

Is the Seattle uplift a roof duplex?

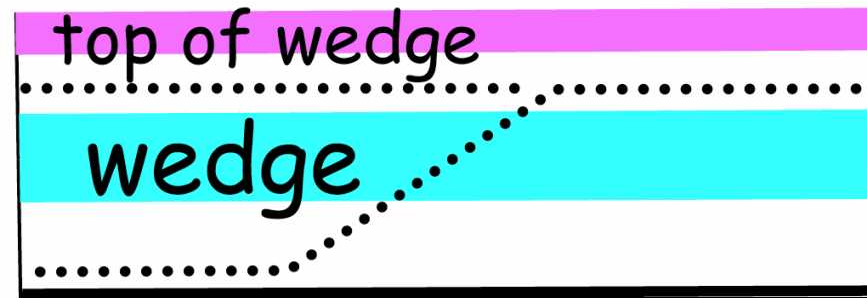
Tom Brocher, Rick Blakely, and
Ray Wells

U.S. Geological Survey
Menlo Park, California

Brocher, T.M., R.J. Blakely,
and R.E. Wells, 2004,
Interpretation of the Seattle
uplift, Washington, as a
passive roof duplex, *Bull.*
Seism. Soc. Am., 94, 1379-
1401.

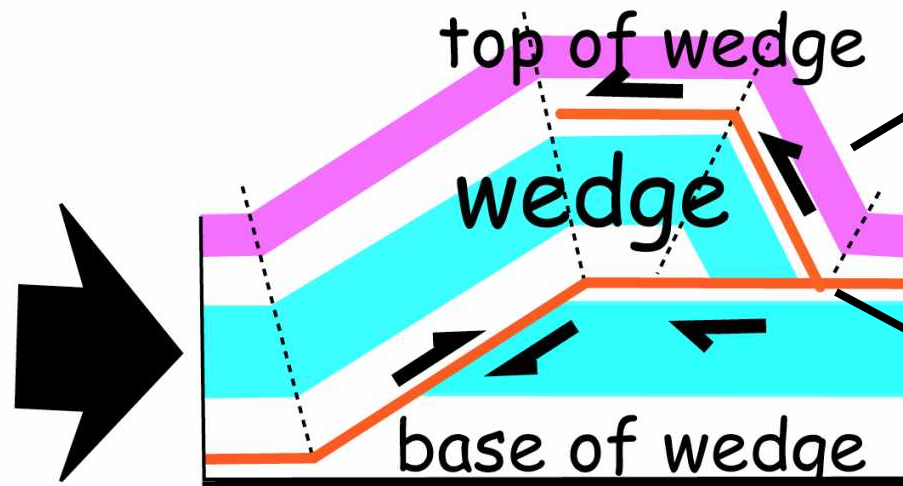
What's a roof duplex?

Before shortening



One sided fold (monocline)

After shortening



Wedge tip

A modified fault-bend fold, sometimes called a triangle wedge or a triangle zone

Key Points

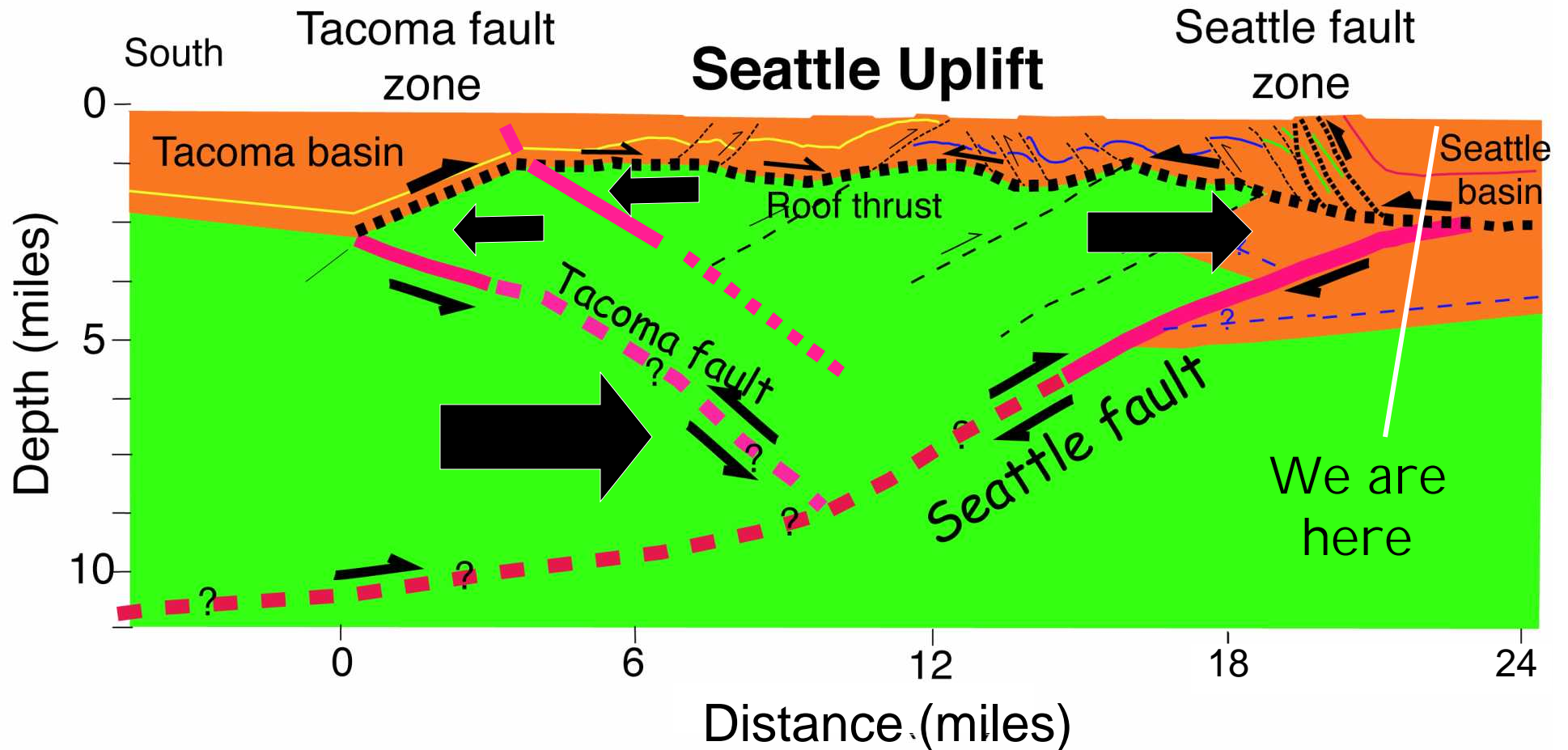
- Seattle and Tacoma faults are blind thrusts
- Both faults are overlain by shallow roof thrusts
- Continuity of shallow folding implies existence of shallow roof thrust all along Seattle Uplift
- Shallow north-dipping thrust faulting along Seattle fault zone roots into the shallow roof thrust
- Many of these thrusts are bedding plane thrusts
- Leading edge (wedge tip) of Seattle fault is located north zone of N-side up thrusting

