

## ***Interactive comment on “Investigation of sources of gravity waves observed in the Brazilian Equatorial region on 08 April 2005” by Oluwakemi Dare-Idowu et al.***

### **Anonymous Referee #1**

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This paper presents several gravity waves observed in OH airglow emission measurements by an all-sky imager in Cariri, Brazil (7°S, 36°W). The wave characteristics, in terms of wavelength, period, horizontal velocity and propagation direction are determined. The source region of these waves is determined by utilising a tracing method as well supplementary data from radar, satellites and model. This results presented here are interesting, however gravity waves of similar characteristics have been observed in the same location, using the same instruments e.g. Medeiros, et al. 2005; Wrasse, et al. 2006; Medeiros, et al. 2007; Taylor, et al. 2009. However, this study goes into greater detail in investigating the generation source.

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References: A.F. Medeiros, H. Takahashi, R.A. Buriti, K.M. Pinheiro, D. Gobbi, “Atmospheric gravity wave propagation direction observed by airglow imaging in the South American sector”, *J. Atmos. Sol. Terr. Phys.* 67, 1767–1773, 2005. A. F. Medeiros, H. Takahashi, R. A. Buriti, J. Fehine, C. M. Wrasse, and D. Gobbi, “MLT gravity wave climatology in the South America equatorial region observed by airglow imager”, *Ann. Geophys.*, 25, 399–406, 2007. M. J. Taylor, P.-D. Pautet, A. F. Medeiros, R. Buriti, J. Fehine, D. C. Fritts, S. L. Vadas, H. Takahashi, and F. T. Sao Sabbas, “Characteristics of mesospheric gravity waves near the magnetic equator, Brazil, during the SpreadFEx campaign”, *Ann. Geophys.*, 27, 461–472, 2009. C. M. Wrasse, T. Nakamura, H. Takahashi, A. F. Medeiros, M. J. Taylor, D. Gobbi, C. M. Denardini, J. Fehine, R. A. Buriti, A. Salatun, Suratno, E. Achmad, and A. G. Admiranto, “Mesospheric gravity waves observed near equatorial and low–middle latitude stations: wave characteristics and reverse raytracing results”, *Ann. Geophys.*, 24, 3229–3240, 2006

More comments annotated in the manuscript attached to this review.

Please also note the supplement to this comment:

<https://www.ann-geophys-discuss.net/angeo-2019-81/angeo-2019-81-RC1-supplement.pdf>

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Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2019-81>, 2019.

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