Biogeosciences
Discussions

Interactive comment on "Global assessment of Vegetation Index and Phenology Lab (VIP) and Global Inventory Modeling and Mapping Studies (GIMMS) version 3 products" *by* M. Marshall et al.

P. van Bodegom (Referee)

p.m.van.bodegom@cml.leidenuniv.nl

Received and published: 30 November 2015

Marshall et al describe an intercomparison of NDVI products using three experiments, that reflect common applications by users. Such intercomparisons are indeed quite important in order to be able to understand product quality. I have a number of major remarks and some minor comments.

Major remarks:

1. Recommendations: Both abstract and discussion are highly descriptive. In both sections, and particularly at the end of the abstract, I would like to see clear recom-

C8082

mendations: is one product inferior over the other and when to use which. It would be important to have such statement at the end of the abstract (as it does at the end of the conclusions section)

2. Novelty/added value: The added value of the paper, compared to literature, could be more pronounced. This can partly be achieved by phrasing clear implications/recommendations in the introduction and restructuring of the discussion (see below). But also: p. 5, describes what trends (and differences therein) are commonly found for GIMMS NDVI and VIP NDVI. So, if that is known, what does the third example add to this? The inclusion of EVI2 in the comparison was also stated as a novel aspect in the introduction, but EVI2 has only been included in the first example. So, the 'what's new' or what are the current challenges-aspect (tackled in this paper) should be much more at the forefront in the introduction section.

3. Structure of the discussion: The discussion section is not very well structured; it is a mix of description and interpretation of patterns in NDVI, description of discrepancies in NDVI patterns and possible causes for this and a tiny bit on recommendations. It would read much better if those three topics would be separated in three subsections (and the recommendations part be made explicit and extended).

4. Conclusions: The conclusions sections reads as a summary, instead of as conclusions. Please focus on the conclusions and make it more concise.

minor comments:

p. 2, l.13-15: the remark on exp 1 now interrupts the flow and would fit better (and more concisely) in the description of exp 1 (l. 10)

p. 2, l. 23: please rephrase ''a 30+ year increase", that is highly unclear.

p. 3, l. 15: unclear what trends are meant here

p.7, l. 4: I guess that 'data gaps data' is a typo and even if it is not, please rephrase.

C8083

p. 7, description of gap filling: gap filling could have affected the feasibility of the product for phenology application. Indeed, in exp 3 gap filled data were not included. Instead of mentioning this in the results section, it should have been mentioned here. However, I guess it might also affect the 2nd exp. Flagging gap filled data in the figures corresponding to exp 2 could indicate whether this was a potential problem. Also: why excluding gap filled data from exp 3 and not from exp 2?

p. 9, l. 14: what quality control measures were taken?

p. 9, l. 22- p. 10, l. 1 (starting at ''Hwang''): unnecessary addition and potentially confusing as in Hwang MODIS data were used and that was not the case here. I propose to remove this entirely.

p. 11, l. 2-8 provides a description on SVATs that is, to my opinion, incorrect. Dynamic global vegetation models (DGVMs) exist since the late 80s, early 90s. So, it is not only the new SVATs that contain a dynamic vegetation component. Moreover, this sentence is unnecessary and I propose to remove it. The next remark on the common use of monthly faPAR for parameterization is not completely correct either. There is a strong debate on benchmarking of DGVMs and ESMs, precisely on the use of LAI, faPAR products. Please check the recent benchmarking of DGVM-literature on this. Finally, if any of these products is used, it is never NDVI (but faPAR or LAI instead). Some rephrasing on that statement is needed too.

p. 13, l. 9-21: does not belong to results, but methods.

p. 14, l. 16 (as an example, but is more general): dR2-values are presented, but for several cases I wonder (given the low n) whether those differences are truly significant. The significances of those differences should be tested (which is not difficult) before (presenting and) interpreting those differences. Also, I think it is important to note that in general R2s are low (and hence you may conclude that neither product is really good)

p. 15, l. 12: the more variable NDVI3v product is interpreted here and in the discussion section as a disadvantage of this product. However, such more variability could actually be more realistic. . .

p. 19, l. 11: Here smoothing is not recommended, but more above (p. 18, l. 10), it was recommended to deal with data gaps. This does not seem consistent.

———————————————