

# Greenhouse gas emissions still an issue

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Credit: AI-generated image ([disclaimer](#))

The amount of greenhouse gases (GHGs) released into the atmosphere as a result of human activities is cause for concern as evidence of major climate change begins to mount. A European research team spanning 15 countries is tackling this challenge by improving our understanding of the problem.

The GHG-Europe ('Greenhouse Gas Management in European Land Use

Systems') project is working to increase awareness of environmental issues, such as drawing attention to the changing uses of Europe's land for agricultural and [forestry production](#) (i.e. estimated to be over 50 %), and the importance of better [land management practices](#) to reduce [greenhouse gas emissions](#).

With EU-funding of EUR 6.6 million, the project is being led by Dr Annette Freibauer from the Thünen Institute of Climate-Smart Agriculture in Germany and includes a consortium of 41 partners.

The GHG-Europe team seeks to quantify the annual to decadal variability of all three major GHGs - carbon dioxide, [methane](#) and nitrous oxide - in [terrestrial ecosystems](#) in Europe. Therefore it is important to know which part of the GHG balance can be managed and which part is driven by [climate variability](#). In doing so, the most vulnerable carbon pools, GHG processes and the associated risks with [climate change](#) in the 21st century can be correctly identified.

The project, which is due to end this summer has gathered data from more than 40 GHG measurement stations distributed across all European climatic regions and ecosystems. Additional data has been integrated from previous European projects, such as CarboEurope and NitroEurope. Together with spatial data on climate, soil and land management, this information provides the basis for model validation and integrated assessment.

With this data, the GHG-Europe team now have the means to assess the future vulnerability of carbon pools and the risks within the climate-carbon system. This has been achieved through novel fingerprinting techniques to identify critical drivers and situations, scenario analyses with biophysical models, as well as the integration of feedback from EU climate and land-use policies and the effects of socioeconomic changes.

Dr Freibauer says: 'The project results will provide new insights - quantitative and qualitative - and a better foundation for decision-making in the international climate policy negotiations. Furthermore, GHG-Europe will provide the scientific basis for factoring out natural variability and human management effects on the GHG balance, which is at the heart of the international climate negotiations for the post-Kyoto regime. Thus, we will quantify the possible contribution of agriculture and forestry to mitigate GHGs.'

Later in the year, GHG-Europe will host a conference entitled, 'Open Science Conference: Greenhouse Gas Management in European Land Use Systems', which will be held in Antwerp, Belgium.

**More information:** GHG-Europe [www.ghg-europe.eu/](http://www.ghg-europe.eu/)

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