Education and Research

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

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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.
45-50 km
1\textsuperscript{st} generation structures  
Active by 11.6 Ma  
~22 km right-lateral offset  
~2.9 mm/yr slip rate  

2\textsuperscript{nd} 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!