Dear Editor,

We revised the manuscript in accordance with your comments and those from the reviewers. In particular, we have added further details regarding the definition of the new snow and we have discussed the settlement of the snow pack under the new snow layer.

We wish to thank you and the Reviewers for the helpful suggestions.

Please find below the detailed comments and responses to all suggestions. In the revised manuscript, the changes are colored in yellow.

Many thanks for your help.

Best regards,

Antonella Senese and co-authors

REV #1

I think the authors did a good and relatively thorough job of correcting the deficiencies pointed out in the first round of review. There are still some minor revisions that are required before this manuscript can be published, including some modifications to improve clarity and interpretation of the results. My specific comments and suggestions are embedded in the attached revised manuscript in pdf format.

We have addressed all the suggested corrections shown in the pdf file and in particular:

L 20: Thank you for quantifying "good", however, reporting an RMSE here is ambiguous without reporting the mean maximum SWE for the site or the relative error. Can you do this as well?
We have modified the sentence accordingly: “Once the new snow density is known, the sonic ranger allows deriving SWE values with a RMSE of 45 mm water equivalent (if compared with snow pillow measurements), that turns out to be about 8% of yearly average total SWE.”.

L 51: A reference would be good here:
Nitu, R., Rasmussen, R., Baker, B., Lanzinger, E., Joe, P., Yang, D., Smith, C., Roulet, Y., Goodison, B., Liang, H., Sabatini, F., Kochendorfer, J.,Wolff, M., Hendrikx, J., Vuerich, E., Lanza, L., Aulamo, O., and V. Vuglinsky: WMO intercomparison of instruments and methods for the measurement of solid precipitation and snow on the ground: organization of the experiment, WMO Technical Conference on meteorological and environmental instruments and methods of observations, Brussels, Belgium, https://www.wmo.int/pages/prog/www/IMOP/publications/IOM-109_TECO-2012/Session1/O1_01_Nitu_SPICE.pdf, 16–18, 2012.
We have added the reference accordingly.

L 52: This might be a good reference for this:
Key, J., Goodison, B., Schöner, W., Godøy, Ø, Ondráš, M., & Snorrason, Á.: A Global Cryosphere Watch, Arctic, 68, 48-58, 2015, http://www.jstor.org/stable/43871386
We have added the reference accordingly.

L 57: It's not quite clear what you mean by this sentence, reword. Perhaps this is better stated as: "For catchment type precipitation sensors, the catch efficiency of solid precipitation needs to be considered for the correct measurement of new snow."
We have modified the sentence accordingly.

L 65: We have modified the sentence accordingly.

L 66: this seems a bit out of context but I think you are trying to say that the installed instrumentation does not require wind shielding and therefore has substantially less infrastructure. Please clarify.
We have modified the sentence accordingly: “For this reason, at the Forni Glacier, snow data have been acquired by means of sonic ranger and snow pillow instrumentations, without wind shielding.”

Line 67: this sentence is a bit confusing and doesn't really belong here. It perhaps belongs closer to the beginning where you justify the importance of snow measurements. More crucial here is the requirement

for a lead-in sentence for the importance of estimating new snow density when you only have snow depth measurements for estimating SWE.
We have moved this sentence to the first paragraph accordingly. In addition, we have added a lead-in sentence accordingly: “For estimating SWE only from snow depth measurements, estimating a correct new snow density is crucial.”

L 139: We have modified the sentence accordingly.

L 141: We have modified the sentence accordingly.

L 146: This would read better as: "The automated instrument are sampled every 60 seconds. The SR50 sonic ranger, wind sensor samples...are averaged every 60-minutes. The air temperature, relative humidity...sample are averaged every 30-minutes." ...etc
We have modified the sentences accordingly: “The automated instruments are sampled every 60 seconds. The SR50 sonic ranger, wind sensor and barometer samples are averaged every 60 minutes. The air temperature, relative humidity, solar and infrared radiation, and liquid precipitation sample are averaged every 30 minutes. The USH8 sonic ranger and snow pillow sample are averaged every 10 minutes. All data are recorded in a flash memory card, including the basic distribution parameters (minimum, mean, maximum, and standard deviation values).”.

L 197: We have modified the sentence accordingly.

L 204: This is better than how you stated it before but it's still hard to know if an RMSE of 58 mm w.e. is "relatively good" without at least reporting the mean of the intercomparison
We have added accordingly: “with a mean $SWE_{snow\text{-}pit}$ value of 609 mm w.e.”.

