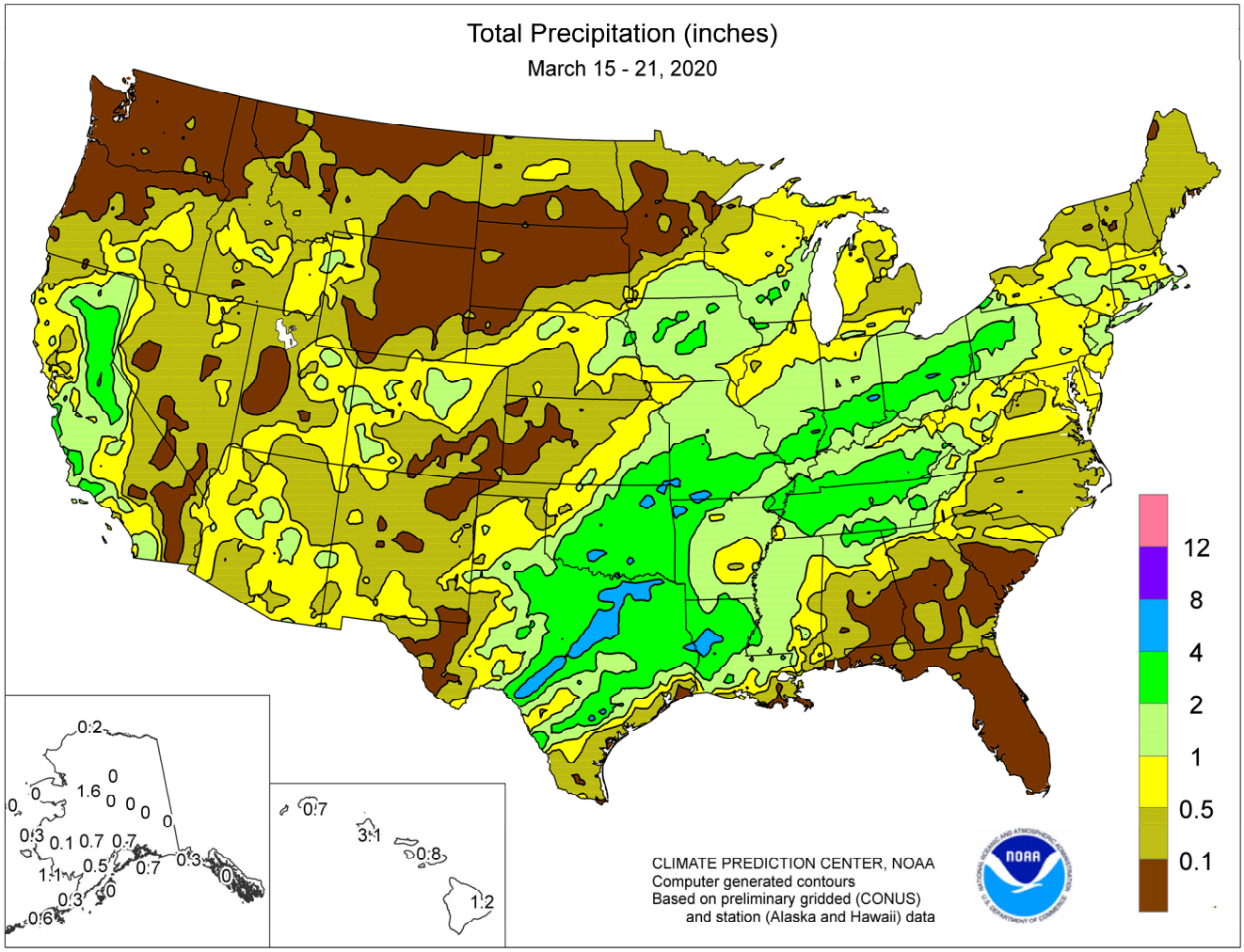
Volume 107, No. 12 http://www.usda.gov/oce/weather March 24, 2020

# WEEKLY WEATHER AND CROP BULLETIN

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

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service
and World Agricultural Outlook Board



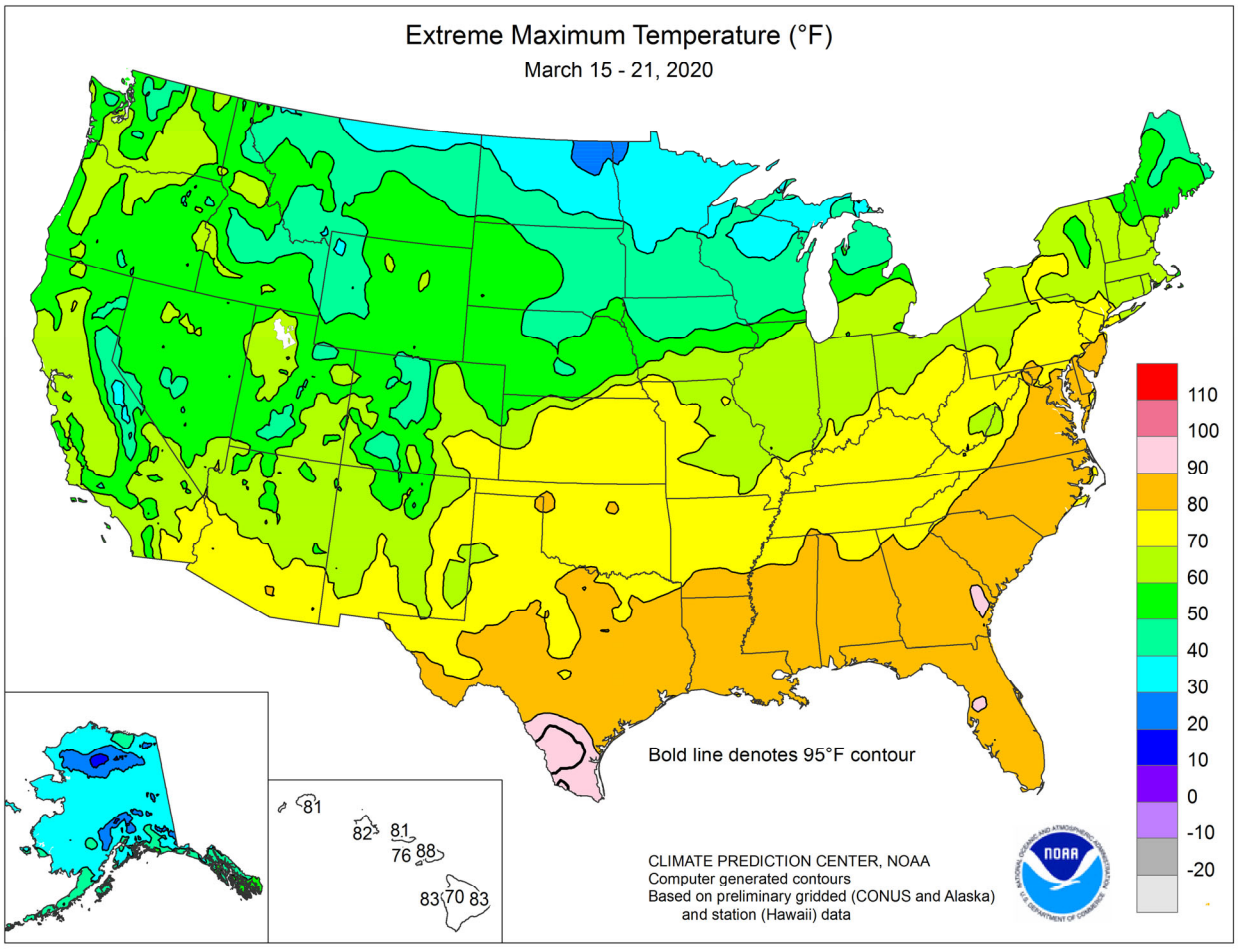

## HIGHLIGHTS
## March 15 – 21, 2020

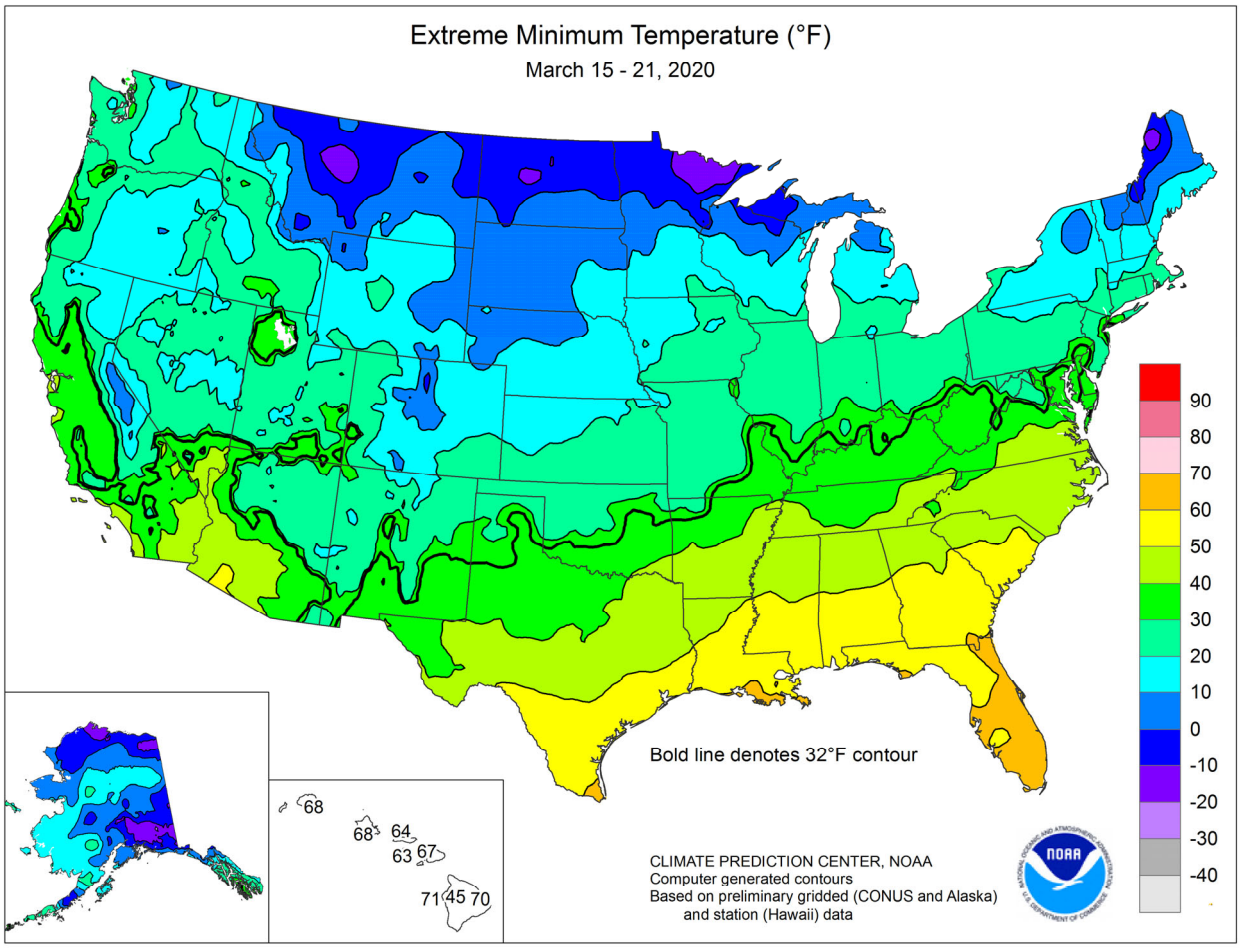
*Highlights provided by USDA/WAOB*

Storms delivered much-needed precipitation to **California's** key watershed areas before soaking an area from the **southeastern Plains into the Ohio Valley**. Widespread precipitation also fell across the remainder of the **West**, except from the **Pacific Northwest to the northern Rockies**. Weekly rainfall totaled 2 to 4 inches or more from **central and eastern Texas into portions of the Tennessee and Ohio Valleys**. Significant precipitation was also noted in **Iowa** and environs, while wind-driven snow blanketed parts of **northeastern**

*(Continued on page 3)*

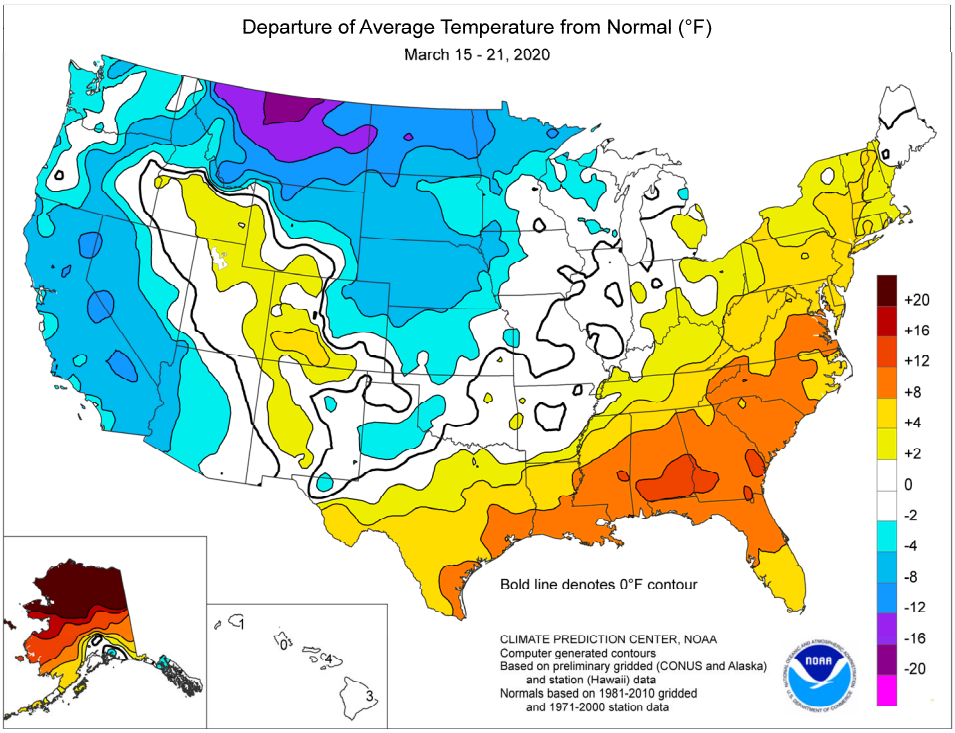
### Contents


Extreme Maximum Temperature (°F)
March 15 - 21, 2020
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
81
82 81
76 88
83 70 83
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Extreme Minimum Temperature (°F)
March 15 - 21, 2020
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
68
68 64
63 67
71 45 70
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data

*(Continued from front cover)*

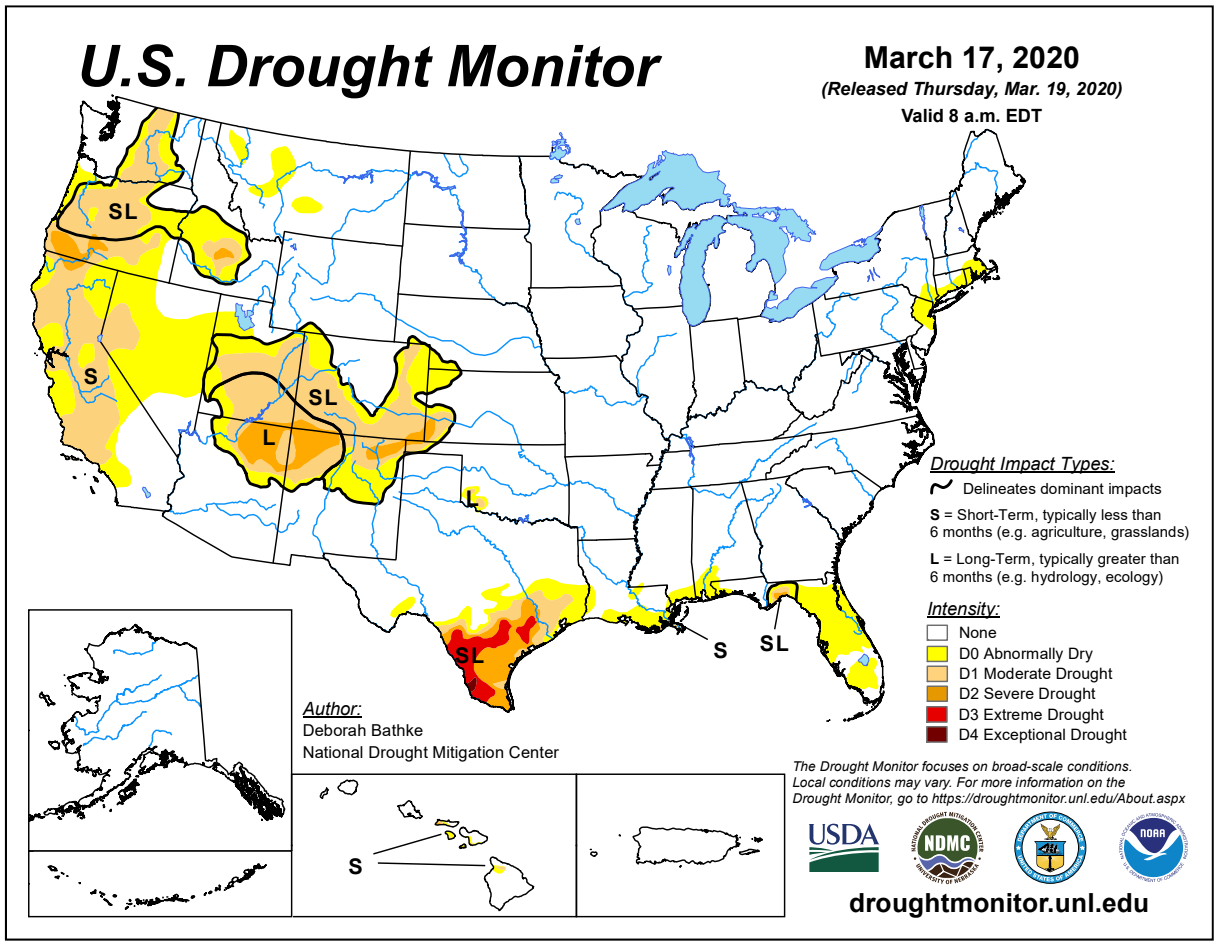
**Colorado** and **western Nebraska**. In contrast, warm, dry weather dominated the **lower Southeast**, including **Florida**, boosting irrigation demands and further reducing topsoil moisture. Weekly temperatures averaged as much as 10 to 15°F above normal from the **central Gulf Coast region into the Southeast**. Meanwhile, cold air settled across the **Plains** and the **Far West**, especially late in the week. Temperatures averaged more than 5°F below normal in parts of **California** and the **western Great Basin**. In **Montana** and **North Dakota**, weekly readings averaged 5 to 20°F below normal. However, late-week temperatures below 20°F as far south as **northern and western Kansas** were not low enough to threaten winter wheat (see page 6 for a relevant map).

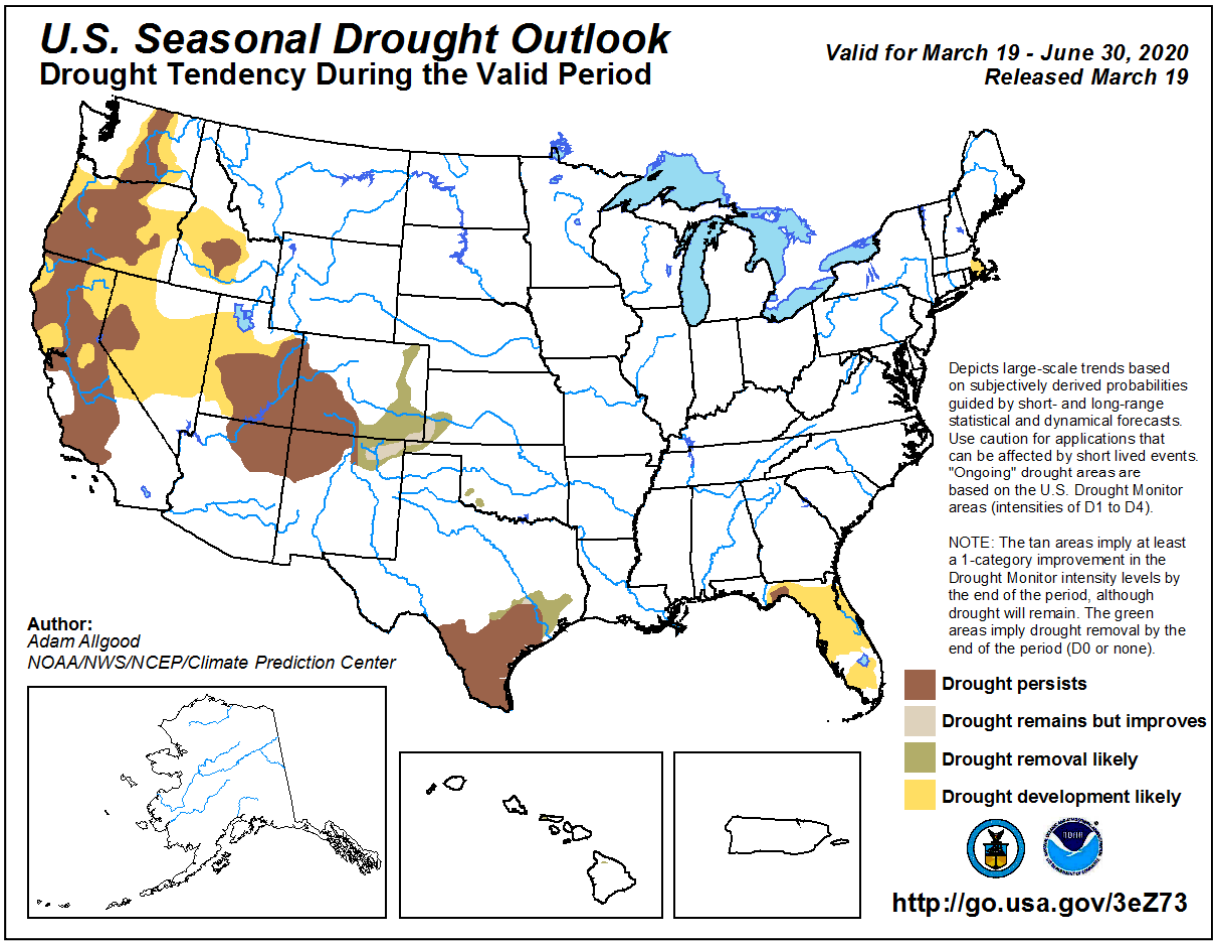


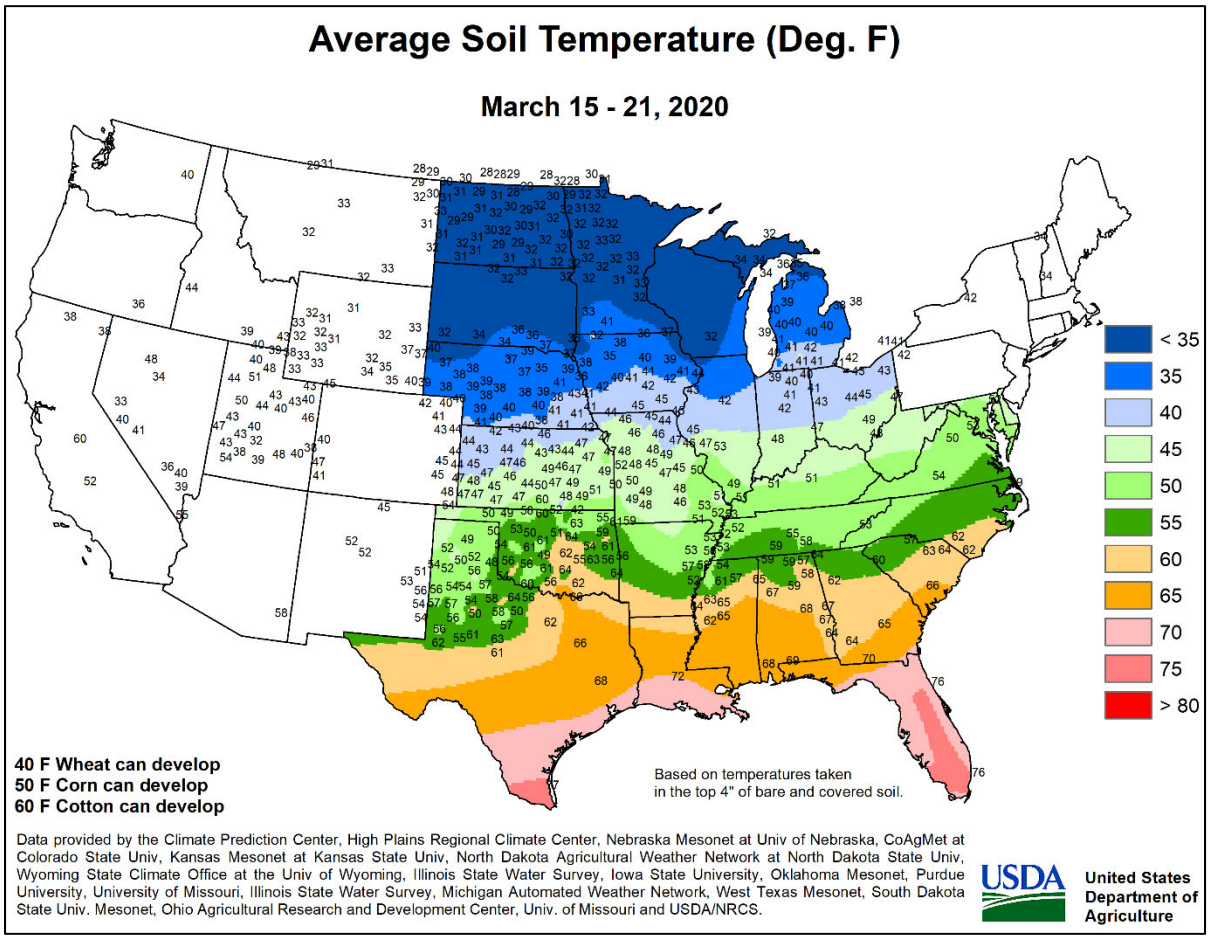

As precipitation ramped up in **California**, the **Sierra Nevada** snowpack gained 4 inches of water equivalency (from 10 to 14 inches, or from 36 to 49 percent of normal) during the week, according to the California Department of Water Resources. Heavy precipitation extended into the **Southwest**, where daily-record totals included 0.90 inch (on March 19) in **Grand Junction, CO**; 0.65 inch (on March 18) in **Needles, CA**; and 0.45 inch (on March 18) in **Yuma, AZ**. **Alturas, CA**, netted consecutive daily-record amounts (0.47 and 0.75 inch, respectively) on March 17-18. Earlier, heavy precipitation had fallen early in the week across the **interior Northwest**, where **Boise, ID**, reported a daily-record sum (0.58 inch) for March 15. Farther east, multiple rounds of heavy rain occurred. The week began on March 15 with a daily-record total (1.55 inches) in **Del Rio, TX**. It was **Del Rio's** wettest day since June 4, 2019, when 4.23 inches fell. Later, heavy rain in **Oklahoma** resulted in record-setting totals for March 17 in **Lawton** (1.48 inches) and **Oklahoma City**. On March 18, **Midland, TX**, collected a daily-record sum of 1.30 inches. Farther north, March 19 was the most active day of the week, as a storm system traversed the **nation's mid-section**. **Denver, CO**, reported 6.0 inches of snow on that date, along with a peak northerly wind gust to 49 mph. Daily-record precipitation totals for the 19th reached 2.56 inches in **Fayetteville, AR**; 1.95 inches in **Springfield, MO**; and 1.58 inches, along with 3.5 inches of snow, in **Sioux City, IA**. Downpours lingered into March 20 across the **South** and **East**; **Columbus, OH**, received 4.66 inches of rain from March 18-20, aided by a daily-record total of 2.89 inches on the final day of the deluge. With a 2.00-inch total, **Alexandria, LA**, also logged a daily-record amount on the 20th.

