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Nebraska Earth Systems Education Network Newsletter – Fall 1997

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Fall 1997 Newsletter

Issue Number 16

"The Storm" -- October 1997

by Steven J. Meyer, School of Natural Resource Sciences

Little did any of us know that the inclement weather that followed us to the NATS Conference was the precursor to an unseasonably early major winter storm. Okay, enough of the comments that I should have known...after all, I am a climatologist, not a meteorologist (at least give me credit for knowing enough to pick the right discipline).

It appears that our friends in south central Nebraska took the brunt of storm. Our reports show that Webster County took top honors (lucky them) with 24 inches of snow. Clay County came in second (better luck next time) with 20-23 inches. The surrounding counties of Fillmore, Franklin, Adams, Harlan, and Saline all received 13-18 inches of snow. Here in Lancaster County we received 13 inches; however, we also received 3 inches of rain before the snow ever started. Imagine if it all came down as snow!!!!

Impacts of the storm are many. According to the Nebraska Emergency Management Agency, approximately 30% of Nebraska's 93 counties experienced loss of electricity. Many crops still in the field will be lost as the heavy, wet snow caused lodging of corn and sorghum stalks and soybean stems. Many ranchers also lost livestock during the storm.

But perhaps the greatest casualty is Nebraska's trees. It's estimated that 95% of the trees in the 18 hardest hit counties suffered at least some damage. It is also estimated that the cost of removal and disposal of damaged trees and limbs, pruning surviving trees, replacing lost trees will cost \$54 million. Part of the blame for the tree damage can be placed on the warm weather we enjoyed in September and early October. The warm weather is part of the reason the trees held on to their leaves so long. The leaves, heavy from wet snow, weighed down tree branches to the breaking point.

Is this the result of an unusually strong El Nino event? (Editor's Note -- selected El Nino web sites are included in this newsletter.) Is this what we can expect for the remainder of the winter? Ask me again next May (after all, I am only a climatologist). Just teasing...The Climate Prediction Center is forecasting a warmer and much wetter winter for Nebraska. Warmer and wetter in Nebraska usually means more snow and (ugh!!!) freezing rain.

NESEN at 1997 NATS Fall Conference

There were 141 K-12 and post-secondary science educators that attended NESEN-sponsored workshops and activities at the 1997 NATS Fall Conference (October 23-25, 1997). NESEN, and its primary sponsoring unit, the Conservation and Survey Division, also hosted an information booth. Dozens of educators visited our booth and/or stopped by to chat. Thanks to everyone who participated in the workshops/activities and stopped by the information booth! A complete description of NESEN's activities at NATS can be found on the NESEN home page at <http://nesen.unl.edu/projects/nats/97nats/nats97.html>. NESEN staff are already looking forward to our participation in the 1998 Fall Conference.

NESEN Announces 1998 Summer Workshop Series

Back by popular demand, NESEN has announced its fifth annual summer workshop series. Please see the enclosed flier for all the details. The 1998 summer workshops are:

- July 7-8, 1998 -- **Nebraska's Dynamic Water System** -- Dave Gosselin, Ed Harvey
- July 9-10, 1998 -- **What's In That Soil?** -- Mark Kuzila, Francis Belohlavy, Steve Hartung
- July 14-15, 1998 -- **Chili Today, Hot Tamale: Let's Look at Nebraska's Weather** -- Steve Meyer, Mark Mesarch
- July 17-18, 1998 -- **Virtual Nebraska - Putting Remotely Sensed Data to Work in the Classroom** -- Rick Perk, Brian Tolk

The NESEN "Pod People" are Coming!

