

Interactive comment on “Providing a non-deterministic representation of spatial variability of precipitation in the Everest region” by Judith Eeckman et al.

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The responses are organized according to the organization of the questions. Extracts of the questions are repeated and the answers are introduced by (*).

Only one IDW is chosen for interpolation of precipitation[. . .]. They should try to look for such method that is called non-deterministic i.e. geostatistical methods.

* An important review of interpolation method suitable for mountainous areas has been done. In particular, three of the co-authors have applied the cokriging geostatistical interpolation method to estimate the monsoon precipitation in the Koshi River basin

C1

(Gonga et al., 2016) . The IDW coupled with a multiplicative altitudinal factor (Valery et al, 2010) has been chosen in this paper because it presents the advantage to separate the effect of (x,y) position from the effect of altitude. The effect of altitude can therefore be independently studied and the controlling parameters have physical meaning. Values can then be provided for altitudinal lapse rates and thresholds for precipitation.

In order to answer this question in the paper, I will add the following text P7L192: This method presents the advantage to separate the effect of (x,y) position from the effect of altitude. The effect of altitude can therefore be independently studied and the controlling parameters have physical meaning.

Table 1 should be deleted; it is not cited in the text:

* I will add reference to Table 1 in the main text.

P4, L121: I don't understand "Local measurements are necessarily biased by aleatory errors".

* For a better understanding, I will reformulate this sentence in the text as "Local measurements can not be an exact quantification of any climatic variables, and they are necessarily associated by errors that follow a random distribution law. A large number of factor can indeed affect local measurements of climatic variables (e.g. approximation in the sensor records, influence of variations faster than the time step, local site effects, . . .).

P4, L124 replace aleatory by random

*I agree that the term 'random' would be more grammatically correct here. However, the term 'aleatory' is chosen in order to match the classification of uncertainties proposed by Beven,2016. In Beven,2016, aleatory error is defined as 'uncertainty with stationary statistical characteristics. May be structured (bias, autocorrelation, long term persistence) but can be reduced to a stationary random distribution'. Consequently, I won't modify this point in the manuscript.

C2

P4, L131-134: difficult to understand, please rearrange your sentence again

* I will replace this sentence by: Water level time series are available from March 2014 to March 2015. Time serie at Kharikhola station contains 34% of missing data in 2014-2015, corresponding to damages to the sensor (TABLE 3).

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