



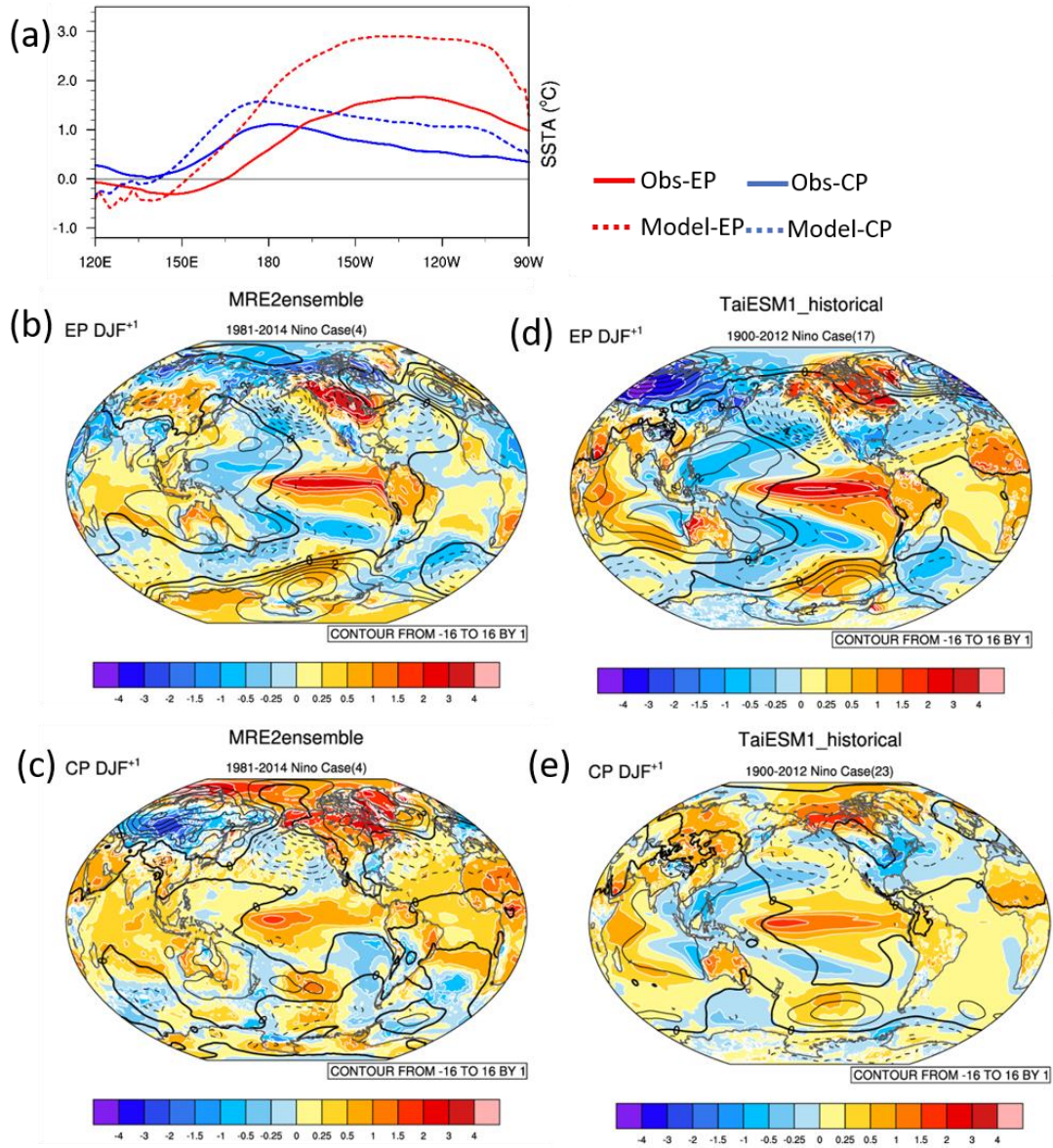
Supplement of

ENSO statistics, teleconnections, and atmosphere–ocean coupling in the Taiwan Earth System Model version 1

