



## **Investigation of surface heterogeneities and diurnal cycle on the west african monsoon flow using constant volume balloons in the planetary boundary layer**

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During AMMA, 15 boundary layer pressurised balloons (BLPB) were launched from Cotonou in the planetary boundary layer (PBL) between mid-June and mid-July. The data collected by these balloons are very useful to investigate the impact of surface heterogeneities (land-use, vegetation, albedo, soil moisture and temperature) and the diurnal cycle on the West African monsoon dynamics.

The correlations between the variability of the surface state and the evolution of the thermodynamical environment of the PBL along the BLPB trajectories are evaluated to assess the role of the surface heterogeneities in a pre and post-monsoon onset environment. First results show that the surface heterogeneities likely play a role in the zonal variability of the inter-tropical depression (ITD) location and in the variability of the atmospheric humidity along BLPB trajectory but an accurate description of the surface state is needed to improve these results.

The evolution of the amplitude of the diurnal cycle of the wind speed before and after the monsoon onset is compared with a 40-year climatology performed using the NCEP analyses (Sultan et al., 2007) and with the 2006 NCEP analyses.