



The reversal trends of atmospheric temperature in spring over the Tibetan Plateau after 2008 and possible links with ozone change trend

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Trends of atmospheric temperature during 1980-2007 over the Tibetan Plateau were evaluated using the ERA-Interim and MERRA-2 reanalysis data sets. Analysis of different time scale from annual to seasonal and monthly shows that remarkable reversal trends of atmospheric temperature: temperatures at upper stratosphere (150-50hPa) are increasing with rates of $1.5-2 [U+F0B0] C/10a$, while in the middle and lower troposphere (300-175hpa), temperatures are decreasing with rates of $-1- -2.5 [U+F0B0] C/10a$. Trends of atmospheric temperature in spring after 2008 over the Tibetan Plateau are reversal with those of 1980-2007. Analysis of ozone trends over the Tibetan Plateau during 1980-2017 were carried out and results show significant increasing trends of total ozone during months from end of winter to spring, especially in May with the highest increasing rate of $13.7DU/10a$. Analysis show that variations of atmospheric temperature are closely linked with variation of ozone, and the reversal trends of atmospheric temperature in spring is results of ozone recovery after 2008 over the Tibetan Plateau.