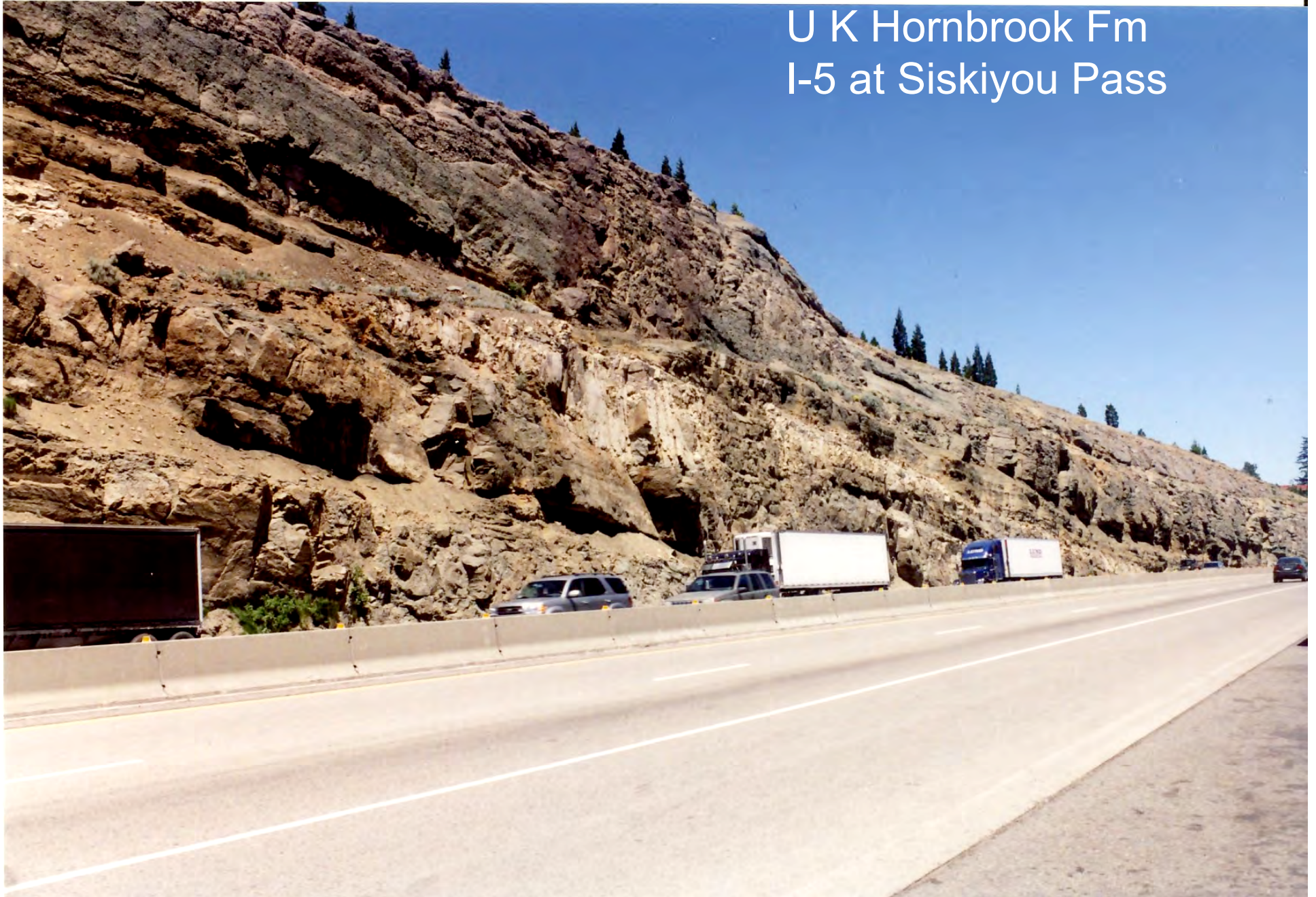


Figure 10.22
 Press and Siever: *Understanding Earth*



Grand Canyon, AZ: view to the south from the North Rim

U K Hornbrook Fm
I-5 at Siskiyou Pass





Eocene Coaledao Fm, Ocean Shores St Pk, Oregon



Teton Fault, Jackson Hole, Wyoming

Grand Tetons, Jackson Hole, Wyoming



60,000' above surface, north central Idaho



borah peak id

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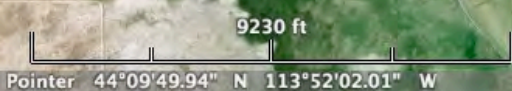
© 2010 Google

