



THE ATMOSPHERIC RESERVOIR

Examining the Atmosphere and Atmospheric Resource Management

The NWS Changes Severe Hail Size

By Daniel Brothers

Have you ever wondered what makes a thunderstorm severe? The National Weather Service (NWS) requires at least one of three criteria to be met in order to consider a thunderstorm severe: the presence of a funnel cloud or tornado, wind gusts in excess of 50 knots (58 mph), or hail with a diameter of at least $\frac{3}{4}$ inch. Starting on April 1 one of these criterion has changed, at least in North Dakota.

Over the past four years the NWS offices in Kansas conducted a demonstration project using the threat of one-inch diameter hail as opposed to the standard $\frac{3}{4}$ -inch diameter for issuance of severe thunderstorm warnings. After consulting various sources such as media and local emergency personnel it was determined that the demonstration was a success, and starting in 2009 it will be expanded to include the entire central region of the NWS, including North Dakota.

The change was encouraged, in part, by a study at Texas Tech University of damage caused by hail to various types of roofing surfaces. That research demonstrated that hail damage typically did not occur with hail diameters smaller than one-inch. Since warnings are designed to warn the public about the threat to life and property, this seemed like a more reasonable threshold for severe hail.

Another concern that prompted the change was a perceived lack of

concern by the general public when severe thunderstorm warnings were issued. The public seems to have become somewhat desensitized to severe weather warnings due to the amount of warnings issued for



smaller hail sizes that don't cause much, if any damage. The change means fewer warnings will be issued, but those that are will hopefully be taken more seriously.

Feedback from the project in Kansas indicated that the public found the warnings more meaningful and people were more apt to take precautions when a warning was issued. Also, people were pleased with the fact that regular programming on television and radio were not interrupted as often for storms that posed little or no threat.

The NWS started using the new criteria for severe thunderstorm warnings in North Dakota at the beginning of April and all 14 states in the NWS's Central Region will switch to the new criteria by July 1. If the new warning criteria continue

to show positive results they may be expanded to include the entire United States at some point in the future.

Reports of hail with a diameter less than one inch will still be accepted by the NWS. The NWS will also issue Short Term Forecasts for storms expected to produce hail in this size range. This data is still valuable, however, warnings will be issued only when hail with diameters of one inch or greater is expected, and verification of these warnings will be based on the same criteria. When reporting hail sizes to the NWS, report the actual size in inches or common items such as penny, quarter, golf ball, or baseball-sized hail. Marble size descriptions are discouraged since marbles can come in many different sizes.

"The changes in warning criteria at the NWS will decrease the number of warnings and make the warnings that are issued more meaningful to the public" according to John Paul Martin of the Bismarck NWS office. "Hopefully this will alleviate a 'cry wolf' mentality that some people have towards severe thunderstorm warnings." If you have any questions about the new severe weather criteria please contact your local NWS office.

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