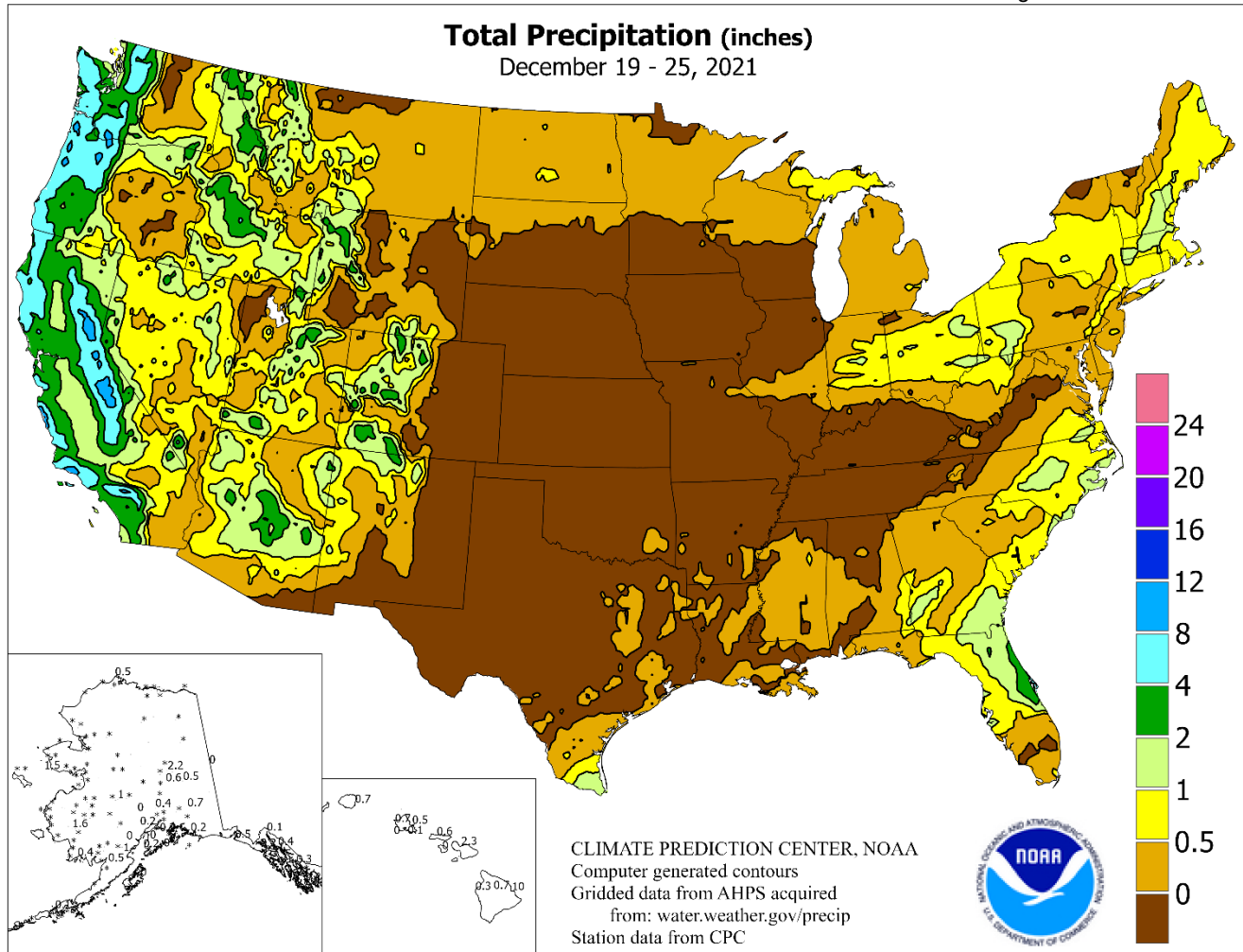


# WEEKLY WEATHER AND CROP BULLETIN

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 19 – 25, 2021**

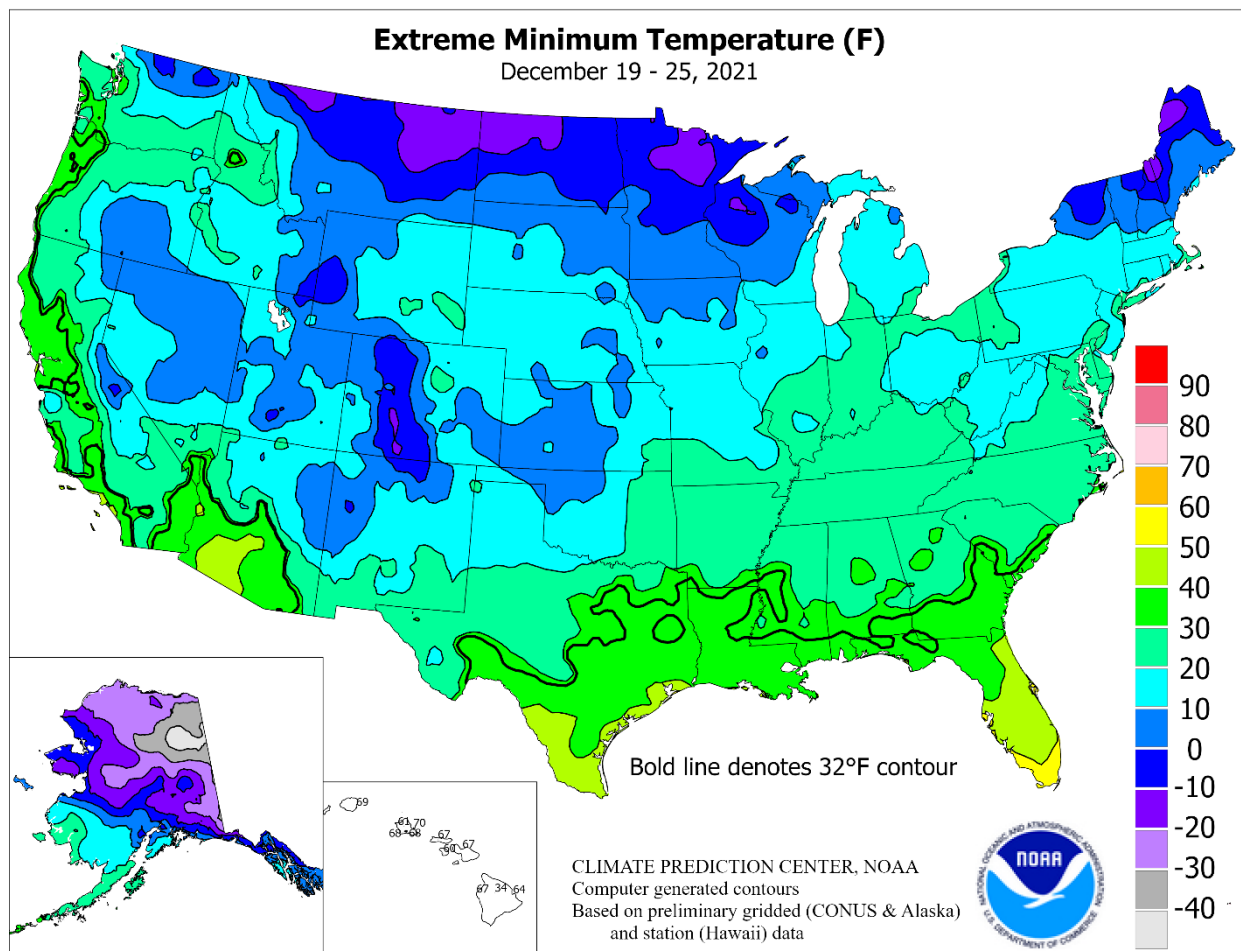
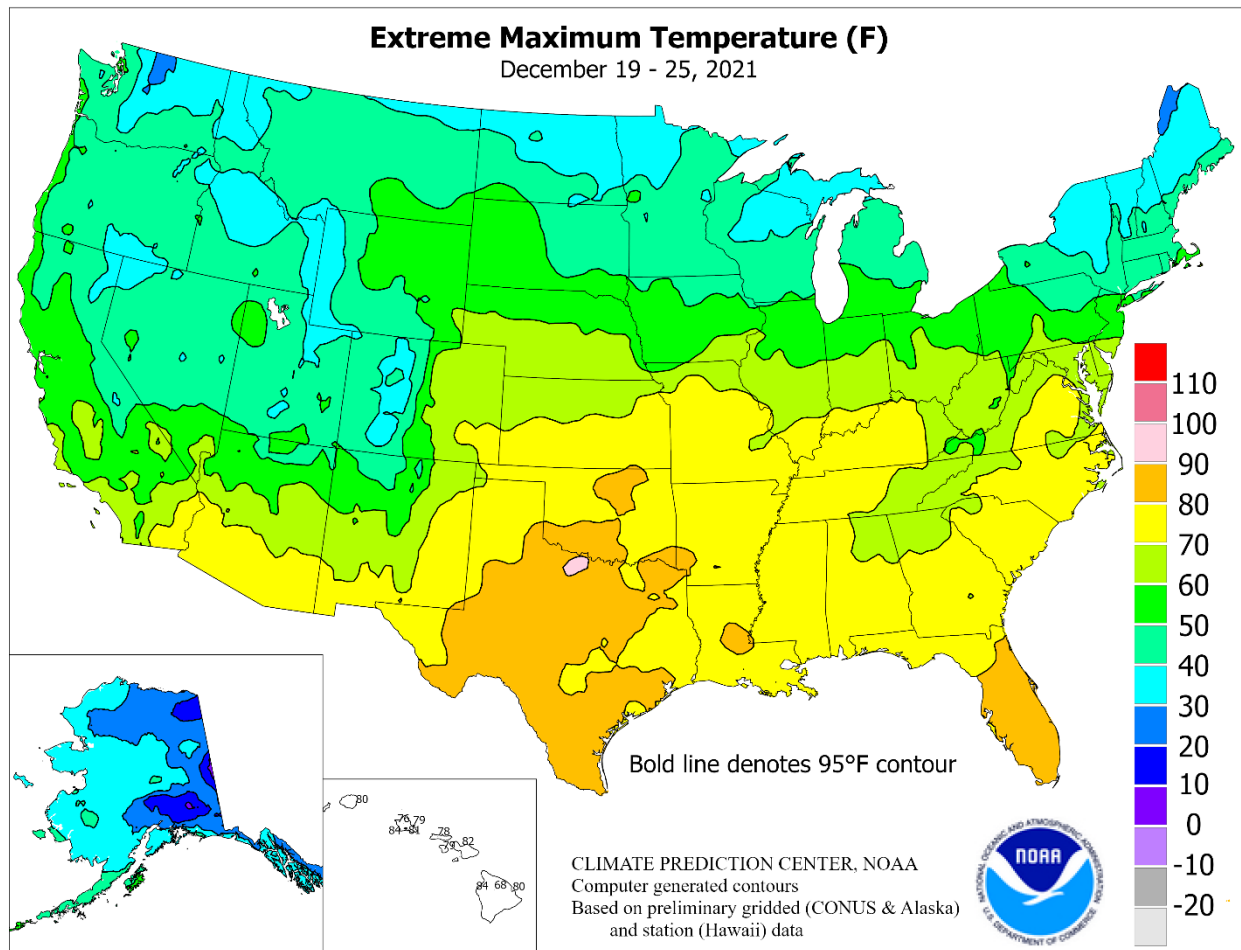
Highlights provided by USDA/WAOB

**S**tormy **Western** weather delivered widespread drought relief in the form of valley rain and high-elevation snow, a promising development during a La Niña winter when drier-than-normal conditions typically plague the **Southwest**. The average water equivalency of the high-elevation **Sierra Nevada** snowpack climbed to nearly 14 inches by December 27, more than 150 percent of normal for the date and roughly one-half of the average accumulation for a full season. In contrast, warm, dry, breezy weather covered much of the **nation's mid-section**,

## Contents

Extreme Maximum & Minimum Temperature Maps.....	2
Temperature Departure Map .....	3
December 21 Drought Monitor .....	4
<b>Selected Monthly Record High Temperatures &amp; December 15 Satellite Image of Plains' Dust Storm .....</b>	<b>5</b>
National Weather Data for Selected Cities .....	6
International Weather and Crop Summary .....	9
<b>2021 Bulletin Index .....</b>	<b>18</b>
Bulletin Information & Snow Cover Map .....	20

(Continued on page 3)

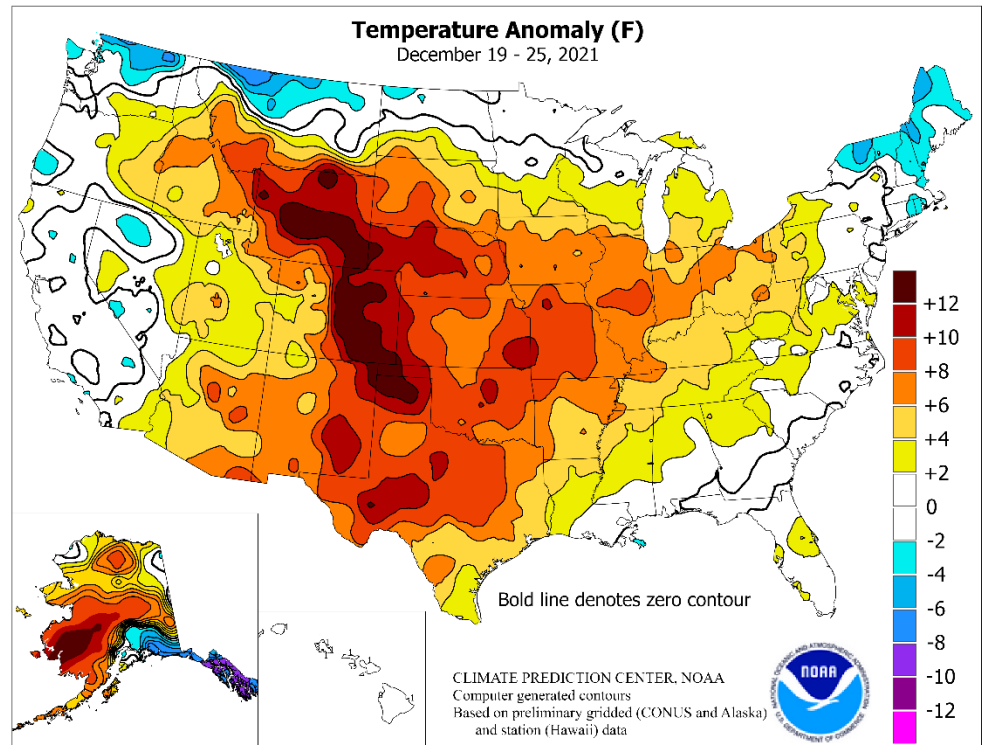


(Continued from front cover)

perpetuating drought concerns for winter wheat across the **central and southern Plains**. However, light to moderately heavy precipitation fell in a few areas, including **southern Texas**, the **Atlantic Coast States**, the **eastern Corn Belt**, and the **nation's northern tier**. Elsewhere, meaningful snow **east of the Rockies** was limited to the **North**, leaving much of the **central and eastern U.S.** with no snow for the holidays. In fact, even with recent **Western** accumulations, less than 27 percent of the **contiguous U.S.** had snow on the ground on the morning of December 25—the fourth year in a row with Christmas Day coverage less than 30 percent. With a warm December pattern continuing, except across the **North** and the **Far West**, weekly temperatures averaged at least 10°F above normal on the **High Plains** as far north as **Wyoming** and **western Nebraska**. In contrast, readings averaged at least 5°F below normal in scattered **Northern** locations, especially in **northern Montana**.

