

Author response to the review of Anonymous Referee #1

Referee 1, thank you for reviewing our manuscript. Our answers on all questions, suggestions and remarks can be found on the next pages. Firstly, we summarize the major changes we will make to the revised version of the manuscript based on the comments of the different reviewers:

- We will include an analysis of the annual cycle over the subdomains as defined by the IPCC6 report (Iturbide et al., 2020) which are situated within the CAS-CORDEX domain. The results, both for the RCMs and the gridded datasets, for the mean temperature and precipitation are given in Fig. A1 and A2.
- We will approach the differences between the gridded datasets in a different way. The spread between the gridded datasets (Fig. A3) will be used as an estimate of the uncertainty.
- We will improve the discussion section by describing which model features can explain the significant biases that were obtained over certain regions.
- We will include some additional recently published scientific papers in our revised manuscript e.g. Harris et al. 2020; Wang et al. 2020; Zhu et al. 2020.

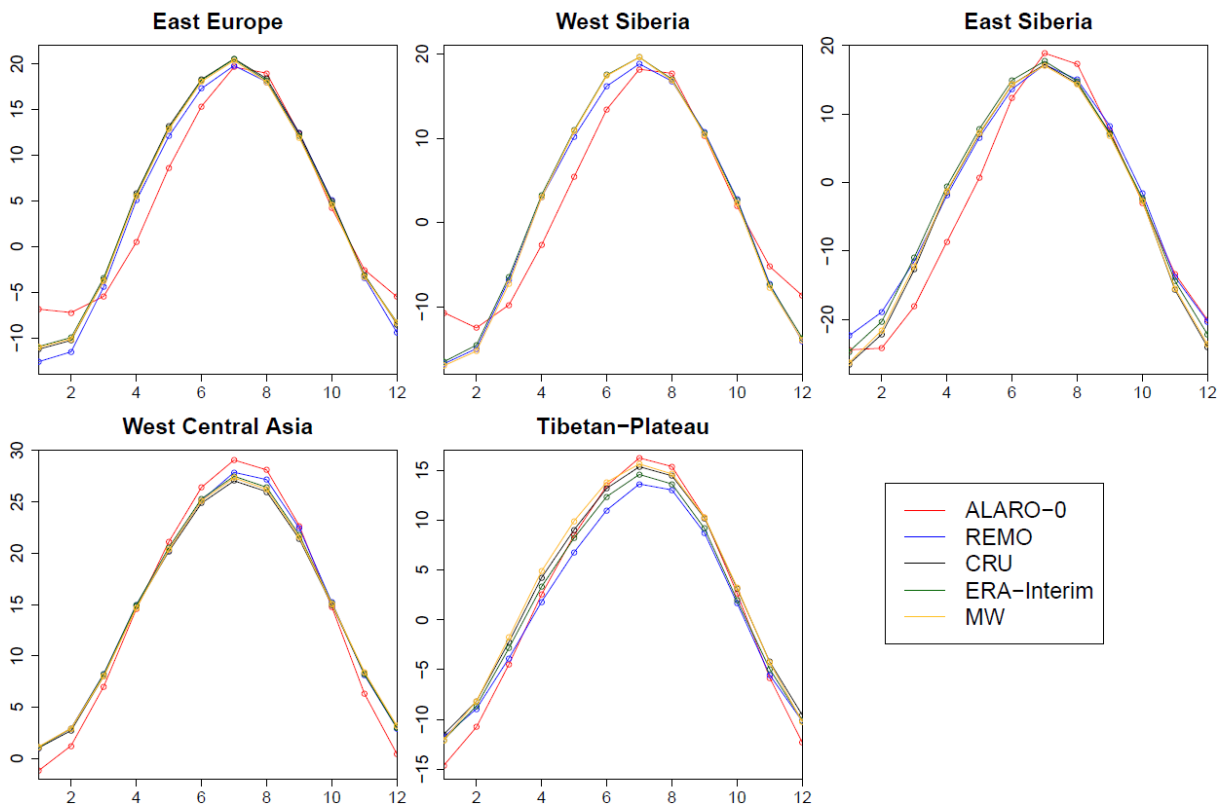


Fig. A1: Annual cycle of the mean temperature (°C) over different subdomains.