Seattle fault zone

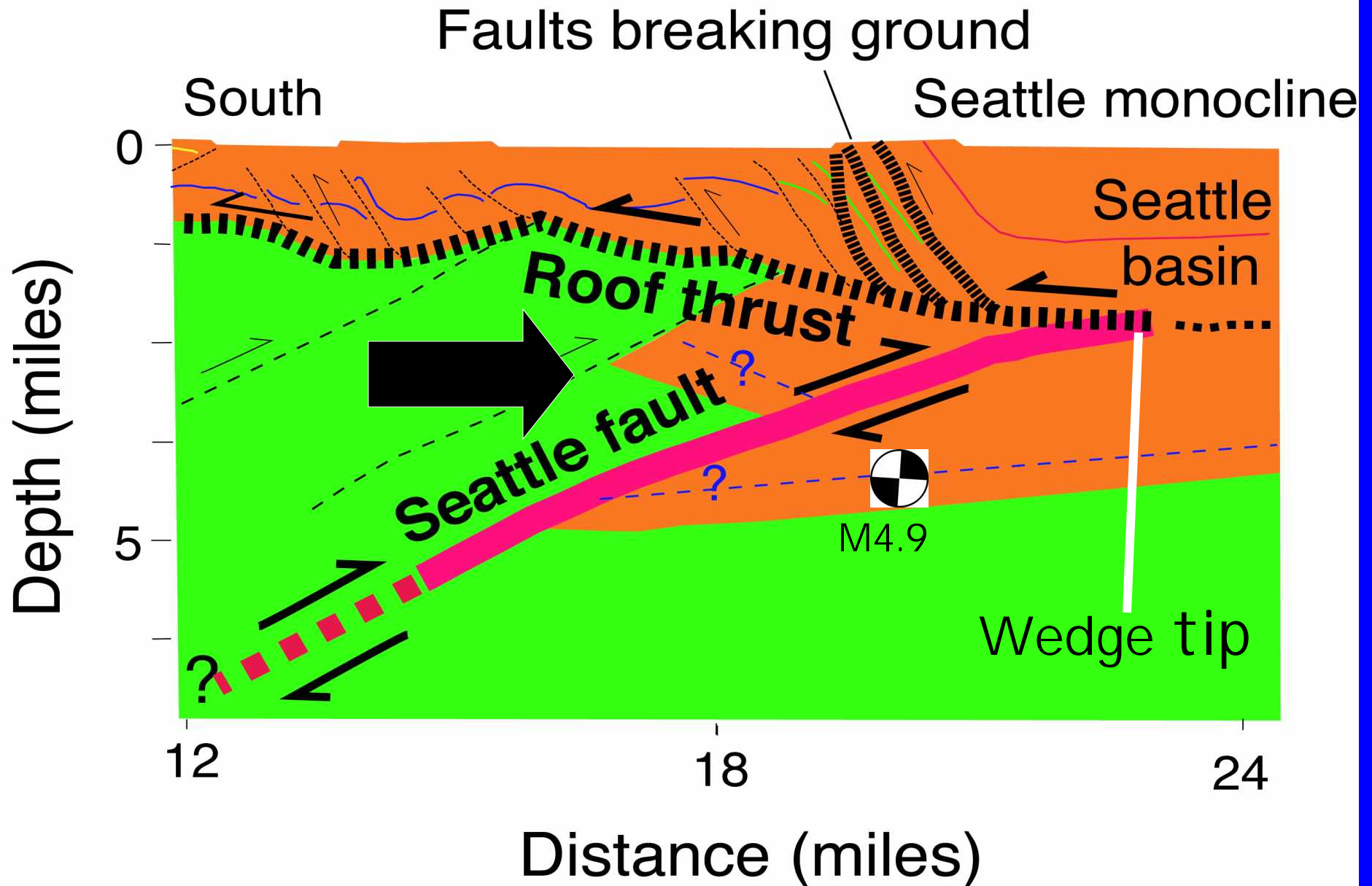


Seattle
fault
zone

