

## **On the impact of anthropogenic emissions on biogenic SOA formation above West Africa: results from DACCIWA aircraft field campaign**

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As part of the Dynamics-Aerosol-Chemistry-Cloud Interactions in West Africa (DACCIWA) project, airborne campaigns were designed to measure a large range of atmospheric constituents focusing on the improvement of our current understanding on the effect of anthropogenic emissions on regional climate. The targeted region, Southern West Africa, holds currently a population of over 340 million people, and is predicted by the United Nations to reach about 800 million by 2050.

The climate in the region is characterized by a large-scale atmospheric circulation system which controls precipitation over a land area of about 6 million km<sup>2</sup>, directly impacting the water resources, agriculture and power generation of hundreds of millions of people. Besides its large natural variability, the West African monsoon system is also expected to be significantly affected by global and regional climate change, with large uncertainties on the role of local pollution. An important aspect assessing the impact of human activities on the local climate is thereby the understanding of aerosol sources and properties.

The presented study details results of the DACCIWA measurement campaign using the French ATR42 research aircraft, which in combination with the German Falcon 20 and British Twin Otter aircraft, aimed to characterize physico-chemical properties of aerosols in the region using a suite of aerosol measurement techniques (e.g. C-TOF AMS, APITOF, SMPS, etc.) and supporting information from simultaneous trace gas measurements (e.g. PTRMS). This large dataset has been used to assess how anthropogenic emission (NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>4</sub>) is impacting formation of biogenic secondary organic aerosol formation, in particular through the formation of isoprene epoxydiols (IEPOX). The recently collected data will certainly help understanding the coupling between human activities and regional climate in a sensitive, highly populated area.