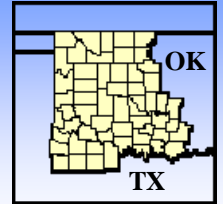




The Southern Plains Cyclone

A Weather Newsletter from your Norman Forecast Office for the Residents of western and central Oklahoma and western north Texas



We Make the Difference When it Matters Most!

Volume 4

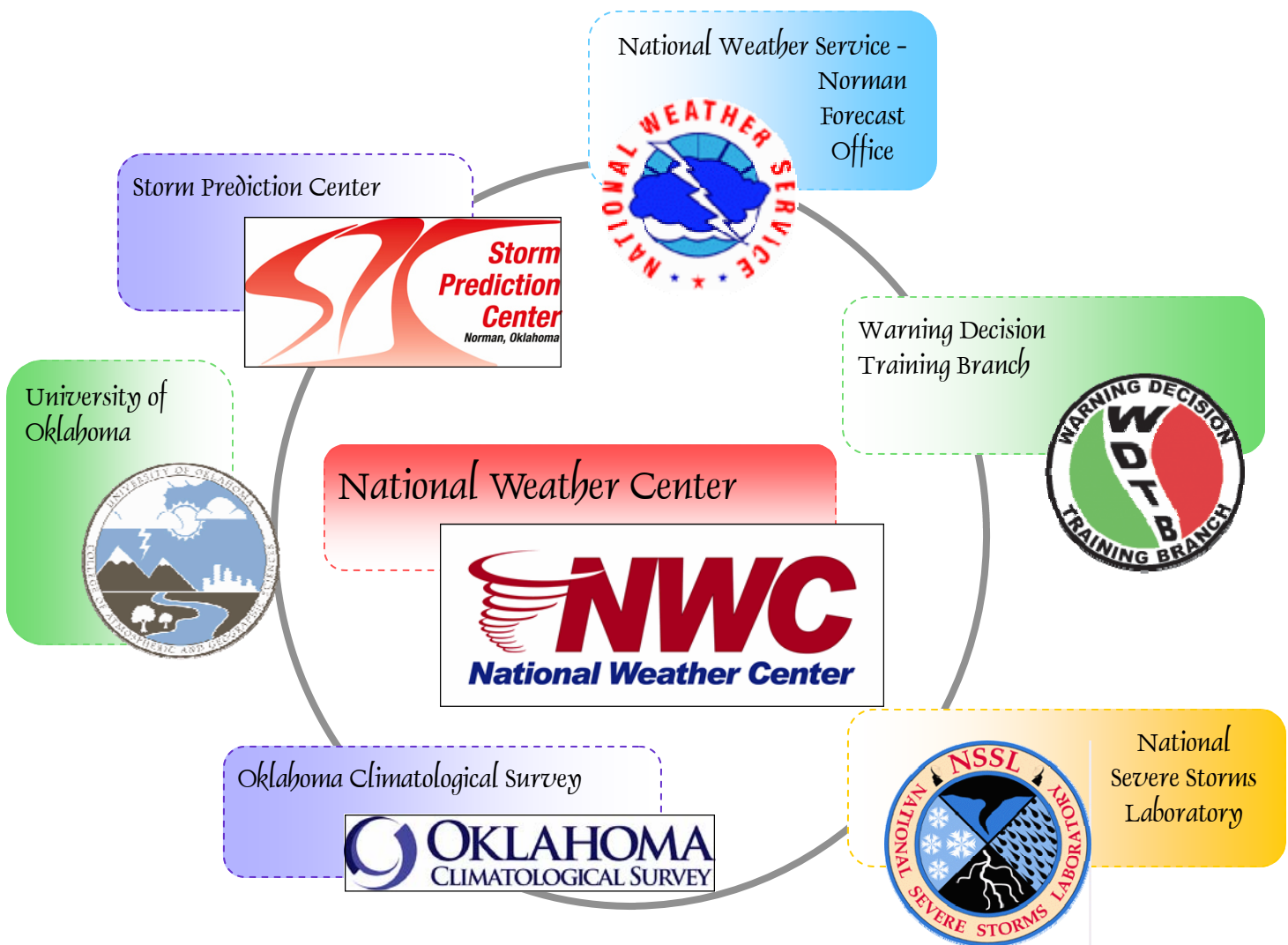
Summer 2006

Issue 3

NATIONAL WEATHER CENTER

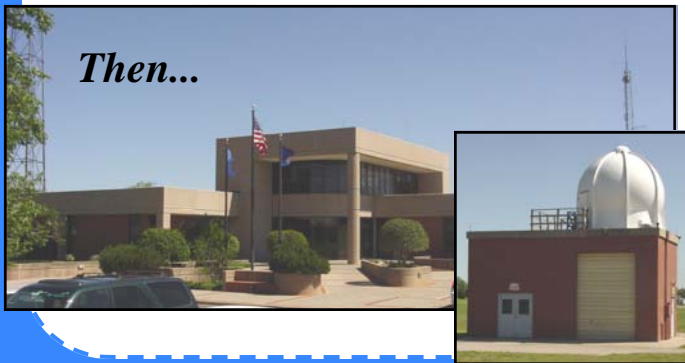
We've moved and so have they! This edition of the newsletter will feature the National Weather Center - the new home of the National Weather Service office in Norman, Oklahoma! In addition to being our new home, it's the new home to the Storm Prediction Center, National Severe Storms Laboratory, Oklahoma Climatological Survey, Warning Decision Training Branch and the University of Oklahoma College of Atmospheric and Geographic Sciences. The following pages will talk about the history of each of these organizations and what they do on a daily basis. We have rounded up some guest authors and a lot of pictures for this edition. We hope this allows you to see what our home is like, as you let us inside yours every quarter.

We hope you enjoy this very special edition of *The Southern Plains Cyclone*. Thanks for reading!



National Weather Service Norman Forecast Office

Then...



What do we do?

The National Weather Service's main mission is to provide warnings, forecasts and other weather information to help save lives. The Norman Forecast Office is part of a network of 122 local weather forecast offices that cover the entire United States. Our office is responsible for providing weather information services to 48 counties in central and western Oklahoma, and eight counties in western north Texas.

While we prepare various types of weather forecasts, along with hydrologic and climatological information every day, the main reason we're here is to help manage significant events by providing warnings and other information to help keep people safe. Most often, these events are ones that are either caused by the weather or made worse by the weather - tornadoes and severe thunderstorms, flooding, ice storms, blizzards, wildfires, heat waves, etc. The information we produce is used by everyone, from local television and radio stations to emergency management and public safety agencies to airlines and private industry

