

The figures in the archive show daily mean concentration maps of NO₂ calculated by means of the BeLEUROS model. The visualization program for the concentration fields has been developed by IRCEL, the Belgian Interregional Environment Agency.

The EUROS model has originally been developed by RIVM (National Institute for Public Health and Environment) in the Netherlands for the modelling of episodes of winter smog and summer smog. In 2000 this version was made operational for Belgium (BeLEUROS). From 2004 on BeLEUROS has been extended with algorithms for atmospheric particles by VITO. BeLEUROS uses shifted pole coordinates with the equator located at 60 degrees northern latitude. The model domain is located between -8.25 and 20.35 degrees longitude and -23.1 and 7.15 degrees latitude (in shifted pole coordinates). The base grid contains 52 x 55 grid cells with a resolution of approximately 60 x 60 km. Local grid refinement is possible down to a resolution of approximately 7.5 x 7.5 km. In the vertical direction, the atmosphere is represented in BeLEUROS by 4 layers: the surface layer of 50 m height, the mixing layer with variable height in time and space, the reservoir layer, which serves as reservoir for e.g. ozone and the top layer, extending from the top of the reservoir layer to a height of 3000 m.

Emissions are used from point sources and area sources for 6 anthropogenic pollutants: NO_x, SO₂, NMVOC, NH₃, PM_{2.5} and PM_{10-2.5}. Emissions are taken as national totals per economical sector from EMEP and are geographically refined inside the grid refinement area. Outside of the refined grid, gridded EMEP-emissions are taken. Annual emission totals are broken down to hourly emissions using time factors for the distribution of emissions over the months, the days of the week and the hours of a day. Biogenic isoprene emissions are calculated from meteorological data and land use data according to Simpson et al., 1995. The emissions of NO_x are distributed for each sector between NO and NO₂ and the ones of primary PM are distributed between the different primary aerosol components such as primary organic, primary inorganic and elementary carbon. Meteorological input data is used in the form of 6-hourly reanalysed fields from ECMWF for temperature, relative humidity, wind velocity, wind direction, cloud cover and precipitation. Additionally, 6-hourly fields of the mixing layer height calculated (by the Belgian Interregional Environment Agency) from ECMWF data are used.

In order to take long range transport effects into consideration, the originally used climatological boundary conditions (concentrations for the pollutants at the boundaries of the model domain) have not been used in these calculations. Instead, BeLEUROS was nested into daily mean concentrations fields of the TM4 model, provided by KNMI. In this way, actual boundary concentrations for a specific period are used for the calculations.