

## EVALUATION OF DISTRIBUTED PRECIPITATION WITHIN KATARI BASIN USING SATELLITE BASED PRODUCTS

Jhonatan E. Ureña, Andrés G. Vallejos, Oliver C. Saavedra y Ana C. Escalera

### ABSTRACT

Aerial precipitation data is an important variable to run distributed hydrological models. Due to the limitation in the location and quantity of gauge stations, it is necessary to generate precipitation data based in Satellite-Based-Precipitation. In this paper it was used three different products: GSMaP, CHIRPS and GMET, each one with its own spatial and temporal resolution. The study area is the Katari basin, located in the Bolivian Altiplano, presents a variation in the altitude between 3 800 and 5 200 m.a.s.l. The selected evaluation period was 2000 to 2016, it has been realized a comparative analysis at sub basin level. In this task there were two levels of comparison: 1) among the original precipitation products (GSMaP, CHIRPS y SENAMHI) and a comparison between the developed products GS-Katari (corrected by the iterative adjustment) and GMET (a grid product developed stochastically). Both GS-Katari and GMET used the observation rain gauge network so-called SENAMHI as control data set. At first level, GSMaP and CHIRPS showed an overestimation of the precipitation intensities comparing with ground data, except at the sub basin near Titicaca Lake. Then, it was carried out five adjustment iterations to obtain the combined product GS-Katari. This product showed precipitation data that tends to slightly underestimate in ranges less than 10 percent comparing with ground data. At second level, GS-Katari and GMET were compared and it was checked that GMET overestimate comparing with the data from the gauge stations and there are high underestimates near the Titicaca Lake. This paper attempts to increase the spatial and temporal resolution of precipitation data to be used as input to hydrological models and then wiser water resource management of the basin.

**Keywords:** Basin Katari, GSMaP, CHIRPS, GMET, Satellite Precipitation Products.

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