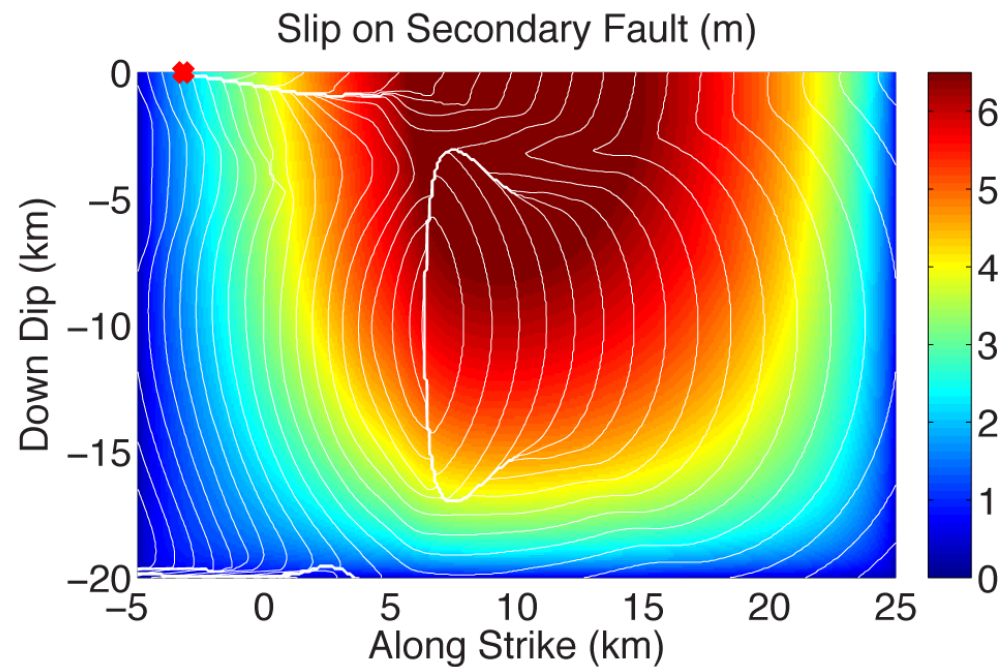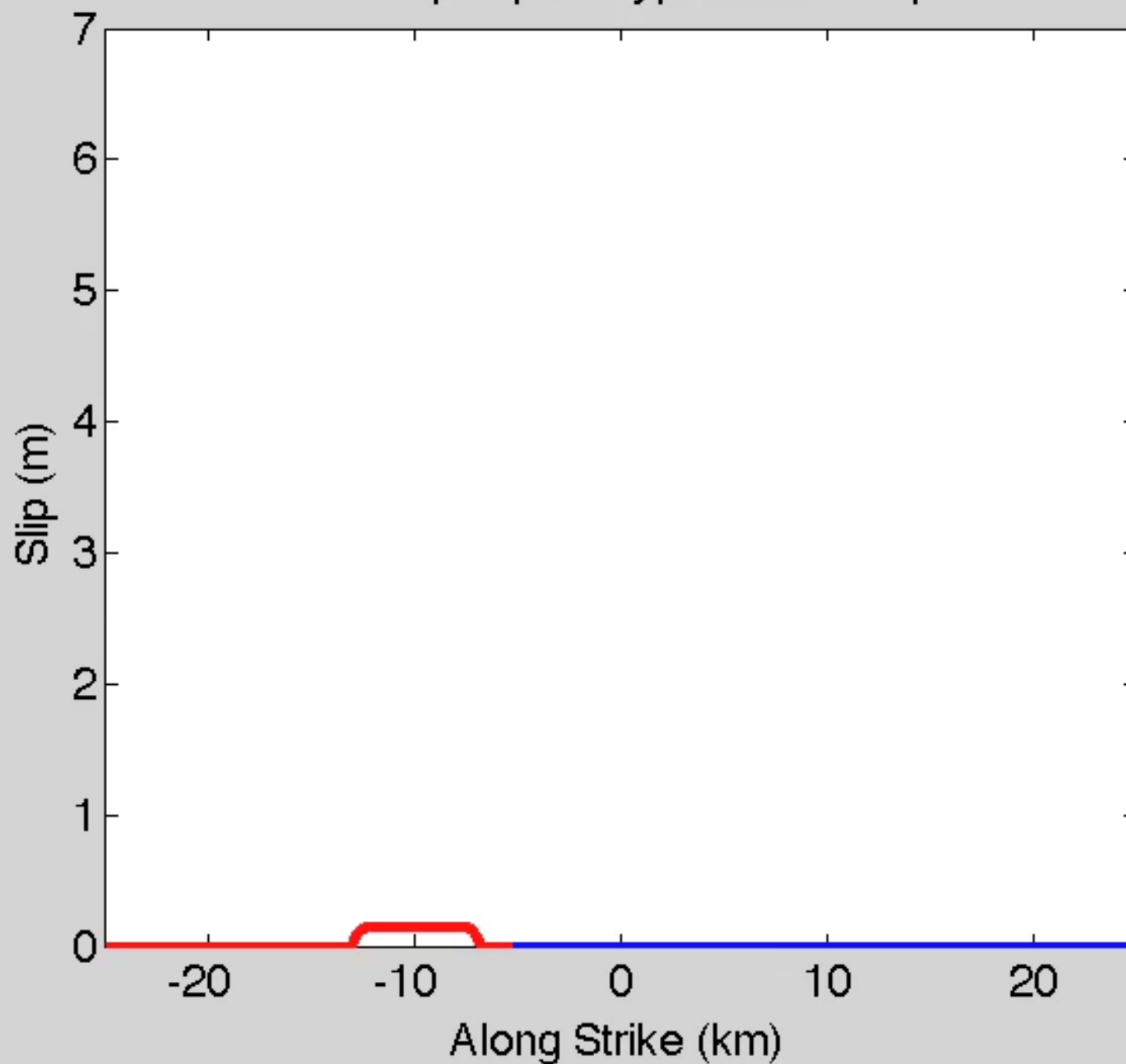## Slip on Primary Fault (m)

