

## ***Interactive comment on “The anomalous low and high temperatures of 2012 over Greece: an explanation from a meteorological and climatological perspective” by K. Tolika et al.***

**Anonymous Referee #2**

Received and published: 9 December 2013

The paper describes the strong climate anomalies observed during 2012 over Greece. The description includes the quantification of the anomalies at the surface, a description of the large scale monthly circulation anomalies during the same months and an interpretation of results identifying possible causes for the occurrence of the events.

The paper is interesting and the proposed description of the climate anomalies occurred during 2012 is worth publishing, as it represents an interesting local supplement to the general description of these anomalies, given by the major national and international research centres. All the same, the methods used to describe the climate anomalies are sometimes poorly described and often inadequate. Large parts of the

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text are devoted to describe figures not included in the paper, while no objective analysis is produced in order to support the proposed interpretation of the results or causes of occurrence of these climate anomalies.

The language of the paper is unsuitable for publication. More often than not the phrasal verbs are not correctly used, the use of articles is incorrect, and in few cases the verb is missing from a sentence or the choice of words or their spelling is wrong, possibly reminiscent of Greek. Finally the authors keep on shifting from present to past tenses in the text. It is strongly suggested to the authors to rewrite the paper at least keeping on the side an on-line English dictionary.

In the following, are suggested several changes which should be done in order to make the paper publishable.

General Comments:

1. Table 1 presents the monthly mean Tmin and Tmax anomalies during the periods of occurrence of the 2012 climate events in Greece. After reading the text I am left with the impression that these numbers are obtained by subtracting from the monthly mean values of these surface parameters observed at several Greek stations, the climate obtained from the NCEP/NCAR re-analyses. If this is not the case, please rewrite more clearly the description of the methods used to obtain this table. If this impression reflects the actual method used, the method should be modified. Anomalies should always be computed using data from the same sources for both the climate and the full field considered at a specific time. If only the NCEP-NCAR re-analyses is available in the past, then this data-source should be used to describe the monthly anomalies in 2013 over Greece.

2. In several part of the paper it is mentioned that the observed upper air anomalies resembles specific large-scale patterns (Eastern Mediterranean Pattern, North Sea-Caspian Pattern). The values of the spatial correlation between the anomalies and the specific patterns should be computed and mentioned in the text to support these

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statements.

3. Large parts of the text are devoted to describe figures not shown in the text. Either these figures are inessential (then these part should be reduced), or there are very important (then the figures should be added). Examples: page 4878 lines 10-14, from page 4878 line 24 to page 4879 line 3, from page 4879 line 13 to page 4880 line 2.

4. The figures 1, 2, 4 and 5 presents 4 panels with geopotential height anomalies at different pressure levels. Levels 1000 and 500hPa are described in detail in the text, level 850 hPa is mentioned few times, level 200 hPa is never considered. Possibly the Figures should be reduced to two or three panels, excluding either only the 200hPa or also the 850 hPa level panels.

5. In general the authors tend to generalise teleconnections between climate anomalies or lagged correlations between different climate events occurring at one or two times in very distant locations too easily. Sometimes different climate events just happen to occur at the same time. A real connection between them should be either supported with other studies published in peer reviewed journals (TCC News is not sufficient!!), or actually supported with adequate results, showing the presence of a statistically significant correlation between events over a long period of years. The authors should work more on this aspects and produce more convincing arguments for their analysis and conclusions.

In the following are given some specific suggestions for the improvement of the manuscript. At this stage it is assumed that corrections of the English language are too many. Furthermore it is possible that the paper will be changed substantially in the next version, so a detailed language correction would result time demanding and of little use.

Specific comments:

Page 4874 line 2: Why 'NCEP/NCAR reanalysis 1' is this different from the previously

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mentioned 'NCEP/NCAR re-analysis data' of page 4873 line 24? Furthermore, I think that 're-analyses' should replace 'reanalysis'.

Page 4875 lines 11-17, but then up to line 26. The connection between several climate anomalies occurred during 2012 is mentioned citing TCCNews (2012) as reference. I think that these long sentences look more like a list of events and the reader is left with the impression that everything that happens is connected to everything else in the same way. I think the approach is superficial. The authors should focus on specific aspects and try to produce more convincing proofs in support to their statement (see general comment 5).

Page 4876 line 10-11: This sentence is useless. Either the authors want to present an interpretation or not. Page 4876 lines 19-29: See General Comment 5. Page 4876 line 29: This seems the first time that the sea-ice anomaly during the preceding autumn is mentioned to be linked with the winter 2012 temperature anomalies over Greece. First these sea-ice anomalies should be described and documented.

Page 4877 line 14: Figure 4 presents June anomalies, not July. Please correct. Page 4877 lines 16-18: The verb is missing from this sentence. Page 4877 line 28: '...at the northwest...' of what? In general, in this paper descriptions are very detailed, but this does not imply they are clear.

Page 4879 line 5: 'consecutive' in space or time? Please rewrite this sentence.

Page 4880 line 23 to 4881 line 6: This description should not appear in the conclusions but should be moved to Section 3.1. See also General comment 2.

Page 4881 line 11-13: This sentence should be rewritten with a less sensational choice of words.

Page 4882: At this point of the paper should not be given only a description of the interpretations given to the presented results, but also a list of supporting references and/or convincing proofs obtained in the paper in support to these results.

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References are sometimes incorrect or not reported in the text with the right spelling or acronyms: – TCCNews is difficult to find in the references, and it is spelled in different ways in the text – Houda et al, 2009 (page 4878 line1-2) is possibly Honda et al (2009)?

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 4871, 2013.