

11.B - Forest Fires

Short Description

Method	AD	EF	Key Category
CS, T2, T1	CS	D	<i>not included in key category analysis</i>

Category *11.B - Forest fires* include emissions from forest fires occurring naturally or caused by humans.

In Germany's forests prescribed burning is not applied. Therefore, all forest fires are categorized as wildfires. - Note that emissions reported here are not accounted for the national totals.

Methodology

For calculating the emissions of wildfires a country specific Tier2 approach was used. The mass of carbon emitted $M(C)$ was calculated using the adapted equation follows the methodology of Seiler and Crutzen (1980) ¹⁾.



$$M(C) = 0.45 * A * B * \beta$$

where:

0.45 = average fraction of carbon in fuel wood;

A = forest area burnt in [m²];

B = mean above-ground biomass of fuel material per unit area in [kg/m²];

β = burning efficiency (fraction burnt) of the above-ground biomass.

The data on forest areas burnt for the period 1990 to 2018 have been taken from the German forest fire statistic (BLE, 2020) ²⁾ managed by the Federal Agency for Agriculture and Food. The mean above-

CO	> 4,409.60
NMVOG	> 389.45
SO _x	> 29.67
NH ₃	> 33.38
TSP	> 700.59
PM ₁₀	> 453.32
PM _{2.5}	> 370.90
BC	> 33.38

In addition, a large-scale fire, which occurred in September 2018, is reported under 11.B. A detailed description can be found in the NIR 2020 in Chapter 6.8.2.5 ⁶⁾, because a large amount of CO₂ emissions were released.

The burned area of the drained moor, which is used as a military facility, covered 1,221 ha. This fire was extensively investigated and documented by the Federal Office for Infrastructure, Environmental Protection and Services of the German Armed Forces. The emissions are calculated according to IPCC GL (2006), chapter 2, form 2.27 ⁷⁾. The product MB×Cf is set to 336 t dm ha⁻¹ according to Table 2.6 and formula 2.7 2013 IPCC Wetlands Supplement ⁸⁾, i.e. it is assumed that the moor was completely drained during the fire.

For the calculation of CO emissions the EF according to Table 2.7, 2013 IPCC Wetlands Supplement 207 g (kg dm)⁻¹, is taken into account. This results in 85 kt CO. For other emissions from land fires on drained organic soils no Tier-1 emission factors exist and are therefore not reported (NO)⁴⁾.

bibliography : 1 : BLE (Bundesanstalt für Landwirtschaft und Ernährung), 2019: Waldbrandstatistik der Bundesrepublik Deutschland für das Jahr 2018, Bonn: 21 S. : 2 : EMEP/EEA, 2013: [<https://www.eea.europa.eu/publications/emep-eea-guidebook-2013> EMEP/EEA air pollutant emission inventory guidebook – 2013. 11.B Forest Fires.] : 3 : König, H.-C., 2007. Waldbrandschutz - Kompendium für Forst und Feuerwehr. 1. Fachverlag Matthias Grimm, Berlin, 197 S. : 4 : Seiler, W., Crutzen P.J.: Estimates of gross and net fluxes of carbon between the biosphere and the atmosphere from biomass burning. Climate Change. 1980 : 5 : USEPA, 1996: Compilation of Air Pollutant Emission Factors Vol.1. Stationary, Point and Area Sources. Report AP-42 (fifth edition). :6: NIR (2020): National Inventory Report 2020 for the German Greenhouse Gas Inventory 1990-2018. Available in April 2020. :7: IPCC (Intergovernmental Panel on Climate Change) (2006): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry and Other Land Use. Eds.: Eggleston S., Buendia L., Miwa K., Ngara T., Tanabe K. (Eds). IEA/OECD, IPCC National Greenhouse Gas Inventories Programme, Technical Support Unit, Hayama, Kanagawa, Japan. <<http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>> [zitiert am 03.09.2015] :8: IPCC (Intergovernmental Panel on Climate Change) (2014b): 2013 Supplement to the IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. Hiraishi, T., Krug, T., Tanabe, K., Srivastava, N., Baasansuren, J., Fukuda, M. and Troxler, T.G.(eds). Published: IPCC, Switzerland <<http://www.ipcc-nggip.iges.or.jp/public/wetlands/index.html>> [zitiert am 03.09.2015] **bibliography**

¹⁾ (bibcite 4)

²⁾ (bibcite 1)

³⁾ (bibcite 3)

⁴⁾ (bibcite 2)

- 5) (bibcite 5)
- 6) (bibcite 6)
- 7) (bibcite 7)
- 8) (bibcite 8)