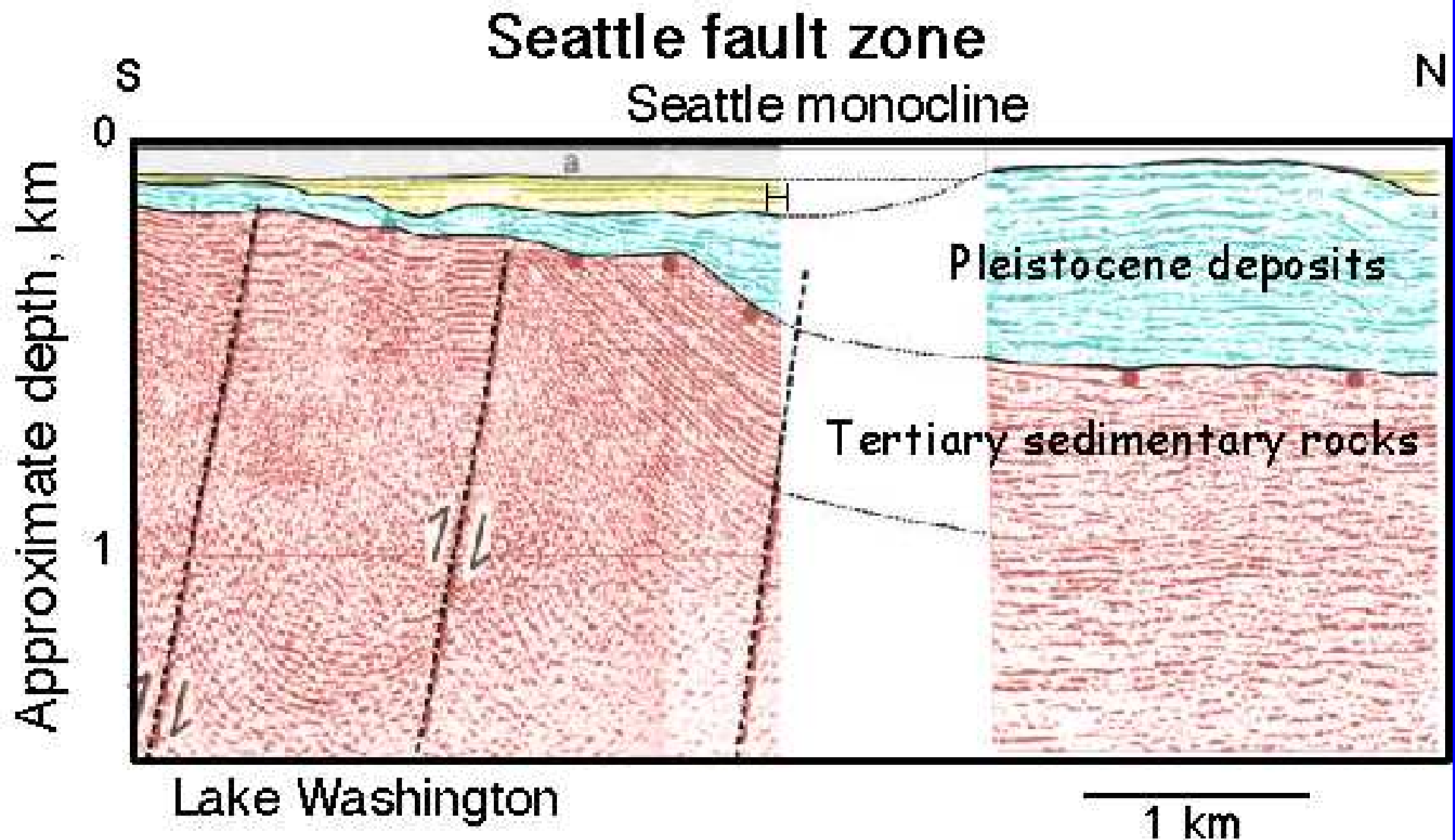
Structural Interpretation



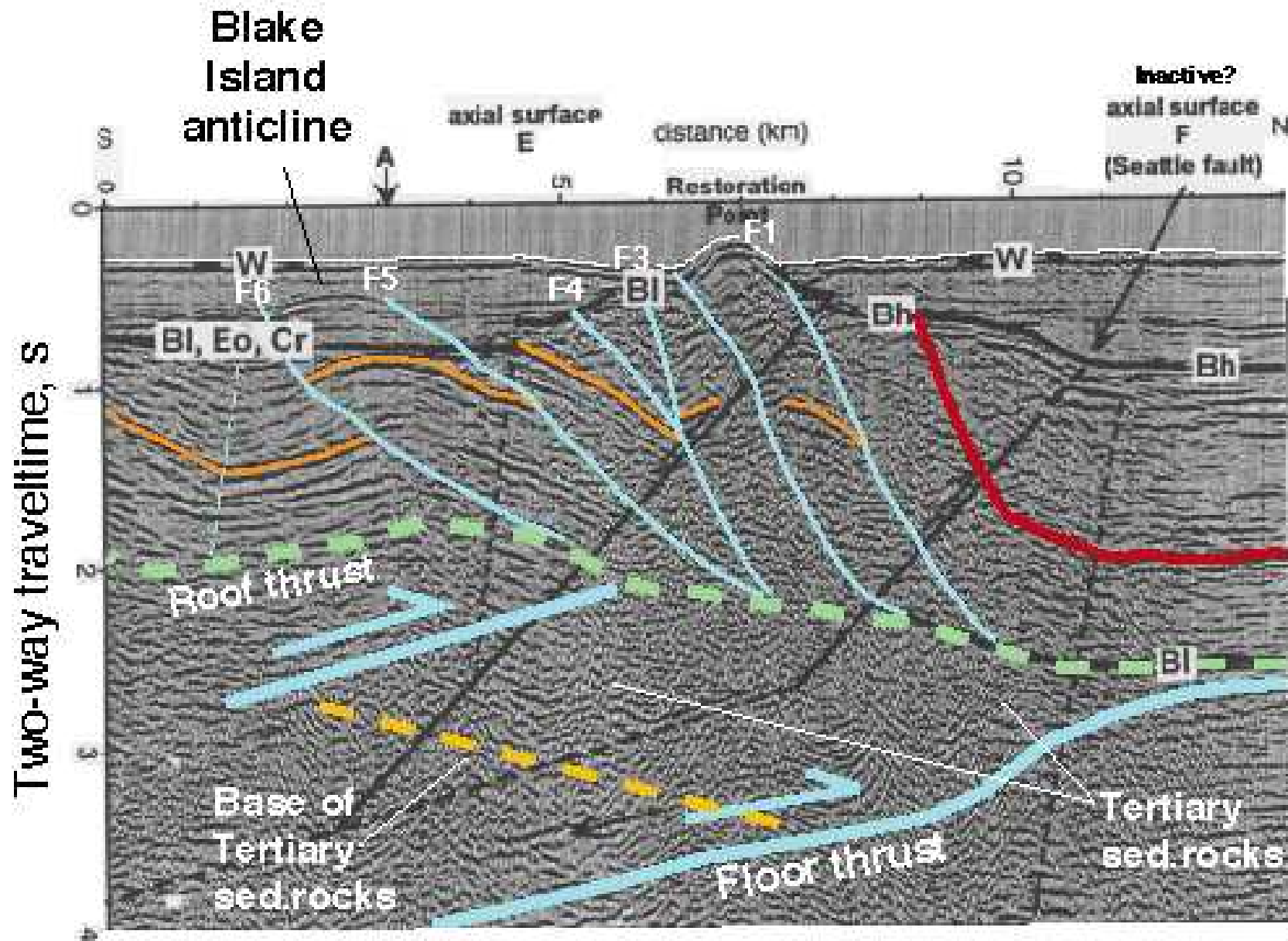
