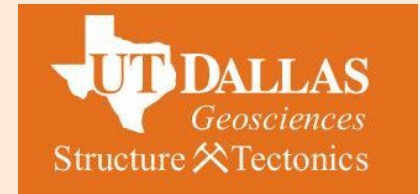
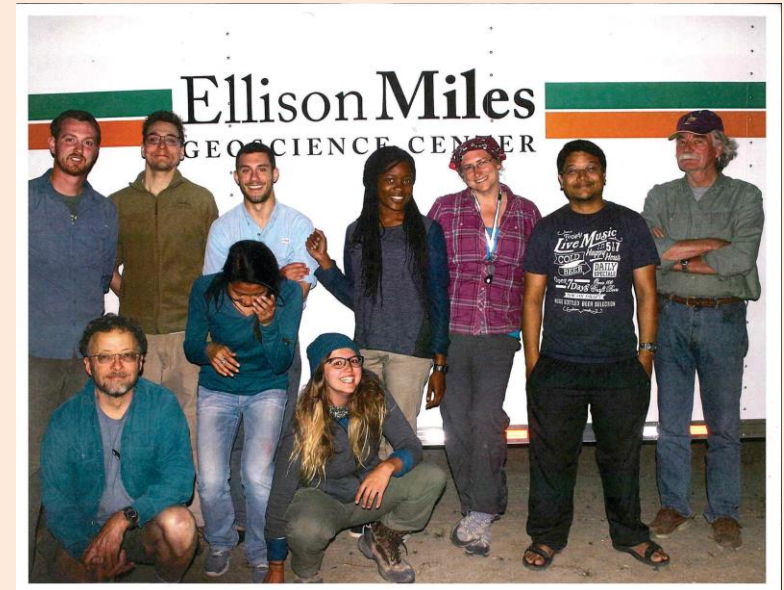


# Education and Research

- BS Geosciences (2010), UT Dallas
- PhD Geosciences (2019), UT Dallas



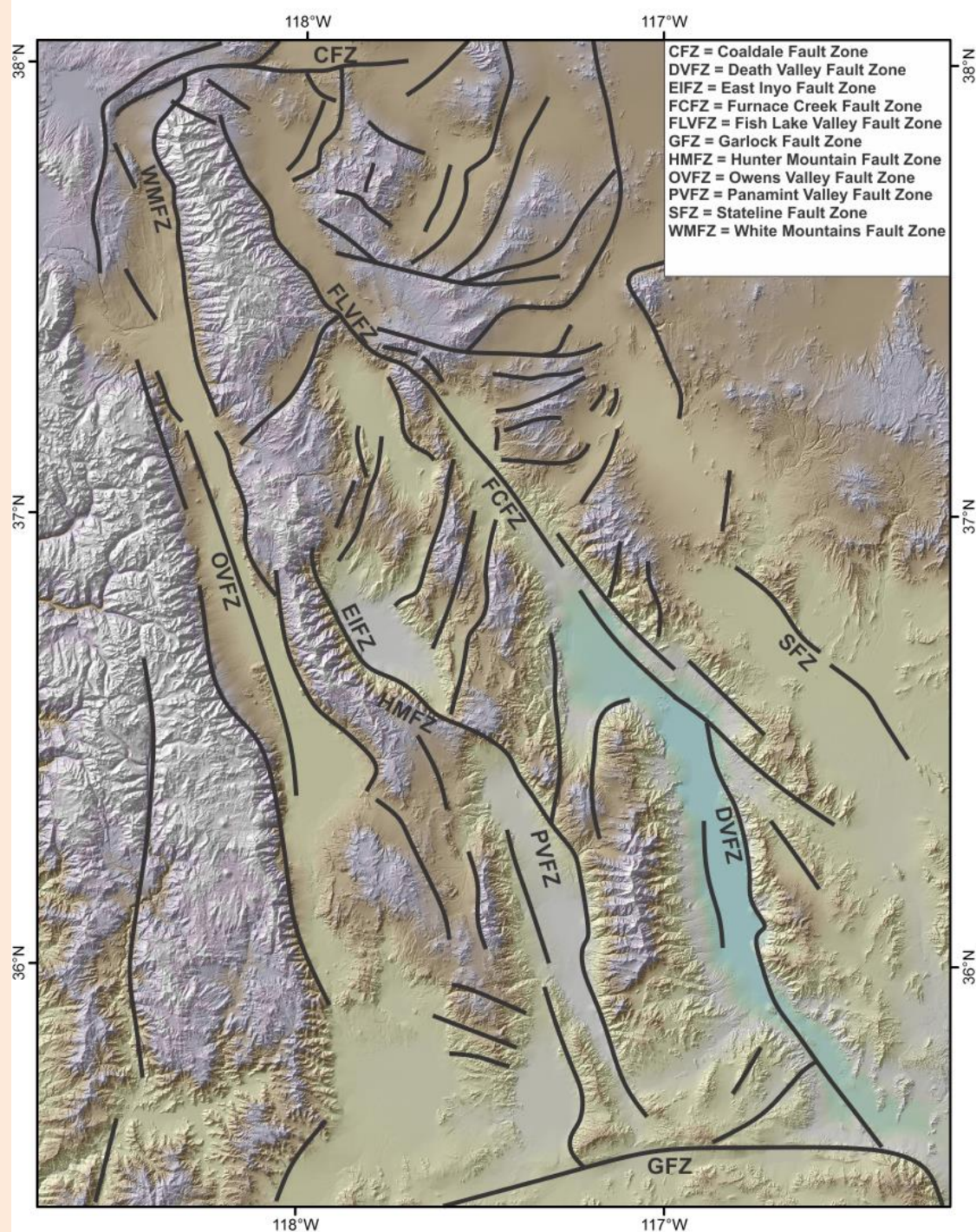
UTD Field camp 2009 – Rocky Mountain National Park



