

EGU22-11779

<https://doi.org/10.5194/egusphere-egu22-11779>

EGU General Assembly 2022

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Influence of Different Atmospheric Aerosol Compositions on the Life Cycle of Stratiform Clouds over Southern West Africa

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Low-Level Stratiform Clouds (LLSC) appear frequently over southern West Africa (SWA). During the West African Monsoon (WAM) period, both local (air pollution) and remote (dust and biomass burning aerosols from North and Central Africa, respectively) aerosol sources can play a significant role in LLSC diurnal life cycle. The Dynamics-Aerosols-Chemistry-Cloud Interactions In West Africa (DACCIWA) campaign has produced a considerable number of clouds and aerosols measurements during the WAM in 2016. Numerical simulations using a Large Eddy Simulations (LES) model with detailed aerosol and cloud microphysical processes and constrained by DACCIWA observations have been conducted, driven by different atmospheric aerosol compositions in order to study the impacts of different aerosols on the key processes (formation, break-up, transition to cumulus) of LLSC. Detailed results alongside conclusions will be presented.