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Supplement of

Evaluation of the size segregation of elemental carbon (EC) emission in Europe: influence on the simulation of EC long-range transportation

Y. Chen et al.

Correspondence to: Ya-Fang Cheng (yafang.cheng@mpic.de) and Alfred Wiedensohler (ali@tropos.de)

Table S1. Point source number for the different ECc emission fraction level in the different regions.

Point source ECc emission fraction unit: [%]	**Number of point sources in each region**		
	Germany and nearby region: 54.5°N 6°E 18°E 48°N	**Melpitz region:** 52°N 12°E 15°E 51°N	**Bösel region:** 54°N 7°E 9°E 53°N
90-100	22	0	8
80-90	15	3	2
60-80	5	0	2
30-60	18	0	0

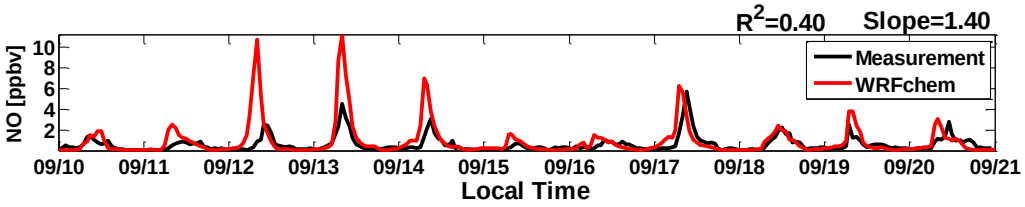

Figure S1. Comparison of NO concentration between Melpitz measurements and WRF-Chem D04 results. Model results indicated by the red lines and measurements by the black lines. The correlation coefficient (R^2) and linear fit slope are shown on the top of picture.

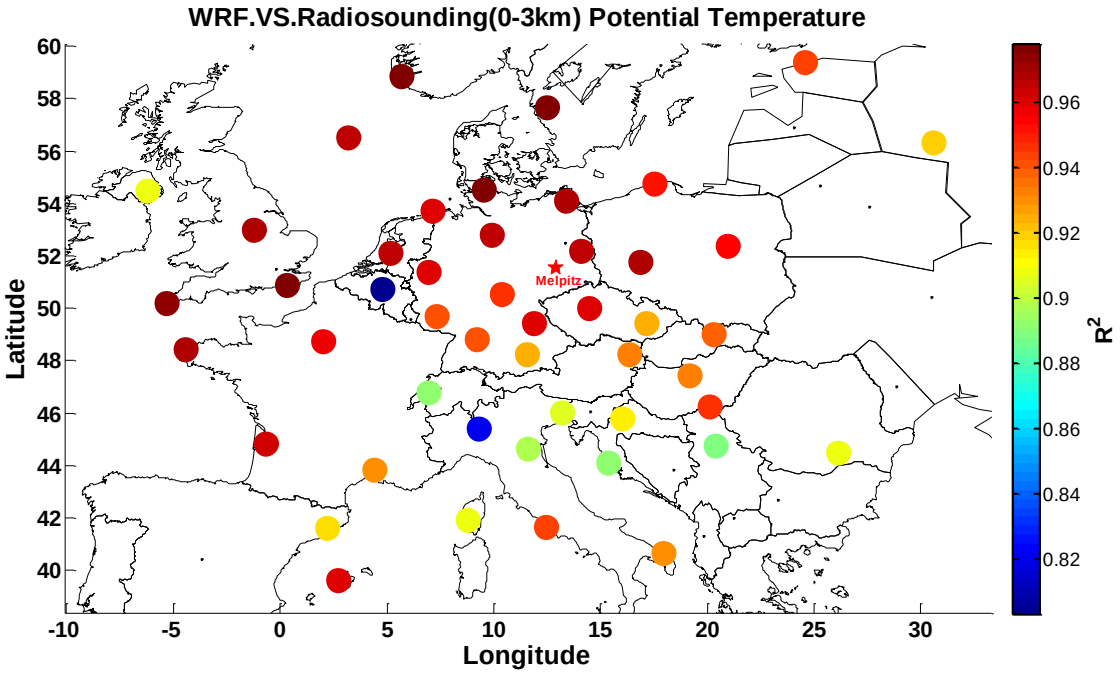

Figure S2. Correlation coefficient (R^2) map of the potential temperature under 3 km between WRF-Chem model and radio-sounding measurements. Melpitz is marked as red star.

