**Japan Geoscience Union Meeting 2010**
(May 23-28 2010 at Makuhari, Chiba, Japan)


APE025-P02 Room: Convention Hall Time: May 27 17:15-18:45

# Late Holocene Environmental Change inferred from Magnetic Properties of Ni-no-Megata and San-no-Megata Maar Sediments

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Ni-no-Megata and San-no-Megata are maar lakes located in the Oga Peninsula, northeastern Japan. As represented by occurrence of fine laminations, high-resolution records of environmental and climate changes are expected to be preserved in sediments of these lakes. To reconstruct environmental changes during Late Holocene, we conducted magnetic measurement of u-channel samples of piston-cores NMG07-2 and SMG07-1 from Lake Ni-no-Megata and San-no-Megata, respectively.
Indicators of magnetic mineral concentration (low-field susceptibility: k, anhysteretic susceptibility : $k_{ARM}$, saturation isothermal remanent magnetization: SIRM, hard component of IRM: HIRM) show peaks at the horizons of tephra and turbidite layers, where magnetic grain-size parameters ($k_{ARM}$/k, $k_{ARM}$/SIRM, SIRM/k) suggest occurrence of coarser grains. This can be explained by large supply of coarse magnetic minerals due to input of volcanic ash or event deposits associated with earthquakes.
Parameters of magnetic mineral concentration increase apparently above 120 cm depth, although no lithological change is observed. Proportion of low coercivity component (S-ratio) and the Day plot of hysteresis parameters suggest that above this depth magnetite predominate in magnetic minerals, whereas high coercivity component contributes greatly below. Variations of HIRM and SIRM at the corresponding interval suggest that this change results from dissolution of magnetite after deposition. It is thus suggested that the bottom-water condition of the lakes changed from anoxic to relatively oxic between the two intervals. According to the age-depth model based on $^{14}C$ dates, age of the Towada-a (To-a) tephra and correlation of the poleomagnetic parameters, this horizon is dated at about 800 year BP in both lakes, suggesting a possibility corresponding to a climate change from warm/humid period to cool/dry period.

Keywords: Ni-no-Megata, San-no-Megata, Late Holocene, environmental magnetism