

## ***Interactive comment on “An optimised method for correcting quenched fluorescence yield” by L. Biermann et al.***

### **Anonymous Referee #3**

Received and published: 23 June 2014

Major comments and questions:

- 1) What is the major question or problem that the authors want to address in this MS? I do not see any question or problem stated by the authors. Instead it seems to be merely a discussion of the possible use of some remotely sensed data that they have acquired.
- 2) What exactly is the "optimised method" that the authors put forward in this paper? I see no equations or description of any method, other than to repeat the laborious and expensive remotely acquired data as as they hav done.
- 3) What is the major goal of this MS? From most of the pages in this MS, it seems that the authors see this 'method' as being of prime importance to measure chl-a in deep

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water columns and then somehow to related this to rates of primary production to be used in studies of food web dynamics, etc.

- 4) I find it a bit shocking that the authors come from four well known oceanographic institutions which should have given them the opportunity to get some ship time in Antarctic waters.....which would have enabled to obtain reliable, direct ship-board data in deep ocean profiles for essential physical, chemical, biological, and optical conditions (including direct measurement of chl-a, chl-a fluorescence, particulate organic carbon, etc.).
- 5) In the Discussion, the authors state that their aim is "to create an algorithm that is easily applied...." Why don't they show us this algorithm?

Minor comments and questions:

- 1)The authors keep mentioning the 1% surface value for light. Do they mean the PAR solar irradiance incident upon the sea surface, or the irradiance immediately below the sea surface? They must realize that there is a big difference between these two values, particularly in high-latitude waters.
- 2) In the Abstract, 4th liner, the authors mention the "in situ yield".....yield of what?
- 3) It does not appear that the authors are very well versed re published data from ship board work in the Antarctic. They show relatively little knowledge of the characteristics of the upper mixed layer or the usual depth of the euphotic zone (defined as 1% of the incident solar radiation) or of the basic characteristics of DCMs in regard to distribution or formation and maintenance of the elevated biomass at thee depths. Also, DCMs are not 'rare' in the Southern Ocean or in vast regions of temperate and tropical waters.
- 4) I do not like to see all this work go to waste.....have the authors ever considered mounting a good sea-going effort to combine actual profiles from ship-board studies to build upon and enhance the value of their thoughts and ideas as discussed in this MS?

Recommendation re publication of this MS:

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I do not see any worthwhile data or ideas/concepts in this MS. It should be rejected without possibility of re-submission.

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Interactive comment on Ocean Sci. Discuss., 11, 1243, 2014.

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