Ocean Science

Discussions

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Interactive comment on "Seasonal variability of subsurface high salinity water in the northern South China Sea and its relationship with the northwestern Pacific currents" *by* A. Wang et al.

Anonymous Referee #1

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This paper looks into the seasonal variability of subsurface high salinity water in the northern South China Sea with a particular focus on its relationship with the northwestern pacific currents by analyzing a high-resolution ocean model – HYCOM. The results are very interesting and shown with a careful and elaborate analysis. I recommend a publication in Ocean Science after addressing the following points.

Major comments: 1. Page 4, line 12-18: "due to the scarcity of in situ observations,...we use a state-of-the-art oceanic model assimilation product to study the SHSW distribution and the mechanisms responsible for its seasonal variability". Page 8, line 1-2: "The above seasonal features are basically consistent with Qu et al. ". Page 9, line 3-4: "... which is basically consistent with many previous stud-

ies". However, what's the difference between previous observational studies and your high-resolution model study? There should be a more comprehensive comparison to observations.

2. Lack of explanation is often seen in the manuscript, such as: Page 6, line 19: "... and their vertical depth in study region", how do you define the vertical depth? The authors should describe more precisely about your calculation. Page 7, line 4-8: "... As shown in Fig. 4, the volume of ... The seasonal variance contribution ... is 0.97" What's the left and right panel of Fig. 4? What is the red and blue line representing? How can you conclude "This indicate that the advection through the LS may play an important role in the intrusion of SHSW"?

Minor comments: 1. Page 2, L24-25: The subsurface high salinity water (SHSW) -> The SHSW 2. Page 5, Line 15: Due to -> Compare to? 3. Page 5, Line 22: Which two layers do you selected? 4. Page 8, Line 5-6: "In order to show the vertical structure of the SHSW along the Kuroshio, we draw the ... (Fig. 7) along the pink band". Why you choose the pink band for section, which neither represents the annual mean stream function nor seasonally variability. 5. Figure 1, How do you define the subsurface water? 6. Figure 3, Is it the seasonal variation? Please clarify. 7. Figure 4, what's the difference between your left and right panel. 8. Figure 6, what is KT and LST short for? 9. Figure 9, Seasonal variation or Annual variation?

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