

## GeoSim / SFB1114 - SCCS / NatRiskChange Fall School on Weather and Climate Modelling

Haus Fläming, Dahnsdorf, Brandenburg

### Monday, 12. October

Introduction: (Rupert Klein, Nikki Vercauteren)

- 10:00-12:30 Challenges in Weather and Climate research
  - Complex feedbacks
  - Processes on multiple scales

**12:30-13:30 LUNCH BREAK**

- 13:30-15:00 State of the art modelling tools and techniques
- 15:30-16:00 Speed networking
- 16:30-18:00 Speed networking (continued)

### Tuesday, 13. October

Mathematical basics: (Rupert Klein, Sebastian Reich)

- 09:00-11:00 Scale-dependent processes in atmospheric flows (**Klein**)
- 11:30-12:30 Advanced numerical methods for atmospheric flow simulation (part I - **Klein**)
- 12:30-13:30 LUNCH BREAK**
- 13:30-15:00 Advanced numerical methods for atmospheric flow simulation (part II – **Reich**)
- 15:30-18:00 Uncertainties and Data Assimilation (**Reich**)

### Wednesday, 14. October

Applications I:

- 9:00-10:30 Energy-Vorticity Theory of atmospheric fluid dynamics (**Peter Nevir**)
- 10:45-11:30 Atmospheric vortex dynamics based on conservation laws (**Annette Mueller**)
- 11:45-12:30 On the identification of a vortex and vortex models (**Lisa Schielicke**)
- 12:30-13:30 LUNCH BREAK**
- 13:30-14:30 walk & watch the weather around Dahnsdorf**
- 14:30-18:00 Stochastic precipitation modelling and computer exercise (**Henning Rust**)

### Thursday, 15. October

Applications II:

- 09:00-10:30 Boundary layer modelling and large-eddy simulation (**Vercauteren**)
- 11:00-12:30 Tropical storms and hurricanes (**Klein**)
- 12:30-13:30 LUNCH BREAK**

Hands-on:

- 13:30-18:00 Extreme events: CCLM sensitivity study on hurricane evolution. Case study: Katrina (2005), using the WEKUW modelling environment (**Ingo Kirchner**)

### Friday, 16. October

- 09:00-12:30 Extreme events: CCLM sensitivity study on hurricane evolution. (continued)
- 12:30-13:30 LUNCH and departure**