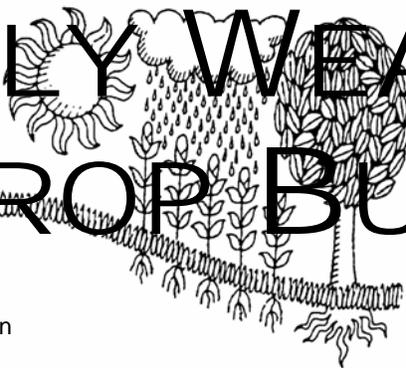
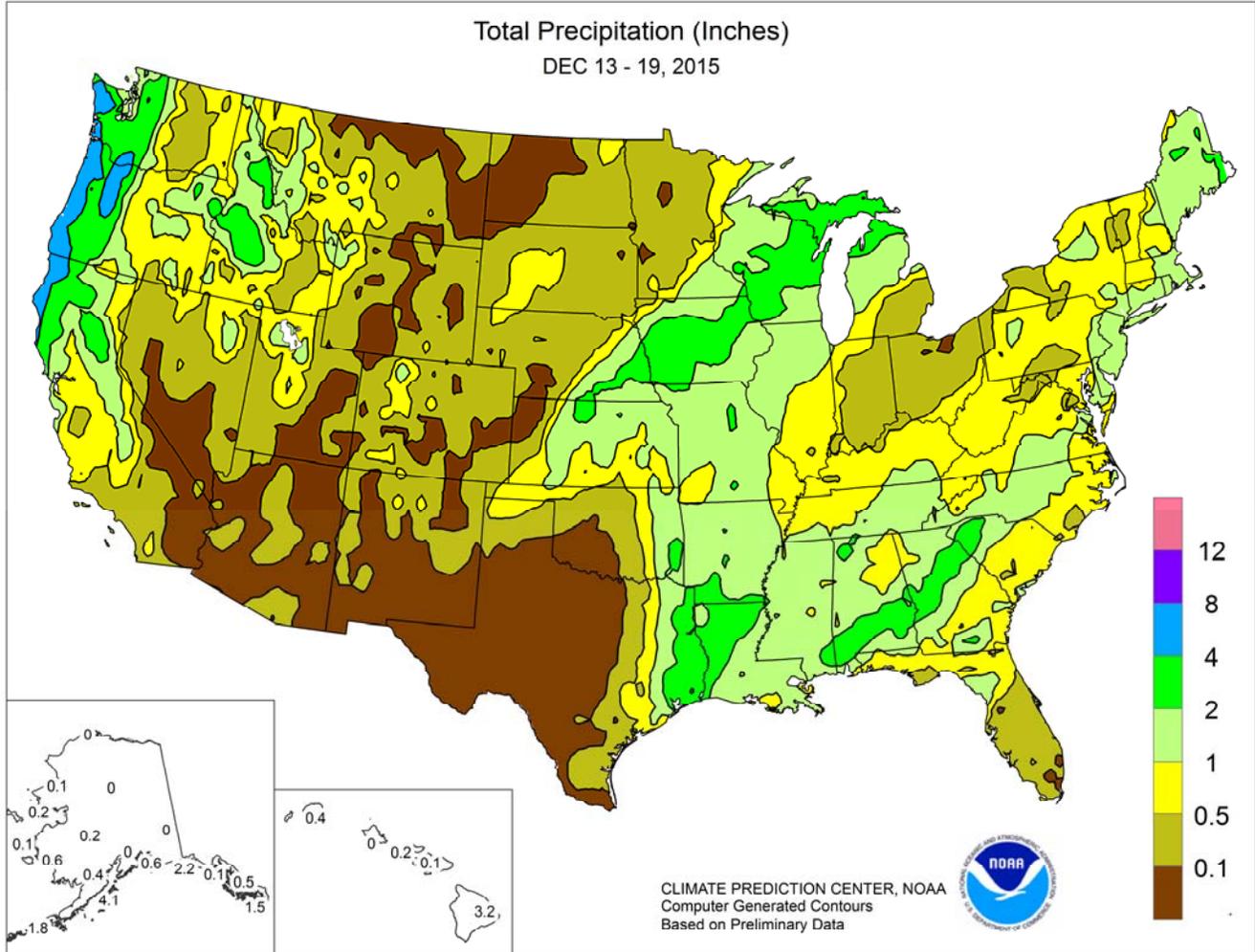


# WEEKLY WEATHER AND CROP BULLETIN



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

### December 13 – 19, 2015

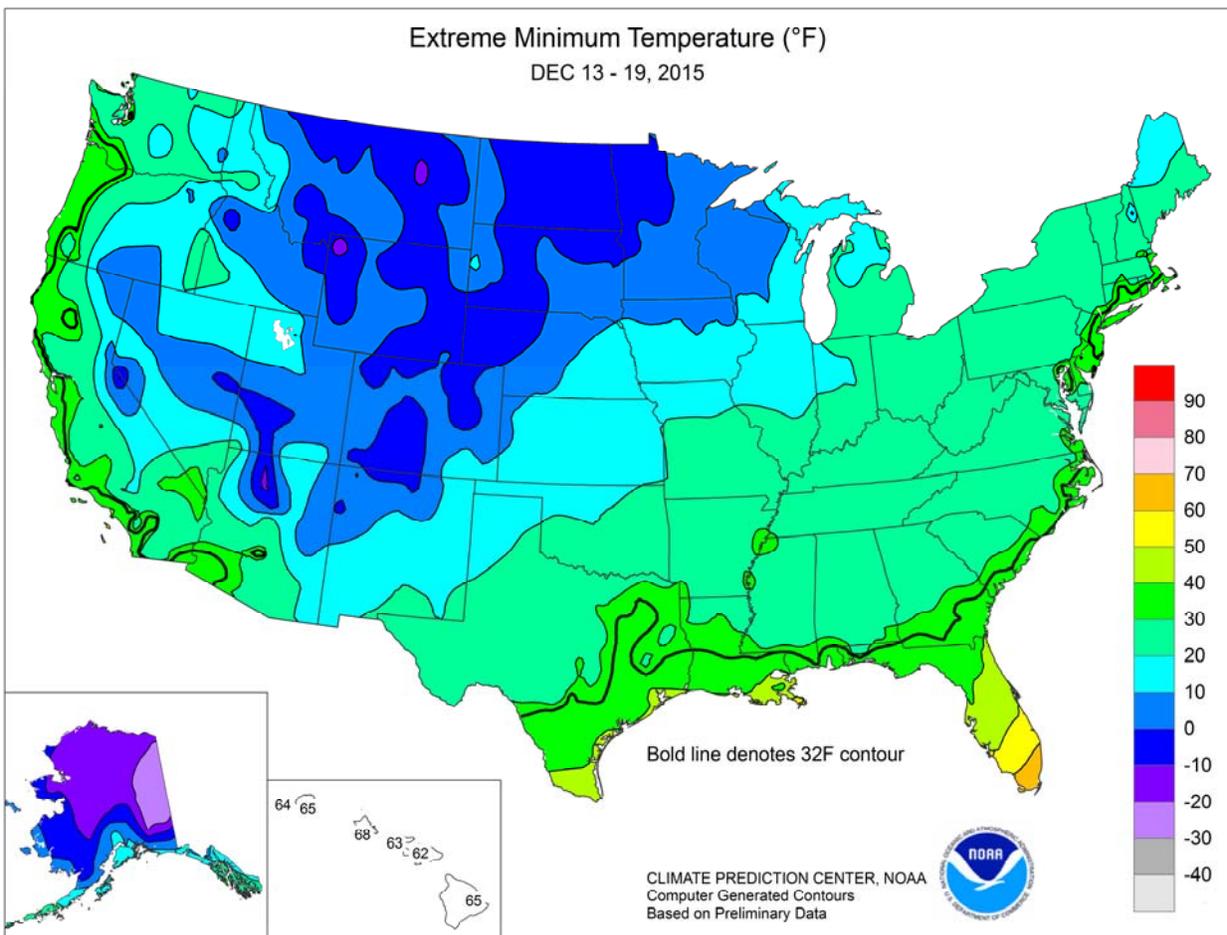
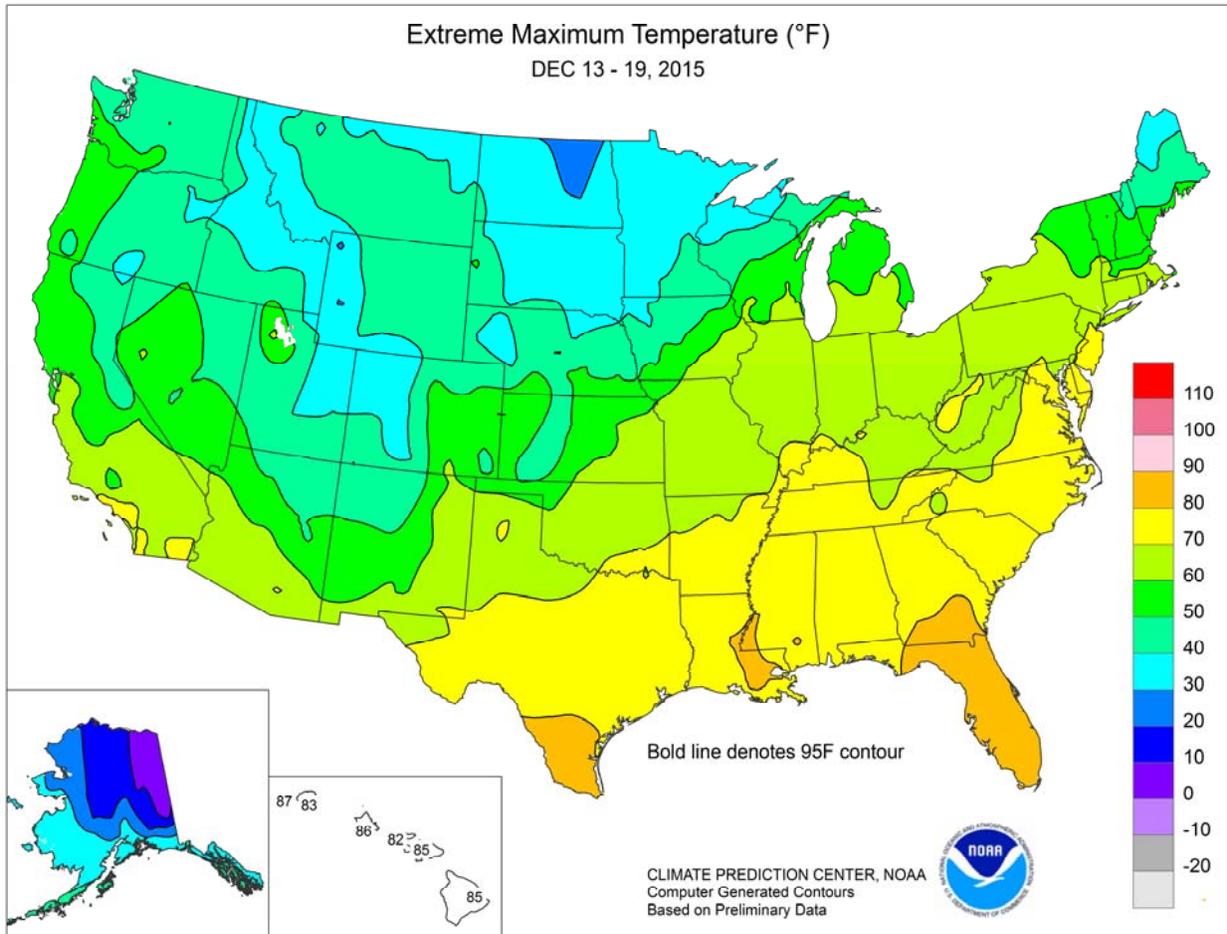
*Highlights provided by USDA/WAOB*

Seemingly relentless storminess continued to ease or eradicate drought in the **Northwest**. In **western Oregon**, the latest round of heavy rain led to flooding. Meaningful precipitation spread as far south as the **Sierra Nevada**, where many more strong storms will be needed to replenish soil moisture, build high-elevation snowpack, and fill drought-lowered reservoirs. Farther inland, **Northwestern** winter grains continued to benefit from ongoing precipitation. Similarly, snow blanketed roughly the **northwestern half of the Plains**, helping to provide

*(Continued on page 3)*

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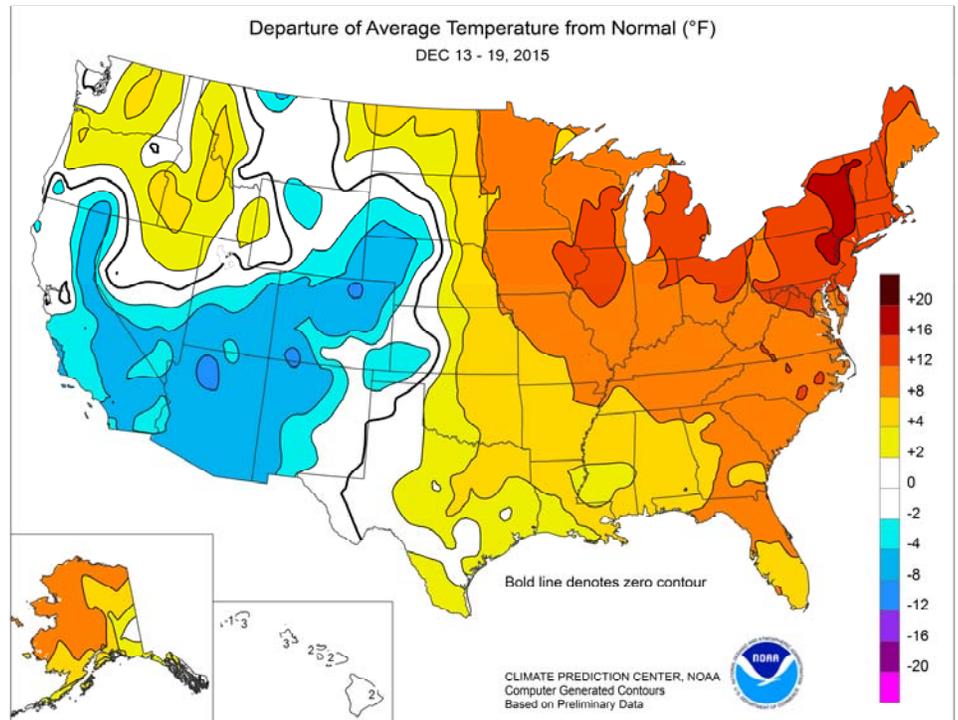


(Continued from front cover)

winter wheat with insulation from a late-week cold snap that sent temperatures plunging below 0°F as far south as **western Nebraska** and **northeastern Colorado**. Meanwhile, the previous week's heavy precipitation gradually shifted from the **nation's mid-section** into the **South** and **East**. Due to runoff from excessive rainfall, flooding continued or developed along many creeks and rivers in the **middle Mississippi Valley**. In the **Southeast**, periodic showers were an impediment to producers still attempting to complete late-season fieldwork. Record-setting warmth continued through mid-week across the **eastern U.S.**, helping to propel weekly temperatures more than 15°F above normal in parts of the **Northeast**. Readings averaged at least 10°F above normal across large sections of the **East** and **Midwest**. Conversely, cool conditions arrived across the **western half of the U.S.** Some of the coolest weather, relative to normal, stretched from **California and the Desert Southwest to the central High Plains**. Freezes were noted in several winter agricultural regions of the **western U.S.**, including **California's San Joaquin Valley** and portions of the **Desert Southwest**.