Record-shattering high temperatures continued in many areas of the country, notably from the **central and southern Plains into the Southeast**. On December 19, **Vero Beach, FL**, began the week with a monthly record high of 90°F (previously, 89°F on December 2 and 3, 2018). Subsequently, **Wichita Falls, TX**, posted a December record high with a reading of 91°F on the 24th. **Wichita Falls** had never reached or exceeded the 90-degree mark so late in the year; the monthly record had been 88°F on December 4, 1954. It was the warmest Christmas Day on record in dozens of locations across the **South**; record highs for December 25 included 84°F in **Houston, TX**; 80°F in **Pine Bluff, AR**; and 76°F in **Nashville, TN**. **Rio Grande Village, TX**, reported a high of 94°F, a U.S. record for December 25. Holiday warmth extended into the **Midwest**, where daily-record highs for December 25 rose to 77°F in **Poplar Bluff, MO**; 74°F in **Carbondale, IL**; and 72°F in **Evansville, IN**. Meanwhile, frigid conditions were limited to the **nation's northern tier**, where readings below -10°F occurred from **Montana to Maine**. Shortly after reporting a monthly record-tying high of 69°F (on December 1), **Glasgow, MT**, registered sub-zero minimum temperatures on December 5-7, 15-18, 20-21, and 24-25. A handful of daily-record lows occurred in the **West**, where **Ramona, CA** (22°F), noted a record for December 20. The week ended (on December 24-25) with consecutive daily-record highs in several **Southern** locations, including **Midland, TX** (84 and 78°F), and **Paducah, KY** (70 and 74°F).

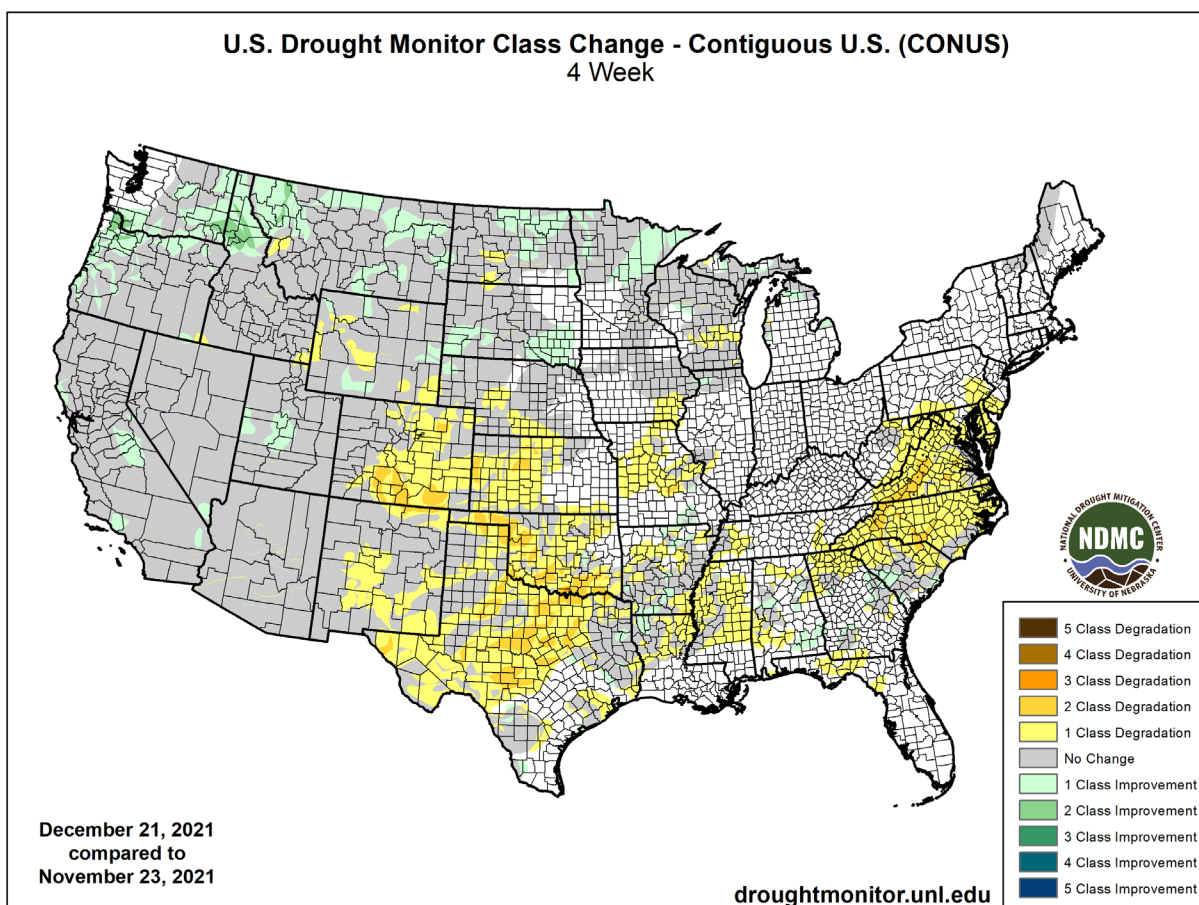
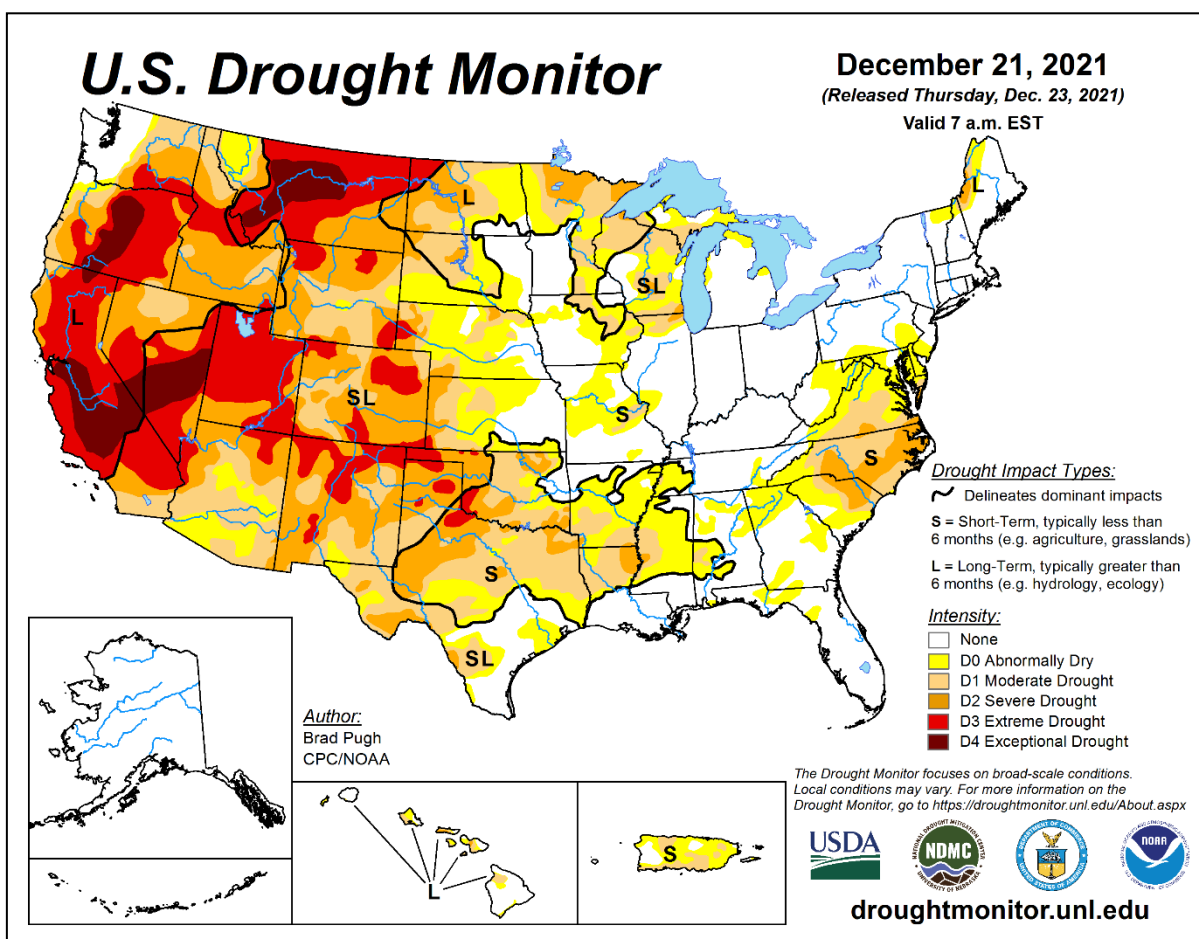
As the week began, rain fell in **Deep South Texas**, where record-setting amounts for December 19 included 1.50 inches in **Harlingen**, 0.86 inch in **Brownsville**, and 0.85 inch in **McAllen**. Early-week precipitation also overspread the **Northwest**, resulting in daily-record totals for December 19 in **Hermiston, OR** (1.05 inches), and **Pasco, WA** (0.69 inch). Meanwhile, heavy showers dotted **Florida's east coast** during the first half of the week. **Florida's** daily-record totals included 1.60 inches (on December 20) in **Melbourne** and 2.67 inches (on December 21) in **Daytona Beach**. During the second half of the week, stormy weather arrived in the **West**. **Southern California** received its most significant precipitation of the season on December 23, when daily-record amounts reached 3.10 inches in **Santa Barbara**, 1.48 inches in **Los Angeles (LAX Airport)**, and 1.32 inches in **Long Beach**. For **Santa Barbara**, it was the wettest December day on record, surpassing 2.80 inches on December 18, 2010—and the wettest day at any time of year since February 17, 2017, when 4.16 inches fell. Mid- to late-week precipitation also spread



inland across the **West**. On December 23-24, **Ely, NV**, received precipitation totaling 0.88 inch and 6.6 inches of snow. During a 24-hour period on December 23-24, **Scipio, UT**, measured precipitation totaling 1.58 inches and 9.0 inches of snow. In **Arizona**, daily-record amounts for December 24 included 1.67 inches (5.9 inches of snow) in **Flagstaff** and 1.00 inch in **Phoenix**. For **Flagstaff**, it was the wettest December day since 2009, when 1.75 inches fell on December 7. Similarly, it was the wettest December day in **Phoenix** since December 8, 1992, when 1.06 inches fell. At week's end, locally heavy showers developed across the **middle Ohio Valley** and environs. It was the wettest Christmas Day on record in locations such as **Morgantown, WV** (1.34 inches), and **Columbus, OH** (0.82 inch).

Sudden warmth across the **Alaskan mainland** was accompanied by historically stormy weather, featuring snow, sleet, freezing rain, and rain. Weekly temperatures averaged more than 20°F above normal in parts of **western Alaska**. By Sunday, December 26, some of the warmest winter weather on record developed in **western and southern Alaska**, with monthly record highs shattered on that date in **Kodiak** (65°F; previously, 56°F on December 22, 1984) and **Cold Bay** (62°F; previously, 54°F on December 24, 1973, and December 11, 1990). Meanwhile, an epic winter storm occurred in **Fairbanks** and surrounding areas. On December 25-26, **Fairbanks** reported 2.45 inches of precipitation, along with substantial freezing rain and 9.3 inches of snow. Prior to December 26, when 1.93 inches fell, the wettest winter day in **Fairbanks** had been January 20, 1937, with 1.33 inches. Significant precipitation occurred in other areas of the state, with daily-record totals being set in locations such as **Bethel** (0.92 inch on December 22) and **Nome** (0.43 inch on December 25). Through the 25th, month-to-date precipitation was at least 300 percent of normal in **Nome** (3.13 inches, or 364 percent of normal), **Bethel** (3.07 inches, or 349 percent), **Fairbanks** (2.82 inches, or 614 percent), and **Utqiagvik** (0.72 inch, or 379 percent). Elsewhere, very cold weather gripped **southeastern Alaska**, following some early-week snow. **Juneau** collected a daily-record snowfall (7.1 inches) on December 21. Four days later, on the 25th, **Ketchikan** noted a daily-record low of 0°F. Farther south, heavy showers returned across parts of **Hawaii**, especially from **Maui eastward**. On the **Big Island**, weekly rainfall in **Hilo** totaled 9.34 inches, aided by a daily-record sum of 3.78 inches on December 21. The following day, December 22, **Kahului, Maui**, tallied a daily-record amount (1.91 inches).