Miles Center for Geologic Field Studies 2015 – Dyer, NV

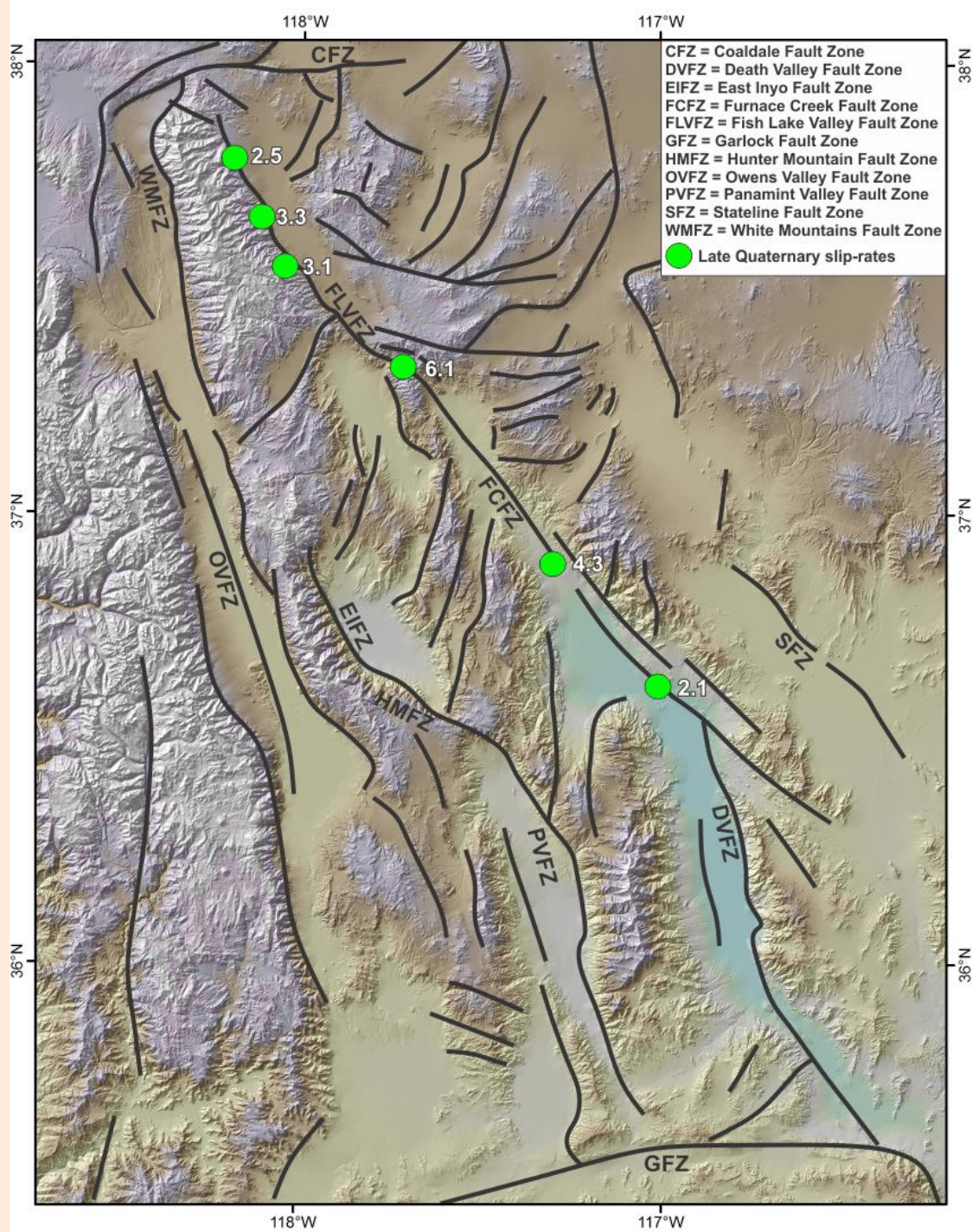
## Furnace Creek – Fish Lake Valley fault system

- Longest, active structure in western Great Basin, USA.
- Right-oblique fault system stretches nearly 300 km from the Garlock fault zone to northern Fish Lake Valley.
- Well studied, but contentious views on timing of deformation and total magnitude of displacement.
- Thought to have initiated anywhere from 14 – 6 Ma.
- Right-lateral displacement estimates range from 50 – 80 km, and possibly over 100 km.



