

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

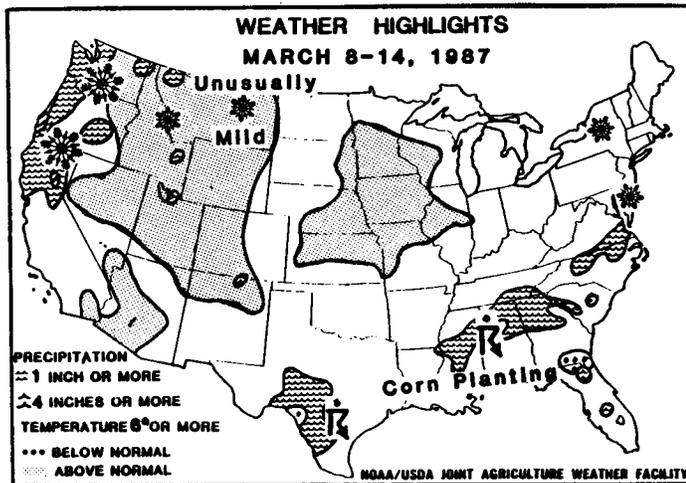
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Mar. 17, 1987

National Weather Summary

March 8 to 14, 1987



covered the west coast north of central California and much of the Northwest. Snow reached from the northern Rockies over the northern Plains. Showers and thunderstorms developed from New Mexico through central and southern Texas.

WEDNESDAY...Light to moderate rain continued in the Northwest, and snow covered the northern Rockies and Plains. Another disturbance in the Gulf of Mexico spread rain over much of the Southeast, with snow or sleet in the Tennessee Valley and lower Appalachians. Cold air continued pushing into the South, with the freezing line reaching to western South Carolina.

THURSDAY...Light snow or sleet lingered around the lower Appalachians while rain fell along the southeastern coast. Later, snow fell from New Jersey to New England. In the West, strong wind pushed moderate rain onshore from Washington to central California. Light snow lingered in parts of the northern Plains and upper Mississippi Valley.

HIGHLIGHTS: The week began with unseasonably warm air covering much of the Nation, but a strong surge of arctic air plunged into the Great Plains and spread over the East and most of the South. After midweek a warming trend began through the Plains. Pacific storms continuously pounded the west coast with wind, rain, and snow in the Sierras, Cascades, and at higher elevations of the Intermountain region and northern Rockies. Gulf moisture, spreading into Texas, triggered showers and thunderstorms that spread across the South. Rain fell in much of the Southeast and snow or sleet reached from the Tennessee Valley through the lower Appalachians and, finally, along the east coast from Maryland to New England.

SUNDAY...Much of eastern United States enjoyed unseasonable warm weather, while a strong surge of arctic air brought wintry weather to the northern Rockies and Great Plains. Rain fell in the warm air from the lower Mississippi Valley to the Mid-Atlantic States. Out West, rain covered most of the coast, the Plateau, and the Rockies. Snow fell in the northern High Plains.

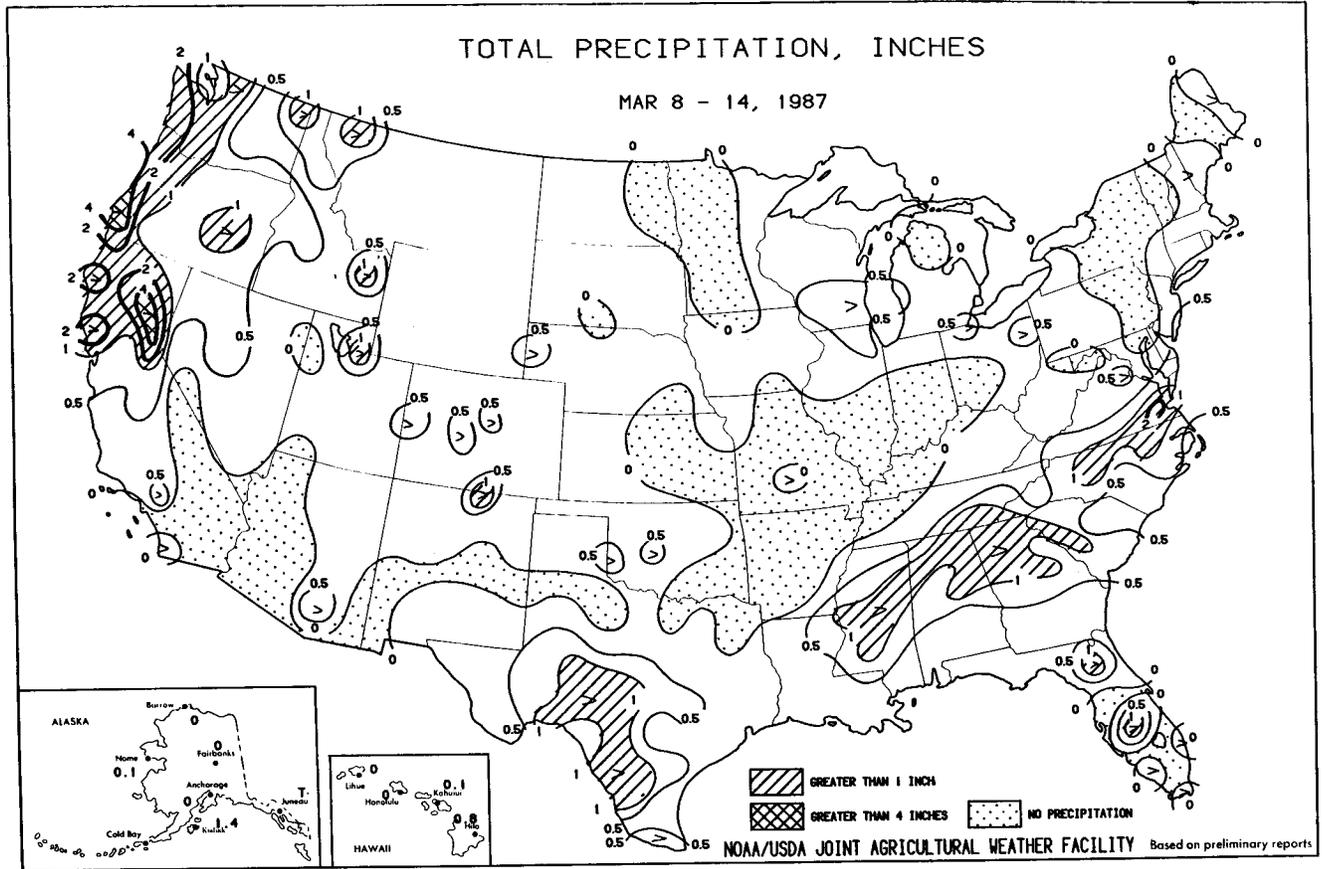
MONDAY...The arctic air spread southward to western Texas and eastward to the Ohio Valley and the middle and upper Appalachians. Rain covered the East Coast States, and light snow fell in parts of the Midwest. Moderate rain fell in the Northwest, with lighter rainfall over the plateau while snow covered the Rockies and High Plains. Light showers reached from central Texas to Missouri.

TUESDAY...Strong, gusty winds accompanied cold air as it spread through most of the East. Light snow fell in parts of the Mid-Atlantic States. Rain

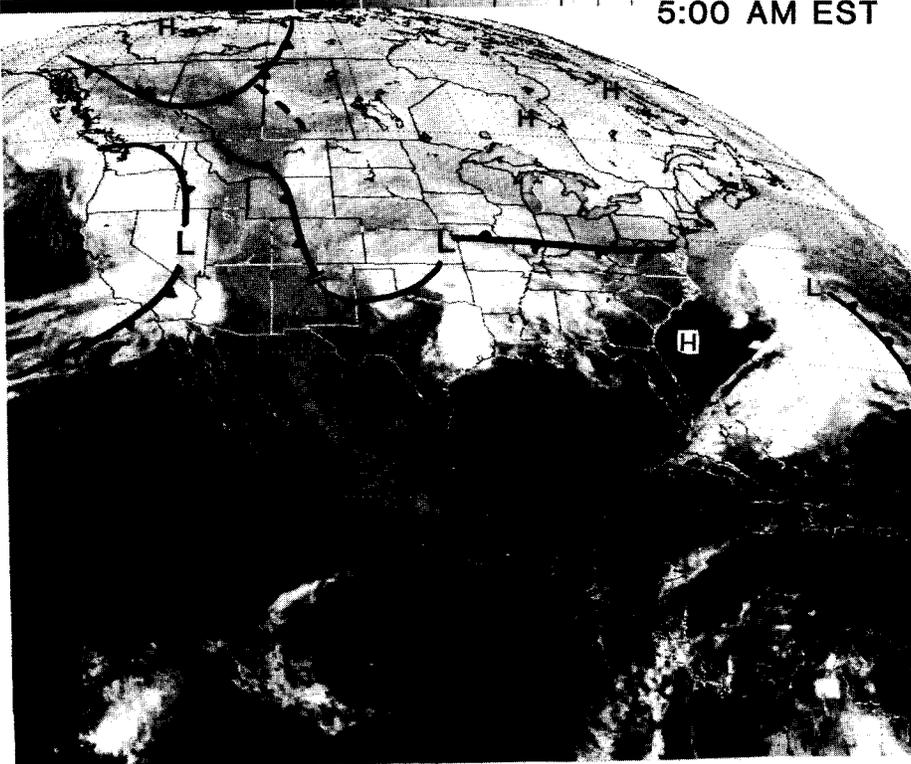
FRIDAY...Early morning temperatures dropped to freezing as far south as the eastern gulf States. Snow lingered along the northeastern coast. The Pacific storm moved across the Rockies, bringing rain with snow at higher elevations and strong, gusty winds. Still another Pacific storm brought more rain to the Northwest coast. Snow continued in the lower Great Lakes region.

SATURDAY...Cold air lingered in the East, but a warming trend began in the central and southern Plains, the northern High Plains, and the lower part of the Midwest. Wet snow fell in the northern part of the Great Lakes States. Snow also covered most of the northern Plains, with rain in Nebraska and Kansas. An intense Pacific storm brought rain and wind to the coast, heavy snow to the Sierras and Cascades, and light snow the central Plateau.

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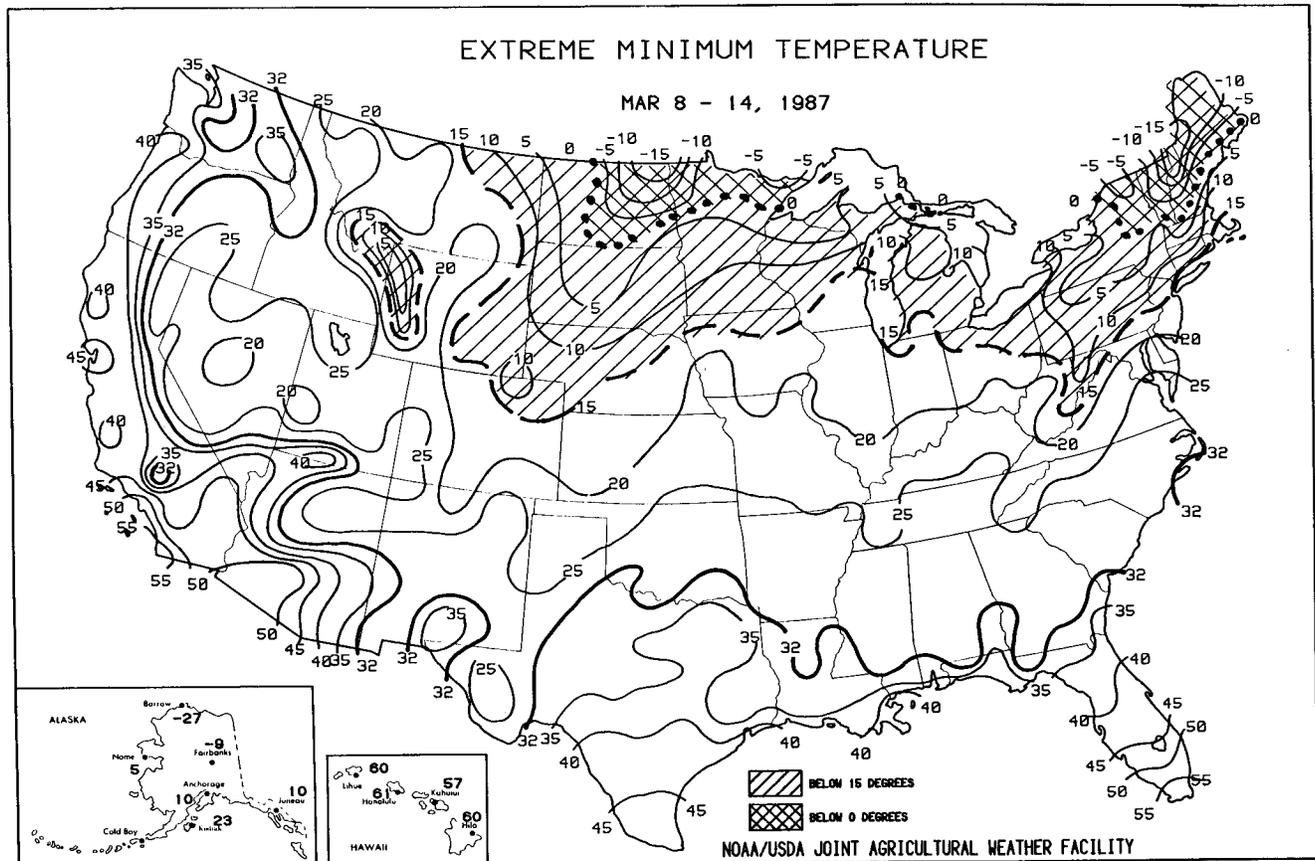
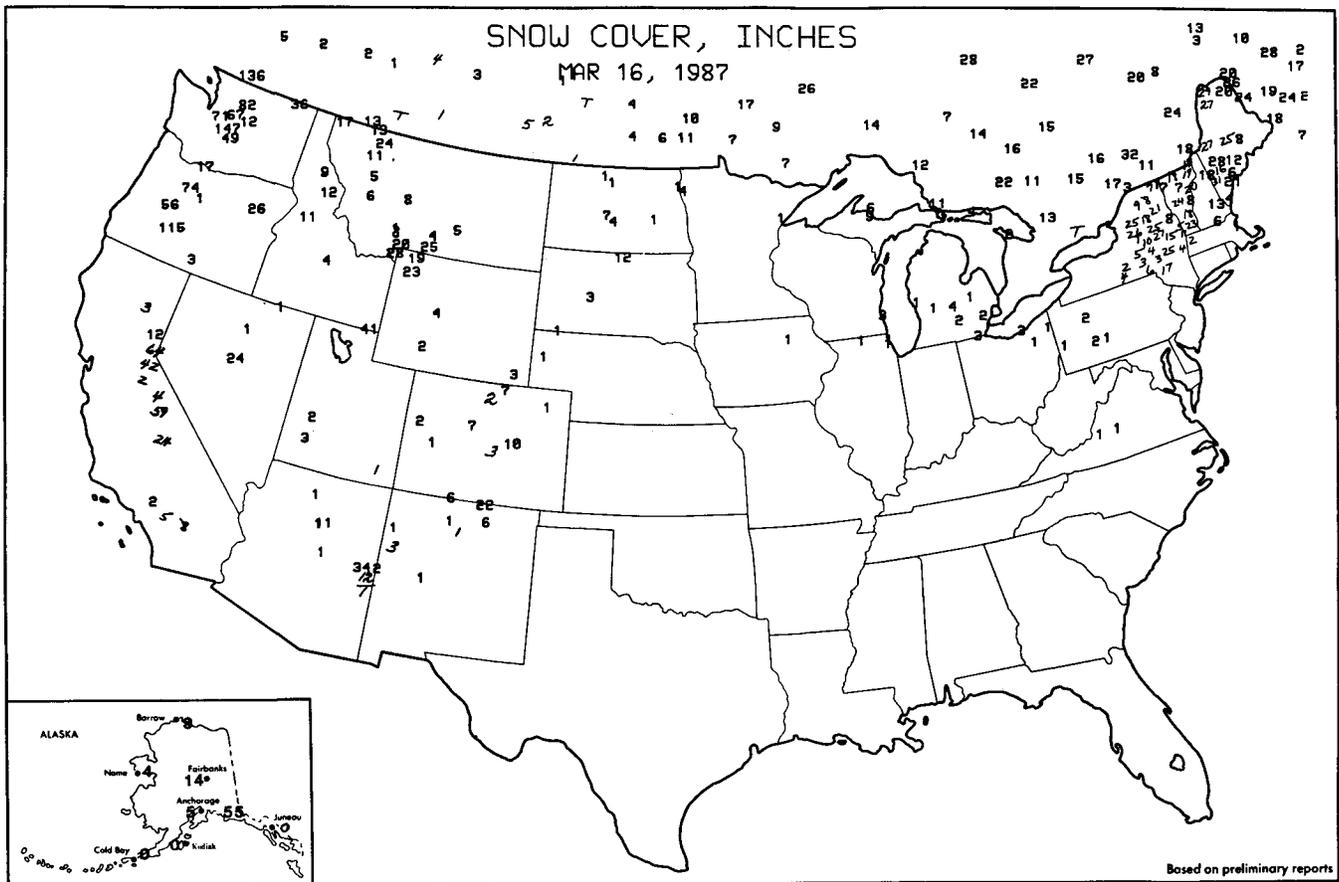


0800 15FE87 28E-4ZA 00531 22691 UC6 FEB. 15, 1987
5:00 AM EST



THIS SATELLITE IMAGE WAS TAKEN IMMEDIATELY AFTER THE PERIOD COVERED BY THE PRECIPITATION CHART SHOWN ABOVE.

A PACIFIC STORM SYSTEM MOVES THROUGH THE WESTERN STATES, CAUSING WIDESPREAD RAIN.
ANOTHER STORM SYSTEM, CENTERED IN EASTERN KANSAS, BRINGS RAINSHOWERS TO THE CENTRAL GREAT PLAINS AND MIDDLE MISSISSIPPI VALLEY.
SNOW FALLS IN CENTRAL SASKATCHEWAN AND SOUTHERN MANITOBA IN CANADA.



Picking a Safe Planting Date

It's that time of year again when colorful seed catalogs are in demand, and agriculturists are full of enthusiasm and expectation as the spring planting season approaches. Growers need all the weather and climatic information that is available to help reduce the risk of replanting which can be costly not only for loss of seed, labor, and soil moisture, but because it affects crop development schedules, yield, and price received.

Three primary ingredients are needed to obtain a good stand of seedlings--warm soil and air temperatures after planting, adequate soil moisture, and high quality seed.

To keep up with the status of spring soil temperatures and the speed that warming progresses northward, a soil temperature map will be published on a space-available basis. The 4-inch bare soil measurement was selected because of its widespread use across the Nation and as a compromise between the 2, 6, and 8-inch observations

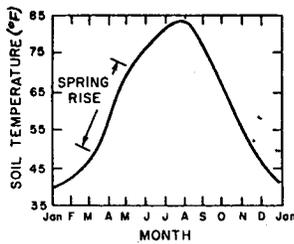


Figure 1—Average monthly 4-inch soil temperature near Northeast Arkansas Experiment Station, Keiser, Arkansas.

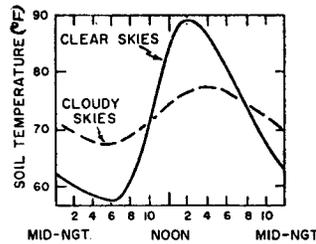


Figure 2—Hourly 4-inch soil temperature in May near Keiser, Arkansas with clear skies and cloudy skies.

From *Soil Temperatures and Cotton Planting in the Mid-South* by Riley, Newton, Measells, Downey and Hand. Miss. Ag. Exp. Sta. Bul. 678, Feb. 1964.

that are used in a few areas. The weekly average was selected as the best measure to represent the temperature regime. It is the mean of the daily maxima and minima. The soil temperature data is supplied by the National Weather Service, state universities, and USDA.

Four-inch soil temperatures vary throughout the year and follow a pattern similar to those of air temperatures but with a slight time lag. Figure 1 shows the month-to-month variation and the springtime rapid rise. Figure 2 indicates the hour-to-hour variations. The solid line depicts the diurnal (daily) changes under clear skies while the dashed line shows the smaller changes that occur under cloudy conditions. The average for the day can be ascertained from the 10 to 11 a.m. reading.

Location and depth of soil thermometers, time of observations, interpretation and planting rules vary considerably across the Nation. Even within a state variations can occur.

How warm must the soil be for seed germination? This depends upon the type of crop. It ranges from low for wheat and cabbage to moderate for corn and tomatoes to high for cotton and watermelon. Duration of temperature is also a controlling factor; more days are necessary for emergence at the cooler temperatures than when the optimum range is reached. Temperature-duration-crop germination data is contained in the accompanying tables 1, 2, and 3.

Crop planting rules differ greatly, although most appear to be based upon soil temperatures averaging between the minimum for germination and the lower value of the optimum range. Seed quality is also a controlling factor. For example, a planting rule for cotton can be derived from the emergence data obtained under actual field conditions as depicted in figure 3. In other words, to get 50% field emergence from seed having 90% laboratory germination (high quality), cotton may

TABLE 1. CARDINAL TEMPERATURE POINTS FOR GERMINATION OF CERTAIN CROP SEEDS*

Crop	Cardinal Points in Degrees Fahrenheit			Days Required for Germination at Indicated Temperatures			
	Minimum	Optimum	Maximum	40°F	54°F	60°F	66°F
Red clover	34	86	90	7.5	3.0	1.75	1.0
Alfalfa	34	86	90	6.0	3.75	2.75	2.0
Heup	34-36	95	113	3.0	2.0	1.0	1.0
Peas	34-36	86	95	5.0	3.0	1.75	1.75
Rye	34-36	77	86	4.0	2.5	1.0	1.0
Vetch	34-36	86	95	6.0	3.0	2.0	2.0
Flax	35-37	77	86	8.0	4.5	2.0	2.0
Timothy	37-39	79	86	—	6.5	3.25	3.0
Wheat	39-40	77	86-90	6.0	3.0	2.0	1.75
Barley	39-40	68	82-86	6.0	3.0	2.0	1.75
Oats	39-41	77	86	7.0	3.75	2.75	2.0
Carrot	39-41	77	86	—	6.75	4.25	3.25
Sugar beet	39-41	77	82-86	22.0	9.0	3.75	3.75
Lentils	39-41	86	97	6.0	4.0	2.0	1.75
Maize	40-50	89-95	104-111	—	11.25	3.25	3.0
Sorghum	46-50	89-95	104	—	11.25	4.75	4.0
Rice	50-58	86-90	97-101	—	—	—	—
Tobacco	55-57	82	95	—	—	9.0	6.25
Pumpkin	54	89-93	104	—	—	10.75	4.0
Melon	54-59	95	104	—	—	13.0	17.0

* Adapted from data by F. Haberlaudt in *Grate Ernahrungsphysiologisches Practicum hoherer* From *Crop Adaptation and Distribution* by Carroll P. Wilsie. W. H. Freeman & Co. © 1962.

TABLE 2. SOIL TEMPERATURE CONDITIONS FOR VEGETABLE SEED GERMINATION¹

Crop	Minimum, °F.	Optimum Range, °F.	Optimum, °F.	Maximum, °F.
Asparagus	50	60-85	75	95
Bean	60	60-85	80	95
Bean, lima	60	65-85	85	85
Beet	40	50-85	85	95
Cabbage	40	45-95	85	100
Carrot	40	45-85	80	95
Cauliflower	40	45-85	80	100
Celery	40	60-70	70 ²	85 ²
Chard, Swiss	40	50-85	85	95
Corn	50	60-95	95	105
Cucumber	60	60-95	95	105
Eggplant	60	75-90	85	95
Lettuce	35	40-80	75	85
Muskmelon	60	75-95	90	100
Okra	60	70-95	95	105
Onion	35	50-95	75	95
Parsley	40	50-85	75	90
Parsnip	35	50-70	65	85
Pea	40	40-75	75	85
Pepper	60	65-95	85	95
Pumpkin	60	70-90	95	100
Radish	40	45-90	85	95
Spinach	35	45-75	70	85
Squash	60	70-95	95	100
Tomato	50	60-85	85	95
Turnip	40	60-105	85	105
Watermelon	60	70-95	95	105

¹ Compiled by J. F. Harrington, Dept. of Vegetable Crops, Univ. of Calif. at Davis.

