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Comparison of rainfall thresholds using radar and raingauge network

M. Rianna, V. Montesarchio, F. Lombardo, F. Russo, and F. Napolitano
"Sapienza" Università di Roma, Idraulica Trasporti e Strade, Roma, Italy (maura.rianna@uniroma1.it)

Critical rainfall thresholds, that specify the precipitation amount for a given duration that generates a critical discharge in a given cross section, are evaluated using radar data and gauging stations. The methodology used in this work starts from the detection of a a critical section and the relative critical discharge. Then an hydrological simulation is performed; thus the river basin is outlined at the critical cross section with a rainfall/runoff model, that is twice opportunely calibrated using radar data and gauging stations respectively. After that the inverse hydrologic problem is iteratively solved to identify, for a given duration, the cumulative rainfall correspondent to the critical discharge. Finally, a reliability analysis on the existence of any missed alarms or false alarms for the case study is done using available and overlapping events both from radar and rain gauge data. The study is focused on Mignone river basin, 560 km2, located in Lazio Region, Italy.