Ocean Science
Discussions
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Interactive comment on "Interannual correlations between sea surface temperature and concentration of chlorophyll pigment off Punta Eugenia, Baja California during different remote forcing conditions" *by* H. Herrera-Cervantes et al.

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Responses to main assessment from the Anonymous referee # 2

1. I think it would be more methodologically sound to bin AVHRR SST to the coarser resolution of SeaWiFS because this way there is no "fabrication" of data by interpolating SeaWiFS to falsely higher resolution. I don't think this would significantly affect the results of EOF decomposition; this is just a comment on the approach chosen.

Attended: We appreciate the reviewer's suggestion, this coincide an observation of

Anonymous referee # 1. We agree in this point. We decide to standardize to 4km both variables (SST and Chl-a) to have a better resolution mostly near to the coast. This processes has been used previously by Espinosa-Carreon, et al., 2004, 2012 (References) off Baja California for Chl.

2. It is not explained how CUI and MEI were normalized.

Attended: We re-write the paragraph of Section 2. Data and Methods.

3. Chlorophyll is approximately log-normally distributed (see papers led by Campbell, Chelton, Yoder). In this case, verifiable with your large SeaWiFS data set, statistical analysis is best conducted on log-transformed chlorophyll. The methods do not state that this occurred in the process of analysis, yet it would seem to be particularly important at the stage of computing anomalies normalized to standard deviation, to the joint EOF analysis, and perhaps to correlation of EOF results with climate indices. I think it is worth testing sensitivity of the analyses to log transformation of chlorophyll.

Attended: We appreciate the reviewer's suggestion, and we believe too that log-transformed chlorophyll best represent seasonal patterns. In this manuscript lineal-scale resulted adequately to interannual variability patterns. We tested the sensitivity of the analyses to log transformation of chlorophyll without any important changes (se comparison between figures)

4. In Figure 2, SST shows high standard deviation along the southern coast of Bahia Sebastian Vizcaino, but Chl does not. This is in contrast to high standard deviation for both variables along the coast further south, and it makes me wonder if there is any issue with fog / cloud contamination of SST along the southern coast of Bahia Sebastian Vizcaino.

Attended: We re-write the paragraph of Sections: Introduction and Results.

5. In Figure 4, the highest amplitude of mode-1 Chl is north of the point, within Bahia Sebastian Vizcaino. There is no mention of this seemingly significant result, and the

reader cannot tell if the description "off Punta Eugenia" includes both west and north of the point. This should be clarified.

Attended: We re-write the paragraph of Figure 4.

6. Page 9, Lines 12-14: It is stated, "The amplitude time series corresponding to the joint EOF1 is not shown since they are identical to those of individual EOF1 in Fig. 4c. I don't understand how this is possible. A joint EOF would include the variance of the two time series together, thus it would not be possible to get an identical amplitude timeseries as those computed from EOF decomposition of the original variables individually. Please clarify.

Attended: We re-write the paragraph corresponding to the Joint EOF1.

7. Figure 7 is based on anomalies, so the description in the conclusions that this (undoubtedly important) biological action center around Punta Eugenia has "levels of pigment concentration [comparable] with that of high latitudes" is not supported by the analyses presented, and it is not likely to be accurate considering the magnitudes shown in Fig. 2 (values < 2 mg/mЁĘ3).
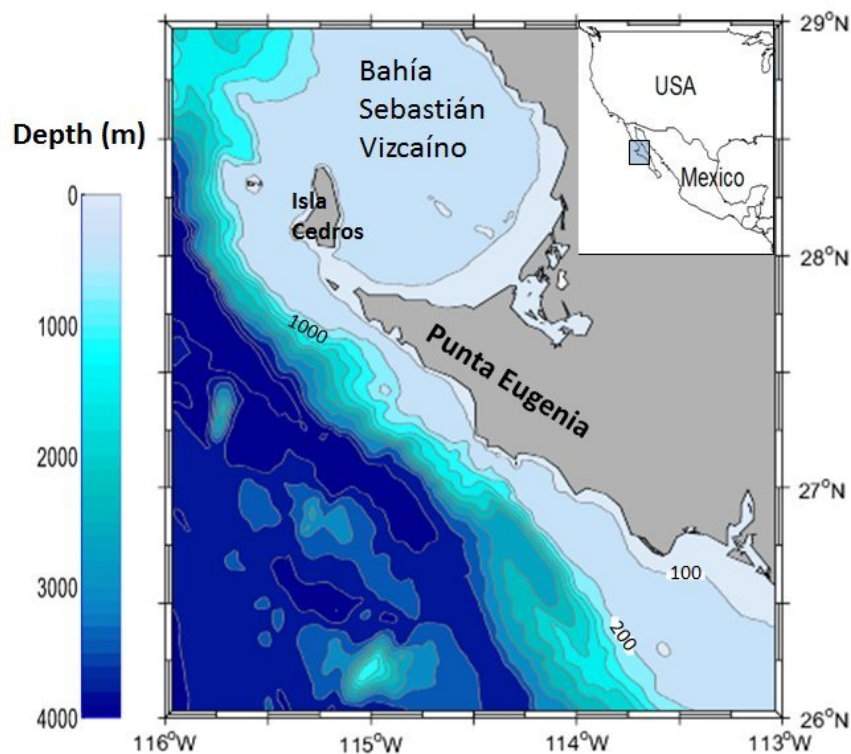
Attended: We re-write the paragraph of this figure and re-write the paragraph of discussion. Attended all reviewer's suggestions

