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Supplementary Information for
Impact of Annual Cycle on ENSO Variability and
Predictability

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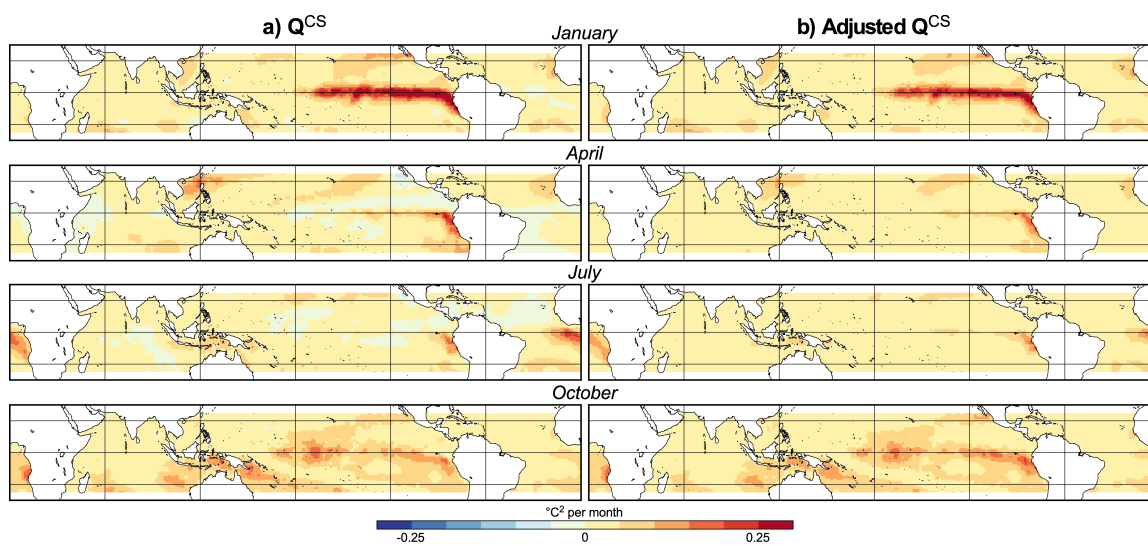
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Figures S1-S8 referred in the text.

