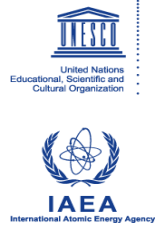




The Abdus Salam  
**International Centre  
for Theoretical Physics**



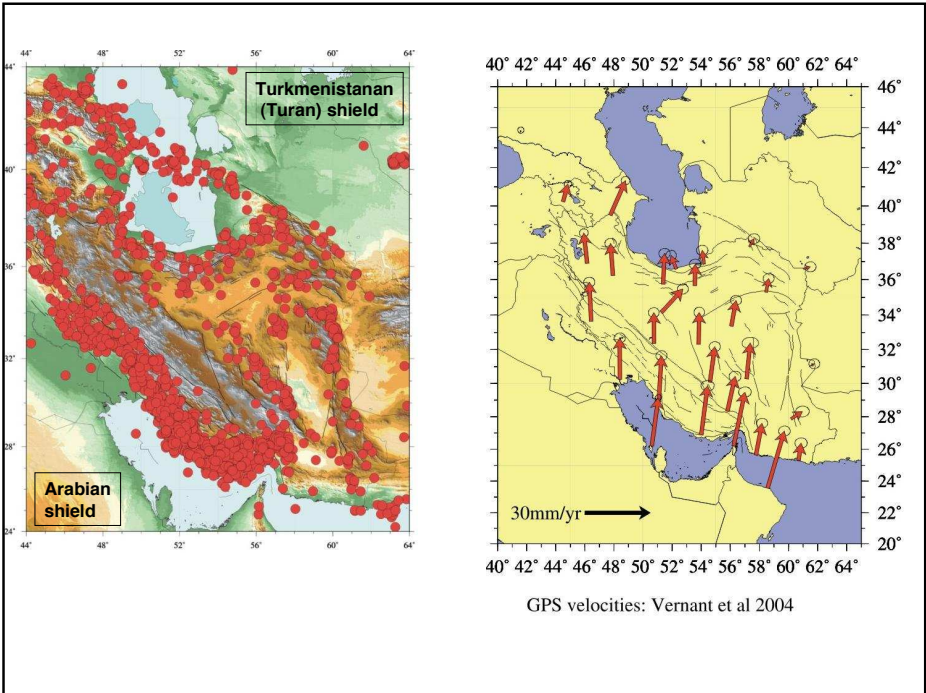
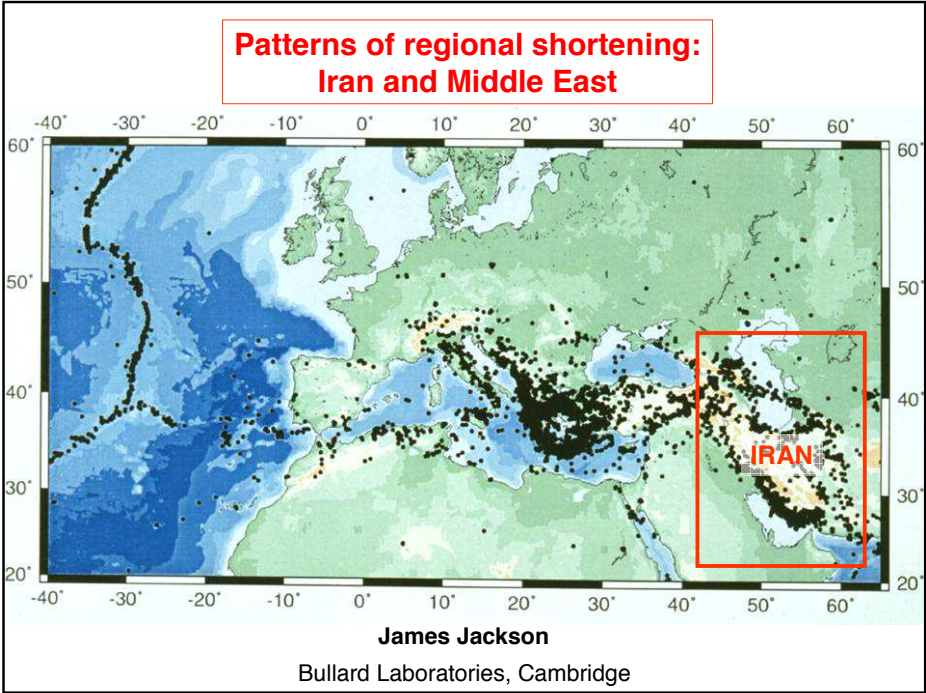
2464-15

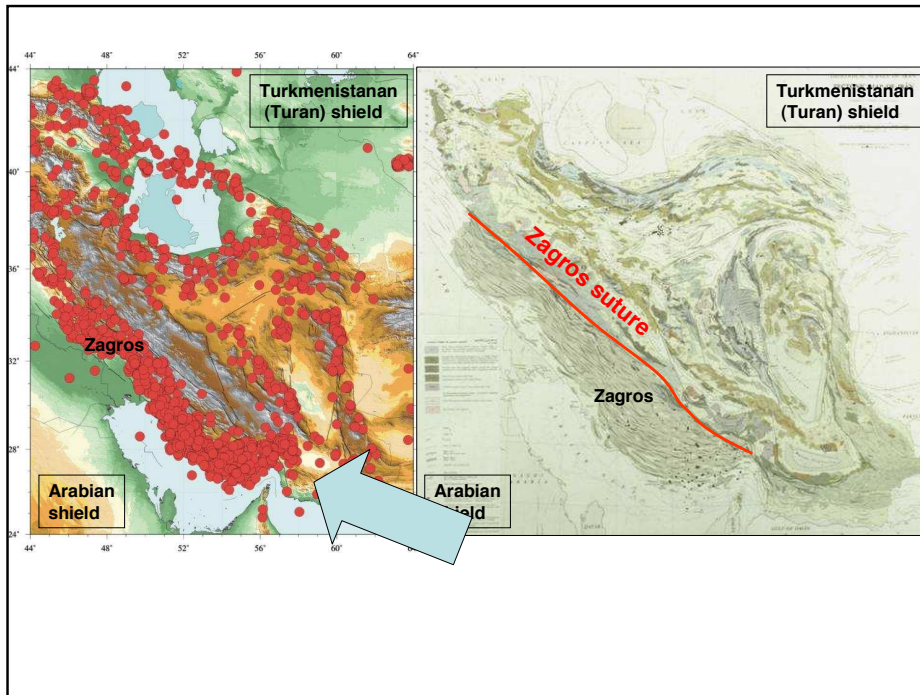
## **Earthquake Tectonics and Hazards on the Continents**

*17 - 28 June 2013*

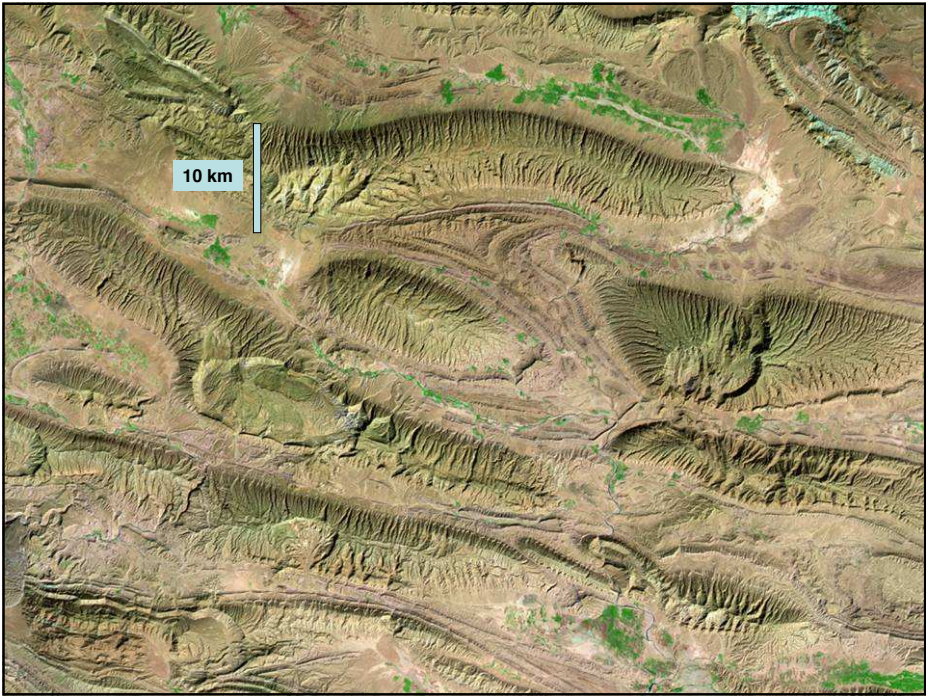
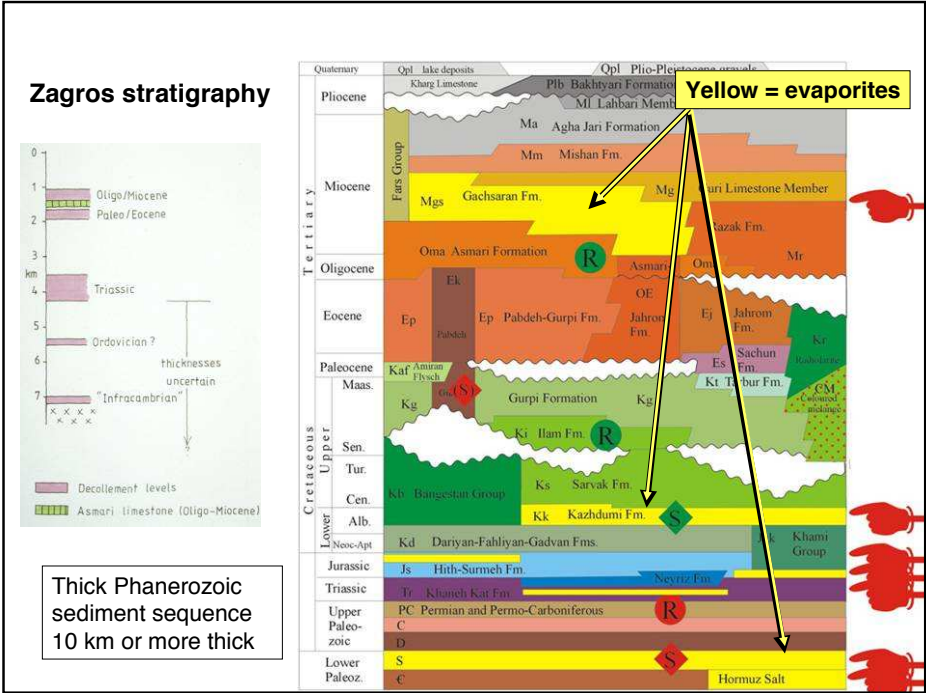
### **Middle East and Iran**

