

Vertical profiles of precipitation observed by radars and radiometer

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Wind profiling radars are typically used to measure the vertical profiler of three-dimensional wind of the atmosphere. The profiler systems generally use either VHF (Very High Frequency) or UHF (Ultra High Frequency), the applications are dissimilar for different frequency bands. Increasing the operational frequency of wind profiling radar provides a measurement range resolution. As such, profilers operating at 1 GHz are typically regarded as boundary layer profilers, capable of measuring the wind profile in only the lowest few kilometers of the atmosphere. In this study, a 1290 MHz wind profiler is used to observe the vertical echo power profiles of precipitation which dominate the signals for L-band boundary layer radars. The results are compared with the profiles obtained from a C-band dual polarization weather radar and liquid water content estimated from a multi-channel microwave radiometer.