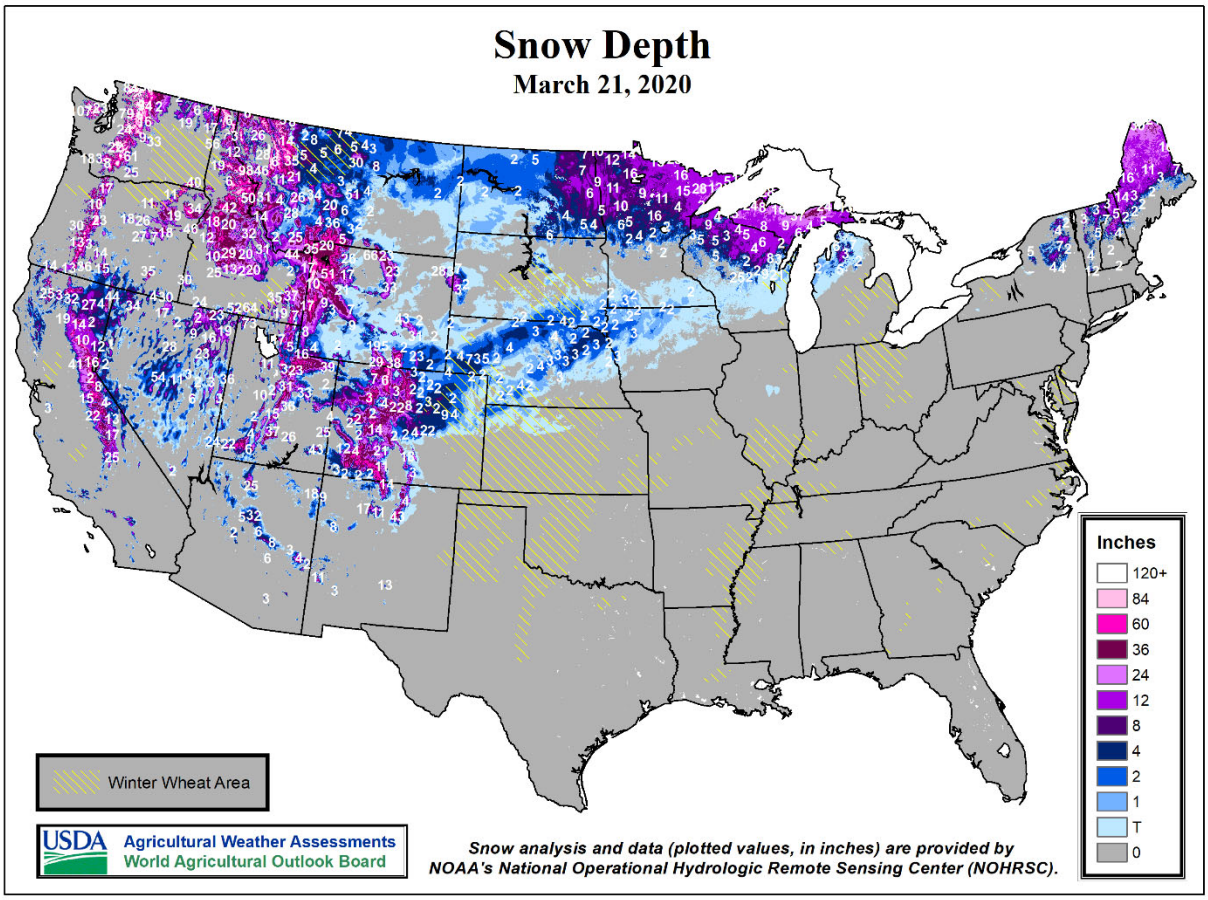
Cold weather prevailed for much of the week across the **northernmost Plains** and the **Northwest**. **Wenatchee, WA**, opened the week with consecutive daily-record lows (21 and 25°F, respectively) on March 15-16. Similarly, March 16-17 featured a pair of daily records (23 and 22°F, respectively) in **Olympia, WA**. Other daily-record lows included -8°F (on March 16) in **Ennis, MT**, and 11°F (on March 15) in **Burns, OR**. By March 19, cold air settled across **California**, where record-setting lows dipped to 19°F in **Montague** and 31°F in **Redding**. Additional daily-record lows in **California** on March 20 included 7°F in **South Lake Tahoe** and 8°F in **Alturas**. In contrast, warmth continued to cover the **South** and **East**. In fact, high temperatures reached 90°F on March 15 in **Jacksonville, FL**, and **Saint Simons Island, GA**. The latter reading tied a monthly record previously set on March 12, 1967, and March 22, 2011. From March 18-20, **Fort Myers, FL**, registered three consecutive 90-degree readings (91, 90, and 90°F). **Fort Myers** also tied a monthly record, most recently achieved in 1949, with 4 days of 90-degree heat during March. By March 20, warmth briefly surged northward through the **Atlantic Coast States**, resulting in daily-record highs in locations such as **Danville, VA** (87°F); **Georgetown, DE** (86°F); and **Atlantic City, NJ** (83°F). Warmth lingered for several more days in **Florida**, where **Tampa** posted highs above 80°F for at least 14 consecutive days (March 10-23). **Tampa** also notched daily-record highs of 89°F on March 18, 19, and 21.

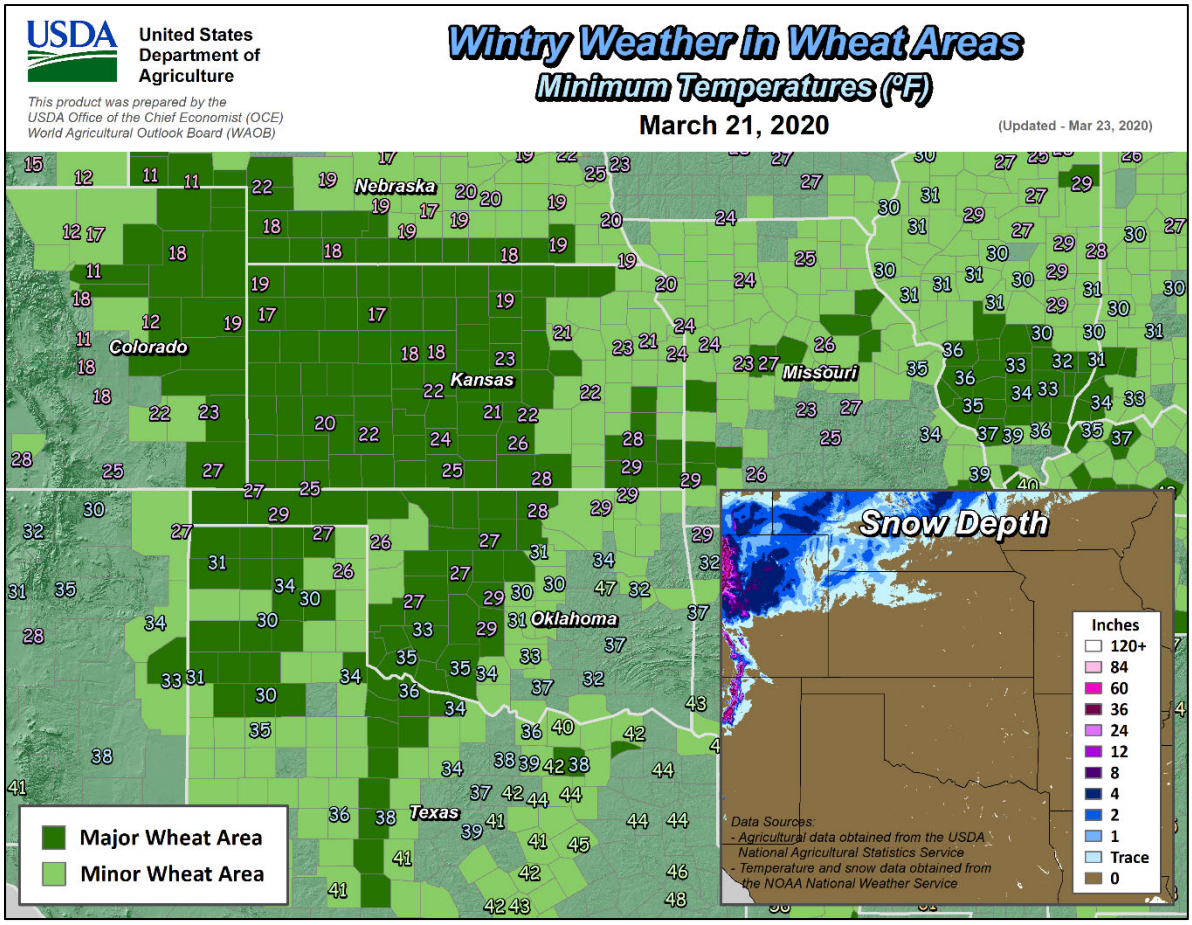
Following **Alaska's** coldest winter since 1998-99, unusual March warmth and wetness developed across the **state's northern tier**. From March 18-20, **Utqiaġvik**—formerly known as **Barrow**—tallied a trio of daily-record highs (28, 31, and 31°F). Through the 21st, month-to-date precipitation in **Utqiaġvik** climbed to 0.78 inch, compared to March normal of 0.09 inch. Significant precipitation also fell in several other areas of the state. From March 19-22, **Fairbanks** received 4.7 inches of snow. Weekly precipitation in **King Salmon** totaled 0.50 inch, aided by a 0.36-inch sum on March 21. Meanwhile in **Hawaii**, extremely heavy rain fell on **Kauai**. Showers later spread to other areas of the state, while some snow accumulated on the highest peaks of the **Big Island**. From March 16-18, rainfall totaled 8.46 inches in **Lihue, Kauai**. Elsewhere on **Kauai**, 72-hour rainfall amounts (ending at daybreak on March 18) reached 29.05 inches on famously wet **Mount Waialeale**; 14.27 inches in **Hanalei**; and 11.77 inches in **Wailua**. Much of **Mount Waialeale's** total—22.10 inches—fell in a 24-hour period on March 16-17. Elsewhere, March 16-18 rainfall totaled 3.03 inches in **Honolulu, Oahu**, and 4.91 inches in **Hilo**, on the **Big Island**.

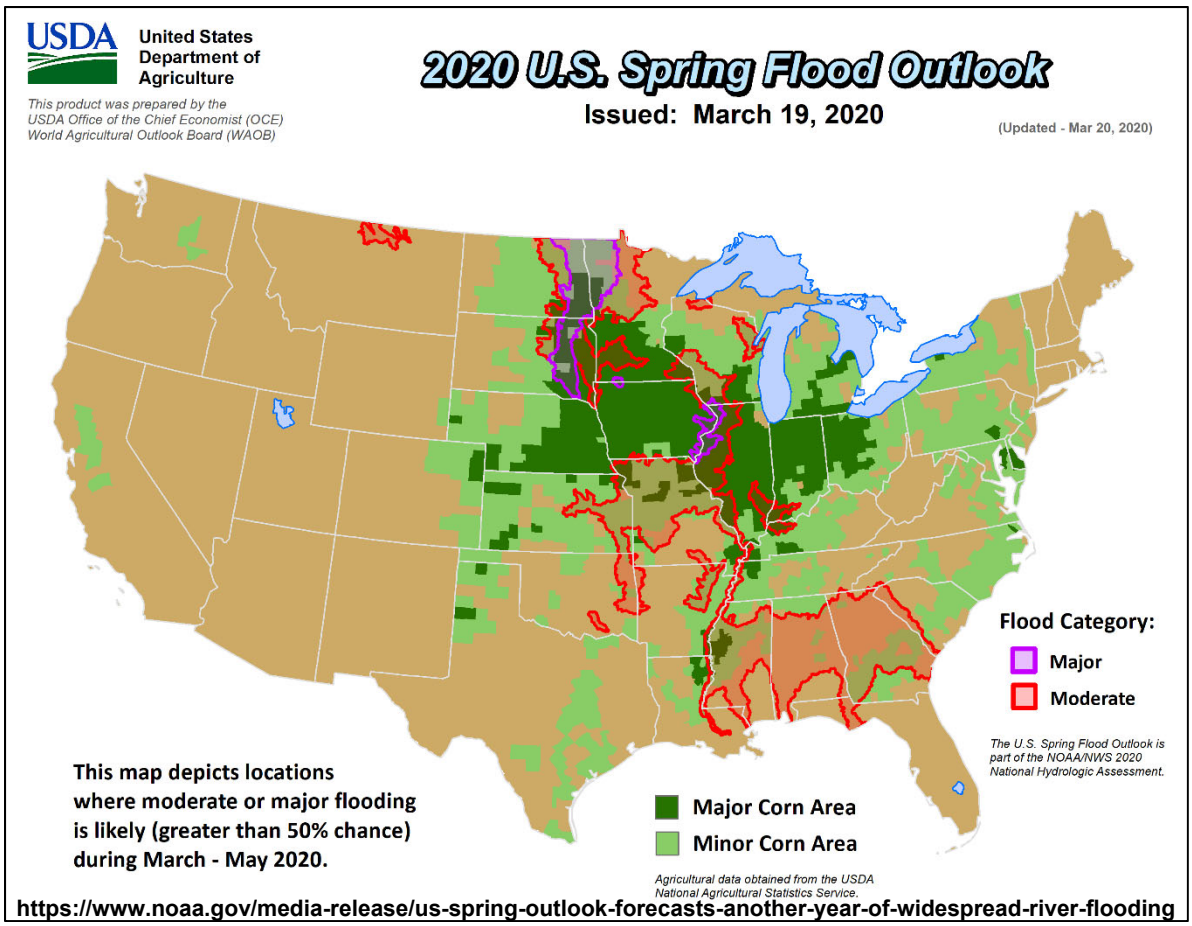

U.S. Drought Monitor
March 17, 2020
(Released Thursday, Mar. 19, 2020)
Valid 8 a.m. EDT
SL
S
SL
L
L
SL
S
SL
S
Drought Impact Types:
Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
Intensity:
None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought
Author:
Deborah Bathke
National Drought Mitigation Center
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx
USDA
NDMC
NOAA
droughtmonitor.unl.edu

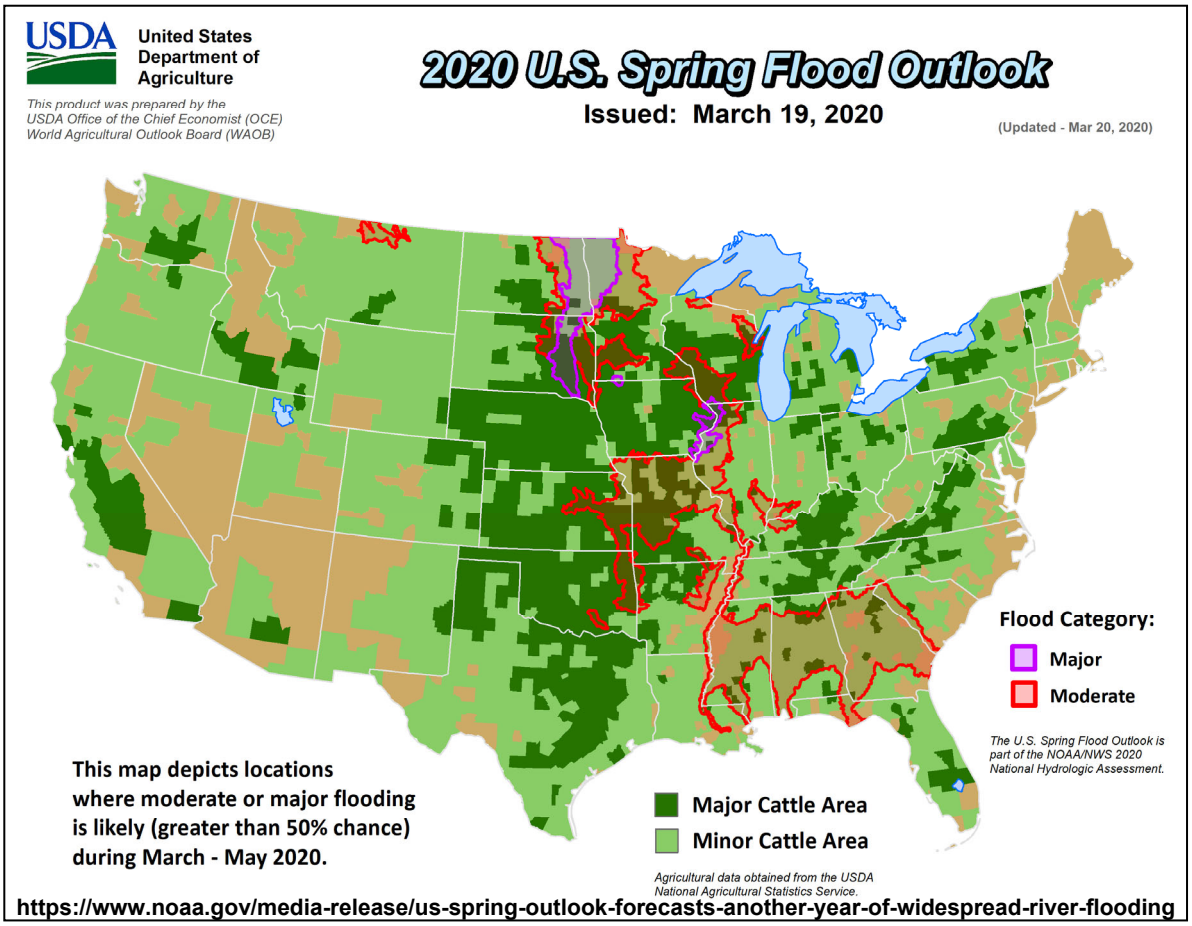

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for March 19 - June 30, 2020
Released March 19
Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
Drought persists
Drought remains but improves
Drought removal likely
Drought development likely
http://go.usa.gov/3eZ73


Average Soil Temperature (Deg. F)
March 15 - 21, 2020
< 35
35
40
45
50
55
60
65
70
75
> 80
40 F Wheat can develop
50 F Corn can develop
60 F Cotton can develop
Based on temperatures taken
in the top 4" of bare and covered soil.
Data provided by the Climate Prediction Center, High Plains Regional Climate Center, Nebraska Mesonet at Univ of Nebraska, CoAgMet at Colorado State Univ, Kansas Mesonet at Kansas State Univ, North Dakota Agricultural Weather Network at North Dakota State Univ, Wyoming State Climate Office at the Univ of Wyoming, Illinois State Water Survey, Iowa State University, Oklahoma Mesonet, Purdue University, University of Missouri, Illinois State Water Survey, Michigan Automated Weather Network, West Texas Mesonet, South Dakota State Univ. Mesonet, Ohio Agricultural Research and Development Center, Univ. of Missouri and USDA/NRCS.
USDA
United States Department of Agriculture


Snow Depth
March 21, 2020
Inches
120+
84
60
36
24
12
8
4
2
1
T
0
Winter Wheat Area
USDA Agricultural Weather Assessments
World Agricultural Outlook Board
Snow analysis and data (plotted values, in inches) are provided by
NOAA's National Operational Hydrologic Remote Sensing Center (NOHRSC).


USDA
United States Department of Agriculture
This product was prepared by the USDA Office of the Chief Economist (OCE) World Agricultural Outlook Board (WAOB)
Wintry Weather in Wheat Areas
Minimum Temperatures (°F)
March 21, 2020
(Updated - Mar 23, 2020)
Nebraska
Colorado
Kansas
Missouri
Oklahoma
Texas
Snow Depth
Inches
120+
84
60
36
24
12
8
4
2
1
Trace
0
Major Wheat Area
Minor Wheat Area
Data Sources:
- Agricultural data obtained from the USDA National Agricultural Statistics Service
- Temperature and snow data obtained from the NOAA National Weather Service


USDA
United States Department of Agriculture
This product was prepared by the USDA Office of the Chief Economist (OCE) World Agricultural Outlook Board (WAOB)
2020 U.S. Spring Flood Outlook
Issued: March 19, 2020
(Updated - Mar 20, 2020)
Flood Category:
Major
Moderate
The U.S. Spring Flood Outlook is part of the NOAA/NWS 2020 National Hydrologic Assessment.
This map depicts locations where moderate or major flooding is likely (greater than 50% chance) during March - May 2020.
Major Corn Area
Minor Corn Area
Agricultural data obtained from the USDA National Agricultural Statistics Service.
https://www.noaa.gov/media-release/us-spring-outlook-forecasts-another-year-of-widespread-river-flooding


USDA
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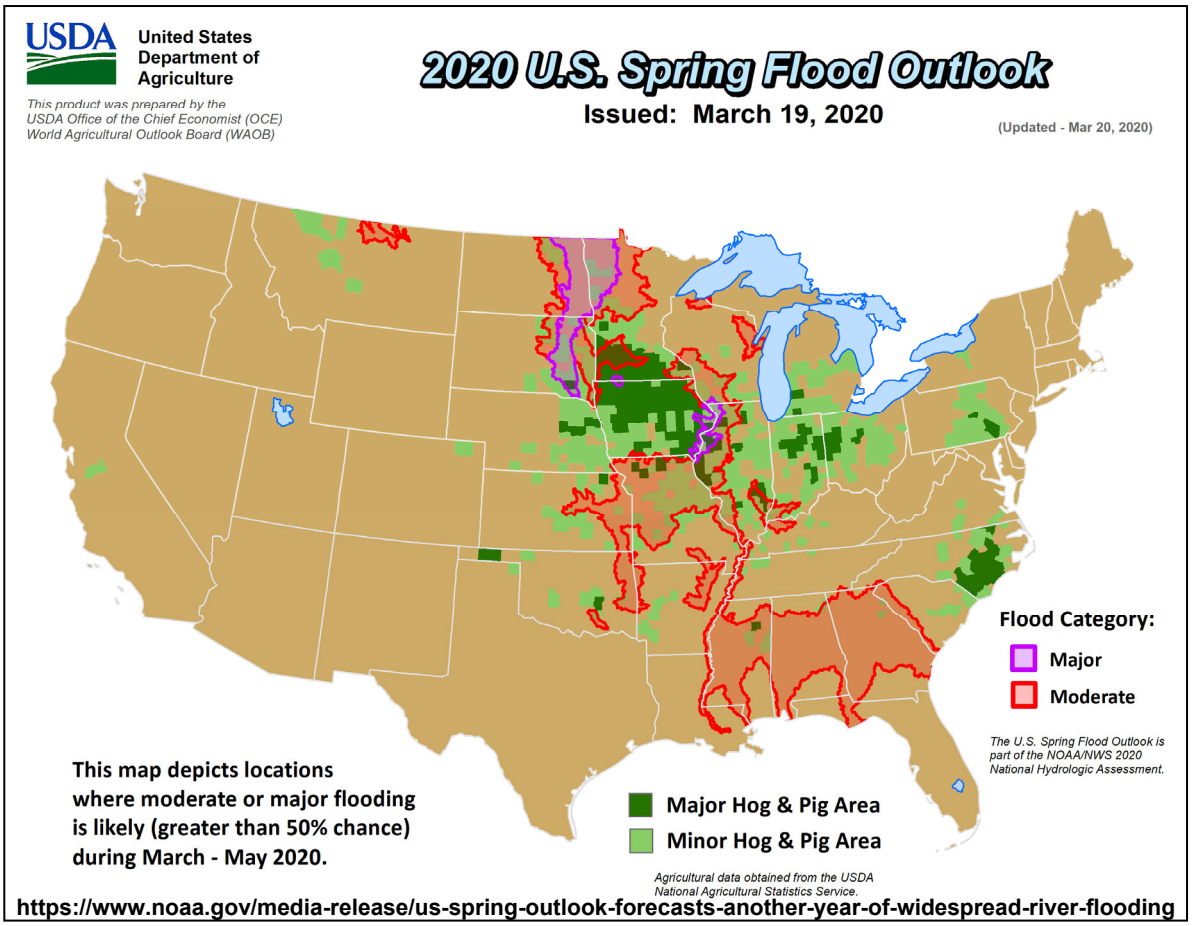
2020 U.S. Spring Flood Outlook
Issued: March 19, 2020
(Updated - Mar 20, 2020)
Flood Category:
Major
Moderate
The U.S. Spring Flood Outlook is part of the NOAA/NWS 2020 National Hydrologic Assessment.
This map depicts locations where moderate or major flooding is likely (greater than 50% chance) during March - May 2020.
Major Cattle Area
Minor Cattle Area
Agricultural data obtained from the USDA National Agricultural Statistics Service.
https://www.noaa.gov/media-release/us-spring-outlook-forecasts-another-year-of-widespread-river-flooding


USDA
United States Department of Agriculture
This product was prepared by the USDA Office of the Chief Economist (OCE) World Agricultural Outlook Board (WAOB)
2020 U.S. Spring Flood Outlook
Issued: March 19, 2020
(Updated - Mar 20, 2020)
Flood Category:
Major
Moderate
The U.S. Spring Flood Outlook is part of the NOAA/NWS 2020 National Hydrologic Assessment.
This map depicts locations where moderate or major flooding is likely (greater than 50% chance) during March - May 2020.
Major Hog & Pig Area
Minor Hog & Pig Area
Agricultural data obtained from the USDA National Agricultural Statistics Service.
https://www.noaa.gov/media-release/us-spring-outlook-forecasts-another-year-of-widespread-river-flooding

