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A synthesis of CH_4 and N_2O fluxes in European terrestrial and wetland ecosystems

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Land use impacts the functioning of ecosystems as sinks or sources of greenhouse gases (GHGs). Emissions of the radiatively active trace gases methane (CH_4) and nitrous oxide (N_2O) may diminish, or even cancel out the beneficial climate impacts of the carbon uptake of ecosystems. Therefore, it is important to include the contribution of all GHGs whn estimating the climate effect of the ecosystem-atmosphere exchange. In this presentation we will present and discuss the approach planned for a synthesis of European data on CH_4 and N_2O fluxes from the terrestrial ecosystems including wetlands. Both managed and unmanaged ecosystems will be included, and both published and yet unpublished data will be utilized. Our aim is to find out any single or combined factors that explain the temporal and spatial variation in emission and uptake rates, and the possible interplay between the GHGs. The contribution of CH_4 and N_2O fluxes to carbon dioxide (CO_2) exchange and thus the full carbon balance, as well as to radiative forcing, will be estimated. Land-use based emission factors for natural and managed ecosystems will potentially be produced by employing the Corine Land Cover 2006 classes. One of our aims will be to point out potential under-represented ecosystems in terms of CH_4 and N_2O flux measurements, and put forward recommendations for further studies, in order to provide a reliable flux estimate for as many land cover classes as possible.