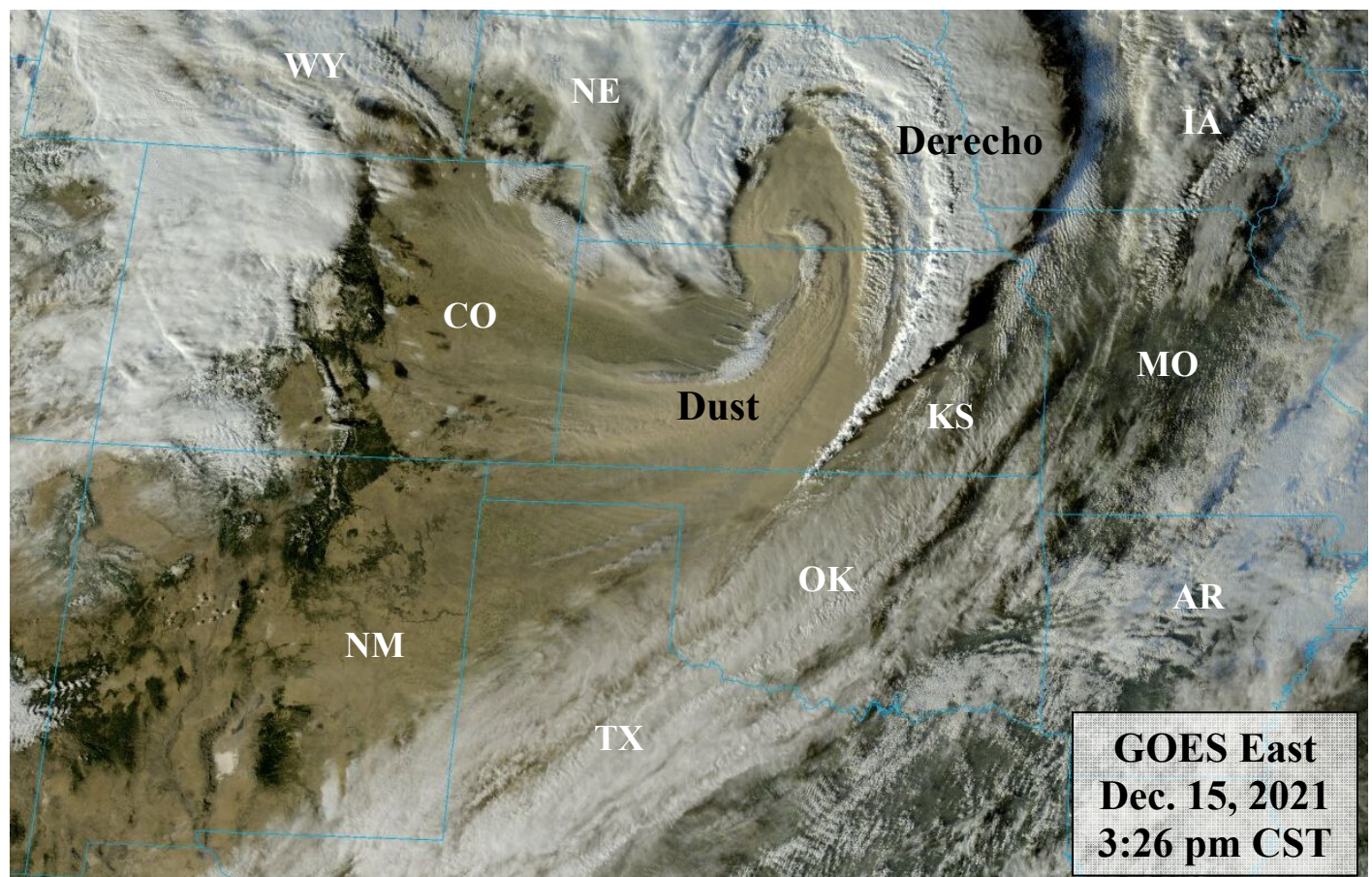




## Selected Monthly Record High Temperatures (°F), December 2021

Records were compiled by USDA/WAOB from information provided by the National Weather Service.

Location/Date	High	Previous Record/Date	Location/Date	High	Previous Record/Date
<b>December 1</b>			<b>December 3</b>		
Tucson, AZ	85	85 on 12/08/1939 & earlier dates	GSP Airport, SC	79	79 on 12/10 & 11/2007
Salinas, CA	85	84 on 12/16/1980			
Gilroy, CA	80	79 on 12/04, 05, & 15/1958	<b>December 6</b>		
Buffalo, WY	78	70 on 12/12/2017	Galveston, TX	81	81 on 12/13/2016
Jordan, MT	78	69 on 12/08/2020			
Sidney, NE	74	72 on 12/18/1950 & 12/28/1980	<b>December 9 &amp; 10</b>		
Redmond, OR	72	67 on 12/01/2008	Houston, TX	85	85 on 12/03/1995
Yakima, WA	72	67 on 12/01/1972 & 12/26/1980			
Pasco, WA	71	69 on 12/08/2015	<b>December 15</b>		
Wenatchee, WA	70	62 on 12/01/1972	Columbia, MO	76	76 on 12/08/1991
The Dalles, OR	70	66 on 12/08/2015	Quincy, IL	75	74 on 12/03/2012
Mobridge, SD	71	70 on 12/06/1939	Ottumwa, IA	75	71 on 12/03/2012
Helena, MT	70	64 on 12/27/1980	Des Moines, IA	74	69 on 12/04/2017 & earlier dates
Great Falls, MT	69	69 on 12/05/1939	Waterloo, IA	74	67 on 12/03/2012 & earlier dates
Glasgow, MT	69	69 on 12/03 & 08/1939	Omaha, NE	74	72 on 12/06/1939
Ephrata, WA	69	63 on 12/01/1972	Kansas City, MO	74	74 on 12/05/2001 & 12/03/2012
Pendleton, OR	68	68 on 12/22/1933	Cedar Rapids, IA	73	69 on 12/04/1998
Dickinson, ND	68	68 on 12/05/1939	Rockford, IL	69	69 on 12/03/2012
Ellensburg, WA	66	57 on 12/10/2008	La Crosse, WI	69	67 on 12/05/1998
Bismarck, ND	66	66 on 12/06/1939	Madison, WI	68	65 on 12/03/2012
Challis, ID	62	60 on 12/03/1918	Rochester, MN	64	64 on 12/04/2017
			Green Bay, WI	64	64 on 12/05/2001
<b>December 2</b>			<b>December 16</b>		
Russell, KS	79	75 on 12/25/1950	Milwaukee, WI	68	68 on 12/05/2001
Chanute, KS	78	77 on 12/07/1966	Green Bay, WI	65	64 on 12/05/2001 & 12/15/2021
Sidney, NE	78	74 on 12/01/2021			
Scottsbluff, NE	77	77 on 12/27/1980	<b>December 19</b>		
Sheridan, WY	77	77 on 12/05/1939	Vero Beach, FL	90	85 on 12/02 & 03/2018
Chadron, NE	75	72 on 12/04/1980 & 12/12/2014			
Rapid City, SD	75	75 on 12/04/1965	<b>December 26</b>		
Alliance, NE	73	72 on 12/06/1939 & 12/01/1998	Abilene, TX	90	89 on 12/04/1954 & 12/24/1955
Cheyenne, WY	70	69 on 12/05/1939	Kodiak, AK	65	56 on 12/22/1984
Laramie, WY	62	61 on 12/16/1980	Cold Bay, AK	62	54 on 12/24/1973 & 12/11/1990
Rawlins, WY	60	57 on 12/17/1962			



## National Weather Data for Selected Cities

Weather Data for the Week Ending December 25, 2021

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	90 AND ABOVE	32 AND BELOW	PRECIP		
																			.01 INCH OR MORE	.50 INCH OR MORE	
AK	ANCHORAGE	23	14	30	7	18	0	0.24	0.00	0.19	0.78	84	14.58	88	86	75	0	7	3	0	
	BARROW	4	-11	32	-24	-4	0	0.54	0.51	0.34	0.94	724	7.33	152	81	67	0	7	6	0	
	FAIRBANKS	17	-1	34	-24	8	0	2.21	2.05	0.79	2.78	548	15.39	141	83	68	0	7	5	2	
	JUNEAU	25	9	31	2	17	-12	0.39	-0.86	0.37	2.04	42	73.04	119	85	61	0	7	2	0	
	KODIAK	44	34	54	25	39	8	0.00	-1.93	0.00	1.17	16	49.77	65	76	52	0	3	0	0	
AL	NOME	25	8	35	-14	17	8	1.52	1.26	0.63	2.89	327	22.11	132	90	66	0	7	4	1	
	BIRMINGHAM	58	40	69	31	49	4	0.00	-0.93	0.00	0.00	0	61.73	116	93	57	0	1	0	0	
	HUNTSVILLE	56	36	69	26	46	3	0.04	-1.22	0.04	2.96	62	61.01	114	94	54	0	4	1	0	
	MOBILE	63	42	77	35	53	1	0.05	-1.13	0.04	4.64	114	80.98	124	99	61	0	0	2	0	
	MONTGOMERY	63	39	77	30	51	3	0.05	-1.04	0.05	3.56	89	52.44	100	91	51	0	1	1	0	
AR	FORT SMITH	60	38	78	29	49	9	0.00	-0.69	0.00	3.69	135	48.46	107	90	50	0	4	0	0	
	LITTLE ROCK	59	38	78	27	49	7	0.00	-1.08	0.00	3.07	74	40.94	83	92	53	0	4	0	0	
AZ	FLAGSTAFF	46	23	53	8	35	6	1.88	1.44	1.75	3.29	225	23.89	111	90	38	0	7	3	1	
	PHOENIX	69	50	75	43	60	5	1.00	0.80	0.99	1.38	186	6.67	82	68	30	0	0	2	1	
CA	PRESCOTT	53	29	63	18	41	4	0.96	0.74	0.92	1.65	208	13.26	95	83	33	0	5	2	1	
	TUCSON	72	46	80	40	59	8	0.25	0.05	0.25	0.69	89	12.41	106	68	23	0	0	1	0	
	BAKERSFIELD	55	42	63	35	48	1	1.23	0.97	0.61	2.33	287	5.25	82	99	71	0	0	4	1	
	EUREKA	53	45	59	38	49	1	1.56	-0.33	0.44	4.04	60	25.57	65	90	72	0	0	6	0	
	FRESNO	53	41	60	33	47	2	1.35	0.87	0.75	3.09	225	9.76	86	98	70	0	0	4	1	
CO	LOS ANGELES	62	50	68	44	56	0	1.86	1.35	1.15	3.27	212	7.07	56	91	47	0	0	3	2	
	REDDING	50	40	60	29	45	0	1.59	0.09	0.59	5.05	101	22.81	69	91	68	0	1	4	2	
	SACRAMENTO	50	41	56	34	46	0	2.07	1.27	0.99	5.90	230	17.83	99	100	77	0	0	5	1	
	SAN DIEGO	62	49	65	39	56	0	0.99	0.61	0.41	2.08	176	7.31	72	94	46	0	0	3	0	
	SAN FRANCISCO	55	46	59	41	50	1	3.74	2.70	1.82	8.50	267	20.33	102	92	72	0	0	5	3	
CT	STOCKTON	52	44	59	38	48	3	1.29	0.74	0.47	3.32	190	13.53	99	93	72	0	0	5	0	
	ALAMOSA	46	4	53	-10	25	9	0.00	-0.09	0.00	0.02	7	5.57	75	78	26	0	7	0	0	
	CO SPRINGS	60	29	67	15	45	15	0.04	-0.05	0.04	0.06	16	14.48	86	44	12	0	3	1	0	
	DENVER INTL	60	26	64	21	43	14	0.01	-0.08	0.01	0.04	13	11.38	78	52	16	0	7	1	0	
	GRAND JUNCTION	39	19	47	14	29	2	0.65	0.52	0.58	1.34	281	8.94	94	87	47	0	7	2	1	
DC	PUEBLO	64	22	68	7	43	14	0.00	-0.09	0.00	0.12	34	16.17	127	61	13	0	7	0	0	
	BRIDGEPORT	40	27	48	21	33	0	0.47	-0.27	0.24	1.48	54	44.21	105	88	54	0	6	4	0	
DE	HARTFORD	37	23	47	17	30	1	0.78	0.06	0.38	2.56	91	53.93	119	91	53	0	7	4	0	
	WASHINGTON	51	34	68	28	42	5	0.17	-0.49	0.08	0.34	13	42.06	107	75	39	0	5	3	0	
FL	WILMINGTON	47	29	60	21	38	3	0.48	-0.26	0.26	1.76	60	44.08	104	84	45	0	5	4	0	
	DAYTONA BEACH	74	55	84	45	64	5	3.24	2.57	2.50	3.65	174	47.23	96	94	58	0	0	2	2	
	JACKSONVILLE	68	45	79	36	56	3	1.27	0.60	1.23	1.59	70	50.81	98	99	64	0	0	2	1	
	KEY WEST	77	68	81	61	73	2	0.58	0.11	0.31	0.93	49	29.37	74	90	67	0	0	2	0	
	MIAMI	79	64	85	56	71	2	0.18	-0.28	0.10	1.15	67	55.69	90	94	57	0	0	2	0	
GA	ORLANDO	76	57	86	49	67	5	1.72	1.10	1.02	2.07	98	44.88	89	93	55	0	0	2	2	
	PENSACOLA	65	45	77	35	55	3	0.63	-0.39	0.45	1.61	43	86.59	134	95	60	0	0	3	0	
	TALLAHASSEE	65	41	76	31	53	1	0.27	-0.60	0.26	0.75	23	47.66	81	97	59	0	1	2	0	
	TAMPA	75	59	83	49	67	5	0.30	-0.33	0.30	0.32	15	48.39	105	86	54	0	0	1	0	
	WEST PALM BEACH	78	60	85	50	69	2	0.62	-0.17	0.62	2.11	78	51.44	83	96	54	0	0	1	1	
HI	ATHENS	59	37	70	29	48	4	0.19	-0.62	0.11	1.74	58	46.60	102	91	45	0	2	2	0	
	ATLANTA	58	40	69	34	49	5	0.20	-0.64	0.17	2.93	92	50.31	102	84	46	0	0	2	0	
	AUGUSTA	63	36	75	28	49	4	0.53	-0.27	0.26	4.46	165	53.24	124	93	45	0	2	3	0	
	COLUMBUS	60	39	73	32	49	2	0.41	-0.55	0.41	3.01	85	55.28	120	91	46	0	1	1	0	
	MACON	62	38	75	29	50	3	0.56	-0.40	0.54	4.31	131	49.75	110	94	46	0	2	2	1	
IA	SAVANNAH	62	41	73	34	51	1	0.48	-0.22	0.29	1.13	48	48.79	103	96	56	0	0	2	0	
	HILO	76	66	80	64	71	-1	10.00	7.50	3.33	18.72	193	130.22	104	94	66	0	0	7	6	
	HONOLULU	80	71	81	68	75	1	0.07	-0.76	0.04	9.77	379	19.63	119	76	49	0	0	3	0	
	KAHULUI	79	69	82	67	74	1	2.29	1.49	2.07	7.25	267	22.64	130	84	56	0	0	3	1	
	LIHUE	78	71	80	69	74	1	0.74	-0.53	0.46	5.19	121	32.68	90	87	67	0	0	7	0	
ID	BURLINGTON	47	24	66	15	36	8	0.00	-0.46	0.00	0.32	18	37.25	97	90	52	0	6	0	0	
	CEDAR RAPIDS	41	18	53	8	29	8	0.00	-0.28	0.00	0.43	35	21.13	61	97	57	0	7	0	0	
	DES MOINES	44	23	57	13	34	10	0.02	-0.27	0.02	0.27	22	26.80	74	84	46	0	6	1	0	
	DUBUQUE	38	21	49	11	30	9	0.00	-0.37	0.00	0.67	42	28.14	78	89	58	0	7	0	0	
	SIOUX CITY	45	17	60	11	31	10	0.00	-0.16	0.00	0.66	95	22.16	80	82	39	0	7	0	0	
IL	WATERLOO	41	20	53	12	30	10	0.00	-0.24	0.00	0.67	64	23.75	68	83	50	0	6	0	0	
	BOISE	42	28	50	25	35	6	0.48	0.12	0.23	1.09	85	11.34	97	90	61	0	6	5	0	
	LEWISTON	42	34	47	31	38	5	0.41	0.17	0.21	1.03	127	7.79	63	84	59	0	3	3	0	
	POCATELLO	41	22	46	9	31	8	0.54	0.28	0.37	0.84	83	10.52	87	87	46	0	6	3	0	
	CHICAGO/O_HARE	44	28	57	19	36	10	0.03	-0.41	0.03	1.20	63	27.87	76	82	54	0	6	1	0	
IN	MOLINE	46	23	64	16	35	10	0.00	-0.45	0.00	0.69	37	33.57	89	86	49	0	6	0	0	
	PEORIA	46	28	61	18	37	10	0.02	-0.47	0.01	0.96	47	42.75	119	87	56	0	5	2	0	
	ROCKFORD	43	22	55	16	33	9	0.01	-0.39	0.01	1.38	82	22.73	63	85	54	0	7	1	0	
	SPRINGFIELD	49	30	64	20	40	11	0.01	-0.51	0.01	1.25	59	44.34	120	85	61	0	5	1	0	
	EVANSVILLE	52	30	72	22	41	7	0.01	-0.82	0.01	3.28	106	44.02	98	88	51	0	5	1	0	
KS	FORT WAYNE	44	27	59	22																

