

## Estimation of Phytoplankton Group-Specific Primary Production in Kuroshio Waters Using Ocean Colour Remote Sensing

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The ocean is a major sink of carbon dioxide released into the atmosphere. Phytoplankton conducting primary production plays a significant role on temporal and spatial variability in the absorption of the carbon. Also phytoplankton transfers carbon to higher trophic levels in a marine ecosystem, and the carbon pathways to the higher trophic levels affect vulnerability of food web, or the ecosystem, against external forcings. Tremendous efforts to measure primary productivity of the total phytoplankton community in the global oceans have been made historically. On the other hand, measurements of primary productivity of individual phytoplankton groups composing of the total community are relatively sparse. This is partly due to methodological difficulties to differentiate such productivity of individual groups in situ, on top of practical circumstance that in situ observation requiring ship time is usually expensive. Therefore, it is of great interest if satellite remote sensing can overcome these problems, given that a number of earth observation satellites have been and will be launched. Especially, it is a great advantage of satellite observation that one can hindcast primary productivity of individual phytoplankton groups using historical remote sensing data, once a remote sensing methodology/algorithm is developed. In this presentation, we show a primitive result of development of such methodology to estimate primary productivity of diatoms and haptophytes in Kuroshio waters using ocean colour remote sensing.

Keywords: Ocean Colour, Satellite Observation, Phytoplankton, Primary Production