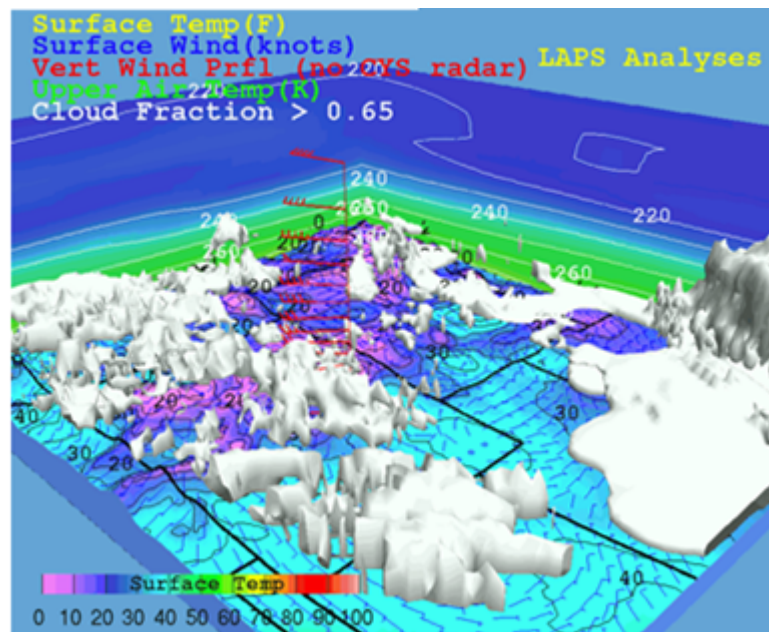


# Analysis and Validation of GPM in Variational LAPS

## Data Assimilation System

Y. Xie, S. Albers, S. Gutman, D. Birkenheuer, H. Jiang and Z. Toth  
Global Systems Division, Earth System Research Lab, NOAA/OAR

- Variational LAPS (V-LAPS) is a hot-start and multiscale data assimilation system used by 150+ users worldwide.
- With new or modified forward operators, GPM data will be tested in V-LAPS analysis and evaluated for its impact.
- Forward operators will be studied for microwave imager (GMI) and dual-frequency radar (DPR) data. Related model constraints will be added.
- After validation, GPM forward operators and assimilation methodologies can be used in parallel runs of global forecast systems (e.g. the Finite-volume Icosahedral Model-FIM) to evaluate the impact of GPM data in these models, particularly over the ocean.



GPM data could potentially improve V-LAPS cloud, rain, snow, and graupel analysis over areas without ground-based radar coverage