

Review #1:

Overall, the manuscript is well written, and has several interesting findings. But my concern is that its title “Vegetation indices as proxies for spatio-temporal variations in water availability in the Rio Santa valley (Peruvian Andes)” is inadequate to what they are presenting on the paper. Based on the title, I expected the manuscript will be more focusing on the technical issues of how well satellite-based vegetation index captures spatiotemporal variations in water availability. However, the manuscript provides general characterizations about the relationships between vegetation index and precipitations, land surface phenology retrieval, and land surface phenology and larger-scale circulation patterns (i.e., ENSO). They also presented long-term greening and browning without specific attributions of why. Therefore, I would recommend revising the title and relevant sections and expressions, especially for their overall goals.

We thank the reviewer for the evaluation and the comments. We agree that the title is not ideally representing our work and we changed it to: “Timing and trends in vegetation greening indicate increasing plant available water in the Rio Santa basin (Peruvian Andes)”. Regarding the reviewers comment that we “...presented long-term greening and browning without specific attributions of why” we made amendments to the abstract and relevant text sections to specify more clearly that increased water availability is the key driver (and not e.g. land use change or CO₂ fertilization effects) of greening in the area. However, we additionally would like to point out to the reviewer that we addressed this issue thoroughly in the Discussion (i.e. lines 255 to 282 and 324 to 338). Additionally we reformulated in a more specific way our goals, adopting a 1:1 correspondence to the subsections in Section 3, “Results”.