

## ***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.***

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Reply to General comments of Referee#1:

Thanks referee for their time spent with our article. The referee has mentioned two main problems in our article. The first one is the problem with using only one simple continentality index. We understand referee suggestion to use more continentality indices. We will do that in revised manuscript. Especially we will use also: Gorczynski index and Kerner index. However we must defence our approach to use simple thermal continentality index in our work. The aim was to show as simple as possible that the temperature amplitude (as main feature of thermal continentality) has recorded

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almost no change in the last fifty years. And also no change is anticipated in future. Therefore we argue that when we use other thermal continentality indices the results will be almost the same. Because as written above, thermal continentality is related to temperature amplitude. Anyways we will work also with other indices. At least it will be interesting material for discussion. In addition referee suggestion to use approach by Minetti is not really applicable because of the temporal scale. That means, we would like to show temporal changes in thermal continentality for last fifty years (and with regard to projected changes of climate). Minetti's approach is better for description of geographical-climatological differences between two different places (e.g. differences between west and east coast South America – indicated in Minetti 1989). Because of this we will not accept referee suggestion to use this index, however we will discuss this in discussion of the revised manuscript.

The second problem is with climate scenarios. We decided to use GCM model of CCCM 2000 up to 2075 because of correct approximation of this model for Slovak region. Most recently this was confirmed by Melo et al. 2013. So we had certainty that this model provides correct scenarios. From the other hand we are open to referee argument that with different scenarios we are able to improve quality of the work. So we will work also with EuroCordex data. This could really upgrade quality of our work. We will also solve the problem with references on the climate model in the revised manuscript.

Replies on technical comments:

p.2, l. 17 – yes you are right. Correct citation is Sobisek et al.

p. 3, l. 26 – yes, he did. Melo did model simulations in his work from 2002.

p. 3, l. 27 – yes you are right. Will be corrected in revised manuscript.

p. 4, l. 13 – Supan method is excerpted (ex.) from the publication Rivaz-Martinez et al. 2011.

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p. 4, l. 16 – We are dealing with calendar years.

p. 5, l. 22 – Gorczynski is excerpted (ex.) from Kveták's (1983) article. We could use original citation in revised manuscript.

p. 6, l. 20 – will be added

p. 6, l. 26 – Answer on question is written on page 6 and 7 of the manuscript.

p. 7, l. 12-13 – will be rewritten

p. 7, l. 17-21 – as previous point

p. 8, l. 12 – will be rewritten

p. 8, l. 20 yes, thank you. Will be corrected

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