² Daily fluctuation to 60° or lower at night is essential.

From *Handbook for Vegetable Growers* by J. E. Knott. John Wiley & Sons, Inc. © 1957.

be planted when the soil temperature averages 66°. For seed testing 80% (medium quality), plant at 70°, or if seed quality is 70% or less (low quality), wait until the soil temperature is above 75°. The temperature limits selected were 1/4, 1/2, and 3/4 of the 20° span between the minimum germinating temperature and the beginning of the optimum range. The minimum is 60° and the beginning of the optimum range under field conditions is about 80°.

Applying the same technique to tomato and some corn varieties which have a minimum germinating temperature of 50° and an optimum threshold beginning at 60° would result in the following rule: plant when soil temperatures average 53° for high quality seed, 55° for medium quality, and above 58° for the lower quality seed.

Cold temperatures may deal a crippling blow to tender young seedlings. So it is wise to delay

DAYS TO APPEARANCE OF SEEDLINGS AT VARIOUS SOIL TEMPERATURES FROM SEED PLANTED AT ONE-HALF INCH DEPTH¹ TABLE 3

More days than shown below are needed at greater depths. Soil temperatures are slightly cooler there, and the seedlings have a greater distance to grow. The days from planting to emergence determine when a pre-emergence weed-control treatment can be used effectively.

Crop	Soil Temperature in Degrees Fahrenheit									
	32	41	50	59	68	77	86	95	104	
Asparagus	x	x	53	24	15	10	11	19	28	
Bean	x	x	x	16	11	8	6	6	x	
Bean, lima	...	...	x	30	18	6	6	x	...	
Beet	...	42	17	10	6	5	4	4	...	
Cabbage	...	...	15	9	6	4	3	...	...
Carrot	x	51	17	10	7	6	6	8	x	
Cauliflower	...	...	19	10	6	5	4	...	...
Celery	x	41	16	12	7	x	x	x	...	
Corn	x	x	22	12	7	4	4	3	x	
Cucumber	x	x	x	13	6	4	3	3	...	
Eggplant	...	...	...	13	8	5	...	...	...
Lettuce	49	15	7	4	3	2	2	x	x	
Muskmelon	...	...	...	8	4	3	...	...	...
Okra	x	x	x	27	17	12	7	6	6	
Onion	135	31	13	7	5	4	4	12	x	
Parsley	...	...	29	17	14	13	12	...	...
Parsnip	171	57	27	19	14	15	32	x	x	
Pea	...	36	13	9	7	6	6	...	...
Pepper	x	x	x	25	12	8	8	9	x	
Radish	...	29	11	6	4	3	3	...	...
Spinach	82	22	12	7	6	5	6	x	x	
Tomato	x	x	43	14	8	6	6	9	x	
Turnip	x	x	5	3	2	1	1	1	2	
Watermelon	...	x	...	12	5	4	3	...	...

x = little or no germination.
 ... = not tested.
¹Data compiled by J. F. Harrington, Dept. of Vegetable Crops, Univ. of Calif. at Davis.
 From Handbook for Vegetable Growers by J. E. Knott. John Wiley & Sons, Inc. © 1957.

planting, not only until the soil is warm but until chances dwindle for a critically cold air mass hitting the region. The chart, Mean Date of Last 32° Temperature in Spring, shows the dates on which the chance of the last freeze has fallen to 50%. This risk is rather high though

*See Weekly Weather and Crop Bulletin, February 18, 1987, Vol. 74, No. 7.

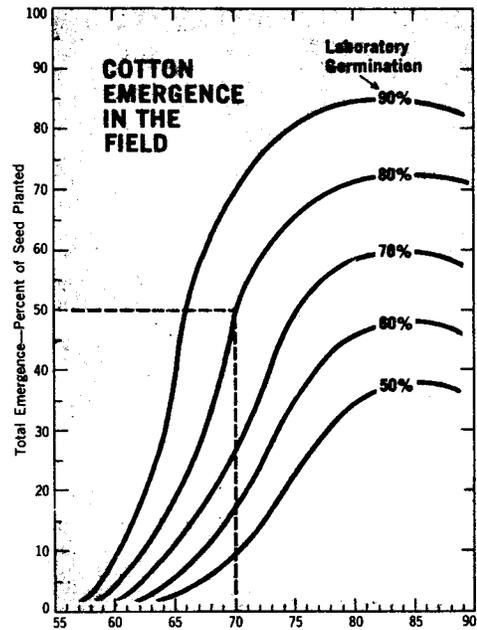
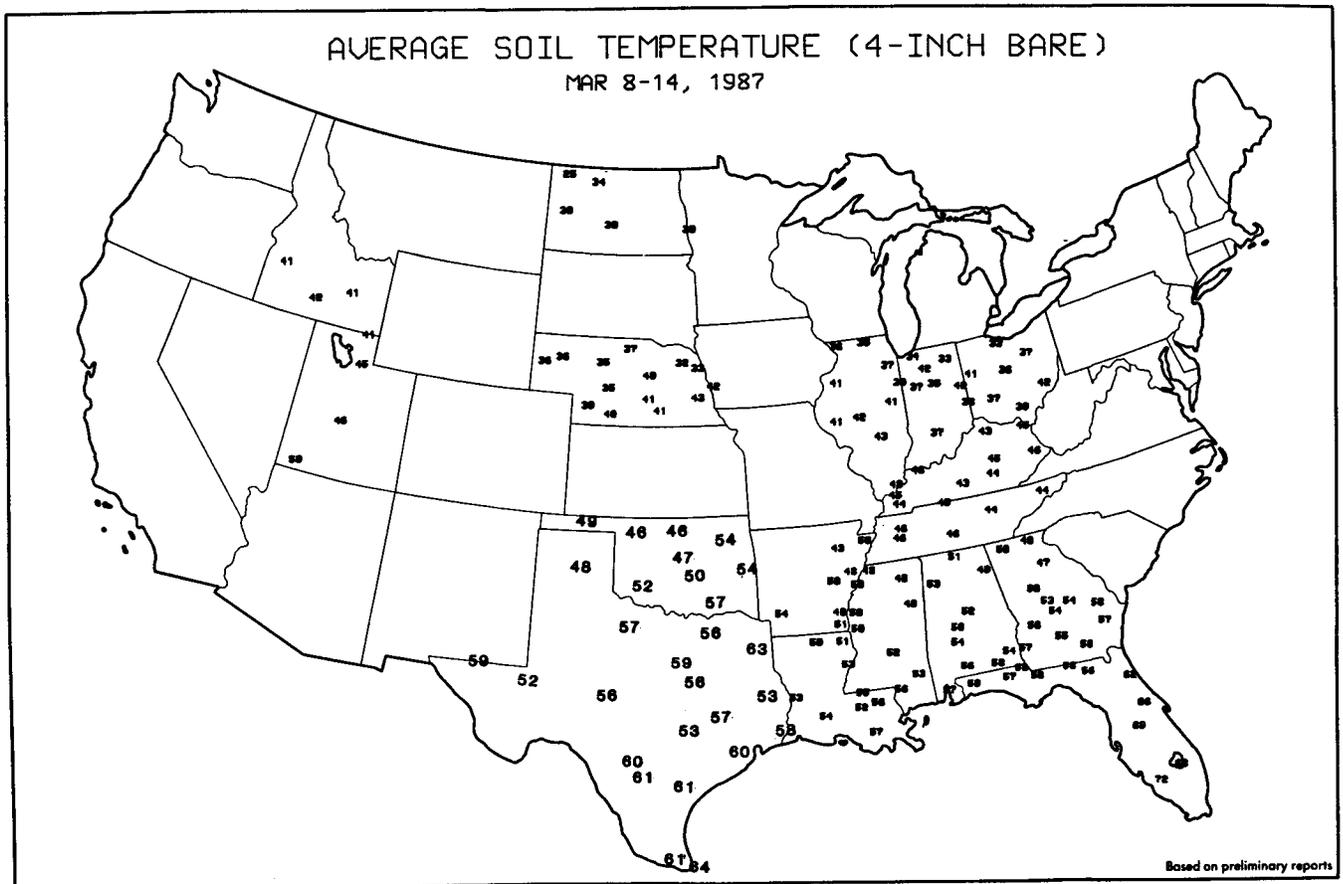


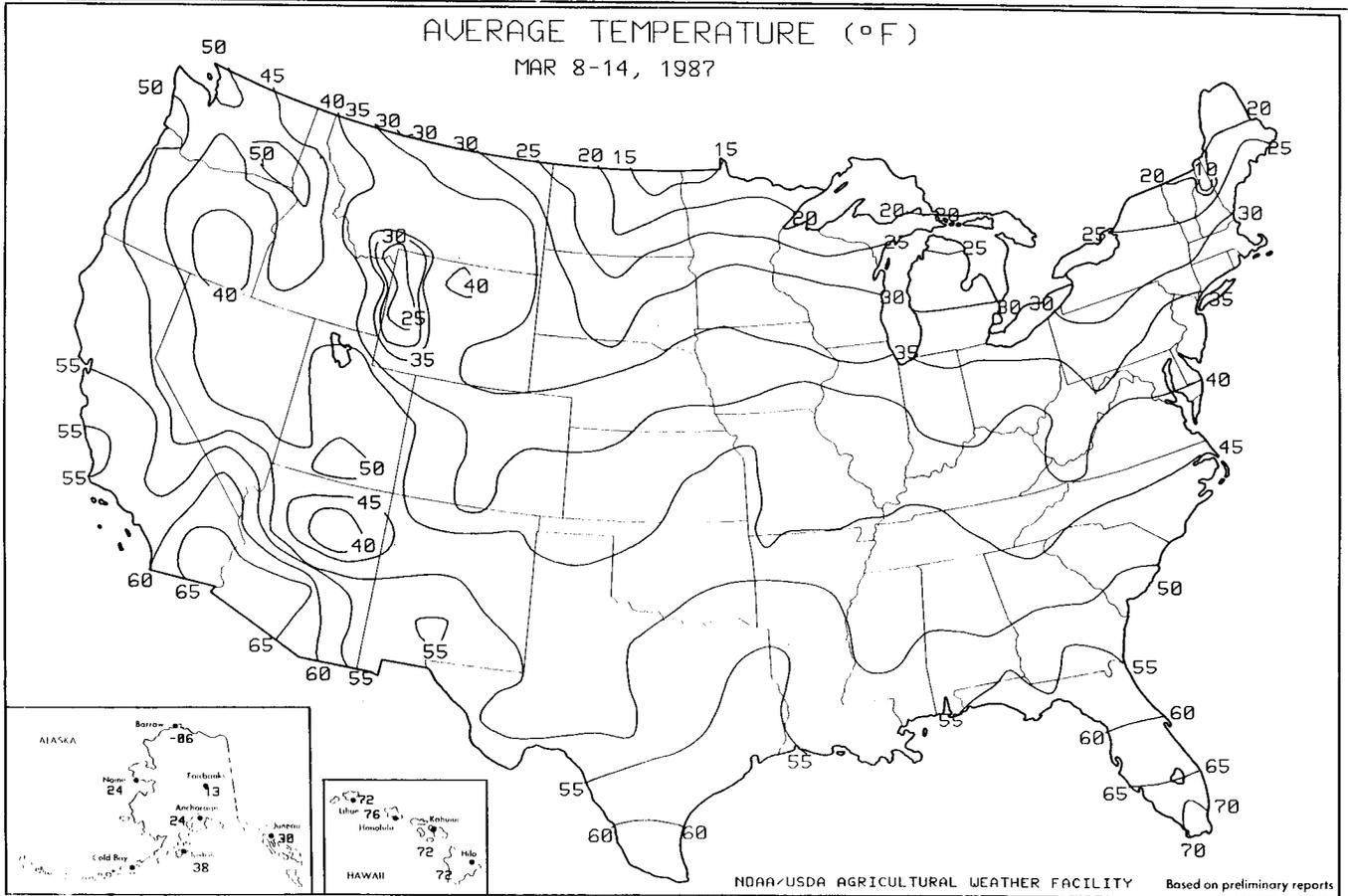
Figure 3. Mean Soil Temperature (°F) at 2-Inch Depth from Planting to Final Emergence. From Picking a Safe Cotton-Planting Date by Donald J. Haddock. The Progressive Farmer, Feb. 1967.

for tender crops, and would probably result in replanting about every other year. The risk is reduced to 10% (1 year in 10) by waiting about 18 days, and down to 5% risk (1 year in 20) by delaying about 23 days after the mean date on the chart.

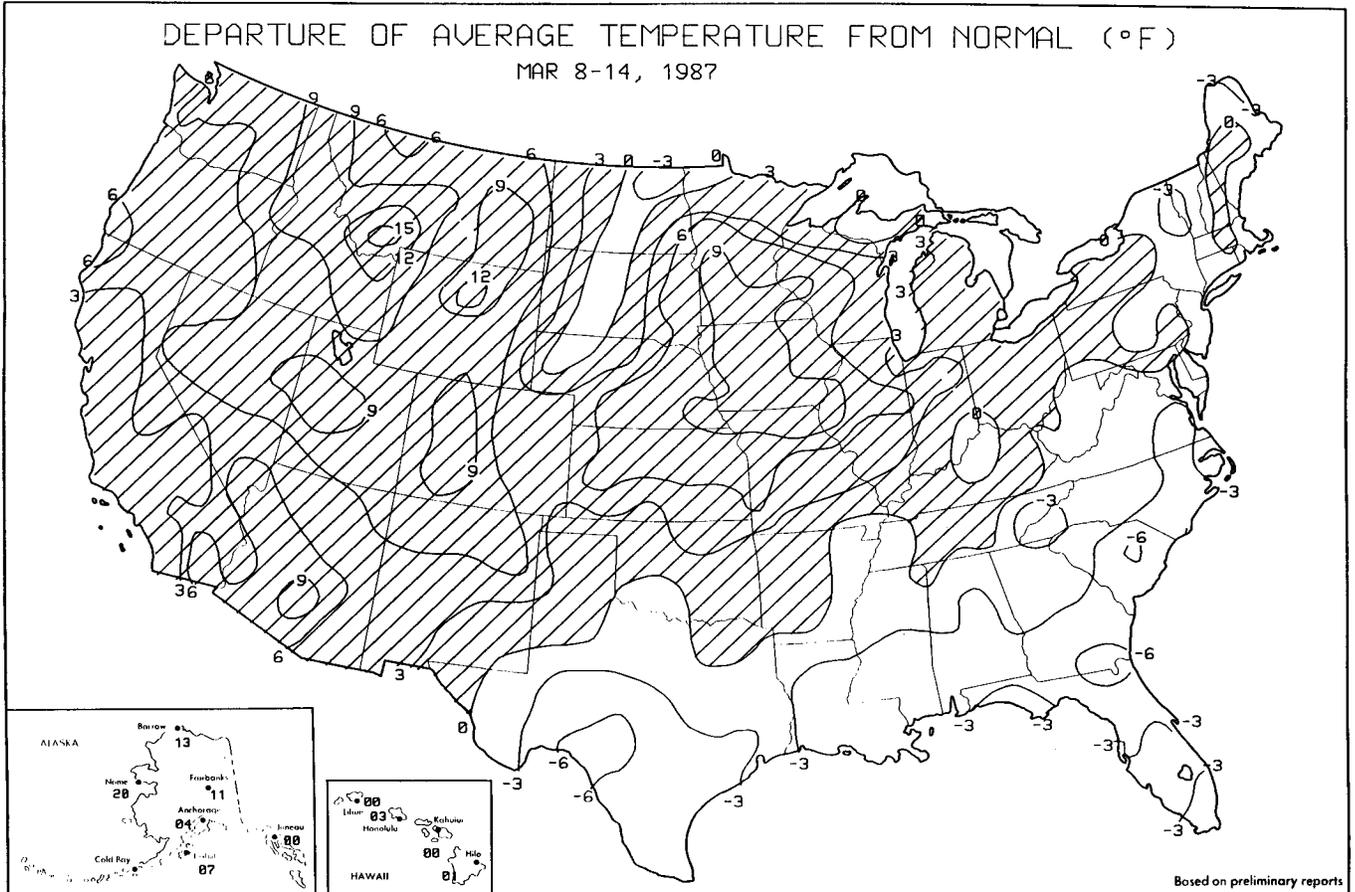
Don Haddock



Based on preliminary reports



Point values may differ on these computerized maps from the reported values in the tables.



National Weather Data for Selected Cities

Weather Data for the Week Ending **MARCH 14, 1987**

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
AL BIRMINGHAM	59	38	70	27	48	-4	.8	-7	.6	.8	29	12.7	99	94	46	0	2	3	1
MOBILE	64	42	75	34	53	-6	.1	-1.4	.1	1.5	51	15.9	129	96	46	0	0	2	0
MONTGOMERY	60	41	70	31	50	-5	.3	-1.0	.2	.7	27	17.7	157	94	52	0	2	2	0
AK ANCHORAGE	34	14	35	10	24	2	0	0	0	0	3	1.8	90	89	50	0	7	0	0
BARROW	4	-15	26	-27	-6	2	0	0	0	0	17	.2	50	85	72	0	7	0	0
FAIRBANKS	29	-4	34	-9	13	7	0	0	0	0	0	.8	67	82	41	0	7	0	0
JUNEAU	40	21	43	10	30	0	0	0	0	.3	20	7.5	83	91	52	0	7	1	0
KODIAK	44	32	49	23	38	7	1.4	.5	.6	1.6	86	16.6	131	91	66	0	4	4	2
NOME	30	18	34	5	24	18	.1	0	.1	.2	86	1.7	113	87	63	0	7	2	0
AZ PHOENIX	81	56	85	54	68	9	0	-2	0	0	0	2.7	159	60	21	0	0	0	0
PRESCOTT	63	32	69	27	48	6	0	0	0	0	3	3.5	88	76	27	0	4	0	0
TUCSON	78	47	84	44	63	6	.6	.4	.6	.6	167	2.8	165	73	20	0	0	1	1
YUMA	82	55	90	52	68	5	0	0	0	0	0	.4	57	55	21	1	0	0	0
AR FORT SMITH	62	36	75	29	49	0	0	0	0	0	0	6.0	100	83	33	0	1	0	0
LITTLE ROCK	60	40	73	32	50	-1	0	-1.0	0	0	0	8.3	86	60	38	0	1	0	0
CA BAKERSFIELD	70	47	77	41	58	2	.2	.0	.2	.5	122	3.0	125	92	42	0	0	1	0
EUREKA	60	47	64	43	54	5	1.9	.7	.6	4.4	185	14.3	98	89	64	0	0	7	2
FRESNO	67	47	73	44	57	3	.6	.2	.4	1.7	225	5.0	109	92	49	0	0	3	0
LOS ANGELES	64	53	68	51	59	1	0	-4	0	.4	39	2.3	36	94	64	0	0	0	0
REDDING	57	46	64	43	52	1	3.2	1.6	1.6	5.7	17.7	17.7	96	67	0	0	0	5	2
SACRAMENTO	62	46	67	40	54	2	.7	.2	.3	2.2	219	7.6	96	97	63	0	0	0	0
SAN DIEGO	64	54	66	51	59	1	0	-4	0	.5	54	3.7	82	88	64	0	0	1	0
SAN FRANCISCO	61	50	64	48	56	3	.8	.2	.4	1.4	108	7.7	85	96	67	0	0	5	0
CO DENVER	52	28	69	18	40	3	.4	.2	.4	.4	87	2.3	144	82	36	0	5	2	0
GRAND JUNCTION	56	33	66	28	45	4	.5	.4	.5	.5	169	2.0	133	83	32	0	2	3	1
PUEBLO	57	27	72	20	42	3	0	-1	0	0	8	2.0	206	90	30	0	6	1	0
CT BRIDGEPORT	44	27	69	16	36	-1	.2	-7	.1	1.5	85	6.7	85	72	43	0	6	2	0
HARTFORD	42	21	69	9	31	-4	.1	-8	.1	1.5	86	8.2	96	76	38	0	6	1	0
DC WASHINGTON	50	31	72	24	40	-4	.1	-7	.1	.3	20	7.3	106	80	38	0	5	2	0
FL APALACHICOLA	64	48	72	38	56	-4	.2	-8	.1	.7	38	10.9	121	94	50	0	0	4	0
DAYTONA BEACH	67	51	80	41	59	-4	0	-7	0	2.4	170	11.3	164	91	52	0	0	1	0
JACKSONVILLE	63	46	75	35	54	-7	.1	-1	.1	3.0	184	13.5	167	95	51	0	0	2	0
KEY WEST	75	64	79	59	69	-4	.2	-1	.1	8.6	10.0	233	81	54	0	0	3	0	0
MIAMI	76	58	81	52	67	-4	0	-4	0	2.3	290	5.8	118	92	44	0	0	0	0
ORLANDO	72	51	78	44	61	-4	0	-8	0	1.8	113	4.8	71	92	45	0	0	0	0
TALLAHASSEE	64	42	72	30	53	-6	.3	-1.0	.2	1.4	55	14.0	115	98	46	0	2	4	0
TAMPA	72	54	75	42	63	-2	0	-8	0	3.3	201	8.1	119	91	44	0	0	0	0
WEST PALM BEACH	75	57	82	51	66	-4	0	-6	0	3.5	293	5.9	91	93	48	0	0	1	0
GA ATLANTA	54	39	63	30	47	-4	1.3	-1	1.1	1.3	48	13.0	108	88	48	0	2	4	1
AUGUSTA	60	38	71	29	49	-5	.8	-4	.7	1.0	42	17.1	166	87	48	0	3	3	1
MACON	59	40	70	29	50	-5	1.0	-3	.7	1.2	48	15.1	136	94	53	0	2	4	1
SAVANNAH	61	42	75	33	52	-6	.3	-6	.3	1.8	105	14.9	186	90	47	0	0	3	0
HI HILO	80	63	81	60	72	1	.8	-2.3	.6	.8	13	14.0	48	91	54	0	0	2	1
HONOLULU	85	67	86	61	76	2	0	-8	0	0	0	1.2	15	80	46	0	0	0	0
KAHULUI	82	62	84	57	72	0	.1	-6	.1	.2	11	3.3	40	86	46	0	0	1	0
LIHUE	79	66	80	60	72	0	0	-1.0	0	0	0	3.9	33	89	59	0	0	0	0
ID BOISE	57	38	62	31	47	7	.4	-2	.2	1.1	248	3.1	100	88	44	0	1	4	0
LEWISTON	58	41	59	35	50	8	.5	-1	.1	.4	80	1.4	50	88	49	0	0	2	0
POCATELLO	52	33	58	28	42	8	.7	.3	.2	.6	154	2.3	100	88	44	0	3	3	0
IL CHICAGO	43	27	73	20	35	0	.7	.2	.6	.8	82	3.5	92	87	51	0	6	2	1
MOLINE	50	27	73	19	39	5	.5	-1	.3	.7	63	2.5	64	82	36	0	4	3	0
PEORIA	52	28	71	17	40	5	.2	-4	.2	.4	36	2.7	66	82	32	0	4	1	0
QUINCY	55	32	71	20	43	7	0	-7	0	1.1	8	2.3	56	75	34	0	4	0	0
ROCKFORD	42	24	72	18	33	2	.6	.1	.5	.6	69	2.4	69	87	48	0	7	3	0
SPRINGFIELD	52	30	73	17	41	4	0	-6	0	.1	10	2.3	51	77	37	0	4	0	0
IN EVANSVILLE	55	29	74	22	42	-1	0	-1.0	0	.1	7	4.4	55	84	37	0	4	0	0
FORT WAYNE	46	23	71	16	35	0	0	-6	0	.6	50	3.2	62	87	43	0	6	1	0
INDIANAPOLIS	50	26	72	18	38	0	0	-8	0	.1	5	2.9	44	81	38	0	5	0	0
SOUTH BEND	43	23	71	14	33	-1	.4	-3	.3	.8	69	4.5	80	94	45	0	6	2	0
IA DES MOINES	50	28	66	17	39	7	.1	-4	.1	.1	14	1.9	66	85	41	0	4	2	0
SIOUX CITY	49	26	70	19	38	6	.1	-3	.1	.1	16	.7	30	86	41	0	6	1	0
WATERLOO	44	27	61	15	36	6	.1	-3	.1	.3	37	1.7	68	90	53	0	4	1	0
KS CONCORDIA	56	30	73	20	43	5	0	-4	0	0	0	1.5	68	82	36	0	5	0	0
DODGE CITY	57	30	73	20	43	3	0	-3	0	0	4	2.0	133	87	39	0	4	1	0
GOODLAND	52	25	73	17	38	3	.2	-1	.2	.2	40	1.5	136	90	41	0	5	2	0
TOPEKA	57	32	71	23	45	5	0	-5	0	0	0	3.8	136	81	34	0	4	0	0
WICHITA	56	34	74	25	45	3	0	-4	0	0	0	4.7	204	84	42	0	4	0	0
KY BOWLING GREEN	55	30	70	24	43	-2	0	-1.3	0	0	0	6.8	62	87	36	0	5	1	0
LEXINGTON	52	28	68	23	40	-2	0	-1.1	0	.1	6	5.0	56	74	39	0	0	0	0
LOUISVILLE	53	29	71	23	41	-2	0	-1.1	0	.1	7	5.4	63	72	33	0	5	0	0
LA ALEXANDRIA	61	41	73	32	51	-7	.4	-8	.3	1.2	51	15.7	127	80	46	0	1	2	0
BATON ROUGE	65	40	74	33	53	-7	.2	-9	.1	.9	42	15.9	137	93	42	0	0	2	0
LAKE CHARLES	66	43	79	33	54	-5	.4	-3	.3	.5	33	13.0	140	93	46	0	0	2	0
NEW ORLEANS	64	45	76	37	54	-6	0	-1.0	0	0	0	16.4	133	93	53	0	0	2	0

Based on 1951-80 normals.

