

Interactive comment on “Deep currents in the Gulf of Guinea: along slope propagation of intraseasonal waves” by C. Guiavarc’h et al.

C. Guiavarc’h et al.

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We thank reviewer 2 and hope we have answered all his/her remarks.

Main criticisms:

1. *The paper really only deals with biweekly waves; other period oscillations are not treated in depth. I strongly suggest that you concentrate in the biweekly oscillations only; the title should be changed accordingly.*

We agree that the focus is on biweekly waves, but the paper contains informations about other periods as well. We prefer to keep the title as it is.

2. *The presentation and style of the manuscript can be greatly improved. The abstract is not attractive and the flow of ideas is particularly bumpy in section 2. There are also some misspellings and suggest that you have the manuscript*

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proofread by a native English speaker.

We have rewritten extensively section 2. An English colleague has proofread the manuscript. We hope the presentation and style are now acceptable.

Some specific issues:

1. *Page 61, line 12: The first question...; If you use 'first'; here, it is better to use second, third... after. Otherwise, it is difficult to see when you finish with the 'first'. The same is valid for other parts of the manuscript.*

This has been corrected.

2. *Page 62, lines 24-25: The structure of biweekly oscillations at the surface has not been observed in satellite measurements. Your argument then about why you focus on the deep expression of the signal only is not valid.*

You are right, the sentence has been changed.

3. *Page 63, line 13: In the text you say you are presenting maps at 1000 m depth but in the figure you have 1150 m.*

We have used a model level (1150m). We know indicate the exact depth everywhere.

4. *Page 63, lines 16-19: For clarity, consider revising this sentence.*

The whole paragraph has been rewritten following the first reviewer's advice.

5. *Page 64, line 11: What do you mean by 'significant energy'? The word 'significant' is often associated with confidence intervals.*

The whole paragraph has been rephrased.

6. *Page 64, last paragraph: I find it difficult to see your point because of the varying scales in the figure. Why not keep the scale constant?*

It is impossible to have a single color scale on the figure due to the very different energy of different baroclinic modes at a given depth.

7. *Page 65, lines 29 and 66 lines 1-3: I can see the narrowing of the signal but not the increase in amplitude.*
We have verified the increase in amplitude by plotting the energy projected along the coast (a figure we do not show). You are right, it is difficult to see on figure 2. The sentence has been rephrased.
8. *Page 66, line 14: Not sure the word 'However'; goes here.*
Corrected.
9. *Page 66, lines 20-21: I would write something like: For both models, the phase velocity of the waves propagates southward.*
This is not what we mean. We wanted to say that the phase velocity itself varies with latitude. We have modified the text, hopefully to make it clearer.
10. *Page 67, line 4: Why 'apparent' phase velocity?*
We use "apparent phase velocity" to emphasize that we have only a rough graphic estimate, not a precise calculation using a spectral decomposition or a radon transform.
11. *Page 67, lines 5-6: This sentence comes out of the blue.*
We agree: we have rewritten the sentence to try to make our point better.
12. *Page 67, line 10: I think you mean their Figure 10, not 11.*
Thank you for noting this mistake. We apologize.
13. *Page 69, line 14: The observations of Bunge et al. (2006) are at 10W.*
You are right, we apologize for this confusion (Bunge et al also refer to data at 23W in another paper).
14. *Page 69, line 24: 'The new mooring... has been was deployed... '*
The sentence has been rewritten.

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15. *I would remove Figure 7. It does not add anything to your discussion.*
We agree and we have removed the figure.
16. *I suggest you avoid the words 'striking', 'of course', 'clearly'.*
These are good suggestions, we have followed your advice.
17. *Page 71, line 28: converted to instead of 'converted as'.*
Corrected.

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