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Validation of product TRMM 3B42 in central Mexico

Roxana Ivonne Fonseca Rodriguez and Jose Agustin Breña Naranjo
UNAM, Institute of Engineering, Hydraulics, Mexico (roxana.fonseca.rdz@gmail.com)

The Lerma-Santiago-Pacifico basin (LSPB) is one of the most important river basins in Mexico. It supplies water to more than a third of the total population of the country, including Mexico City and Guadalajara. Therefore, it is important to monitor and quantify precipitation in this region. The LSPB has a monitoring network of 37 automatic rain gauges, however such number is not enough for the optimal monitoring of a basin of that size (54,000 km2). This work aims at exploring new sources to monitoring rainfall in the region. As a first step, rain-gauge data from the 37 LSPB-gauges were compared with satellite-based monthly data (TRMM-3B42 product) from 2008 to 2015. The comparison/validation between both datasets was made through the RMSE and the Pearson correlation coefficient. The stations that had more than 85% data availability showed correlations ranging between 0.7 and 0.8. The maximum RMSE found was 170 mm (monthly), with respect to the raingauge while the minimum was Station "Alzate" with an RMSE of 45 mm (monthly). The average error was $\sim$50 mm (monthly) for all stations that were analyzed. We preliminary conclude that the use of TRMM-3B42 to expand monthly rainfall data to ungauged regions is a viable alternative for water balance estimates in LSPB.