Weather Data for the Week Ending MARCH 14, 1987

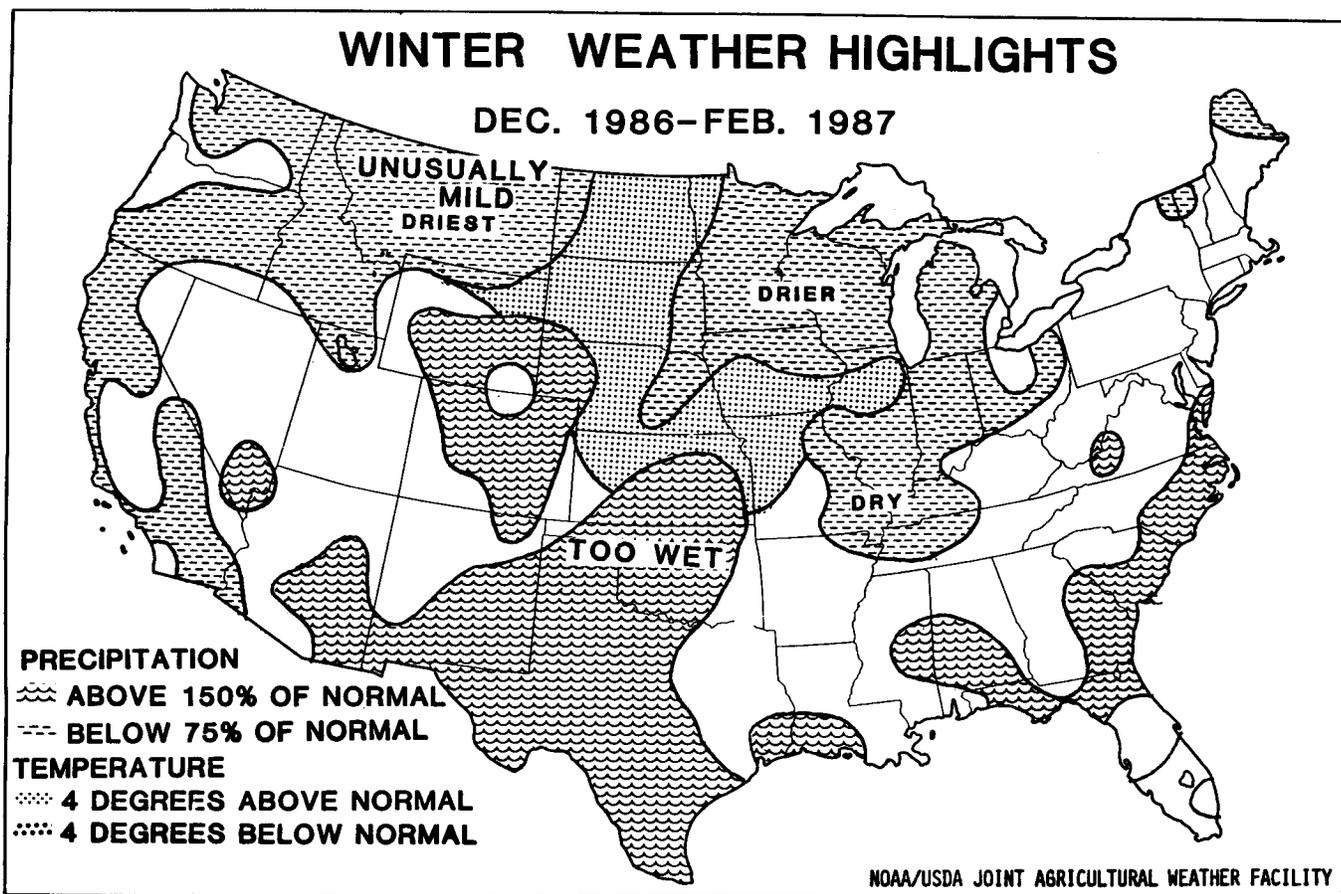
STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS						
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE MAR. 1	PCT. NORMAL SINCE 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	66	48	78	31	53	-3	T	T	T	2	18.1	111	89	34	0	1	1	0	0		
ME CARIBOU	28	6	36	-9	17	-5	T	T	T	4	3.6	55	76	43	0	7	1	1	0		
PORTLAND	37	17	54	5	27	-3	T	T	T	9	16	68	82	45	0	7	1	1	0		
MD BALTIMORE	58	38	74	21	48	-1	T	T	T	3	16	8.3	109	74	38	0	6	0	0		
SALISBURY	50	31	72	23	48	-2	T	T	T	4	1.3	70	123	91	50	0	4	3	3		
MA BOSTON	48	24	64	12	32	-4	T	T	T	1	1.9	102	105	80	48	0	6	2	2		
CHATHAM	39	27	61	18	33	-3	T	T	T	2	2.0	111	119	86	68	0	6	3	3		
MI ALPENA	35	12	57	5	24	-2	T	T	T	5	71	2.3	61	91	47	0	7	0	0		
DETROIT	42	24	74	13	33	0	T	T	T	9	90	3.8	84	84	42	0	6	2	0		
FLINT	41	21	72	13	31	0	T	T	T	3	6	75	58	85	43	0	6	2	0		
GRAND RAPIDS	41	20	70	14	31	0	T	T	T	1	1	8	40	84	43	0	6	2	0		
HOUGHTON LAKE	37	15	68	7	26	1	T	T	T	4	4	47	57	87	37	0	7	0	0		
LANSING	40	20	70	14	38	-1	T	T	T	3	2	2	48	89	47	0	6	2	0		
MARQUETTE	29	9	48	-4	19	-7	T	T	T	1	1.1	122	98	94	57	0	7	3	0		
MUSKEGON	40	20	60	-12	30	-1	T	T	T	9	84	3.1	62	87	43	0	6	2	0		
SAULT STE. MARIE	38	9	49	-1	28	-2	T	T	T	4	6	75	68	82	44	0	7	1	0		
MN ALEXANDRIA	36	20	45	9	28	7	T	T	T	1	1	1	70	88	49	0	7	0	0		
DULUTH	30	14	48	3	22	1	T	T	T	3	37	1.2	43	88	46	0	7	1	0		
INT'L FALLS	29	8	38	0	19	1	T	T	T	2	42	9	45	82	40	0	7	1	0		
MINNEAPOLIS	39	25	56	14	32	6	T	T	T	2	4	64	52	80	45	0	6	2	0		
ROCHESTER	38	23	52	10	31	4	T	T	T	3	3	59	89	53	0	7	2	0	0		
MS GREENWOOD	61	38	71	26	49	-4	T	T	T	7	27	10.4	84	89	42	0	3	1	1		
JACKSON	60	37	73	28	49	-6	T	T	T	0	1.1	1.8	144	95	49	0	2	2	1		
MERIDIAN	62	39	73	31	50	-4	T	T	T	4	9	31	168	94	47	0	2	2	0		
MO CAPE GIRARDEAU	57	31	71	22	44	-	T	T	T	1	4	1	51	85	42	0	4	0	0		
COLUMBIA	55	31	71	21	43	2	T	T	T	1	4	3.0	60	84	41	0	4	0	0		
KANSAS CITY	56	33	73	22	45	4	T	T	T	1	1	3.0	86	77	33	0	4	1	0		
SAINT LOUIS	55	33	71	22	44	3	T	T	T	0	0	1	67	66	33	0	4	0	0		
SPRINGFIELD	55	32	70	24	44	1	T	T	T	1	7	7.3	140	76	34	0	5	0	0		
MT BILLINGS	45	28	64	19	36	4	T	T	T	5	5	135	50	89	60	0	5	2	0		
GLASGOW	37	24	49	12	31	5	T	T	T	1	1	118	38	91	58	0	7	4	0		
GREAT FALLS	46	28	61	22	37	7	T	T	T	3	4	95	29	89	51	0	5	2	0		
HAVRE	39	24	50	21	32	5	T	T	T	1	1	22	25	92	62	0	7	1	0		
HELENA	51	28	61	22	40	9	T	T	T	3	3	93	21	85	41	0	6	1	0		
KALISPELL	44	31	51	27	37	7	T	T	T	8	1.9	495	107	94	64	0	5	4	1		
MILES CITY	58	25	67	19	38	8	T	T	T	1	1	50	21	84	39	0	7	2	0		
MISSOULA	48	31	53	28	48	7	T	T	T	1	1	4	106	10	40	0	5	4	0		
NE GRAND ISLAND	52	25	70	17	39	5	T	T	T	7	7	8	42	86	42	0	5	1	0		
LINCOLN	53	28	68	15	41	7	T	T	T	0	0	6	25	82	40	0	5	0	0		
NORFOLK	50	25	69	18	37	6	T	T	T	1	1	10	58	86	42	0	7	1	0		
NORTH PLATTE	50	23	73	15	37	4	T	T	T	1	29	1.8	138	90	42	0	6	1	0		
OMAHA	51	30	68	22	41	6	T	T	T	1	3	7	30	79	41	0	6	1	0		
SCOTTSBLUFF	46	21	70	14	33	-1	T	T	T	6	159	2.8	233	93	55	0	7	2	0		
VALENTINE	39	20	66	8	29	-1	T	T	T	2	6	1.4	140	82	56	0	7	0	0		
NW ELY	52	27	62	22	40	7	T	T	T	2	2	6	141	91	42	0	7	2	0		
LAS VEGAS	72	47	76	42	59	5	T	T	T	1	2	4	215	79	29	0	0	2	0		
RENO	58	34	66	27	46	6	T	T	T	5	5	144	72	82	27	0	2	3	0		
WINNEMUCA	53	32	63	27	43	5	T	T	T	7	7	254	94	89	40	0	3	3	0		
NH CONCORD	47	14	65	-1	28	-2	T	T	T	9	68	3.9	60	83	39	0	7	1	0		
NJ ATLANTIC CITY	41	28	76	16	37	-3	T	T	T	4	4	1.3	73	92	107	86	46	0	6	3	0
NM ALBUQUERQUE	62	36	71	29	49	4	T	T	T	1	1	5	130	75	24	0	1	1	0		
CLOVIS	60	33	72	24	47	2	T	T	T	0	0	1.9	173	82	27	0	3	0	0		
ROSWELL	65	35	76	31	50	1	T	T	T	6	6	2.3	230	90	30	0	1	1	0		
NY ALBANY	39	16	62	5	28	-4	T	T	T	1.3	99	5.8	98	87	41	0	6	0	0		
BINGHAMTON	41	18	64	4	30	0	T	T	T	9	71	4.6	75	71	35	0	6	0	0		
BUFFALO	39	20	59	10	30	-2	T	T	T	1.1	88	4.9	73	83	39	0	6	1	0		
NEW YORK	45	29	74	16	37	-2	T	T	T	0	2.3	130	8.6	109	71	40	0	5	2	0	
ROCHESTER	40	18	66	8	29	-2	T	T	T	5	43	2.9	50	88	38	0	6	0	0		
SYRACUSE	41	17	62	5	29	-3	T	T	T	1.1	79	4.8	73	82	35	0	6	0	0		
NC ASHEVILLE	48	32	57	25	40	-5	T	T	T	5	22	10.1	119	88	46	0	4	3	0		
CHARLOTTE	54	37	59	29	46	-3	T	T	T	7	1.5	45	11.1	113	83	42	0	4	3	1	
GREENSBORO	53	33	64	24	43	-3	T	T	T	9	1.3	75	9.9	115	83	46	0	5	3	1	
HATTERAS	54	40	69	30	47	-3	T	T	T	4	1.9	105	16.9	158	97	65	0	1	2	0	
NEW BERN	57	38	73	31	47	-4	T	T	T	5	1.9	111	13.0	134	94	52	0	2	3	0	
RALEIGH	54	33	66	26	44	-4	T	T	T	3	1.0	57	13.0	149	86	45	0	5	4	0	
WILMINGTON	58	38	69	28	48	-5	T	T	T	1	1.4	73	12.3	138	91	48	0	3	2	0	
ND BISMARCK	28	12	34	-1	20	-4	T	T	T	1	25	1.9	158	92	68	0	7	3	0		
FARGO	32	15	43	5	24	2	T	T	T	0	0	1.1	92	88	56	0	7	0	0		
GRAND FORKS	26	6	36	-7	16	-3	T	T	T	0	1.5	100	88	66	0	7	0	0			
WILLISTON	31	19	38	5	25	2	T	T	T	3	3	140	8	67	88	60	0	7	3	0	
OH AKRON-CANTON	45	24	70	14	34	0	T	T	T	6	1.0	73	3.3	54	84	38	0	6	1	1	
CINCINNATI	51	26	68	20	39	-1	T	T	T	0	3	15	2.8	37	75	34	0	5	0	0	
CLEVELAND	41	24	72	14	33	-2	T	T	T	4	8	65	3.3	56	87	44	0	6	1	0	
COLUMBUS	51	26	70	19	38	0	T	T	T	1	7	1.8	29	79	33	0	5	0	0		

Based on 1951-80 normals.

Weather Data for the Week Ending MARCH 14, 1987

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		PRECIPITATION			
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE		
DAYTON	50	25	72	17	37	0	T	-1.7	T	.2	13	2.2	37	87	39	0	5	0	0		
TOLEDO	43	22	72	14	33	-1	T	.5	-1.1	.5	1.9	173	4.3	88	88	41	0	6	2	0	
YOUNGSTOWN	45	21	72	11	33	0	T	.4	-1.4	.4	1.0	74	3.4	54	83	41	0	6	1	0	
OK OKLAHOMA CITY	59	38	71	30	48	1	T	.1	-1.3	.1	.1	14	6.7	216	85	45	0	3	1	0	
TULSA	58	39	69	31	49	1	T	T	-1.7	T	0	7.1	165	73	37	0	1	0	0		
OR ASTORIA	55	45	60	38	50	6	T	3.1	2.4	.9	7.2	533	22.7	264	95	72	0	0	7	2	
BURNS	49	31	58	25	40	5	T	1.2	1.0	.4	1.3	256	3.5	100	71	40	0	4	6	0	
MEDFORD	57	39	62	38	48	3	T	.6	.1	.2	.6	67	5.7	89	97	55	0	0	5	0	
PENDELTON	57	41	64	33	49	6	T	.9	.7	.4	1.1	218	3.2	97	87	50	0	0	5	0	
PORTLAND	54	45	61	43	50	5	T	2.0	1.1	.6	4.0	235	13.6	115	94	71	0	0	6	2	
SALEM	55	44	61	37	49	5	T	2.0	1.0	.6	3.0	147	14.2	104	96	72	0	0	7	2	
PA ALLENTOWN	48	25	76	14	37	0	T	T	-1.9	T	1.0	59	5.9	74	73	32	0	6	0	0	
ERIE	39	23	63	13	31	-1	T	.1	-1.5	.1	.6	54	3.8	68	81	44	0	6	1	0	
HARRISBURG	47	25	74	15	36	-3	T	T	-1.8	T	.6	36	8.4	117	78	29	0	6	1	0	
PHILADELPHIA	50	30	75	19	40	0	T	T	-1.9	T	.3	18	6.1	80	74	34	0	5	0	0	
PITTSBURGH	47	24	72	13	35	-1	T	.4	-1.4	.4	.8	50	3.7	55	62	33	0	6	1	0	
SCRANTON	43	20	70	8	31	-3	T	T	-1.6	T	.3	25	3.6	67	76	34	0	6	0	0	
RI PROVIDENCE	43	25	69	13	34	-2	T	T	-1.9	T	1.8	92	6.8	71	85	46	0	6	2	0	
SC CHARLESTON	60	41	73	31	51	-5	T	.9	-1.1	.7	1.4	66	13.2	152	88	48	0	1	3	1	
COLUMBIA	57	37	67	27	47	-6	T	.5	-1.8	.3	1.1	47	14.8	138	92	47	0	4	3	0	
FLORENCE	59	39	72	29	49	-4	T	.3	-1.6	.2	1.2	63	11.8	134	86	44	0	1	3	0	
GREENVILLE	54	38	61	30	46	-4	T	.5	-1.9	.4	.5	20	12.5	111	83	44	0	3	2	0	
SD ABERDEEN	35	18	53	6	27	2	T	T	-1.2	T	3	1.2	80	89	58	0	7	1	0		
HURON	40	21	55	8	31	4	T	.1	-1.2	.1	1	21	1.4	88	89	48	0	6	2	0	
RAPID CITY	43	21	60	9	32	1	T	.2	0	.1	.2	44	1.9	136	94	49	0	7	3	0	
STOIX FALLS	45	23	66	14	34	6	T	T	-1.3	T	3	.4	20	84	46	0	7	1	0		
TN CHATTANOOGA	54	36	64	29	45	-3	T	1.2	-1.3	.6	1.2	41	14.7	116	92	43	0	3	3	1	
KNOXVILLE	51	32	62	24	42	-6	T	.7	-1.6	.4	.7	27	10.0	88	96	56	0	4	5	0	
MEMPHIS	57	37	67	27	47	-3	T	T	-1.2	T	0	7.6	68	78	38	0	3	1	0		
NASHVILLE	57	34	69	26	45	-2	T	T	-1.3	T	0	6.4	59	88	36	0	5	1	0		
TX ABILENE	60	40	72	34	50	-4	T	.2	0	.1	.2	52	4.3	179	88	49	0	0	3	0	
AMARILLO	57	33	73	24	45	0	T	.2	0	.1	.2	41	2.3	164	92	40	0	3	2	0	
AUSTIN	64	43	73	36	54	-5	T	.4	0	.2	.4	47	4.1	85	93	50	0	0	2	0	
BEAUMONT	69	44	78	36	56	-2	T	.4	-1.3	.4	.4	31	16.2	167	93	41	0	0	1	0	
BROWNSVILLE	72	52	77	48	62	-5	T	.5	.4	.5	.5	217	5.2	173	97	59	0	0	1	1	
CORPUS CHRISTI	70	49	78	45	60	-5	T	.4	.2	.4	.4	100	8.6	253	98	50	0	0	1	0	
DEL RIO	65	46	75	40	56	-6	T	.5	.4	.5	.5	241	4.2	263	90	0	0	2	1	0	
EL PASO	69	40	79	35	55	1	T	.3	-1.3	.3	.3	200	.9	90	78	26	0	0	1	0	
FORT WORTH	63	42	71	33	52	-2	T	0	-1.5	0	0	4.9	109	83	45	0	0	0	0	0	
GALVESTON	65	51	75	45	58	-3	T	.1	-1.4	0	.1	6	8.8	140	86	48	0	0	2	0	
HOUSTON	68	42	77	34	55	-5	T	.2	-1.4	.2	.2	15	6.9	86	92	42	0	0	1	0	
LUBBOCK	62	36	78	28	49	0	T	T	-1.2	T	3	2.0	154	92	40	0	3	1	0		
MIDLAND	61	36	78	32	49	-5	T	.7	.6	.6	.7	305	2.8	233	97	46	0	2	2	1	
SAN ANGELO	61	39	70	34	50	-6	T	1.2	1.0	.9	1.2	414	6.2	344	94	54	0	0	3	1	
SAN ANTONIO	65	43	74	37	54	-6	T	.4	.2	.3	.4	77	6.3	162	92	51	0	0	2	0	
VICTORIA	69	47	78	42	58	-5	T	.2	-1.1	.2	.2	34	6.8	145	93	45	0	0	1	0	
WACO	66	41	74	33	53	-3	T	.3	-1.1	.3	.3	37	4.2	93	95	45	0	0	2	0	
WICHITA FALLS	60	37	75	31	49	-3	T	T	-1.3	T	6	6.0	231	90	49	0	1	1	0		
UT BLANDING	56	31	61	25	43	6	T	.2	0	.1	.2	44	2.7	100	99	52	0	4	2	0	
CEDAR CITY	58	30	65	25	44	6	T	-1.2	T	T	0	1.7	89	90	34	0	5	0	0		
SALT LAKE CITY	57	36	64	31	46	7	T	.9	.5	.7	.9	124	3.8	115	86	34	0	1	4	1	
VT BURLINGTON	34	10	56	-2	22	-5	T	0	-1.5	0	.7	78	3.1	69	82	39	0	7	0	0	
VA NORFOLK	51	36	72	29	44	-3	T	.6	-1.3	.2	1.5	85	14.6	168	90	54	0	2	4	0	
RICHMOND	51	30	70	25	41	-5	T	.2	-1.6	.1	.5	28	8.6	108	86	43	0	5	3	0	
ROANOKE	53	29	68	20	41	-3	T	.3	-1.6	.1	.6	33	9.6	125	85	35	0	5	4	0	
WA COLVILLE	50	38	55	30	30	-6	T	1.6	1.3	.8	2.6	449	4.8	114	94	76	0	1	5	1	
QUILLAYUTE	53	42	61	35	48	5	T	3.6	.8	.8	11.0	194	33.4	104	99	76	0	0	7	4	
SEATTLE-TACOMA	55	44	60	39	50	6	T	1.4	.5	.4	4.8	283	12.9	108	95	64	0	0	7	0	
SPOKANE	51	37	54	32	44	8	T	.8	.5	.4	1.9	292	4.3	91	98	58	0	1	4	0	
YAKIMA	53	35	58	31	44	4	T	.1	0	.1	.3	93	2.0	83	96	58	0	3	3	0	
WV BECKLEY	47	25	64	19	36	-3	T	.2	-1.7	.1	.3	15	7.1	85	79	39	0	6	3	0	
CHARLESTON	54	28	73	23	41	-2	T	T	-1.9	T	T	2	6.6	80	79	30	0	5	1	0	
HUNTINGTON	53	28	71	22	41	-3	T	T	-1.9	T	T	4	6.2	79	76	30	0	5	1	0	
PARKERSBURG	51	27	68	18	39	-2	T	T	-1.8	T	T	.1	5	3.2	46	72	32	0	5	1	0
WI GREEN BAY	38	21	65	15	29	3	T	.2	-1.2	.1	.7	92	1.5	52	93	54	0	7	3	0	
LA CROSSE	41	25	61	10	33	4	T	.5	-1.1	.3	.7	100	2.1	84	76	45	0	6	2	0	
MADISON	40	22	71	17	31	2	T	.6	-1.1	.5	.8	100	2.1	72	88	54	0	7	2	1	
MILWAUKEE	40	25	72	19	32	2	T	.7	-1.2	.4	.8	84	3.3	85	85	52	0	6	3	0	
WAUSAU	37	20	61	10	28	4	T	.2	-1.2	.2	.3	47	1.0	38	88	45	0	7	2	0	
WY CASPER	48	26	61	15	37	7	T	.4	-1.2	.3	.4	103	3.2	229	89	44	0	6	4	0	
CHEYENNE	45	23	60	9	34	3	T	.2	0	.2	.2	62	1.2	100	85	46	0	6	2	0	
LANDER	44	28	56	21	36	6	T	.4	-1.2	.4	.4	105	3.0	200	85	49	0	6	2	0	
SHERIDAN	50	27	65	23	39	8	T	.1	-1.1	.1	.1	30	1.3	68	96	45	0	6	1	0	
PR SAN JUAN	85	70	88	68	78	0	T	.3	-1.2	.3	.6	65	3.0	50	84	65	0	0	1	0	

Based on 1951-80 normals.



