Supplementary Information for

Main drivers of Indian ocean dipole asymmetry revealed by a simple model

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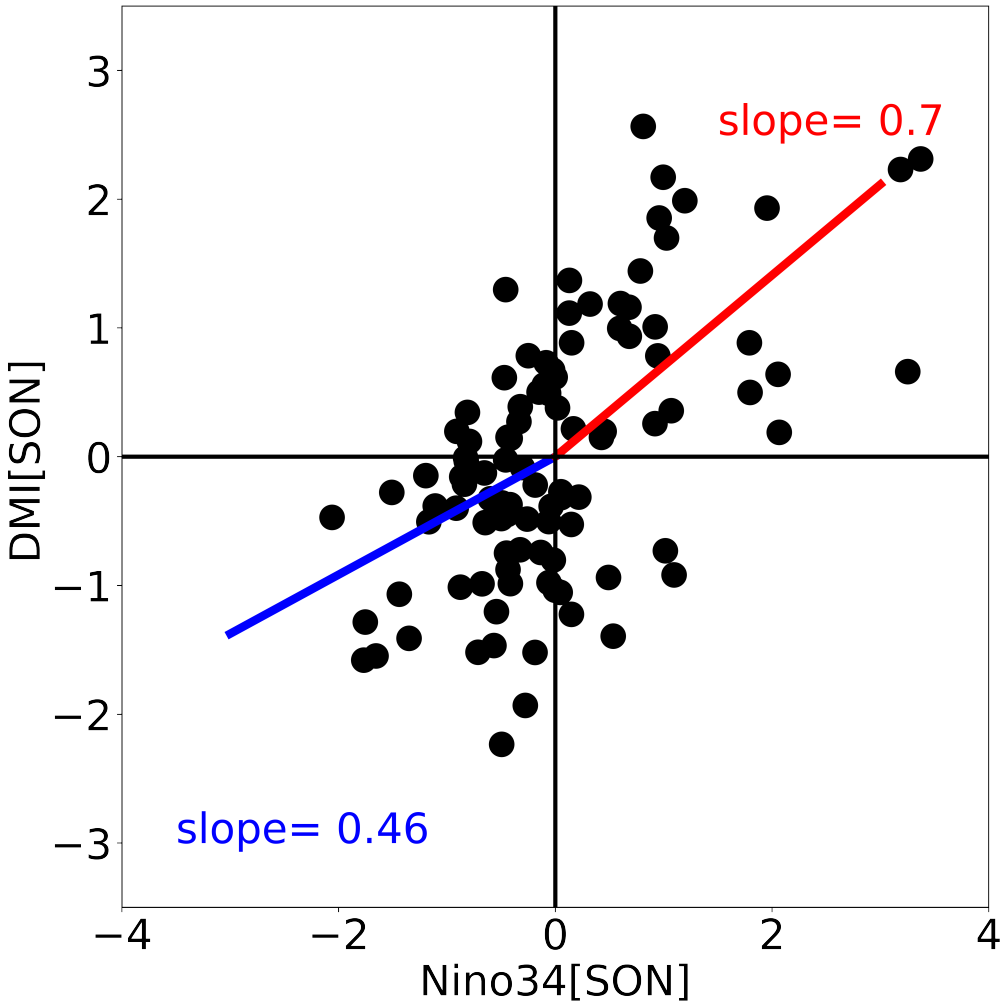
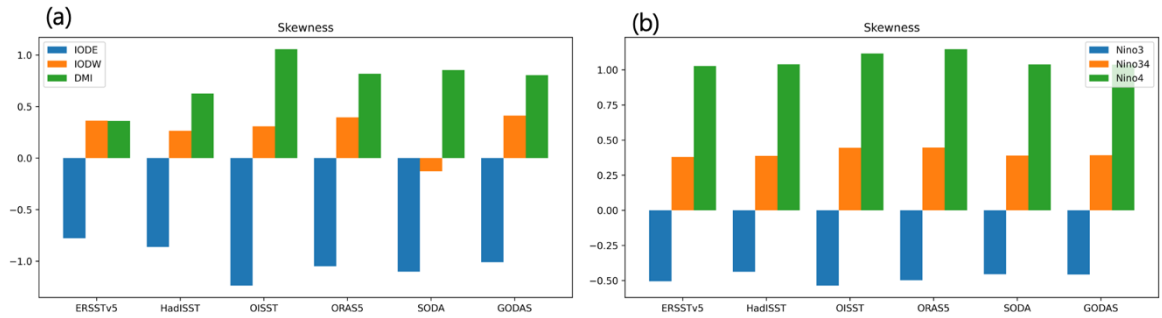
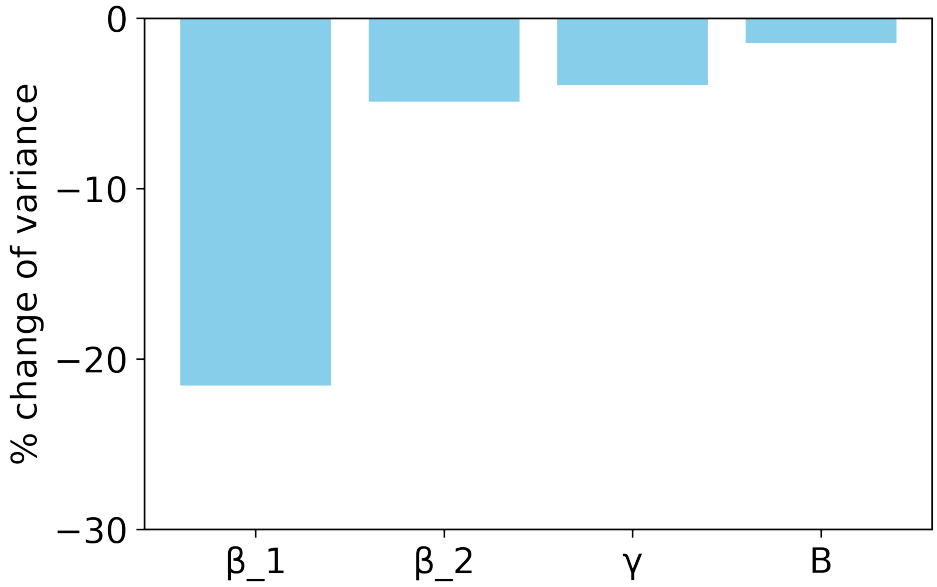