3.00 mi
Pointer 44°09'49.94" N 113°52'02.01" W

Streaming 100%

Eye alt 10.37 mi

30,000' above surface



Pointer 44°09'49.94" N 113°52'02.01" W

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Streaming ||||| 100%

Eye alt 31907 ft



15,000' above surface

4308 ft

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Pointer 44°09'49.94" N 113°52'02.01" W

Streaming | 100%

Eye alt 14898 ft



7,500' above surface

2185 ft

Pointer 44°09'49.94" N 113°52'02.01" W

Streaming ||||| 100%

Eye alt 7557 ft

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3,200' above surface

926 ft

Pointer 44°09'49.94" N 113°52'02.01" W

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Streaming 100%

© 2006 Google

Eye alt 3203 ft

Borah Peak EQ
M 6.9
28 Oct 1983



Borah Peak, Idaho





ISS015E13235

Steens Mountain

Steens Mountain

<http://www.flickr.com/photos/twilight/368361422/sizes//in/photosstream/>



Hart Mountain

<http://www.flickr.com/photos/donbrr/3340885964/sizes/o/>





Lakeview Oregon-view to east

Upper Klamath Lake





San Andreas Fault
Carrizo Plain, California



Outcrop Cal 14, west of Palmdale, Ca

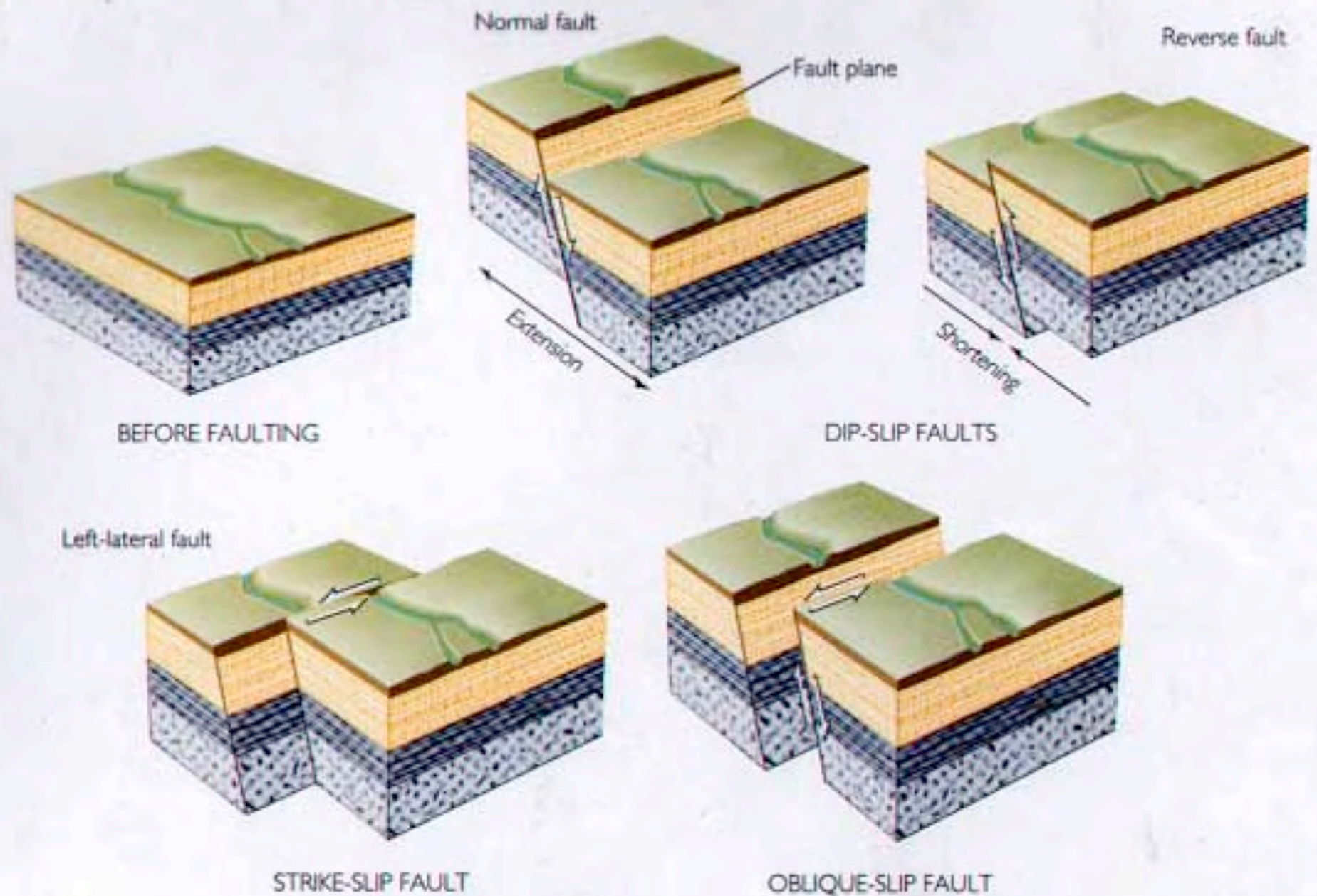


Figure 10.22
 Press and Siever: *Understanding Earth*

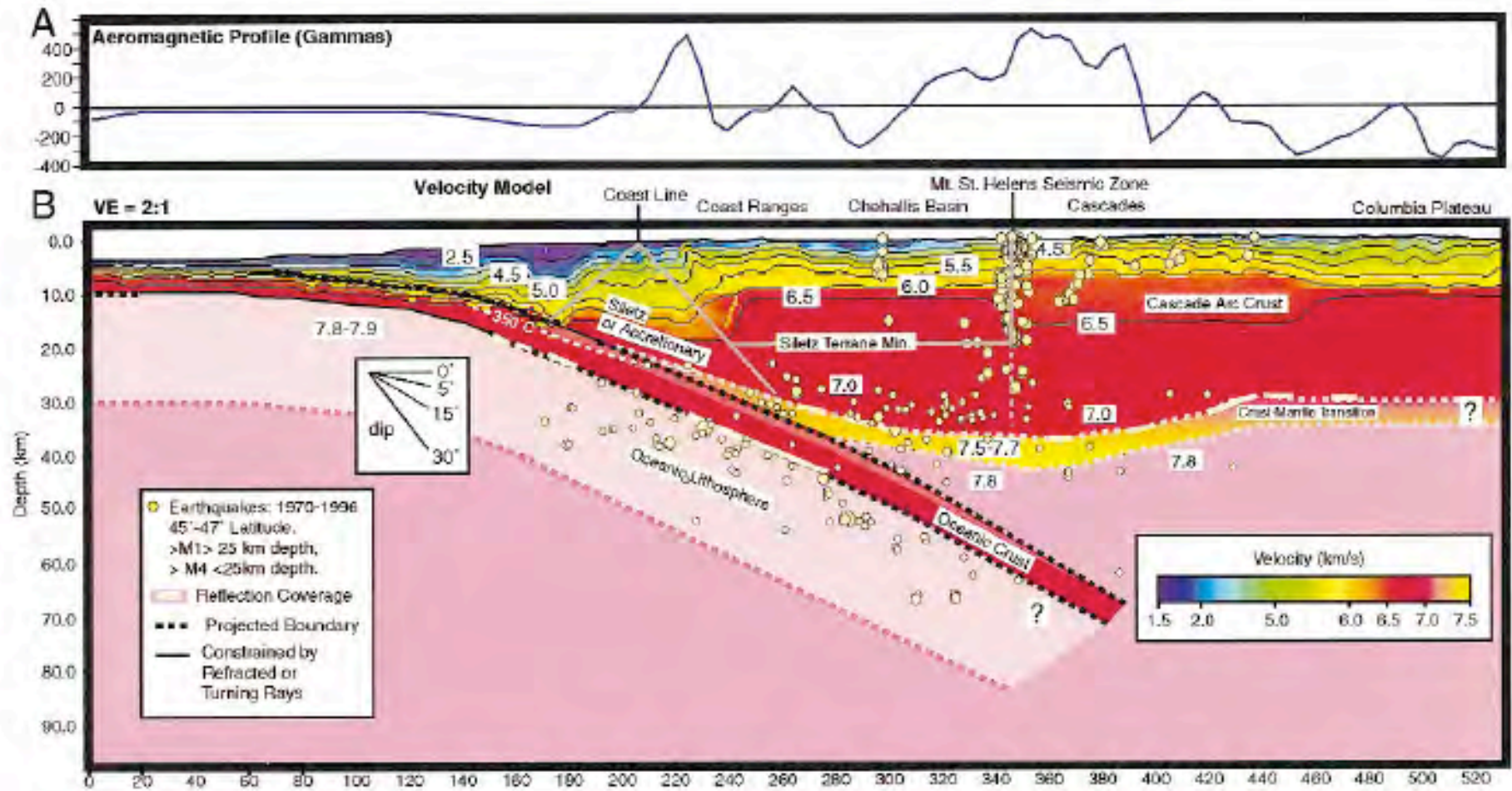
Subduction and Earthquakes on the Oregon Coastal Margin

