Paleoseismology of Saddle Mountain faults, southeast Olympic Peninsula, Washington

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U.S. Geological Survey

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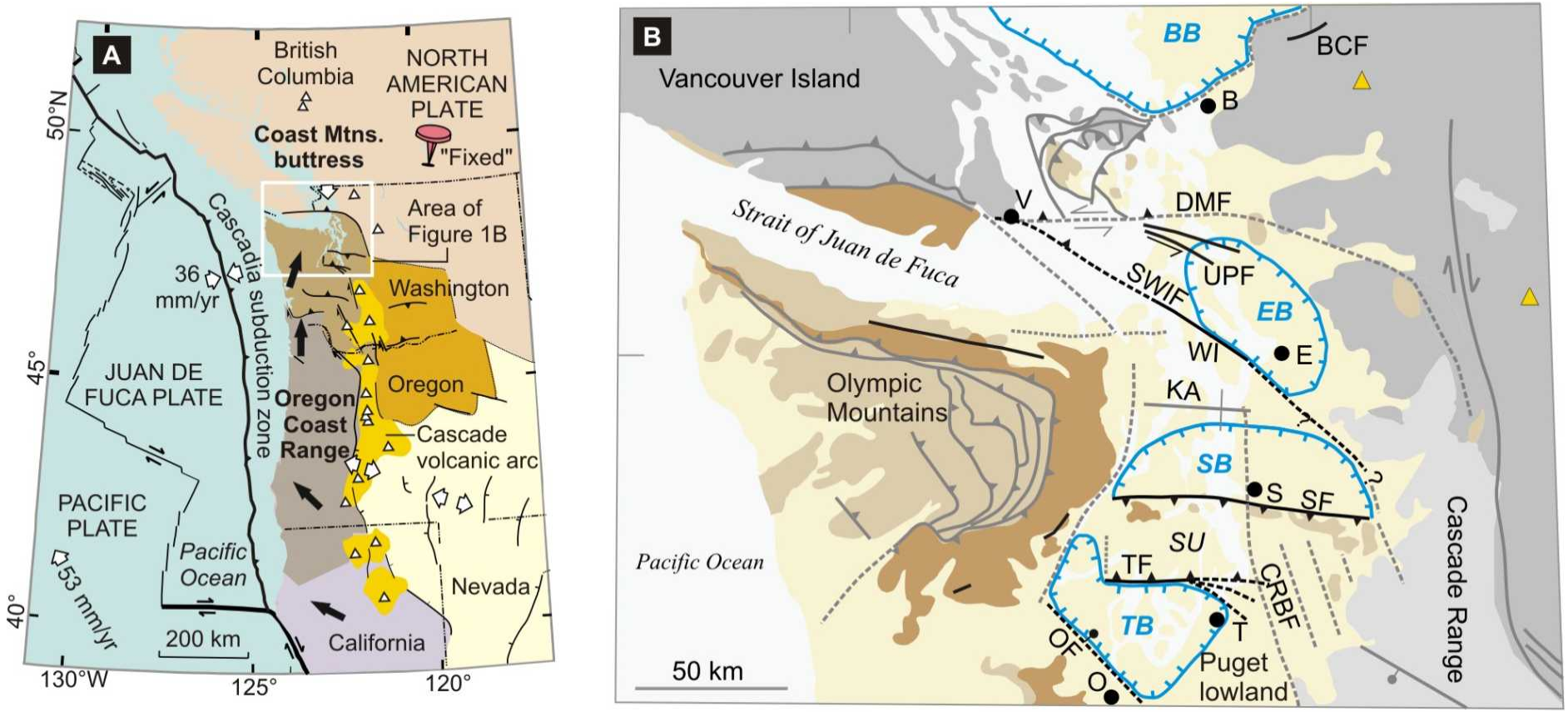
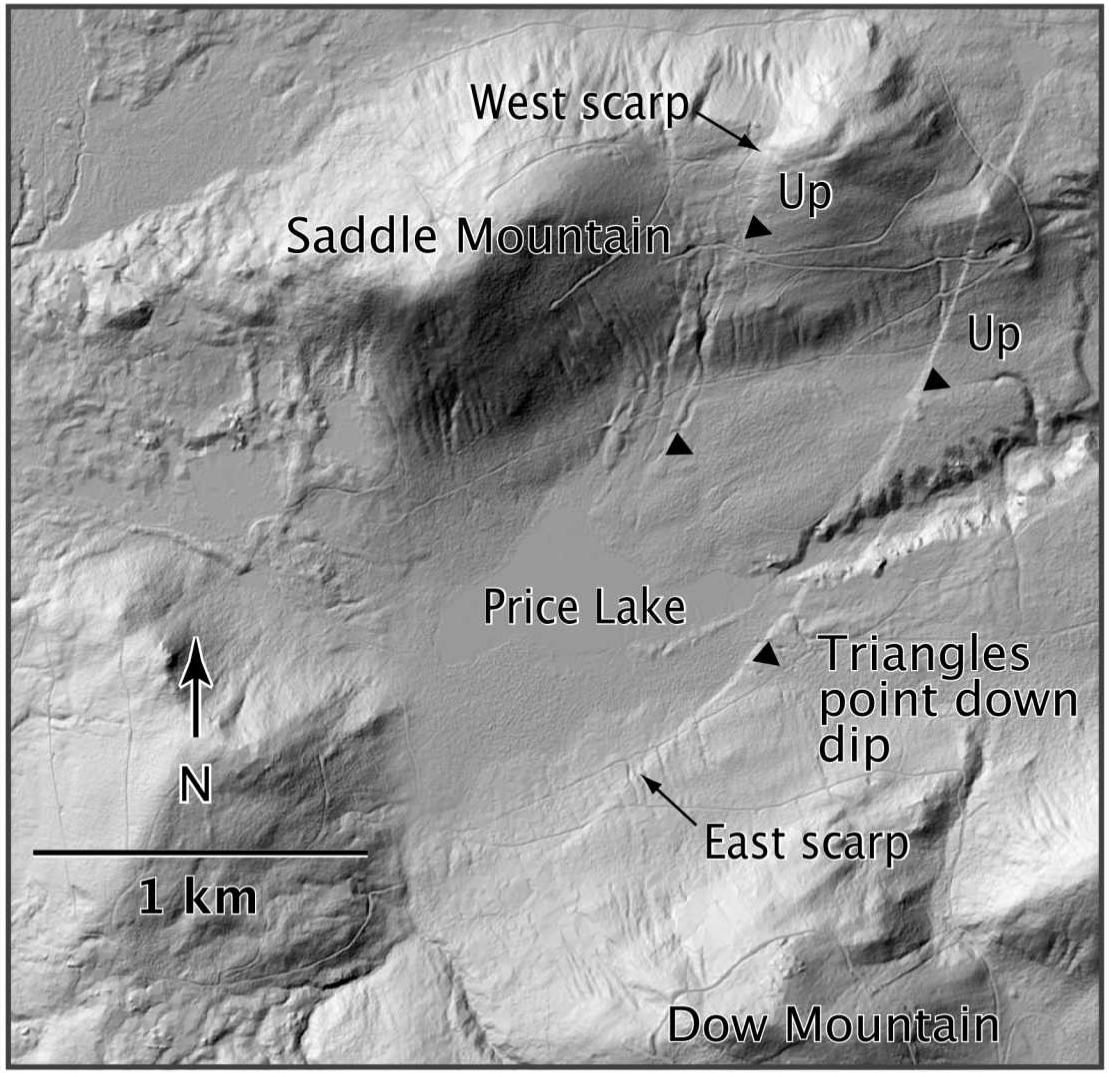


