

# Using Continuous GPS Data to Corroborate InSAR Derived Ground Measurements

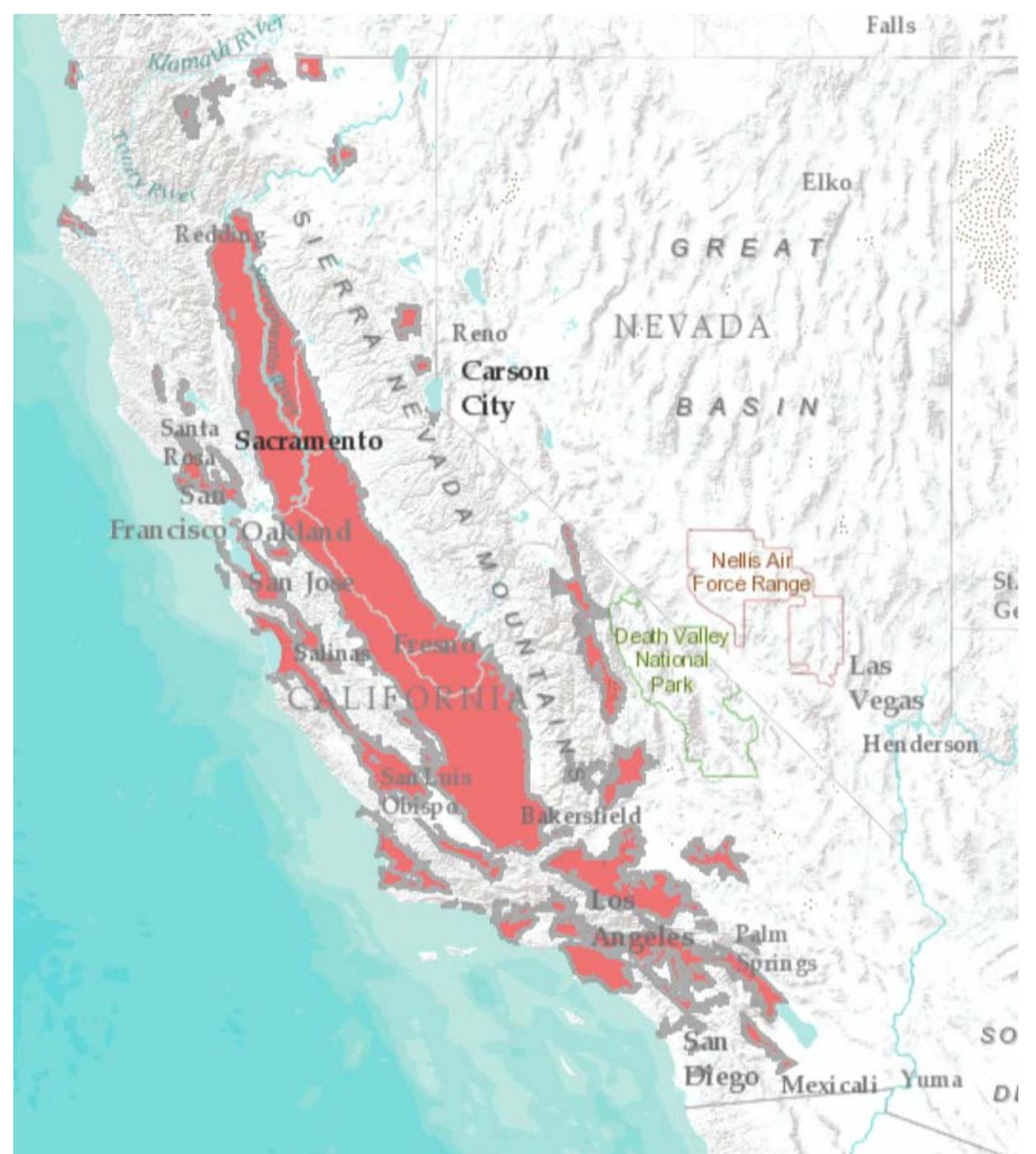
Supporting the  
Sustainable Groundwater Management Act

