

Interactive comment on “A revision of the Combined Drought Indicator (CDI) as part of the European Drought Observatory (EDO)” by Carmelo Cammalleri et al.

Anonymous Referee #2

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Review of manuscript "A REVISION OF THE COMBINED DROUGHT INDICATOR (CDI) AS PART OF THE EUROPEAN DROUGHT OBSERVATORY (EDO) by Carmelo Cammalleri, Carolina Arias-Muñoz, Paulo Barbosa, Alfred de Jager, Diego Magni, Dario Masante, Marco Mazzeschi, Niall McCormick, Gustavo Naumann, Jonathan Spinoni and Jürgen Vogt

This manuscript aims to propose and evaluate the new version of the existent Combined Drought Indicator (CDI), implemented at operational way within the European Commission's European Drought Observatory (EDO). The revised CDI aims to better represent a set of events that are currently not reliably represented. In this manuscript,

C1

the authors proposed two main changes to the current CDI and they aim to show the ability of the revised CDI to reproduce major drought evolution, in particular for long lasting events. The CDI performance was tested by comparison with the current version of the index, considering 4 significant events of the last 2 decades. The overall context of the subject seems to be appropriate for this journal. Despite the crucial role of this type of indices for operational processes, the paper has a very marked technical character, as only shows impacts of the two modifications on the new version of CDI and lacks comparison with other (hybrid or not) indices. Therefore, I consider that this paper could be published in Natural Hazards and earth System Sciences after the authors considering my next comments.

1. Introduction The introduction is short and based in a short number of papers, some of them from co-authors, being based mainly on information of the current CDI. As said before the technical character of the manuscript and the absence of the most recent state of art on drought studies is a caveat of this manuscript. Several recent indices were proposed aiming to include the evaporative demand of vegetation. The importance of these type of drought indicators and their possible inclusion on CDI may be included.
2. Writing and Figure of the manuscript The paper is very descriptive, and the reading is sometimes monotonous. The manuscript is based on several schematic figures, with not very distinguishable colours, namely for black and white versions. Numbers in Figure 5, 6 and 11 are very small.
3. Danger Levels Figures 7 to 10 highlight the increasing of area affected by drought in ALERT stage. Is this realistic? In particular in case of 2003, 2005 and 2018 the increase of ALERT stage area is obvious in fall (Figure 11). Why? The increase of area affected by ALERT stage seems to be compensated by the decrease of area affect by WATCH stage in the case of 2003, 2011 and 2008. However in 2005 a strong increase of ALERT stage is observed in fall, but this is not compensated by the decrease of the other stages. Why? Is this a realistic feature? As far as I know the drought event of 2005 in Iberia started in November 2004 and is ending in summer 2005.
4. Comparison with other hybrid indices In the case of drought is difficult to know when an event starts or ends. The classification of drought is also a challenging task.

C2

Therefore, a validation of CDI or another drought indicator is challenging. However, in my opinion it is not enough to evaluate an indicator without an exhaustive comparison with other indicators (multiscalar indicators, vegetation indicators, among others). A comparison of the new version with the previous version of the same index seems to be not sufficient, namely in the case of a product that is produced and disseminate operationally.

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