



First perspective on the impact of West African Monsoon on tropospheric chemistry : some lessons from the French Airborne Measurements of Major Photooxidants during the AMMA experience

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The general aim of the AMMA program is to evaluate the impact of West African Monsoon (WAM) on the global atmospheric composition and climate. To achieve this objective, process studies are needed at a variety of scales, 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.

AMMA was a quite challenging task for the French experimental community. A large set of online and offline instruments was deployed on both new airborne platforms: the ATR42 and the Falcon20. Target species of interest were ozone, CO, primary VOCs (hydrocarbons from C4 to C9), major aldehydes and ketones, NO_x, NO_y, HNO₃, PAN and H₂O₂. The experiment was successful with 28 flights and a good coverage of the

data (generally > 80%).

This contribution will present the results of airborne gaseous measurements on both French aircrafts carried out during the AMMA Special Observation Period in the summer of 2006 (SOP 2a2). In particular, we will highlight the spatial and temporal variability of photo-oxidant concentrations on the AMMA domain and to which extent it could be affected by dynamics (ie convection, deep convection, long range transport..).