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Geoscientific Model Development Discussions

Interactive comment on "Comparison of observed and modelled longwave downward radiation (2010–2016) at the high mountain BSRN Izaña station" *by* Rosa Delia García et al.

Anonymous Referee #2

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GMD-2017-303 review The manuscript presents a concise comparison of 7 years of downward longwave radiation measurements obtained at the Izania Atmospheric Observatory to two high resolution radiative models using other measured parameters at the site. The results show agreement between the two models and pyrgeometer measurements to within their demonstrated uncertainties. This manuscript only needs minor adjustments for publication and will be of great benefit to both the modelling and measurement communities.

General comments 1. There is no indication of what DLR measureands are used in the comparison. Are they single sample, minute averages or longer averages. There

is reference to 'instantaneous' measurements but such measurements do not exist as most data acquisition systems integrate over a small but finite period. For example, there is reference to 1-minute surface measurements in 3.0.1 but are they averages or single samples. 2. On occasions 'accuracies' are given a quantitative value. In ISO accuracies are a qualitative (good, bad, indifferent) not quantitative. Just because a manufacturer incorrectly uses accuracy as a quantitative term is no reason to repeat bad practise. 3. 'Temporal resolution' and 'temporal frequency' are used in 4.1 lines 7 to 15 - but what one thinks is meant is sampling rate. 4. While the AOD at 500 nm is used there is no indication of the aerosol model (i.e. distribution) that scales in the IR. 5. Figure 3 shows a standard X vs Y plot of various comparison parameters. It would be more instructive as (Y-X) vs X plots with a (Y-X) = zero line. 6. Table 4. Unless one of the variables is the 'truth' then the RSME are really root mean square differences. 7. 5.1.1 - while the step jump on relocation was detected there does not appear to be any comment on the different pygeometers. Was one replaced with another? If not, see point 1 above as it is not clear what measurements were used; a mean between the two?? If one was replaced with another then it would be worth saying that no jump in differences were detected when replacing an instrument. 8. Section 6 line 1-5: 'suggest a scale change of the WISG' - this is an erroneous statement as the WISG is an interim scale until a better one can be found. It might be better to rephrase it to 'The. . .. . . support previous measurement studies that suggest an offset of the WISG to the SI.'

Specific suggestions.

a. Abstract line 5: delete 'similar'. b. Abstract last sentence: move 'for precipitable water vapor (PWV) >10 mm,' to the start of the sentence. c. All references citing 'World infrared standard group' should be replaced with 'World Infrared Standard Group' or after the first use WISG. d. Page 11 line 18: the ; before Nyeki et al should be replaced with 'and'. e. There are a number of other typos that one hopes and editor can correct.

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