



Wichita Mountains, Oklahoma

# SOUTHERN CLIMATE *MONITOR*

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**LSU**



**SCIPP**  
Southern Climate Impacts Planning Program



## April Drought Relief Accompanies Cold Weather

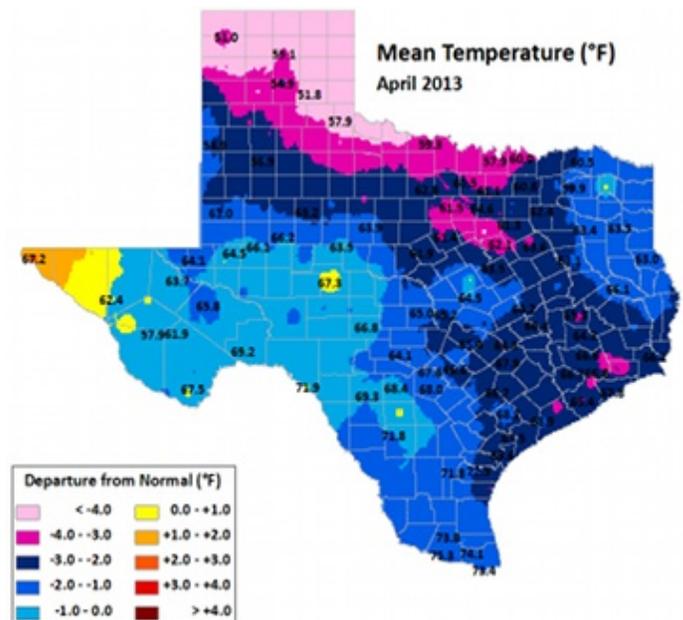
Gary McManus, Oklahoma Climatological Survey

Since 2011, weather discussions for Oklahoma and Texas have primarily centered around the ongoing drought, and its impacts on the economy, agriculture, water resources, and other arenas. In order to promote drought planning and mitigation, SCIPP, in conjunction with the National Drought Mitigation Center, National Integrated Drought Information System, and NOAA Regional Climate Services Director for the Southern Region, is hosting a *Managing Drought in the Southern Plains* webinar series to discuss the drought conditions, impacts, and future drought outlooks. As 2013 started, and any relief from drought conditions across the South-Central United States seemed bleak, the overall weather pattern shifted enough to provide not only unusually cool conditions to much of the area, but above average precipitation to at least the northern part of the region.

Concerning Oklahoma, just how cold was April 2013? According to preliminary data from the Oklahoma Mesonet ([www.mesonet.org](http://www.mesonet.org)), the Oklahoma statewide average temperature came in at 55°F, 4.1°F below normal. That sounds fairly cold, but becomes downright frigid considering the state's recent climate history. It could be measured against last year's April, the eighth warmest on record, which finished with a statewide average temperature of 64.1°F. Regardless of statistics, the evidence speaks for itself, such as the record late freezes in many locations, or the snow and ice that accumulated on tree branches where buds should have appeared. The frosty weather was a continuation of cooler than normal conditions that began in mid-February and persisted through March. The March-April statewide average temperature was 51.1°F, 3.5°F below normal to rank the first two months of spring as the 12th coolest on record. April became the third month in a row that saw the state finish with below normal temperatures, a feat not accomplished since the

winter months of 2011-12. Prior to this February, 28 of the previous 34 months in Oklahoma were warmer than normal.

Texas, too, was cooler than normal during April. The majority of the state was at least 0 to 1°F cooler, and some areas of Texas panhandle were more than 4°F below the mean monthly April temperature. The 20th century average temperature for Texas is 65.1°F, and areas of the Texas panhandle saw an average April temperature of 54°F to 58°F (Figure 1). In comparison, the 2012 statewide temperature was 70.1°F, 5.0°F above the 20th century average.



