NEWSLETTER
TWIN CITIES CHAPTER
AMERICAN METEOROLOGICAL
SOCIETY
May 2002 Vol. 23 No. 8

The May meeting of the Twin Cities Chapter of the AMS will be at 7pm Thursday, May 16 at the National Weather Service Forecast Office in Chanhassen. Directions to the meeting can be found on page 3. Chapter members, interested acquaintances and potential members are invited to attend.

Featured speaker: Seth Binau

"NWS Weather Event Simulator", followed by TV coverage of the May 1999 tornado outbreak near Oklahoma City.

Seth Binau is a forecaster at the National Weather Service forecast office in Chanhassen. He grew up in Ohio, then attended Iowa State University, where he earned a B.S. in Meteorology. Seth spent his first two and a half years at the NWS office in Aberdeen, SD, and joined the staff of the Chanhassen NWS office in October 2001. Weather Event Simulator (WES) software allows the NWS staff to use archived data and an AWIPS workstation to work severe weather events in real time, gaining valuable experience. Seth will show us a WES case study to illustrate how the software is used to further forecasters' proficiency in severe weather situations. Following Seth's presentation, we'll view a tape of an Oklahoma City TV station's coverage of the May 3, 1999 tornado outbreak. There were multiple tornadoes that day, and F5 damage was observed in some spots. Join us for this timely and interesting meeting.

Member of the month

Our featured chapter member this month is Martin Sponholz. Martin teaches history of science, physics, and an introductory meteorology class at Martin Luther College in New Ulm, Minnesota, where future pastors and teachers for the supporting denomination are educated. He first became interested in meteorology while sitting on the upstairs porch, looking west, as thunderstorms approached the inner-city of Milwaukee. After the storms moved through, his grandfather occasionally took Martin to Lake Park to watch the lightning over Lake Michigan. Martin received a B.S. from the University of Wisconsin-Madison in 1963, followed by an M.S. in 1965. One of Martin's major professors, Heinz Lettau, learned of his childhood interest in Admiral Byrd's polar expeditions. As a result, Martin was steered to the Office of Meteorological Research, where he was assigned to the Polar Branch for four years, serving on two expeditions to Antarctica. The first was to Plateau station Dec. 1965 - Jan. 1967, where he wintered over and experienced a reading of -121 F. His second expedition was from Nov. 1967- March 1968. Martin's professional meteorological work was primarily about inversion winds, mirages at extreme cold temperatures and katabatic winds. He left the research world to teach science at Luther High School, Onalaska, Wisconsin for twelve years. Martin has been teaching the past twenty years in New Ulm, and the past ten years he has helped Brown County Emergency Preparedness train firemen and policemen in the Tornado Spotter's Program.

Editor's notes- by Ron Trenda

Thanks to everyone who contributed newsletter information and meeting ideas over the past three years. Thanks also to my brother Paul, a CPA who donated the use of his office facilities for the printing and assembly of our chapter newsletters. Kurt Scholz will take over as our newsletter editor next fall. Let's all have a great summer and look ahead to some interesting chapter meetings in the fall.

Comments from Chapter President Dean Braatz

At the April meeting a slate of officers for 2002-2003 was presented and approved by the membership present. The new officers are:

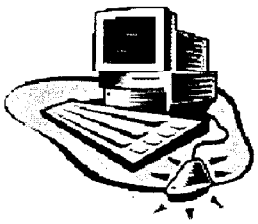
President – Dean Braatz
Vice President – Doug Dokken
Secretary/Treasurer – Joan Haley
Newsletter Editor – Kurt Scholz

Also at the April meeting, the cost of doing chapter business was discussed. As a result, a motion was approved to raise membership dues next year to $12 for members and $6 for student members. This is still a very good deal compared to other chapters around the country. The current officers wish to thank everyone for their support during this past year. Looking back, there were interesting presentations and good discussions on a variety of topics. Keep on the lookout for topics you might like to suggest. The officers welcome any input on speakers and ideas for presentations.

The last Science Fair for the year was held on Saturday April 13, 2002 at the downtown Hyatt Regency Hotel in Minneapolis. The Minnesota Academy of Science State Fair was well attended, with some 20 students having displays with earth science/meteorology themes. Dean Braatz and Joan Haley were the representatives from our local Twin Cities AMS Chapter serving as judges for this event.

In the senior division, Rebecca A. Korth, Morris Area High School, Morris, MN was selected to receive the AMS certificate for her very good display, detail in carrying out her project and the statistical analysis from the test results. The title of her project was: "The Effect of Temperature on the Density of Motor Oil". The purpose of her project was to determine the effect of different temperatures on the density of motor oil. Data from the test results support the hypothesis that motor oil density will be less when temperatures are increased.

