

# 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

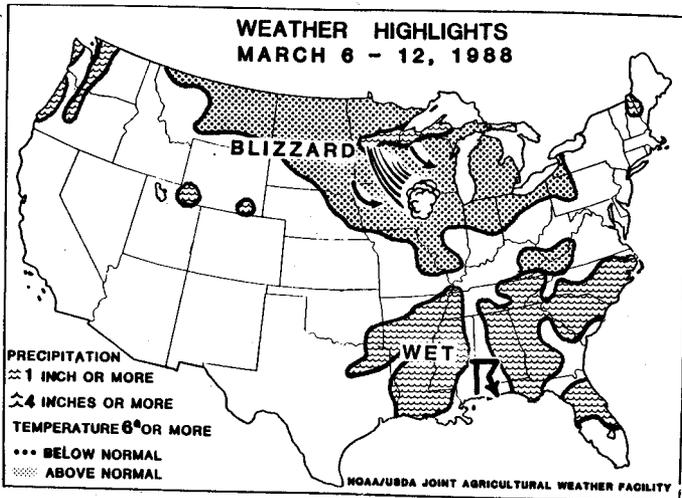
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Mar. 15, 1988

## National Weather Summary

March 6-12, 1988



**TUESDAY...** Heavy rain and thunderstorms developed in the lower Mississippi Valley, causing local flooding in Louisiana. Hail accompanied severe thunderstorms in parts of Texas. Light rain covered much of southern Minnesota, Wisconsin, and parts of lower Michigan. Rain mixed with sleet and wet snow fell in northern Wisconsin. Winds were strong and gusty in the northern Plains as snowfall diminished. Spring-like weather prevailed in the eastern third of the Nation.

**WEDNESDAY...** A cold front, stretching from the lower Great Lakes to the Gulf coast, continued to move slowly eastward, producing widespread rain in the eastern third of the Nation. Rain was occasionally heavy in Georgia, Alabama, and Louisiana. In the meantime, another cold front tracked across the northern Plateau region and extended into central California, causing scattered rain showers in the Pacific Northwest and northern California.

**THURSDAY...** A major late-season winter storm strengthened over the central and northern Great Plains, producing locally heavy snow in Wyoming, Utah, Colorado, and Nebraska. Snow spread into Montana and the Dakotas. Winds were strong and gusty on the Plains from Montana and the Dakotas to New Mexico. Rain showers were scattered across the Carolinas and northern Georgia as a storm system slowly moved out over the Atlantic.

**FRIDAY...** The storm that developed over the central and northern Plains on Thursday moved slowly east northeastward and continued to strengthen, producing widespread heavy snowfall. Blizzard conditions prevailed as strong, gusty winds produced blowing and drifting snow in Nebraska, Colorado, Wyoming, Montana, the Dakotas, and

(Continued to p. 9)

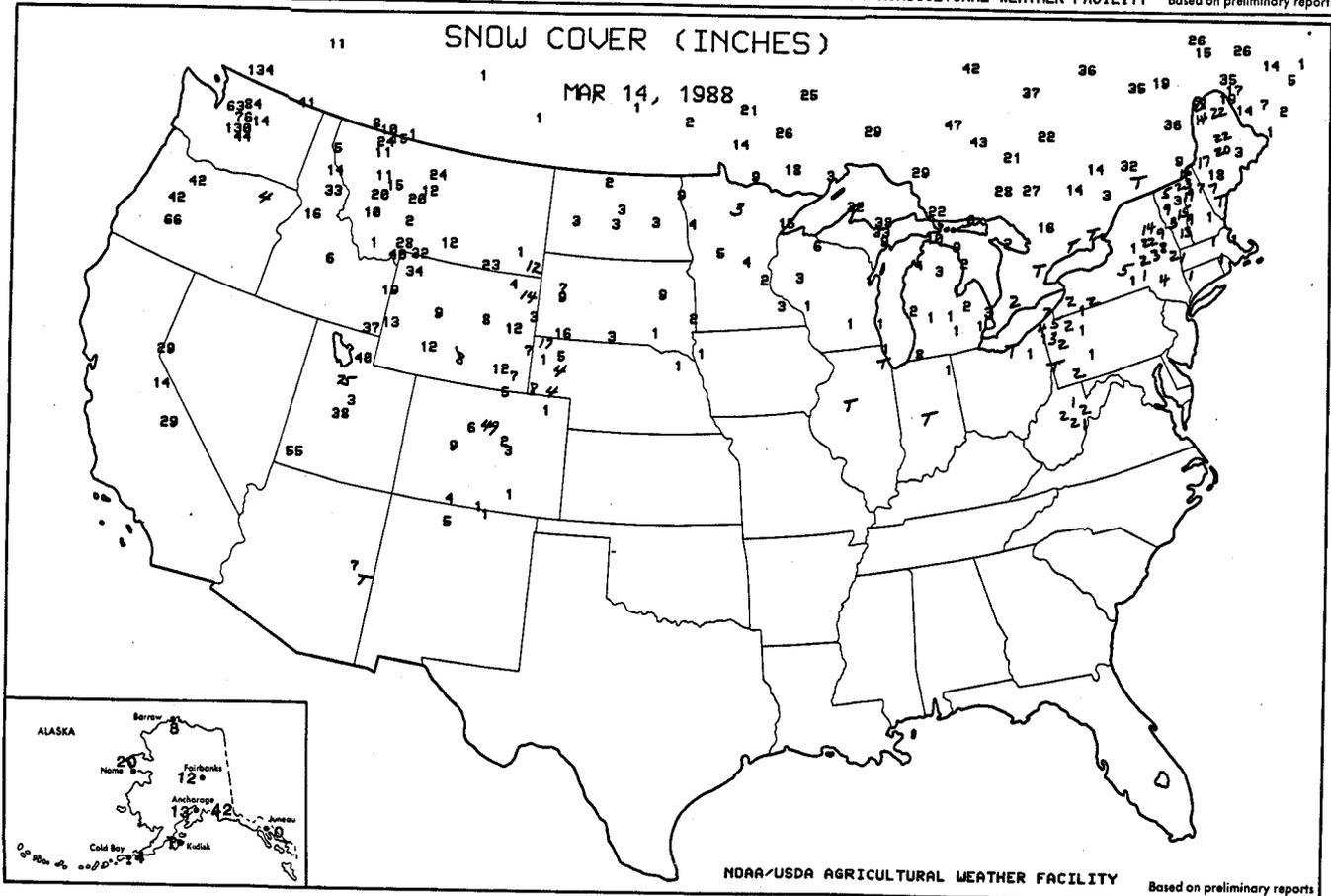
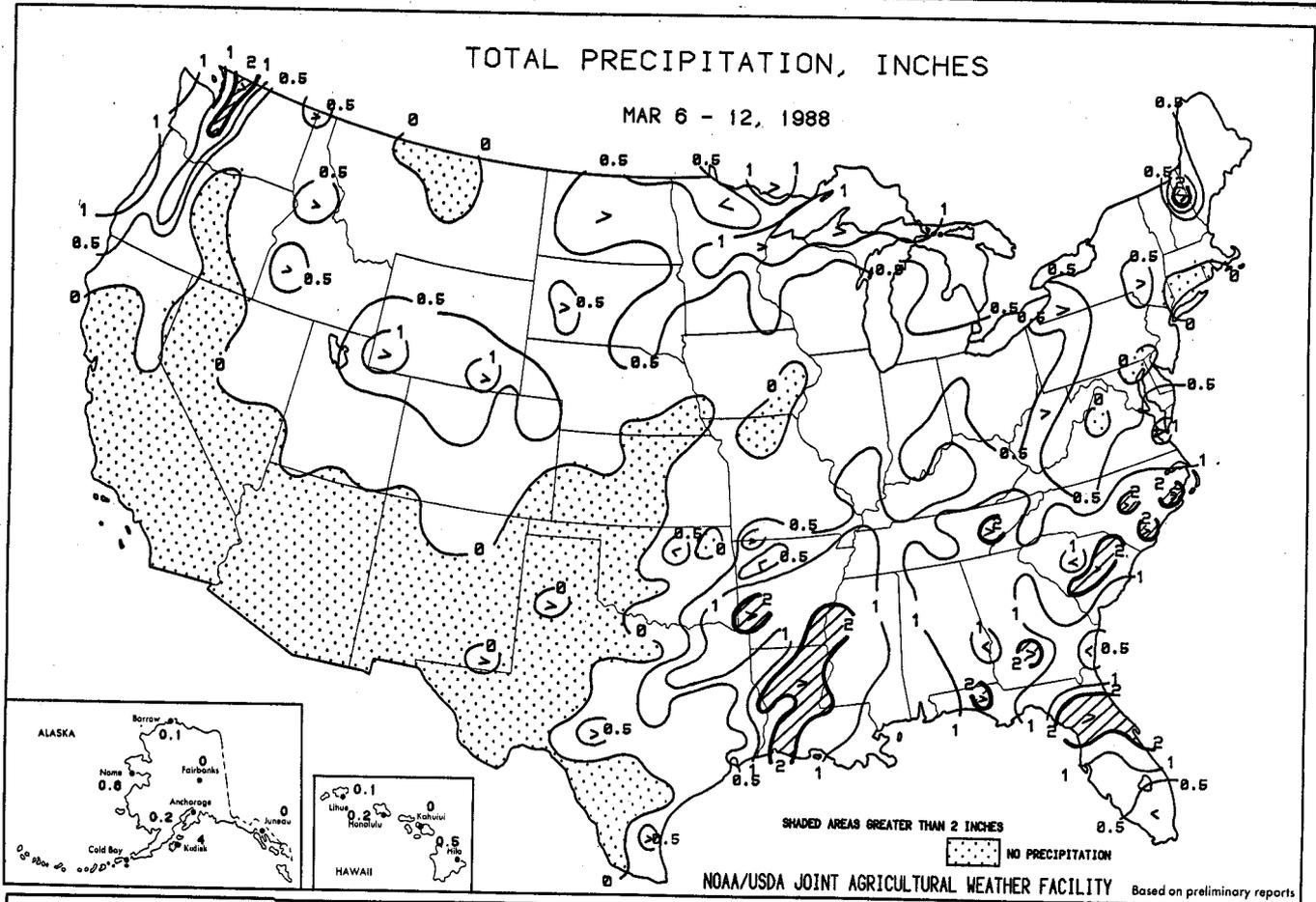
**HIGHLIGHTS:** A storm developed late Sunday over the Rockies, spreading snow across the northern Plains and rain across the southern Plains Monday and Tuesday. Rain continued east of the Mississippi River Wednesday, followed by gradual clearing on Thursday. A major winter storm developed over the central and northern Plains on Thursday, and produced blizzard conditions over much of the north-central United States Friday and Saturday.

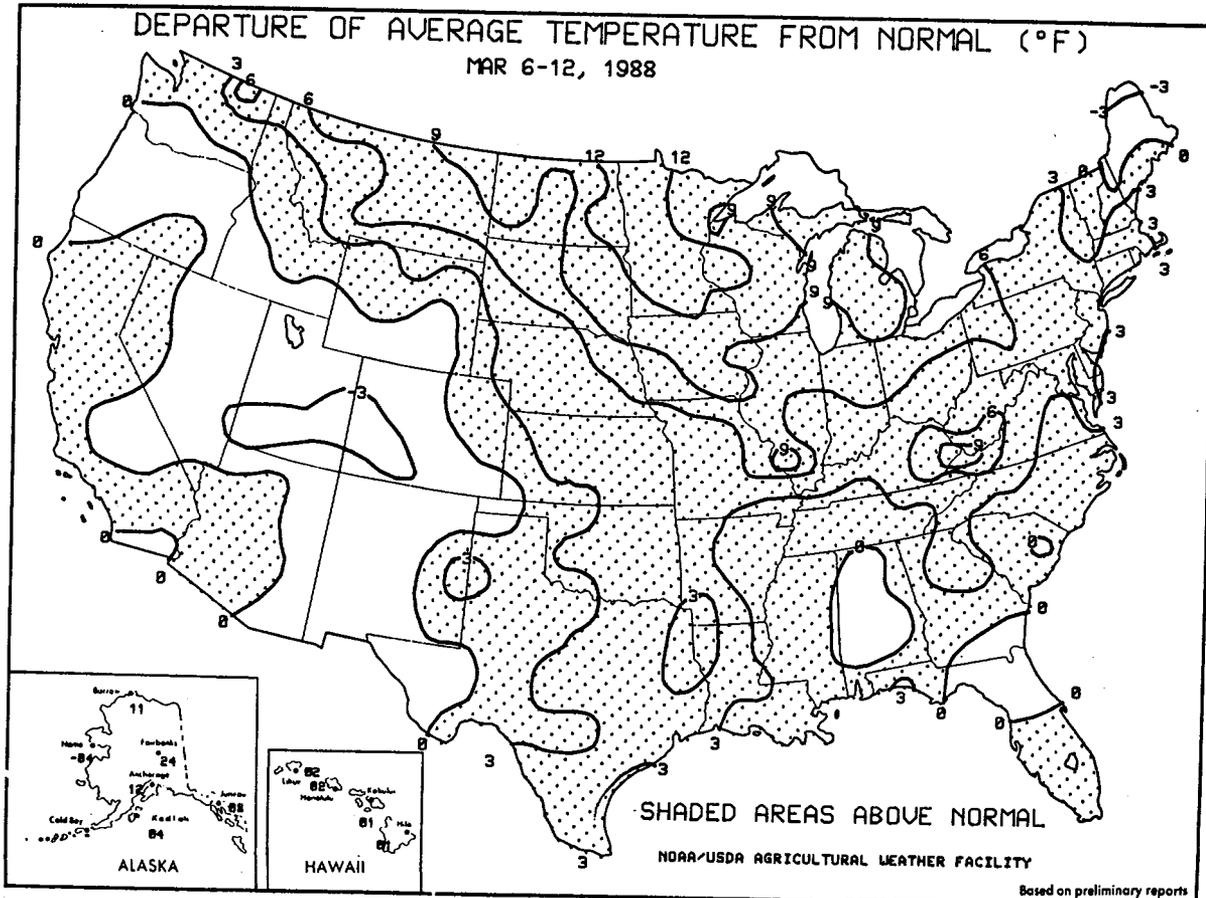
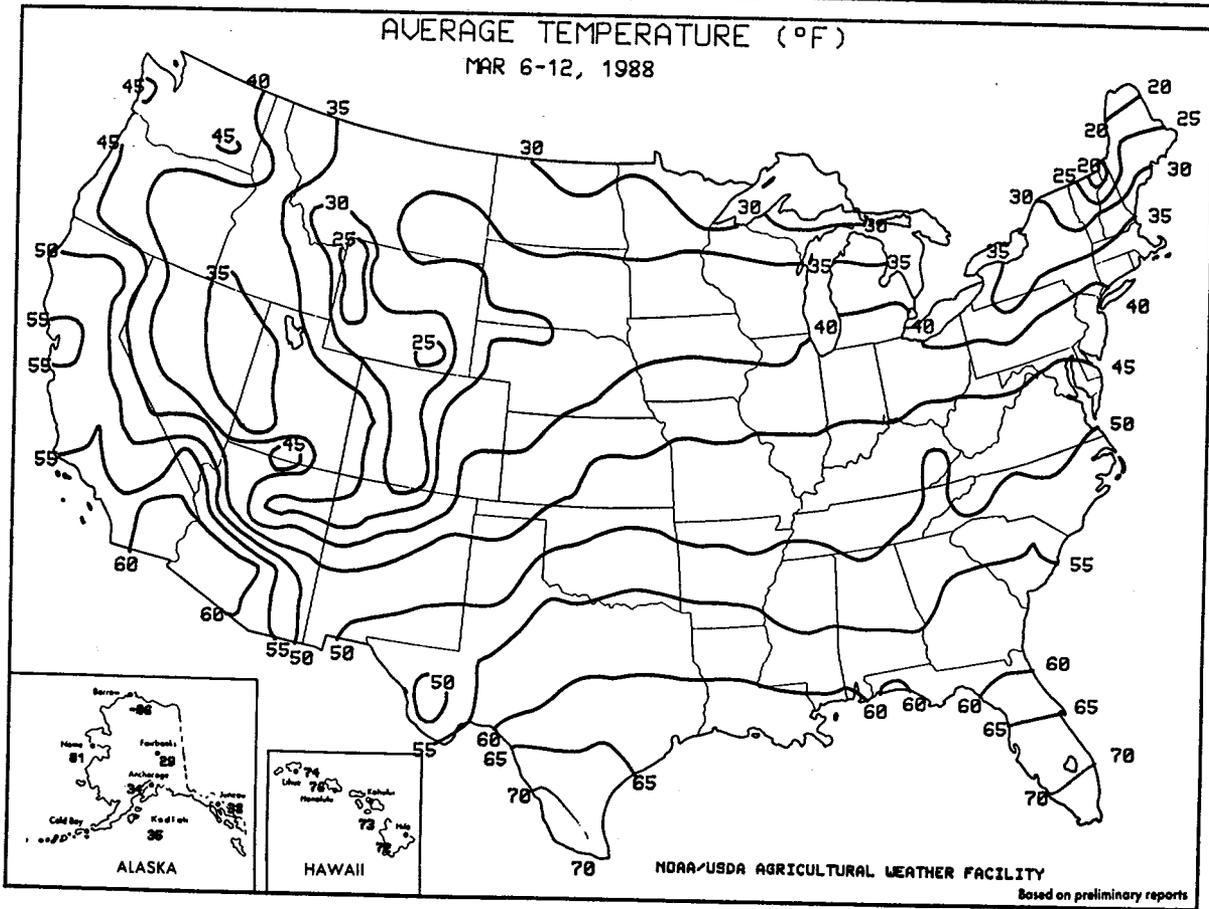
**SUNDAY...** A frontal system ushered showery weather into the Pacific Northwest. Light rain, drizzle, and snow occurred from central Missouri to northern Arkansas. Generally fair weather prevailed from New England to the Ohio Valley, and from the Great Lakes to Iowa and Nebraska. Rain showers were scattered across eastern New Mexico, western Texas, Georgia, and the Carolinas. A steady rain soaked most of Florida.

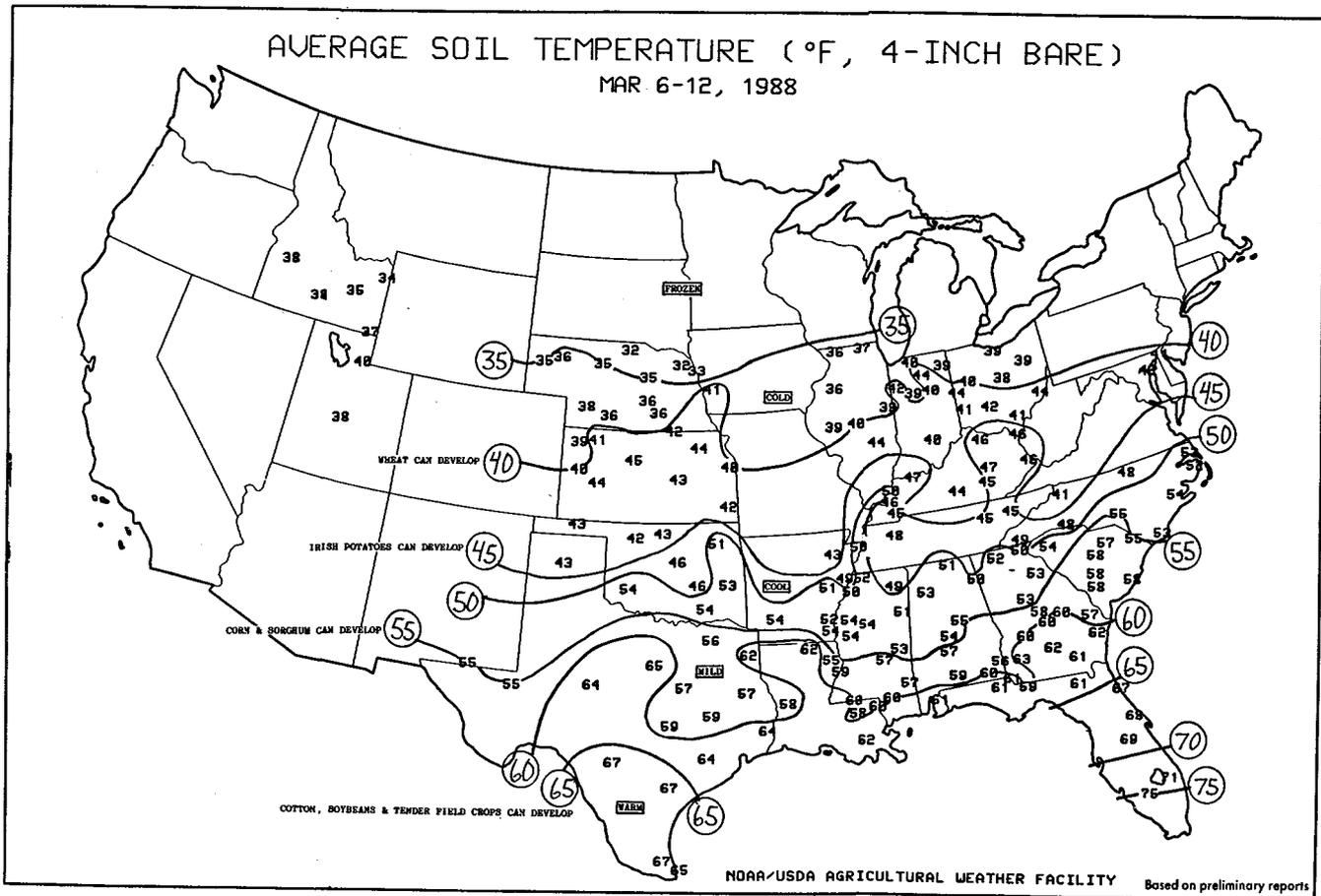
**MONDAY...** Strong northwesterly winds brought occasional snow and falling temperatures to the Great Plains and the northern and central Rockies. Wind speeds of 20-40 miles per hour were common from eastern Montana and the western Dakotas to northeastern New Mexico and the Texas Panhandle. Temperatures hovered near the freezing point in the Dakotas, western Nebraska, Colorado, and Wyoming. Scattered showers and thundershowers extended from northern Texas across Oklahoma. Rain showers were also scattered from Kansas and southeastern Nebraska into the upper half of the Mississippi Valley. Daytime temperatures rose into the seventies across much of the southern third of the Nation. Afternoon readings in the eighties were common across southwestern Texas and the desert Southwest.

