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Surface ozone pollution in Poland – observations and modelling support for a two-year assessment 2012-2013

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The concentrations of near-surface ozone in terms of long term objectives and target values are exceeded at many monitoring sites in Poland. At the request of the Chief Inspectorate of Environmental Protection, an assessment of ozone impact on human health and ecosystems in Poland was undertaken, based on the GEM-AQ model calculations for the period 2012-2013.

GEM-AQ (Kaminski et al., 2008) is a comprehensive chemical weather model where air quality processes (chemistry and aerosols) are implemented on-line in the operational weather prediction model developed at Environment Canada (Cote et al., 1998). For this project the model was run in a self-nesting mode with the target grid centered over Poland with the resolution of 5 km. The EMEP emission inventory was refined based on GIS information.

Modelling results were evaluated against ozone and NO_2 measurements from available monitoring stations in Poland using the DeltaTool developed in the scope of FAIRMODE. We will present exposure levels to high ozone concentrations in terms of number of days with exceeded target values as well as indices AOT40 and $SOMO_35$. Differences between exposure diagnostics in 2012 and 2013 will be discussed.