

Interactive comment on “Revisiting Tropical Instability Wave Variability in the Atlantic Ocean using SODA reanalysis” by Hatsue Takanaca de Decco et al.

Anonymous Referee #2

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This is a scholarly and interesting paper about the seasonal energetics of Tropical Instability Waves in the SODA product. The authors start with a thorough background review of the subject and continue with a novel directionally-filtered analysis of a well-known data assimilation product, which has not been analyzed in this context for the Atlantic before, compared with satellite SST. They then investigate the mechanisms of generation by evaluating the barotropic, Kelvin-Helmholtz and baroclinic instability processes that control the dynamic fields in SODA. The results reveal the dominance of barotropic instability with baroclinic conversion driving energy back in the tropical mean flow. The paper is well-written and the results are convincing.

Recommendation: Acceptance pending minor revision

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Specific Comments:

- 1) Feedbacks of the atmosphere on the TIW's can be important, as determined with a coupled model by Seo et al. 2007: Feedback of Tropical Instability Wave-induced atmospheric variability onto the ocean. *J. Climate*, 20, 5842-5855
- 2) Figs. 2, 9 and 11: Please use log scales for the energy of TIWs to show the spectral content more clearly. Also, plot them with low frequency on the left, which is conventional.
- 3) "Evidence" is singular, not plural. "Evidences" is not a word.

Interactive comment on *Ocean Sci. Discuss.*, doi:10.5194/os-2016-84, 2016.

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