Local time dependence of gravity wave activity observed with Yamagawa and Wakkanai MF radars

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This study is to investigate gravity wave (GW) short-term variablity related to the tidal periods for long term (> 1 yr), using the Yamagawa (31N) and Wakkanai (45N) MF radars. Our previous study (Murayama et al., SGEPSS fall meeting, 1998) showed dependency of GW activity variation on tidal activity for 2-week Japanese PSMOS data. Before starting long term data analysis, we confirm statistical characteristics of wind data for the screening. Using mean wind value (M) and standard deviation (STD) in each 1-hr block at each height, the criterieon is to discard wind samples lying outside C*STD around M (C=1, 1.5 or 2). Statistical results of discarded data suggest that C does not need to vary with height. We choose C=1.5, and thus screened dataset is now under GW and tidal analysis.

The objective of this study is to investigate short-term variation of gravity wave (GW) activity related to the 1-/0.5-day tidal period variabilities and comparison with tidal wave behaviors, by using the long term wind data of the Yamagawa (31N) and Wakkanai (45N) MF radars. Our previous study (Murayama et al., SGEPSS fall meeting, 1998) showed strong dependency of GW activity variation on tidal activity during 2-week Japanese PSMOS campaign in Jan. 1998. Before starting data analysis to examine the long term wave behaviors, we confirmed statistical characteristics of wind data for the screening. Mean value (M) and standard deviation (STD) are calculated for each 1-hr block of winds at each height range, and then each wind data sample (every 2-4 min) with the value lying outside C*STD around M is discarded (C=1, 1.5 or 2). Statistical behaviors of 1hr-STD and discarded data suggest the coefficient C does not necessarily need to vary with height. We choose M+1.5*STD as the threshold, and the resultant screened dataset is now under analysis in terms of gravity wave and tidal characteristics.