

# A Supplementary Figures

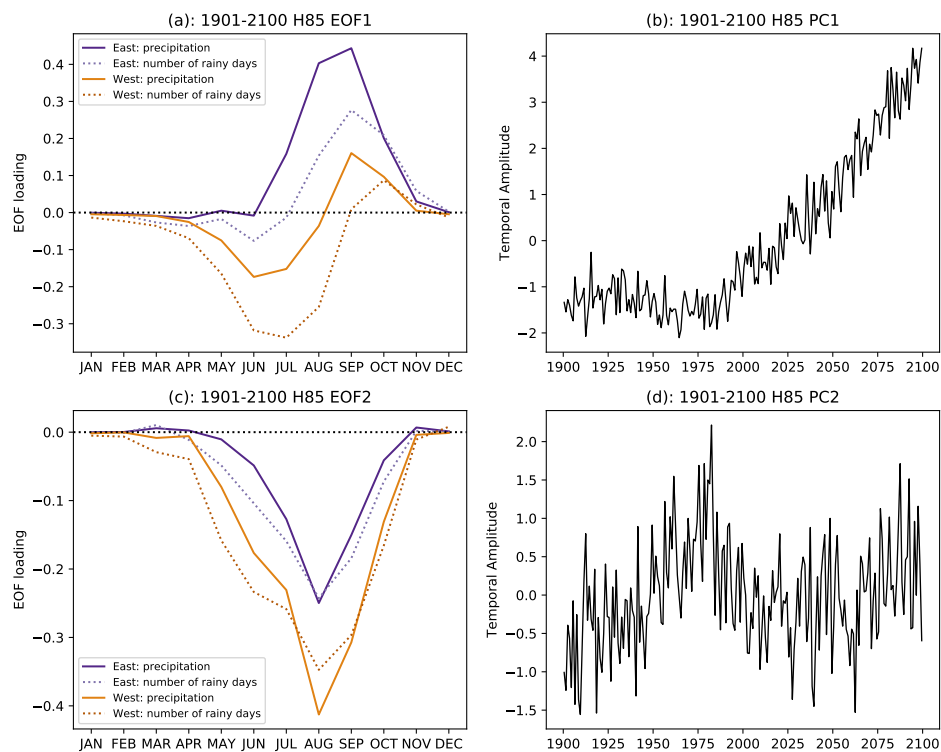


Figure 1: Fingerprints calculated using 1900-2100 H85 model simulations: (a) EOF1 and (b) the associated PC; (c) EOF2 and (d) the associated PC

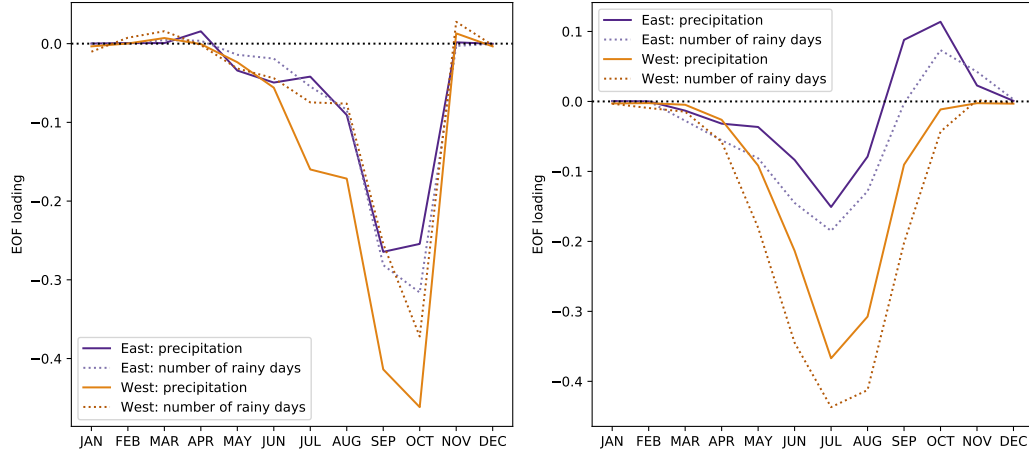


Figure 2: Fingerprints calculated using (a) CMIP5 aerosol-only "historicalMisc" simulations over the period 1900-2005 and (b) CMIP5 "1pctCO2" simulations

