**ENB IDP M³OCCA**

# Research Seminar Program Winter 2025/26

**When:** Tuesday 14-16 (or as announced)
**Where:** via ZOOM or Besprechungszimmer 03.145, Wetterkreuz 15, 91058 Erlangen
https://fau.zoom.us/j/64136087779?pwd=ckNJR3dtTVRmWHArOFR5QVcvU3lnZz09

| Date | Topic | Lecturer |
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| 25.11.2025<br><br>14:00<br><br>Besprechungszimmer 03.145<br>Wetterkreuz 15 | **Hydrology and ice flow at high elevations of the Greenland Ice Sheet**<br>The coupled hydrology and ice dynamics of the higher elevations of the Greenland Ice Sheet, where ice is beyond a kilometre thick, remains poorly understood. This lack of knowledge is a significant source of uncertainty in the models used to project the ice sheet's sea level rise contribution, both in terms of surface mass balance and the potential for dynamic drawdown. I will discuss some of our recent and ongoing work towards (1) improving the accuracy of partitioning between refreezing and runoff processes, and (2) capturing the impact of surface meltwater on ice sliding where the ice sheet is more than a kilometre thick. | Andrew Tedstone<br><br>University of Lausanne |
| 09.12.2025<br><br>14:00<br><br>Zoom | **Assessing glacier elevation changes from optical DEM time series: Lessons from GlaMBIE and new developments**<br><br>Quantifying glacier elevation and mass changes is essential for understanding glacier dynamics and their response to climate change. This seminar presents recent advances in assessing glacier elevation change using optical Digital Elevation Model (DEM) time series, focusing on our contribution to the Glacier Mass Balance Intercomparison Exercise (GlaMBIE). After a short introduction of the GlaMBIE-2 project, I will explore the use of SPOT-5 and other spaceborne optical datasets to derive regional-scale geodetic mass balances, emphasising challenges related to DEM production, spatial and temporal coverage, and the development of new approaches to extrapolate elevation changes from sparse DEM time series.<br>In the second part of the talk, I will briefly present our ongoing efforts to extend these methods to historic aerial imagery, with applications in Patagonia and other regions. This work highlights the potential of combining modern satellite data with DEMs from historical images to reconstruct long-term glacier evolution and mass-balance assessments. The seminar will conclude with a discussion on future directions for integrating optical DEM time series into large-scale glacier monitoring frameworks. | Livia Piermattei<br><br>University of Zürich |
| 16.12.2025<br><br>15:00 | **Glacier fibre-optic strain sensing** | Robert Law<br><br>ETH Zürich |

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| Besprechungszimmer<br>03.145<br>Wetterkreuz 15 | How glaciers move is a central question in glaciology. In alpine environments, this informs not only the mass balance of a glacier, but also its potential instability and associated risks. In August of this year we installed (one of?) the first fibre-optic distributed strain sensing systems in a glacier, at the relatively small Chessjengletscher in the Wallis region of Switzerland. Two measurement systems were used -- and Omnisens Brillouin interrogator and a Luna Rayleigh interrogator. In this talk we will present the breathtakingly high-resolution profiles from this fieldwork and cover the implications for ice rheology, fibre-optic methodology, and hazard assessment. The collected data is being actively processed, so drop by if you would like to see some very 'hot off the press' results! | |
| 13.01.2026<br><br>14:00<br><br>Besprechungszimmer<br>03.145<br>Wetterkreuz 15 | **Debris covered glaciers in a changing climate**<br><br>Debris covered glaciers can be found in almost any mountain range of the world, with debris currently partially covering about 45% of Earth´s glaciers (excluding Antarctica). The presence of a debris layer alters ice melt patterns, glacier drainage systems and hydrology, as well as the dynamics and flow of glaciers. Despite recent tremendous advances, debris actual effects on all these processes are still not fully understood.<br>In this talk, I will consider the actual distribution of debris on Earth and the challenges associated with determining its thickness across single glaciers and the entire globe. I will then present some of the most recent advances in our understanding of how debris modulates melt and ice flow, and point to some still major knowledge gaps. I will present and discuss the most recent developments in modelling (melt, mass balance, ice flow and hydrological modelling) and conclude with an holistic view of debris covered glaciers role in the water cycle of Earth´s high mountains. | Francesca Pellicciotti<br><br>Institute of Science and Technology Austria |
| 27.01.2026<br><br>14:00<br><br>Zoom | **From Efficient Foundation Models to AI Agents for Foundation Model Recommendation to Advance Earth Observation**<br><br>In this talk, Prof. Demir will present the recent developments of her team in the context of foundation models for Earth observation (EO). Particular attention will be given to their ‘EO Foundation Model Database’ that is the first structured and schema-guided resource covering more than 150 EO foundation models trained using various EO data modalities, associated with different spatial, spectral, and temporal resolutions, considering different learning paradigms. Then, she will introduce REMSA (Remote-sensing Model Selection Agent) that is the first LLM agent for automated EO foundation model selection from natural language queries. During her talk, she will also discuss the efficiency of the existing EO foundation models and will present their recent efficient model with soft mixture-of-experts. Finally, she will present potential pathways for future research. | Prof. Begüm Demir<br><br>TU Berlin |