



Tropical inter-annual SST oscillations and Southern Ocean swells

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The possibility of teleconnections between Southern Ocean swells and sea surface temperature (SST) anomalies on inter-annual time scales in the Eastern Pacific Niño3 region and southeastern Indian Ocean is investigated using numerical wave models. Two alternative parameterizations for swell dissipation are used. It is found that swell dissipation in the models is not directly correlated with large inter-annual variations such as the El Niño – Southern Oscillation (ENSO) or Indian Ocean Dipole (IOD). However, using one of the two swell dissipation parameterizations, a correlation is found between observed SST anomalies and the modification of turbulent kinetic energy flux (TKEF) by Southern Ocean swells due to the damping of short wind waves: modeled reduction of TKEF is in opposite phase with the SST anomalies in the Niño-3 region, indicating a potential positive feedback. The modeled bi-monthly averaged TKEF reduction in the southeastern Indian Ocean is also well correlated with the IOD mode.