Validation of AIRS V5 AND Candidate V6 TEMPERATURE PROFILES with GPS RO And Water Vapor Skill Score Against Sonde Data

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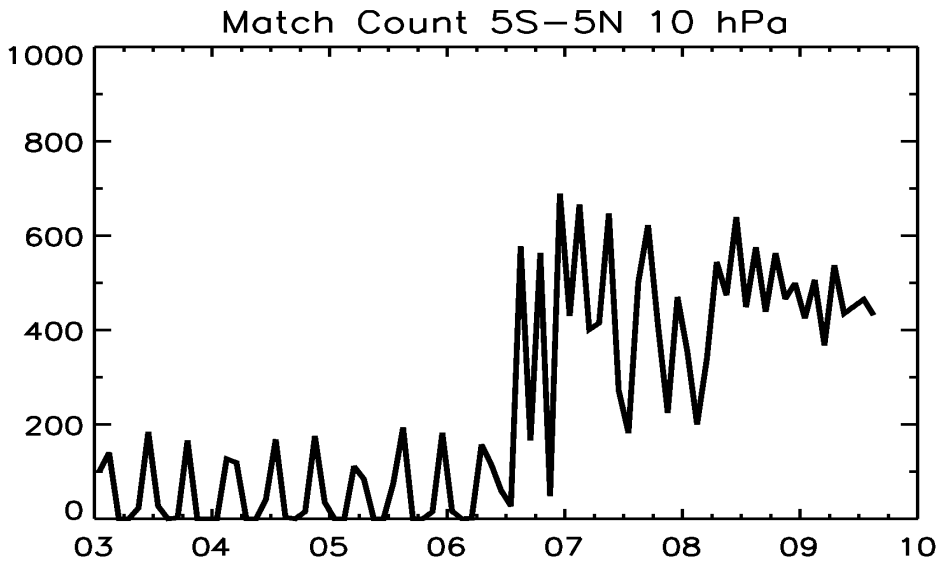
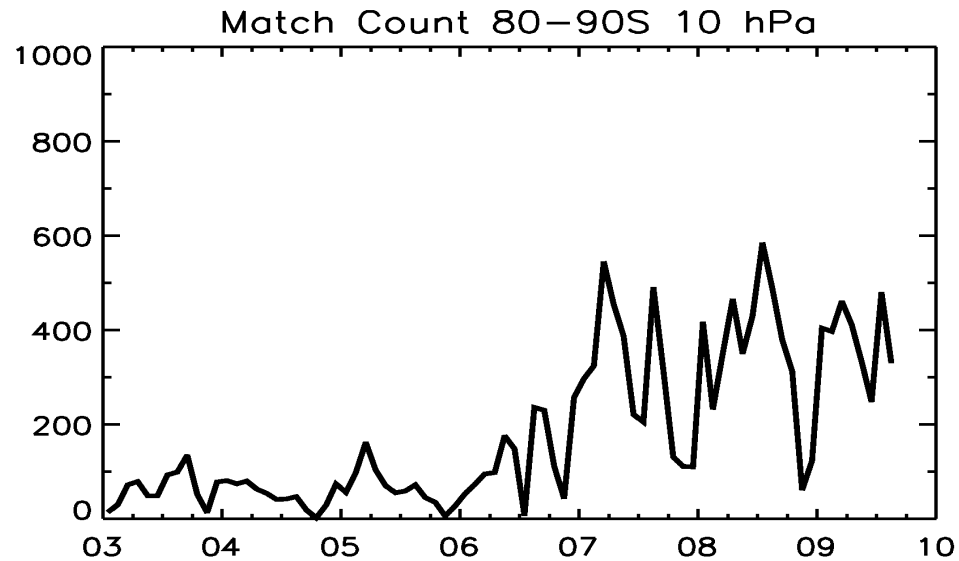
(AIRS Science Team Meeting, April 2011)

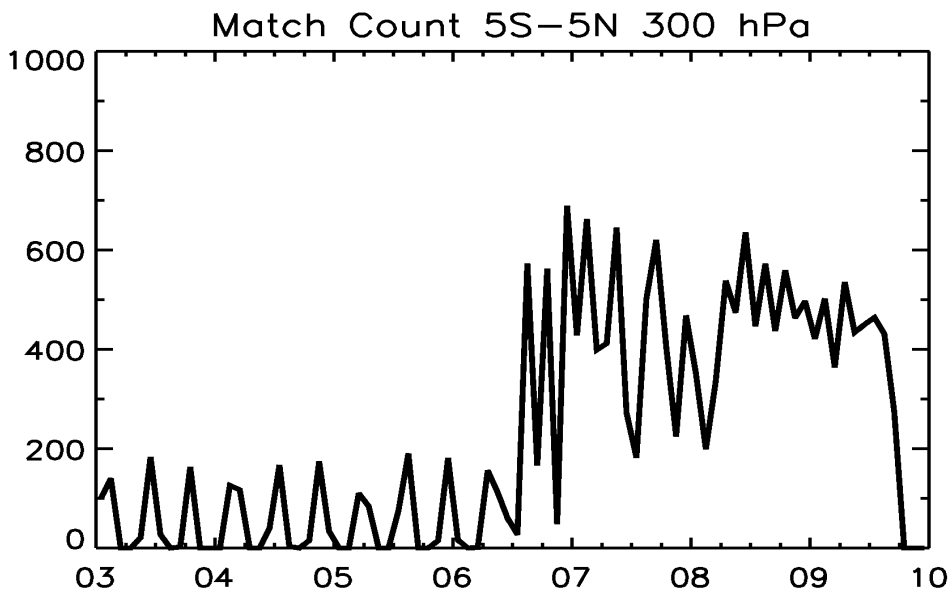
Monthly Matching Counts

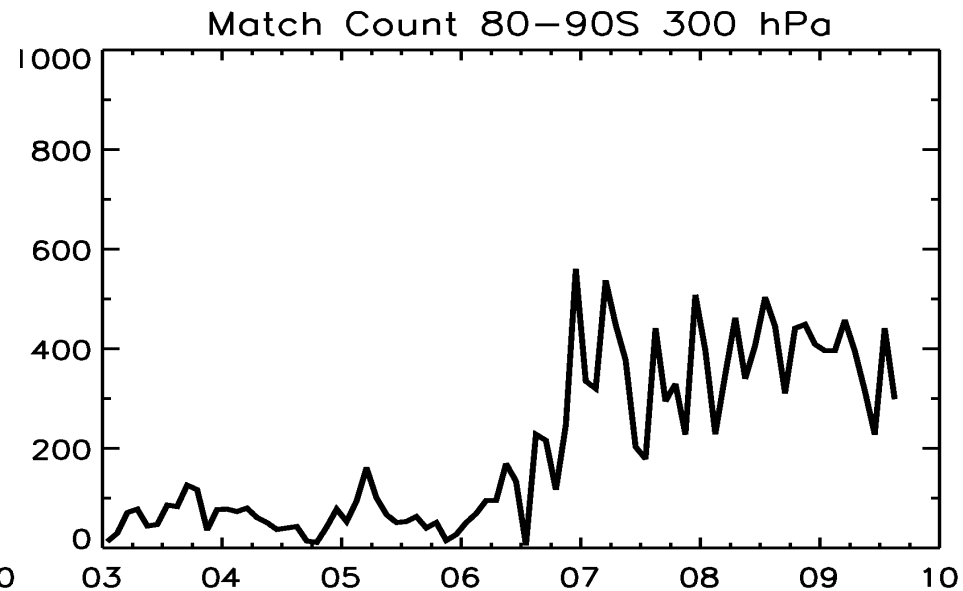
Tropics (5S-5N)

