



Figure S 1. Major geographic regions in the UNSD geo-scheme as used herein. The island regions Micronesia and Polynesia are not included due to lack of data.

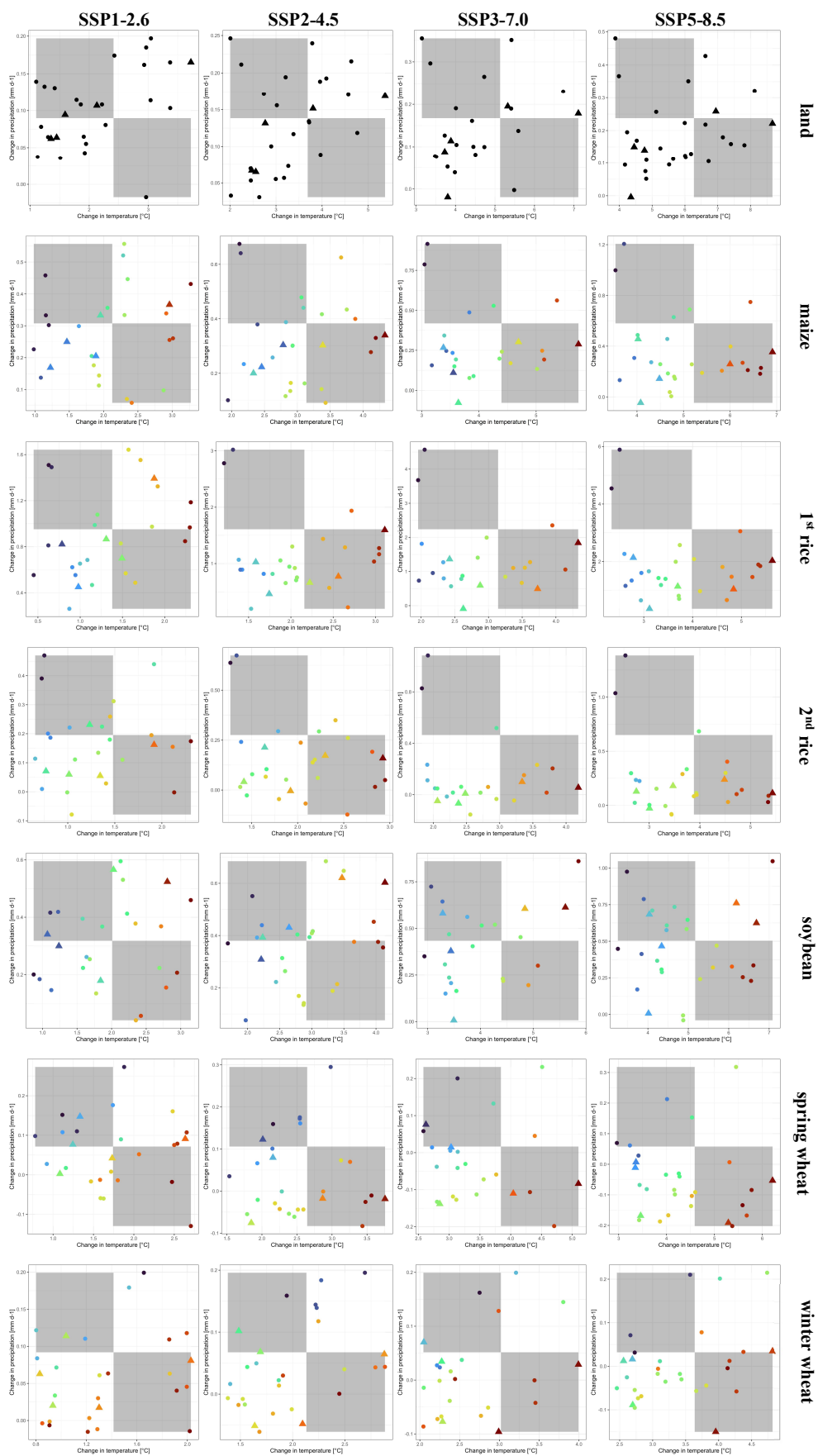


Figure S 2. Changes in mean annual temperature and precipitation over land across the four SSPs for the whole land mask (first row) or harvested area-weighted changes in growing season temperature and precipitation for individual crops and their seasons (from second row down). In the latter, colors indicate change in yields towards relatively higher (blue) or relatively lower values (red). The five ISIMIP priority GCMs are shown as triangles, all other GCMs as points.

