

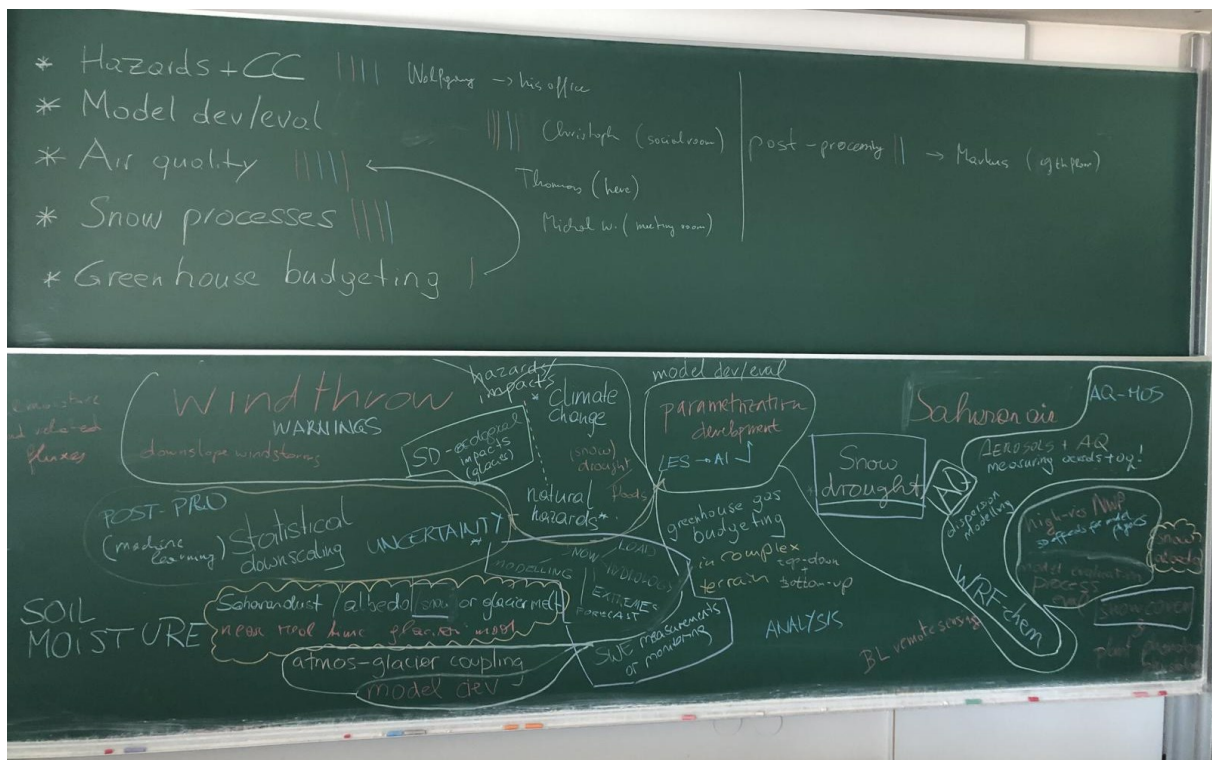
Minutes of the IWCR-Kickoff meeting on June 02 2023

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The Kickoff meeting of the Innsbruck Network for Weather and Climate Research (IWCR) was hosted by ACINN at the University of Innsbruck on 02 June 2023.

It was attended by 22 colleagues, 14 from the University of Innsbruck and 8 from GeoSphere Austria. The group photo on page 4 was taken at the roof top of the University building. The photos of the participants in the seminar room (page 5 and 6) are numbered for reference. The list of participants and their mail contacts can be found at the end of this document.

After an introduction the main contents of the agreement and the goals and purposes of IWCR were elaborated. In the following part the participants were invited to investigate the potential for collaborations between the two institutions. An impressive number of topics was identified, see the photo of the blackboard below (lower section; input from University in red, from GeoSphere Austria in blue). Out of these five subject areas were selected for closer examination in the breakout sessions (upper section).