L 207: We have modified the sentence accordingly.

L 217: I still have a problem with this sentence. It reads as if you were evaluating the snow pillow and not the SR50 technique. Which method are you evaluating? I believe, despite known problems with the snow pillow sensors, it would be the more proven technique and can be used to add credibility to your snow depth technique, not the other way around.
We have modified this part accordingly: “Apart from a first period without or with a very thin cover of snow, the SWE_{SR} curve follows the curve of SWE measured by the snow pillow (Fig. 4), thus suggesting that our approach seems to give reasonable results.”

L 223: again, reporting the maximum SWE for these two years would put these error numbers into context.
We have modified accordingly: “Considering the whole dataset, the RMSE is 45 mm w.e., that turns out to be about 8% of yearly average total SWE measured by the snow pillow.”

L 248: Analysis shows
We have modified the sentence accordingly.

L 250: We have modified the sentence accordingly.

Line 262: This paragraph needs some revision. The paragraph starts by introducing errors associated with data gaps, then interjects a discussion about errors associated with large snowfall events with densities signficantly different from the average, then goes back to data gaps. Split up this discussion.

At my request, you added the discussion about the potential for large events with high densities to skew the SWE estimate. I think I'm satisfied with your answer but perhaps it's overexplained in the text. It might read better if you simply state that the technique is susceptible to this error, and then state that high precipitation amounts are infrequent (quoting the numbers), reducing the likelihood of this happening here. Without knowing the true density of the new snow during these big events, it's difficult to know their impact on the SWE estimate. As an estimation excercise, you could calculate the difference in SWE for a large event (e.g. 30 cm) if the new snow density is increased from 149 kg/m3 to 200 kg/m3.

We have modified this paragraph accordingly: "In addition to an accurate definition of new snow density, an uninterrupted dataset of snow depth is also necessary in order to derive correct SWESR values. This can be deducted also observing the large deviations between the SWE values (independent of the chosen snow density) by the SR50 and the snow pit measurements in the years 2010, 2011, 2012 and 2013. It is therefore necessary to put in place all the available information to reduce the occurrence of data gaps to a minimum. The introduction of the second sonic ranger (Sommer USH8) at the end of the 2013-2014 snow season was an attempt to reduce the impact of this problem. This second sonic ranger, however, was still in the process of testing in the last years of the period investigated within this paper. We are confident that in the years to come it can help reduce the problem of missing data. Indeed, daily variations in snow depth measured by one sensor could be used to fill the data gap of the other one. Multiple sensors for fail-safe data collection are indeed highly recommended. In addition, the wooden four stakes installed at the corners of the snow pillow at the beginning of the 2014-2015 snow season were another idea for collecting more data. Unfortunately, they were broken almost immediately after the beginning of the snow accumulation period. They can be another way to deal with the problem of missing data, provided we figure out how to avoid breakage during the winter season. Probably the choice of a more robust and white material (such as insulated white steel) could overcome this issue.

It is also important to stress that potential errors in individual snowfall events could affect peak SWESR estimation. A large snowfall event with a considerable deviation from the mean new snow density will result in large errors (e.g. a heavy wet snowfall). These events are rather rare at the Forni site: only 3 days in the 11-year period covered by the data recorded more than 40 cm of new snow (the number of days decreases to 1 if the threshold increases to 50 cm). Therefore, even if the proposed technique can be susceptible to these errors, high precipitation amounts are infrequent, reducing the likelihood of this happening at the Forni site. Without knowing the true density of the new snow during these big events, it's difficult to know their impact on the SWE estimate. However, assuming that the new snow density could be increased from 149 kg m^{-3} to 200 kg m^{-3}, the difference in SWE for a large event (e.g. 30 cm) is 15 mm w.e. (45 mm w.e. with 149 kg m^{-3} and 60 mm w.e. with 200 kg m^{-3})."

L 299: We have modified the sentence accordingly.

L 302: We have modified the sentence accordingly.

L 303: We have modified the sentence accordingly.

L 305: We have modified the sentence accordingly.

L 306: We have modified the sentence accordingly.

L 315: This should be a new paragraph and I would suggest combining it with the discussion of other snow pillow errors that are included in the paragraph starting on line 328.

We have modified these two paragraphs accordingly.