J. Jackson  
*University of Cambridge*  
"\*\*\*\*\*" UK







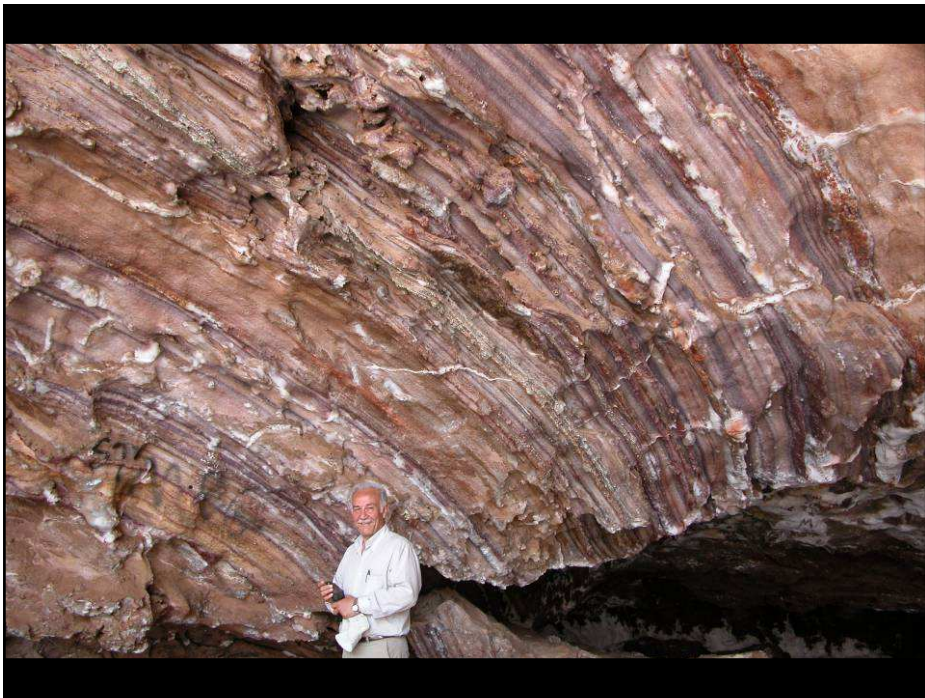




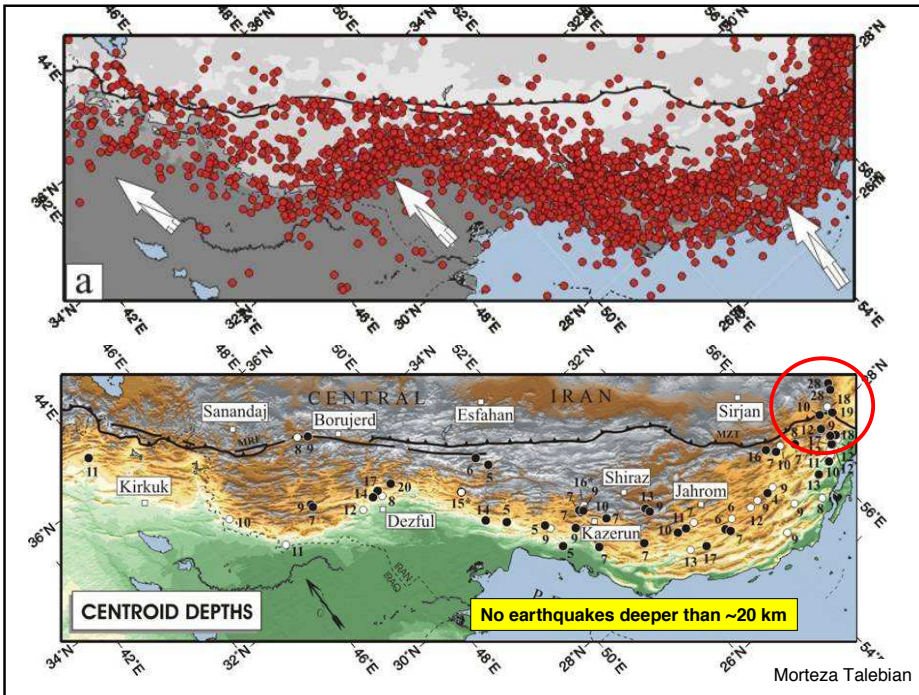


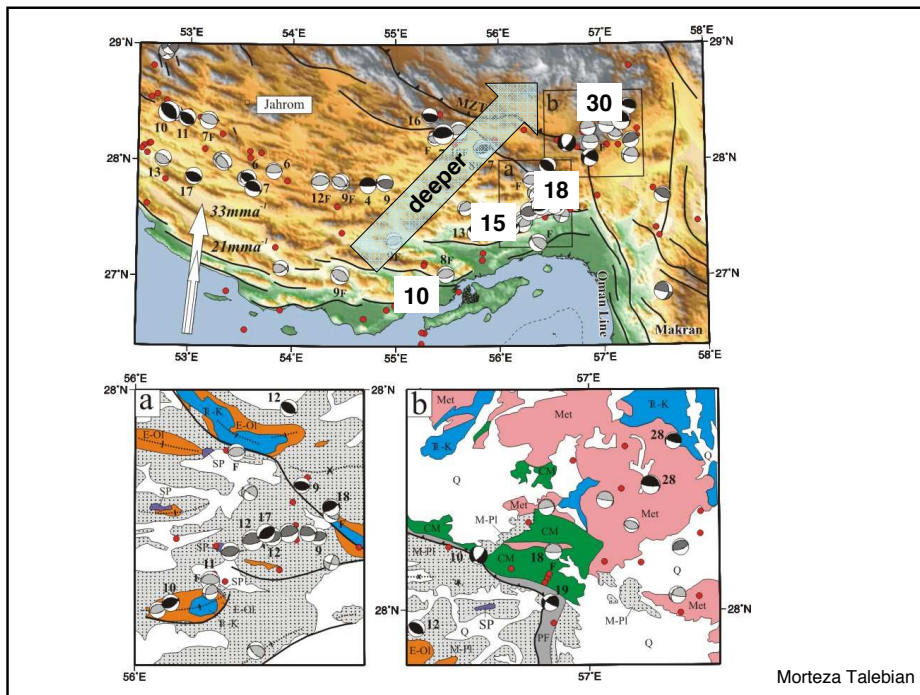
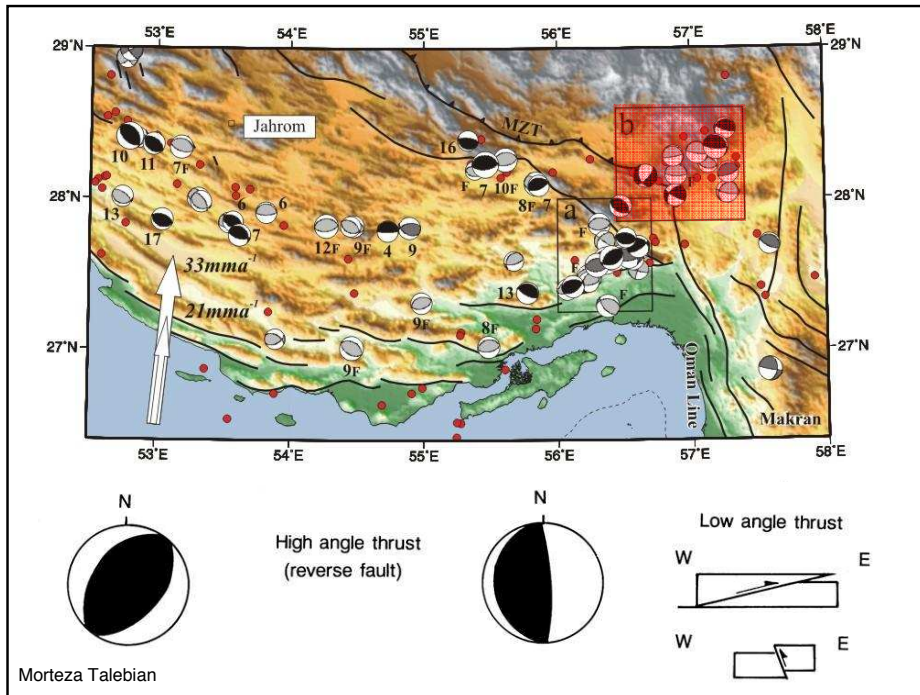




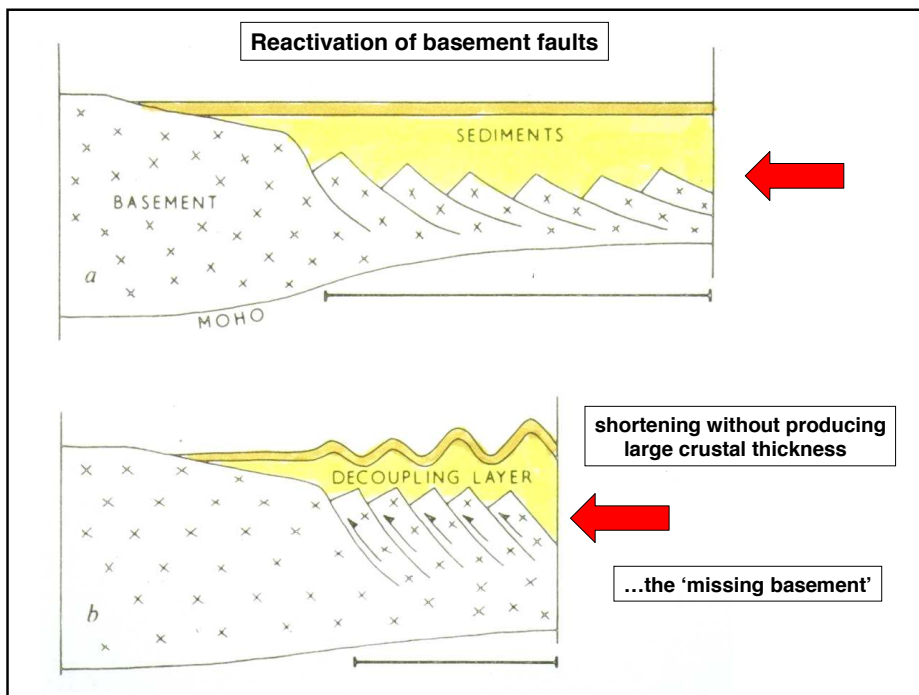
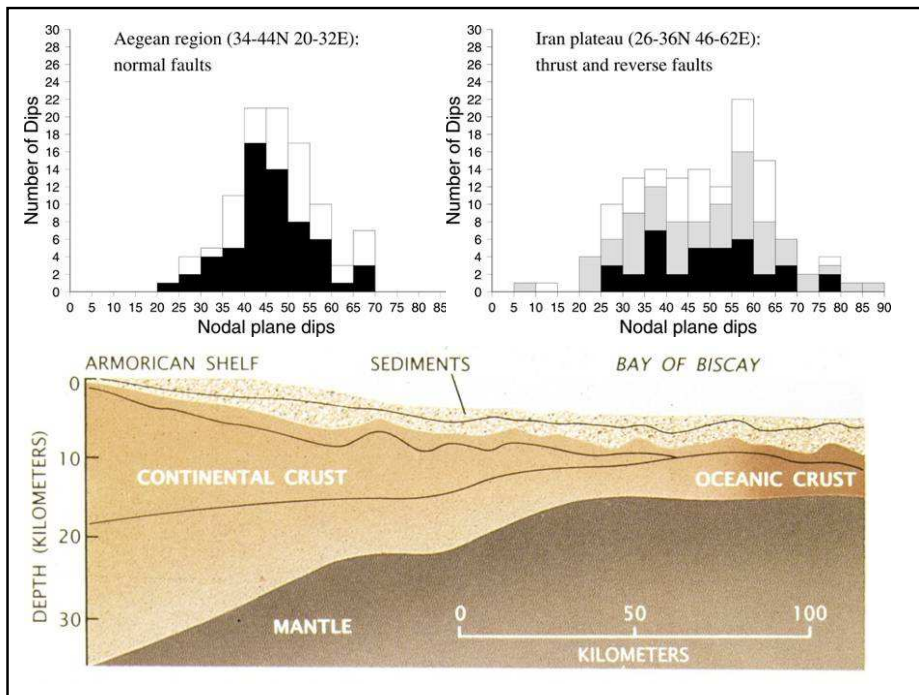




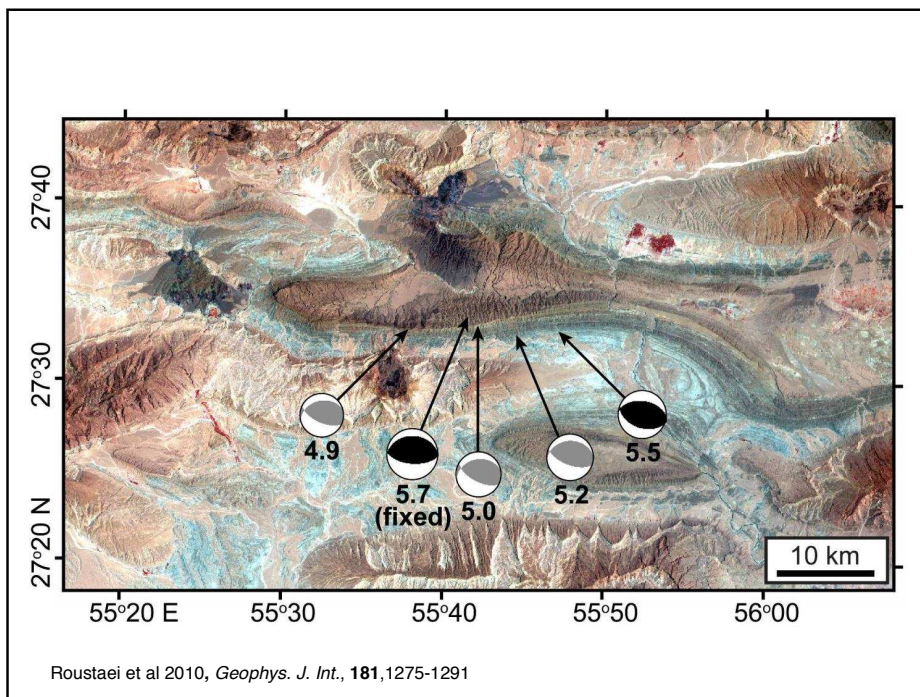
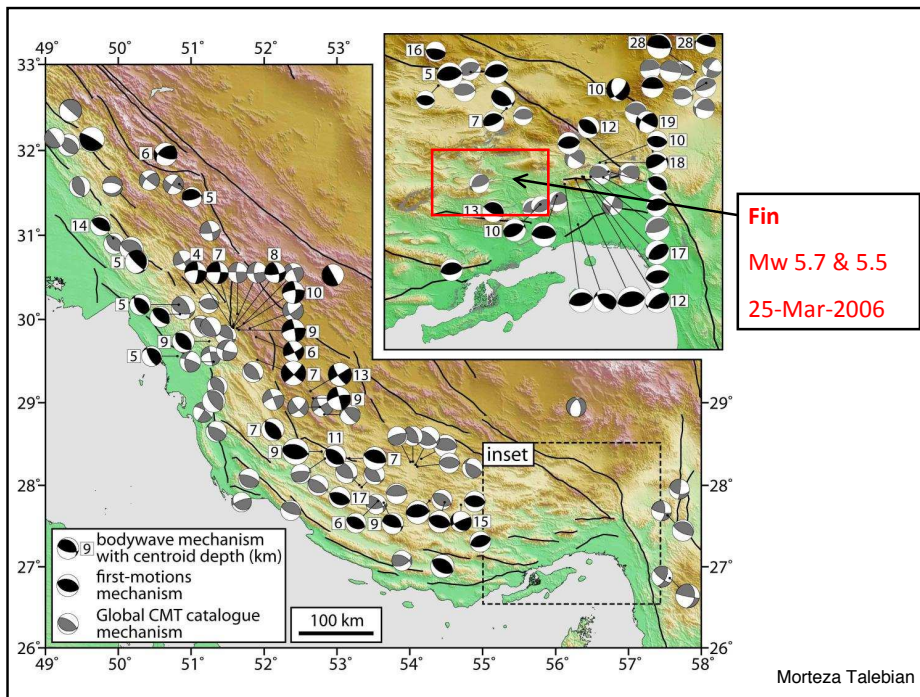