South Polar region 80-90S

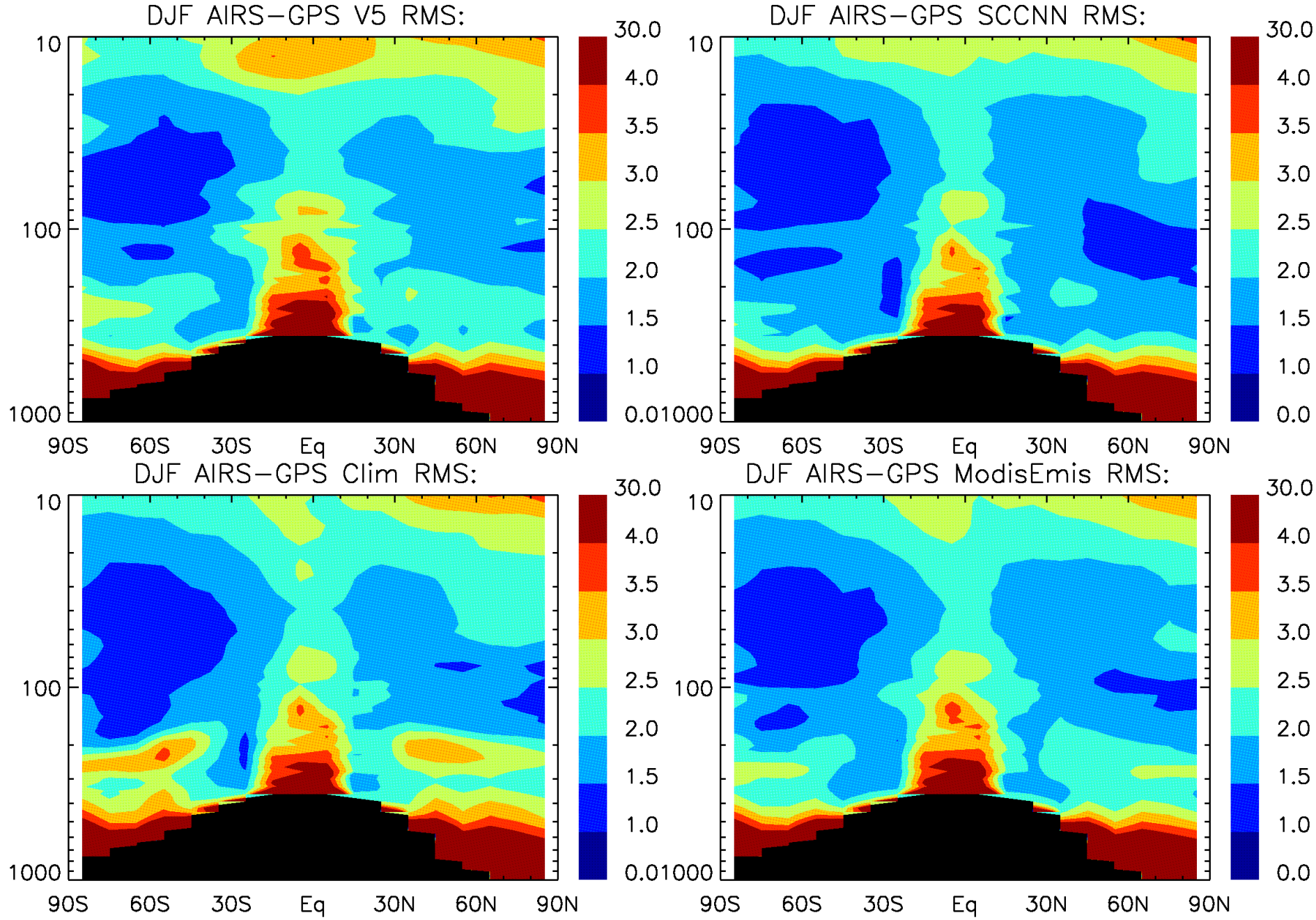




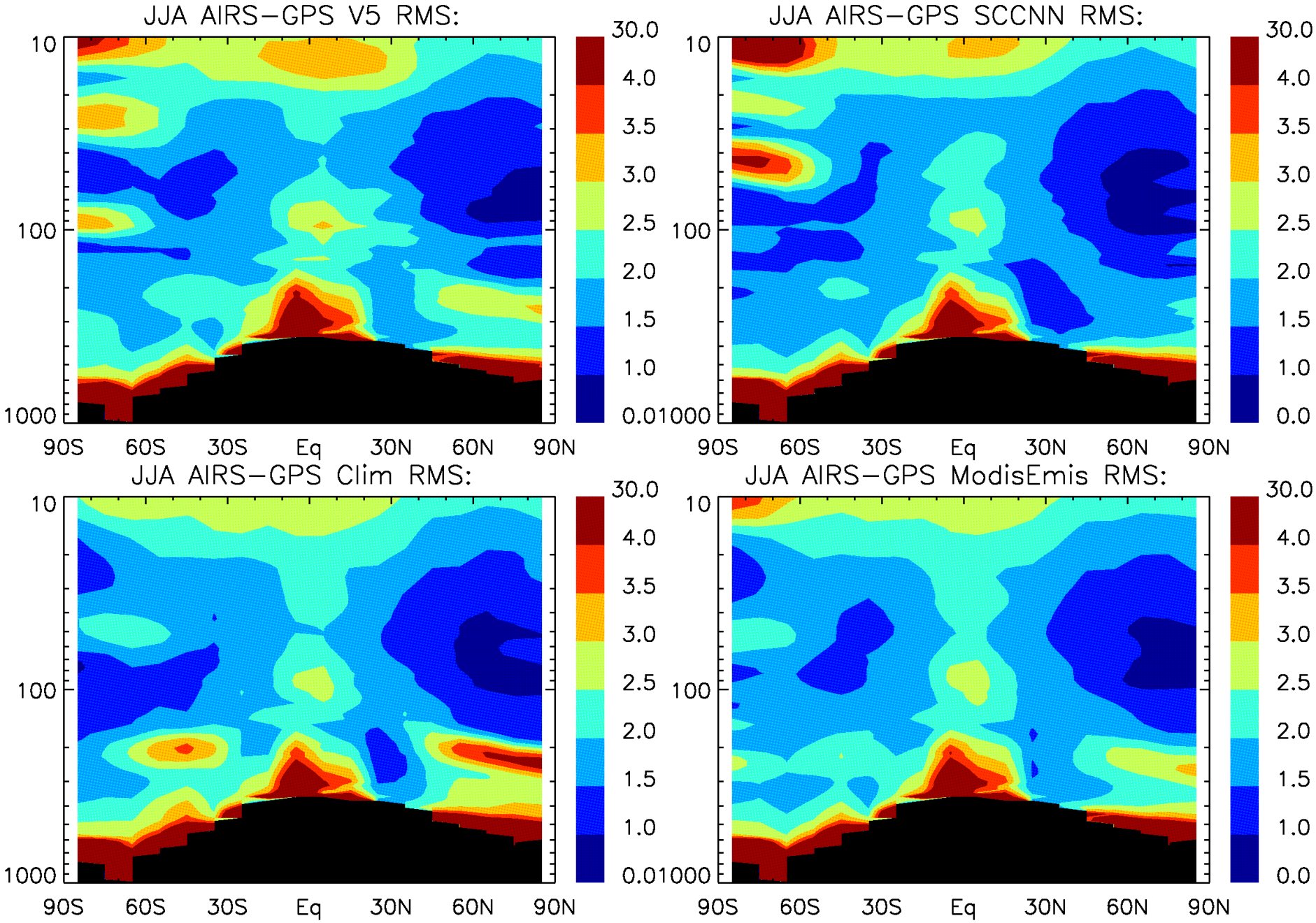