Daniel K. Mardock, PLS  
Chief, Geodetic Branch  
Division of Engineering  
Department of Water Resources

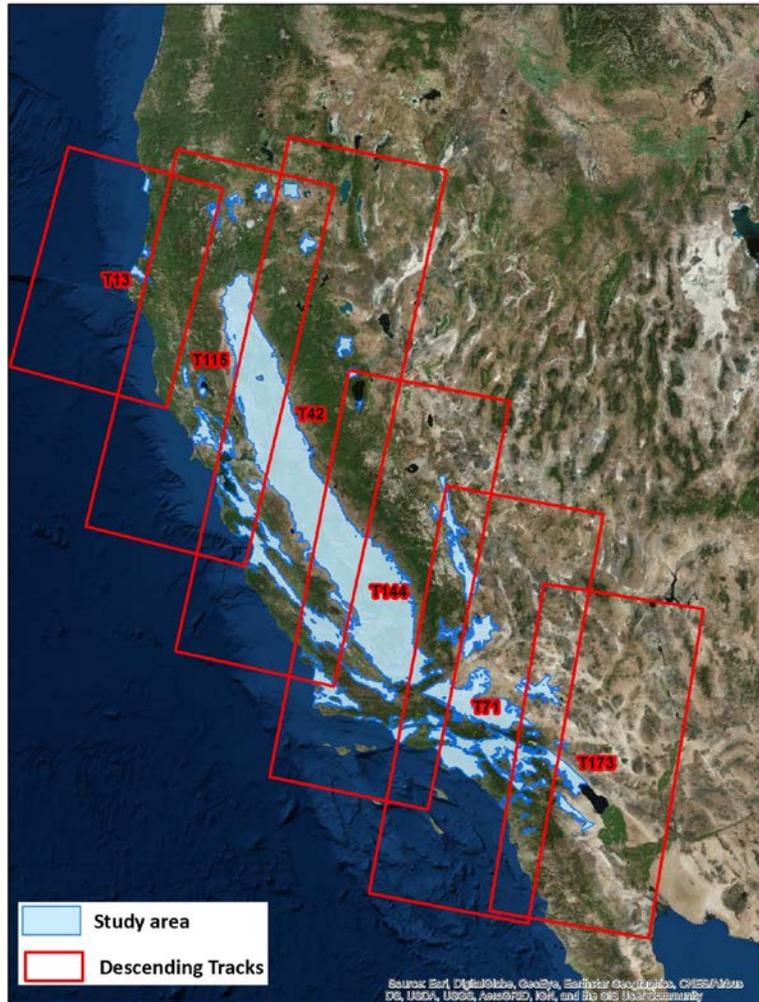


# Groundwater Basin Study Area

Individual groundwater basins have been assessed for risk. The InSAR-CGPS project includes basins with a history of high risk and others where risk is increasing.



# InSAR Satellite Orbital Paths and Aggregation of SGMA Basin “Blocks”



*Credit: TRE Altimira*

# Continuous Global Positioning System (CGPS)

- CGPS stations form a network of geodetic grade GPS receivers which continuously record horizontal and vertical displacement of the GPS station; the data is made available for download daily.