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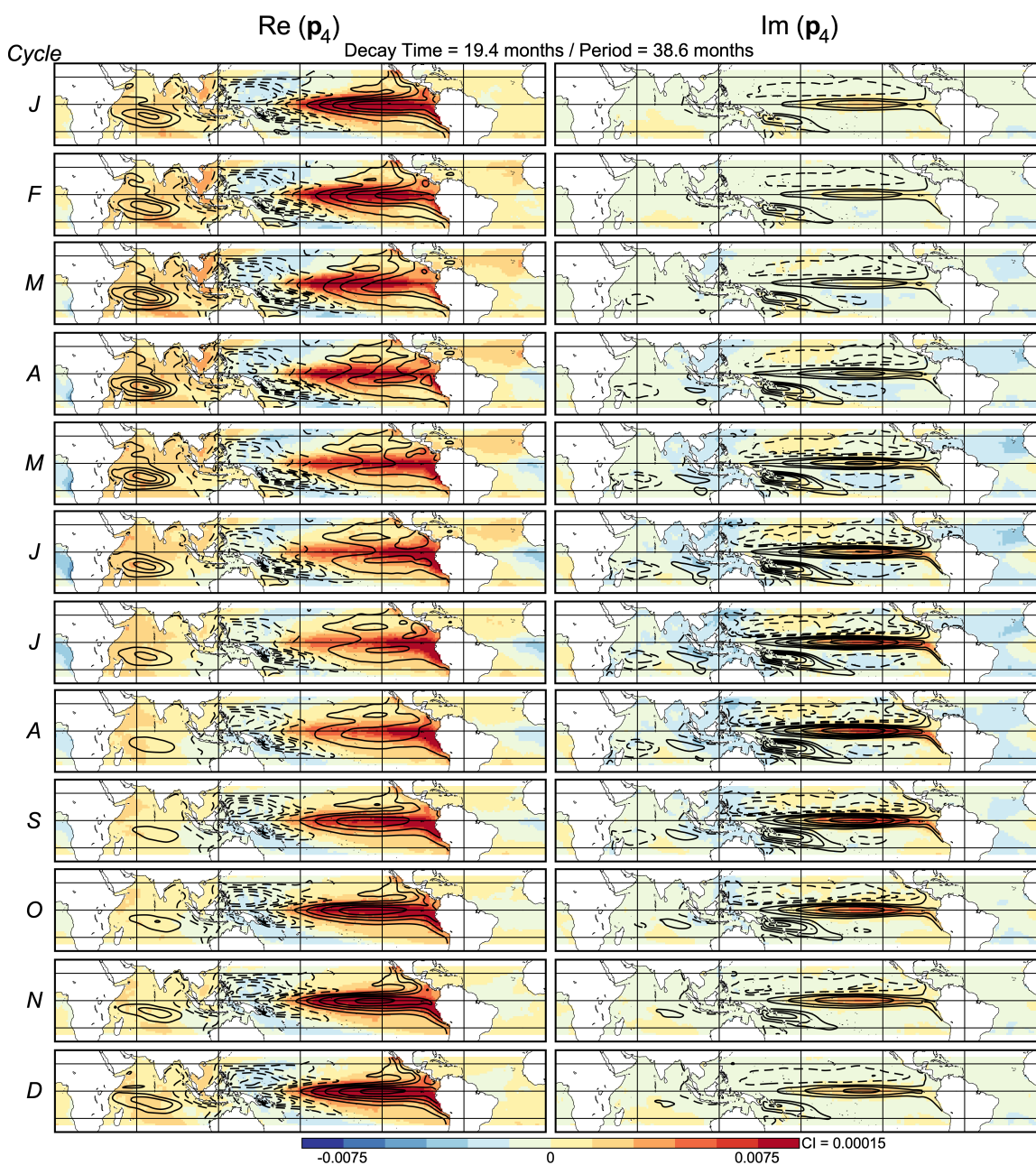


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15 **Fig. S1.** Variance maps of the stochastic forcing in the SST-only CSLIM obtained from
16 the matrix \mathbf{Q}^{CS} a) estimated using Eq. (6), and b) adjusted using the procedure
17 in P96. Results are shown for (from Top to Bottom) January, April, July, and
18 October.

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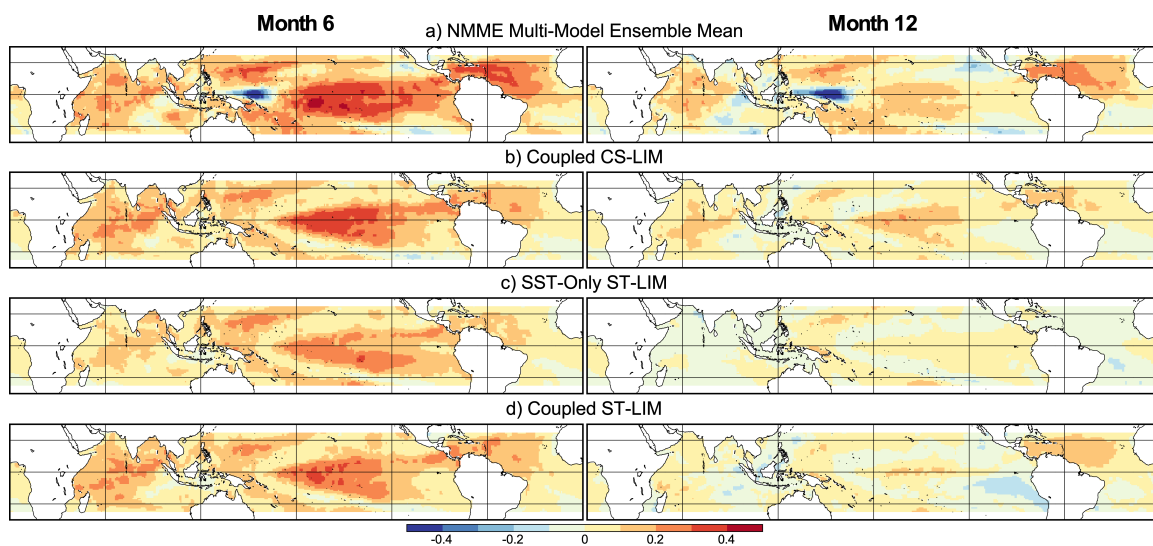


