CIMMS provides a mechanism to link the scientific and technical resources of OU and NOAA to create a center of research excellence in mesoscale meteorology, regional climate studies, and related subject areas.

CIMMS-supported scientists and students conduct research in mesoscale dynamics, radar research, development, and analysis, atmospheric electricity, severe storms, cloud microphysics, and boundary layer studies, with increasing emphasis in recent years on the climatic effects of/controls on mesoscale processes, the socioeconomic impact of such phenomena, and climate change monitoring and detection.

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.

**Research Themes**

CIMMS concentrates its research and outreach efforts and resources on the following principal themes:

- Weather radar research and development
- Stormscale and mesoscale modeling research and development
- Forecast improvements research and development
- Impacts of climate change related to extreme weather events
- Social and socioeconomic impacts of high impact weather systems

CIMMS promotes cooperation and collaboration on problems of mutual interest among OU research scientists, students, the NOAA Office of Oceanic and Atmospheric Research and the NWS Training Center located in Kansas City, Missouri. At the center in Kansas City, one CIMMS researcher tested tools available to forecasters with color deficiency.

CIMMS researchers with NOAA’s Warning Decision Training Division participated in the International Symposium on Earth-Science Challenges in Japan in 2017 and taught the Weather Event Simulator tool to students. The simulator, a tool similar to a flight simulator, used to train NOAA National Weather Service forecasters.
RESEARCH & INVOLVEMENT

Weather Radar Research and Development
- WSR-88D Dual-Polarimetric algorithm and application development
- Multi-Function Phased Array Radar
- Multi-Radar Multi-Sensor System
- Advances in radar technology
- WDSS-II - Warning Decision Support System – Integrated Information.
- Advanced Technology Demonstrator planar phased array radar

Stormscale and Mesoscale Modeling Research and Development
- Numerical and ensemble modeling
- Data assimilation
- EnKF - Ensemble Kalman Filter Research
- Stormscale, mesoscale, and synoptic processes associated with hazardous weather
- Hydrologic modeling
- Storm electrification and lightning
- Warn-on-Forecast.

Forecast Improvements Research and Development
- NOAA Hazardous Weather Testbed – Experimental Forecasting Program and Experimental Warning Program
- Warning Decision Training Division training simulations and involvement
- Coastal and Inland Flooding Observation and Warning
- FACETs - Forecasting a Continuum of Environmental Threats

Social Science
- Warning process evolution
- Value of tornado warnings and watches
- Risk communication
- Evolution of forecaster performance
- Geographic location tornado risk perception
- Feedback of broadcast meteorologists and tools
- Probabilistic Hazards Information Experiment
- SCIPP - Southern Climate Impacts Planning Program