

# Heterogeneous Surface in Archive SAM Runs

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# Raison D'etre

- Show that coupling SiB to SAM and running previous cases does not 'break' SAM
- Initiate investigation of differences that heterogeneous surface creates

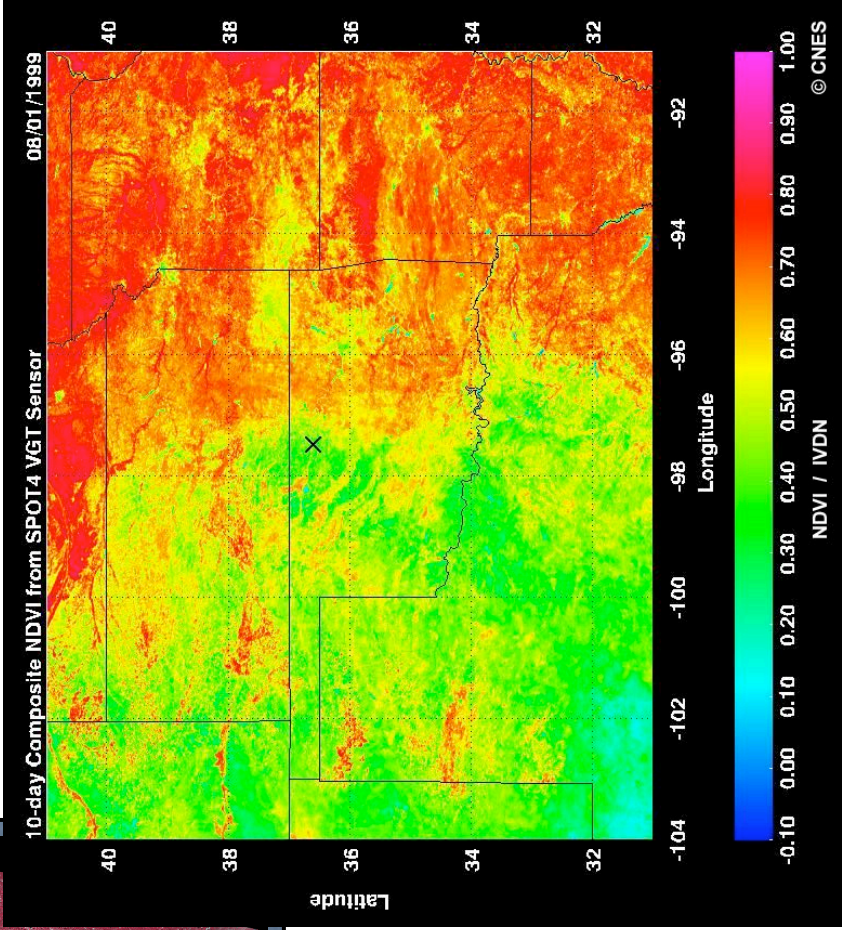
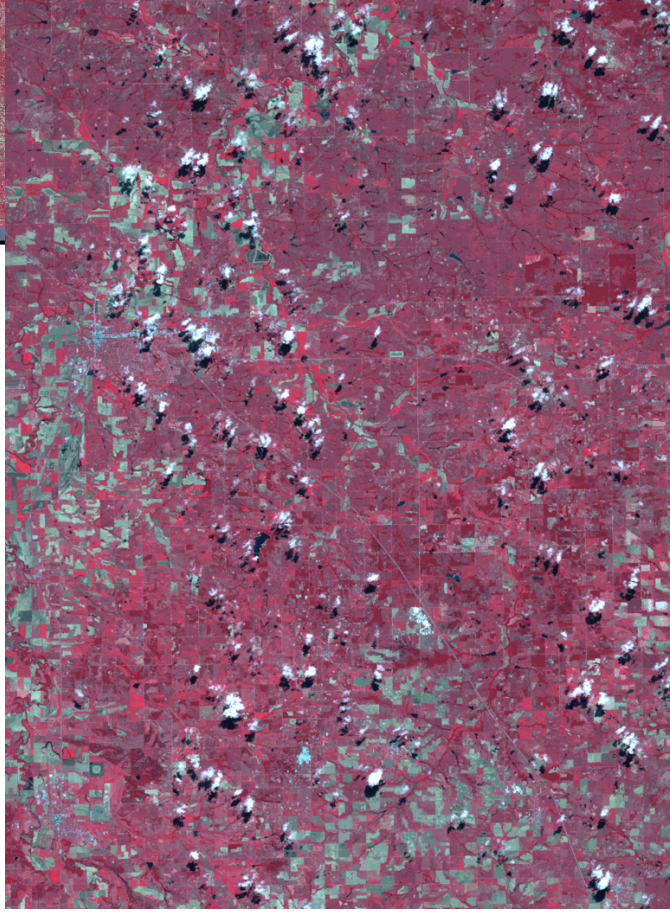
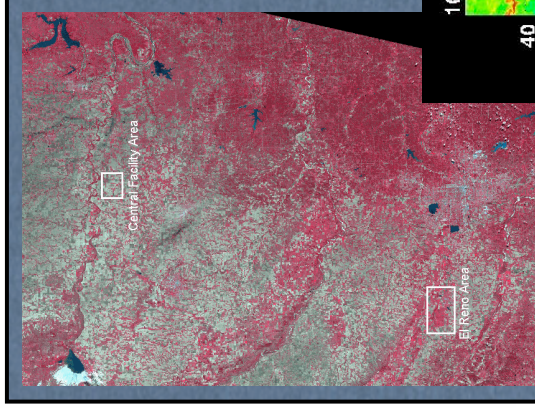
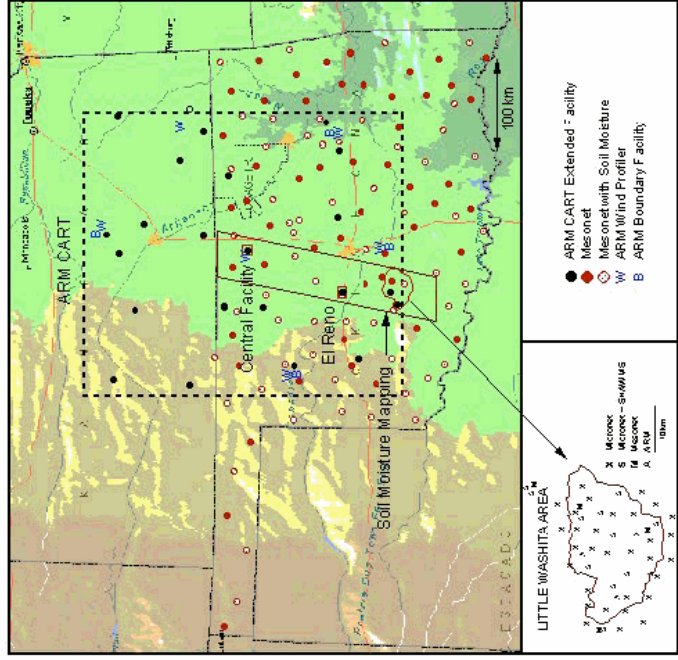
# Cases

