

0.0.1 The non-migrating Tides in the Middle Atmosphere over East Asia Observed by HRDI/UARS Data Set

P. Yonggang (1,2,3), C. Zeyu (2), C.Hongbin (2) W. Zhenhui (3)

(1) China Meteorological Administration, Beijing 100081)

(2) Laboratory for Middle Atmosphere and Global Environment Observation, Institute of Atmospheric Physics, Chinese Academy of Sciences

(3) Department of Electronic Engineering, Nanjing University of Information Science and Technology

(pyg01@163.com, FAX: 010-62179787, Phone: 13581869796)

Abstract In this paper, the long term mean characteristics of the zonal winds in the middle atmosphere over East Asia were studied by using the HRDI/UARS measurements. The investigation revealed the presence of considerable regional scale disturbances in the whole of the middle to upper atmosphere over East Asia, except the situations in mid-latitudes in summer. In mid-latitudes, very few zonal fluctuation can be seen in the zonal winds from 55km to 115 km altitude range in the summer season, however, the winter mesospheric and lower thermospheric zonal winds are disturbed prominently in the zonal.

Furthermore, in winter, the tropical lower thermospheric zonal winds fluctuate significantly in zonal direction, and this kind of the zonal disturbances extend downward to 55 km altitude (the lower limit of the observation mode of the satellite instrument) in summer. According the correlative study results, there is significant non-migrating tides in the thermosphere over East Asia. So that, non-migrating tides controlled the disturbances in middle and upper atmosphere over tropical region observed by the HRDI/UARS data set, and HRDI/UARS data set have observed that these is significant non-migrating tides in middle atmosphere over tropical region in East Asia.

Key words Middle atmosphere, East Asia, Zonal winds, HRDI/UARS