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22 **Fig. S2.** (Left) Real and (Right) imaginary components of SST/SSH (shadings/contours)
 23 patterns of the dominant ENSO eigenmode (4/5 in Table 3). The contour interval
 24 is arbitrary, but the same in all maps.

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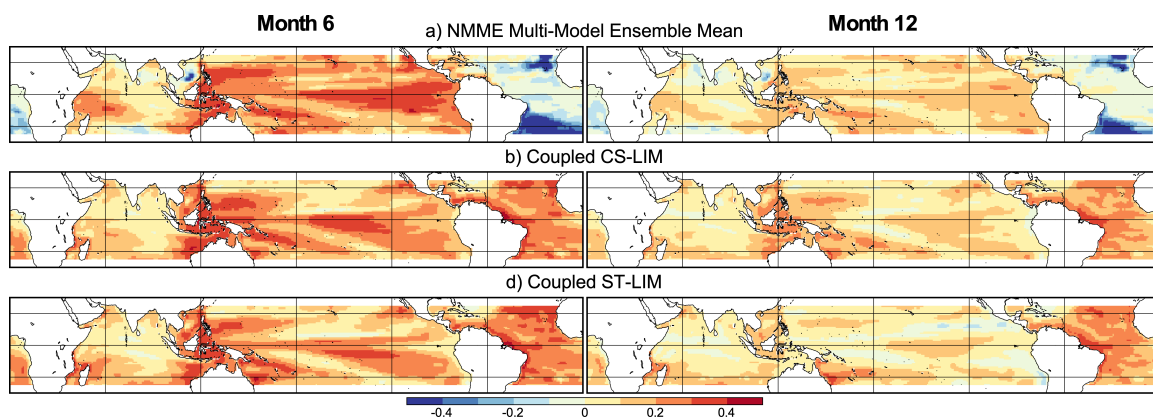


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28 **Fig. S3.** a) RMSE-based skill score of Month 6 (Left) and Month 12 (Right) NMME-
 29 mean hindcasts in the 1982-2010 period. b)-d) As in a), but of the b) coupled CS-
 30 LIM, c) SST-only ST-LIM, and d) coupled ST-LIM hindcasts, respectively.

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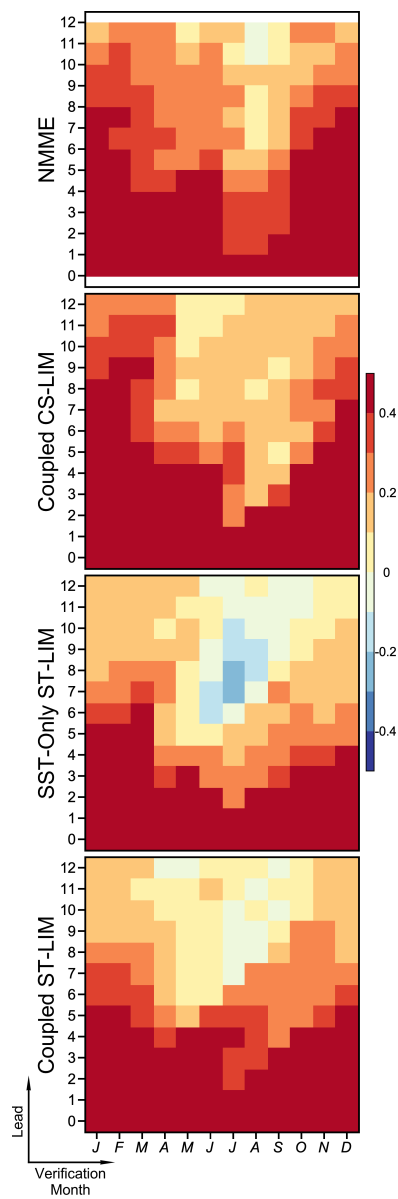


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34 **Fig. S4.** a) and b): As in Fig. S3a and S3b, but for the SSH anomaly hindcasts. c) As in
35 Fig. S3d, but for the SSH anomaly hindcasts.

