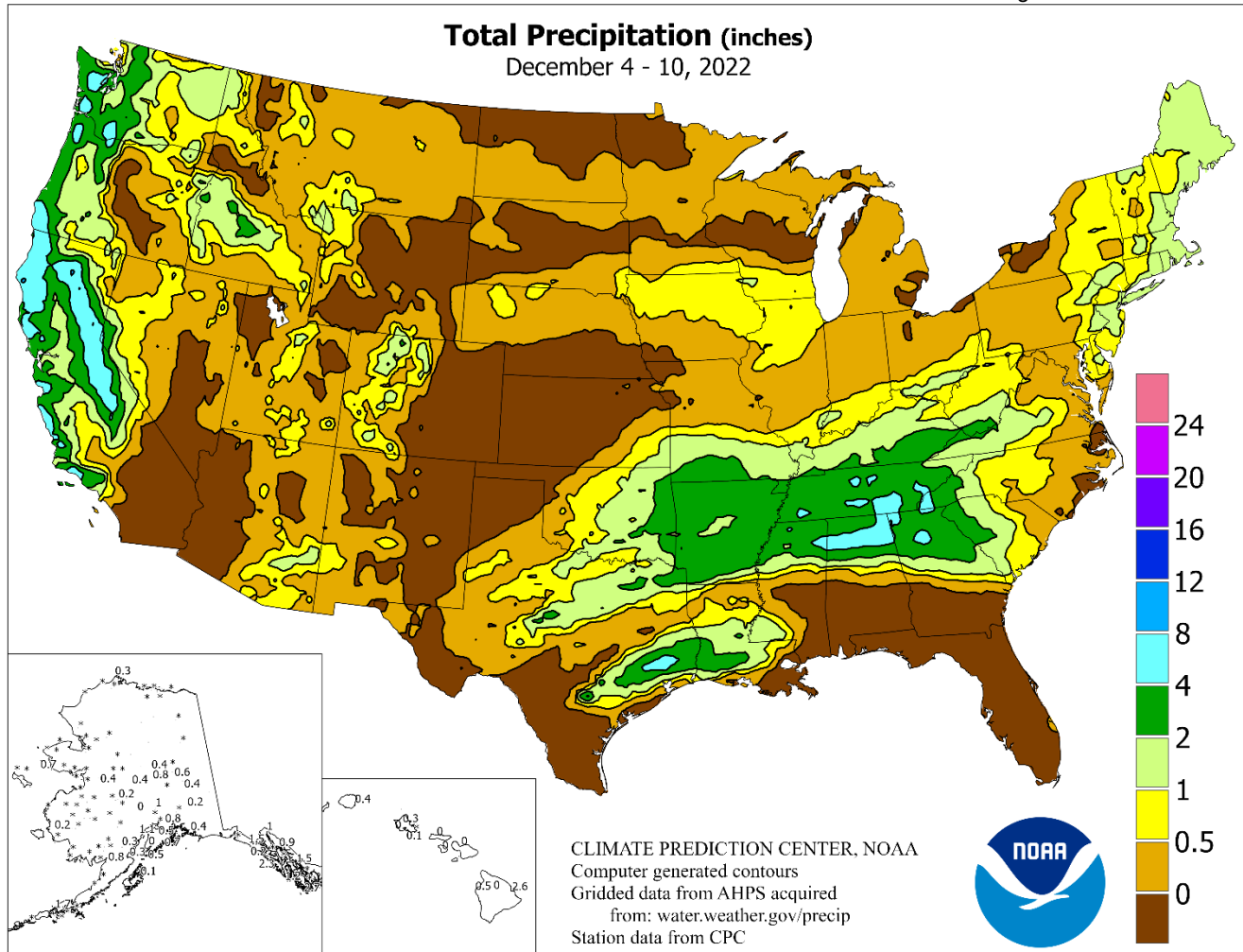


WEEKLY WEATHER AND CROP BULLETIN

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

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



HIGHLIGHTS

December 4 – 10, 2022

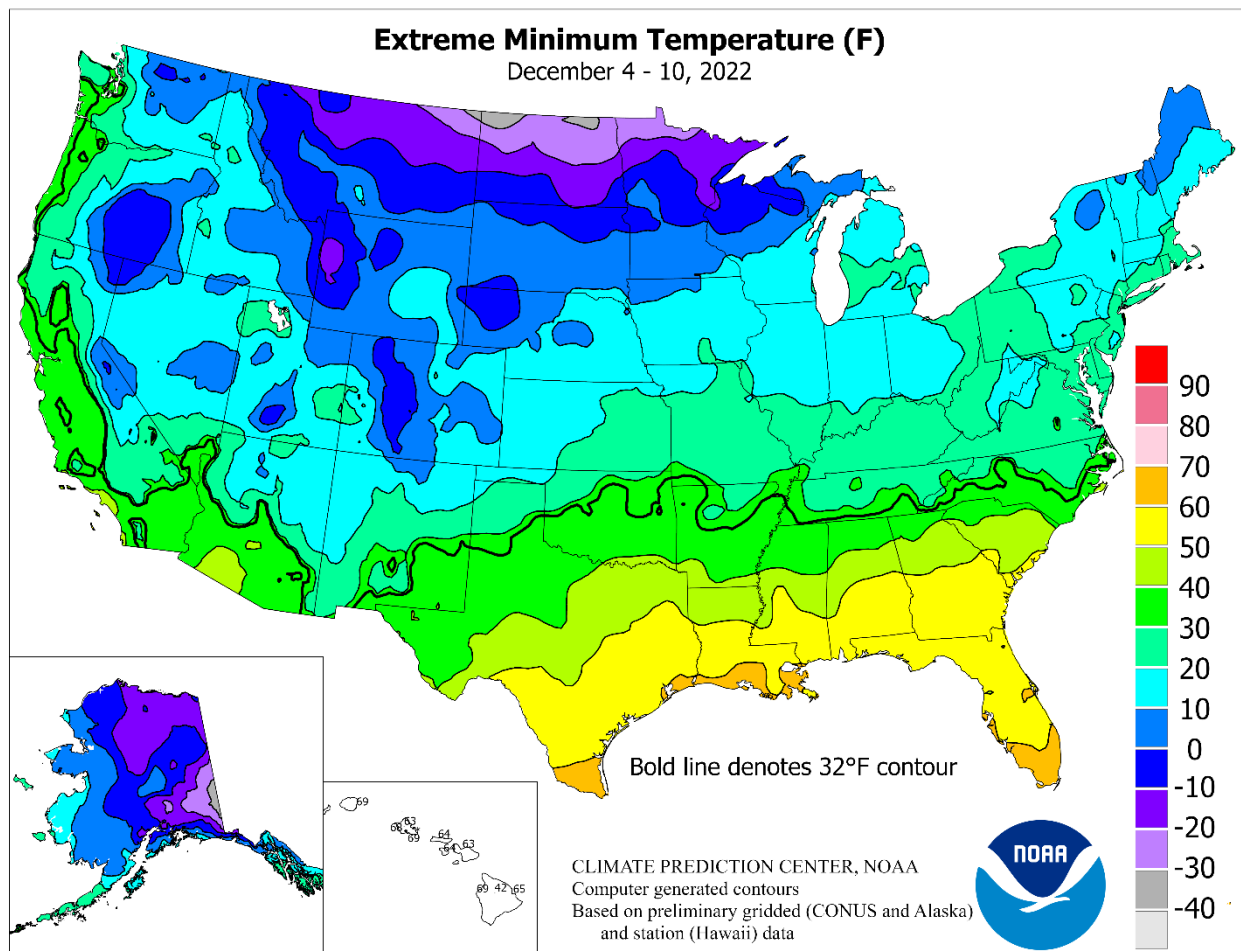
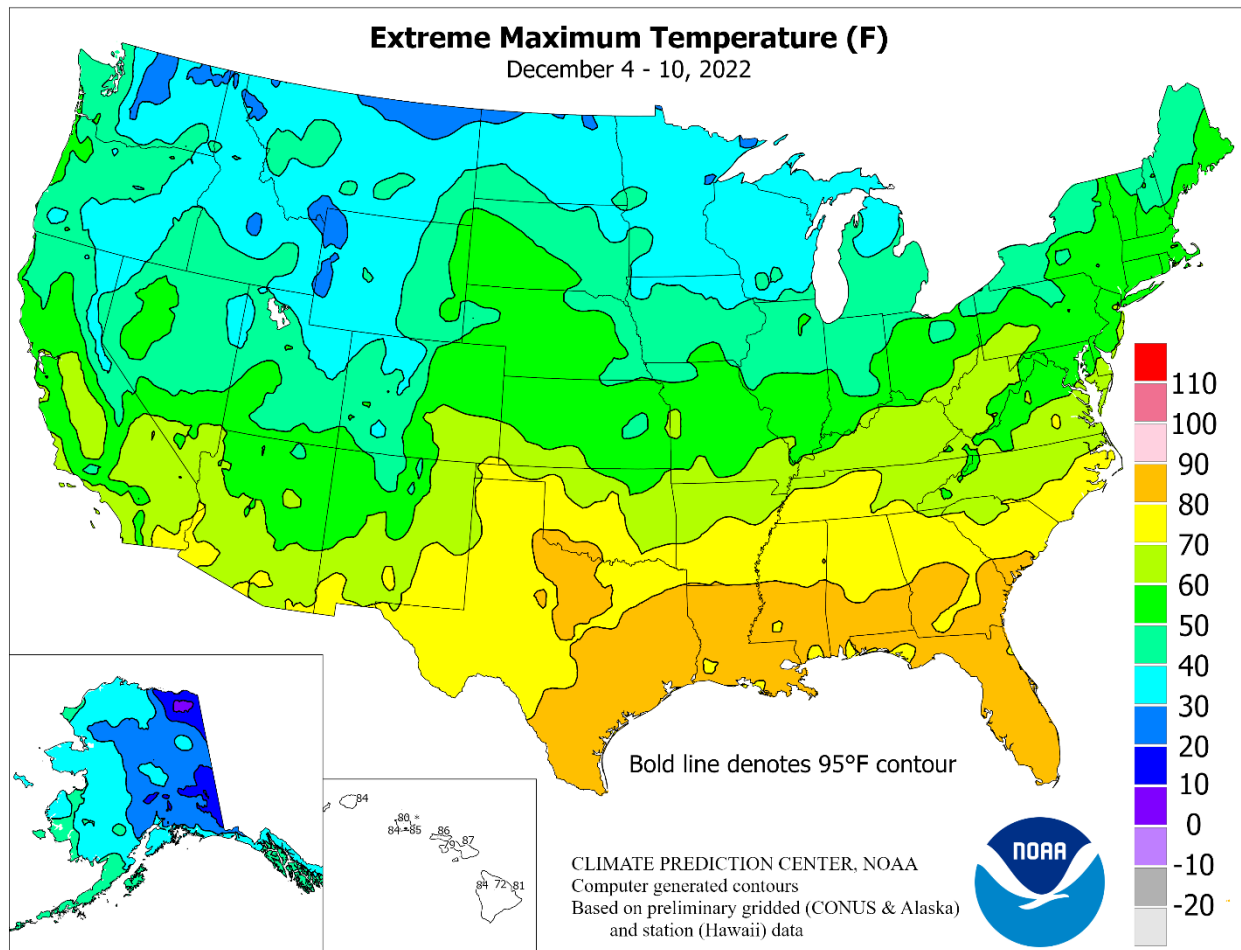
Highlights provided by USDA/WAOB

Western storminess continued to boost high-elevation snowpack, especially in the **Cascades** and **Sierra Nevada**. By December 11, the average water equivalency of the **Sierra Nevada** snowpack topped 11 inches (more than 220 percent of average for the date), up from around 3 inches at the beginning of the month. Across the **interior Northwest**, snow helped to moisten and insulate winter grains. Meanwhile, large sections of the **nation's mid-section** received little or no precipitation, although beneficial snow briefly blanketed parts of the **northern**

(Continued on page 3)

Contents

Extreme Maximum & Minimum Temperature Maps	2
Temperature Departure Map	3
December 6 Drought Monitor & Snow Cover Map	4
National Weather Data for Selected Cities	5
November Weather and Crop Summary	8
November Precipitation & Temperature Maps	14
November Weather Data for Selected Cities	17
December 8 ENSO Update	18
International Weather and Crop Summary	19
Bulletin Information & U.S. Crop Production Highlights	28

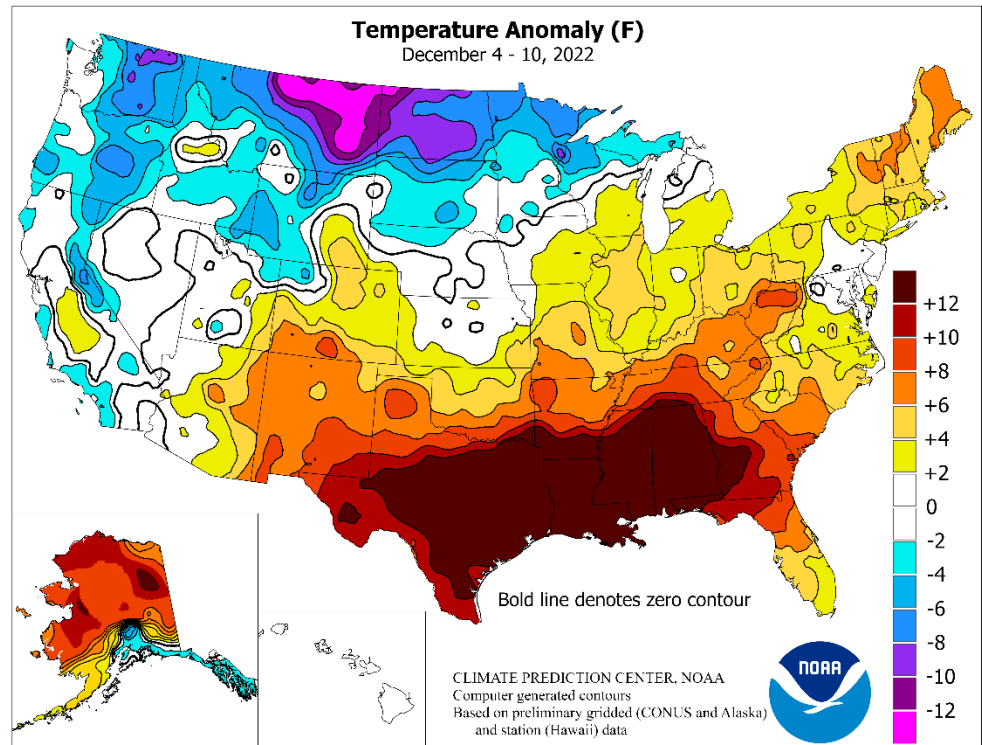


(Continued from front cover)

Plains. However, critically dry conditions persisted on the **central Plains**, where winter wheat was poorly established and susceptible to winter weather extremes. In contrast, significant rain (locally 1 to 2 inches or more) fell from the **southeastern Plains into the Tennessee Valley**. Another area of meaningful precipitation fell across the **northern Atlantic States**, while very warm, dry weather dominated the **Deep South**, especially near the **Gulf Coast**. In fact, weekly temperatures averaged at least 10 to 15°F above normal in most locations from **Texas to Georgia**. Readings averaged more than 5°F above normal in a larger area, extending as far north as the **Ohio Valley** and **central Appalachians**. A separate area of warmth (5°F or more above normal) covered much of **New England** and parts of **New York**. In contrast, temperatures were at least 10°F below normal in parts of **Montana** and **North Dakota**. More broadly, readings averaged more than 5°F below normal in several locations from the **Pacific Coast to the northern Plains and far upper Midwest**. Scattered readings below -30°F were reported in **northern North Dakota**.

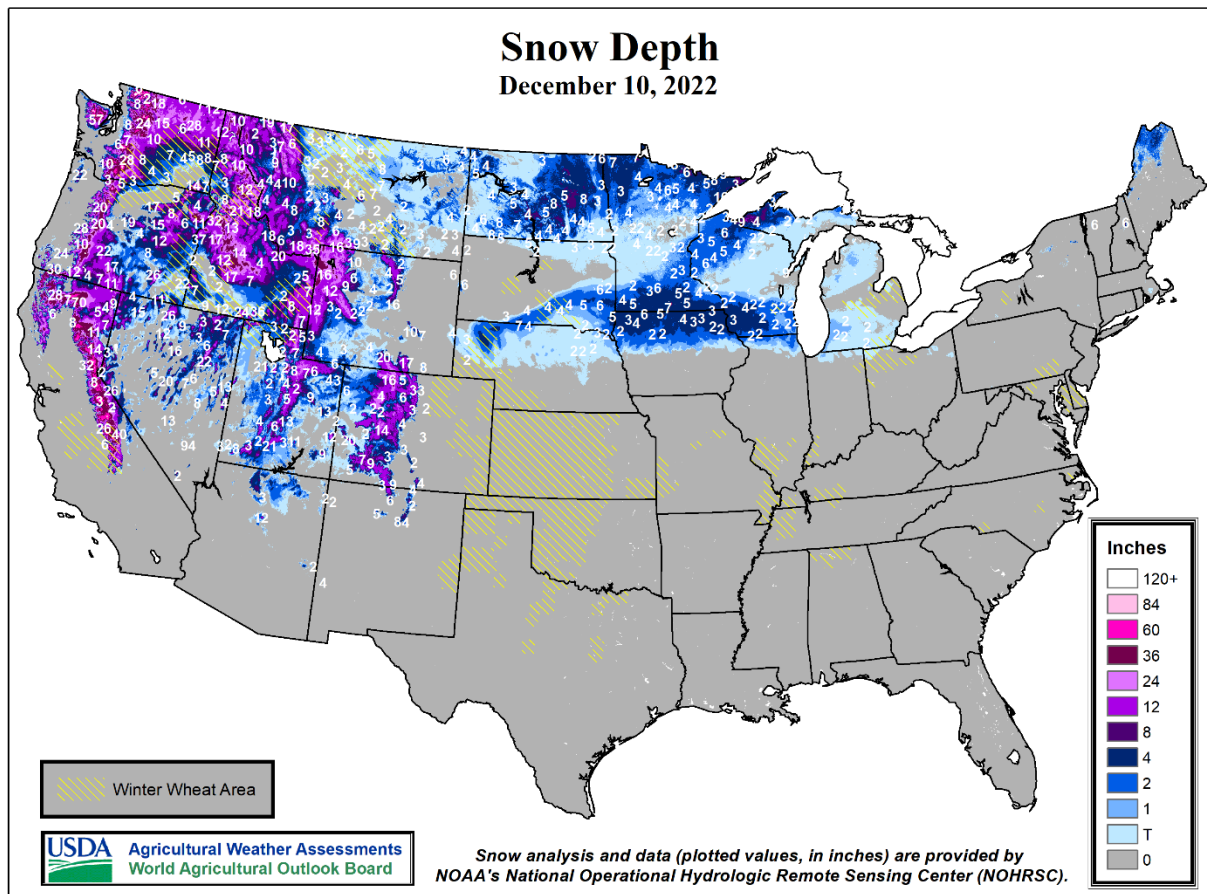
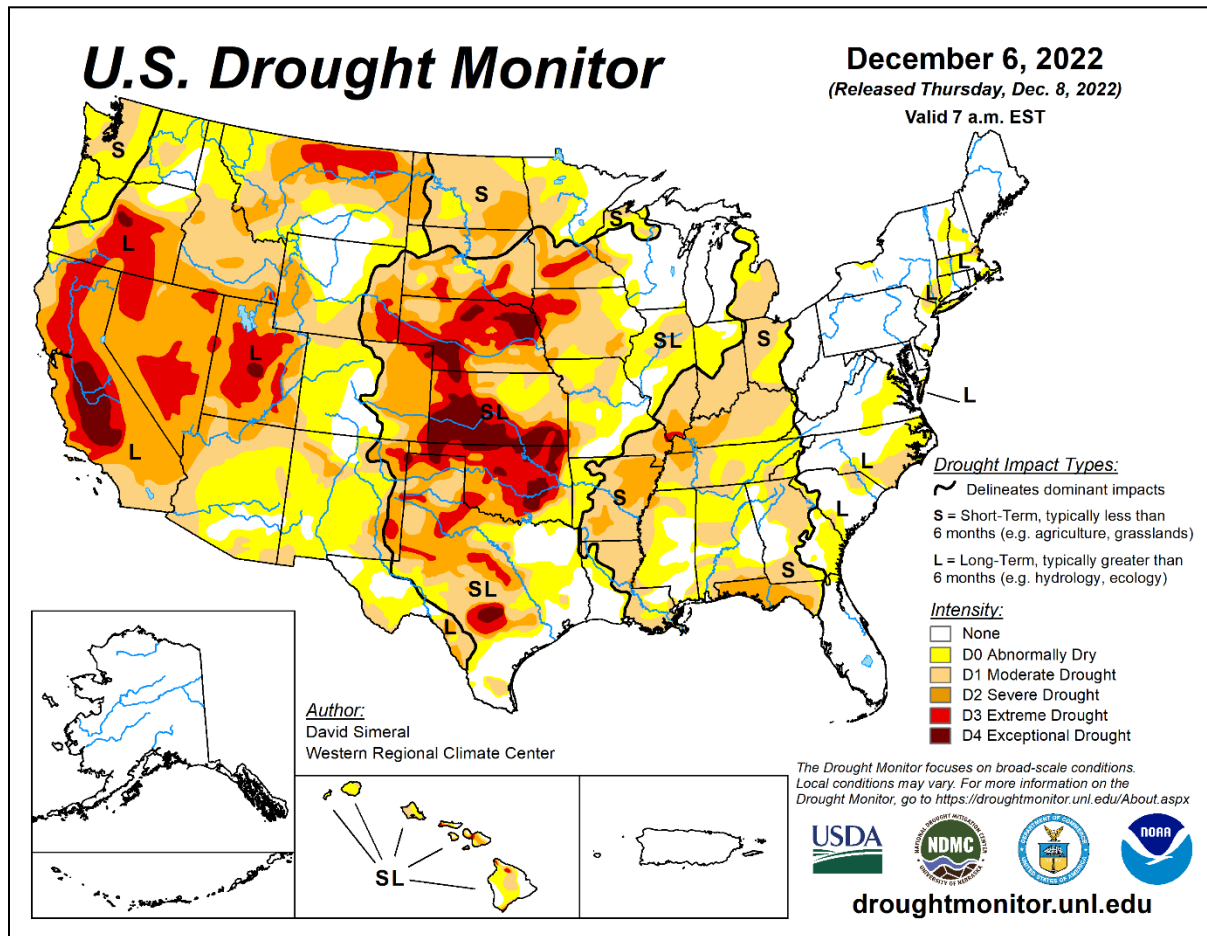
Early-week warmth was prominent across the **south-central U.S.**, where record-setting highs for December 5 reached 81°F in **Wichita Falls, TX**; 80°F in **Lawton, OK**; and 79°F in **Roswell, NM**. Subsequently, warmth became established in the **Gulf Coast region**. On the 6th, **Pensacola, FL**, tied a December record with a high of 81°F, matching that mark again on the 7th and 8th. Similarly, **Mobile, AL**, tied a monthly record with a high of 82°F on December 6, followed by a reading of 85°F on December 7. **Mobile's** previous latest calendar-year reading of 85°F or higher had occurred on November 8, 2022, with a high of 88°F. Monthly records tied on December 7 included 83°F in **Alma, GA**, and 84°F in **Tallahassee, FL**, and **Shreveport, LA**. From November 6-9, **Montgomery, AL**, reported four consecutive highs of 81°F, breaking a daily record on the final day of that streak. In contrast, chilly conditions gripped the **northern Plains and Northwest**. **Ellensburg, WA**, opened the week on December 4 with a daily-record low of 6°F. Farther east, **Glasgow, MT**, reported sub-zero temperatures each day from December 2-9, except the 7th. In **North Dakota**, December 7 low temperatures dipped to -22°F in **Williston** and -23°F in **Grand Forks**.