1. ARM: March 2000: Synoptically-forced case (cyclone passage)
2. ARM: July 1997: Unorganized convection

Both cases are run 256x256km at 2km horizontal resolution (128x128 gridcells), 64 vertical levels

Ground temperature, latent and sensible heat flux are prescribed in control runs.

# ARM

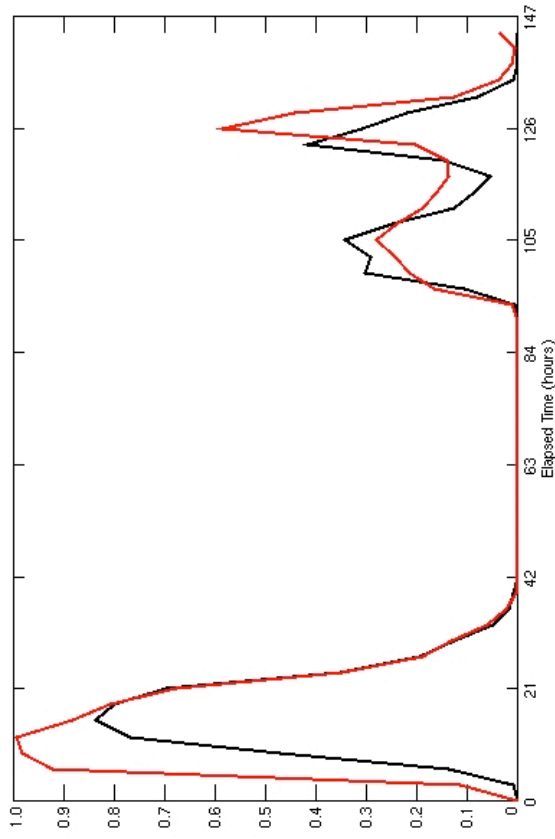


# SiB3-SAM Coupling

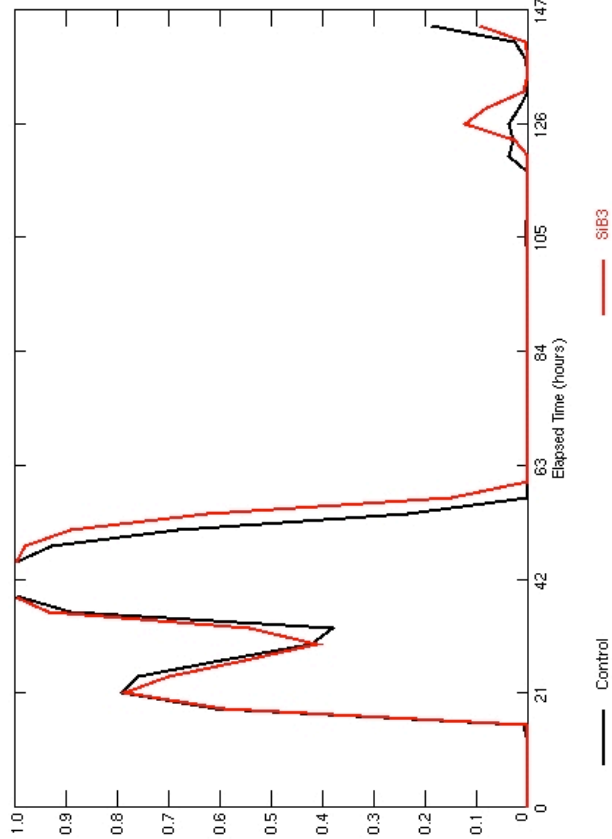
- Single vegetation/soil type for entire domain
- initialized homogeneous (long-term global runs)
- Run for multiple days: soil moisture/temperature becomes heterogeneous

