Geophysical Research Abstracts
Vol. 12, EGU2010-2659, 2010
EGU General Assembly 2010

High resolution rainfall measurements around a high rise building

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A number of disdrometers (acoustic rain gauge) has been placed around a high rise building on a place where variation in spatial distribution of precipitation is expected, to show the advantage of high resolution rainfall measurements in a urban area.
The standard recommendation for the placement of a rain gauge is that the gauge is positioned at a distance corresponding to two to four times the height of any nearby obstruction to obtain a measurement that is representative for the surrounding area. In an urban area it is almost impossible to find a location that suits this recommendation. Rain measurements in urban area with a high spatial resolution are desired, to obtain a better understanding of urban hydrology, but costs may be prohibitive.
A low cost disdrometer has been developed to make it affordable to perform rain measurements with a very high spatial and temporal resolution. The disdrometer is tested around a high rise building on the Delft University of Technology campus.
The faculty of Electrical Engineering, Mathematics and Computer Science (EWI) on the campus of Delft University of Technology consists of a high rise building of 90 meters and a low rise building of 15 meters. Sensors are placed on the low rise building to measure the impact of the high rise building on the spatial distribution of precipitation.
In addition to the disdrometer, two other methods are used to measure precipitation differences around the high rise building. Tipping bucket rain gauges have been placed on two elevator shaft housings on the low rise building, of which one is situated in the shadow of the high rise building. Simultaneously, runoff from the elevator shafts is measured. A comparison of the different methods will be presented.