Observations & Interpretations

- The Subduction Zone
- Offshore Oregon seismic profiles
- Oregon Coast Range Volcanic Units
- The Olympic Mountains Uplift
- Quaternary stratigraphy of coastal estuaries
- Diverse Motions in Cascadia
- Portland Earthquake Hazards

Aeromag & EQ Model of Cascadia Subduction Zone

- Parsons et al (1998)
- A new view into the Cascadia subduction zone and volcanic arc: Implications for earthquake hazards along the Washington Margin
- Geology v 26 pp 199-202.

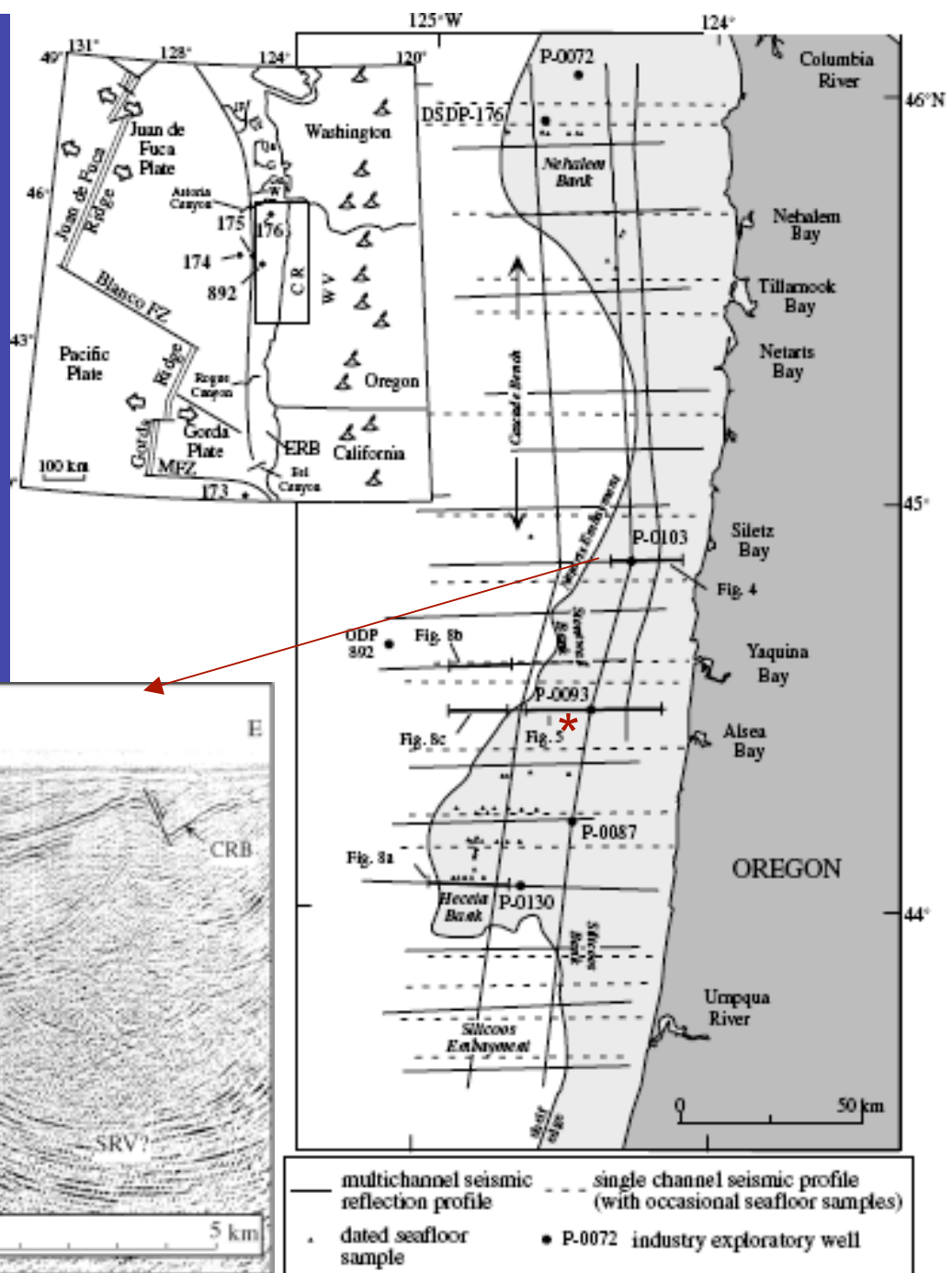
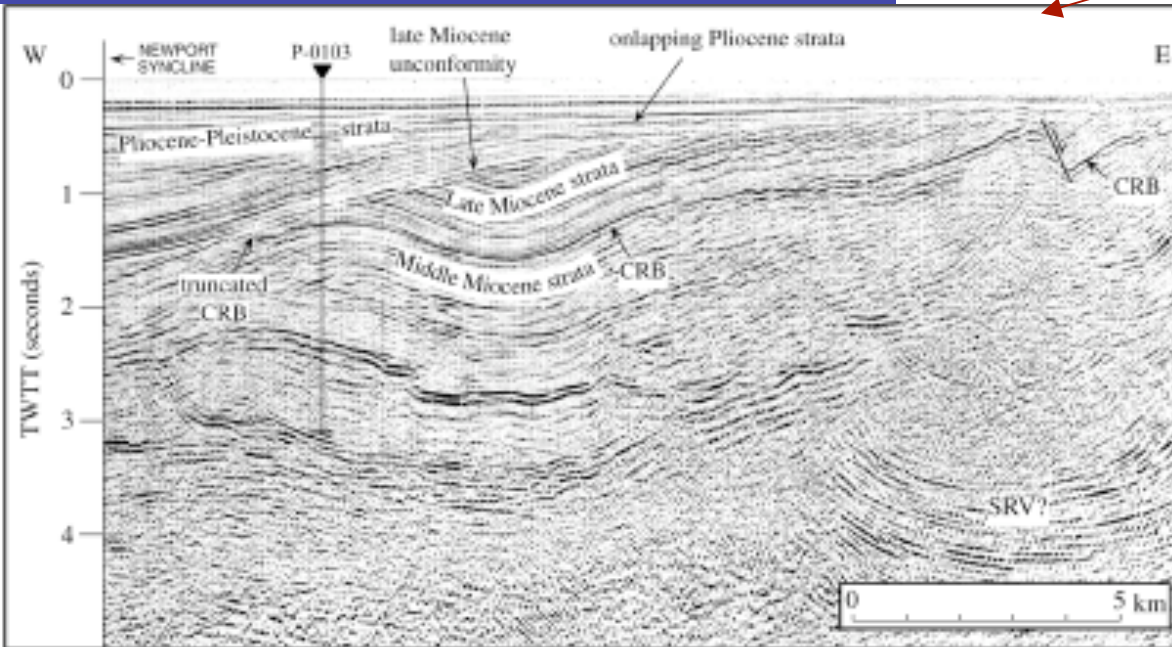


Tectonics of the Neogene
Cascadia forearc basin:
Investigation of a deformed
late Miocene unconformity

McNeil et al 2000

GSA Bulletin pp. 1209-1224.

