2009-1-219

Spring bloom and Mixed layer depth in the JES

Hyun-cheol Kim[1], Sinjae Yoo[2], Chan Joo Jang[2], and Eun Jin Kim[2]

[1]Korea Polar Research Institute, KORDI
[2]KORDI

Climate changes are currently observed at a global scale. In order to give better estimates of the future change, understand of past is important. Marine ecosystem is observed due to its role in climate, such as phytoplankton takes an important role in carbon cycle over world as reducer of CO2. Phytoplankton is sensitively responses to climate change due to they are primary producer of marine ecosystem. In this study, to assess the response on climate change, the seasonal dynamics of phytoplankton bloom in the Japan/East Sea is studied that a pronounced year-to-year variation over past 12 years as was observed from SeaWiFS (1997-recent) and MODIS/AQUA (2002~recent). As some researches reported, the seasonal dynamics shows a typical bimodal cycle such as spring bloom and fall bloom. However, the seasonality showed a strong year-to-year variation. Gaussian fitting is used to define the spring bloom as a index of interannual variation. Usually, spring bloom occurred in March, however the area where bloom occurred in March showed a dramatic year-to-year variation. The area of March bloom in 2003 showed the largest, while the area in 2000 showed the smallest. Especially, in 2006 the largest May bloom (late bloom) in north JES was occurred. To explain the interannual variations, we assessed the mixed layer depth (MLD) from ARGO and Sea-Ice of north JES. In critical depth theory, the MLD is import parameter of spring bloom. But get the MLD is not easy due to it from in situ observing. Using ARGO we calculated the MLD and accesses a role of it to spring bloom.

KEY WORDS:
Spring bloom, Japan/East Sea, ARGO, Sea-Ice