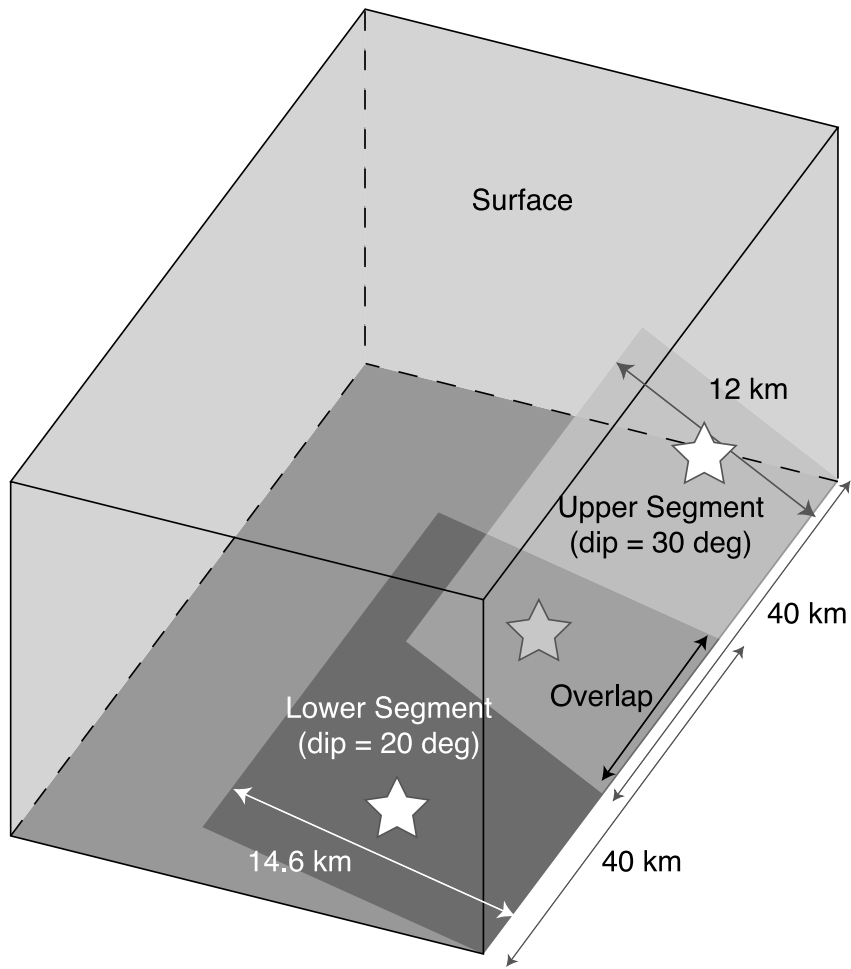# 3D dynamic Model of Fault Stepover

Slip and Rupture Time Contours for overlapping strike-slip segments.

Slip tends to be complementary in the overlapping region.

