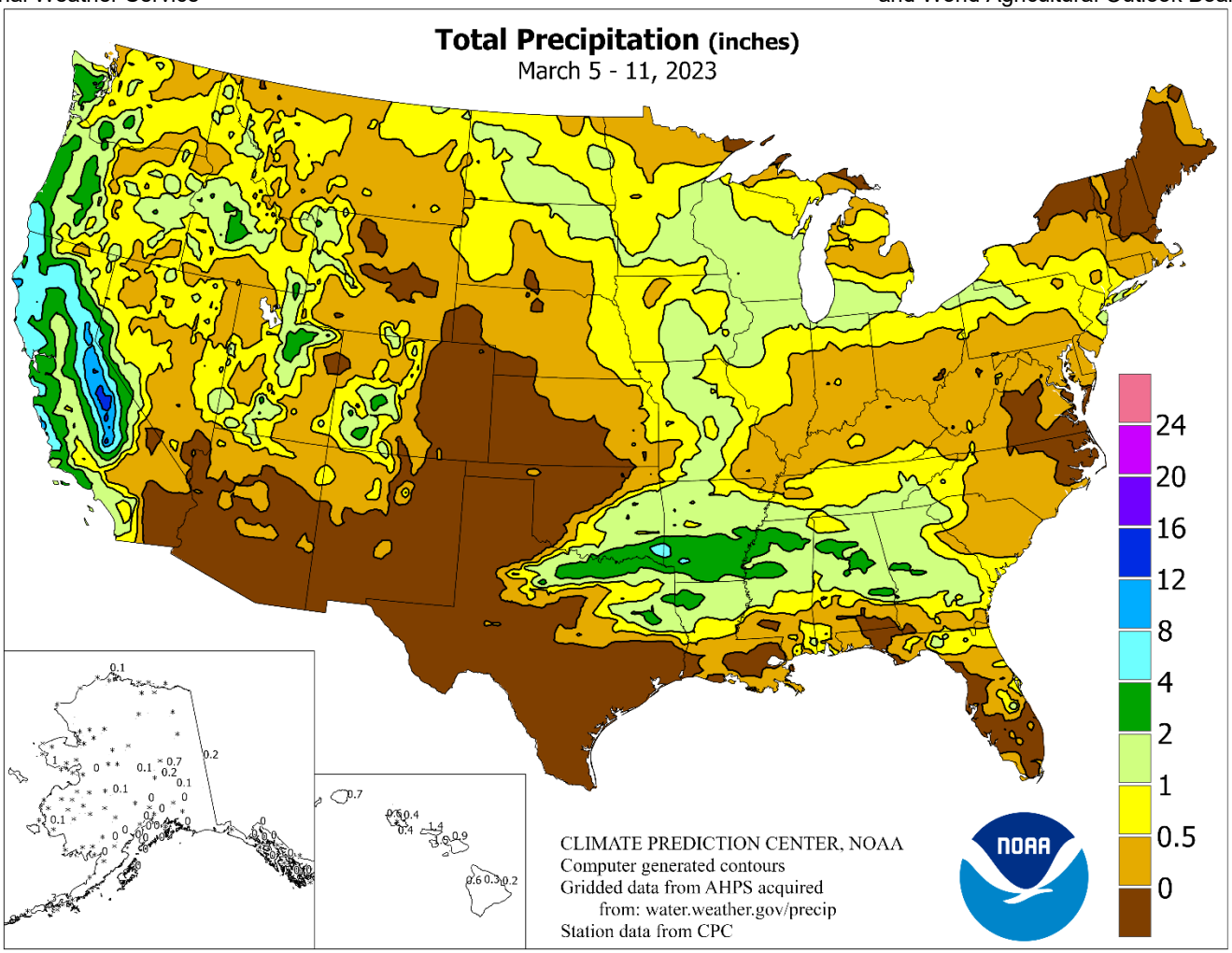
Volume 110, No. 11 www.usda.gov/oce/weather-drought-monitor March 14, 2023

WEEKLY WEATHER AND CROP BULLETIN

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

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



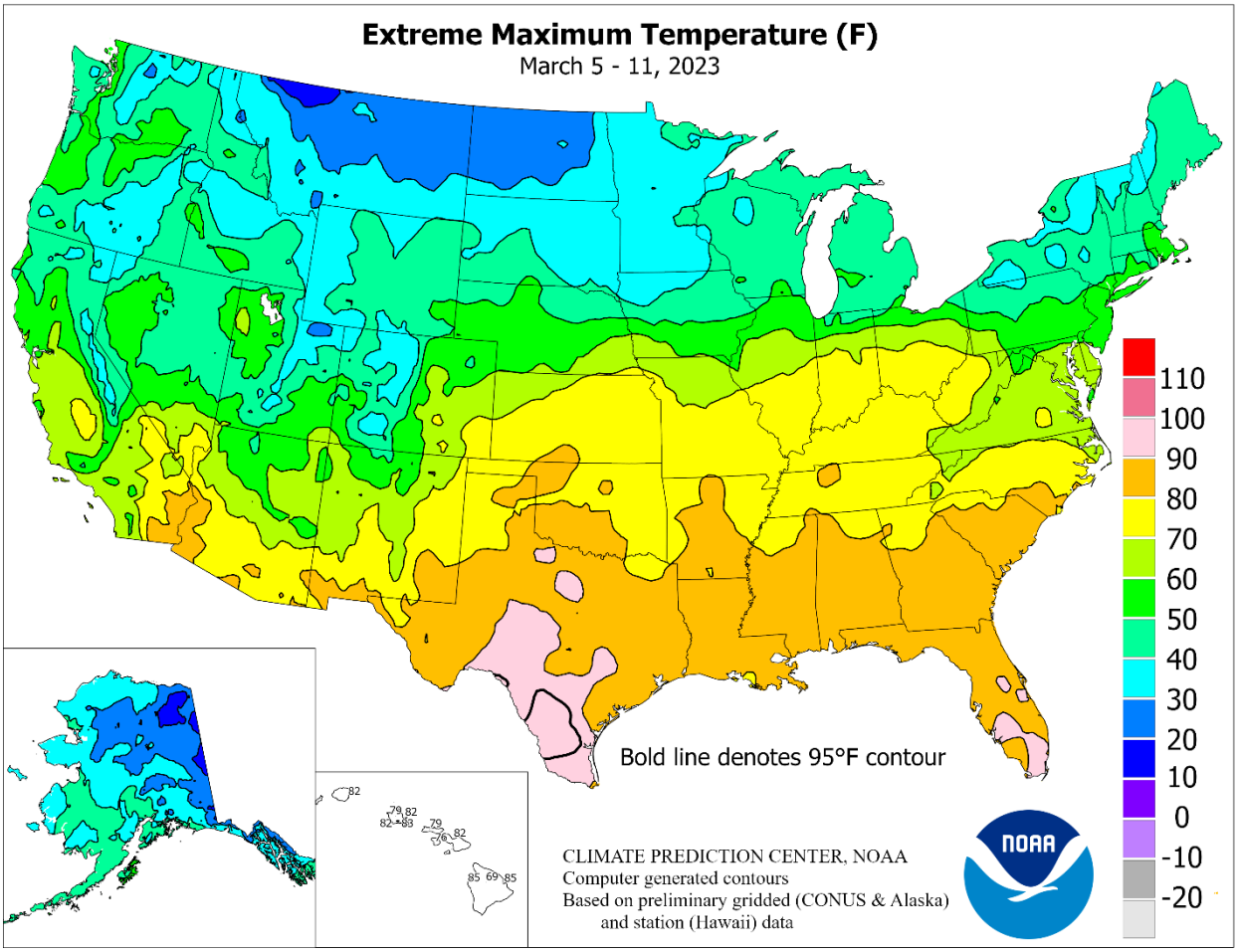
HIGHLIGHTS
March 5 – 11, 2023

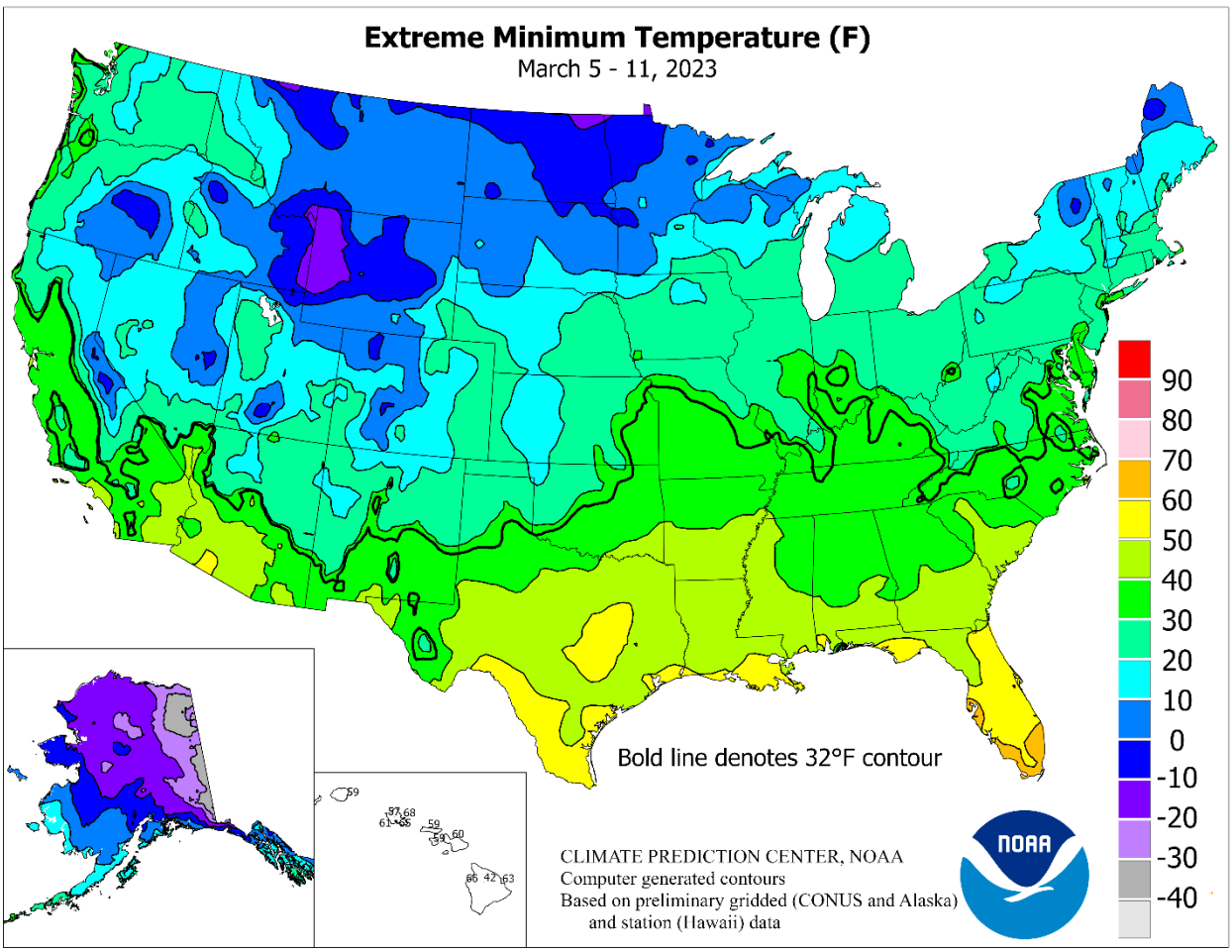
Highlights provided by USDA/WAOB

Torrential rain in **central California** caused a levee break along the **Pajaro River**, flooding the community of **Pajaro** in **Monterey County**. Rain, along with melting of lower-elevation snowpack and dam releases, also led to significant water rises along many waterways in **California's Central Valley**. Meanwhile, the average water equivalency of the high-elevation **Sierra Nevada** snowpack topped 50 inches, more than twice normal for the season, according to the California Department of Water Resources. Other areas of the **West**, excluding the

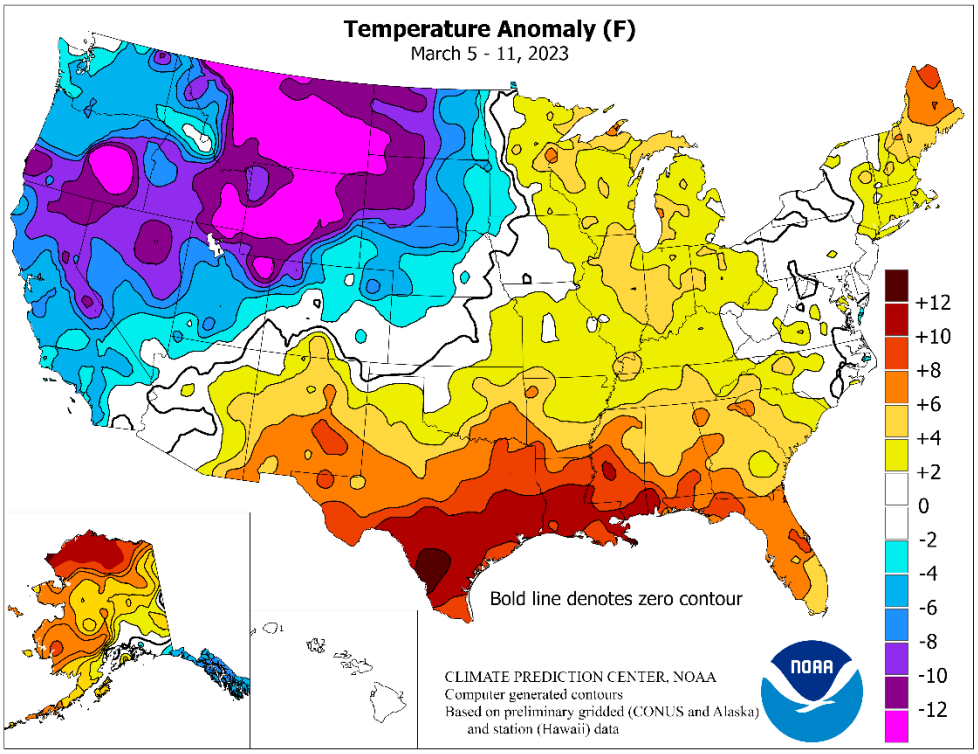
(Continued on page 3)

Contents


Extreme Maximum Temperature (F)
March 5 - 11, 2023
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS & Alaska)
and station (Hawaii) data
NOAA


Extreme Minimum Temperature (F)
March 5 - 11, 2023
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
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

(Continued from front cover)

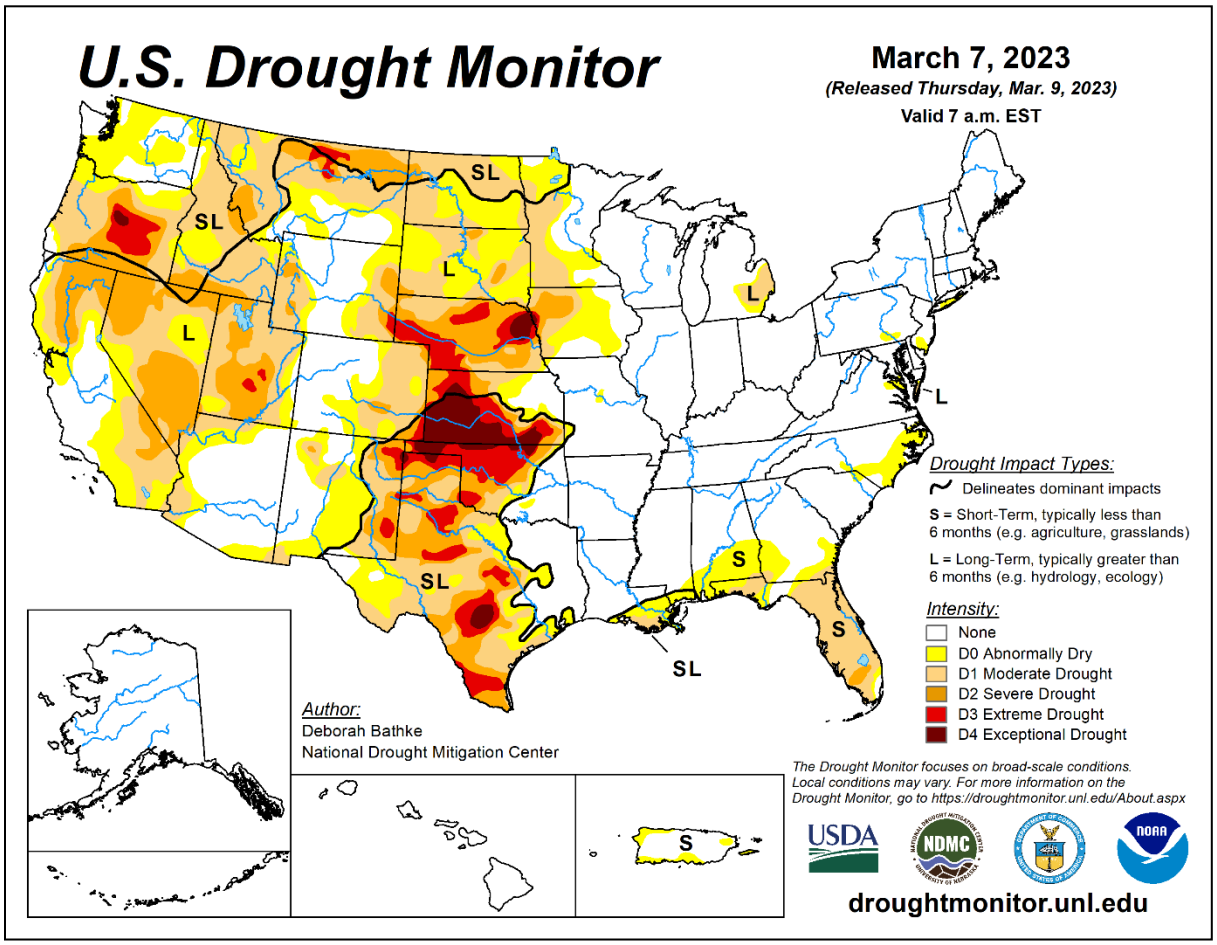


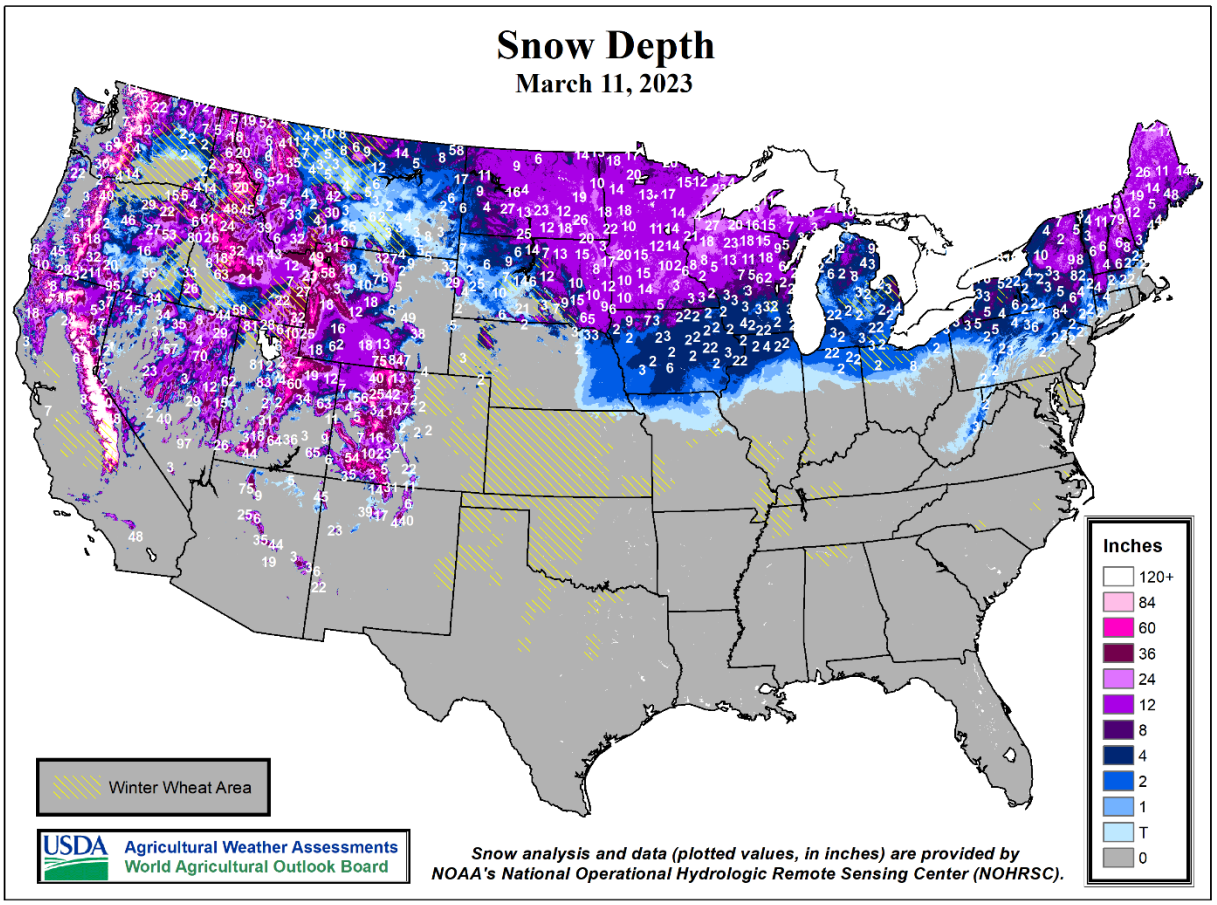
southern tier of the region, received widespread, but mostly light, precipitation. Farther east, late-week storminess delivered light to moderately heavy snow across the **northern Plains** and **upper Midwest**, with some of the most significant precipitation falling on March 11. Meanwhile, a band of heavy showers (locally 2 to 4 inches) stretched from **northeastern Texas to the southern Appalachians**. Mostly dry weather covered the remainder of the country, including the **central and southern High Plains**, the **Rio Grande Valley**, **southern Florida**, and **New England**. Elsewhere, chilly conditions prevailed from the **Pacific Coast to the northern half of the Plains**, while record-setting warmth continued across the **Deep South**. Weekly temperatures averaged at least 10°F above normal in portions of the **western and central Gulf Coast States**. General warmth covered the remainder of the **South**, extending northward into portions of the **Great Lakes region**. In contrast, readings averaged 10 to 20°F below normal on the **northern High Plains**, as well as adjacent locations in the **northern Rockies** and **northern Intermountain West**. Colder-than-normal conditions also encompassed the **Far West**, including the **Pacific Coast States**.

