Anmeldung eines Themas für ein/e

Forschungsseminar	**X**	
Methodenseminar	**X**	
Masterarbeit	**X**	(bitte eines oder mehrere ankreuzen)

Thema Datum	How often does riming occur in mixed-phase clouds in Ny-Alesund? Aug 2024
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Kurzbeschreibung:	Riming, i.e. the accretion and freezing of supercooled liquid water (SLW) on ice particles in mixed-phase clouds, is a key process for ice growth and precipitation formation. In the past years, several methodologies have been developed to retrieve riming from cloud radar observations (Kneifel and Moisseev, 2020; Vogl et al., 2022; Ockenfuß et al., in prep.) and from observations of the particle number size distribution (PNSD) by in situ sensors (Maherndl et al., 2023). The first goal of this work is to compare the retrievals developed by Vogl et al. (2022) and Kneifel and Moisseev (2020) for a dataset, for which ground-based observations by the Video In Situ Snowfall Sensor (VISSS, Maahn et al., 2023) are also available, such that the Maherndl et al., 2023 retrieval can also be applied. A suitable data set is available from long-term measurements at the Ny Alesund Arctic research station AWI-PEV. The second goal is to determine the frequency of occurrence of riming in Ny Alesund.
Literatur:	Chellini, G., & Kneifel, S.: Turbulence as a key driver of ice aggregation and riming in Arctic low-level mixed-phase clouds, revealed by long-term cloud radar observations. Geophysical Research Letters, 51, https://doi.org/10.1029/2023GL106599, 2024 Kneifel, S. and Moisseev, D.: Long-Term Statistics of Riming in Nonconvective Clouds Derived from Ground-Based Doppler Cloud Radar Observation. Journal of the Atmospheric Sciences, 2020. https://doi.org/10.1175/JAS-D-20-0007.1

	Maherndl, N., Moser, M., Lucke, J., Mech, M., Risse, N., Schirmacher, I., and Maahn, M.: Quantifying riming from airborne data during the HALO-(AC)^3 campaign, Atmos. Meas. Tech., 17, 1475–1495, https://doi.org/10.5194/amt-17-1475-2024, 2024. Vogl, T., Maahn, M., Kneifel, S., Schimmel, W., Moisseev, D., and Kalesse-Los, H.: Using artificial neural networks to predict riming from Doppler cloud radar observations, Atmos. Meas. Tech., 15, 365–381, https://doi.org/10.5194/amt-15-365-2022, 2022.