(What do we see offshore?)



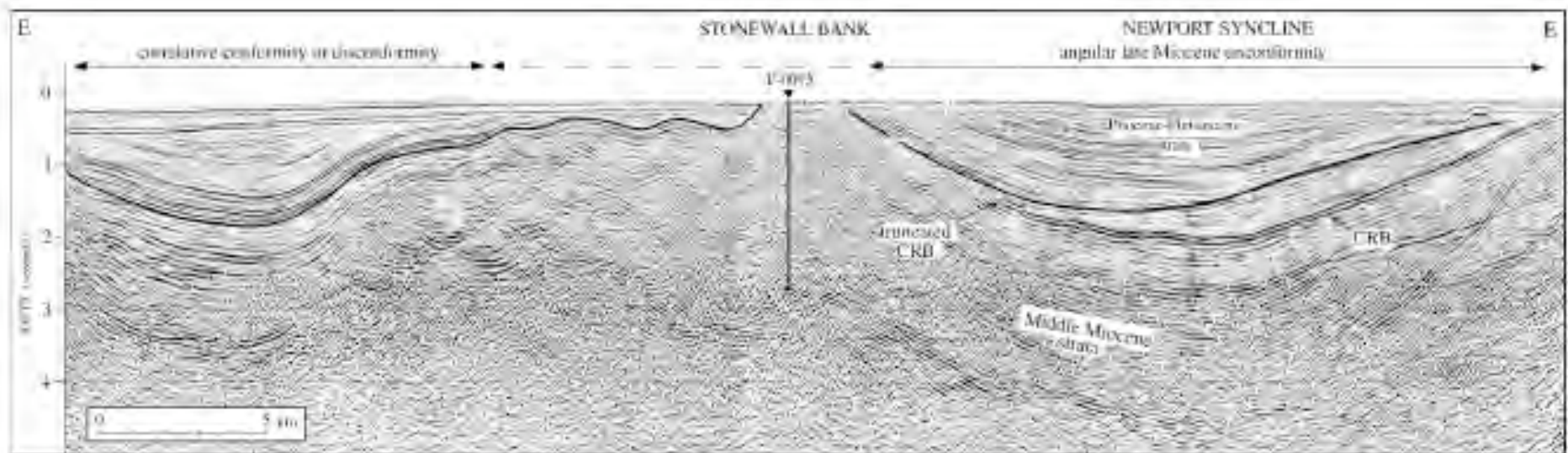
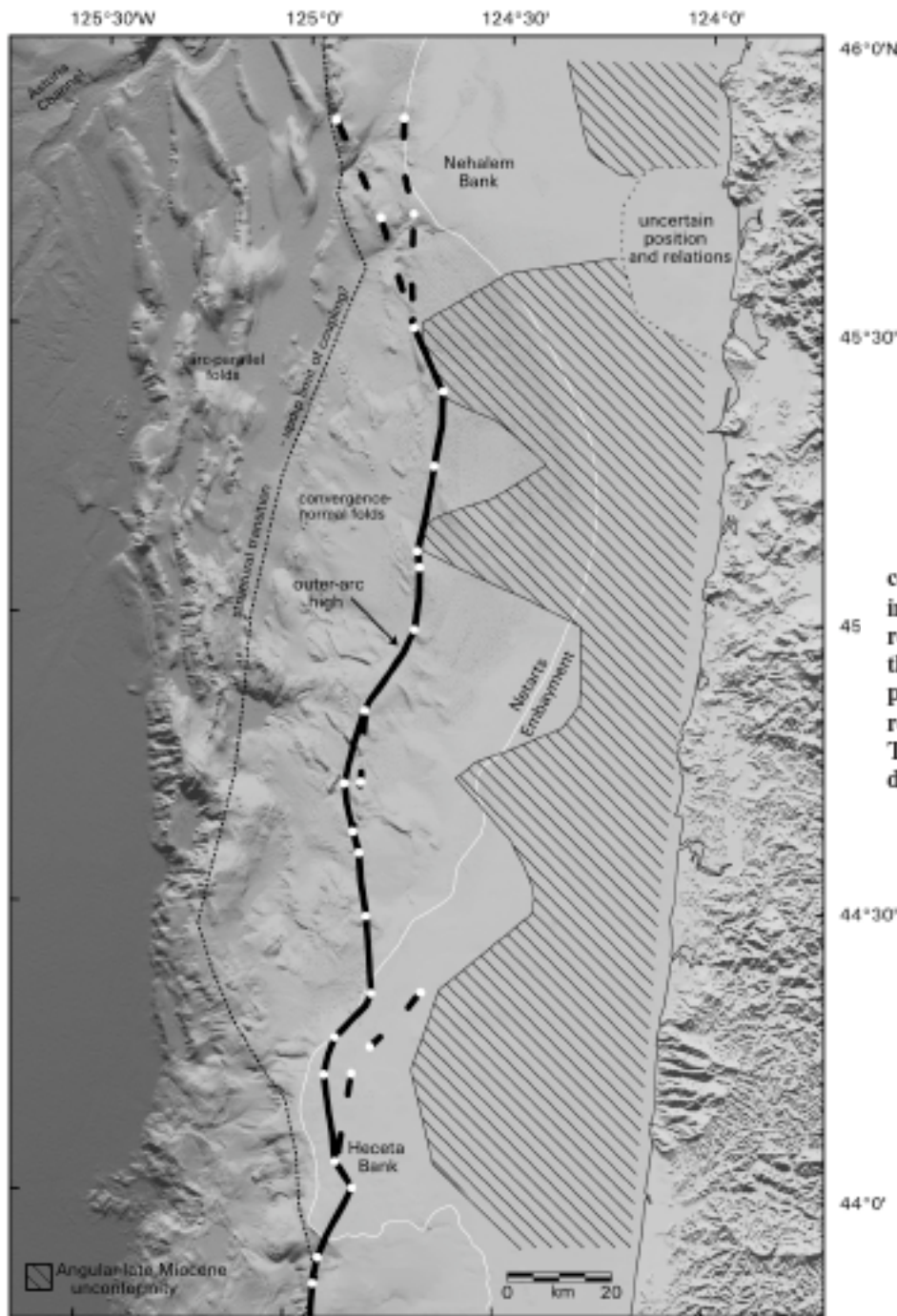


