

Supplementary material for
Inter-model Robustness of the Forced Change of the ENSO-Indian Summer
Monsoon Teleconnection

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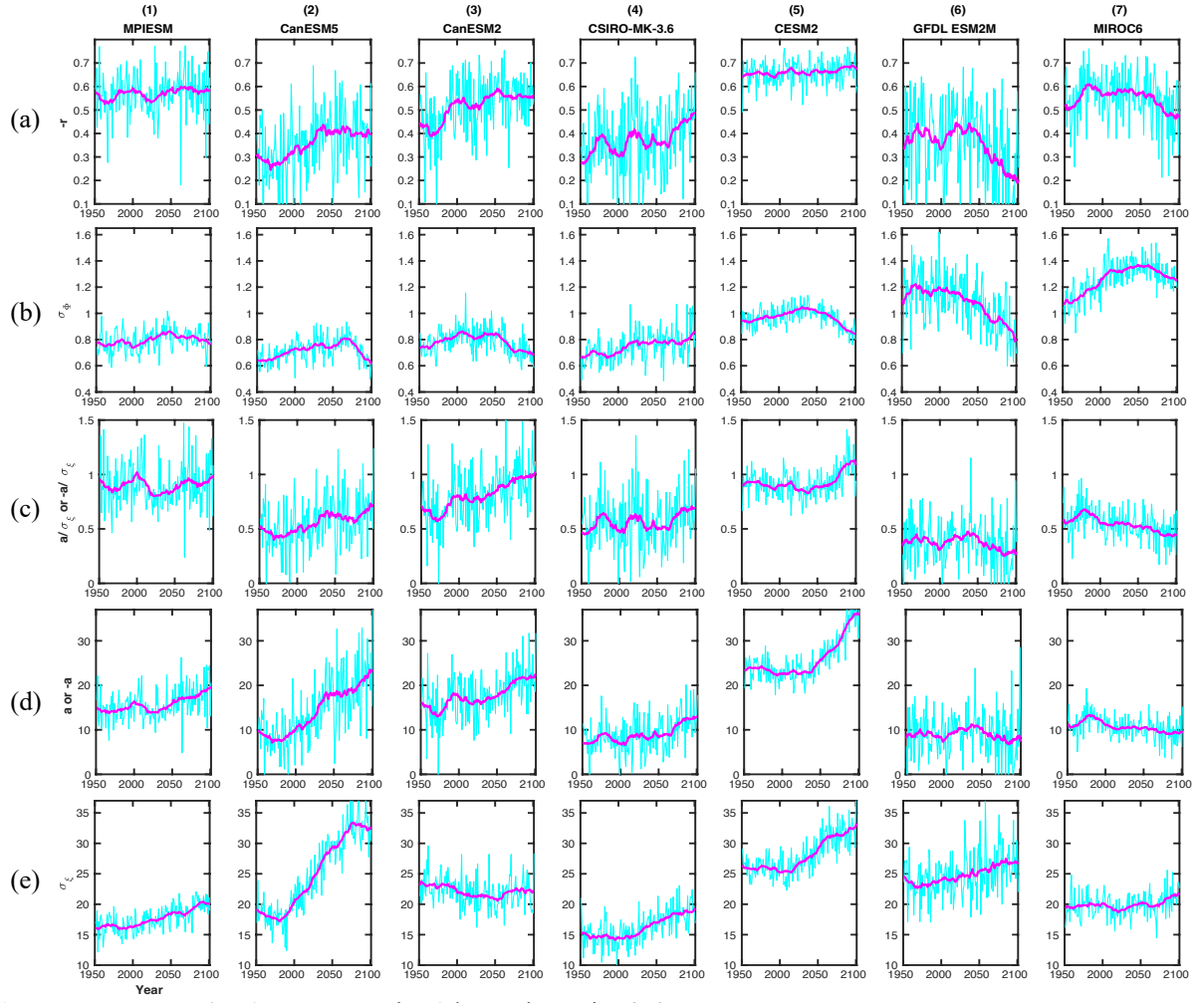
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Hungary

