1 # Supplement of

2 **The fractional solubility of iron in mineral dust aerosols over coastal Namibia**
3
4 Karine Desboeufs et al.
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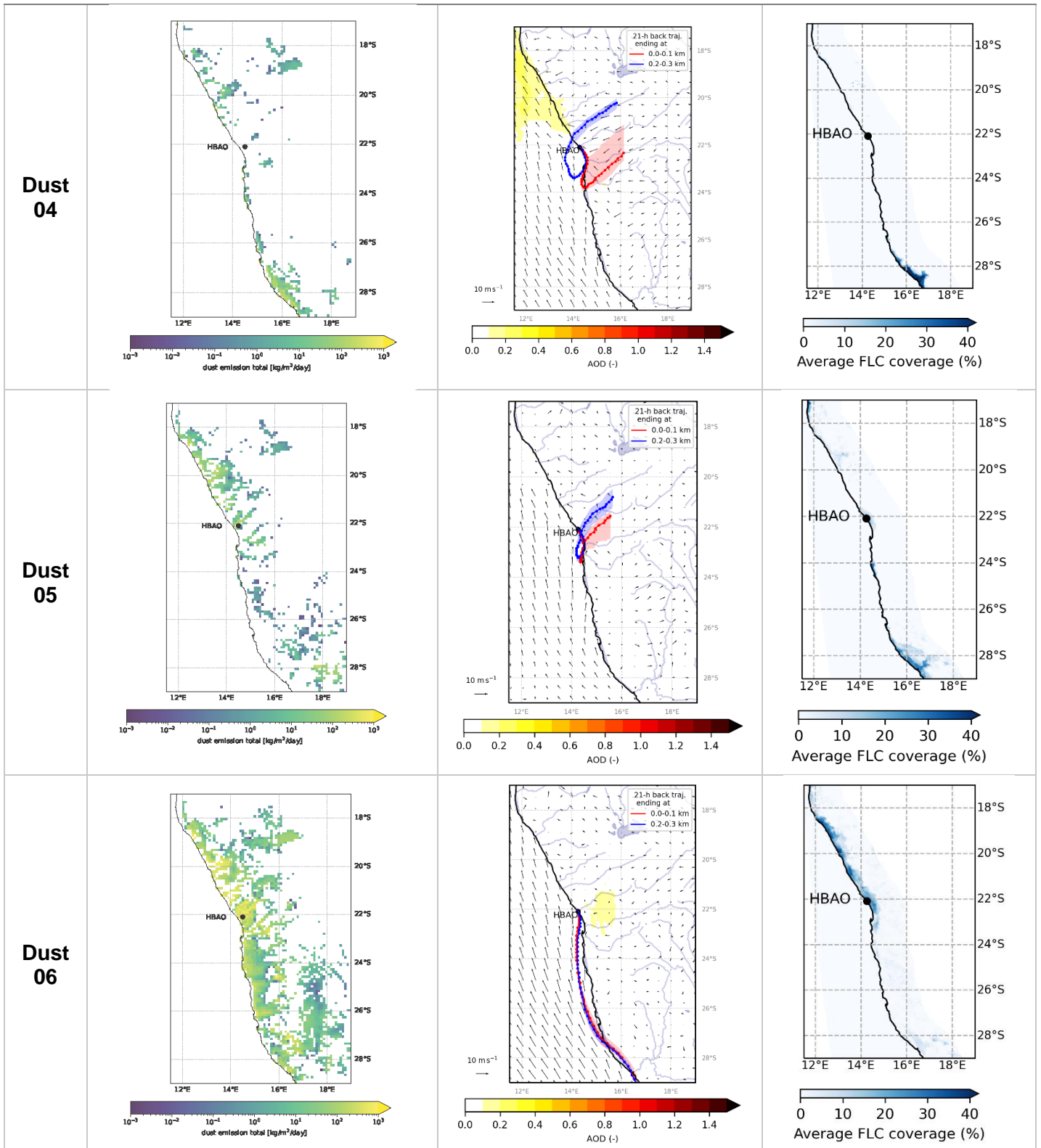
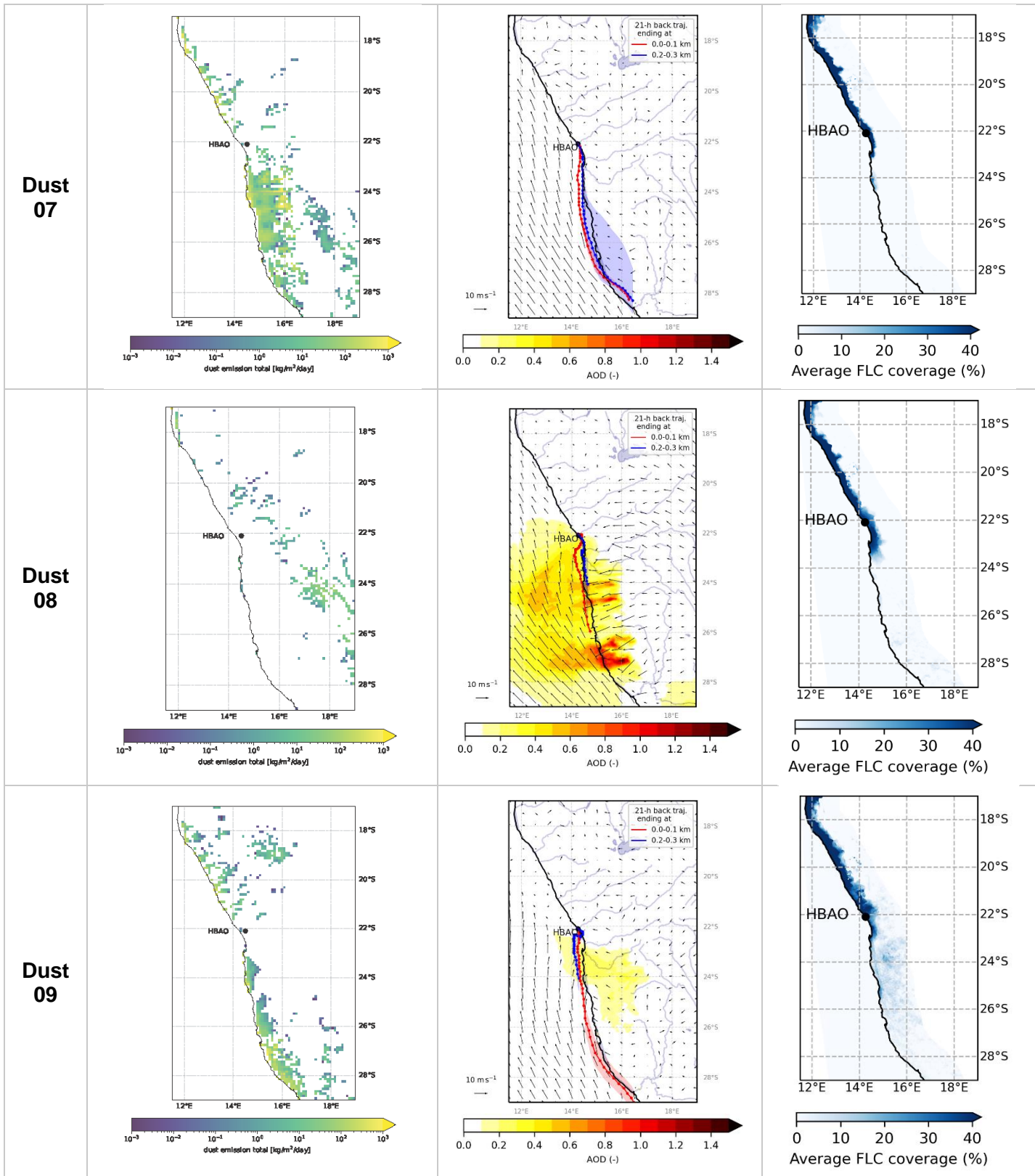
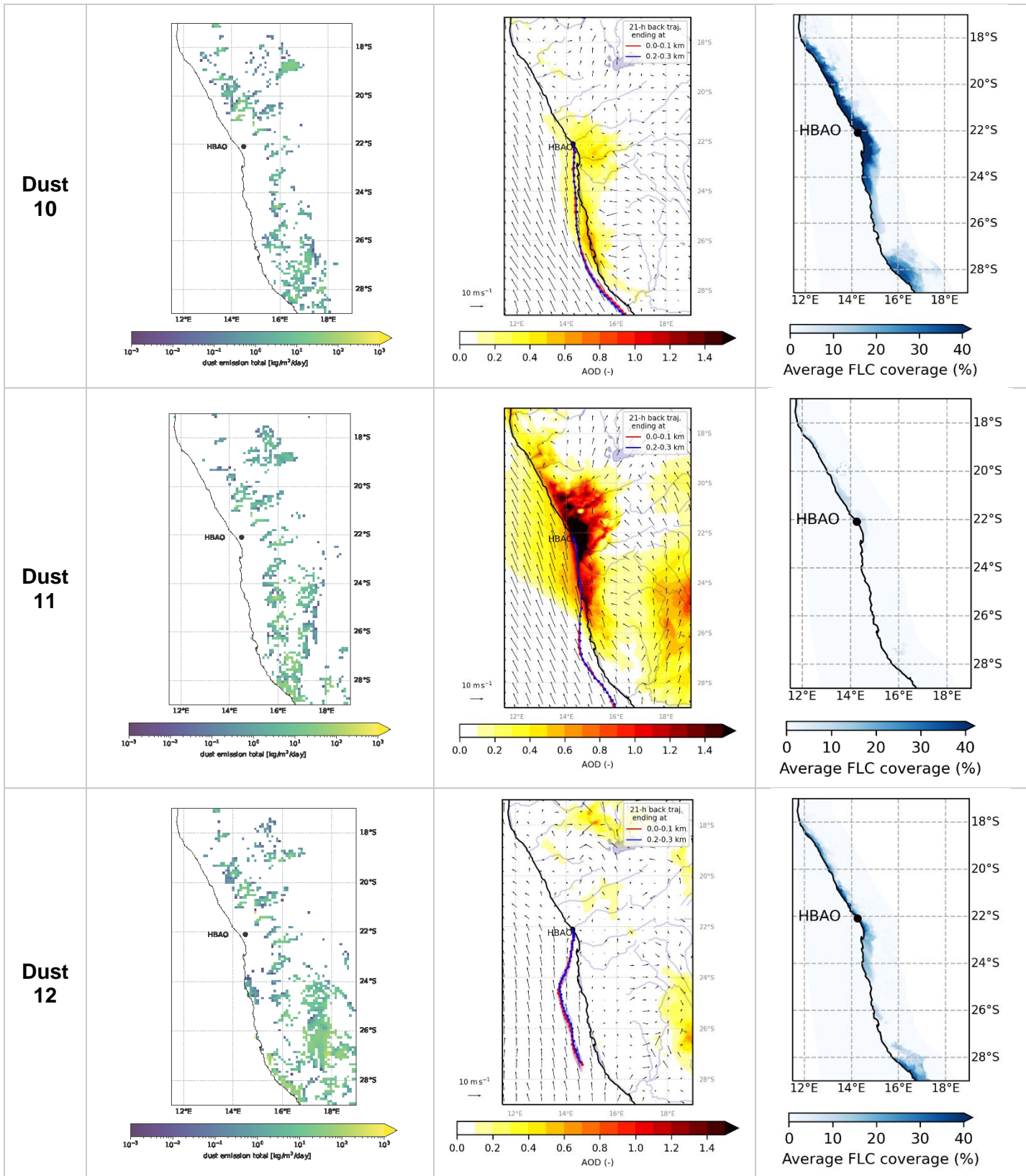
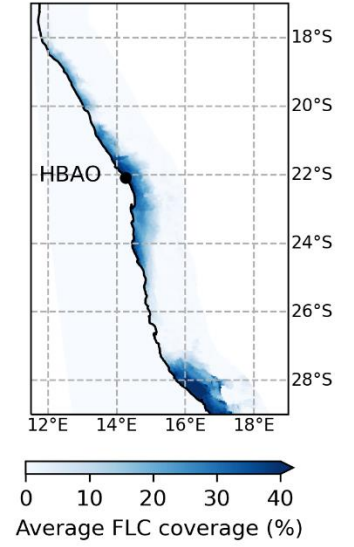
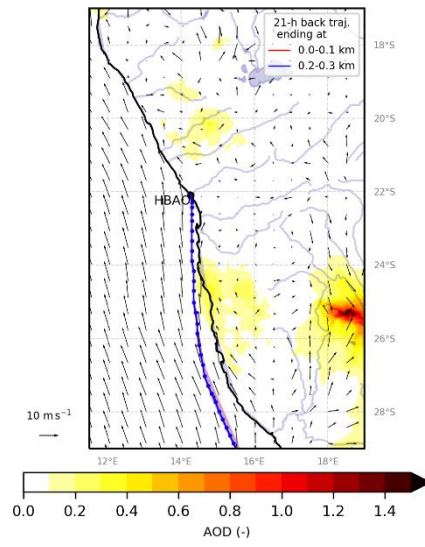
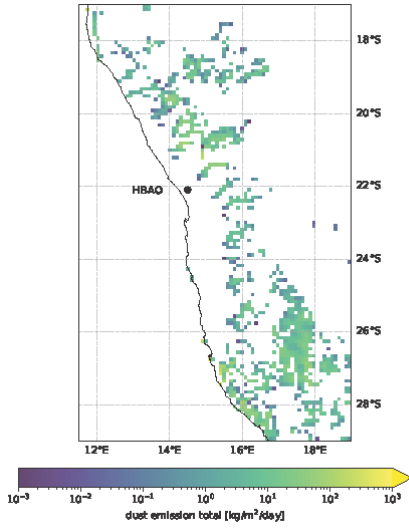