L 342: it would be useful here to provide a rough percentage of how much of the difference in the intercomparison could be explained by spatial variability (i.e. up to 10%? 20%?)
We have added accordingly: "the standard deviation is 54 mm w.e., corresponding to 12% of the mean value from snow weighing tube measurements".

L 347-351: We have deleted these sentences accordingly.

L 371: I wouldn't say this since they are used at remote sites around the world.
We have modified the sentence accordingly.

L 389: Please add the relative error here as well.
We have added accordingly: "(corresponding to 8% of the maximum SWE measured by means of the snow pillow)".

L 396: I would add here: "...provided that the mean new snowfall density can be reliably estimated."
We have added the sentence accordingly.

L 397: I would re-phrase this such as: "Although conventional precipitation sensors, such as heating tipping bucket rain gauges, heated weighing gauges or disdrometers, can perhaps provide more accurate estimates of precipitation and SWE than the ones installed at Forni, they are less than ideal for use in high alpine and glacier sites." I would also implying that conventional sensors are more accurate...depending on the situation, that may not be the case.
We have modified the sentence accordingly.

REV 2

The paper definitively improved, but there is still a major fallacy in the study. The authors state "daily SR50 sonic ranger measures and the available snow pit data can be used to define the mean new snow density value at the site". This is wrong!
Correct is that the two instruments allow to determine a proxy for the new snow density. This proxy new snow density will always be higher than a measured new snow density, since the method totally neglects the settling of the old snow cover. This means that the measured daily positive snow depth difference is usually smaller than the real depth of the new snow and therefore explains the fact that your proxy of the mean new snow density is higher than any other mean new snow density reported in your introduction chapter.
I cannot accept the paper as long as the authors do not clearly state this fact throughout the paper.

We understand the comment of the Reviewer 2 and we agree with the fact that settling processes of the snow pack under the new snow layer can occur at the Forni site, but this could affect our calculation mainly with snowfall lasting for several days. In this case, the measured daily positive snow depth differences could be smaller than the real depth of the new snow, with the consequence of overestimating new snow density. However, the obtained mean new snow density is not so higher than the general values found in literature as instead stated by the Referee. In the Introduction section, we reported the following values:

Range	**Mean**	**Reference**
	100 kg m^{-3}	Roebber et al., 2003 *
10-350 kg m^{-3}		Roebber et al., 2003
30-480 kg m^{-3}	123 kg m^{-3}	Bocchiola and Rosso, 2007 (Central Italian Alps)
Min of 50 kg m^{-3}		Gray, 1979; Anderson and Crawford, 1990
10-257 kg m^{-3}	72-103 kg m^{-3}	Judson and Doesken (2000)
	120 or 200 kg m^{-3}	Roebber et al. (2003)
20-200 kg m^{-3}		Pahaut (1975)

* Several authors stated that this value is an inadequate characterization of the true range of new snow densities (e.g. Currie, 1947; LaChapelle, 1962; Power et al., 1964; Super and Holroyd, 1997; Judson and Doesken, 2000).

In addition, the comparison with snow pillow dataset seems supporting our methodology. On the other hand, if many days pass between one snowfall and the following one, the settlement of the snow pack under the new snow layer is less likely to affect the measured differences in snow depth and this seems to be the case of the Forni Glacier site as snow days are only 9% of the snow season days.
Finally, this issue is one of the possible errors affecting our approach (please see section 5.1 Possible errors related to the methodology), but it is not the most crucial one. Therefore, we do not agree that our method is completely wrong: it represents the unique reliable approach that can be used in glacierized remote areas as demonstrated by our results.

We have further discussed about the settlement issue in the Discussion section accordingly: “Our new snow data could be affected by settling, sublimation, snow transported by wind, and rainfall. As far as settling is concerned, $\Delta h_{snow-pit-j}$ from Eq. 2 would indeed be higher if Δh_{tj} values were calculated considering an interval shorter than 24 hours. However, this would not be possible because on the one hand, the sonic ranger data's margin of error is too high to consider hourly resolution, and on the other hand, new snow is defined by the WMO within the context of a 24-hour period. Settling processes can concern also the snow pack under the new snow layer. This process can affect our daily differences mainly with snowfall lasting for several days. In this case, the measured daily positive snow depth differences could be smaller than the real depth of the new snow, with the consequence of overestimating new snow density. However, the obtained mean new snow density is not so higher than the general values found in literature. In addition, the comparison with snow pillow dataset seems supporting our methodology. On the other hand, if many days pass between one snowfall and the following one, the settlement of the snow pack under the new snow layer is less likely to affect the measured differences in snow depth and this seems to be the case of the Forni Glacier site as snow days are only 9% of the snow season days."

