

# WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration,  
National Weather Service

U.S. DEPARTMENT OF AGRICULTURE  
Statistical Reporting Service  
and World Agricultural Outlook Board

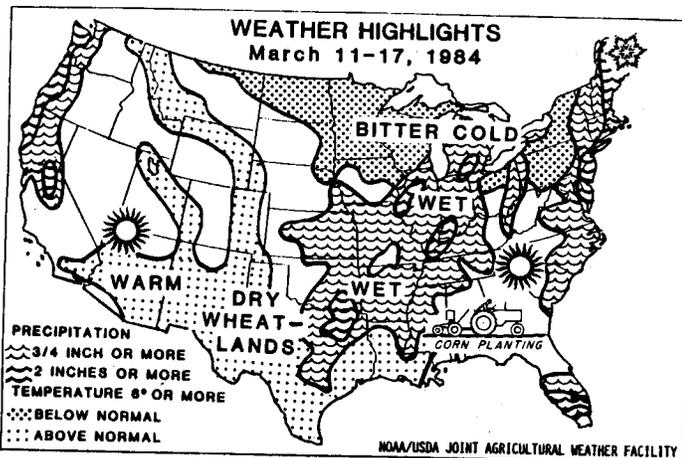
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## National Weather Summary

March 11 to 17



However, a storm developing over the Ohio Valley brought rainy, unsettled weather, including some heavy snow and freezing rain, to New England. Another Pacific coastal storm sent widespread rain inland from the northern Rockies to the southern coast of California.

WEDNESDAY...Heavy snow continued to pile up across upper New England as the intensifying storm became quite fierce. Most of Maine was buried under 2 feet of the white stuff. Caribou had a record snowfall of 24 inches in 24 hours, for a total of 49 inches on the ground. The Pacific storm rapidly moved inland, triggering rain in the lower elevations and snow in the mountains over most of the West. In South Dakota temperatures soared into the 60's and 70's during the afternoon.

THURSDAY...Snow finally ended in New England, while arctic air blasted through the northern and central Plains. A storm began developing in the central Plains, generating heavy thunderstorms southeastward with some tornadoes in Missouri and Arkansas, snow in the central Rockies, and rain northeastward into the Great Lakes. Springlike temperatures warmed the southern Plains as McAllen, Texas, hit a hot 91°F.

FRIDAY...The winter storm intensified in the mid-Mississippi Valley, producing widespread precipitation -- snow in the Dakotas, and heavy rain from eastern Kansas to western Tennessee. Frigid air pushed through the northern and central Plains and the Great Lakes region behind the storm.

(continued on p. 20)

HIGHLIGHTS...Stormy weather dominated a large part of the central and northeastern States, bitter cold and near blizzard conditions enveloped the area from the northern Plains to New England, while severe weather and heavy rains covered eastern parts of the central and southern Plains to the Great Lakes. Deep snow, averaging about 2 feet, accumulated over Maine after 3 days of storms. Dryness continued over the Southwest, extending into some West Texas wheatlands. Springlike warmth blanketed the southern tier of States.

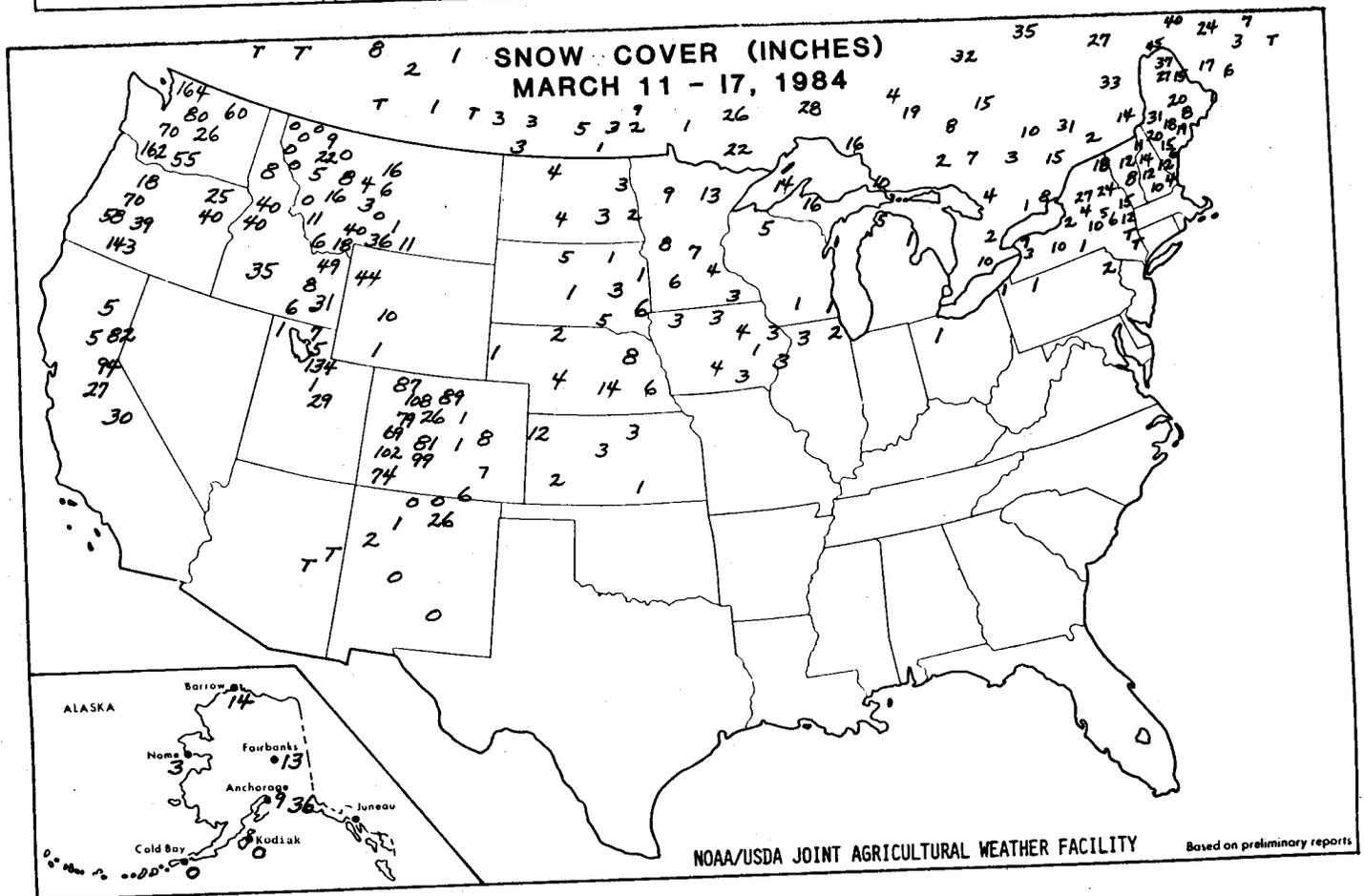
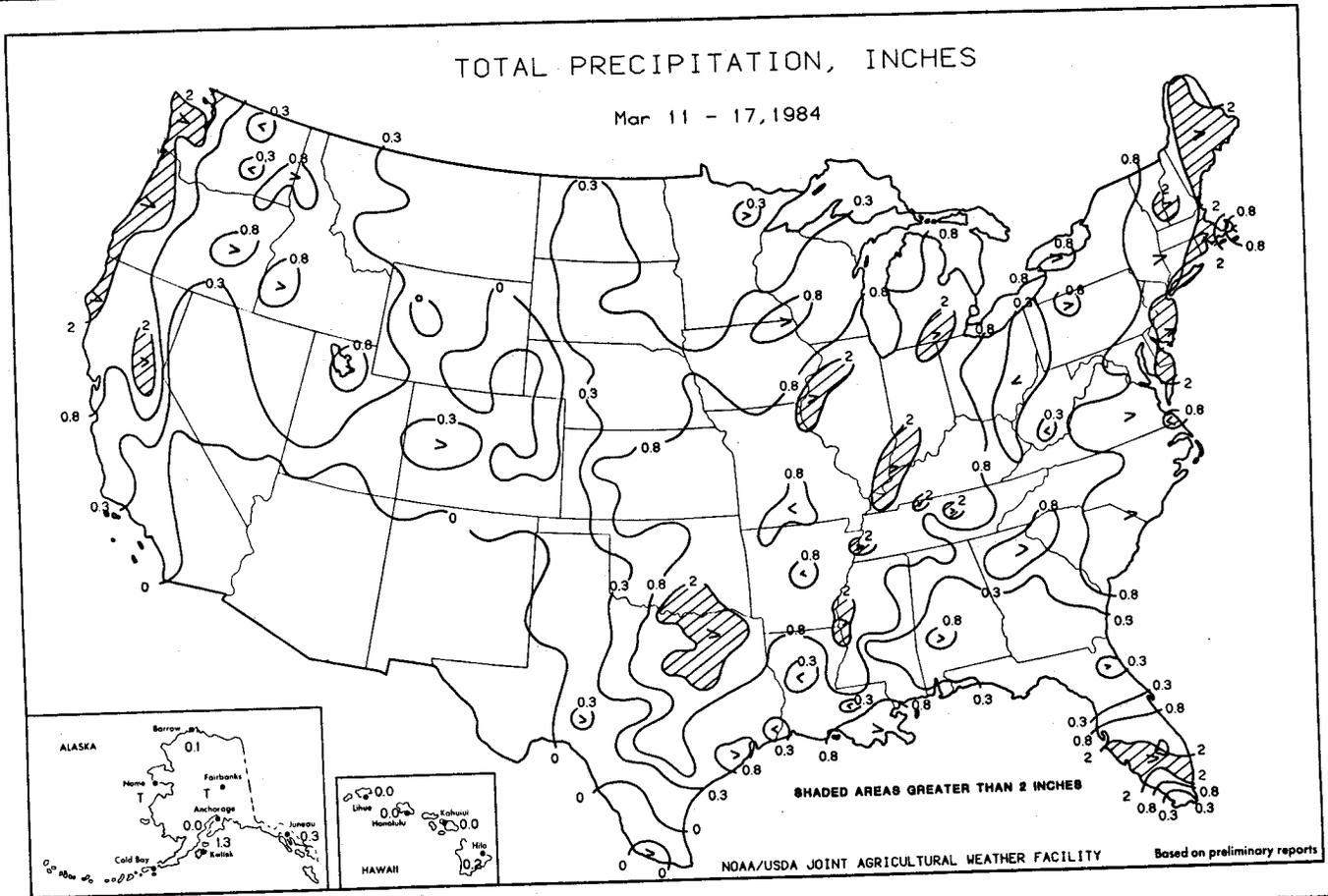
SUNDAY...Bitter cold, arctic air swept into the northern Plains and Great Lakes region behind a rapidly moving cold front. Another front approaching the Pacific Northwest coast triggered rains inland over Washington and Oregon. Thunderstorms, some with hail and blustery winds, generated heavy rains over eastern parts of Texas and Oklahoma. Most other areas had seasonal, generally pleasant weather.

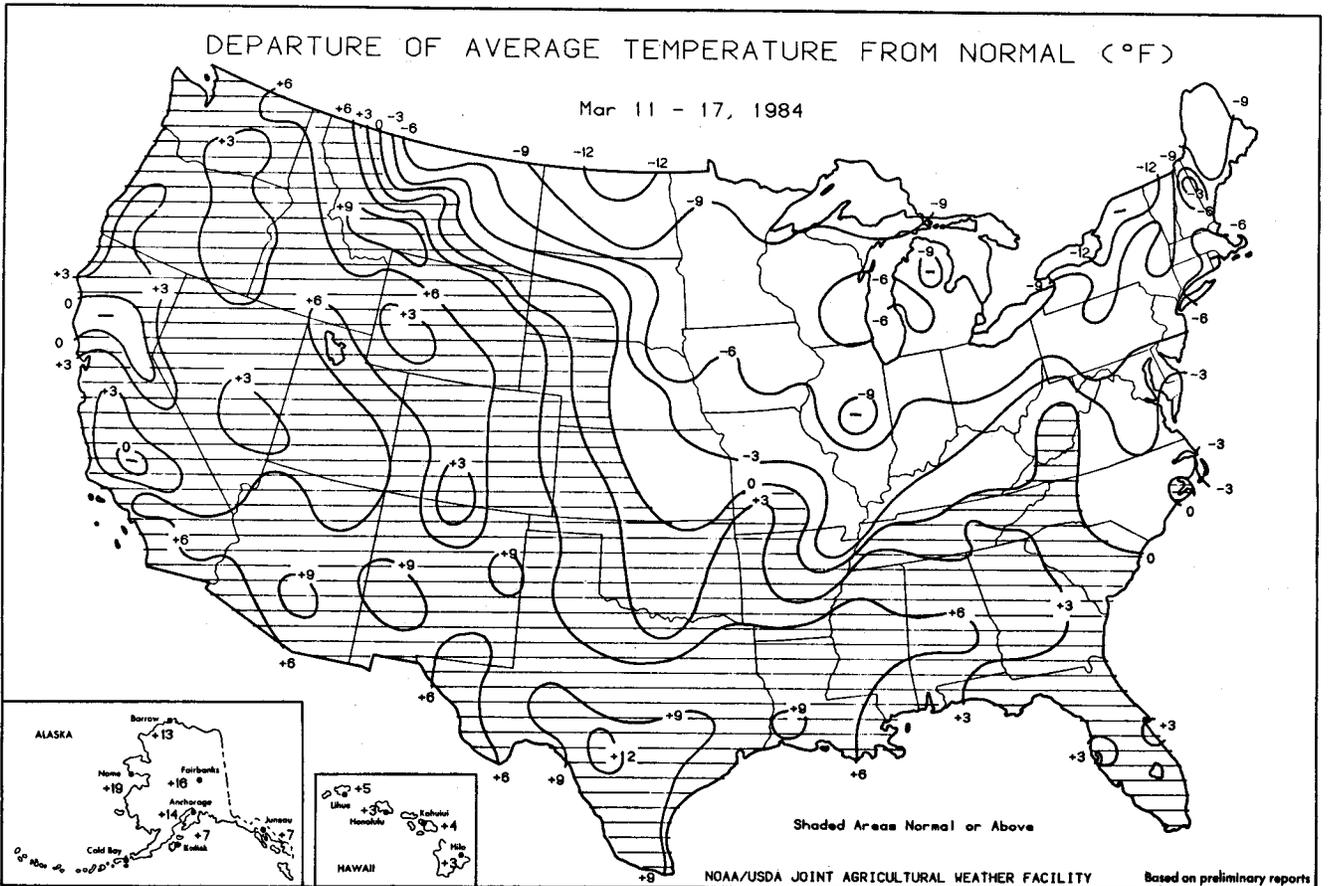
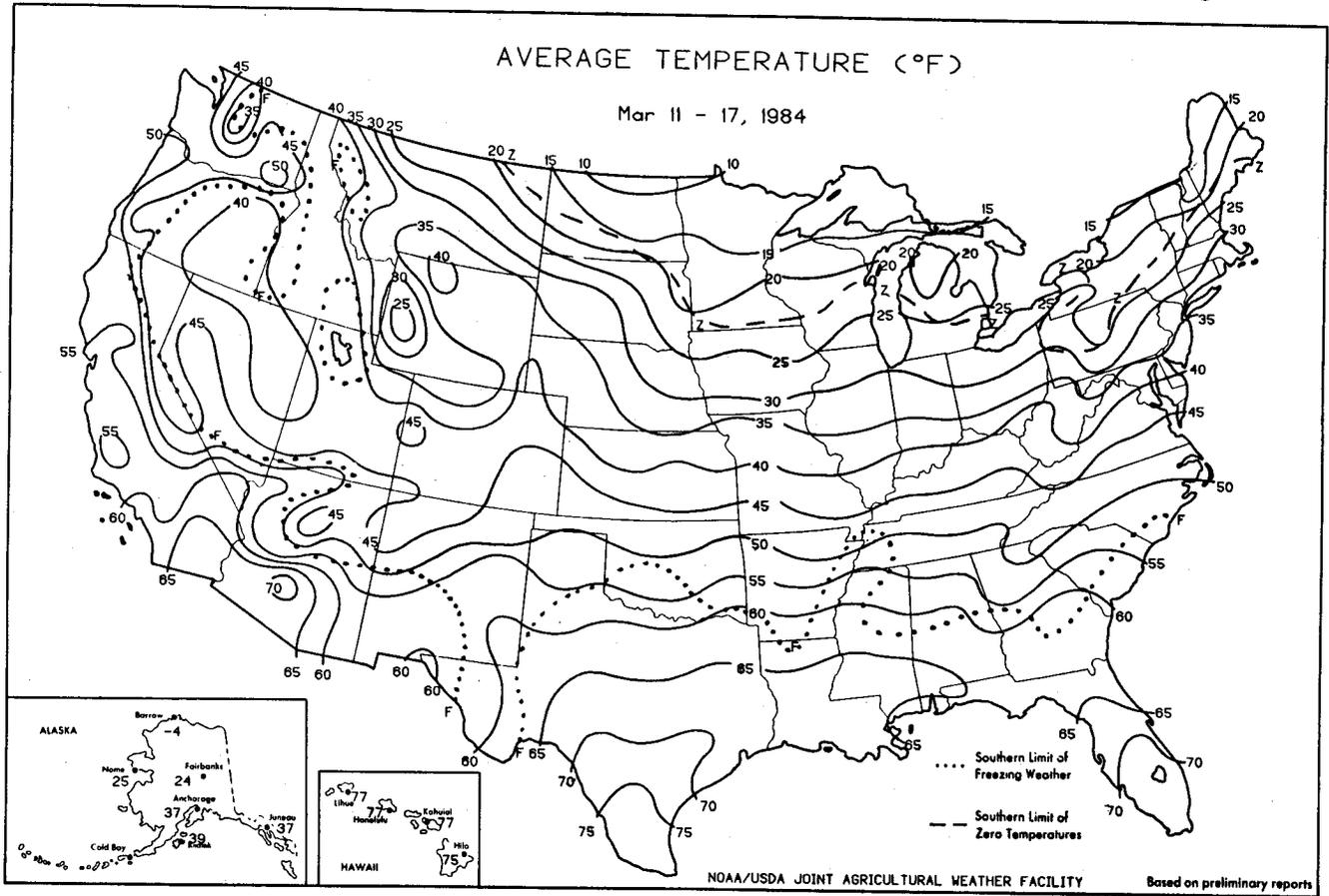
MONDAY...The arctic air rapidly spread southward and eastward covering most areas east of the Rockies. Frigid cold continued over the northeastern Plains and pushed eastward into New England. Precipitation was widespread, blanketing most of the U.S., except the southwestern States into central Texas. Heavy downpours doused central and south Florida. Afternoon temperatures soared into the springlike 80's in southern sections of Florida, Texas, and California.

TUESDAY...Welcome, moderating temperatures finally set in over the northeastern third of the Nation.

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Picking a Safe Planting Date

Don Haddock, NOAA Facility Chief  
NOAA/USDA Joint Agricultural Weather Facility

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

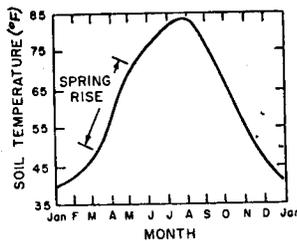


Figure 1—Average monthly 4-inch soil temperature near Northeast Arkansas Experiment Station, Keiser, Arkansas.

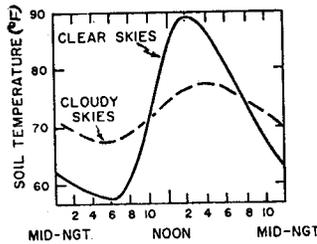


Figure 2—Hourly 4-inch soil temperature in May near Keiser, Arkansas with clear skies and cloudy skies.

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      | 99      | 7.3   | 3.0   | 1.75  | 1.0  |
| Alfalfa    | 34                                    | 80      | 99      | 6.0   | 3.75  | 2.75  | 2.0  |
| Heep       | 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   | 5.0   | 2.0   | 2.0  |
| Flax       | 33-37                                 | 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      | —   | 0.75  | 4.25  | 3.25 |
| Sugar beet | 39-41                                 | 77      | 82-86   | 22.0  | 0.0   | 3.75  | 3.75 |
| Lentils    | 39-41                                 | 80      | 97      | 6.0   | 4.0   | 2.0   | 1.75 |
| Maize      | 46-50                                 | 89-95   | 104-111 | —   | 11.25 | 3.25  | 3.0  |
| Sorghum    | 46-50                                 | 89-95   | 104     | —   | 11.25 | 4.75  | 4.0  |
| Rice       | 50-53                                 | 86-90   | 97-101  | —   | —     | —     | —    |
| Tobacco    | 35-37                                 | 82      | 95      | —   | —     | 9.0   | 6.25 |
| Pumpkin    | 54                                    | 89-93   | 104     | —   | —     | 10.75 | 4.0  |
| Melon      | 54-59                                 | 85      | 104     | —   | —     | 13.0  | 17.0 |

\* Adapted from data by F. Haberlandt 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 GERMINATION<sup>1</sup>

| 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 <sup>2</sup> | 85 <sup>2</sup> |
| 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             |

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

<sup>2</sup> 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

DAYS TO APPEARANCE OF SEEDLINGS AT VARIOUS SOIL TEMPERATURES FROM SEED PLANTED AT ONE-HALF INCH DEPTH<sup>1</sup> 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     | 62                                     | 22 | 12 | 7  | 6  | 5  | 6  | x  | x   |  |
| Tomato      | x                                      | x  | 43 | 14 | 8  | 6  | 6  | 9  | x   |  |
| Turnip      | x                                      | x  | x  | 5  | 3  | 2  | 1  | 1  | 2   |  |
| Watermelon  |  | x  |    |    | 12 | 5  | 4  | 3  |     |  |

x = little or no germination.

