

Supplementary Information for: Transport of anthropogenic and biomass burning aerosols from Europe to the Arctic during spring 2008

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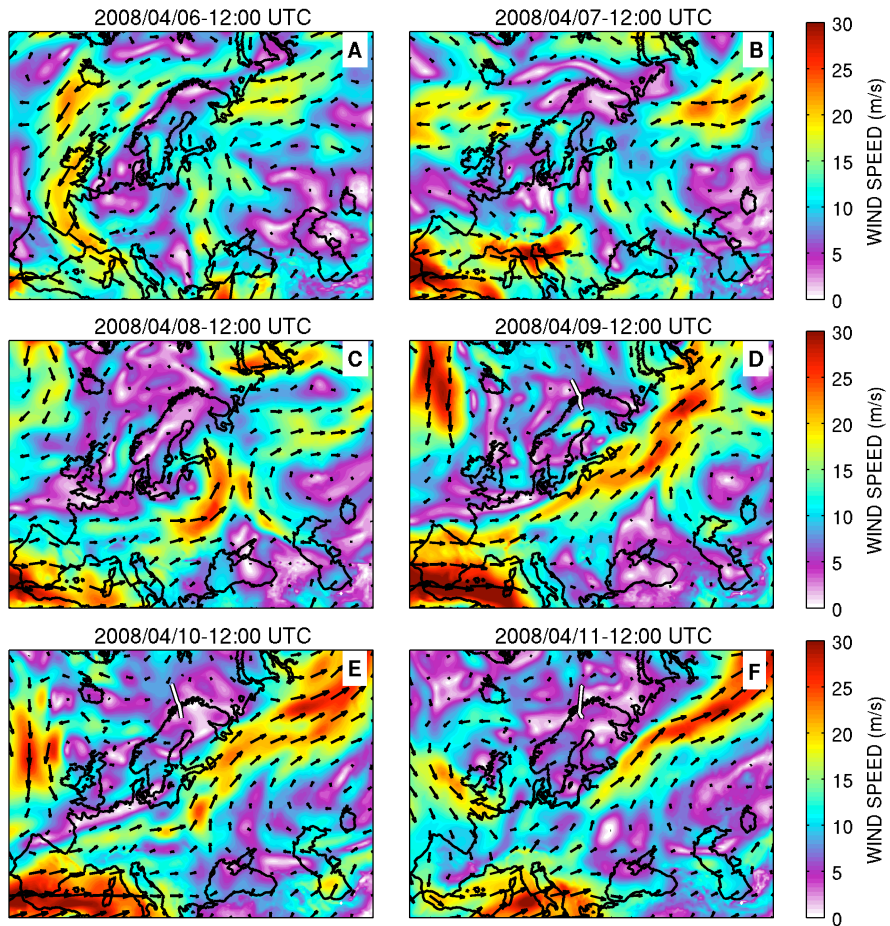


Figure S1. 700 hPa wind speed with arrows showing wind direction on 6, 7, 8, 9, 10 and 11 April at 12 UTC. POLARCAT-France flight tracks are shown for the 9, 10 and 11 April flights on panels D, E, F respectively (in white).