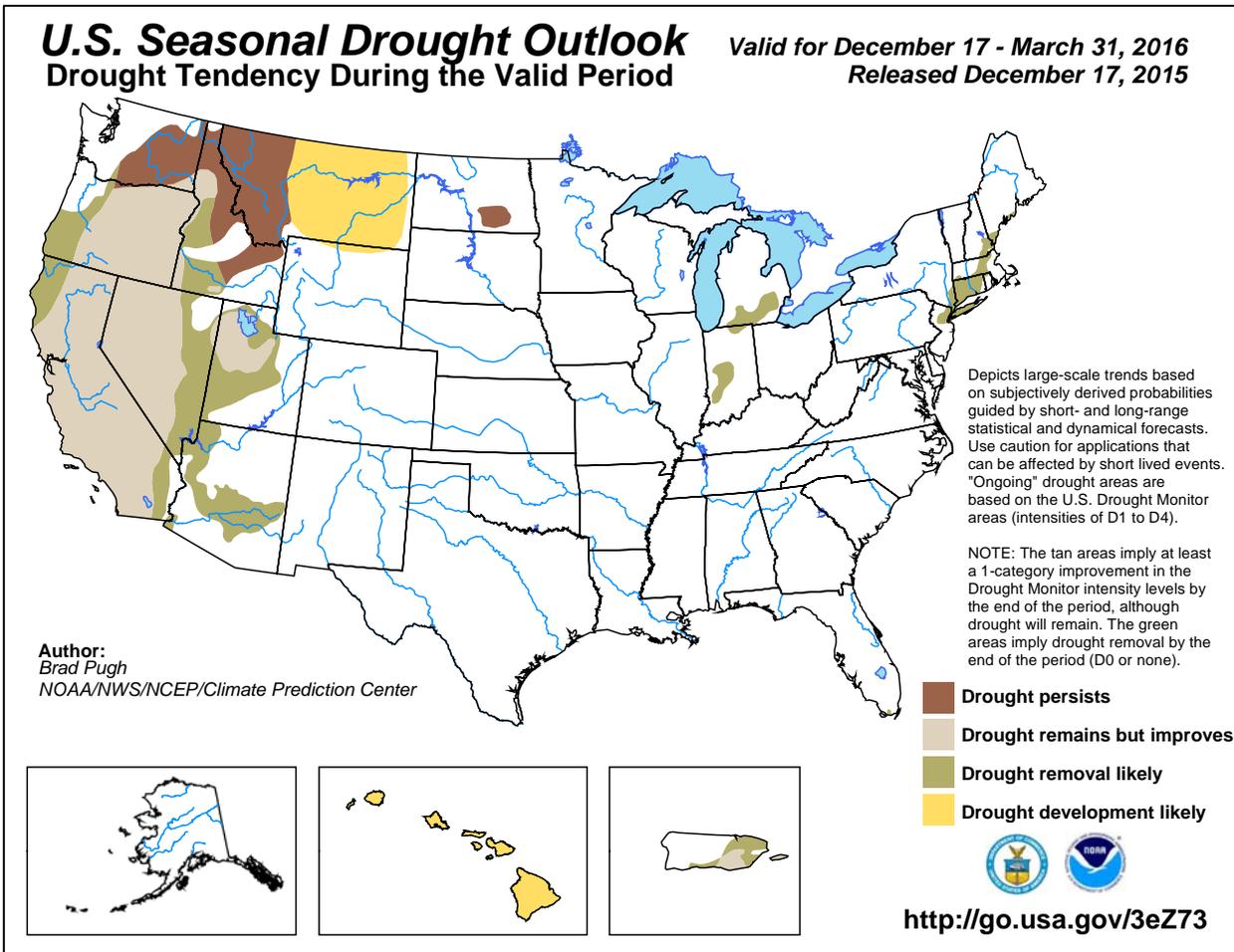
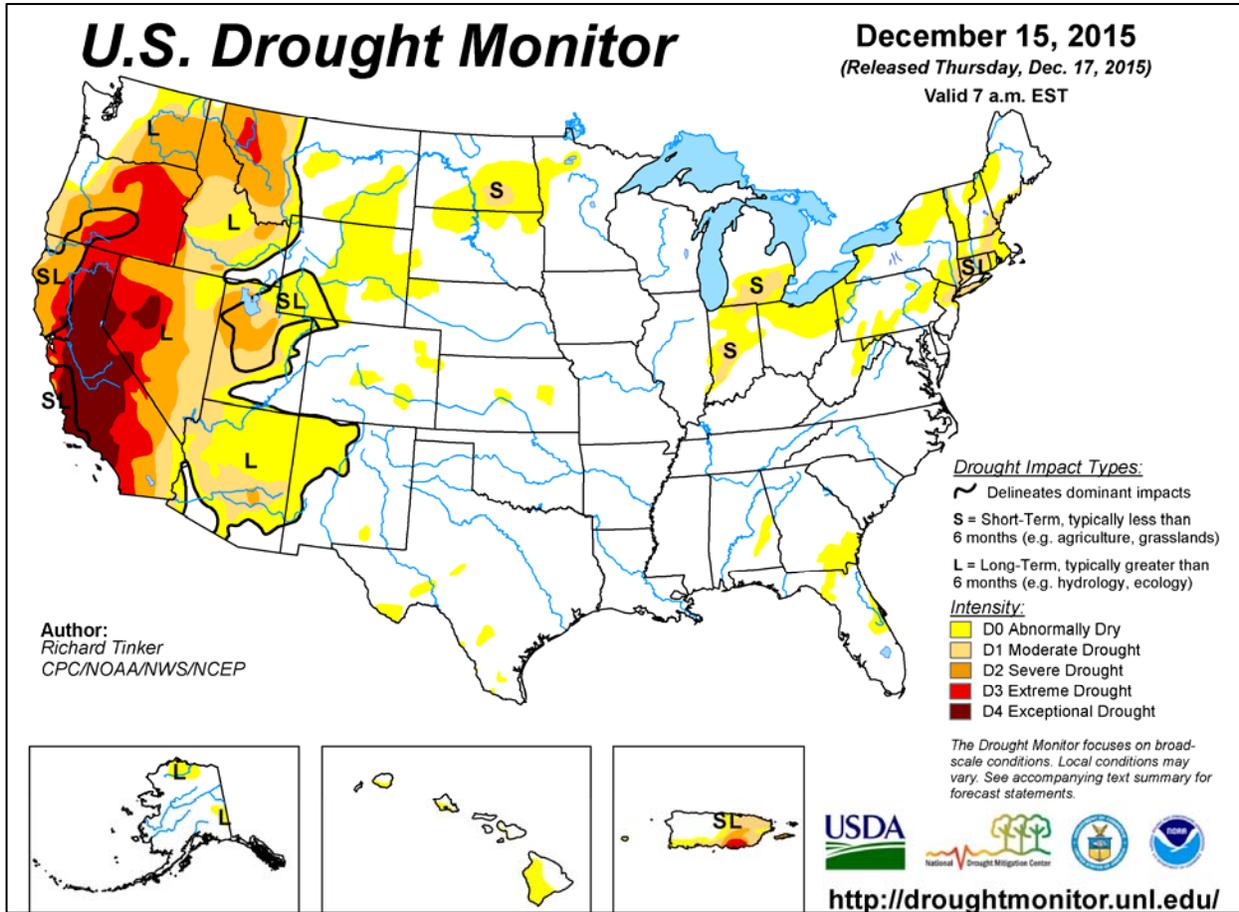
Warmth continued to set records in the **Midwest** and **East** during the first half of the week. **Rockford, IL**, reported highs of 50°F or greater on 6 consecutive days from December 9-14, the longest such December streak in that location since December 1-7, 1916. On December 13, daily-record highs soared to 85°F in **Tampa, FL**; 81°F in **Hattiesburg, MS**; 76°F in **Nashville, TN**; and 71°F in **Evansville, IN**, and **Washington, DC**. In **Illinois**, low temperatures on December 13 dipped only to 61°F in **Springfield** and **Peoria**. **Springfield** tied a monthly record originally set on December 2, 1982. **Peoria's** previous record-high minimum temperature for December had been 59°F—also on December 2, 1982. Daily-record highs were set or tied on 4 consecutive days in locations such as **Philadelphia, PA** (69, 71, 70, and 69°F), and **Georgetown, DE** (74, 71, 75, and 70°F). For **Georgetown**, it marked the first time that daily-record highs were established on 4 days in a row since December 4-7, 1998. **Buffalo, NY**, posted a daily-record high of 71°F on December 14, followed by its first measurable snowfall (0.1 inch) on December 18. A few favored locations downwind of the **lower Great Lakes** received 1 to 3 feet of late-week snow, but **Buffalo** was located on the northern fringe of a snow band. Still, it was **Buffalo's** latest first accumulation, previously set with a 0.2-inch snowfall on December 3, 1899. While **Eastern** warmth prevailed, cold air overspread the **West**. **Camarillo, CA**, reported a daily-record low (33°F) for December 15. On December 16-17, **Douglas, AZ**, notched consecutive daily-record lows of 15°F. Warmth lingered, however, across **Florida**, where **Vero Beach** collected consecutive daily-record highs (84 and 87°F, respectively) on December 16-17.

An extremely heavy winter rainfall occurred on December 13 across parts of the **upper Midwest**. With a 3.32-inch total on the 13th, **Waterloo, IA**, experienced its wettest day on record during any month from October to April (previously, 3.05 inches on April 25, 2008). **Waterloo's** previous wettest December day had been December 5, 1982, when 1.68 inches fell. December 13 was also the wettest December day on record in locations such as **Des Moines, IA** (1.79 inches), and **La Crosse, WI** (1.71 inches). It was also **Des Moines'** second-wettest winter day, behind only 2.13 inches on



January 12, 1960. Meanwhile, daily-record amounts for December 13 in **Kansas** included 2.30 inches in **Salina** and 2.07 inches in **Dodge City**. The precipitation in **Dodge City** included 7.9 inches of snow. By December 14, a round of snow arrived across the **northern Plains**, where **Great Falls, MT**, reported daily records for precipitation (0.77 inch) and snowfall (8.2 inches). It was **Great Falls'** wettest December day on record (previously, 0.74 inch on December 29, 2010), and snowiest day since November 8, 2012, when 9.9 inches fell. In **Wyoming**, December 14-15 snowfall included 10.4 inches in **Casper** and 7.3 inches in **Cheyenne**. In **Nebraska**, record-setting snowfall totals for December 15 reached 8.0 inches in **Scottsbluff** and 4.8 inches in **Valentine**. In **South Dakota**, daily-record snowfall amounts for the 15th totaled 4.3 inches in **Rapid City** and 4.2 inches in **Pierre**. From December 13-16, snowfall included 10.4 inches in **Salt Lake City, UT**, and 9.2 inches in **Duluth, MN**. On December 17, heavy showers overspread the **East**, where locations such as **Athens, GA** (2.01 inches), and **Trenton, NJ** (1.05 inches), reported daily-record amounts. Farther west, a new **Pacific** storm led to flooding in **western Oregon**. Record-setting totals in **Oregon** for December 17 climbed to 3.16 inches in **North Bend**; 3.08 inches in **Newport**; and 1.87 inches in **Portland**. By the 21st, **Portland** set a December precipitation record, surpassing its 1996 standard of 13.35 inches. In **northwestern California**, weekly rainfall in **Crescent City** totaled 7.85 inches. Farther north, **Yakima, WA**, tallied record-setting precipitation (0.39 inch) and snowfall (5.5 inches) totals for December 17.

Mild weather returned to **Alaska**, with weekly temperatures averaging at least 10°F above normal in some western locations. In addition, wet conditions persisted across **Alaska's southern tier**. Daily-record snowfall totals were set in locations such as **Bethel** (4.6 inches on December 18) and **Cold Bay** (2.3 inches on December 16). **Kodiak's** weekly precipitation totaled 4.09 inches, including 11.3 inches of snow. Farther south, shower activity increased in **Hawaii's** windward locations, especially during the second half of the week. On the **Big Island, Hilo's** weekly rainfall of 4.04 inches was boosted by a 1.75-inch total on December 19. At **Hawaii's** other major airport observation sites, December 1-19 rainfall ranged from 0.08 inch (4 percent of normal) in **Honolulu, Oahu**, to 0.81 inch (25 percent) in **Lihue, Kauai**.



National Weather Data for Selected Cities

Weather Data for the Week Ending December 19, 2015

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION								RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN, SINCE DEC 1	PCT. NORMAL SINCE DEC 1	TOTAL, IN, SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMP. °F		PRECIP		
																90 AND ABOVE	32 AND BELOW	.01 INCH OF MORE	.50 INCH OF MORE	
AL BIRMINGHAM	64	42	75	28	53	7	0.88	-0.06	0.42	3.23	121	53.62	103	95	45	0	2	3	1	
HUNTSVILLE	63	40	75	26	52	9	0.94	-0.30	0.56	2.45	71	56.33	102	83	55	0	2	3	1	
MOBILE	69	47	78	32	58	6	2.31	1.33	1.37	2.31	78	71.30	110	96	61	0	1	3	2	
AK MONTGOMERY	66	42	80	28	54	5	1.63	0.52	0.72	1.83	58	44.37	84	90	47	0	1	3	1	
ANCHORAGE	29	21	33	16	25	7	0.06	-0.18	0.04	0.15	24	18.83	120	90	77	0	7	2	0	
BARROW	4	-7	17	-14	-2	9	0.01	0.01	0.00	0.02	200	5.71	142	88	80	0	7	1	0	
FAIRBANKS	5	-11	11	-15	-3	3	0.00	-0.17	0.00	0.00	0	14.31	143	86	80	0	7	0	0	
JUNEAU	36	28	38	19	32	3	0.14	-1.08	0.12	1.27	39	83.81	149	90	78	0	6	2	0	
KODIAK	39	26	41	14	32	1	4.09	2.40	1.68	8.42	191	78.85	109	97	82	0	6	6	4	
NOME	25	9	31	-9	17	8	0.23	0.01	0.17	0.24	38	16.38	101	83	70	0	7	4	0	
AZ FLAGSTAFF	38	7	51	-6	23	-7	0.19	-0.20	0.03	0.71	66	26.92	122	92	41	0	7	1	0	
PHOENIX	60	40	71	35	50	-4	0.16	-0.03	0.16	0.21	43	7.14	91	75	47	0	0	1	0	
PRESCOTT	48	21	58	16	34	-4	0.08	-0.20	0.02	0.20	27	17.93	96	84	31	0	7	1	0	
TUCSON	58	34	71	28	46	-6	0.06	-0.16	0.06	0.47	89	13.41	115	71	40	0	3	1	0	
AR FORT SMITH	59	36	70	27	48	7	2.24	1.47	1.80	3.57	149	66.70	156	86	47	0	3	3	1	
LITTLE ROCK	61	39	71	29	50	7	1.60	0.53	1.40	1.60	50	55.44	112	86	42	0	1	2	1	
CA BAKERSFIELD	56	35	61	32	45	-2	0.40	0.26	0.24	0.43	113	3.84	63	82	60	0	2	2	0	
FRESNO	52	34	59	31	43	-2	0.97	0.71	0.72	1.36	197	7.37	70	90	76	0	4	2	1	
LOS ANGELES	63	46	71	40	55	-3	0.48	0.11	0.36	0.53	57	5.42	44	60	32	0	0	2	0	
REDDING	52	38	56	32	45	0	1.75	0.77	1.08	5.16	199	14.18	45	81	69	0	1	3	2	
SACRAMENTO	56	36	57	30	46	0	0.84	0.34	0.39	1.40	102	8.18	49	87	44	0	2	3	0	
SAN DIEGO	64	48	69	44	56	-1	0.32	0.06	0.12	0.51	80	9.51	94	58	39	0	0	3	0	
SAN FRANCISCO	56	44	59	39	50	1	1.04	0.45	0.76	1.84	116	6.91	37	82	63	0	0	3	1	
STOCKTON	56	36	60	30	46	1	0.74	0.37	0.38	1.51	148	6.54	50	89	73	0	2	3	0	
CO ALAMOSA	34	2	40	-5	18	1	0.01	-0.05	0.01	0.23	135	9.42	133	83	49	0	7	1	0	
CO SPRINGS	44	16	59	7	30	1	0.15	0.07	0.15	0.25	132	25.26	147	79	31	0	7	1	0	
DENVER INTL	36	15	52	0	26	-3	0.33	0.27	0.32	0.58	363	18.17	135	75	52	0	7	2	0	
GRAND JUNCTION	33	14	37	8	23	-6	0.27	0.18	0.21	0.33	127	12.86	147	86	67	0	7	3	0	
PUEBLO	46	14	58	4	30	-1	0.18	0.11	0.18	0.31	155	16.58	136	78	55	0	7	1	0	
CT BRIDGEPORT	55	44	63	35	50	15	3.84	3.10	2.19	4.63	225	34.73	81	82	64	0	0	4	2	
HARTFORD	52	39	62	32	46	15	0.84	0.07	0.51	1.43	66	36.39	81	77	59	0	1	3	1	
DC WASHINGTON	59	43	71	30	51	11	0.55	-0.11	0.42	1.59	88	41.78	110	85	59	0	1	2	0	
DE WILMINGTON	58	42	69	30	50	13	1.04	0.30	0.85	2.29	112	45.81	111	88	59	0	1	3	1	
FL DAYTONA BEACH	78	61	84	44	70	9	0.42	-0.16	0.39	0.57	36	43.92	91	97	60	0	0	3	0	
JACKSONVILLE	75	58	82	36	66	11	0.53	-0.02	0.29	0.55	37	44.52	87	96	60	0	0	5	0	
KEY WEST	81	75	83	69	78	6	0.35	-0.11	0.34	2.68	218	34.33	90	91	79	0	0	2	0	
MIAMI	83	72	85	64	77	7	0.08	-0.41	0.05	9.36	664	61.60	107	90	66	0	0	2	0	
ORLANDO	80	61	85	47	70	7	0.31	-0.19	0.24	0.51	36	53.87	114	95	66	0	0	2	0	
PENSACOLA	68	55	74	41	61	7	0.00	-0.83	0.00	0.00	0	67.33	107	86	56	0	0	0	0	
TALLAHASSEE	75	51	82	35	63	9	0.65	-0.21	0.48	1.50	65	50.65	82	90	58	0	0	3	0	
TAMPA	79	65	85	48	72	9	0.46	-0.06	0.46	0.48	34	63.47	145	92	62	0	0	1	0	
WEST PALM BEACH	82	69	84	60	76	8	0.41	-0.24	0.20	5.73	262	49.00	81	91	65	0	0	3	0	
GA ATHENS	65	43	75	28	54	9	2.17	1.38	1.92	2.23	104	55.03	119	94	61	0	2	2	1	
ATLANTA	64	44	72	29	54	9	1.80	0.99	1.53	1.95	84	57.82	119	85	60	0	2	2	1	
AUGUSTA	70	45	77	26	57	10	1.26	0.60	0.67	1.76	107	42.20	98	95	60	0	1	4	1	
COLUMBUS	66	43	76	29	54	5	2.32	1.36	1.59	2.46	92	48.26	103	93	47	0	1	3	1	
MACON	69	41	77	29	55	7	1.87	1.03	0.94	2.35	110	39.93	92	94	54	0	1	3	2	
SAVANNAH	72	50	79	33	61	10	1.03	0.45	0.45	1.76	121	46.00	95	91	63	0	0	3	0	
HI HILO	82	67	85	65	75	3	3.18	0.86	1.57	4.85	66	133.49	108	89	79	0	0	6	2	
HONOLULU	83	72	86	68	78	3	0.03	-0.61	0.03	0.08	5	20.92	123	80	68	0	0	1	0	
KAHULUI	83	68	85	62	75	2	0.06	-0.60	0.02	0.12	7	28.55	164	83	75	0	0	4	0	
LIHUE	82	71	83	65	76	3	0.37	-0.68	0.24	0.79	28	29.08	77	81	71	0	0	4	0	
ID BOISE	41	28	51	17	35	4	0.65	0.35	0.33	1.68	198	10.93	94	87	71	0	4	5	0	
LEWISTON	41	32	49	25	37	3	0.34	0.12	0.13	1.39	221	9.85	80	90	77	0	3	4	0	
POCATELLO	34	20	44	5	27	2	0.36	0.14	0.25	0.47	75	10.84	89	89	74	0	6	3	0	
IL CHICAGO/O'HARE	45	33	61	15	39	11	1.35	0.80	0.85	1.74	108	36.72	104	83	71	0	3	3	1	
MOLINE	47	34	65	17	40	13	1.44	0.94	1.22	1.49	104	41.84	112	78	64	0	3	2	1	
PEORIA	49	35	66	18	42	14	1.89	1.34	1.64	2.11	127	45.78	130	80	58	0	3	3	1	
ROCKFORD	45	31	62	13	38	13	1.80	1.33	1.38	2.01	144	37.41	104	80	70	0	3	3	1	
SPRINGFIELD	50	36	66	19	43	12	1.15	0.57	0.66	1.26	75	38.82	112	87	60	0	3	3	1	
IN EVANSVILLE	54	40	71	28	47	11	0.42	-0.38	0.39	0.47	20	47.19	109	77	59	0	2	2	0	
FORT WAYNE	47	37	64	21	42	13	0.29	-0.34	0.26	0.36	20	42.60	120	86	66	0	3	3	0	
INDIANAPOLIS	48	36	66	21	42	10	0.30	-0.38	0.28	0.54	27	43.09	108	82	60	0	3	2	0	
SOUTH BEND	45	35	63	22	40	11	0.62	-0.08	0.35	0.77	38	32.96	85	85	71	0	3	4	0	
IA BURLINGTON	47	33	63	17	40	12	1.64	1.16	1.41	1.67	117	39.40	106	91	66	0	4	2	1	
CEDAR RAPIDS	44	28	62	10	36	12	2.34	2.01	1.81	2.42	235	40.51	123	95	70	0	4	2	2	
DES MOINES	43	29	53	15	36	11	2.65	2.36	1.78	3.84	431	43.02	125	77	65	0	4	2	2	
DUBUQUE	43	27	61	10	35	12	2.45	2.08	2.08	2.56	223	37.57	107	88	75	0	4	2	1	
SIoux CITY	38	27	41	14	32	9	1.39	1.26	0.87	1.69	402	33.97	132	81	69	0	4	4	1	
WATERLOO	41	27	52	11	34	12	3.94	3.70	3.32	4.12	528	37.17	113	85	71	0	4	2	2	
KS CONCORDIA	42	26	54	18	34	3	2.02	1.85	1.91	2.51	465	29.19	104	86	68	0	5	2	1	
DODGE CITY	38	22	43	14	30	-3	2.12	1.95	2.08	2.36	524	28.25	128	86	69	0	7	3	1	
GOODLAND	41	17	61	10	29	-1	0.04	-0.02	0.04	0.06	30	20.42	104	87	73	0	7	1	0	
TOPEKA	49	30	64	21	40	8	1.67	1.36	1.64	1.67	172	48.35	137	89	69	0	4	2	1	

