

Dear authors

Many thanks for the revised manuscript. I am pleased with your revisions and will accept your paper pending some minor technical corrections.

- Line 16: Most readers will not know where the Amu Darya river is. I suggest you add the country or some other geographical name (Hindukush?)
- Line 17: The second sentence in the Abstract is rather long and winding.
- Line 21: To my knowledge, you never mention the aim of the study. It might fit in here (otherwise elsewhere in the paper).
- Line 22: I suggest replacing "SNOWPACK model" by "*numerical snow cover model SNOWPACK*"
- Line 24: "25 km resolution"?
- Line 27: "percentage of *faceted layers*"
- Line 29: "peak *SWE*"
- Line 30: "*With regard to stratigraphy, ... was* "
- Lines 41-42: Please clarify. You state that climatological estimates of spatially-distributed SWE are the most important predictors of SWE. This is a bit hard to follow.
- Line 70: "at high elevation"
- Line 72: I see you point, but I don't think ridges are appropriate locations for measuring snow.
- Figure 1: Please reword: "All of the stations in Pakistan *are in basins* that eventually flow..."
- Line 98: "high elevation stations"
- Line 157: Same change suggest as in line 22.
- Line 163: "accurate *snow* depth measurements"
- Line 171: Suggest replacing "prediction" by "forecasting". Prediction rather refers to date and location of single events.
- Line 177: "Swiss Snow and Avalanche Research Institute SLF"
- Line 245: I suggest introducing the abbreviation "WY" here, since you use it later on without introducing it (e.g. line 292).
- Line 207: "peak *snow* depth"
- Line 218: "in the top meter of the snowpack"
- Line 322: "using the threshold *sum* approach"
- Line 323: "about half of time to failure layers *found* in/with Compression Tests"
- Line 335: I suggest you introduce somewhere here the size of the study area, i.e. that your study area is covered with 13 times 13 pixels of 25 km (325 km times 325 km [= 106'000 km²]), something along these lines.
- Figure 5: I am not sure I understand, you mention: bias and error?
Also: "at AKAH stations *for* the median peak SWE data"

Figure 6: “study area ... shown in Figure 1”

Figure 7: I suggest you refer here to the study area covered by 13 x 13 pixels of 25 km.

Line 325: placing too little SWE? Please consider rewording.

Line 437: “*critical snowpack*”

Line 438: “*potentially unstable snowpacks*”

Line 458: To my knowledge, “lapse rate” typically relates to temperature. I guess you rather refer to the precipitation gradient with elevation.

Davos, 23 December 2019

Jürg Schweizer