

Interactive comment on “Global Cloud Property Models for Real Time Triage Onboard Visible-Shortwave Infrared Spectrometers” by Macey W. Sandford et al.

Anonymous Referee #1

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General Comments

This manuscript presents a simple decision tree that delineates cloudy from cloud-free pixels onboard satellite-borne multispectral imagers. The filter allows to exclude unwanted pixels (in this case cloudy portions) before downlinking measurements to Earth and this enables transmitting about twice the rate of preferred pixels.

The document is well written and of interest to the community. I listed minor comments below that mainly aim at providing additional information and sharpening the line between “Results” and “Discussion”. After resolving these comments, I recommend this manuscript for publication.

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Discussion paper



Minor Comments

I. 87: The reader could wonder where these labels are coming from. The Authors could put a brief link to Sec. 2.2 in anticipation of this question.

Sec. 2.1: Please list the pixel size and the orbit of the satellite. Can sun-glint be expected?

I. 100: Please briefly mention the selection process of 102 sample maps. How important is coverage across solar geometries versus surface types?

II. 106-109: The purpose of this sentence is not apparent. Please rephrase or exclude if irrelevant.

II. 117-119: I understand the satellite hardware limits the complexity of a cloud screening algorithm. How much more complex (than decision trees) could a potential algorithm be? What exactly are the limitation: RAM or CPU power? Perhaps these answers could extent the discussion in Sec. 4.

II. 145-146: Should the 'historical average' be determined from the same pixel size as the future samples? (or in other words: does cloud fraction change when using larger or smaller pixels?) And what cloud optical thickness threshold was used for MODIS cloud detection? Perhaps the Authors could discuss these answers in the Sec. 4.

II. 193-203: Perhaps these paragraphs are better suited for the discussion in Sec. 4.

II. 259-262: Perhaps this paragraph is better suited for the discussion in Sec. 4.

Fig. 2: Please explain the colors in this figure.

Fig. 5: Which wavelength was used to capture this image? Please add the fraction of excluded pixels in b, c, and d to the caption.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2020-139, 2020.