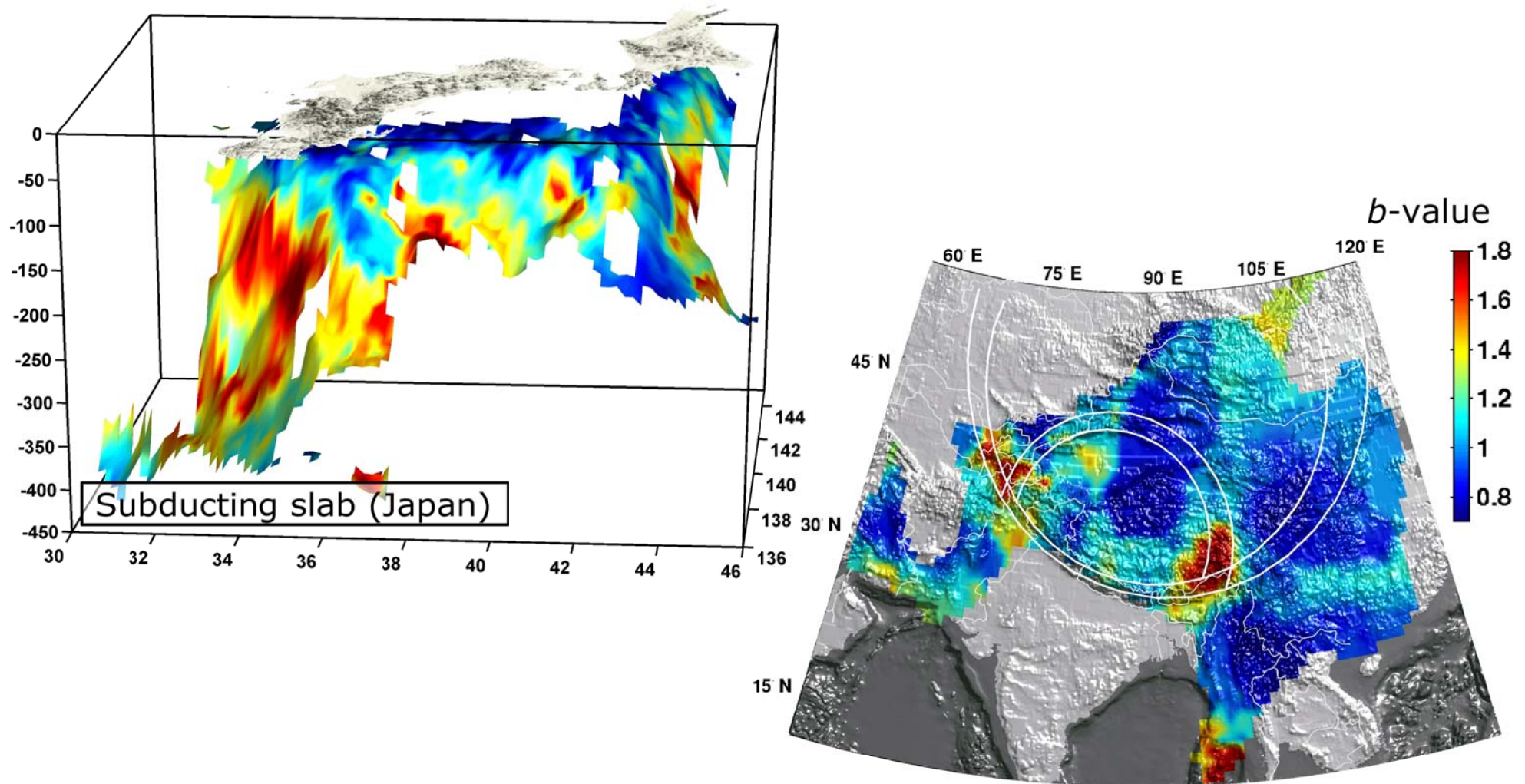

b-value Forecast Model for Japan

