Evaluating Precipitation Feature Characteristics in the Goddard Multi-scale Modeling Framework

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Science Questions:
- How well can the Goddard Multi-scale Modeling Framework (GMMF) simulate precipitation feature (PF) characteristics versus the Tropical Rainfall Measuring Mission (TRMM) satellite observations?
- What are the possible underlying mechanisms that account for systematic model biases?

Methodologies:
- An innovative algorithm, in close analogy to the TRMM PFS, was developed to produce simulated PFS from GMMF model output.
- One-year GMMF-simulated PFSs were statistically compared against corresponding TRMM-observed PFSs.

Key Findings:
- Many of the simulated PF characteristics are in reasonable agreement with satellite observations (Fig. 1).
- Four different mechanisms might account for the rainfall and PF biases in the model (Fig. 2).
- Medium to large PFSs contribute the most to the model tropical precipitation biases.

Citation: