

## Terrigenous organic matter supply to deep-sea basin with relative sea-level changes during the last glacial stage and deglaciation

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The coastal environmental variations with relative sea-level changes affect the basin floor sedimentation. The purpose of this study is to examine the supply of terrigenous material in the deep-sea basin connected to submarine canyon and in the slope unconnected to submarine canyon.

We used four piston cores, two cores (BO04PC08 and PC11) were taken from slope along the Nankai Trough, and turbidites are not recognized in the cores, others (02DMKUPC01 and PC03) from central part and edge of submarine fan on the deep-sea basin (Kumano Basin) and turbidites are recognized in the cores. The Sambe-Ukinuno Pumice (SUK; Miura and Hayashi, 1991), which was deposited at about 16,400 years BP, is present at a depth of 45 cm in the BO04PC08 and a depth of 246cm in the PC11 (Ikehara et al., 2005). The AT, which was deposited at about 29,000 years BP (Tada et al., 1999), is present at the base of the PC08. These sediments were deposited during the last glacial period and the last deglaciation based on the volcanic ash and radio carbon ages of planktonic foraminifera. The analyses of turbidite frequency and sedimentary organic matter composition of the submarine fan sediments (02DMKUPC01 and PC03) reveal that the basin floor sedimentation responded to coastal environmental changes with relative sea-level rise during the last deglaciation. Turbidites were frequently deposited during the slowly transgressive stage. The frequency of turbidity currents decreases with development of the bay during the rapid transgressive stage. Composition of sedimentary organic matter changes from those rich in terrigenous organic matter to those poor in these materials during the rapid transgressive stage in the submarine-fan sediments (Omura and Ikehara, 2006).

We examined the mass accumulation rate and origin of organic carbon based on the sedimentation rate, dry bulk density, porosity, stable carbon isotope ratio, and composition of sedimentary organic matter analyses. We also calculated the proportions of terrigenous organic carbon in the sediment based on the measured stable carbon isotope values. The proportions of terrigenous organic carbon before 14,000 years BP is higher than that after 14,000 years BP. The proportions rapidly decrease between 14,000 years BP and 9,000 years BP in both the slope and submarine fan sediments. But the proportions of terrigenous organic carbon in the submarine fan sediments are higher than that in the slope sediments before 14,000 years BP.

These results suggest that the variations of terrigenous material supply controlled by relative sea-level changes occurred in the submarine fan connected to submarine canyon and slope unconnected to submarine canyon. We try to test the proportions of terrigenous organic carbon based on visual organic matter composition and examine the quantitative variations of mass accumulation rate.

### References

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