

Holocene paleoceanographic changes in the southwestern Okhotsk Sea: based on the sedimentological variation of GH series cores

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The sediment cores, recovered by GH 00 and 01 cruise of the Geological Survey of Japan from the southwestern Okhotsk Sea were investigated based on the sedimentological methods. These series cores are mainly composed from massive silty clay with the exception of the laminated horizon of the middle part of GH00-1006 core. The results of the multidisciplinary analysis, for example: rockmagnetism, microfossil, chemical and sedimentological variation (e.g. Kawamura et al.,2002; Yoshimoto and Hasegawa, 2003; Shimada et al., 2003; Komori et al.,2003), were given for the several cores. In this presentation the authors will present the reconstruction of the paleoceanographic changes, based on the observation of the soft X-ray images and microfacies of GH cores.

As the result of the detail observation of soft X-ray images and SEM, sedimentological characteristics of GH00-1014 core, one of the GH series cores covering the last ca. 16000 years, were obtained as follows: 1) bigger than 1 mm particles are contained with silty clay sediment in the upper part (from 350 to 0 cmbsf), whereas the particles is rare in the lower part (from 536 to 350 cmbsf), 2) Twig-like structures (resemble type 3 in Savrda and Bottjer,1989) which are inferred as pyrite filled burrow, occur from the middle to lower part of the core. This structures well exist below 350 cmbsf in particular. 3) Uniform shaped framboidal pyrite appear as perfect sphere in the middle and lower part of the core, while that were formed as anhedral framboids in the upper part. Assuming that the particles are IRD (ice-rafted debris), the transitional unit of 350 cmbsf (ca. 11000 cal y.B.P.) corresponds to the transition from the open-water sea surface conditions to the seasonal sea-ice covered environment. The other cores also were investigated by same description, and classified into 5 categories. Furthermore, we will report about this classification and the interpretation of the origin of the twig-like structures and the variation of framboidal pyrite based on the observation of thin section and SEM.