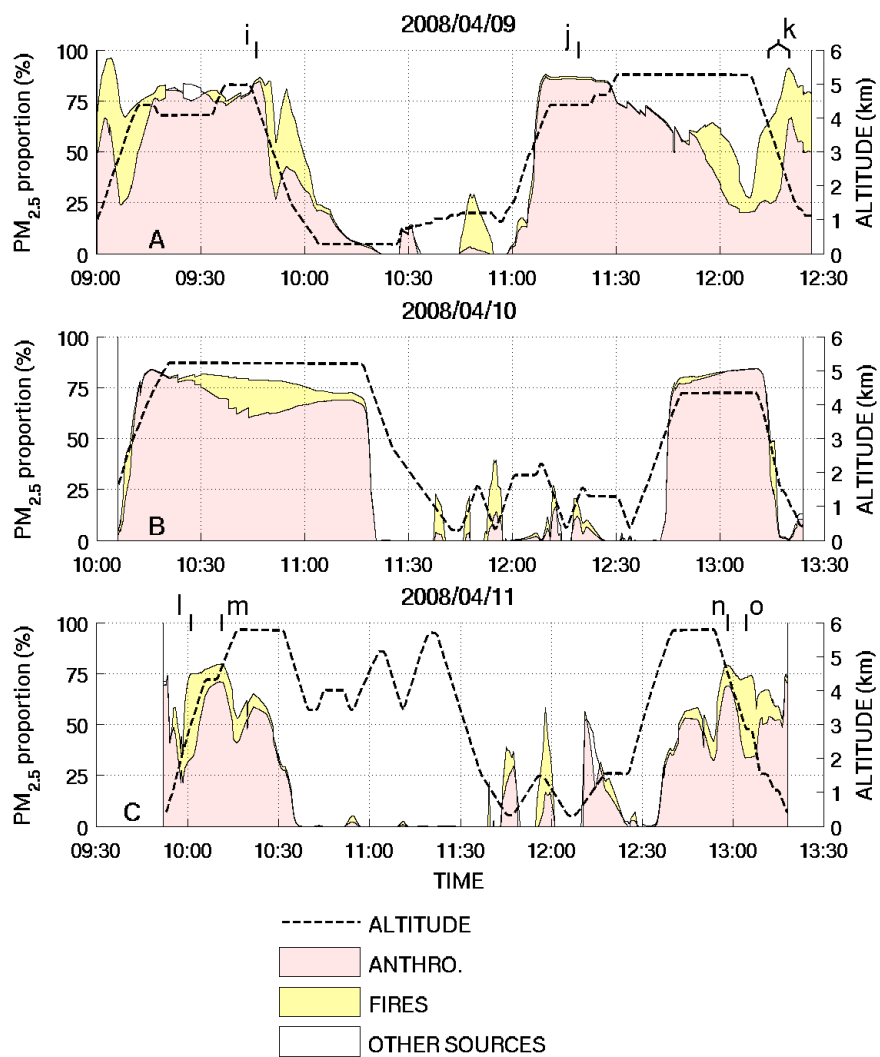


Figure S2. Stacked area plot representing the percentage of total PM_{2.5} attributed to anthropogenic (pink) and fire (yellow) emissions, along the POLARCAT-France spring flight tracks. Plane altitude is in black. (A) 2008/04/09 flight (B) 2008/04/10 flight (C) 2008/04/11 flight.

BOUNDARY CONDITION PLUME : 2008/04/10-12:40

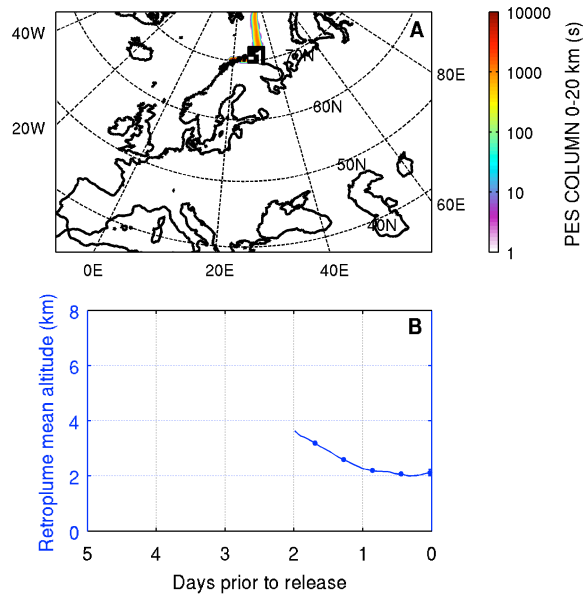


Figure S3. Backward mode FLEXPART-WRF simulation showing typical transport pathways for a boundary condition plume (originating on the 2008/04/10, at 12h40 UTC on the flight track). (A) Column integrated PES, (B) plume mean altitude with RMS error bars.

