32	0.22	1.62	44	16.21	83	89	63	0	7	3	0
	TOPEKA	42	23	57	18	33	1	0.00	-0.32	0.00	4.72	50	34.75	96	82	50	0	7	0	0

Based on 1981-2010 normals ***** Not Available**

Weather Data for the Week Ending December 19, 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 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
	WICHITA	42	23	52	15	32	-1	0.15	-0.13	0.11	5.05	62	27.27	84	92	58	0	7	2	0
KY	LEXINGTON	39	26	45	20	33	-3	0.70	-0.17	0.25	11.81	98	46.20	106	95	64	0	6	4	0
	LOUISVILLE	42	31	48	26	37	-1	0.63	-0.19	0.32	11.61	95	51.43	118	87	57	0	5	4	0
	PADUCAH	42	28	48	22	35	-3	0.43	-0.60	0.32	17.22	115	57.13	120	91	59	0	5	4	0
LA	BATON ROUGE	57	40	72	30	49	-8	2.03	1.03	1.01	17.78	109	65.76	113	93	60	0	1	4	2
	LAKE CHARLES	57	41	70	33	49	-5	2.67	1.63	2.19	11.89	69	48.10	87	97	69	0	0	3	1
	NEW ORLEANS	61	45	75	37	53	-3	1.24	0.09	0.82	14.94	92	70.20	116	84	60	0	0	3	1
	SHREVEPORT	50	36	62	28	43	-5	1.54	0.43	0.69	10.09	64	55.85	112	89	55	0	2	3	2
MA	BOSTON	37	23	59	16	30	-5	0.35	-0.49	0.26	12.06	87	34.04	80	85	53	0	5	3	0
	WORCESTER	32	20	55	11	26	-3	0.54	-0.29	0.27	17.07	111	42.96	92	79	49	0	6	3	0
MD	BALTIMORE	43	28	66	21	35	-1	2.55	1.80	1.39	18.75	146	56.93	140	84	54	0	5	3	2
ME	CARIBOU	21	5	34	-8	13	-5	0.20	-0.53	0.18	12.25	98	32.04	86	84	65	0	7	2	0
	PORTLAND	30	15	43	3	23	-6	0.86	-0.04	0.85	12.44	77	38.13	83	86	54	0	7	2	1
MI	ALPENA	29	22	32	16	26	1	0.14	-0.24	0.05	8.17	93	33.76	123	92	71	0	7	4	0
	GRAND RAPIDS	34	24	38	18	29	0	0.00	-0.53	0.00	9.04	71	34.91	93	89	65	0	7	0	0
	HOUGHTON LAKE	27	21	32	16	24	1	0.08	-0.27	0.08	7.10	78	25.11	93	87	73	0	7	1	0
	LANSING	33	24	38	16	29	1	0.03	-0.36	0.03	10.48	105	35.84	115	89	65	0	7	1	0
	MUSKEGON	34	25	41	21	29	-1	0.04	-0.51	0.04	9.78	81	35.39	109	82	60	0	6	1	0
	TRAVERSE CITY	32	25	37	20	29	2	0.01	-0.52	0.01	10.75	98	33.08	103	84	66	0	6	1	0
MN	DULUTH	24	9	33	-3	17	2	0.07	-0.17	0.05	6.15	62	20.85	68	82	58	0	7	2	0
	INT_L FALLS	23	3	30	-9	13	4	0.24	0.06	0.12	5.29	76	20.93	87	86	62	0	7	4	0
	MINNEAPOLIS	30	17	42	10	23	4	0.05	-0.19	0.03	4.69	58	29.18	96	84	59	0	7	2	0
	ROCHESTER	28	17	37	11	22	0	0.01	-0.26	0.01	6.31	75	30.85	94	85	61	0	7	1	0
	ST. CLOUD	27	14	38	4	21	5	0.03	-0.14	0.03	6.47	82	25.32	92	82	59	0	7	1	0
MO	COLUMBIA	40	24	50	20	32	0	0.00	-0.53	0.00	9.42	78	47.52	113	88	57	0	7	0	0
	KANSAS CITY	40	23	56	16	32	1	0.00	-0.35	0.00	3.37	30	32.41	84	90	57	0	6	0	0
	SAINT LOUIS	40	27	54	22	34	-1	0.01	-0.57	0.01	9.41	77	49.91	125	82	58	0	5	1	0
	SPRINGFIELD	42	25	53	19	33	-1	0.06	-0.59	0.06	9.49	65	49.48	111	90	57	0	7	1	0
MS	JACKSON	54	35	67	27	45	-3	1.39	0.24	0.92	13.78	92	70.06	133	93	58	0	2	5	1
	MERIDIAN	55	32	68	26	44	-3	0.81	-0.32	0.43	14.56	94	68.80	126	90	54	0	4	5	0
	TUPELO	50	33	58	26	41	-3	1.89	0.42	1.29	14.10	86	68.35	129	89	54	0	3	5	1
MT	BILLINGS	38	24	47	13	31	5	0.15	0.04	0.15	3.56	103	13.27	97	72	53	0	6	1	0
	BUTTE	35	17	41	1	26	9	0.06	-0.05	0.03	1.78	64	9.85	77	78	51	0	7	2	0
	CUT BANK	36	21	45	6	28	6	0.00	-0.06	0.00	1.59	70	7.18	65	86	58	0	6	0	0
	GLASGOW	35	14	49	6	24	9	0.00	-0.10	0.00	2.70	111	11.49	98	81	56	0	7	0	0
	GREAT FALLS	38	21	49	1	29	5	0.00	-0.13	0.00	3.57	110	14.58	99	74	53	0	6	0	0
	HAVRE	39	19	50	8	29	10	0.00	-0.10	0.00	3.12	128	9.44	84	82	54	0	7	0	0
	MISSOULA	37	24	46	17	31	8	0.09	-0.16	0.02	4.19	111	14.16	102	98	70	0	7	5	0
NC	ASHEVILLE	47	30	65	22	39	-1	1.83	1.06	1.43	20.72	163	63.80	144	97	58	0	5	3	1
	CHARLOTTE	51	35	70	23	43	1	1.20	0.50	0.71	18.87	161	55.14	137	94	58	0	2	2	1
	GREENSBORO	48	32	68	25	40	-1	2.11	1.46	1.54	19.07	156	62.31	152	93	59	0	6	2	2
	HATTERAS	57	44	69	32	51	1	0.69	-0.28	0.41	19.90	103	67.70	120	91	67	0	1	3	0
	RALEIGH	52	34	69	26	43	0	2.10	1.44	1.10	15.96	127	53.02	126	97	61	0	3	3	2
	WILMINGTON	60	39	74	30	49	1	0.70	-0.11	0.44	22.11	128	71.20	126	94	62	0	2	3	0
ND	BISMARCK	32	6	48	0	19	4	0.01	-0.10	0.01	1.61	41	8.46	47	87	55	0	7	1	0
	DICKINSON	35	11	50	4	23	5	0.00	-0.06	0.00	1.37	39	7.94	49	84	50	0	7	0	0
	FARGO	27	8	34	0	17	4	0.04	-0.15	0.04	2.21	35	18.78	84	85	65	0	7	1	0
	GRAND FORKS	26	5	38	-9	15	5	0.07	-0.07	0.05	0.87	16	14.30	69	85	64	0	7	2	0
	JAMESTOWN	30	7	39	-3	18	5	0.00	-0.09	0.00	0.61	13	11.04	59	82	53	0	7	0	0
NE	GRAND ISLAND	32	15	43	4	23	-3	0.06	-0.07	0.06	1.74	30	20.70	78	86	64	0	7	1	0
	LINCOLN	32	15	48	5	24	-3	0.00	-0.21	0.00	3.58	50	22.43	78	85	65	0	7	0	0
	NORFOLK	37	15	49	9	26	2	0.00	-0.16	0.00	4.19	62	18.43	67	80	51	0	7	0	0
	NORTH PLATTE	40	10	52	2	25	0	0.28	0.19	0.21	1.56	39	14.57	72	88	52	0	7	2	0
	OMAHA	31	16	47	8	23	-2	0.00	-0.24	0.00	5.12	71	17.20	56	89	69	0	7	0	0
	SCOTTSBLUFF	39	14	53	5	26	1	0.00	-0.12	0.00	1.57	47	8.68	55	83	50	0	7	0	0
	VALENTINE	42	10	52	7	26	3	0.00	-0.10	0.00	2.21	57	16.68	84	84	42	0	7	0	0
NH	CONCORD	31	12	44	-8	21	-5	1.06	0.35	1.01	11.26	85	29.84	76	87	54	0	7	3	1
NJ	ATLANTIC_CITY	46	27	67	19	37	0	2.63	1.78	1.90	19.92	164	52.59	130	87	54	0	6	3	2
	NEWARK	40	26	62	16	33	-3	0.85	0.03	0.41	14.42	107	45.28	101	84	50	0	5	3	0
NM	ALBUQUERQUE	42	23	49	19	33	-3	0.00	-0.11	0.00	1.26	41	6.06	64	71	33	0	7	0	0
NV	ELY	37	13	45	-1	25	0	0.23	0.10	0.12	0.88	30	5.14	52	87	43	0	7	2	0
	LAS VEGAS	56	38	61	33	47	-1	0.04	-0.07	0.04	0.04	3	2.39	55	51	22	0	0	1	0
	RENO	47	26	52	20	36	1	0.18	-0.05	0.12	0.77	32	2.69	37	90	44	0	7	3	0
	WINNEMUCCA	38	22	43	15	30	1	0.29	0.08	0.13	2.23	84	6.83	83	86	58	0	7	4	0
NY	ALBANY	28	14	49	-4	21	-8	2.02	1.38	1.64	11.39	94	35.00	91	94	61	0	6	4	1
	BINGHAMTON	28	16	49	3	22	-5	2.86	2.26	1.46	12.63	105	47.66	125	93	64	0	7	4	2
	BUFFALO	33	23	46	18	28	-2	0.35	-0.52	0.20	10.91	79	35.89	92	83	58	0	6	2	0
	ROCHESTER	33	21	48	13	27	-3	0.27	-0.28	0.15	8.32	78	30.09	90	89	62	0	6	3	0
	SYRACUSE	34	19	56	5	27	-3	0.54	-0.15	0.30	8.59	68	35.63	96	81	55	0	6	3	0
OH	AKRON-CANTON	35	28	44	26	32	2	0.47	-0.14	0.20	10.64	94	38.47	100	84	66	0	6	5	0
	CINCINNATI	38	29	43	24	34	0	0.33	-0.37	0.18	10.16	89	46.33	112	89	62	0	6	3	0
	CLEVELAND	35	28	42	25	32	0	0.35	-0.31	0.10	17.37	140	51.88	137	90	66	0	6	5	0
	COLUMBUS	37	28	44	22	32	-1	0.48	-0.15	0.26	11.25	108	48.15	126	90	65	0	6	3	0
	DAYTON	38	27	43	21	32	2	0.24	-0.41	0.12	8.09	70	39.05	98	94	65	0	6	3	0
	MANSFIELD	35	27	43	20	31	2	0.26	-0.45	0.11	13.99	116	39.47	91	93	69	0	6	3	0

