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

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• Skill = Corr(retrieval–forecast, truth–forecast) * sqrt(Yield)

• If retrieval ~ forecast, skill = 0
• If retrieval ~ truth (i.e., rabos), skill = 1

Skill = cos(\theta) * sqrt(Yield)
Monthly Matching Counts

Tropics (5S-5N)

South Polar region 80-90S
q, 30S-30N, All Year (Dedicated Sondes)
Conclusions:

- V5.9.12 has reduced T RMS errors from RaObs and larger skill scores throughout the troposphere.

- V5.9.12 T RMS error from GPS RO is reduced almost everywhere from 30-300 hPa.

- V5.9.12* may reduce specific humidity RMS error in 500-925 hPa in the tropics and polar latitudes. V5.9.12 reduces more RMS in the tropics, while V5.9.12q reduces more in the NH polar region.

- Skill scores for V5.9.12* specific humidity retrievals are comparable to that for V5’s.