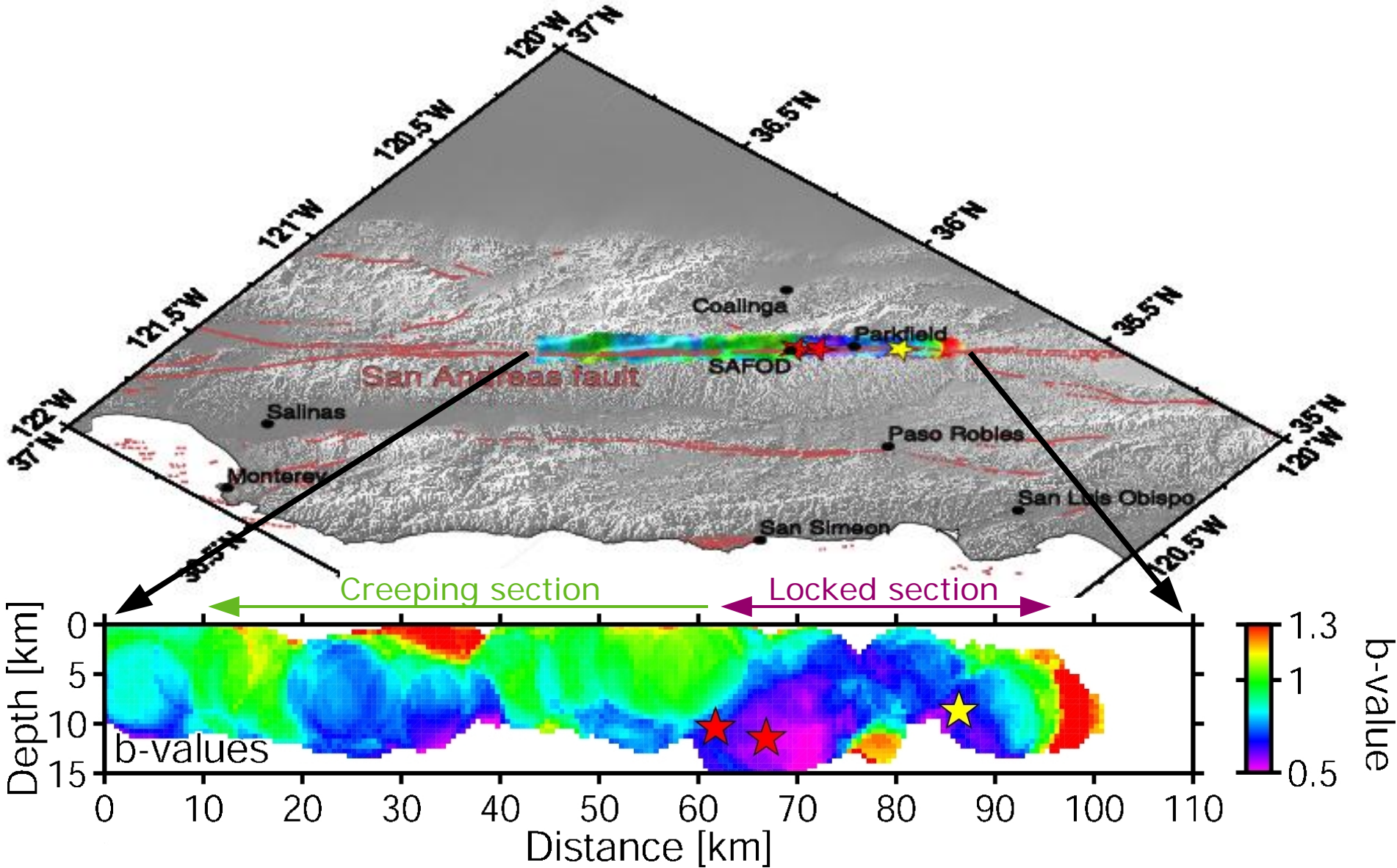
D. Schorlemmer
(SCEC/USC)