We are staffed 24 hours a day, every day of the year with at least two people on shift at all times. Of the 27 people who work at NWS Norman, 19 are meteorologists. The rest of the staff provides critical technical, administrative and electronics support to get the job done. We also maintain a large network of cooperative weather observers, and launch weather balloons at least twice each day to help forecasters get a three dimensional picture of the atmosphere.

On the move...

To the right are several pictures taken of our operations area at our new home, the National Weather Center. We hope you enjoy!

...and Now



A Brief History

The National Weather Service has been serving the American public with warnings and forecasts for over 130 years, but it wasn't always called the National Weather Service. Starting in 1871, the Division of Telegrams and Reports for the Benefit of Commerce issued the first public forecast from Washington D.C. In 1891, the name changed to the United States Weather Bureau, which is how many people still refer to us today. It wasn't until 1970 that the name changed to the National Weather Service.

Your local forecast office began in Oklahoma City in 1890 at the Overholser Opera House (top center). It moved to the Culbertson Building (mid center) in 1902, and the Weather Bureau Observatory in 1906. In 1932, the Weather Bureau established its first office at Will Rogers World Airport (bottom center) in Oklahoma City and remained there until we moved to the University of Oklahoma's north campus in Norman in 1987 (pictured above left). Now we bid farewell to this building and look forward to our new adventures in the National Weather Center.



Article written by Rick Smith,
Warning Coordination Meteorologist

Storm Prediction Center



Then...



...and Now

About us...

The National Oceanic and Atmospheric Administration's Storm Prediction Center (SPC) is responsible for short-term hazardous weather forecasting across the contiguous United States. SPC coordinates with National Weather Service (NWS) forecast offices around the country and provides short-term guidance of hazardous and economically disruptive weather events, such as thunderstorms, tornadoes, winter storms, blizzards, freezing precipitation, flash floods and fire weather.