Slip on Secondary Fault (m)

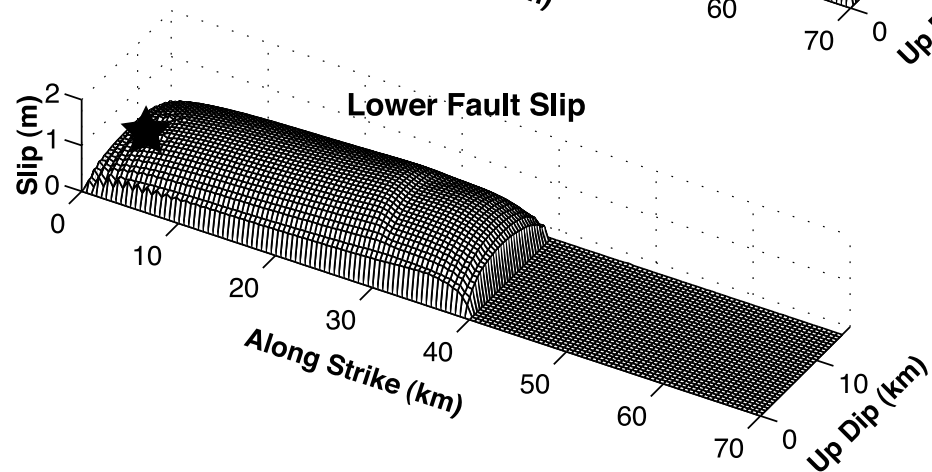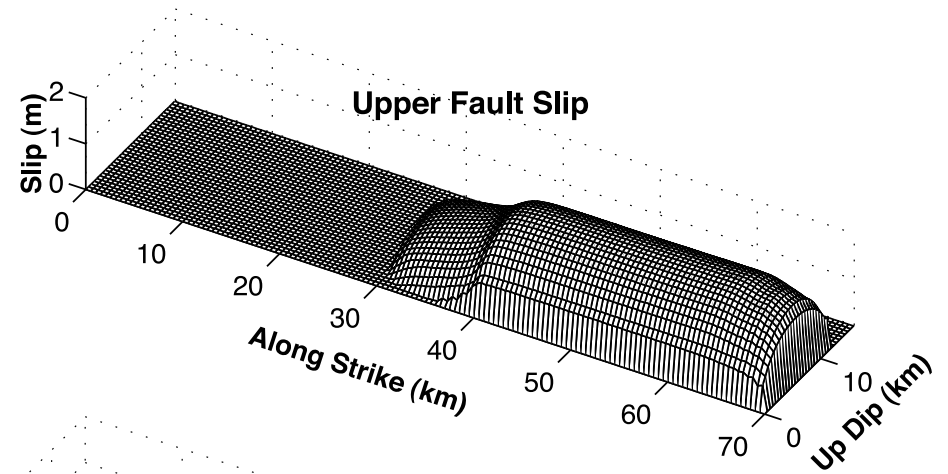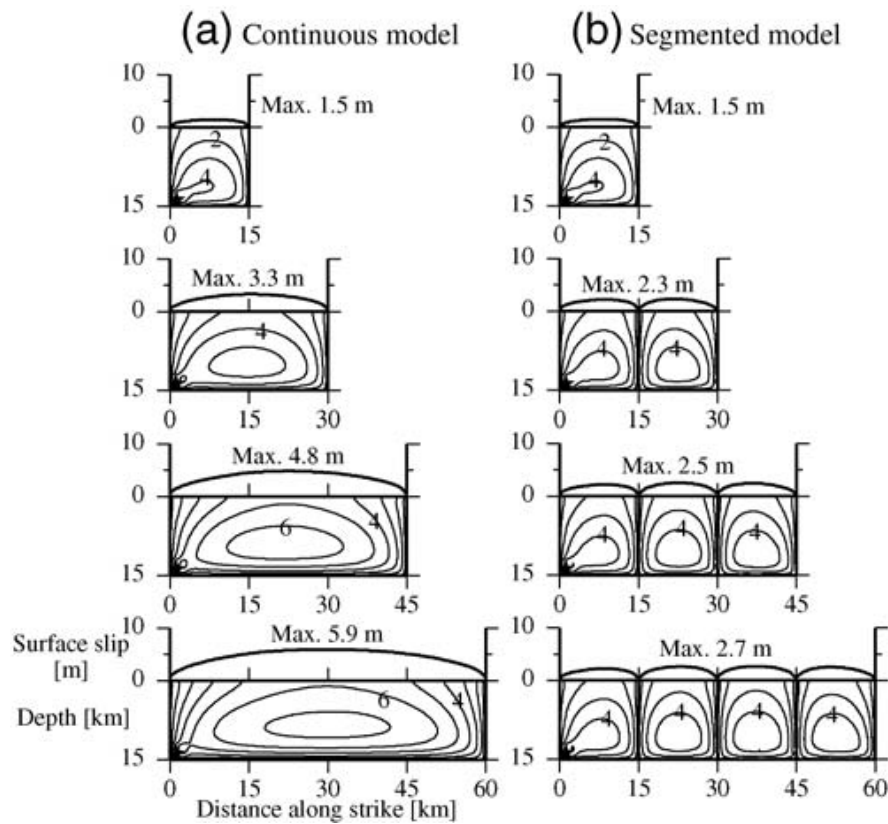Strike-Slip Slip at Hypocentral Depth