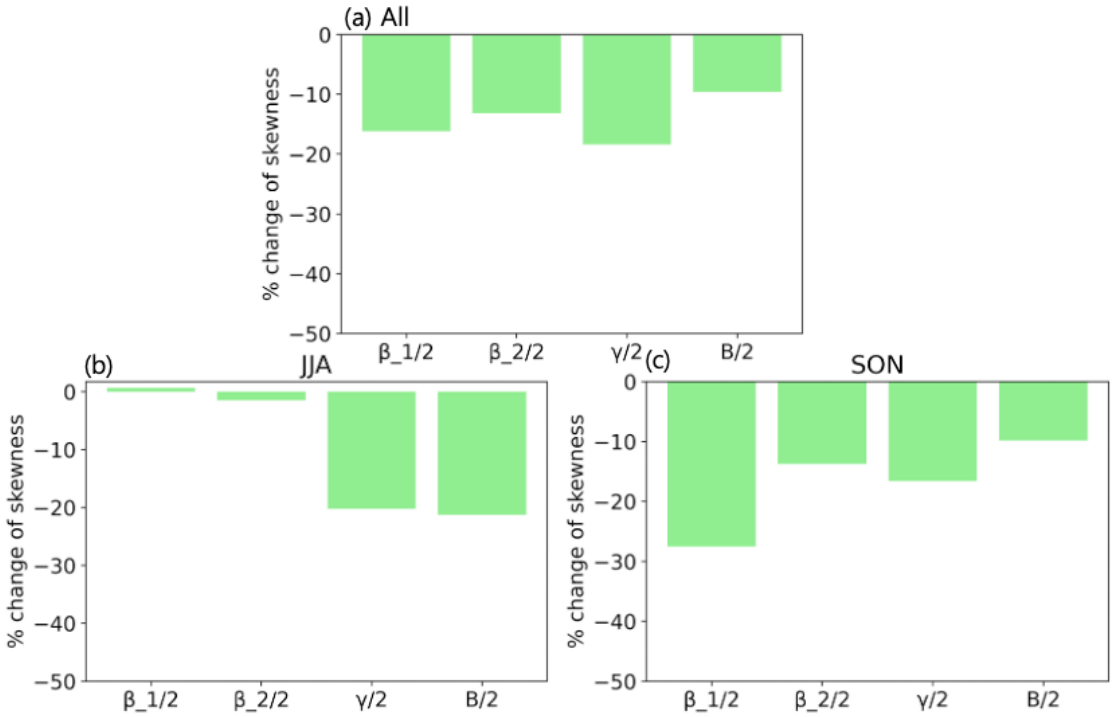
Supplementary Figure S1 Scatter plot between September-November (SON) Nino3.4 and SON DMI obtained from OISST. Regression coefficients of DMI against the positive (red line) and negative (blue line) Nino3.4 are 0.7 and 0.46, respectively. Units are ºC.



