

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

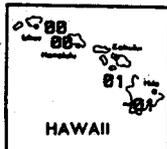
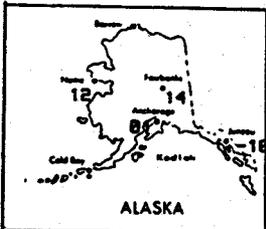
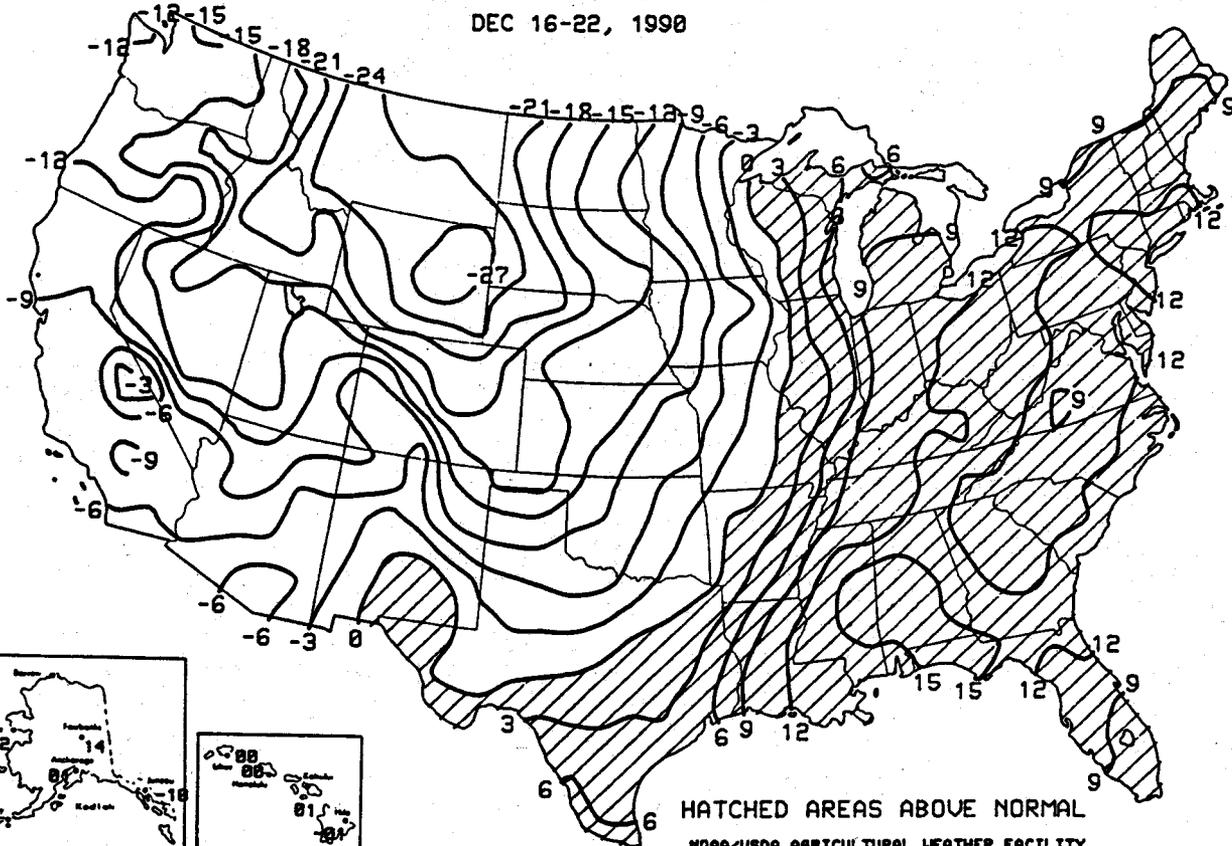
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December 27, 1990

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

DEC 16-22, 1990



HATCHED AREAS ABOVE NORMAL

NOAA/USDA AGRICULTURAL WEATHER FACILITY

Based on preliminary reports

HIGHLIGHTS

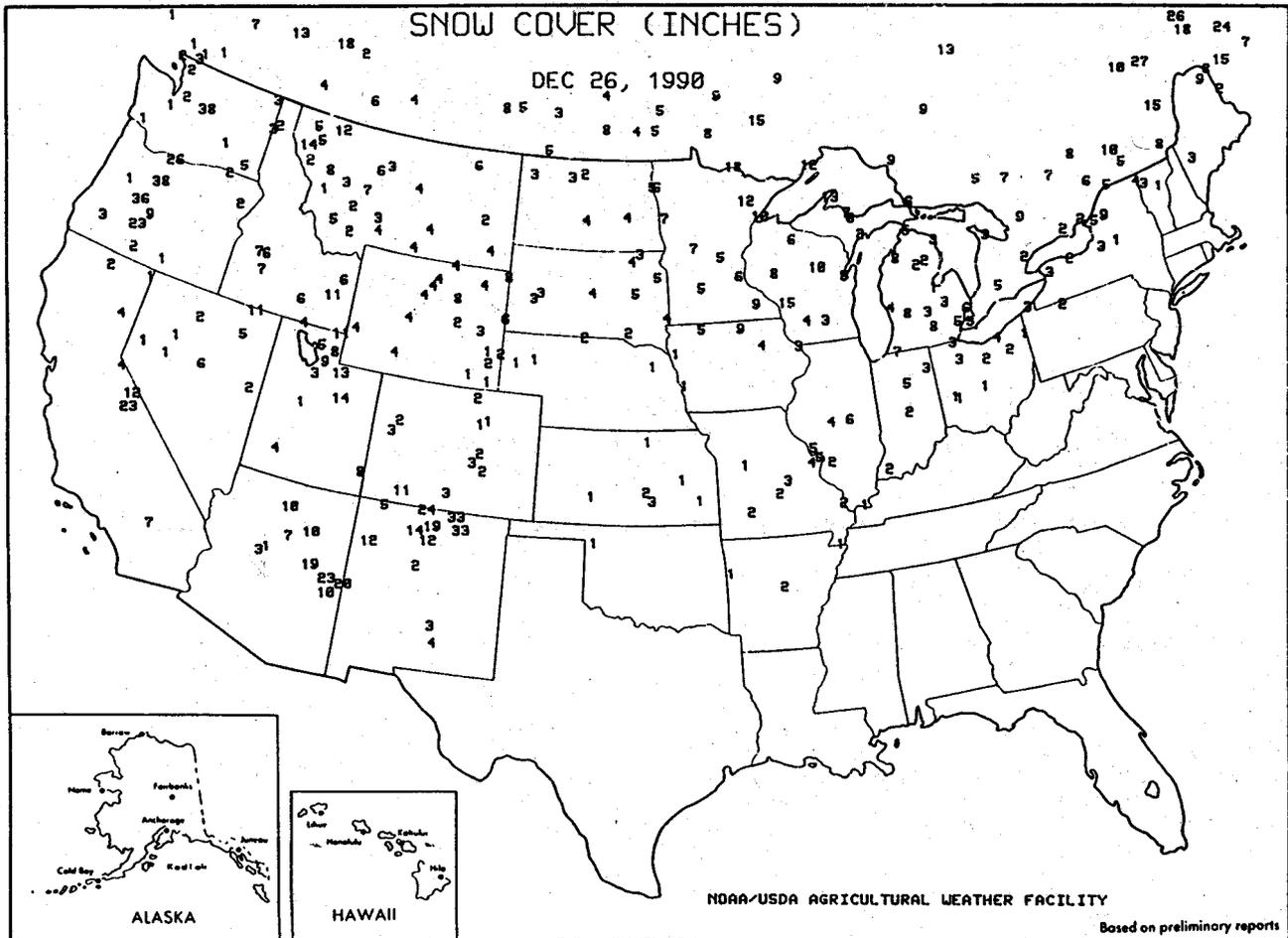
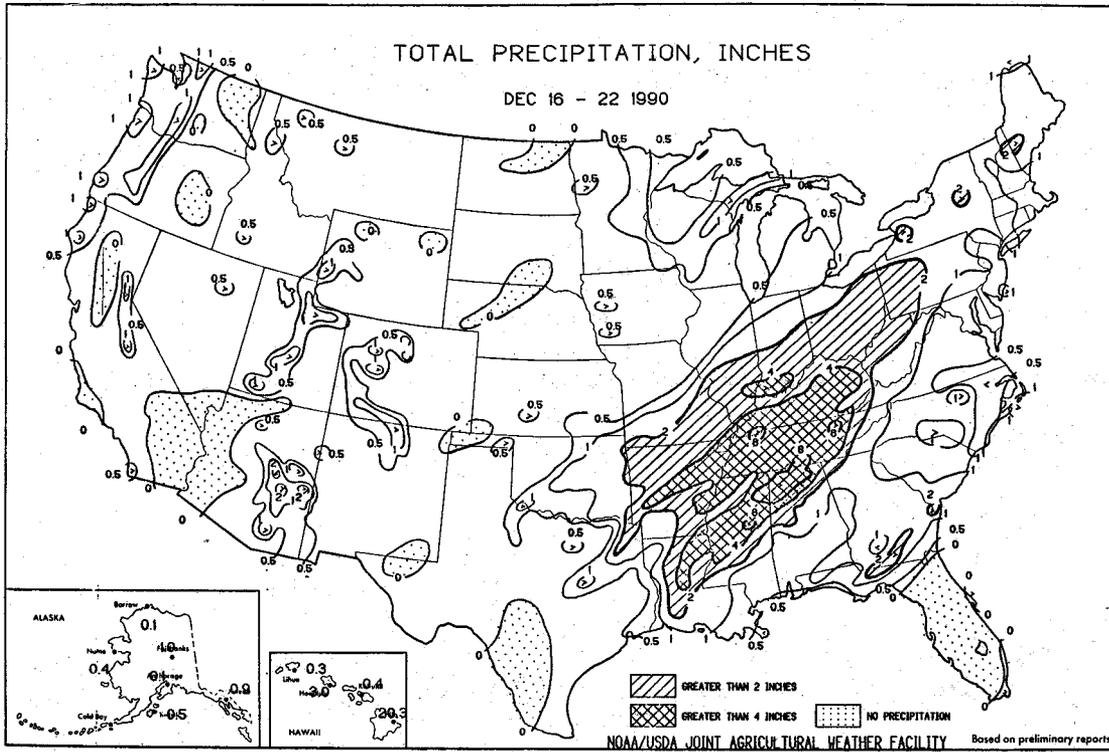
December 16-22, 1990