Based on 1971-2000 normals

\*\*\* Not Available

Weather Data for the Week Ending December 19, 2015

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS				
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN. SINCE DEC 1	PCT. NORMAL SINCE DEC 1	TOTAL IN. SINCE JAN01	PCT. NORMAL SINCE JAN01	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMP. °F		PRECIP	
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
WICHITA	50	29	63	17	39	5	1.06	0.76	1.01	1.09	128	40.78	136	85	64	0	4	2	1
KY JACKSON	58	40	70	26	49	10	0.70	-0.27	0.55	2.39	87	55.05	115	81	47	0	3	4	1
LEXINGTON	55	38	68	25	47	10	0.63	-0.28	0.39	1.37	55	54.04	122	83	63	0	3	3	0
LOUISVILLE	58	41	72	31	50	12	0.37	-0.45	0.37	0.75	32	56.67	131	75	46	0	2	1	0
PADUCAH	56	37	74	28	47	10	0.69	-0.32	0.36	0.71	24	52.45	110	88	49	0	3	3	0
LA BATON ROUGE	69	45	81	33	57	5	1.70	0.54	0.88	2.09	67	73.35	120	92	44	0	0	3	2
LAKE CHARLES	68	46	77	35	57	4	0.92	-0.05	0.87	1.24	45	62.83	114	96	46	0	0	2	1
NEW ORLEANS	71	52	80	44	61	6	0.96	-0.17	0.35	1.08	33	65.98	106	77	55	0	0	3	0
SHREVEPORT	66	41	76	31	54	6	1.61	0.59	1.61	1.62	58	63.97	129	90	38	0	1	1	1
ME CARIBOU	34	26	39	17	30	13	1.84	1.14	0.80	3.00	157	34.30	95	85	71	0	7	5	1
PORTLAND	47	32	56	27	40	12	1.22	0.28	0.56	1.75	67	40.23	91	95	63	0	4	4	1
MD BALTIMORE	59	39	72	26	49	12	0.65	-0.08	0.51	1.64	83	46.95	116	83	60	0	2	3	1
MA BOSTON	52	41	61	33	47	12	1.20	0.37	0.56	1.66	73	32.19	78	87	59	0	0	4	1
WORCESTER	49	36	60	27	43	14	1.21	0.38	0.58	1.73	76	37.42	79	90	60	0	2	3	2
MI ALPENA	44	33	57	22	38	13	1.61	1.22	0.78	1.69	155	21.97	79	83	70	0	3	3	2
GRAND RAPIDS	46	36	61	23	41	13	0.84	0.23	0.47	1.03	56	30.81	85	87	69	0	2	5	0
HOUGHTON LAKE	42	31	56	19	37	13	1.43	1.05	0.74	1.55	142	26.12	94	86	75	0	4	4	2
LANSING	46	35	63	22	40	13	0.32	-0.17	0.17	0.43	29	32.24	105	82	68	0	3	5	0
MUSKOGON	47	37	63	24	42	13	1.52	0.94	1.05	2.13	125	33.61	105	76	65	0	2	5	1
TRVERSE CITY	44	33	60	21	39	12	0.95	0.37	0.31	1.30	83	28.02	87	83	65	0	3	4	0
MN DULUTH	28	18	37	2	23	8	1.07	0.88	0.69	3.20	471	31.81	103	86	82	0	6	4	1
INT'L FALLS	24	16	34	2	20	11	0.54	0.40	0.31	0.96	209	24.82	105	90	79	0	7	5	0
MINNEAPOLIS	33	23	41	8	28	9	1.13	0.93	0.63	1.46	225	35.28	121	83	72	0	6	4	1
ROCHESTER	34	23	43	6	29	11	1.73	1.52	1.10	1.79	252	34.20	110	90	82	0	6	3	2
ST. CLOUD	29	20	38	4	25	10	0.32	0.18	0.15	0.64	149	32.74	122	89	75	0	6	3	0
MS JACKSON	66	40	80	28	53	5	1.28	0.10	0.84	1.73	53	55.12	102	92	44	0	2	3	1
MERIDIAN	65	39	77	27	52	3	1.79	0.63	0.80	3.06	94	56.19	99	92	54	0	2	3	2
TUPELO	61	39	76	27	50	7	1.58	0.19	0.59	1.98	53	65.37	122	88	54	0	2	3	2
MO COLUMBIA	50	35	67	23	43	11	2.29	1.73	2.15	2.29	132	45.39	115	87	65	0	4	2	1
KANSAS CITY	48	33	63	16	41	9	0.14	-0.22	0.11	0.14	13	43.49	116	87	60	0	4	2	0
SAINT LOUIS	52	39	68	26	45	11	1.25	0.61	0.73	1.26	64	50.79	134	75	55	0	3	3	1
SPRINGFIELD	53	31	65	22	42	6	0.99	0.26	0.89	1.11	48	49.44	112	81	59	0	4	2	1
MT BILLINGS	33	18	44	10	26	0	0.35	0.21	0.21	0.35	103	12.73	88	82	57	0	7	4	0
BUTTE	29	13	38	-11	21	3	0.51	0.40	0.23	0.59	197	11.82	94	89	64	0	7	4	0
CUT BANK	30	11	39	-8	20	-2	0.07	0.01	0.06	0.11	73	8.92	72	94	69	0	7	2	0
GLASGOW	26	12	37	-8	19	3	0.35	0.28	0.31	0.58	363	12.92	117	86	79	0	7	2	0
GREAT FALLS	34	15	46	2	24	-1	0.57	0.43	0.36	0.61	185	15.24	105	94	65	0	6	3	0
HAVRE	31	15	46	6	23	3	0.08	-0.03	0.06	0.24	92	11.89	106	89	77	0	7	3	0
MISSOULA	32	25	38	15	28	5	0.61	0.36	0.24	1.16	176	9.84	74	91	82	0	7	4	0
NE GRAND ISLAND	37	24	51	17	31	5	1.44	1.31	0.80	1.48	322	25.59	100	85	72	0	6	3	2
LINCOLN	41	27	50	15	34	7	2.30	2.13	1.58	3.07	539	39.82	142	83	68	0	4	2	2
NORFOLK	36	24	43	13	30	6	1.12	0.99	0.55	1.43	311	27.00	102	86	77	0	5	4	1
NORTH PLATTE	36	15	47	5	26	0	0.17	0.09	0.17	0.26	113	20.82	107	87	64	0	7	1	0
OMAHA	41	28	46	17	35	9	3.18	2.99	1.88	3.72	564	43.16	144	86	68	0	4	3	2
SCOTTSBLUFF	30	7	40	-8	19	-7	0.42	0.31	0.36	0.61	179	23.54	146	85	73	0	7	2	0
VALENTINE	29	11	44	-8	20	-4	0.12	0.06	0.10	0.60	286	26.66	137	89	80	0	7	3	0
NV ELY	37	14	49	-3	26	0	0.18	0.10	0.17	0.32	145	8.96	92	77	62	0	7	2	0
LAS VEGAS	54	36	61	32	45	-2	0.00	-0.08	0.00	0.01	5	4.49	105	45	30	0	1	0	0
RENO	44	26	58	18	35	1	0.24	0.05	0.24	0.50	96	8.25	116	75	58	0	6	1	0
WINNEMUCCA	40	23	56	15	31	1	0.56	0.39	0.33	0.79	176	9.72	122	87	67	0	7	3	0
NH CONCORD	46	35	57	28	41	15	0.93	0.29	0.46	1.17	64	34.71	95	89	59	0	2	3	0
NJ NEWARK	59	46	68	34	52	15	1.32	0.56	1.02	1.83	84	36.49	81	78	61	0	0	3	1
NM ALBUQUERQUE	41	22	47	18	32	-4	0.23	0.14	0.23	0.87	378	11.37	123	75	41	0	7	1	0
NY ALBANY	52	39	61	31	46	17	0.75	0.16	0.41	1.39	82	36.37	98	76	56	0	1	3	0
BINGHAMTON	48	38	62	23	43	15	0.57	-0.12	0.33	1.68	85	40.78	108	86	74	0	2	3	0
BUFFALO	50	37	71	25	43	13	0.32	-0.54	0.22	0.47	19	34.62	88	84	61	0	2	3	0
ROCHESTER	49	38	69	27	43	13	0.24	-0.37	0.13	0.84	49	34.80	106	79	64	0	2	2	0
SYRACUSE	50	38	66	27	44	15	0.58	-0.12	0.33	2.03	97	39.26	101	83	63	0	2	3	0
NC ASHEVILLE	60	38	68	26	49	10	0.52	-0.20	0.40	2.30	112	47.88	105	83	56	0	2	2	0
CHARLOTTE	65	44	76	27	54	9	1.36	0.69	1.23	1.50	82	42.79	102	86	50	0	1	3	1
GREENSBORO	62	43	71	25	52	11	1.25	0.59	1.23	1.83	101	43.66	104	93	57	0	1	2	1
HATTERAS	69	55	75	40	62	12	0.72	-0.23	0.34	1.95	77	66.53	119	86	61	0	0	4	0
RALEIGH	64	45	75	26	55	12	1.09	0.45	0.89	1.13	65	52.17	125	89	60	0	1	3	1
WILMINGTON	70	48	77	31	59	10	0.75	-0.06	0.28	1.65	74	68.50	123	94	54	0	1	4	0
ND BISMARCK	24	12	31	-7	18	2	0.43	0.35	0.23	0.86	358	17.69	106	88	79	0	7	2	0
DICKINSON	25	14	34	2	20	1	0.04	-0.02	0.02	0.22	110	11.69	72	91	77	0	7	2	0
FARGO	28	17	34	0	22	9	0.24	0.13	0.17	0.45	150	21.14	101	86	75	0	7	2	0
GRAND FORKS	25	14	32	-7	20	8	0.23	0.12	0.22	0.75	242	20.99	108	87	74	0	7	2	0
JAMESTOWN	23	12	30	-5	18	4	0.05	-0.03	0.05	0.12	55	22.36	122	90	79	0	7	1	0
WILLISTON	26	13	39	2	20	6	0.18	0.07	0.11	0.30	94	11.80	85	83	75	0	7	2	0
OH AKRON-CANTON	51	38	63	21	44	13	0.22	-0.45	0.17	0.37	19	37.88	101	76	63	0	3	2	0
CINCINNATI	53	37	65	23	45	10	0.33	-0.40	0.33	0.82	40	43.64	105	81	61	0	3	1	0
CLEVELAND	52	39	65	23	45	13	0.11	-0.61	0.10	0.33	16	38.15	101	80	59	0	2	2	0
COLUMBUS	52	37	65	24	45	11	0.17	-0.48	0.16	0.41	22	40.51	108	80	60	0	3	2	0
DAYTON	51	36	66	23	43	11	0.24	-0.45	0.21	0.29	15	37.01	96	85	64	0	3	2	0
MANSFIELD	50	36	62	22	43	13	0.13	-0.61	0.10	0.26	12	37.61	89	87	64	0	3	1	0

Based on 1971-2000 normals

\*\*\* Not Available

Weather Data for the Week Ending December 19, 2015

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY PERCENT		NUMBER OF DAYS			
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN., SINCE DEC 1	PCT. NORMAL SINCE DEC 1	TOTAL IN., SINCE JAN 01	PCT. NORMAL SINCE JAN 01	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	PRECIP	
																		.01 INCH OR MORE	.50 INCH OR MORE
OK TOLEDO	48	38	63	24	43	13	0.28	-0.32	0.27	0.33	19	33.87	105	81	63	0	3	2	0
OK YOUNGSTOWN	49	37	63	22	43	12	0.27	-0.40	0.16	0.54	28	40.80	110	84	68	0	2	3	0
OK OKLAHOMA CITY	56	31	66	22	44	4	0.72	0.31	0.72	0.74	65	52.70	150	86	44	0	4	1	1
OR TULSA	57	34	67	25	46	6	1.88	1.33	1.87	2.01	119	55.40	133	88	61	0	4	2	1
OR ASTORIA	51	40	57	35	46	3	5.76	3.41	3.18	17.03	256	70.28	111	88	80	0	0	7	4
OR BURNS	34	21	41	11	28	3	0.97	0.69	0.57	2.58	344	9.43	94	87	77	0	6	5	1
OR EUGENE	48	38	54	32	43	4	4.01	2.14	1.88	10.35	192	29.00	60	90	83	0	1	6	3
OR MEDFORD	45	36	53	33	40	2	2.93	2.28	1.74	6.28	336	16.02	92	93	73	0	0	6	2
OR PENDLETON	42	30	49	25	36	2	0.39	0.07	0.21	1.85	203	9.65	79	89	74	0	5	4	0
OR PORTLAND	49	39	55	35	44	4	3.13	1.84	1.86	12.71	348	37.84	108	96	86	0	0	7	2
OR SALEM	49	40	55	35	44	4	3.85	2.38	2.48	12.56	300	37.97	101	90	81	0	0	6	3
PA ALLENTOWN	57	44	68	30	50	18	1.10	0.36	0.91	2.11	100	38.40	88	76	58	0	1	2	1
PA ERIE	52	39	69	27	46	13	0.62	-0.24	0.23	1.28	52	34.75	84	79	62	0	2	6	0
PA MIDDLETOWN	54	42	66	31	48	14	0.63	-0.10	0.32	1.66	79	39.41	100	85	60	0	1	2	0
PA PHILADELPHIA	60	45	71	33	53	15	1.10	0.38	0.92	1.95	98	43.82	108	75	56	0	0	3	1
PA PITTSBURGH	51	38	64	24	44	11	0.64	0.01	0.43	1.04	57	38.59	105	82	61	0	3	3	0
PA WILKES-BARRE	54	43	66	28	49	17	0.50	-0.06	0.27	1.09	65	29.74	81	80	62	0	1	2	0
PA WILLIAMSPORT	52	41	64	27	47	16	0.57	-0.08	0.35	1.70	87	38.87	96	76	62	0	1	2	0
RI PROVIDENCE	54	41	64	32	48	14	1.31	0.40	0.65	1.59	63	37.59	84	85	62	0	1	4	2
SC BEAUFORT	71	49	78	34	60	9	0.70	0.05	0.37	1.33	80	50.07	104	98	56	0	0	4	0
SC CHARLESTON	72	49	77	32	60	9	0.89	0.20	0.42	1.66	93	73.41	147	94	52	0	1	3	0
SC COLUMBIA	71	46	78	28	58	11	0.57	-0.14	0.31	0.90	50	58.03	124	88	55	0	1	4	0
SC GREENVILLE	64	44	74	26	54	10	2.26	1.43	1.65	2.75	122	55.47	114	92	54	0	1	3	2
SD ABERDEEN	28	14	34	-4	21	4	0.30	0.24	0.26	0.54	338	21.10	105	84	76	0	7	3	0
SD HURON	30	17	33	2	23	4	0.30	0.24	0.29	0.48	229	24.80	120	93	78	0	7	2	0
SD RAPID CITY	31	11	46	1	21	-4	0.24	0.16	0.21	0.31	172	24.92	152	86	69	0	7	2	0
SD SIOUX FALLS	32	21	37	5	26	7	0.31	0.22	0.24	0.40	114	32.06	131	86	81	0	6	3	0
TN BRISTOL	61	36	72	20	48	11	0.92	0.18	0.82	2.26	109	41.57	104	96	54	0	2	3	1
TN CHATTANOOGA	62	40	73	26	51	8	1.09	0.05	0.66	3.87	130	60.24	114	90	61	0	2	2	1
TN KNOXVILLE	59	40	72	25	50	9	0.68	-0.31	0.44	3.06	112	46.88	101	92	55	0	2	3	0
TN MEMPHIS	60	42	75	32	51	7	1.11	-0.20	0.64	1.18	31	49.06	93	83	47	0	1	3	1
TN NASHVILLE	62	40	76	28	51	10	0.59	-0.43	0.55	1.25	43	47.13	101	83	43	0	2	3	1
TX ABILENE	60	35	71	22	48	3	0.14	-0.14	0.14	0.25	36	38.44	166	77	37	0	3	1	0
TX AMARILLO	50	23	71	18	37	0	0.33	0.21	0.33	0.68	252	34.53	178	81	37	0	7	1	0
TX AUSTIN	69	37	77	28	53	1	1.18	0.63	1.18	1.21	83	59.95	184	78	49	0	2	1	1
TX BEAUMONT	70	47	78	38	58	4	2.95	1.81	2.74	3.17	103	73.14	127	96	46	0	0	2	1
TX BROWNSVILLE	75	52	84	44	64	3	0.05	-0.18	0.05	0.11	16	47.22	174	92	60	0	0	1	0
TX CORPUS CHRISTI	72	47	80	41	60	2	0.68	0.29	0.68	0.87	86	45.00	143	83	60	0	0	1	1
TX DEL RIO	69	38	77	30	53	1	0.24	0.07	0.24	0.28	62	27.76	155	80	36	0	2	1	0
TX EL PASO	55	33	67	25	44	-1	0.02	-0.15	0.02	0.11	26	11.13	122	55	22	0	3	1	0
TX FORT WORTH	64	41	74	31	53	6	0.65	0.07	0.65	0.73	49	59.48	177	76	35	0	1	1	1
TX GALVESTON	67	53	74	47	60	2	2.96	2.21	2.95	3.26	152	61.31	144	92	58	0	0	2	1
TX HOUSTON	69	45	77	38	57	3	2.12	1.31	2.10	2.18	96	67.01	144	90	52	0	0	2	1
TX LUBBOCK	55	27	69	21	41	1	0.02	-0.12	0.02	0.24	65	28.13	153	78	40	0	7	1	0
TX MIDLAND	60	32	71	24	46	1	0.00	-0.14	0.00	0.16	44	21.57	149	65	34	0	3	0	0
TX SAN ANGELO	64	34	75	22	49	3	0.08	-0.14	0.08	0.53	96	25.07	122	76	32	0	3	1	0
TX SAN ANTONIO	70	41	76	34	55	3	0.75	0.31	0.75	0.75	63	43.47	135	78	33	0	0	1	1
TX VICTORIA	71	42	77	33	57	2	0.61	0.06	0.61	1.08	72	53.17	136	91	60	0	0	1	1
TX WACO	64	40	73	29	52	4	1.02	0.39	1.02	1.04	61	51.16	158	78	54	0	2	1	1
UT WICHITA FALLS	60	33	66	24	46	3	0.90	0.51	0.90	0.90	90	45.65	162	82	45	0	4	1	1
UT SALT LAKE CITY	39	25	51	13	32	2	0.86	0.61	0.77	1.28	180	15.19	95	86	57	0	7	5	1
VT BURLINGTON	48	36	58	27	42	17	0.68	0.20	0.29	2.11	147	36.12	102	81	60	0	1	4	0
VA LYNCHBURG	58	39	69	27	48	10	0.91	0.22	0.85	2.47	129	42.80	102	86	59	0	2	2	1
VA NORFOLK	65	49	77	32	57	12	1.02	0.38	0.60	1.58	93	47.85	108	87	54	0	1	3	1
VA RICHMOND	60	41	72	26	51	10	1.05	0.38	0.97	1.55	87	44.83	105	91	63	0	1	2	1
VA ROANOKE	58	41	68	28	50	11	0.81	0.20	0.78	2.29	130	52.27	126	82	56	0	2	2	1
WA WASH/DULLES	58	39	73	25	49	13	0.72	0.05	0.58	1.50	80	37.13	91	82	62	0	2	3	1
WA OLYMPIA	45	33	50	26	39	1	2.78	1.01	1.42	10.79	213	53.81	112	93	81	0	3	6	2
WA QUILLAYUTE	46	36	49	29	41	0	2.58	-0.70	0.83	13.95	151	91.54	95	91	78	0	3	5	3
WA SEATTLE-TACOMA	46	38	48	34	42	1	1.85	0.59	0.76	8.81	243	42.43	121	89	72	0	0	6	2
WA SPOKANE	35	25	40	12	30	3	0.84	0.34	0.36	3.34	232	12.99	82	95	79	0	6	4	0
WA YAKIMA	42	25	51	16	33	4	0.45	0.15	0.39	2.79	344	8.28	108	84	73	0	6	2	0
WV BECKLEY	54	36	65	22	45	10	0.83	0.15	0.66	2.30	124	46.88	116	84	61	0	2	3	1
WV CHARLESTON	58	37	73	26	48	10	0.68	-0.05	0.42	2.66	125	45.61	106	91	53	0	3	3	0
WV ELKINS	54	35	67	24	45	12	0.47	-0.29	0.27	1.96	92	45.42	101	88	56	0	3	4	0
WV HUNTINGTON	56	37	69	25	46	9	0.72	-0.02	0.48	3.08	150	45.98	112	94	55	0	4	4	0
WI EAU CLAIRE	34	24	43	8	29	11	1.07	0.86	0.52	1.41	201	40.00	126	86	69	0	6	3	1
WI GREEN BAY	41	30	55	14	35	13	3.72	3.42	1.93	4.16	433	31.35	109	85	70	0	3	3	2
WI LA CROSSE	38	26	47	10	32	10	2.69	2.43	1.70	2.82	328	32.38	101	85	65	0	5	4	2
WI MADISON	42	28	60	11	35	11	1.93	1.56	1.44	2.10	186	38.56	119	82	69	0	5	4	1
WI MILWAUKEE	44	32	60	15	38	11	1.50	1.00	0.93	1.81	123	30.84	91	81	67	0	3	3	1
WY CASPER	32	17	45	3	25	1	0.36	0.23	0.23	0.45	125	12.68	99	72	56	0	7	3	0
WY CHEYENNE	35	14	50	3	24	-3	0.11	0.03	0.10	0.23	85	17.20	113	73	51	0	7	2	0
WY LANDER	31	10	43	4	21	0	0.47	0.35	0.27	0.47	124	15.14	115	86	53	0	7	3	0
WY SHERIDAN	32	9	47	-6	21	-2	0.23	0.09	0.12	0.24	65	15.91	110	79	64	0	7	4	0