(Slide courtesy of Brian Sherrod)

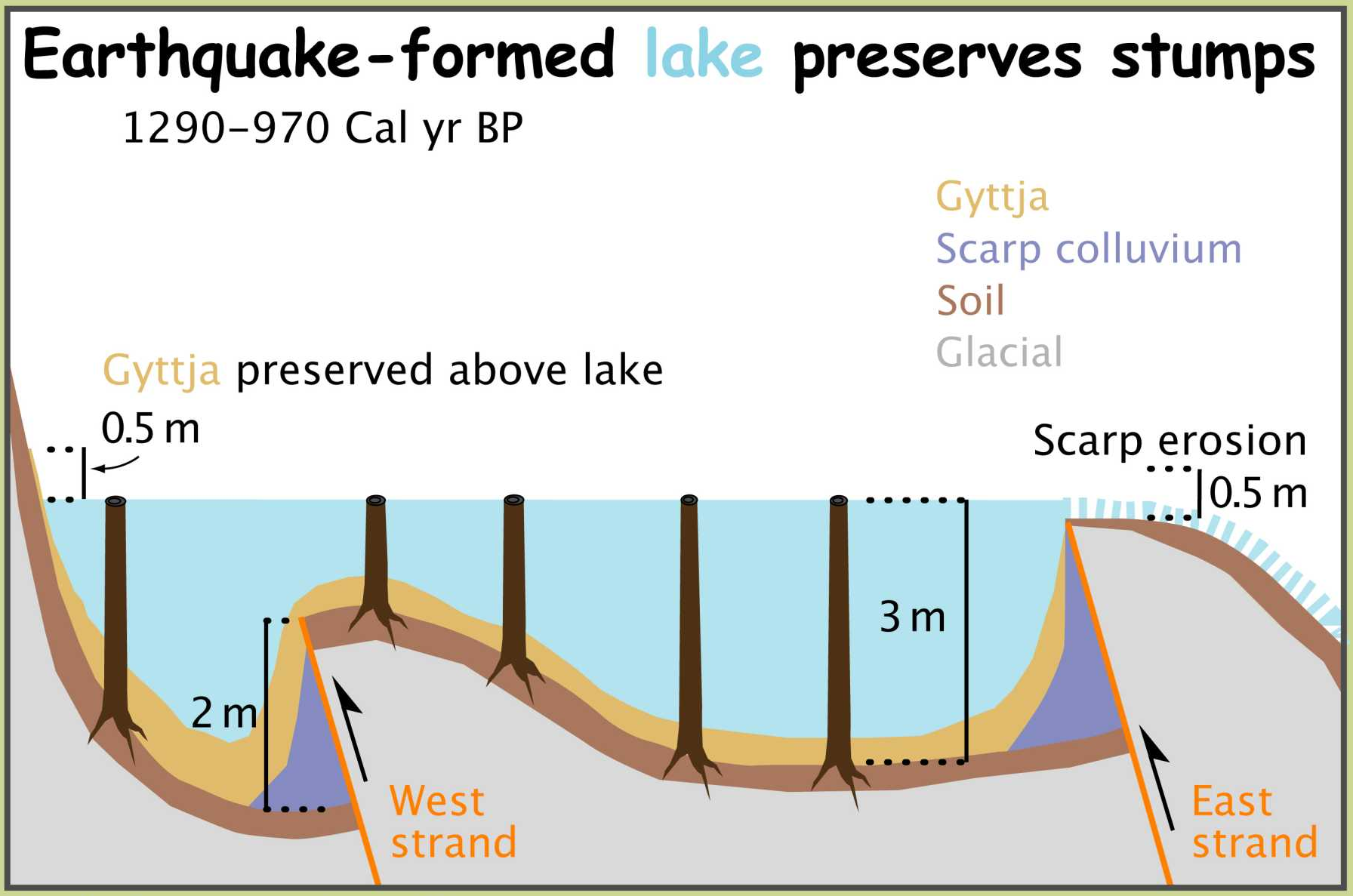
Lidar imagery of Price Lake area and local faults



(*Lidar composite courtesy of Bob Carson*)

