3.2 WEB WEATHER FOR KIDS: ONLINE INQUIRY AND LEARNING ABOUT DRAMATIC WEATHER PHENOMENA FOR MIDDLE SCHOOL STUDENTS

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1. Introduction

Web Weather for Kids is an Internet site developed at the University Corporation for Atmospheric Research (UCAR) to interest middle school students in dramatic weather phenomena and weather prediction. Collaborators on the project include the Boulder Valley School District and Science Discovery at University of Colorado in Boulder. Inspiration for the project came from the dedicated efforts of NCAR scientist Pat Kennedy to engage young students in hands-on inquiries in science. A memorial fund established in Dr. Kennedy's memory and the Friends of UCAR fund provided seed money for the project. In the fall of 1999 the concept was selected by the American Association for the Advancement of Science National Public Science Day program to compete with 15 other science center partnerships challenged to develop K-12 Internet resources about the "science of every day things." The prototype web site about meteorology was unveiled in January 2000 with science inquiry activities and information about thunderstorms, lightning, and tornadoes presented with middle school students as the target audience. In honor of National Public Science Day in February 2000, the site hosted a weather forecasting contest challenging students in grade 5 – 8 to outdo each other and a popular Denver TV station weather anchorman in predicting the weather for Denver over three consecutive days. From both home computers and classrooms, students in Montana, Connecticut, Michigan, and Colorado submitted their forecasts. A student outdid the professional! *Web Weather for Kids* was awarded the 2000 Unisys Prize for Online Science Education for serving as "a webspace model for collaboration and a powerful example of how the web can meaningfully affect classroom practice." In July 2000, *Web Weather for Kids* received a grant from the NSF Geoscience Education program enabling its expansion, which is now under way. Until these improvements become available in mid-2002, the prototype site can be accessed online at www.ucar.edu/40th/webweather/.

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2. Project Expansion

The Web Weather for Kids site's design has been upgraded to accommodate revised information on thunderstorms and tornadoes, and new sections covering cloud formation, blizzards, and hurricanes. An additional web resource has been created to convey basic science concepts that are fundamental to understanding meteorology. This section includes interactive JAVA applets allowing students to explore kinetic energy of molecules as they respond to changes in pressure, temperature, density, and volume of gases and temperature as it affects phase changes in water. Students can choose to use mathematics to understand the gas laws, conversions, and graphing. Each section on weather phenomena offers simple, hands-on science activities followed by inquiry questions relating observed results to weather phenomena. Games have been created to add fun to the site and to reinforce learning. Extreme weather stories add language arts, geography, and social studies dimensions to the meteorology. A pop-up glossary can be accessed to define terms used on all web pages. Although students are the site's target audience, educators, youth group leaders, and parents can use it as a science education resource accessible from the classroom and the home. Visitors of all ages will be able to test their knowledge of meteorology by participating in Web Weather for Kids' online weather forecasting contest. A teachers tip section provides background information and suggestions for how to adapt activities and align content with National Science Education Standards. In this presentation, we will tour the web site, reviewing its goals,

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content, pedagogical assumptions, assessment, and plans for further expansion and dissemination.

3. Conclusion

Web Weather for Kids invites middle school students to learn about the meteorology of extreme weather events and, if thoroughly explored, it provides self-directed, interactive educational tools that can convey the basic skills and knowledge necessary for weather forecasting. When completed in 2002, the enhanced version of Web Weather for Kids will include information supporting elementary scientific understanding of cloud formation, thunderstorms and tornadoes, blizzards, hurricanes, and weather forecasting.