



On the use of lightning data and cloud electrification model simulations to constrain precipitation retrieval from passive-microwave satellite measurements

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In a related presentation in this Session (Casella et al.), we describe the main design features of the Cloud Dynamics and Radiation Database (CDRD) approach to precipitation retrieval from passive-microwave (MW) satellite measurements, and then illustrate the microphysical-radiative characteristics of a new CDRD database for the European area.

In this presentation, we will discuss how lightning measurements from ground-based networks and cloud microphysics/electrification information from the one-dimensional Explicit Microphysics Thunderstorm Model (EMTM) can be used within the CDRD approach to constrain the Bayesian precipitation retrieval. Then, we will present the results of the application of this retrieval approach to a series of heavy-precipitation case studies over the Italian peninsula, that have been considered within the European FLASH project.