Seattle fault zone

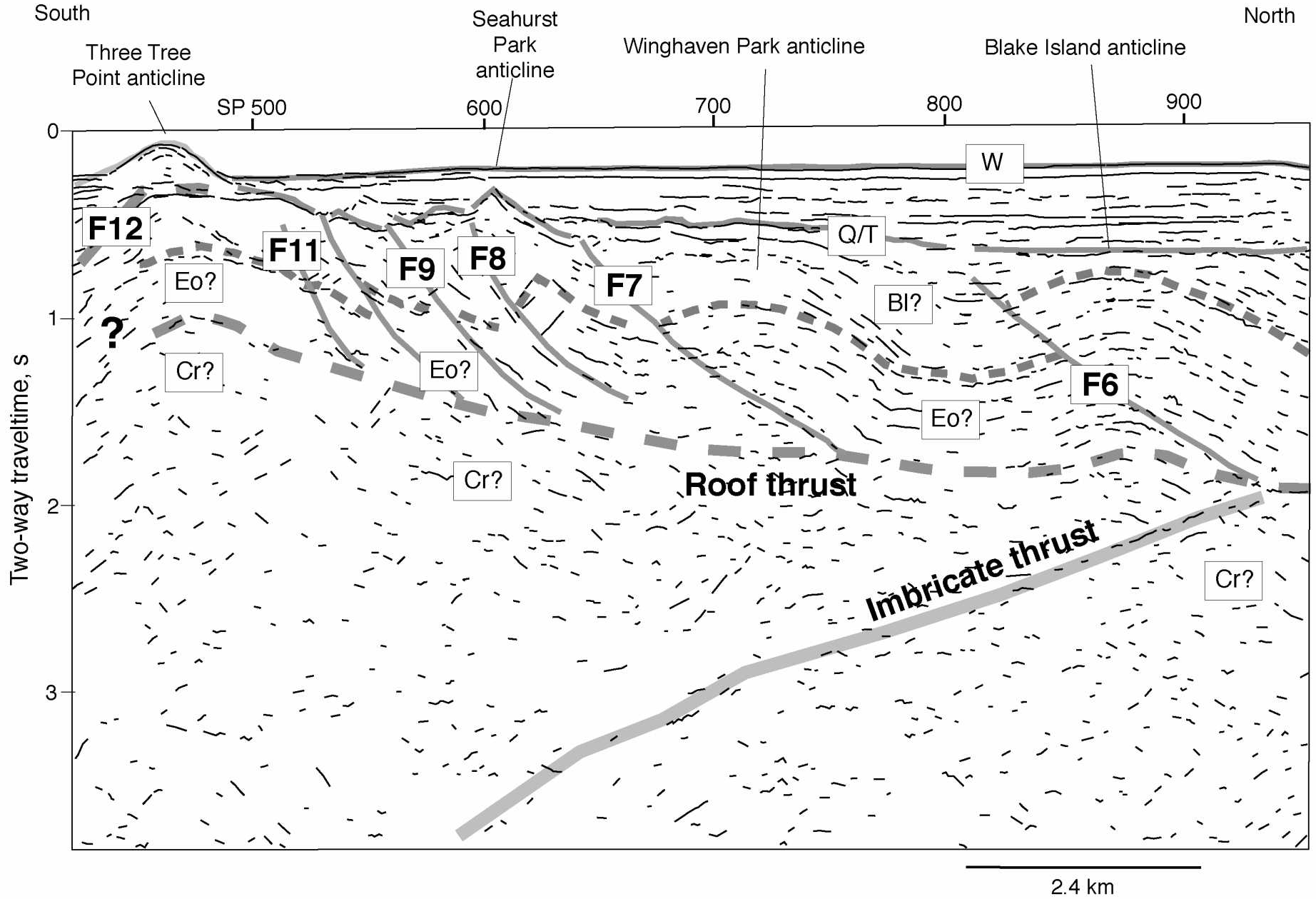