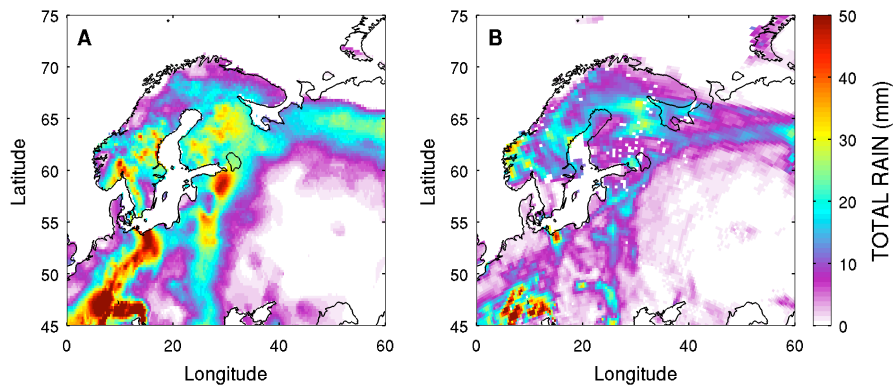


Figure S4. Total accumulated rain between 4 April 2008 0 UTC and 12 April 2008 0 UTC (A) in the ECA E-OBS 0.25° gridded dataset (B) in WRF-Chem (CTL). An ocean mask (also masking inland lakes) has been applied to the map in panel B.

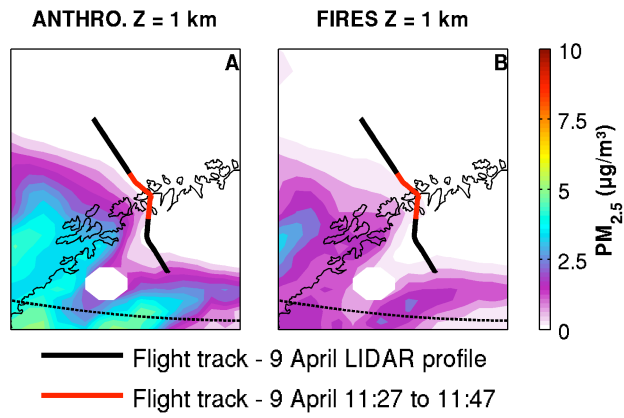


Figure S5. Map of anthropogenic (A) and fire (B) PM_{2.5} sections at 1 km, on 9 April 2008 at 12 UTC. The flight track during the LIDAR profile shown in figure 10 is shown in black, and the part of the flight (from 11:27 to 11:47) when an aerosol plume was measured by LIDAR at 1 km is highlighted in red.

