

Reply to  
**2nd Referee**

*Russo, E., Soerland, S.L., Kirchner, I., Schaap, M., Raible, C.C. and Cubasch, U.:*

***Exploring the Parameters Space of the Regional Climate Model COSMO-CLM 5.0 for the CORDEX Central Asia Domain, Geosci. Model Dev. Discuss.,***  
<https://doi.org/10.5194/gmd-2020-196>.

Dear reviewer,

Thank you very much for your effort in reviewing our paper.

Below we go point by point through your technical corrections, presented in *italic*, detailing how we dealt with your concerns reported in **bold**. Thank you.

*Specific Comments*

- *Page 5 line 3: Normally, ERAInterim reanalysis data are used to drive RCMs evaluation and calibration experiments. Conversely ... → Normally and Conversely are true for CORDEX simulations but I wouldnt use them as a general standard. I think you have a valid point there on the resolution jump. Thus, Id suggest to write: Within CORDEX, ERAInterim reanalysis data are used to drive the RCMs evaluation experiments and usually for calibration. NCEP2 data are employed in this study with the specific purpose of reproducing the spatial resolution jump .*

**We agree and will modify the corresponding part of the text accordingly to the referee comment.**

- *Page 5 line 30: A k-means clustering technique (Steinhaus, 1956; Ball and Hall Dj, 1965; MacQueen et al., 1967; Lloyd, 1982; Jain, 2010; Russo et al., 2019 → Do you really need to include all 6 references for the k-means clustering technique here?*

**Here we could remove the reference of Russo et al. 2019 but, on the other hand, we would like to propose all the other references.**

- *Page 12 line 33: In this case, the reason for the biases is most likely related to some structural error in the model formulation. → I suggest*

*adding or the model setup, e.g.the horizontal and vertical resolution, rdheight, number of vertical levels or - for the IMO region - the proximity of the domain boundary could also be a reason for (parts of) the bias*

**We will follow the reviewer comment and try to highlight in the new version of the manuscript the fact that evinced model sensitivity might change when changing the model setup, for example for some areas close to the boundaries or the model resolution.**

- *Please add a paragraph (either in 2.2 on observations or in the conclusions) on the uncertainty of the observation. Although you are using different data products, the source behind them is (at least for those based on station data) probably similar and may be sparse for some areas you consider.*

**In the previous version of the manuscript we had a section (3.3) on the consideration of different uncertainty sources, where we discussed Fig. 8 and Fig. 9. More considerations on these figures could definitely be included in the new version of the manuscript. In particular, following the reviewer comment, we will try to add more details on the role of the observational uncertainties for the calculation of considered metrics over different regions.**

- *Comments Figures and Tables: Additionally to the comments in RC1 (especially sortingthe lines in figures 5-7), Id suggest to increase the font size in figure 11 if possible*

**We will try a new sorting for figures 5-7. At the same time, following the referee comment, we will increase the font of the axis in Fig. 11, more similarly to Fig.3 and 4.**