Earthquake-formed lake preserves stumps

1290–970 Cal yr BP

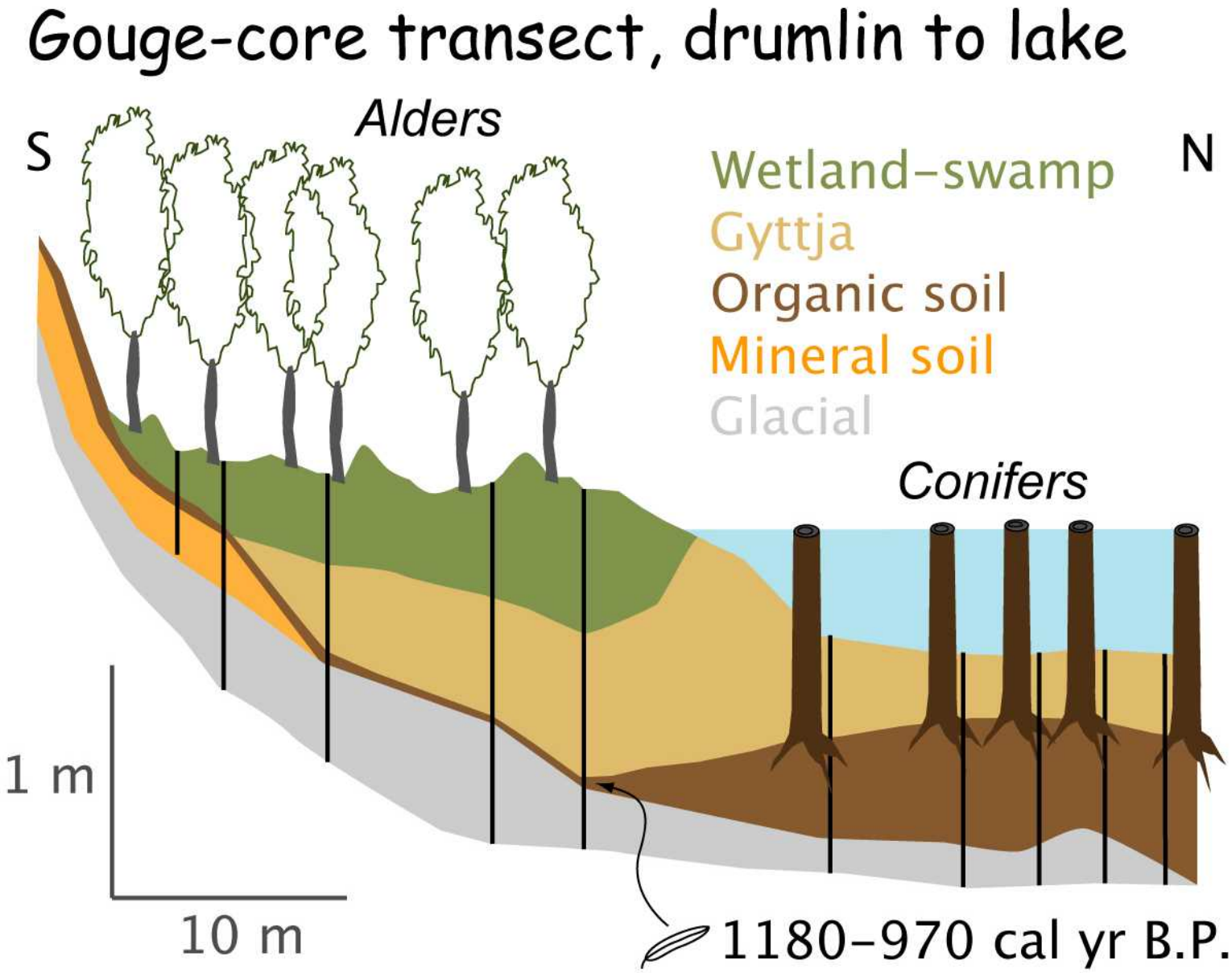


Vertical exaggeration x 50

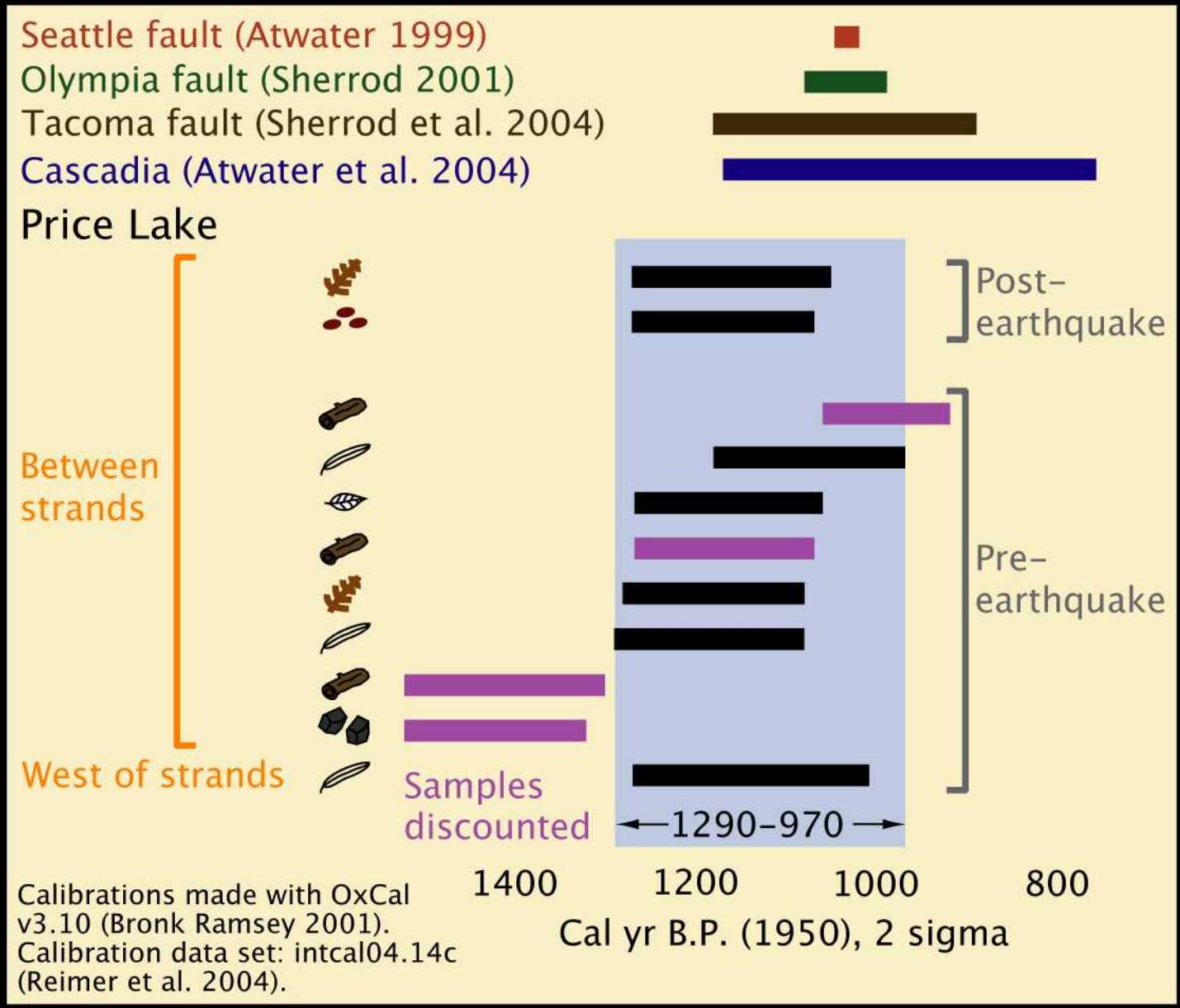
~1 km

Stumps in lake:
looking east toward outlet