... = not tested.

<sup>1</sup>Data 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.

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

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

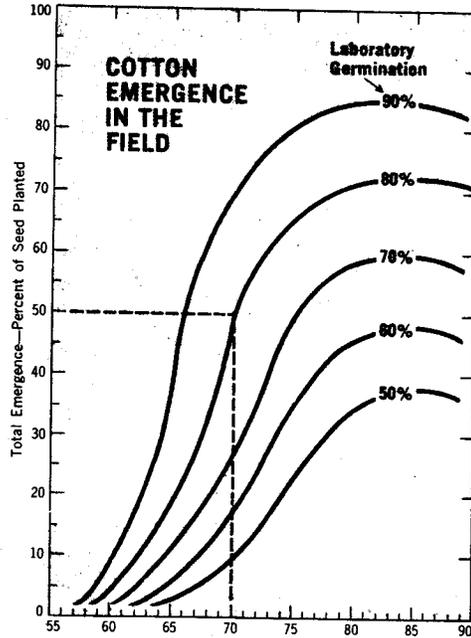
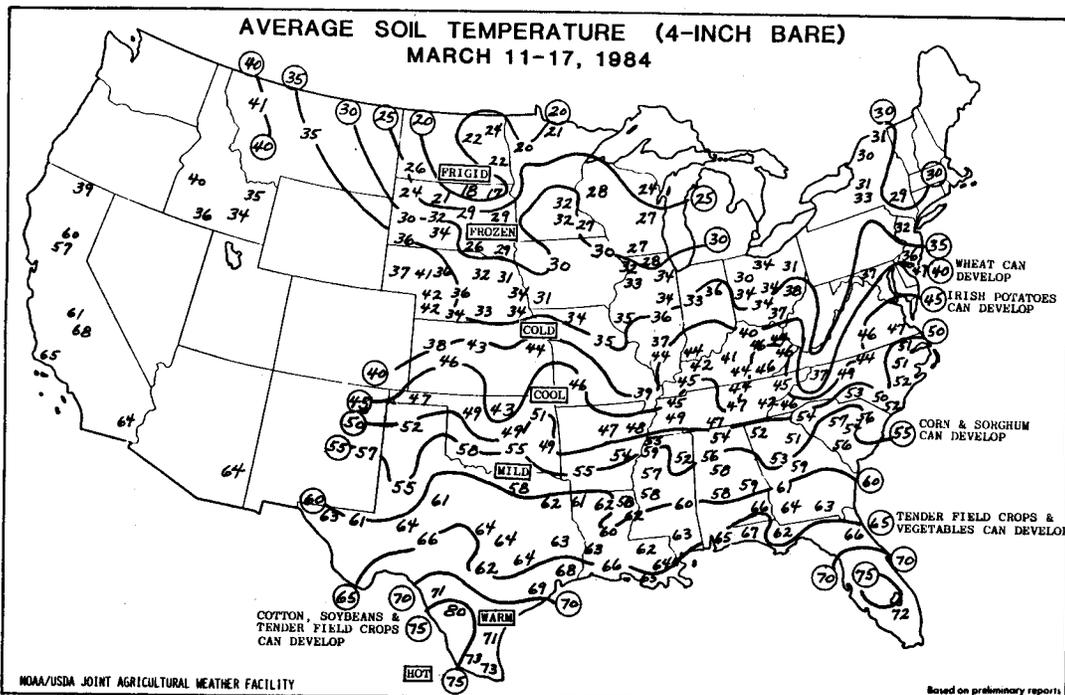


Figure 3. Mean Soil Temperature (°F) at 2-Inch Depth from Planting to Final Emergence. From Picking a Safe Cotton-Planting Date by Donald J. Haddock. The Progressive Farmer, Feb. 1967.

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.



Weather Data for the Week Ending MARCH 17, 1984

| STATES<br>AND<br>STATIONS | TEMPERATURE °F     |                    |                 |                |         |                          | PRECIPITATION        |                          |                             |                             |                             |                            | RELATIVE HUMIDITY, PERCENT |                    | NUMBER OF DAYS     |                |              |                     |                     |
|---------------------------|--------------------|--------------------|-----------------|----------------|---------|--------------------------|----------------------|--------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------|--------------------|----------------|--------------|---------------------|---------------------|
|                           | AVERAGE<br>MAXIMUM | AVERAGE<br>MINIMUM | EXTREME<br>HIGH | EXTREME<br>LOW | AVERAGE | DEPARTURE<br>FROM NORMAL | WEEKLY<br>TOTAL, IN. | DEPARTURE<br>FROM NORMAL | GREATEST IN<br>24-HOUR, IN. | TOTAL, IN.,<br>SINCE MAR. 4 | PCT. NORMAL<br>SINCE MAR. 4 | TOTAL, IN.,<br>SINCE JAN 1 | PCT. NORMAL<br>SINCE JAN 1 | AVERAGE<br>MAXIMUM | AVERAGE<br>MINIMUM | TEMPERATURE °F |              | PRECIPITATION       |                     |
|                           |                    |                    |                 |                |         |                          |                      |                          |                             |                             |                             |                            |                            |                    |                    | 90 AND ABOVE   | 32 AND BELOW | .01 INCH<br>OR MORE | .50 INCH<br>OR MORE |
| AL BIRMINGHAM             | 71                 | 45                 | 82              | 28             | 58      | 5                        | .1                   | -1.5                     | T                           | 1.6                         | 52                          | 8.8                        | 64                         | 83                 | 37                 | 0              | 1            | 2                   | 0                   |
| MOBILE                    | 75                 | 52                 | 79              | 38             | 64      | 4                        | .3                   | -1.2                     | .3                          | 2.4                         | 83                          | 13.4                       | 101                        | 93                 | 46                 | 0              | 0            | 1                   | 0                   |
| MONTGOMERY                | 77                 | 48                 | 84              | 35             | 63      | 6                        | .1                   | -1.4                     | .1                          | .8                          | 28                          | 10.1                       | 82                         | 91                 | 37                 | 0              | 0            | 1                   | 0                   |
| AK ANCHORAGE              | 44                 | 30                 | 51              | 27             | 37      | 14                       | 0                    | -.1                      | 0                           | .1                          | 33                          | 2.4                        | 126                        | 69                 | 47                 | 0              | 6            | 0                   | 0                   |
| BARROW                    | 2                  | -9                 | 16              | -18            | -4      | 13                       | .1                   | 0                        | T                           | .1                          | 100                         | .4                         | 133                        | 86                 | 68                 | 0              | 7            | 2                   | 0                   |
| FAIRBANKS                 | 34                 | 13                 | 42              | 8              | 24      | 16                       | T                    | -.1                      | T                           | 0                           | 0                           | 1.6                        | 133                        | 91                 | 58                 | 0              | 7            | 1                   | 0                   |
| JUNEAU                    | 43                 | 32                 | 47              | 29             | 37      | 7                        | .3                   | -.5                      | .3                          | .5                          | 31                          | 12.9                       | 134                        | 94                 | 61                 | 0              | 5            | 2                   | 0                   |
| KODIAK                    | 42                 | 37                 | 43              | 33             | 39      | 7                        | 1.3                  | .4                       | .3                          | 7.2                         | 379                         | 24.4                       | 142                        | 99                 | 87                 | 0              | 0            | 7                   | 0                   |
| NOME                      | 32                 | 18                 | 40              | 1              | 25      | 19                       | T                    | -.1                      | T                           | .1                          | 33                          | .9                         | 53                         | 76                 | 55                 | 0              | 7            | 1                   | 0                   |
| AZ PHOENIX                | 84                 | 57                 | 86              | 52             | 71      | 10                       | 0                    | -.2                      | 0                           | 0                           | 0                           | .3                         | 19                         | 44                 | 17                 | 0              | 0            | 0                   | 0                   |
| PRESCOTT                  | 65                 | 36                 | 66              | 32             | 50      | 8                        | 0                    | -.4                      | 0                           | 0                           | 0                           | 0                          | 0                          | 49                 | 18                 | 0              | 1            | 0                   | 0                   |
| TUCSON                    | 80                 | 48                 | 82              | 46             | 64      | 7                        | 0                    | -.1                      | 0                           | 0                           | 0                           | .6                         | 35                         | 40                 | 11                 | 0              | 0            | 0                   | 0                   |
| YUMA                      | 83                 | 56                 | 88              | 53             | 69      | 5                        | 0                    | -.1                      | 0                           | 0                           | 0                           | .1                         | 9                          | 52                 | 19                 | 0              | 0            | 0                   | 0                   |
| AR FORT SMITH             | 63                 | 43                 | 78              | 26             | 53      | 3                        | 1.8                  | -.9                      | .6                          | 2.5                         | 147                         | 5.9                        | 91                         | 95                 | 60                 | 0              | 1            | 5                   | 1                   |
| LITTLE ROCK               | 63                 | 42                 | 77              | 26             | 53      | 1                        | .8                   | -.3                      | .6                          | 3.3                         | 150                         | 8.6                        | 85                         | 98                 | 73                 | 0              | 1            | 4                   | 1                   |
| CA BAKERSFIELD            | 69                 | 44                 | 77              | 41             | 56      | 0                        | .3                   | .1                       | .2                          | .3                          | 75                          | .5                         | 19                         | 90                 | 36                 | 0              | 0            | 3                   | 0                   |
| EUREKA                    | 59                 | 47                 | 66              | 44             | 53      | 5                        | 2.9                  | 1.7                      | 1.0                         | 3.2                         | 128                         | 8.8                        | 57                         | 91                 | 65                 | 0              | 0            | 7                   | 3                   |
| FRESNO                    | 68                 | 47                 | 73              | 43             | 57      | 3                        | .4                   | .1                       | .2                          | .4                          | 57                          | 1.6                        | 33                         | 93                 | 43                 | 0              | 0            | 3                   | 0                   |
| LOS ANGELES               | 67                 | 53                 | 72              | 50             | 60      | 3                        | .1                   | -.3                      | .1                          | .1                          | 11                          | .5                         | 7                          | 89                 | 53                 | 0              | 0            | 1                   | 0                   |
| RED BLUFF                 | 61                 | 46                 | 66              | 38             | 53      | 0                        | 1.2                  | .7                       | .6                          | 1.2                         | 109                         | 3.5                        | 37                         | 91                 | 54                 | 0              | 0            | 3                   | 2                   |
| SACRAMENTO                | 64                 | 48                 | 71              | 39             | 56      | 3                        | .8                   | .4                       | .5                          | .8                          | 89                          | 2.0                        | 24                         | 92                 | 54                 | 0              | 0            | 4                   | 1                   |
| SAN DIEGO                 | 68                 | 58                 | 69              | 55             | 63      | 4                        | T                    | -.4                      | T                           | 0                           | 0                           | .6                         | 13                         | 86                 | 59                 | 0              | 0            | 1                   | 0                   |
| SAN FRANCISCO             | 64                 | 50                 | 67              | 42             | 57      | 4                        | 1.2                  | .6                       | .5                          | 1.2                         | 100                         | 3.1                        | 32                         | 86                 | 54                 | 0              | 0            | 4                   | 1                   |
| CO DENVER                 | 57                 | 31                 | 70              | 28             | 44      | 7                        | T                    | -.2                      | T                           | .1                          | 20                          | 1.1                        | 69                         | 66                 | 25                 | 0              | 5            | 1                   | 0                   |
| GRAND JUNCTION            | 59                 | 38                 | 65              | 35             | 49      | 7                        | .4                   | -.2                      | .2                          | .4                          | 133                         | .8                         | 62                         | 83                 | 33                 | 0              | 0            | 5                   | 0                   |
| PUEBLO                    | 66                 | 29                 | 75              | 18             | 48      | 8                        | T                    | -.1                      | T                           | .1                          | 33                          | .4                         | 40                         | 75                 | 18                 | 0              | 5            | 0                   | 0                   |
| CT BRIDGEPORT             | 42                 | 25                 | 50              | 11             | 33      | -4                       | 1.4                  | .5                       | 1.2                         | 2.1                         | 124                         | 7.9                        | 95                         | 78                 | 47                 | 0              | 6            | 3                   | 1                   |
| HARTFORD                  | 59                 | 19                 | 57              | 6              | 29      | -7                       | 1.7                  | .7                       | 1.2                         | 2.5                         | 132                         | 9.2                        | 99                         | 85                 | 40                 | 0              | 6            | 4                   | 1                   |
| DC WASHINGTON             | 52                 | 32                 | 69              | 22             | 42      | -3                       | .7                   | -.1                      | .7                          | 1.4                         | 88                          | 6.5                        | 90                         | 75                 | 40                 | 0              | 3            | 1                   | 1                   |
| FL APALACHICOLA           | 70                 | 52                 | 78              | 40             | 61      | 1                        | .2                   | -.7                      | .2                          | 1.5                         | 83                          | 10.2                       | 109                        | 92                 | 58                 | 0              | 0            | 1                   | 0                   |
| DAYTONA BEACH             | 75                 | 52                 | 82              | 42             | 63      | -1                       | .1                   | -.6                      | .1                          | .1                          | 7                           | 5.1                        | 69                         | 87                 | 46                 | 0              | 0            | 1                   | 0                   |
| JACKSONVILLE              | 77                 | 48                 | 82              | 39             | 63      | 1                        | .1                   | -.7                      | .1                          | 1.7                         | 100                         | 8.5                        | 96                         | 95                 | 41                 | 0              | 0            | 2                   | 0                   |
| KEY WEST                  | 80                 | 70                 | 84              | 66             | 75      | 1                        | T                    | -.3                      | T                           | .1                          | 14                          | 4.4                        | 92                         | 77                 | 58                 | 0              | 0            | 1                   | 0                   |
| MIAMI                     | 79                 | 66                 | 80              | 58             | 73      | 1                        | 3.2                  | 2.7                      | 3.0                         | 3.2                         | 356                         | 4.1                        | 77                         | 83                 | 48                 | 0              | 0            | 2                   | 1                   |
| ORLANDO                   | 79                 | 54                 | 83              | 49             | 67      | 0                        | .3                   | -.4                      | .3                          | .4                          | 27                          | 5.2                        | 75                         | 98                 | 46                 | 0              | 0            | 1                   | 0                   |
| TALLAHASSEE               | 79                 | 46                 | 84              | 34             | 63      | 2                        | T                    | -1.3                     | T                           | 3.7                         | 142                         | 13.8                       | 107                        | 99                 | 35                 | 0              | 0            | 1                   | 0                   |
| TAMPA                     | 80                 | 58                 | 84              | 52             | 69      | 3                        | .8                   | 0                        | .8                          | .8                          | 47                          | 5.7                        | 78                         | 94                 | 44                 | 0              | 0            | 2                   | 1                   |
| WEST PALM BEACH           | 78                 | 64                 | 80              | 55             | 71      | 1                        | 1.3                  | .7                       | .8                          | 1.3                         | 108                         | 7.2                        | 101                        | 91                 | 58                 | 0              | 0            | 2                   | 2                   |
| GA ATLANTA                | 66                 | 43                 | 79              | 31             | 54      | 2                        | 1.0                  | -.4                      | .4                          | 2.4                         | 89                          | 13.2                       | 104                        | 89                 | 46                 | 0              | 1            | 4                   | 0                   |
| AUGUSTA                   | 70                 | 41                 | 80              | 29             | 56      | 1                        | .6                   | -.5                      | .6                          | 1.8                         | 78                          | 10.1                       | 92                         | 91                 | 37                 | 0              | 2            | 2                   | 1                   |
| MACON                     | 78                 | 44                 | 82              | 32             | 59      | 2                        | .2                   | -1.0                     | .1                          | 2.0                         | 83                          | 10.7                       | 88                         | 93                 | 37                 | 0              | 1            | 2                   | 0                   |
| SAVANNAH                  | 73                 | 47                 | 83              | 36             | 60      | 2                        | .7                   | -.2                      | .7                          | 3.8                         | 211                         | 15.9                       | 185                        | 83                 | 36                 | 0              | 0            | 2                   | 1                   |
| HI HILO                   | 83                 | 66                 | 85              | 63             | 75      | 3                        | .2                   | -2.8                     | .2                          | .3                          | 5                           | 19.9                       | 64                         | 83                 | 49                 | 0              | 0            | 3                   | 0                   |
| HONOLULU                  | 85                 | 69                 | 87              | 66             | 77      | 3                        | 0                    | -.8                      | 0                           | 0                           | 0                           | 1.3                        | 15                         | 80                 | 47                 | 0              | 0            | 0                   | 0                   |
| KAHULUI                   | 87                 | 66                 | 90              | 61             | 77      | 4                        | 0                    | -.7                      | 0                           | .3                          | 20                          | 3.5                        | 38                         | 74                 | 48                 | 1              | 0            | 0                   | 0                   |
| LIHUE                     | 83                 | 71                 | 86              | 67             | 77      | 5                        | 0                    | -1.1                     | 0                           | 0                           | 0                           | 3.0                        | 24                         | 85                 | 59                 | 0              | 0            | 0                   | 0                   |
| ID BOISE                  | 50                 | 38                 | 53              | 35             | 44      | 3                        | 1.2                  | .9                       | .5                          | 1.2                         | 240                         | 2.9                        | 88                         | 84                 | 48                 | 0              | 0            | 7                   | 0                   |
| LEWISTON                  | 55                 | 40                 | 60              | 37             | 47      | 5                        | .4                   | .2                       | .2                          | .6                          | 120                         | 1.6                        | 59                         | 93                 | 51                 | 0              | 0            | 4                   | 0                   |
| POCATELLO                 | 45                 | 35                 | 48              | 33             | 40      | 5                        | .5                   | .3                       | .2                          | .5                          | 125                         | 3.1                        | 129                        | 83                 | 57                 | 0              | 0            | 5                   | 0                   |
| IL CHICAGO                | 34                 | 23                 | 50              | 12             | 28      | -7                       | 1.5                  | .9                       | 1.0                         | 1.7                         | 155                         | 4.3                        | 100                        | 90                 | 63                 | 0              | 6            | 3                   | 1                   |
| MOLINE                    | 35                 | 24                 | 56              | 11             | 30      | -5                       | 2.0                  | 1.4                      | 1.4                         | 2.6                         | 236                         | 4.3                        | 100                        | 78                 | 60                 | 0              | 6            | 4                   | 1                   |
| PEORIA                    | 35                 | 24                 | 55              | 12             | 30      | -7                       | 1.0                  | .3                       | .8                          | 1.4                         | 108                         | 4.3                        | 93                         | 87                 | 69                 | 0              | 6            | 3                   | 1                   |
| QUINCY                    | 38                 | 27                 | 63              | 19             | 33      | -5                       | 2.2                  | 1.5                      | 1.3                         | 2.4                         | 185                         | 4.6                        | 105                        | 87                 | 67                 | 0              | 6            | 3                   | 2                   |
| ROCKFORD                  | 32                 | 22                 | 46              | 8              | 27      | -6                       | 1.1                  | .6                       | .6                          | 1.3                         | 130                         | 3.3                        | 85                         | 92                 | 64                 | 0              | 7            | 4                   | 1                   |
| SPRINGFIELD               | 37                 | 24                 | 64              | 14             | 30      | -9                       | 1.4                  | .7                       | .8                          | 1.7                         | 121                         | 4.3                        | 86                         | 96                 | 74                 | 0              | 6            | 3                   | 1                   |
| IN EVANSVILLE             | 48                 | 34                 | 76              | 24             | 41      | -3                       | 2.3                  | 1.3                      | 1.9                         | 3.4                         | 162                         | 6.8                        | 80                         | 90                 | 63                 | 0              | 4            | 3                   | 1                   |
| FORT WAYNE                | 36                 | 21                 | 52              | 3              | 28      | -8                       | 1.2                  | .5                       | .8                          | 2.0                         | 154                         | 4.7                        | 84                         | 91                 | 68                 | 0              | 6            | 6                   | 1                   |
| INDIANAPOLIS              | 42                 | 27                 | 62              | 13             | 35      | -5                       | 1.1                  | .2                       | .7                          | 1.7                         | 100                         | 5.9                        | 83                         | 85                 | 64                 | 0              | 5            | 3                   | 1                   |
| SOUTH BEND                | 36                 | 23                 | 53              | 11             | 29      | -6                       | 1.2                  | .5                       | .7                          | 1.3                         | 100                         | 3.7                        | 61                         | 83                 | 58                 | 0              | 6            | 6                   | 1                   |
| IA DES MOINES             | 33                 | 23                 | 48              | 12             | 28      | -6                       | .6                   | .1                       | .4                          | .9                          | 100                         | 2.8                        | 85                         | 86                 | 70                 | 0              | 7            | 4                   | 0                   |
| SIoux CITY                | 33                 | 22                 | 42              | 13             | 27      | -6                       | .4                   | 0                        | .3                          | 1.0                         | 143                         | 2.5                        | 109                        | 96                 | 75                 | 0              | 6            | 3                   | 0                   |
| WATERLOO                  | 28                 | 20                 | 36              | 3              | 24      | -7                       | .4                   | -.1                      | .2                          | .7                          | 70                          | 2.1                        | 68                         | 93                 | 75                 | 0              | 7            | 3                   | 0                   |
| KS CONCORDIA              | 48                 | 28                 | 69              | 22             | 38      | -1                       | .7                   | .3                       | .4                          | .7                          | 88                          | 2.1                        | 88                         | 91                 | 62                 | 0              | 6            | 3                   | 0                   |
| DODGE CITY                | 56                 | 32                 | 83              | 25             | 44      | 2                        | .7                   | .4                       | .6                          | .7                          | 117                         | 1.7                        | 81                         | 95                 | 44                 | 0              | 4            | 3                   | 1                   |
| GOODLAND                  | 54                 | 28                 | 73              | 24             | 41      | 5                        | T                    | -.3                      | T                           | 0                           | 0                           | 2.3                        | 164                        | 97                 | 42                 | 0              | 5            | 1                   | 0                   |
| TOPEKA                    | 48                 | 30                 | 67              | 25             | 39      | -2                       | .9                   | .5                       | .8                          | 1.6                         | 178                         | 3.3                        | 110                        | 89                 | 59                 | 0              | 5            | 3                   | 1                   |
| WICHITA                   | 53                 | 34                 | 71              | 29             | 43      | 0                        | 1.7                  | -1.3                     | 1.3                         | 1.7                         | 213                         | 3.7                        | 148                        | 94                 | 67                 | 0              | 2            | 3                   | 1                   |
| KY BOWLING GREEN          | 55                 | 35                 | 79              | 26             | 45      | -1                       | .9                   | -.4                      | .5                          | 2.5                         | 100                         | 8.5                        | 73                         | 96                 | 61                 | 0              | 2            | 4                   | 0                   |
| LEXINGTON                 | 52                 | 33                 | 78              | 18             | 42      | -1                       | 1.0                  | -.2                      | .4                          | 1.4                         | 61                          | 6.4                        | 65                         | 94                 | 60                 | 0              | 2            | 5                   | 0                   |
| LOUISVILLE                | 50                 | 32                 | 77              | 20             | 41      | -4                       | 1.2                  | .1                       | .5                          | 1.8                         | 82                          | 4.3                        | 46                         | 86                 | 58                 | 0              | 4            | 5                   | 0                   |
| LA ALEXANDRIA             | 74                 | 58                 | 80              | 49             | 66      | 7                        | .2                   | -1.0                     | .2                          | 2.6                         | 108                         | 17.2                       | 130                        | 89                 | 59                 | 0              | 0            | 1                   | 0                   |
| BATON ROUGE               | 76                 | 57                 | 84              | 46             | 67      | 6                        | .2                   | -.8                      | .2                          | .3                          | 15                          | 9.5                        | 79                         | 94                 | 53                 | 0              | 0            | 1                   | 0                   |
| LAKE CHARLES              | 77                 | 62                 | 81              | 48             | 69      | 9                        | .7                   | 0                        | .7                          | 1.0                         | 71                          | 11.0                       | 110                        | 92                 | 63                 | 0              | 0            | 1                   | 1                   |
| NEW ORLEANS               | 75                 | 55                 | 83              | 45             | 65      | 4                        | 1.1                  | 0                        | 1.1                         | 2.4                         | 109                         | 11.8                       | 90                         | 93                 | 59                 | 0              | 0            | 1                   | 1                   |

