Supplement material for “Air quality observations onboard commercial and targeted Zeppelin flights in Germany - a platform for high-resolution trace-gas and aerosol measurements within the planetary boundary layer”

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Figure S1: Hatch box setup. Only the location of the LTE antennas is included in this picture with dashed lines.

Figure S2: Vertical distribution of pollutants in Bonn during different seasons. Size indicates the number of data points included in each marker.

Figure S3: Vertical distribution of pollutants in Frankfurt (left) and Bonn (right) at different time intervals.

Figure S4: Vertical distribution of pollutants in Frankfurt (left) and Bonn (right) at different time intervals.

Figure S5: Qualitative representation of the planetary boundary layer dynamics during the Zeppelin flights (Stull 1988).

Figure S6: Sensitivity analysis for the NO_x to CO slope calculations during the Zeppelin flights based on the goodness of the fit indicated by the R^2 and the time step chosen to fit the NO_x and CO data.

Figure S7 Net electricity generation of the Weisweiler coal power plant in Germany. Green line indicates the yearly week average for 2020 and the orange line the electricity generation during the week of the flights. Red rectangle indicates the Zeppelin flight period.

Table S1: Ground-based monitoring stations. Details on the data retrieval can be found here:
<https://www.umweltbundesamt.de/daten/luft/luftdaten/stationen> (last visited: 2021/10/14).

EEA code	Latitude [°N]	Longitude [°E]	Station Names	Station Type	Station Area
DEHE005	50.1017	8.54252	Frankfurt-Höchst	background	urban
DEHE150	50.1133	8.59426	Frankfurt-Niedwald	background	urban
DEHE008	50.12533	8.74634	Frankfurt-Ost	background	urban
DEHE135	50.0755	8.57631	Frankfurt-Schwanheim	background	urban
DEHE011	50.1358	8.92157	Hanau	background	urban
DEHE018	50.0103	8.4515	Raunheim	background	urban
DEHE022	50.0503	8.24495	Wiesbaden-Süd	background	urban
DEHE041	50.1246	8.69191	Frankfurt-Friedb. Landstr.	traffic	urban
DEHE116	50.1014	8.78489	Offenbach-Untere Grenzstr.	traffic	urban
DEHE037	50.0772	8.23032	Wiesbaden-Ringkirche	traffic	urban
DEHE112	50.0721	8.22887	Wiesbaden-Schiersteiner Str.	traffic	urban
DEHE052	50.2219	8.44608	Kleiner Feldberg	background	rural