

## Authors' Explanations to Corrections

### **Transferability of climate simulation uncertainty to hydrological impacts**

Hui-Min Wang, Jie Chen, Alex J. Cannon, Chong-Yu Xu, Hua Chen

We highly appreciate the Editor's and Copy Editor's help to improve the quality of this manuscript. We have responded to all the production remarks and some corrections were made to the manuscript. They were mostly corrections on the tenses of sentences and the errors in the typing. Some corrections were made to improve the uniformity of the expression and the readability for readers. All the corrections suggested were not related to the specific research content. The specific explanations to corrections are as follows.

Page 1, Line 39: We are sorry that the literature, Mehran et al. (2014), was cited mistakenly here. The correct citation here should be Chiew et al. (2009). This correction would not influence the reference list of the manuscript, since both articles were also cited in the following content [Page 1, Line 44 and Page 6, Line 90].

Page 2, Line 1: The last access to the website was added as the production remark suggested.

Page 2, Line 62: A definite article was added before the word "underlying approach" by the type-setting. However, we did not intend to indicate a specific approach here, so it may be better to use "underlying approaches" instead of "the underlying approach".

Page 3, Lines 18&20: It may be better to change the word "watershed" in both lines to "catchment" to make the expression more consistent with the following content, since the "catchment" specifically refers to the sub-basin of the Xiangjiang watershed used in this study.

Page 3, Line 45: Since the word "952 m" is an elevation, it may be better to add "a.s.l." after this elevation.

Page 3, Lines 64-65: We are sorry that this was a typing error. The text here should be "future projection (2070-2099)" instead of "future (2070-2099) projection", in order to be consistent with the text "historical reference (1975-2004)".

Page 4, Line 2: We are sorry that a blank was mistakenly added in the middle of "RCP8.5", which refers to an emission scenario.

Page 5, Table 2: The corrections made in this table may make the definitions of climate variables more specific and readable to readers. The abbreviations "TX" and "TN" were not defined before,

so it may be better to use the full names in order to avoid ambiguity. In addition, the specific definition was added to the climate variable of SDII (Simple precipitation intensity index). The descriptions here are consistent with Cannon (2015).

Page 5, Line 22: The last access to the website was added as the production remark suggested.

Page 6, Line 19: It seems that a definite article should be added before the superlative of the adjective “lowest”.

Page 6, Line 35: Since other semicolons in the description of procedure of the KKZ method have been changed by the type-setting, it may be better to also change this semicolon to a period.

Page 6, Lines 37-38: The corrected description of this step has the same meaning as the uncorrected description, but is more specific and readable to readers.

Page 6, Line 77: It may be more consistent with the surrounding context to change the word “precipitation or temperature” to “temperature or precipitation”.

Page 7, Table 3: The corrections made in this table may improve the readability of the description of hydrological variables. We are sorry that the word “flow” was omitted in the description of “tQx”. In addition, the descriptions of low pulses and high pulses were corrected to make the expression clearer. The corrected descriptions are consistent with the cited literature (Richter et al., 1996).

Page 8, Fig. 2: It seems that the label of z-axis of Fig.2(c) was misunderstood in the process of image processing. The word “Rx1day” is the index of one climate variable, so there should be no blanks or gaps in the middle of this word.

Page 8, Line 3: We are sorry that tense in this sentence was mistakenly used, so it may be better to use “was” instead of “is” to make the tense consistent with the context.

Page 8, Line 38: Since the abbreviation “RE” (relative errors) was used in Table 4, so we think that it may be better to define this abbreviation here.

Page 9, Table 4: The abbreviation “RE” (relative errors) was used in Table 4, so we think that it should be defined in the caption of this table.

Page 10, Fig.4: Similar to Fig.2(c), the labels of four axes of Fig.4 may be misunderstood in the image processing. The words “Rx5day” and “Qx7day” are two indices of variables, so it would be better to eliminate the blanks or gaps in the middle of both two words.

Page 10, Line 50: We are sorry that tense in this sentence was mistakenly used. It may be better to use “were” instead of “are” to make the tense consistent with the context.

Page 11, Line 1: We are sorry for this omission in the typing. The addition of “in some cases” in

this sentence can help to avoid confusion, since the K means clustering does not always perform worse than the random selection.

Page 13, Line 36: It may be better to use the past tense in this sentence to make the tense consistent with the context.

Page 14, Line 14: We are sorry that tense in this sentence was mistakenly used. It may be better to use the past tense instead of the present tense here.

Page 14, Line 17: It may be better to use “different sizes of subsets” to make the expression clearer to readers.

Page 15, Fig.9: It may be better to change the labels of y-axis in Fig.9 from “**average** standardized mean change” to “**averaged** standardized mean change”, since this is the name of criterion used in the context and the caption of Fig.9. In addition, we are sorry that the second rows of four legends were mistakenly presented, it should be “Random HYD” since the blue shaded areas present the envelopes of results for hydrological variables across 100 random selections as the text described [Page 14, Lines 32-35].

Page 16, Fig.10: Figure 10 was first cited in Page 17, Line 71, so it may be better to present this figure in the next page.

Page 16, Line 16: The correction from “hydrology impacts” to “hydrological impacts” was to improve the consistency of the expression.

Page 16, Line 40: The last access to the website was added as the production remark suggested.

Page 17, Line 41: Since this paragraph is about the discussion on the type of selection methods and the potential of model weighting approaches, it would be better to use “model weighting approach” instead of “model ranking approach” to keep the uniformity of the expression with the following text in this paragraph.

Page 17, Line 97: To avoid potential confusion on the expression, it may be better to add a comma here.

Page 18, Line 5,7&10: We think that it may be better to use the present tense rather than the past tense in the Conclusions.

Page 18, Line 28: We are sorry that the word “subset” was mistaken typed here. It should be “select climate model simulations” instead of “subset climate model simulations”, although this does not affect the interpretation of the readers.

Page 18, Line 30: As the production remark suggested, a statement on the access of the data was

added as follows.

The observation data in the Xiangjiang and Manicouagan 5 watersheds were provided by the Changjiang Water Resources Commission and Hydro-Québec, respectively. These data are not publicly available because of governmental restrictions, but can be accessed by contacting the corresponding author. The climate simulation data can be accessed from the CMIP5 archive (<https://esgf-node.llnl.gov/projects/esgf-llnl/>, last access: 19 June 2018).

Page 19, Line 40: According to the publication of this article, it seems that there is only a first name for this author, so the initial may not be provided here.

Page 19, Line 88: We are sorry that the reference form of this author was mistakenly typed here and should be corrected to “Kuo, C.-C. J.”.