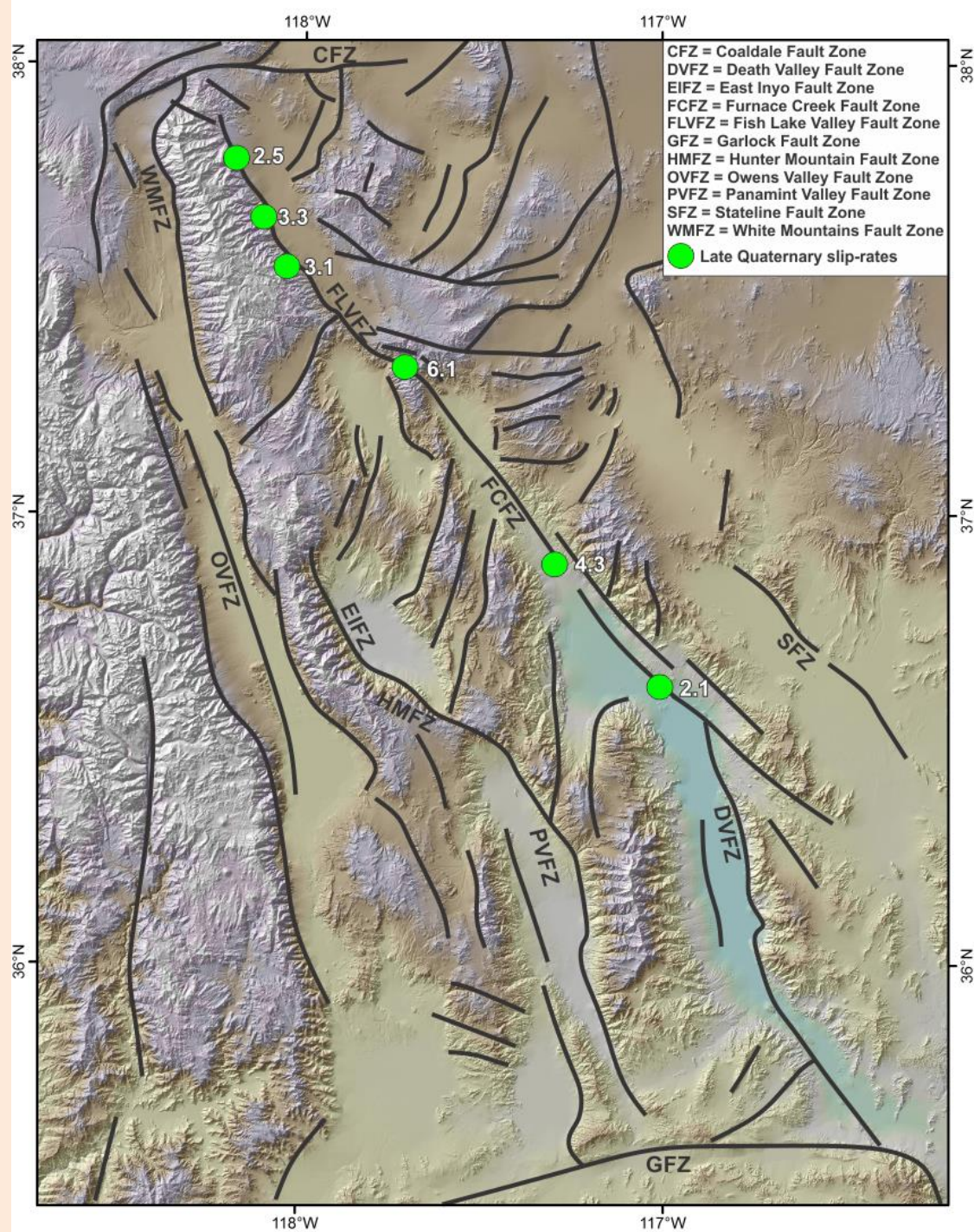
Late Quaternary slip rates are well established for the FC-FLVFZ (shown in mm/yr), but longer-term average slip rates are less understood.

How far back can we take these slip rates?



# Furnace Creek – Fish Lake Valley fault system

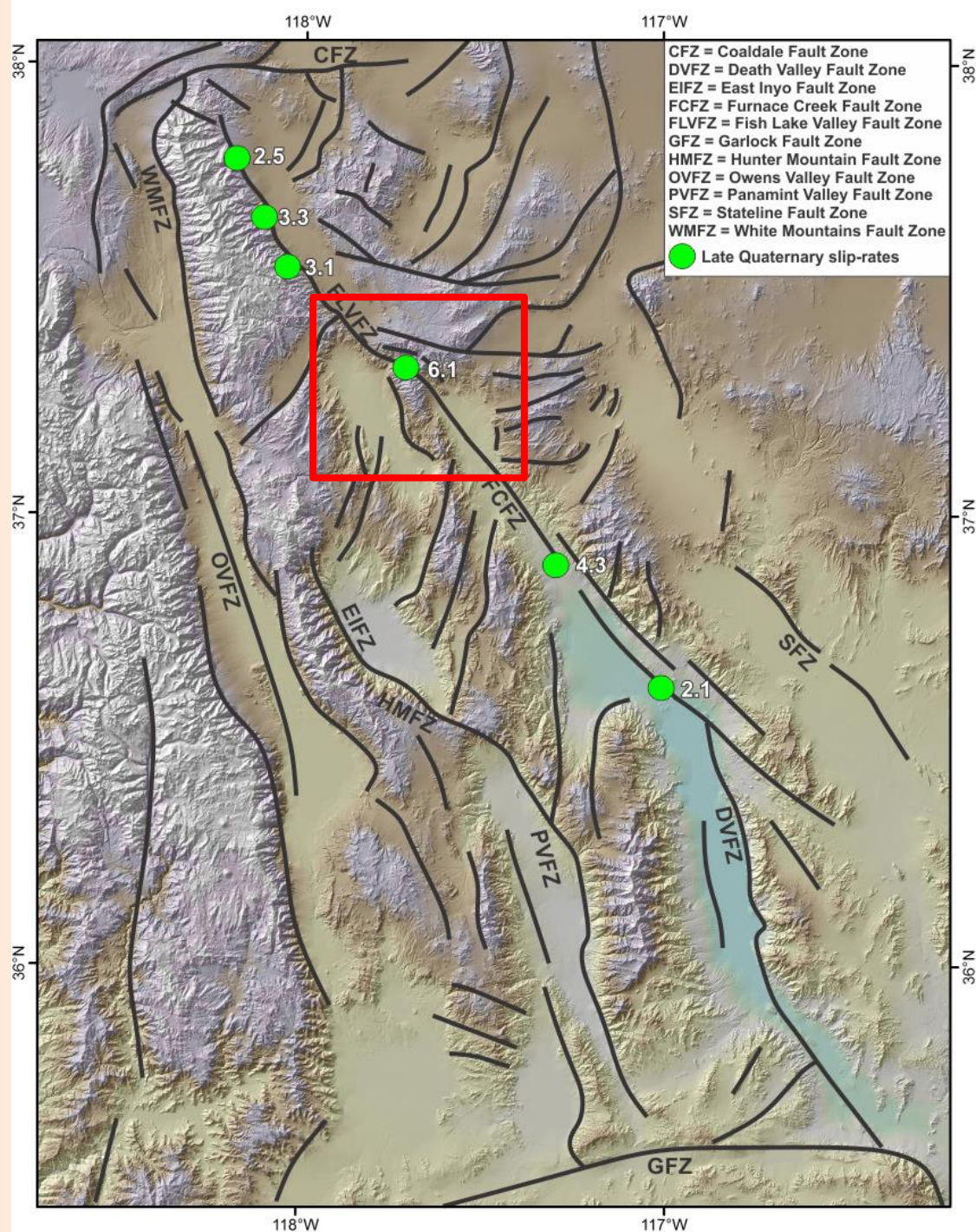
Unfortunately, most of the rocks and structures that preserve the entire history of movement along the FC-FLV fault system are buried beneath modern day basins.