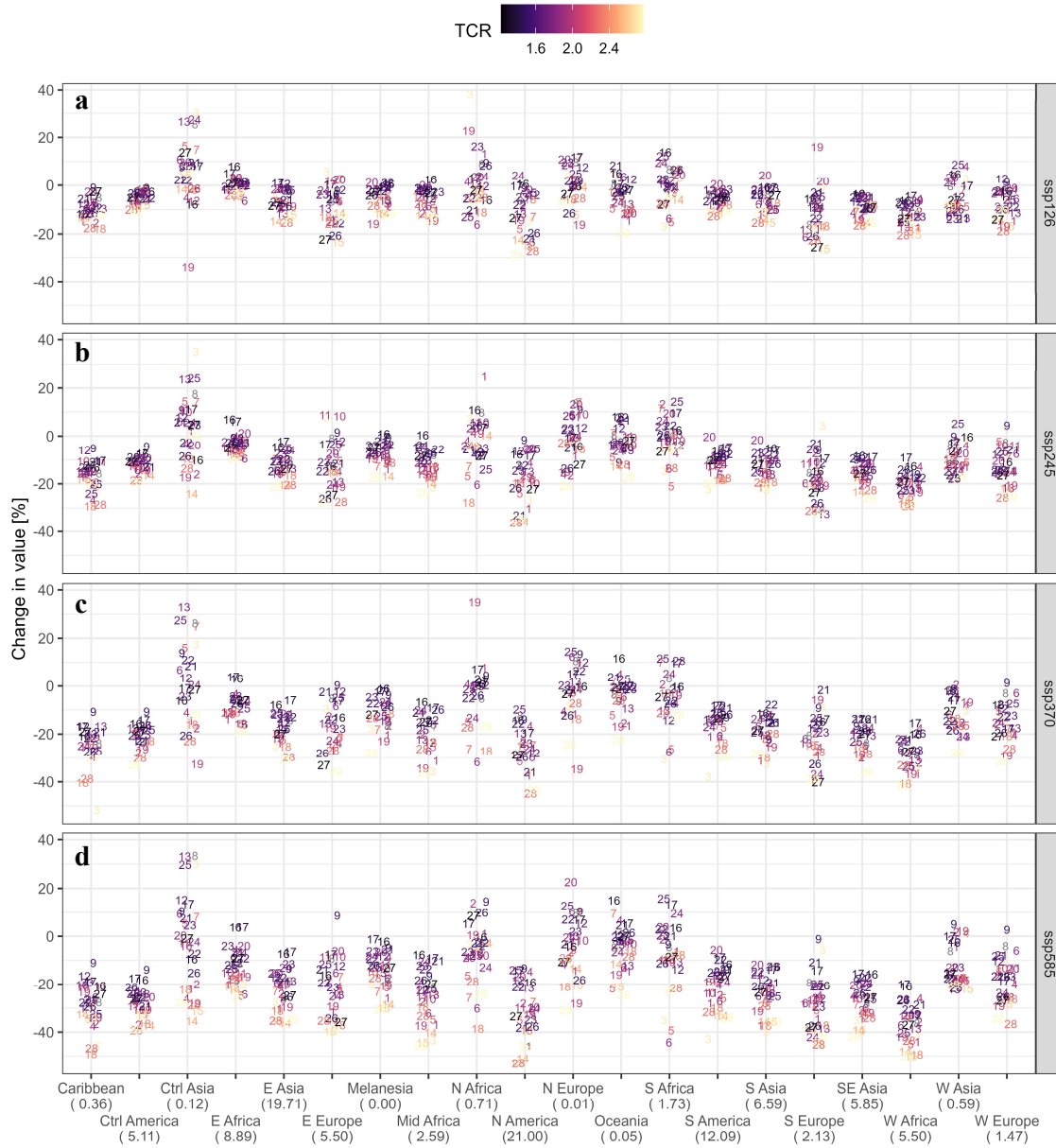


Figure S 3. Same as Figure 2 in main body but for major UN regions and maize yields only.