On March 6, daily-record highs topped 90°F in **Florida** locations such as **Fort Myers** (92°F) and **Miami** (91°F). **Miami** again attained 91°F on March 7. Elsewhere on the 7th in **Florida**, additional daily-record highs above the 90-degree mark included 91°F in **Melbourne** and **Fort Myers**. Farther north, warmth peaked on March 6 with daily-record highs of 78°F in **Louisville, KY**, and 77°F in **Evansville, IN**. From March 7-9, **New Orleans, LA**, tallied a trio of daily-record highs (83, 84, and 86°F). Meanwhile in **southern Texas**, **Harlingen** notched daily-record highs of 91 and 90°F, respectively, on March 8 and 10. **Corpus Christi, TX**, collected consecutive daily-record highs (91 and 99°F, respectively) on March 11-12. In contrast, chilly weather dominated the **West**. **Burns, OR**, tallied multiple daily-record lows, including a reading of -3°F on March 6. **Burns** later received heavy snow, with a liquid equivalency of 0.53 inch on March 9, a day when a daily-record low of 5°F was reported. Sub-zero, daily-record lows were set in other **Western** locations, including **Casper, WY** (-6°F on March 8), and **South Lake Tahoe, CA** (-3° on March 9).

As the week began, snow blanketed portions of the **Great Basin** and **Intermountain West**. **Reno, NV**, measured 4.1 inches of snow on March 4-5, aided by a daily-record sum of 2.9 inches on the latter date. In **Utah**, 24-hour snowfall totals on March 4-5 reached 8.5 inches in **Randolph** and 8.0 inches in **Laketown**. **Alta, UT**, reported 30.5 inches of snow in a 48-hour period ending March 6. Later snow shifted into the **upper Great Lakes region**, where **Marquette, MI** (6.6 inches on March 6), measured a daily-record total. Subsequently, multi-day accumulations across the **north-central U.S.** included measurable snow falling on 6 consecutive days (March 7-12) in **Grand Forks, ND**, totaling 13.9 inches. Similarly, **Bismarck, ND**, reported snow each day during the week, with measurable amounts on 5 days, totaling 17.1 inches. Daily-record snowfall amounts included 4.0 inches (on the 7th) in **Mobridge, SD**, and 4.1 inches (on the 9th) in **Waterloo, IA**. Late-week snow expanded to other areas, including the **Great Lakes region** and the **Northwest**. On March 10, daily-record totals reached 8.7 inches in **Grand Rapids, MI**; 6.1 inches in **Great Falls, MT**; and 4.8 inches in **Spokane, WA**. A day later, record-setting snowfall totals for March 11 included 9.1 inches in **Grand Forks, ND**, and 6.4 inches in **Des Moines, IA**. Farther west, month-to-date (March 1-11) snowfall in **Alta, UT**, climbed to 63.1 inches, with the snow depth peaking on March 6 at 157 inches. At the **Central Sierra Snow Lab** at **California's Donner Pass**, season-to-date snowfall exceeded 650 inches by March 13. Meanwhile, **Bishop, CA** (2.06 inches on the 10th), experienced its wettest March day on record, surpassing 1.75 inches on March 4, 1991. Closer to the **Pacific Coast**, the **Pajaro River at Chittenden, CA**, achieved its highest crest (on March 11) since February 1998. In **California's Salinas River** drainage basin, a record crest was set on March 10 along the **Nacimiento River below Nacimiento Lake**, with the water level edging the February 1969 high-water mark by 1.51 feet. The **Salinas River near Spreckels, CA**, rose 3.89 feet above flood stage on March 13, second only to the March 1995 high-water mark (7.29 feet above flood stage) and 2.29 feet above the level reached on January 13, 2023.

Mild, stormy weather replaced frigid conditions in parts of **Alaska**, with lingering cold weather confined to the southeastern part of the state. In the **Aleutians**, the 5th was the wettest March day on record in **Cold Bay**, where 2.98 inches fell (previously, 2.29 inches on March 15, 2002). The following day in **western Alaska**, record-setting precipitation totals for March 6 included 0.71 inch in **Nome** and 0.49 inch in **Kotzebue**. An easterly wind gust to 72 mph accompanied **Kotzebue's** precipitation, which included snow and freezing rain. Elsewhere on the 6th, **Alaskan** daily-record highs rose to 44°F in **Cold Bay** and 41°F in **Bethel**. **Kotzebue** reported a daily-record high of 34°F on March 7. **Cold Bay's** highest reading of the week, 50°F on March 9, also set a daily-record high. Meanwhile, no measurable precipitation fell during the week in climatologically wet spots such as **Juneau**, **Ketchikan**, **Kodiak**, **Sitka**, and **Yakutat**. Farther south, **Hawaii** experienced a reprieve from recent storminess, following some early- to mid-week showers and gusty winds. On **Maui, Kahului**, received rainfall totaling 0.90 inch from March 6-8, along with a southerly wind gust to 45 mph on the final day of the wet spell. Elsewhere on the 8th, **Lihue, Kauai**, reported a southwesterly gust to 47 mph.


U.S. Drought Monitor
March 7, 2023
(Released Thursday, Mar. 9, 2023)
Valid 7 a.m. EST
SL
L
S
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
USDA
NDMC
NOAA
droughtmonitor.unl.edu


Snow Depth
March 11, 2023
Inches
120+
84
60
36
24
12
8
4
2
1
T
0
Winter Wheat Area
USDA Agricultural Weather Assessments
World Agricultural Outlook Board
Snow analysis and data (plotted values, in inches) are provided by NOAA's National Operational Hydrologic Remote Sensing Center (NOHRSC).

National Weather Data for Selected Cities

Weather Data for the Week Ending March 11, 2023

Data Provided by Climate Prediction Center

STATES AND STATIONS		TEMPERATURE ˚F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. ˚F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AK	ANCHORAGE	34	15	39	4	24	1	0.00	-0.17	0.00	0.01	4	2.24	118	84	47	0	7	0	0
	BARROW	16	-7	30	-20	4	0	0.12	0.08	0.09	0.12	182	1.70	399	87	76	0	7	2	0
	FAIRBANKS	27	1	38	-13	14	8	0.17	0.07	0.08	0.20	127	1.86	145	86	61	0	7	3	0
	JUNEAU	29	17	32	7	23	-9	0.00	-0.87	0.00	1.02	73	12.27	104	59	31	0	7	0	0
	KODIAK	46	30	54	22	38	5	0.00	-1.06	0.00	0.49	28	11.27	68	76	47	0	3	0	0
	NOME	25	13	34	-6	19	11	0.97	0.79	0.63	1.42	480	3.70	166	98	82	0	7	3	1
AL	BIRMINGHAM	71	48	81	38	59	5	0.78	-0.56	0.42	2.46	115	14.29	118	89	33	0	0	3	0
	HUNTSVILLE	68	46	79	37	57	5	0.52	-0.70	0.25	3.24	166	13.20	109	93	35	0	0	3	0
	MOBILE	81	61	86	53	71	12	0.14	-1.10	0.12	0.29	14	7.35	60	92	48	0	0	3	0
	MONTGOMERY	77	52	87	41	65	7	0.75	-0.53	0.69	0.79	38	9.08	78	87	39	0	0	2	1
AR	FORT SMITH	66	48	80	40	57	6	0.98	0.13	0.83	2.71	208	8.57	124	85	51	0	0	2	1
	LITTLE ROCK	64	47	82	41	56	5	1.88	0.74	1.48	4.60	254	18.23	196	85	52	0	0	3	1
AZ	FLAGSTAFF	46	24	50	16	35	-1	0.28	-0.22	0.21	2.27	280	11.13	221	79	40	0	6	2	0
	PHOENIX	75	53	79	47	64	-1	0.00	-0.22	0.00	0.65	179	2.03	96	62	21	0	0	0	0
	PRESCOTT	60	36	62	29	48	2	0.00	-0.26	0.00	0.47	112	3.89	133	67	20	0	2	0	0
	TUCSON	77	47	81	44	62	2	0.00	-0.13	0.00	0.28	129	2.58	135	61	17	0	0	0	0
CA	BAKERSFIELD	62	44	70	37	53	-5	0.93	0.65	0.49	1.08	242	5.46	193	89	47	0	0	3	0
	EUREKA	48	38	51	33	43	-6	2.50	1.15	0.71	3.21	148	13.07	90	92	73	0	0	7	1
	FRESNO	59	44	70	38	52	-5	1.64	1.19	0.87	2.15	303	10.17	211	92	55	0	0	4	1
	LOS ANGELES	59	50	62	44	54	-4	1.16	0.69	0.91	1.24	157	12.58	189	90	64	0	0	3	1
	REDDING	50	37	59	33	43	-10	3.50	2.35	1.61	3.52	189	16.61	124	93	55	0	0	7	2
	SACRAMENTO	55	43	60	38	49	-6	1.72	1.04	0.58	1.87	167	9.65	116	92	53	0	0	7	1
	SAN DIEGO	62	50	63	46	56	-4	0.87	0.46	0.62	1.08	163	7.98	164	83	53	0	0	2	1
	SAN FRANCISCO	57	45	62	42	51	-4	1.76	1.08	0.63	2.01	176	14.53	161	89	57	0	0	7	2
	STOCKTON	57	42	65	35	50	-6	2.04	1.58	1.11	2.07	275	9.68	163	92	54	0	0	5	2
CO	ALAMOSA	54	24	60	20	39	6	0.01	-0.09	0.01	0.01	7	0.68	89	61	17	0	7	1	0
	CO SPRINGS	51	26	67	22	38	-1	0.02	-0.13	0.02	0.02	8	0.92	107	73	31	0	7	1	0
	DENVER INTL	48	25	62	20	37	-2	0.00	-0.17	0.00	0.01	5	1.49	144	91	35	0	7	0	0
	GRAND JUNCTION	52	28	55	24	40	-3	0.46	0.30	0.26	0.70	281	2.07	149	85	30	0	5	2	0
	PUEBLO	54	24	71	15	39	-2	0.00	-0.15	0.00	0.00	0	0.62	72	79	32	0	6	0	0
CT	BRIDGEPORT	49	32	54	29	41	3	0.51	-0.44	0.31	1.33	90	7.54	97	77	40	0	4	2	0
	HARTFORD	47	30	51	24	39	4	0.29	-0.59	0.22	1.47	107	9.01	116	74	38	0	5	2	0
DC	WASHINGTON	55	38	66	35	46	1	0.19	-0.58	0.19	0.55	46	4.22	63	72	37	0	0	1	0
DE	WILMINGTON	53	33	62	30	43	2	0.23	-0.70	0.23	1.12	80	5.17	69	76	38	0	3	1	0
FL	DAYTONA BEACH	82	61	88	53	71	7	0.07	-0.75	0.07	0.07	5	2.02	32	95	48	0	0	1	0
	JACKSONVILLE	80	53	89	43	66	5	0.51	-0.29	0.51	0.79	63	4.10	55	97	42	0	0	1	1
	KEY WEST	83	74	86	72	78	5	0.00	-0.37	0.00	0.00	0	0.09	2	85	61	0	0	0	0
	MIAMI	87	70	91	66	78	6	0.01	-0.51	0.01	0.01	1	3.64	76	81	43	3	0	1	0
	ORLANDO	86	63	91	57	74	8	0.00	-0.65	0.00	0.00	0	1.54	27	93	38	1	0	0	0
	PENSACOLA	80	62	86	54	71	10	0.04	-1.16	0.02	0.08	4	6.44	55	94	53	0	0	2	0
	TALLAHASSEE	83	56	88	50	70	10	0.00	-1.36	0.00	0.08	3	10.63	98	92	37	0	0	0	0
	TAMPA	83	67	88	63	75	8	0.19	-0.38	0.19	0.19	21	2.19	35	93	48	0	0	1	0
	WEST PALM BEACH	85	67	88	62	76	5	0.00	-0.78	0.00	0.00	0	1.32	18	88	47	0	0	0	0
GA	ATHENS	70	45	81	38	58	5	0.30	-0.75	0.28	0.64	38	12.65	121	82	26	0	0	2	0
	ATLANTA	70	49	79	40	60	6	0.59	-0.52	0.43	1.27	71	10.75	98	75	28	0	0	2	0
	AUGUSTA	72	45	84	36	59	3	0.55	-0.41	0.55	0.61	39	12.38	136	88	27	0	0	1	1
	COLUMBUS	75	50	85	41	63	6	1.07	-0.10	0.92	1.15	61	9.78	92	85	30	0	0	2	1
	MACON	74	47	86	41	61	5	1.78	0.77	0.98	1.95	120	12.93	127	92	34	0	0	2	2
	SAVANNAH	74	52	86	45	63	5	0.58	-0.22	0.54	0.69	54	7.88	107	88	38	0	0	2	1
HI	HILO	81	65	85	63	73	2	0.17	-2.82	0.15	4.16	88	42.71	187	91	60	0	0	2	0
	HONOLULU	81	68	83	65	74	0	0.44	-0.14	0.27	0.65	73	4.19	89	87	52	0	0	4	0
	KAHULUI	80	65	82	60	72	-1	0.91	0.30	0.48	1.44	152	7.23	134	90	57	0	0	5	0
	LIHUE	80	64	82	59	72	-1	0.66	-0.65	0.26	0.85	41	14.43	171	87	53	0	0	4	0
IA	BURLINGTON	48	33	60	29	40	3	0.89	0.38	0.48	0.89	108	4.87	122	85	56	0	4	3	0
	CEDAR RAPIDS	41	29	48	22	35	2	0.26	-0.16	0.13	0.26	39	3.35	118	92	63	0	5	3	0
	DES MOINES	42	32	55	29	37	1	1.11	0.67	0.63	1.11	164	4.72	152	92	61	0	4	4	1
	DUBUQUE	40	30	45	27	35	4	0.61	0.15	0.32	0.63	86	5.77	159	92	59	0	5	3	0
	SIOUX CITY	37	28	42	23	32	-1	0.47	0.16	0.27	0.47	98	3.20	158	95	76	0	7	3	0
	WATERLOO	40	28	46	19	34	1	0.61	0.22	0.42	0.61	100	4.81	173	85	59	0	5	3	0
ID	BOISE	45	29	51	25	37	-7	0.32	0.06	0.15	0.47	112	1.55	54	84	39	0	5	6	0
	LEWISTON	48	33	50	29	40	-3	0.34	0.07	0.14	0.35	85	1.07	41	86	38	0	3	5	0
	POCATELLO	36	14	44	0	25	-12	0.43	0.16	0.31	0.58	132	2.45	97	95	60	0	7	3	0
IL	CHICAGO/O_HARE	45	34	55	31	40	3	0.72	0.20	0.31	1.05	123	7.34	152	84	50	0	2	5	0
	MOLINE	48	33	59	24	41	4	0.61	0.03	0.42	0.63	67	6.26	141	84	52	0	2	2	0
	PEORIA	50	35	68	29	42	4	0.72	0.15	0.51	1.17	127	6.02	121	88	51	0	2	2	1
	ROCKFORD	45	31	56	21	38	4	1.19	0.70	0.66	1.27	163	6.91	172	87	49	0	5	5	1
	SPRINGFIELD	51	35	69	27	43	3	0.42	-0.17	0.30	2.08	227	5.65	115	82	53	0	2	2	0
IN	EVANSVILLE	57	37	77	30	47	4	0.26	-0.79	0.18	3.99	247	12.28	150	83	39	0	1	2	0
	FORT WAYNE	48	31	62	27	39	4	0.27	-0.31	0.16	1.31	142	8.10	146	89	47	0	6	2	0
	INDIANAPOLIS	53	36	72	33	44	5	0.11	-0.67	0.08	2.34	196	8.68	128	82	41	0	0	3	0
	SOUTH BEND	46	32	51	27	39	5	0.82	0.28	0.34	2.00	226	8.39	143	88	46	0	4	5	0
KS	CONCORDIA	48	32	74	25	40	0	0.17	-0.10	0.11	0.19	48	1.93	99	91	54	0	3	3	0
	DODGE CITY	53	29	76	17	41	-1	0.00	-0.27	0.00	0.00	0	0.83	52	92	45	0	5	0	0
	GOODLAND	47	24	65	20	35	-3	0.00	-0.16	0.00	0.06	27	0.65	63	92	49	0	7	0	0
	TOPEKA	53	38	77	32	45	3	0.29	-0.17	0.13	0.62	88	3.64	125	88	57	0	1	4	0

