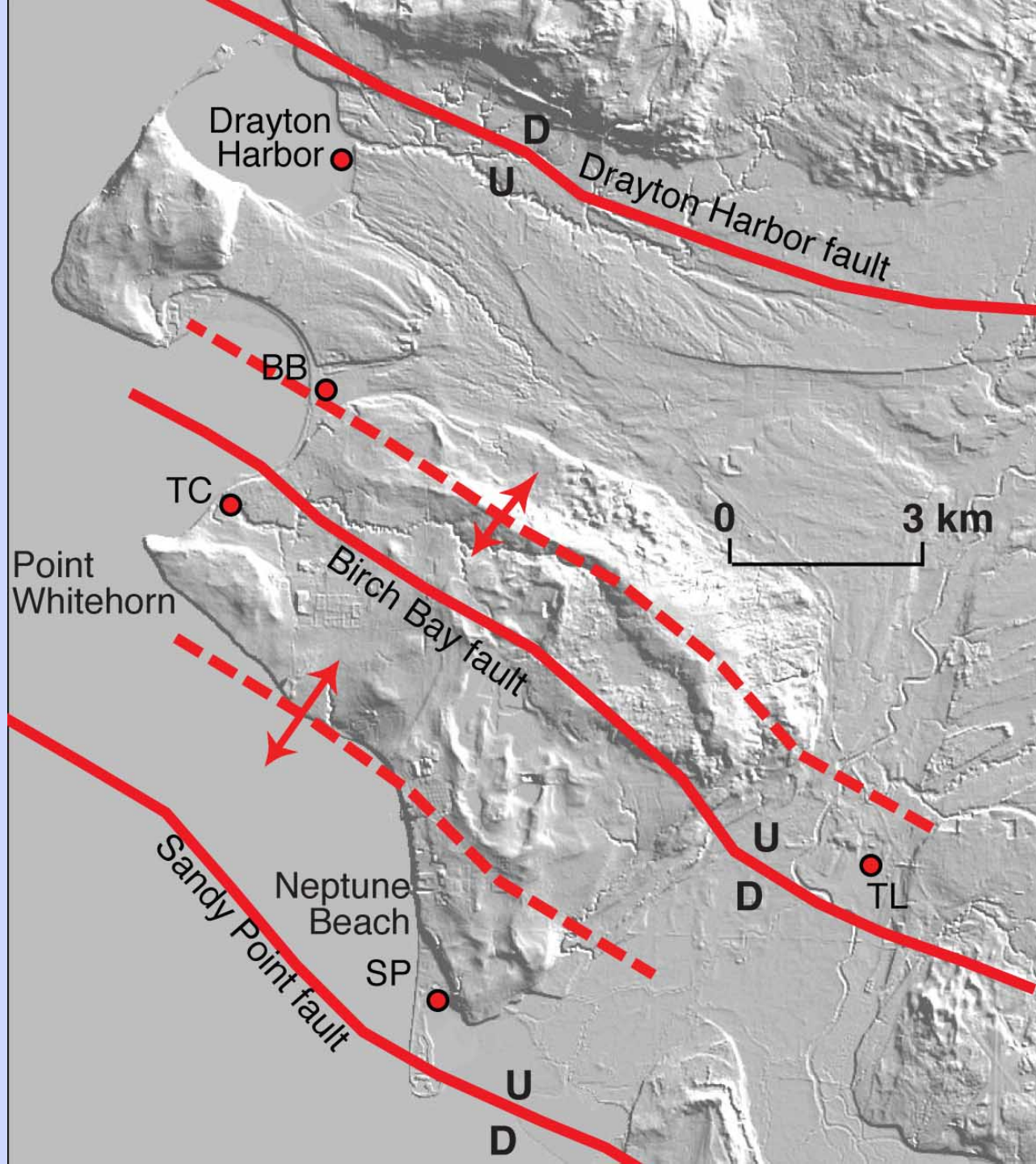
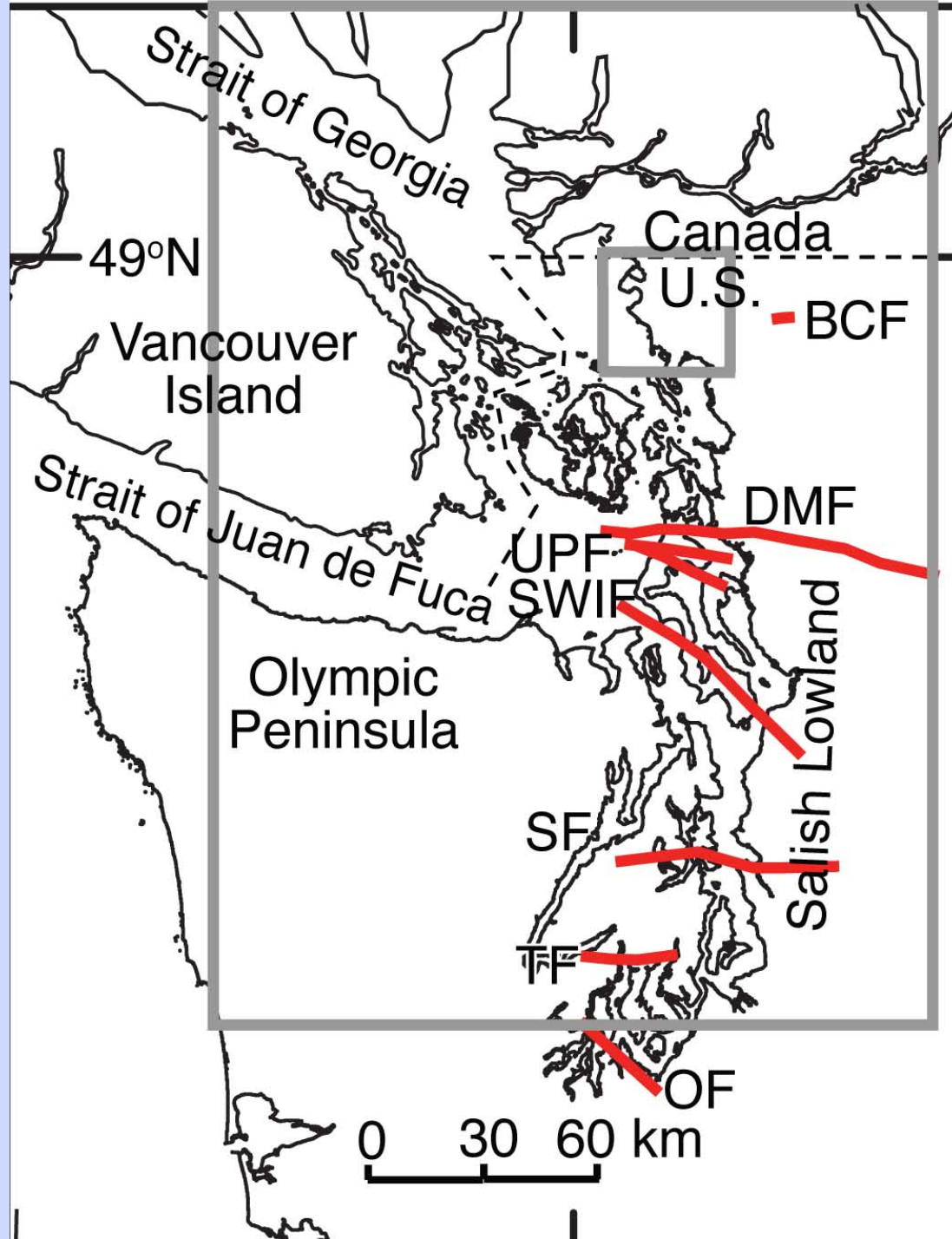


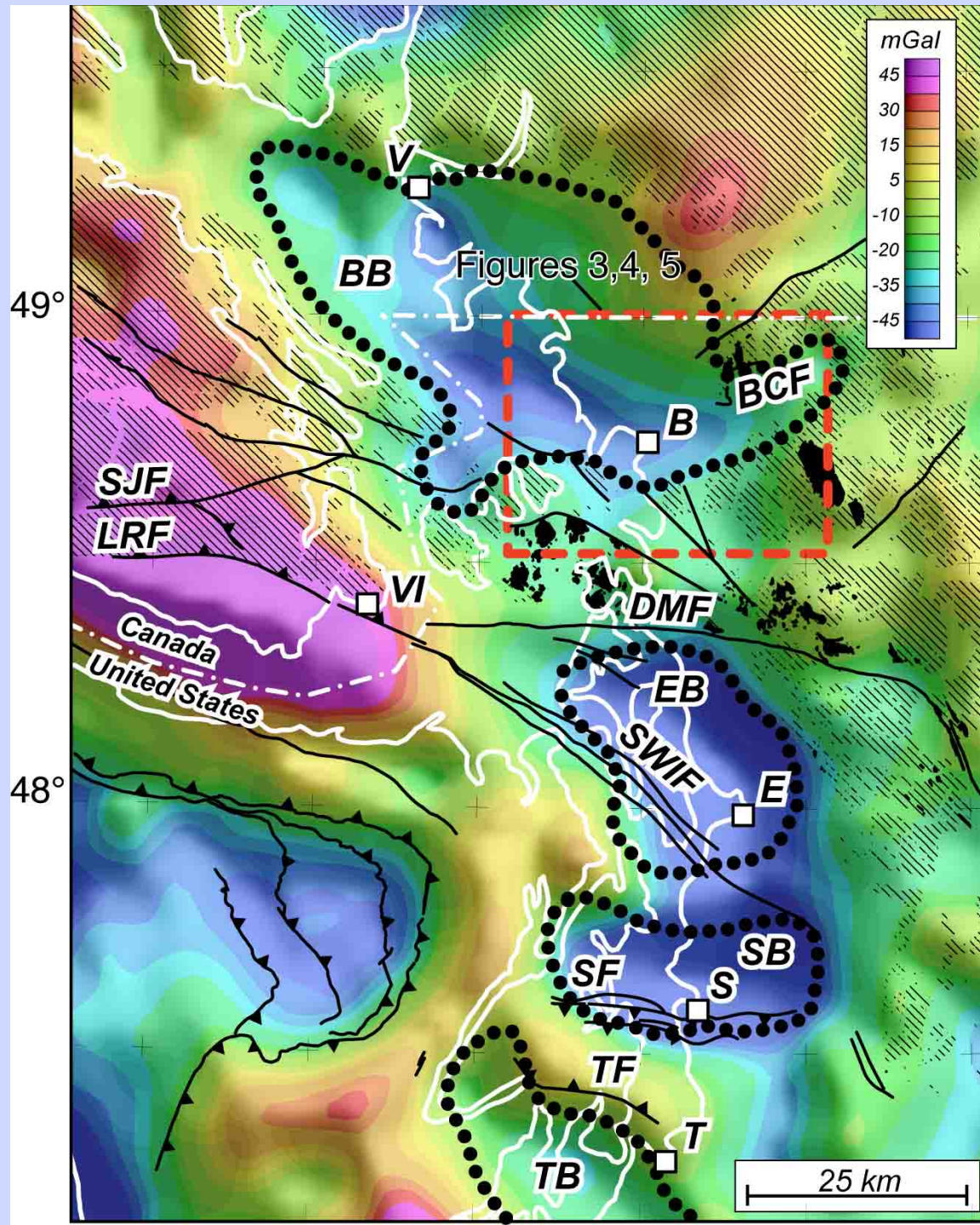
Upper plate faults in western Washington: recent observations and interpretations