Winter Weather Review

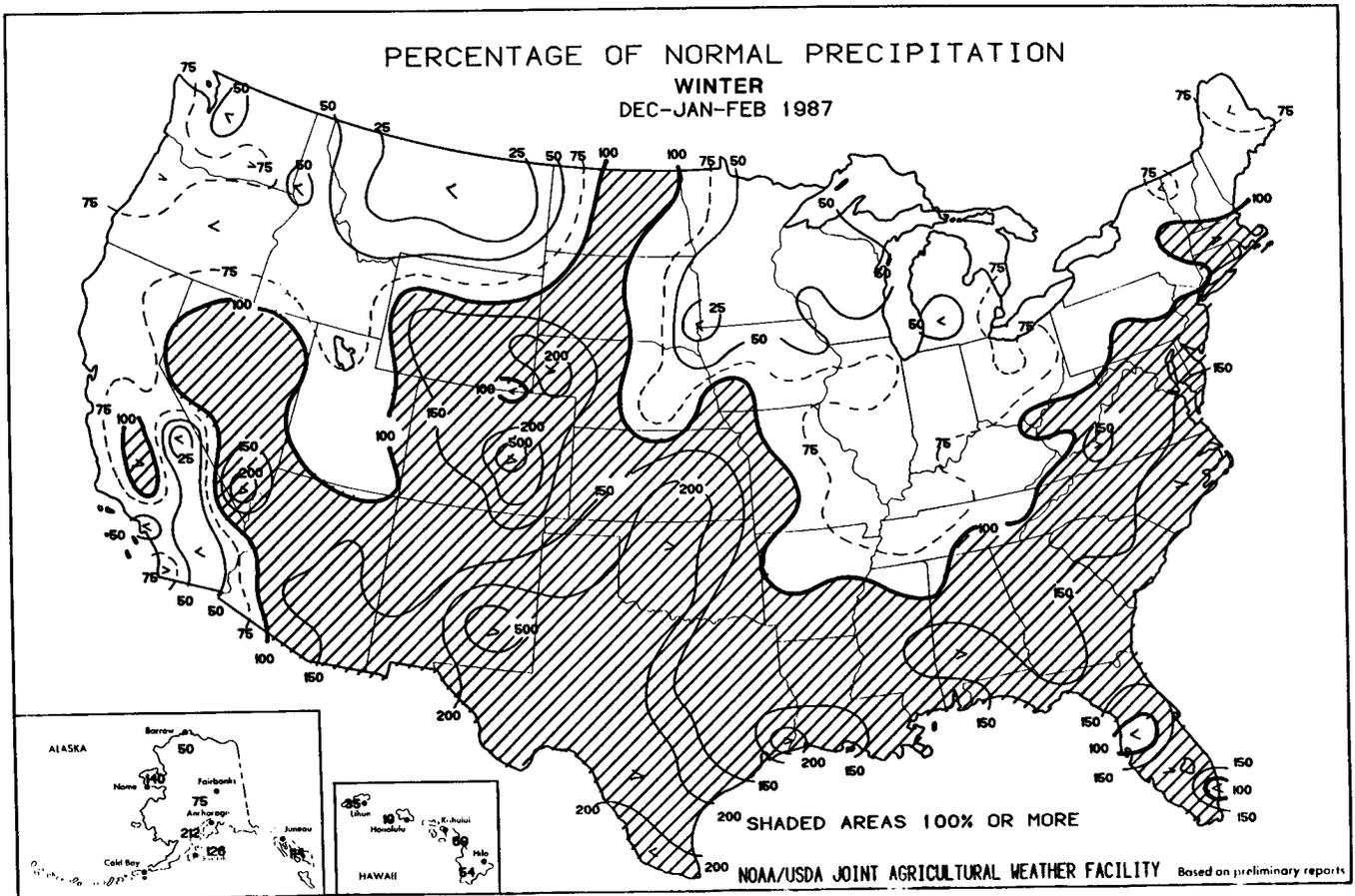
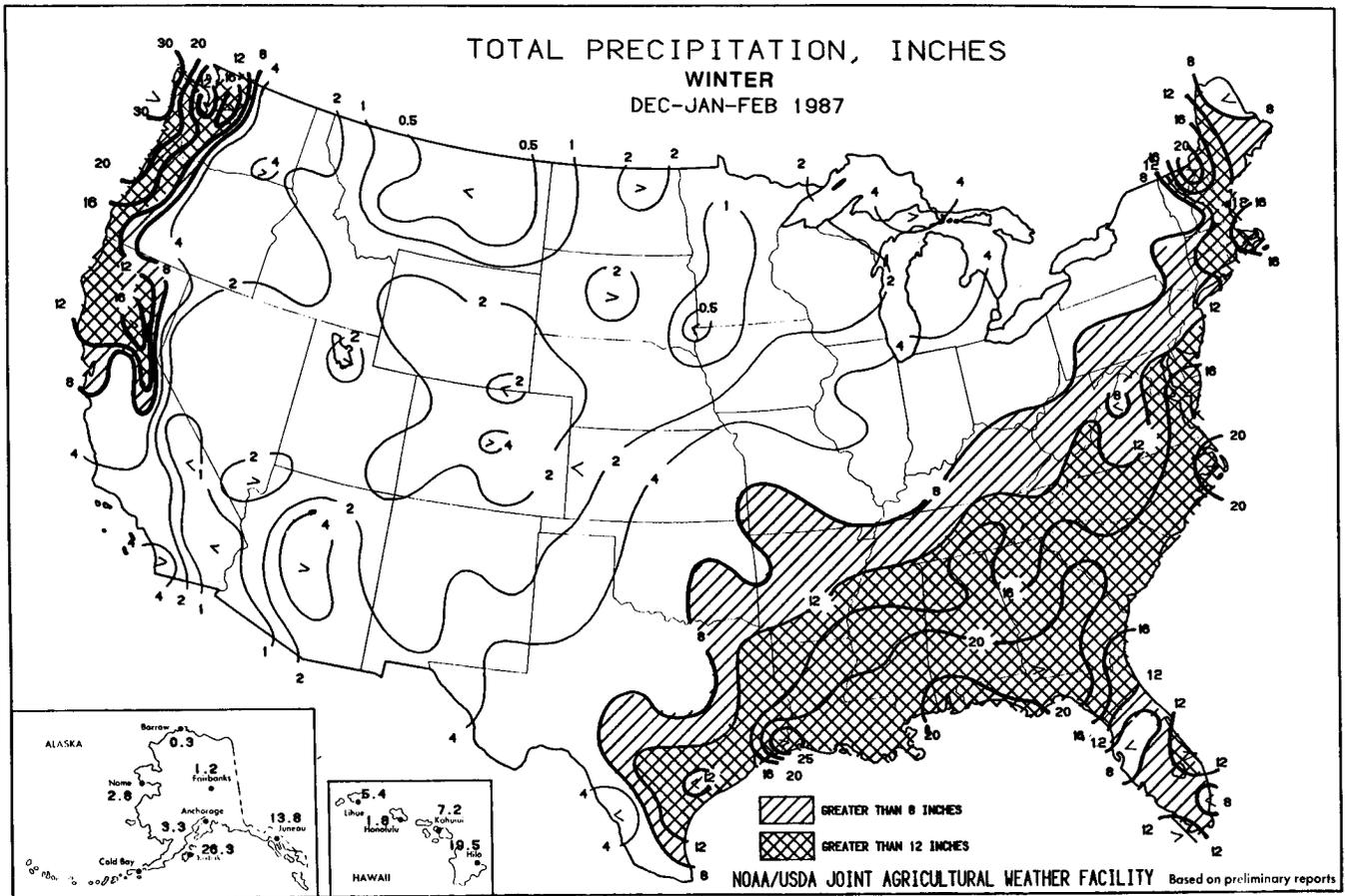
December 1986 to February 1987

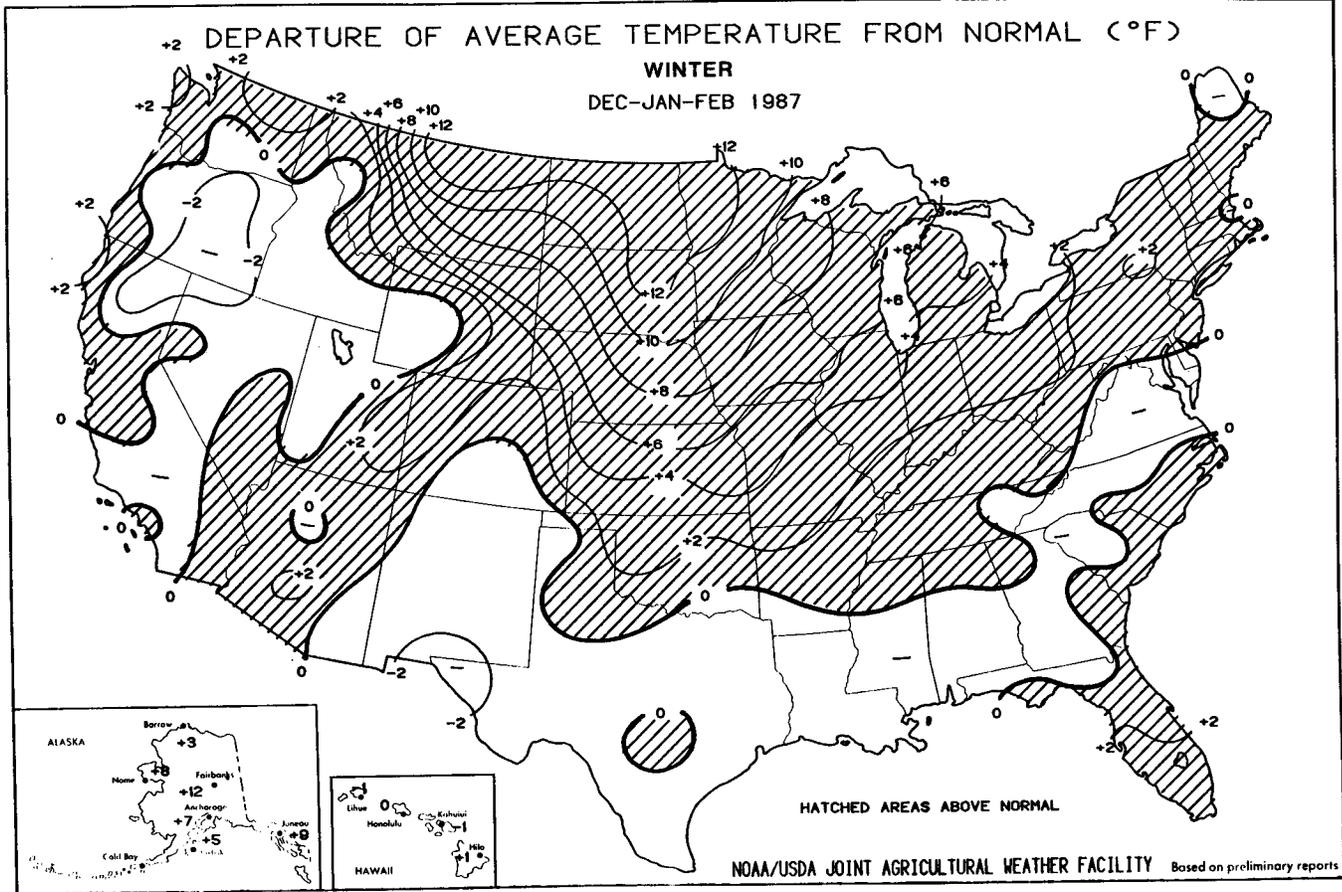
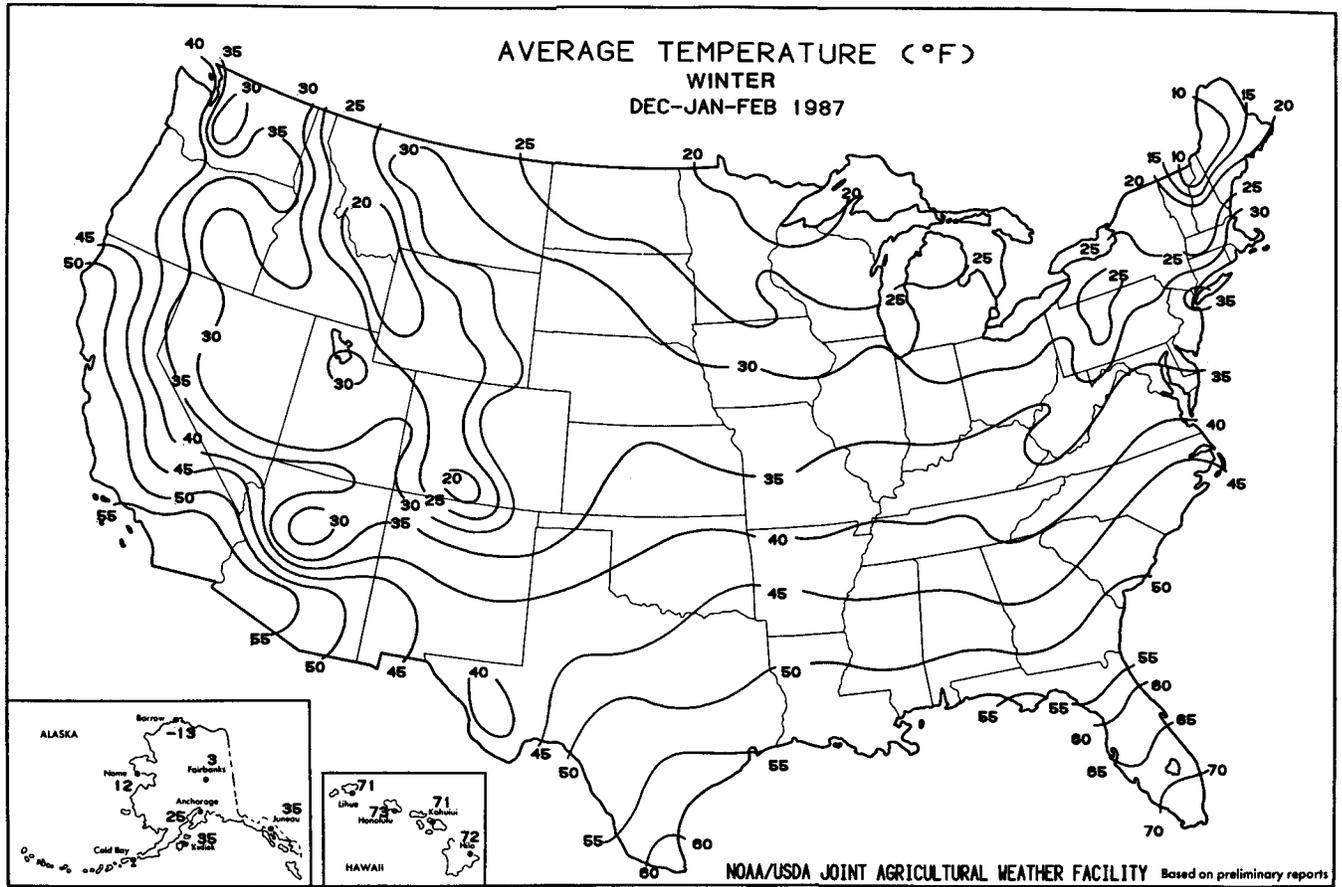
HIGHLIGHTS: The dominant feature of the winter weather was the unusually mild conditions in the central and northern Great Plains and the Great Lakes region. Average temperatures in parts of the northern Plains were as much as 13 degrees warmer than normal. Temperatures were near to slightly cooler than normal across much of the South and in the central Plateau of the West. Precipitation was scarce in the upper Mississippi Valley and the northern High Plains and below normal from the Ohio Valley through the Great Lakes, in the western part of the Northeast, and in the Northwest. Ample to excessive precipitation fell in the central Plateau, most of the Southwest, the central and southern Rockies and Plains, across the South, and from the Mid-Atlantic States to southern New England.

DECEMBER...Pacific storms, moving into the Southwest, redeveloped in the southern Great Plains and spread rain across the South and up the east coast. Snow fell at many higher elevations in the southwest and in the Texas Panhandle. Heavy rain along the east coast caused beach erosion and local flooding but relieved dryness in the Mid-Atlantic States. Snow was heavy from the Great Lakes to the Appalachians. Pacific storms also affected the Northwest, but precipitation was below normal until the end of the month. Snow covered the Cascades and the northern Rockies and Sierras. Although temperatures cooled seasonally during the month, they were generally warmer than normal, especially in the northern Plains and Northeast.

JANUARY...A series of storms moved through the Southeast and up the east coast, triggering moderate to heavy precipitation. Snow was confined to the northern Appalachians, but, after midmonth, snow fell throughout the Appalachians and from the Mid-Atlantic States northward. Another storm track was from the Southwest and northwestern Texas to the eastern Great Lakes. The heaviest precipitation from these storms was from Texas to Missouri. Just after midmonth, an arctic outbreak pushed through the West and brought subfreezing temperatures to the usually balmy areas in southern California and Arizona. Severely cold weather moved through the Great Lakes at month's end and covered most of the East. Average temperatures were unusually mild in the northern Great Plains.

FEBRUARY...Average temperatures continued well above normal in the central and northern Great Plains and the mild areas expanded to include the area from the Rockies to the Appalachians, except for the Northeast. Some cold outbreaks did occur through the northern Plains and Great Lakes, but the cold spells were of short duration. Precipitation was generally favorable in most of the Nation. Notably dry areas were from the middle and upper Mississippi Valley to the Mid-Atlantic area and the Northeast, the northern High Plains and the Northeast, and parts of the Southwest and central Intermountain region. Unusually cold air again moved into the Southwest late-month and brought freezing temperatures to parts of southern California and Arizona.





National Agricultural Summary

March 9 to 15, 1987

HIGHLIGHTS: Winter wheat and small grains escaped serious harm from cold weather in the northern and central Great Plains, Rocky Mountain States, and across the Corn Belt. Wheat was heading in the Delta and Southwest, and jointing moved into Kansas. Drying soils accelerated spring plowing from the Delta to the northern Great Plains and through the Corn Belt. Rain slowed spring plowing and seeding in the Southeast. Topsoil moisture was adequate, but some Corn Belt States were experiencing short soil moisture.

Corn planting gained momentum but lagged behind normal in Texas, Louisiana, and Mississippi. Cotton was seeded in Arizona and Texas and seedbed preparation got underway in Oklahoma. Rice was seeded in Louisiana, and sorghum was seeded in Texas. Tobacco transplanting began in Florida. Livestock was mostly good.

SMALL GRAINS: Extremely cold temperatures swept across the northern and central Great Plains and Corn Belt, but small grains and winter wheat suffered very little, if any, damage. Snow accompanied the cold weather, giving some protection from the low temperatures. Winter grains were mostly good, except in the Southeast and Delta, where conditions were mostly fair to good.

In Texas, small grain growth was good to excellent. Wheat began jointing in the Plains and was nearing the head-out stage in central areas. The cooler weather slowed rust problems. Oklahoma's wheat was mostly good. Ten percent of the acreage was jointing compared with the 15% 5-year average. Fields dried enough, allowing growers to make late fertilizer applications. Alfalfa weevil damage was light in southern Oklahoma.

Wheat grew well in Kansas and some acreage was jointing. Crop condition was good to excellent, with light levels of disease and insect infestations. Weed control and fertilizing were active in most areas. Barley and oat seeding was 50% finished. Winter grains began greening in South Dakota. Seeding oats and topdressing wheat were active in Indiana. Wheat was gradually greening. Montana's wheat continued the greening process. Topsoils were dry in Ohio but did not pose a problem for winter wheat. Washington's wheat was mostly good, but snow mold was present in some fields. Winter grain growth was good in Oregon. In Arizona, 75% of the wheat and barley acreage reached the jointing stage. Some acreage entered the heading stage. Wheat was heading in Louisiana and jointing in Mississippi. Intermittent rain and warm weather were beneficial to small grains in California.

OTHER CROPS: Drier soils and warm weather accelerated spring plowing and fertilizing from the Delta to the northern Great Plains and across the Corn Belt. Rain impeded land preparation and seeding in the Southeast. Spring fieldwork was in full swing in Indiana. In Iowa, farmers began early tillage. Spring plowing was underway in both Minnesota and Montana.

Corn planting lagged 15 percentage points behind normal in Texas at 13% completion. Low soil temperature slowed germination in the Rio Grande Valley and at Coastal Bend. Planting

reached 15% completion in Alabama, 1 point ahead of 1985, and 5 points ahead of the average. In Louisiana and Mississippi, corn planting lagged 19 and 10 points behind normal, respectively. Corn planting continued in Georgia as the weather permitted.

Sorghum planting was off to a slow start in Texas, with only 6% of the acreage in the ground. Slightly more than a fifth would be seeded, normally. Sorghum seedbed preparation was just underway in Oklahoma.

Cotton planting was still limited to Arizona and Texas. In Arizona, seeding increased and land preparation was very active. Planting continued in the Rio Grande Valley and was just beginning at Coastal Bend. Seedbed preparation was underway in Oklahoma but lagged 12 points behind average.

Rice was seeded in Louisiana. Seeding will start later than usual in Texas. Tobacco transplanting was underway in Florida. Georgia's tobacco plants were fair. In North Carolina and Virginia, tobacco growers prepared and seeded plantbeds. Burley tobacco bed preparation continued in Kentucky and Tennessee.

FRUIT AND NUTS: Oregon's fruit trees were budding and flowering ahead of normal in most areas. Peach trees suffered minimal damage from heavy frost. Tree development and fruit set have progressed well thus far. Arkansas' fruit crops were good and suffered virtually no freeze damage.

Florida's citrus groves were very good. Soil moisture was adequate, but there was some low volume irrigation. Cool weather slowed blooming, but new growth was abundant. Temple orange movement slowed, but grapefruit harvest was very active. Caretakers fertilized, cultivated, and pruned groves. Weak demand decreased citrus harvest in Texas. Stone fruit continued blooming in California. Apples, perlette and thompson grapes, and persimmons leafed-out. Almond bloom neared completion, but frost, shot hole, and wind damage were evident. Citrus harvest progressed normally. Citrus blooms were heavy in western Arizona. Groves were good, and harvest continued.

VEGETABLES: Spring vegetable seeding was underway in the Southeast and stretched along the Atlantic Coast as far north as New Jersey. Sugarbeets and onions were planted in Idaho. Strawberry harvest was underway in Louisiana. Watermelon seeding began in the Delta. Winter vegetable harvest began in Oregon's Willamette Valley.

Spring vegetable planting neared completion in many areas of Florida. Early spring vegetable harvest was underway. Strawberry harvest was gaining momentum rapidly. Rain slowed vegetable harvest in Texas. In California, asparagus harvest began in the Firebaugh District and continued in other parts of Fresno County. Vegetable harvest consisted mostly of artichokes, broccoli, carrots, cauliflower, celery, and lettuce. Lettuce packing gained momentum in Arizona. Seasonal packing of winter vegetables continued.

PASTURES AND LIVESTOCK: Livestock was mostly good. The cold weather in the northern areas caused very little problems thus far. Pastures were mostly good. Greening continued moving further north.

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 0.33 in.; under 0.20 in. northwest, southeast. Temperatures averaged 3 to 6° below normal north; 6 to 9° below normal central, south.

Days suitable for fieldwork 2.4. Soil moisture 27% adequate, 73% surplus. Fieldwork progress behind schedule. Corn planted 18%, 17% 1986, 13% avg. Wheat 68% fair, 30% good, 3% excellent. Pastures 24% poor, 55% fair, 21% good. Livestock 58% fair, 42% good. Pasture feed supply 65% short, 35% adequate. Stored feed supply 46% short, 54% adequate. Primary activities: Land preparation; planting corn, vegetables; fertilizing pastures, wheat; pruning fruit trees; stocking fishponds; soil testing; routine care of livestock, poultry.

ARIZONA: Weak upper level disturbance 9th to 10th, most activity southeast. Tucson received 0.55 in. rain with 0.25 in. size hail. Showers, thunderstorms developed 10th over central, eastern mountains. Moisture varied from traces to around 0.50 in., except none over southwestern quarter. Upper level high pressure 11th through 13th; mostly sunny skies, mild temperatures. Afternoon readings reached upper 50s high country, upper 60s and lower 70s 5,000 ft., 80s southern deserts. Increased cloudiness north 14th, advance of strong winter storm. Storm pushed in early 15th, with light rain, snow over northwestern quarter. Average temperatures 3 to 8° above normal.

Wheat, barley jointing 75%, 70% 1986, 75% avg. Small grains good. Some acreage entered heading stage. Irrigation, fertilization continued. Cotton planting increased. Land preparation very active, including listing, bed shaping, pre-irrigation, herbicide, nematicide application. Alfalfa hay baled. Curing conditions favorable, cuttings good to excellent. Insecticide, herbicide controls applied. Green chopping continued, sheeping off light. Land preparation advanced for corn crop, planting moved ahead. Established stands good. Lettuce packing gained momentum. Established lettuce stands good. Seasonal packing of winter vegetables continued, including cauliflower, broccoli, mixed vegetables, asparagus, artichokes. Spring melon planting advanced. Potatoes, onions progressing normally. Citrus harvests continued. Groves good, heavy bloom west.

ARKANSAS: Cool dry week with only isolated light showers southeast first of week. Temperature extremes 19°; 77°. Rainfall none to 0.32 in.

Soil moisture adequate. Tremendous disking, land preparation in all row crop sections. Pastures good across State, could use some rain. Livestock good. Fruit crop good, no freeze damage.

CALIFORNIA: Heaviest rain northern sections, mountain areas of State. Temperatures above normal except central valley northern area where they averaged near normal.

Intermittent rain, warmer weather beneficial small grains. Weed control active, green-chopping increased. Sacramento Valley alfalfa beginning spring growth. Rodent, weevil controls applied. Pre-irrigation corn, cotton fields progressed. Sugarbeets normal progress. Early seeded safflower germinating. Stone fruit bloom continued. Apples, perlette and thompson grapes, persimmons leafed out. Kiwi buds swelled. Prunes entered popcorn stage. Almond bloom neared completion; some frost, shot hole, wind damage reported. Walnut catkins elongated. Citrus harvest continued. Artichokes moderate, variable quality, Salinas. Asparagus

harvest started Firebaugh; continued other parts Fresno County. Harvest started Delta, slow pace. Freezer bean field Westside, showed good growth. Strawberry light, good quality south coast. Growing ground fumigated Lassen County. Broccoli fairly heavy Salinas, Santa Maria; good quality. Harvest San Joaquin Valley active, spring plantings progressing well. Harvest practically done, Palo Verde Valley. Carrot volume, quality good desert. Harvest active Westside. Cauliflower moderate Salinas, fairly heavy Santa Maria; good quality. Harvest complete Los Angeles-Orange County, virtually over Imperial Valley. Celery harvest active Oxnard, Los Angeles-Orange County, Chula Vista; good quality. Lettuce packing Palo Verde Valley, Blythe; continued increase volume, good quality. Season practically finished Imperial Valley. Spring harvest Huron District begin March 23rd, Firebaugh District start 2nd week of April. Spring onion fields Westside, growing well. Fall potato packing sheds Tulalake-Butte Valley, operating full-time. Winter potato digging active Kern, Riverside. Spring potato planting progressed Kern. Planting tomatoes processing, fresh market continued statewide, plants emerging some areas. Rain many districts continued improvement ranges, pastures. Livestock began to show some weight gains with improved feed conditions. Supplemental feeding decreased. Stock water supplies continued short.

COLORADO: Temperatures 1 to 8° above normal. All areas light precipitation. Amounts traces to 0.54 in. Most areas less than 0.35 in.

Fieldwork continued where possible. Livestock, winter wheat good. Calving, lambing continued.

FLORIDA: Cool front, trough caused few showers statewide 10th, 11th, followed by dry, cool air mass which spilled southward 12th through 14th with some warming by 15th. Rainfall less than 0.25 in. Near freezing minimums with frost north early on 13th; patchy frost extreme north again 14th. Temperatures averaged 4° below normal north to less than 2° below normal south.

Soil moisture remained adequate central, southern areas; varied from surplus upper northeast, some Panhandle areas where wet soils slowed, delayed field preparation, planting. Cool temperatures further slowed drying of soils, spring plantings northern areas. Few plantings of tobacco made. Tobacco plants in some plant beds have deteriorated. Small grains generally making good progress. Southern Peninsula pastures good; elsewhere, fair to good. Cattle fair to good. Citrus groves very good. Moisture adequate, some low volume irrigation. Abundance of new growth. Bloom showing all stages, but held back by cool weather. Early orange harvest all but over. Grapefruit harvest very active. Temple movement slowed. Caretakers fertilizing, cultivating, major pruning. Seasonal weather vegetable producing areas. Temperatures near normal. Planting spring crops near complete many areas. Harvest early spring crops underway. Volume leaders: Tomatoes, cabbage, celery, potatoes, carrots, snap beans, sweet corn, lettuce. Also available good volume: Cucumbers, radishes, squash, escarole. Reduced supplies eggplant, cauliflower available. Strawberry harvest gaining rapidly.

GEORGIA: Rain 1 to 2 days. Totals mostly under 0.50 in. north to less than 0.33 in. central, south. Totals for week about 1.50 in. below normal

north, near 1.00 in. below normal central, south. Rain since January 1, 2 to 6 in. above normal. Temperatures cool, 3 to 7° below normal northern half, 6 to 9° below normal central, south. Extreme lows in low, mid 20s mountains to low, mid 30s south. Extreme highs mid, upper 60s north to mid 70s south.

Soil moisture adequate north, surplus elsewhere. Main activities: Planting corn, land preparation, small grain topdressing as weather and soil conditions permitted. Small grains mostly fair to good. Tobacco plants fair. Pastures poor to good. Cattle fair to mostly good. Hogs good.

HAWAII: Wet, windy conditions during first half of week slowed farm activity, caused some minor crop losses. Skies cleared by midweek. Overall, crops fair to good progress. Temperatures averaged degree or 2 above normal for most of week. Variable winds north, northeasterly 15 to 30 mph. Temperatures ranged mid 60s to low 80s. Rainfall ranged none to 9.10 in.

Days suitable for fieldwork 7.0. Banana production remained steady. Papaya production seasonal decline. Production heavy for chinese cabbage, light to moderate for other vegetables.

IDAHO: Warmer weather some showers. Temperatures 5° to 10° above normal. Precipitation few hundredths to nearly 1.00 in. above normal.

Farm activity limited to preparing machinery, checking fields, fertilizer spreading, livestock management. Calving, lambing full swing. Some sugarbeet, onion, grain planted. Livestock good. Hay, roughage supplies adequate to surplus.

ILLINOIS: Temperatures averaged 2° below normal to 5° above normal north, 2° below to 2° above normal south. Precipitation none to 0.80 in., heaviest north.

Soil moisture 35% short, 62% adequate, 3% surplus. Winter wheat 31% fair, 62% good, 7% excellent. Livestock mostly good.

INDIANA: Temperatures slightly below normal. Lows 20s north, near 30° south. Highs upper 30s north, upper 40s south. Precipitation much below normal, maximum 0.50 in. southwest.

Spring fieldwork full swing. Activities: Tilling, spreading fertilizer and manure, topdressing wheat, seeding clover, grass seed, clearing fence rows, seeding oats, pruning fruit trees. Wheat gradually greening-up.

IOWA: Temperatures averaged 3° above normal east to 6° above normal west, 7th consecutive week above normal temperatures. Precipitation east 12 to 13th, most of State 14 to 15th. Precipitation amounts light except between 0.50 to 1.25 in. in 80 mile wide band 14 to 15th. Temperature extremes 6° 10th to 70° 13th.

Livestock good to excellent. Many farmers started spring tillage. Some operators express concern over wind erosion; possibility dry, hot growing season.

KANSAS: Temperatures ranged from 40° northwest, 44° east and south central, 2 to 4° above normal. Precipitation very light. District averages less than 0.05 in. western two-thirds, zero or trace amounts eastern third.

Days suitable for fieldwork 4.5. Soil moisture 5% short, 87% adequate, 8% surplus. Wheat 1% very poor, 12% fair, 39% good, 48% excellent. Wheat good growth, some jointing. Light levels, disease, insect infestation. Weed control, fertilizing active most areas. Barley, oats 50% planted, no emergence yet. Range, pasture good; grazing adequate. Most livestock moved from wheat fields

where grain crop expected. Lambing, calving good progress, few problems. Feed grain, hay, forage ample supply.

KENTUCKY: Scattered light rain amounting to less than 0.25 in. early week. Skies cleared with sub-freezing temperatures at night over most of State middle, late week. Few reporting stations with lows in teens. Average temperatures near normal. Precipitation amounts insignificant or none. Normal precipitation for period near 1.00 in.

Tobacco plantbed preparation continued. Fertilizing, disking, etc. also active. Livestock good.

LOUISIANA: Temperature 3 to 8° below normal. Temperature extremes 28°; 79°. Rainfall averaged none to 0.30 in.

Days suitable for fieldwork 1.9. Soil moisture 39% adequate, 61% surplus. Spring plowing 9% complete, 46% 1986, 27% avg. Corn planted 1%, 34% 1986, 20% avg. Rice planted 1%, 6% 1986, 4% avg. Winter wheat fair; 1% headed, 5% 1986, 2% avg. Vegetables, pastures fair; sugarcane, livestock fair to good. Main activities: Spring plowing, topdressing wheat and pastures, harvesting crawfish, water leveling rice fields, harvesting early strawberries, caring for livestock.

MARYLAND & DELAWARE: Maryland: Average temperature 45°, normal 44°; lowest temperature 12°, highest temperature 77°. Precipitation averaged 0.26 in.

Main farm activity caring for livestock.

Delaware: Average temperature 42°, normal 41°. Precipitation averaged 0.33 in.

Main farm activity caring for livestock.

MICHIGAN: Temperatures ranged 4° above to normal. Temperature extremes -4°; 74°. Precipitation ranged from none to 0.53 in. across State.

Snow cover continued northern upper Peninsula. Weekend snow covered southern lower Peninsula. Activities: Spreading manure, pruning fruit trees, collecting maple syrup, general farm maintenance, equipment repair, picking unharvested corn fields, buying spring supplies, spreading fertilizer, completing income tax forms, marketing grain, potatoes, livestock. Livestock continued good. Cattle being put on pastures. Feed supplies remained adequate.

MINNESOTA: Temperatures averaged near normal to 5° above normal for State. Temperature extremes -13°; 61°. Precipitation averaged 0.03 to 0.26 in. below normal. Snowfall averaged trace to 1 in. Snow depth weekend averaged 3 in. northeast; trace or less elsewhere.

Some fieldwork started central, southern districts. Reports of alfalfa breaking dormancy due to unseasonably warm weather.

MISSISSIPPI: Temperatures 1 to 5° below normal; extremes 20°; 76°. High pressure dominated weather most of week. Average weekly rainfall 0.10 in. coastal, 0.90 in. Lower Delta, central counties. Greatest 24-hour total rainfall 1.58 in.

Days suitable for fieldwork 1.3, 3.3 1986, 3.6 avg. Soil moisture surplus. Corn 3% planted, 13% 1986, 13% avg. Wheat 30% jointing, 39% 1986, 27% avg. Wheat fair to good. Watermelons 2% planted, 10% 1986, 7% avg.

MISSOURI: Temperatures averaged 3 to 6° above normal north, 1 to 2° above normal south. Little or no rain.

Considerable tillage being done. Pastures, winter wheat making growth. Mild weather good for livestock during calving.

MONTANA: Temperatures 2 to 12° above normal. Measurable moisture most areas. Heaviest amounts northwest corner, southwest, 0.62 to 1.28 in. Most other 0.10 to 0.50 in.

Winter wheat mostly good. Crop greening. Topsoil moisture shortages continued eastern areas. Field tillage in progress many locations. Calving, lambing progressed well.

NEBRASKA: Precipitation ranged from few hundredths east up to 1.00 in. Panhandle. Average temperatures ranged from normal Panhandle up to 7° above normal east. Temperature extremes 8°; 73°.

Storms beginning, end of week added moisture to topsoil. No problems reported with winter wheat crop.

NEVADA: Two frontal systems produced precipitation most areas. Heaviest amounts north with most northeast area. Southern areas picked up precipitation early in period while in north early and late. Air mass remained relatively warm with average temperatures well above normal.

Fieldwork again delayed by wet fields, gusty winds. Muddy fields not ideal for calving, lambing, feeding operations.

NEW ENGLAND: Dry week. Precipitation averaged trace to 1.50 in. entire region. Average temperatures ranged from mid 20s near Canadian border to mid 30s south.

Major farm activities: Tending livestock, repairing machinery, moving crops from storage, working sugar bush as sugar season underway.

NEW JERSEY: Temperatures averaged much below normal. Extremes 5°; 76°. Rainfall averaged 0.06 in. north, 0.27 in. central, 0.44 in. south. Heaviest 24-hour total 0.76 in. on 12th, 13th. Estimated soil moisture percent field capacity averaged 98% north, 97% central, south. Four inch soil temperatures averaged 34° north, 37° central, 39° south.

Soil moisture ample to excessive. Some onions, peas, spinach planted. Soil preparation for potatoes, cabbage, escarole, lettuce, other early greens progressed as conditions permitted. Fruit pruning advanced.

NEW MEXICO: Temperatures ranged from teens mountains to high 70s south. Sparse amounts of rain, snow over State, less than 0.50 in.

Days suitable for fieldwork 6.4. Soil moisture 7% short, 79% adequate, 14% surplus. Alfalfa continued to break dormancy; 40% fair, 50% good, 10% excellent. Barley 9% fair, 82% good, 9% excellent. Irrigated wheat 25% fair, 67% good, 8% excellent. Dryland wheat 33% fair, 50% good, 17% excellent. Chile, onions, lettuce all good. Cattle 29% fair, 71% good. Sheep 36% fair, 64% good. Ranges 7% poor, 36% fair, 57% good.

NEW YORK: Little precipitation recorded statewide. Record highs 8th plummeted as cold air mass moved over area 9th. Temperatures well below normal 11th and 12th with single digit lows south of Mohawk Valley, subzero lows north of Valley. Highs struggled to get past teens. By weekend temperatures approached near normal levels. Above normal amount of sunshine.

Producers busy planning for 1987 growing season.

NORTH CAROLINA: Temperature 4 to 6° below normal across State. Temperature extremes 19°; 73°. Precipitation ranged from 0.16 to 2.18 in. across State.

Days suitable for fieldwork 2.5. Soil moisture 61% adequate, 39% surplus. Small grains mostly good. Pasture 3% very poor, 20% poor, 48% fair, 29% good. Tobacco plantbeds 40% fair, 60% good. Hay, roughage supplies 32% short, 67% adequate, 1%

surplus. Feed grain supplies 20% short, 79% adequate, 1% surplus. Major farm activities: Seeding, preparing tobacco plantbeds; topdressing small grains, pastures; tending livestock; maintaining equipment; preparing land; planting spring Irish potatoes, cabbage; pruning fruit trees; transplanting Christmas trees; cutting firewood; spreading lime; general farm maintenance.

NORTH DAKOTA: Temperatures normal northwest, 8° below normal northeast. Extremes -20° northeast, 62° southeast. Precipitation trace north central, east central, southeast, 0.10 in. northeast.

Calving, lambing continued under mostly favorable conditions, no problems. Feed supplies adequate. Producers making planting decisions, securing credit, fertilizer, other supplies, ASCS sign-up.

OHIO: Average lows in 20s; 2 to 5° subnormal. Average highs upper 30s to upper 40s; 2 to 5° subnormal. Precipitation 0.50 in. north; 0.10 to 0.30 in. elsewhere.

Topsoils dry; not yet problem for winter wheat. No stress on crops or livestock.

OKLAHOMA: Temperatures averaged 1° below normal southwest, west central to 3° above normal northeast. Precipitation averaged none west central, south central, eastern third to 0.16 in. Panhandle.

Topsoil moisture 50% adequate, 50% surplus. Subsoil moisture 2% short, 98% adequate. Wheat 15% fair, 85% good; 10% jointing, 15% 1986, 15% avg. Fields dried allowing late fertilizer applications. Alfalfa weevils reported south but damage light. Sorghum 3% seedbed prepared, 25% 1986, 20% avg. Cotton 3% seedbed prepared, 15% 1986, 15% avg. Pastures 1% poor, 25% fair, 70% good, 4% excellent. Cattle 10% fair, 85% good, 5% excellent. Bloat caused concern west. Spring calving continued with no major problems.

OREGON: Temperatures above normal statewide. Western temperatures ranged from 2° above normal south coast to 7° above normal north coast. Most eastern locations 5 to 8° above normal. Precipitation totaled nearly 6.00 in. along central coast, 1.00 to 2.00 in. Willamette and southwestern valleys, mostly 0.25 to 1.25 in. east of Cascades.

Soil moisture adequate to surplus west, short to adequate east. Winter grains, grass seed continued good growth west, Columbia Basin, central region. Fertilizing continued. Fruit tree budding, flowering ahead of normal most areas. Higher elevations pruning, spraying continued. Caneberry training continued. Winter vegetable harvest began Willamette Valley. Livestock, range, pastures good to excellent. Calving continued eastern high country. Snowpack below normal but looks adequate to fill reservoirs. Pasture fertilizing west.

PENNSYLVANIA: Temperature, precipitation below normal. Average temperature 32°, 2° below normal. Temperature extremes -1°; 76°. Average precipitation 0.13 in., 0.64 in. below normal.

Activities: Grading potatoes; hauling manure; machinery maintenance; caring for livestock; early spring activities.

PUERTO RICO: Island average rainfall 0.29 in., 0.28 in. below normal. Highest total 1.39 in. Highest 24-hour total 0.90 in. Temperature averaged about 76° on coasts, 70 to 74° interior divisions. Mean station temperature ranged from 63 to 78°. Extremes 52°; 91°. San Juan mean temperature 77°, 1° above normal. Total rainfall none to 0.49 in.

SOUTH CAROLINA: Temperatures averaged 4 to 9° below normal; daily highs varied, 40s to upper 70s. Rainfall light to moderate, 0.25 to 0.75 in.

Light watermelon, cantaloup, cucumber planting underway. Tomato planting scheduled for next week. Wet soils slowed land preparation for row crop planting. Most tobacco plantbeds good, growing fast. Small grains generally good except where rains delayed timely application of nitrogen. Other farm activities include care of livestock, general farm chores.

SOUTH DAKOTA: Average temperatures 3 to 7° above normal; snow covered areas 2 to 5° below normal. Extremes -2°; 81°. Precipitation light; less than 0.10 in. east, north; 0.25 to 0.50 in. southwest. Snow cover remained central, north central, northwest.

Winter grains good, beginning to green. Livestock good. Main agricultural activities tending livestock, planning spring planting, early ground preparation.

TENNESSEE: Temperatures averaged 3 to 6° below normal east, 1 to 2° remainder. Lows averaged 30s, highs 50s. Precipitation early, midweek; Plateau east. Averaged below normal 0.50 in. or less east, 1.00 in. or less west.

Fieldwork, tobacco bed preparation continued. Topdressing wheat, spraying for weed control. Pastures growing. Livestock satisfactory.

TEXAS: Cold front ushered cooler temperatures especially northern, western sections. Upper air disturbances triggered showers, thunderstorms southern half State some heavy rains west central. Rapid warming started west spread eastward. Temperatures above normal northern High Plains, near to slightly below normal elsewhere. Precipitation above normal Trans-Pecos, Edwards Plateau, south, Lower Valley; near to below normal elsewhere.

Crops: Many 1986 cotton fields not harvested Low Plains because deterioration from wet weather. Planting 1987 crop continued Rio Grande Valley, beginning Coastal Bend. Cotton harvested 100%, 100% 1985, 100% avg. Cotton planted 1%, 3% 1986, 2% avg. Small grains good to excellent growth most areas. Growing conditions good most week. Plains wheat fields jointing. Some weed spraying occurred. Good growth Blacklands. Rust problems slowed with cooler weather. Oats looked good, provided good grazing. Fields central nearing head-out stage. Excellent progress reported. Corn, grain sorghum planting little progress; well behind year ago, little behind average. Land preparations continued Plains. Planting picked-up Blacklands after early week moisture; good drying winds. Planting slow Coastal Bend, Rio Grande Valley. Cool soil temperatures, slowed germination slightly. Corn planted 13%, 49% 1986, 28% avg. Sorghum planted 6%, 35% 1986, 21% avg. Rice planted none, 2% 1986, 1% avg.

Commercial Vegetables: Rio Grande Valley, carrot, cabbage harvest continued slow pace. Rain slowed onion harvest. Weak demand decrease citrus harvest. San Antonio-Winter Garden melon planting underway slow pace. Harvest cabbage, spinach continued. Cooler temperatures slowed cantaloup, onion growth Trans-Pecos. East bedding potatoes underway. Many other vegetables up, growing. High Plains, planting onions, potatoes began. Peach

trees continued show good progress across State. Minimal damage east from heavy frost some mornings. Crop set looks good so far east.

Range and Pasture: Range, pasture conditions continued improving across State. Spring growth, greening native grasses increased with adequate moisture, mild temperatures. Fast, lush growth small grain pastures caused some bloating young stockers. Stockers being moved off grain fields Plains. Weight gains good. Spring calving underway many areas.

UTAH: Precipitation light to moderate, southeast 0.07 to 0.59 in. north central. Temperature 6 to 9° above normal.

Snow cover none valleys to light mountains. Livestock feed adequate to surplus. Livestock generally good. Major farm activities: Care of livestock, machinery repair, equipment maintenance, farm records, marketing.

VIRGINIA: Cloudy, light rain early period. Cloudy, cold, dry remaining. Temperatures averaged 2 to 3° below normal. Rain averaged 0.25 to 0.50 in., up to 1.00 in. extreme east.

Days suitable for fieldwork 2.8. Topsoil moisture 71% adequate, 29% surplus. Spring fieldwork accelerated. Fertilized pastures, hay, small grains. Spread lime, plowed fields, seeded oats, overseeded pastures, hay land. Potatoes 10% seeded. Flue-cured tobacco plantbed seeding 67% complete. Burley tobacco plantbed seeding 15% complete. Pastures, alfalfa, tobacco, small grains good to excellent. Pruned fruit trees. Bud development slowed by cool weather. Calving, lambing continued. Feed tight. Livestock mostly good, some fair due to short feed supply. Soil sampling active.

WASHINGTON: Heavy rains west, scattered showers east. Precipitation ranged from 0.21 to 4.64 in. Temperatures ranged from 3 to 8° above average. Temperature extremes 25°; 64°.

Snow cover gone; fields bare, wet. Some snow mold present winter wheat, but most in good condition. Spring tillage continued. Pruning near completion. Grass ranges beginning to show growth, livestock grazing could start early. Calving, lambing full swing, feed supplies in excess.

WEST VIRGINIA: Average temperature 37°, 2 to 6° below normal. Extremes 8° Greenbank; 71° Moorefield. Precipitation averaged 0.32 in.; well below normal.

Soil moisture 12% short, 88% adequate. Feed supplies 5% very short, 16% short, 79% adequate.

WISCONSIN: Temperatures below normal early, near normal rest of week. Low -5°; high 48°. Precipitation 0.10 to 0.70 in. Snowfall 1 to 8 in. Frost depths averaged 7.3 in.

