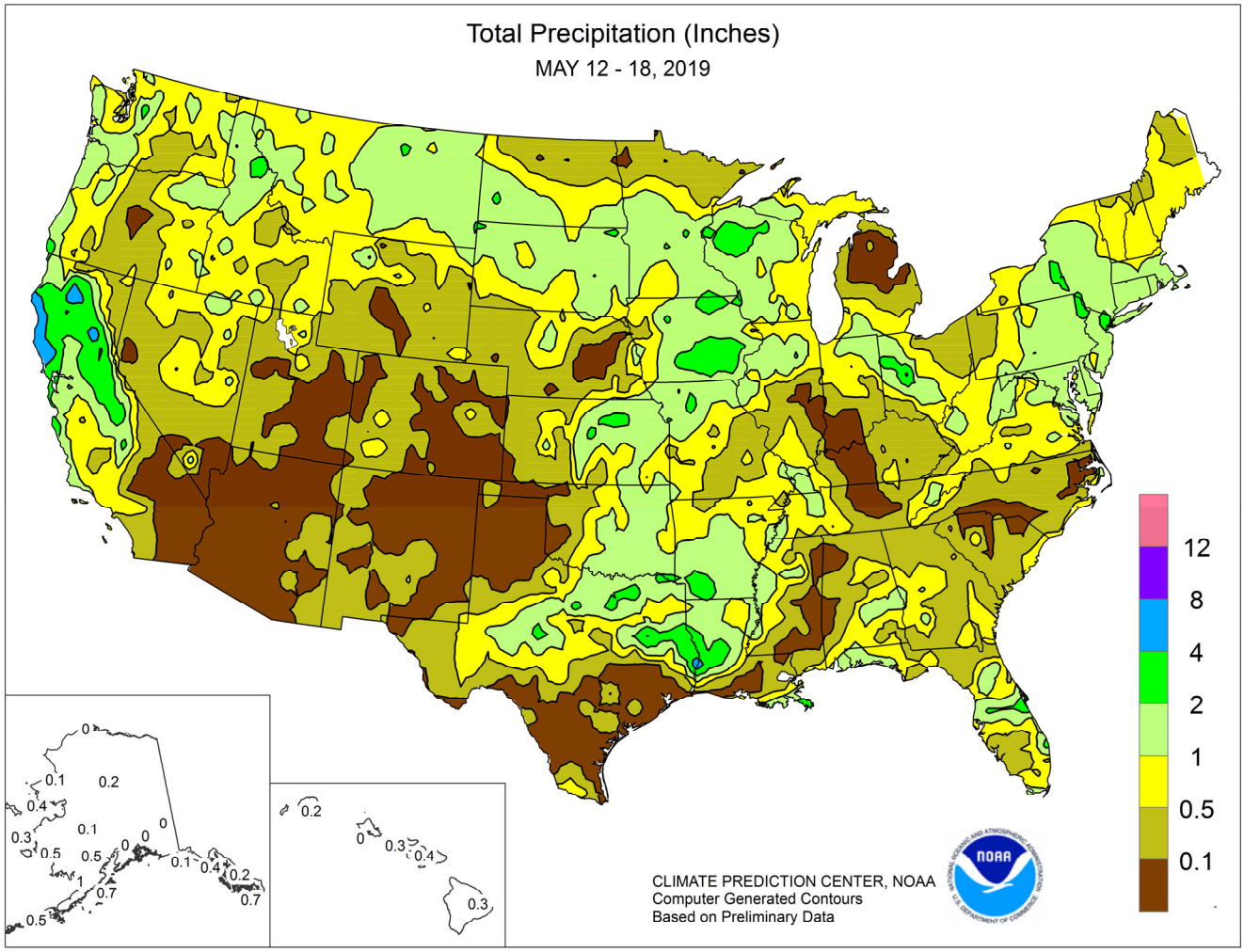
Volume 106, No. 21 http://www.usda.gov/oce/weather May 21, 2019

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
May 12 – 18, 2019

Highlights provided by USDA/WAOB

During a brief lull in the overall stormy pattern, **Midwestern** producers were able to make some modest progress in corn and soybean planting. However, the combination of lingering wetness and occasional showers led to less-than-optimal conditions for **Midwestern** fieldwork. In fact, some **Midwestern** locations received at least 1 to 2 inches of rain, especially during the second half of the week. Meanwhile, cold, showery weather returned across the **northern Plains**, following a brief period of warm, dry weather that had favored spring wheat planting

(Continued on page 7)

Contents

Water Supply Forecast for the Western United States

Highlights

A spring warm spell in the Northwest resulted in premature melting of already below-average snowpack. By May 20, some of the most acute snowpack shortages, compared to normal values, were observed in the Pacific Northwest, including the northern Cascades. The snowpack deficiency, which extended eastward into parts of western Montana, has led to increasing concerns with regard to a lack of runoff and potential water-supply shortages. In contrast, abundant snowpack remained in place from the Sierra Nevada eastward into higher elevations of the Four Corners States. As a result, effects of the 2017-18 South-western drought have been nearly eradicated, except for lingering water-supply concerns.

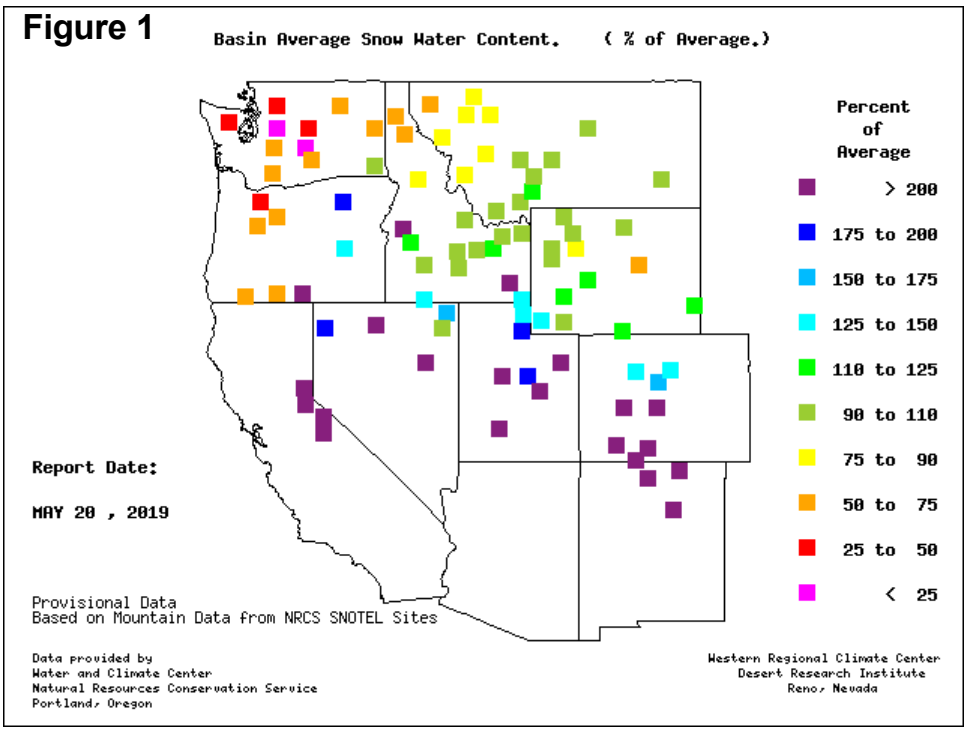
By May 20, 2019, basin-average snowpack was greater than 200 percent of average in a broad area stretching eastward from the Sierra Nevada. At the same time, snowpack was less than 50 percent of average in the northern Cascades and neigh-boring areas in Washington.

Snowpack and Precipitation

By May 20, 2019, above-average snowpack values were common from California to the central and southern Rockies (figure 1). In contrast, snowpack was significantly below average in the Pacific Northwest, where subpar accumulations were further reduced by a recent spell of warmth.

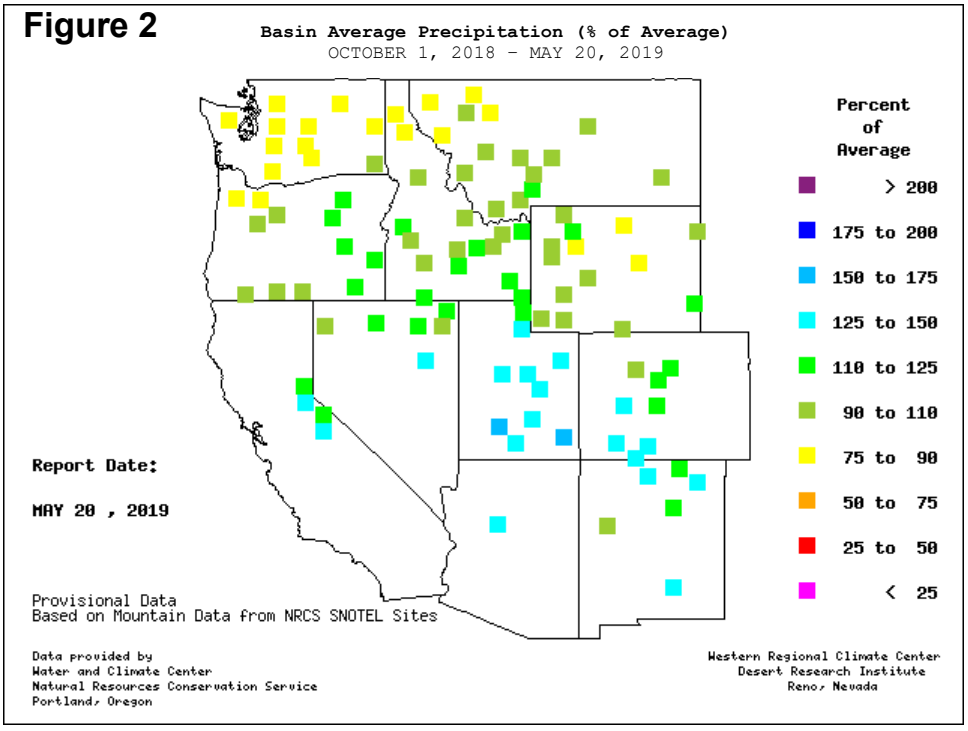
SNOTEL – River Basin Snow Water Content

Figure 1



SNOTEL – River Basin Precipitation

Figure 2



Season-to-date precipitation (October 1, 2018 – May 20, 2019) was near or above normal in most Western basins, with the most impressive totals stretching from California into the Four Corners States (figure 2). In fact, slightly below-normal values (75 to 90 percent of average) were mostly limited to the Pacific Northwest and the northernmost Rockies.

Spring and Summer Streamflow Forecasts

By May 1, 2019, projections for spring and summer streamflow were indicating the likelihood of a favorable melt season across much of the West. In general, some of the most optimistic runoff forecasts stretched eastward from the Sierra Nevada across the Great Basin, the Wasatch Range, and into the central and southern Rockies. However, below-average runoff has become an increasing concern from the Pacific Northwest to the northernmost Rockies, as recent warmth has prematurely begun to melt subpar snowpack.

Reservoir Storage

On May 1, statewide reservoir storage as a percent of average for the date was significantly below normal—just over one-half of average—in New Mexico and slightly below normal in Colorado and Washington (figure 4). Reservoir storage should improve in Colorado as abundant snowpack melts during the remainder of spring and summer. However, water-supply shortages are likely to persist in New Mexico, despite a snowy winter in many northern watersheds, and may develop in Washington, where subpar snowpack exists in most basins.

For More Information

The National Water and Climate Center homepage provides the latest available snowpack and water supply information. Please visit: http://www.wcc.nrcs.usda.gov

Figure 3

Spring and Summer Streamflow Forecasts

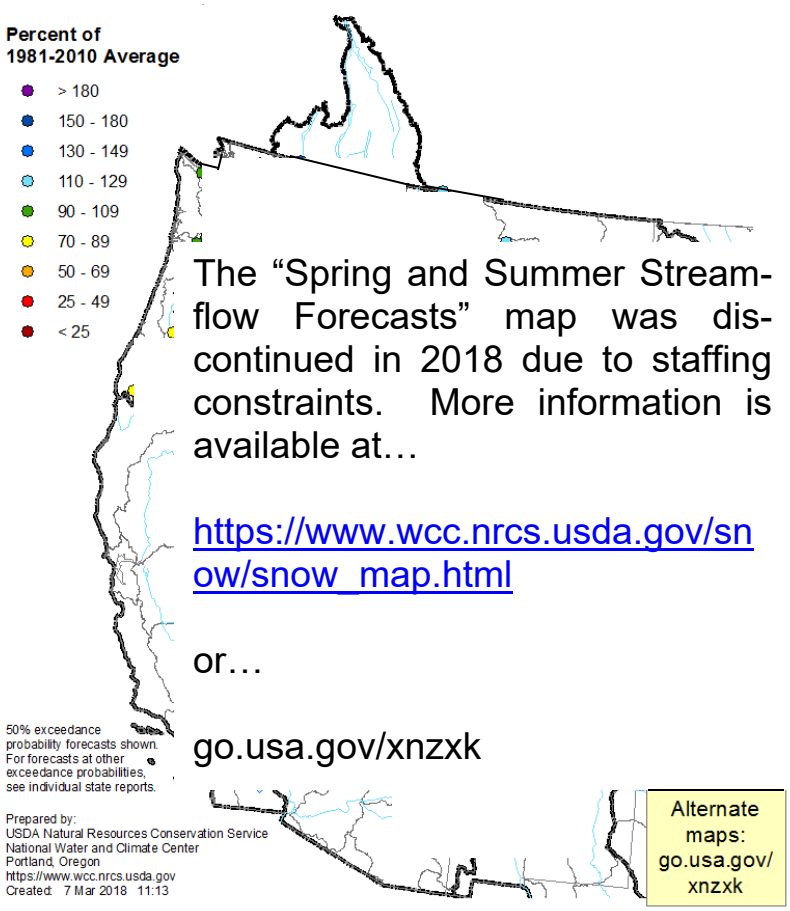
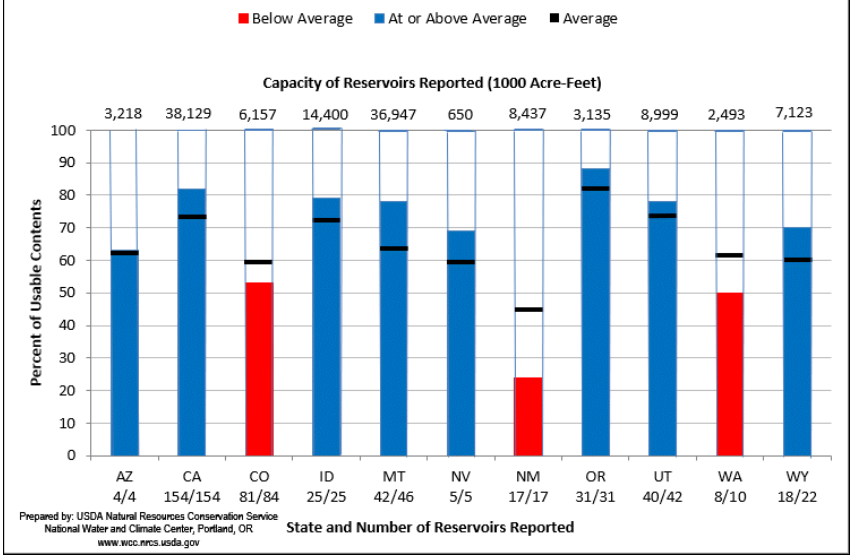
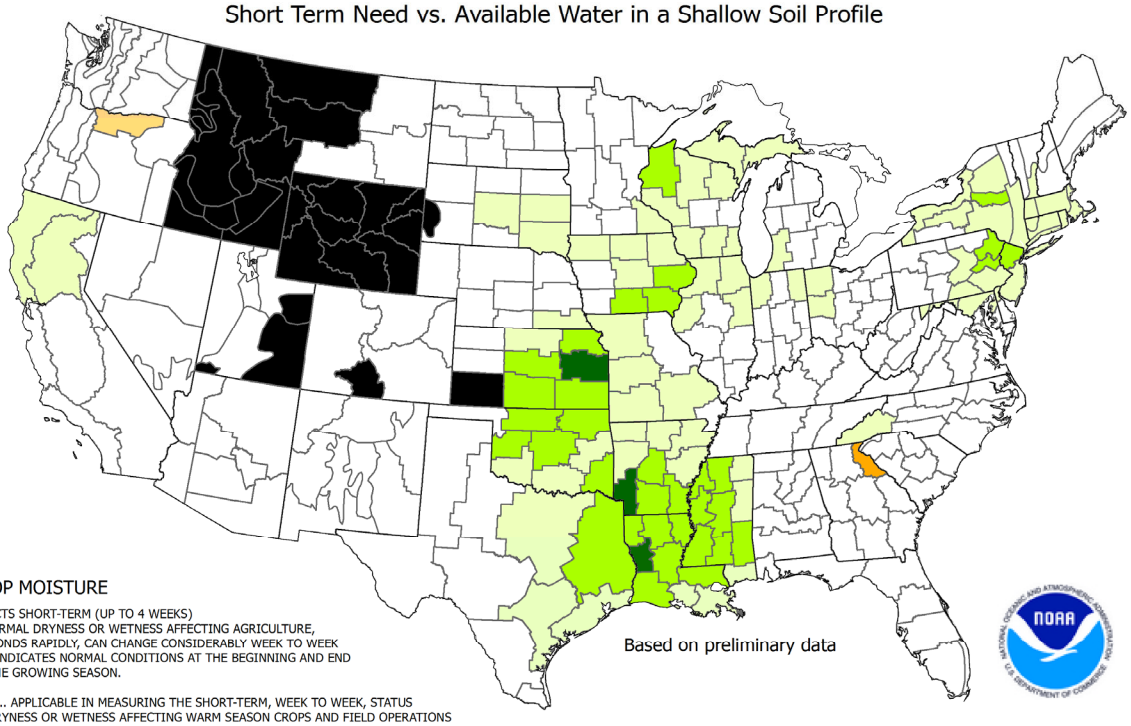


Figure 4 **Reservoir Storage as of May 1, 2019**



Crop Moisture Index by Division
Weekly Value for Period Ending May 18, 2019
Short Term Need vs. Available Water in a Shallow Soil Profile



Based on preliminary data

CROP MOISTURE

DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

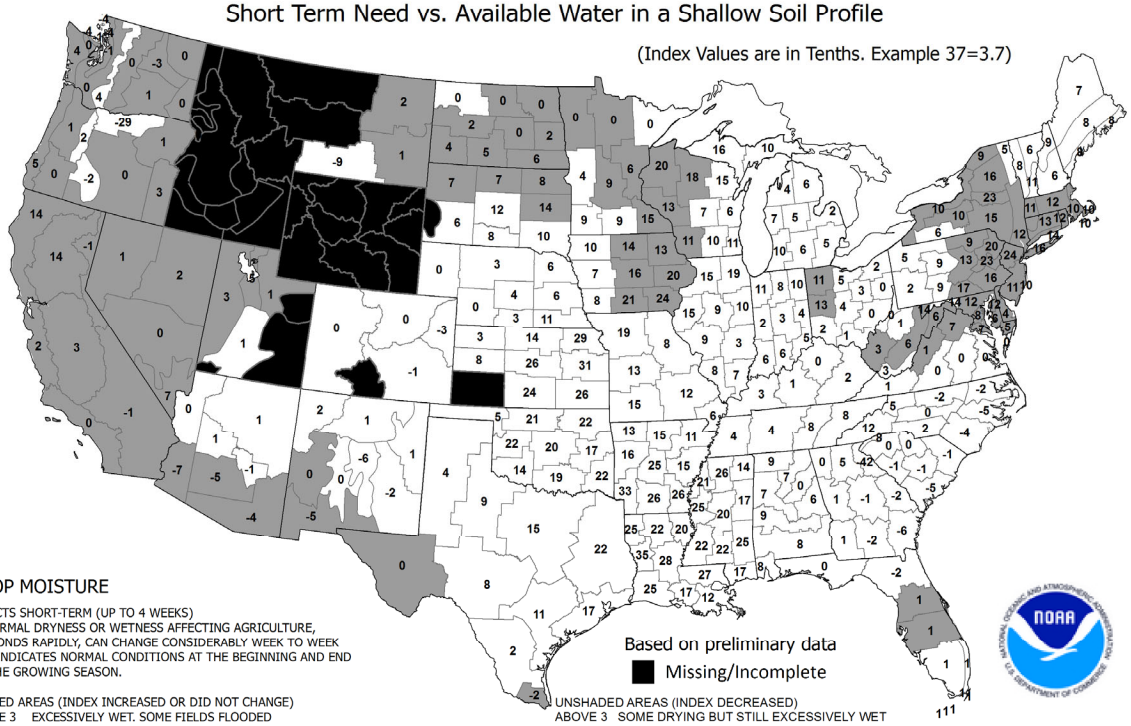
USES... APPLICABLE IN MEASURING THE SHORT-TERM, WEEK TO WEEK, STATUS OF DRYNESS OR WETNESS AFFECTING WARM SEASON CROPS AND FIELD OPERATIONS

LIMITATIONS... MAY NOT BE APPLICABLE TO GERMINATING AND SHALLOW ROOTED CROPS WHICH ARE UNABLE TO EXTRACT THE DEEP OR SUBSOIL MOISTURE FROM A SHALLOW SOIL PROFILE,OR FOR COOL SEASON CROPS GROWING WHEN TEMPERATURES ARE AVERAGING BELOW ABOUT 55F.IT IS NOT GENERALLY INDICATIVE OF THE LONG-TERM (MONTHS, YEARS) DROUGHT OR WET SPELLS WHICH ARE DEPICTED BY THE DROUGHT SEVERITY INDEX.

- -3.0 or less (Severly Dry)
- -2.0 to -2.9 (Excessively Dry)
- -1.0 to -1.9 (Abnormally Dry)
- -0.9 to +0.9 (Slightly Dry/Favorably Moist)
- +1.0 to +1.9 (Abnormally Moist)
- +2.0 to +3.0 (Wet)
- 3.0 and above (Excessively Wet)
- Missing/Incomplete

Crop Moisture Index by Division
Weekly Value for Period Ending May 18, 2019
Short Term Need vs. Available Water in a Shallow Soil Profile

(Index Values are in Tenths. Example 37=3.7)



Based on preliminary data

Missing/Incomplete

CROP MOISTURE

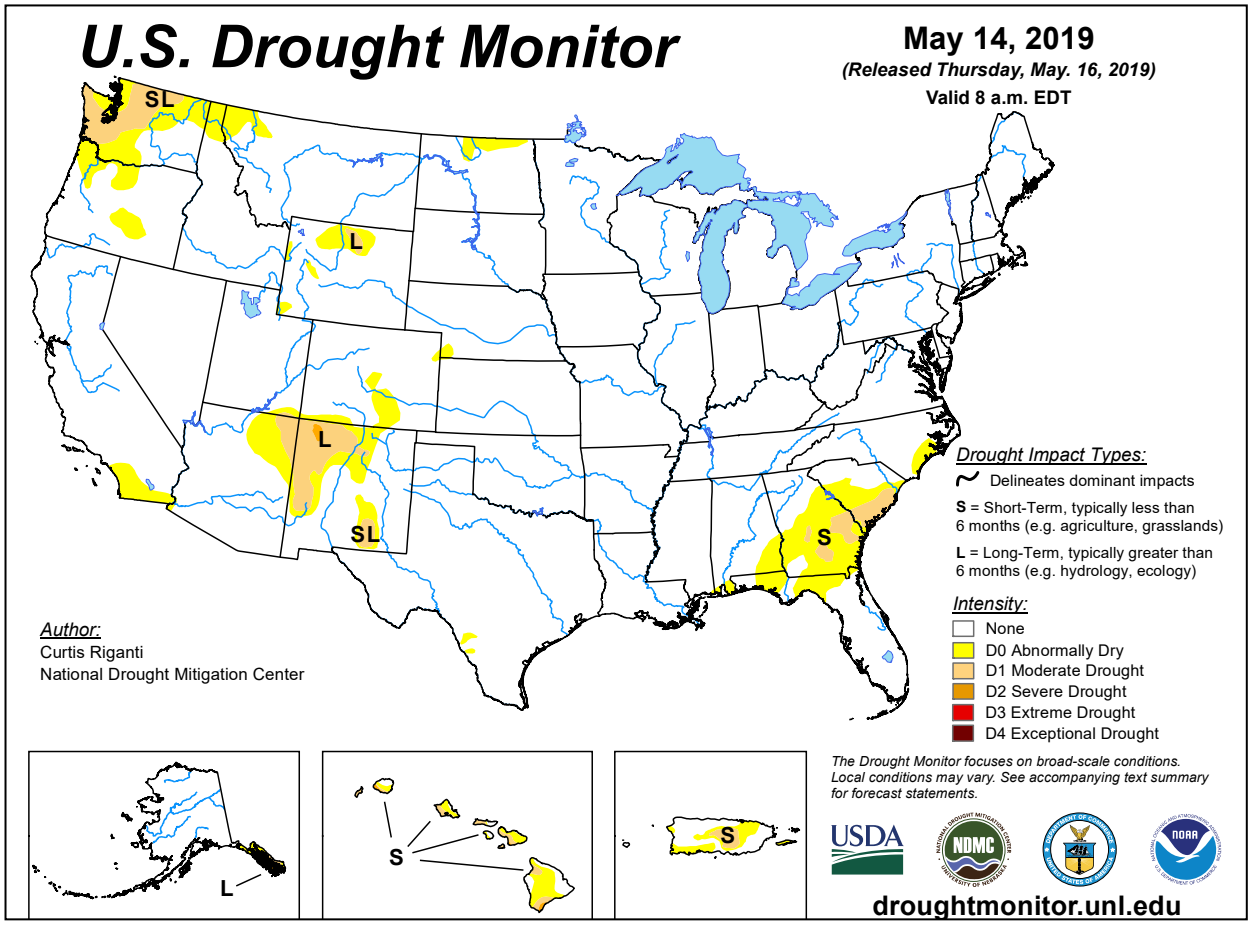
DEPICTS SHORT-TERM (UP TO 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

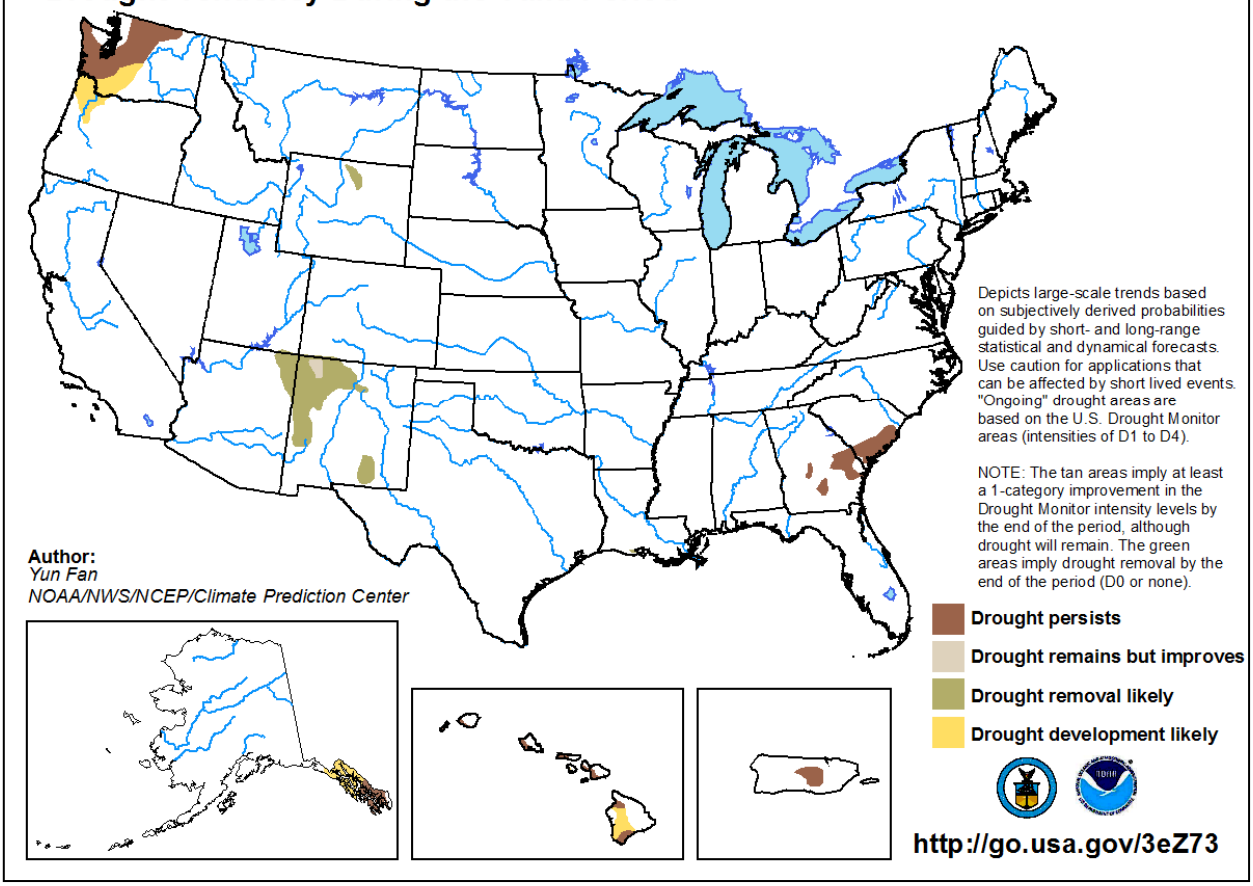
SHADED AREAS (INDEX INCREASED OR DID NOT CHANGE)

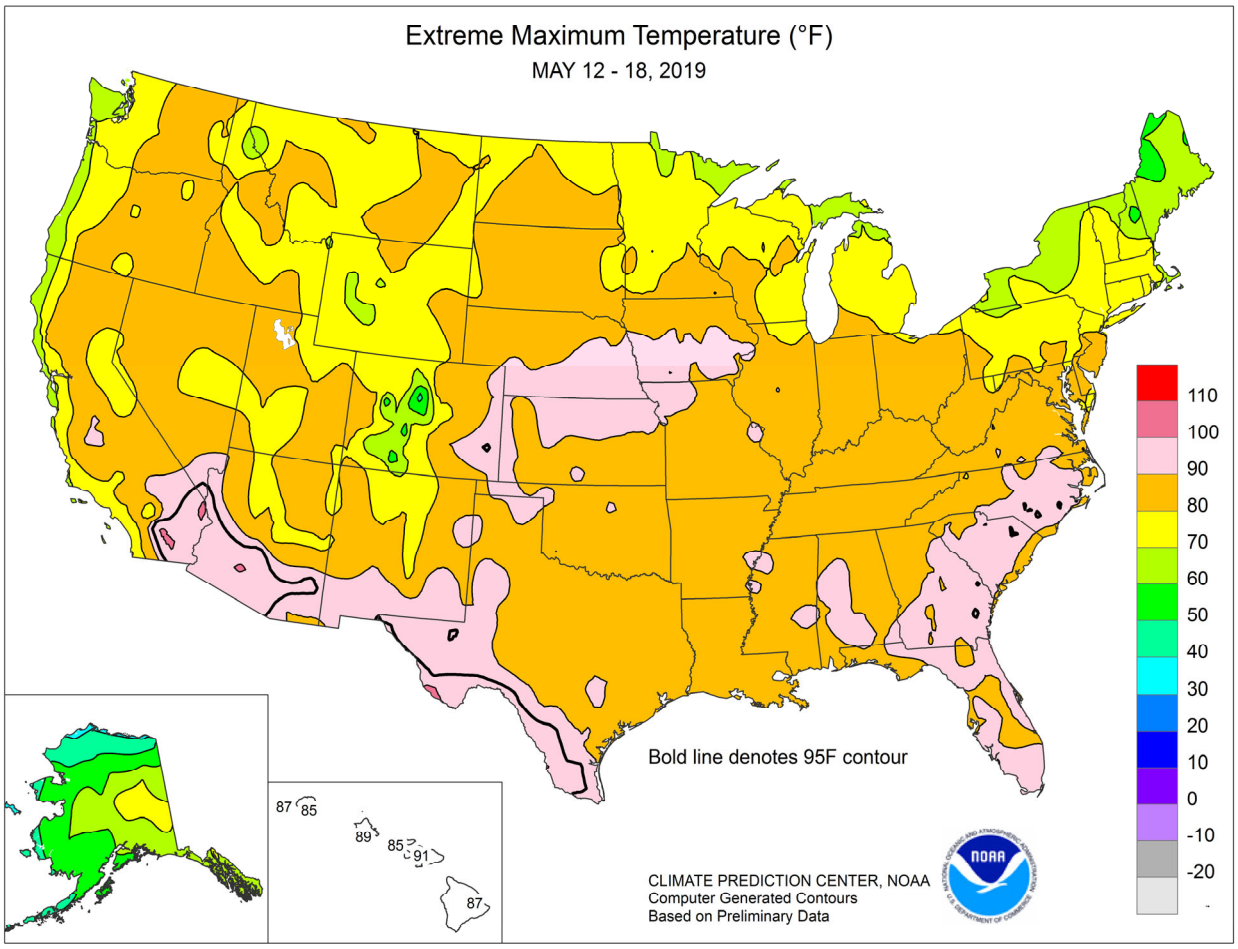
ABOVE 3	EXCESSIVELY WET. SOME FIELDS FLOODED
2 TO 3	TOO WET. SOME STANDING WATER
1 TO 2	SOME FIELDS TOO WET, PROSPECTS ABOVE NORMAL
0 TO 1	MOISTURE ADEQUATE FOR PRESENT CROP NEEDS
0 TO -1	PROSPECTS IMPROVED BUT RAIN STILL NEEDED
-1 TO -2	SOME IMPROVEMENT BUT STILL ABNORMALLY DRY
-2 TO -3	DRYNESS EASED BUT FIELDS STILL EXCESSIVELY DRY
-3 TO -4	SEVERE DRYNESS CONTINUES, MORE RAIN URGENTLY NEEDED
BELOW -4	NOT ENOUGH RAIN. EXTREMELY DRY

