

Interactive comment on “Ocean colour products from geostationary platforms, opportunities with Meteosat Second and Third Generation” by E. J. Kwiatkowska et al.

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The referee is gratefully acknowledged for providing valuable comments about the user requirement process. Below the authors refer to the individual comments and specify changes that were made to the text.

“Such an analysis is welcome [capability of geostationary ocean colour], although the manuscript reads more like an opinion paper than a review. The analysis is placed firmly in the context of user needs and the requirements of the European water framework directive and marine strategy framework directive. Unfortunately, no (re-)analysis is presented of these user-defined requirements and the reader would have to be in-

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timately familiar with the cited documents of individual projects, not generally subject to peer review but generally subject to significant production pressure, to assess how meaningful these user groups and responses have been. At minimum an overview of the nature (targeted audience, geographical spread) and size of the response should be provided.”

An example of detailed but still preliminary user requirements collected as a process demonstration GMES-PURE is enclosed at <http://gmes-pure.eu/deliverables/public-documents/> in the Marine User Requirements Database extract. Roughly one third of this database is related to ocean colour requirements. These user requirements are numerous and regard a large variety of parameters associated with marine biogeochemical properties, phytoplankton functional types, nutrients, and aquatic optics and turbidity. Many of these user requirements cannot be met by the SEVIRI and FCI instruments which design, spectral, radiometric and spatial characteristics, are not dedicated to ocean colour applications. Therefore this paper limits the description and analysis of user requirements to those requirements that are feasible for SEVIRI and FCI instruments. The requirement “(re-)analysis” in this paper is therefore the focus on requirements that are feasible from the SEVIRI instrument and, in the next instance, from FCI. Appropriate text with this explanation has been included at the beginning of section 2 and additional Table 3 summarizes the applications.

“The manuscript repeatedly claims to present “a review of user requirements for geostationary operational ocean colour products”, but I would argue that it is a review of geostationary ocean colour capability and, as such, does not provide significant new insight. In the comments below are some suggested instances where this could be improved by additional discussion or analysis.”

Section 2 now makes it clear that the user requirements described in the paper are specifically constrained to those that are feasible to be met by SEVIRI and FCI, which are the already existing or designed instruments. The paper cannot provide new insight into geostationary ocean colour user requirements. It is clear that SEVIRI and

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FCI will not push ocean colour state-of-the-art but may provide improved coverage and unique diurnal ocean colour observations above the Europe and Africa disk which could benefit many users and services.

"In summary, the paper could be more logically presented as either an opinion paper regarding the uptake of geostationary OC sensors, or (with additional analysis) as a review of user requirements, but one focus should preferably be selected and followed throughout. Either way, it would support the logical structure of the paper if capabilities and (current) algorithmic shortcomings of the geostationary approach were addressed before these were mapped to user requirements. This will require some restructuring of the paper. "

We think that the explanations above to the previous points regarding user requirements make the paper logic more clear. The scientific constraints section now more clearly refers to the user requirements and describes the methods to mitigate instrument limitations to better match user needs.

Specific comments "There is some confusion in the first sentences of the abstract between sensors, missions, applications, and services. A case is made that applications are sufficiently matured to allow operational services. Examples are then given as satellite sensors/missions. "

Corrected

P3147 L20 "The spatial resolution of 1 km at nadir is an enhancement on SEVIRI's 3 km resolution and it is suitable for global ocean observations as well as provides meaningful improvement for coastal and lake studies." - 'global' is somewhat inappropriate here, as large swaths of mid- to high-latitude oceans will not be observable. This is only discussed later in the paper.

Corrected

P3149 L5 "Chlorophyll a concentration could not be obtained from SEVIRI but may be

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supported by MTG FCI instruments." - How would this be supported? Give examples of algorithms for other RGB sensors with similar band configurations, and how have these been used? Will atmospheric correction be adequate?

Additional explanation has been added

P3149 L17 "Massive blooms of cyanobacteria" -> "Surface blooms and scums of cyanobacteria"

Corrected

P3149 L20 "The increased resolution of the FCI instrument will support coverage of additional lakes." - Please provide more detail, what pixel size could be expected and how relevant is this for lake water quality? Will atmospheric correction be adequate for inland applications?

Explained. There is a further explanation regarding the atmospheric correction in section 3.1

P3150 L9- "The lakes that can be monitored with SEVIRI include Lake Victoria/Nam Lolwe/Nalubaale [...]" - Please provide detail, how is 'monitoring capability' defined, what spatial resolution is considered relevant?

Explained.

P3152 L4 "Table 3 gives the range of ocean colour products feasible from the SEVIRI instruments which have been requested through user surveys." - The table caption suggests a list of "SEVIRI ocean colour products requested by users" rather than the authors' view of the feasibility of SEVIRI products to meet user requests. - It would provide useful context to also list user requests that cannot be addressed with SEVIRI, but can be met with other OC sensors, or not at all.

We think that listing the complete range of user requirements is beyond the scope of this paper. Just as the GMES-PURE user requirements show (please look at the link

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provided above), this list is extensive and most of the products are not feasible with SEVIRI. However, on this list there is a set of requirements which ask for frequent diurnal observations of turbidity parameters and these are the specific requirements that this development addresses. To support this point, Table 4 has been expanded and Table 3 has been added listing the summary of relevant applications.

Interactive comment on Ocean Sci. Discuss., 12, 3143, 2015.