Basic Data Construction for a Typhoon Disaster Prevention Model : Analysis and Changes by El Nino and La Nina year

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Among the typhoons that affected the Korean Peninsula for approximately 110 years from 1904, when weather observation began until 2018, all of the top five typhoons in terms of the maximum wind speed and property damage record occurred after 2000. This implies that the intensity of typhoons is becoming stronger and the damage is more severe compared to the past. Moreover, typhoons are significantly affected by the sea temperature. The El Nino and La Nina phenomena, in which significant changes in the sea temperature occur, may significantly affect the occurrence and intensity of typhoons affecting the Korean Peninsula. Therefore, this study aims to analyze changes by year, and the years of El Nino and La Nina occurrences by estimating the maximum wind speed that can be generated during typhoon period based on the typhoons that affected the Korean Peninsula. This study was conducted for the period between 2002 and 2015. As a result of analyzing the maximum wind speed of the typhoons that affected the Korean Peninsula by year, high 3-second gusts tended to occur in the Gyeongsang-do area including the southeast coast of the Korean Peninsula from 2002 to 2006. Subsequently, the strong wind area of the 3-second gusts expanded, and high 3-second gusts occurred in the Seoul metropolitan area. Moreover, as a result of investigating the 3-second gust characteristics for the years of El Nino and La Nina occurrences, a higher maximum wind speed was observed from the typhoons that affected the Korean Peninsula in the years of El Nino occurrence.

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Key words : Typhoon Disaster Prevention Model, WRF, 3-Second gust, El Nino, La Nina