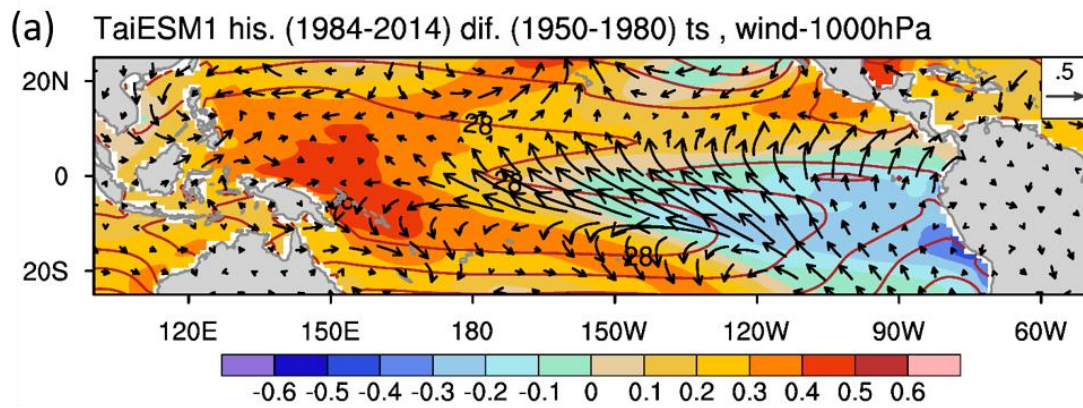
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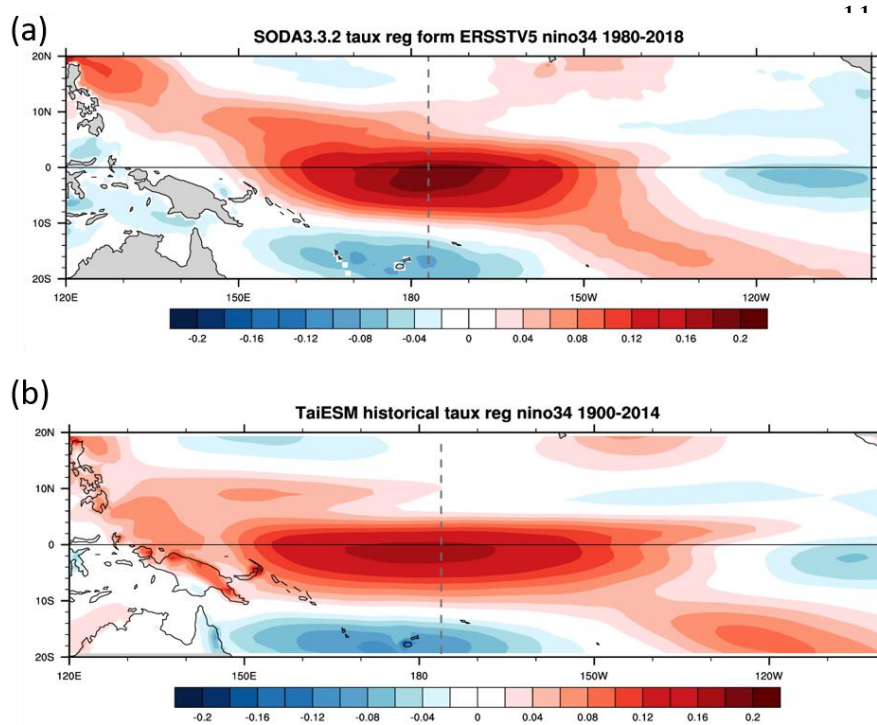
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 2 Figure S1: (a) Composites of equatorial SSTA profiles averaged in 5°S-5°N for EP (red
 3 line) and CP (blue line) events identified in ERSST5 (solid line) and in TaiESM1
 4 simulations (dashed line). (b-c) Composites of surface temperature and SLP of MRE2
 5 ensemble based on EP and CP events. (d-e) Composites of surface temperature and SLP
 6 of TaiESM1 historical runs based on EP and CP events.

