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Interactive comment on "Wind-driven stratification patterns and dissolved oxygen depletion in the area off the Changjiang (Yangtze) Estuary" *by* Taavi Liblik et al.

Anonymous Referee #2

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This study addressed two different spatial patterns of hypoxia off the Changjiang Estuary (CE) and discussed the impact of the CDW and wind on hypoxia distributions. But I have two main concerns.

1. Observations from 27 August to 5 September in 2015 and from 24 to 29 July in 2017, are actually snapshots in different months and different years. So, their differences result from seasonal or interannual variation or both? In fact, the hypoxia off the CE has prominent seasonal variation and annual cycle, e.g., hypoxia appearing in coastal areas south of the CE in early summer and severe hypoxia in the area north of the CE in August, and also interannual variations (Zhu et al., 2011). The conclusion mentioned

that the annual cycle was dominated by wind and the interannual variation by wind and river runoff. But the manuscript did not provide enough evidence for these conclusions.

2. The CE and adjacent area are highly dynamic and complicated, affected by the river plume, the Yellow Sea Coastal Current, East China Sea Coastal Current, the Taiwan Warm Current and the Kuroshio. The influence of the intrusion of the TWC and Kuroshio on hypoxia has been discussed previously. But the manuscript just considered the river runoff and wind, and did not discuss the role of the TWC and Kuroshio. The intrusion can be recognized by the current pattern, bottom salinity and temperature. The authors should analyze the differences of open ocean intrusion in 2015 and 2017 and their impact on hypoxia distributions.

Specific comments: Line170: how to define weak or strong stratification based on density difference here? Line239: U is the river velocity. How is U calculated?

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