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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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Short comment: Mazeran, C.

General comment 1

I think there should be a reference for the MERIS 3rd reprocessing, maybe this one from MERIS QWG http://earth.eo.esa.int/pcs/envisat/meris/ documentation/meris_3rd_reproc/MERIS_3rd_Reprocessing_Changes.pdf - The "standard MEGS processor (Case-2...)" should be identical to Case-2 regional processor C2R; at least in the principle. You write it in section 4 but it could maybe be said before. Also I think a specific reference is missing in section 2.3.2 (either the same

as C2R, Doerffer and Schiller, 2007, or ATBDs 2.12 and 2.25 on this page C846 https://earth.esa.int/instruments/meris/atbd/). This explains very consistent results between "MEGS" and "Case-2R" in some cases, but see next comment.

Reply to general comment 1

The recommendation by the reviewer is fully taken into account. All the suggested references will be included in the paper.

General comment 2

PCD_1_13 should not be considered for "MEGS", it is only meaningful for the Case-1 branch, not the Case-2 products you considered here. It also could explain problems like "the standard processor removed 60% of the match-ups"

Reply to general comment 2

The recommendation by the reviewer will be taken into account for future comparisons.

General comment 3

For "MEGS/Case-2", do you really consider the rhow from the NN, which are only intermediate outputs of ODESA (whereas the standard rhow outputs in L2 are from the Case-1 branch) ? Not sure from what you write in section 4. If so, it should be better describe for reader's comprehension, with new references for the Case-1 branch.

Reply to general comment 3

This study did not consider the rhow from the NN which as pointed out by the reviewer are intermediate outputs of ODESA. The study used only the standard products of ODESA/MEGS as described in the method section. However, the suggestion to include the references for the Case-1 branch will be performed.

General comment 4

You write "The atmospheric correction in MEGS was more accurate for these cases than FUB and C2R", but if it concerns rhow from the Case-1 atmospheric correction, it cannot explain results on SPM.

Reply to comment 4

The authors fully agree with the comment of reviewer. The paragraph may mislead the reader. Therefore, the sentence referred to by the reviewer has been removed from the discussion.

General comment 5

In legends of tables 6 to 11 it's no clear if ICOL is used or not (although it is clear in the text).

Reply to the comment 5

All the suggested editorial changes will be performed.

General comment 6

The "RMS_RD" naming is a bit confusing to me; the RMS classically includes both bias and noise and is an absolute measure of error; here you first adapt it considering the relative difference, which could be sqrt[1/N *sum_i ((y_i-x_i)/x_i)ËĘ2], but also you remove the bias and define RMS_SD by sqrt[1/N *sum_i ((y_i-x_i)/x_i-MNB)ËĘ2], so at the end the couple (MNB, RMS_RD) characterize the distribution of the relative error, and "RMS" is a bit confusing to me. Also, the RMS_SD is very large, sometimes bigger than the MNB, this shows a somehow "random" error and MNB could be meaningless (I mean, not robust, very sensitive if you just remove 1 point; the classical RMS would be more robust)

Reply to comment 7

The naming of the root mean square error of the relative differences (RMS_{RD}) was aimed to help the reader by emphasizing the relative measure of error. It does provide a measure of the random errors as mentioned by the reviewer. However, the use of the couple MNB and RMS_{RD} is to be consistent and facilitate the comparison of results with previous studies in our region of interest, i.e. Kratzer and Vinterhav (2010), Kratzer et al (2008). Therefore, the authors would like to keep the current naming of the metrics used.

Comment 8

You explain some problems of the FUB NN by use of Coastlooc dataset in the training, but to my knowledge this is also true for the bio-optical NN of Case-2R and MEGS/Case-2, at least the spectral shape of IOP.

Reply to comment 8

As the reviewer commented, the training of the FUB NN was done only by using the Coastlooc dataset which is also true for the bio-optical NN of Case-2R and MEGS/Case-2. However, the bio-optical NN of the latter two processors also included in its training data from other field campaigns, namely, COLORS/MAPP, REVAMP and MAVT (Doerffer and Schiller, 2007), therefore we can expect some differences with the the spectral shape of IOPs.

Comment 9

"ESA" is missing in last sentence of acknowledgement.

Reply to comment 9

The suggested editorial changes will be performed.

References

[Kratzer et al. (2008)]: Kratzer, S., Brockmann, C. and Moore, G.: Using MERIS full resolution data to monitor coastal waters - A case study from Himmerfjärden, a fjord-like bay in the northwestern Baltic Sea, Remote Sens. Environ., 112(5), 2284–2300, 2008.

[Kratzer and Vinterhav (2010)]: Kratzer, S. and Vinterhav, C.: Improvement of MERIS level 2 products in Baltic Sea coastal areas by applying the Improved Contrast between Ocean and Land processor (ICOL)-data analysis and. Oceanologia. 2010.

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algorithm, Int. J. Remote Sens., 28(3-4), 517–535, 2007.

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