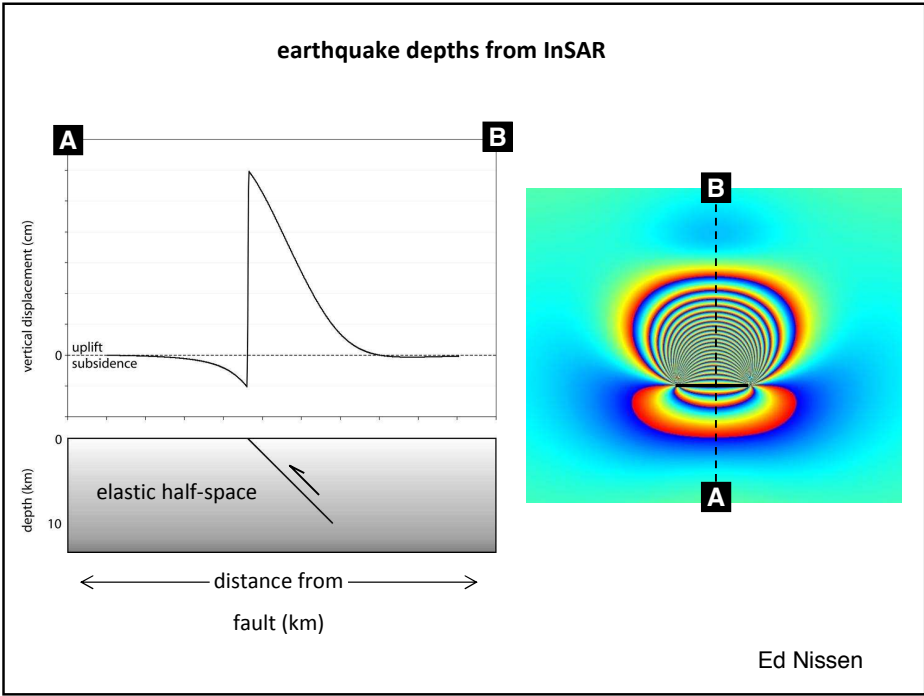
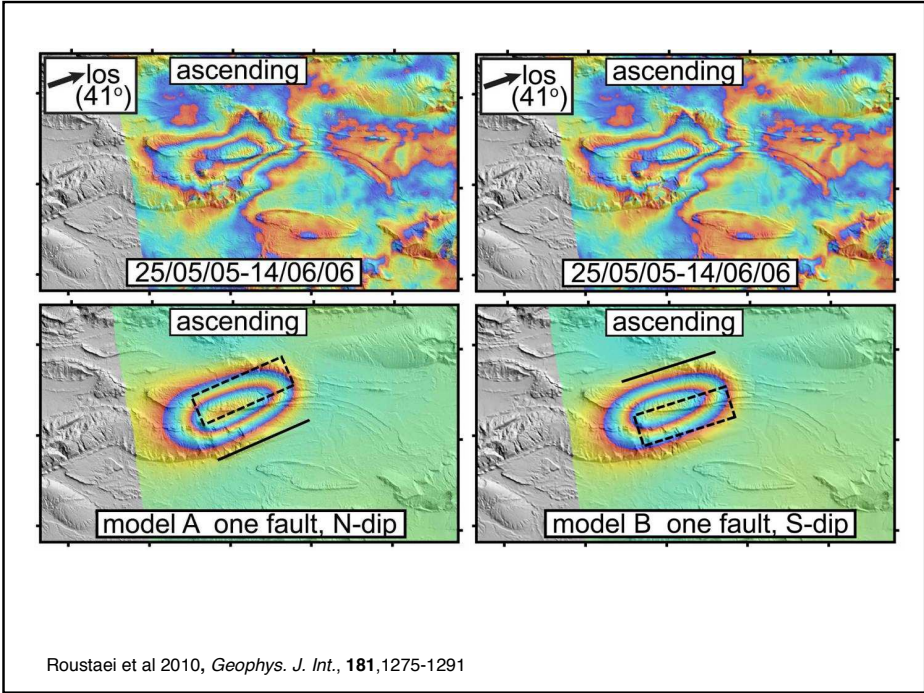


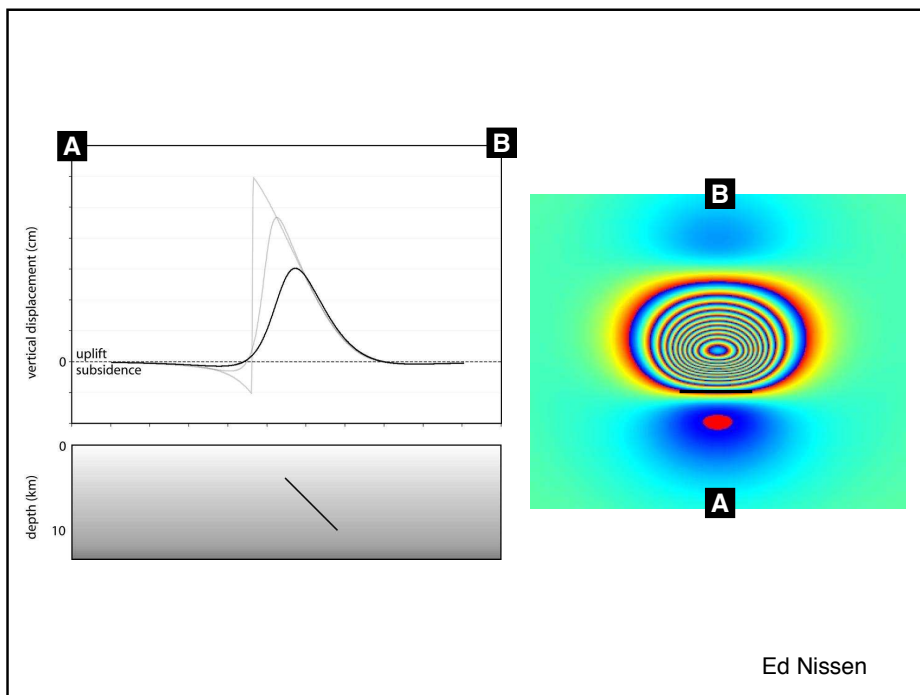
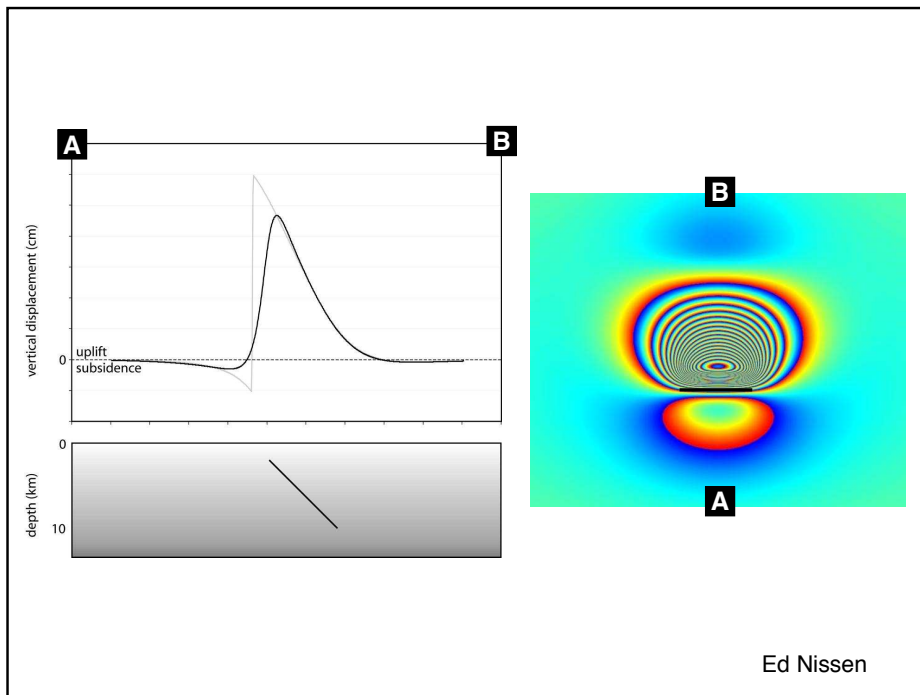




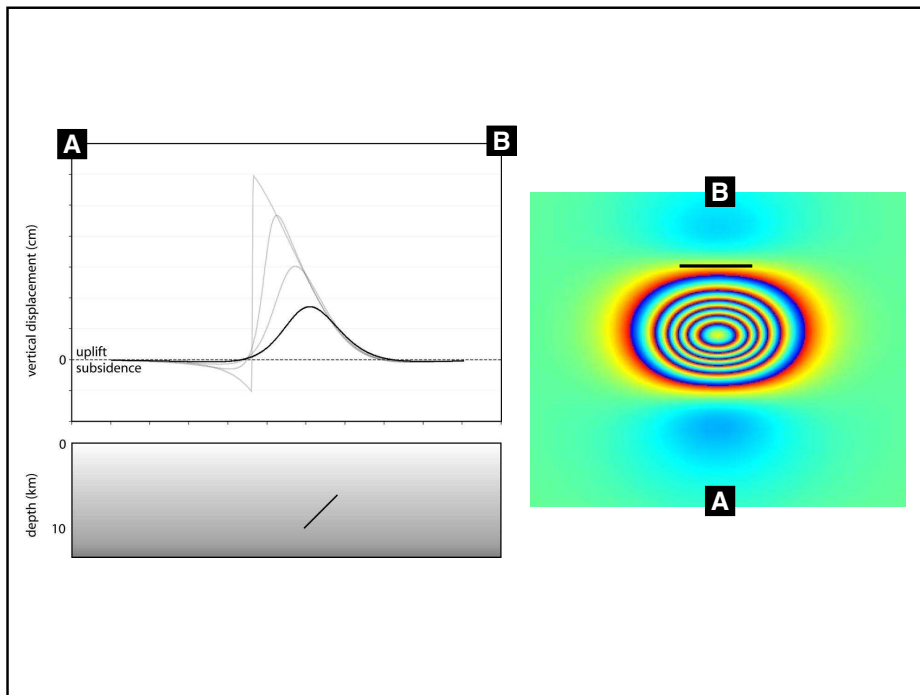
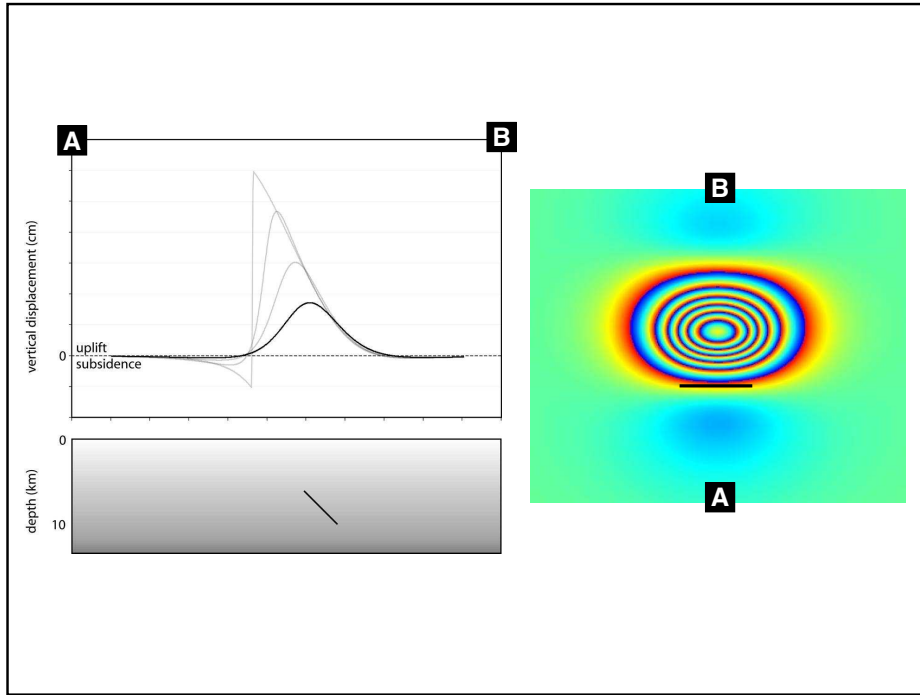






