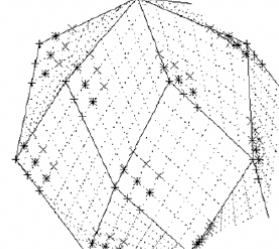
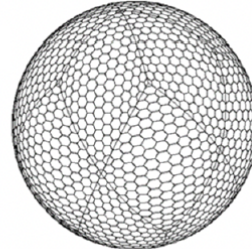
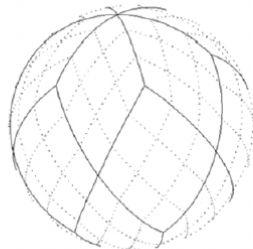
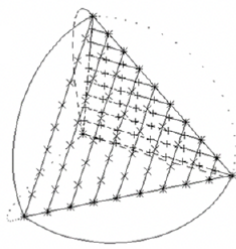


Program

Mathematics of the weather

4 – 6 October 2022, Bad Orb, Germany



Tuesday 4 October 2022

13:00 – 14:00

Arrival and registration

Tea and coffee will be served in the foyer

14:00 - 14:40

Session 1: Welcome

Chair: Jurgen Steppeler

14:00 – 14:10

A note concerning climate activists by **Jurgen Steppeler**

14:10 – 14:20

Welcome by **Tijana Janjic-Pfander**

14:20 – 14:30

Address by the Mayor of Bad Orb, **Tobias Weisbecker**

14:30 – 14:40

Organisational matters by **Jurgen Steppeler**

14:40 – 15:40

Session 2: Data assimilation (DA)

14:40 – 15:40

Tijana Janjic-Pfander

KU Eichstätt-Ingolstadt

Overview on conservation laws in DA and on W2W

15:40 – 16:20

Coffee Break

16:20 – 17:20

Session 3

16:20 – 16:50

Chris Snyder

NCAR, Boulder, USA

Sampling error in the ensemble Kalman filter for small ensembles and high-dimensional states and observations

16:50 – 17:20 **Cao Bangjun**
Univ. Cologne
Performance of separate bias Kalman filter (SepKF) in correcting model bias for the improvement of soil moisture

17:20 – 18:20 Session 4: Machine learning (ML)

17:20 – 17:50 **Fangxin Fang**
Imperial College London, UK
Machine learning and data assimilation for atmospheric and pollution modelling

17:50 – 18:20 **Dale Durran**
Univ. Washington, USA
Toward Replacing Current NWP with Deep Learning Weather Prediction

18:30 Reception at Altenbergstr 36 (see map below)

Wednesday 5 October 2022

09:00 – 10:00 Session 5

09:00 – 09:30 **Jannik Wilhelm**
Karlsruhe Institute of Technology
TEEMLEAP - A new TESTbed for Exploring Machine LEarning in Atmospheric Prediction

09:30 – 10:00 **Jinxi Li**
IAP, Beijing, China
Predicting the time evolution of field values in advection-diffusion equations using a convolutional neural network combined with full multi-grid method

10:00 – 11:00 Session 6: Numerics

10:00 – 10:30 **Bill Skamarock**
NCAR, Boulder, USA
Atmospheric model configurations for NWP and climate: Vertical resolution and model filters

10:30 – 11:00 Coffee break

11:00 – 11:55 **Jurgen Steppeler**
GERICS, Hamburg
After 70 years of NWP: Can new numerical approaches today still improve modelling?

11:55 – 12:00 **Mirjam Hirt and George C. Craig (poster presentation)**
LMU Munich
A two-scale model for the meso- and synoptic scales

12:00 – 14:00 Lunch

- 14:00 – 16:00** **Session 7**
- 14:00 – 14:30 **Edgar Huckert**
A program for cooperation of people being at different locations
- 14:30 – 15:00 **Michael Baldauf**
DWD, Offenbach
A Discontinuous Galerkin solver as a possible alternative dynamical core for the ICON model
- 15:00 – 15:30 **Takuya Kawabata**
Japan Meteorological Agency, Tsukuba, Japan
Storm-scale particle filter with the JMA nonhydrostatic model
- 15:30 – 16:00 **Yvonne Ruckstuhl**
Ludwig-Maximilians-Univ., Munich
A test of an alternative approach for uncertainty representation in data assimilation
- 16:00 – 17:35** **Session 8: Numerics**
- 16:00 – 16:30 **Xiaofei Wu**
Department of Earth Science and Engineering, Imperial College London
Multiscale urban microclimate modelling by implementing tree and land surface processes into fluidity
- 16:30 – 17:00 **Claas Teichmann**
GERICS, Hamburg
Work on climate simulations at GERICS
- 17:00 – 17:10 **Fangxin Fang**
Imperial college, London
The Environmental Model Fluidity of Imperial College
- 17:15 – 17:25 **Daniela Jacob**
GERICS, Hamburg
Potential of numerical climate simulation in Hessia
- 17.30 - 17.35 **Vitalii Shpyg (poster presentation)**
Ukrainian Hydrometeorological Institute
Heavy precipitation modelling in the Dnister River basin by the WRF model
- 17:40** **Afternoon Walk to the “Forsthaus Stübchen”**

