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Short Title: CO₂ emissions from domestic aviation, kt/grid

Full Title: Map: Carbon dioxide (CO₂) emissions from domestic aviation (in kilotonnes per grid cell)

Diffuse Sources / General information:

The map shows the carbon dioxide (CO₂) emissions to air from domestic aviation (below an altitude of 1000 m) of the EU27 and EFTA4 countries per 5x5 km² grid cell for the reference year 2008, available in 2010. Diffuse emissions of carbon dioxide (CO₂) are expressed in kilotonnes per square kilometre per grid cell.

Diffuse Sources / Methodology:

Geographic Information System (GIS) overlay:

Emissions of carbon dioxide (CO₂) to air from domestic aviation (below an altitude of 1000 m) are distributed according to the reporting of the countries to [UNFCCC](#) (Framework Convention on Climate Change) using the location of airports (GISCO), land use information and domestic landing and take-off cycles (GISCO). The emissions are allocated using GIS overlay techniques for distribution into grid cells with a spatial resolution of 5x5km². The dataset is then transformed into vector polygons and projected into the E-PRTR WGS84 standard projection.

Comparability

Considerable spatial variation is apparent. The main reason for the difference is:

- The spatial pattern of emissions from domestic aviation is dependent on the spatial distribution of airports across Europe and their landing and take-off cycles.

Diffuse Sources / Source Data:

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Emissions data

Emission data used are national totals including the release from civil domestic aviation (CRF 1A3a) for the year 2008. The emissions from the CRF 1A3a sector are reported without a distinction between LTO (below an altitude of 1000 m) and cruise. In an additional step, the reported emissions are distinguished into LTO and cruise emissions using NO_x emissions, reported to CLRTAP, as a proxy. For the emissions maps only the LTO emissions are considered. The total civil domestic aviation emissions are based on data sets officially reported as national emission totals by countries to the United Nations Framework Convention on Climate Change ([UNFCCC](#)) and to the EU Greenhouse Gas Monitoring Mechanism. Emissions data used for the gridding procedure of CO₂ are national totals from the UNFCCC in Common Format for Reporting (CRF). All emissions from domestic aviation are considered as diffuse releases in the E-PRTR Register.

Administrative boundaries data

[EUROSTAT GISCO Administrative units and Statistical units](#)

Airport location data

Airport locations from [EUROSTAT GISCO transport networks](#) data (2009 geo data set on airports)

Activity data of domestic aviation

Activity data from [EUROSTAT](#) for 2008 on domestic LTO cycles at airports are used

Land use data

[CORINE Land Cover data](#) ([CLC₂₀₀₆](#), [CLC₂₀₀₀](#) and [CLC_{CH1990} for Switzerland](#)) are merged in order to cover all EU27 and EFTA4 countries. Harbour location data are derived using CORINE Land Cover data (CLC₂₀₀₆, CLC₂₀₀₀ class "1.2.3: Port areas")