**报告题目：The Role of Diabatic Heating on Mid-latitude Rossby Waves and Its Response to Climate Change**

**报 告 人：Dr. Lei Wang**

**单 位：Harvard University**

**时 间：2018年6月30日上午10:00~11:00**

**地 点：大气所40号楼319会议室**

**欢迎大家踊跃参加并讨论！**

**Abstract**

Precipitation and storm track activity in the Southern Hemisphere feature a remarkable 20-30 day periodicity known as Baroclinic Annular Mode. While it is well-documented that the jet stream will shift poleward in a warming climate, the change of coherent modes of Rossby waves remains unknown. We finds a robust increase of intra-seasonal variability of the precipitation and density-weighted eddy kinetic energy at the 20-30 day frequency range by 25% and 20% respectively in austral summer toward the end of the century, despite small changes in seasonal-mean quantities at corresponding latitudes.

These results suggest that a warming climate can feature a stronger dynamical organization of the 20-30 day periodicity by the moist baroclinic waves. This work identifies that both the increase of diabatic heating and the enhancements of the waveguide effects as candidate mechanisms.

In this presentation, I will demonstrate idealized modeling results to explain the main cause of the increase. Evidence suggests both the increase of moisture can effectively contribute to the intensification of the intra-seasonal variability, which implies a more predictable baroclinic annular mode in the Southern Hemisphere in a warmer climate. This finding serves as a stimulus for future studies to unveil the role of changing diabatic heating on the intra-seasonal variability in the mid-latitudes.