**Figure 1: April 2013 Texas average temperature departure from normal.** (<http://climatexas.tamu/climatic-bulletins/april-2013>)

For Oklahoma, the drought relief that began in February also gained momentum during April. According to Oklahoma Mesonet rain gauges across the state, the average precipitation total came in at exactly 4 inches for the month, about 0.6 inches above normal. That would rank the month as the 37th wettest April since records

began in 1895. Not all areas of the state saw equally beneficial rains, however (Figure 2). The Oklahoma panhandle saw a half-inch of precipitation on average to rank April as the ninth driest on record for that area. The latest U.S. Drought Monitor report (Figure 3) reflected those recent rains with more than 25 percent of the state out of drought, mostly across eastern and central Oklahoma. Areas across western, southern, and northern Oklahoma were depicted in more significant intensities of drought, with 54 percent of the state still categorized in at least severe drought.

Texas, unfortunately, saw drought conditions worsen during April. A majority of the state saw less rainfall than the April average of 2.46". What rain that did fall occurred in the southeastern parts of Texas. By the end of April, 92% of the state was considered in D1-D4 drought conditions, with 36% of the state (especially western and southern Texas) in extreme to exceptional drought

April was an active severe weather month for Oklahoma and Texas. Although the count is still preliminary, at least a dozen twisters struck Oklahoma, and approximately two dozen struck Texas during April. The most significant tornado, rated EF2 on the Enhanced Fujita scale, struck Delaware County in Oklahoma early on the 18th, destroying a home and damaging others.

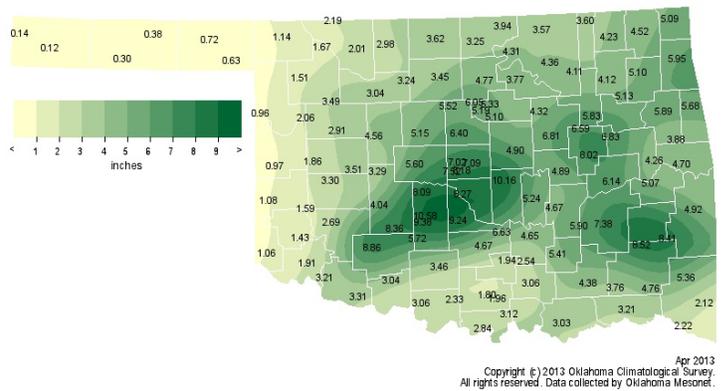


Figure 1: Oklahoma Mesonet rainfall totals for the month of April 2013.

The severe weather came in frozen form, too. An unusually thick layer of ice coated western and northern Oklahoma on April 10th and caused widespread power outages and traffic accidents. That severe winter blast arrived on the heels of temperatures in the 80s the day before. Another wintry blast on April 23rd coated power lines in the Panhandle with more than a half-inch of ice to cause power disruptions in that area. The most damaging severe weather during April might have also been its most benign. Each of those cold air outbreaks dropped temperatures below freezing for a significant period of time, long enough to do damage to wheat and other crops already stressed from prolonged drought. The final assessment on the scope of the freeze damage might not occur until harvest time in late spring.

