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Giant rain gauge: description and analysis of rainfall events

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Precipitation is a key input in hydrology, where it is pivotal for achieving appropriate modelling and simulation. The measurement of rainfall intensities and cumulative values is provided by the raingauge, which is the standard instrument providing direct observations. Though the small dimension of the orifice allows raingauges to be installed practically anywhere, it is also cause of errors due to the splash and wind effects. Recently, an experimental apparatus for observing rainfall called giant rain gauge was built; giant rain gauge is characterized by a collecting surface of 100 m2, and it allows to investigate the role of the orifice dimension. Here the instrument is presented in detail and preliminary results are shown through the analysis of observed rainfall events. Results suggest that there are significant differences between the standard and proposed rain gauges. In particular, major discrepancies are evident for low time aggregation scale and for high rainfall intensity values.