Slip on Overlapping Thrust faults that intersect at depth

The segment that slips first often experiences more of the slip.

Oglesby et al., 2003
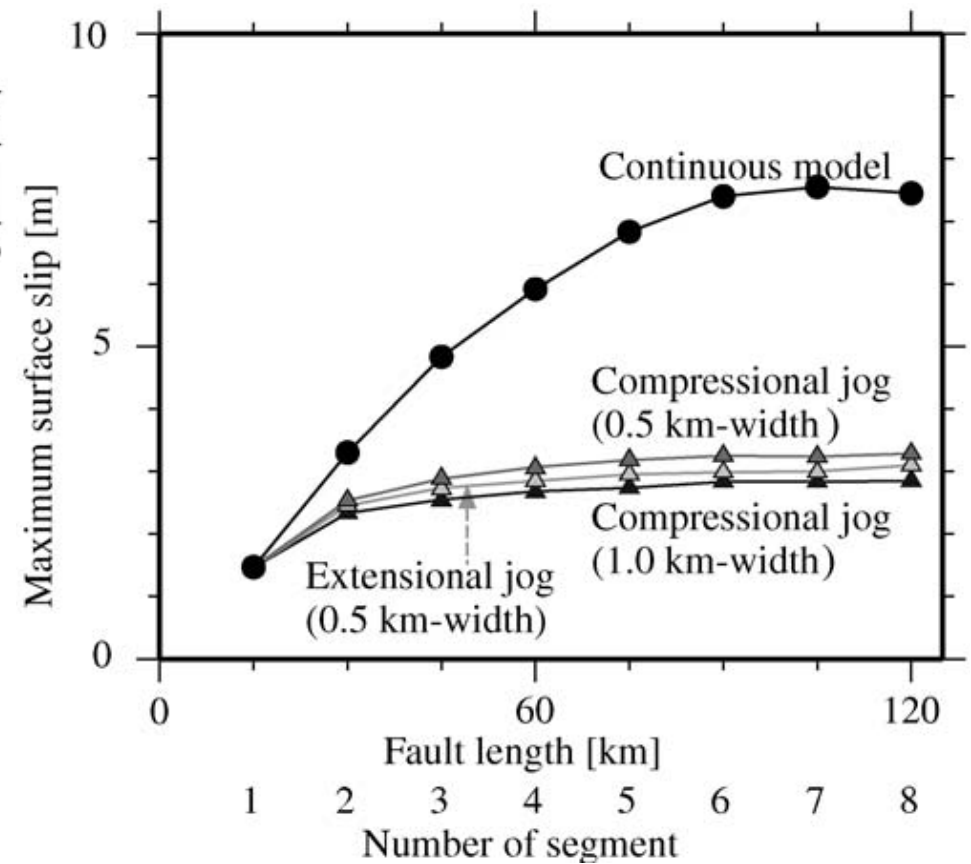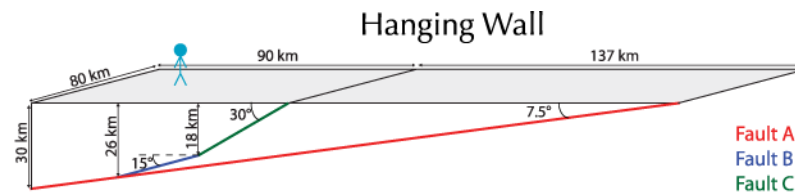
(a) Continuous model

(b) Segmented model

Surface slip [m]
Depth [km]
Distance along strike [km]

Slip Scaling with fault length saturates at a lower level for segmented faults.

Kase, 2010

Maximum surface slip [m]

Continuous model

Compressional jog (0.5 km-width)

Compressional jog (1.0 km-width)

Extensional jog (0.5 km-width)

Fault length [km]