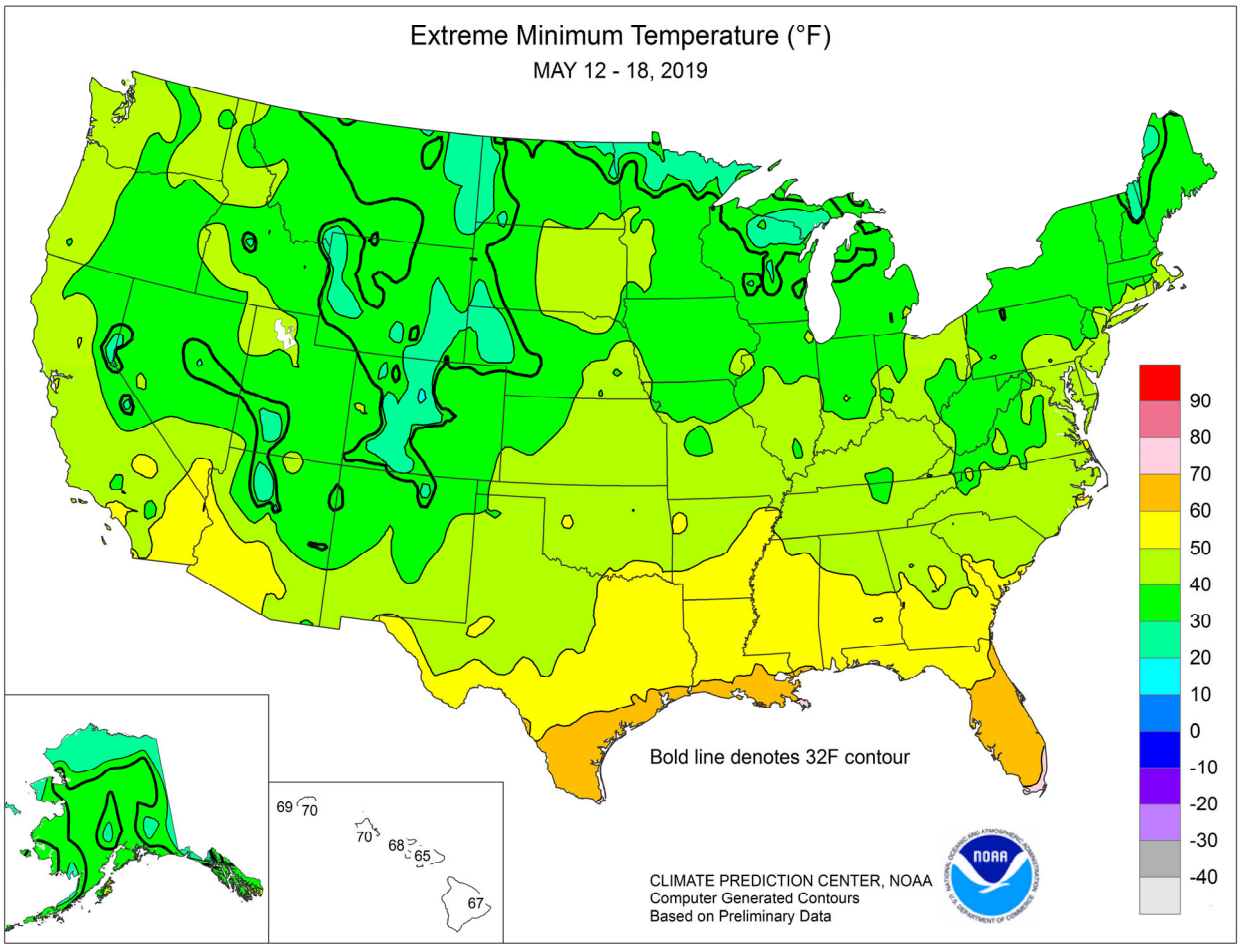
UNSHADED AREAS (INDEX DECREASED)

ABOVE 3	SOME DRYING BUT STILL EXCESSIVELY WET
2 TO 3	MORE DRY WEATHER NEEDED, WORK DELAYED
1 TO 2	FAVORABLE EXCEPT STILL TOO WET IN SPOTS
0 TO 1	FAVORABLE FOR NORMAL GROWTH AND FIELDWORK
0 TO -1	TOPSOIL MOISTURE SHORT, GERMINATION SLOW
-1 TO -2	ABNORMALLY DRY. PROSPECTS DETERIORATING
-2 TO -3	EXCESSIVELY DRY. YIELD PROSPECTS REDUCED
-3 TO -4	POTENTIAL YIELDS SEVERELY CUT BY DRYNESS
BELOW -4	EXTREMELY DRY. CROPS RUINED


U.S. Drought Monitor
May 14, 2019
(Released Thursday, May. 16, 2019)
Valid 8 a.m. EDT
SL
L
L
SL
S
S
S
L
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:
Curtis Riganti
National Drought Mitigation Center
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
USDA
NDMC
droughtmonitor.unl.edu

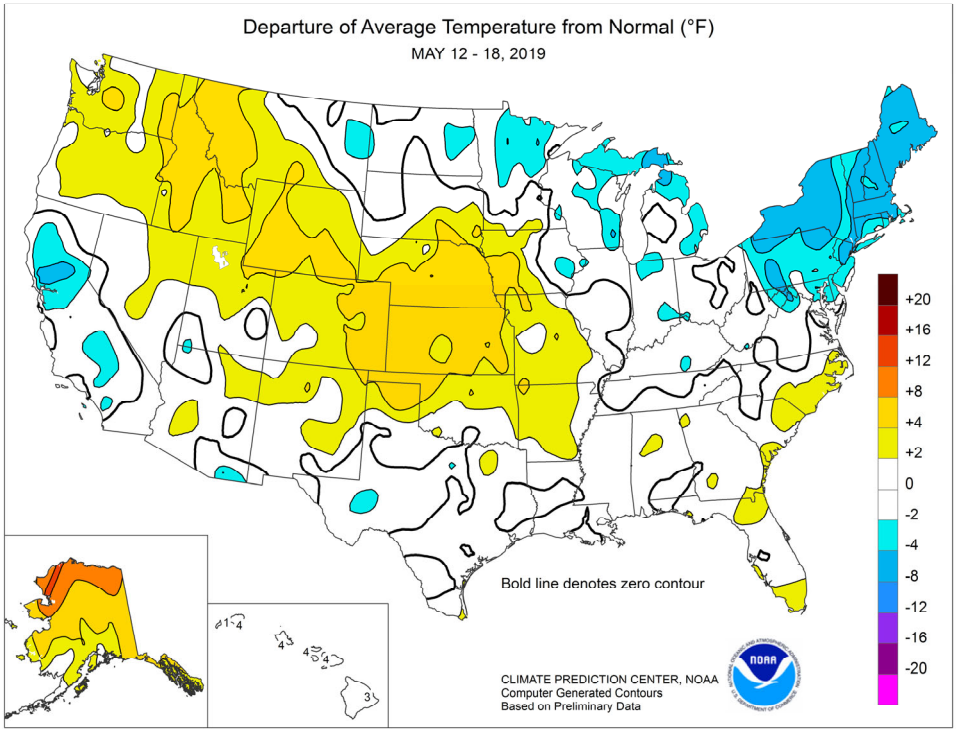

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for May 16 - August 31, 2019
Released May 16
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be 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
Author:
Yun Fan
NOAA/NWS/NCEP/Climate Prediction Center
http://go.usa.gov/3eZ73


Extreme Maximum Temperature (°F)
MAY 12 - 18, 2019
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
87
85
89
85
91
87
Bold line denotes 95F contour
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data


Extreme Minimum Temperature (°F)
MAY 12 - 18, 2019
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
69
70
70
68
65
67
Bold line denotes 32F contour
CLIMATE PREDICTION CENTER, NOAA
Computer Generated Contours
Based on Preliminary Data

(Continued from front cover)

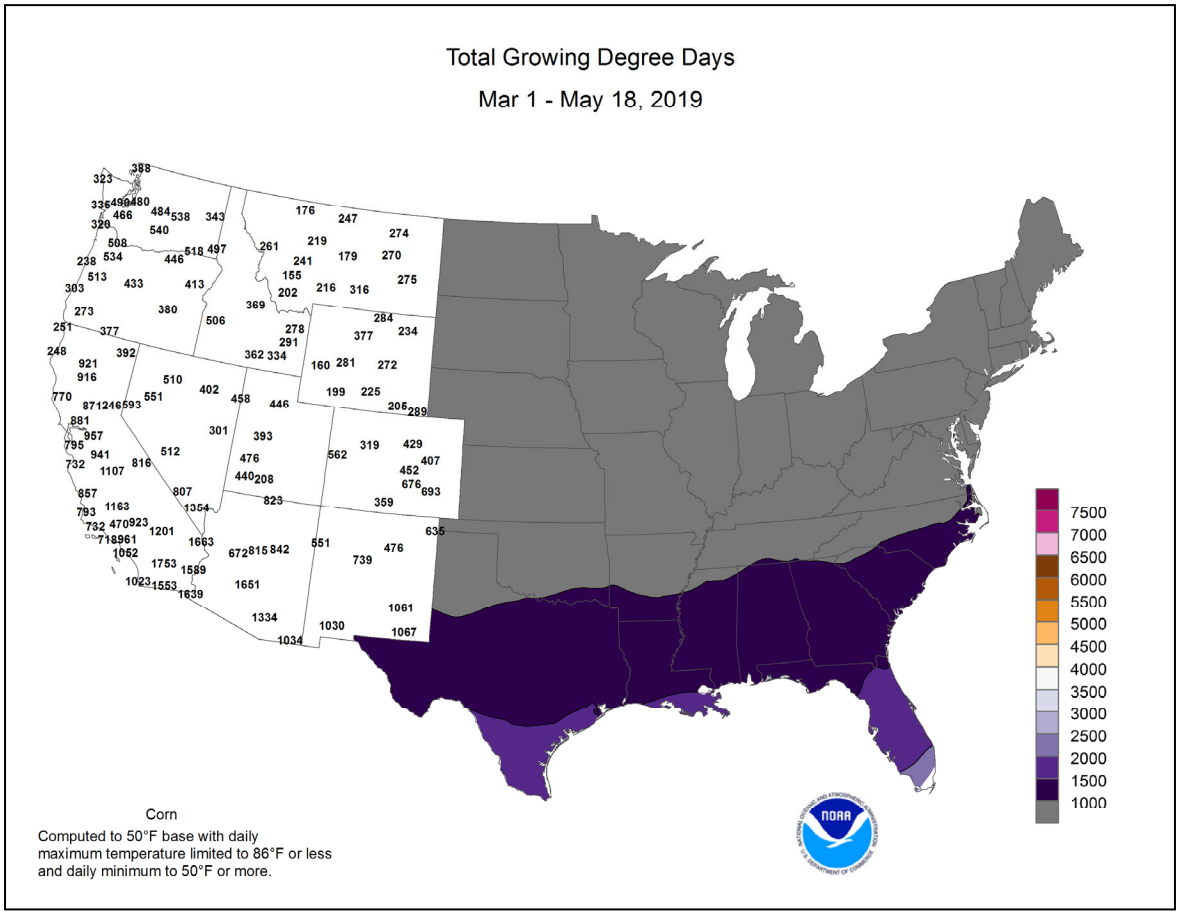
and other fieldwork. In contrast, several days of warm, dry weather on the **central and southern Plains** promoted a rapid pace of fieldwork and crop development. Warmth, accompanied by several days of mostly dry weather, also extended into the **Southeast**. Near- or above-normal temperatures covered much of the country, with readings averaging at least 5°F above normal in many locations from the **northern Rockies to the central Plains**. Cooler-than-normal conditions prevailed, however, in much of **California** and from portions of the **Great Lakes region into the Northeast**. Elsewhere, out-of-season storminess accompanied the surge of cool air into **California**, with significant precipitation—including high-elevation snow—occurring across the northern half of the state. Unseasonably showery weather also affected many other areas of the **western U.S.**, particularly from the **Pacific Northwest to the northern Rockies**.

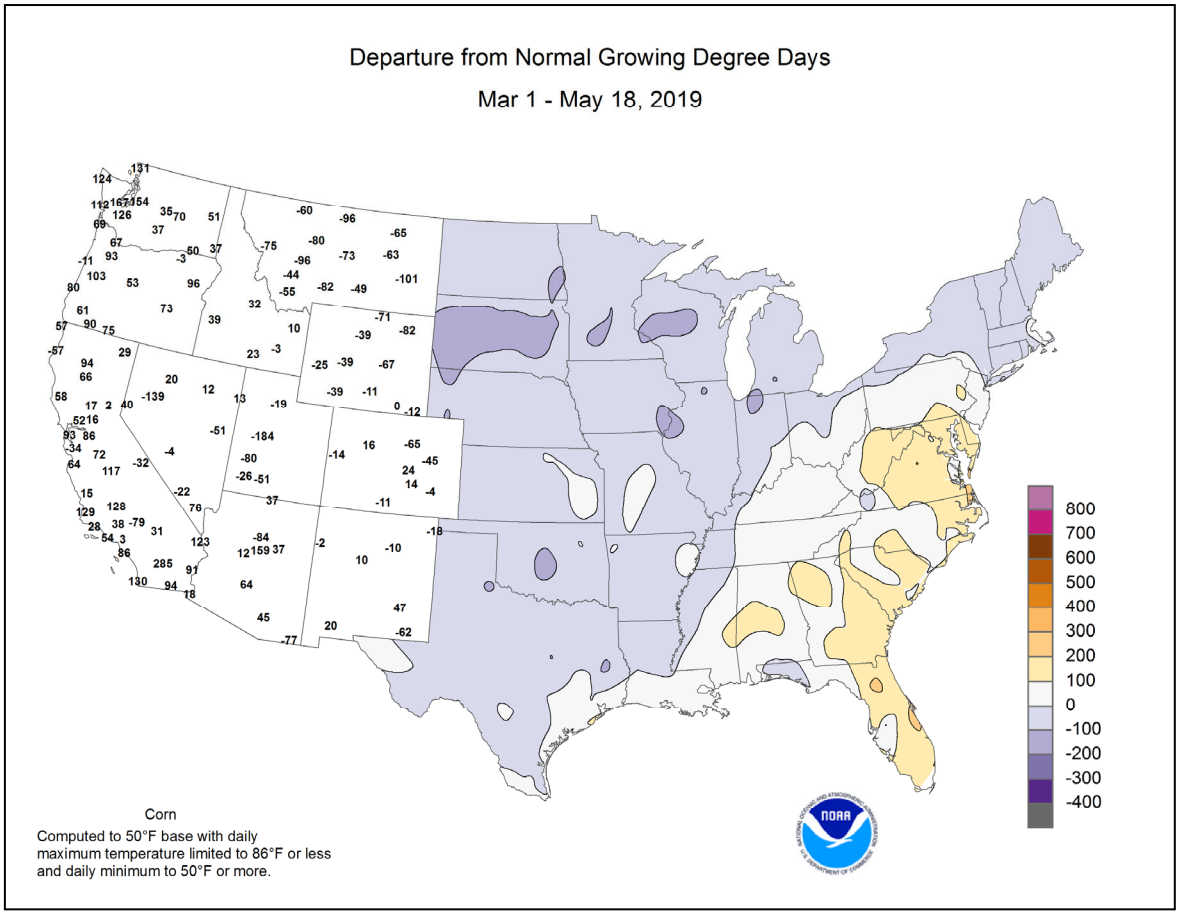


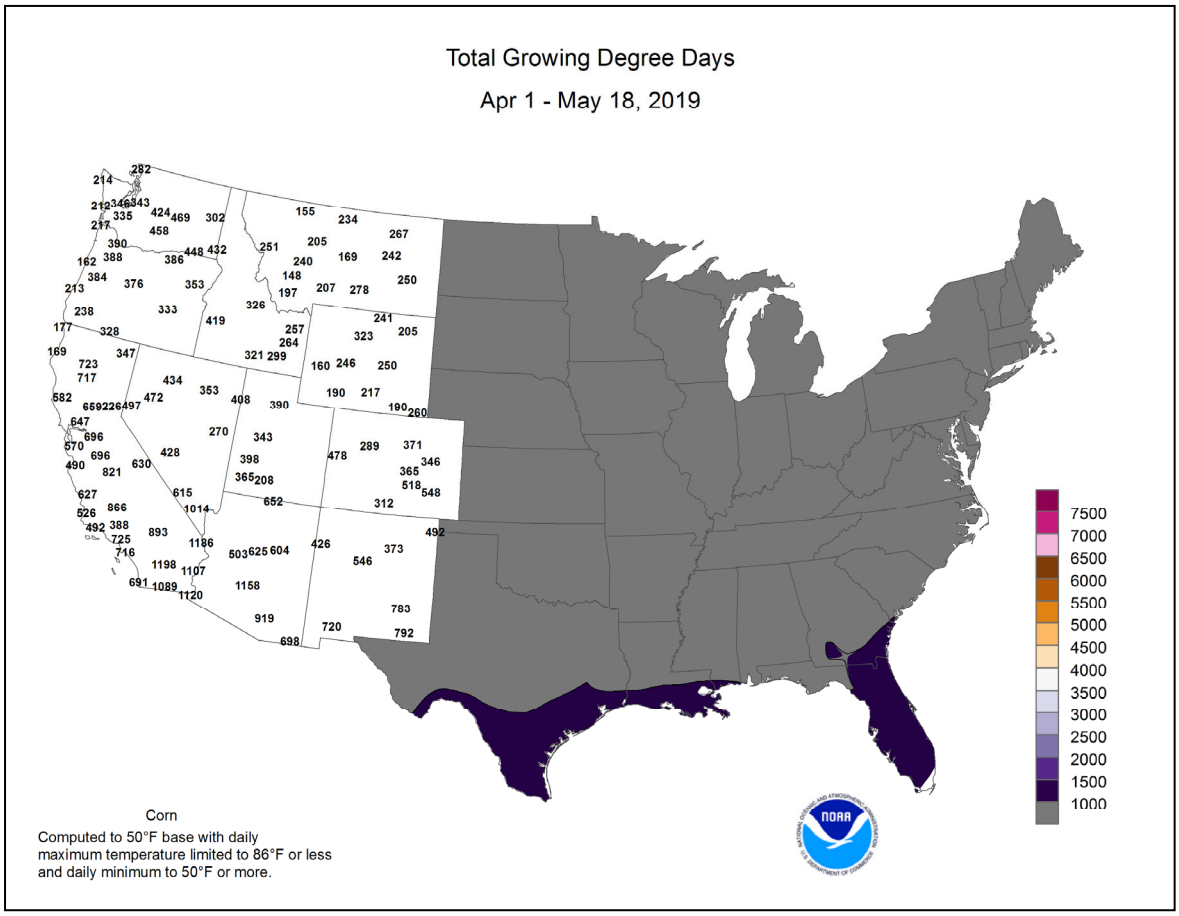
A brief period of drier weather allowed many rivers in the **upper and middle Mississippi Valley** to continue falling. On May 16, the **Mississippi River at Burlington, IA**, finally fell below the major flood stage of 18 feet. The 62 days (March 16 – May 16) that the **Burlington** gauge experienced major flooding shattered the June-August 1993 record of 41 days. Farther east, early-week rainfall soaked the **Mid-Atlantic States** and **southern New England**. In Pennsylvania, record-setting rainfall totals for May 12 included 1.66 inches in **Williamsport** and 1.46 inches in **Allentown**. Cool, showery **Northeastern** conditions lingered for several days, as maximum temperatures failed to reach the 50-degree mark from May 12-14 in **Binghamton, NY** (46, 41, and 44°F). **Mount Washington, NH**, **New England's** highest peak, received 2.9 inches of snow on May 13-14. Meanwhile, heavy precipitation developed in **northern California**, starting on May 15. **Mount Shasta, CA**, received 3.25 inches on May 15-16. Rain reached **southern California** by the 16th, when daily-record totals included 0.90 inch in **Santa Barbara** and 0.67 inch in **Camarillo**. **California's Central Valley** also received notable rainfall, with 0.76 inch falling in **Fresno** on May 16. Toward week's end, heavy showers developed across the **Plains** and **upper Midwest**. Record-setting rainfall totals for May 18 reached 2.18 inches in **Dallas-Fort Worth, TX**, and 2.02 inches in **Cedar Rapids, IA**.

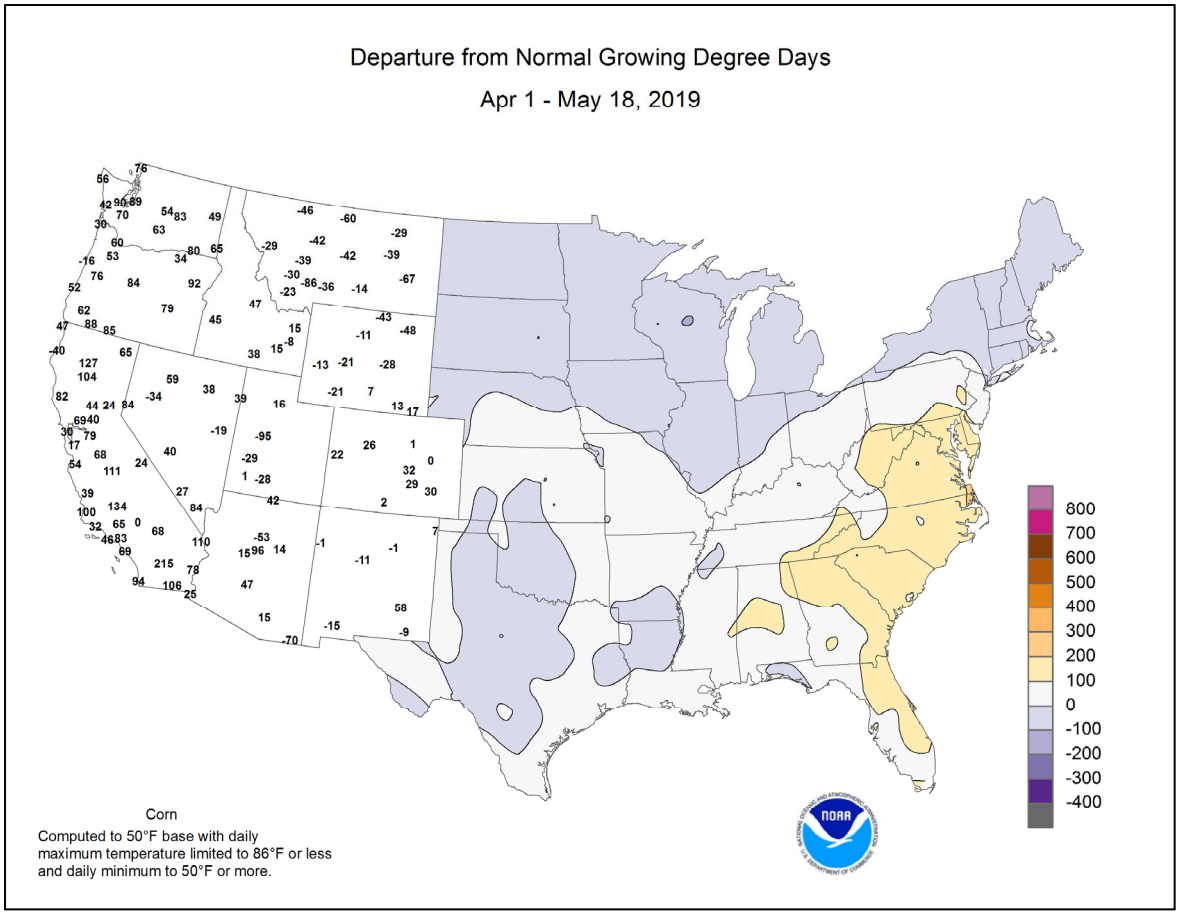
The early-week **Northeastern** cool spell extended to the **Midwest**, where maximum temperatures on May 12 did not top the 50-degree mark in **Indianapolis, IN** (49°F), and **Springfield, IL** (50°F). In contrast, very hot weather persisted across **southern Florida**, where **Miami** collected consecutive daily-record highs (94 and 95°F, respectively) on May 13-14. **Key West, FL**, set a monthly record with a high of 94°F on May 14, edging a mark originally set with a reading of 93°F on May 31, 1881. Farther west, fleeting warmth in advance of a cold front pushed temperatures to 90°F or higher on May 16 across the **central Plains** and **western Corn Belt**. Daily-record highs for the 16th rose to 95°F in **Omaha, NE**, and 93°F in **Concordia, KS**, and **Saint Joseph, MO**. Record-setting warmth expanded into the **Southeast** by May 17, when highs soared to 95°F in **Florence, SC**, and 93°F in **Tuscaloosa, AL**. **Wilmington, NC**, posted a daily-record high of 94°F on May 18. On the same date but on the opposite side of the country, **Lancaster, CA**, logged a daily-record low of 38°F. By the morning of May 19, daily-record lows on the **High Plains** dipped to 32°F in **Pueblo, CO**, and 34°F in **Dalhart, TX**.

Warmer-than-normal weather again prevailed in **Alaska**, with weekly temperatures averaging more than 10°F above normal across the state's northern tier. On May 14, **Kotzebue** noted a daily-record high of 54°F. **Kotzebue's** snow depth decreased to 7 inches by May 18, down from a seasonal peak of 42 inches from March 7-22. Meanwhile, **Alaskan** precipitation was mostly limited to southern and western locations. Still, drought at various time scales continued in **southeastern Alaska**, where **Ketchikan's** month-to-date rainfall through May 18 totaled just 2.03 inches (45 percent of normal). Farther south, widely scattered showers accompanied **Hawaiian** warmth. On the **Big Island**, **Hilo** posted consecutive daily record-tying highs (85 and 86°F, respectively) on May 12-13. Similarly, **Honolulu, Oahu**, registered a pair of daily record-tying highs of 89°F on May 16 and 17. On **Maui**, **Kahului** notched a daily-record high of 91°F on May 18. Meanwhile, **Hilo's** month-to-date rainfall through May 18 totaled just 1.14 inches (22 percent of normal).


Total Growing Degree Days
Mar 1 - May 18, 2019
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.

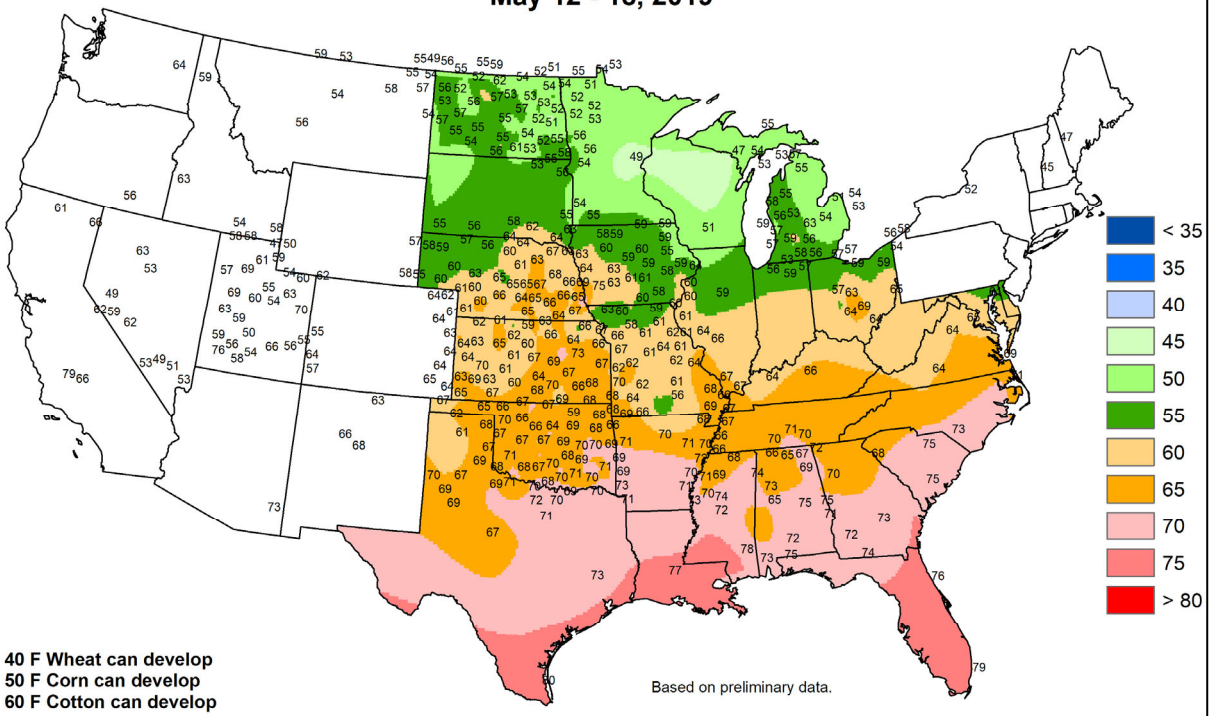

Departure from Normal Growing Degree Days
Mar 1 - May 18, 2019
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.


Total Growing Degree Days
Apr 1 - May 18, 2019
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.


Departure from Normal Growing Degree Days
Apr 1 - May 18, 2019
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
Corn
Computed to 50°F base with daily maximum temperature limited to 86°F or less and daily minimum to 50°F or more.

Average Soil Temperature (Deg. F, 4" Bare)

May 12 - 18, 2019



40 F Wheat can develop
50 F Corn can develop
60 F Cotton can develop

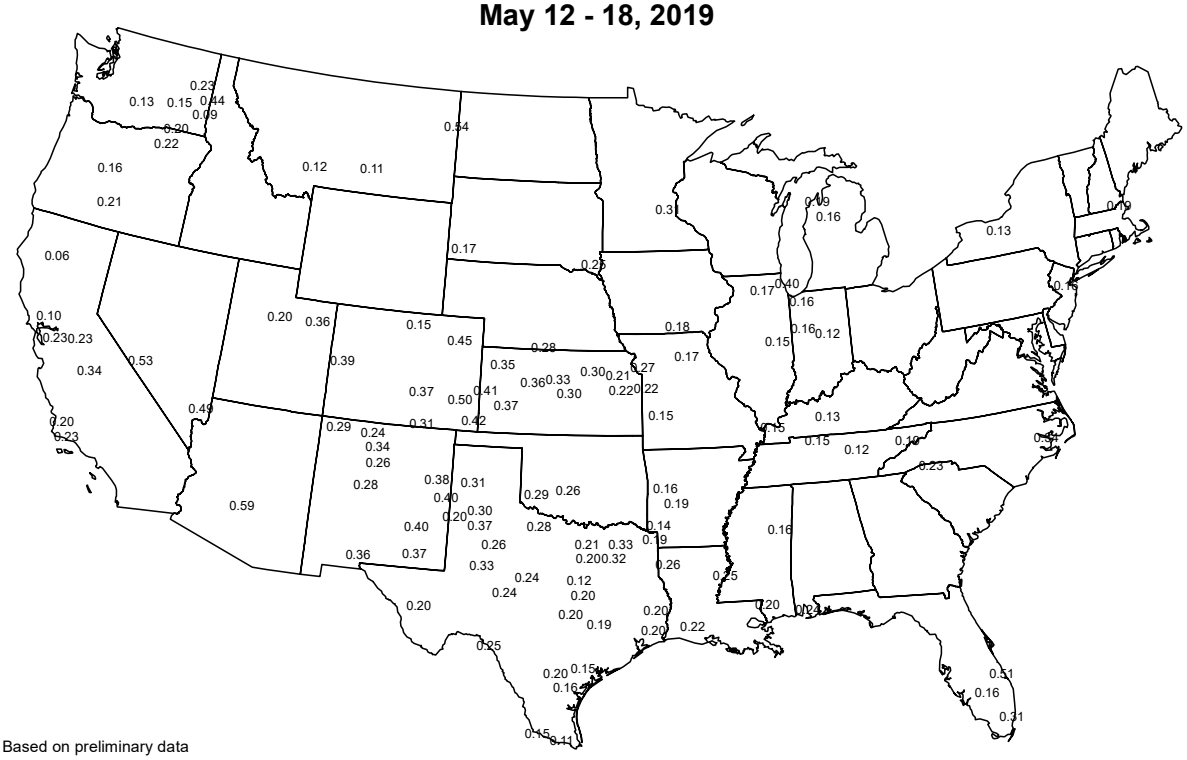
Based on preliminary data.

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

Average Pan Evaporation (inches/day)

May 12 - 18, 2019



Based on preliminary data

USDA Agricultural Weather Assessments

Data obtained from the NWS Cooperative Observer Network.

