

Comment on os-2021-29

Anonymous Referee #2

Referee comment on "The inference of internal solitary waves in the northern South China Sea from data acquired by underwater gliders" by Wei Ma et al., Ocean Sci. Discuss., <https://doi.org/10.5194/os-2021-29-RC2>, 2021

The authors did an in situ experiment and demonstrated that the observations using gliders can show the existence of ISWs. They have taken a first step in addressing the question of whether gliders can detect ISWs. I have only some minor comments on the manuscript.

Dear Referee #2:

We would like to thank you for your efforts in reviewing our manuscript and providing many helpful comments and suggestions. Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments very carefully. Based on comments and suggestions, we have revised the manuscript accordingly. The details are explained as follows. Sincerely yours,

Wei Ma

On behalf of all authors.

Comment: Line 29: The satellite observations suggest that the largest distance travelled by ISWs is on the order of 600 kilometers, occurring in the SCS. Thus, I suggest to change ‘thousands of kilometers’ to ‘hundreds of kilometers’.

Response: Thank you for underlining this deficiency.

[Lines 29-30]: Internal solitary waves (ISWs) are ubiquitous features in the ocean, and they can propagate over hundreds of kilometers from the generation site with unusually strong currents,

Comment: Line 32: It is Liu et al. (1985, JPO) that clarifies the weakly nonlinear internal wave theory. It is more appropriate to add this reference.

Response: We added “Liu et al. (1985, JPO)” on Line 32

[Line 32]To well understand the ISWs, several theories have been proposed (Liu et al., 1985; Cai et al., 2014).

Comment: Line 82: ISWs are not generated within Luzon Strait. They originate from Luzon Strait.

Response: [Lines 81-82]: Most ISWs in the northern South China Sea are originated from Luzon Strait, and propagate westward (Simmons et al., 2011).

Comment: Figure 9 : Can we approximately treat the trough-peak oscillation in the No.47 profile as that induced by a same ISW?

Response: In my opinion, we can approximately treat the trough-peak oscillation in the No.47 profile as that induced by a same ISW, because the vertical water velocity of adjacent profiles did not experience the continuous and violent fluctuation.