## Weather Data for the Week Ending December 25, 2021

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	58	25	76	9	41	9	0.00	-0.26	0.00	0.01	1	30.08	92	88	40	0	4	0	0
	LEXINGTON	50	30	70	20	40	6	0.00	-0.87	0.00	4.07	126	56.02	126	86	50	0	5	0	0
	LOUISVILLE	54	35	75	26	45	8	0.00	-0.89	0.00	2.91	93	46.33	105	84	44	0	5	0	0
LA	PADUCAH	57	35	74	26	46	10	0.00	-1.02	0.00	3.13	82	46.50	96	83	44	0	5	0	0
	BATON ROUGE	64	43	79	34	54	-2	0.08	-0.97	0.08	3.30	88	76.98	131	95	58	0	0	1	0
	LAKE CHARLES	66	46	77	37	56	3	0.04	-1.02	0.04	2.20	59	69.70	123	95	56	0	0	1	0
MA	NEW ORLEANS	65	47	78	39	56	1	0.02	-1.18	0.02	2.89	68	82.41	134	92	59	0	0	1	0
	SHREVEPORT	64	44	79	34	54	7	0.12	-0.96	0.12	2.29	57	45.15	89	85	50	0	0	1	0
	BOSTON	38	26	44	20	32	-1	0.57	-0.26	0.28	1.98	63	49.17	114	82	46	0	6	3	0
MD	WORCESTER	33	21	41	15	27	0	0.73	-0.08	0.38	3.36	107	57.00	120	87	57	0	7	4	0
	BALTIMORE	50	30	68	24	40	5	0.29	-0.44	0.16	0.43	15	39.91	97	81	40	0	5	3	0
	CARIBOU	22	5	33	-8	14	-2	0.81	0.13	0.68	3.19	118	35.38	93	80	55	0	7	2	1
MI	PORTLAND	32	17	41	7	25	-2	0.86	0.01	0.35	3.39	101	43.50	93	89	55	0	7	3	0
	ALPENA	34	19	41	9	26	3	0.17	-0.19	0.08	2.19	152	26.19	94	91	65	0	7	4	0
	GRAND RAPIDS	40	25	52	19	33	5	0.16	-0.37	0.08	1.53	74	36.10	95	92	68	0	7	3	0
MN	HOUGHTON LAKE	33	21	41	16	27	5	0.14	-0.20	0.13	2.26	164	28.27	103	87	66	0	7	2	0
	LANSING	41	25	52	19	33	7	0.16	-0.24	0.12	1.59	103	33.81	108	84	59	0	7	2	0
	MUSKEGON	41	25	53	18	33	5	0.16	-0.36	0.12	1.81	85	30.10	91	80	58	0	7	2	0
MO	TRAVERSE CITY	36	24	45	18	30	5	0.07	-0.47	0.04	1.43	72	27.25	84	83	63	0	7	2	0
	DULUTH	23	5	43	-7	14	2	0.22	-0.04	0.20	1.69	170	24.32	79	86	64	0	7	3	0
	INT_L FALLS	20	-5	40	-13	8	1	0.30	0.11	0.11	1.02	149	19.05	79	86	67	0	7	5	0
MS	MINNEAPOLIS	31	14	43	7	22	5	0.04	-0.21	0.04	1.53	159	25.28	83	82	58	0	7	1	0
	ROCHESTER	32	14	41	5	23	0	0.00	-0.25	0.00	1.13	106	26.94	81	88	61	0	7	0	0
	ST. CLOUD	28	5	44	-6	17	3	0.07	-0.11	0.06	1.31	190	24.96	90	83	60	0	7	2	0
MT	COLUMBIA	56	30	74	19	43	12	0.00	-0.50	0.00	0.50	24	48.63	115	88	44	0	4	0	0
	KANSAS CITY	53	29	72	16	41	11	0.00	-0.32	0.00	0.20	15	40.08	103	84	40	0	4	0	0
	SAINT LOUIS	56	31	73	23	44	11	0.00	-0.62	0.00	1.58	68	39.27	97	81	48	0	5	0	0
NC	SPRINGFIELD	56	32	73	22	44	11	0.00	-0.62	0.00	0.69	27	45.88	101	89	49	0	4	0	0
	JACKSON	62	40	77	32	51	5	0.26	-0.90	0.26	2.72	63	48.24	90	91	50	0	1	1	0
	MERIDIAN	63	39	76	31	51	5	0.15	-0.93	0.06	1.89	44	65.99	119	89	53	0	2	4	0
ND	TUPELO	60	38	77	29	49	6	0.00	-1.31	0.00	2.55	48	67.81	125	87	48	0	3	0	0
	BILLINGS	42	19	52	1	30	5	0.09	-0.02	0.06	0.81	193	9.89	72	77	41	0	5	3	0
	BUTTE	38	17	44	4	28	11	0.11	-0.01	0.05	0.28	65	6.06	47	80	41	0	7	4	0
NE	CUT BANK	27	7	43	-11	17	-5	0.02	-0.04	0.02	0.20	102	5.36	48	84	59	0	7	1	0
	GLASGOW	26	1	42	-13	13	-1	0.21	0.10	0.11	0.84	244	6.04	51	80	64	0	7	2	0
	GREAT FALLS	31	11	43	-2	21	-3	0.16	0.04	0.07	0.58	131	10.92	74	81	60	0	7	4	0
NV	HAVRE	28	4	44	-5	16	-2	0.05	-0.06	0.03	0.57	161	7.38	65	83	60	0	7	2	0
	MISSOULA	38	24	47	21	31	9	0.34	0.11	0.14	0.94	110	10.75	76	92	67	0	7	4	0
	ASHEVILLE	54	29	71	24	42	3	0.19	-0.55	0.12	0.68	22	54.02	120	89	41	0	6	2	0
OH	CHARLOTTE	58	35	71	28	46	5	0.47	-0.26	0.47	1.86	71	34.77	85	79	41	0	4	1	0
	GREENSBORO	55	33	69	26	44	4	0.49	-0.18	0.49	1.40	57	38.62	93	80	44	0	5	1	0
	HATTERAS	60	44	69	31	52	4	1.17	0.17	0.51	2.99	86	59.65	104	89	62	0	2	3	1
OR	RALEIGH	56	34	72	27	45	3	0.94	0.24	0.67	1.47	60	43.42	101	89	47	0	3	2	1
	WILMINGTON	61	40	73	32	51	3	1.17	0.33	0.94	2.38	81	59.74	105	90	48	0	1	3	1
	BISMARCK	30	10	44	4	20	5	0.35	0.23	0.31	0.56	137	11.78	66	88	58	0	7	3	0
PA	DICKINSON	35	11	50	-5	23	6	0.04	-0.03	0.04	0.19	82	12.95	81	80	54	0	7	1	0
	FARGO	23	2	35	-2	13	1	0.43	0.23	0.28	0.96	141	17.55	78	81	63	0	7	2	0
	GRAND FORKS	21	-2	33	-9	10	0	0.28	0.14	0.17	0.70	144	18.50	89	87	65	0	7	4	0
RI	JAMESTOWN	26	4	41	-7	15	2	0.20	0.10	0.19	0.28	82	11.55	61	83	61	0	7	2	0
	GRAND ISLAND	53	21	64	13	37	12	0.00	-0.13	0.00	0.22	41	26.66	100	74	29	0	7	0	0
	LINCOLN	51	18	65	9	35	9	0.00	-0.21	0.00	0.24	29	25.95	90	83	32	0	7	0	0
SD	NORFOLK	47	19	58	12	33	10	0.00	-0.15	0.00	0.50	77	24.96	91	73	35	0	7	0	0
	NORTH PLATTE	54	18	63	14	36	12	0.00	-0.10	0.00	0.36	101	22.36	110	81	27	0	7	0	0
	OMAHA	47	22	56	15	34	10	0.00	-0.22	0.00	0.37	42	32.58	107	86	40	0	6	0	0
TN	SCOTTSBLUFF	54	23	62	18	38	13	0.00	-0.11	0.00	0.22	52	9.85	62	67	24	0	7	0	0
	VALENTINE	48	22	56	18	35	12	0.00	-0.09	0.00	0.66	197	21.26	106	77	34	0	7	0	0
	CONCORD	33	14	42	7	23	-1	1.29	0.61	0.70	3.60	137	41.59	104	91	51	0	7	3	1
TX	ATLANTIC_CITY	49	27	63	19	38	3	0.12	-0.70	0.07	0.43	14	45.32	110	91	46	0	6	3	0
	NEWARK	45	30	55	23	38	3	0.31	-0.52	0.16	0.96	30	53.37	117	80	45	0	5	4	0
	ALBUQUERQUE	53	29	60	18	41	6	0.00	-0.11	0.00	0.03	7	5.19	54	57	24	0	4	0	0
UT	ELY	39	17	41	5	28	3	0.69	0.54	0.43	1.83	394	7.93	80	81	48	0	7	2	0
	LAS VEGAS	56	41	61	33	48	1	0.13	0.00	0.10	0.27	68	1.60	36	66	32	0	0	2	0
	RENO	44	28	53	23	36	1	1.69	1.43	1.36	2.76	331	7.78	104	95	53	0	5	4	1
VA	WINNEMUCCA	35	17	43	3	26	-2	0.54	0.31	0.19	1.59	205	9.59	115	91	59	0	6	4	0
	ALBANY	36	22	43	15	29	3	0.70	0.09	0.63	2.43	101	44.02	113	89	59	0	7	2	1
	BINGHAMTON	33	22	42	15	28	3	0.68	0.08	0.46	2.47	105	48.94	128	93	68	0	6	4	0
WY	BUFFALO	41	28	50	21	34	6	0.76	-0.10	0.64	2.13	68	36.41	92	84	61	0	6	3	1
	ROCHESTER	37	25	49	18	31	3	0.66	0.09	0.46	1.77	82								