# National Weather Data for Selected Cities

## Weather Data for the Week Ending March 21, 2020

**Data Provided by Climate Prediction Center**

| STATES AND STATIONS | | TEMPERATURE ˚F | | | | | | PRECIPITATION | | | | | | | RELATIVE HUMIDITY PERCENT | | NUMBER OF DAYS TEMP. ˚F | | NUMBER OF DAYS PRECIP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AVERAGE MAXIMUM | AVERAGE MINIMUM | EXTREME HIGH | EXTREME LOW | AVERAGE | DEPARTURE FROM NORMAL | WEEKLY TOTAL, IN. | DEPARTURE FROM NORMAL | GREATEST IN 24-HOUR, IN. | TOTAL, IN., SINCE MAR 1 | PCT. NORMAL SINCE MAR 1 | TOTAL, IN., SINCE JAN 1 | PCT. NORMAL SINCE JAN 1 | AVERAGE MAXIMUM | AVERAGE MINIMUM | 90 AND ABOVE | 32 AND BELOW | .01 INCH OR MORE | .50 INCH OR MORE |
| AL | BIRMINGHAM | 75 | 57 | 82 | 47 | 66 | 10 | 0.35 | -0.83 | 0.18 | 5.57 | 155 | 26.67 | 202 | 90 | 62 | 0 | 0 | 4 | 0 |
| | HUNTSVILLE | 68 | 51 | 78 | 43 | 59 | 5 | 2.46 | 1.29 | 1.11 | 4.73 | 134 | 23.09 | 171 | 97 | 69 | 0 | 0 | 5 | 2 |
| | MOBILE | 80 | 62 | 85 | 55 | 71 | 10 | 0.25 | -1.15 | 0.21 | 0.86 | 20 | 10.54 | 69 | 99 | 55 | 0 | 0 | 2 | 0 |
| | MONTGOMERY | 83 | 61 | 88 | 55 | 72 | 14 | 0.04 | -1.28 | 0.03 | 4.17 | 102 | 19.69 | 138 | 90 | 50 | 0 | 0 | 2 | 0 |
| AK | ANCHORAGE | 33 | 21 | 40 | 5 | 27 | 0 | 0.73 | 0.60 | 0.31 | 1.29 | 308 | 2.96 | 153 | 94 | 79 | 0 | 7 | 4 | 0 |
| | BARROW | 24 | 6 | 31 | -13 | 15 | 28 | 0.20 | 0.18 | 0.07 | 0.79 | 900 | 1.06 | 268 | 91 | 78 | 0 | 7 | 6 | 0 |
| | FAIRBANKS | 35 | 20 | 38 | 8 | 28 | 15 | 0.00 | -0.06 | 0.00 | 0.00 | 0 | 0.00 | 0 | 89 | 62 | 0 | 7 | 0 | 0 |
| | JUNEAU | 43 | 25 | 51 | 22 | 34 | 0 | 0.00 | -0.84 | 0.00 | 2.43 | 91 | 15.41 | 125 | 94 | 56 | 0 | 7 | 0 | 0 |
| | KODIAK | 43 | 30 | 46 | 18 | 37 | 4 | 0.02 | -1.22 | 0.02 | 0.04 | 1 | 5.19 | 28 | 80 | 52 | 0 | 4 | 1 | 0 |
| | NOME | 33 | 26 | 37 | 10 | 29 | 19 | 0.72 | 0.59 | 0.31 | 1.57 | 346 | 2.89 | 119 | 96 | 79 | 0 | 7 | 6 | 0 |
| AZ | PHOENIX | 73 | 52 | 78 | 48 | 62 | -3 | 0.16 | -0.07 | 0.15 | 1.98 | 263 | 3.54 | 132 | 79 | 29 | 0 | 0 | 2 | 0 |
| | PRESCOTT | 54 | 34 | 60 | 30 | 44 | -3 | 0.80 | 0.56 | 0.73 | 3.21 | 404 | 4.35 | 129 | 94 | 41 | 0 | 3 | 2 | 1 |
| | TUCSON | 72 | 47 | 80 | 41 | 60 | -1 | 0.31 | 0.13 | 0.31 | 0.71 | 130 | 2.06 | 84 | 72 | 18 | 0 | 0 | 1 | 0 |
| AR | FORT SMITH | 63 | 48 | 79 | 37 | 55 | 2 | 2.03 | 1.17 | 0.98 | 3.92 | 156 | 12.59 | 154 | 96 | 70 | 0 | 0 | 4 | 2 |
| CA | BAKERSFIELD | 64 | 45 | 68 | 40 | 55 | -3 | 0.57 | 0.25 | 0.55 | 1.26 | 128 | 1.53 | 43 | 87 | 39 | 0 | 0 | 2 | 1 |
| | FRESNO | 60 | 45 | 64 | 40 | 53 | -4 | 1.08 | 0.62 | 1.02 | 1.26 | 85 | 1.92 | 33 | 86 | 45 | 0 | 0 | 3 | 1 |
| | LOS ANGELES | 63 | 52 | 65 | 48 | 58 | -1 | 0.52 | 0.15 | 0.36 | 2.42 | 169 | 2.80 | 37 | 78 | 47 | 0 | 0 | 4 | 0 |
| | REDDING | 58 | 38 | 71 | 32 | 48 | -6 | 2.35 | 1.44 | 1.59 | 3.22 | 96 | 6.13 | 40 | 92 | 50 | 0 | 1 | 4 | 1 |
| | SAN DIEGO | 64 | 55 | 66 | 52 | 59 | 0 | 0.57 | 0.20 | 0.23 | 1.93 | 142 | 2.81 | 49 | 90 | 51 | 0 | 0 | 4 | 0 |
| | SAN FRANCISCO | 58 | 46 | 62 | 44 | 52 | -3 | 0.39 | -0.57 | 0.20 | 0.94 | 30 | 2.17 | 19 | 82 | 53 | 0 | 0 | 4 | 0 |
| | STOCKTON | 60 | 43 | 66 | 39 | 51 | -3 | 1.33 | 0.79 | 0.69 | 1.83 | 103 | 2.78 | 37 | 90 | 53 | 0 | 0 | 3 | 2 |
| CO | ALAMOSA | 57 | 23 | 63 | 16 | 40 | 6 | 0.05 | -0.08 | 0.04 | 0.19 | 55 | 0.46 | 47 | 78 | 14 | 0 | 7 | 2 | 0 |
| | CO SPRINGS | 49 | 28 | 65 | 18 | 38 | -1 | 0.39 | 0.14 | 0.34 | 0.98 | 146 | 1.69 | 117 | 88 | 48 | 0 | 5 | 3 | 0 |
| | DENVER INTL | 51 | 25 | 67 | 11 | 38 | -3 | 0.76 | 0.55 | 0.76 | 1.14 | 205 | 2.24 | 147 | 93 | 51 | 0 | 6 | 1 | 1 |
| | GRAND JUNCTION | 59 | 36 | 67 | 30 | 47 | 3 | 1.02 | 0.80 | 0.93 | 1.13 | 189 | 1.72 | 98 | 75 | 32 | 0 | 3 | 4 | 1 |
| | PUEBLO | 56 | 28 | 71 | 18 | 42 | -1 | 0.01 | -0.22 | 0.01 | 0.14 | 23 | 0.97 | 71 | 91 | 41 | 0 | 6 | 1 | 0 |
| CT | BRIDGEPORT | 53 | 37 | 68 | 30 | 45 | 5 | 1.07 | 0.14 | 0.90 | 2.06 | 77 | 7.39 | 85 | 77 | 37 | 0 | 2 | 3 | 1 |
| | HARTFORD | 52 | 31 | 65 | 22 | 42 | 3 | 1.02 | 0.18 | 0.87 | 2.25 | 94 | 7.38 | 86 | 81 | 39 | 0 | 5 | 3 | 1 |
| DC | WASHINGTON | 64 | 46 | 83 | 38 | 55 | 8 | 0.56 | -0.28 | 0.32 | 1.09 | 48 | 7.24 | 93 | 89 | 47 | 0 | 0 | 6 | 0 |
| DE | WILMINGTON | 61 | 40 | 80 | 34 | 51 | 7 | 0.83 | -0.13 | 0.54 | 1.75 | 68 | 8.59 | 102 | 85 | 44 | 0 | 0 | 4 | 1 |
| FL | DAYTONA BEACH | 83 | 62 | 86 | 60 | 73 | 8 | 0.00 | -1.04 | 0.00 | 0.02 | 0 | 2.75 | 32 | 100 | 55 | 0 | 0 | 0 | 0 |
| | JACKSONVILLE | 85 | 62 | 90 | 61 | 74 | 12 | 0.01 | -0.85 | 0.01 | 1.24 | 44 | 5.71 | 61 | 91 | 46 | 1 | 0 | 1 | 0 |
| | KEY WEST | 83 | 75 | 84 | 74 | 79 | 6 | 0.00 | -0.46 | 0.00 | 0.02 | 1 | 2.02 | 39 | 79 | 59 | 0 | 0 | 0 | 0 |
| | MIAMI | 84 | 73 | 85 | 69 | 78 | 6 | 0.00 | -0.69 | 0.00 | 0.09 | 4 | 5.06 | 86 | 77 | 50 | 0 | 0 | 0 | 0 |
| | ORLANDO | 88 | 65 | 89 | 64 | 76 | 9 | 0.00 | -0.93 | 0.00 | 0.02 | 0 | 2.24 | 30 | 90 | 42 | 0 | 0 | 0 | 0 |
| | PENSACOLA | 81 | 65 | 86 | 60 | 73 | 12 | 0.01 | -1.30 | 0.01 | 0.47 | 11 | 10.68 | 77 | 95 | 61 | 0 | 0 | 1 | 0 |
| | TALLAHASSEE | 84 | 60 | 86 | 55 | 72 | 12 | 0.12 | -1.22 | 0.12 | 1.46 | 34 | 7.96 | 58 | 96 | 48 | 0 | 0 | 1 | 0 |
| | TAMPA | 87 | 69 | 89 | 67 | 78 | 10 | 0.00 | -0.71 | 0.00 | 0.00 | 0 | 3.60 | 50 | 81 | 42 | 0 | 0 | 0 | 0 |
| | WEST PALM BEACH | 84 | 73 | 85 | 67 | 79 | 8 | 0.00 | -1.13 | 0.00 | 0.19 | 6 | 4.67 | 51 | 76 | 52 | 0 | 0 | 0 | 0 |
| GA | ATHENS | 74 | 54 | 86 | 49 | 64 | 10 | 0.20 | -0.79 | 0.14 | 3.69 | 119 | 21.52 | 182 | 90 | 56 | 0 | 0 | 3 | 0 |
| | ATLANTA | 73 | 55 | 83 | 50 | 64 | 9 | 0.13 | -0.96 | 0.09 | 4.54 | 135 | 23.26 | 187 | 92 | 59 | 0 | 0 | 3 | 0 |
| | AUGUSTA | 79 | 57 | 89 | 51 | 68 | 12 | 0.01 | -0.91 | 0.01 | 2.82 | 95 | 14.63 | 134 | 93 | 50 | 0 | 0 | 1 | 0 |
| | COLUMBUS | 80 | 61 | 85 | 58 | 70 | 14 | 0.00 | -1.31 | 0.00 | 3.93 | 97 | 21.37 | 159 | 88 | 50 | 0 | 0 | 0 | 0 |
| | MACON | 80 | 57 | 87 | 53 | 68 | 11 | 0.00 | -0.99 | 0.00 | 3.73 | 117 | 17.97 | 150 | 93 | 54 | 0 | 0 | 0 | 0 |
| | SAVANNAH | 82 | 62 | 88 | 58 | 72 | 12 | 0.00 | -0.83 | 0.00 | 5.53 | 222 | 11.87 | 131 | 95 | 51 | 0 | 0 | 0 | 0 |
| HI | HILO | 78 | 71 | 82 | 70 | 74 | 3 | 1.19 | -1.91 | 0.53 | 9.81 | 109 | 18.88 | 67 | 84 | 77 | 0 | 0 | 4 | 1 |
| | HONOLULU | 79 | 70 | 83 | 68 | 74 | 0 | 3.08 | 2.64 | 2.59 | 3.56 | 250 | 5.59 | 97 | 89 | 67 | 0 | 0 | 5 | 1 |
| | KAHULUI | 84 | 70 | 88 | 69 | 77 | 4 | 0.79 | 0.26 | 0.56 | 1.43 | 87 | 4.79 | 74 | 88 | 80 | 0 | 0 | 4 | 1 |
| | LIHUE | 78 | 70 | 81 | 68 | 74 | 1 | 0.74 | -0.31 | 0.41 | 1.23 | 39 | 3.65 | 36 | 94 | 86 | 0 | 0 | 5 | 0 |
| ID | BOISE | 57 | 36 | 60 | 30 | 47 | 1 | 1.00 | 0.68 | 0.58 | 1.17 | 126 | 4.69 | 146 | 86 | 42 | 0 | 1 | 2 | 1 |
| | LEWISTON | 55 | 33 | 63 | 27 | 44 | -2 | 0.02 | -0.25 | 0.02 | 0.26 | 33 | 4.21 | 155 | 84 | 43 | 0 | 3 | 1 | 0 |
| | POCATELLO | 53 | 31 | 60 | 29 | 42 | 3 | 0.40 | 0.10 | 0.21 | 1.44 | 167 | 3.26 | 112 | 91 | 46 | 0 | 4 | 3 | 0 |
| IL | CHICAGO/O_HARE | 47 | 33 | 64 | 26 | 40 | 2 | 0.63 | 0.06 | 0.29 | 1.48 | 91 | 4.98 | 95 | 85 | 54 | 0 | 4 | 4 | 0 |
| | MOLINE | 47 | 35 | 64 | 27 | 41 | 1 | 0.69 | 0.03 | 0.34 | 1.14 | 60 | 4.09 | 80 | 85 | 63 | 0 | 2 | 3 | 0 |
| | PEORIA | 49 | 36 | 65 | 28 | 42 | 1 | 0.67 | 0.03 | 0.46 | 1.73 | 95 | 7.00 | 128 | 88 | 62 | 0 | 2 | 3 | 0 |
| | ROCKFORD | 46 | 31 | 59 | 23 | 38 | 0 | 1.16 | 0.63 | 0.87 | 1.89 | 130 | 5.09 | 118 | 88 | 58 | 0 | 5 | 3 | 1 |
| | SPRINGFIELD | 51 | 37 | 68 | 27 | 44 | 1 | 1.29 | 0.70 | 0.66 | 2.43 | 142 | 9.70 | 179 | 93 | 65 | 0 | 2 | 3 | 2 |
| IN | EVANSVILLE | 56 | 41 | 71 | 33 | 48 | 1 | 3.32 | 2.31 | 1.87 | 6.32 | 229 | 15.76 | 172 | 89 | 66 | 0 | 0 | 4 | 3 |
| | FORT WAYNE | 49 | 30 | 65 | 26 | 39 | 0 | 1.39 | 0.78 | 0.91 | 2.47 | 144 | 8.70 | 142 | 92 | 65 | 0 | 6 | 5 | 1 |
| | INDIANAPOLIS | 53 | 36 | 67 | 30 | 44 | 1 | 1.88 | 1.05 | 1.06 | 3.28 | 144 | 12.55 | 171 | 91 | 65 | 0 | 3 | 3 | 2 |
| | SOUTH BEND | 49 | 28 | 64 | 20 | 38 | 0 | 0.52 | -0.01 | 0.47 | 1.21 | 76 | 7.34 | 124 | 91 | 57 | 0 | 6 | 4 | 0 |
| IA | BURLINGTON | 48 | 36 | 66 | 30 | 42 | -1 | 0.64 | 0.00 | 0.55 | 2.13 | 115 | 3.99 | 82 | 89 | 65 | 0 | 3 | 3 | 1 |
| | CEDAR RAPIDS | 43 | 30 | 56 | 22 | 37 | -1 | 1.06 | 0.57 | 0.65 | 1.87 | 138 | 2.93 | 81 | 93 | 68 | 0 | 5 | 2 | 1 |
| | DES MOINES | 47 | 31 | 65 | 23 | 40 | -1 | 2.53 | 2.00 | 1.55 | 3.06 | 211 | 4.92 | 129 | 89 | 61 | 0 | 5 | 3 | 2 |
| | DUBUQUE | 41 | 30 | 50 | 24 | 35 | -1 | 1.46 | 0.91 | 0.83 | 2.57 | 171 | 5.30 | 127 | 92 | 67 | 0 | 5 | 3 | 1 |
| | SIOUX CITY | 41 | 26 | 53 | 13 | 33 | -4 | 1.66 | 1.17 | 1.60 | 2.45 | 204 | 3.53 | 139 | 94 | 66 | 0 | 6 | 3 | 1 |
| | WATERLOO | 44 | 29 | 49 | 19 | 36 | -1 | 1.69 | 1.20 | 0.87 | 2.59 | 203 | 4.41 | 138 | 87 | 62 | 0 | 4 | 5 | 2 |
| KS | CONCORDIA | 52 | 32 | 77 | 19 | 42 | -2 | 0.22 | -0.28 | 0.13 | 0.92 | 75 | 2.35 | 87 | 87 | 54 | 0 | 3 | 2 | 0 |
| | DODGE CITY | 54 | 33 | 73 | 22 | 44 | -1 | 0.07 | -0.31 | 0.03 | 0.63 | 64 | 2.65 | 115 | 92 | 54 | 0 | 4 | 4 | 0 |
| | GOODLAND | 47 | 27 | 61 | 16 | 37 | -4 | 0.02 | -0.24 | 0.01 | 0.24 | 35 | 0.96 | 58 | 92 | 64 | 0 | 5 | 2 | 0 |
| | TOPEKA | 53 | 36 | 77 | 22 | 45 | -1 | 0.85 | 0.28 | 0.48 | 2.36 | 154 | 4.90 | 129 | 88 | 56 | 0 | 2 | 3 | 0 |
| | WICHITA | 55 | 38 | 76 | 26 | 47 | -1 | 0.61 | -0.03 | 0.41 | 1.53 | 89 | 5.94 | 155 | 91 | 54 | 0 | 2 | 6 | 0 |
| KY | JACKSON | 58 | 44 | 74 | 35 | 51 | 3 | 2.89 | 2.03 | 1.78 | 7.46 | 284 | 17.92 | 184 | 100 | 76 | 0 | 0 | 7 | 2 |
| | LEXINGTON | 55 | 40 | 71 | 31 | 47 | 1 | 0.79 | -0.17 | 0.45 | 3.88 | 142 | 12.56 | 136 | 97 | 72 | 0 | 1 | 6 | 0 |

