

Review of Liblik et al.: “Wind-driven stratification patterns and dissolved oxygen depletion off the Changjiang (Yangtze) Estuary”

The authors have satisfactorily addressed my comments and/or responded in the letter of response. I am generally satisfied with this new version of the manuscript and I only have one minor comment and a few technical suggestions/corrections.

Therefore, I recommend publication after very minor revisions/technical corrections. My specific comments follow below.

Specific comment

Zheng et al. (2016; DOI: 10.5194/nhess-16-2559-2016) published a detailed modelling study on the effect of the wind field (and Changjiang River discharge) on oxygen in the East China Sea. It would be nice if the authors could put their results in relation to the work by Zheng et al. as part of the Discussion.

Technical corrections

Line 16: “freshwater”

Line 17: “Seasonal hypoxia”

Line 27: “of the Chinese”

Line 28: “observed in the summer of 2015”

Lines 29-32: I suggest to change order of these two sentences and slightly rephrase as the offshore Ekman transport causes the upwelling (i.e. state the cause first, effect second).

Lines 33/34: Isn’t deep water intrusion and coastal upwelling the same?

Line 35: “in the physical environment”

Line 55: “phenomenon in the East China Sea (ECS) off the Changjiang Estuary”

Line 56: “has been expanding”

Line 58: “when” instead of “as the”

Lines 59/60: Please state the most important processes, otherwise it’s too generic.

Line 61: “into the areas north and south of 30°N”

Lines 67-69: You could consider citing Große et al. (2019) here (as you do on line 102). We quantify the influence of Changjiang nutrients on oxygen consumption in the region and, thus, explicitly show this relation.

Lines 75-77: I think you could remove this part on tides here as tides are not really part of your analyses. Instead, you could consider including the reference in the Discussion where you discuss the potential use of gliders and their potential limitations due to strong tides (lines 528/529).

Line 88: “in the ECS” (and introduce ‘ECS’ on line 55 as suggested)

Line 92: Not clear what this “cumulative effect” is meant to be.

Line 104: “favourable conditions for the formation and maintenance of hypoxia” (remove the rest after “for”)

Line 109: “during two cruises”

Line 110: “links:

Lines 121/122: move “respectively” to end of sentence

Line 130: “before they have been preserved”

Line 136: “is given”

Line 148: Here and in all following explanations of equations, make sure that variables are type-set the same way as in the equations, i.e. cursive letters also in the text.

Line 152: “(1/12°) resolution and standard vertical levels with resolution increasing”

Line 155: “finer-scale”

Line 165: “calculated as follows”

Equation (3): suggest to write “AOU” in non-cursive letters (or cursive everywhere in the text)

Line 172: “the oxycline”

Line 175: “Therefore, we”

Line 203: “water depth”

Line 205: “water depth”

Line 208: “are described”

Line 213: “From there, stratification declines rapidly”

Line 215: “offshore and Fig.” This seems incomplete?

Line 216: remove “distance”; add “(indicating upwelling)” after “offshore”

Line 224: no white space after “<”

Line 225: “where the cold”; “area, which was”

Line 226: “but where bottom”; “The stratification pattern”

Lines 228/229: move “respectively” to end of sentence

Lines 231/232: Please state explicitly beforehand what you mean with this “coupling”; “riverine freshwater”

Line 235: “illustrate”

Line 237: “pushed deeper”

Line 245: “by high”

Line 246: remove one dash between “3-5”; “rapidly onshore”

Line 247: remove one dash between “2-3”; “by the cold”

Line 251: “We, therefore, hypothesize”

Line 254: “low-salinity”

Line 267: remove “enough”

Line 269: no “-” after “temperature” and “salinity”; no comma after “salinity”

Line 280: use “KSSW” instead of “Kuroshio water”?

Line 288: “patterns? What”

Line 301: white space between “m3” and “s-1”

Line 298: white space between “m3” and “s-1”; “one week” instead of “1 week”

Lines 304-306: First, you write “accumulated run-off” (i.e. temporally integrated), then “Mean river flow” and you use mean flow later. Please be consistent; white space between “m3” and “s-1”; “the plume”

Line 307: “According to Eq. (4)”

Line 314: add reference to corresponding Fig. after “pycnocline”

Line 318: “wind forcing”

Line 333: “wind caused”

Line 334: “suggests”

Line 335: What do you mean with “pattern of processes”? You don’t show processes. Please rephrase.

Line 342: “simulated current field”

Line 367: “probably cause”

Line 372: “Seafloor”

Line 381: “as salinity < 30”

Line 387: "describes well"

Lines 389/390: This statement doesn't add much unless you conclude something from it. I'd remove it.

Line 394: "we attempt"; comma after "velocities"

Line 421: "hypoxia in the ECS."

Line 425: comma instead of dash after "oxygen"

Line 429: add reference to corresponding figure (panel) at and of sentence

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Line 431: "were observed in August and October 2006"; Do you mean similar to the 2015 patterns? If so, move this sentence one sentence up.

Line 438: "in DO and"

Lines 442/443: (Fig. 3 in Wang et al., 2012)"

Line 444: add reference to Fig. 5

Lines 451/452: Rephrase this sentence such that it "stands out in terms of river discharge"

Line 463: remove "distribution"

Line 466: "has been reported"

Line 467: has been registered in the north"

Line 472: "lower, considerable DO"

Line 473: "on top"

Line 475: "are likely to influence"

Line 477: "as well as"

Line 480: "separated into"; "the circulating bulge"

Line 481: "the downstream coastal current

Line 482: "discharge is transported alongshore with the coastal"

Lines 486/487: move "in winter" to end of sentence

Line 490: "physical and chemical"; "including DO conditions"

Line 493: no white spaces between "upwelling" and "CDW"; I still find the term "coupling" confusing. What about "interaction"?

Line 497: "are considerably"

Line 498: "and, therefore, promote"

Line 517: comma after "water"; "), rather than"

Line 520: "DO maps"

Line 522: "DO-depleted"

Line 524: "Studies of pycnocline dynamics"

Lines 527/528: "in the necessary spatio-temporal resolution"

Line 536: "for hypoxia formation"

Line 545: "The rest of"

Line 546: no comma after "present"

Line 553: If you use "First", you need to use "Second" at a later point. Maybe remove "First"?

Line 554: "DO consumption"

Line 555: "The stations in the farthest southeast"

Line 557: "was still"

Lines 558/559: "DO depletion"; "DO transport"

Line 568: "section N15"

Line 569: "can disappear"

Line 587: "The presence of a pycnocline"

Line 592: "the Chines"

Line 595: Rephrase so that it is clear that “shallow” means “up to close to the surface” and not in shallow areas

Line 596: “the Chinese”

Line 598: “contributions to”

Line 600: “the rest”

Line 602: “sensitivity of the boundaries”; move “considerably” to end of sentence

Line 619: “analyses:

Fig. 7: Don’t use “UBD” and “UBK” in caption

Fig. 8: depth is not negative. It is negative z but depth itself is positive. Please change color scale labels.