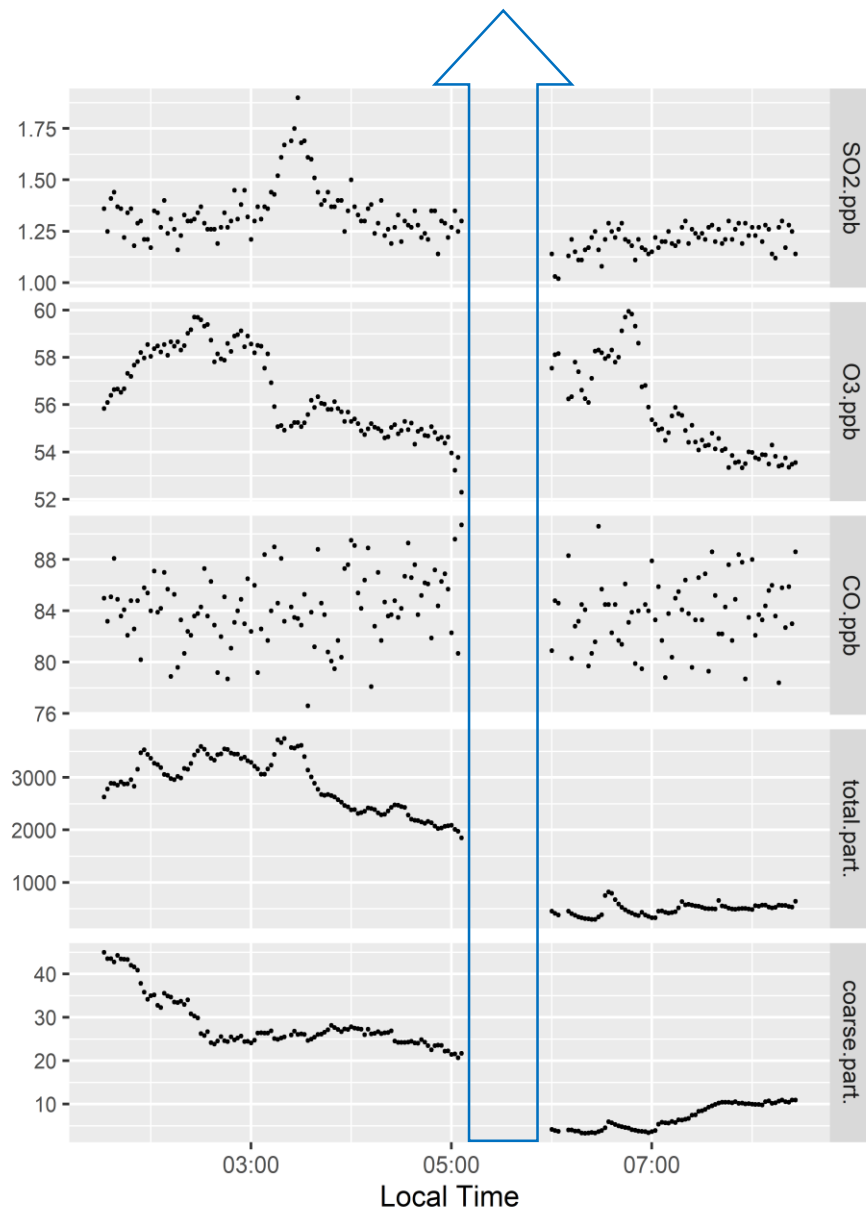
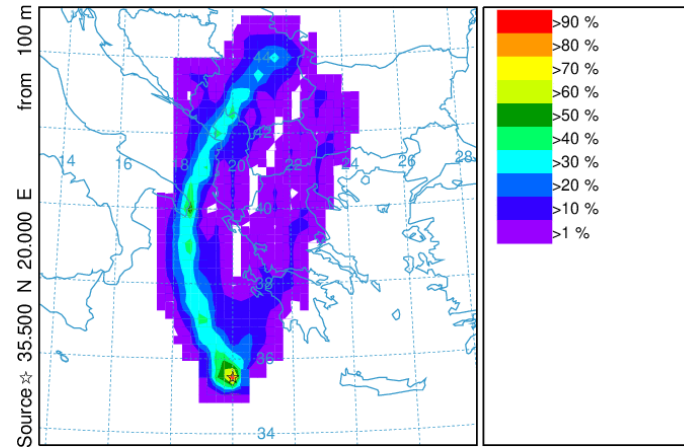


