

Dear Editor and Referees,

thank you for your final comments and corrections which have been addressed in the sections below.

REFeree 1. “My only minor comment is that the Conclusion section is too lengthy to my liking. Some of the text can be transferred to the Discussion section. The authors may follow the examples below from JGR-Oceans and JPO:

DOI: 10.1029/2021JC018161

DOI: 10.1175/JPO-D-19-0134.1

DOI: 10.1029/2022JC019055”

My (EDITOR’s) comment: I think all the present content of the “Conclusions” section is valid, but perhaps the content of the bullet points is quite detailed. I don’t think the bullet points are exactly “Discussion” but some of their content might appear usefully as a summary at the end of the “Results” section; content depending on the “Discussion” should remain in “Conclusions”. The “Conclusions” could then point to that summary. I leave this to you (the authors) to decide what to do (if anything).

Response: A slight modification has been made in which a part from the „Conclusions“ has been moved at the end of the „Results“ section as follows: „However, in AdriSC-ROMS extreme dense waters are generated homogeneously over the entire northern Adriatic, while they appear as patches in ROMS-full in which a maximum is found off the southern tip of Istria, along the Senj Jet”, while the “Conclusions” section is now as follows: “Also, extreme dense waters are generated continuously in time and over the entire northern Adriatic in AdriSC-ROMS, while they appear as patches in ROMS-full”.

REFeree 2. “I really appreciated the considerable editing and rewriting of the article.

My overall comment is very good and the paper can be published.

I would like the authors to meditate on the role of the evaporation fluxes (E-P) in the process of producing dense water which instead seems to be mainly conducted by 'only' cooling.

A small discussion, with a couple of sentences, on the role of numerical conservation of the total volume of the Adriatic respect to the volume of the new and dense water produced, taking into account the different role of evaporation (E-P) compared to cooling, could be a good link also for future articles.”

My (EDITOR’s) comments: It should be clarified whether latent heat flux due to E-P is included in the cooling rates stated. Indeed E-P affects total volume but only a couple of sentences are suggested.

Response: A small discussion has been added to Sect. 4.3 as follows: „Finally, besides the river discharges, the surface freshwater E-P fluxes (i.e., Evaporation – Precipitation fluxes) also determine the surface salinity of the northern Adriatic Sea. The E-P fluxes are taken into account in all ocean models presented in this study but are derived from really different atmospheric models. Consequently, the difference in dense water results can also be influenced by the differences in E-P fluxes.“

EDITOR’s “Technical corrections”.

Line 193. Please check the depth ranges; there seems to be a gap between 100 and 200 m.

Response: Yes, there was a gap in the 100-200 m range, thus the sentence has been corrected to: „The number of observations depending on the depth is: (1) 7698 for the 0-50 m range, (2) 7582 for the 50-200 m range, (3) 2130 for the 200-500 m range, and (4) 1577 for the 500-1200 m range”.

Line 201. Better “lower” → “poorer”.

Response: „lower“ has been replaced by „poorer“.

Line 258. Better “high” → “strong”.

Response: „high has been replaced by „strong“.

Line 263. “-1100” → “1100”?

Response: „-1100“ has been corrected to „1100“.

Line 544. “3c” → “14c”

Response: „3c“ has been corrected to „14c“.