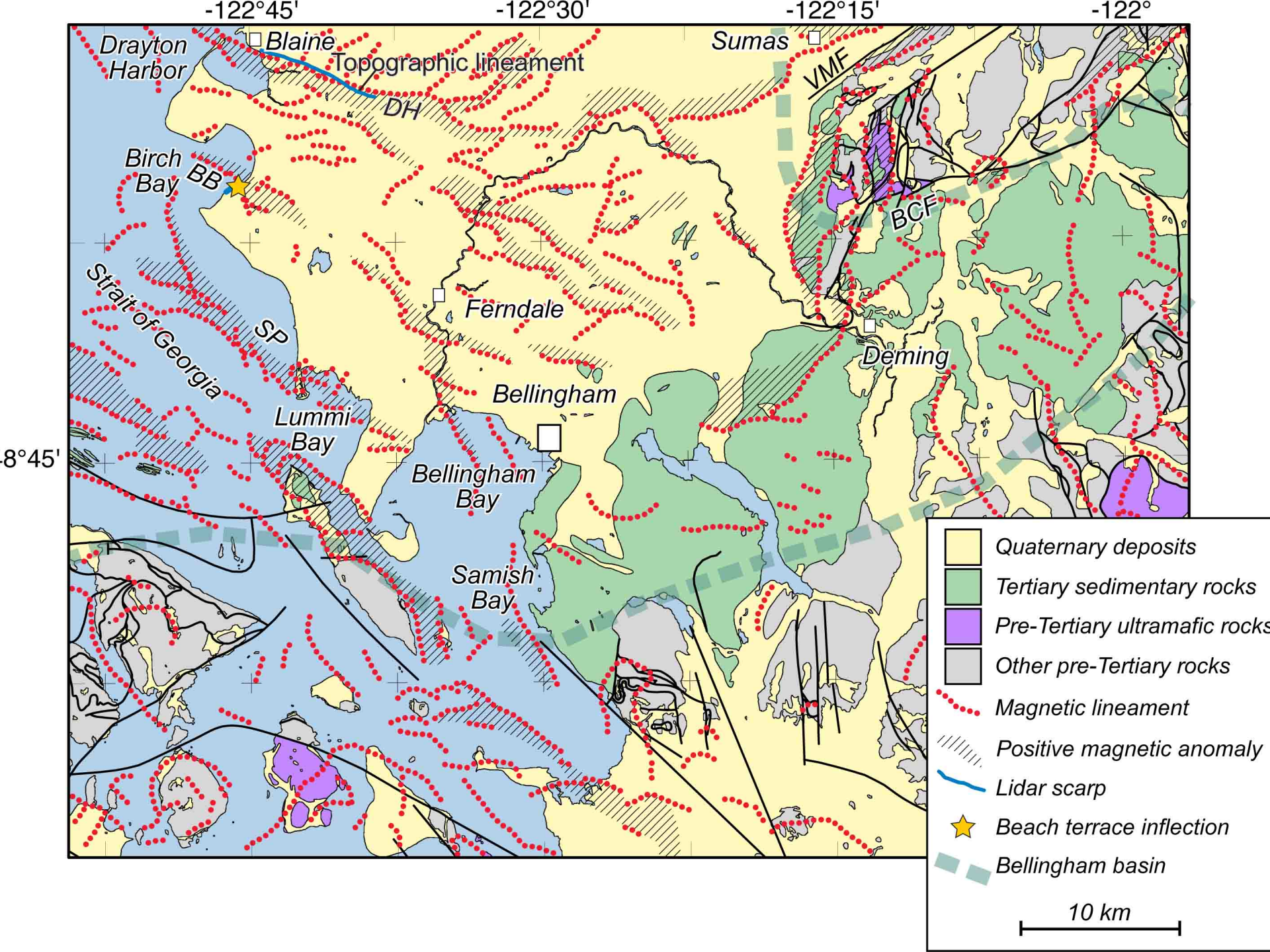
Harvey Kelsey
Brian Sherrod
Rick Blakely
Ralph Haugerud
Alan Nelson