Based on 1981-2010 normals ***** Not Available**

Weather Data for the Week Ending December 19, 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 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
	TOLEDO	36	28	41	21	32	2	0.22	-0.36	0.12	8.02	81	29.98	90	80	58	0	6	3	0
	YOUNGSTOWN	35	27	44	24	31	1	0.57	-0.08	0.36	15.55	135	46.93	124	83	63	0	6	4	0
OK	OKLAHOMA CITY	43	26	57	18	34	-6	0.76	0.32	0.54	7.54	68	32.79	91	94	66	0	6	2	1
	TULSA	43	28	55	20	35	-4	0.72	0.15	0.71	12.97	103	44.43	111	91	60	0	6	2	1
OR	ASTORIA	52	43	53	38	47	5	3.54	1.42	1.20	22.29	87	62.15	97	96	76	0	0	6	3
	BURNS	37	19	41	13	28	4	0.28	-0.08	0.10	1.94	57	7.69	72	93	71	0	7	4	0
	EUGENE	51	40	53	35	46	6	1.85	0.09	0.61	12.23	70	29.91	68	96	76	0	0	7	2
	MEDFORD	47	39	49	34	43	4	1.30	0.49	0.97	4.03	58	13.20	76	94	70	0	0	4	1
	PENDLETON	46	35	52	26	40	8	0.16	-0.18	0.08	3.80	93	12.71	103	91	62	0	3	5	0
	PORTLAND	51	44	55	39	47	7	1.20	-0.02	0.39	11.03	81	30.20	88	90	71	0	0	6	0
	SALEM	50	41	52	38	46	6	1.96	0.43	0.57	11.61	76	30.80	82	93	73	0	0	7	1
PA	ALLENTOWN	36	20	55	5	28	-4	0.99	0.21	0.42	14.20	99	43.06	97	87	55	0	6	3	0
	ERIE	37	28	46	22	33	1	0.31	-0.53	0.10	15.10	101	39.80	98	82	58	0	6	5	0
	MIDDLETOWN	37	25	55	14	31	-3	1.74	1.02	1.12	9.52	75	35.52	90	84	51	0	7	3	2
	PHILADELPHIA	41	29	63	21	35	-2	1.43	0.63	0.86	15.65	128	48.37	120	81	51	0	5	3	2
	PITTSBURGH	35	28	46	24	31	-1	0.61	0.00	0.50	6.76	65	34.59	93	89	67	0	6	4	1
	WILKES-BARRE	34	21	52	5	27	-3	1.24	0.67	0.76	10.51	85	48.77	131	86	54	0	6	3	1
	WILLIAMSPORT	34	21	50	4	28	-3	2.18	1.58	1.58	8.96	67	34.91	86	90	54	0	5	2	2
RI	PROVIDENCE	38	24	63	11	31	-3	0.98	0.04	0.63	17.84	117	41.80	91	92	53	0	6	3	1
SC	CHARLESTON	58	42	76	30	50	-1	0.18	-0.52	0.17	12.42	88	51.82	104	94	62	0	2	2	0
	COLUMBIA	55	38	74	25	46	0	0.52	-0.20	0.32	10.24	90	52.70	122	91	54	0	2	3	0
	FLORENCE	55	38	73	27	46	-1	0.72	0.05	0.56	13.46	120	56.85	136	94	58	0	2	4	1
	GREENVILLE	52	33	70	25	42	-1	1.39	0.46	0.83	18.62	141	71.61	157	88	49	0	4	2	2
SD	ABERDEEN	33	6	41	-1	20	5	0.01	-0.09	0.01	3.22	61	15.33	71	83	56	0	7	1	0
	HURON	33	8	42	3	20	2	0.00	-0.11	0.00	1.98	36	16.72	73	91	60	0	7	0	0
	RAPID CITY	37	14	51	9	26	1	0.12	0.02	0.07	2.39	67	12.74	78	88	51	0	7	3	0
	SIOUX FALLS	33	13	41	6	23	4	0.00	-0.14	0.00	2.54	37	16.99	65	84	55	0	7	0	0
TN	BRISTOL	46	30	59	21	38	0	1.26	0.52	0.98	12.59	122	54.80	138	96	59	0	5	2	1
	CHATTANOOGA	51	34	61	26	42	0	1.87	0.79	1.16	18.78	121	66.78	131	90	54	0	3	4	1
	KNOXVILLE	46	33	59	25	39	-1	1.48	0.47	1.14	13.65	108	64.74	140	96	67	0	4	3	1
	MEMPHIS	44	32	53	27	38	-5	2.25	0.93	1.38	10.98	67	52.15	101	91	60	0	4	3	2
	NASHVILLE	46	30	53	24	38	-2	1.63	0.68	0.71	10.95	81	50.50	110	86	55	0	5	4	1
TX	ABILENE	56	31	63	19	43	-1	0.01	-0.28	0.01	1.95	26	18.44	75	85	36	0	5	1	0
	AMARILLO	46	21	60	14	33	-3	0.19	0.02	0.14	3.46	71	13.61	67	87	46	0	6	2	0
	AUSTIN	62	38	69	30	50	-2	0.77	0.24	0.77	6.46	57	30.01	90	85	43	0	1	1	1
	BEAUMONT	57	41	70	32	49	-5	2.91	1.70	1.81	17.70	92	55.44	95	97	70	0	1	3	2
	BROWNSVILLE	75	51	85	42	63	1	0.20	-0.06	0.10	7.32	59	17.85	66	86	40	0	0	3	0
	CORPUS CHRISTI	70	44	84	38	56	-2	0.03	-0.38	0.03	7.09	61	22.84	73	92	45	0	0	1	0
	DEL RIO	68	38	73	32	53	1	0.00	-0.15	0.00	3.44	60	11.63	60	79	23	0	1	0	0
	EL PASO	57	30	62	21	43	-1	0.00	-0.20	0.00	0.82	26	5.99	62	46	19	0	3	0	0
	FORT WORTH	51	35	61	28	43	-4	0.84	0.25	0.81	7.69	69	41.27	117	94	55	0	2	2	1
	GALVESTON	61	48	74	40	54	-3	2.07	0.00	1.23	12.17	0	39.29	0	85	66	0	0	3	2
	HOUSTON	59	40	70	31	49	-5	1.35	0.54	0.70	16.05	96	43.56	90	95	65	0	1	3	2
	LUBBOCK	50	22	60	16	36	-4	0.00	-0.20	0.00	1.52	26	10.01	53	83	35	0	6	0	0
	MIDLAND	55	27	62	21	41	-3	0.00	-0.14	0.00	1.60	34	7.72	53	80	26	0	6	0	0
	SAN ANGELO	61	29	65	20	45	-2	0.00	-0.20	0.00	5.47	80	17.93	85	83	24	0	5	0	0
	SAN ANTONIO	65	37	77	31	51	-1	0.03	-0.39	0.03	4.11	39	19.33	61	85	33	0	1	1	0
	VICTORIA	64	38	77	30	51	-4	1.03	0.54	0.85	9.16	68	28.94	71	95	57	0	1	2	1
	WACO	55	34	64	25	45	-3	0.78	0.15	0.69	11.43	100	42.34	126	89	53	0	2	2	1
	WICHITA FALLS	50	30	62	21	40	-2	0.32	-0.06	0.31	6.87	80	35.22	124	94	54	0	5	2	0
UT	SALT LAKE CITY	36	25	43	16	30	0	0.26	-0.07	0.21	1.51	29	9.16	58	89	58	0	7	2	0
VA	LYNCHBURG	47	28	68	23	38	1	1.76	1.06	1.30	23.62	190	65.12	162	91	53	0	6	2	1
	NORFOLK	53	40	70	34	46	2	1.72	0.98	0.97	18.33	137	52.89	117	86	57	0	0	3	2
	RICHMOND	47	31	71	26	39	-1	2.59	1.87	1.57	22.36	180	62.71	148	91	57	0	6	3	2
	ROANOKE	46	32	66	24	39	1	1.63	1.00	1.02	18.67	155	62.45	156	86	53	0	4	2	2
	WASH/DULLES	42	28	65	23	35	-1	2.54	1.89	1.30	13.04	104	47.87	118	90	59	0	6	2	2
VT	BURLINGTON	29	12	52	1	20	-5	0.25	-0.26	0.24	8.43	71	30.47	85	78	51	0	7	2	0
WA	OLYMPIA	49	41	51	33	45	7	2.83	1.26	1.22	19.81	100	48.64	102	97	79	0	0	7	1
	QUILLAYUTE	49	40	52	36	45	5	6.88	4.08	2.39	37.44	98	95.89	103	98	80	0	0	7	4
	SEATTLE-TACOMA	50	43	52	39	46	6	1.86	0.70	0.51	12.99	87	37.68	106	92	67	0	0	7	1
	SPOKANE	37	32	43	24	35	8	0.57	0.06	0.20	4.37	77	13.80	87	93	78	0	3	6	0
	YAKIMA	42	29	52	25	36	8	0.24	-0.11	0.20	1.69	57	4.50	57	92	68	0	6	3	0
WI	EAU CLAIRE	30	13	37	2	22	3	0.00	-0.22	0.00	5.31	62	27.00	88	86	57	0	7	0	0
	GREEN BAY	31	21	37	11	26	5	0.05	-0.27	0.05	8.74	102	32.69	113	83	61	0	6	1	0
	LA CROSSE	33	20	39	14	26	5	0.00	-0.29	0.00	7.63	88	29.65	90	77	54	0	7	0	0
	MADISON	30	14	35	5	22	-1	0.00	-0.38	0.00	9.33	103	38.76	114	93	67	0	7	0	0
	MILWAUKEE	35	24	41	18	29	3	0.00	-0.43	0.00	7.10	72	36.43	107	76	59	0	6	0	0
WV	BECKLEY	37	25	51	19	31	-3	1.52	0.85	0.92	9.26	89	50.37	126	96	75	0	6	3	2
	CHARLESTON	41	30	53	25	35	-2	1.51	0.80	1.10	9.05	77	47.79	111	100	64	0	6	5	1
	ELKINS	36	25	52	18	31	-2	1.52	0.80	0.85	11.10	93	56.22	125	87	66	0	7	5	2
	HUNTINGTON	41	30	49	25	35	-1	0.67	-0.05	0.35	8.60	77	42.12	102	89	60	0	6	4	0
WY	CASPER	34	19	40	6	26	3	0.22	0.11	0.20	1.29	39	5.66	45	84	48	0	7	2	0
	CHEYENNE	34	15	47	1	25	-2	0.01	-0.10	0.01	1.33	39	9.02	56	80	45	0	7	1	0
	LANDER	31	11	40	2	21	1	0.17	0.04	0.17	1.94	53	6.78	53	86	55	0	7	1	0
	SHERIDAN	39	17	52	9	28	6	0.04	-0.09	0.03	4.30	109	11.02	78	82	50	0	7	2	0

Based on 1981-2010 normals ***** Not Available**

Autumn Weather Review

Weather summary provided by USDA/WAOB

Highlights: Five tropical cyclones—three hurricanes and two tropical storms—hit the U.S. mainland in autumn 2020, boosting the seasonal total to a record-shattering twelve storms. The previous record of nine U.S. tropical cyclone landfalls in a single season was set in 1916. The record for U.S. hurricane landfalls, previously set in 1886 and 1985, was tied. Six 2020 hurricanes (Hanna, Isaias, Laura, Sally, Delta, and Zeta) moved ashore in the U.S., with all but Isaias striking from Texas to Alabama; when the barrage of hurricanes hit the country in 1886, all struck the Gulf Coast. This year's most frequent target was Louisiana, which endured Hurricanes Laura (August 27), Delta (October 9), and Zeta (October 28). The last tropical cyclone of the season to hit the U.S. was former Hurricane Eta, which twice (on November 8 and 12) struck Florida as a tropical storm.

Much of the South remained wet due to frequent bouts with tropical rainfall, while drought's footprint expanded and intensified in many areas from the Pacific Coast to the High Plains. Between September 1 and December 1, drought coverage across the Lower 48 States increased from 39.4 to 48.0 percent, according to the *U.S. Drought Monitor*. During the same 3-month period, drought coverage in the 11-state Western region grew from 67.6 to 75.6 percent, despite modest Northwestern improvement. In addition, Western coverage of exceptional drought (D4) increased sharply to 22.1 percent by December 1, up from zero as recently as August 18.

Wildfires remained active in the West, with periods of extreme activity. The Western wildfire crisis reached a peak in early to mid-September, with at least 18 blazes actively burning that had scorched at least 100,000 acres of vegetation. Although activity waned in November, year-to-date U.S. fires charred at least 9.5 million acres of vegetation (more than 140 percent of the 10-year average).

Autumn dryness extending as far east as the Plains stressed a portion of the newly planted winter wheat crop. By November 29, dry conditions across the central and southern Plains left more than one-fifth of the winter wheat rated in very poor to poor condition in Colorado (38 percent), Texas (34 percent), Nebraska (26 percent), and Kansas (22 percent). However, autumn dryness also favored a rapid harvest pace for a variety of summer crops across the Plains and western Corn Belt. In contrast, producers struggled to harvest crops such as cotton, peanuts, and soybeans in wetter areas of the Southeast.

Though autumn temperatures were consistently above normal in the East and West, periods of cold, snowy weather were common across the nation's mid-section. The Plains' most dramatic temperature shift occurred in late October and early November, when some locations noted monthly record lows followed within a week by monthly record highs.

Historical Perspective: According to preliminary data provided by the National Centers for Environmental Information, the contiguous U.S. experienced its 11th-warmest, 44th-driest autumn during the 126-year period of record. The nation's autumn average temperature of 55.5°F was 2.0°F above the 20th century mean, while precipitation averaged 6.52 inches (95 percent of normal).

State temperature rankings ranged from the 54th-coolest autumn in Oklahoma to the warmest on record in California and Florida (figure 1). Top-ten rankings for autumn warmth were observed in Nevada, Oregon, Washington, three of the Four Corners States, and eleven of the fifteen Atlantic Coast States. Meanwhile, state precipitation rankings ranged from the driest September-November period on record in Arizona and Utah to the fourth-wettest autumn in Virginia (figure 2). Arizona's previous driest autumn occurred in 1999; Utah's occurred in 1956. In addition, top-ten rankings for autumn dryness were observed in California, Colorado, Nebraska, Nevada, and North Dakota, while top-ten rankings for autumn wetness were noted in Delaware, Florida, and North Carolina.

Figure 1 Statewide Average Temperature Ranks
September – November 2020
Period: 1895–2020

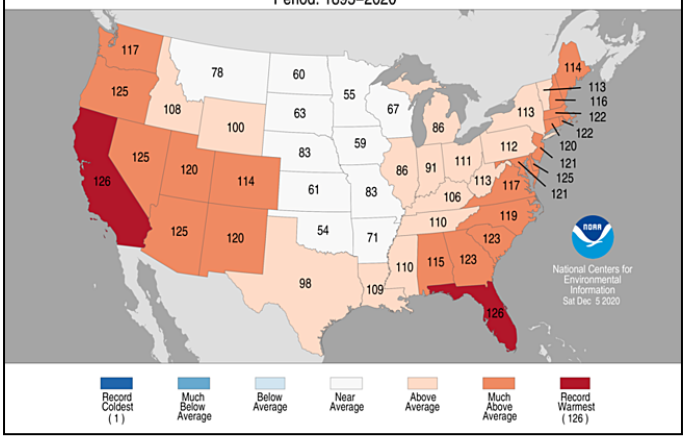
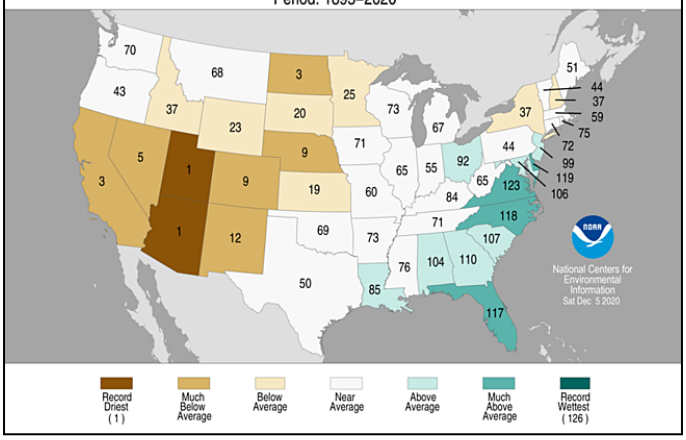


Figure 2 Statewide Precipitation Ranks
September – November 2020
Period: 1895–2020



September: The tropical Atlantic Basin remained active in September, with Hurricane Sally making landfall on the 16th in Alabama and Tropical Storm Beta arriving on the 21st along the middle Texas coast. Sally, a category 2 hurricane at landfall with sustained winds near 105 mph, battered crops and caused extensive flooding in southern Alabama and western Florida, with heavy rain extending as far north as southern Virginia. Beta's main impact was heavy rain, which spread northeastward from coastal Texas across the Mississippi Delta and into the Southeast. By September 27, topsoil moisture was rated at least one-fifth surplus in eight states—three in the Mississippi Delta and five along the Atlantic Coast from Florida to Maryland—led by Louisiana at 37 percent.

