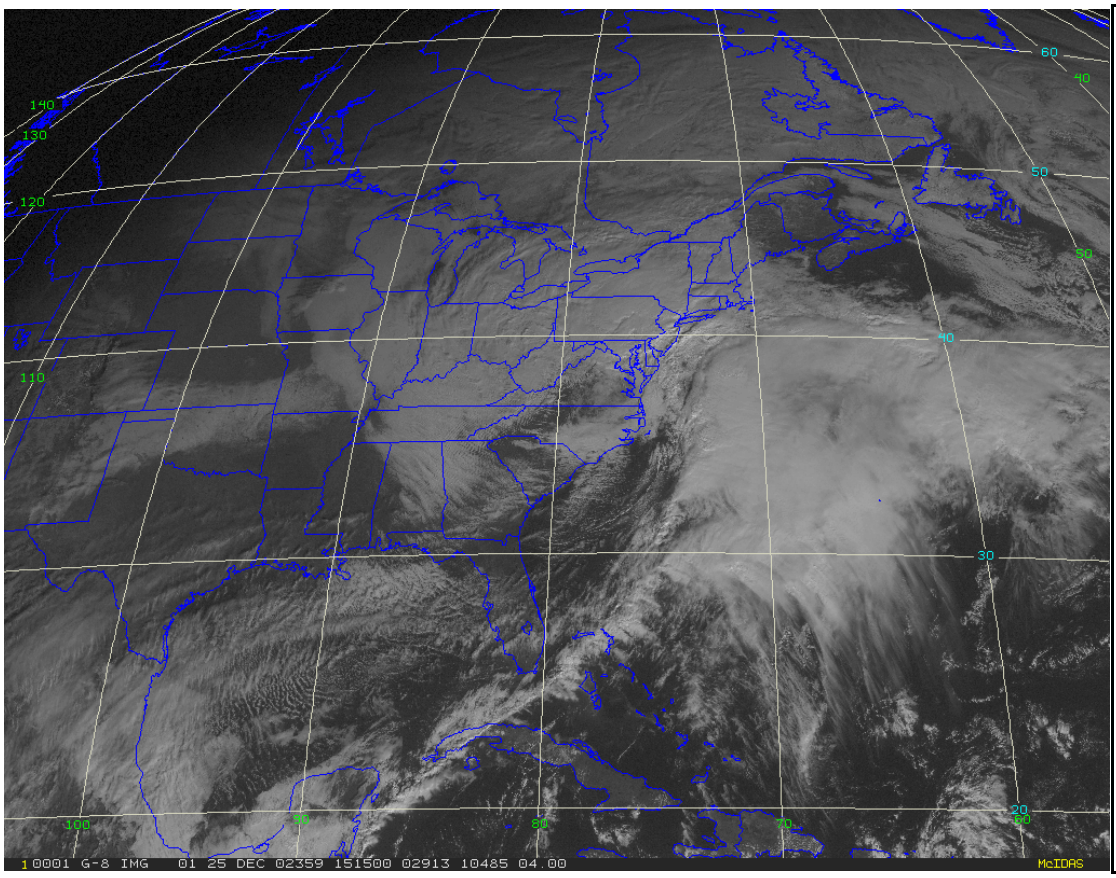
Volume 89, No. 53 http://www.usda.gov/oce/waob/jawf/wwcb.html December 31, 2002

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



A rapidly-developing low pressure center off the North Carolina coast signals the start of moderate to heavy precipitation from the mid-Atlantic into New England during Christmas Day. The storm would eventually dump over a foot of snow from eastern Pennsylvania northeast into southern Maine, with locally more than 30 inches at some New York locations. Meanwhile, clouds and light snow swirl over the eastern Ohio Valley from the original storm system as it quickly weakens. Before its demise, however, the storm blanketed parts of the south-central Plains, Ozarks, and Ohio Valley with 6-12 inches of snow.

HIGHLIGHTS

December 22 - 28, 2003

Highlights provided by USDA/WAOB

El Niño continued to exert a strong influence on the Nation's weather patterns, resulting in occasionally heavy precipitation in the **West Coast States**; mild, dry weather across the **northern Plains** and **upper Midwest**; and—for the fourth consecutive week—cool, stormy weather in the **South** and **East**. For the third consecutive week, precipitation topped 4 inches in much of **northern California** and the **Pacific Northwest**. The moisture brought additional drought relief to **Northwestern** pastures and winter grains, and further improved high-elevation snow packs in the **Cascades**, **Sierra Nevada**, and **northern Rockies**. However, the remainder of the **West** continued

(Continued on page 5)

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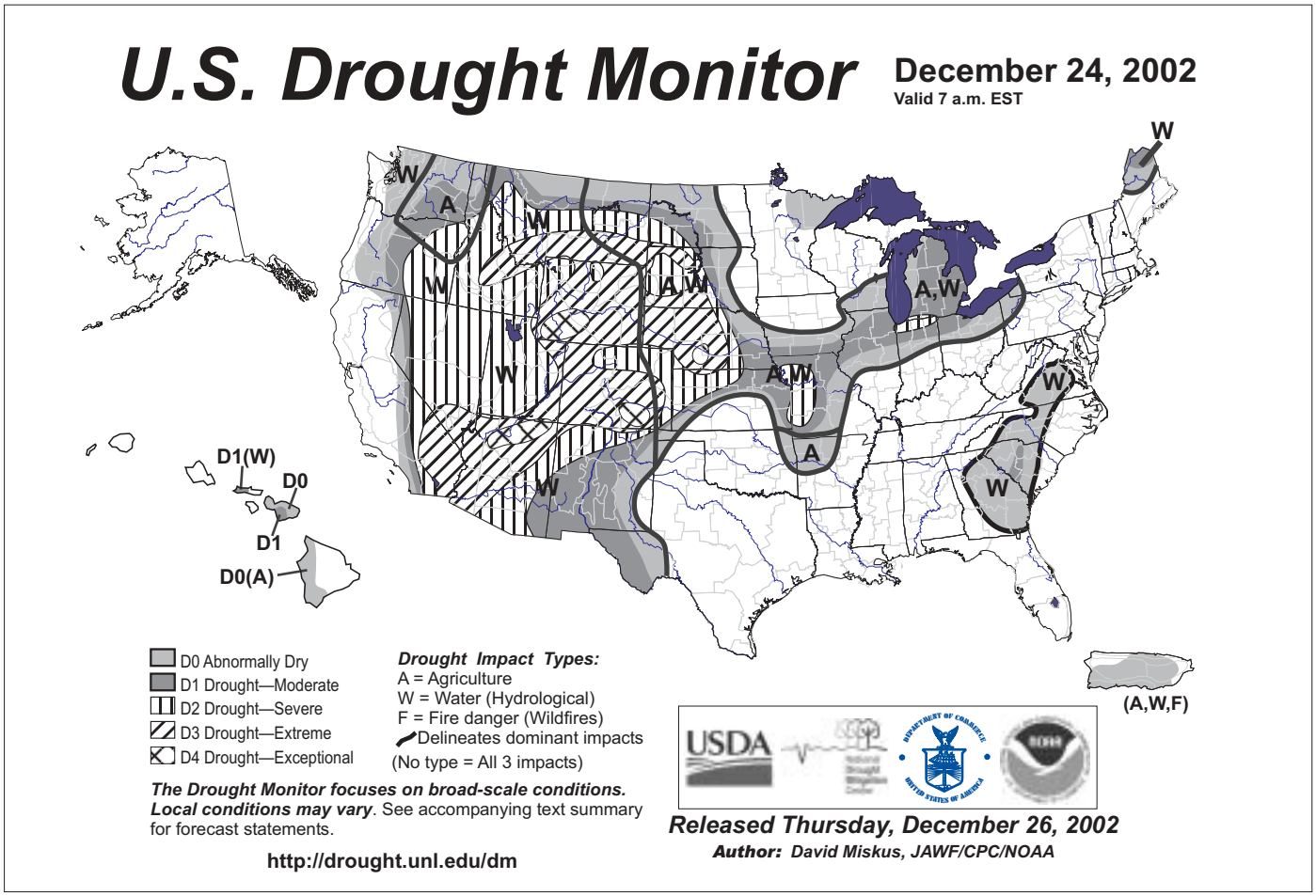
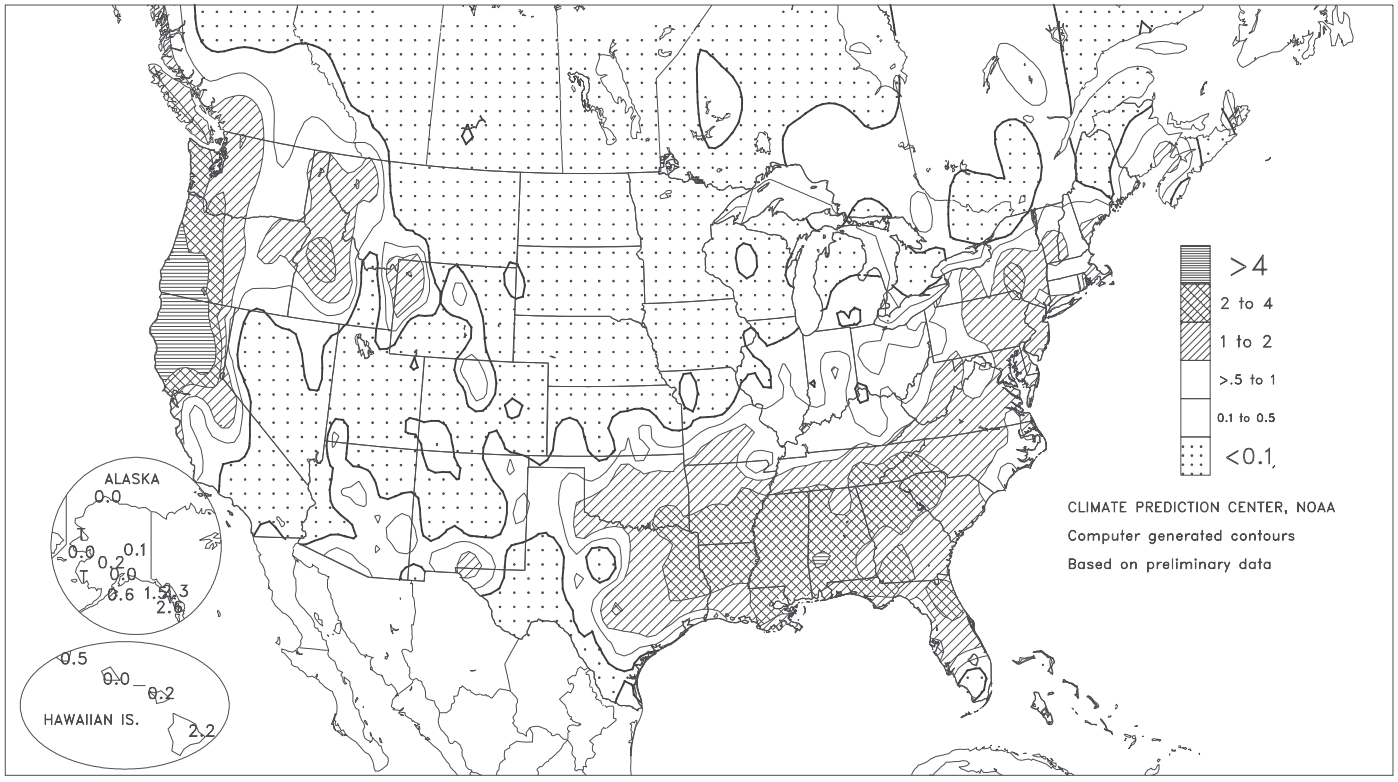


Total Precipitation (Inches)

DEC 22 - 28, 2002



Weather Data for Mississippi and the Missouri Bootheel

Weather Data for the Week Ending December 28, 2002

Data provided by the Mississippi State Delta Research and Extension Center (DREC), the Southern Regional Climate Center (SRCC), and the University of Missouri.