National Weather Data for Selected Cities

Weather Data for the Week Ending May 18, 2019

Data Provided by Climate Prediction Center

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 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	82	60	89	50	71	3	1.63	0.50	0.98	11.57	85	24.19	104	93	44	0	0	2	2
	HUNTSVILLE	80	58	90	49	69	1	0.49	-0.71	0.46	14.06	99	34.93	142	92	64	1	0	2	0
	MOBILE	85	63	88	58	74	1	1.01	-0.40	1.01	11.74	75	21.23	80	93	52	0	0	1	1
	MONTGOMERY	85	61	90	54	73	1	2.12	1.17	2.12	13.59	103	20.59	87	92	45	2	0	1	1
AK	ANCHORAGE	58	40	64	36	49	3	0.12	-0.01	0.12	2.37	160	4.05	140	78	59	0	0	1	0
	BARROW	33	26	38	21	30	11	0.00	0.00	0.00	0.94	392	2.57	547	94	81	0	7	0	0
	FAIRBANKS	67	43	75	35	55	7	0.37	0.28	0.35	1.62	238	3.06	191	68	39	0	0	2	0
	JUNEAU	63	40	69	32	51	4	0.38	-0.39	0.31	7.68	91	17.38	101	95	66	0	1	4	0
	KODIAK	51	43	56	42	47	4	0.69	-0.74	0.23	15.23	106	23.31	83	86	71	0	0	7	0
	NOME	47	34	53	30	41	5	0.35	0.21	0.20	3.36	210	7.19	220	90	76	0	3	5	0
AZ	FLAGSTAFF	65	35	71	26	50	0	0.05	-0.14	0.05	4.85	109	13.75	150	84	26	0	2	1	0
	PHOENIX	91	67	100	61	79	1	0.03	0.00	0.03	0.43	31	2.96	99	43	21	4	0	1	0
	PRESCOTT	73	45	80	38	59	2	0.02	-0.14	0.01	2.01	65	8.44	129	71	21	0	0	2	0
	TUCSON	86	58	96	52	72	-1	0.11	0.05	0.11	1.90	154	5.02	162	55	26	3	0	1	0
AR	FORT SMITH	83	59	88	50	71	2	0.51	-0.69	0.51	13.92	129	22.91	145	93	47	0	0	1	1
	LITTLE ROCK	83	59	88	49	71	2	1.21	0.05	1.18	20.75	155	31.94	157	93	45	0	0	2	1
CA	BAKERSFIELD	80	58	89	50	69	-1	0.68	0.64	0.44	3.12	161	5.70	132	70	44	0	0	2	0
	FRESNO	77	57	90	51	67	-1	1.04	0.97	0.81	2.71	87	8.20	111	72	47	1	0	3	1
	LOS ANGELES	69	58	73	54	64	1	0.29	0.24	0.29	2.43	78	12.37	134	82	65	0	0	1	0
	REDDING	72	55	88	49	63	-2	1.57	1.20	0.52	12.98	153	28.77	140	82	59	0	0	4	2
	SACRAMENTO	70	52	81	50	61	-4	2.21	2.10	0.94	6.74	164	18.40	160	91	52	0	0	4	3
	SAN DIEGO	69	61	72	57	65	1	0.02	-0.01	0.02	1.82	59	8.04	109	79	62	0	0	1	0
	SAN FRANCISCO	63	53	66	50	58	0	1.35	1.27	0.59	6.01	129	17.77	136	79	65	0	0	3	1
	STOCKTON	73	53	85	49	63	-3	1.34	1.23	0.63	4.35	124	11.24	129	78	54	0	0	3	1
CO	ALAMOSA	69	35	75	30	52	3	0.01	-0.13	0.01	3.00	222	4.53	250	80	24	0	2	1	0
	CO SPRINGS	75	43	82	33	59	5	0.03	-0.49	0.03	2.65	68	3.61	79	65	17	0	0	1	0
	DENVER INTL	76	45	83	37	61	7	0.06	-0.58	0.03	3.69	109	5.16	134	72	23	0	0	2	0
	GRAND JUNCTION	77	49	85	41	63	4	0.03	-0.19	0.02	3.85	159	5.29	150	57	27	0	0	2	0
	PUEBLO	82	42	90	33	62	3	0.00	-0.33	0.00	1.74	57	2.48	68	67	17	1	0	0	0
CT	BRIDGEPORT	63	47	72	43	55	-3	1.74	0.83	1.20	12.21	117	19.80	116	82	59	0	0	6	2
	HARTFORD	65	45	77	40	55	-4	1.56	0.58	0.95	13.94	137	22.99	135	80	51	0	0	4	1
DC	WASHINGTON	72	54	84	50	63	-2	1.31	0.44	0.59	10.20	121	17.02	119	85	53	0	0	4	1
DE	WILMINGTON	68	51	81	42	60	-1	2.03	1.08	1.07	11.01	113	18.84	118	90	54	0	0	4	2
FL	DAYTONA BEACH	84	66	91	63	75	1	0.43	-0.19	0.43	6.36	82	11.16	82	100	57	1	0	1	0
	JACKSONVILLE	87	63	91	58	75	2	0.07	-0.65	0.07	6.36	72	12.56	80	90	47	2	0	1	0
	KEY WEST	88	78	94	75	83	3	0.54	-0.16	0.43	7.65	139	10.69	116	82	67	1	0	2	0
	MIAMI	89	75	95	72	82	3	0.80	-0.27	0.59	9.24	111	12.77	104	81	56	3	0	3	1
	ORLANDO	86	68	90	65	77	0	2.68	1.96	1.27	6.36	85	11.62	95	87	59	1	0	3	2
	PENSACOLA	84	66	87	61	75	1	1.75	0.82	1.36	9.79	79	14.90	66	92	53	0	0	2	1
	TALLAHASSEE	87	61	91	54	74	0	0.85	-0.19	0.77	7.72	62	12.31	55	93	49	3	0	3	1
	TAMPA	88	71	91	68	80	3	1.67	1.13	1.55	8.13	139	15.25	141	80	50	2	0	2	1
	WEST PALM BEACH	86	72	90	70	79	1	1.69	0.59	1.19	9.56	98	20.87	130	81	62	1	0	3	1
GA	ATHENS	81	57	91	48	69	1	0.24	-0.61	0.21	7.08	68	16.03	82	88	55	1	0	2	0
	ATLANTA	80	60	88	51	70	1	0.31	-0.60	0.31	10.79	96	21.16	101	80	52	0	0	1	0
	AUGUSTA	84	59	94	50	71	1	0.54	-0.09	0.54	8.94	99	14.48	82	91	52	2	0	1	1
	COLUMBUS	83	62	89	53	72	0	1.35	0.52	1.13	10.41	89	17.56	84	90	41	0	0	2	1
	MACON	84	57	93	48	71	1	0.73	0.08	0.73	5.90	61	13.42	70	93	44	2	0	1	1
	SAVANNAH	86	64	93	55	75	3	0.18	-0.54	0.11	7.00	80	10.44	67	84	51	2	0	2	0
HI	HILO	85	69	87	67	77	3	0.26	-1.61	0.24	19.32	60	31.82	63	83	68	0	0	2	0
	HONOLULU	88	74	89	70	81	4	0.06	-0.11	0.02	0.63	18	3.13	37	81	65	0	0	2	0
	KAHULUI	88	71	91	65	79	4	0.35	0.20	0.27	1.88	41	9.38	88	83	70	1	0	4	0
	LIHUE	84	74	85	70	79	4	0.15	-0.52	0.04	4.82	58	8.28	51	80	75	0	0	6	0
ID	BOISE	72	52	87	46	62	4	0.75	0.47	0.54	4.05	118	8.84	149	68	42	0	0	2	1
	LEWISTON	75	52	87	50	64	6	0.58	0.24	0.47	3.73	114	7.72	144	74	52	0	0	2	0
	POCATELLO	71	42	82	35	57	4	0.44	0.10	0.21	3.72	109	7.32	132	70	40	0	0	5	0
IL	CHICAGO/O'HARE	69	46	80	41	58	0	0.96	0.24	0.41	12.19	148	17.06	147	84	60	0	0	4	0
	MOLINE	72	47	91	40	60	-1	2.10	1.18	0.97	12.27	136	19.05	157	87	64	1	0	4	2
	PEORIA	74	49	89	41	62	1	1.25	0.31	1.05	14.06	160	19.71	165	94	51	0	0	5	1
	ROCKFORD	69	45	78	37	57	-2	0.69	-0.17	0.52	9.92	121	16.22	148	82	55	0	0	3	1
	SPRINGFIELD	74	53	89	41	64	1	0.34	-0.56	0.28	13.32	152	19.35	159	96	48	0	0	3	0
IN	EVANSVILLE	74	54	88	43	64	-1	0.07	-1.08	0.07	14.96	128	26.35	149	95	63	0	0	1	0
	FORT WAYNE	70	48	86	38	59	0	0.71	-0.10	0.29	10.98	130	15.52	125	91	52	0	0	4	0
	INDIANAPOLIS	70	51	85	41	61	-1	0.87	-0.11	0.67	12.95	136	20.44	142	92	55	0	0	4	1
	SOUTH BEND	68	43	85	34	55	-3	1.27	0.53	0.55	10.94	129	15.93	125	92	61	0	0	5	1
IA	BURLINGTON	71	51	90	41	61	-1	1.11	0.13	0.37	9.37	105	13.98	119	92	55	1	0	5	0
	CEDAR RAPIDS	69	45	90	35	57	-3	3.10	2.28	2.02	9.28	124	14.15	147	98	63	1	0	4	2
	DES MOINES	74	51	91	35	63	2	3.07	2.15	1.58	8.58	106	12.39	120	91	66	1	0	5	3
	DUBUQUE	69	45	85	36	57	-1	0.75	-0.15	0.72	7.71	93	14.36	130	87	58	0	0	2	1
	SIOUX CITY	76	51	90	37	64	4	0.18	-0.65	0.14	8.45	125	10.09	126	91	61	1	0	3	0
	WATERLOO	72	45	90	34	59	0	2.07	1.18	1.82	8.47	112	12.64	134	90	63	1	0	2	1
KS	CONCORDIA	81	56	93	43	69	7	2.20	1.26	1.14	9.21	132	11.58	138	84	50	1	0	2	2
	DODGE CITY	81	53	89	43	67	4	0.14	-0.51	0.09	5.62	99	7.23	104	80	39	0	0	2	0
	GOODLAND	82	47	91	37	65	8	0.19	-0.59	0.18	3.60	81	4.77	89	81	34	1	0	2	0
	TOPEKA	81	56	92	43	69	6	2.19	1.12	1.91	11.30	137	14.79	143	86	62	1	0	2	1

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending May 18, 2019

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
	WICHITA	82	58	89	48	70	6	0.23	-0.67	0.19	9.56	130	11.70	127	83	55	0	0	2	0
KY	JACKSON	72	52	86	45	62	-1	0.65	-0.52	0.41	8.73	79	21.86	120	96	55	0	0	3	0
	LEXINGTON	73	53	87	45	63	0	0.20	-0.87	0.17	8.71	81	20.45	118	80	57	0	0	2	0
	LOUISVILLE	75	55	90	47	65	0	0.03	-1.10	0.02	12.71	114	25.11	142	82	48	2	0	2	0
	PADUCAH	76	53	87	40	65	0	1.61	0.53	1.05	18.82	155	34.02	174	91	59	0	0	2	2
LA	BATON ROUGE	86	63	89	58	75	2	0.13	-1.07	0.09	19.42	141	26.32	105	95	46	0	0	2	0
	LAKE CHARLES	85	65	87	60	75	1	0.00	-1.35	0.00	17.66	171	25.58	134	93	52	0	0	0	0
	NEW ORLEANS	86	69	89	66	78	3	2.96	2.01	2.96	15.45	121	25.96	108	85	51	0	0	1	1
	SHREVEPORT	85	62	88	56	73	1	0.38	-0.79	0.35	14.85	129	22.49	111	91	48	0	0	2	0
ME	CARIBOU	55	37	61	34	46	-5	0.80	0.08	0.36	8.25	118	16.81	140	85	51	0	0	5	0
	PORTLAND	56	42	68	39	49	-4	0.99	0.13	0.43	9.94	93	19.42	108	82	56	0	0	4	0
MD	BALTIMORE	71	50	84	44	61	-1	1.61	0.73	0.68	10.52	116	17.71	114	87	59	0	0	4	2
MA	BOSTON	60	47	70	43	53	-4	1.61	0.89	0.83	11.49	123	18.86	114	84	54	0	0	5	1
	WORCESTER	57	41	72	36	49	-6	1.62	0.65	0.89	13.30	126	21.86	123	96	49	0	0	5	2
MI	ALPENA	60	37	71	32	49	-2	0.09	-0.49	0.09	8.71	148	13.84	154	81	50	0	1	1	0
	GRAND RAPIDS	69	47	78	40	58	1	0.65	-0.09	0.63	10.15	127	17.04	147	86	49	0	0	2	1
	HOUGHTON LAKE	64	38	74	31	51	-2	0.01	-0.53	0.01	8.21	145	13.22	155	83	42	0	1	1	0
	LANSING	68	44	76	36	56	0	0.43	-0.12	0.42	8.85	129	13.73	138	90	59	0	0	2	0
	MUSKEGON	66	45	80	34	56	1	0.34	-0.32	0.29	11.97	172	19.74	183	78	56	0	0	2	0
	TRAVERSE CITY	64	40	76	35	52	-2	0.05	-0.42	0.04	7.82	131	14.78	138	86	46	0	0	2	0
MN	DULUTH	63	41	75	36	52	1	2.31	1.70	1.73	9.66	185	12.74	178	78	49	0	0	5	2
	INT'L FALLS	64	38	73	29	51	-1	0.42	-0.08	0.31	4.41	127	7.35	148	88	36	0	1	3	0
	MINNEAPOLIS	69	48	82	40	59	1	1.35	0.68	0.79	10.32	180	13.84	183	81	48	0	0	5	1
	ROCHESTER	68	45	84	35	56	0	1.75	0.98	1.12	10.09	148	14.99	176	87	56	0	0	4	2
	ST. CLOUD	67	42	76	35	54	-2	2.19	1.62	2.11	9.87	199	12.23	194	90	39	0	0	2	1
MS	JACKSON	85	60	90	53	73	2	0.02	-1.11	0.01	18.57	125	28.21	113	91	42	1	0	2	0
	MERIDIAN	86	60	91	53	73	2	0.43	-0.71	0.43	20.64	132	32.74	122	90	51	3	0	1	0
	TUPELO	82	59	89	51	71	2	0.01	-1.30	0.01	16.95	117	37.97	156	86	51	0	0	1	0
MO	COLUMBIA	78	55	89	42	66	3	0.63	-0.47	0.44	11.17	110	18.13	128	88	46	0	0	2	0
	KANSAS CITY	77	56	89	43	67	4	2.55	1.31	2.02	13.11	148	17.34	153	89	54	0	0	2	2
	SAINT LOUIS	78	57	91	44	67	1	0.15	-0.79	0.12	16.01	166	22.50	160	81	55	1	0	2	0
	SPRINGFIELD	78	56	86	42	67	3	0.30	-0.69	0.30	11.97	113	17.71	118	84	58	0	0	1	0
MT	BILLINGS	70	48	86	34	59	4	1.33	0.77	0.74	4.96	117	7.91	141	74	45	0	0	4	1
	BUTTE	65	39	76	35	52	5	1.15	0.72	0.82	3.92	139	5.10	133	82	36	0	0	4	1
	CUT BANK	61	41	78	31	51	2	0.97	0.51	0.56	3.47	140	4.20	134	82	47	0	1	3	1
	GLASGOW	69	43	82	35	56	1	0.91	0.56	0.66	2.43	121	4.43	169	74	43	0	0	2	1
	GREAT FALLS	65	43	79	32	54	4	0.87	0.32	0.46	4.92	133	8.48	173	87	48	0	1	3	0
	HAVRE	65	42	81	32	53	-1	1.00	0.61	0.39	2.54	103	4.44	135	90	60	0	1	5	0
	MISSOULA	70	47	82	41	58	6	1.53	1.10	0.94	4.95	163	7.60	156	75	49	0	0	4	1
NE	GRAND ISLAND	81	54	93	41	67	8	0.02	-0.89	0.01	9.37	138	10.82	135	83	47	1	0	2	0
	LINCOLN	81	56	94	39	68	7	1.65	0.69	1.50	7.85	106	10.83	123	84	53	1	0	4	1
	NORFOLK	80	52	91	39	66	7	0.05	-0.80	0.04	9.26	140	10.96	138	85	53	1	0	2	0
	NORTH PLATTE	81	43	89	30	62	5	0.44	-0.31	0.36	7.02	140	7.78	132	90	36	0	1	3	0
	OMAHA	81	58	95	46	70	9	0.59	-0.42	0.37	7.22	96	10.37	114	84	52	2	0	4	0
	SCOTTSBLUFF	76	41	86	31	58	2	0.24	-0.35	0.23	8.96	204	9.62	175	91	48	0	1	2	0
	VALENTINE	75	47	90	40	61	4	0.43	-0.29	0.41	7.84	162	9.06	161	83	45	1	0	2	0
NV	ELY	65	36	76	30	50	1	0.69	0.39	0.36	6.91	260	9.56	230	69	32	0	4	2	0
	LAS VEGAS	85	65	93	55	75	1	0.00	-0.06	0.00	1.42	167	4.51	212	37	20	3	0	0	0
	RENO	71	48	86	40	59	3	0.00	-0.13	0.00	1.37	92	8.13	225	53	32	0	0	0	0
	WINNEMUCCA	71	40	86	33	55	1	0.45	0.23	0.38	2.76	122	5.44	146	75	37	0	0	2	0
NH	CONCORD	61	41	72	37	51	-4	0.62	-0.12	0.40	8.19	102	14.73	111	87	44	0	0	3	0
NJ	NEWARK	67	49	80	43	58	-4	2.64	1.59	1.45	12.63	117	20.31	115	82	63	0	0	6	2
NM	ALBUQUERQUE	78	52	85	44	65	1	0.00	-0.11	0.00	1.94	140	3.11	134	53	19	0	0	0	0
NY	ALBANY	62	45	73	40	53	-4	1.27	0.47	0.59	8.40	100	15.37	118	82	51	0	0	5	1
	BINGHAMTON	57	41	69	37	49	-6	2.03	1.26	0.88	10.44	123	16.67	123	90	73	0	0	6	2
	BUFFALO	58	43	69	40	50	-6	0.89	0.18	0.35	8.47	109	17.46	130	92	63	0	0	4	0
	ROCHESTER	59	42	70	39	51	-5	0.66	0.07	0.37	6.57	96	12.04	108	82	68	0	0	5	0
	SYRACUSE	60	42	69	39	51	-5	2.14	1.40	1.39	10.11	121	16.21	124	94	60	0	0	6	1
NC	ASHEVILLE	75	52	85	44	63	2	0.14	-0.82	0.14	14.95	144	27.14	148	86	53	0	0	1	0
	CHARLOTTE	80	55	91	45	67	-1	0.63	-0.18	0.63	11.57	125	22.10	131	86	41	1	0	1	1
	GREENSBORO	77	54	89	46	66	1	0.83	-0.08	0.53	9.59	100	19.49	120	89	45	0	0	3	1
	HATTERAS	77	64	85	58	71	4	2.92	2.06	2.24	15.68	153	25.69	128	89	62	0	0	2	2
	RALEIGH	78	55	91	43	66	0	2.62	1.75	1.32	13.32	150	21.01	128	90	62	1	0	2	2
	WILMINGTON	84	61	94	48	73	4	0.18	-0.80	0.18	7.24	77	11.07	63	85	44	1	0	1	0
ND	BISMARCK	68	45	86	39	56	1	1.10	0.62	0.85	3.84	111	5.64	128	81	55	0	0	3	1
	DICKINSON	64	40	83	31	52	-2	1.36	0.91	0.70	4.06	114	6.45	148	83	39	0	2	4	2
	FARGO	67	43	82	36	55	-1	0.81	0.28	0.63	4.66	125	7.23	142	86	39	0	0	3	1
	GRAND FORKS	67	39	79	26	53	-3	0.06	-0.39	0.05	3.59	114	6.46	146	80	31	0	1	2	0
	JAMESTOWN	65	41	82	35	53	-3	0.67	0.21	0.41	4.15	124	5.98	133	90	39	0	0	2	0
	WILLISTON	67	40	81	26	54	0	0.63	0.23	0.61	1.92	71	3.85	106	77	45	0	1	2	1
OH	AKRON-CANTON	69	48	84	42	58	0	0.47	-0.44	0.42	9.23	105	16.64	122	78	58	0	0	3	0
	CINCINNATI	71	50	86	41	61	-2	0.33	-0.68	0.20	13.76	133	25.10	157	85	61	0	0	3	0
	CLEVELAND	67	48	85	44	58	1	0.55	-0.21	0.44	8.87	107	16.03	123	83	55	0	0	3	0
	COLUMBUS	70	50	86	42	60	-2	1.15	0.29	0.92	11.51	139	20.09	154	89	52	0	0	5	1
	DAYTON	70	51	86	43	61	1	1.53	0.62	1.26	11.54	119	21.94	151	85	53	0	0	4	1
	MANSFIELD	68	48	85	42	58	1	0.54	-0.42	0.19	10.42	104	17.89	121	93	58	0	0	5	0

Based on 1971-2000 normals

***** Not Available**

Weather Data for the Week Ending May 18, 2019

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
	TOLEDO	69	46	82	38	58	-1	0.78	0.12	0.36	10.46	138	14.83	130	84	58	0	0	4	0
	YOUNGSTOWN	67	46	82	43	56	-1	0.78	0.01	0.60	10.45	125	17.91	141	84	63	0	0	4	1
OK	OKLAHOMA CITY	80	56	85	45	68	1	1.62	0.40	1.46	15.52	178	18.06	156	94	54	0	0	2	1
	TULSA	83	60	89	49	72	4	1.44	0.05	1.22	14.12	130	19.19	133	85	60	0	0	2	1
OR	ASTORIA	61	50	69	47	55	3	1.01	0.28	0.29	8.77	61	21.35	67	89	73	0	0	5	0
	BURNS	67	40	84	32	53	3	0.84	0.62	0.68	4.42	167	8.66	176	78	47	0	1	3	1
	EUGENE	66	49	75	44	57	3	1.38	0.77	0.67	9.81	88	21.04	84	89	75	0	0	5	1
	MEDFORD	69	50	84	45	60	3	0.42	0.14	0.37	4.37	113	12.36	146	80	36	0	0	3	0
	PENDLETON	70	47	81	41	59	2	0.71	0.43	0.28	3.62	118	8.47	147	78	51	0	0	4	0
	PORTLAND	68	52	75	50	60	3	0.44	-0.10	0.19	4.96	64	11.85	70	83	62	0	0	4	0
	SALEM	65	48	74	44	57	2	0.45	-0.03	0.23	7.26	88	17.28	90	92	68	0	0	5	0
PA	ALLENTOWN	67	47	79	40	57	-2	2.41	1.40	1.39	15.84	166	23.65	150	78	59	0	0	3	2
	ERIE	63	44	73	40	54	-3	0.52	-0.17	0.29	8.19	99	14.97	114	86	67	0	0	5	0
	MIDDLETOWN	68	51	81	45	59	-2	2.16	1.20	1.25	12.62	142	19.50	133	89	55	0	0	5	2
	PHILADELPHIA	68	52	82	46	60	-3	1.97	1.07	0.96	12.14	127	19.43	123	82	59	0	0	4	2
	PITTSBURGH	67	49	82	42	58	-1	0.67	-0.16	0.25	9.15	111	17.44	131	90	58	0	0	5	0
	WILKES-BARRE	64	44	78	40	54	-5	1.95	1.13	1.07	10.76	134	17.00	135	91	60	0	0	4	2
	WILLIAMSPORT	66	44	80	38	55	-4	2.09	1.26	1.63	10.74	122	18.01	126	88	66	0	0	4	1
RI	PROVIDENCE	62	44	75	41	53	-5	1.21	0.41	0.64	12.22	114	22.64	122	91	56	0	0	5	2
SC	CHARLESTON	84	62	92	50	73	2	1.43	0.70	0.75	5.23	62	7.59	49	91	45	2	0	3	2
	COLUMBIA	82	59	93	47	71	0	1.18	0.55	1.06	8.49	94	12.44	71	84	45	2	0	2	1
	FLORENCE	86	62	97	51	74	4	0.43	-0.27	0.43	8.23	98	12.74	82	83	35	2	0	1	0
	GREENVILLE	79	56	89	48	68	2	0.00	-1.05	0.00	8.79	77	21.04	105	86	42	0	0	0	0
SD	ABERDEEN	69	45	82	42	57	0	1.46	0.91	1.14	6.80	152	9.24	170	89	60	0	0	2	1
	HURON	70	48	82	40	59	2	2.00	1.35	1.51	10.84	195	12.92	196	94	56	0	0	3	1
	RAPID CITY	67	41	85	31	54	0	0.72	0.07	0.38	7.84	177	9.32	177	88	50	0	1	5	0
	SIOUX FALLS	73	49	83	41	61	4	0.90	0.17	0.35	11.14	178	13.66	188	90	68	0	0	6	0
TN	BRISTOL	75	51	89	39	63	1	1.22	0.24	0.78	11.20	117	25.96	158	93	46	0	0	3	1
	CHATTANOOGA	79	57	90	49	68	1	0.42	-0.55	0.42	16.16	126	34.47	149	91	52	1	0	1	0
	KNOXVILLE	76	54	88	44	65	0	1.42	0.35	0.90	13.53	114	31.59	155	90	49	0	0	3	1
	MEMPHIS	81	61	88	51	71	1	1.06	-0.13	1.06	16.91	116	30.44	132	89	50	0	0	1	1
	NASHVILLE	78	55	90	45	66	0	0.14	-1.02	0.14	11.38	98	29.79	155	86	46	1	0	1	0
TX	ABILENE	84	60	87	46	72	0	0.21	-0.38	0.21	10.06	227	11.16	171	91	63	0	0	1	0
	AMARILLO	82	52	88	42	67	3	0.00	-0.50	0.00	5.10	142	5.44	114	77	26	0	0	0	0
	AUSTIN	87	64	92	55	76	2	0.25	-0.88	0.25	14.33	197	18.20	163	88	54	1	0	1	0
	BEAUMONT	85	66	87	60	76	1	0.00	-1.26	0.00	12.48	118	22.00	112	88	56	0	0	0	0
	BROWNSVILLE	87	76	92	70	81	2	0.76	0.24	0.71	3.78	90	5.68	84	95	76	3	0	2	1
	CORPUS CHRISTI	85	71	90	64	78	1	1.11	0.37	1.11	7.22	131	9.63	107	91	70	1	0	1	1
	DEL RIO	88	68	99	57	78	1	0.14	-0.36	0.08	4.00	102	4.25	78	89	64	2	0	3	0
	EL PASO	86	62	96	54	74	1	0.06	0.00	0.06	0.49	78	0.71	48	45	15	2	0	1	0
	FORT WORTH	83	63	87	57	73	1	2.19	1.00	2.19	15.94	175	18.81	140	85	47	0	0	1	1
	GALVESTON	81	72	84	67	76	0	0.00	-0.80	0.00	9.22	128	17.10	123	87	65	0	0	0	0
	HOUSTON	85	66	87	59	75	0	0.09	-1.01	0.09	10.88	114	16.99	105	98	60	0	0	1	0
	LUBBOCK	84	56	93	47	70	2	0.00	-0.48	0.00	3.56	113	3.62	83	84	43	1	0	0	0
	MIDLAND	83	58	92	50	70	-2	1.84	1.44	1.84	5.13	247	5.27	165	93	65	1	0	1	1
	SAN ANGELO	83	58	87	46	70	-2	1.68	1.00	1.65	8.68	207	9.28	150	90	65	0	0	2	1
	SAN ANTONIO	84	66	89	57	75	0	0.85	-0.17	0.83	7.77	113	9.87	96	90	55	0	0	2	1
	VICTORIA	85	66	88	61	76	0	2.92	1.80	2.91	7.98	101	12.77	103	92	70	0	0	2	1
	WACO	83	60	88	51	72	-1	0.04	-0.99	0.04	12.97	162	18.55	150	93	63	0	0	1	0
	WICHITA FALLS	84	59	87	47	71	0	1.10	0.26	1.10	10.91	158	12.80	134	95	67	0	0	1	1
UT	SALT LAKE CITY	74	52	85	43	63	5	1.24	0.74	0.63	8.85	169	11.87	149	65	30	0	0	3	1
VT	BURLINGTON	62	45	77	40	53	-3	0.56	-0.18	0.24	8.10	115	13.72	125	84	44	0	0	3	0
VA	LYNCHBURG	76	48	88	38	62	0	0.40	-0.54	0.31	9.29	96	16.94	104	94	49	0	0	3	0
	NORFOLK	76	58	88	55	67	1	0.20	-0.64	0.10	8.73	91	17.23	102	85	52	0	0	4	0
	RICHMOND	76	54	88	44	65	0	1.22	0.32	0.53	10.72	113	18.33	115	89	65	0	0	5	1
	ROANOKE	77	53	91	43	65	2	0.58	-0.38	0.36	8.36	85	16.88	104	84	50	1	0	5	0
	WASH/DULLES	71	49	85	41	60	-1	1.07	0.14	0.56	11.41	126	18.87	127	85	57	0	0	4	1
WA	OLYMPIA	66	47	71	39	56	3	0.29	-0.21	0.14	4.36	42	14.40	60	92	78	0	0	4	0
	QUILLAYUTE	61	47	68	44	54	3	0.89	-0.38	0.31	10.70	49	31.77	66	96	80	0	0	5	0
	SEATTLE-TACOMA	66	51	71	48	59	4	0.36	-0.03	0.16	5.26	71	13.71	82	84	67	0	0	4	0
	SPOKANE	67	50	79	44	59	5	1.13	0.77	0.79	3.35	91	7.50	107	78	46	0	0	4	1
	YAKIMA	72	46	86	36	59	4	0.13	0.04	0.08	1.42	98	5.25	154	73	42	0	0	2	0
WV	BECKLEY	69	48	82	38	58	-1	2.06	1.05	0.93	10.62	111	22.08	140	88	65	0	0	4	2
	CHARLESTON	73	50	86	39	61	-1	2.49	1.51	1.57	10.44	110	19.57	123	95	51	0	0	3	2
	ELKINS	68	46	83	35	57	0	1.41	0.34	0.50	10.71	107	18.43	111	90	66	0	0	4	1
	HUNTINGTON	73	52	87	41	62	-1	1.43	0.43	0.82	9.86	103	19.04	120	91	53	0	0	3	2
WI	EAU CLAIRE	68	42	83	34	55	-2	0.35	-0.44	0.19	8.50	127	13.30	156	95	35	0	0	3	0
	GREEN BAY	65	44	78	36	55	0	0.28	-0.30	0.17	7.79	128	12.84	155	80	46	0	0	2	0
	LA CROSSE	71	48	84	39	60	0	2.23	1.50	1.13	9.27	127	14.47	153	86	40	0	0	3	2
	MADISON	68	43	77	33	55	-2	1.01	0.32	0.49	8.14	110	14.24	143	90	54	0	0	3	0
	MILWAUKEE	63	46	77	41	54	-1	0.94	0.29	0.46	8.55	105	14.33	123	75	61	0	0	3	0
WY	CASPER	71	39	79	31	55	4	0.52	-0.03	0.52	6.02	158	7.00	139	86	54	0	2	1	1
	CHEYENNE	70	40	79	31	55	5	0.76	0.20	0.75	6.75	171	7.60	157	73	34	0	2	2	1
	LANDER	70	43	78	34	56	4	0.01	-0.55	0.01	6.62	138	7.87	135	74	27	0	0	1	0
	SHERIDAN	69	40	81	32	55	3	0.75	0.22	0.41	5.89	144	7.30	134	83	60	0	1	3	0

Based on 1971-2000 normals ***** Not Available**

National Agricultural Summary

May 13 – 19, 2019

Weekly National Agricultural Summary provided by USDA/NASS

HIGHLIGHTS

Rain fell most heavily in parts of California, the Delta, Florida, the Mid Atlantic, and the Midwest. Parts of California received more than 4 inches of precipitation. Meanwhile, little or no rain fell in the Southwest, Wyoming, and Michigan. Weekly temperatures were more than 5°F below normal in the Northeast. Conversely, slightly warmer-than-normal weather settled across portions of Florida, Kansas, Nebraska, the Pacific Northwest, and the Rocky Mountains.

Corn: By May 19, producers had planted 49 percent of the nation's corn acreage, 29 percentage points behind last year and 31 points behind the 5-year average. Seventy percent of Iowa's intended corn acreage was planted by week's end, 13 percentage points behind last year and 19 points behind average. Nineteen percent of the nation's corn acreage had emerged by May 19, twenty-eight percentage points behind last year and 30 points behind average. Twenty percent of Iowa's corn had emerged by May 19, twenty-nine percentage points behind last year and 33 points behind average.

Soybeans: Nineteen percent of the nation's soybean acreage was planted by May 19, thirty-four percentage points behind last year and 28 points behind the 5-year average. In Illinois, 9 percent of the intended soybean acreage was planted by week's end, 70 percentage points behind last year and 42 points behind average. Five percent of the nation's soybean acreage had emerged by May 19, nineteen percentage points behind last year and 12 points behind average.