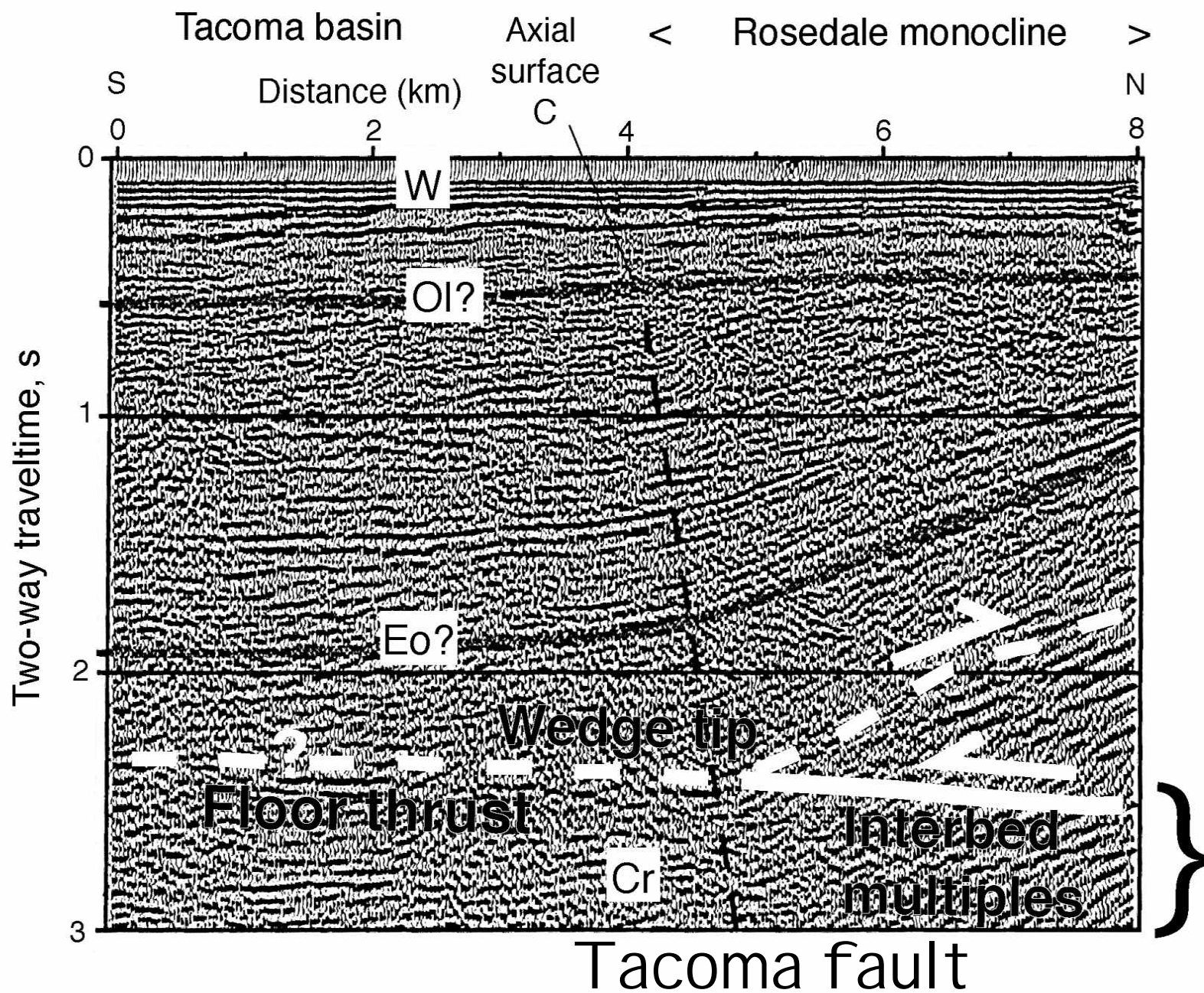
Folding along Seattle fault



Seattle fault and folds