Based on 1971-2000 normals

\*\*\* Not Available

## Autumn Weather Review

*Weather summary provided by USDA/WAOB*

**Highlights:** Consistent warmth in part related to a strong El Niño led to the nation's warmest autumn on record. Even some November cooling in the western U.S. failed to prevent the former record—set in the fall of 1963—from being broken. Autumn's most impressive heat wave occurred in mid-October, shortly before a significant pattern change brought record-setting rainfall and widespread flooding to parts of the South.

The late-October deluge in the south-central U.S., in part fueled by the remnants of Pacific Hurricane Patricia, was only one of several impressive periods of precipitation. Earlier, moisture indirectly associated with Atlantic Hurricane Joaquin had brought catastrophic, early-October flooding to parts of South Carolina, setting the stage for a very difficult harvest (and winter wheat planting) season for some Southeastern producers.

Farther north, most Midwestern producers were able to complete corn and soybean harvesting before field conditions began to deteriorate during the second half of autumn. Ultimately, parts of the central and western Corn Belt turned wet, with significant snow twice accumulating across portions of the north-central U.S. during the second half of November.

Elsewhere, the early part of the Western wet season had some unexpected results, considering the strong El Niño. The Pacific Northwest received unusually heavy precipitation, with some beneficial rain and snow spreading across the interior Northwest and southward into central California. Early-season storminess also helped to build snowpack in the Great Basin and Intermountain West, but few meaningful storms reached southern California.

**September:** Across large parts of the Plains and Midwest, warm, often dry weather promoted summer crop maturation and early-season harvest efforts. During the 5 weeks ending October 4, seventy-seven percent of the U.S. corn reached maturity, compared to the 5-year average of 68%. In addition, 35% of the U.S. soybeans were harvested during the 2-week period ending October 4, versus the 5-year average of 25%. Meanwhile, winter wheat planting by October 4 was at least 10 percentage points ahead of the respective 5-year averages in Montana (86% planted), South Dakota (86%), Michigan (43%), and Ohio (36%).

However, pockets of dryness were also a concern with respect to winter wheat emergence and establishment in several key production areas. In Texas, where some producers were awaiting rain before seeding, only 37% of the winter wheat had been planted by October 4—versus the 5-year average of 47%. Wheat planting delays of 10 percentage points were also noted in Washington (66% planted by October 4) and Oregon (27%).

Meanwhile, short-term drought intensified during September from the western Gulf Coast region to the mid-South and the Mississippi Delta. The dry weather favored harvest activities, although pastures and late-developing summer crops continued to suffer from the lack of rain. By October 4, less than one-third of the pastures were rated in good to excellent condition in Arkansas, Louisiana, Mississippi, and Texas.

Warmth and dryness were also prominent in much of the eastern U.S., but dramatic late-month changes included heavy rain and flooding. Initially, in late September, local flooding affected parts of the middle and northern Atlantic States. In early October, however, historic

floods engulfed parts of South Carolina and environs, submerging agricultural lowlands and threatening the quality of open-boll cotton.

Elsewhere, September was another warm month in the West, although heavy showers provided local drought relief and triggered flash flooding. Southern California and portions of the Southwest received unusually heavy rain at mid-month, in part due to the remnants of Hurricane Linda. Later, moisture associated with former Tropical Depression Sixteen-E contributed to heavy showers from the Southwest into the upper Midwest. In contrast, ongoing drought in northern and central California contributed to numerous September wildfires, including the destructive Valley and Butte fires.

**October:** From Texas to the Mississippi Delta, a 2- to 4-month drought ended in a late-October deluge. In fact, a pair of storms—plus the remnants of record-setting Hurricane Patricia—hammered the South during the last 10 days of the month, sparking flash flooding just days after record-setting heat, low humidity, and gusty winds contributed to a rash of wildfires.

Farther north, late-month rain largely bypassed an area stretching from the east-central Plains into the middle Mississippi Valley, leaving some winter wheat in need of moisture to ensure proper autumn establishment. By November 1, the portion of the wheat crop rated in very poor to poor condition included 14% in Kansas, 15% in Missouri, and 19% in Oklahoma.

However, long intervals of mostly dry Midwestern weather also promoted a rapid fieldwork pace. By November 1, the U.S. soybean harvest was 92% complete, ahead of last year's 81% and the 5-year average of 88%. Similarly, 85% of the U.S. corn had been harvested by November 1, compared to 62% a year ago and the 5-year average of 79%.

In contrast, early-October downpours in South Carolina and environs led to extensive flooding and fieldwork delays. Among the hardest-hit Southeastern crops was cotton, which was mostly in the open-boll stage of development when flooding rains struck. By November 1, South Carolina led the nation with 31% of its cotton rated very poor to poor, followed by North Carolina at 27%. Despite a doubling of South Carolina's cotton harvest progress, from 21 to 42% complete, during the week ending November 1, overall progress was behind the 5-year average of 51%.

Meanwhile on the Plains, late-month rain provided most areas with beneficial moisture for rangeland, pastures, and winter grains. However, wetness was a concern for cotton on the southern High Plains, where harvest was just getting underway during the second half of October. Prior to the late-October rain, many parts of the Plains had experienced an extended stretch of warm, mostly dry weather.

Elsewhere, October featured record-setting warmth in many Western locations. Nevertheless, precipitation was heavy enough to provide some drought relief in the Pacific Northwest, Great Basin, and Southwest. Despite beneficial showers in some areas, California's 4-year drought continued to manifest itself in the form of substantially below-average reservoir storage and other long-term impacts, such as tree mortality.

**November:** *A complete summary appeared last week.*

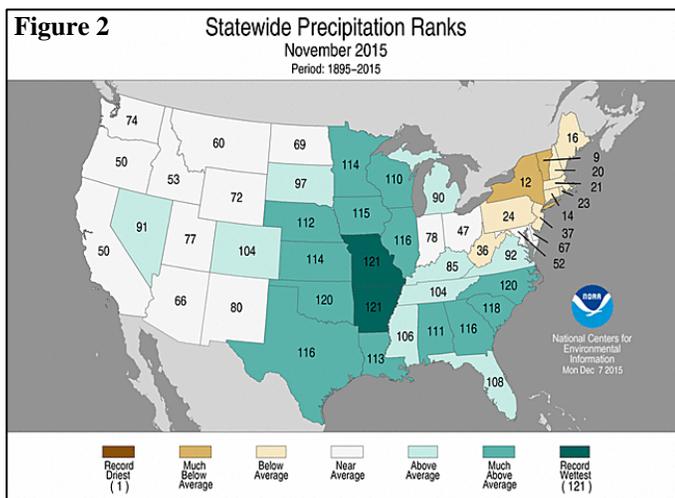
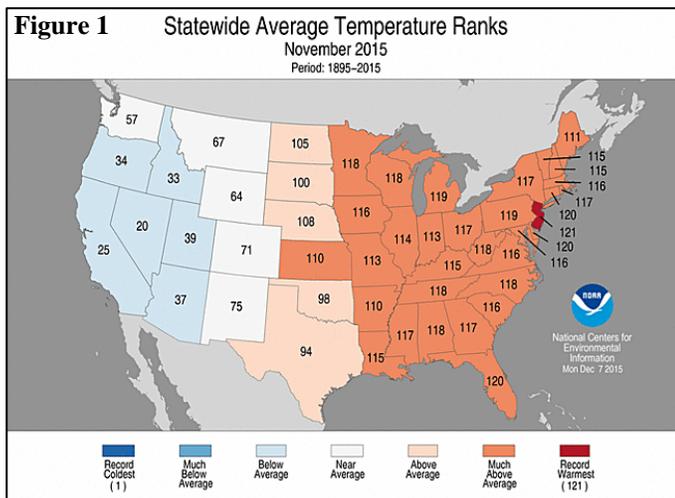
# November and Autumn U.S. Weather in Historical Perspective

Summary provided by USDA/WAOB from information released by NOAA's National Centers for Environmental Information

## November

According to preliminary information provided by the National Centers for Environmental Information, the contiguous U.S. experienced its 13th-warmest, fourth-wettest November during the 121-year period of record. The nation's monthly average temperature of 44.7°F was 3.0°F above the 1901-2000 mean, while the average precipitation of 3.30 inches was 148 percent of normal. It was the nation's warmest November since 2009 and the wettest since 1985. Along with 1985, when precipitation averaged 3.54 inches across the Lower 48 states, only 1983 (3.92 inches) and 1948 (3.39 inches) were wetter.

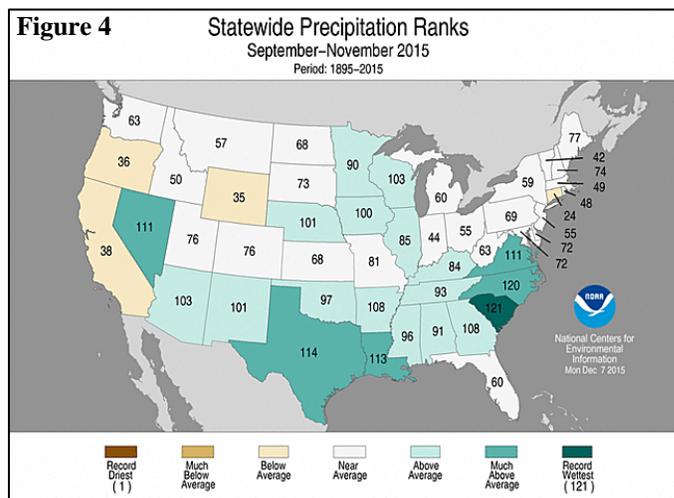
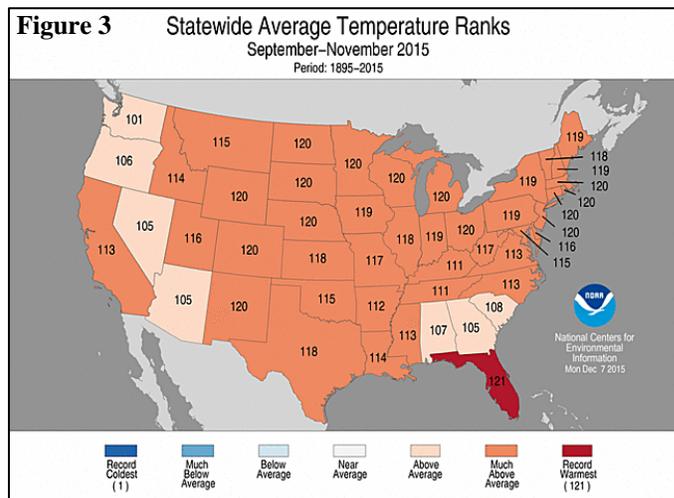
Average temperatures were among the ten highest November values on record in all states bordering the Mississippi River, eastward to the Atlantic Seaboard, except Arkansas and Maine (figure 1). And, it was the warmest November on record in New Jersey, supplanting 2006. In contrast, it was the 20th-coolest November in Nevada. Meanwhile, precipitation rankings ranged from the ninth-driest November in Vermont to the wettest on record in Arkansas and Missouri (figure 2). Top-ten rankings for November wetness were noted in eleven states (GA, IL, IA, KS, LA, MN, NE, NC, OK, SC, and TX).

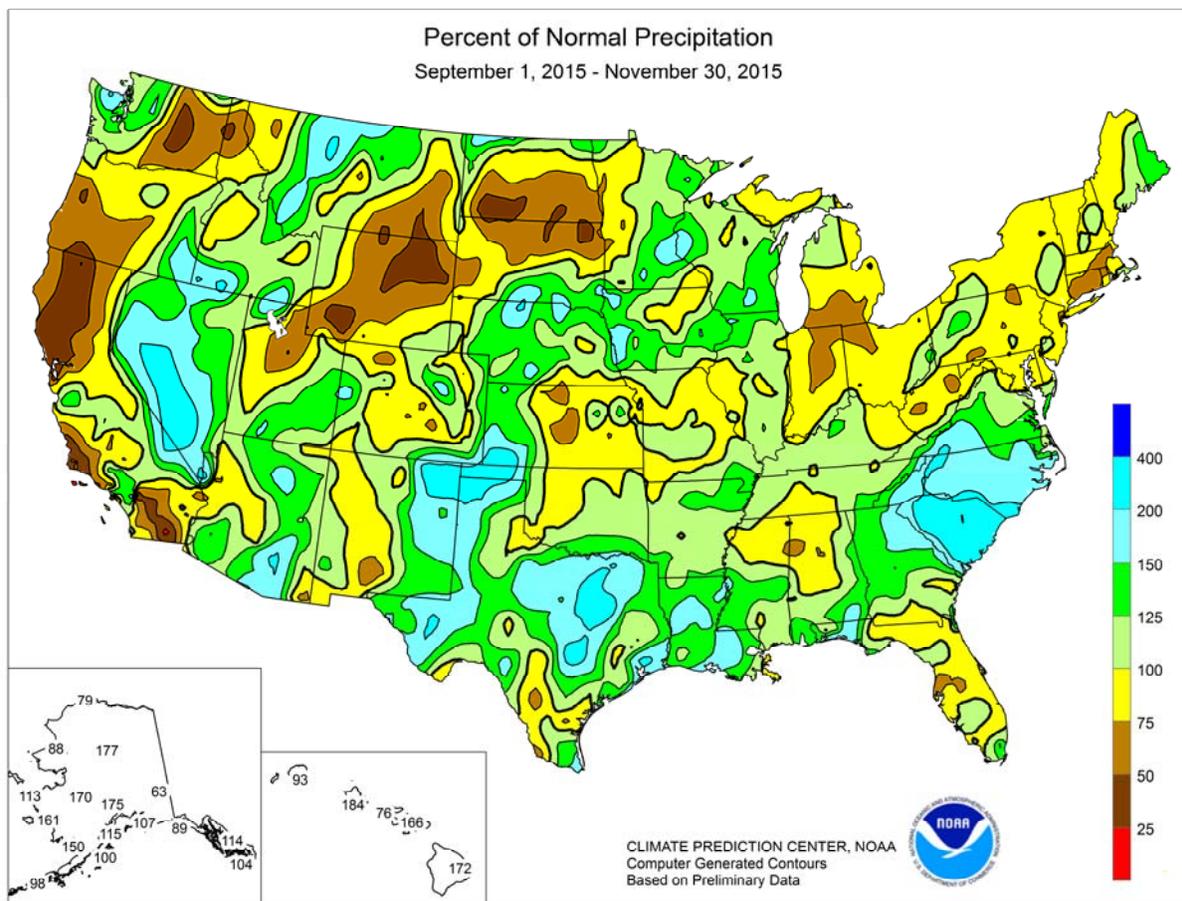
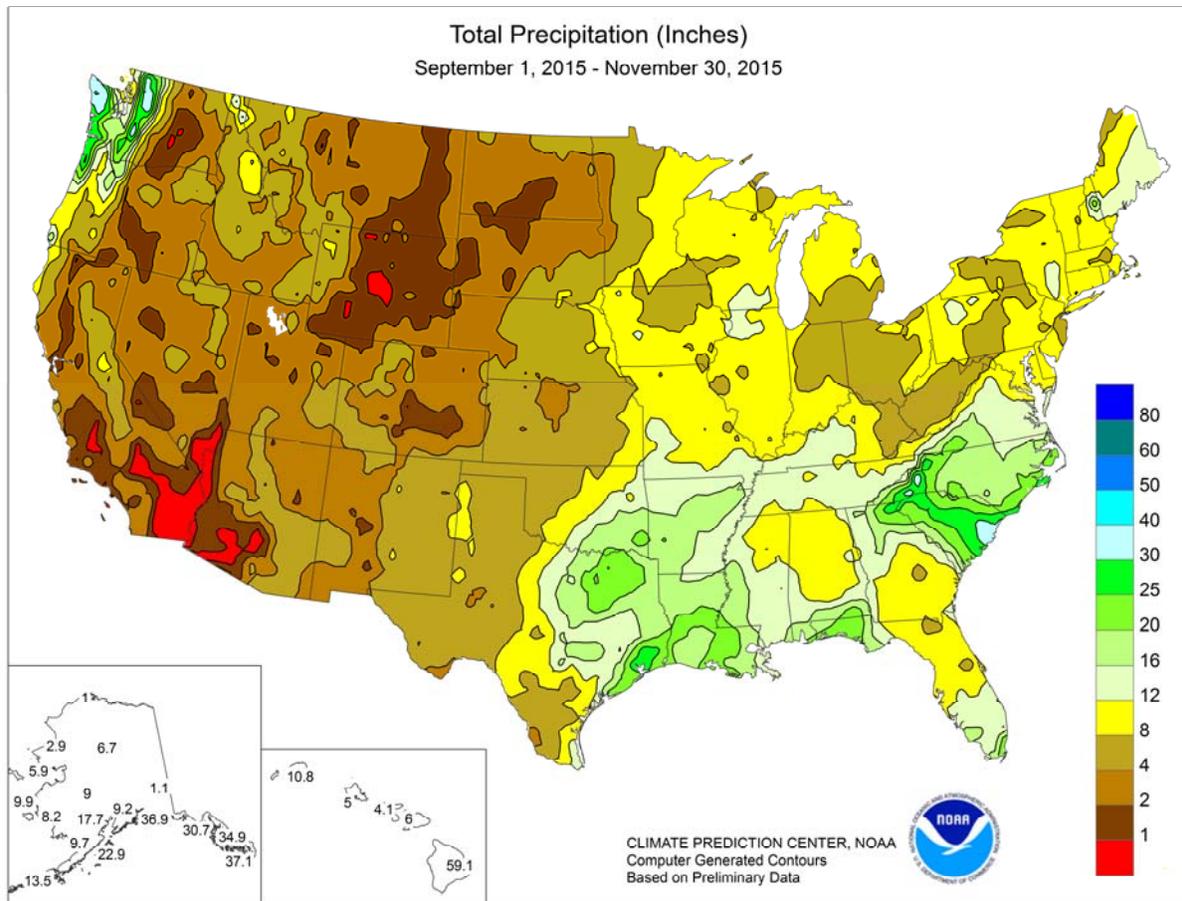


