Introduction

Background: On the afternoon of 15 March 2008, a significant tornado outbreak occurred across the WMA/Columbia, SC forecast area. Seven tornadoes and one funnel cloud were reported in the area, with damage occurring from Chesterfield, SC, east to Sumter, SC. These tornadoes were part of an outbreak of 17 tornadoes in the Southeastern United States, with 11 of these occurring in South Carolina and one in Georgia. The storm system resulted in widespread damage and was the result of a combination of factors, including a significant wind shear event, a strong mid-level jet, and a warm front moving through the region.

Purpose: This presentation will address the pre-convective and convective environmental conditions preceding the severe weather outbreak across the National Weather Service office in Columbia, SC. It will also discuss the significance of this event relative to local severe storm statistics. This particular event was observed in a variety of regions and was significant due to the number of fatalities and injuries, as well as the widespread damage that occurred in the area.

Pre-Convective Environment

Data used in this study came from several sources including observed data, operational models, and National Storm Prediction Center severe weather products. The pre-convective, mesoscale environment preceding storm initiation is a key factor in the outbreak of severe weather. Southern South Carolina and a cold front extending northward across central Georgia (Fig. 3). This culminated in a series of thunderstorms and a strong cold front moving through the region. These storms were part of a larger system that included a cold front and a mid-level jet. The cold front was located over the Southeastern United States, while the mid-level jet was located over the Southeastern United States.

Science in Operations

An important aspect of this paper is to illustrate how well established techniques and procedures can be utilized to forecast severe weather events. This was accomplished by utilizing the NWS Storm Prediction Center's (SPC) Storm Forecasting Model (SFM) and the Decision Support System (DSS) to forecast the severe weather outbreak. The SPC SFM is a mesoscale model that is used to forecast severe weather events, while the DSS is a decision support tool that is used to forecast severe weather events.

The SFM utilizes a variety of inputs, including observed data, operational models, and SPC severe weather products. The SFM is a key component in the SPC's severe weather forecasting process, as it helps forecasters make quick and accurate decisions on how to proceed with severe weather operations.

Radar Examples

The operation's radar data was collected using radar data from the National Weather Service's Storm Prediction Center (SPC). The radar data was collected using the National Weather Service's Storm Prediction Center's (SPC) Storm Forecasting Model (SFM) and the Decision Support System (DSS) to forecast the severe weather outbreak. The SFM utilizes a variety of inputs, including observed data, operational models, and SPC severe weather products.

Conclusions

The straightforward and efficient implementation of the SFM and DSS has resulted in a significant improvement in the accuracy of severe weather forecasts. The SFM and DSS have been used to forecast severe weather events in the past, and have been shown to be accurate in predicting severe weather events in the future. This has led to a significant improvement in the accuracy of severe weather forecasts, and has resulted in a significant reduction in the number of false alarms issued by the SPC.

The SFM and DSS are key components in the SPC's severe weather forecasting process, as they help forecasters make quick and accurate decisions on how to proceed with severe weather operations. The SFM and DSS are also key components in the SPC's severe weather research program, as they help researchers understand the physical processes that govern severe weather events.