Every tornado and severe thunderstorm watch issued in the United States originates at the SPC. SPC is the primary center of expertise for forecasting short-term hazardous weather events, and is world renowned for its excellence in forecasting exceptionally severe and/or long-lived thunderstorms. The center makes maximum use of observations, numerical forecast models, Doppler radar, geostationary satellites, and the latest science and technology while generating their forecasts.

Who do we do it for?

In addition to working with forecast offices and other national centers within the NWS, the SPC collaborates with local, national and international communities, as well as various NOAA agencies and academia. This collaboration increases the understanding of hazardous weather environments across the United States, and promotes the infusion of new science and technology into SPC's operation.

SPC's forecasts are used by numerous agencies to enhance the protection of life and property, including severe thunderstorm forecasts out to three days in advance and short-term tornado and severe thunderstorm watches. By providing timely and accurate forecasts, the SPC enhances the level of products and services the NWS issues to the public, and helps the NWS offices effectively accomplish their public safety responsibilities.

The SPC is the nation's only all hazards weather forecast center. Its forecasters deal with hazardous weather 24 hours a day, 365 days a year. The SPC maintains a continuous weather watch over the entire contiguous 48 states, and issues most of its products on an as needed, event driven basis. The SPC provides its partners and customers a one-stop source of mesoscale meteorological information. SPC products are available at www.spc.noaa.gov, and are commonly used by local NWS offices, emergency managers, TV and radio meteorologists, private weather forecasting companies, the aviation industry, storm spotters, agriculture, educational institutions and many other groups.

A little history...

A few years after the first tornado forecast at Tinker Air Force base March 25, 1948 by Fawbush and Miller, the Severe Storms Forecast Center for Air Force Facilities was established in 1951. Success of the Air Force tornado program led the Weather Bureau to establish its own severe weather unit at the Weather Bureau-Army-Navy (WBAN) Analysis Center in Washington, D.C. in March 1952. On March 21, 1952, the first successful watch was issued and the operation became permanent and was formally recognized as the Weather Bureau Severe Weather Unit (SWU). At this time the forecast responsibility was expanded to include not only tornadoes, but also large hail, high winds and extreme turbulence. The SWU was renamed the Severe Local Storm Warning Center (SELS) on June 17, 1953, and provided around the clock coverage. SELS moved to Kansas City in August 1954 and in 1955, the first convective outlook was issued. It wasn't until 1995 that SELS was renamed the Storm Prediction Center. Two years later, SPC moved to Norman, OK and its mission was expanded to fire weather forecasts.



1961



1967



1976



1993



Article written by Keli Tarp, NOAA Public Affairs Specialist

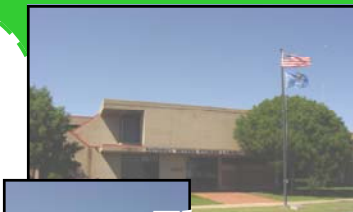
National Severe Storms Laboratory

Studying devastating storms from the heart of "tornado alley."

About us...

The National Severe Storms Laboratory (NSSL) is one of NOAA's internationally known research laboratories, leading the way in investigations of all aspects of severe weather. The people of NSSL, in partnership with the National Weather Service, are dedicated to improving severe weather warnings and forecasts in order to save lives and reduce property damage.

Severe weather research conducted at NSSL has led to substantial improvements in severe and hazardous weather forecasting resulting in increased warning lead times to the public. NSSL scientists are exploring new ways to improve our understanding of the causes of severe weather and ways to use weather information to assist National Weather Service forecasters, as well as federal, university and private sector partners.



Then...



...and Now

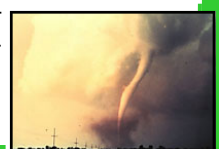
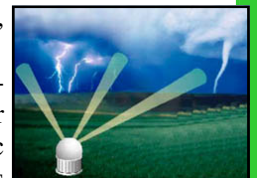
Ongoing research

NSSL continues to be a pioneer in the development of weather radar. The lab is presently researching the use of dual polarization radar to improve precipitation measurements and hail identification. This upgrade to the current NEXRAD Doppler radar hardware provides more information about precipitation in clouds to better distinguish between rain, ice, hail and mixtures. Such information will help forecasters provide better warnings for flash floods, the number one severe weather threat to human life.