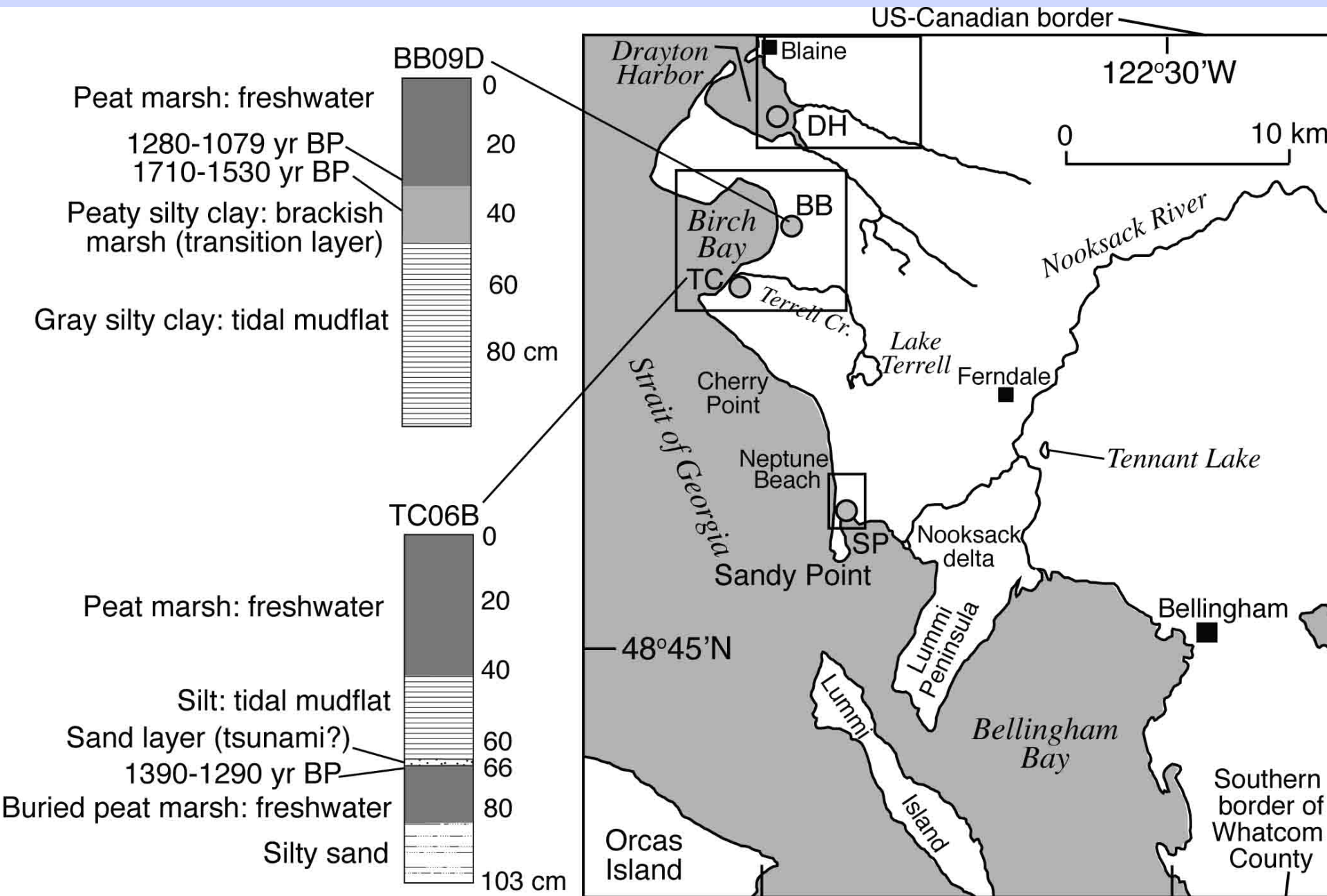


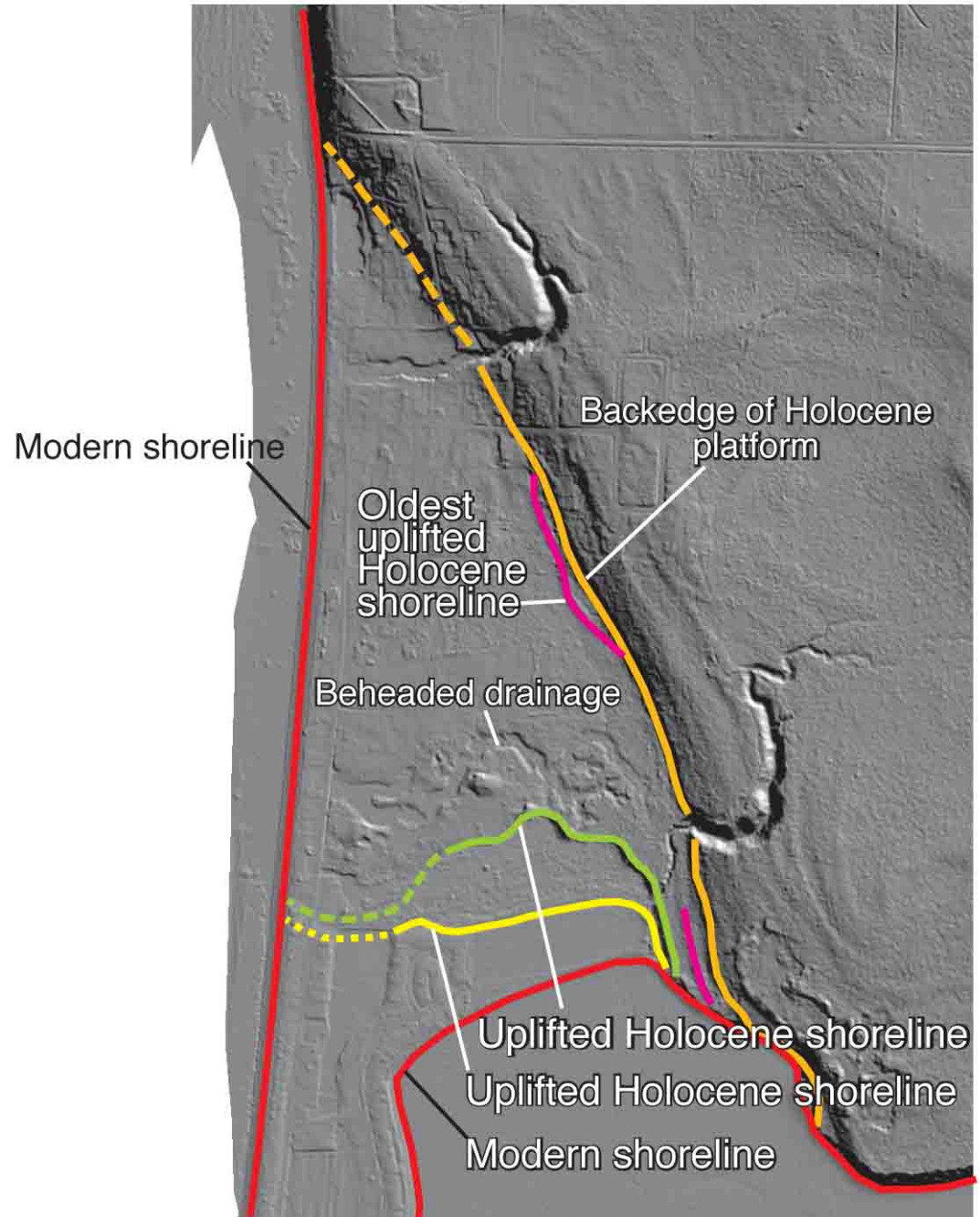
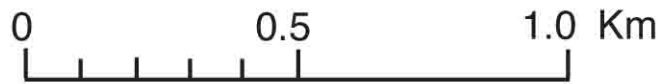
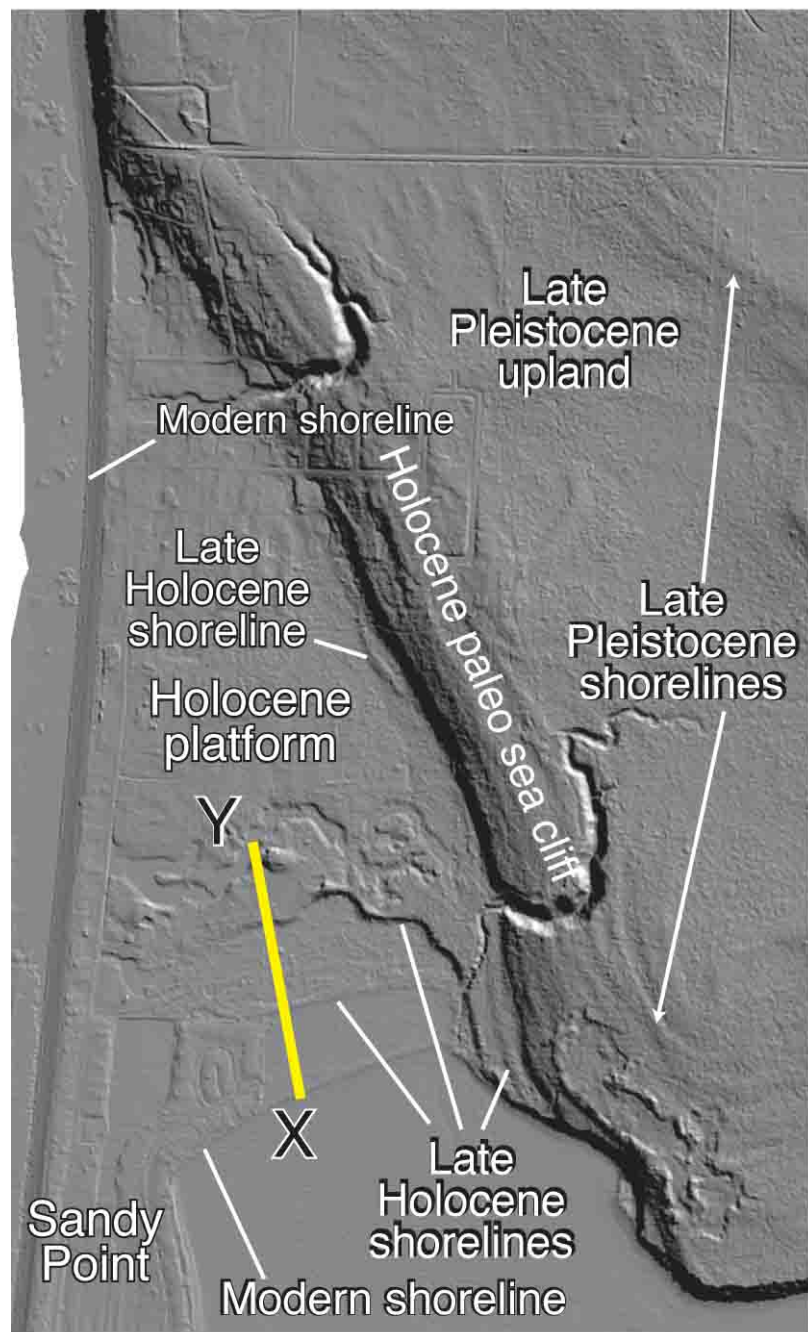


