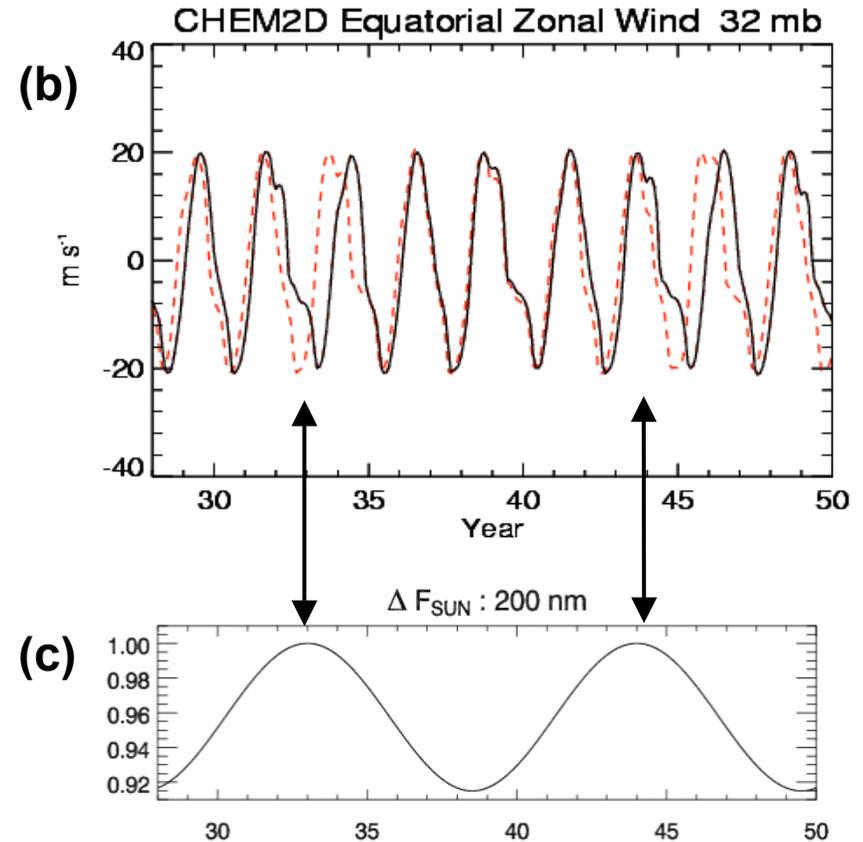
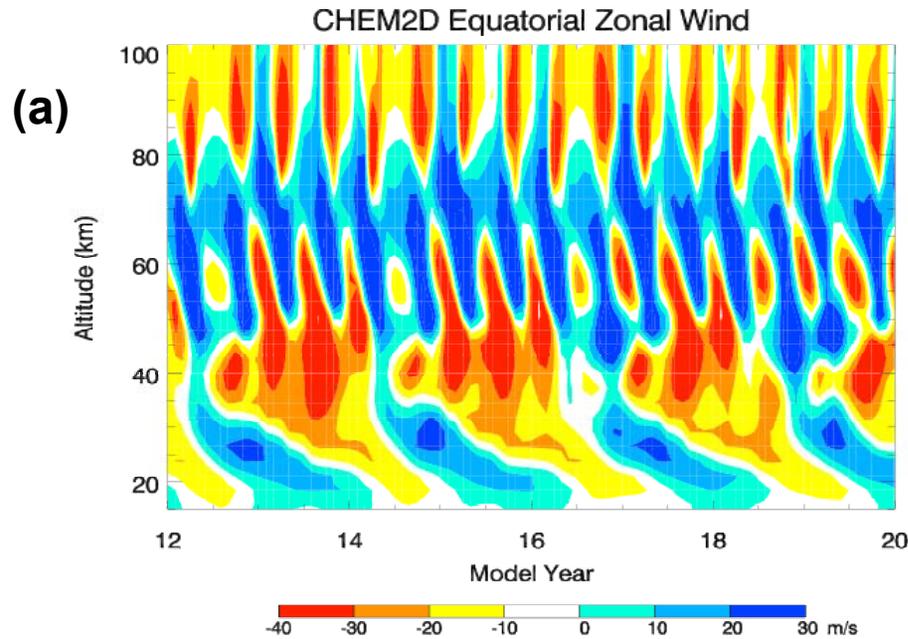




The influence of the 11-year solar cycle on the quasi-biennial oscillation



NRL-CHEM2D model calculations showing changes in the period of the equatorial zonal wind QBO caused by 11-year cycle in solar UV irradiance



The influence of the 11-year solar cycle on the quasi-biennial oscillation

- **There is a growing body of evidence that solar ultraviolet (UV) variability over the 11-year sunspot cycle can influence the earth's climate. However, the exact physical mechanism linking solar-induced variability in the upper stratosphere to climate variability near the earth's surface is unknown.**
- **NRL-CHEM2D model calculations that include realistic solar UV forcing and fully interactive representations of both the quasi-biennial oscillation (QBO) and semi-annual oscillation (SAO) in equatorial winds find the period of the QBO varies over the 11-year solar cycle. This modeled variation is qualitatively similar to observed 11-year changes in the QBO period, albeit much smaller than what is observed.**
- **This is the first fully interactive model simulation to demonstrate a possible mechanism linking upper stratosphere solar cycle variability and lower stratospheric circulation patterns involving the QBO.**