NSSL is committed to incorporating cutting-edge scientific understanding of severe weather signatures into tools designed to help National Weather Service forecasters make better and faster warning decisions. The latest tool, NSSL's Warning Decision Support System II, includes automated algorithm detection tools for the NEXRAD Doppler radar and other sensors to identify rotation in storms preceding tornadoes, likelihood and size of hail, as well as simply identifying and tracking storms. This information is presented in an easy-to-use display including tables, graphs and data interrogation tools. Several of these tools have already been integrated into the National Weather Service's systems and have contributed to improved warning lead times with fewer false alarms.

NSSL researchers are adapting state-of-the-art radar technology currently deployed on Navy ships for use in spotting severe weather. Phased array radar reduces the scan or data collection time from four or five minutes to less than one minute, potentially extending the average lead time for tornado warnings beyond the current average of 13 minutes. When combined with other technology being developed at NSSL, warning lead times may be extended even farther.

NSSL had also begun working on ways to improve short-term weather forecasting computer models for the National Weather Service, basic tornado research to understand how tornadoes form, and real-time delivery of radar data to the meteorological community and interested partners. In addition, NSSL researchers continue to strive for improved understanding of tornadoes and other severe weather by creating new tools such as mobile Doppler radars employing the latest technology and by deploying radio controlled aircraft carrying weather instruments into and around storms.



Quick Facts

The National Severe Storms Project was established in 1955 and was located in Kansas City. It wasn't renamed the National Severe Storms Laboratory until 1964 when it moved to Norman,



Twister

The movie "Twister" was actually written about the National Severe Storms Laboratory. Michael Crichton and his wife, Anne-Marie Martin, wrote a screenplay about the lab's collaboration with OU in the early 1980's on TOTO, a 55 gallon drum researchers attempted to place in the path of a tornado to collect measurements. Their screenplay turned into the movie "Twister" starring Bill Paxton and Helen Hunt. NSSL staff had an opportunity to provide input to the script, production and even the direction the movie took.



Article written by Keli Tarp, NOAA Public Affairs Specialist

Oklahoma Climatological Survey

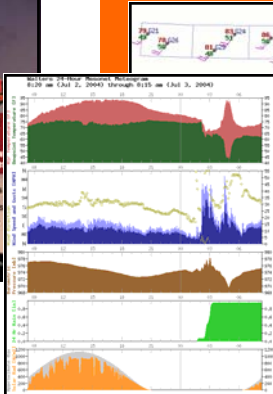
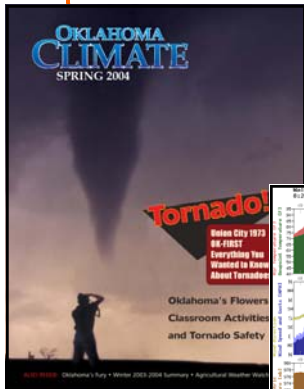
What we do...

The Oklahoma Climatological Survey (OCS) was established in 1980 to provide climatological services to the people of Oklahoma. OCS has a legislative mandate to acquire, process, and disseminate climate and weather data and information for use by the state's citizens. It is housed at the University of Oklahoma and is the operational home of the Oklahoma Mesonet, Oklahoma's weather network. The Oklahoma Mesonet is a world-class network of environmental monitoring stations located across the state of Oklahoma with at least one in each county. The network was designed and implemented by scientists at the University of Oklahoma and Oklahoma State University.

OCS is Oklahoma's weather and climate historian, and the largest state climate office in the nation. Not only does it house the state's historical weather and climate records (dating back to 1894), it also spends a significant amount of energy and resources educating citizens, decision-makers, and the state's leaders of the many uses of the archived and real-time atmospheric data.

Outreach

OCS's proactive approach to serving the citizens of Oklahoma is evident in our outreach programs that are expanding in size and scope annually. Our outreach programs are designed to instruct and support Oklahoma agencies in the fields of K-12 education, energy, transportation, agriculture, first responders and emergency management. New outreach initiatives are sought by scientists to continue OCS's mission of providing useful weather and climate information to the taxpayers or their representatives.



Then...

