

Anonymous Referee #1

Overview

This study analyzes the three events in the Northern Mediterranean from wind engineering and atmospheric sciences points of view. The manuscript is nicely organized and easy to follow. This reviewer believes that this study brings new insights into the nature of downburst events and helps at bridging the gap between meteorology and wind engineering. Several minor comments and suggestions for improvement are enclosed below.

Thank you for your positive comments. All the required changes have been implemented in the text or commented otherwise.

Recommendation: Minor Revision.

Comments 1. Page 8, Paragraph of Line 11. During night, sea surface is warmer than land due to the higher thermal capacity of water. Therefore, the land-to-sea breezes bring cold air from land to sea and the advected air becomes statically unstable thus resulting in convection. That convection, if strong enough, should be one of the main contributors to the development of thunderstorms over sea surface. Please try to include this description in one or another form.

Thank you for your suggestion. The phenomenon that you mentioned has been included in the text.

2. Please provide sources (credit) for Figure 1.

Done. Picture (a) has been changed with another satellite image.

3. Since all meteorological data that are used for the analysis of synoptic and mesoscale conditions are freely available online, I believe it should be possible to make a code (a Python or Matlab script) that would access the websites (of ftp servers) which contain meteorological data and download the desired data automatically for the investigated event. That is, let's say the thunderstorm database contains 100 downburst events that needs to be analyzed and let's say that the important meteorological conditions for a downburst event are A, B, C, D, E, and F (whatever these might be). Then the hypothetical script would access the reanalysis data, satellite data, lightning data, etc. and automatically extract A, B, C, D, E, and F, and further process them. This reviewer believes that such database would be beneficial and it could be as automatic as the procedure developed by De Gaetano et al. (2014) for separation of wind records into three families. Maybe the authors could comment on this subject in the manuscript.

Thanks for your comment. We have included it as a further perspective of development of the present research in the end of Section "Conclusions and perspectives".