

Interactive comment on “Assessment of the underestimation of snowfall accumulation by tipping bucket gauges used operationally by the Spanish national weather service” by S. T. Buisan et al.

E. Lanzinger (Referee)

eckhard.lanzinger@dwd.de

Received and published: 22 January 2017

The article is generally well written and informative. A strong point of this article is the application of the results to real data of the measurement network. The success could even be made clearer. In this context the last sentence of the abstract and also the conclusions could provide more facts on the benefit of applying the transfer function to Spanish Network data.

I don't repeat the excellent points from the previous, thorough revision.

comment on the revision: p.2, l.9: the statement in the article seems to be ok for me,
C1

as it states that updraft at the gauge orifice is the main factor (not the only one) for undercatch.

p.4, l.32-34: Needs to be clarified. As I understood it, you wanted filter out a dataset of snow-only events. For this purpose the selected temperature threshold of 0°C seems to be adequate. Of course you lose a lot of snow events at positive temperatures. Didn't you have any other indications of the precipitation type? What about the disdrometer? You should make clear why you chose this criteria.

p.5, l.19: same point as above and the sentence should be improved. In the phrase "precipitation as snow and not rain" I interpreted the "and" as a logical AND, but the sentence doesn't make it clear enough.

p.8, l.3-6: The conclusions are not evident in figures 3a and 3b. the main differences in wind speed occur when the precipitation intensities are low or when the event seems to be over. At the steep slope of the accumulation curve the wind speeds seems to be comparable. I suggest not to use single events as an example for average undercatch percentages. Fig. 6 is more suitable for this purpose.

Comments on tables: Should table captions appear above the tables? Depends on formatting rules of the journal.

table 2: Contingency table needs good explanation, because normally just the frequencies are displayed. Here you add the accumulated snowfall attributed to these numbers which was unusual to me. Describe it in the caption.

table 3: Normally these equations could appear in the text. Formatting them in this table is very compact, but you have no space to give explanations. I suggest to add a 3rd column for explanations OR alternatively writing the formulae in the text with explaining words before each equation.

Some comments on figures:

Figure 1: I suggest to avoid the Expression "pluvio" for the tipping bucket, as it is also

the type name of the OTT Pluvio² gauge. I would use "tipping bucket gauge" instead. Description "Pluvio OTT2" should rather be "OTT Pluvio²".

Figure 2: wind speed can't be read very well, but (as mentioned above) the conditions seem to be comparable with respect to temperature and wind speed, but the results for catch are different. Why?

Figure 5: has little extra information beyond the description in the text and could be omitted.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-197, 2016.