Motivation

Spatial variations of b -values exist on different scales

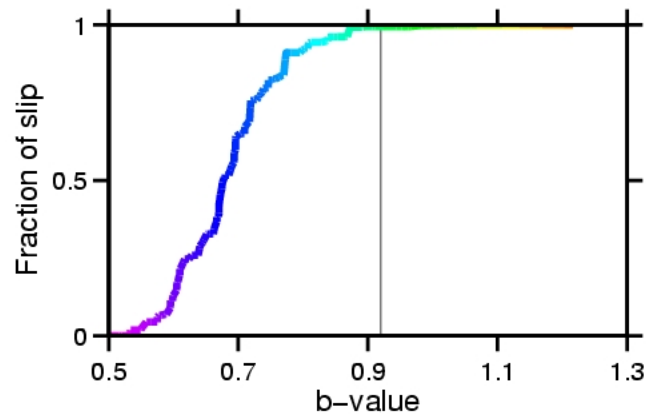
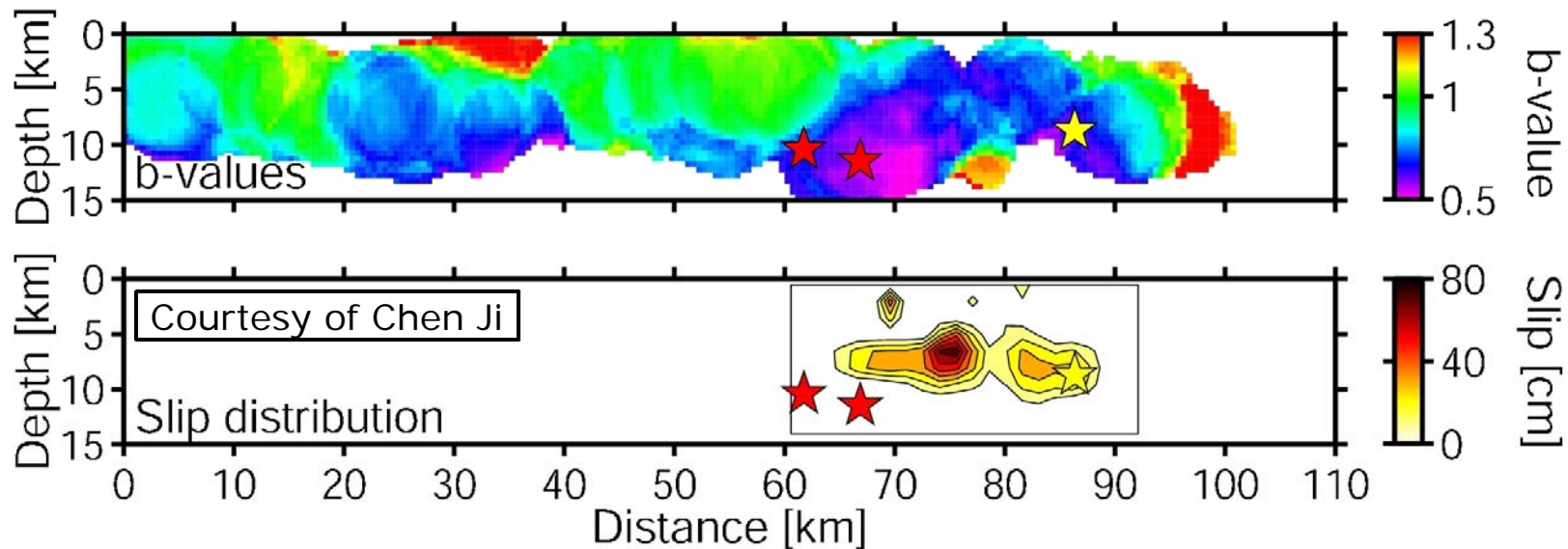


