

## ***Interactive comment on* “Summer variation of the UTCI index and Heat Waves in Serbia” by Milica M. Pecelj et al.**

### **Anonymous Referee #1**

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The paper presents an assessment of bioclimatic conditions in Serbia. A bioclimatic Universal Thermal Climate Index (UTCI) is computed for three weather stations over the last twenty years. Daily maximum temperatures are also analysed in order to identify increase and frequency of heat waves in Serbia. This work could potential be interesting however improvement of the paper is need previous to publication in order to reach the expected international standards requested by the journal. First of all, according to the elements presented in the introduction, many similar studies have already been conducted in Serbia. Within the current study, a more recent meteorological data sets are used to compute the UTCI index values for the selected stations. Starting before 1998 would have been even more interesting to identify the trend of such extreme heat waves.

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Title To me the title could be:” Analysis of UTCI index during heat waves in Serbia”

Abstract/introduction The abstract is concise and seems complete. However, the introduction needs to be improved. The first part introduces the UTCI index, then heat waves in Serbia are presented, followed by recent studies (line 75 to 94). This final part of the introduction is difficult to understand. It is better to rewrite it and introduce that there is a need to study the evolution of such indices regarding climate change, as trend has been identified during the period 1999-2007.

Materials and methods The model used to compute the index is not explained and presented. The reader does not know how the index are computed and therefore cannot judge the methodology and evaluate the results. Therefore, within the material and method section, it is needed to add the equations of the model. Moreover, to me a validation of the model should be introduced in the section, this will give more weight to the results, moreover this will help the reader to understand the indices and also help the writer to introduce the result and limits to this method. To catch the reader attention, it is necessary to present climate in Serbia earlier in the paper. For example, adding a map of Serbia who presents the location of the three stations studied and the cities presents in the paper. Information concerning the weather in Serbia should also be added: most severe droughts, theirs consequences on the populations... Results The result section is a numeration of the results. This section is the most important of the paper, it is important to bring more analysis to the presented results. Results of the analysis also need to be more accurate and explained. They also need to be more synthetic. For example, as the paper objective is to rate occurrence of thermal stress a trend of the UTCI indices could be computed. Correlation between the different indices obtained could be computed the complete the analysis. Presenting a figure showing the intensity of UTCI index values may help to improve this section and help to reach substantial conclusions.

Figures The ordinate of the figure 2, 3 and 4 need to be change to “number of days” instead of “Days”. In general, figures and tables needs to be improved to make them

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easier to understand.

**Conclusion** In the introduction of the paper, the role of such indexes is introduced (weather alerte, weather forcast). The conclusion should come back to the importance and role of this UTCI index values and the possible consequences of its increase on population.

**Reference** The following reference seems relevant and needs to be added: Bogdanović, D. and al. (2013). The impact of the July 2007 heat wave on daily mortality in Belgrade, Serbia. Central European journal of public health, 21(3), p. 140-145.

**English language** English language must be checked, many spelling mistakes are presents.

Line 9: Serbia Line 12: stations Line 16: a row, in July Line 17: in a row Line 21: in human body Line 22: biggest Line 30: human instead of man Line 34: wih the objective Line 35: thermal components are considered within UTCL Line 37: a heat budget index considering philological Line 41: what does stimuli means? Explanation are needed Line 58: "the idea of the analysis. ...." this is relevant to your study? if yes, I will put if at the end of the section rather than lost there! Line 64: their connection with the circulation of the atmosphere, could you please give more information Line 67: "tropical days" give a definition Line 74: reference needs to be added Line 105: the second station is located in Nis... Line 107: Nisava valley located in the central part Line 107: and is situated Line 110: the third analysed station Line 116: multiday data Line 119: to compute UTCI Line 121: add a reference after "all spatial and temporal scales" Line 123: define "which was integrated with an adaptive clothing model" Line 128: 0.5 m.s-1 Line 130: 4 km.h-1, 135 W.m-2, explain 2.3MET Line 145: This section presents the results Line 157: during 20 years Line 158: certainly Line 195: 35°C Line 228: this is coherent with

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