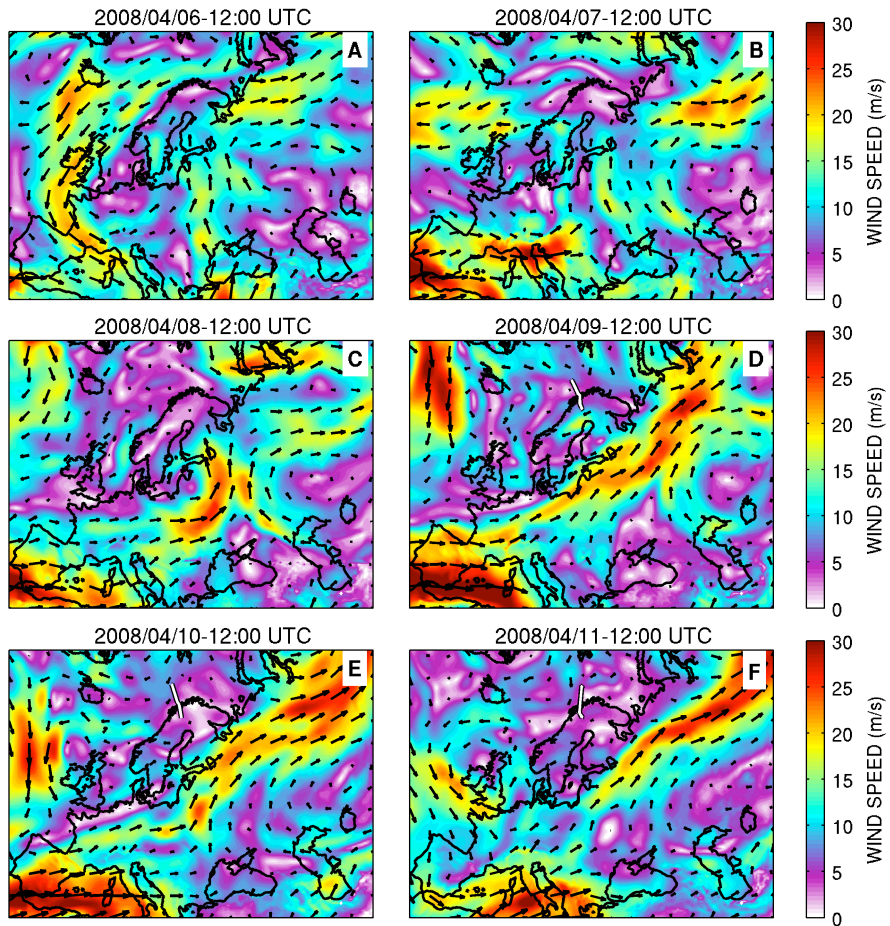


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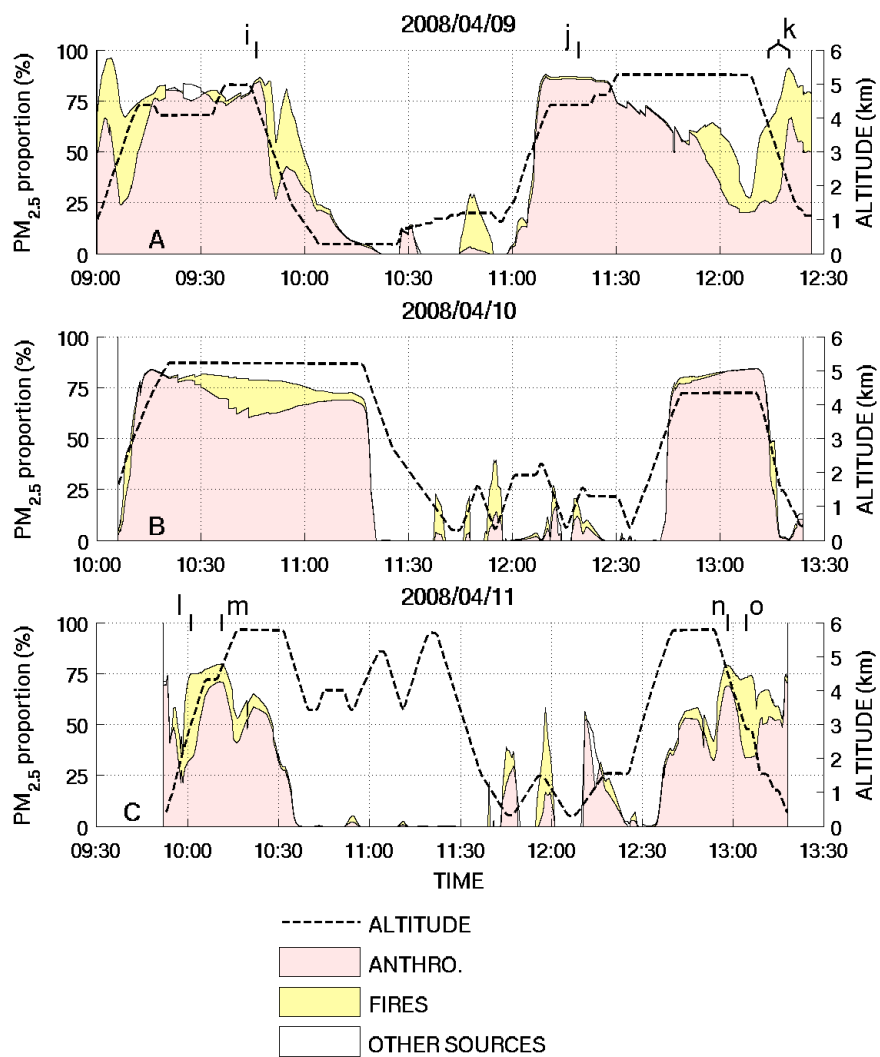


