

Biogeosciences Discuss., editor comment EC1
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Comment on bg-2021-173

Eyal Rotenberg (Editor)

Editor comment on "Land Management Contributes significantly to observed Vegetation Browning in Syria during 2001–2018" by Tiexi Chen et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-173-EC1>, 2021

While most scientific studies on terrestrial vegetation cover changes and their effects on the climate system, were focused on human activities of deforestation/afforestation and managements changes in agricultural and in pasturing areas, social unrest and human conflicts effects on the land cover are poorly studied. This paper is among the first to assess this interesting topic, providing important information and research approach that will be relevant also for wide scientific communities and clear fits the BG journal agenda. In the followings the authors will find comments and suggestions to their manuscript.

General comments:

- The authors rightly mentioned that Syrian conflict is an example for others, nations wars or regional unrests which unfortunately persisting with no end, and are also effecting the land covers around the world. Thus, adding estimation information on a global size of areas affected by such conflicts over recent years will provide demonstration of this unaware aspect and its importance for the regional climate system and for land surface ecological services of those areas.
- Syria is a large country with different climatic regions and its great part is a desert land. Much of the conflicts are concentrated in the northern regions and around the capital. However, the information provided (e.g., figure 2 & 3) is for the whole country, likely not well representing the climatic conditions in the main conflict zones.
- Separating the climate from human impacts on the land cover changes over the years is at the heart of the paper; a figure and deeper discussion presenting and explaining the EVI decline due to either of the two is missing.
While the conflict effect in the Khabur River region is a good example, the authors may find another such region along the Turkey border that has not experienced conflict to emphasize that the effect is due to unrest.

Specific comments:

- Sentences starting in line 98. Dryland areas characterized by a low, relative spares

vegetation cover, so what is the advantage of using EVI over NDVI? Did the authors check this? This may provide similar results but may be the opposite? Obviously, this cannot be checked on the ground, however it can be analyzed with e.g., Google Earth products.

- L 114. The meaning of "...improved spatial consistency...", or provide reference to this model.
- Provide reference to the sentence starting in L. 122.
- Comment to the representativeness of Figure 2 & 3 has already mentioned. Specially to crops and to natural vegetation it is suggested to concentrate in the conflict zones. By the way, 'natural vegetation' included different vegetation types (as authors mentioned) and they have slightly different seasonality patterns...
- Which years figures 5 and 6 are covering?
Syria civil war started in May 2011, while EVI's declines, according to Figure 3, started already before. Can the authors separate the 2 periods to show the human influence?
- Figure 7:
Explain the meanings and provide the units (of 'irrigation distribution'). b. can the border line (Turkey to Syria) be added to the picture and if possible also adding picture from a period before the civil war, with their dates. c-f. Make clear that EVI is of the irrigated area only.
- L 230. Fig. 3 shows EVI decline prior to the civil war and even prior to 2007-09 drought. It is possible to claim that the EVI decline was due to mismanagement leading to this civil unrest but it needs to provide evidences for that.
- Sentence in L 235 is unclear.
- 247. Based on what is the claim that if removing the human activity EVI change will be the same for both sides of the border?
- Figure 7. Why EVI increases so much in the Turkey side?
Additionally, EVI trends deviation between the two countries has started already in the early 2000ths, even before the 2007 drought, how is this explained?