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							4-INCH SOIL TEMP, °F		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
MS	BATESVILLE x	48	31	60	24	39	-2	2.44	1.18	2.44	8.92	166	71.35	129	-	-	0	4	1	1
	BELZONI x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CLARKSDALE x	49	31	57	26	40	-1	2.03	0.87	2.03	7.82	160	71.39	133	-	-	0	4	1	1
	CLEVELAND x	49	32	59	27	40	-3	2.74	1.64	2.71	6.78	147	61.31	112	-	-	0	4	2	1
	GREENVILLE x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GREENWOOD x	51	31	60	25	41	-4	1.92	0.66	1.49	5.42	111	53.27	99	-	-	0	4	2	1
	INDIANOLA 1S	50	33	59	28	42	-	1.92	-	1.49	5.42	-	53.53	-	48	44	0	4	2	1
	INVERNESS 5E	51	34	58	29	43	-	2.15	-	1.60	5.93	-	50.31	-	49	44	0	3	2	2
	LYON	48	30	59	27	39	-	1.78	-	1.53	8.08	-	56.90	-	47	39	0	4	2	1
	MACON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MOORHEAD x	50	34	58	28	42	-2	-	-	-	-	-	-	-	-	-	0	3	-	-
	ONWARD	54	34	62	29	44	-	2.83	-	2.12	6.31	-	51.72	-	52	47	0	4	3	2
	PERTHSHIRE	49	31	60	26	40	-	2.58	-	2.35	11.13	-	-	-	47	39	0	4	2	1
	ROLLING FORK x	54	35	63	28	44	0	0.33	-1.00	0.26	3.22	63	42.27	76	-	-	0	4	2	0
	SCOTT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SIDON	51	35	58	30	43	-	1.54	-	0.66	4.28	-	56.09	-	50	41	0	3	6	1
	STARKVILLE	52	31	61	24	42	-	1.18	-	0.62	4.24	-	-	-	50	41	0	4	2	2
	TUNICA x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TUNICA 1W	47	30	56	26	39	-	1.92	-	1.39	6.59	-	57.23	-	43	40	0	5	4	2
	VANCE	47	33	55	29	40	-	2.89	-	2.53	8.43	-	65.30	-	48	46	0	4	3	1
	VERONA	50	29	58	24	40	-	1.90	-	1.39	5.64	-	59.98	-	49	40	0	5	2	2
	VICKSBURG x	56	36	66	29	46	-2	1.52	0.19	1.42	5.87	115	57.45	100	-	-	0	4	2	1
	YAZOO CITY x	55	34	63	27	44	-1	2.05	0.58	2.05	5.14	91	62.49	106	-	-	0	4	1	1
	STONEVILLE x	51	33	61	28	42	-1	2.06	0.86	2.00	5.61	114	61.75	117	50	42	0	4	2	1
MO	DELTA	37	23	48	19	30	-4	0.35	-0.96	0.27	3.40	76	53.83	104	37	34	0	7	3	0
	STEELE	43	30	53	26	36	0	0.35	-0.79	0.31	6.21	129	49.88	95	41	37	0	5	2	0
	GLENNONVILLE	41	27	53	21	33	-4	0.35	-1.04	0.25	3.66	94	40.04	87	39	36	0	7	2	0
	PORTAGEVILLE LF	42	28	53	24	35	-1	0.14	-1.26	0.10	4.45	97	43.82	86	43	36	0	5	2	0
	CLARKTON	42	26	55	20	33	-4	0.22	-1.17	0.17	3.97	102	50.21	110	39	35	0	7	2	0
	CARDWELL	44	28	53	23	35	-2	0.38	-0.95	0.32	4.97	110	44.64	86	44	39	0	5	2	0
	CHARLESTON	39	27	52	23	33	-2	0.30	-0.75	0.19	4.13	100	47.12	96	39	36	0	6	3	0
	PORTAGEVILLE DC	42	28	52	23	35	-1	0.15	-1.25	0.11	4.67	102	41.95	82	-	-	0	5	2	0

Compiled by USDA/OCE/WAOB's Stoneville Field Office.
x Based on 1971-2000 normals.
- Sufficient data not available.

Weather and Crop Summary: Additional precipitation increased the habitat available for Delta waterfowl. Soils remained saturated, increasing runoff into streams and ditches.

Selected Snowfall Totals (Inches), December 23-26, 2002

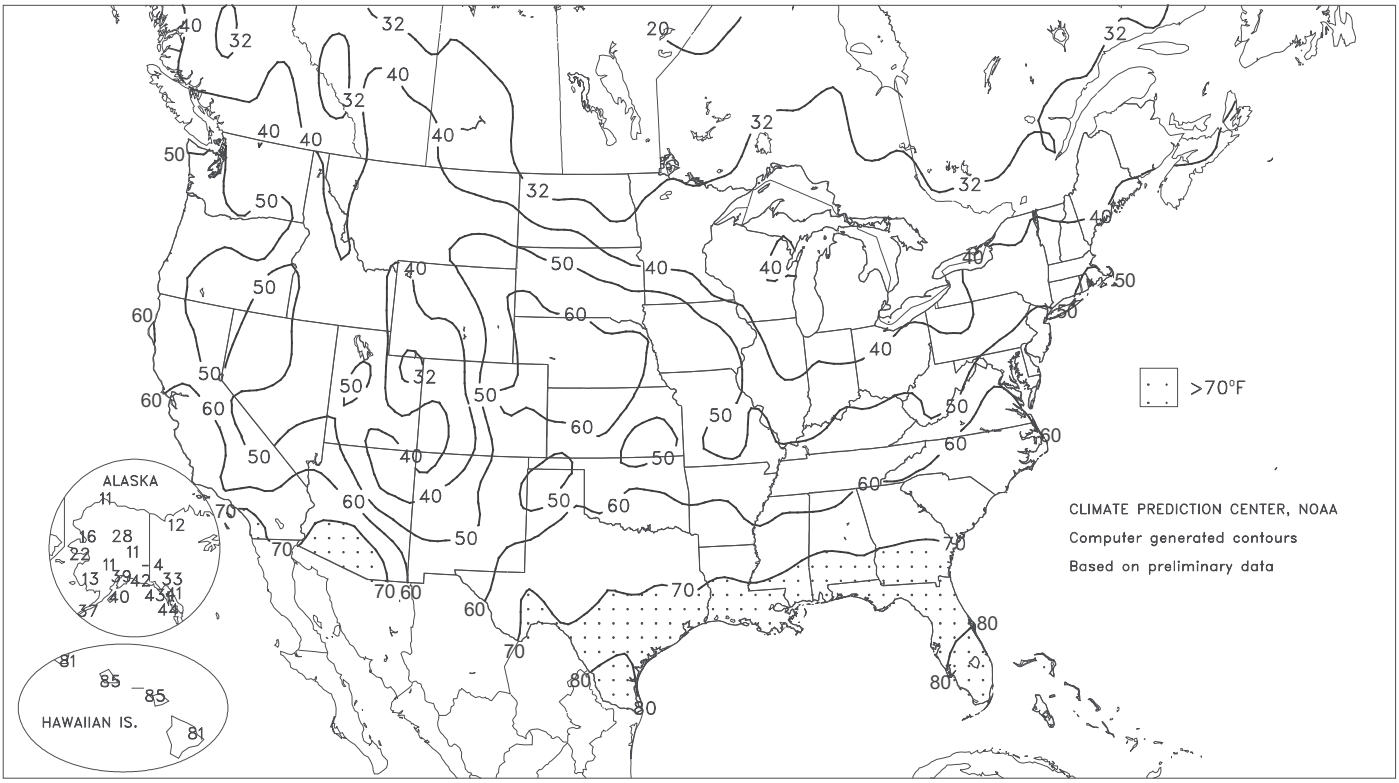
Location	Dec. 23-26 Snowfall	Dec. 25 Snow Depth *
Concord, NH	22.2	0 (9.2 inches fell later Dec. 25)
Albany, NY	21.0	T (19.2 inches fell later Dec. 25)
Portland, ME	16.0	0 (12.5 inches fell later Dec. 25)
Worcester, MA	13.5	0 (10.5 inches fell later Dec. 25)
Springfield, MO	12.9	9
Cleveland, OH	11.2	6
Fort Wayne, IN	8.2	7
Indianapolis, IN	7.8	7
Hartford, CT	7.8	0 (3.8 inches fell later Dec. 25)
Tulsa, OK	7.5	6
Lansing, MI	7.2	5
Toledo, OH	7.1	5
Detroit, MI	6.4	5
Amarillo, TX	6.2	4
St. Louis, MO	5.9	6
Boston, MA	5.4	0 (3.3 inches fell later Dec. 25)
Springfield, IL	5.3	5
NY Central Park	5.0	0 (5.0 inches fell later Dec. 25)
Peoria, IL	3.3	3
Evansville, IN	2.9	2
Dodge City, KS	2.5	3
Chicago, IL	2.5	2
Louisville, KY	2.2	T
Dulles Airport, VA	2.0	T (1.6 inches fell later Dec. 25)
Oklahoma City, OK	2.0	2
Philadelphia, PA	1.4	T (1.1 inches fell later Dec. 25)
Washington, DC	1.0	0 (0.2 inch fell later Dec. 25)

* Depths are rounded to the nearest inch and were measured at 7 a.m. Eastern Standard Time on December 25.

