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Interactive comment on "Multiresolution quantification of deciduousness in West Central African forests" *by* G. Viennois et al.

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Although it may seem to a general audience that the result showing that EVI is linked to the proportion of leafy trees in a tropical rainforest is trivial, this is in fact not the case. Within structurally complex canopies and tropical atmospheric conditions, vegetation indices may indeed respond to LAI (Leaf Area Index) variations, but also to a range of other structural changes (lead angles, leaf clumping, canopy roughness), to atmospheric conditions (aerosols, water vapor concentration, etc.) and to sun-scene-sensor angles (in particular seasonal variations of sun height, that are not accounted for in MODIS BRDF corrections) (Huete and Saleska, 2010). This complexity and absence of appropriate studies sparked the controversy around phenological studies based on MODIS data, notably in the Amazon region (Asner and Alencar, 2010; Samanta et al.,

2011). We are not aware of any other theoretical or empirical study establishing a clear link between EVI variations and canopy phenology in a tropical forest context.

The term 'multiresolution' aims at highlighting the novelty of our approach, based on a fairly straightforward assessment of EVI response to measurable changes in canopy phenology as can be assessed using higher resolution imagery. We think the term 'multiscale' would be more terminologically more loaded than the term 'multiresolution'.

We chose to focus the analysis on dry season EVI gradients to avoid possible instrumental (sun height) bias, to maximize the range of deciduousness variation, and to minimize cloud cover, this is why wet season relationships are not shown in figure 4. The illustration of wet season patterns in figure 3 only serves to illustrate qualitatively that canopy phenology is indeed seasonally dynamic.

References :

Asner, G. P. and Alencar, A.: Drought impacts on the Amazon forest: the remote sensing perspective, New Phytologist, 187(3), 569–578, 2010.

Huete, A. R. and Saleska, S. R.: Remote Sensing of Tropical Forest Phenology: Issues and Controversies, International Archives of the Photogammetry, Remote Sensing and Spatial Information Science, XXXVIII(8), 2010.

Samanta, A., Ganguly, S. and Myneni, R. B.: MODIS enhanced vegetation index data do not show greening of Amazon forests during the 2005 drought, New Phytologist, 189(1), 11–15, 2011.

Interactive comment on Biogeosciences Discuss., 10, 7171, 2013.