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DEPARTMENT OF
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PUBLICATION

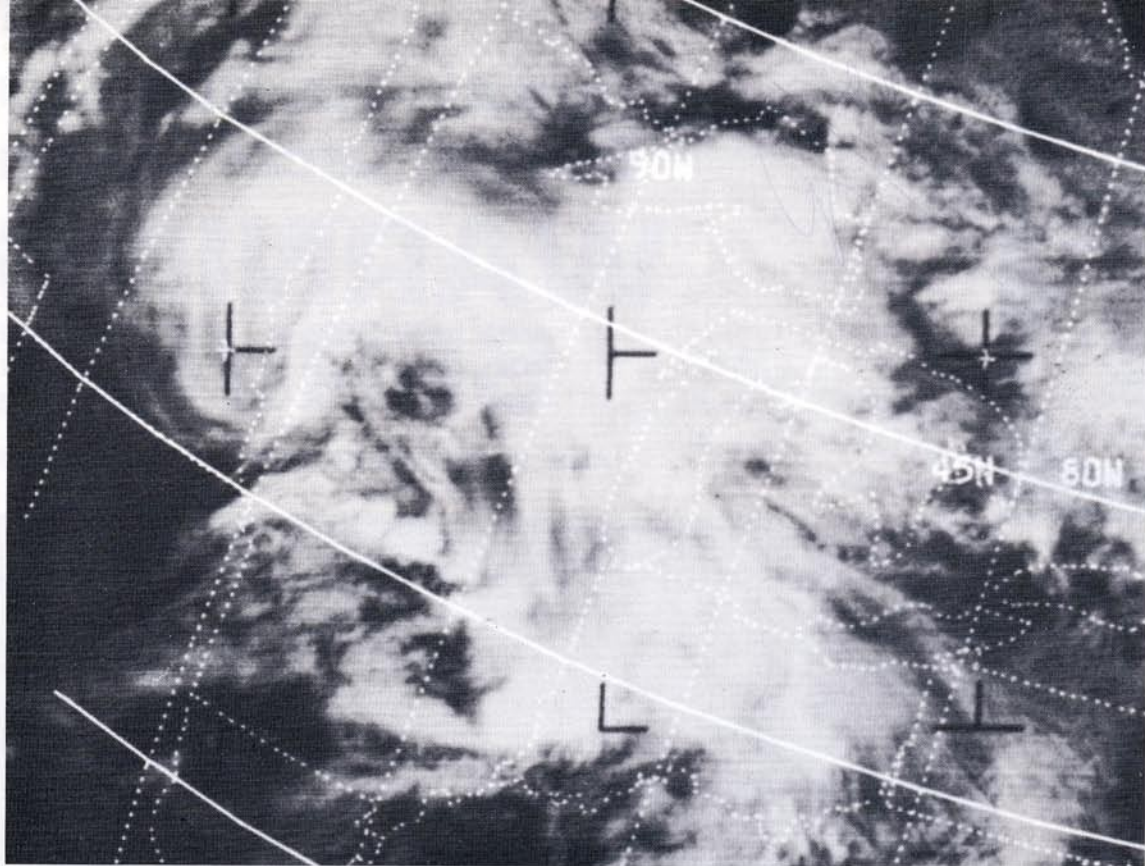


WEATHER BUREAU
Severe Local Storm
WARNING
SERVICE

AND TORNADO STATISTICS, 1953-1968

**U.S. DEPARTMENT
OF COMMERCE**
Environmental
Science Services
Administration





Sunday, June 22, 1969—

Conditions over the American Midwest made severe thunderstorms and tornadoes a strong possibility for much of Missouri. ESSA 9 satellite photograph taken at about 1 p.m. CDT shows cloud cover over

Midwest. The diagrams show how the Weather Bureau Severe Local Storm Warning Service and a local Weather Bureau office responded to this situation that afternoon and evening.

Severe Local Storm Warning Service

(AND TORNADO STATISTICS, 1953-1968)

Severe local storms, severe thunderstorms accompanied by high winds, hail, heavy rain, and possibly tornadoes, are small and short-lived weather phenomena which are the most difficult weather features to forecast precisely, given our present knowledge, theory, equipment, and techniques. Although it is not possible to predict exactly where and when severe thunderstorms and tornadoes will occur, it is possible to predict general areas where the probability of severe thunderstorm and tornado development is greatest by detecting the larger-scale events which are usually associated with such storms.

