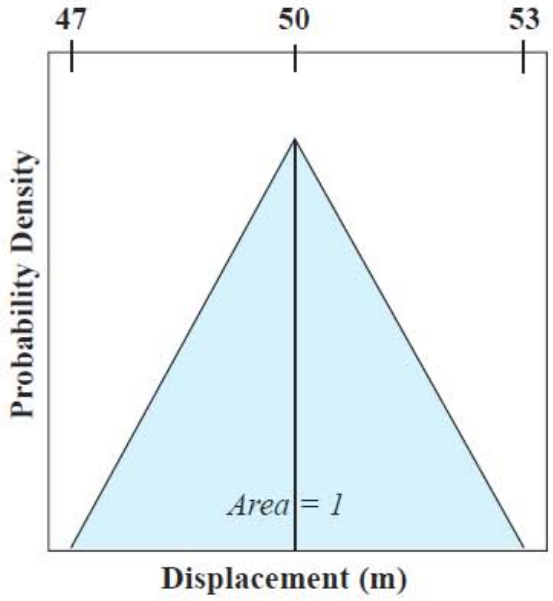
Simplistic Example of Slip Rate PDF Asymmetry

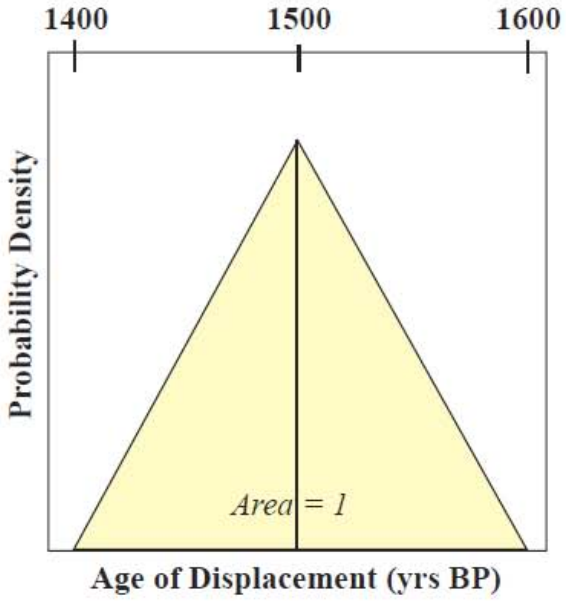
Displacement of Feature

Preferred Displacement:	**50 m**
Symmetrical Uncertainty:	**+/- 3 m**
Uncertainty:	*12%*
Minimum Displacement:	**47m**
Maximum Displacement:	**53m**



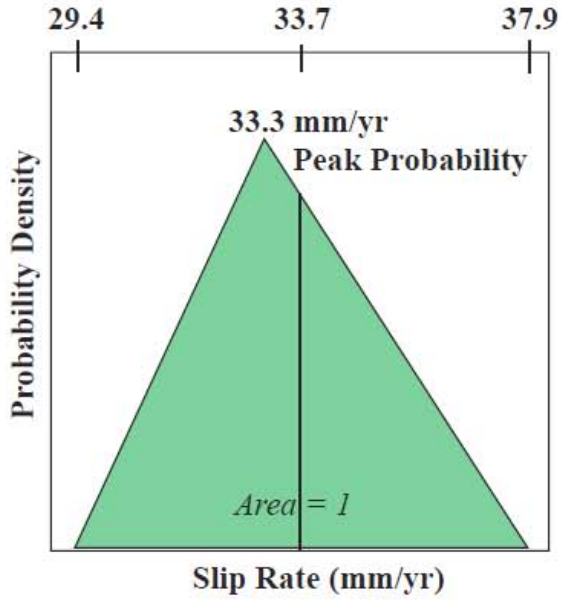
Age of Displaced Feature

Preferred Age:	**1500 yrs BP**
Symmetrical Uncertainty:	**+/- 100 yrs**
Uncertainty:	*13.3%*
Maximum Age:	**1600 yrs BP**
Minimum Age:	**1400 yrs BP**