Farther north, mid-month rainfall generally arrived too late to benefit drought-stressed summer crops in Iowa and environs. Surrounding that wet area, short-term dryness developed or intensified in the Ohio Valley. By September 27, Indiana led the Midwest with topsoil moisture rated 75 percent very short to short. Meanwhile, drought continued to worsen in New England, with topsoil moisture rated 100 percent very short to very short by September 27 in Maine and New Hampshire. As September ended, however, beneficial rain overspread the Northeast.

Aside from a heavy-rainfall event in portions of Oklahoma and Texas, mostly dry weather covered the Plains. The rain (and snow) that fell was associated with an early-season cold snap, which resulted in freezes and potential harm to immature crops across portions of the northern Plains and far upper Midwest, particularly in eastern North Dakota, on September 8-9. By late September, topsoil moisture rated very short to short across the Plains ranged from 39 percent in Oklahoma to 77 percent in Colorado. On September 27, Texas led the nation with 35 percent of its cotton rated very poor to poor, while Colorado led—among major production states—with 35 percent of its corn rated very poor to poor.

Elsewhere, Western dryness and periods of extreme heat led to two additional flare-ups in wildfire activity. From January to October, more than 7.5 million acres of vegetation burned nationally, with much of that acreage occurring in the Pacific Coast States starting in mid-August. California's year-to-date total surpassed more than 4 million acres, including five of the six largest wildfires in modern state history. On September 27, more than one-half of rangeland and pastures were rated very poor to poor in all Western States except Idaho, Nevada, and Utah, led by Oregon at 82 percent. Late in the month, more than three-quarters (76 percent) of the 11-state Western region was experiencing drought, according to the *U.S. Drought Monitor*, while air-quality degradations plagued a broad area.

October: Two hurricanes—Delta and Zeta—made a U.S. landfall in October, boosting the season-to-date total to six. Both October hurricanes struck Louisiana, with Delta moving ashore near Creole on October 9 mere miles from (and in the same parish as) where Hurricane Laura had crossed the coast just over 6 weeks earlier. Zeta pushed inland farther east, near Cocodrie, on October 28. Sustained winds at landfall associated with Delta were slightly lower (100 mph, versus 110 mph for Zeta), but Zeta was a faster-moving storm and overall delivered less rainfall. Still, the late-summer and autumn barrage of tropical activity, including Tropical Storm Beta and Hurricanes Laura, Sally, Delta, and Zeta, adversely affected a variety of Southeastern summer crops, including some cotton and peanuts.

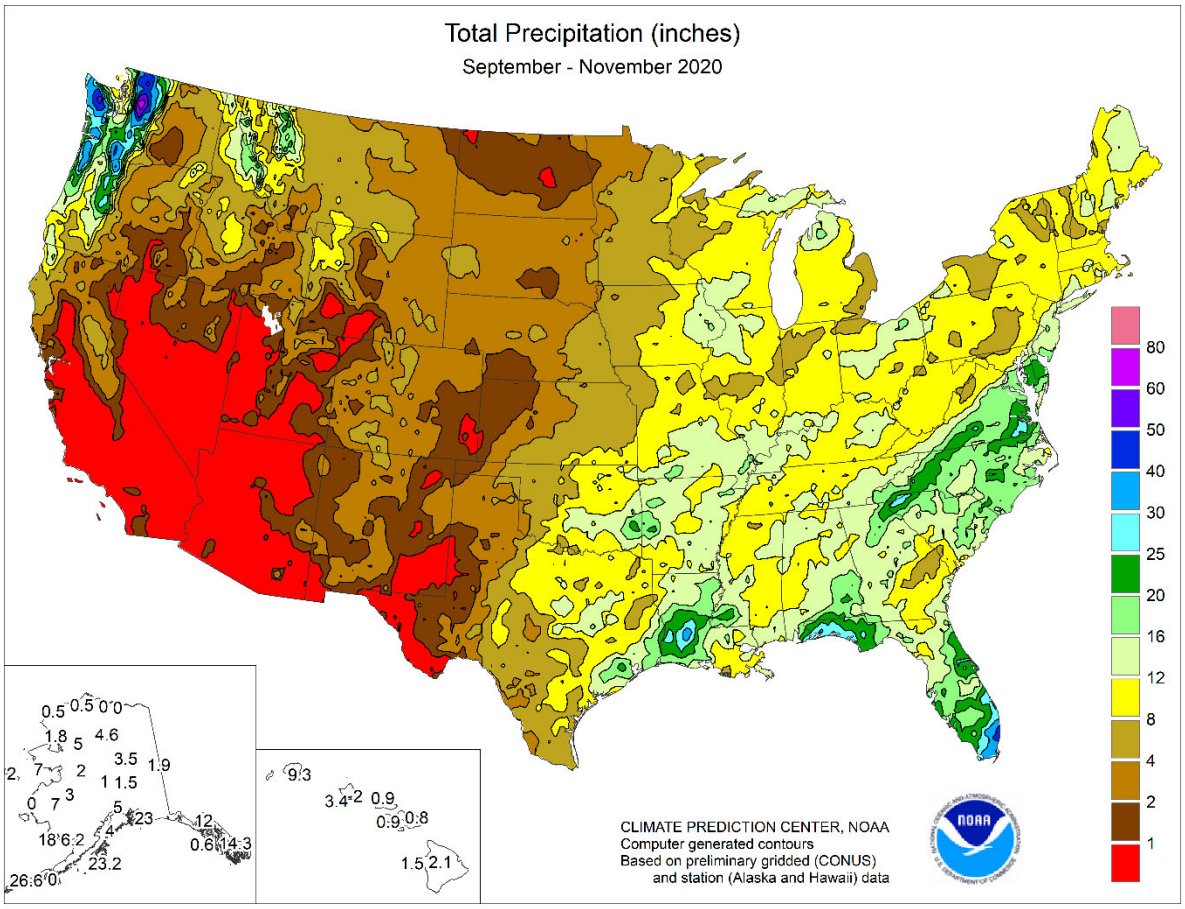
Farther north, a period of tranquil weather abruptly ended in mid-October, as a mild, dry pattern across the Plains and Midwest suddenly yielded to cold, stormy conditions. During the 4 weeks ending October 18, more than one-half (52 percent) of the U.S. corn and 69 percent of the soybeans were harvested. Thereafter, Midwestern fieldwork markedly slowed amid record-setting low temperatures, snow, and rain. Parts of the northern Plains and upper Midwest received record amounts of October snowfall.

The same stormy weather that impeded late-month harvest efforts benefited winter wheat. According to the *U.S. Drought Monitor*, 46 percent of the nation's winter wheat production area was experiencing drought on October 27, up from 9 percent at the same time a year ago. Late-month rain, freezing rain, sleet, and snow provided much-needed moisture for wheat emergence and establishment, especially on the High Plains, although cold weather accompanying the precipitation temporarily limited crop growth. By November 1, nearly one-fifth (19 percent) of the U.S. winter wheat crop was rated in very poor to poor condition, led by Colorado and Texas at 28 percent.

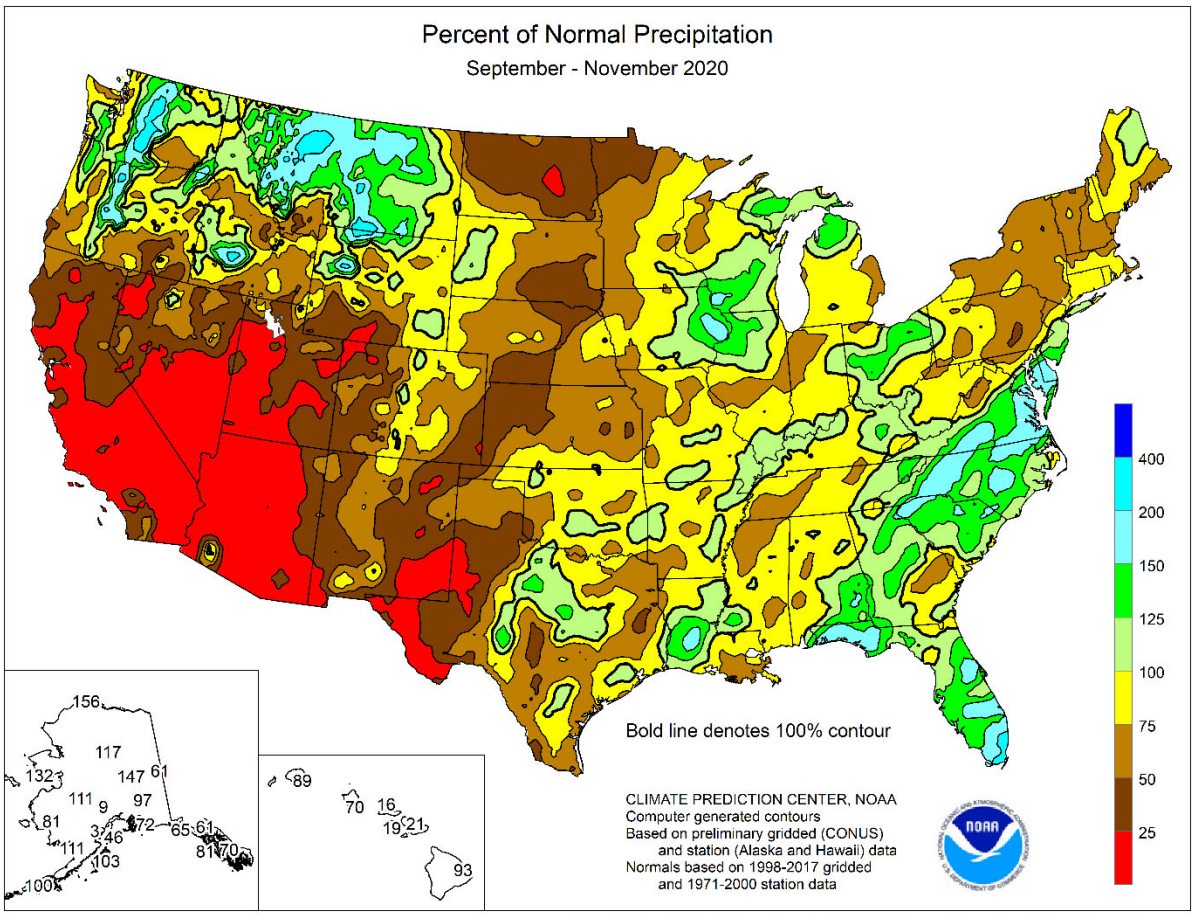
Beneficial, late-month precipitation fell as far west as the Rockies, but the Far West remained mostly dry. With more than three-quarters of the West experiencing drought, rangeland and pastures continued to suffer. On October 25, Western rangeland and pastures rated very poor to poor ranged from 36 percent in Idaho to 86 percent in Oregon. Nationally, 43 percent of the rangeland and pastures were rated very poor to poor on that date, just below this year's late-summer peak of 46 percent but otherwise the highest percentage since 2012.

Western wildfires remained periodically active in October. For example, the East Troublesome Fire—which was sparked on 14th near Lake Granby, CO—exponentially grew on October 21-22 to become the second-largest wildfire in modern state history. Each of Colorado's three-largest wildfires—the Cameron Peak Fire (nearly 209,000 acres), the East Troublesome Fire (almost 194,000 acres), and the Pine Gulch Fire (139,007 acres)—occurred in 2020. Meanwhile in California, five of the six largest wildfires on record burned in 2020, led by the 1.03 million-acre August Complex. Nationally, January-October wildfires consumed about 8.6 million acres of vegetation, well above the 10-year average of 6.7 million acres.

