

Development of a Methodology for Temporal and Spatial Resolution of Greenhouse Gas Emission Inventories for Validation

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Abstract

Data sets on GHG emissions, which are reported to UNFCCC are available as annual country totals without further temporal and spatial differentiation. To validate such data measurements of GHG concentrations can be used. However as these measurement data are point measurements in space and time, they have to be compared with concentrations calculated by atmospheric models that need emission data with high temporal and spatial resolution. Thus a methodology is needed that converts annual country data into data with high temporal (e.g. hourly) and spatial (grid) resolution. In this paper such a methodology is described. It basically uses the methods developed for air pollutants (like SO₂, NO_x, NH₃) and adjusts them, so that can be applied to GHG emission sources. For the spatial resolution, available statistical and land use data is used to allocate activities to the grids in a country. For the temporal resolution, statistical and meteorological data and information about typical daily activity patterns are used to distribute annual values to the hours of a year.

This presentation will describe the approach applied to provide GHG emission data sets in high spatial and temporal resolution distinguishing further different height levels of emissions and present some exemplary results.