Winter Wheat: By May 19, fifty-four percent of the nation's winter wheat acreage had reached the headed stage, 5 percentage points behind last year and 12 points behind the 5-year average. On May 19, sixty-six percent of the 2019 winter wheat acreage was reported in good to excellent condition, 2 percentage points above of the previous week and 30 points above last year. In Kansas, 60 percent of the winter wheat was rated in good to excellent condition, an increase of 4 percentage points from last week.

Cotton: Nationwide, 44 percent of the cotton acreage had been planted by May 19, six percentage points behind last year and 1 point behind the 5-year average. In Texas, 39 percent of the 2019 cotton acreage was planted by May 19, two percentage points behind the previous year but 5 points ahead of average. Producers in Georgia had planted 61 percent of the intended acreage by week's end, 7 percentage points ahead of last year and 10 points ahead of average.

Sorghum: Twenty-six percent of the nation's sorghum acreage was planted by May 19, twelve percentage points behind both the previous year and the 5-year average. Producers in Texas had planted 79 percent of the state's intended sorghum acreage by week's end, 10 percentage points behind last year but equal to the 5-year average.

Rice: By May 19, producers had seeded 73 percent of the 2019 rice acreage, 19 percentage points behind last year and 17 points behind the 5-year average. In Arkansas, producers had seeded 67 percent of the intended acreage by week's end, 28 percentage points behind last year and 27 points behind average. By May 19, fifty-two percent of the nation's rice acreage had emerged, 20 percentage points behind last year and 23 points behind average.

Small Grains: Nationally, oat producers had seeded 77 percent of this year's acreage by May 19, seven percentage points behind the previous year and 13 points behind the 5-year average. Oat planting progress was behind average in all estimating states, except Texas, which has already finished planting. Fifty-three percent of the nation's oat acreage had emerged by May 19, eleven percentage points behind the previous year and 23 points behind average.

Seventy-six percent of the nation's barley was planted by May 19, two percentage points behind last year and 8 points behind the 5-year average. Seventy-three percent of Montana's intended acreage was planted by May 19, three percentage points ahead of last year but 14 points behind average. By May 19, thirty-nine percent of the nation's barley acreage had emerged, 3 percentage points behind the previous year and 18 points behind average.

By May 19, seventy percent of the spring wheat acreage was seeded, 6 percentage points behind last year and 10 points behind the 5-year average. Twenty-six percent of the nation's spring wheat acreage had emerged, 8 percentage points behind the previous year and 25 points behind average.

Other Crops: Nationally, peanut producers had planted 63 percent of the 2019 peanut acreage by May 19, three percentage points ahead of last year and 8 points ahead of the 5-year average. Producers in Georgia, the largest peanut-producing state, had planted 69 percent of the 2019 intended acreage by week's end, 6 percentage points ahead of last year and 9 points ahead of average.

By May 19, ninety percent of the sugarbeet acreage was planted, 3 percentage points behind last year but 1 point ahead of the 5-year average.

Three percent of the nation's intended 2019 sunflower acreage was planted by May 19, seven percentage points behind last year and 9 points behind the 5-year average.

Crop Progress and Condition

Week Ending May 19, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Corn Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
CO	63	39	63	69
IL	95	11	24	89
IN	86	6	14	73
IA	83	48	70	89
KS	80	46	61	80
KY	78	55	71	80
MI	48	5	19	54
MN	72	21	56	83
MO	95	52	62	92
NE	86	46	70	86
NC	95	88	93	95
ND	58	11	42	63
OH	69	4	9	62
PA	34	26	42	55
SD	60	4	19	76
TN	93	79	85	94
TX	87	75	92	84
WI	52	14	35	65
18 Sts	78	30	49	80

These 18 States planted 92% of last year's corn acreage.

Corn Percent Emerged

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
CO	28	7	12	29
IL	81	4	11	71
IN	57	1	4	45
IA	49	5	20	53
KS	53	26	37	53
KY	49	37	50	57
MI	20	0	1	21
MN	21	1	6	44
MO	81	31	44	77
NE	49	9	27	49
NC	87	71	80	87
ND	7	0	1	19
OH	41	1	3	35
PA	12	3	18	26
SD	13	0	0	30
TN	76	57	72	78
TX	79	64	75	74
WI	19	1	3	24
18 Sts	47	10	19	49

These 18 States planted 92% of last year's corn acreage.

Cotton Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AL	65	49	72	60
AZ	91	75	90	92
AR	87	25	50	83
CA	100	90	95	87
GA	54	42	61	51
KS	26	5	18	14
LA	85	38	66	83
MS	67	17	34	69
MO	91	22	34	77
NC	49	40	52	54
OK	38	8	10	29
SC	45	39	65	60
TN	71	35	50	60
TX	41	19	39	34
VA	56	36	56	58
15 Sts	50	26	44	45

These 15 States planted 99% of last year's cotton acreage.

Soybeans Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AR	78	21	31	65
IL	79	3	9	51
IN	70	2	6	43
IA	54	13	27	55
KS	47	7	17	29
KY	32	13	22	26
LA	92	53	67	85
MI	27	3	10	31
MN	43	3	22	57
MS	82	33	45	80
MO	58	5	9	38
NE	64	20	40	54
NC	36	25	36	32
ND	30	5	24	39
OH	47	2	4	35
SD	21	0	4	39
TN	47	20	31	37
WI	30	4	12	35
18 Sts	53	9	19	47

These 18 States planted 95% of last year's soybean acreage.

Soybeans Percent Emerged

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AR	57	14	20	50
IL	52	0	2	23
IN	34	NA	1	16
IA	16	1	3	13
KS	19	0	6	10
KY	11	NA	8	9
LA	81	32	46	72
MI	10	0	1	8
MN	3	NA	0	13
MS	63	23	32	63
MO	30	1	3	17
NE	22	1	7	14
NC	20	10	18	15
ND	1	NA	0	6
OH	19	NA	0	12
SD	2	NA	0	6
TN	22	4	14	15
WI	6	NA	0	7
18 Sts	24	NA	5	17

These 18 States planted 95% of last year's soybean acreage.

Peanuts Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AL	63	40	62	49
FL	66	50	74	62
GA	63	47	69	60
NC	48	32	45	46
OK	57	15	18	64
SC	52	47	70	61
TX	56	12	47	45
VA	47	30	53	49
8 Sts	60	40	63	55

These 8 States planted 96% of last year's peanut acreage.

Sorghum Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
CO	7	0	2	13
KS	7	1	3	6
NE	29	8	18	28
OK	29	12	13	38
SD	24	0	1	17
TX	89	75	79	79
6 Sts	38	24	26	38

These 6 States planted 97% of last year's sorghum acreage.

Crop Progress and Condition

Week Ending May 19, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Winter Wheat Percent Headed

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AR	99	88	93	99
CA	99	93	99	98
CO	31	6	18	35
ID	12	3	7	12
IL	70	35	64	75
IN	44	28	40	53
KS	67	35	61	83
MI	2	0	0	2
MO	81	51	70	84
MT	0	0	0	0
NE	4	2	8	27
NC	93	80	90	95
OH	25	6	15	33
OK	95	89	95	97
OR	43	2	11	31
SD	0	0	0	6
TX	91	87	95	94
WA	31	3	10	29
18 Sts	59	42	54	66

These 18 States planted 90% of last year's winter wheat acreage.

Winter Wheat Condition by Percent

	VP	P	F	G	EX
AR	1	6	32	53	8
CA	0	0	10	70	20
CO	1	3	22	58	16
ID	0	2	28	55	15
IL	8	14	40	34	4
IN	4	10	33	45	8
KS	2	8	30	46	14
MI	8	19	32	31	10
MO	2	9	42	41	6
MT	2	4	25	42	27
NE	1	4	26	57	12
NC	6	8	34	42	10
OH	10	22	39	26	3
OK	1	2	9	71	17
OR	4	14	20	33	29
SD	1	4	34	54	7
TX	2	6	31	39	22
WA	0	1	27	64	8
18 Sts	2	6	26	50	16
Prev Wk	2	6	28	49	15
Prev Yr	15	20	29	29	7

Rice Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AR	95	53	67	94
CA	68	19	75	70
LA	99	90	92	98
MS	95	54	62	91
MO	92	54	69	89
TX	98	83	83	91
6 Sts	92	55	73	90

These 6 States planted 100% of last year's rice acreage.

Rice Percent Emerged

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
AR	83	41	52	84
CA	16	5	15	28
LA	96	85	88	95
MS	73	38	43	74
MO	71	29	46	75
TX	86	74	80	84
6 Sts	72	42	52	75

These 6 States planted 100% of last year's rice acreage.

Oats Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
IA	96	91	97	98
MN	81	44	70	87
NE	94	83	90	97
ND	61	27	55	71
OH	88	63	73	90
PA	79	83	87	90
SD	90	37	61	93
TX	100	100	100	100
WI	64	41	61	80
9 Sts	84	62	77	90

These 9 States planted 66% of last year's oat acreage.

Oats Percent Emerged

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
IA	82	55	76	89
MN	49	13	33	65
NE	84	48	67	91
ND	22	1	8	37
OH	69	44	58	74
PA	65	71	79	78
SD	65	15	29	79
TX	100	100	100	100
WI	33	19	28	55
9 Sts	64	43	53	76

These 9 States planted 66% of last year's oat acreage.

Crop Progress and Condition

Week Ending May 19, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Spring Wheat Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
ID	93	81	90	93
MN	81	35	76	80
MT	63	55	69	82
ND	74	37	66	74
SD	92	46	70	94
WA	96	81	87	97
6 Sts	76	45	70	80

These 6 States planted 99%
of last year's spring wheat acreage.

Spring Wheat Percent Emerged

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
ID	70	27	58	78
MN	36	2	17	57
MT	24	22	32	49
ND	27	2	18	42
SD	58	9	29	72
WA	74	63	69	85
6 Sts	34	10	26	51

These 6 States planted 99%
of last year's spring wheat acreage.

Barley Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
ID	94	85	92	93
MN	75	30	80	79
MT	70	59	73	87
ND	75	35	66	74
WA	83	71	77	91
5 Sts	78	59	76	84

These 5 States planted 78%
of last year's barley acreage.

Barley Percent Emerged

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
ID	78	41	62	76
MN	31	1	16	53
MT	28	31	42	57
ND	28	1	12	41
WA	71	43	55	76
5 Sts	42	25	39	57

These 5 States planted 78%
of last year's barley acreage.

Sugarbeets Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
ID	100	97	98	96
MI	96	46	74	92
MN	88	54	90	87
ND	98	64	94	87
4 Sts	93	63	90	89

These 4 States planted 84%
of last year's sugarbeet acreage.

Sunflowers Percent Planted

	Prev Year	Prev Week	May 19 2019	5-Yr Avg
CO	1	0	0	3
KS	6	1	1	3
ND	11	2	8	18
SD	11	NA	0	7
4 Sts	10	NA	3	12

These 4 States planted 87%
of last year's sunflower acreage.

Crop Progress and Condition

Week Ending May 19, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

Pasture and Range Condition by Percent
Week Ending May 19, 2019

	VP	P	F	G	EX			VP	P	F	G	EX
AL	1	2	12	75	10		NH	0	8	34	52	6
AZ	3	9	31	55	2		NJ	0	6	21	48	25
AR	0	5	35	49	11		NM	2	32	34	31	1
CA	0	0	35	55	10		NY	2	8	29	50	11
CO	1	6	24	60	9		NC	1	4	27	66	2
CT	0	0	100	0	0		ND	2	9	29	56	4
DE	1	1	13	69	16		OH	1	13	33	47	6
FL	4	8	38	37	13		OK	1	3	26	55	15
GA	2	6	29	54	9		OR	1	5	29	47	18
ID	0	7	15	41	37		PA	0	3	21	57	19
IL	1	6	25	50	18		RI	0	5	15	45	35
IN	2	6	35	42	15		SC	0	0	21	72	7
IA	1	6	30	49	14		SD	0	3	25	51	21
KS	0	3	26	57	14		TN	1	4	32	53	10
KY	1	8	22	60	9		TX	1	5	25	51	18
LA	1	7	38	48	6		UT	0	0	10	58	32
ME	0	27	51	22	0		VT	0	25	75	0	0
MD	2	10	30	47	11		VA	1	10	32	41	16
MA	0	2	24	47	27		WA	0	11	33	54	2
MI	3	8	27	47	15		WV	2	7	32	53	6
MN	1	8	27	58	6		WI	4	13	36	37	10
MS	1	7	35	48	9		WY	1	1	29	66	3
MO	0	2	39	52	7		48 Sts	1	5	28	53	13
MT	1	5	30	55	9							
NE	1	2	19	68	10		Prev Wk	1	6	30	52	11
NV	0	5	25	65	5		Prev Yr	5	14	35	39	7

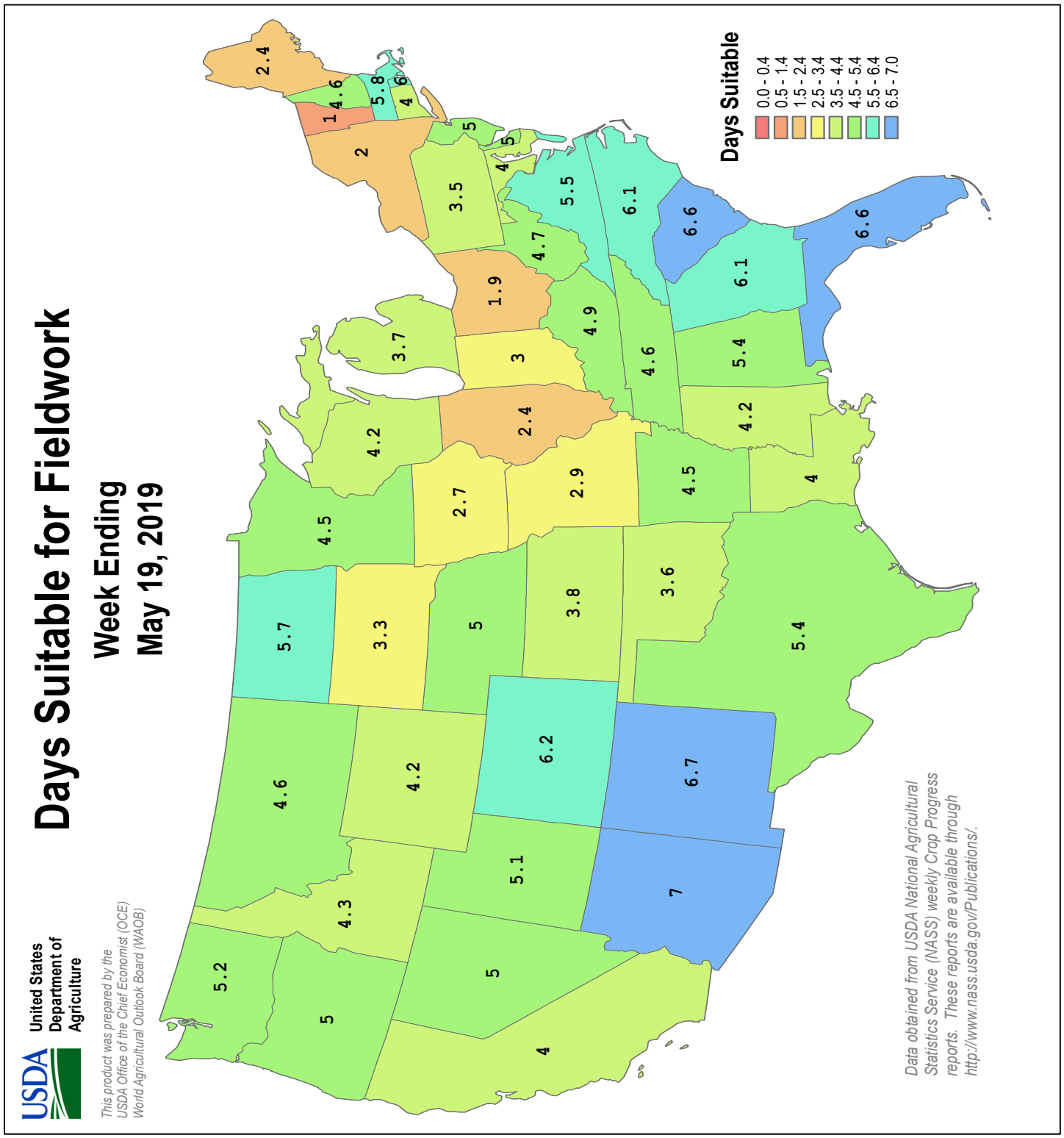
VP - Very Poor; P - Poor;
F - Fair;
G - Good; EX - Excellent

NA - Not Available
*** Revised**

Crop Progress and Condition

Week Ending May 19, 2019

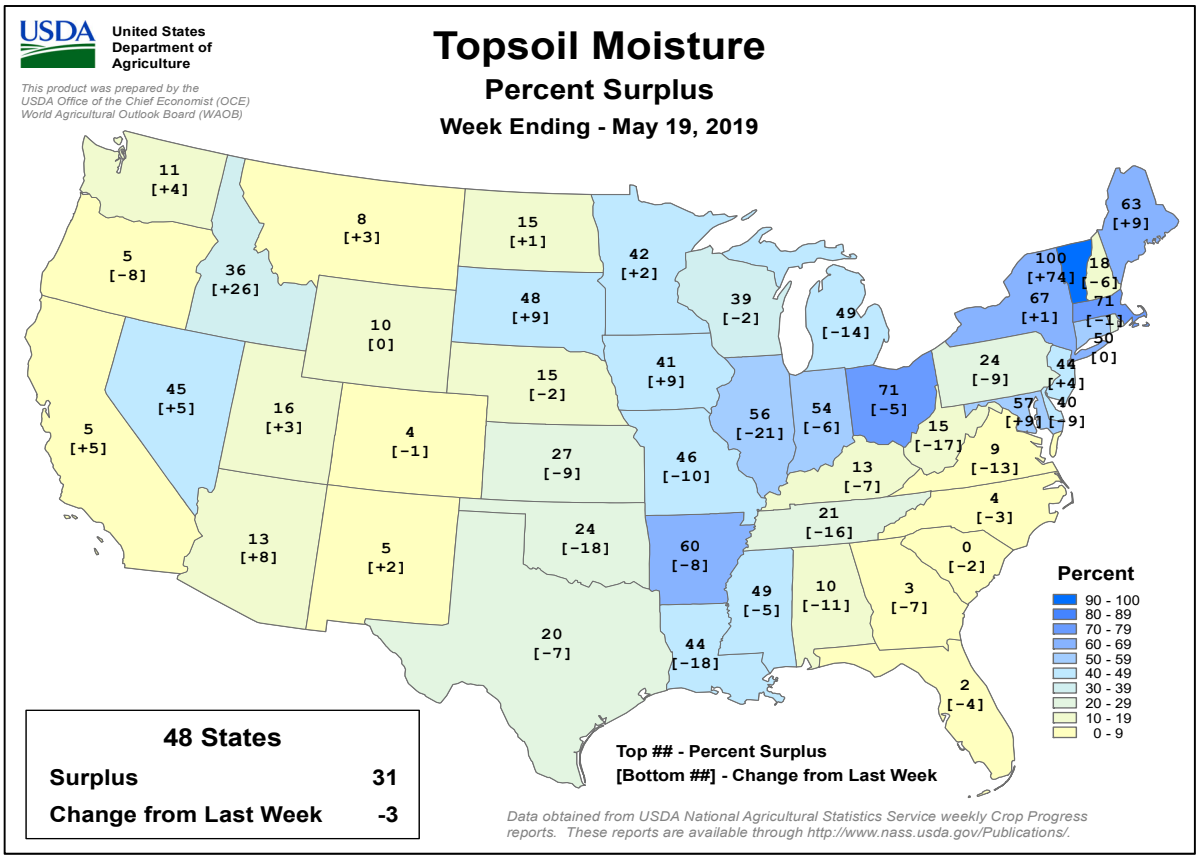
Weekly U.S. Progress and Condition Data provided by USDA/NASS

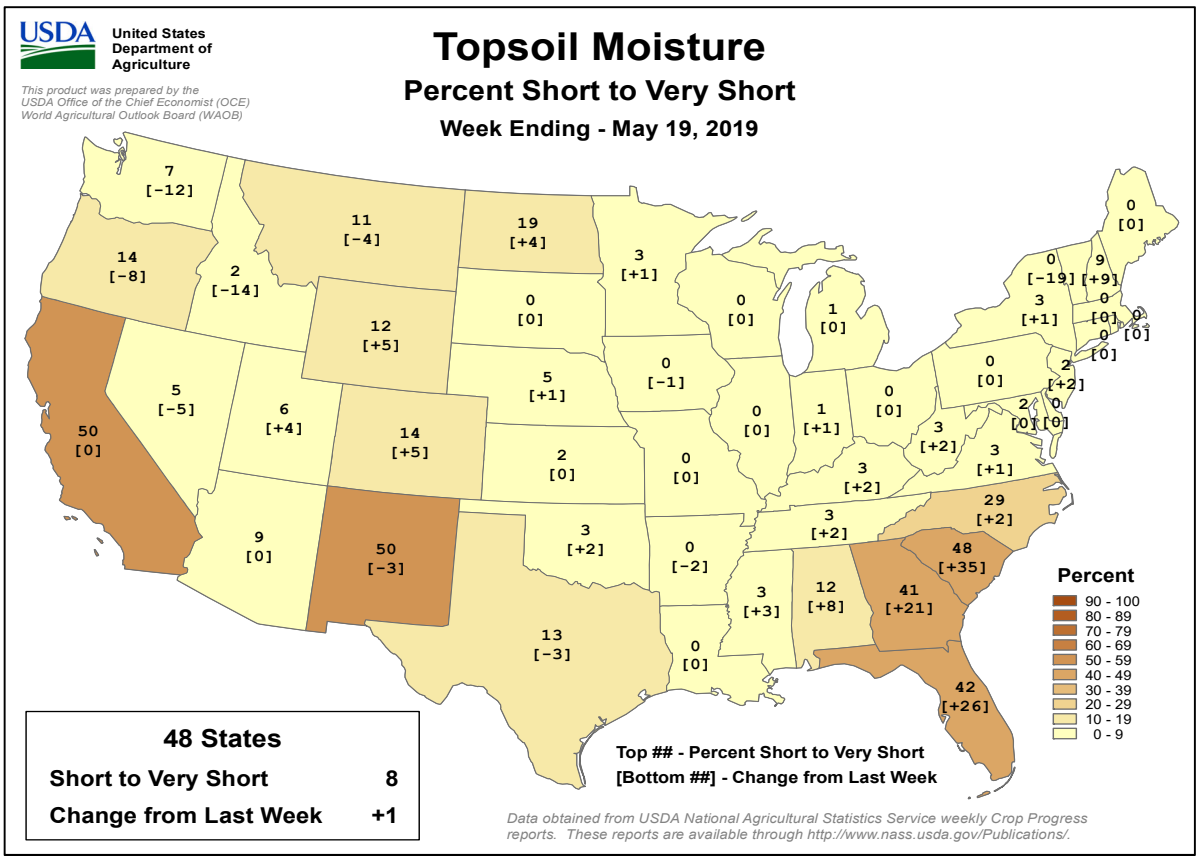


Crop Progress and Condition

Week Ending May 19, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS

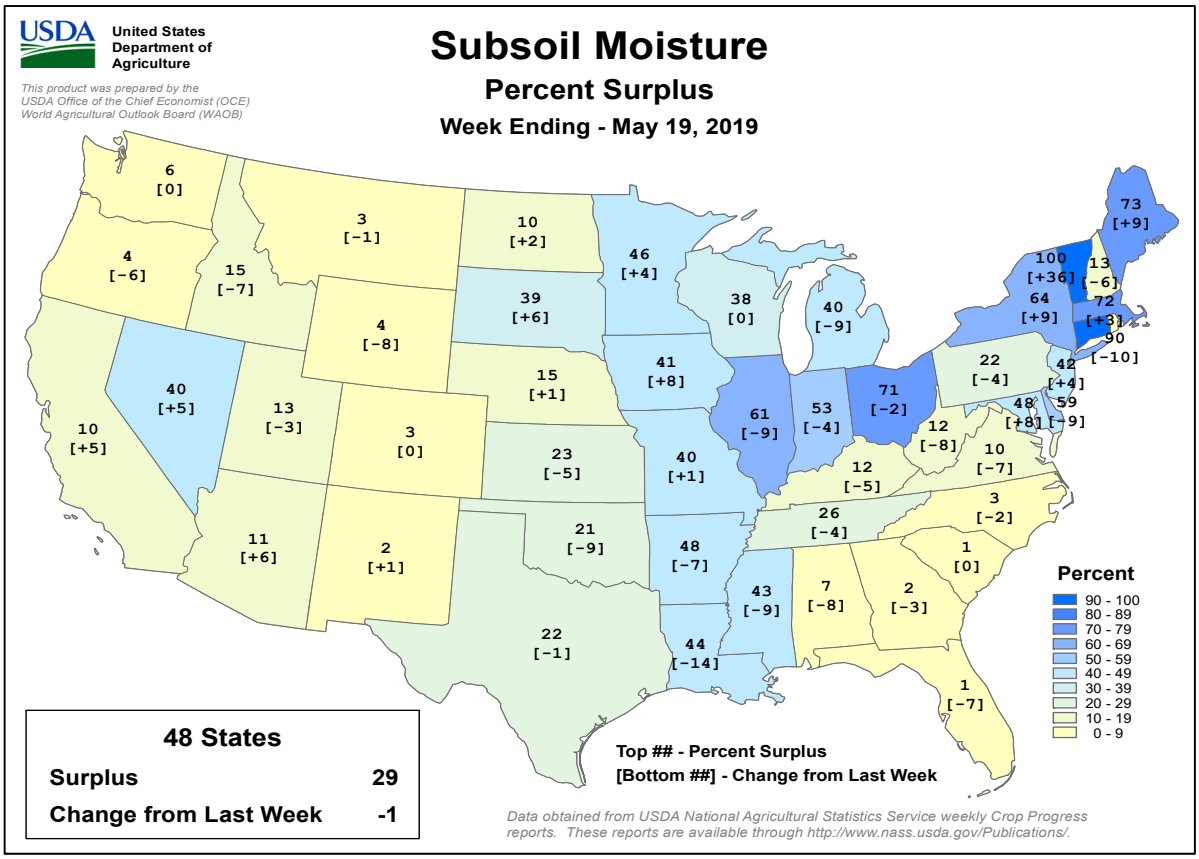


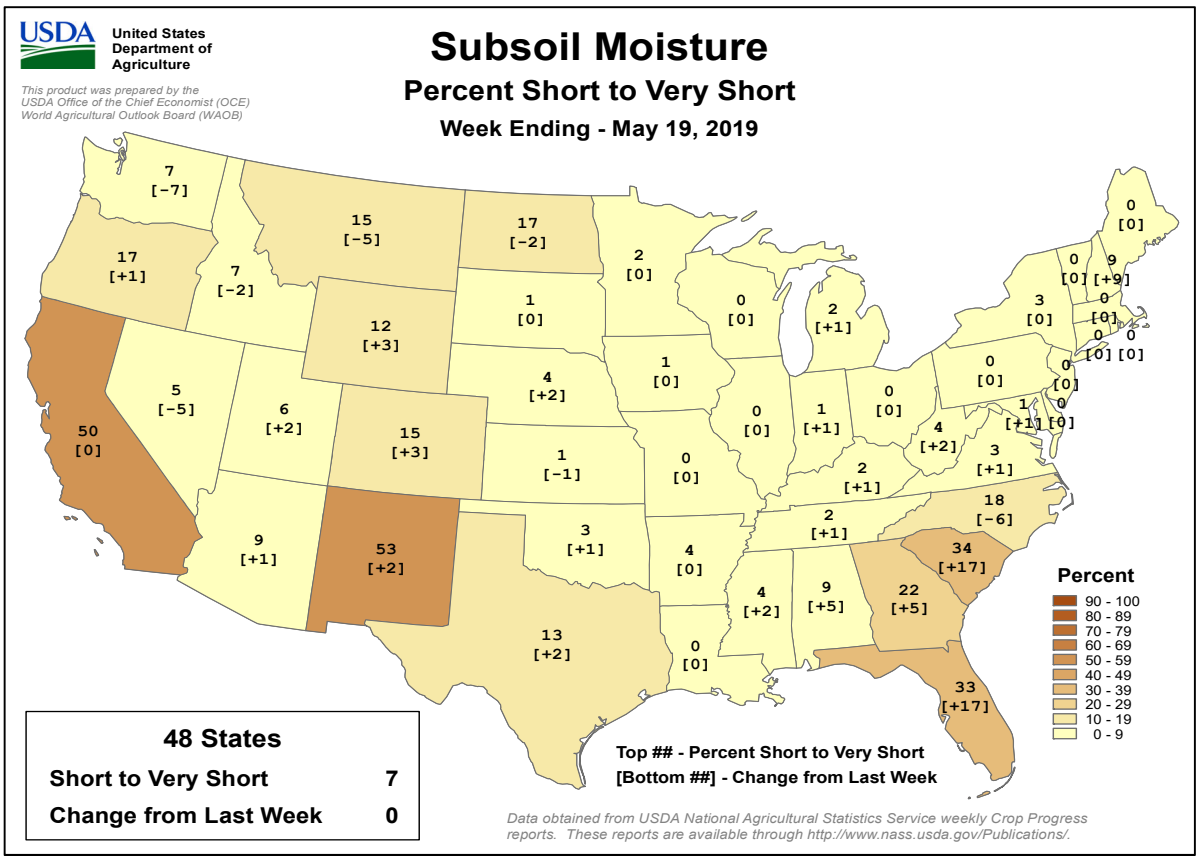


Crop Progress and Condition

Week Ending May 19, 2019

Weekly U.S. Progress and Condition Data provided by USDA/NASS





International Weather and Crop Summary

May 12-18, 2019

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

HIGHLIGHTS

EUROPE: Moderate to heavy rain over southern and eastern Europe boosted prospects for reproductive winter crops.

WESTERN FSU: Widespread albeit highly variable showers benefited vegetative to reproductive winter wheat, though heat was building in southern and eastern growing areas.

EASTERN FSU: Despite some showers, spring grain planting was able to proceed without significant delay.

MIDDLE EAST: Drier, warmer weather favored reproductive to filling winter grains.

EASTERN ASIA: Showers benefited rice and other summer crops in southern China, while more rain would be welcome for crops in the northeast.

SOUTHEAST ASIA: Monsoon showers were reported in Thailand and the surrounding area, but failed to materialize in the Philippines.

AUSTRALIA: Unfavorably dry weather persisted in the northeast, while more favorable conditions promoted winter grain and oilseed development in the west and southeast.

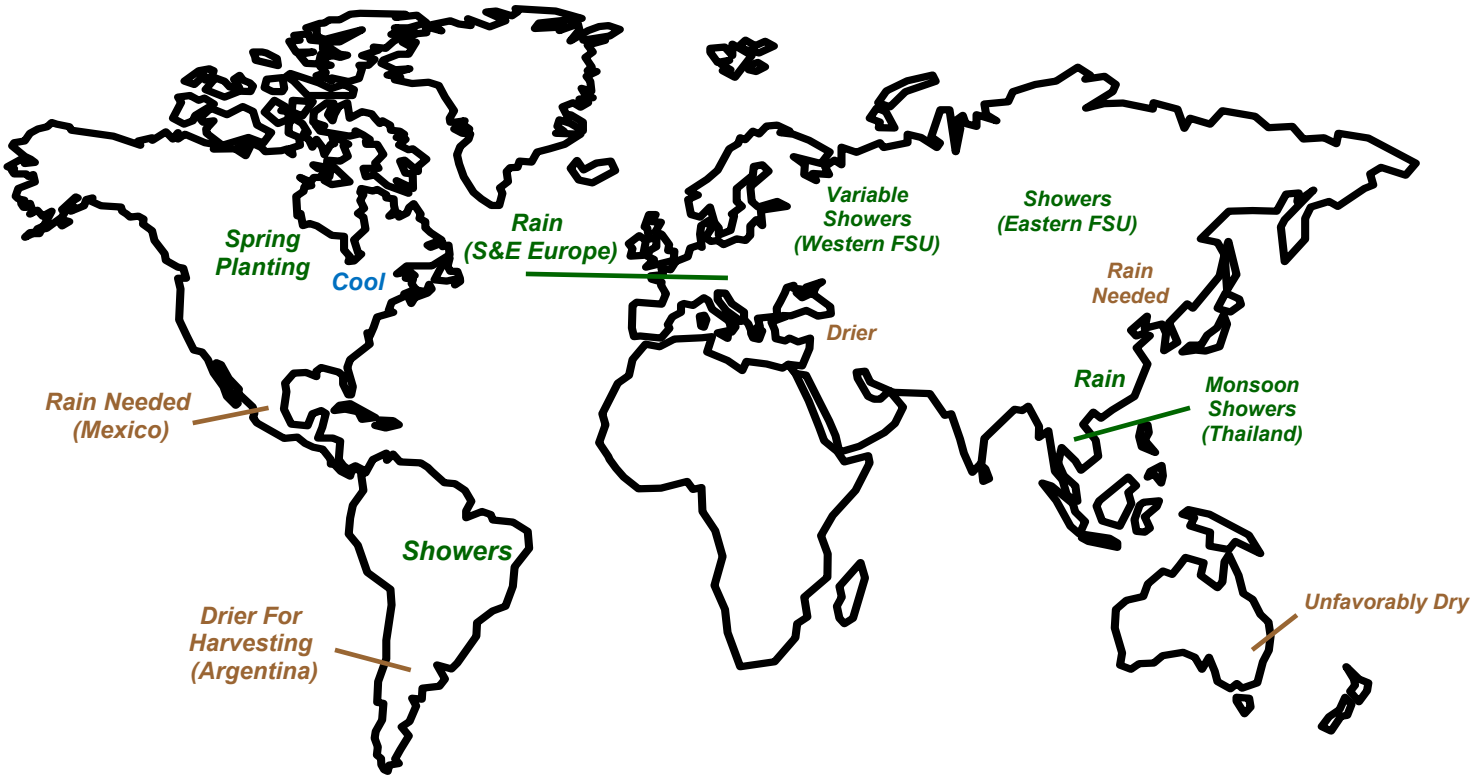
ARGENTINA: Drier conditions benefited maturing summer crops and spurred fieldwork.