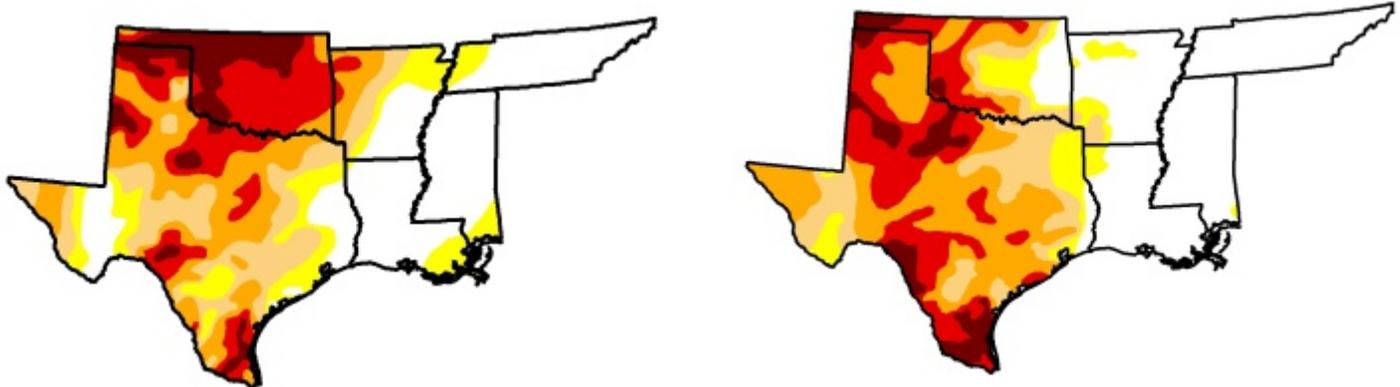


Figure 3: U.S. Drought Monitor ([www.drought.gov](http://www.drought.gov)) from January 29, 2013 (left) and from April 30, 2013 (right).

Further out, the National Weather Service's Climate Prediction Center (CPC) forecasts increased odds for below normal temperatures across most of the SCIPP region for May. The precipitation outlook was non-committal with equal chances of above-, below- and near-normal precipitation on tap, except for far eastern portions of Louisiana, Mississippi and Tennessee: CPC is forecasting chances for above normal precipitation.

## DROUGHT CONDITIONS

*Luigi Romolo, Southern Regional Climate Center*

Drought conditions have not changed significantly over the past month. The states of Tennessee, Mississippi, and Louisiana remain drought free. In Arkansas, above normal precipitation has led to drought relief in the western counties. There has also been some slight reduction of drought conditions in eastern Oklahoma. Dryness in the western half of Texas has led to some deterioration, particularly in the western and northern panhandle.

Farmers in far west and south Texas still have dry conditions to contend with, where rainfall has been sparse for months and streamflows have become too low to depend on. Agricultural concerns aren't limited to a lack of rain this month, though. Strong frontal passages have brought temperatures near freezing for many parts of the state. The unseasonably cold conditions are causing concern for farmers, particularly for vineyards and peaches in central and west Texas; others remain convinced that cold won't affect the prices or future yields for wheat, which is still young and resists the cold somewhat. A \$5.3 million grant, provided through the Agriculture Security, is aimed at funding research to improve resilience to these problems (Information

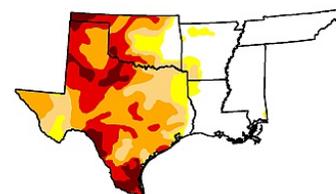
## U.S. Drought Monitor

April 30, 2013  
Valid 7 a.m. EST

South

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	36.44	63.56	56.10	44.27	22.46	5.95
Last Week (4/23/2013 map)	34.09	65.91	57.02	42.53	23.28	6.76
3 Months Ago (1/29/2013 map)	31.46	68.54	56.21	41.73	24.00	8.59
Start of Calendar Year (1/1/2013 map)	21.18	78.82	63.89	50.50	32.80	10.88
Start of Water Year (09/25/2012 map)	24.13	75.87	66.61	51.50	29.86	9.11
One Year Ago (4/24/2012 map)	49.41	50.59	33.77	24.86	13.28	4.70

**Intensity:**  
 D0 Abnormally Dry      D3 Drought - Extreme  
 D1 Drought - Moderate      D4 Drought - Exceptional  
 D2 Drought - Severe



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, May 2, 2013  
Eric Luebbehusen, U.S. Department of Agriculture

**Drought conditions in the Southern Region. Map is valid for April 2013. Image courtesy of the National Drought Mitigation Center.**

provided by the Texas State Office of Climatology). Frontal passages in Texas at the beginning and end of the month brought thunderstorms and flooding to central and east Texas, cutting power to a combined 130,000 people and causing hail and flood damage. During the middle of April, high winds caused wind storms in west Texas which, combined with the dry conditions in these regions, kicked up dust and lowered visibility. These high winds have contributed to an increased fire risk, allowing lightning to set off several fires in east Texas. This and other fire emergencies from the previous two years has prompted FEMA to grant Texas \$31.2 million to combat new fires and recover from the many fires since 2011 (Information provided by the Texas State Office of Climatology).