This important function is performed by the National Severe Storms Forecast

Center in Kansas City, Missouri. Meteorologists at this Center monitor conditions in the North American atmosphere, using surface data from hundreds of points and radar summaries, satellite photographs, meteorological upper-air profiles (obtained by sounding balloons), and reports from pilots. From these thousands of pieces of information, weathermen determine the area that is most likely to experience severe thunderstorms or tornadoes. Information on this area is then issued to local Weather Bureau offices and the public in the form of a *watch* bulletin.

A severe thunderstorm watch or tornado watch bulletin issued by the Center usually identifies an area about 140 miles wide by 240 miles long. Although the



**U.S. WEATHER BUREAU TORNADO WATCH BULLETIN
ISSUED 1230 PM
CDT JUNE 22, 1969
SOUTH AND CENTRAL MISSOURI
SMALL PORTION OF EXTREME SOUTHEAST ILLINOIS**
THE THREAT OF TORNADOES WILL EXIST IN THESE
AREAS FROM 2 PM CDT UNTIL 8 PM CDT THIS
SUNDAY AFTERNOON. A FEW SEVERE
THUNDERSTORMS WITH LARGE HAIL AND LOCALLY
DAMAGING WINDS ARE ALSO FORECAST. THE
GREATEST THREAT OF TORNADOES AND SEVERE
THUNDERSTORMS IS IN AN AREA ALONG AND 70
MILES EITHER SIDE OF A LINE FROM 70 MILES SOUTH
OF KANSAS CITY MISSOURI TO 50 MILES SOUTHEAST
OF ST. LOUIS MISSOURI.

watch bulletin states approximately where and for how long the severe local storm threat will exist, it does not mean that severe local storms will not occur outside the *watch* area or time frame—the *watch* is only an indication of where and when the probabilities are highest.

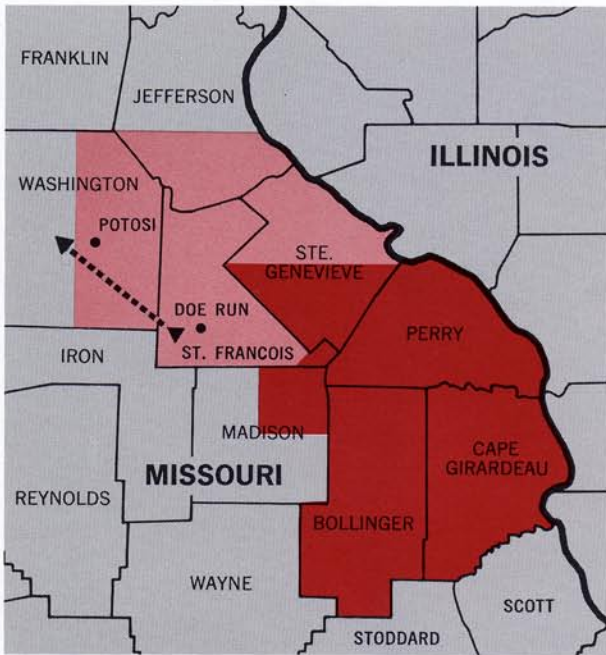
The *watch* bulletins are transmitted to all Weather Bureau offices. Designated offices prepare and issue a redefining statement which specifies the affected area in terms of counties, towns, and locally well-known geographic landmarks. These messages are disseminated to the public by all possible means, and are used to guide the activities of local government, law enforcement, and emergency agencies in preparing for severe weather.



**TORNADO WARNING BULLETIN
WEATHER BUREAU ST. LOUIS, MISSOURI
ISSUED 7 PM CDT JUNE 22, 1969**
A TORNADO WARNING IS IN EFFECT UNTIL 8 PM CDT
FOR PERSONS IN EAST WASHINGTON, ST. FRANCOIS,
ST. GENEVIEVE AND SOUTHERN JEFFERSON COUNTIES
OF MISSOURI.
A TORNADO WAS REPORTED BY THE PUBLIC 4 MILES
WEST OF POTOSI AT 7 PM CDT. THIS TORNADO IS
MOVING TOWARD THE EAST AT 35 TO 40 MPH. IF A
TORNADO OR THREATENING CONDITIONS ARE
SIGHTED, BE PREPARED TO MOVE TO A PLACE OF
SAFETY.

Watches are not warnings. Until a severe thunderstorm or tornado warning is issued, persons in watch areas should maintain their normal routines, but watch for threatening weather and listen to the radio or television for further severe weather information.

