



## The Hemispheric Propagation of Stationary waves in Atmosphere

Yanjie Li (1), Jianping Li (1), Sen Zhao (1,2)

(1) National Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics (LASG), Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS), Beijing, China, (2) University of Chinese Academy of Sciences, Beijing, China

The characteristics of stationary wave propagation between the Northern and Southern Hemisphere in the zonal symmetric and horizontal non-uniform basic flows are investigated in terms of the spatial distribution of the stationary wave number and the wave propagation path, respectively. The basic flows are derived from the climatological winter and summer wind reanalysis data. In the zonal symmetric basic flow, two propagable waves are excited by forcing with one eastward and northward and the other one southward. However, both of them are trapped at the zero wind latitude (critical latitude). Thus, the hemispheric propagation is impossible. In the horizontal non-uniform basic flow, the characteristics of wave propagation are largely different with those in the zonal symmetric basic flow. Firstly, there are either three or one propagable waves excited by forcing base on the theory. Analysis shows that one propagable wave is dominated in almost the whole global except for the midlatitude of Southern Hemisphere. Secondly, the hemispheric propagation can take place along the cross-equatorial flows. Waves excited by forcing in Australia can propagate to the East Asia. Besides, the evolution of amplitude and wave length along the hemispheric propagation is also studied. More details will be shown in the presentation.