Rain ION

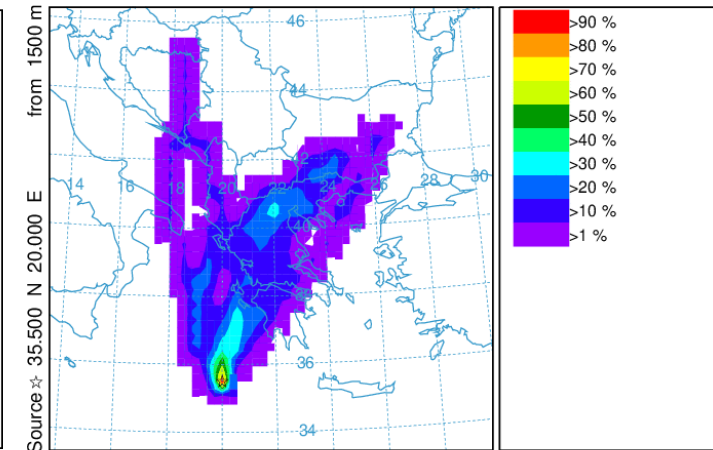


NOAA HYSPLIT MODEL - TRAJECTORY FREQUENCIES
 # trajs passing through grid sq./# trajectories (%) 0 m and 99999 m
 Integrated from 0300 29 May to 0900 25 May 17 (UTC) [backward]
 Freq Calculation started at 0000 00 00 (UTC)



Job ID: 156569 Job Start: Tue Jul 20 17:12:59 UTC 2021
 Source 1 lat.: 35.360000 lon.: 19.920000 height: 100 m AGL
 Initial trajectory started: 300Z 29 May 17
 Direction of trajectories: Backward Trajectory Duration: 48 hrs
 Frequency grid resolution: 0.50 x 0.50 degrees
 Endpoint output frequency: 60 per hour
 Number of trajectories used for this calculation: 8
 Meteorology: 0000Z 1 May 2017 - reanalysis

NOAA HYSPLIT MODEL - TRAJECTORY FREQUENCIES
 # trajs passing through grid sq./# trajectories (%) 0 m and 99999 m
 Integrated from 0300 29 May to 0900 25 May 17 (UTC) [backward]
 Freq Calculation started at 0000 00 00 (UTC)



Job ID: 156678 Job Start: Tue Jul 20 17:15:15 UTC 2021
 Source 1 lat.: 35.360000 lon.: 19.920000 height: 1500 m AGL
 Initial trajectory started: 300Z 29 May 17
 Direction of trajectories: Backward Trajectory Duration: 48 hrs
 Frequency grid resolution: 0.50 x 0.50 degrees
 Endpoint output frequency: 60 per hour
 Number of trajectories used for this calculation: 8
 Meteorology: 0000Z 1 May 2017 - reanalysis

Figure S1: Atmospheric conditions during rain ION period, the 29 May 2017:

On the left: Temporal variation of major gas mixing ratio (NO_x, SO₂, O₃, CO and CO₂) and of number concentrations of particles in part. cm⁻³ (« total part. » for the total particle number concentration and « coarse part. » for particle number concentration with aerodynamic diameter superior to 0.26 μm).

On the right: HYSPLIT backward trajectories frequencies at 100 m and 1500 m for 48 hours ending at the R/V position during the rain ION (http://ready.arl.noaa.gov/HYSPLIT_traj.php). The backtrajectories frequencies calculated for 1000, 2000 and 3000m (not shown) present the same origin than the trajectory at 1500m.