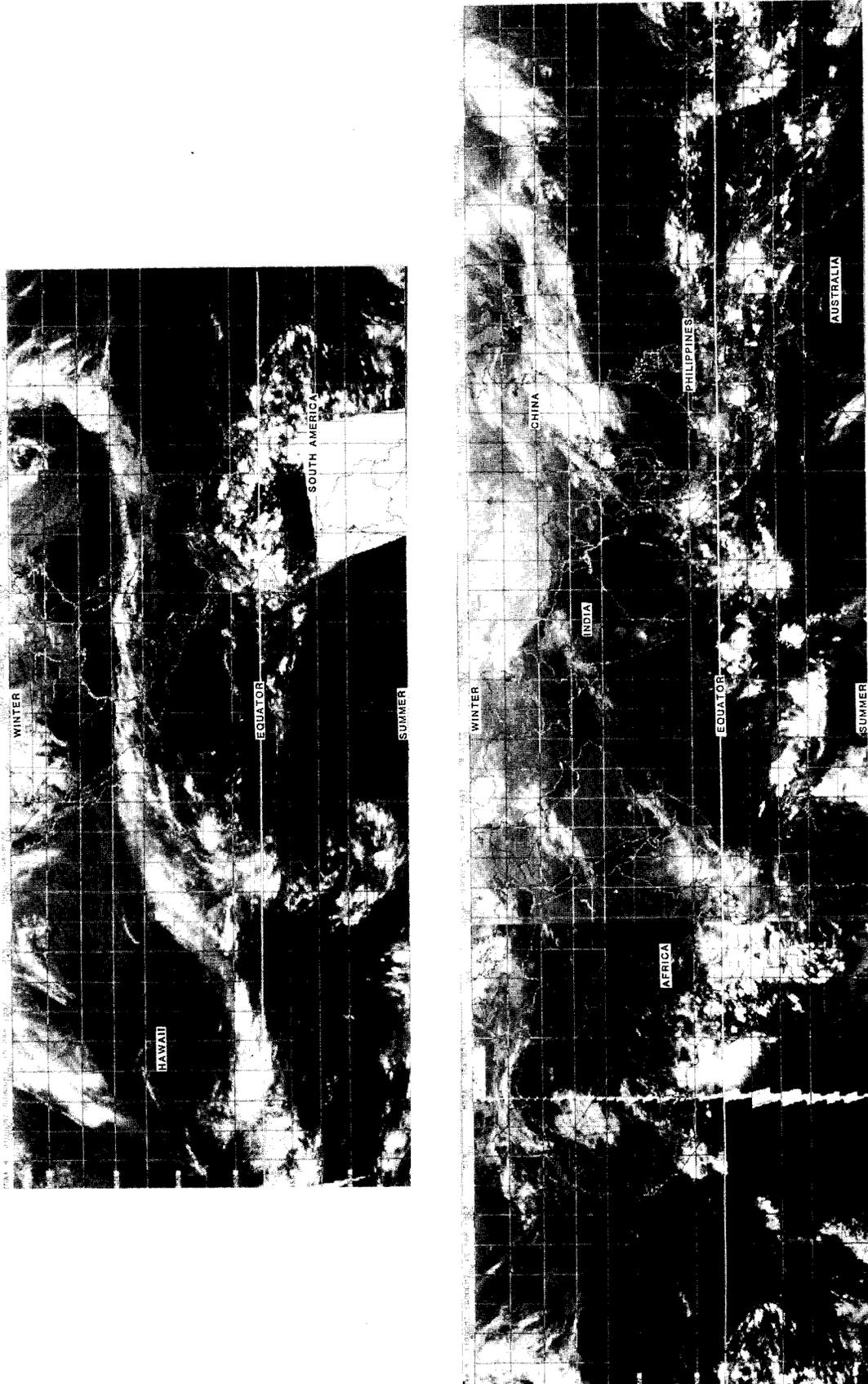
Ground soft south. Soil moisture varies, mostly wet to drying.

WYOMING: Warm, dry week.

Winter wheat fair to good. Livestock mostly good. Early calving, lambing, shearing continued. Supplemental feeding continued as needed. Surplus hay for sale many areas.

Global Weather Satellite Image

MARCH 15, 1987



International Weather and Crop Summary

March 8-14, 1987

HIGHLIGHTS:

UNITED STATES ... Winter wheat and small grains escape serious harm from cold weather in the northern and central Great Plains, Rocky Mountain States, and across the Corn Belt. Wheat heads in the Delta and Southwest, and jointing moves into Kansas.

WESTERN U.S.S.R. ... Much below-normal temperatures cover winter grain areas as far south as the Black Sea coast.

EUROPE ... Unseasonable cold, dry weather covers winter grains in all but Spain, which was unseasonably warm and dry.

SOUTH ASIA ... Showers increase irrigation reserves in most grain areas of India and northern Pakistan.

SOUTHEAST ASIA ... Showers continue from north-east Thailand to northern Vietnam. Locally heavy tropical showers spread through Indonesia.

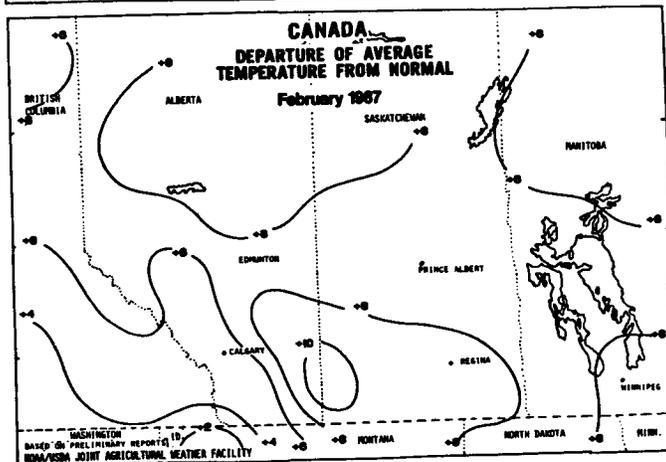
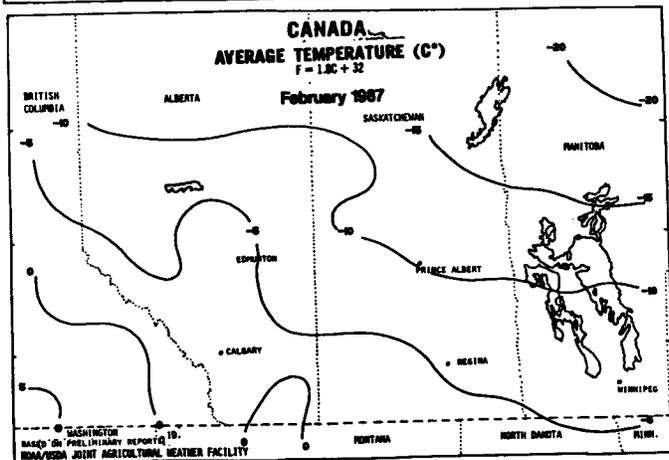
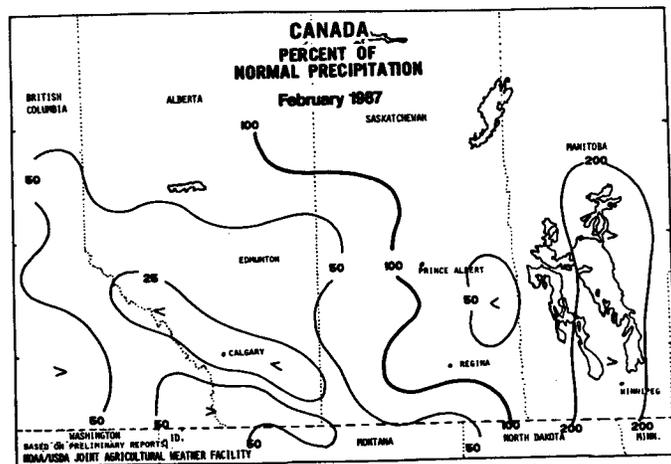
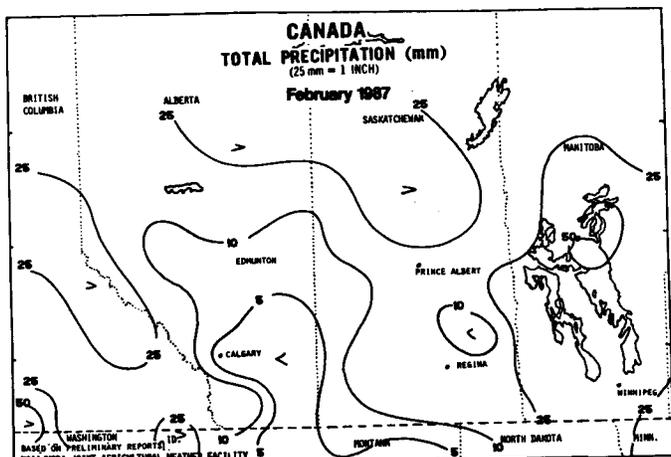
EASTERN ASIA ... Light precipitation moistens topsoils for winter wheat, breaking dormancy in the North China Plain. Moderate to heavy rain in early-rice areas in the Yangtze Valley provides favorable planting moisture.

SOUTH AMERICA ... Drier weather is welcomed in Argentina's summer crop areas. Favorable weather continues over Brazil's soybean areas.

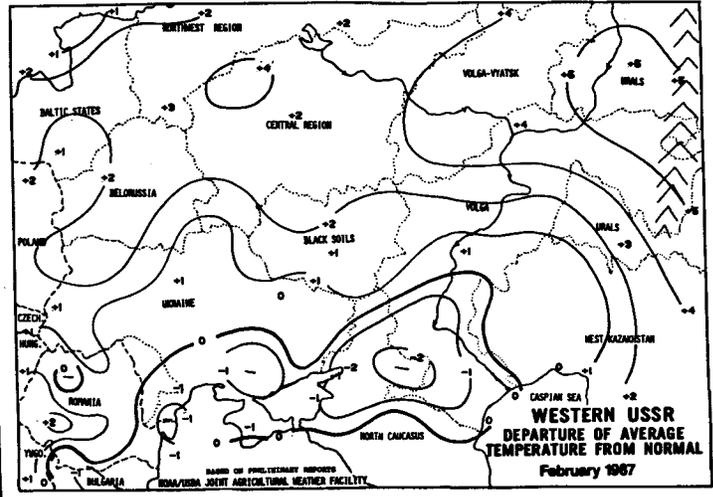
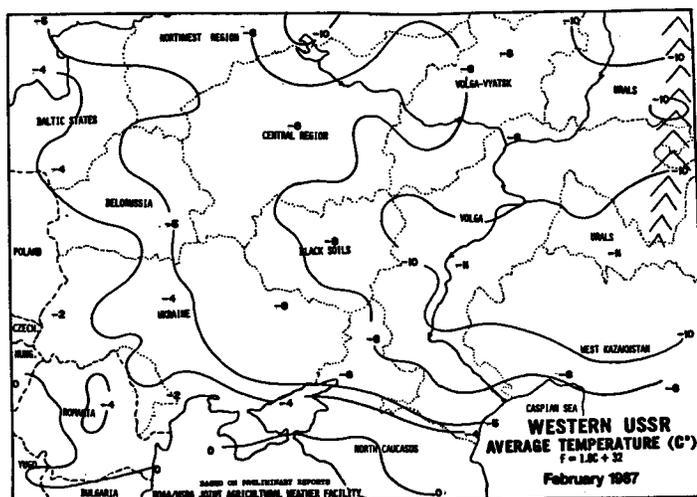
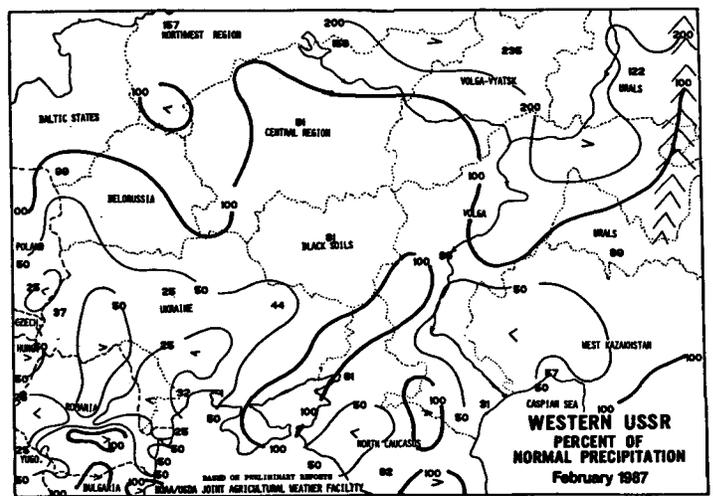
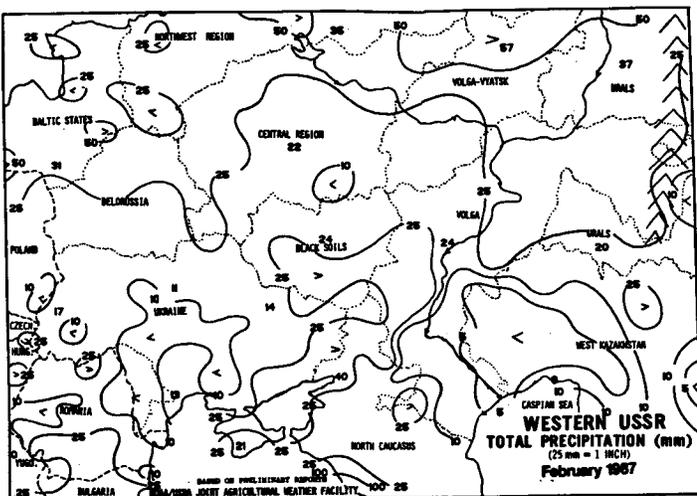
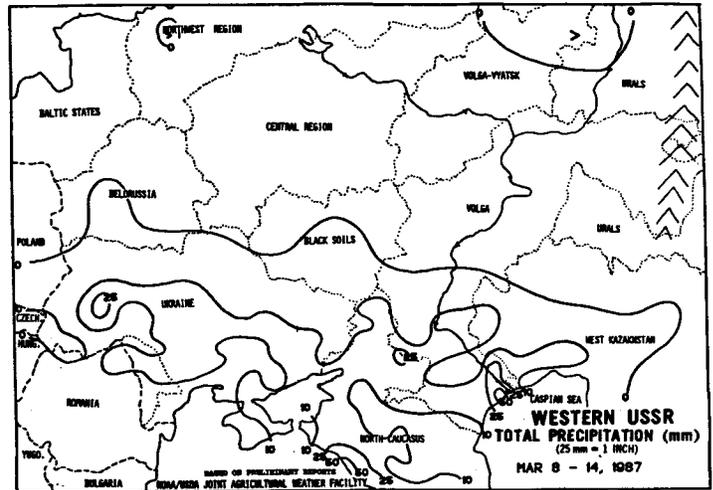
AUSTRALIA ... Dry weather returns to eastern Australia's summer crop and sugarcane areas.

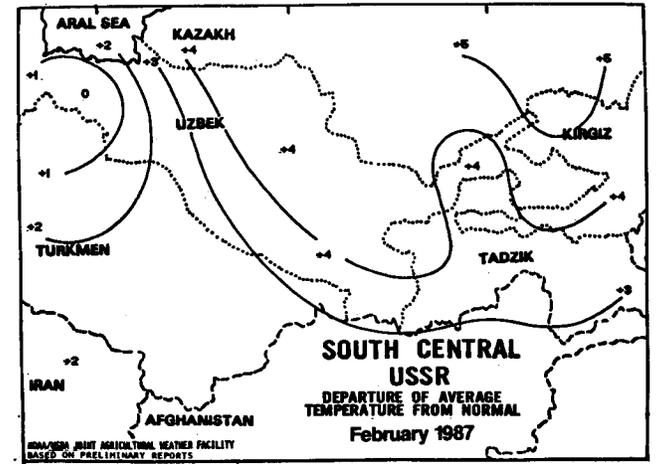
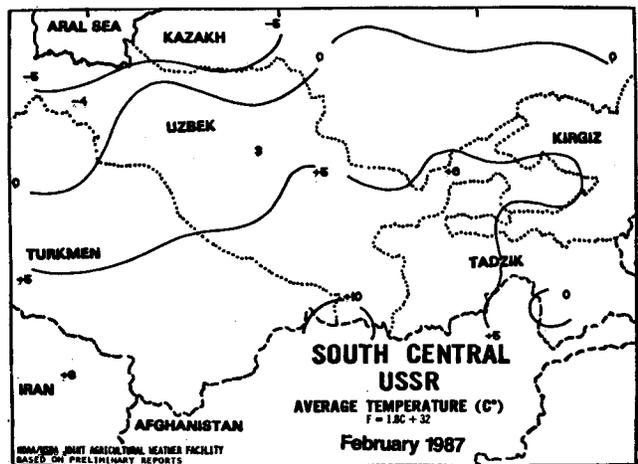
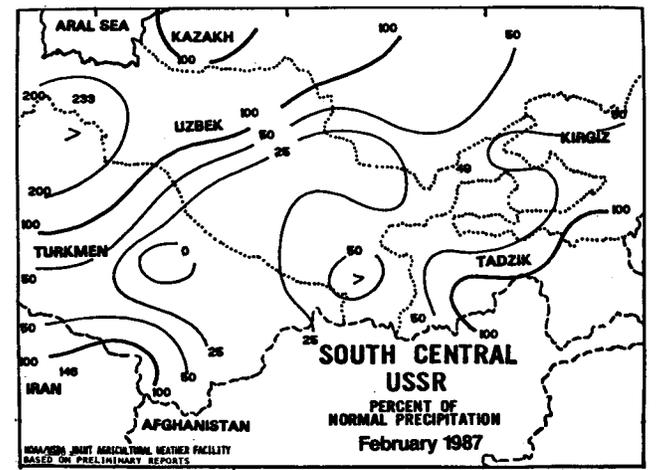
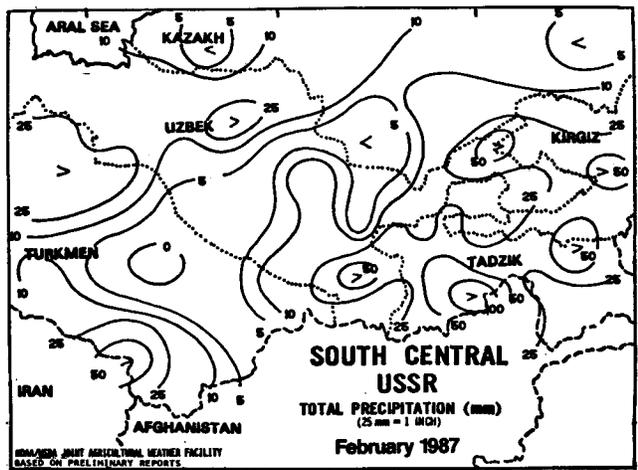
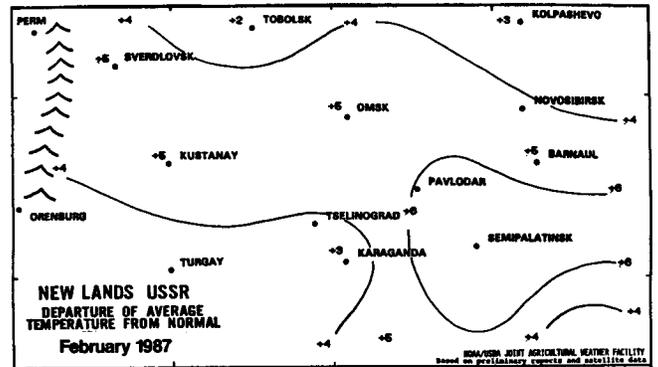
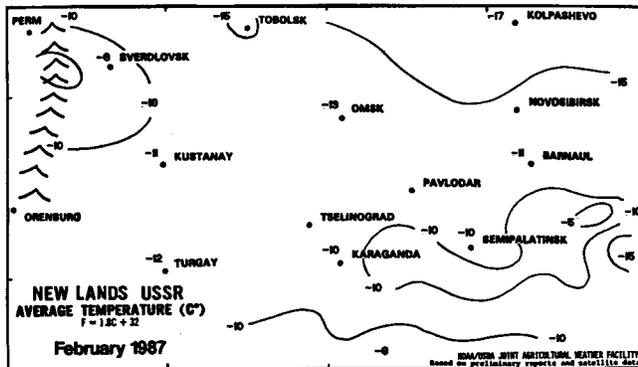
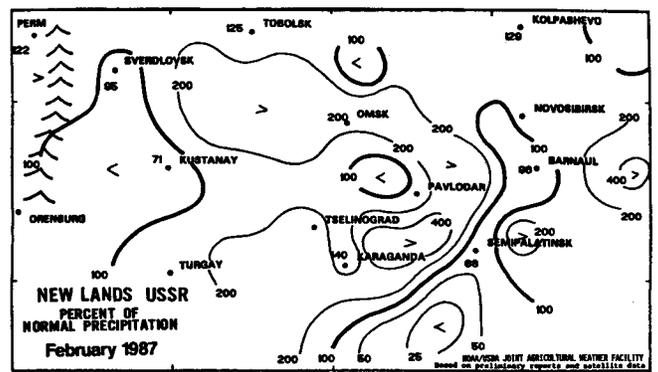
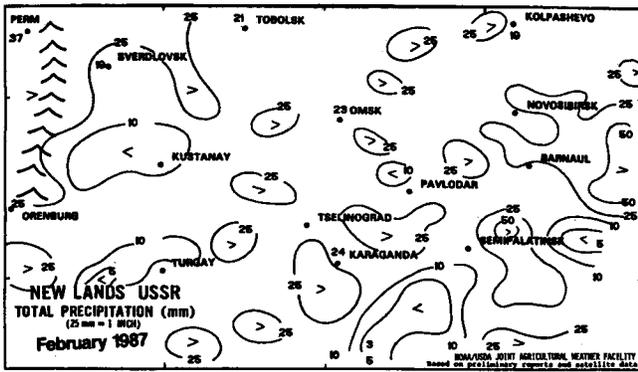
SOUTH AFRICA ... Hot, drier-than-normal weather stresses grainfilling corn in some areas.

NORTHWESTERN AFRICA ... The second consecutive week of dry weather stresses Moroccan winter grains, approaching the heading stage.

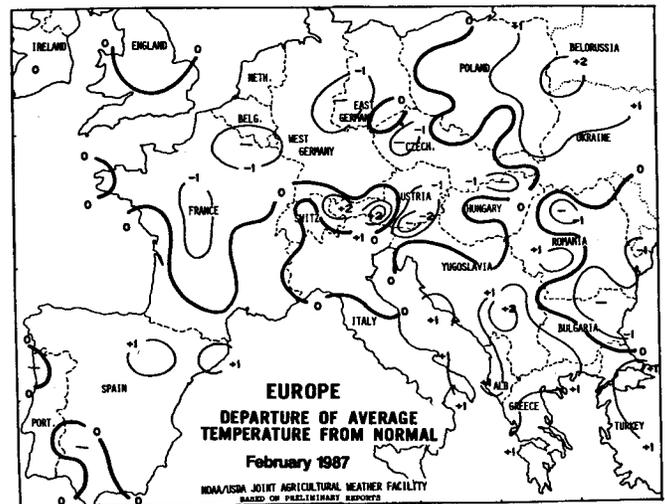
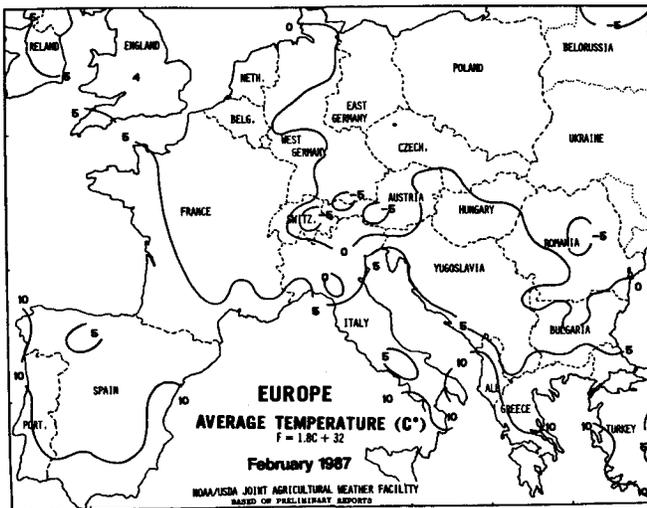
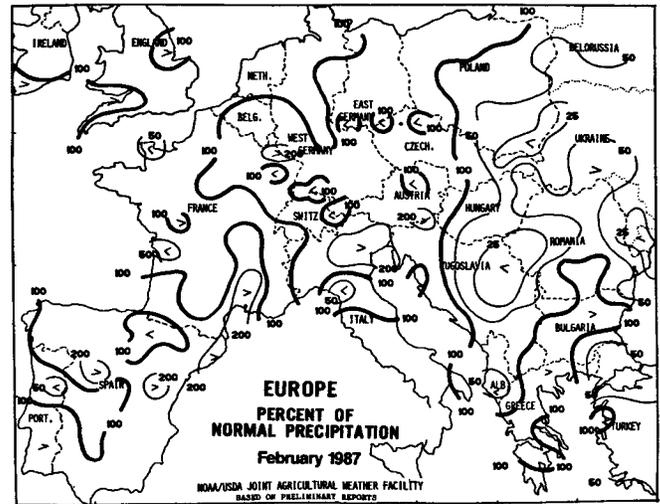
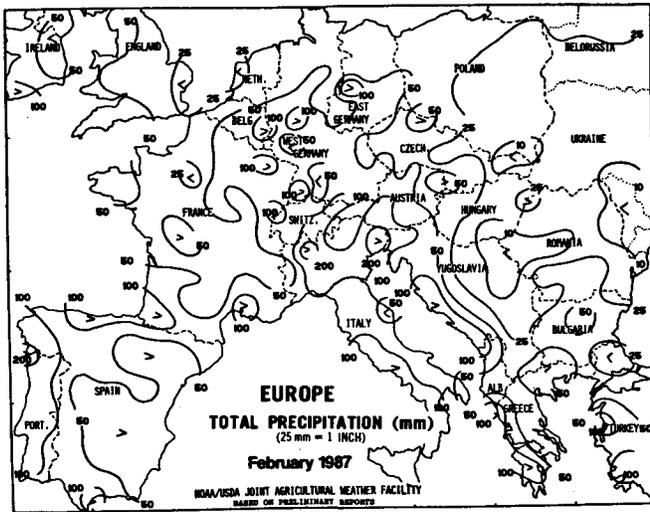
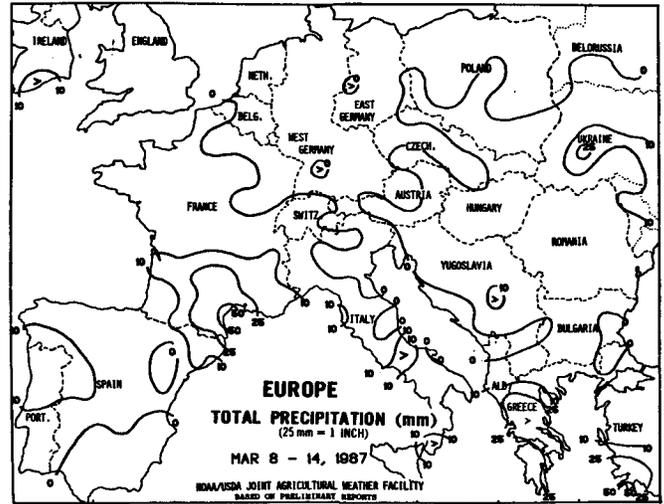


WESTERN U.S.S.R. ... Winter grains remained dormant as much below-normal temperatures reached as far south as the Black Sea coast. Dry weather covered the northern two-thirds of the region. Light precipitation (snow, rain, and freezing rain) covered winter grains in the Ukraine and North Caucasus with precipitation amounts ranging from 10 to 25mm. Precipitation during February was below normal over much of the region. Areas with above-normal precipitation were limited to the Baltics, northern Belorussia, and a narrow strip, which stretched from the extreme eastern Ukraine through the northern North Caucasus into the central Volga. February temperatures were 1 to 2 degrees C above normal across the northern half of the region and 1 to 2 degrees C below normal in the south.