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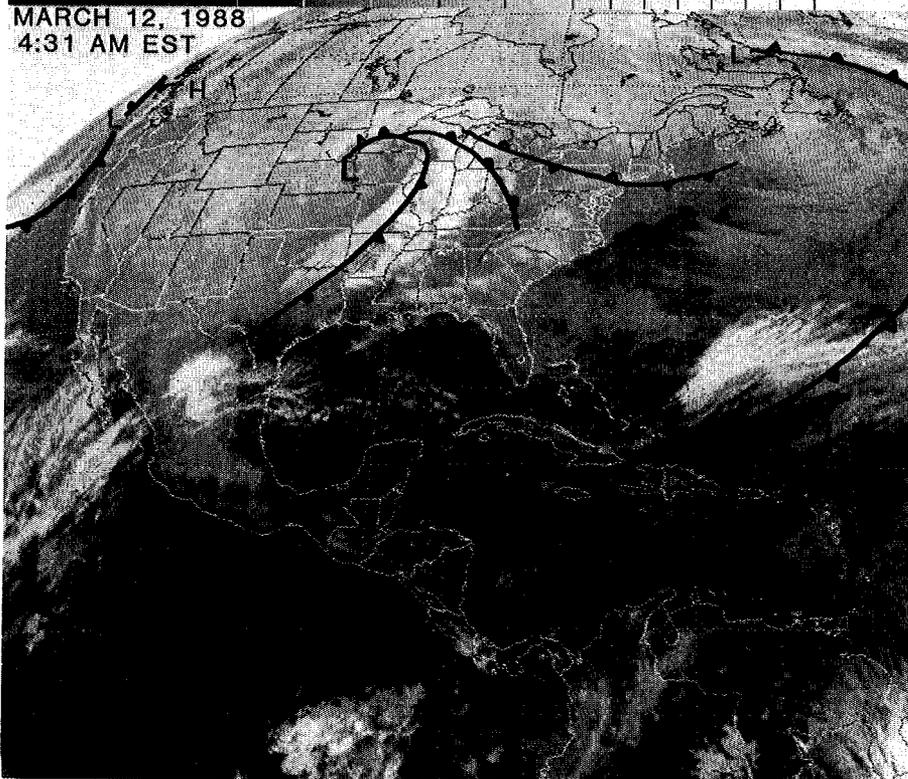






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MARCH 12, 1988  
4:31 AM EST



A LATE-SEASON BLIZZARD MOVES SLOWLY ACROSS THE NORTHERN GREAT PLAINS AND UPPER MISSISSIPPI VALLEY (SEE TOP OF NEXT PAGE).

## LATE-SEASON BLIZZARD ACROSS THE NORTHERN GREAT PLAINS

A powerful, late-season storm brought severe blizzard conditions across the northern Great Plains and the upper Great Lakes during March 10-14, 1988. Many roads and highways were closed including Interstate 80 in Nebraska and Wyoming. The heaviest snowfall reported included 31 inches at Chadron in Nebraska's panhandle; 15 inches at Rock Spring, Wyoming; 24 inches in Deadwood, South Dakota; and 7 feet on Terry Peak in South Dakota's Black Hills. Wind gusts reached from 50 to 75 m.p.h. throughout most of the

area, reducing visibility to near zero and whipping up 15-foot waves on Lake Superior. Livestock were stressed by the bitterly cold windchills of 10-25 below zero (see Weekly Weather and Crop Bulletin, Vol. 74, No. 48 for definition). Moisture from the snowfall, however, will be very beneficial for the spring wheat planting in the northern Plains.

Associated with the Great Plains blizzard, a band of showers and thunderstorms extended over the southern Plains and lower and middle Mississippi Valley. There were numerous reports of large hail across north-central Texas.

## NOTABLE UNITED STATES BLIZZARDS, 1886-1988

Saturday, March 12, was the 100-year anniversary of the Blizzard of 1888 that paralyzed southeast New York and western New England and dumped 58 inches of snow on Saratoga, New York and 50 inches on Middletown, Connecticut. The storm caused 400 deaths.

Severe blizzards are a combination of temperatures (less than 10° F), winds (greater than 45 m.p.h.), and visibility (near zero due to blowing snow) and are often detrimental to crops, livestock, and humans. The following are some famous blizzards of the past and their accounts from previous issues of the Weekly Weather and Crop Bulletin (WWCB). Note that prior to 1924, the WWCB was known by various other names.

- o The blizzard of January 6-13, 1886, the "Great Blizzard" in Kansas, struck the central and southern Great Plains and caused over 70 deaths to humans and to 80 percent of the cattle in Kansas.

"The severest storm of the month and which was followed by an intense cold wave, developed in western Kansas during the afternoon of the 6th. The cold wave moved with great rapidity southward, causing a severe "norther" in Texas, which was destructive to animal life and the sugar-growing regions of Texas and Louisiana." (Special Bulletin for January - February 1, 1886.)

- o The blizzard of January 11-12, 1918, caused one of the most general and complete transportation paralyzes in the mid-West.

"Illinois - Springfield: Severe weather conditions prevailed. It was the coldest month in the climatological history of the State, and one of the snowiest. Blizzard conditions on the 11th caused general demoralization of all traffic. Corn could not be gathered and much remains in the field, and road conditions and car shortage prevent the movement of harvested corn. Wheat was well protected from cold by the deep snow, but it was reported that some fields were almost swept bare by the wind." (National Weather and Crop Bulletin, January 1918)

- o The "Armistice Day" blizzard of November 11-12, 1940, over the northern Great Plains and Upper Great Lakes, was responsible for 144 human fatalities (69 deaths in ships on Lake Michigan) and caused great damage to orchards and loss of livestock.

"Iowa - Des Moines: Wintry weather prevailed, starting with unusually severe blizzard and cold wave on the 11th. Some stations reported lowest November temperatures of record. Considerable numbers of livestock, especially young stock, chicken, and turkeys perished in the northwest. Milk flow cut in half."

"Minnesota - Minneapolis: Unusually low temperatures first 4 days, following most severe November storm of record. Damage on 11th estimated at several million dollars; 49 lives lost; roads blocked for several days by drifts; greatest 24-hour snowfall ever recorded at Minneapolis. Some damage feared to winter grains where fields were swept clean." (WWCB, November 12, 1940.)

- o One of the worst spring blizzards of record was in the central and southern Great Plains from March 22-25, 1957.

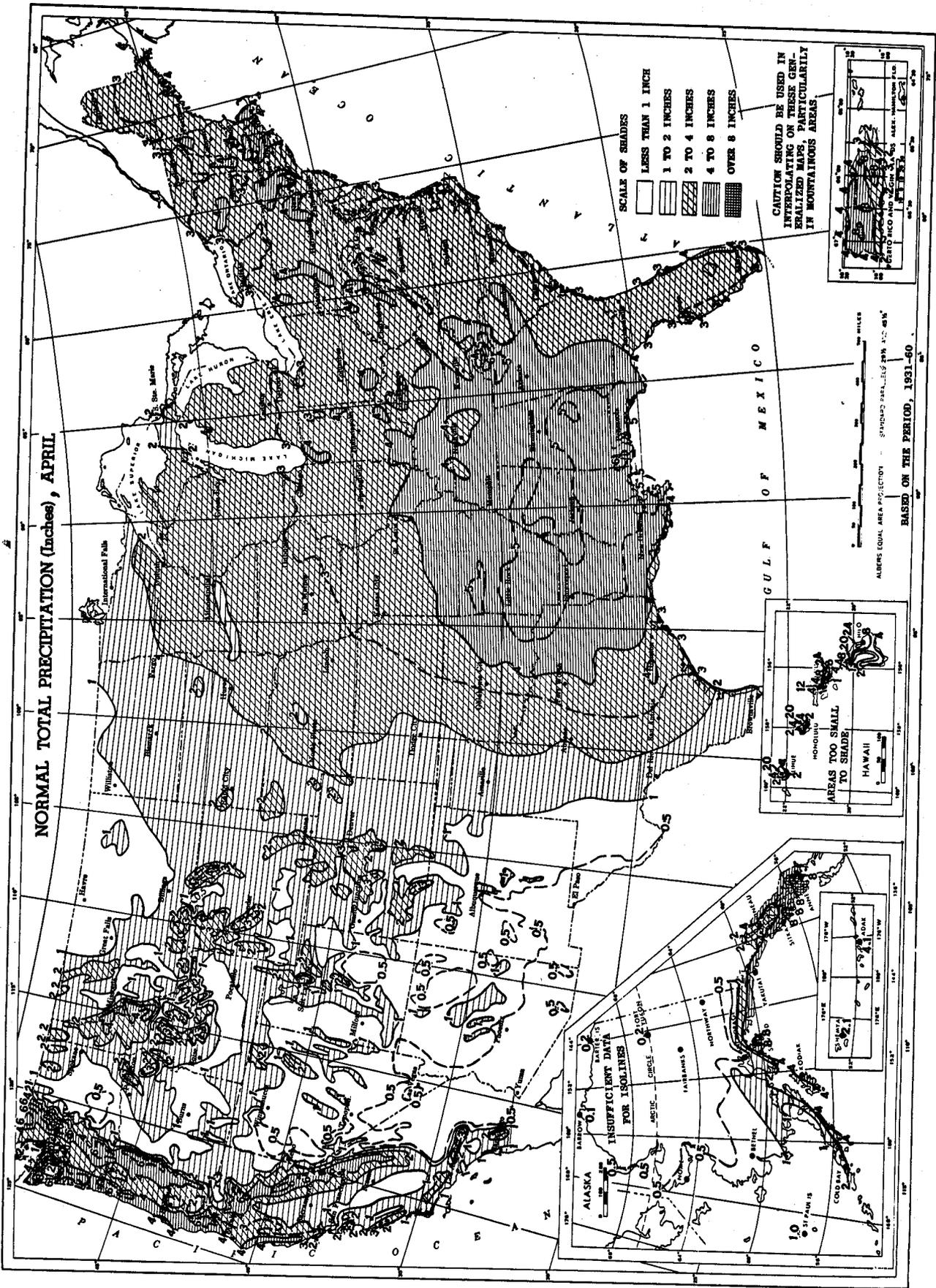
"An early spring snowstorm, accompanied by winds of 40 to 60 m.p.h., and gusts at times exceeding 70 m.p.h., raged over southwestern Nebraska, eastern Colorado, the northeastern corner of New Mexico, the Panhandles of Texas and Oklahoma, and most of Kansas during the weekend. New fallen snow of some 4 to 16 inches was whirled into the air, and on the ground drifted to depths of 20 feet or more. Trains became stranded, automobiles were marooned, and mainly as a result of the latter 40 or more lives were lost." (WWCB, March 25, 1957.)

- o The blizzard of January 1966 hit the eastern United States.

"One of the worst blizzard storms in two-thirds of a century struck the Appalachians and East coastal areas during January 29-31. As a low centered over the northeastern Gulf coast early Saturday moved to the Carolina coast and hence to Delaware, pressure dropped rapidly to 976 millibars. In Virginia and West Virginia snowfall was 12 to 20 inches with winds 35 to 40 m.p.h.; in northern Pennsylvania and upstate New York, winds were 35 to 50 m.p.h., with snowfall 20 to 40 inches. Travel and most normal activities came to a halt throughout the affected area." (WWCB, January 31, 1966.) It was noted at the top of this issue that publication of the Bulletin was delayed a day as Government offices were closed on Monday due to the blizzard.

This is an incomplete list of severe blizzards over the past century. It is, however, an account of the destructive nature of these severe storms.

Tom Heddinghaus



# National Weather Data for Selected Cities

## Weather Data for the Week Ending March 12, 1988

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 MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN. 1	PCT. NORMAL SINCE JAN. 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE °F				
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE	
AL BIRMINGHAM	65	39	73	30	52	0	1.6	.1	1.1	2.0	79	9.6	76	100	50	0	0	1	4	1
MOBILE	69	50	74	43	60	1	.6	-.9	.4	4.1	167	15.0	124	97	54	0	0	0	0	0
MONTGOMERY	68	41	77	31	55	0	1.3	-.1	.6	2.9	124	14.3	128	96	50	0	0	1	3	1
AK ANCHORAGE	39	29	42	23	34	13	.2	0	.2	.4	133	1.1	56	86	58	0	0	5	1	0
BARROW	4	-17	17	-37	-6	11	.1	0	0	.1	200	.1	33	86	71	0	0	7	4	0
FAIRBANKS	40	18	47	1	29	24	0	0	0	.5	0	.5	38	75	43	0	0	6	0	0
JUNEAU	42	34	46	30	38	8	.4	-.8	.5	.5	0	.5	38	75	43	0	0	6	0	0
KODIAK	39	32	40	28	36	8	4.0	3.1	1.8	5.4	334	22.6	179	92	70	0	0	1	1	0
NOME	11	-8	27	-24	1	4	.6	-.4	.3	.8	442	2.7	181	88	67	0	0	4	6	4
AZ PHOENIX	74	50	82	41	62	3	0	0	0	0	52	1.3	79	36	12	0	0	0	0	0
PRESCOTT	59	26	65	18	42	1	0	0	0	.2	.3	.48	2.1	53	56	16	0	0	0	0
TUCSON	72	43	80	31	58	1	0	0	0	.4	125	1.3	75	51	14	0	0	6	0	0
YUMA	77	51	85	42	64	1	0	0	0	.1	114	.5	65	46	11	0	0	1	0	0
AR FORT SMITH	66	37	77	27	51	3	.3	-.6	.2	3.4	245	7.1	122	88	35	0	0	1	0	0
LITTLE ROCK	62	41	74	37	52	1	1.1	-.1	.6	2.1	122	8.3	87	85	47	0	0	2	2	0
CA BAKERSFIELD	68	42	81	35	55	-1	0	0	0	.4	114	1.6	66	88	32	0	0	0	4	2
EUREKA	55	42	58	37	48	0	.3	-.9	.0	.2	60	8.9	62	81	61	0	0	0	3	0
FRESNO	66	41	79	32	54	0	0	0	0	.3	42	2.6	57	91	32	0	0	1	0	0
LOS ANGELES	65	52	69	45	59	1	0	0	0	.4	17	3.5	56	70	41	0	0	0	0	0
REDDING	66	41	74	33	54	0	0	0	0	.4	18	7.8	46	71	23	0	0	0	0	0
SACRAMENTO	66	43	73	36	55	2	0	0	0	.2	19	4.7	60	78	31	0	0	0	0	0
SAN DIEGO	65	52	69	47	59	0	0	0	0	.6	85	2.9	65	83	51	0	0	0	0	0
SAN FRANCISCO	64	45	69	41	55	2	0	0	0	.6	85	2.9	65	83	51	0	0	0	0	0
CO DENVER	48	26	68	17	37	1	0	0	0	.1	6	4.4	48	86	41	0	0	0	0	0
GRAND JUNCTION	49	26	59	19	38	-2	.1	-.1	.1	.4	110	1.4	91	75	27	0	0	7	7	0
PUEBLO	53	24	70	17	38	-1	.1	-.1	.1	.3	114	1.6	110	82	30	0	0	7	3	0
CT BRIDGEPORT	50	30	57	22	40	4	.1	-.1	.1	.2	76	1.1	154	93	31	0	0	7	2	0
HARTFORD	51	27	58	14	39	4	.1	-.9	.7	.8	56	7.1	91	77	37	0	0	5	0	0
DC WASHINGTON	61	36	68	30	49	5	.1	-.7	.7	.8	45	8.0	96	76	31	0	0	7	0	0
FL APALACHICOLA	67	51	73	43	59	0	1.9	.9	1.1	.8	60	6.4	95	82	36	0	0	1	2	0
DAYTONA BEACH	72	52	79	47	62	-1	2.3	1.6	3.4	213	14.7	166	97	68	0	0	0	3	2	0
JACKSONVILLE	69	49	79	41	59	-2	.6	-.3	.4	3.7	303	10.8	158	98	56	0	0	0	3	1
KEY WEST	78	69	82	64	73	0	.9	.6	.8	1.9	138	14.3	178	97	53	0	0	0	3	0
MIAMI	77	66	81	55	72	1	.9	.6	.8	.9	179	6.2	144	90	69	0	0	0	2	1
ORLANDO	76	55	84	49	66	0	1.1	-.4	.8	4	2.5	52	85	56	0	0	2	2	0	0
TALLAHASSEE	71	44	77	33	57	-2	.8	-.5	.5	6.4	286	17.0	141	98	50	0	0	0	3	0
TAMPA	77	56	82	47	67	2	.8	0	.8	2.4	172	6.6	99	94	49	0	0	0	4	0
WEST PALM BEACH	76	63	81	52	70	0	.2	-.4	.2	1.7	163	8.1	126	89	60	0	0	0	3	1
GA ATLANTA	66	43	72	34	55	4	1.1	-.2	1.0	1.3	58	9.3	79	90	50	0	0	0	4	0
AUGUSTA	71	41	76	35	56	3	1.5	.3	1.2	2.0	104	9.6	95	98	42	0	0	0	2	1
MACON	69	42	74	32	56	1	1.0	-.3	.8	1.9	92	9.8	89	98	49	0	0	1	4	1
SAVANNAH	70	47	76	39	58	1	.3	-.6	.2	1.8	117	9.3	118	93	42	0	0	0	2	0
HI HILO	80	64	82	62	72	1	.5	-.2	.7	13	21.0	73	90	56	0	0	4	1	0	0
HONOLULU	84	67	85	65	76	2	.2	-.7	.2	.7	11	4.5	56	86	48	0	0	0	0	0
KAHULUI	83	63	85	58	73	1	.1	-.7	.0	0	0	8.7	106	82	48	0	0	1	0	0
LIHUE	80	68	81	66	74	2	.1	-.1	.1	.1	5	11.4	97	88	63	0	0	0	0	0
ID BOISE	50	28	58	19	39	-1	.6	.4	.4	.9	229	2.6	85	84	31	0	0	5	2	0
LEWISTON	52	34	58	28	43	1	.1	-.2	.1	.1	16	1.2	44	74	34	0	0	2	1	0
POCATELLO	43	24	50	14	33	-1	.4	-.2	.3	.6	182	1.9	82	88	40	0	0	7	3	0
IL CHICAGO	53	29	60	21	41	6	.2	-.3	.1	.2	28	3.4	92	91	49	0	0	6	3	0
MOLINE	53	28	61	22	40	7	.2	-.5	.1	.2	3	2.9	74	88	49	0	0	6	1	0
PEORIA	52	30	63	23	41	6	.2	-.4	.1	.2	22	2.9	72	91	50	0	0	4	2	0
QUINCY	56	32	69	26	44	7	.2	-.5	.2	.4	34	2.0	50	89	50	0	0	4	2	0
ROCKFORD	51	26	58	21	39	8	.1	-.4	.0	.1	8	3.1	90	93	47	0	0	6	2	0
SPRINGFIELD	52	33	65	25	43	6	.4	-.3	.2	.9	83	4.4	101	91	57	0	0	4	3	0
IN EVANSVILLE	60	34	68	29	47	5	.3	-.7	.3	1.5	90	8.8	112	89	46	0	0	3	1	0
FORT WAYNE	53	30	67	14	41	7	.3	-.3	.3	.7	63	4.2	81	92	55	0	0	4	2	0
INDIANAPOLIS	55	32	69	26	44	6	.2	-.6	.2	1.5	115	6.9	106	87	49	0	0	4	3	0
SOUTH BEND	54	29	65	22	42	8	.3	-.4	.2	.3	24	4.4	80	90	40	0	0	4	3	0
LA DES MOINES	56	28	68	17	42	10	.1	-.4	.1	.1	7	1.0	36	86	40	0	0	5	1	0
FRAN CITY	53	26	64	16	40	9	.1	-.2	.1	.1	22	1.3	59	90	42	0	0	6	3	0
WATFORD	50	27	56	18	39	10	.1	-.4	.1	.1	3	1.1	45	94	47	0	0	6	1	0
KS CLAWFORDIA	56	30	68	19	43	5	.4	-.4	.4	.3	3	1.4	63	81	37	0	0	5	0	0
LODGE CITY	59	28	77	18	44	4	.4	-.3	.3	.3	55	1.3	87	80	24	0	0	5	0	0
GOODLAND	52	25	70	14	39	3	.4	-.2	.3	.3	6	1.9	168	76	28	0	0	6	1	0
TOPEKA	57	30	69	23	43	4	.1	-.4	.0	.2	22	2.7	99	84	39	0	0	5	2	0
WICHITA	57	33	68	28	45	3	.4	-.4	.4	1.4	197	2.1	92	86	44	0	0	3	0	0
KY BOWLING GREEN	59	34	68	27	47	3	.4	-.9	.2	1.0	48	8.2	76	97	46	0	0	3	0	0
LEXINGTON	57	35	71	27	46	4	.4	-.7	.3	1.3	73	7.3	83	88	48	0	0	3	0	0
LOUISVILLE	59	35	72	27	47	4	.2	-.9	.1	1.6	88	9.1	108	88	45	0	0	2	2	0
LA ALEXANDRIA	71	48	78	40	60	3	1.8	.7	1.7	3.2	175	8.3	75	87	41	0	0	0	2	1
BATON ROUGE	73	50	81	43	62	3	1.9	.9	1.1	4.5	258	21.0	184	92	39	0	0	0	3	2
LAKE CHARLES	73	51	82	42	62	3	2.8	2.1	2.5	3.7	314	12.0	130	98	47	0	0	0	3	1
NEW ORLEANS	71	51	78	44	61	1	.8	-.3	.4	4.3	226	19.3	158	96	52	0	0	0	2	0

Based on 1951-80 normals.

