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## ***Interactive comment on “Assessment of BSRN radiation records for the computation of monthly means” by A. Roesch et al.***

**Anonymous Referee #1**

Received and published: 22 October 2010

Within this paper different averaging methods of surface radiation fluxes are analyzed in order to quantify the impact of monthly means frequently used for trend analysis. It could clearly be shown that the treatment of data gaps and quality flags significantly influence the resultant averages. Although the topic of this paper seems to be of minor importance at the first moment, it offers a valuable contribution for the “climate change discussion” since the analyzed problems are frequently ignored and nearly never quantified. The paper is well written and should be published with some minor changes according to the following notes:

Page 4426, line 3:

Please change: “BSRN provides radiation data at almost 40 sites...” in “BSRN pro-

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vides radiation data at more than 50 sites..." or "In 20XX BSRN provides radiation data at almost 40 sites..."

Page 4427, Chapter 2.1:

Currently there are 51 BSRN-stations. The homepage of the BSRN is <http://www.bsrn.awi.de/>. The database currently contain app: 5800 station months.

Page 4429, line 2:

Please add an explanation what is meant by "the ETHZ/BSRN data base". Otherwise readers who did not know about the BSRN history cannot understand the meaning of this sentence.

Page 4433, line 2-5:

I doubt that the "flagged fractions ranging from 0 to a few percent can be attributed to real data problems". As an example the signal noise due to night time temperature jumps can create  $\text{GLOB} > -2 \text{ W/m}^2$  as well as  $\text{GLOB} > +2 \text{ W/m}^2$ . A flagging of just the negative part of this noise is counterproductive.

Page 4433, line 9:

LWDOWN carry less flags since the quality limits of LWDOWN are much less strict compared to GLOB. All in all the flagging boundaries are rather arbitrarily and to a certain extent questionable. Thus, it may be useful to mention that at applied flags should be taken as an example.

Page 4433, line 16:

Please mention also tracker errors as you have correctly done on page 4435 line 2-4.

Page 4437, line 5 - . . . :

You performed M6 using a different data version as for the other tests. This is very confusing and leads to results in Fig 6 which are not understandable. You would clarify

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your paper if you would skip the M6 method at least in this Chapter.

AMTD

Page 4438, line 24:

Please explain why you use just nine stations for M5.

Page 4439, line 17-18:

I do not believe that wrong data – which can be flagged – are better than missing data! I prefer that station managers delete obviously wrong data affected by hoar frost, mispointing solartracker, etc. even if this will increase the amount of data gaps.

Page 4439, line 20 - 21:

Please change “The quality control that is currently implemented in BSRN..” into something like “The quality control that was implemented in BSRN at ETHZ..”

Page 4443, line 1 - 3:

Please correct the citation into

Ohmura, A., Dutton, E., Forgan, B., Fröhlich, C., Gilgen, H., Hegner, H., Heimo, A., König-Langlo, G., McArthur, B., Müller, G., Philipona, R., Pinker, R., Whitlock, C. H., Wild, M.(1998). Baseline surface radiation network (BSRN/WCRP) New precision radiometry for climate research, Bulletin of the American meteorological society, 79/10,215-2136.

Figure 3, 6,7:

Please change GLOB2 into GLOB

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Interactive comment on Atmos. Meas. Tech. Discuss., 3, 4423, 2010.

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3, C1789–C1791, 2010

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