BASED ON PRELIMINARY REPORTS AND 1951-80 NORMALS

+100 = NORMAL & ACTUAL NEAR THE SAME

Weather Data for the Week Ending MARCH 17, 1984

| STATES<br>AND<br>STATIONS | TEMPERATURE °F     |                    |                 |                |         |                          | PRECIPITATION        |                          |                             |                             |                             |                            | RELATIVE HUMIDITY, PERCENT |                    | NUMBER OF DAYS     |                |              |                     |                     |
|---------------------------|--------------------|--------------------|-----------------|----------------|---------|--------------------------|----------------------|--------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------|--------------------|----------------|--------------|---------------------|---------------------|
|                           | AVERAGE<br>MAXIMUM | AVERAGE<br>MINIMUM | EXTREME<br>HIGH | EXTREME<br>LOW | AVERAGE | DEPARTURE<br>FROM NORMAL | WEEKLY<br>TOTAL, IN. | DEPARTURE<br>FROM NORMAL | GREATEST IN<br>24-HOUR, IN. | TOTAL, IN.,<br>SINCE MAR. 4 | PCT. NORMAL<br>SINCE MAR. 4 | TOTAL, IN.,<br>SINCE JAN 1 | PCT. NORMAL<br>SINCE JAN 1 | AVERAGE<br>MAXIMUM | AVERAGE<br>MINIMUM | TEMPERATURE °F |              | PRECIPITATION       |                     |
|                           |                    |                    |                 |                |         |                          |                      |                          |                             |                             |                             |                            |                            |                    |                    | 90 AND ABOVE   | 32 AND BELOW | .01 INCH<br>OR MORE | .50 INCH<br>OR MORE |
| ME SHREVEPORT             | 74                 | 54                 | 81              | 40             | 64      | 7                        | .7                   | -.1                      | .7                          | 3.2                         | 200                         | 10.9                       | 114                        | 97                 | 62                 | 0              | 0            | 1                   | 1                   |
| ME CARIBOU                | 22                 | 4                  | 39              | -16            | 13      | -11                      | 1.9                  | 1.4                      | 1.5                         | 2.0                         | 200                         | 7.4                        | 125                        | 88                 | 59                 | 0              | 7            | 6                   | 1                   |
| ME PORTLAND               | 33                 | 17                 | 48              | 3              | 25      | -6                       | 2.5                  | 1.6                      | 1.6                         | 3.0                         | 176                         | 10.7                       | 113                        | 78                 | 44                 | 0              | 6            | 6                   | 1                   |
| MD BALTIMORE              | 47                 | 28                 | 63              | 19             | 38      | -5                       | .8                   | 0                        | .8                          | 1.7                         | 100                         | 7.5                        | 90                         | 81                 | 43                 | 0              | 5            | 1                   | 2                   |
| MD SALISBURY              | 54                 | 33                 | 65              | 20             | 43      | -1                       | 2.4                  | 1.4                      | 2.4                         | 4.1                         | 216                         | 10.6                       | 115                        | 90                 | 45                 | 0              | 3            | 1                   | 1                   |
| MA BOSTON                 | 38                 | 22                 | 47              | 9              | 30      | -8                       | 2.4                  | 1.5                      | 1.5                         | 3.0                         | 158                         | 13.3                       | 130                        | 88                 | 50                 | 0              | 6            | 4                   | 2                   |
| MA CHATHAM                | 39                 | 24                 | 43              | 14             | 31      | -5                       | .8                   | -.2                      | .6                          | 3.0                         | 158                         | 10.8                       | 97                         | 97                 | 97                 | 5              | 3            | 1                   | 0                   |
| MI ALPENA                 | 28                 | 11                 | 38              | -10            | 20      | -6                       | 1.0                  | .5                       | .5                          | 1.1                         | 110                         | 2.8                        | 64                         | 93                 | 63                 | 0              | 7            | 4                   | 1                   |
| MI DETROIT                | 35                 | 19                 | 47              | 5              | 27      | -8                       | 1.1                  | .5                       | .4                          | 1.3                         | 108                         | 3.5                        | 69                         | 84                 | 56                 | 0              | 7            | 5                   | 0                   |
| MI FLINT                  | 34                 | 15                 | 52              | 1              | 25      | -7                       | 1.4                  | 1.0                      | .7                          | 1.5                         | 167                         | 2.6                        | 60                         | 90                 | 56                 | 0              | 7            | 5                   | 2                   |
| MI GRAND RAPIDS           | 37                 | 18                 | 54              | 3              | 28      | -5                       | 1.8                  | 1.2                      | 1.1                         | 1.9                         | 173                         | 3.9                        | 83                         | 87                 | 56                 | 0              | 7            | 4                   | 2                   |
| MI HOUGHTON LAKE          | 28                 | 10                 | 42              | -14            | 19      | -8                       | .6                   | .2                       | .3                          | .6                          | 75                          | 2.6                        | 68                         | 86                 | 64                 | 0              | 7            | 3                   | 0                   |
| MI LANSING                | 35                 | 14                 | 58              | 0              | 25      | -8                       | 1.3                  | -.8                      | .7                          | 1.4                         | 140                         | 2.7                        | 59                         | 94                 | 60                 | 0              | 7            | 4                   | 2                   |
| MI MARQUETTE              | 23                 | 1                  | 40              | -22            | 12      | -10                      | .3                   | -.3                      | .2                          | .7                          | 64                          | 5.7                        | 106                        | 96                 | 61                 | 0              | 7            | 4                   | 0                   |
| MI MUSKOGON               | 33                 | 17                 | 47              | 3              | 25      | -7                       | .8                   | -.3                      | .6                          | .9                          | 90                          | 3.5                        | 65                         | 81                 | 56                 | 0              | 7            | 4                   | 1                   |
| MN SAULT STE. MARIE       | 24                 | 5                  | 35              | -16            | 14      | -9                       | .3                   | -.1                      | .2                          | .5                          | 63                          | 4.1                        | 80                         | 89                 | 56                 | 0              | 7            | 3                   | 0                   |
| MN ALEXANDRIA             | 24                 | 8                  | 34              | -10            | 16      | -7                       | .2                   | -.1                      | .1                          | .9                          | 180                         | 2.5                        | 119                        | 89                 | 64                 | 0              | 7            | 2                   | 0                   |
| MN DULUTH                 | 20                 | 5                  | 34              | -13            | 13      | -10                      | .3                   | -.2                      | .1                          | .5                          | 56                          | 1.9                        | 59                         | 91                 | 66                 | 0              | 7            | 4                   | 0                   |
| MN INT'L FALLS            | 20                 | -1                 | 35              | -18            | 9       | -10                      | .1                   | -.2                      | .1                          | .2                          | 40                          | 1.2                        | 55                         | 82                 | 51                 | 0              | 7            | 1                   | 0                   |
| MN MINNEAPOLIS            | 27                 | 15                 | 37              | -3             | 21      | -7                       | .3                   | -.1                      | .1                          | 1.3                         | 163                         | 3.7                        | 148                        | 80                 | 51                 | 0              | 7            | 4                   | 0                   |
| MN ROCHESTER              | 25                 | 17                 | 34              | -1             | 21      | -6                       | .4                   | 0                        | .2                          | .7                          | 100                         | 2.9                        | 121                        | 90                 | 67                 | 0              | 7            | 4                   | 0                   |
| MS GREENWOOD              | 71                 | 52                 | 83              | 32             | 61      | 7                        | 1.1                  | -.3                      | .5                          | 4.6                         | 164                         | 12.5                       | 95                         | 89                 | 53                 | 0              | 1            | 4                   | 0                   |
| MS JACKSON                | 77                 | 54                 | 84              | 43             | 66      | 10                       | .2                   | -1.2                     | .1                          | 3.2                         | 119                         | 10.8                       | 83                         | 96                 | 47                 | 0              | 0            | 2                   | 0                   |
| MS MERIDIAN               | 76                 | 48                 | 83              | 36             | 62      | 6                        | .1                   | -1.5                     | .1                          | 2.1                         | 68                          | 9.8                        | 73                         | 98                 | 43                 | 0              | 0            | 1                   | 0                   |
| MO CAPE GIRARDEAU         | 51                 | 36                 | 72              | 29             | 44      | --                       | 1.7                  | -.6                      | 1.1                         | 2.4                         | 109                         | 7.6                        | 88                         | 99                 | 69                 | 0              | 4            | 3                   | 1                   |
| MO COLUMBIA               | 44                 | 30                 | 72              | 20             | 37      | -4                       | 1.3                  | -.6                      | .5                          | 2.2                         | 169                         | 5.9                        | 109                        | 91                 | 69                 | 0              | 4            | 4                   | 1                   |
| MO KANSAS CITY            | 44                 | 28                 | 68              | 21             | 36      | -5                       | 1.4                  | -.9                      | .7                          | 2.1                         | 210                         | 4.2                        | 127                        | 94                 | 68                 | 0              | 6            | 4                   | 2                   |
| MO SAINT LOUIS            | 43                 | 31                 | 75              | 23             | 37      | -5                       | 1.3                  | .5                       | .5                          | 2.2                         | 147                         | 6.7                        | 112                        | 98                 | 72                 | 0              | 4            | 3                   | 1                   |
| MO SPRINGFIELD            | 57                 | 37                 | 75              | 25             | 47      | 3                        | 1.0                  | -.2                      | .5                          | 1.7                         | 113                         | 6.6                        | 118                        | 87                 | 55                 | 0              | 1            | 4                   | 0                   |
| MT BILLINGS               | 44                 | 25                 | 55              | 16             | 35      | 2                        | .1                   | -.2                      | T                           | .4                          | 80                          | 2.1                        | 100                        | 85                 | 48                 | 0              | 5            | 2                   | 0                   |
| MT GLASGOW                | 27                 | 14                 | 32              | 6              | 20      | -5                       | .2                   | -.1                      | .1                          | .3                          | 150                         | .9                         | 90                         | 80                 | 59                 | 0              | 7            | 5                   | 0                   |
| MT GREAT FALLS            | 35                 | 18                 | 51              | 10             | 27      | -4                       | .5                   | -.3                      | .4                          | .9                          | 180                         | 2.4                        | 96                         | 92                 | 65                 | 0              | 7            | 2                   | 0                   |
| MT HAVRE                  | 27                 | 15                 | 33              | 11             | 21      | -6                       | .1                   | 0                        | .1                          | .1                          | 50                          | .8                         | 73                         | 96                 | 78                 | 0              | 7            | 2                   | 0                   |
| MT HELENA                 | 46                 | 26                 | 51              | 18             | 36      | 5                        | .2                   | -.1                      | .2                          | .3                          | 100                         | .7                         | 47                         | 90                 | 47                 | 0              | 7            | 2                   | 0                   |
| MT KALISPELL              | 44                 | 31                 | 50              | 27             | 37      | 6                        | .4                   | -.3                      | .2                          | .6                          | 700                         | 2.1                        | 66                         | 88                 | 57                 | 0              | 5            | 5                   | 0                   |
| MT MILES CITY             | 37                 | 19                 | 48              | 13             | 28      | -2                       | .1                   | -.1                      | T                           | .2                          | 67                          | .3                         | 25                         | 89                 | 62                 | 0              | 7            | 2                   | 0                   |
| MT MISSOULA               | 47                 | 35                 | 50              | 33             | 41      | 7                        | .6                   | -.4                      | .3                          | .8                          | 200                         | 2.0                        | 74                         | 95                 | 52                 | 0              | 0            | 5                   | 0                   |
| NE GRAND ISLAND           | 41                 | 27                 | 59              | 21             | 34      | -1                       | .7                   | -.3                      | .5                          | .9                          | 129                         | 3.3                        | 157                        | 88                 | 63                 | 0              | 6            | 3                   | 0                   |
| NE LINCOLN                | 40                 | 26                 | 59              | 21             | 33      | -2                       | .7                   | -.3                      | .2                          | 1.2                         | 150                         | 3.0                        | 115                        | 95                 | 75                 | 0              | 7            | 4                   | 0                   |
| NE NORFOLK                | 33                 | 22                 | 41              | 15             | 27      | -5                       | .8                   | -.4                      | .5                          | 1.2                         | 171                         | 4.4                        | 200                        | 89                 | 73                 | 0              | 7            | 3                   | 1                   |
| NE NORTH PLATTE           | 46                 | 24                 | 64              | 22             | 35      | 1                        | .5                   | -.3                      | .4                          | .5                          | 125                         | 1.9                        | 127                        | 87                 | 53                 | 0              | 7            | 2                   | 0                   |
| NE OMAHA                  | 35                 | 24                 | 48              | 17             | 30      | -5                       | .9                   | .5                       | .5                          | 1.6                         | 200                         | 2.8                        | 100                        | 95                 | 80                 | 0              | 6            | 5                   | 1                   |
| NE SCOTTSBLUFF            | 56                 | 28                 | 62              | 20             | 42      | 7                        | .1                   | -.2                      | .1                          | .1                          | 20                          | 1.0                        | 71                         | 75                 | 30                 | 0              | 5            | 1                   | 0                   |
| NE VALENTINE              | 43                 | 22                 | 67              | 14             | 33      | 2                        | .5                   | -.3                      | .5                          | .6                          | 150                         | 1.4                        | 117                        | 81                 | 51                 | 0              | 6            | 2                   | 0                   |
| NV ELY                    | 51                 | 23                 | 58              | 16             | 37      | 4                        | .3                   | -.1                      | .1                          | .3                          | 75                          | 1.1                        | 55                         | 93                 | 38                 | 0              | 7            | 3                   | 0                   |
| NV LAS VEGAS              | 72                 | 48                 | 80              | 43             | 60      | 5                        | 0                    | -.1                      | 0                           | 0                           | 0                           | 0                          | 43                         | 14                 | 0                  | 0              | 0            | 0                   | 0                   |
| NV RENO                   | 57                 | 34                 | 61              | 26             | 45      | 5                        | .2                   | -.1                      | .2                          | .2                          | 67                          | .8                         | 30                         | 69                 | 29                 | 0              | 3            | 3                   | 0                   |
| NV WINNEMUCCA             | 53                 | 32                 | 63              | 24             | 43      | 5                        | .2                   | -.1                      | .1                          | .2                          | 100                         | 1.2                        | 57                         | 75                 | 29                 | 0              | 2            | 3                   | 0                   |
| NH CONCORD                | 36                 | 14                 | 52              | 1              | 25      | -7                       | 1.0                  | -.4                      | .6                          | 1.3                         | 108                         | 8.6                        | 126                        | 83                 | 40                 | 0              | 7            | 3                   | 1                   |
| NJ ATLANTIC CITY          | 47                 | 26                 | 56              | 15             | 37      | -4                       | 2.2                  | 1.3                      | 2.2                         | 3.4                         | 189                         | 9.4                        | 103                        | 85                 | 43                 | 0              | 6            | 1                   | 1                   |
| NM ALBUQUERQUE            | 69                 | 38                 | 75              | 31             | 54      | 8                        | 7                    | -.1                      | T                           | 0                           | 0                           | .3                         | 27                         | 56                 | 15                 | 0              | 1            | 0                   | 0                   |
| NM CLOVIS                 | 71                 | 39                 | 76              | 29             | 55      | 9                        | T                    | -.1                      | T                           | .1                          | 33                          | .5                         | 38                         | 65                 | 21                 | 0              | 2            | 0                   | 0                   |
| NM ROSWELL                | 76                 | 44                 | 83              | 30             | 60      | 8                        | 0                    | -.1                      | 0                           | .5                          | 250                         | .5                         | 56                         | 53                 | 17                 | 0              | 1            | 0                   | 0                   |
| NY ALBANY                 | 35                 | 11                 | 54              | 0              | 23      | -10                      | 1.6                  | -.9                      | 1.1                         | 1.8                         | 138                         | 5.5                        | 86                         | 80                 | 40                 | 0              | 7            | 4                   | 1                   |
| NY BINGHAMTON             | 33                 | 13                 | 53              | 1              | 23      | -8                       | .6                   | -.1                      | .5                          | .9                          | 64                          | 5.9                        | 87                         | 92                 | 53                 | 0              | 7            | 4                   | 1                   |
| NY BUFFALO                | 34                 | 14                 | 56              | 4              | 24      | -8                       | .6                   | -.1                      | .3                          | .8                          | 62                          | 6.0                        | 86                         | 93                 | 63                 | 0              | 7            | 5                   | 0                   |
| NY NEW YORK               | 41                 | 26                 | 51              | 15             | 34      | -7                       | 1.8                  | -.9                      | 1.8                         | 3.0                         | 158                         | 8.8                        | 102                        | 85                 | 50                 | 0              | 5            | 3                   | 1                   |
| NY ROCHESTER              | 33                 | 13                 | 56              | 3              | 23      | -10                      | .8                   | -.2                      | .3                          | 1.1                         | 100                         | 6.2                        | 103                        | 88                 | 55                 | 0              | 7            | 5                   | 0                   |
| NY SYRACUSE               | 31                 | 10                 | 54              | -8             | 20      | -13                      | .4                   | -.3                      | .2                          | .7                          | 50                          | 5.4                        | 77                         | 98                 | 55                 | 0              | 7            | 4                   | 0                   |
| NC ASHEVILLE              | 61                 | 33                 | 75              | 21             | 47      | 1                        | .4                   | -.8                      | .3                          | 1.3                         | 54                          | 10.1                       | 99                         | 99                 | 47                 | 0              | 4            | 3                   | 0                   |
| NC CHARLOTTE              | 64                 | 36                 | 78              | 24             | 50      | 0                        | .6                   | -.6                      | .6                          | 2.7                         | 117                         | 12.6                       | 121                        | 81                 | 35                 | 0              | 3            | 1                   | 1                   |
| NC GREENSBORO             | 60                 | 33                 | 76              | 24             | 47      | -1                       | .7                   | -.3                      | .7                          | 2.2                         | 116                         | 11.0                       | 117                        | 80                 | 35                 | 0              | 4            | 1                   | 1                   |
| NC HATTERAS               | 56                 | 39                 | 67              | 27             | 47      | -3                       | .9                   | 0                        | .9                          | 1.3                         | 68                          | 7.1                        | 63                         | 86                 | 54                 | 0              | 1            | 2                   | 1                   |
| NC NEW BERN               | 66                 | 40                 | 82              | 31             | 53      | 0                        | 1.7                  | -.9                      | 1.7                         | 2.7                         | 159                         | 11.2                       | 108                        | 88                 | 45                 | 0              | 1            | 1                   | 1                   |
| NC RALEIGH                | 61                 | 34                 | 80              | 25             | 47      | -2                       | .7                   | -.2                      | .7                          | 2.3                         | 128                         | 12.8                       | 138                        | 85                 | 40                 | 0              | 5            | 1                   | 1                   |
| NC WILMINGTON             | 66                 | 40                 | 82              | 33             | 53      | -1                       | 1.1                  | -.1                      | 1.1                         | 1.9                         | 95                          | 9.4                        | 97                         | 90                 | 44                 | 0              | 0            | 1                   | 1                   |
| ND BISMARCK               | 23                 | 10                 | 38              | 2              | 16      | -9                       | .6                   | -.4                      | .3                          | .8                          | 267                         | 1.5                        | 136                        | 81                 | 60                 | 0              | 7            | 4                   | 0                   |
| ND FARGO                  | 22                 | 8                  | 35              | -8             | 15      | -8                       | .2                   | 0                        | .1                          | .6                          | 200                         | 2.5                        | 179                        | 79                 | 57                 | 0              | 7            | 4                   | 0                   |
| ND GRAND FORKS            | 20                 | 3                  | 34              | -9             | 12      | -10                      | .1                   | -.1                      | .1                          | .2                          | 67                          | 1.3                        | 87                         | 85                 | 60                 | 0              | 7            | 3                   | 0                   |
| ND WILLISTON              | 23                 | 10                 | 28              | -2             | 16      | -8                       | .2                   | 0                        | .1                          | .3                          | 150                         | 1.2                        | 92                         | 83                 | 58                 | 0              | 7            | 4                   | 0                   |
| OH AKRON-CANTON           | 39                 | 20                 | 52              | 4              | 30      | -7                       | .3                   | -.5                      | .1                          | 1.0                         | 67                          | 5.0                        | 76                         | 84                 | 57                 | 0              | 7            | 4                   | 0                   |
| OH CINCINNATI             | 45                 | 28                 | 73              | 14             | 36      | -5                       | 1.1                  | -.2                      | .5                          | 1.7                         | 94                          | 4.9                        | 59                         | 90                 | 65                 | 0              | 5            | 5                   | 1                   |
| OH CLEVELAND              | 37                 | 21                 | 53              | 9              | 29      | -7                       | .3                   | -.3                      | .3                          | 1.1                         | 92                          | 5.9                        | 91                         | 89                 | 61                 | 0              | 7            | 4                   | 0                   |
| OH COLUMBUS               | 43                 | 24                 | 62              | 7              | 33      | -6                       | .4                   | -.4                      | .1                          | .9                          | 60                          | 3.9                        | 57                         | 79                 | 52                 | 0              | 7            | 6                   | 0                   |

