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Interdecadal change in the lagged relationship between the Victoria mode and ENSO

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Significant interdecadal change in the lagged relationship between the spring Victoria mode (VM) and the following winter El Niño–Southern Oscillation (ENSO) has been examined. We find that the relationship was strong during high correlation (HC) periods, 1957–1964 and 1981–2004, while this relationship was weak during low correlation (LC) periods, 1907–1924, 1926–1956, 1965–1980 and 2005–2008. The processes of the surface air–sea coupling and the evolution of subsurface ocean temperature anomalies along the equator associated with the VM are found to be stronger during HC periods than during LC periods, which results in a stronger impact of the VM on the following winter ENSO during HC periods. The interdecadal change in the VM–ENSO relationship is mainly attributed to the interdecadal change in the intensity of the VM, which is found to be influenced by the North Pacific Oscillation. Our findings may improve the prediction skill of the onset of ENSO events.