

Was the 2011 Tohoku tsunami once-a-millennium disaster in the Sendai Plain?

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Geological evidences show that recurrence intervals of outsize tsunamis along the Japan Trench may be shorter than previously thought. In the Sendai Plain, A sand layer was found in peat above a historical volcanic ash (AD 915), and is dominated by brackish-marine diatoms. Radiocarbon dating obtained from plant macrofossils permits correlation of the sand layer for the 1454 Kyotoku tsunami. The distribution of the layer shows that the run-up distance of the 1454 tsunami was at least 1 km, longer than any tsunamis that occurred during the last 200 years except for the 2011 Tohoku tsunami. Numerical simulation for tsunami inundation suggests that such an inundation distance is accounted for a rupture similar to that of the Jogan earthquake. The 1454 Kyotoku tsunami is thus considered as an unusually large tsunami comparable with the AD 869 Jogan and 2014 Tohoku tsunamis, indicating that such tsunami inundated on the Sendai Plain more often than previously thought.

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