

We would like to thank the reviewer for the time spent in the manuscript and for his comments. We have modified the text accordingly.

It is worth mentioning that in the meantime we got accepted a publication that includes a sensitivity test to show how the coupled system presented here reacts to changes in the sea surface temperature (Kelemen et al. 2019). The added value of atmosphere-ocean coupling in this century-long regional climate simulation is analysed there in more detail, to complement the work presented in this manuscript. This helps us to answer parallel questions of interest related to the coupled system that cannot be covered here to avoid an extremely long paper, and so to have a broader picture about the system presented in this work. This new reference has been included in the new version of the manuscript.

Please find below the answers to the questions set out in the review (repeated below in cursive):

*"I would like to see some brief discussion of the likely causes of differences between the coupled and uncoupled systems. For example, why does the coupled system have a larger seasonal temperature range in the Med, and why is the coupled system colder in the North and Baltic Seas?"*

Finding a unique reason that explains the sea surface temperature changes in the coupled compared to the uncoupled is not a simple thing to do, since those changes may be induced by many factors: ocean initialization, higher mixing layer depth, aerosols blocking radiation, internal NEMO dynamics, etc. In this new version, we have put some effort in looking for explanations and added some sentences about it, but did not succeed (e.g. we analyzed the mixing layer depth, but found no concrete explanation to the question). Continuing working on possible methods that could help us to find out more in this regard is part of our current research, but it may take long to understand the processes affected by the coupling that lead to the temperature changes.

*"There should ideally be some description of the steps taken to tune the coupled model. Were some model parameters adjusted to achieve acceptable performance, or were the component models simply coupled together and required no further tuning (i.e. all parameters are the same as for the un-coupled equivalents)? Even if no coupled model tuning were required, it would be useful to state this. In global climate model development, there is a growing consensus that it is important (and helpful to other modellers) to document such tuning. See e.g. Hourdin et al (2017, doi:10.1175/BAMS-D-15-00135.1), Schmidt et al (2017, doi:10.5194/gmd-10-3207-2017), Golaz et al (2019, doi:10.1029/2018MS001603). Such information would be equally useful for a regional modelling paper".*

We have added more details in the new version to explain better this part. The coupled system was not tuned. The configuration of the atmosphere in the uncoupled system remains the same than in the coupled version. Future research could be addressed to investigate about a possible tuning of the coupled system.

Minor corrections/suggestions added in the manuscript:

*"with an atmospheric grid resolution... (the ocean resolution is higher)"*

Right. Corrected.

*“How many years of spinup were required before the start of the coupled historical simulation? What criteria were used to decide that the model was sufficiently spun up?”*

For the North and Baltic Seas, we used 5 years of spin up and for the Mediterranean 20 years. No drift in near surface variables in the years following initialization was detected. Of course, 20 years are short for the deep Mediterranean Sea, but we expect only minor impact of deep ocean drift on simulated atmospheric climate variability. There is no agreement on proper and computationally affordable spin-up procedure for the Mediterranean in literature either.