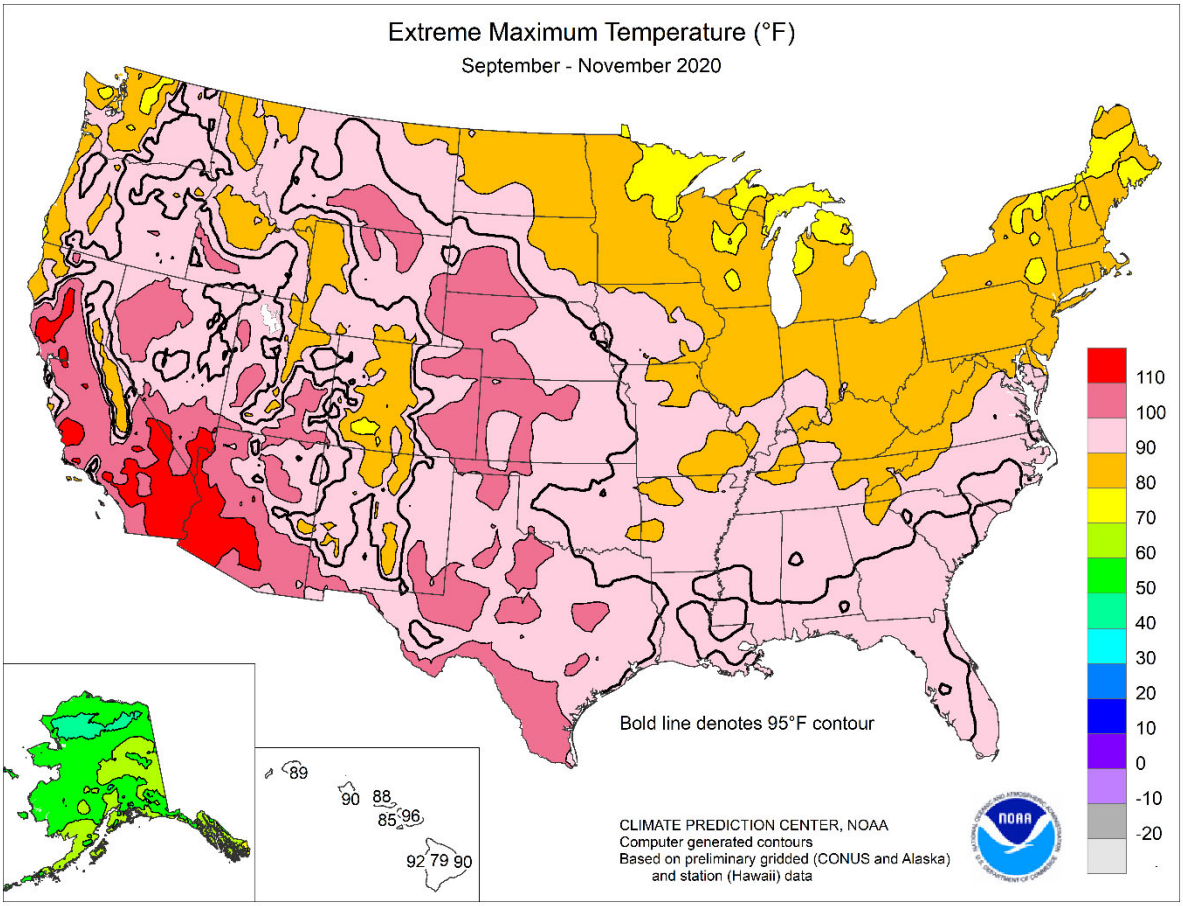
November: A complete summary appeared in the *Weekly Weather and Crop Bulletin* dated December 8, 2020.

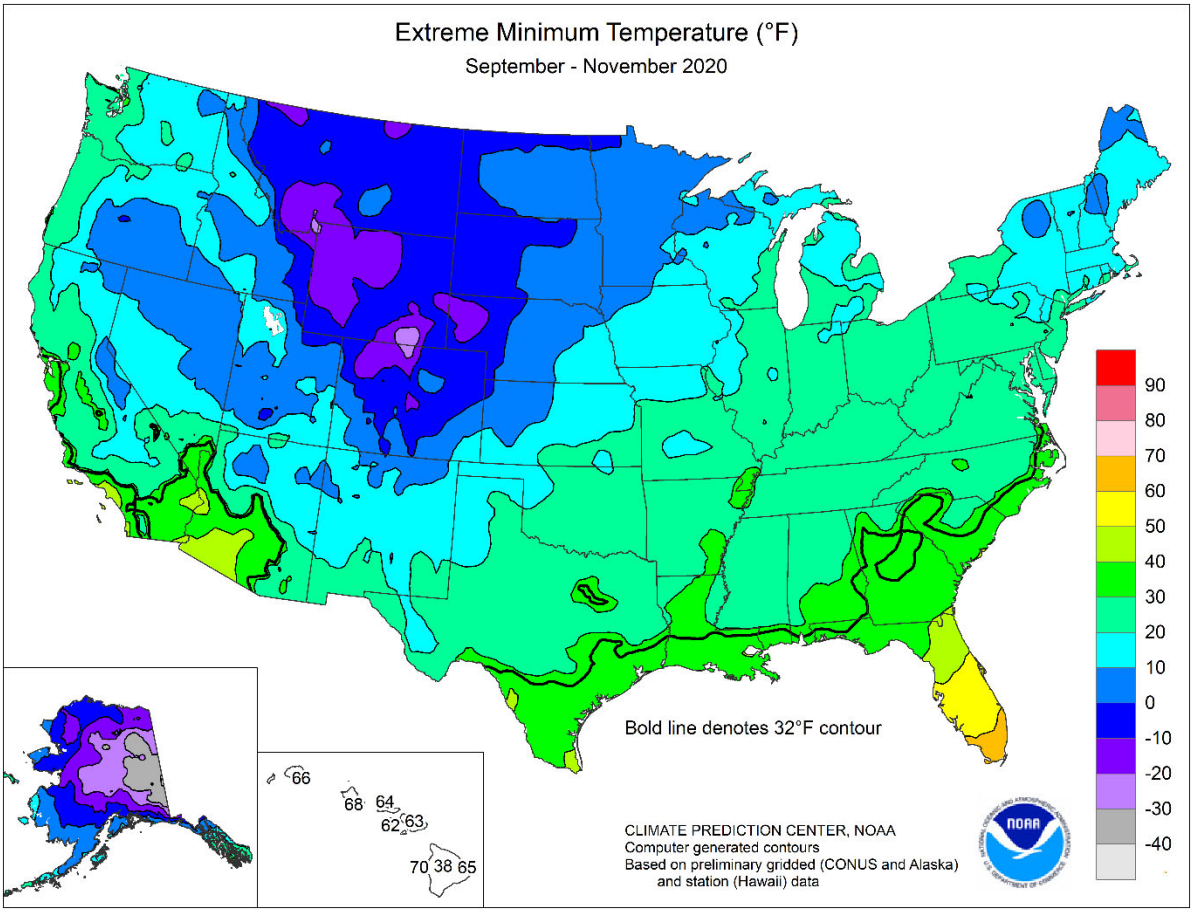


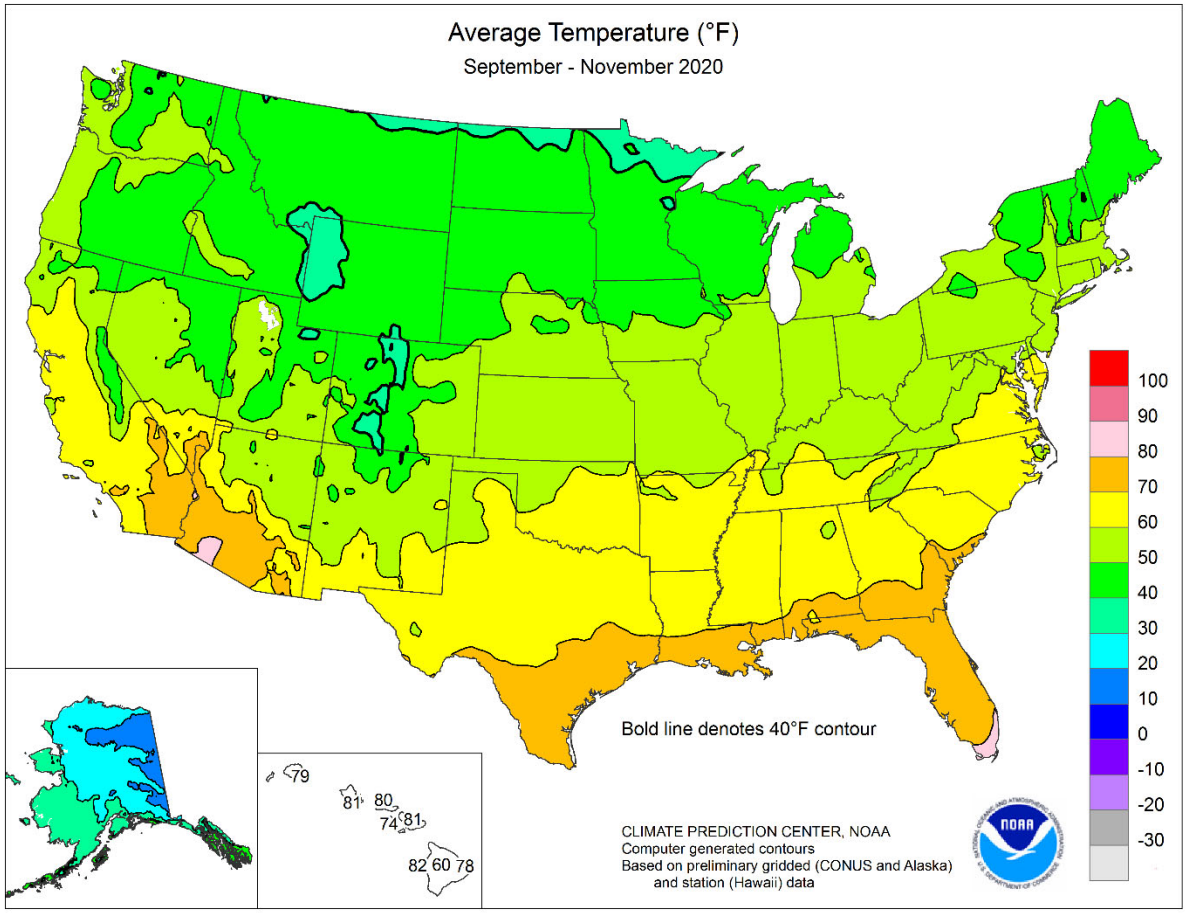
CPC gridded precipitation data supplemented with AHPS (water.weather.gov/precip/) for quality control purposes

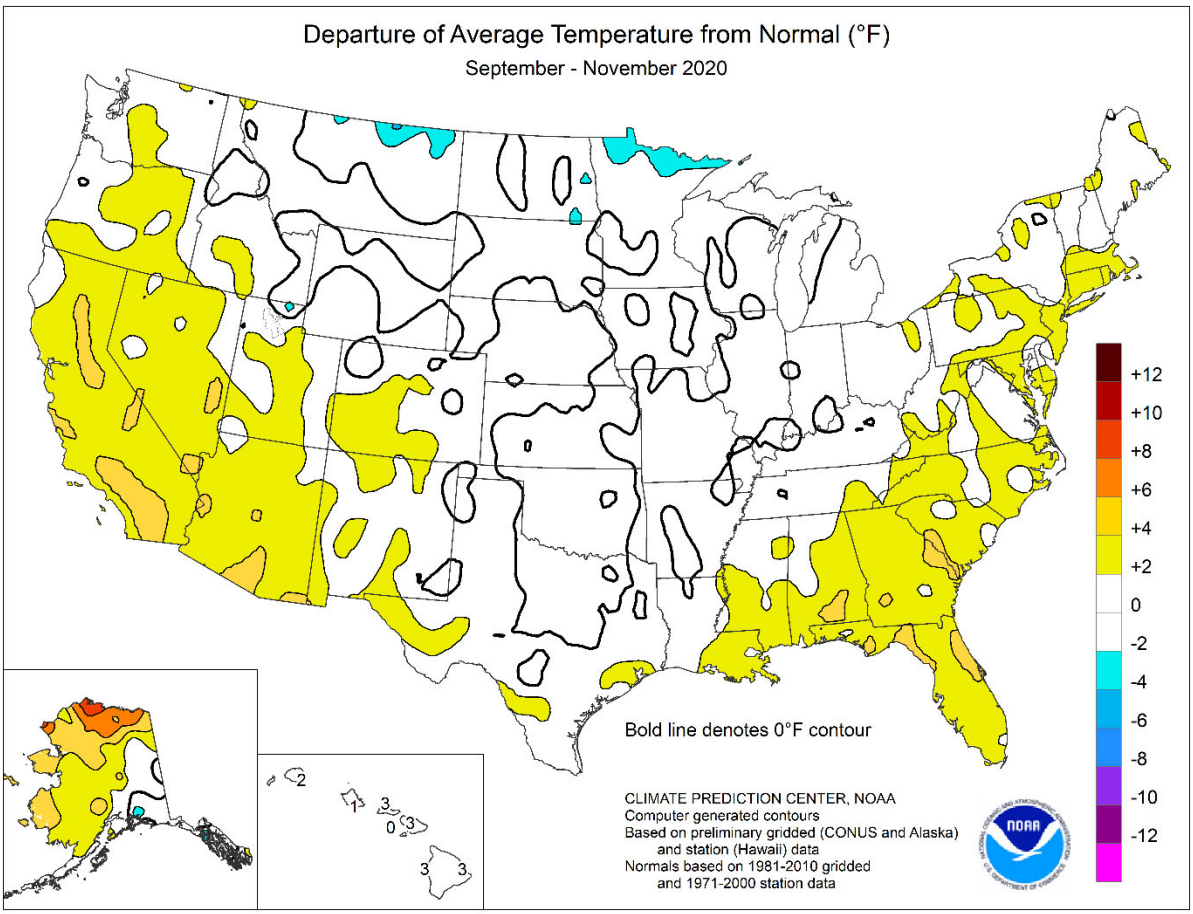


CPC gridded precipitation data supplemented with AHPS (water.weather.gov/precip/) for quality control purposes


Extreme Maximum Temperature (°F)
September - November 2020
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
89
90 88
85 96
92 79 90
Bold line denotes 95°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Extreme Minimum Temperature (°F)
September - November 2020
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
66
68 64
62 63
70 38 65
Bold line denotes 32°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Average Temperature (°F)
September - November 2020
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
Bold line denotes 40°F contour
79
81
80
74
81
82
60
78
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Departure of Average Temperature from Normal (°F)
September - November 2020
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
Bold line denotes 0°F contour
2
3
0
3
3
3
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

