The University of Oklahoma Cooperative Institute for Mesoscale Meteorological Studies provides opportunities to connect scientific and technical resources at OU and NOAA, creating a center of research excellence in meteorological phenomena, regional climate studies, societal impact research and related areas.

CIMMS-supported scientists and associates have flown in research aircraft alongside severe thunderstorms and provided 3D images of storms for research. They have traveled internationally studying storm modeling systems to create better algorithms. They work alongside emergency managers and broadcast meteorologists to refine how uncertainty information is generated and disseminated. They work with NOAA's GOES-R Satellite series, improving lightning forecasting capabilities.

CIMMS research covers many weather related fields from radar research to climate variability. CIMMS' researchers and associates have been involved in field projects throughout the continental United States and Portugal. Established in 1978, CIMMS is the largest and second oldest research center at OU. CIMMS is one of 16 NOAA Cooperative Institutes located in 23 states and the District of Columbia.

CIMMS Researcher Erik Rasmussen releases a weather balloon with instruments attached to it. The instruments measure elements of the atmosphere like humidity and temperature. (Photo by Matthew Flournoy/OU CIMMS)

Above: During VORTEX-SE on NOAA's “Hurricane Hunter” aircraft — NOAA P3 Flight Director Jessica Williams (left) set the course of the flight with NOAA National Severe Storms Laboratory Researcher Conrad Ziegler (middle) and CIMMS Radar Scientist Kim Elmore (right). It was the first time data was collected on several supercell thunderstorms from above and below — a better understanding of how tornadoes form. (Photo by Morgan Levey/Medill)

Left: During the Multi-Radar Multi-Sensor Hydrometeorology Testbed - Hydro experiment, forecasters and hydrologists from the National Weather Service work with National Severe Storms Laboratory and CIMMS researchers to improve tools for the prediction and warning of flash flooding. (Photo by James Murnan/NOAA)
RESEARCH & INVOLVEMENT

Stormscale and Mesoscale Modeling Research and Development: CIMMS Researchers conduct experiments of the products in NOAA’s Hazardous Weather Testbed. (Photo by James Murnan/NOAA)

Forecast Improvements, Research and Development: CIMMS researchers with NOAA’s Warning Decision Training Division on the left teach the Weather Event Simulator, similar to a flight simulator, used to train NOAA National Weather Service forecasters, to forecasters and students in Japan. CIMMS’ focus to better forecasting includes collaboration with NOAA’s National Severe Storms Laboratory to provide more lead time for severe weather warnings.

Weather Radar Research and Development: CIMMS researchers collaborate to develop new radar techniques and algorithms like the one below. CLEAN-AP was developed to mitigate “contamination” — like ground objects — from impacting what the radar reports to forecasters. Contamination can look like storms but they are just obstructions to the radar’s view and contaminate data.

Social Science: During an experiment in the photo above, broadcasters perform typical duties in a simulated television studio environment as they receive experimental probabilistic advisories and warnings during displaced real-time events. CIMMS and NSSL researchers study how broadcast meteorologists interpret, use and communicate probabilistic information to improve the tool. (Photo by James Murnan/NOAA)

CLEAN-AP at the Met Office’s Wardon Hill radar

Before CLEAN-AP

After CLEAN-AP