Motivation



Parkfield 2004 Earthquake

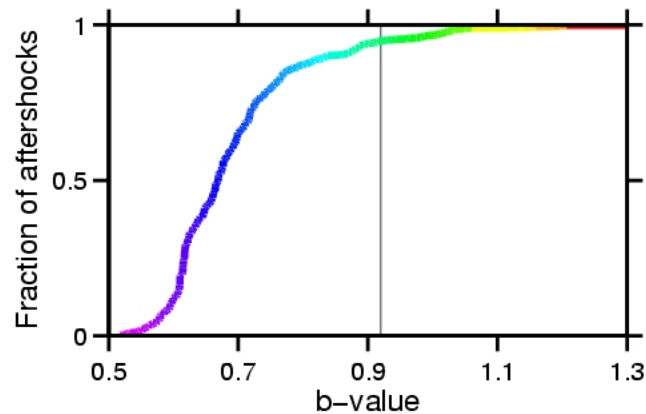
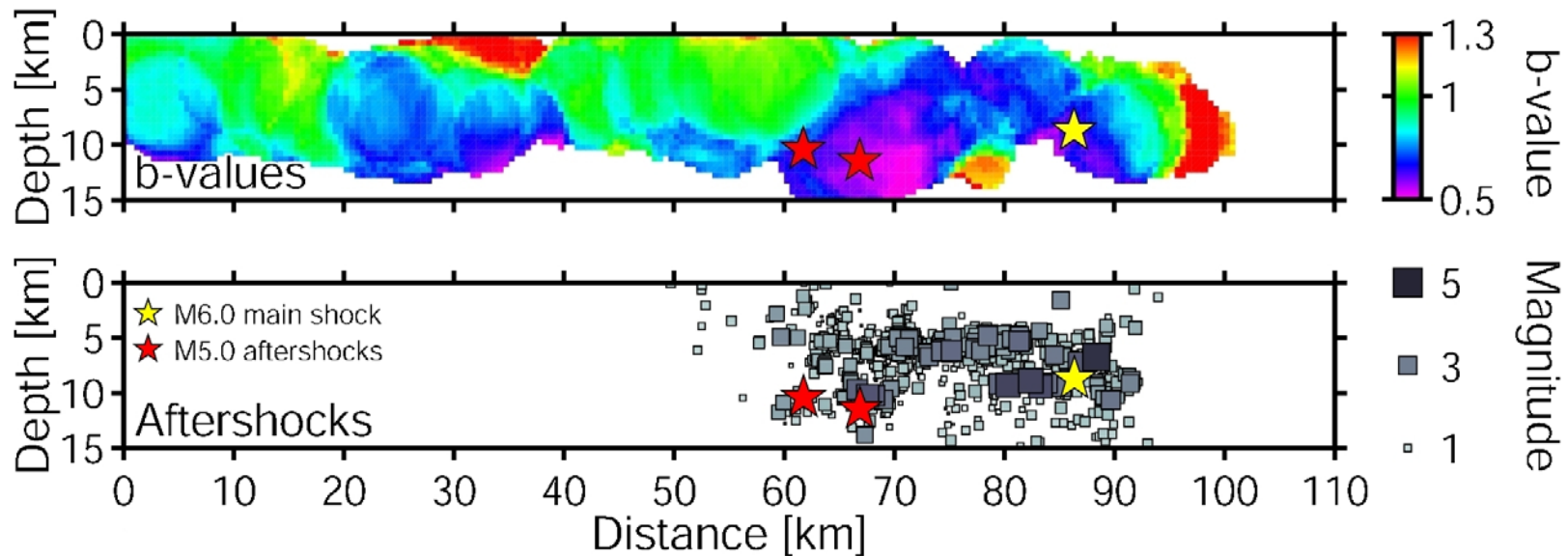
The slip area correlates with the low b -value area.



99% of the slip occurred in low b -value area

Parkfield 2004 Earthquake

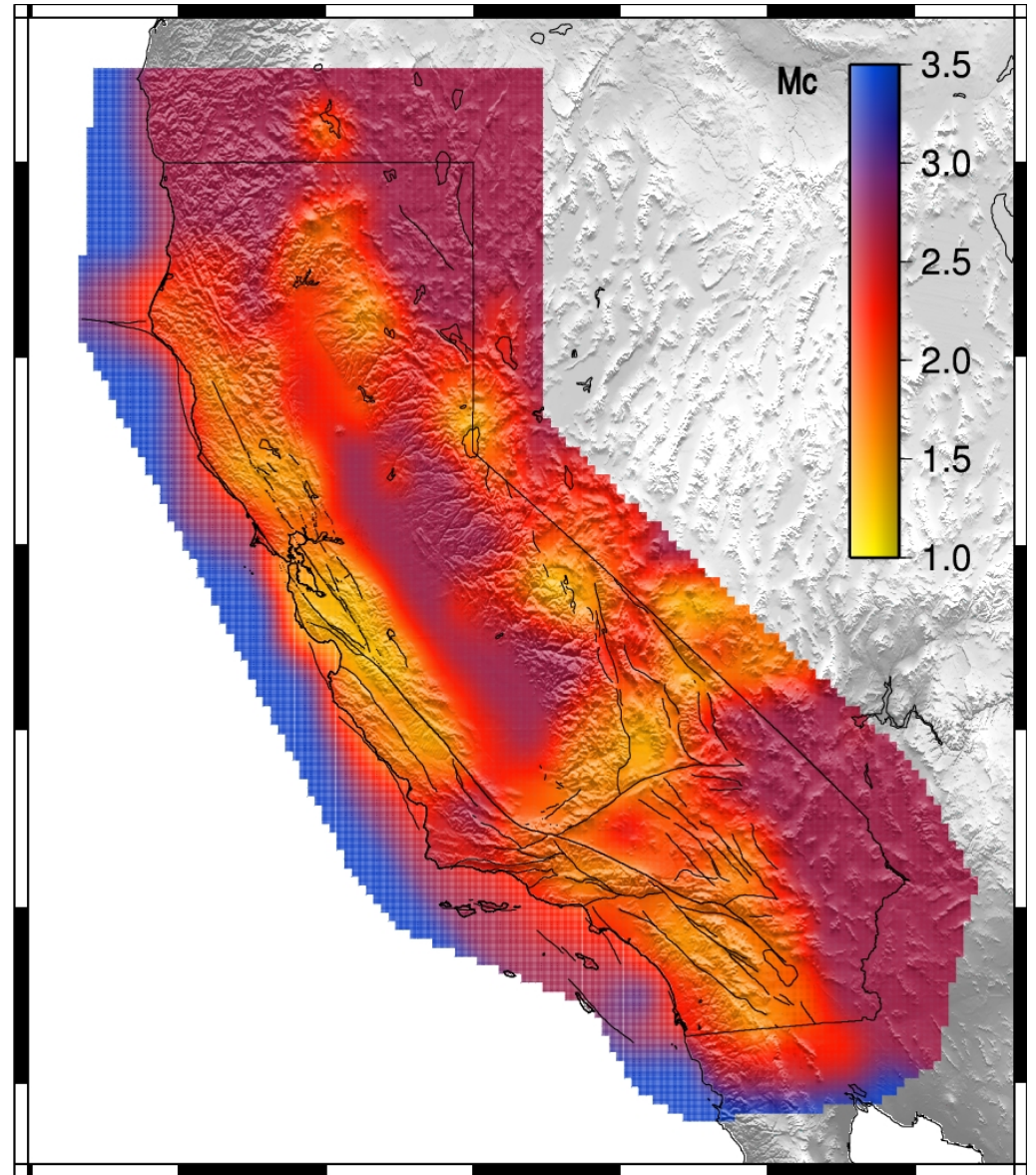
The rupture area corresponds to the low b -value area.