Snow continued to blanket (and protect) winter grains in portions of the **Northwest**. **Spokane, WA**, received snowfall totaling 3.6 and 5.0 inches, respectively, on December 8 and 10, with a peak snow depth of 14 inches by the morning of the 11th. Later, a narrow band of beneficial snow fell in drought-affected areas of the **north-central U.S.** **Valentine, NE**, reported a daily-record snowfall (7.0 inches, which melted to 0.71 inch of liquid) on November 8. The following day, 5.2 inches fell in **Rochester, MN**, a record for December 9. Meanwhile, season-to-date snowfall at the **Central Sierra Snow Lab at Donner Pass, CA**, climbed to more than 150 inches by week's end, up from 56.5 inches at the end of November. At the height of the late-week storminess, frequent wind gusts above 100 mph were noted in the **Sierra Nevada**, while a gust to



88 mph was clocked on the 10th on **Loma Prieta**, the highest peak in **central California's Santa Cruz Mountains**. Farther east, early-week showers led to daily-record precipitation totals in locations such as **Huntsville, AL** (2.23 inches), and **Bluefield, WV** (1.25 inches). By December 7 in **Maine**, **Houlton** and **Caribou** each received 1.43 inches, setting daily records in both communities. At week's end, rain developed across the **southeastern Plains** and spread eastward, resulting in a daily-record rainfall (1.37 inches on December 10) in **Dallas-Fort Worth, TX**.

Stunning warmth returned across **Alaska**, with weekly temperatures averaging 10 to 20°F above normal across the northern two-thirds of the state. Stormy weather accompanied mild conditions across the mainland, while cold, generally dry weather prevailed in **southeastern Alaska**. December 5 featured the warmest winter day on record in **Utqiagvik**, with a high of 40°F. Previously, **Utqiagvik's** highest winter reading had been 36°F, observed most recently on January 1, 2017, while the warmest December day had occurred on December 9, 1932, with a reading of 34°F. Elsewhere on the 5th, daily-record highs surged to 38°F in **McGrath** and 34°F in **Kotzebue**. In **western Alaska**, December 4 wind gusts were clocked to 65 mph in **Bethel** and 73 mph in **Cold Bay**. Meanwhile, **Fairbanks** received at least a trace of snow on each of the first 10 days of December, totaling 9.5 inches. Impressive snow fell in **south-central Alaska**, where **Anchorage** was buried by 13.4 inches from December 5-7. A 10.4-inch total on the 6th marked only the seventh time that at least 10 inches of snow has fallen in **Anchorage** on a December day. Incredibly, heavy snow returned to **Anchorage** after the week ended, with an additional 16.2 inches falling on December 11-12. Farther south, warm, dry weather prevailed in **Hawaii's leeward locations**, while showers dotted windward slopes. On the **Big Island**, **Hilo's** December 1-10 rainfall totaled 4.22 inches (97 percent of normal). During the same period, rainfall totaled just 0.05 inch (6 percent of normal) in **Kahului, Maui**, and 0.11 inch (18 percent) in **Honolulu, Oahu**.



National Weather Data for Selected Cities

Weather Data for the Week Ending December 10, 2022

Data Provided by Climate Prediction Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION								RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
		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	TEMP. °F		PRECIP.		
																	90 AND ABOVE	32 AND BELOW	01 INCH OR MORE	50 INCH OR MORE	
AK	ANCHORAGE	24	13	32	-2	19	-2	1.09	0.81	0.69	1.11	274	25.35	161	97	71	0	7	3	1	
	BARROW	20	6	38	-10	13	0	0.27	0.21	0.15	0.52	573	9.50	181	88	75	0	7	4	0	
	FAIRBANKS	21	7	29	-8	14	16	0.41	0.28	0.19	0.85	457	8.20	72	85	75	0	7	5	0	
	JUNEAU	34	24	40	13	29	-2	0.89	-0.69	0.52	0.98	43	83.76	133	95	75	0	6	5	1	
	KODIAK	37	28	44	19	32	0	0.07	-1.82	0.03	0.07	2	72.81	100	80	52	0	7	3	0	
AL	NOME	29	15	36	0	22	11	0.66	0.41	0.21	1.44	401	20.97	126	97	76	0	6	7	0	
	BIRMINGHAM	71	56	77	44	64	15	0.51	-0.54	0.36	0.89	59	49.28	92	95	67	0	0	3	0	
	HUNTSVILLE	65	54	73	35	60	13	3.80	2.44	2.23	3.97	208	51.93	103	98	78	0	0	6	2	
	MOBILE	78	60	85	56	69	14	0.00	-1.12	0.00	0.26	16	54.53	86	93	61	0	0	0	0	
	MONTGOMERY	77	58	81	54	68	16	0.01	-1.04	0.01	0.07	5	48.67	102	99	59	0	0	1	0	
AR	FORT SMITH	57	47	65	35	52	8	2.76	1.96	1.50	2.76	238	49.13	109	100	75	0	0	5	2	
	LITTLE ROCK	60	49	73	37	54	10	2.46	1.27	1.12	2.48	145	42.33	90	93	76	0	0	6	2	
AZ	FLAGSTAFF	45	26	50	13	35	5	0.55	0.15	0.34	0.61	106	15.51	80	92	54	0	4	3	0	
	PHOENIX	67	50	70	43	58	2	0.46	0.30	0.46	1.17	521	4.80	71	87	46	0	0	1	0	
	PRESCOTT	55	29	60	18	42	2	0.01	-0.19	0.01	0.01	4	10.55	86	90	35	0	4	1	0	
CA	TUCSON	68	47	72	39	58	4	0.38	0.16	0.38	0.69	223	5.50	55	89	43	0	0	1	0	
	BAKERSFIELD	60	44	65	38	52	2	0.09	-0.12	0.07	0.24	83	2.75	49	88	46	0	0	3	0	
	EUREKA	51	40	52	33	45	-2	3.30	1.51	1.54	4.17	163	24.47	70	90	72	0	0	5	2	
	FRESNO	59	45	63	40	52	3	1.05	0.71	0.75	2.40	516	4.20	43	100	58	0	0	2	1	
	LOS ANGELES	61	48	63	44	55	-3	0.12	-0.28	0.12	0.22	39	3.79	35	90	60	0	0	1	0	
CO	REDDING	52	39	59	32	45	-2	2.19	0.79	1.05	2.84	142	11.08	38	94	67	0	1	5	2	
	SACRAMENTO	56	42	59	34	49	1	1.35	0.61	0.89	3.25	312	6.67	42	96	61	0	0	4	1	
	SAN DIEGO	63	49	65	43	56	-3	0.01	-0.32	0.01	0.01	2	4.28	49	88	56	0	0	1	0	
	SAN FRANCISCO	57	46	59	42	51	-1	1.43	0.53	1.19	2.77	220	6.45	38	93	64	0	0	5	1	
	STOCKTON	58	42	62	35	50	2	1.69	1.17	1.37	2.80	387	5.68	48	96	60	0	0	4	1	
CT	ALAMOSA	47	12	52	0	29	9	0.00	-0.09	0.00	0.00	0	10.83	151	90	30	0	7	0	0	
	CO SPRINGS	50	22	62	13	36	4	0.00	-0.06	0.00	0.00	0	10.90	69	64	23	0	7	0	0	
	DENVER INTL	53	20	60	13	37	5	0.00	-0.08	0.00	0.00	0	10.31	72	71	20	0	7	0	0	
	GRAND JUNCTION	43	29	49	23	36	5	0.26	0.12	0.20	0.26	127	8.22	94	90	55	0	6	3	0	
	PUEBLO	55	17	68	9	36	3	0.00	-0.07	0.00	0.00	0	9.19	77	69	22	0	7	0	0	
DC	BRIDGEPORT	49	33	56	26	41	2	1.53	0.57	0.82	1.86	135	32.90	79	85	51	0	4	2	2	
	HARTFORD	48	30	58	21	39	4	0.98	-0.01	0.69	1.31	93	43.76	98	85	48	0	5	2	1	
DE	WASHINGTON	52	38	59	31	45	1	0.22	-0.61	0.18	0.52	45	36.99	93	89	56	0	1	2	0	
FL	WILMINGTON	51	32	57	24	42	1	0.87	-0.07	0.79	1.30	97	37.21	86	86	55	0	5	2	1	
	DAYTONA BEACH	79	59	83	58	69	6	0.03	-0.46	0.03	0.03	4	43.57	87	99	56	0	0	1	0	
	JACKSONVILLE	79	55	83	54	67	9	0.00	-0.63	0.00	0.00	0	47.20	91	100	57	0	0	0	0	
	KEY WEST	81	72	82	71	76	2	0.00	-0.52	0.00	0.00	0	34.29	88	91	66	0	0	0	0	
	MIAMI	83	69	84	67	76	4	0.04	-0.53	0.02	0.11	13	68.46	104	86	54	0	0	2	0	
GA	ORLANDO	82	62	84	59	72	7	0.00	-0.54	0.00	0.00	0	59.93	120	96	50	0	0	0	0	
	PENSACOLA	78	62	81	58	70	13	0.00	-1.26	0.00	0.28	16	56.47	87	100	70	0	0	0	0	
	TALLAHASSEE	78	56	84	53	67	12	0.00	-0.93	0.00	0.00	0	51.88	92	100	61	0	0	0	0	
	TAMPA	81	64	84	61	73	6	0.06	-0.46	0.04	0.06	8	53.39	112	93	54	0	0	2	0	
	WEST PALM BEACH	82	65	83	63	74	3	0.02	-0.75	0.01	0.02	2	47.19	79	93	54	0	0	2	0	
HI	ATHENS	61	48	77	44	55	6	2.43	1.52	1.40	2.47	194	42.16	92	99	79	0	0	4	2	
	ATLANTA	64	51	78	45	57	9	1.38	0.44	0.83	1.42	107	44.35	94	97	70	0	0	3	1	
	AUGUSTA	65	52	78	50	58	8	1.50	0.75	1.00	1.52	145	43.63	109	99	73	0	0	3	1	
	COLUMBUS	73	57	80	54	65	13	0.00	-1.04	0.00	0.00	0	44.47	97	98	65	0	0	0	0	
	MACON	71	56	83	53	63	12	0.17	-0.76	0.14	0.19	14	43.92	100	99	71	0	0	2	0	
IA	SAVANNAH	74	57	86	53	65	11	0.12	-0.58	0.10	0.12	12	34.26	74	90	59	0	0	2	0	
	HILO	80	67	81	65	74	1	2.59	-0.46	0.77	4.09	94	88.86	78	93	65	0	0	6	2	
	HONOLULU	84	73	85	69	78	2	0.08	-0.34	0.08	0.11	18	10.53	71	81	57	0	0	1	0	
	KAHULUI	83	69	87	63	76	1	0.01	-0.56	0.01	0.06	6	2.79	19	83	50	0	0	1	0	
	LIHUE	82	74	84	69	78	3	0.44	-0.59	0.32	0.50	33	23.63	71	83	64	0	0	3	0	
IN	BURLINGTON	43	29	46	20	36	3	0.21	-0.26	0.12	0.21	30	24.65	67	93	72	0	5	2	0	
	CEDAR RAPIDS	41	24	45	14	33	5	0.15	-0.26	0.15	0.15	25	22.54	64	92	65	0	6	1	0	
	DES MOINES	42	25	49	20	33	3	0.34	-0.06	0.30	0.34	58	28.02	78	87	60	0	6	2	0	
	DUBUQUE	38	24	42	14	31	4	0.83	0.37	0.81	0.83	123	27.93	75	92	70	0	7	2	1	
	SIOUX CITY	37	18	48	10	28	1	0.50	0.27	0.38	0.50	146	13.50	47	92	61	0	7	2	0	
ID	WATERLOO	39	21	41	11	30	2	0.45	0.11	0.31	0.45	89	32.52	92	84	62	0	5	2	0	
	BOISE	37	26	46	20	31	-2	0.26	-0.08	0.14	0.30	62	8.74	83	91	65	0	6	3	0	
	LEWISTON	35	26	44	22	31	-5	0.11	-0.14	0.06	0.30	82	14.59	120	88	66	0	6	2	0	
	POCATELLO	37	17	45	10	27	0	0.21	-0.05	0.19	0.26	70	10.96	99	85	58	0	7	2	0	
	CHICAGO/O'HARE	41	31	44	19	36	3	0.46	-0.06	0.44	0.46	61	28.75	78	84	64	0	4	2	0	
IL	MOLINE	45	28	49	15	36	5	0.46	-0.03	0.41	0.46	64	29.72	80	86	63	0	5	2	0	
	PEORIA	45	32	47	18	38	5	0.59	0.07	0.59	0.59	78	24.32	67	97	75	0	2	1	1	
	ROCKFORD	41	25	45	14	33	3	0.55	0.06	0.54	0.55	77	37.17	103	89	65	0	6	2	1	
	SPRINGFIELD	46	33	51	18	39	4	0.17	-0.33	0.17	0.17	23	31.71	86	90	67	0	3	1	0	
	EVANSVILLE	49	38	54	25	43	4	0.69	-0.22	0.56	0.74	57	41.76	91	97	78	0	2	3	1	
IN	FORT WAYNE	43	29	47	14	36	3	0.14	-0.42	0.13	0.14	17	30.47	80	91	64	0	4</			

Weather Data for the Week Ending December 10, 2022

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
		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	TEMP. °F		PRECIP	
																	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
KY	WICHITA	49	28	51	27	38	1	0.27	-0.03	0.15	0.27	62	28.82	86	94	62	0	7	2	0
	LEXINGTON	54	40	66	25	47	7	0.93	-0.08	0.52	1.17	82	41.01	87	92	73	0	2	4	1
	LOUISVILLE	53	42	65	28	47	6	1.11	0.14	0.62	1.31	96	37.71	82	95	78	0	2	4	1
LA	PADUCAH	53	41	62	30	47	6	1.28	0.26	0.72	1.34	93	39.09	82	95	76	0	2	3	1
	BATON ROUGE	81	64	84	59	73	17	0.00	-1.09	0.00	0.07	4	44.13	75	98	60	0	0	0	0
	LAKE CHARLES	77	61	79	59	69	12	2.24	1.28	2.24	2.28	163	35.98	63	100	69	0	0	1	1
MA	NEW ORLEANS	78	65	82	63	71	14	0.05	-0.94	0.04	0.05	3	47.70	79	100	66	0	0	2	0
	SHREVEPORT	77	63	82	50	70	19	0.00	-1.10	0.00	0.00	0	37.74	78	91	60	0	0	0	0
	BOSTON	49	35	59	29	42	4	0.91	-0.12	0.80	1.07	73	27.27	66	81	49	0	3	2	1
MD	WORCESTER	47	34	57	27	40	7	1.27	0.23	1.12	1.74	117	43.65	96	78	50	0	4	2	1
	BALTIMORE	51	34	59	24	43	2	0.24	-0.65	0.24	0.71	56	42.43	99	90	53	0	4	1	0
	CARIBOU	38	22	47	9	30	7	1.45	0.59	1.45	2.05	167	41.04	107	84	59	0	5	1	1
MI	PORTLAND	44	28	52	19	36	3	1.04	-0.04	1.00	1.33	87	51.98	115	85	52	0	5	2	1
	ALPENA	35	25	40	15	30	1	0.16	-0.30	0.08	0.22	33	27.61	97	94	71	0	7	3	0
	GRAND RAPIDS	39	29	46	21	34	1	0.05	-0.54	0.03	0.20	23	32.84	87	89	65	0	6	2	0
MN	HOUGHTON LAKE	33	24	37	16	28	0	0.25	-0.20	0.14	0.36	54	24.36	90	93	74	0	7	3	0
	LANSING	40	30	49	20	35	3	0.16	-0.29	0.09	0.27	41	31.84	99	85	63	0	5	2	0
	MUSKEGON	41	32	45	28	36	2	0.04	-0.56	0.02	0.07	8	30.72	91	80	60	0	4	2	0
MO	TRAVERSE CITY	37	27	42	20	32	0	0.02	-0.42	0.01	0.20	30	28.69	102	86	62	0	6	2	0
	DULUTH	24	6	31	-10	15	-5	0.47	0.12	0.26	0.50	96	30.11	99	88	60	0	7	3	0
	INT'L FALLS	19	-4	32	-21	8	-7	0.20	-0.02	0.12	0.26	78	35.24	142	91	63	0	7	2	0
MS	MINNEAPOLIS	31	15	35	7	23	-2	0.05	-0.23	0.04	0.07	17	22.16	71	83	63	0	7	2	0
	ROCHESTER	32	17	36	9	25	1	0.44	0.11	0.43	0.44	92	33.60	99	90	70	0	7	2	0
	ST. CLOUD	29	10	37	-2	19	-1	0.13	-0.07	0.12	0.13	44	23.31	83	85	62	0	7	2	0
MT	COLUMBIA	49	37	57	23	43	5	0.11	-0.36	0.08	0.11	16	31.87	79	91	69	0	1	4	0
	KANSAS CITY	47	33	54	24	40	5	0.04	-0.36	0.04	0.04	6	32.51	84	82	61	0	2	1	0
	SAINT LOUIS	49	37	55	28	43	4	0.25	-0.30	0.16	0.25	31	46.65	116	88	66	0	1	3	0
NC	SPRINGFIELD	52	39	61	28	46	6	1.71	1.13	1.16	1.71	203	40.72	94	95	73	0	1	3	1
	JACKSON	76	60	82	52	68	18	0.01	-1.11	0.01	0.06	3	54.22	100	95	62	0	0	1	0
	MERIDIAN	75	58	82	48	66	15	0.00	-1.14	0.00	0.00	0	48.00	90	98	64	0	0	0	0
ND	TUPELO	68	54	78	36	61	14	3.62	2.17	1.96	3.95	192	47.47	88	92	73	0	0	7	4
	BILLINGS	34	13	41	-1	24	-6	0.16	0.03	0.10	0.28	152	14.56	104	86	52	0	7	2	0
	BUTTE	31	3	36	-12	17	-3	0.17	0.07	0.10	0.28	175	9.35	75	83	53	0	7	2	0
NE	CUT BANK	27	8	33	-10	17	-7	0.00	-0.07	0.00	0.00	0	7.59	71	88	64	0	7	0	0
	GLASGOW	17	-3	24	-12	7	-14	0.21	0.13	0.12	0.21	192	8.80	67	82	69	0	7	2	0
	GREAT FALLS	32	11	41	-11	21	-6	0.15	0.04	0.10	0.28	167	13.80	95	84	60	0	7	2	0
NH	HAVRE	20	-3	31	-16	9	-15	0.17	0.09	0.10	0.36	317	9.22	79	87	70	0	7	2	0
	MISSOULA	30	12	42	-7	21	-5	0.17	-0.06	0.13	0.31	89	9.49	70	87	64	0	7	3	0
	ASHEVILLE	54	43	63	33	49	6	1.55	0.60	0.44	1.58	117	45.50	97	98	77	0	0	5	0
NJ	CHARLOTTE	56	45	70	35	51	5	0.67	-0.08	0.26	0.74	70	38.65	94	96	66	0	0	5	0
	GREENSBORO	53	41	61	28	47	3	0.69	-0.04	0.24	0.88	86	43.59	104	94	70	0	2	4	0
	HATTERAS	63	53	71	47	58	4	0.17	-0.87	0.15	0.20	13	39.32	67	94	73	0	0	2	0
NM	RALEIGH	58	44	65	30	51	5	0.34	-0.38	0.28	0.58	56	41.35	94	90	63	0	1	4	0
	WILMINGTON	68	47	80	37	58	6	0.01	-0.78	0.01	0.04	3	37.93	65	93	58	0	0	1	0
	BISMARCK	22	-1	38	-8	11	-10	0.19	0.06	0.14	0.22	119	25.67	137	85	62	0	7	3	0
NV	DICKINSON	24	5	40	-8	14	-8	0.03	-0.01	0.02	0.03	53	13.89	89	88	64	0	7	2	0
	FARGO	22	3	33	-10	12	-7	0.13	-0.06	0.13	0.14	51	18.67	80	88	70	0	7	1	0
	GRAND FORKS	20	-1	35	-23	10	-7	0.07	-0.07	0.06	0.07	35	21.06	98	85	71	0	7	2	0
NY	JAMESTOWN	22	-4	37	-16	9	-10	0.02	-0.05	0.02	0.02	21	14.86	75	84	63	0	7	1	0
	GRAND ISLAND	41	18	54	12	30	-1	0.04	-0.16	0.04	0.04	13	11.65	44	82	50	0	7	1	0
	LINCOLN	43	20	51	14	31	0	0.04	-0.24	0.04	0.04	9	18.32	64	86	50	0	7	1	0
OH	NORFOLK	39	20	51	14	29	1	0.13	-0.08	0.13	0.13	42	12.46	47	85	56	0	7	1	0
	NORTH PLATTE	46	14	56	9	30	1	0.04	-0.05	0.04	0.04	32	12.50	60	82	38	0	7	1	0
	OMAHA	41	21	46	15	31	0	0.09	-0.20	0.09	0.09	21	20.67	66	89	56	0	7	1	0
OK	SCOTTSBLUFF	43	15	50	3	29	0	0.17	0.06	0.17	0.19	120	8.52	55	79	45	0	7	1	0
	VALENTINE	37	10	52	3	24	-5	0.71	0.60	0.71	0.71	441	10.64	51	90	54	0	7	1	1
	CONCORD	46	27	52	17	37	6	0.88	0.00	0.70	1.12	89	35.25	89	88	50	0	6	2	1
PA	ATLANTIC CITY	52	30	60	20	41	0	0.66	-0.37	0.57	1.07	72	49.96	116	92	57	0	5	2	1
	NEWARK	51	35	60	29	44	3	0.85	-0.13	0.72	1.22	88	35.07	80	79	49	0	3	2	1
	ALBUQUERQUE	54	36	60	30	45	7	0.08	-0.04	0.04	0.56	300	8.70	102	83	43	0	2	2	0
RI	ELY	36	16	42	3	26	-1	0.30	0.17	0.29	0.47	250	7.05	78	92	63	0	6	2	0
	LAS VEGAS	59	41	69	37	50	1	0.00	-0.08	0.00	0.00	0	1.72	45	64	33	0	0	0	0
	RENO	45	29	47	21	37	0	1.05	0.82	0.83	1.30	406	4.36	66	82	39	0	6	2	1
SC	WINNEMUCCA	43	22	52	11	33	1	0.45	0.24	0.26	0.64	211	4.15	55	91	53	0	7	3	0
	ALBANY	45	29	58	20	37	4	0.29	-0.50	0.17	0.38	33	41.44	107	84	56	0	5	2	0
	BINGHAMTON	41	28	51	19	34	4	0.62	-0.13	0.42	0.81	76	40.35	100	89	61	0	6	3	0
SD	BUFFALO	41	33	45	28	37	3	0.06	-0.77	0.04	0.24	19	35.10	92	81	58	0	4	2	0
	ROCHESTER	41	31	47	22	36	2	0.03	-0.61	0.02	0.15	16	26.17	78	86	59	0	5	2	

