

FDH Modeling Group

Approach

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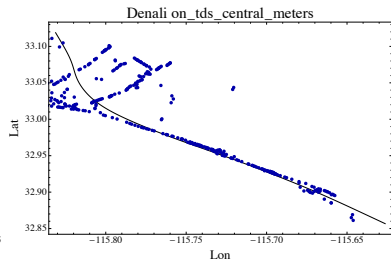
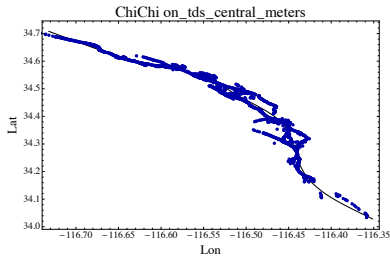
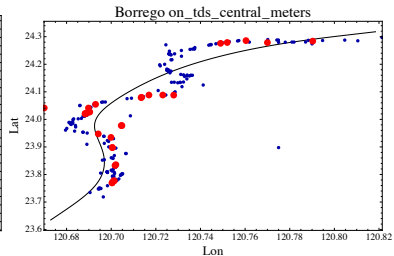
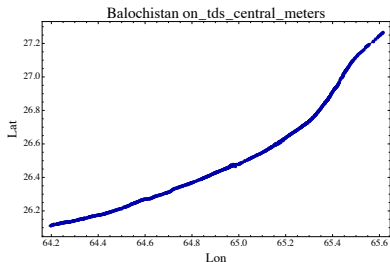
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Workshop on Probabilistic Fault Displacement
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Questions we want to answer with the model:

- What is characteristic of fault?
- First: go through database, check statistics, how is slip correlated to M , characteristic, mechanism, complexity, geology
- Given magnitude M /mechanism/characteristic/complexity,
 - what slip is expected along the fault?
- Given total slip/mechanism,
 - How to partition into horizontal/vertical?
- How is the slip spatially distributed spatially?
 - Along the fault
 - Between-the on-fault (.e., primary) and off-fault deformation.
- Discrete representatio of slip.
- Incorporate geology: same model, different parameters

Data Example



- For total slip and variability along fault (reference line), follow Lavrentiadis and Abrahamson (2019).
- Use a mixture model to partition the slip.
- Spatial Discretization:
 - Maybe use a Dirichlet Process Mixture Model(?)
 - What we really need are premapped faults for each rupture.