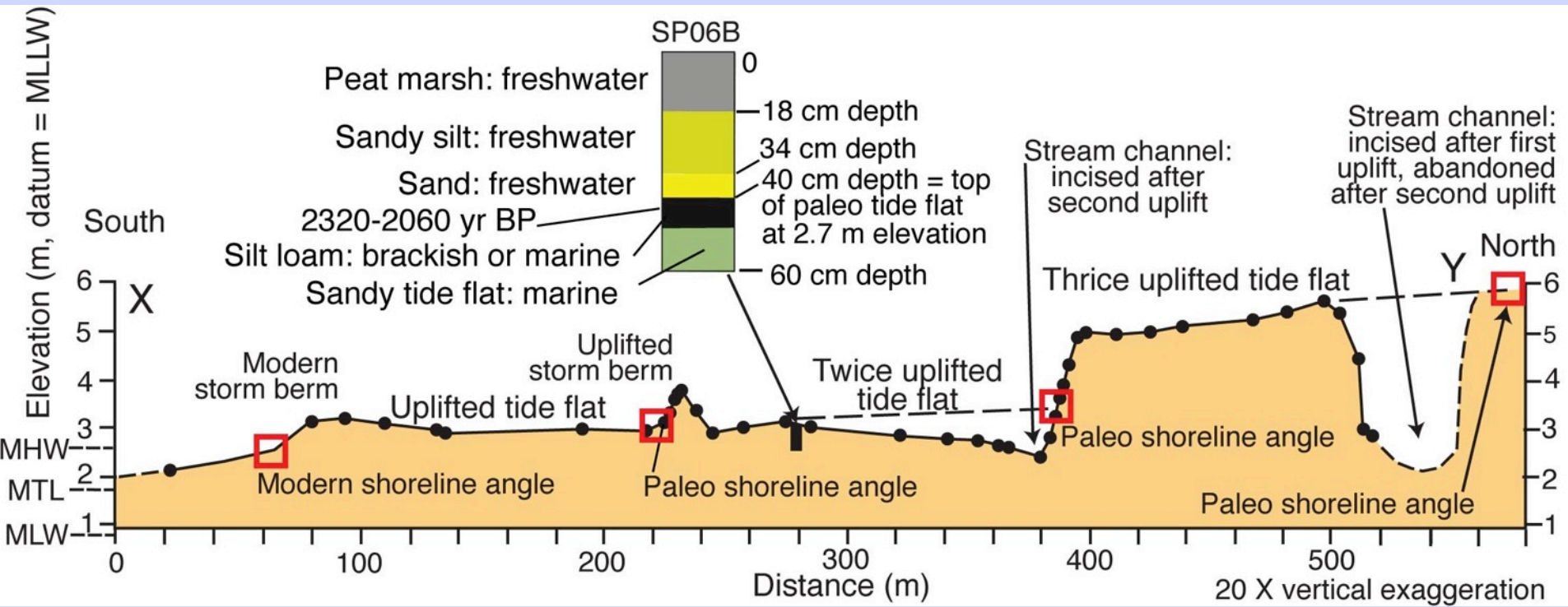


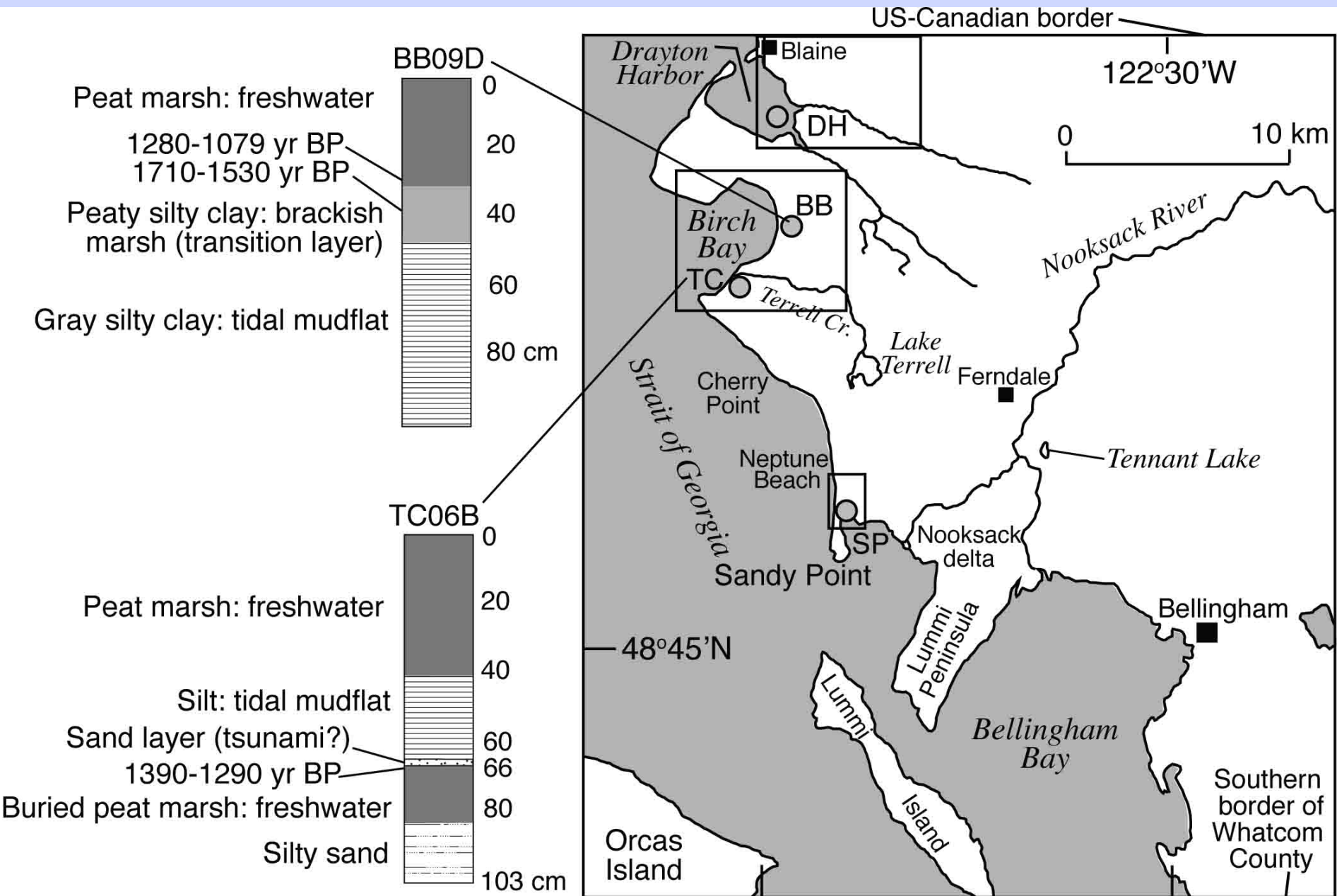




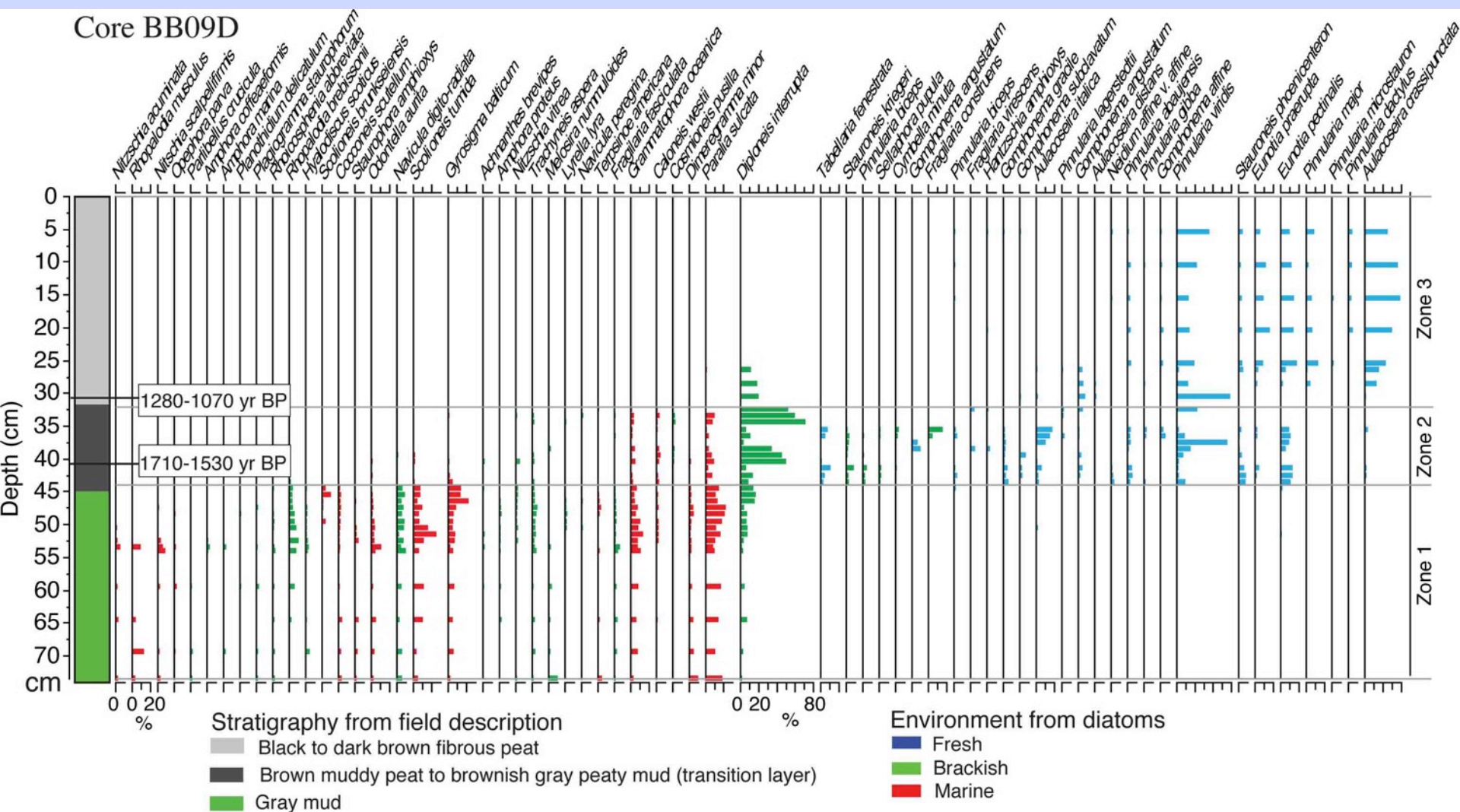


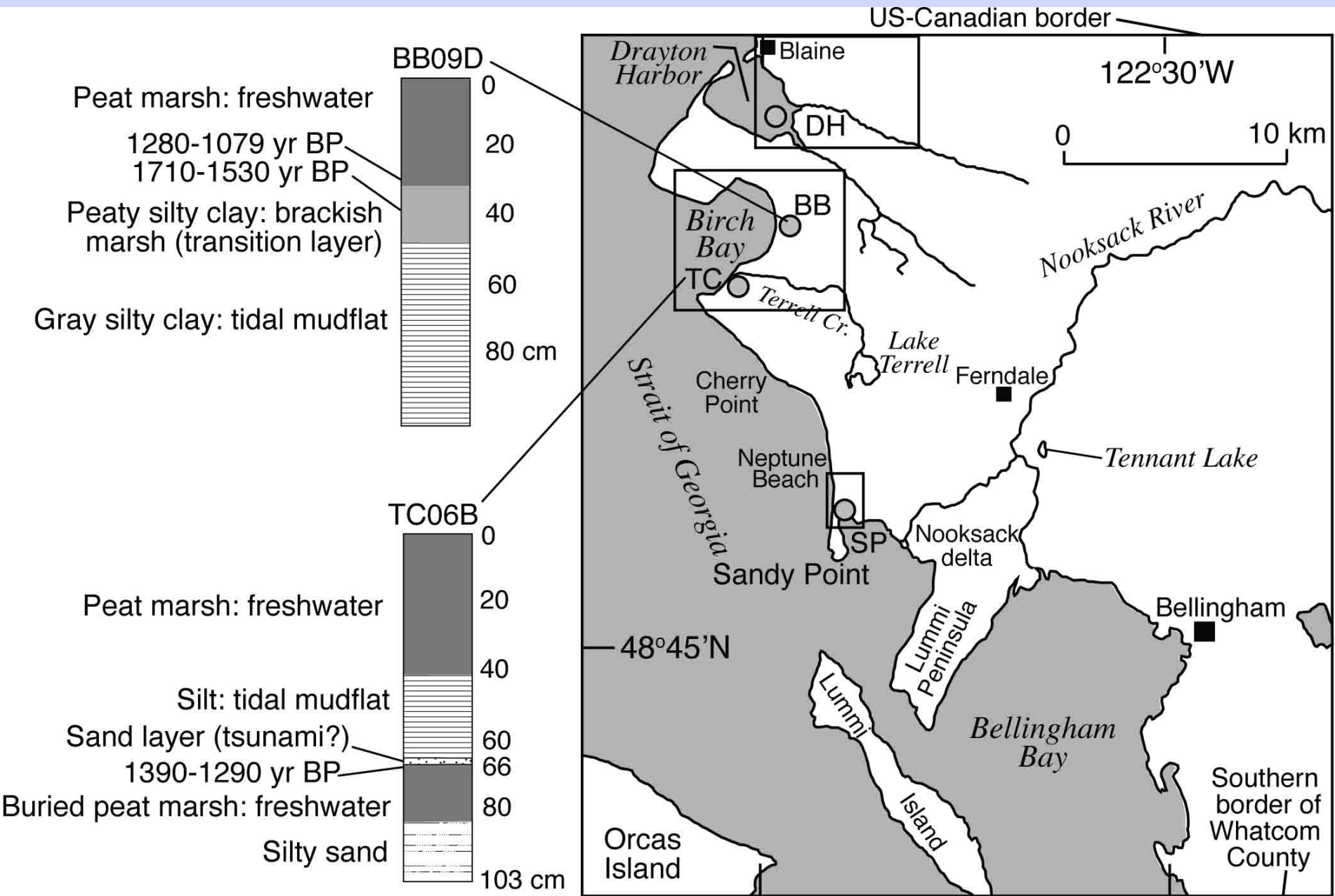






Core BB09D





48°59'30"N

A

