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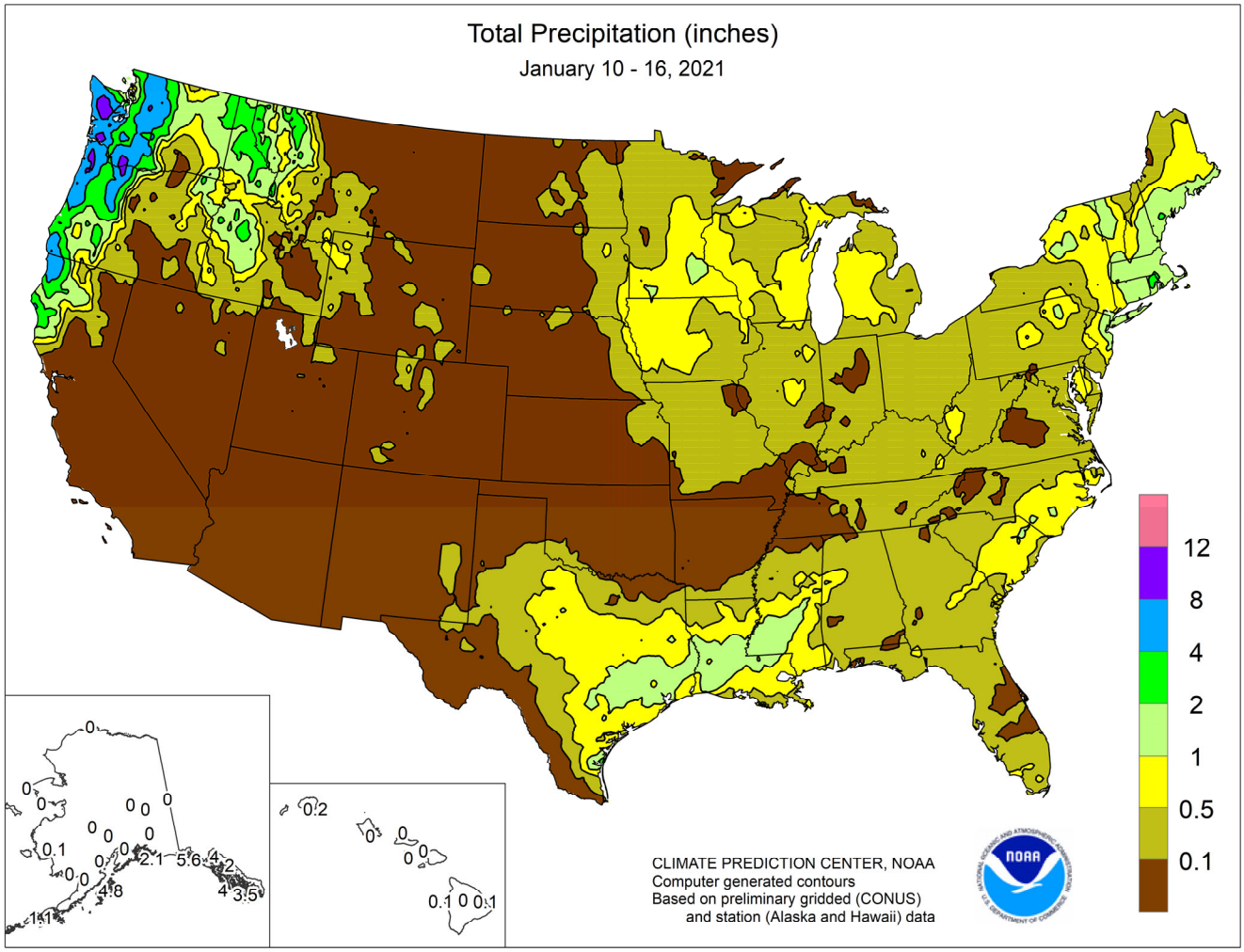
WEEKLY WEATHER AND CROP BULLETIN

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 10 – 16, 2021

Highlights provided by USDA/WAOB

The week began with heavy snow in the **South** and later featured a dynamic storm system producing precipitation and high winds from the **Northwest into the Midwest**. However, many areas of the country, including drought-stricken areas from **central and southern California into the Southwest**, received little or no precipitation. The early-week storm blanketed parts of **Texas** with its heaviest snow in decades but weakened while traversing the **Southeast**. Farther north, heavy rain triggered local flooding **west of the Cascades**, where high winds resulted

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Water Supply Forecast for the Western United States

Highlights

La Niña strengthened during the first half of the 2020-21 Western winter wet season, helping to direct most storminess across the northern tier of the region. As a result, few meaningful storm systems affected central and southern California, the Great Basin, and the Four Corners States, resulting in further intensification of an already serious drought. Unfavorably dry conditions extended as far north as southern sections of Oregon and Idaho, as well as much of Wyoming.

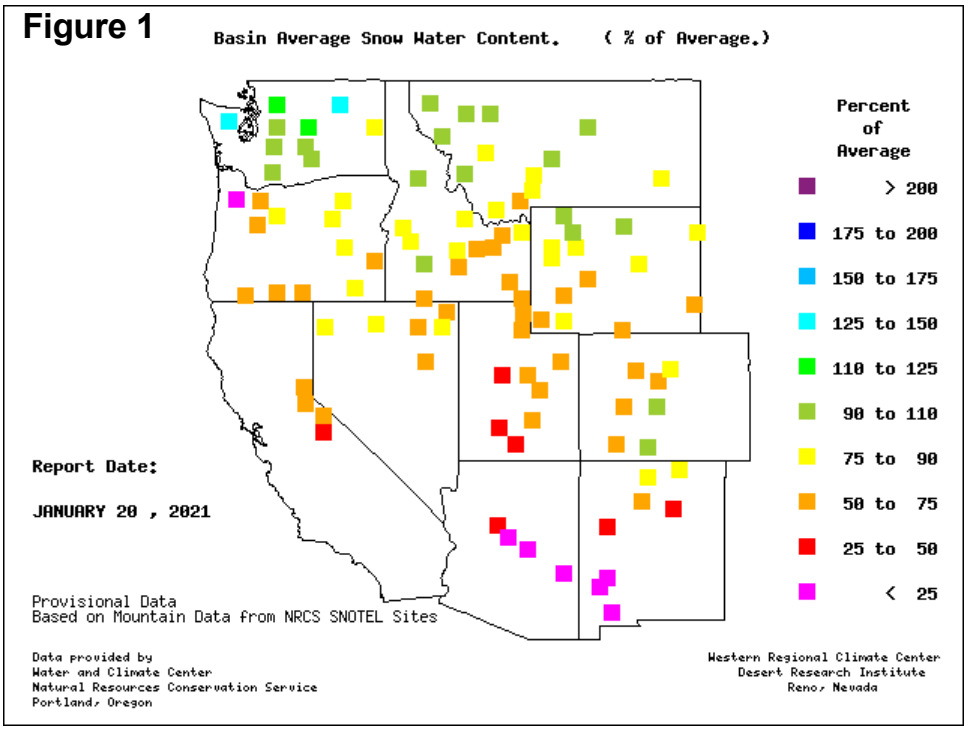
During the first 3½ months of the water year (October to mid-January), drought coverage in the western United States expanded from 76 to 78 percent, according to the U.S. Drought Monitor, despite Northwestern improvement. However, Western coverage of exceptional drought (D4) increased to 22 percent, up from zero as recently as August 18 and 2 percent at the end of September.

Snowpack and Precipitation

By January 20, 2021, near- or above-average snowpack values were confined to the northern tier of the West (figure 1). Meanwhile, snowpack was abysmal in the Southwest, particularly across Arizona and New Mexico, but also extending into California and portions of the Great Basin and the Intermountain West.

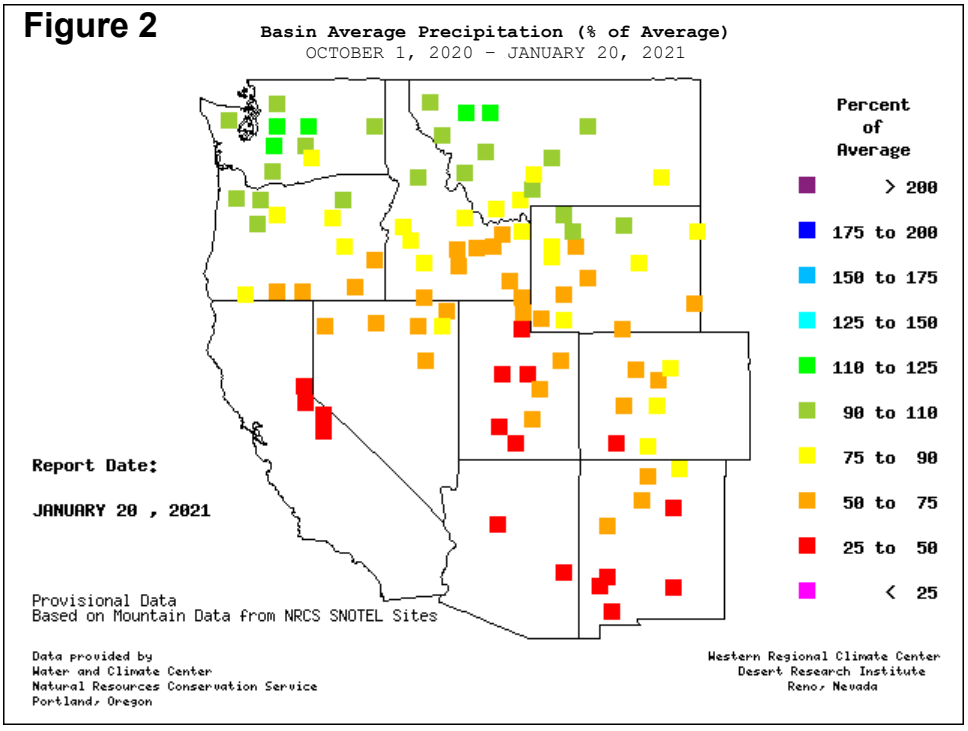
SNOTEL – River Basin Snow Water Content

Figure 1



SNOTEL – River Basin Precipitation

Figure 2



Season-to-date precipitation (October 1, 2020 – January 20, 2021) was greater than 110 percent of normal in portions of northern Washington, but appreciably below normal in California, southern sections of Idaho and Wyoming, the Great Basin, and the Four Corners States (figure 2). During the early part of the winter wet season, few significant storms traversed areas along and south of a line from California to Wyoming. Many of the driest places in recent months also suffered through a hot summer and an unproductive Southwestern monsoon season.

Spring and Summer Streamflow Forecasts

By January 1, 2021, projections for spring and summer streamflow (figure 3) were indicating the likelihood of generally favorable runoff prospects from the Pacific Northwest to the northernmost Rockies, courtesy of a La Niña-driven storm track. In contrast, concerns were mounting in many other areas that inadequate runoff could lead to future water-supply shortages, as well as inadequate reservoir recharge. In fact, barring mid- to late-winter improvement in snowpack, below-normal streamflow could be a problem in most river basins along and southeast of a line from California to Wyoming.

Reservoir Storage

On January 1, statewide reservoir storage as a percent of average for the date was 42 percent in New Mexico (figure 4). Below-average reservoir storage was also reported in California, Colorado, Idaho, Nevada, and Oregon. California's storage reached its lowest end-of-month volume since October 2016. Meanwhile, near- or above-average storage was reported in several states, including Montana, Utah, Washington, and Wyoming.

For More Information

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

Figure 3

Spring and Summer Streamflow Forecasts

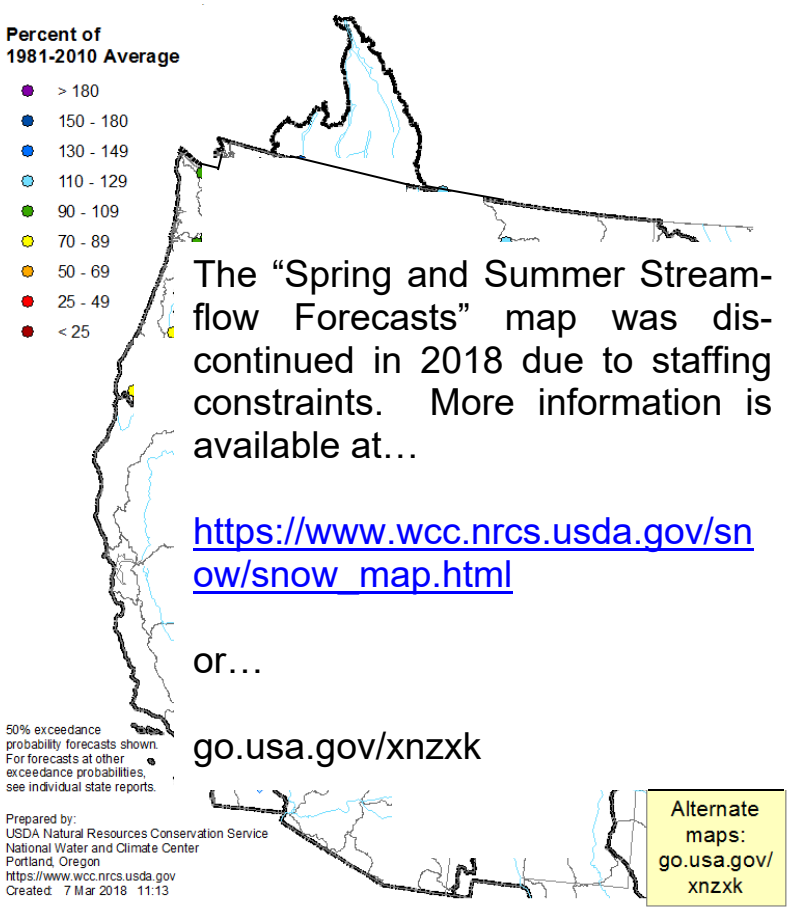
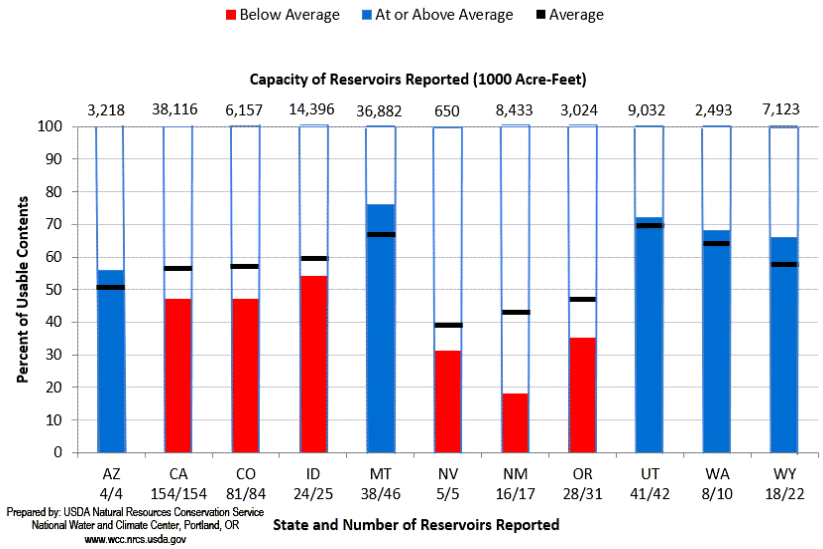
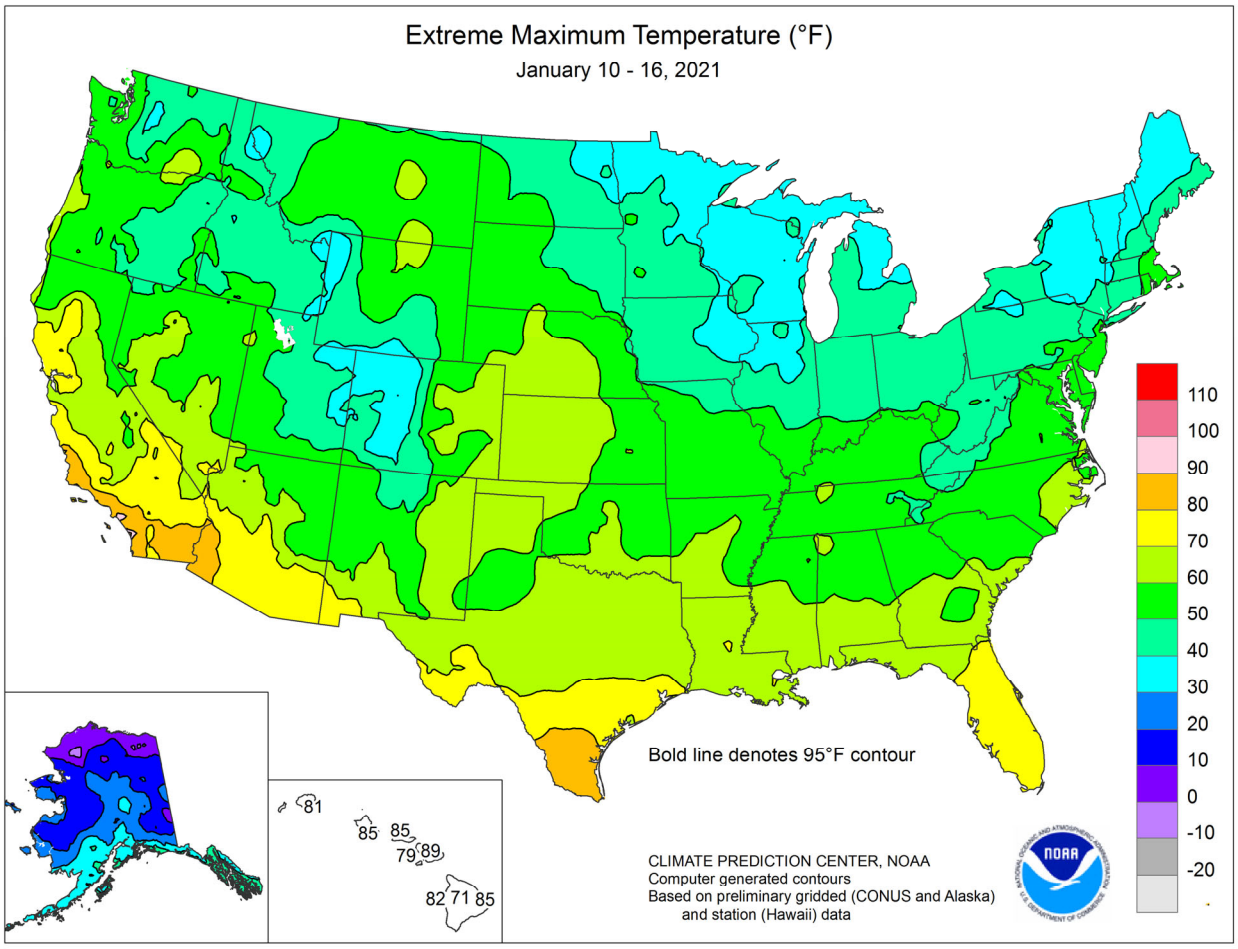
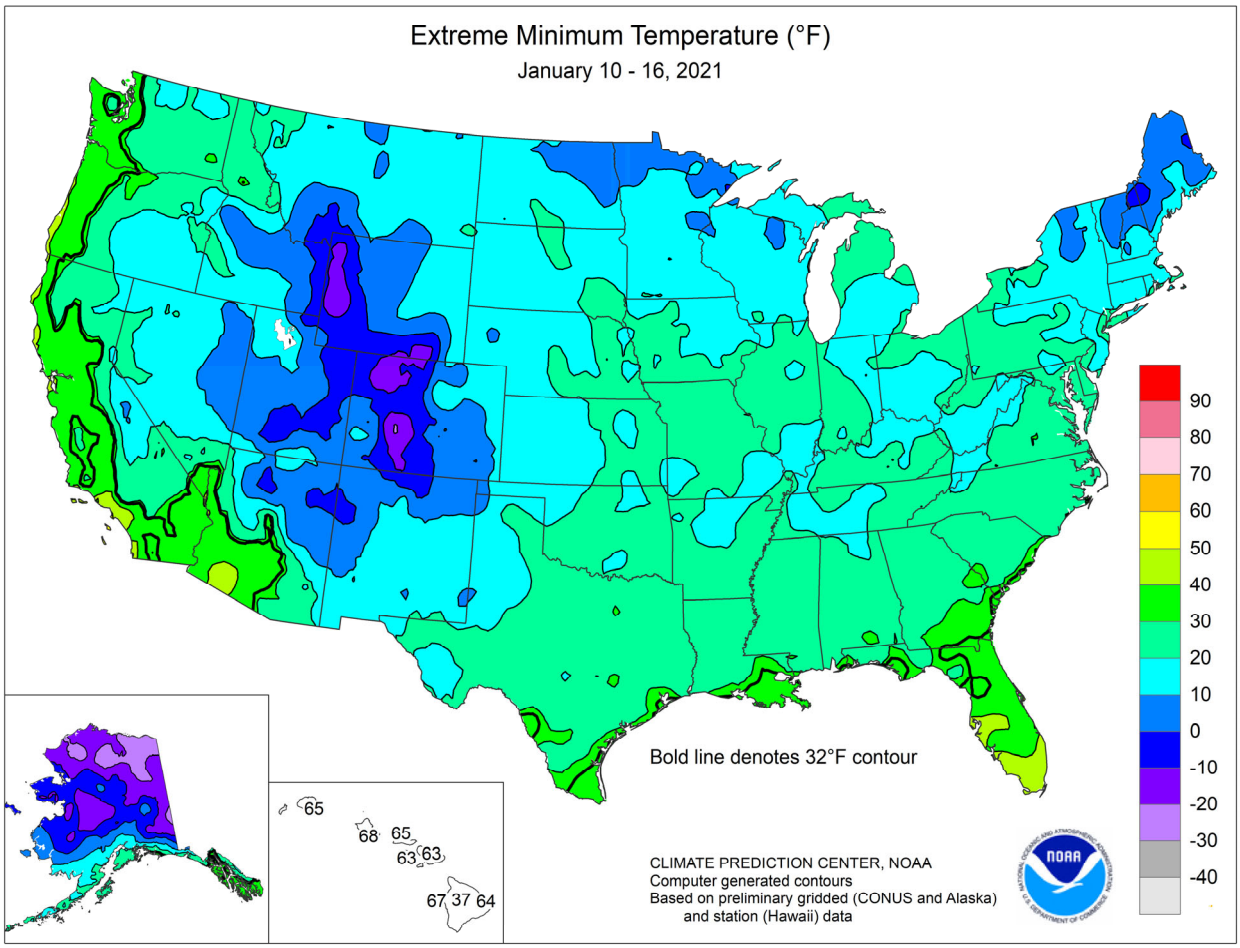


Figure 4 **Reservoir Storage as of January 1, 2021**

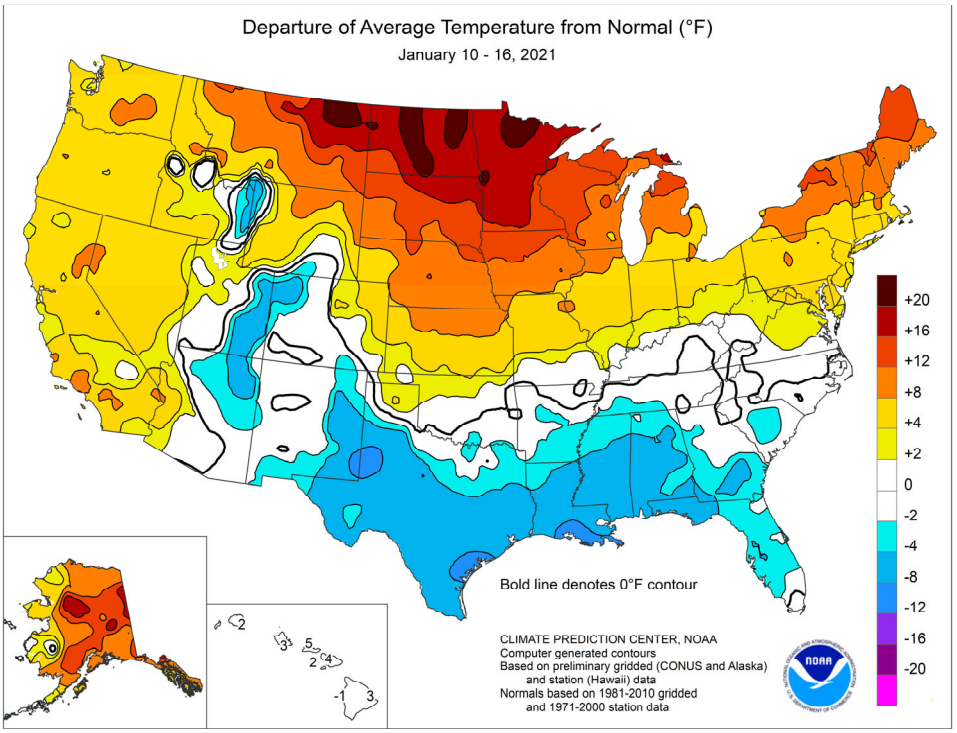



Extreme Maximum Temperature (°F)
January 10 - 16, 2021
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
81
85 85
79 89
82 71 85
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Extreme Minimum Temperature (°F)
January 10 - 16, 2021
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
65
68 65
63 63
67 37 64
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data

