Verification of a weather radar derived surface precipitation type product

Verònica Vidal
University of Barcelona, Dep. Astronomy and Meteorology, Barcelona, Spain
Bech, Joan (University of Barcelona, Dep. Astronomy and Meteorology, Barcelona, Spain)
Ortiz, Joana Aina (University of Barcelona, Dep. Astronomy and Meteorology, Barcelona, Spain / Catalonia Institute for Energy Research, Sant Adrià de Besós, Spain)
Pineda, Nicolau (Meteorological Service of Catalonia, Barcelona, Spain)
Veciana, Roger (Meteorological Service of Catalonia, Barcelona, Spain)

E-mail: joan.bech@ub.edu

Single-polarization weather radar precipitation estimates present an inherent ambiguity regarding the observed hydrometeor type. In the past, different methodologies have been developed to overcome this limitation. We used as starting point earlier studies carried out in northern Europe which combined single polarization weather radar observations with surface analysis of temperature and relative humidity data obtained from automatic observations to derive a surface precipitation type (SPT) product (Koistinnen and Saltikoff 1998; Gjertsen and Odegaard 2005). The methodology has been implemented at the Meteorological Service of Catalonia using a network of four C-band Doppler weather radars and dense network of 165 automated surface observation stations covering a complex topography area (NE Spain), providing operational products to support cold season weather surveillance (Bech et al 2014). The verification analysis presented considers a four year period (2010-2013) and is focused on two different aspects. Firstly, a verification of the surface temperature and relative humidity analyses is performed. This is accomplished with the comparison of independent data sets obtained from a different observational network. Secondly, a comparison of actual surface precipitation type observations against the SPT product. Results include the analysis of contingency tables and a variety of verification scores to assess the potential and limitations of using the SPT product, particularly to assess road weather conditions.

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