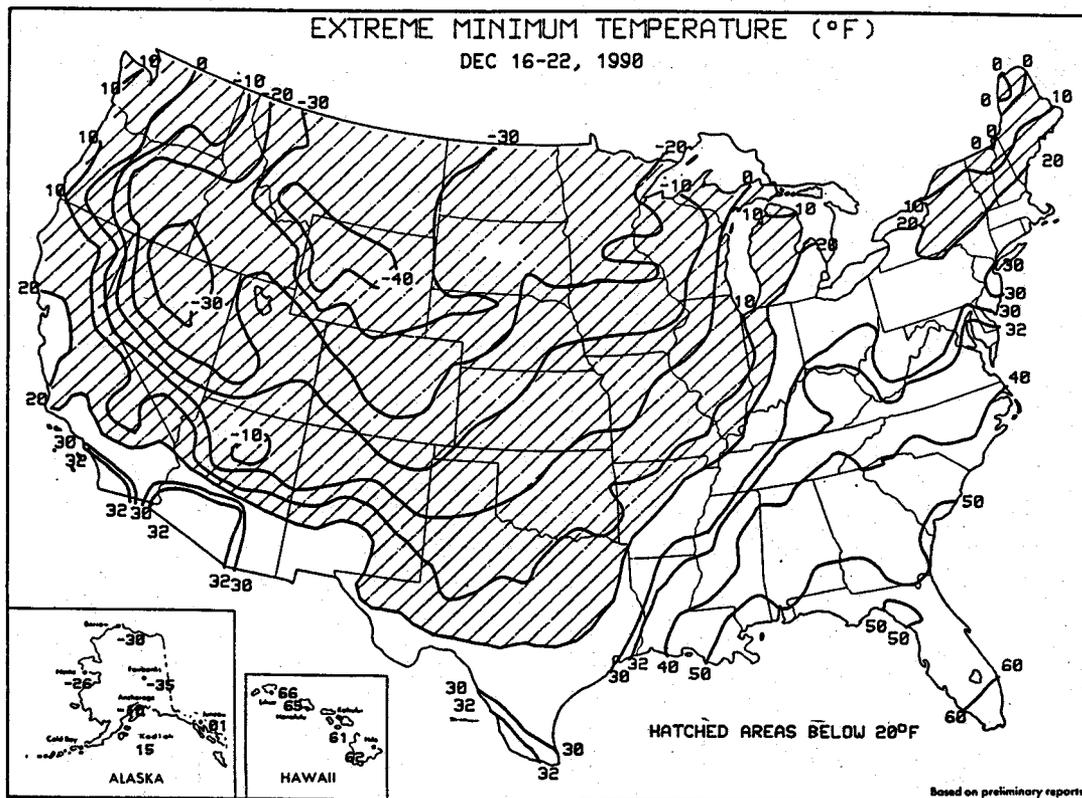
The weather headline of the week was the first widespread arctic outbreak of the season. Seasonable conditions prevailed early in the week as a departing storm deposited several inches of snow in **northern New England**. Meanwhile, a trailing system brought snow to the **southern Rockies** and dumped heavy rain from **Arkansas** to the **west slopes of the Appalachians**, resulting in considerable minor flooding. Arctic air began to penetrate the **northern Plains**, the **northern Rockies**, and the **Pacific Northwest** on Tuesday. By Wednesday morning, temperatures as low as -25 degrees Fahrenheit (F) were observed in **Montana**. Areas in and near **Seattle, WA** were hit with up to 14 inches of snow. **Santa Maria, CA** reported its first snow since weather records began in 1942. The Nation's

(Continued to p. 15.)

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Bitter Cold Invades the Western U.S.

Bitter cold swept into the western United States on the heels of an arctic front during the week before Christmas, producing record-cold and blizzard conditions before pressing eastward and touching off tornadoes and flooding in the Southeast. As of December 26, published reports indicated that more than 80 people had perished in weather-related accidents since December 18. Also, winter crop growers of the West have been fighting to salvage produce and, in some cases, trees, following the record-breaking cold snap.

The number of low-temperature records set since December 19 continues to mount. On December 22nd, Utah alone reported 26 new record lows, including a bone-chilling -40° Fahrenheit (F) in Roosevelt. Snowflakes danced through the air in several southern California coastal communities, in some cases for the first time since weather records began. Even a mercury thermometer could not have recorded the magnitude of the cold in the northern Plains and the northern Rockies (mercury freezes solid at -39° F). Casper, WY set an all-time record low of -41° F on the 21st. The Nation's low for each day was:

December 19	-28° F	Red Lodge, MT
December 20	-39° F	Wisdom, MT
December 21	-52° F	Meadow Lake, ID
December 22	-47° F	Big Piney, WY
December 23	-39° F	Craig, CO
December 24	-36° F	Steamboat Springs, CO
December 25	-34° F	Baker, MT

Other notable minimum temperatures included -7° F in Albuquerque, NM on the 23rd (first below-zero reading ever in December); -25° F in Denver, CO on the 22nd; -30° F in Gallup, NM on the 24th; and

upper teens to lower twenties in winter agricultural areas of southern California.

Growers reported widespread damage in southern California's San Joaquin and Imperial Valleys. Minimum temperatures reached critical levels or below during the weekend before Christmas. Some growers reportedly abandoned attempts to save fruit and instead turned attention toward saving young trees. Damage to ground crops was reported to be spotty but widespread.

Some damage was possible to the winter wheat crop of eastern Washington State, Montana, and the central Plains. Unusual warmth preceding the wintry blast had left the wheat somewhat more vulnerable to extreme cold, and some growing areas did not have much protective snow cover. Winter agricultural area growers in Texas and Arizona reported much less severe damage, as minimum temperatures fell only to borderline critical levels in the middle to upper 20's.

Much of the eastern third of the Nation will remember the record warmth that occurred in advance of the front. Before the arctic front charged offshore, it also left its mark on the Southeast with tornadoes in Louisiana and Mississippi and severe flooding in northern Alabama and eastern Tennessee. Modified arctic air swept to the East coast on Christmas Eve, giving the rest of the Nation a touch of winter for Christmas Day. Suffice it to say, the contiguous United States will not soon forget the first arctic outbreak of the 1990-91 winter season.

-Brad Rippey

National Weather Data for Selected Cities

Weather Data for the Week Ending December 22, 1990

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	MINIMUM	90 AND ABOVE		32 AND BELOW	
																	.01 INCH OR MORE	.50 INCH OR MORE	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	66	54	72	43	60	15	1.8	.6	1.1	2.5	74	43.9	83	92	69	0	0	0	3	1
MOBILE	73	62	75	52	67	15	.7	-.6	.7	2.8	72	53.6	85	97	76	0	0	0	2	1
MONTGOMERY	73	55	80	48	64	15	.7	-.4	.4	2.6	78	52.7	111	100	69	0	0	0	2	0
AK ANCHORAGE	20	8	34	-10	14	1	.1	-.2	.1	.5	65	17.0	117	96	78	0	0	7	3	0
BARROW	13	-11	29	-30	1	15	1.1	-.1	.1	.1	110	4.6	103	88	62	0	0	7	2	0
FAIRBANKS	11	-7	33	-35	2	13	1.0	-.8	.4	1.2	225	16.7	164	90	78	0	0	7	5	0
JUNEAU	23	10	32	1	17	-10	.9	-.1	.9	4.3	127	57.7	112	97	78	0	0	7	1	1
KODIAK	37	25	42	15	31	1	.5	-.7	.2	4.9	125	65.8	112	95	72	0	0	5	5	0
NOME	23	7	32	-26	15	12	.4	-.3	.2	.4	93	21.6	151	93	68	0	0	7	5	0
AZ PHOENIX	56	40	62	35	48	-5	.1	-.1	.0	.3	44	7.5	113	79	36	0	0	0	3	0
PRESCOTT	39	17	51	-3	28	-9	.3	-.1	.1	.3	23	15.6	85	83	37	0	0	7	3	0
TUCSON	53	34	65	29	44	-8	1.0	-.8	.3	1.3	195	14.6	136	93	43	0	0	3	4	0
YUMA	60	41	68	36	51	-5	.0	-.1	.0	.0	0	2.2	95	41	19	0	0	0	0	0
AR FORT SMITH	46	31	62	13	39	-2	2.9	1.7	.7	3.3	156	59.7	153	98	76	0	0	2	6	2
LITTLE ROCK	54	37	67	19	46	3	5.6	4.7	2.2	6.2	204	61.8	129	90	75	0	0	1	6	4
CA BAKERSFIELD	48	30	57	20	39	-8	.2	-.1	.2	.2	51	3.4	64	98	53	0	0	4	1	0
BUREKA	45	33	53	22	39	-9	.9	-.6	.5	2.8	63	29.2	80	90	59	0	0	3	3	0
FRESNO	45	29	55	19	37	-8	.9	-.1	.3	.7	63	8.7	88	95	56	0	0	5	1	0
LOS ANGELES	57	43	62	35	50	-7	.4	-.3	.3	.7	3	5.2	46	59	34	0	0	0	1	0
REDDING	44	27	64	17	36	-11	.3	-.6	.0	.6	11	24.6	63	75	36	0	0	5	0	0
SACRAMENTO	46	29	53	18	37	-8	.6	-.7	.0	1.2	63	13.3	83	83	43	0	0	0	0	0
SAN DIEGO	58	47	63	39	53	-5	.6	-.1	.3	1.2	44	7.2	76	81	46	0	0	6	3	0
SAN FRANCISCO	49	37	59	27	43	-6	.4	-.4	.2	1.8	76	10.4	57	77	48	0	0	6	3	0
CO DENVER	21	1	50	-25	11	-21	.2	-.1	.1	.2	56	16.7	112	79	42	0	0	7	4	0
GRAND JUNCTION	30	12	42	-16	21	-7	.2	-.1	.1	.7	175	8.1	105	90	47	0	0	7	4	0
PUEBLO	27	2	36	-23	14	-18	.2	-.1	.1	.1	91	15.6	145	84	66	0	0	7	3	0
CT BRIDGEPORT	50	38	56	30	44	11	.8	-.0	.4	2.5	94	42.8	106	86	66	0	0	1	3	0
HARTFORD	47	32	59	27	40	11	.6	-.3	.3	3.2	105	51.5	120	90	61	0	0	5	3	0
DC WASHINGTON	54	40	69	36	47	9	.8	-.0	.5	2.5	112	38.6	102	99	69	0	0	0	4	0
FL APALACHICOLA	75	63	78	56	69	15	.4	-.4	.2	1.2	50	37.7	70	98	77	0	0	0	2	0
DAYTONA BEACH	82	59	87	48	71	12	.7	-.5	.0	.2	14	36.0	75	98	55	0	0	0	1	0
JACKSONVILLE	80	58	82	50	69	14	.7	-.6	.0	.9	51	30.0	59	99	61	0	0	0	0	0
KEY WEST	81	74	83	69	77	7	.4	-.0	.4	1.1	86	36.3	93	86	69	0	0	0	1	0
MIAMI	82	68	84	62	75	7	.7	-.4	.0	.5	38	51.2	90	90	58	0	0	0	2	0
ORLANDO	82	60	84	53	71	10	.0	-.4	.0	.8	58	31.7	65	100	50	0	0	0	0	0
TALLAHASSEE	77	59	80	53	68	15	3.0	1.9	3.0	4.1	128	45.4	72	100	66	0	0	0	2	1
TAMPA	83	63	86	56	73	12	.0	-.5	.0	.1	3	34.3	75	98	56	0	0	0	0	0
WEST PALM BEACH	82	64	85	59	73	6	.3	-.2	.2	1.1	67	54.9	93	97	62	0	0	0	3	0
GA ATLANTA	62	48	73	42	55	11	.8	-.2	.6	2.1	73	56.7	120	96	71	0	0	0	3	1
AUGUSTA	66	49	76	43	58	11	1.1	.4	.9	1.7	81	40.4	97	98	68	0	0	0	5	1
MACON	66	52	75	47	59	11	1.7	.8	1.2	2.0	101	35.2	81	99	79	0	0	0	5	1
SAVANNAH	72	54	79	50	63	13	1.7	1.0	1.6	2.1	108	43.0	88	100	71	0	0	0	3	1
HI HILO	77	65	80	62	71	-1	20.3	17.5	6.1	27.4	287	208.5	167	98	76	0	0	0	7	7
HONOLULU	80	68	85	65	74	0	3.0	2.2	1.6	3.2	132	17.8	80	86	64	0	0	0	5	3
KAHULUI	80	67	85	61	73	1	.4	-.2	.2	1.2	68	24.3	141	94	65	0	0	0	3	0
LIHUE	76	69	79	66	72	0	.3	-.9	.1	.9	25	35.2	83	89	74	0	0	0	4	0
ID BOISE	20	0	44	-25	10	-21	.3	-.0	.1	.6	61	11.6	105	92	62	0	0	7	4	0
LEWISTON	29	13	53	-8	21	-14	.7	-.3	.0	.4	38	11.0	88	63	34	0	0	7	0	0
POCATELLO	13	-6	35	-25	4	-22	.3	-.1	.2	.8	117	9.8	95	83	65	0	0	7	6	0
IL CHICAGO	39	27	49	5	33	6	.4	-.2	.2	1.0	59	41.8	125	94	74	0	0	5	3	0
MOLINE	30	19	46	-5	25	-1	.3	-.1	.2	2.2	156	49.5	136	95	79	0	0	6	2	0
PEORIA	36	23	51	1	29	2	.4	-.1	.3	1.8	125	53.5	156	98	85	0	0	6	3	0
QUINCY	33	22	52	0	28	-1	.3	-.1	.2	.9	75	38.2	103	90	72	0	0	6	2	0
ROCKFORD	34	22	43	-3	28	4	.3	-.1	.2	1.5	106	44.0	122	95	82	0	0	7	2	0
SPRINGFIELD	39	25	53	2	32	2	1.3	.8	.8	2.7	176	50.4	151	98	82	0	0	5	5	1
IN EVANSVILLE	53	37	60	22	45	10	4.9	4.2	1.6	6.4	257	51.5	127	98	80	0	0	2	5	4
FORT WAYNE	46	32	55	24	39	11	1.8	1.2	1.0	4.2	235	51.1	151	95	85	0	0	4	5	1
INDIANAPOLIS	49	33	57	20	41	10	2.0	1.3	.6	3.9	182	46.7	123	95	78	0	0	3	4	3
SOUTH BEND	46	33	56	20	39	11	.8	-.2	.4	1.9	93	52.3	141	94	75	0	0	3	4	0
IA DES MOINES	26	10	42	-11	18	-7	.3	-.1	.2	1.5	204	43.3	143	89	72	0	0	7	4	0
STIOUX CITY	18	2	35	-13	10	-12	.1	-.0	.1	.6	115	24.5	97	90	71	0	0	7	4	0
WATERLOO	22	5	35	-16	14	-7	.3	-.0	.2	1.2	138	41.4	127	94	80	0	0	7	2	0
KS CONCORDIA	26	9	50	-8	17	-13	.2	-.1	.1	.3	63	25.6	95	88	62	0	0	7	5	0
DODGE CITY	24	12	49	-7	18	-15	.4	-.3	.2	.5	130	20.9	103	94	67	0	0	6	6	0
GOODLAND	24	4	54	-17	14	-16	.1	-.0	.1	.1	32	19.3	121	83	49	0	0	7	2	0
TOPEKA	31	17	45	-3	24	-7	.2	-.0	.2	.4	47	34.0	103	94	71	0	0	6	3	0
WICHITA	32	17	53	-3	25	-9	.7	.5	.3	.7	90	19.3	68	92	65	0	0	6	5	0
KY BOWLING GREEN	59	39	67	30	49	11	5.4	4.4	2.6	8.4	263	50.3	105	98	76	0	0	1	6	3
LEXINGTON	55	39	63	33	47	12	4.6	3.7	2.5	6.7	252	48.7	109	95	77	0	0	0	5	3
LOUISVILLE	56	39	63	31	48	11	3.9	3.1	2.1	6.0	243	54.7	129	93	76	0	0	1	5	3
LA ALEXANDRIA	69	52	77	36	61	11	5.8	4.7	4.1	7.4	215	59.8	118	97	68	0	0	0	6	2
BATON ROUGE	75	57	79	44	66	13	1.2	-.1	.5	4.3	122	65.0	120	98	75	0	0	0	5	2
LAKE CHARLES	73	54	77	36	63	10	2.1	-.9	1.5	3.2	88	52.9	101	99	76	0	0	0	5	1
NEW ORLEANS	76	61	80	51	69	14	.8	-.5	.4	8.1	218	59.5	103	97	76	0	0	0	2	0

