

PREDICTING SNOWSTORMS

"Climate change is fuelling an increase in the intensity and snowfall of winter storms. The atmosphere now holds more moisture, and that in turns drives heavier than normal precipitation, including heavier snowfall in the appropriate conditions" (Trenberth 2011)

Rules for Snowstorms

A snowstorm requires the pressure to fall more than 2.0 mb / hour for 3 hours to below 1009 mb and a surface air temperature of 0 °C to – 4 °C.



The 2016 snowstorm in Washington D.C. ranked as a category 4 storm on the NESIS scale.

Winter storms can form with the arrival of a cold front when a mass of cold, dry air moves into a mass of warm, moist air. Gusty winds and a rapid temperature drop often result. Snow, sleet or freezing rain can occur when the ground temperature is low enough. Blizzards are severe snowstorms with a sustained wind speed or gusts of 56 km/h (35 mph) or more, lasting for 3 hours or more, giving a large snowfall and visibility of less than 0.4 km (0.25 mi.). Where the winds associated with an extratropical cyclone are strong, a blizzard can occur.



The heaviest snowfall sometimes occurs where an extratropical cyclone's air is forced to rise over the mountains, causing uplift of the air to a higher altitude. Snowstorms can occur in very different conditions when very cold air flows over a large ice-free lake and collects water vapour. Sometimes, a cold air front from the Arctic can travel south. The cold front can carry humidity for a long distance in winter months, producing snowstorms. In February 2013, Winter Storm Nemo dropped 29 mb within 24 hours, which made it a weather bomb. In rare conditions, a thunderstorm can produce snow. Thundersnow happens when cold, dry air moves over the warmer waters of a lake.

Reference

Trenberth, KE 2011, 'Changes in precipitation with climate change', *Climate Research*, vol. 47, pp 123-38. DOI:10.3354/cr00953.

Copyright details

The 2016 snowstorm in Washington D.C. ranked as a category 4 storm on the NESIS scale. Credit: Photographer Joe Flood, and National Oceanic and Atmospheric Administration/Department of Commerce. Source: <http://www.noaanews.noaa.gov/stories2016/012816-noaa-ranks-january-2016-blizzard-category-4-on-the-northeast-snowfall-impact-scale.html>