BRAZIL: Scattered showers benefited immature corn and cotton.

MEXICO: Moisture remained limited for planting corn and other rain-fed summer crops.

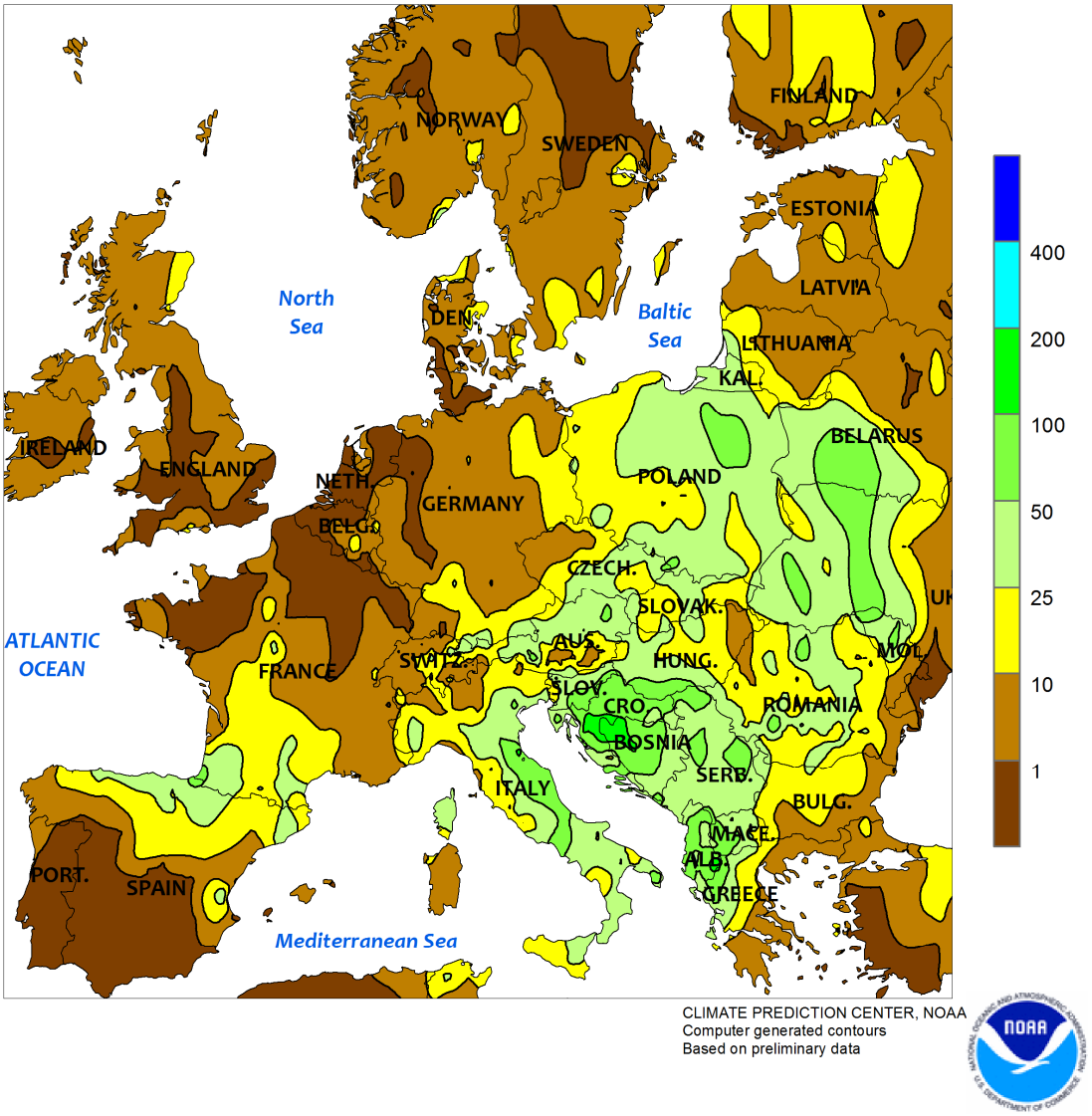
CANADIAN PRAIRIES: Planting advanced, with scattered showers boosting moisture for emerging spring crops.

SOUTHEASTERN CANADA: Cool, showery weather slowed development of winter wheat and pastures.



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

EUROPE
Total Precipitation (mm)
MAY 12 - 18, 2019

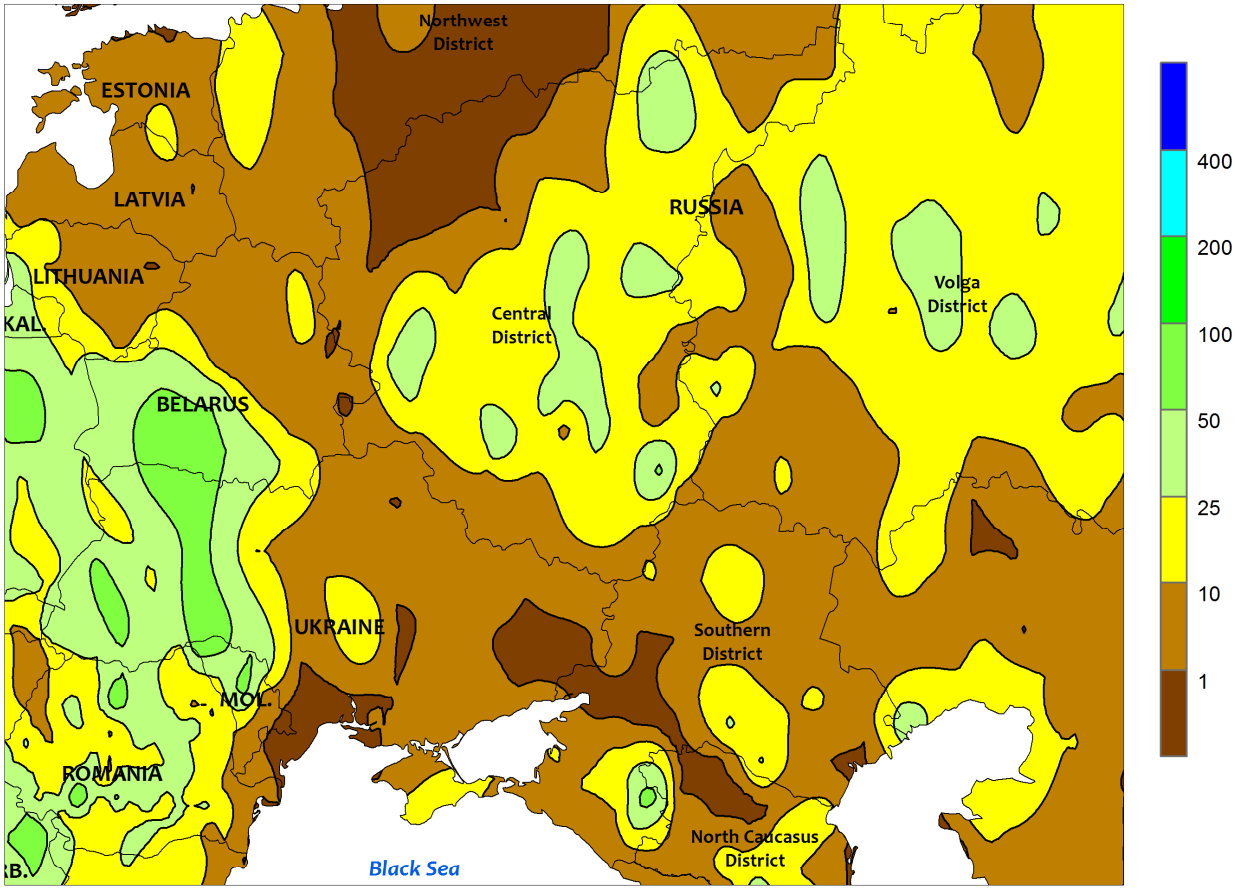


EUROPE

Beneficial rain over southern and eastern Europe contrasted with sunny but cool weather in northwestern growing areas. Moderate to heavy rainfall (10-75 mm, locally more) from Italy north and east across the eastern third of Europe provided timely moisture for reproductive winter crops and eased dryness concerns over the northeastern corner of the continent. Showers were lighter (2-20 mm) but nevertheless beneficial for reproductive wheat and rapeseed in Germany and central France. Nearby, well-placed moderate to heavy rain (10-50 mm) boosted moisture for recently-sown corn and sunflowers in southwestern France. Dry, warm conditions (up to 5°C above normal) on the Iberian Peninsula favored winter grain maturation but left soils short of moisture in western portions of Spain, where recent dryness (60-day rainfall averaging 50-70 percent of normal) has been most pronounced. Sunny but locally cool weather (up to 3°C below normal) favored reproductive winter wheat and rapeseed in crop areas adjacent to the North Sea, where early-May rainfall eased concerns over drought.

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

WESTERN FSU
Total Precipitation (mm)
MAY 12 - 18, 2019



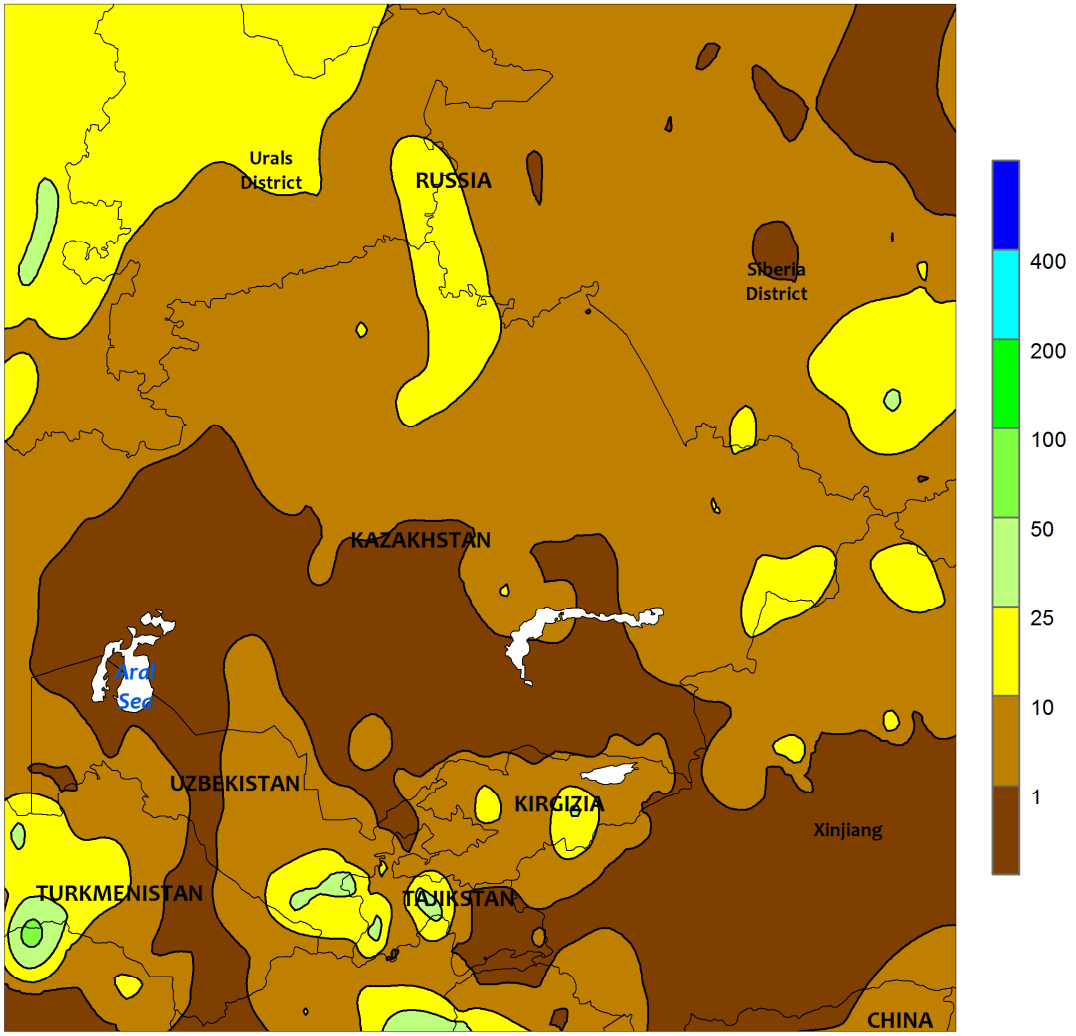
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

WESTERN FSU

Widespread showers maintained favorable prospects for winter wheat, though increasingly warm weather accelerated crop development somewhat. In the primary growing areas adjacent to the Black Sea Coast, widespread albeit highly variable showers (trace-70 mm) maintained mostly favorable prospects for vegetative (north) to reproductive (south) winter wheat. Daytime highs topping 30°C in southern and eastern portions of the region accelerated wheat development, though crop stages are generally on par with normal and similar to last year. Moderate to heavy rain (25-80 mm) in western Ukraine and southern Belarus slowed summer crop planting and other seasonal fieldwork. Widespread showers (5-60 mm) were also noted across much of the Central and Volga Districts in west-central Russia, boosting soil moisture for vegetative winter wheat as well as emerging spring grains and summer crops.

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

EASTERN FSU
Total Precipitation (mm)
MAY 12 - 18, 2019



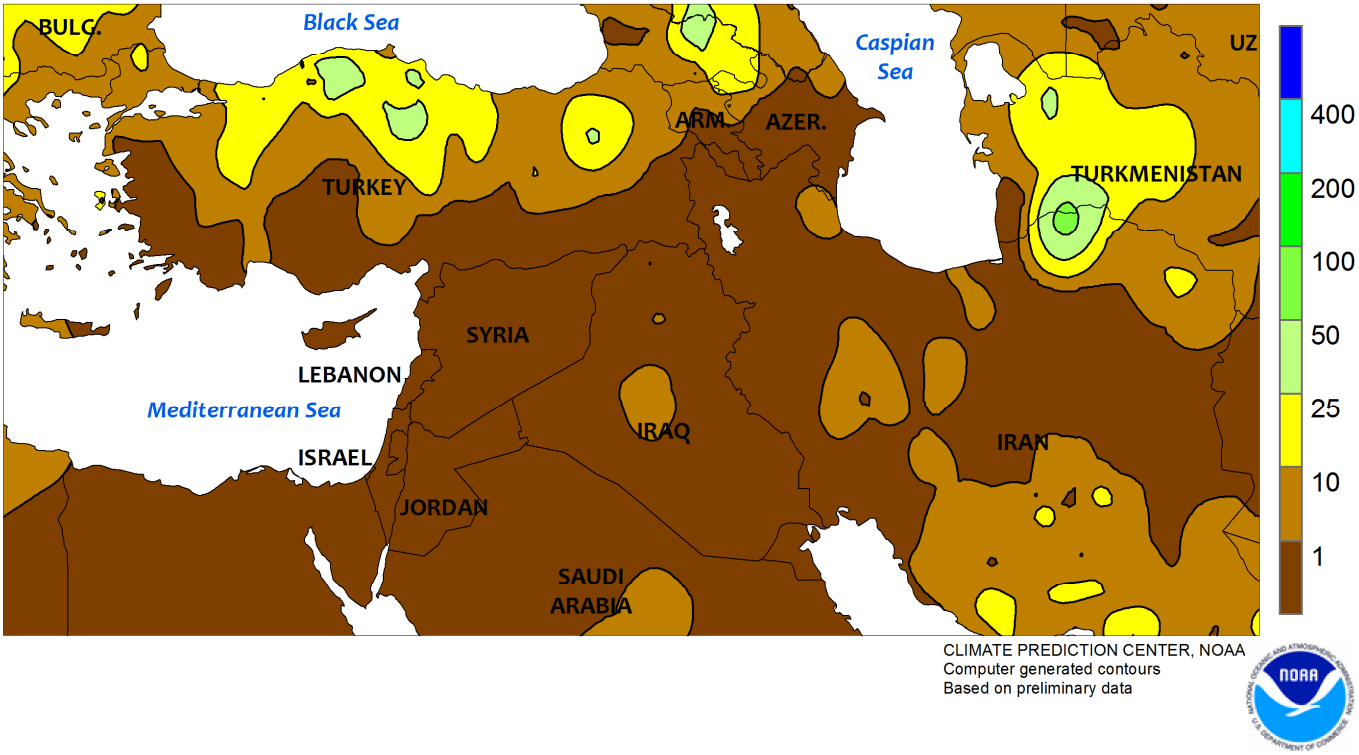
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

EASTERN FSU

Spring wheat and barley planting continued under mostly sunny skies for much of the week. Despite some showers (mostly less than 5 mm, but heavier in northeastern Kazakhstan and the western portions of the Siberia District), planting of spring wheat and barley continued without significant interruption. Light to moderate showers (1-35 mm) in southern portions of the region provided supplemental moisture for recently-planted cotton in Uzbekistan and environs.

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

MIDDLE EAST
Total Precipitation (mm)
MAY 12 - 18, 2019



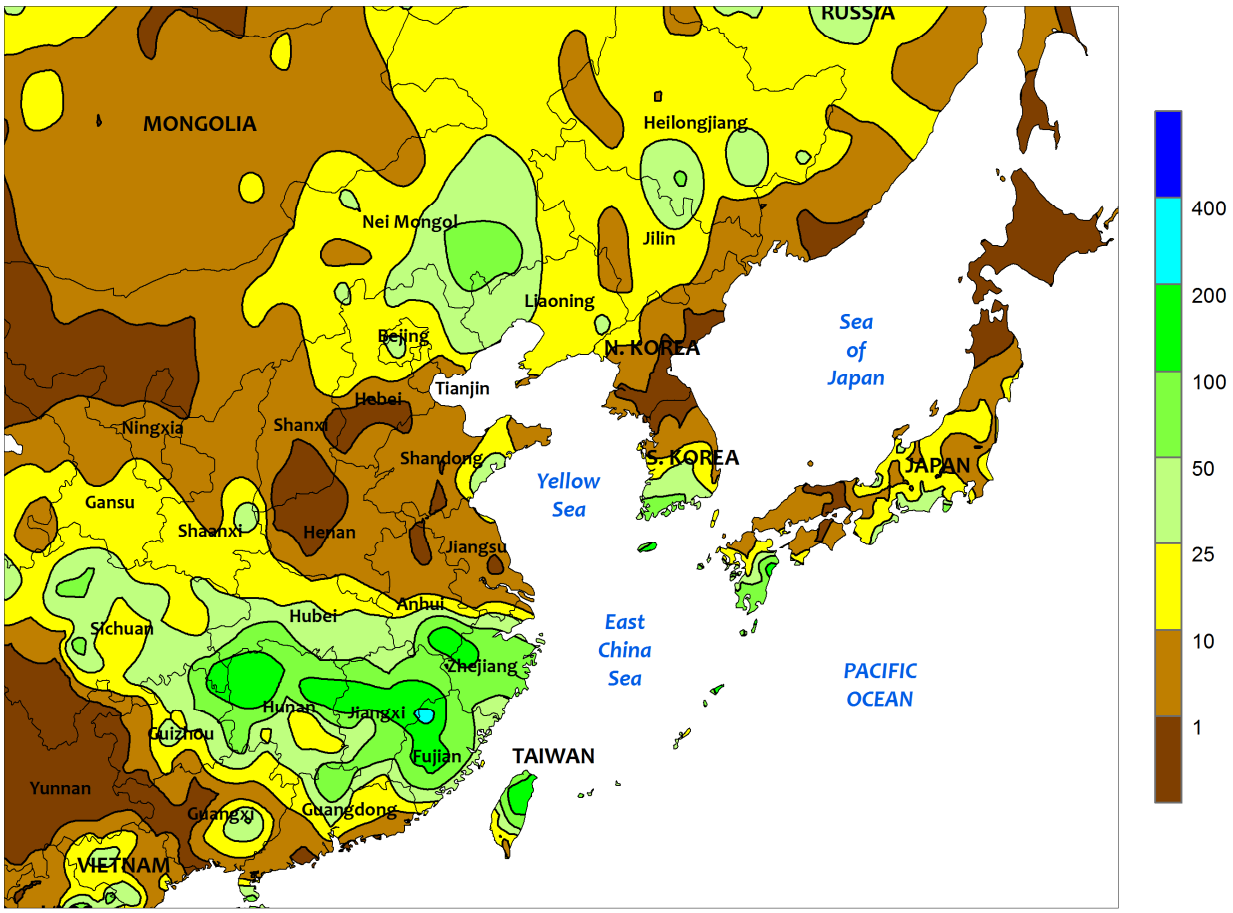
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

MIDDLE EAST

Sunny, increasingly warm weather over much of the region accelerated winter grain development. Across central Turkey and northwestern Iran, generally sunny skies and above-normal temperatures (1-4°C above normal) promoted the development of reproductive winter grains; the warmth was welcome as wheat and barley are developing a week or more behind the long-term average due to the wet, cool, and cloudy spring to date. Dry, hot weather (35-44°C) from the eastern Mediterranean Coast into central and southern Iran favored wheat and barley drydown and harvesting. This week's showers (10-40 mm) were mostly confined to northern Turkey and fell outside of the country's major winter and summer crop areas.

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

EASTERN ASIA
Total Precipitation (mm)
MAY 12 - 18, 2019



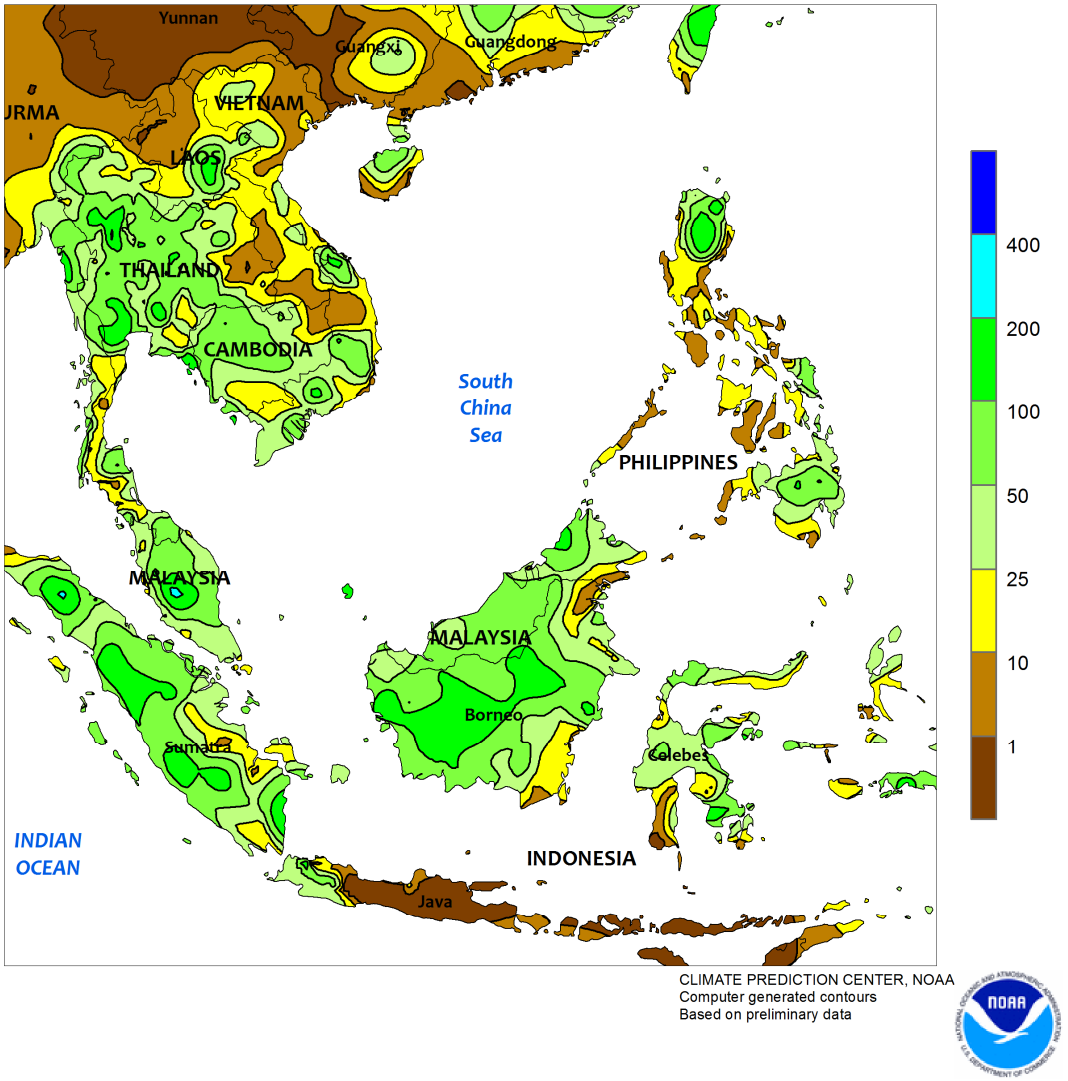
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

EASTERN ASIA

In China, showers continued along a narrow band largely south of the Yangtze River. Along the periphery of the band, rainfall totals were between 10 and 25 mm, with amounts topping 100 mm toward the center. The moisture benefited reproductive early-crop rice in the south as well as vegetative summer crops within the Yangtze Valley. However, the rainfall slowed maturation of rapeseed in some of the wetter areas of the Yangtze Valley. In wheat areas, dry, warmer-than-normal conditions advanced development of the filling crop; following a wet April, May has been exceedingly dry, increasing irrigation demands for wheat. Meanwhile in the northeast, light showers (less than 25 mm) aided germination and emergence of corn and soybeans, but more rain is needed to stem developing early-season dryness. Elsewhere in the region, rainfall was scattered across the Korean Peninsula and Japan with the highest totals (over 25 mm) occurring in far southern sections, while above-normal temperatures (1-5°C above normal) supported establishment of irrigated rice.

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

SOUTHEAST ASIA
Total Precipitation (mm)
MAY 12 - 18, 2019



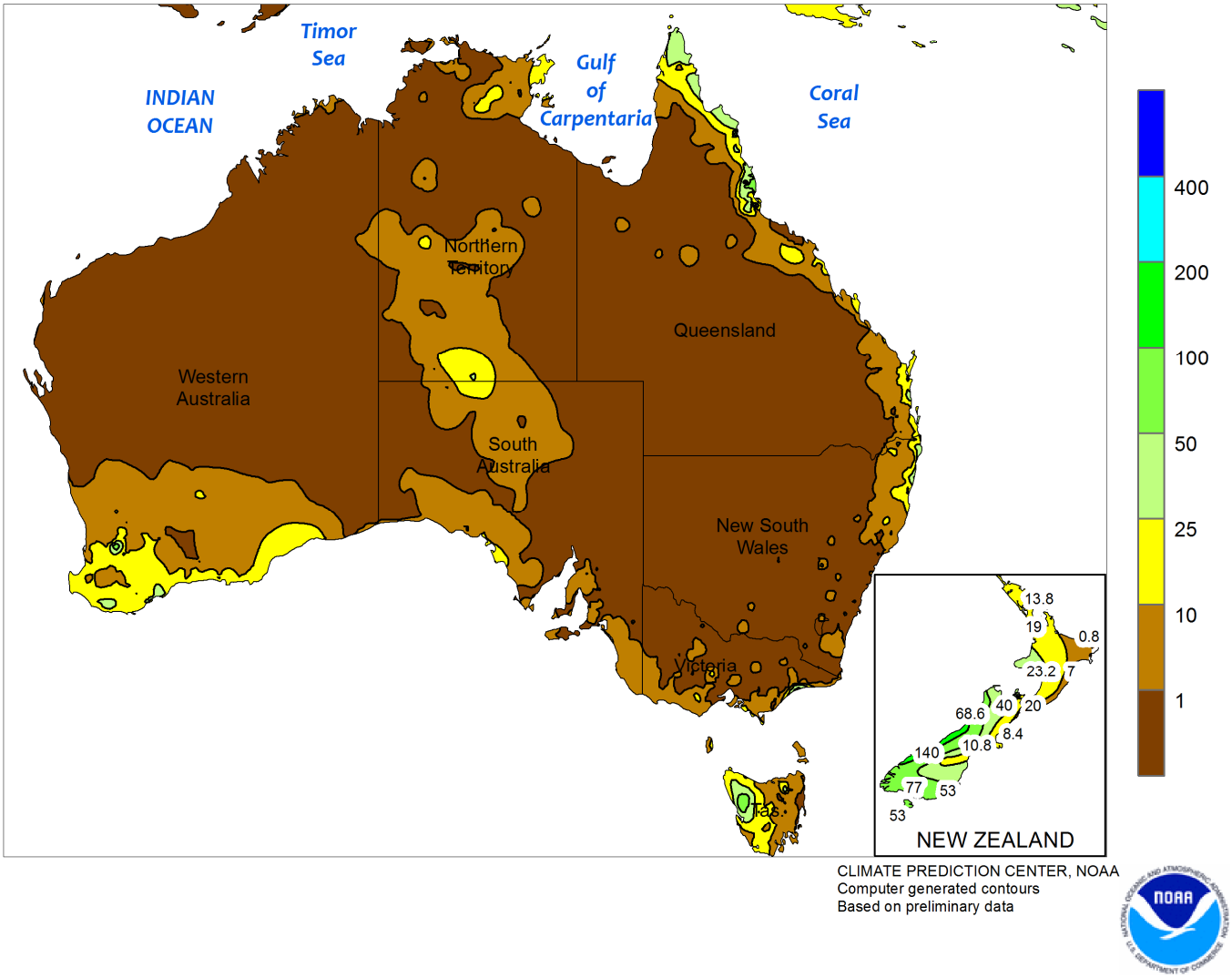
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

SOUTHEAST ASIA

Monsoon rainfall (over 25 mm) was recorded across much of Thailand and surrounding areas of Cambodia and Laos. The onset of seasonal showers encouraged more widespread sowing of rice and other summer crops. Similarly, rainfall increased in Malaysia and nearby portions of Indonesia, with 25 to 100 mm bringing much-needed moisture to oil palm. In contrast, the summer rainy season had yet to begin in earnest across the Philippines. Showers remained scattered and unseasonably light (less than 25 mm in most areas). More rain is needed to encourage rice and corn sowing and to aid establishment.

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

AUSTRALIA
Total Precipitation (mm)
MAY 12 - 18, 2019

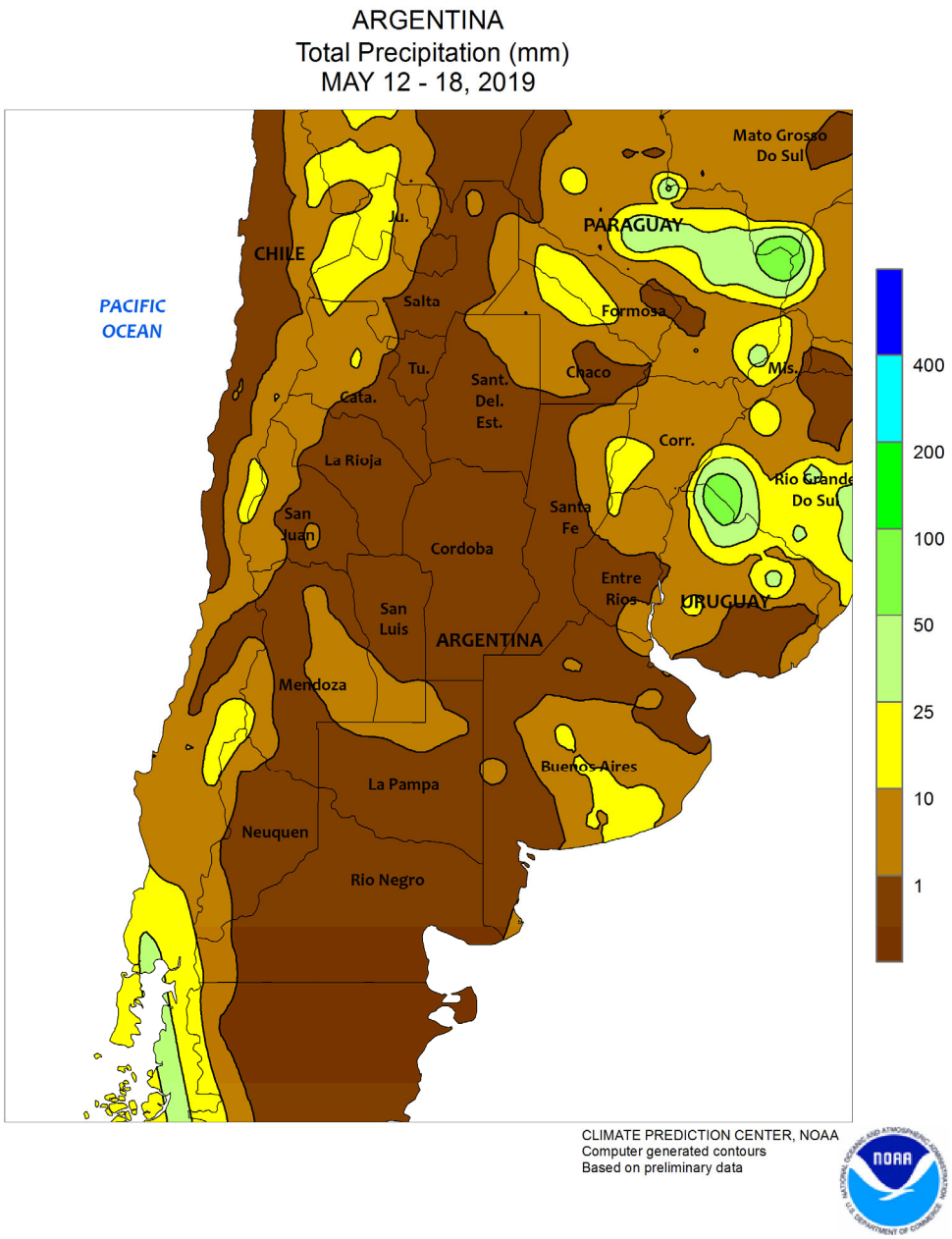


CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

AUSTRALIA

Dry weather persisted across most of southern Queensland and northern New South Wales, supporting final summer crop harvests and perhaps additional winter wheat planting. However, the dryness was unfavorable for winter wheat development, reducing topsoil moisture for germination and emergence. Farther south, mostly dry weather (generally less than 5 mm) overspread southeastern Australia after recent much-needed rain. The combination of sunny skies and adequate topsoil moisture likely triggered more wheat, barley, and canola planting and promoted early crop development. Elsewhere in the wheat belt, widespread showers (5-25 mm) in Western Australia favored winter grain and oilseed development and likely spurred additional sowing in its wake. Temperatures averaged near normal in the west and northeast and 1 to 2°C above normal in the southeast.