## B Supplementary Tables

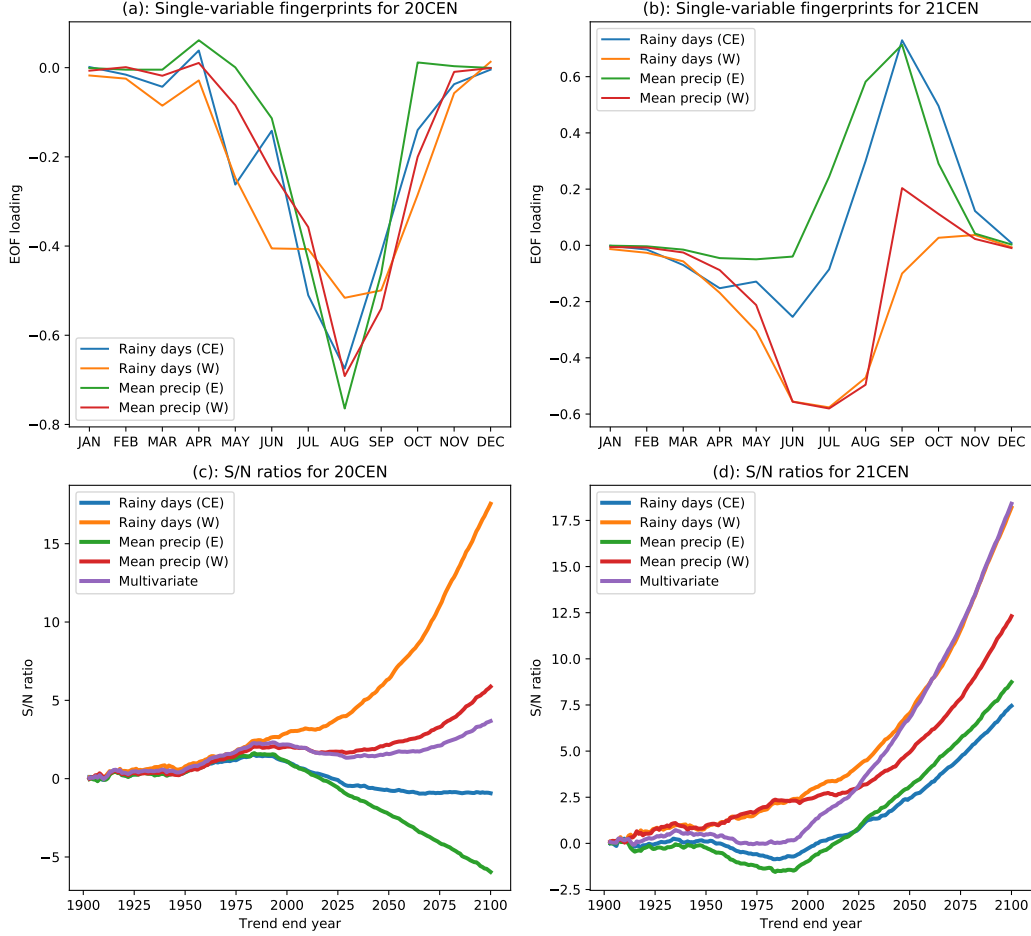


Figure 3: Single-variable fingerprints calculated from H85 simulations for (a) the 20th century and (b) the twenty-first century. We note the resemblance of these fingerprints to their counterparts in the multivariate fingerprints. (c): Multi-model average signal-to-noise ratio for the emergence of the 20CEN fingerprint in individual variables (d): Same as (c), but for the 21CEN fingerprint

Modeling group name	simulation ID
CCSM4	r1i1p1
CCSM4	r2i1p1
CESM1-CAM5	r1i1p1
CMCC-CM	r1i1p1
CMCC-CMS	r1i1p1
CNRM-CM5	r1i1p1
CSIRO-Mk3-6-0	r1i1p1
CanESM2	r1i1p1
CanESM2	r2i1p1
CanESM2	r3i1p1
CanESM2	r4i1p1
CanESM2	r5i1p1
GFDL-CM3	r1i1p1
HadGEM2-AO	r1i1p1
IPSL-CM5A-LR	r1i1p1
IPSL-CM5A-LR	r2i1p1
IPSL-CM5A-LR	r3i1p1
IPSL-CM5A-LR	r4i1p1
IPSL-CM5A-MR	r1i1p1
IPSL-CM5B-LR	r1i1p1
MIROC-ESM-CHEM	r1i1p1
MIROC-ESM	r1i1p1
MIROC5	r1i1p1
MIROC5	r2i1p1
MIROC5	r3i1p1
MPI-ESM-LR	r1i1p1
MPI-ESM-LR	r2i1p1
MPI-ESM-LR	r3i1p1
MPI-ESM-MR	r1i1p1
NorESM1-M	r1i1p1
inmcm4	r1i1p1

Table 1: Spliced historical-RCP8.5 simulations used

CNRM-CM5	r1i1p1
GFDL-CM3	r1i1p1
IPSL-CM5B-LR	r1i1p1
MIROC5	r1i1p1
NorESM1-M	r1i1p1
bcc-csm1-1	r1i1p1

Table 2: Model pre-industrial control simulation output used

CESM1-BGC	r1i1p1
CESM1-BGC	r1i1p2
CMCC-CM	r1i1p1
CNRM-CM5	r1i1p1
CSIRO-Mk3-6-0	r1i1p1
CanESM2	r1i1p1
FGOALS-s2	r1i1p1
GFDL-ESM2G	r1i1p2
GFDL-ESM2M	r1i1p1
GFDL-ESM2M	r1i1p2
IPSL-CM5A-LR	r1i1p1
IPSL-CM5A-MR	r1i1p1
MIROC5	r1i1p1
MPI-ESM-MR	r1i1p1
MPI-ESM-P	r1i1p1
MRI-CGCM3	r1i1p1
NorESM1-M	r1i1p1
bcc-csm1-1-m	r1i1p1
bcc-csm1-1	r1i1p1
inmcm4	r1i1p1

Table 3: CMIP5 1pctCO2 simulation output used

CCSM4	r1i1p10
CCSM4	r4i1p10
CCSM4	r6i1p10
CSIRO-Mk3-6-0	r1i1p4
CanESM2	r1i1p4
CanESM2	r2i1p4
CanESM2	r3i1p4
CanESM2	r4i1p4
GFDL-CM3	r1i1p1
GFDL-CM3	r5i1p1

Table 4: CMIP5 historicalMisc aerosol-only simulation output used