

Interactive comment on “Assessing the large-scale plant-water relations using remote sensing products in the humid subtropical Pearl River Basin in south China” by Hailong Wang et al.

Anonymous Referee #2

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Wang et al. (2020) explored basin-scale changes in total water storage (TWS), aridity index (AI) and vegetation greenness, productivity and how plants interact with water resource in the Pearl River Basin, China using remote sensing observations. The paper is well-organized and findings from this study are valuable for improving our understanding about large spatial scale vegetation-water relations in subtropical regions. The paper deserves publication after addressing the following comments.

General comments:

1. The Pearl River Basin is in relatively humid region. Beside water, other factors may also influence the vegetation growth. It is suggested to show the landcover change in

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the studied period and analyze the relationship between vegetation growth and temperature or energy to identify the vegetation-water relation more clearly.

2. Lag effect between vegetation growth and water availability are analyzed at monthly scale. In my opinion, it is necessary to show how P, TWS, NDVI and GPP for the 12 months in a year for better discussion about the lag effect.

3. I understand when using remote sensing products, uncertainty issue is always a concern need to be addressed. However, this is not the scientific target of this paper. To keep the readers' attention to the key scientific question trying to answer, it is suggested to remove the "uncertainties in the datasets and results" section and describe how you quantify the uncertainty of remote sensing data in the Methodology section.

Specific comments:

Line 77: Please give more information about the importance of Pearl River Basin and its connection with research progress described in the previous paragraph.

Line 120: It is suggested to decide the assumption being made behind the lag effect analysis

Line 195: The basin is in subtropical region. So please confirm whether October to March is non-growing seasons.

Line 252-253: A landcover change analysis for the study period may make the explanation here more persuasive.

Line 254: I'm a little bit confused about "water storage increase in this hotspot region has resulted in the intensification of agricultural activities". More explanation is needed.

Figure 9: It is hard to read as many elements are overlapped together. Please find a clearer way to describe the information contained in this figure.

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