

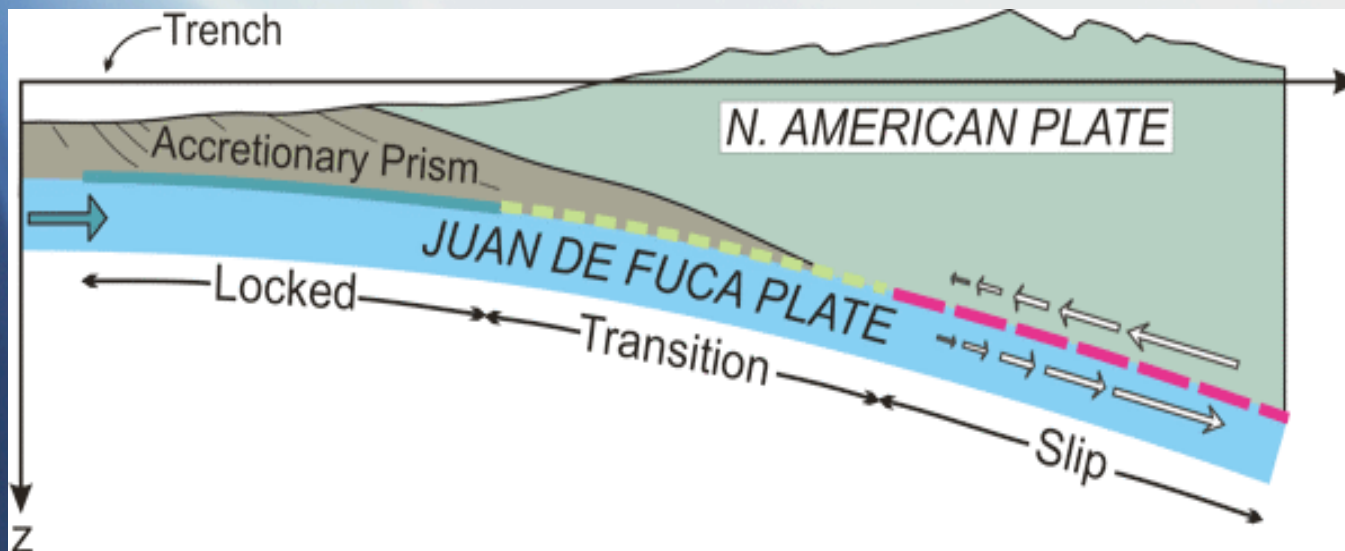
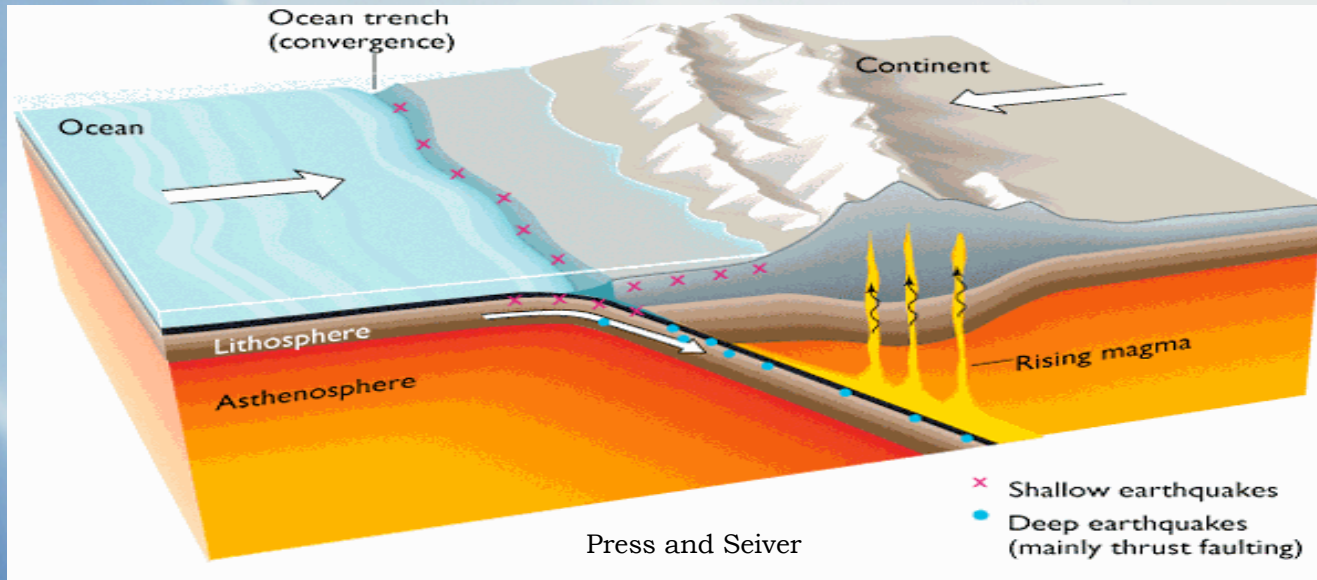
Episodic Tremor and Slip on the Cascadia Subduction Zone: The Chatter of Silent Slip