National Weather Data for Selected Cities

Autumn 2020

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
AK ANCHORAGE	37	1	4.96	-1.18	WICHITA	58	-1	4.44	-2.88	TOLEDO	55	2	7.33	-0.85
BARROW	26	6	2.23	0.80	KY LEXINGTON	57	0	10.96	1.44	YOUNGSTOWN	54	2	14.33	4.69
FAIRBANKS	26	-1	3.39	0.74	LOUISVILLE	61	1	10.89	1.07	OK OKLAHOMA CITY	60	-2	6.61	-3.13
JUNEAU	41	-1	17.90	-5.39	PADUCAH	60	1	16.36	4.36	TULSA	62	0	11.45	0.48
KODIAK	43	2	22.98	0.48	LA BATON ROUGE	71	-1	14.94	1.50	OR ASTORIA	54	1	17.37	-1.91
NOME	35	5	6.84	1.56	LAKE CHARLES	69	0	8.15	-6.29	BURNS	47	2	1.51	-0.92
AL BIRMINGHAM	67	2	8.87	-3.31	NEW ORLEANS	74	2	12.87	-0.12	EUGENE	55	2	9.65	-2.61
HUNTSVILLE	64	1	12.05	-0.18	SHREVEPORT	68	2	6.86	-5.81	MEDFORD	59	3	2.47	-2.24
MOBILE	70	2	11.33	-2.60	MA BOSTON	56	1	10.20	-1.14	PENDLETON	54	2	3.63	0.48
MONTGOMERY	69	3	12.60	1.10	WORCESTER	53	3	14.32	1.38	PORTLAND	57	1	8.94	-1.15
AR FORT SMITH	63	0	16.19	3.33	MD BALTIMORE	60	3	15.31	4.67	SALEM	55	1	8.92	-1.89
LITTLE ROCK	63	-1	7.68	-5.69	ME CARIBOU	46	2	10.92	0.52	PA ALLENTOWN	55	2	12.36	0.37
AZ FLAGSTAFF	50	3	0.78	-5.01	PORTLAND	51	2	9.66	-3.85	ERIE	56	3	14.19	1.60
PHOENIX	80	4	0.00	-1.88	MI ALPENA	48	1	7.15	-0.45	MIDDLETOWN	58	4	7.30	-3.22
PRESCOTT	60	4	0.19	-3.24	GRAND RAPIDS	51	0	7.85	-3.18	PHILADELPHIA	60	2	13.18	3.28
TUCSON	76	5	0.15	-2.62	HOUGHTON LAKE	46	0	6.33	-1.58	PITTSBURGH	55	2	5.99	-2.61
CA BAKERSFIELD	69	2	0.39	-0.67	LANSING	51	0	9.08	0.31	WILKES-BARRE	56	4	8.96	-1.56
EUREKA	53	-1	3.67	-4.79	MUSKEGON	53	2	8.39	-1.92	WILLIAMSPORT	55	2	6.70	-4.63
FRESNO	69	3	0.28	-1.66	TRAVERSE CITY	50	2	10.43	1.03	RI PROVIDENCE	56	2	13.61	1.24
LOS ANGELES	67	1	0.10	-1.85	MN DULUTH	41	-1	6.07	-2.98	SC CHARLESTON	71	4	12.08	-0.17
REDDING	67	4	1.49	-5.73	INT_L FALLS	39	-1	5.00	-1.43	COLUMBIA	67	3	9.06	-0.36
SACRAMENTO	66	3	0.54	-2.83	MINNEAPOLIS	48	-1	4.63	-2.61	FLORENCE	67	2	12.39	3.00
SAN DIEGO	69	3	0.40	-1.39	ROCHESTER	46	0	6.28	-1.28	GREENVILLE	63	1	16.81	6.28
SAN FRANCISCO	63	3	0.31	-3.22	ST. CLOUD	44	-1	6.44	-0.89	SD ABERDEEN	46	1	3.20	-1.73
STOCKTON	67	4	0.09	-2.76	MO COLUMBIA	57	1	9.18	-1.21	HURON	47	0	1.98	-3.15
CO ALAMOSA	44	2	1.35	-0.53	KANSAS CITY	56	0	3.30	-6.61	RAPID CITY	47	-1	2.27	-0.99
CO SPRINGS	53	3	0.62	-1.86	SAINT LOUIS	59	1	8.46	-1.88	SIOUX FALLS	49	2	2.54	-3.76
DENVER INTL	53	2	1.59	-1.06	SPRINGFIELD	58	1	8.88	-3.54	TN BRISTOL	59	3	10.55	2.38
GRAND JUNCTION	54	1	1.92	-1.09	MS JACKSON	68	3	11.41	-0.29	CHATTANOOGA	65	3	16.12	3.80
PUEBLO	54	2	1.46	-0.53	MERIDIAN	68	3	12.89	0.79	KNOXVILLE	62	2	11.55	1.80
CT BRIDGEPORT	58	3	10.83	0.41	TUPELO	65	2	11.18	-1.08	MEMPHIS	64	0	8.06	-4.46
HARTFORD	55	2	13.50	1.35	MT BILLINGS	49	1	3.23	0.10	NASHVILLE	63	2	8.46	-2.24
DC WASHINGTON	62	2	15.49	5.22	BUTTE	41	1	1.71	-0.70	TX ABILENE	66	0	1.83	-4.76
DE WILMINGTON	59	2	13.75	2.96	CUT BANK	43	0	1.54	-0.56	AMARILLO	59	1	3.23	-1.15
FL DAYTONA BEACH	77	4	17.67	3.83	GLASGOW	44	0	2.70	0.52	AUSTIN	72	1	5.61	-4.19
JACKSONVILLE	73	3	13.19	-1.05	GREAT FALLS	46	1	3.48	0.58	BEAUMONT	72	1	13.64	-2.31
KEY WEST	82	2	27.14	13.22	HAVRE	43	0	3.07	0.90	BROWNSVILLE	78	2	6.39	-5.09
MIAMI	81	2	31.62	12.17	MISSOULA	45	0	4.04	0.92	CORPUS CHRISTI	75	1	6.96	-3.61
ORLANDO	78	3	18.65	7.13	NC ASHEVILLE	59	3	18.19	7.83	DEL RIO	74	3	3.43	-1.93
PENSACOLA	73	4	11.37	-4.60	CHARLOTTE	64	3	17.09	7.37	EL PASO	68	4	0.80	-1.83
TALLAHASSEE	73	4	16.41	5.04	GREENSBORO	61	1	16.09	5.72	FORT WORTH	67	-1	6.71	-2.73
TAMPA	80	4	11.82	1.69	HATTERAS	69	3	17.47	0.89	GALVESTON	76	2	9.26	0.00
WEST PALM BEACH	81	3	28.22	9.96	RALEIGH	63	2	13.14	2.46	HOUSTON	73	2	13.09	-1.09
GA ATHENS	67	3	14.15	2.87	WILMINGTON	69	3	21.22	6.22	LUBBOCK	62	1	1.48	-3.83
ATLANTA	67	3	16.87	4.91	ND BISMARCK	45	1	1.59	-1.98	MIDLAND	65	1	1.35	-2.94
AUGUSTA	69	4	8.67	-0.59	DICKINSON	44	0	1.37	-1.94	SAN ANGELO	66	0	5.45	-0.88
COLUMBUS	70	3	15.77	6.07	FARGO	43	-1	2.17	-3.54	SAN ANTONIO	72	2	4.06	-5.33
MACON	68	3	14.76	5.09	GRAND FORKS	42	0	0.80	-4.18	VICTORIA	73	2	8.00	-4.02
SAVANNAH	73	5	10.92	0.28	JAMESTOWN	44	1	0.61	-3.57	WACO	67	-1	10.50	0.76
HI HILO	78	3	29.84	-5.37	NE GRAND ISLAND	54	2	1.31	-3.95	WICHITA FALLS	63	-1	6.44	-1.09
HONOLULU	81	1	3.50	-1.47	LINCOLN	52	0	3.20	-3.20	UT SALT LAKE CITY	56	3	1.17	-3.07
KAHULUI	81	3	0.81	-3.03	NORFOLK	51	1	4.17	-1.98	VA LYNCHBURG	60	4	20.26	9.91
LIHUE	79	1	9.08	-1.32	NORTH PLATTE	51	2	1.27	-2.37	NORFOLK	66	4	15.88	4.59
IA BURLINGTON	54	-1	7.36	-1.73	OMAHA	53	0	4.53	-1.93	RICHMOND	62	2	17.09	6.75
CEDAR RAPIDS	49	-1	10.31	2.45	SCOTTSBLUFF	50	1	1.43	-1.54	ROANOKE	60	3	15.80	5.65
DES MOINES	52	0	10.53	2.69	VALENTINE	50	2	2.21	-1.35	WASH/DULLES	59	2	9.52	-1.01
DUBUQUE	49	0	14.35	5.95	NH CONCORD	50	2	9.25	-1.84	VT BURLINGTON	52	3	7.92	-2.40
SIOUX CITY	49	-1	4.89	-1.49	NJ ATLANTIC_CITY	59	2	16.01	6.21	WA OLYMPIA	52	2	16.46	1.52
WATERLOO	50	0	9.67	2.58	NEWARK	59	2	12.43	1.41	QUILLAYUTE	52	2	27.60	-2.23
ID BOISE	54	2	2.15	-0.56	NM ALBUQUERQUE	59	2	1.05	-1.65	SEATTLE-TACOMA	55	2	10.16	-1.37
LEWISTON	55	2	3.03	0.20	NV ELY	48	2	0.61	-1.99	SPOKANE	50	2	3.61	-0.54
POCATELLO	48	1	1.57	-1.31	LAS VEGAS	73	4	0.00	-1.01	YAKIMA	52	3	1.45	-0.57
IL CHICAGO/O_HARE	55	2	8.53	-0.91	RENO	57	3	0.57	-1.18	WI EAU CLAIRE	46	-1	5.31	-2.50
MOLINE	53	1	10.74	2.19	WINNEMUCCA	52	3	1.90	-0.16	GREEN BAY	48	1	8.67	1.10
PEORIA	54	0	9.79	0.72	NY ALBANY	50	-1	8.95	-1.24	LA CROSSE	50	0	7.63	-0.08
ROCKFORD	53	1	10.63	2.07	BINGHAMTON	51	2	9.44	-0.76	MADISON	49	0	8.80	0.94
SPRINGFIELD	55	0	5.63	-3.56	BUFFALO	54	3	9.56	-1.87	MILWAUKEE	53	2	5.53	-2.98
IN EVANSVILLE	59	2	12.72	2.12	ROCHESTER	52	2	7.44	-1.55	WV BECKLEY	56	2	6.91	-1.55
FORT WAYNE	53	0	10.31	1.60	SYRACUSE	53	2	7.50	-3.07	CHARLESTON	58	1	6.91	-2.69
INDIANAPOLIS	57	1	8.84	-1.04	OH AKRON-CANTON	55	3	9.85	0.32	ELKINS	55	3	8.58	-1.22
SOUTH BEND	53	1	6.42	-3.63	CINCINNATI	58	1	9.76	0.45	HUNTINGTON	58	1	7.68	-1.30
KS CONCORDIA	58	3	4.22	-1.71	CLEVELAND	55	1	16.17	5.73	WY CASPER	46	0	1.00	-1.99
DODGE CITY	57	1	3.71	-0.47	COLUMBUS	56	1	10.60	2.00	CHEYENNE	48	2	1.00	-2.03
GOODLAND	53	1	0.98	-2.34	DAYTON	57	3	7.75	-1.81	LANDER	47	2	1.35	-1.90
TOPEKA	56	0	4.63	-3.86	MANSFIELD	54	2	13.44	3.41	SHERIDAN	47	1	4.11	0.54

Based on 1981-2010 normals

***** Not Available**

International Weather and Crop Summary

December 13-19, 2020

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

HIGHLIGHTS

EUROPE: Wet weather across western and southern Europe contrasted with increasingly dry conditions in central and eastern crop areas.

MIDDLE EAST: Widespread rain improved moisture reserves for dormant winter grains in central Turkey and sustained good to excellent conditions elsewhere.

NORTHWESTERN AFRICA: Showers eased lingering long-term drought in Morocco and maintained good early-season winter grain prospects in eastern portions of the region.

