



Assessment of the Accuracy of Spaceborne Middle Atmosphere Temperature Measurements

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The middle atmosphere temperatures have been measured from space for approximately three decades using various remote sensing techniques. To understand subtle temperature changes arising from solar- and human-induced processes requires a long-term dataset with large geographic coverage. Because this available data record covers multiple datasets with varying degrees of overlaps, assessment of systematic biases among them is critically needed. In this paper, we report our assessment of the following sets of temperature measurements: HALOE/UARS (solar occultation), MLS/UARS (microwave sounding), SABER/TIMED (thermal radiometry), and CHAMP and COSMIC (radio occultation). The quality of these nearly two decades of middle atmosphere temperature datasets will be discussed in the context of long-term temperature variability studies.