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Global analysis of water cloud processes from active sensors

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Global analysis of the retrieved water cloud microphysics from space-borne active sensor synergy is carried out. A refined low level cloud detection scheme has been developed and tested against ground-base active sensor measurements such as the MFMSPL. Further, a numerically effective and flexible physical model for depolarized lidar returns has been developed for improved particle sizing and for the vertical profiling of cloud particle and drizzle mass ratios globally. The retrieval results are used to understand cloud physical processes and its representation in climate models. Expected outputs from the forthcoming JAXA/ESA EarthCARE (Earth Clouds, Aerosols and Radiation Explorer) mission are also studied.