Based on 1951-80 normals

Weather Data for the Week Ending December 22, 1990

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
SHREVEPORT	64	41	76	24	52	4	.9	.0	.3	1.1	39	62.8	147	97	72	0	0	2	6	0
ME CARIBOU	32	15	38	-2	23	9	1.4	.7	.5	3.6	159	44.5	125	89	68	0	0	6	5	0
PORTLAND	43	28	57	21	35	11	1.4	.4	.7	5.9	181	50.7	121	93	63	0	0	6	5	1
MD BALTIMORE	54	38	68	32	46	10	.8	.0	.5	2.4	97	39.3	97	96	65	0	0	3	4	1
SALISBURY	57	42	69	32	49	11	.8	.7	3.1	119	40.2	91	94	57	0	0	1	4	1	
MA BOSTON	52	38	62	30	45	13	.6	.4	2.1	66	45.4	107	90	59	0	0	1	4	0	
CHATHAM	49	39	54	33	44	10	.9	.3	2.7	76	41.7	92	92	69	0	0	0	4	0	
MI ALPENA	36	23	45	9	30	7	.4	.1	1.3	94	30.7	108	95	75	0	0	6	4	0	
DETROIT	46	33	55	29	40	12	.6	.1	2.5	136	40.8	136	94	68	0	0	4	4	0	
FLINT	44	30	54	21	37	11	.5	.3	1.2	83	31.8	112	94	70	0	0	6	4	0	
GRAND RAPIDS	43	30	52	16	37	10	.5	.1	1.2	62	40.8	124	98	77	0	0	5	4	0	
HOUGHTON LAKE	36	24	39	17	30	8	.5	.1	1.2	74	30.5	111	96	75	0	0	6	5	0	
LANSING	44	29	54	18	36	11	.8	.3	1.5	82	36.3	125	93	71	0	0	5	4	0	
MARQUETTE	32	14	50	-7	23	6	.7	.1	1.5	85	32.5	89	96	85	0	0	7	5	0	
MUSKOGON	43	30	51	17	37	9	.4	.2	1.1	59	35.7	117	98	76	0	0	3	4	0	
SAULT ST. MARIE	32	17	38	-1	24	6	1.2	.7	2.0	106	34.6	106	97	80	0	0	6	4	1	
MN ALEXANDRIA	12	-4	34	-24	4	-9	.3	.1	.2	.3	57	20.8	85	88	59	0	0	7	3	0
DULUTH	19	3	33	-19	11	-2	.4	.1	.2	.4	46	33.4	115	83	70	0	0	7	4	0
INT'L FALLS	11	-7	35	-26	2	-5	.7	.5	.3	1.1	164	20.2	85	86	64	0	0	7	4	0
MINNEAPOLIS	20	4	35	-18	12	-6	.5	.3	.2	1.0	151	33.0	127	91	69	0	0	7	5	0
ROCHESTER	20	4	34	-21	12	-4	.6	.4	.4	1.6	245	43.9	156	91	78	0	0	7	6	0
MS GREENWOOD	69	47	78	33	58	13	5.9	4.7	1.5	7.2	188	52.7	102	96	63	0	0	0	6	5
JACKSON	73	51	77	36	62	14	2.7	1.5	2.2	4.7	125	52.3	104	98	70	0	0	0	4	1
MERIDIAN	74	56	78	43	65	18	1.2	-1	.5	2.7	68	61.6	119	99	70	0	0	0	4	0
MO CAPE GIRARDEAU	50	33	60	11	42	11	6.2	5.3	3.6	6.9	255	52.4	120	99	80	0	0	2	6	4
COLUMBIA	37	23	61	2	30	-2	.4	-1	.3	1.8	127	52.1	144	90	70	0	0	6	4	0
KANSAS CITY	32	15	50	-6	24	-9	.4	.0	.2	.6	57	40.1	113	92	73	0	0	7	4	0
SAINT LOUIS	43	28	58	4	36	2	2.5	2.0	1.3	3.7	227	42.3	127	94	75	0	0	2	5	2
SPRINGFIELD	40	25	62	3	33	-2	1.5	.9	1.3	2.9	152	60.0	155	97	73	0	0	4	5	1
MT BILLINGS	10	-10	41	-26	0	-27	.2	.0	.1	.3	60	11.1	76	71	48	0	0	7	4	0
GLASGOW	2	-17	28	-36	-8	-23	.4	.3	.3	.4	181	6.7	63	84	65	0	0	7	2	0
GREAT FALLS	8	-13	39	-35	-2	-28	.5	.4	.3	.5	100	13.8	94	77	49	0	0	7	4	0
HAVRE	11	-17	39	-37	-3	-22	.3	.2	.3	.3	89	6.2	54	82	48	0	0	7	1	0
HELENA	7	-14	40	-35	-4	-26	.3	.2	.3	.3	77	8.3	73	79	51	0	0	7	4	0
KALISPELL	12	-3	34	-25	5	-19	1.0	.6	.7	2.2	205	40.4	265	82	57	0	0	7	3	1
MILES CITY	6	-14	34	-34	-4	-25	.1	-1	.0	.1	26	8.8	63	78	48	0	0	7	3	0
MISSOULA	10	-6	37	-28	2	-22	.2	.0	.2	.5	56	12.9	101	75	54	0	0	7	2	0
NE GRAND ISLAND	23	3	48	-11	13	-13	.3	.2	.2	.6	131	26.5	116	85	59	0	0	7	5	0
LINCOLN	23	6	43	-8	15	-11	.3	.2	.2	.6	136	26.3	98	87	66	0	0	7	5	0
NORFOLK	19	1	37	-16	10	-13	.2	.1	.1	.5	114	26.8	115	89	64	0	0	7	2	0
NORTH PLATTE	22	1	49	-21	11	-14	.7	.1	.1	.1	20	15.8	83	82	48	0	0	7	1	0
OMAHA	20	3	37	-13	12	-15	.4	.2	.3	.7	120	23.9	80	83	61	0	0	7	3	0
SCOTTSBLUFF	17	-7	51	-32	5	-22	.3	.2	.1	.3	89	17.6	122	79	44	0	0	7	4	0
VALENTINE	13	-8	43	-31	2	-21	.7	.1	.1	.3	96	17.1	100	82	51	0	0	7	2	0
NV ELY	21	-7	41	-29	7	-18	.2	.0	.1	.3	60	8.8	101	80	44	0	0	7	0	0
LAS VEGAS	47	29	55	12	38	-6	.0	-1	.0	.7	0	3.8	96	54	26	0	0	4	0	0
RENO	29	9	49	-13	19	-13	.1	-2	.1	.5	56	5.3	78	89	48	0	0	7	3	0
WINNEMUCCA	21	0	44	-37	11	-19	.2	.0	.2	.6	100	6.4	86	87	58	0	0	7	2	0
NH CONCORD	42	26	60	19	34	10	.7	.1	.3	2.6	103	39.8	111	97	69	0	0	6	3	0
NJ ATLANTIC CITY	56	38	65	26	47	11	.5	.3	.3	1.8	69	35.0	86	95	57	0	0	3	3	0
NM ALBUQUERQUE	42	24	53	6	33	-2	.4	.3	.1	.4	117	10.1	130	92	42	0	0	6	4	0
CLOVIS	42	20	62	-1	31	-7	.1	.0	.1	.4	88	13.2	78	89	37	0	0	5	2	0
ROSWELL	53	28	68	14	41	1	.1	.0	.0	.2	69	7.4	71	76	32	0	0	4	2	0
NY ALBANY	44	32	60	19	38	13	1.1	.4	.6	2.5	114	44.9	130	93	67	0	0	5	3	1
BINGHAMTON	43	32	55	20	37	12	1.4	.7	.9	3.0	143	43.8	122	93	72	0	0	4	3	1
BUFFALO	48	34	60	25	41	13	2.1	1.3	1.0	3.3	133	45.4	125	94	65	0	0	3	5	2
NEW YORK	53	42	62	34	48	12	1.0	.2	.5	3.4	129	49.8	120	88	61	0	0	0	4	1
ROCHESTER	46	34	58	24	40	12	1.0	.4	.5	1.9	103	37.9	124	95	69	0	0	4	5	0
SYRACUSE	45	33	62	18	39	12	1.8	1.1	.9	3.0	131	47.3	125	94	70	0	0	5	6	2
NC ASHEVILLE	56	44	64	38	50	11	.9	.1	.5	1.6	70	56.7	132	98	75	0	0	0	6	0
CHARLOTTE	58	47	68	41	53	11	1.3	.5	1.0	2.4	101	48.8	117	95	69	0	0	0	4	1
GREENSBORO	56	42	68	36	49	9	.6	.2	.3	2.7	115	42.1	102	95	67	0	0	0	4	0
HATTERAS	68	54	74	43	61	13	.9	-1	.6	3.9	126	46.5	86	92	69	0	0	0	3	1
NEW BERN	68	51	78	41	59	13	.7	-1	.4	1.7	68	50.4	97	96	66	0	0	0	3	0
RALEIGH	60	44	73	35	52	11	1.4	.7	.6	2.5	115	37.0	91	94	61	0	0	0	4	2
WILMINGTON	70	52	79	44	61	13	.8	.0	.8	2.4	98	53.1	101	96	63	0	0	0	1	1
ND BISMARCK	6	-9	38	-24	-1	-16	.2	.1	.1	.5	129	12.7	85	84	62	0	0	7	4	0
FARGO	8	-5	37	-21	2	-10	.6	.5	.3	.6	147	16.8	88	78	60	0	0	7	4	0
GRAND FORKS	4	-8	33	-21	-2	-12	.4	.3	.1	.5	107	15.9	88	77	62	0	0	7	4	0
WILLISTON	3	-17	26	-33	-7	-21	.2	.1	.1	.3	86	9.3	70	81	66	0	0	7	3	0
OH AKRON-CANTON	50	35	60	29	42	13	2.0	1.4	1.3	3.9	208	62.9	180	96	76	0	0	2	4	1
CINCINNATI	54	37	62	33	45	12	2.9	2.3	1.4	5.2	249	54.9	141	93	76	0	0	0	5	2
CLEVELAND	49	34	59	28	42	11	2.2	1.6	1.0	4.3	218	49.5	144	91	69	0	0	3	5	2
COLUMBUS	51	36	61	29	44	12	2.3	1.7	1.3	4.5	246	50.7	141	94	75	0	0	1	5	1