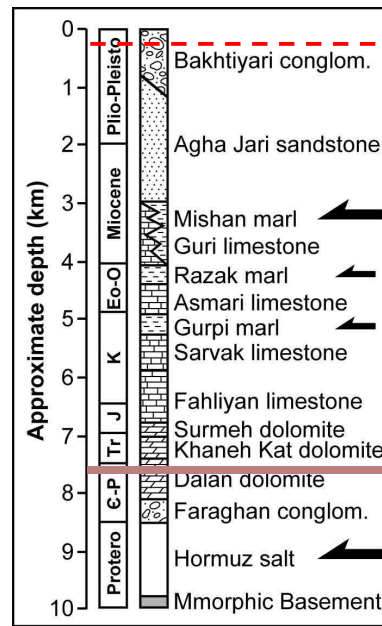






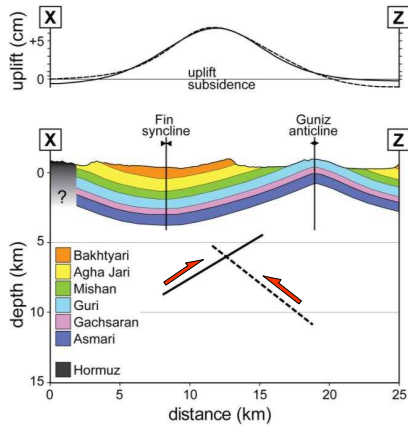
- strike 248°
- dip 31° North
- rake 65°
- slip 0.3 m
- top depth ~5 km
- bottom depth ~8 km

- strike 73°
- dip 37° South
- rake 102°
- slip 0.3 m
- top depth ~6 km
- bottom depth ~10 km

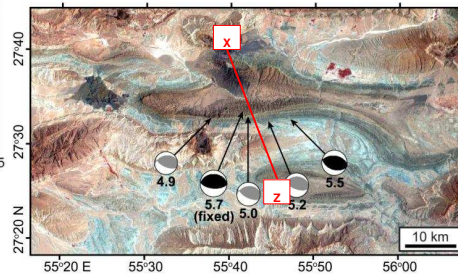
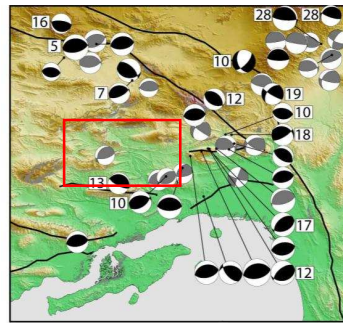


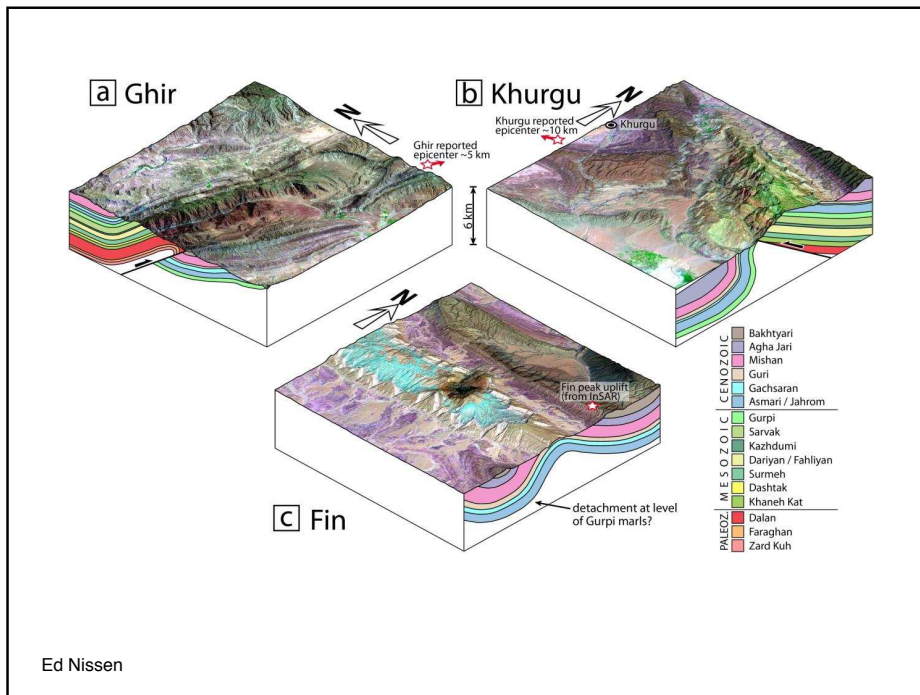
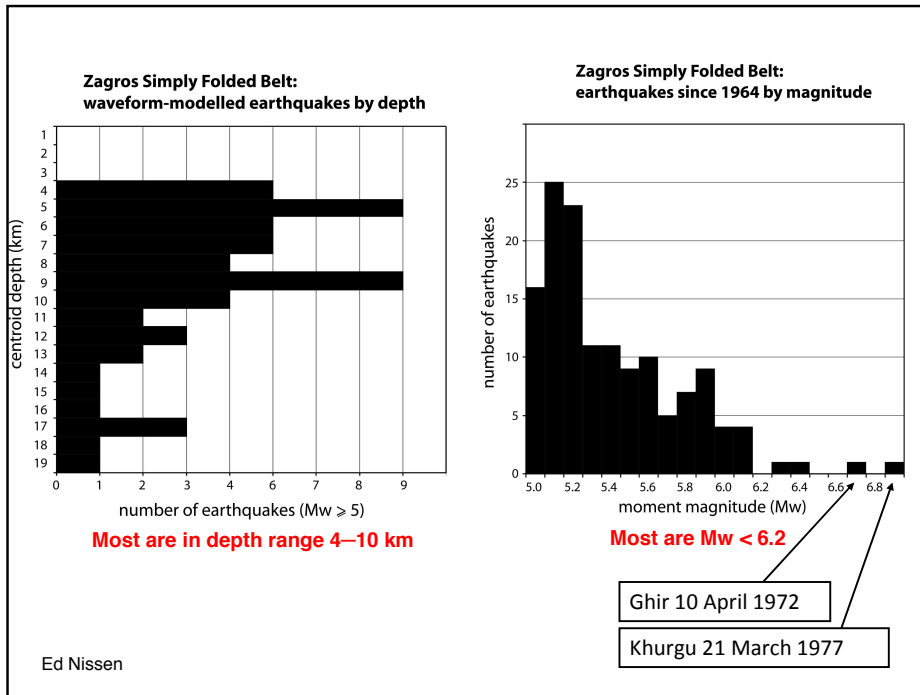
Ed Nissen

**Fin earthquakes**  
Mw 5.7 and 5.5  
25 March 2006

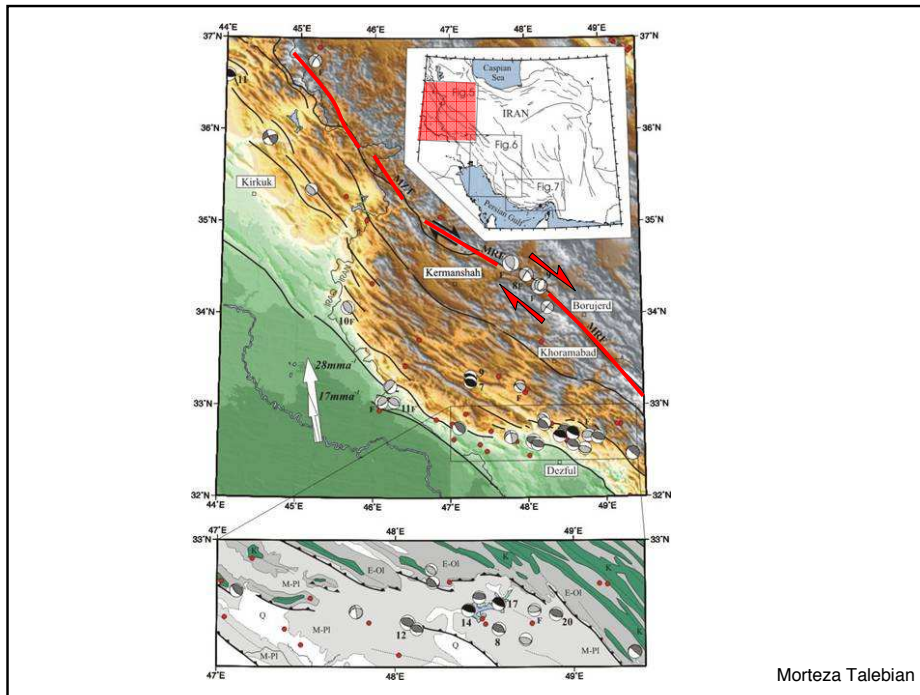


Roustaei et al (2010) *Geophys. J. Int.*





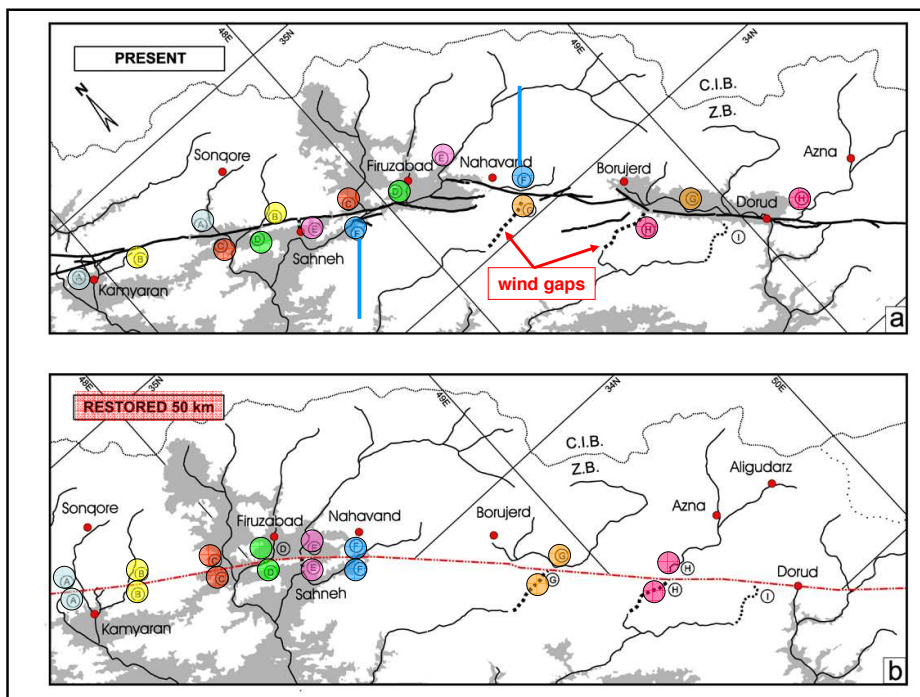
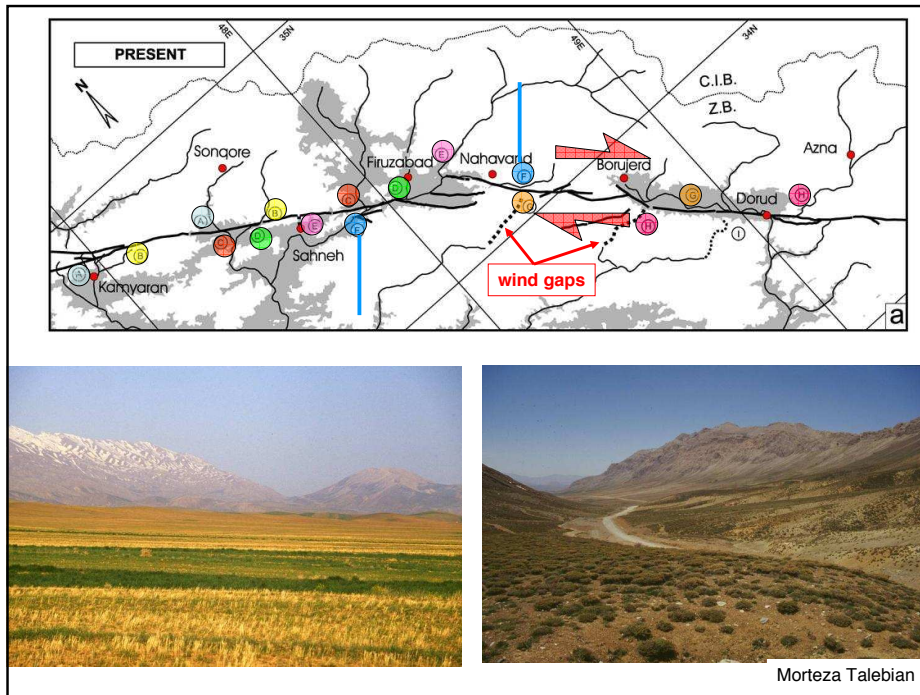




