Physical Processes Breakout Summary

830-845 am: Steve Krueger "The transition from shallow to deep convection in the Giga-LES"

845-900 am: Kuan-man Xu "Improved low cloud simulation with an upgraded MMF"

900-915 am: Andrew Heymsfield "Ice particle size distributions and fallspeeds in clouds at temperatures from 0 to -87 C"

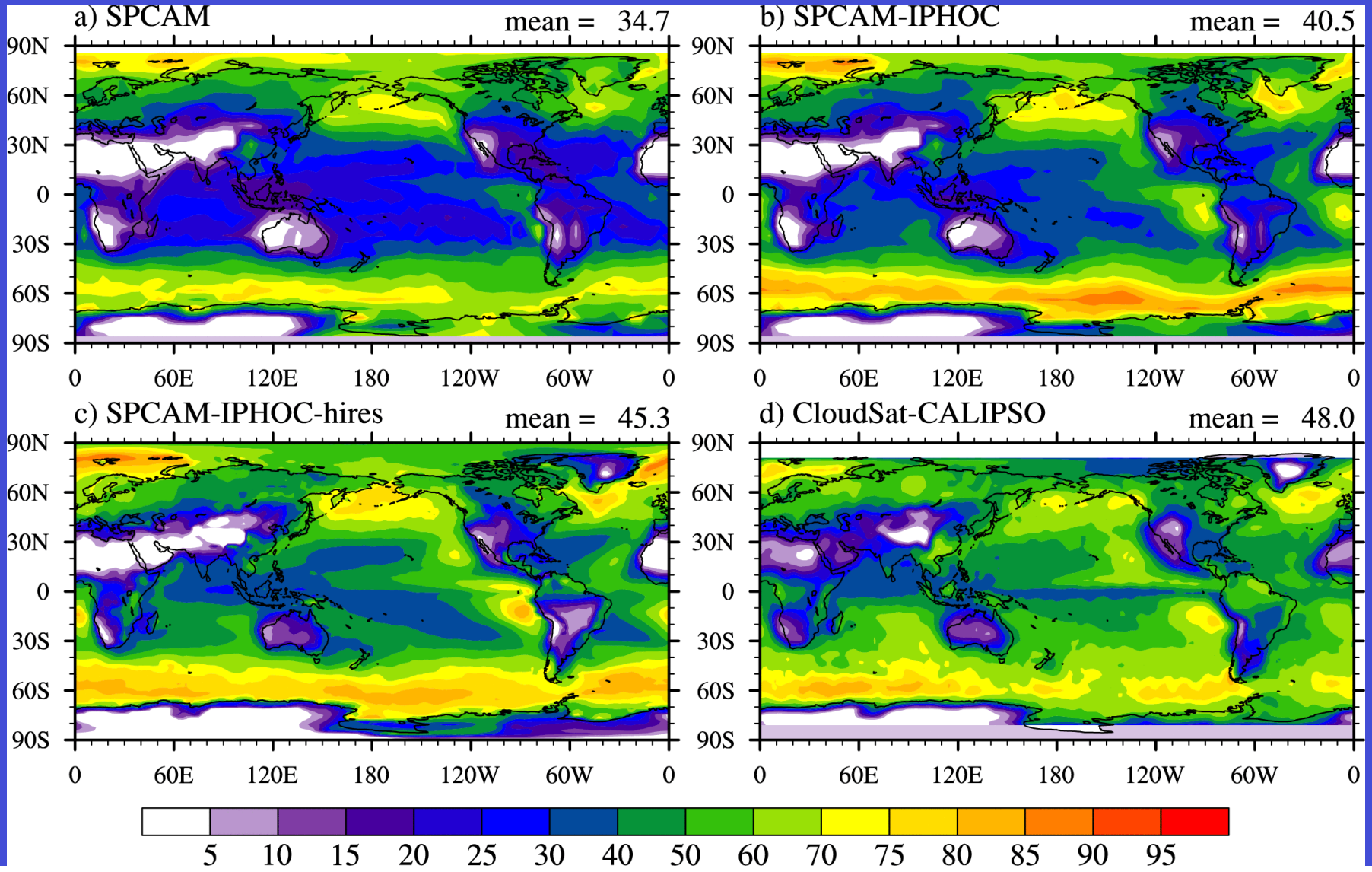
915-930 am: Wojciech Grabowski "Modeling of subgrid-scale cloud-clear air turbulent mixing in Large Eddy Simulation of cloud fields"

