

Interactive comment on “Physical response of the coastal ocean to Hurricane Isabel near landfall” by F. M. Bingham

F. M. Bingham

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Reviewer Response

I appreciate the comments of the reviewers. Their input has substantially improved the paper.

Referee #1

1. The winds results were moved to the beginning of the results section. I have also added a short animation of the winds from the approaching storm in answer to a later comment.
2. PVDs were done for all the moorings and are presented in the paper.
3. SSTs from the satellite images have added to the temperature time series at each

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mooring.

4. The explanation of the salinity calculation has been rewritten. The calculation is a simple one using the concentration of dissolved salt in a column of unit surface area.
5. The reviewer has had a good idea here. Low-pass pressure data from all moorings are now presented in the paper, including data extracted from the waves-upgraded ADCPs. No unusual storm surge was indicated at any of the moorings.
6. There was a tide gauge near Cape Hatteras which detected significant storm surge (It was destroyed in the storm 4 hours prior to landfall.). This is discussed briefly in the text now. It is not discussed at length as the tide gauge is not located in Onlsow Bay, the focus of the study.
7. The depths of the plotted low-pass currents are given in Table 1. This is clearly stated in the text.
8. The discussion surrounding (new) Figure 12 has been rewritten.
9. High pass current at OB27 is from the depth given in Table 1.
10. The Figure 2 caption was confusing. It has been reworded to meake it clearer.
11. Done
12. Fixed.
13. "barely rose above" was replaced with "hardly exceeded". Hopefully this is clearer.
14. It's true that the pronoun "I" should be used in the paper for proper grammar in place of "we". It is rare in scientific papers for an author to use "I", but I would be happy to change it if it is the editor's preference.
15. Figure labels have been changed to 2003 as they should have been originally.

Referee 2

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1. No response.
2. The referee seems to be questioning the assertion that the water column is moving in a vertically homogeneous manner. I have added an animation of the low pass current at OB27 which shows that this is indeed the case. The depths at which the low pass currents are displayed is clearly stated in Table 1, with a reference to Table 1 in the Data and methods section of the paper.
3. I have rewritten the discussion of this figure to make it clearer. The Keen and Glenn paper documents the creation of a barotropic Kelvin wave. Although there are similarities between what they observe and what is shown in this paper, there are big differences as well. The similarities and differences are discussed in detail in the paper. If the referee has a better way of presenting the data, I would be open to trying it.
4. Discussion of bottom pressure data has been added to the paper. The bottom pressure data in the Keen and Glenn and Keen and Allen papers (Hurricane Andrew) are much clearer than the bottom pressure data from Hurricane Isabel. The Andrew data clearly show signals propagating as barotropic waves.
5. No response.

Interactive comment on Ocean Sci. Discuss., 3, 1681, 2006.

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