December-January-February T RMS (K)

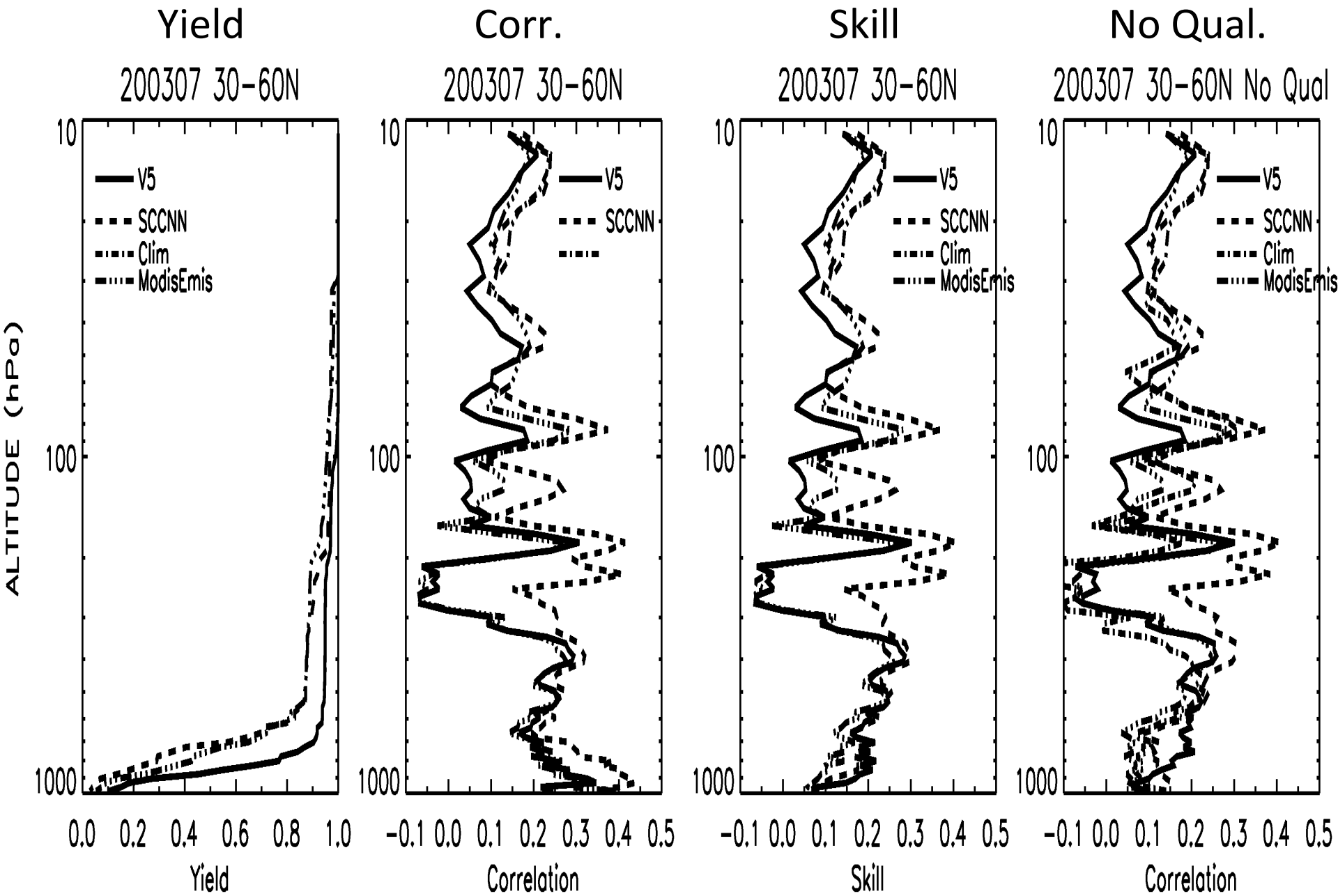


June-July-August T RMS (K)

