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A seasonally varying feedback between ISST, winds and rainfall in the Maritime Continent is identified, which explains the growth, persistence and coherence of the local anomalies during the dry season and their decay or change in sign once the wet season commences. During the dry season anomalous surface easterlies (westerlies), remotely driven by warm (cold) SSTs in the eastern Pacific during El Niño (La Niña), act to increase (decrease) local wind speed, cooling (warming) the ocean surrounding Indonesia and thereby increasing (decreasing) the SST gradient across the Pacific (Fig. 1). Hence, local rainfall and the strength of the Walker circulation are further reduced (enhanced). Once the wet season commences and the climatological surface winds across Indonesia shift from southeasterly to northwesterly, the anomalous surface easterlies (westerlies) act to reduce (increase) the wind speed. The initial cold (warm) SST anomaly is damped, reducing the negative (positive) rainfall anomalies and surface easterlies (westerlies).

This ENSO-induced air-sea interaction also gives rise to a SST "dipole" in the Indian Ocean (Fig. 2), which is apparent only during the dry season and is surmised to be largely driven by surface heat flux variations. Biennial variations in the Indonesian may also arise by this interaction.

A local feedback between SST anomalies, rainfall, and surface winds in the Maritime Continent is identified in a atmospheric GCM coupled 1-D ocean mixed layer model. This coupled model does not possess ENSO variability. However, without the slowly-evolving remote forcing provided by ENSO, the feedback by itself is not sufficient to produce biennial variations or local anomalies that persist longer than a few months.

Fig. 1 a) Lagged correlation of September-Indonesian precipitation (IndoP) with monthly mean eastern Indian Ocean SST (IndoT; heavy solid curve), IndoP (heavy dotted curve), Nino34 (light solid curve), and eastern Indian Ocean surface zonal wind (IndoU; light dotted

curve). Significant correlation is indicated by dashed line.

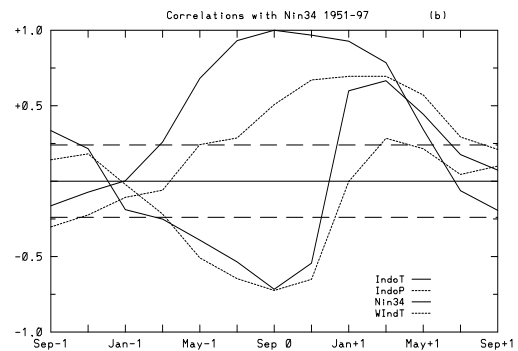
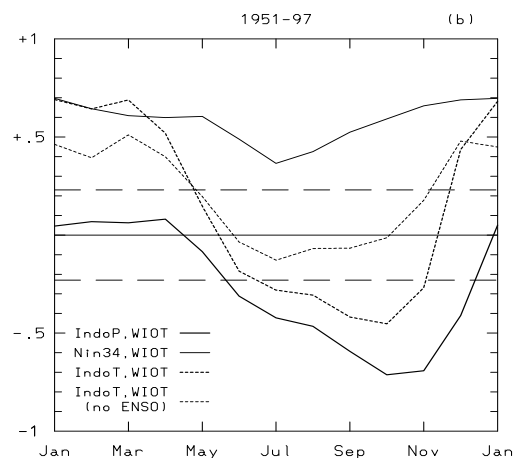


Fig. 2 Correlation of monthly mean IndoP with western Indian Ocean SST (WIOT; heavy solid curve), IndoT with WIOT (heavy dotted curve), IndoT with WIOT with the linear effects of Nino34 removed (light dotted curve), and WIOT with Nino34 (light solid curve).



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