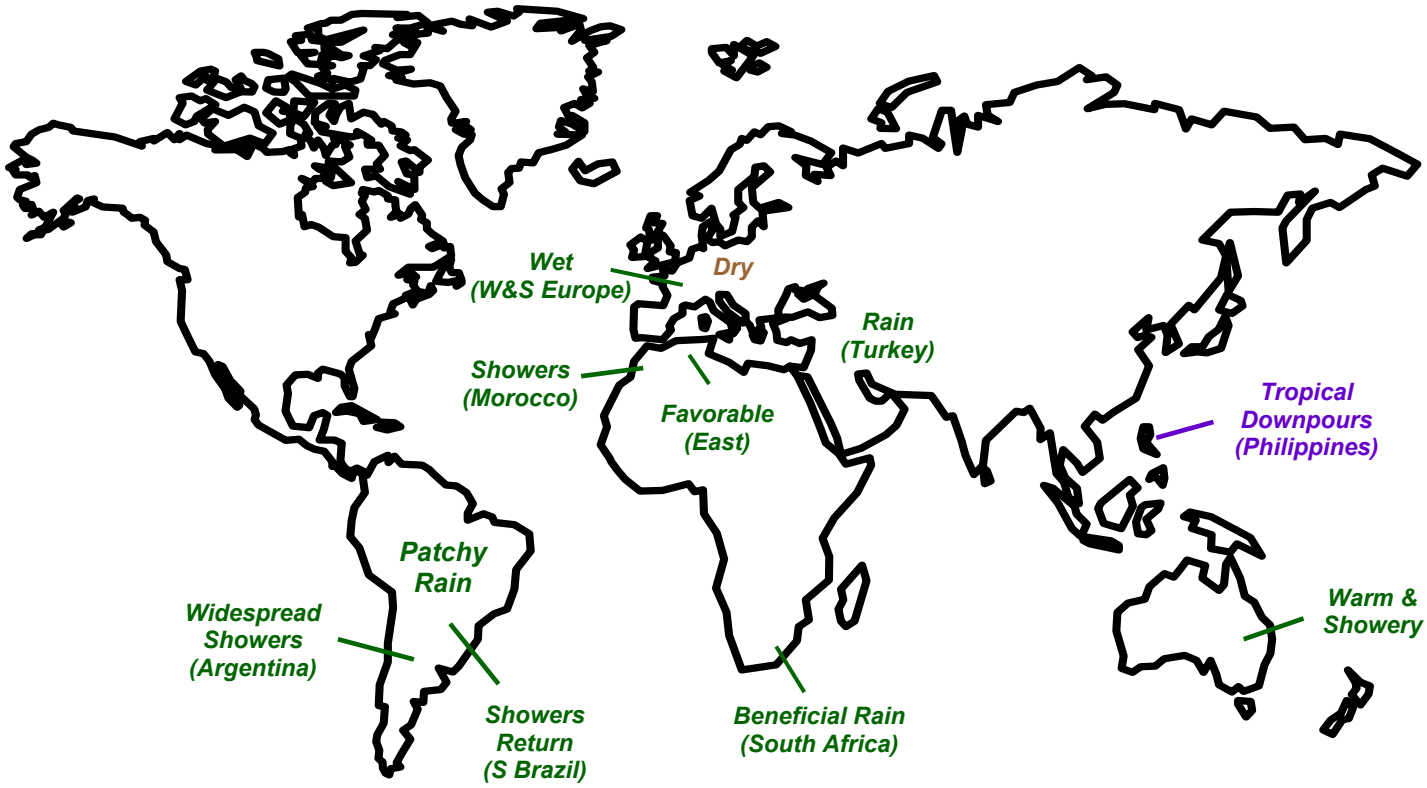
SOUTHEAST ASIA: Wetter-than-normal weather continued in the Philippines as another tropical cyclone brought additional downpours to the country.

AUSTRALIA: Widespread showers and seasonably warm weather further benefited summer crops in the east.

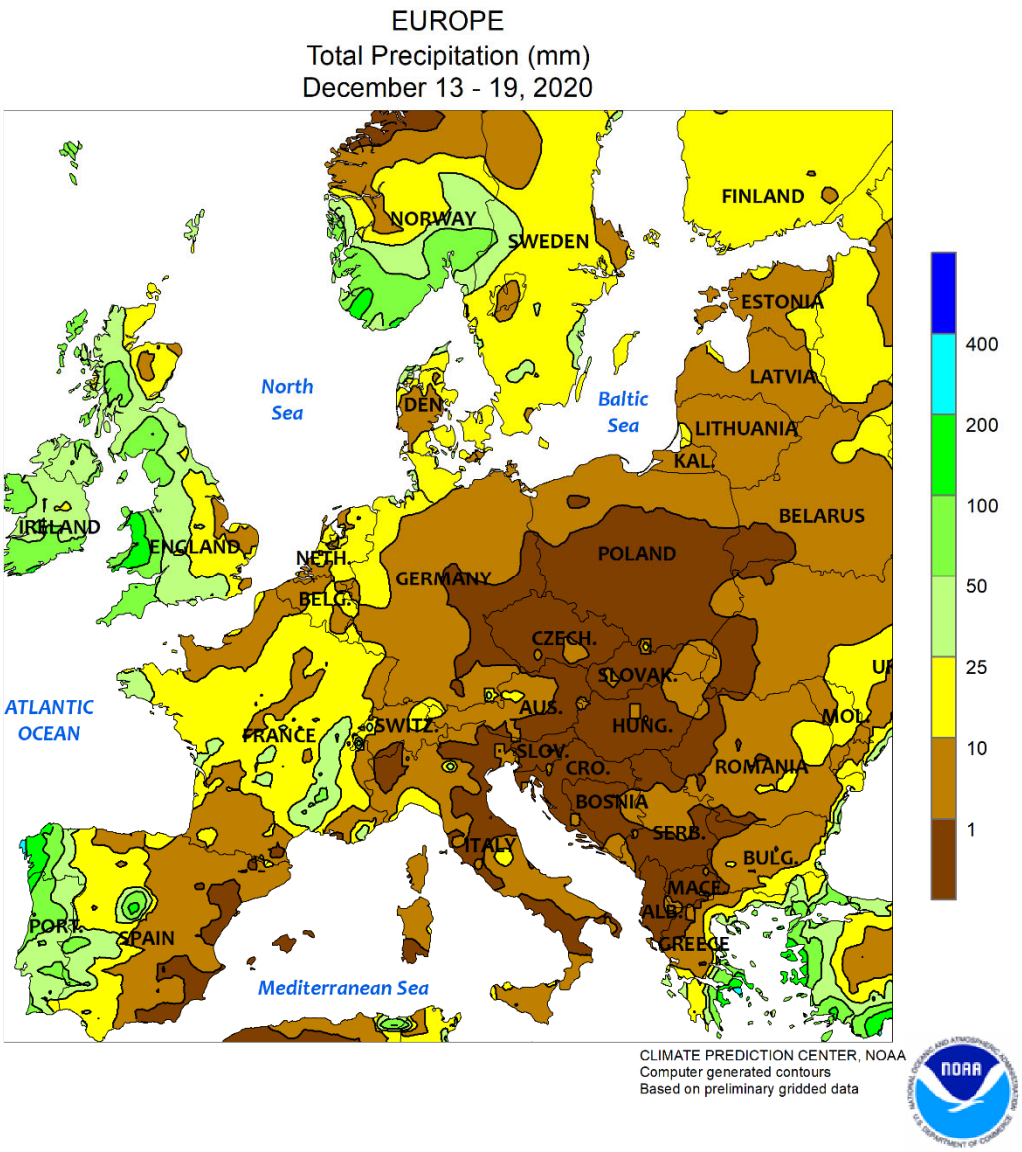
SOUTH AFRICA: Rain intensified at the northern and eastern edges of the corn belt.

ARGENTINA: Widespread showers benefited summer grains, oilseeds, and cotton.

BRAZIL: Beneficial rain returned to southern Brazil, but drier weather dominated major soybean areas farther north.



For additional information contact: mark.brusberg@usda.gov



EUROPE

Wet weather continued across western and southern Europe, while increasingly dry conditions prevailed in central and northeastern growing areas. Storms continued to move northeastward across the western half of the continent, producing 5 to 70 mm of rain and mountain snow (liquid equivalent, locally more in the western-most areas) from the Iberian Peninsula northeastward into Scandinavia. The precipitation maintained overall favorable moisture supplies for vegetative (south) to dormant (central and north) winter crops. In contrast, an expansive area of high pressure maintained dry weather across the eastern third of Europe; short-term dryness has become increasingly pronounced, with 30-day precipitation totaling a meager 25 percent of normal or less from eastern Germany into central Poland. However, agricultural impacts are minor as winter crops are largely dormant save for southern-most growing areas. Unseasonable warmth (2-5°C above normal) prevailed across the entire continent, keeping crop areas devoid of a protective snow cover but eliminating the risk for winterkill.

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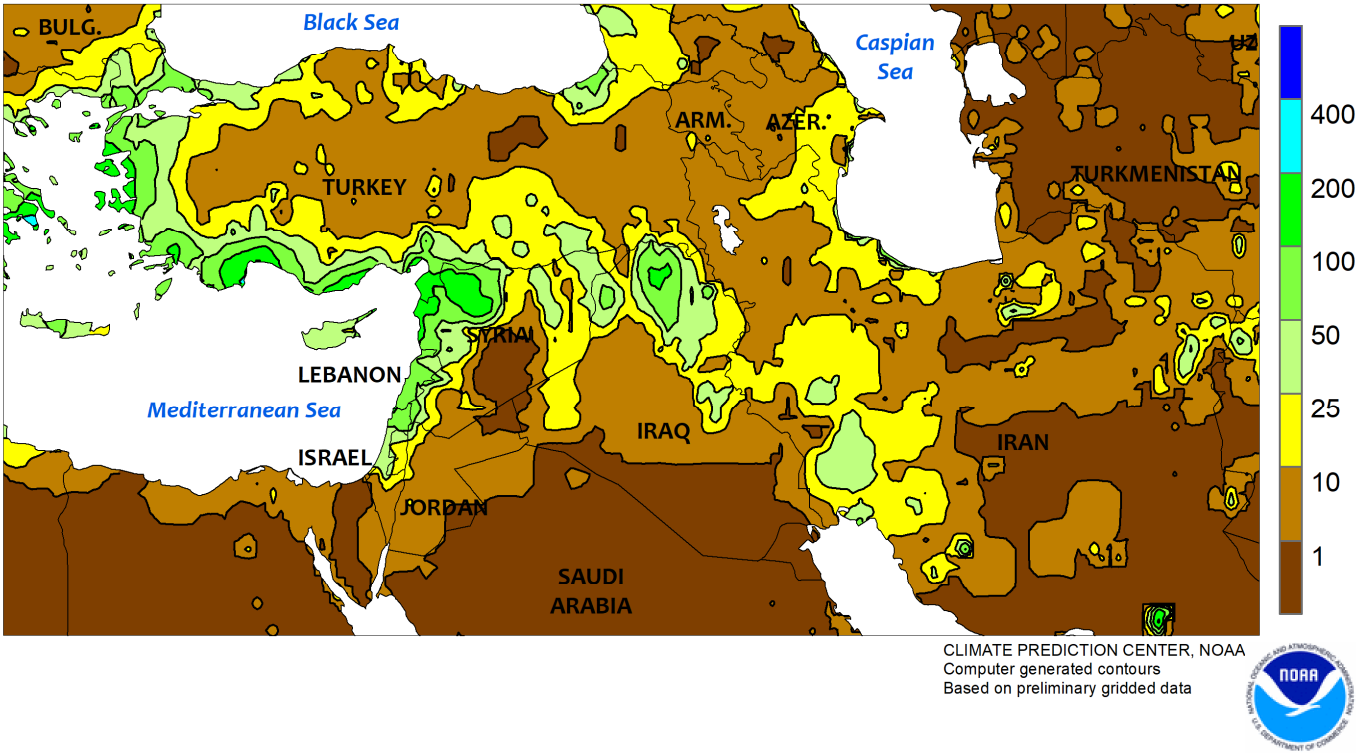
MIDDLE EAST
Total Precipitation (mm)
December 13 - 19, 2020



MIDDLE EAST

Wet weather continued, easing dryness in central Turkey while maintaining adequate to abundant moisture supplies elsewhere. Early in the week, a slow-moving disturbance triggered rain and snow (2-15 mm liquid equivalent) across central Turkey, improving moisture reserves for spring growth of dormant winter grains on the drought-stricken Anatolian Plateau. However, more rain and snow will be needed to end the region's drought, with season-to-date (since September 1) precipitation less than 60 percent of normal even with this week's precipitation. Meanwhile, moderate to heavy rain (10-75 mm, locally more) fell from the eastern Mediterranean Coast into western and central Iran, maintaining adequate to abundant moisture supplies for dormant (north) to vegetative (central and south) winter wheat and barley. Above-normal temperatures (2-7°C above normal) across western and central growing areas contrasted with chilly conditions (up to 4°C below normal) in eastern Iran.

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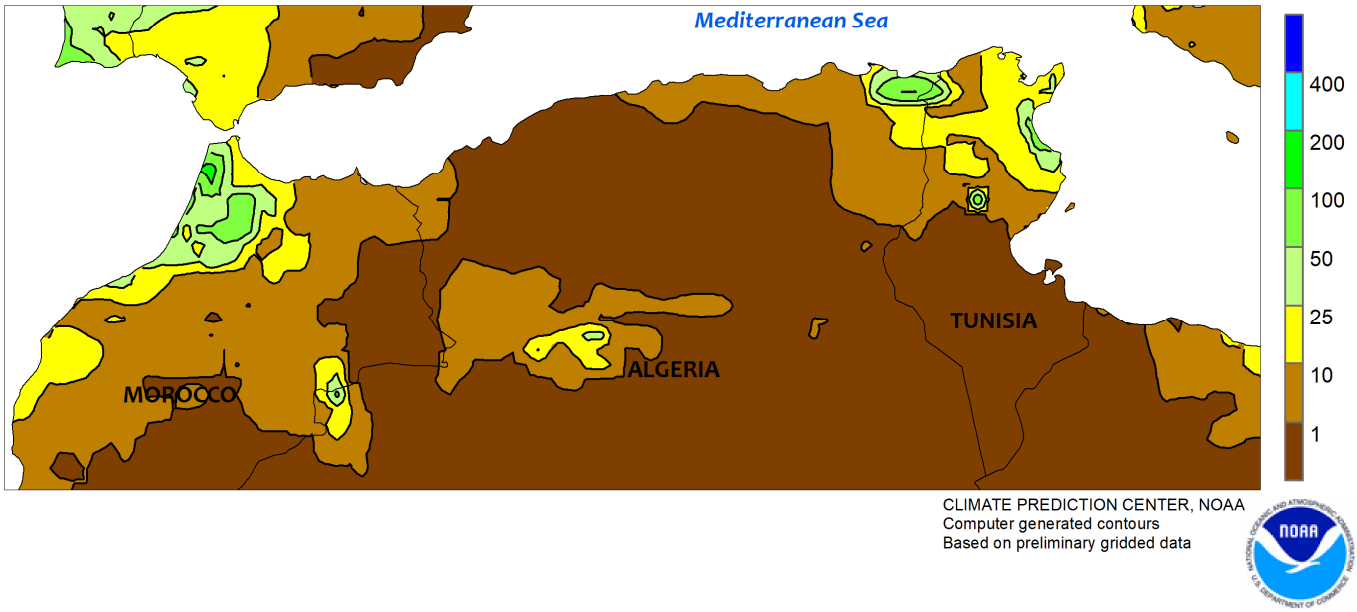
NORTHWESTERN AFRICA
Total Precipitation (mm)
December 13 - 19, 2020



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

NORTHWESTERN AFRICA

Showers eased dryness in western growing areas and maintained good moisture supplies in eastern portions of the region. Rain totaled 2 to 22 mm across much of Morocco, improving moisture supplies for winter grain establishment. Even with the recent rainfall, precipitation since October 1 in Morocco's primary croplands has averaged half of normal, and more rain will be needed to fully erase the long-term severe drought that has gripped much of Morocco for nearly one year. Farther east, light to moderate showers (5-45 mm) were noted in northeastern Algeria and northern Tunisia, maintaining adequate to abundant moisture supplies for emerging to vegetative winter grains. Conversely, conditions across the remainder of Algeria remained mixed, with drought in the west (less than 60 percent of normal rainfall since October 1) in sharp contrast to near- to above-normal rainfall in central and eastern Algeria.