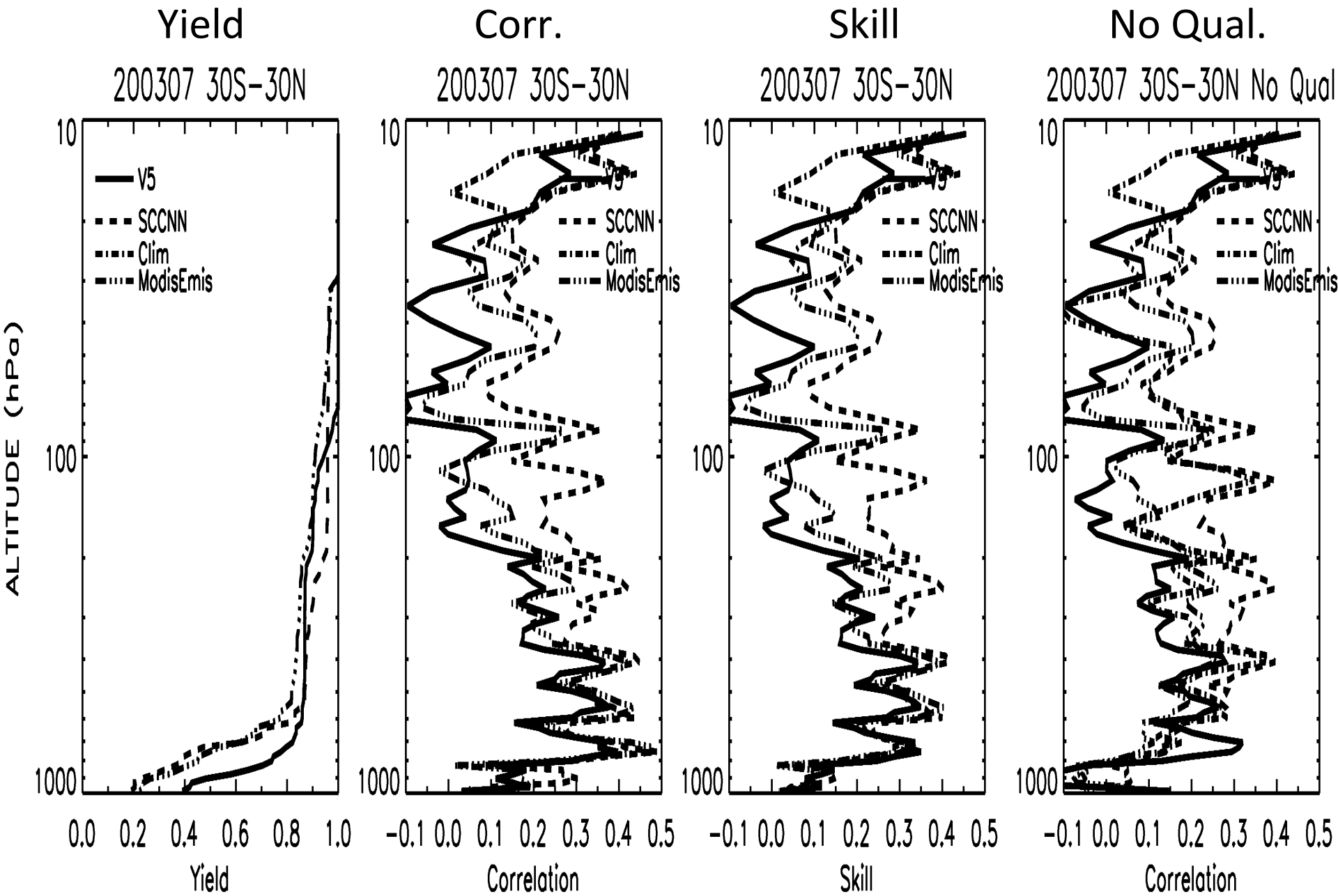


- Skill to score how much retrieval has improved from forecast
- If retrieval ~forecast, skill = 0
- If retrieval~truth (i.e., rabos), skill = 1
- Skill = Corr(retrieval−forecast, truth−forecast)*sqrt(Yield)

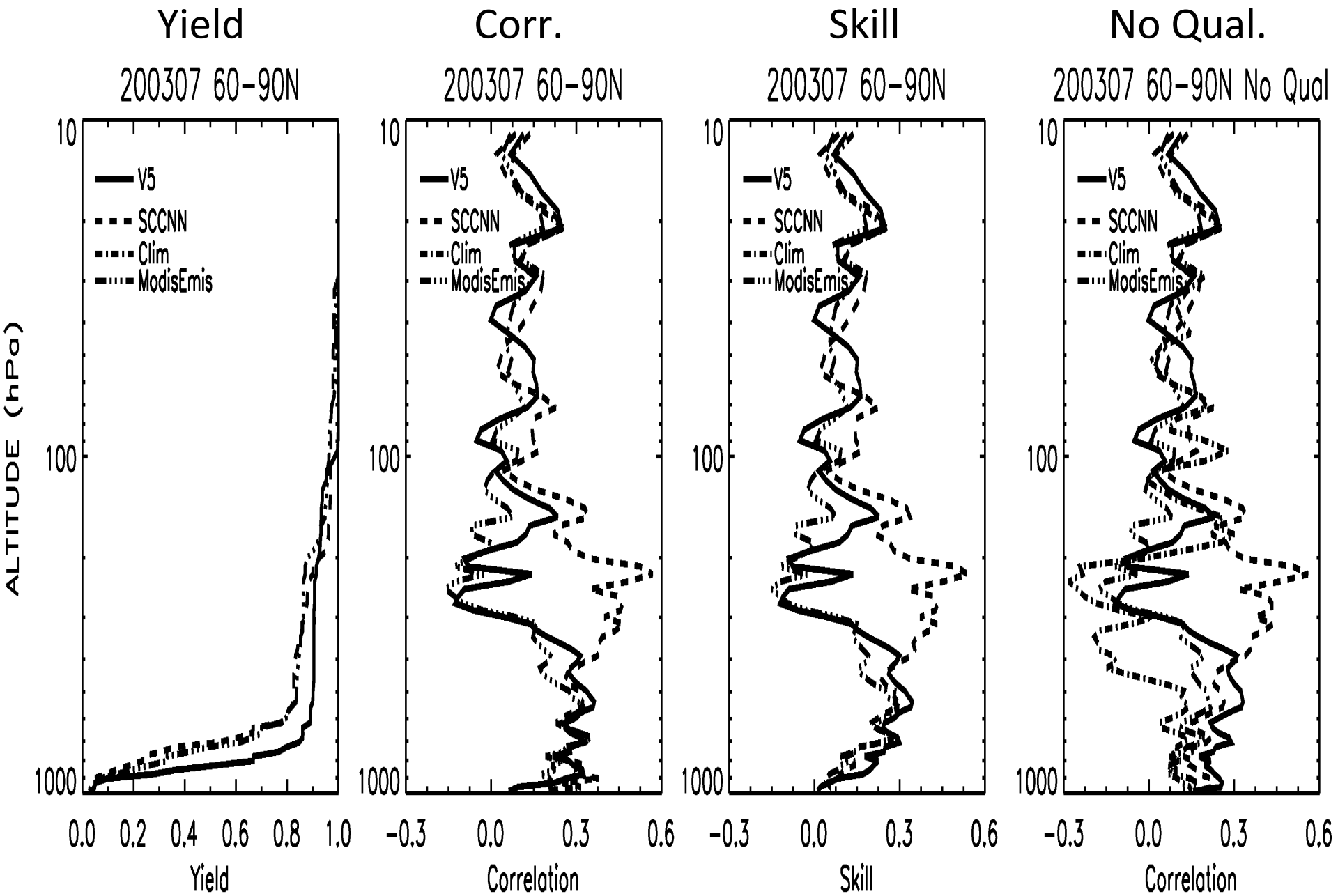
T 30°-60°N (Radio Sondes)



