Response to Short Comments

Thank you for providing valuable comments that improve the original manuscript. We tried our best to improve the manuscript based on your suggestions.

General comments:

Dear authors,

I would like to ask you to extend your analysis range in Fig. 4a to approx. 30˚N to capture the possible GWD anomalies "above Japan" (see the EA/NP hotspot in Šácha et al. (2015) and its possible implications in Šácha et al. (2016)). However, this hotspot is dominant in the vertical range between 30hPa and 10hPa, which is below your analysis range. Please consider as well to supplement your existing analysis (10hPa-1hPa, where the Scandinavia hotspot is dominant) with two additional plots of GWD anomalies between e.g. 30hPa and 10hPa.

Best wishes, Petr Šácha.

→ As suggested, the GWD anomalies averaged between 30 and 10 hPa for Type-1 (left) and Type-2 (right) SSW events at Lag = –15 are calculated and shown in Fig. A1. We found that there is no significant GWD anomaly in the east Asian-northwestern Pacific (EA/NP; 37.5° N–62.5° N, 112.5° E–168.8° E) region (denoted by box in Fig. A1), where the hotspot of the gravity wave potential energy exists in Šácha et al. (2015). This discrepancy is interesting and worth to be investigated as a future research topic. As suggested, Fig. A1 is included as a supplement figure in the revised manuscript. [Page 7, line 29–34]

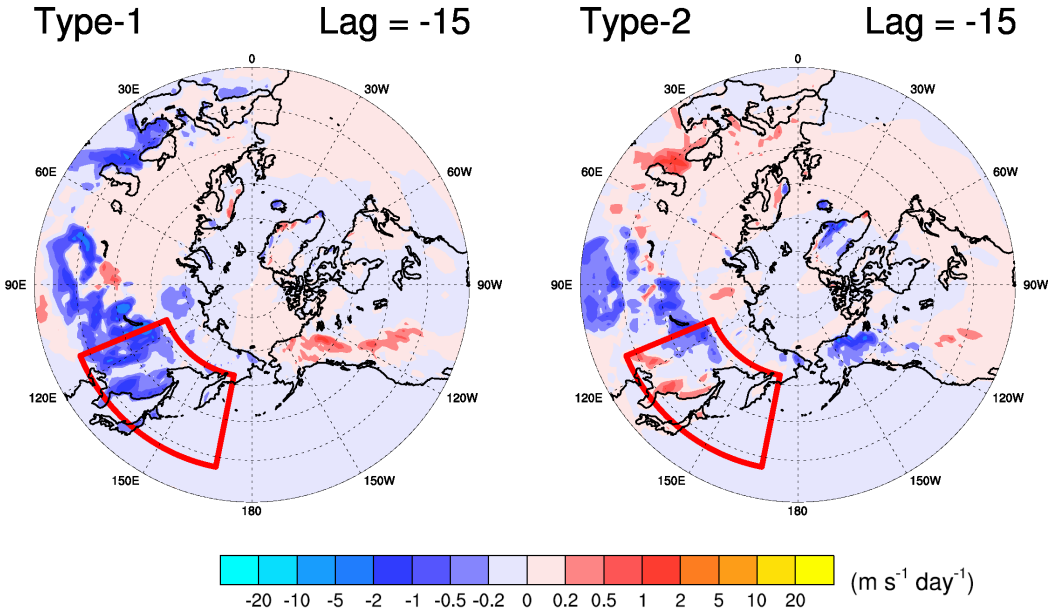

Figure A1. Polar-stereo projection maps of the GWD anomaly averaged in height between 30 and 10 hPa for Type-1 (left) and Type-2 (right) SSW events in the 15 days before the central date. The red box denotes the EA/NP (37.5° N –62.5° N, 112.5° E –168.8° E) region.

References:

Šácha, P., Kuchař, A., Jacobi, C., and Pišoft, P.: Enhanced internal gravity wave activity and breaking over the northeastern Pacific–eastern Asian region, Atmos. Chem. Phys., 15, 13097-13112, doi:10.5194/acp-15-13097-2015, 2015.