

Uncertainty of the Stratospheric/Tropospheric Temperature Trends in 1979-2008: Multiple Reanalyses, MSUs and Radiosondes

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ABSTRACT

The trends and spreads of tropospheric and stratospheric temperature are discussed in terms of three groups of datasets in 1979-2008. These datasets include (a) three satellite observations of Microwave Sounding Units (MSU) measurements, (b) five radiosonde observations and (c) eight reanalysis products. The equivalent tropospheric and stratospheric temperature from radiosonde and reanalyses are calculated based on the vertical weighting function of the MSU channel 2 (CH2) and channel 4 (CH4) measurements, respectively. The results show that both cooling in the stratosphere and warming in troposphere significantly depends on the datasets and latitudes.