



## **Airborne measurements of tropospheric aerosol up to 12 km over West Africa during the monsoon season in August 2006**

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The German DLR Falcon 20 (D-F20) was successfully deployed during the monsoon season (AMMA SOP2a) from August 1 until August 18, 2006, in Ouagadougou (Burkina Faso) with a scientific payload focussing on in situ measurements of trace gases and aerosol properties. Measurements were taken during eight local flights from Ouagadougou as well as during the ferry flights from Germany to Burkina Faso and back. A number of different scientific mission objectives were addressed with these flights: observations were made in the close vicinity of several active mesoscale convective systems (MCS) and smaller convective cells as well as in the aged outflow of MCSs, mainly in the Sahel region. Furthermore, measurements were taken during background surveys in the middle/upper troposphere (8-12 km altitude, with 12 km being the maximum flight altitude of the D-F20) including during two flight dives into a biomass burning pollution layer encountered south of Ghana below 6 km altitude. During ascends and descends of the D-F20 the urban pollution of Ouagadougou in the boundary layer as well as a haze layer in the lower troposphere (typically at 1-5 km altitude), which proved to be persistent over the measurement period, was investigated. Analysis of data so far indicates that aerosol in all size modes gets efficiently removed in the very fresh outflow of a MCS. Particle nucleation is frequently observed in the outflow if the air processed by the convective system has aged at least for a few hours, while the aerosol surface area density is still very low. The observed number concentrations of non-volatile particles in upper tropospheric background are higher than in fresh MCS outflow. The lower tropospheric haze layer observed over Ouagadougou is possibly associated with the African Easterly Jet. The biomass burning plume encountered during two flights to the south is strongly absorbing and considerably aged.