**Based on 1971-2000 normals**

***** Not Available**

## Weather Data for the Week Ending March 21, 2020

| STATES AND STATIONS | | TEMPERATURE ˚F | | | | | | PRECIPITATION | | | | | | | RELATIVE HUMIDITY PERCENT | | NUMBER OF DAYS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | TEMP. ˚F | | PRECIP | |
| | | AVERAGE MAXIMUM | AVERAGE MINIMUM | EXTREME HIGH | EXTREME LOW | AVERAGE | DEPARTURE FROM NORMAL | WEEKLY TOTAL, IN. | DEPARTURE FROM NORMAL | GREATEST IN 24-HOUR, IN. | TOTAL, IN., SINCE MAR 1 | PCT. NORMAL SINCE MAR 1 | TOTAL, IN., SINCE JAN01 | PCT. NORMAL SINCE JAN01 | AVERAGE MAXIMUM | AVERAGE MINIMUM | 90 AND ABOVE | 32 AND BELOW | .01 INCH OR MORE | .50 INCH OR MORE |
| | LOUISVILLE | 59 | 44 | 76 | 34 | 51 | 3 | 1.36 | 0.39 | 0.64 | 4.04 | 146 | 11.69 | 126 | 85 | 60 | 0 | 0 | 5 | 2 |
| LA | BATON ROUGE | 81 | 64 | 86 | 58 | 72 | 10 | 1.63 | 0.72 | 0.88 | 2.19 | 74 | 13.58 | 99 | 95 | 59 | 0 | 0 | 4 | 1 |
| | LAKE CHARLES | 80 | 66 | 85 | 59 | 73 | 11 | 0.87 | 0.07 | 0.83 | 1.59 | 65 | 10.43 | 92 | 92 | 66 | 0 | 0 | 2 | 1 |
| | NEW ORLEANS | 83 | 67 | 85 | 62 | 75 | 12 | 0.12 | -0.87 | 0.08 | 1.09 | 35 | 9.51 | 69 | 91 | 58 | 0 | 0 | 3 | 0 |
| | SHREVEPORT | 72 | 55 | 85 | 49 | 64 | 5 | 1.57 | 0.71 | 0.96 | 3.64 | 131 | 18.06 | 151 | 97 | 70 | 0 | 0 | 5 | 1 |
| ME | CARIBOU | 35 | 13 | 48 | 4 | 24 | -1 | 0.31 | -0.25 | 0.21 | 2.46 | 146 | 7.78 | 116 | 77 | 45 | 0 | 6 | 2 | 0 |
| | PORTLAND | 47 | 29 | 63 | 20 | 38 | 4 | 0.50 | -0.48 | 0.28 | 1.51 | 54 | 8.18 | 86 | 74 | 42 | 0 | 5 | 3 | 0 |
| MD | BALTIMORE | 63 | 43 | 83 | 36 | 53 | 9 | 0.96 | 0.00 | 0.47 | 1.72 | 66 | 7.94 | 92 | 83 | 45 | 0 | 0 | 4 | 0 |
| MA | BOSTON | 50 | 32 | 68 | 24 | 41 | 3 | 0.63 | -0.39 | 0.57 | 1.00 | 35 | 5.77 | 60 | 79 | 41 | 0 | 4 | 3 | 1 |
| | WORCESTER | 48 | 28 | 64 | 20 | 38 | 3 | 0.91 | -0.06 | 0.73 | 1.69 | 61 | 7.01 | 73 | 78 | 37 | 0 | 5 | 3 | 1 |
| MI | ALPENA | 38 | 18 | 43 | 11 | 28 | -1 | 0.69 | 0.28 | 0.49 | 1.88 | 156 | 4.88 | 115 | 93 | 46 | 0 | 7 | 4 | 0 |
| | GRAND RAPIDS | 47 | 25 | 62 | 20 | 36 | -1 | 0.53 | 0.01 | 0.39 | 1.43 | 93 | 5.74 | 105 | 90 | 52 | 0 | 7 | 4 | 0 |
| | HOUGHTON LAKE | 41 | 19 | 47 | 11 | 30 | 0 | 0.52 | 0.10 | 0.39 | 1.28 | 108 | 3.72 | 94 | 90 | 44 | 0 | 7 | 3 | 0 |
| | LANSING | 49 | 25 | 61 | 20 | 37 | 1 | 0.48 | 0.03 | 0.37 | 0.89 | 69 | 6.13 | 136 | 89 | 51 | 0 | 7 | 4 | 0 |
| | MUSKEGON | 44 | 27 | 56 | 21 | 35 | 0 | 0.90 | 0.39 | 0.49 | 1.87 | 124 | 5.57 | 102 | 83 | 47 | 0 | 6 | 2 | 0 |
| | TRAVERSE CITY | 41 | 25 | 51 | 17 | 33 | 2 | 0.35 | 0.06 | 0.27 | 0.80 | 97 | 2.46 | 77 | 85 | 45 | 0 | 7 | 2 | 0 |
| MN | DULUTH | 32 | 16 | 36 | 3 | 24 | -3 | 0.06 | -0.29 | 0.03 | 0.51 | 52 | 2.27 | 80 | 85 | 48 | 0 | 7 | 2 | 0 |
| | INT_L FALLS | 31 | 4 | 34 | -14 | 18 | -7 | 0.29 | 0.07 | 0.16 | 0.74 | 127 | 2.29 | 126 | 86 | 40 | 0 | 7 | 4 | 0 |
| | MINNEAPOLIS | 40 | 26 | 45 | 20 | 33 | -1 | 0.51 | 0.05 | 0.50 | 0.66 | 54 | 2.28 | 76 | 83 | 50 | 0 | 6 | 2 | 0 |
| | ROCHESTER | 37 | 26 | 42 | 18 | 32 | -2 | 0.81 | 0.37 | 0.70 | 1.19 | 103 | 3.34 | 113 | 87 | 64 | 0 | 6 | 4 | 1 |
| | ST. CLOUD | 37 | 22 | 41 | 14 | 29 | -1 | 0.03 | -0.34 | 0.02 | 0.13 | 13 | 1.39 | 62 | 90 | 54 | 0 | 6 | 2 | 0 |
| MS | JACKSON | 79 | 60 | 84 | 53 | 69 | 12 | 0.34 | -0.74 | 0.34 | 3.10 | 92 | 26.40 | 199 | 89 | 56 | 0 | 0 | 1 | 0 |
| | MERIDIAN | 81 | 60 | 86 | 53 | 71 | 14 | 0.09 | -1.12 | 0.09 | 5.99 | 160 | 25.31 | 172 | 90 | 52 | 0 | 0 | 1 | 0 |
| | TUPELO | 71 | 53 | 82 | 46 | 62 | 7 | 1.39 | 0.36 | 0.72 | 3.48 | 104 | 22.82 | 175 | 89 | 62 | 0 | 0 | 3 | 2 |
| MO | COLUMBIA | 54 | 38 | 70 | 26 | 46 | 1 | 1.44 | 0.79 | 0.94 | 3.78 | 203 | 14.35 | 235 | 93 | 67 | 0 | 2 | 3 | 1 |
| | KANSAS CITY | 52 | 36 | 75 | 22 | 44 | -1 | 1.19 | 0.66 | 0.55 | 3.56 | 241 | 6.98 | 170 | 90 | 56 | 0 | 2 | 3 | 2 |
| | SAINT LOUIS | 55 | 40 | 70 | 34 | 48 | 1 | 1.20 | 0.41 | 0.89 | 3.23 | 154 | 12.51 | 184 | 86 | 63 | 0 | 0 | 3 | 1 |
| | SPRINGFIELD | 55 | 39 | 71 | 26 | 47 | 0 | 3.17 | 2.35 | 1.96 | 6.00 | 256 | 14.91 | 201 | 97 | 70 | 0 | 2 | 4 | 2 |
| MT | BILLINGS | 36 | 17 | 55 | 11 | 27 | -12 | 0.23 | -0.02 | 0.18 | 0.56 | 86 | 1.46 | 87 | 91 | 56 | 0 | 7 | 3 | 0 |
| | BUTTE | 39 | 18 | 47 | 8 | 28 | -3 | 0.06 | -0.09 | 0.03 | 0.23 | 67 | 0.82 | 61 | 86 | 54 | 0 | 7 | 2 | 0 |
| | CUT BANK | 26 | 6 | 44 | -4 | 16 | -16 | 0.00 | -0.12 | 0.00 | 0.08 | 25 | 0.30 | 36 | 86 | 60 | 0 | 7 | 0 | 0 |
| | GLASGOW | 31 | 14 | 41 | 9 | 22 | -11 | 0.04 | -0.06 | 0.03 | 0.18 | 64 | 1.01 | 100 | 78 | 56 | 0 | 7 | 2 | 0 |
| | GREAT FALLS | 32 | 8 | 52 | -12 | 20 | -15 | 0.03 | -0.19 | 0.02 | 0.72 | 124 | 1.22 | 76 | 83 | 51 | 0 | 7 | 2 | 0 |
| | HAVRE | 25 | 5 | 37 | -5 | 15 | -19 | 0.01 | -0.12 | 0.01 | 0.55 | 159 | 1.28 | 120 | 87 | 65 | 0 | 7 | 1 | 0 |
| | MISSOULA | 49 | 21 | 57 | 13 | 35 | -4 | 0.00 | -0.23 | 0.00 | 0.04 | 6 | 1.98 | 86 | 82 | 31 | 0 | 7 | 0 | 0 |
| NE | GRAND ISLAND | 43 | 28 | 51 | 15 | 35 | -5 | 0.98 | 0.54 | 0.90 | 1.71 | 155 | 3.02 | 127 | 88 | 65 | 0 | 6 | 3 | 1 |
| | LINCOLN | 46 | 28 | 58 | 18 | 37 | -4 | 0.56 | 0.09 | 0.49 | 1.59 | 135 | 3.07 | 115 | 89 | 63 | 0 | 6 | 3 | 0 |
| | NORFOLK | 41 | 25 | 54 | 13 | 33 | -5 | 1.11 | 0.68 | 1.11 | 1.83 | 172 | 2.97 | 120 | 89 | 66 | 0 | 6 | 1 | 1 |
| | NORTH PLATTE | 43 | 28 | 54 | 14 | 35 | -3 | 0.20 | -0.04 | 0.19 | 0.87 | 131 | 1.47 | 92 | 88 | 64 | 0 | 4 | 2 | 0 |
| | OMAHA | 45 | 30 | 55 | 19 | 37 | -3 | 1.09 | 0.61 | 0.54 | 1.59 | 131 | 3.09 | 108 | 93 | 64 | 0 | 5 | 3 | 1 |
| | SCOTTSBLUFF | 45 | 25 | 58 | 11 | 35 | -4 | 0.17 | -0.06 | 0.13 | 0.78 | 123 | 1.14 | 66 | 98 | 64 | 0 | 7 | 2 | 0 |
| | VALENTINE | 39 | 24 | 48 | 2 | 32 | -5 | 0.41 | 0.16 | 0.41 | 0.69 | 104 | 1.31 | 88 | 84 | 65 | 0 | 6 | 1 | 0 |
| NV | ELY | 45 | 25 | 53 | 16 | 35 | -2 | 0.23 | 0.01 | 0.11 | 0.53 | 81 | 1.11 | 51 | 91 | 36 | 0 | 6 | 3 | 0 |
| | LAS VEGAS | 62 | 49 | 69 | 45 | 55 | -5 | 0.01 | -0.09 | 0.01 | 1.63 | 451 | 1.94 | 113 | 71 | 31 | 0 | 0 | 1 | 0 |
| | RENO | 46 | 30 | 54 | 26 | 38 | -8 | 0.60 | 0.45 | 0.24 | 0.80 | 135 | 0.93 | 34 | 91 | 43 | 0 | 6 | 4 | 0 |
| | WINNEMUCCA | 52 | 24 | 61 | 21 | 38 | -4 | 0.25 | 0.05 | 0.12 | 0.51 | 89 | 1.59 | 73 | 88 | 32 | 0 | 7 | 4 | 0 |
| NH | CONCORD | 48 | 26 | 67 | 13 | 37 | 3 | 0.35 | -0.40 | 0.28 | 0.98 | 45 | 5.16 | 69 | 75 | 32 | 0 | 6 | 2 | 0 |
| NJ | NEWARK | 56 | 39 | 80 | 31 | 48 | 5 | 1.37 | 0.37 | 1.05 | 2.28 | 83 | 6.50 | 70 | 80 | 39 | 0 | 1 | 3 | 1 |
| NM | ALBUQUERQUE | 63 | 40 | 68 | 35 | 51 | 3 | 0.05 | -0.08 | 0.02 | 0.32 | 83 | 1.24 | 94 | 73 | 24 | 0 | 0 | 3 | 0 |
| NY | ALBANY | 53 | 30 | 74 | 20 | 42 | 6 | 0.78 | 0.02 | 0.61 | 1.33 | 63 | 6.07 | 87 | 75 | 36 | 0 | 4 | 4 | 1 |
| | BINGHAMTON | 47 | 26 | 66 | 17 | 37 | 3 | 0.77 | 0.09 | 0.29 | 1.43 | 74 | 14.00 | 208 | 91 | 45 | 0 | 6 | 4 | 0 |
| | BUFFALO | 49 | 29 | 66 | 23 | 39 | 5 | 0.51 | -0.14 | 0.18 | 2.00 | 104 | 7.26 | 95 | 84 | 48 | 0 | 5 | 3 | 0 |
| | ROCHESTER | 47 | 27 | 70 | 20 | 37 | 3 | 0.35 | -0.20 | 0.13 | 0.90 | 54 | 5.84 | 96 | 85 | 44 | 0 | 5 | 4 | 0 |
| | SYRACUSE | 49 | 27 | 74 | 19 | 38 | 3 | 0.40 | -0.28 | 0.20 | 1.11 | 58 | 6.64 | 101 | 79 | 39 | 0 | 6 | 4 | 0 |
| NC | ASHEVILLE | 66 | 48 | 79 | 43 | 57 | 10 | 0.29 | -0.55 | 0.12 | 1.06 | 41 | 13.44 | 133 | 90 | 57 | 0 | 0 | 4 | 0 |
| | CHARLOTTE | 71 | 54 | 84 | 48 | 63 | 11 | 0.63 | -0.27 | 0.45 | 1.51 | 53 | 12.19 | 126 | 88 | 50 | 0 | 0 | 4 | 0 |
| | GREENSBORO | 68 | 49 | 85 | 43 | 58 | 8 | 0.56 | -0.28 | 0.24 | 0.93 | 37 | 13.27 | 154 | 94 | 55 | 0 | 0 | 6 | 0 |
| | HATTERAS | 64 | 55 | 73 | 50 | 60 | 8 | 0.70 | -0.38 | 0.66 | 2.71 | 85 | 11.85 | 95 | 90 | 73 | 0 | 0 | 4 | 1 |
| | RALEIGH | 70 | 51 | 86 | 42 | 60 | 8 | 0.08 | -0.86 | 0.07 | 0.43 | 15 | 10.53 | 109 | 90 | 54 | 0 | 0 | 2 | 0 |
| | WILMINGTON | 73 | 55 | 84 | 47 | 64 | 8 | 0.54 | -0.41 | 0.43 | 2.55 | 86 | 11.76 | 113 | 94 | 58 | 0 | 0 | 2 | 0 |
| ND | BISMARCK | 33 | 17 | 43 | 8 | 25 | -5 | 0.07 | -0.14 | 0.06 | 0.15 | 26 | 0.69 | 44 | 88 | 56 | 0 | 7 | 2 | 0 |
| | DICKINSON | 32 | 12 | 43 | -2 | 22 | -8 | 0.06 | -0.09 | 0.06 | 0.13 | 33 | 0.43 | 37 | 88 | 61 | 0 | 7 | 1 | 0 |
| | FARGO | 30 | 11 | 36 | 0 | 20 | -8 | 0.06 | -0.26 | 0.02 | 0.15 | 17 | 1.53 | 68 | 92 | 64 | 0 | 7 | 4 | 0 |
| | GRAND FORKS | 25 | 5 | 30 | -10 | 15 | -11 | 0.24 | 0.01 | 0.14 | 0.24 | 35 | 1.20 | 68 | 87 | 61 | 0 | 7 | 5 | 0 |
| | JAMESTOWN | 29 | 13 | 38 | 3 | 21 | -7 | 0.04 | -0.17 | 0.02 | 0.06 | 10 | 0.29 | 19 | 94 | 60 | 0 | 7 | 3 | 0 |
| OH | AKRON-CANTON | 52 | 31 | 70 | 22 | 42 | 4 | 2.47 | 1.80 | 1.68 | 3.77 | 196 | 9.78 | 142 | 87 | 60 | 0 | 5 | 4 | 1 |
| | CINCINNATI | 55 | 38 | 73 | 31 | 47 | 3 | 2.97 | 2.02 | 1.56 | 4.77 | 187 | 12.54 | 149 | 87 | 63 | 0 | 1 | 4 | 2 |
| | CLEVELAND | 52 | 30 | 69 | 23 | 41 | 2 | 1.29 | 0.63 | 0.98 | 2.37 | 127 | 7.74 | 111 | 89 | 56 | 0 | 4 | 5 | 1 |
| | COLUMBUS | 53 | 33 | 71 | 27 | 43 | 0 | 4.74 | 4.04 | 2.82 | 7.19 | 374 | 14.27 | 205 | 90 | 61 | 0 | 5 | 4 | 3 |
| | DAYTON | 52 | 35 | 70 | 30 | 44 | 3 | 2.17 | 1.39 | 1.03 | 4.09 | 194 | 10.71 | 150 | 88 | 66 | 0 | 3 | 3 | 2 |
| | MANSFIELD | 51 | 29 | 68 | 23 | 40 | 2 | 2.00 | 1.21 | 1.32 | 3.42 | 160 | 9.94 | 134 | 93 | 64 | 0 | 6 | 5 | 1 |
| | TOLEDO | 52 | 30 | 67 | 27 | 41 | 3 | 1.13 | 0.58 | 0.51 | 1.87 | 117 | 6.74 | 116 | 83 | 52 | 0 | 6 | 4 | 1 |
| | YOUNGSTOWN | 52 | 29 | 69 | 21 | 40 | 3 | 1.74 | 1.07 | 1.10 | 2.84 | 149 | 9.24 | 138 | 87 | 54 | 0 | 6 | 4 | 1 |
| OK | OKLAHOMA CITY | 59 | 44 | 77 | 31 | 51 | -1 | 2.34 | 1.60 | 0.85 | 3.67 | 182 | 7.52 | 148 | 97 | 64 | 0 | 1 | 6 | 3 |
| | TULSA | 62 | 45 | 78 | 30 | 54 | 2 | 2.70 | 1.94 | 1.31 | 3.94 | 182 | 10.33 | 179 | 92 | 60 | 0 | 1 | 5 | 2 |
| OR | ASTORIA | 53 | 33 | 57 | 29 | 43 | -3 | 0.00 | -1.70 | 0.00 | 2.00 | 38 | 27.47 | 120 | 92 | 54 | 0 | 3 | 0 | 0 |

**Based on 1971-2000 normals**

***** Not Available**

## Weather Data for the Week Ending March 21, 2020

| STATES AND STATIONS | | TEMPERATURE °F | | | | | | PRECIPITATION | | | | | | | RELATIVE HUMIDITY PERCENT | | NUMBER OF DAYS TEMP. °F | | NUMBER OF DAYS PRECIP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AVERAGE MAXIMUM | AVERAGE MINIMUM | EXTREME HIGH | EXTREME LOW | AVERAGE | DEPARTURE FROM NORMAL | WEEKLY TOTAL, IN. | DEPARTURE FROM NORMAL | GREATEST IN 24-HOUR, IN. | TOTAL, IN., SINCE MAR 1 | PCT. NORMAL SINCE MAR 1 | TOTAL, IN., SINCE JAN01 | PCT. NORMAL SINCE JAN01 | AVERAGE MAXIMUM | AVERAGE MINIMUM | 90 AND ABOVE | 32 AND BELOW | .01 INCH OR MORE | .50 INCH OR MORE |
| | BURNS | 52 | 25 | 58 | 11 | 38 | 0 | 0.66 | 0.42 | 0.40 | 0.77 | 101 | 3.01 | 99 | 88 | 43 | 0 | 7 | 3 | 0 |
| | EUGENE | 61 | 32 | 65 | 31 | 46 | -1 | 0.00 | -1.11 | 0.00 | 1.20 | 34 | 9.45 | 59 | 91 | 43 | 0 | 5 | 0 | 0 |
| | MEDFORD | 59 | 33 | 68 | 29 | 46 | -2 | 0.12 | -0.26 | 0.12 | 0.38 | 31 | 4.51 | 78 | 87 | 37 | 0 | 4 | 1 | 0 |
| | PENDLETON | 52 | 29 | 63 | 23 | 40 | -5 | 0.05 | -0.26 | 0.05 | 0.62 | 66 | 4.78 | 135 | 90 | 45 | 0 | 4 | 1 | 0 |
| | PORTLAND | 59 | 37 | 67 | 32 | 48 | 0 | 0.00 | -0.81 | 0.00 | 1.26 | 48 | 10.73 | 95 | 81 | 35 | 0 | 1 | 0 | 0 |
| | SALEM | 60 | 33 | 65 | 30 | 47 | -1 | 0.00 | -0.89 | 0.00 | 1.28 | 45 | 11.40 | 84 | 85 | 38 | 0 | 4 | 0 | 0 |
| PA | ALLENTOWN | 58 | 36 | 76 | 29 | 47 | 7 | 0.84 | 0.04 | 0.51 | 1.68 | 76 | 7.32 | 91 | 75 | 40 | 0 | 3 | 3 | 1 |
| | ERIE | 51 | 30 | 70 | 23 | 40 | 4 | 1.03 | 0.36 | 0.56 | 1.95 | 101 | 7.73 | 105 | 86 | 53 | 0 | 4 | 5 | 1 |
| | MIDDLETOWN | 58 | 38 | 78 | 29 | 48 | 6 | 1.01 | 0.20 | 0.54 | 1.94 | 87 | 7.56 | 100 | 83 | 43 | 0 | 1 | 4 | 1 |
| | PHILADELPHIA | 60 | 41 | 79 | 36 | 51 | 6 | 1.07 | 0.15 | 0.83 | 1.97 | 79 | 7.24 | 88 | 81 | 40 | 0 | 0 | 4 | 1 |
| | PITTSBURGH | 54 | 33 | 72 | 28 | 43 | 3 | 2.13 | 1.46 | 0.84 | 3.22 | 166 | 9.75 | 137 | 92 | 54 | 0 | 5 | 5 | 2 |
| | WILKES-BARRE | 54 | 33 | 73 | 23 | 44 | 6 | 0.82 | 0.22 | 0.42 | 1.50 | 91 | 6.88 | 112 | 77 | 40 | 0 | 4 | 3 | 0 |
| | WILLIAMSPORT | 55 | 32 | 74 | 24 | 43 | 4 | 0.91 | 0.23 | 0.53 | 1.59 | 83 | 6.84 | 97 | 80 | 42 | 0 | 5 | 4 | 1 |
| RI | PROVIDENCE | 53 | 34 | 65 | 26 | 43 | 4 | 1.17 | -0.04 | 0.91 | 1.93 | 58 | 6.26 | 59 | 81 | 41 | 0 | 3 | 3 | 1 |
| SC | BEAUFORT | 79 | 62 | 88 | 56 | 71 | 11 | 0.00 | -0.71 | 0.00 | 0.00 | 0 | 1.54 | 18 | 95 | 59 | 0 | 0 | 0 | 0 |
| | CHARLESTON | 79 | 59 | 88 | 53 | 69 | 10 | 0.03 | -0.82 | 0.03 | 2.76 | 111 | 9.33 | 101 | 94 | 54 | 0 | 0 | 1 | 0 |
| | COLUMBIA | 76 | 57 | 86 | 51 | 67 | 10 | 0.03 | -0.77 | 0.03 | 2.33 | 90 | 11.91 | 120 | 87 | 51 | 0 | 0 | 1 | 0 |
| | GREENVILLE | 69 | 52 | 83 | 46 | 61 | 7 | 0.25 | -0.78 | 0.24 | 1.80 | 57 | 18.16 | 164 | 91 | 56 | 0 | 0 | 2 | 0 |
| SD | ABERDEEN | 37 | 19 | 47 | 9 | 28 | -3 | 0.00 | -0.27 | 0.00 | 0.06 | 8 | 0.79 | 44 | 88 | 54 | 0 | 7 | 0 | 0 |
| | HURON | 39 | 23 | 47 | 13 | 31 | -3 | 0.09 | -0.26 | 0.07 | 0.16 | 18 | 1.47 | 73 | 91 | 57 | 0 | 6 | 2 | 0 |
| | RAPID CITY | 42 | 19 | 56 | 6 | 30 | -6 | 0.02 | -0.20 | 0.02 | 0.26 | 42 | 1.53 | 105 | 90 | 57 | 0 | 7 | 1 | 0 |
| | SIOUX FALLS | 39 | 23 | 50 | 14 | 31 | -3 | 0.43 | 0.02 | 0.40 | 0.72 | 73 | 1.71 | 78 | 87 | 62 | 0 | 6 | 2 | 0 |
| TN | BRISTOL | 64 | 49 | 78 | 44 | 57 | 10 | 2.03 | 1.26 | 1.41 | 4.28 | 186 | 16.88 | 183 | 96 | 65 | 0 | 0 | 6 | 1 |
| | CHATTANOOGA | 67 | 53 | 79 | 46 | 60 | 7 | 1.99 | 0.86 | 1.05 | 4.48 | 132 | 21.39 | 160 | 98 | 69 | 0 | 0 | 5 | 1 |
| | KNOXVILLE | 65 | 52 | 80 | 44 | 58 | 8 | 2.58 | 1.61 | 1.70 | 4.66 | 160 | 23.08 | 197 | 94 | 65 | 0 | 0 | 6 | 2 |
| | MEMPHIS | 64 | 49 | 77 | 43 | 57 | 2 | 1.55 | 0.39 | 0.83 | 5.50 | 161 | 18.37 | 153 | 95 | 68 | 0 | 0 | 5 | 1 |
| | NASHVILLE | 62 | 47 | 79 | 40 | 55 | 4 | 2.50 | 1.57 | 1.02 | 4.12 | 149 | 15.72 | 148 | 89 | 65 | 0 | 0 | 6 | 3 |
| TX | ABILENE | 67 | 50 | 81 | 38 | 59 | 2 | 1.76 | 1.37 | 0.68 | 4.70 | 399 | 8.59 | 235 | 99 | 55 | 0 | 0 | 5 | 2 |
| | AMARILLO | 58 | 37 | 72 | 29 | 47 | -1 | 0.74 | 0.38 | 0.34 | 1.85 | 204 | 2.52 | 113 | 97 | 55 | 0 | 2 | 3 | 0 |
| | AUSTIN | 74 | 61 | 83 | 49 | 67 | 5 | 2.24 | 1.61 | 1.04 | 3.56 | 190 | 8.73 | 140 | 94 | 69 | 0 | 0 | 5 | 2 |
| | BEAUMONT | 78 | 65 | 83 | 59 | 72 | 9 | 0.07 | -0.69 | 0.05 | 0.29 | 12 | 7.52 | 66 | 99 | 73 | 0 | 0 | 2 | 0 |
| | BROWNSVILLE | 86 | 71 | 91 | 65 | 79 | 9 | 0.01 | -0.25 | 0.01 | 0.01 | 1 | 0.66 | 20 | 92 | 55 | 1 | 0 | 1 | 0 |
| | CORPUS CHRISTI | 82 | 67 | 88 | 57 | 75 | 8 | 0.21 | -0.19 | 0.21 | 0.22 | 17 | 1.40 | 28 | 94 | 63 | 0 | 0 | 1 | 0 |
| | DEL RIO | 79 | 64 | 87 | 54 | 71 | 7 | 2.29 | 2.03 | 1.55 | 3.11 | 395 | 4.10 | 167 | 89 | 56 | 0 | 0 | 7 | 1 |
| | EL PASO | 70 | 48 | 80 | 41 | 59 | 2 | 0.25 | 0.18 | 0.20 | 2.08 | 900 | 3.17 | 275 | 78 | 29 | 0 | 0 | 2 | 0 |
| | FORT WORTH | 69 | 52 | 83 | 40 | 61 | 2 | 3.15 | 2.37 | 1.34 | 6.32 | 270 | 15.20 | 210 | 99 | 72 | 0 | 0 | 7 | 2 |
| | GALVESTON | 77 | 68 | 81 | 62 | 72 | 8 | 0.09 | -0.63 | 0.08 | 0.12 | 5 | 9.55 | 104 | 97 | 81 | 0 | 0 | 2 | 0 |
| | HOUSTON | 78 | 65 | 85 | 54 | 72 | 8 | 1.44 | 0.73 | 1.09 | 2.22 | 96 | 7.75 | 86 | 91 | 63 | 0 | 0 | 2 | 1 |
| | LUBBOCK | 58 | 42 | 71 | 34 | 50 | -2 | 0.96 | 0.71 | 0.54 | 2.43 | 335 | 3.35 | 153 | 93 | 64 | 0 | 0 | 4 | 1 |
| | MIDLAND | 66 | 49 | 80 | 40 | 58 | 2 | 1.36 | 1.24 | 1.32 | 3.47 | 889 | 5.36 | 313 | 89 | 53 | 0 | 0 | 3 | 1 |
| | SAN ANGELO | 70 | 52 | 84 | 41 | 61 | 3 | 0.67 | 0.33 | 0.43 | 3.15 | 300 | 6.11 | 179 | 92 | 58 | 0 | 0 | 5 | 0 |
| | SAN ANTONIO | 76 | 62 | 87 | 50 | 69 | 6 | 0.97 | 0.45 | 0.51 | 1.48 | 94 | 4.42 | 85 | 90 | 63 | 0 | 0 | 4 | 1 |
| | VICTORIA | 78 | 65 | 85 | 55 | 72 | 8 | 0.87 | 0.28 | 0.75 | 1.03 | 58 | 4.25 | 66 | 91 | 69 | 0 | 0 | 3 | 1 |
| | WACO | 71 | 56 | 80 | 42 | 64 | 5 | 3.18 | 2.48 | 1.73 | 6.31 | 281 | 15.47 | 218 | 93 | 71 | 0 | 0 | 6 | 2 |
| | WICHITA FALLS | 64 | 47 | 81 | 34 | 56 | 1 | 1.72 | 1.25 | 0.79 | 3.60 | 232 | 8.50 | 188 | 98 | 66 | 0 | 0 | 5 | 2 |
| UT | SALT LAKE CITY | 56 | 40 | 66 | 33 | 48 | 3 | 0.19 | -0.22 | 0.09 | 0.47 | 41 | 3.54 | 95 | 76 | 36 | 0 | 0 | 3 | 0 |
| VT | BURLINGTON | 45 | 27 | 66 | 16 | 36 | 4 | 0.14 | -0.37 | 0.14 | 0.61 | 41 | 5.41 | 101 | 75 | 38 | 0 | 5 | 1 | 0 |
| VA | LYNCHBURG | 65 | 46 | 82 | 41 | 56 | 9 | 0.45 | -0.38 | 0.30 | 1.01 | 43 | 10.22 | 120 | 90 | 52 | 0 | 0 | 5 | 0 |
| | NORFOLK | 68 | 52 | 88 | 45 | 60 | 10 | 0.22 | -0.60 | 0.13 | 1.19 | 48 | 9.33 | 102 | 88 | 54 | 0 | 0 | 2 | 0 |
| | RICHMOND | 67 | 49 | 88 | 41 | 58 | 9 | 0.42 | -0.58 | 0.12 | 0.63 | 23 | 7.98 | 93 | 91 | 48 | 0 | 0 | 4 | 0 |
| | ROANOKE | 63 | 47 | 78 | 41 | 55 | 7 | 0.50 | -0.30 | 0.28 | 1.32 | 58 | 8.78 | 108 | 92 | 57 | 0 | 0 | 5 | 0 |
| | WASH/DULLES | 62 | 41 | 80 | 31 | 52 | 7 | 0.42 | -0.37 | 0.29 | 0.96 | 44 | 7.71 | 100 | 87 | 46 | 0 | 2 | 3 | 0 |
| WA | OLYMPIA | 58 | 27 | 64 | 23 | 42 | -3 | 0.00 | -1.19 | 0.00 | 0.94 | 25 | 19.49 | 114 | 90 | 36 | 0 | 7 | 0 | 0 |
| | QUILLAYUTE | 54 | 29 | 63 | 26 | 42 | -3 | 0.00 | -2.44 | 0.00 | 4.07 | 54 | 38.28 | 122 | 88 | 46 | 0 | 6 | 0 | 0 |
| | SEATTLE-TACOMA | 56 | 37 | 62 | 32 | 46 | -1 | 0.00 | -0.82 | 0.00 | 1.43 | 56 | 15.06 | 128 | 81 | 42 | 0 | 1 | 0 | 0 |
| | SPOKANE | 51 | 28 | 58 | 17 | 40 | -1 | 0.00 | -0.37 | 0.00 | 0.56 | 50 | 4.77 | 109 | 75 | 35 | 0 | 4 | 0 | 0 |
| | YAKIMA | 58 | 25 | 67 | 21 | 42 | -2 | 0.00 | -0.13 | 0.00 | 0.20 | 43 | 1.46 | 59 | 80 | 26 | 0 | 7 | 0 | 0 |
| WV | BECKLEY | 55 | 41 | 70 | 32 | 48 | 6 | 1.39 | 0.57 | 0.84 | 3.58 | 150 | 11.86 | 147 | 96 | 70 | 0 | 1 | 6 | 1 |
| | CHARLESTON | 58 | 44 | 74 | 36 | 51 | 5 | 0.83 | -0.08 | 0.31 | 3.16 | 116 | 11.86 | 132 | 91 | 65 | 0 | 0 | 5 | 0 |
| | ELKINS | 58 | 39 | 74 | 32 | 48 | 8 | 0.44 | -0.47 | 0.20 | 2.08 | 79 | 11.47 | 127 | 88 | 58 | 0 | 1 | 4 | 0 |
| | HUNTINGTON | 57 | 44 | 77 | 35 | 50 | 4 | 1.03 | 0.12 | 0.47 | 3.52 | 133 | 11.82 | 134 | 93 | 67 | 0 | 0 | 5 | 0 |
| WI | EAU CLAIRE | 40 | 23 | 45 | 15 | 32 | -1 | 0.72 | 0.30 | 0.72 | 0.99 | 96 | 1.79 | 62 | 82 | 46 | 0 | 5 | 1 | 1 |
| | GREEN BAY | 38 | 26 | 44 | 19 | 32 | 0 | 1.31 | 0.91 | 1.22 | 2.69 | 227 | 5.21 | 149 | 84 | 58 | 0 | 5 | 2 | 1 |
| | LA CROSSE | 42 | 28 | 48 | 19 | 35 | 0 | 1.14 | 0.67 | 0.98 | 1.94 | 152 | 3.89 | 111 | 81 | 50 | 0 | 5 | 3 | 1 |
| | MADISON | 41 | 27 | 46 | 19 | 34 | 0 | 2.00 | 1.50 | 1.28 | 2.87 | 214 | 5.68 | 139 | 84 | 55 | 0 | 6 | 3 | 1 |
| | MILWAUKEE | 42 | 31 | 49 | 24 | 37 | 1 | 0.98 | 0.47 | 0.64 | 2.06 | 146 | 5.09 | 104 | 82 | 55 | 0 | 4 | 3 | 1 |
| WY | CASPER | 46 | 21 | 59 | 7 | 34 | -2 | 0.08 | -0.12 | 0.08 | 0.57 | 110 | 1.92 | 117 | 95 | 50 | 0 | 7 | 1 | 0 |
| | CHEYENNE | 45 | 23 | 58 | 12 | 34 | -3 | 0.57 | 0.32 | 0.35 | 0.99 | 145 | 1.66 | 105 | 93 | 53 | 0 | 7 | 3 | 0 |
| | LANDER | 46 | 25 | 55 | 21 | 36 | -1 | 0.06 | -0.22 | 0.06 | 0.58 | 81 | 2.29 | 129 | 93 | 46 | 0 | 7 | 1 | 0 |
| | SHERIDAN | 41 | 20 | 58 | 15 | 30 | -6 | 0.06 | -0.18 | 0.06 | 0.55 | 89 | 2.39 | 137 | 83 | 53 | 0 | 7 | 1 | 0 |

**Based on 1971-2000 normals**

***** Not Available**

# Winter Weather Review

*Weather summary provided by USDA/WAOB*

**Highlights:** Despite fleeting cold outbreaks, warmth dominated the country during the winter of 2019-2020. Above-normal temperatures were especially notable east of the Mississippi River, leading to one of the ten warmest winters on record in most states. Meanwhile, wet weather persisted through another season in much of the central and eastern U.S., leading to pockets of mid- to late-winter flooding. Much of the Southeast was especially wet, with Alabama and Georgia reporting record-high winter precipitation. However, parts of the Deep South, mostly from southern Texas to peninsular Florida, experienced drier-than-normal weather. In fact, drought appreciably intensified during the winter in the western Gulf Coast region, including Deep South Texas.