Weather Data for the Week Ending December 10, 2022

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
		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	TEMP. °F		PRECIP.	
																	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
OK	TOLEDO	45	32	50	20	38	3	0.08	-0.48	0.08	0.13	16	38.09	114	86	58	0	4	1	0
	YOUNGSTOWN	44	31	50	21	37	3	0.25	-0.47	0.11	0.51	50	41.31	105	89	58	0	5	3	0
	OKLAHOMA CITY	56	40	72	33	48	6	1.39	0.98	0.57	1.41	239	23.42	66	98	71	0	0	5	2
OR	TULSA	53	40	60	31	46	3	1.72	1.16	0.95	1.72	214	32.68	83	99	77	0	1	5	1
	ASTORIA	48	38	51	34	43	0	1.81	-0.63	0.67	2.22	63	60.97	96	97	74	0	0	5	1
	BURNS	31	9	39	-7	20	-7	0.70	0.36	0.26	0.84	175	6.35	67	90	72	0	7	4	0
PA	EUGENE	44	36	50	32	40	-1	0.86	-0.82	0.62	0.94	38	26.83	74	96	75	0	2	4	1
	MEDFORD	46	33	53	26	39	-1	0.25	-0.54	0.07	0.27	23	10.44	65	98	65	0	4	5	0
	PENDLETON	37	25	51	20	31	-4	0.43	0.11	0.18	0.59	125	14.73	124	89	65	0	6	4	0
	PORTLAND	43	37	47	32	40	-3	1.78	0.44	0.75	1.81	92	33.25	100	89	69	0	1	4	2
	SALEM	45	37	52	33	41	-1	1.03	-0.57	0.50	1.21	52	35.19	99	94	70	0	0	4	1
	ALLENTOWN	48	27	54	18	38	1	1.34	0.37	1.30	1.72	125	42.88	95	89	52	0	5	2	1
	ERIE	44	33	51	26	38	2	0.02	-0.93	0.02	0.15	11	46.68	116	84	57	0	4	1	0
	MIDDLETOWN	46	29	52	22	38	0	0.21	-0.63	0.20	0.54	45	37.01	88	93	59	0	5	2	0
	PHILADELPHIA	51	35	57	27	43	2	0.70	-0.25	0.61	1.19	88	35.83	86	90	55	0	4	2	1
	PITTSBURGH	47	32	58	21	40	4	0.43	-0.24	0.24	0.65	68	36.27	96	90	62	0	3	3	0
RI	WILKES-BARRE	48	30	56	21	39	3	0.76	0.07	0.76	0.92	93	38.02	103	86	53	0	4	1	1
	WILLIAMSPORT	46	29	50	19	37	2	0.74	-0.09	0.74	0.93	78	35.85	86	91	55	0	5	1	1
	PROVIDENCE	49	33	57	24	41	3	1.43	0.28	1.31	1.94	117	41.33	92	88	53	0	4	2	1
SC	CHARLESTON	69	55	81	50	62	8	0.35	-0.37	0.28	0.35	35	47.20	94	95	64	0	0	4	0
	COLUMBIA	62	50	72	46	56	7	1.07	0.33	0.44	1.07	102	38.57	90	98	70	0	0	4	0
	FLORENCE	64	49	77	42	57	6	0.43	-0.26	0.28	0.46	48	35.07	82	95	59	0	0	5	0
SD	GREENVILLE	56	45	70	37	51	5	1.49	0.48	0.59	1.63	115	50.89	109	96	78	0	0	6	2
	ABERDEEN	28	3	41	-8	15	-6	0.12	-0.02	0.12	0.16	80	17.91	83	89	67	0	7	1	0
	HURON	35	10	47	2	22	-1	0.06	-0.10	0.06	0.07	31	14.76	64	89	56	0	7	1	0
TN	RAPID CITY	40	10	55	6	25	-2	0.00	-0.07	0.00	0.00	0	14.89	86	86	44	0	7	0	0
	SIOUX FALLS	34	14	41	6	24	-1	0.73	0.53	0.69	0.73	246	22.44	82	85	62	0	7	2	1
	BRISTOL	56	44	62	27	50	10	1.58	0.67	0.66	1.99	154	39.08	94	95	76	0	2	4	2
TX	CHATTANOOGA	61	48	73	33	55	9	3.46	2.19	2.12	3.76	209	52.44	101	97	75	0	0	7	2
	KNOXVILLE	55	45	65	29	50	6	3.56	2.35	1.60	3.76	219	49.99	102	99	85	0	1	5	3
	MEMPHIS	61	49	72	34	55	9	2.89	1.56	1.05	2.94	155	50.24	97	96	84	0	0	5	3
	NASHVILLE	60	47	73	32	53	9	2.02	0.92	0.90	2.31	149	48.80	102	94	76	0	2	5	2
	ABILENE	69	53	79	40	61	12	0.33	0.04	0.32	0.33	83	14.34	58	92	65	0	0	2	0
	AMARILLO	62	35	73	26	49	9	0.05	-0.10	0.04	0.12	59	15.90	83	93	31	0	3	2	0
	AUSTIN	77	63	82	53	70	15	0.01	-0.59	0.01	0.02	2	18.13	52	94	62	0	0	1	0
	BEAUMONT	80	64	83	60	72	15	0.04	-1.09	0.04	0.04	2	45.30	77	100	67	0	0	1	0
	BROWNSVILLE	83	68	84	64	75	10	0.00	-0.27	0.00	0.03	8	28.08	108	100	67	0	0	0	0
	CORPUS CHRISTI	80	65	83	58	73	11	0.00	-0.43	0.00	0.10	17	23.13	76	100	71	0	0	0	0
UT	DEL RIO	73	62	81	54	67	13	0.00	-0.16	0.00	0.00	0	5.70	29	91	72	0	0	0	0
	EL PASO	67	47	72	41	57	10	0.09	-0.05	0.08	0.09	46	9.34	111	84	38	0	0	2	0
	FORT WORTH	73	55	81	47	64	14	1.59	0.95	1.36	1.59	179	38.33	109	99	65	0	0	4	1
	GALVESTON	78	67	80	64	72	12	0.00	-1.04	0.00	0.00	0	32.37	72	97	80	0	0	0	0
	HOUSTON	80	65	82	58	73	16	0.05	-0.88	0.05	0.06	4	36.67	74	100	61	0	0	1	0
	LUBBOCK	64	43	76	36	53	10	0.39	0.24	0.31	0.39	178	13.74	77	93	50	0	0	3	0
	MIDLAND	69	51	78	38	60	12	0.08	-0.06	0.06	0.08	42	8.87	67	97	58	0	0	3	0
	SAN ANGELO	74	56	78	45	65	15	0.88	0.68	0.81	0.88	318	13.39	65	94	58	0	0	3	1
	SAN ANTONIO	76	63	81	52	69	15	0.06	-0.41	0.06	0.16	24	10.89	35	95	61	0	0	1	0
	VICTORIA	80	64	84	52	72	14	0.01	-0.51	0.01	0.12	15	21.84	56	100	66	0	0	1	0
VA	WACO	75	59	79	49	67	16	0.27	-0.33	0.27	0.28	33	20.21	58	99	65	0	0	1	0
	WICHITA FALLS	64	47	81	38	55	10	1.87	1.49	1.15	1.87	340	18.98	70	95	66	0	0	5	2
	SALT LAKE CITY	39	28	48	24	34	0	0.17	-0.15	0.08	0.38	83	10.09	69	89	62	0	7	3	0
WY	LYNCHBURG	51	39	60	26	45	5	1.02	0.17	0.78	1.60	131	42.04	103	90	64	0	2	5	1
	NORFOLK	58	44	67	31	51	4	0.15	-0.56	0.13	0.27	26	32.88	70	94	68	0	1	2	0
	RICHMOND	54	38	63	26	46	3	0.23	-0.58	0.15	0.57	49	34.97	81	88	56	0	2	3	0
	ROANOKE	50	37	60	24	44	1	1.27	0.50	0.64	1.57	142	44.13	108	90	68	0	2	6	1
	WASH/DULLES	51	31	58	21	41	1	0.07	-0.72	0.04	0.39	34	35.57	86	89	55	0	5	2	0
	BURLINGTON	42	30	56	14	36	5	0.65	0.04	0.52	0.74	85	36.41	101	82	52	0	5	2	1
	OLYMPIA	42	35	48	32	38	-1	1.07	-0.74	0.40	1.72	66	44.91	99	98	82	0	2	6	0
	QUILLAYUTE	44	34	47	25	39	-2	2.77	-0.37	1.43	2.96	65	81.20	88	100	82	0	1	5	2
	SEATTLE-TACOMA	42	37	46	33	39	-3	1.45	0.14	0.61	1.99	105	34.67	97	93	71	0	0	6	1
	SPOKANE	29	21	37	12	25	-5	1.28	0.75	0.82	1.28	167	14.81	99	92	80	0	7	6	1
WI	YAKIMA	29	20	35	15	24	-7	0.88	0.58	0.31	0.88	204	5.87	83	91	77	0	7	5	0
	EAU CLAIRE	32	13	36	2	23	-1	0.01	-0.32	0.01	0.03	6	20.32	63	88	63	0	7	1	0
	GREEN BAY	35	25	39	16	30	3	0.09	-0.33	0.09	0.13	20	30.00	98	84	62	0	6	1	0
WV	LA CROSSE	35	20	40	10	27	-1	0.36	-0.01	0.36	0.36	66	25.18	73	89	64	0	7	1	0
	MADISON	35	27	38	19	31	3	0.52	0.09	0.45	0.52	82	34.02	94	89	66	0	6	4	0
	MILWAUKEE	41	33	43	22	37	5	0.56	0.09	0.49	0.56	83	32.67	97	79	61	0	2	3	0
WY	BECKLEY	50	38	61	22	44	6	1.41	0.61	0.84	1.60	142	46.46	112	96	75	0	2	5	1
	CHARLESTON	56																		

November Weather Summary

Weather

Weather summary provided by USDA/WAOB

Highlights: Wetter weather in several areas dented widespread precipitation deficits, although drought still retained a significant footprint across the Lower 48 States. According to the *U.S. Drought Monitor*, drought coverage across the continental U.S. decreased 5.3 percentage points, from 62.8 to 57.5 percent, during the 4-week period ending November 29. In addition, coverage of moderate to exceptional drought (D1 to D4) plus abnormal dryness (D0) decreased to 79.8 percent by late November, down from a *Drought Monitor*-era record high of 85.3 percent on November 1.

Some of the most significant drought relief occurred in conjunction with a wet pattern extending from the western half of the Gulf Coast region into the upper Great Lakes States. In addition, modest improvements in the drought situation were noted in the East, in part due to the remnants of Hurricane Nicole. Meanwhile, limited improvement occurred in the West, where expansive long-term hydrological issues persisted, despite the early establishment of high-elevation snowpack. Elsewhere, early-season snow on the northern Plains and November rain on the southern Plains benefited drought-stressed winter wheat.

Nicole was the last of 14 named storms and eight hurricanes occurring during the 2022 Atlantic hurricane season, which officially ended November 30. Shortly before making landfall near Vero Beach, FL, on November 10, Nicole achieved Category 1 hurricane status, with sustained winds near 75 mph. Nicole produced tropical storm-force wind gusts (39 mph or higher) throughout Florida, except in the western panhandle. The winds threatened Florida's citrus crop, a portion of which had sustained damage in late September during Hurricane Ian's passage. In addition, Nicole's storm surge caused some erosion along Florida's east coast, while heavy rain sparked renewed flooding along the Saint Johns River. Across the remainder of the eastern U.S., Nicole was primarily a rain-producer, although antecedent dryness and the former hurricane's fast forward speed limited impacts. Still, Nicole's runoff in the upper Ohio Valley eventually coursed into the Mississippi River below Cairo, IL, providing a slight rise in critically low water levels.

A few areas, including the central Plains and eastern slopes of the central Rockies, were not as fortunate, with worsening drought observed during November. By November 27, topsoil moisture was rated at least two-thirds very short to short in Nebraska (89 percent), South Dakota (88 percent), Colorado (76 percent), Kansas (73 percent), and Wyoming (69 percent). Nationally, topsoil moisture was rated 50

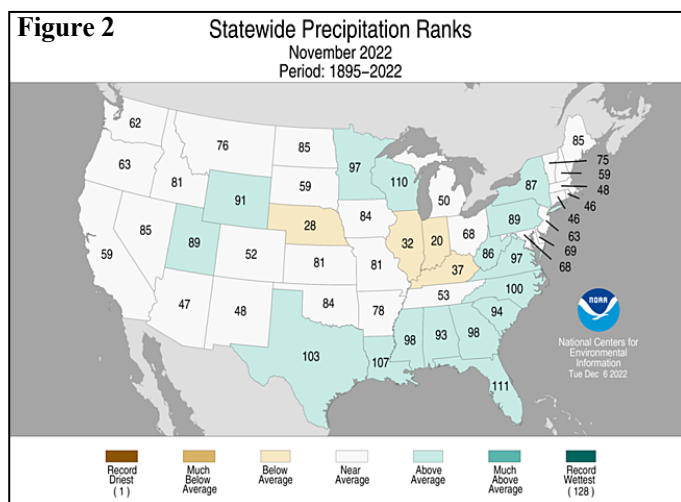
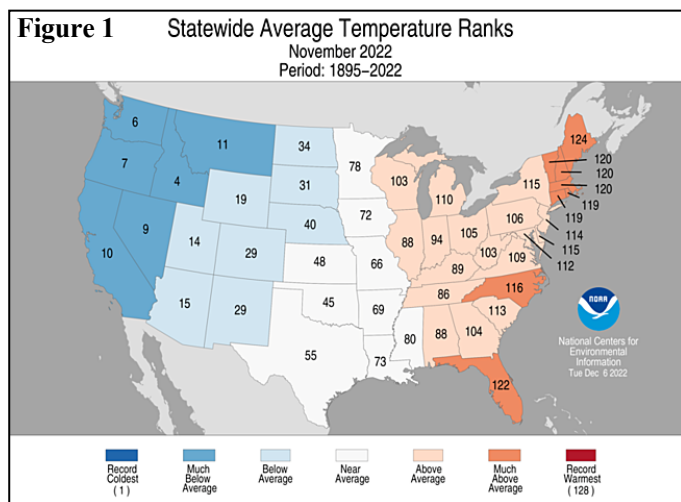
percent very short to short on that date, down from this year's peak of 68 percent on October 23. With establishment of winter wheat adversely affected in many areas by drought and autumn cold snaps, 26 percent of the crop was rated in very poor to poor condition on November 27—highest in the last autumn report since 2012 (also 26 percent). On the same date, Kansas led the nation with 43 percent of its wheat rated very poor to poor, followed by Nebraska (39 percent) and Colorado (38 percent).

One advantage of drier-than-normal autumn weather was a rapid pace of fieldwork. With the continental U.S. experiencing its driest September since 1956 and driest September-October period since 1987, harvest for a variety of crops advanced with only minor delays. The nation's soybean harvest was 96 percent complete by November 13, five percentage points ahead of the 5-year average. Similarly, 96 percent of the corn had been cut by November 20, six points ahead of average. By November 27, the U.S. cotton harvest was 84 percent complete, ahead of the 5-year average of 79 percent.

Overall, November was a cold month, especially from the Pacific Coast to the Plains. However, there was enough warmth in early and late November to boost monthly temperatures to above-normal levels in the East. In parts of the Atlantic Coast States, where warmth was more consistent, monthly temperatures averaged at least 2 to 4°F above normal. In contrast, monthly readings averaged 4 to 8°F or more below normal in much of the West. Frigid conditions also extended across the northern Rockies to the High Plains, particularly in Montana. In fact, November average temperatures ranged from 10 to 12°F below normal in Montana locations such as Bozeman, Dillon, Great Falls, Helena, Lewistown, and Butte. During the northern Plains' periods of extreme cold, which featured widespread sub-zero temperatures, an extensive snow cover provided winter grains with ample insulation. Farther south, an early-season cold snap peaked around mid-November, with freezes reaching to the Gulf Coast from Mississippi to western Florida. California's Central Valley experienced a sustained period of chilly weather, with Hanford reporting 15 consecutive freezes—low temperatures ranging from 28 to 32°F—from November 16-30.

Historical Perspective: According to preliminary data provided by the National Centers for Environmental Information, the contiguous U.S. experienced its 44th-coolest, 44th-wettest November during the 1895-2022 period of record. It was the nation's coolest, wettest November since 2018. The national average temperature of 40.95°F was 0.74°F below the 1901-2000 mean, while precipitation across the Lower 48 States averaged 2.40 inches—108 percent of normal.

