

# ***Interactive comment on “A conceptual prediction model of seasonal drought processes using atmospheric and oceanic Standardized Anomalies: application in four recent severe drought events in China” by Zhenchen Liu et al.***

## **Anonymous Referee #1**

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The manuscript illustrates a prediction model of seasonal droughts based on atmospheric/oceanic standard anomalies (SA). In particular, the model is based on synchronous relationship between SPI3 and 90-day accumulated SA anomalies.

Although the paper addresses an interesting topic within the scope of the journal, by proposing a novel methodology, I believe it cannot be published in its current form. My main criticisms are related to the fact that the proposed methods are poorly described or are unclear in several parts of the manuscript.

Major comments follow: - in Section 3.1, details on SPI computation (which seems to

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be different from the approach originally proposed by McKee et al., 1993) are lacking ; - in Section 3.2, division of drought processes is rather obscure. Why do you need to split years in dry/wet periods? SPI is computed on a 90-day period, but some of the identified spells (see table 2) cover a shorter period. How do you deal with this issue? What do you mean with initial-segment days (see lines 125-129)? Figure 3 is unintelligible. - in Section 3.6, the description of the angle comparison approach is rather messy. Please clarify and check the correctness of mathematical notations (i.e. subscripts of the angles). What is R2 in Table 3 and how is it calculated? - in Section 4.1, please add further information on the content of Table 5. - in Section 4.3, the model calibration procedure is also ambiguous What is F in Table 7? Please provide a list of the initial 43 predictors and the selected ones. - in Section 4.4, the synchronous stepwise-regression relationship should be described in-depth.

Overall, the lack of clarity in the methodology makes difficult to verify the quality of the derived results.

Finally, I would also suggest the authors to revise the language of the manuscript in order to make it more fluid and comprehensible.

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