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Tropospheric and Stratospheric Temperature Measurements by Vibrational Raman-N₂ LiDAR at Reunion Island (20.8°S, 55.5°E)

The improvement of the laser sources allows LiDAR to probe an increasing altitude range of the atmosphere with improved vertical and time resolutions. Several methods using LiDAR technique have been developed to retrieve temperature in the UTLS. However, the Rayleigh technique is limited and can not operate below the 30km height, while the vibrational Raman-N₂ technique has been developed in order to measure temperature profiles in the UTLS region.

In this study, we present the Raman-N₂ LiDAR operating at Reunion Island; the temperature retrieval method; and the main results about the thermal structures in the UTLS as derived from a 10-year

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