

Causes for the changes in Mn content and Ti/K ratio in sediment from Lake Suigetsu during the last glacial period

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Japanese islands arc is located within East Asian monsoon region. So Japanese climate is affected by changes in summer and winter monsoons, especially changes in their intensities and locations of the monsoon front. For example, pollen analysis of a varved sediment core from Lake Suigetsu, Fukui Prefecture, showed that millennial-scale climate changes occurred during last deglaciation (Nakagawa et al., 2006). They interpreted that cold phase during last deglaciation to have been the Japanese counterpart of the Younger Dryas, and was result from shift in winter monsoon front or intensifications of the winter monsoon. So, Japanese palaeoclimate seems to have been related with the global climate through monsoon variability.

Here we report high-resolution analysis of chemical compositions of major elements of new sediment core from Lake Suigetsu (SG06 core) to reconstruct palaeoenvironmental changes during the last glacial period. This core was obtained in 2006, is 73.2m long, and includes several wide spread tephra, K-Ah, U-Ok, Sakate, AT, Aso-4, K-Tz and Ata. This core reaches at least last interglacial.

Chemical composition of SG06 core was examined by X-ray-fluorescent spectrometer (XRF) and X-ray-fluorescent microscanner (XGT). We measured chemical composition of SG06 core at 1cm interval (10-20 years) by XGT, estimate content of detrital, biogenic and diagenetic components in the sediment, with which we tried to reconstruct paleoclimatic variability.

We discovered that the change in sediment composition occurred at about 500cm below AT tephra. Above this horizon, Mn content becomes about 3-10 times larger and Ti/K ratio is smaller than that in the lower interval.

It is not certain whether this change in sediment composition is resulted from local factor, or reflect paleoclimatic change. The origin of this change will be discussed at the meeting.