(Continued from front cover)

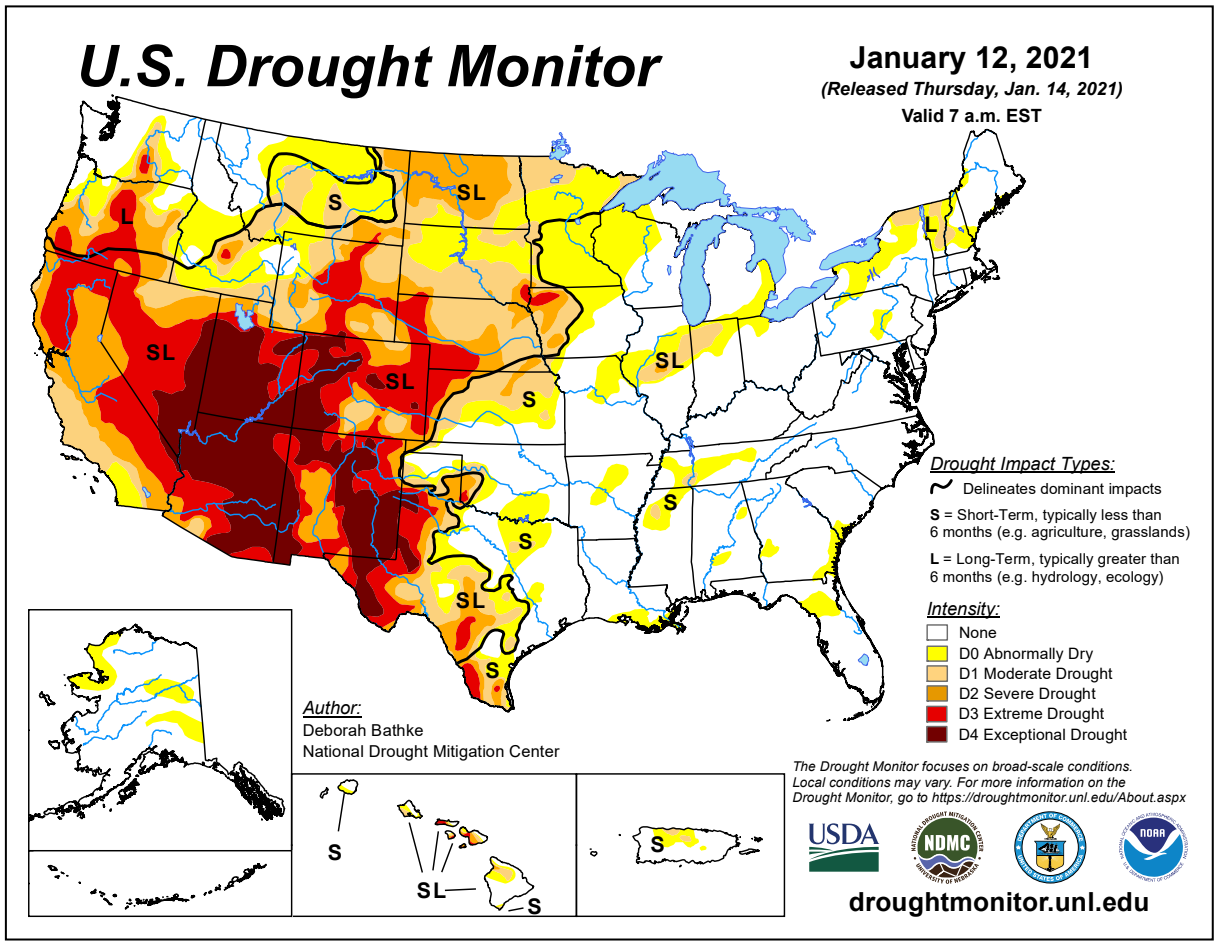
in widespread power outages. As the **Northern** storm progressed eastward, high winds (locally 70 to 90 mph or greater) raked **northern sections of the Rockies and Plains** on January 13-14. In parts of the **upper Midwest**, snow accompanying the high winds resulted in blizzard conditions, leading to travel disruptions and a temporary increase in livestock stress. Despite the storminess, atypically mild weather dominated the **North**, continuing a trend that developed late last year. Weekly temperatures averaged 10 to 20°F above normal across large sections of the **northern Plains** and **upper Midwest**, with warmth extending eastward into **New England**. Above-normal temperatures also covered the **Far West**. In contrast, chilly conditions across the **South** held temperatures more than 5°F below normal in many locations. Although light freezes occurred deep into the **South**, there were no significant impacts in winter agricultural areas from **Texas to Florida**.

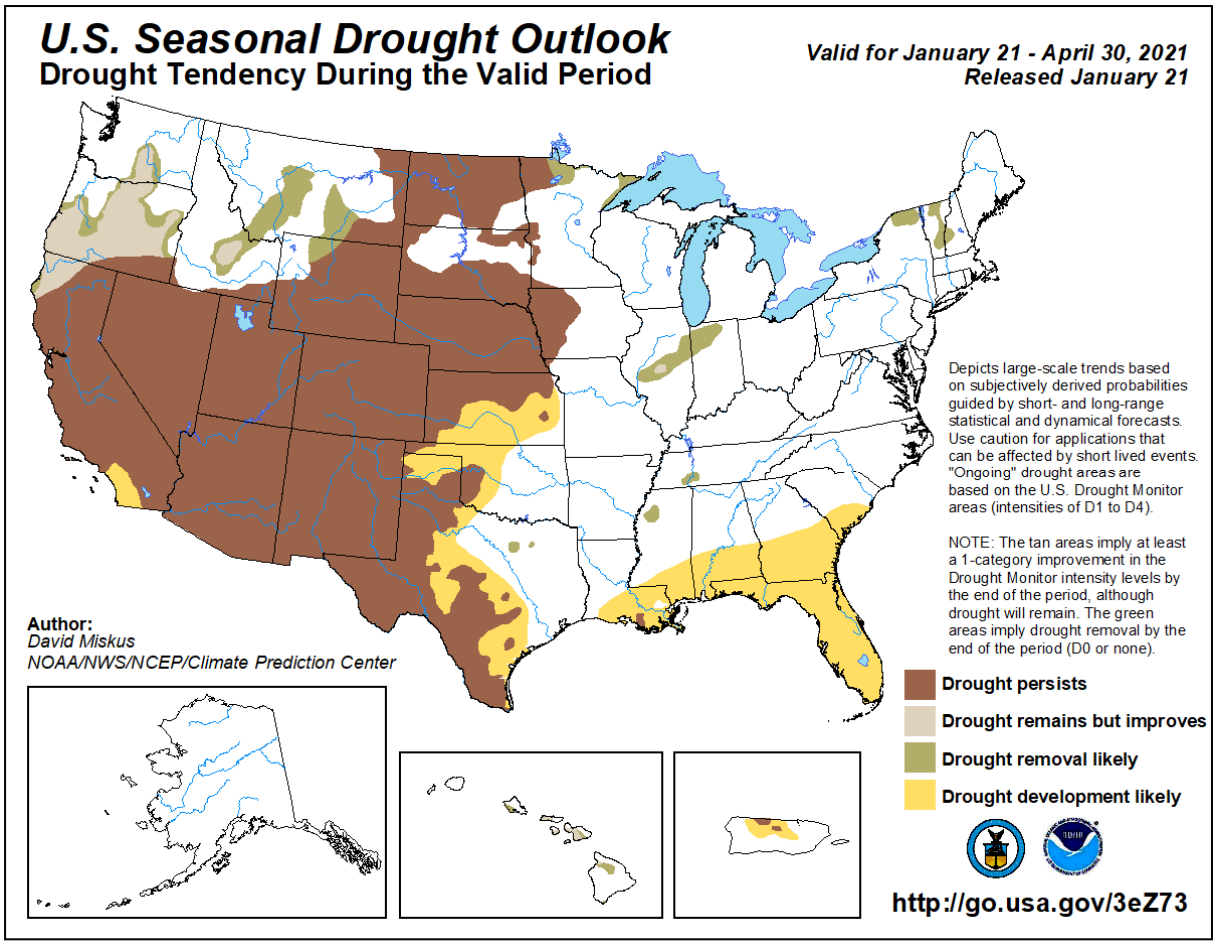


Early in the week, record-setting snowfall affected a west-to-east belt across roughly the **central one-third of Texas**. On January 10, daily-record snowfall totals in **Texas** included 7.6 inches in **Lubbock**; 4.5 inches in **College Station**; 4.4 inches in **Waco**; 3.8 inches in **San Angelo**; and 3.2 inches in **Midland**. It was **College Station's** greatest accumulation in January since 1973, when 5.0 inches fell on January 10-11. For **Waco**, it was the greatest single-day snowfall since January 13, 1982, when 6.0 inches fell. Farther east, January 10-11 snowfall totaled 3.2 inches in **Shreveport, LA**—the first storm delivering more than 3 inches of snow in that location since February 2015. Record-setting snowfall totals for January 11 included 3.0 inches in **Monticello, AR**, and 1.5 inches in **Tupelo, MS**. Meanwhile, stormy weather continued to move ashore in the **Pacific Northwest**. January 11-12 rainfall in **western Washington** totaled 4.50 inches in **Olympia**; 4.34 inches in **Quillayute**; and 4.21 inches in **Hoquiam**. During the same 2-day period, 4.60 inches fell in **Astoria, OR**. From January 1-12, more than a foot of rain (200 to 300 percent of normal) fell in **Quillayute**, **Hoquiam**, and **Astoria**. On January 12, southwesterly wind gusts were clocked to 59 mph in **Hoquiam** and 55 mph in **Astoria**. **Marys River**, a tributary of the **Willamette River**, crested 1.23 feet above flood stage on January 13 in **Philomath, OR**—the highest level at that gauge since January 19, 2012. By January 13, high winds raked the **northern Plains** and adjacent **Rockies**, raising dust across open fields in snow-free areas. Official peak gusts on the 13th included 93 mph in **Buffalo, SD**; 89 mph in **Cheyenne, WY**; 86 mph in **Scottsbluff, NE**; 85 mph in **Torrington, WY**; and 79 mph in **Glasgow, MT**. For **Glasgow**, it was the second-highest gust on record, behind 82 mph on July 3, 2000. **Glasgow's** previous January record had been 72 mph, on January 11, 2009. High winds persisted into January 14 across the **northern Plains** and **upper Midwest**, with gusts reaching 80 mph in **Rapid City, SD**; 68 mph in **Mobridge, SD**; and 67 mph in **North Platte, NE**. On January 14-15, **Sioux Falls, SD**, received 2.1 inches of snow and reported a peak wind gust of 58 mph. **Sioux City, IA**, netted 2.0 inches of snow and clocked a gust to 59 mph. Snow lingered across parts of the **Midwest** into January 15, when **Waterloo, IA**, collected a daily-record snowfall of 4.9 inches. By January 16, snow shifted into parts of the **East**, including the **central Appalachians**, where daily-record totals in **West Virginia** included 5.2 inches in **Elkins** and 4.2 inches in **Beckley**. Meanwhile, heavy rain fell closer to the **northern Atlantic Coast**; record-setting amounts for January 16 included 1.62 inches in **Hartford, CT**, and 1.34 inches in **Providence, RI**.

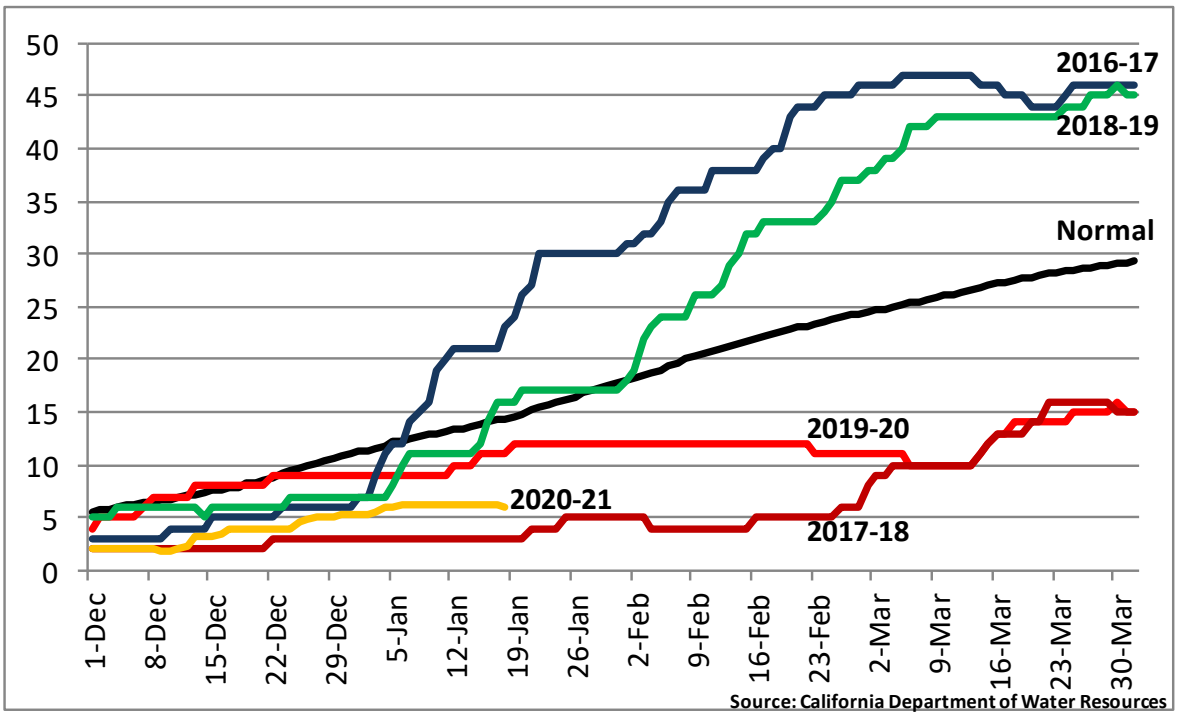
The week's first surge of significant warmth occurred in advance of the **Northern** storm. January 12-13 featured consecutive daily-record highs in **Oregon** location such as **Roseburg** (63 and 62°F, respectively) and **Pendleton** (61 and 63°F). Warmth also overspread the **northern Plains**, where record-setting highs for January 14 included 66°F in **Sheridan, WY**; 58°F in **Havre, MT**; and 55°F in **Dickinson, ND**. During the second half of the week, temperatures soared across **California** and environs. By January 15, a monthly record was set in **Vista, CA**, where the high temperature climbed to 94°F (previously, 90°F on January 31, 2003, and January 29, 2018). Elsewhere in **California** on the 15th, monthly records were tied in **Camarillo** (94°F), **El Cajon** (93°F), and **San Diego** (88°F). **San Diego** previously attained 88°F on January 10, 1953. On the 16th, **Death Valley** reached the 90-degree mark in January for the first time on record; the previous monthly record had been 87°F on January 8, 1962, and January 25, 2015. The week ended (from January 14-16) with a trio of daily-record highs in **Yuma, AZ** (81, 81, and 84°F). Consecutive daily-record highs occurred on January 15-16 in **California** locations such as **Palm Springs** (89 and 90°F, respectively) and downtown **Los Angeles** (88°F both days).

Multiple storm systems produced heavy precipitation across **southern Alaska**, accompanied by surges of warmth that boosted weekly temperatures more than 10°F above normal in several locations. In **Juneau**, the daily average temperature was at least 10°F above normal each day starting January 5, with streak the continuing for at least 2 weeks. **Juneau** reported no snow during the 2-week warm spell, while temperatures ranged from 35 to 46°F. Meanwhile, **Ketchikan's** January 1-16 precipitation total climbed to 13.45 inches (165 percent of normal). Similarly, **Kodiak's** month-to-date precipitation reached 10.82 inches (244 percent of normal). In contrast, mild, mostly dry weather covered **interior Alaska**, where the first half of January featured no measurable precipitation or snowfall in **Fairbanks**. Farther south, mostly dry weather in **Hawaii** accompanied record-setting warmth. **Kahului, Maui**, posted daily-record highs of 89°F on January 12 and 16. Those readings were 1°F shy of **Kahului's** monthly record of 90°F, set on January 10, 1959, and January 18, 2006. On **Oahu**, **Honolulu** tied a daily record with a high of 85°F on January 11. As the week ended, heavy showers began to develop across the **Hawaiian Islands**. Through week's end, month-to-date rainfall in **Kahului** totaled just 0.10 inch (6 percent of normal), followed by 3.42 inches on January 17-18.


U.S. Drought Monitor
January 12, 2021
(Released Thursday, Jan. 14, 2021)
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:
Deborah Bathke
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


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for January 21 - April 30, 2021
Released January 21
Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
Drought persists
Drought remains but improves
Drought removal likely
Drought development likely
http://go.usa.gov/3eZ73

Daily Sierra Nevada Snowpack (Inches) vs. Normal



California Reservoirs, Recharge and Withdrawal

Million Acre-Feet and Percent of Average

	Recharge		Withdrawal
2010-11	12.47 (158%)	**2011**	8.75 (111%)
2011-12	5.75 (73%)	**2012**	11.54 (146%)
2012-13	6.52 (83%)	**2013**	11.49 (145%)
2013-14	4.17 (53%)	**2014**	7.75 (98%)
2014-15	6.46 (82%)	**2015**	7.13 (90%)
2015-16	14.68 (186%)	**2016**	7.88 (100%)
2016-17	15.00 (190%)	**2017**	8.77 (111%)
2017-18	6.88 (87%)	**2018**	10.84 (137%)
2018-19	14.05 (178%)	**2019**	10.00 (127%)
2019-20	4.59 (58%)	**2020**	10.63 (135%)
2020-21	N/A	**2021**	N/A
Avg.	**7.90**	**Avg.**	**7.90**

Notes: Recharge and withdrawal values are based on end-of-month statistics, not daily readings. Recharge data for 2020-21 is not yet available.

National Weather Data for Selected Cities

Weather Data for the Week Ending January 16, 2021

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	33	22	36	18	28	11	0.02	-0.13	0.02	1.52	101	0.07	18	85	60	0	7	1	0
	BARROW	0	-6	5	-13	-3	0	0.00	-0.04	0.00	0.75	303	0.01	14	79	73	0	7	0	0
	FAIRBANKS	10	-5	24	-12	3	0	0.00	-0.13	0.00	0.23	23	0.00	0	81	70	0	7	0	0
	JUNEAU	42	37	43	35	39	11	2.01	0.81	0.67	16.13	187	3.23	116	87	72	0	0	7	2
	KODIAK	39	31	42	24	35	5	4.80	2.90	1.12	23.06	174	10.01	225	95	81	0	4	6	5
	NOME	20	9	27	-9	14	9	0.01	-0.20	0.01	1.37	84	0.05	9	82	67	0	7	1	0
AL	BIRMINGHAM	47	31	58	25	39	-4	0.28	-0.81	0.27	4.78	69	0.98	41	85	51	0	4	2	0
	HUNTSVILLE	46	29	56	20	37	-4	0.13	-1.00	0.13	5.64	67	1.06	41	86	50	0	6	1	0
	MOBILE	51	33	63	25	42	-8	0.26	-1.04	0.26	5.26	66	0.69	24	97	53	0	3	1	0
	MONTGOMERY	52	33	62	27	42	-4	0.35	-0.67	0.35	3.19	45	1.32	59	86	46	0	4	1	0
AR	FORT SMITH	49	28	58	23	39	0	0.00	-0.60	0.00	4.92	105	1.28	91	85	42	0	6	0	0
	LITTLE ROCK	50	29	61	22	39	-1	0.00	-0.76	0.00	5.94	86	1.19	62	84	42	0	4	0	0
AZ	FLAGSTAFF	49	14	59	2	32	2	0.00	-0.48	0.00	0.34	11	0.00	0	66	15	0	7	0	0
	PHOENIX	71	42	79	38	56	0	0.00	-0.23	0.00	0.45	31	0.00	0	40	12	0	0	0	0
	PRESCOTT	58	23	66	14	41	2	0.00	-0.26	0.00	0.06	3	0.00	0	52	12	0	6	0	0
	TUCSON	71	38	80	30	54	2	0.00	-0.22	0.00	0.25	16	0.00	0	33	10	0	1	0	0
CA	BAKERSFIELD	64	39	70	36	52	4	0.00	-0.27	0.00	0.34	20	0.00	0	78	39	0	0	0	0
	EUREKA	56	47	63	44	51	3	1.26	-0.25	0.59	6.58	56	2.78	78	96	87	0	0	3	1
	FRESNO	62	41	67	38	51	5	0.00	-0.53	0.00	1.13	38	0.00	0	89	53	0	0	0	0
	LOS ANGELES	75	50	87	48	63	6	0.00	-0.64	0.00	1.63	46	0.00	0	69	16	0	0	0	0
	REDDING	61	40	75	33	51	5	0.30	-1.12	0.21	4.10	43	1.74	54	91	54	0	0	3	0
	SACRAMENTO	60	40	70	34	50	4	0.00	-0.85	0.00	1.82	35	0.28	14	94	64	0	0	0	0
	SAN DIEGO	75	48	87	44	62	5	0.00	-0.45	0.00	0.60	23	0.00	0	68	18	0	0	0	0
	SAN FRANCISCO	62	48	68	43	55	5	0.00	-1.00	0.00	1.87	29	0.50	22	88	62	0	0	0	0
	STOCKTON	63	41	71	37	52	7	0.00	-0.65	0.00	1.95	54	0.16	11	93	56	0	0	0	0
CO	ALAMOSA	40	0	48	-10	20	4	0.00	-0.06	0.00	0.38	70	0.01	8	84	25	0	7	0	0
	CO SPRINGS	45	18	60	11	32	1	0.01	-0.06	0.01	0.71	125	0.19	106	64	32	0	6	1	0
	DENVER INTL	47	22	63	16	35	4	0.01	-0.09	0.01	0.68	108	0.16	70	65	28	0	6	1	0
	GRAND JUNCTION	38	12	44	8	25	-2	0.00	-0.14	0.00	0.31	34	0.00	0	73	34	0	7	0	0
	PUEBLO	47	15	67	5	31	1	0.02	-0.07	0.02	0.35	56	0.19	92	80	34	0	7	1	0
CT	BRIDGEPORT	42	29	46	23	35	5	0.72	-0.02	0.62	5.26	106	1.22	73	85	60	0	4	2	1
	HARTFORD	39	24	45	16	31	6	1.60	0.85	1.57	6.90	136	2.12	129	92	58	0	6	2	1
DC	WASHINGTON	50	31	56	28	40	5	0.16	-0.49	0.16	5.99	133	1.27	88	89	45	0	5	1	0
DE	WILMINGTON	48	26	55	22	37	5	0.36	-0.34	0.28	6.72	134	1.56	101	91	46	0	6	2	0
FL	DAYTONA BEACH	64	43	75	38	53	-4	0.06	-0.56	0.06	0.70	17	0.13	9	98	56	0	0	1	0
	JACKSONVILLE	61	38	71	32	49	-3	0.09	-0.66	0.09	2.09	47	0.56	35	97	53	0	1	1	0
	KEY WEST	71	62	75	57	67	-2	0.77	0.28	0.71	2.26	69	0.81	78	91	71	0	0	3	1
	MIAMI	75	59	78	49	67	-1	0.48	0.14	0.47	2.06	72	0.48	59	87	54	0	0	2	0
	ORLANDO	66	46	75	37	56	-4	0.04	-0.48	0.03	1.26	33	0.22	18	96	52	0	0	2	0
	PENSACOLA	54	38	64	29	46	-5	0.02	-1.01	0.02	5.79	84	1.02	45	88	52	0	1	1	0
	TALLAHASSEE	56	35	65	27	46	-5	0.31	-0.66	0.28	7.88	132	4.76	230	97	53	0	3	2	0
	TAMPA	65	50	73	42	57	-3	0.31	-0.16	0.24	3.21	90	0.54	49	84	60	0	0	3	0
	WEST PALM BEACH	72	56	78	42	64	-1	0.28	-0.44	0.23	2.53	49	0.28	16	91	58	0	0	3	0
GA	ATHENS	52	33	59	26	43	-1	0.17	-0.71	0.14	5.20	91	2.17	110	84	45	0	3	3	0
	ATLANTA	49	33	57	28	41	-2	0.21	-0.72	0.21	4.01	68	1.73	86	86	46	0	5	1	0
	AUGUSTA	55	31	61	28	43	-2	0.45	-0.44	0.28	6.07	113	2.98	151	93	52	0	5	3	0
	COLUMBUS	52	34	60	28	43	-4	0.26	-0.58	0.26	5.70	92	2.58	136	88	46	0	4	1	0
	MACON	55	33	62	26	44	-2	0.16	-0.79	0.16	3.32	54	1.06	50	92	43	0	3	1	0
	SAVANNAH	57	38	61	33	47	-2	0.43	-0.41	0.39	2.66	56	0.94	52	92	55	0	0	3	0
HI	HILO	83	67	85	64	75	3	0.11	-1.77	0.04	16.57	103	2.29	51	84	54	0	0	5	0
	HONOLULU	84	70	85	68	77	3	0.02	-0.52	0.02	0.34	7	0.04	3	82	50	0	0	1	0
	KAHULUI	87	65	89	63	76	4	0.01	-0.63	0.01	0.26	5	0.12	7	81	46	0	0	1	0
	LIHUE	80	67	81	65	74	2	0.18	-0.64	0.10	2.26	31	0.22	11	97	71	0	0	2	0
IA	BURLINGTON	36	27	41	21	32	6	0.01	-0.27	0.01	2.11	76	0.30	44	92	76	0	7	1	0
	CEDAR RAPIDS	33	22	37	18	28	8	0.07	-0.13	0.04	0.74	38	0.07	14	95	80	0	7	2	0
	DES MOINES	38	26	45	20	32	10	0.28	0.06	0.16	2.20	113	0.28	53	88	68	0	7	2	0
	DUBUQUE	33	23	36	17	28	9	0.29	0.03	0.26	1.60	65	0.33	54	93	80	0	7	3	0
	SIOUX CITY	40	25	51	19	33	13	0.28	0.14	0.21	1.10	97	0.74	236	92	63	0	7	2	0
	WATERLOO	36	23	40	13	29	11	0.53	0.34	0.36	1.35	81	0.53	121	91	76	0	7	3	0
ID	BOISE	43	27	50	24	35	4	0.21	-0.08	0.14	1.58	69	1.02	145	89	52	0	7	2	0
	LEWISTON	46	34	55	31	40	5	0.34	0.08	0.18	1.08	68	0.45	77	85	54	0	3	3	0
	POCATELLO	37	19	49	11	28	4	0.01	-0.22	0.01	0.58	32	0.18	31	86	53	0	7	1	0
IL	CHICAGO/O_HARE	36	28	41	22	32	8	0.21	-0.19	0.14	3.19	100	0.65	67	87	72	0	7	3	0
	MOLINE	36	26	40	23	31	9	0.11	-0.24	0.04	3.52	117	0.76	91	87	71	0	7	3	0
	PEORIA	36	26	42	21	31	6	0.19	-0.22	0.07	2.30	67	1.07	108	89	74	0	7	3	0
	ROCKFORD	36	26	41	22	31	10	0.33	0.00	0.21	2.61	94	0.87	112	85	68	0	6	3	0
	SPRINGFIELD	39	28	49	24	34	7	0.25	-0.15	0.15	2.15	61	1.09	110	87	70	0	5	3	0
IN	EVANSVILLE	42	29	56	22	35	3	0.06	-0.60	0.04	2.79	52	0.81	52	80	54	0	5	2	0
	FORT WAYNE	37	24	45	20	31	6	0.10	-0.41	0.09	2.11	52	0.85	69	88	69	0	7	2	0
	INDIANAPOLIS	38	25	48	21	32	4	0.15	-0.44	0.10	2.37	51	0.95	65	94	65	0	7	3	0
	SOUTH BEND	37	25	43	18	31	6	0.21	-0.32	0.09	3.76	97	1.23	96	88	72	0	7	3	0
KS	CONCORDIA	49	29	62	22	39	10	0.00	-0.11	0.00	0.70	62	0.02	9	76	39	0	5	0	0
	DODGE CITY	52	23	68	17	38	6	0.00	-0.11	0.00	1.05	90	0.00	0	72	29	0	6	0	0
	GOODLAND	49	22	64	16	35	5	0.00	-0.08	0.00	0.80	116	0.04	21	72	26	0	6	0	0
	TOPEKA	48	29	60	24	38	9	0.07	-0.08	0.07	1.93	110	0.64	166	79	43	0	6	1	0