## TEMPERATURE SUMMARY

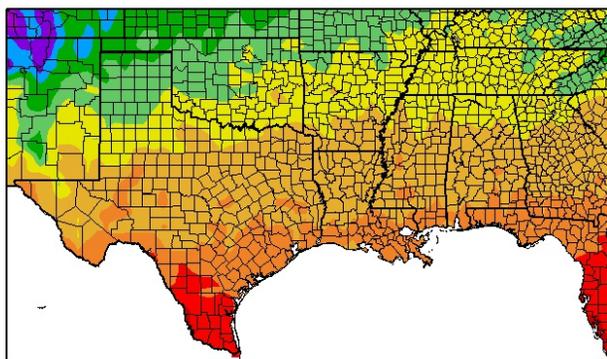
*Luigi Romolo, Southern Regional Climate Center*

April proved to be a colder than normal month for the Southern Region, with all six states reporting temperature averages below expected values. For much of the region, average temperature anomalies ranged from 0 to 4 degrees F (0 to 2.22 degrees C) below normal. In Oklahoma, however; temperature anomalies ranged from 4 to 8 degrees F (2.22 to 4.44 degrees C) below normal over much of the central and western portions of the state. With a statewide average temperature of 54.6 degrees F (12.56 degrees C), Oklahoma recorded its fifth coldest April on record (1895-2013).

Arkansas and Texas saw their eighteenth and twentieth coldest Aprils on record (1895-2013), respectively. Arkansas reported a statewide

average temperature of 58.4 degrees F (14.67 degrees C), while in Texas, the statewide average temperature for April was 63.10 degrees F (17.28 degrees C). Louisiana saw its twenty-third coldest April on record (1895-2013), with a statewide average temperature of 64.50 degrees F (18.06 degrees C). Mississippi's statewide average temperature for the month was 62.20 degrees F (16.78 degrees C), while it was slightly cooler in Tennessee with a statewide average temperature of 56.90 degrees F (13.83 degrees C). For Mississippi, it was the thirty-fifth coldest April on record (1895-2013), while for Tennessee, it was the forty-second coldest April on record (1895-2013).

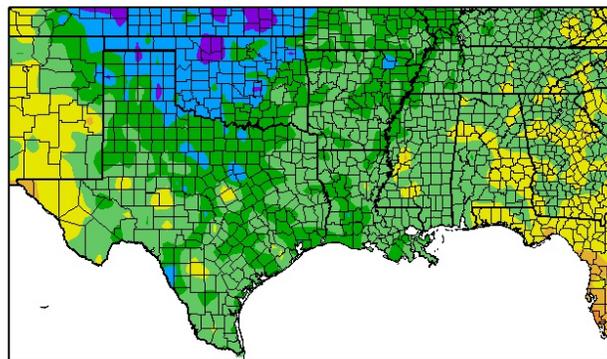
Temperature (F)  
4/1/2013 - 4/30/2013



Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

Departure from Normal Temperature (F)  
4/1/2013 - 4/30/2013



Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

**Average temperatures (left) and departures from 1971-2000 normal average temperatures (right) for April 2013 across the South.**

## PRECIPITATION SUMMARY

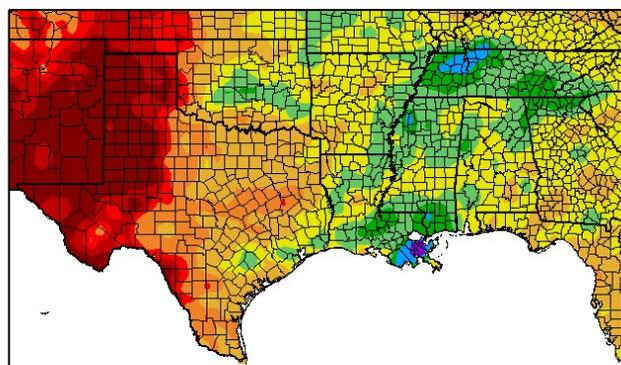
*Luigi Romolo, Southern Regional Climate Center*

April precipitation totals in the Southern Region varied spatially, with drier than normal conditions in western Texas and western Oklahoma, while much wetter than normal conditions were observed in the eastern portions of the region and along the Louisiana and Mississippi coastline. In the western portion of the region, the majority of stations reported less than one quarter of normal precipitation, with many stations, particularly in the High Plains climate division of Texas, not seeing a drop all month.

