POLARIMETRIC, X-BAND RADAR NETWORK: SIMULATION RESULTS AND EARLY DATA EVALUATION

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ABSTRACT

"HawkEyes" is a network of mobile, polarimetric, X-band radars that provides overlapping view of small watersheds. Hawkeyes is expected to supply superior precipitation data for detailed hydrologic studies. Radars operating at X-band can provide high spatial and temporal resolution data, but need to be corrected for attenuation of radar signals by the intervening rainfall. To evaluate performance of existing attenuation correction algorithms in a networked environment, the authors have developed a full radar network simulator. The simulator uses the T-matrix approach, and provides polarimetric variables for individual radars in the Hawkeyes network. Simulation results are used to investigate an optimal configuration for the network. Next steps include verification of simulation results with data coming from an operational network of rain gauges, S-band radars, in-situ optical disdrometers, and profilers. In this work, authors present results from the radar network simulator, and compare them with initial data obtained from the HawkEyes network. Emphasis isplaced on attenuation correction algorithms and strategies.