Ocean Sci. Discuss., 10, C730–C732, 2013
www.ocean-sci-discuss.net/10/C730/2013/

Ocean Science
Discussions

Interactive comment on "Evaluation of MERIS products from Baltic Sea coastal waters rich in CDOM" *by* J. M. Beltrán-Abaunza et al.

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Received and published: 19 December 2013

The manuscript by Beltran-Abaunza and co-authors, documents an effort to assess MERIS data products for a coastal region in the Baltic Sea. The assessment relies on in situ measurements and MERIS data products determined using different processing algorithms. The manuscript is certainly appropriate for Ocean Science and it should be considered for publication. Below are a number of comments, which should be addressed before definitively accepting the work.

Comments 1. Page 2163, line index 20 (and Figure 6). The in situ data include the absorption coefficient of CDOM. It appears this quantity is considered equivalent to the absorption coefficient of the so called "yellow_subs" in the official ESA MEGS products (not clear if the same assumption applies for FUB, C2R and BOREAL data prod-

ucts). However, MERIS MEGS "yellow_subs" is the sum of the absorption coefficient of CDOM and of non-pigmented particles, and thus it is not simply the absorption coefficient of CDOM. This element should be detailed and, eventually, any assumption should be justified.

2. Page 2163, line index 25. An error of 7% is decalred for Chla concentration determined with the trichromatic method. Considering this value was determined from triplicate analysis, is it really an error or the precision (or repeatability) of measurements?

3. Page 2172, line index 15. The work documents major differences between the radiometric products from satellite observations and from in situ measurements. This may suggest that the derived products (e.g., Chla, SPM), being determined from highly inaccurate radiometric data, may not be reliable and worthwhile to consider. On the other hand, until a better atmospheric correction is possible, these are the available derived products for MERIS. This point should be used to defend the effort in assessing the MERIS derived data products.

4. Page 2173, line index 20. Results are discussed in terms of "random errors" and "systematic errors". The terminology is certainly correct, but it assumes a "truth". Thus, if all the uncertainties are assigned to the remote sensing data products and the in situ data can be considered "exact", the terminology can certainly be preserved. If, like in this case, the in situ data are affected by their own uncertainties, it should be more appropriate to consider "dispersion" instead of "random errors" and "bias" instead of "systematic error".

5. Page 2170, line index 10. The work has been developed using ICOL (a processing scheme proposed for the minimization of adjacency effects in satellite data). When looking at the spatial distribution and distance from land of the validation points, it is clear that the adjacency effects may differently affect results as a function of the location of the in situ measurement station. Because of this, rather than making a cumulative

evaluation of the ICOL performance, not really supported by evidence, it would relevant to show the effects of ICOL corrections as a function of the geographic position (at least the distance from the land). Clearly, considering the small number of matchups, this requires duly accounting for in situ measurement uncertainties.

6. Page 2176, line index 20. The discussion does not at all include recent studies on the assessment of MERIS data products from the same reprocessing and for the Baltic Sea (e.g., Zibordi et al. Ocean Science, 9, 521–533, 2013; Kajiyama et al, IEEE GRSL, 10, 283-287, 2013). Considering that some of the findings presented and discussed in this manuscript were already anticipated in previous publications, those literature results should be duly cited.

7. Page 2177, line index 5. It is reported that ICOL improves the radiometric results. As already stated, this conclusion should be supported by some numerical evidence. For instance, it should be reported the level of improvement as a function of the distance from the coast.

8. Page 2180, line 15. The overall discussion on the accuracy of MERIS data products should mention that accuracies reported in past literature should be related to the different performance of the various MEGS processors applied in successive reprocessing. Specifically, while the atmospherically corrected data were largely overestimated in the second MERIS Reprocessing, the opposite is observed with the third Reprocessing (see Zibordi et al. , Ocean Science 2013). Clearly, this severely affects the accuracy of derived data products.

Interactive comment on Ocean Sci. Discuss., 10, 2157, 2013.