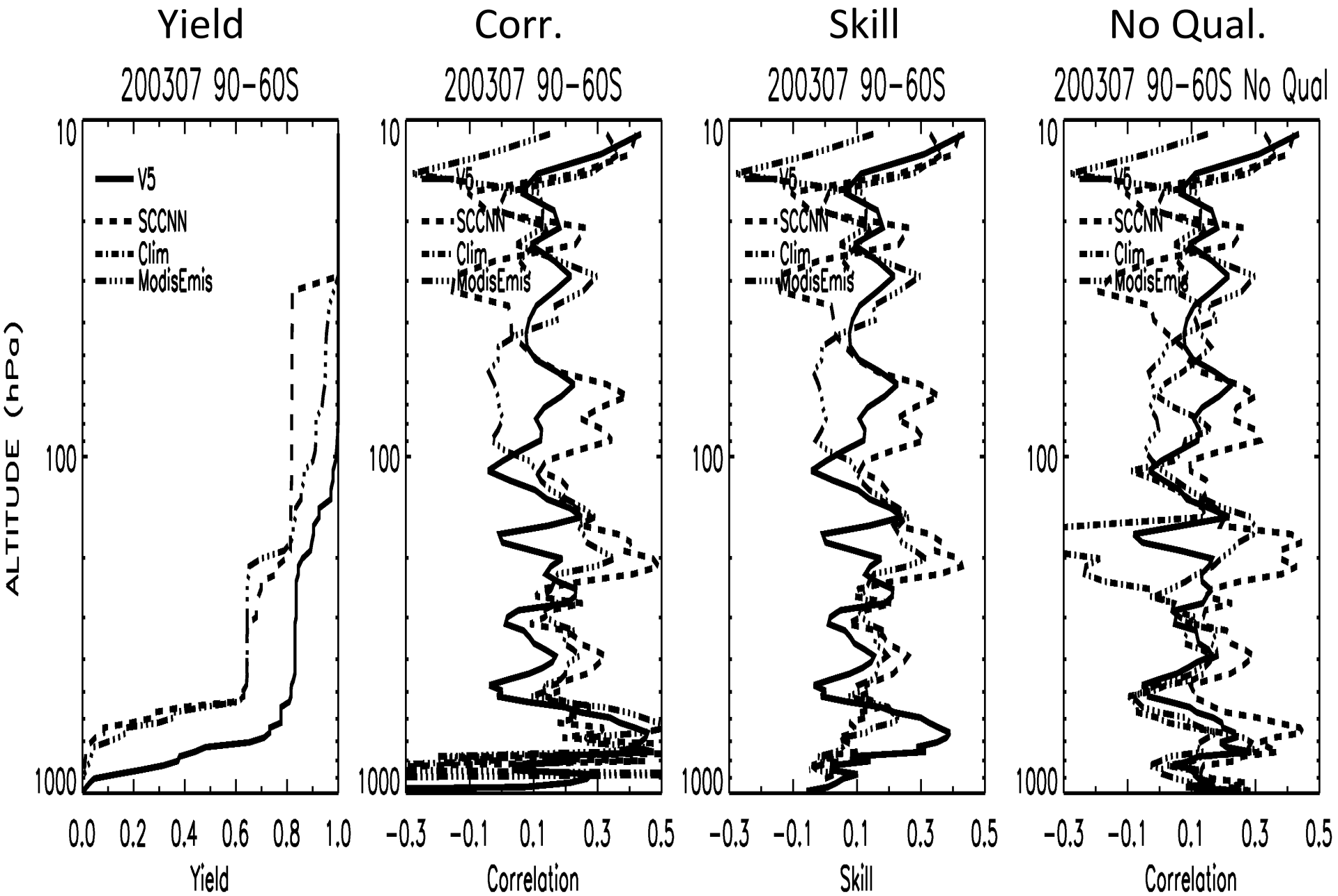
T 30°S-30°N (Radio Sondes)



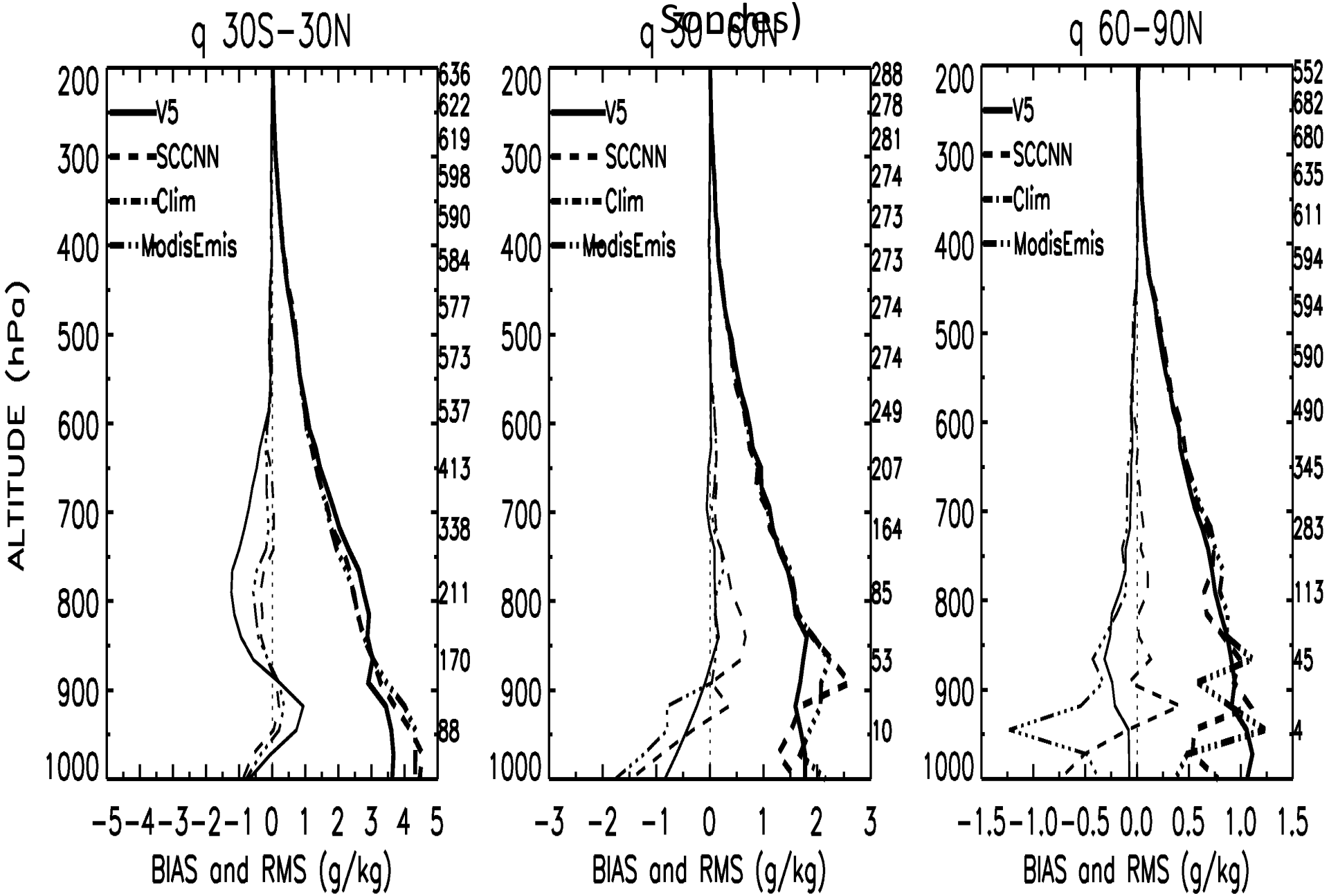
T 60°-90°N (Radio Sondes)