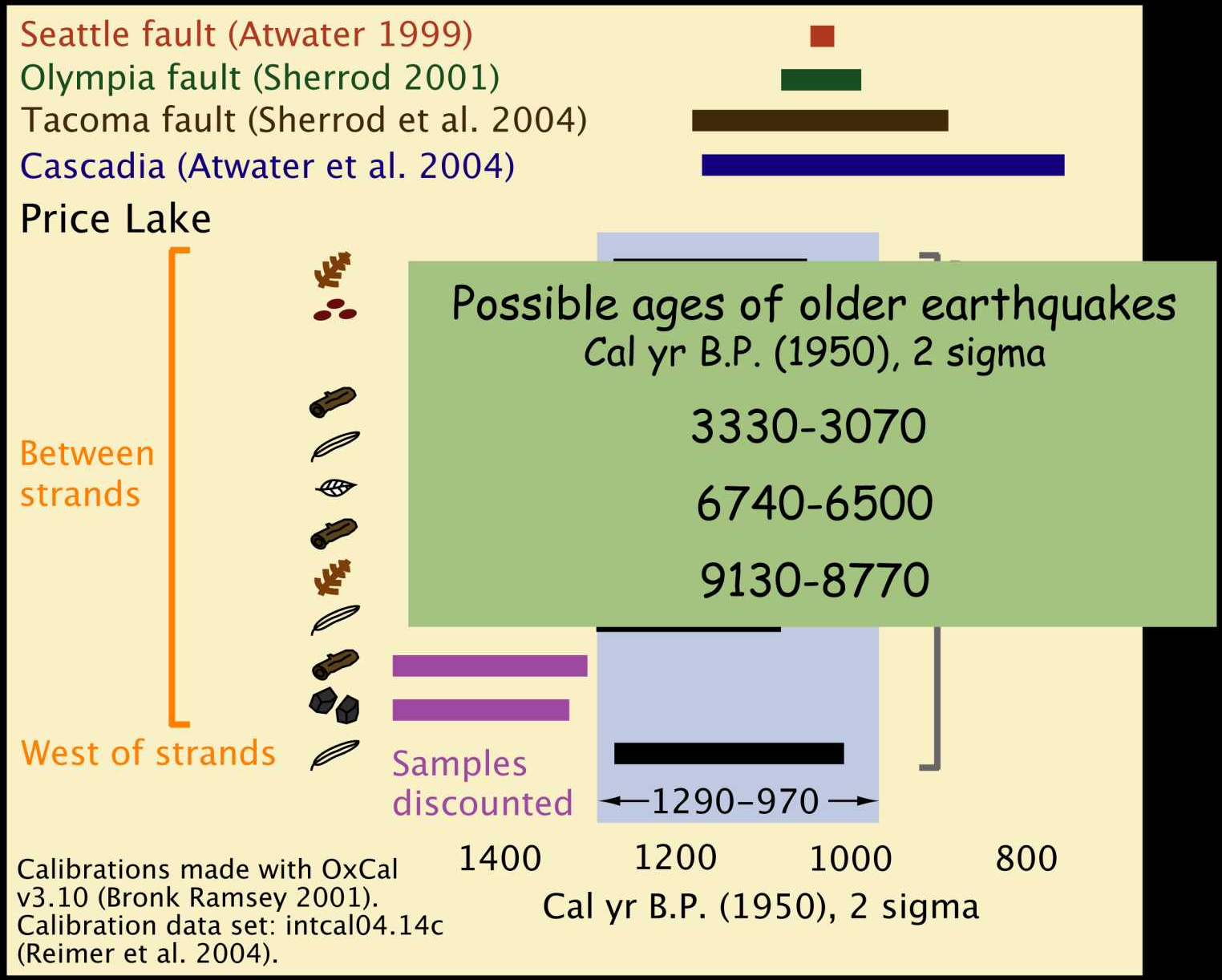
(Photo courtesy of Bob Carson)


Gouge-core transect, drumlin to lake
S
Alders
N
Wetland–swamp
Gyttja
Organic soil
Mineral soil
Glacial
Conifers
1 m
10 m
1180–970 cal yr B.P.

