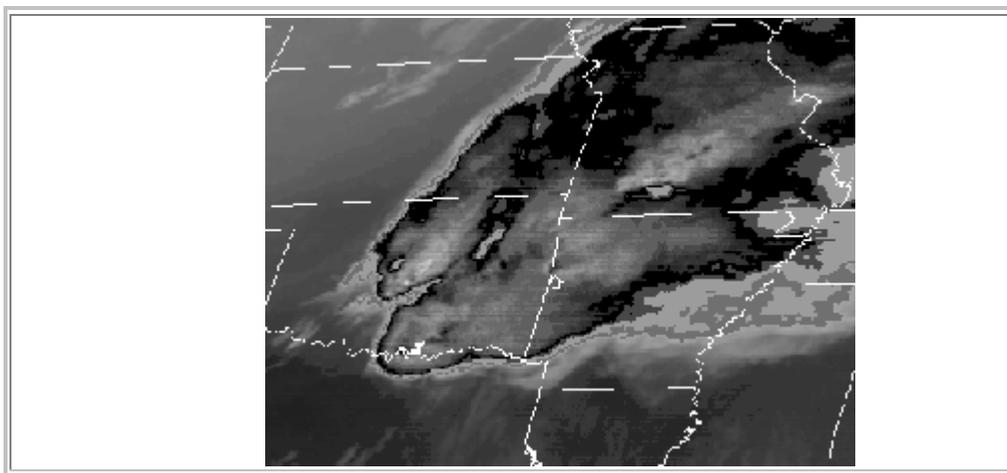


Fort Smith, AR Tornado

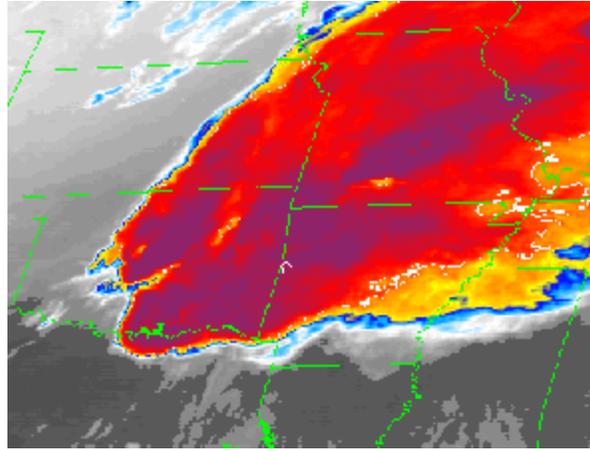
1996



The comma-shaped swirl from the cirrus top of a large supercell thunderstorm can be seen just north of the white arrow in this GOES MB curve infrared image acquired at 2302 CDT on April 21, 1996. This cell had already produced four tornadoes during the past two hours and within ten minutes of this image, a strong F2 tornado on the [Fujita Scale](#) moved into downtown Fort Smith causing \$300 million damage.

Image Information			
Satellite System		Image Specifics	
Satellite Name	GOES 8	Channel Band	No. 4 (Infrared)
Date	April 21, 1996	Resolution	4-km
Julian Date	113	Orbit No./Dir	NA
Time	0402 UTC April 22 2302 CDT April 21	Entity ID	NA
Instrument System	Imager	Area	Arkansas
Data Type	Sector		