BASED ON PRELIMINARY REPORTS AND 1951-80 NORMALS



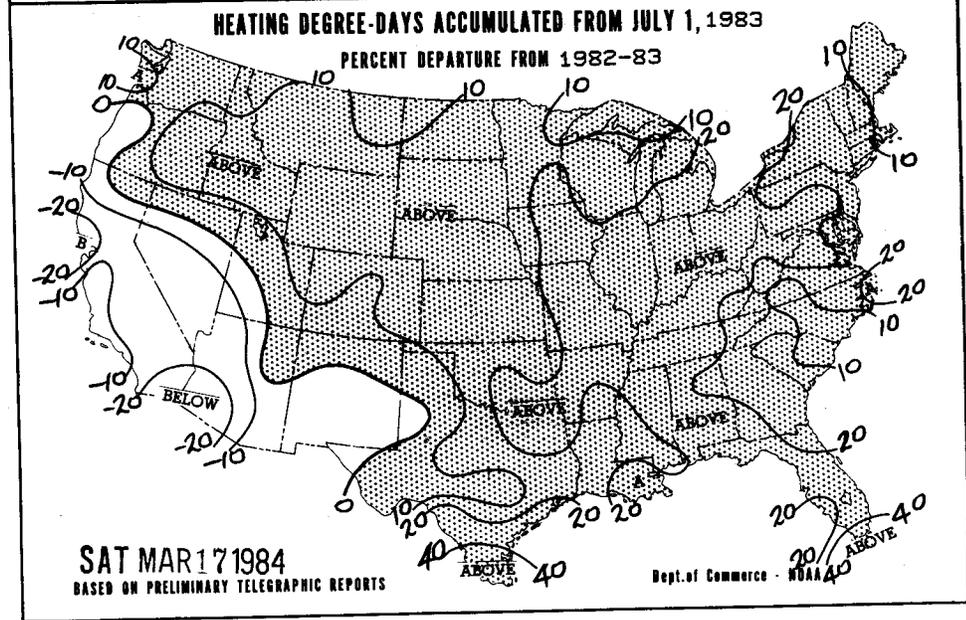
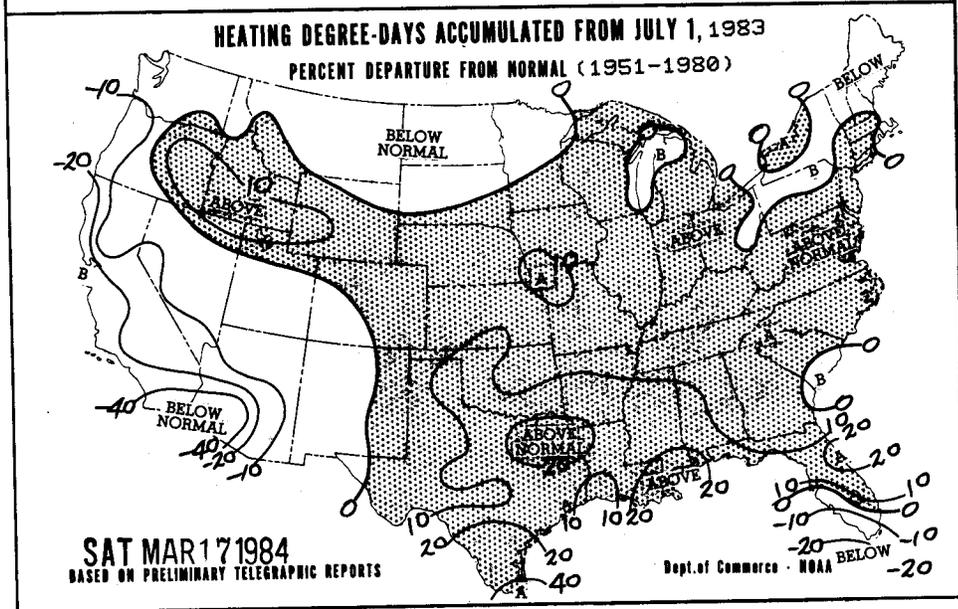
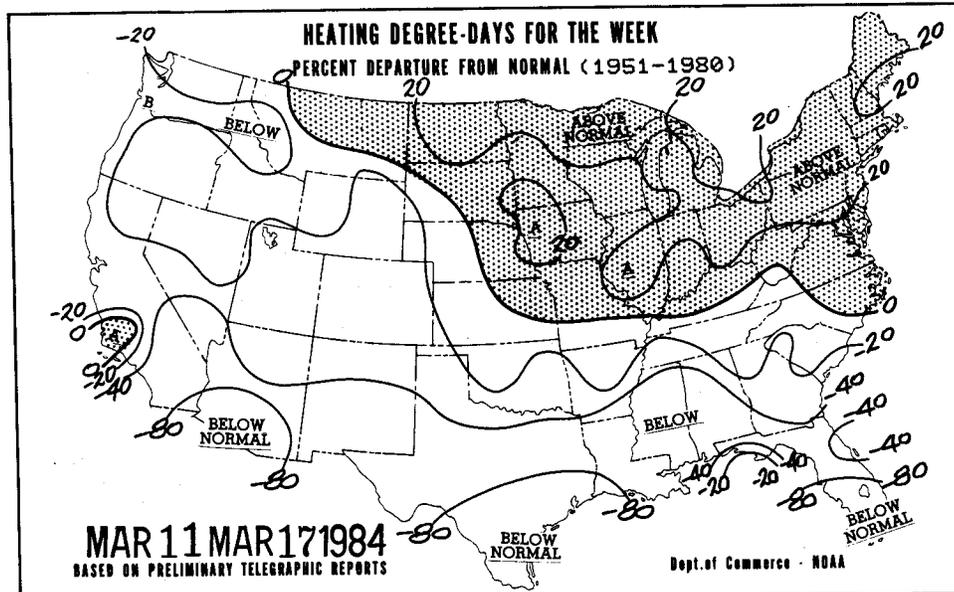
HEATING DEGREE DAY DATA WEEKLY SUMMARY  
CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA  
ASSESSMENT AND INFORMATION SERVICES CENTER-NESDIS-NOAA

LAST DATE OF DATA COLLECTION PERIOD IS 3-17-1984  
ACCUMULATIONS ARE FROM JULY 1  
\*\*\*\* = NORMAL LESS THAN 100 OR RATIO INCALCULABLE

| STATE CITY         | CALL | WEEK  | WEEK | WEEK | CUM   | CUM  | CUM  | CUM  | CUM  | STATE CITY        | CALL | WEEK  | WEEK | WEEK | CUM   | CUM  | CUM  | CUM  | CUM  |
|--------------------|------|-------|------|------|-------|------|------|------|------|-------------------|------|-------|------|------|-------|------|------|------|------|
|                    |      | TOTAL | DEV  | DEV  | TOTAL | DEV  | DEV  | DEV  | DEV  |                   |      | TOTAL | DEV  | DEV  | TOTAL | DEV  | DEV  | DEV  | DEV  |
|                    |      |       | FROM | FROM |       | FROM | FROM | FROM | FROM |                   |      |       | FROM | FROM |       | FROM | FROM | FROM | FROM |
|                    |      |       | NORM | L YR |       | NORM | L YR | NORM | L YR |                   |      |       | NORM | L YR |       | NORM | L YR | NORM | L YR |
|                    |      |       |      |      |       |      |      | PRCT | PRCT |                   |      |       |      |      |       |      |      | PRCT | PRCT |
| AL BIRMINGHAM      | BHM  | 48    | -39  | -33  | 2842  | 250  | 445  | 10   | 19   | MT MILES CITY     | MLS  | 256   | 15   | 73   | 6276  | -265 | 552  | -4   | 10   |
| AL MOBILE          | MOB  | 20    | -24  | -45  | 1934  | 339  | 318  | 21   | 20   | MT MISSOULA       | MSO  | 168   | -53  | -15  | 6323  | 66   | 625  | 1    | 11   |
| AL MONTGOMERY      | MGM  | 23    | -44  | -42  | 2199  | 91   | 415  | 4    | 23   | NE GRAND ISLAND   | GRI  | 217   | 7    | 32   | 5696  | 170  | 563  | 3    | 11   |
| AK ANCHORAGE       | ANC  | 193   | -101 | -31  | 7834  | -695 | -462 | -8   | -6   | NE LINCOLN        | LNK  | 220   | 14   | 44   | 5659  | 179  | 783  | 3    | 16   |
| AK BARROW          | BRW  | 475   | -96  | -104 | 15254 | 283  | -68  | 2    | 0    | NE NORFOLK        | OPK  | 252   | 36   | 67   | 6081  | 114  | 798  | 2    | 15   |
| AK FAIRBANKS       | FAL  | 287   | -117 | -79  | 11237 | -609 | 226  | -5   | 2    | NE NORTH PLATTE   | LBF  | 209   | -8   | 22   | 6008  | 267  | 855  | 5    | 17   |
| AK JUNEAU          | JNU  | 191   | -51  | 2    | 6448  | -516 | 199  | -7   | 3    | NE OMAHA          | ON4  | 245   | 45   | 53   | 5896  | 547  | 887  | 10   | 18   |
| AK KODIAK          | ADQ  | 177   | -50  | 18   | 5706  | -787 | -88  | -12  | -2   | NE VALENTINE      | VTN  | 226   | -12  | 31   | 6262  | 179  | 933  | 3    | 18   |
| AK NOME            | OME  | 279   | -133 | -61  | 10223 | -508 | 532  | -5   | 5    | NV ELY            | ELY  | 195   | -29  | -7   | 5606  | -323 | -179 | -5   | -3   |
| AZ FLAGSTAFF       | FLG  | 166   | -50  | -35  | 5028  | -487 | -512 | -9   | -9   | NV LAS VEGAS      | LAS  | 32    | -40  | -18  | 1912  | -354 | -276 | -16  | -13  |
| AZ PHOENIX         | PHX  | 0     | -42  | -21  | 768   | -556 | -177 | -42  | -19  | NV RENO           | RNO  | 136   | -37  | -50  | 4108  | -609 | -665 | -13  | -14  |
| AZ TUCSON          | TUS  | 8     | -52  | -38  | 1377  | -177 | -118 | -11  | -8   | NW WINNEMUCA      | WMC  | 153   | -34  | -20  | 4963  | -69  | 46   | -1   | 1    |
| AZ WINSLOW         | INW  | 95    | -48  | -48  | 3744  | -359 | 187  | -9   | 5    | NH CONCORD        | CON  | 278   | 45   | 106  | 6057  | -34  | 677  | -1   | 13   |
| AZ YUMA            | YUM  | 0     | -23  | -3   | 486   | -429 | -167 | -47  | -26  | NJ ATLANTIC CITY  | ACY  | 195   | 25   | 61   | 4312  | 111  | 537  | 3    | 14   |
| AR FORT SMITH      | FSM  | 83    | -22  | 17   | 3494  | 358  | 576  | 11   | 20   | NM ALBUQUERQUE    | ABQ  | 80    | -54  | -26  | 3633  | -184 | -196 | -5   | -5   |
| AR LITTLE ROCK     | LM1  | 89    | -11  | 34   | 3260  | 391  | 545  | 14   | 20   | NM ROSWELL        | ROW  | 36    | -52  | -46  | 2973  | 127  | 100  | 2    | 14   |
| CA BAKERSFIELD     | BFL  | 58    | 1    | -9   | 1716  | -138 | -320 | -7   | -16  | NM ALBANY         | ALB  | 291   | 68   | 126  | 5825  | 99   | 720  | 2    | 13   |
| CA EUREKA          | EKA  | 81    | -38  | -11  | 2415  | -918 | -78  | -28  | -3   | NY BINGHAMTON     | BGM  | 295   | 56   | 103  | 5722  | -218 | 650  | -4   | 13   |
| CA FRESNO          | FAT  | 51    | -26  | -15  | 1716  | -523 | -376 | -23  | -18  | NY BUFFALO        | BUF  | 285   | 57   | 112  | 5641  | 140  | 974  | 3    | 21   |
| CA LOS ANGELES     | LAX  | 34    | -22  | -11  | 829   | -340 | -26  | -29  | -7   | NY NEW YORK       | LGA  | 218   | 48   | 89   | 4184  | 85   | 511  | 2    | 14   |
| CA RED BLUFF       | RBL  | 81    | -3   | -1   | 2096  | -155 | -26  | -7   | -1   | NY ROCHESTER      | ROC  | 291   | 66   | 122  | 5549  | 81   | 913  | 1    | 20   |
| CA SAN DIEGO       | SAN  | 13    | -29  | 0    | 485   | -485 | -116 | -50  | -19  | NY SYRACUSE       | SYR  | 312   | 87   | 133  | 5933  | 395  | 839  | 7    | 16   |
| CA SAN FRANCISCO   | SFO  | 56    | -28  | -26  | 1590  | -745 | -612 | -32  | -28  | NC ASHEVILLE      | AVL  | 123   | -10  | 12   | 3798  | 132  | 422  | 4    | 13   |
| CA STOCKTON        | SCK  | 63    | -18  | -13  | 2030  | -246 | -232 | -11  | -10  | NC CAPE HATTERAS  | HAT  | 123   | 18   | 45   | 2389  | 83   | 439  | 4    | 23   |
| CO DENVER          | DEN  | 144   | -49  | -50  | 5264  | 429  | 458  | 9    | 10   | NC CHARLOTTE      | CLT  | 101   | -7   | 2    | 3133  | 151  | 344  | 5    | 12   |
| CO GRAND JUNCTION  | GJT  | 112   | -52  | -15  | 4629  | -219 | 578  | -5   | 14   | NC GREENSBORO     | GSO  | 125   | -2   | 13   | 3584  | 180  | 331  | 5    | 10   |
| CO PUEBLO          | PUB  | 121   | -55  | -47  | 4833  | 261  | 470  | 6    | 11   | NC RALEIGH DURHAM | RDU  | 122   | 2    | 29   | 3272  | 142  | 413  | 5    | 14   |
| CT BRIDGEPORT      | BDR  | 219   | 28   | 72   | 4523  | 65   | 401  | 1    | 10   | ND BILMINGTON     | ILM  | 82    | -1   | 17   | 2339  | 90   | 174  | 4    | 8    |
| CT HARTFORD        | BHL  | 250   | 50   | 100  | 5209  | 60   | 550  | 1    | 12   | ND BISMARCK       | BIS  | 340   | 61   | 116  | 7370  | -154 | 877  | -2   | 14   |
| DE WILMINGTON      | ILG  | 212   | 46   | 89   | 4524  | 312  | 876  | 7    | 24   | ND FARGO          | FAR  | 347   | 55   | 105  | 7691  | -102 | 852  | -1   | 12   |
| DC WASHINGTON      | DCA  | 160   | 22   | 58   | 3621  | 31   | 583  | 1    | 19   | OH AKRON-CANTON   | CAK  | 247   | 45   | 88   | 5159  | 3    | 945  | 0    | 22   |
| FL APALACHICOLA    | ACA  | 32    | -7   | -41  | 1561  | 230  | 374  | 17   | 32   | OH CLEVELAND      | CLE  | 250   | 48   | 93   | 5403  | 322  | 1269 | 6    | 31   |
| FL DAYTONA BEACH   | DAB  | 20    | -7   | -25  | 1037  | 182  | 211  | 21   | 26   | OH COLUMBUS       | CMH  | 219   | 41   | 79   | 5044  | 243  | 991  | 5    | 24   |
| FL FORT MEYER      | FMY  | 0     | -9   | -18  | 378   | -57  | 49   | -13  | 15   | OH DAYTON         | DAY  | 198   | 33   | 67   | 4882  | 396  | 1226 | 9    | 34   |
| FL JACKSONVILLE    | JAX  | 23    | -17  | -36  | 1454  | 118  | 149  | 9    | 11   | OH CINCINNATI     | CVG  | 228   | 46   | 82   | 5294  | 479  | 1151 | 10   | 28   |
| FL KEY WEST        | EYW  | 0     | 0    | -2   | 78    | -38  | 33   | -33  | 73   | OH TOLEDO         | TOL  | 271   | 60   | 104  | 5811  | 371  | 1146 | 7    | 25   |
| FL MIAMI           | MIA  | 0     | -3   | -19  | 186   | -10  | 59   | -5   | 46   | OH YOUNGSTOWN     | YNG  | 253   | 42   | 86   | 5453  | 75   | 1215 | 1    | 29   |
| FL ORLANDO         | MCO  | 4     | -12  | -31  | 722   | 79   | 143  | 12   | 25   | OK OKLAHOMA CITY  | OKC  | 97    | -19  | 11   | 3613  | 282  | 630  | 8    | 21   |
| FL ORLANDO HASSEE  | TLH  | 24    | -19  | -37  | 1680  | 135  | 361  | 9    | 27   | OK TULSA          | TUL  | 89    | -26  | 12   | 3422  | 73   | 540  | 2    | 19   |
| FL TAMPA           | TPA  | 1     | -19  | -30  | 714   | -4   | 154  | -1   | 27   | OR ASTORIA        | AST  | 111   | -36  | 18   | 3658  | -158 | 587  | -4   | 19   |
| FL WEST PALM BEACH | PBI  | 0     | -3   | -22  | 286   | 23   | 68   | 9    | 31   | OR BURNS          | 4BM  | 192   | -11  | 1    | 6422  | 989  | 820  | 18   | 15   |
| GA ATLANTA         | ATL  | 73    | -17  | -18  | 2895  | 187  | 393  | 7    | 16   | OR MEDFORD        | MFR  | 114   | -24  | -1   | 3491  | -295 | 3    | -8   | 0    |
| GA AUGUSTA         | AGS  | 65    | -15  | -7   | 2389  | 39   | 242  | 2    | 11   | OR PENDELTON      | PDT  | 122   | -28  | -9   | 4398  | 127  | 440  | 3    | 11   |
| GA MACON           | MCN  | 46    | -23  | -20  | 2155  | 36   | 340  | 2    | 19   | OR PORTLAND       | PDX  | 94    | -44  | -2   | 3259  | -376 | 165  | -10  | 5    |
| GA SAVANNAH        | SAV  | 36    | -19  | -11  | 1784  | -18  | 220  | -1   | 14   | OR SALEM          | SLE  | 113   | -29  | -1   | 3326  | -443 | -451 | -12  | -2   |
| HI HILO-HAWAII     | HLO  | 0     | 0    | 0    | 0     | 0    | 0    | **   | **   | PA ALLENTOWN      | ABE  | 228   | 39   | 82   | 4988  | 82   | 686  | -2   | 16   |
| HI HONOLULU-OAHU   | HNL  | 0     | 0    | 0    | 0     | 0    | 0    | **   | **   | PA ARIE           | ERI  | 258   | 34   | 89   | 5172  | -223 | 848  | -4   | 20   |
| HI KAHULUI-MAUI    | OGG  | 0     | 0    | 0    | 0     | 0    | 0    | **   | **   | PA HARRISBURG     | CXY  | 217   | 43   | 71   | 4900  | 382  | 990  | 8    | 25   |
| HI LIHUE-KAUAI     | LII  | 0     | 0    | 0    | 0     | 0    | 0    | **   | **   | PA PHILADELPHIA   | PHL  | 217   | 51   | 82   | 4407  | 210  | 687  | 5    | 18   |
| ID BOISE           | BOI  | 147   | -20  | -7   | 5220  | 530  | 829  | 11   | 19   | PA PITTSBURGH     | PIT  | 232   | 43   | 66   | 5159  | 185  | 947  | 4    | 22   |
| ID LEWISTON        | LWS  | 123   | -35  | -18  | 4319  | -100 | 397  | -2   | 10   | PA SCRANTON       | AVP  | 254   | 48   | 79   | 5200  | -53  | 532  | -1   | 11   |
| ID POCATELLO       | PIH  | 174   | -36  | -11  | 6235  | 463  | 1052 | 9    | 22   | RI PROVIDENCE     | PVD  | 219   | 23   | 65   | 4580  | -226 | 395  | -5   | 9    |
| IL CHICAGO         | ORD  | 255   | 48   | 62   | 5840  | 555  | 872  | 10   | 16   | SC CHARLESTON     | CHS  | 47    | -19  | -4   | 1882  | -99  | 186  | -5   | 11   |
| IL MOLINE          | MIL  | 246   | 36   | 85   | 5651  | 117  | 1044 | 2    | 23   | SC COLUMBIA       | CAE  | 70    | -12  | -6   | 2629  | 223  | 237  | 9    | 10   |
| IL PEORIA          | PIA  | 245   | 46   | 96   | 5407  | 98   | 1069 | 2    | 25   | SC GREENVILLE     | GSP  | 86    | -21  | 4    | 3177  | 281  | 473  | 10   | 17   |
| IL ROCKFORD        | RFD  | 264   | 41   | 82   | 6107  | 265  | 1144 | 5    | 23   | SD ABERDEEN       | ABR  | 304   | 36   | 95   | 6998  | -182 | 999  | -3   | 17   |
| IL SPRINGFIELD     | SPI  | 241   | 59   | 94   | 5221  | 363  | 2039 | 7    | 25   | SD HURON          | HON  | 278   | 23   | 80   | 6594  | -120 | 1014 | -3   | 18   |
| IN EVANSVILLE      | EVV  | 168   | 15   | 57   | 4359  | 223  | 1077 | 5    | 28   | SD RAPID CITY     | RAP  | 224   | -7   | 34   | 5874  | -135 | 746  | -1   | 15   |
| IN FORT WAYNE      | FWA  | 256   | 54   | 103  | 5378  | 93   | 1160 | 2    | 28   | SD SIOUX FALLS    | SFD  | 302   | 54   | 85   | 6785  | -459 | 804  | 2    | 13   |
| IN INDIANAPOLIS    | IND  | 212   | 33   | 75   | 5054  | 238  | 1023 | 5    | 25   | TN CHATTANOOGA    | CHA  | 98    | -15  | 9    | 3426  | 239  | 599  | 7    | 21   |
| IN SOUTH BEND      | SNB  | 248   | 42   | 91   | 5494  | 203  | 1183 | 4    | 27   | TN KNOXVILLE      | TYS  | 106   | -10  | 14   | 3516  | 264  | 535  | 8    | 18   |
| IA DES MOINES      | DSM  | 257   | 42   | 95   | 5804  | 193  | 1087 | 3    | 23   | TN MEMPHIS        | MEM  | 64    | -39  | 14   | 3063  | 152  | 587  | 5    | 24   |
| IA DUBUQUE         | DBQ  | 281   | 45   | 95   | 6334  | 141  | 1023 | 2    | 19   | TN NASHVILLE      | BNA  | 111   | -10  | 21   | 3565  | 224  | 751  | 7    | 27   |
| IA SIOUX CITY      | SUX  | 261   | 37   | 62   | 6108  | 157  | 671  | 3    | 12   | TX ABILENE        | ABI  | 31    | -44  | -47  | 2648  | 247  | 282  | 10   | 12   |
| KS CONCORDIA       | CNK  | 188   | 7    | 25   | 5140  | 326  | 533  | 7    | 12   | TX AMARILLO       |      |       |      |      |       |      |      |      |      |