Based on 1951-80 normals

Weather Data for the Week Ending December 22, 1990

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	MINIMUM	TEMP. °F		PRECIP.	
																	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
DAYTON	50	35	59	28	43	11	3.9	3.3	1.7	6.7	382	56.4	167	95	83	0	2	4	3	
TOLEDO	47	33	56	26	40	12	1.1	1.5	1.6	3.1	166	35.9	117	97	79	0	4	4	1	
YOUNGSTOWN	49	33	59	25	41	12	2.1	1.5	1.4	3.9	201	44.1	122	96	74	0	3	5	1	
OK OKLAHOMA CITY	40	25	60	3	32	-7	1.2	1.0	1.9	1.3	151	40.4	132	92	61	0	3	3	1	
TULSA	40	27	58	6	33	-4	1.3	1.9	1.1	1.8	136	37.8	99	92	66	0	3	3	1	
OR ASTORIA	35	24	50	6	29	-14	1.0	-1.6	1.4	4.4	53	71.9	108	90	61	0	6	4	0	
BURNS	19	-4	42	-28	7	-20	1	-1.4	1	2	16	4.7	48	78	48	0	7	0	0	
MEDFORD	34	19	51	-4	27	-10	1	-1.7	0	1.1	45	13.5	72	97	61	0	4	4	0	
PENDLETON	25	8	50	-16	17	-19	1	-1.3	1	1.4	37	9.0	78	82	54	0	6	1	0	
PORTLAND	34	23	50	12	28	-12	1	-1.2	1	2.0	46	32.6	92	76	53	0	5	4	0	
SALEM	33	20	51	7	26	-14	1	-1.3	1	2.5	50	35.6	94	84	62	0	6	3	0	
PA ALLENTOWN	49	36	58	27	43	12	1.0	1.1	1.6	3.7	140	42.3	98	95	67	0	3	4	1	
ERIE	50	35	61	26	42	12	1.8	1.0	1.0	3.5	143	48.4	124	92	68	0	2	5	1	
HARRISBURG	49	35	58	25	42	9	1	1.0	1.4	3.5	150	41.5	109	95	66	0	3	3	0	
PHILADELPHIA	55	40	65	31	47	13	1	1.3	1.3	2.2	92	34.2	85	98	71	0	1	3	0	
PITTSBURGH	51	37	64	29	44	14	2.5	1.9	2.0	4.9	275	48.6	137	94	70	0	2	4	1	
SCRANTON	47	36	59	24	41	12	1	1.6	1.6	2.5	140	44.4	130	93	64	0	2	4	1	
RI PROVIDENCE	53	36	61	29	44	13	1	1.6	1.6	3.7	117	43.0	98	92	63	0	3	4	0	
SC CHARLESTON	71	55	79	50	63	13	1.3	1.6	1.7	2.3	106	43.4	86	100	73	0	0	3	2	
COLUMBIA	66	49	78	44	58	11	1	1.1	1.6	1.3	53	43.1	90	96	63	0	0	3	1	
FLORENCE	68	51	79	46	59	13	1.0	1.3	1.9	2.2	105	33.3	78	95	60	0	0	3	1	
GREENVILLE	58	46	68	40	52	9	1	1.1	1.5	1.8	65	48.0	97	98	76	0	0	4	1	
SD ABERDEEN	8	-5	34	-23	2	-13	1	1.2	1.2	1.4	120	20.9	120	80	61	0	7	5	0	
HURON	11	-6	33	-24	3	-15	1	1.1	1.1	1.4	119	23.0	126	87	67	0	7	3	0	
RAPID CITY	11	-9	43	-26	1	-25	1	1.0	1.0	1.3	76	16.4	103	79	57	0	7	3	0	
SIoux FALLS	13	-8	35	-21	3	-16	1	1.1	1.0	1.6	111	19.2	81	89	68	0	7	3	0	
TN CHATTANOOGA	61	47	70	42	54	13	4.1	2.9	2.9	6.5	172	64.5	126	98	73	0	0	5	1	
KNOXVILLE	59	45	71	41	52	12	2.4	1.4	1.2	4.0	125	50.2	110	97	71	0	0	4	2	
MEMPHIS	62	41	73	24	51	9	6.5	5.4	2.6	7.7	225	56.9	114	99	76	0	1	6	4	
NASHVILLE	60	41	67	33	50	10	5.2	4.2	1.7	7.8	243	44.1	94	97	79	0	0	6	4	
TX ABILENE	52	32	69	8	42	-4	1	1.2	1.2	1.7	118	31.3	136	86	48	0	3	3	0	
AMARILLO	37	16	65	-5	27	-11	1	1.1	1.1	1.2	57	17.5	93	85	54	0	2	1	0	
AUSTIN	65	41	82	18	53	2	1	1.3	1.2	1.2	15	28.0	91	95	54	0	2	4	0	
BEAUMONT	70	52	77	31	61	7	1	1.2	1.3	1.9	55	64.7	120	99	76	0	1	4	0	
BROWNSVILLE	80	58	84	31	69	8	1	1.2	1.2	1	5	18.8	76	93	56	0	1	1	0	
CORPUS CHRISTI	74	49	87	26	62	3	1	1.2	1.1	1.1	10	20.8	68	96	56	0	1	1	0	
DEL RIO	67	44	75	24	56	4	1	1.1	1.1	1	20	25.5	150	70	35	0	2	1	0	
EL PASO	56	36	65	24	46	2	1	1.2	1.2	1.3	96	12.8	171	79	32	0	2	1	0	
FORT WORTH	54	36	69	13	45	-2	1	1.1	1.2	1.7	60	44.6	146	93	59	0	2	4	0	
GALVESTON	67	55	73	32	61	5	1	1.6	1.1	1.6	24	37.0	84	98	72	0	1	3	0	
HOUSTON	70	47	80	24	59	4	1	1.5	1.1	1.5	17	39.9	88	95	64	0	2	4	0	
LOBBACK	47	23	67	4	35	-6	1	1.2	1.3	1.4	154	15.9	91	92	45	0	5	3	0	
MIDLAND	56	30	73	9	43	-2	1	1.0	1.1	1.7	209	14.1	106	86	41	0	2	3	0	
SAN ANGELO	59	33	75	11	46	-1	1	1.0	1.1	1.2	40	28.8	162	87	48	0	3	3	0	
SAN ANTONIO	68	42	82	22	55	3	1	1.3	1.2	1	0	38.1	134	86	49	0	2	0	0	
VICTORIA	71	49	82	23	60	4	1	1.3	1.2	1.2	11	35.1	97	96	58	0	2	2	0	
WACO	61	38	81	16	50	1	1	1.3	1.5	1.7	54	37.8	125	93	55	0	2	4	1	
WICHITA FALLS	45	27	68	6	36	-7	1	1.5	1.6	1.8	89	37.4	144	92	61	0	3	3	1	
UT CEDAR CITY	25	4	37	-20	15	-16	1	1.5	1.4	1.0	215	10.6	105	94	55	0	7	4	0	
SALT LAKE CITY	25	6	40	-9	16	-14	1	1.3	1.0	1.5	47	10.6	72	94	60	0	7	4	0	
VT BURLINGTON	41	27	57	11	34	12	1	1.6	1.4	1.5	86	39.5	120	97	71	0	6	5	0	
VA NORFOLK	63	46	75	38	55	12	1	1.4	1.2	2.1	98	45.0	102	92	63	0	0	3	0	
RICHMOND	58	41	74	33	49	10	1.0	1.2	1.9	2.2	90	41.6	97	97	68	0	0	4	1	
ROANOKE	54	39	68	34	46	9	1	1.1	1.2	1.6	79	41.5	109	98	68	0	0	4	0	
WA QUILLAUETE	34	23	48	10	29	-12	1.2	-2.8	1.0	14.6	118	115.0	114	90	62	0	6	4	1	
SEATTLE-TACOMA	32	22	49	12	27	-14	1	1.6	1.4	3.4	75	44.6	122	86	57	0	5	3	0	
SPOKANE	20	7	40	-9	14	-15	1	1.6	1.4	1.1	61	18.3	116	78	52	0	7	0	0	
YAKIMA	29	7	56	-9	18	-13	1	1.3	1.2	1.2	19	6.1	83	83	43	0	7	0	0	
WV BECKLEY	54	39	65	31	47	14	1.7	1.0	1.7	2.7	123	39.2	95	94	64	0	3	4	2	
CHARLESTON	59	42	74	30	50	14	2.1	1.4	1.5	3.6	159	40.7	99	94	64	0	2	3	1	
HUNTINGTON	58	42	72	33	50	13	2.9	2.2	1.7	4.4	200	48.3	121	91	66	0	0	5	2	
PARKERSBURG	55	40	67	32	47	13	2.2	1.6	1.2	4.1	213	48.0	130	95	65	0	1	5	1	
WI GREEN BAY	33	17	38	-8	25	5	1	1.2	1.4	1.8	174	35.6	130	98	79	0	6	4	0	
LACROSSE	25	13	36	-16	19	-1	1	1.6	1.6	2.7	342	37.9	128	92	68	0	7	4	1	
MADISON	31	19	38	-5	25	3	1	1.0	1.3	2.9	257	35.9	119	95	81	0	7	4	0	
MILWAUKEE	37	27	45	4	32	8	1	1.1	1.4	1.7	118	40.0	132	94	73	0	4	3	0	
WAUSAU	26	9	34	-18	18	1	1.0	1.7	1.8	1.7	185	35.1	112	97	83	0	7	2	1	
WY CASPER	8	-17	37	-41	-5	-30	1	1.3	1.2	1	7	200	12.7	115	79	52	0	7	3	0
CHEYENNE	15	-8	47	-28	3	-26	1	1.3	1.2	1.1	3	115	19.6	148	83	49	0	7	5	0
LANDER	9	-13	38	-35	-2	-24	1	1.2	1.2	1.3	86	11.5	89	79	46	0	7	3	0	
SHERIDAN	11	-14	40	-33	-2	-26	1	1.1	1.1	1.3	54	13.2	89	83	49	0	7	2	0	