Conversely, precipitation totals over much of Tennessee varied between one and a half to two times of normal. This was also the case in southern Louisiana, southern Mississippi, and east central Oklahoma. The statewide averaged

precipitation totals are as follows: Tennessee with 7.62 inches (193.55 mm), Mississippi with 7.07 inches (179.58 mm), Louisiana with 6.92 inches (175.77 mm), Arkansas with 5.32 inches (135.13 mm), Oklahoma with 4.48 inches (113.79 mm), and Texas with a mere 1.82 inches (46.23 mm). Texas was the only state in the region that experienced a drier than normal month. For Tennessee, it was their eighth wettest April on record (1895-2013). Louisiana experienced its eighteenth wettest April on record (1895-2013), and Mississippi reported its twenty-seventh wettest April on record (1895-2013). All other state rankings fell in the middle two quartiles.

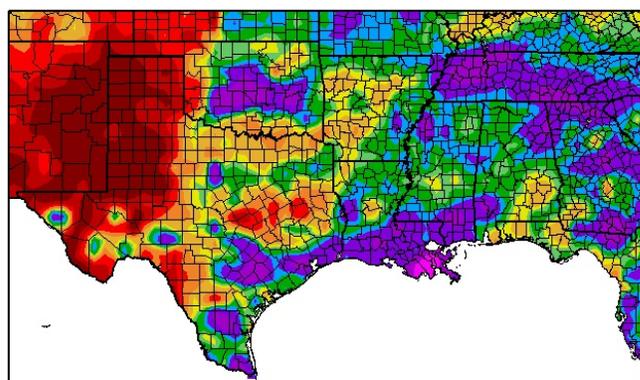
Precipitation (in)  
4/1/2013 - 4/30/2013



Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
4/1/2013 - 4/30/2013



Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

**Total precipitation values (left) and the percent of 1971-2000 normal precipitation totals (right) for April 2013.**

## CLIMATE PERSPECTIVE

State	Temperature	Rank	Precipitation	Rank
Arkansas	58.40	18 <sup>th</sup> Coldest	5.32	44 <sup>th</sup> Wettest
Louisiana	64.50	23 <sup>rd</sup> Coldest	6.92	18 <sup>th</sup> Wettest
Mississippi	62.20	35 <sup>th</sup> Coldest	7.07	27 <sup>th</sup> Wettest
Oklahoma	54.60	5 <sup>th</sup> Coldest	4.48	23 <sup>rd</sup> Wettest
Tennessee	56.90	42 <sup>nd</sup> Coldest	7.62	8 <sup>th</sup> Wettest
Texas	63.10	20 <sup>th</sup> Coldest	1.82	42 <sup>nd</sup> Driest

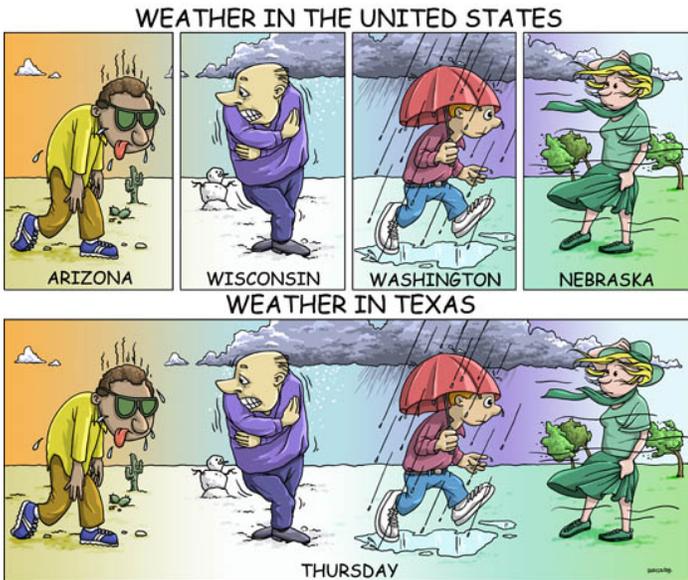
State temperature and precipitation values and rankings for April 2013. Ranks are based on the National Climatic Data Center's Statewide, Regional and National Dataset over the period 1895-2011.

