

Doppler Observation of Cumulonimbus Turret Generation by 95GHz Cloud Radar in Boso Peninsula on 30 August 2012

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Simultaneous observations of cumulonimbus turrets using a 95GHz W-band cloud radar, an X-Band radar, the MTSAT-1R rapid scan and photogrammetry were held during the summer in 2012 in Kanto Region, Japan to understand the convection initiation and the structure of cumulonimbus turrets. During these observations, the cloud radar was installed in the middle of Boso Peninsula, where cumuli and cumulonimbi frequently generate in mid-summer season.

Cumulonimbus turrets were developed above the W-band cloud radar after 12:30 on 30 August 2012. The turrets continued development and degeneration for two hours above the radar. In a previous study, we have shown the Doppler analysis by X-band radar which indicated convergence of horizontal winds below 1.5 km around the cloud radar site at the initiation of the first cumulonimbus turret generation.

In this presentation, we show the vertical Doppler analysis result of the cloud radar at the initiation of the cumulonimbus turret generation. The result indicates the existence of a strong updraft of over 6 m/s at the initiation of the first cumulonimbus turret generation.

Keywords: cumulonimbus, turret, cloud radar, Doppler