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Multi-scale soil moisture monitoring in the Gourma meso scale site: from local station network to remote sensing approaches.

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This paper presents the multi-scale soil moisture monitoring activities on the Gourma meso scale site. Soil moisture measurements are conducted in the context of Enhanced Observing period of AMMA. They are part of a complete land surface processes observing and modeling strategy and associated to vegetation and meteorological field measurements as well as soil moisture remote sensing.This site is also a validation site of the futur SMOS satellite for 2007-2010.

Soil moisture is a critical variable of land surface-atmosphere feedback processes. It controls and interacts with energy and water exchanges with the atmosphere, chemical processes, soil and vegetation respiration, vegetation phenology. It is at the interface between processes that concern various temporal and spatial scales.

Accordingly, a relevant spatial sampling strategy and a coherent use of soil moisture satellite remote sensing is proposed to characterize soil moisture at different scales from local to kilometric and meso scale. In turn, network of ground soil moisture stations is suitable to validate remote sensing approaches of soil moisture at different scales including ENVISAT/ASAR at kilometric scale and AMSR data at 50km scale. Combination of remote sensing and field measurement network are presented. It allows to address multi-scale features of soil moisture, determinant for modeling activities conducted for various thematic studies of processes and integrative studies.