



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL ENVIRONMENTAL SATELLITE DATA
AND INFORMATION SERVICE
NATIONAL CLIMATIC DATA CENTER
151 PATTON AVE ROOM 120
ASHEVILLE NC 28801-5001

04 August 2009

MEMORANDUM

From: Karsten Shein, Climate Monitoring Branch, CSMD, NCDC
To: Thomas Karl, Director, NCDC
Subject: SCEC: New all-time largest hail stone for Vermont

On 3 August 2009, the ad-hoc State Climate Extremes Committee (SCEC) voted unanimously to approve a new hail stone record for the state of Vermont. As the National Climatic Data Center (NCDC) voting member, I am requesting that the NCDC director, or designated proxy, approve the decision of the SCEC and recognize the 3.3-inch diameter, 6.8-inch circumference, 2.1 ounce hail stone which fell near Westford, VT on the evening of 16 July. A summary of the event and the SCEC deliberation follows.

Around 5:00 PM (EDT) [2100 UTC] on 16 July, 2009, a severe thunderstorm impacted the northern portions of Chittenden County, Vermont. Hardest hit was the town of Westford, where numerous reports were received by the National Weather Service of large hail having diameters estimated between 1 ½ and 2 ½ inches. The hail resulted in damage to cars, windows and crops as well as killing dozens of chickens. Fortuitously, the home of an NWS employee was in the path of this hailstorm. Within minutes of observing a particularly large hailstone fall, the employee retrieved it, measured it with a ruler, and placed it and other hailstones in a small cooler in his freezer. The measurement taken and documented at that time showed a maximum diameter of about 3 ¼ inches. The following day he brought the cooler to the NWS Office and placed it in the freezer. On July 31, additional measurements were taken and documented. The maximum diameter was still roughly 3 ¼ inches, indicating that it was likely no significant changes in the hailstone had occurred. The maximum circumference was determined to be 6 ¾ inches, with a weight, as measured by the office postal meter scale, of 2.1 ounces.

A records search through the Storm Data database, as archived at NCDC, indicated only one 3-inch diameter hail report in Vermont since 1950. This hail occurred on August 9, 1968 in Burlington, however no additional data were available to determine whether this was an estimate or measured. Other Storm Data reports of hail sizes between 2 ½ and 2 ¾ inches diameter also were reviewed to ensure that the Storm Data entry did not refer to larger size hail in the accompanying narratives. Lastly, reviews of on-station photographs of large hailstones sent to the NWS from the public over the last several years were reviewed. However, the exact sizes of these hailstones could not be determined as they were either pictured in someone's hand or with another object of unknown size, such as small plate or a tomato.

On 24 July, 2009, Andy Nash, MIC at NWS WFO Burlington contacted NCDC, NWS Eastern Region Headquarters, the Northeastern Regional Climate Center, and the Vermont State Climatologist to initiate a SCEC discussion and vote on the record hailstone. After a few E-mail exchanges, including the attached pictures, a SCEC teleconference was convened on 3 August, 2009. Dr. Nolan Doeskin, Colorado State Climatologist and subject matter expert on hail was invited to participate as a voting member of

this SCEC. During the teleconference, the observer, Charles McGill (NWS WFO Burlington) described the above events in detail. After the narrative and some discussion, the SCEC voted unanimously to approve the record. In follow up, WFO Burlington will provide information to the NCDC Storm Data database as well as submit a Record Event Report (RER) for the hail stone.

As a result of this SCEC discussion, certain issues were raised. Since hail stone size is not something that has historically been tracked on a state level – only 2 states have record hail stones on the books due to establishing a national record – there was no guidance for what constitutes proper collection, measurement, and storage procedures, and to what precision measurements should be taken. The SCEC discussed these issues, and based upon the discussion, is now in the process of developing, as a joint project between NCDC, NWS, and the AASC, a set of standards, which will guide future SCEC hail discussions and will ensure that future hail stone measurements are comparable with established record values. It is expected that these standards will be finalized within the next month or two.

State Climate Extremes Members (V = voting):

- Andy Nash, NWS WFO Burlington (V)
- Chuck McGill, NWS WFO Burlington
- Lesley-Ann Dupigny-Giroux, Vermont State Climatologist (V)
- Keith Eggleston, Northeast Regional Climate Center (V)
- Lora Mueller, NWS Eastern Region Headquarters (V)
- Nolan Doeskin, Colorado State Climatologist (V)
- Karsten Shein, National Climatic Data Center (V)

NCDC Director Approval/Recommendation:

Approved: _____ Disapproved: _____

Director: _____ Date: _____
(or proxy)

Recommendation (if any):

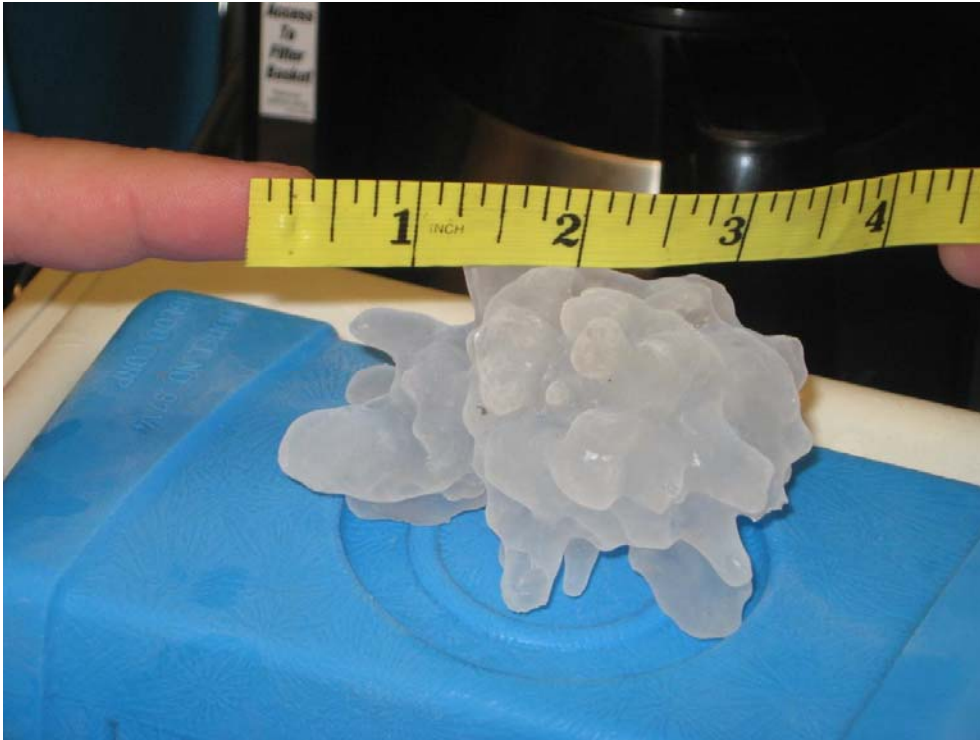
File with NCDC/State Climate Extremes Committee





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Photographs of Vermont Record Hailstone of 16 July 2009



Diameter (3 ¼ inches)



Circumference (6 ¼ inches)



Weight (2.1 ounces)