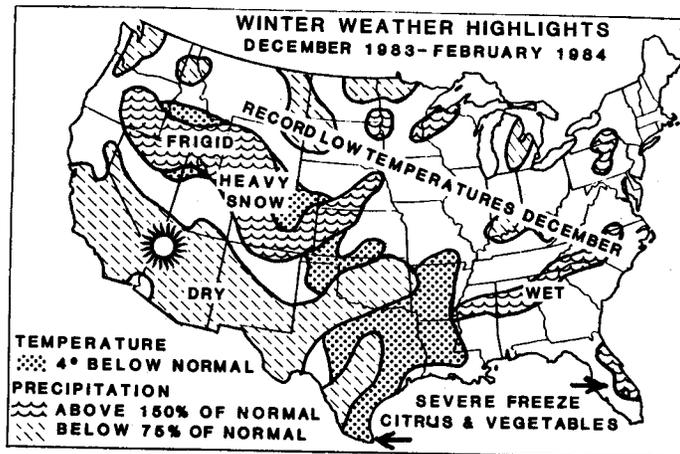
FAX CHART 136

OCT 73



## Winter Weather Review

December 1983 and January and February 1984



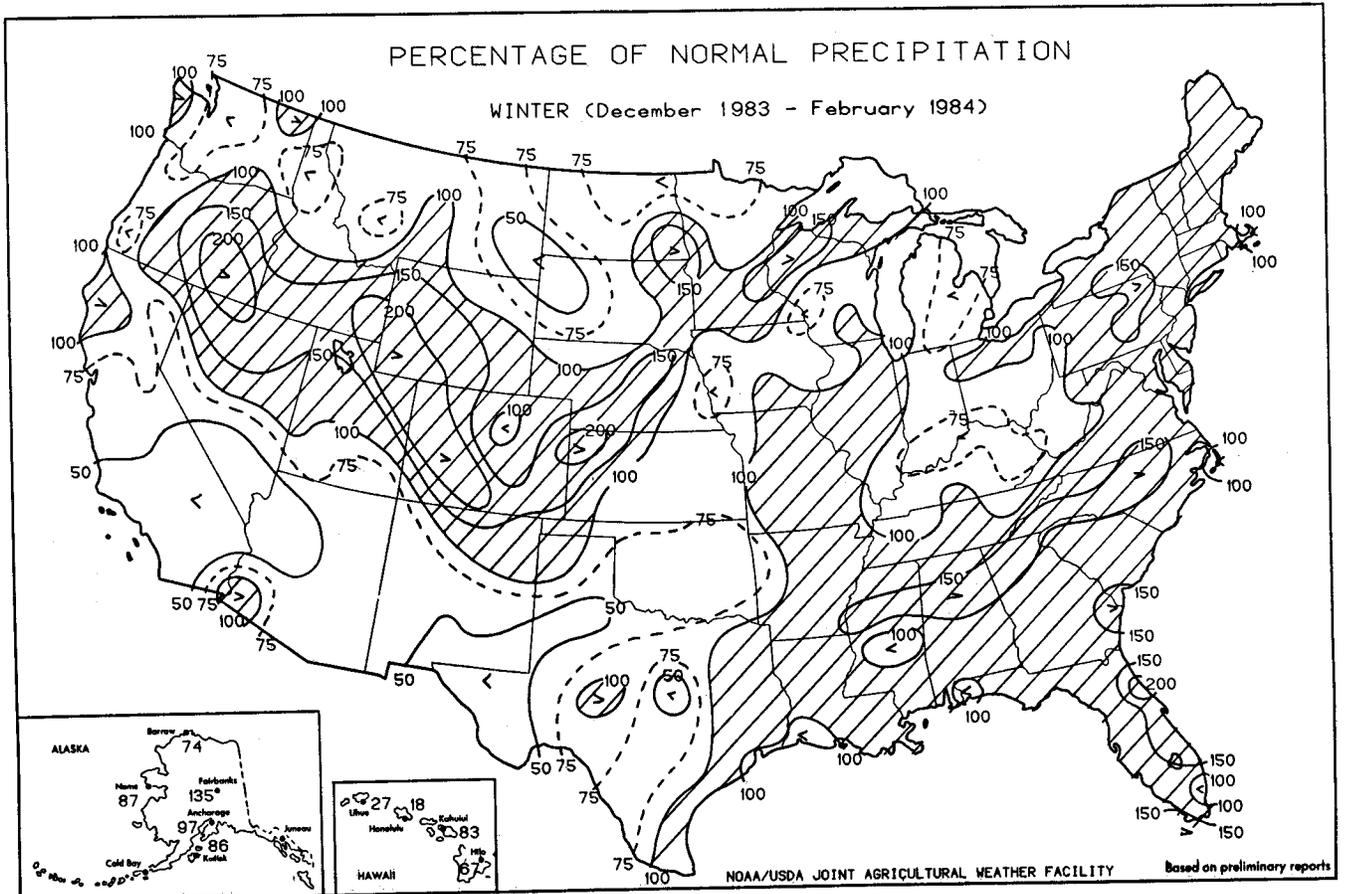
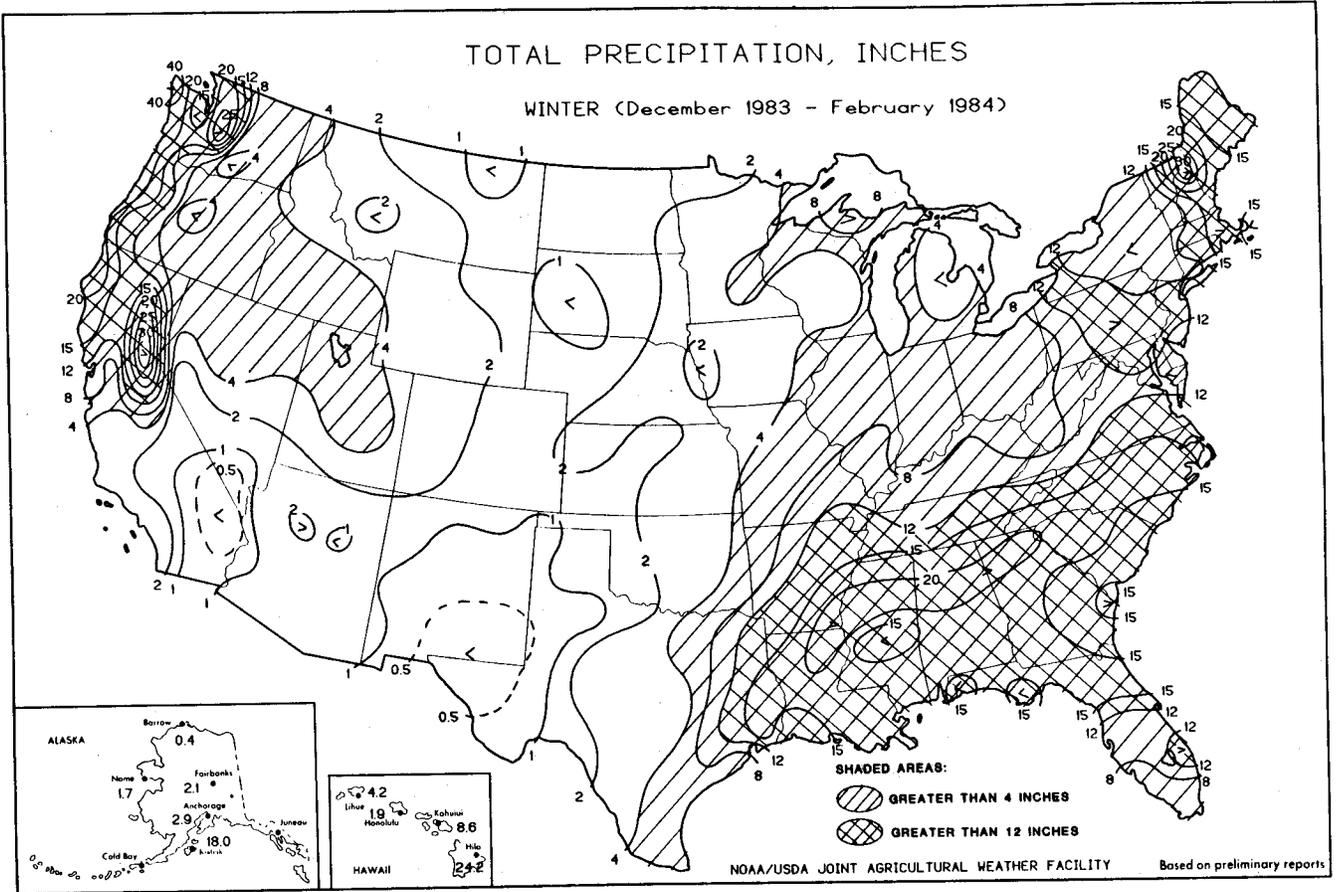
**HIGHLIGHTS:** Frigid arctic air blanketed much of the Nation east of the Rockies during most of December. A recordbreaking, bitter cold outbreak during the Christmas holidays severely froze citrus and vegetables in Texas and parts of Florida and northeastern Mexico. December temperatures were more than 150F below normal over the northern and central sections of the Rockies and Great Plains, and down to a bone-chilling 240F below normal in north-central Montana. However, the pattern shifted over the northern Plains in January, as temperatures became warmer than usual and continued into February. Most of the Rockies and parts of the northern Great Basin were extremely cold with heavy snow throughout the winter, causing unusual starvation and freezing of wildlife and stressing livestock. In contrast, sunny, dry weather generally dominated the Southwest. Southern California and much of West Texas received less than half the usual rainfall, causing soil moisture shortages in some High Plains wheatlands, especially around Lubbock, Texas. The Southeast was frequently too wet, delaying outdoor activities.

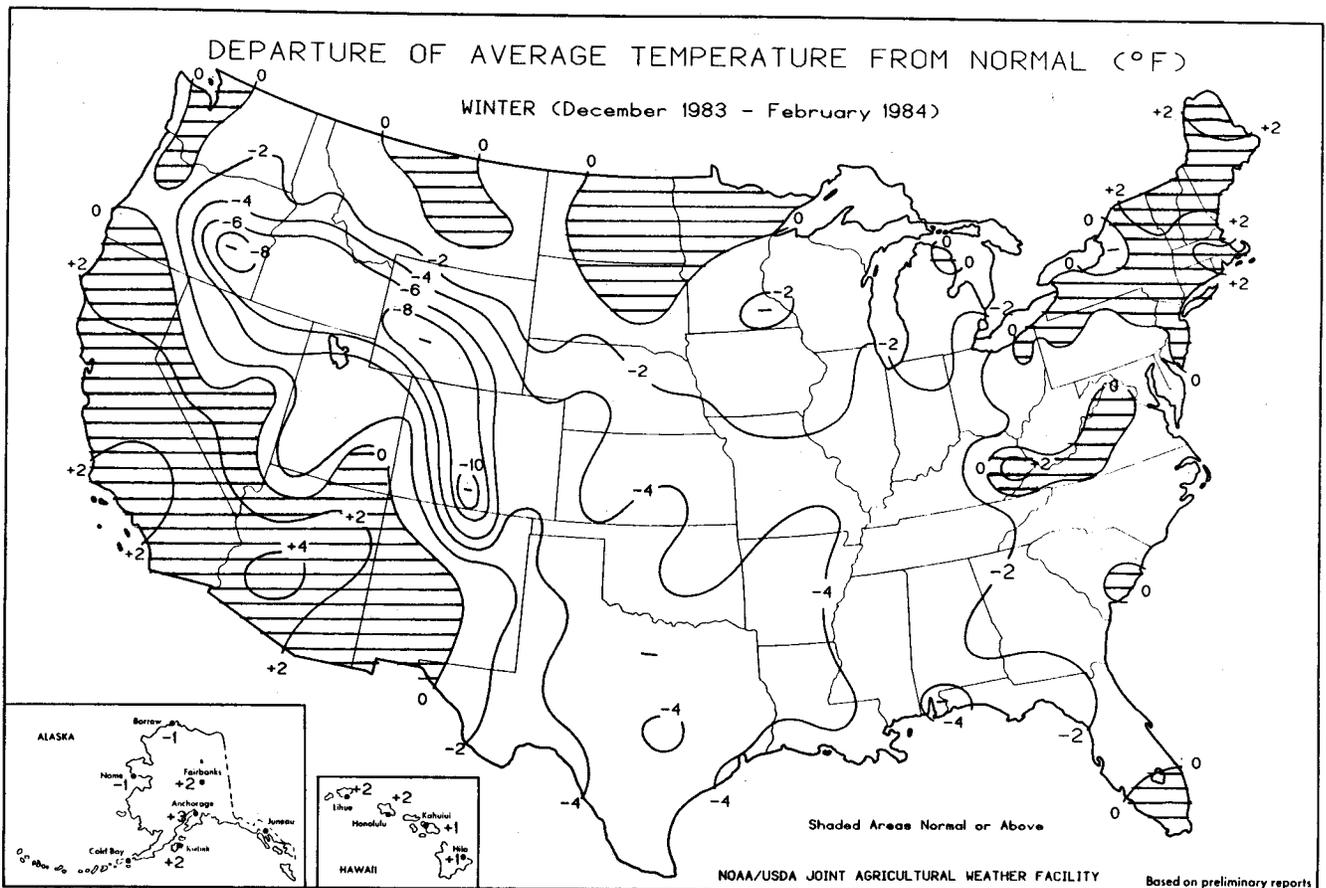
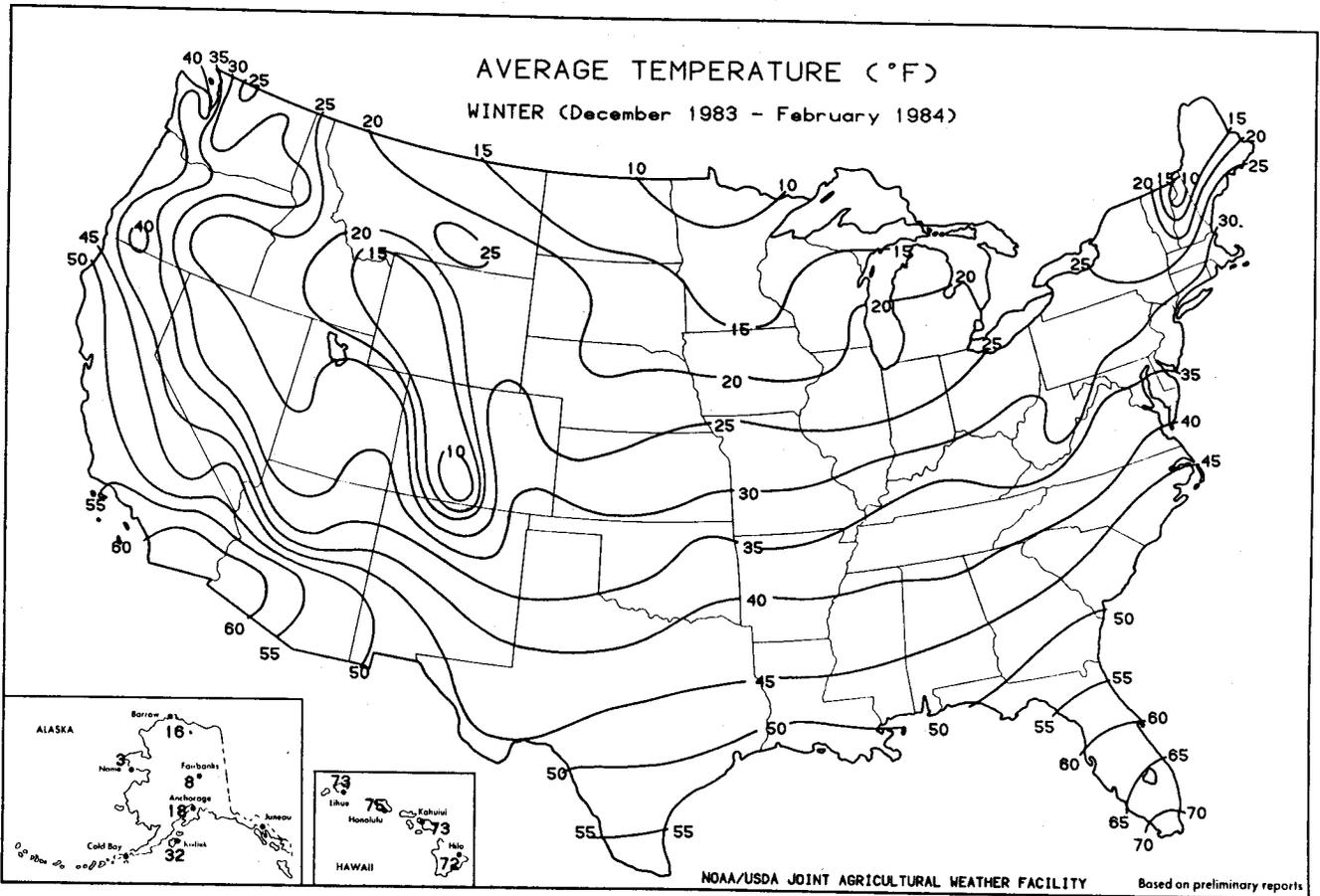
**DECEMBER:** A succession of frigid arctic outbreaks pushed into the northern Plains early in the month, and by the third week covered all of the Nation except the Southwest. Many record-low temperatures were broken. The third week of the month was one of the coldest on record. Frigid air pushed into the vegetable and citrus areas of southern Texas and then moved eastward and covered much of Florida. Low temperatures, below 200F, severely damaged citrus fruit and trees and destroyed vegetables. After three days of freezing weather, afternoon temperatures rose to 800F in central Florida and tempered the salvage operation. Snow covered much of the Nation, offering a protective blanket to winter grains. Snow cover reached as far south as northern Texas, over the Appalachians, and through the Northeast. Freezing rain fell from eastern Texas and Arkansas to northern Georgia and throughout the East Coast States to the mid-Atlantic

area. In contrast to the severely cold weather, the Southwest remained warmer than normal all month. At the end of the month, warmer Pacific air moved into the West and temperatures rose to above freezing for the first time in many weeks over the Plateau, the Rockies, and the high Plains.