NESEN has been working to develop regional groups or "pods" of members throughout Nebraska. We have divided the NESEN membership into pods based on the educational service unit (ESU) in which they reside. We have been asking selected NESEN K-12 members within the pods (i.e. the ESU) to serve as liaisons between the NESEN membership and its Steering Committee and staff, as well as serving as a representative of the K-12 earth science teaching community to other educational groups. The primary purpose of this approach is to improve NESEN's responsiveness to its members and communication among members, promote national and state visions for science education, develop additional educational resources, develop workshops for other areas of Nebraska; and strive to reach all earth science teachers, especially those without electronic connectivity. As soon as we finalize all our representatives in the 19 ESUs, we will be sending each representative a packet of information about NESEN. This information will be shared with the representative's local ESU. As of mid-November, we have commitments from the following K-12 members to act as NESEN representative within their ESU: John Niemoth, ESU 1; Mary Jane Bell, ESU 2; Polla Hartley, ESU 7; Greg Pavlik, ESU 8; Virgil King, ESU 10; George Probasco, ESU 11; Junice Dagen, ESU 12; Carolyn Schlager, ESU 13; Andy Chirstensen, ESU 14; James Fitzgibbon, ESU 15; and Ron Billings, ESU 17.

Invitations have been sent to selected NESEN teachers in the ESUs not listed. If you are interested in representing an ESU that currently does not have a representative, please contact Duane Mohlman, 402-472-7528, dmohlman@unlinfo.unl.edu. Our thanks and deepest appreciation to these teachers who have agreed to help spread the work about NESEN and help expand our programs and activities. Thank you all very much!

NESEN to Hire Part-Time Secretary

The School of Natural Resource Sciences (SNRS) has funded a half-time NESEN secretarial position until July 1, 1999. We are extremely excited about this opportunity since it will allow us to increase our responsiveness to our membership, as well as expand our activities and educational projects. Our thanks to Dr. Blaine Blad, Director of the SNRS (NESEN member and supporter), for making this possible. We hope to have someone on board by the first of the year.

News from the NESEN Students

by **Brian Lang, Derek Geise and Peter Gomez**

Derek Geise has been updating the educational links located on the NESEN web site. Several links previously listed are no longer active. He is continually seeking new links that are beneficial to both teachers and students, especially if the sites include earth science-related lesson plans, activities, and other pertinent information. Anyone wishing to contribute a link can e-mail Derek at dgeise@nesen.unl.edu.

Brian Lang continues to build the NIGEC (National Institute for Global Environmental Change) Great Plains Regional Center home page <http://nesen.unl.edu/nigec/nigec.html>, and is also updating the NESEN membership directory. If you would like an updated copy of the membership directory, please contact Brian at blang@unlinfo.unl.edu, or 402-472-0773.

We also welcome **Peter Gomez** to the NESEN team. Pete will be working on support for all NESEN related educational activities. He will be helping construct educational activities for the National Drought Mitigation Center (NDMC) that address drought related concepts. You can contact Pete at gomez@nesen.unl.edu.

UnSTEDII Seminar at NATS

Seventeen brave souls weathered the elements and attended the workshop on the STEDII weather project. A number of new schools are interested in participating, especially in areas of the state where we do not have great representation, such as lower southwestern and southeastern Nebraska. Currently we are contacting potential new participants so we can include them in the next FMP.

STEDII GROWS

The Students and Teachers Exchanging Data Information and Ideas (STEDII) weather project has grown to 49 enrolled schools. A total of 33 schools took temperatures, relative humidity, wind speed and direction, precipitation and other weather information during the fall Focused Measurement Period (FMP) from September 22nd to October 6th. Two schools were filmed for an educational news magazine to be broadcasted at a later date on NETV and Educable. The winter FMP will be held from February 9 through 23rd. Data for this FMP or any other period of time is available at: <http://nesen.unl.edu/stedii/mmesarch/stediout.html>.

Drought Education Materials

Peter Gomez and Mark Mesarch are working on developing educational activities for the National Drought Mitigation Center (NDMC). General concepts for activities are being developed for activities for intermediate and high school level audiences. The first aspect to be dealt with is to define drought. What looks like a simple question is much more complicated, but provides many different ways to look at what is time and space and weather. After developing materials about the "Process of Drought," activities will be developed where students can role play in the development of drought related policy from the environmental to the political arenas.

