A Study of Tropical Tropopause Variation at Gadanki (13.46ºN, 79.17ºE) using a Long-Term MST Radar Data-Base Supplemented with Radiosonde and RASS Measurements

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Observations from MST Radar, GPS radiosonde and RASS were used to study the variation of tropical tropopause at Gadanki (13.46ºN, 79.17ºE). The vertical beam power profile data from the radar over the years 2001 to 2008 was analysed to determine the height of the tropopause. GPS radiosonde data during the years 2006 to 2008 was used to define the cold point tropopause and lapse rate tropopause. During 2006-2008 RASS system was operated on a few days to study the temperature structure in the troposphere. Occasionally the RASS observations reached the altitude of the tropopause. An analysis of the atmospheric stability using this data has been done. The effect of the variation in the atmospheric stability and its effect on the tropopause altitude has been studied. Further analysis on the observations from these three techniques to extract variations is expected to reveal features of the tropopause that could explain the climatic effects.