Hydrologic simulations using rainfall radar data for flood forecasting in Marikina River Basin, Philippines

C. Abon, M. Heistermann, D. Kneis, and A. Bronstert
Institute of Earth and Environmental Sciences, University of Potsdam, Germany

Improving flood preparedness through early warning systems is a necessity for countries like the Philippines where flooding is frequent. Particularly for river basins that host massive settlements such as the Marikina River Basin (MRB), an early flood forecast can potentially reduce the hazards associated with floods. The MRB has an area of 535 km2, and for huge typhoons such as Ketsana in 2009 the reaction time is four to five hours. For an early warning system, a hydrological model is implemented which is capable of producing flood forecasts which can give a lead within the reaction time of the basin. The model uses a flexible modeling framework—Eco-Hydrological Simulation Environment(ECHSE), in order to consider specific hydrological processes in the catchment. Beyond, we will evaluate the potential of rainfall radar data as precipitation forcing—a novel application in the Philippines as a new network of C- and S-band radars is just being implemented. For this purpose, the new Open-Source radar processing library wradlib will be employed.