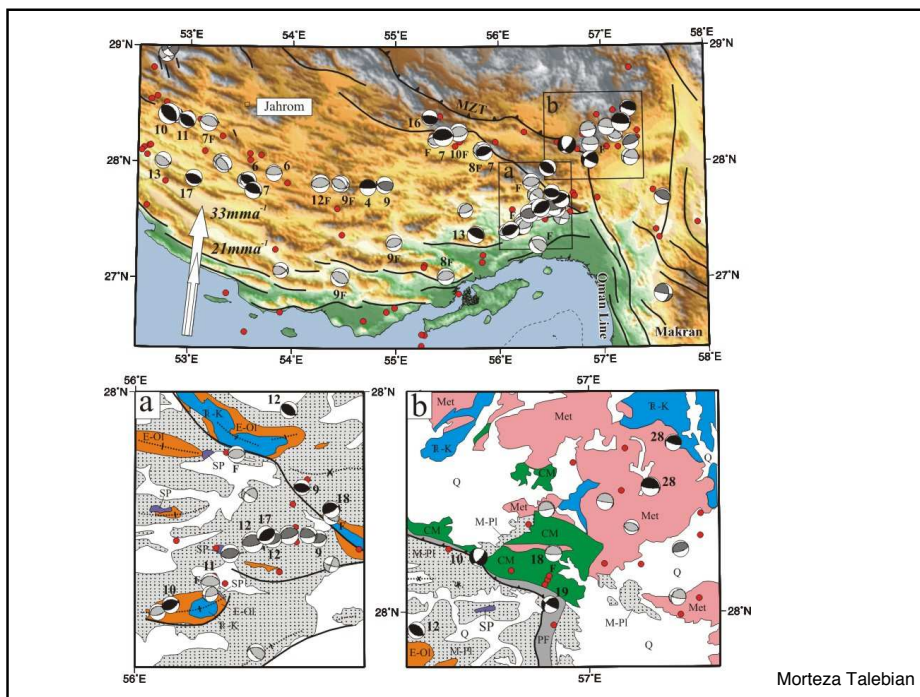
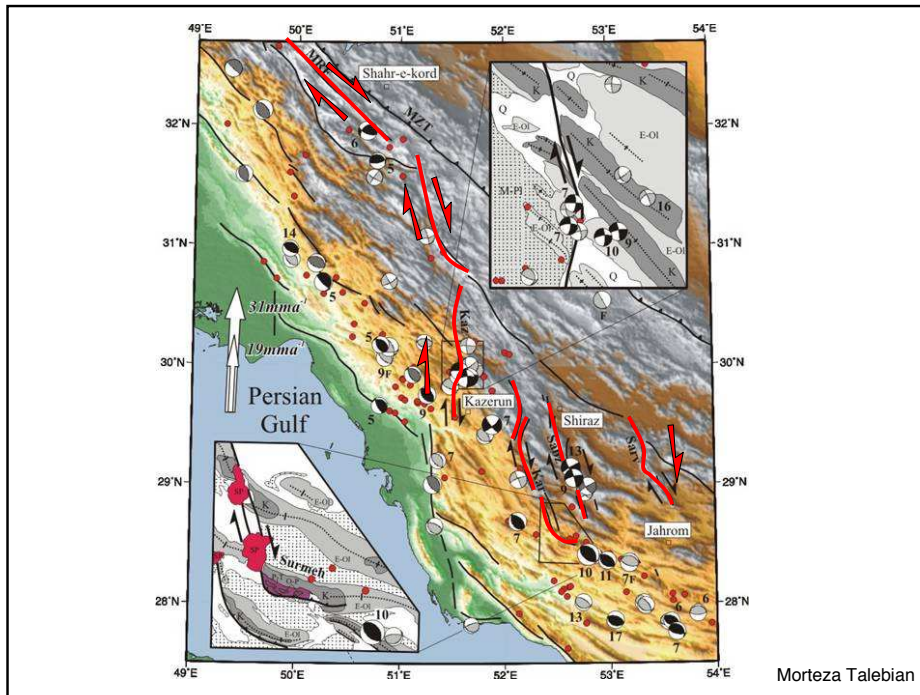
Morteza Talebian

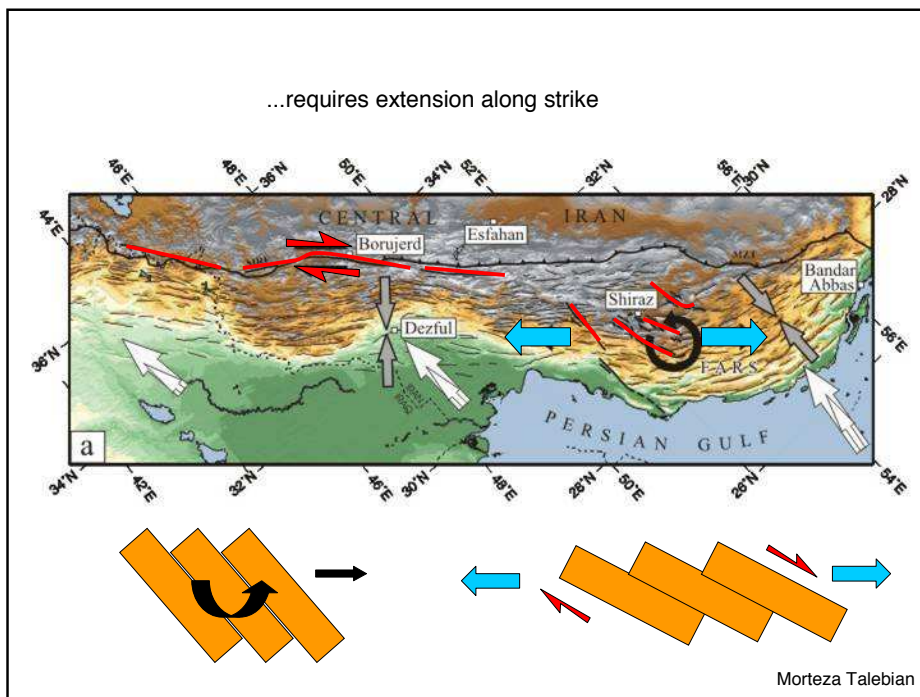
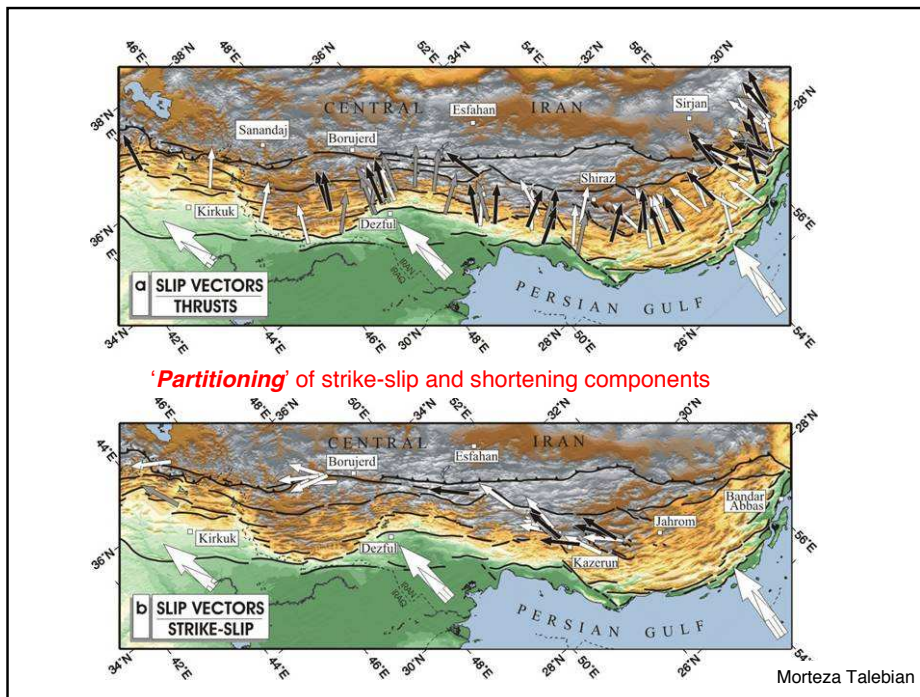


1909 Dorud fault M7.4

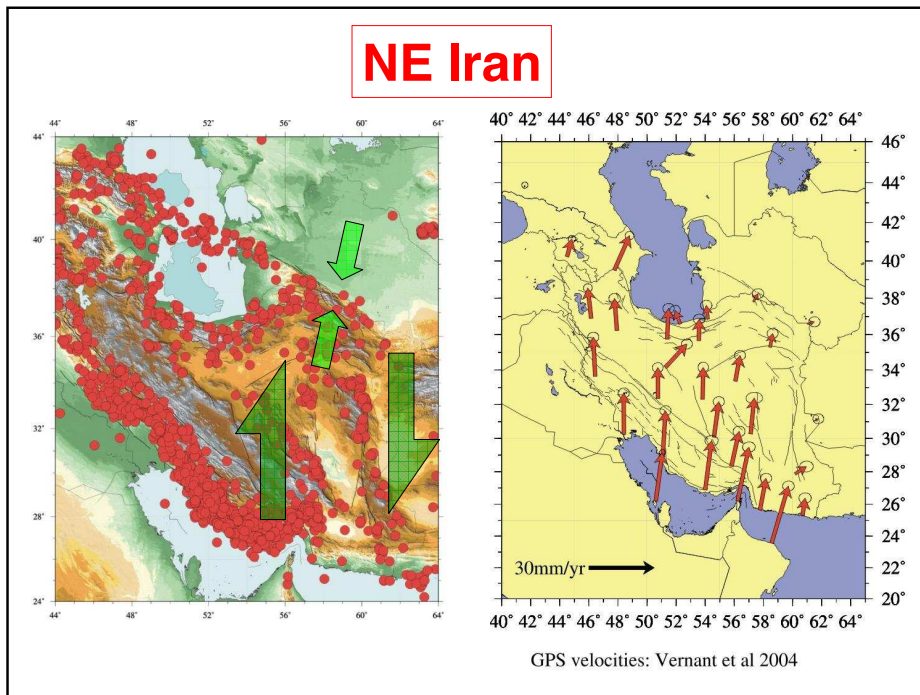
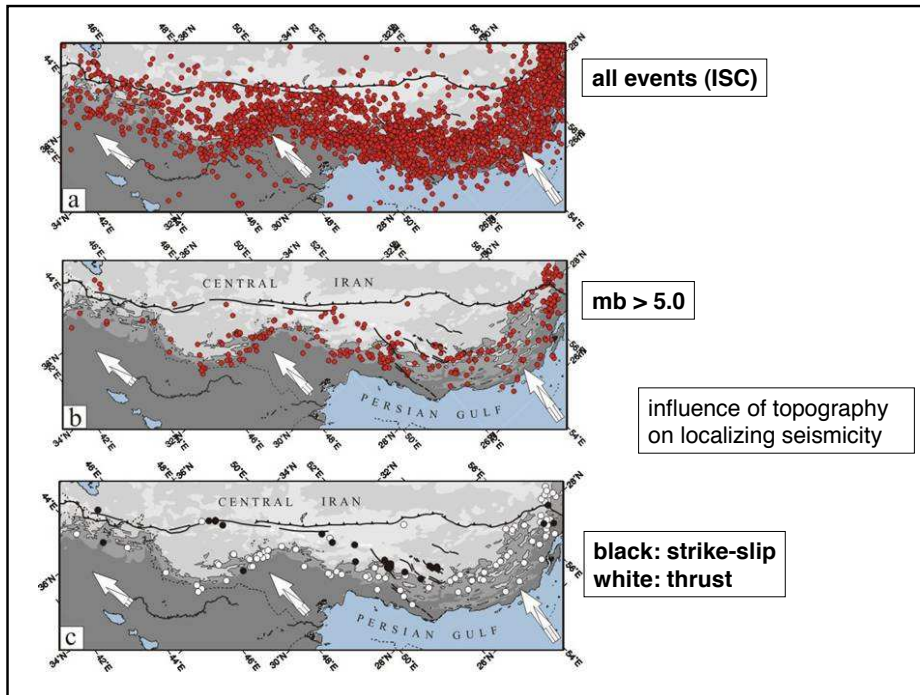