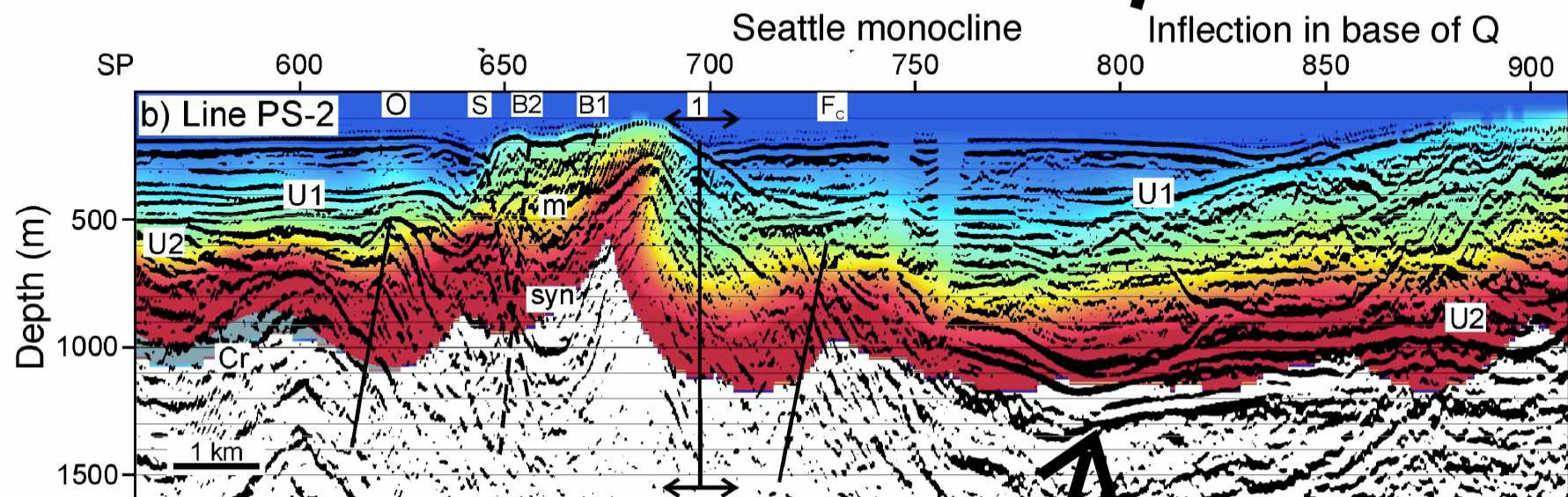
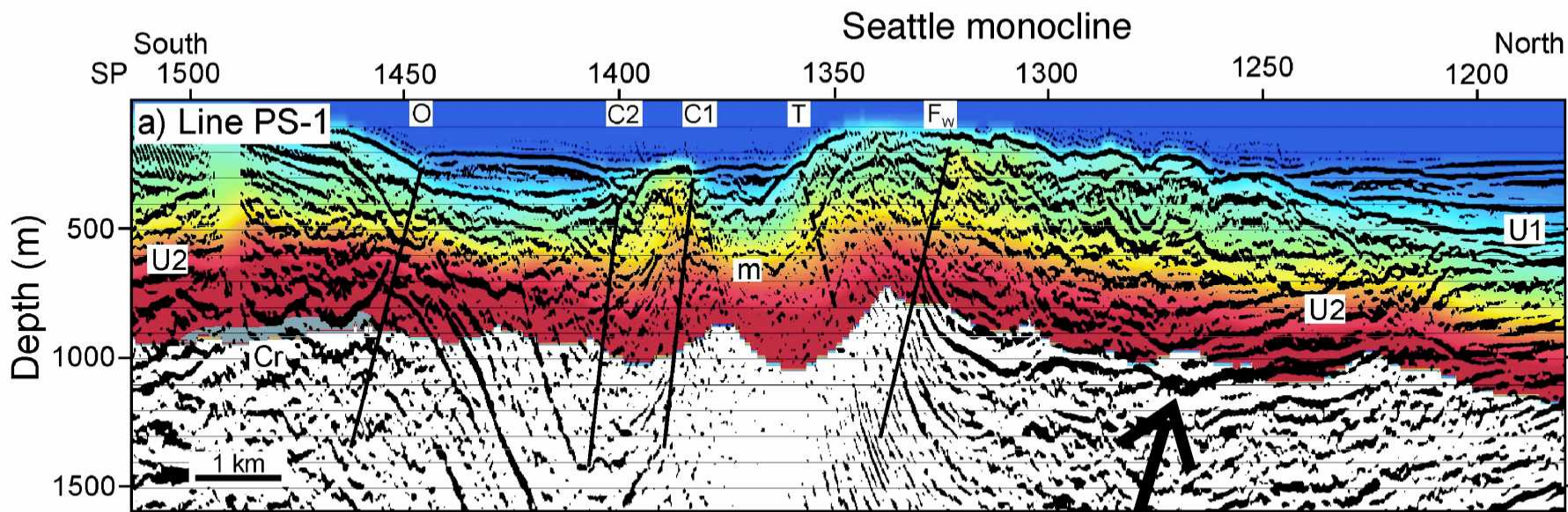






