

LONGITUDINAL VARIATION OF HIGH-LATITUDE MIDDLE ATMOSPHERE JET IN SUMMER OBSERVED BY POKER FLAT AND ANDENES MF RADARS

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Middle atmosphere (MA) jet in summer has been generally considered as a symmetric circumpolar jet, which is formed by solar UV heating centered in the polar stratopause, with no planetary-wave condition in westward winds. MF radar data at Poker Flat, Alaska (65N, 147W) and Andenes, Norway (69N, 16E) are analyzed for two years of 1999-2000, together with UK Met Office stratospheric analysis data. Persistently stronger winds are shown at Poker Flat by some tens of m/s than at Andenes throughout the summer, and the center of the circular isobars is shifted toward Eurasia. High-resolution GCM results of Univ. of Tokyo CCSR show similar tendency of stronger winds over the American or Pacific side than in the European or Atlantic side. Such longitudinal variation can be discussed in terms of, e.g., topographically-forced gravity waves (GWs), and disturbed ozone and radiation fields. Recent analysis of 2001 global analysis data every 6 hrs made by Japan Meteorological Agency shows atmospheric tidal motions dependent of local time, and fairly small shift of the isobar center off the pole in 2001 mean maps. Longitudinal variation of polar MA fields may be suggested to have year-to-year variability. Next steps will be to check 1) GW drag in the GCM, 2) effect of realistic ozone distribution in GCM, and 3) GW energies from MF radar winds.