Supplement of

Remote sensing-aided rainfall–runoff modeling in the tropics of Costa Rica

Saúl Arciniega-Esparza et al.

Correspondence to: Saúl Arciniega-Esparza (sarciniegae@comunidad.unam.mx)

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Supplement

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Figure S1. Annual correlations of a) precipitation from CHIRPS and streamflow, b) precipitation from bias-corrected CHIRPS and streamflow, c) precipitation from CHIRPS and streamflow plus actual evapotranspiration, and d) precipitation from bias-corrected CHIRPS and streamflow plus actual evapotranspiration. Data corresponds to a single time series merged using the 13 observed streamflow time series.

Figure S2. Statistics of CHIRPS and corrected CHIRPS (CHIRPSc) performance with respect to ground precipitation. a) computed normalized MAE at daily scale, b) computed normalized MAE at monthly scale, c) computed normalized MAE at annual scale and d) confusion matrix of days with rain and days without rain, e) False alarm ratio between ground precipitation and CHIRPS, f) Probability of detection, g) Threat Score. MAE was normalized by the mean of precipitation.

Figure S3. Long-term water balance using the Budyko curve, where the left panel corresponds to the aridity index and evaporative index computed from the bias-corrected precipitation and AET from MODIS. The right panel shows the computed indices using the HYPE simulations with the configuration M4.

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**Introduction**

This supplementary material contains additional results for the precipitation bias correction. Figures S1 and S2 show the errors obtained by the bias correction technique at different time scales and the comparison of annual streamflow and precipitation.

Tables show detailed model performance results and simulated hydrological signatures for the monitored catchments.
Figure S1. Annual correlations of a) precipitation from CHIRPS and streamflow, b) precipitation from bias-corrected CHIRPS and streamflow, c) precipitation from CHIRPS and streamflow plus actual evapotranspiration, and d) precipitation from bias-corrected CHIRPS and streamflow plus actual evapotranspiration. Data corresponds to a single time series merged using the 13 observed streamflow time series.
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