Weather Data for the Week Ending March 12, 1988

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 Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL, IN., SINCE JAN. 1	PCT. NORMAL SINCE JAN. 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE		PRECIPITATION		
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE	
SHREVEPORT	72	44	81	33	58	2	.6	-.2	.4	.9	62	6.5	72	93	36	0	0	2	0	
ME CARIBOU	30	7	41	-11	19	-3	.2	-.3	.1	.2	26	5.6	103	79	47	0	0	7	3	
PORTLAND	44	22	53	8	33	3	.4	-.9	T	.1	9	5.4	61	76	33	0	0	7	0	
MD BALTIMORE	60	31	69	23	46	4	.4	-.8	T	.8	57	7.3	98	77	33	0	0	7	2	
SALISBURY	59	31	67	25	45	3	.3	-.1	.8	1.0	60	9.1	107	93	32	0	0	4	0	
MA BOSTON	49	30	55	24	40	4	.4	-.9	T	.8	52	7.3	77	76	33	0	0	4	2	
CHATHAM	44	30	47	26	37	2	.1	-.8	.1	1.2	75	9.1	89	79	50	0	0	5	1	
MI ALPENA	41	26	47	23	33	8	.6	-.3	.5	.7	102	3.2	86	93	56	0	0	6	0	
DETROIT	53	30	63	21	42	9	.4	-.2	.3	.4	41	3.7	83	88	44	0	0	7	3	
FLINT	51	30	61	23	40	4	.7	-.3	.6	.7	103	3.5	94	89	46	0	0	4	1	
GRAND RAPIDS	52	28	62	22	40	9	.6	0	.3	.6	64	4.1	92	92	47	0	0	5	3	
HOUGHTON LAKE	42	26	52	20	34	9	.5	.1	.4	.5	71	3.3	95	94	56	0	0	7	2	
LANSING	51	28	63	22	40	9	.5	0	.3	.5	61	3.1	81	87	46	0	0	5	3	
MARQUETTE	37	20	47	14	28	3	1.3	.9	.8	1.5	193	6.4	158	93	64	0	0	7	4	
MUSKEGON	49	30	57	21	40	9	.2	-.3	.2	.2	28	4.8	98	92	49	0	0	5	1	
SALT ST. MARIE	34	20	42	14	27	6	1.1	.7	.7	1.3	171	5.3	114	92	56	0	0	7	4	
MN ALEXANDRIA	42	26	49	11	34	13	1.6	1.3	1.1	1.6	413	2.8	143	94	64	0	0	5	1	
DULUTH	35	24	43	8	29	8	1.3	.9	.5	1.3	213	2.2	82	95	66	0	0	7	3	
INT'L FALLS	33	19	43	7	26	9	.8	.6	.3	.8	227	1.4	73	90	65	0	0	7	5	
MINNEAPOLIS	47	30	54	14	39	13	.5	.1	.2	.5	85	2.2	96	90	54	0	0	3	4	
ROCHESTER	46	27	49	14	37	11	.5	.2	.3	.5	93	1.9	91	94	56	0	0	7	3	
MS GREENWOOD	64	43	74	34	54	1	1.6	.2	1.0	2.0	88	6.4	53	95	49	0	0	0	1	
JACKSON	68	43	76	35	56	1	1.1	-.1	.6	1.7	82	7.8	69	99	51	0	0	0	3	
MERIDIAN	69	40	76	31	55	0	1.2	-.3	.5	1.7	67	8.6	70	98	49	0	0	2	3	
MO CAPE GIRARDEAU	59	37	68	30	48	—	.4	-.7	.3	1.7	90	7.0	88	91	48	0	0	2	3	
COLUMBIA	57	32	71	27	45	4	.1	-.6	.1	1.5	129	5.3	109	90	47	0	0	4	1	
KANSAS CITY	57	30	70	23	43	3	.3	-.6	T	.2	18	2.3	67	83	35	0	0	6	0	
SAINT LOUIS	56	37	72	31	47	6	.5	-.2	.4	2.6	219	8.1	159	89	48	0	0	2	0	
SPRINGFIELD	58	32	71	24	45	3	.4	-.4	.4	2.5	201	6.0	118	87	44	0	0	1	3	
MT BILLINGS	47	29	61	18	38	6	.2	0	.2	.3	94	1.5	74	78	34	0	0	5	2	
GLASGOW	44	24	58	11	34	9	.1	.1	.1	.1	144	.8	109	81	38	0	0	7	1	
GREAT FALLS	43	25	54	18	34	4	.1	0	T	.1	32	1.3	66	79	40	0	0	7	4	
HAVRE	45	24	61	12	35	8	.1	-.1	T	.1	27	.6	47	78	39	0	0	6	0	
HELENA	43	25	54	15	34	4	.1	0	.1	.1	42	.9	64	84	38	0	0	7	2	
KALISPELL	45	29	49	21	37	6	.1	-.1	.1	.4	124	2.2	74	86	36	0	0	4	2	
MILES CITY	48	24	63	6	36	3	.1	0	.1	.1	58	.5	36	72	35	0	0	5	2	
MISSOULA	44	27	53	20	36	7	.3	.2	.2	.4	148	1.7	70	92	41	0	0	6	3	
NE GRAND ISLAND	51	26	66	14	39	5	.1	-.2	.1	.1	18	1.6	86	90	44	0	0	5	2	
LINCOLN	55	26	66	18	40	7	.5	-.4	T	T	0	.6	26	89	35	0	0	6	0	
NORFOLK	52	27	68	13	39	8	.1	-.2	.1	.1	17	1.3	70	88	43	0	0	5	1	
NORTH PLATTE	50	22	66	12	36	4	.2	0	.1	.2	61	1.0	76	91	41	0	0	6	0	
OMAHA	53	28	63	22	41	6	.2	-.2	.2	.2	34	.8	36	79	48	0	0	5	3	
SCOTTSDALE	48	24	68	10	36	2	.8	.6	.7	.9	288	1.8	156	83	37	0	0	7	3	
VALENTINE	47	22	65	4	34	4	.1	-.1	.1	.2	58	1.6	169	91	48	0	0	7	2	
NV ELY	44	19	58	12	32	-1	T	0	T	.3	88	1.6	92	84	33	0	0	7	1	
LAS VEGAS	65	44	77	39	55	0	0	0	T	T	0	.9	82	39	13	0	0	0	0	
RENO	55	27	70	16	41	1	T	0	T	T	0	.5	21	66	19	0	0	5	0	
WINNEMUCCA	49	22	62	10	36	-2	T	0	T	T	13	1.4	81	77	27	0	0	6	0	
NH CONCORD	45	21	51	3	33	3	.1	-.6	.1	.3	23	4.5	69	77	31	0	0	7	1	
NJ ATLANTIC CITY	56	27	66	18	42	2	.1	-.9	.1	.4	24	7.2	85	92	38	0	0	5	1	
NM ALBUQUERQUE	56	30	66	21	43	-2	T	-.1	T	.1	74	.4	38	47	16	0	0	4	0	
CLOVIS	64	34	76	26	49	4	T	-.1	T	.2	84	.7	60	51	15	0	0	3	0	
ROSWELL	67	33	77	25	50	1	T	-.1	T	T	20	1.7	178	60	13	0	0	3	0	
NY ALBANY	44	23	48	8	33	2	.2	-.5	.2	.4	39	5.4	93	83	40	0	0	7	1	
BINGHAMTON	44	26	54	19	35	6	.3	-.4	.3	.6	52	5.9	99	88	42	0	0	6	1	
BUFFALO	47	27	57	24	37	6	.6	-.1	.5	.6	56	6.3	96	89	44	0	0	6	2	
NEW YORK	54	35	61	28	44	5	T	-.9	T	.9	60	6.9	89	75	37	0	0	1	0	
ROCHESTER	46	25	54	20	36	5	T	-.5	T	T	4	2.9	52	86	41	0	0	6	1	
SYRACUSE	46	24	51	12	35	4	.3	-.4	.3	.3	30	4.0	61	88	40	0	0	6	1	
NC ASHVILLE	60	37	68	27	49	4	.6	-.5	.3	.6	35	5.2	62	97	42	0	0	2	4	
CHARLOTTE	63	41	72	34	52	4	1.6	.5	1.2	1.6	86	6.2	64	87	46	0	0	0	1	
GREENSBORO	62	37	70	28	49	3	.5	-.4	.3	.5	35	4.2	49	86	41	0	0	2	2	
HATTERAS	61	42	69	33	51	2	1.4	.5	.7	1.5	94	11.3	107	100	57	0	0	0	3	
NEW BERN	67	39	74	33	53	2	2.0	1.2	1.8	2.1	143	9.4	98	91	42	0	0	0	2	
RALEIGH	63	37	71	29	50	3	.6	-.2	.4	.7	45	6.2	73	90	41	0	0	1	0	
WILMINGTON	67	42	75	35	55	2	2.0	1.1	1.7	2.4	148	9.8	111	94	47	0	0	0	2	
ND BISMARCK	41	21	66	5	31	8	.8	.7	.6	.8	410	1.9	165	92	56	0	0	6	3	
FARGO	40	27	49	12	33	12	.9	.7	.3	.9	386	2.7	232	96	73	0	0	4	5	
GRAND FORKS	37	26	44	8	32	13	.7	.5	.3	.7	272	1.5	98	96	71	0	0	7	4	
WILLISTON	43	23	61	5	33	10	.3	.2	.3	.3	182	1.3	118	90	51	0	0	7	2	
OH AKRON-CANTON	52	28	63	16	40	6	.4	-.4	.2	.9	70	4.7	78	92	45	0	0	5	2	
CINCINNATI	57	32	70	22	44	5	.5	-.3	.4	2.1	145	9.8	133	90	43	0	0	4	2	
CLEVELAND	52	29	64	14	40	5	.3	-.4	.2	.5	47	4.4	76	85	43	0	0	4	2	
COLUMBUS	55	31	68	20	43	5	.2	-.5	.2	1.4	124	7.8	127	89	45	0	0	5	2	

Based on 1951-80 normals.

Weather Data for the Week Ending March 12, 1988

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 MAR 1	PCT. NORMAL SINCE MAR 1	TOTAL, IN., SINCE JAN. 1	PCT. NORMAL SINCE JAN. 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
DAYTON	55	31	68	24	43	6	.5	-.2	.3	1.3	117	6.6	113	89	46	0	3	2	0
TOLEDO	54	28	65	16	41	8	.3	-.3	.3	.3	33	2.8	59	92	46	0	5	2	0
YOUNGSTOWN	52	27	63	12	39	6	.4	-.4	.2	.6	49	4.2	69	93	43	0	6	2	0
OK OKLAHOMA CITY	63	39	75	32	51	4	.4	-.4	.4	3.0	415	4.7	153	77	29	0	1	0	0
TULSA	62	39	73	34	51	3	.4	-.7	.4	3.3	311	5.5	130	76	33	0	0	0	0
OR ASTORIA	53	35	57	29	44	0	.8	-.7	.5	2.2	73	12.3	57	95	57	0	3	4	1
BURNS	44	28	58	24	36	1	.1	-.3	.4	.8	1.6	48	**	**	0	4	0	0	0
MEDFORD	58	30	68	22	44	-1	.2	-.3	.1	.5	59	3.2	50	92	35	0	4	3	0
PENDLETON	52	33	56	28	42	0	.3	.1	.2	.4	91	2.4	72	81	33	0	3	3	1
PORTLAND	54	35	60	29	45	-1	.8	-.1	.6	1.4	93	7.5	64	96	48	0	2	3	1
SALEM	53	31	58	24	42	-2	.8	-.3	.5	1.2	70	8.8	65	96	52	0	4	3	1
PA ALLENTOWN	53	28	61	20	40	4	.1	-.8	.1	1.2	83	7.2	92	86	36	0	7	2	1
ERIE	48	27	63	21	38	6	.5	-.1	.3	.5	54	4.5	82	87	44	0	6	0	0
HARRISBURG	56	29	65	21	42	4	.4	-.8	.1	1.1	79	6.5	91	85	37	0	5	2	0
PHILADELPHIA	58	31	67	26	45	5	.5	-.9	.4	1.1	88	7.6	102	86	37	0	3	0	0
PITTSBURGH	54	28	66	16	41	5	.5	-.3	.4	1.4	109	6.4	96	95	47	0	5	2	0
SCRANTON	50	27	58	16	39	5	.2	-.4	.2	.9	98	4.7	88	85	39	0	6	1	0
RI PROVIDENCE	51	28	58	18	40	4	.4	-.1	.7	.7	43	8.7	91	85	35	0	7	0	0
SC CHARLESTON	69	45	74	39	57	2	.9	-.2	.7	1.3	73	6.4	75	99	44	0	0	2	1
COLUMBIA	69	39	77	33	54	2	.5	-.7	.9	.5	27	6.7	63	96	39	0	0	2	0
FLORENCE	69	42	75	35	56	3	2.2	1.3	2.1	2.3	138	6.3	73	95	39	0	0	2	1
GREENVILLE	63	37	71	31	50	1	1.6	.2	1.0	1.6	69	7.3	66	94	45	0	3	3	2
SD ABERDEEN	45	25	55	13	35	11	.4	.2	.1	.4	117	1.0	70	96	52	0	5	4	0
HURON	48	25	58	12	37	10	.8	.6	.5	.8	205	1.7	110	95	54	0	5	4	0
RAPID CITY	49	24	71	6	36	6	.3	.1	.1	.3	84	.8	58	84	41	0	7	3	0
SIOUX FALLS	50	27	62	13	39	11	.2	-.1	.1	.2	34	2.0	98	91	48	0	4	2	0
TN CHATTANOOGA	63	38	71	27	51	3	1.2	-.2	.5	1.5	60	10.4	83	91	48	0	2	4	0
KNOXVILLE	64	35	70	27	50	2	2.0	.8	1.4	2.1	99	9.3	84	98	49	0	3	3	2
MEMPHIS	62	41	74	34	52	2	1.5	.3	1.1	2.1	105	9.8	89	94	50	0	0	3	1
NASHVILLE	60	35	68	28	48	1	.6	-.6	.5	1.3	61	7.0	65	96	52	0	4	4	0
TX ABILENE	72	41	86	32	57	3	.2	-.2	.0	.1	38	.6	24	54	14	0	1	1	0
AMARILLO	62	29	75	23	46	1	0	-.2	0	.6	181	1.0	69	77	16	0	5	0	0
AUSTIN	76	48	86	38	62	3	.1	-.3	.1	.6	89	1.2	24	86	25	0	0	1	0
BEAUMONT	74	52	81	42	63	5	.9	-.2	.8	2.5	205	10.8	112	96	43	0	0	2	1
BROWNSVILLE	80	57	85	48	68	1	.1	0	.1	.1	50	5.6	188	92	49	0	0	1	0
CORPUS CHRISTI	80	53	85	41	66	2	.4	-.2	.4	.1	20	2.0	60	91	38	0	0	1	0
DEL RIO	80	48	92	42	64	2	.4	-.1	.1	.1	0	.2	15	54	18	2	0	0	0
EL PASO	68	38	76	22	53	-1	0	-.1	0	.1	71	1.1	109	38	10	0	1	0	0
PORT WORTH	71	43	81	35	57	3	.4	-.5	.4	.8	96	2.9	65	72	28	0	0	0	0
GALVESTON	71	58	78	51	65	5	.4	-.4	.4	1.0	120	4.8	77	93	52	0	0	2	0
HOUSTON	76	51	79	39	63	3	.1	-.5	.1	1.3	130	3.9	49	92	34	0	0	1	0
LUBBOCK	67	33	80	22	50	2	.2	-.2	.2	.2	55	.9	67	62	15	0	3	0	0
MIDLAND	72	38	85	27	55	1	.1	-.1	.1	.2	95	.6	55	58	14	0	1	0	0
SAN ANGELO	76	41	87	31	58	3	.1	-.1	.1	.2	63	.6	34	62	15	0	1	0	0
SAN ANTONIO	78	47	87	37	63	2	.4	-.3	.4	.1	23	1.4	37	83	23	0	0	0	0
VICTORIA	79	53	84	46	66	4	.4	-.3	.4	.3	50	3.1	66	90	34	0	0	0	0
WACO	74	44	85	36	59	3	.2	-.2	.2	1.2	184	3.4	76	88	29	0	0	2	0
WICHITA FALLS	70	39	87	31	55	3	.1	-.3	.1	4.4	742	6.2	243	76	21	0	1	1	0
UT BLANDING	46	21	57	16	34	-4	.4	-.2	.4	.4	0	2.5	95	90	45	0	5	0	0
CEDAR CITY	46	22	57	15	34	-4	.4	.2	.4	.7	165	2.3	122	92	37	0	6	2	0
SALT LAKE CITY	44	28	51	25	36	-3	.6	.2	.4	.6	102	1.8	55	88	38	0	7	4	0
VT BURLINGTON	38	20	47	7	29	2	.1	-.4	.1	.2	21	2.5	58	72	38	0	6	3	0
VA NORFOLK	60	41	71	36	50	3	.6	-.2	.5	.7	45	6.5	76	92	43	0	0	3	0
RICHMOND	61	34	69	28	47	2	.5	-.3	.5	.6	46	6.3	80	89	36	0	3	2	0
ROANOKE	62	36	68	27	49	5	.1	-.8	.1	.4	26	3.3	44	84	33	0	2	2	0
WA QUILLAYUTE	51	35	58	31	43	1	1.6	-1.2	1.2	4.7	95	22.3	70	98	62	0	3	4	1
SEATTLE-TACOMA	51	36	55	32	44	0	.5	-.3	.5	.9	61	5.7	48	95	54	0	1	3	0
SPOKANE	48	29	50	24	38	2	.3	0	.2	.9	158	3.0	64	89	42	0	5	3	0
YAKIMA	54	27	58	20	41	0	.4	-.1	.4	.8	25	.7	31	80	28	0	5	1	0
WV BECKLEY	59	34	68	23	46	8	.4	-.5	.4	.1	51	4.7	57	88	34	0	3	3	0
CHARLESTON	61	33	72	25	47	4	.6	-.3	.4	1.8	115	5.9	72	92	36	0	4	3	0
HUNTINGTON	61	34	73	26	47	4	.3	-.6	.2	2.2	144	6.6	86	94	34	0	3	2	0
PARKERSBURG	58	32	70	26	45	4	.5	-.3	.4	2.6	194	5.3	78	91	36	0	3	2	0
WI GREEN BAY	45	28	50	22	37	11	.1	-.3	.1	.1	21	2.7	93	95	62	0	6	3	0
LACROSSE	50	29	54	19	40	11	.1	-.3	0	.1	11	1.2	49	89	50	0	5	3	0
MADISON	51	27	54	22	39	10	.1	-.3	.1	.1	16	2.4	84	91	45	0	6	2	0
MILWAUKEE	46	28	54	22	37	7	.1	-.4	.1	.1	16	4.7	122	97	64	0	6	3	0
WAUSAU	43	28	47	22	35	11	.4	0	.3	.4	59	.8	31	89	57	0	6	2	0
WY CASPER	39	20	52	0	30	-1	.5	-.3	.2	.6	194	1.7	124	84	48	0	6	4	0
CHEYENNE	41	23	58	7	32	1	.5	-.3	.3	1.0	291	2.1	188	76	40	0	5	3	0
LANDER	42	21	57	11	32	1	.7	-.5	.5	.8	236	1.2	82	86	39	0	7	2	1
SHERIDAN	44	25	62	15	35	4	.3	-.1	.2	.4	121	1.9	99	88	48	0	7	2	0
PR SAN JUAN	84	70	87	67	77	-1	0	-.5	0	.4	1	6.1	104	80	69	0	0	0	0

Based on 1951-80 normals.

