Dataset Information:

Title	Cultivation of Organic soils
Abstract	Greenhouse gas (GHG) emissions data from cultivation of organic soils are those associated with nitrous oxide gas emissions from drained histosols under cropland and grassland. Data is computed at Tier 1 and complemented by geo-spatial data, following the 2006 IPCC Guidelines for National GHG Inventories (IPCC, 2006). Available by country, with global coverage and relative to the period 1990-present and projections for 2030 and 2050.
Supplemental	This sub-domain contains data on GHG emissions, associated emission factors and underlying activity data. The GHG emission estimates refer to the year 2000, corresponding to the reference year of the land cover map used (EC-JRC, 2003). Values for the year 2000 are replicated over the entire time series 1990-present, including projections for 2030 and 2050. The FAOSTAT Emissions data are estimates by FAO and do not coincide with GHG data reported by member countries to UNFCCC. The database is intended primarily as a service to help member countries assess and report their emissions, as well as a useful international tool for QA/QC procedures and data analysis. The FAOSTAT Emissions data are disseminated publicly to facilitate continuous feedback from member countries.
Creation Date	2013
Last Update	2013
Data Type	Climate Change - Greenhouse Gases
Category	Environment
Time Period	1990-present, projections to 2030 and 2050
Periodicity	Annual
Geographical Coverage	World
Spatial Unit	Country aggregation. Data processed at pixel level.
Language	Multilingual (EN, FR, ES)

Methodology and Quality Information:

Methods and processing

GHG emissions data from cultivation of organic soils are those associated with nitrous oxide gas from cultivated organic soils under cropland (item: cropland organic soils) and grassland (item: grassland organic soils). The FAOSTAT data are computed at Tier 1 following IPCC, 2006, Vol. 4, Ch. 11.

The emissions are estimated at pixel level, using the formula:
*Emission = A * EF*

where:

Emission = Annual emissions, in units of kg N_2O–N yr^{-1};

A = Activity data, representing the annual area of cultivated organic soils, in hectares (1).
EF = Tier 1, default IPCC emission factors, expressed in units of kg N_2O–N ha^{-1} (2).

(1) Data are obtained through the stratification of three different global datasets:

i. The Harmonized World Soil Database (FAO *et al*., 2012), used to estimate the area covered by Histosols classes.

ii. The Global Land Cover dataset, GLC2000 (EC-JRC, 2003), used to estimate the amount of cropland and grassland area in each pixel.
For cropland, three “cropland” classes from GLC2000 are used following You *et al*. (2008):

CLASS	NAME	CROPLAND SHARE PER PIXEL
x	Cultivated and managed areas	100%
y	Mosaic: cropland/tree cover/Other natural vegetation	50%
z	Mosaic: cropland/Shrub and/or grass cover	10%

For grassland, two "herbaceous" and two mosaics GLC2000 classes are used, in line with the FAO Land Cover Classification Scheme (LCCS):

CLASS	NAME	GRASSLAND SHARE PER PIXEL
13	Herbaceous Cover, closed-open	100%
14	Sparse herbaceous or sparse shrub cover	50%
17	Mosaic: Cropland / Tree Cover / Other natural vegetation	25%
18	Mosaic: Cropland / Shrub and/or grass cover	45%

iii. The Gridded Livestock of the World for cattle and sheep (Wint and Robinson, 2007), used as an additional mask over grassland organic soils as a proxy to estimate drained area. With this mask, only those pixels with non-zero drained grassland histosols area and livestock density >1 head/ha are included.

For the period 1990-present the activity data reported in this sub-domain is a constant value, representing the year 2000, i.e., the reference year of the GLC2000 database.

(2) The EF values are those specified in IPCC, 2006: Vol. 4, Ch. 11, Tab. 11.1. The EF were assigned at pixel level in order to distinguish the relevant climate zone, as defined in IPCC, 2006: Vol. 4, Ch. 3, Annex 3A.5, using the climatic zones map from the Joint Research Centre of the European Commission (EC-JRC, 2010).

The analysis was carried out in GIS, combining the above datasets. GHG estimates made at pixel level were subsequently aggregated at country level, using the FAO Global Administrative Unit Layers (GAUL) dataset.

Dimensionless conversion factors used are:
44/28, to convert the emissions from kg N_2O-N to kg N_2O gas;
10^{-6}, to convert the emissions from kg N_2O to Gg N_2O; and
GWP-N_2O = 310 (100-year time horizon global warming potential), to convert Gg N_2O to Gg CO_2eq (IPCC, 1996: Technical Summary, Tab. 4 page 22).

The cultivation of organic soils sub-domain contains the following elements available for download: country-level GHG emissions in both Gg N_2O and Gg CO_2eq, by land use type and their total; implied emission factors; and activity data. The analysis was performed worldwide for all countries and territories listed in FAOSTAT. The data are reported also following standard FAOSTAT regional aggregations, plus Annex I and non-Annex I groups.

Uncertainties in estimates of GHG emissions are due to uncertainties in emission factors and activity data. They may be related to, inter alia, natural variability, partitioning fractions, lack of spatial or temporal coverage, spatial aggregation. In the case of cultivation of organic soils, more detailed information is available in the guidelines (IPCC, 2006: Vol. 4, Ch. 11, Section 11.2.1.4).

References

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Data Collection Method	Computed
Completeness	100%
Links	www.fao.org/climatechange/micca/ghg/ www.ipcc-nggip.iges.or.jp/public/

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