Based on 1991-2020 normals

***** Not Available**

Weather Data for the Week Ending March 11, 2023

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	55	38	75	31	46	2	0.04	-0.45	0.03	0.08	11	2.56	92	88	54	0	1	2	0
KY	LEXINGTON	58	37	75	30	47	4	0.16	-0.89	0.12	1.58	96	11.51	132	77	41	0	1	2	0
	LOUISVILLE	60	39	78	36	49	4	0.20	-0.87	0.19	2.80	168	10.54	124	76	36	0	0	2	0
	PADUCAH	59	43	76	36	51	5	0.42	-0.67	0.26	5.00	293	15.97	168	80	40	0	0	2	0
LA	BATON ROUGE	85	63	88	50	74	13	0.03	-1.00	0.02	0.03	1	13.65	109	92	48	0	0	2	0
	LAKE CHARLES	80	60	82	48	70	9	0.06	-0.74	0.06	0.06	4	7.32	70	100	55	0	0	1	0
	NEW ORLEANS	83	65	86	58	74	11	0.05	-0.94	0.05	0.06	3	5.66	51	97	57	0	0	1	0
	SHREVEPORT	77	54	82	45	66	9	0.00	-1.13	0.00	0.00	0	0.00	0	92	50	0	0	0	0
MA	BOSTON	45	32	51	29	39	3	0.05	-0.85	0.05	0.68	48	7.18	89	77	41	0	4	1	0
	WORCESTER	42	28	48	25	35	3	0.20	-0.74	0.18	1.34	91	9.11	110	79	41	0	7	2	0
MD	BALTIMORE	54	34	63	29	44	3	0.17	-0.74	0.17	0.72	52	4.52	61	75	36	0	2	1	0
ME	CARIBOU	38	23	44	10	31	9	0.07	-0.57	0.03	0.48	47	7.11	111	78	47	0	7	4	0
	PORTLAND	42	28	46	24	35	3	0.00	-0.91	0.00	1.16	81	10.42	123	78	43	0	7	0	0
MI	ALPENA	36	20	46	11	28	2	0.38	-0.02	0.20	0.47	74	4.82	121	89	51	0	7	3	0
	GRAND RAPIDS	43	28	51	22	35	3	0.59	0.07	0.26	0.73	88	6.79	124	87	48	0	6	3	0
	HOUGHTON LAKE	39	22	45	16	31	4	0.41	0.04	0.22	0.47	79	4.16	112	84	44	0	7	2	0
	LANSING	42	28	51	24	35	3	0.57	0.12	0.31	1.03	141	6.03	134	83	50	0	5	3	0
	MUSKEGON	47	30	50	26	38	5	0.55	0.04	0.30	0.55	66	6.33	118	78	43	0	5	3	0
	TRAVERSE CITY	40	25	44	19	33	3	0.21	-0.11	0.14	0.26	51	2.74	85	86	48	0	7	2	0
MN	DULUTH	33	20	39	5	27	3	1.26	0.96	0.95	1.61	342	6.31	260	89	61	0	7	4	1
	INT_L FALLS	31	13	41	4	22	3	0.41	0.22	0.22	0.41	137	1.18	66	80	47	0	7	2	0
	MINNEAPOLIS	35	27	40	19	31	1	0.74	0.44	0.28	0.78	165	5.34	239	92	60	0	7	6	0
	ROCHESTER	35	27	38	21	31	3	0.58	0.22	0.23	0.62	110	5.29	206	95	70	0	7	5	0
	ST. CLOUD	35	23	39	6	29	4	0.63	0.34	0.24	0.95	217	4.31	231	90	59	0	7	6	0
MO	COLUMBIA	52	38	72	32	45	2	1.05	0.43	0.54	1.45	150	5.50	105	86	53	0	1	4	1
	KANSAS CITY	49	37	71	33	43	1	0.54	0.05	0.18	1.14	150	5.73	169	90	62	0	0	4	0
	SAINT LOUIS	54	38	75	32	46	2	0.42	-0.28	0.18	2.13	197	6.23	105	79	45	0	1	3	0
	SPRINGFIELD	56	41	72	37	48	3	0.79	0.02	0.46	2.94	251	8.40	137	88	53	0	0	4	0
MS	JACKSON	80	53	84	45	67	11	0.21	-1.06	0.13	0.37	18	12.24	97	91	49	0	0	2	0
	MERIDIAN	78	50	86	41	64	7	0.13	-1.24	0.07	0.22	10	16.33	124	97	48	0	0	2	0
	TUPELO	69	48	81	39	59	6	1.47	0.24	0.57	5.90	293	15.15	124	89	42	0	0	4	1
MT	BILLINGS	27	15	31	9	21	-14	0.26	0.10	0.08	0.26	108	1.37	101	92	69	0	7	5	0
	BUTTE	30	8	40	-9	19	-10	0.10	-0.02	0.08	0.10	54	0.70	68	87	48	0	7	2	0
	CUT BANK	14	0	17	-13	7	-21	0.05	-0.02	0.04	0.05	48	0.31	56	96	78	0	7	2	0
	GLASGOW	20	9	25	1	15	-13	0.69	0.59	0.35	0.74	508	2.59	278	81	73	0	7	6	0
	GREAT FALLS	20	5	26	-3	13	-19	0.57	0.44	0.31	0.57	290	2.21	165	96	77	0	7	5	0
	HAVRE	25	9	32	0	17	-11	0.26	0.17	0.24	0.26	186	1.11	116	84	58	0	7	3	0
	MISSOULA	38	22	41	15	30	-5	0.16	-0.04	0.07	0.22	70	1.69	78	91	46	0	7	4	0
NC	ASHEVILLE	64	36	72	33	50	3	0.04	-0.82	0.04	0.89	66	8.57	95	79	22	0	0	1	0
	CHARLOTTE	66	42	78	39	54	4	0.11	-0.83	0.11	0.54	36	9.21	113	70	27	0	0	1	0
	GREENSBORO	63	39	72	34	51	3	0.16	-0.68	0.16	1.19	91	8.50	113	72	28	0	0	1	0
	HATTERAS	59	41	68	36	50	-2	0.29	-0.73	0.29	0.44	27	6.08	56	88	49	0	0	1	0
	RALEIGH	65	40	75	33	52	3	0.20	-0.75	0.20	0.96	66	6.54	85	82	31	0	0	1	0
	WILMINGTON	68	42	84	36	55	2	0.15	-0.78	0.15	0.15	10	5.57	63	87	34	0	0	1	0
ND	BISMARCK	22	8	30	0	15	-11	1.01	0.84	0.31	1.23	487	2.19	174	86	69	0	7	5	0
	DICKINSON	19	8	29	1	14	-13	0.15	0.06	0.07	0.15	108	0.26	36	93	78	0	7	3	0
	FARGO	29	11	36	-5	20	-3	0.66	0.41	0.22	1.02	259	1.67	93	88	68	0	7	5	0
	GRAND FORKS	22	9	32	-7	15	-5	0.63	0.44	0.42	0.63	213	1.07	82	85	69	0	7	4	0
	JAMESTOWN	23	7	31	-3	15	-8	0.09	-0.03	0.06	0.15	75	0.37	42	89	71	0	7	3	0
NE	GRAND ISLAND	42	28	60	24	35	-3	0.13	-0.12	0.09	0.13	36	2.03	118	90	61	0	7	2	0
	LINCOLN	45	30	68	21	37	-1	0.34	0.05	0.22	0.34	78	2.55	124	89	62	0	5	2	0
	NORFOLK	38	28	49	26	33	-2	0.37	0.12	0.19	0.37	95	2.72	151	92	70	0	7	3	0
	NORTH PLATTE	41	25	57	15	33	-4	0.15	-0.04	0.12	0.15	52	2.09	167	87	58	0	7	2	0
	OMAHA	42	31	61	28	37	-1	0.43	0.11	0.25	0.43	87	3.43	156	94	69	0	6	3	0
	SCOTTSBLUFF	43	25	53	24	34	-3	0.01	-0.17	0.01	0.06	22	1.87	151	87	52	0	7	1	0
	VALENTINE	35	18	53	10	26	-8	0.03	-0.16	0.03	0.10	34	3.69	300	94	69	0	7	1	0
NH	CONCORD	42	25	49	19	33	3	0.00	-0.72	0.00	1.17	103	8.25	123	86	45	0	7	0	0
NJ	ATLANTIC_CITY	51	31	59	30	41	1	0.24	-0.81	0.14	0.96	59	6.44	78	82	43	0	6	2	0
	NEWARK	51	35	57	32	43	3	0.76	-0.18	0.33	2.26	156	7.87	100	78	37	0	1	4	0
NM	ALBUQUERQUE	65	40	71	34	53	5	0.00	-0.10	0.00	0.07	43	0.69	72	49	15	0	0	0	0
NV	ELY	36	15	43	-1	26	-10	0.84	0.63	0.50	0.94	286	3.80	197	90	53	0	7	5	1
	LAS VEGAS	64	49	74	42	56	-2	0.00	-0.12	0.00	0.22	107	1.17	74	49	18	0	0	0	0
	RENO	44	26	53	15	35	-10	1.19	0.97	0.49	1.31	362	4.89	184	87	34	0	5	6	0
	WINNEMUCCA	43	21	52	18	32	-10	0.35	0.17	0.17	0.36	122	1.38	106	84	35	0	7	4	0
NY	ALBANY	41	27	44	20	34	1	0.24	-0.46	0.12	1.33	123	6.44	108	77	49	0	6	2	0
	BINGHAMTON	33	23	39	20	28	-1	0.41	-0.26	0.31	0.93	90	6.11	100	91	66	0	7	2	0
	BUFFALO	37	27	44	25	32	1	0.38	-0.28	0.31	1.46	140	7.88	114	87	60	0	7	3	0
	ROCHESTER	36	26	41	19	31	-2	0.30	-0.27	0.28	1.23	138	7.14	128	86	58	0	7	2	0
	SYRACUSE	36	25	42	20	30	-1	0.20	-0.46	0.10	0.80	77	7.36	121	85	58	0	7	2	0
OH	AKRON-CANTON	47	29	64	25	38	3	0.30	-0.41	0.17	1.37	124	8.04	124	84	46	0	6	3	0
	CINCINNATI	53	34	74	32	44	3	0.09	-0.85	0.08	2.27	156	8.91	112	89	43	0	2	2	0
	CLEVELAND	42	32	56	26	37	1	0.42	-0.26	0.19	1.56	146	9.59	146	82	53	0	5	3	0
	COLUMBUS	52	31	72	25	42	3	0.15	-0.64	0.08	1.75	145	7.50	113	91	42	0	4	2	0
	DAYTON	52	32	73	25	42	3	0.10	-0.66	0.05	2.78	240	8.20	124	84	42	0	4	3	0
	MANSFIELD	46	28	65	24	37	2	0.24	-0.51	0.18	1.76	152	8.80	127	91	53	0	5	2	0

Based on 1991-2020 normals ***** Not Available**

Weather Data for the Week Ending March 11, 2023

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS TEMP. °F		NUMBER OF DAYS PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	46	32	53	30	39	3	0.58	0.00	0.30	1.93	208	9.31	167	86	45	0	4	4	0
	YOUNGSTOWN	43	26	51	21	35	0	0.38	-0.34	0.19	1.37	121	8.22	123	91	52	0	7	3	0
OK	OKLAHOMA CITY	63	41	79	34	52	3	0.55	0.02	0.55	0.69	85	3.06	86	93	51	0	0	1	1
	TULSA	62	44	77	33	53	3	0.56	-0.09	0.35	1.18	122	5.80	137	90	58	0	0	3	0
OR	ASTORIA	47	35	50	32	41	-4	0.91	-0.91	0.38	2.97	102	14.21	68	92	63	0	3	6	0
	BURNS	33	8	39	-3	21	-16	1.06	0.84	0.45	1.22	363	3.30	126	89	60	0	7	5	0
	EUGENE	49	34	57	31	42	-4	1.05	-0.02	0.43	1.32	76	6.06	48	94	60	0	2	6	0
	MEDFORD	50	31	57	25	40	-7	0.28	-0.13	0.18	0.35	51	1.88	35	95	42	0	4	4	0
	PENDLETON	49	30	55	25	39	-3	0.21	-0.09	0.13	0.28	59	1.60	50	84	38	0	5	3	0
	PORTLAND	48	37	53	34	42	-5	0.91	-0.01	0.21	1.30	88	7.07	69	88	61	0	0	6	0
	SALEM	48	34	54	30	41	-5	1.01	-0.01	0.29	1.27	76	7.42	60	95	58	0	3	7	0
PA	ALLENTOWN	47	28	53	26	38	0	0.48	-0.35	0.30	1.84	145	6.89	93	87	43	0	7	3	0
	ERIE	37	27	46	23	32	-2	1.37	0.68	0.70	2.29	209	10.98	156	90	60	0	7	4	2
	MIDDLETOWN	49	32	57	28	40	1	0.15	-0.65	0.15	1.65	135	5.11	74	80	41	0	4	1	0
	PHILADELPHIA	51	35	59	32	43	2	0.27	-0.61	0.24	0.98	72	5.62	77	75	38	0	1	3	0
	PITTSBURGH	46	29	59	24	37	1	0.17	-0.55	0.09	0.78	70	5.75	85	84	42	0	6	2	0
	WILKES-BARRE	42	29	47	28	35	0	0.34	-0.28	0.12	1.39	147	5.13	91	87	54	0	7	4	0
	WILLIAMSPORT	44	30	50	27	37	1	0.22	-0.46	0.20	0.22	20	3.59	56	85	47	0	7	2	0
RI	PROVIDENCE	47	30	51	24	39	2	0.29	-0.76	0.29	1.25	76	9.40	104	80	40	0	5	1	0
SC	CHARLESTON	73	51	87	44	62	5	0.46	-0.31	0.43	0.54	45	7.98	104	82	34	0	0	2	0
	COLUMBIA	71	46	82	42	58	5	0.28	-0.59	0.28	0.37	26	9.60	116	86	28	0	0	1	0
	FLORENCE	69	44	83	39	56	2	0.19	-0.54	0.19	0.37	31	8.42	116	84	31	0	0	1	0
	GREENVILLE	69	41	78	38	55	5	0.05	-1.00	0.04	0.96	58	11.56	120	77	22	0	0	2	0
SD	ABERDEEN	28	14	35	1	21	-6	0.82	0.64	0.29	1.01	372	2.11	146	95	75	0	7	5	0
	HURON	31	17	36	4	24	-5	0.38	0.18	0.27	0.38	118	1.28	77	95	74	0	7	4	0
	RAPID CITY	28	14	40	7	21	-12	0.56	0.39	0.26	0.65	260	1.89	179	93	75	0	7	5	0
	SIOUX FALLS	33	21	37	11	27	-4	0.50	0.23	0.18	0.50	120	4.23	229	88	70	0	7	3	0
TN	BRISTOL	62	34	72	30	48	3	0.17	-0.74	0.17	2.15	149	11.22	126	81	28	0	2	1	0
	CHATTANOOGA	68	44	79	38	56	5	0.46	-0.74	0.39	2.24	115	11.88	99	84	28	0	0	2	0
	KNOXVILLE	63	39	77	36	51	3	0.11	-1.01	0.06	2.87	159	12.60	110	84	32	0	0	3	0
	MEMPHIS	64	48	77	41	56	4	0.96	-0.35	0.48	4.40	212	16.85	156	92	50	0	0	3	0
	NASHVILLE	64	42	80	35	53	4	0.31	-0.71	0.31	1.27	77	7.85	77	80	34	0	0	1	0
TX	ABILENE	73	50	90	41	62	6	0.17	-0.22	0.17	0.63	101	2.64	87	83	46	1	0	1	0
	AMARILLO	66	35	78	29	50	3	0.00	-0.25	0.00	0.00	0	0.50	31	78	29	0	3	0	0
	AUSTIN	82	60	90	53	71	10	0.00	-0.63	0.00	0.07	7	3.06	55	94	51	1	0	0	0
	BEAUMONT	83	62	86	51	73	11	0.00	-0.77	0.00	0.01	1	6.41	66	100	54	0	0	0	0
	BROWNSVILLE	87	67	89	56	77	7	0.00	-0.31	0.00	0.00	0	0.54	21	100	53	0	0	0	0
	CORPUS CHRISTI	87	65	91	50	76	10	0.00	-0.53	0.00	0.00	0	0.89	25	97	56	1	0	0	0
	DEL RIO	87	65	97	57	76	13	0.00	-0.25	0.00	0.00	0	0.21	13	81	38	3	0	0	0
	EL PASO	78	48	82	42	63	7	0.00	-0.06	0.00	0.01	11	0.59	65	39	10	0	0	0	0
	FORT WORTH	74	53	88	46	64	8	0.53	-0.26	0.52	1.35	111	6.18	95	92	55	0	0	2	1
	GALVESTON	78	68	80	60	73	10	0.00	-0.66	0.00	0.01	1	3.78	50	97	74	0	0	0	0
	HOUSTON	83	61	87	50	72	10	0.01	-0.81	0.01	0.09	7	8.10	100	100	50	0	0	1	0
	LUBBOCK	73	40	82	36	57	6	0.00	-0.23	0.00	0.00	0	0.74	45	79	23	0	0	0	0
	MIDLAND	75	47	87	43	61	6	0.00	-0.15	0.00	0.00	0	0.40	27	84	31	0	0	0	0
	SAN ANGELO	78	49	93	47	64	6	0.00	-0.34	0.00	0.05	9	1.47	55	85	40	1	0	0	0
	SAN ANTONIO	83	62	92	49	73	12	0.00	-0.50	0.00	0.16	19	2.03	45	91	46	1	0	0	0
	VICTORIA	85	61	88	48	73	10	0.00	-0.67	0.00	0.00	0	7.26	128	100	51	0	0	0	0
	WACO	76	53	87	51	65	8	0.18	-0.63	0.18	0.97	76	5.65	86	100	61	0	0	1	0
	WICHITA FALLS	69	45	88	38	57	5	1.42	0.98	0.78	2.17	313	5.13	156	94	47	0	0	3	1
UT	SALT LAKE CITY	46	30	57	28	38	-6	0.56	0.21	0.26	0.59	108	4.14	126	92	46	0	6	5	0
VA	LYNCHBURG	61	36	68	29	49	5	0.01	-0.82	0.01	0.87	67	6.93	90	78	27	0	4	1	0
	NORFOLK	55	41	64	37	48	0	0.00	-0.83	0.00	0.36	27	5.57	73	82	43	0	0	0	0
	RICHMOND	59	37	67	33	48	2	0.05	-0.85	0.05	0.18	13	5.16	71	73	34	0	0	1	0
	ROANOKE	61	36	68	32	49	3	0.10	-0.69	0.10	1.04	84	6.68	91	67	29	0	2	1	0
	WASH/DULLES	54	32	64	28	43	1	0.07	-0.70	0.07	0.65	55	4.26	63	77	35	0	4	1	0
VT	BURLINGTON	35	23	40	15	29	0	0.01	-0.49	0.01	0.66	84	5.50	117	84	54	0	7	1	0
WA	OLYMPIA	47	31	51	25	39	-4	0.53	-0.80	0.44	1.66	78	8.53	56	100	67	0	4	4	0
	QUILLAYUTE	46	34	49	30	40	-3	1.61	-1.08	0.50	4.29	101	21.02	71	99	68	0	2	6	0
	SEATTLE-TACOMA	49	35	51	29	42	-4	0.54	-0.42	0.28	1.31	86	6.67	60	90	46	0	1	6	0
	SPOKANE	39	27	43	25	33	-5	0.57	0.16	0.38	0.59	90	2.66	65	92	53	0	7	4	0
	YAKIMA	45	29	50	19	37	-5	0.88	0.72	0.31	0.88	332	2.18	96	90	52	0	6	4	0
WI	EAU CLAIRE	38	26	42	15	32	4	0.64	0.28	0.23	0.71	129	3.83	142	90	54	0	6	5	0
	GREEN BAY	36	25	42	19	31	2	0.55	0.15	0.44	0.61	98	3.58	111	92	61	0	7	4	0
	LA CROSSE	40	29	47	24	35	2	0.87	0.48	0.48	0.90	151	4.98	164	89	55	0	6	5	0
	MADISON	41	28	48	22	35	3	1.06	0.62	0.35	1.07	155	5.82	158	90	56	0	6	5	0
	MILWAUKEE	41	33	45	30	37	3	1.64	1.19	0.65	1.67	236	7.96	190	87	61	0	3	5	1
WV	BECKLEY	53	28	70	23	41	1	0.31	-0.60	0.26	1.09	76	8.20	106	77	38	0	6	3	0
	CHARLESTON	57	31	75	26	44	1	0.21	-0.76	0.21	0.70	45	8.73	106	89	36	0	4	1	0
	ELKINS	51	24	70	19	38	-1	0.39	-0.52	0.34	1.07	75	7.35	91	87	37	0	7	3	0
	HUNTINGTON	56	33	77	29	44	1	0.25	-0.73	0.21	1.09	71	8.81	110	82	37	0	3	2	0
WY	CASPER	33	10	44	-6	21	-12	0.05	-0.11	0.03	0.10	40	2.78	212	92	58	0	7	2	0
	CHEYENNE	41	23	48	19	32	-3	0.02	-0.17	0.01	0.04	15	1.57	135	92	39	0	7	2	0
	LANDER	26	6	46	-2	16	-17	0.14	-0.06	0.13	0.14	45	4.04	264	88	58	0	7	2	0
	SHERIDAN	28	7	34	-1	18	-15	0.21	0.03	0.12	0.23	84	2.63	171	83	60	0	7	3	0

Based on 1991-2020 normals ***** Not Available**

February Weather Summary

Weather

Weather summary provided by USDA/WAOB

Highlights: Continuing an active pattern that developed last autumn, frequent major storms further eroded long-term drought. Beneficiaries of the late-winter storminess included California and the Great Basin, Intermountain West, Midwest, and parts of the Plains. By February 28, drought coverage in the continental U.S. fell to 38.46 percent—a value below the 40-percent mark for the first time since September 22, 2020, according to the *U.S. Drought Monitor*. The record-setting streak with greater than 40 percent drought coverage lasted 126 weeks, shattering the 21st century record of 68 weeks set in 2012-13.

Despite the overall reduction in drought coverage, some areas remained critically dry as meteorological spring began. Notably, the central and southern Plains continued to suffer from soil moisture shortages and poor rangeland, pasture, and winter wheat conditions. By February 26, at least 40 percent of the winter wheat was rated in very poor to poor condition in Kansas (51 percent), Texas (49 percent), Oklahoma (41 percent), and Nebraska (40 percent). On the same date, statewide topsoil moisture in Texas was rated 72 percent very short to short, while rangeland and pastures were rated 68 percent very poor to poor. Western Texas dealt with a pair of late-month dust storms, the second of which (on February 26) featured wind gusts of 60 to 100 mph or higher. Other regions experiencing dry weather during February included Florida's peninsula and the lower Rio Grande Valley.

Meanwhile, a subtle Northwestern drying trend contrasted with the sudden return of exceptionally stormy weather across California. Following about a month of relatively tranquil weather, California's late-month storms were accompanied by unusually cold conditions and low-elevation snow. By March 1, the average water equivalency of the Sierra Nevada snowpack grew to nearly 45 inches, on par with end-of-season values in California's last two wet winters—2016-17 and 2018-19—according to the California Department of Water Resources.

Cold February weather in California and throughout the West contrasted with record-setting warmth across the South. Monthly temperatures averaged at least 5 to 10°F below normal at numerous locations across California, the Great Basin, and the Intermountain West. Colder-than-normal conditions extended across the northwestern half of the Plains and into the far upper Midwest. Meanwhile, warmer-than-normal weather dominated the eastern one-third of the U.S., with readings broadly averaging 5 to 10°F above normal from the lower half of the Mississippi Valley to the middle and southern Atlantic States. For several South-eastern communities, it was the warmest-ever February, in some cases toppling records that had been established just 5 years ago, in 2018. Eastern warmth promoted unusually early development of pastures, winter grains, and fruit crops, but increased the risk that spring cold snaps could cause freeze injury.

Elsewhere, highly variable Midwestern conditions ranged from mild, damp weather in the southern and eastern Corn Belt to cold, snowy weather farther northwest. In the far upper Midwest, where snow has been on the ground since November, late-winter storminess occasionally contributed to difficult conditions tending livestock, including early stages of lambing and calving season. Conversely, some livestock producers in the eastern Corn Belt contended with increasingly muddy fields and feedlots.

Historical Perspective: According to preliminary data provided by the National Centers for Environmental Information, the contiguous U.S. experienced its 28th-warmest, 50th-driest February during the 129-year period of record. The national average temperature of 36.5°F was 2.7°F above the 1901-2000 mean, while precipitation averaged 1.97 inches—92 percent of normal.

State temperature rankings ranged from the 19th-coolest February in Arizona to the warmest on record in Virginia (figure 1). Top-ten rankings for February warmth were observed in twenty additional states—all located east of the Mississippi River, except Louisiana. Meanwhile, state precipitation rankings ranged from the seventh-driest February in Massachusetts and Rhode Island to the fifth-wettest February in Wisconsin (figure 2). Massachusetts also had a top-ten ranking for February dryness, while Iowa and Michigan made the top-ten list for wetness.

