

***NATIONAL WEATHER SERVICE CENTRAL REGION SUPPLEMENT 02-2006  
APPLICABLE TO 10-511  
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***Operations And Services Public Weather Services NWSPD 10-5 WFO Severe Weather Products  
Specification NWSI 10-511***

***One Inch Hail Criterion for Severe Thunderstorm Warnings in Central Region***

**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

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***SUMMARY OF REVISIONS:*** This supplement expands the policy and procedures originally implemented as a demonstration project for Kansas Weather offices to include all Central Region offices by July 1, 2009. The demonstration project experimented with using hail diameter of one-inch as a minimum threshold for definition as a severe thunderstorm. Decision makers were notified of storms expected to produce hail of more moderate size (not accompanied by damaging winds or tornadoes) by “Significant Weather Advisories” using the “Special Weather Statement” (SPS) product. Customer feedback was extremely positive, including numerous statements of approval by key decision makers such as emergency managers and media partners. As a result of this resounding success, Central Region is expanding the policy to include all its offices.

(signed by)

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Lynn Maximuk

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Date

Director, Central Region

One Inch Hail Criterion for Severe  
Thunderstorm Warnings

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1. Introduction/Background. NWSI 10-511, issued November 1, 2005 “WFO Severe Weather Products Specification”, Section 2.2.2 “Issuance Criteria” states in part, that Severe Thunderstorm Warnings should be issued when there is radar or satellite indication and/or reliable spotter reports of wind gusts equal to or in excess of 50 knots (58 mph) and/or hail size of ¾ inch (penny) diameter or larger.

In an effort to better represent hail sizes which produce damage, and to reduce user complacency to numerous severe thunderstorm warnings for three-quarter (¾) inch hail, the Warning Forecast Offices (WFOs) that serve the state of Kansas participated in a four-year demonstration project during which they issued Severe Thunderstorm Warnings using a hail criterion of one (1) inch in diameter or larger as opposed to the ¾ inch criterion referenced above. The demonstration was such a resounding success among key partners and customers (including emergency management and the media) that this policy is being expanded to include all offices serving the Central Region. A rolling implementation will be employed with all offices in full participation by July 1, 2009. This policy will continue until the supplement is rescinded or superseded by national policy.

2. Central Region Policy. All WFOs serving the Central Region will participate in the one inch hail criterion experiment. This will encompass the county warning areas of the following WFOs:

- In North Dakota:** Bismarck, Eastern North Dakota (Grand Forks);
- In South Dakota:** Rapid City, Aberdeen, Sioux Falls;
- In Minnesota:** Minneapolis (Chanhassen), Duluth;
- In Wisconsin:** La Crosse, Green Bay, Milwaukee (Sullivan);
- In Michigan:** Marquette, North Central Lower MI (Gaylord), Grand Rapids, Detroit;
- In Indiana:** Northern Indiana (Webster); Indianapolis;
- In Kentucky:** Louisville, Paducah, Jackson;
- In Illinois:** Chicago, Central IL (Lincoln);
- In Iowa:** Des Moines, Quad Cities (Davenport);
- In Missouri:** Pleasant Hill, Springfield, St. Louis (plus two counties in the WFO Memphis CWA);
- In Nebraska:** North Platte, Hastings, Omaha;
- In Kansas:** Topeka, Wichita, Dodge City, Goodland;
- In Colorado:** Boulder/Denver, Pueblo, Grand Junction;
- In Wyoming:** Riverton, Cheyenne (plus one county in the WFO Billings CWA).

3. Central Region Procedure. The WFOs taking part in this experiment will issue Severe Thunderstorm Warnings for storms indicated by radar, satellite and/or reliable spotter reports that indicate wind gusts equal to or exceeding 50 knots (58 mph) and/or hail size of 1 inch in diameter or larger.

For thunderstorms that are expected to remain below severe limits, WFOs may issue a text product to communicate relevant information to the public. The WFO may use the preferred headline of “Significant Weather Advisory” in the Special Weather Statement (SPS) product. It is also acceptable to use the Short Term Forecast (NOW) product, or the SPS with an alternative headline appropriate to the event, in order to relay this information. These text products would include expected hail sizes and/or wind speed estimates (e.g., a storm with winds of 45 to 50 mph and small hail, or wind gusts as high as 55 mph with penny sized hail, etc.).

Offices will also continue to collect and distribute hail reports that are  $\frac{3}{4}$  inch in diameter or greater by way of the Local Storm Report (LSR) in as near real time as possible. Reports of hail equal to or exceeding 1-inch in diameter will be sought and disseminated for warning verification purposes. However, hail less than 1 inch may still be considered useful, significant information to partners and weather forecasters alike. As such, they are encouraged for inclusion in an LSR when appropriate and time permits.

With respect to collecting, documenting and transmitting hail reports, actual size is always recommended. However, there are several commonly used terms used by storm spotters for conveying hail reports to NWS forecasters which remain acceptable. A list of the most common terms and the accompanying conversion to hail size follows.

|             |            |
|-------------|------------|
| Pea         | 1/4 inch   |
| Penny       | 3/4 inch   |
| Quarter     | 1 inch     |
| Half Dollar | 1 ¼ inches |
| Walnut      | 1 ½ inches |
| Golf ball   | 1 ¾ inches |
| Egg         | 2 inches   |
| Tennis ball | 2 ½ inches |
| Baseball    | 2 ¾ inches |
| Grapefruit  | 4 inches   |
| Softball    | 4 ½ inches |

Nickel is considered 0.88 of an inch.

Use of the terms “dimes” and “marbles” is discouraged, since dimes are smaller than  $\frac{3}{4}$  of an inch; marbles come in a variety of sizes.