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Interannual variations of phytoplankton communities in response to nutrient supply from different water masses in summer East China Sea

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Phytoplankton distributions in the mid-shelf East China Sea (ECS) are complicated and highly variable influenced by the high nitrogen low salinity Changjiang Diluted Water (CDW) and high temperature saline Kuroshio Water (KW), which pass in the eastern and southern side, respectively. Surface phytoplankton compositions in different water masses were observed during our study periods in July, 2009-2011 and 2013 as: cyanobacteria as well as prochlorophytes dominated in KW, prymnesiophytes widely spread in coastal mixed water. Corresponding to excess nitrate (ExcN) condition in CDW, diatoms and dinoflagellates dominated in 2009 and 2013, whereas cyanobacteria and cryptophytes increased in 2010 and 2011. The low ExcN resulted from high phosphate concentration may be contributed to the high diatoms and dinoflagellates biomass in 2009 and 2013. Cluster analysis identified the geographical position that showed similar phytoplankton composition and water property; clusters mainly composed by diatoms and cyanobacteria, existed in the northern ECS and KW region where high phosphate concentration and high temperature was observed, respectively. It is expected that the potential upwelling may occurred in the high phosphate areas, and that the source of nutrients may be the cause of the dominance of different phytoplankton groups.

＜Remark＞

1) Diatoms domination was first time found in the mid-shelf ECS.
2) Phosphate was the controlling factor of diatom domination.
3) Possibility of phosphate enrichment from Kuroshio upwelling was discussed during the workshop.

＜Supervisor’s name＞

Ishizaka Joji

Fig.1. Group photo of the workshop

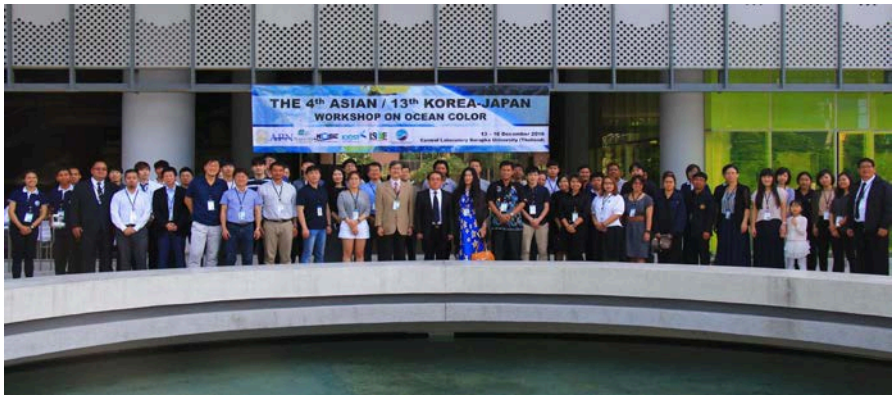

Fig.2. My poster