

Results of UHF Radar Observation of the Nocturnal Low-Level Jet for Wind Energy Applications

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A b s t r a c t

We use two series of eight-month UHF radar observations collected during the dry and wet seasons of AMMA field campaign. The ultimate goal is to do preliminary work to know whether the lowest layers are suitable for wind energy applications. Surface wind is usually weak in West Africa, but the regular occurrence of a nocturnal low level jet (NLLJ) could provide interesting conditions for wind energy. This work is two-fold: it first aims at improving our knowledge about the NLLJ in West Africa regarding its structure and its variability during the year. Then, special attention is paid to the first 200 m agl, to study the possibility to use the sub-jet wind as a source of energy. A set of enhanced radiosoundings is taken to help to understand the dynamics and thermodynamics and to find a way to extrapolate the wind at low level, where the UHF radars do not provide data.

Key-words: UHF radar, wind potential in Sahel, nocturnal low level jet, Sahel meteorology, wind profiles.