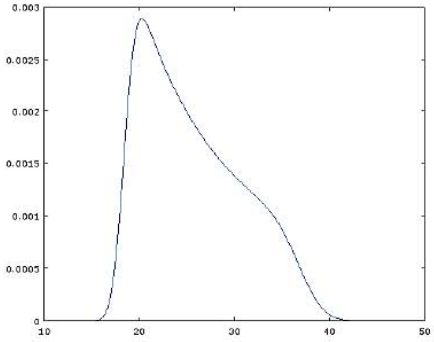


Slip Rates

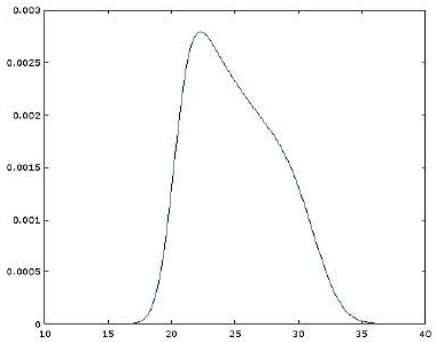
Mode (*Most Probable*)**:**	**33.3 mm/yr**
Midpoint (*Most Reported*)**:**	**33.65 mm/yr**
Percent skewed	*4.1%*
Minimum SR:	**29.4 mm/yr**
Maximum Age:	**37.9 mm/yr**



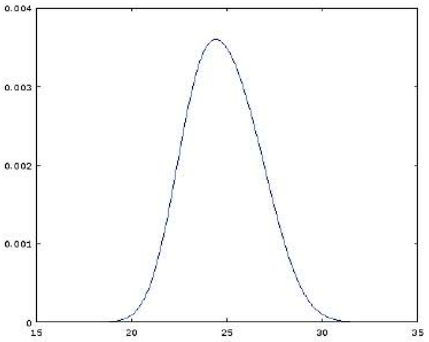
Gaussian (Displacement - U) and Boxcar (Age - U)
D = 20.6 +/- 2.25 m
T = 840 +/- 280 yrs
Midpoint = 27.5
Mode = 20.3
Median = 24.7 +12.3/-6.7



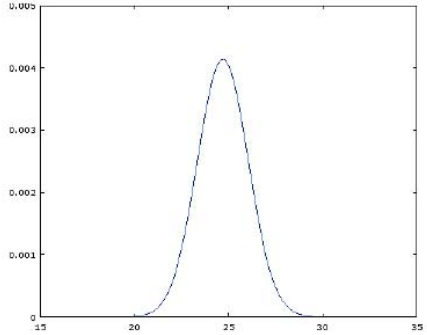
Gaussian (Displacement) and Boxcar (Age)
D = 20.6 +/- 2.25 m
T = 840 +/- 180 yrs
Midpoint = 25.9
Mode = 22.3
Median = 24.7 +7.4/-5.1



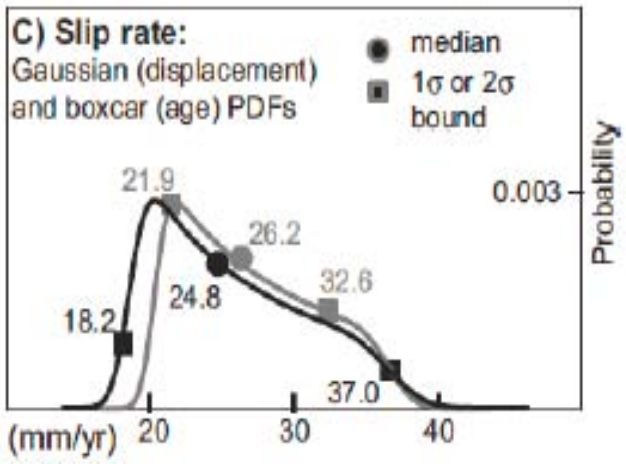
Gaussian (Displacement) and Boxcar (Age)
D = 20.6 +/- 2.25 m
T = 840 +/- 80 yrs
Midpoint = 25.0
Mode = 24.4
Median = 24.7 +4.0/-3.5



