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# Dynamics of Intraseasonal Compound Whiplash Event: A Retrospective Analysis in India

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Hydroclimatic Whiplash events refer to the extreme variability characterising the rapid transitions from one hydroclimatic extreme to another, occurring in consecutive periods. Rapid transition from one extreme to the other. The compound consecutive extremes impact often exceeds the magnitude of individual events given their occurrence at distinct times. This study introduces a comprehensive investigation into Intraseasonal compound whiplash occurrences in India, focusing on the rapid shifts between drought/heat and pluvial conditions. The data used in the study is taken from IMD precipitation of 0.25˚ x 0.25˚ and temperature at 1˚x 1˚ for the time span 1901 to 2022. This study involves distinct thresholds for duration and intensity to identify the heat dry and wet events. Dry events are characterised by prolonged low rainfall and sustained minimum temperatures throughout the dry period. Conversely, wet events exhibit high intensity within relatively shorter durations. Emphasising the 70th percentile for temperature thresholds acknowledges that extreme conditions in each component aren't mandatory for a compound event's occurrence. Our study delves into the frequency of individual extremes and compound whiplash occurrences, calculating swing severity using mean temperature quantiles for warm/dry spells alongside precipitation anomalies. The Mann-Kendall test and Sen's slope is used for the check frequency and severity evolution at the grid level. Results highlight diverse regions witnessing increasing trends in wet and dry events, signifying a notable surge in compound whiplash incidents. This is especially worrying in areas that have typically been dry because the increase in rain can disrupt the usual climate there. This concerning trend raises alarms for local ecosystems, water resources, and socio-economic activities. Recognising these evolving patterns is critical for making strategies and long-term planning in the recent climate variability.