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# Unravelling Eastern Pacific and Central Pacific ENSO contributions in South Pacific chlorophyll-a variability

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El Niño – Southern Oscillation (ENSO) is regarded as the main driver of phytoplankton inter-annual variability. Since the advent of remotely sensed surface chlorophyll-a (Chl) it has been possible to observe and examine phytoplankton variability at a resolution and scale which allows for the investigation of the impact of climate signals such as ENSO. We use more than 13 years of Chl remote sensed observations across the Tropical and South Pacific to isolate and examine the spatial development of Chl during ENSO: its canonical variability or Eastern Pacific mode, and, arguably, its non-linear evolution, the El Niño – Modoki (EM) or Central Pacific mode, using the extended empirical orthogonal function technique. We describe how an Eastern Pacific (EP) ENSO phase transition affects Chl, and identify an interannual Central Pacific (CP) mode induced spatial pattern. This analysis extends earlier work by allowing us to examine and discuss EP and CP ENSO as propagating modes which takes into account leads and lags in the data.