



Characteristics Analysis of Wind Components according to the Typhoon Track Influenced in the Korean Peninsula Using a Wind Profiler Radar

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Typhoon is a tropical cyclone accompanied by strong wind and heavy precipitation. It induces high human and property damages depending on typhoon track. The typhoon influenced in the Korean Peninsula mainly passes through Jeju Island and the Southern costal area from northward the East China Sea. In this study, wind components analysis using a wind profiler radar close to the shoreline is conducted. The wind profiler radar observes the three-dimensional wind components for a fixed-point regardless of precipitation and provides high-resolution (10 min., 100 m) data for continuous analysis. The wind characteristics according to the typhoon track was investigated using the Boseong wind profiler radar (34.76 °N, 127.21 °E) located on the south coast in Korea.

Some cases were selected as typhoons that occurred in 2010 (Dianmu, Kompasu, Malou), 2011 (Meari, Muifa) and 2012 (Khanun). For the horizontal wind analysis, there were distributed the preprocessed zonal (U) and meridional (V) wind components with time. As a result, the shape of the scatter plot and their distribution characteristics were differently shown according to the typhoon track. Dianmu and Malou had circle-shape and distributed similarly over time, however Muifa, Meari, Kompasu and Khanun displayed the line-shape, relatively. Their differences were confirmed through the quadratic regression equations by each typhoon track. In addition, the amount of change in U and V was analyzed in time series.

These wind components analysis using ground-based observation data are expected to be applied for typhoon track analysis, prediction and natural disaster prevention.