

NWS FORM E-5 (11-88) (PRES. by NWS Instruction 10-924)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	HYDROLOGIC SERVICE AREA (HSA) Tulsa, Oklahoma (TSA)
	MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS	
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283		REPORT FOR: MONTH YEAR December 2008
		SIGNATURE Steven F. Piltz (Meteorologist-in-Charge)
		DATE January 5, 2009

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924)

X No flood stages were reached in this HSA during the month above.

Normal precipitation for December ranges from 1.5 inches in Pawnee County to 3.2 inches in Haskell County. Normal precipitation for the Ozark region of northwest Arkansas averages 3.2 inches for the month.

A strong low pressure system moved out into the region on December 8th, bringing widespread rainfall in addition to some severe weather. Rainfall totals ranged from around one tenth to near one inch, with isolated areas of higher amounts (Fig. 1). Another cold front moved through the region on December 14th. Rain developed along the front before transitioning to light freezing rain and sleet. Liquid equivalent precipitation was generally light across eastern OK, with amounts of around one tenth to around half an inch in northwest AR. A second upper-level disturbance moved across the area early on the 16th, bringing 1 to 2 inches of snow to the counties along the Kansas-Oklahoma state line (Fig. 2). With an arctic airmass in place over the HSA, the sleet, snow, and ice cover remained on the ground for several days. However, no flooding resulted once it all melted. Warm air advection over the colder ground led to dense fog, heavy drizzle, and a few showers across the HSA on the 18th. Precipitation amounts were generally light, with around one quarter of an inch or less for most of the area. Southern LeFlore County received the most rain, with amounts closer to half an inch.

A strong cold front moved quickly through the region on December 27th, bringing widespread rain and strong winds to the HSA. Ahead of the front, temperatures were in the 70s (breaking record high temperatures). As the front passed, temperatures plummeted into the 30s. Fortunately, the main precipitation associated with the front ended before temperatures fell below freezing. Rainfall totals of one quarter up to one inch were common across all of eastern OK and northwest AR, with areas of 1 to 2.5 inches across northeast and southeast OK, as well as northwest and west central AR (see Fig. 3). This widespread rainfall did create rises on area rivers; however, water levels remained well below flood stage and no flash flooding was reported.

Tulsa, OK (TSA): 12/9/2008 1-Day Observed Precipitation
 Valid at 12/9/2008 1200 UTC- Created 12/11/08 11:33 UTC

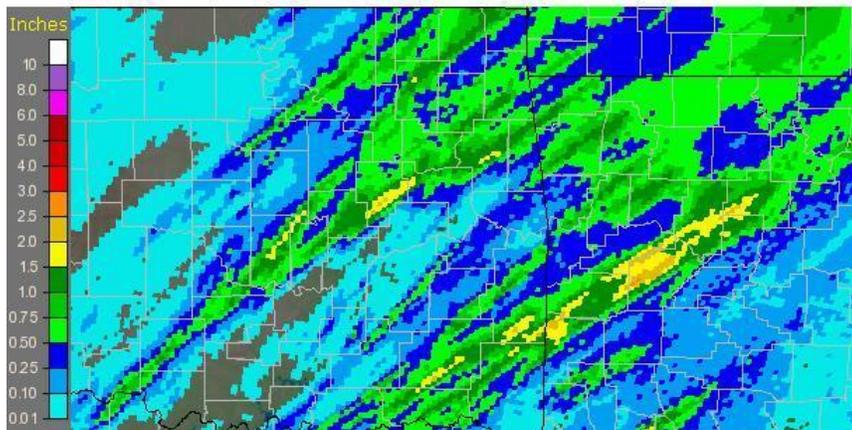


Fig.1. Observed rainfall on 12/08/08

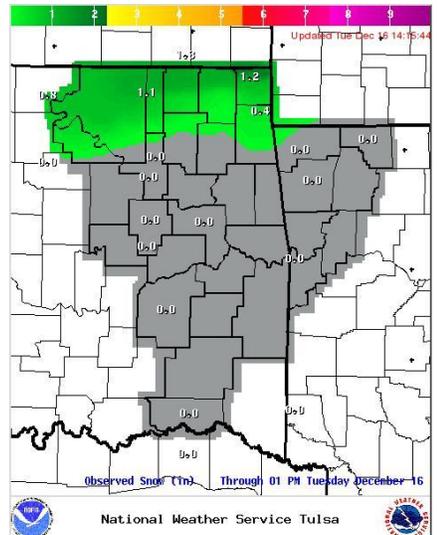


Fig. 2. Snowfall totals on 12/16/08

Tulsa, OK (TSA): 12/27/2008 1-Day Observed Precipitation
Valid at 12/27/2008 1200 UTC- Created 12/29/08 11:33 UTC



