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The observed impact of aerosols on cloud droplet formation during the RACLETS campaign

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The influence of aerosols serving as cloud condensation nuclei (CCN) on the production of droplets in mixed-phase cloud systems is an ongoing research problem that influences their optical and microphysical properties. During February and March 2019, the Role of Aerosols and CLOUDs Enhanced by Topography on Snow (RACLETS) field campaign collected unique and detailed airborne and ground-based in-situ measurements of cloud and aerosol properties over the Swiss Alps. This study presents analysis of the observed CCN activity of the aerosol, which combined with observed aerosol size distributions, can be introduced into a cloud droplet activation parameterization to investigate the drivers of droplet variability in these clouds. The implications for secondary ice production are then discussed.