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Understanding the Nexus between Dengue and Climate Variability

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Abstract : The El Niño phenomenon, characterized by the anomalous warming of surface waters in the Equatorial Pacific Ocean, can influence weather patterns in various parts of the world, including the occurrence of extreme events such as droughts or heavy rainfall. Studies have suggested a relationship between El Niño and an increase in the incidence of dengue in certain areas. During El Niño periods, there can be changes in climatic conditions, such as increased temperatures and reduced rainfall in certain tropical and subtropical regions. These conditions can favor the reproduction of the Aedes aegypti mosquito, the vector for dengue transmission. Research aims to investigate how climate events like El Niño and La Niña can influence the incidence and transmission of dengue. The results have shown that, on average, there was a significant increase in dengue cases during La Niña years compared to years of climatic neutrality, contradicting the findings of Hopp et al. (2015). The study also highlighted that regions affected by El Niño exhibited greater variability in dengue incidence. However, it is important to emphasize that the effects of El Niño on dengue transmission can vary depending on the region and local factors, such as socioeconomic context and implemented control measures, as described by Johansson et al. (2009). Not all areas affected by El Niño will necessarily experience an increase in dengue incidence, and the interaction between climate and disease transmission is complex.

Keywords : anomalous warming, climatic patterns, dengue incidence, extreme events
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