Weather Data for the Week Ending December 25, 2021

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
																	TEMP. °F		PRECIP	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN. SINCE DEC 1	PCT. NORMAL SINCE DEC 1	TOTAL IN. SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	01 INCH OR MORE	50 INCH OR MORE
OK	TOLEDO	45	27	58	21	36	8	0.09	-0.52	0.08	2.76	125	41.32	123	81	52	0	7	2	0
	YOUNGSTOWN	44	29	57	22	37	8	0.67	0.01	0.64	2.52	104	43.86	114	82	56	0	5	3	1
	OKLAHOMA CITY	62	33	78	12	48	8	0.00	-0.41	0.00	0.00	0	28.18	77	82	32	0	4	0	0
OR	TULSA	60	37	78	26	49	11	0.00	-0.56	0.00	1.41	68	37.04	91	86	46	0	4	0	0
	ASTORIA	47	38	51	30	42	0	3.99	1.82	1.56	11.60	144	75.83	115	94	75	0	1	6	3
	BURNS	39	19	44	8	29	6	0.44	0.07	0.31	1.32	103	9.76	89	87	58	0	7	4	0
	EUGENE	46	38	50	33	42	3	5.35	3.68	2.41	9.90	152	34.65	77	96	82	0	0	7	4
	MEDFORD	46	35	54	32	40	1	1.82	1.04	0.59	3.50	122	14.97	83	100	73	0	1	6	1
	PENDLETON	43	30	51	25	36	4	1.07	0.73	0.73	1.50	123	8.70	69	90	63	0	5	3	1
PA	PORTLAND	45	37	50	33	41	2	2.39	1.19	1.14	6.54	144	34.97	99	89	73	0	0	7	1
	SALEM	46	39	50	34	42	3	5.23	3.71	1.81	9.46	168	39.30	102	92	80	0	0	7	3
	ALLENTOWN	42	24	53	17	33	3	0.18	-0.57	0.06	0.76	25	39.81	89	87	51	0	6	5	0
	ERIE	45	33	57	28	39	8	0.73	-0.09	0.68	3.19	105	41.03	99	74	53	0	4	3	1
	MIDDLETOWN	45	28	49	22	37	4	0.28	-0.42	0.28	0.52	19	45.17	112	76	46	0	6	1	0
	PHILADELPHIA	48	31	59	25	40	4	0.82	0.04	0.65	1.18	40	42.73	104	82	43	0	5	3	1
	PITTSBURGH	45	29	58	19	37	7	0.63	0.01	0.63	2.49	108	36.81	98	83	50	0	5	1	1
	WILKES-BARRE	41	26	48	18	33	5	0.31	-0.26	0.26	1.03	46	43.30	117	85	53	0	6	2	0
	WILLIAMSPORT	40	24	44	16	32	2	0.13	-0.45	0.07	0.87	35	43.76	107	86	52	0	6	3	0
RI	PROVIDENCE	38	25	47	19	32	-1	0.57	-0.34	0.25	1.36	38	45.76	98	85	54	0	7	4	0
SC	CHARLESTON	61	39	74	33	50	0	0.44	-0.32	0.35	2.55	103	56.37	112	94	50	0	0	3	0
	COLUMBIA	59	37	73	28	48	3	0.28	-0.46	0.23	3.17	123	46.71	106	88	47	0	2	3	0
	FLORENCE	60	38	76	29	49	3	0.31	-0.41	0.15	1.79	74	40.73	96	85	41	0	2	3	0
SD	GREENVILLE	56	34	69	27	45	2	0.22	-0.68	0.13	1.85	54	42.25	91	84	44	0	4	2	0
	ABERDEEN	30	10	42	1	20	6	0.04	-0.07	0.04	0.50	117	18.60	86	82	64	0	7	1	0
	HURON	37	13	49	5	25	7	0.01	-0.11	0.01	0.15	35	18.73	82	82	49	0	7	1	0
TN	RAPID CITY	43	18	57	12	31	7	0.00	-0.11	0.00	0.56	154	15.69	96	85	46	0	7	0	0
	SIOUX FALLS	37	17	50	11	27	9	0.00	-0.14	0.00	1.29	219	26.67	101	79	52	0	7	0	0
	BRISTOL	53	26	66	21	40	3	0.11	-0.61	0.11	1.11	40	39.15	97	92	50	0	6	1	0
	CHATTANOOGA	56	37	68	28	47	5	0.06	-0.98	0.04	2.33	57	60.09	116	92	50	0	2	2	0
	KNOXVILLE	54	35	69	25	45	5	0.07	-0.92	0.07	2.22	59	44.30	94	93	54	0	3	1	0
	MEMPHIS	60	42	77	30	51	9	0.00	-1.25	0.00	3.56	74	51.22	97	81	48	0	1	0	0
TX	NASHVILLE	57	37	76	26	47	8	0.00	-0.86	0.00	2.80	79	56.89	122	78	43	0	4	0	0
	ABILENE	73	41	87	30	57	12	0.00	-0.27	0.00	0.04	4	20.70	84	68	22	0	3	0	0
	AMARILLO	66	31	77	17	48	12	0.00	-0.17	0.00	0.00	0	14.36	71	60	17	0	4	0	0
	AUSTIN	69	49	79	38	59	8	0.01	-0.53	0.01	1.69	88	34.56	104	84	47	0	0	1	0
	BEAUMONT	68	49	80	39	58	5	0.04	-1.19	0.04	1.41	33	65.41	110	94	55	0	0	1	0
	BROWNSVILLE	76	55	83	47	65	4	1.09	0.85	0.83	1.30	136	36.54	134	93	58	0	0	2	1
	CORPUS CHRISTI	73	50	86	40	61	4	0.17	-0.26	0.16	0.65	44	43.39	138	99	57	0	0	2	0
	DEL RIO	75	47	85	37	61	10	0.08	-0.08	0.08	0.24	46	14.19	74	84	37	0	0	1	0
	EL PASO	67	38	76	27	52	8	0.00	-0.17	0.00	0.01	1	11.55	118	57	20	0	2	0	0
	FORT WORTH	67	46	82	34	56	11	0.12	-0.48	0.12	0.30	13	32.89	92	90	43	0	0	1	0
	GALVESTON	69	58	80	50	64	8	0.03	0.00	0.03	1.19	0	41.93	0	80	56	0	0	1	0
	HOUSTON	70	50	80	40	60	6	0.06	-0.76	0.06	2.08	67	50.13	102	87	50	0	0	1	0
	LUBBOCK	67	30	81	21	48	9	0.00	-0.17	0.00	0.00	0	19.92	104	60	17	0	4	0	0
	MIDLAND	72	37	84	25	55	11	0.00	-0.13	0.00	0.00	0	13.59	93	61	14	0	3	0	0
	SAN ANGELO	75	40	86	29	57	12	0.01	-0.20	0.01	0.03	4	22.96	108	76	17	0	2	1	0
	SAN ANTONIO	68	46	77	37	57	5	0.04	-0.40	0.04	0.89	58	33.48	105	93	53	0	0	1	0
	VICTORIA	72	49	83	37	60	6	0.03	-0.46	0.02	0.56	30	54.90	134	94	50	0	0	2	0
	WACO	69	47	82	31	58	11	0.01	-0.64	0.01	0.04	1	28.60	83	88	44	0	1	1	0
UT	WICHITA FALLS	70	36	91	20	53	11	0.00	-0.37	0.00	0.13	9	24.88	87	85	26	1	4	0	0
	SALT LAKE CITY	41	25	50	14	33	4	0.13	-0.19	0.11	1.03	88	14.12	88	90	56	0	5	2	0
	LYNCHBURG	55	30	72	22	43	7	0.07	-0.62	0.06	0.57	21	32.64	80	79	38	0	5	2	0
VA	NORFOLK	54	37	68	30	46	3	0.90	0.14	0.86	1.70	63	36.96	80	88	55	0	2	2	1
	RICHMOND	55	32	73	25	44	4	0.34	-0.39	0.20	0.69	25	46.57	108	86	42	0	5	3	0
	ROANOKE	55	31	69	23	43	5	0.00	-0.63	0.00	0.52	21	37.28	91	70	39	0	5	0	0
	WASH/DULLES	50	28	69	20	39	5	0.14	-0.48	0.14	0.18	7	34.07	83	77	40	0	5	1	0
	BURLINGTON	31	17	38	10	24	1	0.59	0.10	0.58	2.04	103	34.10	94	83	55	0	7	2	1
	OLYMPIA	44	37	49	32	41	3	3.05	1.45	0.75	8.22	135	55.73	114	91	79	0	1	6	4
	QUILLAYUTE	42	32	49	28	37	-3	3.46	0.63	1.64	12.68	119	109.32	112	97	82	0	3	5	2
	SEATTLE-TACOMA	42	35	49	31	39	-1	1.46	0.28	0.52	3.73	85	42.28	115	94	77	0	1	6	1
	SPOKANE	33	25	39	18	29	2	0.50	0.00	0.20	1.09	57	10.95	67	93	75	0	7	5	0
	YAKIMA	38	28	46	24	33	5	0.10	-0.27	0.06	0.29	22	5.74	69	91	64	0	7	2	0
	EAU CLAIRE	29	12	39	-3	21	4	0.02	-0.19	0.02	0.32	37	22.37	72	85	58	0	7	1	0
	GREEN BAY	34	18	44	11	26	7	0.05	-0.26	0.04	1.25	98	27.70	94	82	57	0	7	2	0
	LA CROSSE	35	18	44	9	26	7	0.00	-0.27	0.00	0.95	82	35.05	106	84	55	0	7	0	0
	MADISON	37	18	47	12	28	7	0.03	-0.31	0.03	1.06	71	21.92	64	84	57	0	7	1	0
	MILWAUKEE	40	24	49	17	32	8	0.04	-0.37	0.03	1.62	96	18.86	55	76	52	0	7	2	0
WV	BECKLEY	48	30	61	19	39	6	0.18	-0.49	0.16	1.7									

## International Weather and Crop Summary

December 19-25, 2021

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

### HIGHLIGHTS

**EUROPE:** Rain eased dryness concerns on the Iberian Peninsula, while cold weather with rain and snow in central, northern, and northeastern Europe favored dormant winter crops.

**MIDDLE EAST:** Soaking rain expanded across the region, easing lingering dryness concerns and improving prospects for winter grain establishment.

**NORTHWESTERN AFRICA:** Sorely-needed showers arrived in Morocco, but the country's severe drought was far from over.

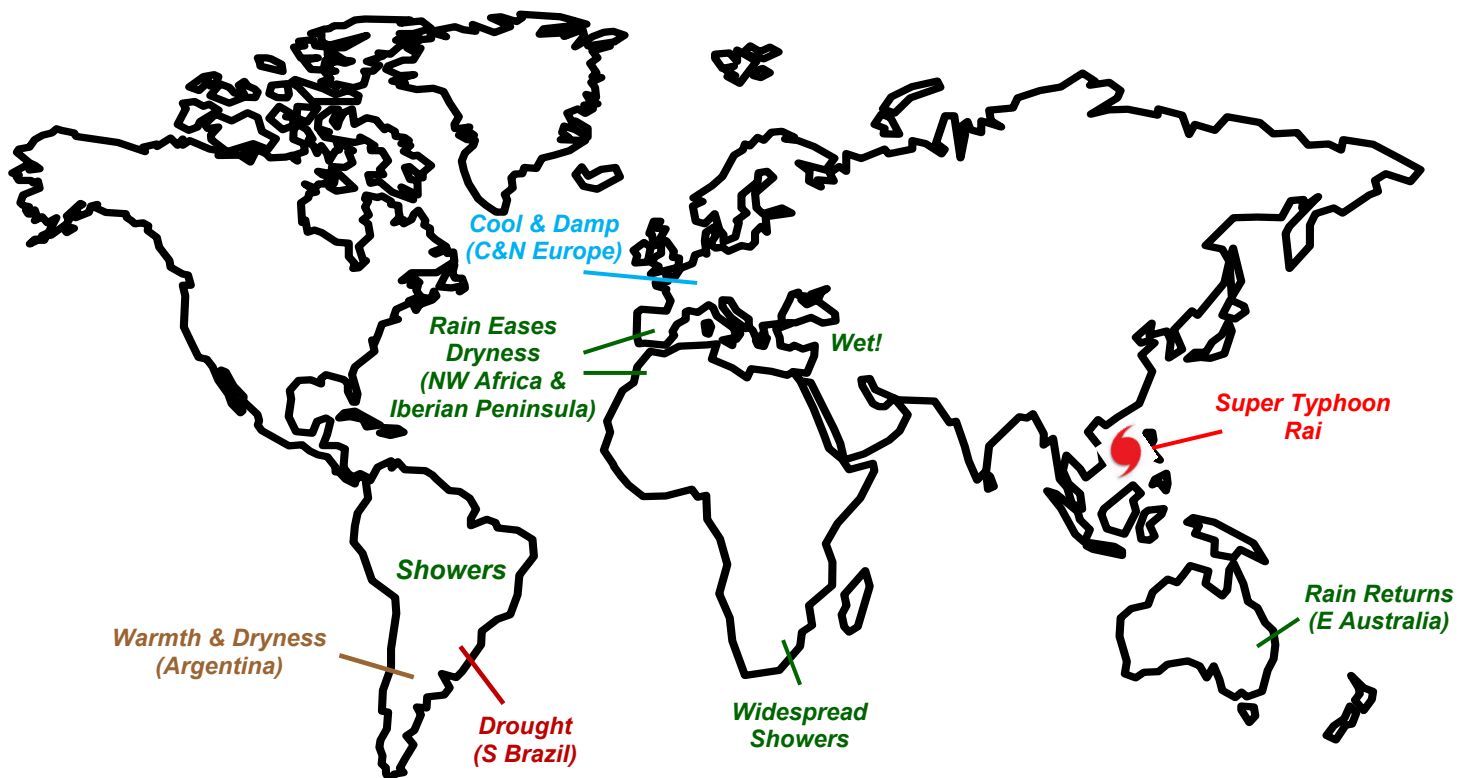
**SOUTHEAST ASIA:** After devastating portions of the Philippines, Super Typhoon Rai regained strength but then weakened rapidly as it approached central Vietnam.

**AUSTRALIA:** Rain returned to eastern Australia, hampering fieldwork once again.

**SOUTH AFRICA:** Conditions remained overall favorable for corn and other summer crops.

**ARGENTINA:** Unseasonable warmth and dryness reduced moisture for early-planted corn in high-yielding farming areas of central Argentina.

