Characteristics of Cirrus Clouds in the Central Amazon region during the Intensive Observational Period in the dry season 2014 as part of the GOAMAZON experiment

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Abstract: Using three lidar systems around the city of Manaus, the behavior of the cirrus clouds in the region was investigated. The measurements were conducted during the second GoAmazon 2014/5 Intensive Operating Period (IOP2), from August 15 to October 15, in the dry season of 2014. The three systems were operated continuously at the sites T3, downwind and 60 km to the west of Manaus; T2 (3.21 ºS 60.60 ºW), also downwind of Manaus but just across the Negro river to the west; and T0e (2.89 ºS 59.97 ºW), an upwind site east of Manaus located in campus of Embrapa. These different sites were selected for GoAmazon 2014/5 to measure the effects on aerosols and clouds of different levels anthropogenic pollution, in an otherwise pristine tropical rainforest environment. From the analysis of individual 5-min backscatter profiles, we investigate the statistical distribution of cirrus clouds base and top altitude characteristics; and also the cloud optical depth for the three sites. Mean characteristics for the cirrus clouds measured in the three sites are discussed and the relations between these results are investigated. The cirrus clouds are frequent cloud in the three sites during the dry season. Comparisons with cloud optical depth from sun-photometer in T0e and T3 sites and base height from ceilometer in T3 site were conducted.

Keywords: cirrus clouds; Lidar; Central Amazon Region

VIII WLMLA Topic: Lidar applications in environmental sciences