High-resolution X-Band networked rainfall morphology

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ARM maintains a network of three X-Band radars in the southern great plains of Oklahoma that are primarily used for dynamical reconstruction of precipitating cloud systems. Recent work has shown that specific attenuation retrievals from X-Band systems, even under moderate to heavy precipitating systems can be used for rainfall retrieval. Furthermore, employing a network of systems and novel mesh mapping techniques allows single points of failure to be overcome. This presentation outlines the network technical details, open source software for phase processing, attenuation retrieval and multi-radar Cartesian mesh mapping and compares the morphology of the resultant rainfall fields to that retrieved from courser sampling systems such as the ARM C-Band system and nearby WSR-88D S-Band system, as well as to in-situ sensors such as gauges and distrometers.