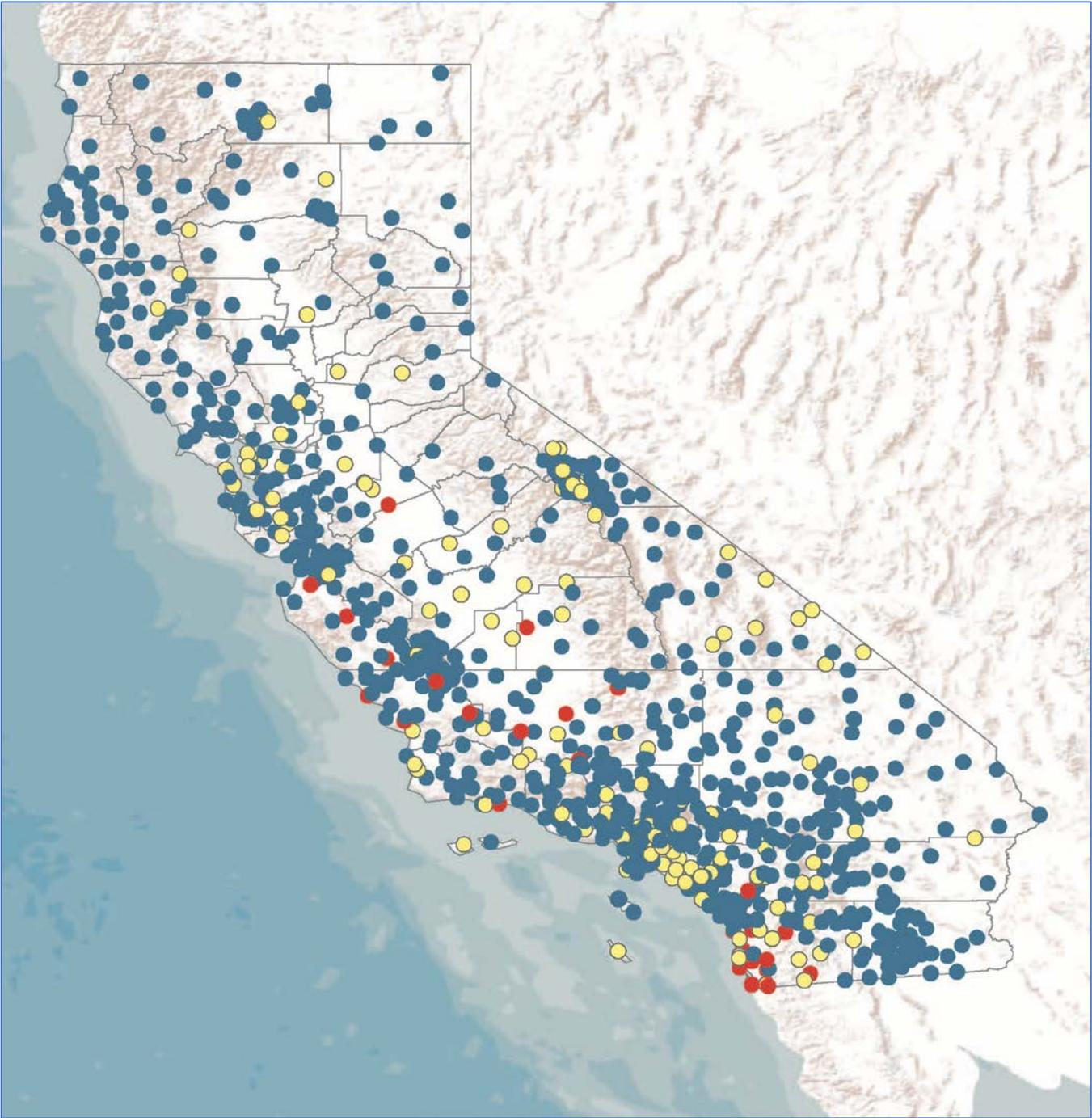


*Photo Credit: UNAVCO*

# California CGPS Sites

**Selected CGPS