930-945 am: Hugh Morrison "Sensitivity of a mid-latitude squall line to parameterization of raindrop breakup"

945-1030 am: Discussion and plans

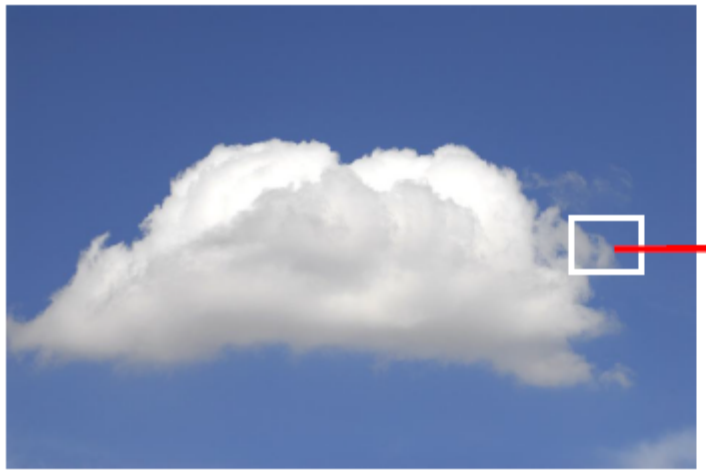
Kuan-man Xu: "Improved low cloud simulation with an upgraded MMF"

Low-level (sfc - 700 hPa) cloud amount (%)

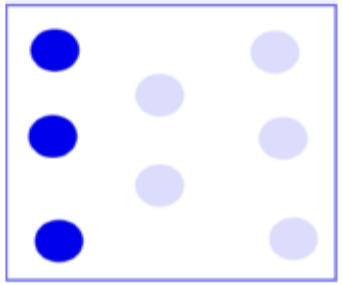


Wojciech Grabowski: "Modeling of subgrid-scale cloud-clear air turbulent mixing in Large Eddy Simulation of cloud fields"

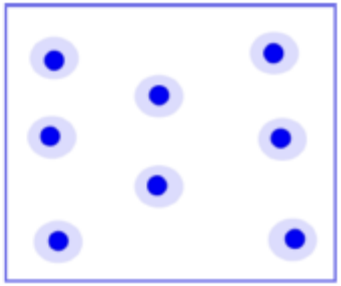
Turbulent cloud-environment mixing: impact on cloud microphysics



