

### **List of minor comments and technical corrections, with line number (L):**

L 8-9: Revise sentence, I suggest “Here we present the Northern Hemisphere in situ snow water equivalent dataset (NorSWE), consisting ...”

L 13: Perhaps a little unimportant, but since you reference the guide to methods and observations from the WMO (2018) in line 25 for the definition of SWE, then I think the acronym HS should be used for snow depth instead of SD throughout the paper and in the dataset, as stated in this same manual.

L 22: I do not understand how the references “National Academies of Sciences, Engineering, and Medicine, 2018; GCOS, 2022” support the statement of “the seasonal snowpack being critical for ecosystems and climate monitoring”. Please be more specific or add more relevant references.

L26: Missing a reference for SWE in Global Climate Models.

Caption Table 1: Here you are calling the dataset “NH in situ SWE” instead of “NorSWE”. This also occurs on Table 5 and 7, and line 232, and maybe elsewhere, please check and modify.

Table 1: On MGS entry, remove “is” from “Bulk density is derived ...” for consistency with other entries.

Table 2: Footnotes (1,2,3) are missing. I guess those would explain the difference between each quality flag?

Table 3: I think “64” should be removed from the caption.

Table 3: What does “7-62 Reserved mean”?

L89: Not sure the abbreviation cf. is properly used here? I had not seen this before, but while searching what it means I found that it is sometimes wrongly used in science. <https://scientistseessquirrel.wordpress.com/2016/06/13/friends-dont-let-friends-use-cf/>

Lines 94-105: Does this paragraph belong here? It is in section 2.1 on Manual gravimetric snow surveys but the paragraph is about flight surveys and the gamma radiation method.

L 102: What are GM and GI? Should it be “or” instead of “of”?

L 104: Is the uncertainty of the estimates so precise (23 mm)? But I also wonder how reliable these uncertainty ranges are applied to nowadays, considering the papers cited are from 1983 and 1984.

L 114: “can **be** much larger”

Figure 1: add “a,b,c” panels, and perhaps add “Surveys” or “Manual” in panel a?

L 129: “Data from each ~~of~~ source”.

L 136: What does “Harmonizing agency-specific quality flags” mean? I got a little confused, because as I understand from Table 2, agency specific quality flags are kept as in the original format in the dataset, in the field “data\_flag\_snw” and “data\_flag\_snd”, but then in Table 5 the flags are “harmonized”, so it is not clear if flags are modified or used as they are. Furthermore, you provide additional quality control flags (Section 4), but these are not specified in Table 2 or 5 (e.g. quality flag “H” in line 235 or “D” in line 236), unless by “CanSWE quality control flag” in Table

2 you mean “NorSWE quality control flag”? Is there a table or variable missing with your own quality control flags? And how are these distinguished from the original flags from the agencies?

L139: What does “using unique agency-specific Python scripts” mean? Please specify.

L139: coordinates

Table 5: What does “revised data” mean? And what is the difference between Traces and Patches?

Section 3: I find the titles of the subsections a little inconsistent, as some subtitles refer to specific datasets (3.1, 3.2, 3.4), one to a region (3.3) and another one to a method (3.5). I suggest to harmonise them by naming Subsection 3.3 as “Northeast US (MGS, NRCC, NHDES)” and Subsection 3.5 as “Airborne gamma SWE (NOHRSC)”, so that at least all datasets are mentioned. Or any other harmonisation that makes the subsectioning clearer.

L148-149: Please explain why SYKE (Finland) did not require any additional processing steps.

L169: Why is the land cover type not supported by NetCDF? Please explain.

Table 6: “Station coordinates ~~as~~ **are** the same ...” and “RIHMI instead of RHIMI.

L 234: I think this should be Table 5 and not 7?

L 243: qg\_flgdg\_snd

L 250 and 253: Please specify what “similar coordinates” means.

L 259: “This step removed 63 sites: 62 + 7”? Shouldn’t it be 69?

L 264: I suggest to be specific with the exact number of observations in this section, and the exact number of sites.

L 273: I think it should be Fig. 3 or Fig. 5 but not Fig. 4?

Figure 3: I suggest to rephrase the caption, the first three lines are long and without a comma.

L 338: I suggest to remove “briefly”, as it is not very brief. Great section though! It is very strong describing so many data usages, well done.

L 344: “uses **to** parameterize”

L 355-357: Yes absolutely! That is why this dataset is great, when I did the data collection myself, I missed these eastern US datasets. Great job!

L 379: Not sure how, but it would be great to include a reference/link for this <https://mountainresearchinitiative.org/flagship-activities/joint-body-on-the-status-of-mountain-snow-cover/>

Table A1: Perhaps specify for each entry if it is CanSWE or NorSWE that they used? Assuming some of those already used NorSWE. It was not entirely clear to me if the table is about showing examples of “potential uses”, or studies that have already used these specific datasets.