

**P16 Source attribution of tropospheric ozone in WRF-Chem using a tagging technique.**

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Tropospheric ozone is an important air pollutant that can affect human health, and also it damages crops, as well as a short-lived climate forcing pollutant. Attributing ozone concentrations to the contributions from different sources would indicate the effects of locally emitted or transported precursors on ozone levels in specific regions. This information could be used as an important component of the design of emissions reduction strategies by indicating which emission sources could be targeted for effective reductions, thus reducing the burden of ozone pollution.

Using a “tagging” approach within the WRF-Chem model, we can quantify the contribution of individual emission of NO<sub>x</sub> and VOC precursors on air quality. Using a labelling approach, we attribute the modelled ozone to several receptor regions in Europe, as well to several source regions and types. The simulation was carried out over April-September 2010. Thus, we see that during late spring and early autumn, the mean ozone concentration is little influenced by local and European sources, but rather more influenced by long range transport (up to 40% of total ozone concentration). During summer period, the ozone is mainly formed by local and European anthropogenic sources. An important source of ozone in Iberian Peninsula and Russia is attributed to the vegetation fires that took place in August 2010 (up to 29 ppbv in average). From modelled hourly concentrations of tagged ozone sources and types, we have calculated the different ozone metrics, such as mean, MDA8, 95th percentile, SOMO35, W126, and AOT40D. The use of different metrics accentuates the importance of locally emitted precursors to the ozone enhancement in the different regions and highlights area where considerable emission reductions are still needed.