Event Discussion



Fort Smith, AR Tornado

Conditions at the Time of the Images

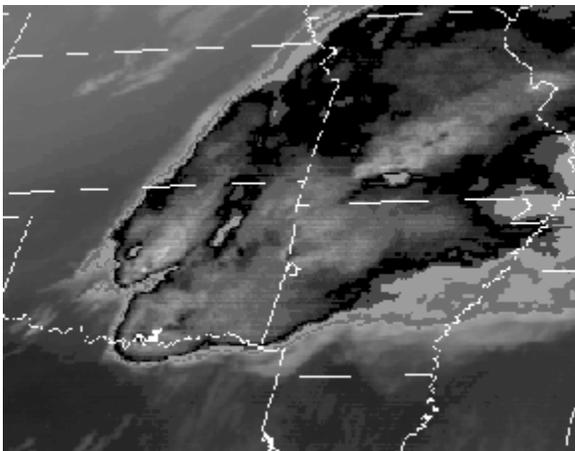


Figure 1
MB Grey Scale Infrared

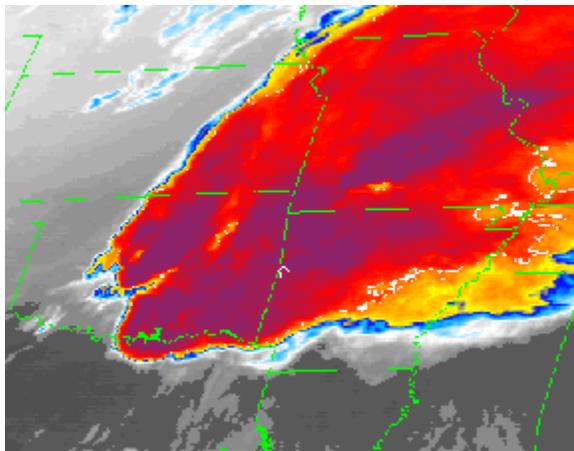


Figure 2
Color Enhanced Infrared

Downtown Fort Smith AR was devastated by an F2 tornado on the night of April 21, 1996. The tornado formed from a pre-existing supercell thunderstorm which moved into Arkansas from Oklahoma. The MB-curve (grey scale) infrared image displayed in our gallery at 0402 UTC April 22 (2302 CDT on April 21) 1996 shows a supercell thunderstorm swirl just north of the arrow pointing to Fort Smith, Arkansas. (See Figure # 1). It is less easy to spot in the coincident color-enhanced infrared image. (See Figure # 2). The tornado formed within ten minutes of these images on the southwest side of the supercell. Two other tornadoes in other areas of the storm system occurred within 40 minutes of the time of these images. One was at Seymour, MO (at 2330 CDT on the southwest side of the supercell showing as a bright "v" shape in southwest MO on these images), and the second was at at Sadler, TX (at 2240 CDT on the southern edge of the large supercell along the Red River).

A coincident water vapor image is presented in Figure # 3. The water vapor shows dry air intrusion into the system from the southwest, which is typical of most severe weather outbreaks.

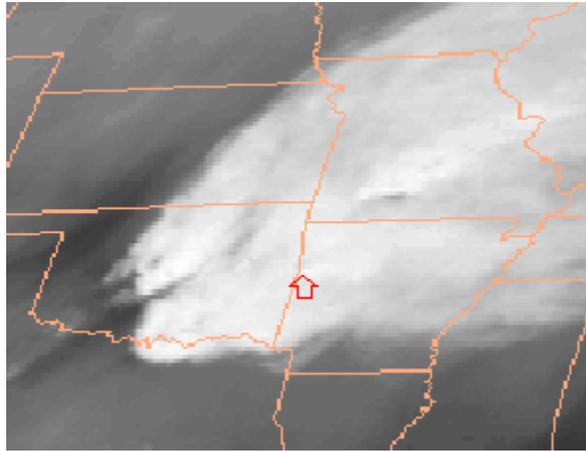


Figure # 3
Water Vapor Image

History of the Storm

Mid-April 1996 proved to be an exceptionally stormy period in Arkansas. First, seven people were killed on April 14 when an F4 tornado moved through Stone and Izard counties. Then from April 19 through 20, an unstable air mass combined with a near stationary front and upper air disturbances produced a series of severe thunderstorms with high winds and hail in several Arkansas localities.

April 21 dawned with a tornado watch in southeast Arkansas along a nearly stationary front. Very warm moist, unstable air existed to the south of the front which moved northward as a warm front during the day. The severity of thunderstorms diminished, and a warm front passed Fort Smith at noon. Temperatures rose to 80 degrees with a dew point of 64 by 3:00 CDT. Meanwhile, in West Texas a surface low pressure center moved from New Mexico to the Lubbock area. Further north, intense thunderstorms broke out in Oklahoma in advance of an approaching cold front. The first tornado of the outbreak occurred at Perry, OK at 1700 CDT. An extremely intense dry line accompanied the low as it moved eastward through North and West Texas during the afternoon. By 0000 GMT (19:00 CDT), the temperature had risen to 85 degrees at Lubbock with a dew point of 4 degrees, while at Abilene the temperature was 80 with a dew point of 63 degrees! At Childress, TX just ahead of the low pressure center, the temperature had risen to an incredible 91 degrees! The development of a low level jet increased the low level shear and inflow into the storms increasing their tornadic potential. East of the dry line, supercell thunderstorms were already pounding North Texas and Central Oklahoma.