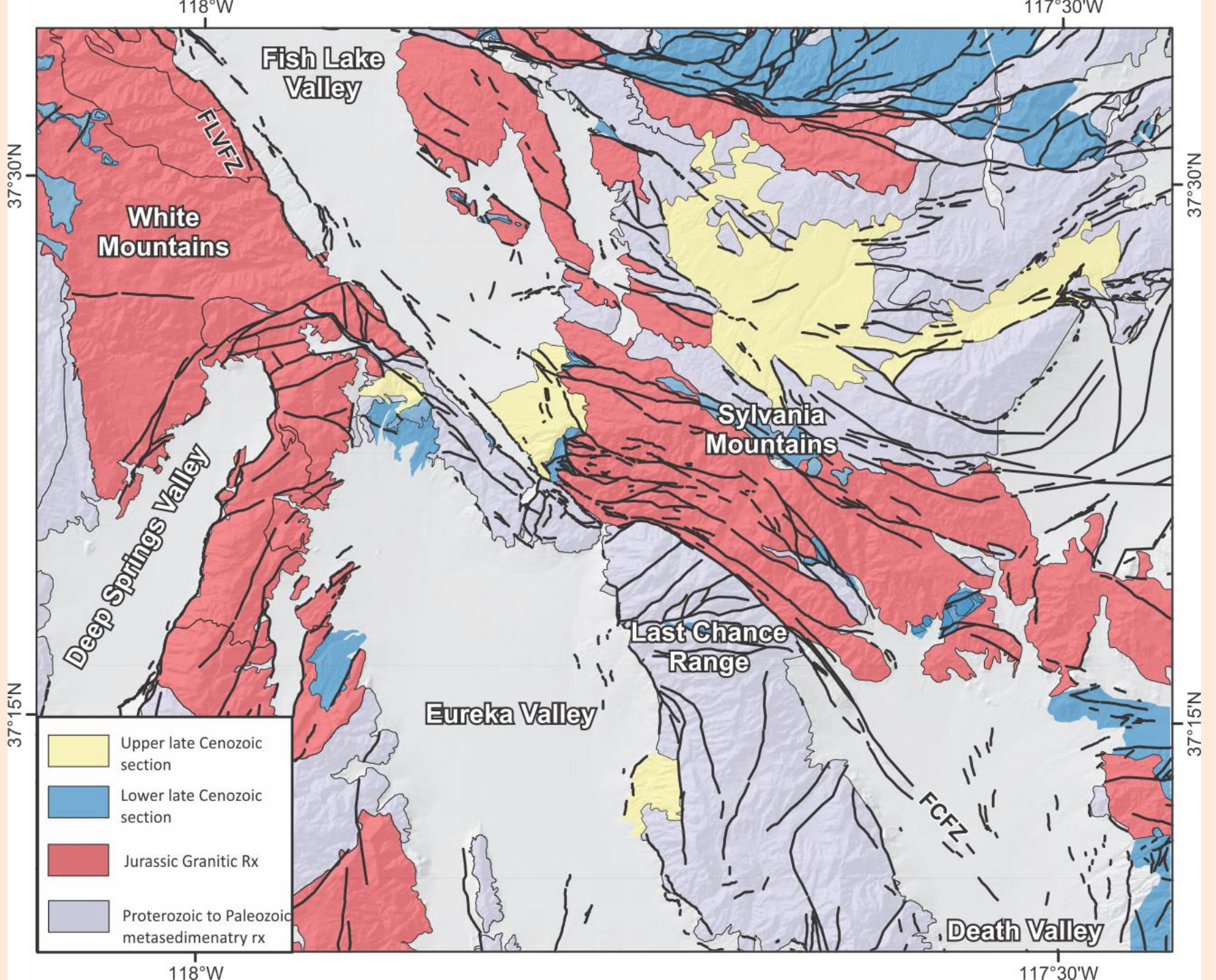


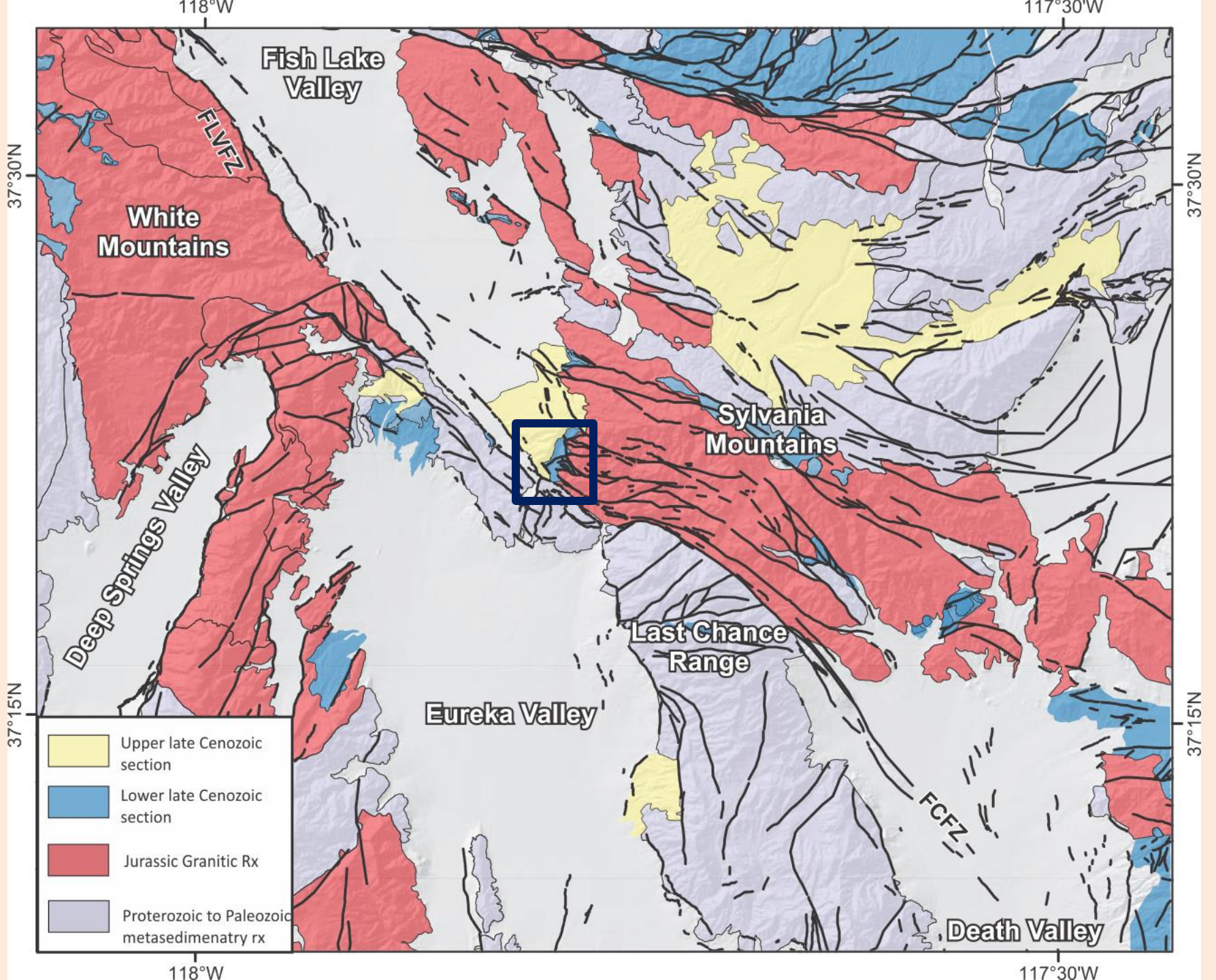
## Furnace Creek – Fish Lake Valley fault system