Fig. 3a. Observed rainfall before 6am 12/27/08

Tulsa, OK (TSA): 12/28/2008 1-Day Observed Precipitation
Valid at 12/28/2008 1200 UTC- Created 12/29/08 11:32 UTC



Fig. 3b. Observed rainfall after 6am 12/27/08

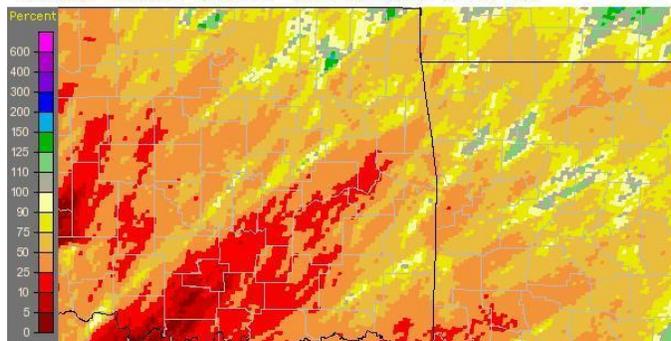
Using the observed precipitation (Fig. 4a) graphic from the RFCs, one can see that the majority of the rainfall this month fell across the eastern half of the HSA, with a precipitation gradient from around one half inch in the west to areas of over 3 inches in the east. The precipitation this month was below normal for most of the HSA, as seen in the percent of normal graphic (Fig. 4b). The U.S. Drought Monitor indicated Severe Drought (D2 category) across the driest areas of southeast and east central OK during December, with abnormally dry conditions throughout much of eastern OK and just across the state line into AR. However, the rainfall from that fell on December 27th helped to improve conditions, and by December 30th, conditions across the area had improved by one category.

Tulsa, OK (TSA): December, 2008 Monthly Observed Precipitation
Valid at 1/1/2009 1200 UTC- Created 1/1/09 23:45 UTC



Fig. 4a. December 2008 Observed rainfall

Tulsa, OK (TSA): December, 2008 Monthly Percent of Normal Precipitation
Valid at 1/1/2009 1200 UTC- Created 1/1/09 23:49 UTC



b. December 2008 Percent of Normal rainfall

U.S. Drought Monitor

December 30, 2008
Valid 7 a.m. EST

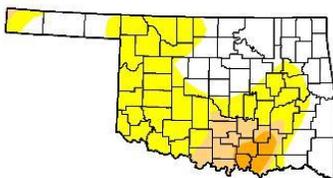
	Drought Conditions (Percent Area)					
	None	D0-D0	D1-D1	D2-D2	D3-D3	D4
Current	41.6	58.4	12.0	3.4	0.0	0.0
Last Week (12/23/2008 map)	5.5	94.5	23.8	4.4	0.0	0.0
3 Months Ago (10/07/2008 map)	84.4	15.6	5.0	3.5	0.0	0.0
Start of Calendar Year (01/01/2008 map)	83.4	16.6	7.1	0.0	0.0	0.0
Start of Water Year (10/01/2008 map)	84.4	15.6	5.0	3.5	0.0	0.0
One Year Ago (01/01/2008 map)	83.4	16.6	7.1	0.0	0.0	0.0

Intensity:

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

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

<http://drought.unl.edu/dm>



Released Wednesday, December 31, 2008
Author: Brian Fuchs, National Drought Mitigation Center