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

Weather Data for the Week Ending January 16, 2021

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	49	26	56	19	37	5	0.00	-0.16	0.00	1.93	121	0.28	72	84	37	0	6	0	0
KY	LEXINGTON	40	24	53	17	32	0	0.28	-0.42	0.17	4.14	74	1.57	96	90	55	0	7	2	0
	LOUISVILLE	42	29	54	23	35	1	0.11	-0.62	0.04	3.64	66	1.17	69	85	54	0	4	3	0
	PADUCAH	43	29	56	19	36	2	0.09	-0.70	0.04	3.37	52	0.83	44	85	56	0	4	4	0
LA	BATON ROUGE	54	35	70	32	44	-10	0.99	-0.13	0.81	6.27	90	2.05	82	87	42	0	1	2	1
	LAKE CHARLES	54	34	68	28	44	-8	1.20	0.00	1.13	6.17	82	1.80	64	94	45	0	2	2	1
	NEW ORLEANS	55	39	71	37	47	-6	0.49	-0.67	0.41	5.30	67	1.28	48	82	49	0	0	2	0
	SHREVEPORT	53	34	64	28	44	-3	0.36	-0.52	0.33	9.77	143	1.73	85	78	37	0	4	2	0
MA	BOSTON	42	30	52	24	36	7	1.13	0.35	1.03	5.14	93	1.67	94	82	54	0	5	2	1
	WORCESTER	38	28	47	22	33	9	1.60	0.80	1.49	8.29	148	2.24	126	84	56	0	6	2	1
MD	BALTIMORE	50	27	55	23	38	6	0.27	-0.43	0.27	6.00	122	1.49	95	88	40	0	6	1	0
ME	CARIBOU	31	19	33	7	25	15	0.44	-0.17	0.40	3.14	67	0.73	51	85	62	0	7	2	0
	PORTLAND	40	26	48	16	33	11	1.12	0.35	1.10	5.75	99	1.78	100	85	55	0	6	2	1
MI	ALPENA	35	29	38	26	32	13	0.31	-0.09	0.30	1.59	59	0.35	37	94	79	0	6	2	0
	GRAND RAPIDS	36	26	41	16	31	6	0.24	-0.26	0.17	2.66	72	0.58	48	94	81	0	7	4	0
	HOUGHTON LAKE	33	28	39	25	31	13	0.41	0.04	0.36	2.55	101	0.79	92	92	79	0	7	2	0
	LANSING	36	25	41	13	30	7	0.40	0.00	0.35	3.02	108	0.99	106	95	74	0	7	4	0
	MUSKEGON	38	30	43	23	34	8	0.49	0.02	0.21	3.19	86	0.80	70	90	73	0	5	4	0
	TRAVERSE CITY	38	31	44	27	35	13	0.26	-0.43	0.17	0.93	23	0.27	17	88	71	0	3	2	0
MN	DULUTH	32	24	38	18	28	18	0.20	-0.03	0.13	1.04	58	0.22	38	91	75	0	7	3	0
	INT_L FALLS	32	20	35	6	26	22	0.14	-0.01	0.14	1.01	84	0.16	43	92	74	0	7	1	0
	MINNEAPOLIS	35	24	39	18	30	14	0.46	0.25	0.26	1.22	72	0.47	92	94	76	0	6	2	0
	ROCHESTER	36	24	43	19	30	0	0.54	0.35	0.49	0.68	39	0.54	119	93	76	0	7	3	0
	ST. CLOUD	34	21	39	16	28	16	0.36	0.21	0.31	0.81	66	0.36	96	92	74	0	7	2	0
MO	COLUMBIA	42	29	54	25	36	6	0.20	-0.20	0.19	1.75	51	1.10	112	84	56	0	6	2	0
	KANSAS CITY	45	28	56	24	37	8	0.17	-0.04	0.16	2.29	111	1.04	200	85	54	0	6	2	0
	SAINT LOUIS	43	31	55	26	37	6	0.22	-0.30	0.11	2.58	62	1.00	78	78	56	0	4	2	0
	SPRINGFIELD	42	25	54	20	33	1	0.10	-0.46	0.08	3.04	69	1.55	115	90	52	0	7	2	0
MS	JACKSON	50	31	65	28	41	-5	0.68	-0.41	0.35	6.30	83	1.31	54	91	48	0	4	3	0
	MERIDIAN	49	30	62	27	40	-5	0.51	-0.61	0.51	4.33	58	0.73	30	85	47	0	5	1	1
	TUPELO	48	30	60	23	39	-2	0.17	-0.81	0.17	6.07	70	1.02	44	87	49	0	5	1	0
MT	BILLINGS	47	27	58	20	37	10	0.00	-0.11	0.00	0.55	70	0.19	74	63	26	0	6	0	0
	BUTTE	39	10	47	-3	24	5	0.03	-0.08	0.03	0.19	24	0.09	32	81	39	0	7	1	0
	CUT BANK	45	23	50	16	34	12	0.00	-0.06	0.00	0.22	55	0.01	9	73	36	0	5	0	0
	GLASGOW	43	25	57	15	34	21	0.00	-0.10	0.00	0.05	7	0.04	16	78	46	0	6	0	0
	GREAT FALLS	46	25	53	17	36	11	0.00	-0.11	0.00	0.28	34	0.18	65	68	29	0	6	0	0
	HAVRE	47	20	58	8	34	16	0.00	-0.09	0.00	0.10	15	0.02	8	79	35	0	7	0	0
	MISSOULA	38	23	47	18	30	5	0.33	0.13	0.16	0.78	50	0.35	71	96	63	0	7	3	0
NC	ASHEVILLE	47	27	55	24	37	0	0.05	-0.77	0.05	5.90	109	1.90	104	90	43	0	7	1	0
	CHARLOTTE	51	30	57	24	40	1	0.19	-0.60	0.11	4.57	91	1.65	92	97	52	0	4	3	0
	GREENSBORO	50	28	55	22	39	1	0.12	-0.61	0.12	4.88	107	0.91	57	96	47	0	5	1	0
	HATTERAS	52	36	60	30	44	-1	1.15	-0.09	0.41	9.99	142	3.32	121	96	65	0	2	5	0
	RALEIGH	53	30	57	25	42	1	0.38	-0.44	0.24	8.46	175	2.89	161	97	48	0	3	3	0
	WILMINGTON	56	35	64	29	46	0	0.92	0.07	0.43	4.73	86	1.98	103	93	52	0	2	5	0
ND	BISMARCK	42	25	52	20	34	21	0.11	0.01	0.10	0.41	53	0.15	57	88	51	0	7	2	0
	DICKINSON	44	23	55	14	34	18	0.00	-0.08	0.00	0.00	0	0.00	0	78	38	0	7	0	0
	FARGO	33	18	39	10	26	17	0.12	-0.05	0.09	0.71	56	0.13	32	92	75	0	7	2	0
	GRAND FORKS	34	15	39	5	24	18	0.12	-0.01	0.09	0.54	59	0.13	44	89	73	0	7	2	0
	JAMESTOWN	38	21	48	12	29	20	0.12	0.00	0.12	0.42	59	0.16	60	83	62	0	7	1	0
NE	GRAND ISLAND	47	26	64	21	37	12	0.00	-0.11	0.00	1.07	119	0.23	89	78	40	0	7	0	0
	LINCOLN	45	26	55	20	35	11	0.04	-0.09	0.04	1.17	91	0.08	25	84	51	0	6	1	0
	NORFOLK	42	26	57	23	34	12	0.02	-0.10	0.01	0.69	65	0.20	70	81	53	0	7	2	0
	NORTH PLATTE	49	20	63	14	34	10	0.00	-0.08	0.00	0.74	113	0.01	5	82	35	0	7	0	0
	OMAHA	42	26	52	21	34	11	0.20	0.06	0.13	1.52	107	0.39	112	92	61	0	7	2	0
	SCOTTSBLUFF	47	22	58	14	34	7	0.02	-0.07	0.01	0.44	59	0.04	19	77	29	0	6	2	0
	VALENTINE	48	24	62	17	36	12	0.12	0.06	0.12	0.53	93	0.12	76	77	35	0	7	1	0
NH	CONCORD	39	21	47	11	30	10	1.13	0.53	1.13	5.40	118	1.71	123	89	54	0	6	1	1
NJ	ATLANTIC_CITY	49	24	54	18	36	4	0.55	-0.20	0.28	6.93	129	1.88	111	96	49	0	6	2	0
	NEWARK	46	30	50	25	38	6	1.23	0.41	0.63	5.88	103	2.20	117	83	50	0	5	2	2
NM	ALBUQUERQUE	50	26	57	17	38	2	0.00	-0.10	0.00	0.21	28	0.00	0	52	22	0	5	0	0
NV	ELY	49	13	60	3	31	6	0.00	-0.17	0.00	0.43	44	0.06	16	81	30	0	7	0	0
	LAS VEGAS	62	40	71	35	51	3	0.00	-0.13	0.00	0.04	4	0.00	0	39	17	0	0	0	0
	RENO	56	30	62	24	43	8	0.00	-0.26	0.00	0.35	21	0.08	14	81	32	0	6	0	0
	WINNEMUCCA	44	25	54	20	34	5	0.00	-0.16	0.00	0.55	38	0.16	35	84	50	0	4	0	0
NY	ALBANY	32	22	38	13	27	5	0.44	-0.15	0.42	4.94	116	1.25	94	99	75	0	7	2	0
	BINGHAMTON	33	26	37	19	29	8	0.35	-0.20	0.23	7.00	172	1.21	96	92	72	0	7	2	0
	BUFFALO	38	31	44	25	34	10	0.21	-0.49	0.10	4.72	84	0.97	56	89	66	0	5	3	0
	ROCHESTER	38	29	43	20	33	9	0.20	-0.35	0.14	2.91	74	1.03	80	96	68	0	5	2	0
	SYRACUSE	37	28	42	21	33	10	0.51	-0.06	0.34	4.11	90	1.50	109	86	66	0	6	3	0
OH	AKRON-CANTON	39	28	46	22	33	8	0.32	-0.28	0.22	3.59	85	1.16	84	84	61	0	6	3	0
	CINCINNATI	40	26	50	18	33	2	0.12	-0.54	0.09	3.09	63	1.34	86	86	56	0	7	2	0
	CLEVELAND	39	28	47	23	34	6	0.15	-0.48	0.13	3.70	81	1.13	75	88	64	0	6	3	0
	COLUMBUS	39	26	46	20	32	3	0.28	-0.35	0.24	3.60	81	1.40	95	92	62	0	7	2	0
	DAYTON	39	27	48	20	33	6	0.23	-0.39	0.14	2.33	51	1.44	96	92	63	0	6	2	0
	MANSFIELD	38	26	46	21	32	7	0.17	-0.48	0.15	2.66	55	0.76	49	91	66	0	6	2	0

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

Weather Data for the Week Ending January 16, 2021

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	39	28	46	21	33	8	0.27	-0.20	0.27	2.24	58	0.98	85	84	62	0	6	1	0
	YOUNGSTOWN	39	28	47	23	33	8	0.24	-0.34	0.16	4.86	111	1.24	90	87	58	0	6	3	0
OK	OKLAHOMA CITY	49	26	59	21	38	-1	0.00	-0.27	0.00	3.43	136	0.72	113	83	35	0	6	0	0
	TULSA	48	29	58	20	38	1	0.00	-0.34	0.00	4.24	127	0.92	109	81	42	0	5	0	0
OR	ASTORIA	53	42	56	37	48	4	5.28	2.90	2.20	20.63	133	12.60	227	97	74	0	0	6	2
	BURNS	40	20	46	11	30	6	0.19	-0.09	0.12	1.31	58	0.61	89	91	65	0	7	3	0
	EUGENE	55	42	61	38	49	8	1.61	0.00	0.95	10.57	91	4.22	111	95	71	0	0	5	1
	MEDFORD	53	39	62	35	46	6	0.75	0.16	0.28	4.39	90	1.47	104	92	62	0	0	4	0
	PENDLETON	50	31	63	27	41	6	0.07	-0.28	0.04	1.40	60	0.43	53	95	62	0	5	3	0
	PORTLAND	53	42	61	38	47	6	2.80	1.66	1.73	10.59	129	5.60	210	92	65	0	0	5	1
	SALEM	52	41	59	37	47	6	2.44	1.05	1.61	13.13	129	6.77	207	94	73	0	0	5	1
PA	ALLENTOWN	43	24	47	16	33	6	0.54	-0.15	0.34	5.66	111	1.55	101	89	55	0	7	2	0
	ERIE	40	30	49	28	35	8	0.29	-0.39	0.15	4.63	86	1.20	73	83	60	0	5	3	0
	MIDDLETOWN	45	27	49	22	36	6	0.38	-0.30	0.32	5.59	118	1.44	96	86	49	0	6	2	0
	PHILADELPHIA	47	29	54	25	38	5	0.22	-0.47	0.14	5.57	109	1.25	81	90	46	0	6	2	0
	PITTSBURGH	39	25	46	21	32	4	0.22	-0.40	0.13	5.20	122	1.38	97	92	58	0	6	2	0
	WILKES-BARRE	40	28	43	21	34	9	0.33	-0.20	0.16	4.61	120	1.11	94	84	60	0	5	3	0
	WILLIAMSPORT	40	28	45	23	34	8	0.60	-0.02	0.55	6.21	145	1.59	116	90	57	0	6	3	1
RI	PROVIDENCE	45	29	55	20	37	8	1.34	0.43	1.34	9.00	144	1.59	79	88	53	0	5	1	1
SC	CHARLESTON	56	37	64	30	46	-1	0.55	-0.31	0.43	3.33	66	1.63	86	98	54	0	1	4	0
	COLUMBIA	51	30	58	26	40	-4	0.72	-0.08	0.28	7.12	142	4.26	235	95	57	0	6	3	0
	FLORENCE	53	33	57	29	43	-2	1.01	0.26	0.60	7.15	152	4.18	247	96	54	0	2	3	1
	GREENVILLE	51	30	57	24	40	-1	0.13	-0.74	0.07	4.85	79	2.12	108	86	40	0	5	3	0
SD	ABERDEEN	39	24	45	18	32	20	0.14	0.03	0.11	0.65	80	0.33	121	83	62	0	7	2	0
	HURON	39	24	49	18	32	15	0.10	-0.02	0.06	0.56	70	0.25	92	92	61	0	7	2	0
	RAPID CITY	47	23	55	15	35	10	0.00	-0.08	0.00	0.28	43	0.00	0	72	32	0	6	0	0
	SIOUX FALLS	37	25	45	21	31	15	0.35	0.23	0.26	1.10	111	0.68	230	90	67	0	7	3	0
TN	BRISTOL	43	25	50	22	34	-1	0.23	-0.54	0.15	4.78	94	1.26	74	94	59	0	7	3	0
	CHATTANOOGA	48	32	54	25	40	0	0.16	-0.98	0.16	5.64	75	1.19	47	86	46	0	4	1	0
	KNOXVILLE	42	29	50	22	35	-3	0.22	-0.80	0.12	4.69	69	1.09	49	97	65	0	6	2	0
	MEMPHIS	46	31	56	21	39	-2	0.03	-0.80	0.03	7.12	91	1.04	50	81	51	0	3	1	0
	NASHVILLE	46	29	58	21	37	0	0.06	-0.77	0.03	3.99	65	0.65	34	81	43	0	6	3	0
TX	ABILENE	53	29	62	25	41	-4	0.73	0.53	0.73	2.55	149	0.75	155	81	38	0	7	1	1
	AMARILLO	49	23	64	15	36	-1	0.18	0.05	0.18	0.45	44	0.22	71	78	35	0	6	1	0
	AUSTIN	58	35	69	31	47	-5	0.69	0.20	0.69	3.39	95	0.73	63	76	34	0	3	1	1
	BEAUMONT	56	33	70	28	45	-8	0.85	-0.35	0.81	7.84	96	2.13	75	91	46	0	2	2	1
	BROWNSVILLE	65	42	80	38	53	-7	0.20	-0.07	0.20	1.48	84	0.44	75	80	42	0	0	1	0
	CORPUS CHRISTI	61	36	80	32	48	-8	1.30	0.95	1.30	3.00	113	1.30	157	90	44	0	2	1	1
	DEL RIO	61	32	72	28	47	-5	0.13	-0.02	0.13	1.37	136	0.13	37	88	33	0	4	1	0
	EL PASO	57	26	69	18	41	-3	0.00	-0.08	0.00	0.02	2	0.00	0	51	20	0	6	0	0
	FORT WORTH	54	33	64	27	44	-2	0.12	-0.30	0.12	3.11	87	0.15	14	76	31	0	3	1	0
	GALVESTON	56	42	69	39	49	-6	0.44	0.00	0.44	4.63	0	0.65	0	76	44	0	0	1	0
	HOUSTON	57	36	71	31	46	-6	1.18	0.43	1.18	6.67	123	2.22	131	80	41	0	1	1	1
	LUBBOCK	45	21	53	13	33	-7	0.63	0.50	0.63	0.74	69	0.67	228	86	49	0	7	1	1
	MIDLAND	50	24	62	19	37	-6	0.28	0.16	0.28	0.80	93	0.29	110	87	39	0	7	1	0
	SAN ANGELO	55	27	67	22	41	-5	0.56	0.37	0.56	1.58	118	0.56	123	87	38	0	7	1	1
	SAN ANTONIO	58	33	74	29	46	-6	0.83	0.46	0.83	1.68	60	0.84	97	76	35	0	3	1	1
	VICTORIA	59	32	77	27	46	-8	0.59	0.02	0.59	3.56	98	1.00	76	93	39	0	3	1	1
	WACO	56	32	66	26	44	-3	0.63	0.22	0.63	5.13	136	0.69	68	82	37	0	4	1	1
	WICHITA FALLS	53	30	64	23	41	-1	0.17	-0.06	0.16	1.38	62	0.17	30	81	36	0	5	2	0
UT	SALT LAKE CITY	43	22	52	18	33	3	0.01	-0.27	0.01	0.41	19	0.07	10	81	39	0	7	1	0
VA	LYNCHBURG	50	24	55	21	37	2	0.21	-0.52	0.12	6.06	126	1.23	77	89	39	0	7	2	0
	NORFOLK	52	32	60	28	42	1	0.14	-0.65	0.11	5.46	109	1.28	72	93	48	0	4	2	0
	RICHMOND	52	29	57	26	40	3	0.21	-0.48	0.17	8.44	175	1.77	113	92	43	0	7	3	0
	ROANOKE	47	28	54	25	38	1	0.17	-0.49	0.16	4.75	107	1.14	76	87	45	0	7	2	0
	WASH/DULLES	49	24	56	20	37	4	0.11	-0.49	0.11	7.03	164	1.25	94	93	43	0	7	1	0
VT	BURLINGTON	35	24	39	11	29	11	0.72	0.24	0.72	2.47	71	1.29	121	88	66	0	6	1	1
WA	OLYMPIA	52	37	57	32	44	5	4.32	2.46	2.78	16.92	145	9.69	232	98	74	0	1	5	2
	QUILLAYUTE	51	41	56	35	46	5	5.22	1.73	2.44	27.65	133	11.93	153	95	75	0	0	7	2
	SEATTLE-TACOMA	52	41	57	38	47	5	3.64	2.30	2.07	14.17	169	7.60	251	96	68	0	0	5	2
	SPOKANE	41	31	52	27	36	7	1.02	0.60	0.74	4.83	146	2.55	253	90	66	0	5	3	1
	YAKIMA	46	31	54	24	39	8	0.27	0.01	0.16	1.27	57	0.69	106	91	62	0	4	3	0
WI	EAU CLAIRE	34	23	38	16	28	14	0.33	0.13	0.17	0.53	35	0.35	73	90	75	0	6	2	0
	GREEN BAY	35	24	39	19	29	13	0.33	0.07	0.23	0.78	36	0.34	55	93	75	0	6	3	0
	LA CROSSE	36	26	40	18	31	14	0.40	0.14	0.30	0.69	35	0.40	70	89	72	0	6	3	0
	MADISON	33	24	39	18	29	10	0.33	0.06	0.21	1.50	63	0.38	58	98	77	0	7	3	0
	MILWAUKEE	36	28	41	20	32	10	0.37	-0.04	0.23	2.93	98	0.81	86	88	70	0	5	4	0
WV	BECKLEY	40	24	46	16	32	1	0.18	-0.46	0.11	14.03	315	0.81	54	92	53	0	7	2	0
	CHARLESTON	44	25	51	20	34	0	0.36	-0.30	0.28	4.45	93	0.74	48	96	53	0	7	2	0
	ELKINS	44	21	51	17	33	4	0.25	-0.50	0.13	4.81	98	1.11	67	86	41	0	7	2	0
	HUNTINGTON	43	27	52	19	35	2	0.23	-0.43	0.20	4.56	94	0.62	40	84	51	0	7	2	0
WY	CASPER	37	17	48	11	27	2	0.12	0.00	0.08	0.92	118	0.23	86	75	46	0	7	2	0
	CHEYENNE	42	21	53	12	31	2	0.00	-0.08	0.00	0.52	74	0.05	26	63	33	0	7	0	0
	LANDER	38	13	57	3	25	4	0.00	-0.10	0.00	0.59	72	0.00	0	78	39	0	7	0	0
	SHERIDAN	47	20	66	7	33	10	0.01	-0.11	0.01	0.54	64	0.26	95	76	36	0	7	1	0

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

January 14 ENSO Diagnostic Discussion

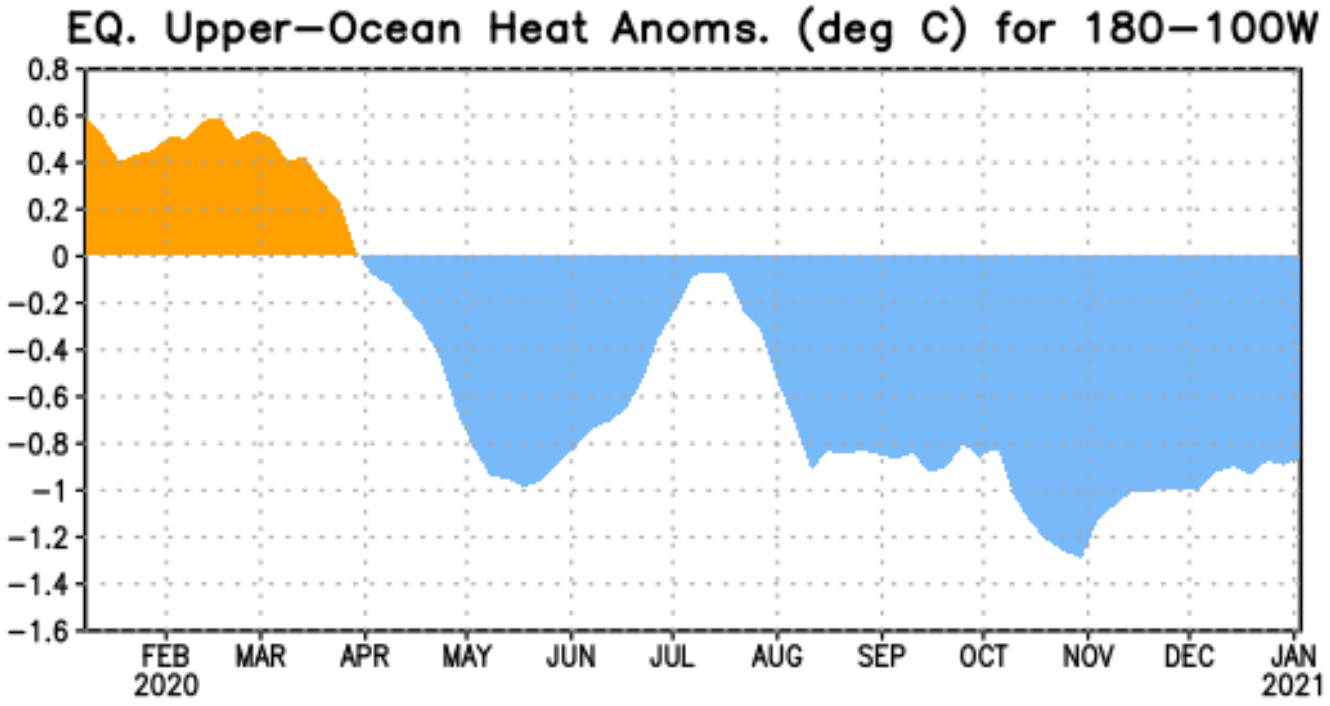


Figure 1: Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180º-100ºW). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

ENSO Alert System Status: La Niña Advisory

Synopsis: La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March), with a potential transition to ENSO-neutral during the spring 2021 (55% chance during April-June).