Evidence for Wedge Tip





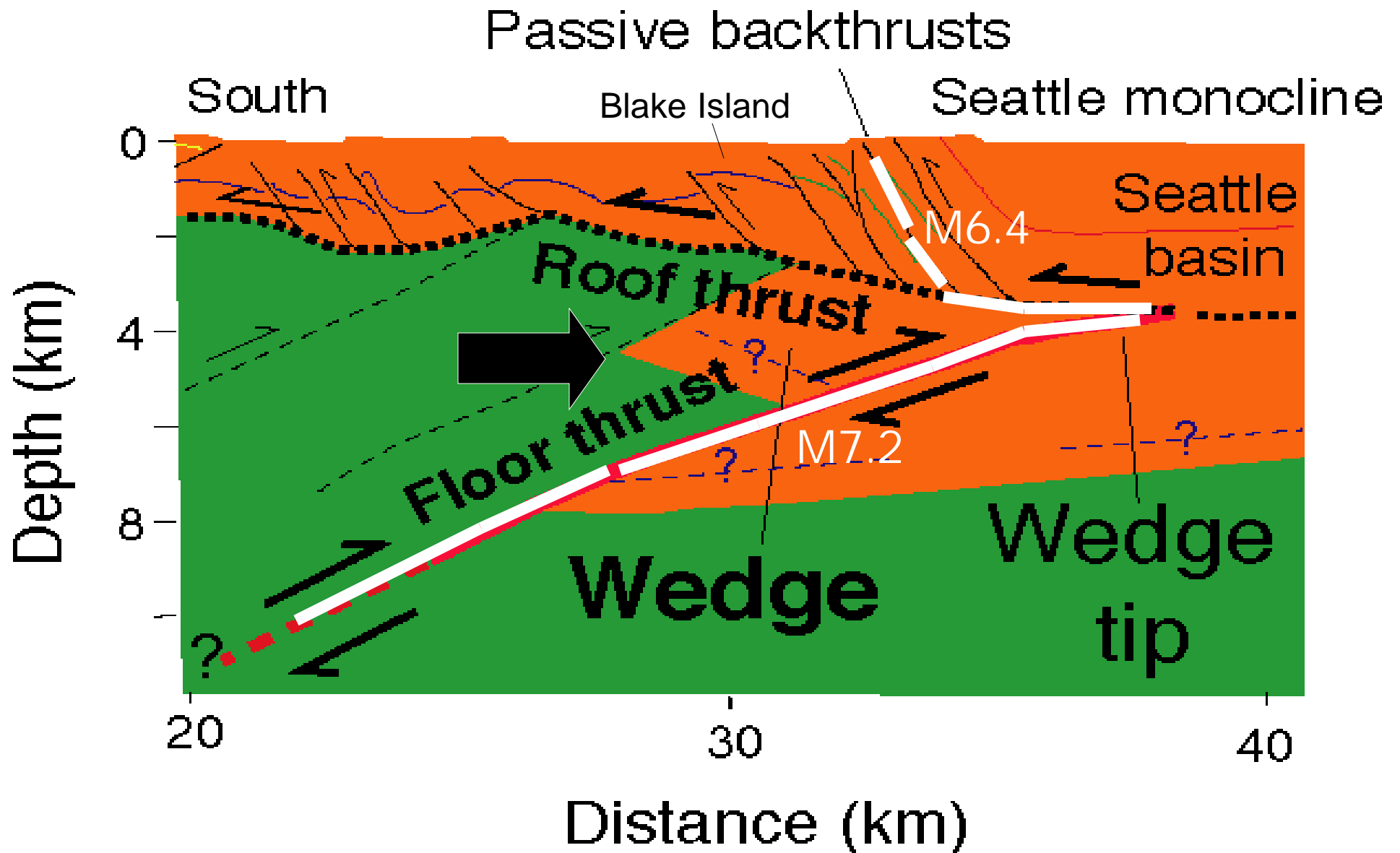
Calvert et al. (2003)

