



Science Focus Area (SFA)

# Tying in High Resolution E3SM with ARM Data (THREAD)



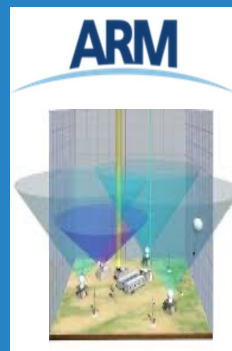
# Amazon Convection in E3SM/SCREAM and ARM Data

August 9th, 2023

Yunyan Zhang (LLNL)

Jingjing Tian (currently at PNNL)

Thanks to co-authors of THREAD and SCREAM team



THREAD  
  
LLNL ASR SFA

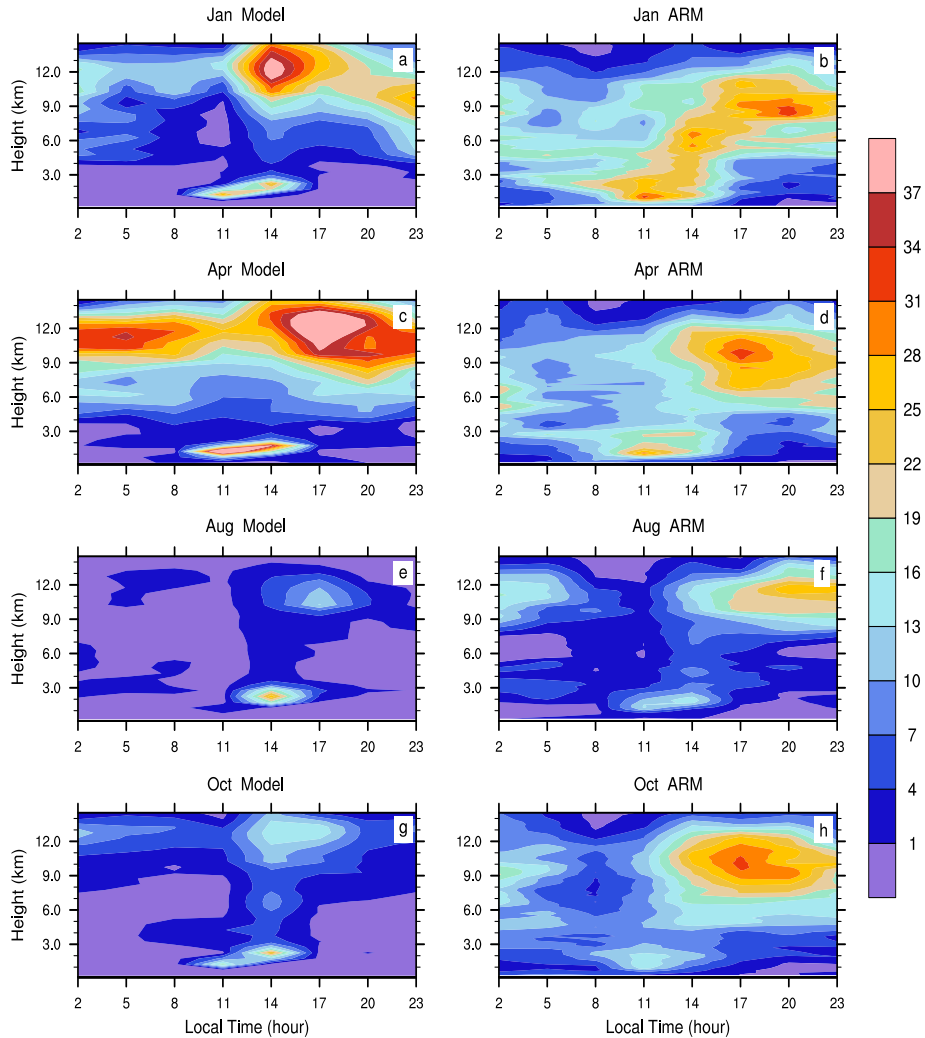


This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

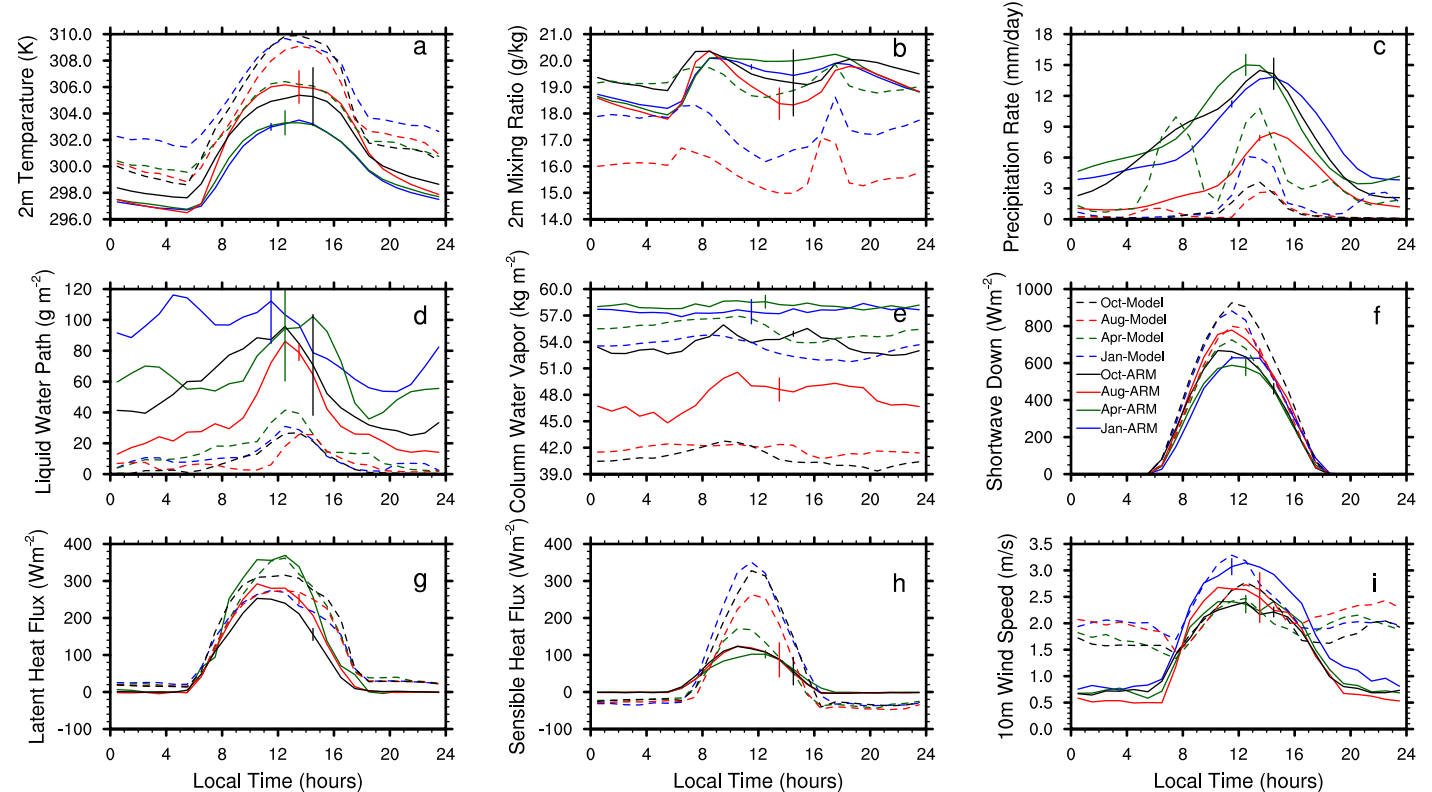
LLNL-PRES-852548

# Diurnal Cycle of Clouds and Surface Properties

Cloud Fraction (%) GoAmazon (-3.2, -60.5)



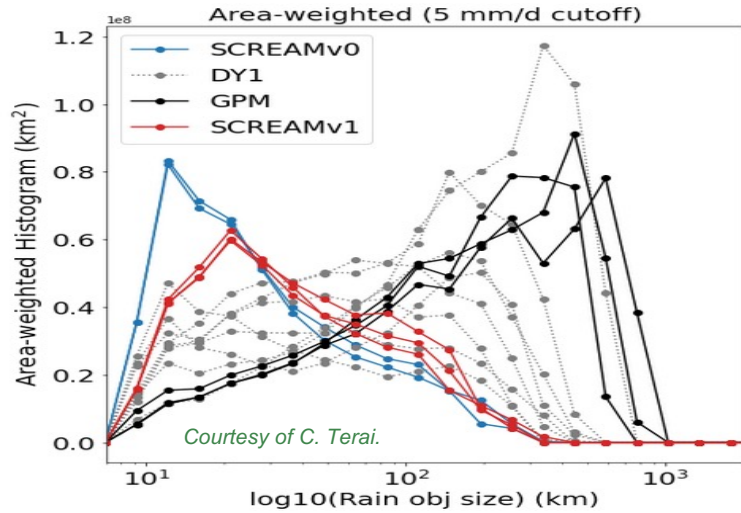
GoAmazon (-3.2, -60.5)