Below-average sea surface temperatures (SSTs) extend from the western to the eastern Pacific Ocean and reflect the continuation of La Niña. Most of the Niño indices were relatively steady throughout the month (the latest weekly Niño-3.4 index value was -1.1ºC), with negative values strengthening to -1.2ºC in the westernmost Niño-4 region. The subsurface temperature anomalies on the equator (averaged from 180°-100°W) remained negative (Fig. 1) but weakened slightly in the eastern equatorial Pacific Ocean. The atmospheric circulation associated with La Niña strengthened over the tropical Pacific Ocean during the month. Low-level wind anomalies were easterly over the western to east-central tropical Pacific and upper-level wind anomalies were westerly across most of the tropical Pacific. Tropical convection was suppressed over the western and central Pacific and enhanced around the Philippines and parts of Indonesia. Both the Southern Oscillation and Equatorial Southern Oscillation strengthened during December. Overall, the coupled ocean-atmosphere system is consistent with the ongoing La Niña.

A majority of the models in the IRI/CPC plume predict La Niña to continue through the Northern Hemisphere spring. The forecaster consensus is in line with the models and suggests a transition to ENSO-neutral in the late spring 2021. However, the forecast uncertainty increases throughout the summer and fall, which is reflected by the lower probabilities (less than ~50%) for La Niña and ENSO-neutral. These low forecast probabilities beyond the spring are consistent with the spring predictability barrier, when model forecasts are historically less accurate than during other times of the year. In summary, La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance for January-March), with a potential transition to ENSO-neutral during the spring 2021 (55% chance during April-June; click CPC/IRI consensus forecast for the chances in each 3-month period).

La Niña is anticipated to affect climate across the United States during the upcoming months. The 3-month seasonal temperature and precipitation outlooks will be updated on Thursday January 21st.

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). Additional perspectives and analysis are also available in an ENSO blog. A probabilistic strength forecast is available here. The next ENSO Diagnostics Discussion is scheduled for **11 February 2021**. 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 10-16, 2021

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

HIGHLIGHTS

EUROPE: Unsettled and colder-than-normal weather prevailed across much of the continent, with the season's first widespread snow in eastern crop areas.

MIDDLE EAST: Moderate to heavy rain eased drought in Turkey.

NORTHWESTERN AFRICA: Additional rain alleviated drought in Morocco, while showery weather resumed in eastern growing areas.

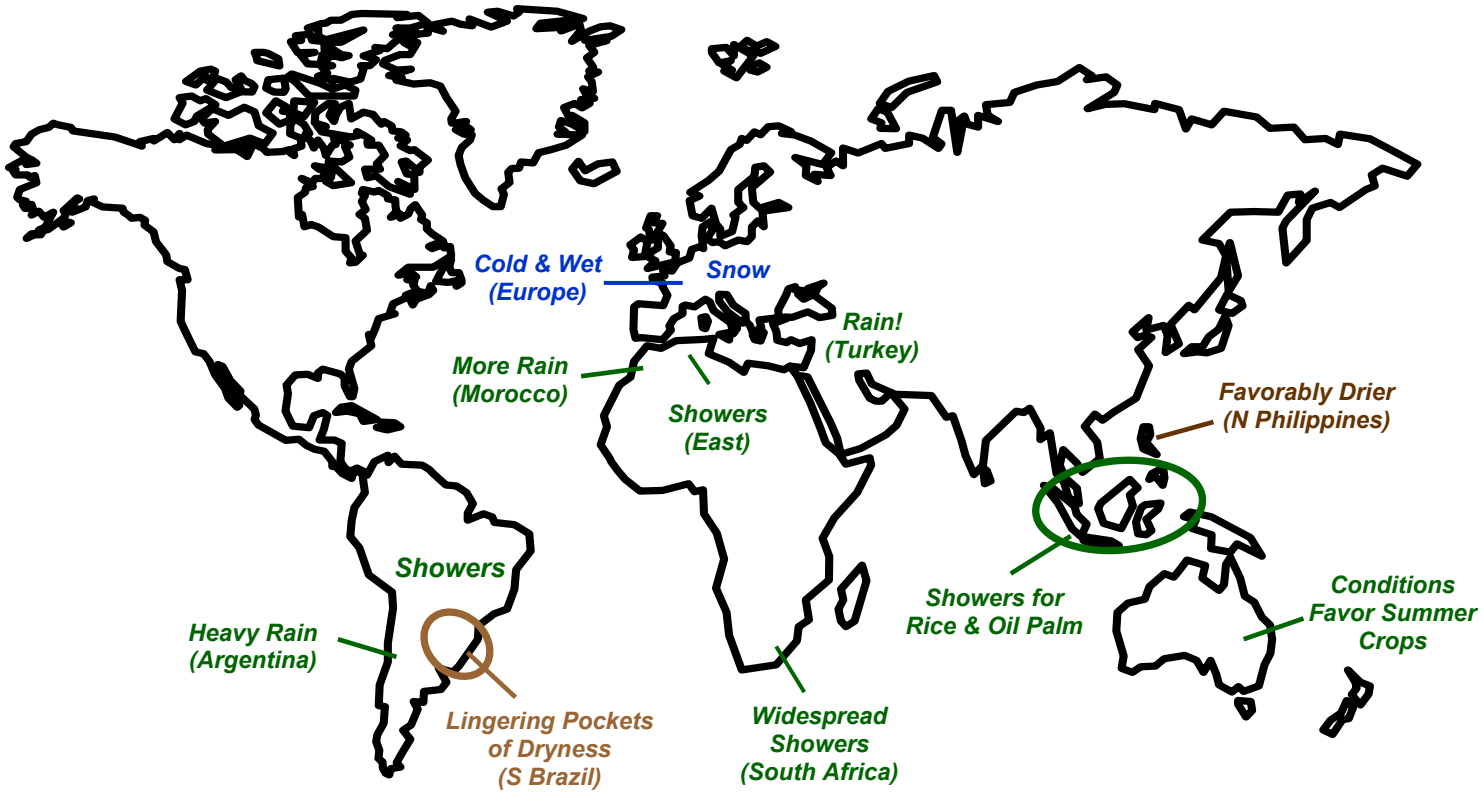
SOUTHEAST ASIA: Wet weather continued across much of the Philippines, Malaysia, and Indonesia, while drier weather was welcome in the northern Philippines.

AUSTRALIA: Intermittent rain and sunshine favored summer crop development.

SOUTH AFRICA: Conditions remained overall favorable for corn and other rain-fed summer crops.

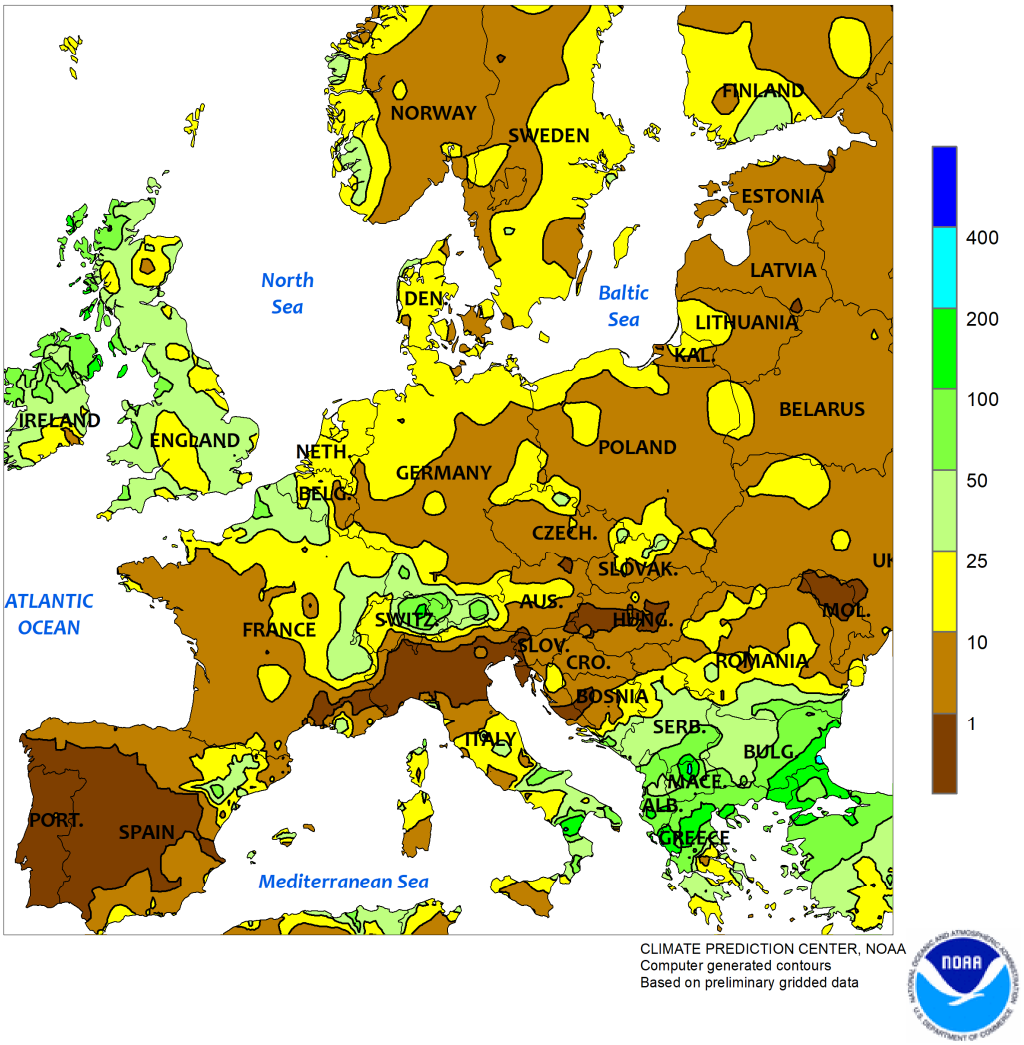
ARGENTINA: Soaking rain brought much-needed relief from lingering dryness.

BRAZIL: Scattered showers favored soybeans and other immature summer row crops, although patches of dryness remained a concern.



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

EUROPE
Total Precipitation (mm)
January 10 - 16, 2021



EUROPE

Cold, unsettled weather prevailed over much of Europe, with the season's first widespread snowfall observed in eastern growing areas. Moderate to heavy precipitation (10-80 mm liquid equivalent) was reported from England southeastward into northern and eastern France as well as northern portions of Germany and Poland, while very heavy snow (more than 100 mm liquid equivalent) fell in the northward-facing Alps. Heavy rain and mountain snow also fell from central and southern Italy (10-50 mm) into the southern Balkans (20-90 mm, locally more than 100 mm in Greece). Elsewhere in central and northern Europe, light to moderate precipitation (2-20 mm) was reported, with many areas reporting the season's first snow. At week's end, a moderate to deep snowpack (5-20 cm) extended from eastern France and southern Germany into eastern Europe, though fields in central Hungary and northern Serbia remained barren and exposed to the elements. Despite the unsettled weather pattern, dry conditions prevailed in Spain and northern portions of Italy and the Balkans. While colder-than-normal weather prevailed over much of Europe (1-4°C below normal, locally more than 5°C below normal in Spain and Norway), winterkill was not a concern outside of some possible burnback of exposed vegetative winter grains in Spain (overnight temperatures as low as -10°C).

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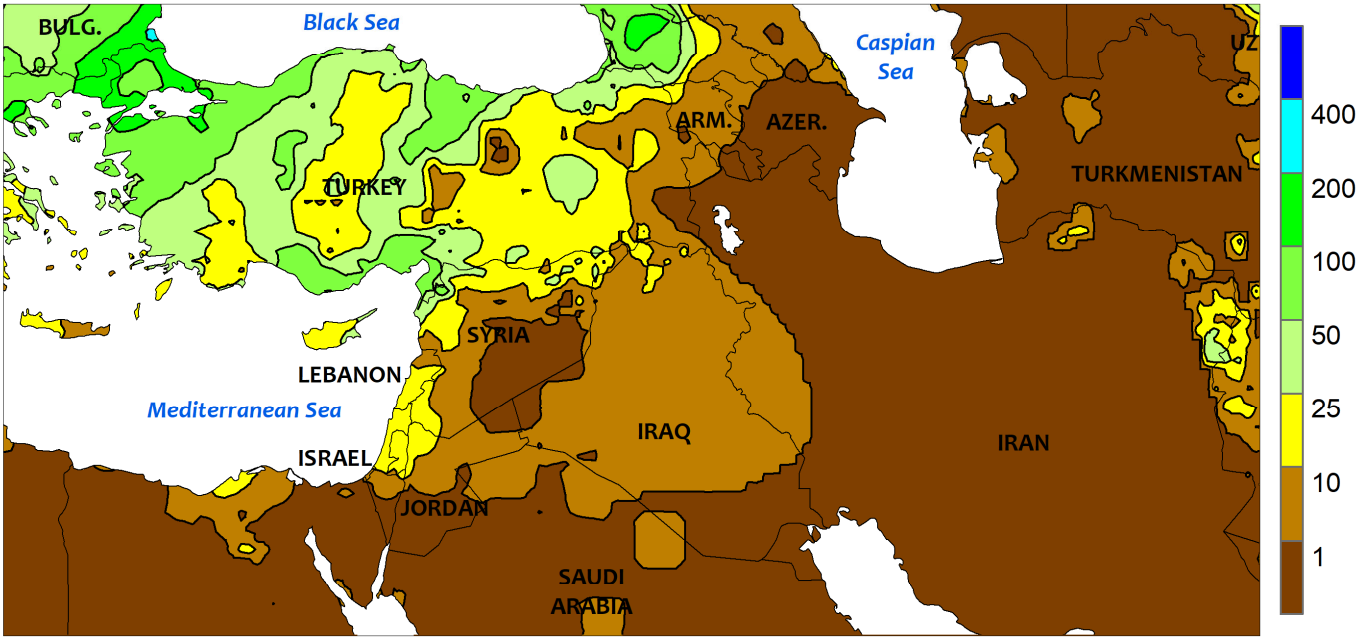
MIDDLE EAST
Total Precipitation (mm)
January 10 - 16, 2021



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

MIDDLE EAST

Moderate to heavy rain eased drought in Turkey, while dry weather prevailed across the eastern half of the region. A prolonged fetch of Mediterranean moisture coupled with a stalled frontal boundary led to widespread moderate to heavy rainfall in Turkey (10-100 mm, locally more in southern and northwestern portions of the country). The precipitation put a significant dent in the deficits that have accrued since the beginning of autumn, though more rain and snow will be needed to completely eradicate the long-term shortfalls. In particular, precipitation since September 1 on the Anatolian Plateau has averaged nearly 70 percent of normal, a 20-point jump from the previous week but still the fifth driest over the past 30 years. Similar long-term deficits lingered eastward into the Armenian Highlands and southward to the Mediterranean Coast and GAP Region in southeastern Turkey, though these locales have seen similar improvements to the drought. Light to moderate showers (2-30 mm) spread southward along the eastern Mediterranean Coast, tapering off to the east in Iraq (1-15 mm) and western Iran (1 mm or less). In contrast, sunny skies prevailed over the remainder of Iran, with winter grains ranging from dormant (north) to vegetative (south). Temperatures during the period averaged up to 8°C above normal in Turkey, while warmer conditions (2-6°C above normal) overspread the rest of the region.

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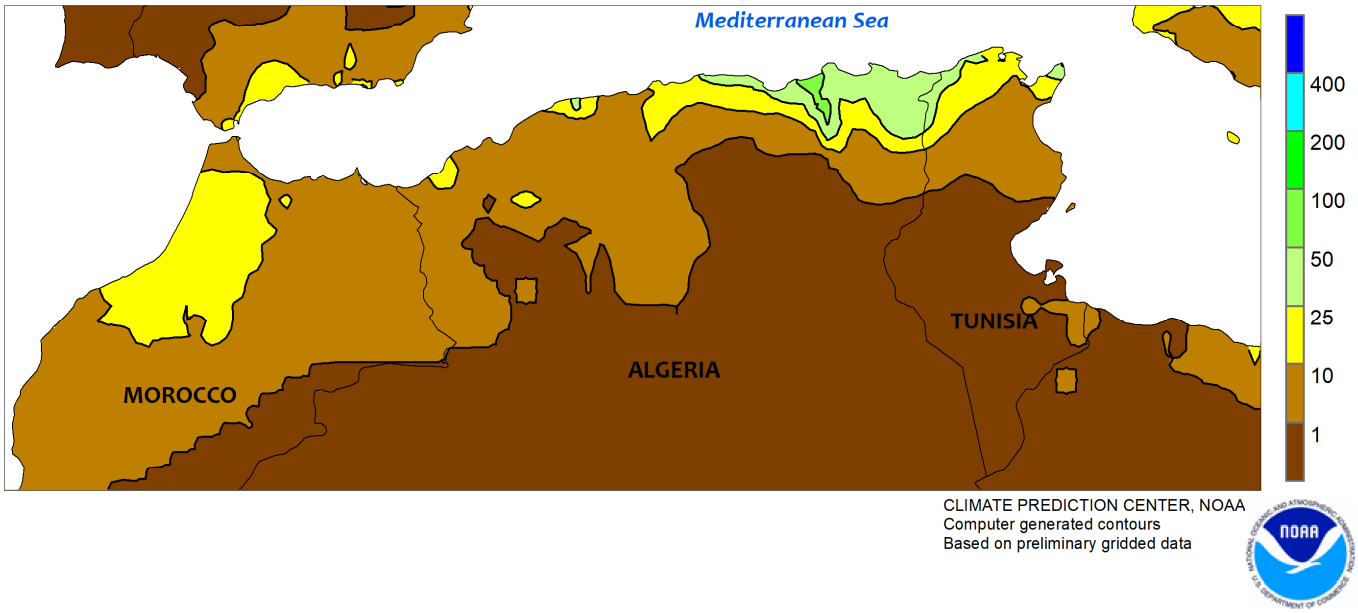
NORTHWESTERN AFRICA
Total Precipitation (mm)
January 10 - 16, 2021



NORTHWESTERN AFRICA

Additional showers alleviated lingering deficits in Morocco, while rain returned to eastern growing areas following a recent respite. For the second consecutive week, an Atlantic storm system produced light to moderate showers over Morocco (2-20 mm, locally more near the coast), though rain was not as heavy as the preceding week. Since January 1, the country's main croplands have averaged nearly 100 mm of rainfall, nearly eradicating the deficits that had accrued since the beginning of October (the climatological onset of the region's cool rainy season). Consequently, prospects for vegetative winter wheat and barley have rebounded significantly. Meanwhile, moderate to heavy showers (10-75 mm) returned from north-central Algeria into northern Tunisia, maintaining good to excellent moisture supplies for vegetative winter wheat and barley. However, rain bypassed the inland Steppe Region of Tunisia, where dry conditions since the beginning of January have reduced topsoil moisture for winter grains.

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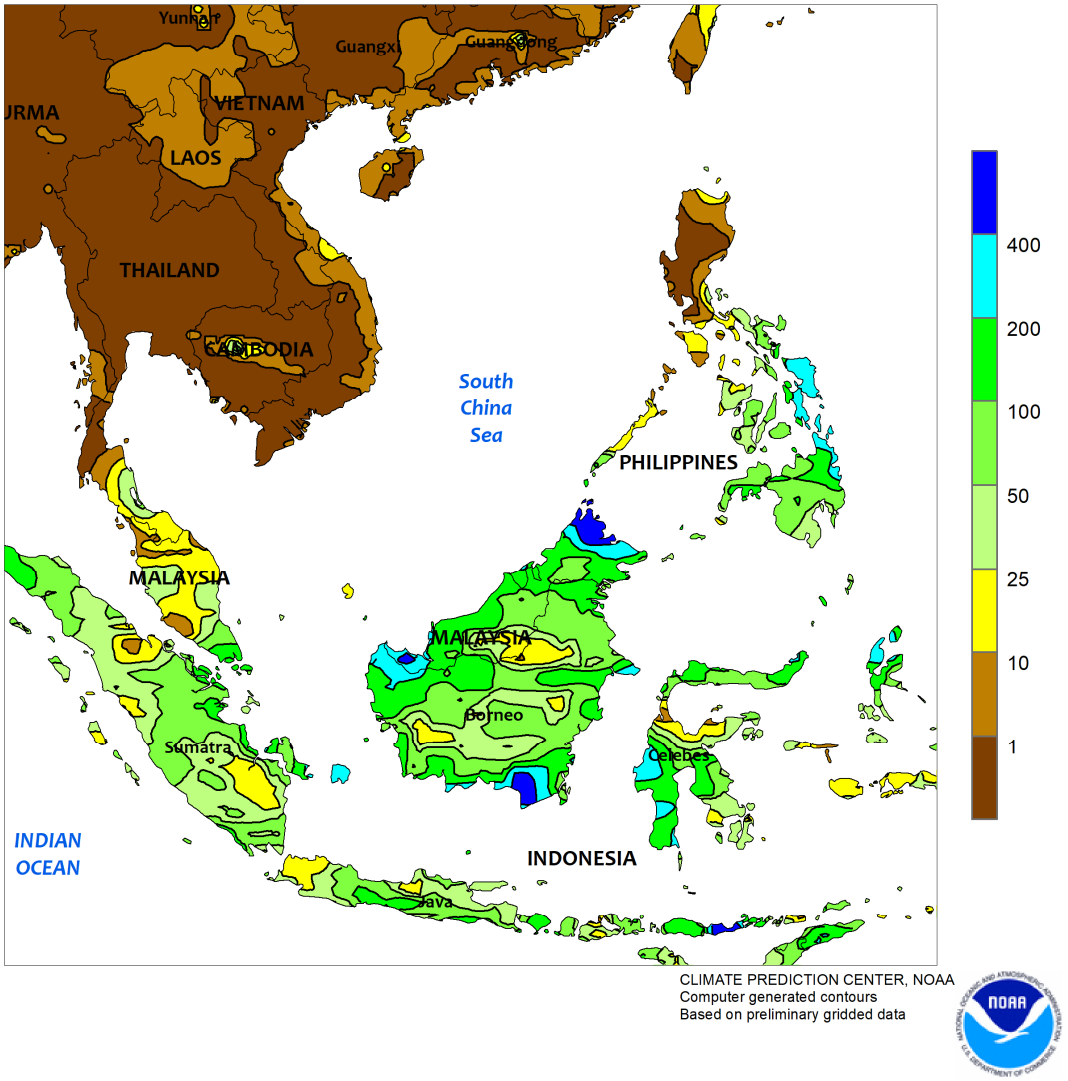
SOUTHEAST ASIA
Total Precipitation (mm)
January 10 - 16, 2021



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

SOUTHEAST ASIA

Drier weather prevailed in the northern Philippines following weeks of persistent showers and occasional deluges. The dryness eased the excessive wetness brought on by over 1,700 mm of rain (nearly 250 percent of normal) since October 1. The remainder of the Philippines recorded rainfall totals between 25 mm (west) and 150 mm or more (east and south), maintaining ample moisture supplies for rice and corn in the more minor producing areas. Elsewhere, much of Malaysia and Indonesia continued to receive heavy showers (50-150 mm or more), supporting oil palm and rice. Specifically, moisture conditions in key rice-producing areas of southern Indonesia (Java) have been much improved over last year's drought.