T = trace of snow

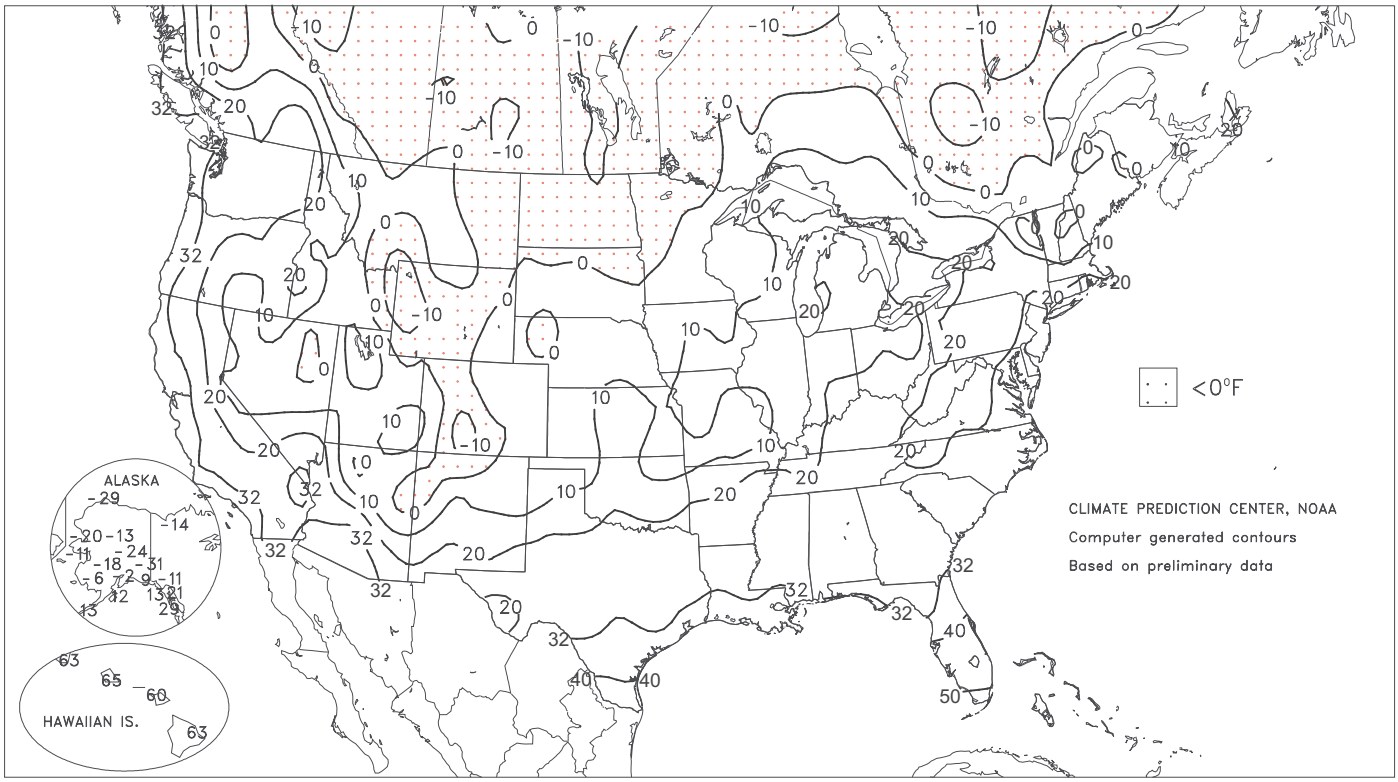
Extreme Maximum Temperature (°F)

DEC 22 - 28, 2002



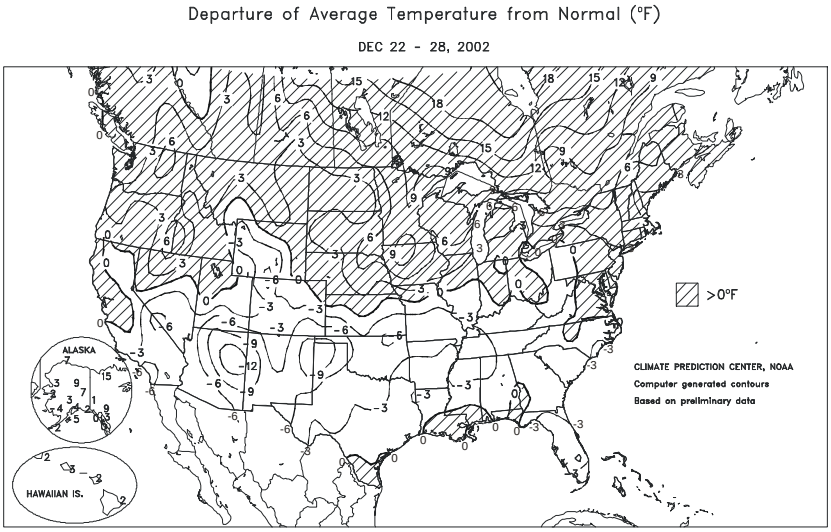
Extreme Minimum Temperature (°F)

DEC 22 - 28, 2002



(Continued from front cover)

to experience a variety of detrimental effects due to long-term precipitation deficits, including drought-lowered reservoirs and stressed rangelands. Meanwhile, rain and snow dampened the **southern Plains** on December 23-24, where weekly temperatures averaged as much as 12ºF below normal, but mild, unfavorably dry weather persisted in drought-affected areas from **eastern Colorado and northwestern Kansas northward into Montana**. As a result, the **northern and central High Plains'** winter wheat remained exposed to potential weather extremes. Mild, dry weather favored off-season fieldwork in the **upper Midwest**, where weekly temperatures averaged up to 10ºF above normal. In contrast, snow blanketed areas from the **Ohio and middle Mississippi Valleys to the lower Great Lakes region** on December 24-25. Across the **South**, heavy snow fell across the **Ozark Plateau**, while at least 2 inches of rain fell from **eastern Texas to the southern Appalachians**. Wet fields continued to cause significant fieldwork disruptions throughout the **South**. Farther north, an intensifying storm system brought very heavy snowfall (locally 1 to 3 feet) and high winds to parts of the **interior Northeast** on December 25-26.



Rain and snow spread from the **Southwest** across the **south-central U.S.** on December 23, producing daily-record rainfall totals in locations such as **Monroe, LA** (3.37 inches), and **Amarillo, TX** (0.56 inch, in the form of 6.1 inches of snow). A day later, daily records included 2.56 inches in **Daytona Beach, FL**, and 1.88 inches in **Asheville, NC.** Meanwhile, the storm-total snowfall of 12.9 inches in **Springfield, MO**, secured their snowiest December on record (20.5 inches), breaking the 2000 record of 18.1 inches. **Oklahoma City, OK**, measured 2.0 inches on December 23-24, and had their greatest December 25 snow depth (2 inches) since 1924. **Indianapolis, IN**, had 7 inches on the ground Christmas morning, breaking their December 25, 1909, record of 6.5 inches. Farther east, daily-snowfall records for December 25 included 19.2 inches in **Albany, NY**, 12.5 inches in **Portland, ME**, and 10.5 inches in **Worcester, MA.** Storm-total snowfall reached 22.2 inches in **Concord, NH**, and 21.0 inches in **Albany**, with amounts topping 30 inches in several **New York** locations. Unofficial **New York** totals included 39 inches in **Cherry Valley (Otsego County)** and 38 inches in **Herkimer (Herkimer County)**. The season-to-date (July 1 - December 28) snowfall of 58.0 inches in **Rochester, NY**, was the highest on record, and stood in stark contrast to the 7.2 inches observed during the second half of 2001. Winds associated with the holiday storm were clocked to 71 mph on **Mt. Desert Rock, ME**, 60 mph in **Milton (Blue Hill Observatory), MA**, and 46 mph in **Worcester**. Meanwhile, fresh snow cover contributed to a handful of daily-record lows in the **Southwest**, including consecutive records on December 26 and 27 (-12 and -9ºF) in **Window Rock, AZ**, where 8 inches had fallen on December 22-23.

Meanwhile, stormy weather continued along and near the **West Coast**. On December 27, **Eureka, CA**, received their highest 1-day and 24-hour rainfall totals on record, measuring 6.79 inches. **Eureka's** previous records were 5.04 inches on October 29, 1950, and 6.32 inches on December 8-9, 1996, respectively. The following day, wind gusts across **northern California** reached 47 mph in **Redding**, 48 mph in **Stockton**, and 54 mph in **San Francisco**. According to the California Department of Water Resources, the average water equivalent of the high-elevation **Sierra Nevada** snow pack increased to approximately 15 inches (more than 150 percent of normal) by December 30, up from about 4 inches at the beginning of the month.

In contrast, a very dry pattern persisted across the **northern and central High Plains** and the **upper Midwest**, accompanied by record warmth toward week's end. In **Iowa**, **Des Moines'** streak without measurable precipitation reached 47 days (November 12 - December 28), surpassing their former record of 45 days, set from October 2 - November 15, 1952. Farther south, a 41-day dry spell ended in **Kansas City, MO**, when 0.03 inch fell on December 26, but streaks without measurable precipitation reached 44 days (November 15 - December 28) in several nearby locations, including downtown **Kansas City**, **St. Joseph, MO**, and **Olathe, KS.** On December 28, more than a dozen daily-record highs were established across the **Plains** and **Midwest**, including 69ºF in **Colby, KS**, 67ºF in **Hastings, NE**, and 60ºF in **Sioux City, IA.**

Alaska's long run of mild weather started to come to an end after 14 weeks. Weekly temperatures averaged as much as 5ºF below normal in **southern and western Alaska**, but remained 3 to 9ºF above normal across **interior and northern parts of the State**. Lows in **McGrath, AK**, fell to -24ºF on December 28 and -33ºF the following day. Significant snow fell across **southern Alaska**, where an 8.5-inch total in **Anchorage** on December 24-25 boosted their month-to-date total to 20.7 inches (151 percent of normal). Elsewhere in **southern Alaska**, **Yakutat** netted a weekly snowfall of 12.4 inches, but their season-to-date sum of 15.5 inches remained far below last year's July 1 - December 28 total of 92.1 inches. Meanwhile in **Hawaii**, generally light showers were observed in windward locations. A few heavier showers developed toward week's end, resulting in 72-hour (December 26-29) totals of 1.22 inches in **Wailua, Kauai**; 1.43 inches at **Oahu's Manoa Lyon Arboretum**; and 1.82 inches in **Pahoa**, on the **Big Island**.

National Weather Data for Selected Cities

Weather Data for the Week Ending December 28, 2002

Data Provided by Climate Prediction Center (301-763-8000, Ext. 7503)

