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Nebraska Earth Science Education Network

9 Nebraska Hall, University of Nebraska-Lincoln, Nebraska 68588-0517

Phone: 402-472-0773

Fax: 402-472-4608

Web site: <http://nesen.unl.edu>

Email: nesen 2@unl.edu

Winter 1999-2000 Newsletter

Issue Number 23

"Everything is Connected to Everything Else"- by Dave Gosselin

It was a great honor to receive the 1999 Catalyst Award from the Nebraska Association of Teachers of Science at the annual meeting last October. I am very glad that I have been able to assist this organization. As I looked out at the audience during the presentation ceremony, I saw many familiar faces from whom I have learned what it is to be an educator. I recall the early NESEN steering committee meetings involving K- 12 educators and those of us at the "University." What amazes me now is how close we were, but, at the same time, how far away we were. We were close in the sense that we all wanted to do something to improve Earth science education in Nebraska. We were far away in that we had representatives from two distinct cultures who clearly were speaking different languages. After listening to our K-12 colleagues and developing an understanding of their language, I realized that we had the right answers; unfortunately, we had the wrong questions. From these experiences, I learned how important it is to listen to our pre-college educator friends if we are going to improve "our" education system. You may not agree with everything you hear, but if we stop listening, we stop learning. I encourage everyone to keep on trying to listen to new ideas and to keep trying to do what you do better. If we do this, then I know in the long run it will make Nebraska, like Lake Wobegon, above average.

We're looking for a few good Earth Science Teachers!!! (... and their colleagues) - by Steve Meyer

Are you looking for an exciting and interesting professional development opportunity this summer ... and making a few bucks in the process? Have we got a deal for you ... and a colleague. Drs. Dave Gosselin and Steve Meyer have received funding to conduct a Global Environmental Change Education Workshop. We are actively recruiting enthusiastic, progressive 2- teacher teams to participate in this workshop that focuses on global environmental change from a systems perspective using a multidisciplinary approach.

Specifically, we are looking for earth science teachers who can recruit a non-earth science teacher colleague with whom they will work to examine global environmental change from a multidisciplinary perspective. Each teacher-team is expected to develop at least one week's worth of lessons on global environmental change from both the earth science perspective and

the non-earth science perspective. Teacher-teams will also be required to present their materials to other teachers in a workshop setting (e.g., in-service days, etc.)

In return, each teacher will receive a \$75/day stipend, travel reimbursement (\$0.3 I/mile), deluxe accommodations at the luxurious LJNL dormitory system (that is, free room and board), and 2 hours of graduate credit. In addition, each teacher-team is guaranteed an interesting week of learning about and discussing a contemporary issue, and abundant resources to help you design and carry out lessons.

The workshop will be held at the University of Nebraska-Lincoln during the week of June 12-16, 2000.

The Maury Project Summer Workshop

The American Meteorological Society will be conducting this workshop designed for master pre-college teachers and supervisors of science who teach or supervise units with significant oceanography content. This two week workshop, from July 17 - 28, will be held at the United States Naval Academy in Annapolis, Maryland. Participants of the Maury Project will receive the following support: a stipend of \$600, housing and travel at no cost, meals, supplies and instructional materials.

STEDII in Action - STEDII in State - by Mark Mesarch

The Winter Focused Measurement Period (FMP) for the STEDII Weather Project will be from January 31 to February 14, 2000. The time period of this FMP fits well into many of our STEDII schools curriculum schedules so numerous schools should be participating. Check out the main STEDII web page at <http://nesen.unl.edu/stedii/> for a list of the schools that are 'I'@ participating in this FMP. We have one new school joining the STEDII ranks. Mary Ann Niemoth and her students at, Hastings High School will be starting to collect weather data.

An article about the evolution of the STEDII project has been submitted to the Electronic Journal of Science Education at <http://unr.edu/homepage/jcannon/ejse/ejse.html> Eleven STEDII teachers shared their thoughts on why STEDII works for them and some of the ways they implement the project. When it has been accepted and comes on-line, we will post the information.

We have had a number of questions about how the numbers are calculated for our Relative Humidity Tables, so I have added a section of equations after each table so you and your students can calculate more accurately the relative humidity. I have also added a Dew Point Temperature Table so users can find what the dew point temperature is from the Wet-bulb depression measurements they get from their sling psychrometer.

