



Rainfall estimation using microwave links. Results from an experimental setup in Luxembourg

Fabrizio Fenicia, Patrick Matgen, and Laurent Pfister
CRP - Gabriel Lippmann, Belvaux, Luxembourg

Microwave links represent a valid alternative to traditional rainfall estimation methods. They are commonly used in mobile phone communication, and they constitute built-in widely distributed networks. Due to their ability of providing high temporal and spatial resolution measurements, their use is particularly suitable in urban settings. We here show results from an experimental setup in Luxembourg City, where two dual frequency links have been installed. The links cover a distance of about 4km, and measure power attenuation at 1 min. timestep. The links have been equipped with several recording raingauges, which measure rainfall in real-time communicating through a wireless connection. This set-up has been used to analyze in detail the mapping between attenuation and rainfall intensity, and gain insights into the potential accuracy of these instruments. In addition, we investigated the relation between rainfall and discharge response of the urban area of Luxembourg, which shows the potential utility of high frequency rainfall measurements for urban environments.