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Oral

Due to the relative lack of data over the ocean, marine boundary layer (MBL) clouds are particularly difficult to measure. Environmental satellites are the best way to collect data on the properties of these low clouds. During the daytime, MBL clouds can be seen in the visible spectrum, but at night, infrared (IR) methods are typically used. These IR methods include a 11-3.9 μm brightness temperature difference (BTD) common to many operational cloud masks. However, it has recently been demonstrated that under certain conditions, these simple methods can indicate the presence of low cloud when none in fact exists. This false alarm low-cloud issue was first discovered by comparing operational cloud mask products (downstream of the IR methods) to a novel low-light visible imagery of moonlight reflection from the Visible/Infrared Imaging Radiometer Suite (VIIRS) Day/Night Band (DNB). This presentation describes the physical basis for these false alarms, along with some examples of regions susceptible to the conditions that create this effect. The findings suggest that regional-scale biases may exist within the products reliant on accurate nighttime cloud masks, foremost among them, the sea-surface temperature (SST) climate data record.

Presentation file

[Turner-dod-2023.pdf](#)

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