Investigating the within-season variability of tropical cyclones in the Philippines

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To lessen the possible impacts of tropical cyclones (TCs), empirical understanding of its nature, causes of variations, and relationship to climate variability and change, and surrounding environments is essential. Each year, billions of people are affected by TCs, especially those from coastal areas. The Philippines is one of these areas typically affected by TCs as it is located in the Western North Pacific (WNP) - the most active TC basin worldwide. About 20 TCs each year traverse the Philippine Area of Responsibility and most of which run from June to November (JJASON), this is to be referred in this study as the TC active season. In this study, we will investigate the within-season variability of TC frequency and landfalling TCs in the Philippines. To date, the Philippine active TC season has a distinct variation across meteorological seasons or its derivative seasons – boreal summer during June to August (JJA), transitional TC seasons during July to September (JAS) and August to October (ASO), and autumn during September to November (SON). While the literature on the interannual and interdecadal variabilities of TCs during the active TC season are more available, there is still limited studies on the within-season variability of TCs in the Philippines. Here, we will analyze the intra-seasonal variability of TC frequency and landfalling TCs between the boreal summer, transitional TC seasons and autumn. Environmental variables that influence the TC frequency and landfalling TCs will be characterized based on the non-correlated seasons and their significant difference will be determined. Moreover, the mechanisms that drives the within-season variability of TC frequency and landfalling TCs in the Philippines during JJASON will be investigated.