

INTRODUCTION & METHODS

FogNet is a meteorological measurement network, which measures fog in the Namib desert and the coastal region of Namibia. This network of point measurements can be augmented to a better spatial coverage with the use of remote sensing data by generating videos of the greater area surrounding the stations. Meteosat, short MSG, is the predestined satellite for this purpose because of the geostationary orbit and its 15-minute resolution. As such, one video frame has the same time resolution as the satellite.

The workflow for video generation is based on the constant downloading of the network's data as well as on converting MSG files into TIFF files. Each night, the measured fog precipitation data of the night before at all stations except SW and CW (see fig. 1) are checked. If fog precipitation occurred, a video generation process which combines satellite data and measurement data is initiated. Stations turn blue and change their size depending on the amount of fog precipitation. Additionally, barbs indicate the measured wind speed and direction.

RESULTS

Since fog advection happens during the night, the usefulness of visible bands (see table 1) is limited but produced nonetheless. For night time, the so-called dust composite, i.e. band 10 – 9 as red, band 9-7 as green, band 9 yields better views than the traditional fog composite. Band combinations can be selected as needed. After images are combined into the video, it is uploaded to the homepage of the MCR at the University of Basel, which can be found at <https://mcr.unibas.ch/nafolica/>.

The created videos allow for an intricate view of origin, duration and intensity of fog in and around the Namib. Especially the influence of the greater circulation which brings the stratus overland as fog from the ocean is highlighted. The availability of old fog events on the homepage makes it easy to investigate previous events and compare their extent and meteorological conditions.

