Abstract

We carried out sensitivity analysis using ECOS3D model (Nakata et al., 2004) in order to investigate how the spatial distribution of nutrients (NO₃, PO₄), Net Primary Production (NPP), export flux and CO₂ fugacity (fCO₂) in the world ocean are influenced by changing parameter of phytoplankton such as half saturation constants for PO₄ and NO₃ uptake, maximum cell quota capacity (P-quota and N-quota), C/P and C/N ratio and minimum growth temperature. It revealed the possibility that small size phytoplankton may hardly have cell quota by comparing the model result with the observation data (WOA01) on nutrients. The model result on fCO₂, NPP and export flux also showed the possibility that the activity of phytoplankton in high latitude region may influence on CO₂ absorption assessment in the world ocean.