

## ***Interactive comment on ““Changes” of the thermal continentality in Central Europe between the years 1951 and 2013: case study – Slovak Republic” by J. Vilček et al.***

**Anonymous Referee #2**

Received and published: 22 September 2015

1. Does the paper address relevant scientific questions within the scope of ESD? YES – climate variability, especially temperature variations, is still a top topic, especially when the results have broader (environmental) meaning 2. Does the paper present novel concepts, ideas, tools, or data? NO – temperature variability and change is widely discussed, also taking into account different indices (including thermal continentality), the only novel (however very important from regional point of view) is probably the national aspect of the study (bringing another ‘brick’ to local climate characteristics) 3. Are substantial conclusions reached? NO – the conclusions seem to be more as a summary of the results, no broader scientific discussion brought on 4. Are the scientific methods and assumptions valid and clearly outlined? YES/NO – the methods

C571

are basic, to reach the aim of the study one should probably involve more indices of climate/thermal continentality (more complex). There is no information about research and methods used so far in and outside Europe 5. Are the results sufficient to support the interpretations and conclusions? NO – see point 3 and the comments below 6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? YES – no more precise description necessary for adopted methods, however the data description, especially the modelled future data needs more detailed explanation (the spatial and temporal resolution of the data, reference period, etc.) 7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? NO – there is a lack of information concerning both: climate/thermal continentality and Slovak research on so called climate change (see also below) 8. Does the title clearly reflect the contents of the paper? YES/NO – the term ‘variability’ seems to be more appropriate than ‘change’ 9. Does the abstract provide a concise and complete summary? NO – it should better describe the work done (data and methods used) 10. Is the overall presentation well structured and clear? YES 11. Is the language fluent and precise? NO – needs proofreading 12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? YES 13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? NO 14. Are the number and quality of references appropriate? NO – see points 2, 7 and the comments below 15. Is the amount and quality of supplementary material appropriate? YES – no supplementary material

The manuscript deals with a permanent <hot> issue as a climate change. It refers to the temperature variability expressed by the thermal continentality index. Although the research area covers only the territory of Slovakia it could be a valuable contribution to European studies (especially Central Europe). However it must be emphasized that it needs major improvements to accomplish the main aim and to have a possible broader importance (listed below): 1) Title – as mentioned – the term <variability> more suitable, as future projections are also taken into account the title should meet this point

C572

2) Abstract – not clear enough, the aim is not precise: what kind of continentality, what kind of data (refers especially to the modelled ones), what was really done (why those 3 different types of station locations were chosen, etc. ) 3) Introduction – the information given seem to be (in the actual form) far from the topic, the environmental impact of any change confirmed could be possibly better for a discussion part; the introduction chapter fail to describe the research done hitherto on the topic of climate continentality (especially thermal) and temperature variability/change in Europe and Slovakia – with relevant references 4) Data and methods - the index used is the simplest possible to describe climate/thermal continentality, it should be explain why this particular measure was used ... moreover more information on chosen stations (the reason of their choice) is necessary (probably the location map) – some expressions from the introduction would be helpful ... There is no information about the modelled data (just brief description of the model – scenario used for GSM, downscaling method, resolution, reference period. etc) ... the variables taken into account in IC calculations should be carefully named ... to calculate IC the mean temperature of the hottest and the coldest month is necessary for each year (what is correctly described with the equation) whereas the terms used in the tables and in the text are misleading (i.e. minimum monthly mean temperature) – as the introduction the annual temperature distribution should be given (which are those months in general, does it change from year to year, etc.) 5) Results and discussion – the results given in tables 2 and 3 as well as on the graphs should be interpreted more in details together with a discussion; the IC values (p. 6, lines 8-10) needs correction 6) Conclusion part – in actual form repeats and/or summarizes the results – broader discussion is necessary (probably including environmental impact, etc.) ... there are many works on phenological changes observed regarding mostly spring temperatures where IC expressed by annual amplitude is not informative enough ... 7) References – more recent publications are necessary (except for those old valuable ones) – see some comments above

---

Interactive comment on Earth Syst. Dynam. Discuss., 6, 1261, 2015.

C573