El Nino

Everyone is talking about El Nino, maybe even in your science classes. But what exactly is El Nino? Every three to five years, during the months of December and January, this event causes serious weather problems all over the Earth. To learn about this phenomenon, try exploring some of these El Nino web sites:

- National Oceanic and Atmospheric Administration (NOAA) -- <http://www.pmel.noaa.gov/toga-tao/el-nino/home.html>
- El Nino Comparisons -- <http://www.cdc.noaa.gov/ENSO/enso.different.html>
- West Coast U.S. Watch -- http://cwatchwc.ucsd.edu/el_nino/latest.gif
- British Columbia, California Watch -- http://www.ios.bc.ca/ios/osap/projects/el_nino/
- El Nino and Climate Prediction -- <http://atmos.washington.edu/gcg/RTN/rtnt.html>
- Southern California Area ENSO -- http://nws.mbay.net/el_nino.html
- Realtime Ocean Buoy Data -- <http://www.pmel.noaa.gov/toga-tao/realtime.html>

The *Miracle Planet* Series Now Available

Our thanks to Marian Langan, education coordinator for the University of Nebraska State Museum, for contributing to the NESEN Lending Library a copy of the six-hour PBS series, *The Miracle Planet*. The six one-hour tapes include: *The Third Planet*, *The Heat Within*, *Life From the Sea*, *Patterns in the Air*, *Riddles of Sand and Ice*, and *The Home Planet*.

Any NESEN member wishing to borrow any of these tapes should contact Brian Lang, 402-472- 0773, or blang@unlinfo.unl.edu. You can borrow the tapes for up to two weeks. The only cost involved is return postage.

NESEN Membership Grows

Since NESEN's birth in late-1992, membership has continued to grow (see accompanying graph). As of November 14, 1997, membership was 411. We are very pleased to see how NESEN experienced significant growth in only five years. In addition, we are pleased to have several members from 14 other states: California, Virginia, Arizona, Iowa, South Dakota, Michigan, Minnesota, Missouri, Ohio, Vermont, North Carolina, Wisconsin, New Mexico and Tennessee--and one member from Belgium. Our thanks and appreciation to everyone who has spread the word about NESEN and contributed to its success.

Conservation and Survey Division Home Page

NESEN's lead unit, the Conservation and Survey Division (CSD), has recently redesigned its home page and changed its URL. Please note that CSD's new URL is <http://csd.unl.edu/csd.html>. An extensive amount of earth science information, mostly about Nebraska, can be found here.

Selected Catalogs and Directories Available from the NESEN Lending Library

NESEN members can borrow any of the catalogs or directories for two weeks. The only cost is return postage. For a complete list of resources available from the NESEN Lending Library, see the NESEN home page (<http://nesen.unl.edu/nesen.html>) or the *NESEN Resources Guide and Directory*. If you would like to borrow any of this material, please contact Brian Lang, 402-472-0773, or blang@unlinfo.unl.edu.

#0303: Catalog of Water Quality Educational Materials (1991)

This 40-page catalog lists many free or low cost brochures, fact sheets, pamphlets, curriculum materials, and posters available from TVA that will help you understand water quality and related issues.

#0305: Earth Science Education "Activities and Resources" (1994)

This 25-page report is a guide to current and planned earth science education activities and resources at the Smithsonian. The report consists primarily of published descriptions of activities and resources which can be used by geoscientists, teachers, and parents to supplement and extend the formal classroom experience.

#0309: Environmental Education Materials for Teachers and Young People Grades K-12 (Jul 91)

This 30-page annotated compendium of educational materials on environmental issues has been compiled by the U.S. EPA. Entries are diverse with materials described ranging from workbooks to curriculum plans, to posters and pamphlets, to newsletters, films, and computer software. It has been organized into two major sections according to the private and public sector organizations.

#0310: NASA's Mission to Planet Earth: 1995 Catalog of Educational Programs & Resources

This 113-page publication by NASA provides information about agencywide MTPE education resources and programs conducted at pre-college through postdoctoral levels. This catalog is not intended to represent all of NASA's education programs; instead, it focuses on NASA education efforts most relevant to MTPE.

Unless otherwise indicated, newsletter was written by Duane R. Mohlman, David C. Gosselin and Mark A. Mesarch; and edited by Charles A. Flowerday, Conservation and Survey Division, University of Nebraska-Lincoln. Articles and information for our Winter 1997-98 issue of the NESEN Newsletter, can be sent to Duane

Mohlman, see newsletter masthead for address, or e-mail to dmohlman@unlinfo.unl.edu. Input from our K-12 educators is especially encouraged.

