



UT/LS temperature trends in homogenized radiosonde data

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We present results from a newly homogenized radiosonde dataset that gives results more consistent with expectations in the troposphere. The method used to homogenize the data was extensively tested with simulations and performs better than commonly used methods. The new data show strong tropospheric warming commensurate with that at the surface, and cooling in the stratosphere. Some artifacts in the radiosonde data have evidently not been successfully removed, but some interesting signals appear that do not appear compromised by the remaining problems. In particular, the vertical extent of tropospheric warming varies with latitude in a way that differs from that predicted by climate models, with generally a less sharp division between warming and cooling, and warming shown in the northern hemisphere lowermost stratosphere. Warming near the tropical tropopause is also hemispherically asymmetric. Possible causes of these discrepancies are discussed, including errors in model heat transport across the tropopause.