State temperature rankings ranged from the fourth-coldest November in Idaho to the fifth-warmest November in Maine. Top-ten rankings for cold November weather were also observed in California, Nevada, Oregon, and Washington (figure 1). In contrast, top-ten rankings for November warmth covered Florida and all six New England States. Meanwhile, state precipitation rankings ranged from the 20th-driest November in Indiana to the 18th-wettest November in Florida (figure 2).



Summary: Early in the month, warmth expanded across the Plains and Midwest. November began with consecutive daily-record highs in locations such as Duluth, MN (68 and 71°F), and Sioux Falls, SD (78 and 77°F). Elsewhere in South Dakota, Mobridge set a monthly record with a high of 80°F on the 2nd (previously, 78°F on November 2, 1917, and November 3, 2020). Green Bay tied a monthly record—previously achieved on November 8 and 9, 2020—with a high of 75°F on November 2. Unusual warmth also persisted in Florida, where Leesburg tied a monthly record with a high of 90°F on November 1. Fort Myers, FL, noted daily-record highs (92 and 91°F, respectively) on November 2–3. Southern Texas also experienced record-setting heat, with November 4 highs soaring to 96°F in Laredo and 93°F in

Harlingen. By November 4, warmth in the South and Midwest led to daily-record highs in locations such as Alexandria, LA (88°F), and St. Louis, MO (83°F). Meanwhile, warmth further intensified across the eastern U.S. On November 4–5, locations such as Montpelier, VT (72 and 74°F), and Millinocket, ME (71 and 72°F), collected consecutive daily-record highs. Monthly records were established on the 5th in parts of northern New England, where highs in Maine climbed to 76°F in Augusta (previously, 74°F on November 4, 1990) and 75°F in Portland (previously, 74°F on November 7, 2020, and earlier dates). Daily-record highs for November 5 reached or exceeded the 80-degree mark in Eastern communities such as Alma, GA (86°F), and Lynchburg, VA (80°F). In contrast, spotty daily-record lows occurred in the West. In Arizona, sub-freezing, daily-record lows occurred on November 4 in Kingman (28°F) and Nogales (29°F). A day later in Utah, Marysville collected a daily-record low (12°F on November 5).

Pacific Northwestern precipitation continued into early November. Bellingham, WA, netted daily-record amounts on October 30 and November 4, with respective totals of 1.67 and 1.91 inches. In fact, a slew of Northwestern stations received record-setting totals for November 4; among them: Astoria, OR (4.07 inches), and Hoquiam, WA (2.99 inches). For Astoria, it was the wettest November day since November 28, 1998, when 5.56 inches fell. Many inland locations across the Northwest reported significant rain on November 1, when daily-record amounts included 1.08 inches in Walla Walla, WA, and 0.98 inch in Pendleton, OR. Some snow also fell. In western Wyoming, November 3 snowfall totaled 3.2 inches in Lander and 2.6 inches in Riverton. On the same date, Denver, CO, received 4.5 inches. On November 4, Boise, ID, reported daily-record totals for precipitation (0.55 inch) and snowfall (0.2 inch). Showers briefly spread as far south as southern California, where Santa Ana (0.42 inch) and Oceanside Harbor (0.29 inch) collected record-setting rainfall totals for November 2. Meanwhile, locally heavy showers developed across parts of the nation's mid-section. Corpus Christi, TX, registered a daily-record total of 2.92 inches on November 1. The following day in Florida, Punta Gorda—with 3.49 inches—reported its wettest November day since November 16, 2002. On November 4, a severe weather outbreak produced several dozen tornadoes across northeastern Texas, eastern Oklahoma, northwestern Louisiana, and western Arkansas. Two deaths—one in Texas and one in Oklahoma—represented the nation's first tornado-related fatalities since May 20. Daily-record rainfall totals on the 4th included 3.01 inches in Dallas-Ft. Worth, TX, and 2.43 inches in Kansas City, MO. Rain later shifted into the Midwest and the lower Mississippi Valley; record-setting amounts for November 5 reached 2.45 inches in McComb, MS; 1.61 inches in Memphis, TN; and 1.34 inches in Rhinelander, WI. Even with respectable November rainfall totals in the mid-South, the Mississippi River in Memphis—with a stage of -6.0 feet at 4:00 pm CST on December 1—experienced a net rise of

approximately 4.8 feet after attaining a record-low level on October 17.

On the 10th, Nicole became the first November hurricane to make landfall on the U.S. mainland since 1985, when Kate struck near Mexico Beach, FL, on November 21. Nicole, a Category 1 hurricane with sustained winds near 75 mph, moved ashore just south of Vero Beach, FL, around 3 am EST. The entire state of Florida, except the western panhandle, was subjected to tropical storm-force winds (39 mph or greater), with possible adverse impacts on a citrus crop already damaged by Hurricane Ian. Florida's sugarcane was spared a direct hit, with the highest winds and heaviest rain remaining to the north of the production area. Nicole's remnants eventually affected the entire eastern U.S., providing varying degrees of relief from autumn dryness. Some of the heaviest rain, locally 4 inches or more, fell in the central and southern Appalachians and neighboring areas. The rain helped to boost streamflow in the upper reaches of the Ohio River basin, with runoff eventually moving downstream. Tropical showers associated with Nicole's approach initially overspread Florida on November 8, when daily-record totals included 1.23 inches in Sanford and 1.01 inches in Orlando. Sanford received another daily-record sum (1.95 inches) on the 9th, helping to boost its November 8-10 sum to 5.32 inches. On the 10th, the day Nicole moved ashore in Florida, daily-record totals reached 2.64 inches in Jacksonville and 2.51 inches in Gainesville. Closer to the point of landfall, peak gusts on the 10th reached 72 mph in Melbourne and 70 mph in Daytona Beach. As rain spread northward on the 11th, daily-record amounts topped 2 inches in many locations, including Roanoke, VA (2.88 inches); Pittsburgh, PA (2.36 inches); Wheeling, WV (2.30 inches); Asheville, NC (2.26 inches); and Zanesville, OH (2.20 inches). Rain in the Northeast lingered into the 12th, when Houlton, ME (1.89 inches), notched a daily-record sum. Back in Florida, rainfall from Hurricanes Ian and Nicole contributed to the wettest autumn on record in Orlando, with the 28.83-inch total (248 percent of normal) surpassing the September-November 1915 standard of 26.41 inches.

Prior to mid-month, another significant precipitation event unfolded across the West. On November 6, Eugene, OR, netted a daily-record total of 1.32 inches. Farther inland, Spokane, WA, measured a record-setting snowfall (3.8 inches) for November 7. Elsewhere on the 7th, Elko, NV, set daily records for precipitation (0.76 inch) and snowfall (7.5 inches). Elko's November 7-9 snowfall reached 13.1 inches. Similarly, Alta, UT, noted a 3-day (ending November 10) storm total of 27.7 inches. From November 1-10, Alta measured 47.2 inches of snow—more than two-thirds of its monthly total. Precipitation spread to other areas of the West by November 8, when daily-record amounts in southern California included 1.44 inches at Los Angeles International Airport and 1.13 inches in Burbank. Elsewhere in southern California, 48-hour totals on November 7-9 included 6.84 inches on Palomar Mountain, 6.76 inches at Big Bear Lake, and 4.80 inches in Idyllwild. In Utah, 24-hour precipitation

totals on November 8-9 topped an inch in Randolph (1.20 inches), Logan (1.09 inches), and Zion National Park (1.05 inches). Daily-record snowfall on the 9th totaled 3.1 inches in Pocatello, ID, and 3.0 inches in Kanab, UT. Pocatello noted 8.8 inches of snow from November 7-10. Farther east, a strong cold front delivered some snow from the southern Plains into the lower Midwest; daily-record amounts included 0.4 inch (on the 11th) in Oklahoma City, OK; 1.9 inches (on the 12th) in Dayton, OH; and 2.7 inches (on the 12th) in Indianapolis, IN.

In advance of the cold front, warmth dominated the South and East. Baton Rouge, LA, tied a monthly record with a high of 89°F on November 6. On the same date, temperatures soared to 80°F as far north as Syracuse, NY, and Morgantown, WV. For the first time on record in November, low temperatures (on the 6th) fell only to 65°F in Scranton, PA, and Boston, MA. Several monthly record highs were broken on November 7; among them: 89°F in Vicksburg, MS; 80°F in Islip, NY; and 79°F in Bridgeport, CT. By November 9, a brief surge of warmth across the Plains and Midwest resulted in daily-record highs of 78°F in Burlington, CO, and Springfield, IL. Monthly record highs were established on November 10 in Michigan locations such as Alpena (78°F) and Gaylord (77°F). In southern Texas, highs in McAllen topped the 90-degree mark each day from November 6-11, with a daily-record high of 92°F occurring on the last day of the streak. Later, sharply colder air arrived in the Midwest, while warmth lingered along the northern Atlantic Coast. On November 11-12, Portland, ME, posted consecutive daily-record highs (69 and 73°F, respectively). In stark contrast, sub-zero temperatures occurred each day from November 7-12 in Havre, MT, highlighted by a reading of -18°F on the 11th. However, winter wheat in Havre and elsewhere on the northern High Plains was generally protected by an extensive snow cover. In Glasgow, MT, a daily-record low of -15°F on November 10 was preceded and accompanied by 11.5 inches of snow, starting on the 8th. Other sub-zero, daily-record lows in Montana included -15°F (on the 8th) in Great Falls and -17°F (on the 11th) in Miles City.

During the mid-month period lingering warmth was largely limited to Florida. There, Miami posted a daily record-tying high of 88°F on November 13. Three days later, Florida's record-tying highs for the 16th reached 87°F in Vero Beach and 85°F in Melbourne. In contrast, cold air surged southward across the Plains. In Kansas, daily-record lows for November 15 dipped to 9°F in Russell and 13°F in Garden City. On the same date, Midland, TX, posted a daily record-tying low of 24°F. Bitterly cold air settled across the Northwest, where daily-record lows for November 17 included -16°F in Butte, MT; -11°F in Casper, WY; and -3°F in Burns, OR. On November 18-19, Big Piney, WY, tallied consecutive daily-record lows of -15°F. Other Northwestern locations reporting consecutive daily-record lows on November 18-19 were Eugene, OR (21 and 18°F); Olympia, WA (17 and 18°F); and Montana's Bozeman Airport (-14

and -16°F). On the 18th, lows plunged to -22°F in Butte, MT, and -21°F at Lake Yellowstone, WY, while sub-zero, daily-record readings on the Plains included -7°F in Miles City, MT, and -2°F in Sidney, NE. In Kansas, record-setting lows for November 19 plunged to 8°F in Garden City and 11°F in Medicine Lodge. With a low of 6°F, Cedar Rapids, IA, also posted a daily-record low for the 19th.

The mid-month flow of cold air eliminated most moisture sources and kept much of the country dry. Exceptions included snow squalls downwind of the Great Lakes and rain in the western Gulf Coast region. In coastal Texas, Galveston received 1.66 inches of rain, a record for the date, on November 14. Although widespread snow blanketed the Midwest and interior Northeast, amounts were mostly light. Nevertheless, record-setting snowfall totals for November 15 included 6.6 inches in Alpena, MI; 3.5 inches in Waterloo, IA; and 2.8 inches in Madison, WI. Caribou, ME, received a record-setting snowfall, 5.8 inches, for November 16. Subsequently, locally heavy snow developed in the vicinity of the Great Lakes. In Michigan, daily-record amounts for November 17 reached 7.6 inches in Grand Rapids and 3.3 inches in Lansing. From November 15-19, snowfall in Grand Rapids totaled 26.9 inches, with at least 7 inches falling on each of the last 3 days of the event. Totals exceeding 2 feet were common in lake-effect streamers, with Buffalo, NY, reporting 36.6 inches from November 17-19. In western New York, unofficial totals topped 6 feet in Orchard Park and Hamburg. With 21.5 inches on the 19th, Buffalo weathered its snowiest day since December 28, 2001, when 26.2 inches fell.

As Thanksgiving Week (November 20-26) began, heavy showers peppered southern Florida. In Miami, the 4.46-inch total on the 20th represented the wettest November day in that location since 1998, when 4.96 inches fell on November 4. Farther west, snow showers reached deep into the South, with a trace reported on the 20th in San Angelo, TX, and on the 21st in Jackson, MS. Deep South Texas experienced unusually cool, wet weather, with Brownsville's temperature remaining at or below 50°F throughout November 20-21. That was followed by Brownsville's daily-record rainfall of 2.63 inches on November 22. During the western Gulf Coast region's sustained period of cool, wet weather, Galveston, TX, received more than an inch of rain on November 14, 19, 22, 24, and 26. Similarly in Florida, Daytona Beach received rainfall totaling 4.53 inches from November 20-23, aided by a daily-record sum of 2.82 inches on the 22nd. Farther north, substantial snow cover lingered downwind of the Great Lakes. In Michigan, Grand Rapids' peak snow depth of 10 inches on November 19 and 20 set records for the respective dates. In western New York, Buffalo's official snow depth decreased from a peak of 24 inches on November 19 to just 4 inches by the morning of the 26th. Buffalo's snow cover was entirely gone by month's end. Meanwhile, heavy rain expanded across the western and central Gulf Coast States on November 24, Thanksgiving Day. Record-setting rainfall totals in Louisiana for the 24th included 4.06 inches in Baton

Rouge and 3.19 inches in Shreveport. For Baton Rouge, it was the wettest day so far this year and the wettest November day since 1995, when 5.21 inches fell on November 2. By November 25, showers sweeping across the East led to daily-record amounts in Raleigh-Durham, NC (1.63 inches), and Norfolk, VA (1.04 inches). Elsewhere, a new round of precipitation erupted across the south-central U.S. November 25-26 rainfall in San Angelo, TX, totaled 2.11 inches. On the same 2 days, Midland, TX, reported precipitation totaling 0.87 inch, including snowfall of 0.6 inch.

As Thanksgiving Week arrived, frigid weather persisted. In Missouri, Cape Girardeau collected consecutive daily-record lows (13 and 15°F, respectively) were established on November 19-20. Eugene, OR, also noted a pair of daily records (18 and 20°F, respectively) on those dates. Elsewhere on the 20th, daily-record lows included -7°F in Randolph, UT; 14°F in Dalhart, TX; 18°F in Oklahoma City, OK; 22°F in Baltimore, MD; and 23°F in Greenwood, MS. Maximum temperatures on November 20 remained below the 40-degree mark as far south as San Angelo, TX, where the high was 39°F. By November 21, lingering cold was mostly limited to the Northwest and East; in the latter region, daily-record lows dipped to 14°F in Jackson, TN, and 17°F in Parkersburg, WV. In Pocatello, ID, there were five consecutive single-digit readings from November 18 and 22, including a daily record-tying low of 5°F on the 21st. Chilly conditions also continued in California's Central Valley, where Hanford reported freezes—with low temperatures ranging from 28 to 32°F—on 15 consecutive days from November 16-30. Stockton, CA, registered a daily-record low of 30°F on November 22. Two days later, however, Thanksgiving Day (the 24th) featured daily-record highs in near-coastal California locations such as Santa Rosa (72°F) and Napa (71°F). Warmth also intensified across Florida's peninsula, where Vero Beach posted a daily record-tying high of 87°F on November 25. Additional daily-record highs of 87°F occurred in Vero Beach on November 27 and 30. Miami, FL, posted four consecutive daily-record highs (88, 87, 89, and 88°F) from November 25-28. Meanwhile, returning warmth across the nation's mid-section led to record-setting highs for November 26 in Sisseton, SD (61°F), and Marquette, MI (58°F). Meanwhile, warmth became re-established in the western Gulf Coast States, where record-setting highs for November 29 soared to 84°F in College Station, TX, and Baton Rouge, LA. Conversely, cold weather gripped the northern Plains and much of the West. Lake Yellowstone, WY, registered a low of -15°F on November 29, followed by significant snow (liquid equivalency of 1.49 inches) from November 30 – December 2. Great Falls, MT, reported 9 days with sub-zero minimum temperatures—November 7-10, 17-18, and 28-30—highest total in any November since 1985, when there were 15 such days.

With critically dry weather continuing across the nation's mid-section, parts of western Kansas remained at risk for experiencing record-low annual precipitation totals. Through

December 3, year-to-date precipitation in Garden City, KS, totaled 5.01 inches (27 percent of normal). Garden City's driest year on record occurred in 2011, with 9.23 inches. In addition, Garden City last received measurable precipitation on September 23. Elsewhere in western Kansas, year-to-date precipitation totaled 8.60 inches in Healy and 10.42 inches in WaKeeney. Annual records stand at 8.92 inches (in 1956) in Healy and 12.68 inches (in 1934) in WaKeeney. In contrast, the month ended with some heavy showers in the South and lower Midwest. Record-setting precipitation totals for November 27 included 2.62 inches in Columbus, GA, and 1.24 inches in Fort Wayne, IN. Subsequently, severe thunderstorms developed in the central Gulf Coast States on November 29, when daily-record amounts reached 2.41 inches in Birmingham, AL, and 1.95 inches in Chattanooga, TN. The bulk of the tornado activity occurred on November 29 in Mississippi and Alabama; in the latter state, an EF2 tornado with estimated winds near 120 mph cut a 9.9-mile swath across Elmore and Montgomery Counties, resulting in two fatalities in the Flatwood community when an uprooted tree fell on a home. Heavy showers (and isolated tornadoes) swept into Georgia on the last day of November, when Macon netted a daily-record sum of 1.83 inches. Meanwhile in the Northwest, Cheyenne, WY, received 6.7 inches of snow on November 28-29, followed in Spokane, WA, by a daily-record total of 7.5 inches on November 30. Starting November 7, Spokane experienced a continuous snow cover of at least 1 inch, with the depth peaking at 9 inches on December 1. In the Sierra Nevada, the water equivalency of the high-elevation snowpack grew to about 3 inches by the end of November, on par with average. Less than a week later, the Sierra Nevada snowpack's water equivalency has grown to nearly 7 inches, about 175 percent of average for early December.

Nearly continuous warmth across the northern half of Alaska boosted November temperatures 4 to 10°F above normal. In contrast, chilly conditions covered southeastern Alaska early and late in the month, with some mild, stormy weather in between. Through November 30, Juneau's year-to-date precipitation climbed to 84.83 inches (140 percent of normal), despite a slightly below-average November total. Similarly, January-November precipitation in Anchorage totaled 24.78 inches (162 percent of normal), within reach of the 1989 annual record of 27.55 inches. Anchorage received 4.3 inches of snow on November 2-3, followed by its first single-digit temperature of the season (6°F) on November 6. Continuous snow cover in Anchorage, first established on October 25-26, ranged from 2 to 7 inches during November. Farther north, Kotzebue began November with its first five sub-zero minima of the season, with low temperatures ranging from -1 to -7°F. Later, mild weather accompanied occasional storminess across the Alaskan mainland. Bettles' snow depth increased from 5 to 16 inches between November 7 and 13. Significant precipitation fell on the 7th in locations such as McGrath (0.70 inch) and Nome (0.58 inch). In the Aleutians, Cold Bay received rainfall totaling 1.83 inches on November 6-7, with wind gusts to 68 mph clocked both days.

In southeastern Alaska, Juneau received 5.6 inches of snow on November 10-11. By mid-month, mild weather further expanded, with November 16 highs rising to daily-record levels in Sitka (54°F) and King Salmon (50°F). Later in western Alaska, daily-record highs included 38°F (on November 17) in Nome and 32°F (on November 18) in Kotzebue. On the Arctic Coast, Utqiagvik tallied a trio of daily-record highs (34, 35, and 28°F) from November 17-19. In southeastern Alaska, measurable precipitation fell each day from November 19-26, totaling 2.71 inches in Juneau; 4.07 inches in Sitka; and 7.53 inches in Ketchikan. Fairbanks received 5.4 inches of snow from November 30 – December 2, following a brief cold snap. Temperatures in Fairbanks rebounded from a low of -26°F on November 29 to a high of 29°F on December 3. Similarly, Bettles reported a 60-degree rise, from -31°F to 29°F, between November 29 and December 4.

Except for the occasional November cold front, Hawaii experienced a trade-wind regime, with the most significant showers occurring in windward locations. Rain was heaviest early in the month, when—on the Big Island—Hilo's November 1-5 rainfall totaled 9.44 inches, aided by a daily-record sum of 4.30 inches on the 3rd. In contrast, warmth (and dryness) lingered in Kahului, Maui, where daily-record highs included 92 and 93°F, respectively, on November 2 and 3. Kahului posted another daily-record high (91°F) on November 6. Late in the month, showery weather developed in advance of an approaching cold front. The front's passage briefly delivered windy weather, with Big Island gusts on Thanksgiving Day (November 24) clocked to 56 mph at Kohala Ranch and 37 mph in Hilo. Elsewhere, gusts on the 24th reached 52 mph at the Oahu Forest National Wildlife Refuge and 43 mph in Lihue, Kauai. Hilo received measurable precipitation on each of the first 24 days in November, totaling 16.23 inches, followed by 3 days without rain. At the state's major airport observation sites, November rainfall ranged from 0.15 inch (7 percent of normal) in Honolulu, Oahu, to 16.36 inches (114 percent) in Hilo.