Fig. 5a. Drought Monitor conditions 12/31/08

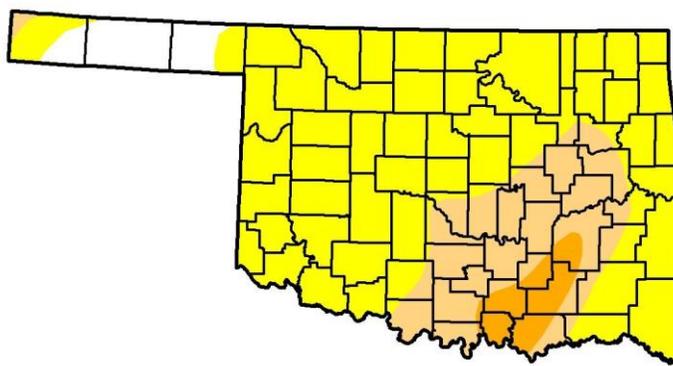


Fig. 5b. Drought Monitor conditions 12/23/08

For December 2008, the northeast OK climate division ranked as the 42nd wettest December since records began in 1921; the east central OK climate division ranked as 27th driest; and the southeast OK climate division ranked as 26th driest. The northeast OK climate division ended 2008 as the 4th wettest year on record since records began in 1921. The east central OK climate division ranked as the 18th wettest year, while the southeast OK climate division ranked as the 23rd wettest year. Fort Smith, AR (FSM) received 61.02 inches of rainfall this year, making 2008 the 4th wettest on record since recording keeping began in 1883 (the wettest year on record is 1945 with 71.81 inches). Tulsa, OK (TUL) also had a wet year, with 2008 ranking as 7th wettest since records began in 1888 (56.09 inches fell in 2008; 69.88 inches fell during the wettest year, 1973).

Figures 6a. and 7a. show the 2008 annual precipitation for Oklahoma and Arkansas, respectively. Almost all of the HSA received over 40 inches of rainfall this year, with a large portion of the area exceeding 50 inches. Figures 6b. and 7b. show the 2008 annual percent-of-normal precipitation for Oklahoma and Arkansas, respectively. The majority of the HSA received near to above average rainfall this year. However, a portion of east central and southeast OK, west of a Muskogee to Hugo line, received below normal precipitation in 2008.

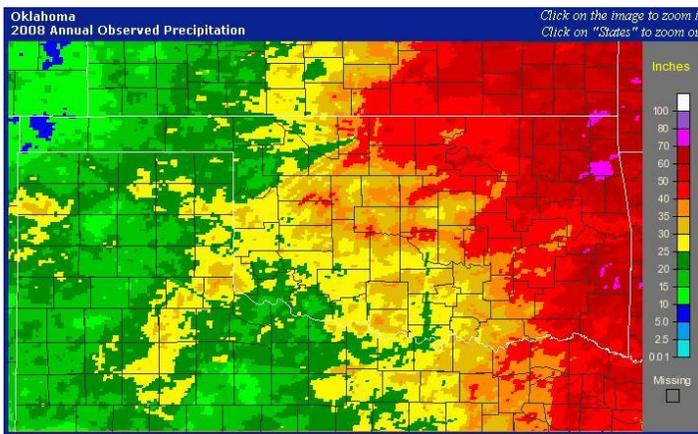
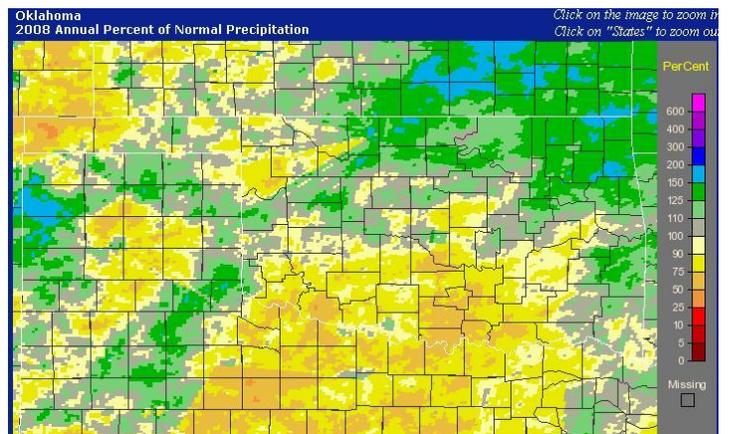


