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# The 11-yr solar cycle in MERRA reanalysis and CCM SOCOL v3.0

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This study is focused on the variability of temperature and circulation characteristics (and northward wind component ) in connection with the eleven-year solar cycle variation in the stratosphere and Lower mesosphere. We consider the interactions between stratospheric phenomena, e.g. solar cycle and QBO using multiple linear techniques. The analysis was applied to the period 1979-2012 based on the current reanalysis data, including the MERRA reanalysis dataset (Modern Era Retrospective-analysis for Research and Applications), and on the output of the model CCM SOCOL v3.0 for pressure levels: 1000 - 1 hPa (MERRA) and 1000 - 0.1 hPa (model). The previous studies analyzed data from ERA-40 until 2008 or other reanalyses but not ofMERRA. We are looking for trends and their statistical significance for temperature and wind component zonal averages in this period to explain the influence of selected phenomena to the stratostosphere.