Stations**

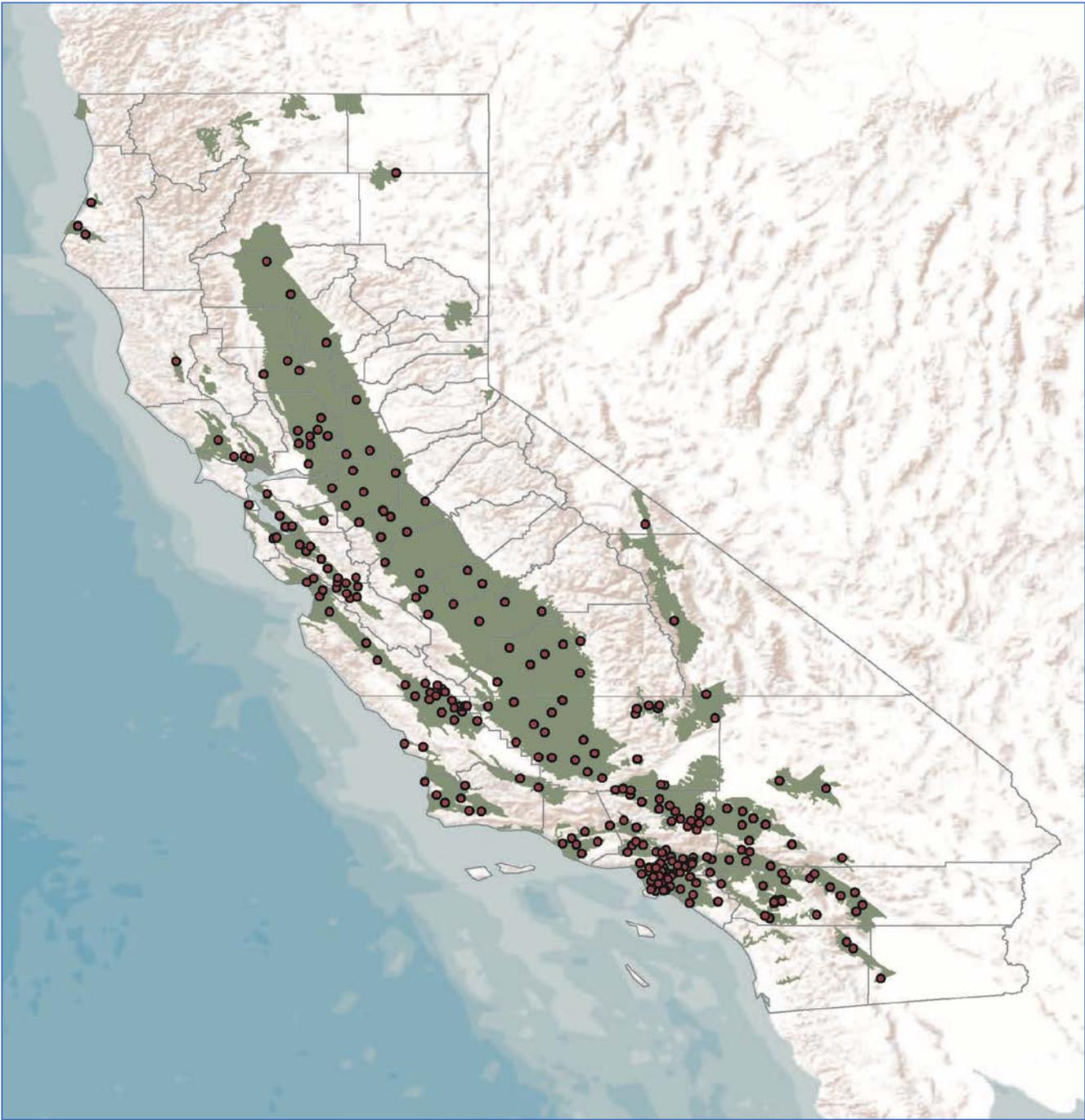
- Caltrans RTN (27)
- SOPAC-CSRS (188)
- UNAVCO (709)



