The connection between MCSs and SGP warm biases

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CMIP5 Model temperature biases

CMIP5 Model precipitation biases
Frequency-intensity distribution of daily precipitation
Dry - precondition
Wet - precondition
Dry precondition

Wet days

Diurnal variation of clouds

Dry days

Wet - precondition

Dry - precondition
Mean of $\Omega_T(S)$ minus $\Omega_T(W)$: Average across eight 'best' models

(Koster et al. 2006)
The hypothesis

Heavy rain

In subsequent no-rain days

Less solar radiation & lower temperature

Light rain

In subsequent no-rain days

More solar radiation & Higher temperature
Summary

• Models underestimate precipitation over the SGP, especially strong precipitation from events such as MCS
• Precipitation events cool the surface
• Clouds following the precipitation events seem to play the largest role in the cooling in the subsequent days.