Characteristics of precipitation in the Santarém study region

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The eastern Amazon suffers seasonal drought and is thought to be susceptible to conversion from forest to savannah depending were drought to persist for some seasons, even if there were no strong deforestation pressure from encroaching intensive agriculture. This region is witnessing rapid introduction of intensive rice and soy agriculture. The climate is such that this area is a candidate for savannah to replace rain forest should the duration of the dry season increase. The relatively few surface climate stations in the Amazon play an important role in defining the meaning of remotely sensed data and in constraining large-scale models. The aims of this work are a) to introduce a new detailed precipitation data set for the region of the eastern Amazon basin near the Tapajós-Amazon river confluence; and b) to examine interannual, seasonal, diurnal, and spatial precipitation patterns in the region. We document the extent to which river breezes or other mesoscale circulations may introduce a bias in the regional rainfall climate record using the new data set with additional gauge data from the operational network, the CPTEC reanalysis data, and the CMORPH microwave rain rate data product from NOAA.

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