# ARM: March 2000

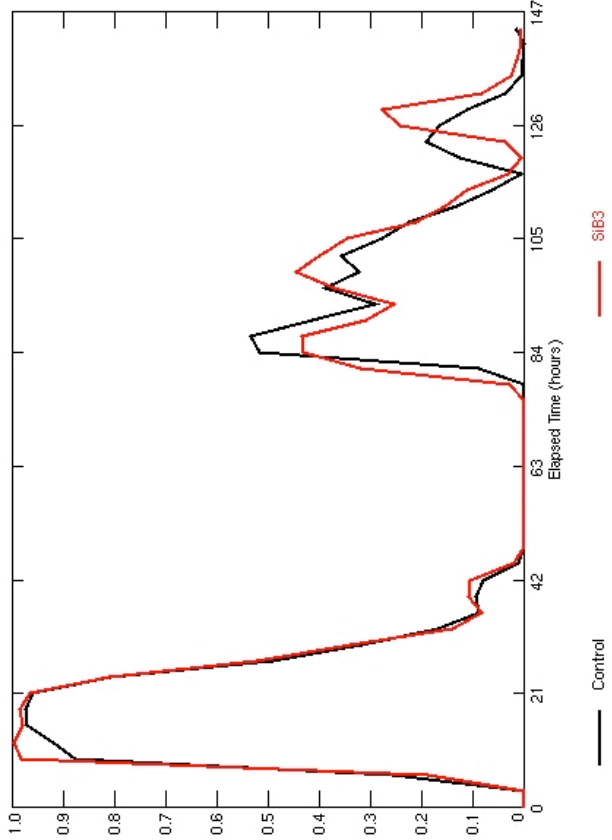
High Cloud Fraction



Low Cloud Fraction

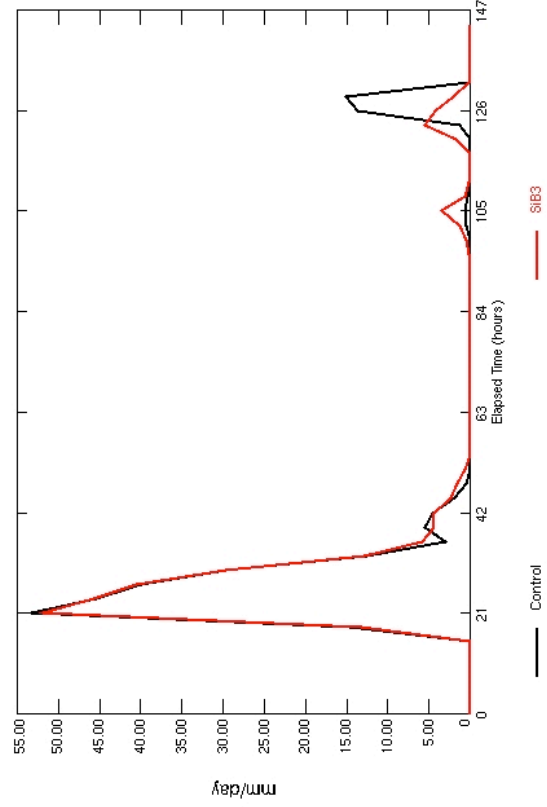