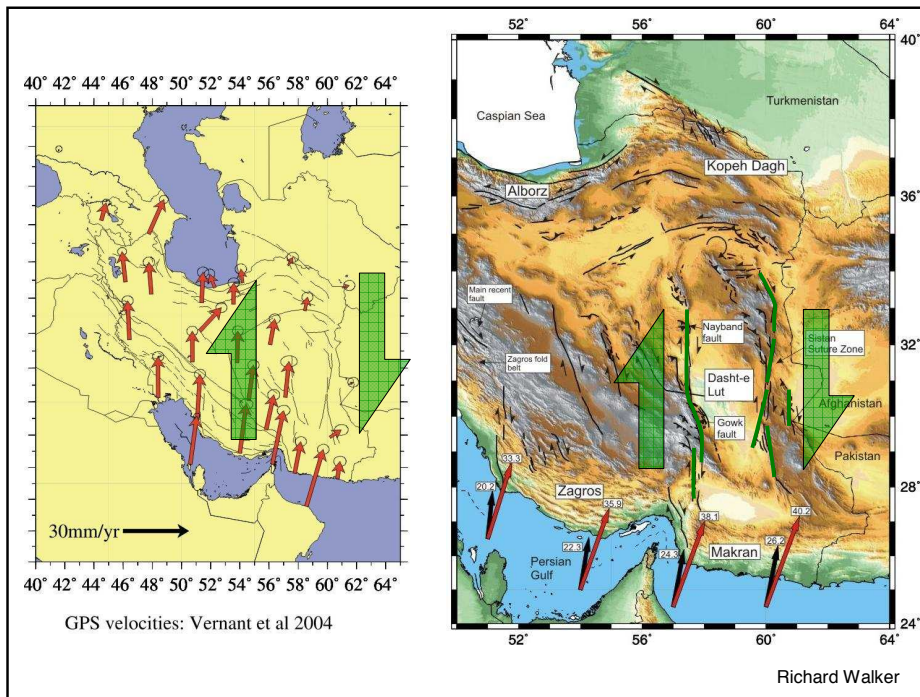
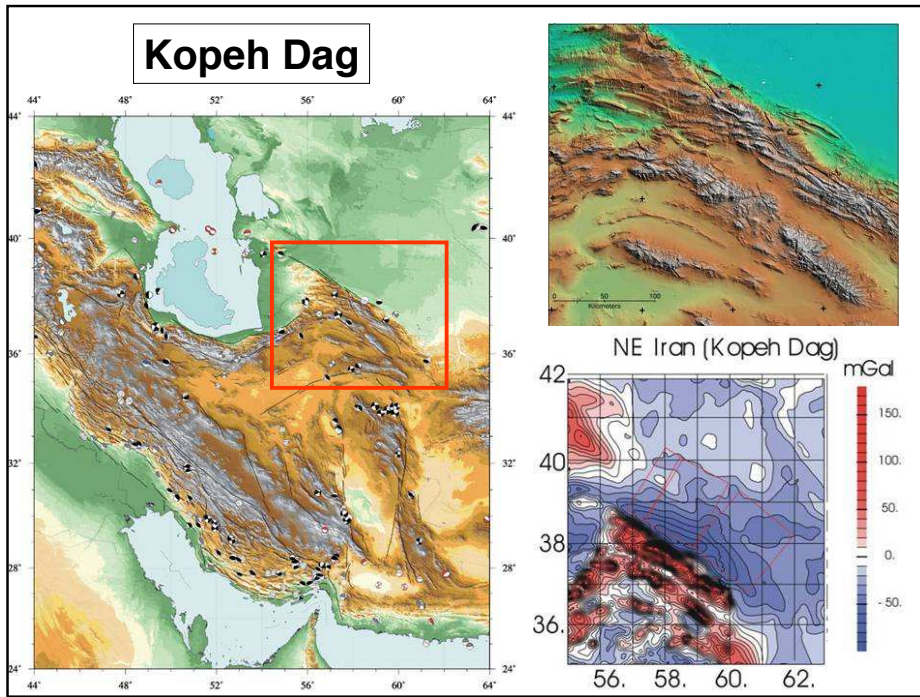




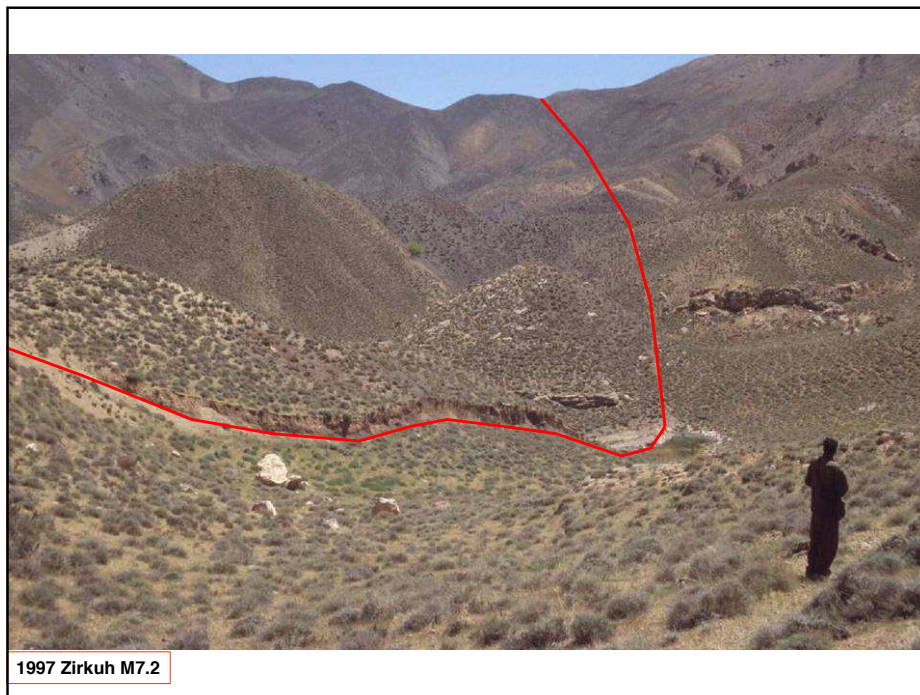
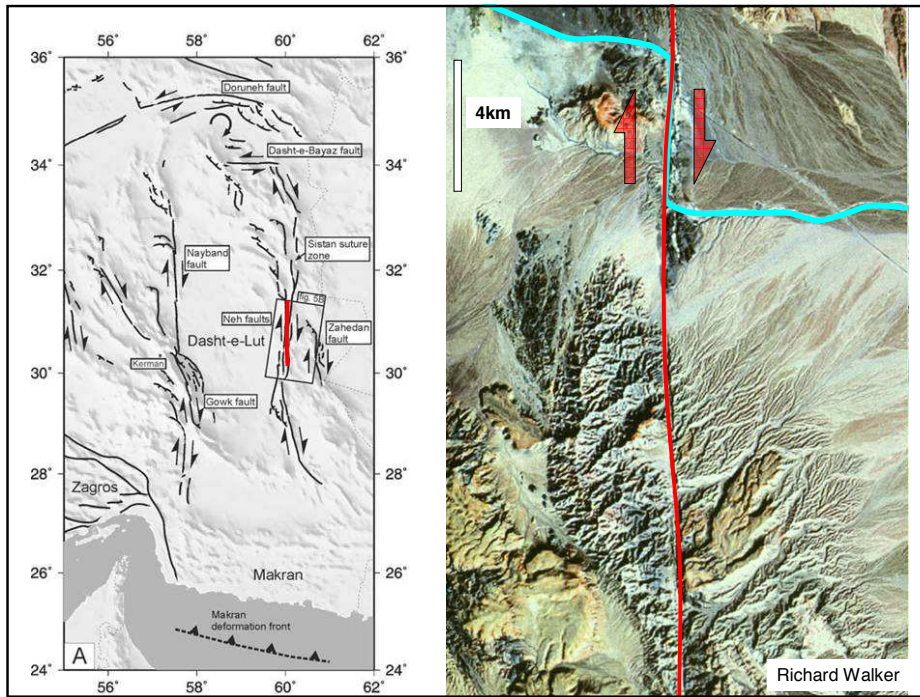




