Three approaches to measure greenhouse gas emissions from peatlands

Greenhouse gas (GHG) emissions from peatlands can be accounted by three different approaches. These approaches differ in their purpose, the size of the area analyzed and the methodology used to measure emissions. Some areas are assessed by several approaches simultaneously. Due to the different measurement methods, the GHG emissions calculated for the same area may differ between approaches. As a result, emissions calculated using one approach cannot be directly integrated into another.

National GHG inventory

The total GHG emissions of a country are reported as evidence of progress towards internationally agreed climate targets. Peatland emissions are accounted for all peatlands within the national territory that meet the national definition of carbon rich soils.

Private GHG report

GHG emissions for which a private entity (e.g. a company) is responsible, both domestically and internationally, are reported to demonstrate achievement of individual climate targets or to meet legal requirements (e.g. the Corporate Social Responsibility Directive). Peatland emissions are recorded for all peatland areas directly or indirectly influenced by the entity.

Peatland climate protection project

These projects are carried out to reduce GHG emissions. Public and private funds are raised for this purpose. During project implementation and after project completion, realized emission reductions are determined, primarily to demonstrate impact to private and public funders. The project areas considered are typically located within a peatland body and are clearly delineated from surrounding (peatland) areas according to the project guidelines.

Estimation of GHG emissions

The data basis is provided by recorded site characteristics. A sub-area is then assigned to an emission class with predefined site characteristics and GHG emissions per unit area. Alternatively, GHG emissions are calculated using statistical or process-based models.

CH_4
CO_2
N_2O
CH_4
CO_2
CO_2
CO_2
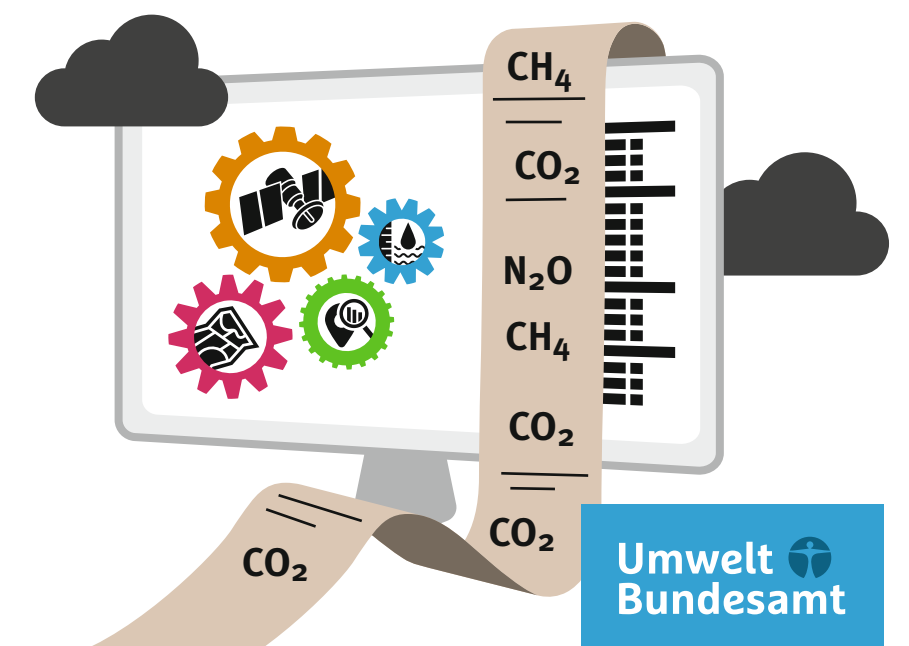
Assessment of peatland site characteristics and land use through:

- Regional/national datasets (e.g. land use maps)
- Analysis of satellite images
- Model-based estimation of site characteristics (e.g groundwater table)
- On-site investigations (e.g. vegetation mapping, groundwater table measurements)

Umwelt Bundesamt