B

122°40'W

C

Drayton Harbor

Dakota Creek

Birch Bay

B

city of
Blaine, WA

1 km

south side up scarp

south side up scarp

C

Valley View Drive

south side up scarp

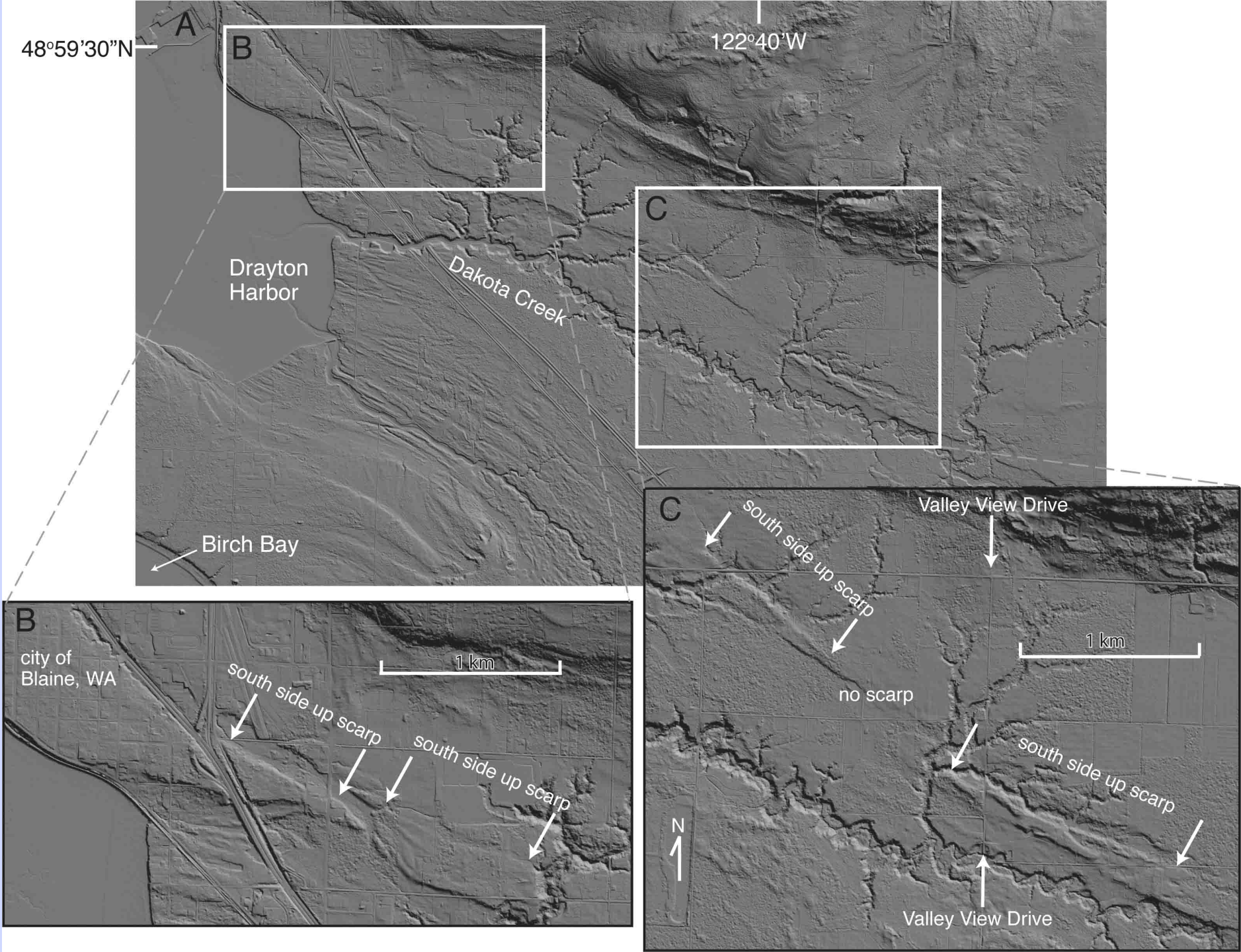
