



On the use of radar reflectivity for estimation of areal reduction factor

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To estimate the rainfall fields over an entire basin raingauge pointwise measurements need to be interpolated and the small-scale variability of rainfall fields can lead to biases on the rain rate estimation over an entire basin above all for small or medium size mountainous and urban catchments.

For these reasons several raingauges should be installed in different places in order to determine the spatial rainfall distribution due to the evolution of the natural phenomena over the selected area.

In the technical applications a lot of empirical relations are used in order to reduce heavy point rainfall measurements for vast areas.

In this work we investigate on the areal reduction factor by the use of radar reflectivity maps collected with the Polar 55C, a C-band Doppler dual polarized coherent weather radar with polarization agility and with a 0.9° beamwidth.

The radar rainfall estimations, over an area of 1 km^2 , were integrated for heavy rainfall with an upscaling process, until to have rainfall estimation over an area of 900 km^2 .

The results obtained for several rainfall events by the use this technique are compared with the most important relations of the areal reduction factor in literature.