Atmospheric
Measurement
Techniques
Discussions

Interactive comment on "Cloud and DNI nowcasting with MSG/SEVIRI for the optimised operation of concentrating solar power plants" *by* Tobias Sirch et al.

Tobias Sirch et al.

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We thank the reviewer for his positive evaluation of our manuscript. The reviewer questions and/or comments are answered in the following.

1) The paper is too long. No people today have time to read so long scientific article. The authors should try their best to make it concise.

The manuscript has been shortened by 1.5 pages in total. Following the suggestions of the reviewers, paragraphs and explanations have been reshaped/shortened in the following sections: 2.1, 2.2, 3.1.1, 3.2.1, 3.2.2, 3.5 and 5. Please refer to the manuscript for details.

C1

2) In Section 2.1, the authors stated that COCS can detect 50% of the cirrus clouds with OT $\sim$0.1. How this 50% number is obtained? During daytime, even CALIPSO lidar cannot claim this due to sunlight noise, let alone to say the narrow field of view of lidar, which covers negligible area of the earth.

This is true. COCS detects 50% of the cirrus clouds with OT$\sim$0.1 "observed by CALIPSO". This has been clarified in the text.

3) Section 2.3 is not clearly presented. Find a better way to present for this section.

Section 2.3 has been rephrased. The explanation of the pyramidal matcher is done now step by step in a clearer way. Please refer to the manuscript for details.

4) Organization is loose for the whole manuscript. Merge some sections and consider a better sequence for each section.

We think the organisation of the paper is reasonable but maybe the line of thought is partly obscured by the wealth of contents presented, so we highlight it again:

a) Introduction (Section 1)

b) The tools used for the handling of the satellite data to extract information about cloud location, cloud phase and cloud type are described in Section 2 together with the satellite instrument MSG/SEVIRI.

c) The forecast algorithm is presented step by step in Section 3:

step 1: cloud classification (Section 3.1)

step 2: derivation of the motion vector field (Section 3.2)

step 3: intensity correction for convective cells (Section 3.3)

step 4: final forecast (Section 3.4)

step 5: calculation of DNI from the forecasted cloud optical properties (Section 3.5)

C2

This section is designed such that the reader should be able to re-implement the forecast algorithm in a straightforward way.

d) In Section 4 the validation for the cloud masks (Section 4.1), the cloud optical thickness (Section 4.2) and DNI (Section 4.3) is shown.

e) Conclusions are in Section 5.

Furthermore, we improved the motivation in Section 3.1.1 and modified the sequence of the argumentation.

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C3