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Discussions

Interactive comment on "Diurnal mesospheric tidal winds observed simultaneously by meteor radar in Costa Rica (10° N, 86° W) and Cariri (7° S, 37° W)" *by* Ricardo A. Buriti et al.

Anonymous Referee #2

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The paper presents some new radar wind measurements in equatorial mesosphere and discussion on the diurnal tidal modulations in zonal and meridional winds. Although the description is relatively clean and easy to follow, my major concern is the comparisons with GSWM. The model version utilized in the paper is GSWM00 that does not include non-migrating tide. However, in equatorial region, the some non-migrating diurnal tides, such as DE3 and DE2, are equally important compared with diurnal tidal component, as the author mentions in the paper. Some of the major discrepancies in the paper are most likely due to this issue. There are more complete GSWM versions available, such as GSWM02, GSWM09 etc. that have non-migrating tidal components included. I strongly suggest the author to include the latest model

predictions in the next version of the paper, in addition to the current GSWM00 comparison, and expand the discussion based on the new comparison results. Minor comments: 1. line 24-26. I do not think the local weather can affect the tidal feature that much in mesosphere at the same location, since the tidal waves are global scale waves, propagating horizontally with very fast phase speed. The local observations in upper atmosphere reflect the tidal forcing several thousand km away, so the connection to the local tropospheric weather is not straight forward. 2. Line 43. I would add some more references on the tidal comparisons work between ground-based measurements and model. Here are a couple of them: Ward et al., 2010 and Yuan et al., 2006. 3. Line 111. "very low value" sounds strange, may be replaced with "less value". 4. Line 127. Maybe consider to add some brief discussion, from theoretical point of view, why there is such big difference between southern and northern hemisphere equatorial region. 5. Line 196-197, please consider to remove "We also have ... not included in this work" 6. Line 254, see my comment above. Unless there is some solid reference on this topic, I would hesitate to make such statement.

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