**JANUARY:** Average temperatures were warmer than normal in the northern Plains, the northern Rockies, the Southwest, and along the west coast. The central plateau of the Rockies, the South, and the East were colder than normal. Snow cover disappeared over most of the Plains leaving winter wheat exposed to possible cold damage. Much of the Nation had well-below normal precipitation. Many areas in the West and Southwest had little or no precipitation. In the East, a large area, with the axis from west-central Texas to New England, had well-below normal precipitation. Precipitation was ample in southern and southeastern Texas, the western portion of the central Plains, and from Georgia to south-central Virginia.

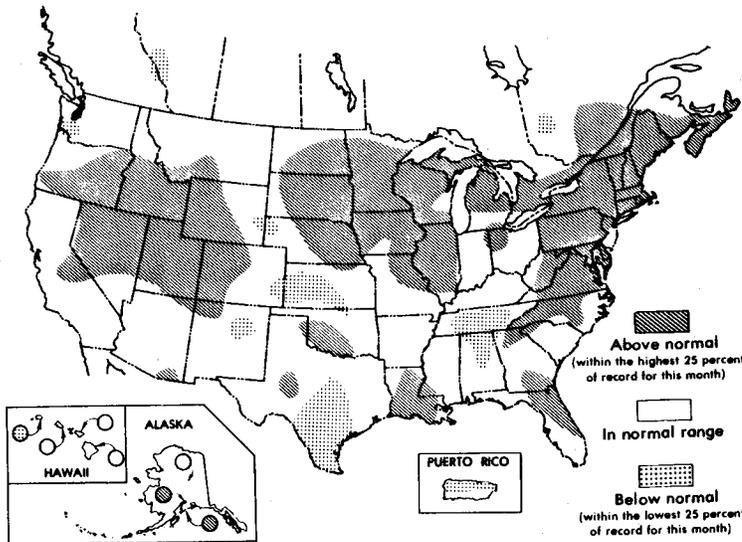
**FEBRUARY:** Unseasonably mild weather generally continued over the northern Plains and spread southward into the central Plains and eastward to the Atlantic seaboard. However, two major cold outbreaks covered the eastern half of the Nation for several days during the first and fourth weeks of the month. Abnormal wetness stretched from the mid-Appalachians into New England, and over the western Great Lakes region, south-central Florida, northeast Texas, and from Missouri to Oregon. The major winter storm at the end of the month dumped considerable snow from the central Plains to the Appalachians, and northward to the Great Lakes and New England, causing severe chill, several fatalities, traffic accidents, and hampering transportation and election voter turnout in Iowa and New Hampshire. Drier than usual weather continued over the Southwest and extended into the central High Plains of West Texas, southwestern Nebraska, and the northwestern Great Plains.





## STREAMFLOW DURING FEBRUARY

U.S. Geological Survey



### NATION'S WATER PICTURE CONTINUES WET, DRAMATIC STREAMFLOW INCREASE IN EAST

Streamflows increased dramatically in the Northeast and were well-above average in the upper Mississippi River basin and the western mountain States during February, according to the regular monthend check on the Nation's water resources by the U.S. Geological Survey (USGS), Department of the Interior.

USGS hydrologists said that prolonged rains in the East, abetted by warmer temperatures that melted accumulated snow and ice, pushed February streams to well-above average flows at 90 percent of the region's 29 key index gaging stations. By contrast, in January, none of these same stations reported above-average flows.

Nationwide, 55 percent (94 stations) of the 172 key index gaging stations reported streamflows that were well-above average (within the highest 25 percent of long-term record), 38 percent reported average flows (65 stations), and only 7 percent (13 stations) reported flows that were well-below average.

Record- or near-record high streamflows occurred at 29 index stations in 13 States, including Alaska, the District of Columbia, Florida, Georgia, Iowa (3), Kansas, Michigan (2), Minnesota (5), New York (3), North Dakota, Utah (4), Virginia (2), and Wisconsin (4). Flow of the Cedar River at Cedar Rapids, Iowa, for example, set a new record-high flow for February of 7.6 bgd, the highest February flow in 82 years of record.

The combined average flow of the Nation's three major rivers—Mississippi, St. Lawrence, and Columbia—reflected the generally above-average February streamflow conditions. Up by 11 percent over January, the rivers totalled 679 billion gallons a day (bgd), 4 percent above the long-term average for February. These three rivers drain more than half of the lower 48 States and provide a useful check on the status of the Nation's water resources.

Hydrologist Hai Tang of the USGS National Center in Reston, Va., said that groundwater levels were generally higher than usual for February. New record-highs were recorded at key wells in Iowa and Maine. The key well near Dunning, Neb., reached a level of 2.46 feet below the land surface, the highest level in 50 years of record. In Nevada, the Steptoe Valley and Paradise Valley wells were at record-high levels for February. The index well in Las Vegas, Nev., by contrast, set a new record-low level, the lowest in 40 years of record.

Working in cooperation with Federal, State, and local officials, USGS hydrologists routinely gather data on the quantity and quality of the Nation's surface and ground-water resources at more than 45,000 sites across the country. Highlights of February water-resources conditions include:

**FIVE LARGE RIVERS:** Average flows of the so-called "Big Five" rivers were up substantially from January, with only the Columbia River showing a month-to-month decrease. Flows of the "Big Five" rivers for February: the Mississippi River at Vicksburg, Miss., 427 bgd, 2 percent below average, but 18 percent more than the flow in January; the St. Lawrence River near Massena, N.Y., 171 bgd, 13 percent above average, and an increase of 11 percent from last month; the Ohio River at Louisville, Ky., 113 bgd, equal to the long-term average, but nearly twice the flow of January; the Columbia River at The Dalles, Ore., 81 bgd, 22 percent above the long-term average, but down 14 percent from January; and the Missouri River at Hermann, Mo., 60 bgd, 88 percent above the average February readings, and 84 percent greater than last month.

**NEW YORK:** Precipitation and above-normal temperatures produced heavy runoff throughout the State. Three of the State's six key index gaging stations established near-record high average flows for February. Flow of the Hudson River at Hadley, N.Y., for example, was 3.0 bgd, the second highest flow for February in 62 years. Accelerated recharge of groundwater aquifers occurred throughout the State, with 13 of the 15 key index wells reporting above-average monthly levels. The New York City reservoir system, which was at a critically low stage two months earlier, rose to 85.7 percent of capacity on February 28, about 2 percent above average for the month.

**WISCONSIN:** In response to above-normal temperatures and heavy precipitation, streamflow in Wisconsin was at record- or near-record high levels for February at four of the five key index gaging stations. Flow of the Jump River at Sheldon, Wis., for example, was 370 million gallons a day, the highest February flow since recordkeeping began at this site in 1915. Flow of the Chippewa River at Chippewa Falls, Wis., averaged 4.5 bgd, the highest February average flow in 96 years.

**UTAH:** All seven USGS key index gaging stations remained well-above average in Utah during February. Flow of the Colorado River near Cisco, Colo., averaged 4.0 bgd, the highest February flow of historic record. The Great Salt Lake rose a little more than 4 inches during February to an elevation of 4206.7 feet. It is now 4.25 feet higher than a year ago, up more than 6 feet since it began rising in mid-1982, and is at its highest level since 1887. Groundwater levels were generally above average in the Logan, Blanding, and Flowell areas, and below average in the Holladay area.

## National Agricultural Summary

March 12 to 18

**HIGHLIGHTS:** Wet fields from eastern portions of the central and southern Plains through the Corn Belt and Southeast kept spring plowing and planting behind schedule in many areas. Southern farmers had 2 to 4 days suitable for fieldwork. Soil moisture was adequate to surplus across the eastern half of the Nation and short to adequate in the West.

Corn planting became more widespread in the South, reaching 32% and 13% completion in Texas and Louisiana, respectively. However, progress lagged normal in all States except Texas. Sorghum planting continued with most activity centered in Texas where seeding was 29% finished, equaling the average. Winter wheat received beneficial precipitation from eastern portions of the Great Plains through the Corn Belt. However, western portions of the Great Plains need rainfall to relieve dry conditions in some areas. Wheat continued in fair to good condition, but some winterkill began appearing in portions of the central Plains. Cotton planting continued in Arizona and Texas, while California producers neared completion of land preparation. Tobacco seeding and transplanting gained momentum. Peaches bloomed across the South from South Carolina to Texas. Vegetable planting advanced northward in the extreme South. Rain delayed land preparation in northern California, and planting and harvesting in southern Florida. Pastures were in mostly fair condition and improving across the South. Livestock producers continued supplemental feeding because of muddy conditions or snow in many areas. Some western producers in the higher elevations were experiencing calving and lambing losses due to weather-related stress.

**SMALL GRAINS:** New snow cover and colder temperatures delayed winter wheat development from the northern Plains through portions of the Corn Belt. However, the moisture will benefit stands as warmer temperatures return. Winter wheat was in fair to good condition in the major producing States. Topdressing was frequently interrupted by showers from eastern portions of the southern Plains into the Corn Belt.

Kansas wheat was in fair to good condition, but winterkill began showing up in some areas. Soil moisture was short in the West where stands were rated poor to fair. Eastern fields were rated mostly good with surplus moisture available. Central districts had some light to moderate wind damage. Producers reported increasing disease infestations in some areas. Cold temperatures early in the week retarded winter wheat development in Oklahoma. Showers brought relief to dry areas and stands were rated fair to good statewide. Ten percent of the crop was jointing, equaling the average for this date. Weeds continued to plague producers statewide, and some fields in the north and east showed significant disease problems. Most of Texas could use a good rain to ensure continued growth of small grains. Warmer weather allowed excellent winter wheat growth in southern and central Texas. Irrigated wheat on the High Plains provided adequate grazing. However, dryland wheat, while improving, provided little or no grazing. Texas wheat was in mostly fair to good condition. Winter wheat was still dormant in Montana. Stands were in good condition. Soil moisture was adequate, except in north-central and eastern portions of the State.

**OTHER CROPS:** Corn planting became more widespread as fields dried across the South. Most planting centered in the Gulf States with 11% planted in Georgia and Mississippi, 13% in Louisiana, and 32%

planted in Texas. Progress trailed normal in all States except Texas.

Sorghum planting was confined to Texas where 29% of the crop was planted, equaling the average. Planting neared completion in the Rio Grande Valley and was active elsewhere, except in north-central Texas where rain delayed progress. Rice planting started in the Gulf States. Progress ranged from just starting to 6% complete in Louisiana. Tobacco transplanting gained momentum in the extreme Southeast as fields dried. Seeding of plantbeds advanced rapidly in other areas.

Cotton planting became more widespread in Arizona. Seeding was underway in the Central Valley with 5% to 10% planted in Maricopa County and 30% finished in Yuma County. Texas producers had planted 3% of their cotton, 2 percentage points behind normal. Planting neared completion in the Coastal Bend area and increased with warmer soil conditions in the Rio Grande Valley. California producers expect planting to begin in a few weeks. Southeastern growers were behind schedule because of wet conditions.

**FRUITS AND NUTS:** Rain and snow halted pruning of many northern deciduous fruit orchards. Peaches were blooming from South Carolina to Texas, and buds were swelling northward into Virginia.

Florida's undamaged citrus groves were in full bloom and continued in good condition with adequate moisture. New growth was showing on most freeze-damaged trees. Valencia orange picking slowed but grapefruit harvesting continued active.

Tree removal and pruning of freeze-damaged trees was active in Texas citrus groves. Arizona's citrus groves were generally in good condition. Tangerine picking was slowing, while seasonal volumes of lemons, grapefruit, and Valencia oranges were harvested.

California peaches and plums entered the petal fall stage. Early cherries, pears, and prunes continued blooming. Lemon, tangerine, and Navel orange picking continued. Almond trees leafed out, while Serr walnuts showed catkins.

**VEGETABLES:** Early season vegetable planting crept northward. However, wet fields delayed planting in many areas.

Heavy rain slowed fieldwork in Florida's vegetable growing areas. Total shipments increased 26% from the previous week. All crops gained in volume, except cabbage, celery, Chinese cabbage, escarole, parsley, and radishes which remained steady. Strawberry supplies should continue at peak levels for the next 3 weeks. Watermelons were blooming and setting fruit.

Texas producers harvested carrots, cabbage, and spinach. Planting of spring vegetables was on schedule in most regions. Additional rain and warm temperatures aided development of vegetable crops. Arizona's lettuce crop was in good condition and making normal growth. Harvesting was active in the Salt River Valley, Yuma, and Parker-Poston areas. Growers in these areas harvested a wide variety of vegetables. Melon planting continued active.

Harvesting of asparagus, broccoli, cauliflower, carrots, and celery continued active in California. Producers planted broccoli, cauliflower, celery, sweet corn, cantaloups, and other melons. Lettuce harvesting was in full swing in the Palo Verde Valley and started in the San Joaquin Valley. Strawberry picking increased along the southern coast and near Santa Maria. Tomato planting continued active in the Sacramento and San Joaquin Valleys.

(continued on back cover)

## 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 SRS State Statistical Offices in cooperation with the National Weather Service.

**ALABAMA:** Temperatures averaged 4 to 11° above normal. Soil temperatures averaged mid to upper 50's north, upper 60's south. Rainfall ranged from 0.50 to 2.00 in.

Fieldwork: 4.2 days. Activities: Care of livestock and poultry, planting of corn and some vegetables, pruning fruit trees, and applying nitrogen to wheat. Pasture and stored feed, mostly short. Fieldwork behind schedule. Plowing 25%. Conditions: Livestock, wheat and pasture mostly fair.

**ARIZONA:** Very warm dry, low humidities, occasional windy conditions over State. Mostly sunny in south, partly cloudy in north. Few sprinkles over Grand Canyon, Flagstaff on 14th, few sprinkles, snow flurries on 17th. Average temperatures 4 to 11° above seasonal normals.

Spring lettuce packing increased Salt River Valley, continued active Yuma, Parker-Poston areas, volumes heavy. Lettuce packing started in Harquahala Valley, expected to start Eloy area by March 23. Lettuce crops generally good condition, normal growth. Yuma growers harvested moderate volumes cauliflower. Packing broccoli, cabbage, asparagus declined. Salt River Valley growers harvested heavy volumes broccoli, greens, green onions, leaf lettuce, Romaine. Mixed vegetable harvests active. Potato planting nearly complete. Seedbed preparation, planting cantaloups, watermelons, honeydews active Yuma area. Early plantings good condition, normal growth. Melon planting continued Parker-Poston. Cotton seedbed preparation, pre-irrigation active. Planting underway in Central Valley, 5 to 10% planted Maricopa County. Planting 30% complete Yuma. Growers ahead of normal progress. Wheat, barley good condition, weed, insect controls applied as needed. Crop progress ahead of last year, well over half acreage jointing. Heading, flowering well advanced Yuma, 10% turning color. Safflower average condition, most stands established. Some alfalfa hay harvested Yuma. Lemon, grapefruit, Valencia picking continued, seasonal volumes moved. Tangerine harvest winding down. Groves generally good condition.

**ARKANSAS:** Sunny and dry on 13th and 14th. Rest of week mild with scattered showers and thunderstorms. Highest temperature 84°, lowest 27°. Highest rainfall 2.66 in., lowest 0.72 in.

Pastures moist and beginning to green. Wheat in good condition with second nitrogen application still proceeding. Soil moisture more than adequate. Livestock condition good.

**CALIFORNIA:** Precipitation was scattered through much of the week as a series of relatively warm storms moved across the State. The only area without measurable precipitation was the low Desert of the southeast interior. The largest rain totals were along the Sierras western flank and the north coast mountains. Snowfall at the higher Sierra levels replenished and augmented the snow packed there. Weekly mean temperatures averaged about 5° above the seasonal normals. Freezing temperatures generally were confined to the high Sierra and northeast interior.

Rain showers northern State well received, improved soil moisture for small grains. Warmer weather assisting development all crops. Irrigation, fertilizer, herbicide application ongoing most crops. Small grains being green chopped, cut for silage. Cotton ground preparation continues as planting will get underway in a few weeks. Alfalfa fields being treated for weevils. Safflower fields growing well. Field corn planting beginning to get underway. Rain slowed fieldwork, northern areas.

Apple growers sprayed for scale. Ventura avocado growers irrigated heavily. Early cherries bloomed. Grapes leafed out growers worked the soil. Some vines treated for cutworm or mealy bug. Kiwifruit vines pushed new growth. Thrips treated in Nectarine orchards. Most peaches and plums at petal fall stage. Pears and prunes bloomed. Lemon and tangerine harvests continued. Navel oranges picked with drying increasing in large-sized fruit. Almonds leafed out, some trees treated for shothole. Serr walnuts showed catkins, some orchards treated for scale. Asparagus harvest increased Delta, Salinas Valley, San Joaquin Valley, continued heavy Desert, Orange County. Planting, harvesting broccoli, cauliflower Central Coast, harvest continued South Coast. Planting cantaloupe, other melons San Joaquin Valley. Carrot harvest active Desert. Celery planting active Central Coast, harvest active South Coast. Sweet corn planting active Desert, San Joaquin Valley. Lettuce harvest full swing Palo Verde Valley, started San Joaquin Valley. Harvest winter potatoes continued Kern, Riverside districts. Fall potato movement active Tulelake-Butte Valley. Strawberry harvest increased South Coast, Santa Maria. Seeding sweetpotato hotbeds continued San Joaquin Valley. Planting market tomatoes active San Joaquin Valley. Planting processing tomatoes heavy Sacramento, San Joaquin Valleys. Widespread rainfall beneficial range grasses central, northern California. Rangeland grasses southern areas maturing early. Spring calving, lambing continue.

**COLORADO:** First part of week was dry. Storm late 14th and 15th brought 0.25 to 0.50 in. of new moisture to western valley and up to 7 in. of new snow in the mountains. On 18th a dangerous storm moved across the State, leaving 1 to 8 in. of new snow on the plains, accompanied by high winds and cold temperatures. Precipitation west of the Continental Divide was generally less than 0.10 in. Temperatures near normal in San Luis Valley; 5° above normal other locations.

The 1984 winter wheat crop in fair to good condition. Wind and winter freeze damage light. Seeding of spring wheat, oats and barley getting a slow start due to wet field conditions. The largest growing area, the San Luis Valley, has not yet started. Livestock in generally good condition Statewide.

**FLORIDA:** Bright sunshine, dry air and quite moderate winds dominated under high pressure, except for brief period early week, when heavy rains of 2.00 to 3.00 in. fell over central and south as an area of lower pressure briefly passed over southern half of State.

Soil moisture mostly adequate. A few scattered wet areas; a few dry spots mostly central interior, southeast coast. Corn planting active. Some early corn being replanted due to hard rains. Tobacco transplanting underway. Tobacco plants in beds very good condition. Land preparation active most areas. Small grain mostly good condition. A few wheat fields slow in responding to warmer weather. Young sugarcane improving. Pasture conditions range from poor to mostly fair in the north, Panhandle, and central localities, good to excellent, south. Cattle condition has improved slightly but remains generally fair to good Statewide. Most undamaged citrus groves full bloom and good condition. Moisture mostly adequate, very little irrigation. New growth showing on most freeze damaged trees. Remaining Valencias and grapefruit good condition. Harvest slowing on Valencias but active on grapefruit. A cool front moved through vegetable growing areas on the 12th. Rainfall averaged 1.00 to 2.00 in. most areas. Overall

shipments increased 26% over the previous week. Most crops have responded to warmer weather. Crops gaining in shipments were snap beans, carrots, cauliflower, sweet corn, cucumbers, eggplant, lettuce, green peppers, potatoes, squash, strawberries, tomatoes. Crops holding steady were cabbage, celery, Chinese cabbage, escarole, parsley, radishes. Strawberry supplies should be at peak level next three weeks. Tomatoes should provide good volume into June. Watermelons setting fruit, blooming. First harvest expected mid-April in the Immokalee area. Cutting of cabbage should resume in the Sanford-Hastings areas in two weeks.

**GEORGIA:** Rainfall totals were around 1.00 in. north with 0.25 in. or less central and less than 0.10 in. south. Air temperatures averaged well above normal with four inch soil temperatures averaging mid 50's north to low and mid 60's central and south.