In California, a promising start to the winter wet season faded into a protracted stretch of dry weather. Aside from a brief period of precipitation in January, the last 2 months of winter were almost completely dry in California's key watershed areas. By February 29, the average water equivalency of the Sierra Nevada snowpack stood at 11 inches—just 45 percent of the end-of-winter normal, according to the California Department of Water Resources. A different scenario unfolded across the Northwest, where a slow start to the winter wet season was replaced by extremely wet conditions—and even some flooding—in January. Elsewhere, the Southwest experienced several periods of significant winter precipitation, but dealt with chronically low reservoir levels—especially in New Mexico—and premature melting of high-elevation snowpack.

Winter wheat did not suffer major calamities during the winter months, although several factors contributed to less-than-ideal crop conditions in some areas. On the central and southern High Plains, pockets of drought and harsh autumn cold snaps led to locally poor winter wheat stands as the crop entered dormancy. By March 1, at least one-fifth of the wheat was rated in very poor to poor condition in Texas (23 percent) and Kansas (20 percent). Elsewhere, 22 percent of Michigan's winter wheat was rated very poor to poor in late February, partly due to late planting, poor establishment, and excessive wetness.

According to the U.S. Drought Monitor, winter drought coverage across the Lower 48 States stayed in a narrow range from 10 to 13 percent. Prior to the winter of 2019-2020, the last time exceptional drought (D4) was observed anywhere in the country was March 12, 2019. By winter's end, primary areas of drought concern included southern Texas; parts of the Far West, including much of California; and an area stretching from the Four Corners region eastward to the High Plains. The driest area covered southern Texas; statewide, extreme drought (D3) affected nearly 6 percent of Texas by early March.

**Historical Perspective:** According to preliminary data provided by the National Centers for Environmental Information, it was the nation's sixth-warmest, 19th-wettest winter during the 125-year period of record. The country's winter average temperature of 36.0°F was 3.8°F above the 1901-2000 mean, while precipitation averaged 7.71 inches (114 percent of normal).

All Lower 48 states had a December-February ranking on the "warm" side of the historical distribution; Utah, with its 42nd-warmest winter, was the "coolest" state (figure 1). Meanwhile, top-ten rankings for winter warmth were observed in 24 of 26 states east of the Mississippi River—all but Mississippi and Wisconsin. Statewide precipitation rankings ranged from the 22nd-driest winter in California to the wettest winter on record in Alabama and Georgia (figure 2). It was also among the ten wettest winters in Mississippi, South Carolina, and Tennessee.

**Figure 1** Statewide Average Temperature Ranks
December 2019–February 2020
Period: 1895–2020

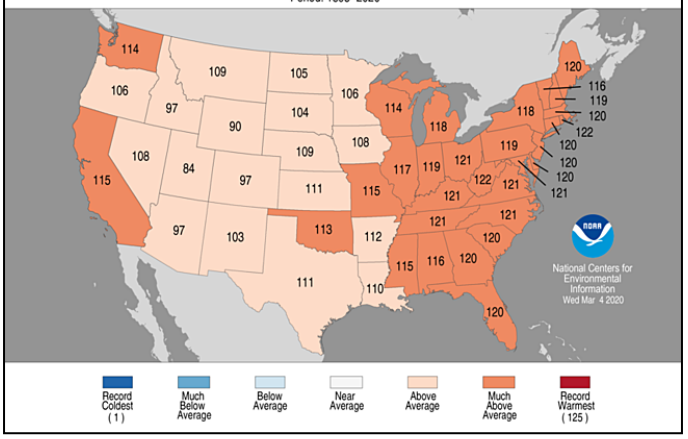
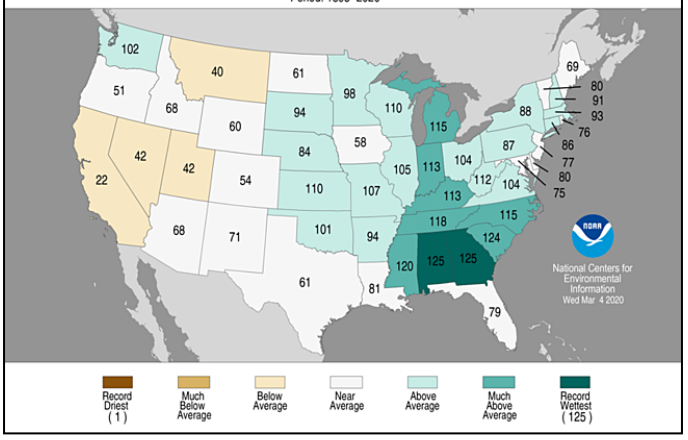



**Figure 2** Statewide Precipitation Ranks
December 2019–February 2020
Period: 1895–2020




**December:** Active weather prevailed across most of the country, especially in the Southeast and an area stretching from California and the Southwest to the northern Plains and upper Great Lakes region. Across the far upper Midwest, a persistently deep snow cover hampered final harvest efforts for corn and sunflowers. In the last national report, dated December 8, only 92 percent of the U.S. corn and 73 percent of the sunflowers had been harvested. In North Dakota, 43 percent of the corn had been cut on that date, while 60 percent of the sunflowers had been harvested. By the end of December, North Dakota's harvest had advanced to 48 and 66 percent complete, respectively, for corn and sunflowers. Snow also remained on the ground for much (or all) of the month in parts of the Northeast, following an early-month storm.

In contrast, drier-than-normal weather prevailed across portions of the southern Plains, as well as the western Gulf Coast region. Several factors, including drought and periodic cold snaps, continued to adversely affect winter wheat in parts of Colorado, Kansas, Oklahoma, and Texas. During December, as much as 15 percent of the nation's winter wheat production area was in drought, according to the U.S. Drought Monitor. However, a late-month storm system provided some of the Plains' driest wheat areas with highly beneficial moisture.

Portions of the Northwest also experienced drier-than-normal conditions, despite a late-month increase in precipitation. In addition, Northwestern snow accumulations were limited by mild weather, leaving high-elevation snowpack 25 to 75 percent of the late-December average in much of Idaho, Oregon, and Washington. Elsewhere, near- or above-average snowpack dominated areas from the Sierra Nevada to the central and southern Rockies, as well as the eastern slopes of the northern Rockies, courtesy of multiple storms in late November and throughout December.

Above-normal December temperatures dominated the country, despite periodic cold spells. The warmest weather, relative to normal, stretched from the central and southern Plains into the lower Midwest and the Southeast. East of the Rockies, impressive warmth developed late in the month, causing U.S. snow coverage to retreat to 25.5 percent by December 24, down from a peak of 48.4 percent just 7 days earlier.

**January:** Western weather patterns flipped in January, with wetter conditions developing in the Northwest and a drier regime arriving across California and the Southwest. As a result, Northwestern snowpack dramatically improved to near-normal values by month's end, while little snow accumulated in California's key watershed areas. According to the California Department of Water Resources, the average water equivalency of the Sierra Nevada snowpack increased only 3 inches (from 9 to 12 inches) during the month—and was only about 70 percent of the late-January average.

Meanwhile, most of the central and eastern U.S. experienced unsettled January weather. Relative to normal, precipitation was particularly heavy in the Midwest, further delaying final harvest efforts. By late January, harvesting of corn and sunflowers was 96 percent complete in South Dakota. In North Dakota, where many areas have experienced continuous snow coverage since late November, the corn and sunflower harvests were just 49 and 67 percent complete, respectively.

Heavy precipitation from the Midwest southward to the central Gulf Coast also led to a rare, mid-winter flood event. Some of the most significant flooding developed around mid-January from Mississippi to Michigan, fueled by a series of storms. Midwestern basins such as the Illinois and Wabash Rivers experienced mostly minor to moderate flooding. Flooding also affected the lower Mississippi Valley and environs.

Late in the month, topsoil moisture was rated at least 40 percent surplus in many Midwestern States, including Michigan (63 percent), Ohio (59 percent), South Dakota (48 percent), Missouri (45 percent), North Dakota (44 percent), and Illinois (40 percent). In contrast, lingering pockets of drought across the High Plains and the Southwest left topsoil moisture rated 65 percent very short to short in New Mexico, along with 61 percent in Colorado and 32 percent in Kansas. By late January, nearly one-quarter of the winter wheat was rated in very poor to poor condition in Colorado (24 percent) and Kansas (23 percent).

Despite brief cold episodes, near- or above-normal January temperatures dominated the country. Warmth was especially notable east of the Mississippi River, where monthly temperatures averaged as much as 6 to 10°F above normal. For most areas east of the Rockies, the harshest period of cold weather lasted about a week and culminated with a freeze across parts of Florida's peninsula on January 22. During Florida's brief cold outbreak, high winds and temperatures near the freezing mark may have reduced the yield potential of highly sensitive vegetables.

**February:** Significant precipitation deficits persisted through a second consecutive month in much of California and the Great Basin. In fact, parts of California received no precipitation during the month, setting February records for dryness. In addition, little mid- to late-winter snow in the Sierra Nevada left the average water equivalency of the high-elevation snowpack less than one-half of the end-of-February average.

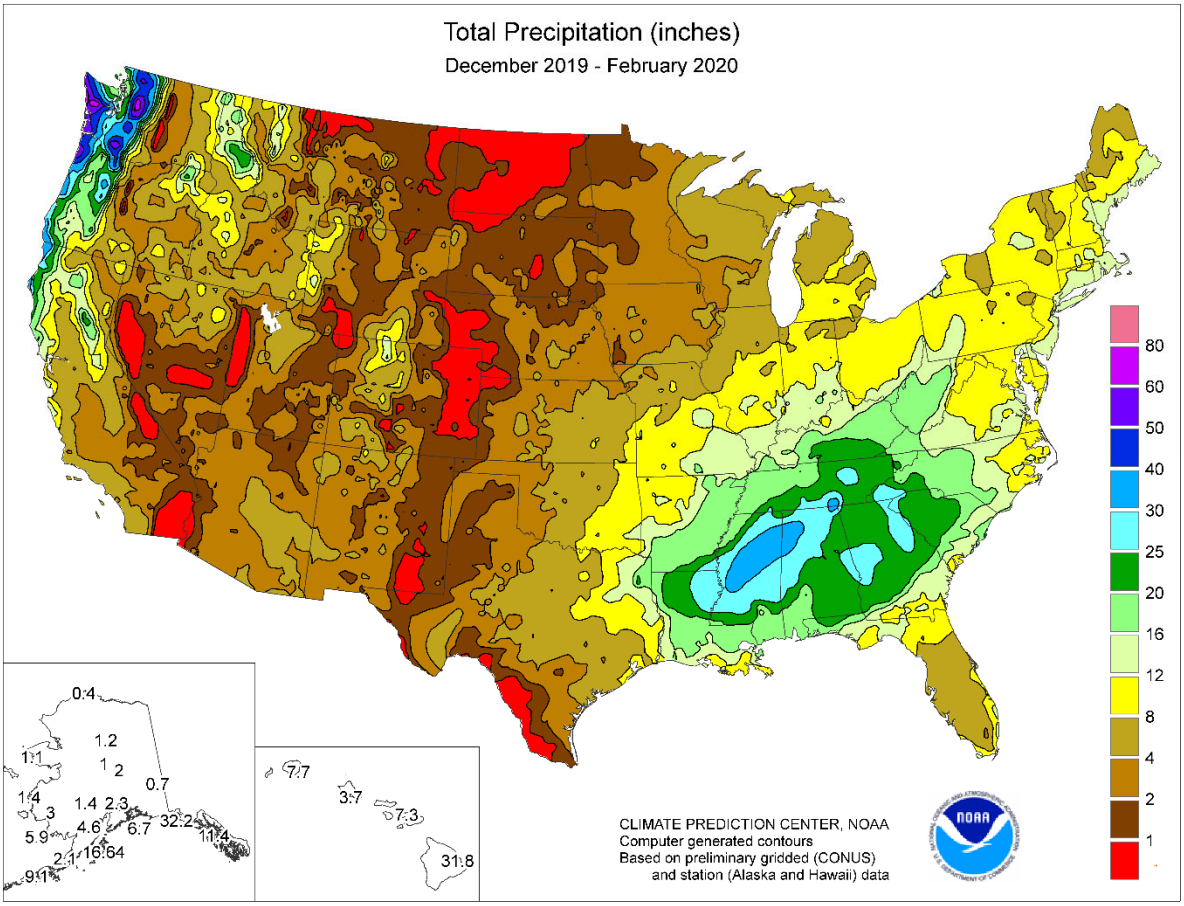
Other areas of the West received occasional rain and snow. Northwestern snowpack, which had stabilized during a wet January, continued to benefit from periods of stormy weather. Pockets of drought persisted, however, along the eastern slopes of the Cascades and in south-central Idaho. In contrast, an early-February deluge—following heavy snow—triggered significant flooding in northeastern Oregon and environs.

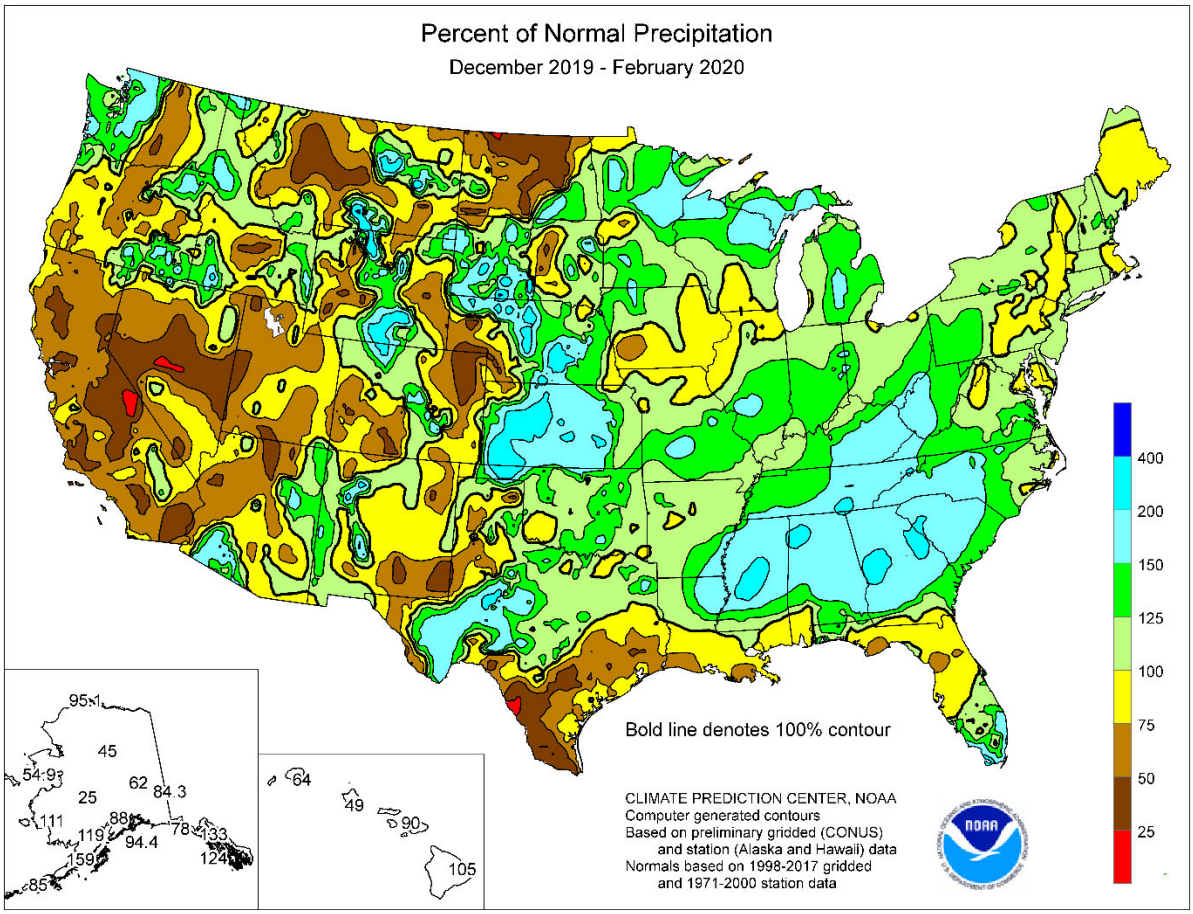
Farther east, most areas from the Plains to the Atlantic Seaboard experienced another wet month. In some cases, Southern rivers that had flooded in mid- to late January surged to even higher levels during the second half of February. Lowland flooding also extended northward into the lower Midwest, while parts of the northern Corn Belt continued to brace for spring flooding. Conversely, drier-than-normal February weather affected a few areas, including southern Texas, the upper Great Lakes region, parts of New England, and the northern part of peninsular Florida.

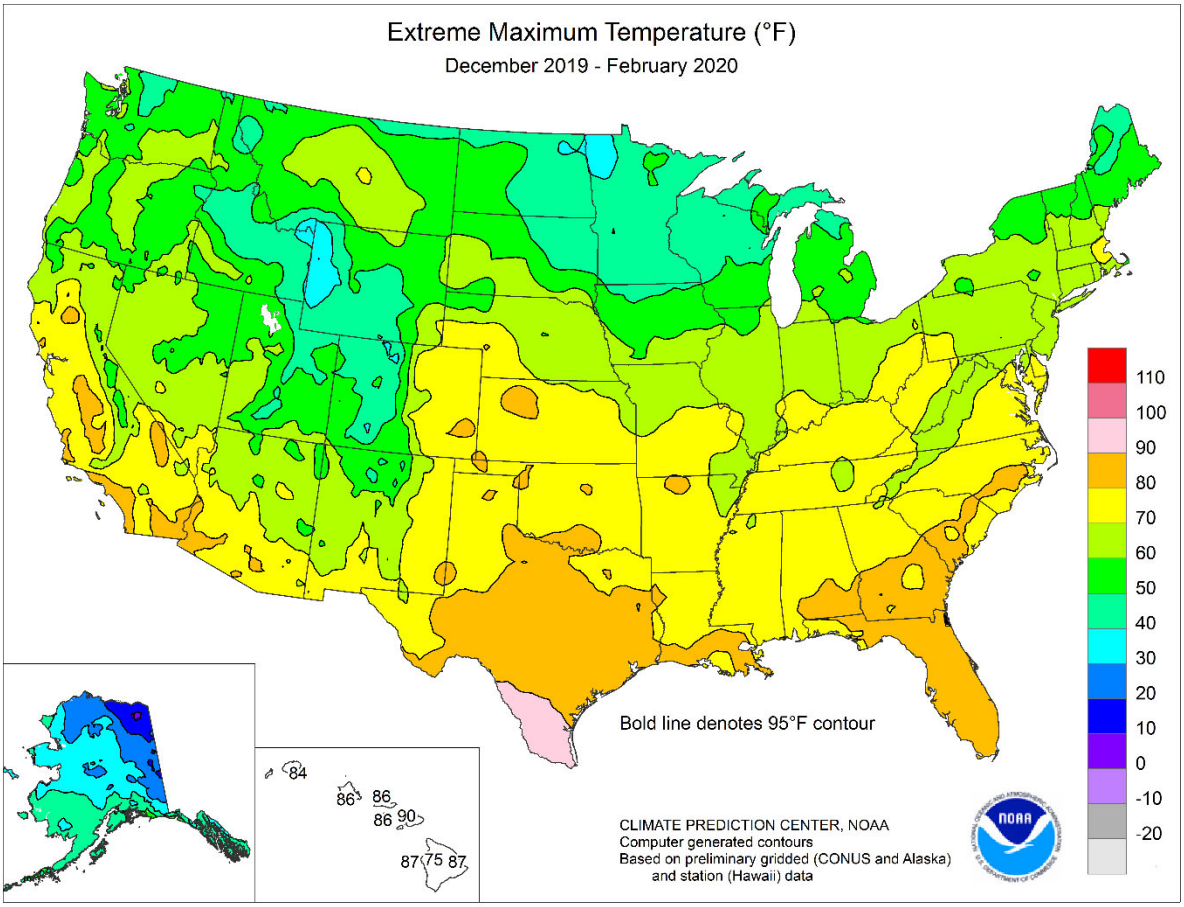
Parts of the upper Midwest, including the eastern Dakotas, have since late November reported a continuous snow cover, beneath which soils remain saturated. During February, North Dakota's corn harvest advanced from 49 to 61 percent complete, while the state's sunflower harvest advanced from 67 to 79 percent complete. Other states, including Minnesota and Wisconsin, reported some corn still standing in the field.

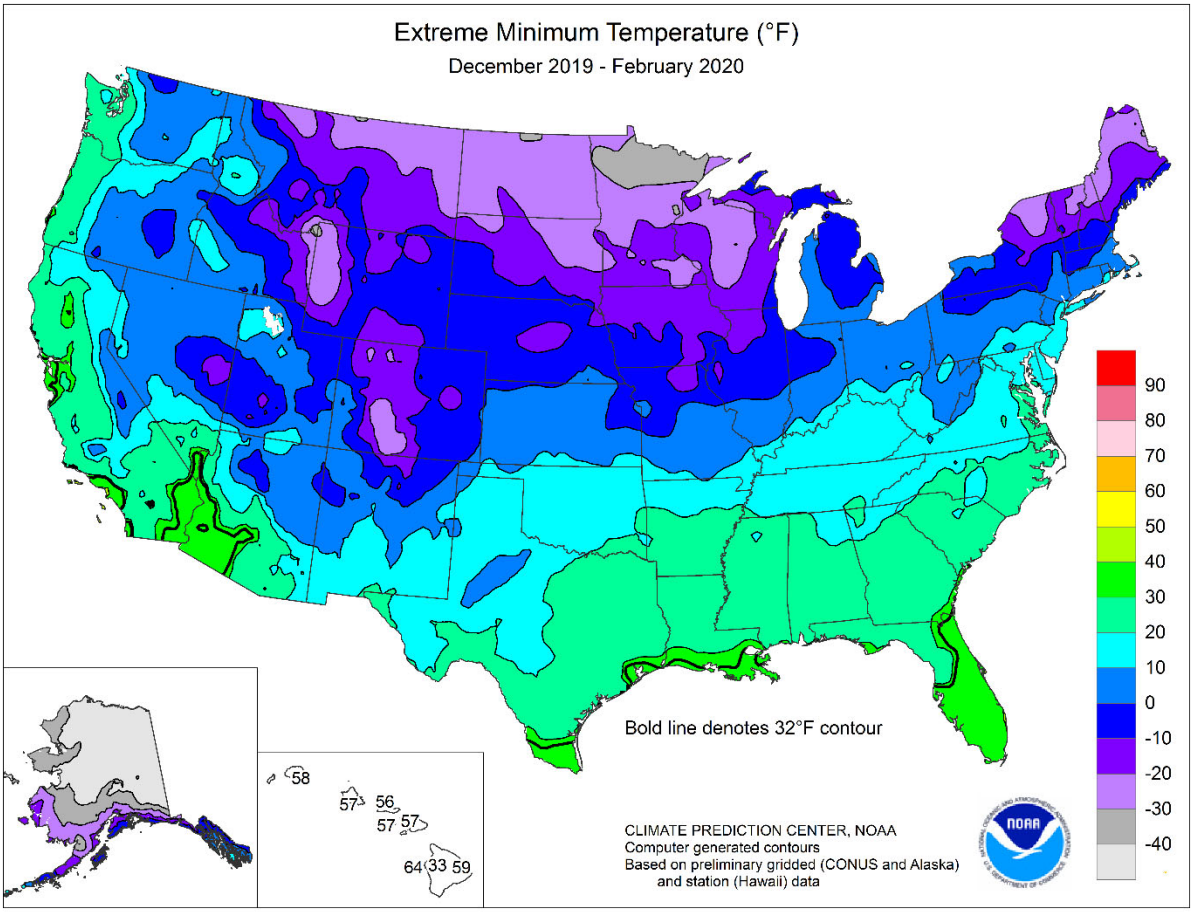
Elsewhere, relatively benign weather prevailed on the Plains, as generally mild weather accompanied frequent precipitation events. However, short-lived cold outbreaks delivered sub-zero temperatures as far south as Colorado and Nebraska. Similarly, a mid-month cold blast produced Midwestern readings below 0°F into northern Missouri and central Illinois.