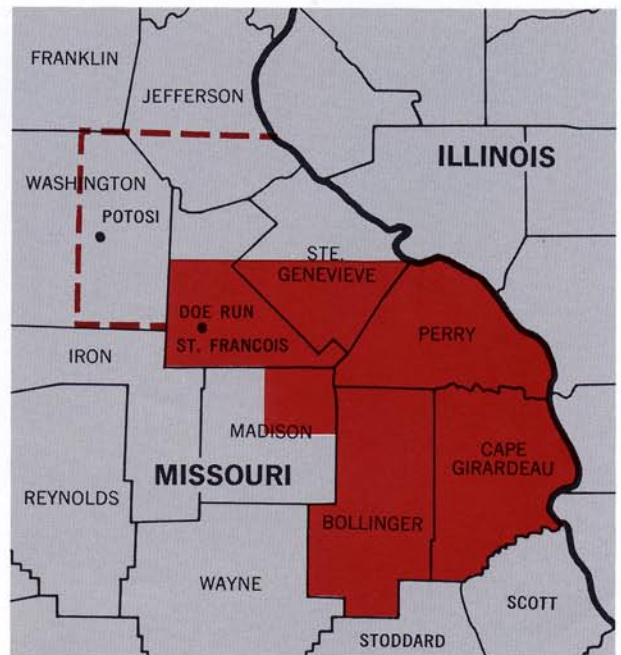
A severe thunderstorm warning or tornado warning bulletin is issued by a local Weather Bureau office when a severe thunderstorm or tornado has actually been sighted in the area or indicated by radar. *Warnings* describe the location of the severe thunderstorm or tornado at the time of detection, the area (usually the counties) that could be affected, and the time period (usually one hour) covered by the *warning*. The length of this area is equal



TORNADO WARNING BULLETIN, WEATHER BUREAU OFFICE, ST. LOUIS, MISSOURI, ISSUED 7:55 PM CDT JUNE 22, 1969

A TORNADO WARNING IS IN EFFECT UNTIL 9:30 PM CDT FOR PERSONS IN SOUTHERN ST. GENEVIEVE, PERRY, NORTHEASTERN MADISON, BOLLINGER AND CAPE GIRARDEAU COUNTIES OF MISSOURI.

A TORNADO WAS REPORTED BY THE PUBLIC NEAR DOE RUN MISSOURI AT 7:50 PM CDT. THIS TORNADO IS MOVING TOWARD THE EAST SOUTHEAST AT 40 MPH. IF A TORNADO OR THREATENING CONDITIONS ARE SIGHTED, BE PREPARED TO MOVE TO A PLACE OF SAFETY.



SEVERE WEATHER BULLETIN ISSUED 8:15 PM CDT JUNE 22, 1969. THE TORNADO THAT WAS REPORTED NEAR POTOSI MISSOURI AT 7 PM CDT HAS MOVED TO NEAR DOE RUN AND IS NO LONGER CONSIDERED DANGEROUS FOR PERSONS IN JEFFERSON, EASTERN WASHINGTON, NORTHWESTERN ST. FRANCOIS AND NORTHERN ST. GENEVIEVE COUNTIES. HOWEVER PERSONS IN THESE AREAS SHOULD WATCH FOR THREATENING WEATHER AND LISTEN TO THE RADIO AND TELEVISION FOR FURTHER SEVERE WEATHER INFORMATION SINCE THE TORNADO WATCH REMAINS IN EFFECT FOR THE AREA.

to the distance the storm is expected to travel in one hour.

When a warning is received, persons close to the storm should take cover immediately, especially in the case of a tornado warning. Persons farther away from the storm should be prepared to take cover if threatening conditions are sighted.

Severe weather statements are prepared by local Weather Bureau offices to keep the public fully informed of all current information, particularly when *watch* or *warning* bulletins are in effect. Statements are issued at least once each hour, and more frequently when the severe weather situation is changing rapidly. In this way, a close watch is kept on weather

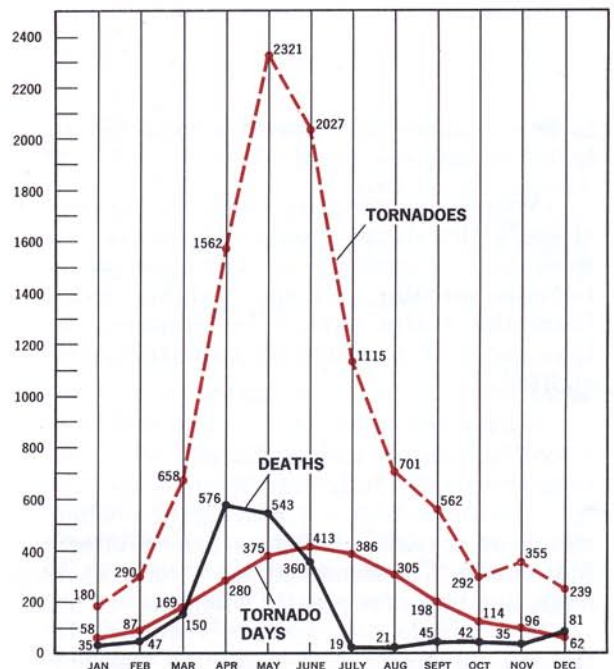
developments, and information is quickly disseminated to the counties for which the Weather Bureau office has responsibility.