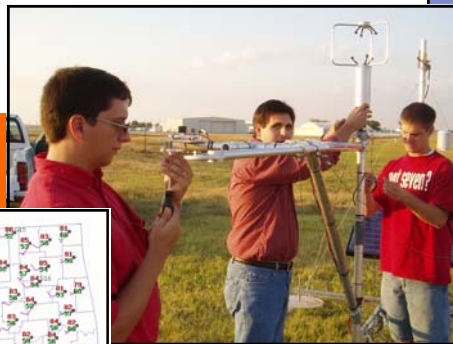


...and now



Research and the Oklahoma Mesonet

Research is a vital part of OCS. The backbone of the research conducted at OCS is the Oklahoma Mesonet. From testing new sensors, to validating satellite measurements and model output, to participating in specialized research programs, OCS scientists use Oklahoma Mesonet data for state-of-the-art research focused on Oklahoma. In turn, the knowledge gained from this research is applied to develop new technologies, to more accurately assess and predict the onset of drought conditions, and to improve weather forecasting.



Find out more...

The Oklahoma Climate Survey is an award-winning state agency that strives to serve Oklahoma with efficiency, excellence and expertise. For more information about the Oklahoma Climatological Survey, visit our website at www.ocs.ou.edu or phone us at 405-325-2541.

Article written by Cerry Leffler, Administrative Manager/Public Relations Specialist.

University of Oklahoma

College of Atmospheric and Geographic Sciences

School of Meteorology



OU History

In the 1950's, two faculty members at Texas A&M University, Dr. Walter Saucier and Dr. Yoshi Sasaki, discussed the need for a meteorology program at the University of Oklahoma. OU was chosen because of the wide array of weather phenomena in Oklahoma, including severe thunderstorms and tornadoes. Dr. Sasaki had an interest in severe storms, and felt that his background would be useful in both understanding and teaching the intricate dynamics that create these life threatening storms. With the support of OU President George Lynn Cross, the OU meteorology program began in 1960. In the early years of the program, most of the students enrolled were Air Force students inspired by the early work of Fawbush and Miller.

In 1964, the National Severe Storms Laboratory (NSSL) moved to Norman. In the early days, OU's weather program and NSSL were collocated at Westheimer Field, establishing a precedent for government-university collaboration that still exists today. Until 1969, the OU meteorology program was administered through the Engineering Physics program. Thereafter, the program officially became the Department of Meteorology, and then the School of Meteorology (SOM) in 1977.

OU Research

In 1978, the Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) was established to develop a center of research excellence in mesoscale meteorology, regional climate and related subject areas. CIMMS promotes the collaboration between the National Oceanic and Atmospheric Administration (NOAA) and OU scientists. CIMMS strives to improve the observation, analysis, understanding, modeling and prediction of all weather elements. In 1989, OU received a National Science Foundation Science and Technology grant and instituted the Center for Analysis and Prediction of Storms. CAPS develops techniques for computer-based prediction of high-impact local weather, such as individual storms, using radar as a key source.



Then



...and now

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OU Today

The Students

In 1980, the number of undergraduate students majoring in meteorology at OU reached the 100 mark. Today, the OU SOM houses the largest meteorology program in the nation with approximately 320 undergraduate and 95 graduate students. Each year, SOM awards an average of 40 Bachelor, 18 Master and five Doctoral degrees. In addition, the SOM awards about two Master of Science Degrees in Professional Meteorology (MSPM); a degree which prepares students for employment in private industries. This is the first and only degree of its kind in the nation. The OU SOM is also proud to house more American Meteorological Society Industry Graduate Fellowship students than any other program in the nation; a total of 37 since 1992.

The Faculty

Since the number of students has increased dramatically over the years, so has the number of faculty members. The SOM is very pleased to have an outstanding faculty which includes: 11 Fellows of the American Meteorological Society (three emeriti), a chair on the UCAR Board of Trustees and on the National Science Board, five Presidential Professors, two Regents Professor and Two George Lynn Cross Research Professors. There are also four endowed chairs dedicated solely for SOM faculty including the Robert E. Lowry Chair, the Williams Chair, the Weathernews Chair and the Mark and Kandi McCasland Chair. No other program has more than one endowed chair. In addition, we also have two recently named professorships; American Airlines and Tommy C. Craighead. The SOM also employs several Emeriti faculty and adjunct faculty in association with OCS and NSSL.