95% of the aftershocks occurred in low b -value area

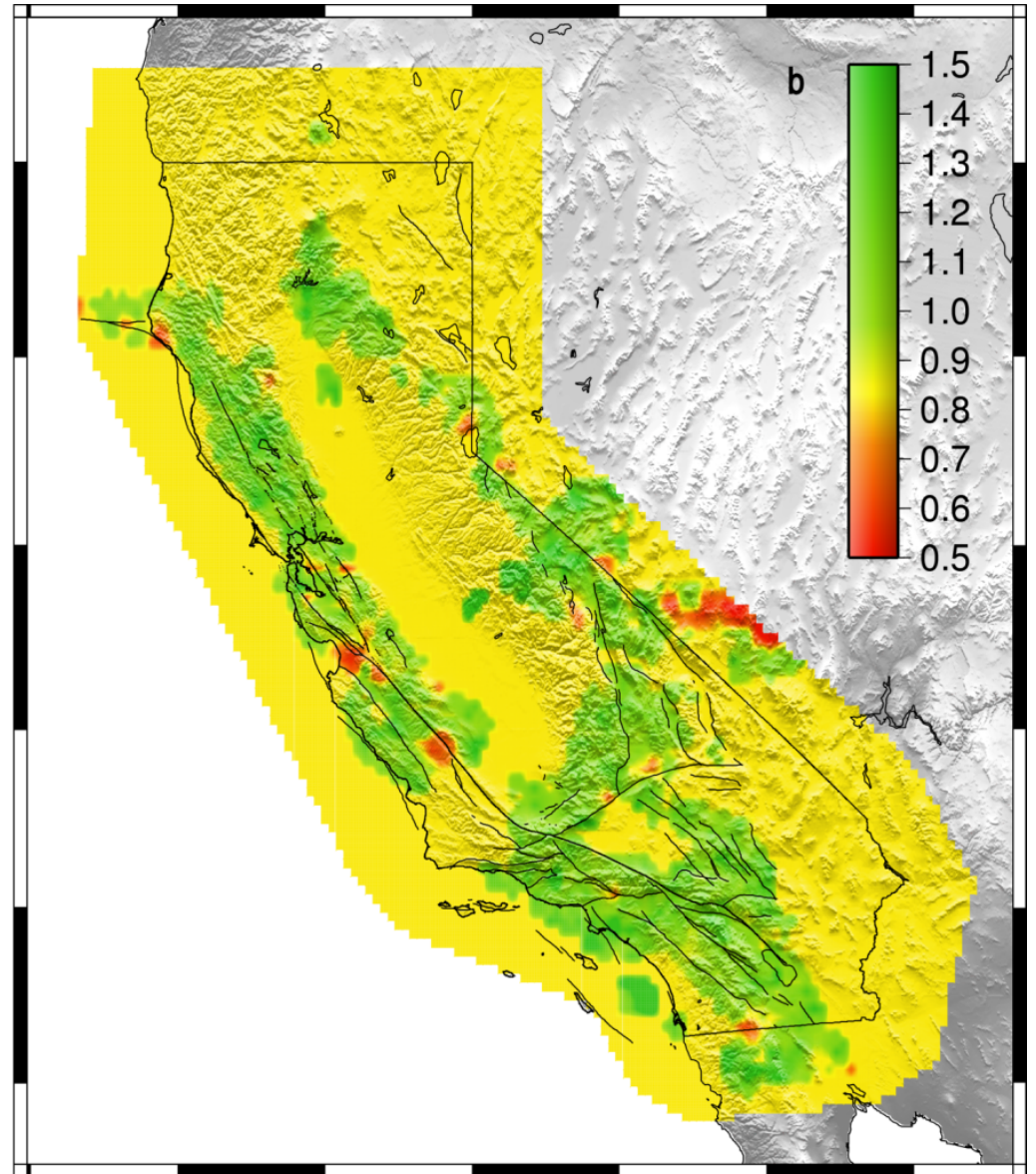
Model

- Estimate completeness
- Decluster catalog



