

Interactive comment on “Exceptionally cold water days in the southern Taiwan Strait: their predictability and relation to La Niña” by Yu-Hsin Cheng and Ming-Huei Chang

Anonymous Referee #1

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This is an interesting research. The aim of this work is to develop a warning system for fishery to predict exceptionally cold water days in the southern Taiwan Strait. The authors used ONI and wind speed as indicators to predict the days and found that both proxies can be at lead times of 60 - 210 days and 0 - 30 days, respectively. This analysis results are useful for the regional warning system and worth publishing. Thus, this reviewer recommends the manuscript to be accepted for publishing after doing the following minor revisions.

1. The aim of this study is to assess the predictability of exceptionally cold water in the Taiwan Strait and to develop a warning system. Therefore, the tests conducted using

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relative operating characteristics curves (ROC) need to be careful because ROC plots could be misleading when applied in imbalanced classification scenarios. However, Precision/Recall (PRC) plots can provide an accurate prediction of future classification performance (Saito and Rehmsmeier, 2015, The Precision-Recall Plot Is More Informative than the ROC Plot When Evaluating Binary Classifiers on Imbalanced Datasets, PLOS one). This reviewer suggests the authors apply PRC plots to confirm the predictability.

2. Page 2, lines 2-3. It is better to have some references to support the statement.
3. Page 2, lines 20-21. The critical temperatures for different fished are different. What is the critical temperature defined in this study for exceptionally cold water?
4. Page 2, line 18. Does the winter of 2008 mean from December 2007 to January 2008 or from December 2008 to January 2009? Please make it clear.
5. Page 3, line 4. This study used sea surface temperature (SST) as the indicator of temperature. However, the influence of temperature on fish is not only SST but also the temperature at subsurface layer. Is the temperature at sea surface and subsurface the same in the study area?
6. Page 3, line 25. Is it 1320 winter days or 1380? Please check and confirm it. If the span of data is from January 1995 to May 2007, the reviewer's calculation is 1380?
7. The authors gave the ONI time series in Figure 2. Are these ONI values calculated by the authors self or an official data from NOAA CPC? If it was calculated by authors, it's better to indicate the relative time period for calculating the SSTA?
8. Page 4, line 17. It better to show and discuss the results of air-sea heat fluxes in El Niño and La Niña events instead of just giving the temperature difference in Figure 3.
9. Is it possible to list all during dates of "cold events" in a new table? Figure 2 (a) does not show clearly, for example, events 2 and 3, and events 7 and 8.

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10. The English of the manuscript is understandable, but still needs to be carefully polished.

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