## STATION SUMMARIES ACROSS THE SOUTH

Station Name	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	%Norm
El Dorado, AR	73.5	48.4	60.9	-2.8	87.0	4/17	36.0	4/20+	4.31	-0.24	95
Little Rock, AR	71.9	48.3	60.1	-1.3	88.0	4/16	36.0	4/5	4.33	-1.14	79
Baton Rouge, LA	76.9	55.3	66.1	-0.5	87.0	4/9	39.0	4/20	6.20	0.64	112
New Orleans, LA	76.4	59.9	68.2	0.0	84.0	4/27+	48.0	4/6	11.62	6.60	231
Shreveport, LA	76.2	51.4	63.8	-1.4	88.0	4/17+	38.0	4/20	3.18	-1.24	72
Greenwood, MS	73.8	50.4	62.1	-1.6	85.0	4/17+	37.0	4/20	5.85	0.19	103
Jackson, MS	75.7	52.1	63.9	0.5	87.0	4/17+	38.0	4/20	4.74	-1.24	79
Tupelo, MS	72.9	49.5	61.2	0.3	88.0	4/17	37.0	4/25+	5.18	0.24	105
Oklahoma City, OK	67.0	44.1	55.5	-4.2	85.0	4/29	29.0	4/11	7.57	4.57	252
Ponca City, OK	64.1	42.7	53.4	-5.5	88.0	4/29	28.0	4/24	2.93	-0.58	83
Tulsa, OK	67.3	45.3	56.3	-4.5	88.0	4/29	32.0	4/24	3.35	-0.60	85
Knoxville, TN	70.2	46.5	58.4	0.6	84.0	4/10	35.0	4/20+	7.32	3.33	183
Memphis, TN	71.7	50.6	61.2	-0.9	86.0	4/17	39.0	4/25	6.88	1.09	119
Nashville, TN	71.0	47.5	59.2	0.7	88.0	4/17	34.0	4/3	7.63	3.70	194
Amarillo, TX	71.6	38.2	54.9	-1.3	97.0	4/30	20.0	4/24+	0.05	-1.28	4
El Paso, TX	81.4	53.1	67.2	2.7	93.0	4/30	36.0	4/19	0.00	-0.23	0
Dallas, TX	73.8	52.1	63.0	-2.0	87.0	4/16	37.0	4/24	1.98	-1.22	62
Houston, TX	77.0	56.2	66.6	-1.9	85.0	4/30	39.0	4/20	2.88	-0.72	80
San Antonio, TX	78.8	56.5	67.6	-1.0	90.0	4/15+	41.0	4/20	2.77	0.17	107

Summary of temperature and precipitation information from around the region for April 2013. Data provided by the Applied Climate Information System. On this chart, "depart" is the average's departure from the normal average, and "% norm" is the percentage of rainfall received compared with normal amounts of rainfall. Plus signs in the dates column denote that the extremes were reached on multiple days. Blue-shaded boxes represent cooler than normal temperatures; red-shaded boxes denote warmer than normal temperatures; tan shades represent drier than normal conditions; and green shades denote wetter than normal conditions.

## Monthly Comic Relief



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## CONTACT US

The *Monitor* is an experimental climate outreach and engagement product of the Southern Regional Climate Center and Southern Climate Impacts Planning Program. To provide feedback or suggestions to improve the content provided in the *Monitor*, please contact us at [monitor@southernclimate.org](mailto:monitor@southernclimate.org). We look forward to hearing from you and tailoring the *Monitor* to better serve you. You can also find us online at [www.srcc.lsu.edu](http://www.srcc.lsu.edu) and [www.southernclimate.org](http://www.southernclimate.org).

For any questions pertaining to historical climate data across the states of Oklahoma, Texas, Arkansas, Louisiana, Mississippi, or Tennessee, please contact the Southern Regional Climate Center at 225-578-502. For questions or inquiries regarding research, experimental tool development, and engagement activities at the Southern Climate Impacts Planning Program, please contact us at 405-325-7809 or 225-578-8374.

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