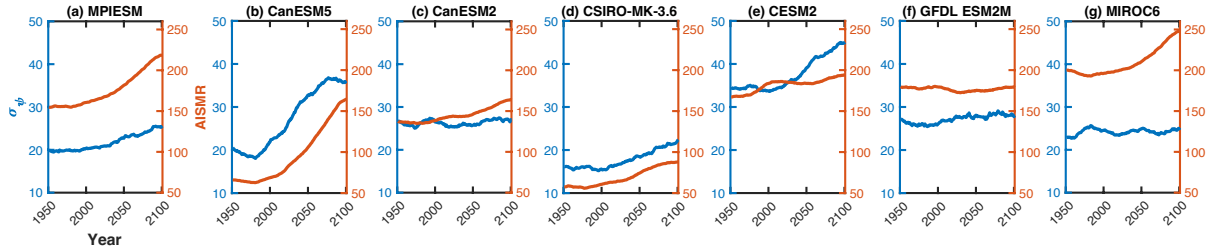
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Supplementary Table 1. Details of the models used. The name of the model, number of ensemble members, available period and future scenario used in the study.

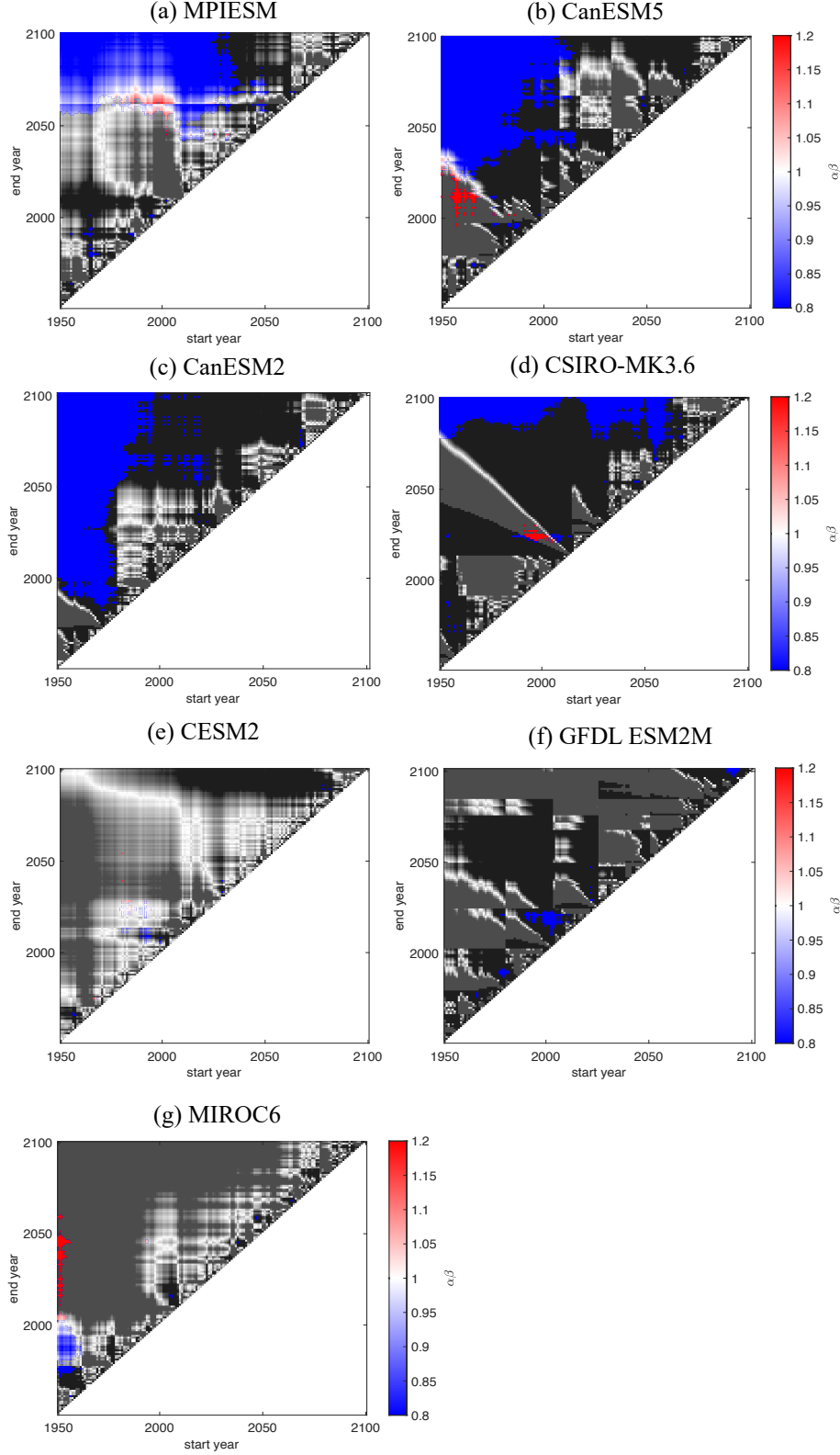
Model	No. of Members	Period	Scenario
CESM2	100	1850-2100	SSP 3-7.0
MPI-ESM	63	1850-2100	RCP 8.5
MIROC6	50	1850-2100	SSP5-8.5
CanESM5	50	1850-2100	SSP5-8.5
CanESM2	50	1950-2100	RCP 8.5
CSIRO-MK3.6	30	1850-2100	RCP 8.5
GFDL ESM2M	30	1950-2100	RCP 8.5



