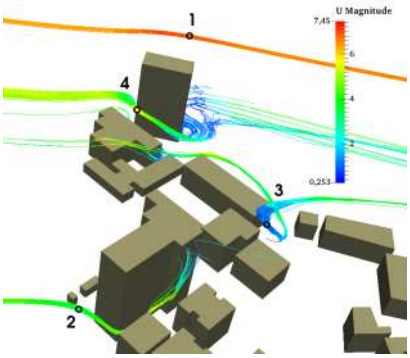
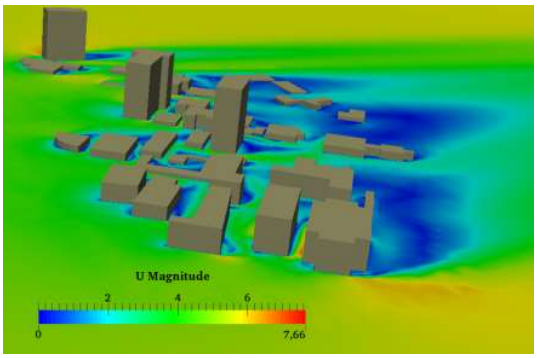
Master Thesis

Greenhouse gas (GHG) simulations in Munich





As is well known, GHG emissions (CO_2 and CH_4 mainly) is the primary anthropogenic cause of climate change and global warming. This topic is and will be essential in the near future for sustainable societies. Since urban emissions are the main contribution, the detailed simulation of the GHG transport and diffusion is necessary in order to better understand and to propose mitigation measures.

You will develop computational fluid dynamics (CFD) simulations of the GHG transport and diffusion in Munich, using the open source code OpenFOAM. You will validate your simulations by comparing results with experimental measurements on a TUM building roof. You will obtain maps of GHG emissions (using the inventory) and concentration (using CFD). You will contribute to the understanding of the GHG problem in Munich, and you will have the opportunity of proposing mitigation actions.

You will learn and obtain experience in CFD atmospheric simulation. You can apply this knowledge in the future to a wide range of applications: wind energy, pollutant transport and diffusion, including GHG, combustion gases and particles, dust, nuclear and biohazard particles, etc.

Your preferable skills and background are:

- Knowledge (at least basic) of CFD and fluid mechanics.
- Experience with CFD software (e.g. ANSYS, OpenFOAM).
- Experience with LINUX operative system.
- High computational skills.
- Motivation and interest in CFD and atmospheric environment.

If you are interested please contact:
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