A few minor remarks can be found in the attached PDF.

We have addressed all the suggested corrections shown in the pdf file and in particular:

Title: site (you don't do it for an area)
We have modified the title accordingly.

Abstract: The abstract repeats some statements and contains too much numbers!
We have rewritten the Abstract section accordingly: "We present and compare 11 years of snow data (snow depth and snow water equivalent, SWE) measured by an Automatic Weather Station corroborated by data resulting from field campaigns on the Forni Glacier in Italy. The aim of the analyses is to estimate the SWE of new snowfall and the annual peak of SWE based on the average density of the new snow at the site (corresponding to the snowfall during the standard observation period of 24 hours) and automated snow depth measurements. The results indicate that the daily SR50 sonic ranger measures and the available snow pit data can be used to estimate the mean new snow density value at the site, with an error of ±6 kg m^{-3}. Once the new snow density is known, the sonic ranger allows deriving SWE values with a RMSE of 45 mm water equivalent (if compared with snow pillow measurements), that turns out to be about 8% of yearly average total SWE. Therefore, the methodology we present is interesting for remote locations such as glaciers or high alpine regions, as it allows estimating total snow water equivalent (SWE) using a relatively inexpensive, low power, low maintenance, and reliable instrument such as the sonic ranger."

L 18: We have added "snow" accordingly.

L 19: "as well as to find the most appropriate method for evaluating SWE at this measuring site" ?
We have deleted this part accordingly.

L 20-21: We have modified the sentence accordingly.

Eq. 4: What means SR?
SR means "Sonic Ranger". Then, we have added "(from sonic ranger data)" accordingly.

L 285: Here you talk about the settling of new snow, but you totally neglect the settling of the old snow cover.
As reported in the previous comment, we have added some comments regarding the settling processes that can occur during a 24-hour period: "Settling processes can concern also the snow pack under the new snow layer. This process can affect our daily differences mainly with snowfall lasting for several days. In this

case, the measured daily positive snow depth differences could be smaller than the real depth of the new snow, with the consequence of overestimating new snow density. However, the obtained mean new snow density is not so higher than the general values found in literature. In addition, the comparison with snow pillow dataset seems supporting our methodology. On the other hand, if many days pass between one snowfall and the following one, the settlement of the snow pack under the new snow layer is less likely to affect the measured differences in snow depth and this seems to be the case of the Forni Glacier site as snow days are only 9% of the snow season days."

L 387: Please also add a relative measure.
We have added the comparison with the maximum measured SWE accordingly: "(corresponding to 8% of the maximum SWE measured by means of the snow pillow)"

EDITOR

Abstract

The second paragraph (starting with "The results indicate…" until "…, ranging from ±43 mm w.e. to ±144 mm w.e..") needs rewriting. This part is merely a listing of numbers but does not give enough context to a reader to understand if this manuscript is of interest for them or not.
We have rewritten completely this part: "The results indicate that the daily SR50 sonic ranger measures and the available snow pit data can be used to estimate the mean new snow density value at the site, with an error of ±6 kg m^{-3}. Once the new snow density is known, the sonic ranger allows deriving SWE values with a RMSE of 45 mm water equivalent (if compared with snow pillow measurements), that turns out to be about 8% of yearly average total SWE. Therefore, the methodology we present is interesting for remote locations such as glaciers or high alpine regions, as it allows estimating total snow water equivalent (SWE) using a relatively inexpensive, low power, low maintenance, and reliable instrument such as the sonic ranger.".

Please define the abbreviation w.e. water equivalent in the manuscript similar to the explanation of SWE.
We have added "water equivalent" in the manuscript accordingly.

Introduction and scientific background

I think the term "new snow" and all related terms should be defined, that also opens for the suggestions of reviewer two to further explain the method used for estimating mean new snow density values and its limitations.
In the Introduction section, we already inserted the definition of new snow and snow depth: "The snow data thus acquired refer to snowfall or new snow (i.e. depth of freshly fallen snow deposited over a standard observation period, generally 24 hours, see WMO, 2008; Fierz et al., 2009) and to snow depth (i.e. the total depth of snow on the ground at the time of observation, see WMO, 2008).". In addition, in the Abstract we already specify the period considered for the new snow: "The aim of the analyses is to estimate the SWE of new snowfall and the annual peak of SWE based on the average density of the new snow at the site (corresponding to the snowfall during the standard observation period of 24 hours) and automated snow depth measurements, as well as to find the most appropriate method for evaluating SWE at this measuring site."
In order to better clarify our approach, we have added the definition of new snow also in the Data and method section.