Based on 1951-80 normals

National Agricultural Summary

DECEMBER 17-23, 1990

HIGHLIGHTS: Extreme cold temperatures in California caused extensive damage to the citrus and vegetable crops. Arizona and Texas citrus and vegetable crops escaped serious freeze damage. Rain and snow over the eastern third of the Nation provided moisture to growing crops and delayed late harvest of corn and soybeans. Lack of moisture in Florida resulted in continued use of irrigation in fruit groves.

SMALL GRAINS: Wheat and barley in Arizona were in good condition with 60 percent(%) emerged, 25 points above the 5-year average. Snow provided limited cover and moisture to Kansas wheat. Some wheat fields in south-central areas of Kansas had serious army cutworm damage. West Virginia wheat was in good condition. Wheat planting was virtually complete in Florida. Illinois wheat was in mostly good to excellent condition. Snow provided insulation from arctic temperatures in Montana and Oklahoma.

CORN: Showers early in the week slowed the last of the corn harvest in Michigan.

SOYBEANS: The soybean harvests in South Carolina and Georgia were almost complete. Texas soybean harvest was almost complete with yields poor to average.

COTTON: Arizona cotton harvest was virtually complete. Late cotton harvest continued in southern California. Texas cotton harvest was 97% complete, 9 points ahead of normal. Yields and condition remained good.

OTHER FIELD CROPS: Tobacco bed preparation continued in Georgia. California sugarbeet harvest continued. Peanut harvest in Texas was basically complete, yields remained fair to average.

FRUIT AND NUTS: Low temperatures in California damaged the citrus crop. Damaged fruit can be processed but will be limited by processing capacity. Date and avocado harvests were active in

the southern part of the State. No cold weather damage was expected on citrus trees in Texas. Texas pecan harvest continued with fair to good quality in the High Plains and poor in the Blacklands and east. Hawaii papaya production declined, and sugar and pineapple harvests continued. Arizona citrus and pecan packing continued, and apple shipping continued in the east. Some orchards in Oregon were damaged by heavy snow. Dry weather in Florida caused continued irrigation of orchards. Fruit harvest was well advanced with good demand and quality. Georgia, Mississippi, and Oklahoma pecan harvests were nearing completion.

VEGETABLES: Texas Rio Grande Valley producers reported little damage to growing crops due to the extreme cold weather. The San Antonio Winter Garden area of Texas had some minor cold weather damage to the spinach and beet crops. Arizona mixed vegetable harvest continued in the west and central areas. California broccoli, cauliflower, and celery supplies were light with variable condition. Losses to specialty vegetables due to freezing temperatures were reported in the Sacramento and San Joaquin Valleys. Recently planted vegetable fields will require replanting in the affected areas.

PASTURES AND LIVESTOCK: Pasture and livestock were in good to fair condition. Hay supplies were adequate in North Dakota and adequate to surplus in West Virginia. Range conditions in the southern two-thirds of California were poor to very poor and poor to good in the northern third. Texas winter pastures continued to provide adequate grazing despite lack of moisture.

State Summaries of Weather and Agriculture

These summaries provide brief descriptions of crop and weather conditions important on a national scale. More detailed data are available in Weather and Crop Bulletins published each Monday by NASS State Statistical Offices in cooperation with the National Weather Service.

ALABAMA: Rainfall 10.0 north, 15.00 to 18.00 in. isolated areas; 1.00 to 3.00 in. south. Temperatures 10 to 15° above normal for week, dropped to teens north, 20s south, near freezing extreme southeast.

Primary activities: Turning cropland; repairing, cleaning, storing harvest equipment; pruning fruit trees; general crop of livestock, poultry, catfish.

ARIZONA: Upper level cold low moved across State 16th, 17th; scattered rain, snow showers northeast, southwest mostly sunny. Afternoon temperatures 17th, 30s higher elevations, 50s deserts. Minimums 18th, 5 to 10° below zero mountains, 20s, 30s deserts. Large storm system afternoon 19th; snow, strong cold winds northwest. Heavy snow, 60 mph winds caused blizzard conditions north; snowfall 2.00 to 13.00 in., rainfall south. Precipitation 21st, except west. Afternoon temperatures higher elevations teens 21st, 40s lower deserts. Skies cleared 22nd, light snow, afternoon, southeast. Temperatures 3 to 12° below normal.

Cotton harvest virtually completed; stalk shredding, disking, plow down progressed; fields prepared for subsequent crops. Wheat, barley good; 80% seeded, 79% 1989, 60% avg.; 60% established, 52% 1989, 35% avg. Alfalfa good; sheeping off continued. Mixed vegetable harvest, including lettuce, continued west, central. Citrus, pecan packing continued statewide. Apple shipping continued east.

ARKANSAS: Temperatures turned from mild to bitterly cold toward the weekend. Widespread rainfall through out the week, becoming frozen precipitation weekend. Extremes 4°; 74°. Rainfall 1.76 to 8.30 in.

Colder weather placed high demands on fuel supply, poultry industry. Fuel supply is adequate; however, prices have increased. Damage to the wheat crop is unknown.

CALIFORNIA: Deepening low pressure trough spread light amounts of moisture over most of State early week. As this moved eastward, frigid arctic air followed bringing extreme low temperatures Statewide, with widely scattered snow northern, central State.

Open weather permitted good progress field activities. Shredding, disking harvested cotton fields continued rapidly for plow down compliance deadlines. Late fields harvested southern counties. Sugarbeet harvest continued; ground preparation 1991 crop. Seeding small grains, forage mixes progressed. More rain needed for germination. Newly seeded alfalfa had good growth. General activities included herbicide application, pre irrigation for next year. Low temperatures damaged citrus, damage unknown. Special citrus damage report released. Normal fall cultural practices slowed; cold temperatures. Pruning, spraying, fertilizing, burning brush active. Deglet Noor date, avocado harvest active, southern State. Persimmon harvest virtually complete. Central valley citrus harvest stopped; cold weather. Desert grapefruit, lemons, tangerines harvest continued slower. Broccoli, cauliflower, celery light supply, variable quality. Potato

harvest continued Hemet Perris area. Cattle on supplemental feed. Average to good condition. Range poor to very poor southern two thirds of State, poor to good northern third. Water supplies short some pastures. New calf crop good. Sheep continued grazing on crop residues.

COLORADO: Temperatures near normal early, dropped to much below normal at mid week, continued through balance of week. Snow fall was limited mostly to mountain areas. Some areas had heavy amounts. Temperatures 10 to 16° below normal in the east, only a few degrees below normal in the west.

FLORIDA: Temperatures 10 to 15° above normal. Extremes 28°; 80°. Rain fell on about 3 days, west, 1 day elsewhere. Rainfall 1.00 in., west, north; little or none elsewhere. Greatest weekly total 5.23 in., Madison.

Soil moisture short, except few coastal, other low lying Peninsular areas. Rain variable, upper northern Peninsula through Panhandle helpful, more needed Statewide. Winter wheat planting virtually completed. Sugarcane harvest, planting continued active. Pastures 20% poor, 45% fair, 35% good. Panhandle cattle fair; Peninsula, fair to good. Light rains citrus areas; irrigation extensive. Fruit softening, some areas. Harvest well advanced, all types being harvested. Quality, demand good. Winter preparations underway in groves. Unseasonably warm temperatures prevailed over vegetable producing areas. Rainfall continued very limited. Fall harvest continued decline. Harvest winter crops increasing. Volume leaders: tomatoes, peppers, celery, cucumbers, squash. Plant City strawberry harvest underway.

GEORGIA: Week of very contrasting weather. Much of week unseasonably warm. Maximum temperatures low 80s south. Temperatures 10 to 15° above normal. Cold front late in week. Excessive rains extreme north and northwest. Totals 5.00 to 10.00 in. caused flooding. Elsewhere 1.00 to 2.00 in., few areas less than 1.00 in. Much colder 24th. Temperatures upper teens, low 20s extreme northwest.

Soil moisture adequate to surplus, rain limited fieldwork. Pecan harvest nearing completion. Soybean harvest complete. Wheat seeding nearly finished, fair to good condition. Tobacco bed preparation continues. Onions good, planting nearing completion. Pastures fair. Cattle, hogs mostly good.

