

## **Process-oriented Evaluation of cloud parameterizations using a Cloud System Concept**

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Recently GEWEX initiated working groups on Process Evaluation Studies (PROES) to provide observational based metrics for a better understanding of physical processes. Within the framework of UTCC (Upper Tropospheric Clouds and Convection) PROES we are creating a synergetic data base of UT cloud systems. Convective cores, cirrus anvils and surrounding thin cirrus are identified using cloud emissivity derived from IR Sounder observations. Lidar - radar observations of CALIPSO-CloudSat and TRMM provide information on the vertical structure and precipitation of these systems, essential to determine their heating rates. This cloud system concept allows to relate the anvil properties to processes shaping them.

We present the utility of this process-oriented observational metrics (relations between cloud system properties and proxies mimicking their life stage and convective depth) for the development of a more coherent bulk ice cloud scheme in the LMDZ climate model.