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

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Major Concerns

[A] Mention of noise has been added where appropriate. See Specific Comments [15], [18] and [27].

[B] This has been corrected. See Specific Comments [22] and [29].

Specific Comments

[1] By this we simply mean that the satellite data are effectively instantaneous relative to relevant geophysical timescales (e.g. wave propragation times), but are not truly instantaneous due to the time taken for a scan (of order seconds). This has been replaced with 'almost instantaneous'.

[2] Reference added.

[3] The Fourier transform is carried out in longitude space, independently over each 2-degree latitude band. This has been clarified in the text.

[4] Agreed - mention of this low-biasing has been added to the text.

[5] Text to this effect has been added to the paragraph.

[6] Agreed, added. (it hadn't been published when we submitted this paper!)

[7] This has been clarified.

[8] These limitations apply generally to S-Transformed data. This has been stated in the text.

[9] The suggested revision has been made.

[10] This has been clarified.

[11] It is perhaps clearer to note that the encoder angle gives the mirror angle, but because there is a reflection off of it, the angle is doubled. Thus, the factor 2 should more accurately be on the mirror angle, and not the LOS angle. The text has been modified to reflect this.

[12] Corrected to 0.09.

[13] Stated more clearly.

[14] This is due to the analysis rather than the physical blockage - since we analyse our output on levels distributed in k_z rather than λ_z, all levels at wavelengths longer than $\sim16\,$km will contain a wavelength-multiple of the problem wavelength. This may not necessarily be a strong or dominating part of the signal, but is a possibility which cannot be ruled out easily with the dataset as-analysed. Future work in progress will use a locally-developed oversampled variant of the S-Transform to investigate this further, but the timeframe of this work is significantly beyond the horizon required for this response!

[15] Three sentences have been added here to discuss noise.

[16] Agreed - an appropriate caveat has been added to the text.

[17] The text did already mention that the Ern and Preusse (2012) results were for flux, but perhaps not strongly enough. To make this more noticable, 'MF-wavenumber' has been expanded to 'momentum flux-wavenumber'.

[18] A caveat has been added to the text.

[19] The text has been modified appropriately to reflect this.

[20] References added.

[21] Clarified.

[22] On consideration, we agree with the comment of the reviewer. We have revised the paragraph accordingly.

[23] A slight paraphrasing of the suggested text has been added.

[24] At the given altitudes. Clarified.

[25] These references have been added to the text.

[26] The figure has been redrawn, and text added mentioning this.

[27] A caveat has been added to the text.

[28] A slight paraphrasing of the suggested text has been added.

[29] 'and QBO' has been removed from the sentence.

[30] Think we've caught most of these - the problem seems to be in CJW's reference manager,with the majority of cases being early-release PDFs of papers which should've been replaced with final versions having been assigned the wrong page numbers by the software.

[31] The height level examined (32 km) has been added to the relevant figure captions.

Other Comments

[1] Fixed.

[2] Fixed.

[3] Fixed.

[4] Agreed - changed.

[5] Agreed - changed.

[6] Fixed.

[7] This part of the caption referred to an earlier version of the figure which had these lines on, and has been removed.

[8] Fixed.

[9] Agreed - added "to the variability of".

[10] Fixed.

[11] Fixed.

[12] Fixed.

[13] Fixed.

[14] Fixed.

[15] Figure has been redrawn appropriately.