Please also note the supplement to this comment:
http://www.ocean-sci-discuss.net/10/C377/2013/osd-10-C377-2013-supplement.pdf

Interactive comment on Ocean Sci. Discuss., 10, 853, 2013.

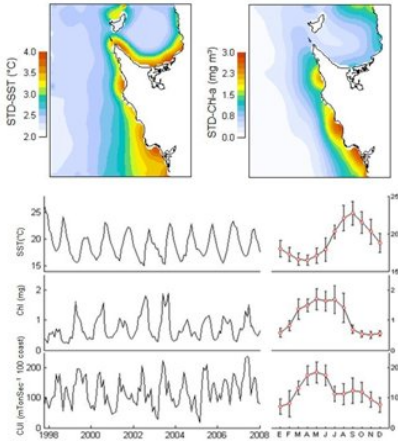**Fig. 1.** Figure 1. Location and bathymetry characteristics of the study area.
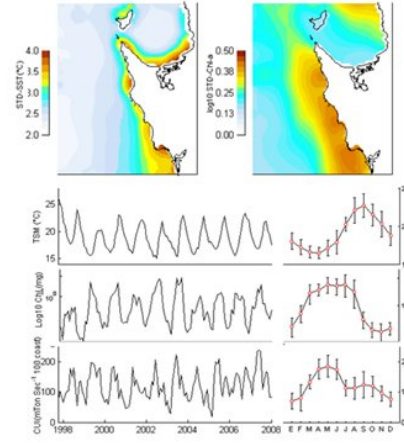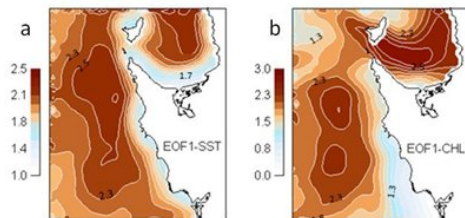
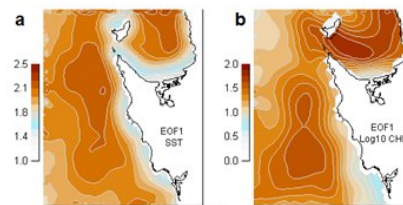# Figure 2.

Lineal Chl-*a*

Log10 Chl-*a*

Fig. 2.

Figure 3

Lineal Chl-*a*

Log10 Chl-*a*

Fig. 3.

Figure 4.

Lineal Chl-*a*

Log10 Chl-*a*
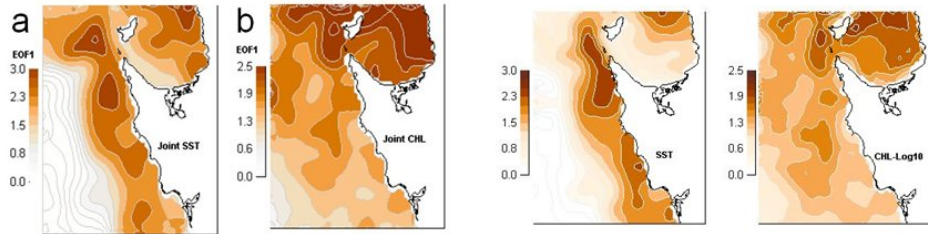
Fig. 4.

Figure 6.

Lineal Chl-*a*

Log10 Chl-*a*

Fig. 5.