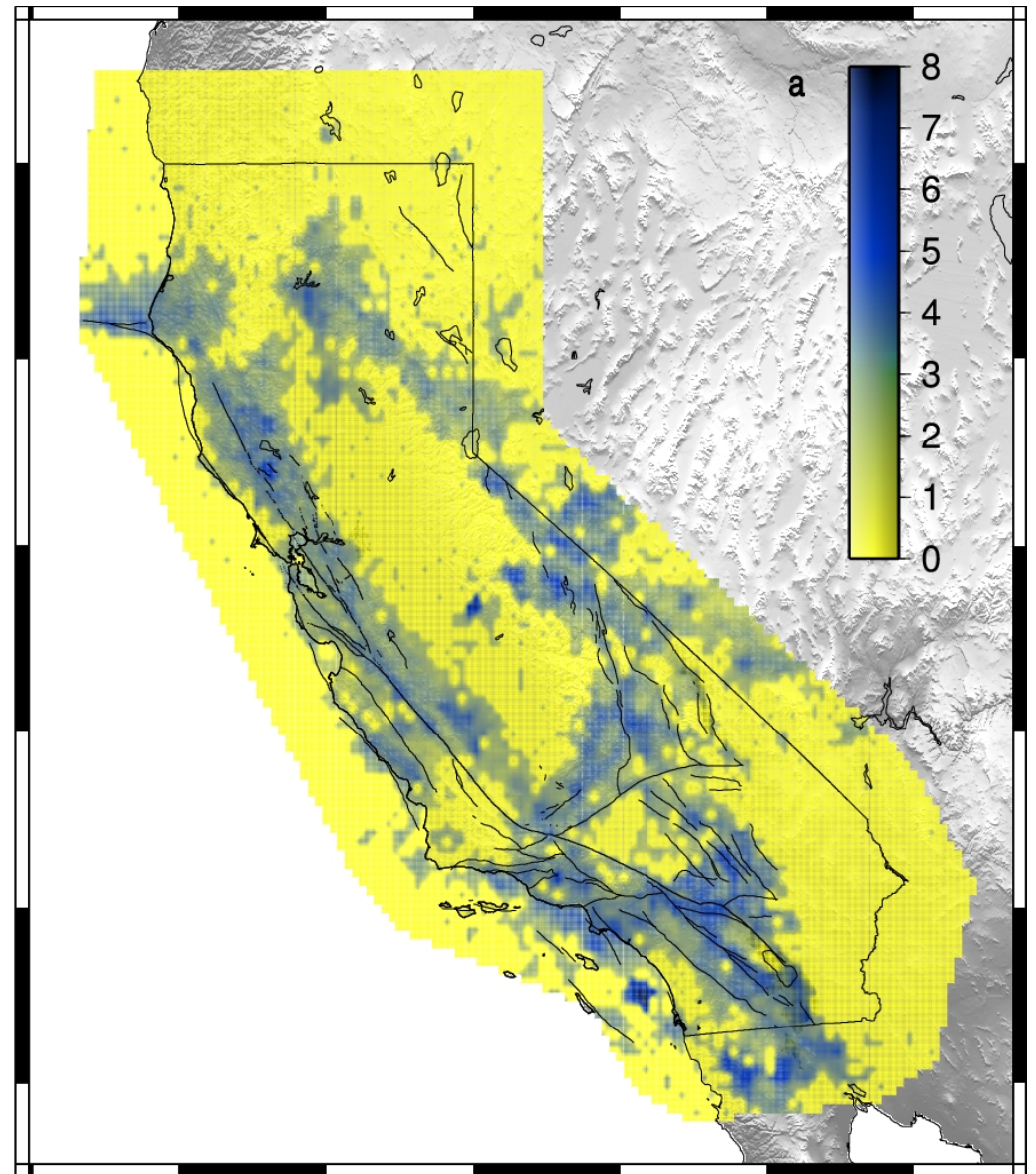
Model

- Estimate completeness
- Decluster catalog
- For b-value
 - Compute b-value
 - Check with AIC



