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Conventionally, an integral would not have the “X=” in its limits. “P0 represents the observations occurrence” is not clear – it is a step function at the observed value.

We have replaced the equation 1 and its description as follows (in lines 168-170 on page 6):

$$“CRPS = \int_{-\infty}^{+\infty} (P_m - P_o)^2 dx ,$$

where  $P_m$  represents the cumulative distribution function (CDF) of the model and  $P_o$  represents the Heaviside step function at the observed value.”

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Some information should be given (earlier, or refer to S1) on how rain/snow partitioning schemes differ between the LSMs. Three of the four are identical.

We have added this information in lines 248-251 on page 8 as follows:

“These highly complex terrains have relatively high snowfall precipitation, and the large spread is partially due to different rain/snow partitioning schemes in each LSM. While Noah2.7.1, JULES and CLSMF-2.5 use a simple temperature threshold of 0°C to distinguish rainfall and snowfall precipitation, Noah-MP3.6 includes a transition temperature range described in Jordan (1991) (see Table S1).”

We’ve also added Jordan’s (1991) scheme for the Noah-MP3.6’s precipitation partitioning method in the Table S1.

“Snow for  $T_{air} < 0.5^\circ\text{C}$ , rain for  $T_{air} > 2.5^\circ\text{C}$ ,  
Snowfall fraction=0.6:  $2.0^\circ\text{C} < T_{air} \leq 2.5^\circ\text{C}$ ,  
Linear rain/snow transition:  $0.5^\circ\text{C} < T_{air} \leq 2.0^\circ\text{C}$ ”