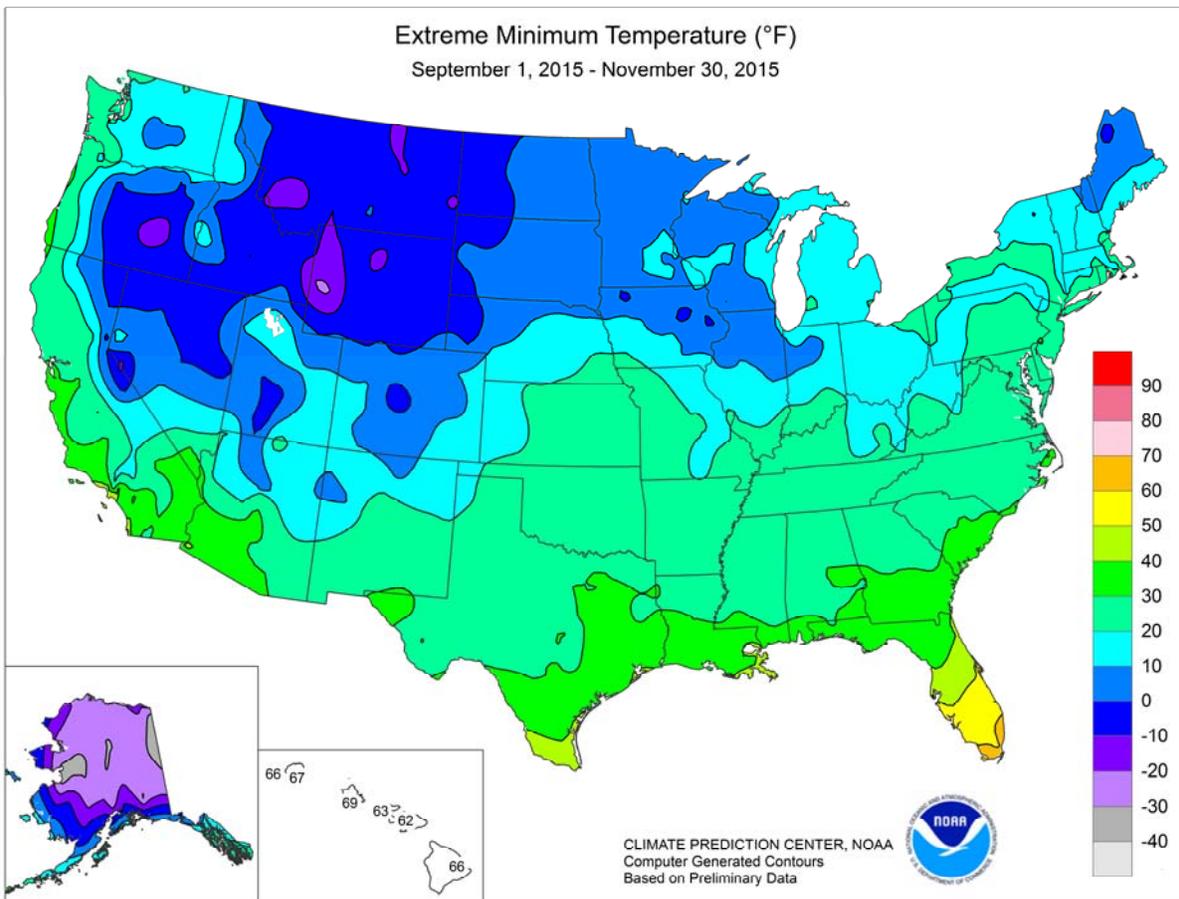
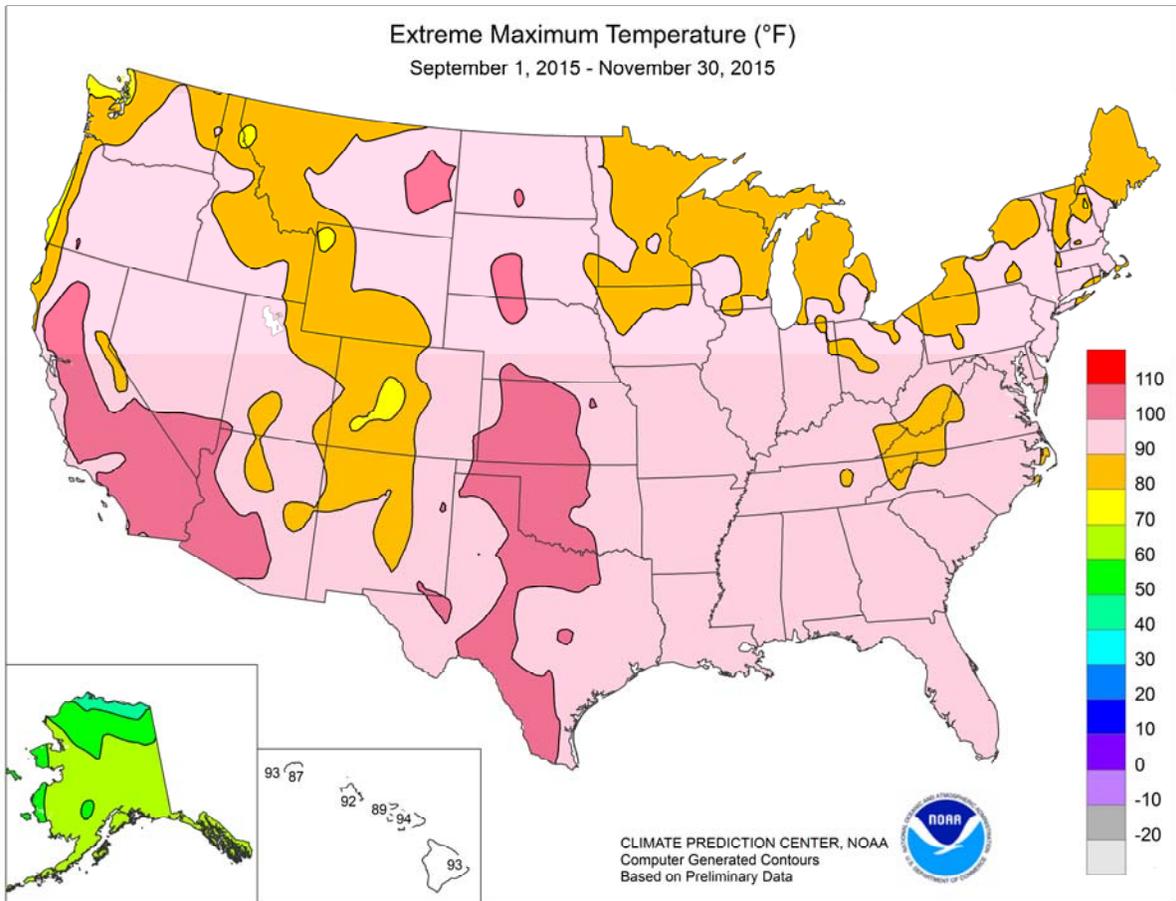
## Autumn

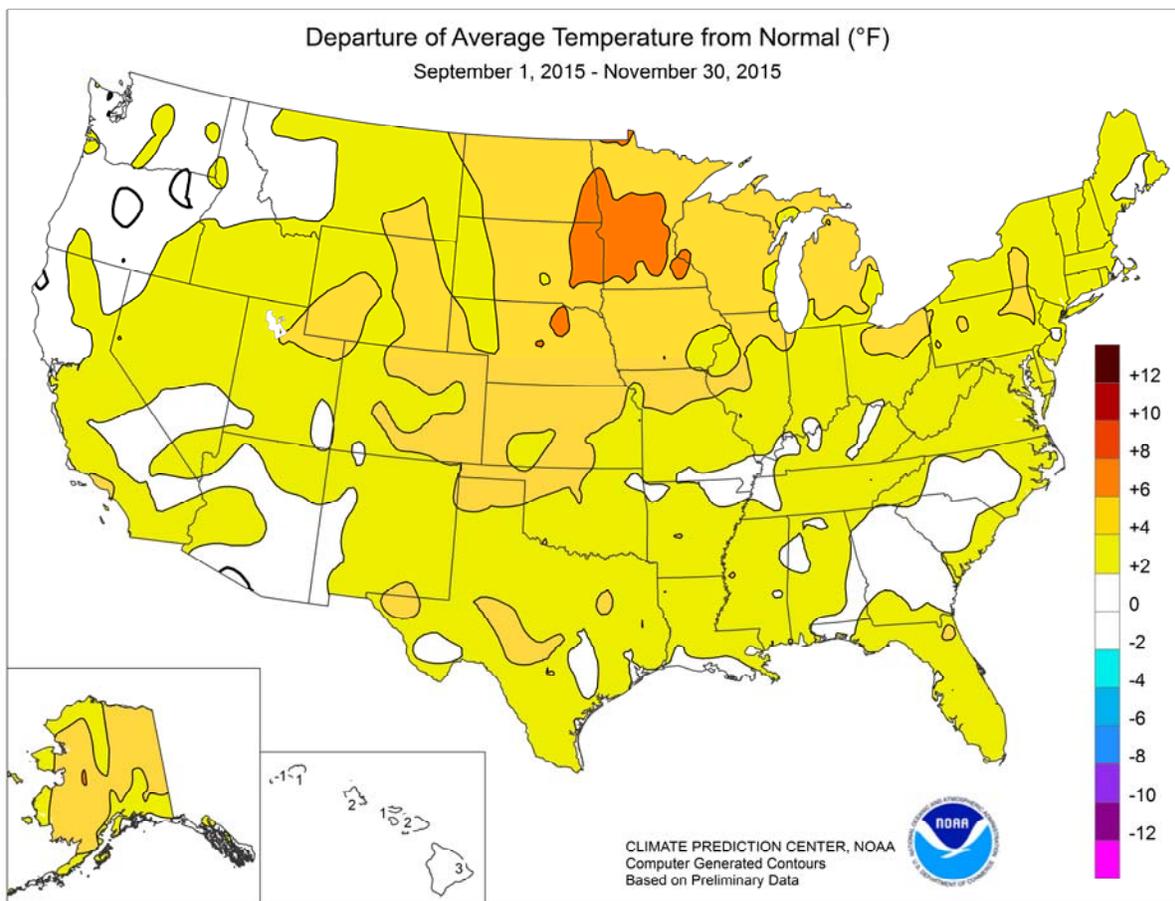
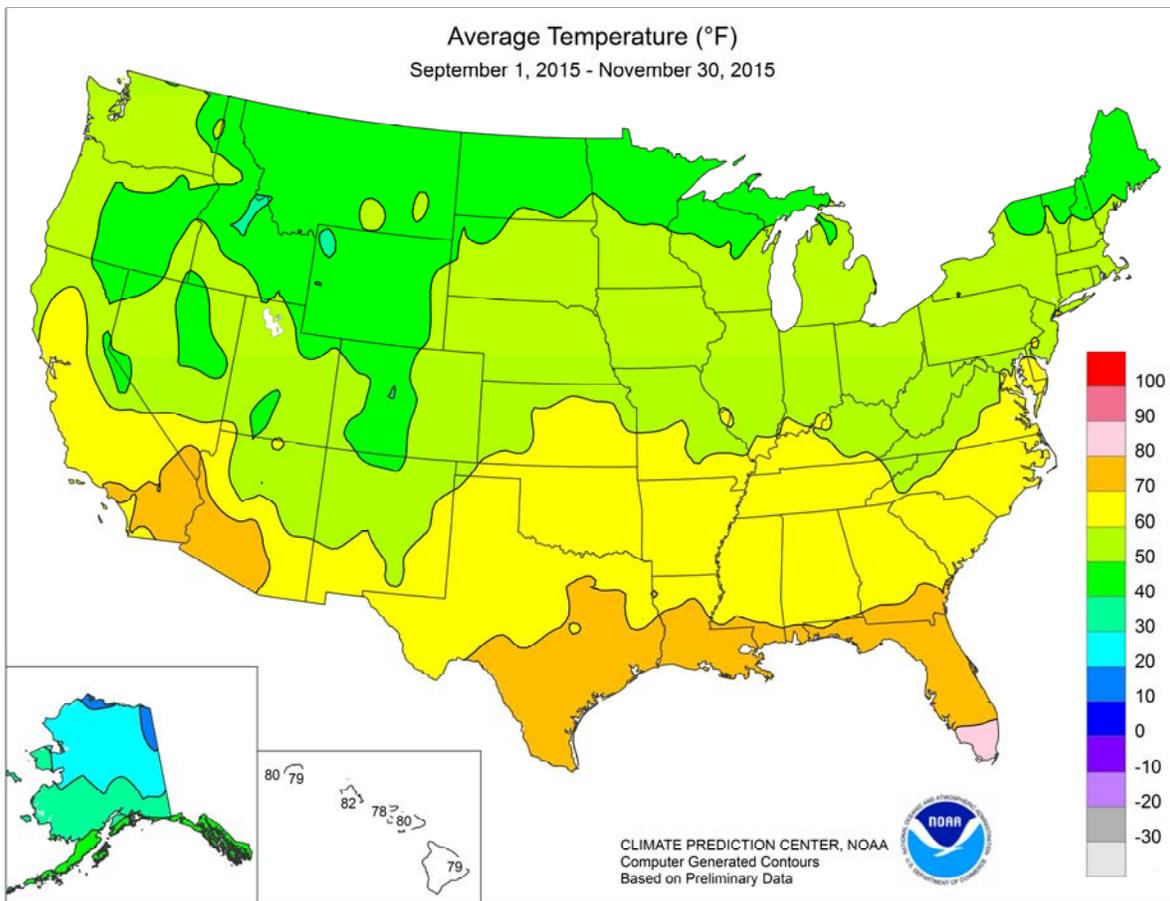
According to preliminary information provided by the National Centers for Environmental Information, the contiguous U.S. experienced its warmest, 15th-wettest autumn during the 1895-2015 period of record. The nation's autumn average temperature of 56.8°F was 3.3°F above the 20th century mean, while the average precipitation of 8.32 inches was 121 percent of normal. It was the nation's wettest September-November period since 2004. The previous warmest autumn occurred in 1963, with an average temperature of 56.6°F.

Florida experienced its warmest September-November period on record, and it was the second-warmest autumn in fourteen states (CO, CT, MA, MI, MN, NE, NJ, NM, ND, OH, RI, SD, WI, and WY). The only states not reporting a top-ten ranking for autumn warmth were across the southern and western U.S. In fact, the "coolest" state was Washington, which had its 21st-warmest autumn in the last 121 years (figure 3). Meanwhile, statewide precipitation rankings ranged from the 24th-driest autumn in Massachusetts to the wettest on record in South Carolina (figure 4). In addition, top-ten values for autumn wetness occurred in Louisiana, North Carolina, and Texas.









