

Review of Weather extremes over Europe under 1.5 °C and 2.0 °C global warming from HAPPI regional climate ensemble simulations

The paper has already gone through one round of review and in particular the description of methodology is in much better shape now than the initial submission.

The duality of the paper trying to both presenting the data set and examples on how it can be used still detracts somewhat from both.

Although I realize that this is likely beyond the scope of the paper I think the analysis would have been more interesting if the indices were also compared to observations and/or reanalysis.

The presentation of the data set itself can however be easily improved either through writing that you follow a certain standard, e.g. CORDEX and / or write a brief description in the supplement. What are the main variables and output frequency.

Are they available for others? The availability notice says where they are stored, but not if they can be accessed.

Since the resolution of the RCM is still quite coarse and not that different from the GCM (0.4 vs 1 degrees) I also think it would be useful if the authors discuss if they expect the conclusions to stay the same for higher RCM resolution. Although the pattern will likely be more noisy would e.g, 25 simulations with 0.22 degree resolution look like the 25 member subset?

In particular many of the important meso-scale precipitation systems in the Mediterranean region are not resolved in a model with 0.4 degrees resolution.

Specific comments:

line 3. "Dataset" is used two times in the same line
line 70. anomaly → increment?

Line 90-95: Add information on GCM resolution.

Line 97. How are the land use described in REMO for future scenarios?

Line 114. "one initial soil temperature state for every ensemble member in one period." But moisture profile is can vary?

Line 139 "The index for the annual maximum. → minor quibble. Do you call it an index or can you just write The annual maximum ...

Figure 1: Perhaps obvious but can not see if IP is a subsection of MD (I presume it is)

line 215 "because the GCMs usually do not resolve these small basins. In these locations the SST is interpolated from the nearest SST value of the GCM, which might not be adequate for the region"

The basin is missing entirely? A larger grid size should just reduce the ocean fraction of the grid?

