



## **Nocturnal level jet moistening impact on the surface in the early monsoon in north Benin**

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The nocturnal jet in West Africa has already been described by numerous studies and can be considered as one of the large-scale processes of the monsoon system that occurs at low level. Although it is present during the entire year, its strength is larger near the Inter Tropical Discontinuity position, so that its maximum in space moves northward in the early monsoon and comes back southward at the end of the rainy season. Its role in the moistening of the atmospheric low layers has been highlighted in terms of water vapour content. Indeed, after the dry season, one of the monsoon forwarning sign is the northward moist and cold tongue air of 1km depth setting during the night, and replaced by northeasterly dry wind harmattan during the day. In Djougou (North Benin,  $9^{\circ}38.84N, 1^{\circ}44.46E$ ) this diurnal oscillations of ITD lasted for one month and half in 2006 before the first rain in April. Measurements of heat fluxes at the Nangatchori site (10 km south-east of Djougou) allow us to study the impact on the vegetation and surface of this first outbreak of moist air after several months of dryness. In particular, the chemical aspect is investigated. Chemical composition of air measured in Nangatchori allow us to characterize the chemical characteristics of the two main wind regimes and the vertical and horizontal mixing due to the nocturnal jet.