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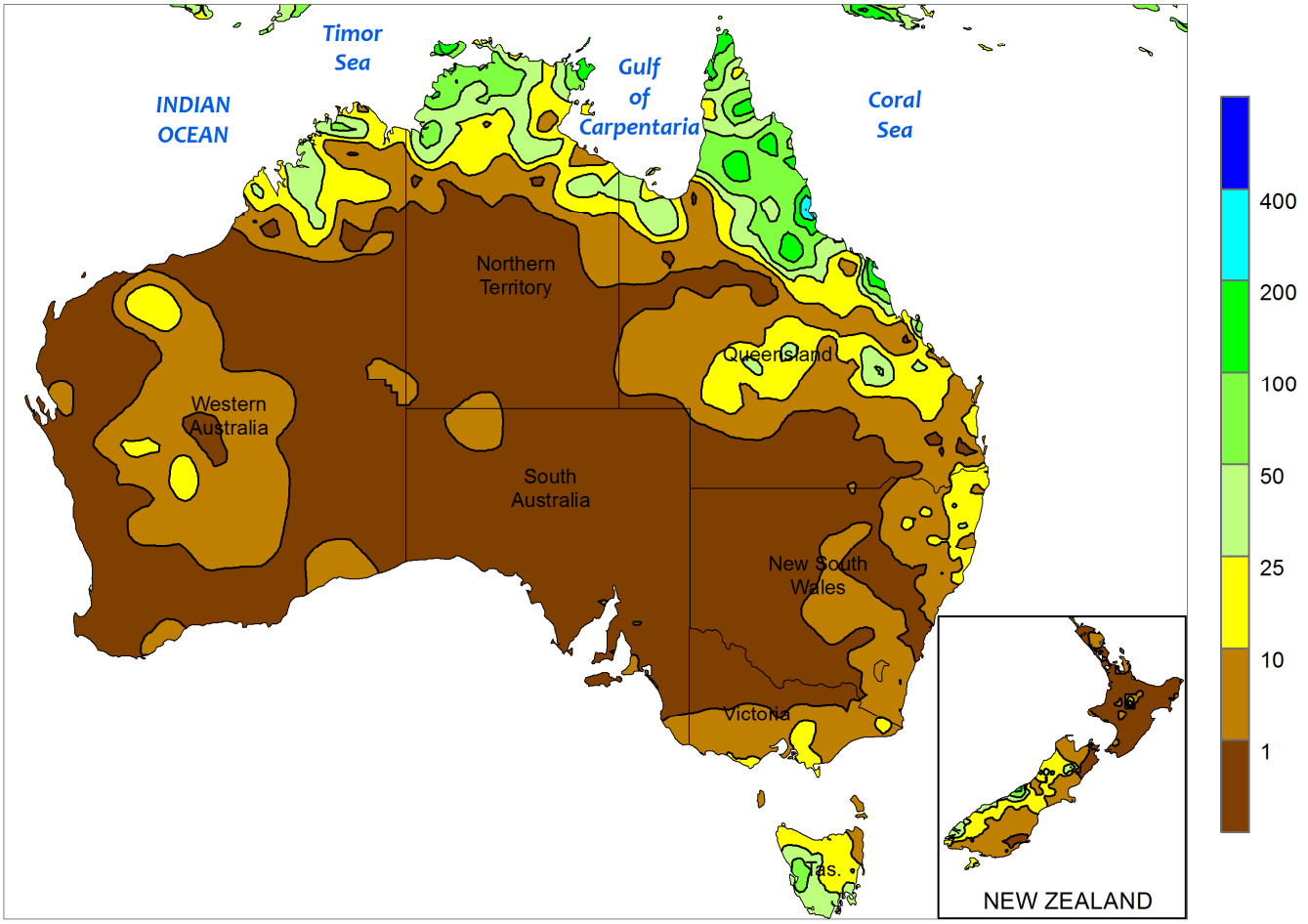
AUSTRALIA
Total Precipitation (mm)
January 10 - 16, 2021



Gridded data from the Australian Bureau of Meteorology: www.bom.gov.au/
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CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

AUSTRALIA

In southern Queensland and northern New South Wales, intermittent rain (1-10 mm, locally more) and sunshine maintained good cotton and sorghum prospects. Although temperatures averaged about 2ºC below normal, the weather remained relatively warm (maximum temperatures in the lower to middle 30s degrees C), favoring summer crop development. Elsewhere in the wheat belt, dry weather in southern and western Australia allowed late-season winter crop harvesting to continue without delay. According to Dairy Australia, the harvest was approximately 98% complete and expected to wrap up soon.

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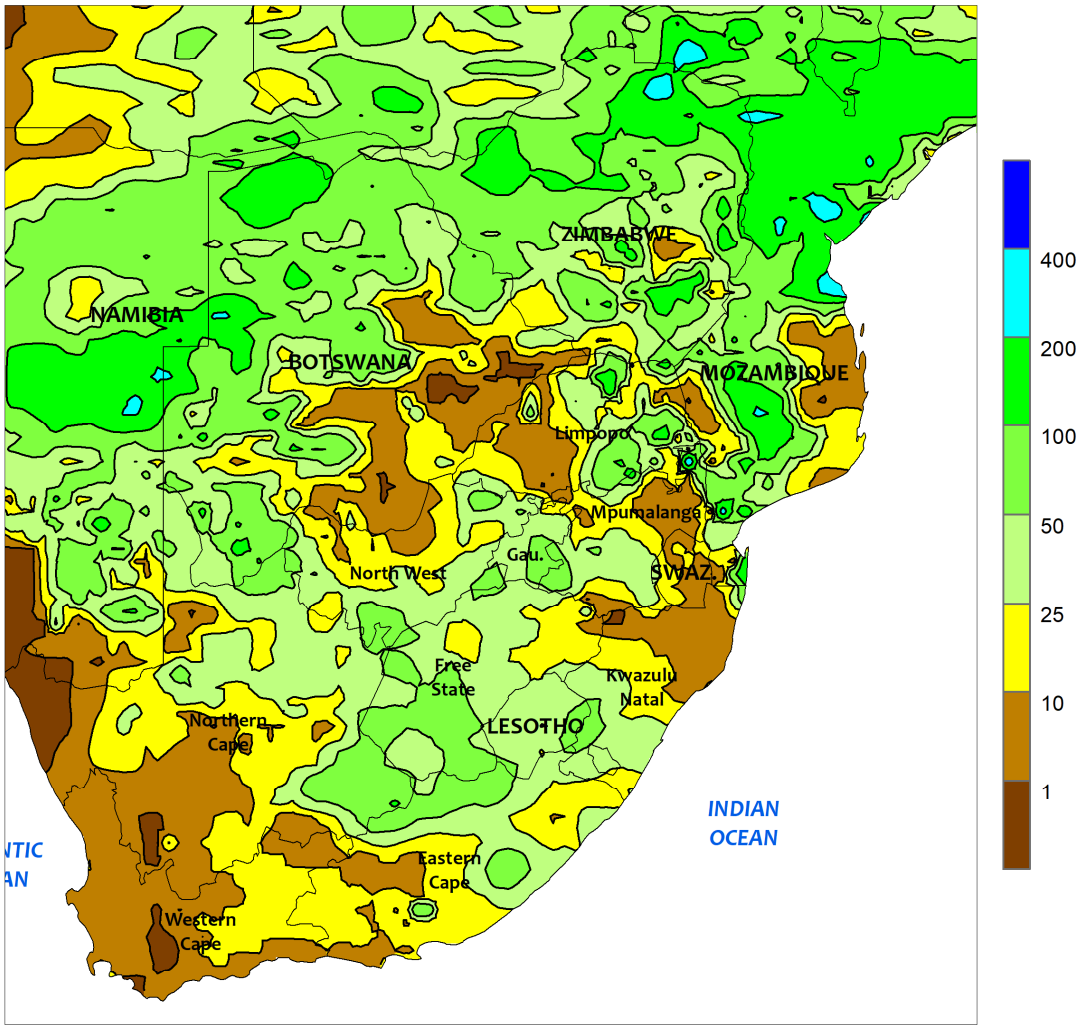
SOUTH AFRICA
Total Precipitation (mm)
January 10 - 16, 2021



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

SOUTH AFRICA

Abundant showers maintained favorable crop prospects in key agricultural regions. Unseasonably heavy rainfall (25-100 mm) covered a broad section of the country, including the corn belt (North West and Free State to southwestern Mpumalanga), southern sugarcane areas in KwaZulu-Natal, and irrigated farming areas in the Orange River Valley (farmlands in and bordering North West). Weekly temperatures averaging 1 to 2°C above normal promoted rapid growth of rain-fed summer crops from Limpopo southward through KwaZulu-Natal, but the showers helped to cap daytime highs in the upper 20s and lower 30s (degrees C). Hotter weather (highs ranging from 36-40°C) was mostly confined to far eastern farming areas, including irrigated sugarcane plantations in eastern Mpumalanga and northern KwaZulu-Natal. Meanwhile, warm, sunny weather favored development of tree and vine crops in Western Cape.

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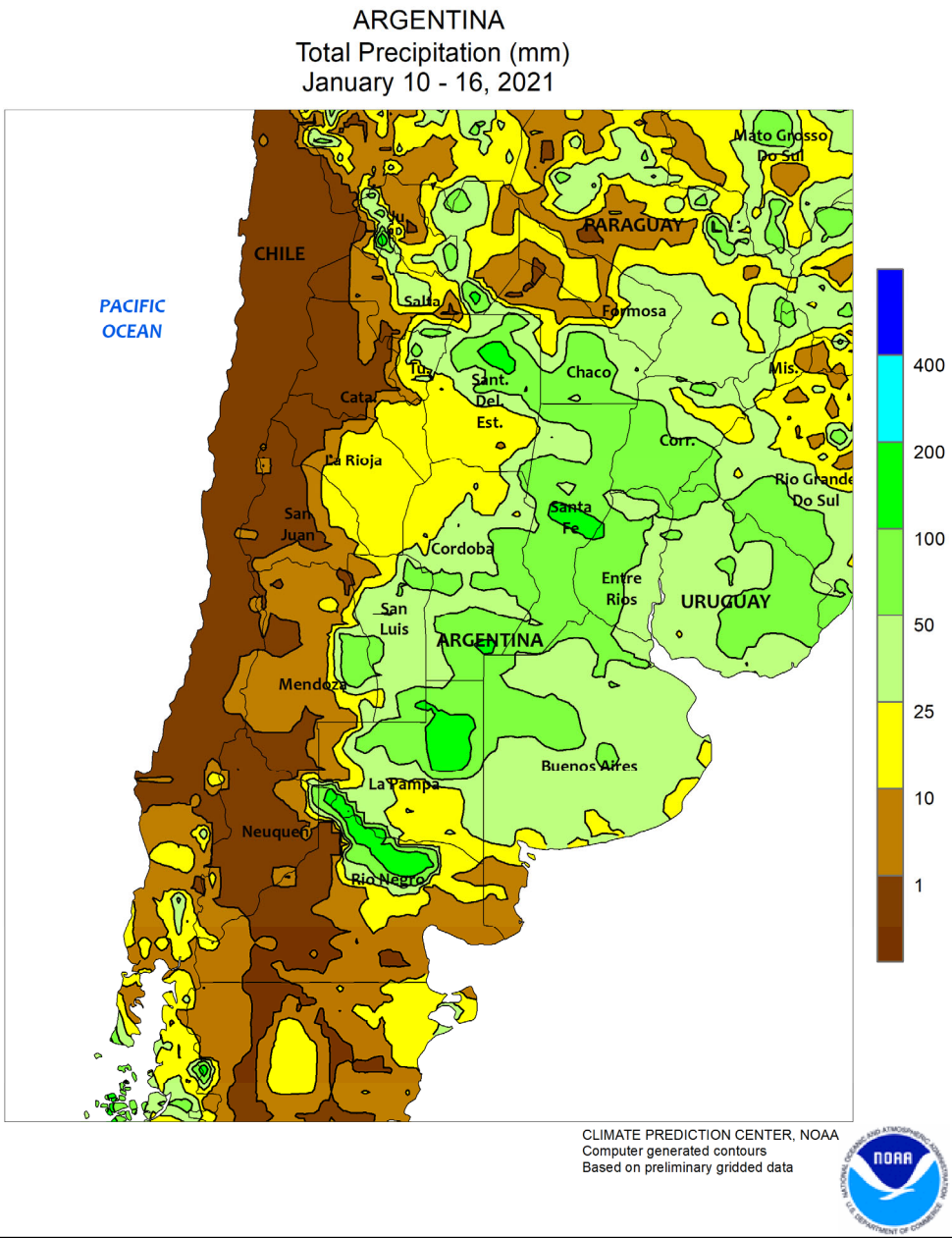

ARGENTINA

Much-needed rain soaked key farming regions, helping to replenish soil moisture reserves for more normal development of summer grains, oilseeds, and cotton. Rainfall totaled 25 to 100 mm in nearly all major farming areas, with the highest amounts (greater than 50 mm) concentrated from La Pampa northeastward to southern portions of Chaco and Corrientes. Weekly temperatures averaged 2°C above normal in the far north (notably Salta and Formosa) but near to below normal elsewhere, lowering moisture losses through evapotranspiration. In spite of the overall cooler pattern in central Argentina, daytime highs occasionally reached the lower and middle 30s (degrees C), advancing growth of corn, soybeans, and other crops currently nearing or advancing through moisture- and temperature-sensitive stages of development. According to the government of Argentina, corn and soybeans were 91 and 97 percent planted, respectively, as of January 14, similar to last year's pace for both crops. Cotton planting advanced just 1 point to reach 90 percent complete, with progress still lagging that of last year by approximately 10 points. Meanwhile, wheat was 99 percent harvested, 2 points ahead of last year's pace; in the leading production state of Buenos Aires, harvesting was 97 percent complete, 4 points ahead of last year's pace.

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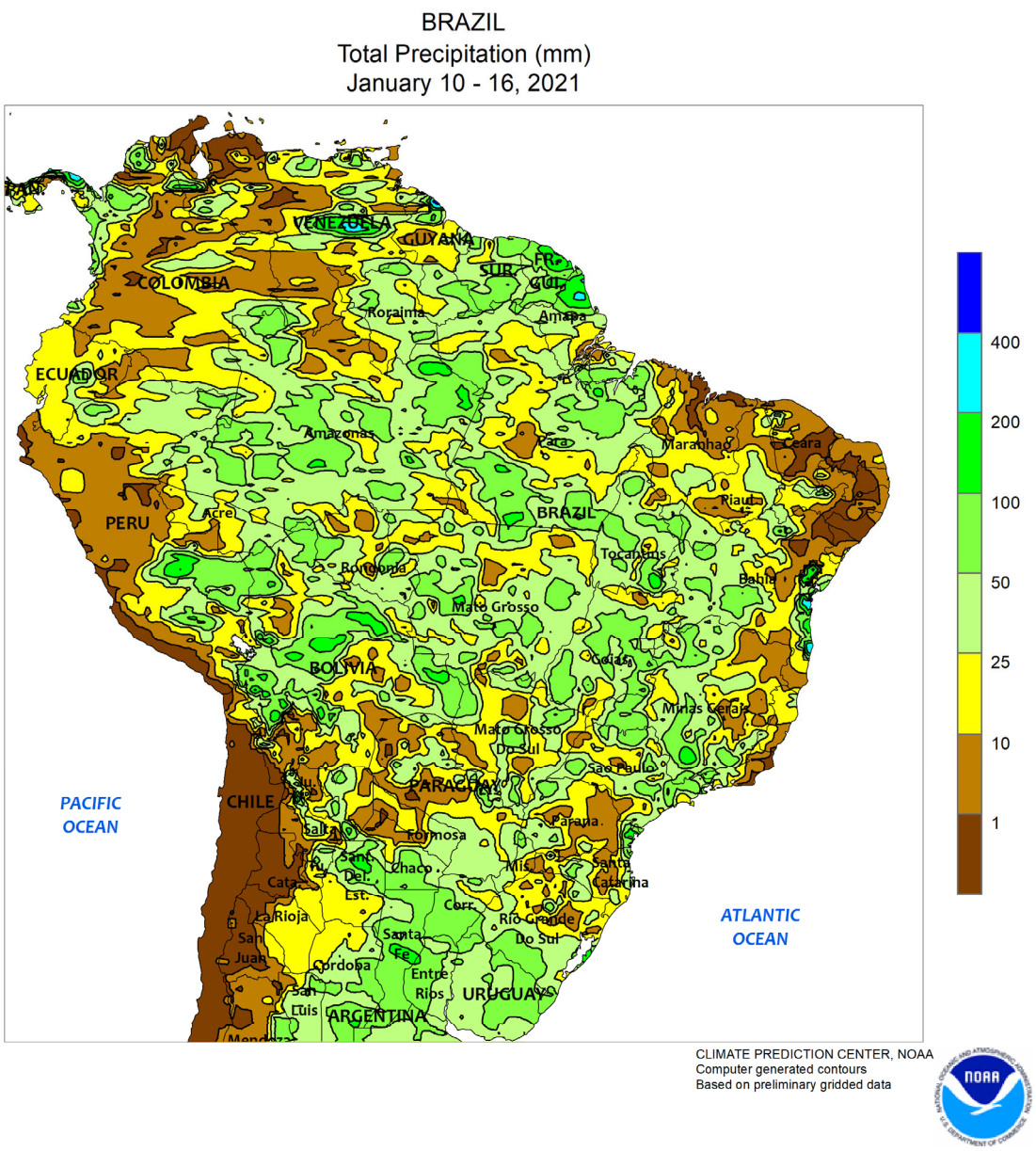

BRAZIL

Widespread showers provided timely moisture for soybeans and other summer crops in key production areas, though pockets of dryness persisted for southern corn and soybeans. Rainfall was highly variable (ranging from a few millimeters to more than 50), with the driest locations (rainfall totaling below 10 mm) concentrated from southern Mato Grosso do Sul and southern Sao Paulo southward, a region that has experienced periodic dryness for much of the season. Near- to above-normal temperatures accompanied the rainfall, with daytime highs reaching the lower and middle 30s (degrees) on several days, sustaining high evapotranspiration rates in reproductive corn and soybeans while preventing soil moisture levels from fully recovering. Moisture levels for soybeans and other crops in the aforementioned region have been adequate at best and weekly rainfall has been crucial for sustaining yield prospects. According to the government of Rio Grande do Sul, corn was 15 percent harvested as of January 14, with another 24 percent mature; soybeans were farther behind in development with just 31 percent of soybeans having begun to flower. In Parana, at least 90 percent of both first-crop corn and soybeans had reached reproduction as of January 11, with early planted crops now reaching maturity.

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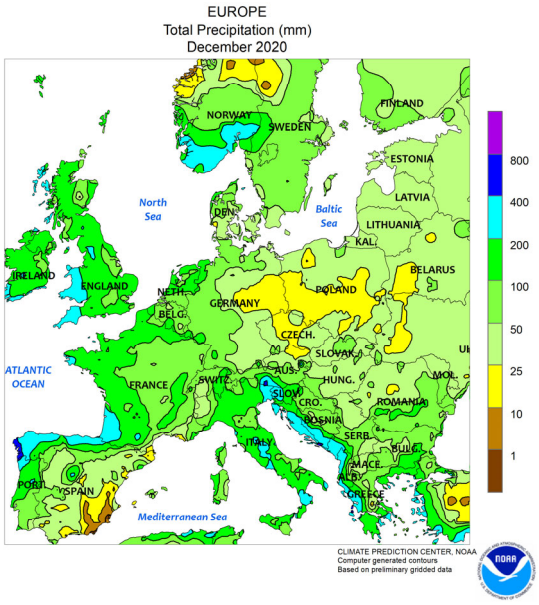
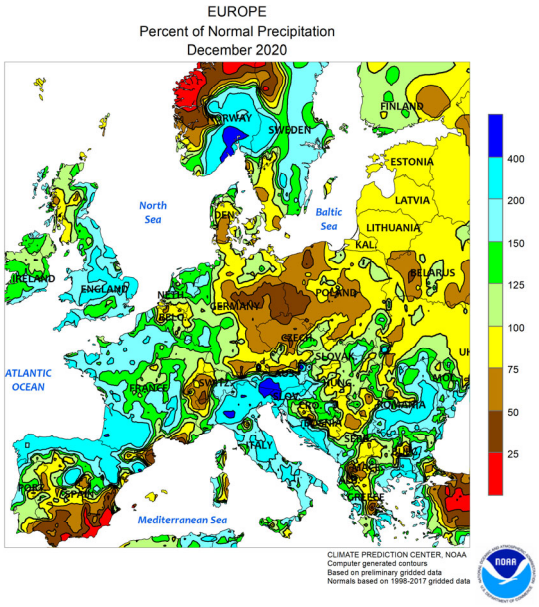
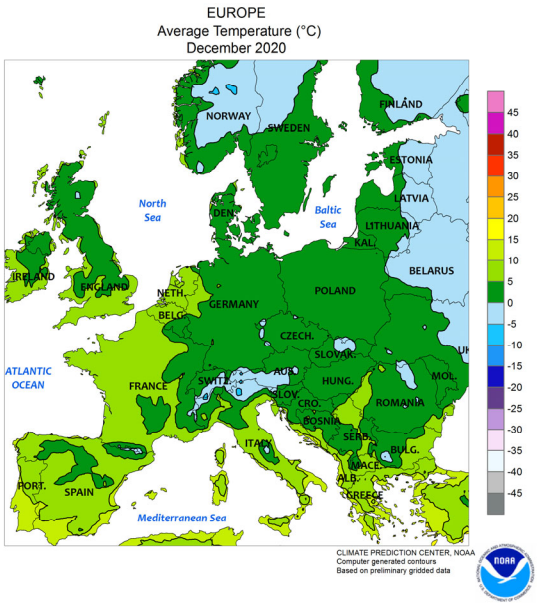
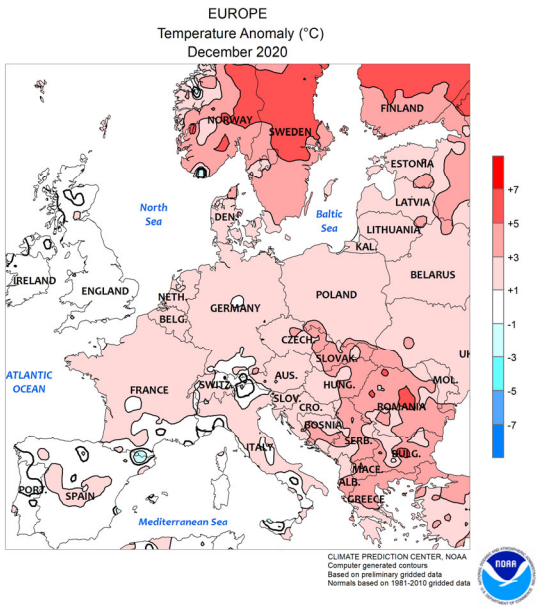
December International Temperature and Precipitation Maps









EUROPE

During December, near- to above-normal precipitation and temperatures prevailed across much of the continent. Temperatures during the winter's first month averaged 1 to 2°C above normal from France into Poland, while readings up to 6°C above normal were noted in southeastern Europe as well as Scandinavia. The warmth minimized the threat of winterkill but kept primary winter crop growing areas devoid of snow cover. The month featured an active storm track from England southeastward across the central and eastern Mediterranean Coast, netting areas along and adjacent this storm track near- to much-above-normal precipitation (100-400 percent, locally more). Some orographically enhanced precipitation totals topped 400 mm (liquid equivalent), most notably in northern Italy and southern Greece. Despite the stormy weather pattern, drier-than-normal conditions (25-50 percent of normal) were noted during December in southeastern Germany and environs, though the dryness had little to no impact on dormant winter crops. Precipitation was also lighter than normal in southern Spain, though the country's primary winter wheat and barley areas (center and north) fared better (75-150 percent of normal). Overall, prospects for vegetative (south) to dormant (center and north) winter crops remained favorable and markedly improved over the same time last year.

