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Three-dimensional mosaicking of the South Korean radar network

Marc Berenguer (1), Daniel Sempere-Torres (1), and GyuWon Lee (2)

(1) Centre de Recerca Aplicada en Hidrometeorologia, Universitat Politècnica de Catalunya, Barcelona, Spain (marc.berenguer@crahi.upc.edu), (2) Dept. of Astronomy and Atmospheric Sciences & Center for Atmospheric REmote sensing (CARE). Kyungopook National University, Daegu, South Korea

Dense radar networks offer the possibility of improved Quantitative Precipitation Estimation thanks to the additional information collected in the overlapping areas, which allows mitigating errors associated with the Vertical Profile of Reflectivity or path attenuation by intense rain. With this aim, Roca-Sancho et al. (2014) proposed a technique to generate 3-D reflectivity mosaics from the multiple radars of a network. The technique is based on an inverse method that simulates the radar sampling of the atmosphere considering the characteristics (location, frequency and scanning protocol) of each individual radar.
This technique has been applied to mosaic the observations of the radar network of South Korea (composed of 14 S-band radars), and integrate the observations of the small X-band network which to be installed near Seoul in the framework of a project funded by the Korea Agency for Infrastructure Technology Advancement (KAIA).
The evaluation of the generated 3-D mosaics has been done by comparison with point measurements (i.e. rain gauges and disdrometers) and with the observations of independent radars.

Reference:
Roca-Sancho, J., M. Berenguer, and D. Sempere-Torres (2014), An inverse method to retrieve 3D radar reflectivity composites, Journal of Hydrology, 519, 947-965, doi: 10.1016/j.jhydrol.2014.07.039.