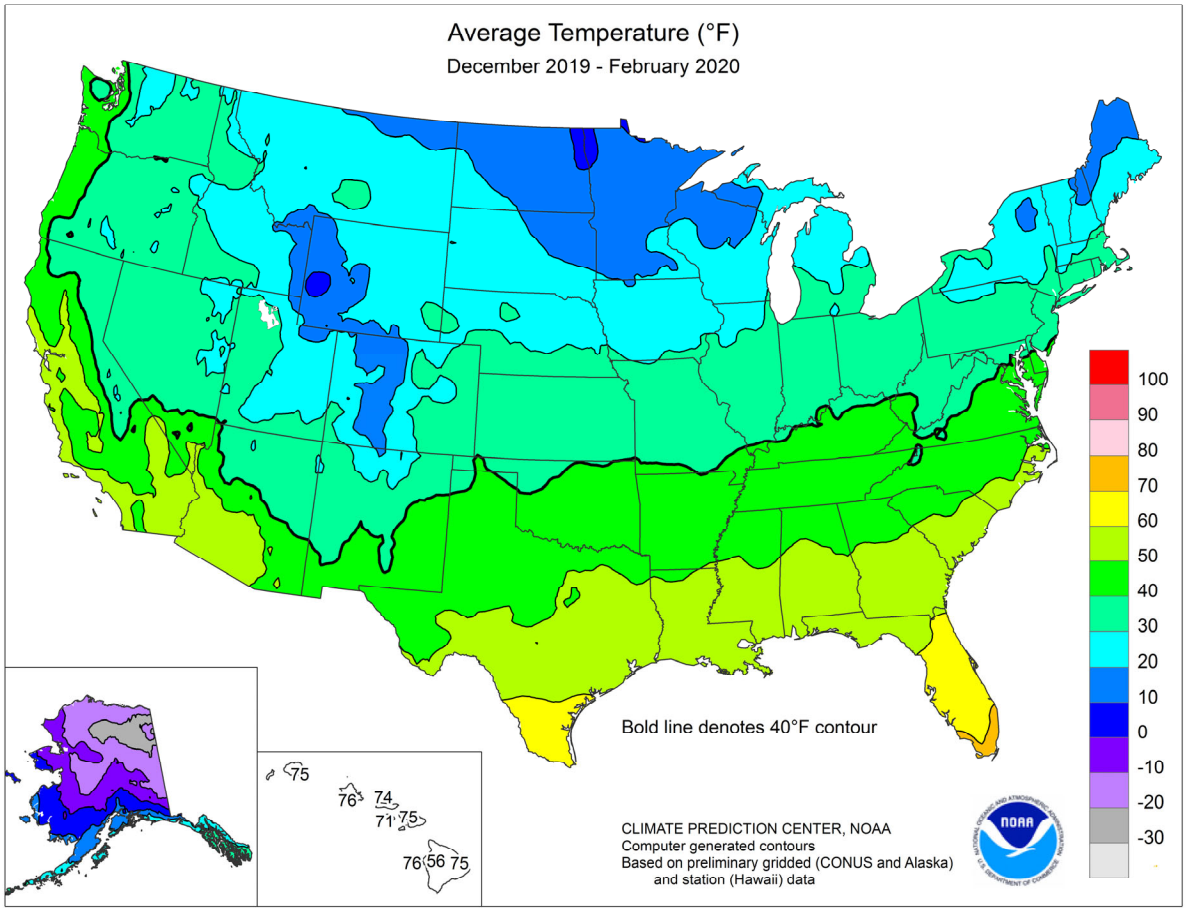
Despite the brief cold waves, above-normal February temperatures dominated the country. The warmest weather, relative to normal, covered areas east of the Mississippi River, where many locations reported monthly readings more than 5°F above normal. Slightly cooler-than-normal weather was mostly confined to the Pacific Northwest and Desert Southwest.

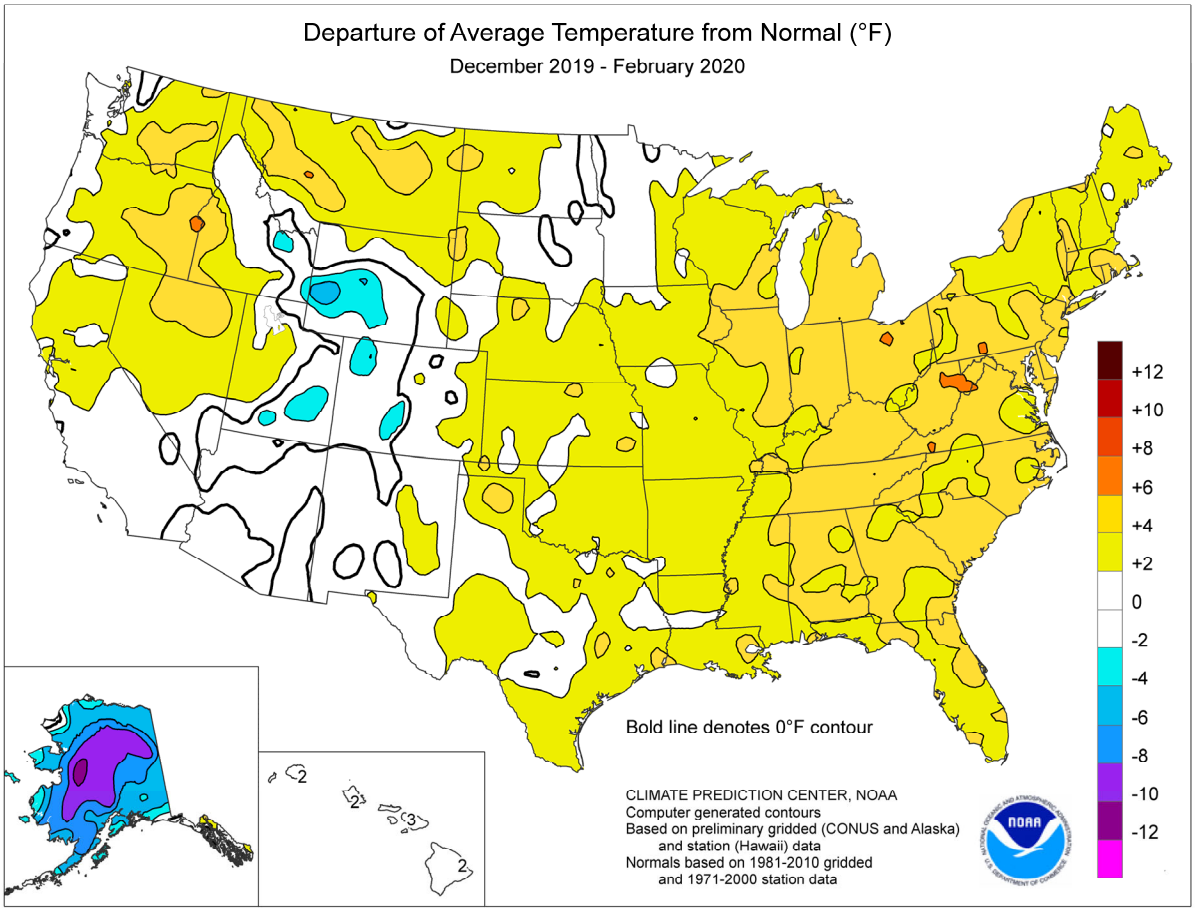

Total Precipitation (inches)
December 2019 - February 2020
80
60
50
40
30
25
20
16
12
8
4
2
1
0.4
1.2
1.1
1.2
0.7
1.4
1.4
2.3
.3
4.6
6.7
32.2
5.9
16.64
2.1
9.1
7.7
3.7
7.3
31.8
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data


Percent of Normal Precipitation
December 2019 - February 2020
400
200
150
125
100
75
50
25
95
45
54.9
62
84.3
25
111
88
119
94.4
78
33
159
124
85
64
49
90
105
Bold line denotes 100% contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS)
and station (Alaska and Hawaii) data
Normals based on 1998-2017 gridded
and 1971-2000 station data


Extreme Maximum Temperature (°F)
December 2019 - February 2020
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Bold line denotes 95°F contour
84
86
86
86 90
87 75 87
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Extreme Minimum Temperature (°F)
December 2019 - February 2020
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
Bold line denotes 32°F contour
58
57
56
57 57
64 33 59
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
NOAA


Average Temperature (°F)
December 2019 - February 2020
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
75
76 74
71 75
76 56 75
Bold line denotes 40°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data


Departure of Average Temperature from Normal (°F)
December 2019 - February 2020
+12
+10
+8
+6
+4
+2
0
-2
-4
-6
-8
-10
-12
2
2
3
2
Bold line denotes 0°F contour
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded (CONUS and Alaska)
and station (Hawaii) data
Normals based on 1981-2010 gridded
and 1971-2000 station data

# National Weather Data for Selected Cities

## Winter 2019-20

### Data Provided by Climate Prediction Center

| STATES AND STATIONS | TEMP, °F | | PRECIP. | | STATES AND STATIONS | TEMP, °F | | PRECIP. | | STATES AND STATIONS | TEMP, °F | | PRECIP. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AVERAGE | DEPARTURE | TOTAL | DEPARTURE | | AVERAGE | DEPARTURE | TOTAL | DEPARTURE | | AVERAGE | DEPARTURE | TOTAL | DEPARTURE |
| AL BIRMINGHAM | 51 | 6 | 26.20 | 12.07 | LEXINGTON | 40 | 5 | 14.45 | 3.81 | COLUMBUS | 36 | 5 | 9.78 | 2.12 |
| HUNTSVILLE | 48 | 6 | 25.91 | 9.85 | LONDON-CORBIN | 42 | 5 | 19.57 | 7.53 | DAYTON | 36 | 7 | 9.83 | 1.86 |
| MOBILE | 53 | 1 | 15.46 | -0.05 | LOUISVILLE | 42 | 6 | 11.07 | 0.85 | MANSFIELD | 34 | 7 | 10.09 | 2.03 |
| MONTGOMERY | 54 | 5 | 21.13 | 5.67 | PADUCAH | 41 | 5 | 14.78 | 3.00 | TOLEDO | 34 | 7 | 7.36 | 0.91 |
| AK ANCHORAGE | 17 | 0 | 3.39 | 0.92 | LA BATON ROUGE | 57 | 5 | 14.22 | -2.33 | YOUNGSTOWN | 34 | 6 | 10.33 | 3.00 |
| BARROW | -13 | 0 | 0.39 | -0.02 | LAKE CHARLES | 58 | 5 | 10.13 | -3.27 | OK OKLAHOMA CITY | 42 | 3 | 4.46 | -0.39 |
| COLD BAY | 29 | 0 | 8.94 | -1.06 | NEW ORLEANS | 60 | 6 | 11.26 | -5.15 | TULSA | 43 | 4 | 7.26 | 1.28 |
| FAIRBANKS | -11 | -6 | 1.26 | -0.38 | SHREVEPORT | 51 | 2 | 16.21 | 2.85 | OR ASTORIA | 44 | 1 | 35.74 | 7.85 |
| JUNEAU | 32 | 4 | 20.17 | 5.93 | ME BANGOR | 25 | 4 | 6.66 | -2.55 | BURNS | 31 | 5 | 3.50 | -0.09 |
| KING SALMON | 10 | -6 | 4.71 | 1.57 | CARIBOU | 18 | 5 | 8.11 | -0.11 | EUGENE | 44 | 3 | 13.40 | -6.73 |
| KODIAK | 29 | -1 | 16.87 | -6.29 | PORTLAND | 30 | 5 | 14.83 | 3.36 | MEDFORD | 42 | 2 | 6.82 | -0.65 |
| NOME | 3 | -4 | 1.65 | -1.03 | MD BALTIMORE | 40 | 5 | 9.68 | -0.16 | PENDLETON | 40 | 5 | 4.85 | 0.70 |
| AZ FLAGSTAFF | 31 | 0 | 4.43 | -2.14 | MA BOSTON | 38 | 6 | 10.53 | -0.42 | PORTLAND | 44 | 3 | 13.44 | -1.52 |
| PHOENIX | 57 | 1 | 2.24 | -0.28 | WORCESTER | 30 | 4 | 12.33 | 1.36 | SALEM | 43 | 2 | 14.45 | -2.94 |
| TUCSON | 54 | 1 | 2.56 | -0.34 | MI ALPENA | 27 | 7 | 5.40 | 0.46 | PA ALLENTOWN | 37 | 7 | 8.94 | -0.70 |
| AR FORT SMITH | 45 | 4 | 9.37 | 1.02 | DETROIT | 32 | 5 | 7.57 | 1.27 | ERIE | 35 | 6 | 10.43 | 1.89 |
| LITTLE ROCK | 45 | 2 | 14.37 | 2.72 | FLINT | 31 | 7 | 6.22 | 1.12 | MIDDLETOWN | 37 | 6 | 9.27 | 0.26 |
| CA BAKERSFIELD | 52 | 3 | 1.79 | -1.36 | GRAND RAPIDS | 31 | 6 | 7.86 | 1.60 | PHILADELPHIA | 39 | 4 | 10.31 | 0.74 |
| EUREKA | 48 | 0 | 15.03 | -2.80 | HOUGHTON LAKE | 25 | 5 | 5.61 | 1.00 | PITTSBURGH | 35 | 5 | 9.76 | 1.83 |
| FRESNO | 52 | 5 | 3.02 | -2.60 | LANSING | 30 | 6 | 8.98 | 3.75 | WILKES-BARRE | 34 | 5 | 7.83 | 0.74 |
| LOS ANGELES | 60 | 3 | 4.80 | -3.08 | MUSKEGON | 31 | 5 | 7.04 | 0.60 | WILLIAMSPORT | 33 | 5 | 7.95 | -0.45 |
| REDDING | 50 | 3 | 10.48 | -6.18 | TRAVERSE CITY | 29 | 6 | 8.65 | 1.84 | PR SAN JUAN | 80 | 3 | 22.71 | 12.82 |
| SACRAMENTO | 51 | 3 | 5.64 | -4.19 | MN DULUTH | 16 | 4 | 5.64 | 2.75 | RI PROVIDENCE | 35 | 4 | 12.37 | 0.41 |
| SAN DIEGO | 59 | 1 | 4.94 | -0.69 | INT'L FALLS | 11 | 4 | 2.63 | 0.45 | SC CHARLESTON | 55 | 5 | 13.08 | 2.68 |
| SAN FRANCISCO | 54 | 4 | 4.95 | -6.40 | MINNEAPOLIS | 22 | 5 | 3.44 | 0.61 | COLUMBIA | 51 | 5 | 18.79 | 6.91 |
| STOCKTON | 52 | 5 | 4.42 | -2.57 | ROCHESTER | 19 | 3 | 3.35 | 0.64 | FLORENCE | 53 | 6 | 16.37 | 5.79 |
| CO ALAMOSA | 21 | 3 | 0.78 | -0.01 | ST. CLOUD | 17 | 4 | 5.19 | 3.15 | GREENVILLE | 46 | 3 | 23.57 | 11.06 |
| CO SPRINGS | 33 | 4 | 1.04 | -0.01 | MS JACKSON | 52 | 5 | 29.24 | 13.73 | MYRTLE BEACH | 53 | 5 | 14.04 | 3.43 |
| DENVER | 32 | 2 | 1.24 | 0.47 | MERIDIAN | 53 | 5 | 23.17 | 6.59 | SD ABERDEEN | 17 | 2 | 1.52 | 0.18 |
| GRAND JUNCTION | 30 | 1 | 1.15 | -0.47 | TUPELO | 49 | 6 | 25.22 | 9.28 | HURON | 20 | 2 | 1.78 | 0.34 |
| PUEBLO | 34 | 3 | 1.11 | 0.13 | MO COLUMBIA | 36 | 5 | 12.21 | 5.81 | RAPID CITY | 28 | 3 | 1.44 | 0.21 |
| CT BRIDGEPORT | 37 | 5 | 12.60 | 2.48 | JOPLIN | 40 | 4 | 7.47 | 0.42 | SIOUX FALLS | 23 | 5 | 2.06 | 0.52 |
| HARTFORD | 33 | 5 | 12.65 | 2.25 | KANSAS CITY | 35 | 5 | 5.23 | 1.13 | TN BRISTOL | 43 | 7 | 15.78 | 5.47 |
| DC WASHINGTON | 43 | 5 | 9.40 | 0.51 | SPRINGFIELD | 38 | 3 | 10.12 | 2.56 | CHATTANOOGA | 48 | 6 | 20.79 | 5.73 |
| DE WILMINGTON | 39 | 5 | 11.52 | 1.88 | ST JOSEPH | 33 | 3 | 3.37 | 0.36 | JACKSON | 44 | 3 | 15.17 | 1.23 |
| FL DAYTONA BEACH | 63 | 3 | 6.07 | -2.51 | ST LOUIS | 38 | 5 | 11.13 | 3.85 | KNOXVILLE | 46 | 6 | 23.58 | 10.51 |
| FT LAUDERDALE | 71 | 3 | 13.52 | 5.23 | MT BILLINGS | 31 | 4 | 1.00 | -1.05 | MEMPHIS | 47 | 4 | 16.85 | 2.62 |
| FT MYERS | 69 | 3 | 8.14 | 2.23 | BUTTE | 23 | 4 | 0.69 | -0.84 | NASHVILLE | 46 | 6 | 16.79 | 4.59 |
| JACKSONVILLE | 60 | 5 | 7.04 | -2.44 | GLASGOW | 21 | 6 | 1.15 | 0.17 | TX ABILENE | 49 | 3 | 5.00 | 1.63 |
| KEY WEST | 74 | 3 | 9.74 | 3.87 | GREAT FALLS | 29 | 5 | 0.68 | -1.18 | AMARILLO | 40 | 2 | 1.66 | -0.13 |
| MELBOURNE | 66 | 4 | 10.59 | 3.31 | HELENA | 31 | 8 | 0.35 | -1.01 | AUSTIN | 53 | 1 | 4.91 | -1.41 |
| MIAMI | 72 | 3 | 11.37 | 5.24 | KALISPELL | 30 | 6 | 3.28 | -0.99 | BEAUMONT | 58 | 4 | 8.15 | -6.14 |
| ORLANDO | 67 | 5 | 7.21 | 0.12 | MILES CITY | 26 | 5 | 0.61 | -0.68 | BROWNSVILLE | 66 | 5 | 1.37 | -2.28 |
| PENSACOLA | 58 | 4 | 17.49 | 3.50 | MISSOULA | 31 | 6 | 2.49 | -0.49 | COLLEGE STATION | 57 | 5 | 5.19 | -3.74 |
| ST PETERSBURG | 67 | 4 | 5.50 | -2.73 | NE GRAND ISLAND | 31 | 6 | 2.73 | 0.85 | CORPUS CHRISTI | 62 | 4 | 5.19 | -0.02 |
| TALLAHASSEE | 57 | 4 | 10.01 | -4.08 | HASTINGS | 31 | 4 | 2.27 | 0.32 | DALLAS/FT WORTH | 50 | 3 | 10.09 | 3.25 |
| TAMPA | 66 | 4 | 7.31 | 0.07 | LINCOLN | 30 | 4 | 3.98 | 1.79 | DEL RIO | 57 | 4 | 1.02 | -1.26 |
| WEST PALM BEACH | 71 | 4 | 13.78 | 4.34 | MCCOOK | 33 | 4 | 0.74 | -0.93 | EL PASO | 49 | 2 | 1.78 | 0.17 |
| GA ATHENS | 49 | 5 | 23.74 | 10.95 | NORFOLK | 28 | 5 | 2.17 | 0.19 | GALVESTON | 61 | 4 | 10.41 | 0.19 |
| ATLANTA | 50 | 5 | 23.76 | 10.24 | NORTH PLATTE | 30 | 4 | 1.51 | 0.21 | HOUSTON | 58 | 4 | 6.68 | -3.67 |
| AUGUSTA | 52 | 5 | 19.89 | 8.14 | OMAHA/EPPLEY | 30 | 5 | 3.59 | 1.10 | LUBBOCK | 44 | 4 | 1.54 | -0.34 |
| COLUMBUS | 53 | 4 | 25.50 | 11.84 | SCOTTSBLUFF | 32 | 5 | 0.69 | -0.99 | MIDLAND | 49 | 4 | 2.37 | 0.61 |
| MACON | 52 | 5 | 22.87 | 9.39 | VALENTINE | 29 | 5 | 1.51 | 0.40 | SAN ANGELO | 51 | 4 | 4.21 | 1.28 |
| SAVANNAH | 57 | 6 | 13.10 | 3.42 | NV ELKO | 33 | 5 | 3.11 | 0.16 | SAN ANTONIO | 56 | 4 | 3.50 | -1.87 |
| HI HILO | 75 | 3 | 31.78 | 1.39 | ELY | 30 | 3 | 1.13 | -0.86 | VICTORIA | 59 | 4 | 3.86 | -3.09 |
| HONOLULU | 76 | 2 | 3.70 | -3.84 | LAS VEGAS | 51 | 2 | 1.23 | -0.45 | WACO | 51 | 3 | 9.85 | 2.76 |
| KAHULUI | 75 | 3 | 7.29 | -0.82 | RENO | 40 | 5 | 1.83 | -1.17 | WICHITA FALLS | 46 | 3 | 5.48 | 1.11 |
| LIHUE | 74 | 2 | 7.73 | -4.38 | WINNEMUCCA | 36 | 4 | 2.38 | 0.12 | UT SALT LAKE CITY | 35 | 4 | 4.59 | 0.66 |
| ID BOISE | 37 | 5 | 4.63 | 0.72 | NH CONCORD | 28 | 5 | 9.48 | 1.19 | VT BURLINGTON | 26 | 5 | 6.42 | 0.31 |
| LEWISTON | 40 | 5 | 5.25 | 2.11 | NJ ATLANTIC CITY | 40 | 6 | 9.76 | 0.16 | VA LYNCHBURG | 42 | 5 | 12.24 | 2.37 |
| POCATELLO | 29 | 2 | 2.69 | -0.56 | NEWARK | 38 | 4 | 10.53 | 0.02 | NORFOLK | 48 | 6 | 10.14 | -0.16 |
| IL CHICAGO/O'HARE | 31 | 6 | 5.00 | -0.81 | NM ALBUQUERQUE | 39 | 1 | 1.18 | -0.24 | RICHMOND | 44 | 5 | 10.46 | 0.81 |
| MOLINE | 31 | 6 | 4.47 | -0.82 | NY ALBANY | 31 | 6 | 9.29 | 1.96 | ROANOKE | 43 | 5 | 10.19 | 1.02 |
| PEORIA | 31 | 5 | 7.60 | 2.03 | BINGHAMTON | 28 | 4 | 12.05 | 3.98 | WASH/DULLES | 40 | 6 | 9.55 | 0.66 |
| ROCKFORD | 29 | 6 | 4.83 | 0.02 | BUFFALO | 32 | 5 | 10.37 | 0.99 | WA OLYMPIA | 42 | 3 | 28.38 | 7.81 |
| SPRINGFIELD | 33 | 4 | 7.78 | 1.82 | ROCHESTER | 30 | 4 | 8.39 | 1.28 | QUILLAYUTE | 43 | 2 | 55.38 | 17.07 |
| IN EVANSVILLE | 39 | 5 | 12.29 | 2.74 | SYRACUSE | 30 | 5 | 9.50 | 1.67 | SEATTLE-TACOMA | 44 | 2 | 21.29 | 6.36 |
| FORT WAYNE | 32 | 5 | 8.98 | 2.22 | NC ASHEVILLE | 44 | 6 | 16.45 | 5.17 | SPOKANE | 34 | 5 | 6.23 | 0.65 |
| INDIANAPOLIS | 35 | 5 | 12.20 | 4.28 | CHARLOTTE | 47 | 3 | 15.89 | 5.16 | YAKIMA | 36 | 5 | 1.91 | -1.44 |
| SOUTH BEND | 32 | 6 | 8.02 | 0.68 | GREENSBORO | 45 | 5 | 16.16 | 6.46 | WV BECKLEY | 38 | 5 | 9.00 | -0.28 |
| IA BURLINGTON | 31 | 5 | 2.89 | -2.06 | HATTERAS | 54 | 6 | 15.43 | 1.09 | CHARLESTON | 41 | 5 | 13.17 | 3.41 |
| CEDAR RAPIDS | 26 | 4 | 2.21 | -1.42 | RALEIGH | 47 | 5 | 13.36 | 2.83 | ELKINS | 37 | 6 | 14.35 | 4.28 |
| DES MOINES | 29 | 5 | 2.85 | -0.70 | WILMINGTON | 53 | 5 | 13.08 | 1.12 | HUNTINGTON | 40 | 4 | 14.07 | 4.40 |
| DUBUQUE | 26 | 5 | 3.13 | -1.26 | ND BISMARCK | 19 | 5 | 1.17 | -0.23 | WI EAU CLAIRE | 21 | 5 | 2.16 | -0.71 |
| SIOUX CITY | 25 | 3 | 2.90 | 1.03 | DICKINSON | 22 | 4 | 1.91 | 1.04 | GREEN BAY | 24 | 5 | 4.59 | 0.96 |
| WATERLOO | 26 | 6 | 2.65 | -0.35 | FARGO | 13 | 2 | 2.43 | 0.29 | LA CROSSE | 25 | 5 | 3.39 | -0.02 |
| KS CONCORDIA | 35 | 5 | 3.34 | 1.09 | GRAND FORKS | 10 | 0 | 2.40 | 0.72 | MADISON | 27 | 6 | 4.21 | 0.02 |
| DODGE CITY | 37 | 4 | 3.28 | 1.23 | JAMESTOWN | 15 | 2 | 2.82 | 1.50 | MILWAUKEE | 31 | 7 | 4.88 | -0.84 |
| GOODLAND | 34 | 4 | 1.10 | -0.23 | MINOT | 19 | 4 | 1.30 | -0.51 | WAUSAU | 20 | 3 | 3.46 | 0.14 |
| HILL CITY | 34 | 4 | 2.31 | 0.77 | WILLISTON | 18 | 4 | 1.05 | -0.55 | WY CASPER | 26 | 2 | 1.91 | 0.07 |
| TOPEKA | 35 | 4 | 4.74 | 1.19 | OH AKRON-CANTON | 35 | 7 | 9.73 | 1.98 | CHEYENNE | 30 | 3 | 1.10 | -0.25 |
| WICHITA | 38 | 5 | 6.10 | 2.89 | CINCINNATI | 38 | 5 | 11.19 | 2.24 | LANDER | 21 | -1 | 1.80 | 0.13 |
| KY JACKSON | 43 | 6 | 16.73 | 5.22 | CLEVELAND | 36 | 8 | 8.08 | 0.17 | SHERIDAN | 27 | 3 | 2.04 | 0.02 |

**Based on 1971-2000 normals**

***** Not Available**

# International Weather and Crop Summary

**March 15-21, 2020**

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

## HIGHLIGHTS

**EUROPE:** Warm weather sustained a rapid winter crop development pace, while sunny skies across central and northern Europe provided a much-needed respite from recent excessive wetness.