no scarp

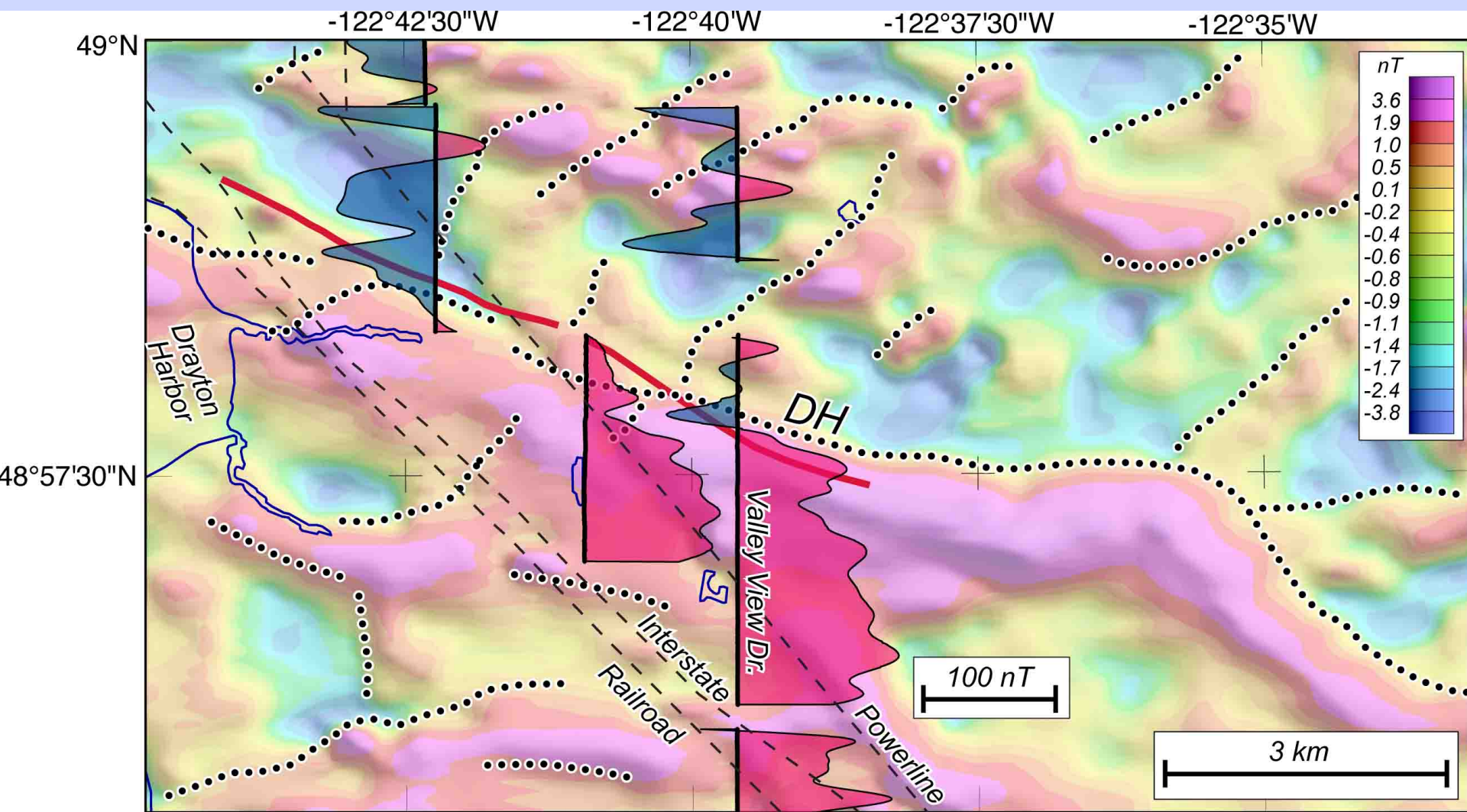
1 km

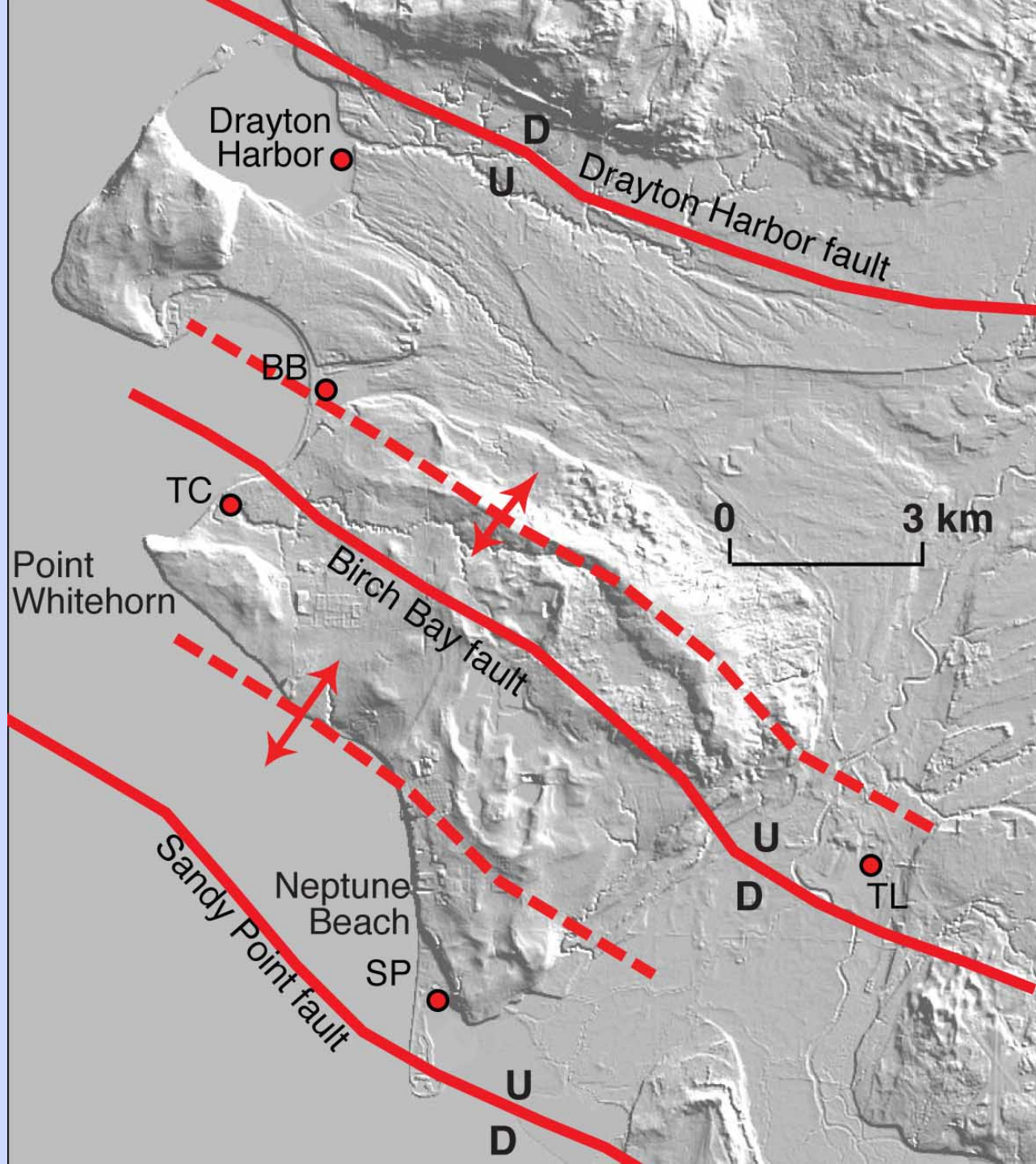
south side up scarp

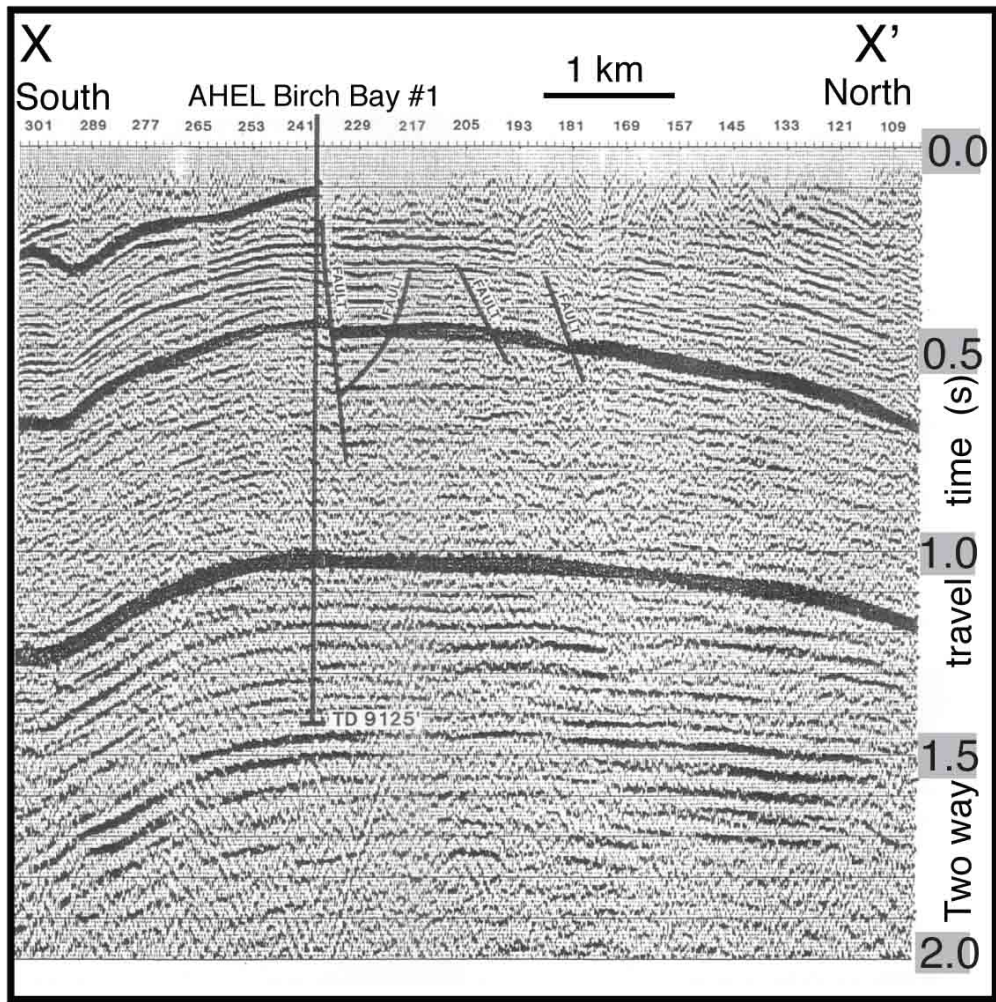
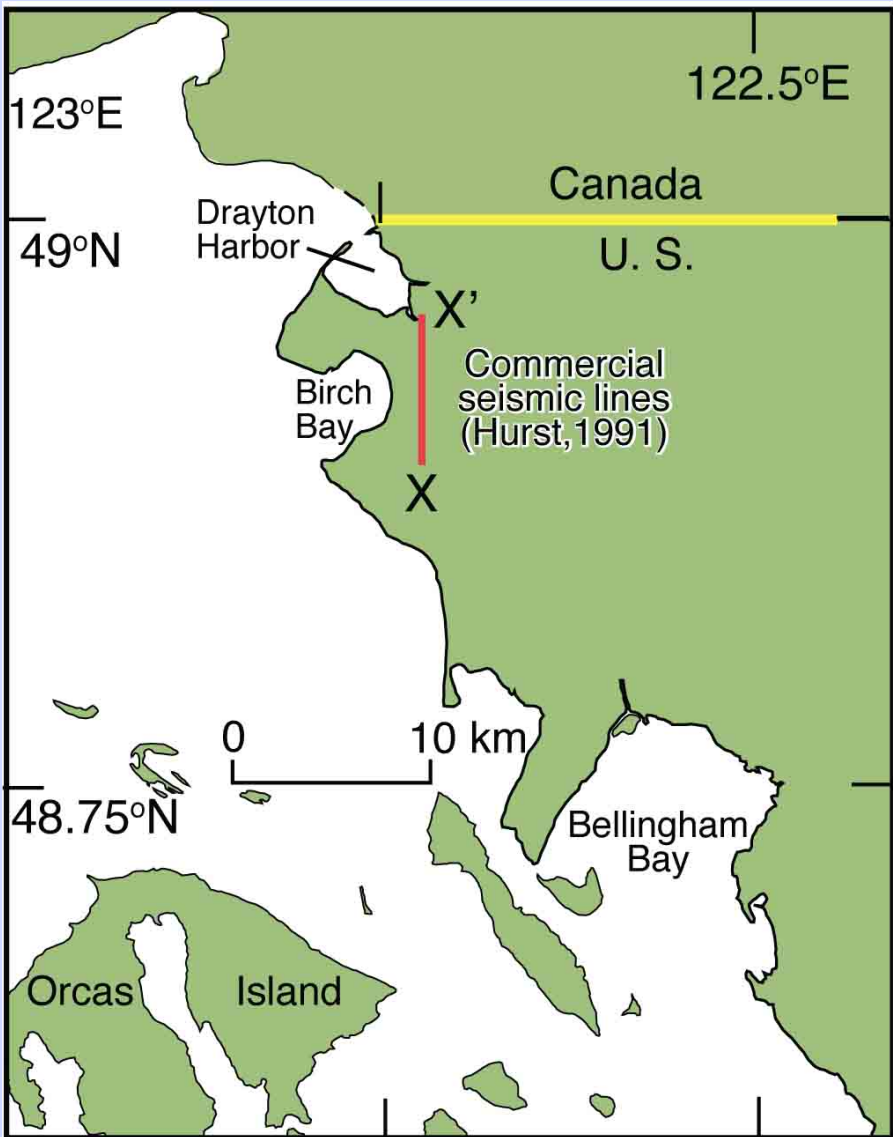
N