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	0 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	53	30	65	24	42	-2	2.39	1.37	2.28	6.69	170	63.87	119	91	46	0	5	2	1
	HUNTSVILLE	48	29	58	23	39	-2	1.46	0.24	1.14	5.73	115	50.27	88	90	61	0	5	2	1
	MOBILE	62	41	75	31	51	0	1.50	0.50	1.13	4.88	118	68.42	104	89	67	0	2	2	1
	MONTGOMERY	58	35	72	24	46	-1	2.25	1.22	2.10	4.37	98	37.15	68	98	56	0	4	2	1
AK	ANCHORAGE	26	15	39	-2	21	4	0.00	-0.21	0.00	0.82	90	16.39	103	89	80	0	7	0	0
	BARROW	1	-11	11	-29	-5	7	0.00	0.00	0.00	0.05	500	4.59	114	87	81	0	7	0	0
	FAIRBANKS	7	-8	11	-24	0	7	0.12	-0.05	0.09	0.15	24	13.13	128	88	82	0	7	3	0
	JUNEAU	34	26	41	21	30	2	2.28	1.06	0.82	5.54	114	62.02	107	99	91	0	7	6	1
	KODIAK	31	19	40	12	25	-5	0.64	-1.18	0.54	6.11	90	90.07	121	83	70	0	6	3	1
	NOME	9	-1	22	-11	4	-3	0.00	-0.19	0.00	0.97	111	13.89	85	71	64	0	7	0	0
AZ	FLAGSTAFF	35	5	48	-5	20	-9	0.13	-0.28	0.10	0.61	39	12.81	57	88	48	0	7	2	0
	PHOENIX	60	40	74	37	50	-3	0.12	-0.09	0.11	0.17	22	2.84	35	80	54	0	0	2	0
	TUCSON	57	35	74	30	46	-5	0.22	-0.03	0.11	0.71	82	7.93	66	89	57	0	3	2	0
	YUMA	63	40	68	35	51	-5	0.00	-0.11	0.00	0.04	12	0.33	11	54	39	0	0	0	0
AR	FORT SMITH	46	27	57	21	36	-3	1.20	0.59	1.01	4.04	131	42.52	98	93	57	0	6	2	1
	LITTLE ROCK	47	29	60	24	38	-3	0.77	-0.14	0.54	5.54	129	44.79	89	93	48	0	5	2	1
CA	BAKERSFIELD	56	39	67	30	48	2	0.08	-0.11	0.08	1.37	221	4.26	67	90	73	0	1	1	0
	FRESNO	54	38	65	31	46	2	0.20	-0.13	0.19	2.04	182	6.54	59	91	78	0	1	2	0
	LOS ANGELES	63	47	67	43	55	-2	0.09	-0.36	0.08	1.82	120	5.25	41	81	52	0	0	2	0
	REDDING	51	38	57	32	44	-1	2.48	1.33	1.19	12.64	311	26.05	79	91	74	0	1	4	2
	SACRAMENTO	55	42	60	33	48	3	0.49	-0.10	0.41	5.38	255	16.17	92	92	61	0	0	4	0
	SAN DIEGO	62	45	68	42	54	-3	0.00	-0.34	0.00	1.75	162	3.99	38	76	51	0	0	0	0
	SAN FRANCISCO	56	45	60	40	51	2	1.08	0.38	0.99	10.04	403	18.95	96	88	71	0	0	3	1
	STOCKTON	55	39	64	30	47	3	0.40	-0.03	0.40	4.14	267	11.33	83	94	84	0	2	1	0
CO	ALAMOSA	31	-2	38	-8	14	-1	0.00	-0.06	0.00	0.24	100	4.44	62	84	54	0	7	0	0
	CO SPRINGS	36	15	57	9	26	-2	0.03	-0.06	0.00	0.08	27	7.60	44	80	38	0	7	1	0
	DENVER INTL	42	16	63	9	29	1	0.00	-0.06	0.00	0.05	23	7.20	53	68	32	0	7	0	0
	GRAND JUNCTION	36	18	39	14	27	1	0.00	-0.11	0.00	0.12	30	7.79	88	85	64	0	7	0	0
	PUEBLO	40	7	62	-4	24	-5	0.06	-0.02	0.06	0.29	97	3.89	32	81	55	0	7	1	0
CT	BRIDGEPORT	40	31	49	26	36	4	0.80	0.01	0.80	4.08	133	43.37	99	72	54	0	4	1	1
	HARTFORD	39	27	49	22	33	5	0.43	-0.37	0.42	3.19	101	41.10	90	73	52	0	6	2	0
DC	WASHINGTON	47	32	57	27	39	2	0.92	0.22	0.71	4.45	165	34.32	88	82	47	0	4	2	1
DE	WILMINGTON	42	31	54	25	37	3	1.09	0.33	0.96	4.20	140	39.50	93	78	50	0	5	2	1
FL	DAYTONA BEACH	66	44	77	39	55	-4	2.74	2.12	2.65	7.94	335	58.29	119	91	48	0	0	2	1
	JACKSONVILLE	64	38	72	32	51	-3	1.51	0.88	1.50	4.35	189	53.69	103	94	52	0	1	2	1
	KEY WEST	74	65	80	60	70	-1	0.13	-0.37	0.13	4.07	219	41.50	107	85	66	0	0	1	0
	MIAMI	76	59	83	51	67	-2	0.50	0.07	0.49	3.41	176	63.30	109	94	57	0	0	2	0
	ORLANDO	68	46	77	41	57	-5	1.73	1.23	1.53	8.14	399	63.16	131	89	51	0	0	2	1
	PENSACOLA	62	42	74	33	52	-1	1.37	0.44	1.33	3.31	95	62.26	98	89	55	0	0	2	1
	TALLAHASSEE	64	38	74	26	51	-1	2.56	1.56	2.56	5.02	141	54.49	87	94	56	0	3	1	1
	TAMPA	68	48	75	42	58	-4	1.85	1.36	1.75	11.42	560	58.40	131	92	54	0	0	2	1
	WEST PALM	74	54	83	46	64	-3	0.09	-0.50	0.08	2.62	93	60.62	99	92	61	0	0	2	0
GA	ATHENS	53	31	64	21	42	-1	1.73	0.86	1.70	4.87	149	45.81	97	89	56	0	4	2	1
	ATLANTA	53	34	64	27	43	0	2.13	1.28	2.09	4.98	148	47.44	95	83	58	0	4	2	1
	AUGUSTA	56	29	67	22	42	-3	1.39	0.58	1.39	3.97	146	40.59	92	93	49	0	5	1	1
	COLUMBUS	60	36	70	27	48	1	1.46	0.48	1.40	3.88	99	43.53	91	91	37	0	3	2	1
	MACON	57	33	69	24	45	-1	1.54	0.61	1.53	4.58	133	40.52	91	90	49	0	4	2	1
	SAVANNAH	62	36	71	29	49	-1	1.43	0.71	1.35	3.56	148	46.50	95	95	51	0	3	2	1
HI	HILO	80	66	81	63	73	1	2.23	0.26	0.80	10.24	107	133.6	107	86	75	0	0	6	1
	HONOLULU	83	71	85	65	77	3	0.00	-0.66	0.00	0.02	1	12.21	68	76	67	0	0	0	0
	KAHULUI	83	66	85	60	74	1	0.24	-0.52	0.12	0.58	22	15.13	82	83	70	0	0	2	0
	LIHUE	80	69	81	63	75	3	0.52	-0.55	0.16	1.13	27	32.01	82	89	78	0	0	6	0
ID	BOISE	40	33	52	26	37	8	0.25	-0.03	0.18	0.81	68	5.75	48	80	66	0	5	2	0
	LEWISTON	43	33	56	23	38	5	0.21	-0.01	0.08	0.65	72	10.12	81	94	74	0	4	4	0
	POCATELLO	33	17	49	3	25	1	0.03	-0.21	0.02	0.30	33	7.18	58	79	72	0	6	2	0
IL	CHICAGO/O'HARE	32	22	36	18	27	2	0.14	-0.32	0.08	1.32	61	33.91	94	89	72	0	7	2	0
	MOLINE	35	21	46	14	28	4	0.00	-0.43	0.00	0.69	35	32.89	87	82	59	0	7	0	0
	PEORIA	32	21	41	14	26	1	0.07	-0.36	0.07	2.11	97	33.76	94	91	69	0	7	1	0
	ROCKFORD	33	20	38	13	26	4	0.00	-0.38	0.00	0.68	37	32.61	90	81	62	0	7	0	0
	SPRINGFIELD	32	21	41	10	27	-1	0.07	-0.43	0.07	1.46	64	39.97	113	85	70	0	7	1	0
IN	EVANSVILLE	37	25	48	17	31	-2	0.60	-0.08	0.32	4.07	127	46.98	107	91	72	0	7	2	0
	FORT WAYNE	31	21	37	14	26	0	0.23	-0.33	0.14	0.96	39	32.52	90	93	72	0	7	2	0
	INDIANAPOLIS	34	23	44	19	29	0	0.12	-0.47	0.11	1.53	56	38.23	94	97	76	0	7	2	0
	SOUTH BEND	31	22	33	18	26	0	0.19	-0.42	0.14	1.40	50	28.24	72	90	76	0	7	2	0
IA	BURLINGTON	34	22	51	18	28	3	0.00	-0.38	0.00	0.79	42	37.10	98	84	58	0	7	0	0
	CEDAR RAPIDS	34	16	50	7	25	4	0.00	-0.26	0.00	0.27	20	36.59	110	89	56	0	7	0	0
	DES MOINES	36	19	59	12	27	5	0.00	-0.24	0.00	0.01	1	25.47	74	80	68	0	7	0	0
	DUBUQUE	31	17	41	10	24	4	0.00	-0.30	0.00	0.71	47	41.58	118	85	69	0	7	0	0
	SIOUX CITY	39	12	60	8	26	6	0.00	-0.11	0.00	0.11	20	25.49	99	85	63	0	7	0	0
	WATERLOO	35	16	51	7	26	7	0.00	-0.18	0.00	0.12	12	30.78	93	83	68	0	7	0	0
KS	CONCORDIA	42	19	62	13	31	3	0.00	-0.17	0.00	0.11	15	18.26	65	78	49	0	6	0	0
	DODGE CITY	40	18	60	9	29	-2	0.03	-0.14	0.03	0.11	17	14.05	63	86	57	0	7	1	0
	GOODLAND	45	14	67	7	30	1	0.00	-0.08	0.00	0.00	0	9.85	50	72	39	0	7	0	0
	TOPEKA	40	18	52	12	29	0	0.04	-0.21	0.04	0.05	4	27.87	79	85	57	0	7	1	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending December 28, 2002