Middle Cloud Fraction

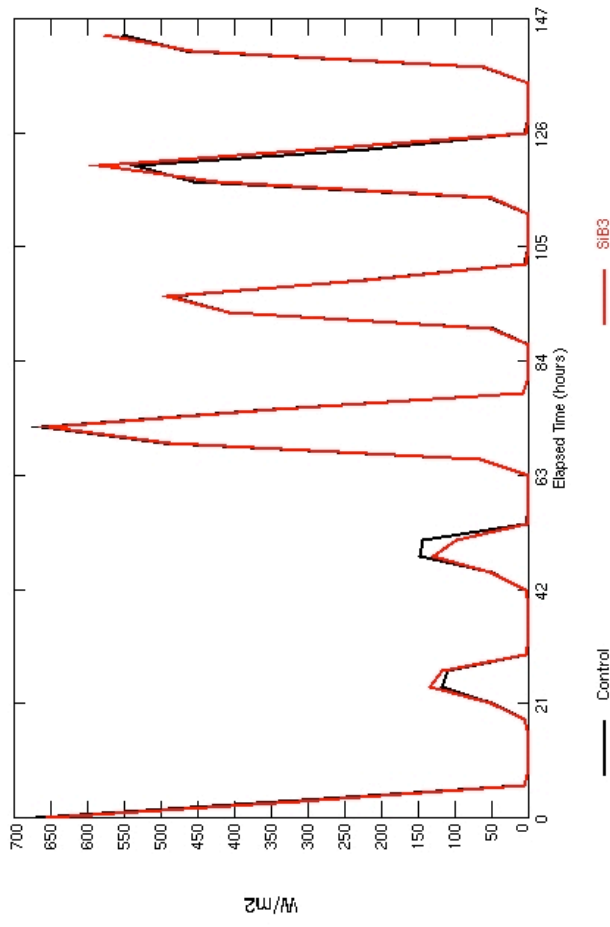


# ARM: March 2000

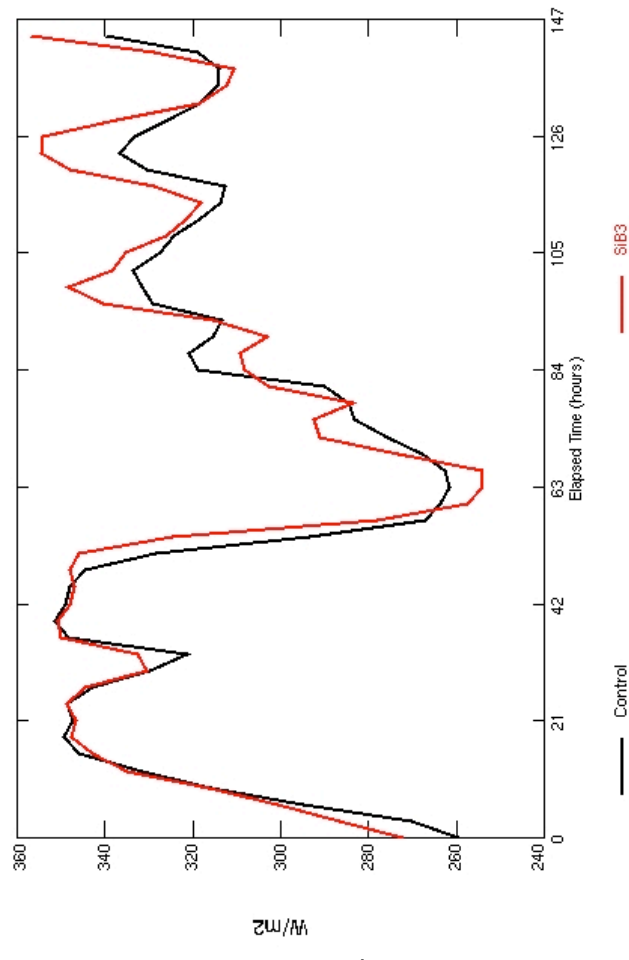
Surface Precipitation



