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	REPORT FOR: MONTH **August** YEAR **2008**
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283	SIGNATURE **Steven F. Piltz** (Meteorologist-in-Charge) DATE **September 10, 2008**

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.

August is climatologically the second driest non-winter month for the Tulsa HSA. Normal rainfall for August ranges from 2.6 inches in McIntosh County to 3.8 inches in Ottawa County. In the Ozark region of northwest Arkansas, rainfall averages 3.7 inches for the month.

After an extended period of dry weather at the end of July and into the beginning of August 2008, rains returned to the area during the second week of August as a mesoscale convective complex (MCS) and cold front moved through the region. Very heavy rains fell along and northeast of a line from Hominy (Osage Co.), to Tulsa, to Muskogee, to Talihina (Le Flore Co.), with widespread rainfall amounts of 1 to 4 inches on August 9th. Higher amounts of 4 to 6 inches affected far northeast Oklahoma and adjacent areas of northwest Arkansas, with amounts near 7 inches across Mayes and Delaware Counties. Heavy rain continued on the 10th primarily south of a Tulsa to Fayetteville line as the front moved south of the Red River and the low-level jet enhanced lift north of the front. Most locations received around 1 to 2 inches of rain. However, extremely heavy rain affected southern McIntosh and northern Pittsburg Counties, where according to the ABRFC precipitation analysis, 5 to near 8 inches of rain fell (Fig. 1). The high totals led to flash flooding across these areas. Rains continued primarily south of Highway 412 on the 11th, with 1 to 4 inches across east central OK and west central AR. A slow moving upper-level low moved through the southern plains mid-month. One inch or less of rainfall fell across the HSA on the 19th in association with this low, although much higher amounts occurred just west, south, and east of the Tulsa HSA. A weak cold front affected far eastern OK and northwest AR on the 23rd and 24th, with convective rainfall totals of around one inch or less. However, a few locations across northwest AR received closer to 2 inches. Typical summer time convection occurred during the last few days of the month, bringing only isolated rainfall.

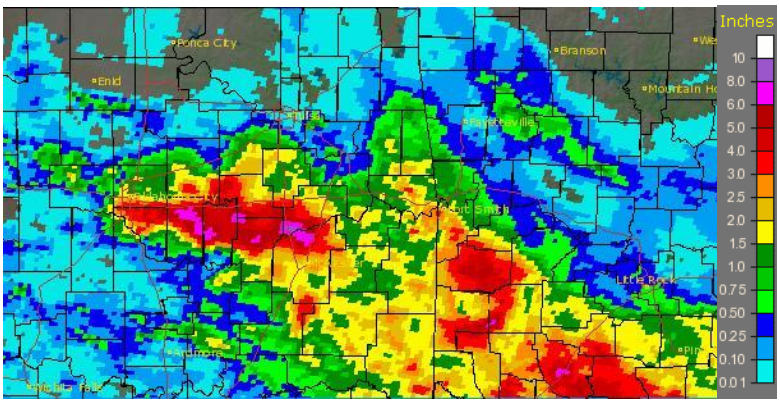
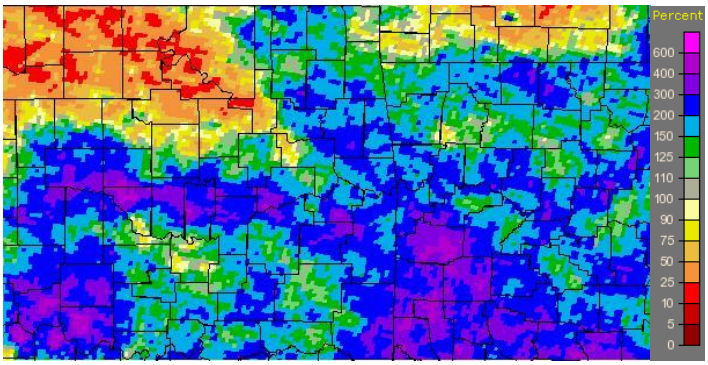


Fig. 1. 1-Day Observed Precipitation ending at 1200 UTC 8/11/08 (ABRFC)

Using the radar-derived precipitation percent-of-normal (Fig. 2a) and departure from normal (Fig 2b) graphics from the ABRFC, Osage, Pawnee, Creek, and Tulsa Counties ended up well below normal for the month, while the remainder of the HSA was near normal to over 200% of normal for the month. According to the Oklahoma Climatological Survey (OCS), this August ranked as the 39th wettest for the northeast OK climatological district;

the 16th wettest for the east central OK climatological district; and 12th wettest for the southeast OK Climatological district. In addition, Fort Smith, AR (FSM ASOS) recorded 7.42 inches of rain during August 2008, ranking as the 4th wettest August since records began in 1882.



