ANALYSIS OF FORECAST PERFORMANCE FOR HIT, MISS, AND FALSE ALARM THUNDERSNOW EVENTS DURING *ROCS*

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ABSTRACT

Thundersnow (TSSN) is a mesoscale event that is typically associated with large amounts of precipitation and both in-cloud and cloud-to-ground lightning. Starting in 2003, the Research on Convective Snows (*ROCS*) group began issuing TSSN outlooks each day during the cold season for areas of the U.S. located between the Rocky and Appalachian mountains. The purpose of the outlooks was to inform users on whether TSSN should be expected in the central U.S. during the ensuing 24-hour period and for what location, if applicable. The issuance of daily outlooks continued for five seasons from 2003 through 2008. Three potential TSSN events along with their issued outlooks from the 2003 to 2008 time period were chosen for further investigation. These events fell in the category of being a "hit," "false alarm," or "missed," forecast. The purpose of this investigation is to better understand the reasons for the creation of either a successful TSSN forecast or an unsuccessful TSSN forecast. Also, a verification of all TSSN outlooks for that five-year period was performed to determine if forecasting skill was improving as time progressed.