The goal of this thesis is to run simulations of atmospheric transport, using the popular weather simulation code WRF (with its extension WRF-CHEM). With these as a basis, we want to analyze emissions of CO$_2$ and CH$_4$ in Munich and Berlin.

Getting to know WRF, you will try to predict greenhouse gas concentrations, and test your predictions against reality, i.e. against the novel measurements in Berlin and Munich.

Ultimately, this project, to which your thesis will be a fundamental contribution, shall enable us to track down emission sources in the Munich and Berlin area – a key prerequisite for assessing greenhouse gas reduction.

**Your task could include:**

1) Set up and run WRF-CHEM simulations in Linux environment
2) Compare simulation output with measurements (validation):
   - meteorological parameters (winds, temperature, pressure)
   - mixed layer height
   - measured column-averaged concentrations

**Could this be interesting for you?**

You are studying engineering or natural/computer science? You have already gotten in touch with Linux and programming? You like doing research, scientific computing and data analysis, and our topic seems to fit your studies? Please don't hesitate to contact us!

Prof. Jia Chen (TUM Innenstadt, room: N1512), jia.chen(at)tum.de
Dr. Stephan Haching (LRZ Garching, E.1.044) haching(at)lrz.de
Dr. habil. Christoph Gerbig (Max-Planck-Institut für Biogeochemie) christoph.gerbig(at)bgc-jena.mpg.de