Supplementary-information for
Process-based analysis of climate model ENSO simulations: inter-model consistency and compensating errors

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**Figure 1.** Slope ($\beta$) of the regression of the wind stress curl on the Niño3 index for three models is shown in (a), (b), and (c). Locations where the correlation coefficient, $|r|$, is less than 0.2 are white. The correlation coefficient is shown for the same models in (d), (e), and (f).
Figure 2. Temperature at depth (determined by RMS from TAO array) response to the Eastern Pacific thermocline depth. Because the gain is reasonably close to a straight line with zero slope (except around the annual period), temperature at depth is closely related to thermocline depth.
Figure 3. The response of the heat content to the average thermocline depth. Note that the heat content is defined at slightly different depths for different models, due to differences in the model vertical resolution and locations of levels, but in all of these the maximum depth of the thermocline is above the integration level. The constant offsets in magnitude of the transfer function are therefore to be expected based on the different integration depths. If $Z_{20}$ (the $20^\circ$ C isotherm depth, used here as the thermocline depth) were a perfect proxy for heat content, the transfer function would be a constant value for all frequencies.
Figure 4. Response of the average thermocline depth to the total meridional transport at $5^\circ$N and $5^\circ$S.

Figure 5. Eastern Pacific thermocline depth response to average thermocline depth.
Figure 6. Response of Eastern Pacific thermocline depth to east-west thermocline slope.

Figure 7. Response of the central Pacific zonal wind stress to the Niño3 index.