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Ocean Science Discussions

Interactive comment on "The climate change signal in the Mediterranean Sea in a regionally coupled ocean-atmosphere model" *by* Ivan Parras-Berrocal et al.

Anonymous Referee #1

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The manuscript evaluates the set-up of the regional climate system model ROM, i.e. a coupled atmosphere-land-ocean-river climate model on the basis of the RCM REMO, focusing over the Mediterranean Sea. The system is also applied in a future projection driven by the global MPI-ESM using the scenario RCP8.5. The evaluation is important to document, and the projection is worth to be discussed. The manuscript is also well written and structured. Still, I miss some scientific content. For example, it is promised (in the abstract, 1st sentence) that the role of the ocean feedbacks to the atmosphere is assessed. It would be of interest to learn about that and what impact the interactive ocean might have on the REMO's atmosphere simulation. But this discussion is missing. Only one projection run without any reference (e.g. ocean driven offline by

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stand-alone REMO in the coupling area) or discussion with respect to published results is a bit weak. Also, missing is the discussion with respect to newer literature (e.g. Damarski et al. 2019 with common co-authorship and use of ROM, too). There are no recent references listed and discussed. Especially, literature from the Med-CORDEX activity (which is mentioned) special issue (see Somot et al. 2018) is ignored at all. I conclude the manuscript is in need of a full update and thorough revision.

Darmaraki, Sofia, Samuel Somot, Florence Sevault, Pierre Nabat, William David Cabos Narvaez, Leone Cavicchia, Vladimir Djurdjevic, Laurent Li, Gianmaria Sannino, and Dmitry V Sein. (2019). Future Evolution of Marine Heatwaves in the Mediterranean Sea." Climate Dynamics 45 (9–10), 1–22. doi:10.1007/s00382-019-04661-z.

Somot S., P. Ruti, B. Ahrens, E. Coppola, G. Jordà, G. Sannino, F. Solmon (2018). Editorial for the Med-CORDEX special issue. Clim. Dyn., 51: 771. DOI: 10.1007/s00382-018-4325-x

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