Thursday 6 October 2022

- 09:00 – 11:00** **Session 9**
- 09:00 – 10:00 **Almut Gassmann**
TRR 181, Hamburg
Higher order momentum advection on geodesic C-grids, an upgrade of TRSK
- 10:00 – 10:30 **Joe Klemp**
NCAR, Boulder, USA
Modifying the Height-Based Vertical Coordinate in MPAS to Permit a Constant Pressure Upper Boundary for Geospace Applications

10:30 – 11:00	Rupert Klein Freie Univ. Berlin <i>Effects of an intermediate "diabatic layer" (DL) on quasi-geostrophic (QG) dynamics</i>
11:00 – 11:30	Coffee break
11:30 – 13:00	Session 10
11:30 – 12:00	Joanna Szmelter Loughborough Univ., UK <i>Unstructured mesh based NFT models for atmospheric flows across the scales</i>
12:00 – 12:30	Joshua Dorrington Karlsruhe Institute of Technology <i>The interaction of stochasticity with strongly-nonlinear flows: what, how and why does it matter?</i>
12:30 – 13:00	Juliane Rosemeier Univ. of Exeter, UK <i>Exploiting the potential of modern computing architectures using parallel-in-time methods</i>
13:00 – 14:00	Lunch
14:00 – 15:30	Session 10
14:00 – 14:30	Ulrich Achatz Goethe Univ. Frankfurt <i>Gravity-Wave Parameterization Allowing for Wave Transience and Oblique Propagation</i>
14:30 – 15:00	Fedor Mesinger Serbian Academy of Sciences and Arts, Belgrade, Serbia <i>Cut-cell Eta in weather and climate: Lessons learned</i>
15:00 – 15:30	Yiyuan Li IAP Beijing, China <i>TBA</i>
15:30 – 16:00	Coffee break
16:00 – 18:00	Session 11
16:00 – 16:30	Oswald Knoth Leibniz Institute for Tropospheric Research, Leipzig <i>A CG/DG dynamical core for numerical weather prediction</i>
16:30 – 17:00	Valentino Neduhai Univ. Hamburg <i>Decomposition of the tropical divergence into Rossby and non-Rossby components</i>
17:00 – 17:30	Vladimir Shashkin Marchuk Institute of Numerical Mathematics, RAS, Moscow, Russia <i>Cubed-sphere shallow-water model using summation-by-parts finite differences Summation-by-Parts Finite Differences (SBP-FD)</i>

17:30 – 18:00

David Knapp

Deutsches Zentrum für Luft- und Raumfahrt, Cologne

Dynamic adaptive mesh refinement (AMR)

18:00 – 18:30

Sándor István Mahó

Univ. Hamburg

Excitation of mixed Rossby-gravity waves by non-linear interactions on the sphere

18:30

End of the workshop

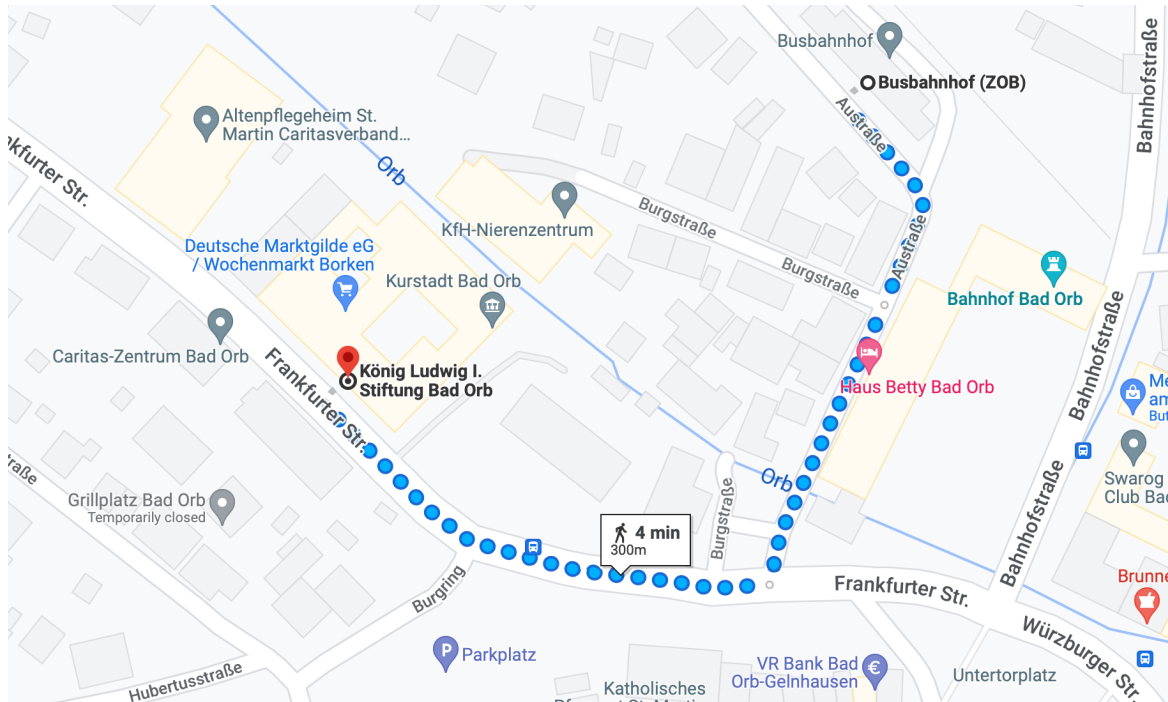
How to get there?

