Ocean Science
Discussions

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Interactive comment

Interactive comment on "Testing the validity of regional detail in global analyses of Sea surface temperature – the case of Chinese coastal waters" *by* Yan Li et al.

Anonymous Referee #1

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The authors present a comparison of three global SST datasets against a local dataset of long-term temperature observations at a series of coastal stations. They investigate the differences mainly with the help of EOF analysis to understand the structure of the deviations. The study is professionally conducted, the methods are appropriately chosen and the presentation of the results is adequate. However, the paper completely fails to put this piece of work into context. Without the context of what is known, the results appear a bit isolated and it is hard to see how your work contributes to science in your field. I list here what I would like to see added. The introduction lacks a general overview on the present state of knowledge about coastal ocean warming worldwide. It is well-known that the coastal ocean reacts differently to atmospheric temperature

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Discussion paper

changes than the open sea. Putting this regional study into this context would help to assess its novelty and estimate its importance. Have e.g. previous studies identified the SST difference between coast and open sea at your coast? The methods section lacks a description of the differences between the SST data products. They are just introduced as "black box" data series and then compared to the in-situ measurements one by one. But why are these data products different? If you described how these different datasets were constructed, which data went into them and so on, this might also help to gain some understanding on why the deviations from your LH time series are different. The interpretation of the results does not even try physical explanations. Why is the near-coastal temperature below the open-sea SST products? Is there e.g. coastal upwelling of deep-sea water? Please make clear what the present state of knowledge is. In the end, the question is, what do we see in the differences you identified? Do the LH and the LA data differ because there is a real difference between values and trend at the coast and the open sea, or do they differ because the LA data are simply not good enough, maybe based on too few observations? So, do we identify a physical phenomenon or just artefacts in the data products? Please reflect on whether it is possible from the present state of knowledge to answer this question.

General comments:

English language in this article could be improved. Even if I am not a native speaker, I noticed several places where - "the" should have been inserted or avoided, - singular and plural are mixed up, or - inadequate prepositions were chosen. Copy-editing by a native speaker would probably help.

Temperature differences are given in $^\circ$C or in $^\circ$, this should be changed to K.

In those sub-figures where your x axis lists the station acronyms, these are too small to read. You could plot them alternatingly in two rows, like in the attached figure, and/or rotate the labels by 90° to increase the font size. âĂČ Specific comments:

L29-33: The grammar in this sentence is not precise. Please correct.

L35: "the different dataset" -> "the choice of dataset"?

L42: larger than what?

L111-112: What is the difference between "no change of the mean" and "zero change"?

L175: which may reflect local effects

L280: The time series of PC2 is not stationary, it rather fluctuates around zero with no prominent long-term trend.

L294-297: You mean it confirms the quality of the LH dataset, not the LA dataset, right? The term "alluding to the quality" is a bit unscientific I from my point of view since its interpretation is not clear. Do you consider the fact that the LH is within the range of the LAs′ variability as a support for the credibility of the LH dataset?

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Fig. 1.