

Interactive comment on “Effect of the North Equatorial Counter Current on the generation and propagation of Internal Solitary Waves off the Amazon shelf (SAR observations)” by J. M. Magalhaes et al.

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The paper gives a very interesting set of SAR-based ISW observations, demonstrating that the NE shelf edge of Brazil is favorable for ISW generation and ranks amongst the strongest ISW generation sites.

The phenomenological description of the large ISW observations, and its relation to the two main current systems is excellent. But, the explanatory model used is unclear and should be explained in more detail.

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Questions:

1) what profiles for N and U are used to estimate eigenvalue c ? 2) to what extent is the geographical circumstance that the generation area lies in the freshwater (Amazone) outflow region used as a relevant aspect? Is the density gradient below the top layer (N) e.g. stronger than elsewhere, and does this explain the fact that these ISWs have the largest phase speeds ever observed? Or, is this due to an anticipated (yet not clearly substantiated) extra contribution of the NECC? 3) Can one state something about the other (smaller scale) IWs of $O(1\text{ km})$ wavelength, visible in zoomed versions of the satellite images? 4) Can one distinguish interfacial from obliquely propagating internal waves? 5) Does ‘thermocline shrinking’ also explain the increase of the ISW’s phase speed and its larger penetration distance?

Textual comments are indicated in the attached, annotated version of the original paper.

Please also note the supplement to this comment:

<http://www.ocean-sci-discuss.net/12/C1080/2015/osd-12-C1080-2015-supplement.pdf>

Interactive comment on Ocean Sci. Discuss., 12, 2497, 2015.

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