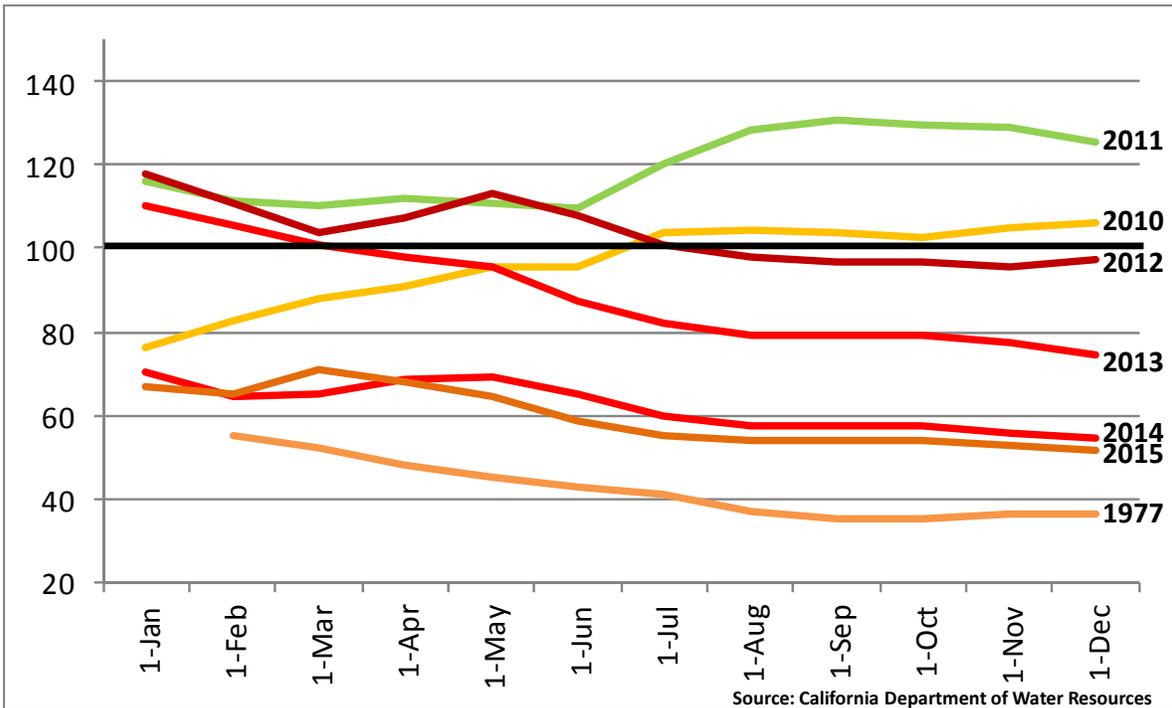
National Weather Data for Selected Cities

Autumn 2015

Data Provided by Climate Prediction Center

STATES AND STATIONS	TEMP. °F		PRECIP.		STATES AND STATIONS	TEMP. °F		PRECIP.		STATES AND STATIONS	TEMP. °F		PRECIP.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	67	4	8.32	-3.59	LEXINGTON	60	3	9.39	0.14	COLUMBUS	58	3	8.25	-0.17
HUNTSVILLE	66	4	12.21	-0.84	LONDON-CORBIN	60	3	10.67	0.60	DAYTON	57	3	6.99	-1.68
MOBILE	70	2	21.92	7.25	LOUISVILLE	62	3	12.86	3.22	MANSFIELD	56	5	7.36	-2.52
MONTGOMERY	69	3	11.45	0.12	PADUCAH	62	4	11.32	-0.22	TOLEDO	55	3	5.20	-2.77
AK ANCHORAGE	37	2	11.37	5.33	LA BATON ROUGE	71	3	23.87	10.46	YOUNGSTOWN	55	4	9.29	-0.13
BARROW	18	3	0.98	-0.26	LAKE CHARLES	72	3	15.63	1.13	OK OKLAHOMA CITY	64	3	9.06	-0.67
COLD BAY	42	1	13.52	-0.32	NEW ORLEANS	74	4	18.51	4.82	TULSA	64	2	11.64	-0.64
FAIRBANKS	28	5	6.35	3.63	SHREVEPORT	71	4	17.51	5.17	OR ASTORIA	55	2	24.13	5.41
JUNEAU	44	2	30.74	9.47	ME BANGOR	49	1	11.73	1.17	BURNS	45	1	2.07	-0.26
KING SALMON	40	5	9.66	3.22	CARIBOU	46	4	8.82	-0.56	EUGENE	55	2	5.99	-7.34
KODIAK	44	3	22.89	0.06	PORTLAND	52	4	11.71	-0.78	MEDFORD	58	3	2.28	-2.74
NOME	32	3	5.90	0.53	MD BALTIMORE	59	3	9.07	-1.19	PENDLETON	52	0	2.79	-0.46
AZ FLAGSTAFF	48	1	7.80	1.89	MA BOSTON	57	2	7.74	-3.50	PORTLAND	56	1	9.43	-0.71
PHOENIX	77	3	1.77	-0.50	WORCESTER	53	3	8.97	-4.31	SALEM	56	3	9.44	-1.41
TUCSON	72	2	4.81	1.48	MI ALPENA	51	5	5.63	-1.58	PA ALLENTOWN	57	5	9.09	-2.31
AR FORT SMITH	65	3	13.52	1.17	DETROIT	56	4	5.32	-2.84	ERIE	57	4	9.77	-2.84
LITTLE ROCK	67	4	14.98	1.29	FLINT	56	7	8.01	-0.74	MIDDLETOWN	58	3	13.13	3.17
CA BAKERSFIELD	69	3	0.75	-0.29	GRAND RAPIDS	55	5	8.14	-2.29	PHILADELPHIA	62	4	11.67	1.88
EUREKA	54	0	6.32	-2.68	HOUGHTON LAKE	50	4	8.05	0.54	PITTSBURGH	57	4	9.80	1.32
FRESNO	67	3	2.35	0.34	LANSING	54	5	5.47	-2.96	WILKES-BARRE	56	4	7.48	-2.52
LOS ANGELES	70	4	1.97	0.22	MUSKEGON	55	5	8.36	-1.19	WILLIAMSPORT	56	4	8.91	-1.88
REDDING	65	2	2.20	-4.49	TRAVERSE CITY	54	5	9.82	0.63	PR SAN JUAN	83	2	14.79	-2.04
SACRAMENTO	65	2	1.73	-1.71	MN DULUTH	48	6	11.46	2.75	RI PROVIDENCE	57	3	8.61	-3.18
SAN DIEGO	72	5	3.21	1.49	INT'L FALLS	45	5	7.38	1.01	SC CHARLESTON	69	2	29.90	18.17
SAN FRANCISCO	62	2	1.44	-2.29	MINNEAPOLIS	54	7	11.78	5.04	COLUMBIA	67	3	26.08	16.37
STOCKTON	65	1	2.13	-0.79	ROCHESTER	52	6	7.22	-0.11	FLORENCE	67	2	20.20	11.00
CO ALAMOSA	46	4	2.20	0.16	ST. CLOUD	50	6	8.48	1.77	GREENVILLE	63	2	24.12	12.49
CO SPRINGS	54	6	2.18	-0.43	MS JACKSON	69	4	16.80	5.11	MYRTLE BEACH	69	4	31.32	19.54
DENVER	55	6	4.00	1.49	MERIDIAN	67	1	17.44	5.57	SD ABERDEEN	51	6	3.22	-0.97
GRAND JUNCTION	55	3	4.31	1.69	TUPELO	65	3	10.83	-0.91	HURON	52	5	5.11	0.83
PUEBLO	58	6	1.24	-0.82	MO COLUMBIA	60	5	10.74	0.67	RAPID CITY	50	3	2.03	-1.05
CT BRIDGEPORT	59	4	6.52	-4.25	JOPLIN	61	2	9.92	-3.30	SIoux FALLS	53	6	10.03	4.16
HARTFORD	55	3	9.55	-2.58	KANSAS CITY	60	4	11.43	1.16	TN BRISTOL	60	4	10.14	1.68
DC WASHINGTON	62	3	7.28	-2.76	SPRINGFIELD	61	3	12.79	0.03	CHATTANOOGA	64	3	15.69	3.29
DE WILMINGTON	59	3	8.49	-1.79	ST JOSEPH	58	2	7.35	-2.00	JACKSON	63	2	13.44	1.24
FL DAYTONA BEACH	76	2	12.06	-2.06	ST LOUIS	62	4	10.57	1.14	KNOXVILLE	62	2	10.90	1.23
FT LAUDERDALE	81	3	17.69	-1.58	MT BILLINGS	51	4	2.55	-0.80	MEMPHIS	67	3	13.92	1.54
FT MYERS	79	2	15.96	3.80	BUTTE	41	1	4.42	1.94	NASHVILLE	64	4	11.44	0.53
JACKSONVILLE	72	2	12.78	-1.32	GLASGOW	48	5	2.84	0.76	TX ABILENE	68	3	13.03	5.92
KEY WEST	82	2	9.14	-3.29	GREAT FALLS	46	2	6.57	3.82	AMARILLO	61	3	5.14	1.08
MELBOURNE	78	3	10.38	-4.70	HELENA	47	3	3.12	0.93	AUSTIN	71	1	29.17	19.61
MIAMI	81	2	22.21	4.21	KALISPELL	44	2	2.37	-1.24	BEAUMONT	73	3	22.50	6.98
ORLANDO	78	3	9.30	-1.51	MILES CITY	51	4	1.42	-1.42	BROWNSVILLE	78	3	20.06	9.22
PENSACOLA	72	2	21.64	7.30	MISSOULA	45	1	2.53	-0.34	COLLEGE STATION	73	3	15.58	4.27
ST PETERSBURG	78	2	3.54	-8.73	NE GRAND ISLAND	57	6	7.45	2.10	CORPUS CHRISTI	75	2	8.12	-2.59
TALLAHASSEE	74	5	11.87	-0.25	HASTINGS	58	6	4.68	-1.19	DALLAS/FT WORTH	71	4	21.81	12.71
TAMPA	79	3	7.57	-2.88	LINCOLN	58	5	7.40	0.96	DEL RIO	74	4	6.85	1.83
WEST PALM BEACH	80	2	12.39	-6.72	MCCOOK	57	5	5.37	1.63	EL PASO	68	4	3.85	1.01
GA ATHENS	64	2	17.78	7.07	NORFOLK	56	6	6.18	0.77	GALVESTON	75	1	26.48	13.59
ATLANTA	65	2	14.46	3.16	NORTH PLATTE	54	5	3.98	0.66	HOUSTON	72	2	19.44	6.42
AUGUSTA	66	2	14.08	4.61	OMAHA/EPPLEY	58	6	12.61	5.41	LUBBOCK	64	4	5.59	0.61
COLUMBUS	67	1	12.42	3.05	SCOTTSBLUFF	52	5	3.40	0.37	MIDLAND	67	3	7.38	2.65
MACON	66	2	10.67	1.82	VALENTINE	52	4	8.08	4.53	SAN ANGELO	69	4	4.28	-2.34
SAVANNAH	70	3	8.09	-2.51	NV ELKO	49	2	2.69	0.25	SAN ANTONIO	74	4	12.68	3.24
HI HILO	78	3	59.06	24.70	ELY	48	3	3.66	1.09	VICTORIA	73	1	11.80	-0.10
HONOLULU	82	2	9.55	4.37	LAS VEGAS	72	4	1.42	0.56	WACO	71	3	21.95	12.79
KAHULUI	80	2	6.00	2.39	RENO	56	4	3.35	1.68	WICHITA FALLS	67	3	11.18	3.20
LIHUE	79	1	10.81	-0.83	WINNEMUCCA	51	2	2.57	0.58	UT SALT LAKE CITY	57	5	2.76	-1.54
ID BOISE	55	3	3.14	0.24	NH CONCORD	52	4	10.19	0.00	VT BURLINGTON	53	5	9.24	-0.77
LEWISTON	55	3	2.35	-0.62	NJ ATLANTIC CITY	59	3	8.65	-0.61	VA LYNCHBURG	59	2	15.59	5.14
POCATELLO	50	3	3.45	0.46	NEWARK	61	4	6.98	-4.08	NORFOLK	65	3	13.15	2.64
IL CHICAGO/O'HARE	56	4	11.35	2.36	NM ALBUQUERQUE	60	3	2.71	0.02	RICHMOND	62	3	10.58	-0.06
MOLINE	57	5	11.87	3.18	NY ALBANY	54	4	11.84	2.04	ROANOKE	60	3	18.57	8.36
PEORIA	60	7	11.43	2.56	BINGHAMTON	52	4	7.58	-2.35	WASH/DULLES	59	3	8.34	-2.16
ROCKFORD	55	5	10.85	2.18	BUFFALO	55	4	9.67	-1.28	WA OLYMPIA	51	1	19.40	5.05
SPRINGFIELD	59	4	9.77	1.45	ROCHESTER	55	5	7.82	-1.07	QUILLAYUTE	52	2	30.96	2.18
EVANSVILLE	61	4	9.17	-0.78	SYRACUSE	54	4	9.71	-1.41	SEATTLE-TACOMA	54	1	14.01	3.29
FORT WAYNE	56	4	6.59	-1.83	NC ASHEVILLE	59	3	19.49	8.78	SPOKANE	49	2	2.43	-1.63
INDIANAPOLIS	58	3	6.38	-2.87	CHARLOTTE	62	0	18.36	7.51	YAKIMA	53	4	1.19	-0.78
SOUTH BEND	55	3	7.91	-2.54	GREENSBORO	62	3	16.62	6.10	WV BECKLEY	56	3	7.50	-1.25
IA BURLINGTON	57	3	9.14	-0.09	HATTERAS	68	2	27.88	11.96	CHARLESTON	60	4	6.53	-3.25
CEDAR RAPIDS	55	4	12.45	4.73	RALEIGH	63	2	17.01	6.60	ELKINS	55	4	6.02	-4.08
DES MOINES	58	6	10.02	2.15	WILMINGTON	67	2	26.91	13.65	HUNTINGTON	58	2	8.10	-0.75
DUBUQUE	53	4	12.17	3.62	ND BISMARCK	49	5	1.65	-1.94	WI EAU CLAIRE	52	6	11.03	3.13
SIoux CITY	55	5	8.54	2.73	DICKINSON	48	4	1.69	-1.86	GREEN BAY	53	6	10.98	3.43
WATERLOO	54	5	7.82	0.28	FARGO	51	8	3.75	-1.46	LA CROSSE	55	5	6.84	-0.82
KS CONCORDIA	60	5	4.75	-1.04	GRAND FORKS	48	6	3.44	-1.21	MADISON	54	6	13.47	5.90
DODGE CITY	59	3	6.20	2.04	JAMESTOWN	48	5	2.25	-1.60	MILWAUKEE	55	4	11.26	2.77
GOODLAND	56	5	3.62	0.63	MINOT	47	4	2.85	-1.07	WAUSAU	51	5	10.36	1.45
HILL CITY	60	6	3.73	-0.52	WILLISTON	46	4	3.65	0.78	WY CASPER	49	4	1.83	-1.11
TOPEKA	60	4	13.44	4.43	OH AKRON-CANTON	57	5	8.19	-0.81	CHEYENNE	51	6	3.08	0.26
WICHITA	63	5	7.38	0.15	CINCINNATI	59	3	10.58	1.34	LANDER	50	5	2.25	-1.25
KY JACKSON	60	2	6.89	-4.26	CLEVELAND	57	5	9.39	-0.49	SHERIDAN	49	5	2.18	-1.41

**California Reservoir Storage, Percent of Normal, 1977 and 2010-15**



On Nov. 30, 2015, California’s statewide reservoir storage stood at 10.95 million acre-feet, 52% of the historic average. One acre-foot is equal to 325,851 gallons, or the amount of water it takes to cover one acre to a depth of one foot.

**California Reservoirs, Recharge and Withdrawal  
Million Acre-Feet and Percent of Average**

	<u>Recharge</u>	<u>Withdrawal</u>
<b>2010-11</b>	12.47 (151%)	<b>2011</b> 8.78 (107%)
<b>2011-12</b>	5.79 (70%)	<b>2012</b> 11.54 (140%)
<b>2012-13</b>	6.52 (79%)	<b>2013</b> 11.49 (139%)
<b>2013-14</b>	4.17 (51%)	<b>2014</b> 7.75 (94%)
<b>2014-15</b>	6.46 (78%)	<b>2015</b> 7.13 (87%)
<b>Avg.</b>	<b>8.24</b>	<b>Avg.</b> <b>8.24</b>

**Notes:** Recharge and withdrawal values are based on end-of-month statistics, not daily readings. In 2015, the preliminary withdrawal (through November 30) totaled 7.13 million acre-feet.

# National Agricultural Summary

December 14 – 20, 2015

Weekly National Agricultural Summary provided by USDA/NASS

## HIGHLIGHTS

**Temperatures across the eastern half of the U.S. were above normal, with large portions of the Great Lakes and the Northeast more than 9°F above average. Conversely, the Southwest recorded below-normal temperatures. Except for coastal areas,**

**almost the entire continental U.S. recorded minimum temperatures below freezing. Precipitation levels were near normal in all locations, except for above-average rainfall in the western Corn Belt, Pacific Northwest, and the central Gulf Coast.**

**Arizona:** Alfalfa conditions remained mostly good to excellent, depending on location. Harvesting occurred on two-thirds of the alfalfa acreage across the state. Cotton harvest was 97 percent complete, ahead of last year and the 5-year average of 89 percent. Rangeland conditions varied widely, depending on location, but were rated mostly good to fair. Central Arizona shipped broccoli, cabbage (green and red), cilantro, kale greens, lemons, and parsley. Western Arizona growers shipped anise, arugula, Bok Choy, broccoli, cabbage (green and red), cauliflower, celery, Chinese cabbage, cilantro, endive, escarole, kale greens, varieties of lettuce (Boston, Iceberg, red leaf, processed, and romaine), parsley, radicchio, and spinach. Last week's storm brought much-needed moisture throughout the state. All but nine of the fifty weather stations reported precipitation last week; Heber recorded the most with 0.66 inch. The highest temperature during the week was 76°F at Sahuarita. The lowest temperature was -15°F at the Grand Canyon.

**California:** The first half of the week featured the coldest weather of the season so far. The northern half of the state received rain nearly every day during the week. The southern half of the state received limited rain, except for more widespread rainfall on December 19. Highest totals for the week were 2 to 4 inches or more along the northwest coast. The heaviest mountain snows occurred from December 17-19, with totals exceeding a foot. All but the far southern Sierra Nevada received decent snow cover. Winter grain crops continued to emerge. Cotton fields were shredded and disced to comply with the cotton plow down regulations. The majority of winter row crop preparation had been completed for spring tillage. This included spreading manure, discing, preparing berms, and planting. Growers were shaping beds and adding soil amendments. Weed control and herbicides were applied as needed. Fallow fields were cultivated for weed control. Recent rains encouraged the emergence of winter grains and silage crops, and they were growing well. Post-harvest cultural maintenance continued in deciduous tree fruit and vineyards. Pushed-out orchards and vineyards continued to be cleaned up with burning, ripping, and fumigation in preparation for spring planting. Persimmons were harvested and shipped. Pomegranates continued to be exported. Citrus packing houses have increased their volume of exports, with Navel oranges exported worldwide. Mandarin oranges were picked and packed. Lemons were harvested and exported. Melo Gold and Oro Blanco hybrid grapefruit were exported. Olives continued to size up. Almonds, pistachios, shelled and in-shell walnuts, and shelled pecans continued to be packed and shipped. Nut orchards continued to be pruned, irrigated, and treated to prepare for their dormant season. Orchard replanting continued. In Tulare County, the strawberry fields appeared to be in good

shape for spring harvest. Some winter vegetables were well established. Fall vegetable harvest was ending and fields were prepared for late-winter and spring plantings. In Monterey County, few brassicas were harvested. In Fresno County, onion planting continued. Dehydrated onions looked good and fresh onions were on schedule. Winter carrot harvest was almost complete. More tomato beds were planted. Weeding organic kale seed and applying fungicide to traditional kale seed continued. Out of state bees were placed in some fields. Sheep and goats continued to graze in fallow fields. Recent rains continued to benefit the lower elevation pasture growth, reducing the need for supplemental feeding.