All-clear bulletins are issued whenever the threat of severe thunderstorms or tornadoes has ended in the area previously warned in a tornado or a severe thunderstorm *warning* bulletin. When a *warning* is cancelled, but a *watch* or *warning* continues in effect for the same or adjacent area, a "Severe Weather Bulletin" is issued; this qualified message is also issued when a portion, but not all, of a *watch* area is cancelled. This permits a continuous alert in the path of the storm, with the alert being cancelled as the severe weather moves through the watch area.

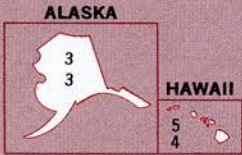
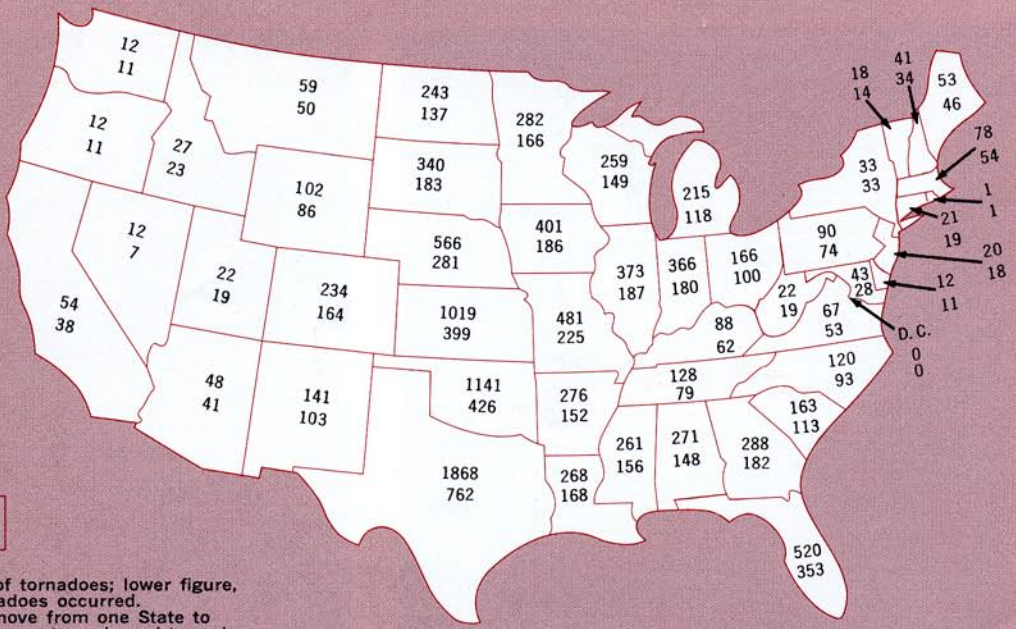


From 1916 through 1952, fewer than 300 tornadoes were reported in any one year. In 1953, when the Weather Bureau initiated its tornado forecasting effort, more than 437 tornadoes were observed and reported, beginning the first period of reliable statistical history. Since 1953, partly through improved equipment and techniques, partly through increasing public participation, essentially complete tornado records have been available. This publication summarizes tornado incidence for the period 1953-1968. More tornadoes occurred in 1967 than in any prior year of record for the United States. In 44 States, 912 tornadoes killed 116 persons and caused property damage in the millions of dollars. In 1968, 660 tornadoes in 40 States killed 131 persons (72 of which died as a result of 41 tornadoes in 10 States on May 15 and early on the 16th) and caused damage estimated to exceed \$50 million. Only 10 States had no tornadoes in 1968: Alaska, California, Delaware, Hawaii, Maryland, Nevada, New Jersey, Rhode Island, Vermont, and Washington.

TORNADO INCIDENCE BY MONTH 1953-1968



TORNADO INCIDENCE BY STATES 1953-1968



Upper figure is number of tornadoes; lower figure, total days on which tornadoes occurred. Single tornadoes which move from one State to another are listed here as one tornado and tornado day for each State.

TORNADO STATISTICS (1953-1968)

TORNADOES, TORNADO DAYS, DEATHS, AND DAMAGE. 1953-1968