RADIOCARBON AGES

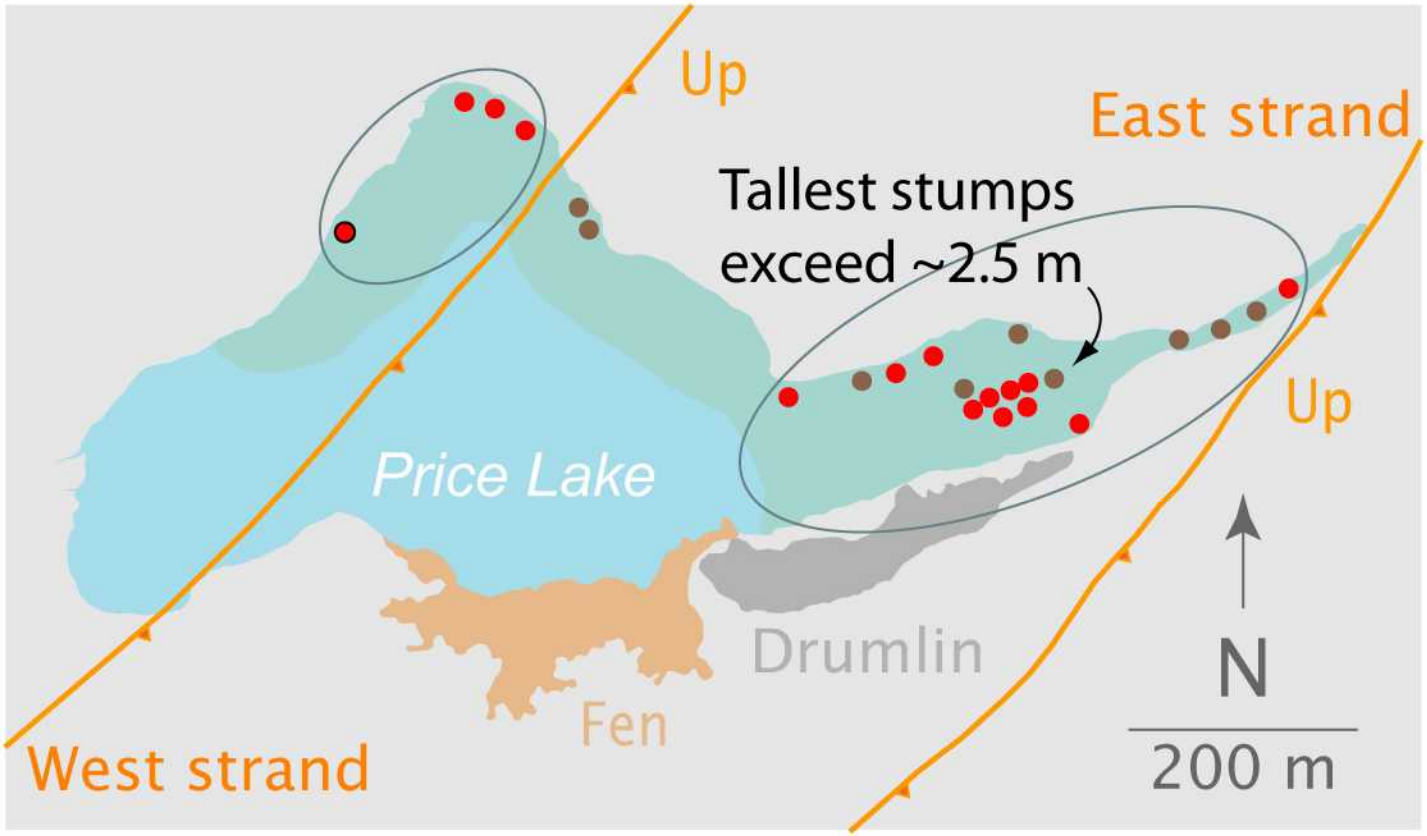


RADIOCARBON AGES



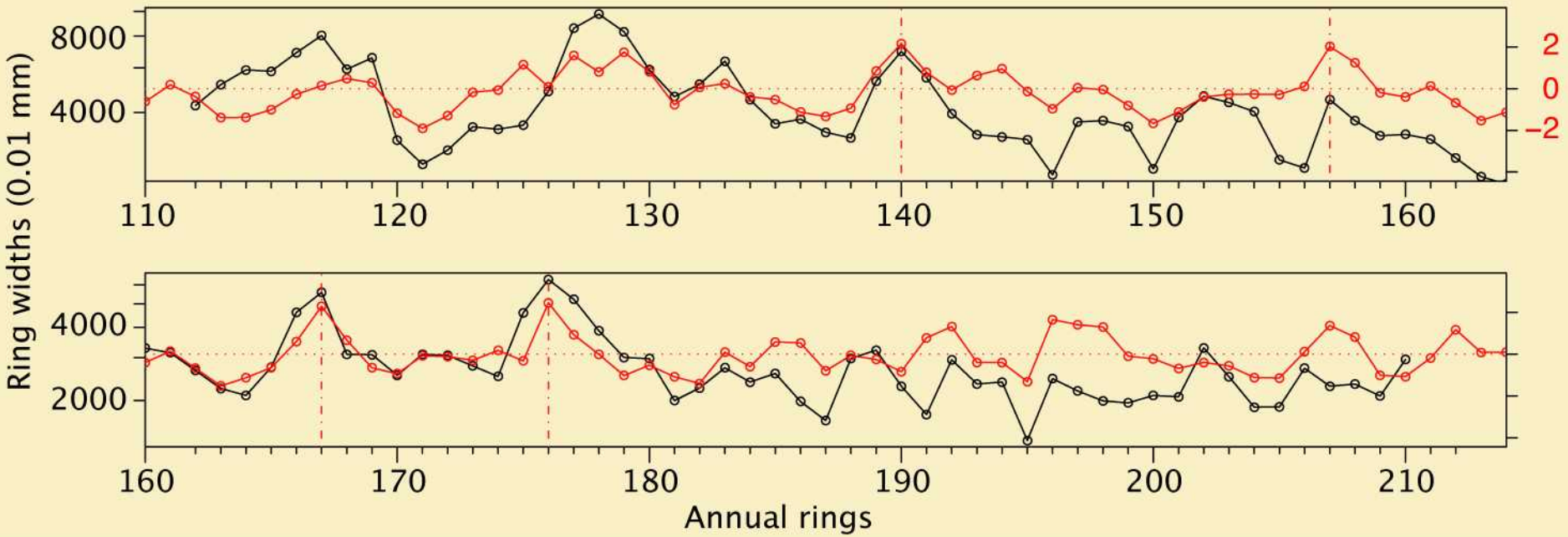
Calibrations made with OxCal v3.10 (Bronk Ramsey 2001). Calibration data set: intcal04.14c (Reimer et al. 2004).

