

A study on aspect sensitivity with 205MHz ST Wind Profiler Radar at Cochin coastal region

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Aspect sensitivity gives the measure of how stable the atmosphere is, which arises due to partial reflection, anisotropy, Fresnel reflection, etc. in the atmosphere. A study of aspect sensitivity helps in explaining the characteristics of the horizontal wind components, reflectivity and the turbulence. Lower Troposphere turbulence is generally expected to be isotropic and behaves differently in higher heights. In such a stable lower atmosphere there will arise a low aspect sensitive value and expected to be variable as increasing heights while reaching the tropopause. Preliminary observation was carried out, using the newly established Stratosphere Troposphere Wind Profiler Radar operating at 205MHz which is configured in Doppler Beam Steering (DBS) mode for 60 beams (with beam tilt angles of 2°) positions in N-S and E-W directions to study the aspect sensitivity in the troposphere and stratosphere regions by comparing received echo powers in zenith and off-zenith beams. It was observed that the received echo power is decreasing with increase in the beam tilt angle w.r.to zenith beam. More detailed study of aspect sensitivity with 205MHz Wind Profiler Radar will be presented.