



Supplement of

Size distribution and optical properties of mineral dust aerosols transported in the western Mediterranean

C. Denjean et al.

Correspondence to: C. Denjean (denjean@tropos.de) and P. Formenti (paola.formenti@lisa.u-pec.fr)

The copyright of individual parts of the supplement might differ from the CC-BY 3.0 licence.

Figure S1. Scattering cross section for the GRIMM 1.129 (red) and the FSSP-300 (blue) calculated from Mie theory as a function of nominal diameter. Calculations are shown for the refractive index of the standard spheres used for calibration ($\tilde{n} = 1.60-0.000i$, dashed line) and typical dust refractive index ($\tilde{n} = 1.53-0.002i$, line). The shadings indicate the nominal size ranges that were not considered for data analyses in this study due to fluttering in the scattering cross section.

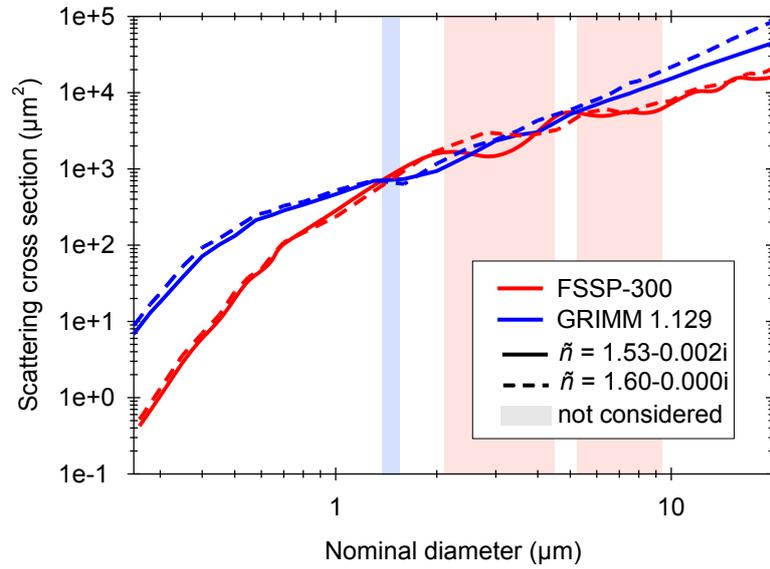
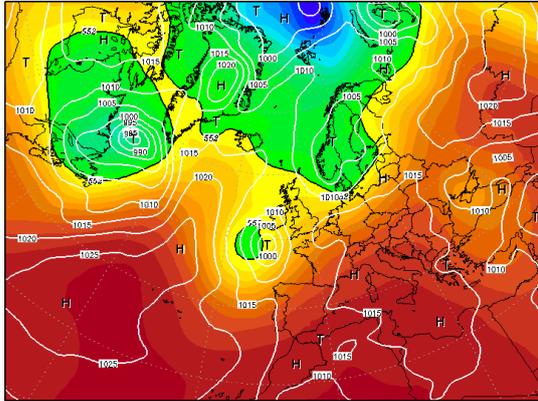


Figure S2. Mean sea level pressure (white labelled lines) and 500-hPa geopotential height (shaded contours) from the NCEP CFS Reanalysis at 12 UTC of 16 June 2013 (representative of the conditions encountered during F29 and F30), 17 June (F31 and F32), 19 June (F33), and 20 June (F34). Courtesy of www.wetterzentrale.de.

16JUN2013 12Z

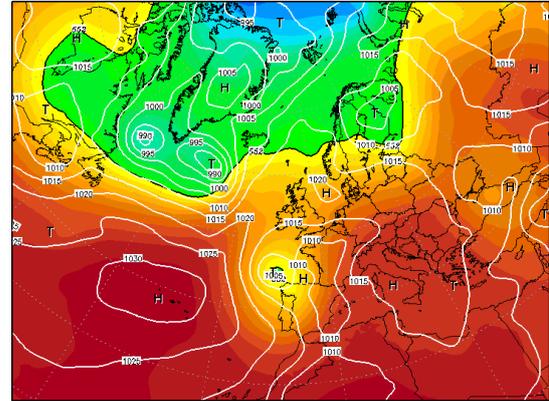
500hPa Geopotential (gdam), Bodendruck (hPa)



Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

17JUN2013 12Z

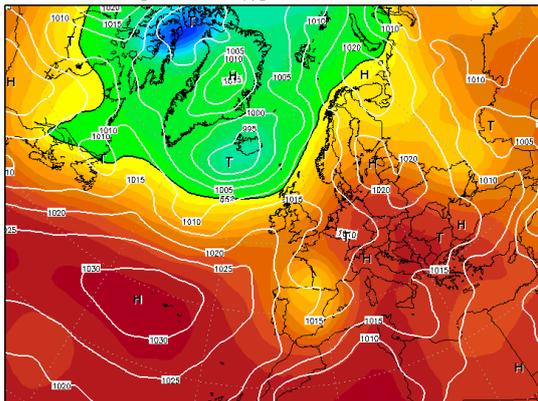
500hPa Geopotential (gdam), Bodendruck (hPa)



Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

19JUN2013 12Z

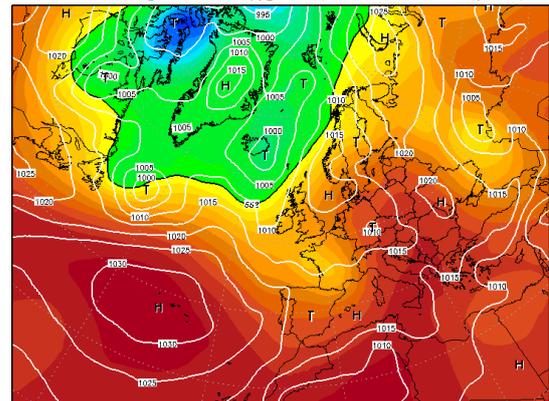
500hPa Geopotential (gdam), Bodendruck (hPa)



Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

20JUN2013 12Z

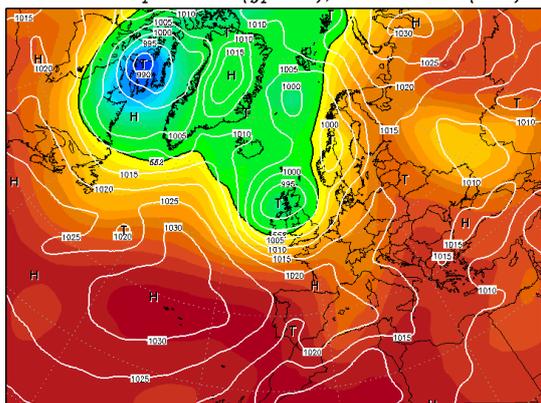
500hPa Geopotential (gdam), Bodendruck (hPa)



Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

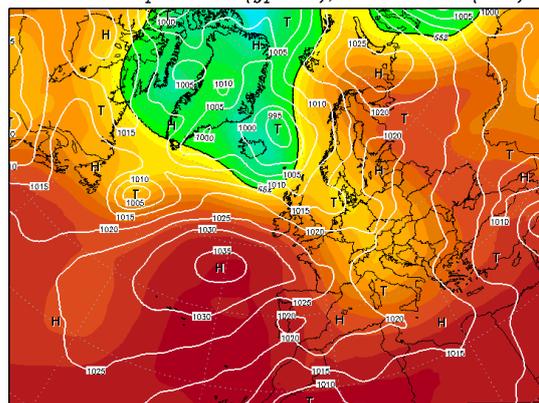
Figure S3 Mean sea level pressure (white labelled lines) and 500-hPa geopotential height (shaded contours) from the NCEP CFS Reanalysis at 12 UTC of 22 June 2013 (representative of the conditions encountered during F35 and F36), 28 June (F38 and F39), 02 July (F41), and 03 July (F42). Courtesy of www.wetterzentrale.de.

22JUN2013 12Z
500hPa Geopotential (gdam), Bodendruck (hPa)



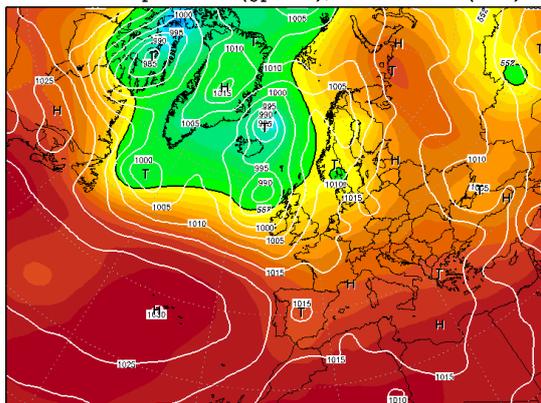
Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

28JUN2013 12Z
500hPa Geopotential (gdam), Bodendruck (hPa)



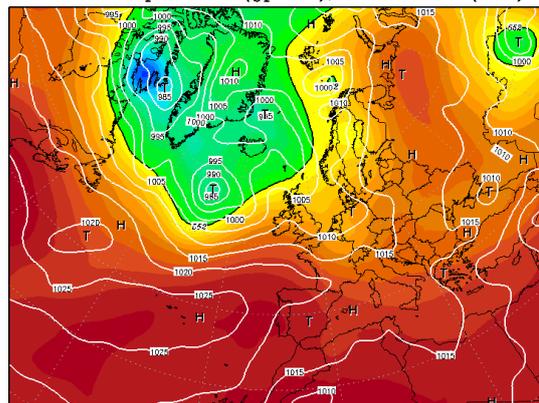
Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

