ENB IDP M³OCCA

Research Seminar Program Summer 2025

When: Tuesday 14-16 (or as announced)
Where: via ZOOM or Seminarraum 00.175, Wetterkreuz 15, 91058 Erlangen
https://fau.zoom.us/j/64136087779?pwd=ckNJR3dtTVRmWHArOFR5QVcvU3lnZz09

Date	Topic	Lecturer
05.05.2025 (Monday!) 16:00 Zoom	**Short-term grounding Zone migrations of Antarctic Glaciers and implications for the NASA Surface Topography and Vegetation Decadal Survey incubation study.** Abstract: Short-term grounding zone migrations of Antarctic glaciers provide critical insights into ice sheet stability and ocean-ice interactions. Using high-resolution Interferometric Synthetic Aperture Radar (InSAR) time series, we capture tidal-scale grounding line fluctuations and quantify concurrent surface elevation changes with unprecedented temporal and spatial detail. These observations enhance our understanding of grounding zone dynamics, informing ice-sheet models and projections of sea-level rise. We discuss the implications of these observations in light of the NASA Surface Topography and Vegetation (STV) Decadal Survey Incubation Study, highlighting priorities for future mission design and data integration.	Pietro Milillo University of Houston
20.05.2025 14:00 Zoom	**Impacts of supraglacial lakes and snowmelt on glacier velocity on the example of the Baltoro Glacier in Pakistan** The Karakoram, located in High Asia, hosts some of the largest glaciers in the world after the poles, but the effects of climate change on these glaciers have not yet been sufficiently researched. This presentation will focus on the Baltoro Glacier, one of the largest glaciers in the eastern Karakoram, and how its glacier dynamics are influenced by meltwater and drainage water from supraglacial lakes. The study bases on different Earth observation data from optical and SAR sensors as well as reanalysis data.	Anna Wendleder DLR
03.06.2025 14:00 Seminarraum 2 00.175 Wetterkreuz 15	**Exploring Scale Interactions and Feedback Mechanisms in Glacier-Atmosphere Dynamics in Mountain Regions - Insights from High-Resolution Simulations and the Hintereisferner Experiment** Mountain glaciers are vital components of the global climate system, playing a crucial role in regional hydrology, energy balance, and atmospheric dynamics. These systems are highly sensitive to climate change, and small-scale processes, such as localized thermodynamic adjustments, can trigger rapid feedback mechanisms that significantly alter large-scale atmospheric conditions. Observing and directly interpreting these adjustments is challenging due to nonlinear and often obscured cause-and-effect relationships mediated by intermediary steps. This complexity limits the predictability of meteorological and cryospheric phenomena in mountainous regions. Addressing these challenges requires a holistic analysis approach, without relying on assumptions of linearity or simple correlations. This presentation highlights key insights from high-	Tobias Sauter HU Berlin

	resolution simulations and the Hintereisferner Experiment (HEFEX), particularly on the role of glacier-atmosphere interactions in shaping elevation-dependent warming and energy flux dynamics.	
08.07.2025 14:00 Seminarraum 2 00.175 Wetterkreuz 15	**Response of lacustrine glacier dynamics to atmospheric forcing in the Cordillera Darwin** Calving glaciers belong to the group of non-representative glaciers with respect to climate variation. Their dynamic behavior, particularly the ice-flow velocity, terminus position, and calving, can undergo abrupt changes, and their adjustments are partially decoupled from the climate. Since 2015, we have recorded ice-dynamic adjustments at a lacustrine glacier, Schiaparelli, located at the Monte Sarmiento Massif in the Cordillera Darwin. Geo-referenced time-lapse camera imageries, capturing changes in the glacier's front position and surface provide high temporal and spatial resolution data over several years. Calving does not occur purely by chance, but is favored by recurring extreme weather events, such as warm spells, wet spells or land-falling atmospheric rivers. Here, the isostatic adjustment of the ice near the glacier terminus to changes in lake level plays a crucial role. Meltwater controls seasonal variations in ice-flow velocity, with an efficient subglacial drainage system developing during the warm season and propagating up-glacier. The progressive thinning of the ice destabilizes the terminus position, highlighting the positive feedback between glacier thinning, near-terminus ice-flow acceleration, and calving flux.	Lukas Langhamer HU Berlin
24.07.2025 14:00 Besprechungszimmer Wetterkreuz 15	**Glacio-hydrological modelling withe Elmer/Ice** Elmer/Ice is based on Elmer, a multi-physical Finite Element code. By its nature it is able to combine different model components in one simulation and consistently couple those together. This talk will present several examples demonstrating different aspects of the interaction of ice and liquid water inside the bedrock and at its interface to glaciers. This includes permafrost, subglacial as well as highly pressurised water flow with hydraulic jacking of the glacier with ice-dynamics prescribed on the visco-elastic (i.e., Maxwell) timescale.	Thomas Zwinger