

Earth Syst. Sci. Data Discuss., referee comment RC2
<https://doi.org/10.5194/essd-2021-321-RC2>, 2022
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Comment on **essd-2021-321**

Qianguo Xing (Referee)

Referee comment on "Hyperspectral reflectance spectra of floating matters derived from Hyperspectral Imager for the Coastal Ocean (HICO) observations" by Chuanmin Hu, Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-321-RC2>, 2022

This is an interesting dataset with a presentation of hyperspectral reflectance of several major floating matters on water surface. The data and methods presented in this paper are useful for monitoring the aquatic algae, salt shrimp and debris on the basis of space-borne hyperspectral observation. However, several issues are not clear, and corrections or clarifications may be necessary. Please see my comments below.

Line 38-43¼ □ These sentences can be improved. The HICO was designed for monitoring coastal ocean, and hyperspectral reflectance of water and non-water targets have already been derived in various applications.

Line 40 and Line 53¼ □ "9,411 scenes" may be the most part of the images collected during the mission of HICO, but not "all". Please check the following reference and my next comments. Reference: <https://oceancolor.gsfc.nasa.gov/hico/>

The blooms of *Mesodinium rubrum* were mapped by HICO. It would be useful to check the possibility of the differentiation between the *Mesodinium rubrum* and the red NS on the basis of reflectance. Reference: Dierssen et al., 2015. Space station image captures a red tide ciliate bloom at high spectral and spatial resolution.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4672822/>

As shown by the title of this paper, the reflectance of floating matters was derived and compared. However, for the kelp, as mentioned in line 235, it is usually not floating in the sea surface. So, why not consider the effects of the emerged portion of macroalgae? As the discussed in lines 183-190, this may be one of the major reasons causing the spectral difference (in reflectance or SAM) between Sargassum and kelp. The sargassum and kelp can be emerged or submerged, so I suggest to make a clarification that the sargassum in this paper refers to the specific floating sargassum species. For sargassum, different terms are used and may cause confusions: "Sargassum", " Sargassum fluitans/natans", "pelagic Sargassum," and "Sargassum honeric". Actually, in most cases, Sargassum honeric is fixed to sea bed and grows under submerged conditions.