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Comment

## ***Interactive comment on “Global distributions of overlapping gravity waves in HIRDLS data” by C. J. Wright et al.***

### **Anonymous Referee #2**

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Global distributions of overlapping gravity waves in HIRDLS data by Wright et al.

This paper presented gravity wave analysis using HIRDLS satellite observations. Authors conducted detailed examinations of gravity wave analysis method with HIRDLS and also SABER. In addition, authors discussed the geophysical and temporal variations of gravity waves dependent on their horizontal and vertical wavelength. This paper is well written and shows interesting gravity wave behavior. I recommend this paper for a publication with a minor revision.

### Specific Comments

1) Section 7.1. (Seasonal joint-wavenumber analysis). Please explain more about QBO influences on spectrum changes. How do you explain changes in 6 months to be

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QBO influences? To discuss about QBO and their influences on gravity wave spectrum, why don't you show year-to-year variations of Figure 6 and 7? It seems that you have data from June 2006 to March 2008 that can be used (if I read your paper correctly). Do you constantly see changes in the low latitudes with additional data? I am not sure how much it helps, but you can show a bit more data.

#### Technical Comments

- 1) Section 3 (Analysis) Lines ~21. Please explain how do you use Fourier transform method (time domain or longitude?)
- 2) Section 3.2 (SABER). Why do you use three days average? I thought that Preusse et al. [2009] used 1-day average.
- 3) Figures 6 and 7. Would you put latitudes next to your each map? It is hard to see what latitude you are looking at (map will help but it is hard to see).
- 4) Figure 8, Figure captions do not match with text. Please correct it. I think Figure 8b in the text should be Figure 8c.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 4333, 2015.

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