The main outcomes of the breakout sessions were reported back to the forum by each selected chair person. Short summaries of the outcomes of the discussions and the next steps are given below. As management team we want to address the question, how we can keep the exchange on these topics alive and what the ideal platform is. Ideas are welcome.

Group natural hazards and climate change, chaired by Wolfgang Gurgiser:

Participants: E. Rottler, Th. Schellander-Gorgas, St. Mayr, S. Drechsel, W. Gurgiser

Outcomes from discussions:

- Meeting among people that communicate about climate change topics would be appreciated to checkout a common knowledge base and to potentially discuss answers to frequently asked questions to ensure that personal statements are correct would be valuable
- Checking the current state of soil moisture data available in the Tyrol area and a selected subdomain could be valuable for several users
- Exploring wind related hazards in combination with a new generation of sensors that measure the impacts of wind on trees could be of interest and relevance for an improved understanding and warning regarding storm related tree damages

Any further steps planned/desired?

- The goal is to develop all outcomes a little further, share with the group and in best case submit proposals to the IWCR to make progress with the ideas

Group model development and evaluation, chaired by Christoph Wittmann:

Participants: M. Lehner, I. Stiperski, E. Collier, A. Gohm, Ch. Wittmann

Outcomes from the discussion:

Several potential topics for cooperation / common efforts were discussed:

- Use IWCR to increase modelling and evaluation capabilities for TEAMx (e.g. mountain boundary layer WG, orographic convection WG, real time model intercomparison during field campaign)
- Exchange experiences about model deficiencies (in particular AROME and WRF)
- 3D aspects for model physics (e.g. turbulence and radiation) in combinations with high res NWP
- Use LES simulations as training data to create AI based parametrizations
- Surface characteristics (land cover data) and their role in creating forecast errors in the ABL/SBL

Next steps:

- Continue cooperation on supervision of Master Student (Alexander Gohm, Clemens Wastl) on AROME HRES experiments
- Look for Master Student to help with TEAMx related model experiments/evaluations
- Meeting in autumn when Post-Doc position at GeoSphere Austria (and at Univ of Innsbruck) is filled to plan tasks and exchange of Know-How related to model deficiencies for ABL problems
- On the basis of co-supervision of Master Students and Post-Docs topics for potential further project will become more clear

Group air quality and climate gases, chaired by Thomas Karl:

Participants: J. Vergeiner, G. Wohlfahrt, M. Greiling, W. Jud, M. Rotach, Th. Karl

Outcomes from discussions:

- GeoSphere Interests/expertise:
 - Dispersion modeling for air quality and related tracers (GRAMM/GRAL)
 - WRF-CHEM (Hirtl group), emergency response (e.g. toxic release etc.)
 - AQ – MOS (station driven prediction system)

- Sonnblick (aerosol / clouds / saharan dust / snow chemistry),
- HISTALP/Spartacus/ÖKS climate data
- Protect Alps (insects in the Alps), LTER (ICOS integration), ACTRIS
- FLEXPART/FLEXTRA
- UIBK:
 - (Ecology) Greenhouse gases in Alpine ecosystems, biogenic AQ precursors/aerosols / ozone uptake (FAIR station supersite)
 - ACINN (TEAMx) Exchange processes in complex terrain – budget of tracers in Alpine areas (WRF-Chem(?)) experiment planned in 2024-25 (coordinated experiment – Geosphere already involved)
 - IAO is ACTRIS-NP (activities ongoing, O3, Nox, VOC, UFP, CO2,CH4, PM2.5,PM1 (planned)

Possible overlaps:

- TEAMx (already ongoing)
- AQ-MOS- IAO
- GRAMM/Gral
- FAIR site- BVOCS,O3, CO2, CH4 in the Alps, HISTALP/ÖKS etc.
- Sonnblick cooperation (gases, aerosols, snow chemistry)

Potential projects:

- In the near to mid-term: Joint GRAMM/GRAL activities could be developed further for a test case Innsbruck (emission, transport and validation)
- Another possible avenue represents AQ-MOS activities (both in research and possibly operational mode)