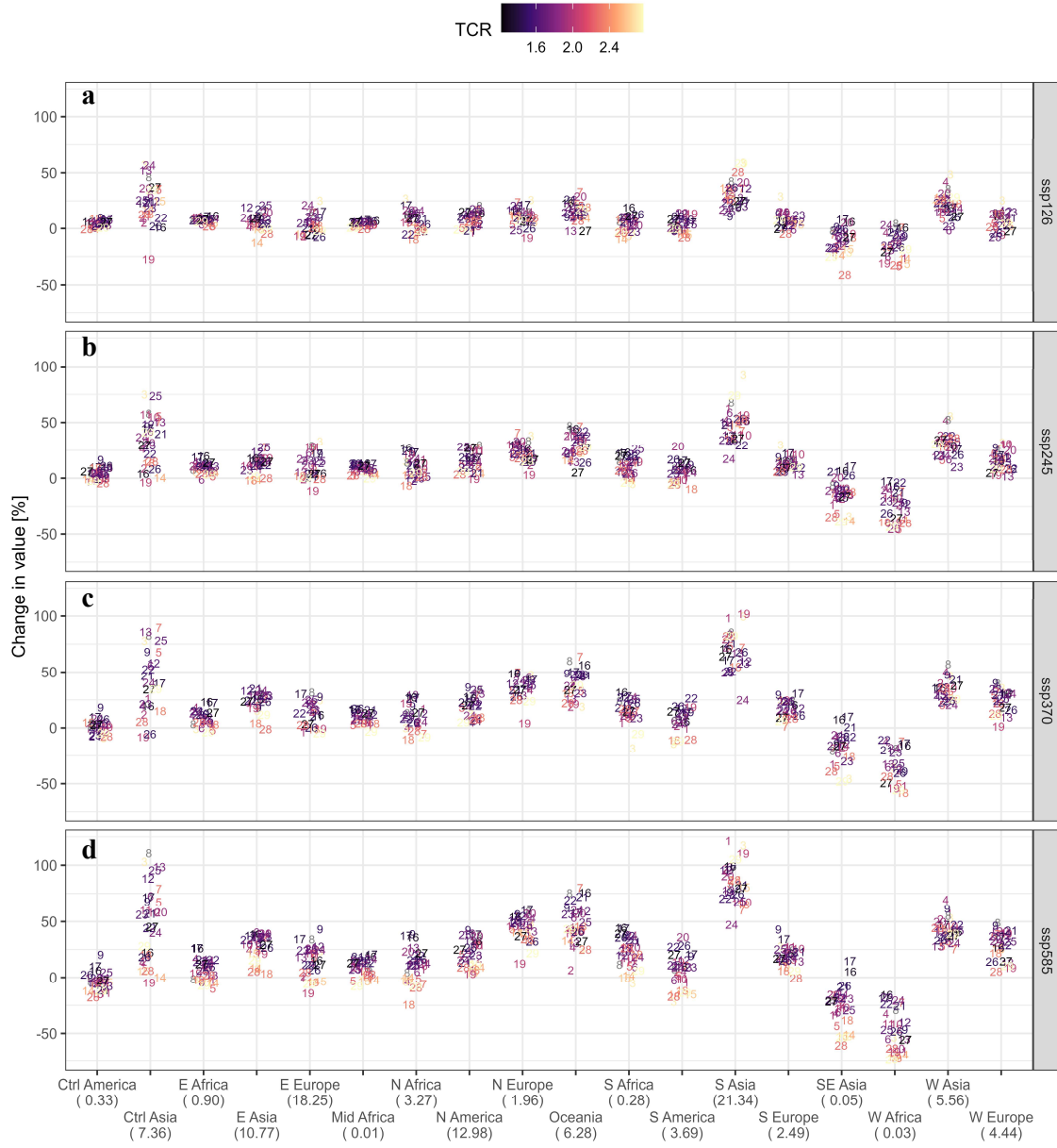


Figure S 4. Same as Figure 2 in the main body but for major UN regions and wheat yields only.