**Florida:** There was an average of 6.1 days suitable for fieldwork, down slightly from the previous week. Harvesting of peanuts, cotton, and soybeans was near completion in the Panhandle and northern Florida, except for low fields too wet for harvest equipment in Washington County. Jackson County cotton harvesting was 95 percent complete. In Walton County, farmers were 85 percent complete with cotton harvest. Peanut harvesting was complete by week's end. Winter grazing was being planted in Taylor County. Sugarcane harvesting continued on schedule in Hendry County, while harvest activities continued in Glades, Palm Beach, Broward, and western St. Lucie Counties. Daily high temperatures throughout the citrus-growing region were above average for this time of year, reaching the lower to middle 80s in all areas. Owners and grove managers were still harvesting fresh citrus for the holiday season and fund-raising programs. Many were spot picking red grapefruit and tangerines in order to get larger sizes. Almost all processing plants were open and accepting early-season oranges harvested for field run. Mowing, the application of herbicides, and fertilizing were observed in many citrus groves. Canals and ditches were still full in most areas to be used for irrigation. Warm, wet weather in Charlotte, Collier, Glades, Hendry, and Lee Counties lowered vegetable yields and quality. Vegetable growers harvested a wide variety of crops for the holiday market including beans, collards, corn, cucumber, eggplant, herbs, kale, lettuce, peppers, squash, Swiss chard, tomatoes, watermelons, and a number of specialty items. In Flagler County, some potato fields were planted along with harvesting and planting of cabbage/leafy greens. Sweet corn, green and pole beans, yellow squash, zucchini, okra, eggplant, peppers, boniata, Malanga, and herbs were planted in Miami-Dade County. Recent rains greened up pastures in St. Lucie County. Dry but warm conditions prevailed, as pasture grasses still showed growth in Marion County. Winter pastures in Brevard County continued to grow, with early plantings almost ready for livestock grazing. Warm season grasses were seasonally poor and cool season forages were mostly fair in Washington County.

# International Weather and Crop Summary

December 13-19, 2015

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

## HIGHLIGHTS

**EUROPE:** Warm weather prevailed, but increasing short-term dryness in southern growing areas reduced soil moisture for winter grain establishment.

**WESTERN FSU:** Above-normal temperatures kept most of the region devoid of a protective snow cover.

**MIDDLE EAST:** Cold weather eased winter grains into dormancy, while short-term dryness intensified across Turkey and the eastern Mediterranean.

**NORTHWESTERN AFRICA:** Intensifying short-term drought in Morocco depleted soil moisture for winter grain establishment, with dry conditions expanding east.

**SOUTHEAST ASIA:** High winds and flooding from Typhoon Melor caused damage to rice and corn in the northern Philippines.

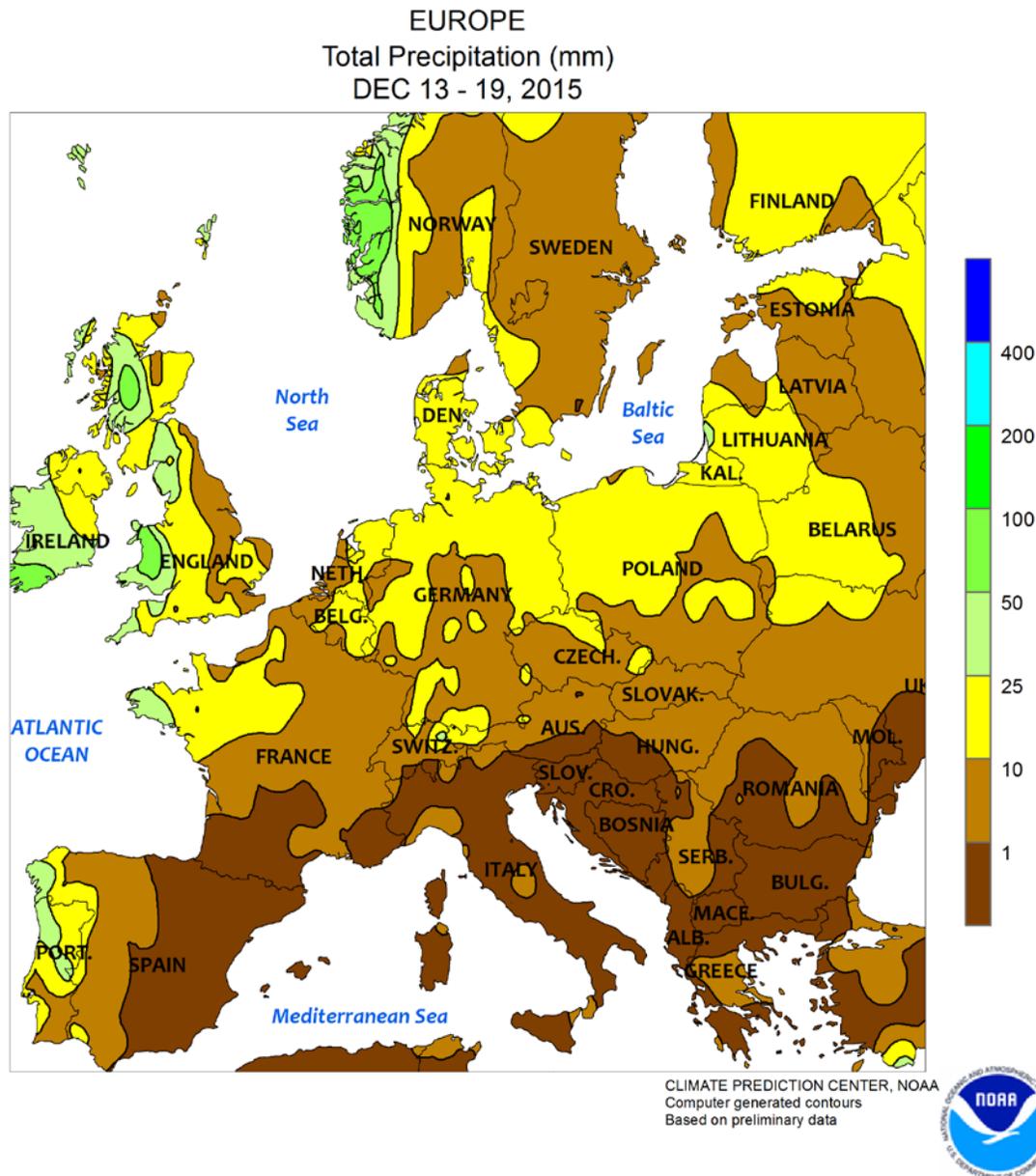
**AUSTRALIA:** Showers maintained good to excellent early season yield prospects for summer crops.

**SOUTH AFRICA:** Unseasonable warmth and dryness persisted across the corn belt, maintaining unfavorable summer crop prospects.

**ARGENTINA:** Rain intensified across the region, increasing moisture for vegetative summer crops and immature winter grains.

**BRAZIL:** Beneficial rain continued in southern corn and soybean areas but pockets of warmth and dryness persisted farther north, limiting moisture for soybeans, cotton, and other summer row crops.



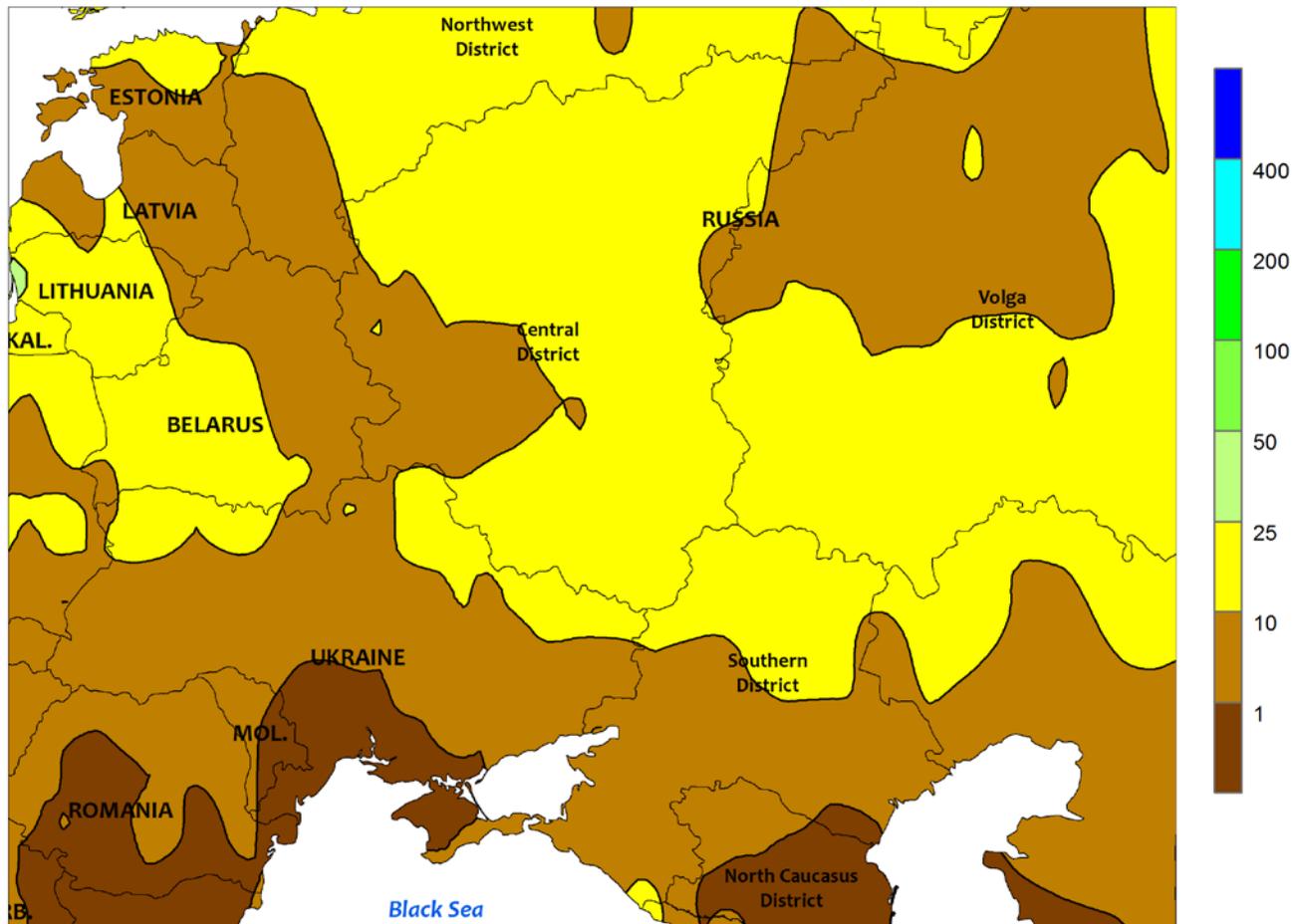


**EUROPE**

Warm weather continued, with increasing short-term dryness across the Mediterranean contrasting with additional showers in the north. Fast-moving Atlantic disturbances generated light to moderate showers (5-30 mm) from northern France into Poland and the Baltic States, sustaining favorable soil moisture for winter crops. Farther north, rain was heavier (25-105 mm, locally more) from Ireland and western England into Norway, causing additional lowland flooding but sustaining abundant soil moisture reserves for winter crops. Meanwhile, sunny skies promoted a rapid pace of late winter grain planting across Spain and Italy. However, increasingly dry conditions in these areas have rapidly reduced soil moisture for crop establishment. Since November 5, Castilla La Mancha in

central Spain has reported a meager 3 mm of rain (5 percent of the 30-year average), while northern Italy's Po River Valley has received 17 mm (15 percent of average). Rain will be needed soon across northern Italy and the Iberian Peninsula to ensure adequate soil moisture for proper winter grain establishment. A persistent fetch of mild maritime air from the northern Atlantic resulted in abnormally warm conditions (3-7°C above normal) over much of the continent. The persistent warmth minimized the risk for winterkill but kept crop areas devoid of a protective snow cover and allowed winter grains and oilseeds to add vegetative growth across Germany and western Poland, locales where winter crops are typically dormant by the end of November.

WESTERN FSU  
Total Precipitation (mm)  
DEC 13 - 19, 2015



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

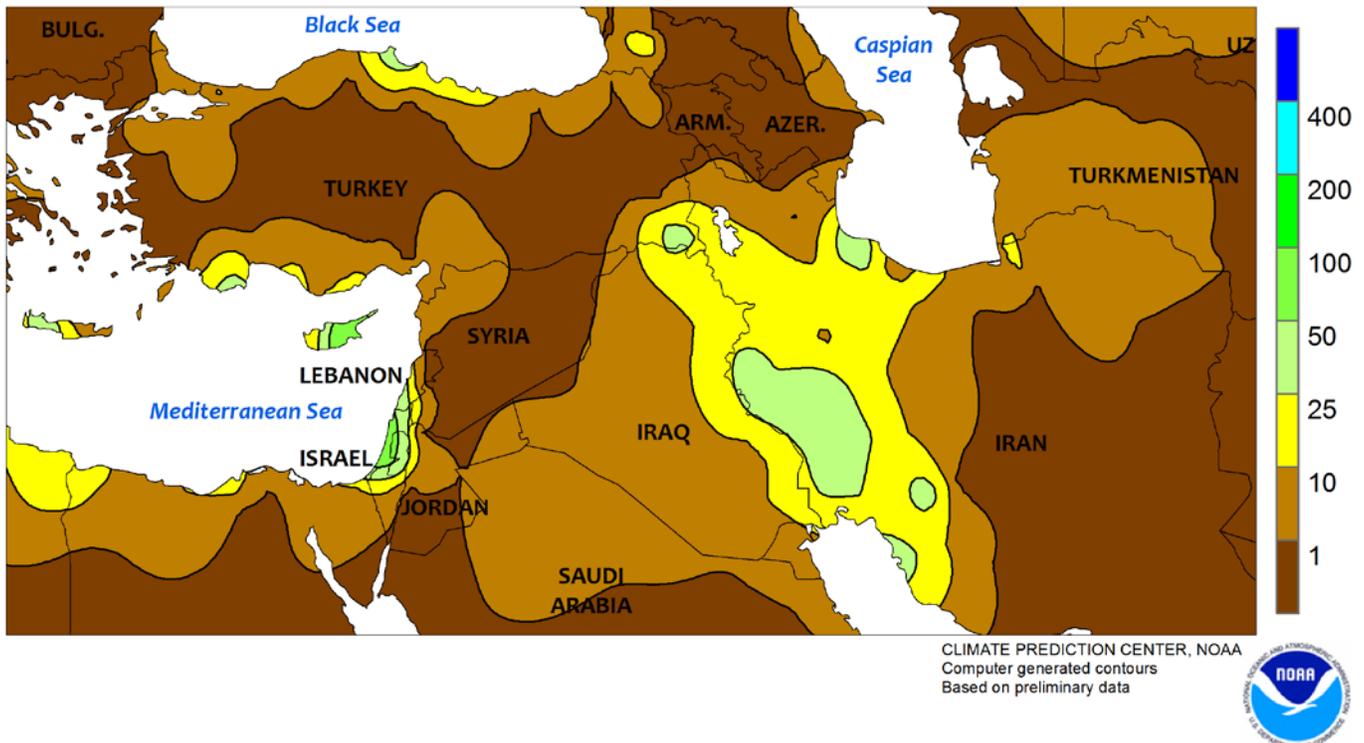


**WESTERN FSU**

Above-normal temperatures kept the region uncharacteristically devoid of snow cover. Light to moderate rain and wet snow (3-20 mm liquid equivalent) further improved soil moisture reserves from Belarus and northern Ukraine into central and southern Russia. However, temperatures for the week averaged 2 to 5°C above normal, which kept most primary winter wheat

areas lacking a protective snow cover. At week's end, snow was shallow (2-10 cm) and confined to the Volga District and southern portions of the Central District. Despite the widespread abnormal warmth, winter wheat was now dormant across the entire region as weekly average temperatures slipped below 5°C in all growing areas.

MIDDLE EAST  
 Total Precipitation (mm)  
 DEC 13 - 19, 2015

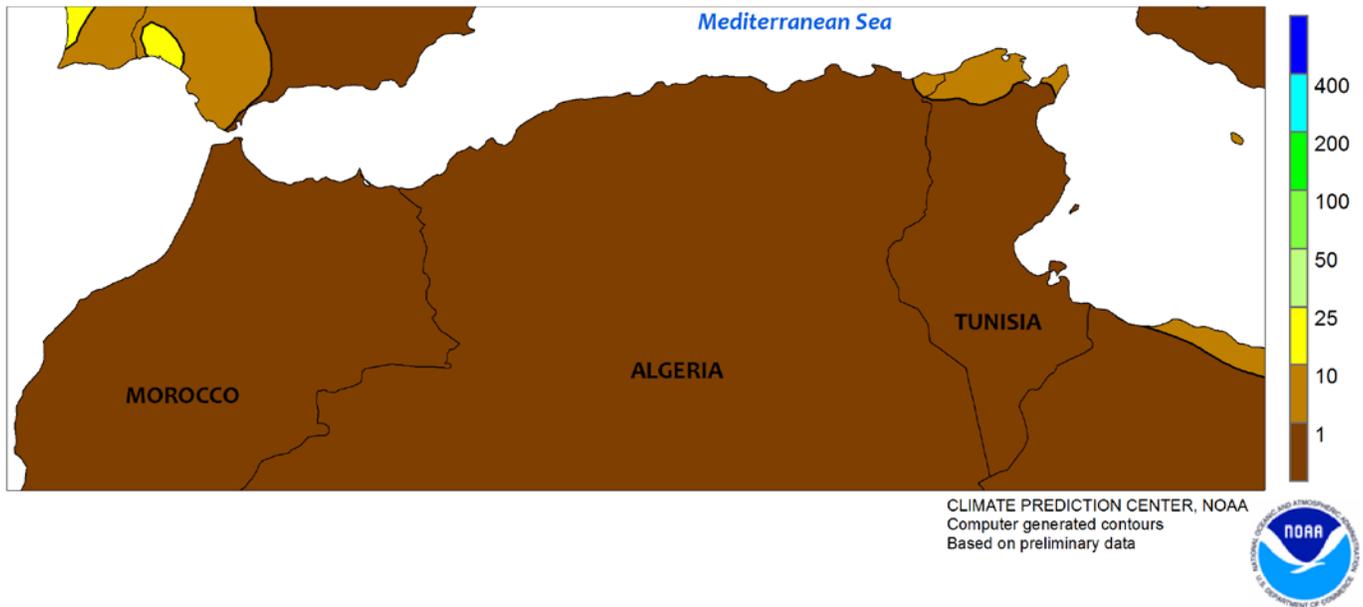


**MIDDLE EAST**

Cold weather persisted over the region, with western dryness contrasting with additional precipitation in central and eastern crop areas. Another week of below-normal temperatures eased winter wheat and barley into dormancy across central Turkey and much of western and northern Iran. However, increasingly dry autumn weather in Turkey likely limited winter grain establishment; precipitation on the Anatolian Plateau has averaged 33 percent of normal or less since November 1.

Meanwhile, unsettled weather continued over Iraq and Iran, with moderate to heavy rain and snow (5-45 mm liquid equivalent) sustaining favorable soil moisture and irrigation reserves for winter grain development. Along the eastern Mediterranean Coast, locally heavy downpours (30-70 mm) in Israel boosted soil moisture for winter wheat, while dry weather over much of Jordan, Syria, and Lebanon increased topsoil moisture shortages.

