

Influence of typhoon to primary production in the marine environment

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Response of ocean primary production to typhoon, which is not easy to study by ship observation, is becoming clear using ocean color remote sensing data. Here, we will review studies of influence of typhoon to primary production in the marine environment, including our studies in the eastern Asian marginal seas. Often phytoplankton biomass and primary production enhance by upwelling and mixing caused by passage of typhoon. Using ocean color and other satellite data, changes of not only biomass but also primary production and new production by typhoon can be estimated, and profiles of Argo float are useful to estimate changes of nutrients. Multiple regression analysis of the changes of primary production with typhoon translation speed, maximum wind speed and depth of the pass is useful to estimate the enhancement from the basic typhoon parameters. Differences of basic oceanographic structures give different magnitude of primary production response, and in some region responded phytoplankton can be carried significant distance with current.

Keywords: marine ecosystem, primary production, typhoon, cyclone, phytoplankton, nutrient