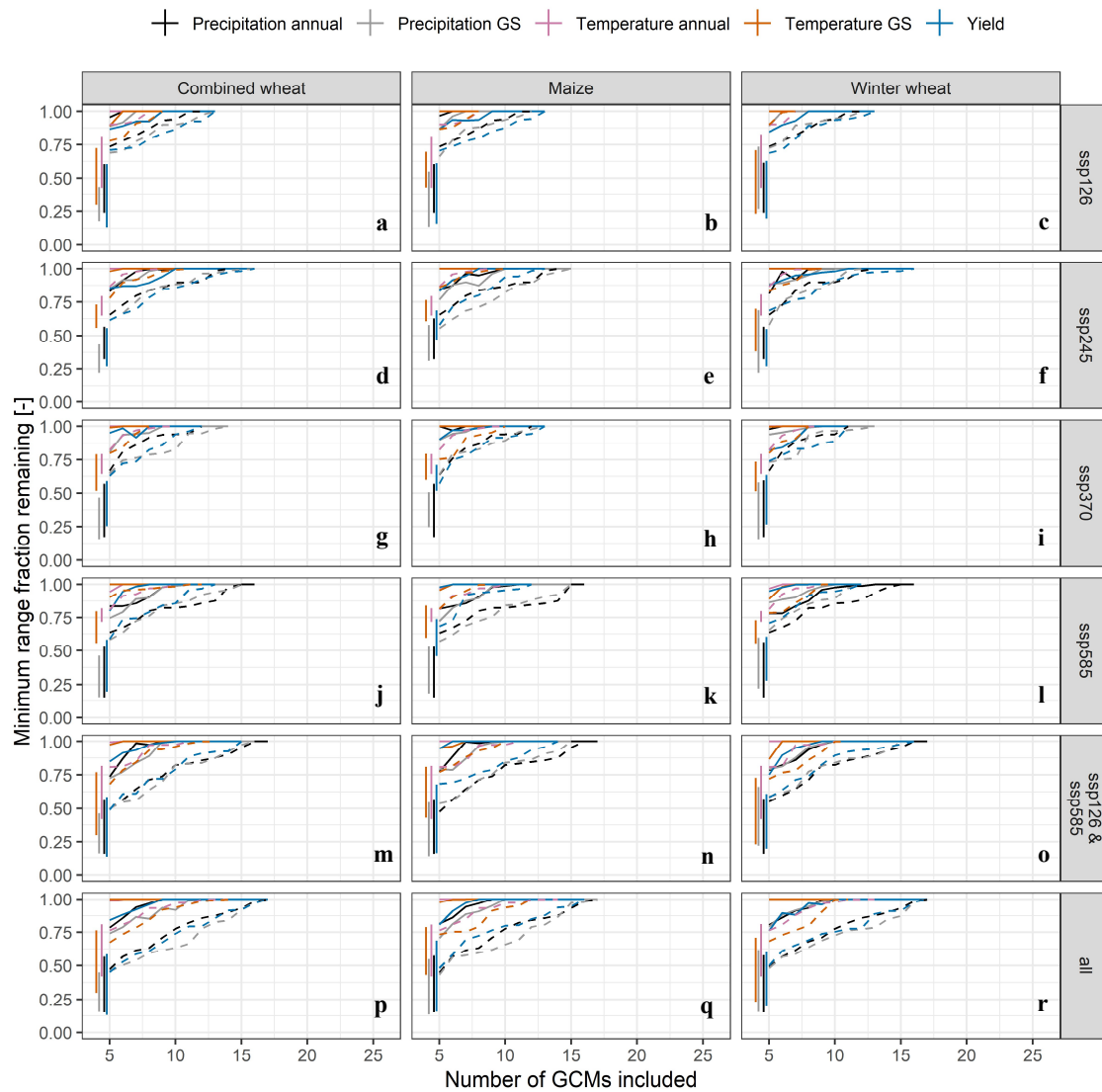


Figure S 5. Same as Figure 4 in the main body but for the GCM ensemble constrained by TCR in the likely range.