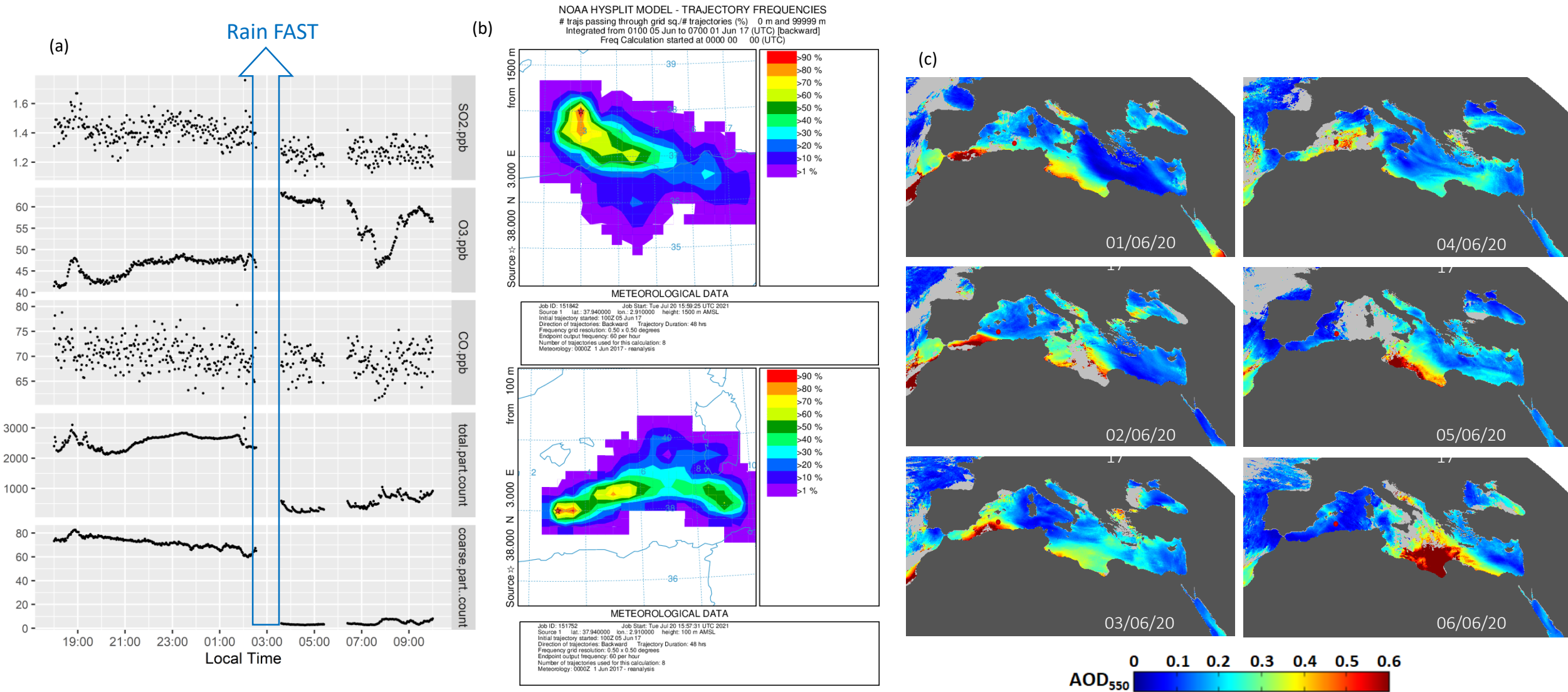


Figure S2: Atmospheric conditions during rain FAST period, the 05 June 2017:

(a) Temporal variation of major gas mixing ratio (NO_x, SO₂, O₃, CO and CO₂) and of number concentrations of particles in part. cm⁻³ (« total part. » for the total particle number concentration and « coarse part. » for particle number concentration with aerodynamic diameter superior to 0.26 μm).

(b) HYSPLIT backward trajectories frequencies at 100 m and 1500 m for 48 hours ending at the R/V position during the rain ION (http://ready.arl.noaa.gov/HYSPLIT_traj.php).

(c) Mean daytime dust aerosol optical depth at 550 nm (AOD₅₅₀) from MSG/Seviri. The red dot south of Balearic Islands indicates the FAST station location.

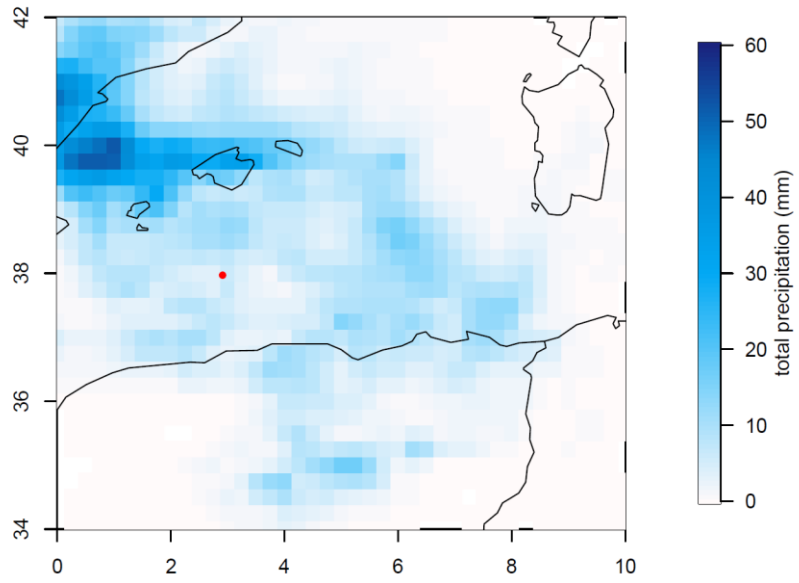


Figure S3: Total precipitation (mm) at FAST station between June 4 at 20:00 UTC and 5 at 9:00 UTC from ERA5 ECMWF reanalysis. The red dot indicates the R/V position.