

Interactive comment on “Characteristics of droughts in Argentina’s Core Crop Region” by Leandro Carlos Sgroi et al.

Anonymous Referee #1

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The main idea of the paper is very interesting, specifically because of the usefulness for the Agricultural Sector and Argentinean GDP. The paper is well organized and the ideas are clearly explained.

After reading the paper, the idea of understanding how the droughts affect the crops yield is well explained and, specifically, how the different variables related to droughts affect different type of crops.

Some specific aspects about your work:

* In equation 1 and 2, when describing “xi”, it would be better if you consider the “i” as a subscript.

* I think that there is an error in line 205: “that is higher than for precipitation” should

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be “ that is higher for precipitation”.

* In Figure 3 the color bar is not clear enough. The top value (0.18) is reached in an important fraction of the area, and the impression is that higher values can also be possible. Maybe changing the color bar and allowing a higher limit can improve that figure. Some of your comments are related to the 0.18 probability, but that can change if a different color bar is used.

* When you estimate SPI3 and SPI6 for the critical months and analyze the temporal evolution of drought frequency. Is there any overlapping between these months and the estimation of the SPI-SSi values? How does that overlapping affect your conclusions?

* In line 230 you mention that SM acts as a physical filter, but there is no mention on the mechanisms. Maybe exploring the physical processes involved should be incorporated and analyzed.

* The Cordoba Province is written as Córdoba and Cordoba (with and without accent).

* In Figure 8, the inclusion of a legend will facilitate the understanding of the meaning of each line.

* Figure 9 shows the detrended crop yield and the SPI-SSi indexes and your conclusions say that lower SPI-SSi values implies crop yield losses, but that is not the case for every year. Is there any explanation?. Why are only some years shown? Maybe a direct comparison between the SPI-SSi indexes and the crops yields (instead of a time series), considering all the years, can be more descriptive. Your conclusions depend on this figure and should be clearer the relation between SPI-SSi and crop-yields and explain years without a reasonable results, like the 2004-2009 period.

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