

Update of study of primary productivity and export flux suspected by using sediment trap sample

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Clarification of mechanism of decrease in atmospheric CO₂ (pCO₂(air)) during the last glacial maximum (LGM) contributes to the prediction of future global warming caused by increase in pCO₂(air). It has been suggested that the change in marine biological activity (primary productivity) and in species of phytoplankton (Alkali pump) is prime candidate for decrease in pCO₂(air) during LGM. However previous evidences are insufficient to support this hypothesis because biogenic material such as organic carbon, opal and carbonate preserved in sea floor is quite small and its state of preservation is problematic. It is, therefore, questionable to suspect paleo-productivity by using these biogenic materials and empirical equation. Before all, even algorithm to suspect modern primary productivity and export flux of organic carbon by using settling particulate materials that is an origin of sea floor sediment is still on argument. This study reviews update of study of relation between modern primary productivity / export flux and settling particulate organic carbon collected by sediment trap, focusing on the study of biological pump in the northwestern North Pacific.