

Interactive comment on “Analysis of synoptic conditions for tornadic days over Western Greece” by P. T. Nastos and I. T. Matsangouras

Anonymous Referee #1

Received and published: 6 June 2014

This paper investigates the synoptic conditions favor the development of various tornadic events over Greece. The objectives of this interesting study have been achieved through the compilation of 60-year climatology of tornadoes-waterspouts across Greece in order to examine the mean synoptic patterns related to these phenomena and to interpret the daily composite anomalies of the synoptic conditions.

The manuscript requires revisions towards paper improvement and clarifications. It is suggested to the authors to take into account the remarks, make the appropriate corrections and resubmit the revised manuscript.

Suggested corrections:

1. Introduction: The authors referenced in a number of recent and relevant studies re-
C1017

lated to the tornadoes historical records and their climatological patterns but they don't provide any element or evidence obtained from those studies. Thus, it is recommended to include the most important findings from those studies in the introduction in order to link their study with the recent state-of-the-art findings. 2. Page 2218, L.2-5: According to the previous recommendation add the key findings from the relevant studies in US, Finland and Greece. 3. Page 2219, L.11-27: This paragraph is mainly devoted in the mechanisms trigger the tornadoes and it is not related with the title of the section (Data and methodology). Therefore it is recommended to move it in the introduction. 4. Page 2219, L.7: It is mentioned that the analysis and discussion are also based on LI but there is not any relevant chart in the manuscript (there are only for GH and MSLP). 5. P.2220, L.9: Fig.1a obviously indicates that tornadoes maximum appearance is over western Greece. It is suggested to provide an explanation based on the geography of the area and the atmosphere-land synergies. 6. P.2220, L.25: Change the 0.09 events year⁻¹ 10⁻⁴ km⁻² to the 0.09×10⁻⁴ events year⁻¹ km⁻². Do the same for the rest numbers. What is the difference between 9.42 events year⁻¹ and the 1.16 TR year⁻¹ ? 7. P. 2221, L.8-17: It will be clearer to add the mean annual tornadic events frequency in a diagram. Do the same for the seasonal variability. 8. Section 3.3: It is suggested to add a paragraph describing commons and differences of the prevailed synoptic patterns favored the tornadoes and waterspouts development. 9. P. 2228, L.23-25: The analysis concluded that tornadoes are more frequent in autumn over Western Greece and their development related with a trough existence across Italy and Adriatic Sea and lower than normal MSLP (-8 hPa). Taking into account that this is a rather typical synoptic circulation in the area during autumn nor all the troughs or extra-tropical cyclones produce tornadoes, which are the additional atmospheric conditions responsible for the development of a tornado? 10. Section 4: It is suggested to move the discussion based on the whiskers plots in a separate to the conclusions section. Moreover April and May are missing in the bottom panel of Fig.7.

Technical corrections: • Substitute the “...west Greece...” with the “...Western Greece...”. • Enlarge the contour labels in the Figs. 2-5.

