

Interactive comment on “Remote Sensing of Trichodesmium spp. mats in the Western Tropical South Pacific” by Guillaume Rousset et al.

Anonymous Referee #1

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This is an interesting paper introducing new ship and airborne spotter observations of Trichodesmium and comparing them with MODIS satellite data, but it is at present poorly prepared and written in rather bad English. Text at the start of section 5.1, for example, seems especially confusing and repetitive. Text and logic both need to be made clearer.

The proposed algorithm needs to be better described. Criterion 1 at the bottom of page 7 is dismissed in later text (section 5.1) at “fundamentally a nonsense.” This is a bad start. Criterion 2 is said to be concerned with the red edge, but the criterion uses bands at 748 and 859nm, while the red edge is at wavelengths shorter than 748nm, so this cannot be correct. Spectra are shown in Figure 4, and look very similar for Tricho and for “nearby water.” A and B show spectra of Tricho mats, but the red edge is

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hardly detected. The band at 748nm is not visible in A since its error bars are missing. Similarly for the band at 870nm. All 5 spectra look very similar and detection of Tricho is not made clear.

The authors need to better describe the relevant properties of the MODIS satellite imager. At present, the spatial resolution of 250m is mentioned frequently, even though most spectral bands used have a resolution of 1000m. In both cases, resolution degrades significantly off nadir. Text, for example page 4, lines 15 to 20, seem to suggest that resolution can be chosen and varied for all bands. Text at line 10 on page 9 suggests 250m is the only relevant number. Text at lines 10 to 15 on page 11 expresses it better.

Possible confusion with Sargassum is mentioned at several points in the text. This needs further discussion. Are Sargassum mats commonly/occasionally observed in this area? Have pelagic Sargassum species (Natans or Fluitans) ever been observed in the area?

Something is wrong at the bottom of page 6. MODIS includes all SeaWiFS bands. Gower et al., used MERIS. Was this also a red-edge algorithm?

Smaller points

The study area needs better definition. From its name, the Western Tropical South Pacific must be 0 to 23S, 120E to 180E, which is much larger than the area shown in most Figures.

Excessive use of acronyms makes the paper harder to read. What are LDB, line 25 on page 9, FSLE at the bottom of page 11? Even WTSP is confusing to those of us who do not live there.

Descriptions of Figures needs to be improved. Panels B and C are interchanged in Figure 2. Figure 4 is mentioned above. “Research distance” is a strange variable name in Figure 7. It needs to be explained in the caption. Figure 8 seems to show

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Tricho as light blue areas, but the caption refers to cyan dots.

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