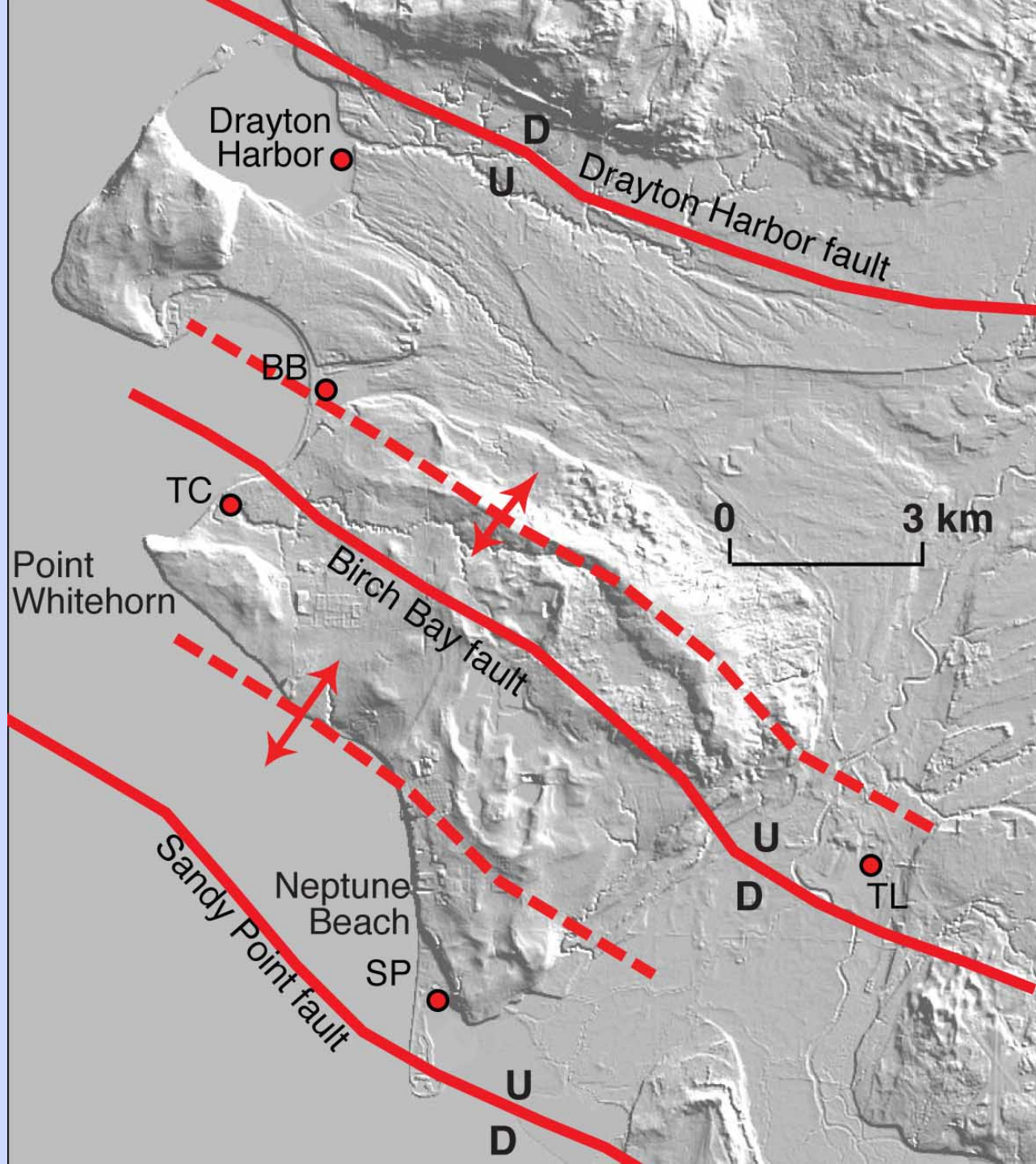
Valley View Drive

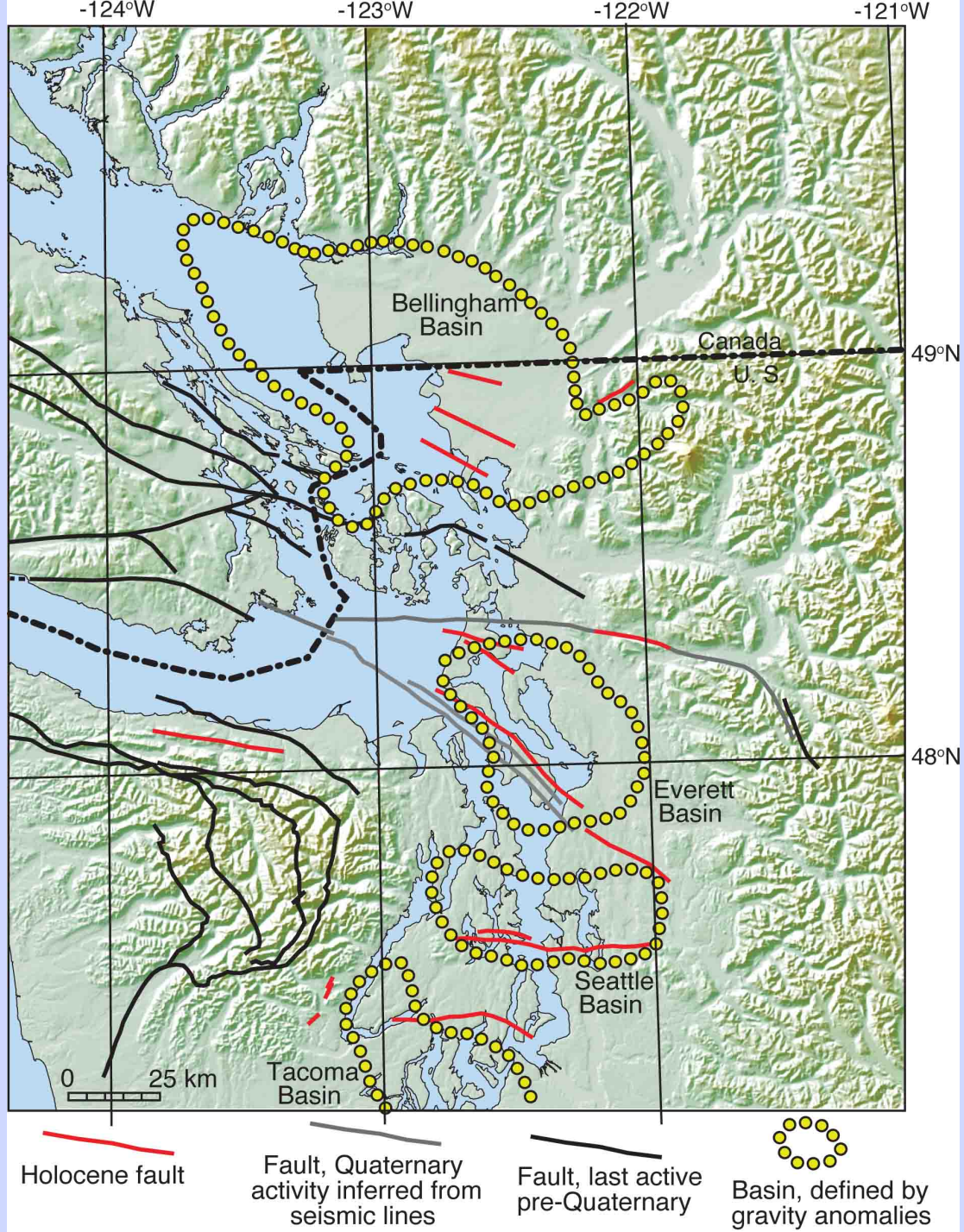












Previous graphics are based on following published article:

Kelsey, H. M.; Sherrod, B. L.; Blakely, R. J.; Haugerud, R. A., 2012, Holocene faulting in the Bellingham forearc basin: Upper-plate deformation at the northern end of the Cascadia subduction zone, *Journal of Geophysical Research*, 117, B03409, doi: 10.1029/2011JB008816.

Earthquakes generated from bedding plane-parallel reverse faults above an active wedge thrust, Seattle fault zone

Harvey M. Kelsey

Department of Geology, Humboldt State University, Arcata, California 95521, USA

Brian L. Sherrod

U.S. Geological Survey, Earth and Space Sciences, University of Washington, Seattle, Washington 98193-1310, USA