(page 2, line 41 – 52) The site description seems to be accidently squeezed into two paragraphs with scientific background and review of other studies. I suggest to locate the site description behind the scientific background and your defining of the research gaps, probably even with a separate subsection title – maybe under the data and methods chapter.
We have added a new section (2 Study area and Forni AWSs) between 1 Introduction and 3 Data and methods:

“The Forni Glacier (one among the largest glaciers in Italy) is a Site of Community Importance (SCI, code IT2040014) located inside an extensive natural protected area (the Stelvio Park). It is a wide valley glacier (ca. 11.34 km^2 of area, D’Agata et al., 2014), covering an elevation range from 2600 to 3670 m a.s.l..

The first Italian supraglacial station (AWS1 Forni, Fig. 1b) was installed on 26th September 2005 at the lower sector of the eastern tongue of Forni Glacier (Citterio et al., 2007; Senese et al., 2012a, 2012b; 2014; 2016). The WGS84 coordinates of AWS1 Forni are: 46° 23’ 56.0” N, 10° 35’ 25.2” E, 2631 m a.s.l. (Fig. 1a, yellow triangle). The second station (AWS Forni SPICE, Fig. 1b) was installed on 6th May 2014 close to AWS1 Forni (at a distance of about 17 m). Due to the formation of ring faults, in November 2015 both AWSs were moved to the Forni Glacier central tongue (46°23'42.40"N and 10°35'24.20"E at an elevation of 2675 m a.s.l., the red star in Fig. 1a). Ring faults are a series of circular or semicircular fractures with stepwise subsidence (caused by englacial or subglacial meltwater) that could compromise the stability of the stations because they could create voids at the ice-bedrock interface and eventually the collapse of cavity roofs (Azzoni et al., 2017; Fugazza et al., 2017).

The main challenges in installing and managing both Forni AWSs were due to the fact that the site is located on the surface of an Alpine glacier, not always accessible, especially during wintertime when skis and skins are needed on the steep and narrow path, and avalanches can occur. Moreover, the glacier is a dynamic body (moving up to 20-30 m y^{-1}, Urbini et al., 2017) and its surface also features a well-developed roughness due to ice melting, flowing meltwater, differential ablation and opening crevasses (Diolaiuti and Smiraglia, 2010; Smiraglia and Diolaiuti, 2011). In addition, the power to be supplied to instruments and sensors is only provided by solar panels and lead-gel batteries. A thorough and accurate analysis of instruments and devices (i.e. energy supply required, performance and efficiency operation at low temperatures, noise in measuring due to ice flow, etc.) was required before their installation on the supraglacial AWSs to avoid interruptions in data acquisition and storage.

AWS1 Forni is equipped with sensors for measuring air temperature and humidity (a naturally ventilated shielded sensor), wind speed and direction, air pressure, and the four components of the radiation budget (longwave and shortwave, both incoming and outgoing fluxes), liquid precipitation (by means of an unheated precipitation gauge), and snow depth by means of the Campbell SR50 sonic ranger (Table 1, see also Senese et al., 2012a).

AWS Forni SPICE is equipped with a snow pillow (Park Mechanical steel snow pillow, 150 x 120 x 1.5 cm) and a barometer (STS ATM.1ST) for measuring the snow water equivalent (Table 1, Beaumont, 1965). The measured air pressure permits calibration of the output values recorded by the snow pillow. The snow pillow pressure gauge is a device similar to a large air or water mattress filled with antifreeze. As snow is deposited on this gauge, the pressure increase is related to the accumulating mass and thus to *SWE*. On the mast, an automated camera was installed to photograph the four graduated stakes located at the corners of the snow pillow (Fig. 1b) in order to observe the snow depth. When the snow pillow was installed at AWS Forni SPICE, a second sonic ranger (Sommer USH8) was installed at AWS1 Forni.

The whole systems of both AWS1 Forni and AWS Forni SPICE are supported by four-leg stainless steel masts (5 m and 6 m high, respectively) standing on the ice surface. In this way, the AWSs stand freely on the ice, and move together with the melting surface during summer (with a mean ice thickness variation of about 4 m per year).