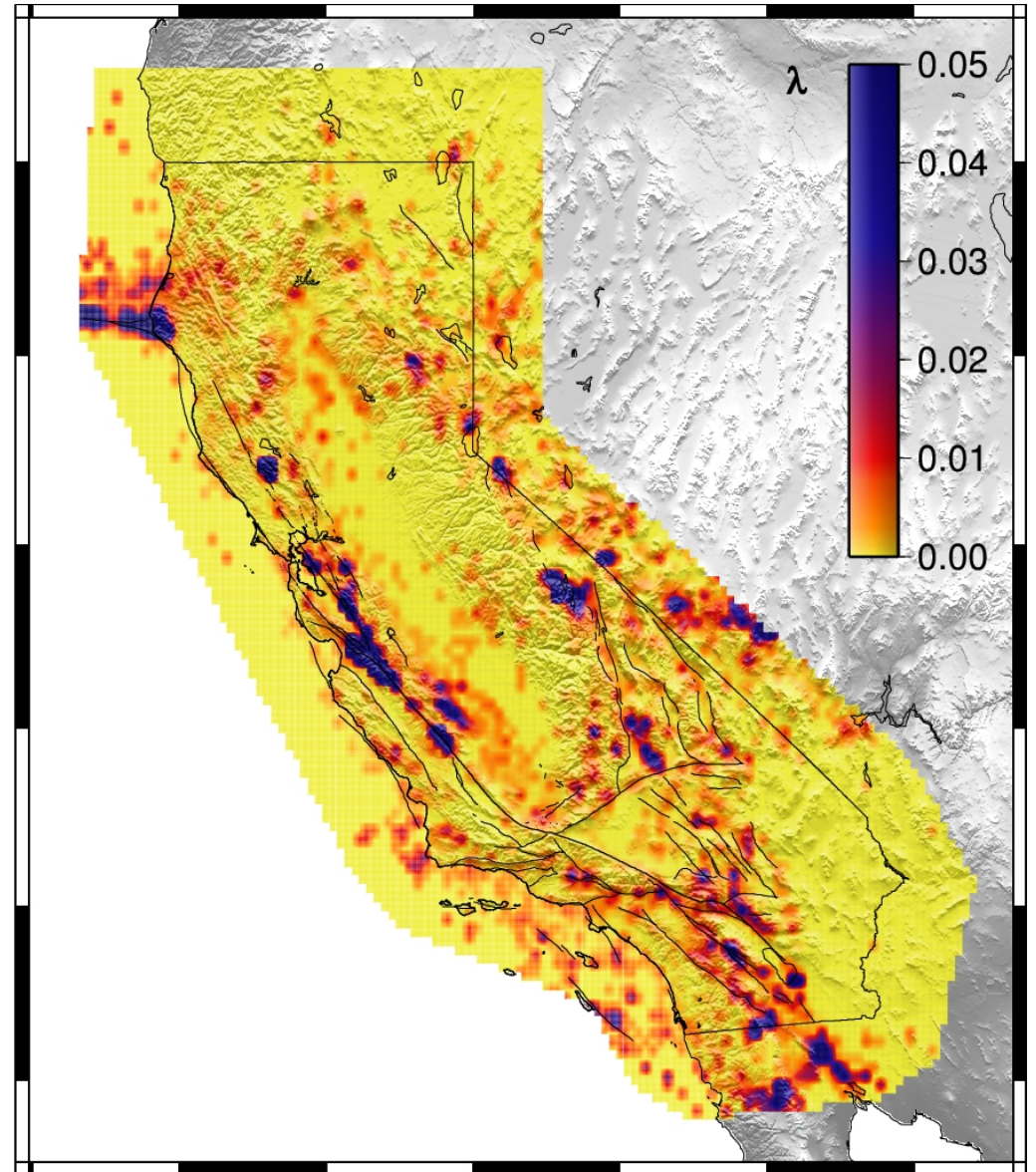
Model

- Estimate completeness
- Decluster catalog
- For b-value
 - Compute b-value
 - Check with AIC
- For a-value
 - Compute rates
 - Compute a-value