HAWAII: Heavy rains with gusty winds continued to hamper crop production. Rainfall inundated Hilo, surrounding areas. Winds were gusty up to 25 mph with temperatures low 60s to mid 80s. Rainfall 0.01 to 17.40 in.

Days suitable for farm work 7.0. Papaya production declining. Sugar, pineapple harvest continuous.

IDAHO: Temperatures 15 to 20° below normal statewide. Precipitation occurred across State in form of snow, water equivalent measurements remain below normal.

Soil moisture amounts were adequate in north, short rest of State. Farm activities included feeding livestock, grinding feed, shop work, attending meetings. Hay, roughage supplies adequate. Livestock good, cold weather could have adverse effects on livestock.

ILLINOIS: Temperatures normal to 3° above normal north, south; 1 to 2° below normal central. Precipitation less than 1.00 in north; 1.50 to 3.00 in south; isolated areas more than 5.00 in.

Soil moisture mostly adequate. Winter wheat mostly good to excellent. Supplemental feeding of livestock on stalks.

INDIANA: Temperatures 1 to 8° above normal. Lows teens to low 20s, highs 40s to low 50s. Precipitation 1.00 to 4.66 in.

Wet weather stopped field activities. Other activities: Hauling manure, moving grain, processing tobacco, attending meetings, soil sampling, machinery repair, clearing fence rows, purchasing supplies, tax preparation, care of livestock. Livestock good condition. Wheat mostly good condition. Heavy rain some areas, ponding, flooding in some fields.

IOWA: Bitter cold air entered west early 19th; east late 20th. Temperatures 19° below normal northwest to 5° below normal southeast. Extremes -30°; 40°. Precipitation 0.09 to 0.60 in.; average 0.29 in. Livestock mostly good despite extreme cold, welcomed by most livestock producers. Cold froze extremely muddy lots allowing all livestock relief from the wet conditions that existed earlier.

KANSAS: Temperatures 9° below normal west, 6° below central, 1° below east. Precipitation 0.20 in. northwest to 0.60 in. southeast.

Snow provided limited snowcover, moisture. Serious damage from army cutworms south central district some fields wheat, seedling alfalfa. Fields lost if not treated soon.

KENTUCKY: Warm, very wet. Temperatures 8 to 12° above seasonal normals, highs 50s, 60s, lows 30s, 40s. Precipitation excessive, 4.00 to 6.00 in., considerable flooding. Rain early, again 21st to 23rd. Arctic blast sent temperatures into teens with freezing rain.

Soils saturated, lowlands, river bottoms flooded. Minimal agricultural activity. Burley stripping resumed. Some wheat ground has standing water. Supplemental feeding increased, supplies adequate. Much concern about plummeting milk prices.

LOUISIANA: Temperatures 6.6 to 14.8° above normal. Extremes 28°; 80°. Rainfall 0.66 to 5.88 in.

Main activities: Finishing sugarcane harvest, caring for livestock, crawfishing, general farm maintenance.

MARYLAND & DELAWARE: **MARYLAND:** Precipitation 1.62 in. Temperature 46.3°, normal 35.6°. Extremes 21°; 69°.

Activities for the week: Repairing fence; hauling manure; spreading fertilizer; maintaining machinery; caring for livestock.

DELAWARE: Precipitation 1.36 in. Temperature 46.0°, normal 37.0°. Extremes 24°; 68°.

Activities for the week: Repairing fence; hauling manure; spreading fertilizer; maintaining machinery; caring for livestock.

MICHIGAN: Temperatures 3 to 13° above normal. Extremes 0°; 56°. Precipitation 0.35 to 1.56 in. across State. Early in the week rain showers slowed down the last of the corn harvest. By the end of the week State had received a snow storm that was accompanied by a sharp drop in temperatures. Livestock in good shape, with adequate feed supplies.

Major activities: Removing snow, grading potatoes, purchasing seeds for spring planting, pruning grape vines, apple trees, making winter repairs on equipment.

MINNESOTA: Temperatures 10° below normal. Extremes 29°; 36°. Precipitation 0.11 for south central areas to 0.71 for north central areas, greatest weekly total 0.71 in.

MISSISSIPPI: (Not available).

Days suitable for fieldwork 2.5, 1.5 1989, 2.9 avg. Soil moisture 75% adequate, 25% surplus. Wheat 97% planted, 100% 1989, 98% avg. Pecans 95% harvested, 99% 1989, 90% avg. Pasture 55% poor, 15% fair, 30% good. Livestock 70% fair, 30% good. Hay, roughage 70% short, 30% adequate. Feed grain 15% short, 85% adequate. Activities: Land preparation, fertilizing, management.

MISSOURI: Temperatures 10° above normal southeast to 13° below normal north, coldest weekend. Precipitation 5.00 to 7.00 in. southeast, over 3.00 in. south central, down to less than 0.25 in. northern third.

Work mostly limited to livestock care, planning for next year.

MONTANA: Temperatures below normal southwest, eastern third of State. Other areas near normal.

Snowcover protection on winter wheat mostly fair to good. Livestock receiving supplemental feed nearly 100% due to colder temperatures, snow.

NEBRASKA: Cold air moved in early last week dropping average temperatures 15 to 30° below normal. Precipitation was less than 0.33 in., fell as snow, generally less than 1.50 in. Extreme -32°; 50°.

NEVADA: Temperatures well below normal. Extremes -39°; 63°. Precipitation 0.10 to 0.73.

Record cold spread over the State during the week. Farm, ranch activities include feeding of livestock, chopping ice, general maintenance.

NEW ENGLAND: Precipitation 0.30 in. south to 1.95 in. north. Temperatures 20s northern Maine, high 20s to mid 30s rest of north, mid 30s to mid 40s south. Maximum temperatures mid 30s north to mid 60s south; minimum temperatures -4° north to 30° south.

Major farm activities: Tending livestock, general repairs, maintenance.

NEW JERSEY: Temperatures much above normal, 45° south, 50° north, 51° coastal. Extremes 20°; 69°. Precipitation above normal, 1.90 in. north, 1.31 in. south, 0.88 in. coastal. Heaviest 24 hour total 1.02 in. on 23rd, 24th.

Farmers busy marketing Christmas trees, cider, apples, turkeys, sweetpotatoes, other storage items. Fruit pruning, caring for livestock continued.

NEW MEXICO: Arctic air moved into the State 21st sending temperatures well below zero. Temperatures

below normal. Precipitation trace at Roswell to 1.25 in. at Ruidoso, mostly in the form of dry snow. Mountain snows 1.00 to 2.00 feet of new snow.

NEW YORK: Unseasonably warm week. Temperatures 10 to 11° above normal. Many areas recorded record highs on the 20th, the 21st. Extremes 2°; 62°. Precipitation also greater than normal except Coastal Division.

Major farm activities: Tending livestock, orchard maintenance, machinery repair, general farm chores.

NORTH CAROLINA: Temperatures 10 to 13° above normal across the State. Precipitation 0.19 to 2.52 in.

Days suitable for fieldwork 4.2. Soil moisture 11% short, 81% adequate, 8% surplus. Pasture 7% poor, 40% fair, 53% good. Livestock feed from pasture 53%. Crop condition: Wheat 2% poor, 15% fair, 78% good, 5% excellent; oats 19% fair, 78% good, 3% excellent; barley 21% fair, 79% good; rye 1% poor, 17% fair, 82% good. Major activities: Tending livestock; land preparation; preparing tobacco plant beds; cutting wood. Other activities included: completion of soybean harvesting, small grain seeding; cutting, tagging Christmas trees; equipment repair; general farm maintenance.

NORTH DAKOTA: Very cold. Temperatures 12° below normal southeast to 19° below normal southwest. Extremes -41° west central; 41° southeast. Precipitation as shown 0.15 in. northwest to 0.37 in. east central.

Soil moisture below normal. Hay supplies adequate. Ranchers provided extra care to protect livestock from extreme cold.

OHIO: High temperatures mid 40s to the mid 50s, while average lows 30s. High temperatures 8 to 16° above average around the State, while lows dipped to the teens in the western portion of the State. Precipitation exceeded normal levels for the 7 day period 2.50 to 3.50 in. above normal. This was 1.00 to 3.00 in. above average across the State.

The first snow accumulation zero in the southeast to 3.00 to 4.00 in. northwest. Amid the excess rainfall, most farm activities included machinery repair, bookkeeping, general business for year end activities.

OKLAHOMA: Temperatures 15° below normal west central to 9° below normal east central. Precipitation 0.06 in. west central, southwest to 1.32 in. east central.

Snow provided insulation from arctic temperatures, moisture for crops. Wheat remained mostly good. Supplemental feeding of cattle active. Prices for feeder cattle, calves steady except for heavier weighing heifers which were steady to \$1 lower than preceding week. Pecan harvesting, marketing essentially completed.

OREGON: Temperatures much below normal across entire State. Readings near 10° below normal southwest, 20° below normal northeast. Precipitation light, nearly all fell as snow. Water content 1.24 in. central coast, 0.40 to 0.90 in. Willamette Valley, 0.01 to 0.25 east of Cascades.

Soil moisture adequate to surplus west, short to adequate east. Deep soil moisture still short in small grains Columbia Basin. All field activities halted by extreme cold. Most of State west of coast range has at least some snowcover. Some

winter grain mites showing in grass seed fields Willamette Valley. Tree fruit pruning halted by cold; some orchards damaged by heavy snows. Livestock fair to good. Range, pasture poor to fair. Routine winter feeding in eastern range country. Fall grass growth halted by cold coastal counties.

PENNSYLVANIA: Unusually warm, wet week across State. Temperature 41°, 11° above normal. Extremes 19°; 66°. Precipitation 1.78 in, 1.08 in. above normal.

Activities: Spreading fertilizer; maintaining machinery, caring for livestock.

PUERTO RICO: Data Not Available.

SOUTH CAROLINA: Temperatures 10 to 15° above normal. Rainfall 0.63 in. at Columbia to 1.31 in. at Charleston to 1.51 in. at Greer. Soybean harvest about complete. Small grains in generally good condition.

SOUTH DAKOTA: Week began mild, then turned frigid. Extremes -45°; 44°. Statewide, temperatures 9 to 28° below normal. Measurable snowfall statewide. Generally less than 6.00 in. Precipitation for the year above or near normal east, below normal west.

TENNESSEE: Rainfall 4.00 to 6.00 in. above normal. Most rainfall 10.61 in. Dyersburg. Flooding many areas. Late week freezing rain, sleet, light snow. Temperatures above normal, highs 70s, lows teens.

Tobacco markets closed for holidays. Primary activities: Machinery repairs, year end record keeping, tending livestock, general farm chores.

TEXAS: Warm weather prevailed much of State during week until massive arctic surge roared into State late in week. High temperature records ahead of surge replaced by record low temperatures once full brunt of cold felt. Freezing temperatures, frozen precipitation as far south as Lower Valley. Thunderstorms which accompanied surge brought good amounts moisture north, east. For week, temperatures averaged much below normal west, north, below normal southeast, near normal Valley, above normal south. Precipitation close to normal in southern east, below normal elsewhere.