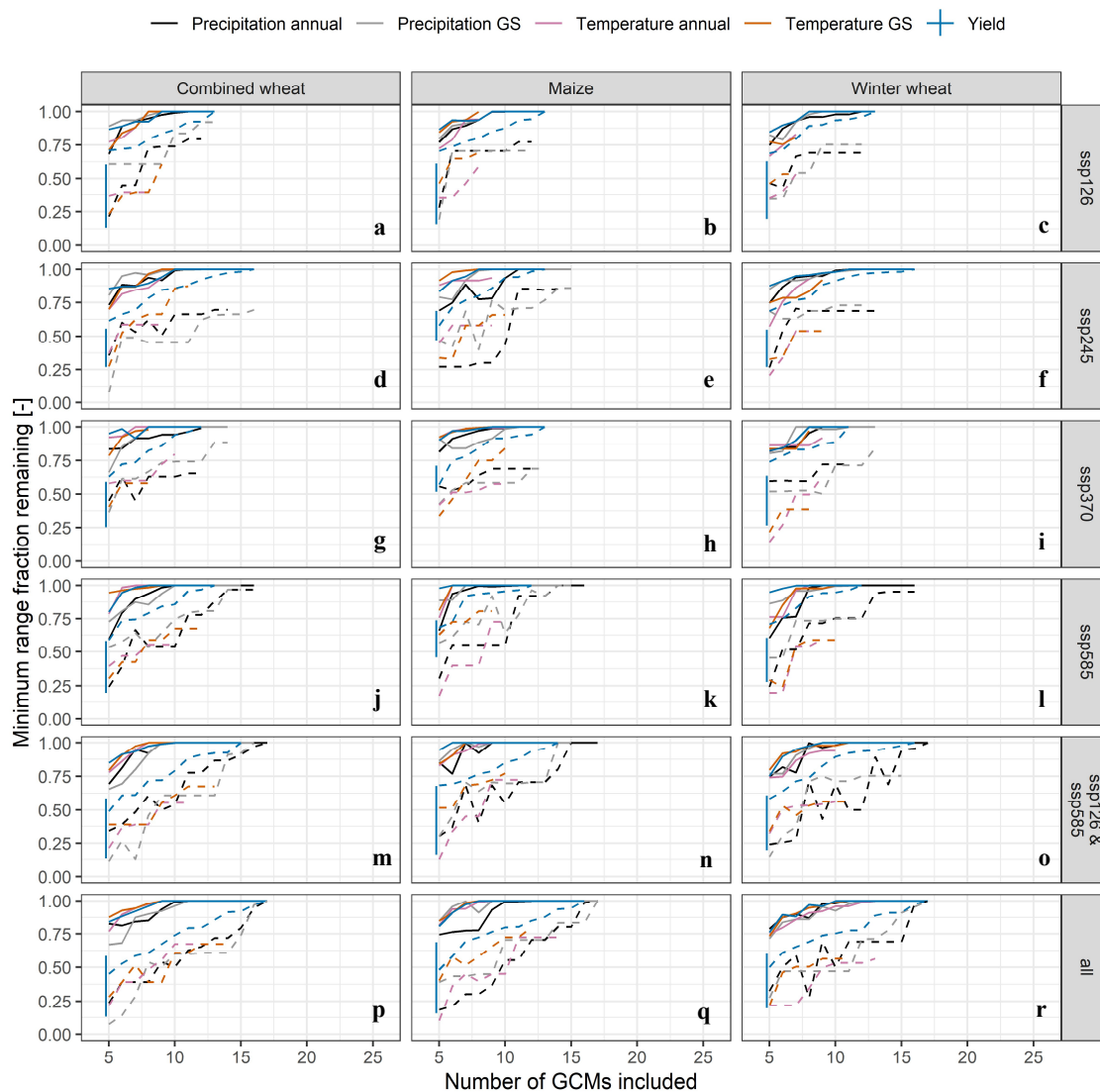


Figure S 6. Same as Figure 5 in the main body but for the GCM ensemble constrained by TCR in the likely range.

