

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2021-348

Anonymous Referee #2

Referee comment on "A kriging-based analysis of cloud liquid water content using CloudSat data" by Jean-Marie Lalande et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-348-RC2>, 2022

In this article, the authors use a kriging method to interpolate measurements and predict cloud properties of LWC from CloudSat satellite retrievals. Because of the polar orbit and the fixed-nadir radar measurement, CloudSat provides the most spatiotemporally coarse measurements of any satellite cloud radar. This is a frequent impediment for users of CloudSat for climatologies, and many prior studies have dealt with this issue with comparatively simple methods, such as gaussian means and standard deviations. There is a clear benefit in an advanced statistical method that could provide well-described (that is, with numerical uncertainties) predictions of unsampled regions based off of neighboring retrievals, so I recommend this paper for publication.

The majority of this paper discusses the kriging method, application, and resulting optimal estimation. I do not have much of a background in Kriging, but it seems like the other reviewer has already gone in-depth with recommendations on this matter, so I will not add anything else. I do not find any other issues with the results.