

Drivers of local scale wind variability and the impact on aerosol composition at Henties Bay, Namibia.

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Atmospheric transport of aerosols off the west coast of Namibia has been shown to occur at multiple levels in the atmosphere. The nature of the aerosols vary with height as well as the influence that they are likely to have on the radiative properties of the atmosphere, cloud microphysics, the ocean and the biosphere. One objective of the AErosol RadiatiOn and CLOuds in southern Africa (AEROCLO-sA) project was to evaluate the nature of aerosols in the marine boundary layer close to the coast of Henties Bay on the Namibia coast. Local wind flow is a key driver of the near coast aerosols properties in the marine boundary layer.

Measurements of the vertical structure of local winds were acquired at Henties Bay during the AEROCLO-sA intensive sampling campaign between 15 August and 15 September 2017. Observations were made using a METEK SODAR that was positioned approximately 200 m from the shore line. Wind speed and direction were collected up to a maximum height of 600 m agl. Supplementary data include radiosondings launched several times per day as well as surface and 30 m wind anemometer data collected at the same location. The characteristics of the land-sea breeze system and how it is influenced by large scale synoptic circulation will be discussed in this paper. The implications of the local wind for marine boundary aerosols characteristics will also be discussed.