Figure 5. East-west multichannel seismic reflection profile across the continental shelf at Stonewall Bank west of Alsea Bay (Fig. 1). The late Miocene unconformity (bold black line) is angular landward of Stonewall Bank anticline, slightly angular just west of the bank where small wavelength folds are truncated, and conformable or disconformable seaward of these folds. This profile typifies the character of the unconformity from east

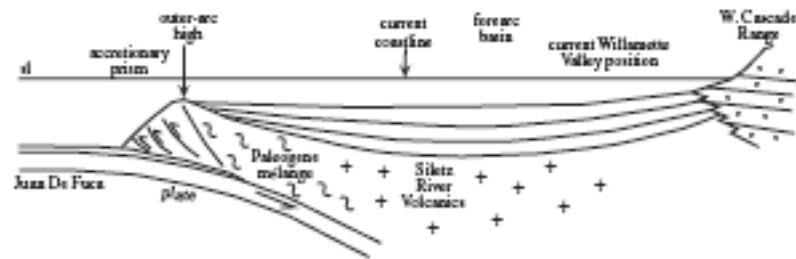
to west. Note that the unconformity truncates the late Miocene Columbia River Basalt flow (CRB) just east of well P-0093. Pliocene sediments onlap landward at a very low angle at the eastern end of the profile and are parallel to the unconformity elsewhere, indicating little relief on the unconformity at the time of erosion. After Yeats et al. (1998).



