Interactive comment on "A spatially downscaled sun-induced fluorescence global product for enhanced monitoring of vegetation productivity" *by* Gregory Duveiller et al.

Anonymous Referee #1

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This paper proposed a method to spatially downscaled the coarse sun-induced fluorescence (SIF) datasets to a finer resolution. The method proposed in this study is sound and I also agree the dataset should be useful for the community of the Earth System Science.

In fact, VIs including NDVI, NIRv and EVI used in this study definitely have a good correlation with SIF, especially at a weekly or longer time resolution. Thus, the high correlation coefficients in the text are under expectation. But, I don't think the VI-derived SIF data product has an advantage in predicting "invisible" phenology of photosynthesis. The performance of this downscaled "SIF" dataset still depends on how well it can

detect changes in vegetation greenness. However, the carbon uptake by green leaves may change throughout the season. Thus, the downscaled dataset may not provide information beyond greenness. The authors should discuss it in the text.

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