Seattle Fault Zone -- 900-930 AD earthquake larger than previously thought

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A fresh look at sedimentary evidence suggests the 900-930 AD rupture of the Seattle fault possibly produced a larger earthquake than previously recognized. The Seattle fault zone, a series of active-east-west trending thrust faults, poses seismic threat to the Puget Sound region.

The 900-930 AD rupture is the only known large earthquake along the Seattle Fault, making geological records of prehistoric events the only clues to the earthquake potential of the fault.

While a graduate student at the University of Washington, Maria Arcos looked at tsunami and debris flow deposits – both evidence of a paleo-quake – in the coastal marsh at Gorst, Washington. She also identified evidence of at least three meters of uplift that preceded a tsunami, which was followed by a sandy debris flow from Gorst Creek, and suggests that the 900-930 AD quake covered a greater geographic area than previous fault interpretations.

The revised height and width of deformation caused by the quake may influence current interpretations of the Seattle fault's structure. This study found a minimum of three meters of uplift at Gorst, which is double the amount of previous fault models for the same location. A broader zone of deformation, says Arcos, may indicate either a wider zone of slip along the dip of the fault, a shallower dip or splay faults farther to the south.

More information: "The A.D. 900 – 930 Seattle Fault Zone

Earthquake with a Wider Coseismic Rupture Patch and Postseismic Submergence: Inferences from New Sedimentary Evidence," published in *BSSA*, Vol 102:3; DOI:10.1785/0120110123