

# Inverse modelling of European CH<sub>4</sub> and N<sub>2</sub>O emissions using different inverse models and improved observations

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Within the European project InGOS ("Integrated non-CO<sub>2</sub> Greenhouse gas Observing System") strong efforts have been made for standardizing and improving historical and current in-situ measurements of atmospheric CH<sub>4</sub> and N<sub>2</sub>O, using strict QC procedures. Furthermore, the InGOS dataset includes estimates of repeatability and different components of the uncertainty relative to the WMO GAW mole fraction scales for N<sub>2</sub>O and CH<sub>4</sub>. The improved data set from the 20 European InGOS monitoring stations is analyzed using different independent inverse modelling systems. The ensemble approach aims to provide more realistic estimates of the overall model uncertainties. Model results are validated by comparison with independent measurements, including regular aircraft profiles at 4 sites, and the IMECC aircraft campaign.