Figure 1 Statewide Average Temperature Ranks
February 2023
Period: 1895–2023

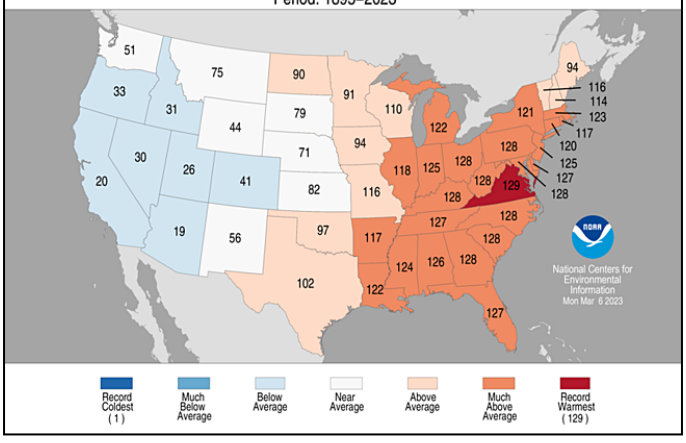
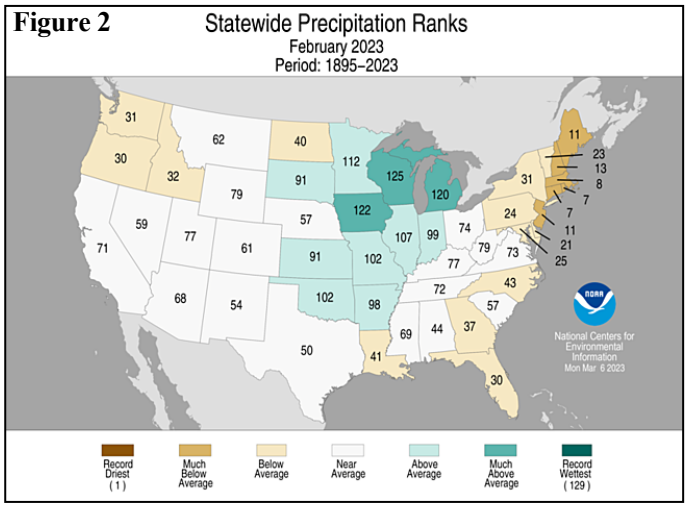


Figure 2



Summary: As February began, a multi-day ice storm was well underway from central Texas to the northern Mississippi Delta. The storm was responsible for hundreds of thousands of customers losing electricity, as well as widespread travel disruptions. Significant sleet accumulations were reported in some areas, especially from northeastern Texas into Arkansas. The Southern ice storm, which had begun on January 30, lasted as many as 4 days. Precipitation totals in Texas included 1.05 inches in Dallas-Fort Worth and 1.24 inches in Waco, with temperatures in both locations ranging from 25 to 35°F during the 4-day period. Dallas-Fort Worth measured 1.3 inches of sleet on January 31. Austin, TX, was particularly hard hit by ice accumulations, downed trees, and power outages, with much of the 1.12-inch total on February 1 falling as freezing rain.

While the South was still recovering from the ice storm, an early-February Arctic blast delivered the Northeast's coldest air in years to decades, albeit fleetingly. Consecutive daily record lows were established on February 3-4 in locations such as Augusta, ME (-16 and -17°F, respectively); Worcester, MA (-10 and -13°F); Boston, MA (-8 and -10°F); and Providence, RI (-4 and -9°F). Boston's reading of -10°F was the lowest temperature in that location since January 15, 1957, when it was -12°F. For many other Northeastern towns and cities, including Worcester and Providence, February 4 was the coldest day since mid-February 2016. In New York, record-setting lows for the February 4 plummeted to -33°F in Watertown and Saranac Lake. For Saranac Lake, it was the lowest reading since January 24, 2011, when the temperature fell to -37°F. Mount Washington, NH, highest peak in the northeastern U.S. with an elevation of 6,288 feet, set multiple records, including lowest February temperature at that location (-47°F) and lowest-ever national wind-chill temperature (-108°F). Both records occurred around 4 am EST on February 4, when northwesterly winds were gusting to 97 mph. On the 3rd, Mount Washington had clocked a peak gust to 127 mph, as wind-chill temperatures remained below -100°F for more than 15 hours on February 3-4 from 5 pm to 8 am EST. Mount Washington also tied its all-time station record of -47°F, originally set on January 29, 1934. Farther south, however, record-setting warmth lingered across the lower Southeast. In fact, Vero Beach, FL, opened February with three consecutive daily-record highs (84, 86, and 87°F).

Days later, markedly warmer weather arrived across the Northeast. Bridgeport, CT, posted a daily record-tying high of 53°F on February 6, just two days after collecting a daily-record low of -4°F. Farther west, record-setting highs for the 6th soared to 72°F in Kansas City, MO, and 71°F in Topeka, KS. Back in the East, warmth peaked from February 8-10, with Raleigh-Durham, NC, tallying a trio of daily-record highs (75°F each day). Consecutive daily-record highs occurred on February 9-10 in locations such as Islip, NY (53 and 62°F), and Virginia's Dulles Airport (71 and 65°F). Relative to normal, some of the warmest weather affected the middle Ohio Valley on February 9, when daily-record highs reached 74°F in Parkersburg, WV, and 72°F in Columbus, OH. Meanwhile, temperatures exceeded the 80-degree mark in numerous locations across the Deep South. Naples, FL, observed maximum temperatures ranging from 83 to 86°F each day from February 5-11, including a daily-record high (86°F) on the 9th. A daily earlier, on February 8, daily-record highs had soared to 83°F in Greenwood, MS, and 81°F in Montgomery, AL. Before warmth was briefly swept away, daily-record highs on February 10 in New England reached 64°F in Providence, RI; 62°F in Hartford, CT; and 60°F in Boston, MA.

The winter warmth came with a price—namely, periods of heavy rain and some wet snow. For example, isolated downpours dotted the southern tip of Florida, mainly along the Atlantic Coast. On February 5, daily-record rainfall totals in Florida topped 4 inches in Fort Lauderdale (4.45 inches) and Miami (4.13 inches). For Fort Lauderdale, it was the wettest February day since 1997, when 4.66 inches fell on February 16. Later, scattered showers and thunderstorms developed across the southern Plains and swept eastward, expanding in coverage and intensity. Waco, TX, measured a daily-record sum of 1.73 inches on February 7. The following day, record-setting totals for the 8th included 4.33 inches in Batesville, AR; 2.75 inches in Poplar Bluff, MO; 2.30 inches in McComb, MS; and 1.94 inches in Carbondale, IL. In the Midwest, record-setting precipitation totals for February 9 topped an inch in Kansas City, MO (1.53 inches, including 3.7 inches of snow); Quincy, IL (1.12 inches); and Grand Rapids, MI (1.10 inches). Record-setting rainfall amounts for February 11 totaled 2.42 inches at Saint Simons Island, GA, and 2.28 inches in Charleston, SC. Elsewhere, the Pearl River near Monticello, MS, rose 4.47 feet above

flood stage on February 10, the highest level in that location since spring 2020. By February 12, rain soaked the middle Atlantic States. Daily-record totals for that date topped the 2-inch mark in locations such as Cape Hatteras, NC (2.12 inches), and Blacksburg, VA (2.06 inches).

Around the middle of the month, anomalous warmth overspread the Great Lakes region. Record-setting highs for February 12 rose to 49°F in Marquette, MI, and 45°F in International Falls, MN. In Wisconsin, Green Bay collected consecutive daily-record highs (45 and 47°F, respectively) on February 13-14. In Michigan, daily-record highs for February 14 climbed to 59°F in Muskegon and 58°F in Lansing. Non-frozen precipitation fell atypically far to the north on the 14th across the upper Midwest, where both Saint Cloud and Minneapolis-Saint Paul, MN, reported daily-record totals of 0.68 inch. Meanwhile, daily-record snowfall amounts for February 14 included 4.2 inches in Colorado Springs, CO, and 3.5 inches in Billings, MT. Colorado Springs achieved another daily-record total (6.0 inches) on the 15th, boosting its 2-day snowfall to 10.2 inches. Other daily-record snowfall totals for February 15 were 6.0 inches in Pueblo, CO, and 4.6 inches in Clayton, NM. Meanwhile in coastal California, daily-record lows for February 15 dipped to 28°F in Eureka and 30°F in Oceanside.

As the second half of February began, warmth expanded across the Midwest into much of the East. Daily-record highs for the 15th surged to 73°F in Evansville, IN; Zanesville, OH; and Morgantown, WV. Concurrently, record-setting heat affected southern Texas, where February 15 highs soared to 95°F in Del Rio and 94°F in Laredo. Eastern warmth generally peaked on February 16 with monthly record highs in locations such as Islip, NY (71°F), and Bridgeport, CT (68°F). In both locations, previous records—68 and 67°F, respectively—had been set on February 23, 2022. In contrast, chilly weather engulfed the West. In California, daily-record lows for the 16th included 10°F in Bishop, 18°F in Lancaster, and 32°F in Santa Barbara. Farther inland, sub-zero, daily-record lows for February 16 plummeted to -26°F in Randolph, UT; -14°F in Ely, NV; and -9°F in Flagstaff, AZ. Flagstaff's chilly weather followed a 10.1-inch snowfall on February 14-15.

Colder air contributed to significant snowfall from the central Plains into the upper Midwest; daily-record amounts for February 16 reached 8.8 inches in Lincoln, NE, and 5.6 inches in Des Moines, IA. In the East, snow was limited to northern New England, where Caribou, ME, set daily records on the 17th for precipitation (1.09 inches) and snowfall (14.0 inches). Meanwhile, heavy showers erupted from the mid-South to the central and southern Appalachians. Daily-record rainfall totals exceeded 2 inches on February 16 in Jackson, KY (3.11 inches), and Huntington, WV (2.62 inches). February 16-17 storm totals rose to 4.11 inches in Jackson and 3.31 inches in Huntington. Significant flooding was observed in portions of West Virginia's Fayette and Kanawha Counties, including the Smithers Creek watershed.

Late in the month, sprawling and complex storm systems delivered blizzard conditions from southern California to the northern Plains and upper Midwest. The latter regions, more accustomed to extreme winter weather, escaped with short-term disruptions. In southern California, unprecedented snowfall led to entire communities being marooned for days. Meanwhile in the north-central U.S., the first wave of extreme weather arrived on February 20. Minneapolis-Saint Paul, MN, measured snow each day from February 20-23, totaling 15.1 inches, accompanied by a peak wind gust of 48 mph. Nearly half of the Twin Cities' snow, 6.5 inches, fell on the 23rd. Farther west, daily snowfall records were broken on February 21 in Ely, NV (6.0 inches); Casper, WY (4.6 inches); and Bismarck, ND (4.5 inches). By February 22, double-digit, daily-record totals were observed in locations such as Salt Lake City, UT (11.5 inches), and Huron, SD (11.0 inches). Casper (6.8 inches on the 22nd) noted a second consecutive daily-record snowfall. Elsewhere in Wyoming, the 22nd was the wettest February day on record in Rawlins, with a snow-water equivalency of 1.24 inches (previously, 0.60 inch on February 17, 2000). Heavy snow extended eastward into portions of the Great Lakes region and northern New England; for example, daily-record snowfall amounts for February 23 reached 20.0 inches in Marquette, MI; 10.3 inches in Sturgeon Bay, WI; and 6.2 inches in Duluth, MN, and Burlington, VT. Farther south, a band of freezing rain caused extensive power outages, especially across southern Michigan, while heavy showers dotted Illinois and environs. Detroit, MI, received precipitation totaling 0.98 inch (with only a trace of snow) on February 22, as the temperature hovered between 31 and 33°F. The 22nd was the wettest-ever February day in Lincoln, IL, where 3.40 inches fell (previously, 2.09 inches on February 4, 1942), while daily-record amounts elsewhere in the state included 1.41 inches in Peoria and 1.20 inches in Chicago.

Meanwhile, slow-moving disturbances near the Pacific Coast profoundly influenced Western weather. On the 22nd in Oregon, Portland's 10.8-inch total represented its second-snowiest day, behind only 14.4 inches on January 21, 1943. Two days later, on the 24th, record-shattering rainfall struck California's Central Valley, where Hanford (2.70 inches) reported its wettest day (previously, 2.44 inches on February 10, 1978). February 24 was the seventh-wettest day ever in Fresno, CA, where 2.16 inches fell. Extremely heavy, wind-driven precipitation, including hail and low-elevation snow, engulfed southern California on the 24th, when Burbank (4.61 inches) endured its wettest February day (previously,

4.50 inches on February 8, 1993). By the morning of March 1, a 47-inch snow depth was reported on southern California's Palomar Mountain. Southern California's record-setting snowfall, which began in earnest on February 23-24 and lasted about a week, included some incredible totals. For example, one preliminary report showed 82 inches (spanning 7 days) at Big Bear City in San Bernardino County, near the eastern shore of Big Bear Lake. Previously, Big Bear City's 7-day snowfall record had been 58 inches in January-February 1979. Other 7-day totals in southern California included 150 inches near Running Springs and 109 inches at Lake Arrowhead. In a typical autumn, winter, and spring, Lake Arrowhead receives about 22 inches of snow. Several days into March, long after southern California's snow ended, some mountain communities remained isolated.

During a post-storm push of cold air across the Plains and upper Midwest, consecutive daily-record lows were set on February 22-23 in Denver, CO (-7 and -11°F), and Casper, WY (-17 and -26°F). Elsewhere on the 23rd, daily-record lows plunged to -27°F in Worland, WY, and -20°F in Scottsbluff, NE. Meanwhile, with early-season heat in place across the Deep South, February 23 featured an impressive northwest-to-southeast temperature gradient. The nation's highest temperature that day, 102°F at Falcon Lake, TX, contrasted with the lowest reading of -35°F at Lyman, WY. In northern sections of the Plains and Intermountain West, temperatures generally bottomed out on February 24, with daily-record lows of -30°F in Worland and -29°F in Bismarck, ND. Farther west, freezes (and daily-record lows) struck on February 23 in normally temperate California locations such as Santa Rosa (28°F) and Red Bluff (30°F). In California's Sacramento Valley, both Red Bluff and Redding reported 5-inch snow depths on the morning of February 24. Just 4 days earlier, on the 20th, both Redding (80°F) and Red Bluff (79°F) had reported daily-record highs. By February 24-25, consecutive daily-record lows occurred in Oregon locations such as Portland (25 and 18°F, respectively) and Hillsboro (16°F both days). Elsewhere in the Northwest, daily-record lows tumbled to 2°F (on the 25th) in Pendleton, OR, and 3°F (on the 24th) in Spokane, WA. Later, fleeting warmth across the southern Plains led to a daily-record high for February 21 in Lawton, OK (84°F). More consistent warmth covered the South. In southern Texas, Harlingen registered consecutive daily-record highs (94 and 96°F, respectively) on February 22-23, while McAllen recorded 98°F on the 22nd.

Many monthly records were set or tied in the South and East, starting on February 22 with highs of 83°F in Muscle Shoals, AL, and 77°F in Beckley, WV. Muscle Shoals toppled that mark with a high of 86°F on February 23. During the largest wave of February records on the 23rd, highs catapulted to 88°F on Saint Simons Island, GA; 87°F in Vicksburg and Tupelo, MS; 86°F in Wilmington, NC; 85°F in Nashville, TN, McComb, MS, and Elizabeth City, Fayetteville, and Raleigh-Durham, NC; 84°F in Greenwood, MS; 83°F in Richmond, VA; and 81°F in Greensboro, NC. Saint Simons Island attained 88°F again on February 24. The last day of February featured monthly record highs in Mobile, AL (85°F), and Pensacola, FL (84°F); standards in both locations had been achieved just 3 days earlier, on the 25th. From February 27 – March 2, Hattiesburg, MS, posted four consecutive daily-record highs (84, 86, 85, and 86°F). Additionally, Hattiesburg notched highs above 80°F from February 21 – March 3, a span of 11 days. The spring-like weather propelled many Southern and Eastern towns and cities to their warmest February on record. Previous records had been set in February 2018 in many locations, including Clarksburg, WV (February 2023 average temperature of 45.7°F, 9.6°F above normal); Crossville, TN (47.6°F, 8.8°F above normal); Saint Simons Island, GA (65.9°F, 9.8°F above normal); and Fort Lauderdale, FL (75.4°F, 5.1°F above normal). In dozens of additional communities, it was the second-warmest February on record. Surviving records for warmest February date back to 1882 in Nashville, TN, and 1887 in Jacksonville, FL. Extremely dry weather accompanied the warmth across much of Florida's peninsula, where Naples reported its first February without a drop of rain since 1949.

As the calendar turned to March, extreme weather—including blowing dust and severe thunderstorms—continued. In fact, there were a pair of severe-weather outbreak—on February 26-27 and March 1-3, respectively—from the southern Plains into the mid-South and lower Midwest. Both outbreaks resulted in wind damage and power outages. Combined, the two events were responsible for as many as five dozen tornadoes. A tornado-related fatality occurred in Roger Mills County, OK, on the 26th. In addition, the initial outbreak resulted in a major dust storm on February 26 across the southern sections of the Rockies and High Plains. A gust to 114 mph was clocked near Memphis, Hall County, TX, while winds gusted to 95 mph near Jetmore, Hodgeman County, KS. In Lubbock, TX, where a westerly gust to 77 mph was recorded on the 26th, daily precipitation last totaled one-tenth of an inch or more on January 24. Meanwhile, more than two dozen tornadoes were spotted on February 26-27 from Kansas, Oklahoma, and Texas to Illinois, Indiana, and Ohio. On the 27th, daily-record precipitation totals included 2.06 inches in Milwaukee, WI; 1.54 inches in Rockford, IL; 1.40 inches in South Bend, IN; and 1.27 inches in Kalamazoo, MI. For Milwaukee, it was the wettest February day on record, surpassing 1.81 inches on February 21, 1913. New York City received its biggest snow of the season to date on February 27-28, with Central Park measuring 1.8 inches. Concurrently, widespread snow in the West led to daily-

record totals for February 28 in Spokane, WA (4.4 inches); Reno, NV (2.8 inches); and Glasgow, MT (2.1 inches). Reno received measurable snow on each of the last 8 days in February, except the 26th, totaling 9.7 inches. Flagstaff, AZ, aided by a 10.3-inch snowfall on February 26 and 24.0 inches on March 1-2, saw its season-to-date total climb to 142.9 inches (201 percent of normal for the date).

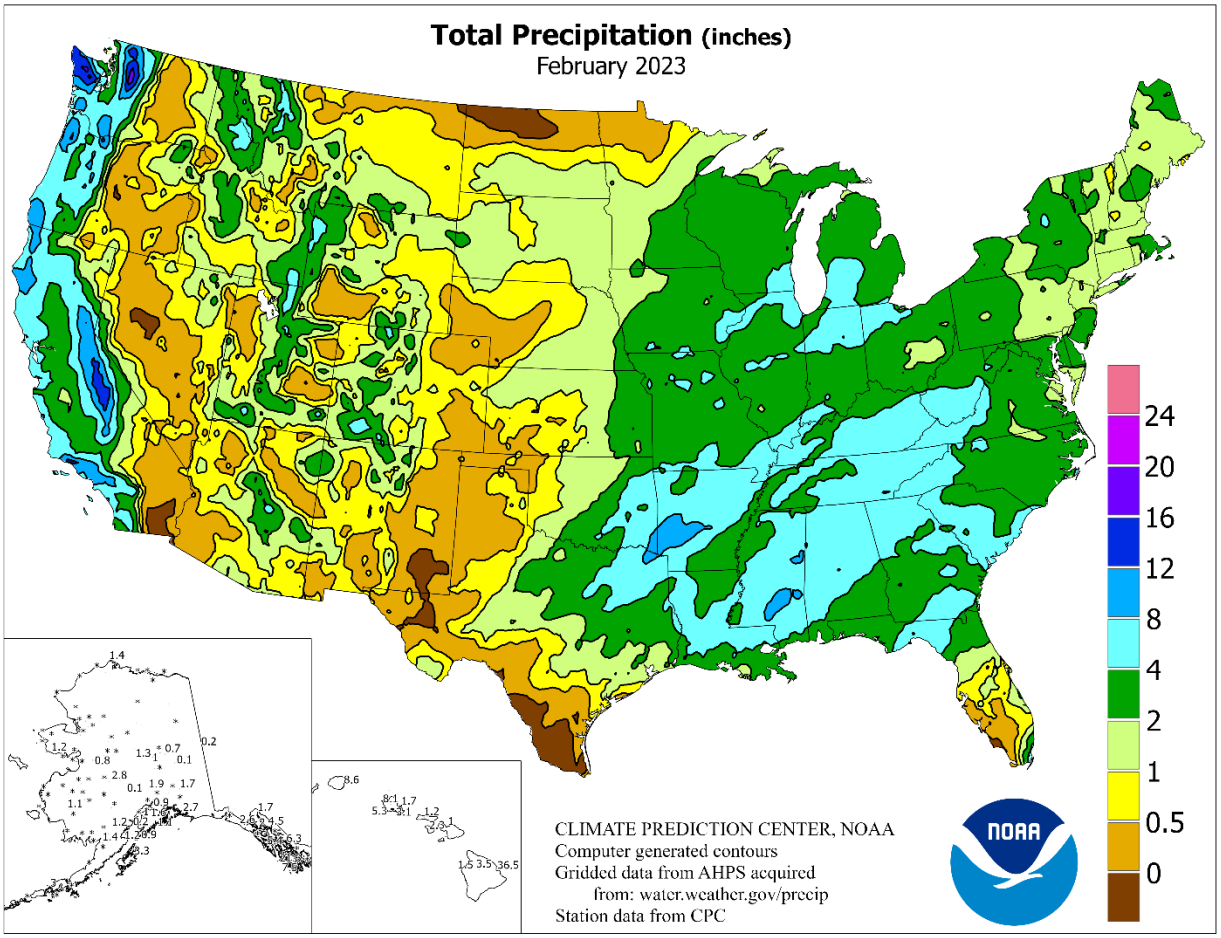
Much of Alaska experienced a rather stormy February, with near- or below-normal temperatures in nearly all areas except the state's southern tier. Snow fell in many areas, especially in early February, with Fairbanks receiving 6.5 inches during the first 4 days of the month. Similarly, Anchorage netted 8.4 inches of snow from February 1-4. Parts of southeastern Alaska also received heavy snow, with Juneau measuring 9.6 inches during the first 4 days of February. Ketchikan was deluged by exactly 10.00 inches of rain from February 1-5, reporting more than an inch each day. Soon, however, frigid weather arrived across most of the state, except in southeastern Alaska. In the Aleutians, Cold Bay clocked a southeasterly wind gust to 68 mph on February 9, followed by a low temperature of 8°F (not a record for the date) on February 12. Anchorage received 5.3 inches of snow from February 6-9, followed by an additional 11.4 inches on February 11-13. The snow depth in Anchorage climbed to 36 inches on February 13 and 14, highest at any time of year since March 6, 2012. The final monthly snowfall total in Anchorage was 32.4 inches, 242 percent of normal. In southeastern Alaska, Ketchikan's February precipitation totaled 23.22 inches (197 percent of normal), while Juneau's February snowfall rose to 45.6 inches (278 percent of normal). Juneau's biggest snowfall of the month, 20.6 inches, occurred on February 24-25. In all, Juneau, experienced its snowiest February since 1965, when 86.3 inches fell. Farther north, Fairbanks received at least a trace of snow each day during February, totaling 21.1 inches (211 percent of normal).

