

Interactive comment on “Time-series measurements of biochemical and physical properties in the southwestern East/Japan Sea during the spring transition in 2010” by Y.-T. Son et al.

Anonymous Referee #1

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This is a descriptive ms using data obtained by means of a mooring equipment set off Korea during spring bloom period. Although the authors found the physical properties of the mooring site changed drastically with water mass movement and the advection influenced the temporal change in the magnitude of chlorophyll fluorescence at a fixed depth, there are serious problems in this ms.

The ms is titled as “biochemical and physical properties”. I guess the authors intended to say biogeochemical properties. Different from the original plan, the obtained “biogeochemical data” were only in vivo fluorescence and O₂ at 32 m. It’s quite unfortunate

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that nitrate sensor did not work. The sensors depth was not always within the surface mixed layer (10-54 m). The limited data prevent detailed analysis of biogeochemical properties of the sampling site, and the inappropriate sensor depth makes it difficult to evaluate temporal change in phytoplankton biomass.

The authors used the manufacturer prepared calibration factor, and compared in vivo fluorescence with extracted chlorophyll a only once. Since chlorophyll specific fluorescence is quite variable with phytoplankton species, the physiological status, environmental condition such as nutrient, irradiance, etc. Even in the same sampling station, the chl-specific fluorescence can be changed >100%. Insufficient calibration degrades the value of obtained fluorescence data.

The overall conclusion of this study is the importance of advection on the temporal change in fluorescence. Biological/biogeochemical mechanisms of onset of the spring bloom or temporal succession of phytoplankton biomass are not fully investigated probably due to limited data and still unknown. The authors suggested internal tides contributed the onset of spring bloom but just speculation. I regret say that this ms did not include novel finding nor important information for the progress in biogeosciences.

I may suggest authors to set enhanced sensor array in the future to obtain vertical structure of TS, O₂, fluorescence, nutrients, etc and also carry out parallel field observation as many as possible to reach the original purpose of this study.

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