



Another Successful Earth Science Fair

by Karen J.R. Mitchell

The North Dakota Geological Survey (NDGS), with the support of the State Historical Society of North Dakota, successfully orchestrated its second annual Earth Science Fair October 15 and 16, 1999. After the phenomenal success of the first fair, held in 1998, NDGS staff reviewed and retooled the event to build on its strengths and make it an even more effective educational experience. The result was a fantastic two-day celebration of the earth sciences held at the North Dakota Heritage Center in Bismarck.

The Earth Science Fair was held in conjunction with Earth Science Week, a national event coordinated by the American Geological Institute (AGI). AGI initiated Earth Science Week in 1998, the institute's 50th anniversary, as a way to achieve its mission to educate people about Earth, the earth sciences and importance of earth scientists' work in solving the challenges we face as the planet changes. AGI acted as a clearinghouse of information for schools, museums, state geological surveys, businesses, colleges and universities, libraries and the many organizations running events in their communities highlighting the Earth sciences. At least one Earth Science Week activity took place in every state during Earth Science Week, October 10-16, 1999. The annual October celebration is designed to give geoscientists and earth science organizations opportunities to provide students and teachers with new approaches to learn about earth science; highlight the contributions that earth science makes to society; publicize the message that earth science is all around us; encourage stewardship of the Earth; and develop a mechanism for geoscientists to share their knowledge and enthusiasm about the Earth and how it works.

Students converged on the North Dakota Heritage Center Friday, October 16 to participate in hands-on earth science activities designed for seventh- and eighth-graders. Twenty-two groups with a total of 470 students from around the state (Figure 1) submitted requests for registration for the Friday events, and many others expressed interest in the event but had to be turned away because of space and time limitations. Ten of the 22 groups, with 138 students and their teachers and chaperones, were accepted and attended the Fair. Attendees were treated to a day of education and fun, centered around five earth science topics: the Williston Basin, general geology and geologic mapping, soils, groundwater, and paleontology. Each topic featured a hands-on activity to enhance student understanding of that particular area of earth science. Activities were led by earth science educators and professionals.

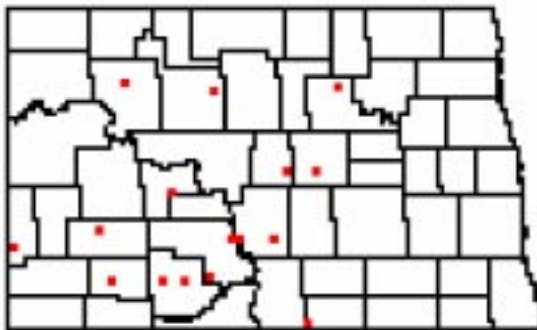


Figure 1. Map showing the locations of the 22 groups who requested registration for the 1999 Earth Science Fair. Ten of these groups were accepted and attended the Fair.

- * In the Williston Basin session, students learned what a geologic basin is and one way that geologists can discover what the earth looks like under its surface. In "What is the Williston Basin?", students, guided by NDGS scientists and volunteers, took core samples of a layer cake "basin," measured the strata seen in their core, and correlated the resulting stratigraphic columns to generate a cross section of the "basin." As an added bonus, students could eat the "basin" after the exercise was complete.
- * Students learned how geologists make geologic maps in the session on general geology and geologic mapping, "Mapping North Dakota's Geology." After learning some basics of describing and interpreting sedimentary rocks, students examined rock sample "outcrops" located around the classroom and plotted their locations on a base map. With the help of a NDGS geologist, the group interpreted the environment each rock formed in, and synthesized the information to create a picture of what the area might have looked like in the past.

- * The session on soils was a big hit with the students. "We got to learn about the way soil affects us even if we aren't farmers," wrote one student. Participants in "The 'Dirt' on North Dakota" learned about soil types and textures, erosion, and how soil influences land use. The hands-on activities really enhanced learning for the students. As one student said, "The session . . . really helped me understand erosion and gully formation which we have been learning about in the classroom."
- * The groundwater topic was a new addition to the 1999 Earth Science Fair, and added a new dimension to the event. In "Groundwater" students conducted experiments to learn how pollution spreads in the groundwater system. Using simple models, they were able to use simplified groundwater testing methods to locate a simulated contaminant plume.
- * The paleontology topic was another favorite with the students. "The Prehistoric Life of North Dakota" showcased different fossils found within the state. Students got to work with fossils, learning how to identify, clean, and prepare them. They also learned about the different kinds of animals that have lived in the area in the past.

The response to the student-oriented Earth Science Fair events was overwhelmingly positive. Teachers submitted comments like "excellent hands on activities for students," and "presenters were excellent." Students wrote thank-you notes and urged us to offer the sessions again and make them available to more students. Perhaps the most gratifying comment came from one student who summed up the essence of what the Earth Science Fair hoped to accomplish. "I had fun doing experiments hands-on. All of the presentors had a good presentation that made learning fun. I learned something new in each class that will be easy to remember because of the way they were presented."