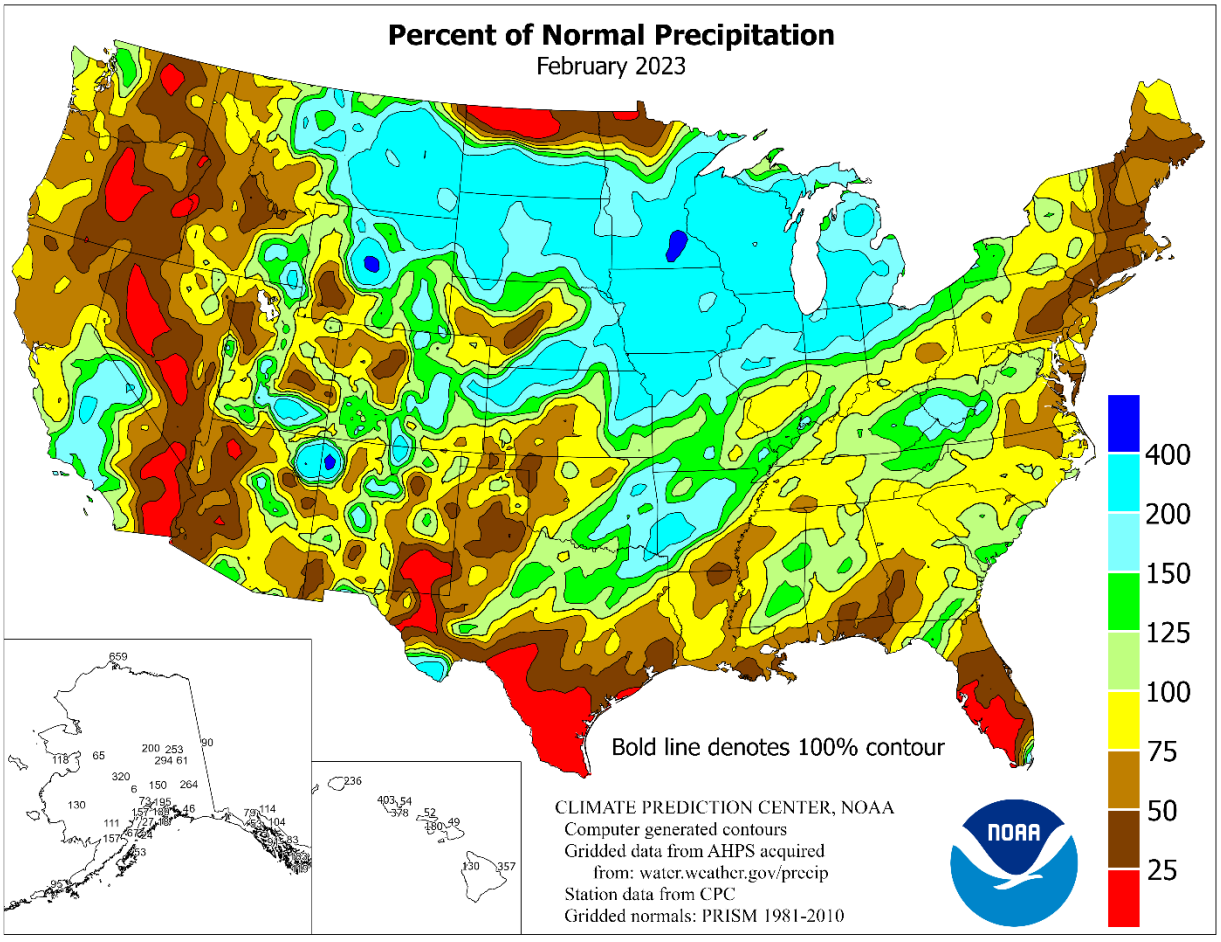
Several rounds of torrential rain struck Hawaii, especially the Big Island. Initially, on February 11-12, an upper-level disturbance generated heavy showers on the Big Island, where Hilo netted 6.68 inches. About a week later, a Kona low delivered flooding rainfall across the eastern- and southeastern-facing slopes of the Big Island. With a 11.13-inch total on the 18th, it was Hilo's wettest February day since 1979, when 16.87 inches fell on February 20. It was also Hilo's wettest day at any time of year since August 24, 2018, when rainfall totaled 15.00 inches. Rain also spread to other islands, including Kauai, where Lihue netted a daily-record sum (1.48 inches) on February 18. Another daily-record total (2.40 inches) occurred in Lihue on February 20. Meanwhile, Hilo measured more than an inch of rain each day from February 20-24, and on eleven days during the month. Hilo's monthly rainfall of 37.95 inches was 371 percent of normal and represented the wettest February in that location since 2008. A few volunteer weather observers on the Big Island measured at least 3 to 4 feet of February rainfall, led by a 52.14-inch total near Wainaku and a 49.48-inch sum near Kurtistown.

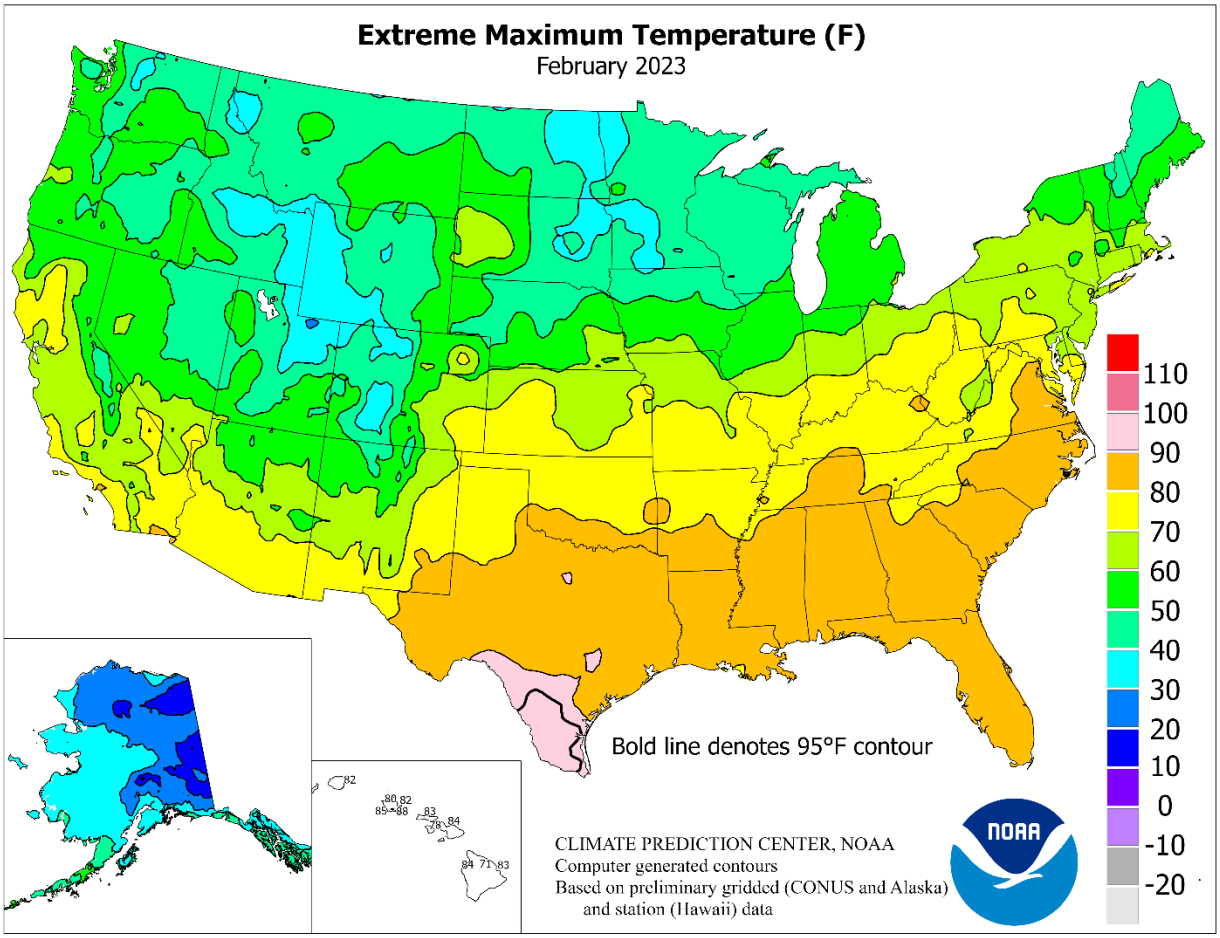
Fieldwork

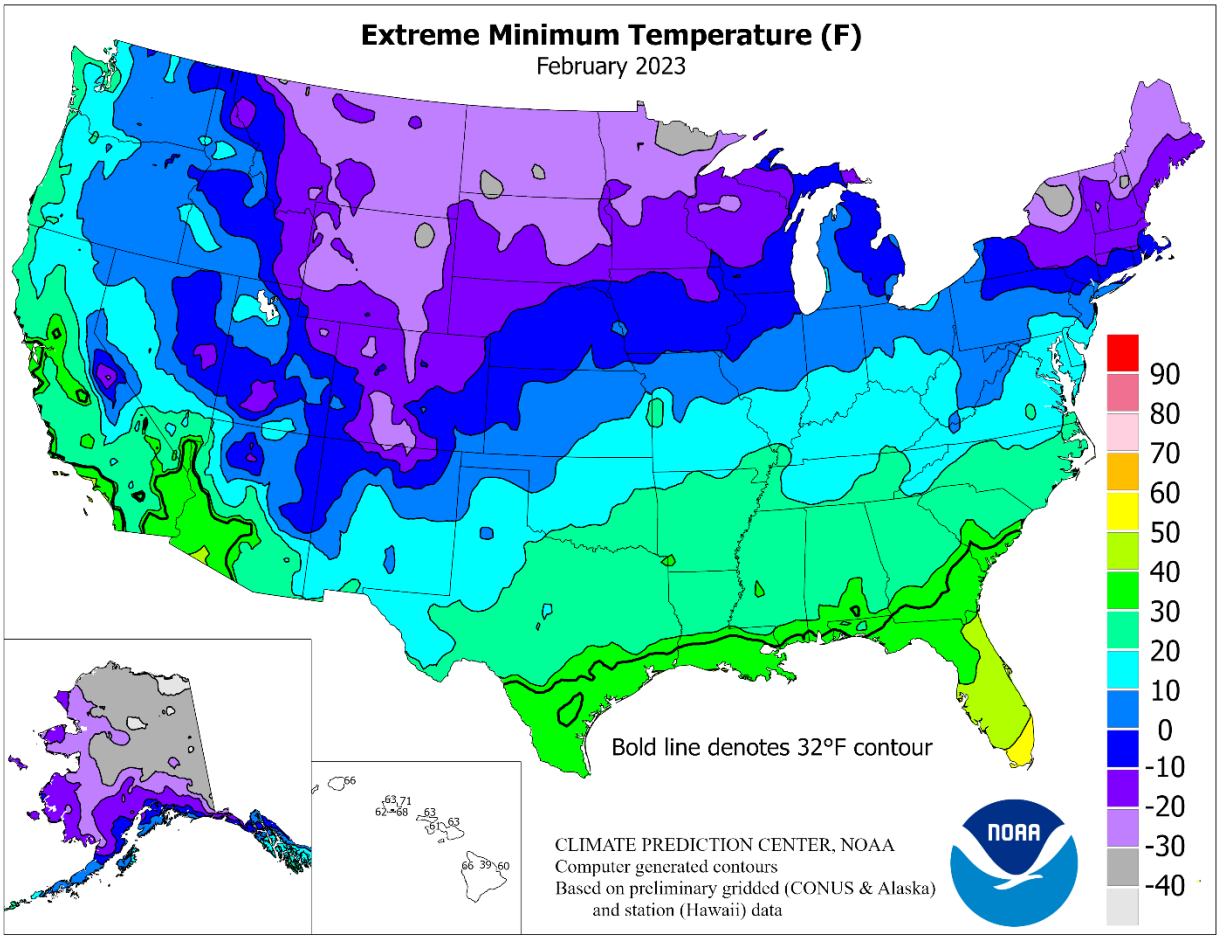
Fieldwork summary provided by USDA/NASS

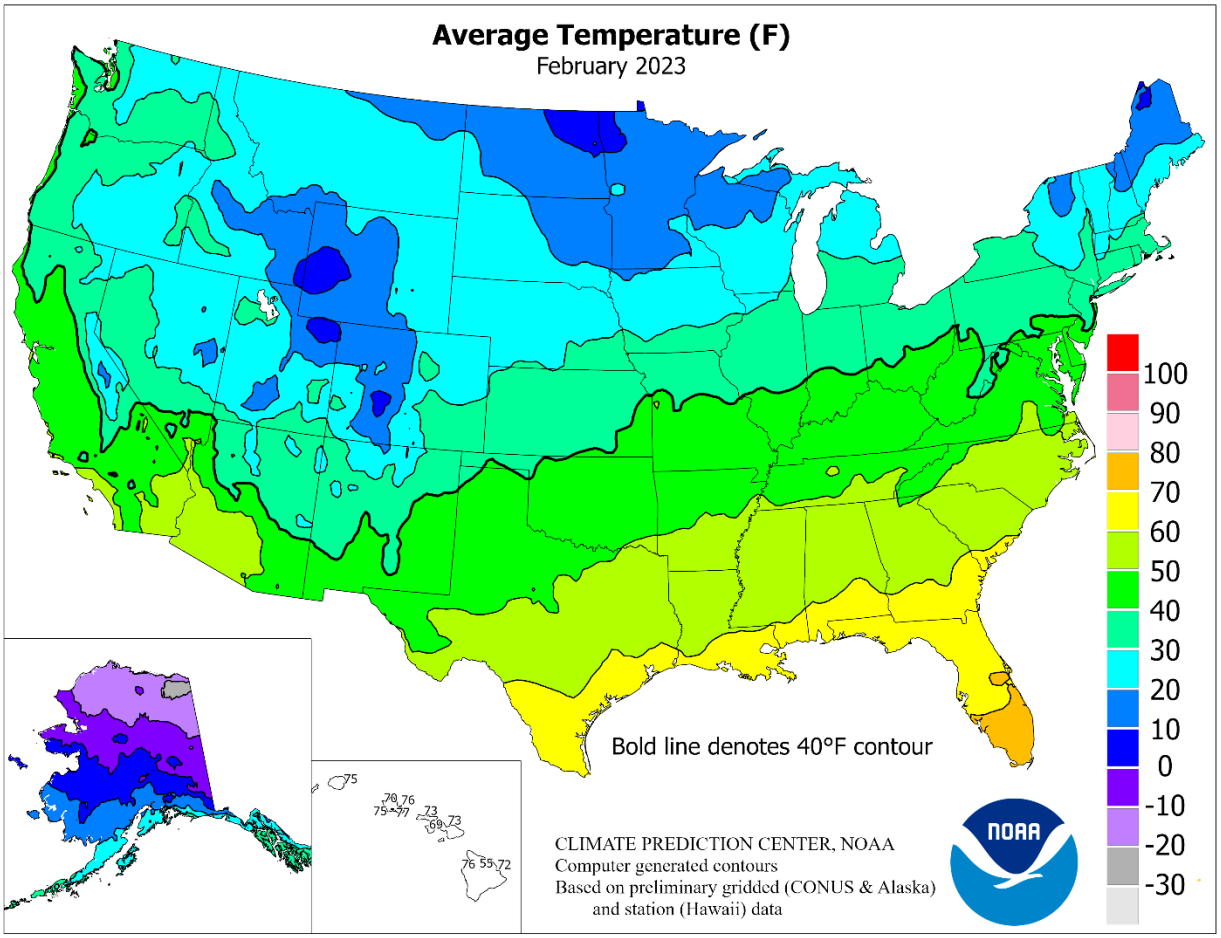
February was warmer than normal for most of the eastern half of the nation. Much of the area east of the Mississippi River recorded temperatures 6°F or more above normal. In contrast, most of the West noted below-normal temperatures. Parts of the Great Basin and Rockies recorded monthly temperatures 9°F or more below normal. Meanwhile, much of the Great Lakes and Midwest, as well as parts of the Great Plains, Rockies, South, and Southwest, recorded above-average February precipitation. Portions of Arkansas, Mississippi, Oklahoma, and Washington received at least 8 inches of precipitation during the month. In contrast, much of Florida, the Northeast, Pacific Northwest, as well as parts of the far northern Plains and southern Texas, were drier than normal.

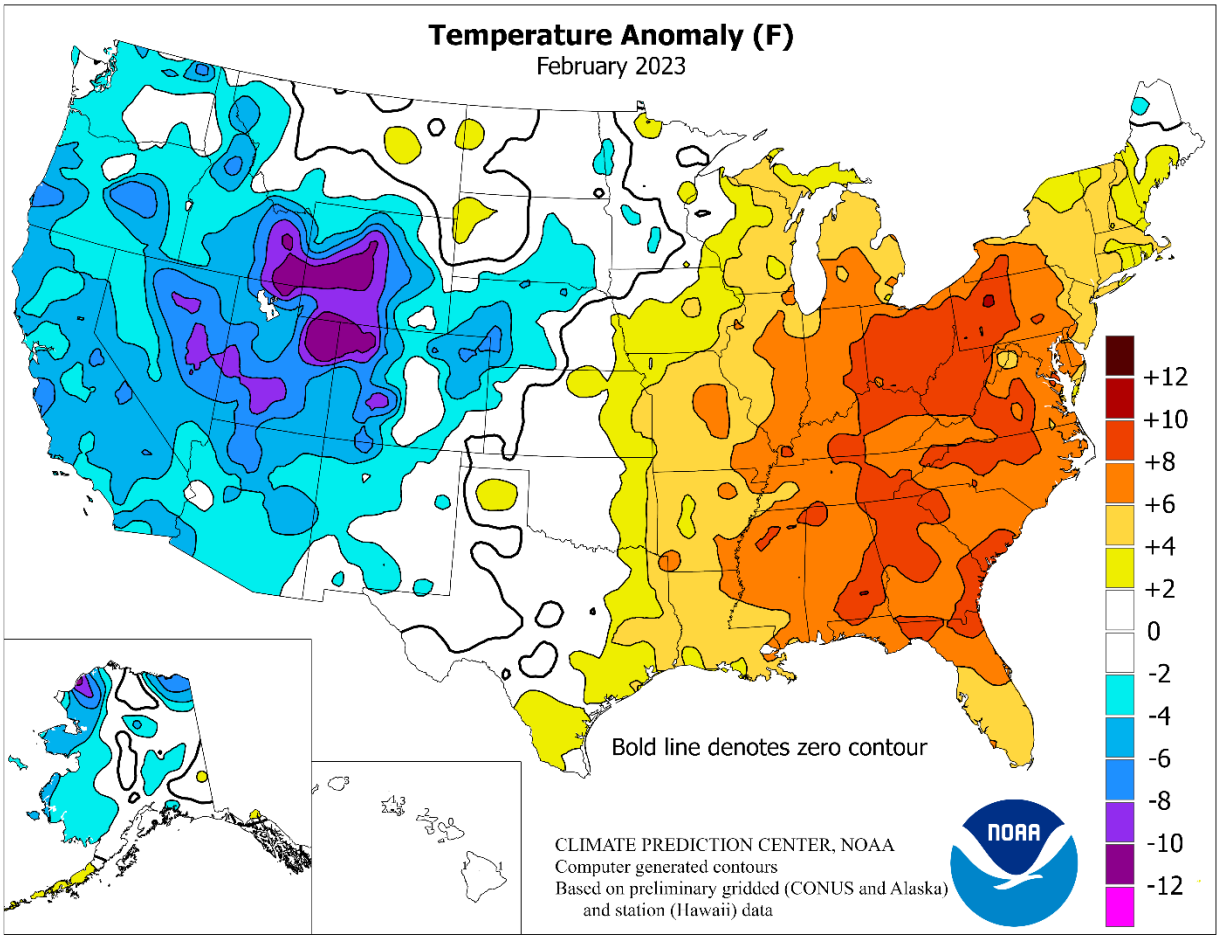

Total Precipitation (inches)
February 2023
24
20
16
12
8
4
2
1
0.5
0
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Gridded data from AHPS acquired
from: water.weather.gov/precip
Station data from CPC
NOAA