Net SW flux at sfc

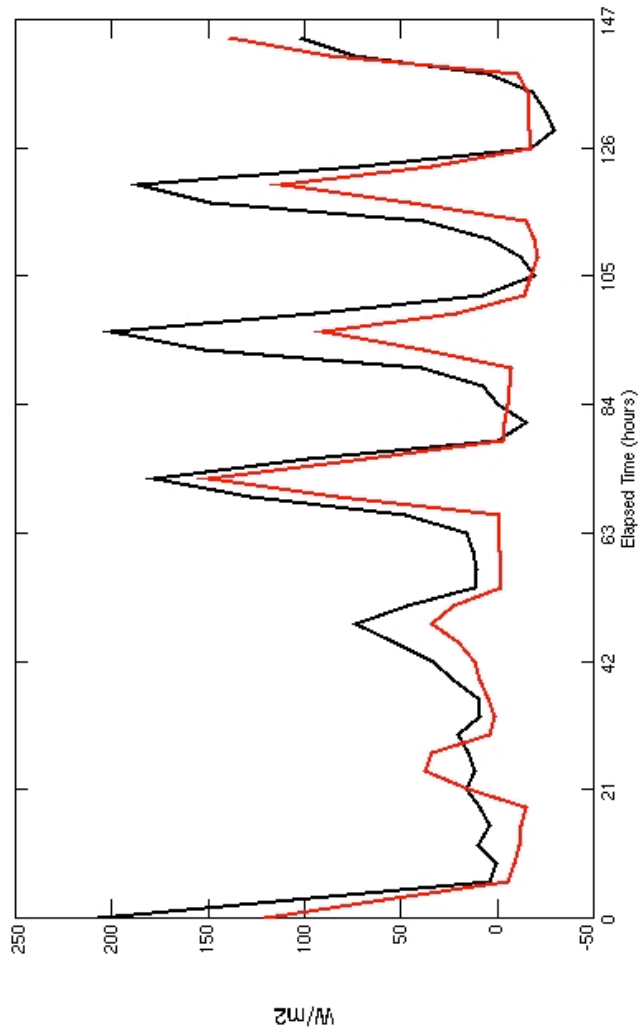


Downward LW flux at sfc

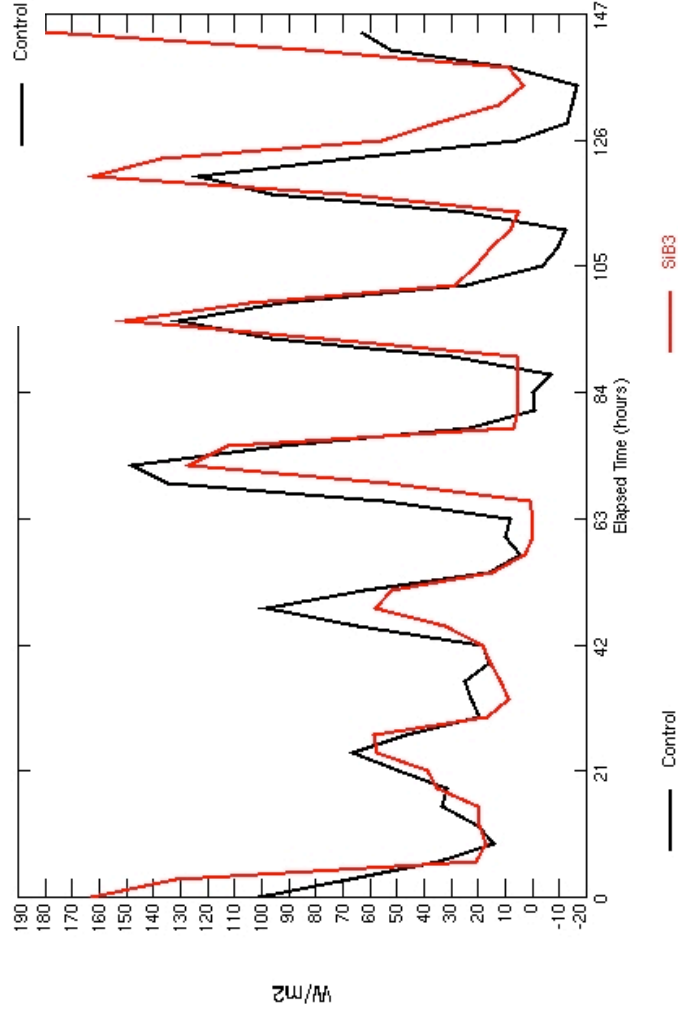


# ARM: March 2000

Sensible Heat Flux

