

## **The AMMA radiosonde program and its implications for the future of atmospheric monitoring over Africa.**

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### **Abstract :**

This article describes the upper-air program, which has been conducted as part of the African Monsoon Multidisciplinary Analysis (AMMA). Since 2004, AMMA scientists have been working in partnership with operational agencies in Africa to reactivate silent radiosonde stations, to renovate unreliable stations, and to install new stations in regions of particular climatic importance. A comprehensive upper-air network is now active over West Africa and has contributed to high-quality atmospheric monitoring over three monsoon seasons. During the period June to September 2006 high-frequency soundings were performed, in conjunction with intensive aircraft and ground-based activities: some 7,000 soundings were made, representing the greatest density of upper air measurements ever collected over the region. An important goal of AMMA is to evaluate the impact of these data on weather and climate prediction for West Africa, and for the hurricane genesis regions of the tropical Atlantic. Many operational difficulties were encountered in the program, involving technical problems in the harsh environment of sub-Saharan Africa and issues of funding, coordination, and communication among the many nations and agencies involved. In facing up to these difficulties, AMMA achieved a steady improvement in the number of soundings received by numerical weather prediction centers, with a success rate of over 88% by August 2007. From the experience of AMMA, we are therefore able to make firm recommendations for the maintenance and operation of a useful upper-air network in WMO Region I in the future.

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