

The buried river valley found at Lake Tonle Sap, Cambodia

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Lake Tonle Sap is a huge lake located in the central part of Cambodia. The lake is known to drastically shrink and swell in an annual cycle. In dry periods the lake is less than 1-m deep, whereas the water depth exceeds 10 m in rainy periods. The latter phenomenon is caused by a water pulse supplied from the lower Mekong River. For this, Lake Tonle Sap serves a natural flood control for the Mekong delta, preventing floods, although the precise function and its historical change are still unclear.

Although previous studies presented the environmental history and geological structure for a limited small area of the lake, investigations for the wider area are expected to better understand the seasonal behavior and its role in the Southeast Asia. For this, we undertook a seismic survey three times covering the whole area of the lake using an echo-sounding device (Strata Box by Synquest Inc.). The total distance of the survey reached up to 300 km.

The seismic data for Lake Tonle Sap showed that the lake bottom is quite flat and the strong sonic reflectance was spatially observed at 1 to 2 m under the lake bottom surface. This suggests that thin mud layer is deposited up to the depth. On the other hand, the pattern of the sonic reflectance showed an lvalley-shapd configuration at several measuring lines. This valley could be a remnant of old streams having the depth ranging from 10 to 14 m and the width from several hundred meters to several kilometers. We reconstructed the distribution pattern of the paleo-Tonle Sap Rivers by spatially connecting the buried rivers

We collected the sediment core at the deepest part of the Paleo Tonle Sap River, and a series of lab measurements were undertaken, e.g., ¹⁴C dating, paleomagnetism, and physical properties. These will be shown in the other paper during the conference.

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