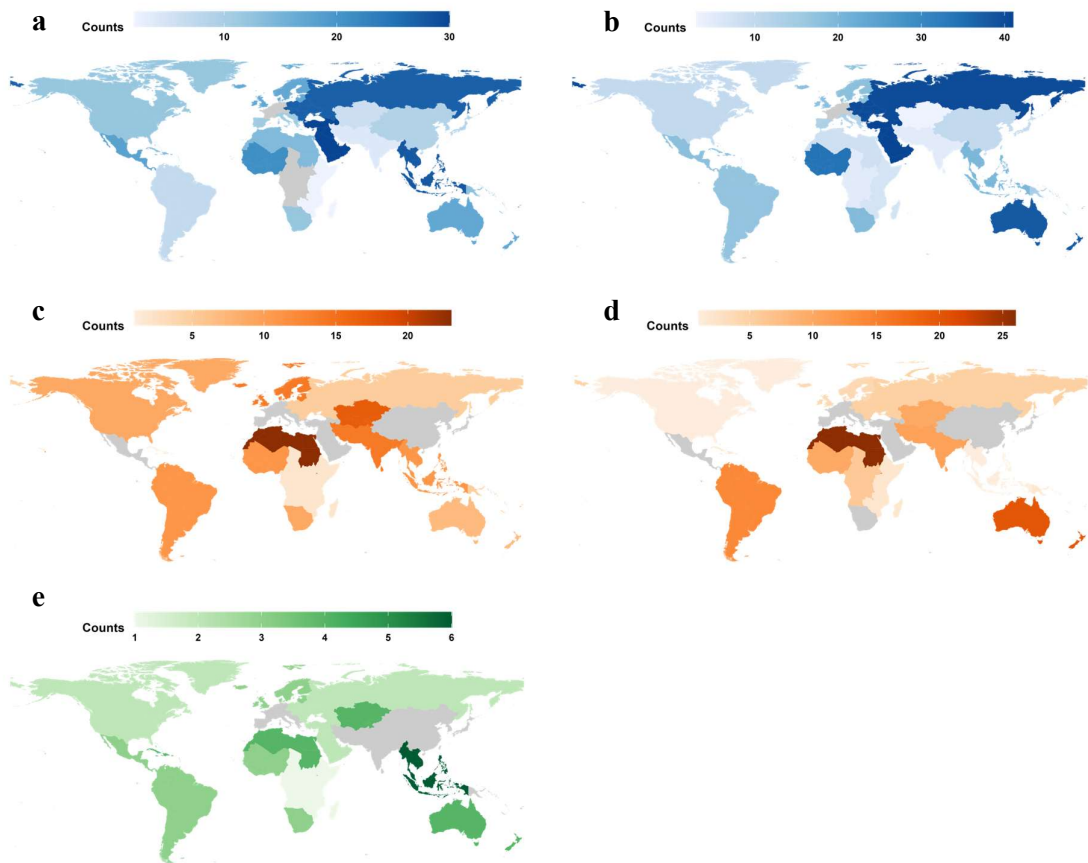


Figure S 7. Same as Figure 6 in the main body but showing absolute numbers.

