

Interactive comment on “Evaluation of a combined drought indicator and its predictive potential for agricultural droughts in Southern Spain” by María del Pilar Jiménez-Donaire et al.

Anonymous Referee #2

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This paper deals with the topic of defining a new combined drought indicator (CDI) capable to anticipate crop drought events. To do so, authors combined a meteorological indicator (SPI), a soil moisture indicator (SMAI) and a vegetation indicator (NDVIA). Authors established four levels of alerts with the corresponding actions and assessed this new indicator comparing monthly alerts with crop damage provided by the agricultural insurance. The research carried out in this paper is of interest, and I think it is adequate to NHESS journal. The manuscript is in general well-structured and the results that follows seems very reasonable to me. Correlation between the proposed CDI and crop damage is correctly presented. It seems to me that the manuscript could be published as long as the authors answer the following comments:

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Specific comments: 1. Authors are using a different definition of the levels of damage crop in the abstract and in the results or conclusions. Are the levels “watch, alert, warning type I and II” (see abstract) or “watch, warning to alert (type I and II) (see conclusions)?”. Regarding Table 3 it seems to be “watch, warning, alert type I and alert type II”. 2. Could the authors extend the definition of SPI in “Methods”? Some explanation of how SPI is calculated should be included to improve general understanding. 3. Could the authors explain how SMAI is calculated in the studied areas?. Did the authors obtain in-situ measurements?. How did you obtain the temporal evolution of SMAI in the studied areas? 4. Regarding your sentence: “Figure 3 shows the variation of SMAI over the studied period and for each of the five studied agricultural regions. The main two dry periods of 2004-2005 and 2011-2012 are not consistently apparent.” Do the authors think that the information given by the calculated SMAI increase the accuracy of the drought prediction?. 5. NDVIA in four pixels have been calculated for every region. Could authors explain how these pixels have been combined to obtain the NDVIA per region?. Is simply the average of the four NDVIA values? 6. The proposed CDI seems to be a modification of Sepulcro 2012 indicator. I think some comparison with the latter, at least some advantages and drawbacks, should be included in the discussion. Is CDI the name of a family of combined indicators or is specifically the name of one indicator?. Perhaps, to avoid misunderstandings, the name of the new proposed CDI should be modified to distinguish it from the Sepulcro’s CDI.

Technical comments: 1. Pag. 1 – line 21/22: Review format references in the text. An example: (e.g. Wilhite 2000). 2. Pag. 2 – line 21: I suppose you are referring to a fig. 1 of another article. Clarify this please. 3. Pag. 4 – line 9: Replace “o” by “or” and “y” by “and”. 4. Pag. 4 – line 29: What is the meaning of SPI-SL 6? 5. Pag. 5 – line 2: Replace “o” by “or” and “y” by “and”. 6. Pag. 6 – line 27: “This study proposes a CDI that combines three combines..” I suppose you want to say “three indices”. 7. Pag. 7 – line 9: What is Agroseguro?. Explain please. 8. Pag. 8 – line 5: Indicate fig. 4 is an example of the year 2004. 9. Pag. 8 – line 23: Indicate fig. 6 shows a monthly evolution. 10. Pag 10 – line 27 – 29: Move to Introduction. Authors should explain this

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Sepulcro 2012 indicator in the introduction. 11. Pag. 17 – Figure 3: In the first graph (3a) replace SPI-3 by SMAI.

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