**WESTERN FSU:** An abrupt cold snap slowed winter wheat development, though temperatures remained above the threshold for freeze damage.

**MIDDLE EAST:** Another slow-moving storm produced additional moderate to heavy rain, maintaining adequate to abundant moisture supplies for vegetative winter grains.

**NORTHWESTERN AFRICA:** Despite some rain, drought further lowered yield prospects for filling wheat and barley in Morocco.

**EASTERN ASIA:** Dry, unseasonably warm weather reduced soil moisture for wheat in eastern China, while showers maintained overall favorable moisture conditions for rapeseed and rice to the south.

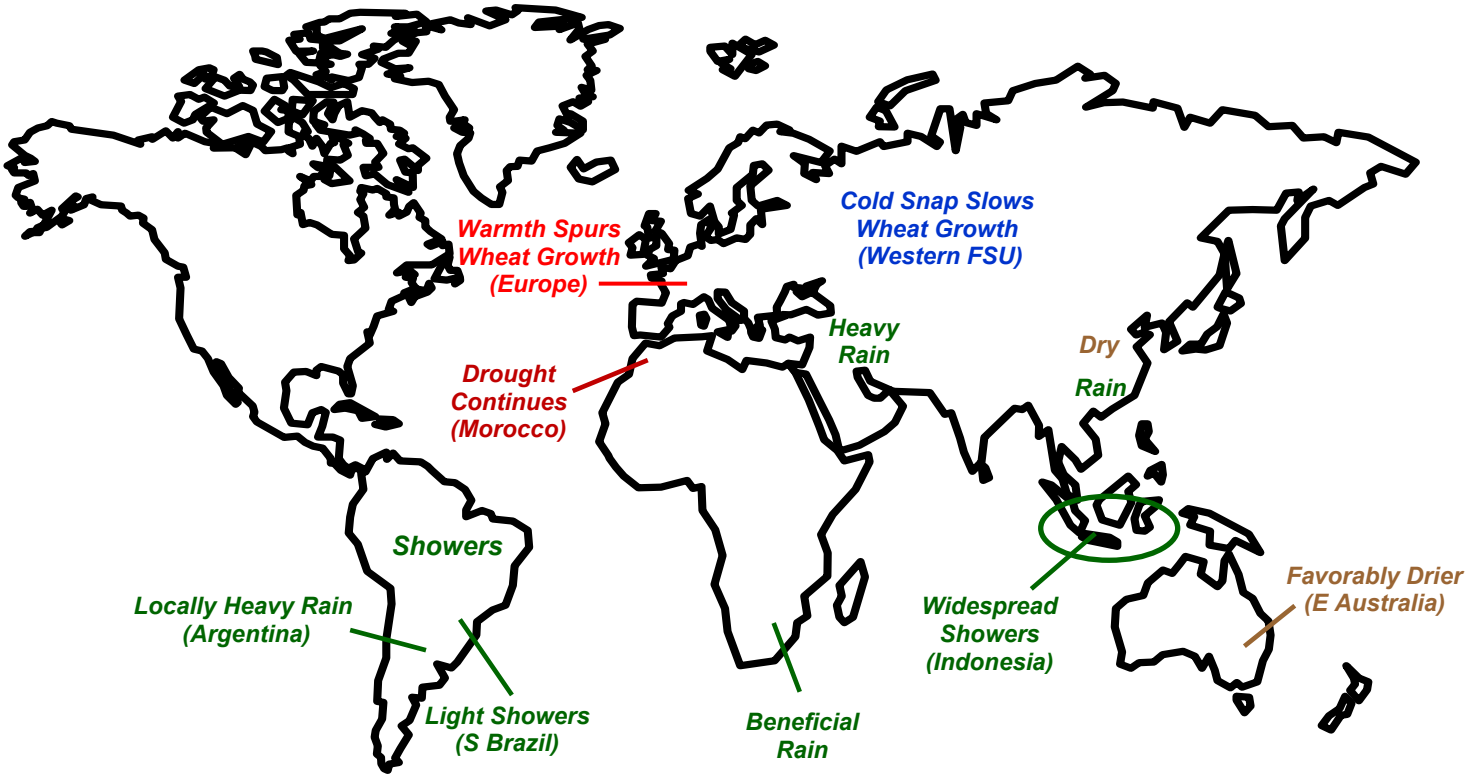
**SOUTHEAST ASIA:** Widespread rainfall in Indonesia maintained abundant moisture supplies for spring-sown rice while boosting soil moisture for oil palm.

**AUSTRALIA:** In the east, drier weather promoted summer crop maturation and harvesting.

**SOUTH AFRICA:** Showers maintained overall favorable conditions for corn in western sections of the corn belt.

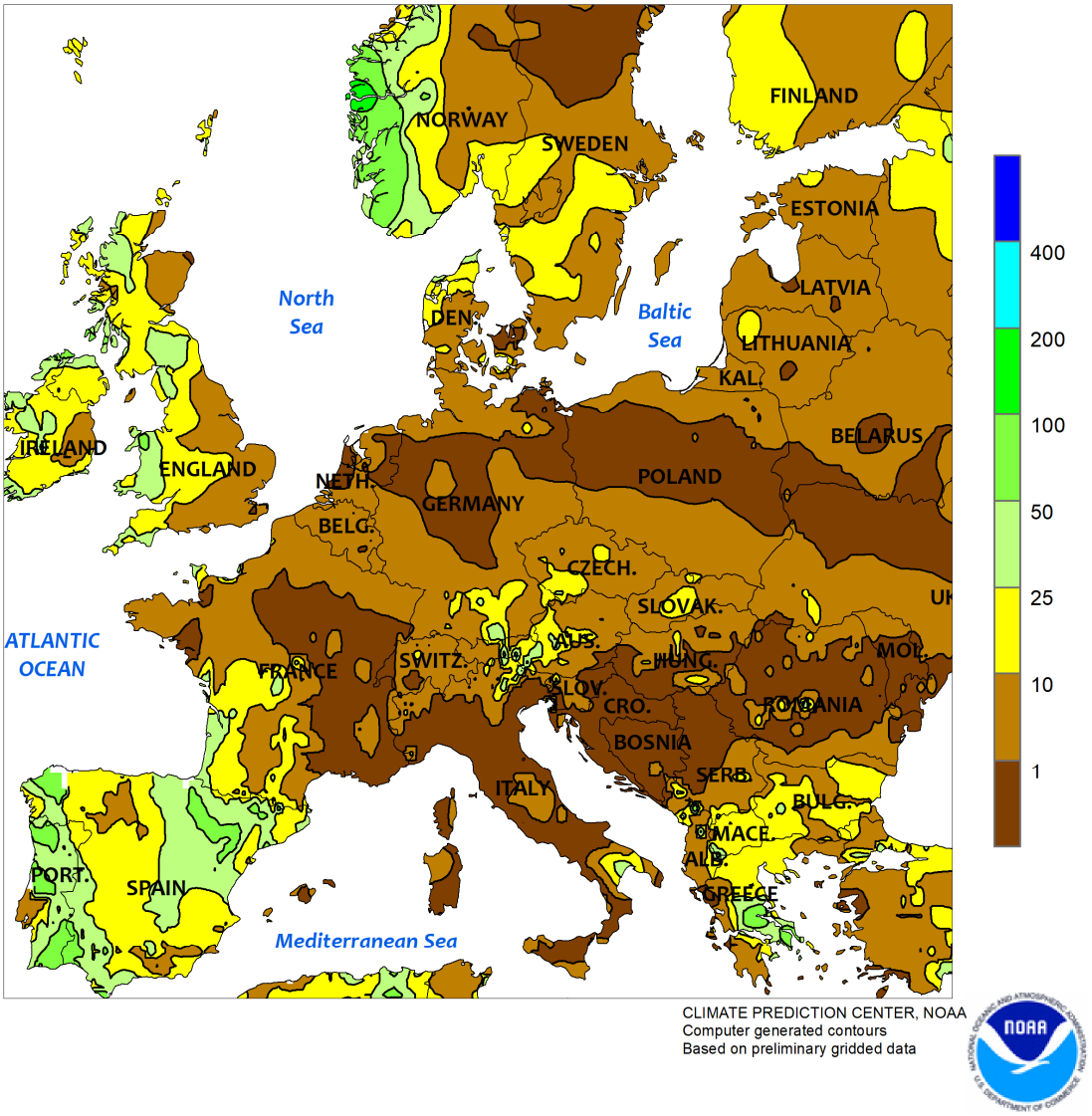
**ARGENTINA:** Widespread showers provided timely moisture for later-planted corn and soybeans.

**BRAZIL:** Light showers provided only localized relief from dryness in key southern corn areas.




For additional information contact: mbrusberg@oce.usda.gov

EUROPE
Total Precipitation (mm)
March 15 - 21, 2020

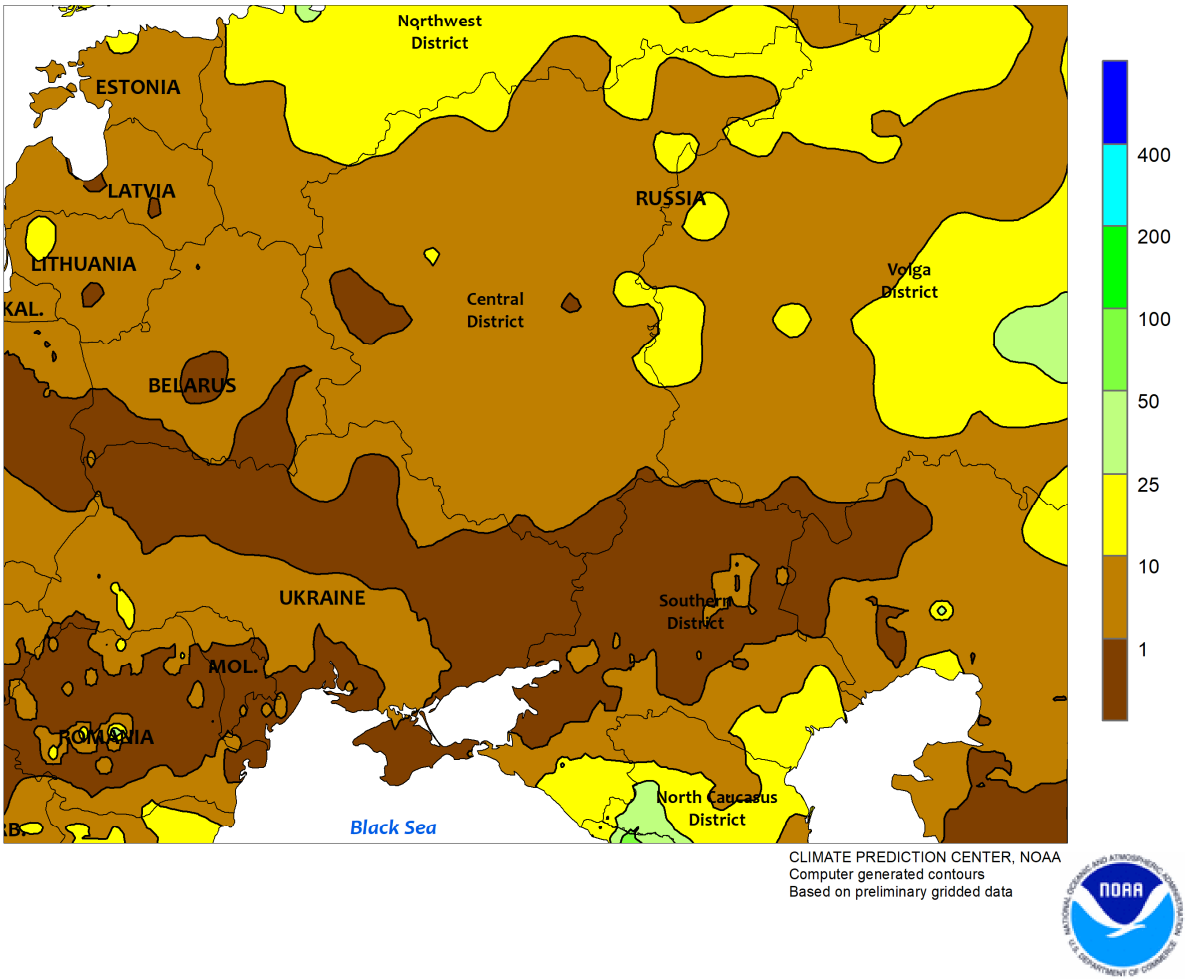



## EUROPE

Favorably drier weather settled across central and northern Europe, while continued warmth over most of the continent maintained a faster-than-normal winter crop development pace. The return of sunny skies from France and southeastern England into Poland and the Baltic States favored vegetative winter crops and allowed saturated fields to dry. Rainfall over the preceding 60 days approached or topped 200 percent of normal across primary winter crop areas of England, France, Germany, Denmark, Poland, and Lithuania, and the respite was welcome for fieldwork and crop development. Nevertheless, there were still light to moderate showers (1-15 mm) reported from western France and southeastern England into southern Poland and environs. Heavier rain (more than 25 mm) was reported in windward-facing locales of Ireland, England, and Scandinavia. Farther south, widespread albeit highly variable showers (3-55 mm) in Spain recharged topsoil moisture for vegetative wheat and barley, while moderate to heavy rain from Greece into Bulgaria (10-100 mm, locally more) boosted moisture supplies for vegetative winter crops. Temperatures across most of Europe averaged 2 to 4°C above normal, with winter crops continuing to develop two to four weeks ahead of average. Most notably, wheat had entered the jointing stage of development in warmer western and southern growing areas and consequently will be vulnerable to any potential late-season extreme cold (temperatures at or below -10°C can damage jointing wheat).

**For additional information contact:** mbrusberg@oce.usda.gov

WESTERN FSU
Total Precipitation (mm)
March 15 - 21, 2020

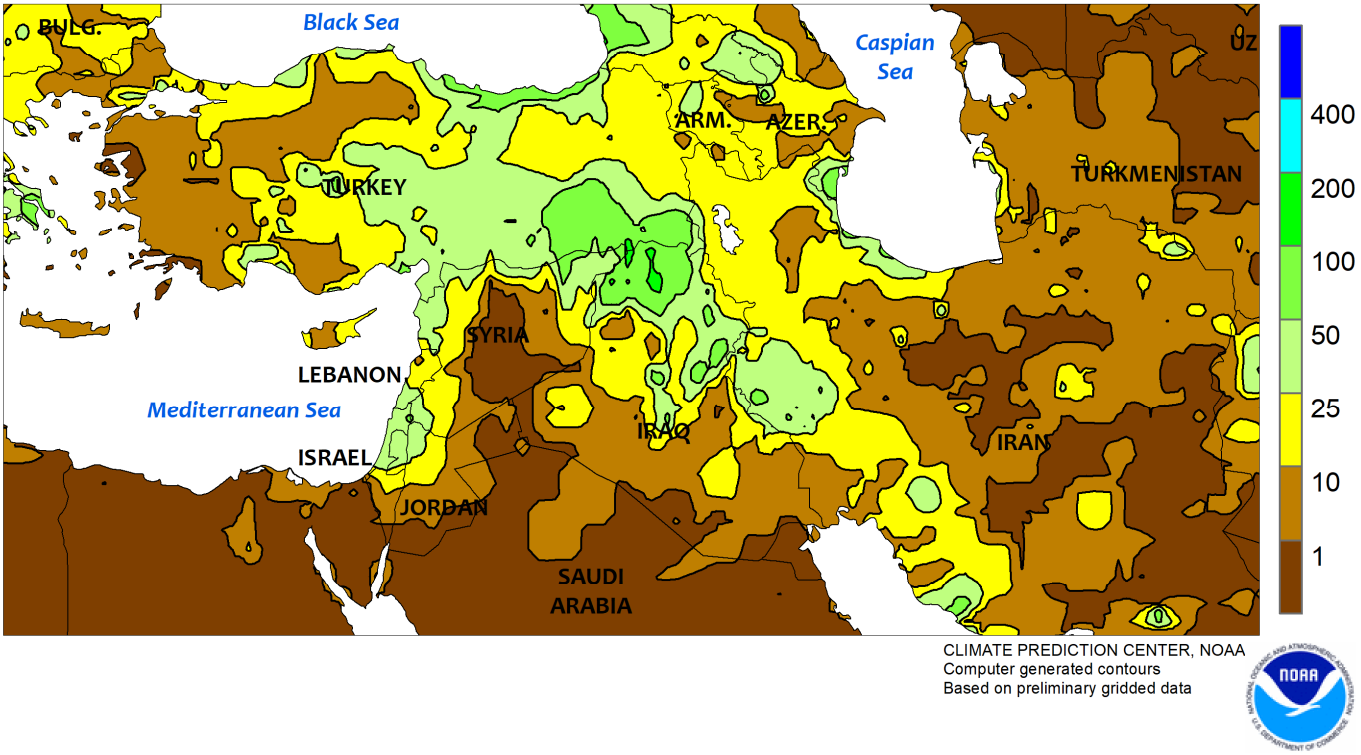



## WESTERN FSU

A sharp cold snap slowed winter wheat development, though temperatures across much of the region continued to average near to above normal. The recent spell of unseasonable warmth — on the heels of one of the warmest winters on record — had accelerated wheat toward or into the jointing stage of development two to three weeks ahead of average. This week's cold (-8 to -2°C) slowed the rapid pace of development, though crops were not far enough along to be adversely impacted by the hard freeze. Despite the cold weather, temperatures for the week averaged near normal in major winter wheat areas adjacent to the Black Sea and up to 8°C above normal in eastern-most growing areas (mostly spring grains). Generally dry weather prevailed, reducing topsoil moisture near the Black Sea Coast where short-term dryness has been the most pronounced (30-day rainfall locally less than 50 percent of normal). However, moisture supplies are overall favorable due to near- to above-normal winter precipitation.

**For additional information contact:** mbrusberg@oce.usda.gov

MIDDLE EAST
Total Precipitation (mm)
March 15 - 21, 2020



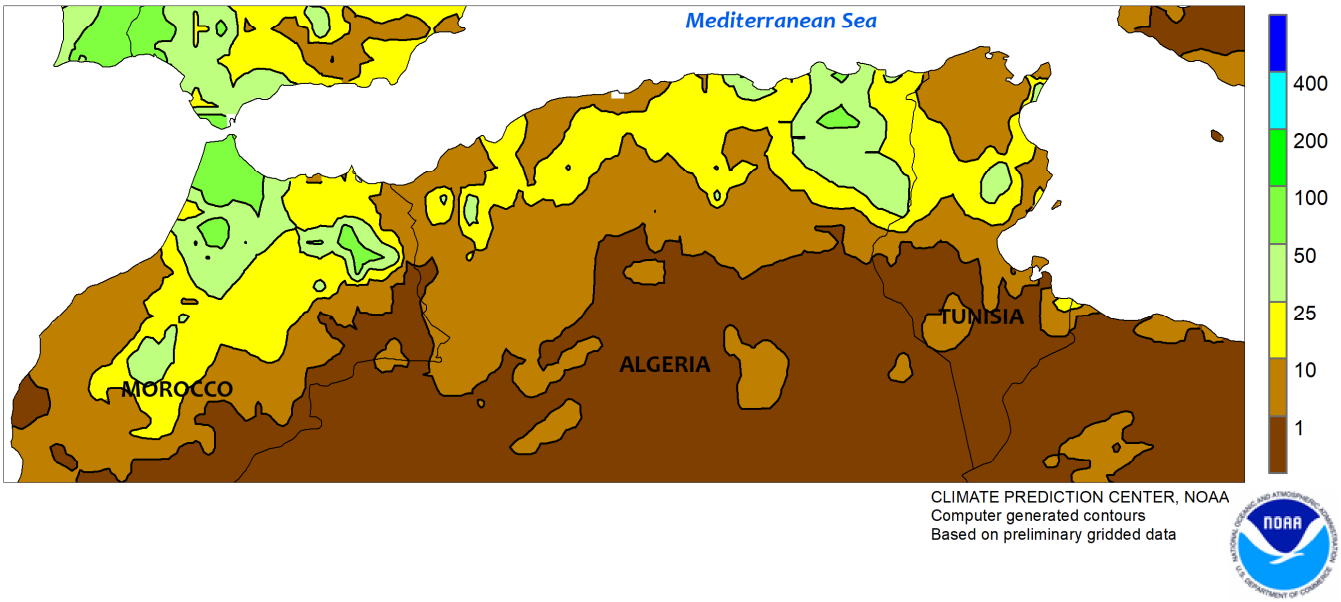

CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

## MIDDLE EAST

Another slow-moving storm system brought additional rain and snow to the region. The storm developed over the eastern Mediterranean Sea and drifted eastward, producing a wide swath of moderate to heavy rain (10-100 mm, locally more) from Syria and surrounding environs into Iran. On the back side of the storm, the arrival of cold air (up to 5°C below normal) caused the precipitation to fall as snow over much of central and eastern Turkey. The colder air slowed winter grain growth on central Turkey's Anatolian Plateau, where wheat and barley were developing on par with normal. Across the eastern two thirds of the region, temperatures up to 5°C above normal maintained a faster-than-normal pace of winter crop development. Overall, early winter grain prospects remained good to excellent across the region, though satellite-derived vegetation health data continued to depict lingering impacts from autumn drought in central Turkey.

**For additional information contact:** mbrusberg@oce.usda.gov

NORTHWESTERN AFRICA
Total Precipitation (mm)
March 15 - 21, 2020

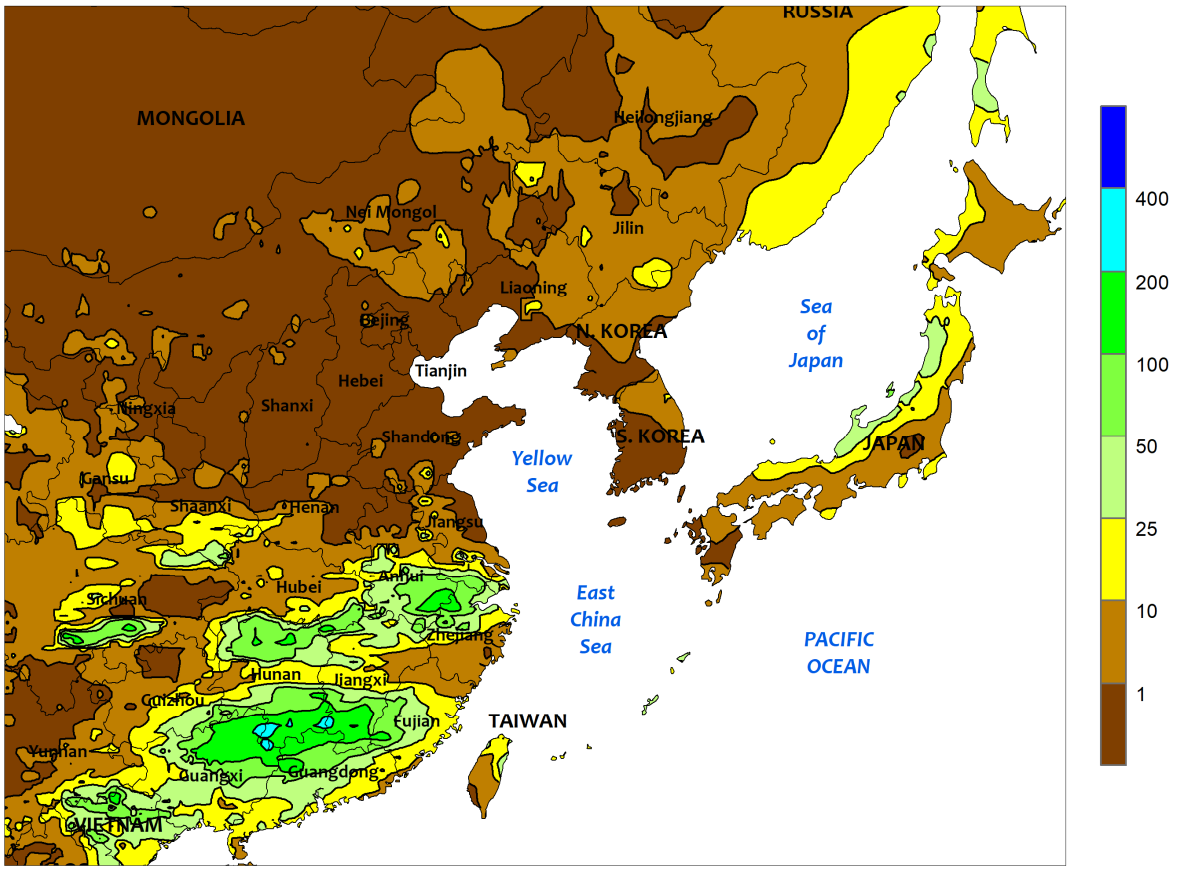



## NORTHWESTERN AFRICA

Despite the arrival of some much-needed rain, severe drought in the west contrasted with better crop conditions in the east. An upper-air low meandered off the Atlantic Coast, producing much-needed rain (10-30 mm, locally more) across eastern and northern Morocco. While providing moisture for wheat and barley locally, most primary winter grain areas (adjacent the middle Atlantic Coast) missed out on the rain and subsequently remained mired in one of the country's worst droughts on record. Furthermore, Morocco's wheat and barley were now entering or progressing through the filling stage of development, and any rain at this juncture would be largely too late to offset the drought's impacts. Similarly, drought afflicted winter grains across western Algeria as well, though crops in these locales were not as far along in development and could subsequently benefit from rain. Across the eastern third of the region, variable showers (1-30 mm, locally more than 50 mm near the coast) maintained mostly favorable crop prospects. Conditions in eastern Algeria and northern Tunisia have improved following winter drought, with 30-day rainfall averaging near normal from Algeria's eastern Hautes region (inland locales) into northern Tunisia's Tell region (primary wheat area near the coast). However, inland crop areas in Tunisia (the Steppe region) have been dry, and this week's moderate to heavy showers (5-35 mm) were well timed and placed for reproductive to filling barley.