Special Feature

STEDII Student Articles

In this issue of the NESEN Newsletter, we are pleased to include several short articles written by students that have participated in the STEDII project. Our thanks to Bob Feurer and Mary Lou Alfieri, both NESEN Steering Committee members, for sending us the student articles. If you have students interested in contributing or want to add a writing connection to science, have them write a letter for the next *NESEN Newsletter*.

The following articles were written by Bob Feurer's students at North Bend Central Junior/Senior High School, North Bend, Nebraska:

I really enjoyed the STEDII weather project. I learned things like how to measure relative humidity with a Sling Psychrometer. It surprised me that by matching up the point with the dry bulb temperature and matching up that with the wet bulb temperature you can come up with the relative humidity. I also learned that when the barometric pressure is low that is it going to rain or it is already raining. I had always thought it was the opposite of that.

I enjoyed having a chance to use each of the weather instruments. I probably would have never had another chance to use some of those instruments. I also enjoyed recording the data on the e-mail program. I had never used e-mail before either. I am very glad that I was able to take place in the STEDII project.

--Erin Johnson

I learned that air has pressure and it changes slowly. The atoms in the air have mass. It is better to bake when the pressure is low. It makes the bread rise and it makes it fluffy.

I learned that you can measure the humidity. Humidity is the water in the air. The humidity in July is very high. In January the humidity is low.

--Sandra Foy

I learned that there are a lot of different things you can measure. I also learned that some terms that you hear a lot about weather are not actual weather terms. Such terms are partly sunny and mostly sunny. I learned the names of some instruments that I didn't think even existed. Like a sling psychrometer.

I like the idea that students can gather all this information. I also like the idea that the kids can use the computer and record all the data. I liked being able to use the instruments. It gave me some idea about how they gather all this stuff for the weather.

--Jessica Williams

I have learned about how you read the maximum and minimum temperature. I enjoyed learning how you tell cloud cover. Slinging the sling psychrometer for relative humidity was fun. It was interesting to compare temperatures from day to day. It was fun typing in the information in the computer.

Learning about the wind speed and direction was very helpful. It helped me remember my directions better. It was neat to go outside during class time. I greatly enjoyed taking weather data. It is something that I will carry with me to remember about weather.

--Cathleen Givens

The following articles were written by Mary Lou Alfieri's students at St. Thomas More Elementary in Omaha, Nebraska:

The weather data collecting was a fun and learning experience. It was a good way to have "hands on" science in the classroom.

I learned a lot about collecting weather data. Like figuring out Fahrenheit and Celsius. Things like how you find humidity, and air pressure. The weather is really fascinating.

It was fun too. You get to work on the computer, entering in data. I also enjoyed interacting with kids from other schools. Overall I liked collecting the data and putting into the computer, it was one of the many things that have turned me on to science this year.

--Kathleen Brown

Hi, my name is Andrea. I help record weather info and put it on the Internet. It is fun. It teaches us a lot of things. One is now to use the Internet for more than just talking to a friend who lives 1,000 miles away. It shows us how to find the information we need and how to use it.

I also learned how to measure wind speed, air pressure, precipitation, and other things that involve weather. After doing this I learned a lot of interesting things like how one day the weather could be freezing cold and the next day steaming hot. I had a lot of fun doing this. And I learned a lot.

--Andrea Lojoes

Hi, my name is Ashley Killeen. I helped with the weather program. It was very interesting and at the same time it was fun. I liked collecting the data. It was also fun going on the computer. I would love to do it the rest of the year.

It was kind of tough getting up early and coming to school the first two weeks. We did the weather everyday for the first two weeks. I still enjoyed it though. It was real fun working with my friends.

Our teacher, Mrs. Alfieri, explained the program really well. She helped a whole lot. She made the program really fun.

My dad enjoyed the weather too. He's a weather freak. He always wanted to hear what the temperature was and related things. I would really, really like to do this project again.

--Ashley Killeen