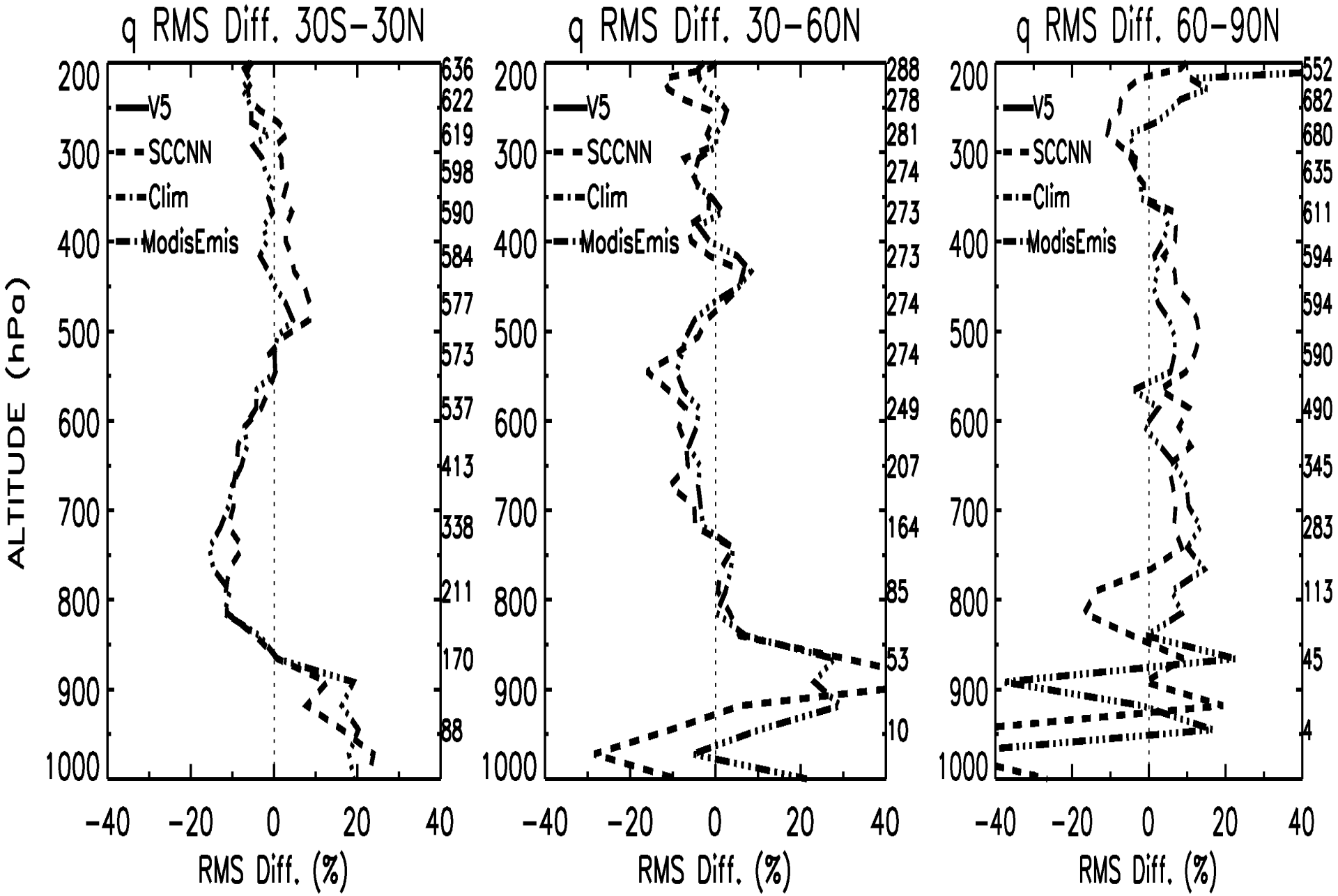
T 90°-60°S (Radio Sondes)



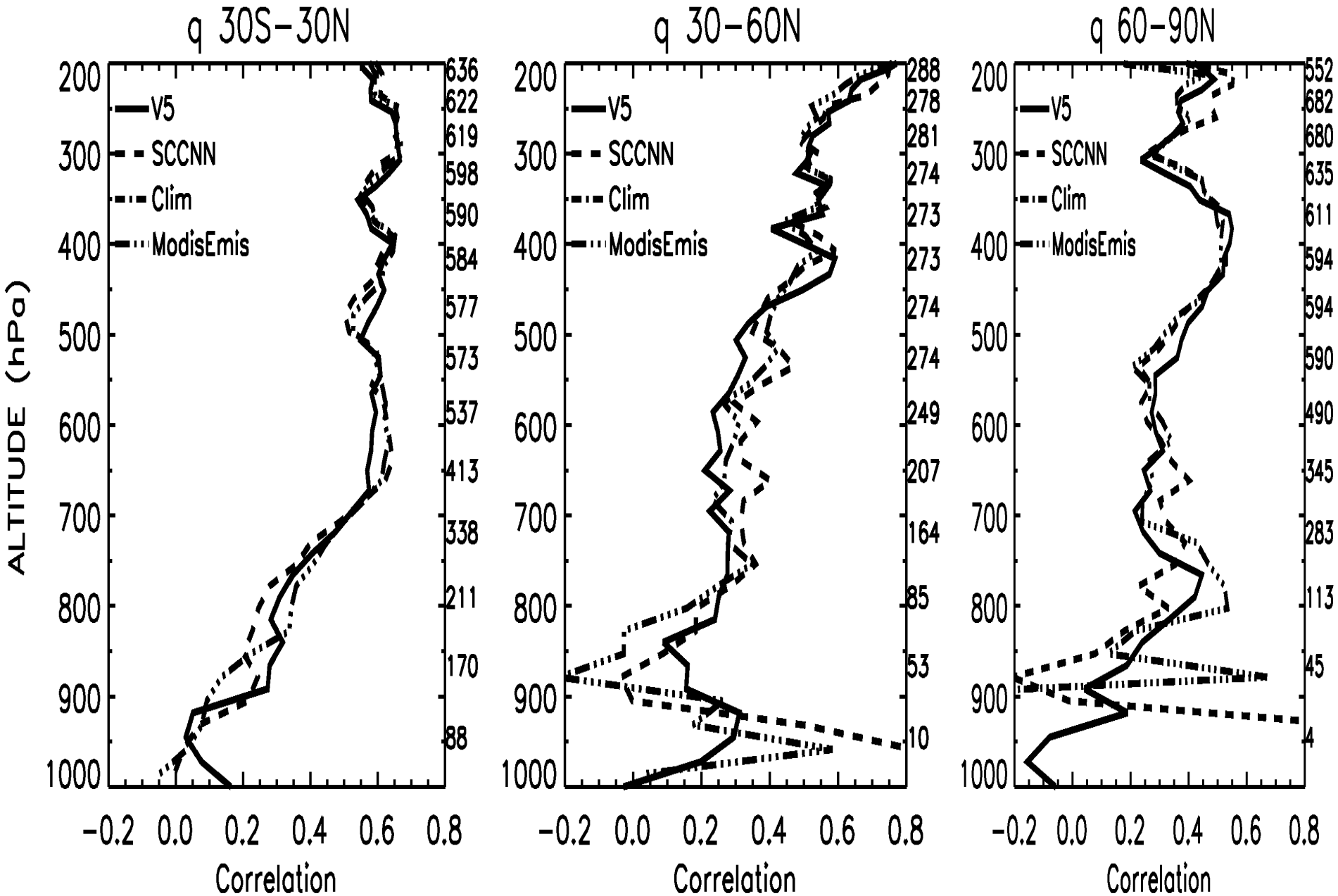
Q Bias, All Year (Dedicated Sondes)



