Regional Research Station Melpitz

The Melpitz site is a rural background site located in Germany near the city of Torgau in the glacial valley of the river Elbe (12°56'E, 51°32'N, 86 m a.s.l.). The research station Melpitz was operated by the Leibniz-Institute of Tropospheric Research (TROPOS), Leipzig. The site is integrated in EMEP (level 3, code DE44) in collaboration with the German Federal Environment Agency and a GAW regional station.

The measuring field is situated on a flat meadow surrounded by agricultural land (Spindler et al. 2001; 2010). Results of aerosol characterization from this station were compared with results from other stations in Europe (EMEP 2010, 2016; Hamed et al. 2010; Aas et al. 2012; Alastuey et al. 2016) and used for estimating different sources and rural background concentrations in comparison to cities in the surroundings (e.g. Hermann et al. 2006; Gnauck et al. 2011). The dominating wind-direction sector for Melpitz is South-West and maritime air reach the field after crossing a large area of the western part of middle Europe. The second main wind direction sector is East with mostly dry continental air masses influenced by long range transport from anthropogenic emissions in Poland, Belarus, Ukraine, Slovakia, and the Czech Republic arrive Melpitz. There are only very few local sources for anthropogenic emissions in direction East in Germany in close distance to the Polish border which is only about 130 km east of Melpitz. The site is representative for a large rural area in Saxony (East and North-East German lowlands). The mean yearly mass concentration in 2011 for particles PM10 and PM2.5 were found to be 24.1 µg m⁻³ and 20.1 µg m⁻³, respectively. The mean PM2.5/PM10 ratio was 0.83. Such quite high PM2.5/PM10 ratios are typical for rural lowland sites in central Europe.

Melpitz site, view to East
(Foto: Gerald Spindler / TROPOS)


Gnauk, T., Müller, K., Brüggemann, E., Birmili, W., Weinhold, K., van Pinxteren, D., Löschau, G., Spindler, G., Hermann, H.: A study to discriminate local, urban and regional source contributions to the particulate matter concentrations in the city of Dresden, Germany. J. Atmos.Chem. 68, 199-231 (2011)


