

**CONTROL ID:** 1772195

**TITLE:** A Holocene average seismic flux rate for the Cascadia Subduction Zone

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**ABSTRACT BODY:** Paleoseismic studies of the Cascadia subduction zone provide an almost complete record of great subduction earthquakes over the Holocene. Here we describe a simple model of this behavior. Because the width of the fully coupled subduction interface decreases to the south, constant stress-drop in earthquakes requires that their slip also decrease to the south. This requires, in order to satisfy the plate convergence constraints, that shorter and increasingly frequent earthquakes finger in towards the south, just in the way observed in the paleoseismic record. The model quantitatively agrees with independent estimates of plate convergence along the length of the plate boundary and shows, more completely than before, that this subduction zone is fully coupled seismically and that the paleoseismic record is indeed nearly complete. The seismic flux release rate averaged over the Holocene is estimated as  $2.7 \times 10^9$  m<sup>3</sup>/yr.

**KEYWORDS:** 7240 SEISMOLOGY Subduction zones, 7221 SEISMOLOGY Paleoseismology, 8123 TECTONOPHYSICS Dynamics: seismotectonics.

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### **Additional Details**

**Previously Presented Material:** none presented before

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