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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 #2

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This work examined the seasonal variation of the volume of the subsurface high salinity (>34.68) in the South China Sea (SCS) based on HYCOM model product. The obtained seasonal feature of the variation is useful for understanding the characteristics of SCS water masses and their relation with intrusion of the North Pacific waters into the SCS through the Luzon Strait. This manuscript can be published in Ocean Science after certain revision. My comments are given in the following:

1. Figure 1. (1) The colors used in panels a and b should be changed to be the same for facilitating a comparison. (2) There are many contour lines for maximum salinity depths, but very few have been labeled with numbers. It is very difficult to identify the depths, especially in the SCS. (3) The figure is shaded with stepwise colors to show

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the salinity values, hence the same stepwise colors should be used in the color bars.

2. Figure 3. The same as the points (2) and (3) above.

3. Figure 6. What NK stands for? By the way, don't use too many abbreviations, it is hard for readers to remember so many abbreviations. Captions of Figures 9 and 10 are more appropriate.

4. Page 2427, line 4-5. "The daily model outputs during 2008-2013 are ... used in this study"; but page 2432, line 3, "... from 2004 to 2013".

5. Page 2428, line 24. Change "though" to through.

6. Page. 2429, line 28. The statement "In summer, there is no significant Kuroshio intrusion ..." is questionable. Why the volume of high salinity can increase from May to September as seen in Fig. 4?

7. Page 2430, line 9-11. The statement "The lifting ... probably due to the western Pacific warm water or the deep upwelling in the SCS" is most likely not correct. In fact, beneath any strong northward current the isopycnals must tilt up westward (in north hemisphere) so that the resulting zonal pressure gradient can balance the Coriolis force associated with the current.

8. Figure 8. Give the contour interval in the caption for zonal velocity.

9. Page 2431, last two paragraphs. The description related with Fig. 10 is quite confusing. It should be reorganized.

10. Page 2431, line 12-13. (1) What is KST? Should that be KT? (2) The negative correlation should be changed to positive. This can be easily seen if one moves the KT curve leftward for 3 months.

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