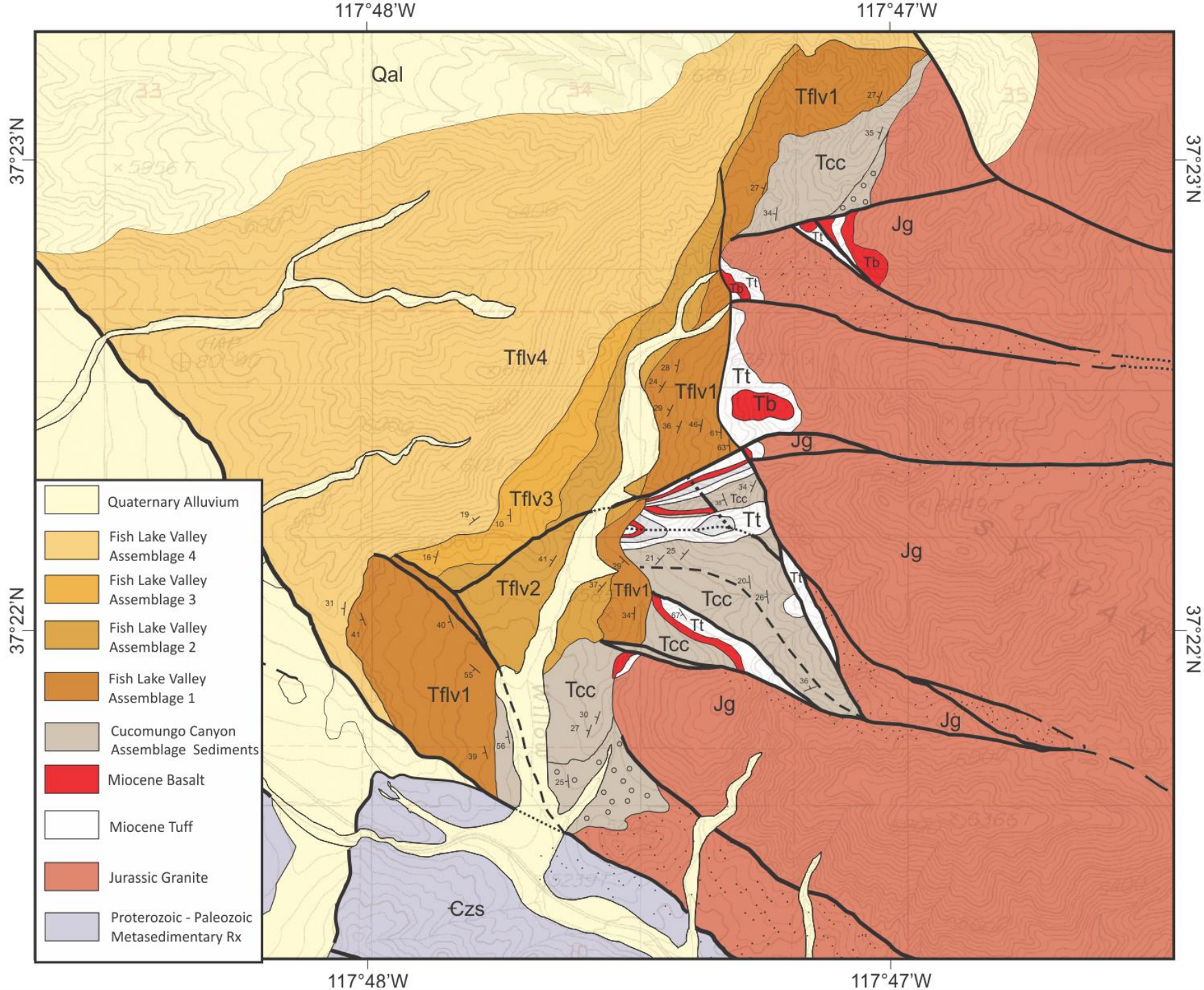
Unfortunately, most of the rocks and structures that preserve the entire history of movement along the FC-FLV fault system are buried beneath modern day basins.

Luckily the right-lateral FCFLV fault system takes a 15 km wide left step and creates a prominent restraining bend uplift (that we call the Cucomongo Canyon Restraining Bend) that preserves a unique record of fault system deformation stretching back to the middle Miocene.