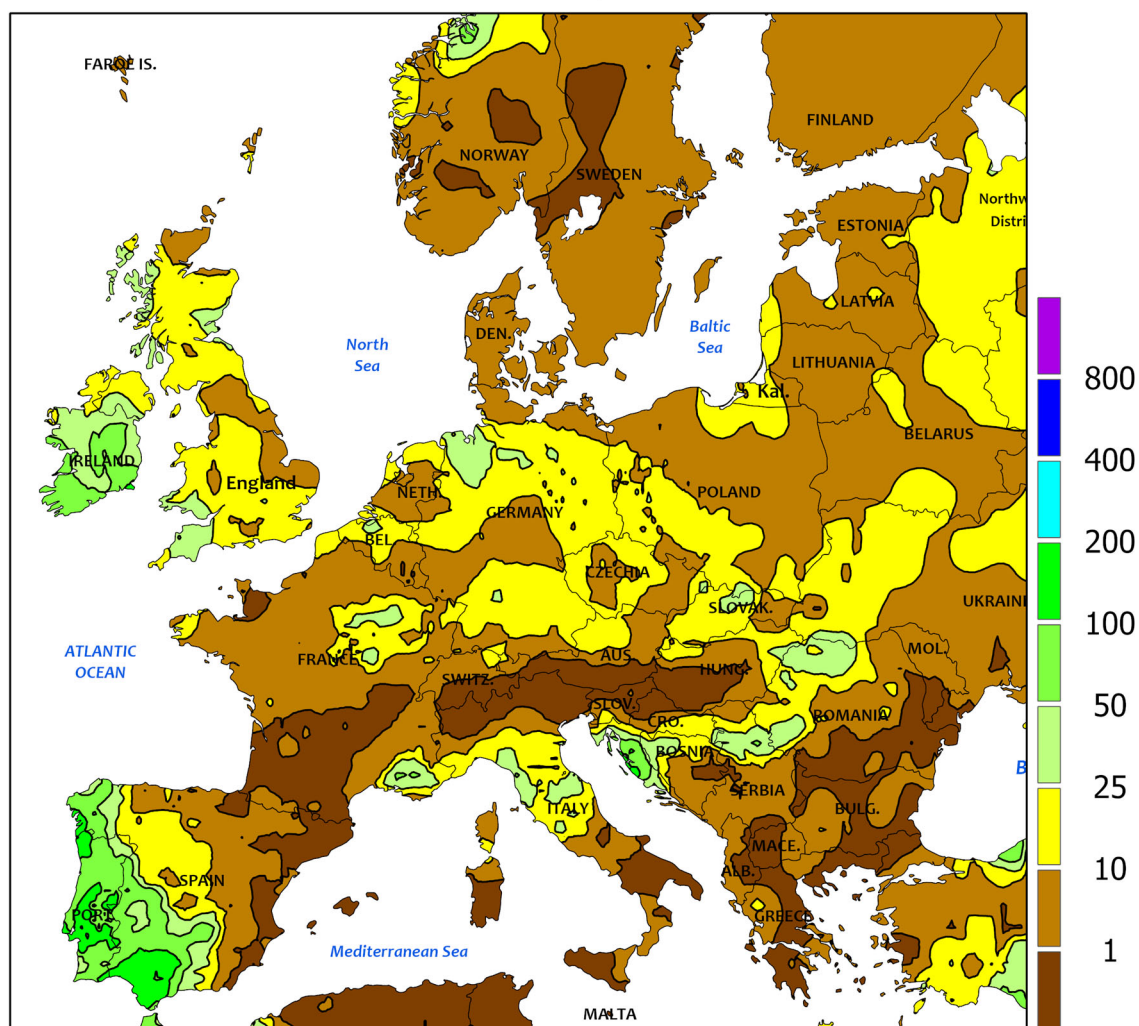
**BRAZIL:** Intensifying drought stressed southern corn and soybeans, while conditions remained optimal for soybeans in major northern production areas.



## EUROPE

Total Precipitation(mm)

December 19 - 25, 2021



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



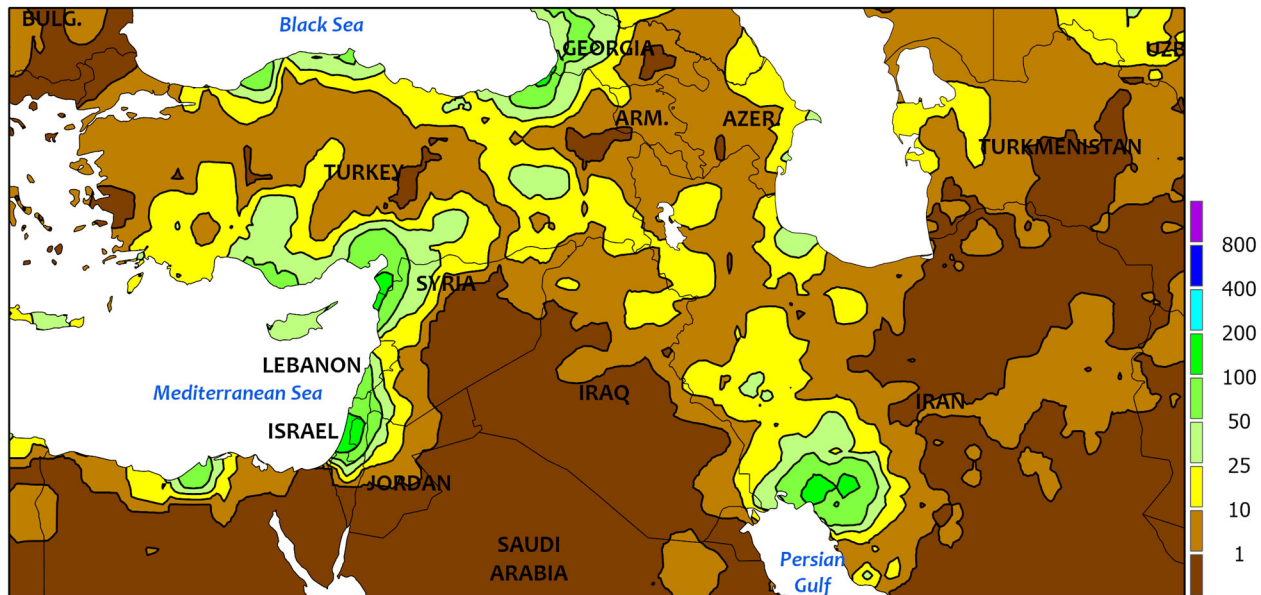
## EUROPE

Well-placed heavy rainfall eased dryness concerns on the Iberian Peninsula, while cold weather with rain and snow favored dormant winter crops across much of central, northern, and northeastern Europe. Moderate to heavy rain over the western Iberian Peninsula (10-100 mm, locally as much as 200 mm in Andalucía, Spain) eased or eliminated dryness concerns in southwestern growing areas and maintained good moisture supplies for semi-dormant winter grains in the north. Light to moderate

showers (2-25 mm) across much of Italy were likewise beneficial for vegetative wheat and barley. Meanwhile, near- to below-normal temperatures (up to 4°C below normal) across central and northern Europe were accompanied by widespread showers (west) and snow (northeast). The fresh snowfall (2-20 cm) insulated dormant winter crops from the cold weather from eastern Germany (as low as -13°C) into Poland (-17 to -10°C) and the Baltic States (-17 to -13°C).



MIDDLE EAST  
Total Precipitation(mm)  
December 19 - 25, 2021



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



#### MIDDLE EAST

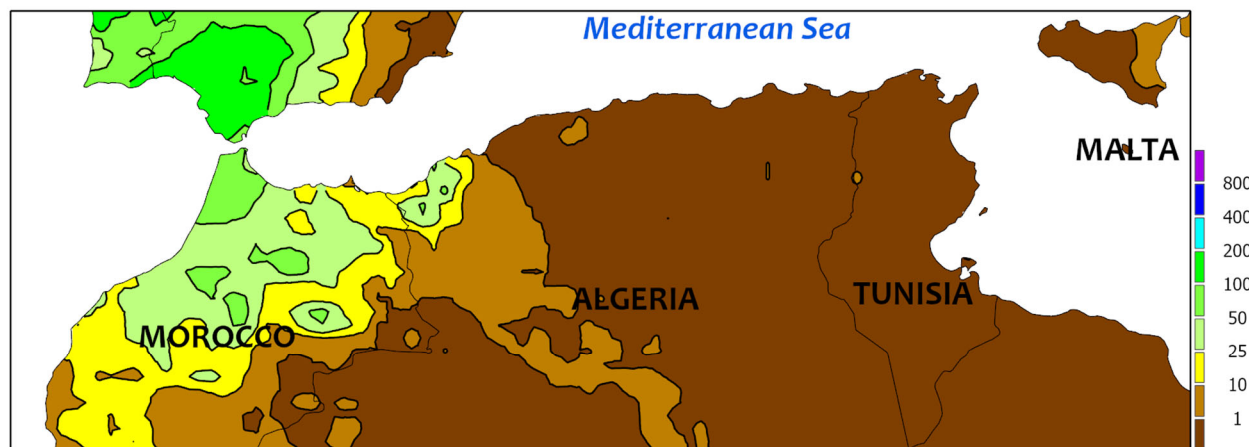
Moderate to heavy precipitation expanded across the region, easing or eliminating deficits and improving early winter grain prospects. Widespread, locally heavy rain and snow (3-40 mm liquid equivalent) over central Turkey boosted moisture reserves for dormant winter wheat and barley. Unlike previous weeks, heavy rain (25-100 mm) encompassed nearly all of southern Turkey as well, erasing precipitation deficits in Adana while providing some drought relief in the country's southeastern GAP Region. Heavy to excessive rainfall (25-220 mm) was also

reported across the eastern Mediterranean Coast, boosting soil moisture for vegetative grains but likely causing some flooding. Widespread albeit highly variable rain and mountain snow (2-70 mm liquid equivalent) expanded into eastern Syria, northern Iraq, and western Iran, alleviating dryness concerns in the west and sustaining good moisture supplies in Iran. However, northeastern Iran (Khorasan) continued to miss out on the rain and snow, with season-to-date precipitation (since September 1) tallying less than 50 percent of normal.

## NORTHWESTERN AFRICA

Total Precipitation(mm)

December 19 - 25, 2021



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

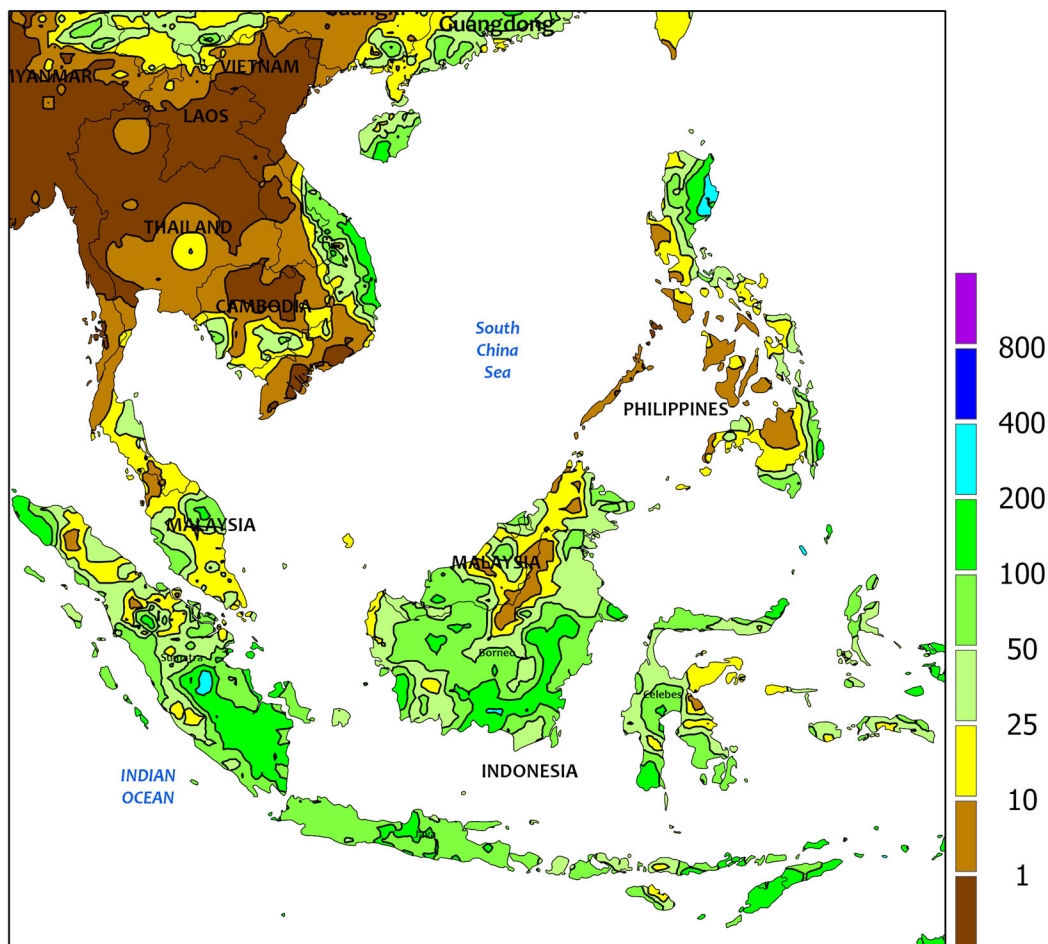


## NORTHWESTERN AFRICA

Sorely-needed rain arrived in Morocco, but more is needed to end this season's severe drought. Much-needed showers in central and northern Morocco (4-30 mm, more than 50 mm near the Strait of Gibraltar) moistened soils for winter grain establishment. However, regional-average rainfall since September 1 between the Moroccan Atlantic Coast and the Atlas Mountains improved only marginally to 40 percent of normal (up from 30 percent last week), with a season-to-date deficit greater than 130 mm across the lowlands; this was still the second driest of the past 30 years. Furthermore, the satellite-derived Vegetation Health Index (VHI) continued to

depict either bare soils or severe crop stress in Morocco. Farther east in Algeria, a second consecutive week of dry weather provided a much-needed respite from November's excessive rainfall, particularly in central portions of the country. Sunny skies also prevailed in Tunisia, favoring northern wheat and barley development but exacerbating drought farther south. The Tell Region of northern Tunisia has reported near-normal rainfall since September 1, while the country's southern Steppe Region has tallied a meager 25 mm (less than 20 percent of average) over the same timeframe, by far the lowest of the past 30 years.