Though Fort Smith was on the edge of two previous tornado watches (Number 215 issued at 1552 CDT for parts of Missouri, Oklahoma and extreme northwest Arkansas, and

Number 217 issued at 1808 CDT for southeastern Oklahoma), it was not until 2018 CDT that Watch Number 219 was issued for the Fort Smith area. By this time, several tornadoes had already touched down in Oklahoma, but the main line of storms was still to the west of Fort Smith. At 2115 CDT, the first of four Oklahoma tornadoes occurring from the same supercell thunderstorm which would eventually produce the Fort Smith tornado touched down in McAlester.

Nearly two hours later, the last of the four Oklahoma tornadoes from the supercell touched down in Moffett at 2312 CDT and quickly strengthened as it crossed the Arkansas River into Fort Smith (Sebastian County) at an intensity of F2. The tornado moved northeastward through Fort Smith devastating the downtown area and an industrial section of town and entered Crawford County and Van Buren at 2318 CDT. It continued northeastward and lifted at 2328 CDT one mile south of Rudy. Maximum intensity in Crawford County was F3. The total path length was ten miles and was about 1050 yards wide. Four people were killed and 89 were injured by the tornado. In Sebastian County, 35 homes were destroyed, 120 severely damaged, 1133 had minor damage, and 88 businesses were damaged or destroyed. In Crawford County, 463 homes were destroyed, 500 had major damage, 142 had minor damage, 246 apartments were damaged, and 10 businesses were damaged or destroyed. Incredibly, damage totals are estimated in excess of \$300 million! Four other tornadoes occurred in Arkansas that night killing two additional people, and golfball sized hail caused an estimated \$9 million damage in Fayetteville.

Overall, the severe weather outbreak caused 17 tornadoes in Oklahoma, 10 in Texas, 5 in Arkansas, and 1 in Missouri. With the exception of three tornadoes in Arkansas, none of the 33 tornadoes in the outbreak were stronger than F1 intensity! Hail the size of baseballs (4.50 inches in diameter) was noted in many areas: Combs, AR; Newkirk, OK; Racine, MO; and at Gainesville, Stamford, Callisburg, Dixie, Pottsboro, and Lindsay, TX. At Newkirk, OK, one hailstone "as large as a human head" penetrated the roof and ceiling and fell into the living room of a residence. A flock of ducks was caught in this storm, and several residents reported ducks falling with the hail!

Several factors regarding storm intensities and tornado life histories are uniquely demonstrated by this storm:

- **Dry Line Influence:** Though 33 tornadoes occurred with this system, none were in the F4 or F5 categories on the Fujita scale. The surface low pressure center and the low level jet with this system were not especially strong. However, the dry air aloft entering the system from the southwest was exceptionally dry enhancing instability.
- **Repetitive Tornado Formation:** The tornado which ripped into Fort Smith was the fifth tornado to develop from the same supercell within a span of two and a half hours. The repetitive formation of tornadoes from the same supercell is not uncommon as supercells sometimes go through cycles of intensification. The new NEXRAD radar technology allows easier tracking of the path of supercells.

- **\$300 Million Damage from an F2?** An F2 tornado is not usually thought of as a particularly damaging tornado. The Fort Smith tornado is an example of a moderate tornado being in the "wrong place," thus causing massive damage.
- **Such a Low Death Toll?** Though the tornado was in the "wrong place" thereby causing immense damage, fortunately, it struck at the "right time" (near 11 pm). Casualties were substantially lower than would have likely been the case had the tornado struck downtown in the afternoon.

Citing the article:

McCown, Sam "Fort Smith, AR Tornado 1996", May 1996, National Climatic Data Center, Asheville, N.C.