

1.31 TEMPORAL EVOLUTION OF PRECIPITATION RELATED MICROPHYSICAL PROCESSES BASED ON DUAL-POL DATA OF S-, X-, AND C-BAND DOPPLER RADARS

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The aim of the work is to improve our understanding of high-impact extratropical winter-precipitation events by analysing polarised Doppler radar data from S-, X- and C-band radars. Correct interpretation of radar observations requires an accurate understanding of microphysical processes and well-developed techniques that automatise their recognition in both the spatial and temporal dimensions of the data.

This can be achieved by tracking the temporal evolution of precipitation-related microphysical processes in the radar observations. Temporal dynamics from Quasi-Vertical Profiles (QVPs) are analysed, where QVP's are retrieved from the polarised radar observations at multiple frequencies simultaneously and compared to available ground-based and airborne in-situ measurements.

This technique will be extended through the analysis of the temporal evolution of volume data, which may include a data-driven clustering algorithm. This algorithm will label main clusters in the data and allow for their temporal evolution to be tracked within precipitation events.