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Interactive comment on "Effects of bottom topography on dynamics of river discharges in tidal regions: case study of twin plumes in Taiwan Strait" *by* K. A. Korotenko et al.

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This a paper shows the results of numerical simulations of the Taiwan Strait on an attempt to explain difference on the behaviour of two river plumes as they approach the coastal ocean. I suspect that the manuscript attempts to describe how differences on tidal mixing produce differences in the plume structure or behaviour. Nevertheless this is neither clearly stated nor proven.

The manuscript is poorly written and badly organised, I cannot follow a coherent idea of what the authors are attempting to do I only see a series of model results with no clear train of thought. One of the main problems I have with the article is that, although the

authors explain at great length an observation campaign, this data is never presented and never used for model validation and explanation of what processes are involved in this ROFI. I would agree with reviewer on that the use of STRIPE is very questionable as the comparison of the wetting and drying would be done better in an Eulerian model, such as GETM, ROMS or POLCOMS.

The authors need to review the current literature including work carried by our group at NOC, as well as and work carried by Buchard, De Boer, Valle-Levinson, Monismith, Geyer and MaCready amongst others to carry out a better work on assessing the dominant processes controlling the different plumes. An immediate comment is to substitute the use of the Simpson and Hunter parameter which was devised for the heating and stirring case in which the tidal stirring represented as the dissipation as per your equation 12 and balances by the buoyancy input due to heating so that the proper nondimensional number would be BH/U*ˆ3. With B as the surface heat buoyancy flux H water depth and U* the frictional velocity. You could probably change the Buoyancy heat flux by the lateral freshwater buoyancy, but this is better explained using the horizontal Richardson number RiH = g/rho drho/dx Hˆ2/U*ˆ2 as mention in Monismith et al 1996. This should give you an idea of how the water column structure in the ROFI.

I think that the manuscript cannot be published in Ocean Science until the scientific arguments are better prepared, the description of the study area is improved and the model used is properly validated.

Interactive comment on Ocean Sci. Discuss., 11, 1149, 2014.