

We have addressed all of the points raised by the reviewer (copied here and shown in red text), and include our responses to each point below (in black text).

Reviewer 2

This is a very well written and structured paper presenting a comprehensive evaluation of solar radiation forecast skill of a global model for one specific location. Care has been taken to pre-process both the observations and forecasts in order to reduce representativeness issues. The methodology presented allows to draw conclusions about the nature of model deficiencies, and could be applied in other locations. The manuscript is basically ready for publication, below are just a few minor comments. We thank the reviewer for their comments on our submitted manuscript "Evaluating solar radiation forecast uncertainty". Based on the comments and suggestions by the reviewer, we have revised our manuscript.

Minor comments:

Page 1, line 18: Temporal averaging cannot have an effect on the overall bias. After reading the paper, I assume what the authors mean is that the temporal averaging had little impact on the magnitude of the positive and negative contributions to the overall bias.

Yes, we agree with the reviewer that we did not word this very well. We have revised the sentence to say: "Temporal averaging improved the cloud cover forecast and hence decreased the solar radiation forecast error."

Page 6, line 14: 'updated..to the computationally cheaper ECRAD scheme ..' The new scheme was cheaper but also contained scientific developments which slightly improved forecast skill, according to Hogan and Bozzo (2016).

We did not want to give the impression that we neglected the scientific improvements made to the radiation scheme. We have revised the text to say: "Notably, the radiation scheme was updated from McRad scheme (Morcrette et al., 2008) to the scientifically improved and computationally cheaper ECRAD scheme (Hogan and Bozzo, 2016) in 2016."

Page 9, line 1: The bias, or mean error, is usually abbreviated 'ME' (see e.g. Wilks, 1995). To keep with this convention, I would replace 'Mean Biased Error' by 'Mean Error' and 'MBE' by 'ME'.

We have made this change throughout the manuscript.

Page 11, lines 16-17: There appears to be a repetition here. In line 16 ‘..the relative negative MBE is rather constant around 25 %.’ And in line 17 ‘Negative relative MBE is constant throughout the year, ..’

We have removed the repetition from line 17.

Page 11, line 21: The statement ‘..only the forecast of cloud impacting the solar radiation forecast..’ is not quite correct in this context, since aerosol and/or humidity content could be wrong in the model, which could lead to radiation errors even with a perfect radiative transfer model.

Here, we just wanted to remind readers that increasing the forecast cloud cover should reduce the forecast of solar radiation reaching the surface. Our sentence was supposed to imply that the profiles of humidity and aerosols were correct; even if they are not correct, as long as they do not change, the statement is still valid. We revised this sentence: "Assuming the correct representation of radiative transfer in the atmosphere, with only the forecast of cloud impacting the solar radiation forecast at the surface (no change in aerosol or humidity), then an increase in forecast cloud cover would be expected to result in a reduction in the amount of forecast solar radiation."

Page 12, line 26: Temporal averaging cannot have an effect on the overall bias.

We agree that overall bias should not change with temporal averaging, however, we noted that there were some slight differences due to our conditional sampling (how we handle occasional gaps in observations) changing slightly for the different temporal averaging periods. We have checked this and revised the statement: "The overall bias remains around 8 W m^{-2} ."

Typological:

All typological points below are corrected in the text.

Page 3, line 17: ‘we do not use these values.’

Page 3, line 25: ‘recommended by Kotthaus et al. (2016).’

Page 10, line 6: ‘For a perfect forecast, all values’

Page 12, line 16: ‘occur more frequently than clear sky’ (to make it clearer)

Page 12, lines 22 and 31: ‘number of .. false alarms .. decreases’ and ‘and error decreasing’

Page 13, line 22: ‘They found a positive radiation bias’

Page 14, line 26: ‘the source of the positive bias’