

# Spatial property of heavy precipitation and flood history during the Late Holocene in central Japan and correlation with climate change in surrounding region

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East Asia region including Japan is under the effect of East Asian Monsoon and Typhoons, which produce large amount of rainfall and subsequent flood events. Based on the observation and numerical modelling, it is indicated that occurrence of heavy precipitation could be affected by the increase of sea surface temperature in the vapor source. On the other hand, there are secular variations of occurrence, route and magnitude of typhoons and they could be affected by other climate conditions such as route of westerly and SST in the low latitude area, source regions of Typhoon.

To understand the major controlling factor of occurrence and magnitude of heavy rainfall and flood events in the long term, correlation of paleoclimatic record with heavy precipitation and flood record is necessary. However, existing method to reconstruct precipitation such as pollen and stalagmites can only obtain long term (monthly to annually) averaged data, which is not enough for the record of heavy precipitation and flood events occurring within a few days. In this study, for the proxy of heavy precipitation and flood events, we utilized the “event layers” which are preserved in the sediment as a result of geologically instantaneous phenomenon such as floods and flux of detrital material which increase with heavy precipitation. Using the near surface sediment of Lake Suigetsu, we correlated sedimentary record with observational record and two proxies for heavy precipitation and flood events are established;

1) Flux of detrital material from river basin would increase with the increase of heavy precipitation (>50mm/day).

2) As a result of a flood event, a light gray event layer would be deposited. Thickness of light gray event layer represents total amount of precipitation during the flood event.

Based on these two proxies, we reconstructed semi-quantitative record of heavy precipitation and flood events in the last 7000 years. In this presentation, we would discuss about the correlation of the record with other flood records and climate records around East Asia region which potentially control precipitation pattern.

Related to this presentation, establishment of proxy for reconstructing heavy precipitation and flood event based on correlation of sediment and observation is presented in H-SC07 session, and identification of flood and earthquake in this study and correlation with local environmental change would be presented in M-IS 23 session.

Keywords: Lake Suigetsu, varved sediment, flood, Holocene