# CGPS Sites Within the SGMA Focus Study Area

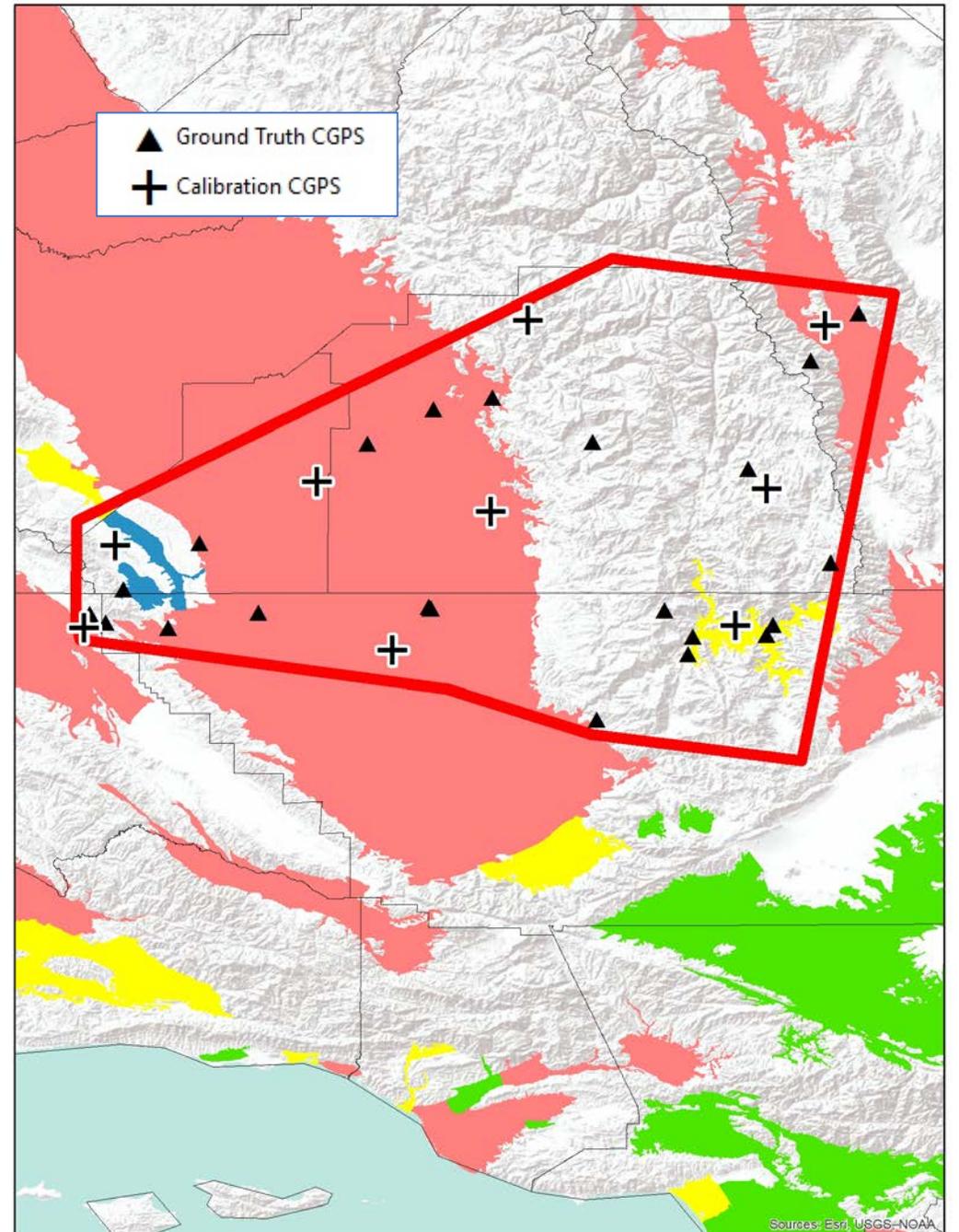
**CGPS Within Study Area**

- CGPS Sites (277)