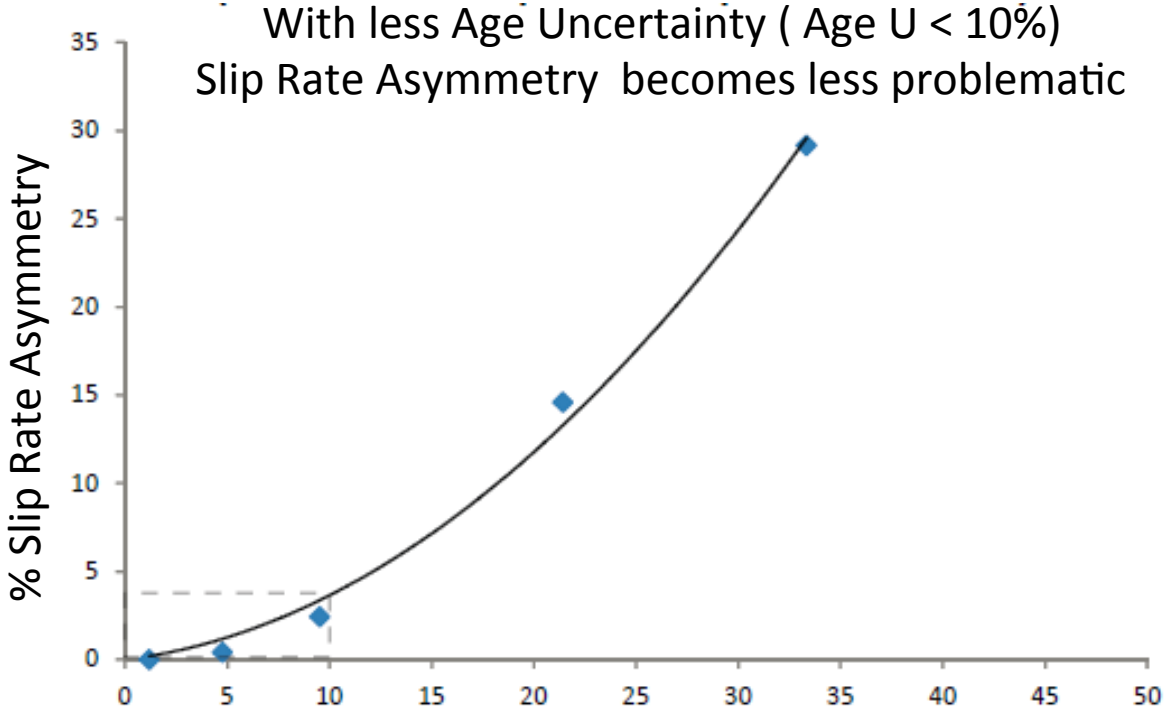
Gaussian (Displacement) and Boxcar (Age)
D = 20.6 +/- 2.25 m
T = 840 +/- 10 yrs
Midpoint = 24.7
Mode = 24.7
Median = 24.7 +2.7/-2.7



Parkfield, CA Short-term Slip Rate Example



With less Age Uncertainty (Age U < 10%)
Slip Rate Asymmetry becomes less problematic