NESEN Web Site: A Work in Progress - by Mark Mesarch

In the NESEN fall newsletter I told you about the changes to the web page to help improve navigation and uniformity. The website has again changed to bring even greater clarity and uniformity. We are now using a software package to design the structure of the site that can

have its limitations, but also makes designing the site a lot simpler. We hope that it will help you mine the great wealth of information we have to provide for you.

With respect to navigation, two sets of navigation buttons may be present. The buttons below the NESEN header will generally move you around our site to different topics in our main areas. The buttons along the left hand side of the web page (if present) will take to more specific information for a topic. You can always click on the NESEN text logo at the top of the page to get back to the NESEN home page.

The search engine for our site is still evolving to provide you with a good way of gleaning topics from our site. But one current problem is that the search engine will only search within the main topic areas that we have developed. These are Teacher & Workshop, STEDR, NIGEC, SWIK, Nebraska Science Information, News & Newsletter, and the "What is NESEN?" section. You may want to search several sections for each kind of information to complete a thorough search. On the main NESEN home page (<http://nesen.unl.edu/>), just below the earth and the moon, we will be highlighting something important or new on our site. So keep coming back; we always are finding new things to share with our audience. And if you happen to find a link or image that is "broken" please let us know so we can keep on improving.

CSD Earth Science Education Efforts

The Conservation and Survey Division (CSD) has a number of non-NESEN-related educational efforts. They are documented here in three parts: the CALMIT programs (CALMIT is a joint program of the UNL School of Natural Resource Sciences and CSD), the ESIC material and general CSD educational contributions and publications.

CALMIT and its educational programs

America's Farm

The Center for Advanced Land Management Information Technologies (CALMIT) at UNL and the Office of Internet Studies (OIS) at the University of nebraska at Omaha (UNO) have been awarded a NASA-funded Leading Educators to Applications, Research and NASA-related Resources in Science (LEARNERS) grant for a project entitled "America's Farm." It will be a "cyber-educational" website on the uses of remote sensing and geographic information system (GIS) technologies in agriculture. I

The actual America's Farm is UNL's 9,500-acre Agricultural Research and Development Center near Mead, where CALMIT already conducts much of its research on remote sensing and agriculture. Web cameras will deliver real-time video of farm operations, and the farm will be instrumented for the collection and transmission of near-real-time field, aerial, satellite and environmental data over the web. Web-based course modules will use the data in the development of problem-based learning scenarios and inquiry-based learning.

The Earth Science Information Center

April 1999 marked the 20th anniversary of CSD's agreement with the U.S. Geological Survey as an Earth Science Information Center (ESIC) for Nebraska. As the ESIC representative for Nebraska, CSD distributes all federal map and related spatial data on Nebraska. Much of this information is suitable for K- 12 students. The division also has an ESIC web site, viewable on the web or in the Map and Publication Sales office, room 104, Nebraska Hall, UNL. Access to the ESIC web site is through the ESIC button on the CSD site. Two new ESIC items are the "State Soil Planning Guide," a calendar from the US Natural Resources Conservation Service Featuring State Soils, and an oversized illustrated booklet designed to interest children in science careers called "Scientists in Action," published by the US Geological Survey.

Other CSD education efforts and CSD publications

Besides CALMIT's programs and ESIC, CSD has been involved with science outreach programs run outside the school building or year. One of these programs, created in 1990 by Cooperative Extensive, the Water Riches Field Days program, provides field experiences at sites of geological and hydrological significance in west-central Nebraska. This education is aimed at kids who have limited opportunities to visit a major natural history museum. Faculty have also led educational sessions at the Science Camps Offer Rewarding Experiences (SCORE). Sponsored by the Imperial Grade School Foundation, SCORE involves children from schools in Chase, Dundy and Perkins counties.

In addition, since its beginning in the late 1980s, the Children's Groundwater Festival, sponsored by the Groundwater Foundation of Lincoln, has included presentations by CSD faculty and staff on regional groundwater geology, drilling techniques and equipment, sediment type and sizes and other concepts. CSD faculty and staff also make presentations at career days and science-related events in a variety of K- 12 schools.

In addition, CSD faculty have written a number of books and booklets suitable for K- 12 science curricula. These include field guides - brief explanations of the geology of a specific spot; resource reports - detailed examinations of the conditions, uses and conservation of a given resource, such as soils, water or oil or of a given area such as the Sand Hills; resource atlases - map-driven analyses of an area or resource; educational circulars - field guides to the geology of certain areas, guides to various issues or resource-monitoring methods, or guides to fossils, agates or minerals and gemstones, as well as a geological primer specifically for secondary-level education. CSD also sells numerous maps on a wide variety of subjects. - by Rick Perk, CALMIT education coordinator, Charles Flowerday, CSD editor, and Duane Mohlman, CSD web administrator and NESEN project assistant.