Workshop

The workshop will take place in the **König Ludwig I Stiftung Bad Orb** (Frankfurterstr 2, 63619 Bad Orb; <https://koenig-ludwig-stiftung.de>).

The building is located 300m away from the bus station “Busbahnhof, Bad Orb”.

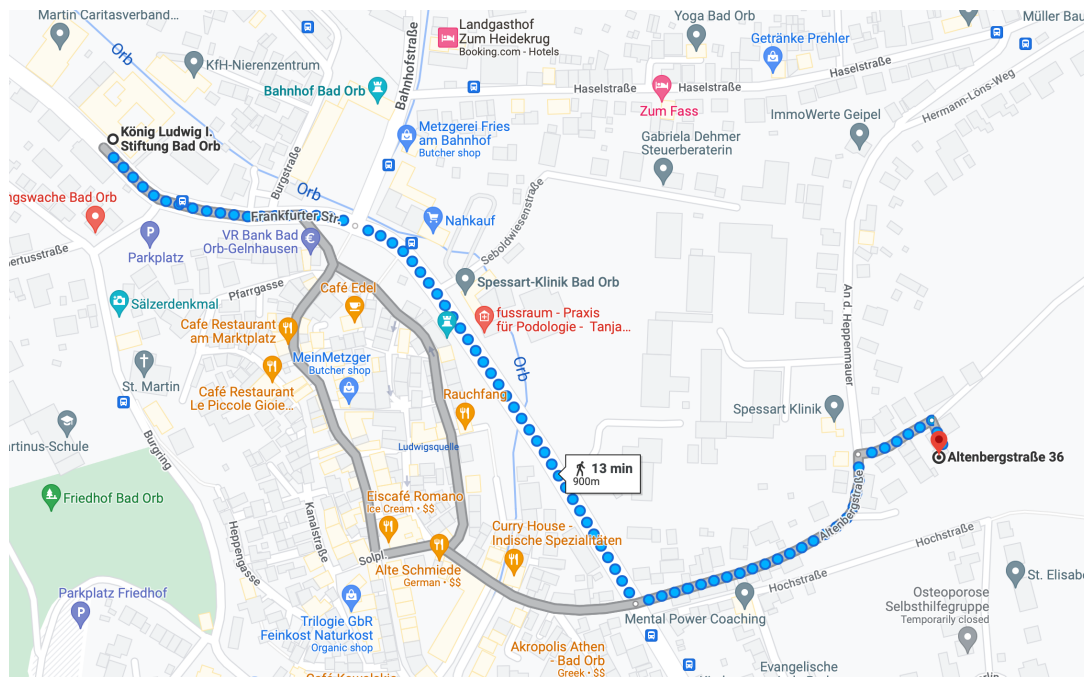
Map: <https://goo.gl/maps/aUqtyGk9nizdbujk6>



- If you come by **plane**, the closest airport is Frankfurt airport (<https://www.frankfurt-airport.com/en.html>). At Frankfurt airport, go to the local train station, where there is a regular "S-Bahn" connection to Frankfurt main station ("Frankfurt (Main) Hbf"). From Frankfurt there is a train every hour to Waechtersbach. From there, there is an hourly direct bus to Bad Orb (BusMKK81).
- If you come by **train**, there is a train to "Waechtersbach" every hour from Frankfurt main station. Each train has an immediate bus connection from Waechtersbach to Bad Orb (BusMKK81) and the bus ride lasts 11 minutes.
- If you come by **car**, Bad Orb is a few minutes away from the motorway access A66.

Reception on Tuesday 4 October at 18:30

This reception will take place at Altenbergstr 36, about 900m away from the meeting room. This will take you about 13 minutes walking. A map is below for your convenience.



Dinner on Wednesday 5 October at 16:55

The dinner will take place in the **Gaststätte Forsthaus-Stübchen** (<https://gaststaette-forsthaus-stuebchen.weblocator.de>). The restaurant is located about 1.8 km south east of the meeting place (<https://goo.gl/maps/ePrpTBZen7c95qCJ8>). We will walk there all together. For your convenience, a map is below.