Group **snow (processes)**, chaired by Michael Winkler:

Participants: R. Prinz, U. Strasser, M. Winkler

Outcomes from discussions:

Both partners currently work on/are interested in (in the field of “snow”)

1. **local** and **regional** scale
2. **real-time**: measuring, modeling, forecasting/warning
3. **snow mass/snow water equivalent**: monitoring (glacier mass balance, snow load, catchment hydrology), measuring (various techniques, also occasion-related e.g. for assessment reports), modeling (Amundsen, Snowgrid, delta.snow) extremes: in either direction, “snow drought” and “snow load damages”
4. Sahara dust/snow albedo/snow chemistry

Further steps planned/desired?

- Co-supervising of Master theses
- real-time assimilation of snow (depth) data for distributed snow models
- relevance of Sahara dust for albedo and ablation of seasonal snow
- snow chemistry sampling initiatives
- measurements/observations:
 - acoustic sounder
 - wind erosion/deposition setup
 - Rofental <-> Sonnblick
 - coordinated network of SWE-measurements

Group postprocessing, chaired by Markus Dabernig:

Participants: Markus Dabernig, G. Mayr

Outcomes from discussions:

We established in general that while the interest of the University is more on doing basic research, the interest of GeoSphere is on developing systems for operational services. Nevertheless, this agreement seems a good basis for challenging and interesting common research questions.

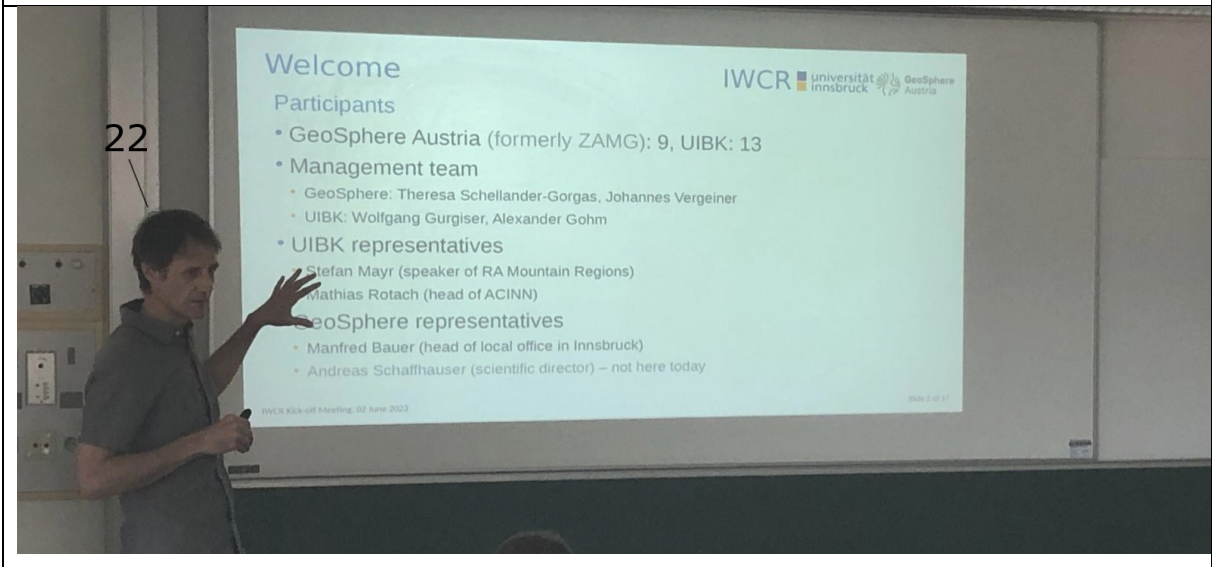
Further steps planned/desired?

As a first step, a number of topics for Master theses will be identified which would fit our both interest. From that further topics can be addressed to establish a more profound collaboration.



The participants on the roof-top of the Bruno-Sander Haus.





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