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Interactive comment on "Optical sampling of the flux tower footprint" *by* J. A. Gamon

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Thanks for the positive comments and useful suggestions. In the revisions, I have argued for a more integrated approach to optical sampling that includes SIF along with reflectance-based indices and other approaches. The influence of both APAR and downregulation on fluorescence signals have been mentioned, and additional references on SIF have been added. However, given the length of the review, a full discussion of all the SIF literature seemed beyond the scope of the current paper, particularly since most of that literature has not yet been fully integrated with reflectance-based approaches. Also, there remain practical and theoretical challenges to doing so (given the parallel history of the approaches and the ongoing need for more robust instrumentation). I leave integrated SIF-reflectance studies as a recommendation for future work, particularly in the context of radiative transfer modeling, with the flux tower network as an ideal testbed for advancing our understanding of the links between optical

phenomena and photosynthetic regulation.

As for scaling and emergent properties, a key point is that combining optical sampling methods across scales provides a powerful set of tools for addressing emergent properties. Radiative transfer modeling could also be a useful tool, particularly if it were better integrated with photosynthetic models, LIDAR and multi-scale optical sampling. Similarly, the advent of airborne (including drone-based) or spaceborne imaging spectrometry could help. Additionally, networked approaches using common optical instrumentation and sampling designs are underway and these are discussed as additional tools for examining general principles (e.g. the complementarity hypothesis). I have included these points, along with other ideas, as suggestions for improving our understanding of scaling and emergent properties.

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