

# Austria dataset of the AREC Raumberg-Gumpenstein

## Austria

The Federal Environment Agency has been publishing the annual emissions of individual greenhouse gases for Austria since 1990. This provides clarity about the national database, which is also internationally comparable (UBA, 2024) due to the application of the “Guidelines for Greenhouse Gas Inventory” (IPCC 2006,2019). Older data is not available, but the Global Carbon Project (ROBBIE and GLEN, 2024) and earlier works on energy balancing (KRAUSMANN and HABERL, 2002) model emissions from fossil energy consumption.

For the simplified emissions dataset, CO<sub>2</sub> from these and other sources was approximated in a polynomial (GUGGENBERGER et al. 2022). For CH<sub>4</sub>, it is possible to use a historical livestock report from 1890 (Österreichische Statistik, 1890). A description of the agricultural production system can be found in F. KALTENEGGER (1883). Several works are available for the further development of livestock numbers and performance. For N<sub>2</sub>O there is uncertainty at the beginning of the dataset. However, knowledge of the use of mineral fertilizers in connection with livestock numbers allows the modelling of a progression curve.

## Federal states

The Federal Environment Agency's report, “Bundesländer Luftschadstoff-Inventur 1990-2020” (UBA, 2022) provides Austria's federal states with their own emissions data series (UBA, 2022). An aliquot for the federal states was calculated for the year 1990. The historical estimates at the federal level were adopted with this share. The concept of “functional climate protection” is introduced in the report below.

## Functional Climate Protection

Although climate protection decisions are considered on a large scale, they are implemented on a small regional to individual basis. Legal control measures ranging from laws and bans to the taxation of goods production and services interact with a large number of independent systems. These range from social development to the ecosystem of a country. Functional climate protection takes into account the functions and effects of the accompanying systems and considers the life cycle assessment of goods production and ecosystem services of near-natural production systems when making decisions.

### Langzeitbewertung von Treibhausgasemissionen in Österreich

HBLFA Raumberg-Gumpenstein



### Funktionaler Klimaschutz der Kärntner Landwirtschaft



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GUGGENBERGER, T., G. TERLER, M. HERNDL, C. FRITZ und F. GRASSAUER, 2022: Langzeitbewertung von Treibhausgasemissionen in Österreich., HBLFA Raumberg-Gumpenstein, 33 S.

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KRAUSMANN, F. und HABERL, H. (2002): The process of Industrialization from an energetic metabolism point of view. Socio-economic energy flows in Austria 1830-1995. Ecological Economics 41, 177-201.

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Umweltbundesamt, 2024: Austria's annual greenhouse gas inventory 1990-2023, Umweltbundesamt, Wien