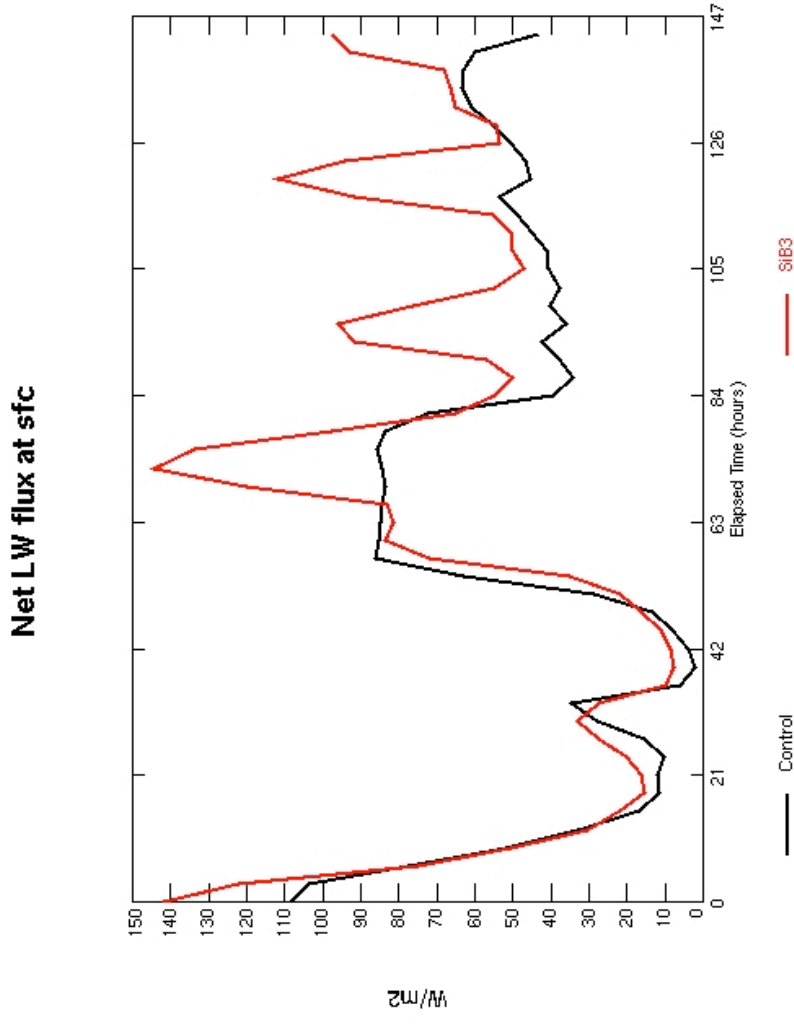


Latent Heat Flux

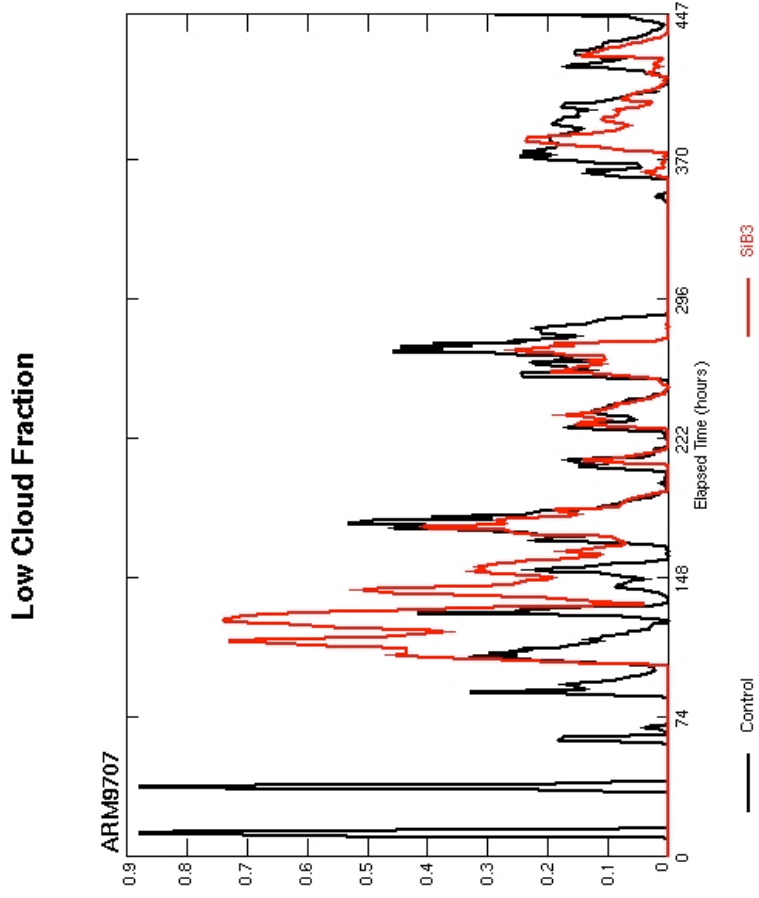
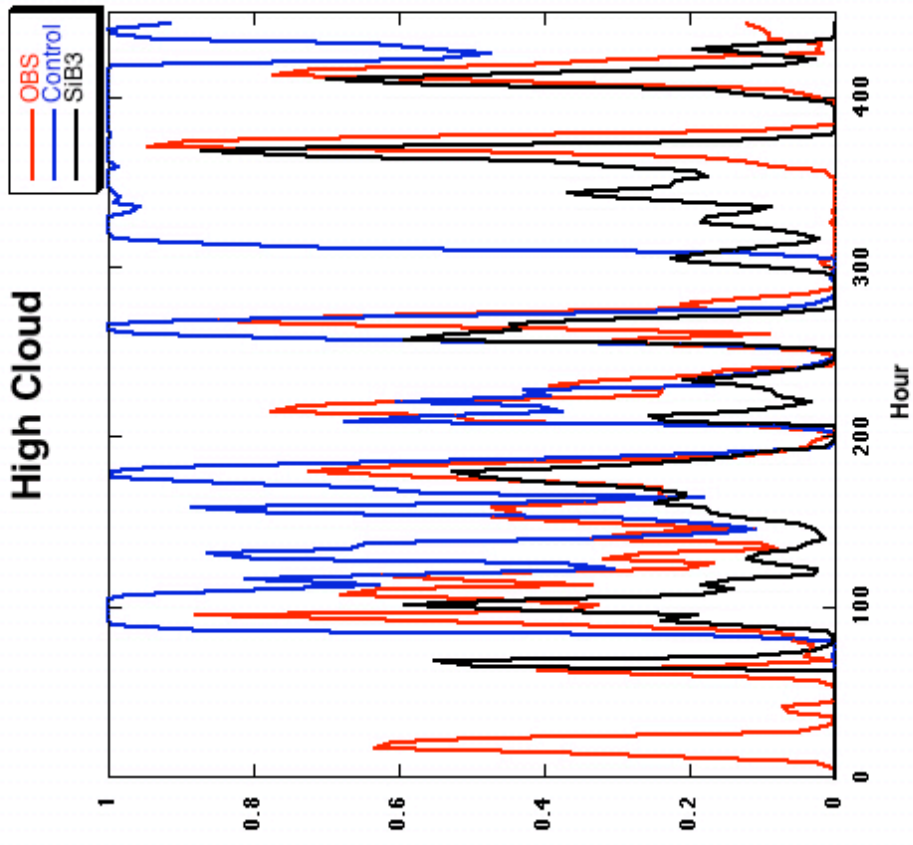