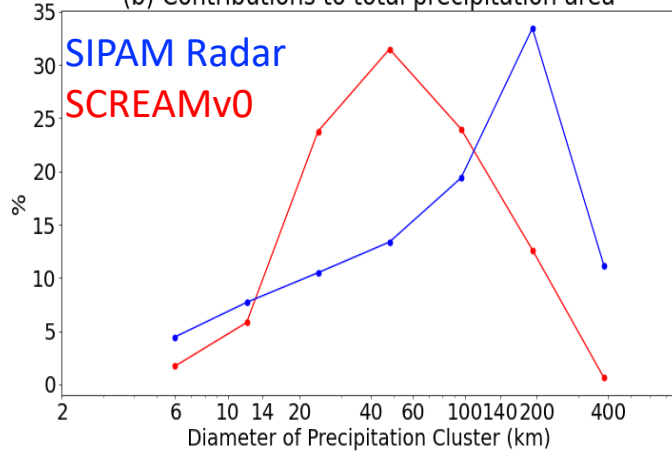
- SCREAM seasonal global runs: evaluations are done for 7 ARM sites including SGP, ENA, NSA, TWPC1/2/3 and GoAmazon

# Popcorn convection in SCREAM

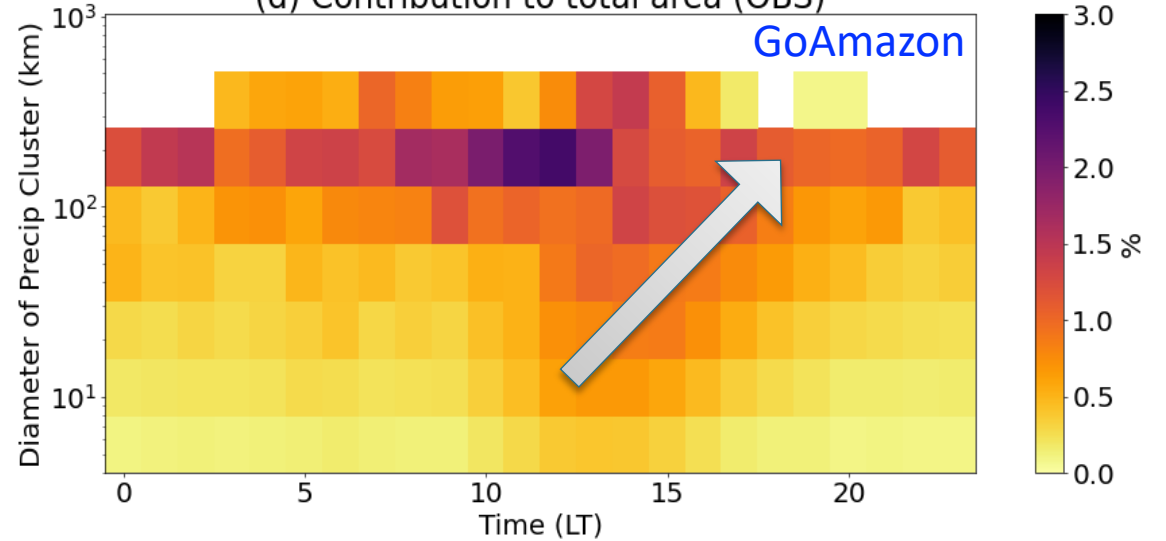
**Rain cluster size distribution**



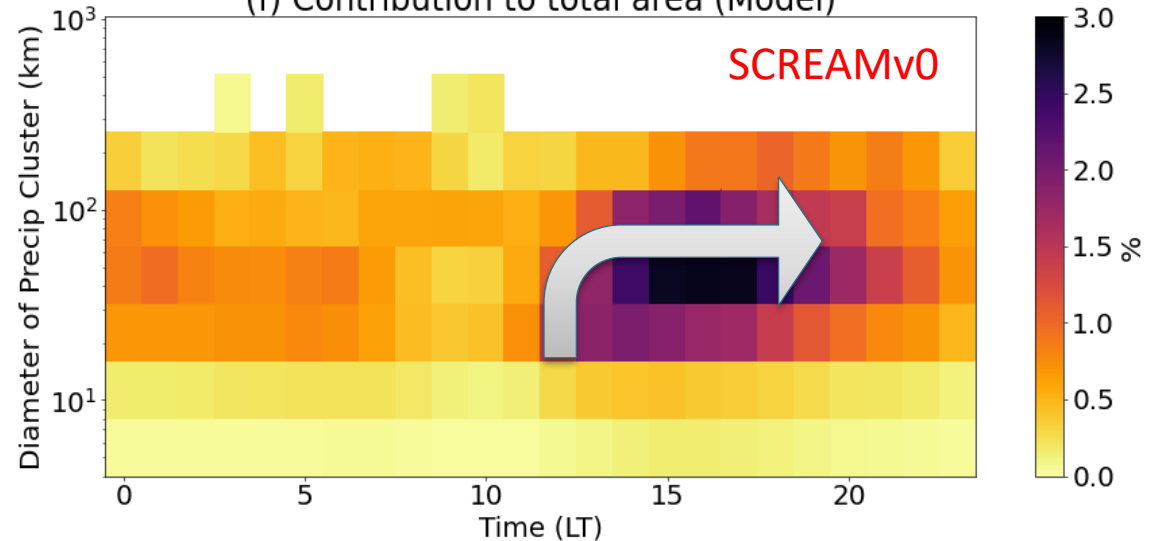
**(b) Contributions to total precipitation area**