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
	WICHITA	35	17	45	10	26	-6	0.22	-0.05	0.15	1.18	100	33.41	111	97	72	0	7	2	0
KY	JACKSON	42	28	54	24	35	-1	0.71	-0.17	0.49	4.22	110	52.53	107	88	54	0	5	2	0
	LEXINGTON	39	27	49	25	33	-1	0.41	-0.46	0.35	3.55	99	48.81	107	88	71	0	7	3	0
	LOUISVILLE	41	30	53	27	35	0	0.56	-0.21	0.45	4.68	141	50.92	115	93	68	0	6	4	0
	PADUCAH	39	25	53	19	32	-2	0.34	-0.51	0.19	5.01	126	51.83	106	94	64	0	7	2	0
LA	BATON ROUGE	63	42	73	32	52	1	2.29	1.09	1.45	5.98	128	58.83	94	93	52	0	1	3	2
	LAKE CHARLES	63	42	72	34	52	0	0.49	-0.57	0.24	9.19	227	85.24	151	96	58	0	0	5	0
	NEW ORLEANS	62	45	73	36	54	0	1.22	0.17	0.75	3.09	68	60.81	96	89	63	0	0	2	1
	SHREVEPORT	54	32	67	26	43	-4	1.95	0.96	1.93	6.27	154	40.98	81	89	42	0	4	2	1
ME	CARIBOU	28	13	46	3	21	8	0.04	-0.68	0.02	2.18	77	36.65	99	88	61	0	7	3	0
	PORTLAND	35	19	41	6	27	2	0.38	-0.55	0.38	2.92	77	42.62	94	80	51	0	6	1	0
MD	BALTIMORE	44	29	56	20	36	2	1.32	0.56	1.11	4.97	168	39.32	95	73	51	0	5	2	1
MA	BOSTON	40	29	50	23	34	2	0.15	-0.68	0.15	4.25	128	40.24	96	76	49	0	5	1	0
	WORCESTER	34	25	43	19	29	3	0.55	-0.31	0.50	4.16	123	44.62	92	81	48	0	7	2	1
MI	ALPENA	33	22	38	15	27	5	0.01	-0.38	0.01	0.53	34	24.86	88	87	63	0	7	1	0
	GRAND RAPIDS	31	24	33	20	27	2	0.03	-0.47	0.03	0.76	31	28.26	77	90	75	0	7	1	0
	HOUGHTON LAKE	30	22	36	17	26	5	0.00	-0.36	0.00	0.35	23	21.96	78	86	77	0	7	0	0
	LANSING	30	22	33	17	26	2	0.14	-0.26	0.08	0.79	40	21.99	70	87	74	0	7	3	0
	MUSKEGON	34	29	37	25	31	5	0.12	-0.41	0.12	0.85	36	26.27	81	78	71	0	6	1	0
	TRAVERSE CITY	33	25	39	22	29	5	0.00	-0.60	0.00	0.41	18	28.21	85	87	64	0	7	0	0
MN	DULUTH	26	13	37	7	19	8	0.00	-0.14	0.00	0.18	23	30.61	99	91	69	0	7	0	0
	INT'L FALLS	23	8	31	-1	16	11	0.00	-0.12	0.00	0.26	45	23.26	98	87	71	0	7	0	0
	MINNEAPOLIS	29	17	39	11	23	7	0.02	-0.17	0.02	0.23	26	38.53	132	84	69	0	7	1	0
	ROCHESTER	28	15	37	8	21	7	0.00	-0.17	0.00	0.48	55	32.66	104	88	74	0	7	0	0
	ST. CLOUD	29	12	40	4	20	9	0.00	-0.14	0.00	0.11	19	33.23	123	90	64	0	7	0	0
MS	JACKSON	57	34	67	27	46	0	2.32	1.13	1.23	4.76	100	66.93	121	94	48	0	4	3	2
	MERIDIAN	59	34	70	25	46	-1	2.26	1.08	1.68	6.42	136	57.39	99	91	55	0	4	2	2
	TUPELO	50	27	59	23	39	-2	2.32	0.98	1.93	6.12	111	65.16	118	93	55	0	6	3	1
MO	COLUMBIA	34	19	48	7	26	-4	0.18	-0.25	0.18	2.09	93	42.67	107	90	63	0	7	1	0
	KANSAS CITY	38	19	53	10	29	0	0.03	-0.27	0.03	0.03	2	24.82	66	83	51	0	7	1	0
	SAINT LOUIS	37	23	51	11	30	-1	0.47	-0.05	0.47	1.87	73	40.82	106	83	65	0	7	1	0
	SPRINGFIELD	36	17	48	3	26	-7	0.45	-0.08	0.33	1.77	61	35.95	80	86	65	0	7	3	0
MT	BILLINGS	35	18	48	8	26	1	0.00	-0.15	0.00	0.26	48	9.30	64	77	45	0	7	0	0
	BUTTE	27	5	41	-15	16	-1	0.08	-0.03	0.04	0.14	32	10.87	86	91	67	0	7	3	0
	GLASGOW	23	5	38	-7	14	1	0.01	-0.07	0.01	0.02	7	12.27	110	89	80	0	7	1	0
	GREAT FALLS	37	16	50	2	26	3	0.07	-0.10	0.07	0.29	54	15.05	102	82	45	0	7	1	0
	HAVRE	35	11	47	-2	23	6	0.06	-0.05	0.06	0.06	15	13.74	121	79	66	0	7	1	0
	KALISPELL	33	22	41	12	27	5	0.57	0.22	0.45	0.87	60	12.08	71	89	76	0	7	2	0
	MISSOULA	34	23	43	15	29	7	0.38	0.13	0.31	0.60	61	10.24	75	94	84	0	7	3	0
NE	GRAND ISLAND	43	15	64	7	29	5	0.00	-0.11	0.00	0.01	2	17.10	66	79	51	0	6	0	0
	LINCOLN	41	14	61	5	27	3	0.00	-0.14	0.00	0.01	1	26.32	93	83	53	0	7	0	0
	NORFOLK	40	14	62	8	27	5	0.00	-0.09	0.00	0.04	7	19.47	73	83	56	0	7	0	0
	NORTH PLATTE	44	7	63	2	26	2	0.00	-0.08	0.00	0.00	0	11.09	57	86	34	0	7	0	0
	OMAHA	38	18	57	11	28	5	0.00	-0.14	0.00	0.00	0	26.01	86	81	65	0	7	0	0
	SCOTTSBLUFF	42	9	62	1	26	2	0.00	-0.11	0.00	0.00	0	7.17	44	71	46	0	7	0	0
	VALENTINE	41	7	60	1	24	2	0.00	-0.06	0.00	0.04	15	11.15	57	86	50	0	7	0	0
NV	ELY	34	8	45	-1	21	-4	0.01	-0.11	0.01	0.11	29	4.51	46	80	66	0	7	1	0
	LAS VEGAS	51	32	54	29	41	-5	0.00	-0.08	0.00	0.07	23	1.44	33	69	45	0	6	0	0
	RENO	42	25	55	19	34	1	0.04	-0.15	0.04	0.85	110	5.75	78	81	61	0	5	1	0
	WINNEMUCCA	40	25	57	9	33	4	0.01	-0.16	0.01	0.29	44	5.85	72	80	69	0	6	1	0
NH	CONCORD	35	20	47	7	28	5	0.02	-0.61	0.02	2.18	83	38.35	103	83	52	0	7	1	0
NJ	NEWARK	42	31	54	28	37	3	0.88	0.09	0.87	3.71	118	43.36	95	73	50	0	6	2	1
NM	ALBUQUERQUE	41	23	49	19	32	-3	0.00	-0.11	0.00	0.36	95	6.39	68	71	41	0	7	0	0
NY	ALBANY	35	25	45	10	30	5	0.49	-0.06	0.48	2.04	86	38.69	102	79	60	0	5	2	0
	BINGHAMTON	30	22	41	14	26	1	0.55	-0.05	0.54	2.41	89	41.74	109	83	73	0	7	2	1
	BUFFALO	33	26	40	24	30	3	0.82	0.03	0.66	4.60	135	39.95	100	87	73	0	7	3	1
	ROCHESTER	33	26	42	23	29	2	1.18	0.62	0.84	3.63	149	34.11	101	86	77	0	7	4	1
	SYRACUSE	36	27	48	23	31	5	0.60	0.00	0.57	2.55	91	39.92	100	85	66	0	7	4	1
NC	ASHEVILLE	46	27	60	19	36	-1	1.90	1.15	1.88	6.16	207	42.89	92	91	64	0	5	3	1
	CHARLOTTE	51	30	62	20	40	-3	1.87	1.12	1.62	4.11	148	39.54	92	86	47	0	4	2	1
	GREENSBORO	49	31	61	23	40	1	1.26	0.56	0.94	4.75	177	39.65	93	75	40	0	3	2	1
	HATTERAS	54	42	65	33	48	0	0.02	-1.10	0.02	2.34	59	54.60	96	82	49	0	0	1	0
	RALEIGH	51	30	63	21	41	0	1.05	0.33	0.70	5.02	189	46.66	109	86	48	0	3	2	1
	WILMINGTON	55	34	65	26	45	-2	0.60	-0.27	0.58	2.38	72	46.17	82	98	44	0	3	2	1
ND	BISMARCK	26	5	41	-7	15	2	0.00	-0.08	0.00	0.22	65	11.07	66	86	76	0	7	0	0
	DICKINSON	26	9	40	-4	18	2	0.00	-0.06	0.00	0.35	135	11.57	71	87	67	0	7	0	0
	FARGO	20	6	32	-7	13	3	0.12	-0.01	0.12	0.38	83	23.45	111	88	78	0	7	1	0
	GRAND FORKS	20	3	32	-8	12	4	0.00	-0.11	0.00	0.22	50	19.99	103	90	73	0	7	0	0
	JAMESTOWN	21	3	30	-10	12	1	0.00	-0.09	0.00	0.24	71	13.88	75	94	78	0	7	0	0
	WILLISTON	19	1	32	-10	10	0	0.02	-0.09	0.01	0.51	111	14.70	105	96	89	0	7	2	0
OH	AKRON-CANTON	32	22	40	17	27	-1	0.57	-0.04	0.48	2.25	84	40.03	105	90	76	0	7	4	0
	CINCINNATI	36	27	45	24	32	0	0.06	-0.64	0.03	3.44	117	44.28	105	87	70	0	7	3	0
	CLEVELAND	33	24	42	19	28	-1	1.01	0.40	0.84	2.96	105	35.63	93	90	69	0	7	3	1
	COLUMBUS	35	26	44	22	31	0	0.27	-0.32	0.16	2.20	84	39.68	104	84	74	0	7	3	0
	DAYTON	34	24	42	19	29	0	0.32	-0.32	0.28	2.20	80	38.15	97	89	67	0	7	3	0
	MANSFIELD	32	22	41	17	27	0	0.39	-0.26	0.28	1.74	59	33.93	79	95	68	0	7	3	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending December 28, 2002

