

Interactive comment on “Cloud-type dependencies of MODIS and AMSR-E liquid water path differences” by M. de la Torre Juárez et al.

Anonymous Referee #3

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This paper seeks to expand on previously-noted discrepancies in retrievals of cloud liquid water path by satellite vis-nir and microwave techniques. The problem is an interesting one, as by now several authors have noticed differences even for cloud types best fitting retrieval assumptions, but no convincing explanation has yet been provided. Thus, this manuscript fulfills a useful function in maintaining attention on this issue. I was disappointed by the manuscript, however. Although the manuscript expands upon the cloud types and cloud conditions examined, it does not provide further light on the causes of afore-noted differences. Indeed, it may further confuse the search for the underlying cause by including ice clouds, to which microwave radiation mostly transparent or scattered, while visible-nir radiation is notably influenced by the presence of ice. I urge the authors to refine their focus, and search for the reason for why

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Interactive Discussion

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MODIS LWPs > microwave LWPs for thin, warm, overcast clouds. My initial evaluation of this manuscript is to recommend rejection, reasoning that the manuscript does not provide additional insight to the studies of Horvath and co-authors, and Bennartz and co-authors. My hope is that the manuscript authors, through the more interactive mechanism of this forum, can instead revise the manuscript substantially. If not achievable by the end of the discussion period, I will recommend rejection.

Specific Comments:

The authors in several places mention that Bennartz (2007) found LWP_m-LWP_a differences could vary by location, with AMSR-E overestimating LWP relative to MODIS off of the coast of SW Africa (line 61-62). This finding of Bennartz (2007) was later understood to reflect the influence of overlying aerosol, explained in Bennartz and Harshvardhan, 2007, JGR, doi:10.1029/JD2007JD008841. I recommend the manuscript authors consult this text and revise theirs accordingly.

The manuscript authors mention 3 reasons for the delta-LWP dependence on cloud fraction found by Horvath and Gentemann (incorrectly cited as Horvath and Davies) in lines 216-218. Can the authors use their own data to opine on the 3 hypothesized reasons?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 3367, 2009.

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