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## Future ENSO and IOD associated seasonal rainfall and temperature anomalies over Mainland Southeast Asia.

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This study examines the projected change in rainfall and temperature anomalies across Mainland Southeast Asia, focusing on the teleconnection of El Niño Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD). Five GCM's from the CMIP6 project (GFDL-ESM4, IPSL-CM6A-LR, MPI-ESM1-2-HR, MRI-ESM2-0, and UKESM1-0-LL) are used to investigate the historical (1985-2014) and future periods based on two Shared Socioeconomic Pathways (SSPs), SSP3-7.0 and SSP5-8.5, divided into three periods: near-future (2015-2044), mid-future (2041-2070), and far-future (2071-2100). The impact of ENSO and IOD on climate anomalies is analyzed using partial correlation coefficient (PCOR) calculated between Niño 3.4 and DMI index. PCOR allows us to examine the influence of ENSO while excluding the effect of IOD, and vice versa. We divided the study into three seasons: March-April-May (MAM), June-July-August-September (JJAS), and October-November-December (OND). Generally, ENSO and IOD show positive correlations with temperature, which means the positive phase of each results in higher temperature, whereas their correlations with rainfall can be positive as well as negative. Negative correlations between ENSO and rainfall predominate in most MSEA areas leading to drier conditions during El Niño events, except during June-July-August-September during which ambiguous patterns occur with both negative and positive influences from ENSO. Meanwhile, IOD presents significant positive influences on rainfall over large areas. Future correlations are generally higher than historic ones, suggesting a potential for better predictability of seasonal forecasts.

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