

**Manuscript title:** Deep Learning for Super-Resolution of Mediterranean Sea Surface Temperature Fields

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**REVIEWER #4 (Peter Cornillon)**

**Reviewer:** First, my apologies to the authors for the delay in providing this review. Given that it is the second review, I thought that I could complete the review relatively quickly. However, I struggled with this version and I think that it still needs some editorial work. In my first review, the most significant concern I raised related to confusion that I had with regard to the products the authors were using. The authors have made a significant attempt to address this by more carefully describing the basic datasets. Thanks for this, the figure that you have added was particularly helpful. This addressed my concern with regard to the input datasets but I still found the text to be confusing. I think that the issue is that a number of datasets are being used and these are not referenced consistently in the manuscript. My sense is that a rather straightforward solution to this problem would be to adopt a consistent naming convention across all of the datasets and then to use this throughout. Specifically, I suggest something like: L3S HR, L4 HR, L3S UHR, L4 UHR and L3S Sentinel. There actually may be a couple of other data sets, like the First Guess one, which is different from these.

**Response:** We have followed your suggestions in the revised version of the manuscript and we now reference the datasets as L3S HR, L4 HR, L3S UHR, L4 UHR, L3S Sentinel and First Guess. The network is called dADRSR.

**Reviewer:** I think that I'm still confused about how the First Guess (is this the same dataset as the Super-resolved First Guess shown in Fig. 1?), Low Resolution and OI datasets differ, if they do. The authors seem to use these terms interchangeably. If they are the same, then choose one name and use it throughout. Furthermore, I would choose a name that works with the ones that I suggest above if at all possible.

**Response:** Indeed we did use the terms “First Guess”, “Optimal Interpolated Field” and “Low Resolution Field” for the same product. Given the confusion that we created by doing it, we now refer to this dataset as “First Guess” maps.

**Reviewer:** The use of L3 is not consistent throughout either—in at least one case a dataset is referred to as L3, L3S and L3C, at least I think that it is the same dataset. This just adds confusion to the text.

**Response:** In the revised version of the manuscript, we now refer to L3S HR or L3S UHR if recalling the two datasets produced for the Copernicus Marine Service and to L3S Sentinel when describing the target dataset used for the training and the validation of the convolutional neural network.

**Reviewer:** In addition to the general concern outlined above I have made a number of editorial suggestions, which I hope will help to make the manuscript a bit easier to read. These are included in the attached manuscript either as hand-written

**annotations or as typed comments.**

**Response:** Thank you for all your suggestions, we followed them and modified the manuscript according to your feedback.