

## Studies on the behavior of atmospheric tide in the polar upper atmosphere(12) -A global comparison -

# Takehiko Aso[1]; Masaki Tsutsumi[1]; Yasuhiro Murayama[2]; Chris M. Hall[3]

[1] NIPR; [2] NICT; [3] Faculty of Sci., Univ. of Tromsø

A meteor radar NTMR (NIPR/Norway Tromsø Meteor Radar, 70N 19E) has spent one-year run since November 2003, and is now eligible for global comparison of polar atmospheric tide with Poker Flat MF radar (65N 147W) in Alaska operated by NICT, together with latitudinal comparison with Svalbard NSMR (78N, 16E). For the diurnal component, longitudinal phase difference between Tromsø and Poker Flat are around 12 hr during March to September period, suggesting the steady existence of global migrating mode with zonal wavenumber  $S=1$ . In winter months, phase differences scatter very much with amplitude ratio away from unity. For the semidiurnal tide, on the other hand, one interesting issue is summertime enhancement of non-migrating westward propagating semidiurnal tide at higher latitudes due possibly to the nonlinear interaction of migrating semidiurnal tide with stationary planetary waves in the opposite winter hemisphere. The latitude where changeover from low-latitude migrating component to higher-latitude non-migrating mode takes place depends also on the penetration of excited component. Provisional analysis of annual longitudinal phase difference indicates scatter from almost zero corresponding to  $S=2$  migrating mode to about  $\pm 3$ hr corresponding to the superposition of  $S=1$  and  $S=2$  components. Survey from a few viewpoints on the signature of summertime non-migrating mode at these latitudes in the Arctic is underway. Details will be given at the meeting.