Response to Editors

The authors thank the editors for being able to give us the opportunity to revise. The authors believe that the suggestions made by the reviewers were meaningful and helpful in improving the readability of our article. We have revised the paper based on the second version. The modifications are marked in red.

The authors have responded to the comments point by point.

Comment 1: What do you mean for "Nelsen gave a strict definition of Copula function in 1999"?
Response: We intended to express that Nelsen described the Copula function in detail and gave some examples. We modify here to (in line 100 and 101): Nelsen discussed the basic properties and some of the main applications of Copula functions in 1999.

Comment 2: In Eq.(1), you do not clarify what are u1, u2, .., un. Please specify this.
Response: We intended to simplify the formula by substituting $u_1, u_2 \ldots u_n$ for $F_1(x_1), F_2(x_2) \ldots F_n(x_n)$, to increase readability. We modify here to (in line 104): $u_1 = F_1(x_1), u_2 = F_2(x_2) \ldots u_n = F_n(x_n)$ are MDF of the random vectors.

Comment 3: Note that, in general, θ is the vector of parameters of the Copula, not the parameter of the copula. In some families, it is a simple parameter, but in general it is not so (for example in vine copulas).
Response: Thanks for the note of caution, here is our negligence. We modify here to (in line 105): θ is the parameter or the parameter vector of copula function.

Comment 4: The sentence "Among them, Archimedean Copula functions have been widely applied in the field of hydrology" needs the support of references. It's a pity to see that no references about the applications of copulas in hydrology are given in the manuscript.
Response: Thanks for the note of caution, here is our negligence. We quote the book ("Extreme in nature: an approach using copulas" by Salvadori et al. 2007.) in line 108.

Comment 5: The sentence "The most used Archimedean Copula multidimensional joint distribution models are the following" is vague and references are needed here. Did the Authors mean the most used in hydrology?
Response: Thanks for the note of caution, here is our negligence. We intended this sentence as a transitional sentence leading to a specific formula, and also to express that the Archimedean Copula function has been widely used in hydrology.

Comment 6: The sentence "The most used Archimedean Copula multidimensional joint distribution models are the following" is vague and references are needed here. Did the Authors mean the most used in hydrology?
Response: Thanks for the note of caution, here is our negligence. We intended this

sentence as a transitional sentence leading to a specific formula, and also to express that the Archimedean Copula function has been widely used in hydrology.

Comment 7&8: - Check the range of the parameter theta in Eq.(3).
- In Eq. (4) there are mistakes including the range of the parameter theta. Please revise it.
Response: Thanks for the note of caution, here is our negligence. We modify here to(in line 113 and 115):

Clayton Copula joint distribution model

$$C_\theta(u_1, u_2 \cdots u_n) = \left[1 + \sum_{i=1}^{n}(u_i{}^{-\theta} - 1)\right]^{-\frac{1}{\theta}} \quad (\theta \in [-1,\infty)\backslash\{0\}),$$

Frank Copula joint distribution model

$$C_\theta(u_1, u_2 \cdots u_n) = -\frac{1}{\theta} ln\left[1 + \frac{\prod_{i=1}^{n}(e^{-\theta u_1} - 1)}{(e^{-\theta} - 1)^{n-1}}\right] \quad (\theta \in R\backslash\{0\}),$$

Comment 9: Lines 119-124: Please revise this part. When the Authors say: "Fit and Select MDF", please specify how they do the fit (method of estimation of parameters). In addition, it is not clear if they make goodness of fit tests for marginals and for the copulas. Please clarify these issues.
Response: Thanks for the note of caution, here is our negligence. We used the k-s test and RMSE values as a test of the goodness of fit of the marginal distribution. We modify here to (In line 123-125.): MDF can be fitted by Maximum Likelihood Estimation method (MLE method) and the goodness-of-fit test can be performed by the Kolmogorov-Smirnov test (K-S test) and the Root Mean Square Error value (RMSE value).
In addition to this, we added the specific goodness-of-fit test table box in line 251.

Table 1. MDF goodness-of-fit test results.

	Distribution type	Upper stream inflow	Middle stream inflow
p-value	Normal	0.3341	0.8637
	Log-normal	0.5175	0.5703
	P-III	**0.7674**	0.7599
	Weibull	0.5758	**0.9658**
	Rayleigh	0.6123	0.2173
D-value	Normal	0.13721	0.086144
	Lognormal	0.11821	0.1152
	P-III	**0.0958**	0.0965
	Weibull	0.1129	**0.0708**
	Rayleigh	0.1096	0.1533
RMSE	Normal	0.0345	0.0522
	Lognormal	0.1391	0.1152
	P-III	**0.0306**	0.0358
	Weibull	0.0929	**0.0306**
	Rayleigh	0.0529	0.1736

Because we have added a table, the subsequent table numbering has also changed.