Fig. 6a. 2008 observed precipitation for Oklahoma



6b. 2008 percent-of-normal precipitation for Oklahoma

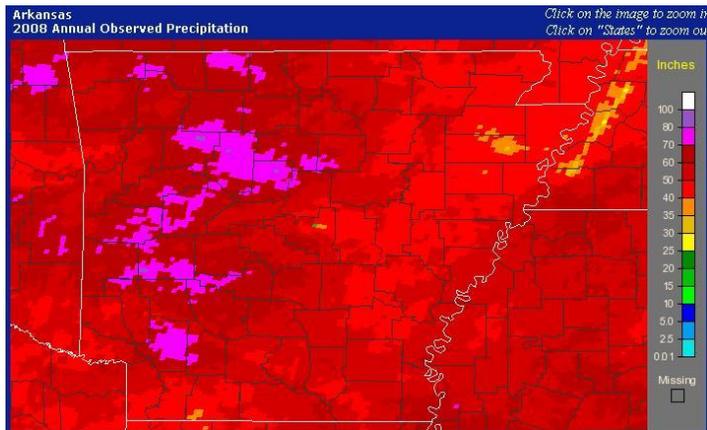
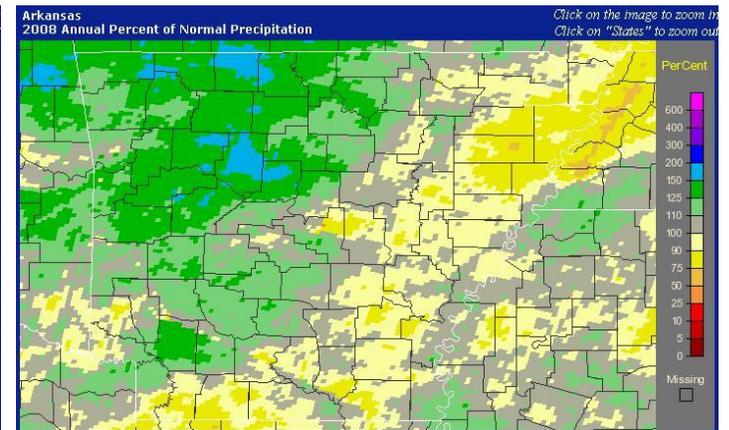


Fig. 7a. 2008 observed precipitation for Arkansas



7b. 2008 percent-of-normal precipitation for Arkansas

Some of the larger precipitation reports (in inches) for the month included:

Wister, OK (mesonet)	3.25	Mountainburg 2NE, AR (coop)	3.15	Miami, OK (mesonet)	3.09
Fort Smith, AR (ASOS)	3.08	Fanshawe, OK (coop)	3.07	St. Paul, AR (coop)	3.03
Cloudy, OK (mesonet)	2.92	Okmulgee, OK (mesonet)	2.66	Tahlequah, OK (mesonet)	2.66

Some of the larger precipitation reports (in inches) for 2008 included:

Kansas 2NE, OK (coop)	72.96	Gravette, AR (coop)	69.63	Fanshawe, OK (coop)	67.92
Jay, OK (mesonet)	67.78	St. Paul, AR (coop)	66.62	Eureka Springs 3WNW, AR (coop)	65.11
Spavinaw, OK (coop)	64.49	Berryville 5NW, AR (coop)	63.90	Vinita, OK (mesonet)	63.06

At the beginning of January 2009, most of the major reservoirs were around 100 percent of their conservation pools. However, Oologah Lake was at 83 percent of its conservation pool, and Keystone Lake was at 93 percent. Several reservoirs were around 5 percent of their flood pools, including Wister Lake, Hulah Lake, Hudson Lake, and Copan Lake. The highest reservoir level was at Ft. Gibson Lake, which was at 9% of its flood control pool.

The U.S. Drought Monitor (USDM) issued December 30, 2008 shows an overall improvement though still indicated abnormally dry conditions across portions of east central OK (see Fig. 5a). Southwest Pittsburg County was shown as remaining in a moderate drought. A Drought Information Statement (OKCDGTTSA) was issued on December 19, 2008 when the USDM indicated severe drought conditions in the HSA. The Climate Prediction Center (CPC) is predicting an improvement in the drought conditions as shown in the Seasonal Drought Outlook issued December 31, 2008.

The Climate Prediction Center (CPC) outlook for January (issued Dec 30) indicates a slightly enhanced chance for above normal temperatures for the entire HSA. The outlook also shows a slightly enhanced chance for above normal precipitation across northwest and west central AR, with equal chances for above, near, and below normal precipitation elsewhere. The CPC outlook for the Jan-Feb-Mar 3-month period (issued Dec 18) shows an enhanced chance for above normal temperatures and precipitation area-wide. With ENSO neutral conditions expected to continue through the upcoming winter, the CPC winter outlook was based primarily on trends and statistical models. However, current conditions and some computer models indicate that a weak La Niña event may develop over the next couple of months, which could affect the outlooks at longer lead times.

Products issued:

- 0 River Flood Warnings
- 0 River Flood Statements
- 0 River Statements
- 0 Hydrologic Outlooks
- 1 Drought Information Statement

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