(Continued from front cover)  
Minnesota. Low windchill temperatures stressed livestock. By evening, snow spread into Wisconsin and Michigan. Thunderstorms developed in the lower Mississippi Valley.

SATURDAY...The winter storm dominating the weather pattern since Wednesday continued its slow

northeasterly movement, spreading snow into the Great Lakes. Blowing snow continued in the upper Midwest. Significant snowfall left moisture for greening crops in the northern and central Plains. Substantial rainfall occurred in the Southeast. Severe weather struck the eastern Gulf Coast States.

Heating Degree Days Summary Table

CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA
ASSESSMENT AND INFORMATION SERVICES CENTER-NESDIS-NOAA

LAST DATE OF DATA COLLECTION PERIOD IS 3-12-1988
ACCUMULATIONS ARE FROM JULY 1
\*\* = NORMAL LESS THAN 100 OR RATIO UNCALCULABLE

Table with columns: STATE CITY, CALL, WEEK TOTAL, WEEK DEV FROM, WEEK DEV FROM, CUM TOTAL, CUM DEV FROM, CUM DEV FROM, CUM DEV FROM, CUM DEV FROM. Lists 100+ cities and their heating degree day data.

## National Agricultural Summary

MARCH 7 to 13, 1988

**HIGHLIGHTS:** Precipitation slowed fieldwork in the Delta and Southeast. Winter-like weather curtailed field activity in the northern and central Great Plains, Rocky Mountain States, and some Corn Belt States. Winter wheat and small grains escaped serious harm from low temperatures in the northern and central Great Plains, Rocky Mountain States, and Corn Belt. Corn planting surged ahead of normal in Texas but lagged behind normal in most southeastern States. Rice seeding began in Louisiana. Cotton planting was restricted to Arizona and Texas, but land preparation was underway in Oklahoma and New Mexico. Tobacco was transplanted in Georgia. Livestock was mostly good, but low temperatures increased stress.

**SMALL GRAINS:** Short duration of extremely cold temperatures swept across the Rocky Mountain States and central and northern Great Plains, but snow protected most wheat and small grains from serious harm. Small grain and winter wheat were mostly good to fair in the central Great Plains and Southeast. Crop condition was fair to good in the Delta and Rocky Mountain States. The lack of moisture continued plaguing small grains in the northern Great Plains, leaving fair to poor crop condition.

In Texas, moisture improved small grains in the Plains. More moisture is needed for progress to continue in the rest of the State. Topdressing continued in the High Plains. Oat and wheat growths improved in the Blacklands. Insect populations increased, and rust was prevalent in more fields. Oklahoma's wheat was good. Warm weather promoted rapid growth, while 5 percent (%) of the acreage reached the jointing stage. Russian wheat aphids and greenbug infestations were light. Kansas wheat was greening but had not reached the jointing stage. Disease and insect levels were light. Spring oat and barley seedings were 40% finished. In North Dakota, strong wind caused soil erosion in unprotected small grain fields. Colorado's wheat was good. Thirty-two percent of Montana's wheat was greening and growing.

Spring grain seeding continued in eastern Oregon. Some spring seeded grains began emerging in Washington. Small grains progressed well in California. Early wheat reached the boot stage in southern areas, but some dryland grains need moisture. Favorable weather contributed to good growth of wheat and barley in western Arizona. Nearly all small grains had reached the jointing stage, but the majority were in the stem elongation stage. Heads began emerging in western areas of the State.

Most wheat was fertilized except where fields were too wet in Arkansas. Seventeen percent of the wheat was jointing in Mississippi, compared with 21% normally. Oat seeding began in Missouri. Small grain nitrogen applications continued in the Southeast.

**OTHER CROPS:** Precipitation slowed field activity across the Delta and Southeast. Winter-like weather curtailed fieldwork in the northern and central Great Plains, Rocky Mountain States, and some Corn Belt States.

Cotton planting increased to 10% completion in western Arizona. Planting should increase significantly next week. Seeding awaits the completion of land preparation in New Mexico. In Texas, cotton planting increased in the Rio Grande Valley and at Coastal Bend. Statewide, only 2% of the

acreage was seeded 1 percentage point ahead of average. In Oklahoma, cotton seedbed preparations were underway.

Corn planting climbed 19 points ahead of normal to 41% completion in Texas. Some early seeded fields emerged to stand. Planting began nearing completion along the upper coast, Coastal Bend, and in the Rio Grande Valley. Alabama's seeding was 8% finished, lagging 4 points behind normal. Seeding was underway in Georgia, Louisiana, Mississippi, South Carolina, and Arizona.

Texas' sorghum was 24% seeded, 19 points ahead of 1987 and 10 points greater than normal. Planting neared completion at Coastal Bend and along the upper coast and began drawing to a close in the Rio Grande Valley. Sorghum land preparation was underway in Oklahoma.

Rice was 1% seeded in Louisiana. Growers continued water leveling fields. Rice stubble burning resumed in California. Tobacco transplanting was underway in Georgia. Burley tobacco growers continued seeding and preparing beds in Kentucky.

**FRUITS AND NUTS:** Peaches continued blooming in central and southern Georgia. In South Carolina, peaches bloomed along the Ridge but were progressing more slowly in northern areas. Peach and other fruit trees were still in the bloom stage in Texas. Pears and peaches started blooming, and early apples shed bud scales in Oregon's Willamette Valley. Soft fruit trees required frost protection several nights in Washington.

Florida's citrus trees were good to excellent. Ideal weather and adequate moisture promoted new growth and blossoming. Early orange harvest was virtually finished. Caretakers were busy fertilizing, cultivating, draining heaters, and unbanking young trees. Citrus trees were blooming and began setting a new crop in Texas. In California, beehives were placed in orchards. Pruning, fertilizing, and vine tying continued in vineyards. Pears bloomed and citrus harvest was active. Citrus harvest and packing continued in western and central Arizona.

**VEGETABLES:** In Florida, spring planting neared completion in many areas. Strong winds caused leaf burn in some areas at midweek. Watermelon seeding was active in the northern Peninsula and Panhandle areas. Early spring and winter vegetable harvests were active. Volume leaders were tomatoes, cabbage, celery, peppers, potatoes, sweet corn, lettuce, and squash. Early planted melons progressed well in the Rio Grande Valley. Milder weather increased land preparation in the San Antonio-Winter Garden area. Planting was active in east Texas, but many areas need additional moisture. Broccoli and cauliflower supplies increased in Salinas but decreased in Santa Maria, California. Lettuce harvest peaked in the Imperial Valley and Blythe area. Fresh-market corn, green beans, and tomatoes were planted in the central valley and along the south coast. Strawberry harvest was active along the south coast. Lettuce, broccoli, cauliflower, carrots, rapini, and greens were harvested in Arizona.

**PASTURES AND LIVESTOCK:** Pastures were mostly fair. Moisture promoted growth in the Delta and Southeast. Livestock was mostly good. Periodic low temperatures increased stress.

## 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 totals mostly under 1.00 in.; local areas north central over 1.00 in. Temperatures averaged near normal.

Days suitable for fieldwork 3.5. Soil moisture 13% short, 63% adequate, 24% surplus. Fieldwork progress 4% ahead normal, 61% normal, 35% behind normal. Acreage intended for spring planting 27% now prepared, 21% 1987. Corn 8% planted, 17% 1987, 12% avg. Winter wheat mostly fair to good. Livestock mostly fair. Stored feed supplies 37% short, 63% adequate. Pastures poor to fair. Pasture feed supply 78% short, 22% adequate. Primary activities: Land preparation; planting corn, potatoes, vegetables; spraying, pruning fruit trees; topdressing small grains; applying fertilizer, lime to pastures; soil testing; repairing machinery; building fish ponds; routine care of livestock, poultry.

**ARIZONA:** Cold front moved across State on 7th, very little moisture. Sunny, warmer weather on 8th, 9th. Colder, drier air moved into State on 10th. Clear, sunny skies; very dry air on 11th, 12th. Average temperatures ranged 4° below normal to 3° above.

Cotton planting increased to 10% west. Land preparation continued on large scale. Heavy planting indicated this coming week. Other areas, land preparation active with listing, pre-irrigation, nematicide applications. Alfalfa harvest increased west; curing conditions favorable, very good quality indicated. Irrigation continued, other areas. Early emergence new stands, southeast. Egyptian alfalfa weevil problem eastern fields. Central area fertilizer, herbicide applications continued with irrigation. Favorable conditions contributed to good condition, growth of wheat, barley, west. Nearly all plantings reached jointing stage; majority in stem elongation stage. Nearly 10% head emergence stage, west. Other areas of State, nearly 100% of acreage established stands. Corn planting continued, central. Western area head lettuce harvested, shipped; some movement of leaf lettuce, romaine, boston lettuce, broccoli, cauliflower. Other vegetables also shipped. Harvest, shipment of greens, broccoli, rapini, carrots continued central. Harvest, packing of citrus continued west, central; valencia oranges, grapefruit, few lemons moved.

**ARKANSAS:** Temperatures near normal. Scattered showers midweek. Temperature extremes 20°; 78°. Rainfall totals 0.25 to 2.83 in.

Most wheat fertilized except where fields still too wet. Land preparation underway; curtailed by rains, cold weather. No apparent damage to peach trees from cold weather. Winter pastures making good progress. Cattle average condition.

**CALIFORNIA:** Continued dry. Few showers northern one-fourth State. Entire State temperatures 2° or more above normal. Ridge high pressure continued west coast.

Warm, open weather, rapid progress field activities. Burning rice stubble resumed, drier. Small grains good progress. Southern early wheat boot stage. Southern dryland grain needs moisture. Fertilization, weed control later areas. Some southern San Joaquin Valley alfalfa cut for hay. Weed, weevil controls applied. Alfalfa harvest Riverside County hay, green-chop active. Early grain, forage green-chopped south central areas. Good progress preparing cotton seedbeds. Some

safflower seeded. Sugarbeet seeding, harvest good progress. Weed control, beehives in orchards. Pruning, fertilizing, vine-tying in vineyards. Pears blooming. Citrus harvest generally active. Asparagus cut Delta, Orange-Riverside. Broccoli, cauliflower supplies increased Salinas, decreased slightly Santa Maria, variable quality. Harvest continued desert. Production steady south coast. Carrot digging active desert. Celery harvest steady Oxnard, south coast. Lettuce harvest peak Imperial Valley-Blythe, good quality. Movement from south coast consistent. Movement fall potatoes Tulelake-Butte Valley slow, poor prices. Quality, size average. Red, white variety winter potatoes dug Hemet. Planting fresh market corn, green beans, tomatoes central valley, south coast. Strawberry picking active south coast. Livestock fair to good statewide. Supplemental feeding heavy northern districts, decreased other areas as grazing conditions improved. Rain, warm weather improved range, pasture conditions valleys, foothill areas; lack moisture. Sheep grazed alfalfa fields central valley. Water supplies low most areas. Calving, lambing continued.

**COLORADO:** Snow, blizzard conditions northeast late week; 2 to 5 in. of snow east, 6 to 12 in. snow in mountains. Average temperature 2 to 5° above normal northeast, slightly below normal elsewhere.

Winter wheat good. Livestock care, calving, lambing, preparing machinery for fieldwork major activities. Limited seedbed preparation underway.

**FLORIDA:** Sunny, mild, 7th, 8th. Partly cloudy, warm, 9th. Cold front 10th, strong winds, heavy rains statewide. Dry, mild, 11th, 12th. New cold front 13th, swept State; precipitation minor north, 1.00 to 2.00 in. south.

Soil moisture generally surplus Panhandle, northern Peninsula; adequate elsewhere. Panhandle, northern Peninsula fields mostly too wet for working. Small grains continued generally good. Sugarcane harvest remained active. Temporary winter pastures remained good; continued to provide most grazing north, Panhandle. Showers especially benefited forage growth lower southern Peninsula while some low-lying pastures other Peninsula areas excessively wet from heavier rains. Grazing mostly good, lower southern Peninsula; elsewhere varied widely from poor to excellent. Cattle continued fair to good. Citrus groves, trees very good to excellent. Moisture adequate, weather ideal. New growth, bloom progressing. Early orange harvest all but over. Grapefruit movement very active. Caretakers fertilizing, cultivating, draining heaters, unbanking young trees. Warming weather continued, vegetable producing areas. Some wind burn midweek unprotected fields. Spring planting nearly complete many areas. Watermelon seeding active northern Peninsula, Panhandle. Harvest active winter, early spring crops. Volume leaders: Tomatoes, cabbage, celery, peppers, potatoes, sweet corn, lettuce, squash. Also available good supply carrots, snap beans, radishes, escarole, endive. West central strawberries continued seasonal increase.

**GEORGIA:** Rain 2 to 4 days, 1.00 to 2.00 in. many locations, mostly under 0.50 in. southeast. Temperatures fluctuated widely, average near normal. Lows low and mid 20s north, freezing central, mid 30s south. Highs 70s north, mid 70s central, upper 70s south.

Soil moisture short to mostly surplus. Rains central, southwest limited field operations. Main activities: Land preparation, small grain topdressing, corn planting, some tobacco transplanting. Peaches blooming central, south. Corn fair; tobacco plants, wheat, rye, other small grains fair to mostly good; pastures poor to mostly fair. Cattle mostly fair to good; hogs mostly good.

**HAWAII:** Favorable weather. Warm, sunny days. Cool nights. Light, nocturnal rainfall. Temperatures mid 60s to mid 80s. Rainfall none to 2.20 in. Variable winds 5 to 25 mph.

Days suitable for fieldwork 7.0. Irrigation moderate to heavy. Pesticide spraying moderate. Crops mostly good. Papaya production seasonally low. Overall banana production steady, down. Head cabbage output steady, heavy. Chinese cabbage yield good. Shipment to west coast continued. Head lettuce continued to improve. Ginger root harvesting active. West coast shipment continued.

**IDAHO:** Precipitation statewide with near normal temperatures.

Winter wheat remained good, most areas. Field activities included fertilizer spreading, planting spring grains, sugarbeets, onions, peas. Other activities involved shipping seed potatoes, attending seminars, cleaning ditches, machinery maintenance. Livestock good to excellent. Calving, lambing well underway, some areas neared completion. Sheep shearing continued isolated areas. Hay, roughage supplies adequate, some surplus.

**ILLINOIS:** Temperatures averaged 2 to 5° above normal. Precipitation 0.25 to 0.75 in. shy of normal. Surge of cold arctic air over weekend with snow flurries.

Winter wheat good. Livestock good.

**INDIANA:** Temperatures averaged 4 to 9° above normal. Lows averaged upper 20s to low 30s. Highs averaged low to mid 50s. Precipitation below normal. Totals 0.20 in. north to 0.50 in. south.

Outside activities limited by wet fields. Activities included: Hauling manure, spreading lime, purchasing field supplies, signing up for 1988 farm programs, applying fertilizer, machinery repair, caring of livestock. Livestock good. Hay supplies adequate. Wheat mostly good, winter damage some fields.

**IOWA:** Mild weather prevailed until weekend. Temperatures dropped well below seasonal normals. Precipitation light, no amounts greater than 0.18 in.

Wind erosion very minimal. Farmers pleased with good conditions that allowed livestock to graze on corn stalks. Availability of hay, roughage mostly adequate. Livestock mostly good. Cattle, calf losses due to unfavorable weather and disease below normal. Hog, pig losses below average. All areas of State some hog losses from TGE.

**KANSAS:** Temperatures above normal. Readings 3 to 5° above normal except west central, southwest, south central where readings 1 to 2° above normal. Areas averaged 38° northwest to 46° southeast. Only southeast significant precipitation with areas under 0.40 in. Most areas less 0.10 in.

Days suitable for fieldwork 4.0. Topsoil moisture 45% short, 40% adequate, 15% surplus. Subsoil 22% short, 72% adequate, 6% surplus. Wheat 14% poor, 23% fair, 38% good, 25% excellent. Eastern third generally excellent, remainder good, except northwest poor. Chiseling northwest to control wind erosion. Disease, insect levels light. Wheat greening up but not reached measurable jointing stage. Oats, barley seeding

progressed 40%. Ranges, pastures poor west; fair to good central areas; excellent eastern areas. Calving continued active throughout State. Fertilizing, weed control active wheat along with spring tillage.

**KENTUCKY:** Week began warmer than normal with maximum temperatures in upper 60s and lower 70s on 8th. Temperatures returned to normal 10th then colder over weekend. Precipitation averaged 0.50 in. heavier amounts up to 1.00 in.

Soil moisture adequate. Fertilization continued as well as tobacco bed preparations, seeding. Pastures greening.

**LOUISIANA:** Temperatures 1 to 4° above normal. Temperature extremes 33°; 97°. Rainfall averaged 1.01 to 2.38 in.

Days suitable for fieldwork 1.6. Soil moisture 21% adequate, 79% surplus. Spring plowing 9%, 8% 1987, 21% avg. Corn 4% planted, 1% 1987, 14% avg. Rice 1% planted, 1% 1987, 2% avg. Winter wheat, livestock fair to good. Sugarcane, vegetables, pastures fair. Main activities: Limited due to wet conditions; spring plowing; topdressing pastures, wheat; harvesting crawfish; water leveling rice fields.

**MARYLAND & DELAWARE:** Maryland: Average temperature 44°, normal 41°. Lowest temperature 16°, highest temperature 67°.

Precipitation averaged 0.29 in. Some areas Eastern Shore short supplies of soil moisture. Main farm activity caring for livestock.

Delaware: Average temperature 44°, normal 42°. Precipitation averaged 0.61 in. Some areas short supplies of soil moisture. Main farm activity caring for livestock.

**MICHIGAN:** Temperatures ranged 6 to 9° above normal. Temperature extremes 14°; 63°. Precipitation ranged 0.24 to 1.57 in. across State. Most areas received precipitation weekend. Snow cover shrinking. No snow cover most wheat fields.

Activities: Marketing crops, livestock; pruning fruit trees, attending farm meetings, purchasing spring supplies, repairing equipment. Feed supplies excellent. Livestock normal. Calving, lambing increased.

**MINNESOTA:** Temperatures averaged 5 to 11° above normal for State. Extremes -2°; 58°. Precipitation averaged near normal to 0.12 in. below normal for southern third, 0.15 to 0.80 in. above normal elsewhere. Precipitation totals averaged 0.14 to 1.12 in. Greatest weekly total 1.58 in. Snowfall averaged 1 to 3 in. southern third, 5 to 13 in. elsewhere. Snow depth weeks end averaged trace to 3 in. southern third, 4 to 14 in. elsewhere.

Another shot of cold weather, snow put some stress on livestock. No field activity. Some concern about below normal soil moisture some areas.

**MISSISSIPPI:** Temperatures 3° below normal; extremes 27°; 81°. Mostly cool, rainy. Greatest weekly rainfall 3.29 in. Greatest 24-hour rainfall 2.45 in.

Days suitable for fieldwork 1.2, 1.3 1987, 3.1 avg. Soil moisture adequate to surplus. Corn 3% planted, 3% 1987, 8% avg. Wheat 17% jointing, 30% 1987, 21% avg.; fair to good. Hay, feed supplies slightly less than adequate. Activities: Mostly livestock feeding, machinery repair. Watermelon planting just begun. Livestock, pasture fair to good.

**MISSOURI:** Temperatures averaged 5° above normal. Precipitation 1.50 in. Bootheel, none northern areas, less than 0.50 in. elsewhere.

Farmers getting ready for fieldwork, but continued warm weather, more drying needed before tillage begins most areas. Small amount oats seeded. Calving in progress.

**MONTANA:** Temperatures very mild, 10° above normal north central, northeast; 5° above southwest, southeast. Moderate to heavy precipitation south central, southeast. Light precipitation rest of State.

Winter wheat 4% poor, 61% fair, 35% good. Wind damage to winter wheat fields 73% light, 27% moderate. Snow cover protection for winter wheat fields 96% poor, 3% fair, 1% good. Winter wheat 61% dormant, 32% greening, 7% green and growing. Cattle and calves generally 8% fair, 69% good, 23% excellent. Sheep and lambs generally 2% fair, 81% good, 17% excellent. Calving 38% completed. Lambing 36% completed. Grazing 98% open, 2% difficult. Cattle losses compared with average, 39% lighter, 58% same, 3% heavier. Sheep losses 34% lighter, 59% same, 7% heavier.

**NEBRASKA:** Temperatures averaged 3° below normal northwest, north central to 3° above normal remainder of State. Precipitation averaged 0.40 in. north to 0.10 in. southeast. Snow up to 17 in. common in Panhandle. Extremes -19°; 69°.

Blizzard conditions hit Panhandle of State late week caused stress to cattle, calves; losses expected.

**NEVADA:** Mostly sunny but cool. Temperatures averaged few degrees below normal despite clear skies. Midweek sharp, fast moving front produced only trace amounts precipitation most areas. Temperature extremes 0°; 78°.

Good progress fieldwork. Dry fields about ideal for calving, lambing, feeding operations. Some concern about irrigation water supplies for 1988.

**NEW ENGLAND:** Precipitation averaged 0.10 to 0.30 in. across area. Average temperatures ranged low 20s northern Maine to mid 30s south. Temperatures below normal north, above normal south.

