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Discussions

Interactive comment on "G2DC-PL+ A gridded 2 km daily climate dataset for the union of the Polish territory and the Vistula and Odra basins" by Mikołaj Piniewski et al.

Anonymous Referee #1

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Review: "G2DC-PL+ A gridded 2 km daily climate dataset for the union of the Polish territory and the Vistula and Odra basins "

The manuscript describes a new version of very fine resolution analysis (named G2DC−PL+ with 2 km of horizontal grid spacing) that includes new atmospheric variables over the Polish territory and neighborhoods. The period of analysis is 1950-2019 and considers the variables precipitation, maximum and minimum temperature, and the new ones wind speed and relative humidity. The data sources to obtain the gridded analysis are clearly described as well the interpolation methods (basically variations of Kriging interpolation method). The correlation coefficients and the root mean square

error are used in the cross validation of the resultant gridded analysis. Comparisons are made with previous analysis at 5 km grid spacing and for the period 1950-2014. The authors highlight some improvements in the statistical indexes (correlation and root mean square error) for precipitation, while for air temperature (both minimum and maximum) this is not always the case. The manuscript describes how the gridded data are organized (variable names, time frequency, etc.), the formats (GeoTIFF and NeCDF), the address to download the data, etc. Overall, the G2DC−PL+ fine resolution gridded data have potential to contribute to hydrological and climate studies at local scale as well as will be useful to the validation of very high horizontal resolution climate simulations. I have just a few minor questions/suggestions for the authors. After this, my recommendation is to consider the manuscript suitable for publication. Minor comments: Please, to include in the first paragraph some information related to the relevance of fine scale gridded analysis to study local climate and its variability. L23 – What is [refs]? L35 – to correct the typo "(2019))" – "(2019)" L37 – What is the meaning of "GR4J"? L38 – remove "reported above" L43 – "modeling study for several medium-sized" should be "modeling studies for medium-sized" L48 – remove "ofrange" L60 – change "in (Berenzowski et al., 2016)" to "in Berenzowski et al. (2016)" L61 – change "in (Berezowski et al., 2019)" to "in Berezowski et al. (2019)" L61-63 – The information "As of July 2020, together . . . Science, respectively" is not relevant. Please, remove it. L69 – "spatial coverage " should be "domain" L72 – change "the dataset consists . . . data" should be "the new dataset consists of relative humidity and wind speed" L75 – "The six years temporal . . ." should be "The analysis cover the period 1951-2019. The six years extension (2014-2019) . . . " to make clear in this section (Temporal range) the total period considered. L77 – change "these years in the dataset" to "these years" and "help better constrain" to "help to constrain" L80 - correct the typo "in dataset" L87 – "much shorter . . ." to "shorter . . ." L119 – Was it necessary to interpolate the data in time or are the authors referring to "The time frequency for all variables was daily" of the data? I have similar doubt if in L132 "For each daily interpolation " is referring to "For daily data". Please, clarify in the manuscript. L144, L176 – change to "in Berezowski

et al. (2016)" L139 – remove "two functions" L139-140 – What is the meaning of [-]? L142 – remove "(precipitation and temperature)" L149 – remove " and RMSEsd" L151 – "14.2 % to" should be "14.2 % in Berezowski et al. (2016) to" L154 – "The results showed . . ." should be "We concluded . . ." L179 – remove "results " L185 – change "no prior data . . . as was the case of precipitation" to "no prior statistics . . . as occurred for precipitation" L219 – "In the present paper we have conducted . . ." should be "In addition, we present . . ." L184-L188 and L199-203 are practically identical (same words and sequence of ideas). Please, re-write. Figures Figures 12, 15, 16 and 20 have two very similar green colors, making it difficult to visualize the differences in the statistical indexes. Please, to improve these Figures.

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