

## ***Interactive comment on “Analysis of internal gravity waves with GPS RO density profiles” by P. Šácha et al.***

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I would like to thank D. Luna for his comments and to briefly address some of his specific comments: ...The topic is potentially interesting, but I think more evidence should be shown if this analysis pretends to replace the usual ones, based on temperature fluctuations. Maybe a larger statistic (more than 60 cases) could help...

You are right that at the first sight a larger statistic would be more convincing. In fact, the sample of sixty independent occultation events is large enough to remove individual qualities of each profile power spectra by averaging. Also the presented results are by nature independent on any sample because they root of differentials between the dry temperature and density data caused by the hydrostatic balance assumption. The key

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is that we were able to find for a temperature background correspondent density backgrounds with both smaller and higher complexity (that is illustrated in Fig. 4 by different powers in low wavenumber spectra). Then, regardless on the separated background complexity, the temperature fluctuations have increasingly less power with increasing wavenumber compared to density fluctuations. This feature is fundamental attribute of finer, nonfiltered (compared to the dry temperature) structure of density data and is therefore independent of the sample.

.....Please explain the relevance of the Tohoku earthquake with respect to this work...

We have chosen to demonstrate our method on the sample connected to the Tohoku earthquake because we presumed that the profiles will be strongly perturbed making the background separation issue even more peculiar and that it would be possible to detect significant IGW modes and their interactions using the CWT. Nevertheless, the results presented in this paper are strictly general with no additional focus on the IGWs created by the earthquake. These particular results were presented at EGU 2014. ([http://presentations.copernicus.org/EGU2014-11289\\_presentation.pdf](http://presentations.copernicus.org/EGU2014-11289_presentation.pdf))

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