Inflection in base of Q

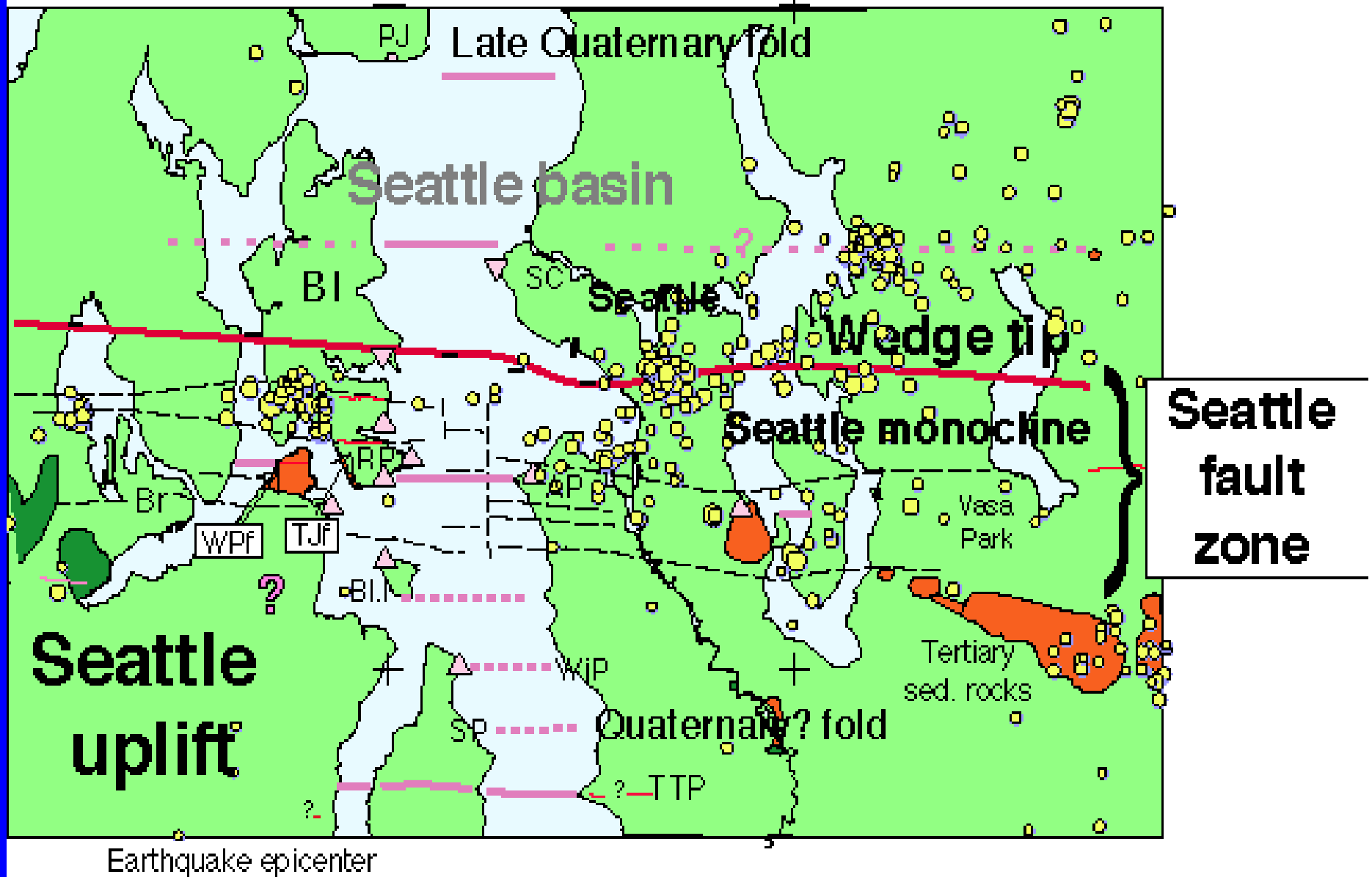
Summary

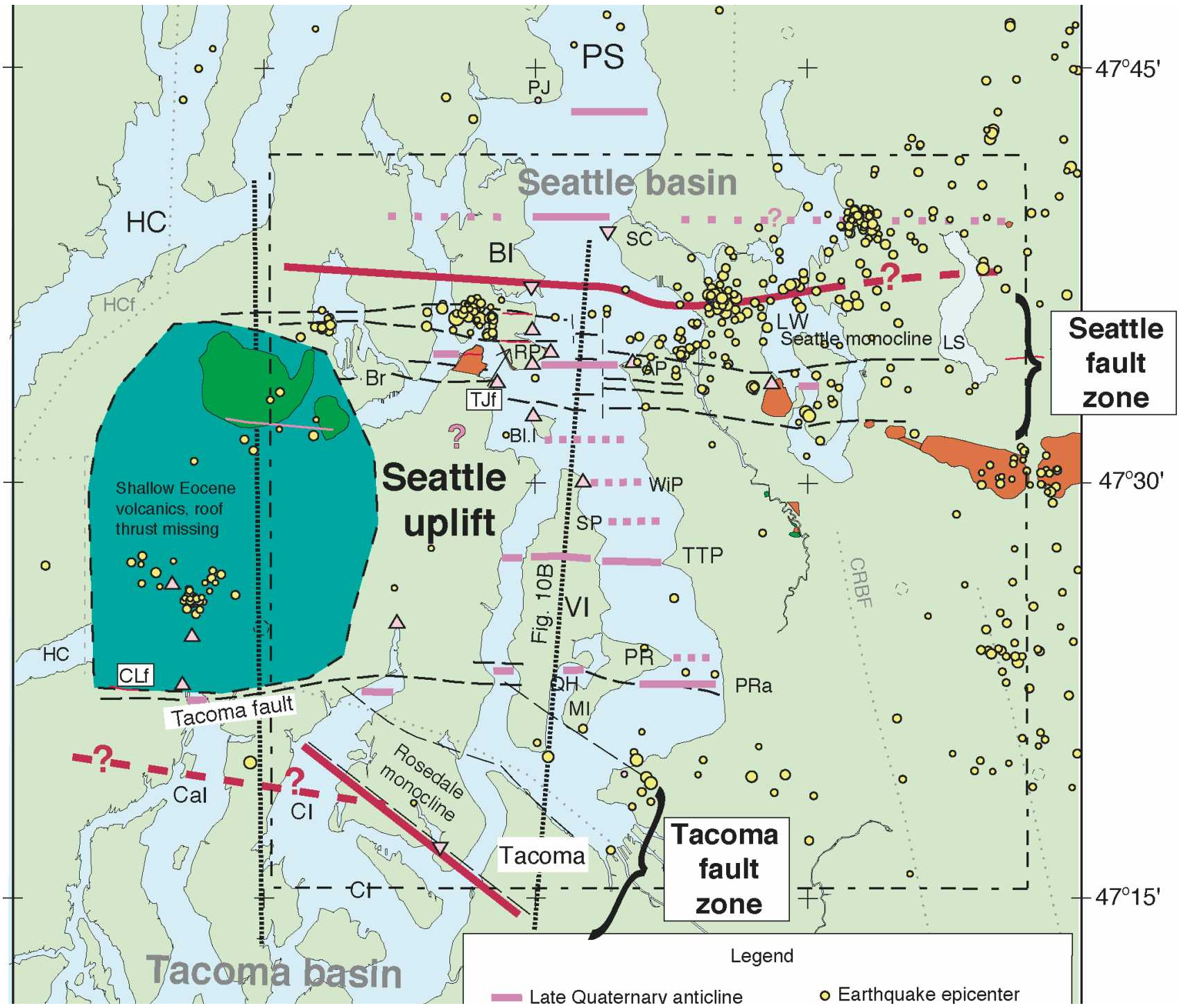
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Seattle fault zone - AD 900



Shallow Seismicity (0-8 km)





Seattle Uplift

