

**Review for the «Nonlinear Processes in Geophysics. Discussions» manuscript entitled
«Statistical analysis of Lagrangian transport of subtropical waters in the Japan Sea based
on AVISO altimetry data» by S.V. Prants, M.V. Budyansky, and M.Yu. Uleysky**

The problem of cross-frontal transport is one of the most important in the dynamics of the atmosphere, the oceans and seas. In this paper, the authors approach this problem on the basis of altimetry-based simulation and analysis of Lagrangian transport in relation to the subtropical water across the Japan Sea frontal zone. Especially interesting are the results of the establishment of the “open gate” and “forbidden zones”, as well as defining of theirs regimes.

Note, that the circulation of the Japan Sea was an object of study by many authors for a long time. In my opinion, this study lacked a comparison with the schemes of currents obtained, for example, in

- Chang, K.-I., Teague, S.J., Lyu, S. J., Perkins, H. T., Lee, D.-K., Watts, D. R., Kim, Y.-B., Mitchell, D.A., Lee, C.M., and Kim, K. Circulation and currents in the southwestern East/Japan Sea: Overview and review. *Progr. Oceanogr.*, 61, 105-156, doi:10.1016/j.pocean.2004.06.005, 2004.
- Holloway, G., Soul, T., and Eby, M. Dynamics of circulation of the Japan Sea. *J. Mar. Res.*, 53, 539-569, doi:10.1357/0022240953213106, 1995.
- Kawabe, M. Branching of the Tsushima Current in the Japan Sea. Part I. Data analysis. *J. Oceanogr. Soc. Japan*, 38, 95-107, doi:10.1007/BF02110295, 1982.
- Kawabe, M. Branching of the Tsushima Current in the Japan Sea. Part II. Numerical experiment. *J. Oceanogr. Soc. Japan*, 38, 183-192, doi:10.1007/BF02111101, 1982.
- Sekine, Y. Wind-driven circulation in the Japan Sea and its influence on the branching of the Tsushima Current. *Progr. Oceanogr.*, 17, 297-313, doi:10.1016/0079-6611(86)90051-0, 1986.
- Senju, T. The Japan Sea intermediate water; its characteristics and circulation. *J. Oceanogr.* 55, 111-122, doi:10.1023/A:1007825609622, 1999.
- Takano, K., ed. 1991. *Oceanography of Asian Marginal Seas*, Elsevier, 431 pp.
- Yoon, J. H. Numerical experiment on the circulation in the Japan Sea. Part I: Formation of the East Korea Warm Current. *J. Oceanogr. Soc. Japan*, 38, 43-51, doi:10.1007/BF02110289, 1982.
- Yoon, J. H. Numerical experiment on the circulation in the Japan Sea. Part II: Influence of seasonal variations in atmospheric conditions on the Tsushima Current. *J. Oceanogr. Soc. Japan*, 38, 81-94, doi: 10.1007/BF02110294, 1982.
- Yoon, J. H. Numerical experiment on the circulation in the Japan Sea. Part III: Formation of the nearshore branch of the Tsushima Current. *J. Oceanogr. Soc. Japan*, 38, 125-130, doi:10.1007/BF02110283, 1982.
- You, Y., Chang, K.-I., Yun, J.-Y., and Kim, K.-R. Thermocline circulation and ventilation of the East/Japan Sea, part I: Water-mass characteristics and transports. *Deep Sea Res. Part II: Topical Studies in Oceanography*, 57, 1221-1246, doi:10.1016/j.dsr2.2009.12.011, 2010.

This work, of course, is of interest to potential readers of NPG. The paper should be published after taking into account this deficiency.