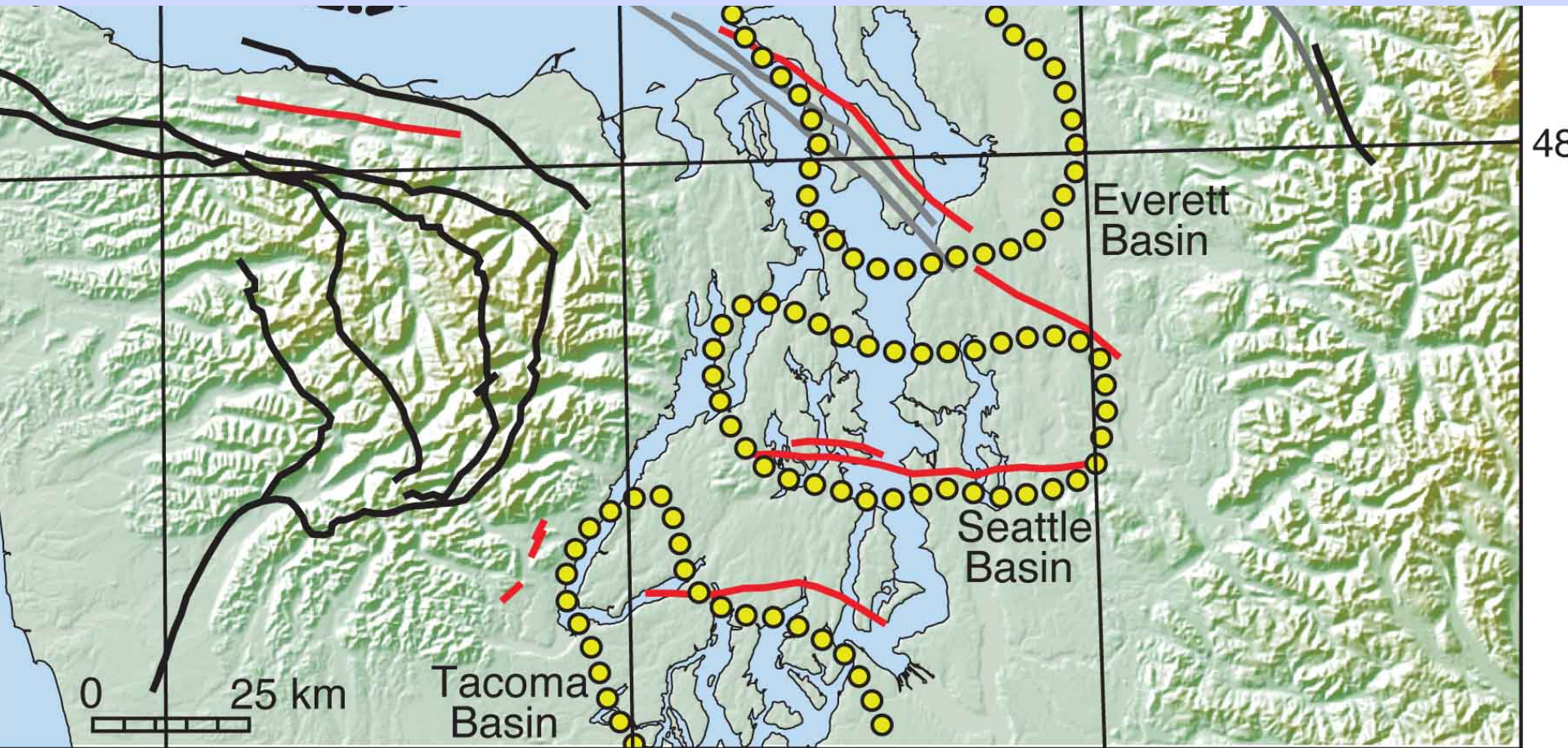
Alan R. Nelson

U.S. Geological Survey, MS 966, Box 25046, Denver, Colorado 80225-0046, USA

Thomas M. Brocher

U.S. Geological Survey, 345 Middlefield Road, MS 977, Menlo Park, California 94025, USA

GSA Bulletin; November/December 2008; v. 120; no. 11/12; p. 1581–1597; doi: 10.1130/B26282.1;

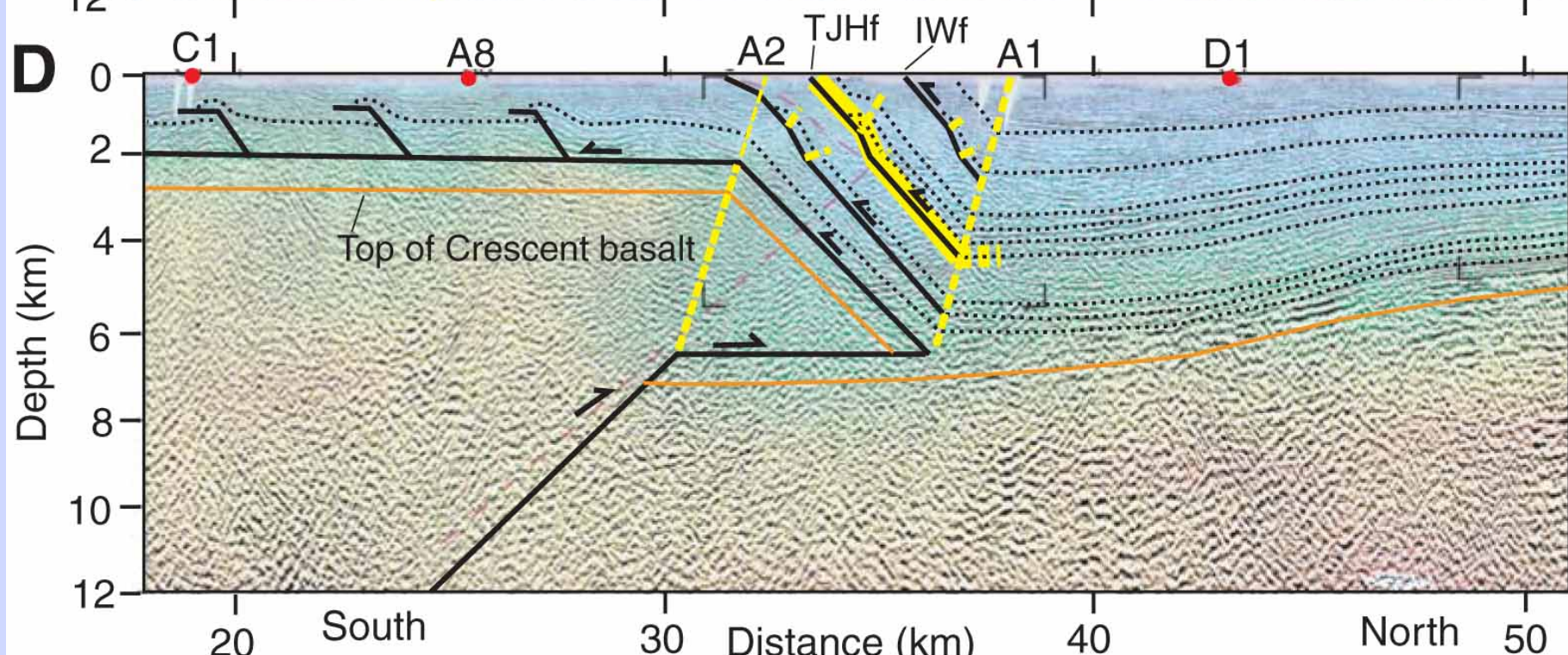
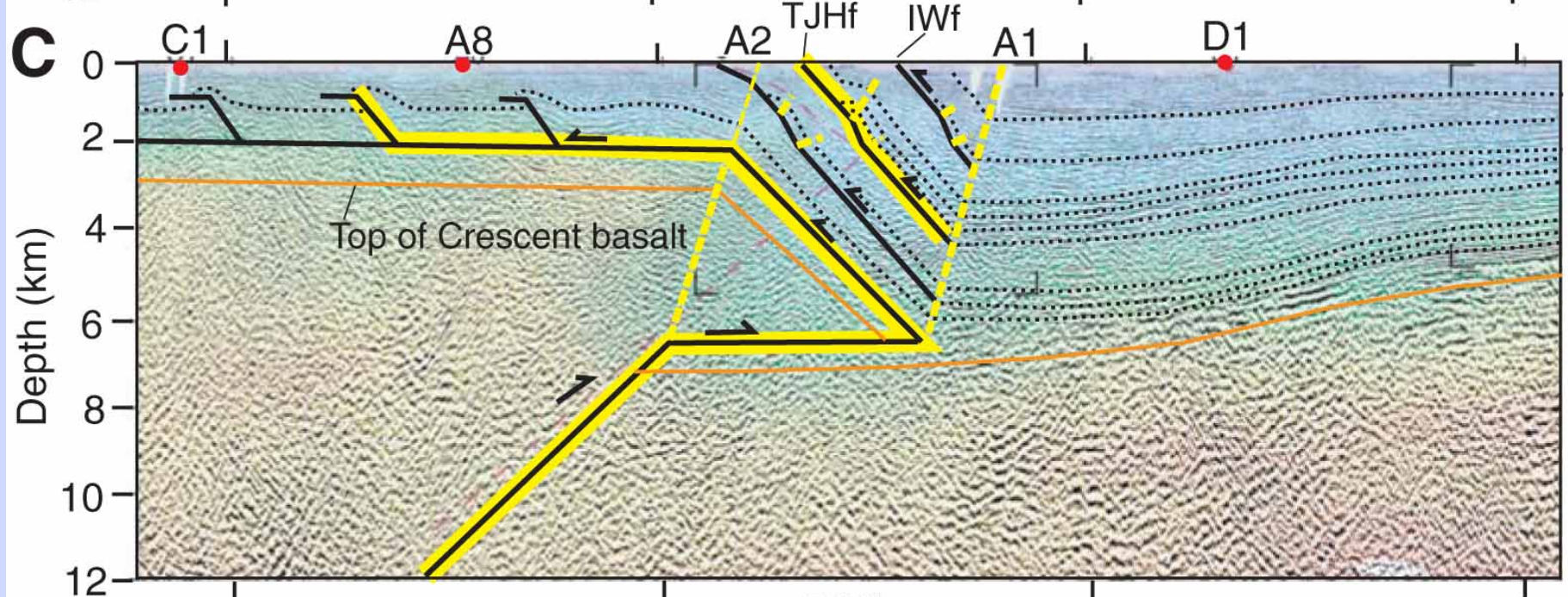


Holocene fault

Fault, Quaternary activity inferred from seismic lines

Fault, last active pre-Quaternary

Basin, defined by gravity anomalies



Deposits
of last or
earlier
glaciations



End of last glaciation
in Puget lowland



16

14

12

10

8

6

4

2

0

Thousands of years before present

A.D. 900–930 regional-uplift earthquake



Waterman Point fault
(Nelson et al., 2003b)



Toe Jam Hill fault
(Nelson et al., 2003a)



Islandwood fault
(Sherrod et al., 2007)



Restoration Point marsh
(Sherrod et al., 2000)



Age of regional uplift earthquakes (master ramp earthquakes)



Age of local uplift earthquakes (folding earthquakes)



Earthquakes prior to 16 ka