The Cascadia Subduction Zone

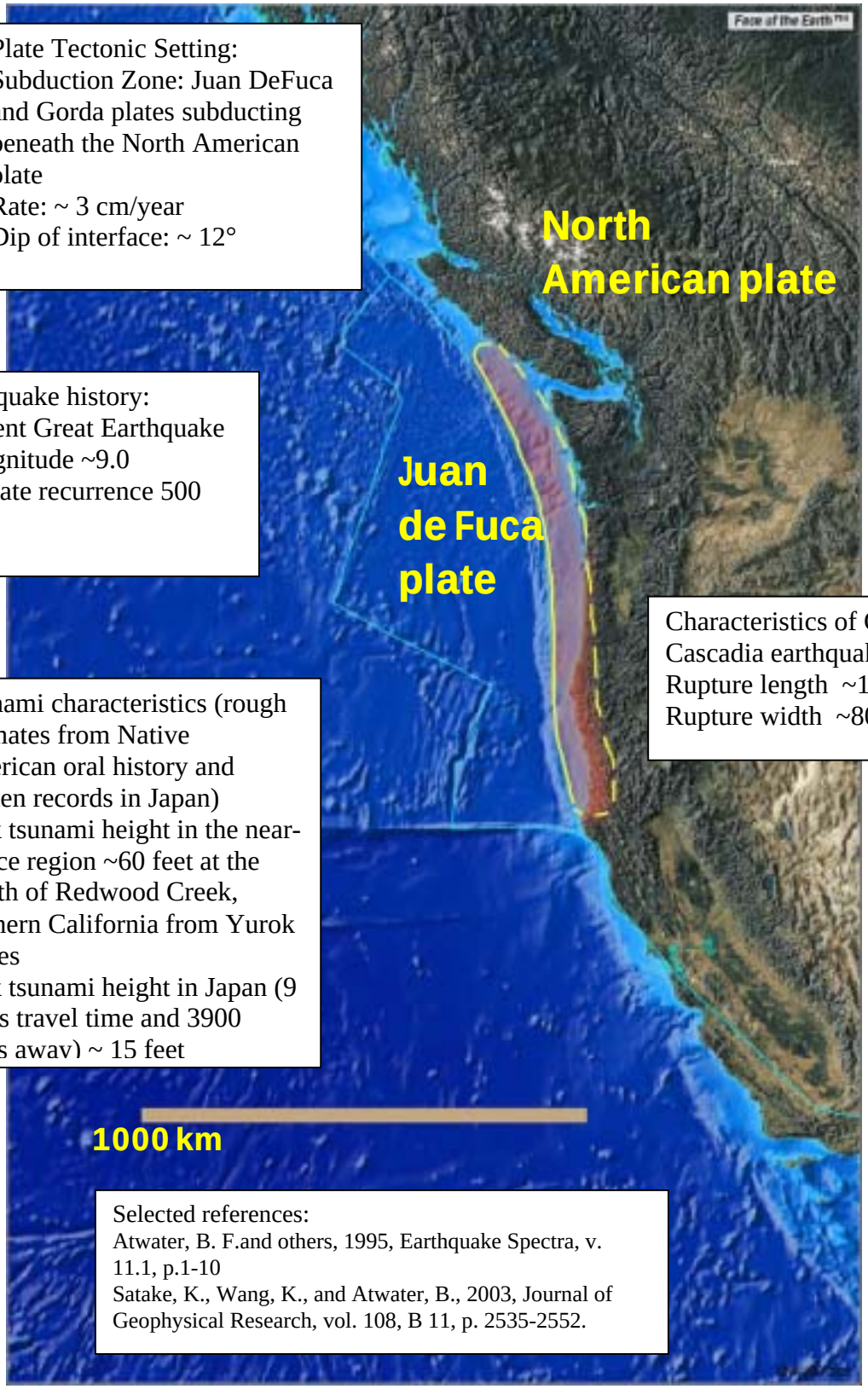

Plate Tectonic Setting:
Subduction Zone: Juan DeFuca and Gorda plates subducting beneath the North American plate
Rate: ~ 3 cm/year
Dip of interface: ~ 12°

Past earthquake history:
Most Recent Great Earthquake 1700 Magnitude ~9.0
Approximate recurrence 500 years

Characteristics of Great Cascadia earthquakes
Rupture length ~1000 km
Rupture width ~80 km

Tsunami characteristics (rough estimates from Native American oral history and written records in Japan)
Peak tsunami height in the near-source region ~60 feet at the mouth of Redwood Creek, northern California from Yurok stories
Peak tsunami height in Japan (9 hours travel time and 3900 miles away) ~ 15 feet

Selected references:
Atwater, B. F.and others, 1995, Earthquake Spectra, v. 11.1, p.1-10
Satake, K., Wang, K., and Atwater, B., 2003, Journal of Geophysical Research, vol. 108, B 11, p. 2535-2552.

Approximate rupture zone of the last great Cascadia earthquake in 1700 shown in red.

Information compiled by Lori Dengler, Humboldt State University 1/07/05. Base image from the Jules Verne Voyager project: http://jules.unavco.org/