Major farm activities: Repairing machinery, tending livestock, sugaring.

**NEW JERSEY:** Temperatures averaged much above normal, averaged 41° north, 45° south, 46° coastal. Extremes 19°; 68°. Precipitation below normal averaged 0.03 in. north, 0.08 in. south, 0.33 in. coastal. Heaviest 24-hour total 0.37 in. on 9th, 10th.

Early soil preparation continued on limited basis. Planting of peas, onions, irish potatoes began southern areas. Fruit pruning about complete.

**NEW MEXICO:** Several weather disturbances accompanied by cold air moved through State; scattered precipitation northern areas, dry elsewhere. Field preparation for cotton, corn, milo continued; potato planting neared completion.

Days suitable for fieldwork 6.4. Soil moisture 36% short, 64% adequate. Barley 20% poor, 40% fair, 40% good. Wheat 30% poor, 50% fair, 20% good. Cattle 45% fair, 55% good. Sheep 33% fair, 67% good. Range 9% poor, 64% fair, 27% good. Onions 100% good; lettuce 100% fair.

**NEW YORK:** Temperatures near normal. Highs in 20s to 30s in north, in 40s elsewhere. Long Island reached 50°. Precipitation variable with coastal areas receiving more. Susquehanna area received snow midweek.

Producers busy tending livestock, planning for spring planting.

**NORTH CAROLINA:** Temperatures averaged 4 to 6° above normal across State. Temperature extremes 24°; 75°. Precipitation ranged 0.30 to 2.40 in.

Days suitable for fieldwork 4.3. Soil moisture 1% very short, 20% short, 69% adequate, 10% surplus. Wheat 1% poor, 20% fair, 76% good, 3% excellent. Oats 1% poor, 30% fair, 66% good, 3% excellent. Barley 2% poor, 20% fair, 74% good, 4% excellent. Rye 3% poor, 24% fair, 69% good, 4% excellent. Pasture 4% very poor, 10% poor, 42% fair, 42% good, 2% excellent. Hay and roughage supplies 9% short, 88% adequate, 3% surplus. Feed grains supplies 9% short, 87% adequate, 4% surplus. Tobacco plantbeds 33% fair, 67% good. Irish potatoes 50% planted, 19% 1987, 28% avg. Major farm activities: Preparing land for spring planting; sidedressing small grains; seeding tobacco plantbeds; transplanting cabbage; planting potatoes; pruning fruit trees, ornamentals; applying lime; feeding livestock; general farm maintenance.

**NORTH DAKOTA:** Mild early, blizzard conditions late. Temperatures averaged 8 to 14° above normal. Extremes -11° west central, 12th; 67° south central, 9th. Much needed precipitation received, ranged 0.20 to 1.50 in. Snowfall variable, averaged none extreme north to 11 in. south central.

Soil moisture below normal. Winter grains fair to poor. Strong winds caused soil erosion in unprotected fields. Livestock good, received supplemental feed. Calving, lambing, shearing progressed. Feed supplies remained adequate. Main activities: Preparation of spring tillage equipment, caring for young livestock.

**OHIO:** Temperatures averaged as much as 8° above normal ranging lows in 20s to highs in 70s. Soil temperatures ranged mid 30s to low 50s. Precipitation 0.25 to 0.50 in.; 50% of normal.

Very little fieldwork accomplished; weather varied from spring-like to winter during period. Farmers, agricultural service businesses preparing equipment. Most fruit tree, grape vine pruning complete.

**OKLAHOMA:** Temperatures averaged 1° below normal north central to 2° above normal southwest. Precipitation averaged none northwest third to 0.37 in. southeast.

Days suitable for fieldwork 3.0. Topsoil moisture 60% adequate, 40% surplus. Subsoil moisture 100% adequate. Wheat 5% fair, 85% good, 10% excellent; 5% jointing, 5% 1987, 10% avg. Warm weather prompted rapid growth. Brisk winds dried wet fields allowing fertilizer, herbicide applications. Light greenbug, Russian wheat aphid infestations. Sorghum, cotton activity limited to seedbed preparation. Cattle marketings average, prices stable to slightly lower than preceding week.

**OREGON:** Temperatures within 2° of normal, except mid to southern Willamette Valley 3 to 5° below normal. Rainfall totals less than 2.00 in. along coast; less than 1.00 in. inland west; less than 0.50 in. east of Cascades.

Soil moisture mostly adequate west, mostly short east. Irrigation water outlook bleak. Spring fieldwork, grain seeding continued east. Fruit tree pruning continued many orchards. Dormant sprays now being applied to pears. Pears, peaches started bloom, early apples shedding bud scales Willamette Valley. Livestock mostly good. Ranges, pastures mostly fair; prospects poor.

**PENNSYLVANIA:** Mild, dry. Average temperature 40°; 8° above normal. Temperature extremes 13°; 72°. Average precipitation 0.25 in., 0.49 in. below normal.

Activities: Hauling manure; grading potatoes; machinery maintenance; caring for livestock; cutting firewood.

**PUERTO RICO:** Island average rainfall 0.03 in., 0.51 in. below normal. Highest weekly total rainfall 0.85 in. Pico Del Este-Luquillo, 0.12 in. San Lorenzo Farm, 0.06 in. Maunabo. Highest 24-hour total 0.47 in. Pico Del Este-Luquillo. San Juan WSFO mean temperature 77°, 1° below normal. Total rainfall none, 0.49 in. below normal. Divisional temperature averaged 75 to 76° on coasts, 68 to 72° interior divisions with mean station temperature ranging 62° Pico Del Este-Luquillo to 78° Roosevelt Roads. Lowest minimum temperature 53° Cayey. Highest maximum temperature 90° San Sebastian.

**SOUTH CAROLINA:** Temperatures averaged 2 to 4° above normal. Rainfall averaged 0.75 to 1.50 in. with considerable variation. Some northeast counties averaged 2.00 in.

Farmers busy plowing, soil preparation. Early planting corn, watermelons, some vegetable continued southern counties; tomato planting to begin soon. Tobacco plantbeds good. Peaches some areas of Ridge blooming with upstate peaches coming along more slowly. Small grains looking good.

**SOUTH DAKOTA:** Average temperatures 6 to 12° above normal. Extremes -1°; 71°. Two snowstorms moved across State leaving 2 to 5 ft. snow west central; 1 ft. or more west river, to on 1 in. or less northeast and southeast. Precipitation above normal south central, northwest; below normal north central, east. Snow cover mostly 4 to 10 in. west river. Most snow deposited in deep drifts.

Livestock losses minimal due to early storm warning.

**TENNESSEE:** Cold front moved through State midweek, again over weekend. Temperatures averaged 3 to 5° above normal. Extremes 25°; 74°. Rainfall over west, southeast generally 1.00 to 2.00 in. Lesser amounts over remainder of State.

Rain replenished topsoil moisture. Variable temperatures and wet conditions stressed some livestock, especially newborn calves and poultry. Pastures, wheat growing well, providing fair amounts of grazing for cattle. Fieldwork delayed late in week due to wet weather. Cool temperatures slowed field drying. Farmers tending livestock, applying fertilizer between showers, limited tillage in progress. Other activities include spring preparation, soil sampling, general farm maintenance, meetings, tax preparation. Supplemental feed generally adequate.

**TEXAS:** Mild to warm temperatures early week. Cooler air midweek. Another cold front fair, warm, windy weather, little precipitation. High winds helped spread wild fires parts Rolling Plains. Cooler air weekend, hard freezes parts north, central. Precipitation below normal except east amounts close to normal. Temperatures below normal High, Rolling Plains, Trans-Pecos, above normal elsewhere.

**Crops:** Small grains improved Plains with recent moisture; good portion rest of State need rain for continued progress. High Plains fields some growth. Producers topdressing. Growth oats, wheat Blacklands improved, slow pace. Insect populations increased. Rust more fields. Fields central need moisture continued progress. Fields grazing limited forage. Corn planting active Blacklands, central. Some early fields emerged to stands. Planting began to wind down Upper Coast, Coastal Bend, Rio Grande Valley. Land preparations resumed Plains. Corn 41% planted, 11% 1987, 22% avg. Grain sorghum planting increased central, actively underway Blacklands. Planting nearly complete

Coastal Bend, Upper Coast. Planting began to wind down Rio Grande Valley. Additional moisture benefit planting conditions. Sorghum 24% planted, 5% 1987, 14% avg. Cotton planting increased Valley, Coastal Bend. Cotton 2% planted, 1% 1987, 1% avg.

**Commercial Vegetables:** Rio Grande Valley onion harvest began. Harvest cabbage, carrots continued. Melon planting continued early fields good progress. Harvest citrus continued. Trees blooming, setting new crop. Trees good. San Antonio-Winter Garden harvest most vegetables good progress. Onions good promise. High Plains some onions transplanted. Majority transplanted soon. Land preparation increased with milder weather. East planting active. Many areas need additional moisture. Peach, other fruit trees continued bloom stage. Late week cold front may affect trees Hill Country. Spraying continued. Blueberries blooming east.

**Range and Pasture:** Range fires continued spring up portions west, northwest some reaching serious proportions. Extremely dry conditions combined with high winds difficult to control fires. Some pastures east good, increased growth, greening. Most other areas need moisture. Cattle moved off small grain Plains. Livestock average condition. Feeding remained steady until rain revives ranges, native pastures.

**UTAH:** Precipitation light to moderate. Temperatures normal to 4° above normal.

Calving, lambing started. Livestock good. Feed adequate. Snow cover gone except shaded areas. Major farm activities: Livestock care, purchasing seed, supplies; machinery maintenance, farm records.

**VIRGINIA:** Temperatures averaged 10° above normal, range 17 to 73°. Precipitation widespread, amounts varied. Most 1.09 in. on eastern coast, least trace at Charlottesville.

Days suitable for fieldwork 4.4. Topsoil moisture 24% short, 65% adequate, 11% surplus. Pastures, small grains, other cropland generally good to excellent. Plowing, fertilizing, other land preparations active. Topdressed small grains, some spring growth. Overseeded pastures, hayland. Tobacco plantbeds 85% seeded. Potatoes 30% seeded. Seeded spring oats. Start vegetable seedlings in green houses. Pruned fruit trees, sprayed to hold back early bloom. Other activities: Tax work, supply acquisition, soil sampling, government program sign-up.

**WASHINGTON:** Several disturbances moved across State midweek. First brought moderate, heavy precipitation to west slopes Olympic, Cascade Mountains, with rainfall over extreme east. Cascade rain shadow kept mid section of State fairly dry. End of week high pressure built, started another drying trend. Warm highs offset cold lows to keep overall temperatures close to normal.

Light rains improved soil moisture conditions eastern areas. Early fieldwork continued. Spring seeding underway, some crops began to emerge. Fruit tree pruning winding down. Dormant sprays being applied early areas Benton County; soft fruit trees required frost protection several nights. Forced rhubarb harvest, radish planting continued King, Pierce Counties. Lambing season full progress. Calving season winding down. Spring pasture growth underway.

**WEST VIRGINIA:** Average temperature 45°, 2 to 9° above normal. Extremes 77° Romney; 14° Greenbank. Precipitation averaged 0.48 in.; below normal.

Days suitable for fieldwork 4.3. Soil moisture 30% short, 70% adequate. Feed supplies short to adequate. Wheat, barley good to fair. Cows calved

60%; ewes lambed 70%. Farm activities: General farm maintenance, livestock care, plowing.

WISCONSIN: Mild weather until cold weekend, temperatures averaged 35°. Extremes 5°; 36°. Precipitation 0.10 to 0.80 in., heaviest northwest. Snowfall 4 to 12 in. north, 1 to 3 in. central. Average snow cover 2 in., average frost depth 13.7 in. on 11th. Southern third State no protecting snow cover.

WYOMING: Temperatures slightly above normal. Precipitation above normal, except Big Horn Basin. Major winter storm late week slowed farm activities. Winter wheat fair to good. Farmers started land preparation for spring planting. Livestock fair to good. Winter storm increased stress. Early calving, lambing, shearing continued. Supplemental feeding continued as needed. Feed supplies adequate most areas.

International Weather and Crop Summary

March 6-12, 1988

HIGHLIGHTS:

UNITED STATES ... Winter-like weather curtails field activity in the northern and central Great Plains, Rocky Mountain States, and some Corn Belt States. Corn planting surges ahead in Texas but lags behind normal in most southeastern States. Rice planting begins in Louisiana.

WESTERN U.S.S.R. ... Light precipitation accompanies above-normal temperatures over most winter grain areas.

EUROPE ... Abnormally wet weather continues across the north. Freezing temperatures in Spain likely damage some crops.

SOUTH ASIA ... Moderate to heavy rain brings relief to filling wheat in north-central India, following early-week, stressful temperatures.

NORTHWESTERN AFRICA ... The first substantial widespread rains of the growing season cover winter grains in Algeria and Tunisia, bringing temporary relief to crops. Weather conditions continue favorable for Moroccan winter grains.

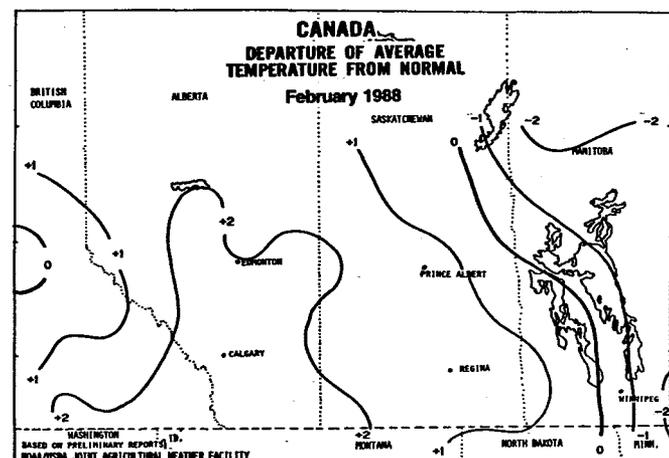
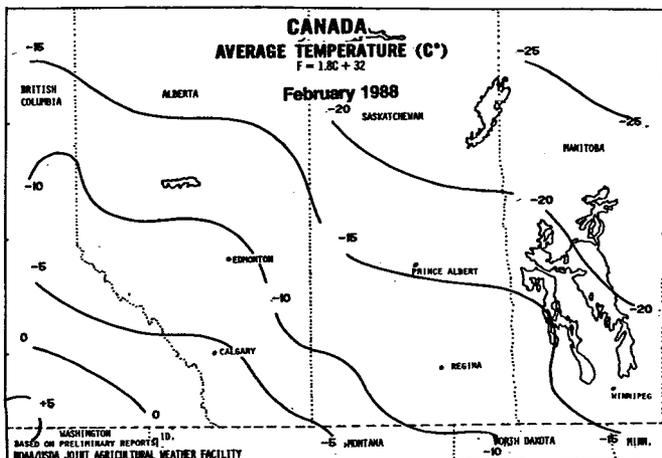
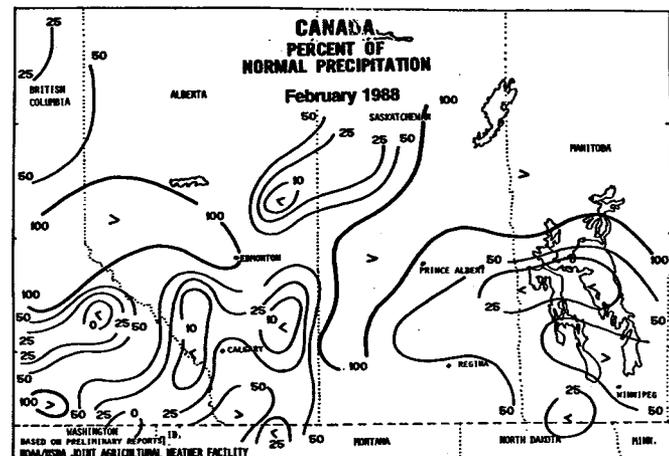
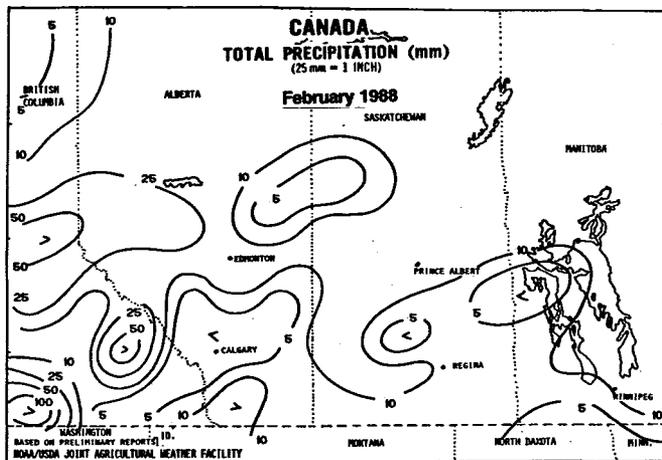
SOUTH AFRICA ... Moderate to heavy showers cover South Africa's filling corn. Excessive rain continues in Natal.

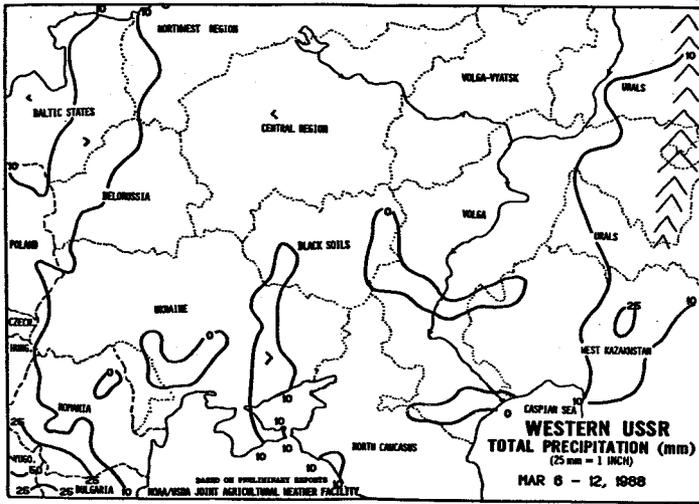
SOUTHEAST ASIA ... Widespread showers cover Malaysia and Indonesia, causing some flooding in western Malaysia.

EASTERN ASIA ... Warmer and drier weather favors early-season rice planting and vegetative winter grains across southern and central growing areas.

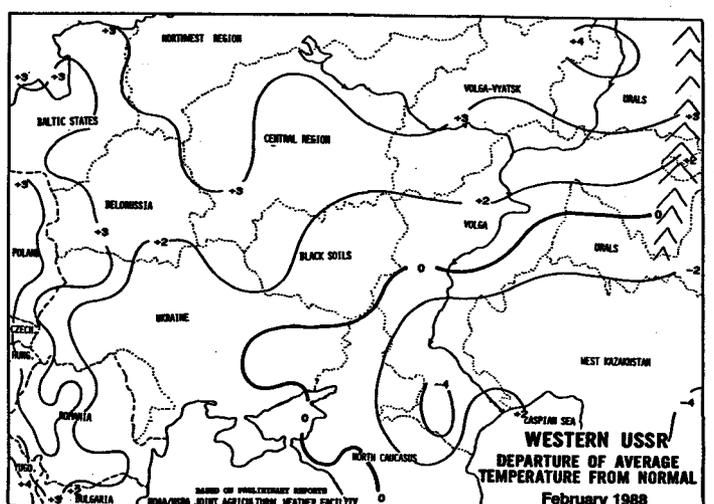
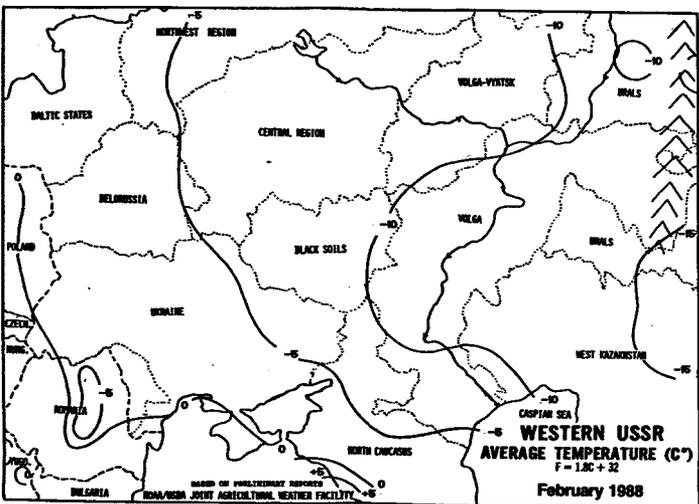
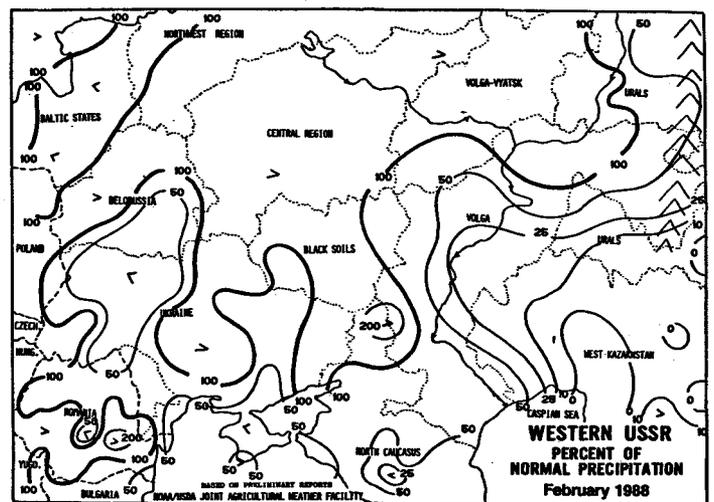
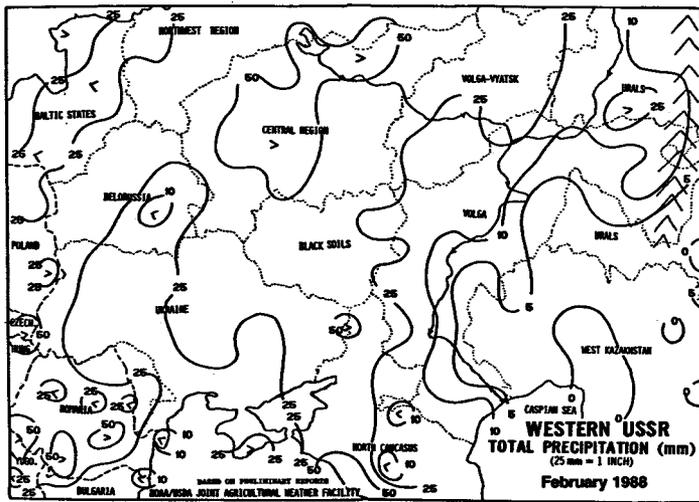
SOUTH AMERICA ... Widespread rain delays Argentina's early crop harvest. Dry weather favors early soybean harvesting in southern Brazil.

