Correction to: Variability in Tropical Cyclone Climatology over North Indian Ocean during the Period 1891 to 2015

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Addition to ‘Data and Methodology’ section (i.e. section 2):

In the original version of this article, necessary details about the computation related to Mann-Kendall tau-b test was not given. The following paragraph may be added after the third paragraph of the ‘Data and Methodology’ section and may be referred as the second last paragraph of the section 2.

The Mann-Kendall tau-b is computed according to the following formulation:

$$\text{Tau b} = S/D.$$

The parameters, ‘S’ and ‘D’ can be computed by considering a set of observations ‘(X₁, Y₁), (X₂, Y₂), ..., (X_n, Y_n)’ of joint random variables X and Y. For a given pair of ranks X_i and X_j (where i < j), a score of ‘+1’ is assigned if X_i < X_j, ‘-1’ is assigned if X_i > X_j, and ‘0’ is assigned if X_i = X_j. The statistic ‘S’ is then obtained by summing the products of the resulting scores for each corresponding pair of ranks in the two distributions:

$$S = \sum_{i=1}^{n-1} \sum_{j=i+1}^n [\text{sgn}(X_j - X_i) \text{sgn}(Y_j - Y_i)]$$

where

$$\text{sgn}(X_j - X_i) = \begin{cases} 1, & \text{if } X_i < X_j \\ 0, & \text{if } X_i = X_j \\ -1, & \text{if } X_i > X_j \end{cases}$$
$$\text{sgn}(Y_j - Y_i) = \begin{cases} 1, & \text{if } Y_i < Y_j \\ 0, & \text{if } Y_i = Y_j \\ -1, & \text{if } Y_i > Y_j \end{cases}$$

Similarly, ‘D’ can be computed as:

$$D = \sqrt{\left[\frac{n(n-1)}{2} - \sum_{i=1}^t \frac{t_i(t_i-1)}{2} \right]} \sqrt{\left[\frac{n(n-1)}{2} - \sum_{i=1}^u \frac{u_i(u_i-1)}{2} \right]}$$

The total number of possible pairings of ‘X’ with ‘Y’ observations is n(n-1)/2. Here, t_i is the number of observations tied at a particular rank of ‘X’ and u_i is the number tied at a rank of ‘Y’. In the current study, ‘X’ represents years and ‘Y’ represents the variables considered.

Addition to ‘Determination of Warming Period’ section (i.e. section 3):

The following sentence may be added at the end of the second paragraph of section 3:

“Further, it may be noted that the methodology for determination of PWP and CWP primarily adopted by following Mohanty et al. (2012) and Singh et al. (2018).”

Addition to ‘Concluding Remarks’ section (i.e. section 6):

The following statements may be considered in continuity as part of the last paragraph of the section 6:

“Further, one of the limiting factors in this study realised as the basis of consideration of PWP and CWP based on SST

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anomaly variation. In the PWP, there are few years during 1940–1946, which show appreciable positive anomaly. Similarly, during the early CWP i.e. 1947–1956, there are appreciable negative SST anomalies too. Thus, considering CWP from 1957, if the results are analysed, majority of the findings would remain unchanged except the statistics part. Therefore, the conclusions drawn in this study may be considered accordingly.”

References

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