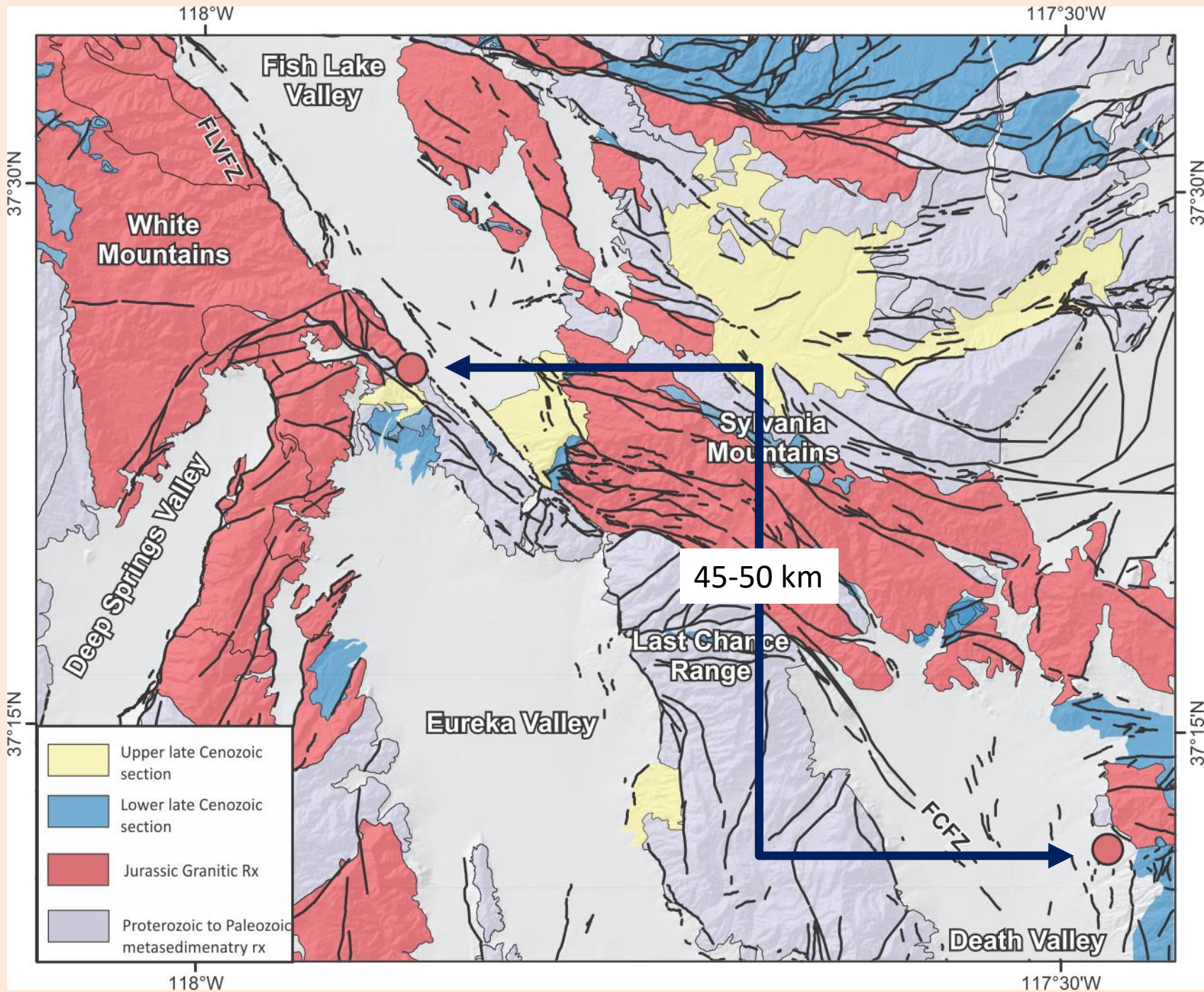






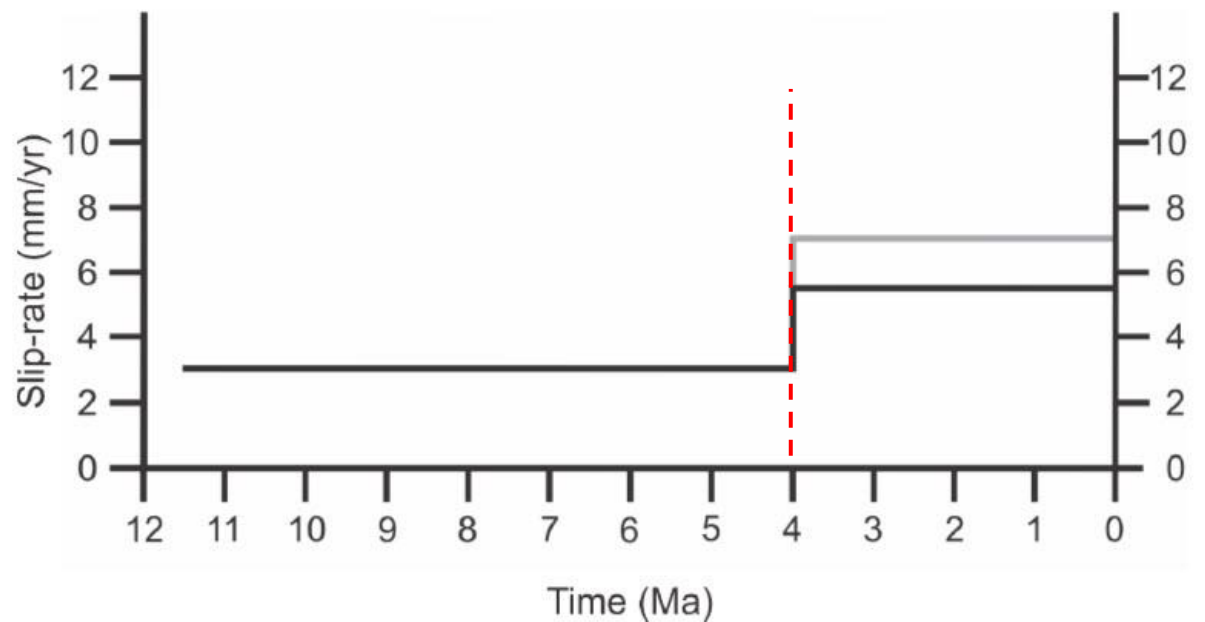
