

Summary

The majority of major comments was addressed, but often not in the manuscript itself. Some new major comments emerged. There are a couple of problems with the references. Please provide a difference version for quicker review.

Old major comments:

7. Please provide a cost estimate of all used systems.

-> I could not find cost estimates in the text.

12. P. 3, l. 3: “low cost commercial cameras” “give no information during nighttime. There are several commercially available IR surveillance cameras out there. Are you sure that they are not used in meteorology as of today?”

-> You might add here: “to the best of our knowledge” or use the phrase in minor comment 9. This statement might continue to be incorrect.

20. P6, l. 1: I was wondering about the mirror temperature and potential asymmetries. Could you briefly state if the one-sided heating of the sun leads to a temperature distribution on that mirror within your stated 1 K range? In Fig. 1, a wall is visible close to the IR-camera – is there a problem with radiated heat, e.g. during night-times? Could you briefly state something on the interplay between the ground temperature and that mirror? Do you expect aging effects on the mirror? **How bad is the soling?**

-> I could not find a statement regarding soling, which I think is a major issue for systems having a large upward-facing mirror with a holder placed above, inviting the local flying fauna to sit and digest there. Please indicate cleaning schedules. Was there any work towards automation?

30. Specify the total run time of each algorithm.

-> I could not find a statement on algorithmic run time in the text.

New major comments:

There are certain issues which are so far not addressed:

- A. The theoretical problem to differentiate clouds and aerosols (Calbó et al., (2017), Glickman and Zenk (2000), etc.), having a major impact on the whole study.
- B. The built system suffers from the self-occlusion effect of clouds as well as projection uncertainties, s. Fig. 1. You might briefly discuss the effects of these problems for your system.

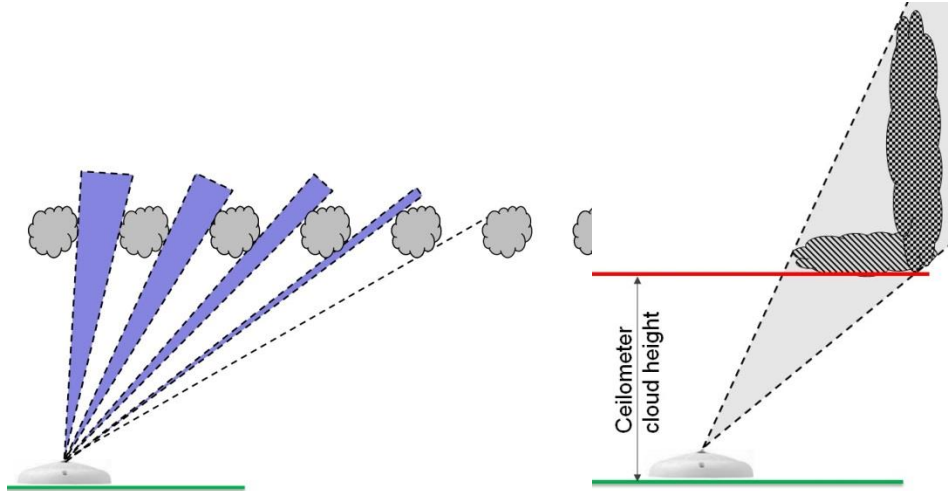


Figure 1: Left: Self-occlusion effect of clouds – the cloud coverage seems to increase towards the horizon. Right: Projection uncertainties of ground-based sky-imaging systems. You might cite reference 1 on that.

References:

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1. @inproceedings{Kuhn2018VergleichundBewertungsolarerNowcasting-Systeme,
  author = {Pascal Kuhn and Bijan Nouri, Stefan Wilbert and Laura Bianco
and Loïc Vallance and Christoph Prah1 and Lourdes Ramirez and Luis Zarzalejo and Thomas Schmidt
and Zeyad Yasser and Laurent Vuilleumier and Detlev Heinemann and A. Kazantzidis and J. M.
Wilczak and Philippe Blanc and Robert Pitz-Paal},
  editor = {conexio GmbH},
  title = {{Vergleich und Bewertung solarer Nowcasting-Systeme}},
  booktitle = {Tagungsunterlagen PV-Symposium 2018},
  date = {25.-27.04.2018},
  year = {2018},
  url={http://www.pv-symposium.de/programm/tagungsunterlagen.html}
}

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- C. Motivated by “B” – there are systems which do not suffer from these effects, such as <https://doi.org/10.1016/j.solener.2017.05.074> / <https://www.adv-sci-res.net/15/11/2018/> : Systems using downward-facing cameras are in that regard superior to sky-imaging systems. Please include these systems while introducing systems which are able to measure cloud coverages. Please also include approaches based on monitored PV plants, which might be nowadays a bit more commonly conducted than human observations. You might study publications of MeteoControl on that topic.
- D. Include in the caption of Fig. 5 that for this comparison only timestamps are included during which all systems provided measurements.

Minor comments:

1. p.1, l. 24: "... e.g. mainly" - language
 2. p.2, l.2, comma, "... and, due to visibility issues, ..."
 3. p.2. l. 3, "at high spatial" – language
 4. p.2., l. 14, "large field of view of satellites" -> "limited resolution of satellites (currently 500~m max)"
 5. p.2., 17, "Nowadays satellite data are validated" – I'm not sure if that was much different say 10 years ago. Please rephrase.
 6. p.2., 19, semicolons
 7. p.2., l. 34, "a laser pulse" – there is a certain tendency to use plural in such circumstances. There is also a comma missing, "..., send"
 8. p.3, l. 6, " which often have a..."
 9. p.3., l. 14, "often give limited information"
 10. p.3., l.16, "cloud base height" – not shown in the paper, currently not accepted by everyone in the community, I suggest to leave it out. If kept, please provide an ISI-listed source on a corresponding multi-day validation.
 11. p.4, section 2: Specify cleaning routines here
 12. p.5., l.4. There is a change in style regarding "... '..." / "...," within the paper. Use one style.
 13. p.11, l.25, 2x "to take"
 14. p. 18, l. 21; "Bijan, Stefan, Nora ..." -> these are not the family names
 15. p. 18, l. 26; there also seems to be an issue with the names here
 16. p. 18, l. 11; there is an issue with the doi
 17. p. 19, l. 37; presumably an issue with capital letters in the title, same for Sielids et al.
- > Check all your references

General: I'd like to use the opportunity to suggest to the journal placing the images where they belong, not at the end of the script. This might have had some reasons, but I don't think these reasons made it in this century.