The Building

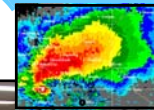
The SOM moved July 20th from Sarkeys Energy Center (pictured above center) to the National Weather Center (NWC). The SOM occupies some of the 4th floor and all of the 5th floor in the NWC. There are over 20 faculty offices, four classrooms, two labs, and 20 graduate student offices.

Article written by Kevin Kloesel,
Assistant Dean

Warning Decision Training Branch

What do we do?

Exciting, innovating and relevant operational training describes the focus of the National Weather Service Warning Decision Training Branch (WDTB). The training produced by the WDTB supports its mission which seeks to increase expertise among NWS operational personnel in order to better service the public's weather needs during natural or manmade significant events. Throughout our history, WDTB has made great strides in collaborative development of its training, drawing on many of the occupants of the National Weather Center, as well as field forecasters, and experts in other relevant fields of study.



Then...



Above: Science Officers from around the NWS discuss warning decisions they've just made using the WES.

Our History

The WDTB has its roots in the nationwide implementation of the groundbreaking NEXRAD program in the late 1980s. At that time, NWS management formed a unique training group designed to create and teach a course dedicated to the understanding and application of the new WSR-88D (NEXRAD) radar. The Operations Training Facility (OTF, the original name of WDTB) was first staffed in the summer of 1989. The facility was originally part of the NWS Forecast Office in Norman, Oklahoma, and was administered by Dr. Ken Crawford (Meteorologist in Charge, WSFO Norman) and Joe Kendall (Director, OTF) with a staff of six meteorologists/instructors and a secretary.

By the summer of 1993, the branch consisted of 27 NWS and Department of Defense (DoD) instructors teaching three simultaneous courses with 24 meteorologists, hydrologists, and administrators in each class. In the fall of 1995, Don Burgess took over as Chief of the then-named Operations Training Branch (OTB), which had been folded into the NWS radar Operational Support Facility. The staff of the OTB was awarded the Department of Commerce Bronze Medal for the development and delivery of this WSR-88D Operations Course which had been recognized by NWS employees as an example of "training done right" in the NWS Modernization. In 1997, a transition towards distance learning began to emerge and most of the 3.5-week residence course was converted to a distance learning format, with a 1-week residence component reserved for simulation training. During the seven years of residence classes, there were 2525 students who passed through the course.

In the Fall of 2000, a shift in mission occurred with the teaching focus no longer just sensor based (radar) but mission based (short-fused warnings). Thus, the inclusion of training on all aspects of the warning environment including the science, technology and human factors of the forecaster's warning decision.

At that time, NWS reorganization officially changed OTB to the Warning Decision Training Branch (WDTB) and the branch became a part of the NWS Office of Climate, Water and Weather Services. The operations course continues, with much of the material presented via teletraining and other distance learning techniques, in addition to a 1-week workshop to be held for the first time next year in the National Weather Center.

What's going on now?

Most recently, WDTB developed and delivered the Advanced Warning Operations Course (Core and Severe Tracks) to most NWS operational personnel. Because of effective distance learning techniques, this 28 hour course was delivered to over 2000 forecasters and managers in just over nine months. This effort was recognized with the Department of Commerce Bronze medal in 2006. At present, another course in the AWOC series has been developed and is currently in delivery. The new Winter Weather AWOC focuses on the nature of winter weather warning decision making. On the heels of this is a Tropical AWOC due to be developed in 2007.

To assist with learning in this environment, the WDTB helped develop the Weather Event Simulator (WES) which allows forecasters to "train like you fight" by going through simulated weather events while remaining on the station. The branch together with WFO Norman and NWS Southern Region, received a DOC Gold Medal in 2003 for this training initiative.

The branch currently consists of a mixture of 18 Federal and OU CIMMS staff including Branch Chief, Ed Mahoney.



...and now



Article written by Liz Quoetone, Meteorologist/Instructor.



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Check out our text-based and graphical
forecasts for your county at
weather.gov/norman.

Please share this with friends, relatives, and colleagues. Comments and suggestions are always appreciated, by phone at 405-325-3816 or by e-mail at Jennifer.Palucki@noaa.gov.