

Cloud Contrast During the GoAmazon/ACRIDICON/CHUVA Campaign: Differences Between Dry and Wet Seasons, Polluted and Pristine Conditions

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During 2014 the ARM Mobile Facility (AMF) was deployed to the Central Amazon Basin, which allowed science teams to perform a series of experiments on cloud observations, aerosol assessment, precipitation and other related fields. Together with the AMF, the CHUVA project installed disdrometers, rain gauges, radiometers and radars on the same site, providing accurate measurements of the atmospheric conditions.

We present in this work some results regarding the differences in cloud and precipitation regimes during the 2 Intensive Operation Periods (IOP). The analysis consist on computing the Contoured Frequency by Altitude (CFADs) of reflectivity and vertical motion speeds, and hydrometeor classification for some special cases.

We use the ARM Radar-Wind Profiler (RWP), the W-Band (95 GHz) ARM Cloud Radar (WACR) and the CHUVA X-Band radars to characterize the cloud type (fair/precipitating) based on their reflectivities and vertical motion profiles. These three instruments were operating with a vertical pointing scan strategy, which allows us to assess the temporal variability of the vertical structure of the clouds passing over the site.

The cases are sorted by: dry and wet season, and polluted and pristine conditions. Cloud condensation nuclei (CCN) concentration and types observed at the ARM site are used to define atmospheric pollution conditions. Since this is a work in progress, an outline for future development is also presented.