Model

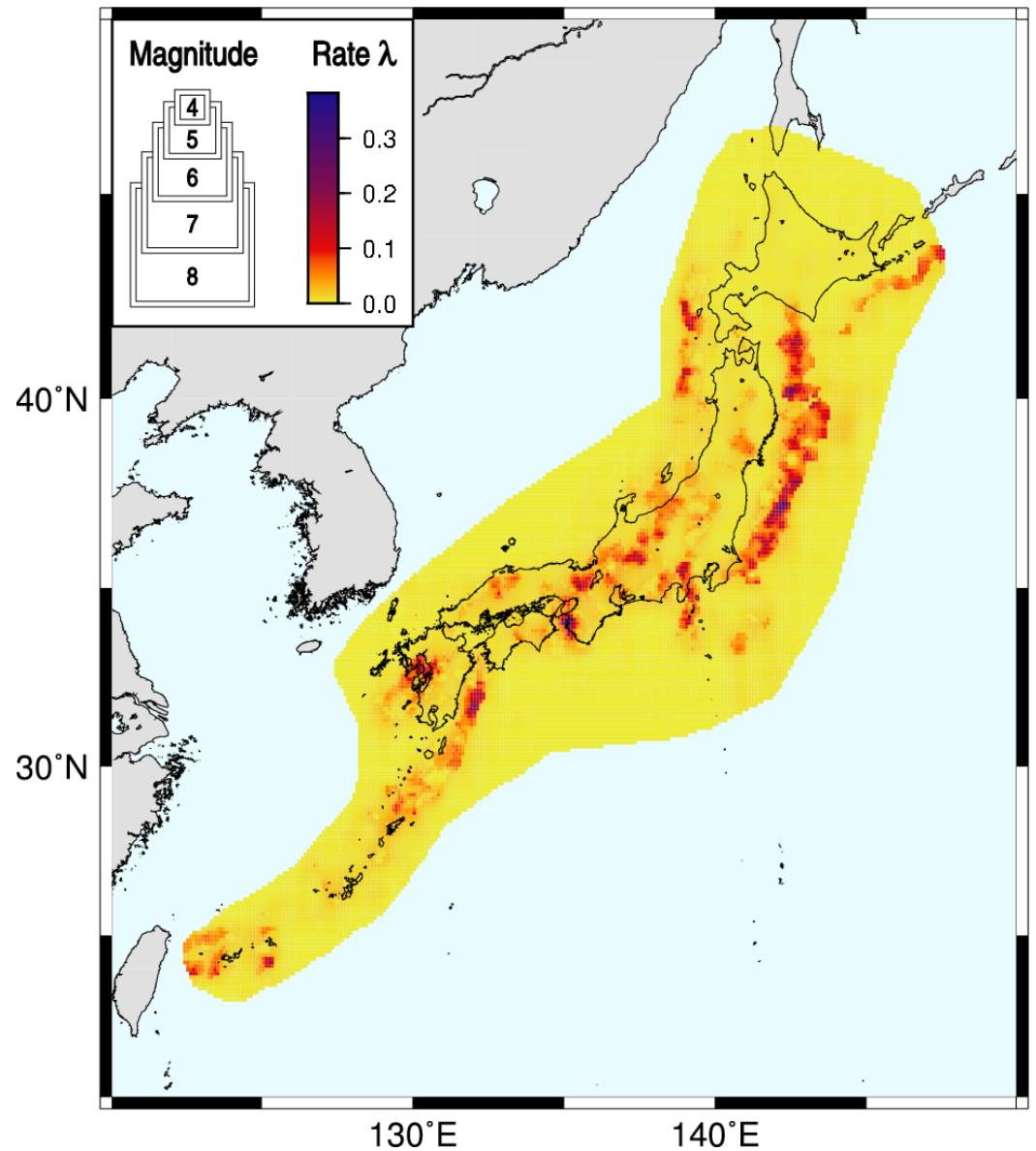
- Estimate completeness
- Decluster catalog
- For b-value
 - Compute b-value
 - Check with AIC
- For a-value
 - Compute rates
 - Compute a-value
- Compute forecast rates



Model for Japan

Differences to California:

- Rates are smoothed
- Forecast is recalibrated



Outlook

- Generalized distance measure
- Different smoothing kernels
- Integrating a generic version into the CSEP Testing Center distribution

