Surface Emissions for Global and Regional Air Quality Forecasting

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Abstract:

In order to drive atmospheric models performing air quality forecasting and analysis of the atmospheric composition, an accurate quantification of surface emissions from anthropogenic and natural sources is required. As part of the European Copernicus Atmosphere Service (CAMS), diverse emission datasets are being developed. Global anthropogenic emissions for about ten sectors for a large number of atmospheric compounds, including speciated volatile organic compunds for the 2000-2018 period, are being made available to the community, at a 0.1x0.1 degree resolution. Regional anthropogenic emissions for Europe are also being developed for 2000-2015 at a spatial resolution of about 0.125° x 0.0625°, for twelve sectors. In addition, detailed emissions from ships based on ship identification systems are being developed. Different datasets providing natural emissions are being processed, such as the emissions of biogenic volatile organic compounds from vegetation, nitrogen compounds emissions from soils, emissions from the oceans and emissions from volcanoes. Methodologies for evaluating the emissions and their consistency at different scales are being generated. Temporal profiles, as well as algorithms to take into account the impact of meteorological conditions on emissions are being considered.
Details on all these datasets will be provided, as well as comparison with other available emissions distributions. All the emissions can be downloaded from the ECCAD (Emissions of Atmospheric Compounds and Compilation of Ancillary Data), which will be presented.