02JUL2013 12Z
500hPa Geopotential (gdam), Bodendruck (hPa)



Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

03JUL2013 12Z
500hPa Geopotential (gdam), Bodendruck (hPa)



Daten: CFS Reanalysis
(C) Wetterzentrale
www.wetterzentrale.de

Figure S4. 700-hPa relative humidity (shaded contours) and wind maps from the 10-km resolution WRF model simulations. Valid times are 12 UTC of 17 June 2013, (flights F31-F32, top panel), 20 June (F34, middle) and 22 June (F35-F36, bottom).

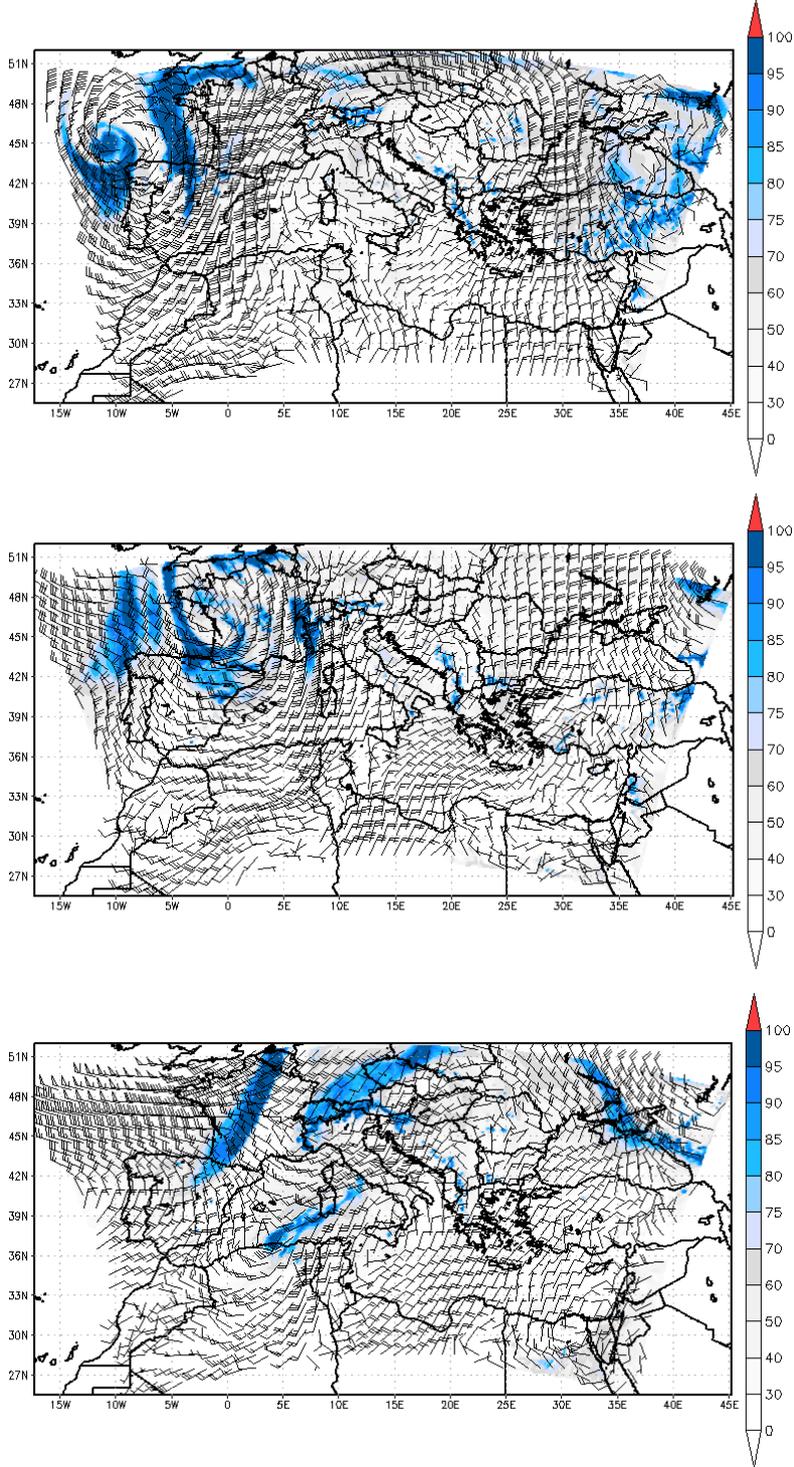


Figure S5. 700-hPa relative humidity (shaded contours) and wind maps from the 10-km resolution WRF model simulations. Valid times are 12 UTC of 28 June 2013, (flights F38-F39, top panel), 02 July (F41, middle) and 03 July (F42, bottom).

