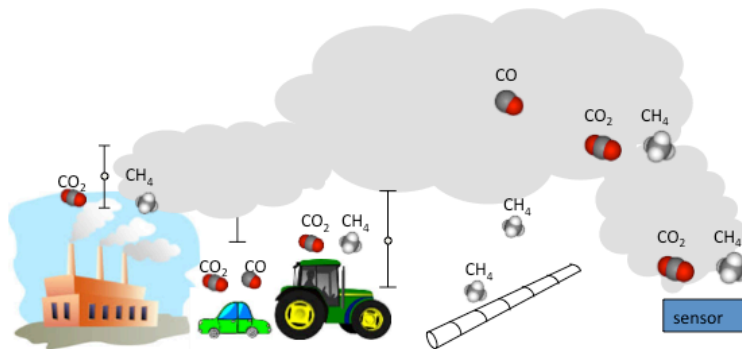


Masterthesis

Atmospheric Modeling Using Weather Research and Forecasting Model (WRF)



“Bottom up”: $E = \text{individual emission} \times \text{economic activity}$

“Top down”: $C = C_0 + H(E)$

E : Emission flux [$\mu\text{mole m}^{-2} \text{s}^{-1}$]

C : Concentration [ppm]

H : Atmospheric “transfer function”

The goal of this master thesis is to utilize an atmospheric transport model (WRF) to understand and quantify emissions of CO_2 and CH_4 from Munich and Berlin. WRF-CHEM simulation in combination with novel greenhouse gas concentration measurements will provide an insight of the emissions in these cities.

Your task could include:

- 1) Setup and run WRF-CHEM simulation in Linux environment
- 2) Compare the simulated meteorological parameters with measured winds, temperatures and pressures
- 3) Compare the simulated atmospheric mixed layer height with the measurements with LiDAR and ceilometers
- 4) Compare the simulated concentration with measured column-averaged concentration in Munich and Berlin

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