Percent of Normal Precipitation
February 2023
400
200
150
125
100
75
50
25
Bold line denotes 100% contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Gridded data from AHPS acquired
from: water.weather.gov/precip
Station data from CPC
Gridded normals: PRISM 1981-2010
NOAA


Extreme Maximum Temperature (F)
February 2023
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
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)
February 2023
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS & Alaska)
and station (Hawaii) data
NOAA


Average Temperature (F)
February 2023
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
Bold line denotes 40°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS & Alaska)
and station (Hawaii) data
NOAA


Temperature Anomaly (F)
February 2023
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
Bold line denotes zero contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA

National Weather Data for Selected Cities

February 2023

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	21	-1	1.63	0.77		WICHITA	39	1	1.26	0.07		TOLEDO	36	6	4.76	2.49
	BARROW	-12	0	1.40	1.19	KY	LEXINGTON	46	9	3.69	0.06		YOUNGSTOWN	37	8	2.04	-0.48
	FAIRBANKS	0	0	1.04	0.52		LOUISVILLE	47	8	2.42	-0.99	OK	OKLAHOMA CITY	44	2	1.50	0.09
	JUNEAU	30	0	4.49	0.18		PADUCAH	47	7	3.42	-0.52		TULSA	45	2	3.28	1.67
	KODIAK	31	-1	3.32	-2.99	LA	BATON ROUGE	62	6	3.40	-1.02	OR	ASTORIA	42	-3	4.64	-2.54
	NOME	3	-6	1.17	0.18		LAKE CHARLES	59	2	2.31	-0.94		BURNS	24	-7	0.73	-0.22
AL	BIRMINGHAM	56	7	3.71	-1.23		NEW ORLEANS	64	6	2.72	-1.41		EUGENE	40	-3	1.94	-2.73
	HUNTSVILLE	53	6	4.83	-0.28		SHREVEPORT	57	5	0.00	-4.30		MEDFORD	41	-3	0.75	-1.20
	MOBILE	63	8	3.04	-1.44	MA	BOSTON	35	3	1.33	-1.87		PENDLETON	37	-1	0.72	-0.47
	MONTGOMERY	61	8	2.99	-1.89		WORCESTER	32	5	1.66	-1.60		PORTLAND	41	-3	2.48	-1.20
AR	FORT SMITH	50	5	3.96	1.27	MD	BALTIMORE	44	8	2.15	-0.75		SALEM	40	-4	2.82	-1.72
	LITTLE ROCK	52	7	5.56	1.59	ME	CARIBOU	12	-2	1.63	-0.78	PA	ALLENTOWN	36	4	1.02	-1.75
AZ	FLAGSTAFF	27	-6	3.07	0.90		PORTLAND	27	1	1.53	-2.01		ERIE	35	6	3.10	0.57
	PHOENIX	57	-3	0.37	-0.50	MI	ALPENA	25	4	2.30	0.77		MIDDLETOWN	40	7	0.94	-1.65
	PRESCOTT	38	-4	0.70	-0.57		GRAND RAPIDS	31	4	3.53	1.41		PHILADELPHIA	42	7	1.31	-1.45
	TUCSON	53	-3	0.56	-0.28		HOUGHTON LAKE	25	5	2.01	0.61		PITTSBURGH	39	8	1.37	-1.25
CA	BAKERSFIELD	50	-4	2.39	1.20		LANSING	32	6	3.09	1.38		WILKES-BARRE	36	6	1.06	-1.02
	EUREKA	43	-5	5.22	-0.42		MUSKEGON	33	5	3.02	0.91		WILLIAMSPORT	37	7	0.06	-2.26
	FRESNO	49	-3	4.12	2.19		TRAVERSE CITY	29	5	1.35	0.33	RI	PROVIDENCE	34	2	1.49	-1.94
	LOS ANGELES	55	-3	4.49	1.50	MN	DULUTH	16	0	3.15	2.14	SC	CHARLESTON	61	8	4.06	1.01
	REDDING	47	-4	3.93	-1.56		INT_L FALLS	11	1	0.53	-0.15		COLUMBIA	56	7	3.49	0.10
	SACRAMENTO	48	-4	2.62	-0.87		MINNEAPOLIS	21	0	2.33	1.45		FLORENCE	56	6	3.06	0.06
	SAN DIEGO	55	-4	1.78	-0.42		ROCHESTER	20	1	2.48	1.46		GREENVILLE	53	7	3.03	-0.81
	SAN FRANCISCO	51	-3	3.30	-0.65		ST. CLOUD	16	0	1.76	1.01	SD	ABERDEEN	15	-3	0.77	0.16
	STOCKTON	48	-4	1.96	-0.54	MO	COLUMBIA	42	6	2.82	0.70		HURON	18	-2	0.51	-0.24
CO	ALAMOSA	23	-1	0.28	0.00		KANSAS CITY	37	4	2.74	1.26		RAPID CITY	27	1	0.52	0.03
	CO SPRINGS	34	1	0.48	0.16		SAINT LOUIS	43	6	1.92	-0.31		SIOUX FALLS	20	-2	1.20	0.37
	DENVER INTL	31	-2	0.24	-0.17		SPRINGFIELD	43	4	2.66	0.26	TN	BRISTOL	48	8	4.53	0.72
	GRAND JUNCTION	32	-4	0.62	0.09	MS	JACKSON	58	7	5.03	-0.07		CHATTANOOGA	53	8	4.14	-0.89
	PUEBLO	34	-1	0.45	0.13		MERIDIAN	58	6	9.29	3.94		KNOXVILLE	51	8	3.49	-1.31
CT	BRIDGEPORT	36	3	1.17	-1.94		TUPELO	54	7	4.58	-0.71		MEMPHIS	51	5	3.76	-0.78
	HARTFORD	33	4	1.82	-1.30	MT	BILLINGS	29	-1	0.63	0.06		NASHVILLE	51	8	2.80	-1.68
DC	WASHINGTON	47	7	2.04	-0.57		BUTTE	17	-5	0.15	-0.29	TX	ABILENE	51	1	1.34	0.05
DE	WILMINGTON	40	5	1.58	-1.25		CUT BANK	25	2	0.22	0.00		AMARILLO	44	2	0.25	-0.28
FL	DAYTONA BEACH	68	7	0.93	-1.41		GLASGOW	20	1	0.39	0.04		AUSTIN	57	1	1.75	-0.14
	JACKSONVILLE	65	8	1.25	-1.61		GREAT FALLS	28	2	0.58	-0.01		BEAUMONT	61	4	1.43	-1.67
	KEY WEST	77	5	0.00	-1.54		HAVRE	23	1	0.38	0.00		BROWNSVILLE	66	0	0.27	-0.76
	MIAMI	76	5	3.57	1.43		MISSOULA	26	-2	0.52	-0.36		CORPUS CHRISTI	65	3	0.19	-1.10
	ORLANDO	70	6	0.54	-1.50	NC	ASHEVILLE	48	6	2.76	-0.70		DEL RIO	60	2	0.07	-0.56
	PENSACOLA	65	8	2.33	-2.44		CHARLOTTE	54	8	3.04	-0.09		EL PASO	50	-2	0.41	0.00
	TALLAHASSEE	64	8	3.91	-0.37		GREENSBORO	50	7	3.07	0.26		FORT WORTH	52	2	3.67	0.91
	TAMPA	70	5	0.47	-2.15		HATTERAS	53	4	2.46	-1.87		GALVESTON	62	3	1.09	-1.06
	WEST PALM BEACH	74	6	1.12	-1.52		RALEIGH	54	9	2.49	-0.29		HOUSTON	60	3	1.45	-1.52
GA	ATHENS	55	7	3.08	-1.28		WILMINGTON	57	7	3.01	-0.46		LUBBOCK	46	1	0.15	-0.50
	ATLANTA	57	8	2.29	-2.26	ND	BISMARCK	17	0	0.77	0.25		MIDLAND	49	-1	0.20	-0.38
	AUGUSTA	56	5	5.04	1.36		DICKINSON	21	1	0.10	-0.22		SAN ANGELO	51	-1	0.89	-0.31
	COLUMBUS	59	7	2.00	-2.45		FARGO	11	-3	0.41	-0.28		SAN ANTONIO	57	1	1.19	-0.55
	MACON	59	8	2.52	-1.66		GRAND FORKS	10	-1	0.31	-0.20		VICTORIA	61	3	1.11	-0.85
	SAVANNAH	63	9	2.70	-0.11		JAMESTOWN	14	0	0.09	-0.27		WACO	51	0	3.25	0.56
HI	HILO	72	1	36.50	26.28	NE	GRAND ISLAND	31	1	0.80	0.05		WICHITA FALLS	48	1	1.75	0.35
	HONOLULU	77	3	3.10	1.15		LINCOLN	31	1	0.92	0.03	UT	SALT LAKE CITY	33	-4	0.81	-0.49
	KAHULUI	73	0	0.98	-1.02		NORFOLK	28	2	0.89	0.10	VA	LYNCHBURG	48	9	3.04	0.13
	LIHUE	75	3	8.56	4.93		NORTH PLATTE	27	-2	0.07	-0.50		NORFOLK	51	6	2.10	-0.80
IA	BURLINGTON	34	5	2.37	0.68		OMAHA	30	1	1.79	0.84		RICHMOND	49	8	2.08	-0.53
	CEDAR RAPIDS	28	4	1.90	0.68		SCOTTSBLUFF	28	-2	0.33	-0.23		ROANOKE	50	9	3.06	0.17
	DES MOINES	31	4	1.99	0.65		VALENTINE	23	-5	0.39	-0.22		WASH/DULLES	44	8	2.26	-0.35
	DUBUQUE	26	3	2.78	1.20	NH	CONCORD	26	2	1.31	-1.44	VT	BURLINGTON	26	3	1.52	-0.25
	SIOUX CITY	26	1	1.30	0.44	NJ	ATLANTIC_CITY	40	4	1.74	-1.49	WA	OLYMPIA	39	-2	3.22	-1.86
	WATERLOO	27	3	2.19	1.04		NEWARK	41	6	1.38	-1.60		QUILLAYUTE	40	-2	6.59	-3.13
ID	BOISE	35	-2	0.37	-0.62	NM	ALBUQUERQUE	40	-2	0.32	-0.11		SEATTLE-TACOMA	41	-3	2.34	-1.43
	LEWISTON	39	0	0.35	-0.68	NV	ELY	19	-11	0.67	-0.17		SPOKANE	32	-1	0.56	-0.89
	POCATELLO	21	-8	0.83	-0.13		LAS VEGAS	49	-4	0.26	-0.54		YAKIMA	35	-2	0.43	-0.39
IL	CHICAGO/O_HARE	34	5	3.77	1.80		RENO	36	-5	1.05	0.02	WI	EAU CLAIRE	20	2	1.64	0.54
	MOLINE	34	6	3.46	1.63		WINNEMUCCA	31	-7	0.24	0.03		GREEN BAY	26	4	1.76	0.55
	PEORIA	36	6	3.24	1.26	NY	ALBANY	31	5	1.86	-0.41		LA CROSSE	26	3	1.99	0.80
	ROCKFORD	30	4	3.78	2.14		BINGHAMTON	30	6	1.86	-0.55		MADISON	27	4	2.95	1.43
	SPRINGFIELD	37	5	2.09	0.16		BUFFALO	32	6	2.67	0.18		MILWAUKEE	32	5	4.27	2.58
IN	EVANSVILLE	45	7	2.82	-0.40		ROCHESTER	32	5	2.46	0.33	WV	BECKLEY	43	8	4.66	1.54
	FORT WAYNE	36	7	4.15	2.08		SYRACUSE	31	6	2.55	0.09		CHARLESTON	45	6	4.27	0.91
	INDIANAPOLIS	40	7	2.39	-0.04	OH	AKRON-CANTON	39	9	1.85	-0.59		ELKINS	40	7	3.30	0.04
	SOUTH BEND	34	7	4.06	1.75		CINCINNATI	42	7	2.72	-0.45		HUNTINGTON	46	8	4.29	0.91
KS	CONCORDIA	37	4	0.57	-0.29		CLEVELAND	38	7	2.81	0.33	WY	CASPER	21	-6	0.69	0.12
	DODGE CITY	37	1	0.28	-0.34		COLUMBUS	40	8	1.61	-0.80		CHEYENNE	28	-1	0.23	-0.29
	GOODLAND	31	-1	0.58	0.11		DAYTON	40	7	1.91	-0.44		LANDER	14	-11	1.34	0.64
	TOPEKA	38	3	1.90	0.59		MANSFIELD	37	8	2.13	-0.39		SHERIDAN	23	-3	1.35	0.70

Based on 1991-2020 normals

***** Not Available**

March 9 ENSO Diagnostic Discussion

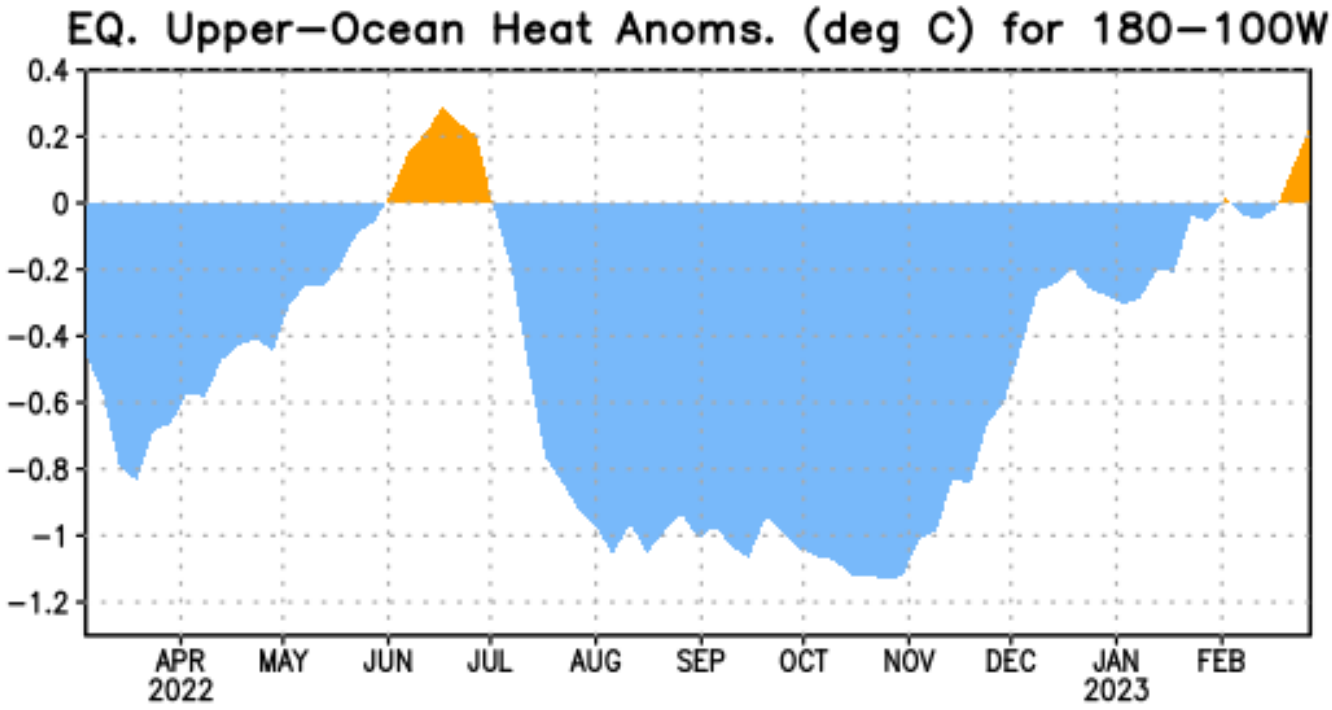


Figure 1: Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180º-100ºW). The heat content anomaly is computed as the departure from the 1991-2020 base period pentad means.

ENSO Alert System Status: Final La Niña Advisory

Synopsis: La Niña has ended and ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring and early summer 2023.

During February 2023, below-average sea surface temperatures (SSTs) weakened and currently persist only in the central Pacific Ocean. The latest weekly Niño-3.4 index value was -0.2ºC. In contrast to the central Pacific, SSTs in parts of the eastern Pacific Ocean were significantly above average, with the latest Niño-1+2 index value at +1.1ºC. In the last month, area-averaged subsurface temperatures became slightly above average (Fig. 1), with positive temperature anomalies spanning the Pacific, though remaining mostly at depth. The atmospheric circulation anomalies across the tropical Pacific are lagging the changes in the ocean. Low-level easterly wind anomalies continue over the central Pacific Ocean. Upper-level westerly wind anomalies were evident over most of the Pacific. Suppressed convection persisted over the central tropical Pacific, while enhanced convection was observed over Indonesia. Collectively, the coupled ocean-atmosphere system was consistent with ENSO-neutral.

The most recent IRI plume favors ENSO-neutral to continue through the spring, with El Niño forming during summer 2023 and persisting through the fall. In contrast, the forecaster consensus favors ENSO-neutral through summer 2023, with elevated chances of El Niño developing afterwards. The smaller chances of El Niño relative to the model predictions are primarily because ENSO forecasts made during the spring are less accurate, and also the tropical Pacific atmosphere is still fairly consistent with a cool/La Niña-like state. However, it is possible that strong warming near South America may portend a more rapid evolution toward El Niño and will be closely monitored. In summary, La Niña has ended and ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring and early summer 2023.

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 website (El Niño/La Niña Current Conditions and Expert Discussions). Additional perspectives and analyses are also available in an ENSO blog. A probabilistic strength forecast is available here. The next ENSO Diagnostics Discussion is scheduled for **13 April 2023**. 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

March 5-11, 2023

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

HIGHLIGHTS

EUROPE: Much-needed rain and snow eased drought concerns in western portions of the continent.

MIDDLE EAST: Wet albeit warm weather eased dryness and drought in parts of Turkey and Iran, though dry conditions lingered over central portions of the region.

NORTHWESTERN AFRICA: Dry and very warm weather accelerated winter grain development after recent rain but renewed drought concerns, especially over inland crop areas.

EAST ASIA: Passing showers in southern China benefited rapeseed, while unseasonable heat stressed wheat to the north.

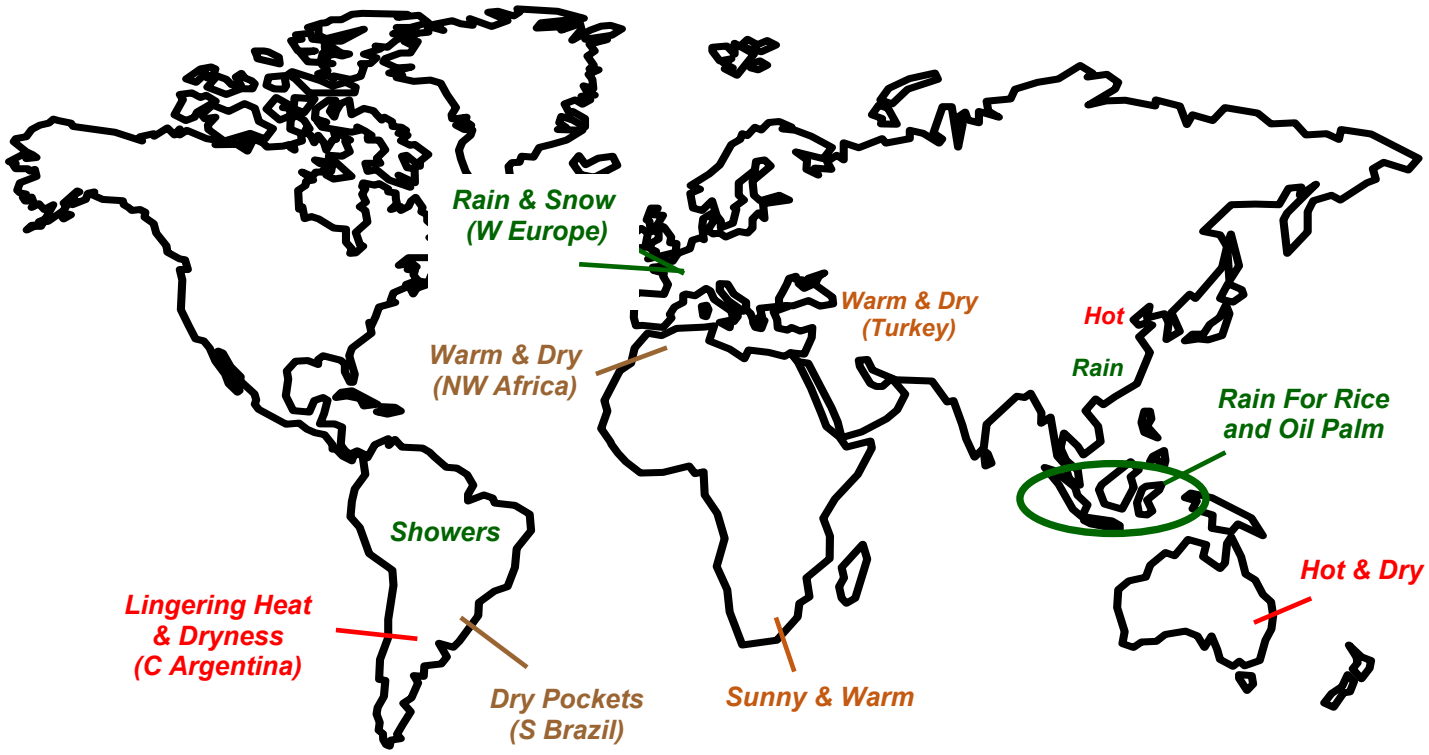
SOUTHEAST ASIA: Wet weather was mostly limited to Malaysia and Indonesia, benefiting oil palm and irrigation supplies for rice.