Just for Teachers!

All Conservation and Survey Division publications within its popular Educational Circular (EC) series are available for just \$4 each. This offer is good until April 1, 2000. Educational circulars (ECs) are field guides or other examinations of geologic, soils, water and/or land resources subject matter written specifically for a nontechnical audience. Choose as many as

you want from the list of ECs on our web site. Our other publications are available at wholesale for teachers, but the ECs are offered now for only \$4, but this is as much as \$1.40 off wholesale in some cases.

Postage is \$3 for five items or less; \$4 for six to ten items; \$5 for more than 10 items. Send your order with payment to Conservation and Survey Division, Map and Publication Sales, II 3 Nebraska Hall, University of Nebraska-Lincoln, Lincoln, NE, 68588-0517. For fastest service, e-mail, fax, or call, with your Visa or MasterCard number, Phone: 402- 472-7523; fax: 402-472-4608.

Nebraska Rocks!! Field Camp by Mary Anne Holmes, Department of Geosciences

The Lincoln Chapter of the Association for Women Geoscientists and the Homestead Girl Scout Council will conduct a summer geology field camp for 36 nationally-recruited girls aged 14-17 in July 2000 entitled "Nebraska Rocks!!" The camp will begin with a two-day "geology blitz" course here at UNL in the Department of Geosciences classrooms and laboratories. We will then take the girls on a two-week excursion around Nebraska, stopping at numerous localities, including the Niobrara State Park and Ashfall State Park area, the N-U Gudmundsen Sandhills Laboratory near Whitman, and the Chadron-Toadstool Park area.

At each locality they will solve one or more geologic problems using the scientific method, asking questions, formulating hypotheses, and testing the hypotheses through further observation and experiment. They will work with material pertinent to some of the most vital and controversial topics in the geosciences today. In the Niobrara State Park area, the girls will explore evolution and the role of mass extinction as they observe the effects of an ancient meteor impact at the park, as well as volcanic ash fall at Ashfall State Park. In the Sandhills, they will explore the difference between deposits formed by wind and those formed by rivers, the effects of recent climate changes on these deposits, and the origins of sand in Nebraska through study of sand samples under the microscope. In Toadstool Park they will learn about fossil preservation and the controversy of who owns the fossils while participating in fossil collecting under the tutelage of Dr. Mike Voorhies and other geoscientists from UNL Geosciences and the UNL State Museum.

Keep posted on "Nebraska Rocks!!" events by visiting our web site: <http://www.awa.org/chal2ters/nebraskarocks.html>.

In addition to the real-time videos of a working farm and near-real-time delivery of data from the farm, graduate level, web- based courses will demonstrate the incorporation of state-of-the-art technologies, global positioning systems, remote sensing, GIS and NASA data and imagery into K- 12 education. For more information contact Rick Perk.

CASDE

After a very successful four-year effort, the Consortium for the Application of Space Data to Education (CASDE) project is ending its development stage. At LTNL, one of CASDE's main

projects, Virtual Nebraska, a collection of historical and more recent imagery of Nebraska towns and surrounding vicinities, is being repackaged as an image archives, to be an ongoing resource for the educators, resource managers and the general public. The educational components of the site will be transferred to the CASDE site at UNO. The archive's architecture is available to others elsewhere who want to emulate Virtual Nebraska. The website will be maintained and will continue to be available as a source of remote-sensing activities for K- 12 educators.

DataState, the JPL contribution, will soon be adapted for use directly from the web, the final adaptation. The project partners would like to take this opportunity to thank the educational community of the state of Nebraska for their support of the CASDE project.

Unless indicated, our newsletter was written by Joy Hurst, Duane Mohiman, Dave Gosselin, and Mark Mesarch: and edited by Charles Flowerday, Conservation and Survey Division University of Nebraska-Lincoln. Information for our Winter issue of the NESEN Newsletter can be sent to Joy Hurst, 9 NE Hall, Lincoln NE 68588-0517. NESEN's lead organizations are the Conservation and Survey Division, 113 Nebraska Hall, University of Nebraska-Lincoln, Lincoln, Nebraska 68588-0517.-Phone 402.472.3471; FAX 402.472.4608; and the School of Natural Resource Sciences, 303 Biochemistry Hall, University of Nebraska-Lincoln, Lincoln, NE 68583-0758; Phone 402-472-9873.