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Retrieval of rainrates from mid-latitude cloud systems using multispectral satellite data

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The assignment of pixel based rainfall rates is still a crucial aspect within optical rainfall retrievals. Generally, the rainrate is retrieved as a function of the cloud-top temperature which leads to sufficient results for deep-convective systems. At mid-latitudes, rainfall is often associated with advective/stratiform precipitation formation processes and the rainrate is not linked to the cloud-top temperature. Therefore, the new approach is based on the concept model that rainrates are a function of the cloud optical thickness and the cloud effective droplet radius. To investigate the potential of this concept model, data from Meteosat Second Generation is analyzed along with rainrate measurements from the DWD ground station network. The results of this study corroborate the hypothesis of the new concept model.