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## Tropical Cyclone Characteristics Associated with Extreme Precipitation in the Northern Philippines

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The Philippines is exposed to Tropical Cyclones (TCs) throughout the year due to its location in the western North Pacific. While these TCs provide much-needed precipitation for the country's hydrological cycle, extreme precipitation from TCs may also cause damaging hazards such as floods and landslides. This study examines the relationship between TC extreme precipitation and TC characteristics, including movement speed, intensity, and season, for westward-moving TCs crossing Luzon, northern Philippines. We measure extreme precipitation by the Weighted Precipitation Exceedance (WPE), calculated against a 95<sup>th</sup> percentile threshold, which considers both the magnitude and spatial extent of TC-related extreme precipitation.

WPE has a significant, moderate positive relationship with TC intensity and a significant, weak negative relationship with TC movement speed. When TCs are classified by pre-landfall intensity, Typhoons (1-minute maximum sustained wind speed > 64 knots) tend to yield higher WPE than non-Typhoons (< 64 knots). On the other hand, when TCs are classified by pre-landfall speed, Slow TCs (movement speed < 11.38 knots) tend to yield higher WPE than Fast TCs (movement speed > 11.38 knots). However, while distributions of WPE are similar between the Southwest Monsoon (June-September) and Northeast Monsoon (October-December) seasons, the relationship between pre-landfall TC intensity and WPE is more pronounced during June-September. These results suggest that it is important to consider the pre-landfall cyclone movement speed, intensity, and season to anticipate extreme precipitation of incoming TCs. A decision table considering these factors is devised to aid in TC extreme precipitation forecasting.