

Ground-based gas-phase measurements during the AEROCLO-SA campaign in Henties Bay (Namibia)

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The AErosol RadiatiOn and CLOuds in Southern Africa (AEROCLO-SA) project aims at studying the interactions between aerosols, clouds, and radiation, along the Atlantic coast of austral Africa through airborne, ground-based and satellite measurements of clouds, aerosols, and their radiative impacts. The South East (SE) Atlantic represent a natural laboratory for studying aerosol-radiation and aerosol-cloud interactions. A mixture of emissions from biomass burning during the dry season, transport of dusts from the Namibian desert, marine emissions, particularly rich in nutrients from the Benguela upwelling system, together with local emissions makes this site particularly interesting to study different aerosol typologies and their interactions with coexisting fogs and stratocumulus clouds. The one-month long AEROCLO-SA field campaign took place in August-September 2017 in Henties Bay (Namibia). In this context ground-based measurements of volatile organic compounds (VOCs) were continuously done using a proton transfer reaction time of flight mass spectrometer (PTR-ToF-MS), together with continuous measurements of CO_2 , CO , O_3 , NO_x , and SO_2 . Gas-phase atmospheric composition during the campaign will be compared with ground-based aerosol composition, together with information on the back-trajectories of air masses. New particle formation events, fog occurrences and VOC peak emissions will be discussed with the aim of understanding the underlying mechanisms and their impacts on the Earth's energy budget.