Title: Creating a Global High-Resolution Convective or Stratiform Type Product

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Precipitation is commonly classified as convective or stratiform (C/S) type, representing intense but spatially variable precipitation versus widespread lower-intensity precipitation, respectively. C/S type classification is critical for numerous applications, including storm-type identification, extreme event detection, and numerical model evaluation, as well as serving as a prerequisite to satellite-based latent heating profiles. While C/S types are typically inferred from radar observations, the limited spatial coverage of ground-based radars and sparsity of spaceborne radars preclude global C/S type products at monitoring scales. This presentation provides an overview of ongoing efforts to create a global C/S type product at 0.05° every 30 minutes, complementing high-resolution precipitation rate products such as the Integrated Multi-satellitE Retrievals for GPM (IMERG).

Leveraging machine learning capabilities in spatial pattern classification, we adopt a framework parallel to IMERG, utilizing the GPM constellation of passive microwave and infrared sensors with the GPM Dual-frequency Precipitation Radar (DPR) as reference. We present initial results from individual sensor retrievals and from a merged 0.05° gridded product, demonstrating their skill through evaluation against DPR and ground-based radar observations. We also examine the uncertainty quantification of the C/S type estimates enabled by a Bayesian framework.

Test products are currently available for user exploration and feedback as development continues, with details on specific algorithm components discussed in companion presentations. The project aims to deliver a high-quality global C/S type dataset at 0.05° and 30-minute resolution spanning 1998–2027.