

Reviewer 1

It is my second time reviewing the manuscript now entitled "Hotspots for warm and dry summers in Romania". I believe the authors have done a good work in reviewing the manuscript. Most of my comments and the others reviewers' comments have been addressed. However, I still have some concerns that need to be addressed:

We thank the reviewer for the constructive evaluation of our study and we are glad we were able to address the comments in a satisfactory manner.

1) Do you think analyzing only June, July, and August SPEI1 index and the August SPEI3 index, is enough in lagging the effect of drought in HWDI? My suggestion is to use also SPEI6 (and add also the spring months) since the soil-moisture availability in spring can also influence the occurrence of heat waves in early and late summer. I would consider using at least SPEI6 index as done in Russo et al., 2019 which accounts the soil-moisture availability in the previous seasons.

R: We have tested the risk and correlation maps with different lags and different accumulation periods for the SPEI index (i.e. 1-month, 3-months and 6-months). Since we have produced more than 50 maps just for this kind of analysis, we were unable to actually show the results for each of them. At the end we had to decide and show just the ones which show the highest correlation. We have included the lagged correlation between the HW index and the SPEI for different accumulation periods (for the country based time series) in Figure S4 (now including also SPEI6). Nevertheless, the local hydroclimatology, indicates that the highest correlations are obtained for the in-phase analysis, and similar results have been also found in the Russo et al 2019 paper. Over Romania, it seems that previous spring soil moisture conditions are not a necessary ingredient for the occurrence of heatwaves in the upcoming months. There might be some small influence from the spring to summer and we have discussed this information in Section 3.3.

2) The quality of the figures needs to be improved. Figure 2, Figure 5 need to be re-drawn using other software than Excel. In addition, in every spatial map, the latitude and longitude need to be included.

R: Figures 2 and 5 have been produced with OriginLab Pro, which is a rather complex software and we have saved the figures at a resolution of 1200 DPI. It might be the case that the quality of Figure 2 and 5 is not so good in the manuscript because they have been inserted directly in the document, without any other modifications. We are confident that throughout the typesetting of the paper this issue will be solved. We have added also the latitude and longitude in all the spatial maps.

3) Figures 10 to 12 – Panel f) need to be acknowledged. Please add in the caption that f) refers to water vapor flux divergence. However, I find the water vapor flux divergence field too noisy and a bit hard to extract some information from it. I would delete it from the figures and from the text.

R: The water vapor flux divergence field has been removed from the figures, although some mentions to it has been kept in the text, without showing the figures.

Reviewer 2

The paper presents an assessment of the spatio-temporal variability and trends of hot and dry summers, analyzing the physical mechanisms driving the occurrence of hot summers in Romania. For this, the heatwave duration index (HWDI), the Standardized Precipitation and Evapotranspiration index (SPEI) and the compound hot and dry index (CHD) are computed for this region and analyzed. I consider that the manuscript is right for its publication in HNESS.

We thank the reviewer for the constructive evaluation of our study and we are glad we were able to address the comments in a satisfactory manner.

Some technical corrections are listed below:

Page 4, line 128: I think that “was extracted” should be eliminated.

Modified as suggested.

Page 5, line 144: “daily geopotential height at 500mb” should be changed by “Z500”.

Modified as suggested.

Page 5, line 144: The reference of Hersbach et al., 2020 should be eliminated here, because it was previously cited.

Modified as suggested.

Page 5, line 145: “perido1950-“ should be changed by “period 1950-“

Modified as suggested.

Page 5, line 145: The spatial resolution of the ERA5 data has been already described in line 142.

Modified as suggested.

Page 5, line 151: “where is the latitude...” should be changed with “where ϕ_0 is the latitude...”

Modified as suggested.

Page 5, line 151: “75°” must be “75°N”

Modified as suggested.

Page 5, line 159: “by computed” must be changed with “by computing”.

Modified as suggested.

Page 5, line 161: “AREA” should be “area”? Please, check the need of capital letters, or to define the AREA index previously to its use.

Modified as suggested.

Page 6, line 203: “county” must be “country”.

Modified as suggested.

Page 8, line 251: “Figure4c” should be “Figure 4c”.

Modified as suggested.

Page 8, line 265: “driest summer” should be “driest summers”.

Modified as suggested.

Page 10, line 322: the different Mountains could be pointed in Figure 1. This will help to the location of them.

Modified as suggested.

Page 10, line 349: In Figure 10, the Figure caption describing what is shown in Figure 10f (colour bar and vectors), would be added. Similarly for Figure 11f.

The water vapor figure has been removed from the new version of the manuscript.

Page 15, line 501: “this extreme events” should be “these extreme events”.

Modified as suggested.