13 **Supplementary Fig. 1.** Same as Fig. 1 but using Niño3.4 SST.

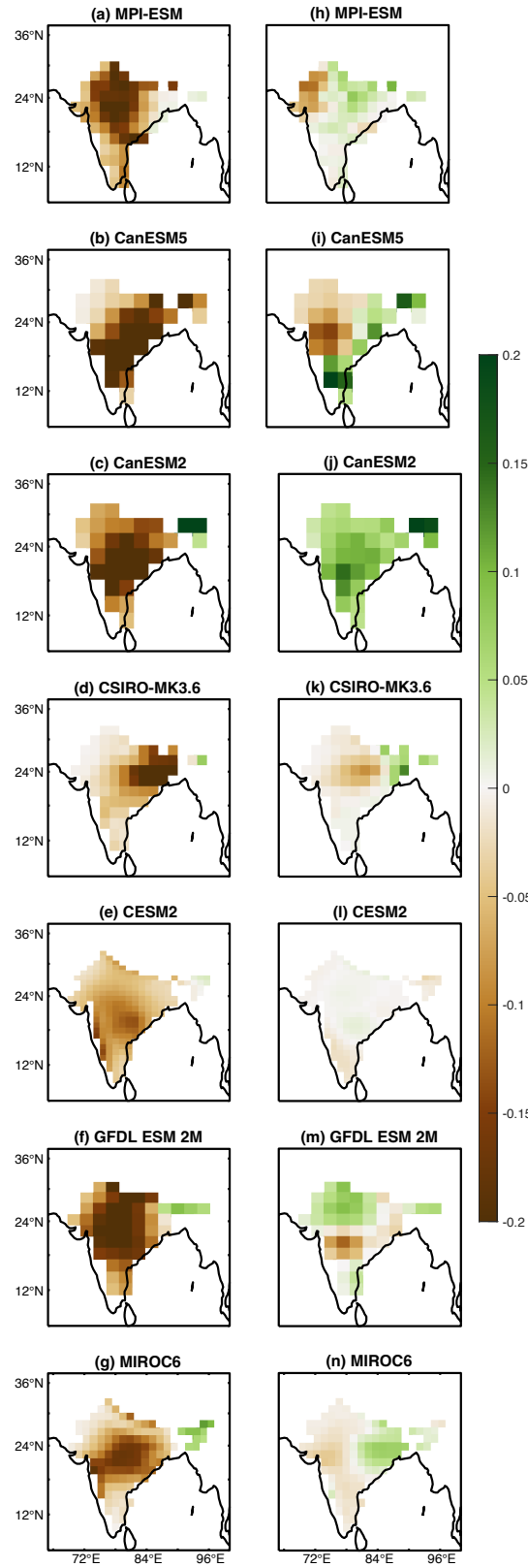


14 **Supplementary Fig. 2.** Forced evolution of the ISM rainfall. (a) to (g) show the smoothed ensemble-
 15 wise standard deviation (blue) and mean (auburn) of ISM rainfall (JJAS). Unit is in mm/month.