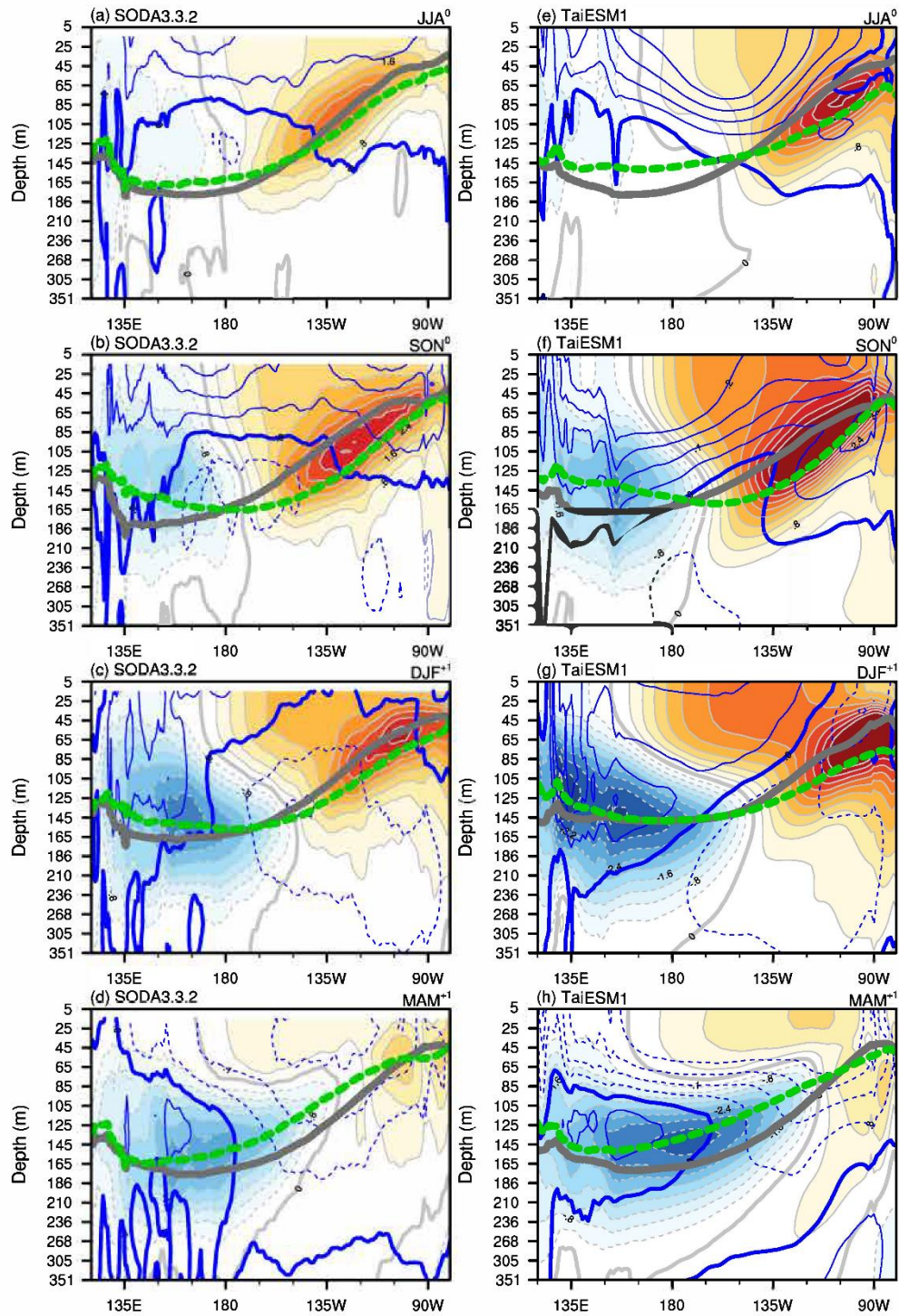


8 Figure S2: Difference of sea surface temperature (color shading) and 1000-hPa winds
 9 (arrows) during December, January, and February (DJF) between the two periods of weak
 10 ENSO variability (i.e. 1984-2014) and strong ENSO variability (1950-1980).