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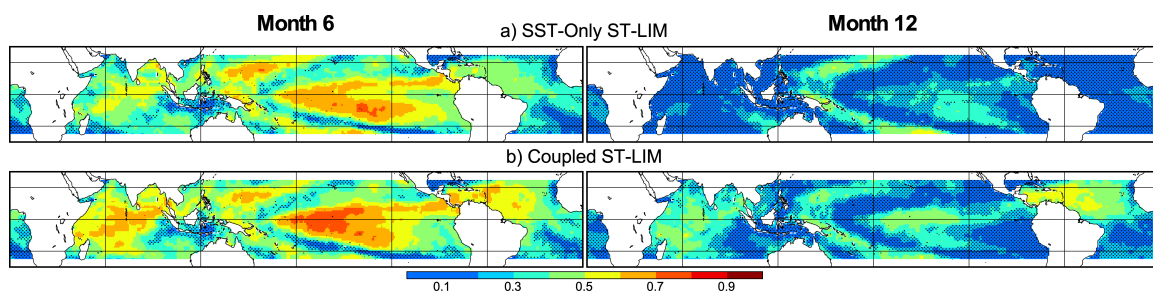


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39 **Fig. S5.** RMSE-based skill score of the Niño 3.4 Index at each verification month of the
 40 (Top-to-Bottom) NMME-mean, coupled CS-LIM, SST-only ST-LIM, and
 41 coupled ST-LIM, respectively.

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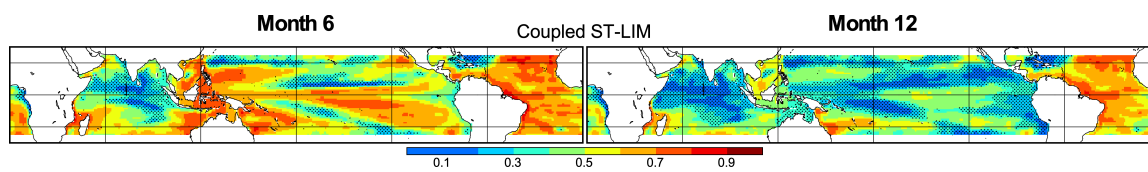


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45 **Fig. S6.** a) Local SST anomaly correlation skill of Month 6 (Left) and Month 12 (Right)
46 SST-only ST-LIM hindcasts in the 1982-2010 period. b) As in a), but of the
47 coupled ST-LIM hindcasts. Regions in a) and b) of insignificant skill at the 95%
48 confidence level are dotted.

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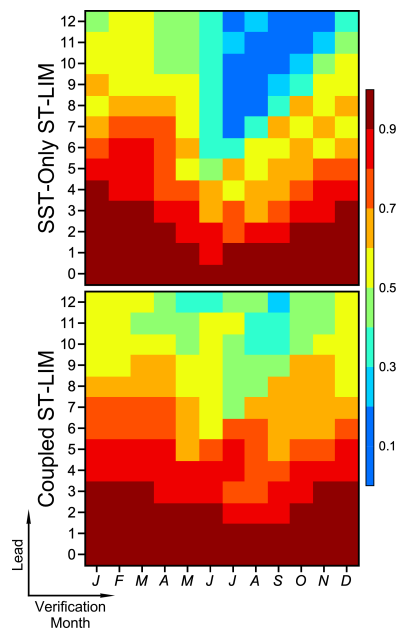


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52 **Fig. S7.** As in Fig. S6b, but for the SSH anomaly hindcasts. The regions where the
53 anomaly correlation skills are insignificant at 95% confidence level are dotted.

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57 **Fig. S8.** Niño 3.4 SST index anomaly correlation skill in each verification month of the
58 (Top) SST-only ST-LIM and (Bottom) coupled ST-LIM hindcasts.

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