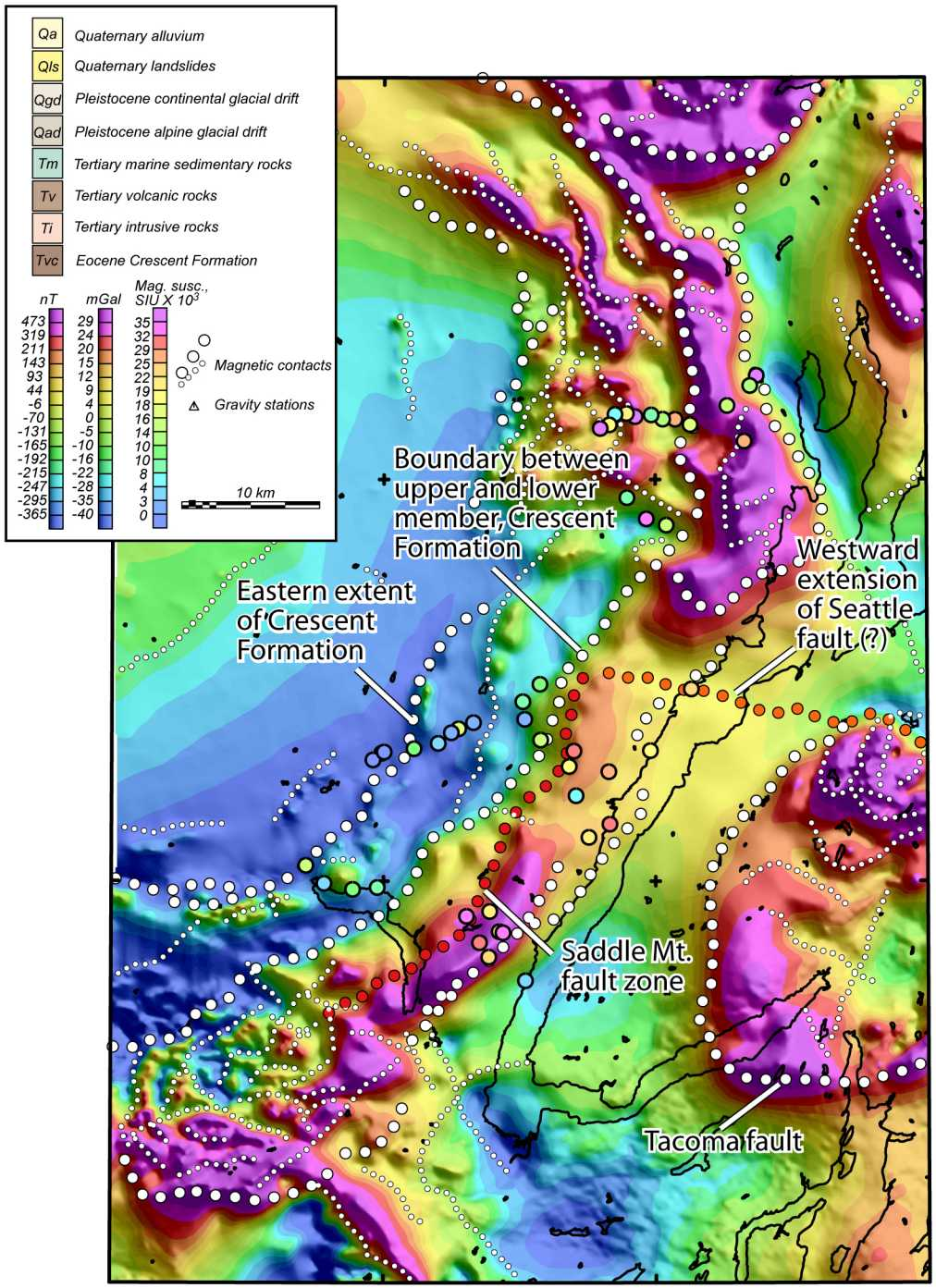
TREE-RING MATCHING



- Portion of lake with stumps
- Stumps sampled
- Stumps used for master chronologies
- Tree rings plotted against master chronology (right)

Ring widths of a stump west of West strand and the master chronology for trees between East and West strands





