Dataset Information:

Title	**Burning - Crop residues**
Abstract	Greenhouse Gas (GHG) emissions from burning crop residues consist of methane and nitrous oxide gases produced by the combustion of a percentage of the crop residues burnt on-site. Computed at Tier 1 following the 2006 IPCC Guidelines for National GHG Inventories (IPCC, 2006); available by country, with global coverage and relative to the period 1961-present, with annual updates, and projections for 2030 and 2050.
Supplemental	This domain contains data on GHG emissions, associated emission factors and underlying activity data. 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 benchmark. The FAOSTAT Emissions data are disseminated publicly to facilitate continuous feedback from member countries.
Creation Date	2012
Last Update	2013
Data Type	Climate Change - Greenhouse Gases
Category	Environment
Time Period	1961-present; projections for 2030 and 2050
Periodicity	Annual
Geographical Coverage	World
Spatial Unit	Country
Language	Multilingual (EN, FR, ES)

Methodology and Quality Information:

Methods and processing	Greenhouse Gas (GHG) emissions from burning crop residues consist of methane (CH_4) and nitrous oxide (N_2O) gases produced by the combustion of a percentage of crop residues burnt on-site. The mass of fuel available for burning should be estimated taking into account the fractions removed before burning due to animal consumption, decay in the field, and use in other sectors (e.g., biofuel, domestic livestock feed, building materials, etc.). The FAOSTAT data are estimated at Tier 1 following IPCC, 2006, Vol. 4, Ch. 2 and 5. The CH_4 and N_2O emissions are estimated at country level, using the formula: *Emission = A * EF* where: *Emission* = GHG emissions in units of g CH_4 and g N_2O; *A* = Activity data, representing the total amount of biomass burned, kg of dry matter (1); *EF* = Tier 1, default IPCC emission factors, expressed in gr CH_4/kg of dry matter and g N_2O/kg of dry matter (2). (1) Activity data are calculated from harvested area statistics and cover the following crops: wheat, maize, rice, and sugarcane. For the period 1961-present, harvested area is taken from FAOSTAT (domain Production/crops). Projections of harvested area for 2030 and 2050 are computed with respect to a baseline, defined as the 2005-2007 average of the corresponding FAOSTAT activity data, and by applying percentage growth rates from FAO perspective studies (Alexandratos and Bruinsma, 2012). The FAO projections used cover some 140 countries. Projections of activity data for countries not included assume the same growth rate of neighboring countries. Harvested area is used to estimate the amount of biomass burned using mean default crop values of mass of fuel available for combustion (M_B) and combustion factor (C_f) in IPCC, 2006: Vol.4, Ch. 2, Tab. 2.4. The mass is then reduced by the fraction of crop residue burnt on-site—assumed to be 10%, following IPCC, 2000: Ch.4, Section 4A.2.1.1.

	(2) Global default EF values taken from IPCC, 2006: Vol. 4, Ch. 2, Tab. 2.5. Dimensionless conversion factors used are: 10^{-9}, to convert the emissions from g CH_4 to Gg CH_4 and g N_2O to Gg N_2O; GWP- CH_4 = 21 (100-year time horizon global warming potential), to convert Gg CH_4 to Gg CO_2eq 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 pg. 22). The burning crop residues domain contains the following data categories available for download: country-level GHG emissions, provided as total, in Gg CH_4, Gg N_2O and Gg CO_2eq; implied emission factors; and activity data. Data are available for all countries and territories, as well as for standard FAOSTAT regional aggregations, plus Annex I and non-Annex I groups. The data period is 1961-present, with annual updates and projections for 2030 and 2050. 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 burning crop residues more detailed information is available in the guidelines (IPCC, 2006: Vol.4, Ch. 5, Section 5.2.4.4). *References* Alexandratos, N. and J. Bruinsma. 2012. World agriculture towards 2030/2050: the 2012 revision. ESA Working paper No. 12-03. Rome, FAO. IPCC. 2000. Good practice guidance and uncertainty management in national greenhouse gas inventories. In: J. Penman et al. (Eds.), IPCC National Greenhouse Gas Inventories Programme, Technical Support Unit, Hayama, Japan. IPCC. 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (Eds), IGES, Hayama, Japan.
Data Collection Method	Computed
Completeness	100%
Links	www.fao.org/climatechange/micca/ghg/ www.ipcc-nggip.iges.or.jp/public/

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