



Solar activity and QBO influence on the interannual variability of the stratospheric spring transition date

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The stratospheric circulation is controlled by radiative processes as well as dynamical ones. Remarkable dynamical processes in the stratosphere (sudden stratospheric warmings - SSW, seasonal changes of the mean flow) influence the upper atmospheric layers through enhancement of planetary waves. The spring-time transition occurs because of the seasonal change of the Solar zenith angle. However, dynamical processes may considerably affect the behavior and time of breakup date. The analysis of data assimilated in the UK Met Office and NCEP/NCAR models shows that there exists a strong interannual variability of the spring-time transition date of the stratospheric circulation. During the last years the negative correlation between SPW1 amplitudes and spring-time transition date increased significantly. This correlation slightly increases in years with easterly phase QBO. The 11 year solar cycle is statistically significant in stratospheric temperature and zonal winds. Period of QBO is suggested to be modulated by the 11 year Solar cycle. The main purpose of the present paper is to investigate the possible dynamical reasons of observed interannual variability of the spring-time breakup date.