



National Severe Storms Laboratory

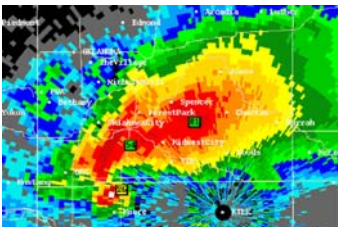
Studying severe storms in the heart of "tornado alley"



Experimental weather balloons are used to study the electrical structure of thunderstorms.



NSSL is dedicated to the study of all types of severe weather, including lightning.



NWS forecasters track storms using NSSL technology.



The first of many strong tornadoes strikes central Oklahoma on May 3, 1999.

What does the National Severe Storms Laboratory do for the nation?

The National Severe Storms Laboratory (NSSL) leads the way in investigations of all aspects of severe and hazardous weather. Headquartered in Norman, Oklahoma, NSSL researchers work in close partnership with the National Weather Service (NWS) and are dedicated to improving the lead time and accuracy of 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 NWS forecasters and Federal, university and private sector partners.

Recent Accomplishments:

- 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. **Payoffs: This information is helping 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 NWS 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, predict the likelihood and size of hail, and identify and track storms. This information is presented in an easy-to-use display that includes tables, graphs, and integration tools. **Payoffs: Several of these tools have already been integrated into NWS systems and are contributing to improved warning lead times with fewer false alarms.**
- NSSL worked directly with NWS to complete a significant upgrade to the NEXRAD WSR-88D Doppler radar. The Open Radar Product Generator's software and hardware were redesigned using open systems concepts to provide a system that is now capable of growing and adapting to meet ever-increasing user demands. NSSL was responsible for the design and implementation of the system software architecture. **Payoffs: The Open Radar Product Generator's redesign allows new science and technology to be transferred more quickly to NWS operations and dramatically lowers maintenance and future upgrade costs.**

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