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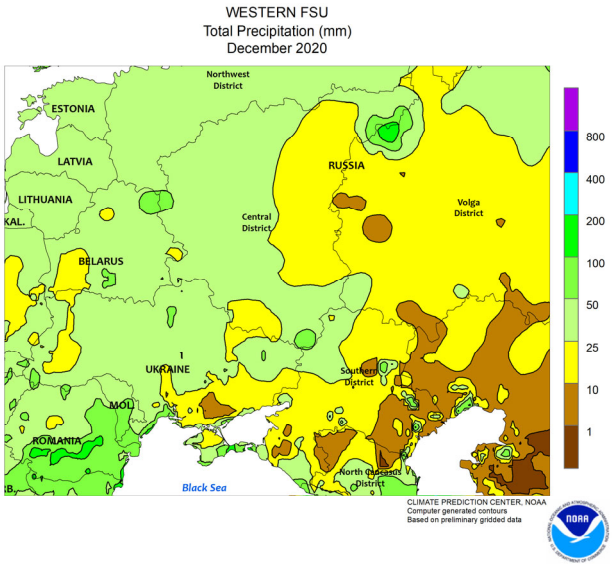

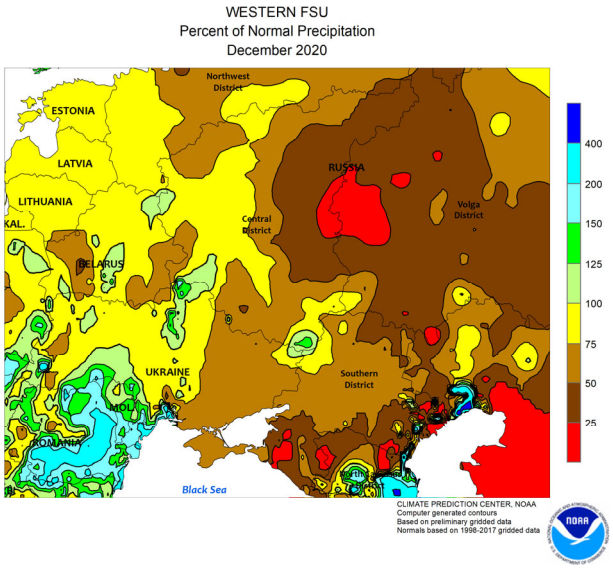

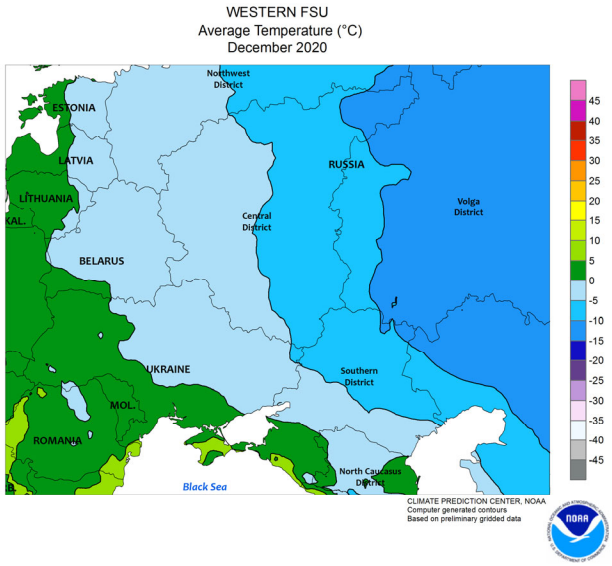

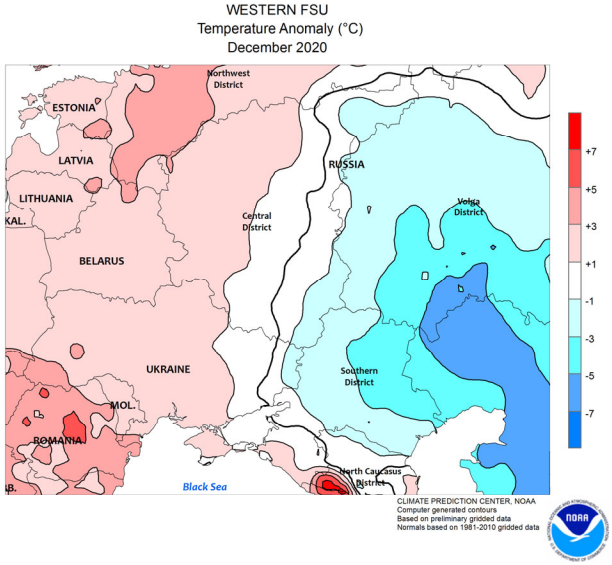

WESTERN FSU

Dry, colder-than-normal weather in Russia contrasted with warmer, wetter conditions to the west. A strong area of persistent high pressure maintained mostly dry weather (less than 50 percent of normal) across Russia, though pockets of rain and snow (70-100 percent of normal, locally more) spread into west-central and northwestern portions of the country. December was very cold in Russia, with temperatures averaging up to 7°C below normal in the southern Volga District; however, a moderate to deep snowpack protected dormant winter crops from temperatures as low as -26°C. Conversely, temperatures moderated considerably to the west, with readings 2 to 4°C above normal noted from central and western Ukraine northward. The warmth was also accompanied by near- to above-normal precipitation (80-150 percent of normal), though dry conditions (60 percent of normal or less) were noted in southeastern Ukraine. Overall, Ukraine's barley, wheat, and rapeseed entered dormancy in favorable condition during November; conversely, Russia's winter wheat entered dormancy in fair to poor shape owing to severe autumn drought.

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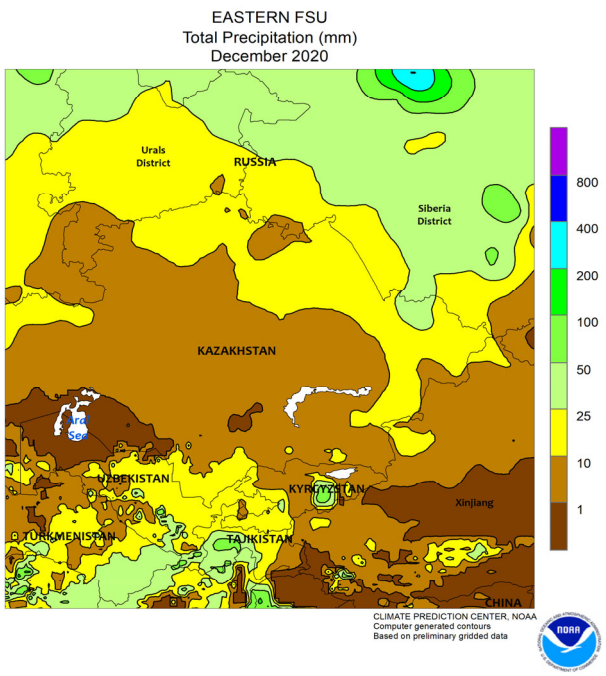

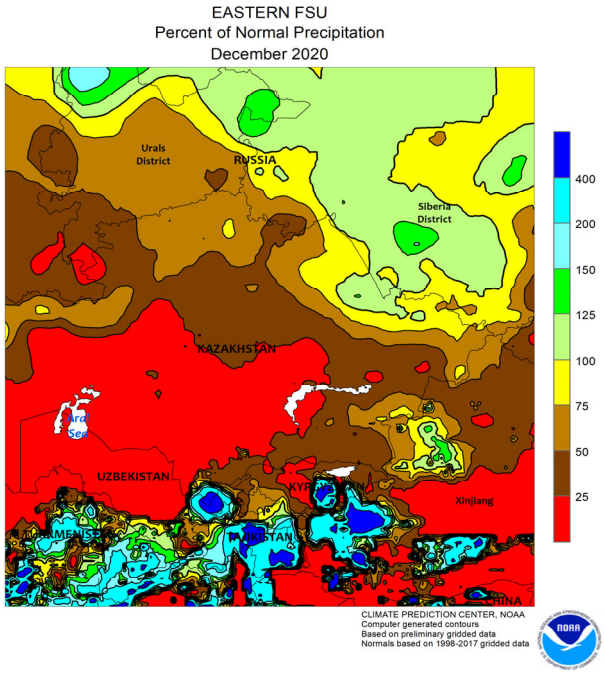

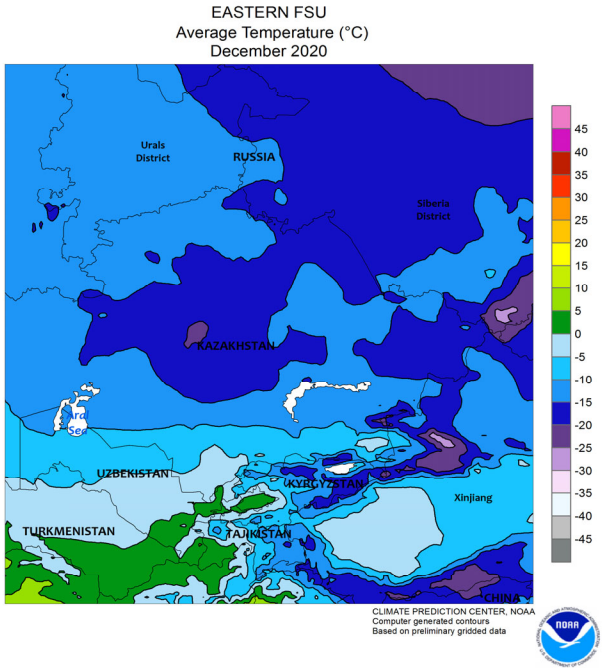

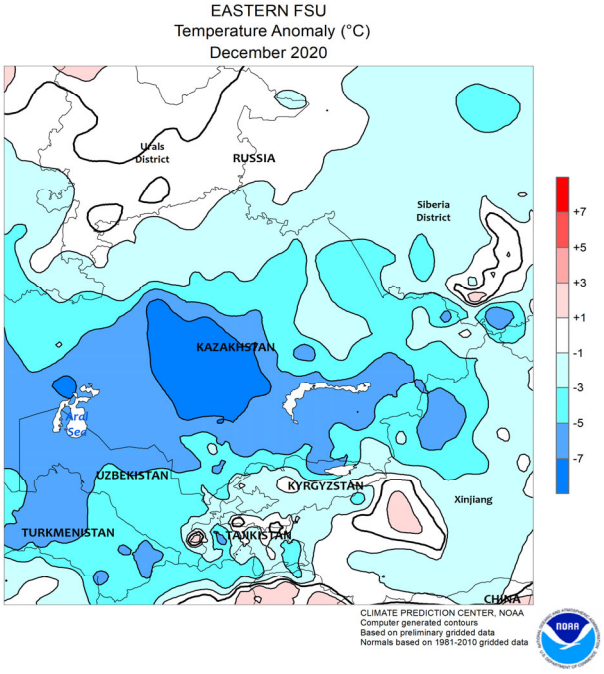

EASTERN FSU

During December, seasonable bitter cold persisted over central Russia and northern Kazakhstan, while unfavorable dryness intensified in the south. Monthly lows reached -31°C in northwestern Kazakhstan and -47°C in Russia's Siberia District. The region remained encased in a deep snowpack, and agricultural activity is non-existent during the winter months due to the extreme cold. Farther south, the dry start to the new water year continued in many of the region's primary watersheds. Since September 1, regional-average precipitation (through mid-January) has totaled less than 40 percent of normal in southern Kazakhstan and less than 25 and 50 percent of normal in western and central Uzbekistan, respectively. Season-to-date precipitation has been marginally better (at or slightly above 60 percent of normal) in Turkmenistan and eastern Uzbekistan. There is still time to recharge mountain snowpacks and reservoirs, which are vital for cotton irrigation in the summer; the crux of the region's wet season runs from November 1 through June 1.

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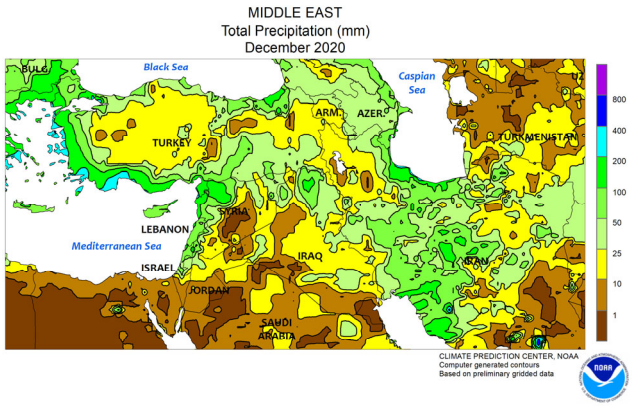

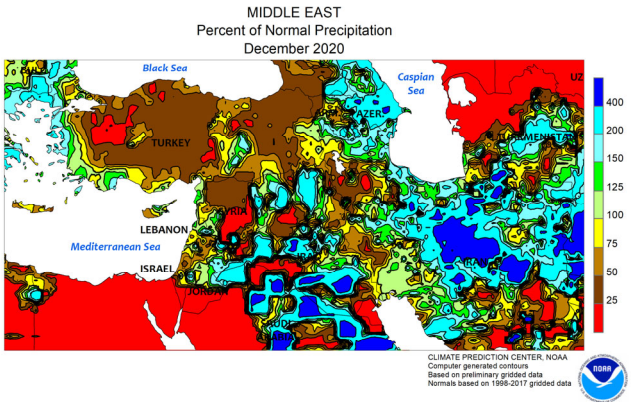

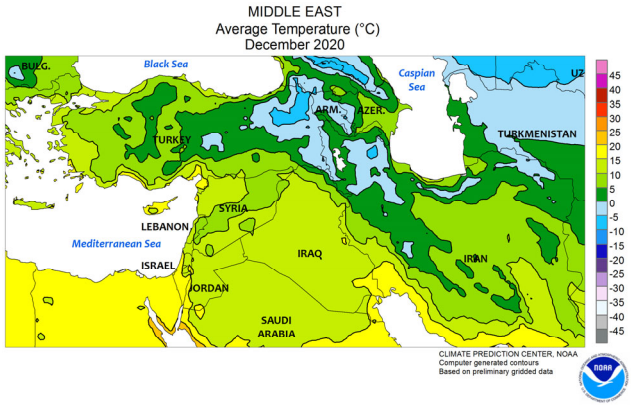

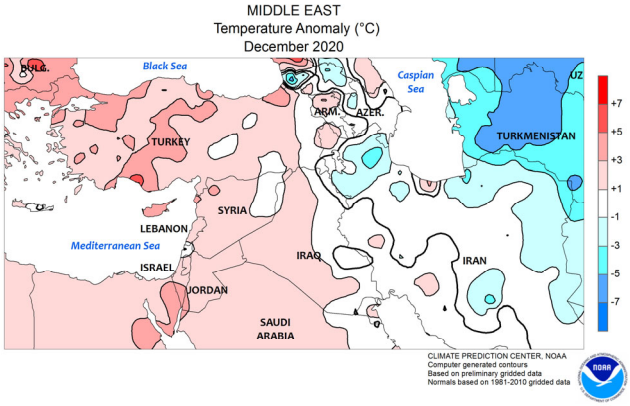

MIDDLE EAST

During December, near- to above-normal precipitation in central and eastern portions of the region contrasted with intensifying short-term drought in central Turkey. Moderate to heavy rain (25-100 mm, locally more) was observed from the Mediterranean Coast eastward into much of Iran; in some typically arid locales, this represented more than 5 times the normal monthly total. Consequently, early-season winter grain prospects remained favorable in these locales, particularly from Jordan into southern Iraq and much of Iran. Conversely, rain continued to bypass central Turkey's Anatolian Plateau, where precipitation averaged less than half of normal. The satellite-derived Vegetation Health Index indicated winter grains entered dormancy in very poor condition, and crops in central Turkey will be reliant on winter and spring precipitation to recover from the autumn and early-winter drought. Temperatures across the western half of the region averaged up to 4°C above normal for the month, while chilly conditions (1-4°C below normal) were noted in northern and eastern Iran.

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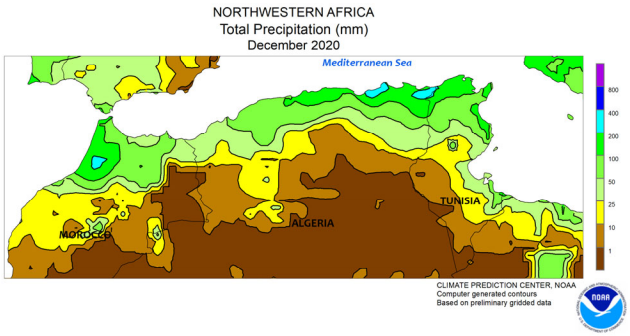
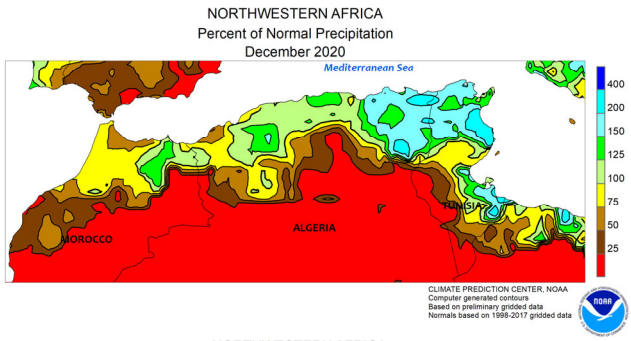
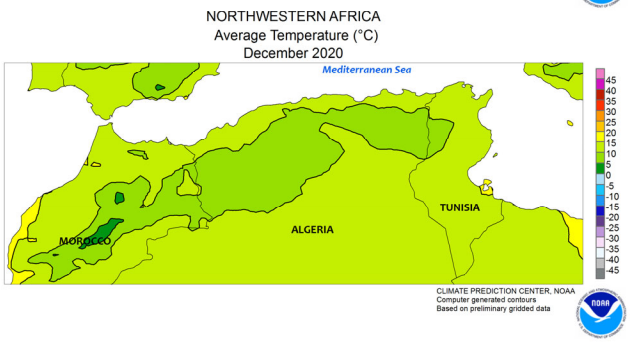
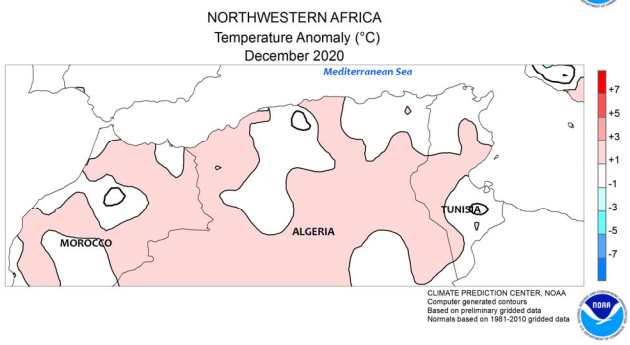


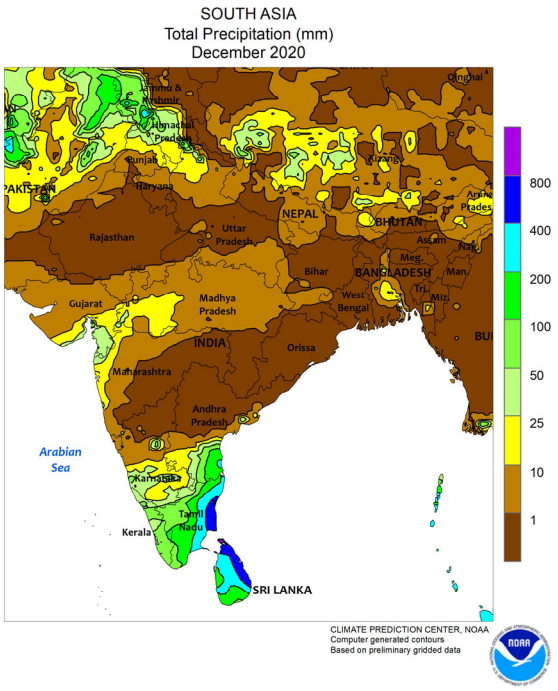


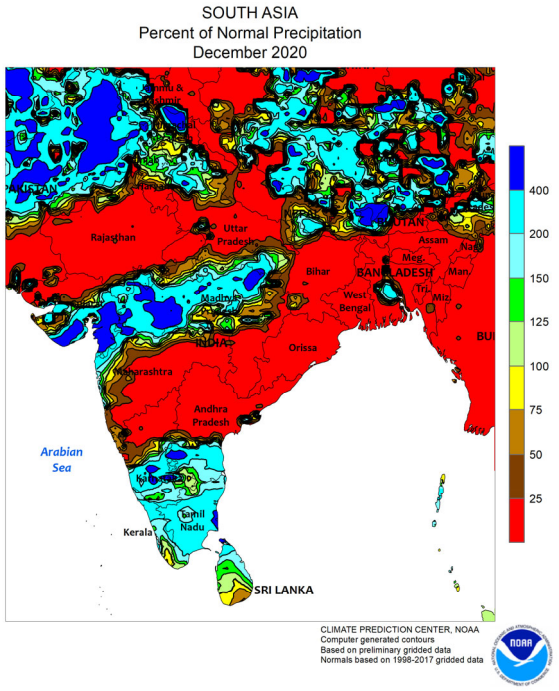


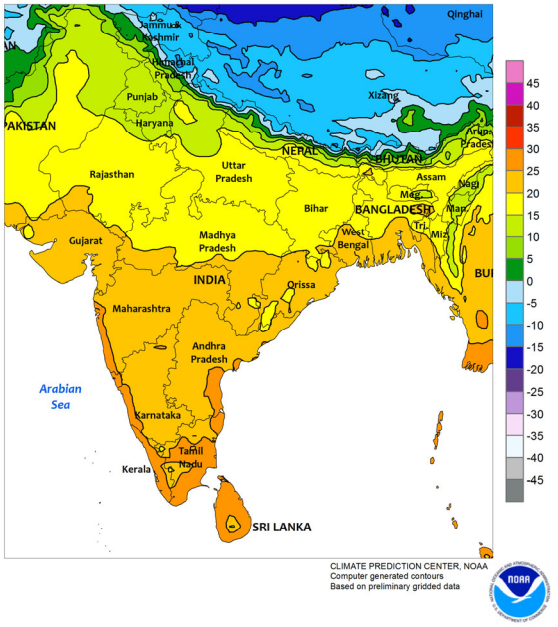


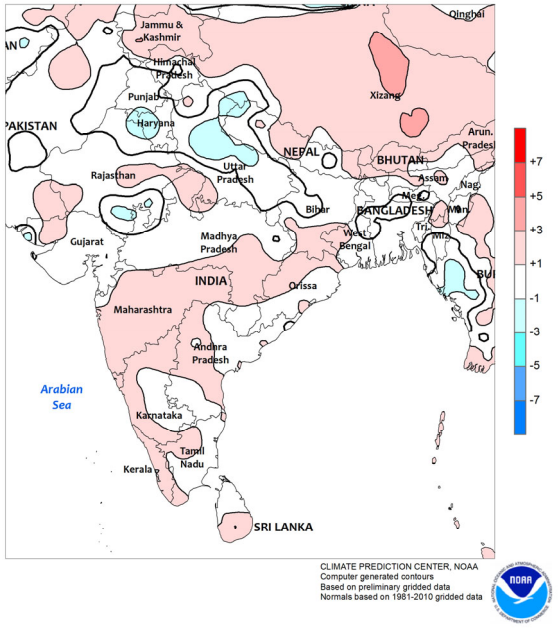
NORTHWESTERN AFRICA

Wet weather continued in the east, while additional rain further eased long-term drought in Morocco and western Algeria. The favorable start to the winter grain growing campaign continued across the eastern half of the region, with 50 to 200 mm of rain (locally more than 200 percent of normal) reported from north-central Algeria into northern Tunisia. Meanwhile, the drought relief which began in late November over western growing areas continued through December, with 20 to 100 mm of rain reported across much of Morocco and western Algeria. Nevertheless, locally dry conditions (less than 20 mm) lingered in west-central Morocco, where the satellite-derived Vegetation Health Index continued to depict locally poor crop vigor through month's end.









SOUTH ASIA

Seasonably dry weather prevailed across much of India in December, supporting continued rabi crop sowing. Rainfall was generally limited to far southern India (50-300 mm) and northern-most areas (25-100 mm), aiding crop establishment. Elsewhere, consistent showers (150-500 mm, 100-200 percent of normal) in Sri Lanka maintained ample water for maha rice, while periodic rainfall (10-50 mm, 100-125 percent of normal) in northern Pakistan benefited wheat.