AUSTRALIA: Heat and dryness promoted summer crop maturation and harvesting throughout most of the week.

SOUTH AFRICA: Warm, sunny weather promoted development of corn and sugarcane.

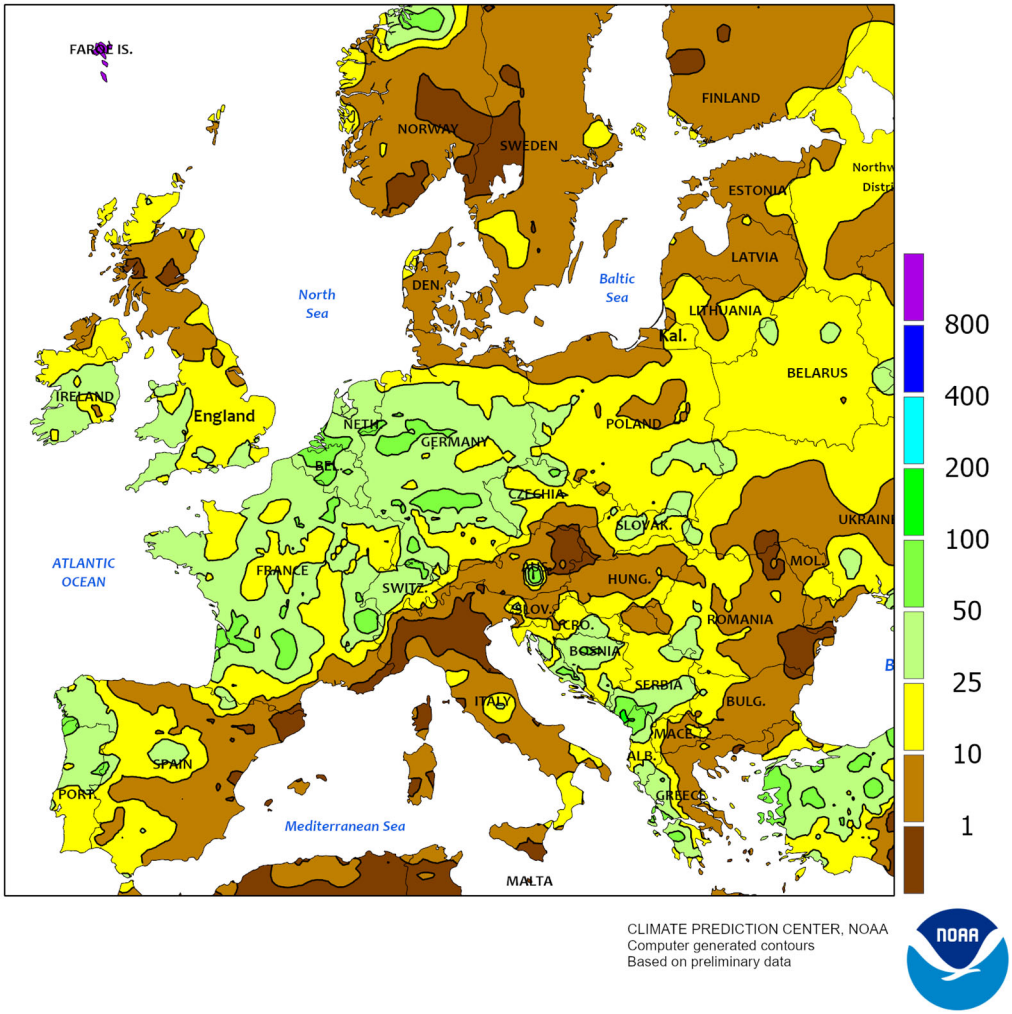
ARGENTINA: Heat and dryness lingered over high-yielding farmlands of central Argentina.

BRAZIL: Showers maintained generally favorable conditions for corn and cotton in central and northeastern Brazil, while pockets of dryness persisted in the south.



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

EUROPE
Total Precipitation(mm)
March 5 - 11, 2023

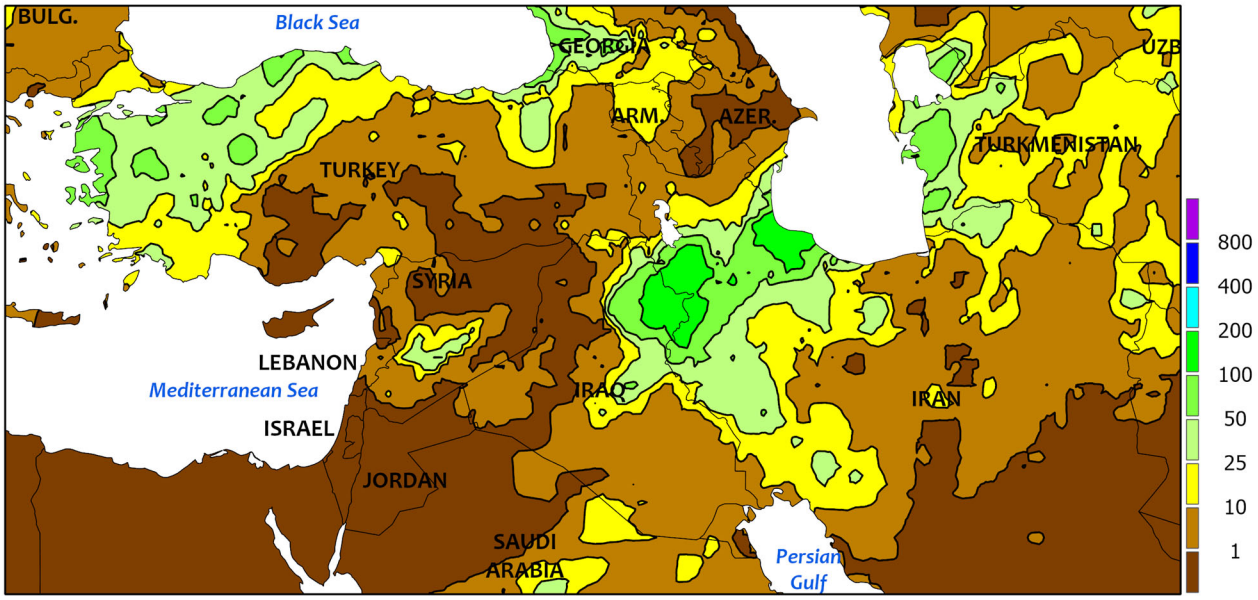


EUROPE

A series of disturbances raced across Europe, bringing much-needed rain to western growing areas while maintaining favorable moisture reserves in the east. Rain and northern snow (10-70 mm liquid equivalent) over France and England eased short-term dryness and improved prospects for winter grains and oilseeds. Similar showers in Spain and Portugal were likewise beneficial for vegetative wheat and barley, though eastern portions of the Iberian Peninsula largely missed out (5 mm or less). Rain and snow (10-60 mm liquid equivalent) also overspread Germany, Poland, and the Baltic States, while light to moderate showers (3-35 mm) swept across the central and northern Balkans. Soil moisture supplies remained overall favorable for spring growth in eastern Europe, though short-term dryness (30-day rainfall less than 25 percent of normal) has developed over Austria, Hungary, and the lower Danube River Valley. In addition, pockets of short- and long-term drought lingered in western and northern Italy as well as southeastern France. Colder-than-normal temperatures over northern Europe (2-5°C below normal) slowed or halted winter crop green up in the west and kept wheat and rapeseed dormant in northeastern Europe. In contrast, anomalous warmth (up to 6°C above normal) across southern and southeastern portions of the continent accelerated winter crop development.

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

MIDDLE EAST
Total Precipitation(mm)
March 5 - 11, 2023

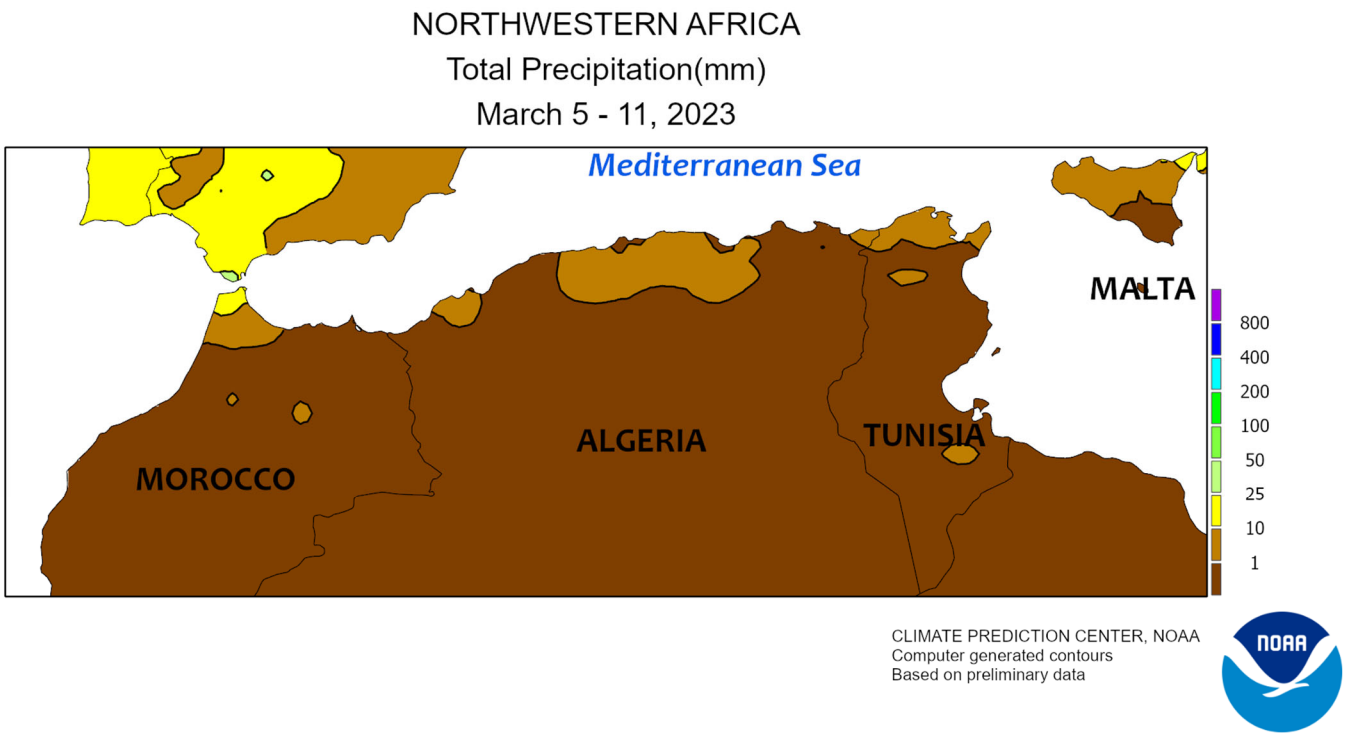


CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

MIDDLE EAST

Increasingly wet albeit warm weather improved moisture supplies for winter grains in parts of Turkey and Iran, while dry conditions lingered over central portions of the region. Moderate to heavy showers (10-80 mm) in western Turkey eased drought and moistened soils for vegetative winter grains, though northwestern Turkey's Thrace Region — a winter wheat area — largely missed out (mostly less than 10 mm). Central Turkey's Anatolian Plateau saw highly variable rainfall, with amounts approaching 25 mm in the west giving way to completely dry conditions in southern and eastern portions of the plateau. Similarly, mostly dry weather (5 mm or less) exacerbated drought from southern and southeastern Turkey into Syria and northwestern Iraq, though rain was overspreading many of these locales at the end of the period. Meanwhile, a separate storm system produced moderate to very heavy rainfall (10-135 mm) from central Saudi Arabia northeastward across southern and eastern Iraq into western Iran, alleviating dryness concerns in Iran and boosting moisture supplies in Iraq. Temperatures during the monitoring period averaged 2 to 8°C above normal across the entire region, with the greatest anomalies noted in northern and eastern growing areas.

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

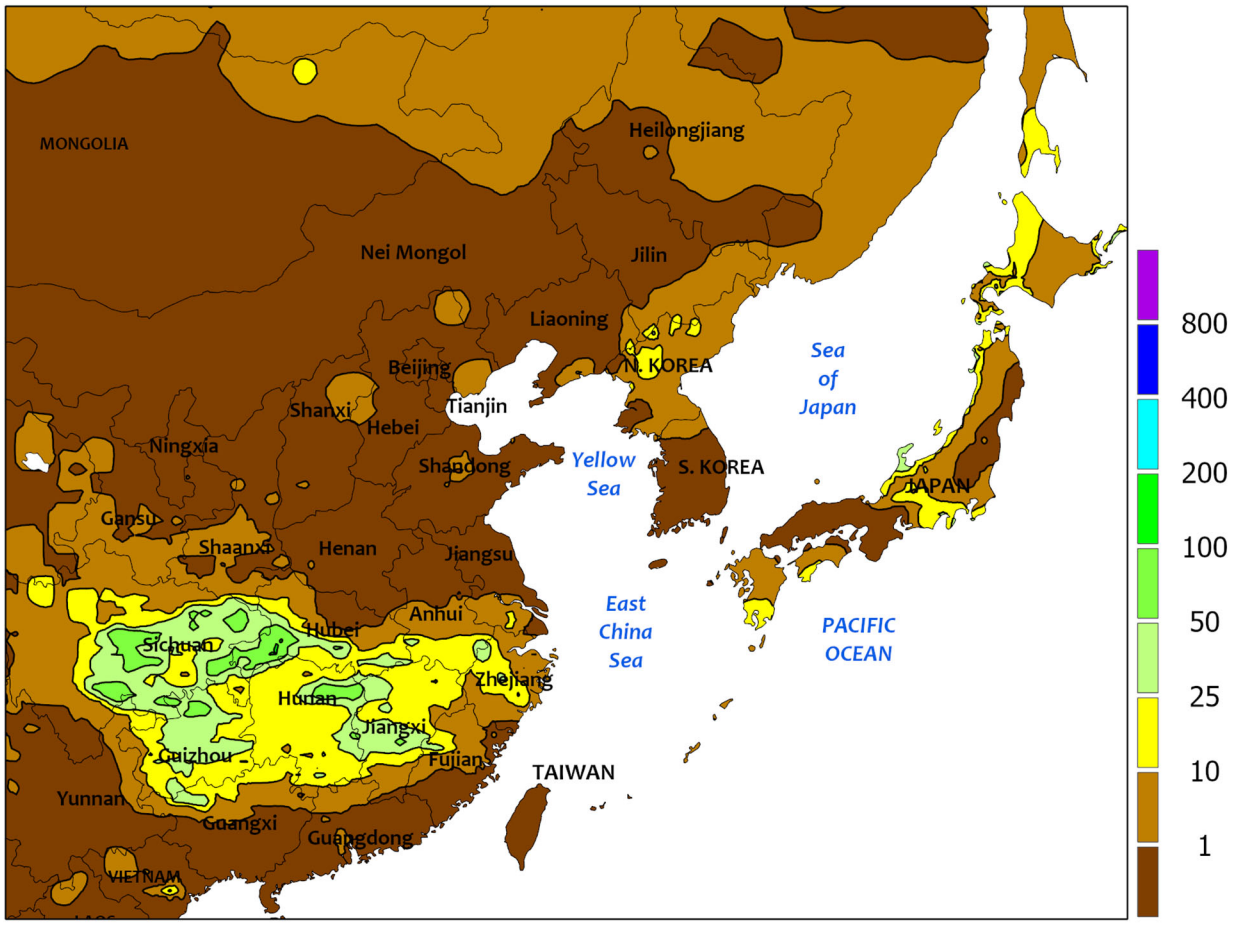


NORTHWESTERN AFRICA

Dry and increasingly warm weather settled over the region after recent much-needed rain. Following the preceding week's timely showers in Morocco, dry and very warm weather (up to 5°C above normal) renewed concerns for reproductive to filling winter grains, especially in southern and northeastern portions of the country. Heightening crop concerns were daytime temperatures in the middle 30s (degrees C) in central and southern Morocco, with a peak reading of 37°C in the southwest more typical of late June. Likewise, dry weather prevailed across Algeria and Tunisia, with only a few light showers (5 mm or less) dotting these croplands. Here, too, recent rain improved prospects for winter grains approaching or entering reproduction, though the return of sunny and warm weather (2-4°C above normal) renewed drought concerns. The latest satellite-derived Vegetation Health Index (VHI) indicated highly variable conditions across the region, with a good to excellent VHI in northern Morocco as well as northern portions of Tunisia and eastern Algeria contrasting with a fair to very poor VHI across southern Morocco, western Algeria, and inland portions of eastern Algeria and northern Tunisia.

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

EASTERN ASIA
Total Precipitation(mm)
March 5 - 11, 2023



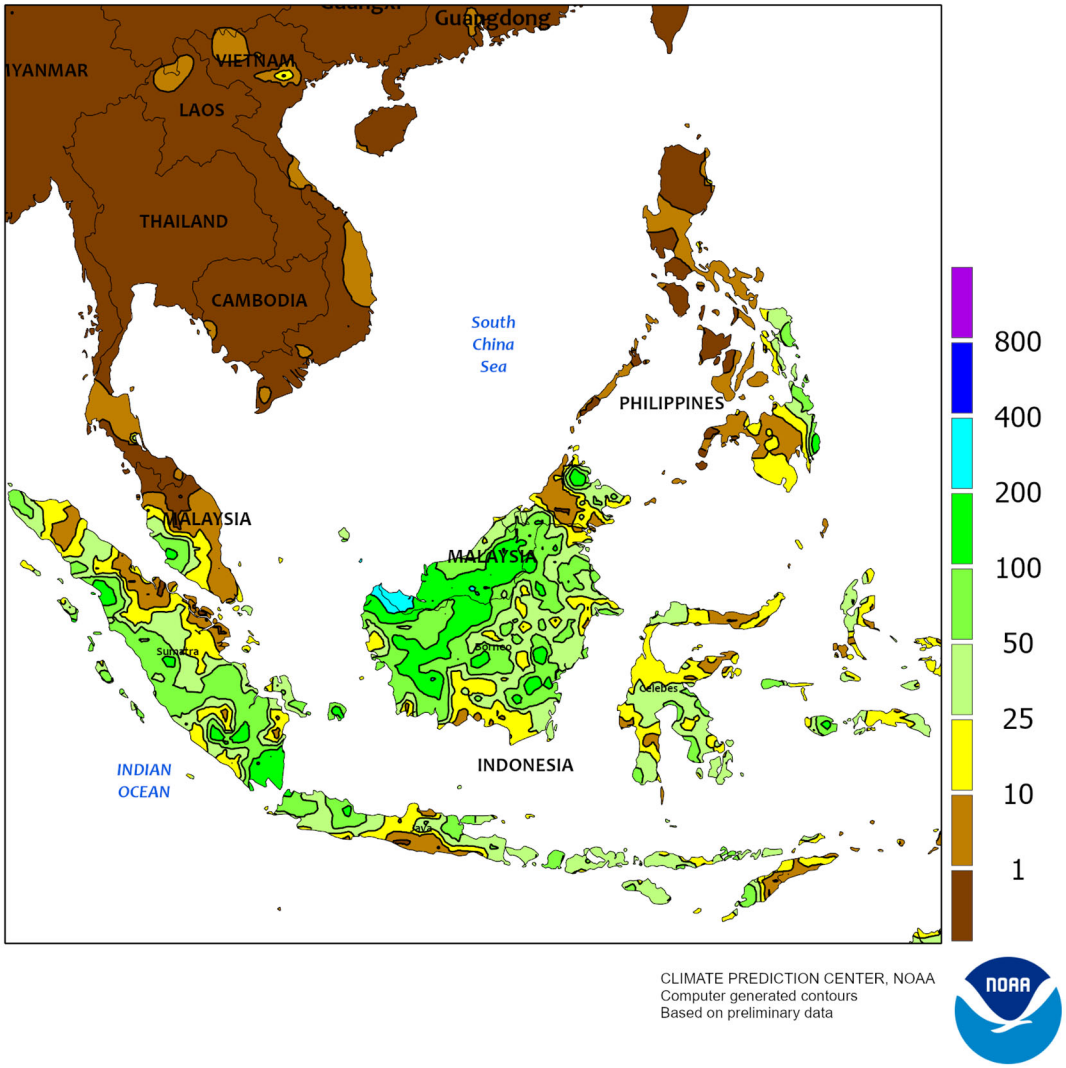
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

EASTERN ASIA

Rainfall was generally limited to southern portions of China during the reporting period, with some locales receiving over 25 mm. The moisture benefited rapeseed entering reproduction, although more would be welcome following winter drought (fourth driest in the last 30 years). Meanwhile, daytime temperatures spiked to the north around mid-week as readings climbed over 30°C in some areas (15°C above normal and the warmest first half of March since 2013). The uncharacteristically hot weather stressed wheat that had just begun breaking dormancy and necessitated supplemental irrigation to stave off damage.