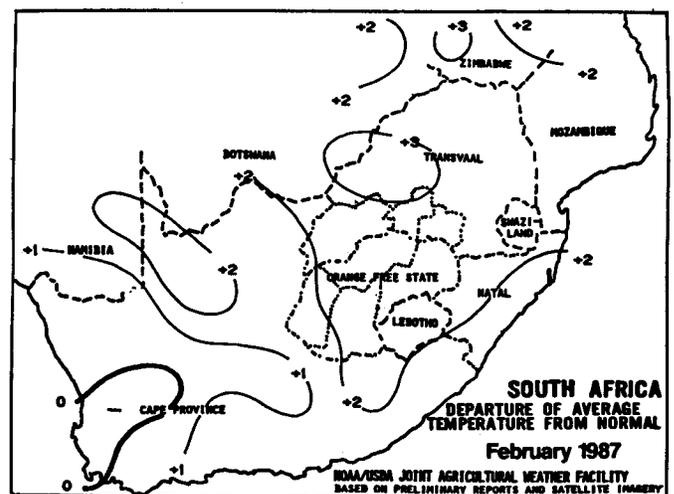
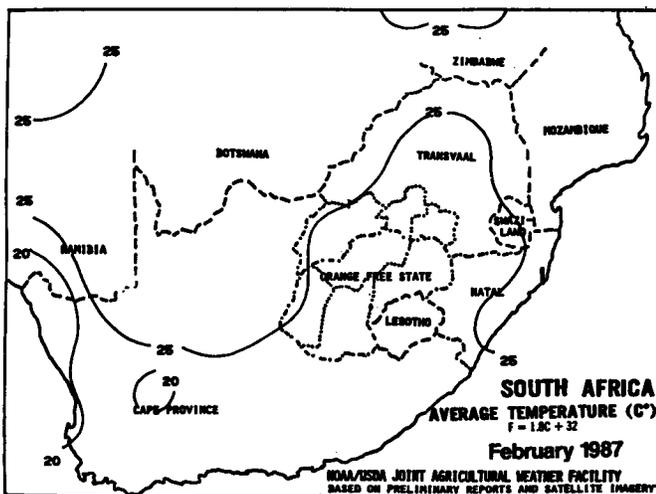
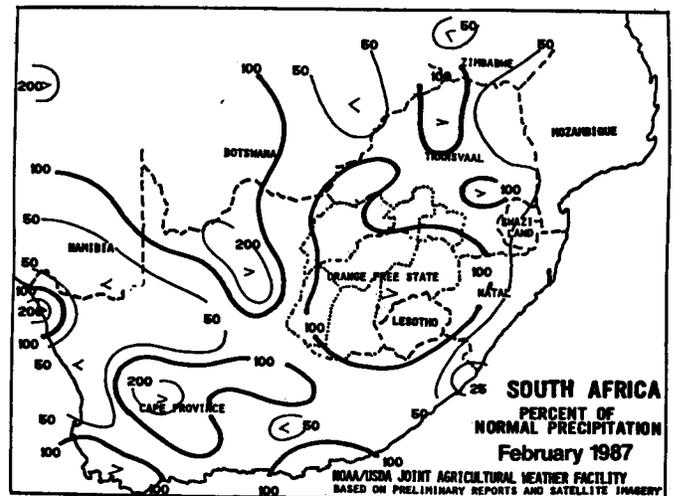
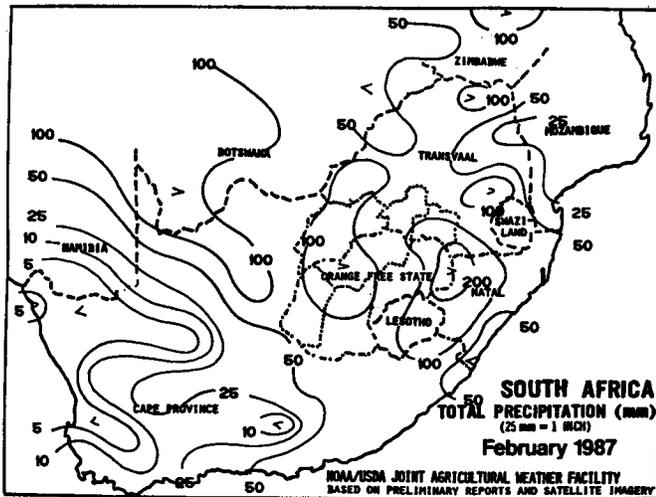
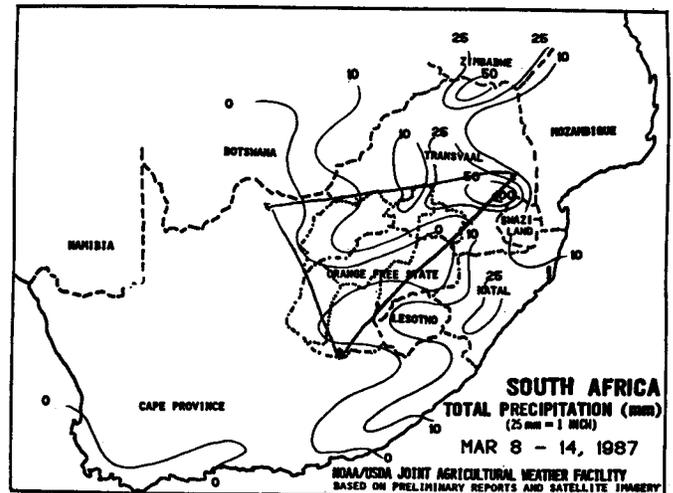




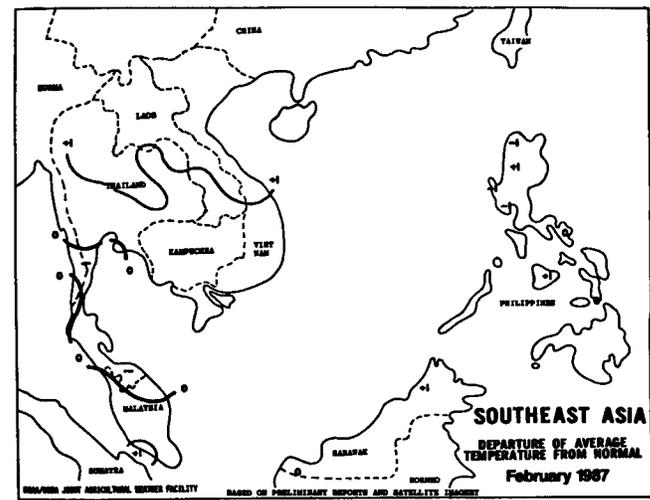
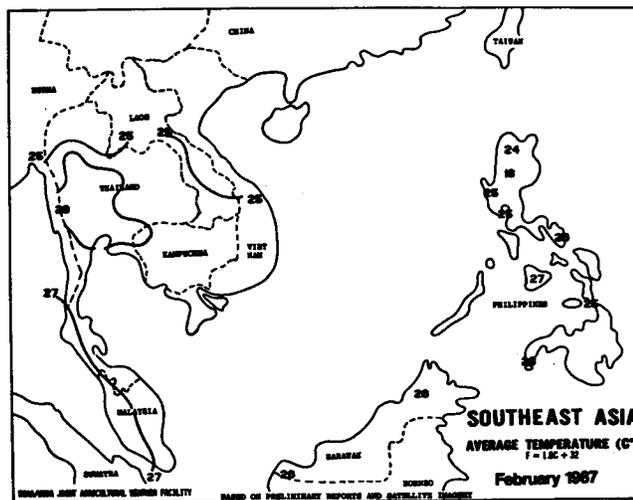
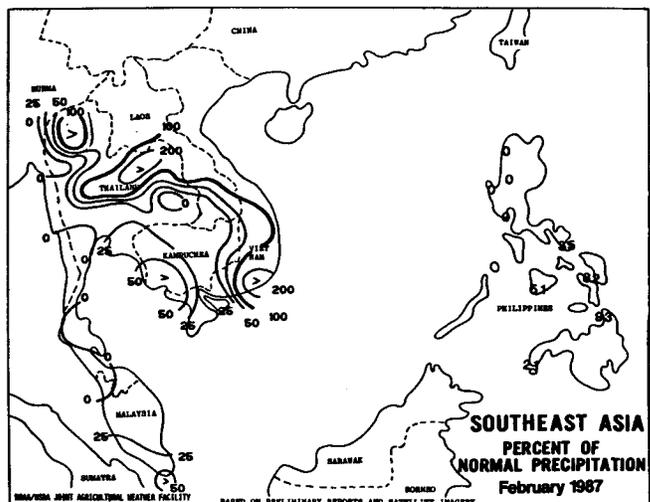
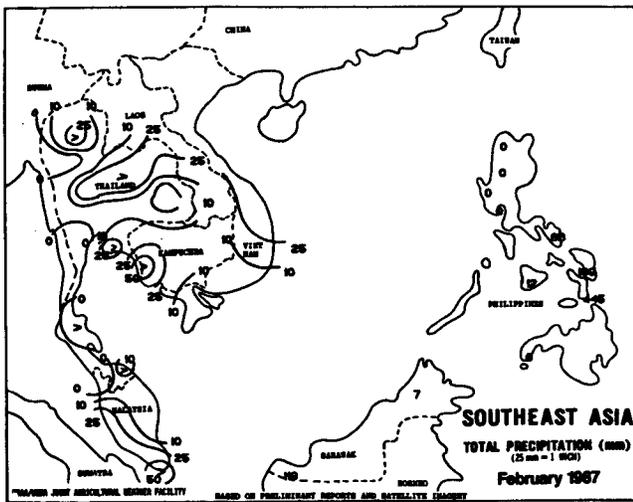
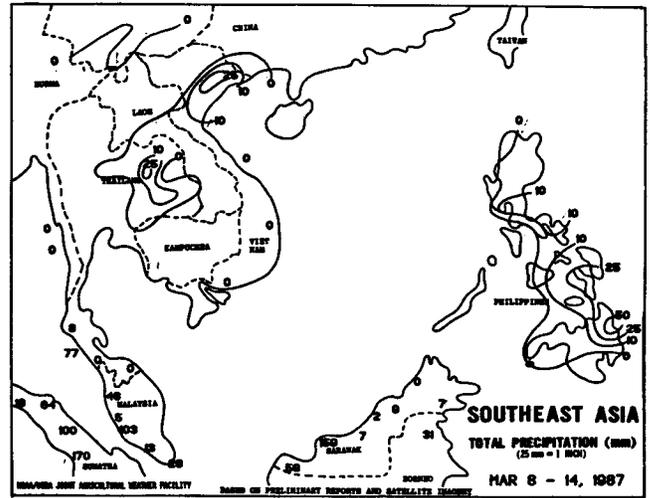
EUROPE ... Dry weather covered most crop areas except for those in southwestern France, southern Italy, and Greece, which received light to moderate precipitation (11 to 62mm). Mixed rain and snow covered Greece. Weekly temperatures continued below normal everywhere except in Spain where temperatures were 2 to 4 degrees C above normal. Winter grains in England, France, and northern Italy remained dormant. Winter grains in these areas usually break dormancy in early March. Winter grains in Eastern Europe usually break dormancy in early April. In February, above-normal precipitation covered winter grains in Spain, northern France, England, northern Italy, southern West Germany, East Germany, Austria, western Czechoslovakia, Bulgaria, and Greece. February temperatures were 1 to 2 degrees C below normal in most areas, except in Poland and Mediterranean areas where temperatures were 1 to 2 degrees C above normal.



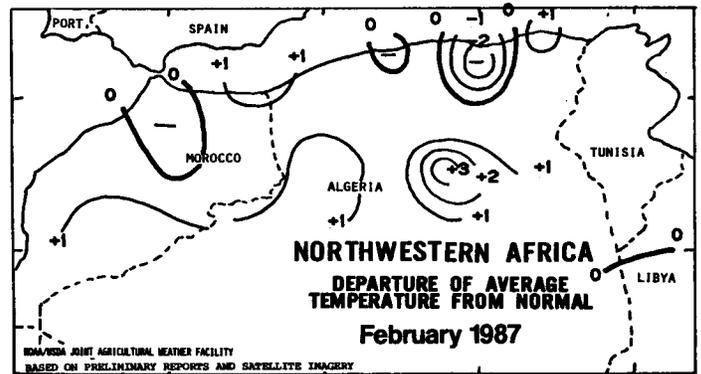
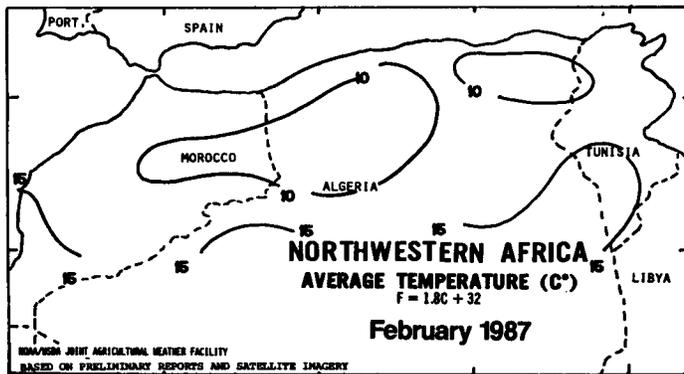
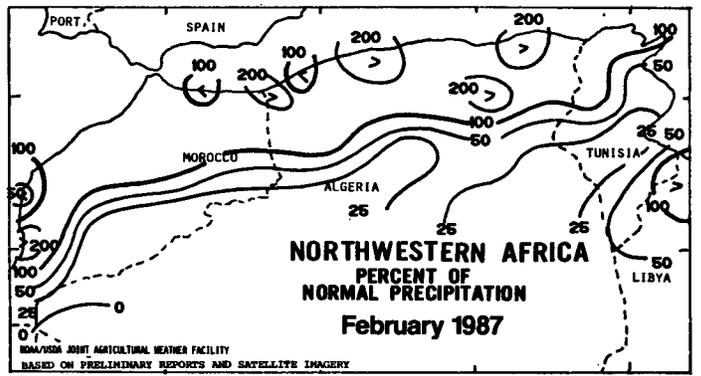
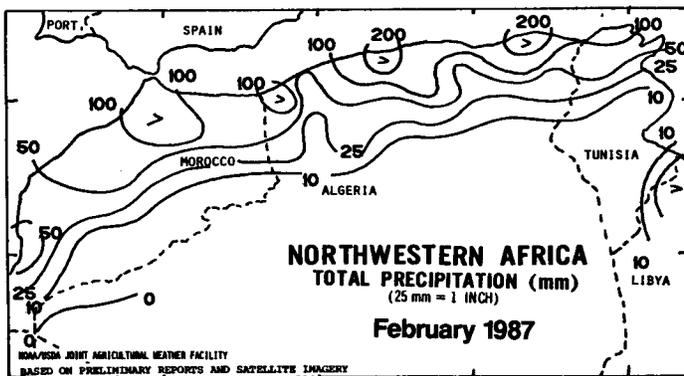
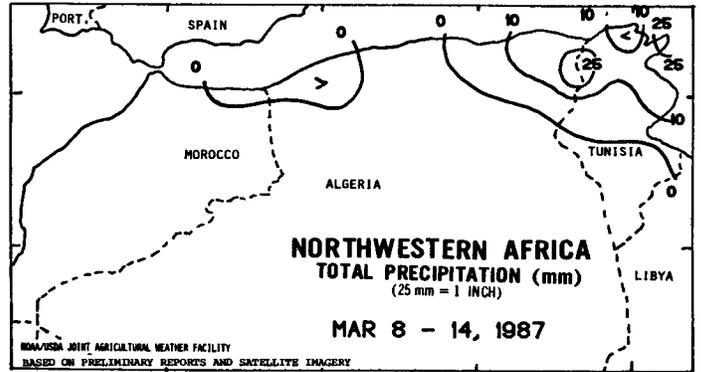
SOUTH AFRICA ... Dry weather pushed further into the Orange Free State, as rainfall in most areas averaged less than 1mm. Scattered showers (10 to more than 50mm) continued throughout the Transvaal, but dry pockets persisted in the north-east and south. Temperatures averaged 1 to 4 degrees C above normal throughout all grain areas, stressing grainfilling corn in areas receiving lightest rainfall. In February, temperatures averaged 2 to 4 degrees C above normal throughout the major grain areas, continuing a pattern, which has existed since December. Rainfall was near to above normal in most areas, but earlier periods of hot, dry weather reduced yield prospects in parts of the northern Transvaal and southern Orange Free State.



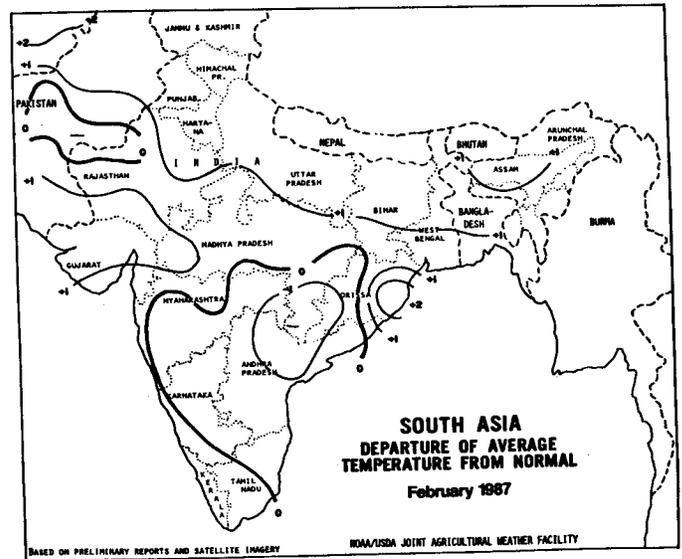
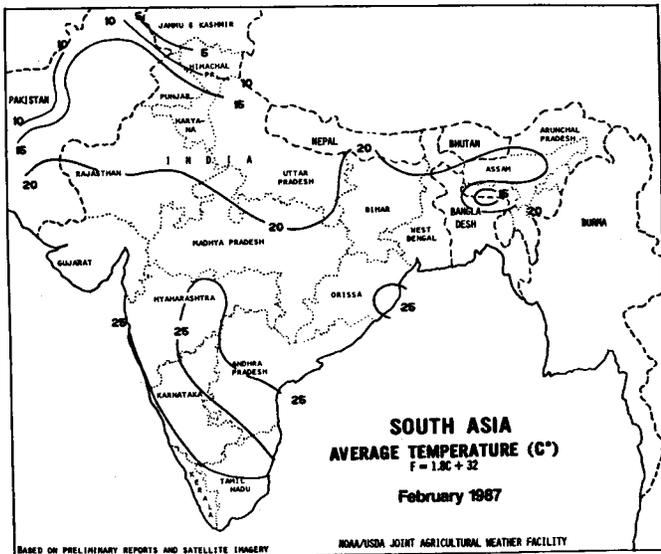
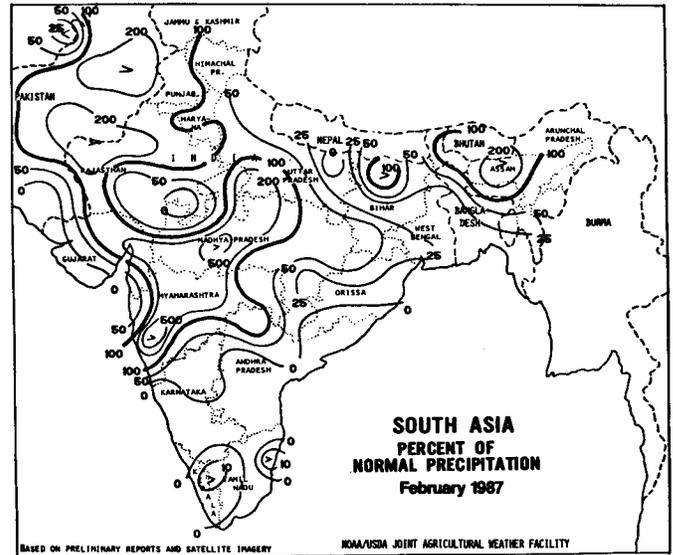
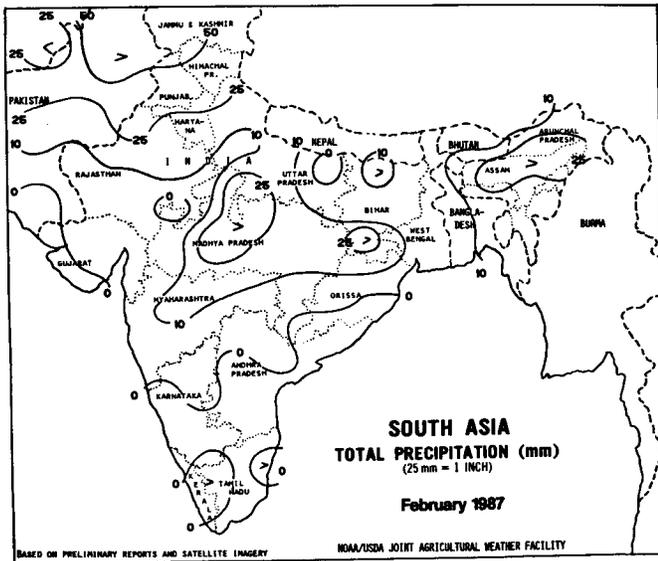
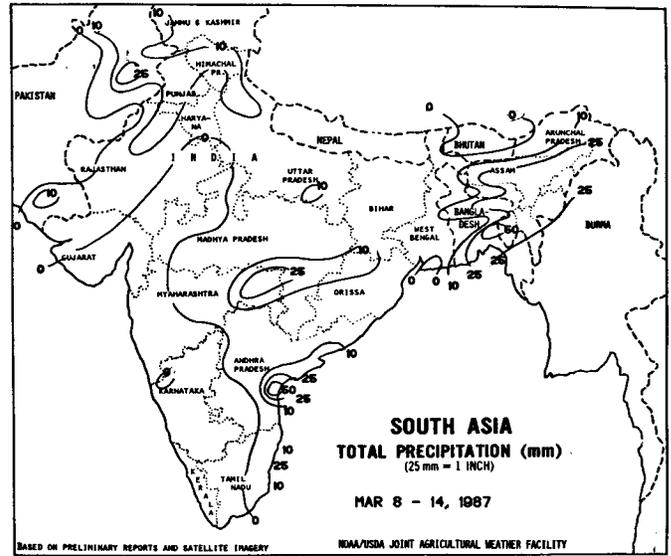
SOUTHEAST ASIA ... Light to moderate rain (1 to 33mm) spread from northern Thailand to northern Vietnam as dry weather prevailed elsewhere in Southeast Asia, reflecting February's above-normal rainfall pattern. In the Philippines, most rainfall was restricted to the central islands, continuing February's drying trend in Luzon and southern Mindanao. Locally heavy showers (over 100mm) dotted Indonesia and Malaysia as rainfall generally decreased eastward through the islands. In February, locally heavy showers may have caused flooding in Java.