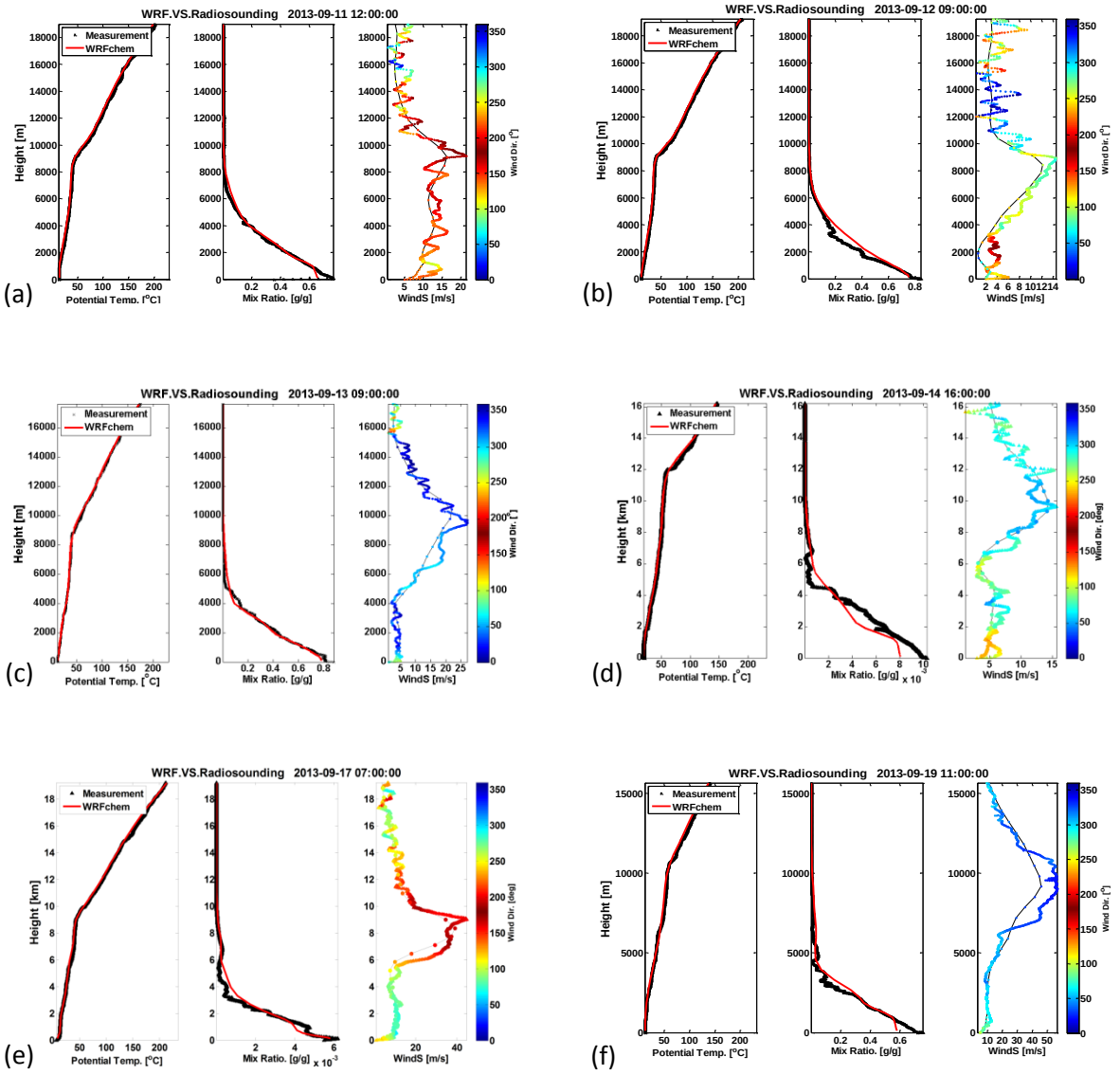

Figure S3. Some examples for meteorological variables comparison between Melpitz radio-sounding and WRF-Chem. (a) 2013-09-11 12:00; (b) 2013-0-12 09:00; (c) 2013-09-13 09:00; (d) 2013-09-14 16:00; (e) 2013-09-17 07:00; (f) 2013-09-19 11:00.

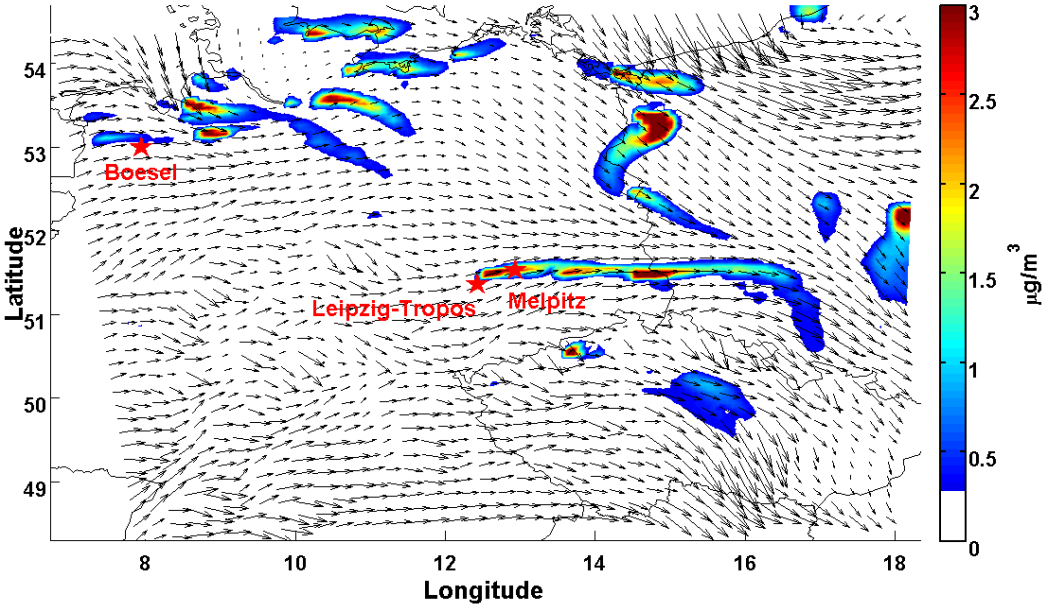

Figure S4. The model result of horizontal distribution for EC in bin08 [5-10 µm], at 08:00 13 September 2013. Melpitz, Leipzig-TROPOS and Bösel are marked by red stars.