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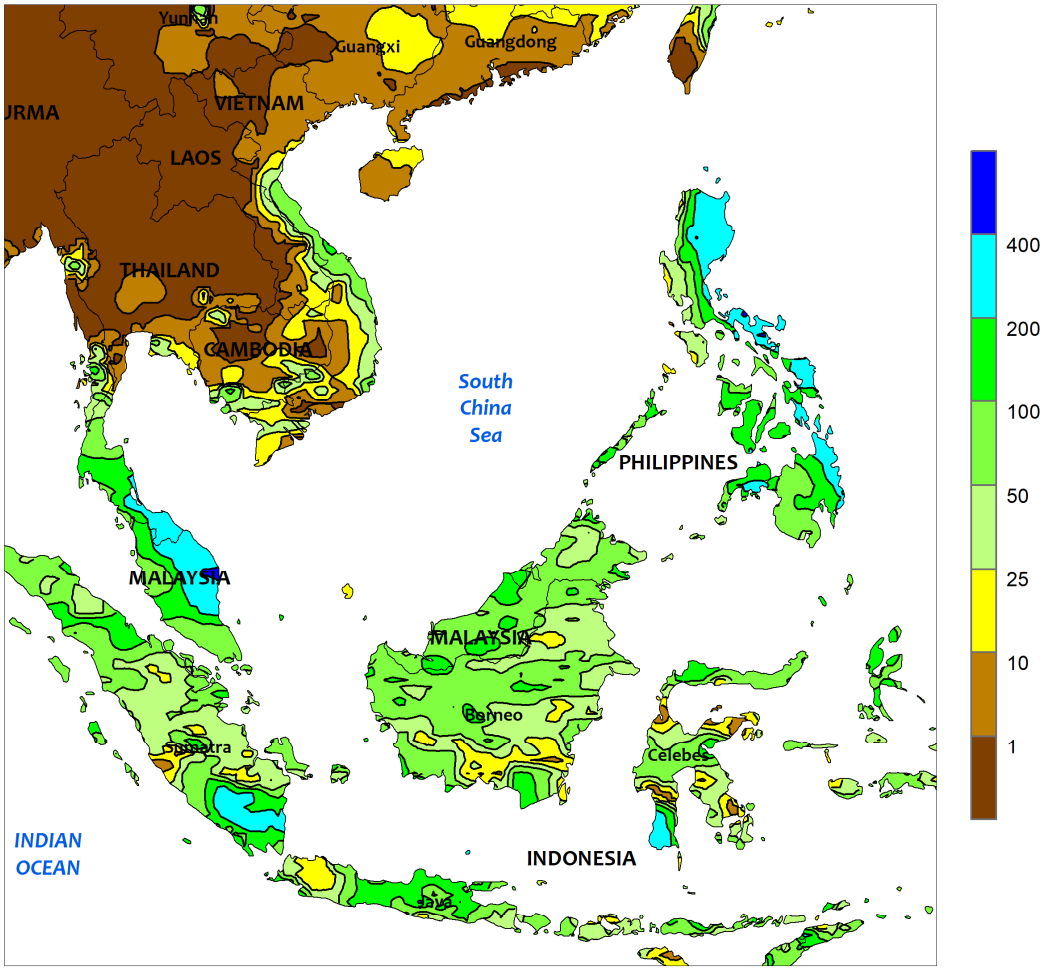
SOUTHEAST ASIA
Total Precipitation (mm)
December 13 - 19, 2020



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

SOUTHEAST ASIA

Wetter-than-normal conditions continued across much of the Philippines with another tropical cyclone (Krovanh) adding to rainfall totals (50-200 mm or more) late in the week. Krovanh is the seventh tropical cyclone to directly impact the Philippines since October 1, as rainfall totals over that period have surpassed 2,000 mm (over 150 percent of normal) in some northern locales. The extreme wetness has already reduced summer rice and corn prospects and was likely having negative impacts on winter crop sowing as well. Elsewhere, wet weather also continued across Malaysia and Indonesia, maintaining abundant soil moisture for oil palm and rice, a distinct improvement over last year's drought.

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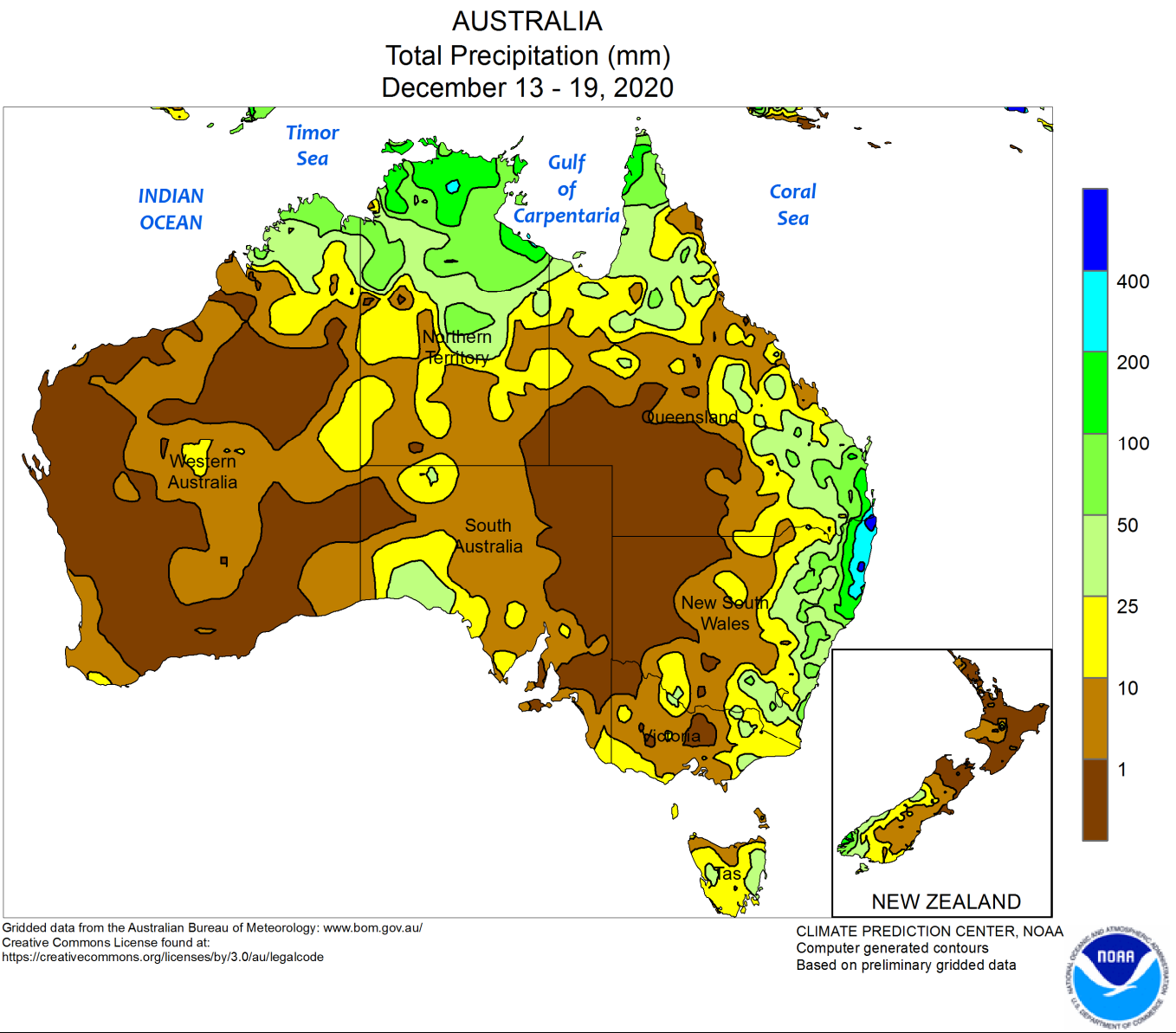

AUSTRALIA

In southern Queensland and northern New South Wales, widespread showers (15-50 mm, locally more) and seasonably warm weather further improved growing conditions for cotton, sorghum, and other summer crops. The rain provided a needed boost in topsoil moisture for dryland crops, while easing the water demands of irrigated crops. In southeastern Australia, scattered showers (5-15 mm) may have temporarily interrupted local wheat, barley, and canola harvesting, but hot and dry weather in most areas allowed fieldwork to continue without delay. Elsewhere in the wheat belt, warm, dry weather favored rapid winter grain and oilseed harvesting in Western Australia. Temperatures averaged 2ºC below normal in Western Australia, 1 to 2ºC above normal in South Australia, Victoria, and southern New South Wales, and near normal in northern New South Wales and southern Queensland.

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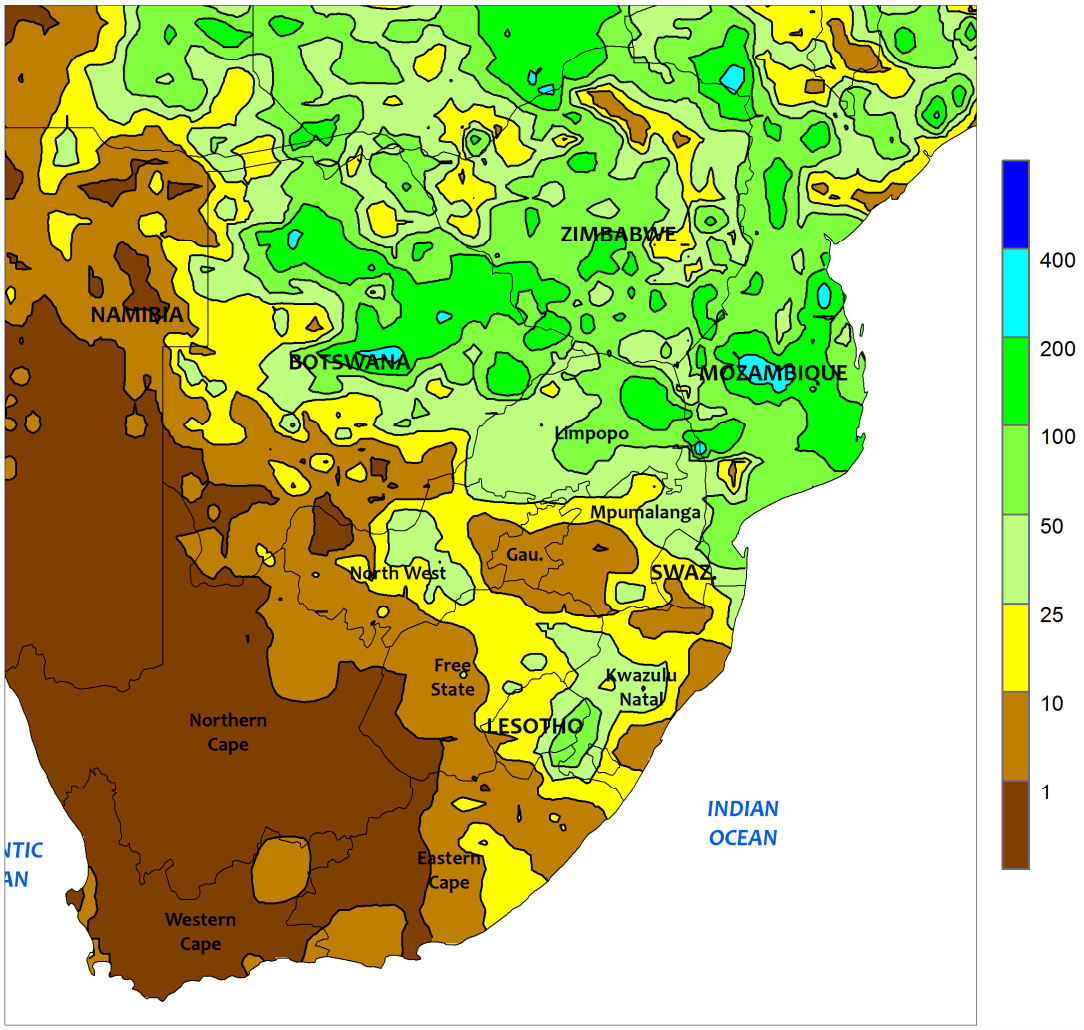
SOUTH AFRICA
Total Precipitation (mm)
December 13 - 19, 2020



SOUTH AFRICA

Showers intensified in northern and eastern sections of the corn belt, improving levels of moisture for summer crop development. Rainfall totaled 25 to nearly 100 mm in Limpopo, northern locations in North West, and locally from Mpumalanga to western KwaZulu-Natal. Drier conditions prevailed in Gauteng and central Free State, as well as along the coast of KwaZulu-Natal, including rain-fed sugarcane areas. Meanwhile, mostly dry weather dominated the Cape Provinces, where the abundant sunshine favored irrigated agriculture. Weekly temperatures averaged up to 2°C below normal in northwestern sections of the corn belt (western Limpopo and neighboring locations in North West) and near to slightly above normal elsewhere, though stressful heat (daytime highs reaching 40°C) were generally confined to outlying locations outside the corn belt.