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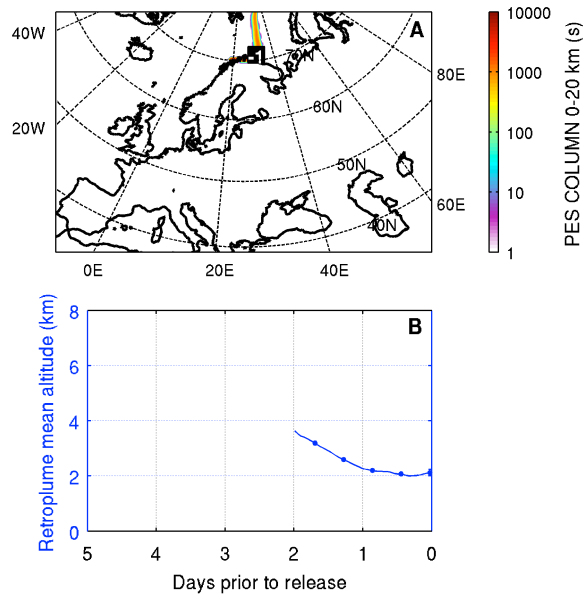


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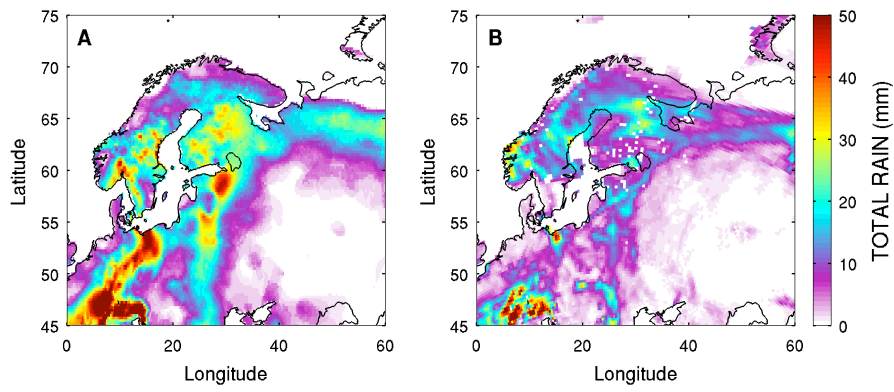


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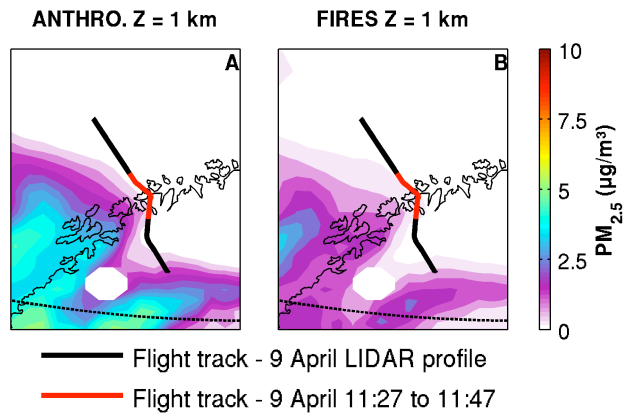


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