

Research Gap: Faults and their complexity

A Pacific Gas and Electric Co. Perspective

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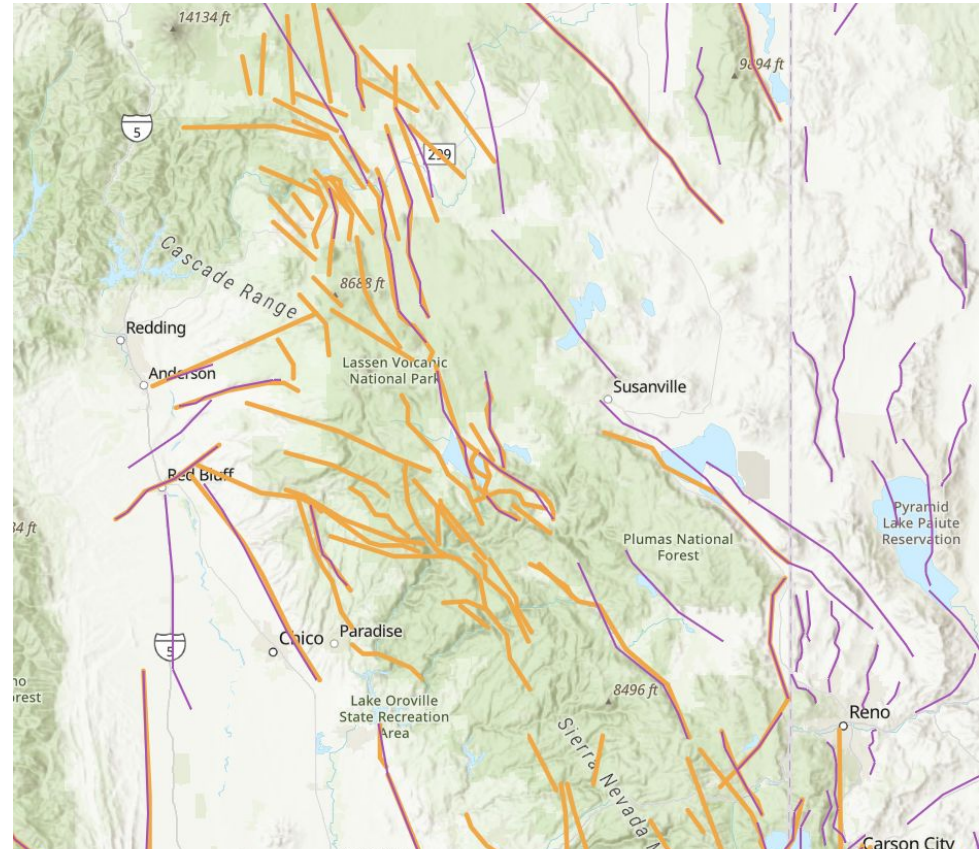


A little bit about PG&E

- Pacific Gas and Electric Co. (PG&E) provides gas and electric service to customers in Northern CA and operate power generation facilities (nuclear, convention, and hydro)
- Our Long-Term Seismic Program is part of a licensing commitment for Diablo Canyon and allows us to pursue long-term research into characterizing seismic risk
- We rely on earthquake science produced by SCEC researchers for: rapid response, project design, and long-term risk management

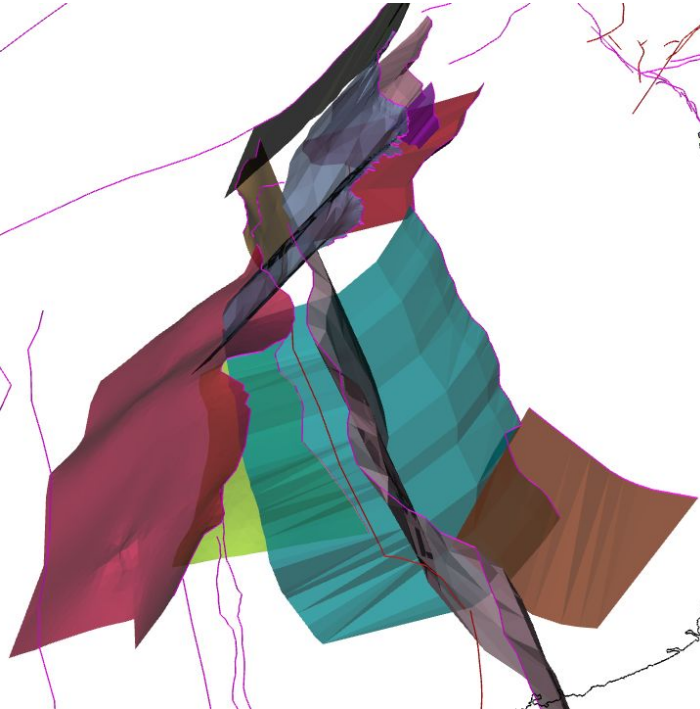
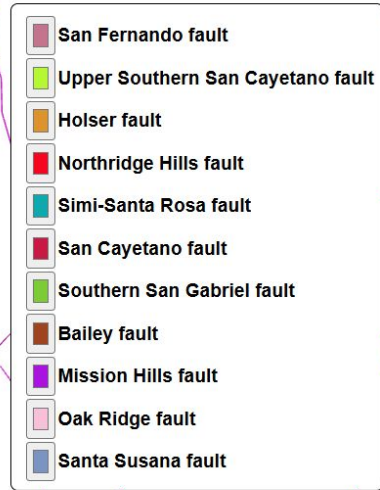
PG&E and USGS faults in Northern Sierras

