

The manuscript presents the use of a point-scale, below snow Cosmic Ray Neutron Sensor (CRNS) for monitoring Snow Water Equivalent (SWE) on a Himalayan glacier. The results are compared to a model run, which is also used to further analyze the hydrological fluxes. While the novelty of the method is minor, as previous research already showed that technique is suitable for glacier monitoring, e.g. on glaciers in Greenland and Switzerland, it constitutes an interesting case study in a data-sparse region. As such, I'd recommend publication after minor revisions.

Thank you for your kind words and acknowledgement.

#### General remarks:

1. **RC2: I'd suggest to emphasize that access of the region is (presumably) difficult and the region is thus rather (?) data-sparse.**

We will rewrite the first paragraph of the introduction to better highlight the interest of our results in light of limited available measurements. In particular, we will stress the data scarcity in the region and especially at high elevation.

2. **RC2: The section "Results and Discussion" mainly presents results without discussing them. In Particular, I'm missing a discussion on the uncertainties of both the CRNS and the model and their implications as compared to other studies**

Thanks for this comment that echoes main comment 5 of RC1. We agree that our analysis is rather qualitative. We will add a paragraph in the discussion to highlight the uncertainties related to COSIPY simulations (especially regarding processes like refreezing in the snowpack). We will also discuss in more details the uncertainties related to the CRS measurements and conversion into SWE, in particular for thick snowpack. We will also add a comparison to other CRS based studies that were conducted in different meteorological contexts.

3. **RC2: Also, the conclusions could be more elaborated**

We will expand the conclusions to emphasize the implications and limitations of this study. Still we want to keep this section as concise as possible.

#### Specific comments:

4. **RC2: Why is there no air pressure data for the site? It is one of the most important correction factors.**

The automatic weather station (AWS) that was installed alongside SnowFox to capture various meteorological data, AWS-H, included air pressure measurements. Unfortunately, due to an issue with the pressure sensor that might have been damaged during transportation, the pressure measurements from this sensor were not reliable. This is the reason why we chose to extrapolate measurements from Mera La AWS located closely, but at a much lower elevation. Due to its vicinity, we expect the hydrostatic assumption to be valid. We added more details in the revised manuscript: "Air pressure is not measured directly at the study site, **due to pressure sensor failure**"

**5. RC2: The formatting of the citations looks strange, e.g., in line 89/90.**

Thank you for noticing. I have changed the citations correctly.

**6. RC2: L 101/105: I think I understand what you did. But please rewrite this paragraph to make the information more readable as it's quite difficult to follow.**

Thank you for the suggestions. Here is the revised paragraph.

*“Where,  $K$  represents a location-specific normalization factor, with a value of 3.08.  $\epsilon$ , which equals 1.14, is a correction factor used to adjust the sensitivity of the standard lead neutron monitor.  $R_c$ , set at 14.53 GV, refers to the effective vertical rigidity, calculated using the MAGNETOCOSMICS code (part of the Geant4 toolkit, available at crnslab.org). Lastly,  $\chi$ , equal to 543.51 g cm<sup>-2</sup>, denotes the atmospheric depth, which is derived from local atmospheric pressure ( $p$ ) and the acceleration due to gravity ( $g$ ).”*

**7. RC2: L 112/113: How did you exactly derive the attenuation length? It is in a plausible range for a cutoff-rigidity of 14.53, but I don't really understand the sentence and the method used here to derive the value from Jungfraujoch data.**

The attenuation length is calculated based on the location and average pressure estimated from elevation. All the computations are done online from the website crnslab.org, and more precisely on the page crnslab.org/util/intensity.php following the method described in McJannet and Desilets (2022). We updated the manuscript to clarify this point:

*“The mass attenuation length ( $L$ ) is taken as 150 g cm<sup>-2</sup> for our study site, this value was obtained from the online calculator of the crnslab.org, and more specifically using the ‘Scaling factor calculator’, which is an implementation of McJannet and Desilets (2022).”*