**(d) Contribution to total area (OBS)**

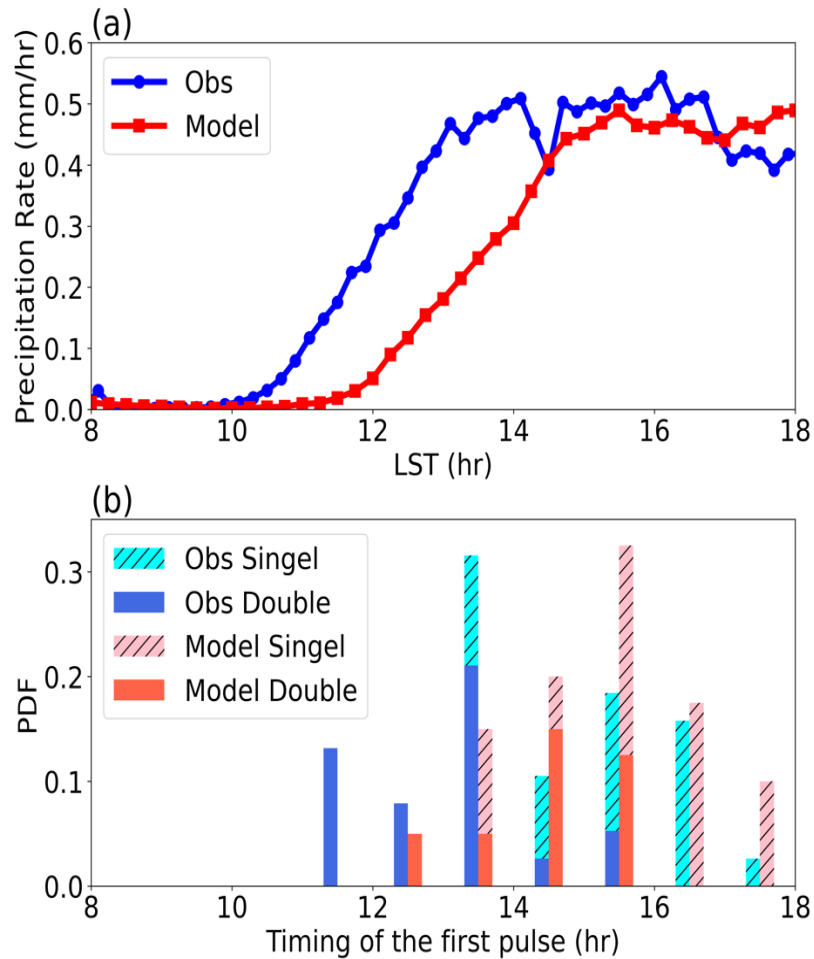


**(f) Contribution to total area (Model)**

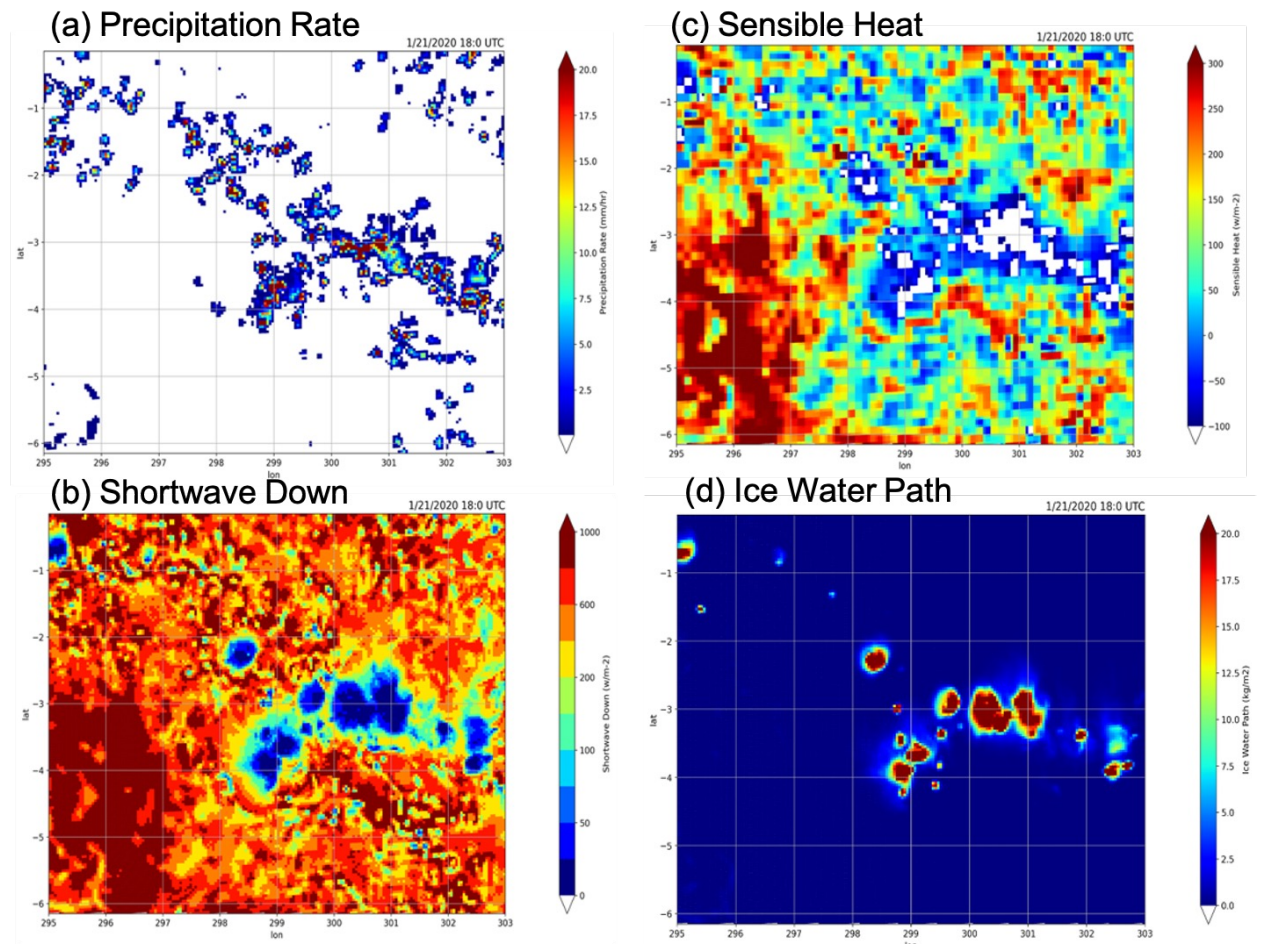


# Potential causes of biases

Delay in local convection transition



Large areas of negative sensible heat fluxes cut of convection



thank you!