10 **Fig S1.** *Composite of ancillary information on dust episodes from modelling and remote sensing. Left: maps of episode-*
11 *averaged dust emission flux at a 0.1° x 0.1° grid calculated as in described by Feuerstein and Schepanski (2019).*
12 *Values are expressed in kg m^{-2} day^{-1}; Middle: maps of dust optical depth (shading) and 10-m wind (vector) overlaid by*
13 *pathway of 21-hour air mass back trajectories ending in the first 100 m (red line) and between 200 and 300 m (blue line)*
14 *above HBAO as calculated by the Meso-NH model (version 5.3). Dots are plotted every hour and shadings around these*
15 *lines are the interquartile ranges for latitudes. Right: fractional average fog and low cloud coverage during the period of*
16 *the dust episodes (see Table 1).*

Dust 07

Dust 08

Dust 09

Dust 13

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21 **Fig.S2**. *Temporal evolution of meteorological parameters during the different periods of sampling. IBox indicates the*
22 *interquartile range, i.e. the 25th and the 75th percentile, and the line within the box marks the median. Whiskers indicate*
23 *the quartiles ±1.5 times the interquartile range. Points above and below the whiskers indicate outliers outside the 10th*
24 *and 90th percentile.*

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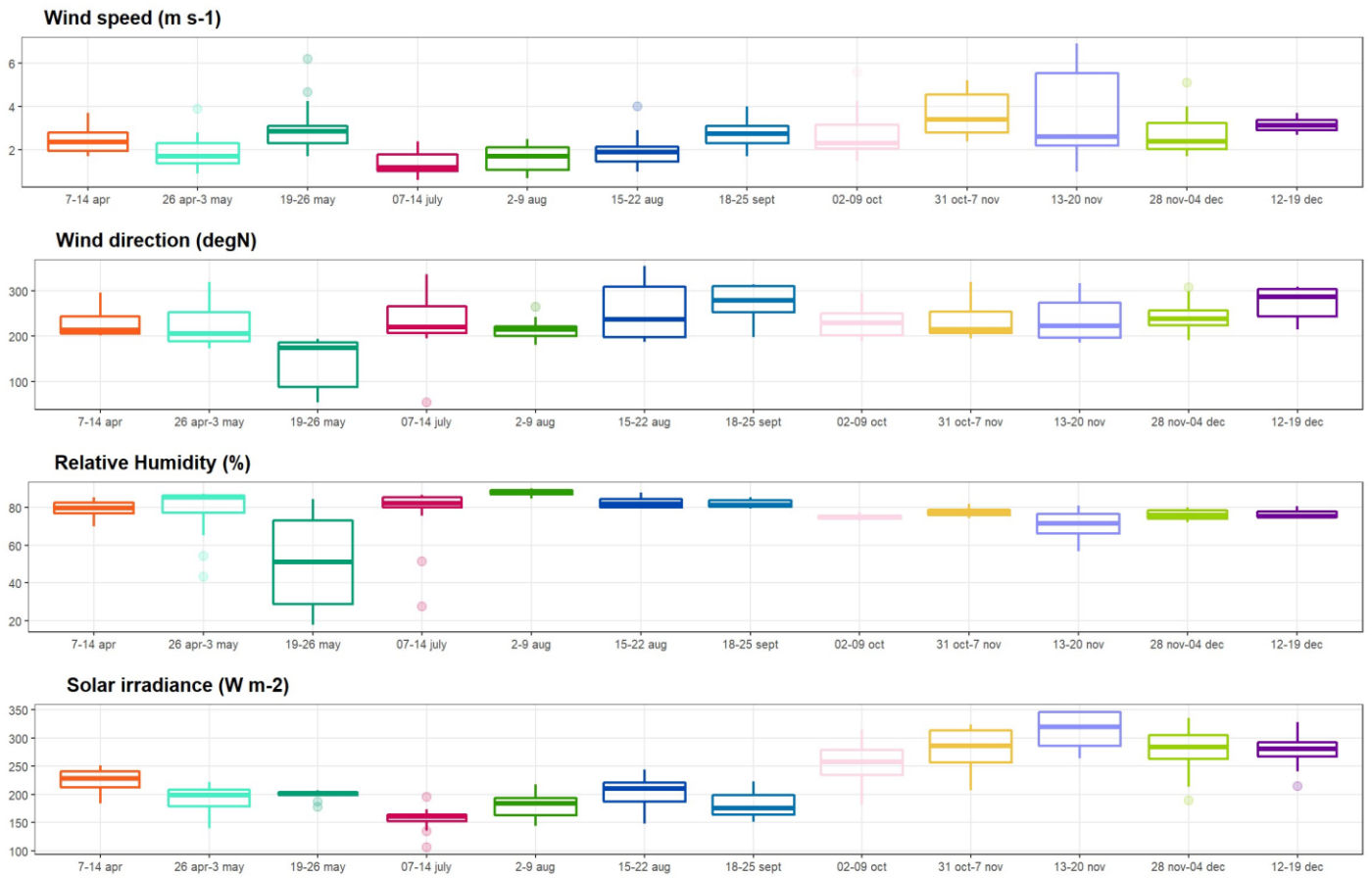
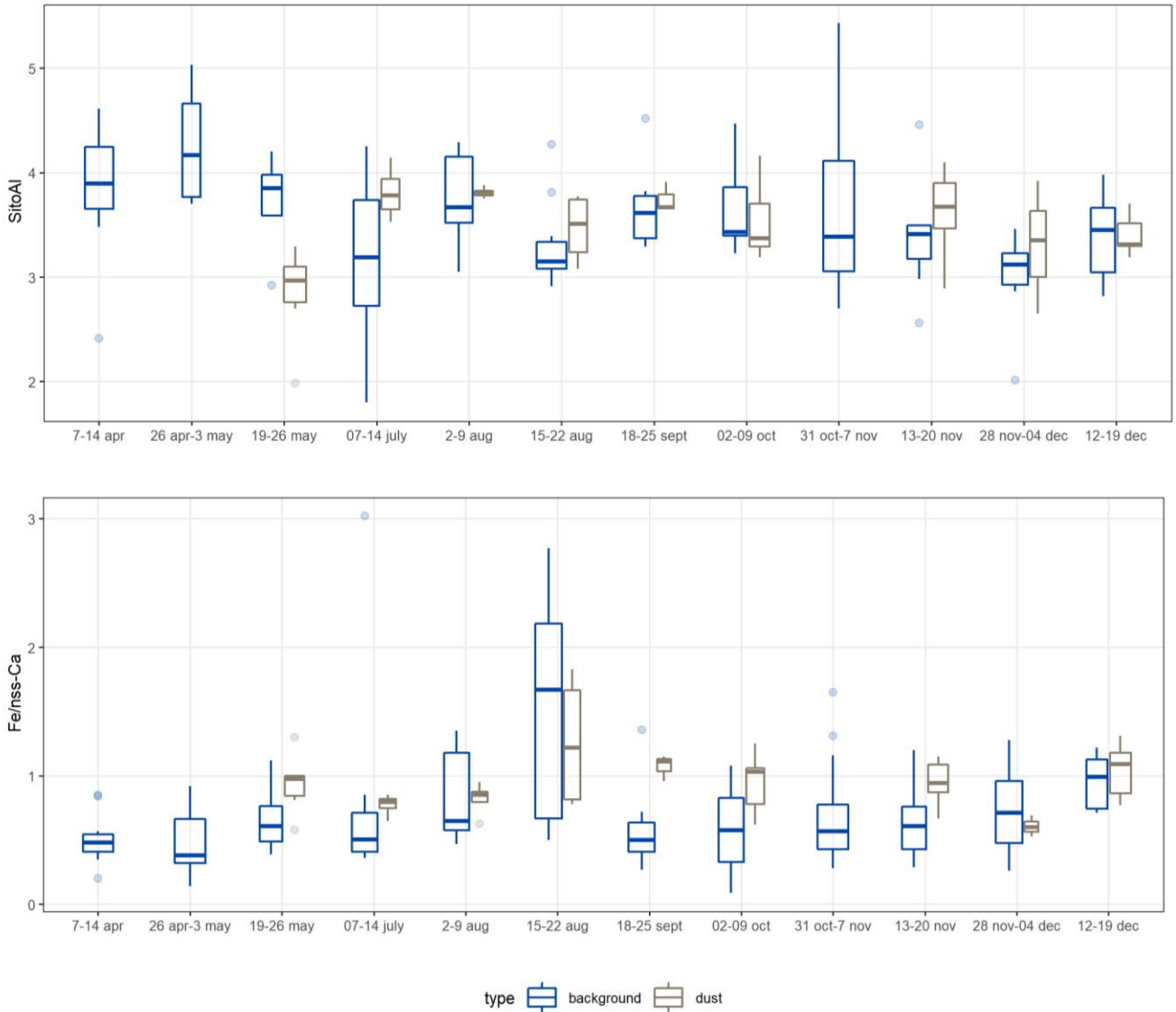


Fig S3. *Time series of the Si/Al (top panel) and of the Fe/nss-Ca (lower panel) ratios measured during April and December 2017 at HBAO. Background and dust samples are represented in blue and grey, respectively. Boxes indicate the interquartile range, i.e. the 25th and the 75th percentile, and the line within the box marks the median. Whiskers indicate the quartiles ±1.5 times the interquartile range. Points above and below the whiskers indicate outliers outside the 10th and 90th percentile.*

37 **Fig S4.** *Dependence of MSA (top) and iron fractional solubility (bottom) on wind speed and solar irradiance during the*
38 *dust events (orange dots) and background periods (blue doots)*
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