Satellite QPEs and Hydrologic Forecasts: NWS/OHD Perspective

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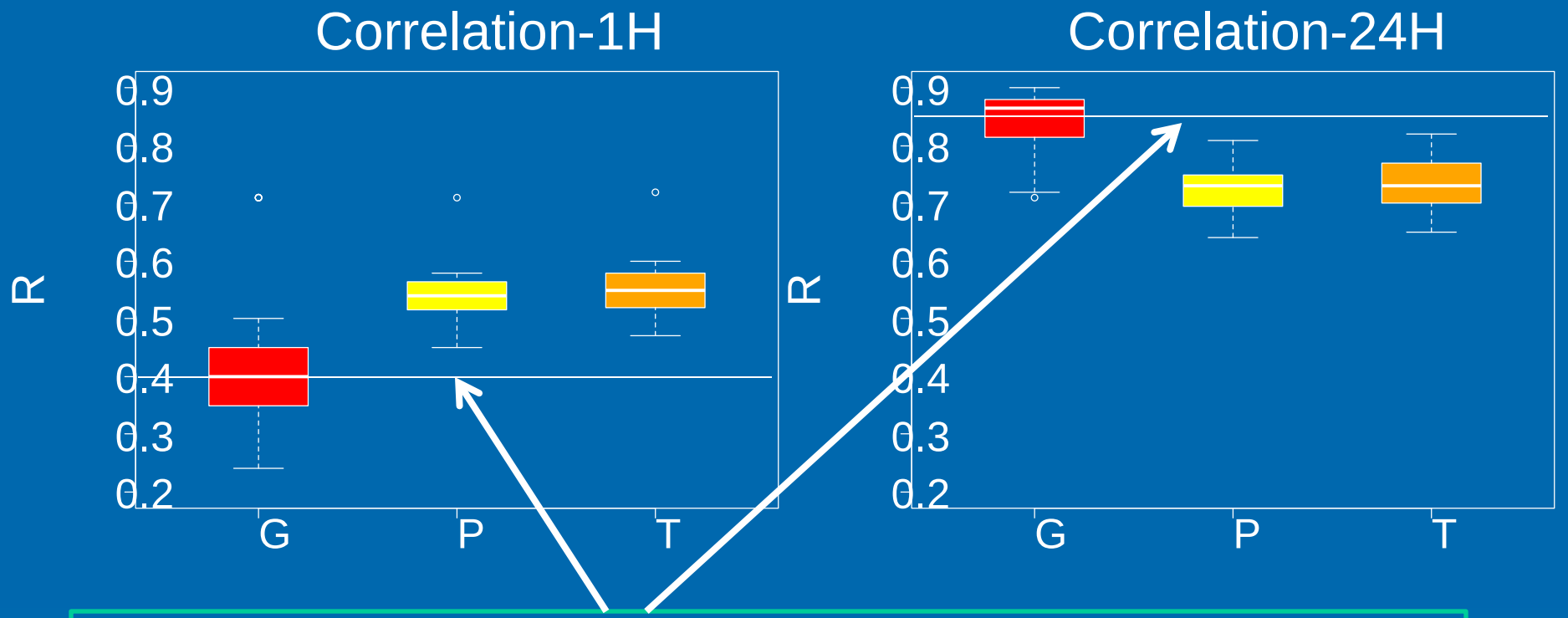
Lessons from Past Studies

- Satellite QPE can complement the strength of gauge data over short durations (< 6 hrs)
- Most study basins sufficiently large that the accuracy over longer time scales (> 6 hrs) matters more
- More suitable for flash flood application?
- Critical improvements in SPE accuracy needed over 6-24 hour intervals

