

Dear Reviewer #1

Thank you for your good comments. Sorry for a little delayed reply as I just had two BONUS proposals submitted yesterday.

In general, I agree with your view on the two issues, but with some reservations on point 1.

First comment:

The vision in the paper is to develop European operational UOMs in i) pan-European scale, ii) Arctic-N. Atlantic Scale, for all ocean variables and all scales. Currently all model systems, either CMEMS model system or estuary-coast-sea model systems (e.g., COHERNS, MOHID, Delfta3D, MIKE system etc) have their own strengths and weaknesses, and only fulfil part of the seamless modelling requirements (here seamless means spatiotemporal-parameter). But it is true that it may cause confusion if the paper refers too much to CMEMS. Modelling is a general issue. So I have modified original text to:

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Emerging modelling areas: the future UOM needs integration and extensions of current European modelling capacity in spatial-temporal scale and parameter dimensions. It is worthwhile to mention that the model development in the CMEMS strategy mainly focuses on the evolution of the existing global and basin scale operational models (ocean-sea ice-wave-biogeochemistry) can be evolved to resolve estuary and straits, while existing estuary-coastal-sea models can be extended to cover multi-basins. New emerging models such as sediment transport and high trophic level models, and models for downstream services such as coastal inundation model, unstructured grid models need to be further matured and developed and integrated with existing operational systems for operational applications. have not been sufficiently addressed in the strategy. In addition to the model development, comprehensive verification studies should be made especially for the ecological models and models in Arctic models in order to understand their drawbacks of the models. For the ice model, mesoscale sea ice rheology will be needed to describe lead dynamics of the ice. More discussions on the development of marine ecosystem models can be found in Sect. 5 – Operational Ecology.

Second comment:

I agree with your comment: CMEMS is mainly part of continuation of MERSEA and MYOCEAN focusing on Global and Basin scales; ECOOP is for the coastal-shelf sea part. Although CMEMS has done some extension to the coast but has not taken over what ECOOP has developed (e.g. models for 15 high resolution coastal areas). The “seamless interactions between basin and coastal systems” as one of the research priority for CMEMS Service Evolution is not from originally delegation agreement, but to address coastal user needs in downstream services.

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So the original text will be modified to:

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Such objectives and tasks should be further addressed, extended to resolve the estuary-coast-sea interaction and developed into an operational framework through integration into basin-scale operational systems. are now largely taken over by CMEMS. The research in this area has been identified as a CMEMS research priority — seamless interactions between basin and coastal systems (CMEMS STAC, 2015).

Best wishes,
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