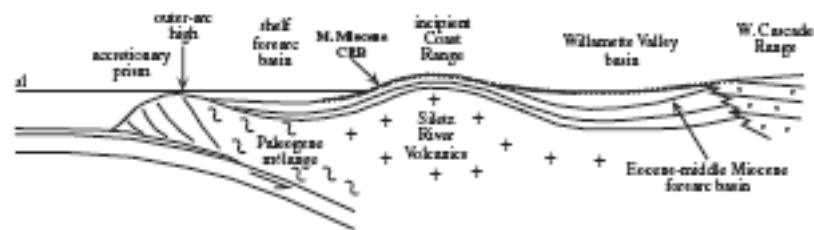
46°0'N
45°30'
45
44°30'
44°0'

Figure 3. Extent of the late Miocene unconformity and correlative seaward conformity or disconformity overlying shaded relief bathymetry base map of the Oregon margin. Diagonal lines indicate where the unconformity is clearly an angular unconformity. Elsewhere, the correlative reflector is nonangular or partially angular but can still be traced as a continuous reflector to the outer arc high. White line represents present-day shelf break. Thick black line indicates the position of the outer arc high marking the seaward extent of the forearc basin, white dots represent positions on seismic profiles, dashed lines indicate alternative outer arc high positions. Thin dashed line represents a topographic break and change in fold orientation which may indicate the seaward extent of interplate coupling (Goldfinger et al., 1996b).

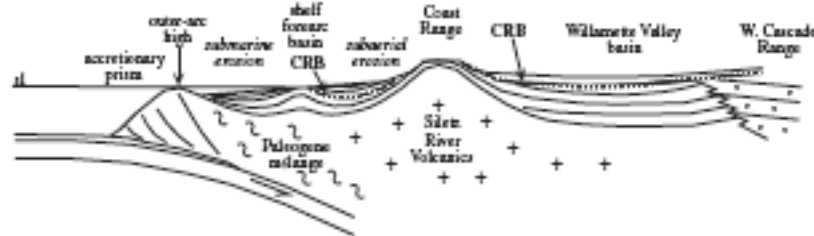
A > 20 Ma - Willamette Valley and shelf basin connected, pre-major Coast Range uplift



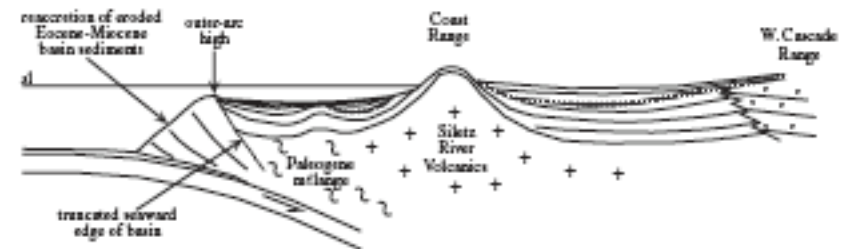
B 16.5-15 Ma - Broad folding of Columbia River Basalt (CRB), incipient Coast Range uplift



C 7.5-6 Ma - late Miocene erosion (tectonic uplift, eustatic lowstand)



D Early-Mid Pliocene - basin filling, truncation of seaward basin, formation of new outer-arc high farther landward



E ~1.3-1.4 Ma - Outer-arc high breached, sediments bypass continental shelf, submarine canyon and fan incision, accretionary prism growth

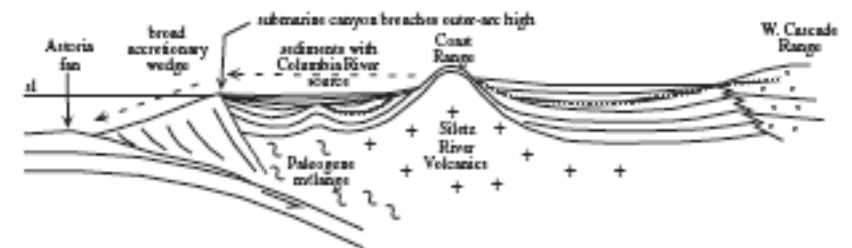


Figure 9. Neogene tectonic history of the central Cascadia forearc depicted by time slice cross sections of the central Oregon forearc from the Cascades to the deformation front. Stratigraphy and topographic features are generalized for the central Oregon forearc. (A) The Willamette Valley and shelf basins connected prior to major uplift of the Coast Ranges (with local highlands existing). (B) Columbia River Basalt emplacement and incipient Coast Range uplift. (C) Erosion of the late Miocene unconformity. (D) Pliocene basin filling and truncation of the seaward edge of the offshore basin. (E) Shelf basin filling and submarine fan formation in the Pleistocene.