extremely inhomogeneous mixing

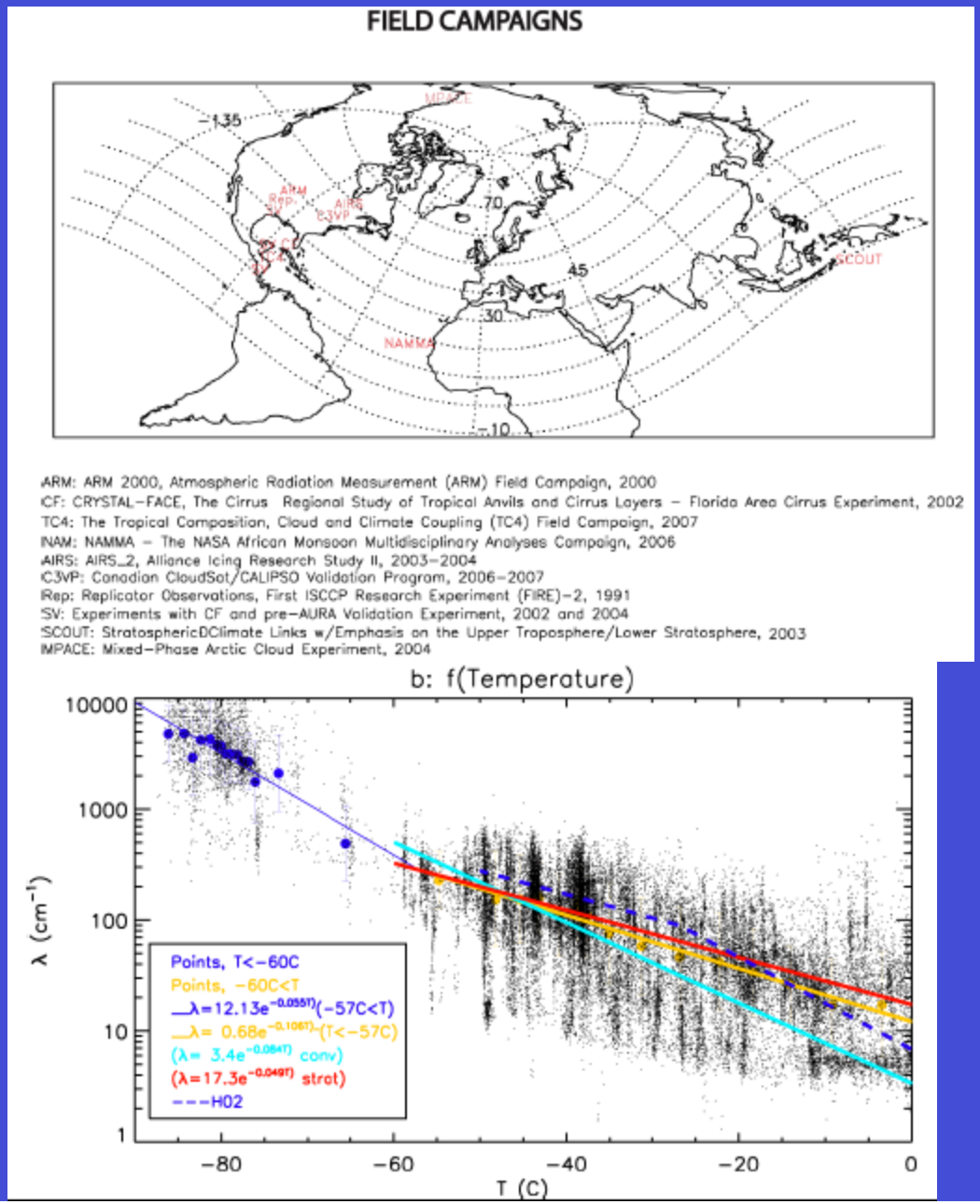


homogeneous mixing

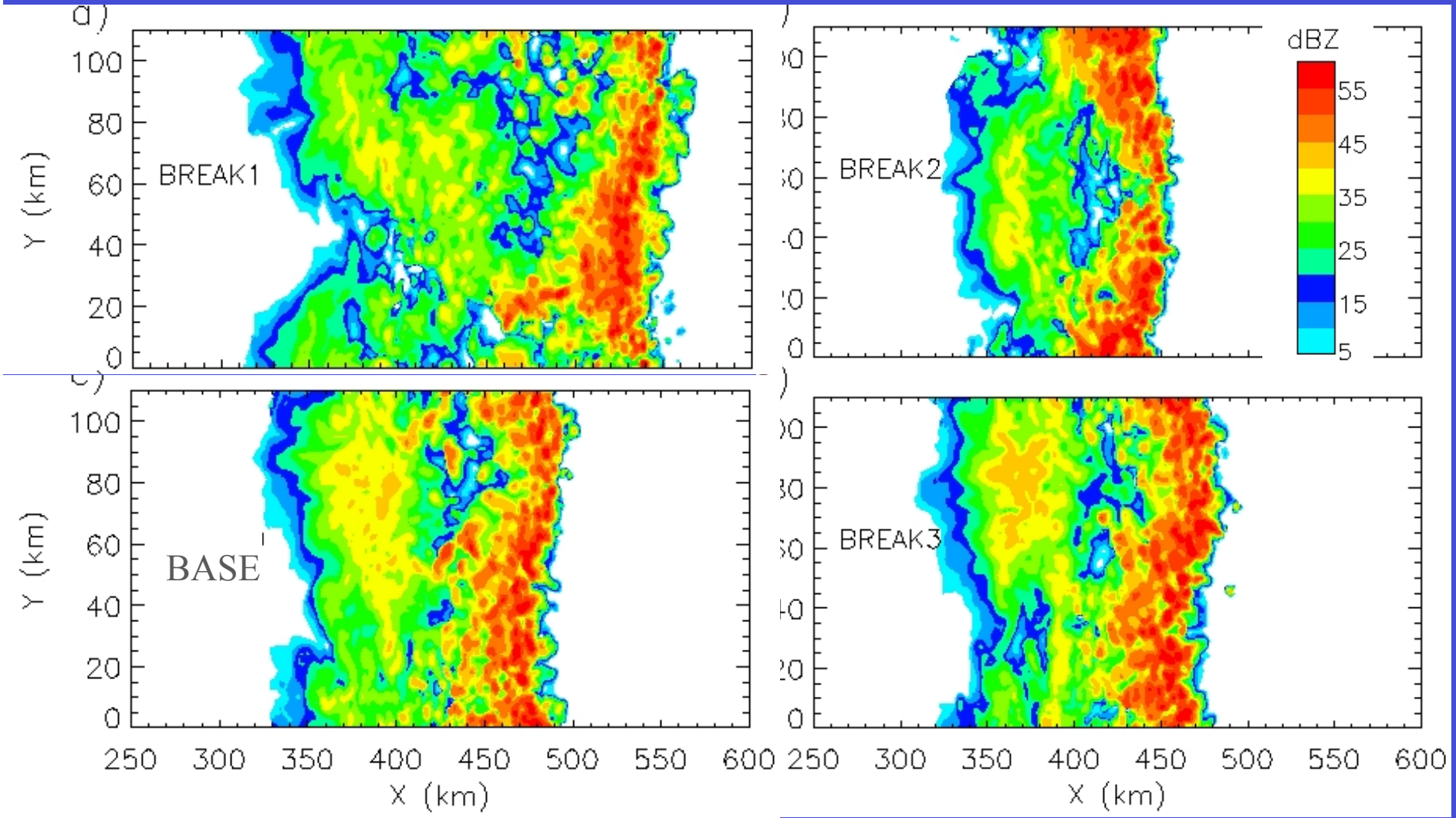


Microphysical transformations due to subgrid-scale mixing may cover a wide range of mixing scenarios.