Number of segment
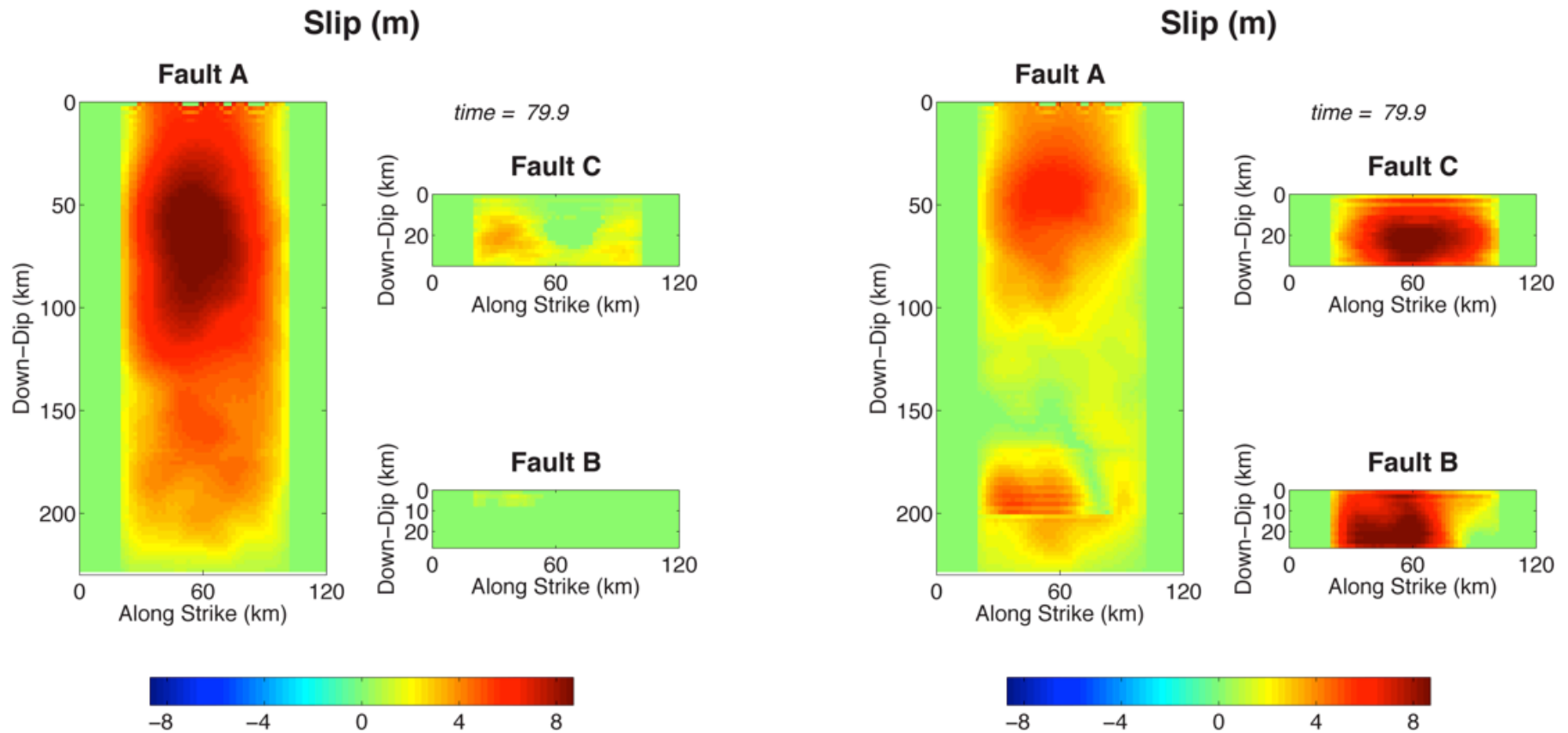
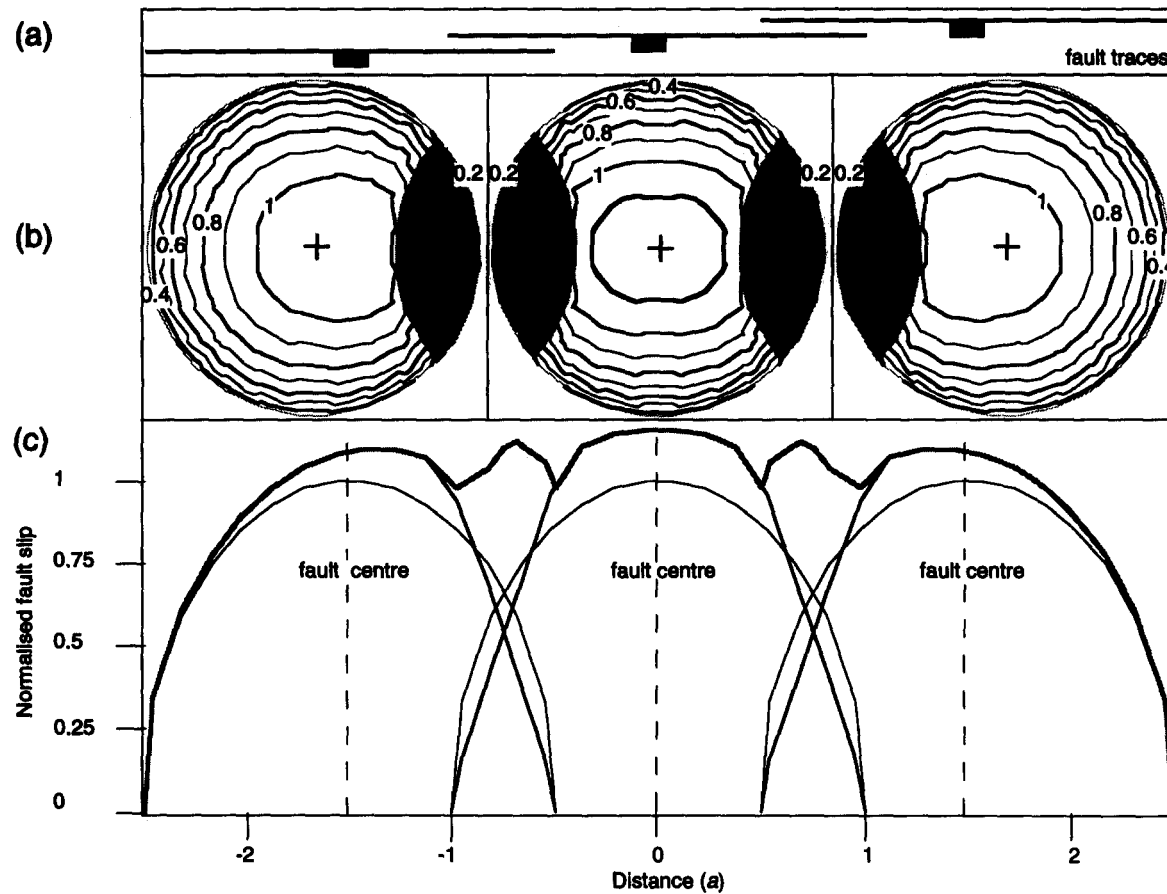# Subduction/Splay fault system with stochastic stress pattern

