

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

Anonymous Referee #2

Received and published: 23 January 2014

Short summary: In the presented paper, the retrieval of water quality parameters in CDOM rich waters by means of remote sensing reflectance is tackled. In particular, four common processing schemes for MERIS data were evaluated by their performance with respect to in situ data. These in situ data consisted of the most important bio-optical parameters SPM, CDOM and chlorophyll, as well as field radiometric data as retrieved by TACCS. Both, field data and overall discussion are mainly related to the Himmerfjärden- and adjacent areas of the Baltic Sea, focus is set on the parameter CDOM.

Comments The title reflects the contents of the paper well and the abstract summarizes its major content. In the paper, the accuracy of satellite retrieved data on important water quality parameters is addressed. This topic is of high relevance, and the presented

C840

work complements ongoing efforts of the scientific community to convert radiometric data to water quality parameters in optically complex areas. The topic fits well into the scope of Ocean Science and I recommend publication with minor revision.

- The overall presentation is good, yet some paragraphs could be cleaned up to ease readability. As an example, the processing steps are given very detailed which to my opinion, facilitates repeatability and traceability of the study. This part could be clarified by a schematic diagram.

- Concerning readability: Some sentences are quite full of information. E.g., page 2177 lines 22-25: These differences may also be linked to the relatively small ranges on in situ SPCM and Chl a concentrations in comparison to the higher range of the processors, combined with relatively high aCDOM.

- Page 2161 lines 27-30: What does this mean: Besides the further development of MERIS processing, the algorithm to retrieve the MERIS reflectance for the in situ radiometer (TACCS) used for validation was also improved.

- The accuracy of water sample analyses for CDOM, Chl a and SPM is set in relation to prior investigations on this matter. Did you sporadically also take triplicates for the three parameters? If yes, do these results comply with prior investigations?

- In situ radiometric are used for comparison with MERIS remote sensing reflectance data. The calculation of remote sensing reflectance with TACCS in combination with in situ absorption and attenuation data is certainly a good approximation, yet, it should be noted that the in situ values are not the “real” reflectance either.

- Page 2172, line 10: Good to give Secchi depth, but these measurements did not appear in the methods section, where they also belong to.

- Taxonomic names should be set in italics, e.g. *Nodularia spumigena*

- Regarding the conclusions that were reached: why is ICOL better for Baltic Sea Waters?

C841

- Several aspects concerning the ICOL issue were already well addressed by Zibordi. The inclusion of evidence for a better performance when applying ICOL may be eased by a clear statement of what will be compared against what already in the methods section (including some of the suggestions on "how" by Zibordi).

- Regarding the recommendation to use red absorption bands for phytoplankton: Can you give a short example of where this was done and if Chl a concentrations were similar? Given the relatively low Chl a concentrations, the red peak may be too weak.

Figures and tables: - In general, good choice of figures and tables with good captions. Except: table 4 and 8 could be embraced to just one table, but this is not essential. Caption of table 4 is with "in situ water constituent concentrations" quite short and could contain more information.

- Fig 1 map could be set in larger context for non-European people.

Technical corrections: Page 2158 line 18: from MERIS measurements instead of measurement

Page 2158, line 18: in the range instead of in te range

Page 2174, lines 12-13: were instead of are

Page 2179, line 19: Random errors seem. . .

Page 2168, line 5: Abbreviation for SPM already given in 2162, line 22.

Page 2171, lines 18-21 More discussion rather than result.

Page 2171, line 19: HSTP already defined in 2163, line 4

Page 2180, line 22: CHL can be derived instead of can be derive

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