

Influence of Sea Surface Temperature on the Columnar Water Vapor Content and Cloud Fraction, Based on Monthly-Averaged MODIS Data at 1 by 1 Resolution

The manuscript presents expressions to fit the relationship between both column-averaged water-vapor content (WV) and cloud fraction (CF) as a function of the sea-surface temperature (SST). The fitted data were obtained from MODIS dataset spanning 17 years.

The manuscript is clear and readable. However, novelty and scientific contributions are limited. Below are my comments.

1. Please specify the spatial range of the used dataset. Were these obtained at a specific location or globally?
2. Section 2 states that 17 years of data were considered. However, only a few months are reported. Please consider creating a statistical representation of the whole 17 years of data. The authors can create a figure like Fig. 3 with logarithmic binning of the scatter count (i.e., how many points lie in a specific cell in the SST-WV grid). Using logarithmic binning can accommodate a large number of data points.
3. Can the authors comment on the use of 300 degC as the threshold? This does not seem to be a universal threshold, which relates to my earlier comment about the spatial range of the considered dataset.
4. Section 2: It is important to discuss how the three considered fields are calculated in the MODIS dataset. Are there any empirical relationships used to infer these fields from measured signals, which can influence the proposed fit?
5. For closure, consider including the CC equations within the discussion around line 121, which will serve as a reference to compare the proposed fits to.
6. Fig.1: Please include labels for the sub-figures like a, b, c, ...

Generally, the manuscript seems to report an observation from a dataset whose spatial is not clear. The manuscript provides a reasonable explanation for the observed WV-SST and CF-SST relationships. However, the proposed fits are probably local fits to the considered data points, and no support is provided for the generality of these expressions or their applicability outside the considered dataset.