



6.5DWs in different QBO phases: possible modulation mechanisms of QBO on PWs

Yingying Huang (1), Huijun Li (2), Chongyin Li (3), Shaodong Zhang (4), and Kaiming Huang (4)

(1) School of Atmospheric Sciences, Sun Yat-Sen University, Zhuhai, China (huangyingy@mail.sysu.edu.cn), (2) School of Astronautics, Nanjing University Of Aeronautics And Astronautics, Nanjing, China (hjli@spaceweather.ac.cn), (3) Institute of Atmospheric Physics, Chinese Academy of Science, Beijing, China (lcy@lasg.iap.ac.cn), (4) Electronic Information School, Wuhan University, Wuhan, China (zsd@whu.edu.cn)

Inter-annual variations of 6.5 day waves (6.5DWs) in mesosphere and the lower thermosphere (MLT) of mid-high latitudes may be modulated by equatorial stratospheric Quasi-Biennial Oscillations (QBO). By comparing inter-annual variations of 6.5DWs from 2002-2018 temperature observations by SABER/TIMED satellite, and QBO phases in ERA-interim reanalysis dataset, it is deduced that there are correlations between amplitudes of 6.5DWs and phases of QBO. We operate detailed analysis on two typical cases. The results show possible modulations of QBO on planetary waves (PWs). This conclusion sheds light on possible meridional propagations of 6.5DWs from one hemisphere to another, and from stratosphere to the lower thermosphere.