Reinterpretation of Quaternary sediment chronology and sedimentary environments in present Lake Biwa

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Lake Biwa is the largest freshwater lake in Japan, measuring 22.6 km side by 68 km long and having a maximum depth of 104 m. The lake has a long history from the early Pliocene based on the geological survey and paleogeographical study of lake sediments around Lake Biwa (Kobiwako Group). The sediments revealed the paleoenvironmental change and tectonic events at the convergent margin of the Eurasian plate.

Deep drillings were carried out 1970's and 1980's in and around present Lake Biwa. 1982-1983 drilling conducted by Prof. Shoji Horie showed that the present Lake Biwa Basin bears a sedimentary sequence of about 900 m thickness, which was deposited in lacustrine or fluvial environments. As we could not get the enough information about the age control to the lower part of sedimentary sequence, the problem on continuity of the present lake sequence left behind. Recently, Danhara et al. (2005) obtained fission-track age of about 1.0 Ma instead of older reported age of 2.0 and 2.2 Ma. Also, Yamashita et al. (2005) reported characteristics of the tephra layer intercalated with the whole sequence, and correlated with wide spread tephra. Those data at deeper part in the present lake shows the continuous sedimentation of whole lake basin during Quaternary. After correlation of three deep core samples in lake basin and on land by tephrochronological method with seismic reflection data, we can figure out the paleotopography of the initiation of present Lake Biwa basin. Correlation of sequence in lake basin with that on land by precise tephrochronology and sedimentary sequence shows the sedimentary reply at lake basin and sedimentary environmental change around lake basin.