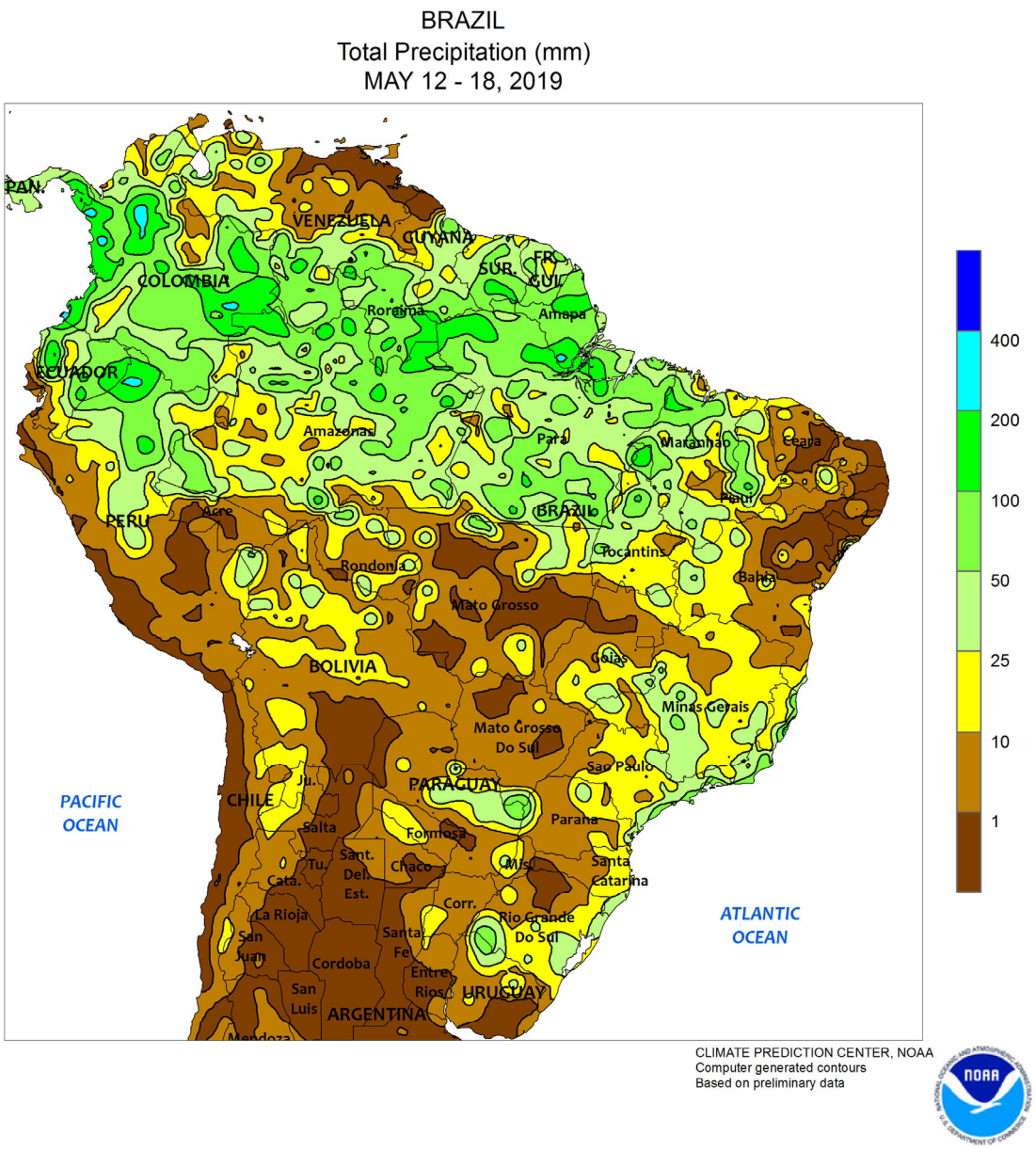
For additional information contact: mbrusberg@oce.usda.gov



ARGENTINA

Following last week's locally heavy rainfall, drier conditions improved conditions for maturing summer crops and supported harvesting where fields would allow. Complete dryness dominated large sections of central and northern Argentina, including cotton areas in Santa Fe and Chaco; very light rain (less than 5 mm) fell in most other farming areas, with just a few locations recording more than 10 mm. Weekly temperatures averaged up to 3°C above normal in central Argentina (La Pampa, Buenos Aires, and southern sections of Cordoba, Santa Fe, and Entre Rios), though patchy frost was likely in traditionally cooler locations in Buenos Aires. Near-normal temperatures (daytime highs reaching the middle and upper 20s degrees C) prevailed across the north, where nighttime lows generally stayed above freezing. According to the government of Argentina, corn and soybeans were 48 and 74 percent harvested, respectively, as of May 16.

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

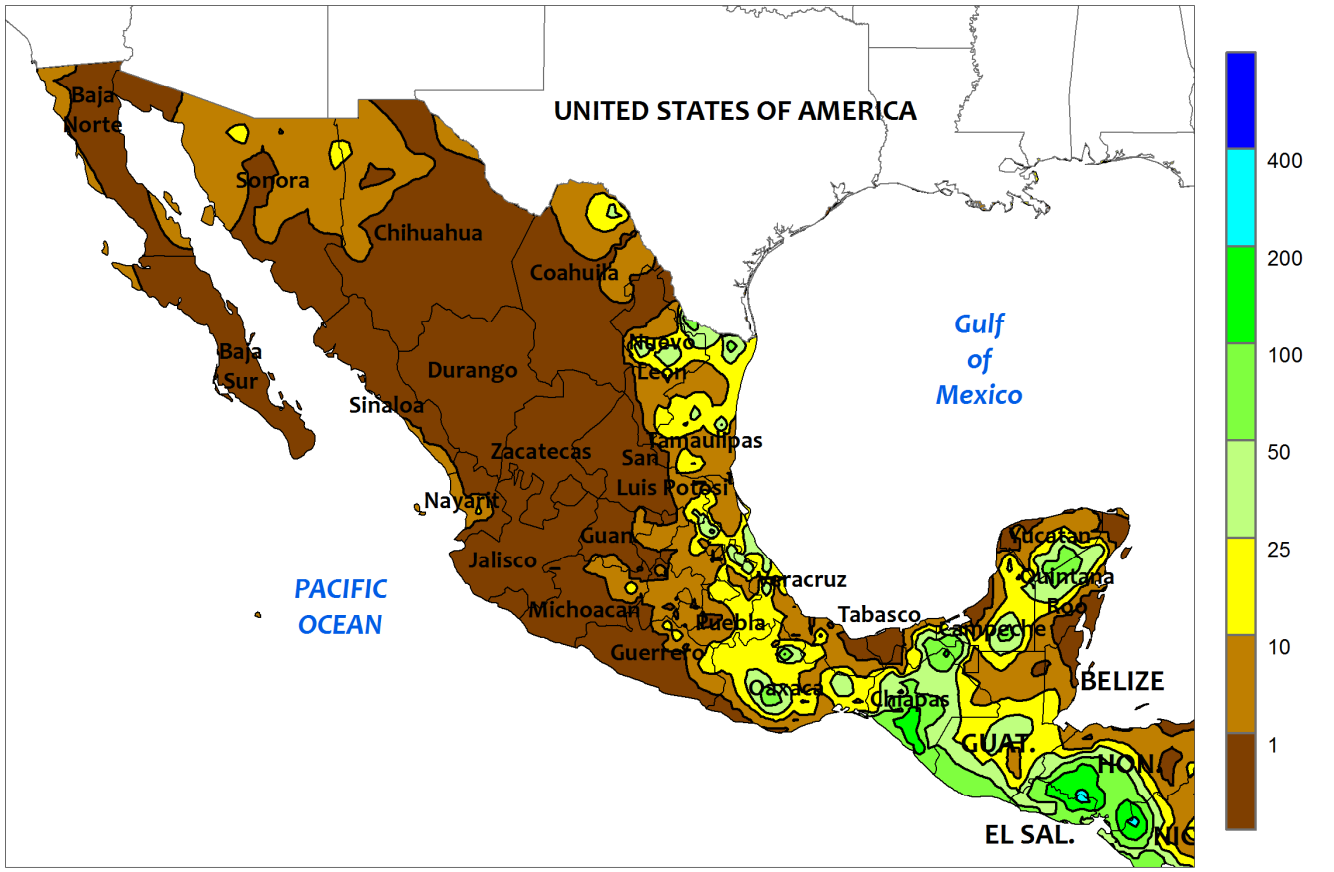


BRAZIL

Scattered showers benefited immature summer crops in key production areas of central and southern Brazil. In the Center-West and northeastern interior regions (Mato Grosso and northern Mato Grosso do Sul northeastward to Tocantins, western Bahia, and environs), rainfall was variable, with moderate to unseasonably heavy amounts (10-50 mm) interspersed with pockets of dryness. The late-season moisture helped to sustain current favorable yield prospects for that region's corn and cotton. Warm weather (daytime highs reaching the middle and upper 30s degrees C) sustained rapid development of the generally well-watered crops. Farther south, moderate to heavy rain (10-50 mm) maintained overall favorable conditions for immature second-crop corn, in addition to providing a late-season boost in moisture for sugarcane and coffee. Daytime highs reached the middle and upper 20s from southern Mato Grosso and southern Minas Gerais southward through Rio Grande do Sul, helping to advance crops toward maturation with an absence of excessive heat. According to the government of Parana, nearly all second-crop corn had reached reproduction as of May 13 with more than 20 percent having reached maturity; wheat was 46 percent planted.

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

MEXICO
Total Precipitation (mm)
MAY 12 - 18, 2019



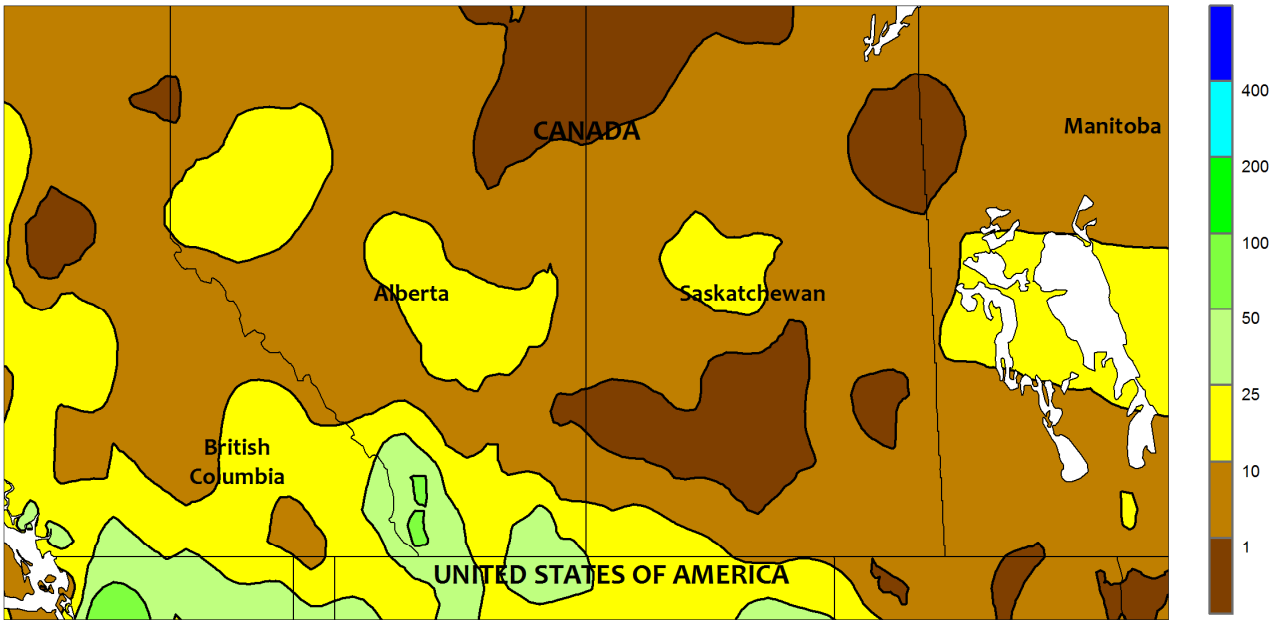
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

MEXICO

Moisture remained limited for planting corn and other rain-fed summer crops across the main southern production areas. Rainfall continued to be unseasonably light in the east, with just a few locations in eastern parts of the southern Plateau (in and around Puebla) reporting more than 10 mm. Similar conditions prevailed in Veracruz, where moisture was limited for sugarcane, and other sections of the southeast, though locally heavy rain (25-50 mm or more) fell in Chiapas and outlying farming areas of the Yucatan Peninsula. Meanwhile, dry weather persisted in corn areas in central and western sections of the southern plateau and much of the southern Pacific Coast (Guerrero and Mexico westward), where seasonal rains typically increase by late May. In northern Mexico, late-season showers benefited immature sorghum in northeastern crop areas (Tamaulipas and environs), while warm, mostly dry weather advanced development of winter wheat and corn in the northwest (notably Sinaloa, Sonora, and the surrounding areas).

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

CANADIAN PRAIRIES
Total Precipitation (mm)
MAY 12 - 18, 2019



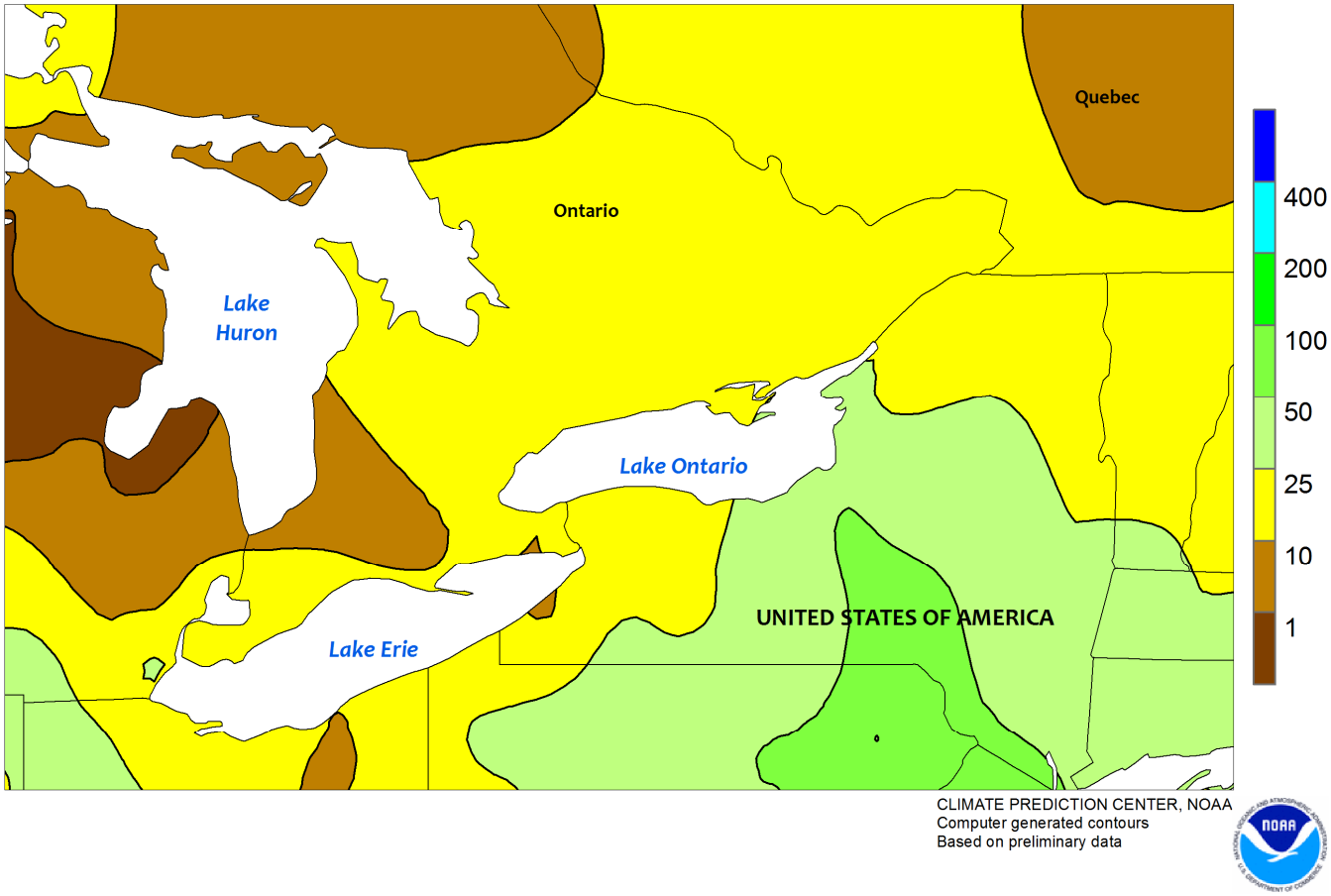
CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

CANADIAN PRAIRIES

Spring planting advanced across the Prairies, slowed only locally by showers, lingering wetness, and cool soils. Moderate rain (10-25 mm, locally higher) was concentrated over southwestern Saskatchewan and sections of Alberta, with other locations recording less than 10 mm. Weekly average temperatures were near to slightly above normal in the wetter western locations and up to 2°C below normal in the drier parts of the region. Daytime highs reached the lower and middle 20s (degrees C) nearly region-wide, the exception being Alberta's Peace River Valley, where highs were capped in the upper 10s. Nighttime lows dropped below freezing in most locations, with lowest temperatures approaching -5°C in Manitoba, where problems with low soil temperature were noted. According to the government of Saskatchewan, planting made good progress in most locations, reaching 38 percent complete as of May 13, 7 points ahead of the 5-year average.

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

SOUTHEASTERN CANADA
Total Precipitation (mm)
MAY 12 - 18, 2019

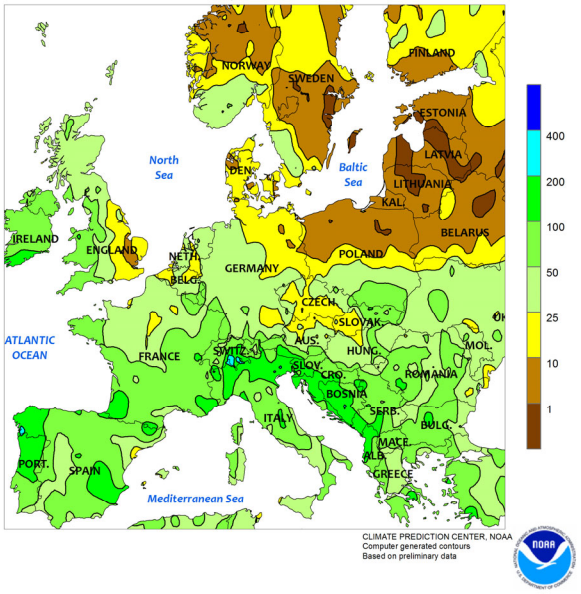


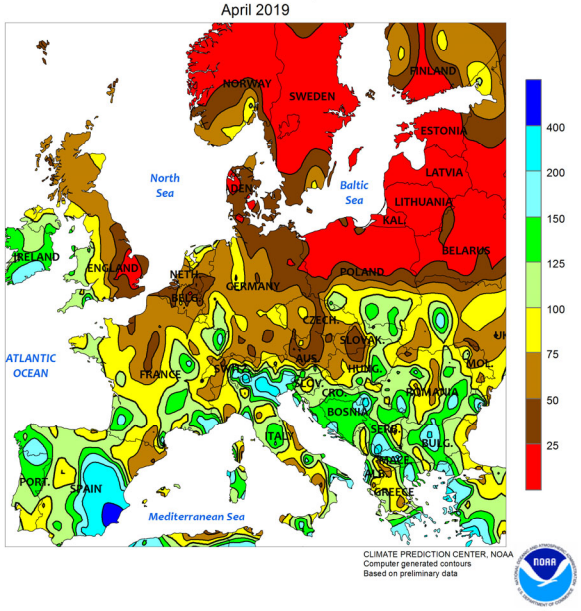
SOUTHEASTERN CANADA

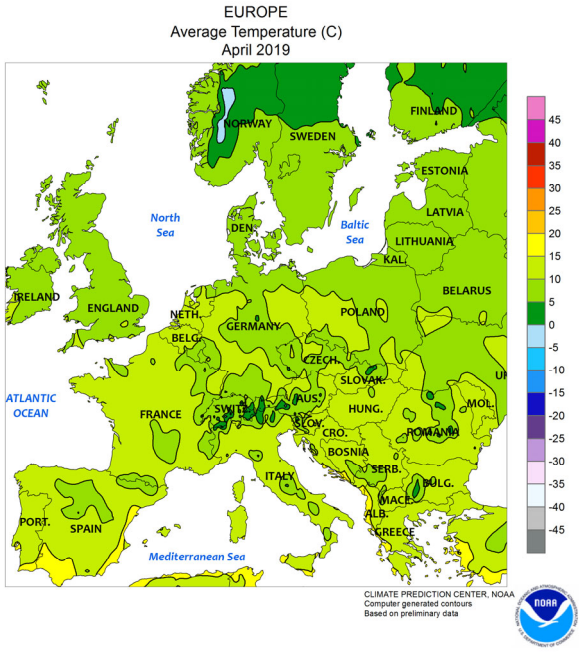
Cool, showery weather dominated the region, slowing growth of winter grains and oilseeds. Weekly temperatures averaged 2 to 4°C below normal, with daytime highs only reaching the 20s (degrees C) in Ontario's southwestern agricultural areas. While freezes were generally confined to northern-most farming areas, nighttime lows dropped into the low single digits region-wide. Precipitation ranged from 5 to 25 mm, with most locations receiving at least 10 mm. All of the moisture came in the form of rain, and by week's end nearly all agricultural districts were void of snow cover.

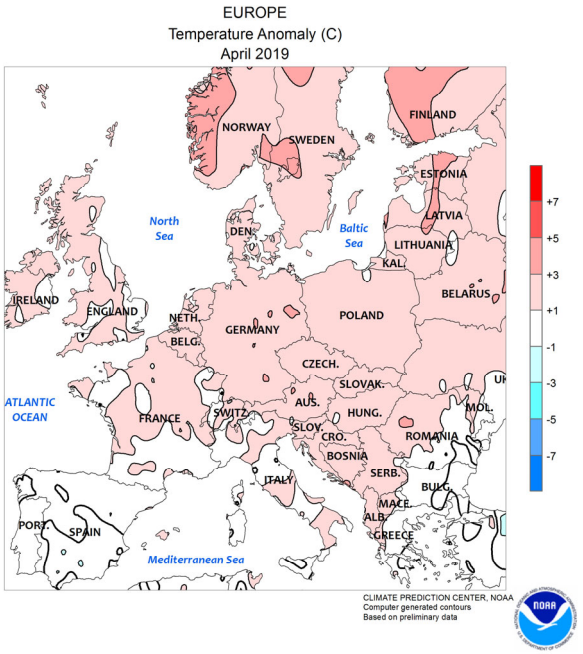
For additional information contact: mbrusberg@oce.usda.gov

April International Temperature and Precipitation Maps



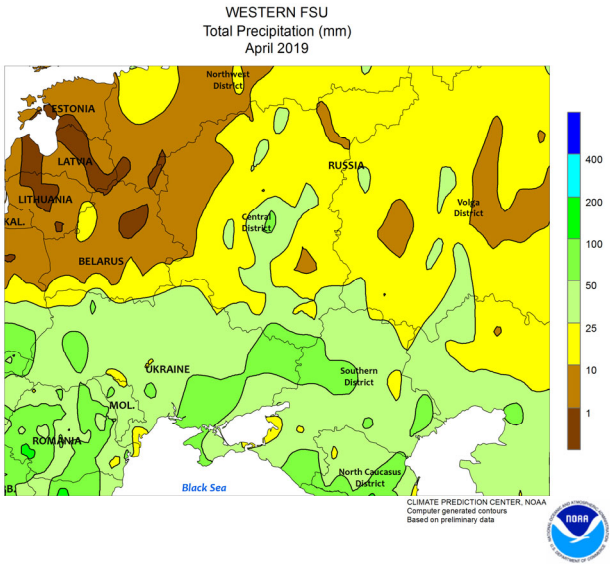


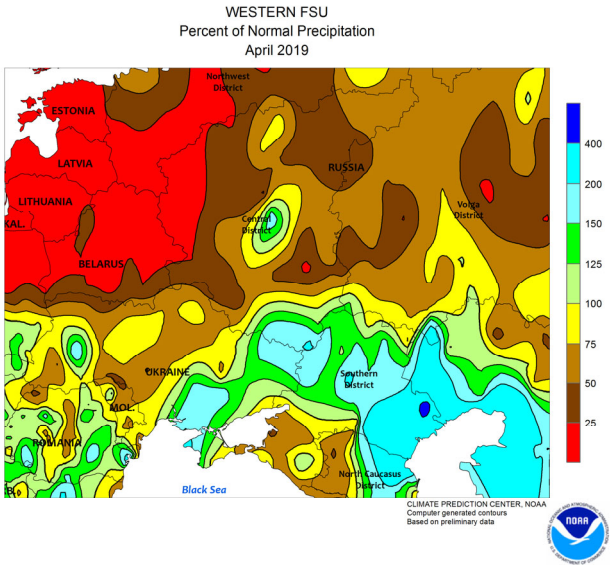


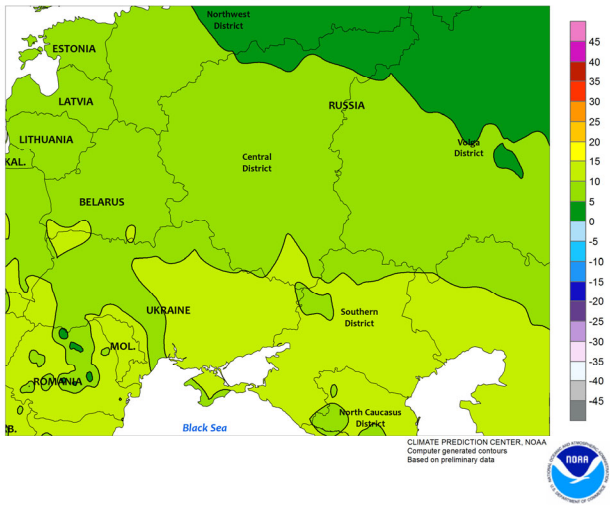


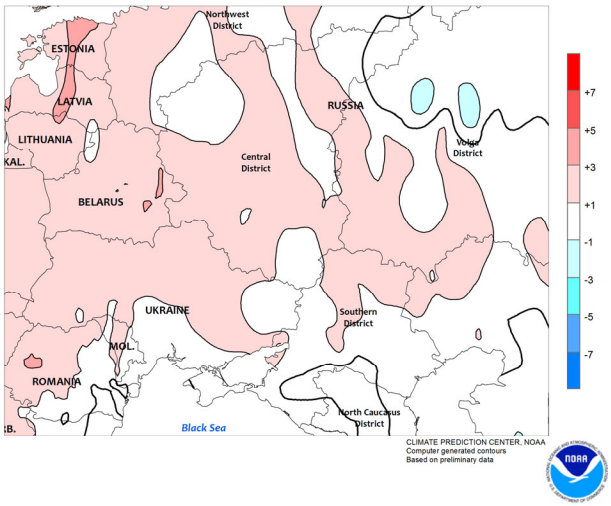
EUROPE

Dry, warmer-than-normal weather in the north contrasted with timely rain in southern growing areas. Above-normal temperatures (1-4°C above normal) during April accelerated winter crop development, with wheat and rapeseed progressing through reproduction in all but the northern-most growing areas by month's end. Acute dryness (10 percent of normal or less) raised concerns for winter crops in northeastern Europe, though timely rain arrived in early May. Drier-than-normal conditions (12-50 percent of normal) also reduced soil moisture for vegetative winter crops near the North Sea, though here, too, rain in early May improved crop prospects. Elsewhere, widespread rain improved soil moisture supplies for winter wheat and rapeseed from western and central France southeastward into the Balkans and maintained favorable winter grain prospects in Spain and Italy.





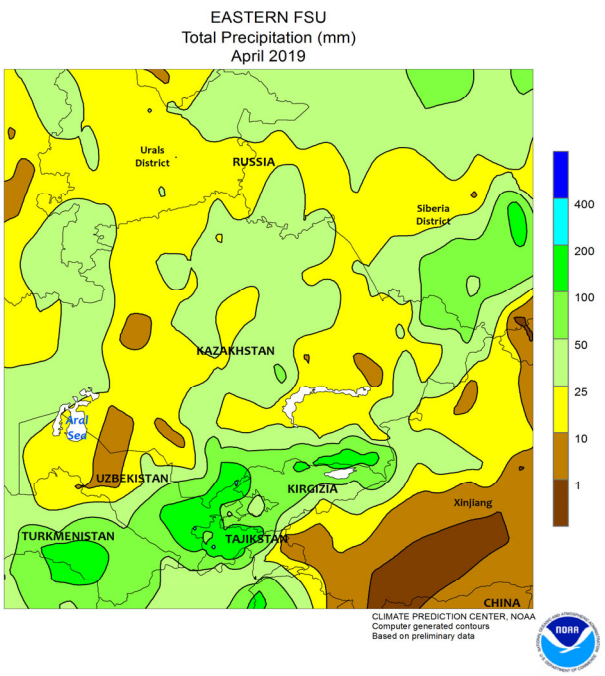


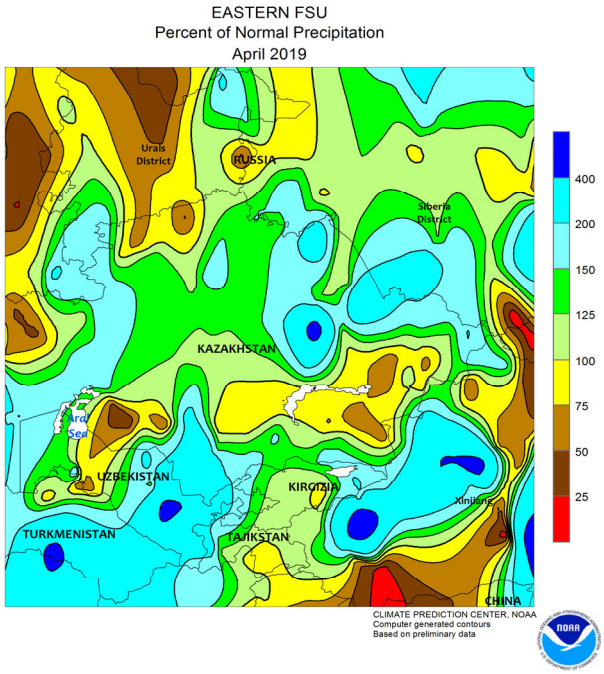


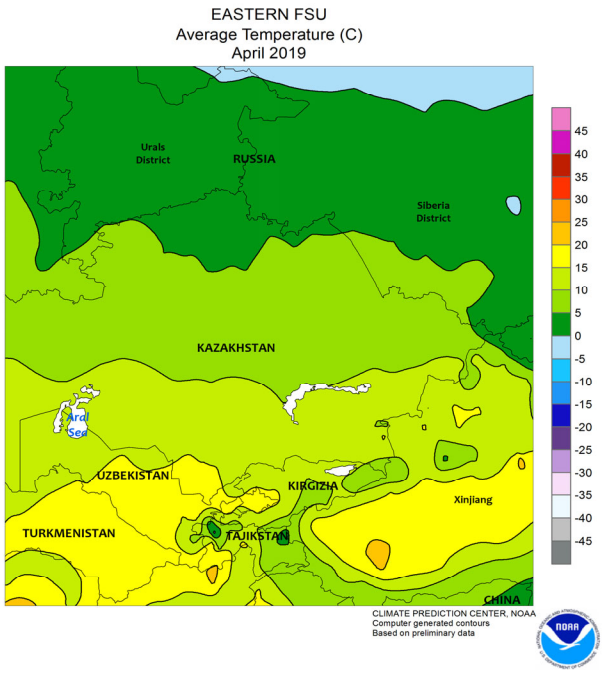
WESTERN FSU

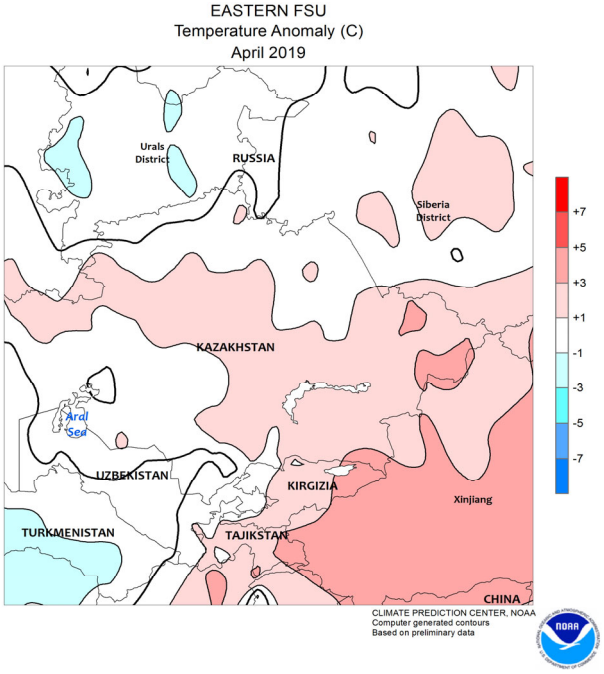
During April, wet weather maintained good early-season prospects for vegetative winter wheat in Russia and Ukraine. Rain totaled 30 to 70 mm (90-200 percent of normal) in primary southern crop areas, though locally drier conditions (50-75 percent of normal) were noted in southwestern Russia. Despite the occasional showers, summer crop planting was able to proceed without significant delay across much of the region. However, acute short-term dryness (less than 5 percent of normal) depleted topsoil moisture over much of Belarus and northwestern Russia before rain returned to these locales in May.