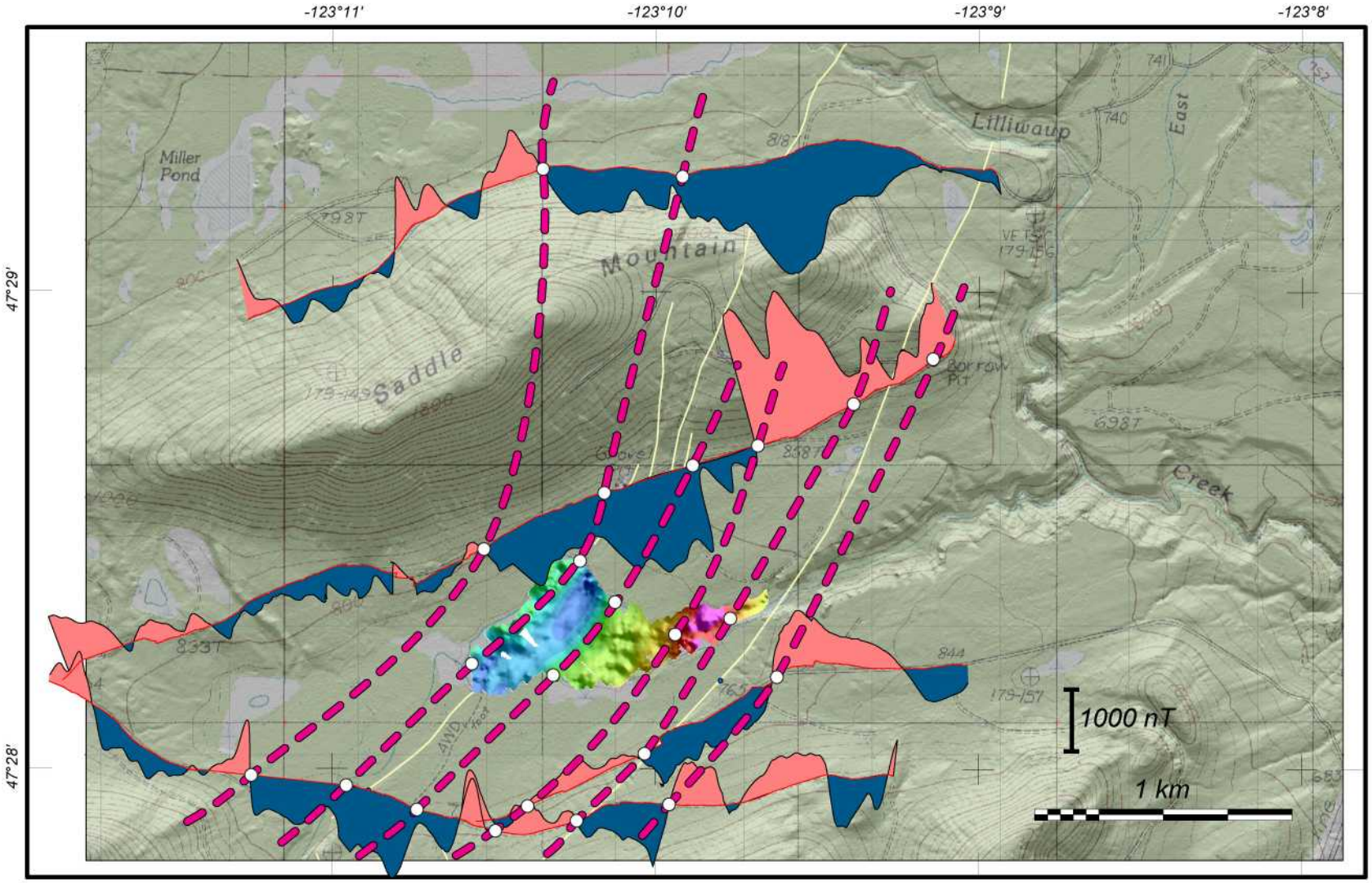
Aeromagnetic anomalies of the SE Olympic Peninsula

White dotted lines are contacts interpreted from "maxspot" analysis

Circles are magnetic susceptibility measurements, color-coded by value

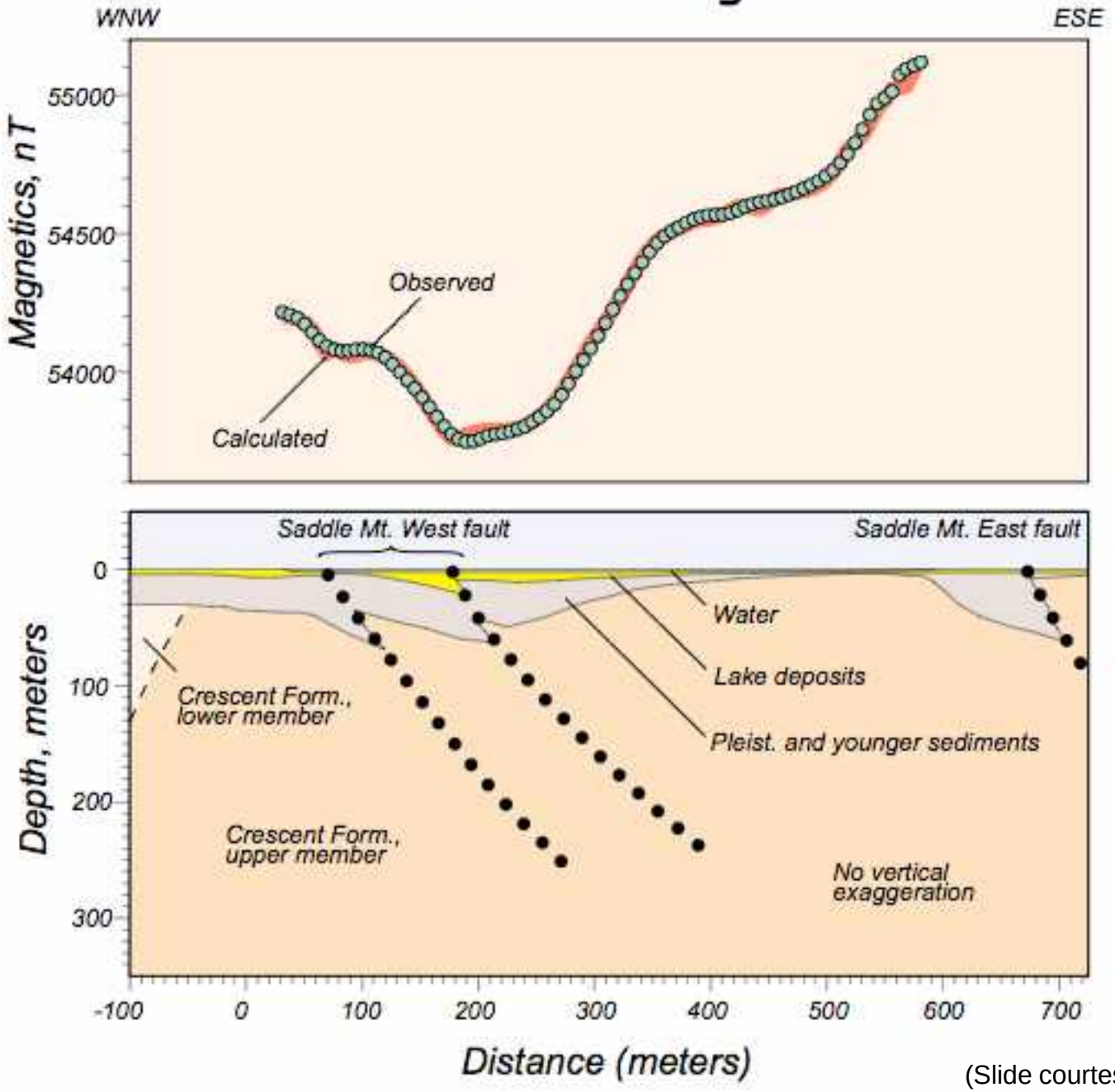
(Slide courtesy of Rick Blakely)