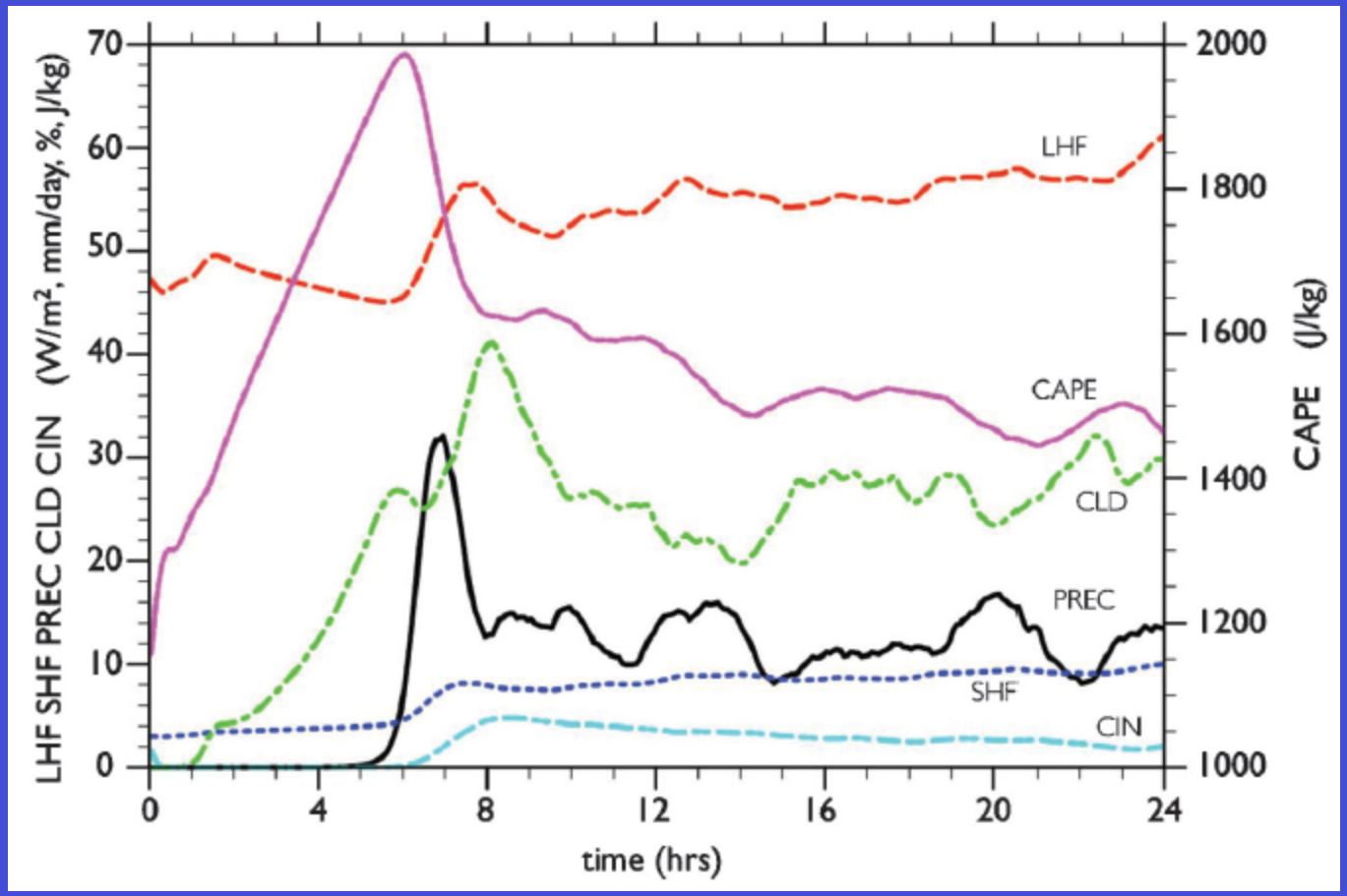
Andrew Heymsfield: "Ice particle size distributions and fallspeeds in clouds at temperatures from 0 to -87 C"



Hugh Morrison: "Sensitivity of a mid-latitude squall line to parameterization of raindrop breakup"



Steve Krueger: "The transition from shallow to deep convection in the Giga-LES"



Discussion Issues

- more systematic efforts for physics testing? e.g., do we want to focus efforts in a common modeling framework →PNNL MMF vs. SpCAM3.5 vs….

- common framework for testing of various turbulence parameterizations (start with testing of GCSS cases in SAM) – form group to look into this (S. Krueger)

- leverage development of CMMAP testing portal (Jack Ritchie and John Helly)

- merging of new physics parameterizations (microphysics + turbulence)

- physics testing in coupled climate runs

- physics in the GCRM