

Clear-air echo statistics and beam blockage patterns of Taiwan Doppler radar network

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Clear-air echo statistics and beam blockage patterns of four S-band Doppler radars in Taiwan are documented in this study. By examining two years low-elevation-angle reflectivity data, five different types of clutter are identified, i.e., ground clutter, sea clutter, interference echo, anomalous propagation echo,

and unaccounted-for echo. The statistics show these clear-air echoes exhibit strong either diurnal or seasonal characteristics. The possible relationships of these clear air echoes with the environmental conditions are suggested. In additions, due to complex terrain features in Taiwan, the beam blockage patterns of these Doppler radars are examined by using low-elevation-angle reflectivity data. The effective coverage of the radar echo data for each individual elevation angle is identified and is important for compositing radar reflectivity map in the Taiwan area.

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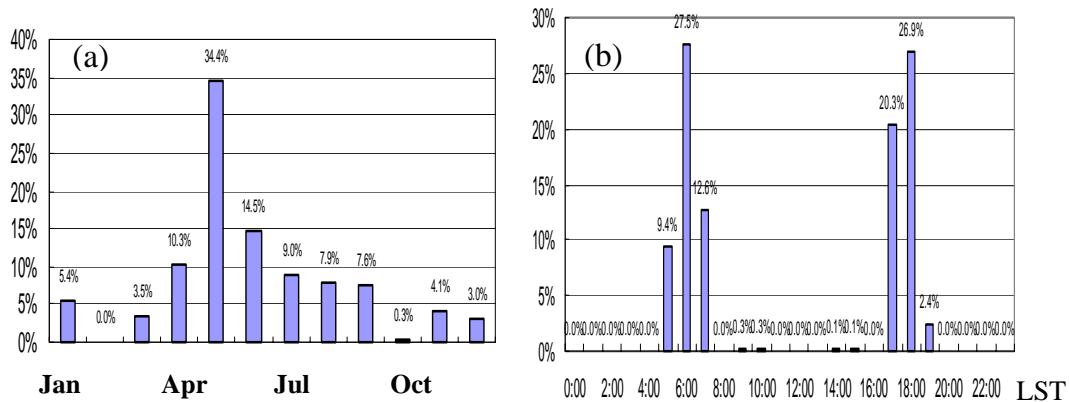


Fig.1. (a) Seasonal variation of anomalous propagation echoes and (b) diurnal variation of interference echoes taken from two year data of RCWF of CWB.

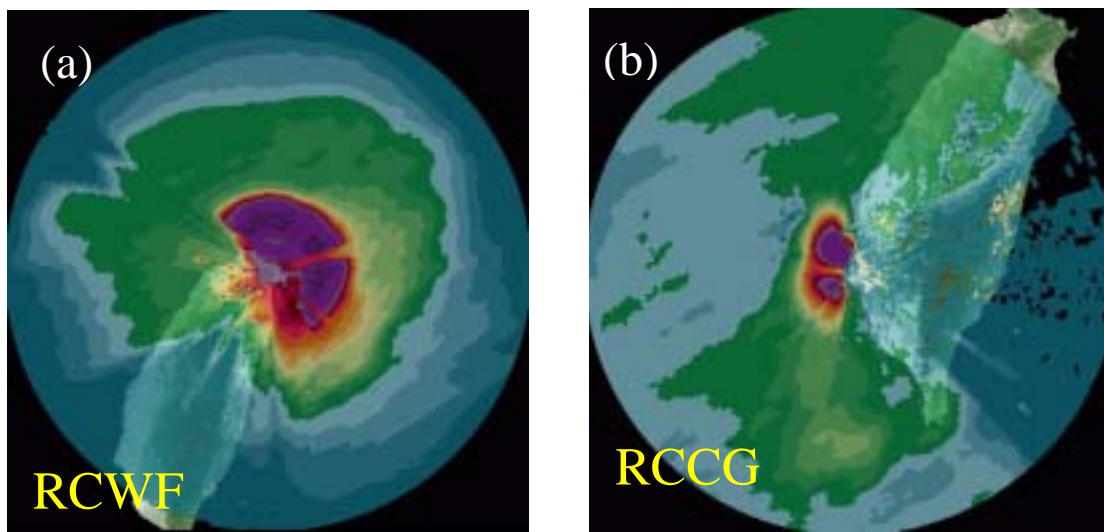


Fig.2. Echo statistics of RCWF (a) and RCCG (b) CWB Taiwan in the period of Dec. 2002-Feb. 2003. The beam blockage patterns and anomalous clutters are clearly shown.