2.21 SINGLE- AND DUAL- POLARIZATION RADAR HAIL DETECTION AT THE BOHEMIA HAILSTORMS ON 23 MAY 2016

K. SKRIPNIKOVA[1], D. REZACOVA[1]

[1] Institute of Atmospheric Physics Czech Academy of Sciences, Bocni II/1401, Prague 4, Czech Republic
skripka@ufa.cas.cz

Comparative analysis of radar based hail detection methods is presented which uses C-band polarimetric radar data from a stormy day in 2016. Hail detection results obtained by using single and dual polarization radar data are compared.

Severe hailstorms occurred on 23 May 2016 and produced damaging hail at several Czech locations including Prague. The hailstorm cells were propagating through the region of Bohemia from the south to the north. Several ground truth records from the hailstorms were accepted in the ESWD. They confirm the occurrence of large hailstones, and thick hailstone layers at several locations.

Former hail detection algorithms using single polarization radar reflectivity and atmospheric sounding data were computed for the area of hailstorms occurrence. At present, there are two dual-polarization radars operated by the Czech Hydrometeorological Institute in Czechia since the year 2015. Polarimetric radar measurements give more possibilities in hydrometeor type identification. Therefore, the performance of former hail detection was compared with the hydrometeor classification using dual polarimetric radar data. Hail size reports on the ground are related to the polarimetric radar signatures. Finally the contribution of dual-polarimetric data to the detection is discussed.