The Earth Science Fair continued on Saturday, October 16 with a public open house also held at the North Dakota Heritage Center. An "Ask the Experts" panel of earth science professionals fielded questions throughout the afternoon. Experts on paleontology, soil science, surficial geology, and petroleum geology visited with the public on their topics of expertise. A hardy group braved the brisk wind and occasional snowflake to take a walking tour of the Capitol Grounds. The tour, "Geology in Daily Life," highlighted the uses and origins of stone in buildings and monuments on the Capitol Grounds. The afternoon was capped by a slide lecture, "Dinosaurs, Mosasaurs, Sharks, and Other Prehistoric Creatures Found in North Dakota," presented by NDGS paleontologist Dr. John Hoganson. All of Saturday's events were free and open to the public.

The success of the Earth Science Fair events has encouraged the NDGS to continue sponsoring Earth Science Week activities. Clearly there is considerable academic and public interest in the earth sciences and their applications. Discussion of Earth Science Week 2000 activities has already begun at the NDGS. Watch upcoming issues of the *NDGS Newsletter* for more details.



Groundwater demonstrator Pam Hintz shows students how our groundwater system works.



NDGS staff member, Johnathan Campbell, working with 7th and 8th grade students at the Earth Science Fair.

President Clinton's 1999 Earth Science Week Message

THE WHITE HOUSE
WASHINGTON

October 14, 1999

Warm greetings to everyone observing Earth Science Week, sponsored by the American Geological Institute.

The study of earth sciences — from geology to seismology to oceanography — is an integral part of understanding the world we all live in. By learning the science of our planet, we can make better use of our natural resources while preserving our environment and protecting our people from natural hazards. We all owe a debt of gratitude to the dedicated geologists, geophysicists, and other earth and environmental scientists who work each day to mitigate the effects of natural disasters such as floods and earthquakes, to understand global climate patterns, to create a cleaner environment, and to preserve our natural resources.

Earth Science Week is a wonderful opportunity to recognize the contributions of geoscientists and to remember the importance of earth sciences to the quality of our lives. I urge all Americans, especially our young people, to participate in the many events and activities this week designed to introduce us to the study of our planet and to the richness and diversity of the world we share.

Best wishes for a successful week.

BILL CLINTON

Publication Recognized as "Top Document"

We were pleased to be notified recently by the North Dakota Library Association (NDLA) that one of our publications, Meteorites in North Dakota (North Dakota Geological Survey Educational Series 23, written by Edward C. Murphy and Nels F. Forsman) was selected as one of the top three North Dakota government documents of 1998/99. Librarians selected the top choices from a number of documents available for inspection at the North Dakota Library Association Annual Convention, held September 23-25, 1999 in Fargo. Ballots were provided for the librarians to vote for the best documents.

The top three publications selected by the NDLA have been submitted to the national Notable Documents Panel of the American Library Association's Government Document's Round Table.

The selection of Meteorites in North Dakota was from a field of several hundred documents published by government agencies in North Dakota. Selections are made from the best state, federal, international, academic, and local government publications.

In 1992, the NDGS also had a publication (The Face of North Dakota: Revised Edition) included in the Notable Government Documents list.

New Additions to the Survey's Staff

Ned Kruger joined the NDGS at the beginning of the year. He is continuing the work of Gerard Goven creating a database that will be used primarily in coal bed methane exploration. Originally from Sheyenne, ND, Ned adds to a growing number of NDGS employees who have served in the Air Force. He later received his Bachelor of Science degree in geology from North Dakota State University. The position he fills is funded by a grant from the USGS.

Nita Wirtz, a native of Mandan, is the newest addition to the Survey. She is splitting time between the NDGS and Oil & Gas Division as our new Data Processing Coordinator, where her duties include providing assistance with computer related problems and program writing. Nita returns to the Bismarck-Mandan area after working as a computer programmer for the State of South Dakota.



Fritz Leaves Survey

The NDGS bid a fond farewell to geologist Ann Fritz in July. Ann resigned her position with the Survey to accept a half-time position with the North Dakota Department of Health and spend more time with her growing family. She is currently an Environmental Scientist in the Groundwater Protection Program.

Ann accomplished a great deal in her two and a half years with the NDGS. She was active in the surficial geologic mapping program, assisting with the Bismarck-Mandan 1:24,000-scale mapping project, completing the Grafton 1:100,000-scale mapping project, and co-authoring the grant proposal for the current Cavalier 1:100,000-scale project. She was a great advocate of educational outreach, visiting schools, giving public lectures, and initiating the successful Earth Science Fair events. Ann also administered the geothermal regulatory program at the NDGS and served as editor of this newsletter. We wish Ann the best in her new position.



Oil Analyses Available on NDGS Web Site

We are updating our oil analysis database and decided to make the data available on our web site. The database contains approximately 1,200 oil analyses from North Dakota. The database is available as two self-extracting files named **oilascii.exe** and **oildbase.exe**. There is a **README.TXT** file that accompanies **oilascii.exe**, it describes the column headings of the file. When either file is executed, either a comma-quote delimited ASCII text file that will import readily into a database or spreadsheet or a Dbase IV® file will be expanded. We plan to periodically update the database as new analyses become available and we will post the updated version on our web site.