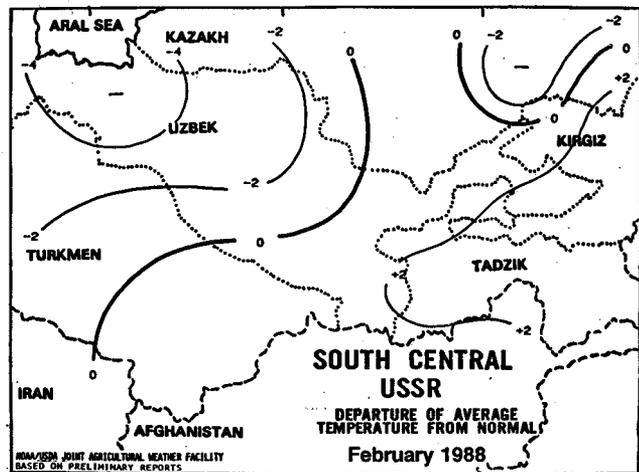
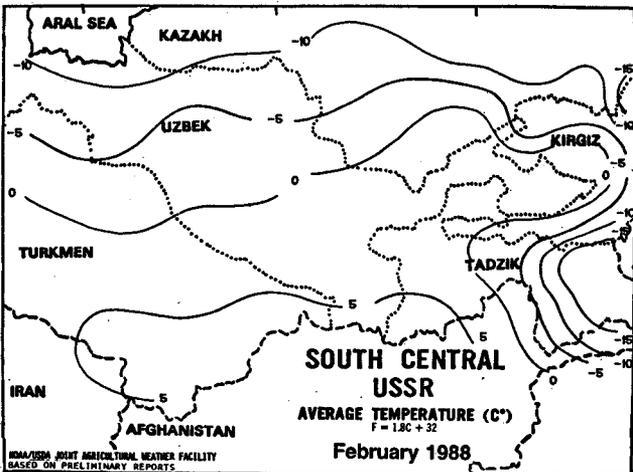
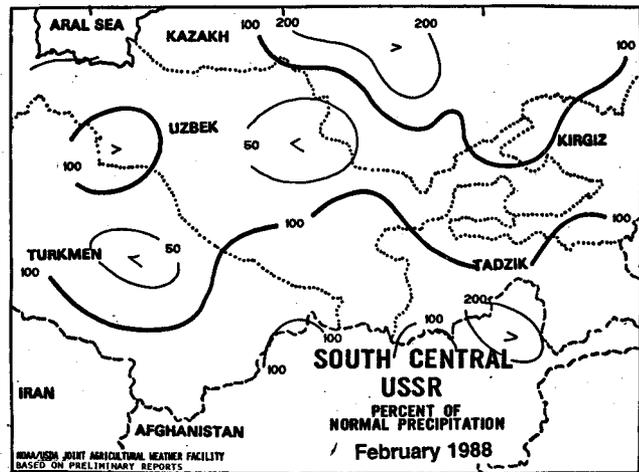
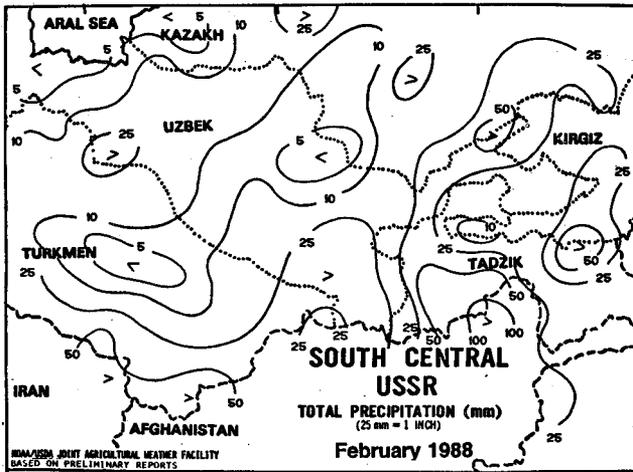
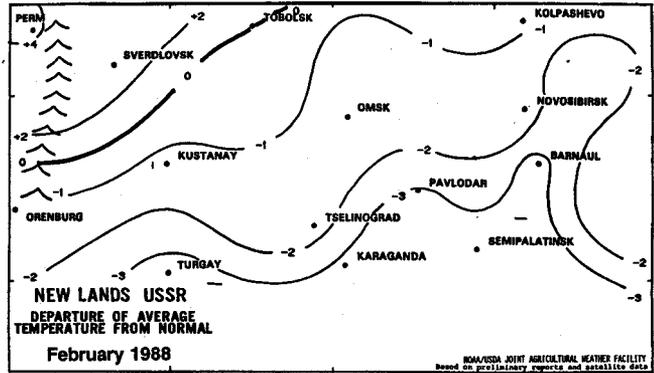
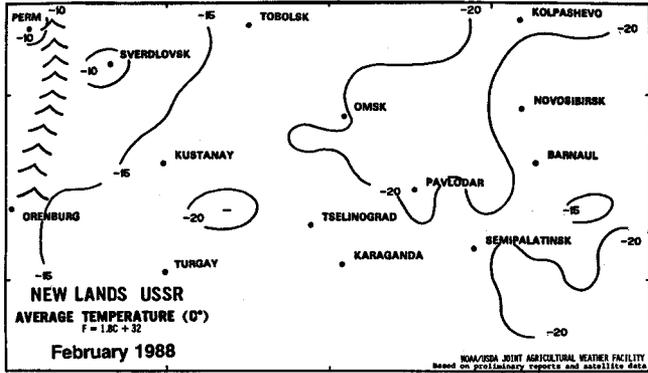
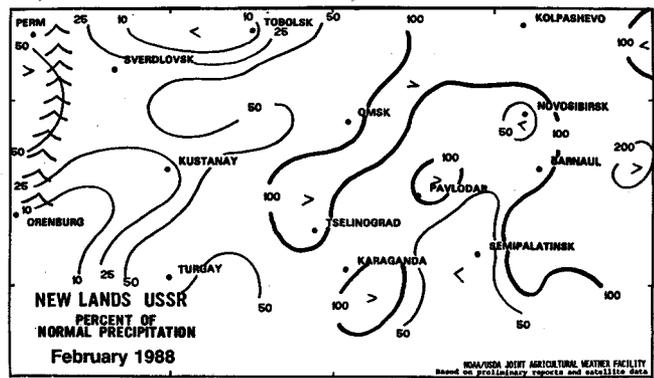
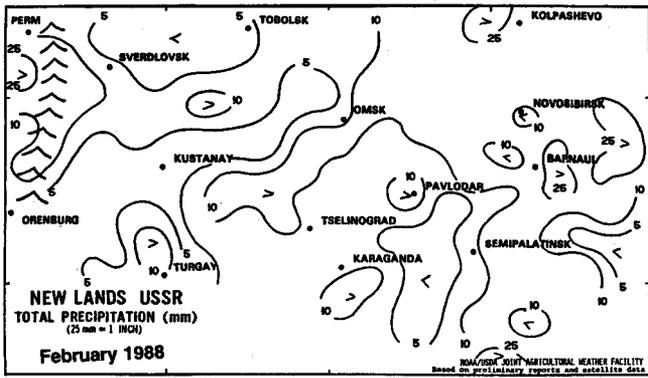
AUSTRALIA ... Dry weather returns to most eastern crop areas. Tropical Cyclone Bola strikes New Zealand, causing damage to crops.

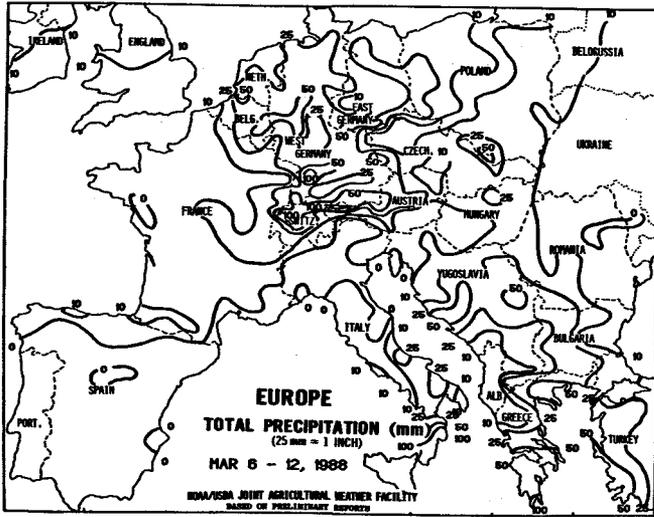




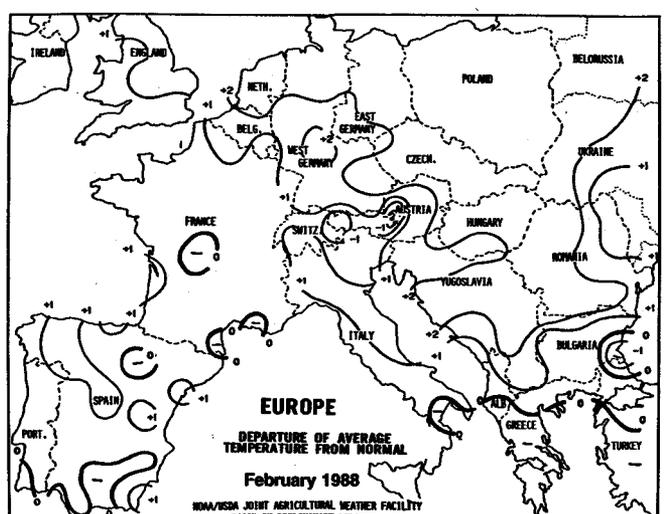
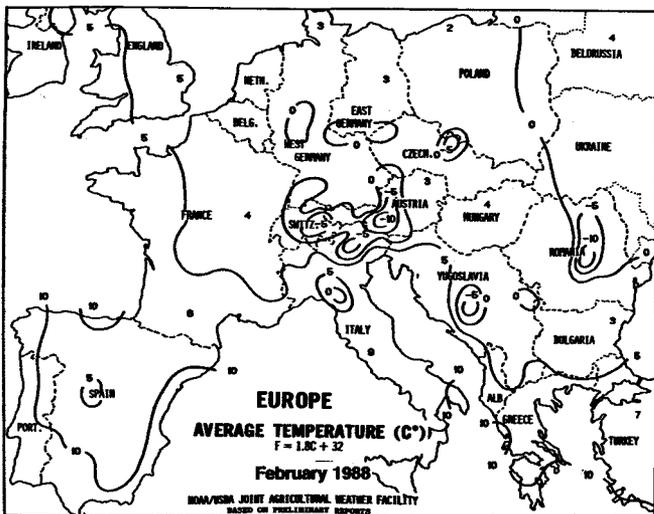
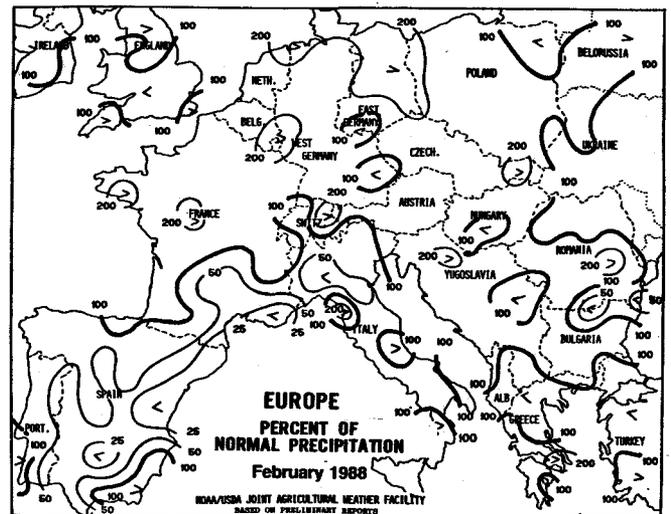
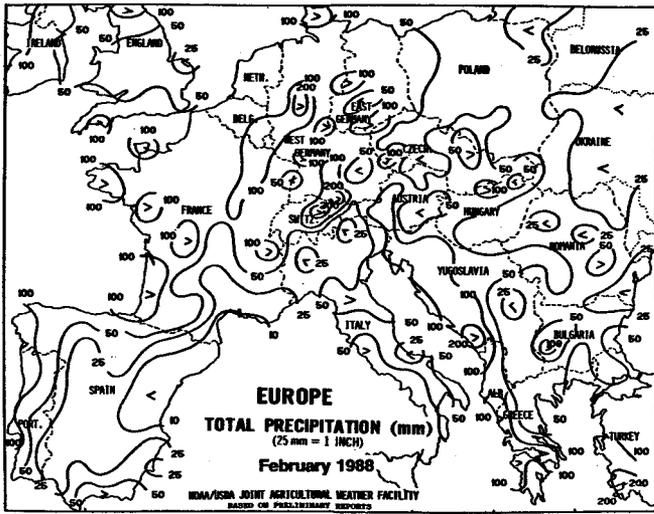
**WESTERN U.S.S.R** ... Light precipitation (less than 13mm) covered winter grains over much of the region. The precipitation fell mostly as snow, with rain, and mixed rain and snow covering the southern Ukraine and North Caucasus. Warmer-than-normal weather continued over the region, with weekly temperatures averaging 2-4 degrees Celsius (C) above normal in the north and 1-3 degrees C across the south. In February, overwintering conditions were mostly favorable for dormant winter grains. The second consecutive month of below-normal precipitation covered the western and southern Ukraine, and the central North Caucasus during February. Precipitation has been below normal in the Volga for 3 months, limiting moisture recharge needed for the upcoming growing season. Despite two cold snaps on February 15 and February 25, temperatures during the month remained mostly above normal in the Baltic States, Belorussia, the Ukraine, Black Soils Region, the upper Volga, and the Volga Vyatsk. February temperatures were 2-4 degrees C below normal in the North Caucasus and the lower Volga.

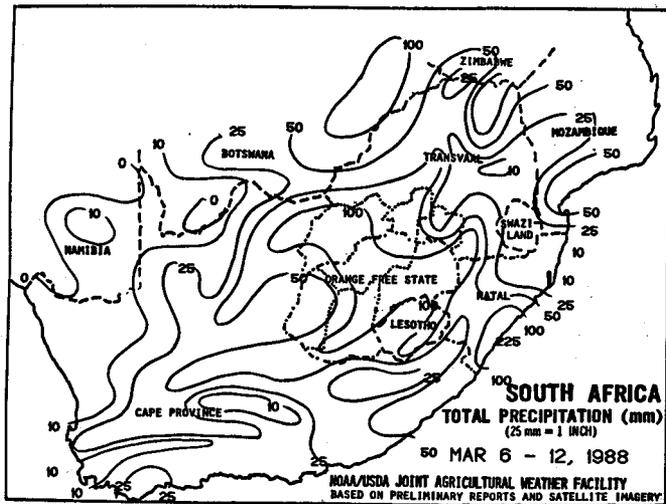




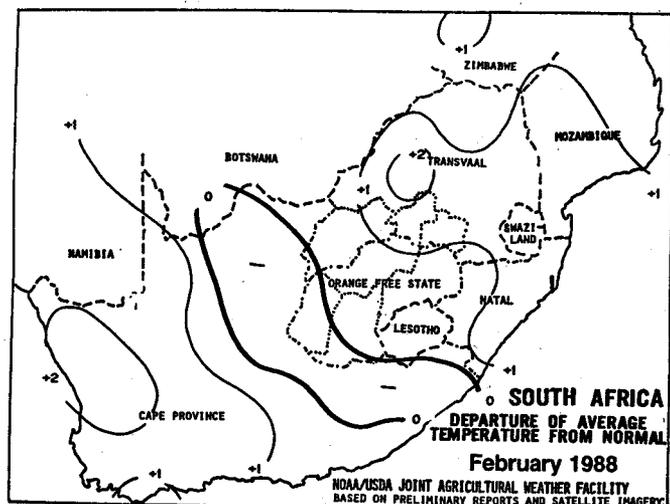
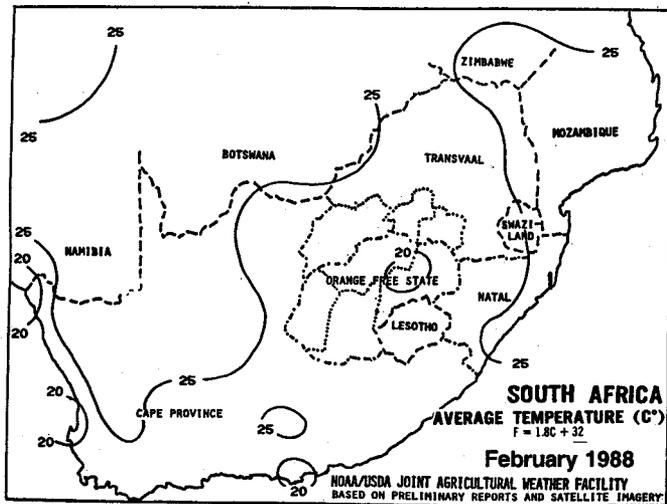
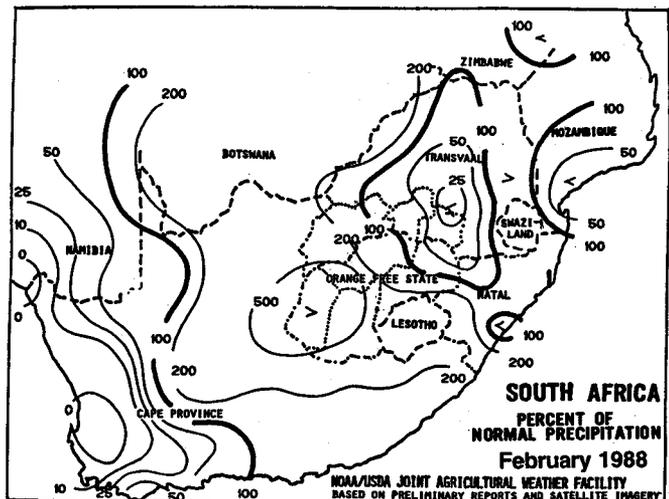
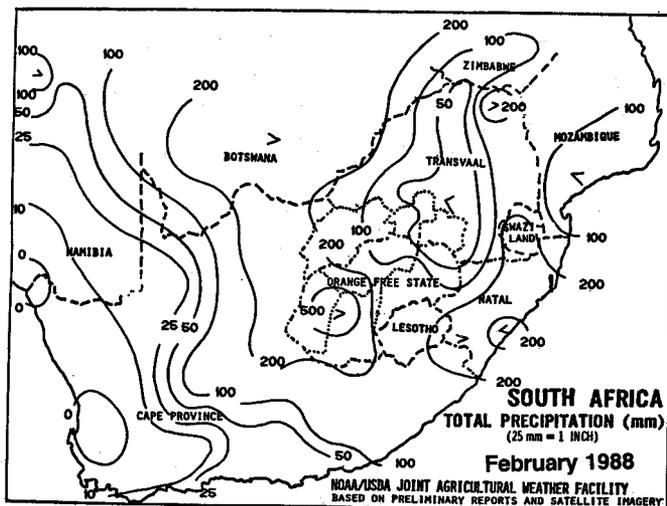


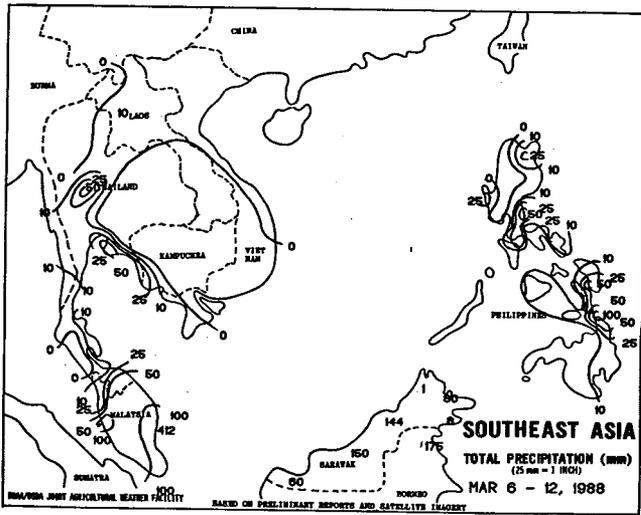
**EUROPE** ... Colder-than-normal weather continued across most of Europe early in the period, followed by moderating temperatures by week's end. Subfreezing temperatures over the past 2 weeks in southern and eastern Spain likely damaged some fruit, vegetable, and nut crops. Moderate to heavy rain and snow (greater than 25mm) persisted from the low countries eastward to western Poland, keeping soils saturated. Widespread precipitation also fell over eastern Europe, while southwestern Europe remained mostly dry. Precipitation during February was normal to above normal in all of Europe except for the extreme south. Soil moisture levels improved in the previously dry Balkans, although more rain will be needed as winter grains become vegetative. Average temperatures in February ranged from near normal in the south to much above normal in the north.



