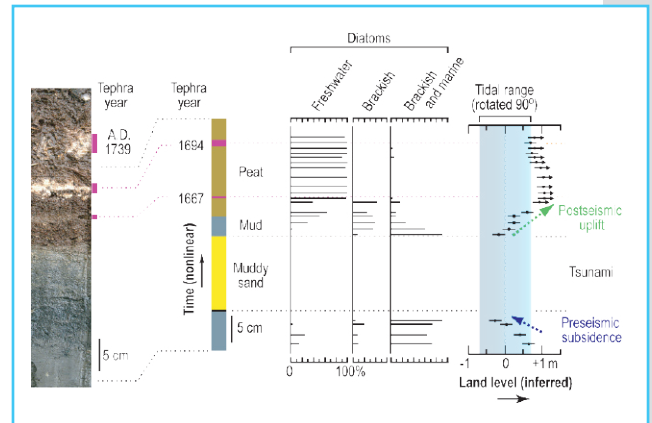


Transient uplift after a 17th-century giant earthquake in Hokkaido

While the geodesic data indicate that the Pacific coast of eastern Hokkaido is sinking for the past hundred years, the geological data shows slow coastal uplift for the past hundred of thousands years. In order to solve this mysterious controversy, the Active Fault Research Center has investigated volcanic ash deposit, tsunami deposit and fossil diatoms in the coastal geological layers, and found a coastal uplift of 1 to 2 m over decades following multi-segment interplate earthquakes occurred in the 17th century. A model computation indicates that the coastal uplift is due to fault movement at a depth below the seismogenic zone of the interplate earthquake.

Fig. Changes in the coastal elevation (right) is estimated on the basis of fossil diatoms (center) contained in the coastal deposit (left). Layers of mud and peat deposit are sandwiched between a sand deposit brought by a tsunami from a giant earthquake in the 17th century in the bottom and a volcanic ash in the top. The identification of diatom species suggests a slow rise of the coast.



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Metrology and Measurement Technology

Density and thickness measurement of a thin-film by the pressure-of-flotation method

A new method for density and thickness measurements of a thin-film is proposed by a pressure-of-flotation method (PFM). A density difference is determined by the PFM while a mass difference is measured by an electric balance for the samples before and after thin-film is prepared on a substrate (Fig). Then, the density and thickness of the thin-film on the substrate can be derived. The density and thickness of a molybdenum thin-film prepared on a silicon substrate are evaluated by this method. The estimated standard uncertainties of density and thickness for the molybdenum film are 3.8 % and 4.0 %, respectively.

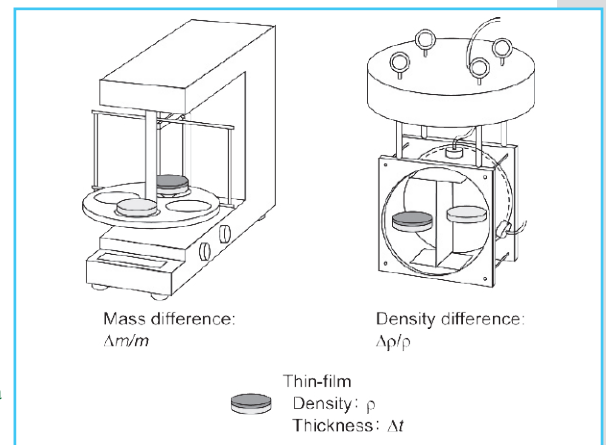


Fig. Density and thickness measurement of a thin-film by density and mass comparisons.

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