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Interactive comment on “Phytoplankton blooms induced/sustained by cyclonic eddies during the Indian Ocean Dipole event of 1997 along the southern coasts of Java and Sumatra” by P. Rahul Chand Reddy and P. S. Salvekar

Anonymous Referee #1

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This manuscript presents phytoplankton blooms caused by a series of cyclonic eddies along southern coasts of Sumatra and Java during the Indian Ocean Dipole event of 1997 (November, December 1997 and January 1998), using monthly SeaWiFS chlorophyll-*a* anomalies, TOPEX Sea Surface Height (SSH) anomalies, Sea Surface Temperatures (SST) and currents from a state-of-the-art OGCM. The authors assert that the results from this study add a new dimension to previous studies by identifying the role of cyclonic eddies in driving the upwelling. However, I don't agree with the authors that the chlorophyll concentration anomalies are induced by “eddies”, because

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these circulation features do not look like eddies at all. In fact, these variations of the eastern boundary circulation are induced by the propagation of equatorial Kelvin waves into coastal area near Sumatra-Java. Existing studies have shown that there are two Kelvin wave pulses into the eastern boundary area during the end of 1997-98 IOD event. The decrease of the chlorophyll concentration during December 1997 through January 1998 is actually due to the arrival of the first Kelvin waves, which weakened but did not terminate the IOD event. The 1997-98 IOD is not terminated until April-May 1998 when the second Kelvin wave reflected from the off equatorial Rossby waves at the western boundary arrived at the eastern boundary.

Specific comments:

1. Page 3906, Line 1: This sentence should be in introduction or discussion.
2. Page 3906, Line 6: This sentence should be in the introduction.
3. Page 3907, Line 27: Delete “(Estimating the Circulation and Climate of the Ocean)”, the ECCO acronym is defined in the previous section.
4. Page 3908, Line 10: Just use “MIT OGCM” and “SSH”, these acronyms are defined in the previous section. Define abbreviations and acronyms in the ‘Abstract’ and at first mention in the main text, and thereafter use only the abbreviation/acronym.
5. Page 3908, Line 15: Delete the entire paragraph, all the information is already provided in the Figure legends.
6. Page 3908, Line 17: “Nov” should be written in “November”.
7. Page 3910, Line 20: “The chlorophyll-*a* bloom” should be “The phytoplankton bloom”.

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8. Page 3910, Line 20: “The chlorophyll-*a* bloom occurs as a result of the upwelling that pumps the nutrients of the deep rich water to the euphotic zone through various mechanisms”, what are various mechanisms?
9. Page 3915, please indicate C4 cyclonic eddy in the Fig1C.

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