Dual-Polarization X-Band Radar Observations of Tropical Convection During HERO

Michael Bell
University of Hawaii, USA

E-mail: mmbell@hawaii.edu

A National Science Foundation Educational Deployment of a Doppler on Wheels radar called the "Hawaiian Educational Radar Opportunity" (HERO) was conducted on Oahu from 21 October to 13 November, 2013. This was the first ever deployment of a dual-polarization X-band research radar in Hawaii. A unique high-resolution dataset of tropical convection was collected during 16 intensive observing periods through a collaborative effort between undergraduate and graduate students at the University of Hawaii at Manoa and the Honolulu National Weather Service.

A summary of the HERO project and highlights of the most interesting tropical rain and cloud observations will be presented. The radar observations include developing cumulus clouds, deep convective thunderstorms, a variety of trade wind showers, and a widespread heavy rain event associated with a cold frontal passage. Detailed cloud and precipitation structures down to 15 meter resolution, unique dual-polarization signatures, and their implications for the microphysics of tropical convection will be discussed.