

Interactive comment on “Dynamicity of multi-channel rip currents induced by rhythmic sandbars” by Yao Zhang et al.

Anonymous Referee #1

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I have enjoyed reading the manuscript. It provides the characteristics of rip currents in China's beaches and related research in China.

I would suggest providing more information about differences in beach characteristics and hydrodynamics, such as wave climate and tides. It seems that the tidal range is generally large in China versus US. If that's true, the tide may have significant effects.

Figure 11 looks abnormal for me. Does the color represent wave setups? Did you use the same color coding for the four plots. Wave setup from the more oblique incidence looks larger than the normal incidence, which is opposite in terms of the momentum balance. The radiation stress component, S_{xx} , should decrease with increasing incident angle, and thus the pressure gradient decrease. Please refer to Hsu et al. 2006 Hsu, T.-W., Hsu, J.R.-C., Weng, W.-K., Wang, S.-K., Ou, S.-H., 2006. Wave setup and

setdown generated by obliquely incident waves. Coast. Eng. 53, 865–877.

Specifics:

Line 16: wave-current shear, wave-current interaction?

Line 80: “The Ω indicates the mobility of the sediment which subsequently affects the nearshore morphology. Its large value means the dissipative beach with high-level wave energy and fine sediments, while the small value represents the reflective beach with coarse sediment and small wave.” My question is why the settling velocity is larger for fine sediment? Please provide more info about RTR. . . Line 146: tide, wave, topography, sediment, breaking, turbulence. Suggest: topography, tide, wave breaking, etc. . Line 155: “was a totally different.” rewording . Line 179 1km – 1km. Suggest: 1km x 1km. . Line 228: which was very similar to the hydraulic jump. It’s not an appropriate analogy. Hydraulic jump is a discontinuity.

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