Fieldwork

Fieldwork summary provided by USDA/NASS

Most of the western half of the nation recorded below-normal November temperatures. Large parts of the Great Basin, Pacific Northwest, northern Plains, and northern Rockies recorded temperatures 6°F or more below normal. In contrast, most of the eastern half of the nation was warmer than normal. Portions of the mid-Atlantic, Northeast, and Southeast, as well as parts of the Great Lakes, recorded temperatures 3°F or more above normal. Meanwhile, much of the nation reported above-normal November precipitation. At least twice the normal amount of precipitation was recorded in parts of Florida, the Great Lakes, Midwest, lower Mississippi Valley, Great Plains, Rockies, and Southwest.

Seventy-six percent of the 2022 corn acreage was harvested by October 30, three percentage points ahead of last year and 12 points ahead of the 5-year average. Ninety-three percent of the 2022 corn acreage was harvested as of November 13, three percentage points ahead of last year and 8 points ahead of the 5-year average.

Soybean harvest across the nation was 88 percent complete by October 30, ten percentage points ahead of both last year and the 5-year average. Soybean harvest was 96 percent complete by November 13, five percentage points ahead of both last year and the 5-year average.

Nationwide, producers had sown 87 percent of the intended 2023 winter wheat acreage by October 30, one percentage point ahead of last year and 2 points ahead of the 5-year average. Sixty-two percent of the winter wheat acreage had emerged by October 30, three percentage points behind last year and 4 points behind the 5-year average. Nationwide, producers had sown 96 percent of the intended 2023 winter wheat acreage by November 13, two percentage points ahead of last year and 3 points ahead of the 5-year average. Eighty-one percent of the winter wheat acreage had emerged by November 13, one percentage point ahead of last year but equal to the 5-year average. Nationwide, 91 percent of the winter wheat acreage had emerged by November 27, equal to last year but 1 percentage point ahead of the 5-year average. As of November 27, thirty-four percent of the 2023 winter wheat acreage was reported in good to excellent condition, 10 percentage points below the same time last year.

By October 30, ninety-six percent of the nation's cotton had open bolls, 2 percentage points ahead of both last year and the 5-year average. On that date, fifty-five percent of the nation's cotton acreage was harvested, 11 percentage points ahead of last year and 8 points ahead of the 5-year average. By November 13, seventy-one percent of the nation's cotton acreage was harvested, 7 percentage points ahead of last year and 8 points ahead of the 5-year average. By November 27, eighty-four percent of the nation's cotton acreage was harvested, equal to last year but 5 percentage points ahead of the 5-year average.

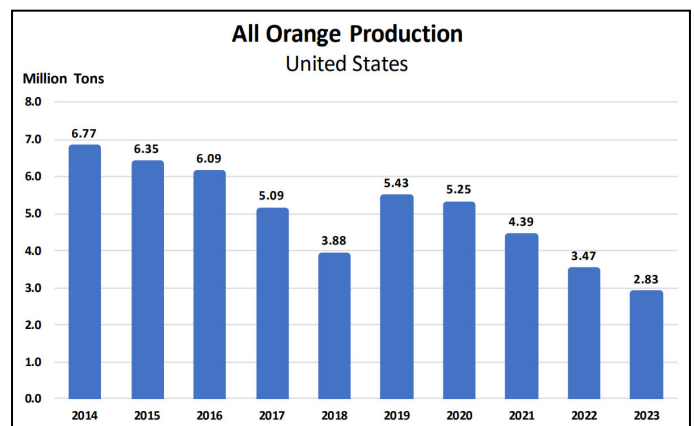
Seventy-seven percent of the 2022 sorghum acreage had been harvested by October 30, two percentage points behind last year but 8 points ahead of the 5-year average. Ninety-three percent of the 2022 sorghum acreage had been harvested by November 13, four percentage points ahead of last year and 7 points ahead of the 5-year average. On that date, sorghum harvest progress was ahead of the 5-year average pace in all six estimating states.

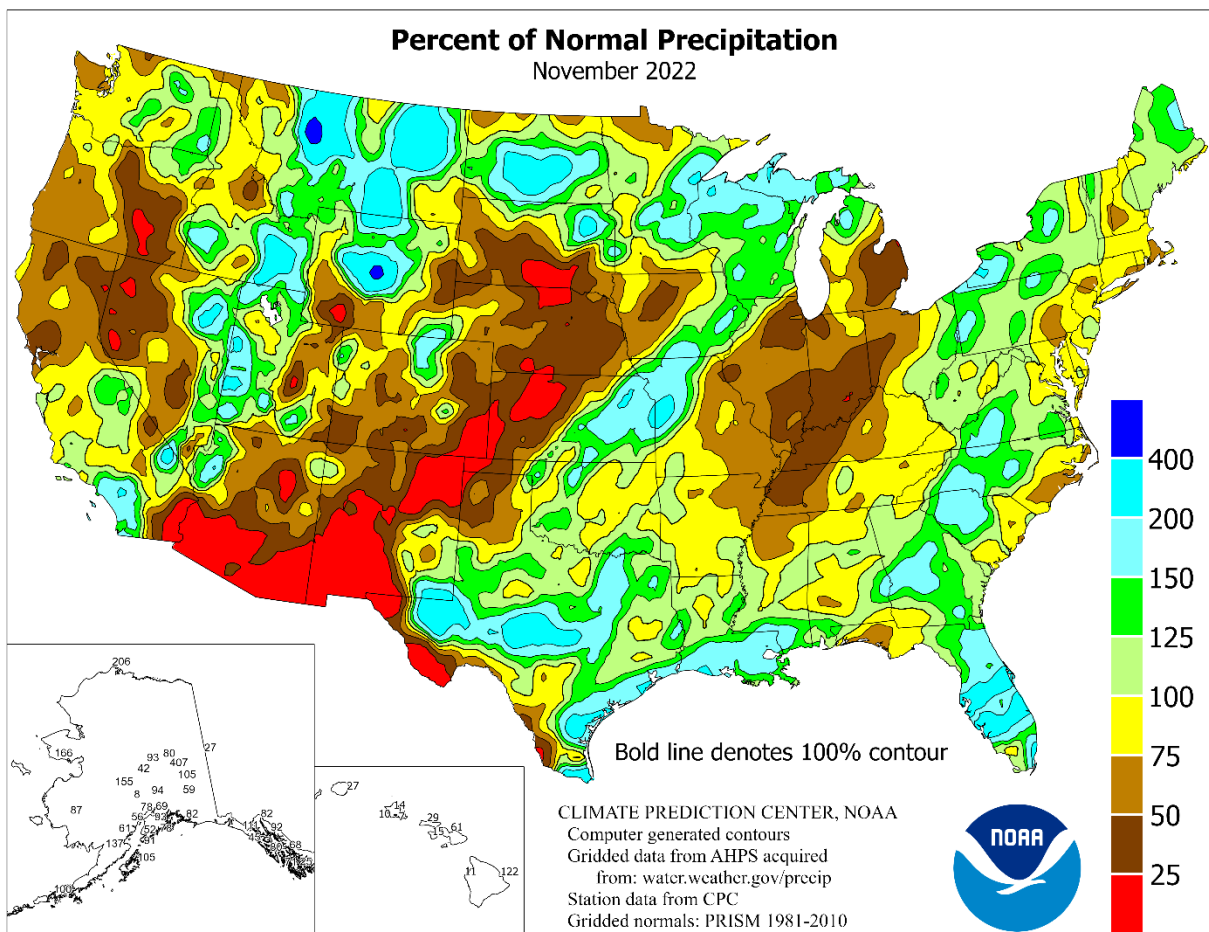
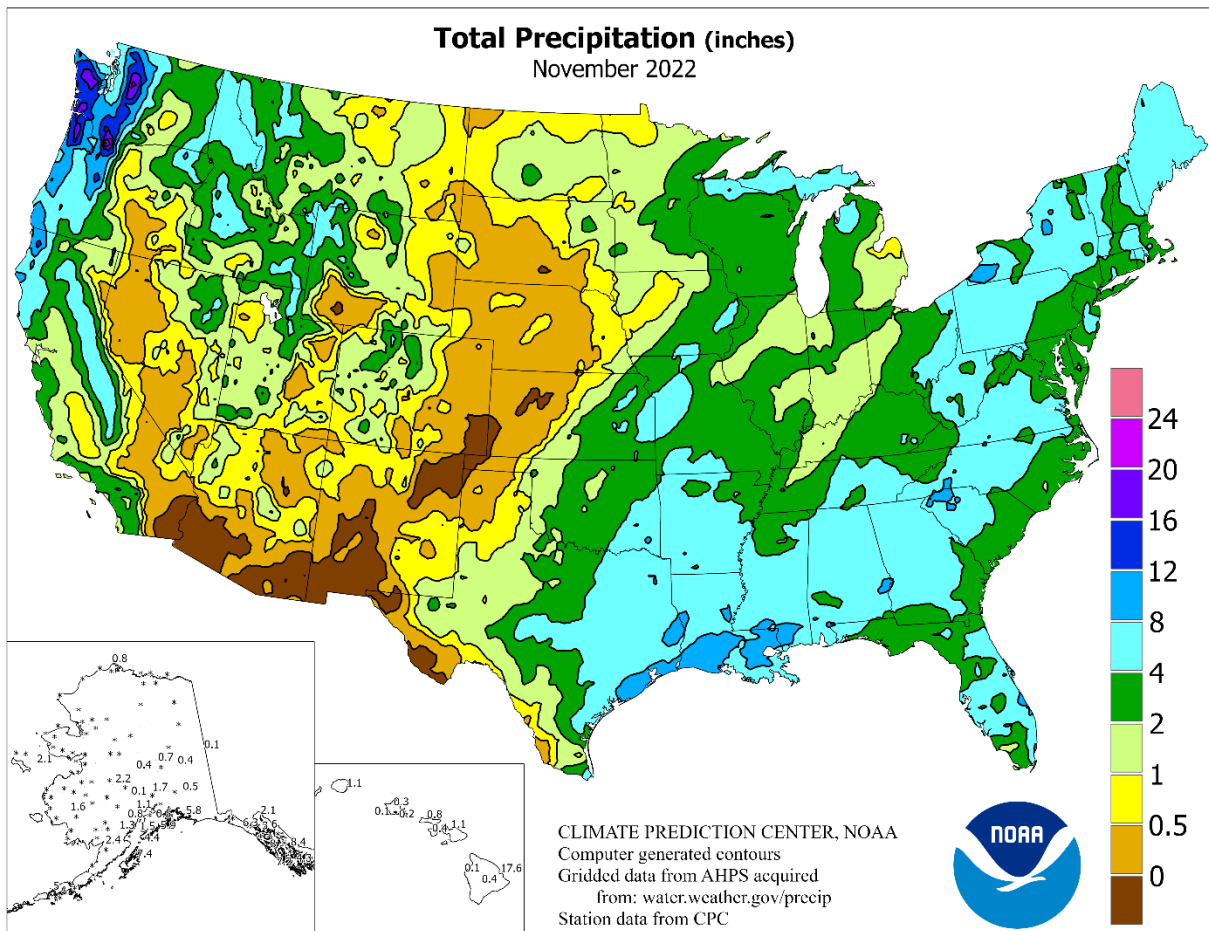
Nationally, 97 percent of the rice acreage was harvested by October 30, equal to both last year and the 5-year average.

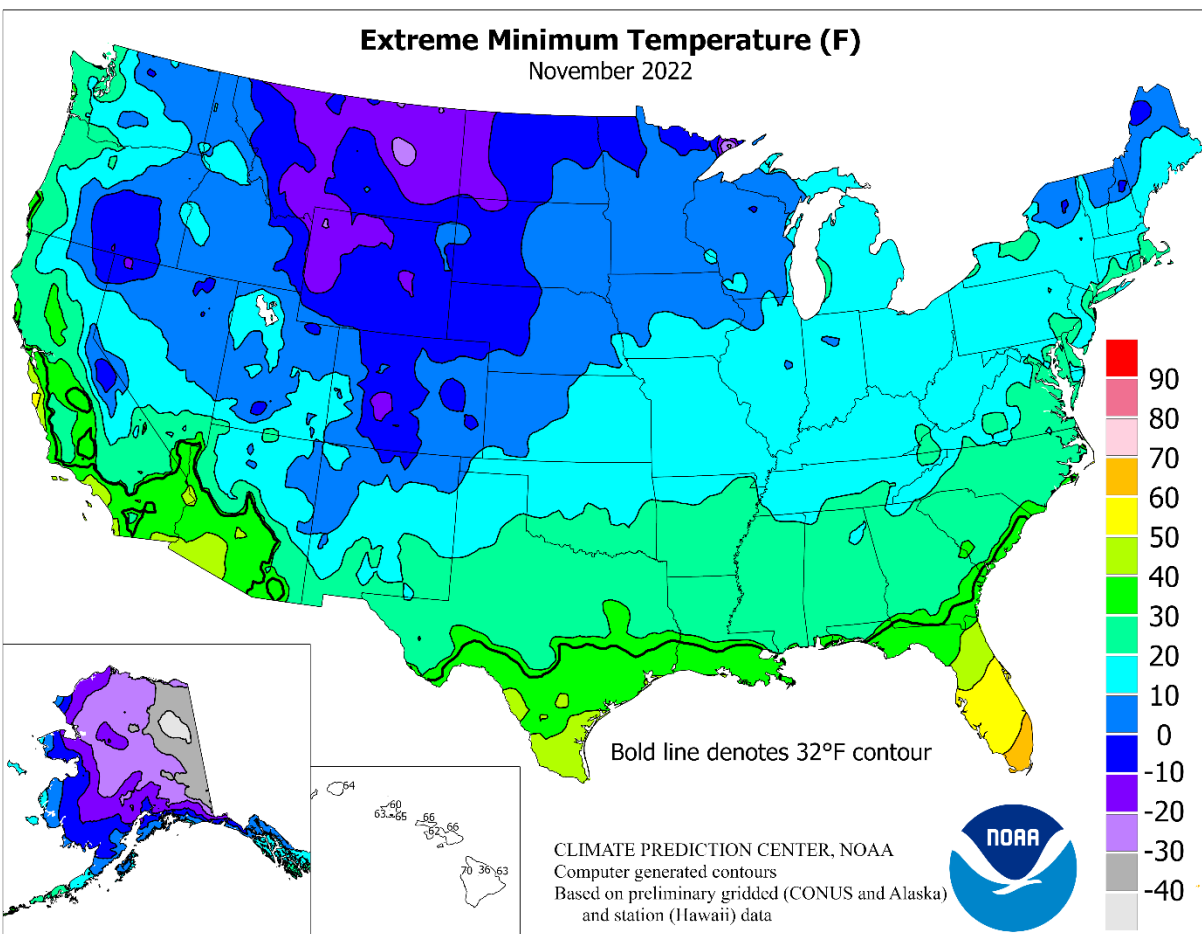
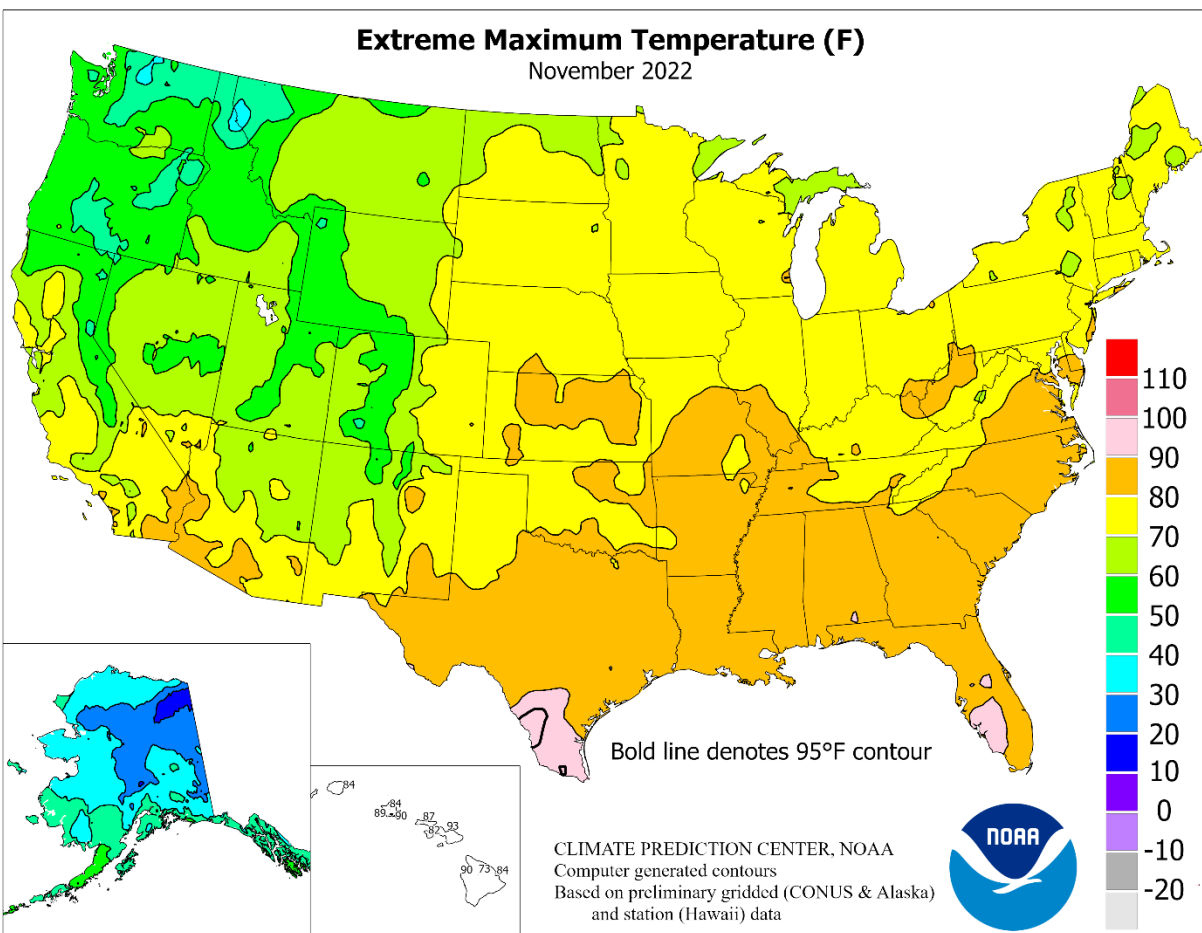
Seventy-nine percent of the nation's peanut acreage was harvested as of October 30, fourteen percentage points ahead of last year and 9 points ahead of the 5-year average. Ninety-one percent of the nation's peanut acreage was harvested as of November 13, six percentage points ahead of last year and 4 points ahead of the 5-year average. Ninety-seven percent of the nation's peanut acreage was harvested as of November 27, two percentage points ahead of last year and 1 point ahead of the 5-year average.