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
	TOLEDO	32	24	37	19	28	1	0.01	-0.51	0.01	1.36	57	28.00	85	87	75	0	7	1	0
	YOUNGSTOWN	32	24	40	20	28	0	0.66	0.08	0.58	2.38	89	40.19	107	93	79	0	7	4	1
OK	OKLAHOMA CITY	45	23	63	13	34	-4	0.83	0.43	0.72	1.37	84	33.70	95	90	51	0	7	1	1
	TULSA	43	24	58	14	33	-5	0.85	0.41	0.83	2.70	123	31.27	74	92	77	0	7	3	1
OR	ASTORIA	49	40	56	37	44	2	3.01	0.81	1.08	11.71	124	55.16	83	94	81	0	0	6	2
	BURNS	36	18	48	4	27	3	0.64	0.36	0.28	1.39	126	5.37	52	93	79	0	5	5	0
	EUGENE	48	39	54	37	44	5	2.95	1.23	1.20	9.47	126	34.87	70	95	85	0	0	6	3
	MEDFORD	47	35	55	29	41	4	3.60	3.01	2.31	6.32	243	17.15	95	97	71	0	3	5	2
	PENDLETON	44	32	58	23	38	5	0.82	0.52	0.38	1.64	127	9.23	73	94	77	0	3	5	0
	PORTLAND	47	38	55	31	42	3	1.48	0.29	0.43	6.10	118	29.33	80	96	80	0	1	6	0
	SALEM	48	38	54	31	43	4	2.15	0.81	0.80	9.37	160	36.24	92	94	82	0	1	6	2
PA	ALLENTOWN	38	26	50	17	32	2	1.01	0.28	0.96	3.89	130	40.52	90	82	56	0	7	2	1
	ERIE	32	25	40	20	29	-1	0.38	-0.36	0.27	1.60	47	45.49	107	87	70	0	7	4	0
	MIDDLETOWN	39	28	50	16	33	2	1.00	0.35	0.86	4.59	158	40.79	102	92	61	0	6	2	1
	PHILADELPHIA	43	32	54	26	37	2	0.93	0.19	0.85	3.90	134	39.16	94	71	51	0	4	2	1
	PITTSBURGH	34	25	42	20	29	-1	0.48	-0.10	0.38	2.34	92	32.12	86	90	65	0	7	4	0
	WILKES-BARRE	35	26	46	15	30	1	0.89	0.39	0.88	3.49	153	40.28	108	78	59	0	7	2	1
	WILLIAMSPORT	35	24	43	11	30	2	0.67	0.09	0.64	3.23	122	42.86	104	92	70	0	7	2	1
RI	PROVIDENCE	41	29	52	25	35	4	0.75	-0.17	0.75	4.87	132	42.32	92	73	48	0	6	1	1
SC	BEAUFORT	***	***	***	***	***	***	***	***	***	***	***	52.03	106	***	***	***	***	***	***
	CHARLESTON	60	36	68	28	48	-1	1.48	0.68	1.41	4.23	151	58.73	115	92	46	0	3	2	1
	COLUMBIA	54	31	67	23	43	-2	1.63	0.78	1.56	4.24	145	47.24	99	87	45	0	4	2	1
	GREENVILLE	51	31	62	23	41	-1	1.65	0.75	1.59	6.19	182	47.56	96	91	50	0	4	2	1
SD	ABERDEEN	26	3	39	-7	14	1	0.00	-0.08	0.00	0.28	104	15.31	76	87	78	0	7	0	0
	HURON	34	9	55	2	21	5	0.00	-0.08	0.00	0.28	97	14.45	70	91	65	0	7	0	0
	RAPID CITY	41	12	60	4	27	4	0.00	-0.08	0.00	0.04	14	10.46	63	74	34	0	6	0	0
	SIOUX FALLS	35	11	57	3	23	7	0.00	-0.08	0.00	0.15	36	24.05	98	84	64	0	7	0	0
TN	BRISTOL	45	25	56	19	35	0	0.92	0.18	0.62	3.93	130	39.87	97	93	57	0	6	3	1
	CHATTANOOGA	50	30	61	23	40	-1	1.73	0.68	1.64	6.67	156	50.71	94	86	56	0	5	2	1
	KNOXVILLE	47	30	58	22	39	0	1.02	0.03	0.95	5.11	128	57.94	121	90	59	0	5	3	1
	MEMPHIS	48	31	59	25	40	-1	1.67	0.56	1.56	7.73	150	72.90	135	88	48	0	5	2	1
	NASHVILLE	45	28	55	20	37	-1	0.82	-0.12	0.69	4.12	101	54.99	115	91	55	0	6	2	1
TX	ABILENE	55	28	68	22	42	-2	0.07	-0.22	0.07	1.32	120	27.97	119	84	55	0	5	1	0
	AMARILLO	33	17	44	8	25	-11	0.28	0.13	0.28	0.58	121	17.74	91	87	64	0	7	1	0
	AUSTIN	60	33	77	26	47	-4	0.93	0.39	0.73	4.34	201	38.22	115	89	60	0	4	3	1
	BEAUMONT	62	41	73	34	52	-1	0.39	-0.83	0.38	7.62	164	63.19	107	97	59	0	0	2	0
	BROWNSVILLE	70	55	80	45	62	2	0.21	-0.01	0.19	1.30	135	28.44	104	91	76	0	0	3	0
	CORPUS CHRISTI	65	47	78	37	56	-1	0.14	-0.25	0.07	2.70	178	30.89	96	93	71	0	0	3	0
	DEL RIO	61	36	69	31	49	-2	0.04	-0.09	0.04	0.31	50	17.77	98	89	61	0	2	1	0
	EL PASO	47	28	55	25	37	-7	0.62	0.46	0.38	1.65	258	7.47	80	92	52	0	6	3	0
	FORT WORTH	52	30	68	22	41	-4	1.06	0.49	1.06	3.04	134	43.34	126	88	50	0	6	1	1
	GALVESTON	61	48	70	40	55	-2	0.20	-0.58	0.20	2.84	91	63.42	146	95	67	0	0	1	0
	HOUSTON	62	41	74	32	51	-1	0.63	-0.17	0.62	5.00	153	59.12	125	93	64	0	1	2	1
	LUBBOCK	49	24	68	21	36	-2	0.18	0.05	0.18	1.57	291	19.29	104	85	58	0	7	1	0
	MIDLAND	51	27	63	23	39	-4	0.00	-0.14	0.00	1.05	191	9.34	64	83	55	0	7	0	0
	SAN ANGELO	54	29	67	24	42	-3	0.20	0.01	0.20	1.07	134	14.09	68	88	55	0	6	1	0
	SAN ANTONIO	61	38	76	32	50	-1	0.39	-0.02	0.37	2.37	137	46.13	141	95	49	0	1	3	0
	VICTORIA	63	43	78	34	53	-1	0.62	0.07	0.57	1.21	55	37.85	95	94	72	0	0	4	1
	WACO	55	33	66	28	44	-3	2.76	2.19	2.70	6.60	268	35.90	109	92	64	0	4	2	1
	WICHITA FALLS	50	26	68	20	38	-3	0.57	0.21	0.57	1.81	121	28.56	100	89	61	0	6	1	1
UT	SALT LAKE CITY	38	25	51	18	32	3	0.06	-0.21	0.05	0.32	31	10.07	62	81	56	0	6	2	0
VT	BURLINGTON	33	23	44	15	28	6	0.05	-0.39	0.03	0.92	47	36.66	102	84	64	0	6	2	0
VA	LYNCHBURG	46	28	60	19	37	1	1.09	0.37	0.77	4.02	142	37.05	86	74	46	0	6	2	1
	NORFOLK	50	35	60	28	43	1	1.02	0.29	0.90	4.16	158	50.89	112	86	46	0	3	2	1
	RICHMOND	49	31	62	24	40	2	1.11	0.37	0.57	3.42	126	37.77	87	85	50	0	3	2	2
	ROANOKE	47	31	59	23	39	2	1.16	0.55	1.06	2.82	112	33.15	79	68	50	0	4	2	1
	WASH/DULLES	44	27	57	20	35	1	0.59	-0.07	0.40	2.50	92	37.03	89	71	48	0	6	2	0
WA	OLYMPIA	46	34	51	29	40	3	1.36	-0.30	0.53	6.96	98	41.34	83	98	86	0	3	6	1
	QUILLAYUTE	47	35	50	32	41	1	5.26	2.16	3.66	13.78	105	89.89	90	97	90	0	2	6	3
	SEATTLE-TACOMA	46	36	52	28	41	1	0.67	-0.50	0.19	5.62	111	31.71	87	94	76	0	1	5	0
	SPOKANE	37	29	42	25	33	7	0.67	0.22	0.43	2.59	130	13.16	80	94	75	0	7	4	0
	YAKIMA	38	28	47	23	33	5	0.78	0.48	0.52	3.01	249	7.36	91	95	88	0	6	5	1
WV	BECKLEY	37	24	49	17	30	-3	0.61	-0.08	0.38	3.01	110	41.12	100	87	70	0	6	3	0
	CHARLESTON	43	30	52	23	37	2	0.56	-0.13	0.42	2.94	99	44.75	102	94	61	0	4	3	0
	ELKINS	38	22	44	13	30	-1	0.82	0.08	0.42	2.45	80	51.17	112	89	58	0	7	4	0
	HUNTINGTON	42	29	52	24	36	1	0.30	-0.44	0.16	3.05	101	46.28	110	86	57	0	5	3	0
WI	EAU CLAIRE	29	13	37	7	21	7	0.01	-0.18	0.01	0.54	60	39.47	123	90	68	0	7	1	0
	GREEN BAY	31	18	38	12	25	7	0.14	-0.11	0.14	0.66	53	27.89	96	86	66	0	7	1	0
	LA CROSSE	31	18	39	11	25	6	0.00	-0.20	0.00	0.29	27	30.57	95	84	62	0	7	0	0
	MADISON	31	19	37	11	25	5	0.00	-0.30	0.00	0.61	41	26.13	80	83	64	0	7	0	0
	MILWAUKEE	34	23	39	20	28	5	0.00	-0.43	0.00	0.56	28	26.50	77	79	63	0	7	0	0
WY	CASPER	28	10	43	-6	19	-4	0.00	-0.11	0.00	0.19	38	6.97	54	76	63	0	6	0	0
	CHEYENNE	36	19	53	11	28	2	0.00	-0.08	0.00	0.01	3	9.77	64	62	40	0	7	0	0
	LANDER	25	4	47	-9	15	-6	0.00	-0.11	0.00	0.21	42	8.10	61	88	77	0	7	0	0
	SHERIDAN	40	10	55	3	25	4	0.00	-0.15	0.00	0.18	32	11.59	79	78	55	0	7	0	0

