Assessing methane wetland emissions through the use of multiple models and GOSAT satellite observations

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Over a 20-year timescale, methane has a radiative forcing comparable to that of CO_2, making it the second most important anthropogenic greenhouse gas. This, along with the influence it has on tropospheric ozone and water vapour, means that it plays a key role in the Earth's atmosphere. However, recent unexpected changes in the methane growth rate have highlighted that there are still gaps in our understanding of the CH4 budget which can arise from the upscaling of the highly accurate, but sparse, surface concentration data to continental scales.

This work focuses on addressing the major uncertainties that currently exist in wetland methane emissions by comparing state-of-the-art chemical transport and climate-chemistry models, using a common set of wetland emission inventories, to the University of Leicester GOSAT CH4 dataset.

We will present regional comparisons of the different model runs with the GOSAT satellite data with a particular focus on wetland regions such as the Amazon and south-East Asia and assess how well the different model runs agree with observations.