Inverse and forward modelling of CH4 using ACTM

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An inverse modelling system for estimating CH4 emissions from 53 land regions is being developed. The results will be compared with existing top-down CH4 emissions, e.g., the Global Carbon Project’s CH4 intercomparison activity.

The forward simulation results will be compared with campaign-based aircraft measurements, and GOSAT total column retrievals. The analysis will focus on the meridional gradient of CH4 in troposphere and column data. Effect of CH4 loss due to hydroxyl radicals (OH) and stratospheric transport on meridional gradient of CH4 will be shown.

A perspective for the future satellite mission as well as issues in modelling total column CH4 (and CO2) using the state-of-the-art chemistry-transport models will be discussed.