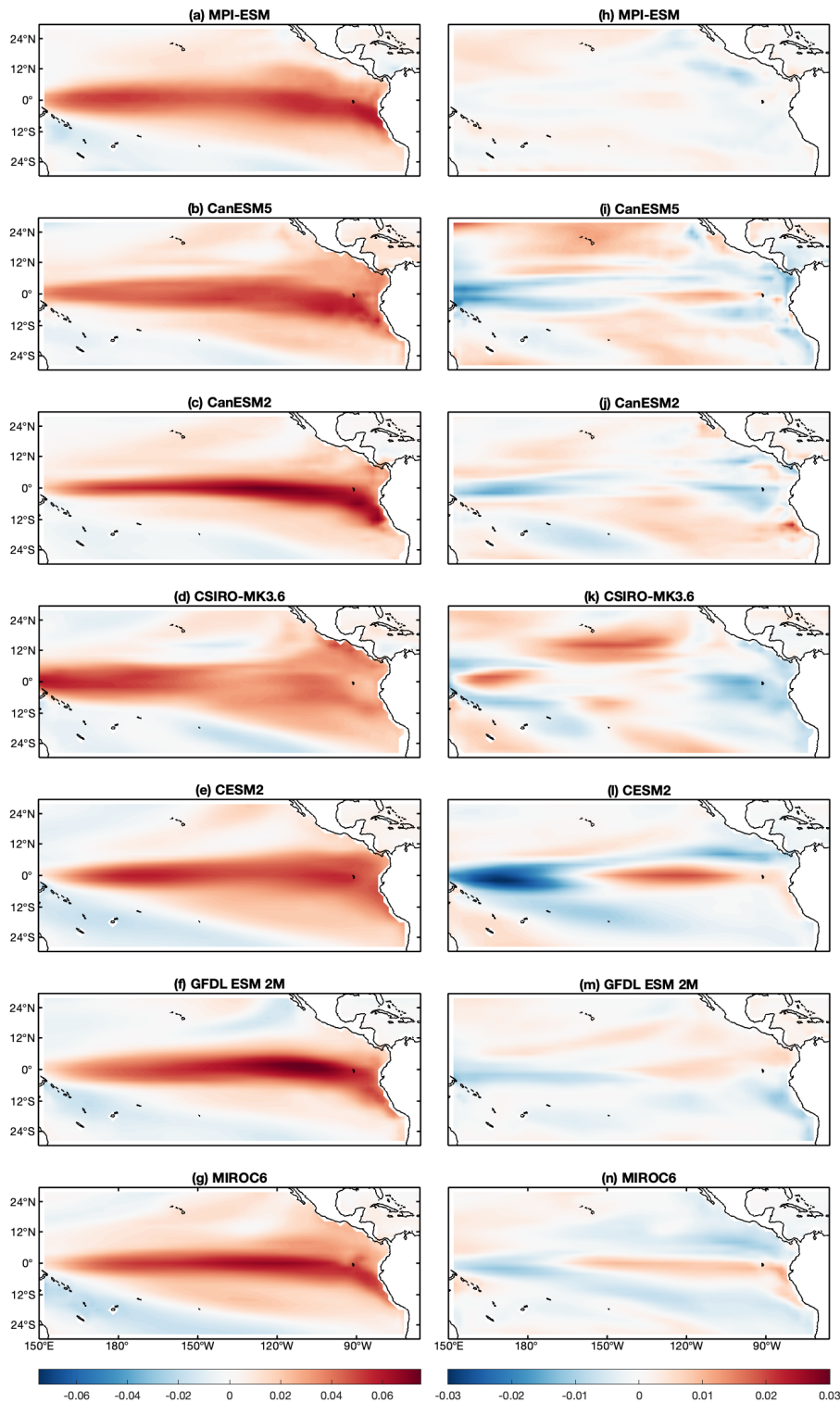
16 **Supplementary Fig. 3. Relative role of ENSO variability (σ_ϕ) and a/σ_ξ in increasing the**
 17 **correlation coefficient r .** The figure corresponds to Fig. 2, but shows the value of $\alpha\beta$, over the
 18 regions where the correlation coefficient ($-r$) shows significant increase in Fig. 2. The red-
 19 coloured regions are characterized by the dominance of ENSO variability over the a/σ_ξ , in

20 increasing the correlation coefficient ($-r$), whereas in the blue-coloured regions a/σ_ξ



21 **Supplementary Fig. 4. EOF patterns of the rainfall over Indian region and its future changes.** (a)
 22 to (g) displays the first or leading EOF pattern (EOF1) of precipitation over the Indian region during
 23 1950-2000 (during JJAS), from 7 models. Panels (h) to (n) show the difference in the EOF1 pattern:

24 “2050-2100 minus 1950-2000”. The EOF analysis is performed only over the parts of Indian region
 25 with sufficient rainfall observation record, as mentioned in the Fig.1 of Parthasarathy et al.³⁷.



26 **Supplementary Fig. 5. Leading EOF patterns of the tropical Pacific Ocean SST and its future**
 27 **changes.** Same as supplementary Fig. S4, but for the SST over the Pacific Ocean.