Ground-magnetic profiles
Red dashed lines = magnetic contacts
Pink anomalies, positive; blue anomalies, negative



(Slide courtesy of Rick Blakely)

Price Lake Ground-Magnetic Model



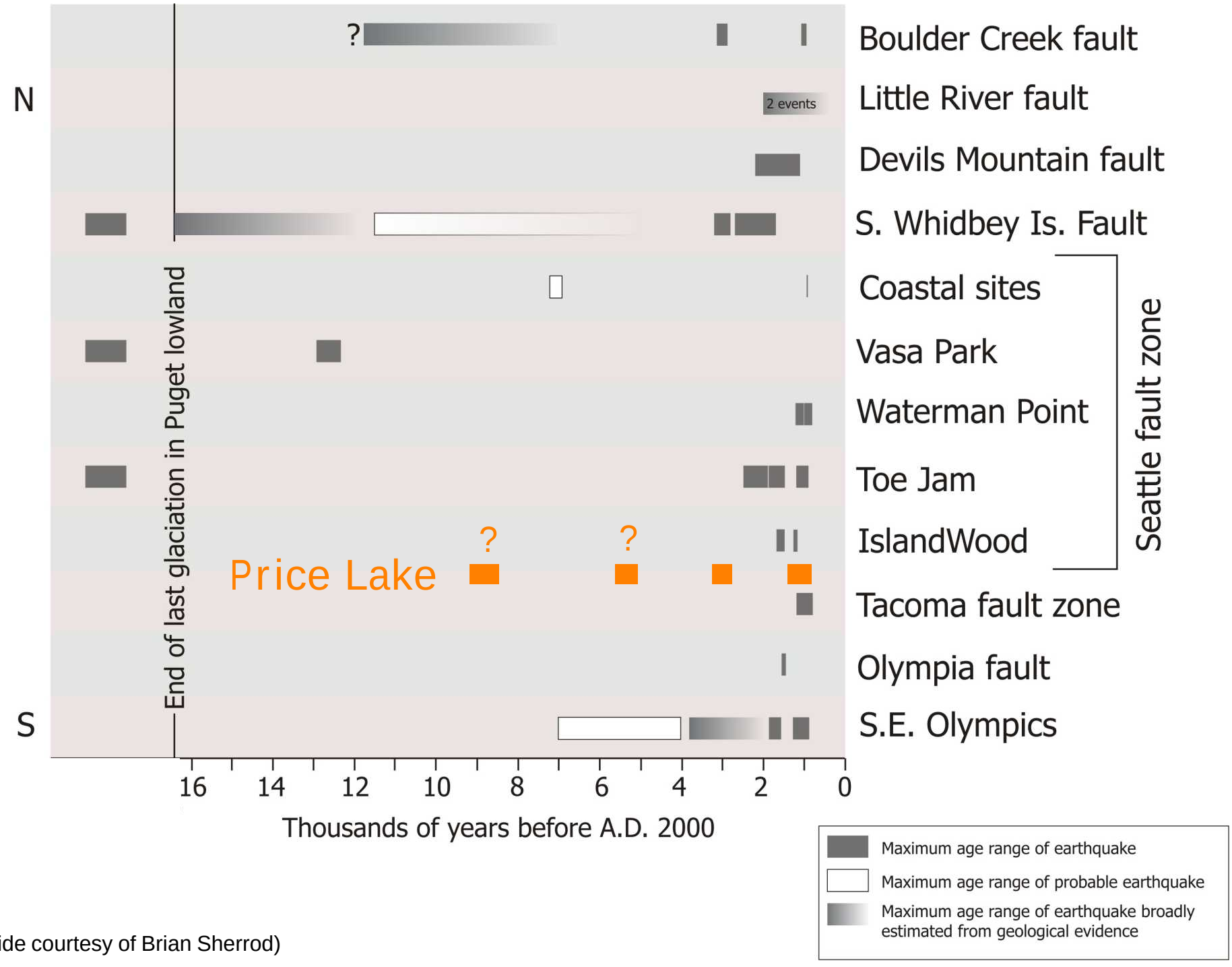
(Slide courtesy of Rick Blakely)

CONCLUSIONS

- Radiocarbon analyses of delicate plant remains show that the East and West strands ruptured in the same century or two 1300-1000 cal yr B.P.

- Crossdating tree rings of stumps preserved on either side of the West strand provides evidence that the East and West strands ruptured within decades of each other.

- Dip slip 1000-1300 cal yr B.P. likely exceeded 3 m on the East strand and 1 m on the West strand.



(Slide courtesy of Brian Sherrod)

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