

# North American Monsoon Region GPS Hydromet Network

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## Research Areas

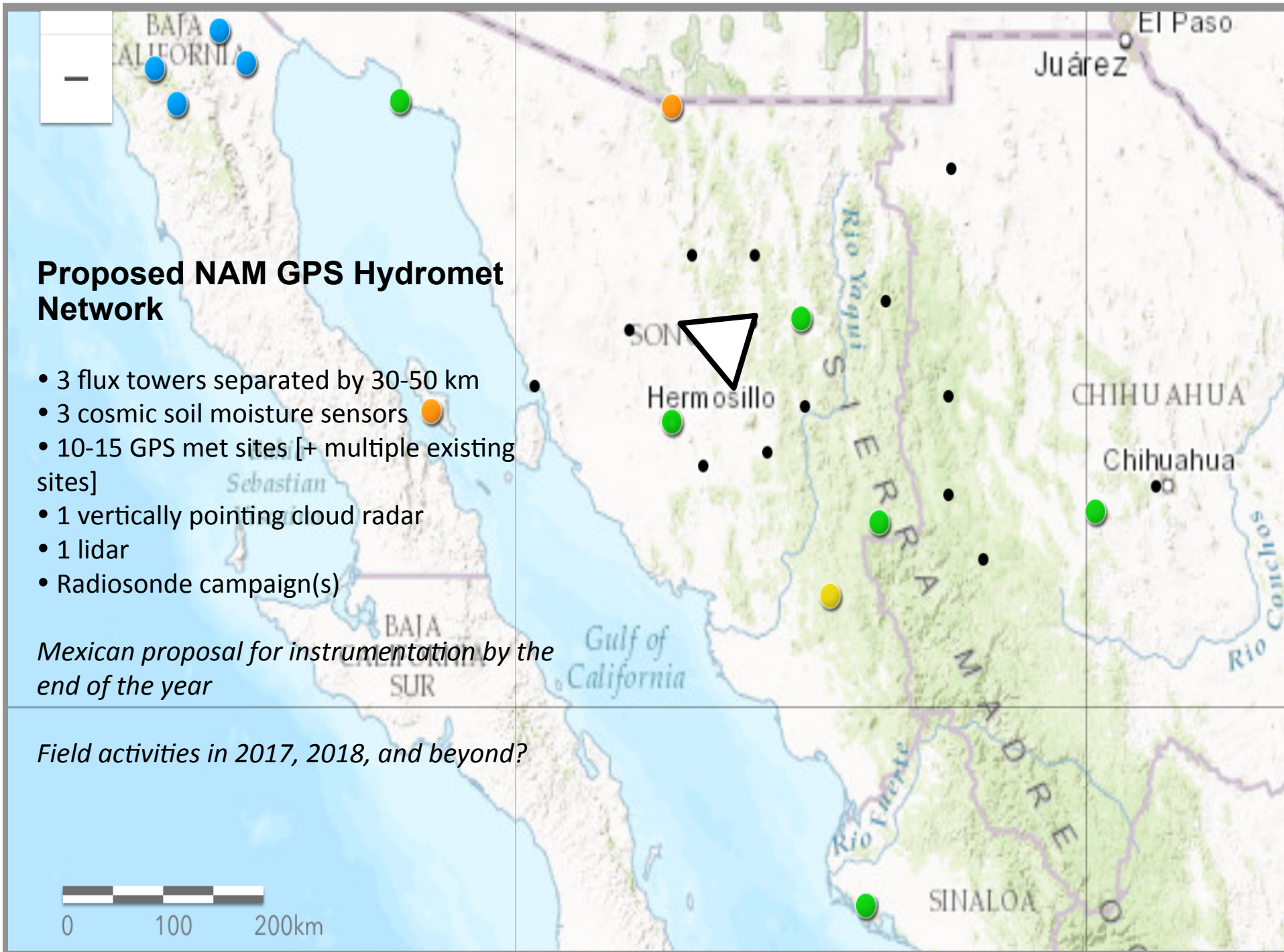
- Land/atmosphere coupling
- Moisture source attribution and transport
- MCS organization and propagation
- Diurnal shallow to deep convection transition
- Gulf surges

## Proposed NAM GPS Hydromet Network

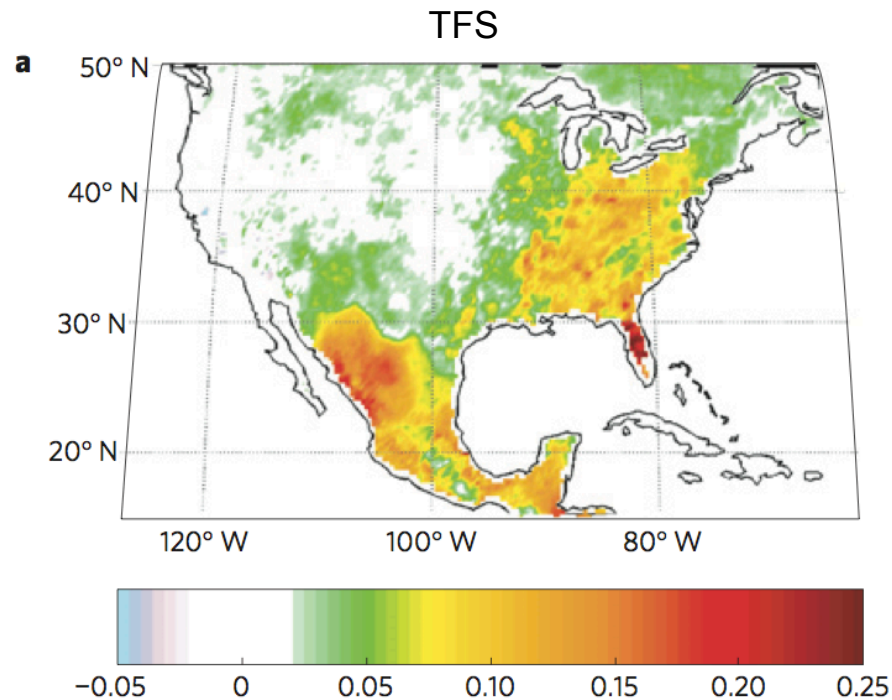
- 3 flux towers separated by 30-50 km
- 3 cosmic soil moisture sensors
- 10-15 GPS met sites [+ multiple existing sites]
- 1 vertically pointing cloud radar
- 1 lidar
- Radiosonde campaign(s)

