



Ground-based measurement in a humid savannah of West Africa (Benin)

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Continuous ground-based measurements have been performed at a field station in Nangatchori village (09°38.84N, 001°44.46 E, 432m AGL), in northern Benin, since October 2005. The site is one of the sites forming the AMMA Oueme mesoscale, it is located in a clearing surrounded by secondary woodland, cultivated crops and fallow that had been subjected to some small-scale vegetation burning within the preceding five years. It lies within a Southern Sudanian vegetation-type zone characterised by woodland savannah. Equipment at the field station includes full meteorological parameters with 5 levels of wind speed, temperature and air moisture, PAR and J_{NO_2} radiation sensors, wind direction, rain gauge, and 4 levels of soil moisture and temperature. Atmosphere composition is described with measurements of gaseous compounds (NO_x , CO, O_3) and aerosols characteristics (absorption and diffusion coefficient, size distribution). Sensible and latent heat fluxes are measured by the eddy covariance method coupling a 3D sonic anemometer and an IR open path analyser (Licor 7500). Surface measurements are completed by dynamical characteristics of the boundary layer (mean and turbulence) described by UHF and VHF radars. All data are provided with a temporal resolution of 15 min.

We present the boundary layer characteristics (atmospheric composition, heat fluxes and depth) together with the meteorological data for the period from October 2005 to December 2006. The objective is to describe the seasonal evolution of the boundary layer and to see how its characteristics can be linked to the surface conditions (soil moisture for example) and to meso-scale convective systems (MCS). The impact of MCS (through precipitations) and associated variations of the boundary layer characteristics on the diurnal variation of atmospheric composition (gas and aerosols) and on

the seasonal variation of photosynthesis activity (CO₂ fluxes) are presented.