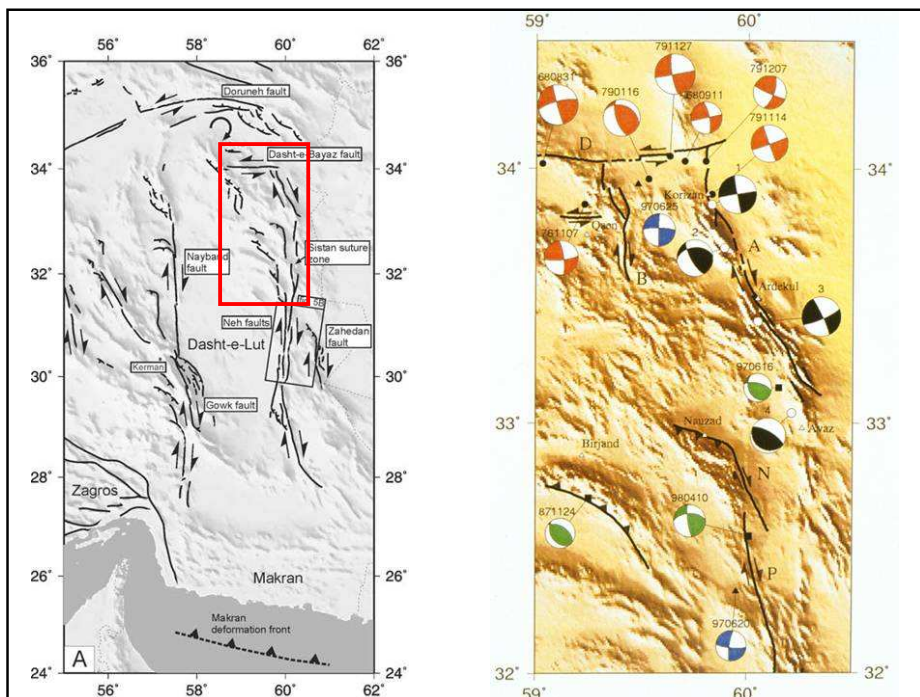












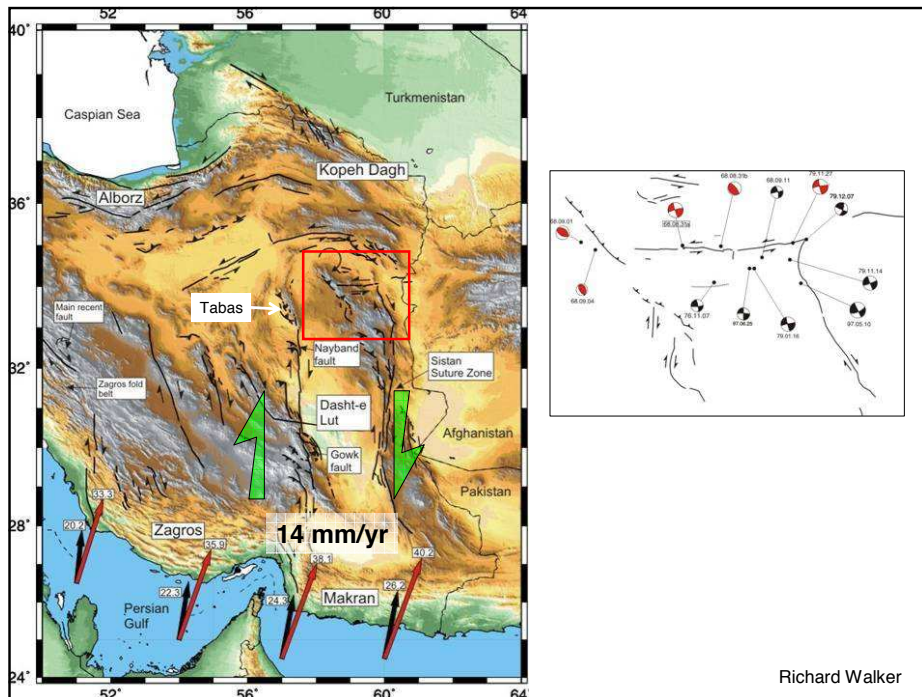


1968 Dasht-e-Bayaz M7.1

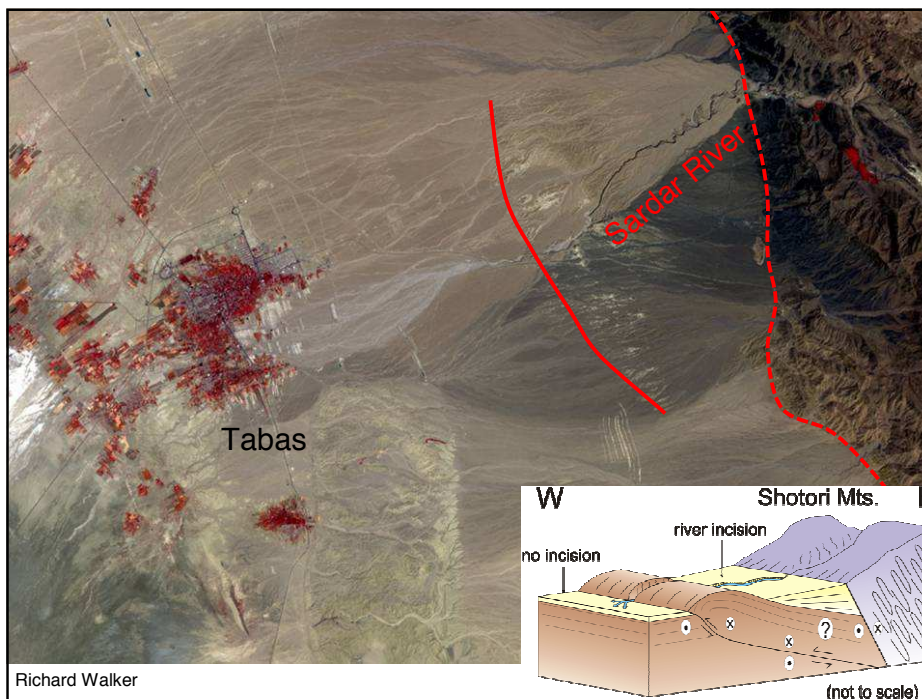
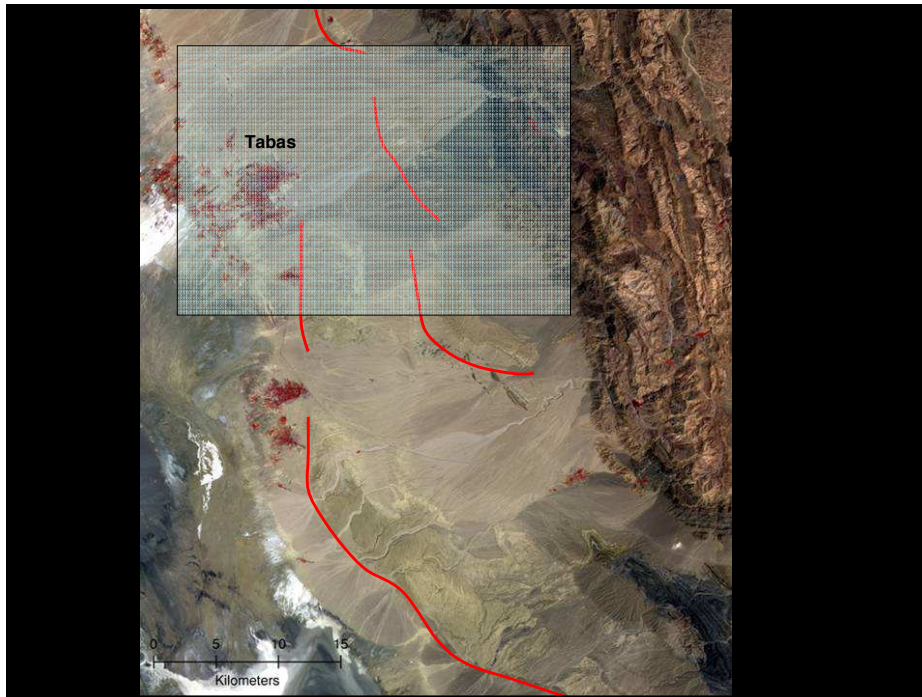


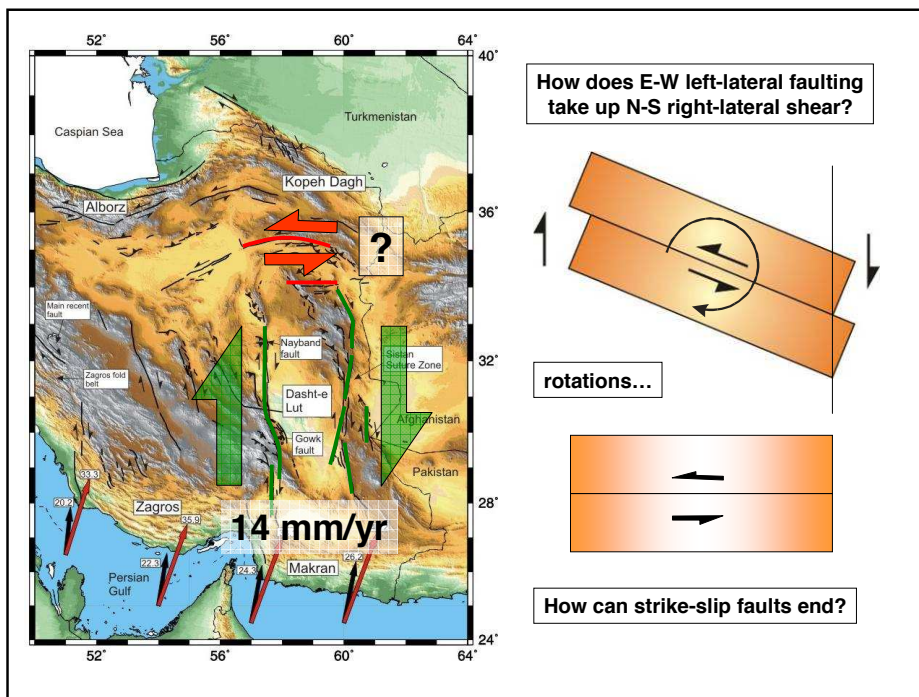
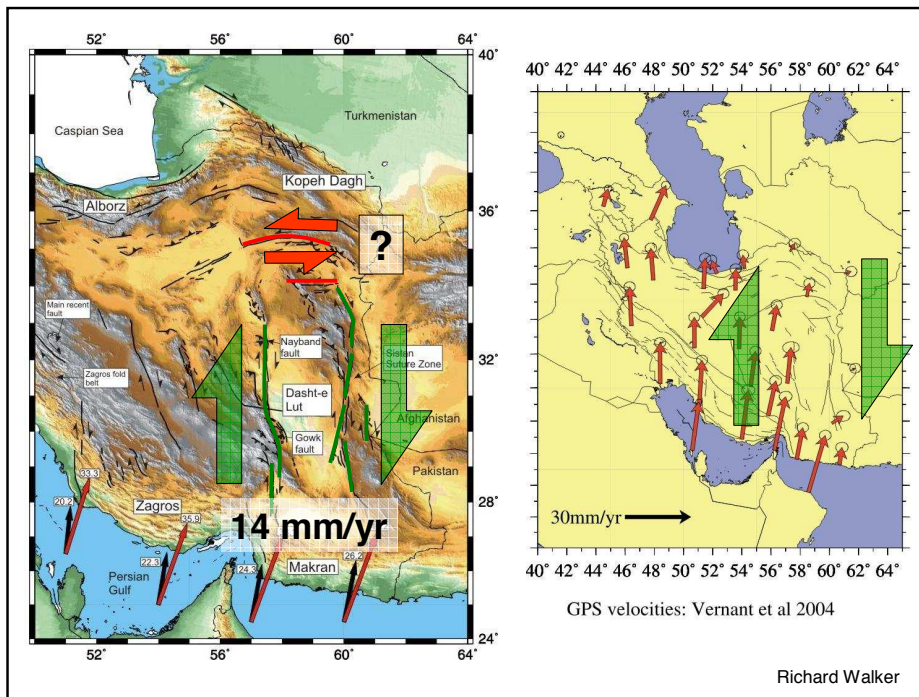
1968 Dasht-e-Bayaz M7.1



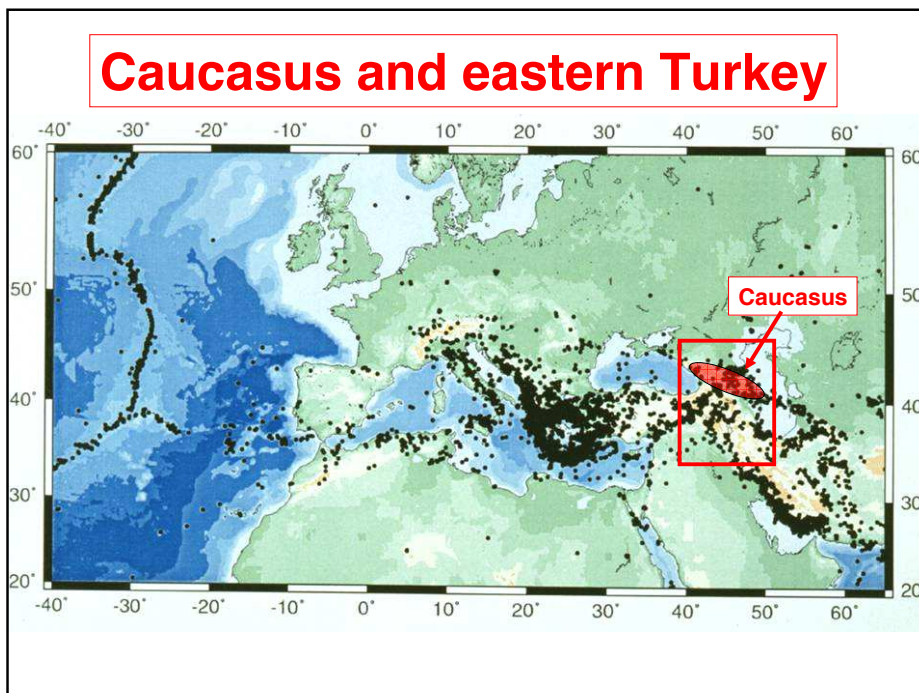
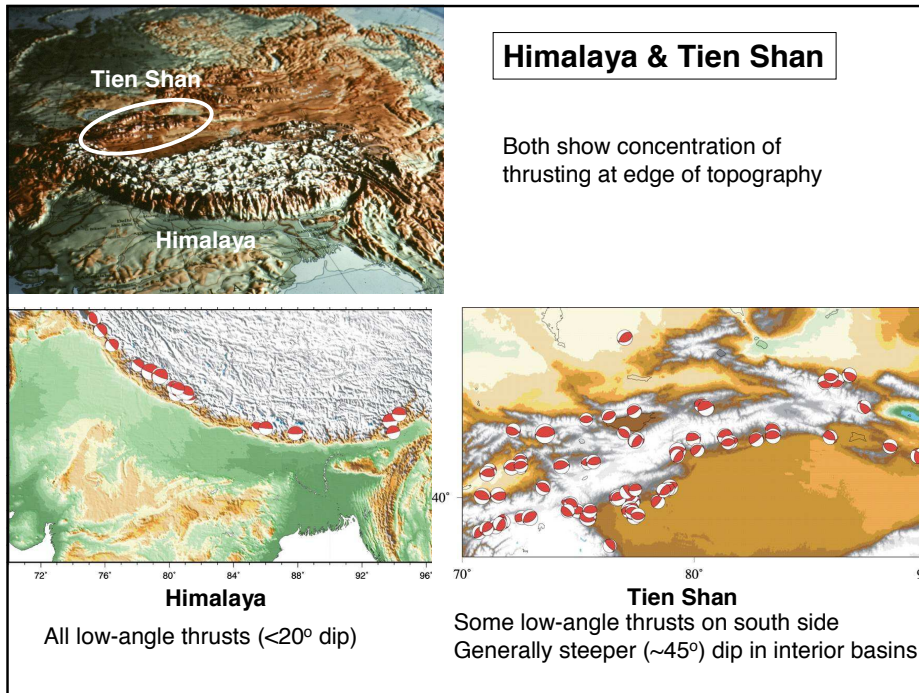




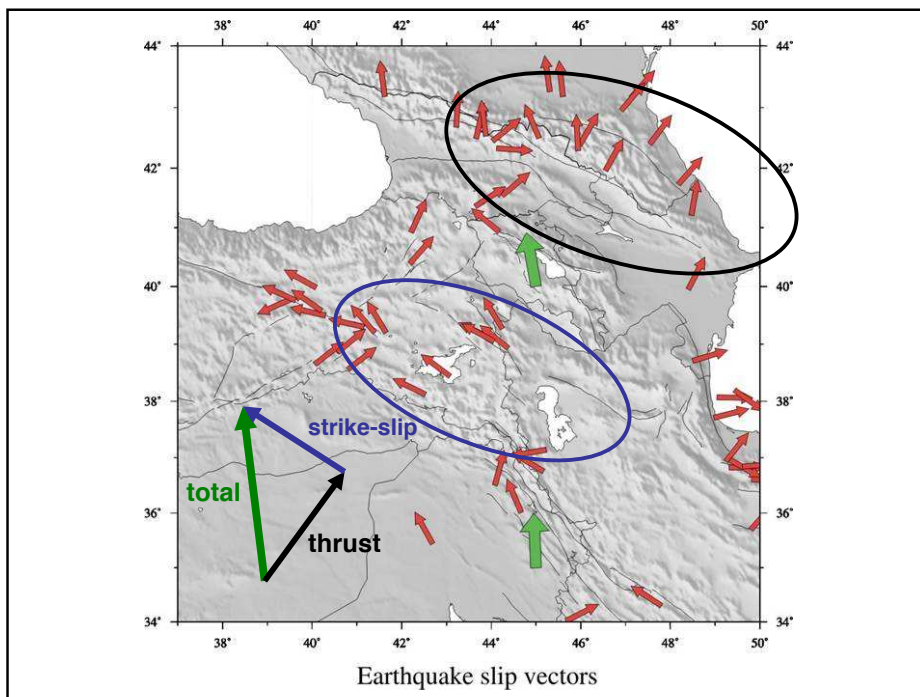
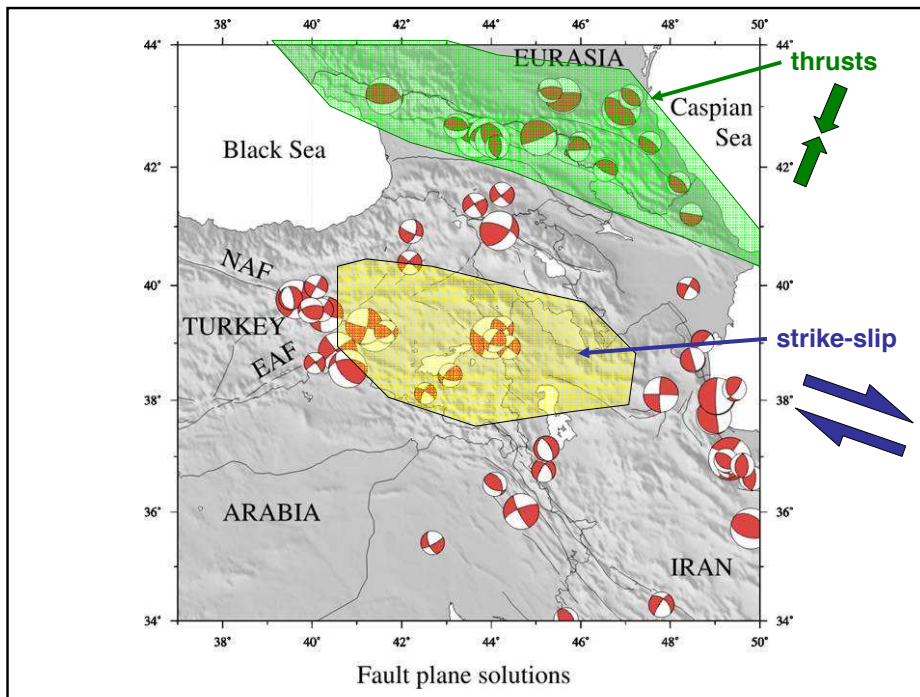