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

SOUTHEAST ASIA
Total Precipitation(mm)
March 5 - 11, 2023

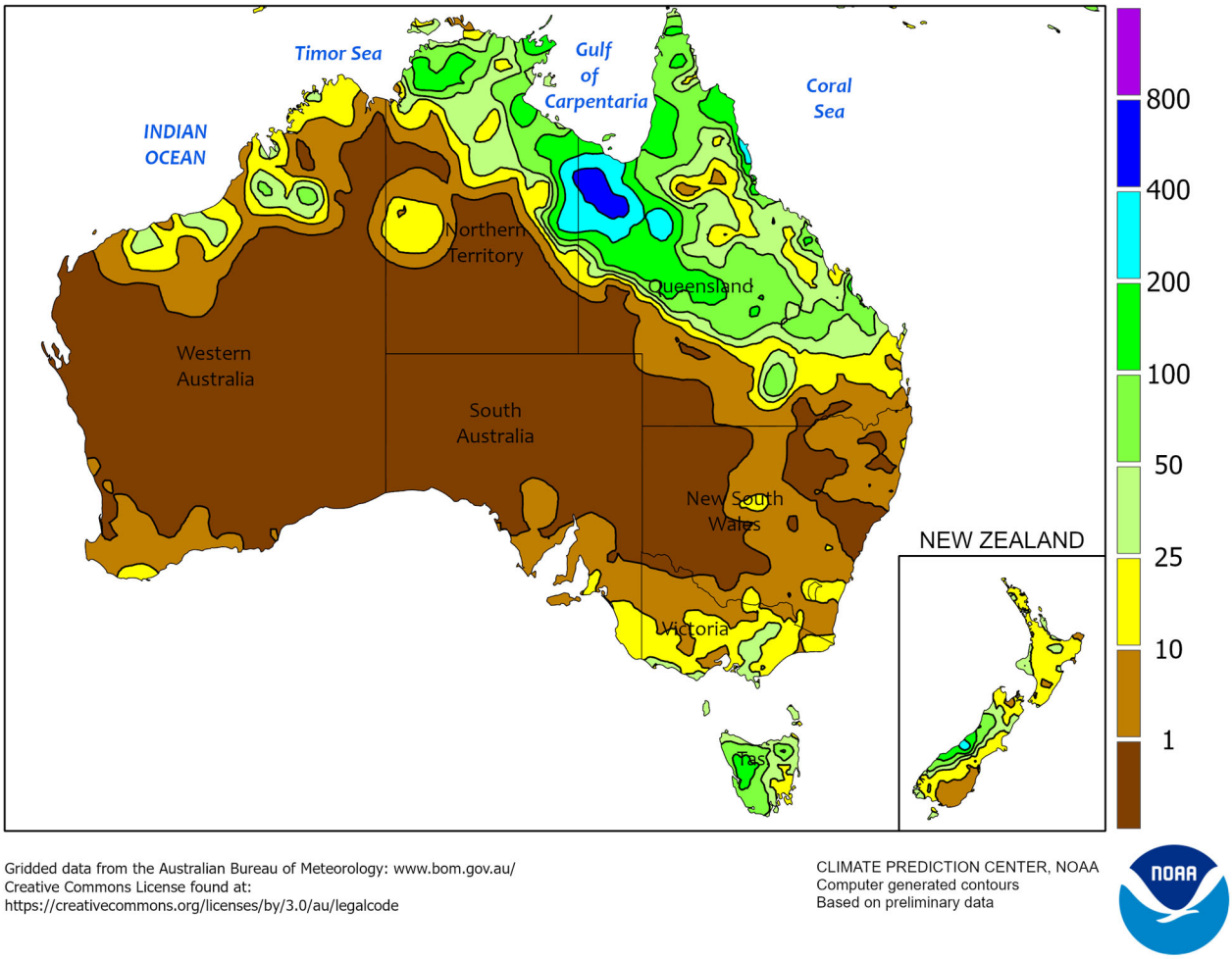


SOUTHEAST ASIA

Showers were mainly limited to Malaysia and Indonesia during the period. Most areas received 25 to 100 mm of rain, benefiting oil palm and adding to irrigation supplies for the next cropping cycles of rice; first-crop rice harvesting in Indonesia is nearly complete. Meanwhile, heavy showers (25-100 mm) in the Philippines were generally limited to southeastern-most reaches, as winter corn and rice harvesting throughout the country was underway and spring varieties were vegetative. Elsewhere, sunny, hot (over 35°C) weather in Thailand and the surrounding areas promoted development of irrigated rice which is typically harvested starting in April.

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

AUSTRALIA
Total Precipitation(mm)
March 5 - 11, 2023



Gridded data from the Australian Bureau of Meteorology: www.bom.gov.au/
Creative Commons License found at:
https://creativecommons.org/licenses/by/3.0/au/legalcode

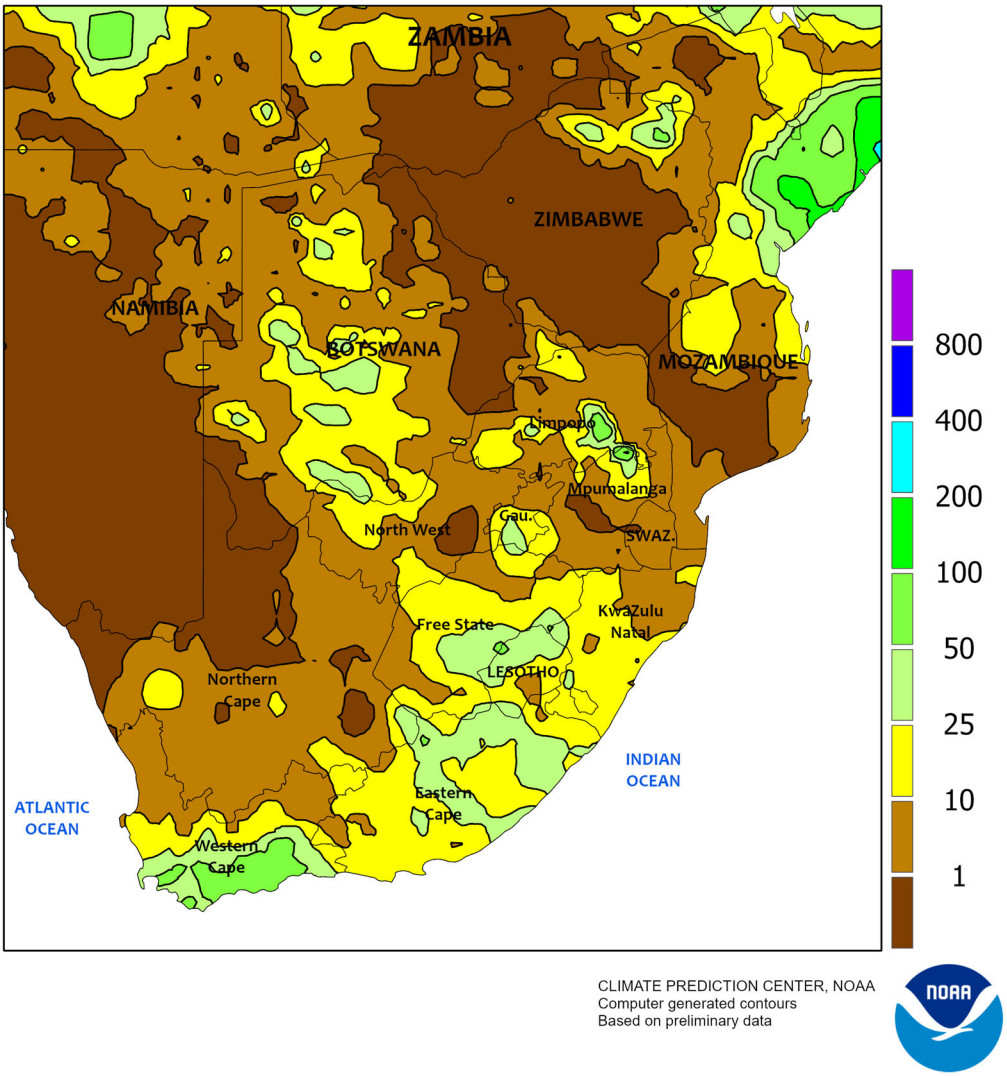
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

AUSTRALIA

Throughout most of the week, hot, dry weather covered major summer crop producing areas of eastern Australia. The heat and dryness promoted drydown and harvesting of the earliest-maturing cotton, sorghum, and other summer crops. A tropical low drifting southward across western Queensland eventually brought showers to southern Queensland and New South Wales late in the week. The rain (5-25 mm) likely interrupted fieldwork in parts of Queensland but also provided later-maturing dryland crops with welcome moisture. Farther south, the showers were relatively light (mostly less than 5 mm), causing few if any harvest delays. Maximum temperatures were generally in the middle to upper 30s (degrees C) in major summer crop producing areas of eastern Australia.

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

SOUTH AFRICA
Total Precipitation(mm)
March 5 - 11, 2023

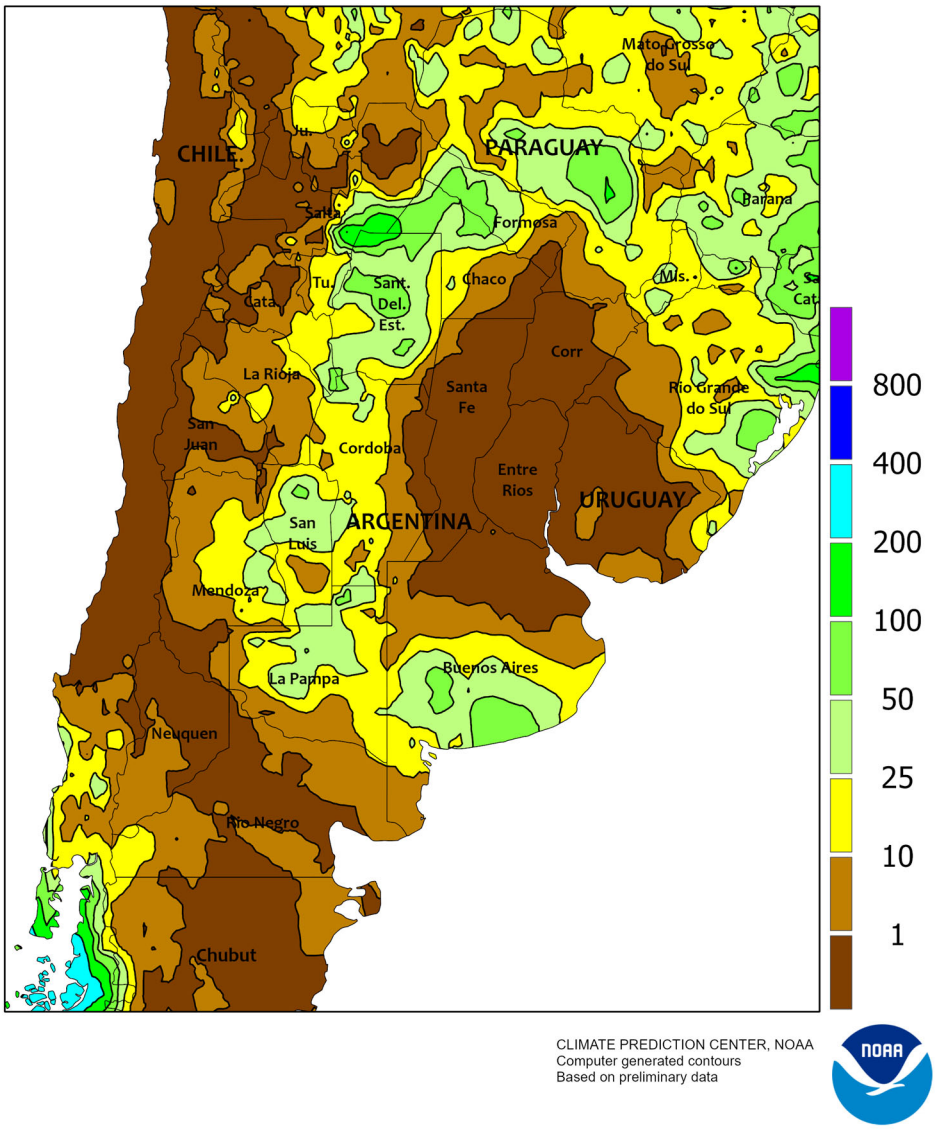


SOUTH AFRICA

Warm, overall drier weather benefited corn and other rain-fed summer crops in major eastern production areas. Rainfall was generally scattered and light across the corn belt (North West eastward) and in southern sugarcane areas of KwaZulu-Natal, where rainfall mostly totaled below 10 mm. Near- to above-normal temperatures prevailed in the aforementioned areas, with highest daytime temperatures mostly in the lower 30s (degrees C). Elsewhere, unseasonably heavy rain (10-50 mm) fell from Western Cape eastward through Eastern Cape and into southwestern sections of Free State. While maintaining overall favorable levels of moisture in watersheds of the Orange River, the moisture was untimely for unharvested tree and vine crops in Western Cape.

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

ARGENTINA
Total Precipitation(mm)
March 5 - 11, 2023

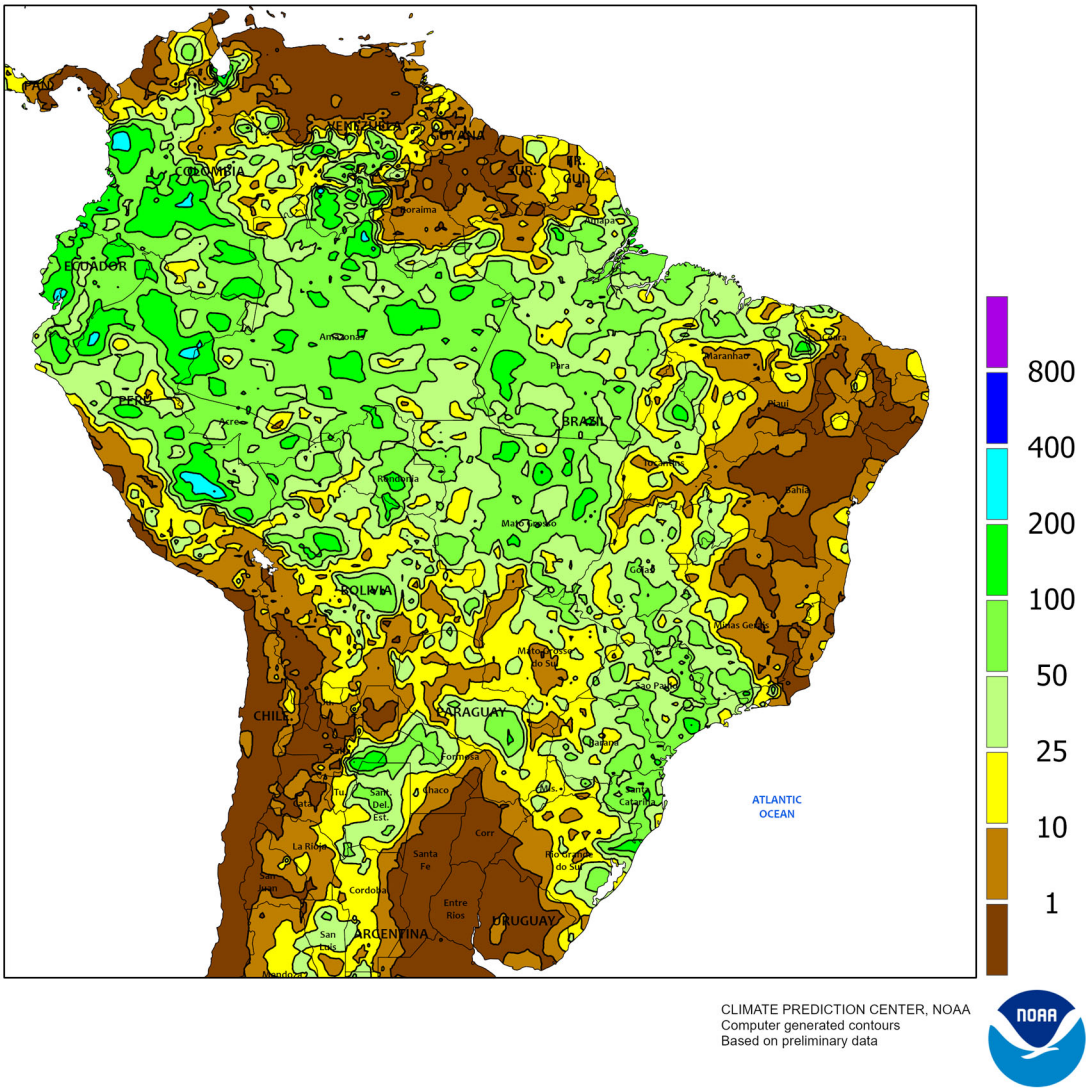


ARGENTINA

Dry, periodically hot weather maintained stress on late-developing summer crops in high-yielding farming areas of Argentina. A large area extending from northern Buenos Aires to Corrientes – reaching westward into Santa Fe – was completely dry. Weekly temperatures averaging up to 7°C above normal exacerbated the impacts of the dryness on immature corn and soybeans in this region, with daytime highs ranging from 35 to 40°C each day. In contrast, locally heavy showers (rainfall totaling 10-100 mm) developed in southwestern farming areas (notably southern Buenos Aires and La Pampa) and the northwest (Tucuman to western Formosa); while the rain reduced the number of hot days, temperatures still averaged 2 to 4°C above normal in the wetter locations, maintaining high crop moisture demands and losses through evaporation. According to the government of Argentina, sunflowers were 30 percent harvested as of March 9, on par with last year's pace (28 percent); fieldwork was advancing in Buenos Aires (4 percent harvested versus 2 percent last year).

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

BRAZIL
Total Precipitation(mm)
March 5 - 11, 2023



BRAZIL

Widespread, locally heavy showers maintained overall favorable conditions for corn and cotton in the main production areas of central and northeastern Brazil. Rainfall totaling 25 to 100 mm covered most farming areas extending from Mato Grosso and Mato Grosso do Sul eastward, including key agricultural areas stretching from Maranhão southward through western Minas Gerais. Daytime highs occasionally reached the middle 30s (degrees C) in the aforementioned areas, maintaining high crop water demands and rates of development. According to the government of Mato Grosso, soybeans were 95 percent harvested as of March 10, compared with the 5-year average of 90 percent, and corn was 96 percent planted. Farther south, heavy showers (rainfall totaling more than 50 mm locally) from São Paulo south and eastward contrasted with generally drier conditions from southern Mato Grosso to western Rio Grande do Sul. Highest daytime temperatures in the drier spots reached the middle 30s on several days, exacerbating the impact of the dryness on vulnerable crops. According to the government of Rio Grande do Sul, soybeans were 83 percent reproductive to filling as of March 9, with no harvesting reported; meanwhile, corn was 61 percent harvested. In Paraná, soybeans and first crop corn were 30 and 34 percent harvested, respectively, as of March 6, with second-crop corn 37 percent planted.

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

U.S. Crop Production Highlights

The following information was released by USDA's Agricultural Statistics Board on March 8, 2023. Forecasts refer to March 1.

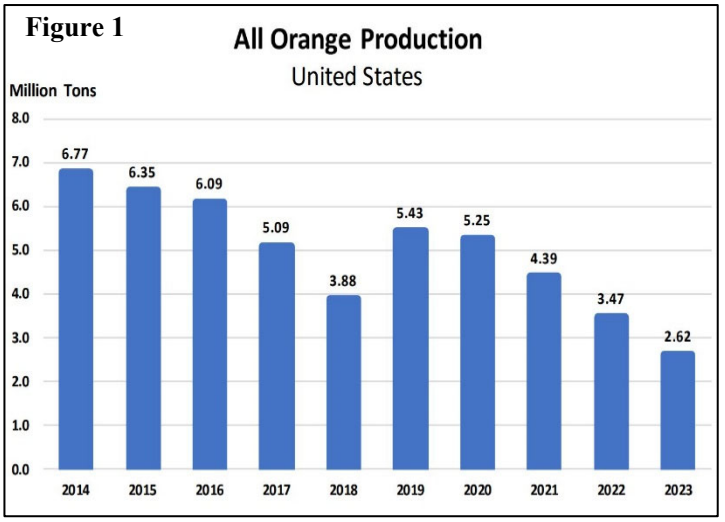
The **U.S all orange** forecast for the 2022-2023 season is 2.62 million tons, up slightly from the previous forecast but down 25 percent from the 2021-2022 final utilization (figure 1).

The Florida all orange forecast, at 16.1 million boxes (725,000 tons), is up 1 percent from the previous forecast but down 61 percent from last season's final utilization. In Florida, early, midseason, and Navel varieties are forecast at 6.10 million boxes (275,000 tons), up 2 percent from the previous forecast but down 67 percent from last season. The Florida Valencia orange forecast, at 10.0 million boxes (450,000 tons), is unchanged from the previous forecast but down 56 percent from last season.

The California Valencia orange forecast is 8.10 million boxes (324,000 tons), unchanged from previous forecast but down 6 percent from the previous season. This results in a California all orange forecast of 46.1 million boxes (1.84 million tons), unchanged from the previous forecast but up 14 percent from last season's final utilization.

The forecast for Texas is carried forward from the previous forecast.

Figure 1



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

Correspondence to the meteorologists should be directed to:
***Weekly Weather and Crop Bulletin*, NOAA/USDA, Joint Agricultural Weather Facility, USDA South Building, Room 4443B, Washington, DC 20250.**
Internet URL: **www.usda.gov/oce/weather-drought-monitor**
E-mail address: ***brad.rippey@usda.gov***

An archive of past Weekly Weather and Crop Bulletins can be found at **https://usda.library.cornell.edu/**, keyword search "*Weekly Weather and Crop Bulletin*".