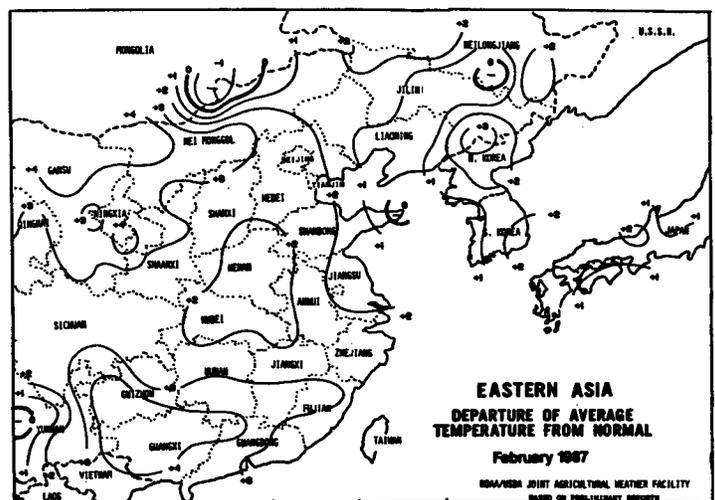
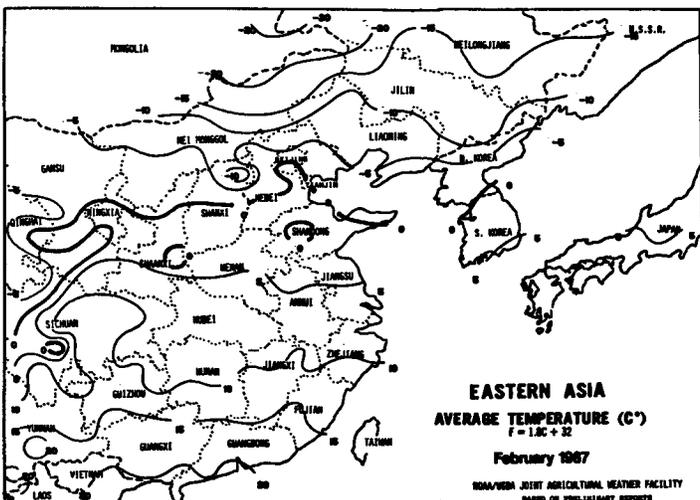
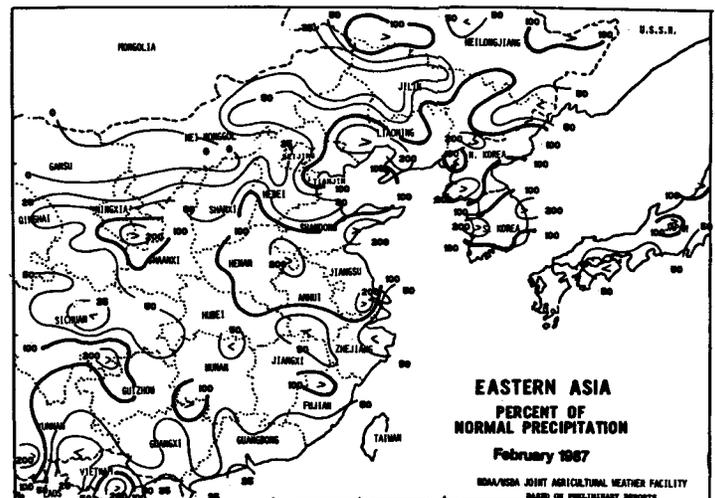
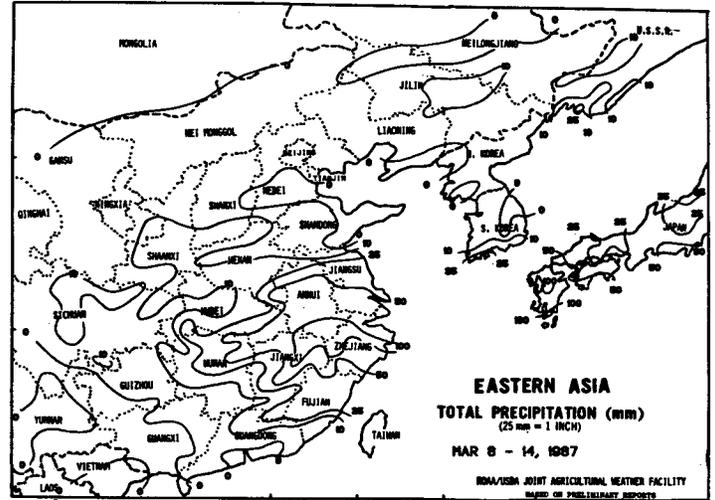
NORTHWESTERN AFRICA ... The second consecutive week of dry weather stressed Moroccan winter crops approaching the heading stage. Dry weather covered winter grain areas in western and central Algeria, but soil moisture was likely adequate to meet crop moisture demands. Light showers in eastern Algeria and Tunisia maintained adequate moisture for crop growth. In February, above-normal precipitation covered winter grains over much of the region. However, since March, drier weather has covered most winter grain areas, reducing soil moisture. Timely rains will be needed in the next several weeks as winter grains advance through the critical reproductive phase.



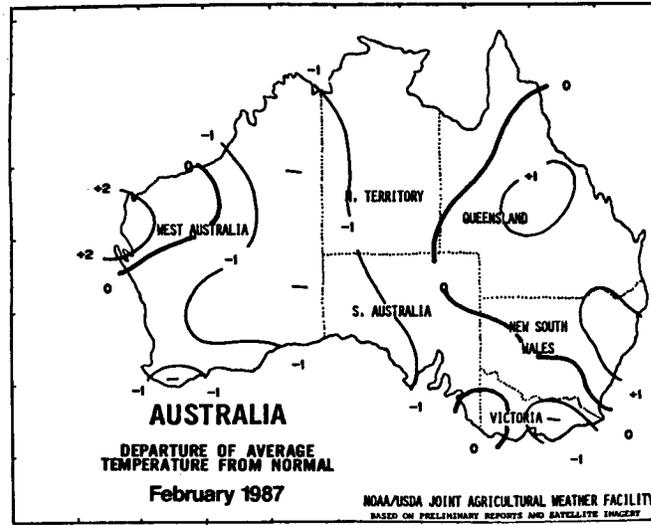
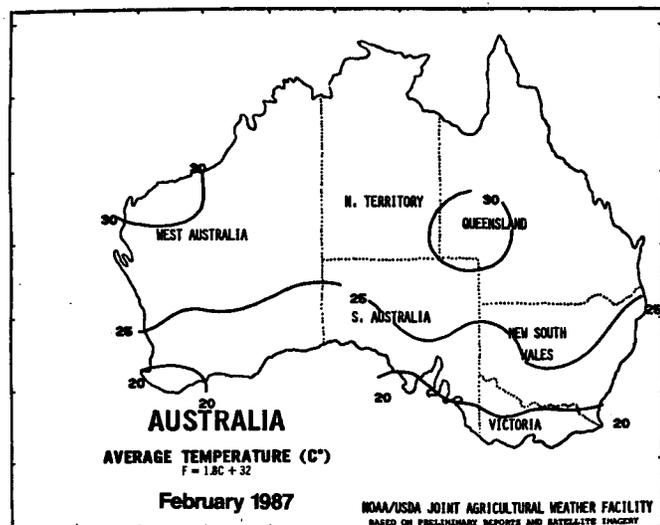
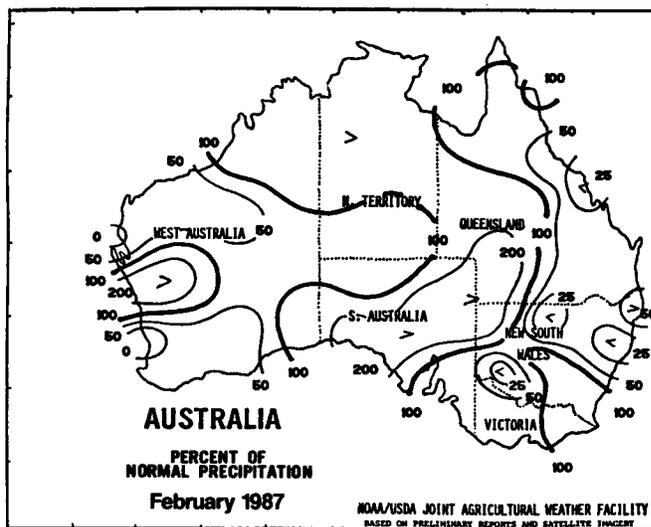
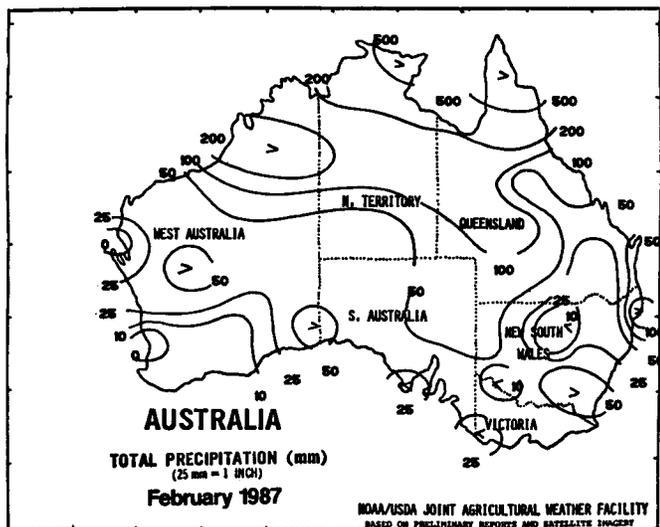
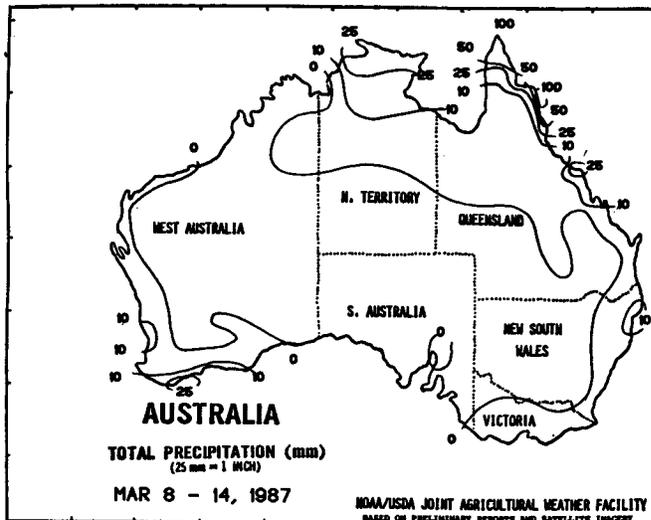
SOUTH ASIA ... Showers (up to 25mm) improved irrigation supplies in the winter wheat areas of northern Pakistan and northern India. Above-normal February rainfall in northern grain areas maintained favorable moisture supplies for grain advancing through reproduction but likely delayed late cotton harvesting in Maharashtra. Normally, wheat harvesting is well underway in central India and just beginning to the north, ending in most areas by late April. Showers (3 to more than 50mm) improved irrigation supplies in southern India, reversing February's below-normal trend. Summer rice is usually in or nearing reproduction in most southern areas.



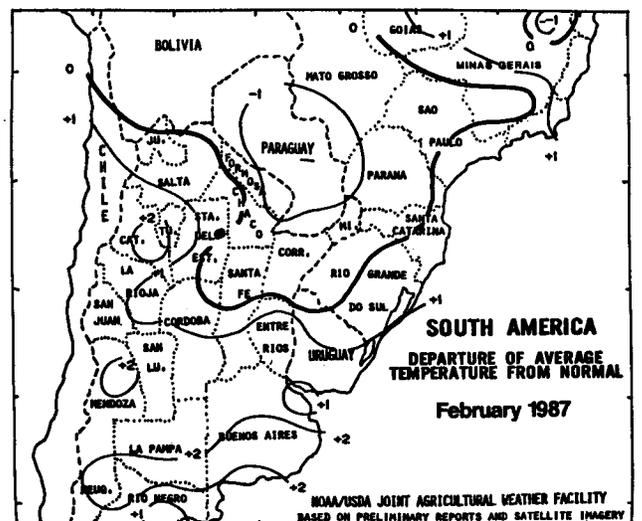
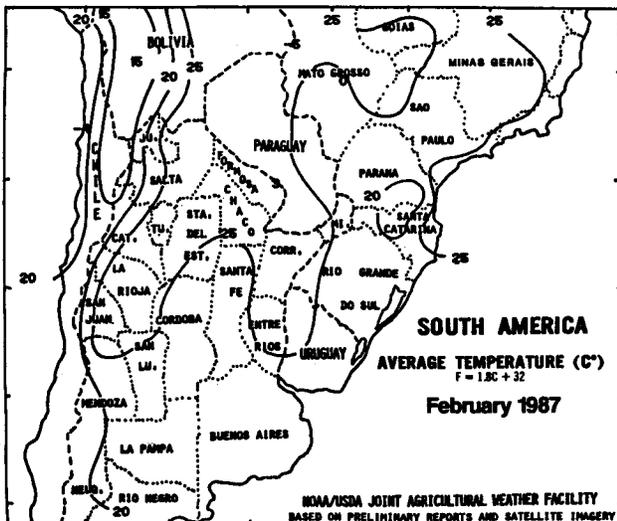
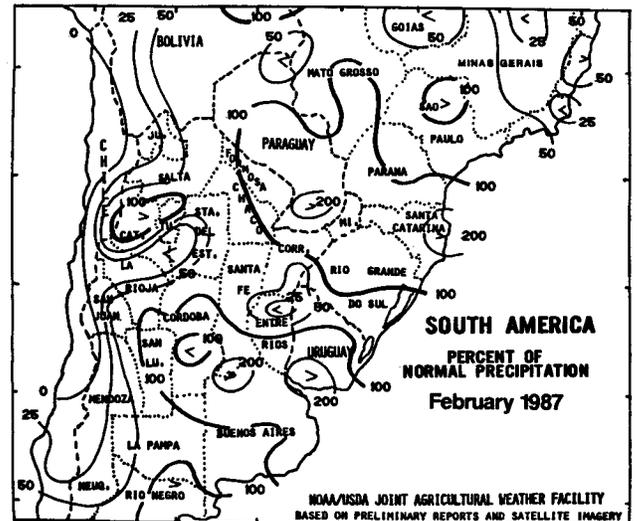
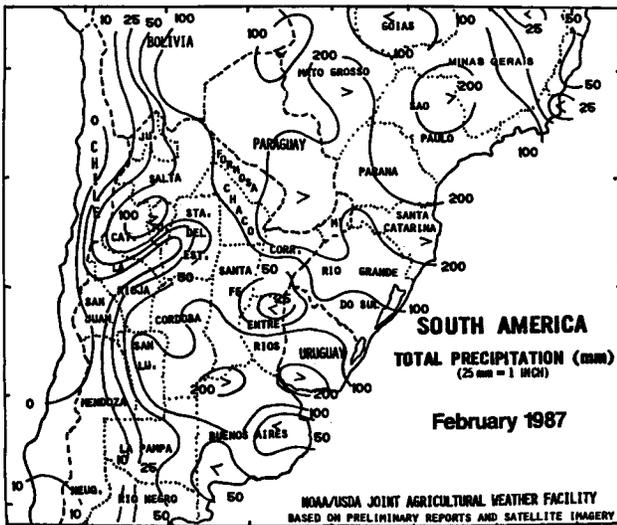
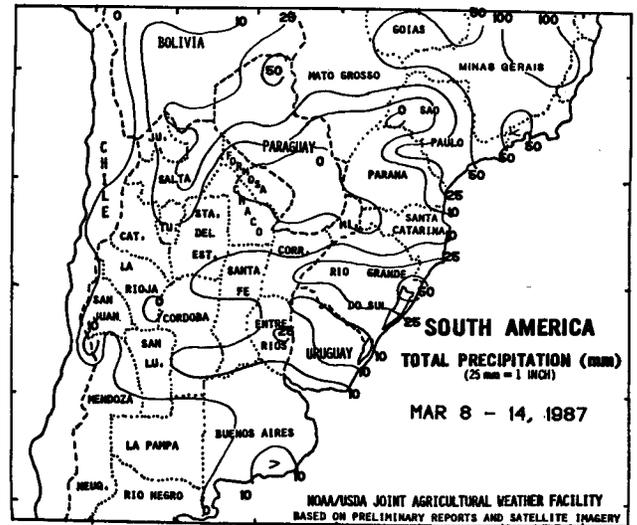
EASTERN ASIA ... Light, scattered showers covered winter wheat areas in the North China Plain, moistening topsoils for wheat, just breaking dormancy in most central and northern areas. Southern winter wheat areas are in the early vegetative stage. Above-normal February temperatures over the North China Plain caused winter grains to break dormancy earlier than usual in southern areas. Further south, moderate to heavy rains, over early double-crop rice areas in southern Jiangsu, Anhui, eastern Hebei, Hunan, Jiangxi, Fujian, and Zhejiang, reversed February's below-normal precipitation pattern. The wet weather in these areas provided ample moisture for rice planting and lessened the need for irrigation. Mostly dry weather in early-rice areas of Guansi and Guangdong continued February's below-normal precipitation pattern. Irrigation was required for continued rice planting in these areas.

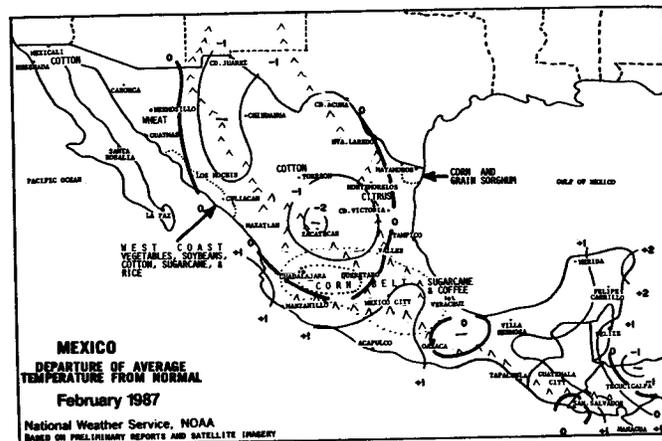
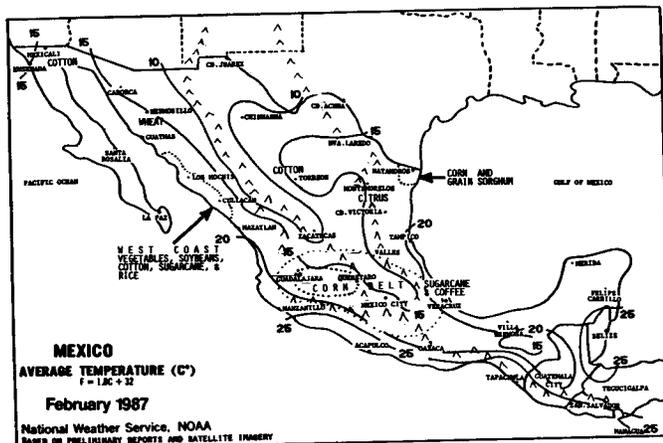
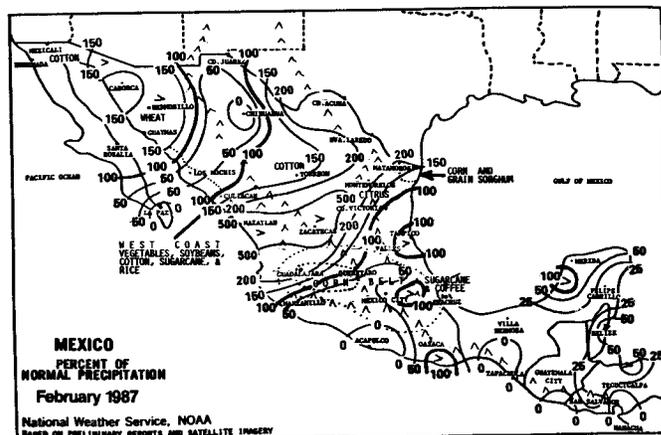
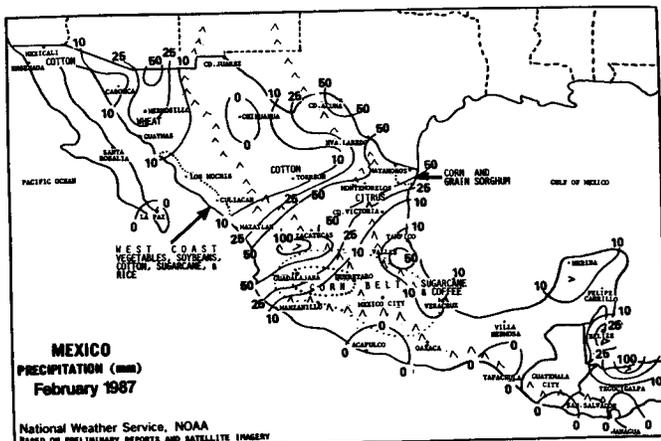


AUSTRALIA ... Dry weather returned to New South Wales, increasing the need for irrigation of immature grains and cotton. Temperatures were mild, averaging below normal throughout most areas. However, warm weather accompanied the continued below-normal rainfall (less than 2mm) in southern Queensland as maximum temperatures averaged 32 degrees C. Rain diminished along Queensland's coast, renewing the drying trend, which had persisted since December. Rainfall averaged below normal (3 to 27mm) in southernmost sugarcane areas, while heavier showers (up to 100mm) dotted northern coastal areas. Moisture levels in southern Queensland are insufficient for the crops' normal development. February's rainfall was below normal throughout eastern Australia's summer crop and sugarcane areas. Temperatures for the month averaged 1 degree C above normal.



SOUTH AMERICA ... Precipitation diminished over Argentina's summer crop areas with crop areas in Cordoba, Santa Fe, and Buenos Aires receiving only light, scattered showers (3 to 13mm). The beneficial drier weather allowed drying of fields for summer crop harvesting, following February's heavy rainfall pattern. In Brazil, wet weather (16 to 34mm) covered Rio Grande Do Sul, benefiting soybeans mostly setting to filling pods. Minimal precipitation covered soybean areas in Santa Catarina, Parana, and southern Mato Grosso Do Sul. Adequate soil moisture in these areas met crop moisture demands, reducing the potential for crop stress. February precipitation was above normal over most soybean areas of Brazil. Weekly temperatures in Argentina and Brazil were below normal.





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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service/Climate Analysis Center
Managing Editor (Acting) Lyle Denny
Meteorologists Tom Heddinghaus,
Ray McInturff, Jim Williams, Wes Byrd, and
Randall Taylor

Subscriptions (202) 447-7917 . .

U.S. DEPARTMENT OF AGRICULTURE
Economics Management Staff
Editor Sharon Lee
National Agricultural Statistics Service
Agricultural Statistician Clif James
World Agricultural Outlook Board
Agricultural Weather Analysts. Ray Motha,
Tom Puterbaugh, and Mark Brusberg

NOAA/USDA Joint Agricultural
Weather Facility
Room 5844 USDA South Building
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