The automated instruments are sampled every 60 seconds. The SR50 sonic ranger, wind sensor and barometer samples are averaged every 60 minutes. The air temperature, relative humidity, solar and infrared radiation, and liquid precipitation sample are averaged every 30 minutes. The USH8 sonic ranger and snow pillow sample are averaged every 10 minutes. All data are recorded in a flash memory card, including the basic distribution parameters (minimum, mean, maximum, and standard deviation values).

The long sequence of meteorological and glaciological data permitted the introduction of the AWS1 Forni into the SPICE (Solid Precipitation Intercomparison Experiment) project managed and promoted by the WMO (World Meteorological Organization) (Nitu et al., 2012) and the CryoNet project (Global Cryosphere Watch's core project, promoted by the WMO) (Key et al., 2015)."

(page 2, line 59-66) I don't think it is necessary to describe the DFIR with so detailed wording, rather include a picture with the relevant citation and explain why a DFIR on your site (and other comparable sites) is not possible.

We have modified the sentence accordingly, deleting the detailed explanation of the DFIR.

Data and Methods

(page 4, line 117) The coordinates of the site seem a bit out of contectx here. They would fit better in a separate site description section (if you decide for that, see comment above) or either before or behind the list of instruments instead of in between.

We have added a new section (2 Study area and Forni AWSs) regarding the study area in which we have inserted the coordinates of the site.

Consider a division into subsections to better guide the reader through the different topics you touch. Your chapter includes site description, instrument descriptions, challenges with measuring principles, some mechanical solutions, and mathematical methods rather mixed.

We have added a new section (2 Study area and Forni AWSs) between 1 Introduction and 3 Data and methods, in which we have focused only on the site and AWS description. The Data and methods section now regards only snow data and methods for estimating new snow density and SWE.

(page 5, line 176) You are talking about a strict control. I suggest to rather use the term "quality control" – if that is what you meant. Otherwise you may describe what do you mean by strict control? Was it manual, automatic? What are your thresholds, filter methods, …?

We have modified the sentence accordingly adding the term "quality".

Results

(page 6, line 201) Please use the parentheses solely around the citation and include the number "equal to 140 kg/m3" into the sentence. Or rewrite, i.e. "The updated value of rho_newsnow is 149 kg/m3, which is similar to

We have modified the sentence accordingly.

(page 6, lines 206) I find it easy to misunderstand this sentence. It seems that you would need a period without data for not underestimating. Though I think, you want to say that from those periods with missing data, it becomes clear that the accumulation is underestimated and thus a complete dataset is very important? Consider rephrasing.

We have modified the sentence accordingly : "In particular, in addition to the length of missing dataset, the period of the year with missing data influences the magnitude of the actual accumulation underestimation."

Discussion

I also suggest here some further division into subsections as you discuss a lot of topics. That eases the reading process and also helps you to organize your text in a more consequent manner.
We have divided the Discussion section in two parts: 5.1 Possible errors related to the methodology and 5.2 Possible errors related to the instrumentation.

(page 8, line 262). Please refer to the large deviations between the SWE values (independent of the chosen snow density) by the SR50 and the snow pit measurements in the years 2010, 2011, 2012 and 2013.
We have added this comparison accordingly.

(page 8, line 276-280). Please find a more technical way to report your problems and possible solutions. Give the reader some trust that these are challenges your team can overcome.
We have added some sentences accordingly: "We are confident that in the years to come it can help reduce the problem of missing data. Indeed, daily variations in snow depth measured by one sensor could be used to fill the data gap of the other one. Multiple sensors for fail-safe data collection are indeed highly recommended. In addition, the wooden four stakes installed at the corners of the snow pillow at the beginning of the 2014-2015 snow season were another idea for collecting more data. Unfortunately, they were broken almost immediately after the beginning of the snow accumulation period. They can be another way to deal with the problem of missing data, provided we figure out how to avoid breakage during the winter season. Probably the choice of a more robust and white material (such as insulated white steel) could overcome this issue."

(page 9, line 313). Please explain what you mean by inconsistent. Do you mean that the SR50 measure a random distance or the shortest distance or rather an average distance?
We have added accordingly: "generally much smaller than the values of the previous and subsequent readings".

Conclusions

(page 11, line 401) – remove "for our limited experience in such remote areas" – I think you showed a good deal of experience with measurements in remote areas in your entire paper
We have deleted this part accordingly.