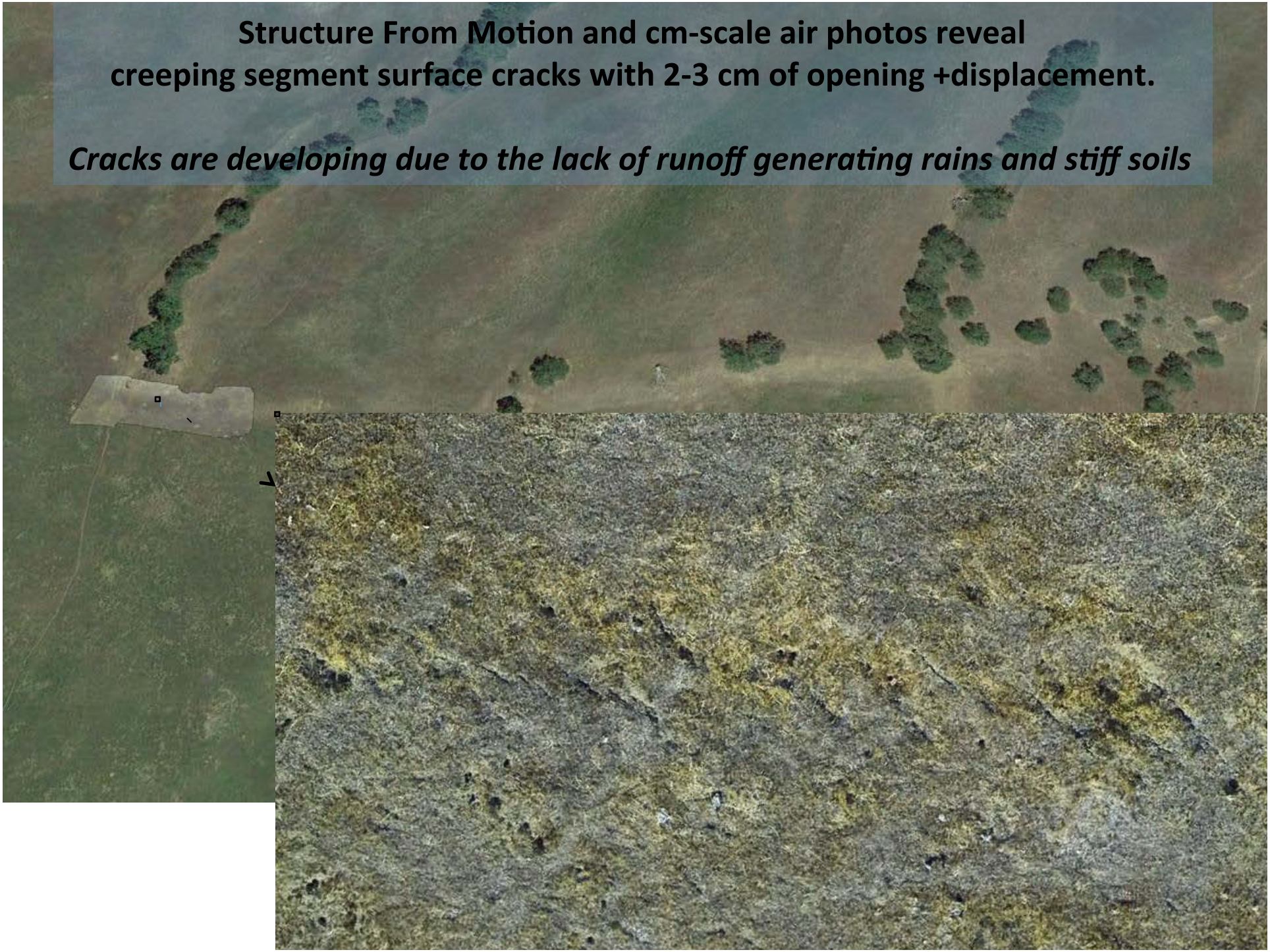
Take Home Messages:

1) The age of 'young' landforms need to be very well constrained in slip rate studies.

e.g., a 1000 year old landform needs to be dated to less than +/- 100 years) to have a less than 5% asymmetry.

2) Old landforms (>10 ka) do not need as tight of age constraints for a good slip rate.

+/- 1000 years will do fine.


Structure From Motion and cm-scale air photos reveal
creeping segment surface cracks with 2-3 cm of opening +displacement.
Cracks are developing due to the lack of runoff generating rains and stiff soils