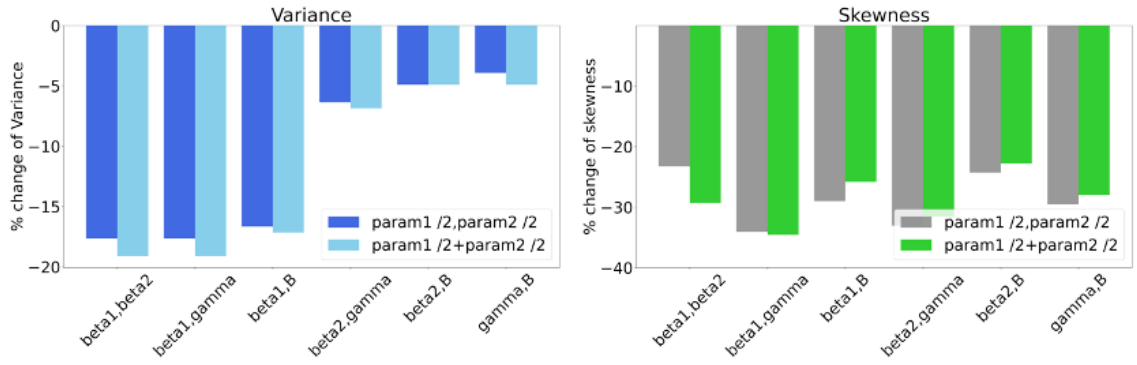
Supplementary Figure S2 Skewness of IOD and ENSO indices. (a) Skewness of IODW (SSTA averaged over western box in TIO; Orange bar), IODE (SSTA averaged over eastern box in TIO; Blue bar), and DMI (IODW minus IODE; Green bar) indices for September-to-November. (b) Skewness of Nino3 (blue bar), Nino3.4 (orange bar) and Nino4 (green bar) indices for December-to-Feburary. Unit are normalized third moment.



Supplementary Figure S3 Bar plot for variance sensitivity to each parameter. Change rate in variance for all months by removing one of processes in the nonlinear IOD model against that with whole processes. Omitted parameters are indicated in x-axis. Larger the negative values indicate stronger its effect on inducing variance.



Supplementary Figure 4 Bar plot for skewness sensitivity to each parameter. Change rate (%) in skewness for all months by reducing one of processes to be half in the nonlinear IOD model against that with whole processes. Reduced parameters are indicated in x-axis. Larger the negative values indicate stronger its effect on inducing skewness.



Supplementary Figure 5 Bar plot for IOD variance and skewness sensitivity to each parameter. Change rate in variance for all months by reducing one of processes to be half in the nonlinear IOD model against that with whole processes. Reduced parameters are indicated in x-axis. Larger the negative values indicate stronger its effect on inducing skewness