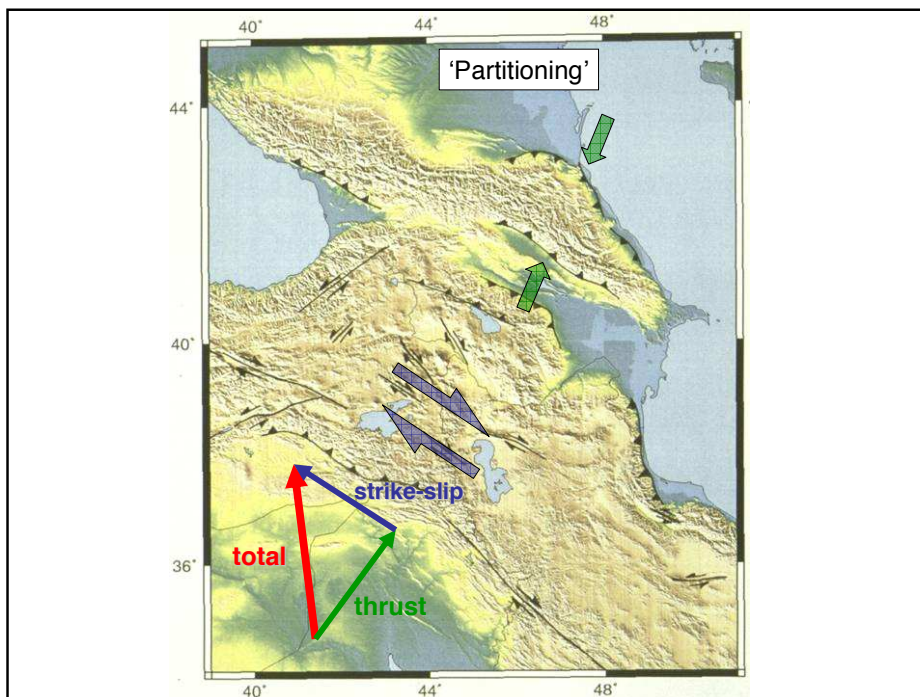
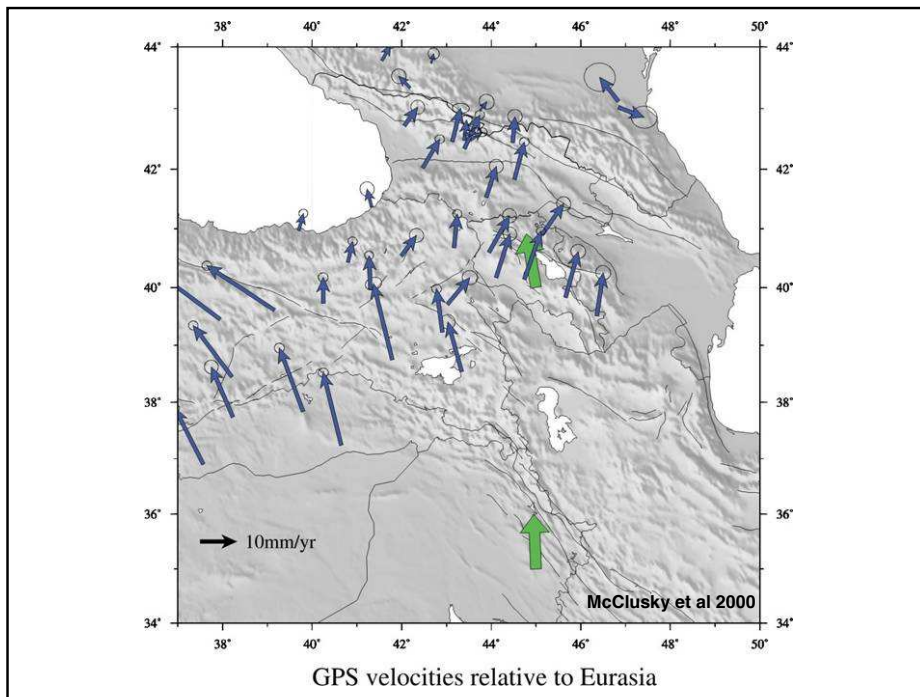




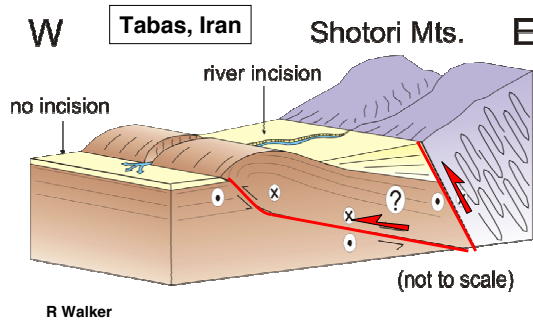
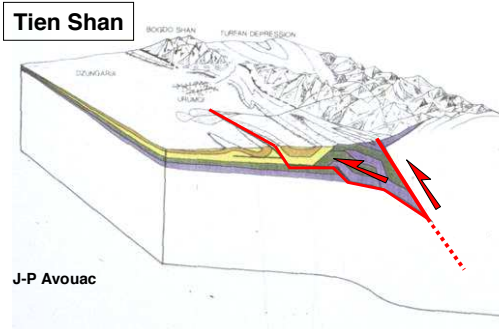
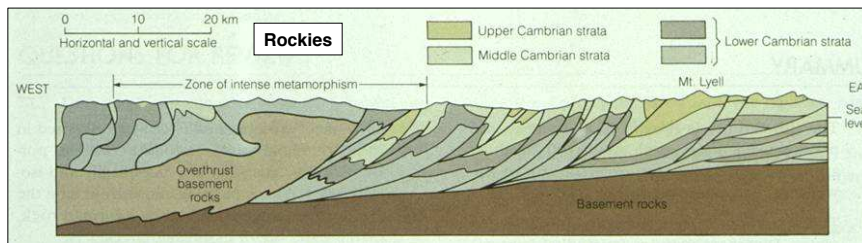
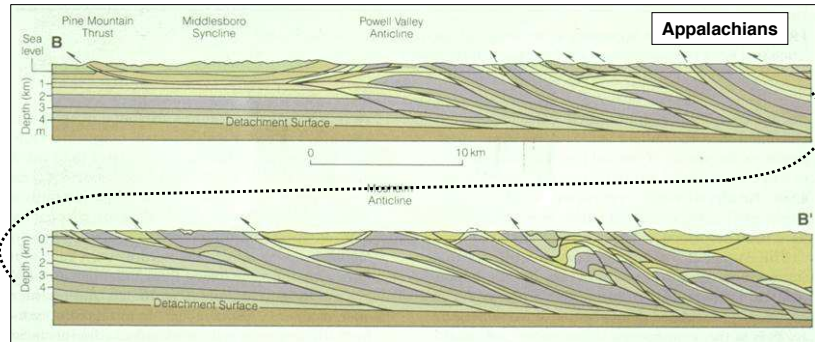




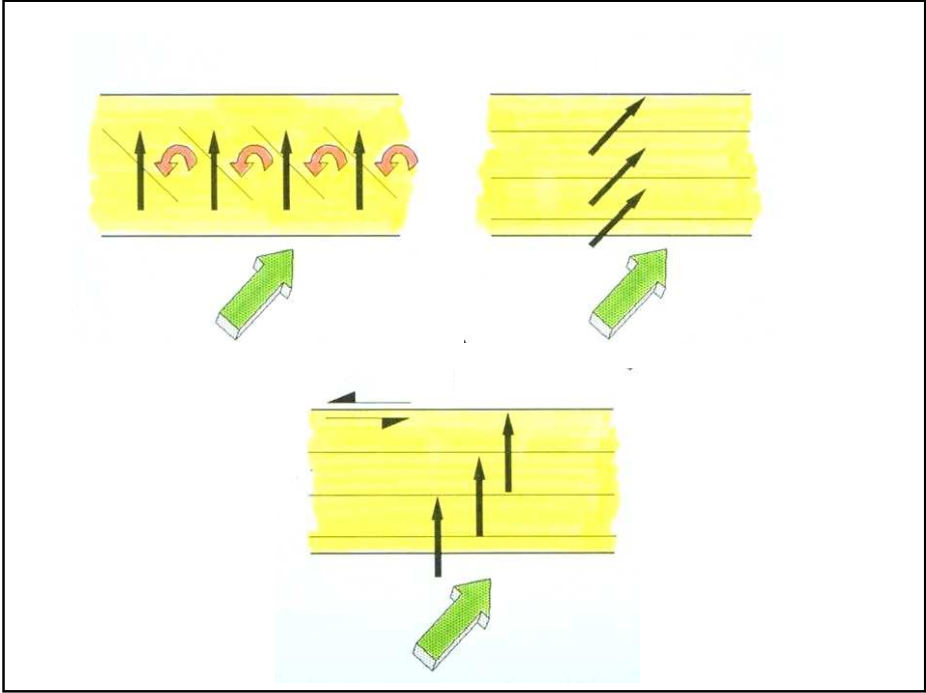
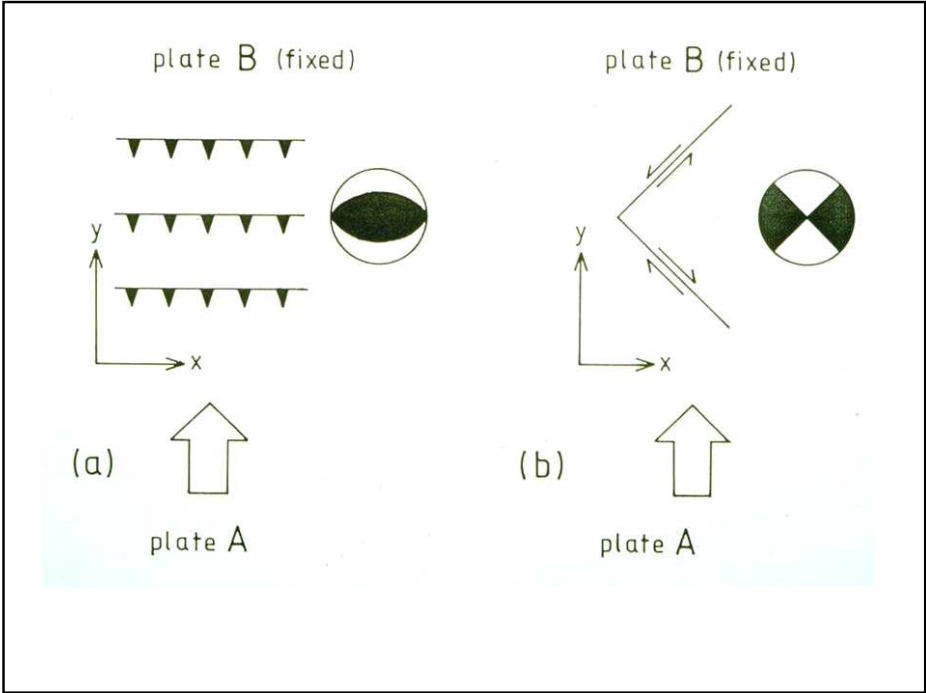




# 'Thin-skinned' tectonics?

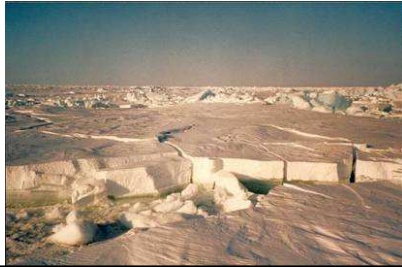






## Principles

1. **No evidence for subduction** (deep earthquakes) of continental crust
2. Importance of **strike-slip** in shortening (partitioning, rotations)
3. **High-angle vs. low-angle** thrusting
4. **Basement vs. thin-skinned** faulting
5. Variety of shortening styles: knowing overall motion is not enough
6. **Reactivation** of sutures and older faults
7. Influence of **topography** in localizing deformation



What matters?

seismogenic layer?

mantle?

faults?