Crops: Cotton harvest wind down with light snow, rain causing only few delays Low Plains. Some weather damage few remaining fields, yields, grades remained good. Cotton harvested 97%, 99% 1989, 88% avg. Small grain growth, stands hold steady; crops beginning to show stress of dry weather. Some freeze damage evident dryland wheat fields Plains. Light rain helped few areas, producers really need slow soaking rain to limit further crop loss. Greenbugs continued problem parts Low Plains, Cross Timbers, Blacklands. Some greenbug damage central areas. Dry weather biggest threat to small grain progress. Statewide wheat 77% of normal compared with 41% 1989. Wheat 99% emerged, 99% 1989, 98% avg. Few soybean fields remain harvest neared completion throughout growing regions. Yields poor to average. Peanut harvest basically complete. Yields, grades remaining fields fair to average. Yields generally average to good, good quality grades Plains, south. Other field crops: Peanuts 97% harvested, 97% 1989, 97% avg. Pecans 84% harvested, 90% 1989, 86% avg. Soybeans 97% harvested, 97% 1989, 96% avg. Sugarbeets 98% harvested, 100% 1989, 94% avg. Sunflowers 95% harvested, 98% 1989, 98% avg. Oats planted 95%, 98% 1989, 97% avg.

Commercial Vegetables: Rio Grande Valley, producers reported little damage on growing crops, temperatures dipped below freezing. Only light frost damage evident tender greens, vegetables. No damage was expected citrus trees, except minor leaf burn. San Antonio Winter Garden, spinach, beets suffered some minor set backs from frosty temperatures, no severe damage. Pecan harvest continued with few delays. Producers harvesting fair to good quality nuts Plains, poor, light crop remained Blacklands, east, central.

Range and Livestock: Winter pastures continued provide adequate grazing for livestock despite stressed moisture levels. Ample supply cured forage still remained some areas of central. Livestock maintained good condition, extra care during cold spell. Supplemental feeding continued most areas, increased with colder temperatures. Range, pasture 3% very poor, 7% poor, 45% fair, 38% good, 7% excellent.

UTAH: Precipitation heavy in Uintah mountains, moderate other mountain areas, light to moderate elsewhere. Temperatures 6° below normal; western desert, Wasatch Front 9° below normal.

Extremely cold temperatures during the week slowed farm activity. Major farm activities include: Care of livestock, income tax preparation.

VIRGINIA: Temperatures about 8° above normal. Extremes 23°; 74°. Precipitation was near normal across the State.

Days suitable for fieldwork 3.2. Topsoil 5% short, 86% adequate, 9% surplus. Winter grains, grazing crops 9% poor, 39% fair, 45% good, 7% excellent. Forage from pastures, winter grazing crops dairy cattle 12%, beef cattle 45%, sheep 49%. Producers were busy with calving, lambing, fencing, burley tobacco marketing, attending pesticide recertification meetings.

WASHINGTON: Temperatures 9 to 16° below normal, east; 9 to 12° below normal, west. Precipitation none to 0.32 in. east; 0.60 to 1.02 in. west.

Days suitable for fieldwork 1.3. Soil moisture 50% short, 49% adequate, 1% surplus. Range, pasture 10% very poor, 32% poor, 30% fair, 28% good. Hay, other roughage 4% short, 95% adequate, 1% surplus. Winter wheat 3% very poor, 5% poor, 20% fair, 72% good. Barley 2% very poor, 3% poor, 40% fair, 55% good. Arctic cold weather covered the State, setting record low temperatures. Snow, ice over western areas caused traffic problems, halted most activity. Over eastern areas, the extreme cold may have harmed the stone fruit buds, the winter wheat, it is too early to determine at this point in time. Early calving continued in the extreme cold. All livestock are now on winter feeding programs.

WEST VIRGINIA: Temperature 47°. Extremes 21°; 74°. Precipitation 2.62 in., well above normal with some flooding in the northwestern, north central, south western parts of the State.

Days suitable for fieldwork 1.6. Soil moisture adequate to surplus. Wheat good. Barley good. Cattle, sheep good. Hay feed supplies adequate to surplus. Other feed supplies adequate. Farm activities: Feeding livestock, general maintenance.

WISCONSIN: Temperature 18°. Extremes -30°; 46°. Extremely cold during parts of week with windchills dipping to -60° on 22nd night. Snowfall 17th with accumulations of 4.00 to 6.00 in. in central areas. Other areas of State saw freezing rain, sleet, light snow. Snow on 21th with 2.00 in. falling across the northwest.

WYOMING: Bitter cold arctic air mass dropped temperatures 8 to 26° below normal. Precipitation in most areas, near to slightly above normal.

Winter wheat fair to good, possible freeze damage to areas without snowcover. Additional moisture needed. Livestock mostly good, bitter cold temperatures increased stress, feed requirement.

International Weather and Crop Summary

HIGHLIGHTS

December 16-22, 1990

WESTERN USSR ... Colder-than-usual weather covers the region but has no impact on dormant grains.

NORTHWESTERN AFRICA ... Beneficial showers continue over Morocco, but drier weather returns elsewhere.

EUROPE ... Wintry weather persists across most sections. Beneficial rain continues in the south.

EASTERN ASIA ... Light to moderate rain continues across the Yangtze Valley.

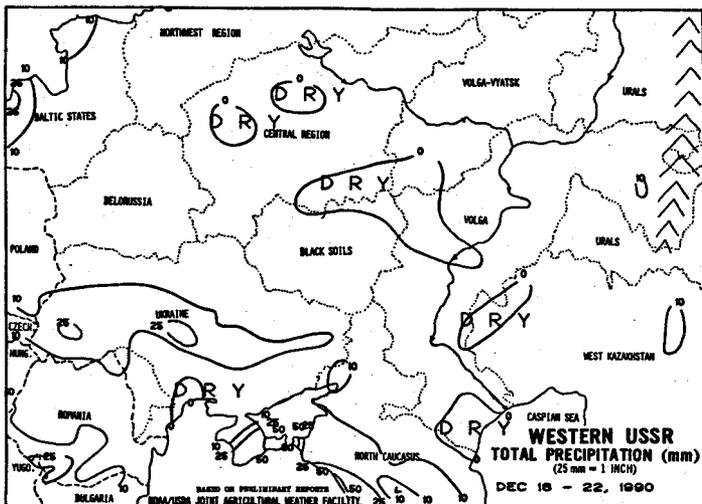
SOUTH ASIA ... Seasonably dry weather favors late wheat planting and summer crop harvests.

SOUTHEAST ASIA ... Seasonable showers benefit rice and plantation crops in Indonesia and Malaysia.

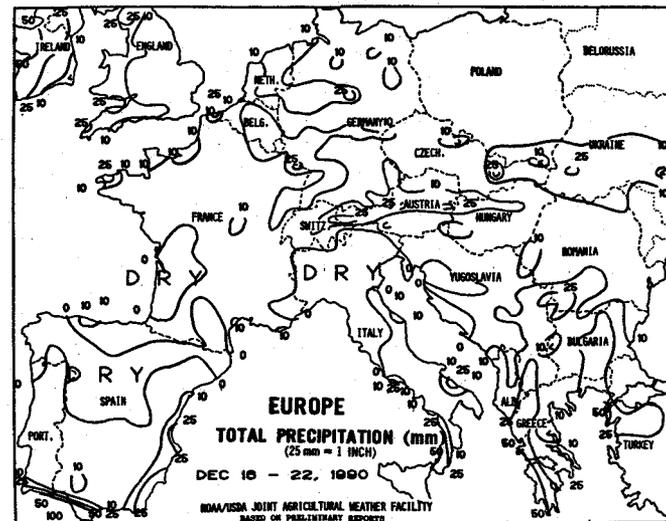
SOUTH AFRICA ... Dry weather prevails over primary western and central corn areas, limiting moisture for emerging crops.

SOUTH AMERICA ... In Argentina, wheat harvesting advances slowly, while ample moisture promotes summer crop growth. In south-central Brazil, late soybean planting continues.

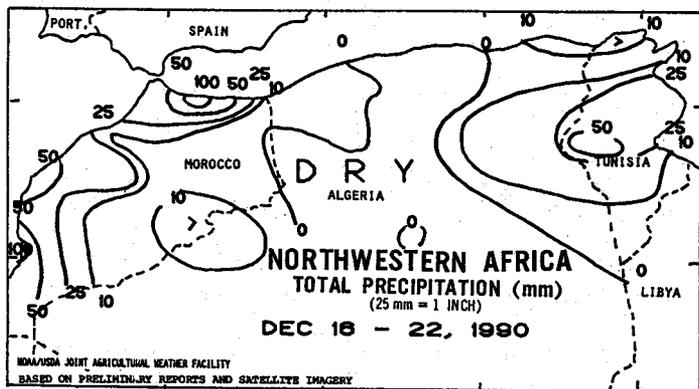
AUSTRALIA ... Hot, dry weather stresses summer crops in the east. Tropical cyclone hits northern Queensland.



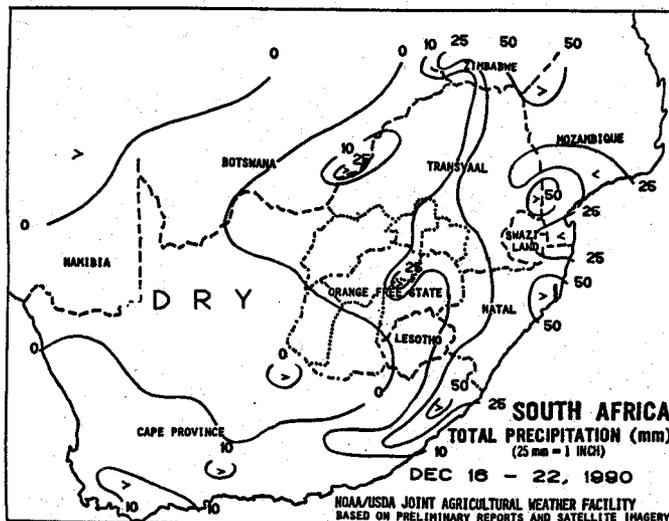
WESTERN USSR ... The first cold spell of the 1991 winter season covered winter grain areas in the Central Region, Volga Vyatsk, Black Soils Region, and the upper Volga. Minimum temperatures on December 18th and 22nd dropped to as low as -19 degrees Celsius (C). Temperatures were not low enough to harm winter grains and a shallow to moderate snow cover provided some protection. Precipitation amounts across the region were generally less than 10mm, although heavier precipitation (10-25mm or more), much of which fell as rain early in the week, covered the central Ukraine, southern North Caucasus, and Crimea. Winter grain areas in the southeast still lacked a protective snow cover, leaving crops vulnerable to extreme cold.