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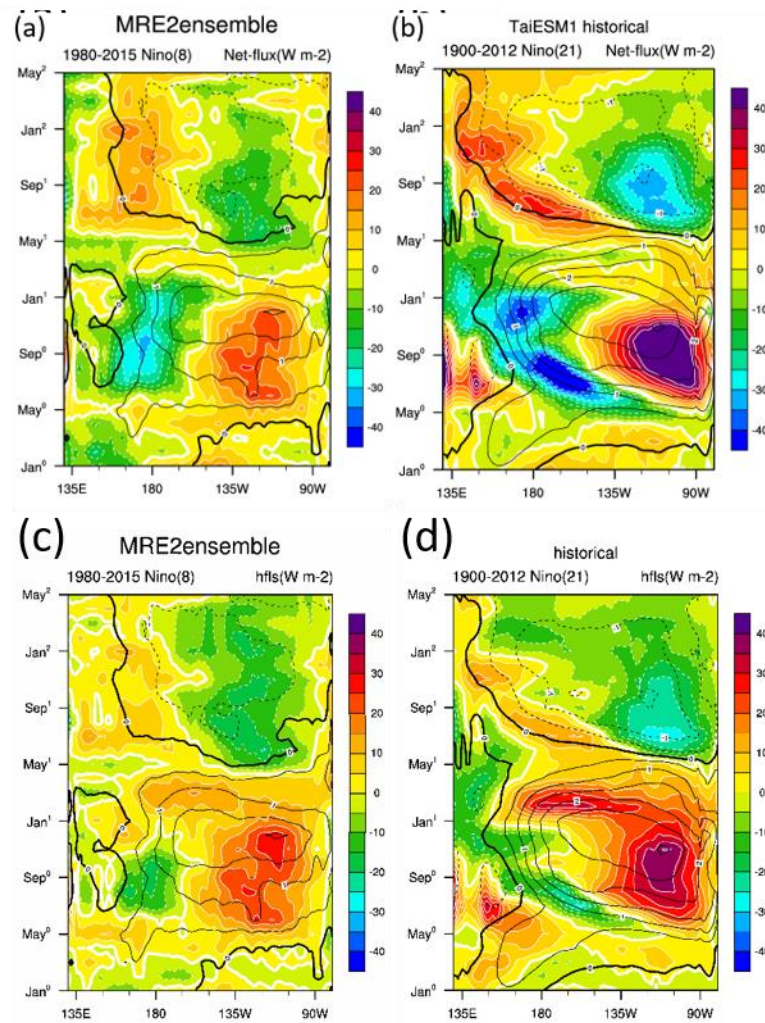
13 Fig. S3: Regression of wind stress onto the normalized Niño 3.4 index in (a) SODA v3.2.2
 14 and ERSSTv5 (1980-2018) and (b) TaiESM1 historical run (1900-2014). The dashed line
 15 shows the “center of mass” of the positive zonal wind stress anomalies computed as the
 16 equatorial (2°S to 2°N) zonal wind stress anomaly weighted longitude between 140°E
 17 and 120°W.



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19 Figure S4: Equatorial cross-section (5°S – 5°N) of the El Niño composite of the zonal
 20 current (blue contour) and potential temperature anomaly (color shading) in (a, e) JJA^0 ,
 21 (b, f) SON^0 , (c, g) DJF^{+1} , and (d, h) MAM^{+1} based on SODA3.3.2 (left column) and
 22 TaiESM1 historical run (right column). The gray line shows the climatological 20°C
 23 isotherm (Z20), and the green dashed line shows the Z20 at the Niño state.

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26 **Figure S5: Similar to Fig9c, (a,b) but for net radiation flux (color shading; net =**
 27 **rsus-rsds+rlus-rlds-hfss-hlfs, W m-2), and (c,d) but for surface latent heat flux (color**
 28 **shading; W m-2). Rsus represents shortwave upwelling fluxes, rlus as longwave**
 29 **upwelling surface fluxes, rlds as longwave downwelling surface fluxes, hfss as**
 30 **surface sensible heat fluxes, and hlfs as surface latent heat fluxes. Both fluxes are**
 31 **defined downward as positive.**