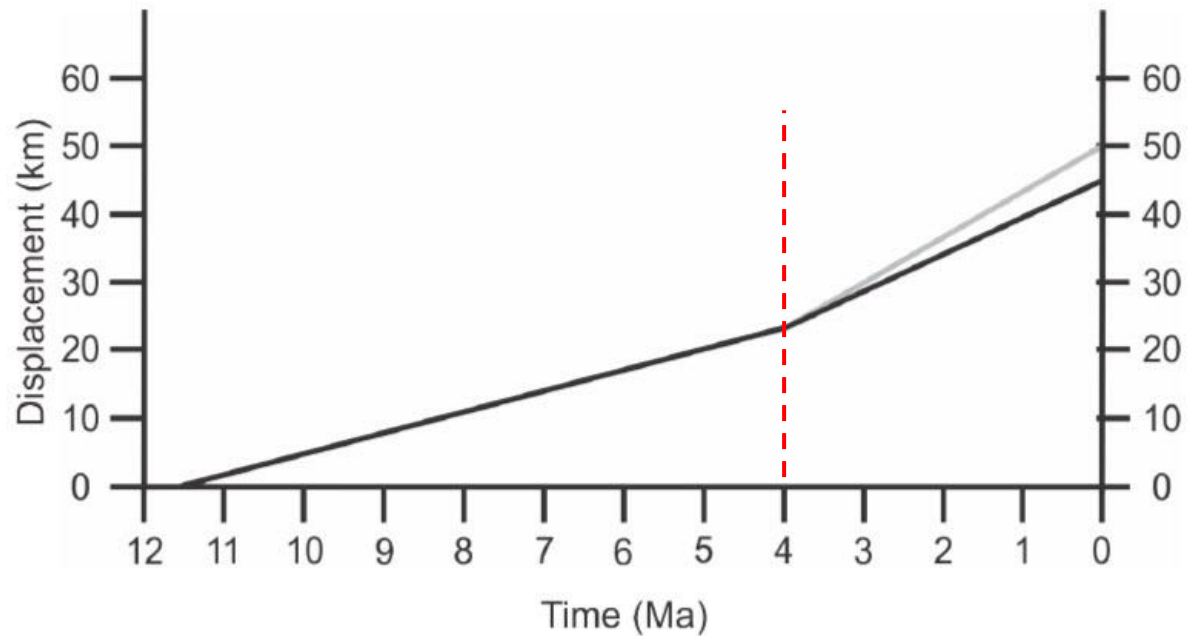