Garry Rogers and Herb Dragert, *Science* 300, 1942-1943

Shaji Nair

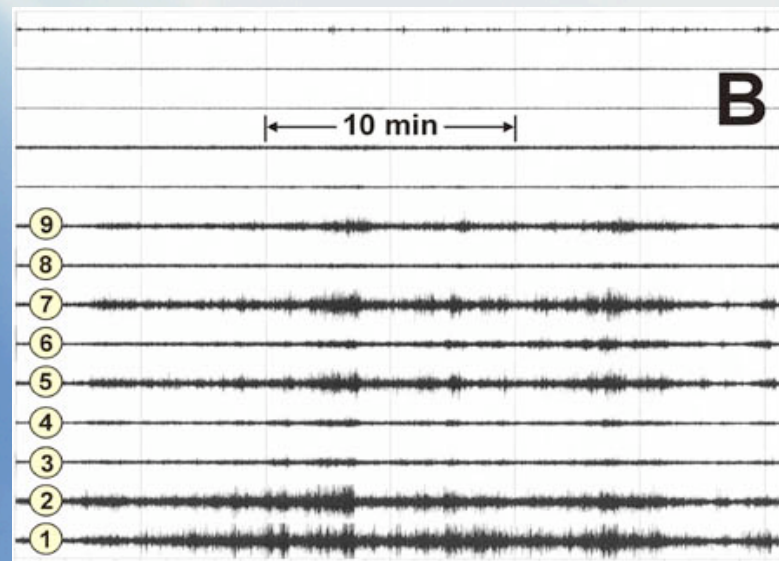
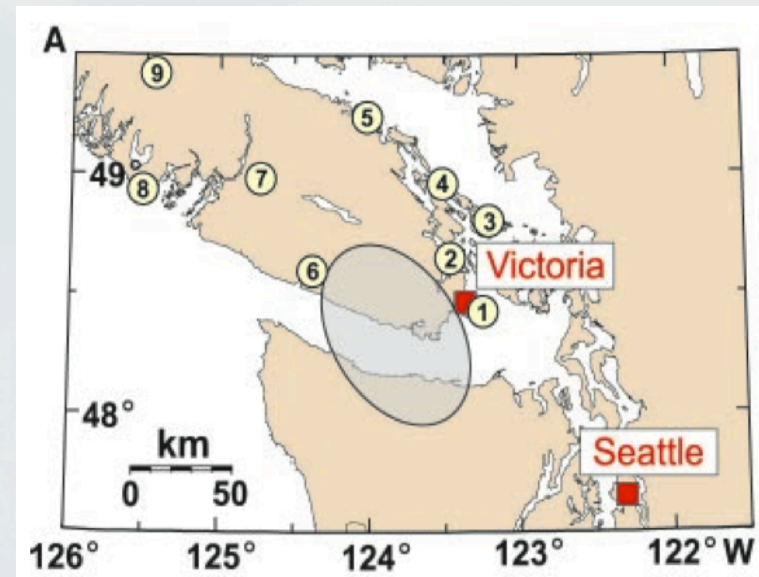
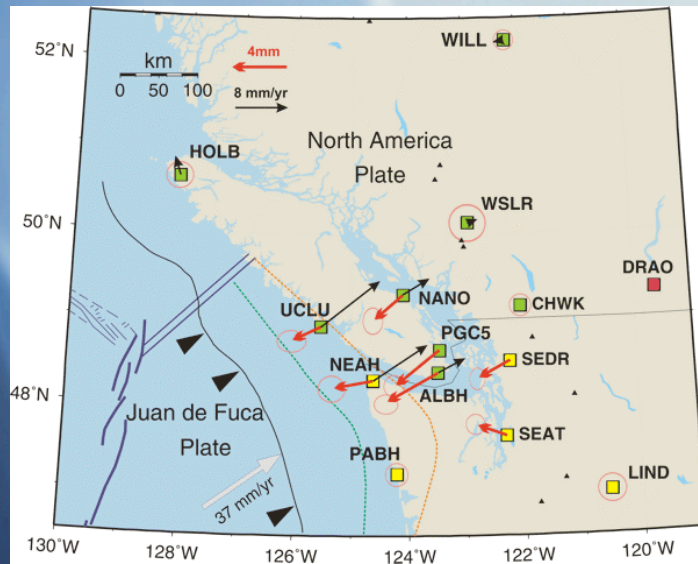
Earthscope Seminar, January 2007

Motivation: Creep at depth



Data:

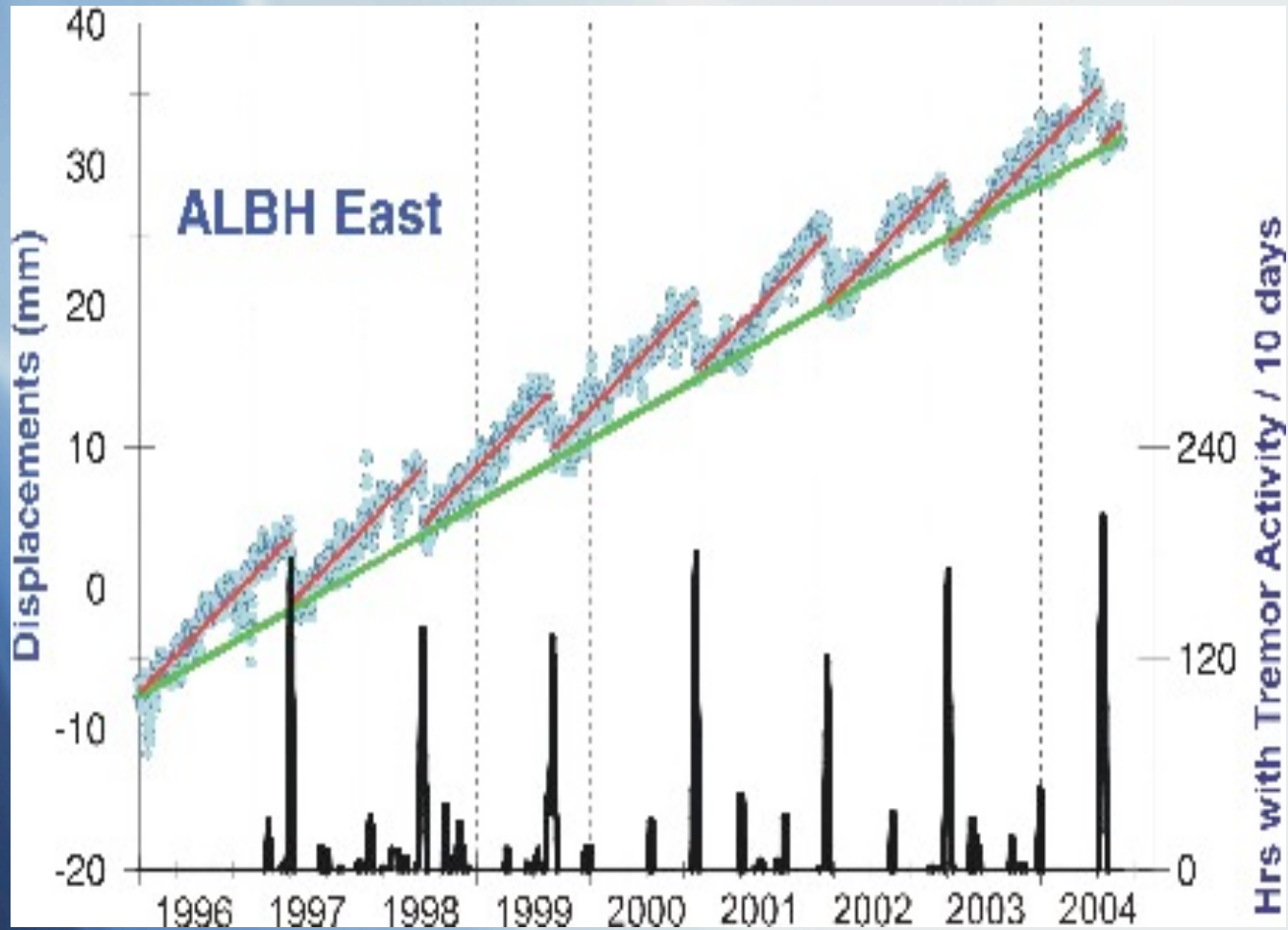
Surface Deformation and Seismic data



Method:

- Duration and timing of slip estimated by cross-correlation of E-W component of GPS data with an average slip time series.
- Seismic data for corresponding times checked to late tremors associated with slip.

Results



Results:

- Sustained tremor activity on southern Vancouver Island coincides with the occurrence of slip.
- No substantial activity found outside the time window of slip events.

Implications:

- Fluids from the subducting slab may be contributing to the ETS events.
- The tremor like seismic events can be used as an indicator of the occurrence of slip.
- Onset of ETS events could be indicative of higher stress increasing probability of megathrust earthquakes.

Additional Thoughts:

- Does ETS events differ from dehydration of subducting slabs?
- If observation of slip from geodetic data is unavailable, is it possible to locate these seismic tremors?
- What could be other possible sources of the episodic tremors if not fluids?