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1. INTRODUCTION

The Science center for Teaching, Outreach, and Research on Meteorology (The STORM Project) at the University of Northern Iowa (UNI) seeks to increase public access to and understanding of atmospheric science. In the spring of 2001, a survey was distributed to all school superintendents in Iowa. Questions in the survey were designed to assess the superintendents' use of weather information in making various weather-related decisions. Based on the results of the survey, training was designed and delivered to a small group of superintendents in the fall of 2001. This group was asked to evaluate the effectiveness of two software packages and several Web products as aids in decision-making during the winter of 2001-2002.

2. SUPERINTENDENT SURVEY

A brief survey was developed and delivered along with a cover letter to all (374) school superintendents in Iowa. Superintendents were asked to complete and return the survey within a 2-week period. Seventy-three percent (273) of the surveys were completed and returned.

The average number of years of administrative experience for respondents was 20.5, with some individuals having up to 40 years of experience. The most common time by which superintendents must make decisions was 6 a.m., both for delaying and for canceling school. Times by which early dismissal decisions must be made varied more, but were mostly between 11 a.m. and 1 p.m.

The central question on the survey asked superintendents to select, from a list, all of the sources of weather information that they consult when needing to make a weather-related decision. The responses to this question are summarized in Table 1. This question was

followed by a request to rank the three sources that most affect their decisions. The survey found that the three most influential factors are the weather conditions the superintendent is currently observing, decisions already made or about to be made by other superintendents, and television weather forecasts.

The factor cited most frequently as the primary influence was the weather the superintendent was currently observing. Many superintendents noted that they personally drive the roads in their area to help determine school delays and cancellations. Three choices were cited with equal frequency as the second most influential factor: television weather forecasts, weather information from the Internet, and weather the superintendent was currently observing. The item cited most frequently as the third most influential factor was decisions already made or about to be made by other superintendents. The item mentioned most frequently as either the first, second, or third most influential factor was decisions already made or about to be made by other superintendents.

Cited least frequently by superintendents were road condition reports from law enforcement. The relatively high ranking of television and the Internet over the relatively low ranking of radio and the National Weather Service emphasizes the visual nature by which these decision makers acquire information.

A little more than half (55%) of the superintendents indicated that they were satisfied with the usefulness of weather information, while nearly equal percents indicated that they were very (22%) or somewhat (21%) satisfied. The remaining 2% indicated that they were not satisfied. The most common problem with weather information cited by the group was that it is often conflicting.

The survey concluded by asking about ways in which the STORM Project could assist with weather-related decision-making. Short courses and distance learning were cited most often.

Considering the substantial weight they give to their own weather observations and to their peer group's actions in winter weather

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TABLE 1. Number of times item was cited by 273 superintendents as a factor they consulted when needing to make a weather-related decision.

Weather information from the Internet	246
Weather you are currently observing	244
TV weather forecasts	242
Decisions already made or about to be made by other superintendents	234
National Weather Service forecasts	189
Radio weather forecasts	189
Road condition reports from law enforcement	114
Other (they were asked to specify)	79

situations, educating superintendents on the use of weather information has the potential to improve the response to adverse weather by several school districts. I.e., one superintendent's informed response to impending weather will benefit neighboring school districts as well. In response to this perceived need, STORM developed brief training sessions and made two software packages available to a test group of superintendents.

3. INITIAL TRAINING

Based on the survey results, preliminary programming was developed. The superintendents from 23 school districts surrounding UNI were invited to participate in the training. Nine superintendents accepted the invitation and partnered with STORM for the winter 2001-2002 season. This subset of Iowa school superintendents attended a 4-hour training session at UNI. Topics included winter weather systems, the climatology of Northern Hemisphere extratropical cyclones, and the use and interpretation of atmospheric simulations in modern weather prediction.

In addition, attendees were introduced to 2 software packages designed for non-meteorologist decision makers. These were NOAA's Emergency Management Decision Support (EMDS) system (Steffen and Subramaniam 2000) and the Foretell Road/Weather Information System. The EMDS software is a component of the National Weather Service's Local Data Acquisition and Dissemination system that is, in turn, a component of the Advanced Weather Interactive Processing System in operation at National Weather Service Forecast Offices. Foretell was developed by a consortium of state departments

of transportation, the Federal Highway Administration, and a private company.

During the winter of 2001-2002, superintendents were asked to evaluate the usefulness of the EMDS and Foretell decision support systems. STORM stayed in touch with the group through email and phone calls. A survey was distributed again in spring 2002 to gather feedback from the superintendents.

4. RESULTS

Ironically, the winter of 2001-2002 was characterized by very mild conditions. As such, the test group did not have many opportunities to make weather-related decisions about school delays or cancellations. One participant commented that in his 20 years as a superintendent, never before had there been a winter with no school cancellations! Nonetheless, several important issues did arise that will improve the delivery of weather resources to superintendents.

A second evaluation period is planned for the winter of 2002-2003. During this time, STORM will seek participation from superintendents across the state of Iowa. Training will be delivered via Webcasts, and software, Web products, and support will again be provided.

5. REFERENCES

Steffen, C. E. and C. Subramaniam, 2000: Weather data fusion application implemented in Java. *Int. Conf. on Imaging Science, Systems, and Technology*, Las Vegas, NV, Amer. Meteor. Soc., 395-401.