

7.22 RAINFALL MAPS FROM COMMERCIAL MICROWAVE LINKS (CMLS) AND URBAN FLOOD PREDICTION: PILOT TESTS IN SEVERAL AFRICAN CITIES

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Demographic pressure, land use changes and possible increase in extreme events intensify the vulnerability to floods in African cities. In this context access to information on rainfall extremes and rainfall patterns is essential to understand and possibly predict urban flooding in West Africa. The lack of weather radar information and the sparsity of the gauges network in these regions make rainfall estimation through Commercial Microwave links (CML) an attractive solution. Rainfall estimation based on measuring the attenuation of microwave signal between mobile network antennas was illustrated by many studies in Europe and Israel. Our team and partners already demonstrated in Burkina Faso that CML could provide effective QPE on heavy convective rainfall as encountered in West Africa. Following these early success several pilot sites were set up in Central and West Africa to test CML base estimation for urban flood analysis and prediction. The quantitative evaluation of these QPE will be presented. We will also compare several interpolation methods used to derive the rainfall maps from the CML network. We will discuss the propagation of the CML based QPE uncertainty in the hydrological urban model used in these studies.