2 randomization realizations
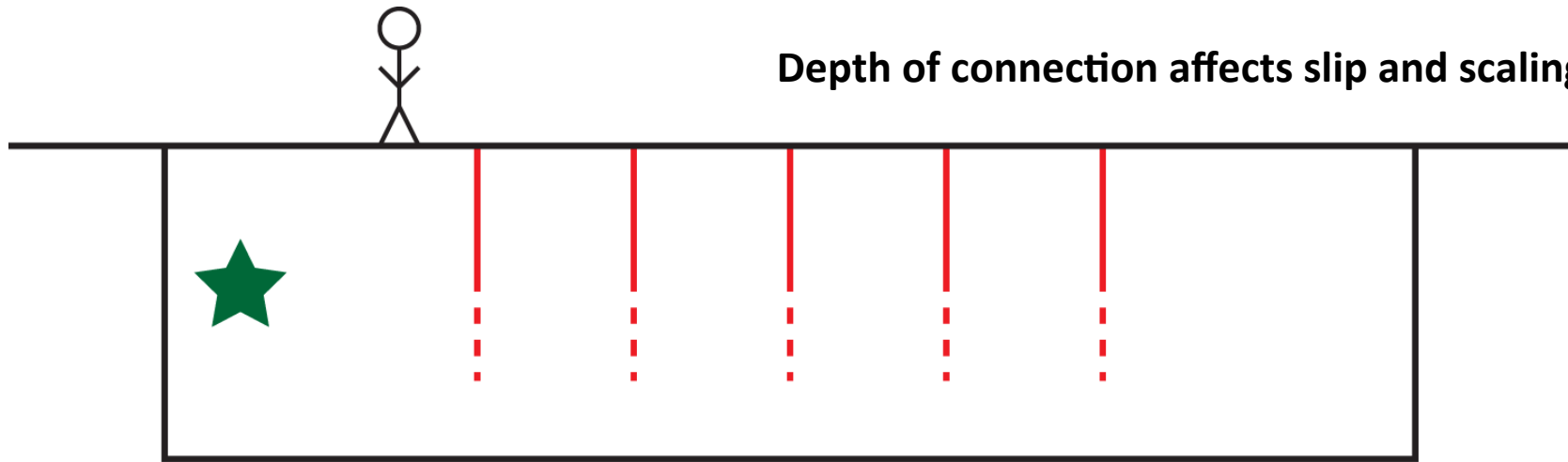
Slip On Overlapping Fault Segments

