

## Fluctuation of SST and organic matter accumulation in the Okhotsk Sea and its adjacent sea over the last 20kyr.

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The sediment was collected at the Kuril Basin (PC-04, 49N, 153E, WD 1821m) in the Okhotsk Sea and the southeastern site in the Pacific side of the Kulzenshutana Strait (PC-01, 46N, 152E, water depth 2800m), during the MR00-K03 cruise from May 9 to June 10 in 2000, as an investigation of a JAMSTEC project on 'Biogeochemical Change of the Past Northern North Pacific and its Adjacent Seas.' The main objective was to understand the past environmental change such as sea surface temperature, productivity and deep water circulation in the northwestern North Pacific and the Okhotsk Sea throughout the late Quaternary period (ca 150,000 yr). Additionally, we used a sediment core collected at Off Shari in the Okhotsk Sea (MD01-2412, 44.31N, 145E, WD1225m) as an investigation of IMAGES.

In this presentation, we show a result of the paleo flux of organic carbon for PC-01 and PC-04 by using three empirical equations; Alkenone flux and sea surface temperature by using  $UK'37=0.034T(C) + 0.039$  were reconstructed for PC-01, PC-04 and MD01-2412 over the past 20kyrBP.

For PC-01, the paleoproductivity gradually increased with changing geological time from the LGM to the deglacial period, and no large difference was found in paleoproductivity between the Holocene and the LGM. For PC-04, although the paleoproductivity gradually increased with changing geological time from the LGM to the deglacial period, the paleoproductivity decreased in the Holocene.

Alkenone was first detected at 17500yrBP for PC-01 and at 16000yrBP for PC-04 and its concentration rapidly increased within 200-300yr after the first occurrence. Alkenone producer is difficult to survive where sea ice covers. Therefore, it seems that an area of the Kuril Basin and the southeastern site in the Pacific side of the Kulzenshutana Strait was covered by perennial ice until 16000yrBP and 17500yrBP, respectively, and the perennial ice melted within only several hundreds yr after the LGM.

1) Sarnthein et al., Transfer functions to reconstruct ocean paleoproductivity: A comparison. In: Upwelling systems. Evolution since the early Miocene. Geol Soc Spec Publ 64, pp411-427, 1992

2) Muller P.J. and Suess E. (1979) Productivity, sedimentation rate, and sedimentary organic matter in the oceans-I. Organic carbon preservation. Deep-Sea Res., 26A, 1347-1362.

3) Stein R. (1986) Surface-water paleoproductivity as inferred from sediments deposited in oxic and anoxic deep water. SCOPE/UNEP Sonderband 60: 55-70.

4) Prahl F. G., et al. (1988) Further evaluation of long-chain alkenones as indicators of paleoceanographic conditions. Geochim. Cosmochim. Acta 52, 2303-2310.