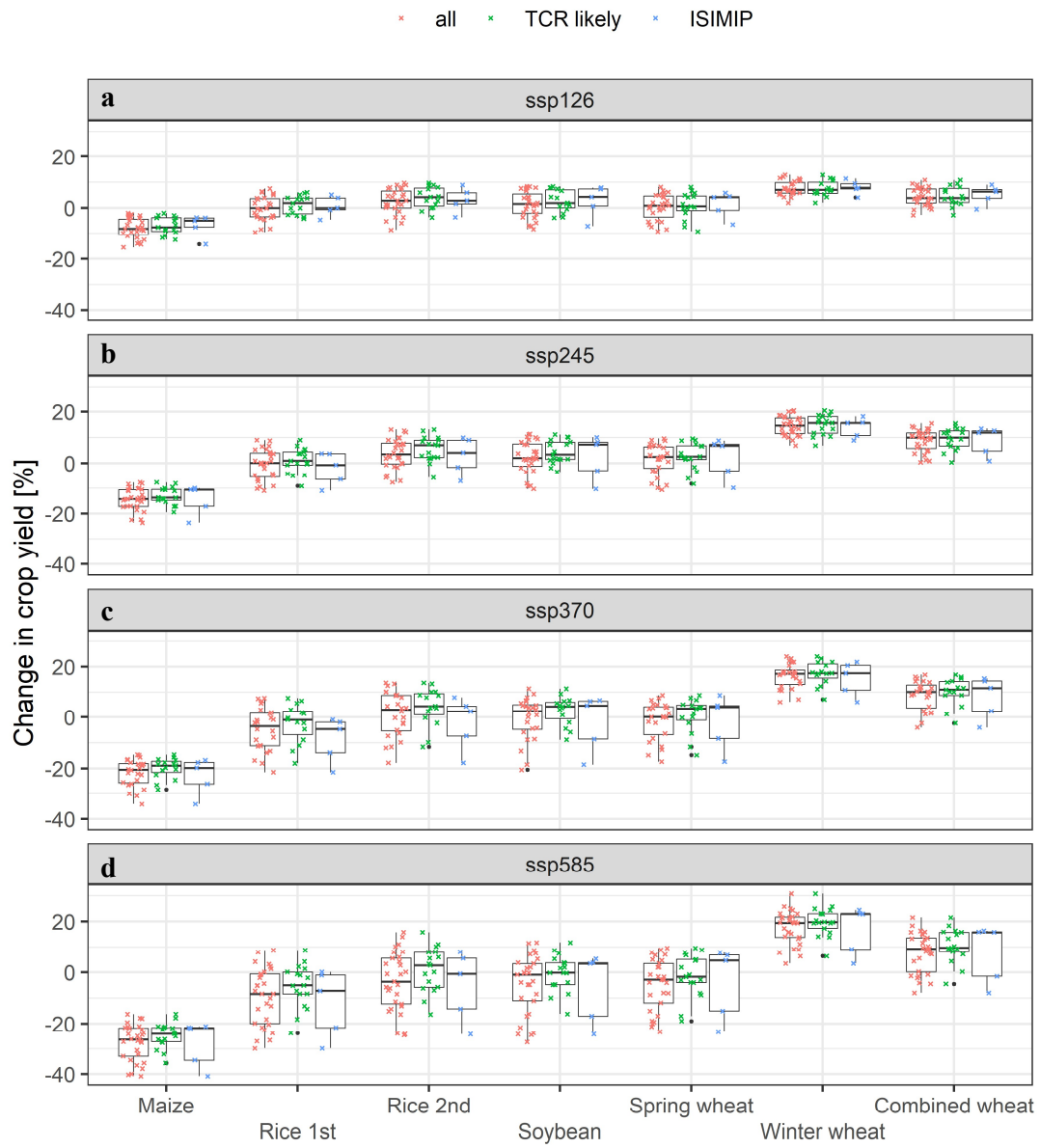


Figure S 8. Same as Figure 7 in the main body but for crop yields under sufficient irrigation.

Table S 1. Climate projections included in the study, the underlying GCM, availability per SSP, classification of transient climate response (TCR) as in likely range (x) following (Hausfather et al., 2022) or not (blank), and numeric running ID.

GCM	ssp126	ssp245	ssp370	ssp585	TCR likely	ID
ACCESS-CM2	x	x	x	x	x	1
ACCESS-ESM1-5	x	x	x	x	x	2
CanESM5	x	x	x	x		3
CMCC-ESM2	x	x	x	x	x	4
CNRM-CM6-1	x	x	x	x		5
CNRM-ESM2-1	x	x	x	x	x	6
EC-Earth3	x	x	x	x		7
EC-Earth3-Veg-LR	x	x	x	x		8
FGOALS-g3	x	x	x	x	x	9
GFDL-CM4_gr1		x		x	x	10
GFDL-CM4_gr2		x		x	x	11
GFDL-ESM4	x	x	x	x	x	12
GISS-E2-1-G	x	x	x	x	x	13
HadGEM3-GC31-LL	x	x		x		14
HadGEM3-GC31-MM	x			x		15
INM-CM4-8	x	x	x	x		16
INM-CM5-0	x	x	x	x	x	17
IPSL-CM6A-LR	x	x	x	x		18
KACE-1-0-G	x	x	x	x	x	19
KIOST-ESM	x	x		x		20
MIROC-ES2L	x	x	x	x	x	21
MIROC6	x	x	x	x	x	22
MPI-ESM1-2-HR	x	x	x	x	x	23
MPI-ESM1-2-LR	x	x	x	x	x	24
MRI-ESM2-0	x	x	x	x	x	25
NorESM2-LM	x	x	x	x	x	26
NorESM2-MM	x	x	x	x		27
TaiESM1	x	x	x	x		28
UKESM1-0-LL	x	x	x	x		29
Total GCMs	27	28	24	29		
GCMs in TCR likely	15	17	15	17		