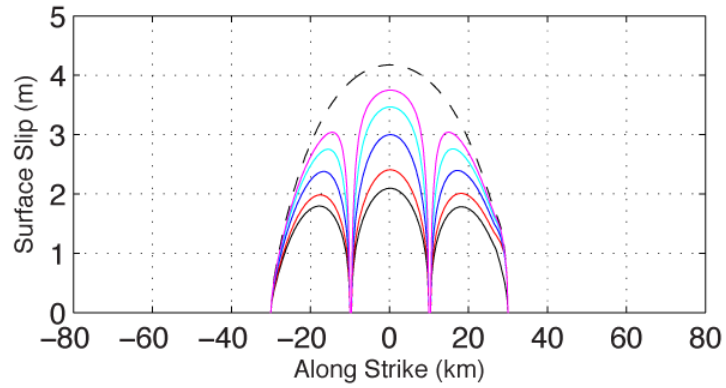E. J. M. WILLEMSE, D. D. POLLARD and A. AYDIN

Slip on overlapping
fault segments can
mimic that of a single
continuous fault.

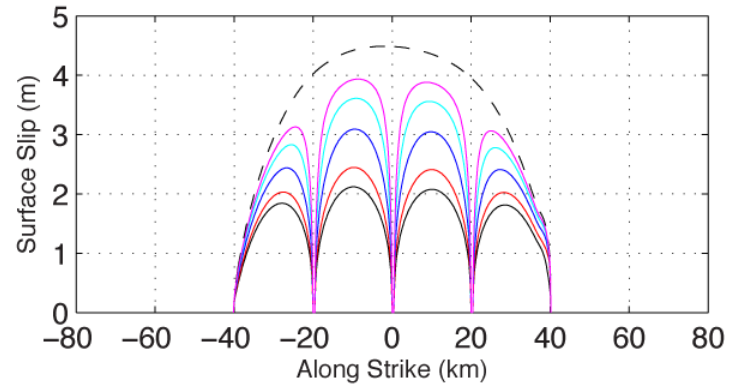Static Model of overlapping Normal Faults; Willemse et al., 1996
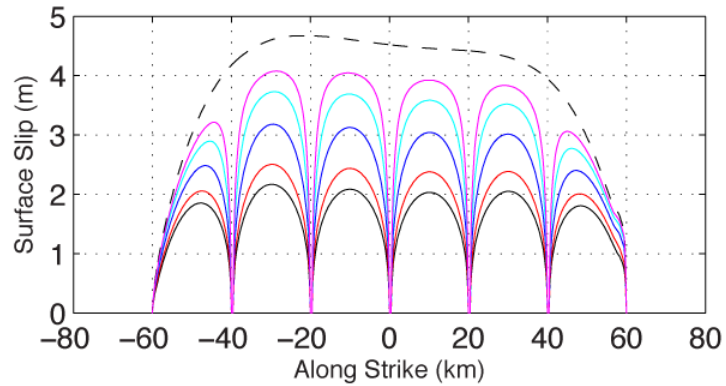
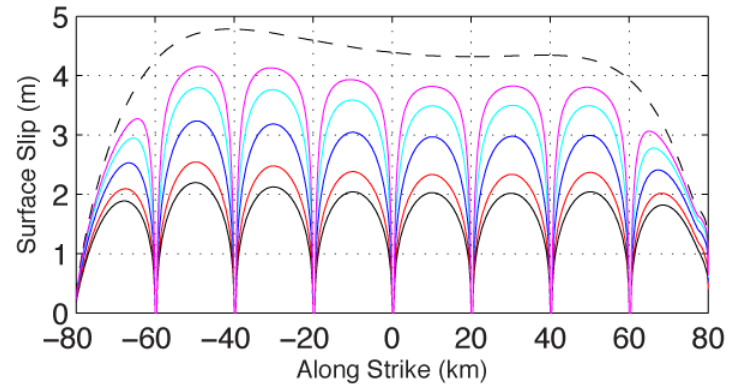**Depth of connection affects slip and scaling.**

1 Interior Segment

2 Interior Segments

4 Interior Segments

6 Interior Segments

Analogy: Subduction/Splay fault system with stochastic stress pattern