

Interactive comment on “How different sources of climate databases influence assessment of growth response in dendroclimatic analyses – case study from Lapland” by R. Sitko et al.

Anonymous Referee #1

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General comments:

The article uses dendroclimatological and in-situ meteorological data to assess the quality of data sets. Data from observing stations as well as gridded data are utilized. It is an interesting idea, but there is much space to improve the paper. Some parts are a little bit messy, so it is not always clear what is meant with “modelled” and “measured” data.

Why used the authors only one gridded data set (CRU TS 3.21)? Much more gridded data set are available, e.g. EOBS, GPCC, CPC, GPCP.

As I understand, there is an optimal temperature and precipitation amount to get the

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highest yields. But temperature and precipitation were analyzed separately. I suggest also a combined analysis of precipitation and temperature, using the SPEI or other indices based on both quantities. What is the effect of high/low temperature/precipitation on the increments? I miss some more conclusions. Which dataset performs best, which data set suggests the authors? Which data set performs in which situation better (e.g. warm growing season, dry summer)?

It is not clear what is the reference data set – tree rings, station data or gridded data?

Specific comments:

Page 1537, line 16: “CLIMAT” is a data format to distribute monthly means/totals via WMO-GTS. It would be better to write “CLIMAT reports (quality controlled monthly means/totals distributed via WMO-GTS)”

Page 1538, line 5: Why did you mention meteorological as well as precipitation station? Which quantities were observed at the meteorological station? Why do you use data from different stations?

Page 1538, lines 9ff: Have you taken the lapse rate into account?

Page 1539, line 11: A brief description of the “Climate Explorer” is missing! What can be done with this tool?

Page 1539, line 26: Why didn't you compute seasonal means from the gridded monthly data sets?

Page 1541, line 3: What is measured (tree rings) and what modelled (CRU, NORD-KLIM)?

Page 1542: Are tree ring data used here?

Page 1542, lines 4f: What is the reference of the percental deviation – 0°C or 0K? Use Kelvin as unit for temperature differences.

Page 1542, lines 14f: I miss a conclusion. What is better, monthly or seasonal?

Page 1543, lines 6ff: Was the suggested bias correction applied for the analyses below? It seems not.

Page 1543, lines 11ff: What is measured and modelled – I'm confused.

Page 1543, line 21: Is the station in the analyzed grid cell?

Page 1544, line 18: Significant at which level?

Page 1544, line 20: "JJA_pre" is in Fig. 3b, please refer!

Page 1544, line 22: It seems it should be 99% instead of 95% from Fig. 3.

Page 1546, lines 10ff: The value of the grid cell should be representative for the whole grid cell and not for (the) one station within this grid box. So you have to estimate differences. As mentioned above, is the station in the analyzed grid cell?

Page 1547, line 3: Also for precipitation absolute anomalies are possible and better. Or how would you calculate a relative anomaly if the mean is zero?

Page 1547, lines 22f: How can you conclude this?

Technical corrections:

Page 1546, lines 3f: "502 year-long" vs. "500-year-long" (hyphen)

Page 1555, Fig. 3: blurry

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