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Energy Dissipation Rate Estimates from Airborne Atmospheric Measurements with the Max Planck CloudKites

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The energy dissipation rate is one of the most important characteristics of a turbulent flow across the entire range of scales, and of particle-turbulence interaction. To investigate cloud microphysics and turbulence in clouds and in the atmospheric boundary layer, we infer coarse-grained time series of the energy dissipation rate from one-dimensional wind velocity time records by specially developed airborne platforms, the Max-Planck-CloudKite + (MPCK+) and the mini-Max-Planck-CloudKites (mini-MPCK). During the EUREC4A-ATOMIC field campaign in the Caribbean January - February 2020, both instruments are deployed aboard balloon-kite hybrids launched from RV Maria S. Merian and RV Meteor conducting *in situ* measurements of the wind velocity and meteorological as well as cloud microphysical properties with high spatial and temporal resolution. We present estimates of the energy dissipation rate from *in situ* velocity time records by the MPCKs during the EUREC4A-ATOMIC field campaign and preliminary assessment of turbulence features.