



NOAA Provides Forecasting Support for CLASIC and CHAPS 2007

Forecasting Challenge

While weather experiments in the heart of Tornado Alley typically focus on severe weather, the CLASIC and CHAPS programs will have different emphases. Forecasters from the National Oceanic and Atmospheric Administration in Norman, Okla. will provide weather forecasting support to these two Department of Energy experiments based in the state.

Forecasting support for meteorological research field programs usually focuses on large clouds over the southern Great Plains. Typically cumulonimbus, these clouds are large vertically – up to 60,000 feet -- and produce dangerous thunderstorms and tornadoes. These clouds are an important operational forecasting problem for the region.

Over other parts of the world, such as off west coasts of continents in subtropical regions like California and northern Africa, the clouds of interest are stratus, which are large horizontally but thin vertically. These are interesting because of their potential to cool relatively large areas of the planet at a time when global warming is occurring.

The procedures for forecasting the occurrence of such clouds either is well established, as with cumulonimbus, or not very challenging, like for marine stratus, because they are there pretty much every day.

CLASIC is Different

Forecasting for CLASIC and CHAPS is very different and much more challenging. The focus is on small, puffy, pretty, white, fair weather cumulus clouds and those that grow somewhat larger, known as cumulus congestus. These clouds form around mid-day and in the afternoon in response to surface heating by the sun and weak forcing by large-scale weather systems.



Forecasters will focus on cumulus congestus clouds like these during CLASIC and CHAPS.

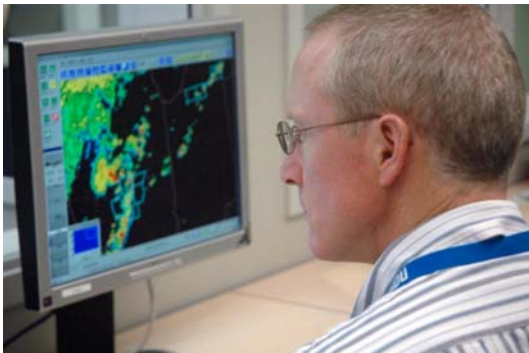
Because the large-scale forcing is weak and the cloud development depends on the response of soil moisture to heating by the sun, prediction of the onset time, extent and abundance of the small cumulus and medium-sized cumulus congestus clouds is quite difficult. Since these clouds are the focus of CLASIC and CHAPS, accurate forecasting of them is crucial to planning and execution of the campaign.

NOAA Support

The NOAA units in the National Weather Center on the University of Oklahoma campus are helping with this forecasting effort in the following ways:

-- National Weather Service Norman Forecast Office

Early each morning, between 5 and 6 a.m., meteorologists at the weather forecast office in Norman, Okla., will share their expertise with CLASIC and CHAPS forecasters and project leaders as they consult on the forecast that will determine the day's operations plan.



NOAA researchers and forecasters will provide meteorological support for CLASIC and CHAPS.

-- Storm Prediction Center

The Storm Prediction Center will have a forecasting focus centered on Oklahoma throughout the duration of the experiment. In addition, program participants will use a variety of SPC products already online, including upper air weather observations and analyses, and suites of computer-generated weather forecasts.

-- National Severe Storms Laboratory

The NSSL will run a high resolution (4km) version of the WRF computer-based forecast model daily specifically for use by CLASIC forecasters and project leaders. The model output, which will help predict the location of shallow cloud coverage, will be available on the NSSL Web page.

A WORD ABOUT US ...

The **NOAA National Weather Service Norman Forecast Office** prepares and disseminates life-saving warnings, watches and advisories for all types of hazardous weather conditions affecting 48 counties in central, western and southern Oklahoma and eight counties in western north Texas. In addition to providing services to protect life and property, the office also produces a wide variety of forecasts, and collects and disseminates climatological and hydrologic data and observations. The office is part of the Southern Region of the National Weather Service. Meteorologists are on duty 24 hours a day, seven days a week. The office was established in Oklahoma City in 1890 and moved to Norman in 1987.

The **NOAA Storm Prediction Center** provides hazardous weather forecasts including critical tornado and severe thunderstorm watches for the contiguous United States. The SPC also monitors heavy rain, heavy snow and fire weather events across the U.S. and issues specific national products for those hazards. Part of the National Weather Service's National Centers for Environmental Prediction, SPC meteorologists are on duty 24 hours a day, seven days a week. Established in Washington, D.C. in 1952, the center moved to Kansas City in 1954 and then Norman in 1997.

The **NOAA National Severe Storms Laboratory** leads the way in investigations of all aspects of severe and hazardous weather. Established in 1964, NSSL is part of NOAA Research and the only federally supported laboratory focused on severe weather. The Lab's scientists and staff explore new ways to improve 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.