# ARM: March 2000

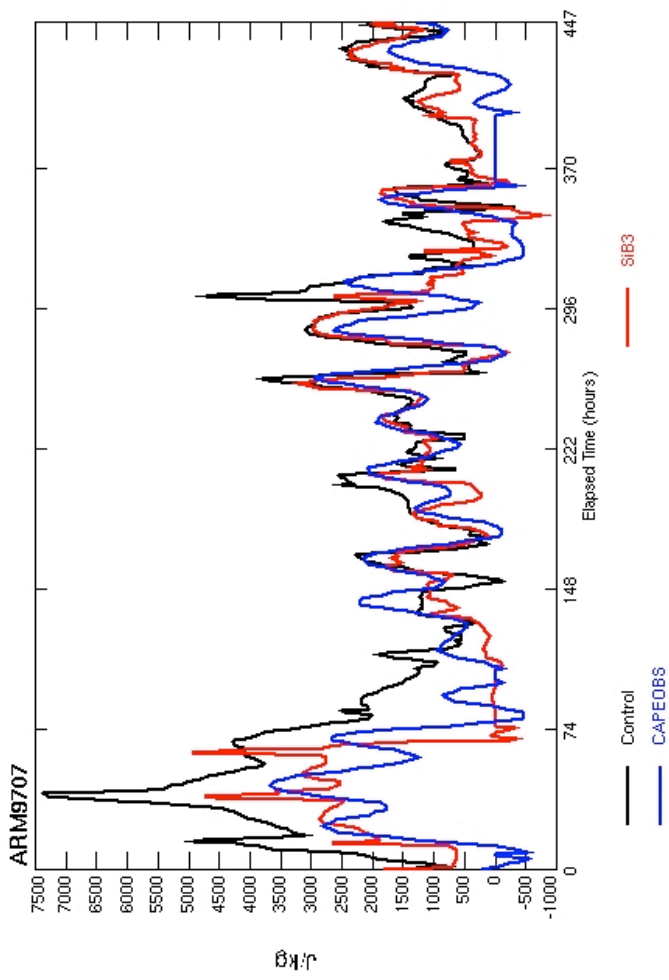


# ARM: July 1997

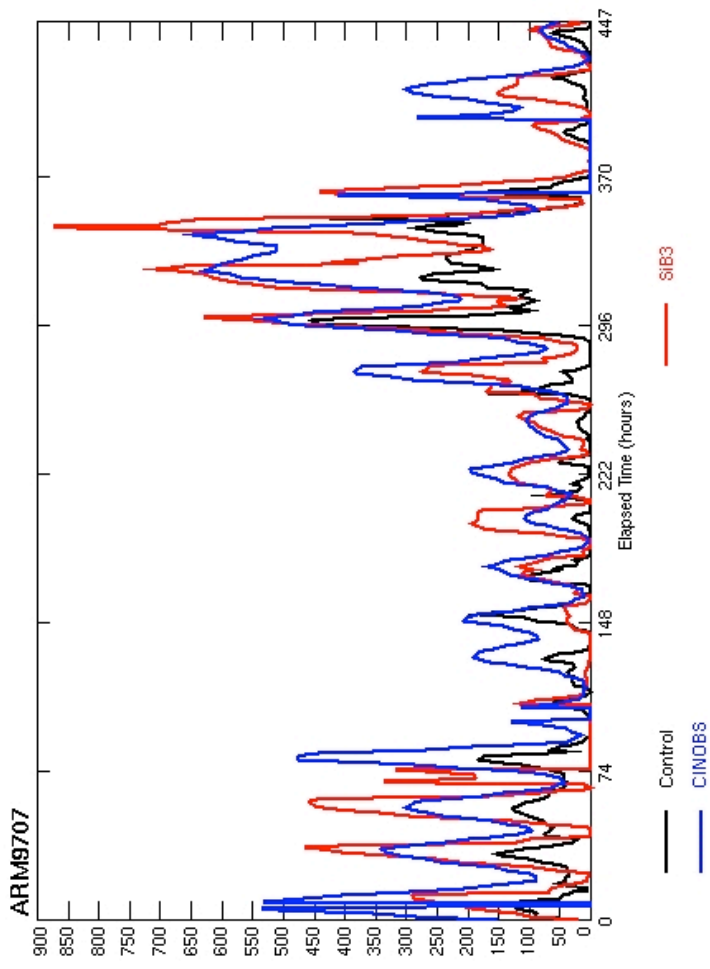


# ARM: July 1997

CAPE



CIN



# ARM: July 1997