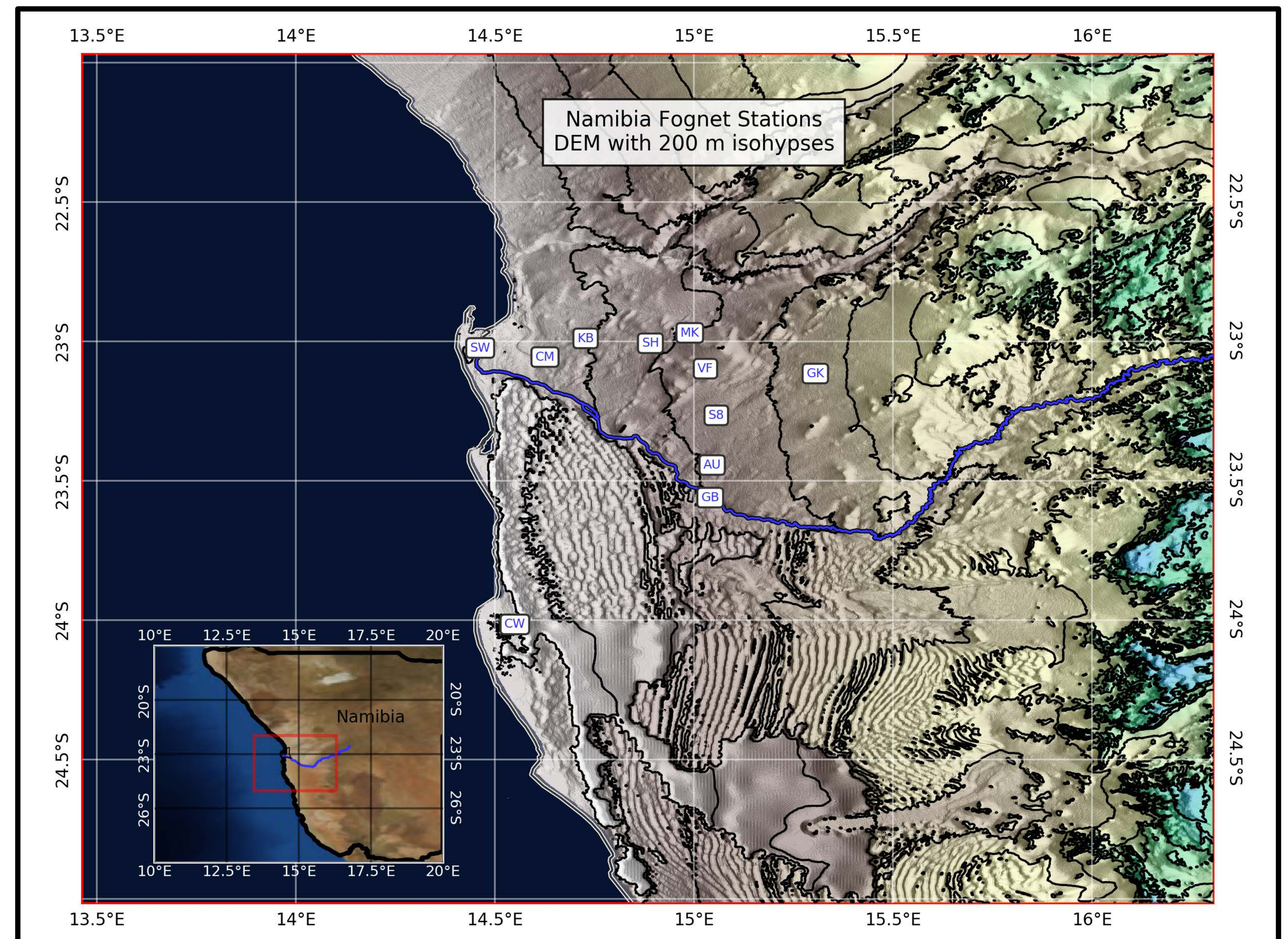


Fig. 1: Locations of FogNet stations in Namibia used for the movie

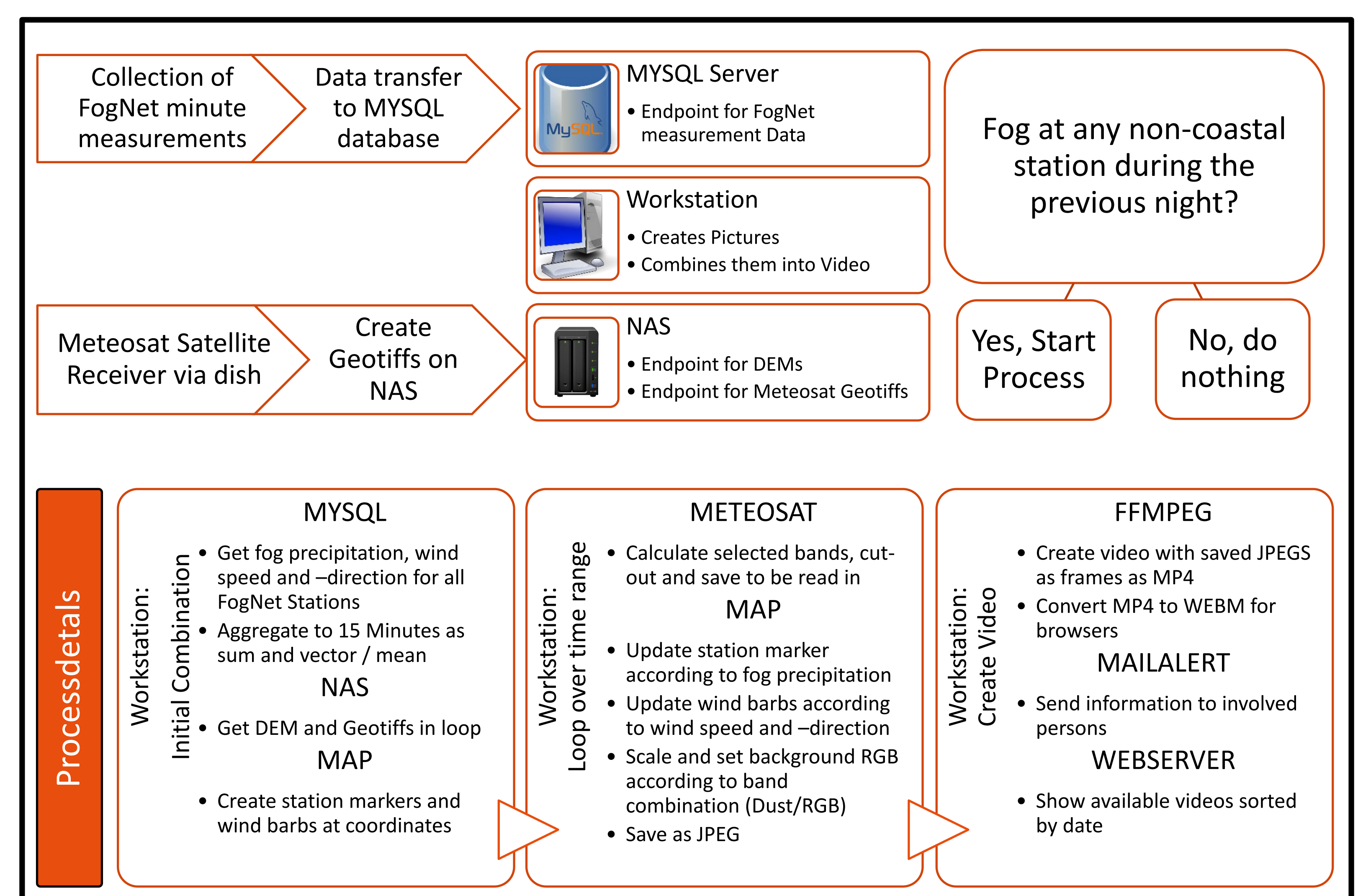


Fig. 2: General workflow for video creation and used machines

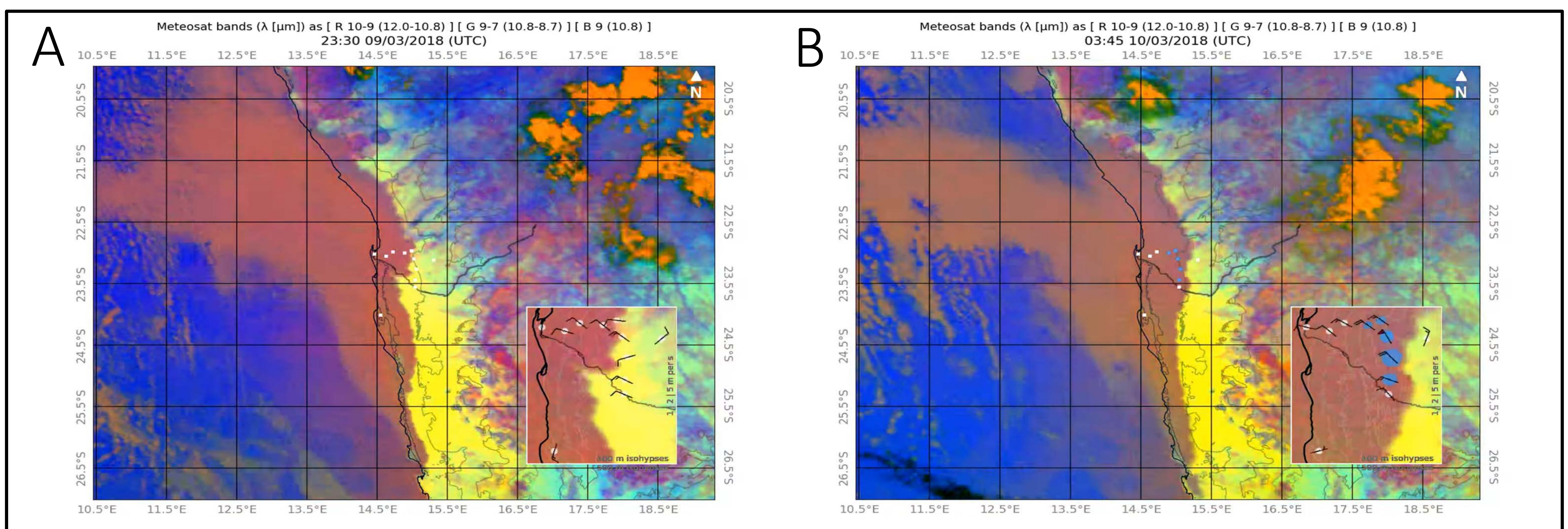


Fig 2, A and B: A stratus in A turning into fog in B, i.e. making land fall after midnight on the ninth of March in 2018, with the size indicating the amount of fog precipitation at each station in addition to wind direction and speed (mostly north-west in this example). Pictures show a dust composite.

