

Interactive comment on “Correlation between subsurface salinity anomalies in the Bay of Bengal and the Indian Ocean Dipole and governing mechanisms” by Zheen Zhang et al.

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Review of “Correlation between subsurface salinity anomalies in the Bay of Bengal and the Indian Ocean Dipole and governing mechanisms” by Zhang, Pohlmann and Chen.

Overall I enjoyed reading this paper given my own interest in the Indian Ocean Dipole. The underlying approach and analysis seem to be sound and I only have few comments and questions regarding this work. I am uncertain whether the revisions that I call for of minor or major nature.

1) The paper should also start presenting the bathymetry of the regions under discus-

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Discussion paper



sion.

2) If you discuss salinity anomaly in the Bay of Bengal then you should also present the typical vertical salinity (and temperature) stratification in the region. The salinity anomalies discussed seem to be very, very small compared with vertical gradients in the region. What would be the equivalent vertical displacement yielding the same salinity anomalies?

3) The DMI has a western and an eastern SST signal. What is the influence of the western SST signal on your results? Why didn't you only use the eastern SST anomaly for your correlation analysis? I presume you'd even get a better correlation then. Please test this.

4) It is no surprise at all to see that coastal Kelvin waves and Rossby waves propagate through the oceans. I could think of 1000s of similar studies, just focussing on different regions. To come to the point. Why makes the salinity anomalies in the Bay of Bengal significant? Do these waves play any role in the biology of the regions? Do they create any other climate feedback mechanism? If so, please try to convince the reader of the great significance of your work.

5) So far, only a few pIOD events have been recorded. Does this limited number of events have any implications on the statistics presented in the paper?

6) Why does HAMSOM create such strong NDJ current components of V at 80 degE and U at 5 degN? These are the at the boundaries. Is there any problem with the boundary conditions?

7) If the model domain extends to the equator, please do also show the salinity distributions extending to the equator.

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