Quality characterization of reflectivity and radial velocity observed by Indian Doppler weather radars

Amar J. Kasimahanthi, Devajyoti Dutta, Preveen K. Devarajan, John P. George, and Ekkattil N. Rajagopal
Journal of applied remote sensing, 11(3), 036026

Abstract: Static and dynamic quality index (QI) maps are generated as the base products of Doppler weather radar (DWR). The quality characterization of radar reflectivity and radial velocity in terms of their QI is presented for the operational DWRs in India. A static composite QI has been generated using the maximum method. These static maps enable the detection of a low QI region in advance for the Indian radars. The QI of reflectivity is above 0.5 in all regions except in the regions of blockage, high attenuation due to rain, and beam broadening, whereas the QI of radial velocity is good for values <0.8 except for the ambiguous region and the region affected by nonmeteorological echoes. This shall help in the quick preprocessing of radar observations, since the regions of low QI can be masked. A sample case of gridded radar rainfall is presented by employing the QI scheme.