

# Lake sediments help scientists trace 7,000 years of mining, metal use in China

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Scientists used core sediments from China's Liangzhi Lake to track use of metals over several thousand years. Credit: Courtesy of Xiangdong Li

A new geochemical study illuminates 7,000 years of mining and metal use in central China and links these trends to fluctuations in airborne pollution during the Bronze Age and other military and industrial periods in Chinese history. The study, which could help scientists better assess the accumulative environmental effects of human activity in the region since prehistory times, is scheduled for the July 1 issue of the ACS' *Environmental Science & Technology*.

Using carbon-dated core sediments taken from Liangzhi Lake in Hubei province, Xiang-Dong Li and colleagues were able to track metal deposit trends at the lake dating back to 5,000 B. C. Liangzhi Lake, located in an

important region in the development of Chinese civilization, is relatively undistributed by local wastewater discharges and is therefore an ideal site to study ecological changes and the effects of past human activity, the scientists say.

Beginning in about 3,000 B.C. concentrations of copper, nickel, lead and zinc in the sediments began to rise, indicating the onset of Bronze Age in ancient China, the researchers found. In the late Bronze Age (475 B.C. to 220 A.D.), an era corresponding with numerous wars, sediment concentrations of copper increased 36 percent and lead by 82 percent.

Copper and lead were used extensively to make bronze tools and weapons. The sediments suggest mining and metal usage in the region continued to wax and wane into the modern era, reflecting the environmental changes influenced by past human activity.

Source: ACS

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