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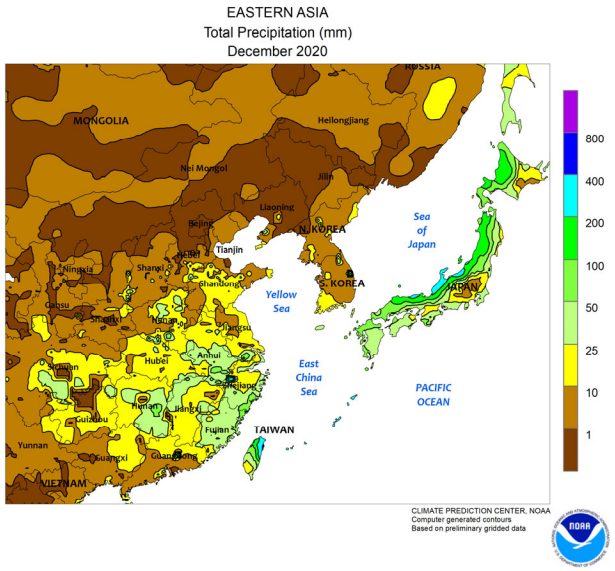

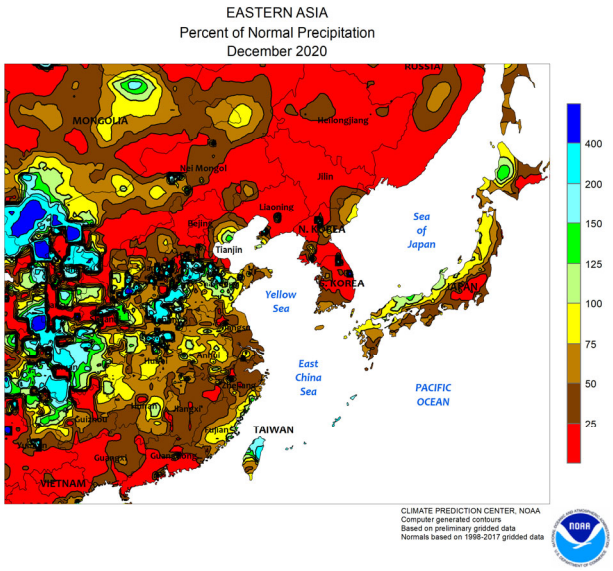

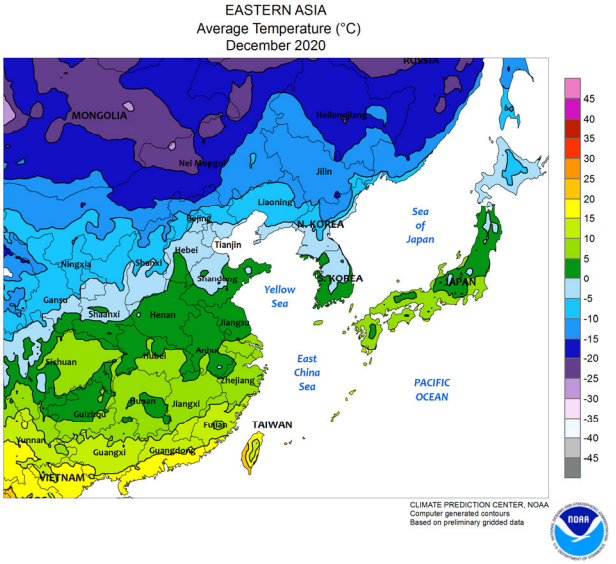

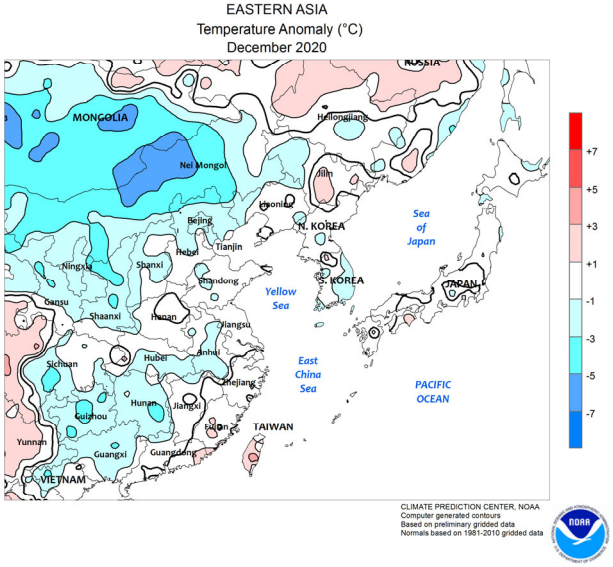

EASTERN ASIA

Occasional rainfall and snow in eastern China maintained good moisture reserves for overwintering crops. On the North China Plain, rain early in the month and late-month snow brought upwards of 25 mm (liquid equivalent) to dormant wheat; the moisture will benefit the crop during spring green up. Meanwhile, seasonable rainfall (25-50 mm, locally more) in the Yangtze Valley sustained good soil moisture for vegetative rapeseed in the traditionally warmer southern and western areas as well as boosted moisture reserves for dormant crops in the colder northern and eastern sections. Temperatures were near to slightly below normal throughout the major crop areas.

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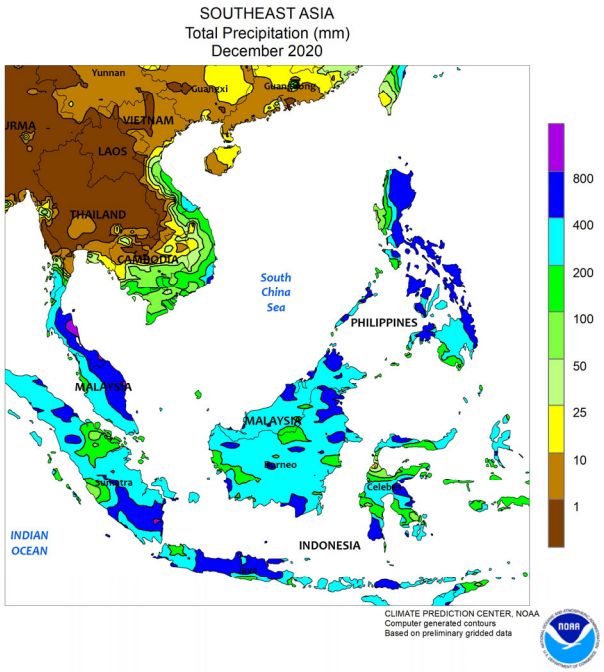

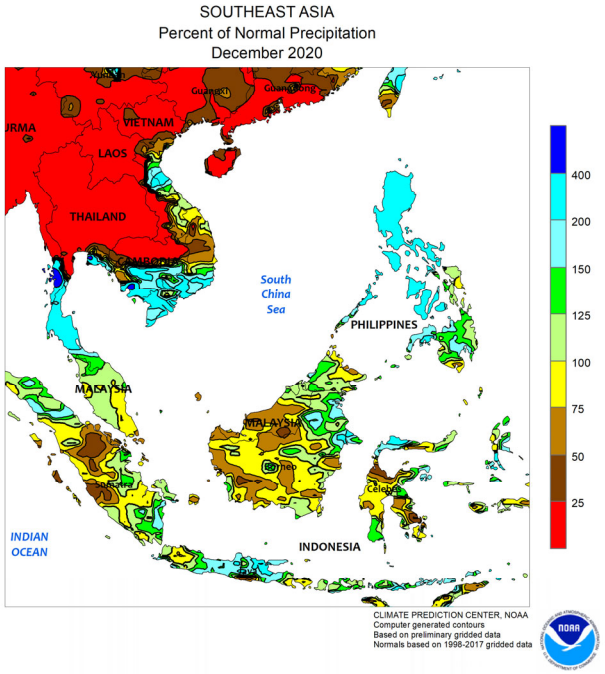

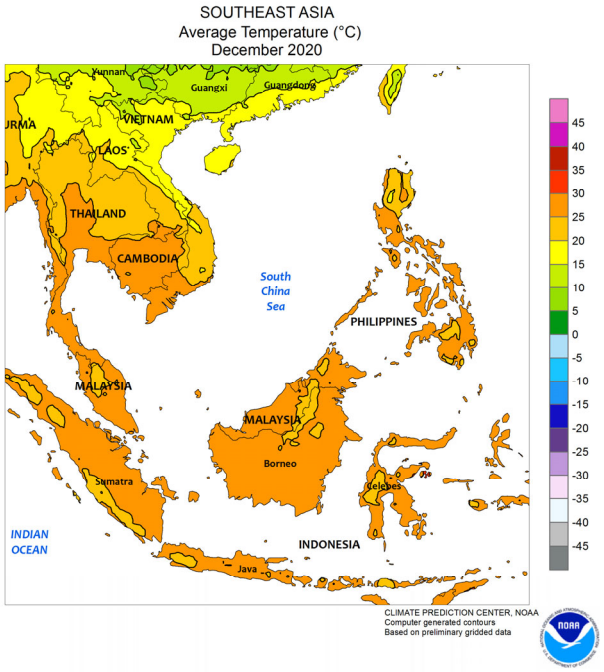

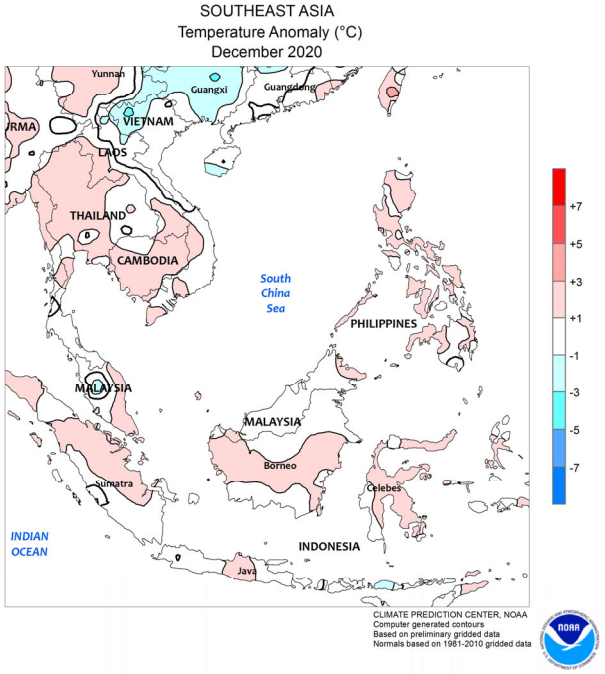

SOUTHEAST ASIA

Heavier-than-normal showers continued across portions of the region during December, maintaining ample moisture supplies for crops. A continuation of wet weather in the Philippines brought over 150 mm of rain (125-200 percent of normal) to most of the country, with some eastern-most areas topping 600 mm (over 200 percent of normal). In particular, parts of the northeast ranked as the wettest in the last 30 years. Additionally, a late-month tropical cyclone (Krovanh) added to rainfall totals, particularly in the south, as it formed near western Mindanao. The abundant moisture throughout much of the country sustained good rice and corn prospects while causing some localized flooding. Farther south, most of Malaysia and Indonesia recorded 200 to locally over 600 mm of rain (75-175 percent of normal). Although rainfall amounts varied, all areas saw marked increases in 90-day totals versus the same period last year. Furthermore, the continued downpours in southern Indonesia (Java) have been a complete reversal from last year's drought, with increased rice sowing and improved prospects.

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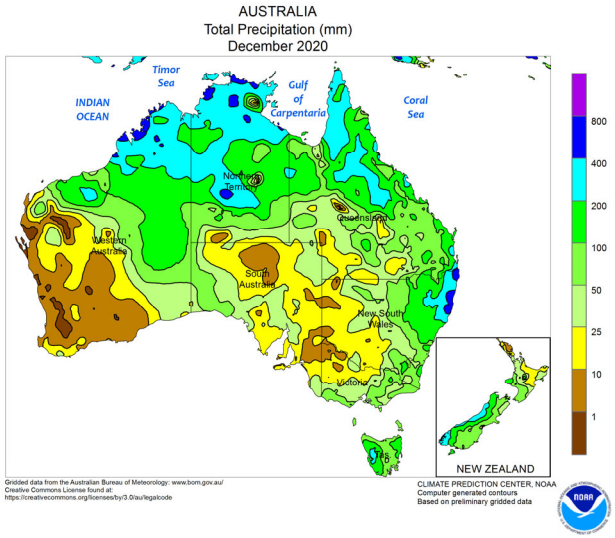
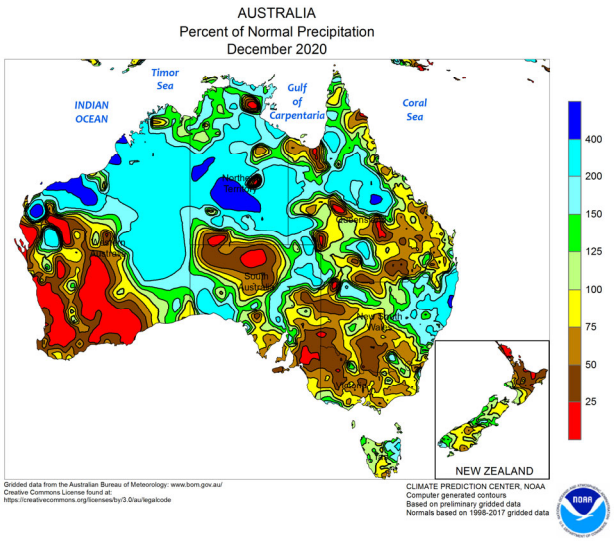
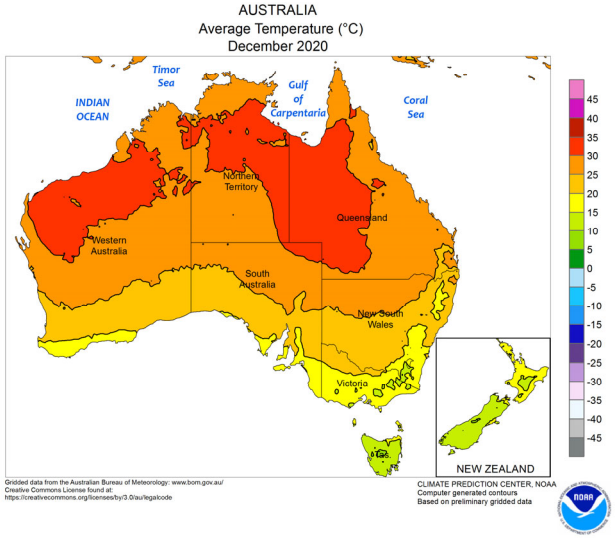
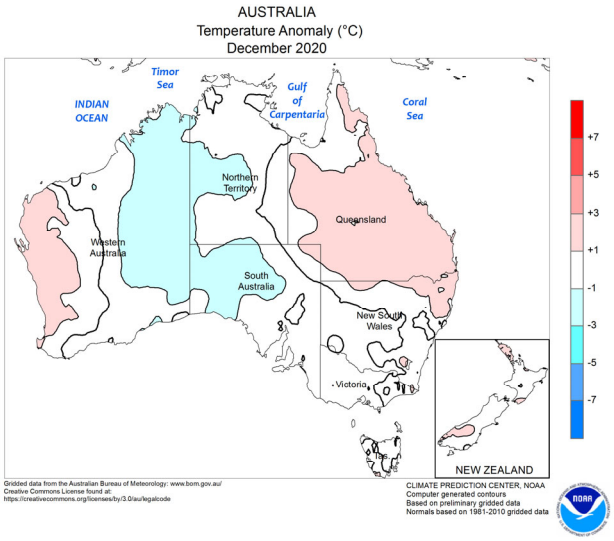


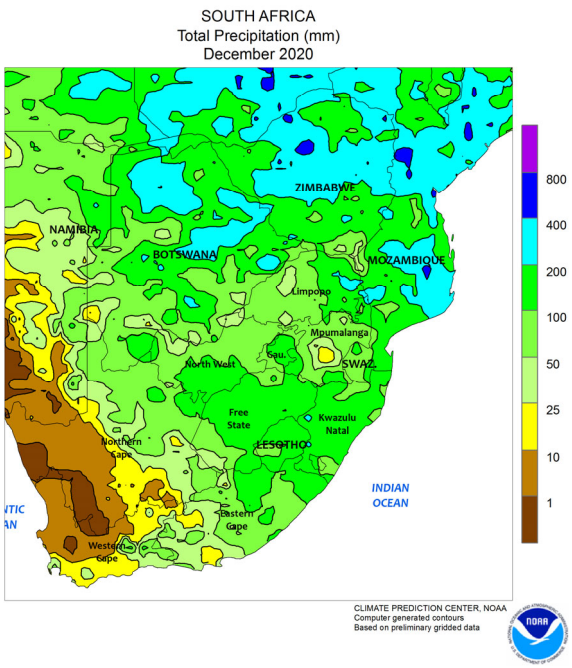


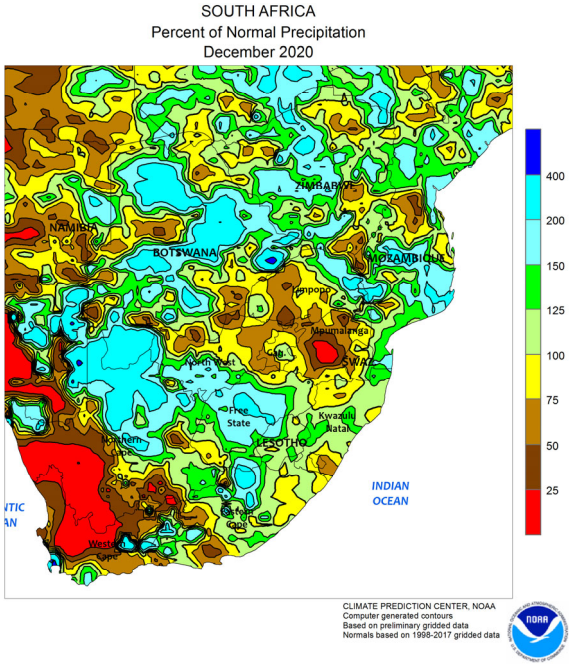


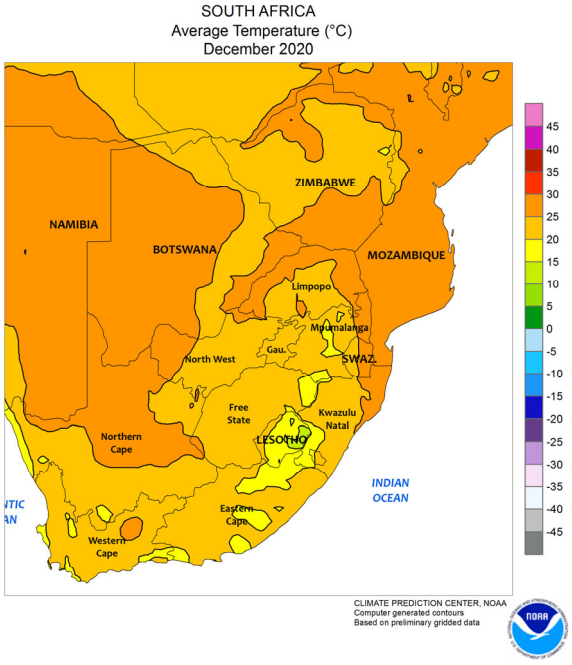


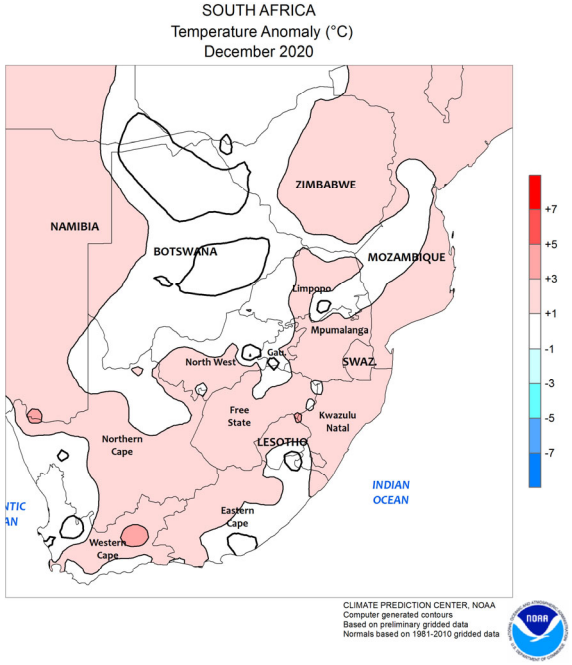
AUSTRALIA

In the wake of a mostly dry November, abundant rain overspread a sizable portion of southern Queensland and northern New South Wales during December. The rain provided a welcome boost in topsoil moisture for dryland summer crops and eased the supplemental water requirements of irrigated crops. Overall, the increased rainfall was very beneficial for cotton and sorghum, helping to improve crop conditions and subsequently yield prospects. Elsewhere in the wheat belt, below-normal rainfall was observed throughout most of southern and western Australia in December. The relative dryness favored rapid wheat, barley, and canola harvesting and helped maintain the quality of crops during harvest.









SOUTH AFRICA

Frequent, occasionally heavy December showers maintained favorable prospects for germination and establishment of rain-fed summer crops. Nearly all regions dependent upon summer rainfall for production of corn, sugarcane, and other crops reported near- to above-normal amounts. Unseasonably heavy rain also fell in farming areas along the Orange River and in northern sections of KwaZulu-Natal, reducing irrigation demands of corn, cotton, and sugarcane. In contrast to the aforementioned abundant rain, drier conditions prevailed at the northern and eastern edges of the corn belt (Limpopo and Mpumalanga) and parts of southern KwaZulu-Natal's rain-fed sugarcane region. December temperatures in the core summer crop regions averaged near to above normal, spurring rapid growth of germinating to vegetative corn. Elsewhere, periodic showers swept across the southern coast of Western Cape, but generally warm, sunny weather favored development of tree and vine crops.

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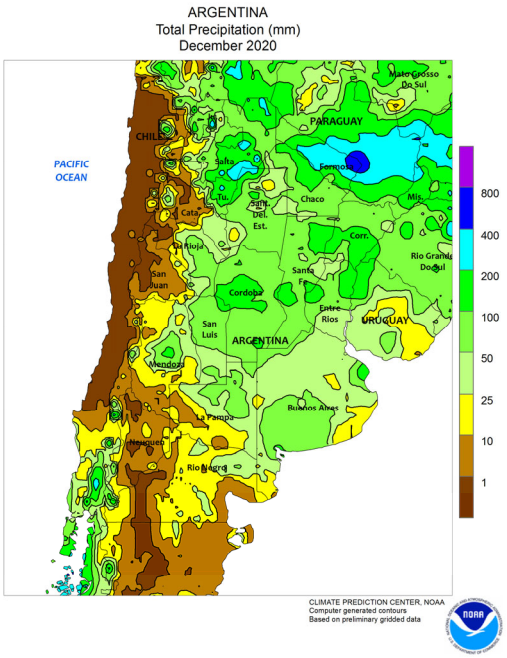
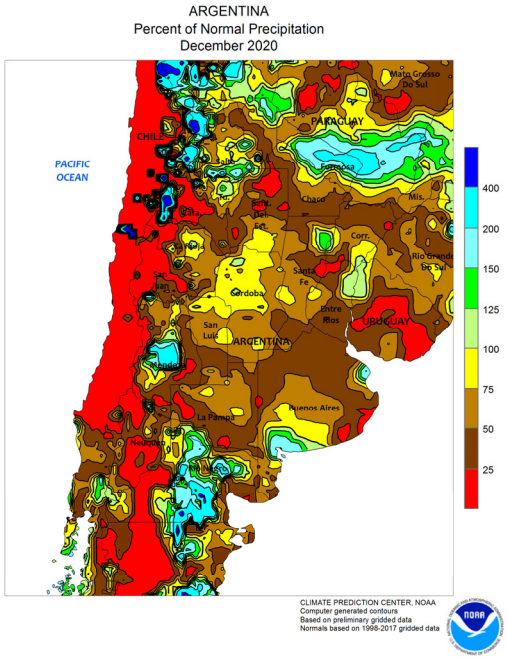
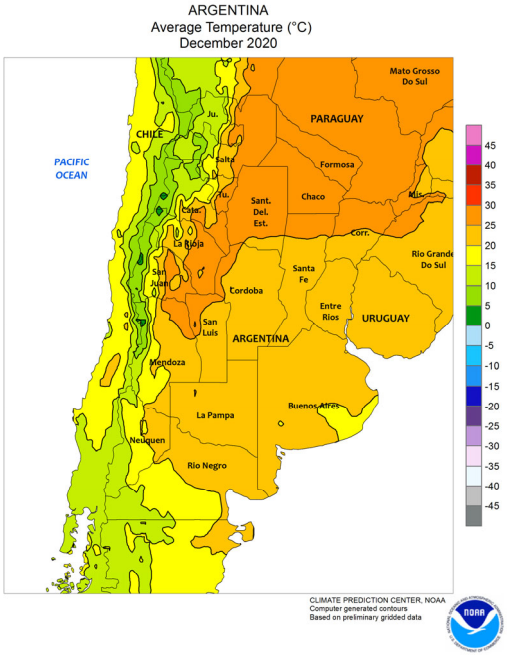
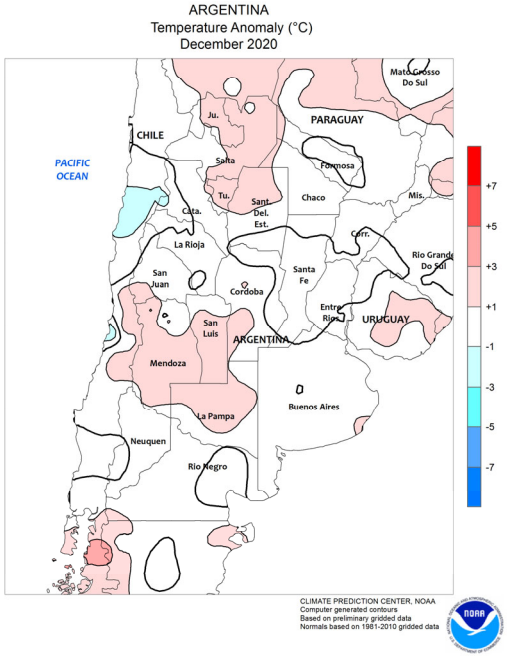