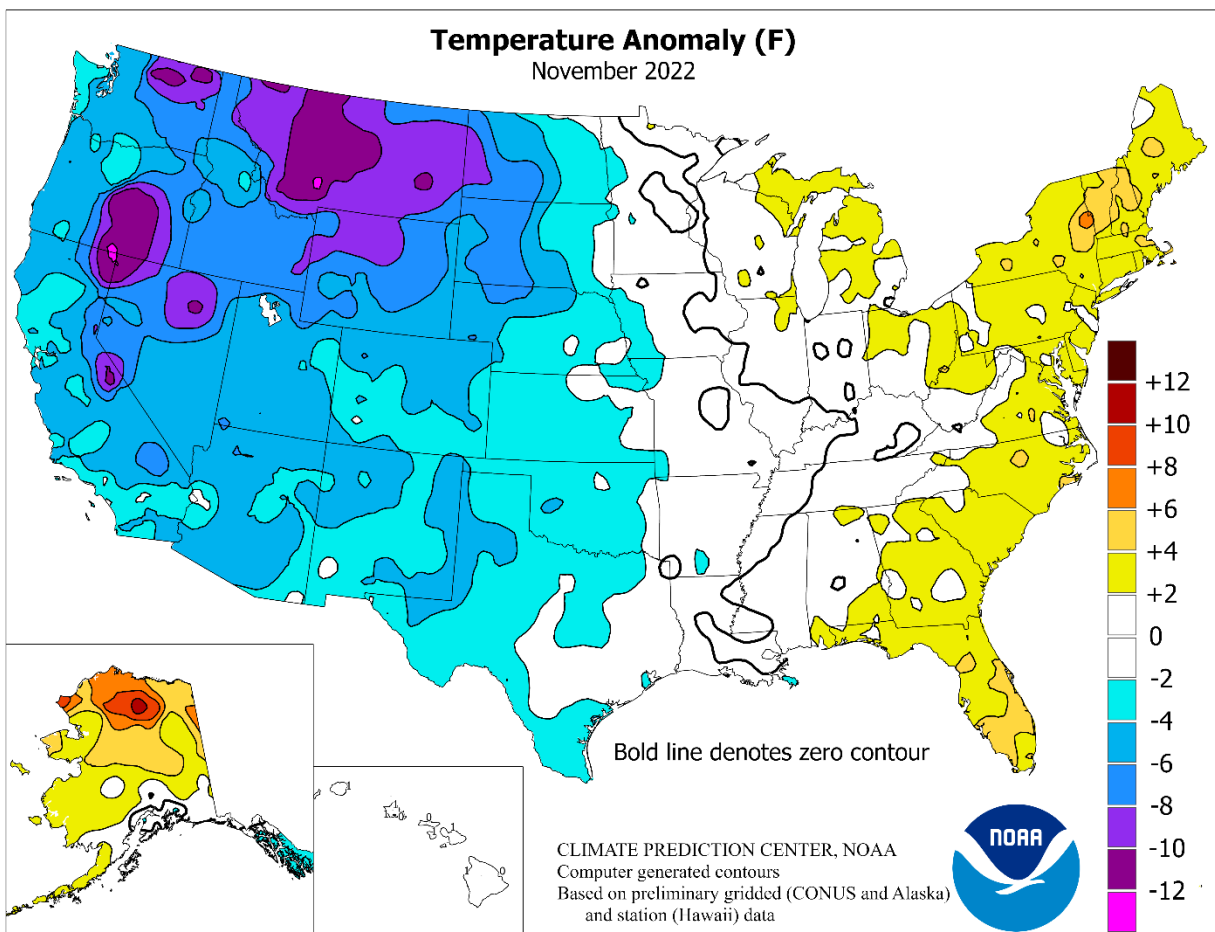
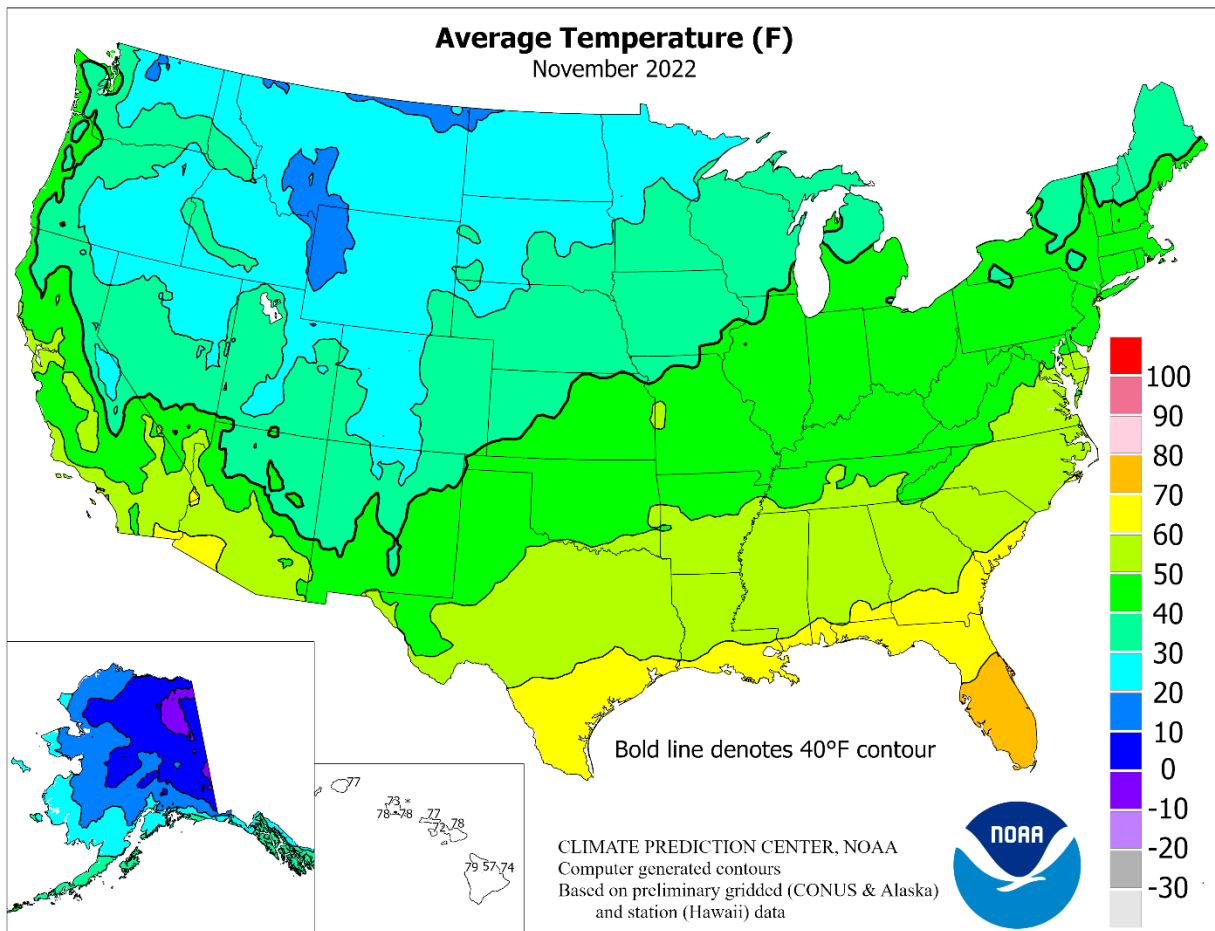
By October 30, sugarbeet producers had harvested 89 percent of the nation's crop, 5 percentage points ahead of last year and 7 points ahead of the 5-year average. By November 13, sugarbeet producers had harvested 98 percent of the crop, 1 percentage point behind last year but equal to the 5-year average.

By October 30, sixty percent of this year's sunflower crop was harvested, 9 percentage points ahead of last year and 15 points ahead of the 5-year average. By November 13, ninety-one percent of this year's sunflower crop was harvested, 10 percentage points ahead of last year and 20 points ahead of the 5-year average. By November 20, ninety-five percent of this year's sunflower crop was harvested, 6 percentage points ahead of last year and 17 points ahead of the 5-year average.









National Weather Data for Selected Cities

November 2022

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	24	0	1.11	-0.08			44	-2	2.94	1.57			45	2	2.44	-0.21
	BARROW	14	0	0.76	0.39	KY	LEXINGTON	47	1	2.05	-1.31			44	2	4.32	1.36
	FAIRBANKS	9	5	0.59	-0.15		LOUISVILLE	49	0	1.44	-1.98	OK	OKLAHOMA CITY	46	-3	1.37	-0.31
	JUNEAU	32	-1	6.04	-0.50		PADUCAH	47	-1	1.98	-2.12		TULSA	48	-2	2.78	0.13
	KODIAK	35	0	7.44	0.38	LA	BATON ROUGE	60	1	10.10	6.20	OR	ASTORIA	44	-3	12.17	1.12
	NOME	22	3	2.11	0.84		LAKE CHARLES	59	-2	6.78	2.65		BURNS	24	-11	0.88	-0.14
AL	BIRMINGHAM	55	1	5.61	1.39		NEW ORLEANS	63	1	7.06	3.19		EUGENE	41	-5	5.67	-0.31
	HUNTSVILLE	53	0	4.62	0.37		SHREVEPORT	57	0	0.00	-4.00		MEDFORD	42	-3	2.02	-0.60
	MOBILE	62	3	6.26	1.66	MA	BOSTON	49	4	2.41	-1.25		PENDELTON	36	-5	2.07	0.68
	MONTGOMERY	57	1	4.42	0.57		WORCESTER	45	5	3.84	-0.16		PORTLAND	44	-3	5.12	-0.33
AR	FORT SMITH	51	-1	4.45	0.59	MD	BALTIMORE	50	3	2.40	-0.73		SALEM	42	-5	7.78	1.83
	LITTLE ROCK	52	1	4.39	-0.33	ME	CARIBOU	34	1	4.85	1.50	PA	ALLENTOWN	44	1	2.51	-0.73
AZ	FLAGSTAFF	35	-3	1.07	-0.48		PORTLAND	43	3	4.69	0.44		ERIE	44	1	7.30	3.55
	PHOENIX	60	-5	0.04	-0.54	MI	ALPENA	39	3	1.99	-0.08		MIDDLETOWN	47	2	2.74	-0.23
	PRESOTT	41	-6	0.09	-0.60		GRAND RAPIDS	41	1	1.57	-1.53		PHILADELPHIA	51	3	2.74	-0.17
	TUCSON	58	-4	0.00	-0.56		HOUGHTON LAKE	44	6	1.10	-0.13		PITTSBURGH	44	1	3.88	1.02
CA	BAKERSFIELD	53	-3	0.65	0.14		LANSING	42	2	1.06	-1.40		WILKES-BARRE	45	3	2.98	0.13
	EUREKA	46	-5	5.67	0.78		MUSKEGON	44	3	1.47	-1.45		WILLIAMSPORT	44	2	4.43	1.19
	FRESNO	52	-3	0.65	-0.21		TRAVERSE CITY	42	3	2.83	0.59	RI	PROVIDENCE	47	3	3.51	-0.76
	LOS ANGELES	60	-2	1.74	0.92	MN	DULUTH	30	1	3.58	1.62	SC	CHARLESTON	62	4	3.09	0.42
	REDDING	50	-3	2.44	-1.09		INT_L FALLS	27	1	5.27	3.88		COLUMBIA	57	3	3.37	0.61
	SACRAMENTO	50	-3	0.95	-0.71		MINNEAPOLIS	35	0	3.79	2.19		FLORENCE	58	3	2.93	0.30
	SAN DIEGO	59	-4	1.05	0.26		ROCHESTER	33	-1	1.48	-0.32		GREENVILLE	53	1	6.74	2.90
	SAN FRANCISCO	54	-3	1.57	-0.46		ST. CLOUD	32	1	2.12	0.74	SD	ABERDEEN	29	-2	0.67	-0.07
	STOCKTON	50	-4	1.22	-0.18	MO	COLUMBIA	45	0	2.54	-0.14		HURON	30	-3	0.50	-0.33
CO	ALAMOS	27	-3	0.67	0.29		KANSAS CITY	44	0	3.80	1.80		RAPID CITY	29	-6	0.17	-0.31
	CO SPRINGS	37	-3	0.25	-0.12		SAINT LOUIS	47	1	2.40	-1.02		SIOUX FALLS	34	-1	0.79	-0.43
	DENVER INTL	36	-4	0.46	-0.18		SPRINGFIELD	45	-2	3.85	0.28	TN	BRISTOL	49	3	2.50	-0.64
	GRAND JUNCTION	37	-2	0.57	-0.04	MS	JACKSON	56	1	5.71	1.31		CHATTANOOGA	53	2	5.83	1.04
	PUEBLO	37	-4	0.20	-0.27		MERIDIAN	56	0	3.07	-1.13		KNOXVILLE	51	2	3.92	-0.29
CT	BRIDGEPORT	48	2	2.43	-0.68		TUPELO	54	1	3.14	-1.34		MEMPHIS	52	-1	3.62	-1.07
	HARTFORD	46	4	4.35	0.85	MT	BILLINGS	28	-8	0.76	0.16		NASHVILLE	52	1	4.24	0.38
DC	WASHINGTON	52	2	2.46	-0.44		BUTTE	17	-11	0.45	-0.15	TX	ABILENE	53	-3	1.54	0.13
DE	WILMINGTON	49	3	2.54	-0.52		CUT BANK	22	-9	0.04	-0.39		AMARILLO	44	-4	0.33	-0.42
FL	DAYTONA BEACH	71	4	4.05	1.29		GLASGOW	22	-8	0.68	0.19		AUSTIN	59	-2	3.11	0.19
	JACKSONVILLE	66	3	2.41	0.41		GREAT FALLS	23	-10	1.31	0.63		BEAUMONT	60	-1	10.09	6.20
	KEY WEST	79	3	1.41	-0.63		HAYRE	22	-9	0.55	0.06		BROWNSVILLE	67	-3	5.41	3.65
	MIAMI	79	4	8.43	4.91		MISSOULA	24	-8	1.14	-0.04		CORPUS CHRISTI	63	-3	4.81	2.78
	ORLANDO	73	4	4.25	2.46	NC	ASHEVILLE	48	0	5.54	1.82		DEL RIO	59	-2	0.10	-0.80
	PENSACOLA	65	3	2.71	-1.71		CHARLOTTE	54	3	5.70	2.39		EL PASO	53	-2	0.11	-0.32
	TALLAHASSEE	64	4	2.43	-0.88		GREENSBORO	52	2	4.96	1.69		FORT WORTH	55	-1	5.87	3.34
	TAMPA	72	3	5.10	3.70		HATTERAS	61	2	2.89	-1.87		GALVESTON	65	-1	6.15	1.87
	WEST PALM BEACH	77	4	6.06	2.44		RALEIGH	56	4	4.91	1.59		HOUSTON	60	-2	4.96	1.09
GA	ATHENS	55	1	5.90	2.13		WILMINGTON	60	4	1.97	-1.58		LUBBOCK	47	-3	0.59	-0.21
	ATLANTA	56	2	3.80	-0.19	ND	BISMARCK	23	-7	1.05	0.36		MIDLAND	50	-5	0.85	0.13
	AUGUSTA	56	1	1.15	0.06		DICKINSON	22	-8	0.04	-0.43		SAN ANGELO	53	-3	2.71	1.55
	COLUMBUS	58	1	7.20	3.24		FARGO	26	-3	0.62	-0.35		SAN ANTONIO	60	0	1.74	-0.33
	MACON	58	2	5.20	1.83		GRAND FORKS	26	-1	0.53	-0.39		VICTORIA	62	-1	4.93	2.01
	SAVANNAH	62	2	1.91	-0.48		JAMESTOWN	25	-3	0.22	-0.31		WACO	55	-3	5.49	2.78
HI	HILO	74	0	17.57	3.19	NE	GRAND ISLAND	38	-1	0.19	-0.91		WICHITA FALLS	51	-2	1.67	0.04
	HONOLULU	79	1	0.16	-2.09		LINCOLN	38	-2	0.24	-1.06	UT	SALT LAKE CITY	37	-5	1.89	0.56
	KAHULUI	78	1	1.10	-0.71		NORFOLK	35	-2	0.30	-0.93	VA	LYNCHBURG	51	4	4.63	1.24
	LIHUE	77	1	1.09	-2.94		NORTH PLATTE	35	-2	0.24	-0.25		NORFOLK	56	2	2.87	-0.23
IA	BURLINGTON	41	0	1.01	-1.28		OMAHA	37	-3	0.57	-0.88		RICHMOND	53	3	3.64	0.58
	CEDAR RAPIDS	37	1	3.38	1.38		SCOTTSBLUFF	33	-4	0.55	-0.05		ROANOKE	50	2	5.70	2.66
	DES MOINES	39	-1	2.87	0.96		VALENTINE	30	-7	0.27	-0.30		WASH/DULLES	49	3	2.78	-0.35
	DUBUQUE	38	1	2.94	0.73	NH	CONCORD	42	3	3.23	-0.20	VT	BURLINGTON	43	4	3.47	0.78
	SIOUX CITY	35	-1	0.65	-0.62	NJ	ATLANTIC_CITY	49	2	3.63	0.26	WA	OLYMPIA	39	-4	8.08	-0.13
	WATERLOO	37	0	2.55	0.69		NEWARK	51	4	2.72	-0.60		QUILLAYUTE	41	-3	10.53	-4.73
ID	BOISE	34	-6	1.94	0.75	NM	ALBUQUERQUE	42	-4	0.12	-0.46		SEATTLE-TACOMA	42	-4	5.23	-1.09
	LEWISTON	37	-5	2.01	0.79	NV	ELY	30	-5	0.94	0.31		SPOKANE	28	-8	3.09	1.03
	POCATELLO	28	-6	1.70	0.75		LAS VEGAS	52	-5	0.13	-0.17		YAKIMA	32	-6	0.57	-0.29
IL	CHICAGO/O_HARE	43	2	0.83	-1.58		RENO	38	-5	0.39	-0.23	WI	EAU CLAIRE	34	1	2.10	0.31
	MOLINE	42	2	2.16	-0.13		WINNEMUCCA	33	-6	0.33	-0.33		GREEN BAY	38	2	2.48	0.50
	PEORIA	43	1	1.91	-0.78	NY	ALBANY	44	4	3.17	0.17		LA CROSSE	38	0	2.03	0.19
	ROCKFORD	40	1	1.43	-0.84		BINGHAMTON	41	3	4.15	1.04		MADISON	38	2	3.33	1.11
	SPRINGFIELD	43	0	2.26	-0.45		BUFFALO	43	2	5.02	1.52		MILWAUKEE	43	3	1.24	-1.00
IN	EVANSVILLE	46	0	1.12	-2.99		ROCHESTER	43	2	3.02	0.26	WV	BECKLEY	45	1	2.55	-0.25
	FORT WAYNE	42	1	1.90	-1.06		SYRACUSE	45	4	4.22	1.00		CHARLESTON	47	0	2.89	-0.31
	INDIANAPOLIS	44	1	1.43	-2.02	OH	AKRON-CANTON	45	3	3.29	0.20		ELKINS	44	2	3.59	0.72
	SOUTH BEND	42	3	2.21	-0.57		CINCINNATI	45	1	2.35	-0.89		HUNTINGTON	48	1	3.01	-0.06
KS	CONCORDIA	42	0	0.78	-0.38		CLEVELAND	45	1	2.35	-1.02	WY	CASPER	28	-6	1.15	0.51
	DODGE CITY	42	-2	0.30	-0.51		COLUMBUS	45	1	2.32	-0.47		CHEYENNE	31	-5	0.33	-0.28
	GOODLAND	44	5	0.01	-0.53		DAYTON	45	1	1.87	-1.19		LANDER	27	-5	1.13	0.35
	TOPEKA	43	-1	2.79	1.01		MANSFIELD	43	2	2.17	-0.98		SHERIDAN	26	-7	1.10	0.33

December 8 ENSO Diagnostic Discussion

EQ. Upper-Ocean Heat Anoms. (deg C) for 180–100W

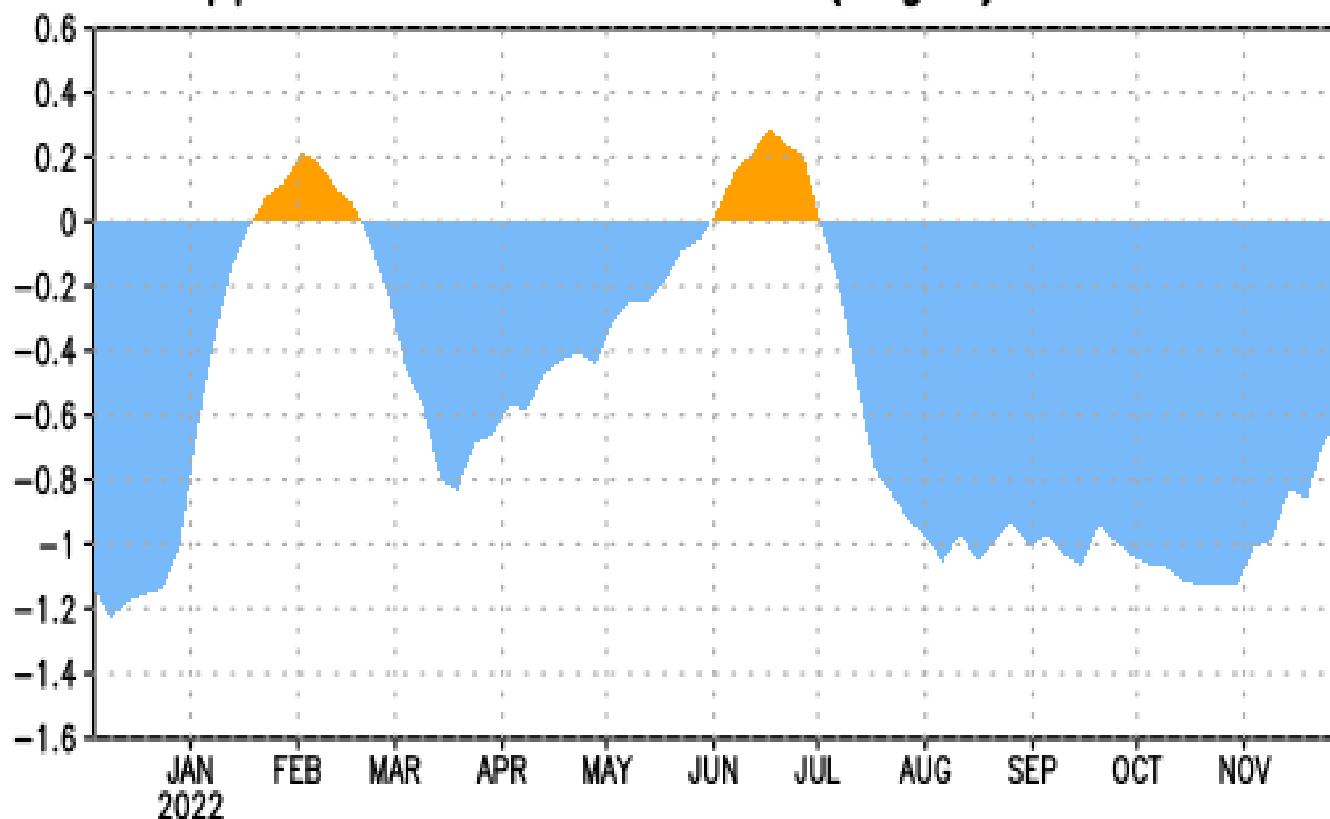


Figure 1: Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N–5°S, 180°–100°W). The heat content anomaly is computed as the departure from the 1991–2020 base period pentad means.