NORTHWESTERN AFRICA  
Total Precipitation (mm)  
DEC 13 - 19, 2015

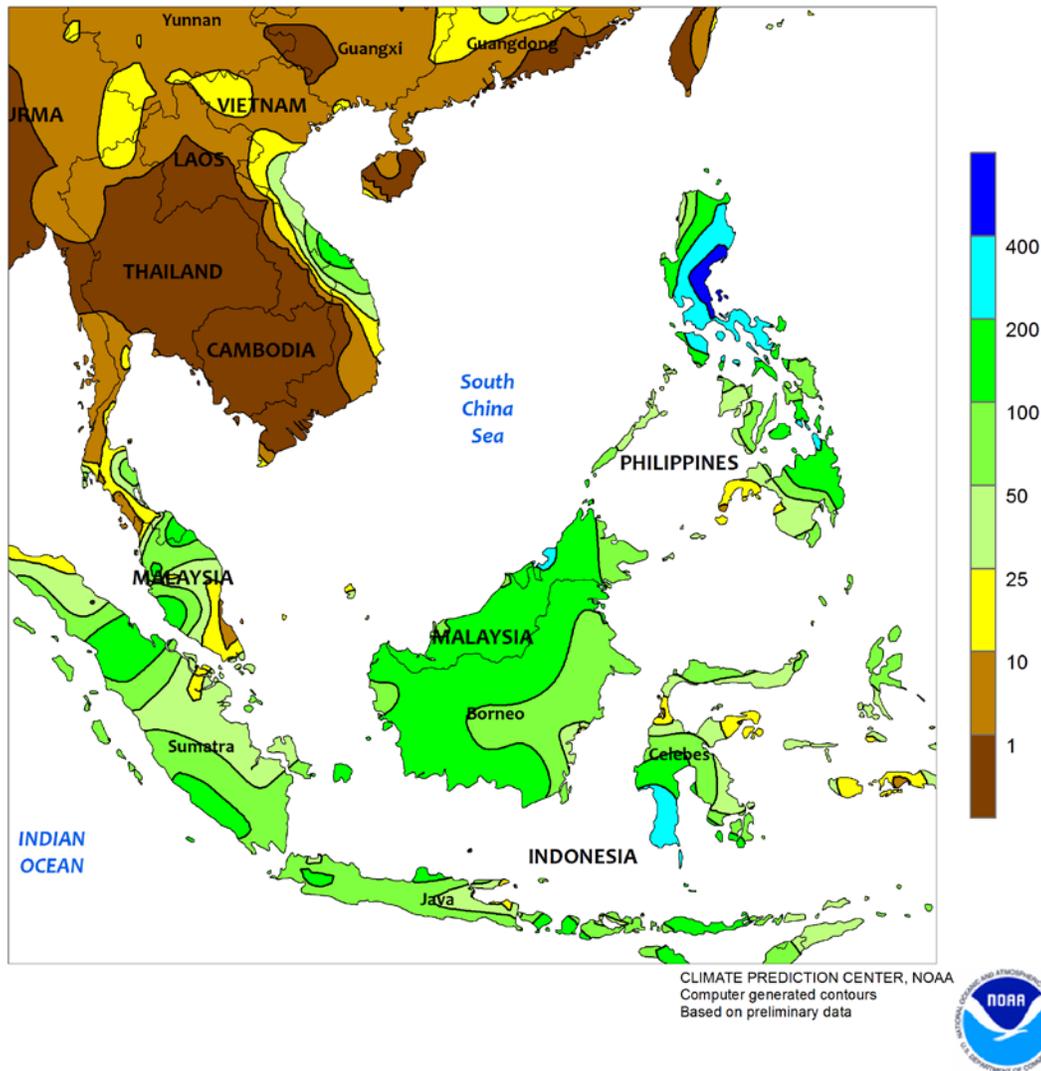


**NORTHWESTERN AFRICA**

Dry weather continued, exacerbating western drought and allowing short-term dryness to expand into central growing areas. In Morocco, intensifying drought has resulted in parched soils likely unable to sustain winter grain development. Northern portions of the country have averaged 15 mm of rainfall since November 1 (15 percent of the 30-year average), while southern wheat areas have totaled a meager 6.5 mm (9 percent of average). The drought has expanded east, and now includes western and central Algeria (35 percent of

average rainfall since November 1). Satellite-derived vegetation health data depicted rapidly declining crop conditions from Morocco into western and central Algeria. Dry weather also prevailed across eastern Algeria and northern Tunisia, though these eastern crop districts benefited from locally heavy late-November rainfall. Consequently, prospects for winter crop establishment in eastern Algeria and Tunisia remained overall favorable, though these locales will need rain soon to maintain soil moisture for crop development.

SOUTHEAST ASIA  
Total Precipitation (mm)  
DEC 13 - 19, 2015

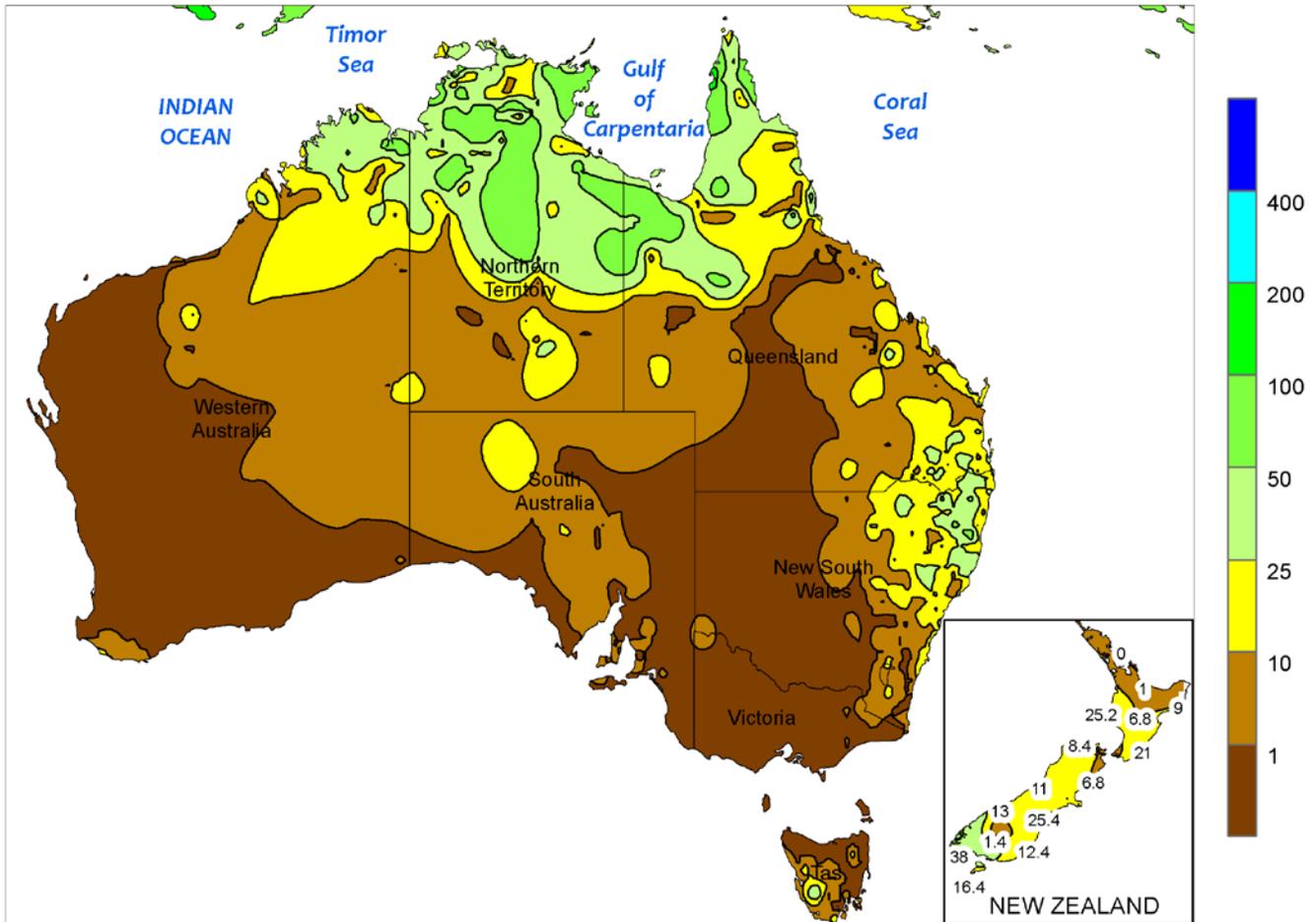


**SOUTHEAST ASIA**

Typhoon Melor made landfall in the eastern Philippines on December 14 as the storm went through a period of rapid intensification. Winds were reportedly in excess of 125 knots at the storm’s peak. In addition to the high winds, Melor produced flooding rainfall in eastern Luzon, where numerous reports of 500 mm or more occurred. The storm weakened as it moved across the Philippines and dissipated off the western Luzon coast by December 17. Damage to corn and rice was likely across Luzon, where the highest winds and rainfall occurred, while crops in the remainder of the Philippines likely fared better. Elsewhere in the region, showers improved in central Java, Indonesia, where rainfall averaged over 100 mm

for the week. While the showers improved soil moisture for rice as well as water supplies, both short-term and long-term rainfall deficits continued. In western Java, seasonable showers (over 100 mm) kept rainfall amounts since November 1 on par with the long-term average. In contrast, showers remained lackluster in eastern Java, where the rainy season had yet to officially begin and was nearly 3 weeks behind schedule. In oil palm areas of Indonesia and Malaysia, widespread showers (50 mm or more) continued to improve soil moisture for trees. Farther north, unseasonable heat (temperatures 2-3°C above normal) in rice areas of Thailand increased irrigation demands from already limited water supplies.

AUSTRALIA  
Total Precipitation (mm)  
DEC 13 - 19, 2015



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

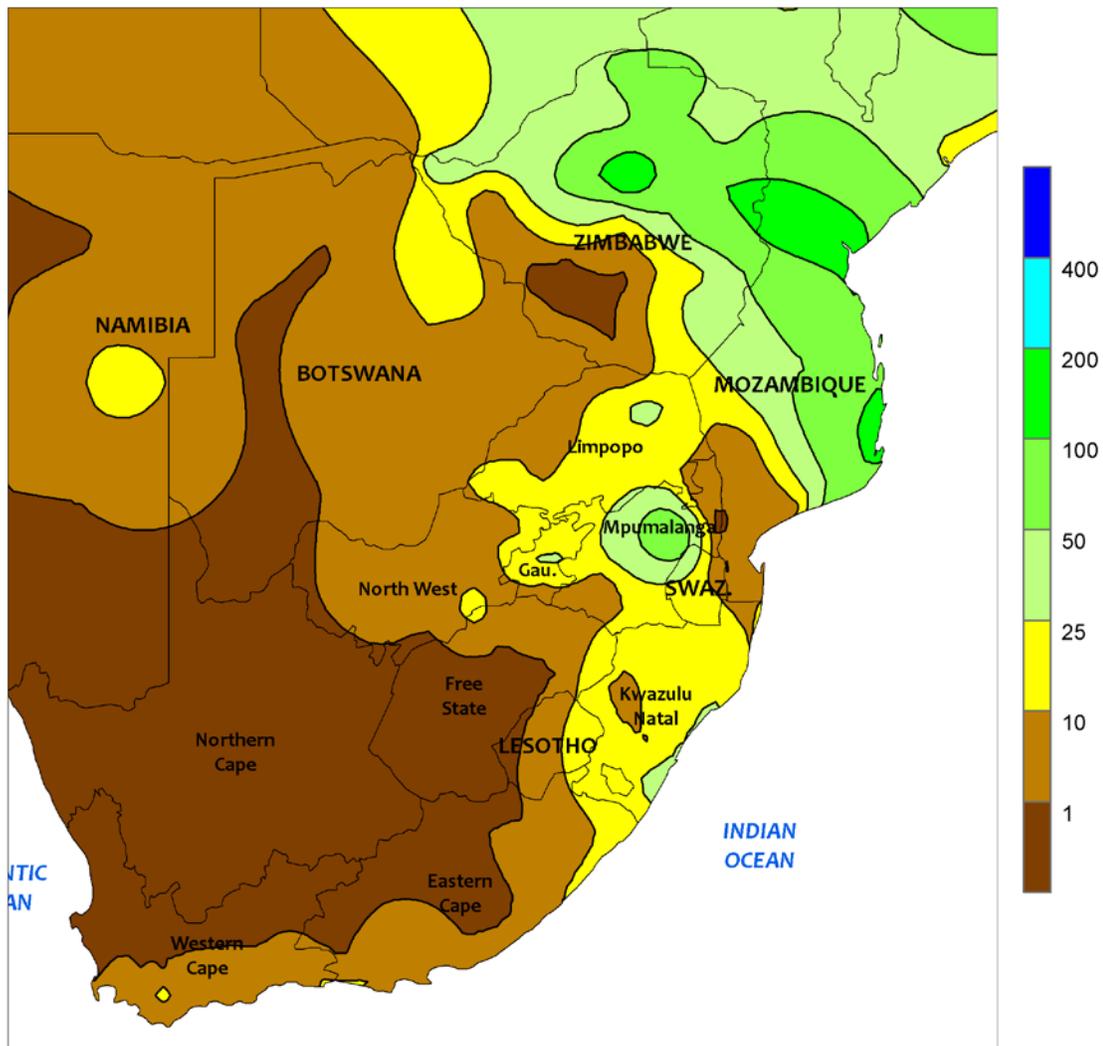


**AUSTRALIA**

In western and southeastern Australia, mostly dry weather favored winter grain harvesting and helped maintain the quality of mature wheat and barley. Winter grain harvesting is reportedly nearing completion in Western Australia and southern New South Wales and is reportedly well advanced in South Australia and Victoria. Elsewhere in the wheat belt, widespread showers (5-25 mm, locally

more) in northern New South Wales and southern Queensland maintained good to excellent early season yield prospects for summer crops. The rain further boosted topsoil moisture for dryland crops, such as sorghum, while helping reduce irrigation requirements for cotton. Temperatures in major cotton and sorghum producing areas averaged near normal, favoring crop development.

SOUTH AFRICA  
Total Precipitation (mm)  
DEC 13 - 19, 2015



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



**SOUTH AFRICA**

Warmer- and drier-than-normal conditions persisted, maintaining generally unfavorable prospects for rain-fed summer crops. Rainfall totaling more than 10 mm was mostly confined to northern and eastern sections of the corn belt (Limpopo, Gauteng, Mpumalanga, and northern KwaZulu-Natal) owing to several rounds of light showers. Aside from some isolated showers (locally greater than 10 mm), little to no rain fell in North West and Free State. Weekly average temperatures were 2 to 3°C above normal in these areas; daytime highs reached the lower 30s (degrees C) in eastern commercial corn areas and the upper 30s farther west, although

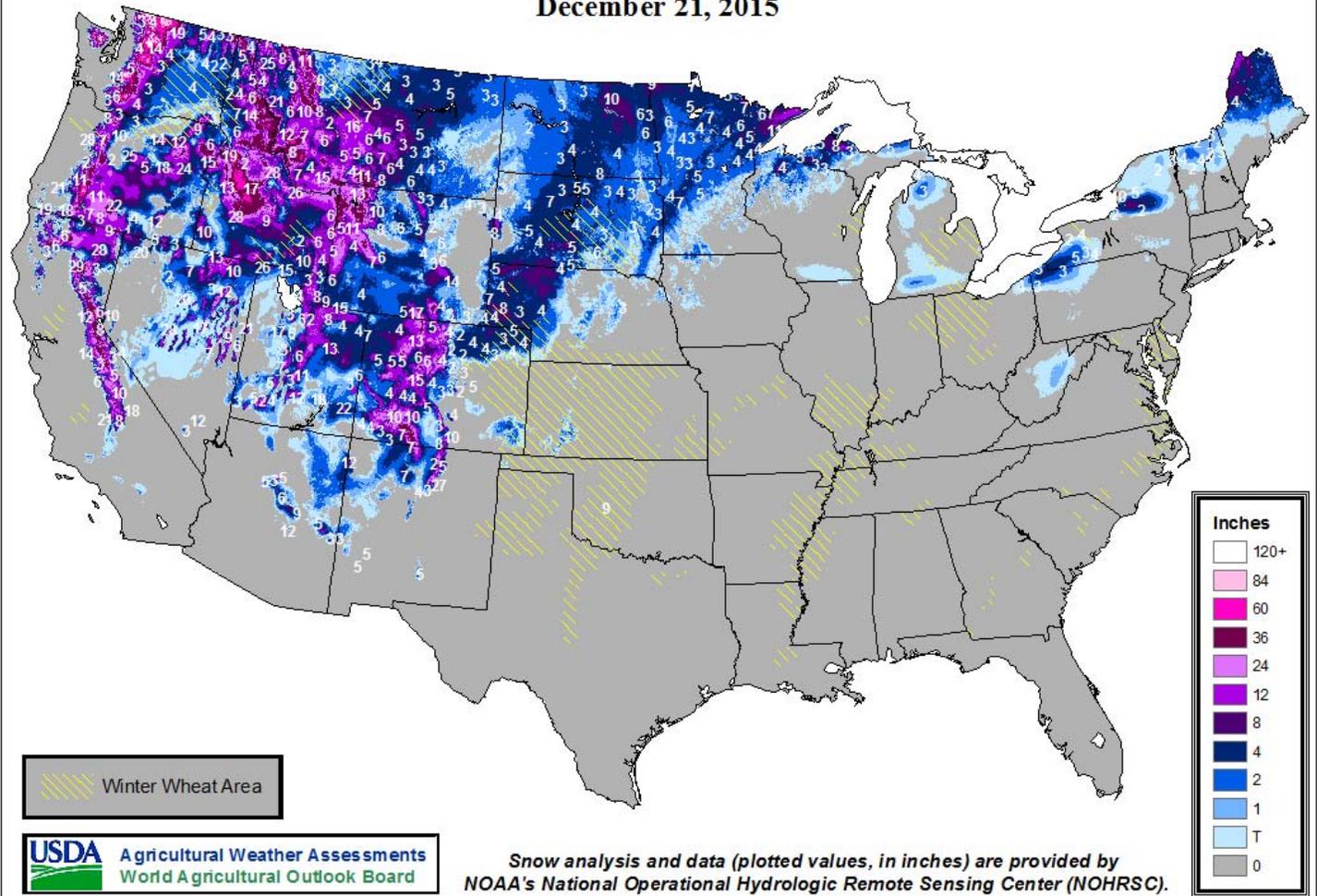
the periodic rain brought lower temperatures on several days. Moisture remained limited for planting in western production areas, including commercial white corn areas of North West and Free State, and delays are anticipated with the continuing dryness. Elsewhere, early-week showers (10-35 mm) gradually gave way to warmer, mostly dry weather in rain-fed sugarcane areas of southern KwaZulu-Natal, with daytime highs reaching the upper 30s at week's end in farming areas farthest away from the coast. Mostly dry, seasonably mild weather dominated the Cape Provinces as scattered, light rain (less than 10 mm) was mostly limited to coastal areas.





# Snow Depth

December 21, 2015



**USDA** Agricultural Weather Assessments  
World Agricultural Outlook Board

Snow analysis and data (plotted values, in inches) are provided by NOAA's National Operational Hydrologic Remote Sensing Center (NOHRSC).

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