Impacts of interannual variations of chlorophyll on seasonal predictions of the tropical Pacific

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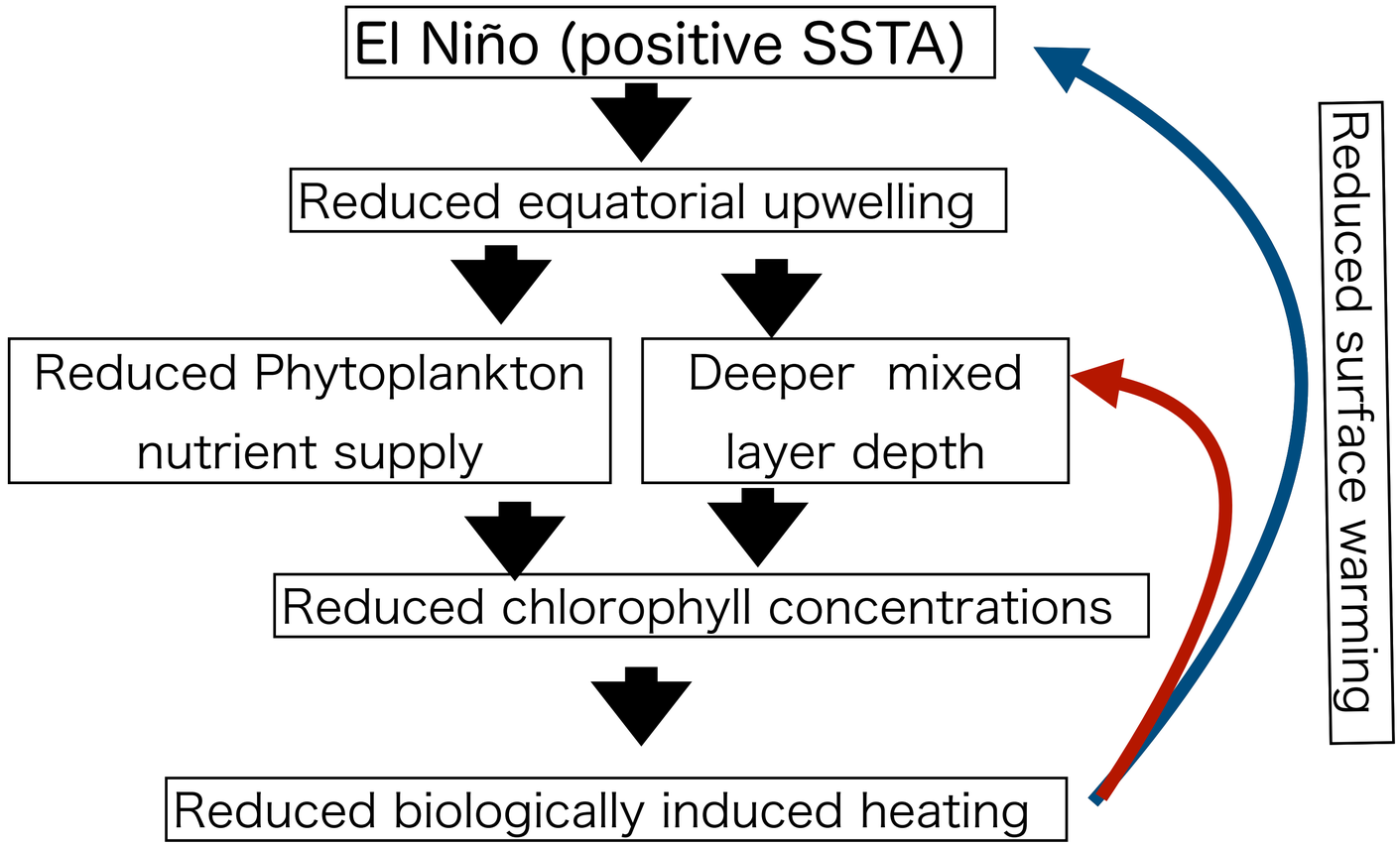
Possible impacts of interannual variations of Chla



- Jochum et al. (2010, JC) showed that interannual variations of Chla could dampen ENSO variability by ~10% using CCSM free runs.

- To the best of our knowledge, an exploration of possible impacts of the interannual variations of Chla on ENSO predictions by a dynamical seasonal prediction system has not yet been presented, thus it is the focus of this study.

Twin re-forecast experiments with the SINTEX-F2 model

	AGCM	OGCM	Sea Ice model	Ensemble size	Initialization
SINTEX-F2 Seasonal prediction system (Doi et al. 2017, JC)	ECHAM5 T106L31	OPA9 0.5°×0.5° L31	LIM2	12 (Burst type, 2 SST*3 nud. coif.* 2 oce. mixing)	SST-nudging with 3DVAR ocean assimilation

- One system (F2) used the observed climatology of chlorophyll to compute the shortwave absorption in the upper ocean, while the other (F2chT) used the observed chlorophyll including the interannual variations from MODIS-Terra.
- The differences in the outputs between the twin experiments were studies as impacts of interannual variations of chlorophyll on ENSO predictions.
- Period: 2000-2020

Take home message

- Although the interannual Chla impacts on predictions of SST in the central-eastern equatorial Pacific were limited, improvements in predictions of SST were found over the eastern edge of the Western Pacific Warm Pool, in particular for the 2015 super El Niño year.