



## **Comparison between radar estimations and rain gauge precipitations in the Moldavian Plateau (Romania)**

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Heavy rainfall events have produced significant damages and casualties in the Moldavian Plateau (Romania) in the last decades. Such phenomena are characterized by large spatial and temporal variations, and the forecast of their occurrence is thus very challenging. This study aims to compare the radar estimations and the rain gauge measurements, in order to improve the quantitative precipitation estimation (QPE) in the area of interest. The research uses data from the WSR-98D S-band Doppler radar located in Bârnova, and from rain gauges within weather stations run by Meteo Romania (Romanian National Meteorological Administration). We have focused on daily (24 h) accumulations registered at weather stations, and the output sustains the radar calibration, fostering the hydrological modeling, including flash flood forecast. The differences between R and G were investigated based on two objectives functions -the ratio R/G (BIAS) and the Root Mean Square Factor (RMSf)- while the correlations used the Pearson scores. Considerable spatial distinctions between areas with good radar accuracy for QPE and perimeters where radar is not capable to provide robust information have been emphasized during the investigations. The validation aimed to predict the rain gauge amounts in certain spots by using the radar information and resulted adjustment parameters. It has been demonstrated that the Bârnova radar data are reliable within approx. 150 km radius, and the comparison with rain gauge measurements can foster consistently the QPE accuracy in the area. This research was completed in the framework of the EU FP6 Project HYDRATE (Hydrometeorological data resources and technologies for effective flash flood forecasting), Contract no: 037024, 2006-2009.