In the junior division, Jane Cowles, Ordean Middle School, Duluth, MN was selected to receive the AMS certificate for a very sound project and a very good display. The title of her project was: "Propeller Blades and Wind Generation". Her interest in this project was an interest in the mechanical conversion of wind into other forms of energy. Her hypothesis was that the blade with the most surface area to the outside perimeter of the testing device would have the highest RPM, thus producing the most energy. The project required a testing device with a tower and axle assembly accepting different blade configurations. Five blade shapes were created all with virtually the same surface area. A fan was directed toward the blades through a tube to concentrate the airflow. Test results did not entirely match the hypothesis in that the blade with the second highest amount of surface area at the outside perimeter was the fastest. However, the blade with the surface area at the center of the testing device did not move, tending to support her hypothesis. Another junior level student, Lindsey M. Thompson, La Crescent Middle School, La Crescent, MN received an honorable mention for her project and was awarded with a shirt from Meteorlogix. The title for her project was: "What is the Doppler effect and How is it Used in Meteorology?". She used a car blowing its horn moving toward an observer and then moving away from the observer as a demonstration of the Doppler effect. In the demonstration a measurement of the frequency change in the horn's sound was recorded on a tape recorder. Frequency changes were determined using an instrumental tuner. A definite change in frequency was observed. The results of the demonstration proved that the Doppler effect does exist. The principle of the Doppler effect is applied to radar meteorology to detect air movement, enabling meteorologists to detect destructive storms, tornadoes and straight-line winds. This technology has proven effective for meteorologists to warn of severe weather and it can save lives and property.



AMS on the WWW

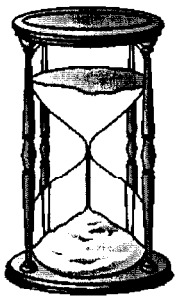
Thanks again to Kurt Scholz and Doug Dokken of The University of St.Thomas for maintaining the web page for our local AMS chapter. Chapter information and links to climatological and meteorological information can be found there. E-mail Kurt or Doug with your comments about the web site. The web address for the Twin Cities is: http://byte.stthomas.edu/www/math_http/weather/tcametsoc.html

The May meeting will be held at 7pm, on Thursday, May 16 at the National Weather Service Forecast office in Chanhassen..

Directions: Take Highway **494** to the exit for Minnesota **Highway 5** west in Eden Prairie. Travel west on highway 5 into Chanhassen. Turn **left** (south) at **Audubon Road**. Follow Audubon Road to **Lake Drive**, then turn **right** and follow Lake Drive to the NWS entrance, which will be on your left. The Nexrad radar tower will be visible as you approach the area.

An alternative, if traffic is heavy and you want to avoid the Audubon turn off of highway 5, is to turn **left** at the light onto **Powers Boulevard**, and head south. You would then take the **first right** off of Powers Boulevard, onto **Park Road**, and follow it to Audubon Road, then turn **left** and head south to Lake Drive.

Twin Cities Weather History- by Tom St. Martin



Extreme drought and mid-summer heat combined to make the summer of 1894 one of the most unpleasant summers in St. Paul and Upper Midwest weather history. St. Paul observers measured only two inches of rain between 1 June and 31 August of that year and, in the words of the St. Paul Dispatch, July had the city "all in a swelter: it was too hot to eat or sleep, too hot for love or hate...and even too hot to go to church...". A weather story appearing in the 27 July 1894 edition of the Dispatch reported that afternoon temperatures on 26 July had reached 112 F in "areas where the heat was reflected from walls and walkways...". This reading was apparently obtained from a sunny exposure at 189 East 7th Street: other readings taken the same day from drug store and police station thermometers included 108 F at Victoria and Selby, 103 F at 4th and Cedar; and 102 F at the Rondo Street station. Official maxima included 100 F on 26 July and 99 F on 27 July 1894. Understandably, those who could fled the city as part of what the 28 July 1894 edition of the Dispatch called a "hot weather hegira".

P.F. Lyons, chief of the St. Paul Weather Bureau office, in comments made during the last days of July, offered little encouragement to St. Paul's heat weary residents. When asked when the heat wave would end, he cautioned Dispatch readers not to expect "too much in a hurry": he noted that, because buildings, streets and walkways had absorbed a great deal of heat, it would "take several days for things to cool off". Although the worst of the heat had ended by 1 August 1894, warm episodes continued to occur through August and September (with a reading of 89 F on 28 September). The extended drought and heat fueled fears of an Upper Midwest crop failure, causing a sharp mid-summer rise in corn prices. Area lake levels were drastically lowered, a situation which, among other things, put great stress on St. Paul's already inadequate city water system. During the height of the mid-summer drought, the St. Paul city engineer reported that the city was "struggling along" with 10 million gallons of water daily, about two-thirds of the amount needed. Reportedly, city water was filled with "small bugs" and, given the low lake levels, was considered as being little better than "pond" water. The city engineer also stated that St. Paul could no longer rely on local lake water alone, suggesting that city officials explore other possible sources (including the Mississippi and St. Croix rivers). The heat and drought also caused numerous northern Minnesota forest fires, culminating in the tragic and devastating fires which swept through the Hinckley-Sandstone area on 3 September 1894. Although the drought was alleviated by heavy rains in October and late September 1894, drier than normal conditions persisted well into 1895. Also, unlike the droughts of the 1930's and 1950's, the drought of 1894 followed a spring which brought abundant -- and sometimes excessive -- moisture to St. Paul and other areas of the state from March through mid-May 1894.