

Interactive comment on “ENSO components of the Atlantic multidecadal oscillation and their relation to North Atlantic interannual coastal sea level anomalies” by J. Park and G. Dusek

Anonymous Referee #2

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The manuscript discusses links between ENSO and the AMO and then goes on to speculate on the cause of sea level anomalies on the east coast of the United States. The manuscript is interesting and should be published. However I have some concerns regarding the statistical methods used. The manuscript would be considerably strengthened if the mechanisms which give rise to the sea level anomalies at the various locations were more fully discussed.

Specific comments

The ordering of manuscript could be improved. Figure 1 is introduced before the data that is plotted is described.

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I assume the MEI and AMOI data are monthly this should be stated. It is clearly stated that the sea level data have had the seasonal cycle removed and have been detrended. This is mentioned for the MEI and AMOI but would probably be sensible given the focus on interannual variability. Anyhow this should be clarified.

page 3677, line 5: I find it difficult to see a visual correlation. Why not just state the correlation.

I have some concerns about the EOF analysis. How robust is it? Are the EOFs degenerate? This is most likely for the higher modes given the number that are considered. For instance if you shorten the time series by 20 years the you get the same patterns and results in Table 1 (and the paper as a whole).

Page 3677, line 23: There is barely a peak at 6 years and it certainly isn't significant, so it shouldn't be discussed.

Figure 3 (and for that matter 4, 7 and 8). The dashed confidence lines look a bit low. Have you accounted for any autocorrelation in the time series. In fact it might be appropriate to state how the confidence limits are arrived at.

Page 3678, line 27: Display the equation rather than include it inline (for clarity).

Section 3: A map of the tide gauge locations would be useful. It could also be used as part of a schematic that outlines mechanisms.

Page 3681, line 7: There is barely a peak at 3.2 years for Boston. I'm particularly concerned at the confidence limits on Figure 7 as they all appear at the same value, yet the sea level time series are of different lengths.

Page 3686, line 27: I think "conclude" is a bit strong here without a direct mechanism, I would prefer "suggest".