



## **The influence of tropical precipitation variability on summertime European circulation**

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Using reanalysis data and satellite precipitation data we first analyse the statistical relationship between tropical precipitation variability and summertime circulation anomalies over Europe. The circulation over Europe significantly covaries with a global pattern of precipitation, which is characterised by distinct anomalies over the tropical Pacific, tropical Atlantic and the Maritime Continent. The link between the precipitation (and latent heating) anomalies in the tropics and the circulation response over Europe are investigated using an idealised barotropic linear model forced by divergent wind anomalies in the subtropics. The idealised model responses are found to be consistent with the observed Rossby wave anomalies, supporting a causal link between tropical precipitation and summertime circulation over Europe. We also present analysis of these mechanisms in summertime seasonal hindcast simulations (using prescribed sea surface temperatures) and long climate simulations.