Rainfall measurement from satellite and cellular phone networks : complementary information for the monitoring of rainfall over large river basins in Africa

Marielle Gosset, Claire Cassé, Frederic Cazenave, François Zougmore, Christophe Peugeot.

Accurate rainfall estimation is crucial in hydrology. In Africa (and world wide) the density of operationnal gauges network is decreasing and alternative/complementary means of measuring rainfall need to be assessed. This paper will review the state of the art satellite rainfall products and their validation over West Africa. Some results on the use of satellite rainfall products for flood forecating, focusing on the Niger River in Niamey, will be presented.

Finally, we will introduce an innovative and cost-effective method to measure rainfall : it is based on the attenuation of microwave signal by rainfall as measured between cell phone towers. The first quantitative test of the method in Burkina Faso will be presented and the potential interest for high resolution rainfall monitoring over african river basin discussed.