

Temporal and spatial evaluation of satellite rainfall estimates over different regions in Latin-America

Baez-Villanueva, Oscar Manuel

Zambrano-Bigiarini, Mauricio

Ribbe, Lars

Nauditt, Alexandra

Giraldo-Osorio, Juan Diego

Thinh, Nguyen Xuan

© 2018 Elsevier B.V. In developing countries, an accurate representation of the spatio-temporal variability of rainfall is currently severely limited, therefore, satellite-based rainfall estimates (SREs) are promising alternatives. In this work, six state-of-the-art SREs (TRMM 3B42v7, TRMM 3B42RT, CHIRPSv2, CMORPHv1, PERSIANN-CDR, and MSWEPv2) are evaluated over three different basins in Latin-America, using a point-to-pixel comparison at daily, monthly, and seasonal timescales. Three continuous (root mean squared error, modified Kling-Gupta efficiency, and percent bias) and three categorical (probability of detection, false alarm ratio, and frequency bias) indices are used to evaluate the performance of the different SREs, and to assess if the upscaling procedure used, in CHIRPSv2 and MSWEPv2, to enable a consistent point-to-pixel comparison affects the evaluation of the SREs performance at different time scales. Our results show that for Paraiba do Sul in Brazil, MSWEPv2 presented th