SOUTHEAST ASIA  
Total Precipitation(mm)  
December 19 - 25, 2021



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



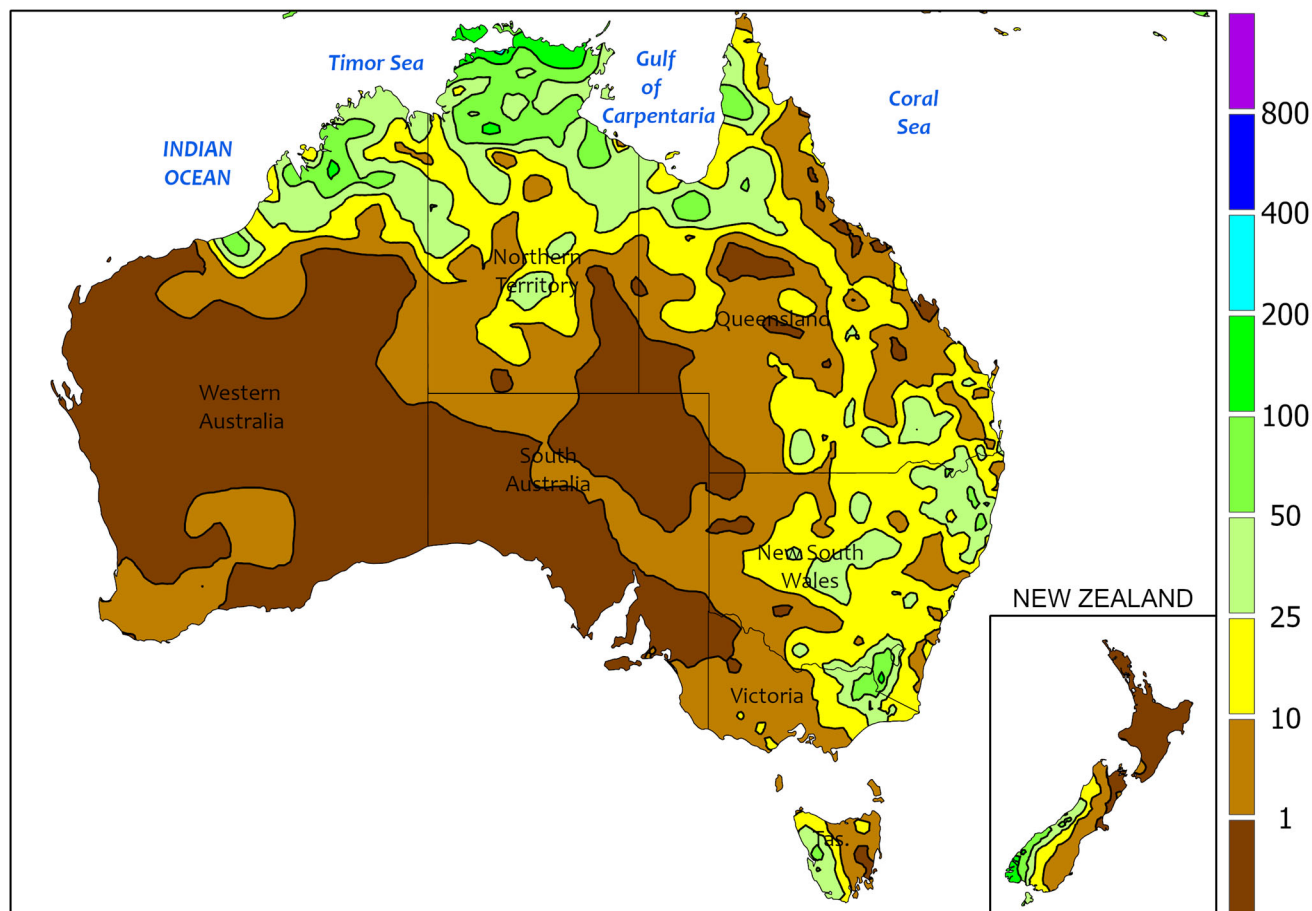
#### SOUTHEAST ASIA

After devastating parts of the Philippines and regaining strength, Super Typhoon Rai weakened rapidly as the storm approached central Vietnam and completely dissipated early in the week. Rai produced heavy showers (up to 200 mm) in some of the minor crop areas of central Vietnam, while somewhat drier weather (rainfall totals less than 25 mm) in the hardest hit locales of the Philippines facilitated recovery efforts. With maximum

sustained winds reaching 145 kts, Rai was the strongest December typhoon on record within the South China Sea (based on Joint Typhoon Warning Center statistics). Meanwhile, to the south, wetter-than-normal weather continued across large sections of Indonesia, maintaining ample moisture supplies for rice and oil palm. Since the start of the wet season in mid-October, rainfall totals in southern Indonesia (Java) are 150 percent of normal.



AUSTRALIA  
Total Precipitation(mm)  
December 19 - 25, 2021



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



### AUSTRALIA

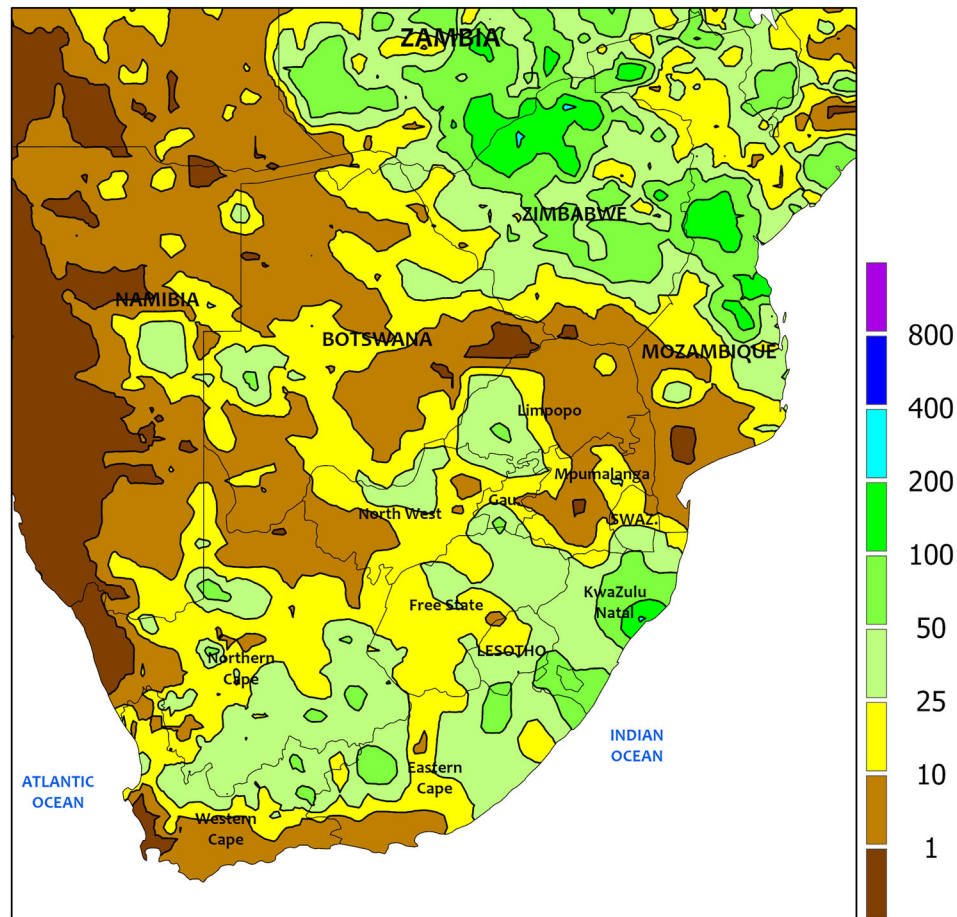
A band of rain (5-25 mm or more) pushed slowly across New South Wales and southern Queensland, causing additional local flooding and further hampering late winter crop harvesting. Although the rain was unfavorable for winter crops, the wet weather kept cotton, sorghum, and other summer crops well watered and maintained abundant irrigation supplies for any crops that may require supplemental water later in the growing season. An extended

period of warm, sunny weather would be welcome in eastern Australia to help finish winter crop harvesting and to spur summer crop development. Elsewhere in the wheat belt, mostly dry weather persisted in Victoria, South Australia, and Western Australia, promoting rapid wheat, barley, and canola harvesting and sustaining crop quality. Temperatures averaged near normal (within 2°C of normal) in most major crop producing areas during the week.

## SOUTH AFRICA

Total Precipitation(mm)

December 19 - 25, 2021



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

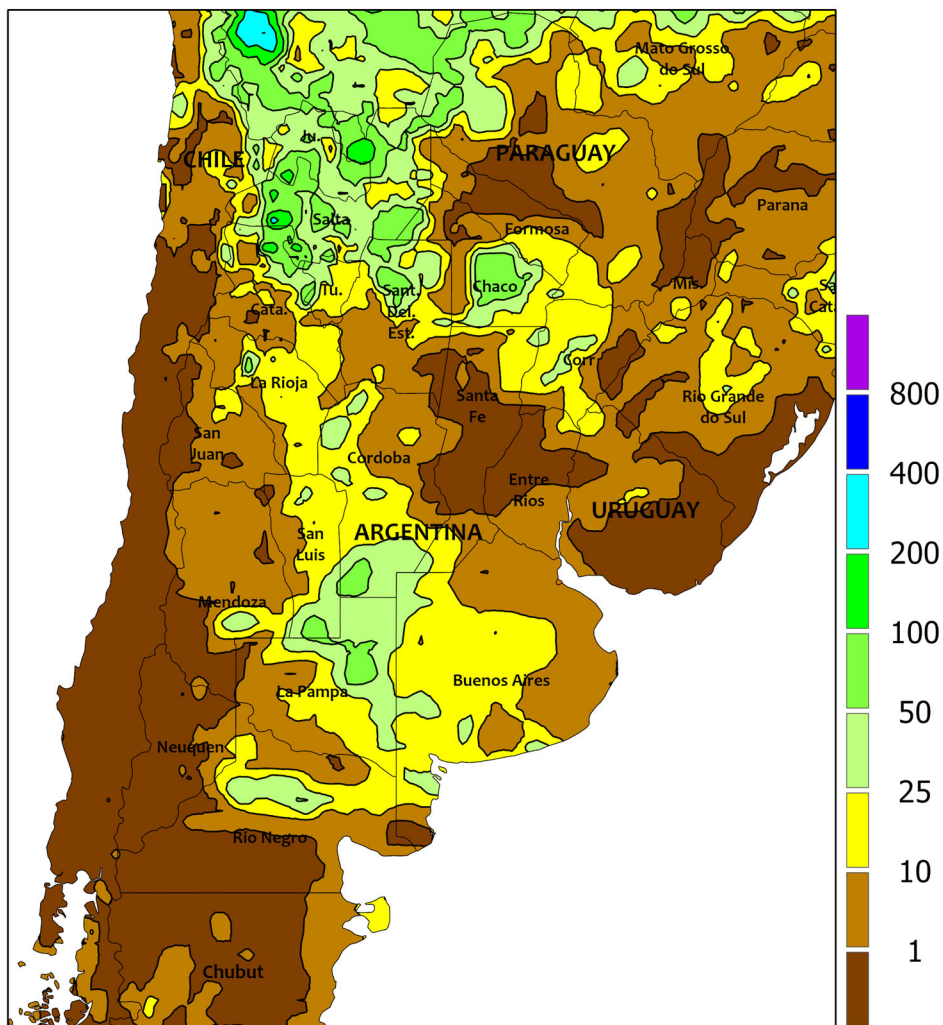


## SOUTH AFRICA

Mild, showery weather maintained overall favorable summer crop prospects while also helping to improve long-term moisture reserves. Rainfall was variable, however, ranging from less than 5 mm to more than 50 mm across the corn belt (North West and Free State eastward to Mpumalanga and environs). Heavier, more widespread rain (25-100 mm) fell along the southeastern coast, including most sugarcane areas in KwaZulu-Natal. Additionally, weekly temperatures averaging 1 to 4°C below normal lowered crop moisture demands and evaporative losses;

highest daytime temperatures in the corn belt generally ranged from the upper 20s to lower 30s (degrees C), including in traditionally warmer northern and western districts (notably those in North West and Limpopo). Elsewhere, unseasonably heavy rainfall (10-50 mm, locally higher) increased irrigation reserves for summer crops over a large portion of the Cape Provinces, including watersheds feeding the Orange River. In contrast, drier conditions favored wheat harvesting in Western Cape while also supporting fieldwork on tree and vine crops.

ARGENTINA  
Total Precipitation(mm)  
December 19 - 25, 2021



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



### ARGENTINA

Unseasonable warmth and dryness reduced moisture for emerging to reproductive summer crops in high-yielding farming areas of central Argentina. Little to no rain (below 5 mm) fell over a large area extending from northern Cordoba southeastward to central and eastern Argentina. Summer heat (weekly temperatures averaging 2-4°C above normal, with highs reaching the middle 30s degrees C daily) sustained high losses through evaporative processes, and a return to more seasonable conditions is needed to reduce stress on reproductive corn. This is particularly true for the lower Parana River Valley (Entre Rios and neighboring locations in Santa Fe and Buenos Aires), which has been