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



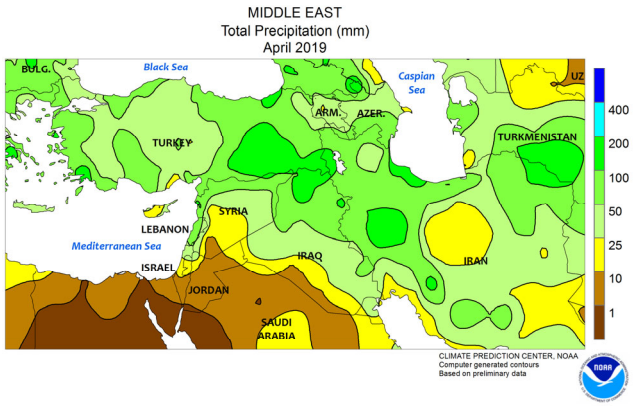


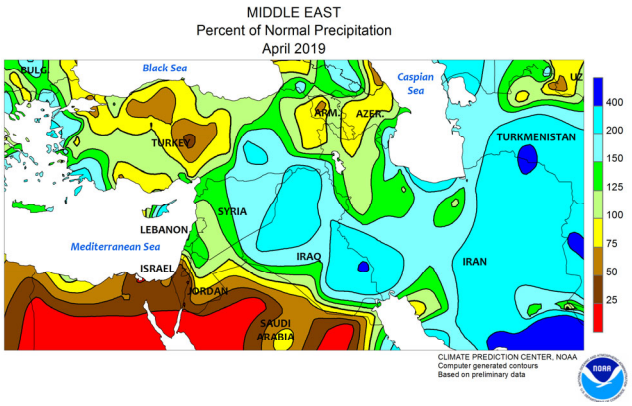


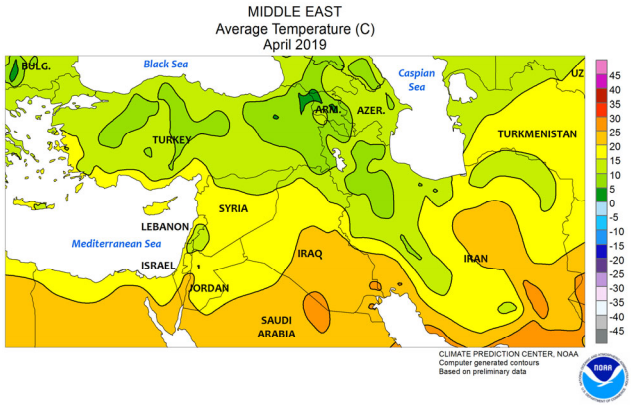


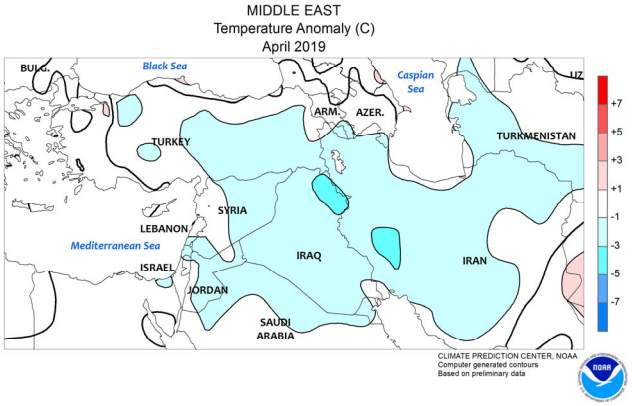
EASTERN FSU

Cool, wet weather hampered early spring wheat sowing in central Russia and northern Kazakhstan but boosted yield prospects for winter wheat in southern portions of the region. During April, rain and wet snow totaled 100 to 300 percent of normal over most primary spring grain belt of central Russia and northern Kazakhstan. The wet, occasionally chilly conditions slowed early sowing efforts, though wheat and barley planting typically occurs in May. Farther south, unusually heavy rainfall (100-485 percent of normal) in Uzbekistan and environs boosted irrigation reserves for summer crops (primarily cotton) and provided supplemental moisture for reproductive to filling winter wheat.





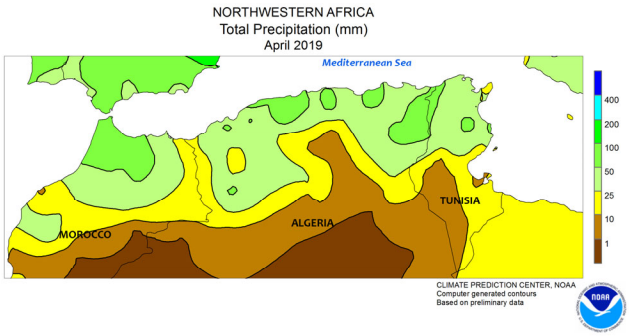


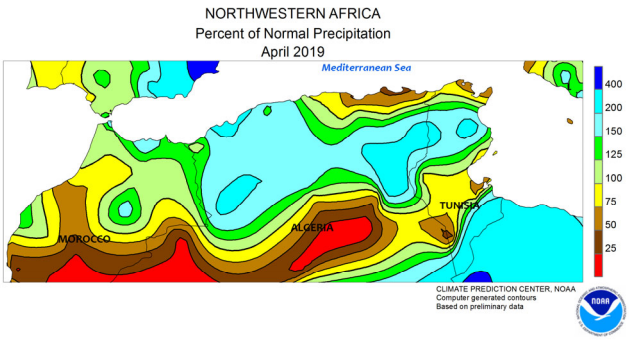


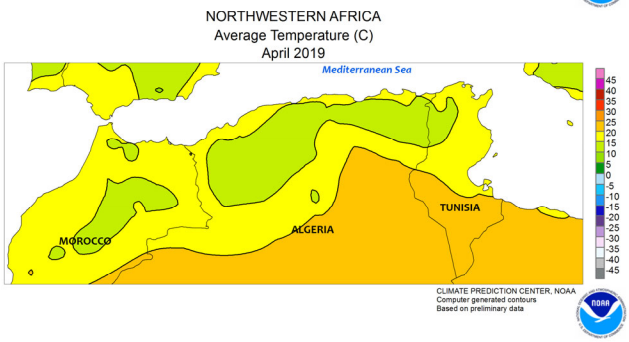
MIDDLE EAST

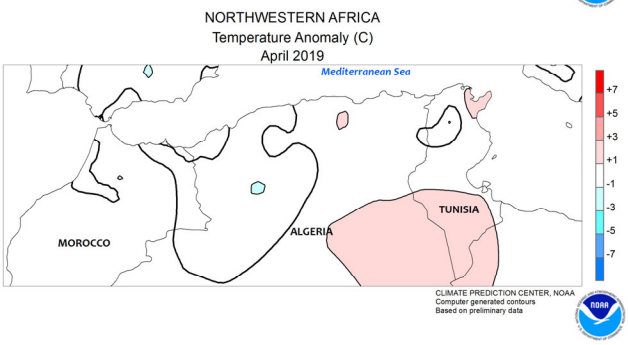
In April, widespread rainfall maintained good to locally excellent yield prospects for winter grains, particularly from southeastern Turkey into western Iran. Precipitation for the month totaled near normal in central Turkey's winter grain belt and more than 200 percent of normal over large tracts of farmland from the eastern Mediterranean Coast into Iran. Wheat and barley progressed through reproduction in southern portions of the region in excellent condition, while crops approached reproduction in the north by month's end.

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



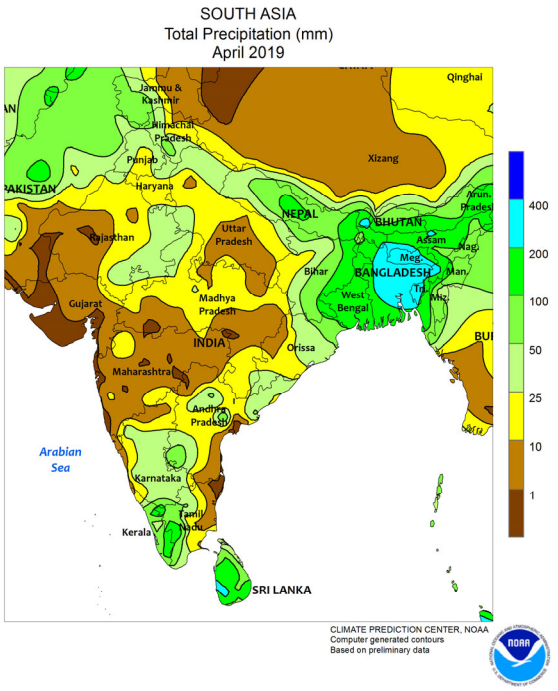


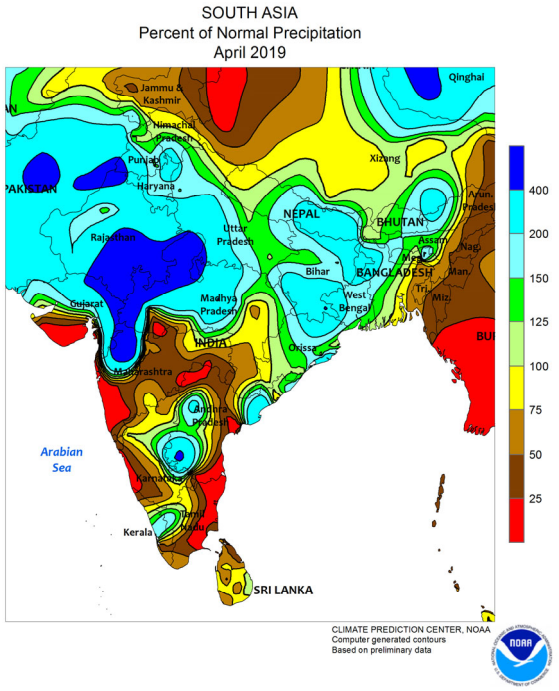


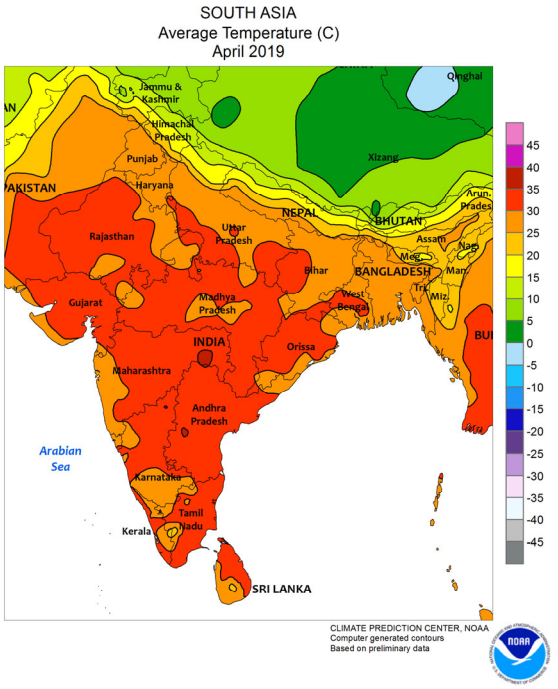


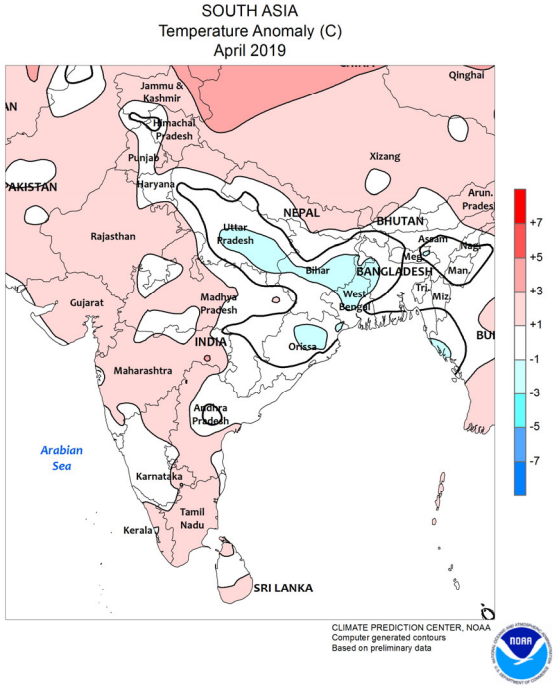
NORTHWESTERN AFRICA

Above-normal rainfall in April maintained excellent yield prospects for reproductive to filling winter wheat and barley over the eastern half of the region. However, somewhat drier conditions (locally less than 50 percent of normal) were noted adjacent to the coast, though crop conditions remained very good overall. Conversely, showers in Morocco (more than 50 mm in the north) were too late to improve yields for drought-afflicted wheat and barley.









SOUTH ASIA

Seasonably dry conditions existed across the interior of India during April, with monthly totals generally below 25 mm (higher amounts were reported in outlying areas). In addition to the dry weather, seasonal heat expanded throughout India and into Pakistan, as temperatures routinely surmounted 40°C. Sowing of irrigated cotton and rice in northern India and adjacent areas of Pakistan was underway, while most other crops will be planted once the summer monsoon begins. Elsewhere in the region, consistent showers (50-100 mm or more) in Sri Lanka and Bangladesh maintained adequate water supplies for spring-sown rice.

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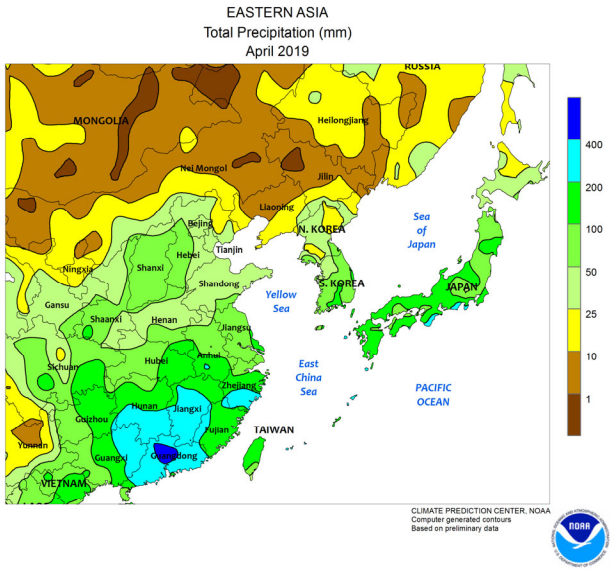

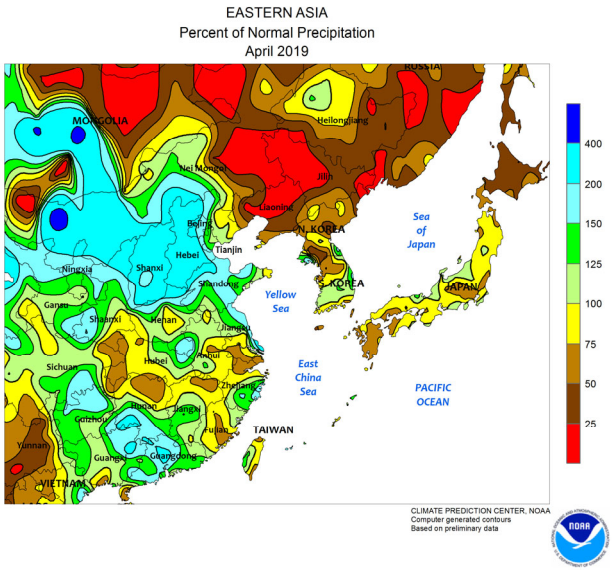

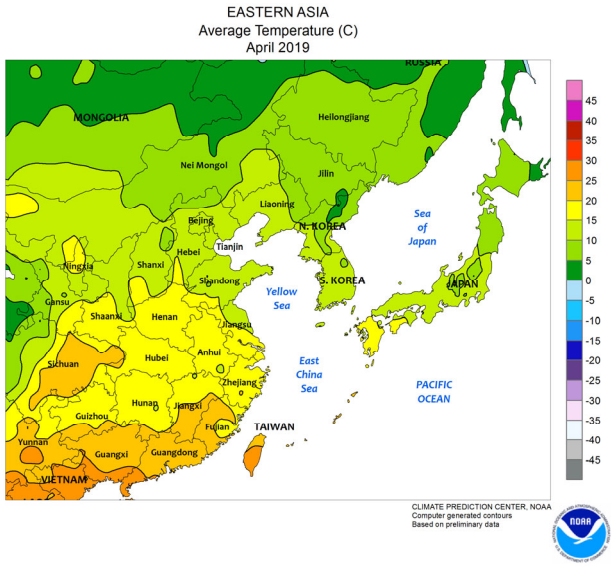

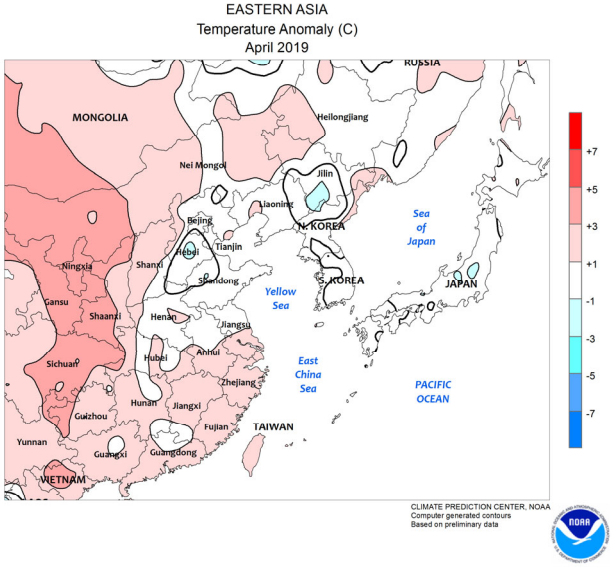

EASTERN ASIA

Unseasonably wet weather prevailed across eastern and southern China during April, with rainfall totals surpassing 100 mm in the south and 25 mm in the east. The consistently heavy rainfall in the south maintained favorable water supplies for vegetative early-crop rice as well as encouraging summer crop planting south of the Yangtze River when days were suitable for fieldwork. More periodic rainfall during the month in eastern wheat areas provided a timely boost to soil moisture as the crop entered reproduction. In other parts of China, soil temperatures warmed sufficiently in the northeast during the latter half of the month to allow sowing of corn, soybeans, and rice. In the west, a warmer-than-normal April allowed cotton planting to proceed earlier than usual, but a cool down by the end of the month slowed emergence.

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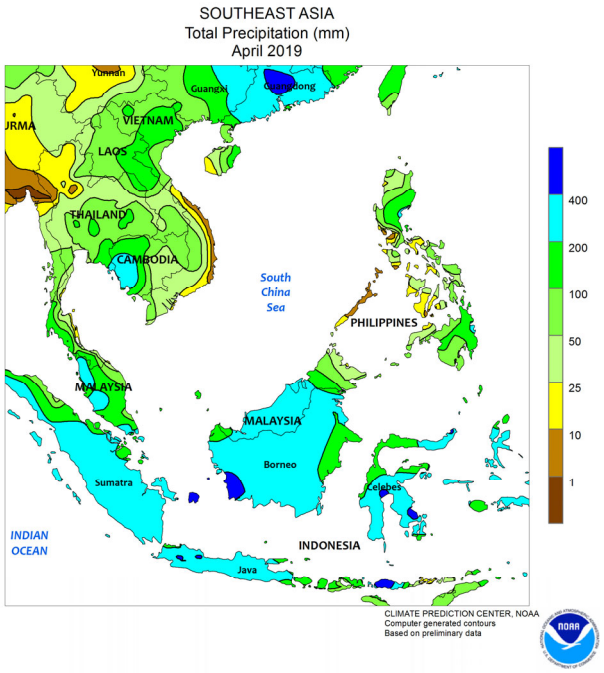

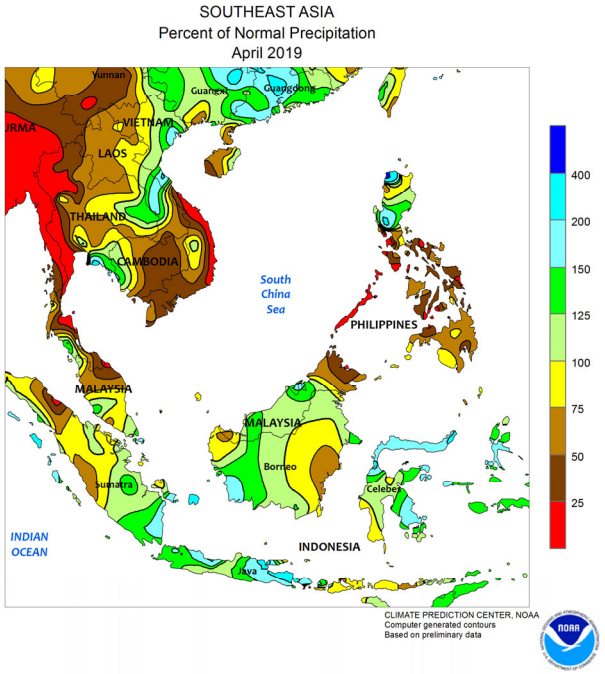

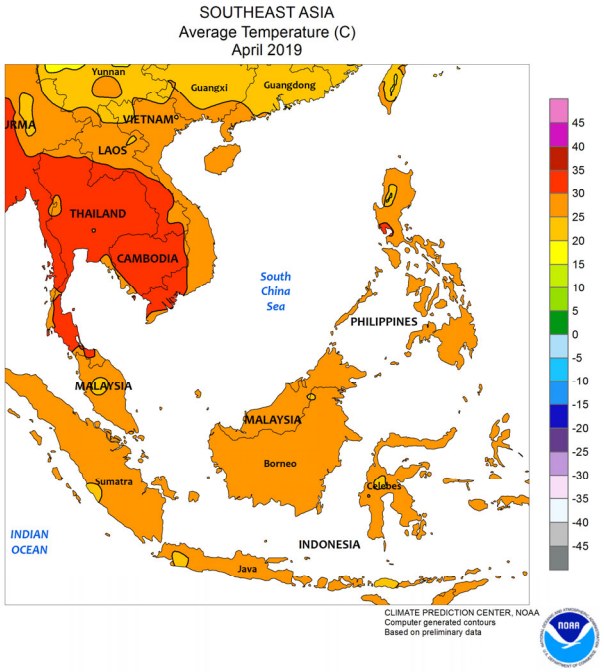

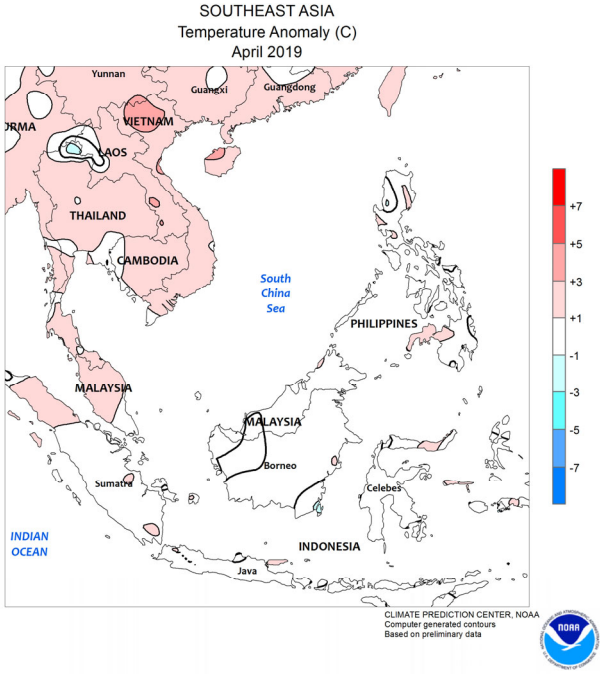

SOUTHEAST ASIA

During April, the main axis of rainfall remained in southern portions of the region. Most of Indonesia received well-above-normal rainfall (over 200 mm), maintaining good soil moisture for oil palm and water supplies for second-season rice. In contrast, most of Malaysia received below-average rainfall, extending spring moisture deficits for oil palm. To the north, showers across the northern Philippines provided beneficial moisture for summer rice and corn establishment. Rainfall totals surpassed 50 mm throughout the Philippines, but while the amounts were near to above normal in the north, they were sub-par in central and southern growing areas. Meanwhile in Thailand and environs, periodic showers (25 mm or more) provided some early-season moisture for rice sowing, but producers will wait for the onset of the summer rainy season before beginning widespread sowing. Although in northern Vietnam, periodic heavier showers (over 50 mm) benefited immature winter-spring rice.

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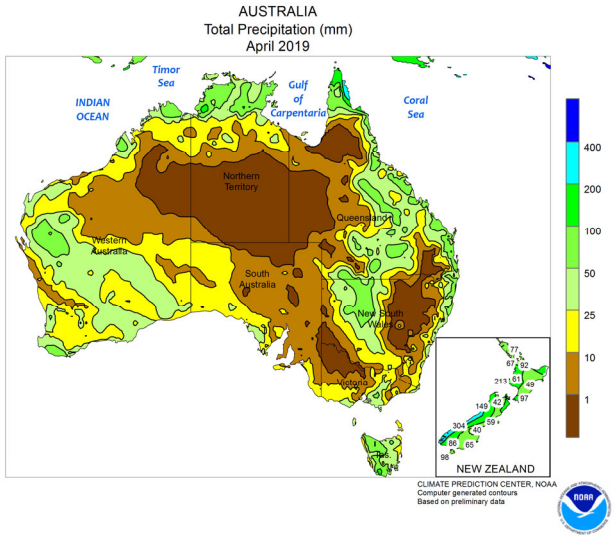
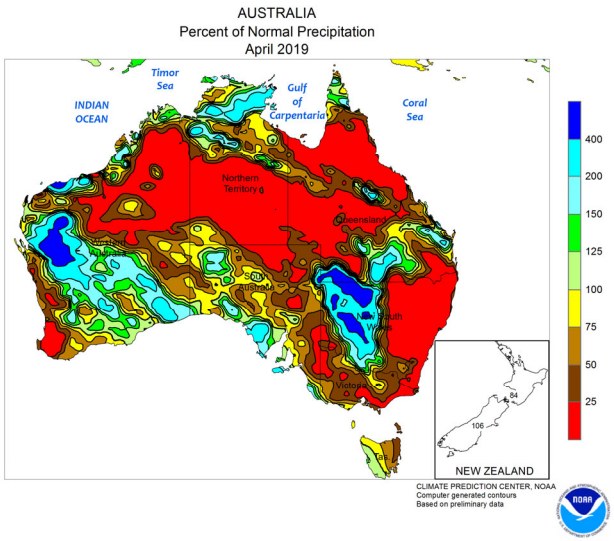
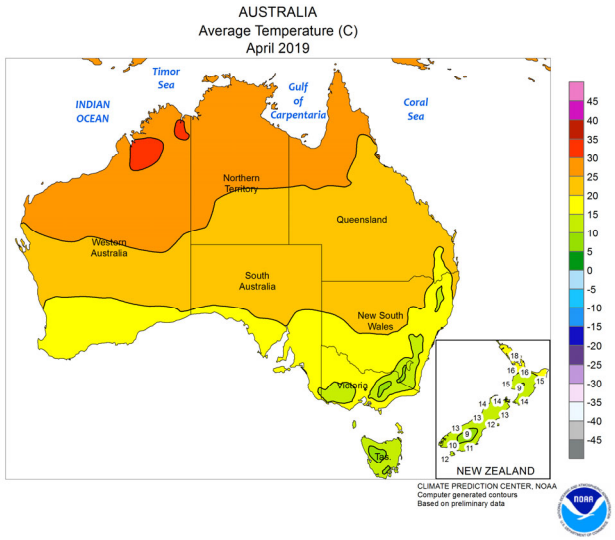
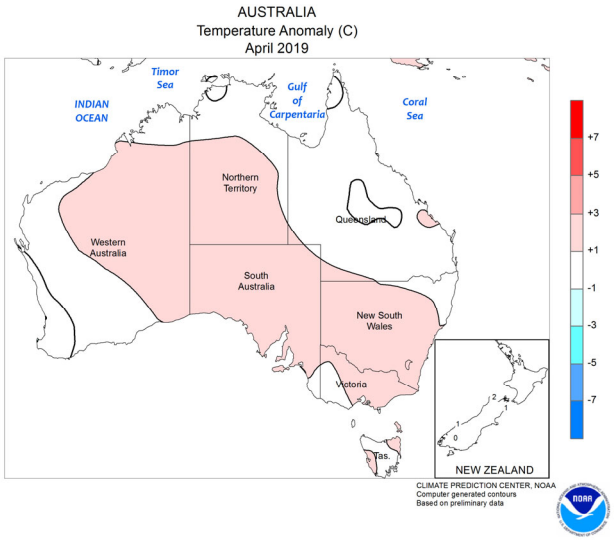


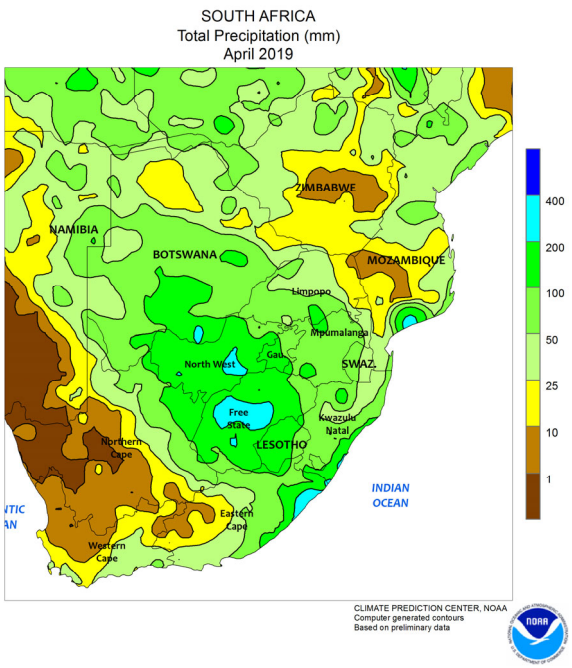


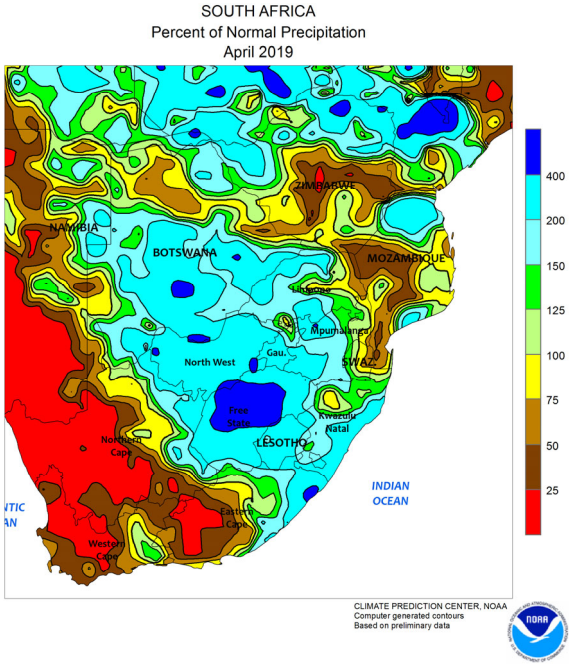


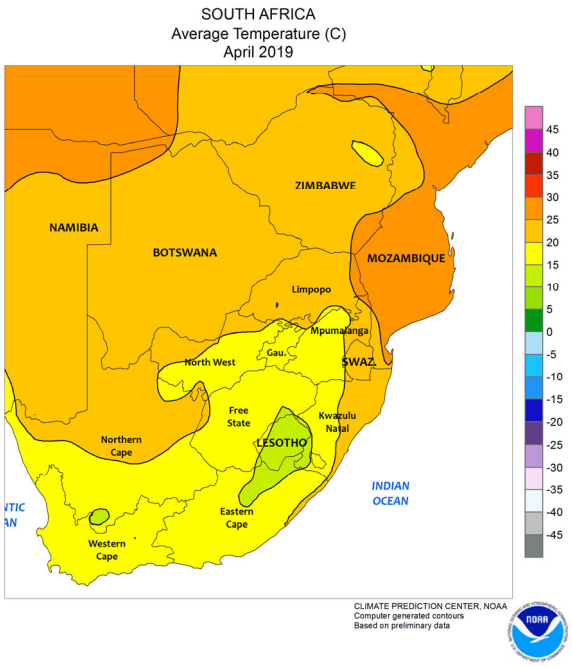


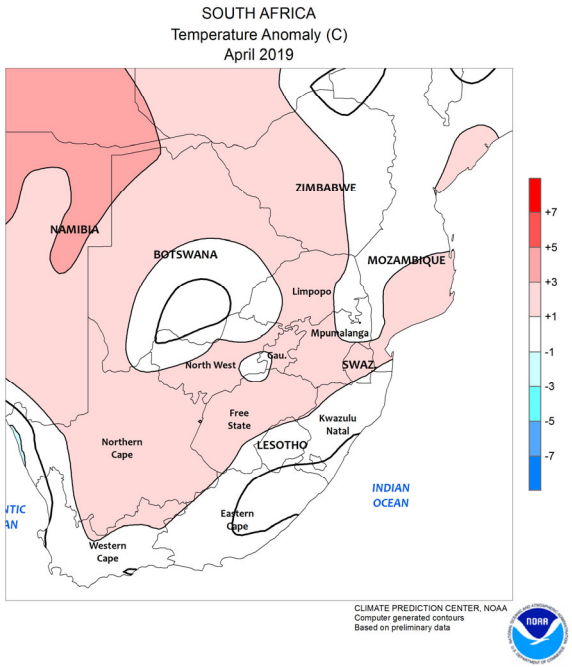
AUSTRALIA

During April, mostly dry weather dominated the wheat belt, offering little drought relief in advance of winter crop planting. The dryness allowed cotton, sorghum, and other summer crop harvesting to progress at a rapid pace, but the lack of rain kept the topsoil unfavorably dry for wheat, barley, and canola planting in most areas. Consequently, some farmers were reportedly dusting crops into dry fields, but many farmers were waiting to sow hoping soaking rain would arrive soon. Winter crop planting typically begins in April, with most winter grains and oilseeds planted in May and June.



