Responses to Comments by Referees on *The Moisture Mode-to-Gravity Wave Spectrum as a Framework to Define Tropical Weather Systems*

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1 Referee 2

I thank the authors for their thoughtful responses to my comments and for the careful revisions to the manuscript. Having reviewed the revised manuscript and the response letter, I am satisfied that my concerns have been adequately addressed.

In particular, the discussion leading to Eq. (2) now appropriately explains the underlying assumptions, including the role of the Burger number in the more general scaling for N_{mode}. The discussion in Section 6 also clearly acknowledges the potential limitations of the phase-speed-based approximation in off-equatorial regions.

I also appreciate the additional composite analyses separating eastward- and westward-propagating disturbances. These analyses, together with the corresponding discussion in the revised manuscript, satisfactorily address my concern that combining propagation directions could obscure important phase relationships and complicate the physical interpretation of the composite structures.

The authors have also addressed my remaining comments. I continue to find the study valuable and scientifically interesting, and I have no further substantive comments. I therefore recommend that the manuscript be accepted in its current form.

We thank the Referee for their appreciation. Their previous comments and feedback have substantially helped us improve the quality of the manuscript.

2 Co-Editor

The authors have addressed the reviewers comments, with only a couple of very minor issues to be considered, I thus recommend publication subject to technical corrections.

We thank the Co-Editor for their decision to accept our manuscript for publication subject to technical corrections. We are addressing their minor comments below.

Additional private note (visible to authors and reviewers only):
Going over the manuscript I note that the IGW in the 10-20N have no vertical verlocity anomalies in their composite (figure 6h) - The eastward-westward propagation composites do have a vertical velocity - is this just a contour threshold issue of something else. Just to make sure this is not some omission.

We have modified the yellow contour intervals used in Fig. 6 so that now the composite of vertical velocity anomalies for the Northern Hemisphere (NH) off-equatorial inertio-gravity (IG) waves is apparent in Fig. 6h.

Also, please consideer referencing the paper by Biswas et al, which reviewer 1 pointed out, in the discussion of of the regional differences in vorticity/pressure - OLR phasing in figure 8 . specifically see their figure 3.
https://rmets.onlinelibrary.wiley.com/doi/epdf/10.1002/qj.70267?saml_referrer

We have added citations to the paper by Biswas et al. (2026), specifically in L320–321 and in L416, where we discuss the regional differences in the structure of the off-equatorial moisture modes and how they are related to the different background conditions.

References

Biswas, S., Sukhatme, J., and Gayen, B.: Impact of background conditions on the structure and propagation of the boreal summer quasi-biweekly oscillation, Quarterly Journal of the Royal Meteorological Society, n/a, e70 267, https://doi.org/https://doi.org/10.1002/qj.70267, 2026.