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# Processes in the Influence of Tropical Atlantic Sea Surface Temperatures on Pacific la Nina Onset

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Observations have revealed that since the later 1960s there is an intensified tropical Atlantic-tropical Pacific teleconnection with summer Atlantic Ninos favouring the development of Pacific La Ninas during the next winter via anomalous Walker circulation. Using experiments with an Atmospheric General Circulation Model coupled to an ocean Indo-Pacific basin and with prescribed Atlantic Sea Surface Temperatures (SST), it has been found that the Atlantic Nino is able to help in the development of Pacific La Nina. The objetive of this work is to explain the oceanic mechanisms responsible for the development of La Nina as a response from the Atlantic forcing. Results suggest how a subsidence appears at dateline associated with an equatorial Atlantic convection from summer to early autumn. The walker circulation is enhanced and surface easterlies in the west-central Pacific lead to a surface divergence at central Pacific. Surface anomalies over the Tropical Pacific have the potential to excite coupled ocean-atmosphere feedbacks, which are important in shaping the final response. The ocean thermocline perturbation propagates as a kelvin wave from autumn to winter. The equatorial wave propagates eastward and the thermocline shallows, allowing the mixed layer cooling by both: anomalous temperature advection by anomalous zonal currents and mean vertical entrainment velocity. The advective and thermocline feedbacks are present reinforcing the surface winds in the central-eastern equatorial Pacific. The way that the model simulates the temperature tendencies into the mixed layer is highlighted as it ultimately controls the role of feedbacks in the climate impacts.