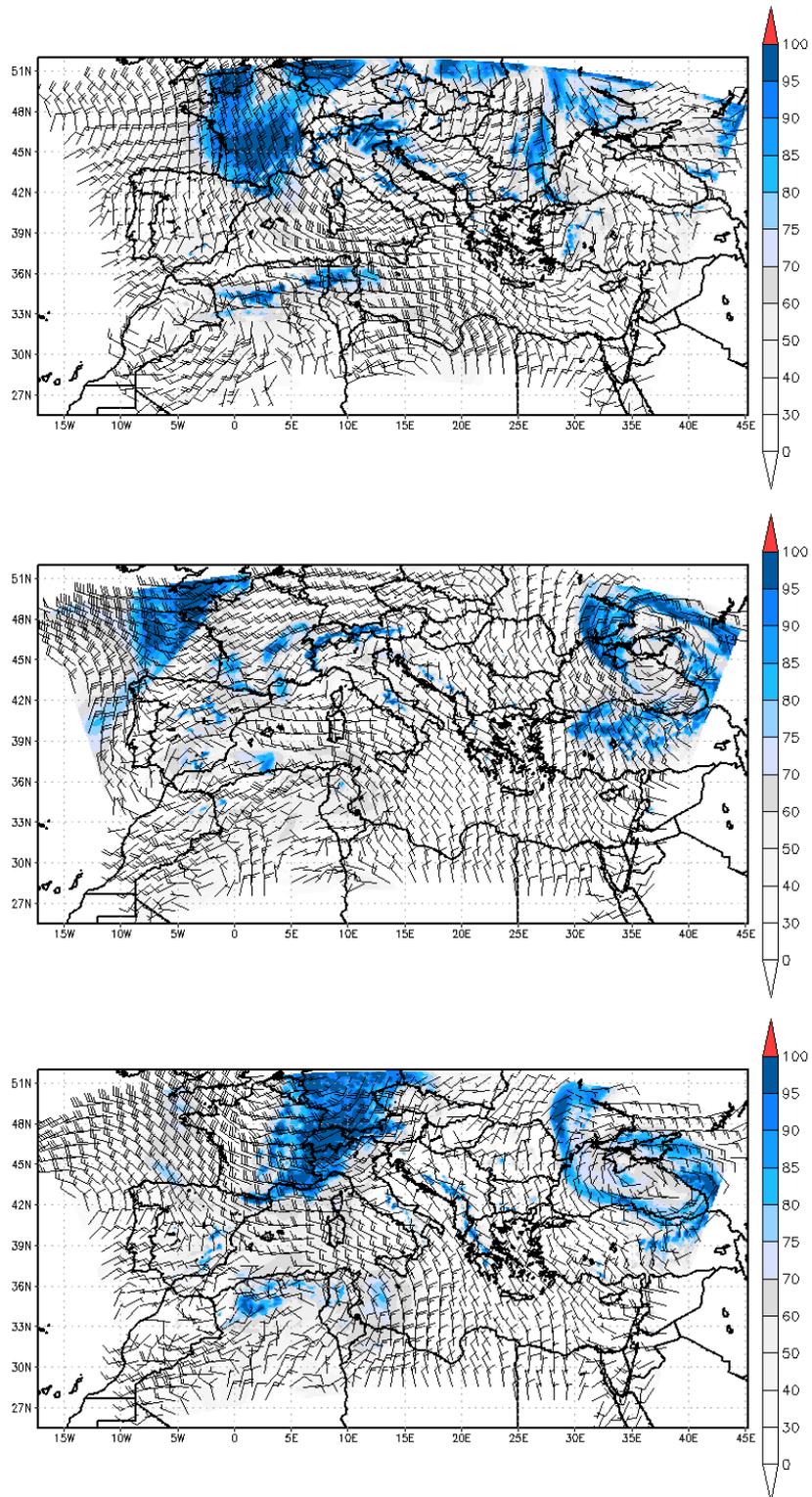


Figure S6. Vertical profiles of the potential temperature (light blue), water mixing ratio (dark blue), wind direction (dark red) and wind speed (light red). Data were corrected for STP using $T = 20^\circ\text{C}$ and $P = 1013.25$ hPa. The water mixing ratio and wind speed are plotted using the upper horizontal axis. The top of the boundary layer Z_b and the wind shear level Z_s are indicated in line and in dashed line respectively. The heights of Z_b and Z_s were situated below the minimum flight level in F42.

