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# New insights on fog and low clouds in the Namib

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This contribution presents spatiotemporal patterns of fog and low clouds (FLC) in the Namib region and uses a statistical learning technique to show that most of the spatiotemporal variability of FLC in the central Namib can be explained by large-scale dynamics.

Fog is a defining element of the Namib-region climate and a crucial source of water for many species and ecosystems. Still, little is known on the patterns and processes of Namib-region FLC, in large parts due to the very sparse observational records. Specifically, there is an ongoing debate in the scientific literature concerning the relevance of different mechanisms responsible for fog formation in the region. In this contribution, data from multiple satellite platforms and station measurements are used to paint a coherent picture of the spatial and temporal patterns of Namib-region FLC. Observations are analyzed on different scales and combined with reanalysis data and modelled air-mass backtrajectories. The main findings are:

1) There are distinct seasonal patterns in FLC height.

2) The timing of the start of the diurnal FLC cycle and the distance to the coastline are strongly correlated.

3) The variability of the overall FLC coverage in the central Namib is driven by the large-scale dynamics.

The findings give a complete picture of FLC in the Namib and point to a regime that is dominated by advective processes. This provides a relevant framework for the interpretation of findings of recent studies that rely on the chemistry of Namib-region fog. The findings lead to a better understanding of Namib-region FLC and help broaden the understanding of low clouds along the southwestern African coastline and the southeast Atlantic.