ENSO Alert System Status: **La Niña Advisory**

Synopsis: La Niña is expected to continue into the winter, with equal chances of La Niña and ENSO-neutral during January–March 2023. In February–April 2023, there is a 71% chance of ENSO-neutral.

Below-average sea surface temperatures (SSTs) persisted in the central and eastern Pacific Ocean during the past month. All of the latest weekly Niño index values were near -1.0°C, except for the Niño-1+2 index which was at -0.5°C. In November 2022, negative subsurface temperature anomalies weakened (Fig. 1), reflecting an eastward expansion of the above-average subsurface temperatures in the western and central Pacific and contraction of the below-average temperatures across the eastern Pacific. Low-level easterly wind anomalies and upper-level westerly wind anomalies were evident across most of the equatorial Pacific throughout the month. The convection pattern continued to show suppressed convection over the western and central tropical Pacific and enhanced convection over Indonesia. Overall, the coupled ocean-atmosphere system continued to reflect La Niña.

The most recent IRI plume indicates that La Niña will persist into the Northern Hemisphere winter 2022–23. For the dynamical model averages, ENSO-neutral is favored in January–March 2023, while the statistical model average shows the transition to ENSO-neutral occurs in February–April 2023. The forecaster consensus, which

also considers the North American Multi-Model Ensemble (NMME), is split on whether La Niña or ENSO-neutral will prevail during January–March 2023. Regardless, there is higher confidence that ENSO-neutral will emerge by the Northern Hemisphere spring. In summary, La Niña is expected to continue into the winter, with equal chances of La Niña and ENSO-neutral during January–March 2023. In February–April 2023, there is a 71% chance of ENSO-neutral.

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 **12 January 2023**. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.ensu-update@noaa.gov.

International Weather and Crop Summary

December 4-10, 2022

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

HIGHLIGHTS

EUROPE: The coldest air of the season was accompanied by some snow in the north, while locally heavy to excessive rainfall continued in the south.

MIDDLE EAST: Drier weather settled over eastern and central crop areas, while locally heavy showers overspread the typically arid southern portions of the region.

NORTHWESTERN AFRICA: Additional much-needed rain eased drought in Morocco.

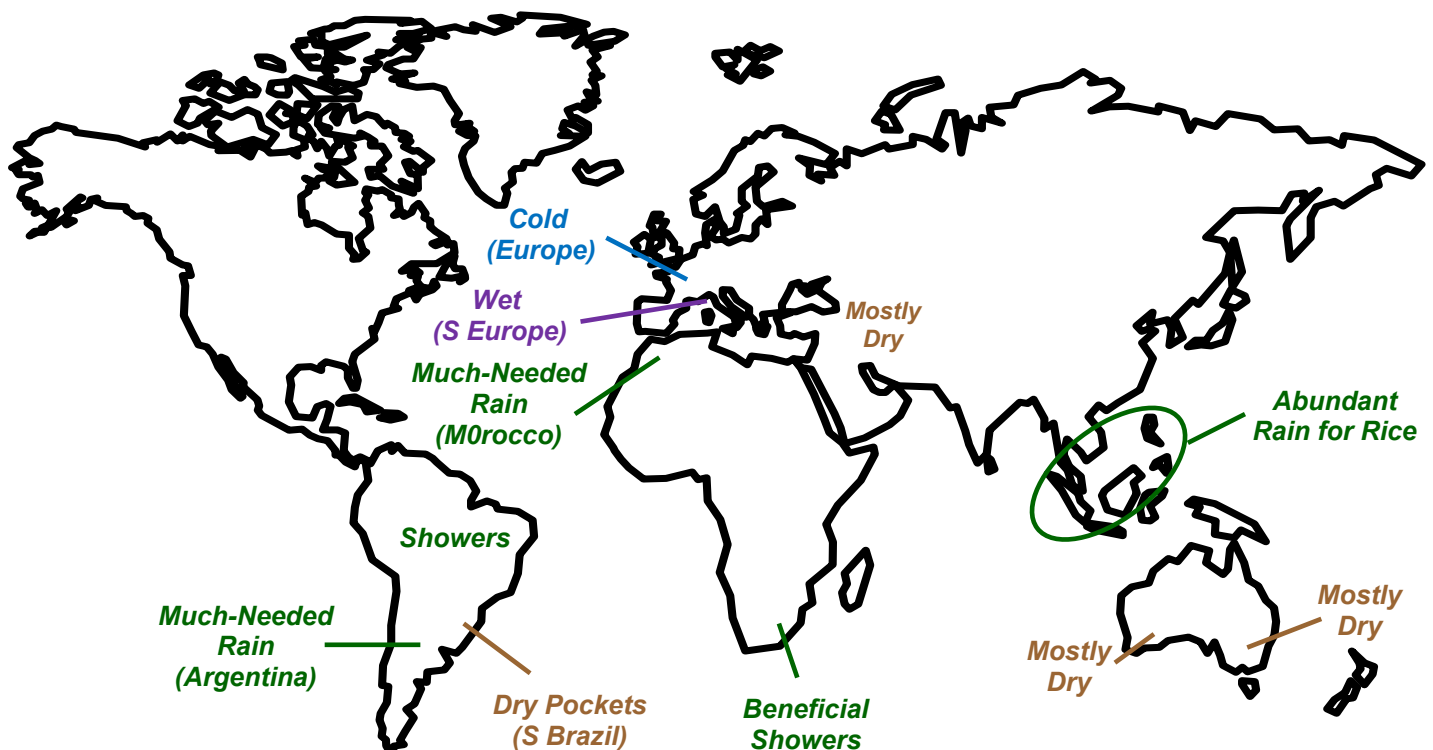
SOUTHEAST ASIA: Downpours maintained ample moisture supplies for seasonal rice and other crops, though localized flooding occurred.

AUSTRALIA: Mostly dry weather covered a majority of the wheat belt, aiding winter crop harvesting and sorghum sowing.

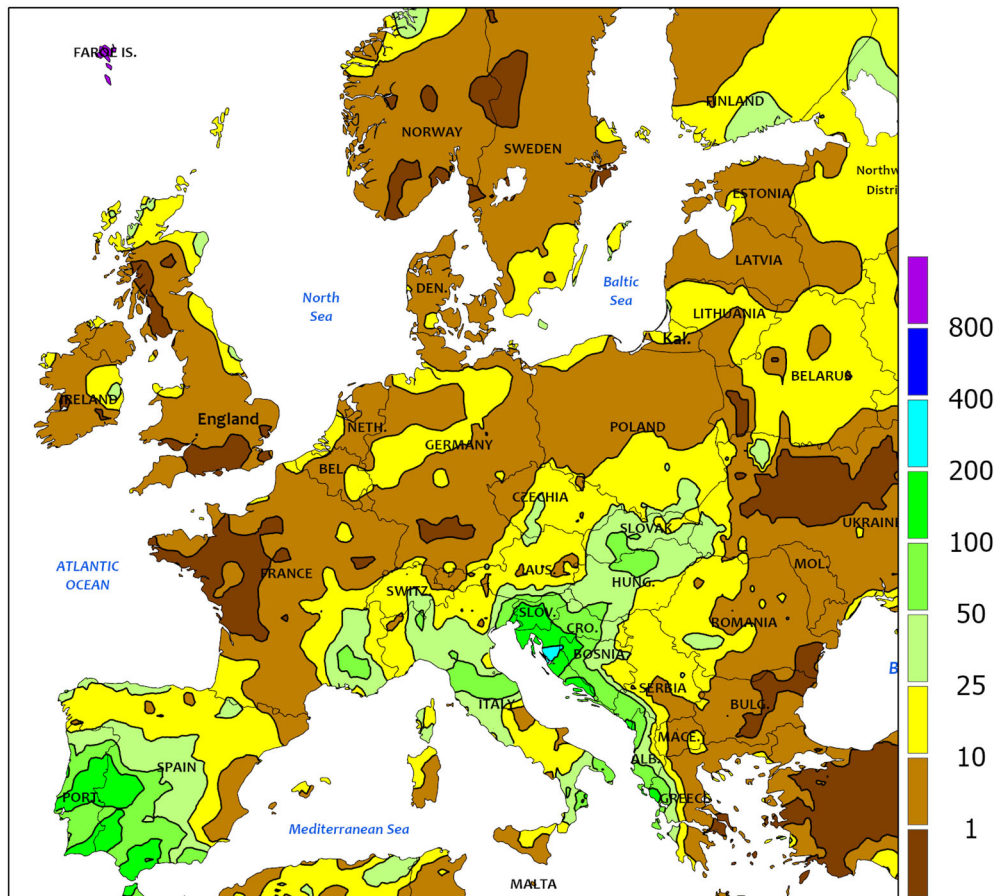
SOUTH AFRICA: Rain benefited corn and other emerging to vegetative summer crops.

ARGENTINA: Showers brought relief from heat and dryness to farmlands in central Argentina.

BRAZIL: Showers intensified over most major soybean areas.



EUROPE
Total Precipitation(mm)
December 4 - 10, 2022



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

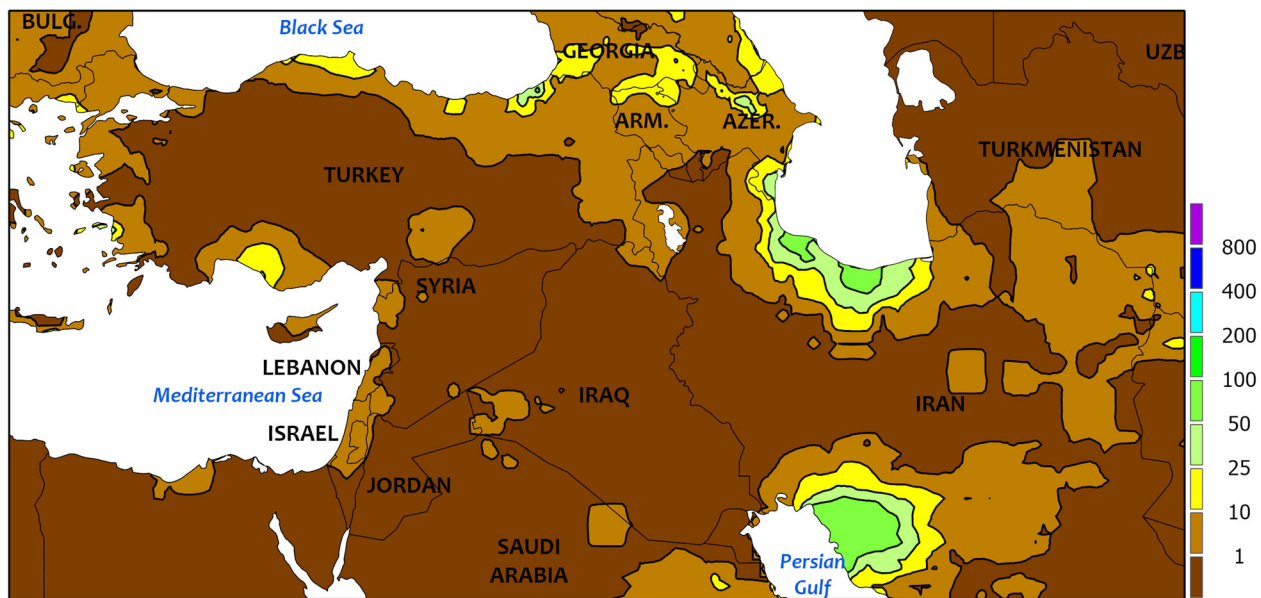


EUROPE

Cold, generally unsettled weather across northern and central Europe gave way to additional heavy rain in southern portions of the continent. The coldest air of the season arrived over England, France, Germany, and the Low Countries, with temperatures averaging 2 to 5°C below normal (up to 8°C below normal in the far north). Hard freezes (-9 to -2°C) were reported over much of central and northern Europe, while 7-day average temperatures below 5°C indicated winter crops were now dormant nearly everywhere in the aforementioned areas. Some locales reported the first snow of the winter, with a light to moderate snowpack (1-15 cm) in place by week's end from England and Germany eastward. Soil moisture reserves remained overall favorable for winter grains and oilseeds from France into Poland and the Balkans. Meanwhile

moderate to heavy rain was reported across much of southern Europe. In Spain, 25 to 200 mm (heaviest in the southwest) boosted moisture supplies and eased long-term drought, particularly in southern portions of the country; year-to-date precipitation in Andalucía improved to 85 percent of normal with this week's heavy rain. Moderate to heavy showers in northern Italy (12-45 mm) improved winter grain prospects but provided minimal relief from long-term drought, with year-to-date precipitation in northern Italy's Po River Valley still the lowest of the past 30 years (60 percent of normal, with a deficit of 305 mm). Moderate to heavy rain (10-55 mm) continued from western Greece northward into Hungary, while warm (up to 7°C above normal) and mostly dry weather prevailed in the lower Danube River Valley.

MIDDLE EAST
Total Precipitation(mm)
December 4 - 10, 2022



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



MIDDLE EAST

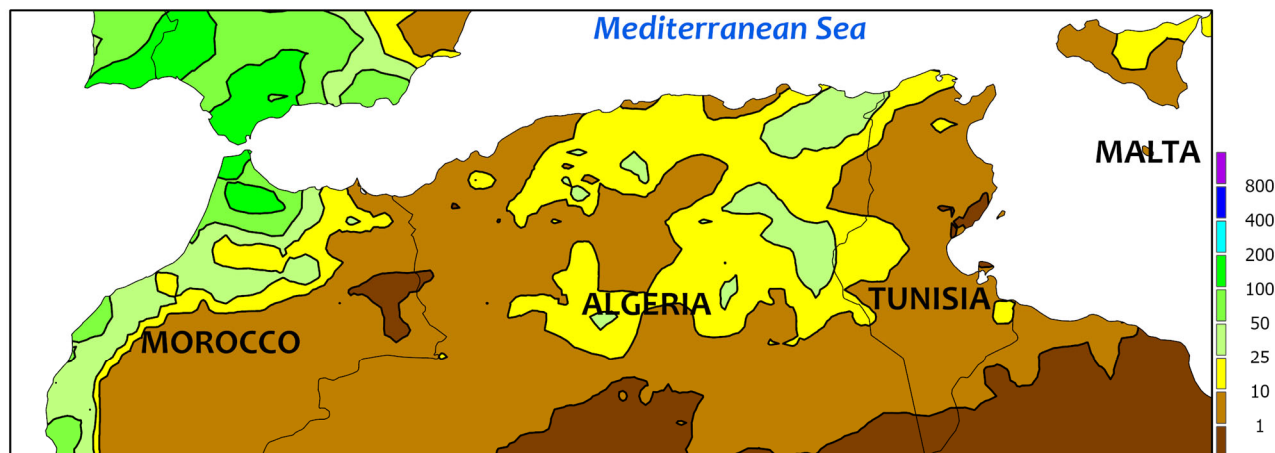
Dry and warm weather in western and central portions of the region contrasted with unusually heavy showers in the south. After the previous week's locally heavy rain, mostly sunny skies and above-normal temperatures (up to 4°C above normal) from Turkey into Iraq promoted fieldwork and winter grain establishment. However, a strong storm system approached Turkey's Mediterranean Coast at the end of the monitoring period, with showers out ahead of the storm totaling locally more than 30 mm.

Meanwhile, highly variable albeit locally heavy showers (3-65 mm) from central Saudi Arabia northeastward into southwestern Iran boosted moisture supplies for vegetative winter grains, though amounts tapered off to less than 10 mm in eastern Iran's wheat and barley areas (Khorasan Province). The southern rain was highly unusual but nevertheless beneficial for the sparse croplands in the far south, while northeastern Iran's wheat and barley areas have trended dry and would benefit from more rain.

NORTHWESTERN AFRICA

Total Precipitation(mm)

December 4 - 10, 2022



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



NORTHWESTERN AFRICA

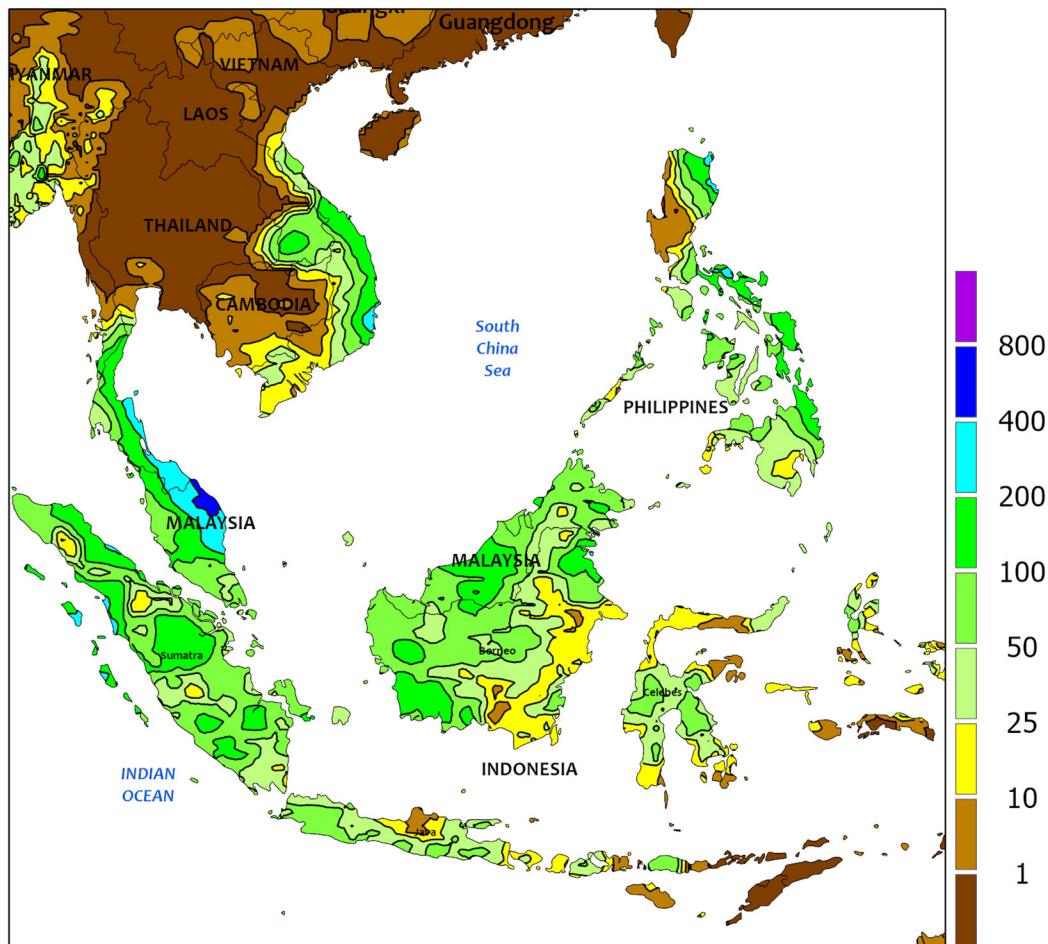
Additional much-needed rain reduced drought in Morocco, while showers further benefited winter grains in eastern growing areas. Moderate to heavy rain (10-55 mm) in western Morocco eased drought and improved winter grain prospects. However, amounts tapered off to less than 10 mm away from the coast near the foothills of the Atlas Mountains where crop prospects remained very poor. Heavy to excessive rainfall (100-235 mm) was reported farther north in the mountainous terrain near the Strait of Gibraltar. The recent and ongoing rain in Morocco's primary croplands adjacent to the central Atlantic Coast has boosted season-to-

date rainfall (since September 1) to 105 mm and trimmed the average deficit to 75 mm (nearly 60 percent of normal). In contrast, dry weather (less than 5 mm) in western Algeria's Tell Region lowered this region's season-to-date total to approximately 45 percent of normal (deficit of nearly 70 mm). Farther east, light to moderate showers (2-25 mm) improved moisture supplies locally for winter grains from north-central Algeria into northern Tunisia. However, central Tunisia's inland Steppe Region continued to wrestle with drought (35 percent of normal since September), though the country's primary winter grain areas are in the far north.

