

Overall Comment

The paper addresses an important aspect of satellite derived convective storm characteristics, namely the issue of validation. The general problem in this area is the fact that no good and objective validation source exists, which the authors correctly acknowledge, so the data from lightning networks (acknowledging their respective limitations) are taken as storm proxy data. The authors provide a comprehensive analysis of 90-92 days of storm data for both hemispheres. The presented results are very interesting, not only for the derived POD and FAR values, but also with respect to interpretation, as lightning events and cloud features seen by a satellite are storm characteristics of very different spatial extent. This problem is addressed by the pixel and object based approach.

In general it is believed that the performed analysis is of high quality and will be very interesting for users of such satellite derived parameters. The work should thus definitely be published.

A big drawback, however, is the general use of the English language throughout the article: Sentences are often very long and complicated, violating sometimes even English grammar rules – some examples are given in the “editorial comments” below. This somewhat “complicated” use of the English language makes the text very difficult to understand - and it is beyond the scope of the reviewer to rewrite the entire text. One suggestion I can give is that the authors should revisit their text and aim at much shorter and more precise sentences, which are not a 1:1 translation of the German language (which tends to favour longer sentences). The other suggestion is that the text should be proof-read by a native English speaking person (if possible). This would definitely help in the general understanding of this nice work.

My general recommendation is that the text should be rewritten in this sense, without changing the scientific content and findings, i.e. the suggested rewrite is of purely editorial nature.

Editorial Comments:

- Acronym DLR should be expanded (not every reader may be familiar with this)
- Acronym SAF should be expanded (not every reader may be familiar with this)
- References to sections should be consistent (sometimes Sect., sometimes Section)
- References to Figures should be consistent (sometimes Fig., sometimes Figure)
- Spelling should be consistently UK or US English (e.g. vapour or vapour, colour or color, but not both)
- In the introduction (line 8 on page 1271) “Moreover, satellite data generally allows for ...” should be “Moreover, satellite data generally allow for ...”
- In the introduction, line 11 on page 1273, the sentence “The following expands work started in Zinner and Betz (2009)” is not quite clear to me (what is the “following”? Certainly not the following paragraph?). Or is there a word missing?
- Typographical error in line 8 on page 1273 – “criteria” should be “criteria”
- Section 4, line 20 on page 1279 “contiguous” should probably be “contiguous”
- Line 23 on page 1280: “... red colored areas in constitute ...” – the “in” should be deleted (or expanded)
- Typographical error on page 1281, line 3: “al.owed” should be “allowed”
- Line 16 on page 1281: “the overall activity is to be expected clearly higher...” sounds a little awkward, why not “The overall activity is expected to be clearly higher ...:”
- Line 11 on page 1281: “... i.e. the network less sensitive...” should be “the network is less sensitive”
- Line 19 on page 1285: “... only 10 % of all Cb-TRAM detected pixels contain sl intense ...” sl?
- Line 14 on page 1287: “one the one hand ..” should probably be “On one hand ...”
- Line 17 on page 1287 “... (not shown). an adjustment ...” should probably be “...(not shown), and adjustment ...”
- Line 21 on page 1287 “necessarily” should be :”necessarily”
- Line 17 on page 1287 “Figure 6...” should be “Figure 6 ...”
- Line 10 on page 1288 : “On the one hand ...” should be “On one hand ...”
- Spelling of “day-time” and “night-time” should be consistent (sometimes “day-time”, sometimes “daytime” is used, resp. “night-time” vs. “nighttime” or even “night time”)
- Paragraph starting at line 10 on page 1292: This sentence is very difficult to understand – for language reasons (“given the fact that” should be generally omitted as it is meaningless, “majority of all ...” makes no sense – either majority or all, and “warned of” does not exist. Suggestion: “All these quality scores, especially for the daytime detection scheme and the shorter range forecasts, are very encouraging. Warnings can be issued for the majority of strong and potentially harmful cells, while only few warnings would affect cells with no mature convective activity.
- Line 15 on page 1291: “... are decisively depending on ...” should be “crucially depend on ...”
- Line 20 on page 1292: “... probably most direct and objective measure ...” should be “... probably the most and direct measure ...”
- Line 28 on page 1292 “... these lead to slightly better ...” – what does “these” refer to?
- Lines 3-4 on page 1293: “... if ... would be included.” should be “... if ... are included.”

Technical / Scientific comments:

- (1) In section 2, the use of the HRV channel reflectivity is mentioned, but no information is provided on how a changing sun angle is accounted for. Information that only sun angles up to 75 deg is given later in the section, but should be provided the first time this daylight concept is mentioned
- (2) In section 3.2, a reference to Figure 3 is missing.
- (3) In section 4, lines 1-2 on page 1280: "Several definitions of what a good storm detection has to identify are imaginable". Being at the end of the paragraph describing the collocation between satellite pixels and lightning events, this sentence comes as a little surprise as it seems out of context. Is it supposed to be an introduction to the next paragraph? If yes, it should be moved to the next paragraph.
- (4) In section 4, lines 15-20 on page 1280: I don't see how the numbers of "intense lightning activity" add up: If the threshold is 0.01 flash reports per square km and minute, then for a Meteosat pixel of 20 square km size and for a time period of 15 minutes this should be $0.01 * 20 * 15$ which is 3 and not 10.
- (5) Line 25 ff on page 1281: "... lightning detection as CG or IC, which is done via an imprecise height detection for both networks, ...": This is not clear: Are the "both" networks the European and SA networks? And if yes, it was written before that the SA network does not detect IC events? Please clarify! And then in the following sentence the authors talk about a "detection efficiency" – is that for CG events only?
- (6) Page 1284, last paragraph, starting with "Once a CbTRAM object has reached the mature stage ...": This paragraph is very unclear. First the authors state that nowcasts up to 60 min are also investigated (whatever "investigated" here means) – and then the paragraph concludes by saying that only the 15 time frames are considered. A little bit of language clarification here would help.