Dry to Wet Season: Cloud cover, precipitation and thermodynamics features

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This study analyzes the cloud cover, the precipitation and the thermodynamics features observed in the Southwestern Amazonia during the pre-wet season. The dataset gathered for this study was collected during the Radiation, Cloud, and Climate Interactions in the Amazonia during the dry-to-wet transition season/LBA (RACCI/LBA) campaign that occurred in September-November of 2002 in Rondonia State. Radiosonde, rainfall data, GOES satellite images and radar reflectivity CAPPIs from the TECTELCOM ground weather radar were examined to describe the main characteristics observed during the beginning of the wet season. Thermodynamic parameters like, CAPE, moist static energy, CINE, boundary layer humidity divergence were used to describe the cloud cover and precipitation evolution from the dry to wet raining season. Larger CAPE values were found during the pre-wet season than during the beginning of the regular wet season, however, those events were less often than during the end of October - beginning of November. Total cloud cover did not show any clear difference between both periods. However, convective cloud and rain fraction show a remarkable increase from one period to another. CAPPI fields from 2 km up to 18 km show differences in the convection intensity between pre and regular wet season. The cloud cover organization is also analyzed through the description of the life cycle of mesoscale convective system from dry to wet and in the regular raining season. Finally, the diurnal cycle of the thermodynamic variables and cloud characteristics are also described for both periods.