1<sup>st</sup> generation structures  
Active by 11.6 Ma  
~22 km right-lateral offset  
~2.9 mm/yr slip rate

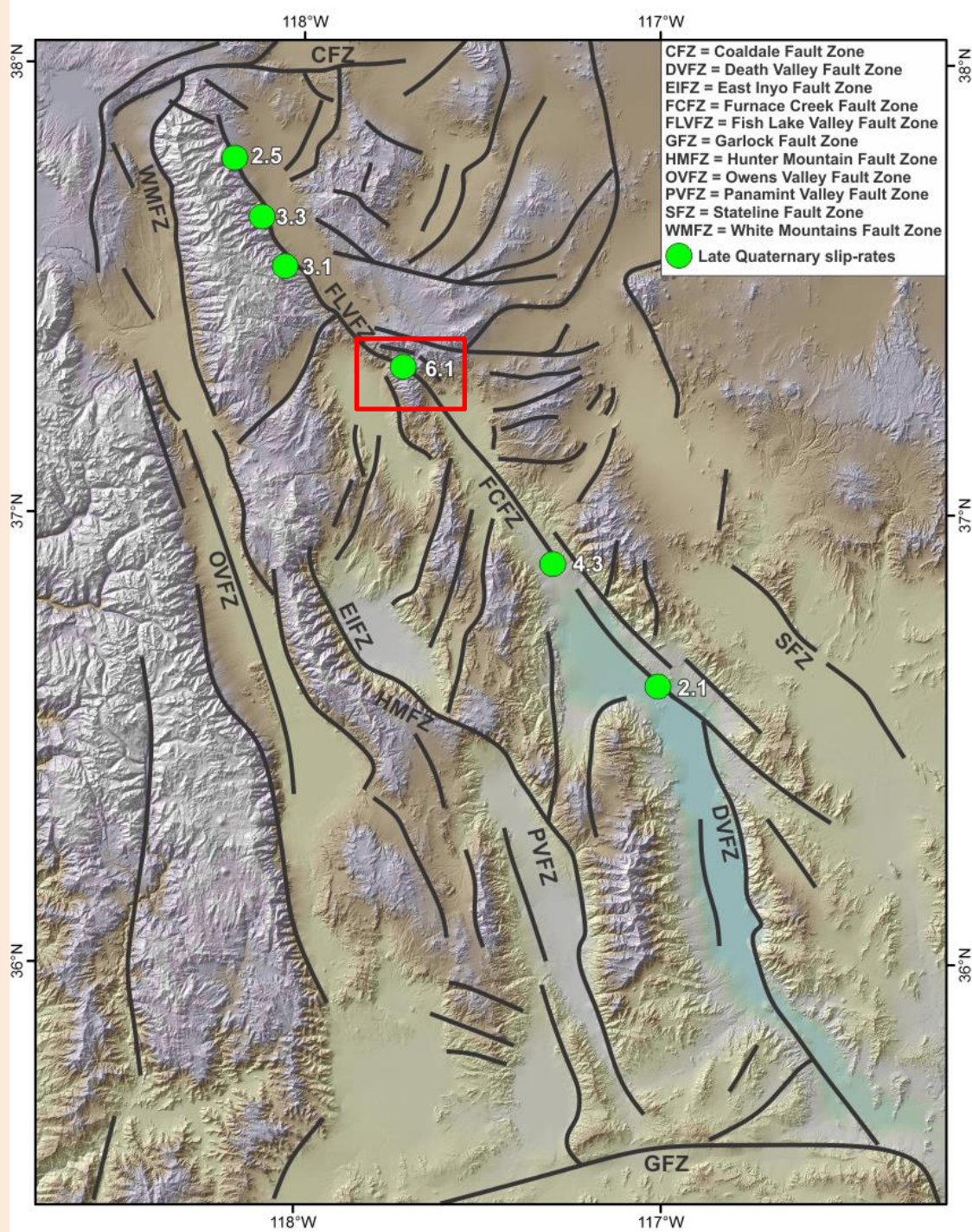
2<sup>nd</sup> generation structures  
Active by 4 Ma  
23-28 km offset  
5.75 – 7 mm/yr slip rate



Post 4 Ma long-term average geologic slip rate of 5.75 – 7 mm/yr

Excellent agreement with post -late Pleistocene slip rate of 6.1 (+1.3/-1.0) mm/yr measured at the same location within the restraining bend.

Suggests that slip rates have remained constant from mid-Pliocene to present!





W

E



W

E



NW

SE



NW

SE









2016/05/29



2016/05/29

SW

NE





SW

NE