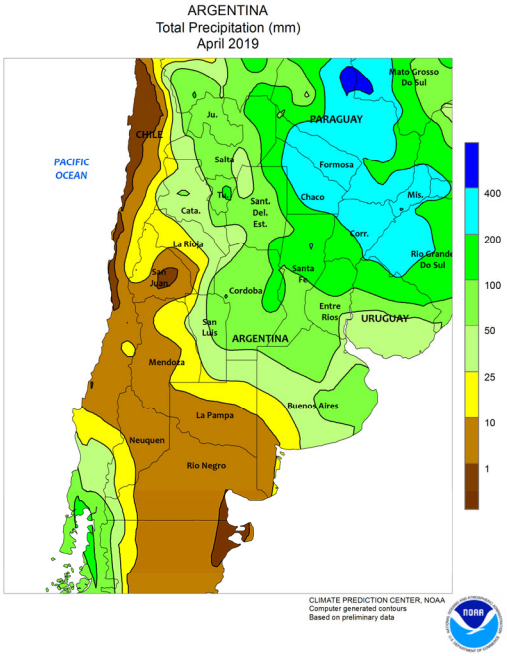


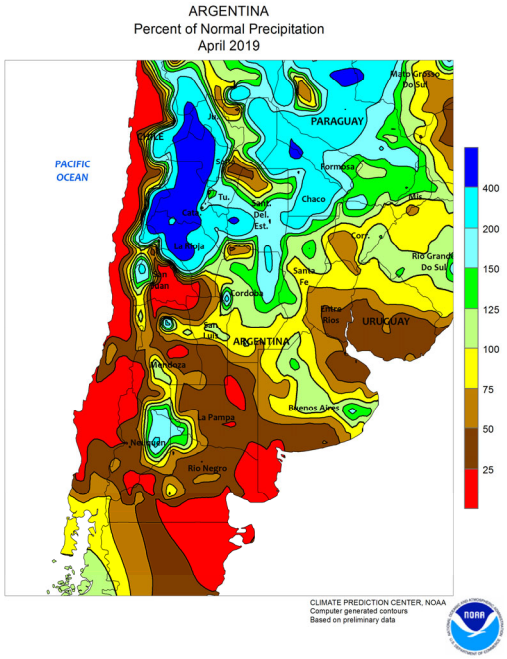


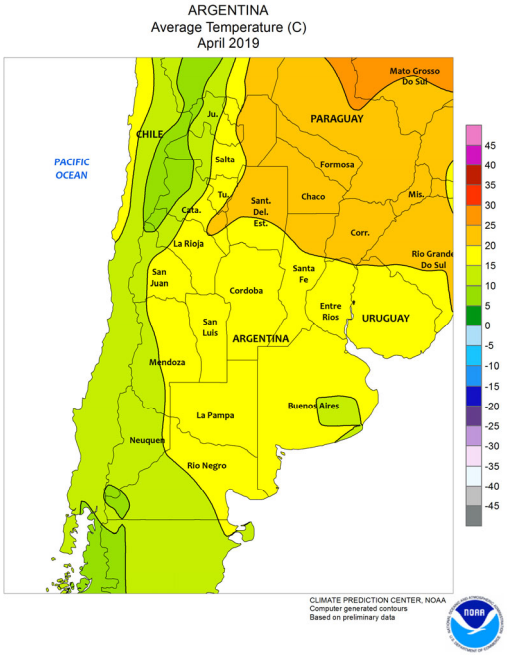


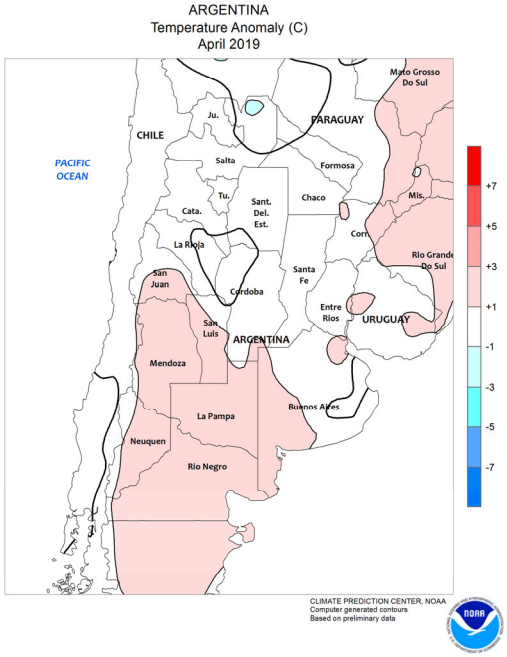
SOUTH AFRICA

In April, unseasonably heavy rain helped to recharge soil moisture in advance of the upcoming winter wheat season, though the moisture came too late to significantly improve crop prospects in western sections of the corn belt. In eastern commercial farming areas (Northwest and Mpumalanga southeastward into Eastern Cape and KwaZulu-Natal), much of the rainfall was recorded over a brief period during the second half of the month, pushing monthly totals upwards of 200 percent of normal (monthly accumulations in excess of 100 mm at many locations). Temperatures averaged near to slightly above normal during April, though seasonal cooling occurred, occasionally allowing nighttime lows to fall below 5°C. Farther west, showers improved planting moisture for wheat in southern production areas of Western Cape, but drier conditions prevailed in farmlands in northwestern sections of the province.



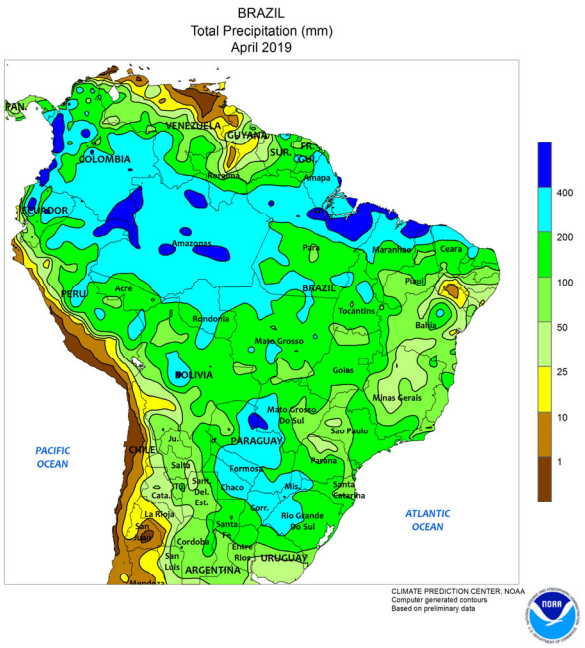


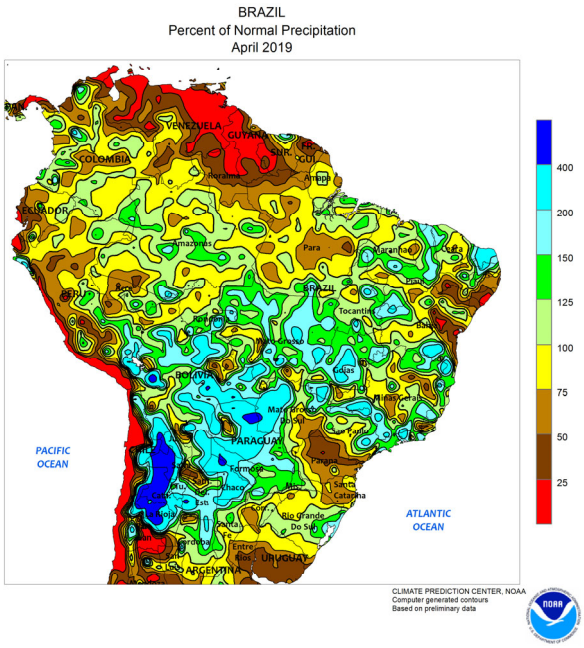


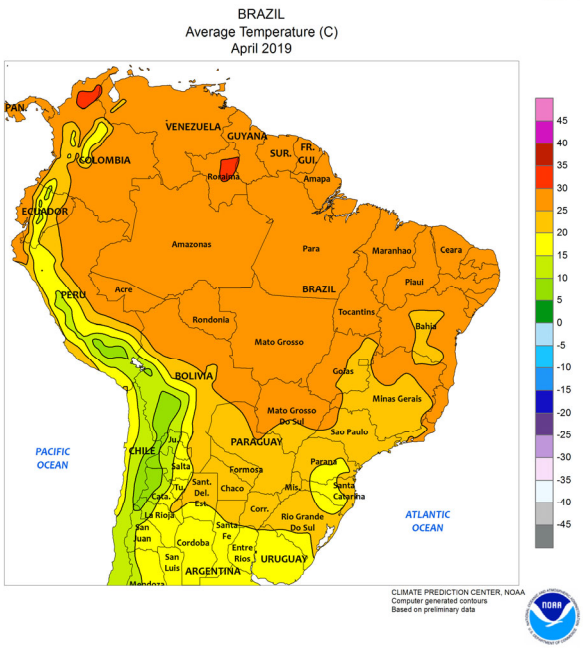


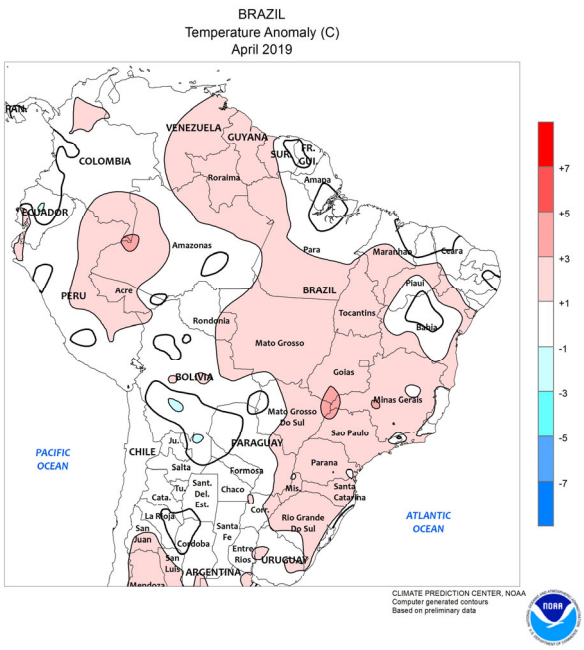
ARGENTINA

Periods of locally heavy rain during April disrupted summer crop harvesting while increasing moisture for germination of winter grains. Monthly accumulations exceeding 100 mm were recorded from Cordoba north- and northeast-ward over a broad region stretching from Salta to Corrientes. The moisture was particularly untimely for mature cotton in northeastern production areas (notably northern Santa Fe, Chaco, and Formosa), where accumulations of 200 to more than 300 mm were recorded. Rainfall was less frequent in southern farming areas (La Pampa, Buenos Aires, and Entre Rios), supporting harvesting of corn, soybeans, and sunflowers. Monthly temperatures averaged 1 to 2°C above normal throughout the country, with only localized frost (nighttime lows falling near 0°C), favoring a rapid pace of summer crop maturation.



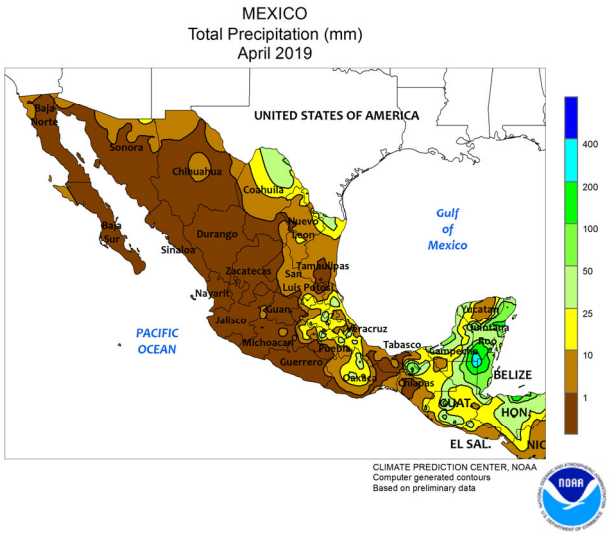


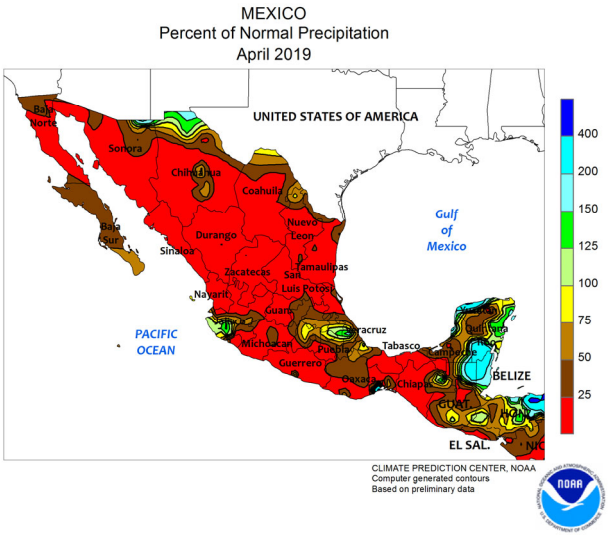


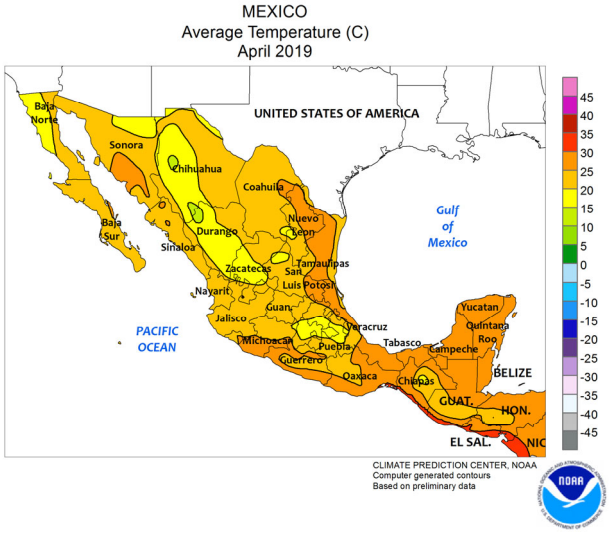


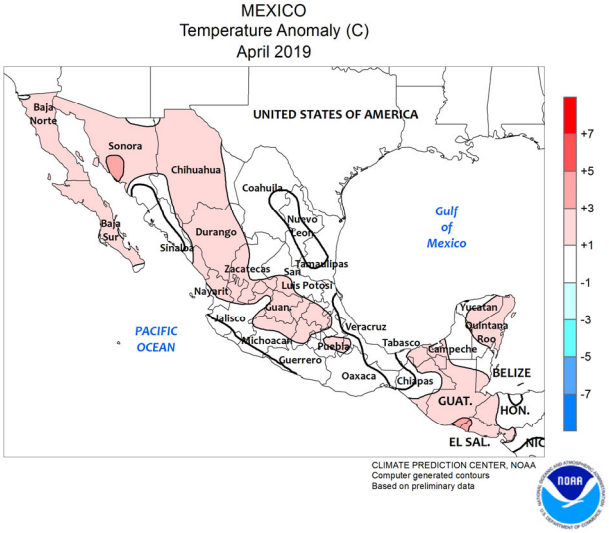
BRAZIL

The extension of seasonal showers through the latter half of April sustained favorable levels of moisture for corn and cotton in primary production areas of central and northeastern Brazil. Monthly rainfall accumulations exceeded 100 mm throughout much of the Center-West and northeastern interior regions (Mato Grosso and northern Mato Grosso do Sul northeastward through western Bahia and environs), with totals in excess of 200 mm in northern sections of Mato Grosso and Tocantins. Summer warmth (daytime highs reaching the middle and upper 30s degrees) sustained rapid rates of crop development in the aforementioned areas. Farther south, April rainfall was patchy, with pockets of dryness (monthly rainfall totaling below 100 mm) centered over northern Parana and nearby locations in Mato Grosso do Sul and Sao Paulo. Rain was more frequent and closer to normal in Rio Grande do Sul. April rainfall was near to above normal in northern Sao Paulo and Minas Gerais, providing a late-season boost in moisture for sugarcane and coffee, with early month heavy rain followed by seasonably drier, sunny weather during the latter half of the month.





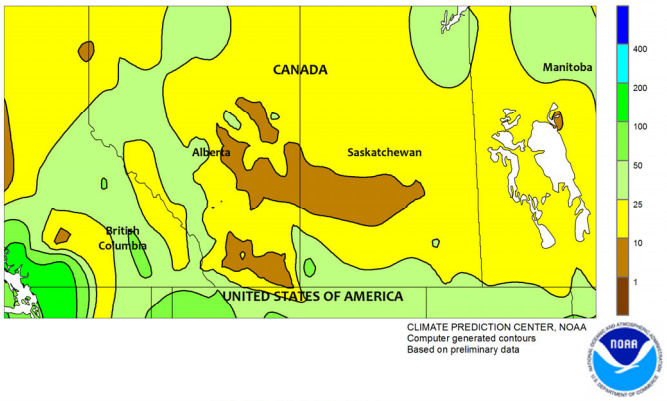




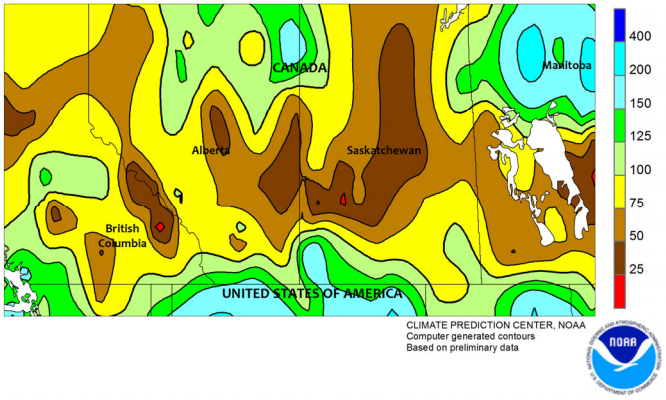
MEXICO

Inconsistent rainfall during the month of April resulted in planting delays of corn and other rain-fed summer crops. Eastern sections of the southern plateau corn belt (Puebla and environs) received only isolated showers. Similarly, unseasonable dryness prevailed in Veracruz, limiting moisture for sugarcane, and many other southeastern farming areas. Elsewhere, widely scattered showers (monthly accumulations reaching 25 mm locally) provided little additional moisture for immature winter sorghum in and around Tamaulipas. Seasonable dryness dominated from the southern Pacific Coast (Guerrero westward) to the northwest (Chihuahua to Baja Norte) where above-normal temperatures (daytime highs periodically reaching the upper 30s degrees C) fostered rapid development of winter corn and wheat. Planting of corn and other rain-fed summer crops typically occurs in western sections of the southern plateau (including Michoacan and Jalisco) upon the arrival of seasonal rainfall in May.

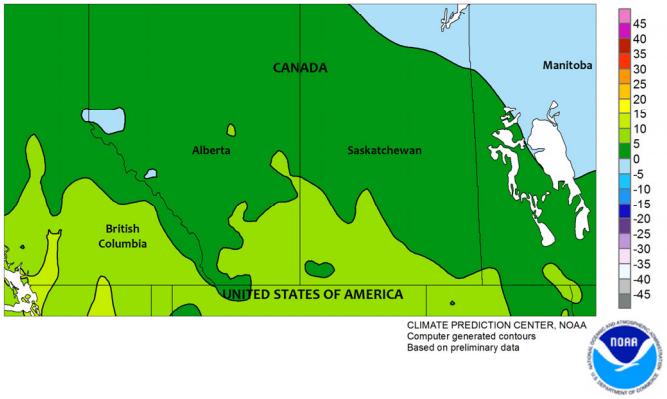
CANADIAN PRAIRIES
Total Precipitation (mm)
April 2019



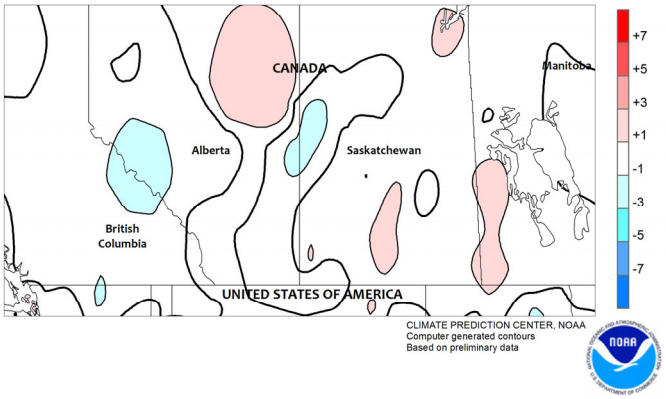
CANADIAN PRAIRIES
Percent of Normal Precipitation
April 2019



CANADIAN PRAIRIES
Average Temperature (C)
April 2019

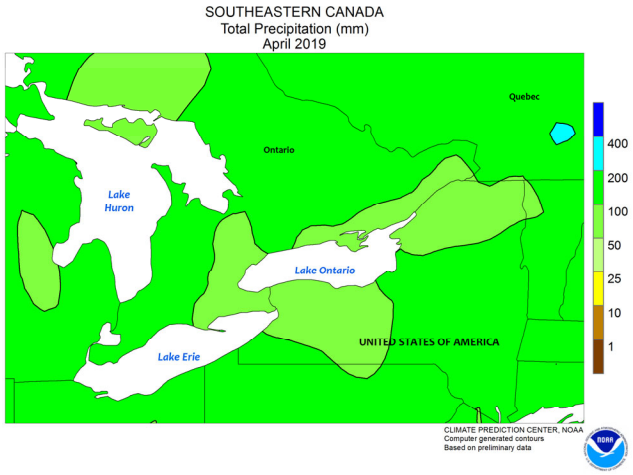


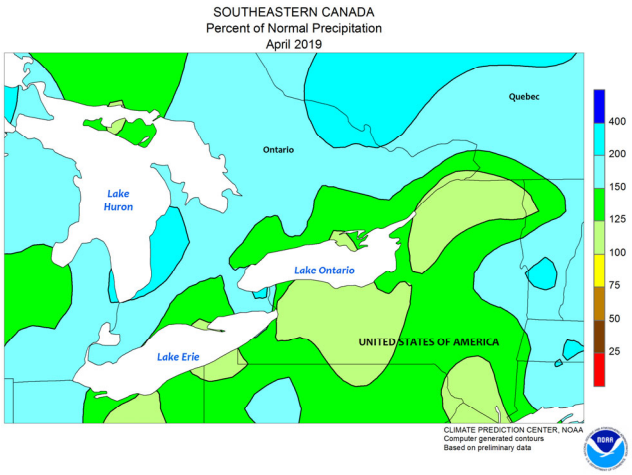
CANADIAN PRAIRIES
Temperature Anomaly (C)
April 2019

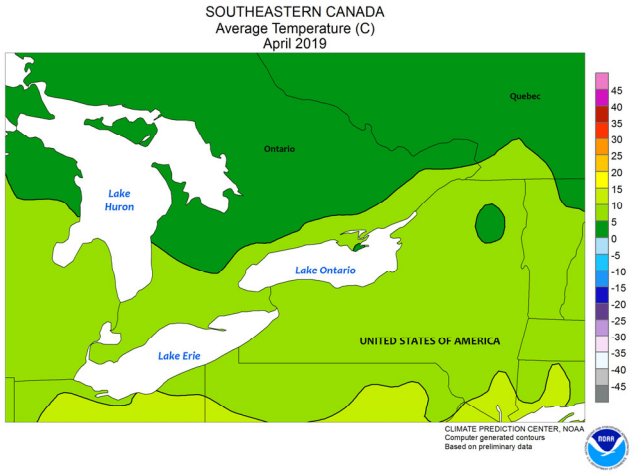


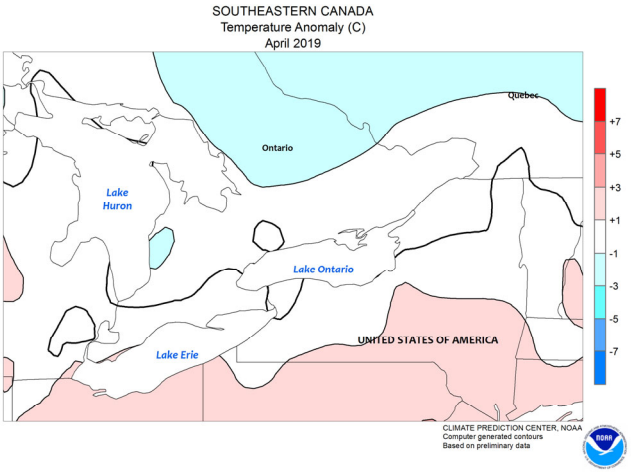
CANADIAN PRAIRIES

Spring grain and oilseed planting began toward the end of April, aided by scattered showers and seasonal warming. While lingering snow cover contributed to some fieldwork delays in Manitoba, snow-fire fields allowed planting to progress in all but northern-most farming areas of Alberta and Saskatchewan, in locations where soils had adequate warmth and moisture for germination. Monthly average temperatures were near to slightly above normal, reaching 5°C in many locations by the middle of April. Although the early warmth aided growth of winter wheat and pastures, nighttime lows continued to drop well below freezing (-5°C or lower) throughout the month, limiting growth of vegetation and reportedly inhibiting germination of early planted spring crops in some areas. April precipitation was variable, with monthly accumulations ranging from 2 to 15 mm in Alberta and northern agricultural districts in Saskatchewan and 15 to more than 25 mm across southern Saskatchewan into Manitoba.





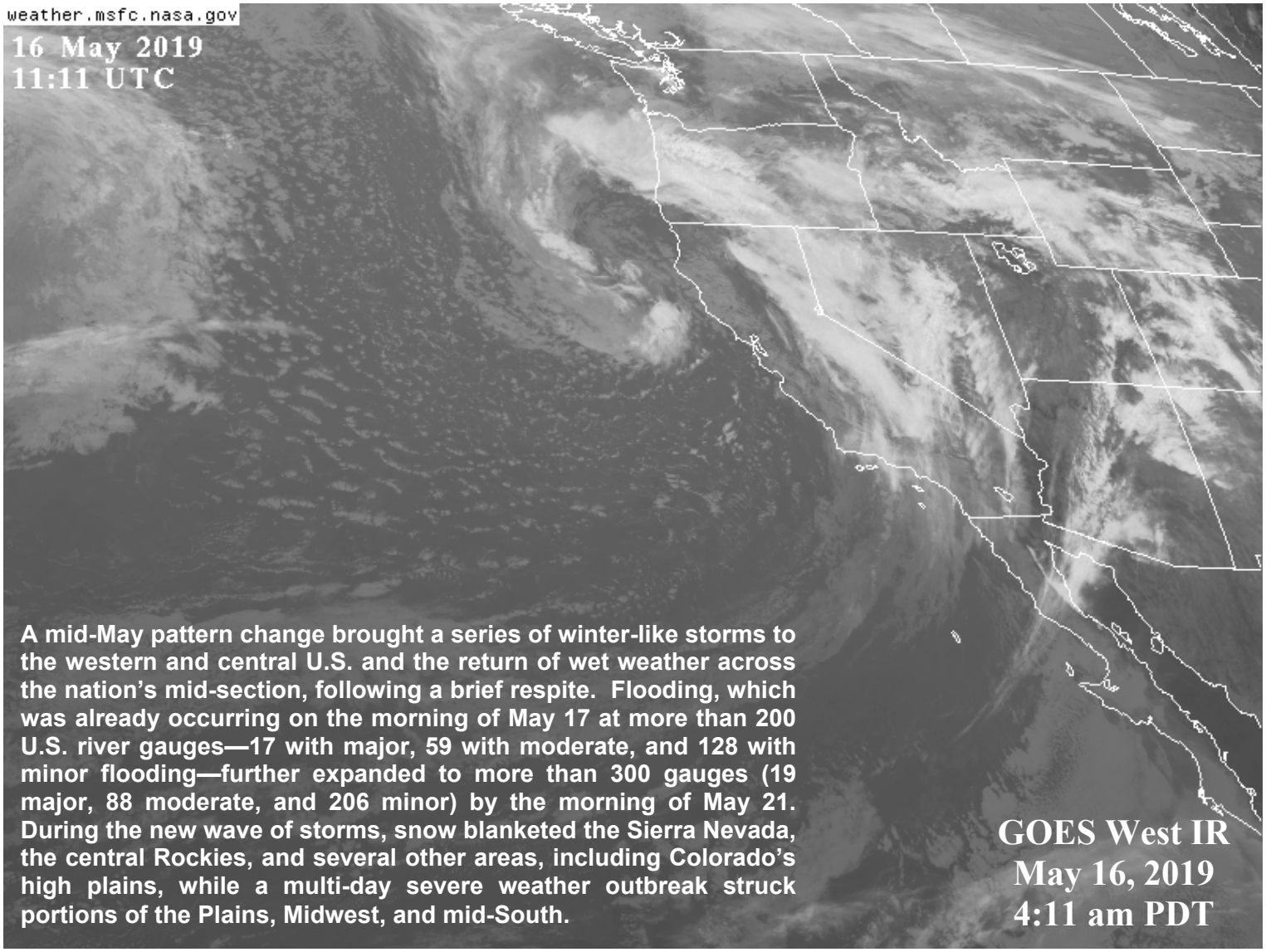




SOUTHEASTERN CANADA

Mild, wet conditions prevailed during April, with seasonal warming allowing winter wheat to break dormancy during the latter half of the month. Precipitation was near to above normal throughout the major agricultural areas of Ontario and Quebec, with much of the precipitation falling as rain; at month's end, however, a moderate to deep snow cover (greater than 10 cm) remained over much of Quebec. April temperatures averaged within 1°C of normal (3-7°C), with seasonal warming evident; however, while freezes became less frequent as the month progressed, nighttime lows fell below 0°C in Ontario's southern-most agricultural areas on April 29.

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



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