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Title: **A methodology to conduct wind damage field surveys for high impact weather events from convective origin**

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Iteration: **Second Review**

I really appreciate the efforts made by authors; the manuscript improved with respect to the previous version. Especially, I think that the explanation of the methodology in subsequent steps (i.e. pre in-situ survey tasks, in-situ survey tasks, and post in-situ survey tasks) really supports its understanding, as well as the inclusion of a flow chart. However, the paper still suffers from some criticalities, which prevent its publication in the present form. In the following, such criticalities are explained in detail with also some specific comments. However, I reserve to work in deeper on minor specific comments, if/when a further version of the manuscript will be submitted.

### **Main criticalities**

*Objective of the survey.* The objective of the survey is still not really clear or, at least, is not univocally defined. If authors state that the objective of the study is to propose “a methodology to conduct damage survey” or “to represent the damage scenario”, I expect that the main output of the procedure is a damage assessment/map/report. This is not the case here where damage is used as proxy to estimate hazard (i.e. wind) features, along with other type of data (e.g. satellite imagery, data from Doppler radar, lightning detection systems, AWS). This is clearly explained in conclusions: i.e. “The purpose of the presented methodology is to provide a systematic and easily-reproducible methodology to carry out strong-convective wind event (*damage, I would delete*) surveys, mainly based on gathering geolocated information about damaged man-made structures and vegetation, with the final aim of representing the damage scenario to study the event from a meteorological point of view”, but it is ambiguously described in the whole manuscript. I recommend authors to check the manuscript in this regard, and to avoid the use of “wind damage survey”, in favour of a more-general “wind field survey”.

*Methodology.* The organisation of the procedure in three steps supports readers in its understanding; the same could be ideally state for the flow chart. Unfortunately, the flow chart presently does not reproduce the procedure, which may hamper paper readability. As a first issue, the flow chart does not report many aspects of the procedure described in the text, which should be instead included. In particular, according to the text, step 1 (i.e. pre in-situ tasks) is not limited to (geo)locating damage/affected area on the bases of damage or developed funnel cloud reports (as presently described in Figure 2) but it also includes:

- Preliminary gathering of information about damage location and images available on the media and social networks
- Contacting emergency services and local authorities to verify if they recorded detailed damage data
- Analysing satellite and weather radar imagery to estimate the approximate timing of the event and the movement of the convective parent storm that may have produced the phenomenon
- checking the wind climatology of the studied area
- verifying if the studied area has been affected recently by another damaging windstorm or by a heavy snowfall which may have produced widespread damage in forest

Likewise, according to the text, final deliverables are not created only on the bases of surveyed damage data (as presently indicated in the flow chart) but also considering meteorological remote-sensing data (collected ex-post the in-situ survey, according to the text) like satellite imagery, data from Doppler radar, lightning detection systems and AWS. On the opposite, the flow chart identifies collection of AWS data, information on previous events, etc. as part of step 2 (i.e. in-situ survey), differently than what declared in the text. A second issue relates to the aspects presently included in the flow chart. In particular: (1) which process/action must be performed in the rectangular box “Only developed funnel cloud report available” in

step 1? (2) Question in the decision box in step 3 is not correctly formulated. According to Figure 2, if one is in case 1, no deliverables are produced, but this is not the case. I strongly suggest authors to redraft the working flow being coherent with the text.

*Standardisation.* Authors introduced Table 1 and Table 3 in order to better explain the “standardization” of the methodology; these certainly help. However, I think that some aspects of the methodology are still not standardised. For instance, is there any pre-defined form to be used in field survey? e.g. by reporting the DI-DoD for each affected elements, data to be surveyed and format, etc.; this is critical to gain objective data. In particular, the implementation of the EF-scale for non-expert readers is problematic, for the full comprehension of the procedure. I strongly recommend authors to include a brief explanation of the procedure in the text or a full explanation as supplementary material. At last, how measure uncertainty in table 1 has been defined should be documented in the paper.

*Discussion* This section is weak. First, only main difficulties in implementing the methodology are discussed, while no discussion is done on its strengths. For example, in section 2 authors state “The methodology to carry out damage surveys must be efficient, making possible to visit the affected area in the shortest possible time. It must be also easily reproducible and its results should be accurate”. Does the proposed methodology satisfy these requirements? A discussion would be welcome. Likewise, in the introduction authors state that, besides supporting the interpretation of the phenomena from a meteorological point of view, the procedure can (ideally) support others objectives like: insurance compensation, increased understanding of exposure and vulnerability to winds, improved wind intensity rating scales. Does the procedure, in its present form, actually support this objectives? While I am quite sure that compensation from insurance companies can be supported, I am not sure that the present collected data can support the other two objectives. Also in this case, a discussion would be welcome. Second, regarding “difficulties”, the explanation of how “the wind phenomenon type can be determined from forest damage patterns” is not a difficulty of the methodology but rather an example of how collected data can be used. This part should be put in a separate section, or removed from the paper (in fact, in my point of view, it is more in line with the supplement than with the main document).

### **Specific comments**

Abstract “high-impact weather events such as floods or strong wind events” → I would not define floods as weather events, maybe weather related events?

Pg. 2 line 25 → please, check if “survey assessment” is properly used here

Pg. 2 line 28 “When these phenomena affect a sparsely populated area, or they occur in a low visibility environment due to night darkness or intense precipitation, there is usually a lack of direct witnesses and recorded images. In that case, the task of assessing the damage intensity and discriminating if it was caused by a tornado, a downburst or another type of convective winds can be very challenging” → this sentence is not linked with previous and following ones, consider removing

Pg. 2 line 33 “... the systematic elaboration of post-event forensic field surveys is still the standard way to evaluate the damage caused by these meteorological phenomena” → this concept has been already explained few lines above (line 25); please, pay attention to repetitions

Pg. 2 lines 39-46 → Discussion on motivation is quite poor. Please, elaborate more.

Pg. 2 lines 53-61 → I would move the discussion/presentation of further uses of collected data in the discussion section (see also main criticalities)

Pg. 3 line 77 → I think that Deliverable 1 is more than a “a summary of fieldwork” as it also includes data elaboration/interpretation (like characterisation of the event); please, consider rename/reclassify the deliverable

Pg. 3 line 84 “Smartphone or cameras with GPS image geolocation and orientation (azimuth pointing) capabilities provide essential data to carry out a fieldwork in order to geolocate damage, as mentioned previously” → this concept has been already explain few lines above (line 79); please, pay attention to repetitions

Pg. 5 line 143 “wind speed damage thresholds may be higher than in non-windy regions” → which thresholds are authors referring to? Not clear at this point of the manuscript

Pg. 9 line 264 “this part also must contain the start and end date and time (in UTC)” → inclusion of time data has been already discussed few lines above (line 262); please, pay attention to repetitions

Pg. 13 line 383 → please, check if “survey assessment data” is properly used here

Figure 2 → please, amend as suggested (see main criticalities)

Figure 3 → please, consider removing; no added information for text comprehensibility

Figure 5 → no reference is made in the text

Figure 9, caption → please, remove the typo “Map symbols indicate locations of damage in man-made structures (house icons) and fallen tree or damaged vegetation element (arrow or circle icons if no direction is available)”.