Investigation of tsunami disasters using lake Kitagata sediment

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Tsunami disaster after the Tohoku Earthquake that occurred in 2011 increased our concern tsunami in the Japan Sea side of the coastal region as well as the Pacific side. We can find the description of large scale tsunami disaster occurred in the Sea of Japan side in historical documents. In this study, we investigated the tsunami disaster along the Japan side coast using the sediment core from the lake kitagata, Fukui prefecter. Lake Kitagata is a brackish lake connected to the Sea of Japan.One of the tsunami records occurred in this region is the Tensho tsunami in 1586. This tsunami was described in two Literatures, mentioning that the huge waves overwashed the land. However ,no sedimentological traces of this tsunami has been reported.Possible tsunami sediment layer was found from the depth 170-203cm of the core (KT14-5), which is collected from the point about 2 km island from the sea. The layer shows coarse mineral particle size, increase in the amount of calcium carbonate, decrease in the amount of organic matter and moisture content. A corresponding layer in another core include the shell of sea origin.In addition, diatom assamblage show ,that marine and brackish species were about 70% of the total diatom,while that of a sample 30 cm beneath this layer exhibit freshwater species with about 60 percent of the total diatom species. These lines of observation indicate that this layer is tsunami deposit. ^{14}C dating results in 1404-1474 cal AD for a shell from this layer (196cm) slightly older than, but more or less equivalent to the age of Tensho tsunami. This finding is one of the evidences for a large scale tsunami disaster in the past in Hokuriku region.

Keywords: tsunami, lake sediment, diatom