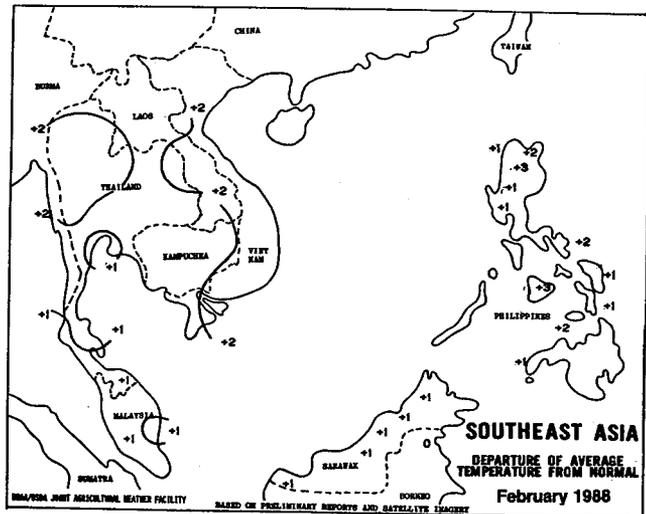
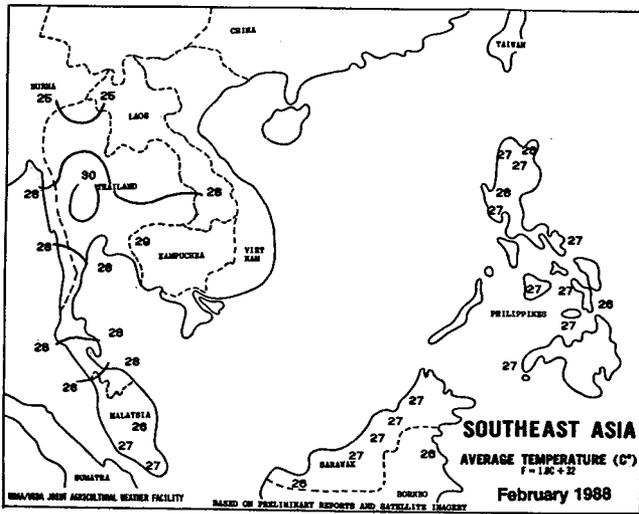
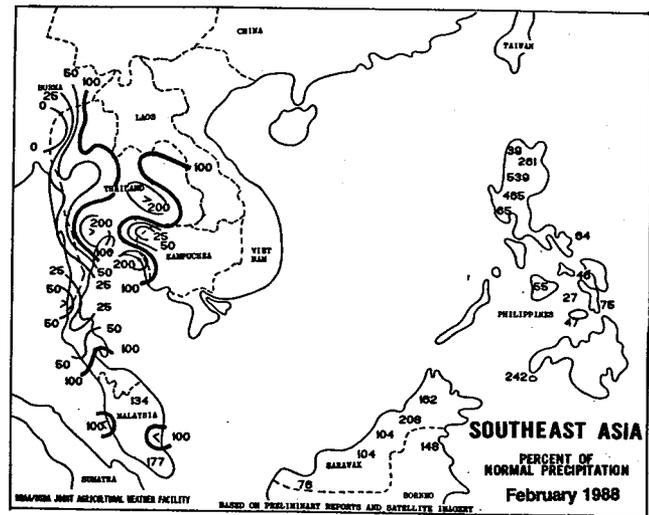
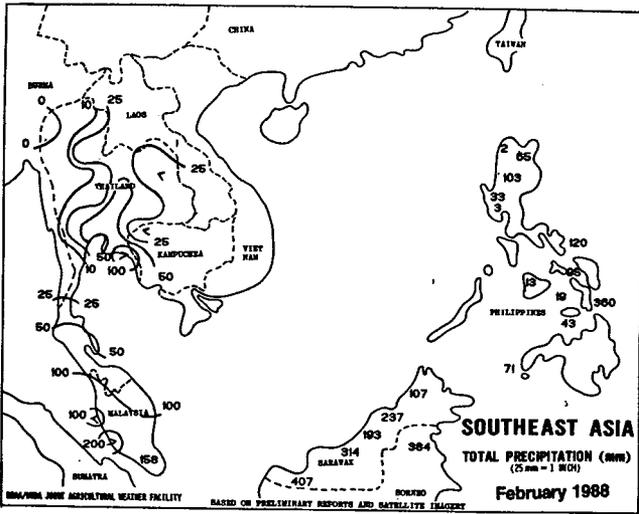


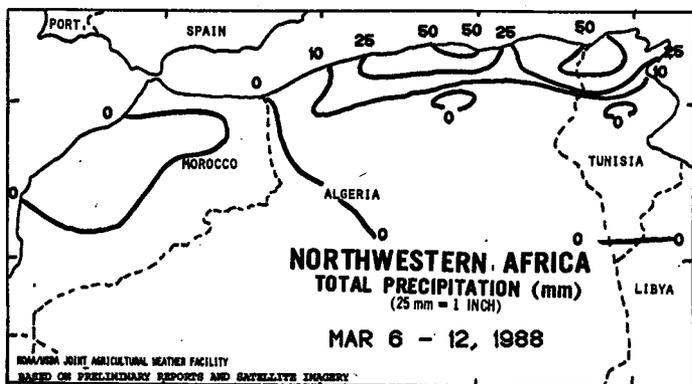
**SOUTH AFRICA** ... Heavy rain (100mm or more) spread from the western Maize Triangle to Natal, hindering early harvesting and worsening flood conditions in parts of the southern Triangle and coastal Natal. Moderate to heavy showers (22-71mm) benefited filling corn in the eastern Maize Triangle and central Transvaal. In February, early-month temperatures reached the midthirties C in the western and central Triangle, stressing reproductive to filling corn for the second week and reducing soil moisture levels. Showers returned in mid-February, bringing relief to crops in the central Triangle and boosting moisture reserves. Rainfall was excessive, however, in minor corn regions of the western and southern Triangle and Natal, causing flooding and crop damage. Drier and warmer-than-normal weather covered the eastern Maize Triangle and parts of central Transvaal throughout the month, reducing moisture levels for corn in stages of development ranging from vegetative to filling.



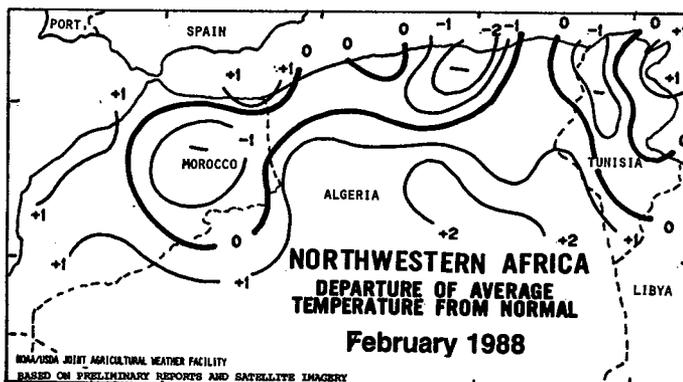
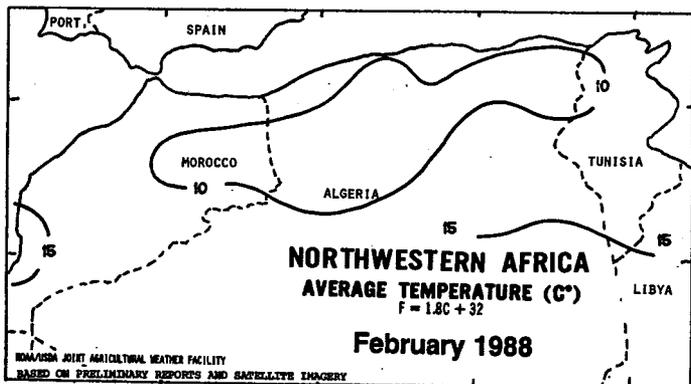
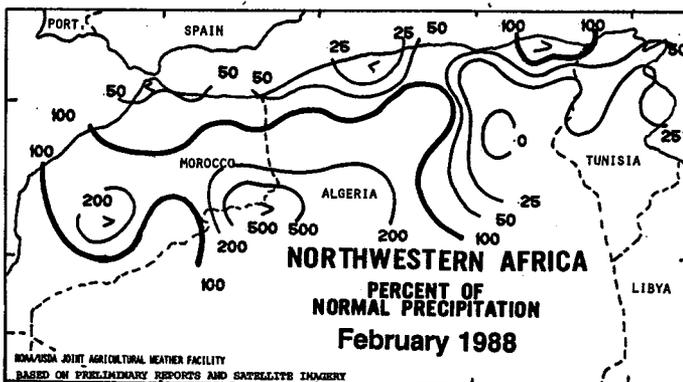
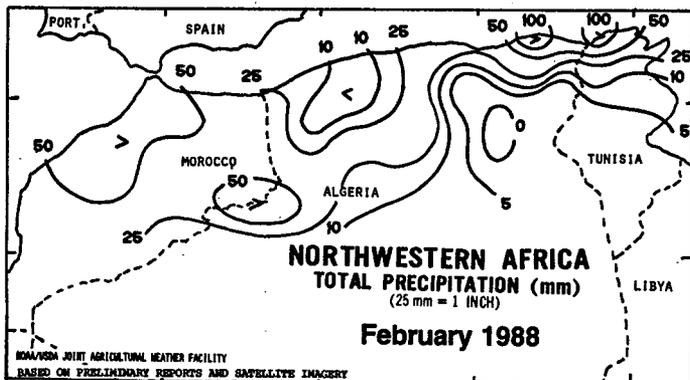


**SOUTHEAST ASIA** ... Widespread, heavy showers (50-100mm or more) covered most crop regions of Malaysia and Indonesia, boosting irrigation levels but causing local flooding, especially along the east coast of western Malaysia where local rainfall exceeded 400mm. Dry pockets persisted over parts of southern and eastern Java. Light to moderate rain (1-25mm or more) covered peninsular Thailand and spread from Bangkok northward into northern Laos and Vietnam. In February, conditions were generally favorable for crops in eastern Malaysia and western Indonesia. February rainfall was near to above normal in western Malaysia though periodic dry weather occurred throughout the month. Crop regions from southern Java eastward and in peninsular Thailand trended dry throughout February, reducing irrigation reserves. In the Philippines, light to moderate rain covered all but western Luzon. February rainfall was below normal throughout the islands, and temperatures averaged 1-3 degrees C above normal.

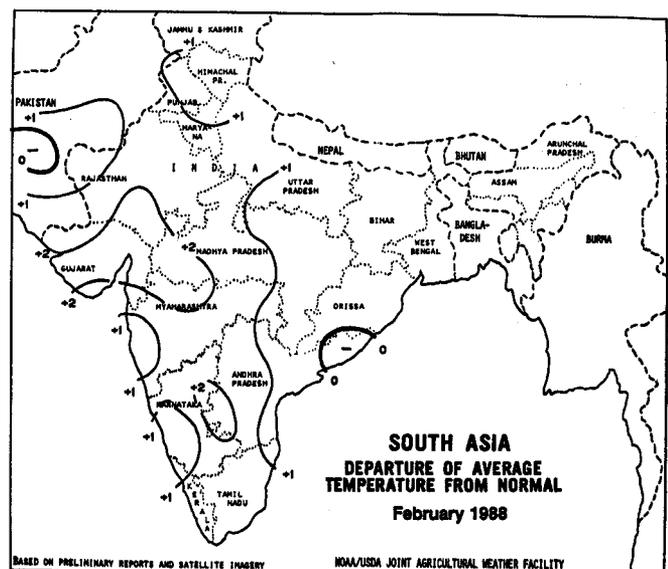
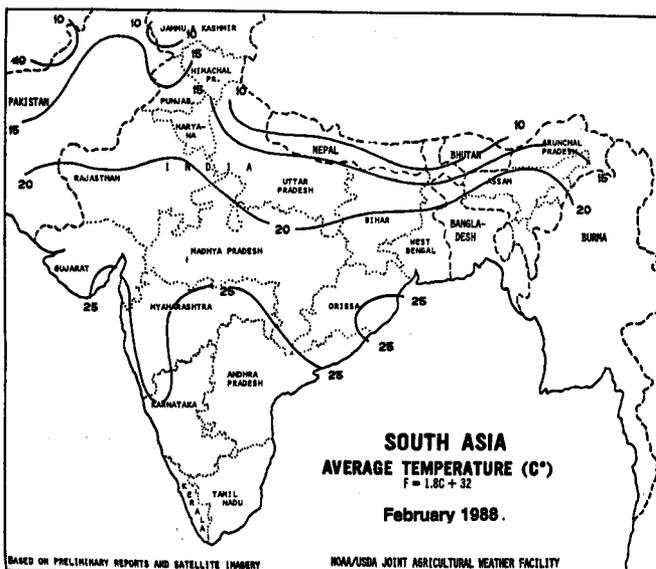
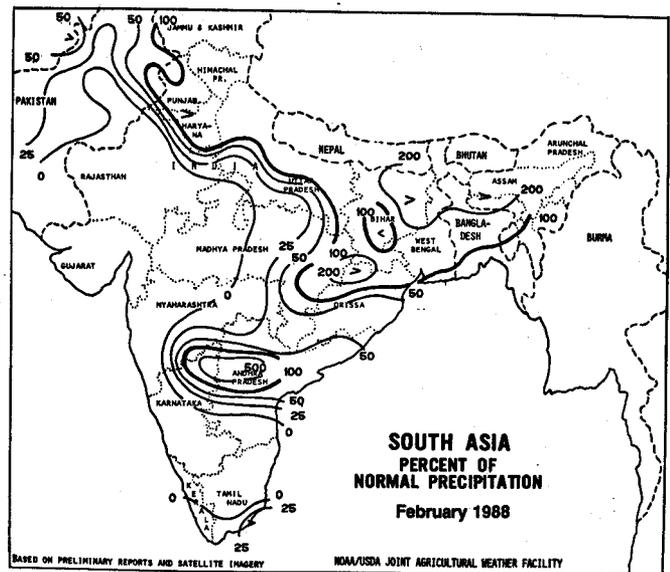
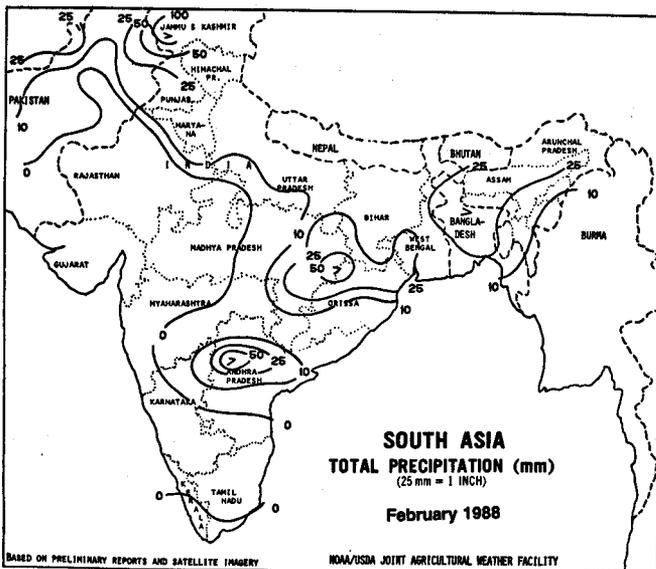
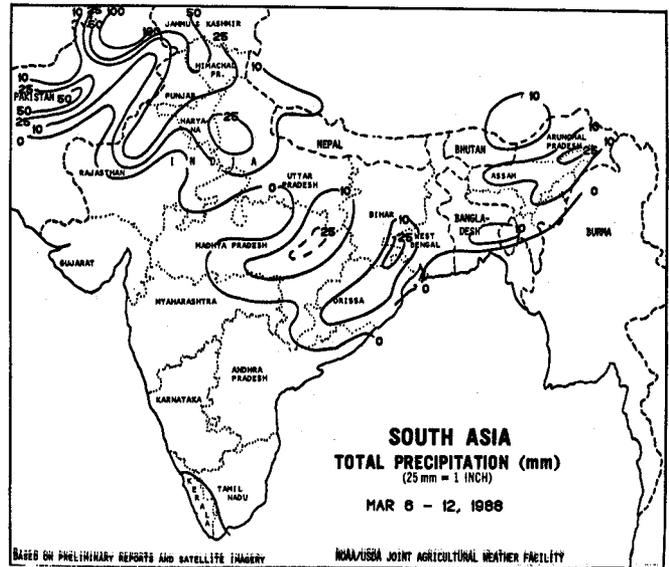


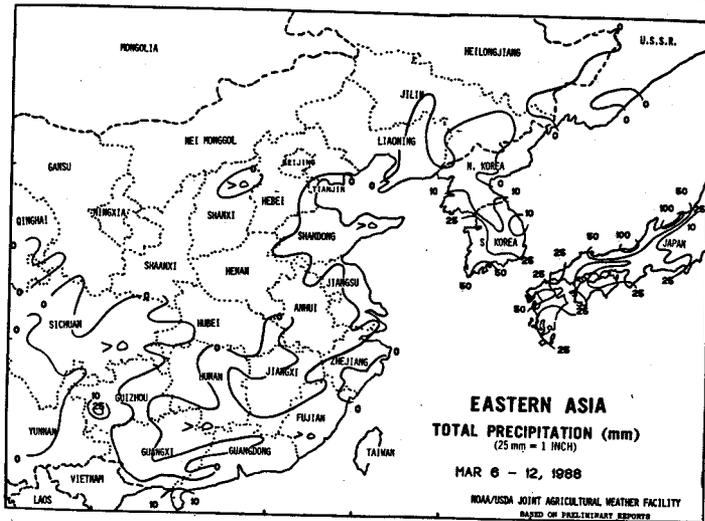


**NORTHWESTERN AFRICA** ... The first substantial, widespread rains of the growing season covered winter grain areas in central and eastern Algeria and Tunisia, bringing temporary relief to crops previously stressed by prolonged dryness. Rainfall ranged from 13 to 43mm, with localized amounts in excess of 50mm covering winter grain areas in extreme eastern Algeria and western Tunisia. This past week's rain helped to stabilize conditions for winter grains advancing through reproduction. Further west, although light precipitation (less than 10mm) covered Moroccan winter grain areas, moisture supplies were adequate for winter grains entering the reproductive phase of development. In February, the third consecutive month of below-normal precipitation covered winter grains in Algeria and Tunisia, reducing yield prospects for winter grains which advanced into reproduction by month's end. In Morocco, periodic showers produced near- to above-normal precipitation over most winter grain areas.