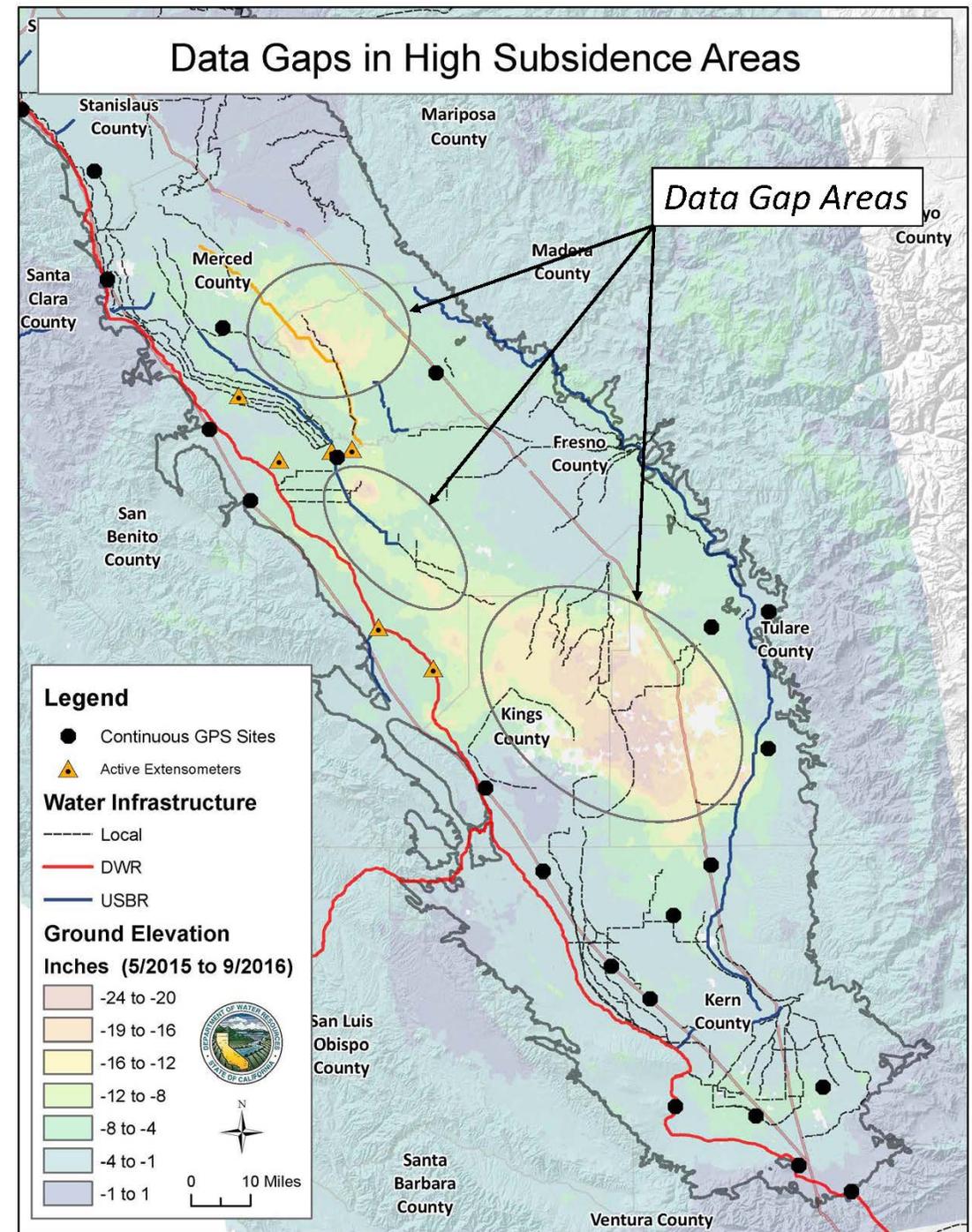
# Study Test Site

- Up to 50% of the available CGPS stations may be used to calibrate InSAR dataset



# CGPS Stations Proposed for gaps

- Proposed stations would be located in areas of high subsidence not covered by existing CGPS stations.
- Request for assistance from local Groundwater Sustainability Agencies to find cooperating landowners for CGPS station placement.
- Existing power and internet very helpful
- Lower cost stations
- CGPS data available through SGMA program data port.



Questions?

