Climatic record of the past 15000 years in the sediments of Lake Yamanaka, northern foot of Mt. Fuji

DandaPani Adhikari[1]; Takashi Uchiyama[2]; Satoshi Koshimizu[3]

[1] Earth Science, Yamanashi Inst. Environ. Sci.; [2] YIES; [3] Yamanashi Inst. Environ. Sci.

In an attempt to reconstruct the past climate in central Japan, a 17.63 m long boring core was extracted from the deepest part of Lake Yamanaka, one of the Fuji Five Lakes at the northern foot of Mt. Fuji. The core mainly composed of clayey silt with intercalations of scoria fallout deposits at more than 40 horizons, which accounted about half of the core length. The sediment was investigated for total organic carbon (TOC) content and grain-size distribution as climate proxies. The sediment chronology derived from tephra and radiocarbon ages yielded sedimentation rate in a range between 0.233 cm/yr and 0.03 cm/yr, and placed the basal age at ca. 15,000 cal BP. The TOC content and grain-size distribution showed various degrees of fluctuations, both short- and long-term. Surface water temperature and paleohydraulic changes in and around the lake appear to be the main factors affecting the variability in TOC content and grain-size distribution. Climatic events such as the Little Ice Age (LIA), the Medieval Warm Period (MWP), and the Holocene Optimum (HOP) together with some other warm and cold events are evident. The study also reveals the volcanic history of Mt. Fuji in the past 15,000 yrs.