Interactive comment on “Analysis of CO₂ mole fraction data: first evidence of large-scale changes in CO₂ uptake at high northern latitudes” by J. M. Barlow et al.

Anonymous Referee #1

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Barlow et al. present an atmospheric CO₂ time-series data analysis focusing on Northern hemisphere high latitudes. They use wavelet analysis for this purpose. They focus on changes in characteristics of the seasonal drawdown - release characteristics. They find evidence for increases in carbon uptake during summer. The paper is interesting and the approach seems sound. As such I recommend publication of the study.

Minor issues
I found it difficult to understand what the NDVI data really tell us. You seem to say that they contradict to some extent the analysis based on atmospheric CO₂ records. Maybe I misread your paper in this regard but if not can you clarify this?

Formulations are sometimes not sufficiently precise - I would clarify the text in these places - see annotated manuscript.

For me there are too many abbreviations - which one needs to look up repeatedly - and thus break the flow for the reader. Maybe remove one or two?

Do you really need that many figures? Why not retain just the key ones?

Please also note the supplement to this comment: http://www.atmos-chem-phys-discuss.net/15/C1436/2015/acpd-15-C1436-2015-supplement.pdf