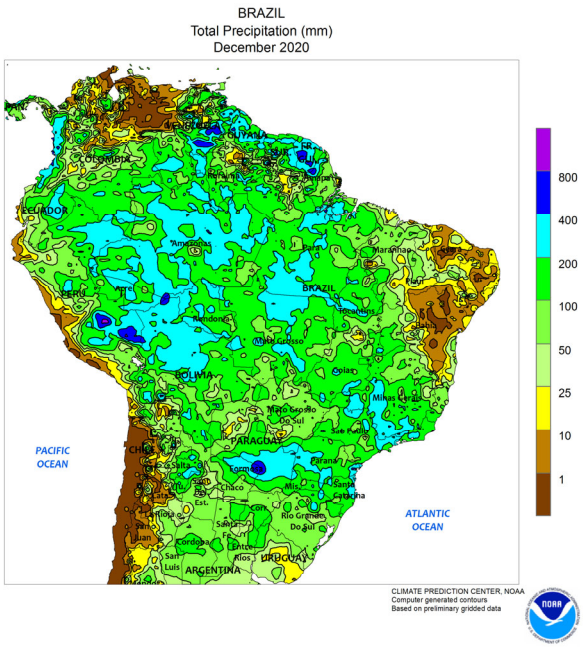


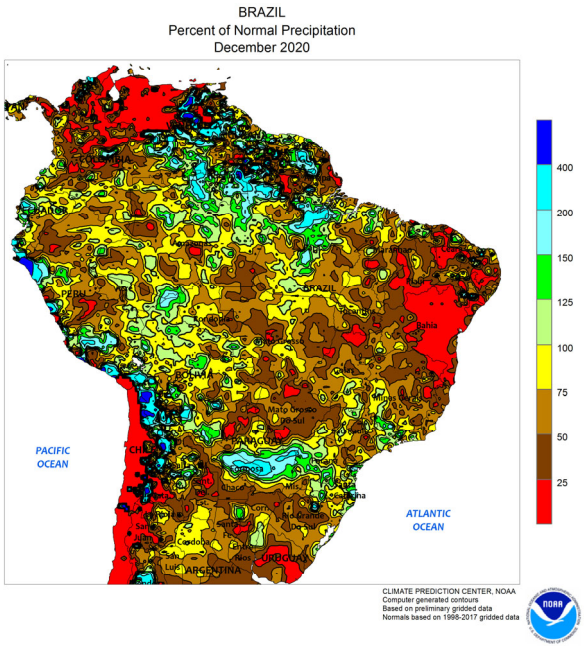


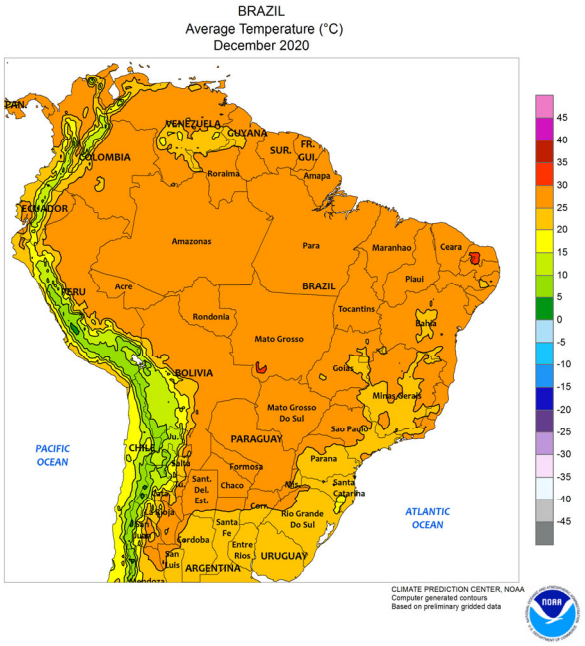


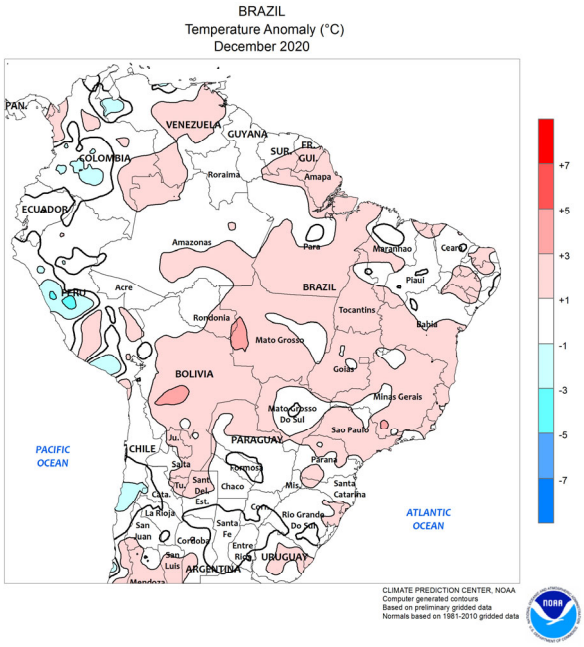
ARGENTINA

In December, untimely dryness and seasonal warming fueled a decline in summer crop yield prospects in key production areas of central and northwestern Argentina. The driest region was centered over northern Buenos Aires, a large portion of which reported less than 50 mm of rain for the entire month. Other parts of central Argentina and the northwest recorded occasional rounds of rain that helped to stabilize conditions of corn, soybeans, and other crops advancing through reproduction. However, summer warmth sustained high losses in soil moisture in the aforementioned regions through evapotranspiration; while monthly temperatures averaged near to slightly below normal in high-yielding farmlands of central Argentina (northern Buenos Aries and environs), daytime highs exceeded 35°C several times. December temperatures averaged near to above normal in the northwest (notably Santiago del Estero, Salta, and neighboring locations in Chaco), where temperatures often reached 40°C. Meanwhile, periods of heavy rain in the northeast (northern Entre Rios to Formosa) provided timely moisture for germination of cotton and other summer crops, in contrast to the December dryness to the south and west.









BRAZIL

During December, periods of locally heavy rain helped to stabilize the condition of soybeans and other summer crops experiencing earlier periods of untimely dryness. Monthly rainfall was generally near to below normal from Mato Grosso southward through Rio Grande do Sul, and most locations experienced at least one extended period of dryness lasting a week or more, but monthly accumulations still reached 100 to 250 mm. Rio Grande do Sul has been particularly affected by this season's trend of below-normal rainfall, which has reportedly already caused some damage to early-planted corn. Elsewhere, periods of heavy rain also benefited soybeans and other summer crops in the northeastern interior (Tocantins, western Bahia, and environs), which has also experienced several extended periods of dryness following an overall favorable start to the rainy season. Similar conditions prevailed farther south for corn and soybeans in Goias and western Minas Gerais, but rainfall was more consistent over coffee areas of southern Minas Gerais. December temperatures averaged within 1°C of normal throughout Brazil and summer warmth (daytime highs often reaching the lower and middle 30s degrees C) maintained high moisture requirements of reproductive to filling soybeans and corn.

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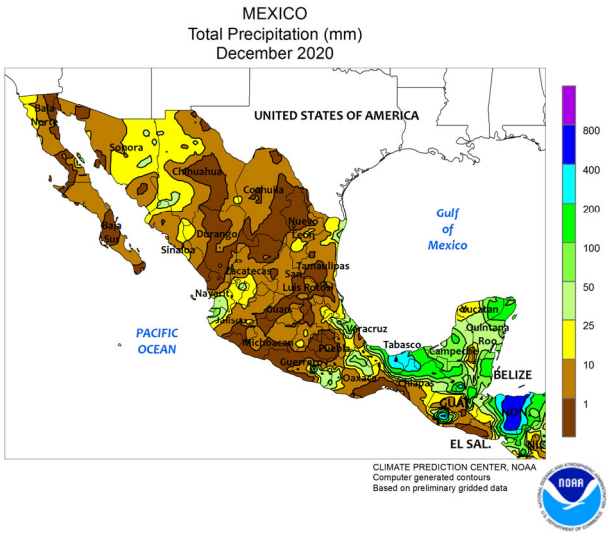

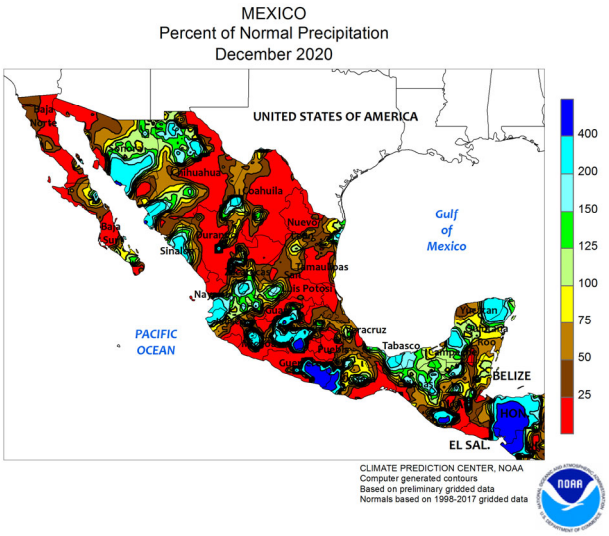

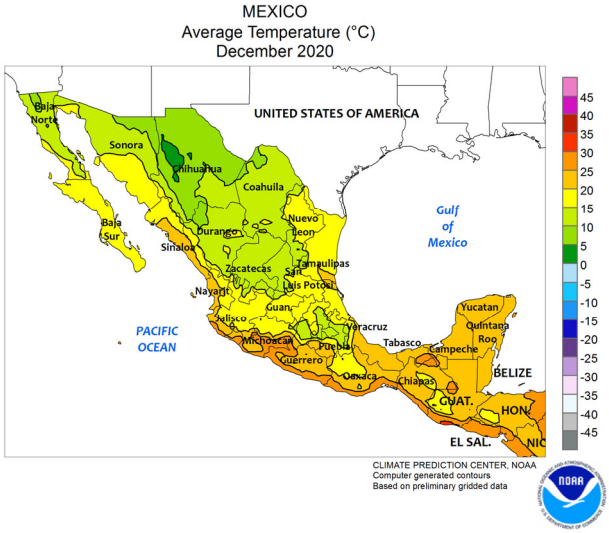

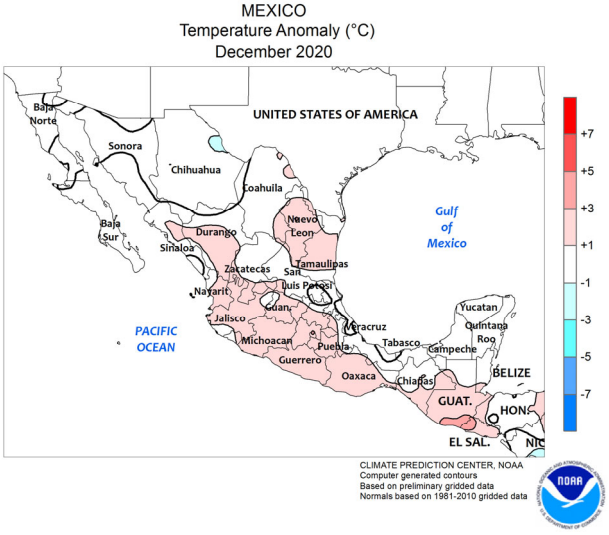

MEXICO

December rainfall provided an unseasonable albeit timely boost to winter reservoir levels in northwestern watersheds. Monthly accumulations totaled 5 to 50 mm from Sinaloa and Durango northward, owing to several outbreaks of showers. Separate from the northwestern showers, early-month heavy rain (greater than 50 mm) benefited winter farming in Nayarit. According to the government of Mexico, reservoir levels were at 60 percent capacity as of December 31; in the northwest, levels were at 40 percent in Sonora, 35 percent in Sinaloa, and 30 percent in Chihuahua. Elsewhere, scattered showers overspread northeastern farming areas (notably northern Tamaulipas westward to northern Coahuila), improving prospects for germination and establishment of largely rain-fed winter sorghum while increasing water reserves for the region's livestock. Heavy rain persisted over sections of the southeast, sustaining high reservoir levels but maintaining excessive levels of wetness in the vicinity of Tabasco. Meanwhile, seasonable dryness favored harvesting of corn and other mature summer crops across the southern plateau (eastern Jalisco to Puebla).

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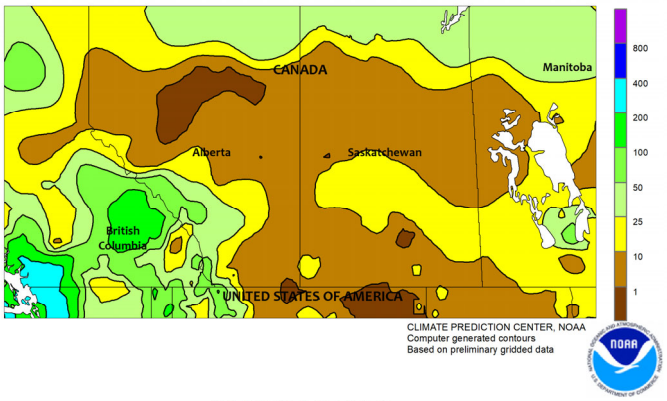
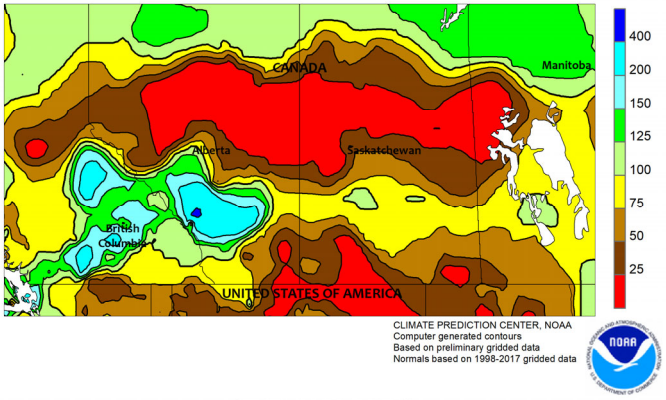
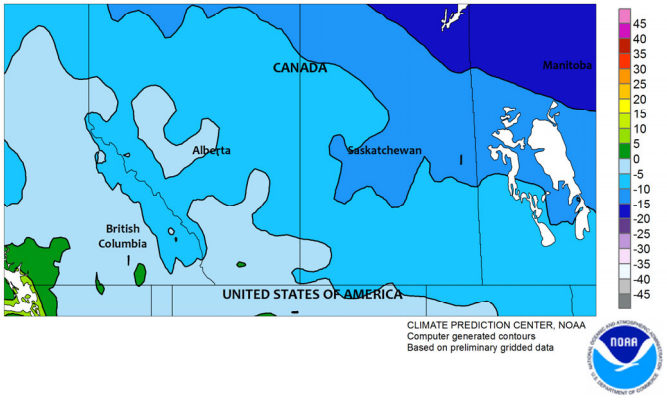
CANADIAN PRAIRIES
Total Precipitation (mm)
December 2020



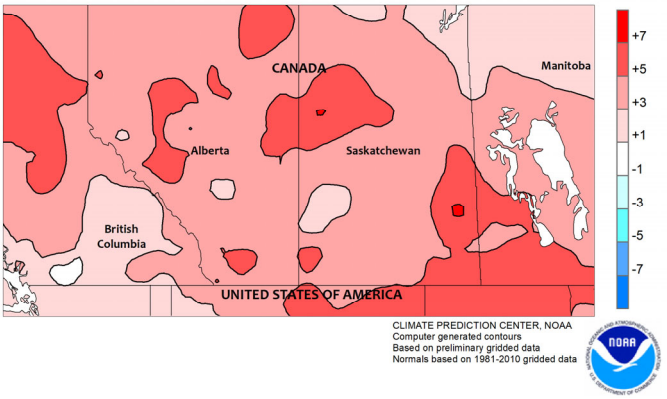
CANADIAN PRAIRIES
Percent of Normal Precipitation
December 2020



CANADIAN PRAIRIES
Average Temperature (°C)
December 2020



CANADIAN PRAIRIES
Temperature Anomaly (°C)
December 2020



CANADIAN PRAIRIES

Unseasonably warm December weather maintained generally favorable conditions for overwintering wheat and pastures. Monthly temperatures averaged 3 to 6°C above normal across the Prairies. As a result, a protective snow cover was largely non-existent in southern agricultural districts and Interlake Region for the first three weeks of December. At mid-month, an outbreak of bitter cold (nighttime lows falling below -25°C) in Manitoba was accompanied by only light, scattered snow showers, raising the potential for winterkill in barren fields. Snow offered some protection from damage during a second cold wave later in the month. Southern agricultural districts in Alberta and Saskatchewan also experienced several brief incursions of cold air (nighttime lows near -20°C) in the absence of snow and the region remained void of snow cover at month's end. December precipitation was below normal in most locations, with much of the region recording liquid equivalents below 10 mm.

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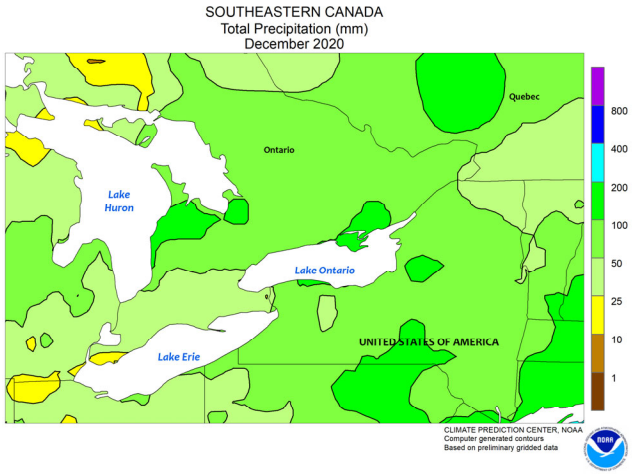

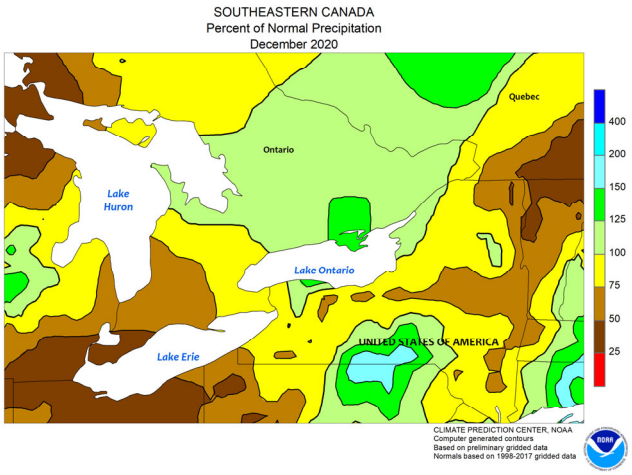

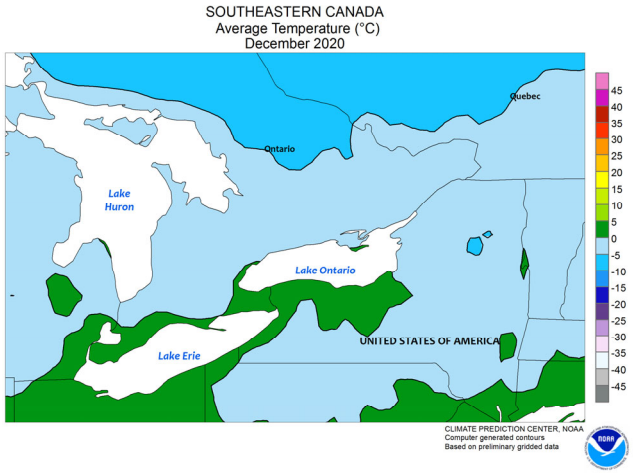

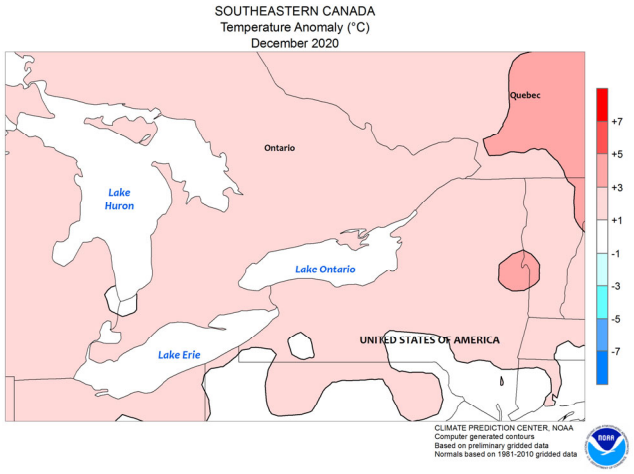

SOUTHEASTERN CANADA

Unseasonable warmth favored overwintering wheat and pastures, as temperatures generally stayed well above the threshold for winterkill. Despite consistently warmer-than-normal conditions, snow cover was prevalent in traditionally colder agricultural districts in both Ontario and Quebec. A mid-month outbreak of bitter cold (several nights with temperatures at or below -17°C) was preceded by light snow in some of the colder locations in southern Quebec, providing some protection to vulnerable vegetation. Snow depths were greater in those locations in Ontario experiencing similar temperatures. December precipitation was highly variable, with below-normal amounts in southern-most farming areas of both Ontario and Quebec.

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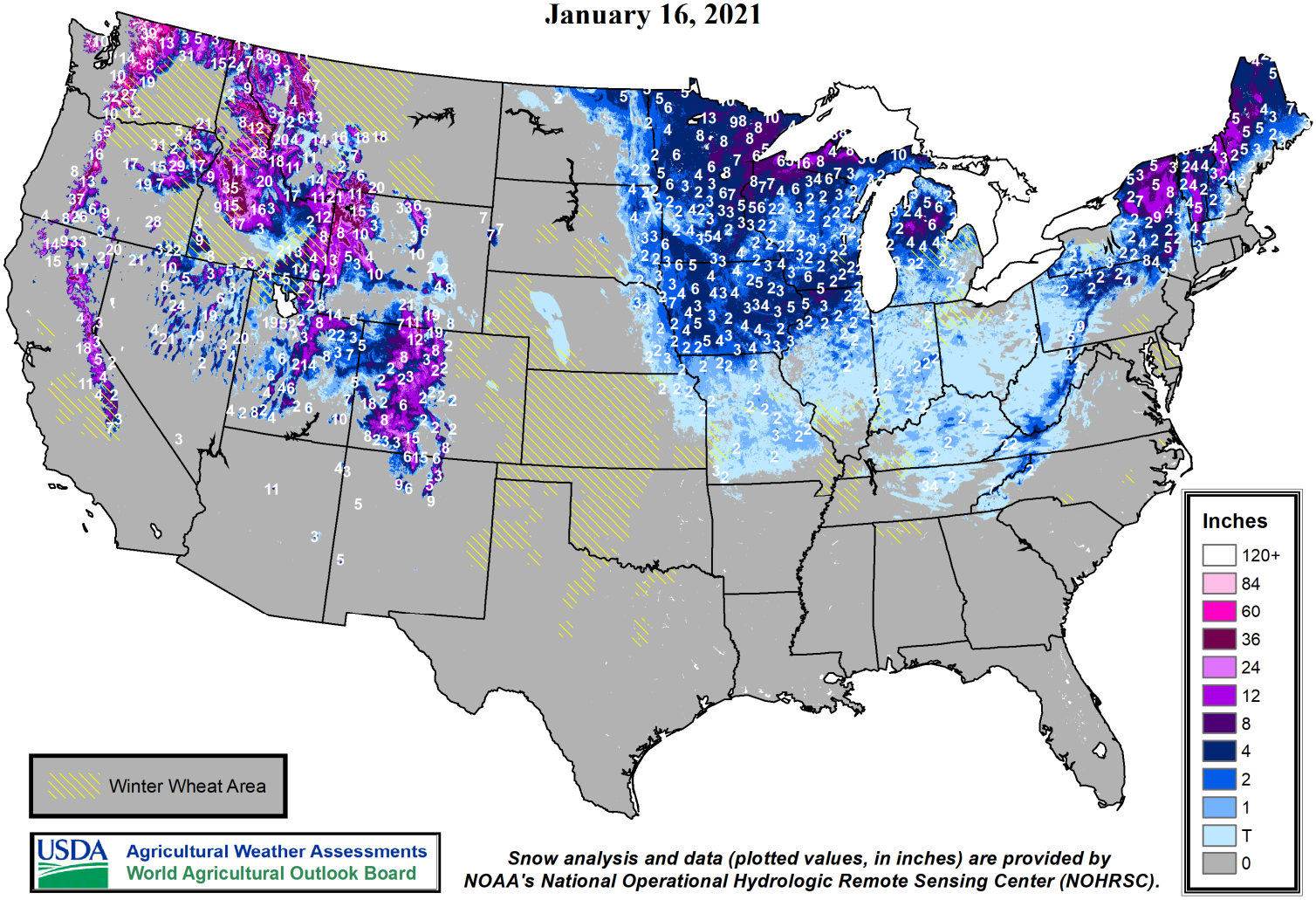
Snow Depth

January 16, 2021



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