**For additional information contact:** mbrusberg@oce.usda.gov

EASTERN ASIA
Total Precipitation (mm)
March 15 - 21, 2020

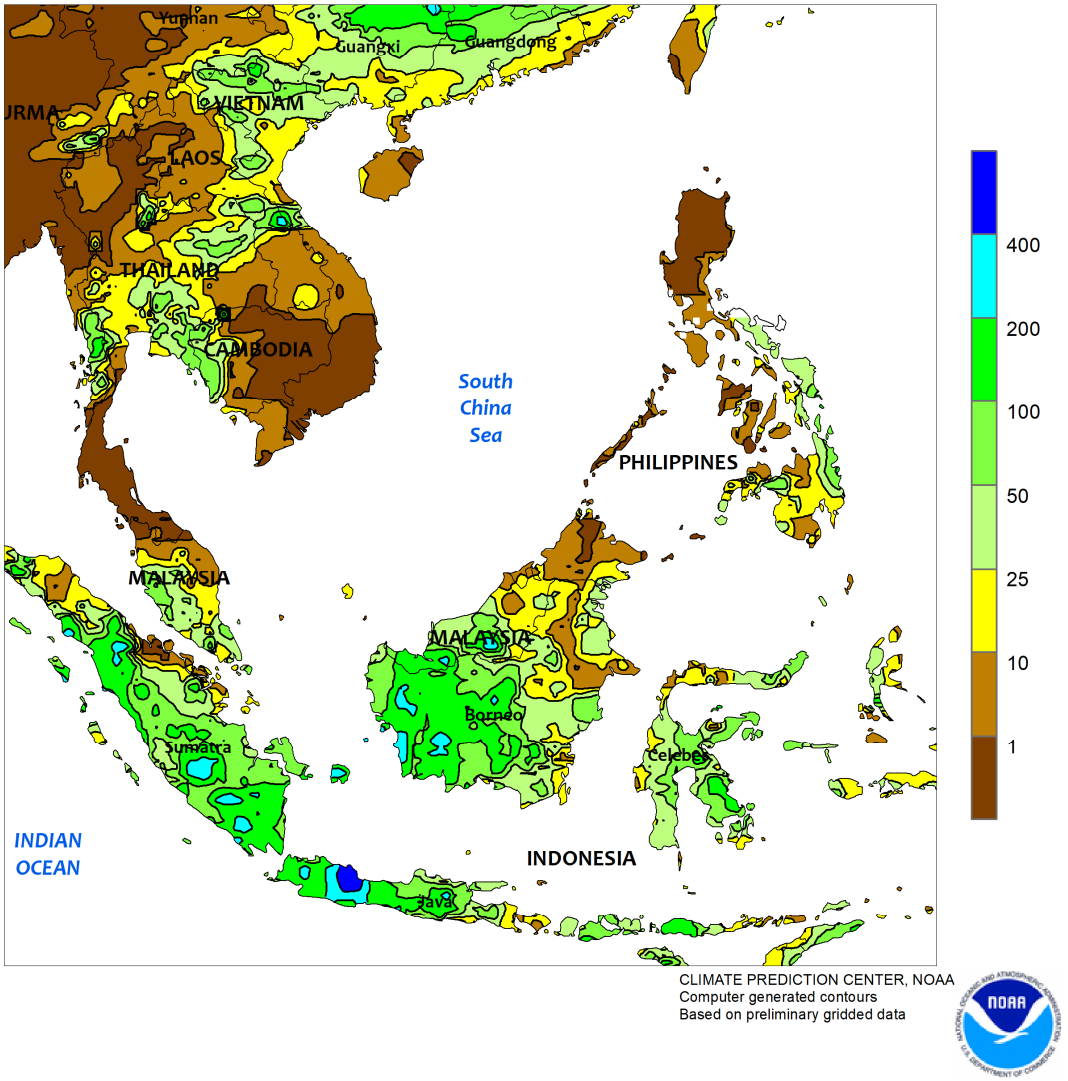



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

## EASTERN ASIA

Showers continued in southern and southeastern China, albeit lighter than in previous weeks, particularly within the Yangtze Valley. Rainfall totals were generally less than 10 mm in the Yangtze Valley, with pockets of higher amounts (25-50 mm) in eastern-most sections. Short-term moisture conditions have been favorable for rapeseed advancing into reproduction, roughly 10 days ahead of normal. Farther south, heavier showers (upwards of 100 mm) benefited early-crop rice establishment, although more rain would be welcome in southeastern provinces to stem developing dryness. Meanwhile, rainfall was nearly non-existent on the North China Plain, and along with summer-like temperatures (over 7°C above normal) necessitated more irrigation for vegetative wheat developing at a rapid pace.

SOUTHEAST ASIA
Total Precipitation (mm)
March 15 - 21, 2020

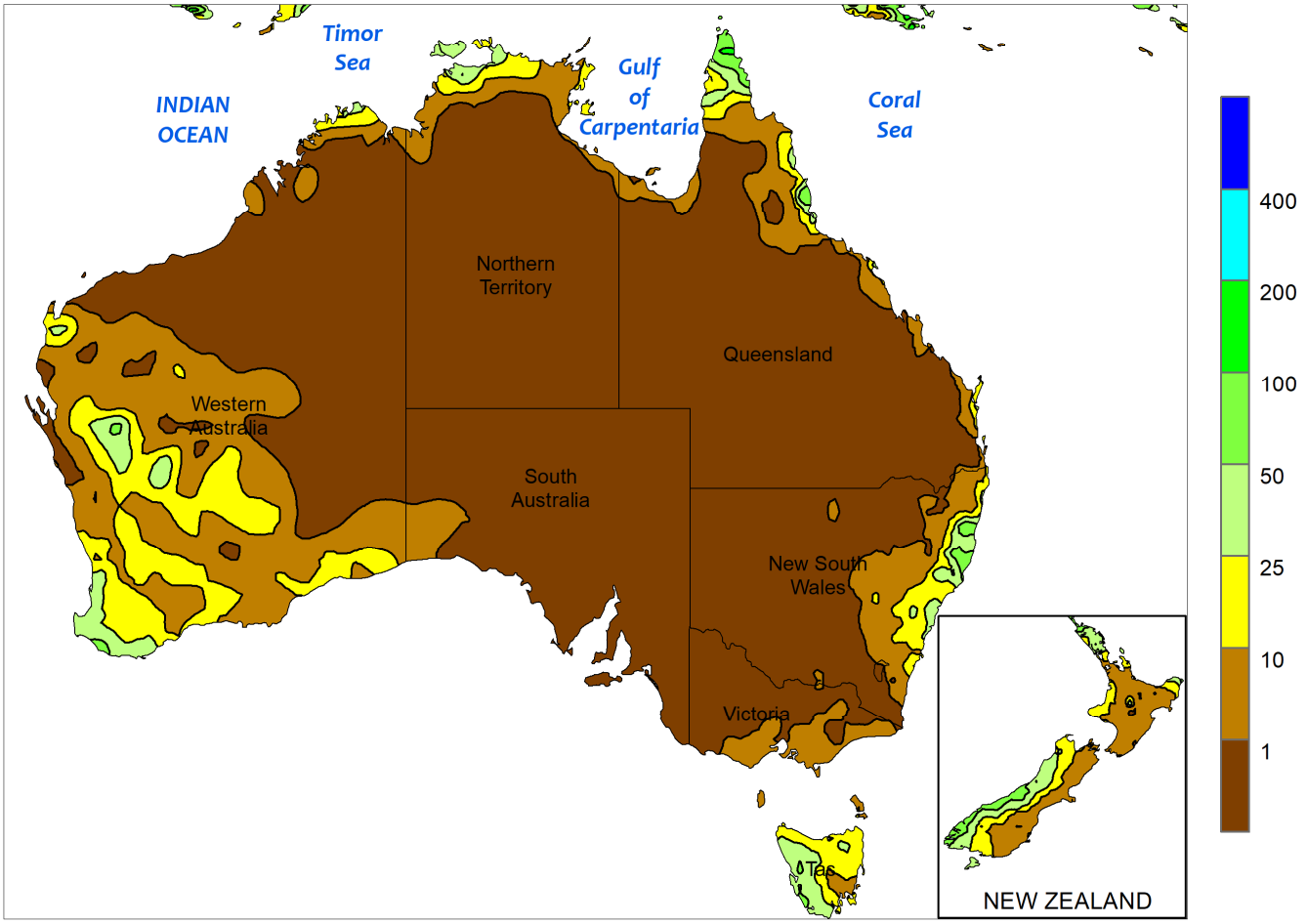



## SOUTHEAST ASIA

Widespread rainfall (25-100 mm, locally more) in Indonesia maintained abundant moisture supplies for spring-sown rice in Java while boosting soil moisture for oil palm in Sumatra and Kalimantan. In fact, rainfall totals (since February 1) in Java are the second highest on record. In contrast, showers have been consistently spotty across oil palm areas of Malaysia, lowering yield potential. Meanwhile in the Philippines, 25 to 100 mm of rain was reported in southern Luzon, the eastern Visayas, and across much of Mindanao. Moisture conditions in key northern growing areas have been favorable over the last 60 to 90 days, while rainfall totals in the south were half of the long-term normal.

**For additional information contact:** mbrusberg@oce.usda.gov

AUSTRALIA
Total Precipitation (mm)
March 15 - 21, 2020




Gridded data from the Australian Bureau of Meteorology: www.bom.gov.au/
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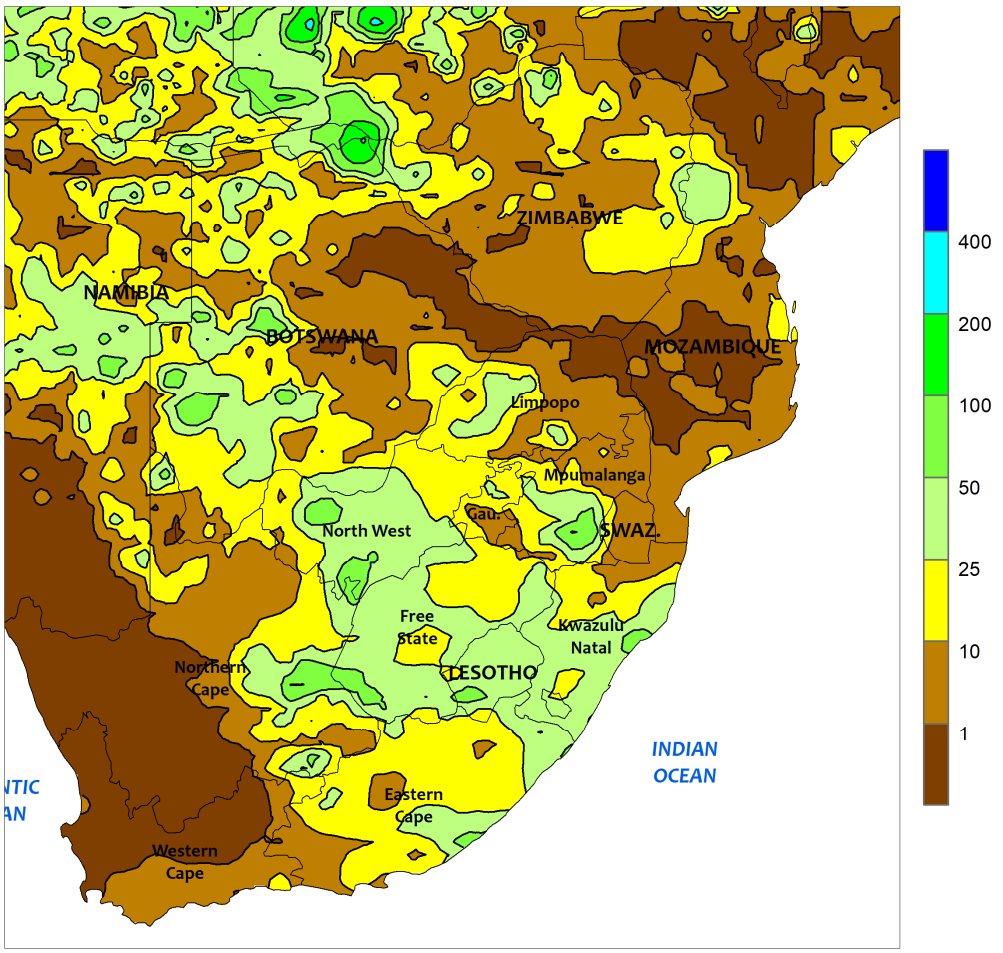
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

## AUSTRALIA

Scattered showers (5-25 mm, locally near 50 mm) fell along coastal sections of southern Queensland and New South Wales. Farther inland, however, mostly dry weather overspread the wheat belt, including major cotton and sorghum producing areas within these states. Sunny, warm weather promoted drydown and harvesting of mature cotton and sorghum. Nevertheless, additional rain would be welcome to refill the soil moisture profile in advance of winter crop planting, and to help the region, in a broader view, further recover from severe, long-term drought. Cooler-than-normal weather (temperatures 1-2°C below normal) covered southern Queensland, while near-normal temperatures (within 1°C of normal) prevailed in New South Wales.

**For additional information contact:** mbrusberg@oce.usda.gov

SOUTH AFRICA
Total Precipitation (mm)
March 15 - 21, 2020

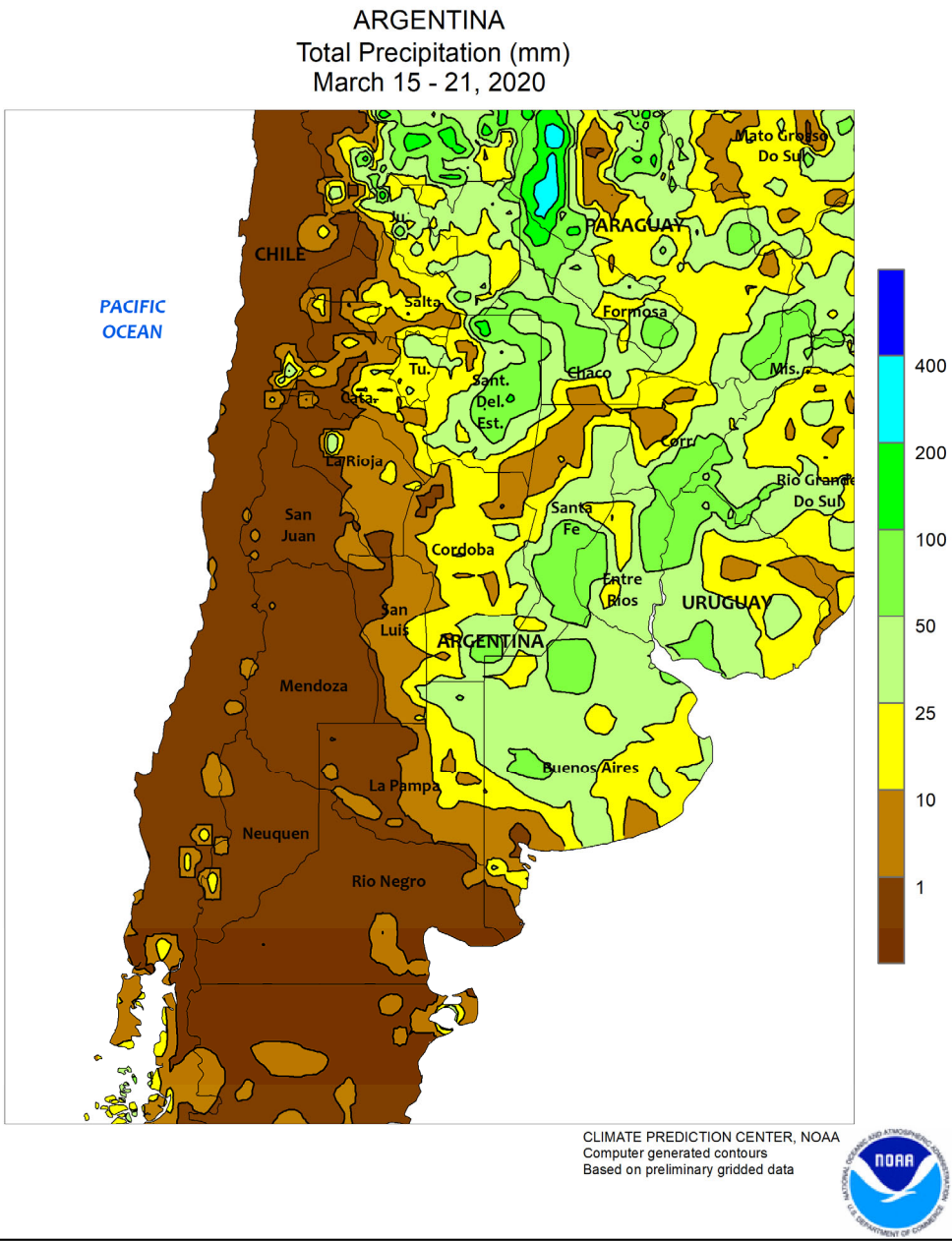



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary gridded data

## SOUTH AFRICA

Unseasonably heavy showers continued throughout western sections of the corn belt, sustaining the favorable yield prospects of later-planted summer crops. Rainfall totaled more than 25 mm over a large area spanning central North West and neighboring locations in Free State, including the region's main commercial white corn area. Similar amounts were recorded in northern Limpopo but drier conditions prevailed over the remainder of the corn belt, where earlier-planted crops were nearing maturity. Additionally, warm weather (daytime highs ranging from the upper 20s to lower 30s degrees C) fostered rapid growth rates across the corn belt, particularly in sunnier sections of the east. Elsewhere, light to moderate rain (10-50 mm) fell from eastern sections of Northern Cape to southern KwaZulu-Natal, benefiting late sugarcane development and sustaining irrigation supplies for corn and cotton in the Orange River Valley. As in the corn belt, warm autumn weather (highs reaching the upper 20s and lower 30s) favored maturing row crops.

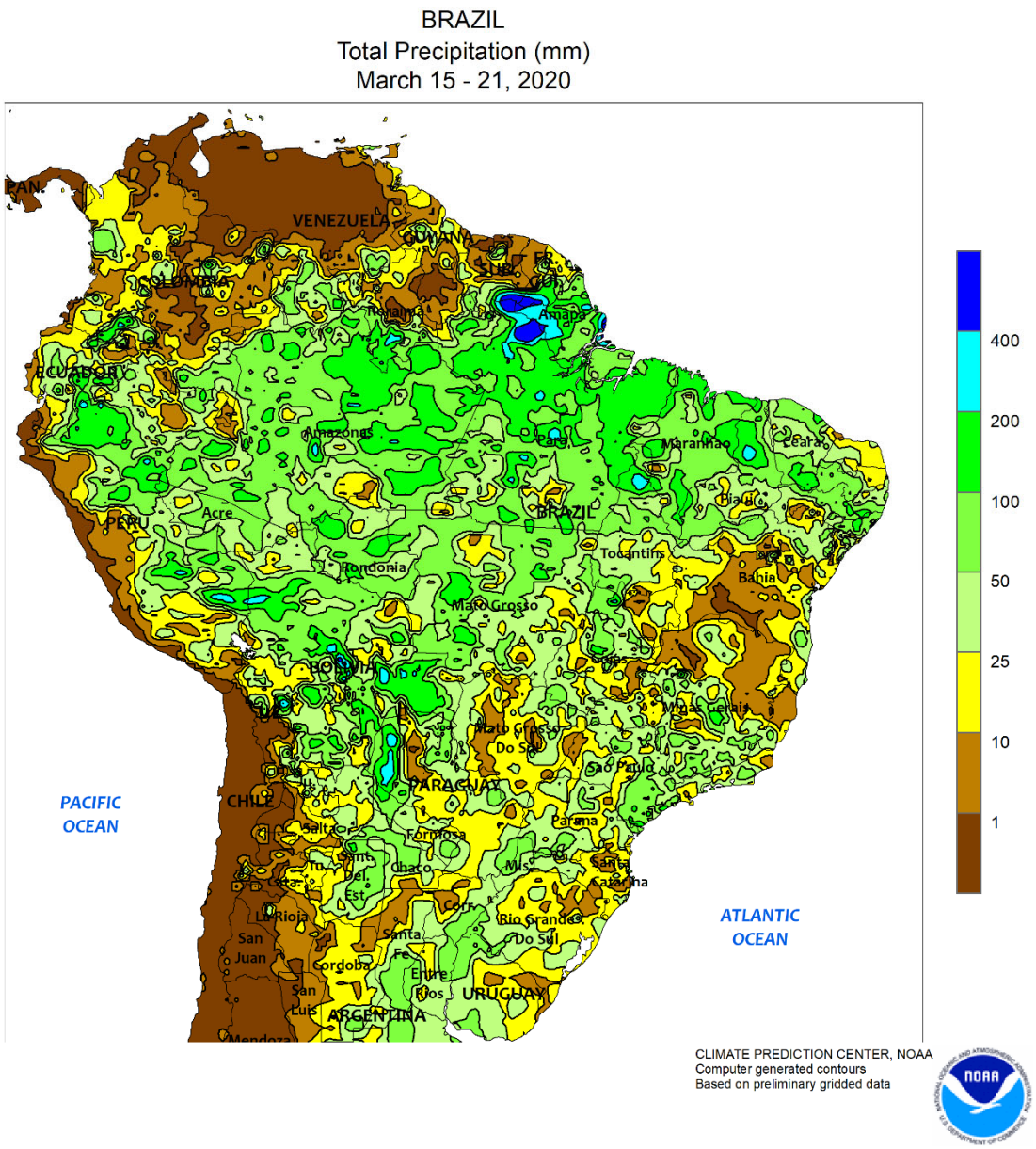
**For additional information contact:** mbrusberg@oce.usda.gov




## ARGENTINA

Locally heavy showers overspread key summer production areas, providing a needed boost in moisture to later-planted grains and oilseeds. In central Argentina, 10 to more than 50 mm of rain fell, with the highest amounts extending from northern Buenos Aires into Corrientes; this swath included previously dry locations in Entre Rios, which had been trending dry since the latter part of February. Similar amounts were observed in northern Argentina, but the moisture came too late to significantly improve the conditions of maturing summer crops and raised concern for the quality of unharvested cotton. Near- to below-normal weekly average temperatures accompanied the wetter pattern, but temperatures again reached the lower and middle 30s (degrees C) as far north as La Pampa at week's end as dryness returned. According to the government of Argentina, sunflowers were 56 percent harvested as of March 19, lagging last year's pace by 5 points; harvesting was 29 percent complete in Buenos Aires versus 26 percent at the same point last season. In addition, corn was 11 percent harvested versus 9 percent last year, with the greatest progress in the more northerly production areas.

**For additional information contact:** mbrusberg@oce.usda.gov




## BRAZIL

Showers brought some relief from dryness to southern Brazil, though pockets of dryness remained. Rainfall was highly variable from Mato Grosso do Sul and Sao Paulo southward through Rio Grande do Sul, with a few locations recording more than 25 mm. While favoring drydown and harvest of first-season corn and soybeans, more rain is needed throughout these areas as second-crop corn advances toward reproduction. According to the government of Parana, harvesting of first-crop corn and soybeans had reached 67 and 75 percent complete, respectively, as of March 16, though some later-planted crops were still filling; additionally, second-crop corn was 3 percent flowering, underscoring the need for rain to return. In Rio Grande do Sul, corn was 63 percent harvested as of March 19, with the majority of the remaining crop ranging from filling to mature. Meanwhile, soybeans were 18 percent harvested, and a large portion of the crop (36 percent) was still flowering to filling. Similarly, showers were variable farther north, with the most consistent rainfall (amounts greater than 25 mm) concentrated in the northeastern interior. These areas also need additional moisture for second-crop corn, as well as second-crop cotton, before the end of the rainy season, which typically occurs from mid-April to early May.

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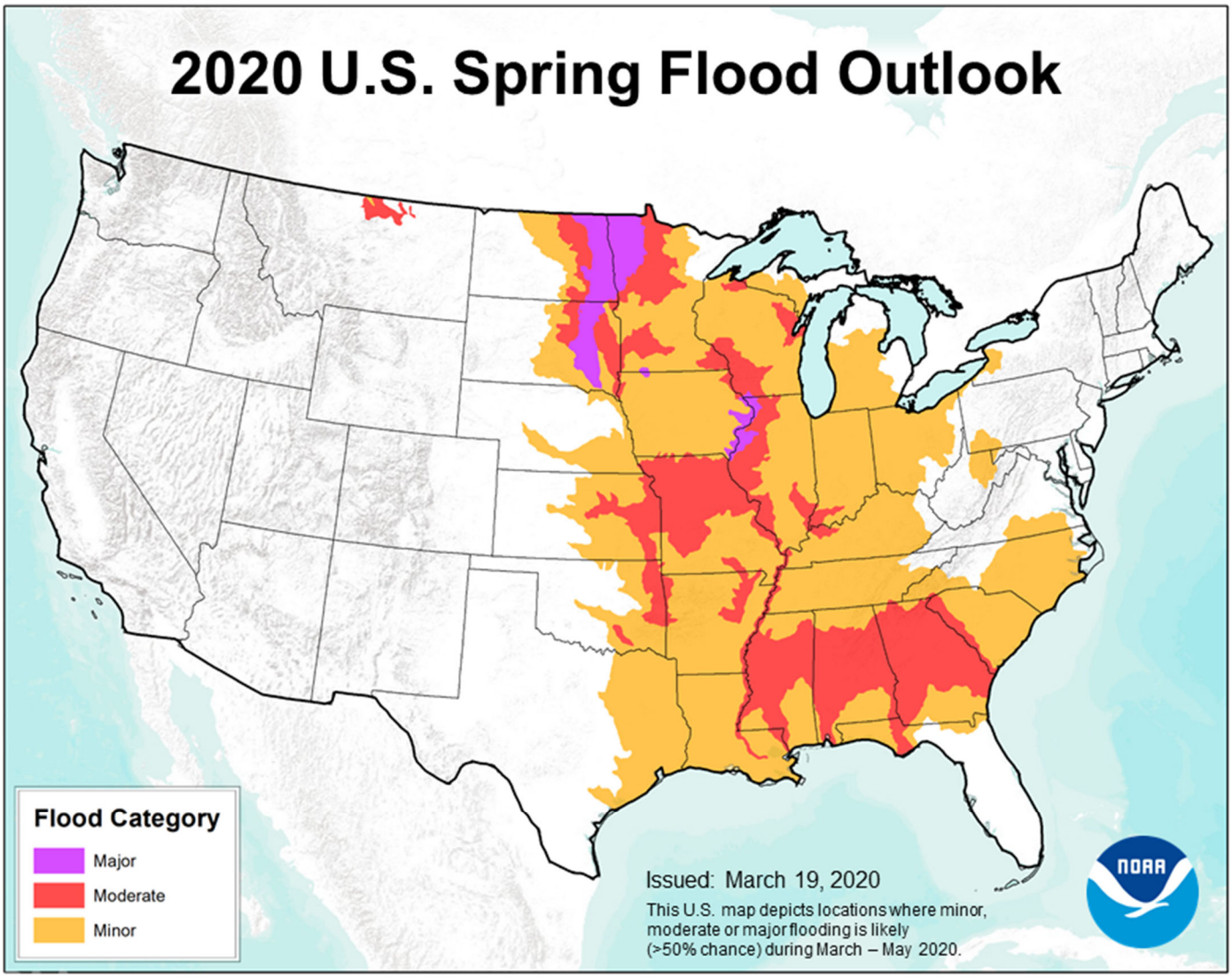


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