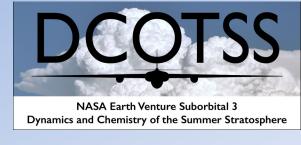
2021 Open Data Workshop (December 7<sup>th</sup>)



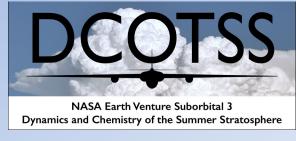
# Convection-Allowing Model Output

# **CAM Output**

#### Pls:

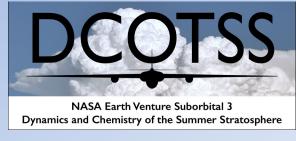
Cameron Homeyer (<a href="mailto:chomeyer@ou.edu">chomeyer@ou.edu</a>)
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## Data Collection/Creation Process



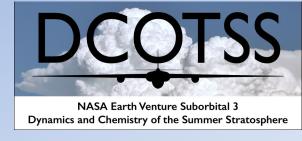
- Convection-allowing model simulations will be conducted for select flights (those extensively sampling overshoot material)
- Cases chosen will range from weakly forced convection (difficult to reproduce) to strongly forced convection
- Simulations will be run for up to 48 hours
- Anticipated models to be used
  - The Weather Research and Forecasting model with chemistry (WRF-Chem) – for real events
  - 2. Cloud Model 1 (CM1) idealized experiments with added tracers





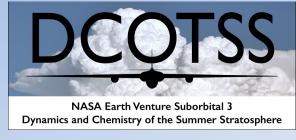
- Files output from most modern research CAMs (incl. WRF-Chem and CM1) are netCDF format, which is what will be archived
- Simulation domains for DCOTSS missions will encompass an area slightly larger than the flight path
- Initial and boundary meteorological conditions for WRF-Chem will be sourced from reanalysis (likely ERA5)
- Output will be saved at a 1-hr frequency at a minimum, likely as small as 5 min during the time period the observed systems were sampled

#### **Data Limitations & Considerations**



- As is true for any CAM simulation, the simulated storm(s) will not be equivalent to the observed storm(s)
- Common issues in model simulations are:
  - 1. Offsets in time and space between observed and simulated storms
  - 2. Under/over-represented storm intensity (depth, etc.)
  - 3. Poor replication of storm mode, duration, or evolution
- Users of the model output should familiarize themselves with the model design and its implications, informed by the developers of the community models used

### **Tentative Archival Timeline**



- CAM output will be archived as it is produced and evaluated
- Thus, there is no known timeline for archival
- All output used for analysis/publication will be archived as soon as possible (ideally no longer than 1-2 years following each deployment, when the DCOTSS team will be completing such)
- All model design information (setup or "input" files) will be included in the archived files