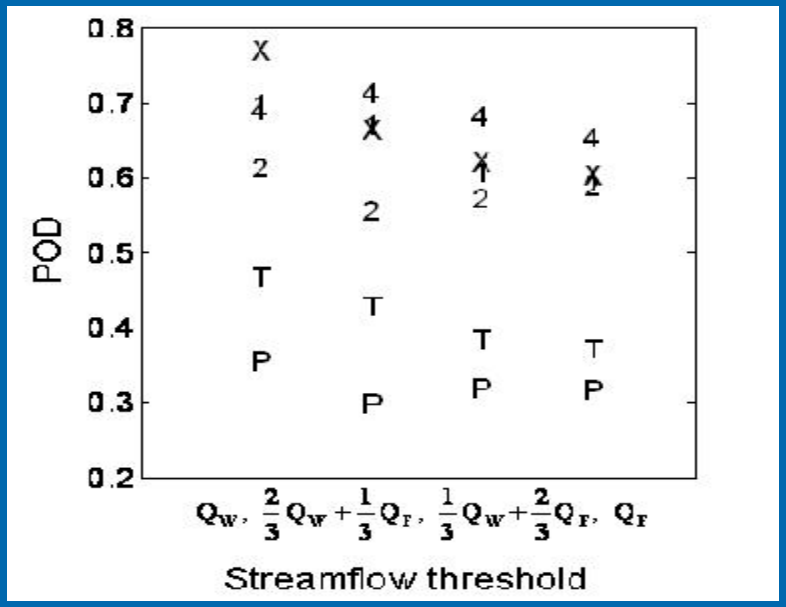
Mean-Areal Precipitation Validation

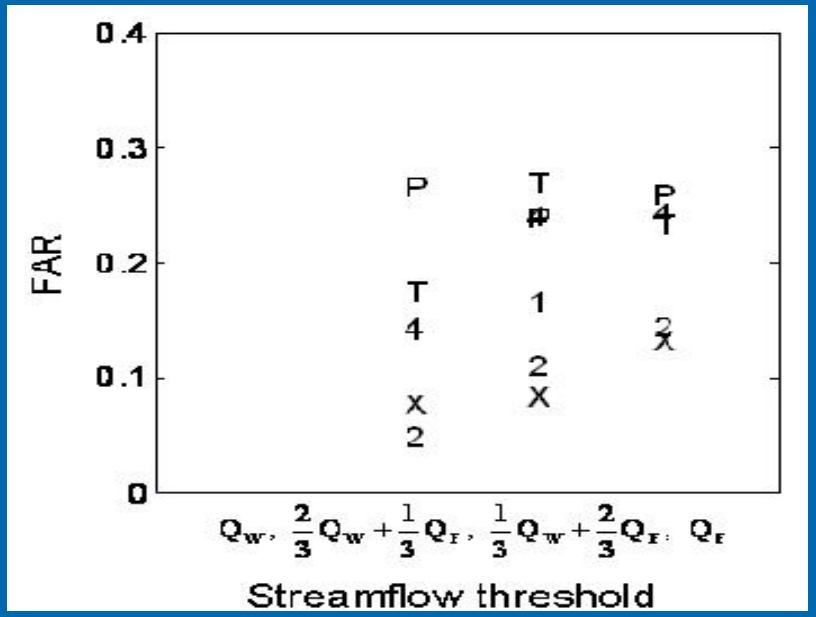


SCaMPR QPEs out/underperform Gridded Gauge-only analysis at 1/24-h

Data from multiple Texas basins, 2002-2007

Hydrologic Experiment





- Gauge-only Analyses still outperform SCaMPR
  - Higher POD/ Lower FAR
- Tangible Improvements in SCaMPR after ingesting TRMM data

Data Fusion Roadmap: Anticipated Work in NWS/OHD

- Infusion of multiple satellite QPEs
  - Identification of strengths of each QPE algorithm
- Ground-sensor based bias correction of SPE
  - Gauge/radar correction over 24-h or longer
- Objective 3-way radar-gauge-satellite merging
  - Enhanced Multisensor Precipitation Estimator (MPE) to use of SPE within radar coverage
- Pilot Studies
  - SPE, and blended QPE driven flash flood forecast
  - Model calibration using gauge data disaggregated by SPEs

Questions? Comments?

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