Biogeosciences Discuss.,
https://doi.org/10.5194/bg-2018-257-RC1, 2018

Biogeosciences Discussions
Open Access
EGU

Interactive comment on "Spring phenology and phenology-climate links inferred from two remotely sensed vegetation indices across regions and biomes" *by* Xiyan Xu et al.

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Received and published: 14 August 2018

Xu and coauthors used two different NDVI phenology metrics to determent the dynamics of spring green-up dates, and studied the correlation between greenup and preseason T and precipitations. Large scale phenology study has been a hot pot in the global change ecology study, and comparison studies in the RS-based phenology dates have been investigated several times recent yearsïijŇbut did not find consistent results that single method could be perfectly used to extract phenology data from the RS data series and therefore multiple methods that were used to extract phenology transition dates were recommend. This study focused on the RS based phenology and try to understand the difference in the RS-based phenology dates between two NDVI metrics, it would be a good contribution to understand the RS phenology, but I have

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several major comments that hopefully can help to improve this analysis. 1) In this study, the authors focused on the AVHRR and MODIS, and found that, over the period 2001-2013, difference in magnitude and sign in spring phenology dates between these two dataset. Even, over the long period, i.e. 1983-2014 using AVHRR, globally delayed spring phenology dates were reported, which is different from the in situ data, as well as many regional phenology studies.Considering large variation in spring phenology, a 10yrs trends may holds large uncertainty in trend analysis. Furthermore, only one single methods, i.e. piecewise logistic method, might be also generate large uncertainty in the green-up extraction. Therefore, I would suggest to apply multiple methods to extract green-up dates. Since large uncertianty in the gridded climate data, validated study using another climate dataset would be suggested, and the reuslts could be put in the appendix. 2) Wrong estimation in preseason and T/Precipitation sensitivity. About the preseason issues, from the figure 3, very large difference preseaon-T were found between MODIS and AVHRR, but using same climate dataset and very similar green-up data, except Tibet and Polar regions, is it possible the large difference related to the statistics method? i.e. the DF is too small, i.e. 2001-2014, and could not be perfectly used to determine the preseason length. Or other climatic issues might affect the phenology process, and thus the effect of precipitation and radiation should be excluded from the preseason estimation. Anyway, the large difference in the preseason estimation is wired, and it would be substantially affect the estimation in the sensitivity estimation. In the temperature/precipitation sensitivity of phenology, only significant relationships were recorded and mapped, but the percentage should also be provided. From the results and figure4, it seems quiet large percentage pixels were removed. if 90% were insignificant and removed, then a mean values across the 10% in T-sensitivity would be nonsense. I would suggest to provide all data, both insignificant and sig correlations, and calculate the mean values and provide the percentage of sigs. 3) the reference should be provided in many arguments, such as L37, what's means of several changes? need references; L114, need references, also why moisture? generally by T and photoperiod, rather air or soil moisture..

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