Response to Reviewer Comment #2

First, we would like to thank the reviewer for his comments. We will consider your recommendation to, hopefully, overcome the named formal reasons for rejections.

Response to outlined problems:

1. "First problem is that some basic mathematics is unclear, e.g. eqs. (1) and (2). The summation variable in (1) needs clarification. x is running from i·Δs to (i+1)·Δs, but there is no indication of the range of x-values to be applied. In (1) the mean value $E(C)_i$ is established, but in the calculation of the standard deviation in (2) the applied mean value is denoted $E(C)_x$"

   We agree on this point. The formulation has been not correctly. We propose the following revision for page 5, after line 25:

   "The stream flow length is subdivided into multiples of the length *Δs* (for x_S) and the hillslope flow length into multiples of the distances *Δo* (for x_H). In this way defined distance classes split the basin into stripes. *Depending on width Δs the basins is classified into N_S distance classes.*
   Let us consider a single distance class i, where i is an integer indicating the number of the class. All cells of the input data with a flow distance in a range between i·Δs and (i+1) ·Δs are assigned to this distance class. We can write the set of distances of x_S assigned to i as the following set B:

   $$B = \left[i \cdot \Delta s; (i+1) \cdot s \right] \tag{1}$$

   To characterise property C in distance class i we can calculate the expected value E(C) and standard deviation σ(C), taking only values of C into account that lay in a distance the boundaries of the distance classes:

   $$E(C)_i = \frac{1}{w(i \cdot \Delta s)} \sum_{(j|x_{s;j} \in B)} C_j \quad (2) \qquad \text{and} \qquad \sigma(C)_i = \sqrt{\frac{1}{w(i \cdot \Delta s)} \sum_{(j|x_{s;j} \in B)} \left(C_j - E(C)_i \right)^2} \quad (3)$$

   Where w(i·Δs) is the number of values (or grid cells) within the class. Please note that w(x) is the non-normalised value of the area-function (Snell and Sivapalan, 1994)",

   To enhance index consistency we changed the following equation:
   Page 6, line 25, Eq. 3:   Index j replaced with i, indicating distance class numbers
   Page 7, line 1, Eq. 4 & line 4, Eq. 5   Index j replaced with i, indicating distance class numbers
   Page 9, line 9, Eq. 6   Index j replaced with b, indicating parallel basins/zones *

   * required further changes in the manuscript after line 10:
   "Where B_i is the number of *parallel basins or zones,* $w_b(i \cdot \Delta s)$ the number of cells within the distance-class *i of the considered parallel basin/zone and* $\sigma(C)_{i;b}$ *are the neighbouring standard deviations.*"

2. "Second problem is the awkward English, which is below an acceptable standard for a high quality journal. There are numerous grammatical errors (punctuation; wrong tense, wrong words, missing words, bad construction of sentences etc.), which is very disturbing for grasping the real content of the paper."

Your comment on linguistic quality and/or style has been stated by the first referee as well. To comply with the standard of the journal the manuscript is under extensive linguistic revision. The revision is not yet completed and will be addressed separately in an additional response