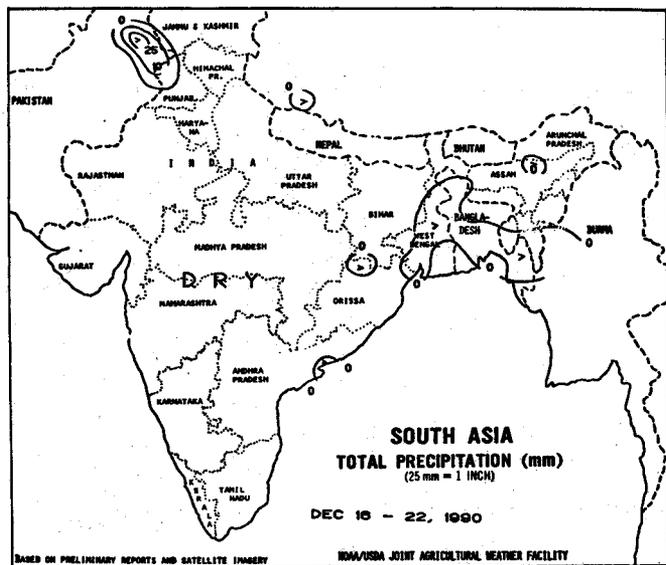
EUROPE ... Wintry weather continued over much of the continent, with snow cover as indicated by satellite extending from sections of France and Great Britain northeastward to Poland and Scandinavia. The snow cover offered dormant winter grains protection from the third consecutive week of below-normal temperatures. Subfreezing minimum temperatures (-1 to -8 degrees C) dipped as far south as northern Spain and Italy. In the Balkans, moderate to heavy rain (10-40mm) continued to replenish irrigation reservoirs and depleted subsoil moisture supplies. Widespread rain (10-50mm or more) in southern sections of the Iberian Peninsula benefited recently planted winter grains, but early vegetative growth was halted by below-normal temperatures.



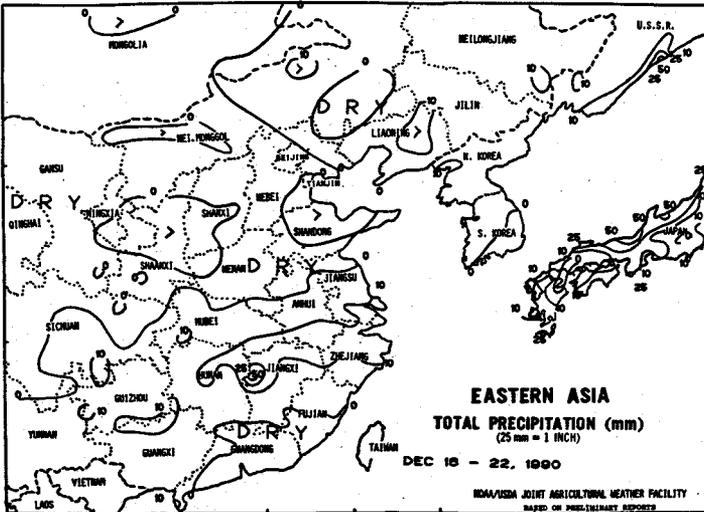
NORTHWESTERN AFRICA ... Winter grain planting continued to progress. Precipitation amounts ranged from 10 to 78mm in Morocco, 1 to 10mm in Algeria, and 3 to 27mm in Tunisia. Unseasonably cool weather covered most winter grain areas, with weekly average temperatures ranging from 1 to 4 degrees C below normal. Extreme minimum temperatures around -2 degrees C covered crop areas in Algeria and southernmost crop areas in Tunisia. Although temperatures were not low enough to cause significant damage to newly emerged crops, emergence and early growth were slowed by cool weather conditions. Subsoil moisture is limited throughout the region and timely rains will be needed to prevent the development of crop stress.



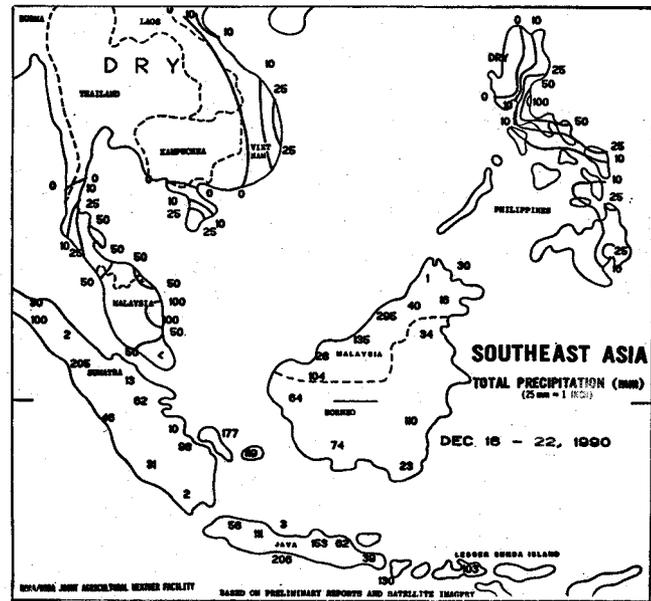
SOUTH AFRICA ... Light to moderate rain (10-33mm) covered the eastern and local areas of the central Maize Triangle, but dry weather in the west stressed emerging corn. Weekly temperatures averaged near normal across the Maize Triangle, but by week's end, maximum temperatures exceeded 35 degrees C over the western one-third of the triangle, exacerbating evaporative losses and stress conditions. Elsewhere, seasonable showers (20-55mm) benefited Natal's sugarcane areas as well as portions of the eastern Cape Province.



SOUTH ASIA ... Seasonably dry weather continued across the region, with local showers limited to northern Pakistan and coastal areas of eastern India and Bangladesh. Summer crop harvests and late winter wheat planting progressed normally.

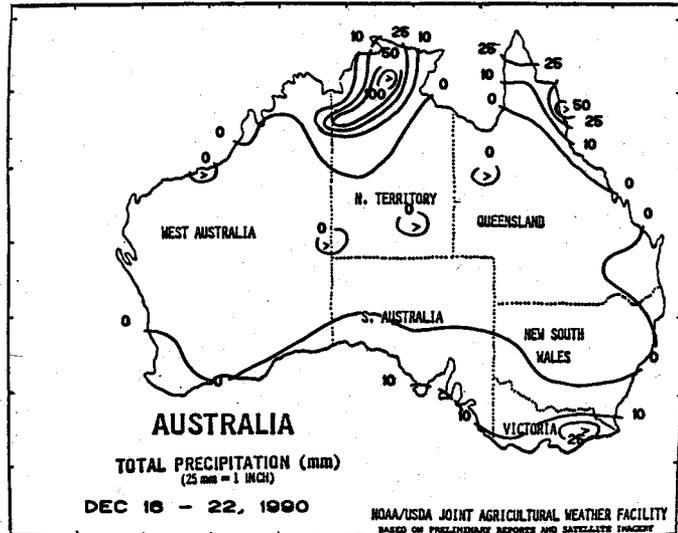


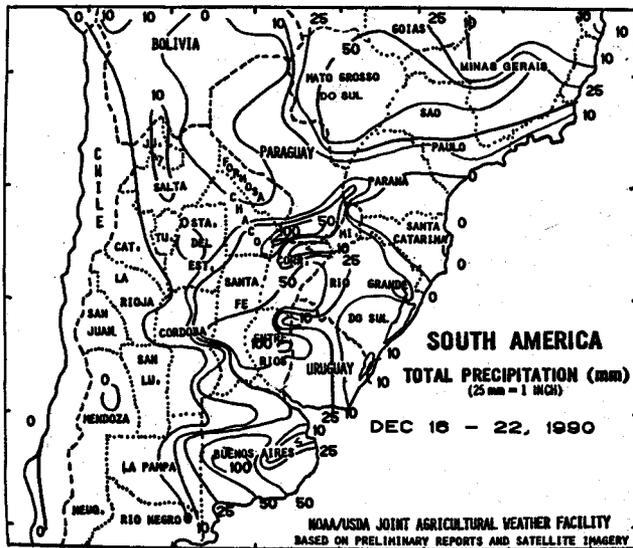
EASTERN ASIA ... Beneficial light to moderate rain (5-25mm) continued over much of the Yangtze Valley, increasing soil moisture levels. Scattered, mostly light rain and snow (less than 10mm) covered sections of the North China Plain, while heavy seasonal rains (25-64mm) fell across western Japan. Although temperatures averaged 1-4 degrees C above normal, they were sufficiently cool to keep winter grains in northern growing areas dormant.



SOUTHEAST ASIA ... Moderate to heavy showers (35-100mm) covered most of Malaysia and Indonesia, as well as the southern half of peninsular Thailand. The rainfall benefited plantation crops and Java's newly planted rice but caused local flooding, especially in eastern Malaysia and central Java where total accumulations exceeded 150mm. In the Philippines, moderate to heavy showers (33-87mm) continued over southern Luzon, but rainfall elsewhere in the eastern Philippines was generally lighter than normal.

AUSTRALIA ... Hot, mostly dry weather (daily maximum temperatures 37-42 degrees C) stressed summer crops across much of eastern Australia, especially in New South Wales. A cool front brought lower temperatures and scattered showers by week's end, although nonirrigated soils remained unfavorably dry for crop development. In the south, mostly dry weather favored progress of late winter grain harvest. Late in the week, a tropical cyclone moved onto the Cape York Peninsula of Queensland, bringing gusty winds and locally heavy rain (50-88mm). The rain benefited northernmost sugarcane growing areas, while those in coastal central and southeastern Queensland remained unseasonably dry.





SOUTH AMERICA ... In Argentina, periodic showers maintained ample soil moisture for summer crop growth, but slowed wheat harvesting and soybean planting in Santa Fe and Buenos Aires provinces. Local flooding from excessive rainfall (100mm or more) likely occurred in Chaco, Entre Rios, and western Buenos Aires. The wheat harvest is reportedly about one-half complete, with persistent wetness possibly affecting the quality of harvested grain. Soybean planting is over 50 percent complete, while corn is mostly emerging into vegetative growth phases. In south-central Brazil, rain continued to slow soybean planting, which is reportedly over 75 percent complete but behind average. Wetness in the south and earlier dryness in the north and west caused the delays. Recent showers across the north from Mato Grosso do Sul to Minas Gerais have improved topsoil conditions.

(Continued from front cover.)

low temperature on Thursday was -39 degrees F in **Wisdom, MT**. By Friday, the arctic front reached **central California** and **northern Texas**. Widespread light snowfall accompanied and trailed the cold intrusion, whitening much of the **West**. Some mountain locations received heavy snow accumulations. Freezing rain was a problem in many parts of the **Midwest** near the arctic boundary. Temperatures bottomed out on Friday in the **northern Rockies**, with a -52 degree F reading in **Meadow Lake, ID**. Portions of the **Montana winter wheat growing area** had temperatures below -20 degrees F with only an inch or two of protective snow cover three mornings in a row. The front swept to the **Mexican border** by Saturday morning. Growers in the **southern San Joaquin Valley** and **Imperial Valley of California** reported serious damage to winter crops as nighttime lows dipped into the upper teens and lower twenties over the weekend. Winter growing areas of **southern Arizona** and **south Texas** were not hit as hard. Ahead of the arctic front, very heavy rains and severe thunderstorms returned to the **Ohio, Tennessee, and lower Mississippi Valleys** on Friday and Saturday, with 8-15 inches of rain and severe flooding reported in **northern Alabama** and **eastern Tennessee**. Tornadoes accompanied the deluge in **Louisiana** and **Mississippi**. (For more details, see the related article on page 3.)

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