SOUTHEAST ASIA

Total Precipitation(mm)

December 4 - 10, 2022



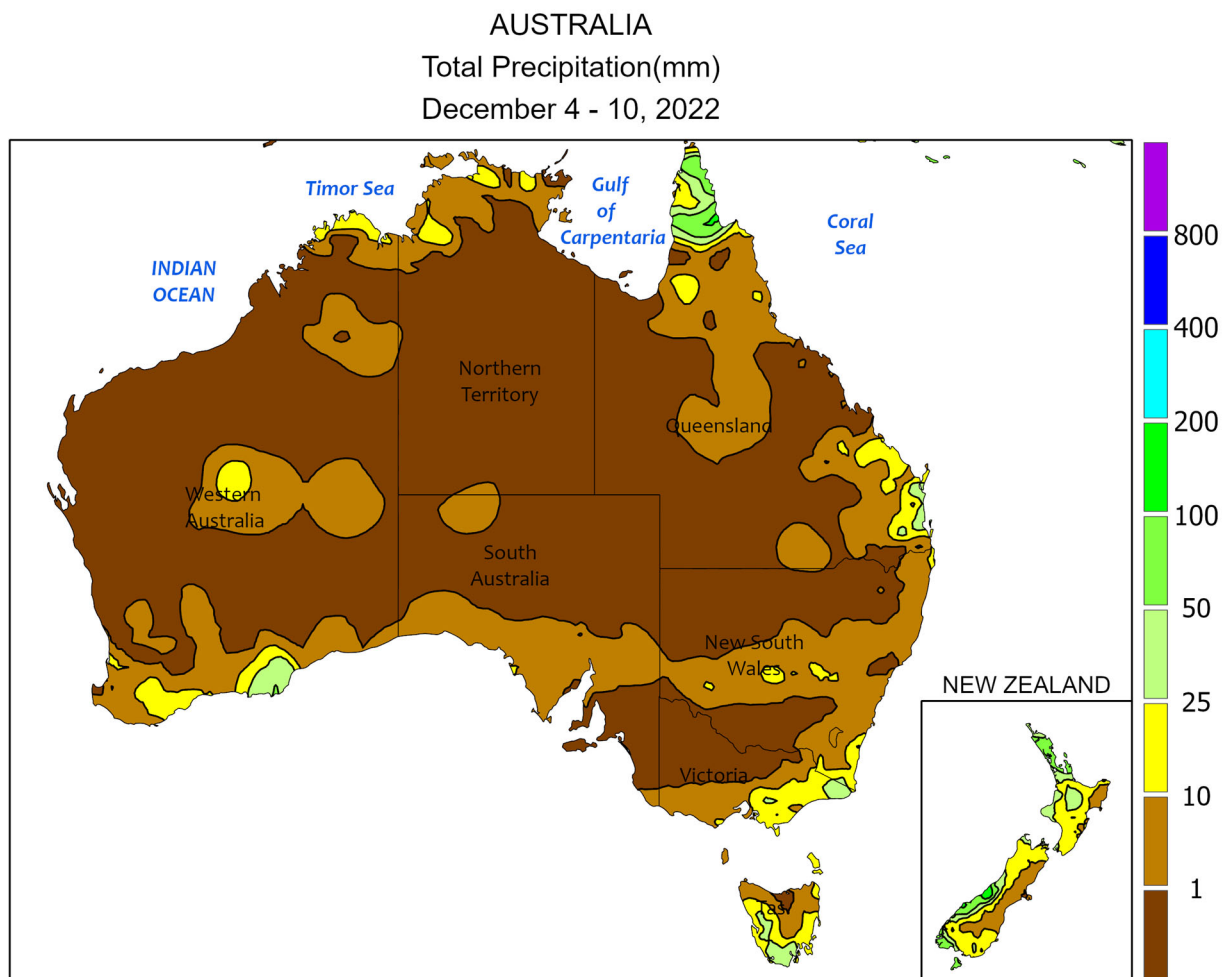
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



SOUTHEAST ASIA

Waves of tropical moisture moving west in the region brought downpours from the Philippines to central Vietnam and across Malaysia and parts of Indonesia. Many windward areas recorded over 100 mm with some locales exceeding 150 mm. The rainfall ensured ample moisture supplies for seasonal rice, oil palm, and other crops but caused localized flooding, particularly in western Malaysia

where totals were the highest (over 300 mm). In southern Indonesia (Java), despite lower rainfall amounts (25-75 mm) than in preceding weeks, surplus moisture conditions remained for rice. Meanwhile, seasonably dry weather prevailed in Thailand and most of the surrounding areas, as dry-season rice continued to benefit from irrigation supplies that were much improved over the last few years.



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

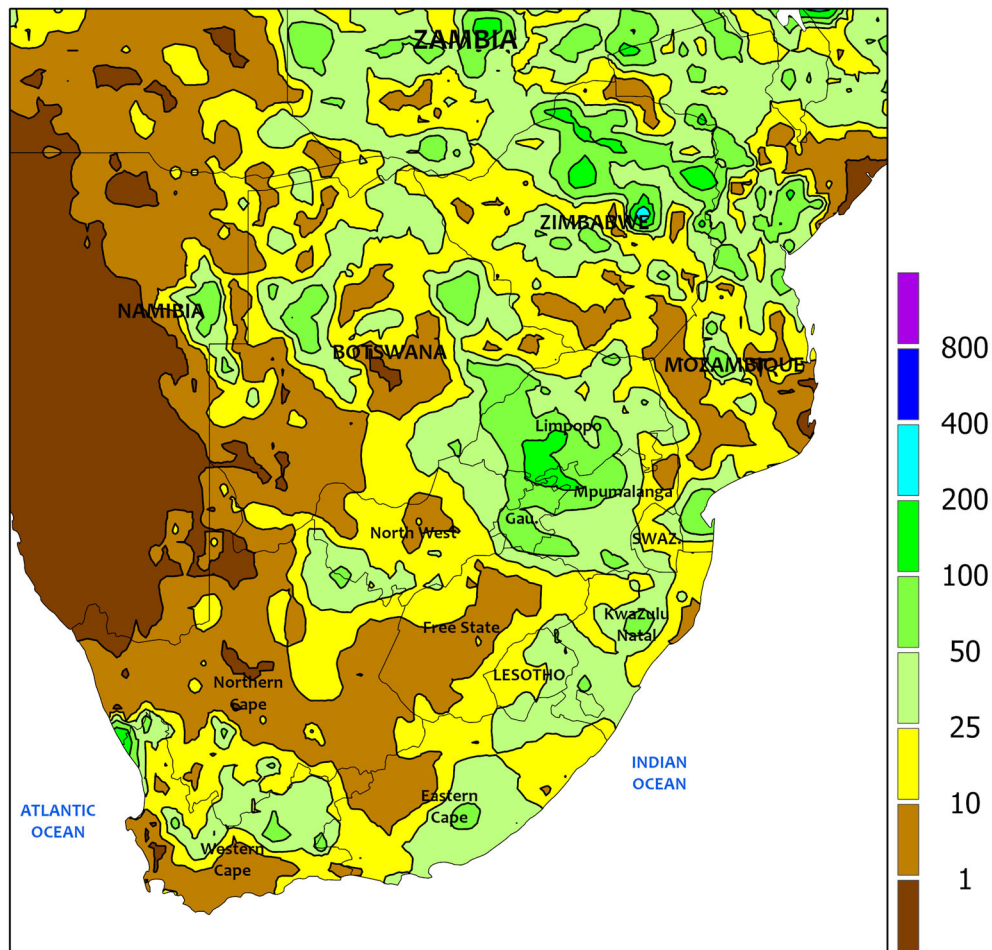


AUSTRALIA

After an extended period of excessively wet weather in some major crop producing areas, relatively dry weather overspread much of the wheat belt. A few pockets of rain (isolated amounts over 10 mm) may have disrupted local fieldwork in southern Queensland, central New South Wales, and southern Western Australia. Otherwise, mostly dry weather aided wheat, barley, and canola harvesting and helped avert further reductions in

winter crop quality. The relative dryness favored sorghum planting as well, while a combination of sunny skies and abundant soil moisture promoted early summer crop development. Cooler-than-normal weather continued to cover most of the wheat belt. Temperatures averaged 1 to 2°C below normal in Western Australia, South Australia, and southern Queensland, and 3 to 5°C below normal in Victoria and New South Wales.

SOUTH AFRICA
Total Precipitation(mm)
December 4 - 10, 2022



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



SOUTH AFRICA

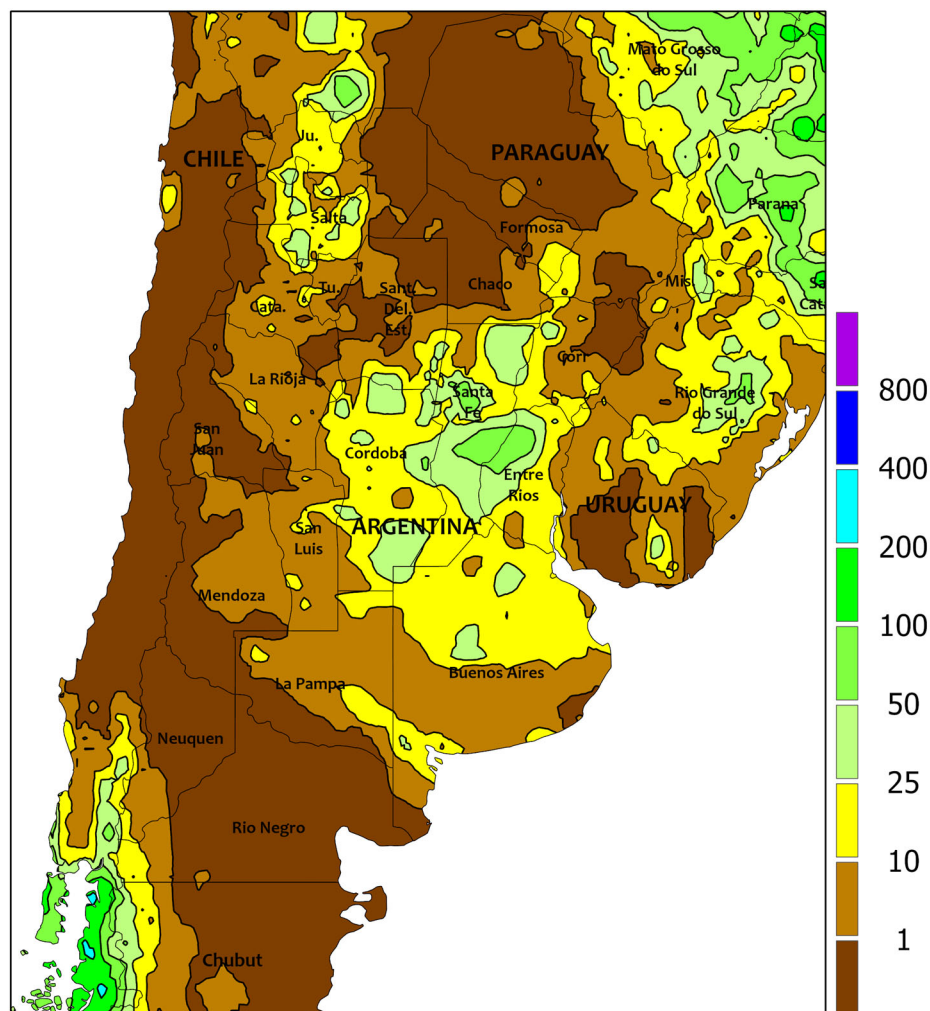
Mild, showery weather maintained favorable prospects for rain-fed summer crops. Rainfall totaled 25 to 50 mm – locally higher – from Limpopo southward, spanning key commercial farming areas in Mpumalanga, Gauteng, and KwaZulu-Natal. Meanwhile, lighter rain (locally below 10 mm) supported corn planting and other seasonal fieldwork in North West and Free State. Weekly temperatures averaged 1 to 2°C below normal in western sections of the corn belt (western Limpopo to Free

State), and near to above normal elsewhere in the east, with highest daytime temperatures ranging from the upper 20s to middle 30s (degrees C). Farther west, scattered, unseasonably heavy showers (10-25 mm, locally approaching 50 mm) improved long-term moisture reserves in climatologically drier locations in the Cape Provinces, although sunny, warm weather (highs reaching the middle 30s) favored development of tree and vine crops in Western Cape.

ARGENTINA

Total Precipitation(mm)

December 4 - 10, 2022



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



ARGENTINA

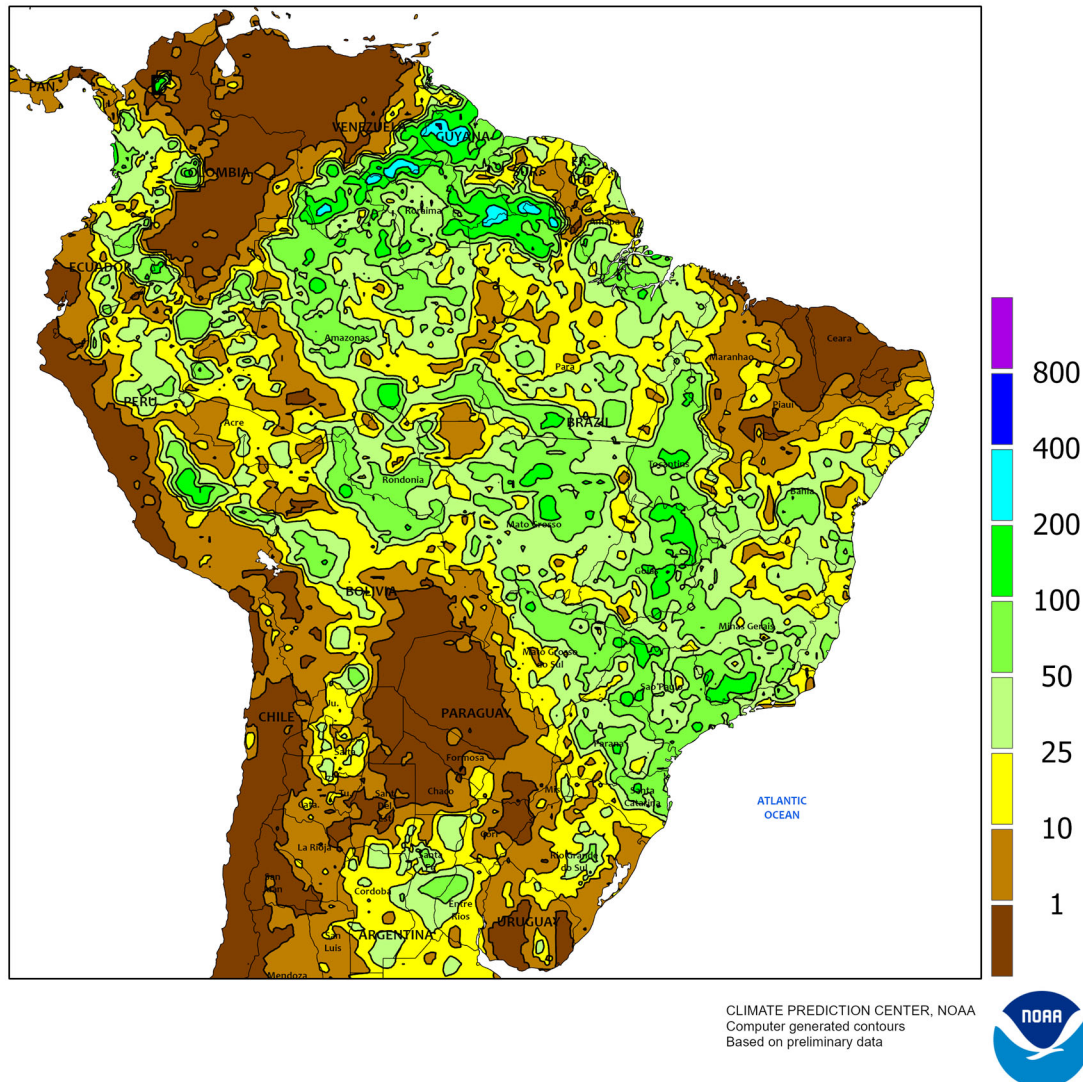
Late-week showers ended a brief period of heat and dryness in high-yielding farming areas of central Argentina. Rainfall totaled 10 to 50 mm from northern Buenos Aires to southern sections of Santiago del Estero and Chaco. However, mostly dry weather prevailed elsewhere, including southern sections of La Pampa and Buenos Aires and the far north (Salta and neighboring locations in Santiago del Estero, Chaco, and Formosa). While providing much-needed moisture, the rain ushered seasonably milder weather into the region; prior to the passage of the rain-generating front, daytime temperatures reached 40°C on several days as far south as Buenos Aires. The

unseasonable heat hastened development of maturing winter grains and emerging summer crops, which are growing with limited moisture and can ill afford additional stress. According to the government of Argentina, sunflowers were 94 percent planted as of December 7; planting rose 6 points in Buenos Aires to reach 91 percent complete, compared with 98 percent last year. Similarly, corn and soybeans were 54 and 52 percent planted, respectively, lagging last year's pace for both crops. Cotton was 34 percent planted versus 66 percent last year. Meanwhile, harvesting of wheat and barley was 56 and 23 percent completed, respectively.

BRAZIL

Total Precipitation(mm)

December 4 - 10, 2022



BRAZIL

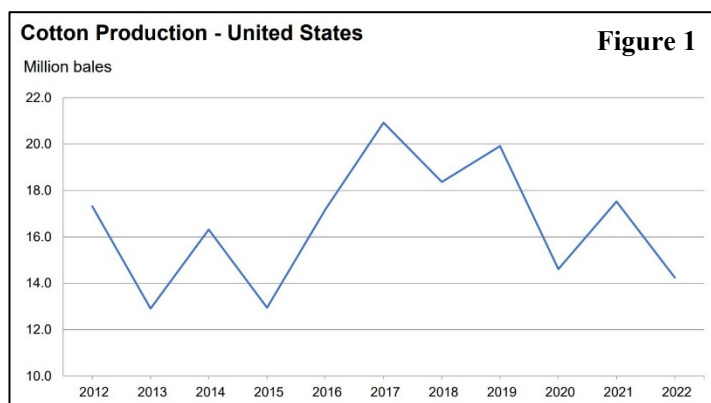
Showers intensified from prior weeks, providing much-needed moisture for soybeans and first-crop corn in most major production areas. Rainfall totaled 10 to 50 mm – locally approaching 100 mm – from Mato Grosso southward through Paraná and eastward through Goiás and Minas Gerais. In addition to the timely moisture for crops, the early-week rain dropped temperatures down to more seasonable levels (temperatures occasionally reaching the lower and middle 30s degrees C) in most locations receiving the rain. An exception was in Brazil's southwestern farming areas (southwestern Mato Grosso to western Rio Grande do Sul, as well as Paraguay and Uruguay), where highest daytime temperatures approached 40°C. In Rio Grande do

Sul and southwestern Paraná, the heat was accompanied by continued below-normal rainfall (less than 25 mm). According to the government of Paraná, 25 percent of both first-crop corn and soybeans had reached reproduction as of December 5, with early-planted crops entering reproduction. In Rio Grande do Sul, corn was 88 percent planted as of December 8, with more than 50 percent of the crop having reached reproduction. In contrast, 81 percent of soybeans were planted but flowering had reportedly not yet occurred. Elsewhere, moderate to heavy rain (25-50 mm, locally exceeding 100 mm) benefited soybeans, first-crop corn, and other summer crops and kept daytime highs at more seasonable levels (upper 20s to lower 30s).

U.S. Crop Production Highlights

The following information was released by USDA's Agricultural Statistics Board on December 9, 2022. Forecasts refer to December 1.

All cotton production is forecast at 14.2 million 480-pound bales, up 2 percent from the previous forecast but down 19 percent from 2021 (figure 1). The U.S. yield is expected to average 868 pounds per harvested acre, up 13 pounds from the previous forecast and up 49 pounds from 2021. Upland cotton production is forecast at 13.8 million 480-pound bales, up 2 percent from the previous forecast but down 20 percent from 2021. Pima cotton production is forecast at 470,000 bales, unchanged from the previous forecast but up 42 percent from 2021. All cotton area harvested is forecast at 7.88 million acres, unchanged from the previous forecast but down 23 percent from 2021.



The **U.S all orange** forecast for the 2022-2023 season is 2.83 million tons, down 11 percent from the previous forecast and down 18 percent from the 2021-2022 final utilization.

The Florida all orange forecast, at 20.0 million boxes (900,000 tons), is down 29 percent from the previous forecast and down 51 percent from last season's final utilization. In Florida, early, midseason, and Navel varieties are forecast at 7.00 million boxes (315,000 tons), down 36 percent from the previous forecast and down 62 percent from last season's final utilization. The Florida Valencia orange forecast, at 13.0 million boxes (585,000 tons), is down 24 percent from the previous forecast and down 43 percent from last season's final utilization.

California and Texas orange production forecasts were carried forward from the previous forecast.

For oranges, the December 1 production forecasts will not be revised. A new forecast will be made each month throughout the growing season. End-of-season estimates will be published in the *Citrus Fruits* summary released in August. The production estimates are based on all data available at the end of the marketing season, including information from marketing orders, shipments, and processor records.

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.ripple@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".

U.S. DEPARTMENT OF AGRICULTURE

World Agricultural Outlook Board

Managing Editor..... **Brad Rippey** (202) 720-2397

Production Editor..... **Brian Morris** (202) 720-3062

International Editor..... **Mark Brusberg** (202) 720-2012

Agricultural Weather Analysts..... **Harlan Shannon**
and **Eric Luebehusen**

National Agricultural Statistics Service

Agricultural Statistician and State Summaries Editor.....
Irwin Anolik (202) 720-7621

U.S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

National Weather Service/Climate Prediction Center

Meteorologists.....**Brad Pugh, Adam Allgood, and Rich Tinker**

USDA is an equal opportunity provider and employer. To file a complaint of discrimination, write: USDA, Office of the Assistant Secretary for Civil Rights, Office of Adjudication, 1400 Independence Ave., SW, Washington, DC 20250-9410 or call (866) 632-9992 (Toll-Free Customer Service), (800) 877-8339 (Local or Federal relay), (866) 377-8642 (Relay voice users).