

A Study on the Highest Possible Wind Speed of Typhoons Affecting the Korean Peninsula by Abnormal Sea Surface Temperature in the West Pacific

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Every year, approximately 30% of all tropical cyclones in the world occur in the West Pacific, where a tropical convergence zone is located. Most typhoons affecting East Asia originate from this shore region. Moreover, abnormal sea surface temperatures have been observed throughout the world due to global warming. Alongside these phenomena, the strength of El Niño and La Nina has been increasing, which has an impact on the whole globe via sea surface temperatures in the West Pacific. El Niño refers to the phenomenon where sea surface temperatures rise higher than usual in the West Pacific, whereas La Nina is a phenomenon where sea surface temperatures decrease further than usual. The intensity of typhoons affecting the Korean peninsula may vary depending on El Niño and La Nina. This study examines the highest possible wind speeds of typhoons affecting the Korean peninsula, as caused by abnormal sea surface temperatures in the West Pacific due to El Niño and La Nina during the study period (2002-2005). Our analysis showed 21 typhoons during years characterized by El Niño during the study period. Here, the highest possible wind speed was 26.2 m/s. 14 typhoons occurred during La Nina years, with the highest possible wind speed at 24.6 m/s. In sum, the highest possible wind speed during El Niño was greater than during La Nina, presumably because sea surface temperature in the West Pacific during El Niño was also higher.

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