Comment on gmd-2021-3

Anonymous Referee #2

Referee comment on "Performance of the Adriatic Sea and Coast (AdriSC) climate component – a COAWST V3.3-based coupled atmosphere–ocean modelling suite: atmospheric dataset" by Cléa Denamiel et al., Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2021-3-RC2, 2021

General/mayor comment:

This paper presents an interesting study about the validation of the the coupled atmosphere-ocean Adriatic Sea and Coast (AdriSC) climate model over the Adriatic. The topic is relevant, the paper is well organized and written relatively clearly. However, I suggest some corrections in the manuscript and *minor revisions*.

Detailed comments in text:

1) Figure 1 Please replace Dinaric Alps with Dinarides

2) Page 2, line 39; please replace … located in the northeast...into ... along the Adtiatic coast... or delete

3) Page 2, line41; please replace … in the northern Adriatic ... into ...mostly from the north-eastern direction

4) Page 3, line 75: It would need to be better formulated in the introduction the main research question and aims.

5) Page 7, line 199: Please correct or explain a part of the sentence due to repetition...such as median (or mean for the rain) and Median (Mean for rain).

6) Page 8, lines 222, 224, 229 & Page 9, line 258... (and further in the text): Please replace the Dinaric Alps with the Dinarides

7) Page 8, line 240; How was done a comparison between radiosondes with the model? On lines 193-194 it can be understood that the model data from the sigma level were interpolated to each radiosonde with a different number of levels and comparisons were made on all isobaric surfaces/levels (standard and significant). Do you have some explanation about the the best statistics for the UWYO soundings?

Presumably, since the comparison is made by height and the influence of the lowest layer is less represented in relation to the middle and higher troposphere where synoptic forcing

dominates (and climate models better), the matching is good.

8) Page 10, line 300; The comment is related to the maximium over the mountainous part near the northern edge of the domain. How is this deviation up to 8.5 hPa (just an inaccuracy of the E-OBS base?) interpreted with the assumption that the positive bias is relatively uniform occurred over teh continent/lan area of the northeastern part of the domain.

9) Page 11, lines 309-325; Apart from the distribution of numbers itself, how it is possible to interpret the distribution of median values of wind direction along the Adriatic (Fig. 8) in terms of the flow regime? The bora flow could be typical near the coast which changes to the sirocco over the middle of the Adriatic, or not? Wind speed can be treated as a temperature, but wind direction has a problem with a circular wind rose, so e.g. 240-280 ± 40-80 ° can very easily mean both bora (0-90° & 330-360°) and sirocco (90-180°). I suggest that you consider the vector mean as a possible representation of the mean flow field.

Be also careful with the way of writing the wind direction 240-280±40-80 °North; It is unclear whether it is referring - to the azimuth or the directions according to the wind rose (also in the Fig. S2). In the later case, this is not correct.

10) Page 15, lines 434-435; This argument is completely correct due to the MYJ PBL scheme.