*Mexican proposal for instrumentation by the end of the year*

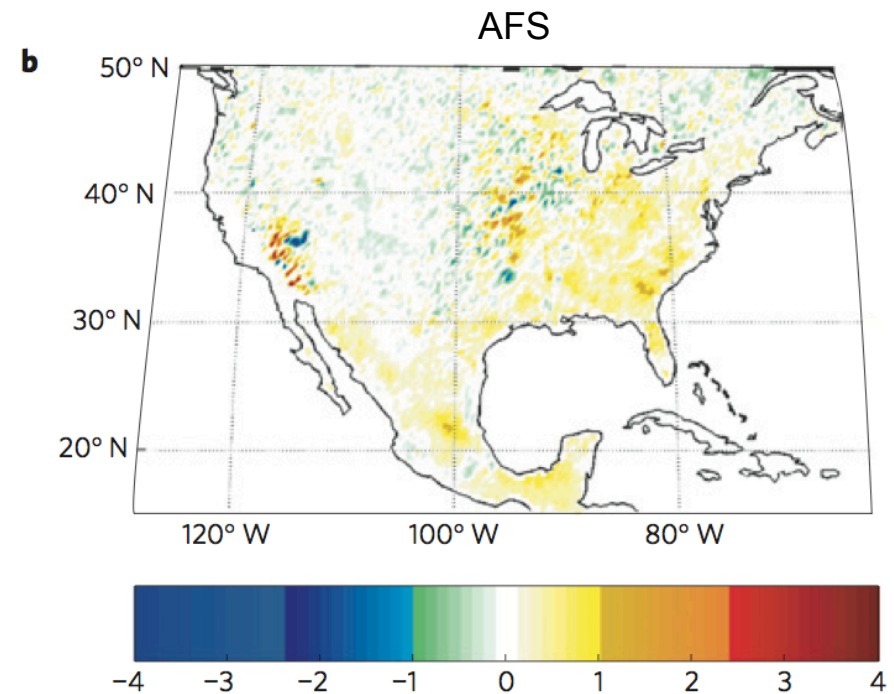
*Field activities in 2017, 2018, and beyond?*



# Diagnosing LA coupling from NARR



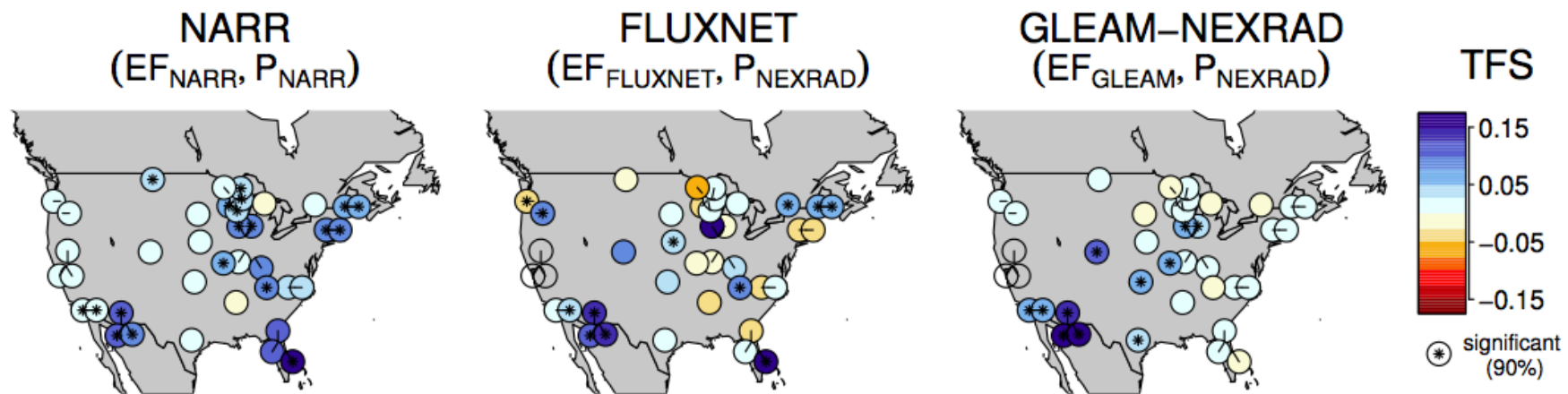
Effect of morning-time surface turbulent flux partitioning on the probability of occurrence of afternoon rainfall is evident over the eastern US and NW Mexico.



Little impact of surface turbulent flux partitioning on rainfall intensity.

# Challenge [opportunity]: observational validation

Observational validation of LA coupling metrics has always been difficult, given the general scarcity of observations and other fundamental issues, e.g., scale mismatch between observations and models.



Considerable variation in values of TFS estimated from NARR, flux towers, and satellite remote sensing.

But TFS estimates need sufficiently long timeseries (>5 years) to be reliable.

- Green up (mid July over two week period) in Sonora

11 July 2004



28 July 2004



14 July 2004



25 July 2004



16 July 2004



23 July 2004



18 July 2004



20 July 2004

