

Preliminary results of a search for an onshore record of the 1929 Grand Banks tsunami

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Layers of sand and pebbly sand discovered in peat about 12 to 20 cm below the turf line at Taylor's Bay and Lamaline on the Burin Peninsula of Newfoundland may record the tsunami generated by the 1929 'Grand Banks' earthquake. If so, this would be the first case of onshore tsunami depos-

its documented in eastern North America. The 'Grand Banks' earthquake of surface wave magnitude $M_s = 7.2$ stands as Canada's most destructive and costly earthquake. The slumping of the continental slope at the mouth of the Laurentian Channel caused a turbidity current that severed 12 trans-Atlantic tele-

graph cables and set up a tsunami that did damage in southern Newfoundland, Nova Scotia and Bermuda. The brunt of the tsunami damage occurred in about 40 coastal communities along the south coast of the Burin Peninsula. Twenty-eight deaths occurred in Newfoundland and an additional death is now known in Nova Scotia.

The possible tsunami deposits were discovered in August 1993 during reconnaissance along the portion of the southern Burin Peninsula hardest hit by the 1929 tsunami. The sandy layers range up to 17 cm in thickness and are characterized by sharp contacts; no grading was observed within the layers. The layers are fairly continuous over areas of 10,000 m² at Taylor's Bay and ca. 1,000 m² at Lamaline. The areal extent of the possible tsunami deposits and the post-tsunami positions of houses that had been moved inland indicate a runup of about 7 m above sea level at Taylor's Bay and 3 m at Lamaline. Not to be confused with the possible tsunami deposits, a diffuse zone of rounded pebbles

observed in the uppermost peat both within and above the 1929 runup zone is thought to be anthropogenic in origin and probably resulted from fertilization of hay fields with pebble-bearing seaweed.

Currently, various options are being considered for dating the possible tsunami deposits. Site investigations planned for next summer will examine in more detail the areal distribution, topographic settings, and sedimentary characteristics of these deposits with a view to utilizing tsunami deposits in palaeoseismicity studies.

These preliminary results suggest that a record of prehistoric offshore earthquakes may be preserved as tsunami deposits along the eastern seaboard of North America. In order to utilize tsunami deposits in palaeoseismicity studies in this region, efforts are currently underway to develop criteria for distinguishing between tsunami and other types of coastal deposits.