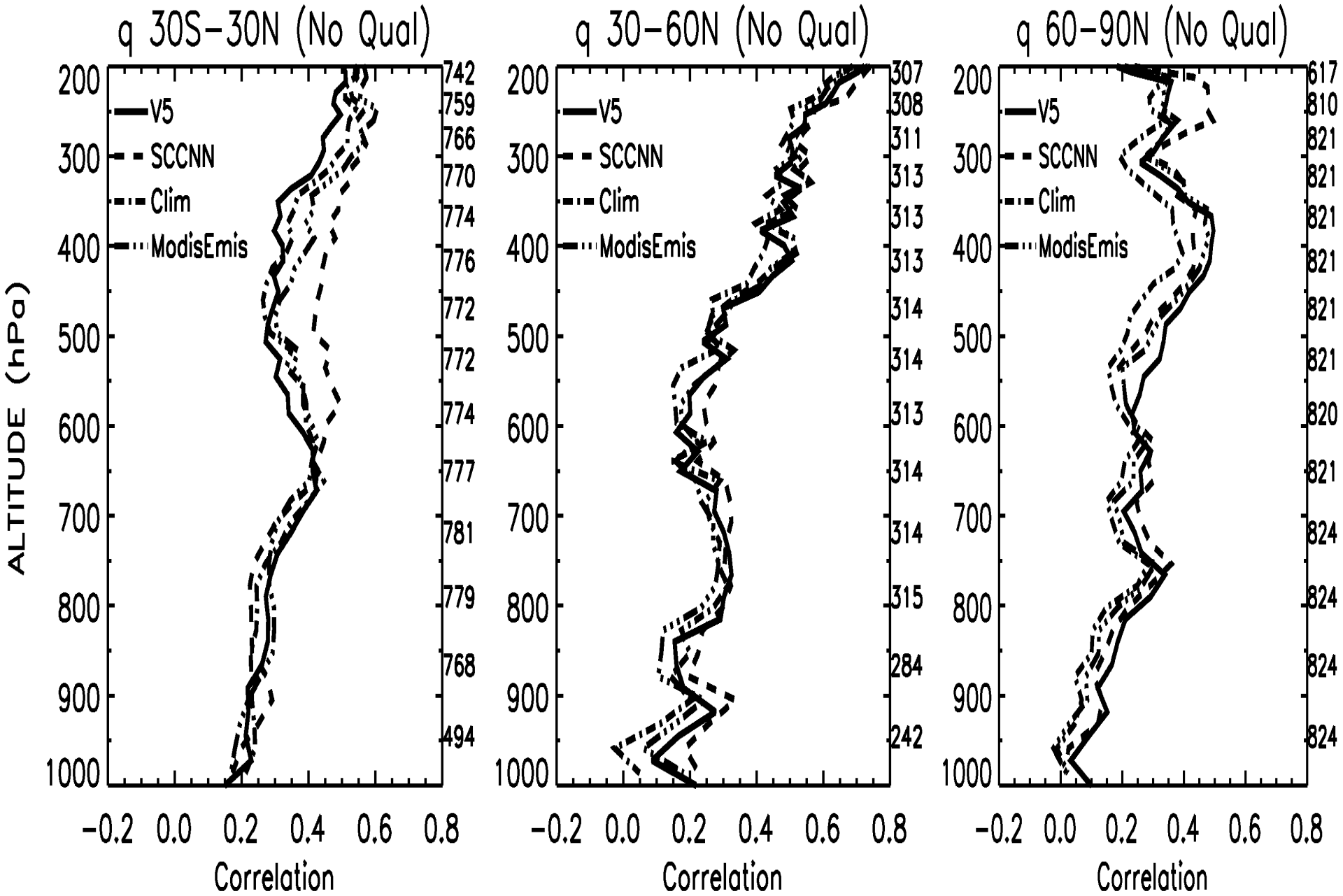
Q RMS Difference from V5, All Year (Dedicated Sondes)



Q Correlation, All Year (Dedicated Sondes)



Q Correlation, No Qual. All Year (Dedicated Sondes)



Conclusions:

