

## THE QUEST FOR CLOUDS AND VOLCANOES

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### 1. Introduction and Virtual Field Trip to Seattle

Elementary students are using the internet to experience virtual field trips to learn about areas that they are not able to experience in person. This poster presentation describes a virtual field trip taken by Mendoza Elementary School, Las Vegas, Nevada classes during the summer of 2003. The authors, who are DataStreme Learning Implementation Team members, drove from Las Vegas to Seattle for the annual DataStreme Summer Workshop. During the trip and in Seattle, the authors communicated through the internet with classrooms in Las Vegas. Weather information, pictures, and pertinent information about Seattle or the en-route area were sent to the classes each day. The students then compared the weather in Las Vegas with the weather and clouds from the communication. Fourth grade students were studying about volcanoes and were excited to hear about, and see pictures of, Mt. Shasta, Mt. Lassen, Mt. St. Helen and Mt. Rainier during the virtual field trip. Classes were able to track the route taken on a map during the virtual field trip.

The authors are from Las Vegas, Nevada, with an unusual situation of having schools in session year round. One author is a computing specialist working at an elementary school (John F. Mendoza) that is on a year round schedule. Four-fifths of the students are in the building in any given week. There are 1100 students at Mendoza. It is a neighborhood school with over 35% students being classified as non-native speakers. Many of Mendoza's population have not left the state or only traveled to Southern California and Mexico. We have many students who have not been outside of the Las Vegas Valley to see different climates and areas of our

country. All classrooms are connected to the Internet and all teachers have access to district-wide email and a school-specific electronic conference.

Weather is part of the curriculum for all grade levels. Four teachers from this school have used their training from the DataStreme Atmosphere course to implement and promote weather studies throughout the grade levels at Mendoza. Two more teachers completed the DataStreme Atmosphere course during this fall semester. The virtual field trip is a way to implement the concepts learned by the teachers in the DataStreme course into their science curriculum. Weather became a focus for staff and students during the virtual field trip time frame. During the two-week trip, students were able to experience different climates and areas.

During travels, pictures were taken everyday using a Nikon digital camera, and then downloaded onto a laptop computer. The pictures were resized and then uploaded to InterAct, the district email program. Students read communications each day and responded with questions or comments about the weather and areas traveled in previous days communications. This concept is patterned after the real-time weather products used in the DataStreme Project. For older students, the field trip could include predicting the weather for the virtual field trip using products from the DataStreme home page.

### 2. Virtual Field Trip History

We have been making virtual field trips for the past three years, communicating with students while attending the DataStreme summer workshops at the University of Wisconsin at Madison, Penn State University, and this trip to the University of Washington. The following is some of the history about the virtual field trips taken and what we have learned from trying to

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send information and pictures on a daily basis.

During these workshops, we have stayed in college dorm rooms. Wisconsin and Washington had internet access for personal computers. One of the pitfalls in staging these virtual weather field trips is internet connectivity to a personal computer. Our Penn State virtual field trip only consisted of days not at the Penn State DataStreme Workshop, because we were not able to connect our personal computer via modem or the school's LAN (local area network).

The first virtual field trip was a driving trip to Madison, Wisconsin. Students were sent information and photos from Yellowstone, Mount Rushmore, Rocky Mountain National Park and towns and cities between Madison and Las Vegas. We used a Nikon camera and used dial-up connections with long distance phone calls to InterAct in Las Vegas. We could not post messages at some stops because phones were not equipped with modem connections. Photos were sent in high resolution, which took more time to upload. We have since learned to keep photos no larger than 300 pixels by 300 pixels, about half the screen for most computers. While in Madison, things went smoothly with an internet connection from the dorm room.

### **3. Virtual Field Trip Connectivity tips**

We used a Nikon Coolpix 2500 2.2 megapixel digital camera. The normal size of a photo is 1800 dpi (dots per inch), which we changed to 300 dpi for all communications.

We used PhotoShop Elements as the photo editing software. This software can be purchased for \$49 with an educator buy. Any photo editing software will do. Most photos from digital cameras are at least one Mb in size. The larger the size, the longer it will take to download.

For the first two years, we used dial-up connections through InterAct, our district email. We had a dial-up number we could call, but long distance charges were incurred. This year, InterAct changed, and we had to have an internet service provider to connect.

A low-cost internet service provider that we used for this trip is NetZero. It has dial-up services for most towns we were in, so we had minimal long distance charges. NetZero is a dial-up modem connection.

Our Sprint PCS cell phone has internet capabilities. We bought a connection kit for our cell phone to hook up to our IBM-compatible laptop at Radio Shack for \$40. (There was no connection kit for our combination of Apple I-book and cell phone model.) This means wherever you can use your cell phone, you can upload pictures for your virtual field trip. On the up side, our Sprint plan did not impose additional fees for either the long distance of the use of the cell phone as an internet connection, as long as we were in a Sprint service area. On the down side, the connection speed is very slow at 28.8 kb/s.

We stayed at some business-class hotels such as Marriott's Residence Inn and Holiday Inn Express. These establishments have high-speed internet connections you may purchase for the night for about \$10.

### **4. Conclusion**

The virtual field trip proved to be an effective teaching tool. We would like to thank the students and staff at Mendoza for participating in this real-time virtual field trip on weather studies. We would like to also thank the American Meteorological Society for sponsoring the Project DataStreme classes, which provided the background information the teachers used in developing classroom lessons. Finally, we would like to thank the American Meteorological Society for developing the DataStreme Project Summer Workshops for Learning Implementation Team members.

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