The Doppler On Wheels and CSWR Surface Observational Facility

Joshua Wurman
Center for Severe Weather Research, USA

Dixon, Michael (National Center for Atmospheric Research, Boulder, U.S.A)
Loew, Eric (National Center for Atmospheric Research, Boulder, U.S.A)
Kosiba, Karen (Center for Severe Weather Research, Boulder, U.S.A)

E-mail: jwurman@cswr.org

The Doppler On Wheels (DOW) mobile radar facility consists of three radar systems. Two are dual-polarization, dual-frequency fast scanning systems, and one is a multiple-beam multiple-frequency rapid-scan passive phased array system capable of volumetric scanning at 7 s intervals. The dual-polarization systems have recently been upgraded using Pentek processors and record full time series in all channels. The new signal processing system is capable of very short pulsing and gating, and high prf with stagger, ideally suited for fine-scale and quickly-scanned DOW observations of sometimes violent and high gradient phenomena. Full time series are recorded for flexibility in post-processing of conventional radar moments, varying clutter filtering, and oversampling.

During the past few years, DOWs have been deployed recently for the ASCII snow study, deployed at 3,000 m AGL at Battle Pass, Wyoming, for fire-scar flooding observations at Bristol Head, Colorado, 3,780 m ASL, and in Oahu, Hawaii, New Hampshire, Illinois, New York, and elsewhere for educational purposes, as well as in the ROTATE tornado structure study, and to the landfall of Hurricane Isaac (2012). DOWs will play a central role in the upcoming Plains Elevated Convection At Night (PECAN) project in 2015, and have been requested for the proposed OLYMPEX, SNOWIE, CODES, and RELAMPAGO programs.