

Seasonal variation of low altitude echoes below 60 km and tidal variabilities observed by MF radar at Poker Flat (65.1N, 147.5W)

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A new MF radar at Poker Flat (65.1N, 147.5W) has observed unexpected low altitude echoes below 60 km. The variation of echoe altitude from the results of a first one year observation showed that the echoe altitude in summer was higher than one in winter period. A tidal variability obtained from the zonal and meridional wind observed by Poker Flat MF radar is presented. The phase variability of the diurnal and semidiurnal tide seems to be more stable in the summer time rather than one in the winter time.

A new MF radar at Poker Flat (65.1N, 147.5W) has observed unexpected low altitude echoes below 60 km. Extremely low altitude echoes at 45 km were observed during the day time on November 20, 1998. The variation of echoe altitude from the results of a first one year observation showed that the echoe altitude in summer was higher than one in winter period. A gravity wave breaking in lower altitudes is suggested as a possible explanation. A vertical transport of NO is suggested as another explanation for these low altitude echoes. A tidal variability obtained from the zonal and meridional wind observed by the Poker Flat MF radar is presented. The phase variability of the diurnal and semidiurnal tide seems to be more stable in the summer time rather than one in the winter time by using one year observation data. This suggests that a strong coupling of mean winds, tides and gravity waves affects the feature of tidal variability at higher latitudes. This kind of phase variability in high latitude will be compared with Wakkanai and Yamagawa MF radar ob