

Phased Array Radar and Meteorological Studies

CIMMS scientists within the Phased Array Radar and Meteorological Studies Team (PAMST) conduct studies to investigate scientific and operational advantages provided by rapid-scan radar data. Using data from both the National Weather Radar Testbed SPY-1A Phased Array Radar (PAR, decommissioned in 2016) and dual-polarization KOUN WSR-88D radar, which is operated in sector scan mode to collect rapid-scan data that can be used as a proxy for data obtained from a high temporal resolution phased array radar, PAMST scientists lead studies to demonstrate the ability of one- to two-minute volume updates to better detect severe weather trends indicative of hazards, capture rapid transitions in storm type and threats, clarify complex storm interactions related to tornadogenesis, and improve the performance of hydrologic models. The advantages of rapid-scan radar data to forecast and warning operations is also evaluated through frequent interactions with Emergency Managers and National Weather Service forecasters. For example, through a multi-year project referred to as the Phased Array Radar Innovative Sensing Experiment (PARISE), PAMST scientists worked closely with operational forecasters who traveled to the National Weather Center from NWS offices across the country to evaluate the benefits of rapid-scan radar data and products in a real-time, operational setting. This work to assess the advantages provided by a rapid-scan, phased-array radar will continue in the coming years with an evaluation of data collected using the Advanced Technology Demonstrator – the first ever dual-polarization, phased-array weather radar antenna to operate at S-band frequencies, which replaced the single-polarization SPY-1A antenna in July of 2018.

For further information please contact Dr. Terry Schuur (schuur@ou.edu)

Team Members

Jami Boettcher

Don Burgess

Charles Kuster

Dr. Terry Schuur

Dr. Yixin “Berry” Wen