Soil moisture 36% adequate, 64% surplus. Average days suitable for fieldwork 3.0. Wet fields delaying land preparation and planting. Corn 11% planted, last year 11%, average 25%. Tobacco 2% transplanted, last year 2%, average 10%; condition 57% good, 29% fair and 14% poor. Plants need transplanting but soils too wet. Watermelons 12% planted, 11% last year, 25% average. Wheat 5% in boot stage, last year 9%; jointing 34%, last year 51%; condition 52% good; 40% fair, 6% poor. Other small grains 43% fair, 37% good, 16% poor; some earlier freeze damage. Peaches 62% blooming; 57% last year; condition 78% good, 20% fair. Pastures 44% fair, 32% good, 21% poor.

**HAWAII:** The high pressure area moved eastward during the week but still provided the State with sunny days, light winds and sparse rainfall. Temperatures reached record high levels in some parts of the State on 13th and 15th. Overnight lows were in the upper 60's to low 70's.

Some crops showing signs of stress due to the light rainfall, but the major vegetable crops made good progress with regular irrigation. Chinese cabbage production continues to be heavy with shipments to the U.S. mainland expected to continue in the coming weeks. Relatively steady production of head cabbage and head lettuce anticipated to continue through next week. Fallout from a volcanic eruption a couple of weeks ago continue to discolor anthurium flowers, and scar papaya fruits in the Puna District. Overall papaya production was anticipated to decline. Banana supplies remain moderate to heavy especially in the Brazilian and Cavendish varieties.

**IDAHO:** A series of weather disturbances moved across the State bringing well above average precipitation to most of the State except the southeast where precipitation was from near to slightly below average. Some locations in the north received nearly 0.50 in. above normal and Grangeville reported 1.28 in. above normal. The driest spot in the State was at Hamer with only 0.10 in. Temperatures averaged slightly above normal over the entire State. The high temperature was reported at three locations; Hagerman on 12th, Twin Falls on 13th, and Lewiston on 16th, all with 61°. The coldest temperature was reported at Hamer on 15th with 13°.

Snow melt coupled with scattered rain showers caused wet and muddy conditions in most areas of the State. Fieldwork was limited while calving and lambing came into full swing. Calving problems were reported in some areas due to the wet conditions. Feed supplies were dwindling, with shortages reported in several locations. Water supply forecasts for spring runoff volumes were lowered by 5%, as of March 1 due to the lighter than normal precipitation during February. Reservoir storage was above normal in most locations and should be adequate to meet summer water supply needs.

**ILLINOIS:** Temperatures 2 to 8° below normal. Precipitation 0.57 to 3.64 in, heaviest south.

Soil moisture 3% short, 60% adequate, 37% surplus. Wheat condition 2% excellent, 52% good, 34% fair, 12% poor. Oats less than 1% seeded. Corn and soybean acreage tilled 70%, last year 70%. Livestock condition mostly fair; hay supplies 64% short, 36% adequate.

**INDIANA:** Daytime temperatures 6 to 10° below normal over most of State. Night temperatures 1 or 2° above normal. Total precipitation ranged from 0.61 to 2.61 in.

Soil temperatures mid 30's in central and north but low 40's in south. Heavy shower activity removed much of the State's snow cover and left fields and feed lots in extremely muddy condition. Farmers were readying equipment to enter fields as soon as conditions permit, but cool, wet weather continues. Activities: Hauling manure, shopping for chemicals and seed, making plans, caring for livestock and usual chores. Hay stocks reported low.

**IOWA:** A cool, wet, dreary week. Temperatures averaged 3 to 5° below normal Statewide with all but the northwest quarter of the State having above normal precipitation. Isolated heavier showers in east, mainly on the 15th, resulted in weekly rainfall totals of up to 2.00 in. in the Davenport area.

The winter weather has allowed producers to make some progress in combining the few remaining soybean fields in the southern one-half of the State. Reports indicate very little erosion across the State this winter.

**KANSAS:** Precipitation averaged less than 0.10 in. extreme west and 0.50 to 0.75 in. central and east. Between 4 to 6 in. snowfall north central. Temperatures averaged 36° north central to 47° southeast and 39 to 44° elsewhere. These were 1 to 4° above normal west and south, normal to 3° below normal elsewhere.

Nearly 50% oats and barley seeded. Statewide wheat condition fair to good. Western third poor to fair. Light to moderate wind damage central districts. Winterkill starting to show up. Wheat disease infestation increasing, short soil moisture west, surplus east. Calving continues, lambing nears completion.

**KENTUCKY:** Temperatures slightly below normal, on 15th near record highs of upper 70's to low 80's. Most other days cool. Rainfall concentrated around 15th and 16th, as strong cold front caused heavy thunderstorms. For week, northeast received less than 0.50 in. rain while west measured up to 2.50 in.

Still too damp for much field activity. Pastures beginning to green.

**LOUISIANA:** Rainfall amounts ranged from none to 2.41 in. Average temperatures were 5 to 10° above normal. High 84°, low 42°.

Soil moisture adequate to surplus. Days suitable fieldwork: 2.7. Activities include repairing farm equipment, spring plowing, planting rice and corn, and caring for livestock. Spring plowing 18% 1984, 25% 1983, 32% average. Corn planted 13% complete 1984, 18% 1983, and 16% average. Winter wheat condition fair to good. Wheat and pasture fertilization active. Pasture and livestock condition fair. Rice planted 6% complete 1984, 1% 1983, 6% average. Wheat headed 1% 1984, 3% 1983.

**MARYLAND AND DELAWARE:** Maryland: Temperatures were 6 to 13° below normal. Cold temperatures early in week more than offset warm temperatures at week's end. Departures were mostly 6 to 9° below normal in all areas except in Garrett and Allegany Counties where departures reached 13° below normal. Recorded high temperatures reached the high 50's to mid 60's, mostly recorded on the 16th, minimum temperatures ranged from -17° at Oakland to 22° at Patuxent.

Minimum temperatures were recorded on 10th. Precipitation averaged 1.05 in. Weekly totals ranged from 0.53 in. at Smithsburg to 2.35 in. at Whalesville on the southern shore.

**Delaware:** It was a cold, wet week. Temperatures averaged 6 to 10° below normal and precipitation averaged 1.93 in. High temperatures, recorded on the 16th, were in the mid 50's to mid 60's. Minimum temperatures, recorded on the 10th ranged from 20° at Wilmington to 18° at Georgetown. Precipitation ranged from 1.48 in. at Wilmington to 2.43 in. at Georgetown.

**MICHIGAN:** Temperatures were again below normal Statewide. Temperatures averaged 7° below normal. Precipitation was moderate to heavy across the State. Well above normal river levels and flooding were reported over the southern lower Peninsula the later part of the week.

Snow cover is minimal throughout southern portions of the State. Winter wheat and fruit trees remain dormant in all areas. Sap flow in maple trees has been slow due to cold weather.

**MINNESOTA:** Temperatures averaged 4 to 8° below normal. High: 41°, low: -18°. Precipitation averaged 0.52 in. above normal for southeast and 0.05 to 0.18 in. below normal elsewhere. Greatest weekly total: 1.41 in. Snowfall averaged a trace to 3 in. Snow depths at weeks end averaged 13 in. for northeast and 3 to 9 in. elsewhere.

Winter wheat was in fair condition; limited damage expected from ponding during February thaw. Alfalfa was in good condition under mostly continuous snow cover. Little or no frost in many areas; lack of frost action could make some soils heavy and hard to work after snow gone. Livestock condition was generally fair to good but ground wetter than desirable for calving time. Hay and other feed supplies adequate; straw for bedding locally scarce.

**MISSISSIPPI:** Temperatures averaged 5 to 10° above normal. Extremes 26 and 83°. Thunderstorms on 12th, 16th, and 17th. Greatest 24-hour rainfall 2.14 in.

Soil moisture adequate in the southern third of the State and surplus to adequate elsewhere. Fieldwork 3.0 days suitable, 3.0 1983, 3.1 average. Plowing 21% completed, 18% 1983, 32% average. Corn 11% planted, 8% 1983. Watermelons 5% planted, 3% 1983. Wheat condition fair; 24% jointing, 15% 1983. Livestock condition and pasture condition fair. Hay supplies short; feed grain supply adequate to short.

**MISSOURI:** Cloudy, damp condition kept temperatures 3 to 6° below normal. Precipitation was widespread and generally between 1.50 to 2.00 in.

**MONTANA:** Temperatures again mild over west and southwest, cold along north central and northeast. In southwest temperatures 8° above normal, 7° above normal in west. Northeast temperatures 5° below normal. Precipitation moderate over west with over 1.25 in. reported in some areas. Elsewhere precipitation light to moderate with nearly 0.33 in. common.

Winter wheat in good condition. Wind damage light. Crop still dormant in most areas. Soil moisture short in north central and eastern portions of State. Mostly adequate elsewhere. Calving and lambing about 40% complete. Stock water supplies adequate.

**NEBRASKA:** Precipitation less than 0.10 in. northwest and north central, near 0.60 in. southeast, remainder 0.25 in. Temperatures 5° above normal west, remainder 3° below.

Winter wheat condition variable. East central and southeastern wheat fields appear most affected by disease and winterkill. These districts account for 25 to 30% of the State's winter wheat acreage.

Eastern feedlots extremely muddy. Slaughter cattle prices being discounted at market for mud. Western feedlots mostly normal.

**NEVADA:** Long standing high pressure system gave way to major storm track early in week. Precipitation fell over all but extreme south during week. Amounts ranged from 0.69 in. in Winnemussu to zero in Hawthorne. North averaged around 0.30 in. while south central averaged only 0.84 in. Temperatures slightly above normal generally 4; to 5° above normal. Strong winds accompanied weather systems. Fieldwork increasing extreme south. Wet fields still problem in north. Calving and lambing good progress.

**NEW ENGLAND:** Temperatures averaged 6 to 10° below normal across the north, 4 to 8° below south. Highest was 57° on the 17th, lowest, 24° below overnight the 13th at Fort Kent, Me. Most precipitation (melted) totals averaged from 1.00 to 2.00 in. Coastal regions received over 3.00 in. Largest measurement was 3.78 in. at Bar Harbor, Me. Much precipitation fell as snow, especially inland and northern sections, ranging from trace southernmost coastal areas to 32 in. at Caribou, Me. Most of Vermont, northern New Hampshire, north and central Maine measured 20 in. or more. Heavy snowfall. Fieldwork none.

**NEW JERSEY:** Temperatures averaged 5° below normal. Extremes were 8° on the 13th and 64° on the 17th. Weekly rainfall averaged 1.92 in. north, 2.30 in. central and 2.06 in. south. The heaviest 24-hour total was 3.35 in. on the 13th to 14th. Estimated soil moisture, in percent of field capacity, averaged 100% north, 99% central and 98% south. Four inch soil temperatures averaged 34° north, 39° central and 40° south.

Fieldwork has been limited by wet ground conditions. Farmers activities include checking for winter damage, feed situation, condition of livestock and general maintenance.

**NEW MEXICO:** Average temperatures were between 5 and 10° above normal. However, a winter storm that crossed the State during the weekend produced dramatic cooling. Minimum temperature 9° northern mountains, maximum 85° southeastern plains. Precipitation from the weekend storm was confined to the northeast quarter of the State where amounts ranged between 0.10 and 0.50 in.

Soil moisture adequate northwestern area, short to very short elsewhere. Dryland fields mostly poor in need of moisture, irrigated wheat and barley fair to good. Potato planting continues in east central area. Lettuce thinning beginning in Mesilla Valley. Onions rated in good condition. Rangelands mostly fair to poor, livestock fair to good condition. Calving and lambing continue. Outdoor activities include field preparation, early planting and some supplemental feeding of livestock.

**NEW YORK:** Temperatures below normal. Major snowstorm 12th and 14th dropped 12 to 18 in. of snow over northern Catskills and upper Hudson Valley. Heavy rain over lower Hudson Valley and Long Island. Precipitation much lighter elsewhere. Another system produced light rain on 16th.

Maple sap gathering underway.

**NORTH CAROLINA:** Temperatures 4° below normal. Precipitation heaviest in the southeast and light in the Piedmont.

Soil moisture 39% adequate, 61% surplus. Days suitable for fieldwork: 2.2. Condition: Wheat 30% fair, 70% good; oats 6% poor, 35% fair, 59% good; barley 31% fair, 69% good; rye, 27% fair, 73% good. Pasture 8% poor, 47% fair, 45% good and tobacco beds 31% fair, and 69% good. Farm feed supplies: Hay and roughage 32% short, 68% adequate; feed grains 27% short, 73% adequate. Plantings: Irish potatoes 16%,

1983 11%, average 23%. Major farm activities: Topdressing small grains and pastures, preparing and planting tobacco plant beds, general farm maintenance, land preparation for spring planting, tending livestock and planting spring potatoes.

**NORTH DAKOTA:** Week saw a return of winter-like conditions. All districts received above normal moisture except north central. Southwest and south central districts were 0.25 in. above normal as two snowstorms moved across those areas. Some locations in these two districts received up to 1 foot of snow. Greatest precipitation during week measured 0.72 in. Temperatures below normal across entire State. Temperatures in northern districts from 10 to 15° below normal. Extremes ranged from -18° on the 11th to 44° on the 14th.

Snowstorms created problems for livestock producers. Calving and lambing in full swing and poor March weather made conditions miserable. Feed supplies being drawn down to near inadequate levels some areas. On the other hand, added snow cover will benefit soil moisture conditions and improve crop outlook. Winter wheat acreage was open and susceptible to freeze damage in many areas before snowstorms.

**OHIO:** Temperatures 3 to 6° below normal. Precipitation west from 0.50 to 1.50 in. Precipitation east from 0.10 to 0.25 in. Four-inch bare soil temperatures averaged low to middle 30's.

Minimal snow cover with complete meltdown expected shortly. Winter wheat fair condition. Limited fieldwork due to excess moisture.

**OKLAHOMA:** Average temperatures ranged from 2° above normal north central to 5° above normal Panhandle, east central, southeast, and southwest. Precipitation averaged from 0.20 in. west central to 2.24 in. southeast.

Weekend precipitation brought relief to dry areas, but cold temperatures retarded crop development. Warm weather through midweek beneficial to small grains. Weeds continue to plague producers. Number of fields in north and east showing significant soil born Mosaic. Wheat in good to fair, pastures and ranges in fair, and livestock in good to fair condition. Wheat jointing: 10%; 20% 1983, 10% average.

**OREGON:** Warmer temperatures remained in the State, but it was generally a wetter week. About 3.00 in. of precipitation fell at the coast and 1.60 in. fell at other western areas. Eastern areas of the State were slightly drier with precipitation during the week amounting to 0.50 to 1.00 in.

Soil moisture supplies mostly surplus. Winter wheat generally came through the winter in good condition. In Malheur County, early fields beginning to tiller but fields too wet for fertilization; in the Willamette Valley, spring fertilizer well underway. Some spring grains being seeded in western fields that were not too wet. Potato planting continues in the Hermiston-Boardman area. Around the Dalles orchard work not yet started; but in the west pruning and dormant spraying nearly finished, many fruit trees leafing out with fertilizer and pre-bloom sprays being applied. Winter injury to strawberries was severe in many locales. Pastures starting to grow west of the Cascades; hay coming out of dormancy in the east. Spring calving results good, and livestock in good condition.

**PENNSYLVANIA:** The week was quite cold for the middle of March and the average temperature was only 30°, or 7° below normal. Extremes were 60 and -9°. The average precipitation was 0.53 in., 0.28 in. below normal. The heaviest amounts were over the extreme east where a winter storm on the 13th dumped over 1.00 in. of a mixture of rain, freezing rain, sleet and snow.

A few operators from the southeastern part of the State have reported that some plowing has been started. Hay supplies have been reported short in various parts of the State. Poultry flocks that were infected with Avian Influenza and destroyed continue to be repopulated. As of March 15th a total of 11.6 million birds have been depopulated.

**PUERTO RICO:** Island average rainfall 0.27 in. or 0.24 in. above normal. Highest weekly total 1.58 in. Highest 24-hour total 0.70 in. Temperature averaged about 79 to 76° on coasts and 69 to 74° Interior Divisions. Mean station temperature ranged from 62.7 to 79.4°. Extremes 91 and 53°. San Juan mean temperature 79.1° plus 2.0 total rainfall 0.28 in. minus 0.21.

**SOUTH CAROLINA:** Warmer than usual but climbed 10° or more over normal latter part of week, weekend near seasonal levels. Rainfall averaging 0.50 to 1.00 in. on 13th, some light drizzle over weekend.

Planting coastal tomatoes, other vegetables and corn. Orchard spray schedules maintained for peaches, fruits. Applying nitrogen to small grains and pasture. Land preparation continuing for row crops.

**SOUTH DAKOTA:** Average temperatures ranged from 5 above to 10° below normal. Extremes 71 and -10°. The east, south central and southeast continued with above normal precipitation. During the week 6 to 12 in. of snow fell over the area while the rest of the State remained dry.

**TENNESSEE:** A weak low pressure system produced scattered light rain across the State midweek and an eastward moving cold front brought thunderstorms to most of the State on 16th and 17th. Average temperatures were slightly above normal Statewide with highs reaching 80° across much of the State midweek. Rainfall totals were below normal Statewide with the middle and east reporting totals of less than 0.25 in.

General farm chores continue to be main farm activity.

**TEXAS:** Early week, thunderstorms East Texas, southward Golden Triangle, dry air pushed front eastward across State. High wind, heavy rain associated front, accumulations 1.00 to 2.00 in. North, East and Southeast Texas, less than 0.10 in. East Texas. Midweek, cloudy, drizzly conditions prevailed eastern half State. Late evening 15th, heavy thunderstorms East Texas, heavy rains, small hail Red River, Bowie Counties. On 16th and 17th, warm humid weather covered State. On 18th intense spring-like storm moved rapidly across State, severe thunderstorms occurring North Central Texas. Damaging hail, heavy rainfall, high winds, one tornado. Golf ball to baseball size hail Erath, Palo Pinto and northern Tarrant Counties. Temperatures above normal. Rainfall near normal, slightly below West Texas, slightly above portions of Central Texas.

**Crops:** Varied weather dominated State during week. Plains, West Texas, warm, dry conditions allowed land preparation continue cotton fields. Northeast, East Texas moderate to heavy rainfall, halting field operations. Central, South Texas dry; corn, grain sorghum planting progressed rapidly. Conditions Rio Grande Valley ideal most planting, harvesting activities. Sorghum planting continued steady pace South, Central Texas. Earlier planted sorghum beginning emerge these areas. Sorghum planting North Central Texas held up due moderate rainfall. Coastal Bend grain sorghum showing good growth. Valley, grain planting nearing completion. Early planted fields good stands. Corn fields Coastal Bend good stands, showing good growth. Upper Coast, some hail damage reported. Some cutworm problems also reported. Central Texas corn planting nearing completion, some good stands reported early planted fields. Corn planting held up North Central, East

Texas heavy rains, some small hail. No damage reported planted fields. Rain needed Central, South Texas ensure good germination, growth. Cotton planting neared completion Coastal Bend. Rio Grande Valley, planting picked up open weather, warmer soil conditions. Pre-plant herbicides, fertilizers being applied cotton fields Plains, West Texas. Some pre-plant watering being done. Small grains improving Statewide; most State use good general rain ensure continued growth. Irrigated wheat High Plains continues adequate grazing. Dryland wheat better; fields providing little no grazing this time. Warmer weather allowed wheat South, Central Texas make excellent growth. Spotted reports rust, mildew, not major problem. Oats making good growth, greening due warmer weather. Statewide, wheat condition rated 62% of normal, compared with 82% a year ago. Current reported conditions 4% excellent; 20% good; 62% fair; and 14% poor.

Cotton planted 3%, 3% 1983, 5% average. Sorghum planted all purposes 29%, 28% 1983, 29% average. Corn planted for all purposes 32%, 29% 1983, 24% average.

**Commercial vegetables:** Rio Grande Valley, carrot, cabbage harvest continues. Planting spring vegetables on schedule. Mechanical hedging, hand pruning increasing many citrus orchards. Increase number acres being cleared off, trees being burned. San Antonio-Winter Garden, cabbage, spinach harvest continues. Most spring vegetables planted. Additional rain help spring planted crops. Trans-Pecos, herbicides being applied onions. Overall, vegetables doing well. High Plains, onion transplanting full swing, also potato planting. East Texas, land preparation tomatoes underway where soil conditions permitted. Some washing early seeded crops, heavy rains, occurred. Bedding sweetpotatoes continues weather permits.

**Range and livestock:** Pasture, range fair to good grazing; additional moisture greatly aid condition. Irrigated wheat good, continues pastured High Plains. Oat pasture recovering, providing no grazing. Good grazing wheat pastures continues Central Texas. Ranges beginning green up with warmer weather. Cattle good condition, peak spring calving. Drought conditions hampered milk production ewes and goats. Many ewes, nannies leaving newborns due lack of milk. Shearing beginning wind down.

**UTAH:** Precipitation moderate to heavy north central and northern mountains, light to moderate rest of State. Temperatures generally above normal by 30 northern and 50 southern half of State, however, 40 below normal Uintah Basin.

Snow and rain last period caused some concern for newborn animals and newly sheared sheep. Fruit tree buds beginning to swell in southern areas. Some land preparation for onions and hardy vegetables for fresh market. Turkey placements continue.

**VIRGINIA:** Continued cool and not quite as wet. Partly cloudy all week. Average temperature departure minus 70 below freezing readings still occurred Statewide. Most rain fell first half of week with 0.90 in. average.

