

Interactive comment on “Influence of the Kuroshio on the water properties in the shelf” by T. Matsuno et al.

Anonymous Referee #2

Received and published: 6 June 2009

The manuscript well summarizes our current understanding on the water exchange processes across the shelf slope of East China Sea. I like to recommend its publication on OSD. However, before its publication, it is better for the authors to address following issues.

1) The description on water exchange across the Luzon Strait is based on an old review paper (Hu et al., 2000) and several old articles. However, since 2004, many papers have been published on this topic. Following 11 papers are a list of the search results with a keyword of ‘Luzon Strait’ on AGU-EASI (note: not all of them has relation with the topic of the manuscript). In addition, a special issue on the SCS was recently published on ‘Dynamics of Atmospheres and Oceans’, Vol. 47, Issues 1-3, (June 2009). Therefore, I would like to suggest the authors to add more new informa-

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tion on the relation between the Kuroshio and SCS by searching the related literature. At least, they need to give some references for the description in second paragraph on page 745.

Search Results on AGU-EASI

Impacts of tidal currents and Kuroshio intrusion on the generation of nonlinear internal waves in Luzon Strait T. Du, Y.-H. Tseng, X.-H. Yan, 2008-08-08 [Full Abstract+Article]

Generation of diurnal K 1 internal tide in the Luzon Strait and its influence on surface tide in the South China Sea S. Jan, C.-S. Chern, J. Wang, S.-Y. Chao, 2007-06-21 [Full Abstract+Article]

Potential biogeochemical effects from vigorous internal tides generated in Luzon Strait: A case study at the southernmost coast of Taiwan S. Jan, C.-T. A. Chen, 2009-04-29 [Full Abstract+Article]

Kuroshio in the Luzon Strait W.-D. Liang, Y. J. Yang, T. Y. Tang, W.-S. Chuang, 2008-08-30 [Full Abstract+Article]

Nonlinear Internal Waves From the Luzon Strait C.-T. Liu, R. Pinkel, J. Klymak, M.-K. Hsu, H.-W. Chen, C. Villanoy, 2006 [Full Abstract+Article]

Deepwater overflow through Luzon Strait T. Qu, J. B. Girton, J. A. Whitehead, 2006-01-10 [Full Abstract+Article]

Observation of Luzon Strait transport J. Tian, Q. Yang, X. Liang, L. Xie, D. Hu, F. Wang, T. Qu, 2006-10-07 [Full Abstract+Article]

Surface Kuroshio path in the Luzon Strait area derived from satellite remote sensing data D. Yuan, W. Han, D. Hu, 2006-11-14 [Full Abstract+Article]

Mechanism of internal waves in the Luzon Strait Y. Yuan, Q. Zheng, D. Dai, X. Hu, F. Qiao, J. Meng, 2006-11-21 [Full Abstract+Article]

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The circulation in the upper and middle layers of the Luzon Strait during spring 2002
Y. Yuan, G.-h. Liao, W. Guan, H. Wang, R. Lou, H. Chen, 2008-06-05 [Full Abstract+Article]

Sub-mesoscale ocean vortex trains in the Luzon Strait Q. Zheng, H. Lin, J. Meng, X. Hu, Y. T. Song, Y. Zhang, C. Li, 2008-04-25 [Full Abstract+Article]

2) Is there a possibility of seasonal variation in the Kuroshio axis in the ECS? Due to the weakening or intensification of stratification, the JEBAR or the interaction of the Kuroshio with shelf slope can be expected to change with seasons (Guo et al., JPO, 2003; Guo et al., JPO, 2006). In fact, Sun and Su (1994) presented some evidences on the seasonal migration of the Kuroshio axis northeast of Taiwan and in the Tokara Strait in a book named 'Oceanology of China Seas', vol. 1, edited by D. Zhou, Y.-B. Liang, and C. K. Tseng. Such seasonal migration of the Kuroshio axis looks likely to affect somewhat the water exchange between the Kuroshio and shelf.

3) The references have an apparent bias. Some new or old papers published by the scientists outside Japan are missed. For the new papers, the authors can try a search on AGU-EASI or any database like SCOPUS. Here I mention several old papers. Yang et al. (JO, 1999) mentioned the role of mesoscale eddy on the Kuroshio east of Taiwan; Zhang et al. (JPO, 2001) also mentioned eddy activity in a long-term mooring data east of Taiwan; Teague et al. (CSR, 2003) suggested the connectivity of the Taiwan and Tsushima straits and estimated the net Kuroshio onshore transport from the difference in the transports between two straits. Zhang et al. (CSR, 2007) presented some evidences from chemical tracer on the presence of the Kuroshio water offshore Changjiang estuary.

4) I note that the authors talked more on the water exchange processes along the shelf slope of ECS than on the change of water properties (its definition is ambiguity) over the shelf due to the Kuroshio. To keep the title of the manuscript, it is better to add more information on the change over the shallow shelf. Otherwise, it is better for the

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authors to consider another title for the manuscript.

5) The color range must be given in Figs. 5 and 6. Unit of DO in lower panel of Fig. 7 is missed.

Interactive comment on Ocean Sci. Discuss., 6, 741, 2009.

OSD

6, C117–C120, 2009

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