

## Last 100 ka water mass condition changes recorded in lacustrine sediments of Lake Erhai

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<http://www.sci.metro-u.ac.jp/geog/hensen/index.html>

Lake Erhai is the seventh biggest lake in China and locates at the Dali City, the Yunnan Province in the western part of China. The Erhai 99 sediment core was taken from the bottom of lakes under 21m in water depth at the center of the Lake Erhai (25 41'N, 100 14'E) by thin-wall type piston core sampler. The core length is 42.63 m, covering the last 100 ka continuously (Fukuoka et al., 2002).

In this study, I clarified the lake level history of Lake Erhai during the last 100 ka on the basis of sedimentological features and geochemistry analyses of the core sediments. From the detailed description of this core, the Lake Erhai sediment consists of homogeneous gray to dark gray silty clay with concentrated layers of vivianite mineral ( $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ ). These vivianite layers develop dark gray colored horizons at depth 43 to 31, 24 to 20 and 11 m. The occurrence of vivianite indicates the anoxic condition at the bottom of water column, caused by the weakness of the vertical mixing circulation in a lake. Also, the results of opal-A, chemical component and total carbon content variations in this sediments indicate the high productivity in a lake and high influx from the river discharge in the horizons of vivianite layers. These correlations suggest that a vivianite layer precipitated under the high lake-level condition as it can be likely to anoxic condition at the bottom of a lake. Hence, it could reveal the lake-level changes of Lake Erhai during the 100 ka by using such paleo-climatic proxies.

The periods of high lake-level, indicates high precipitation influenced by the strengthened Asian summer monsoon activities, are dated 100 to 95, 82 to 73, 58 to 45 and around 17 ka. These periods correspond to marine isotope stage (MIS5c), MIS5a, MIS3 and the Bolling / Allerod warmed stages, respectively. The terrestrial paleo-climatic record by this research could compare with the marine records in the South China Sea (Jian et al., 1998; Wang et al., 1999).