



## **Impact of West Africa Monsoon on tropospheric chemistry : the French contribution to the study of gaseous chemical processes during AMMA**

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The general aim of the AMMA programme is to evaluate the impact of West Africa Monsoon (WAM) on the global atmospheric composition and climate. To achieve this objective, process studies are needed at a variety of scale, from the cloud system to the regional scale. In particular, chemical processes in the gas phase and particulate phase have to be well characterized. Indeed, the combined existence of major sources of ozone precursors and aerosols make this region a significant contributor to the global oxidizing capacity of the atmosphere. Once emitted the chemical constituents and their chemical degradation products are rapidly uplifted into the free troposphere by deep convection where they are transported over long distances away from the source region.

This communication presents the French contribution to the study of gaseous chemical processes during AMMA. Scientific questions that will be addressed are:

What are the major sources and sinks of oxidants?

What are the chemical lifetimes of chemical species within the WAM?

How deep convection impacts the chemistry of the free troposphere ?

How much secondary oxygenated organic species leading to secondary organic aerosol formation are produced from anthropogenic and biogenic species in the WAM

region ?

This contribution will describe the instrumentation by highlighting the most recent developments and the experimental strategy implemented to fulfill the objectives listed above. It is based on in situ observations at ground level and on aircraft platforms of gaseous species of great interest that also could interact with aqueous and solid phase: ozone, reactive nitrogen species, carbon monoxide, hydro and organic-peroxides, primary and secondary volatile organic compounds. Measurements will be performed during Special Observation Periods (SOP), especially during the maximum monsoon period (SOP C) using both the French ATR42 and Falcon20 platforms.