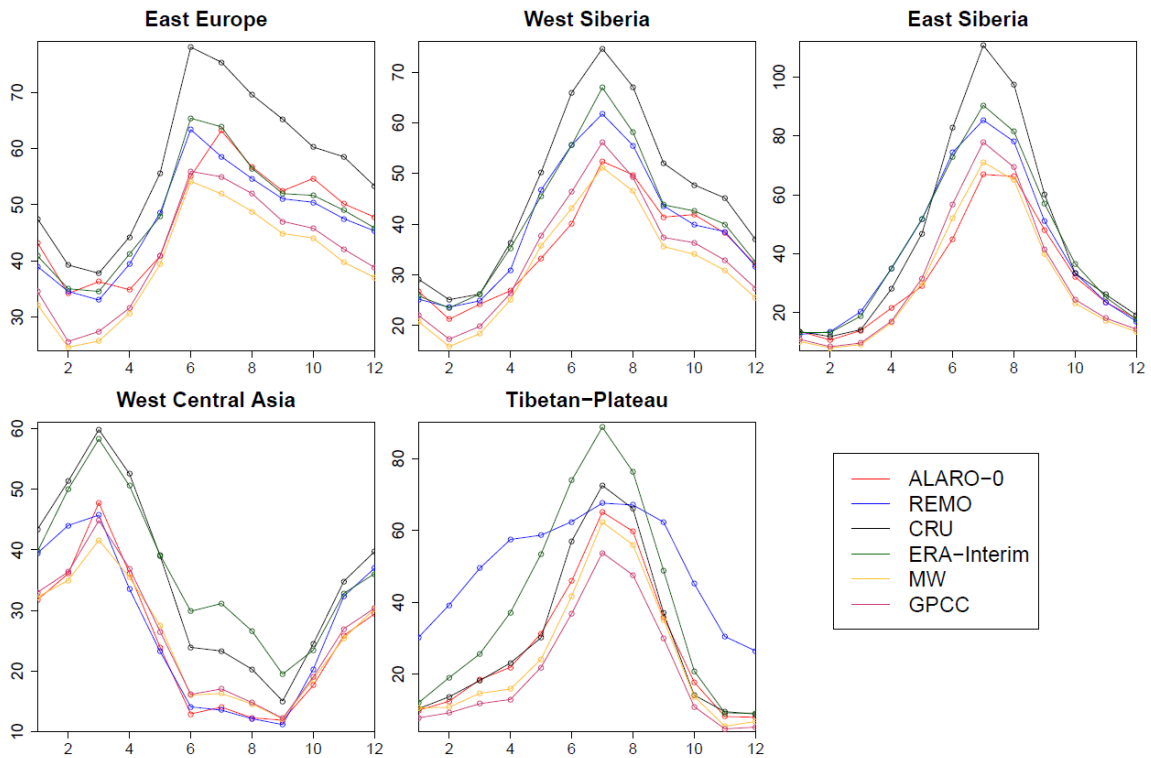


Fig. A2: Annual cycle of the precipitation (mm month^{-1}) over different subdomains.

spread CRU, MW, ERA

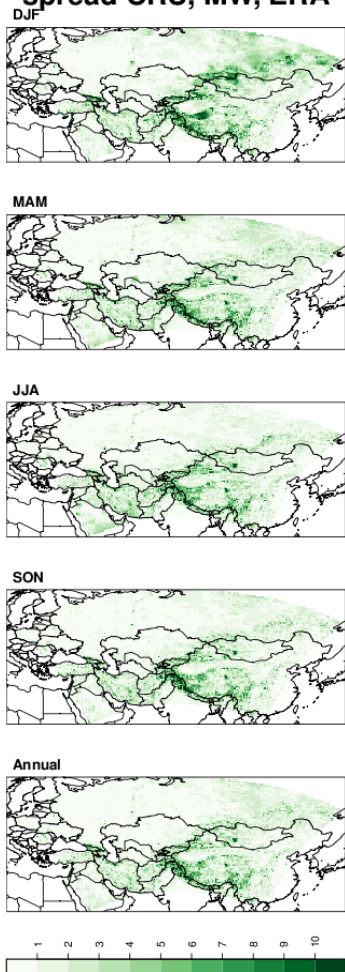


Fig. A3: Spread in mean temperature between the gridded datasets CRU, MW and ERA-Interim.

Central Asia is one of the least investigated CORDEX domains and any paper dealing with this area is more than welcome. I do not have an objection to this paper but have a general comment on the approach. Central Asia region has a rough topography and is sparsely populated. Therefore the station data in this region is not as reliable and dense as some other regions. Keeping this in mind, does it really make sense to use CRU data as the basis for model evaluation. In these regions, it may make much more sense to use Era-Interim as the basis and not take CRU (that much) into account.

Thank you for your positive comment. It is indeed true that the gridded datasets are not very reliable in some regions, as we stressed in our paper. We did not take ERA-Interim as reference since this product has some model dependency and might suffer from similar errors that are reproduced by our models which are forced by ERA-Interim for this evaluation study. The station observations also undergo manipulations to obtain a gridded dataset but these steps are not linked with any NWP model. Moreover, the relatively coarse (80km or 0.75 degrees) resolution of ERA-Interim makes it less suitable to serve as a reference for higher-resolution regional climate models due to the larger representativity issues. CRU is also quite coarse (0.5 degrees) but it has still a higher resolution than ERA-Interim.