Based on 1971-2000 normals ***** Not Available**

NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

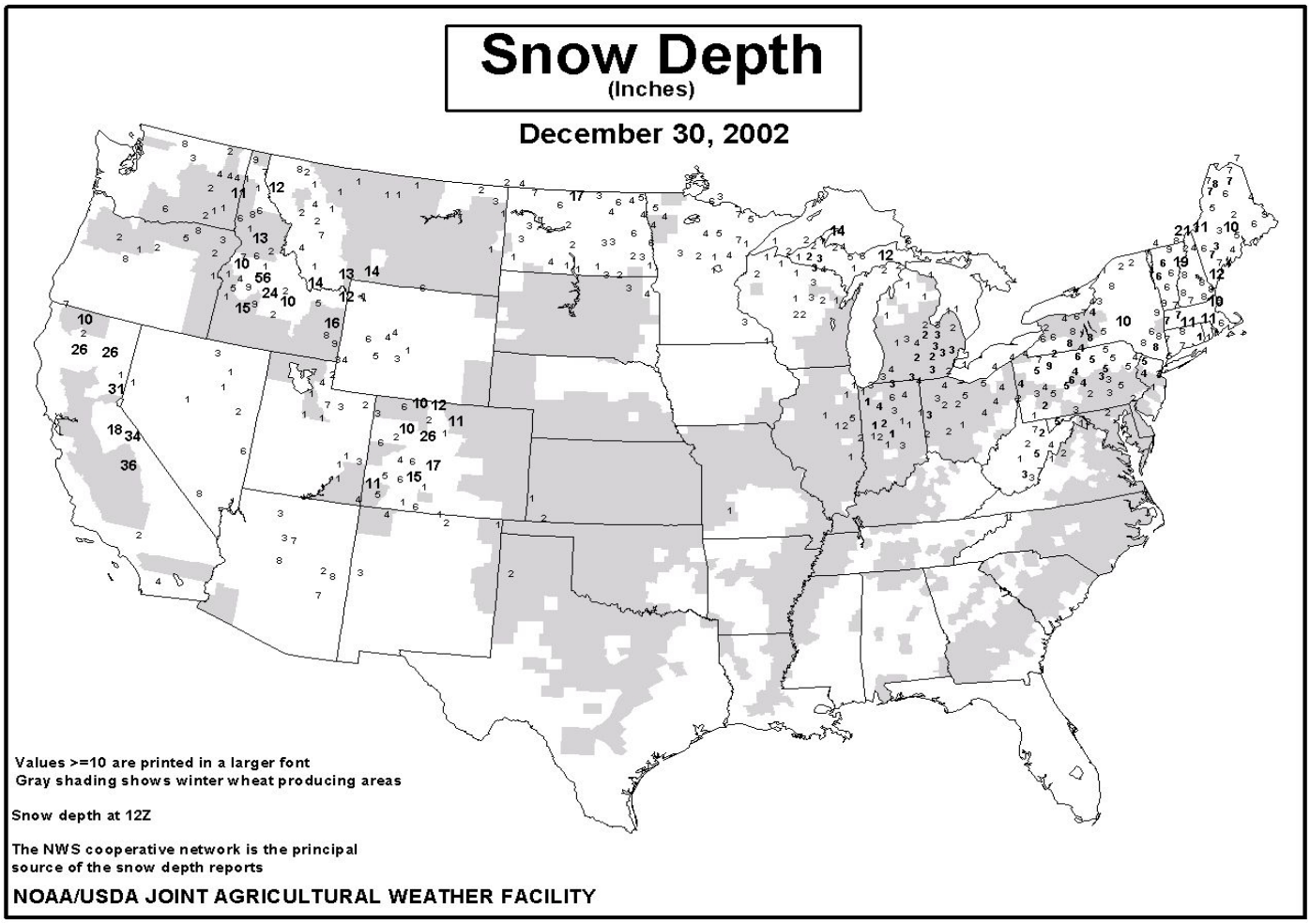
National Agricultural Summary

December 23 - 29, 2002

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

A stormy weather pattern continued in the Pacific Northwest, delivering heavy rain to low-lying coastal areas and significant snowfall to coastal and inland mountain ranges. The wet weather pattern has eliminated drought conditions along the coast and significantly reduced moisture shortages along the foothills of the coastal ranges. In the interior valleys, topsoil moisture supplies improved, but long-term moisture shortages remained moderate to severe. Meanwhile, above-normal temperatures aided root development of winter grains in the Pacific Northwest and northern Great Plains. Strong root development and abnormally warm weather have reduced the threat of heaving and winter kill, even though the protective snow cover has been thin and spotty. In California, precipitation interrupted field and orchard work in the central and northern valleys, but the moisture, combined with near-normal temperatures, contributed to vigorous crop growth. Another winter storm provided additional moisture reserves in the Southeast, and reduced moisture shortages along the Atlantic Coastal Plain, but many areas of the lower Mississippi Delta and Gulf Coast were excessively wet. The storms further hampered sugarcane harvest in Louisiana. In the southern Great Plains, below-normal temperatures limited growth of winter forages, while rain delayed fieldwork. The Corn Belt and adjacent areas of the Great Plains and Great Lakes region were abnormally warm and mostly dry.



International Weather and Crop Summary

December 22 - 28, 2002

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

HIGHLIGHTS

EUROPE: Rain and mild weather favored winter crops across the western two-thirds of the region, while, unseasonably cold, dry weather stressed crops in the east.

NORTHWESTERN AFRICA: Showers boosted soil moisture for winter grains in Morocco, and maintained favorable soil moisture in Algeria and Tunisia.

SOUTH AFRICA: Seasonably warm, showery weather benefited early development of corn and other summer crops.

FSU-WESTERN: The third consecutive week of bitterly cold weather prevailed over the region, creating the potential for some freeze damage to winter grains, especially in areas where snow cover was shallow and less protective.

MIDDLE EAST: Snow cover protected winter wheat from bitterly cold weather in Turkey and Iran.

EASTERN ASIA: On the North China Plain, a shallow snow cover helped to protect winter wheat from very cold weather.

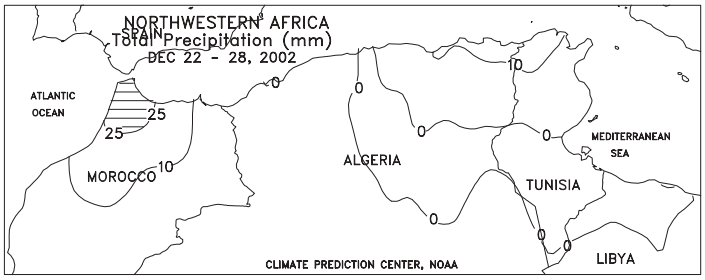
SOUTHEAST ASIA: Monsoon showers increased in Indonesia and the eastern Philippines.

AUSTRALIA: Showers continued in easternmost summer crop areas, but drought intensified elsewhere in eastern Australia.

SOUTH AMERICA: Widespread rain maintained ample to excessive moisture levels for summer crops in Argentina and Brazil.

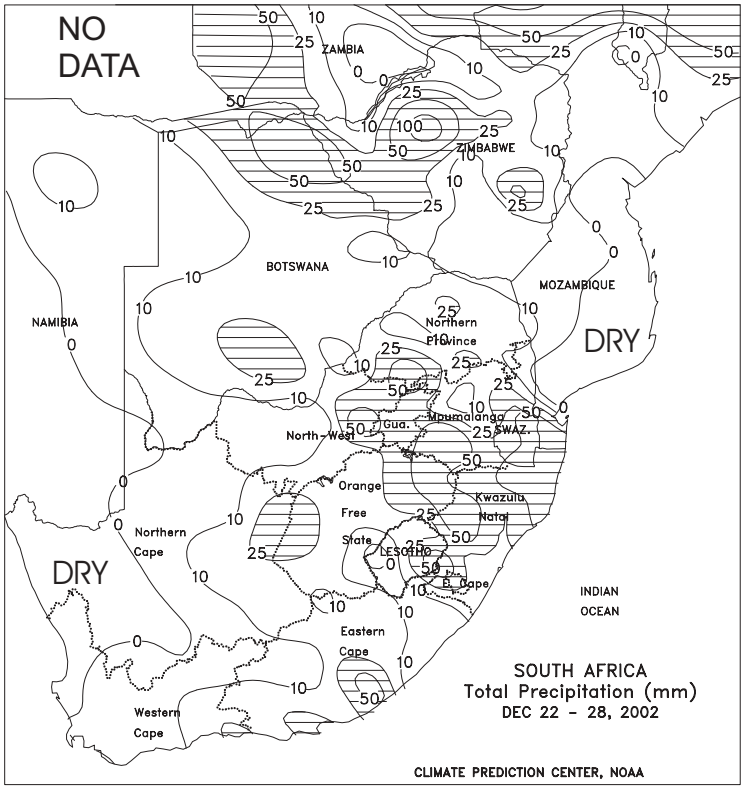
EUROPE

Frequent rain fell across the western half of the region, providing abundant moisture for winter crops. Precipitation ranged from 25 to more than 50 mm in England, Portugal, northern France, the Netherlands, Belgium, most of Italy, and the western half of Germany. Lesser amounts of precipitation (10-25 mm) were observed in Spain, southern France, the eastern half of Germany, and the Czech Republic. Weekly temperatures averaged 4 to 6 degrees C above normal as far east as Italy's Po Valley, promoting later than usual growth in winter crops. In contrast, unseasonably cold (weekly temperatures averaging 4 to 10 degrees C below normal) and generally dry weather extended from Scandinavia southward through Poland and Hungary into Bulgaria, stressing dormant winter grains. On December 26, minimum temperatures fell below -20 degrees C in eastern Poland, Slovakia, and portions of Romania. The short duration of extreme cold along with a shallow snow cover minimized the threat for widespread freeze damage to winter grains in these areas. Furthermore, temperatures moderated across eastern Europe at week's end, improving overwintering conditions for crops.



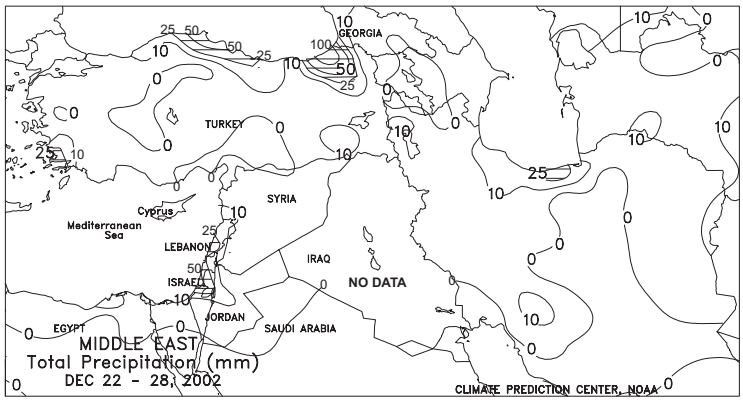
NORTHWESTERN AFRICA

Light to moderate showers (10-50 mm) in northern Morocco slowed late planting activities, but boosted soil moisture for germinating to vegetative winter grains. Light showers (1-25 mm) fell throughout Algeria and Tunisia, maintaining adequate soil moisture for winter grains.



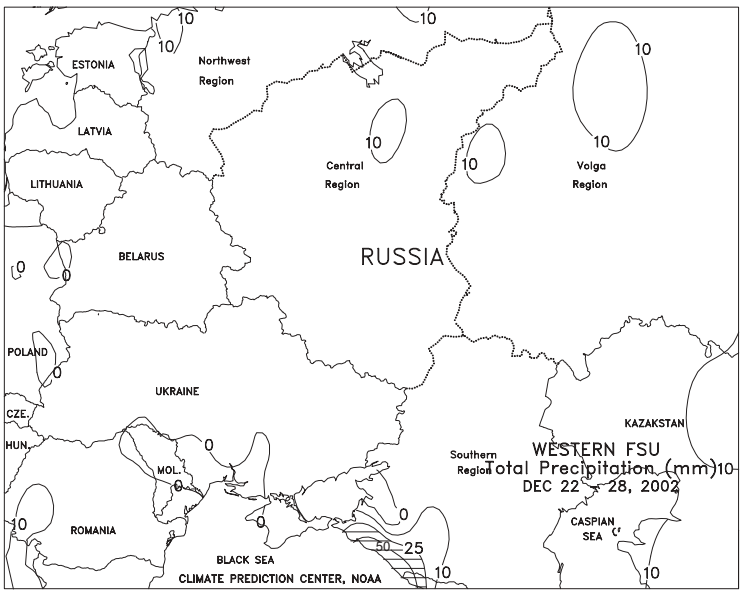
SOUTH AFRICA

Beneficial rain (10-25 mm or more) and seasonable warmth (highs from the upper 20s to middle 30s degrees C) maintained generally favorable conditions for emerging summer crops throughout the primary production areas. This included most of the corn belt and surrounding areas, as well as coastal sugarcane areas of KwaZulu-Natal and non-commercial crop areas of Eastern Cape. Corn planting is usually completed by early January, and prospects are currently overall favorable for crop establishment. Elsewhere, dry, warm weather in Western Cape favored late winter wheat harvesting but increased moisture demands of fruits and vegetables.



