

We thank referee #2 for reading our manuscript and providing the useful comments. The comments focus on the temporal correlation between sap velocity and NDVI. From the review we realised that we can be more specific and clear when we discuss the spatial correlation. In the abstract (line 20) we would like to add “considering spatial correlation, the results show ..”. Also in the conclusion we would like to emphasise when we discuss spatial correlation (line 402 “the spatial correlation between” and line 407 “The time-variable and inconsistent spatial correlation”).

Please find our reply to the comments below (review comments in blue, reply in black).

Best regards,

On behalf of all authors, Anne Hoek van Dijke

This is an interesting study for the ecohydrology community; however, the results should be interpreted carefully.

Based on Figure 5, phenology of the deciduous forest shows that there is a greening period till May or Jun; then either full canopy or -still- slight grow during the summer, and a leaf off period after September. From May till October, NDVI values are higher than 0.8 which is notorious for NDVI saturation (Huete et al., 2002 Fig. 12).

Indeed the studied clusters were likely at saturation during the leaf-out period and we agree with the referee that the results should therefore be interpreted carefully. When studying spatial variability in sap velocity and NDVI, we found a negative correlation between sap velocity and NDVI for about half of the studied days in the months May till October. We found this statistically significant correlation despite the noise in the data, suggesting that spatial patterns are robust even at high values of NDVI.

- So, the phenology may give a chance to us only capture the growth period!? That’s why there is a linear relationship between NDVI and sap velocity in this greening period.

We fully agree with the referee. When studying temporal correlation between sap velocity and NDVI, we find a positive correlation only when considering the whole growing season, because sap velocity and NDVI follow a similar seasonal cycle (line 301). While this is or might be according to expectation, we do not find the same behaviour when looking at spatial patterns.

- When saturated, daily fluctuations in sap flow cannot be captured with NDVI values. I do not think NDVI varies day to day that much. In another saying, today there is less sap flux, let’s drop leaves tomorrow more, let’s leaf out. That’s why it is intuitive that during the summer there is no relationship between two. In my opinion, my saying is in line with your comments about NDVI measurement in Aug 2015 (L207-210), you do not assume NDVI does not fluctuate that much within a narrow time frame.

We fully agree with the remarks of the referee. Daily variation in sap velocity is to a large extent controlled by incoming radiation and this meteorological control is not reflected in the NDVI (line 304). Therefore, a temporal correlation is not expected, neither found, when studying the leaf-out months only.

I recommend a native speaker should read the manuscript, for punctuation, especially comma usage (Oxford comma (i.e., L43, L203), connecting two independent clauses (i.e., L37, L58, L90, L111, L116, L135, L190, L222, L410) or after introductory phrases (i.e., L84, L252)) and dash usage (i.e., L363, L380, L409). Please check the following: L101. Upper case. ...the Ardennes Massif and the Paris Basin. L198. Caption of Figure 5. Verb. The grey line and dots represent the L258. Caption of Figure 8. Typo. Relationship L340-3. This sentence can be split into two sentences. L397. Word class, use ‘verb’ form. Replace effects with ‘affects’. Also add ‘fullstop’ to the end of Table captions.

We thank the referee for pointing out these spelling mistakes and the improvements that can be made in punctuation. We will review the next version of this paper on English language and punctuation.