Cool, wet weather held days suitable for fieldwork down to 1.7. Topsoil moisture 46% adequate, 54% surplus. Fieldwork continued very limited. Some topdressing of small grains, overseeding pastures and hay fields. Fertilizing and preparing and seeding tobacco beds active. Seeding beds was 67% complete. Pastures, alfalfa hay, wheat, barley and oats were all in good to excellent condition. Livestock were in good condition with calving and lambing going well. Peaches were generally in good condition, but substantial bud damage was reported in some southwestern and northern orchards. Fruit bud development slowed by cool temperatures. Pruning continues.

**WASHINGTON:** Low pressure systems, both at surface and aloft, were dominant weather pattern during week. Although cloud masses crossing State in predominant west to southwest flow did not produce large amounts of rain individually, combined they produced weekly amounts generally exceeding seasonal normals. Weather pattern brought significantly above normal average temperatures to all areas of State.

Western counties, wet conditions prevailed reducing field activities to minimum. Raspberries, strawberries and grapes being planted when conditions permit. Some strawberry fields showing evidence of freeze injury. Early crops, such as peas, spinach, and onions being seeded. Livestock movement to pastures limited by excessive soil moisture. Eastern counties, field activities include planting spring wheat, barley and potatoes, stringing hops and field preparation. Applying late dormant sprays to stone fruits in early area continues. Calving and lambing continue. Livestock in good condition.

**WEST VIRGINIA:** Temperatures averaged 2 to 30 above normal across the State except for the northeastern section where temperatures averaged 50 below normal. Weekly precipitation averaged 0.20 to 0.60 in. below normal for the State except the northeastern section where the normal 0.77 in. fell. Snowfall early in the week averaged up to 4 in. over the mountains, by the end of the week trace amounts remained on the ground.

Soil moisture surplus to adequate. Days suitable for fieldwork averaged 1.4. Feed supplies adequate to short. Main activities mending fences and pruning trees.

**WISCONSIN:** The week was both cold and generally wet. Only the 18th escaped with no precipitation occurring. Between 1 to 3 in. of snow fell across State on 12th then thunderstorms late 14th and 15th brought 0.25 to 0.75 in. of rain to the southeast 2/3 of the State. More snow developed across mainly southern late 18th into 17th bringing generally 1.00 to 3.00 in. of the snow. The highest temperature +48 at both Milwaukee and Oshkosh on 15th. The coldest temperature was +2 at Lake Thompson early morning of 15th.

**WYOMING:** Temperatures above normal. Precipitation mostly below normal.

Winter wheat mostly good condition. Livestock mostly good condition, supplemental feeding continuing in areas with snow cover. Some producers experiencing calving losses due to severe winter stress on cows. Calving, lambing, shearing underway.

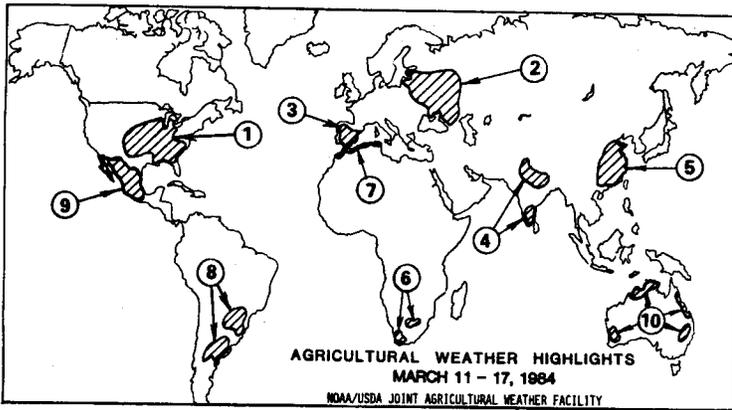
#### National Weather Summary (continued from front cover)

A wet, cold front approaching the Pacific coast dumped rain from Washington to central California. The Southeast was unseasonably warm as temperatures climbed into the 80's across the Carolinas.

**SATURDAY...** The winter storm weakened rapidly as it pushed through the mid-Atlantic seaboard. However, another low-pressure system developing in the central Plains and Great Basin triggered widespread precipitation from the Delta States to the Pacific Northwest. Bitter cold extended from the Dakotas to Nebraska and eastward through New England, while unusual warmth blanketed most of the southern tier of States.

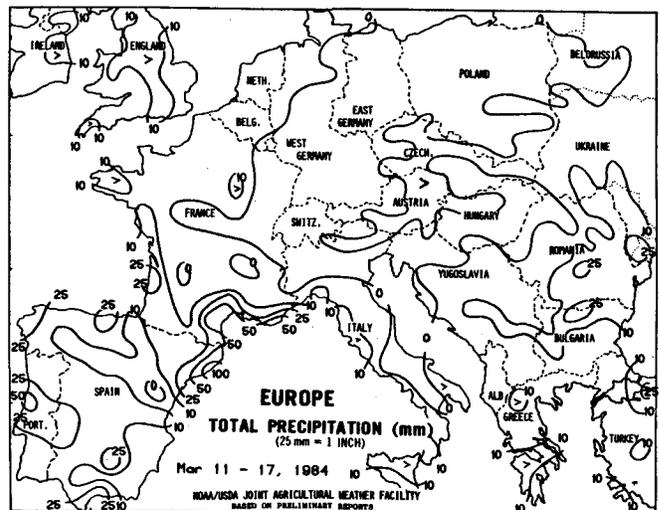
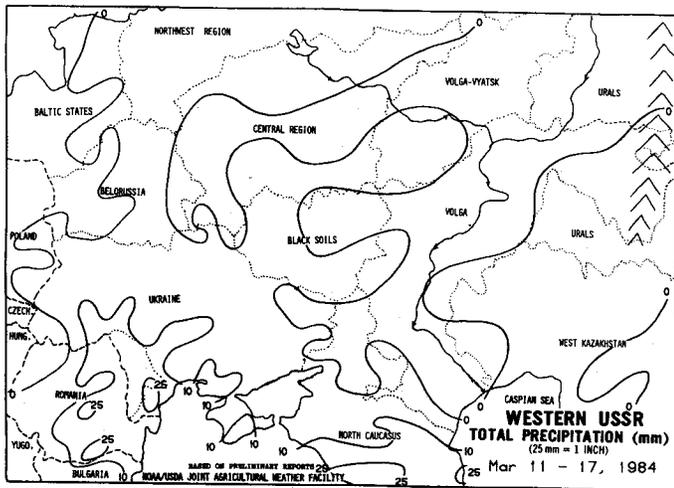
# International Weather and Crop Summary

MARCH 11 to 17



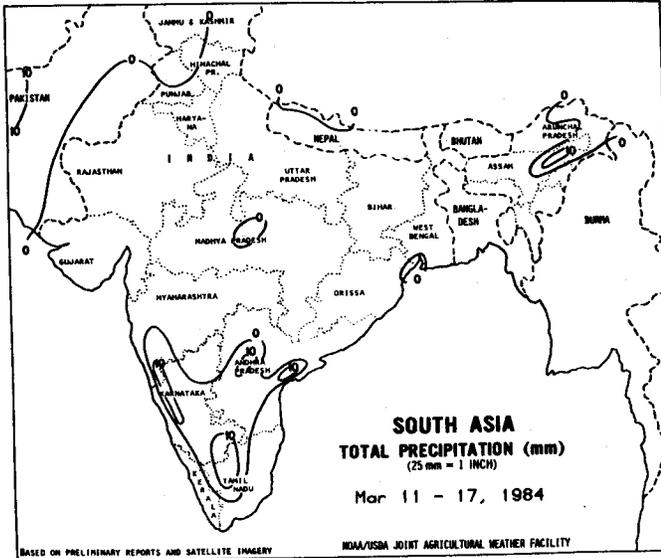
HIGHLIGHTS:

1. UNITED STATES ... Rains benefit wheat in eastern parts of the central and southern Plains while some western sections remain critically dry. Drying over the Southeast allows corn planting and land preparation, which are behind schedule, to continue. Rains halt Corn Belt fieldwork.
2. WESTERN USSR ... Generally dry weather covers dormant winter grains and above-freezing temperatures reduce snow cover.
3. EUROPE ... Little, if any, precipitation covers dormant winter grains, except in the Iberian Peninsula where significant showers are falling.
4. SOUTH ASIA ... Warmer weather accelerates wheat development. Light showers in the south are followed by clear weather, benefiting some areas which had been too wet.
5. EASTERN ASIA ... Precipitation benefits nearly all crop areas. Early rice planting continues in the south, while winter wheat varies from dormant in the far north to greening up in the south.
6. SOUTH AFRICA ... Warm weather hastens maturing corn and maintains high evaporation rates. Preplanting showers are needed in wheat areas.
7. NORTHWESTERN AFRICA ... Showers benefit winter grains entering the heading stage and bring some relief from unfavorable dryness in Morocco.
8. SOUTH AMERICA ... Wet weather continues to delay summer crop harvesting which is falling 2-3 weeks behind schedule in Argentina. Continued wetness will adversely affect the quality of crop yields. Dry weather in Brazil hastens maturity and aids harvesting of soybeans and corn.
9. MEXICO ... Abnormally warm afternoon temperatures over the northern half of the country stress some winter vegetables, droughty rangelands, and rainfed field crops.
10. AUSTRALIA ... Tropical showers fall across the north but only light rains fall over east coast sugarcane areas of Queensland. Some light showers cover summer crop areas of southeastern Queensland but generally favorable conditions prevail for maturing summer crops in the east. Light rains also fall in the west.

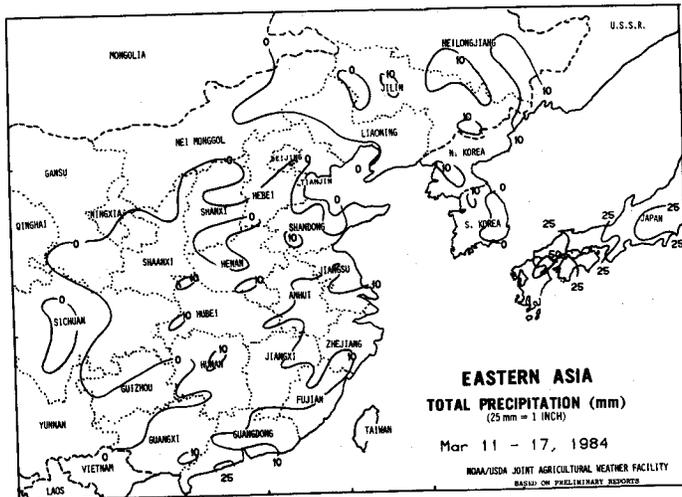


**WESTERN USSR...** Generally dry weather covered much of the region and above freezing temperatures on some days reduced the snow cover. Colder weather returned to winter grain areas across the northern half of the region by week's end with daytime highs staying below freezing. The weather across the west and south was a daily freeze-thaw pattern, producing the potential for frost heaving, especially in winter grain areas in the Ukraine. The persistent dry weather which has covered the Black Soils, eastern Ukraine, North Caucasus, and Volga Valley since mid-January has had minimal impact on dormant winter grains. However, the dry weather is prompting concern about adequate moisture conditions for spring growth. Furthermore, blowing dust was reported in the eastern Ukraine and North Caucasus as a result of high winds.

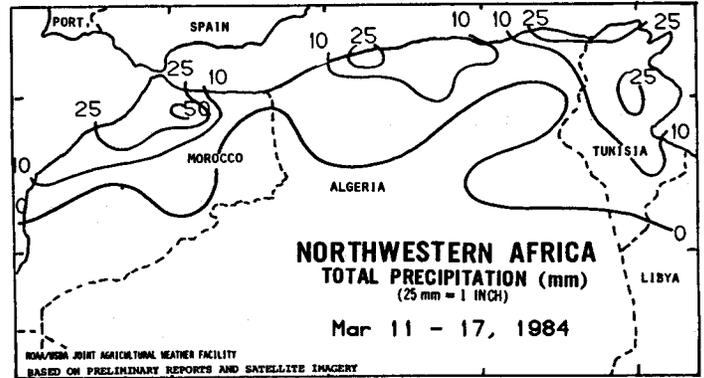
**EUROPE...** Little, if any, precipitation covered winter grains across the region, except those in the Iberian Peninsula which received significant showers (10-25 mm). Sub-freezing temperatures were reported on March 12 over east-coastal areas of Spain, threatening citrus and almond trees which are in the flowering stage. Some damage may have occurred but minimum temperatures stayed above freezing the following day. High pressure centered over Scandinavia kept the northern half of the region mostly dry. Moisture accumulations for the winter remain low in Poland, Czechoslovakia, and Hungary. Winter grain areas in the southeast turned dry by week's end. Weekly temperatures were below normal over most of the region.



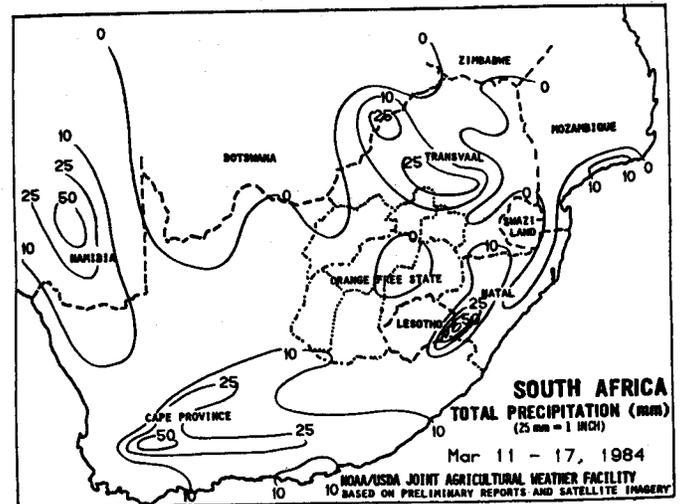
**SOUTH ASIA...** Mostly dry and warmer weather continued in northern India this week. Temperatures as high as 36° C (97° F) hastened the development of wheat in Haryana and Uttar Pradesh. Some cooling occurred by week's end. Punjab was relatively cooler, but nearly all of India averaged 2-4° C above normal this week. Continued above-normal temperatures will shorten the grain filling period in the northern areas. Southern wheat is already maturing. Light showers returned to peninsular India during the early part of the week following earlier heavy rains. The drier weather in the southeast helped alleviate excess moisture. However, summer rice is in the heading stage and has mostly benefited from the unseasonable rains.



**EASTERN ASIA...** Light to moderate showers covered nearly all crop areas of eastern China this week. The heaviest amounts (as much as 40 mm) fell in Zhejiang while lighter amounts benefited southern rice areas. Temperatures were normal to above normal in most areas, and early rice planting continues along with other summer crop planting in the south. Light showers in the winter wheat region were beneficial, especially where wheat is breaking dormancy. However, the northern wheat crop is just beginning to lose hardiness. Wheat in the Yangtze Valley is greening up and will require additional moisture as temperatures continue to increase. Moderate snow in Manchuria improved soil moisture for spring crop planting.



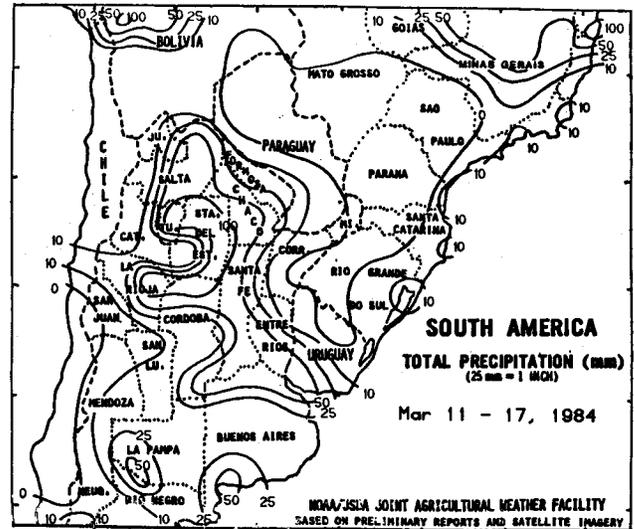
**NORTHWESTERN AFRICA...** Widespread showers benefited winter grains in Morocco, bringing relief from unfavorable dryness which has covered the area since mid-December. Rainfall amounts ranged from 10-25 mm with the largest amounts falling on northern grain areas. Elsewhere, light showers (around 10 mm) maintained adequate moisture conditions for winter grains in northern Algeria and northern Tunisia. Winter grains across the region are normally entering the highly moisture-sensitive heading stage, with most of the crop heading by early April. Widespread significant rains are needed through April, particularly in Morocco, to boost yield prospects.



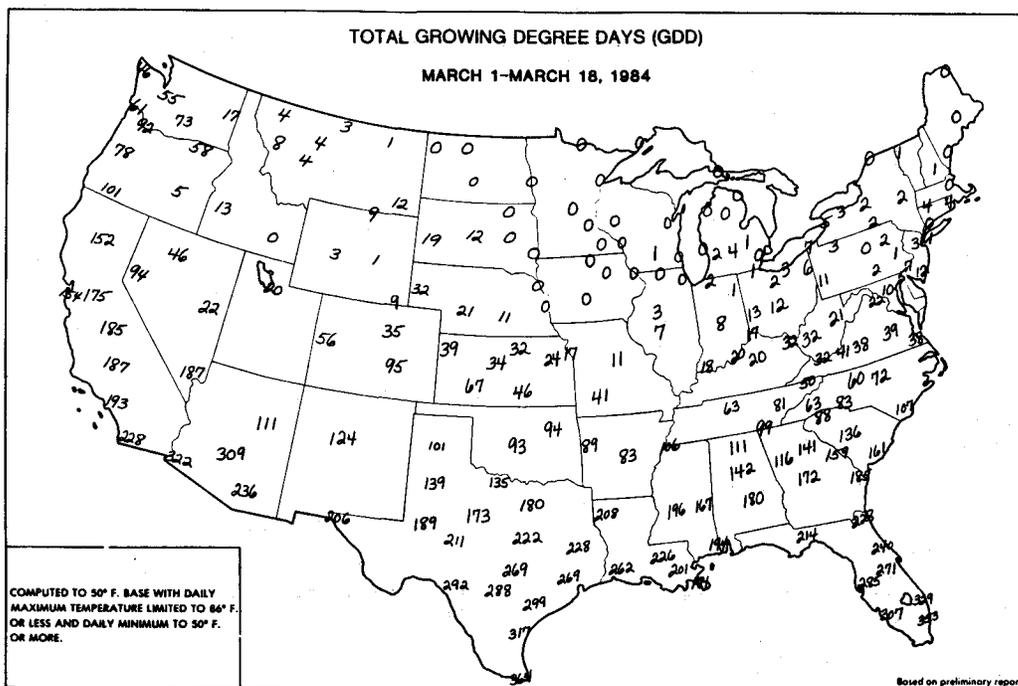
**SOUTH AFRICA...** Isolated heavy precipitation fell in Lesotho and the southwestern Cape Province, while light to moderate showers fell to the east and north of the major corn-producing region. Corn is maturing and dry weather will benefit harvesting activities in the next few weeks. Only very light showers fell in the Maize Triangle, which is also the major wheat region. Above-normal temperatures are keeping evaporation rates high and additional rain is needed to replenish soil moisture for the wheat crop, normally planted in April. Wheat areas in the Orange Free State and the Transvaal are dependent on preplanting rains because the normal dry season coincides with the wheat growing season. Showers increased in the Cape Province, but did not cover all of the wheat areas. Preplanting rains are not as critical in this area because additional rain normally falls during the wheat growing season.



**MEXICO...** Unusual warmth developed over most of the north as temperatures averaged 2° to 4° C above normal. Some afternoon temperatures soared to a hot 35° to 37° C in the west coast's Culiacan Valley—not good for winter vegetables, and 30° to 34° C over the northeast, stressing droughty rangeland vegetation and rainfed crops. Much of the country was sunny and dry. However, satellite photos indicate light showers dotted the higher elevations of the southern Plateau corn belt where planting generally begins in April.



**SOUTH AMERICA...** Wet weather continued to delay summer crop harvesting in Argentina while dry weather aided corn harvesting and soybean ripening in Brazil. Heavy showers fell again over northern Buenos Aires and Santa Fe late in the week, after several days of dry weather had improved field conditions for harvesting. Summer crop harvests are falling 2-3 weeks behind schedule due to the heavy February rainfall and periodic March showers which have kept fields wet. Continued wetness will adversely affect the quality of mature corn, sorghum, and sunflower crops. Showers also delayed cotton harvesting in Chaco and Formosa. In Brazil, mostly dry weather favored harvest activity. Corn harvesting is underway throughout the center-south region, while the soybean harvest in Rio Grande do Sul will begin soon. Mild, dry weather in Parana hastened maturity and aided harvesting of the stressed corn and soybean crops. Parana's soybean harvest is over 20 percent complete.



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(continued from p. 15)

**PASTURES AND LIVESTOCK:** Southern pastures were in mostly fair condition and improving because of warmer weather and plentiful soil moisture. Livestock was in fair to good condition. Supplemental feeding continued in areas with muddy conditions or snow cover. Calving and lambing continued with less than ideal conditions, especially in the western mountain States. Feed supplies were generally adequate, but hay supplies remained short in many areas.

**NOTICE.** Publication of the soil moisture maps will begin this spring: April 10 - Drought Severity, Drought Severity Index by Climatological Division, and Precipitation Needed to End the Drought; and April 17 - Crop Moisture and Crop Moisture Index by Climatological Division. Publication of these maps will cease in October as customary.

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