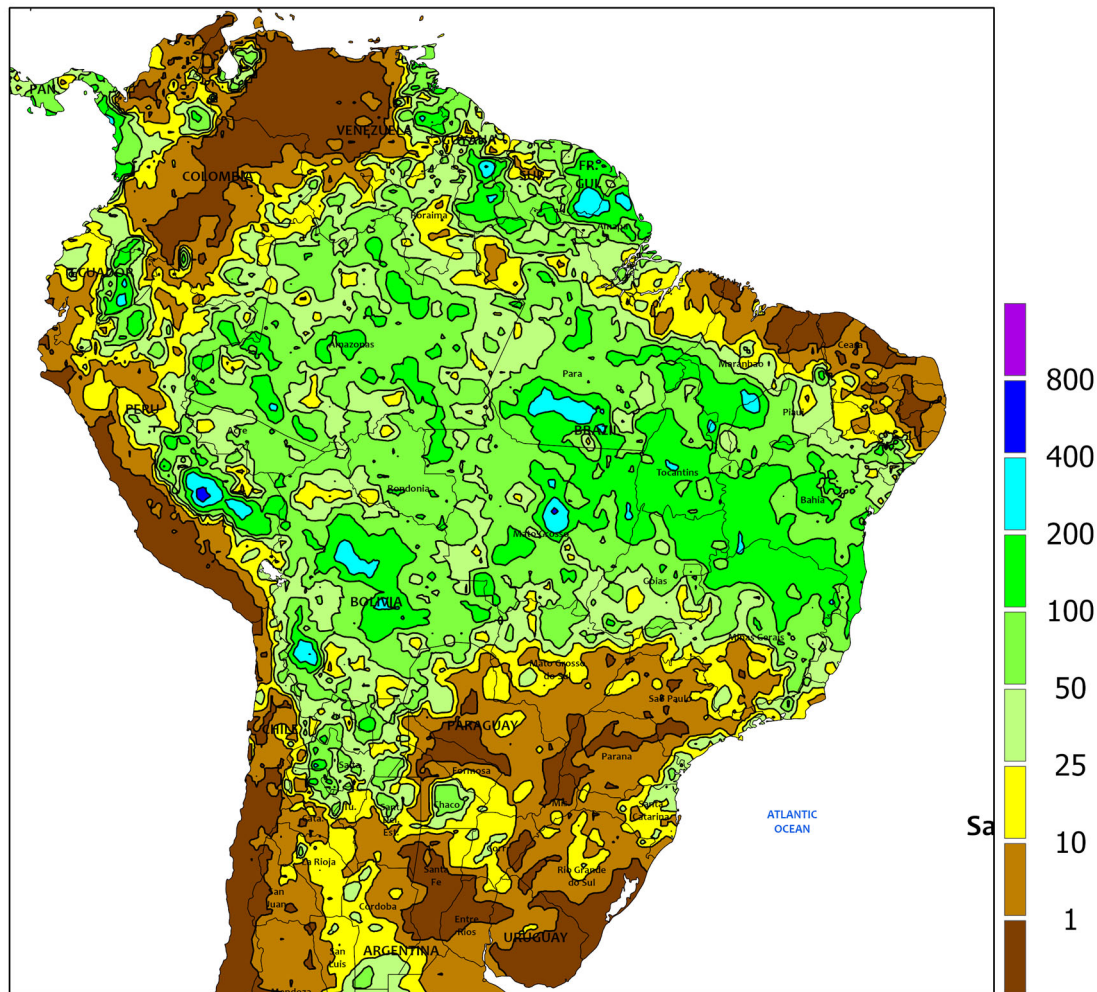
trending dry for much of the growing season and has limited longer-term moisture reserves. Scattered showers (10-50 mm, locally higher) prevailed elsewhere, helping to offset moisture losses fostered by the early-summer warmth; daytime highs reached the 30s nationwide and much of the north recorded temperatures near or above 40°C. According to the government of Argentina, cotton was 69 percent planted as of December 23, lagging last year's pace by 13 points. Corn and soybeans were 73 and 78 percent planted, respectively, with more early-planted corn entering reproduction. Meanwhile, wheat was 80 percent harvested, equal to last year.



## BRAZIL

Total Precipitation(mm)

December 19 - 25, 2021



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



## BRAZIL

Intensifying drought increased stress on summer crops in key southern farming areas. Rainfall totaled below 5 mm over much of the region from southern Mato Grosso do Sul and São Paulo southward through Uruguay. Near- to above-normal temperatures accompanied the dryness, with most locations recording daily highs in the lower to upper 30s (degrees C). According to the Government of Paraná, first-crop corn and soybeans were 81 and 71 percent in reproductive to filling stages of development, respectively, as of December 20, with a small percentage of both crops already mature. In Rio Grande do Sul, corn was 91 percent

planted as of December 23, with 65 percent of the emerged crop ranging from flowering to mature; soybeans were 91 percent planted (5 percent flowering), slightly behind last year. In stark contrast to the southern drought, conditions remained overall favorable for soybeans farther north. Rainfall totaled more than 50 mm across a broad area from Mato Grosso eastward to the coast, including major summer row crop areas from Minas Gerais northward through Piauí and Maranhão. The wetter conditions also helped prevent the development of stressful heat as highest daytime temperatures were mostly confined to the lower 30s.

## 2021 Bulletin Index Volume 108

### *Regular Features\**

#### Text

U.S. Weather Highlights .....	w/s
U.S. Weather and Crop Summary .....	m
U.S. Weather in Historical Perspective .....	m/s
National Agricultural Summary .....	w
Spring Wheat (April - September) .....	w
Rice (April - November) .....	w
Sorghum (April - November) .....	w
Corn (April - November) .....	w
Cotton (April - November) .....	w
Oats (April - September) .....	w
Barley (April - September) .....	w
Peanuts (April - November) .....	w
Soybeans (May - November) .....	w
Winter Wheat (September - November and April - August) .....	w
Sugarbeets (April - May and September - November) .....	w
Sunflowers (May - June and September - November) .....	w
U.S. Crop Production Highlights .....	m
State Summaries of Weather and Agriculture (December - March) .....	m
Water Supply Forecast for the Western United States (January - May) .....	m
International Weather and Crop Summary .....	w/m
NWS/CPC ENSO (El Niño/Southern Oscillation) Updates .....	m

#### National Charts

Precipitation .....	w/m/s
Percent of Normal Precipitation .....	m/s
Average Temperature .....	m/s
Departure of Average Temperature from Normal .....	w/m/s
Extreme Minimum Temperature .....	w/m/s
Extreme Maximum Temperature .....	w/m/s
Snow Depth (December - March) .....	w
Average Soil Temperature, 4-Inch Depth, Bare Soil (March - June) .....	w
Pan Evaporation Map (May - September) .....	w
Growing Degree Days (May - October) .....	w
Crop Moisture Index (April - October) .....	w
Palmer Drought Severity Index (April - October) .....	w
Drought Monitor .....	w
Topsoil and Subsoil Moisture (April - November) .....	w
Days Suitable for Fieldwork (April - November) .....	w
NWS/CPC Monthly Drought Outlook .....	m
NWS/CPC Seasonal Drought Outlook .....	m

#### International Charts (major crop areas)

Precipitation .....	w/m
Percent of Normal Precipitation .....	m
Average Temperature .....	m
Departure of Average Temperature from Normal .....	m

#### National Tabulations

Weather Data for Selected Cities .....	w
Precipitation and Temperature .....	m/s
Crop Progress: Planting, Development, Harvesting (April - November) .....	w
Crop Condition (April - November) .....	w
Pasture and Range Condition (May - October) .....	w

#### International Tabulation

Precipitation and Temperature .....	m
-------------------------------------	---

\*w = weekly, m = monthly, s = seasonal (published every March, June, September, and December for the preceding 3 months)

## *Special Features*

### **U.S. Satellite Images and Charts/Tabulations: No. Page**

Satellite Images of Pacific Storminess (Jan. 6) and Southern Snow (Jan. 12) ....	2	5
Selected U.S. Annual Average Temperature Records for Warmest Year.....	2	26
California Reservoirs and Daily Sierra Nevada Snowpack vs. Normal.....	3	7
2020 Precipitation and Temperature Summary.....	4	12
2020 Precipitation and Temperature Maps.....	4	13
Daily Sierra Nevada Snowpack vs. Normal, 2016-17 to 2020-21.....	6	5
Satellite Image of California Storm, January 26.....	6	5
California Reservoirs and Daily Sierra Nevada Snowpack vs. Normal.....	7	4
Extreme Minimum Windchill Temperature Map, February 7-13.....	7	8
Freeze in Deep South Texas, February 15.....	7	8
Frigid Weather in Cattle and Winter Wheat Areas, February 6-16 .....	7	9
Satellite Image of Snow in the Mississippi Delta, February 16.....	7	38
Selected U.S. Cold Wave Highlights.....	8	5
Harsh Winter Weather in Cattle and Winter Wheat Areas, February 13-19.....	8	6
Extreme Minimum Windchill Temperature Map, February 14-20.....	8	7
Cold Weather in Louisiana Sugarcane Areas, February 16.....	8	7
Satellite Image of Western Storm, March 15.....	11	6
California Reservoirs and Daily Sierra Nevada Snowpack vs. Normal.....	12	5
2021 U.S. Spring Flood Outlook.....	12	26
Satellite Image of Southern Tornadoes, March 25.....	13	26
Satellite Image of High Plains' Snow Cover, April 17.....	16	4
California Reservoirs, Recharge and Withdrawal.....	16	4
Another Spring Freeze, April 20-23.....	17	6
Satellite Image of Midwestern Snow Cover, April 21.....	17	6
Satellite Image of Sierra Nevada Snowpack, May 12 .....	20	8
California Reservoirs, Recharge and Withdrawal .....	20	9
2021 Atlantic Hurricane Season Outlook .....	21	34
Satellite Image of the Red River Valley, May 28.....	22	36
Western U.S. Reservoir Storage, by State, June 1.....	23	3
Satellite Image of Northern Plains' Storms, June 8.....	23	44
Tropical Storm Elsa, Storm-Related Rainfall and Winds .....	28	26
Drought Threatens Northern U.S. Small Grains.....	29	6
California Reservoirs, Recharge and Withdrawal .....	29	7
Satellite Image of Smoke from Dixie Fire, July 21.....	30	34
Satellite Image of Western Wildfires, July 22 .....	31	34
Satellite Image of Hawaiian Wildfire, August 2.....	32	42
Satellite Images of Fred (Aug. 16), Grace (Aug. 20), and Henri (Aug. 22) ....	34	34
Hurricane Henri, Storm-Related Rainfall and Winds .....	35	32
Hurricane Ida, Storm-Related Rainfall, Winds, and Severe Weather.....	36	7
Selected Northeastern Record Flood Crests Associated with Ida.....	36	8
Satellite Image of Hurricane Ida, August 29 .....	36	36
Hurricane Nicholas, Storm-Related Rainfall and Winds .....	38	48
Satellite Image of Western Burn Scars, September 16.....	39	38
Satellite Images of California Wildfire Smoke, September 26 and October 3...	41	3
Satellite Image of Powerful Pacific Storm, October 23 .....	43	28
Satellite Image of Midwestern Storm, November 12 .....	46	40
Winter Wheat Condition in Autumn, 2001-2021 .....	49	18
Selected Monthly Record High Temperatures, December 2021.....	52	5
Satellite Image of Plains' Dust Storm, December 15.....	52	5

### **U.S. Summaries:**

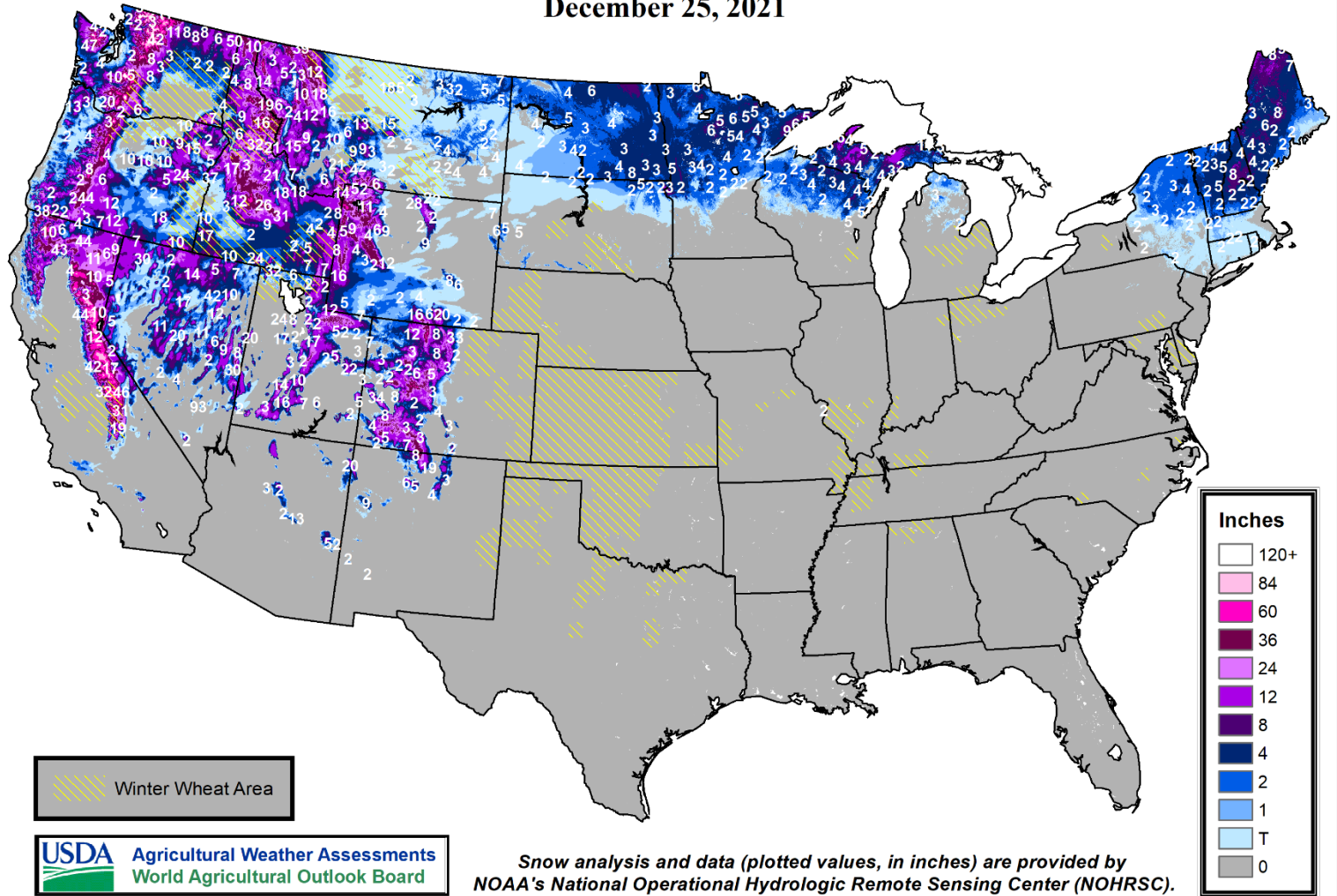
"2020 U.S. Weather Review" .....	4	8
"2020 U.S. Fieldwork Highlights".....	4	16
"2020 U.S. Crop Production Highlights".....	4	18
"U.S. Prospective Planting Highlights".....	14	36
"New 1991-2020 Climate Normals Released by NOAA/NCEI" .....	19	3
"David Miskus Retires After Nearly 40 Years with NOAA" .....	19	40
"Northwestern U.S. Heat Smashes Records, Sears Crops".....	27	11
"U.S. Acreage Highlights".....	27	36
"2021 Small Grains Summary".....	40	32

### **International Summary:**

"Temperature Records Broken Across Western Canada".....	27	35
---	----	----

# Snow Depth

December 25, 2021



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