

# Estimating Extreme Wind Speed in the Typhoons that Affected the Korean Peninsula in 2015

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Owing to global warming, the strength of recent tropical cyclones (e.g., hurricanes, typhoons, etc.) has been gradually increasing, along with a rise in seawater temperature and heat capacity in tropical regions. In particular, hurricanes affecting the Korean peninsula are becoming stronger, along with a rapid increase in seawater temperatures around the Korean peninsula and in the west Pacific. In the last 10 years (2007-2016), approximately 35% of all damage due to natural disasters in Korea was caused by hurricanes, indicating the significant impact hurricanes have. Most damage due to hurricanes was caused either by severe rain storms or strong winds. Many studies have been conducted on damage due to severe rain storms from hurricanes, but very few have been done to estimate the associated strong winds and related damage. This study focuses on the year 2015, when four hurricanes hit the Korean peninsula and approximately 40% of total damage due to natural disasters was caused by hurricanes. The highest possible wind velocity during a hurricane on the Korean peninsula is examined, as calculated through WRF and RAM numerical modeling using RDAPS data. A wind velocity of 700 hPa was determined as the result of numerical modeling. RSMC Tokyo Typhoon Center Best Track data was also used for this study. In the distribution of highest hurricane wind velocities on the Korean peninsula in 2015, the 30-40 m/s wind velocity range comprised approximately 52%.

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