Developing the Large-Scale Forcing Dataset for AMIE-Gan

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Analysis Details

Objective Analysis – The Constrained Variational Analysis (Zhang and Liu 1997)

Forcing, Q1, and Q2

Composite Analysis

Forcing and Diabatic Heating/Moistening Profiles

Summary

• A large scale forcing data set for AMIE-GAN is developed based on the ECMWF analysis
• The analysis data needs to be adjusted to balance the observed precipitation
• The derived forcing and Q1/Q2 fields allow to study the characteristics of the large-scale structure and diabatic heating/moistening associated with the tropical convective systems observed during the field campaign

Future Work

• Address uncertainty in the observed precipitation
• Double peaks in SPOL
• Incorporated more observations into the analysis:
  - Surface Radiation
  - Address uncertainties in observed precipitations and etc.
  - Possible correction with surface rain-gauge obs
  - Liquid water path from MWR
  - Incorporate sounding data as background field
  - TOA flux based satellite data?
  - ECMWF surface fluxes?
• Compare with radar-derived LH profiles (from Courtney Schumacher)

References


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