

## ***Interactive comment on “Imaging gravity waves in lower stratospheric AMSU-A radiances, Part 2: validation case study” by S. D. Eckermann et al.***

### **Anonymous Referee #2**

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This paper presents a detailed case study comparison/validation between microwave radiance measurements and three different NWP models. The authors had taken utmost care while discussing the detailed features observed by different instruments and models while considering the limitations in various techniques used in the present study. Authors also claim that same exercise can be extended globally which in turn give great opportunity to delineate various characteristics of gravity waves through imaging which leads finally the improvement in the climate models. Entire paper is well written and strongly recommended for publication in ACP. Few minor comments are given below.

General comment: In the present study nice comparison has been found between microwave radiances and model runs over southern Scandinavia where there is lot of

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scope for generation of gravity waves due to orography which has negligible phase velocity. I was wondering what could be the case if same work is extended to tropical latitudes where convection is believed to be the main generation source. It will be good if one or two sentences are discussed on this issue in the summary.

P2016, Lines 3-10: It is reported that there was a minor warming about a week later which split the vortex (McCormack et al., 2004) and changed the chemistry (Feng et al., 2005) at these locations. Is there any scope for observing the enhancement in the wave activity due to this warming event near the edge of the polar vortex as reported elsewhere? In this case the characteristics of gravity waves presented here may not be a typical when compared to 26 January 2000 case, I guess?

P2047, Fig.8: It will be good if same scale is used for all the three top panels so that it will be easy to recognize the difference in the amplitudes (similar to the Fig.14 and others).

P2048, Fig.9. Scale is missing for topographic elevations.

P2048, Fig.9. Although balloon has drifted (estimated) to larger distance (longitude wise), but still it lies in the same contour interval at 40-50hPa. Then what could be the reason for the observed  $\sim 10\text{m/s}$  discrepancy between radiosonde and model runs in Fig.10 (P2049)? Since there is no significant difference in the meridional and temperature profiles, is it related to planetary scale disturbance due to warming that occurred a week later?

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