

## Map 32

**Short Title:** CO<sub>2</sub> emissions from international shipping, kt/grid

**Full Title:** Map: Carbon dioxide (CO<sub>2</sub>) emissions from international shipping (in kilotonnes per grid cell)

### Diffuse Sources / General information:

The map shows the diffuse emissions of carbon dioxide (CO<sub>2</sub>) to air from international shipping of the EU27 and EFTA4 countries per 5x5 km<sup>2</sup> grid cell for the reference year 2008, available in 2010. Diffuse emissions of carbon dioxide (CO<sub>2</sub>) are expressed in kilotonnes per grid cell.

### Diffuse Sources / Methodology:

#### Geographic Information System (GIS) overlay:

Emissions of carbon dioxide (CO<sub>2</sub>) to air from international shipping are distributed according to the reporting of the countries to the United Nations Framework Convention on Climate Change ([UNFCCC](#)), using the location of the harbours (GISCO), land use information (CORINE), information on the spatial pattern of coastal, international shipping routes and/or on navigable inland waterways. The emissions are allocated using GIS overlay techniques for distribution into grid cells with a spatial resolution of 5x5km<sup>2</sup>. 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 is dependent on the international navigation route and/or on inland water ways and the spatial density of vessel traffic

## **Diffuse Sources / Source Data:**

Map: Carbon dioxide (CO<sub>2</sub>) emissions from international shipping (in kilotonnes per grid cell)

### **Emissions data**

Emission data used are national totals including releases from international maritime navigation (CRF 1A3d) and International maritime transport (CRF 1C1b) into air from international shipping for the year 2008. These 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 gridding procedure of CO<sub>2</sub> are national totals from CLRTAP Nomenclature For Reporting (NFR). All international shipping emissions are considered as diffuse releases in the E-PRTR Register.

### **Administrative boundaries data**

[EUROSTAT GISCO Administrative units and Statistical units](#): Country boundaries and boundaries of administrative units (NUTS3)

### **Activity data of international shipping**

[Global Ship Emissions Proxies](#) from [Wang et al. 2008](#)

[TRANS-TOOLS](#) river network traffic volume data

[Voies Navigables d'Europe \(VFN\)](#) information on accessibility of inland waterways

[Eurostat, GISCO](#): Watercourses from EuroRegional Map v30: Hydrography (HYDRO)