- Comparison of faults **NHSM23** and **PG&E Hydro** models
- Faults important for ground motion: hanging-wall amplification, source characteristics
- Difference in models represents effort that PG&E has placed on characterized its dams for decades (and want to share...)





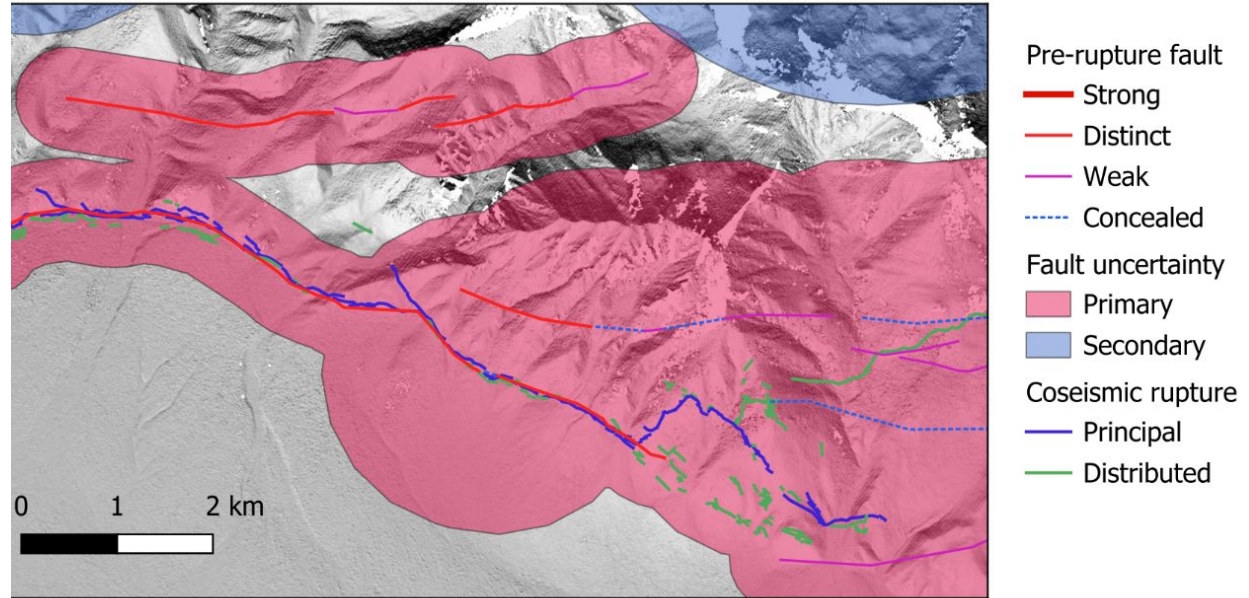
Complexity below the surface



- Fault network is complex at the surface and that complexity continues at depth
- Understanding of the potential 3D structure is critical for explaining surface deformation and potential earthquakes
- Alternative models have the potential to be significant sources of uncertainty

Faults aren't just lines

- In testing mapping against ruptures, we see significant uncertainty the rupture location
- Current assessments are over confident
- Impact screening and mitigation
- Need to extend the work to examine confidence in trench data



Scott et al. (ASU)



Faults shape our understanding

Our knowledge (or lack of knowledge) of fault characteristics shapes our understanding:

- Models for deformation and earthquake cycles
- Earthquake potential
- Ground motion characteristics
- Surface fault rupture processes