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Interactive comment on "A novel reflectance-based model for evaluating chlorophyll concentration of fresh and water-stressed leaves" *by* C. Lin et al.

Anonymous Referee #1

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This paper discusses an important problem, namely how to measure the chlorophyll content of leaves without the necessity of taking samples for laborious chemical chlorophyll extraction in the laboratory. The paper evaluates many different techniques for chlorophyll measurement using leaf reflectance spectra. The algorithms considered use various band ratios, spectrum derivatives, and wavelength locations of spectral features such as the green maximum and red edge. The emphasis of this paper is how these algorithms are affected by the water content of the leaves in leaves that are stressed by lack of water.

The paper starts off well with an explanation of the biochemistry of how water stress should affect different wavelengths. However, as I continued reading, I found myself

bogged down in acronyms and detailed discussions of the comparison statistics of the different algorithms for different conditions of leaf chlorophyll and water content. By the end of the paper I had lost both interest and any feeling for which algorithms work best. The level of detail presented in the paper is certainly necessary for evaluating the different algorithms. However, it would make for a much more readable paper if the results of all of the statistical testing could be left in the existing Tables 3-5, and the detailed discussion of the text (especially section 4) could be condensed to essentially "We evaluated all of the algorithms seen in Tables 1 and 2. The results are seen in Tables 3-5. What worked best is...." This would make for a shorter and more readable paper, but the details of R-squared fits, etc., could still be found by readers who wish to do similar comparisons with new algorithms.

The English is acceptable for explaining the science. However, there are many places where a word or phrase could be changed for better clarity. Editing by a native English speaker therefore would be beneficial.

Interactive comment on Biogeosciences Discuss., 10, 17893, 2013.