

Reply to anonymous Referee #2

Interactive comment on “Global maps of Forel-Ule index, hue angle and Secchi disk depth derived from twenty-one years of monthly ESA-OC-CCI data” by Jaime Pitarch et al.

This study provides a new, open access dataset that consists of global maps of the Forel-Ule index, hue angle and Secchi disk depth and can be conveniently downloaded from PANGAEA. A merged multi-sensor data (OC-CCI) was used as the source data and the algorithms can be traced from other documents. Generally, this is meaningful work and facilitates the research of other scientists in the water color remote sensing community. I suggest making the following minor revisions before the publication of this study:

We greatly appreciate the reviewer’s positive view on this article and acknowledge the careful reading and the useful suggestions to improve the text. We have made the following changes:

L26: “easier to handle” should be “easier-to-handle”

Corrected.

L49: delete “the” before “water surface”

We believe the presence of the “the” is necessary, because the action of lowering is with respect to the surface.

delete “is” before “tracked”

Corrected.

L50: delete “,” before “(Wernand, 2010)”

Corrected.

L72: better to change “so far” to “thus far”

Corrected.

“them” should be “their”

We believe “them” is the appropriate word here, because it does not refer to persons.

L95: delete “the” before “deep blue”

Corrected.

L133: As daily OC-CCI products are also available and can be used to match with in-situ data, why are daily variables not included in this new dataset? Or as an alternative, if possible, the authors could publish their code on GitHub, perhaps a function that makes Rrs the input and FU index and other variables the output.

Thank you, this is a great suggestion. We have uploaded the code that calculates the hue angle, Forel-Ule index and Secchi disk depth from Rrs to a GitLab repository, with the appropriate link given in the article.

We focused here on monthly data because that is the time resolution commonly used in satellite climate studies. Daily data will be much more demanding in terms of processing and storage, but we may consider such a release if the present dataset has a good reception.

L143: delete “and” before “without”

Corrected.

L155: The minimum “exact” z_{SD} in these three experiments is set to 8.0 m, which limits the verification to case 1 waters. But it is obvious that the nearshore seawater will be much more turbid; therefore, is the dataset provided by this research still reliable in turbid water (for example $FU > 10$)?

Indeed, this algorithm is applicable to waters with z_{SD} values of less than 1 m, as is evidenced by the good match between the in-situ z_{SD} and the Rrs -derived z_{SD} ; see Lee et al. (2015). The choice of a particular spectrum that leads to $z_{SD} = 8.0$ m is just one arbitrary example among three to illustrate the effect of uncertainty in Rrs on the derived z_{SD} value.

Table 2: The “exact value” of FU index in EX.2 does not match that in Fig. 1, please check it. And please change “ $A(\circ)$ ” to “ $\alpha(\circ)$ ” to keep it consistent with Fig. 1.

Corrected.

L189: “RMS=22.8%”, do you mean “relative RMS=22.8%”?

Yes, these are relative units.

L195: How is this “~32%” calculated, “22.8%”+“10%”?

Uncertainties are added in quadrature. This is now explicitly mentioned in sections 4.1 and 4.2 .

L290: “variation” should be “variations”

Corrected.