



Implication of biomarkers signatures of the Ulleung Basin, East Sea, during the Pleistocene

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In this study, the molecular distribution of the n-alkanes, alkenone and C/N ratio and $\delta^{13}\text{C}$ of bulk sediment were used to assess changes in organic matter (OM) source and transport which could be related with paleoclimate change. The proxy records corresponding to the Pleistocene have been obtained from the well-studied the Ulleung Basin Gas Hydrate Expedition 2 (UBGH2) site 1_1 in the Ulleung Basin, East Sea. The distribution of carbon preference index (CPI) of n-alkane encountered in this study confirmed the importance of terrestrial OM in the marine sediment. Alkenone has been widely applied for sea surface temperature (SST) reconstruction. The data results show that CPI values generally increase with decreasing paleo-SST. Plot of C/N ratio versus $\delta^{13}\text{C}$ shows a predominance of marine algae origin in the study area. It may indicate that the minimum CPI in warm period is related with the contribution of probably enhanced biodegradation, while the maximum CPI value in cold period result from restrain of OM input associated with sea level lowering. It is likely that the vertical variations of the biomarkers signature reflect the shifts in sedimentary environment and transportation related with change of ocean currents and sea level during the Pleistocene period.