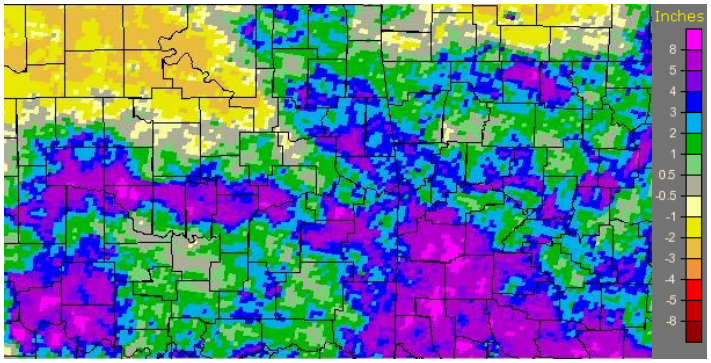


Fig. 2a. Aug. 2008 Percent of Normal rainfall (ABRFC) b. Aug. 2008 Departure from Normal rainfall

Despite the drier August period, the OCS showed that the northeast OK climatological district still ranked as the 4th wettest summer (June-August) on record (records began in 1921) at 173% of normal (see Fig 3). Tulsa, OK (TUL ASOS) ranked as the 9th wettest summer since records began in 1905. East central OK had its 12th wettest summer (141% of normal), while southeast OK ranked as the 25th wettest (116% of normal). Fort Smith, AR (FSM ASOS) ranked as the 13th wettest summer since records began in 1882. Since this March 1st, the northeast OK division has been the wettest on record (165% of normal), while the east central OK division was the 6th wettest (143% of normal) and the southeast OK division ranked 7th (137% of normal). According to the OCS, January 1 – August 31 2008 in the northeast OK division is also the wettest year–to–date on record, with rainfall at 158% of normal. The east central OK division is also ranked as the 6th wettest year so far (135% of normal) and the southeast OK division is ranked 11th (128% of normal) so far this calendar year.

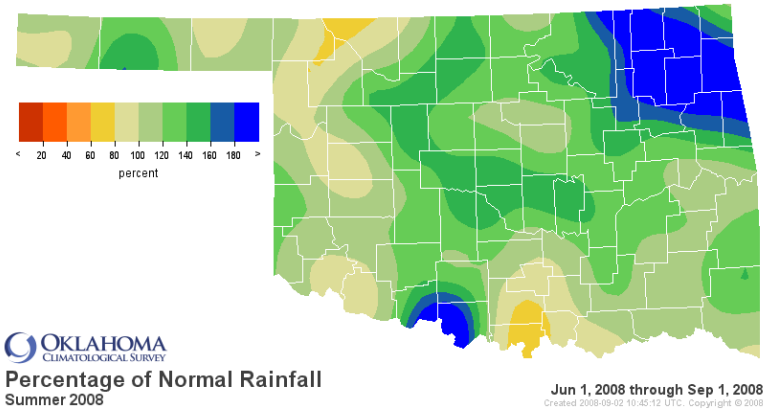


Fig. 3. (OCS)

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

Fanshawe, OK (coop)	10.66	Berryville, AR (coop)	9.15	Wilburton, OK (meso)	8.17
Cookson, OK (meso)	7.97	2NE Mountainburg, AR (coop)	7.59	Inola, OK (meso)	7.48
Fort Smith, AR (asos)	7.42	Wister, OK (meso)	7.13	Greenwood, AR (coop)	7.03

At the end of August, all of the major reservoirs were around 100 percent of their conservation pool, with the reservoir at Fort Gibson Lake at 7% of its flood pool.

While drought is not a major concern across the Tulsa HSA, the U.S. Drought Monitor (USDM) issued August 26, 2008 showed portions of Osage, Pawnee, Creek, and Tulsa Counties in the abnormally dry (D0) category at the end of August. This area corresponds to the locations shown with below normal precipitation for August in Fig. 2.

The Climate Prediction Center (CPC) outlook for September (issued Aug 31) indicates an enhanced chance for

below normal temperatures and an enhanced chance for above normal rainfall, especially over the southeast half of the HSA. This is primarily due to the expected tropical activity (Hurricane Gustav) at the beginning of the month. However, the CPC 3-month Outlook for September – November shows a slightly enhanced chance for above normal temperatures across the HSA and an equal chance for above, near, and below normal precipitation.

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