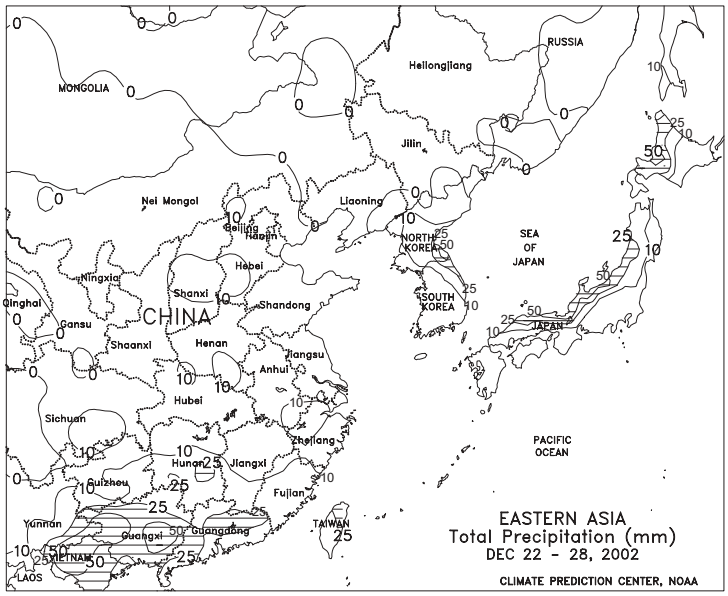
MIDDLE EAST

Cold, mostly dry weather dominated the region. Across Turkey and northwestern Iran, snow cover offered some protection from bitterly cold weather (temperatures averaging 5-7 degrees C or more below normal, with lowest temperatures falling below -20 degrees C). Somewhat milder weather (temperatures averaging from near to 3 degrees C below normal, with lows generally above -5 degrees C) benefited overwintering wheat from Syria eastward to western and northeastern Iran, including most of Iraq. Precipitation was generally scattered and light throughout the region, with significant precipitation (10 mm or greater) improving local moisture levels along the eastern Mediterranean coast (western Syria through Israel), Turkey's Black Sea Coast, and along Iran's Caspian Coast.



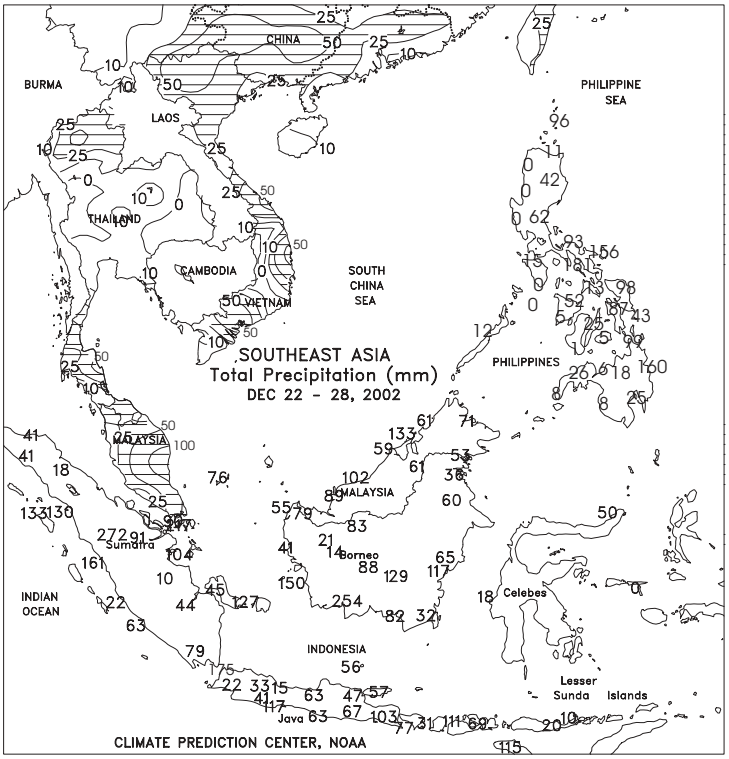
FSU-WESTERN

For the third consecutive week, bitterly cold air remained well entrenched over the region, stressing winter grains. In major winter wheat producing areas of Ukraine and the Southern Region in Russia, lowest temperatures were observed from December 24-28, ranging from -25 degrees C to -15 degrees C. Light snow (2-10 mm liquid equivalent) accompanied the bitter cold in these areas, providing a light, but fresh protective snow cover. Farther north, extreme cold (-40 to -25 degrees C) was observed on most nights in the Northwest, Central, and Volga Regions in Russia. The severe cold in these areas created the potential for some freeze damage to winter grains, especially in areas where snow cover was shallow and less protective. Bitter cold also prevailed in the Baltic States and Belarus, where lowest temperatures ranged from -23 to -15 degrees C. The bitter cold in these areas was of short duration and most areas had a shallow snow cover, minimizing the threat for widespread freeze damage. Weekly temperatures averaged more than 6 to 9 degrees C below normal in the Baltics, Belarus, most of Ukraine, and the southern Region in Russia, and from 10 to 17 degrees C below normal in the Northwest, Central, and Volga Regions in Russia.



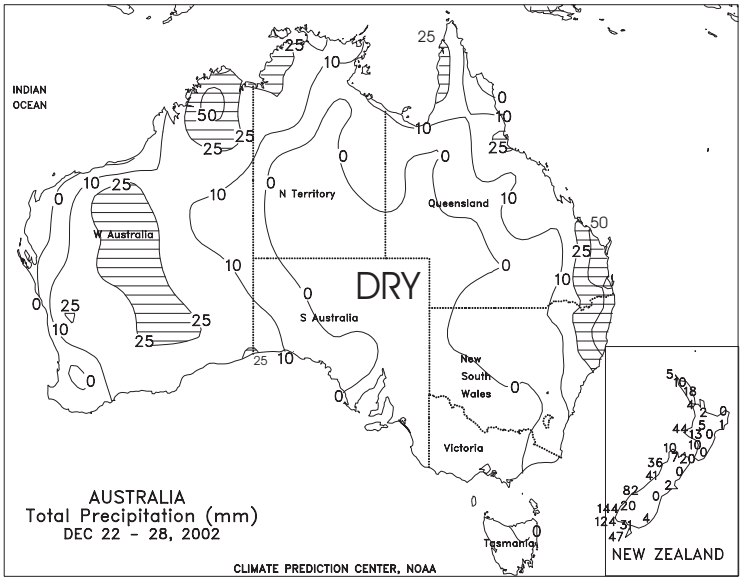
EASTERN ASIA

An arctic air mass overspread northern China, covering winter wheat areas as far south as Shandong. However, snow showers (liquid equivalent from 1-10 mm or more) ahead of the cold outbreak offered dormant winter wheat some protection from potential winter kill. Low temperatures fell below -20 degrees C in the coldest winter wheat areas. Temperatures averaged 3 to 5 degrees C below normal in central and southern China, keeping winter crops in a dormant to semi-dormant state. In southern China, unseasonably heavy rain (10-25 mm or more) increased irrigation reserves along the southern coast (Guangxi to Fujian and nearby locations to the north). Elsewhere, light to moderate precipitation (10-25 mm or more) locally increased long-term moisture reserves in Japan and on the Korean Peninsula.



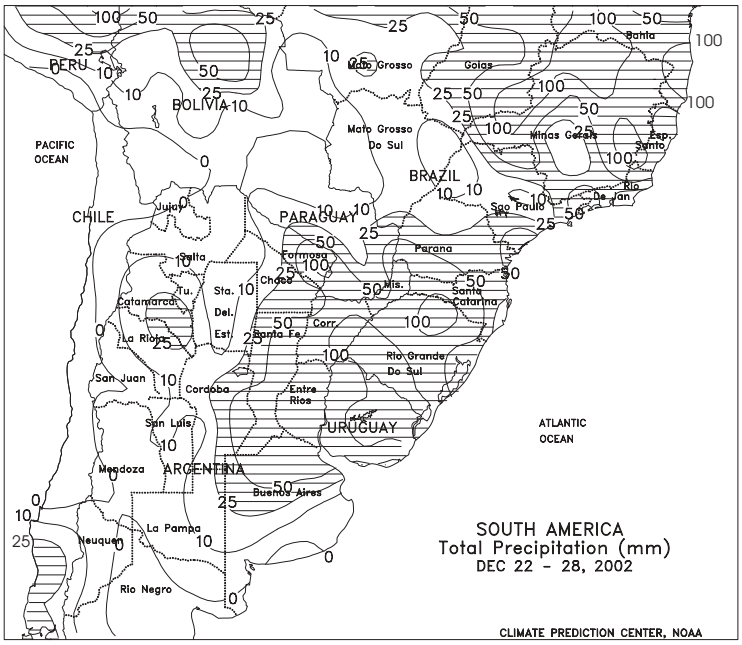
SOUTHEAST ASIA

Heavy showers (25-100 mm) fell throughout most of Java, Indonesia, boosting moisture supplies for vegetative main-season rice. However, growing areas in northern Java continued to receive below normal rainfall. In the Philippines, seasonal showers (25-100 mm, locally more) caused some flooding along the eastern coast, while seasonably dry weather prevailed along the western coast. Showers (25-50 mm) in northern and southern growing areas of Vietnam increased irrigation supplies for vegetative winter-spring rice. Heavy showers (50-200 mm) boosted moisture supplies for oil palm in peninsular Malaysia and Sumatra. Seasonably dry weather prevailed in Thailand. Temperatures remained 1 to 3 degrees above normal throughout the region, increasing evaporative losses on mostly irrigated crops.



AUSTRALIA

Rain (10-25 mm or more) continued in easternmost summer crop areas of Queensland and New South Wales, improving local moisture reserves for cotton and sorghum development. The moisture also benefited newly planted sugarcane along the coast. Elsewhere in the east, dry, seasonably warm weather (highs reaching the middle to upper 30s degrees C in most agricultural districts) reinforced severe drought, stressed livestock, and increased summer crop irrigation demands. Elsewhere, moderate showers (10-25 mm or more) benefited Western Australia's northern and eastern grazing lands but were not heavy enough to alleviate long-term moisture deficits. Dry pockets persisted in the southwestern corner of the state and some northerly agricultural areas. In New Zealand, scattered, light showers (less than 10 mm in most areas) covered primary small grain and pasture areas in both North and South Island, with heavier rain (greater than 25 mm) confined to non-agricultural areas along the western coasts.



SOUTH AMERICA

In Argentina, heavy rain (25-50 mm or more) continued in major summer crop areas from northern Buenos Aires to Formosa, maintaining abundant to excessive moisture levels for corn, soybean, and sunflower establishment. Somewhat lighter amounts (10-25 mm) were recorded in Cordoba and in crop areas from La Pampa to central Buenos Aires, favoring summer crop development. Pockets of dryness in southern Buenos Aires aided winter wheat harvesting as well as late summer crop planting. According to Argentina's Agricultural Secretariat, winter wheat was 62 percent harvested as of December 27. In addition, corn, soybeans, and sunflowers were 93, 91, and 99 percent planted, respectively, as of December 27. Temperatures averaged near normal throughout Argentina, with highs in the 30s degrees C sustaining expected crop growth rates. In Brazil, chronic wetness (25-100 mm) maintained unfavorably high moisture levels for normal summer crop development in southernmost growing areas (Rio Grande do Sul to southern Parana). Farther north, drier, warmer weather (rainfall totaling 5-25 mm or more, with temperatures averaging 2-5 degrees C above normal) followed last week's beneficial rainfall, spurring summer crop growth from northern Parana and Sao Paulo to Mato Grosso. Periods of warm, sunny weather also boosted coffee and citrus development, although conditions raised crop moisture requirements. Locally heavy rain (25-50 mm or more) continued from Goias and Minas Gerais northward, providing abundant moisture for soybean establishment after a late start to the rainy season.

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

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The *Weekly Weather and Crop Bulletin* (ISSN 0043-1974) is published weekly and 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. NOAA and IMC are responsible for managing, printing, and distributing the bulletin. The contents may be reprinted freely, with proper credit.

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