

We would like to thank the editor again for the constructive feedback and comments. We addressed the remaining questions of the editor and updated our responses. The editor's comments are written in black. Our responses are written in blue.

- Can you please specify the meaning of MCC in your equation 9?

RESPONSE: Thanks for the hint. We have added the description of equation 9 in **Line 153-155 in the Track-change files.**

MODIFICATION: MCC represents Matthew's correlation coefficient, which is used to evaluate the accuracy of binary classification tasks.

- You mentioned P1 in section 2.4, but this marginal probability is not mentioned again. Can you please clarify your notation?

RESPONSE: Thanks for the hint. Originally, we planned to use "P1" as an abbreviation, but it is not mentioned again in the remainder of the text. So, we have deleted it in **line 140 and line 145-146 in the Track-change file.**

MODIFICATION: The probabilities of ecological drought at different magnitudes triggered by meteorological drought were obtained by multiplying their conditional probability with the propagated probability of meteorological drought.

- Is there something missing after Step 3?. If not include a dot at the end of the sentence.

RESPONSE: Thanks for the hint. We have added a dot at the end of the sentence.

- There is a missing equal sign in equation 11

RESPONSE: Thanks for the hint. The format of Eq.11 has been changed to avoid misunderstandings as it lacks an equal sign. Equation 11 is in **Line 237-240 in the Track-changed file.**

MODIFICATION:

$$\begin{aligned}
F(X > x | D > d, A > a, S > s) &= \frac{F(D > d, S > s, A > a, X > x)}{F(S > s, A > a, D > d)} \\
&= (1 - F(d) - F(s) - F(a) - F(x) + C(F_D(d), F_S(s)) \\
&\quad + C(F_D(d), F_A(a)) + C(F_D(d), F_X(x)) + C(F_A(a), F_S(s)) \\
&\quad + C(F_A(a), F_X(x)) + C(F_X(x), F_S(s)) - C(F_D(d), F_S(s), F_A(a)) \\
&\quad - C(F_D(d), F_S(s), F_X(x)) - C(F_D(d), F_A(a), F_X(x)) \\
&\quad - C(F_S(s), F_A(a), F_X(x)) + C(F_D(d), F_S(s), F_A(a), F_X(x))) \\
&\quad / (1 - F_D(d) - F_A(a) - F_S(s) + C(F_D(d), F_A(a)) \\
&\quad + C(F_D(d), F_S(s)) + C(F_A(a), F_S(s)) - C(F_D(d), F_A(a), F_S(s))) \quad (11)
\end{aligned}$$

where D , A , and S represent duration, area, and severity of propagated meteorological drought, respectively; X represents ecological drought at moderate, severe, and extreme magnitudes, which equals the cumulative probability of 0.5, 0.7, and 0.9, respectively. C represents the cumulative distribution function of the joint distribution.

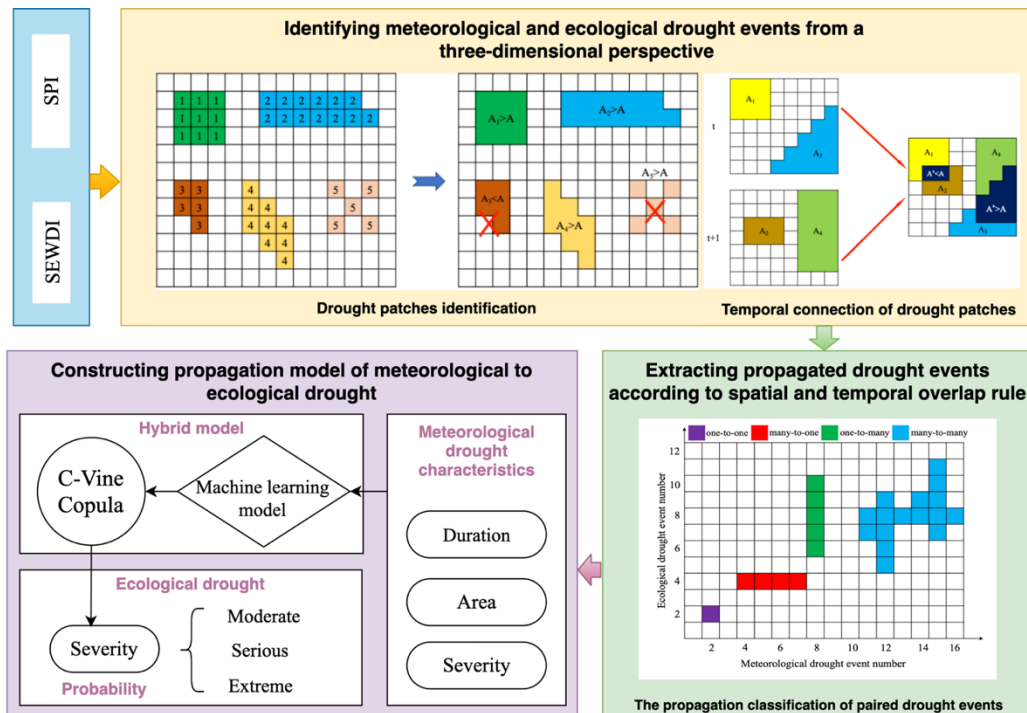
- Can you please define the meaning of MTO and OTM in Line 290?

RESPONSE: We are sorry that the relevant abbreviations were not been unified. Actually, MTO and OTM represent many-to-one and one-to-many respectively in Line 179 to 185. We have checked the full text to ensure that the abbreviations are uniform.

MODIFICATION: The sentence " Meteorological drought of OTM type showed a longer duration, a larger affected area, and a greater severity than ecological drought. However, this is contrary to type MTO. Simultaneously, ecological drought of type MTO showed a longer duration, a larger affected area, and a greater severity than those of type OTM (Figure 5)" has been changed to "Meteorological drought of type one-to-many showed a longer duration, a larger affected area, and a greater severity than ecological drought. However, this is contrary to type many-to-one. Simultaneously, ecological drought of type many-to-one showed a longer duration, a larger affected area, and a greater severity than those of type one-to-many (Figure 5)" in Line 280-283 in the Track-changed file.

- Figure 2: a) In the text you use P1, but in the figure you use P(1). Please clarify the notation. B) In the top title of your diagram located in the bottom left of the figure it reads:" Constructing response model of ecological drought to meteorological drought". But the diagram and your method suggest you should use: Meteorological drought to Ecological drought. Please clarify.

RESPONSE: a) Thanks for the hint. The p1 in Figure 2 has been deleted since we abandoned its use in section 2.4.1. In addition, "probability" has been added. b) Thanks for your suggestion, we have changed "Constructing response model of ecological drought to meteorological drought" to "Constructing propagation model of meteorological drought to ecological drought".



- Lines 550 and 555: Please revise unusual symbols in the references

RESPONSE: Thanks for the hint. We have corrected references in Line 550 and 555 to "Thom, H. C. S.: A Note on the Gamma Distribution, Monthly Weather Review, 86, 117-122, 10.1175/1520-0493, 1958." and "Vicente-Serrano, S. M., Begueria, S., Lorenzo-Lacruz, J., Camarero, J. s. J., Lopez-Moreno, J. I., Azorin-Molina, C., Revuelto, J. s., Moren-Tejeda, E., and Sanchez-Lorenzo, A.: Performance of Drought Indices for Ecological, Agricultural, and Hydrological Applications, Earth Interactions, 16, 1-27, 10.1175/2012ei000434.1, 2012." in Line 536 and 544 in the Track-changed file.