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 38-43ï¼ These sentences can be improved. The HICO was desinged for monitoring coastal ocean, and hyperspectral reflectance of water and non-water targets have already been derived in various applications.

Reply: Yes it is true. The L2 data products contain surface reflectance of water, but these data products are not applicable for floating matters that only occupy a small portion of an image pixel. This is why the customized processing is used in this paper. I rewrote this paragraph and last paragraph to clarify when customized atmospheric correction and pixel unmixing are required even though NASA already has surface reflectance data products.

Line 40 and Line 53ï¼ "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/

Reply: Yes it is true that HICO has collected > 10,000 scenes, but of these, only 9,411 are available through https://oceancolor.gsfc.nasa.gov. I clarified these two numbers in this paragraph and in the data section.

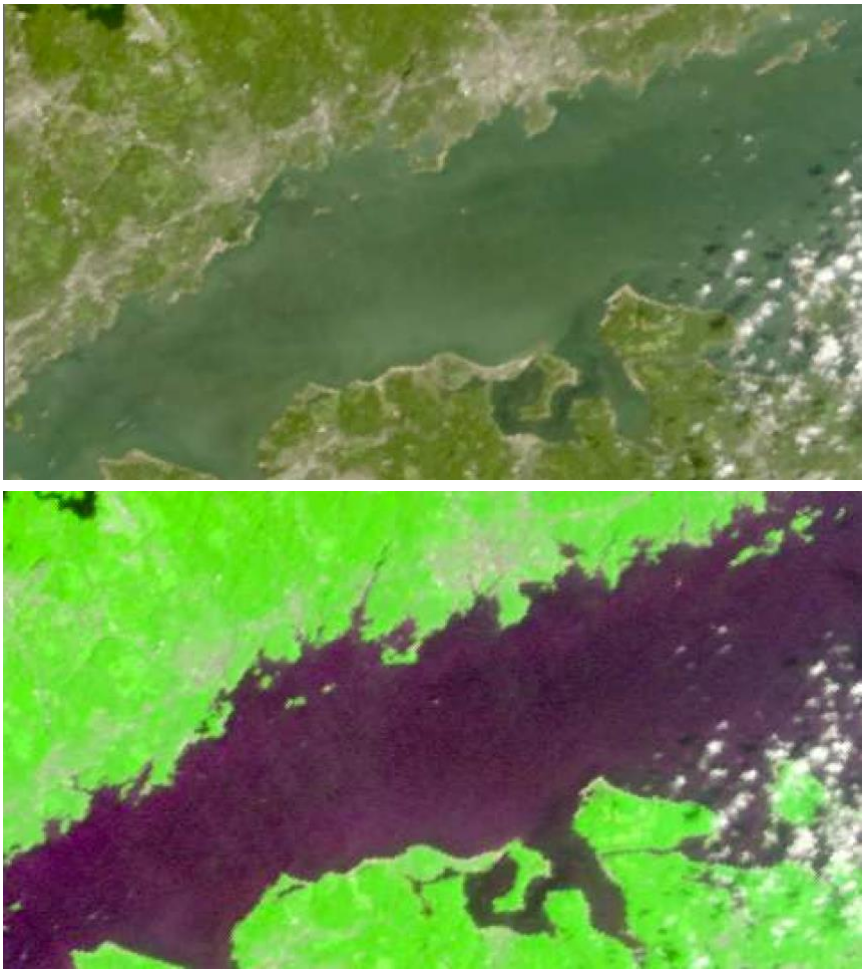
The blooms of Mesodinium rubrum were mapped by HICO. It would be useful to check the possibility of the differentiation between the Mesodinium rubrum and the red NS on the basis of reflectance. Reference: Dierssen et al., 2015. Space station image captures a red tide ciliate bloom at high spectral and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

Reply: This is a good suggestion. I actually searched for Mesodinium cases including this one, but couldn't find any algae scum from any cases. I doubled checked the Dierssen et al. case but still couldn't find any algae scum (I attach two images below and in a pdf file). So these are not floating algae and therefore not included in the paper. In Dierseen et al (2015), they emphasized the CDOM and pigment fluorescence in the visible wavelengths as opposed to NIR wavelengths due to algae scums. But I agree this is a good discussion point so I added several sentences to discuss.

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 surbmerged conditions.

Reply: These are great points. Depending on the submerged depth, the red-edge signal of kelp may vary a lot, leading to large uncertainties during pixel unmixing. I clarified this in the vision. Some terms (e.g., Sargassum, Noctiluca) are used in the Introduction to refer to the general type, but the derived spectra are for more specific types. I clarified this in Section 4.2 in the revision. For the entire HICO archive, I couldn't find a single case for S. horneri (line 297 in the original manuscript).



RGB and FRGB HICO images on 9/23/2012 over the western Long Island Sound (WLIS) showing no surface scums although a Mesodinium bloom has been reported (Dierssen et al., 2015).