

# Cooperative Institute for Mesoscale Meteorological Studies

## STRATEGIC PLAN SUMMARY

### Vision

*A center of research leadership and excellence in mesoscale meteorology, weather radar, regional climate, and forecast and warning improvement, fostering strong government/university collaborations*

### Mission

*To promote collaborative research between NOAA and OU scientists on problems of mutual interest to improve basic understanding of mesoscale meteorological phenomena, weather radar, and regional climate to help produce better forecasts and warnings that save lives and property*

## CIMMS GOALS

### Mesoscale Meteorology

*Perform fundamental research on mesoscale and convective weather processes, supporting NOAA's goal to serve society's need for weather and water information*

### Weather Radar Research and Applications

*Perform research on weather surveillance radar and develop prototype economical applications and technologies for optimal operational deployment, supporting NOAA's goal to serve society's need for weather and water information*

### Forecast and Warning Improvements

*Transfer research findings into knowledge, technology, and training that can be used to improve forecasts and warnings, supporting NOAA's goal to serve society's need for weather and water information*

### Regional Climate and Climate Change

*Perform research to improve understanding of the relationships between mesoscale processes and regional climate and develop techniques to monitor climate and detect its changes, supporting NOAA's goal to understand climate variability and change to enhance society's ability to plan and respond*

### Societal and Economic Impacts

*Assess the impact to society and the economy of storm systems and regional climate variability and make that information available to policy makers and the public and private sectors, supporting NOAA's cross-cutting priority to ensure sound, state-of-the-art research, including a strong economic and social science capability*

### Outreach and Education

*Support outreach and education programs to educate, engage, advise and inform the public, teachers and students, supporting NOAA's cross-cutting priority to promote environmental literacy*

### Administration and Development

*Provide an optimal framework with which to manage the financial, technological, physical, and personnel resources needed to support a world-class research staff, supporting NOAA's cross-cutting priority to develop, value and sustain a world-class workforce*

## CIMMS PROGRAM OUTCOMES

Improved understanding of the structure and behavior of deep convection such as supercell storms, tornadoes, damaging straight-line winds, large hail, and heavy snow

Improved understanding of the feedbacks between cloud microphysical, radiative transfer, and dynamical processes

Improved understanding of mesoscale dynamics and storm scale data assimilation

Improved quantitative precipitation estimation in the near real-time for watershed management and for better flash flood detection, warnings, and forecasts, including use of prototype dual polarization radar data

Feasibility research and development to explore the capability of phased array radar for weather surveillance

Expanded WSR-88D network capabilities to extend the network's useful life well into the first quarter of the century

Improved radar input into severe thunderstorm and tornado warnings

New and innovative applications, methods and technologies that streamline forecast and warning decision processes and practices and assist forecasters in the detection, diagnosis, and prediction of severe weather

Quick and successful science and technology transfer into NWS operations

Forecasters trained in the latest warning decision making techniques

New and innovative ways to disseminate and display weather information for the general public

New insights into the complex land-atmosphere interactions over the agriculturally important U.S. Midwest

Improved understanding of the influence of North Atlantic cyclones on the weather and climate of surrounding areas

Improved understanding of the potential feedback between the atmosphere and the land/ocean/cryosphere

New insights into the potential links between climate variability and severe storm frequency and severity

Climate indices and indicators that provide early detection of important climate changes in the U.S.

Socioeconomic impact assessments of severe weather such as tornadoes and hurricanes

Monthly and seasonal residential natural gas consumption indices east of the Rocky Mountains

Improved forecasts of unusual climate anomaly occurrences to mitigate possible social and economic losses

Energy usage and agricultural applications based on summertime temperature extremes analysis

Public awareness of mesoscale meteorological phenomena and their potential impact on people's lives

Enlightened college interns guided by mentors through unique summer research projects

K-12 teachers in Oklahoma and Kansas equipped with valuable ideas and resources for teaching weather and climate concepts

Diverse, outstanding graduate students

