Reply to Interactive comment on “CHASE-PL Climate Projection dataset over Poland – Bias adjustment of EURO-CORDEX simulations” by Abdelkader Mezghani et al.

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We would like to thank the reviewer for his very positive opinion regarding our paper. Hereafter, we address a point by point answers. Referee text is highlighted in grey and answers are in black justified text. The added statements into the the text are highlighted in italic.

I welcome this manuscript with great interest and satisfaction that we have strong significant progress in respect of climate scenarios for Poland. High quality data sets presented by authors of the manuscript looks promising. Such data sets are needed and of high value. Additionally manuscript describes procedure of bias adjustment of Euro-Cordex simulation. It is significant progress. By this procedure user receive higher quality data of high resolution in space which might be use for impact assessments and adaptations strategies what is important from many point of view.

> Indeed, as mentioned in the reply to the first reviewer[1], the main purpose was to provide an update of high resolution climate projections over Poland including the latest generation of emission scenarios and climate model simulations which can serve as basis for many impact assessments and adaptations strategies related to climatic changes.

The only problem I can see is related with references. Author did not mention few earlier published papers discussing bias adjustment to future climate simulation for Poland, both by means of RCM and statistical downscaling.

> We have addressed this point in the introduction, specifically, in the seventh and eighth paragraphs. We intentionally dedicated these two paragraphs to highlight the small number of studies related to climate projections over Poland and not elsewhere in the manuscript (i.e. different subsections). We discussed studies related to climate projections based on 1) the ENSEMBLES project ($7) and 2) the newest generation of climate model simulations ($8) using both dynamical (e.g. bias corrected RCM simulations) and statistical downscaling methods. For instance, we discussed the main findings within the ‘KLIMADA’ project, where bias corrected simulations from the ENSEMBLES project were used to analyse future climatic changes. We added the reference *“Osuch et al. (2012)”* to refer to the ‘KLIMADA’ project. We also discussed the work of Piotrowski and Jędruszkiewicz (2013) based on the ENSEMBLES project

[1]https://editor.copernicus.org/index.php/essd-2017-51-AC1.pdf?_mdl=msover_md&_jrl=386&_lcm=oc108lcm109w&_acm=get_comm_file&_ms=59622&c=129626&salt=7757660411093808917

followed by the work of Pluntke et al. (2016). The latter was the unique study we found which was based on statistical techniques to downscale global climate model simulations over Poland. We also added the work of *Osuch et al. (2016)* dealing with bias correction of six simulations taken from the ENSEMBLES project into paragraph 8. We would be pleased to add any missing or recent work related to bias corrected climate model or statistically downscaled simulations over Poland to additionally be discussed in the manuscript. Though, we welcome the reviewer to specify any missing or recent references related to such topic.

I also would suggest to redraw all maps in figures 1-6 because the shape of Poland is not natural in meridional direction.

Based on this comment, and the comment of reviewer #1 we have remapped all figures 1 to 6 and improved substantially their quality. We hope that both the reviewers and the readers are more comfortable with the new changes.

I would like to mentioned some problem with access to The Climate Impact geoportal (ClimateImpact.sggw.pl) developed within the CHASE-PL project and to some limitation of this data set in respect to observations what is not the subject of this manuscript and my review but might have impact on results.

We have verified the access to the climate projection web portal and made sure that it is working properly now. Yet, the web portal could sometimes get down depending on the speed of the internet connection and the number of simultaneous users connected to the web portal.

Generally my opinion on the paper is very positive. I am seeing some drawbacks presented above, however it is a first so robust and ambitious set of climate projection for Poland and the way of dissemination is very clear and easy to use. I am convinced that the shortcomings are easy to correct.

We also would like to withdraw the reviewer's attention that we have developed more the subsections 4.1.1 related to projected temperature changes in the multi-model ensemble mean and section 4.2 related to changes in individual model simulations as well as the conclusions as requested by reviewer #1. The supporting material has been modified substantially where we reorganised the different sections and improved the quality of similar maps to Figures 1 to 6 based on the full set of the ensemble simulations.

Finally, we would like to further thank the two reviewers for their constructive comments. Accordingly, we added the following statement into the acknowledgment.

" Finally, we would like to thank the two reviewers Joanna Wibig and Mirosław Miętus for their respective positive and constructive comments that helped improving this manuscript. "

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