



EGUsphere, referee comment RC1
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Comment on egusphere-2022-852

Anonymous Referee #1

Referee comment on "Conceptual models of dissolved carbon fluxes in a two-layer stratified lake: interannual typhoon responses under extreme climates" by Hao-Chi Lin et al., EGUsphere, <https://doi.org/10.5194/egusphere-2022-852-RC1>, 2022

In this paper a two-layer conceptual C models was developed in a small subtropical lake to explore how the DIC and DOC fluxes respond to typhoon disturbances on seasonal and interannual time scales. Monthly field samplings were conducted to measure DIC, DOC, and chlorophyll a concentrations to compare the temporal patterns of fluxes between typhoon years and non-typhoon years. It is an interesting study, and the manuscript need to be revised.

(1) Line 176-179, " where, total lake volume (湖體總容積, 53,544 m³) departs to the upper layer (上層水體, 45,456 m³) and to the lower layer (下層水體, 8,808 m³) (Equation 5), and where lake surface area (湖面積) is 36,000 m² and the bottom of lake area (湖底面積) is 3,520 m². The interface is 2.5 m vertically, and the interface area (interface area) is 7,264 m² in YYL." The volume of upper layer and lower layer may change in time of different month, it is not a constant number and better to give the explanations.

(2) Line 225-226 "2.3.3 NEP of DIC and DOC, The net ecosystem production was defined as the difference between primary production and ecological respiration due to photosynthesis and respiration via biota". The net ecosystem production has close relationship with water temperature and solar radiation in each month, especially in non-typhoon years. So, the discussions on the effects on NEP by temperature and solar radiation may be important.

(3) In the discussion, the CO₂ emission flux in different month for the small subtropical lake may be more interesting.