

Interactive comment on “Validation of CM SAF cloud fractions: can cloud cover be reliably derived by satellite data at Hannover, Germany and Lauder, New Zealand? – a comment” by A. Werkmeister et al.

Anonymous Referee #3

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This paper describes an effort to compare ground-based and satellite-based observations of cloud cover. This type of work has considerable merit, and the authors have made a reasonable attempt to come up with credible analysis. However, there are at present serious problems with their approach, so this reviewer recommends a major revision before it is considered for publication. I have a set of major comments, and a set of minor comments.

1) The author are hinging on two thoughts: To write a paper or to write a comment.

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They do not make a decision. In its present form it is too short for a paper and too long for a comment. As the title seems to indicate their inclination is to write a comment, so this reviewer suggests that they seriously consider reducing the size of the paper. The focus of this paper is on the reliable estimation of cloud cover by CM-SAF. Thus they should strike all data and interpretation of AVHRR and any data and interpretations considering data from Lauder. The CM-SAF cannot see Lauder, and AVHRR is not CM-SAF, so out with it. It would make the paper / comment a lot cleaner.

2) To follow on: the introduction is way too long, there is a large body of literature on the subject, and in referencing it they should focus on a couple of essential papers and not listing the entire literature. Listing the entire literature is for a paper, not for a comment. At present the intro is 4.5 pages. It should be reduced to no more than one page, if that.

3) To follow on: All reference to AVHRR should be removed. The focus is clearly on validating the CM-SAF against ground-based observations. And the AVHRR is introduced as an afterthought. So why use it? So they can strike 2.15, part of 2.2, 4.1.2, fig 5. This may not make them friends with the third author, who may be responsible for the Lauder effort (?) but a plain purpose precedes politeness in writing a good paper. Also, the Lauder effort may in itself make an interesting piece of work at a later date [and after more work].

4) The title should be changed: it is neither covering what the authors are doing [CM-SAF is not validated by Lauder data], nor as a question answered in the text [can CFC be reliably derived. ...? Where is the answer????]. How about: 'Validation of CM-SAF cloud fractions by ground-base observations at Hannover, Germany - a comment.' No more, no less.

5) As I am not a native English speaker myself I always feel a bit of hesitation in criticizing the contextual English grammar and style. However, the authors have had clearly considerable trouble in explaining themselves in English. This makes the paper fairly

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difficult to read because it is not exactly known what the author truly mean by their statements. There are a number of these problems and I will show just a couple of them: page 11162 line 2,3: ‘One item is the cloud contamination. . . . Since the pixel is not completely cloud filled. . . .’. I think that the authors want to say that a CM-SAF pixel is assigned the value 100% when considered to be cloud-contaminated. And that if the pixel is not completely cloud-filled, then this value of 100% is incorrect. If that is indeed what they want to say, then the two lines do not convey the true meaning. How about: “The CM-SAF procedure assigns a cloud cover of 100% in case the pixel is cloud contaminated. However, if the pixel were not completely cloud covered, then the assigned value of 100% cloud coverage would be incorrect.” Or something of this nature. Same page, line 15: Try: “The differences between the CFC of SEVIRI and HSI are the highest when the CCF is 100% and the lowest when the CCF is 50%. Same page, line 17-18: try: “For a SEVIRI CFC with grid size of 3x3 pixels and a CCF of 75%, StD and MAD are the lowest.” Page 11147, line 21: The study of cloud has been conducted already in the last decades. This statement is pretty much meaningless. There are cloudiness records going back 150 years. And on it goes. There are a number of other places with these problems and the authors would do well to let their English be checked by a native speaker.

There are a number of smaller issues but these are more easily remedied than the issues outlined above.

- 1) pg 11149 line 18: INST, DM and MM are introduced without explanation.
- 2) Pg 11151, line 26: 3 Mio?? Is this 3 million?
- 3) Pg 11151, line 27: a great number. A vague statement, should be made precise
- 4) Pg 11152, line 25: exceedingly: avoid this type of qualifier in a paper.
- 5) Pg 11152-11154: The CMA is a SEVIRI SAF product. As such it should be introduced later than a description of SEVIRI. So, first 2.1.4, then 2.1.3.

- 6) Pg 11157: Equation (4). Kor probably derived from German [Korrelation perhaps?]. Better to stick to Cor [Correlation] and throughout the paper.
- 7) Pg 11164: line 7-8: Clumsy explanation. Try: The CFC estimated by weather observers is depending on factors such as eyesight or their ability to discern patterns in situations of limited light [at night]. These factors will vary between individuals so that the observers CFC is largely a subjective estimate. [or something of this nature]
- 8) Pg 11164: line 11: imprecise use of the word 'area' . I suggest: Another factor influencing the quality of the validation is the atmospheric turbidity which restricts the ability of the human observer to detect clouds. Or something of this nature.
- 9) Pg 11164: line 26: The inst cfc should be treated with caution. A meaningless statement. The same could be said for all the other observations.
- 10) Figures, by the way, are of reasonable quality. Perhaps the captions could be improved by making them larger. My eyesight is not so good so I had trouble reading it, even in this enlarged format. When condensed to the final size, they will become unreadable for more people than myself. ...!

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 11145, 2013.

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