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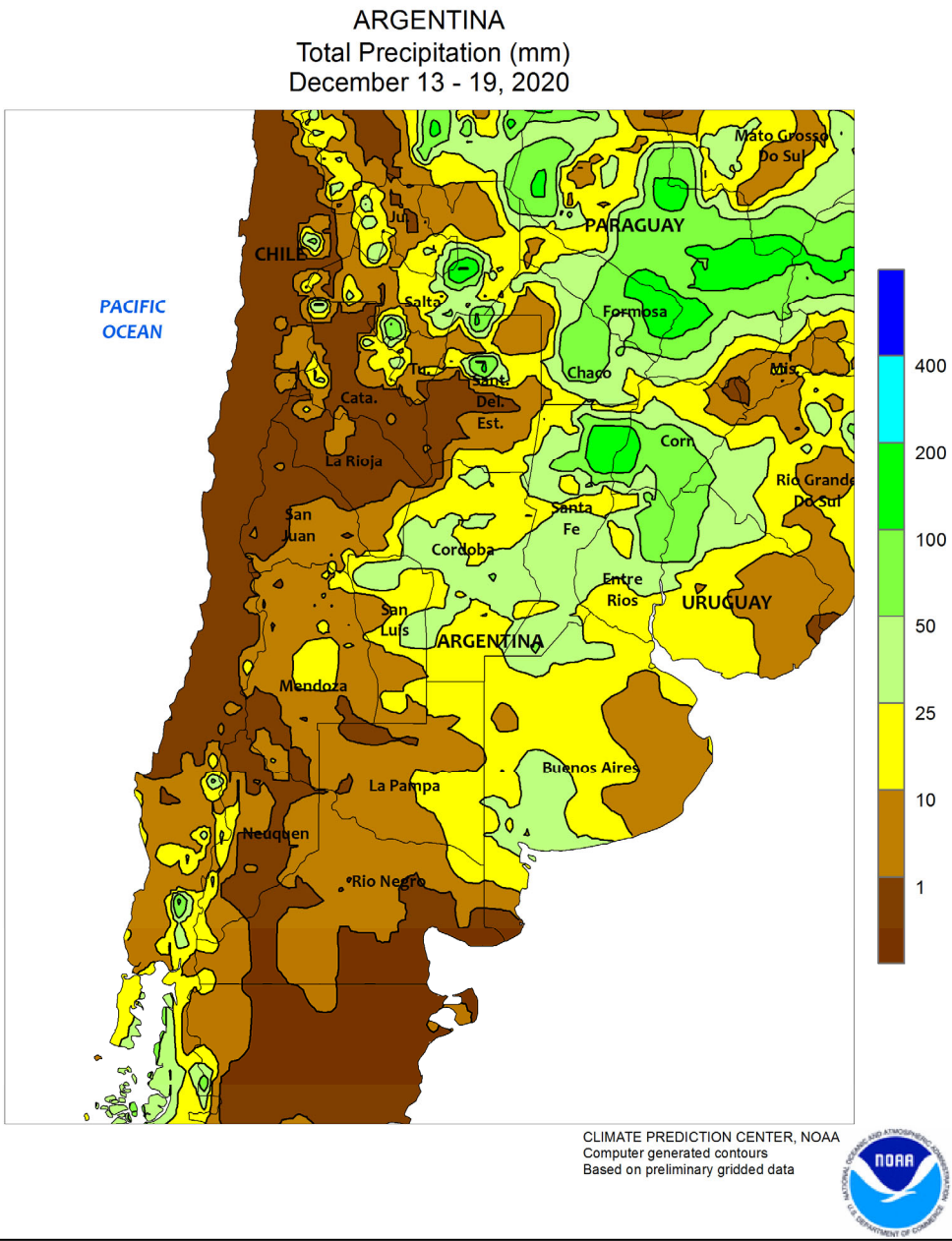

ARGENTINA

Widespread, locally heavy showers provided timely moisture for summer grains, oilseeds, and cotton. The heaviest rain (greater than 50 mm) fell in the northeast, including much of the cotton belt (northern Santa Fe through eastern Formosa), with nearly all other agriculture regions recording 10 to 50 mm. In Buenos Aires, the moisture was untimely for the harvest of winter grains and may have resulted in some minor delays. Weekly average temperatures were near to below normal throughout most agricultural districts, with the exception of the northwest (Salta and environs), where temperatures averaged 1°C above normal. Despite the generally cool pattern, however, temperatures rose into the upper 30s (degrees C) as far south as La Pampa ahead of an outbreak of heavy showers at week's end. According to the government of Argentina, corn and soybeans were 68 and 71 percent planted, respectively, as of December 17, similar to last year's pace for both crops. Cotton planting advanced 15 points to reach 71 percent complete, though progress still lagged that of last year by 16 points. Meanwhile, wheat was 69 percent harvested, 4 points behind last year's pace; in the leading production state of Buenos Aires, harvesting of wheat and barley was 33 and 32 percent complete, respectively.

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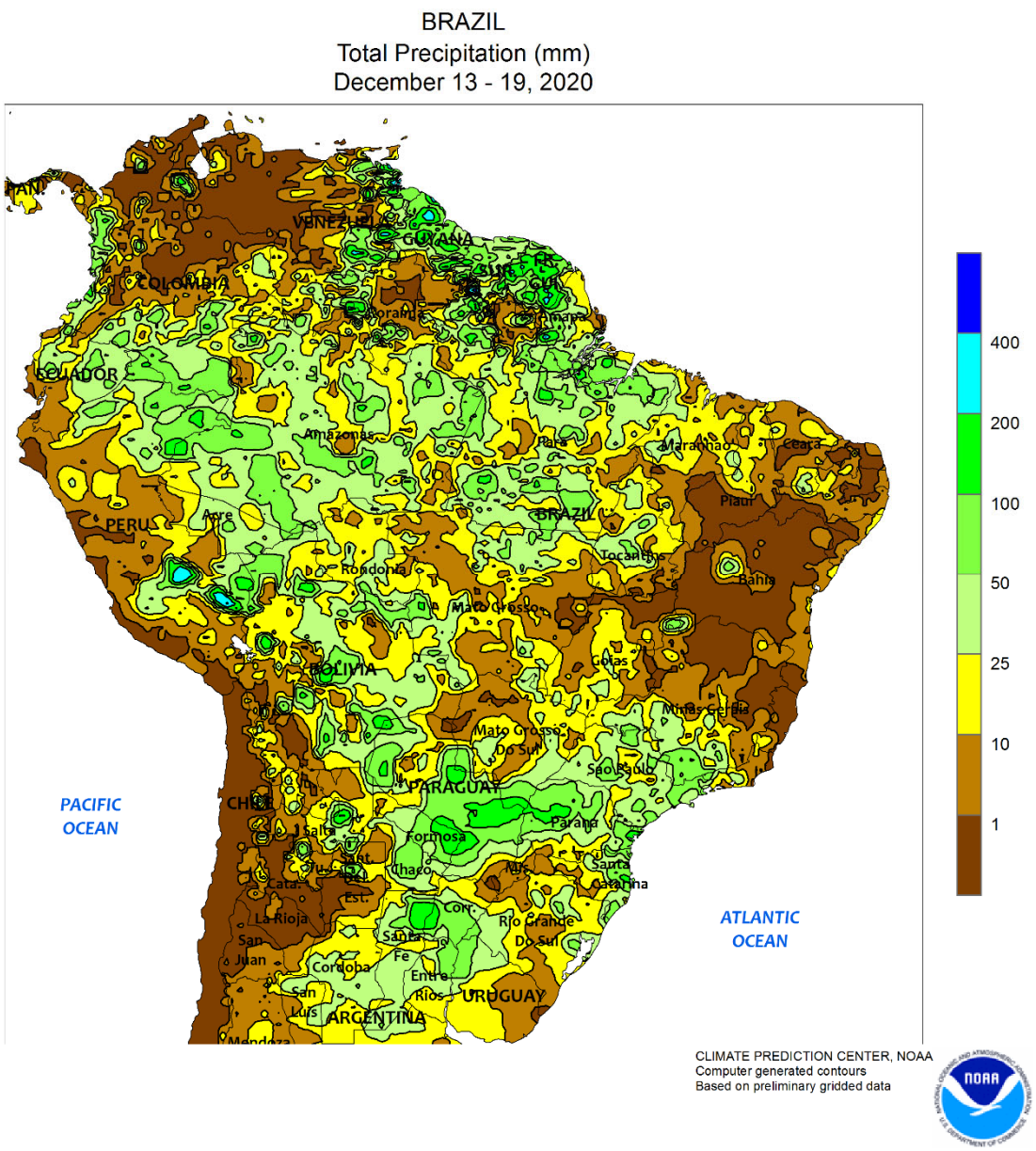

BRAZIL

Beneficial rainfall returned to much of southern Brazil, while drier conditions dominated major soybean production areas farther north. Amounts totaling 25 to 100 mm were recorded from eastern Mato Grosso do Sul and northern Parana eastward through southern Minas Gerais; mostly dry weather persisted, however, in southern Parana and Rio Grande do Sul, where summer warmth (daytime highs reaching the lower and middle 30s degrees C) maintained high crop moisture requirements. According to the government of Parana, 62 percent of corn was in flowering to filling stages of development as of December 14, compared with soybeans at 38 percent. In Rio Grande do Sul, corn and soybeans were 89 and 88 percent planted, respectively, as of December 17, with 55 percent of the emerged corn crop in reproductive to filling stages of development, while soybeans were just beginning to flower. Farther north, showers were generally widely scattered and light, with little to no rain (5 mm or less) recorded from central Mato Grosso to western Bahia and Piaui. The combination of the dryness and summer heat (highs reaching the upper 30s) renewed concerns for crop vigor, in spite of last week's improved rainfall.

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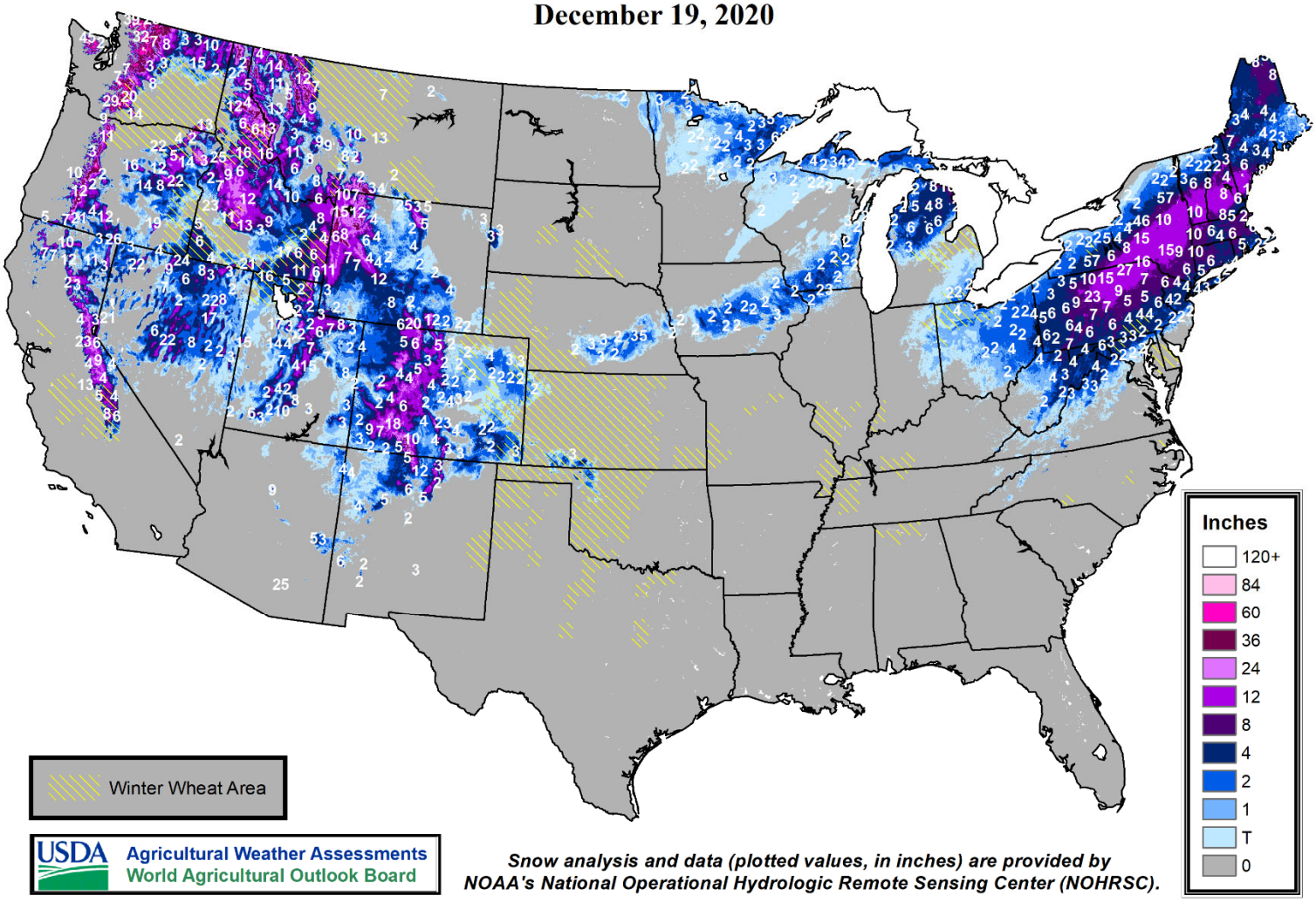
Snow Depth

December 19, 2020



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