Large-scale overview of the summer monsoon over West Africa during the AMMA field experiment in 2006.

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Abstract :
The AMMA (African Monsoon Multidisciplinary Analysis) program is dedicated to providing a better understanding of the West African monsoon and its influence on the physical, chemical and biological environment regionally and globally, as well as relating variability of this monsoon system to issues of health, water resources, food security and demography for West African nations. Within this framework, an intensive field campaign took place during the summer of 2006 to better document specific processes and weather systems at various key stages of this monsoon season. This campaign was embedded within a longer observation period that documented the annual cycle of surface and atmospheric conditions between 2005 and 2007. The present paper provides a large and regional scale overview of the 2006 summer monsoon season, that includes consideration of the convective activity, mean atmospheric circulation and synoptic/intraseasonal weather systems, oceanic and land surface conditions, continental hydrology, dust concentration and ozone distribution. The 2006 African summer monsoon was a near-normal rainy season except for a large-scale rainfall excess north of 15° N. This monsoon season was also characterized by a 10-day delayed onset compared to climatology, with convection becoming developed only after 10 July. This onset delay impacted the continental hydrology, soil moisture and vegetation dynamics as well as dust emission. More details of some less-well-known atmospheric features in the African monsoon at intraseasonal and synoptic scales are provided in order to promote future research in these areas.

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