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Poster.4: . # ASSESSING PBL PARAMETERIZATION SCHEMES PERFORMANCE OVER THE CENTRAL AMAZON BASIN DURING GOAMAZON2014/5

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Abstract

The modeling of the boundary layer was performed using the WRF model, with a domain of 3 one-way interacting nested grids. The results from the inner domain (1 km) for different PBL schemes (nonlocal (ACM2, MRF, SH, YSU, QNSE-EDMF) and local (BouLac, GBM, MYNN2.5, MYNN3, MYJ, UW)) were analyzed against in situ observations. The PBL heights (PBLH) were compared with ceilometer measurements. Short-term forecasts (72-h) were conducted (with a 12 h spin-up) for 4 cases: rainy and dry seasons for a typical (2014) and ENSO-influenced (2015) years. The statistical analysis was performed separately for daytime and nighttime due to the pronounced diurnal variation, which revealed that the PBLH is better predicted during daytime. The local schemes (MYNN2.5, MYNN3, MYJ) give reasonable estimates for the convective boundary layer and non-local scheme (SH) for stable conditions. The diagnosed PBLH spatial fields for nighttime (02 Local Time) and daytime (14 LT) were investigated. The PBLH spatial fields revealed that nonlocal PBL schemes are influenced by the hydrography, while local PBL schemes were not. In general, the local MYNN2.5 and MYNN3 and the nonlocal QNSE-EDMF schemes predicted a deeper PBLH. Nonlocal schemes (ACM2 and MRF) depict the hydrography in their PBLH distribution with higher PBLH over the land (>1500 m) and lower over the water bodies (<800 m) during the daytime. The same typical values for nighttime are 100-200 m over the continent and 50-100 m over the water.