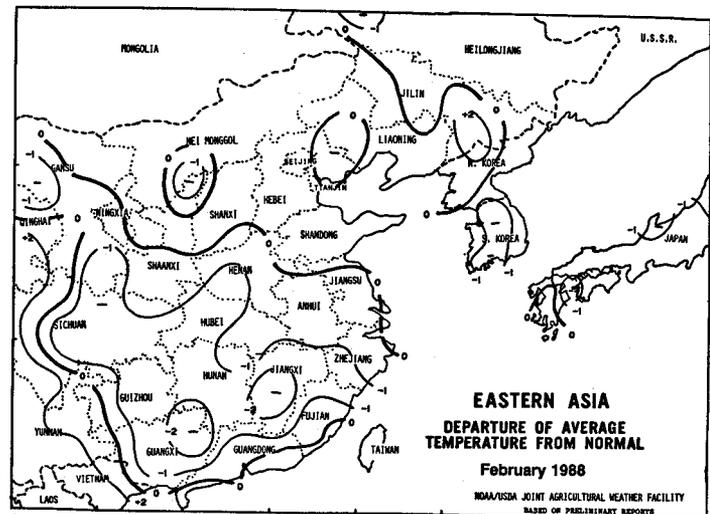
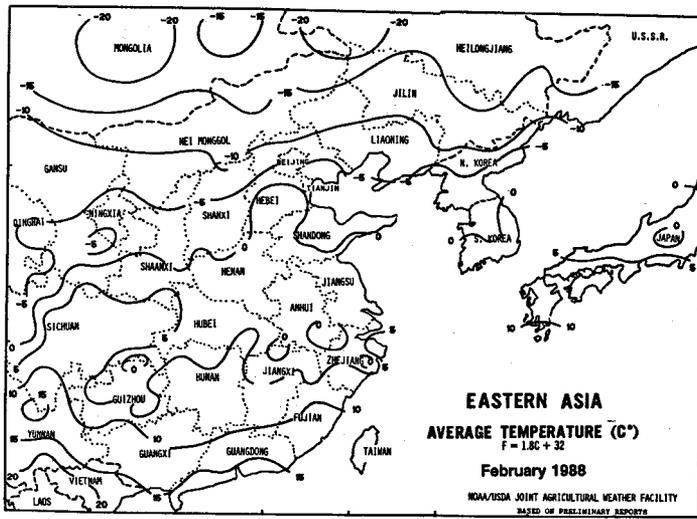
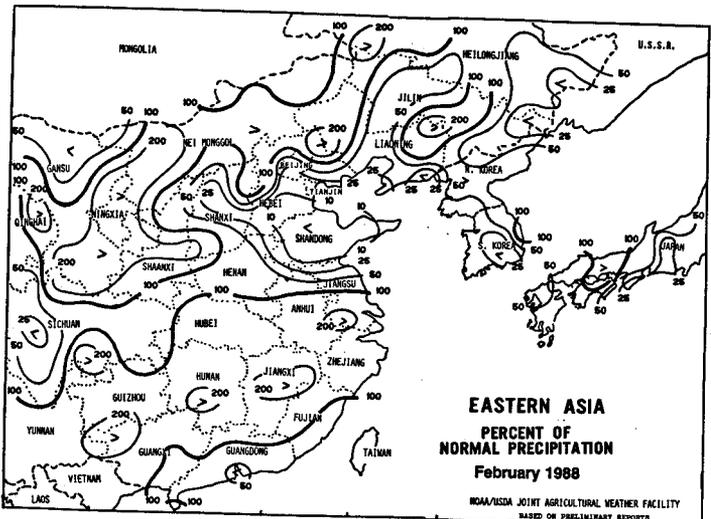
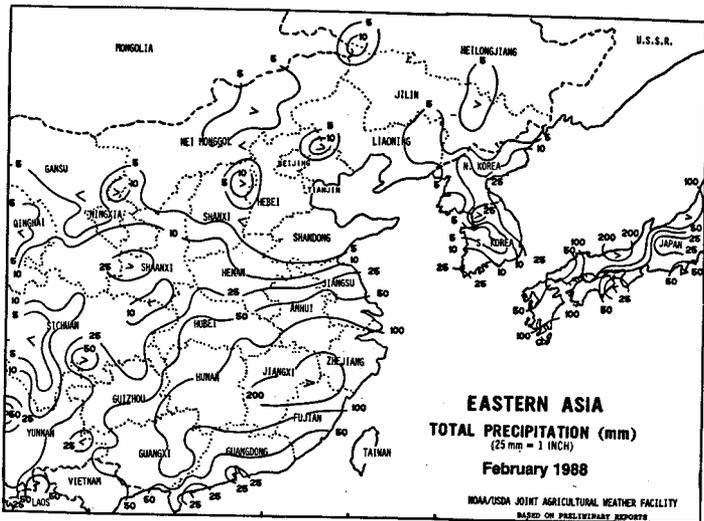


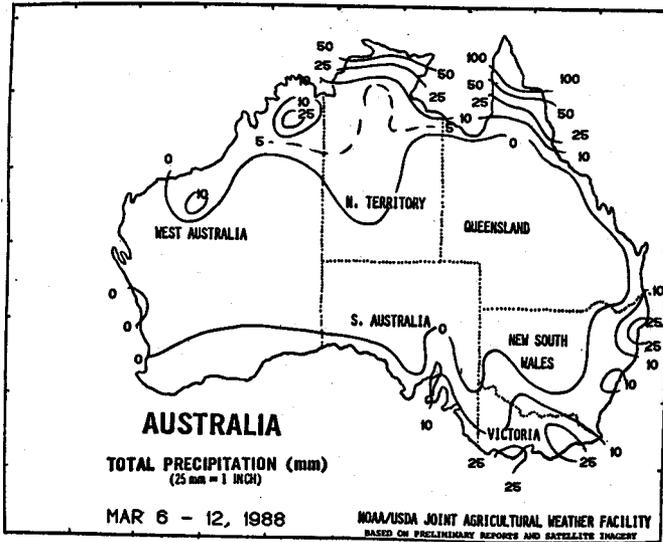
**SOUTH ASIA** ... Moderate to heavy rain (10-38mm) boosted irrigation levels for filling wheat in north-central India and Pakistan, with amounts exceeding 100mm in parts of northern Pakistan. The rainfall eased temperatures that reached the mid-thirties C across northern wheat regions, helping to ripen wheat but stressing late-planted crops still in early filling. Warm, dry weather benefited maturing wheat in central India. Light to moderate rain (1-22mm) covered maturing wheat from eastern Uttar Pradesh to Bihar and increased irrigation levels for heading rice from Orissa eastward. In early February, much needed rain boosted irrigation levels for heading wheat in north-central India. Periodic, light rain in the latter half of February covered northern wheat regions as light to moderate showers improved conditions for coastal rice. Monthly temperatures averaged 1-2 degrees C above normal, increasing the moisture demand and rate of development of wheat and rice.



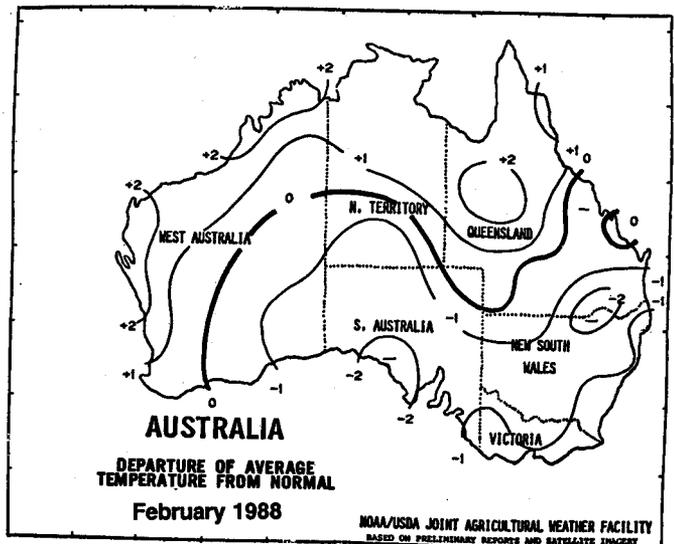
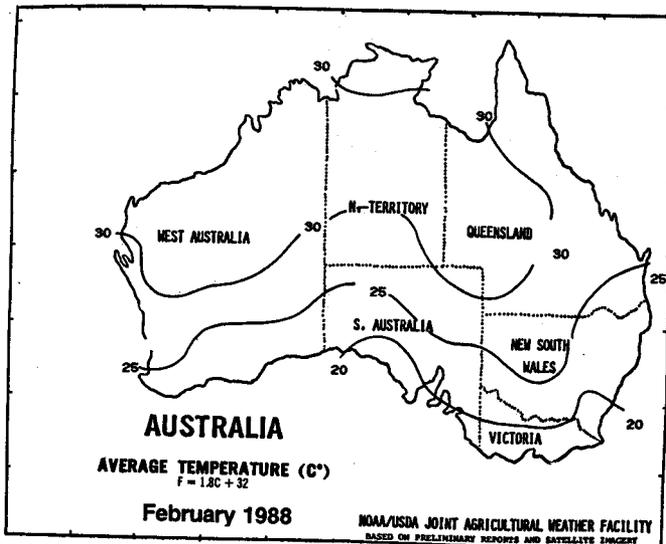
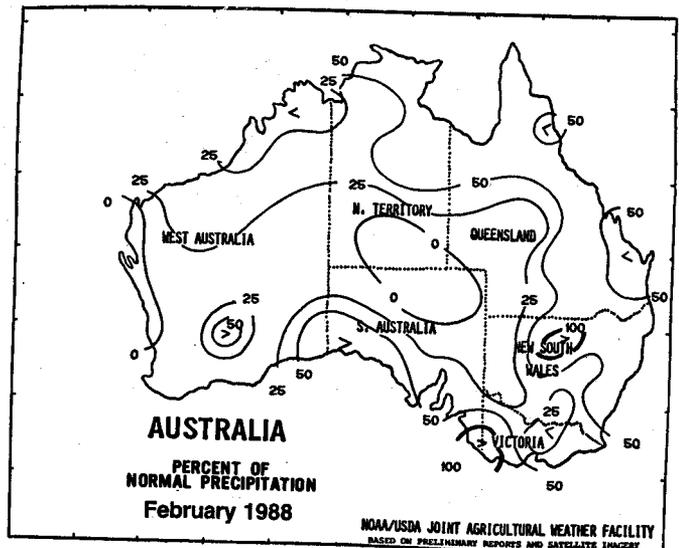
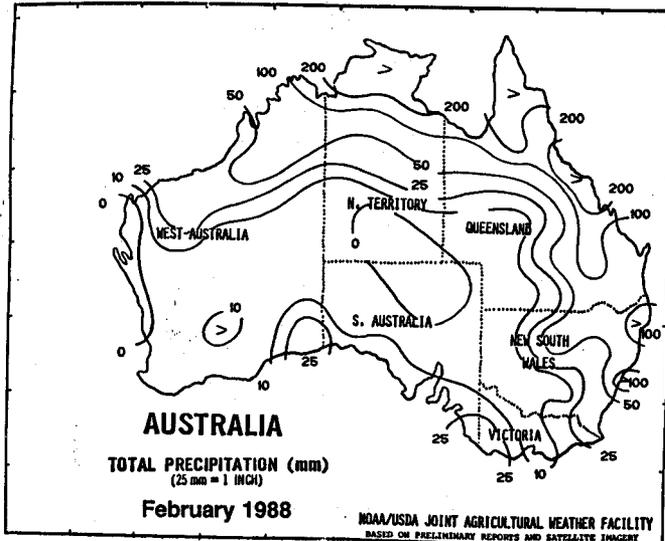


**EASTERN ASIA ...** Warmer and drier weather spread over China, with scattered showers (less than 10mm) confined to eastern coastal and southern growing areas. The drier weather favored a resumption of early season rice planting in the southeast after several consecutive weeks of heavy rain. Warmer temperatures benefited winter grains, which are becoming vegetative across southern and central growing areas. Elsewhere, widespread rain increased preseason moisture levels across the Korean Peninsula and Japan. February precipitation was above normal across northern rice and southern wheat areas, and scattered areas of Manchuria. Much-below-normal precipitation fell in central Chinese wheat areas of Shandong, northwestern Hunan, and southern Hebei, leaving preseason soil moisture levels unfavorably low. Mean temperatures for the month continued near normal to above normal across northern and central growing areas, and below normal over interior western and southern China.

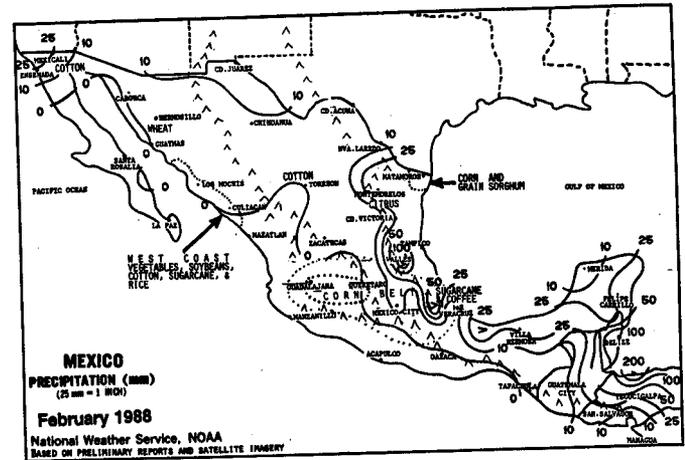
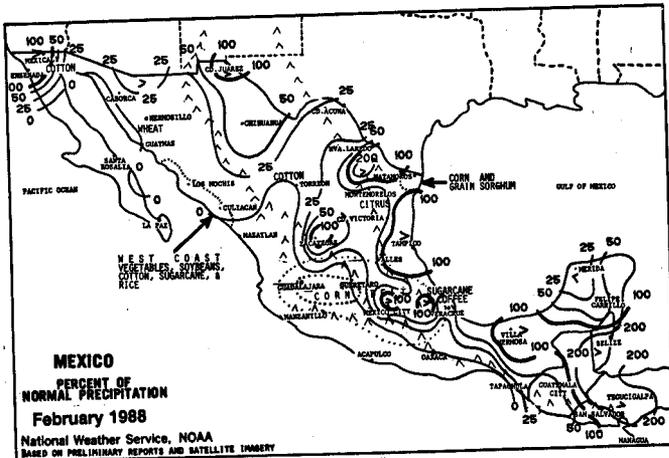
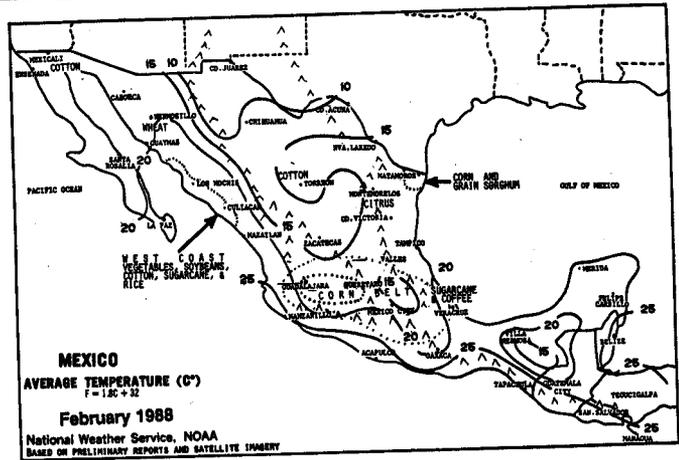
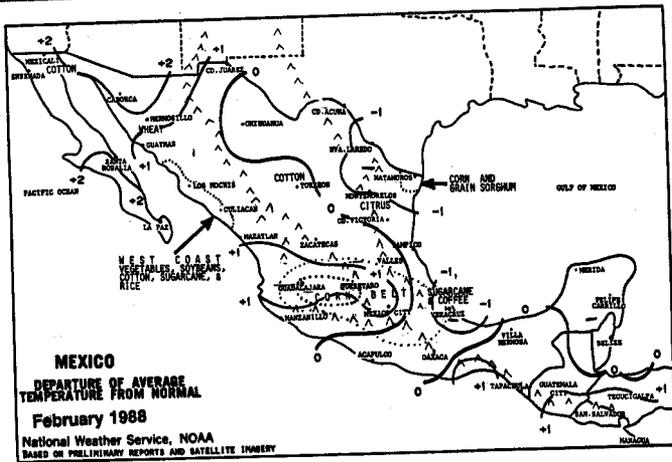




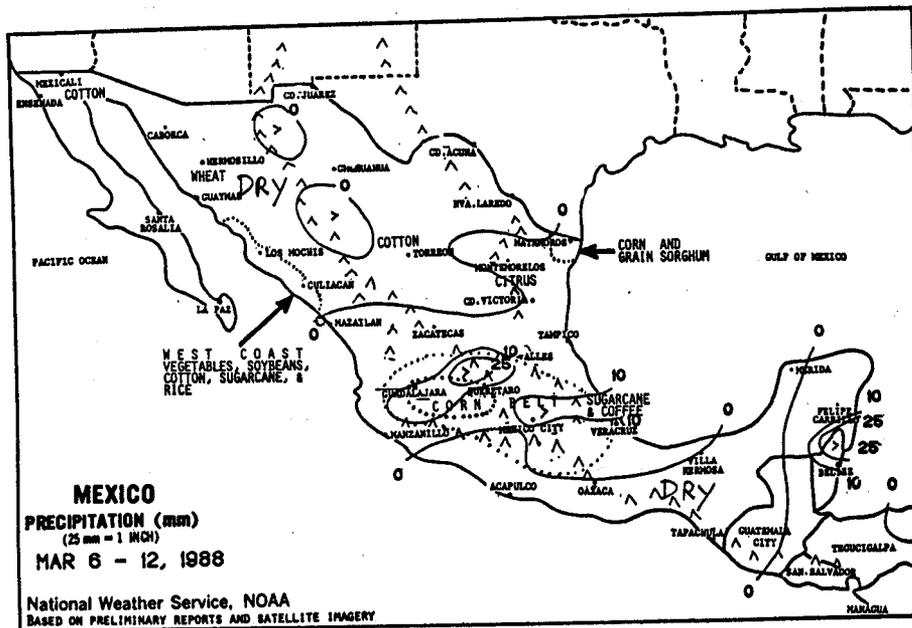
**AUSTRALIA** ... A weak frontal system brought moderate to heavy rain (up to 33mm) to southern Victoria and scattered lighter rain to much of southern and eastern coastal areas. Elsewhere, mostly dry weather returned to northeastern sugarcane growing areas and continued over most summer crop areas. February rainfall totals remained below normal over most eastern crop areas, although Tropical Cyclone Charlie provided much needed rainfall to sugarcane and northern summer crops by month's end. Southern sections of the summer crop area in New South Wales have turned unfavorably dry in the past 4 weeks, however, possibly stressing reproductive to maturing cotton and sorghum. In New Zealand, Tropical Cyclone Bola moved over the North Island early in the period, damaging fruit, vegetable, and grain crops.







### RAINS CONTINUE OVER MEXICO'S CORN BELT



A subtropical jet stream, carrying moisture out of the Pacific over the Corn Belt, continued to bring beneficial early-season March rains (1-28 mm) during the first part of the week (see Weekly Weather and Crop Bulletin, Vol. 75, No. 10).

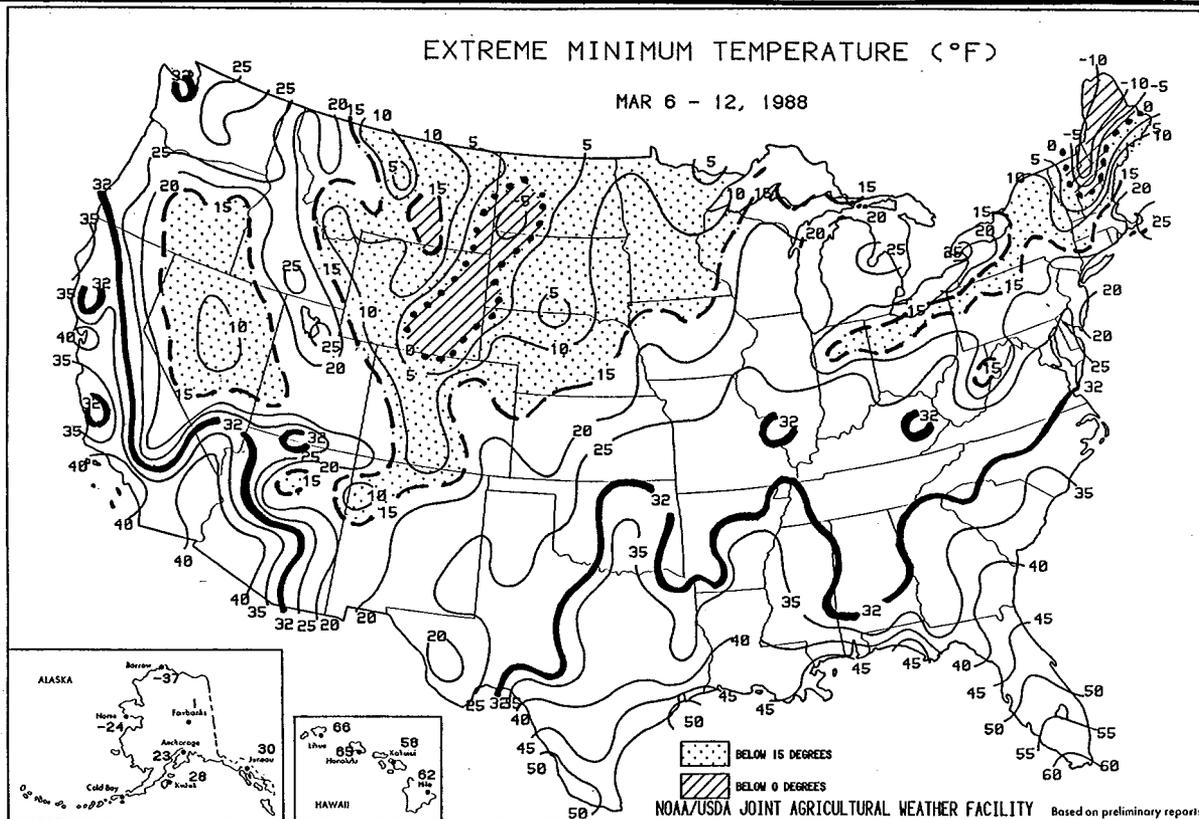
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