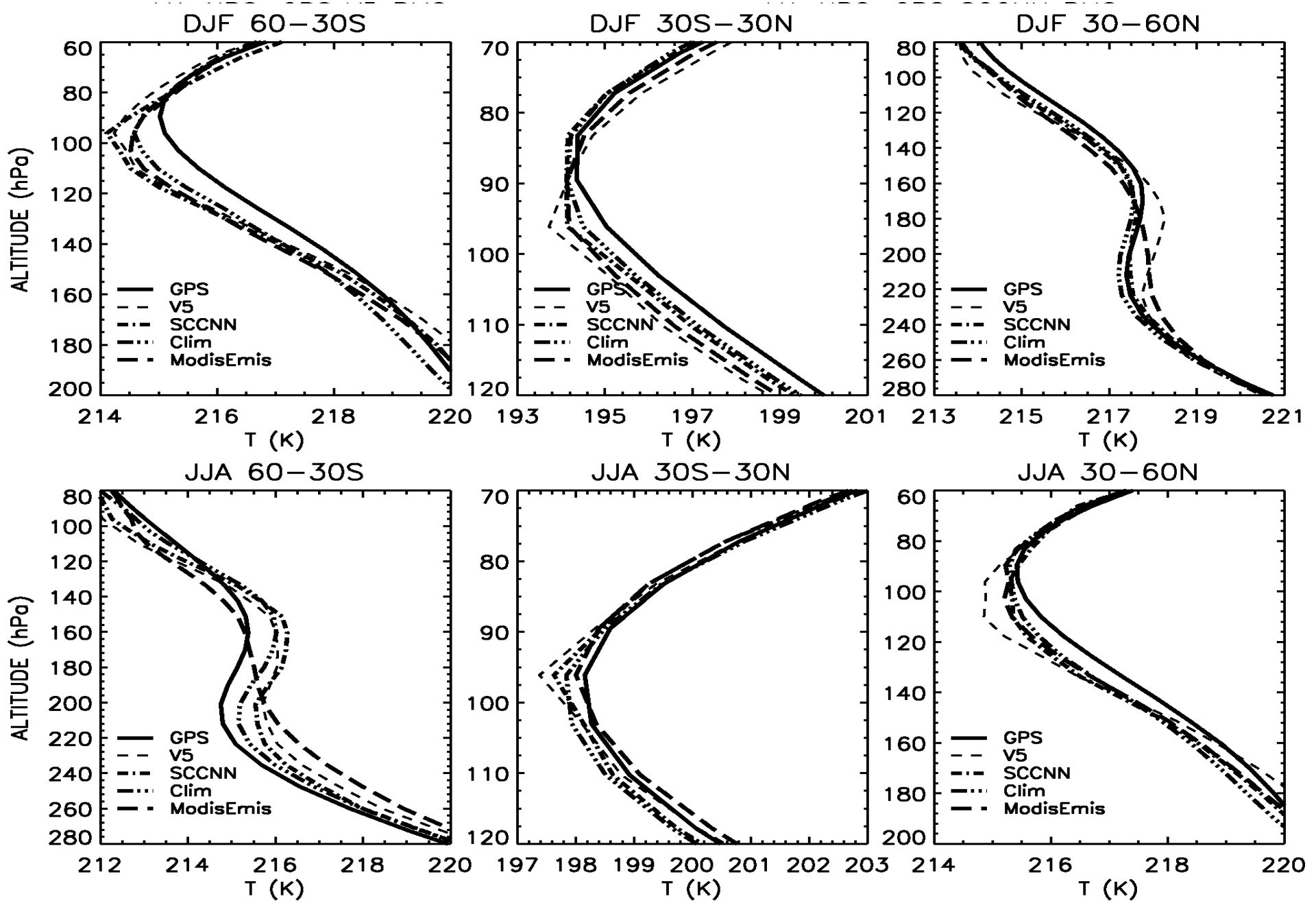
- Temperature RMS error is reduced in the tropics and stratospheric summertime extratropics for SCCNN

- SCCNN improves the temperture retrieval's skill score between 70-400 hPa

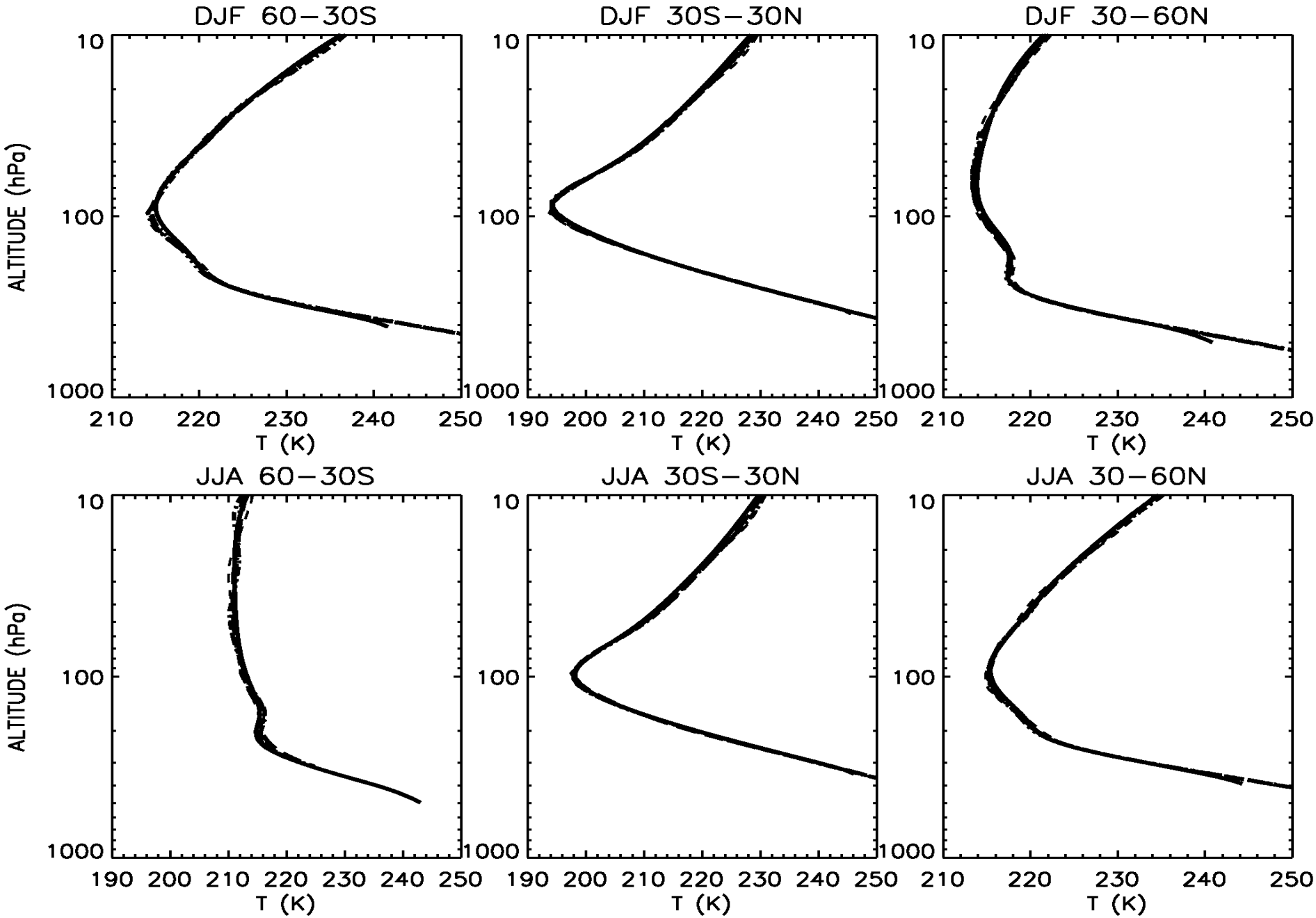
- V6 candiates (ModisEmis and SCCNN) may reduce specific humidity RMS error in 500-800 hPa in the tropics and middle latitudes

- Skill scores for V6 candidates' specific humidity retrievals are comparable to that for V5's.

June-July-August T RMS (K)



T Profiles


DJF 60−30S
DJF 30S−30N
DJF 30−60N
JJA 60−30S
JJA 30S−30N
JJA 30−60N
ALTITUDE (hPa)
10
100
1000
T (K)
190 200 210 220 230 240 250
210 220 230 240 250