

Table S1. Spatial characteristics of annual SPEI trend (/decade) in 2018–2040.

	BNU-ESM						CESM1-CAM5						GFDL-ESM2M					
	RCP2.6		RCP4.5		RCP8.5		RCP2.6		RCP4.5		RCP8.5		RCP2.6		RCP4.5		RCP8.5	
	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
Min	0.53	0.44	0.17	0.30	0.07	0.00	0.42	0.37	-0.43	0.28	0.25	0.41	0.42	0.55	0.42	–	0.23	0.41
Max	1.00	0.70	0.62	0.82	1.07	0.99	0.98	1.07	-0.57	0.85	0.67	0.88	1.00	0.84	0.66	–	0.90	0.94
Mean	0.74	0.58	0.33	0.53	0.25	0.45	0.66	0.65	-0.52	0.60	0.47	0.68	0.73	0.68	0.54	–	0.59	0.58
Std	0.10	0.04	0.10	0.12	0.16	0.10	0.10	0.12	0.02	0.09	0.10	0.08	0.10	0.06	0.04	–	0.14	0.09
CV (%)	12.96	7.76	31.92	23.09	65.06	21.48	15.62	18.18	-3.91	15.54	20.79	12.33	13.31	8.96	7.34	–	23.76	15.39
PA (%)	2.44	0.74	0.84	1.30	5.58	3.45	4.47	3.08	0.04	3.15	2.53	0.74	11.22	1.34	1.22	–	6.45	1.31

Note: Min, Max, Mean, Std, CV, and PA represent the minimum, maximum, mean, standard deviation, coefficient of variation, and percent area, respectively. ↓ and ↑ indicate significant decreasing and increasing trends at 95% significance level, respectively. – indicates that the significant trend was not detected at 95% significance level.

Table S2. Spatial characteristics of annual SPEI trend (/decade) in 2041-2070.

	BNU-ESM						CESM1-CAM5						GFDL-ESM2M					
	RCP2.6		RCP4.5		RCP8.5		RCP2.6		RCP4.5		RCP8.5		RCP2.6		RCP4.5		RCP8.5	
	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
Min	0.34	0.38	0.31	0.37	0.00	0.20	0.35	0.34	0.28	0.30	0.23	0.31	0.35	–	0.33	0.33	0.26	0.33
Max	0.56	0.56	0.93	0.52	0.97	0.62	0.67	0.63	0.68	0.54	0.71	0.58	0.58	–	0.65	0.43	0.94	0.60
Mean	0.44	0.46	0.55	0.42	0.28	0.31	0.47	0.47	0.48	0.41	0.47	0.41	0.46	–	0.48	0.37	0.46	0.44
Std	0.04	0.03	0.11	0.02	0.12	0.06	0.05	0.06	0.09	0.06	0.08	0.06	0.04	–	0.06	0.02	0.12	0.06
CV (%)	8.74	6.58	19.24	4.87	43.57	19.69	11.23	13.85	18.93	14.23	17.07	15.11	9.05	–	12.73	6.26	26.50	13.69
PA (%)	3.30	1.54	21.34	0.63	5.71	0.21	6.00	2.94	3.50	1.41	28.36	0.73	4.13	–	7.44	0.01	16.35	3.80

Note: Min, Max, Mean, Std, CV, and PA represent the minimum, maximum, mean, standard deviation, coefficient of variation, and percent area, respectively. ↓ and ↑ indicate significant decreasing and increasing trends at 95% significance level, respectively. – means that the significant trend was not detected at 95% significance level.

Table S3. Spatial characteristics of annual SPEI trend (/decade) in 2071-2100.

	BNU-ESM						CESM1-CAM5						GFDL-ESM2M					
	RCP2.6		RCP4.5		RCP8.5		RCP2.6		RCP4.5		RCP8.5		RCP2.6		RCP4.5		RCP8.5	
	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
Min	0.31	0.39	0.29	0.31	0.06	0.00	0.31	0.38	0.32	0.37	0.21	0.31	0.36	0.36	0.29	0.35	0.18	–
Max	0.64	0.46	0.78	0.57	0.81	1.01	0.64	0.59	0.74	0.44	0.97	0.69	0.60	0.54	0.77	0.67	0.82	–
Mean	0.48	0.44	0.49	0.38	0.16	0.59	0.51	0.47	0.46	0.39	0.50	0.54	0.46	0.45	0.52	0.51	0.46	–
Std	0.07	0.01	0.07	0.05	0.07	0.11	0.06	0.04	0.06	0.02	0.15	0.08	0.06	0.02	0.09	0.08	0.11	–
CV (%)	14.63	2.11	15.00	12.07	44.17	18.43	11.00	9.24	13.47	4.18	29.98	13.94	12.38	3.81	16.95	16.59	24.52	–
PA (%)	5.11	0.02	17.60	0.61	24.43	4.60	2.98	0.51	4.60	0.03	29.04	0.47	1.34	0.06	6.36	2.13	25.74	–

Note: Min, Max, Mean, Std, CV, and PA represent the minimum, maximum, mean, standard deviation, coefficient of variation, and percent area, respectively. ↓ and ↑ indicate significant decreasing and increasing trends at 95% significance level, respectively. – means that the significant trend was not detected at 95% significance level.

Future (2018-2040)

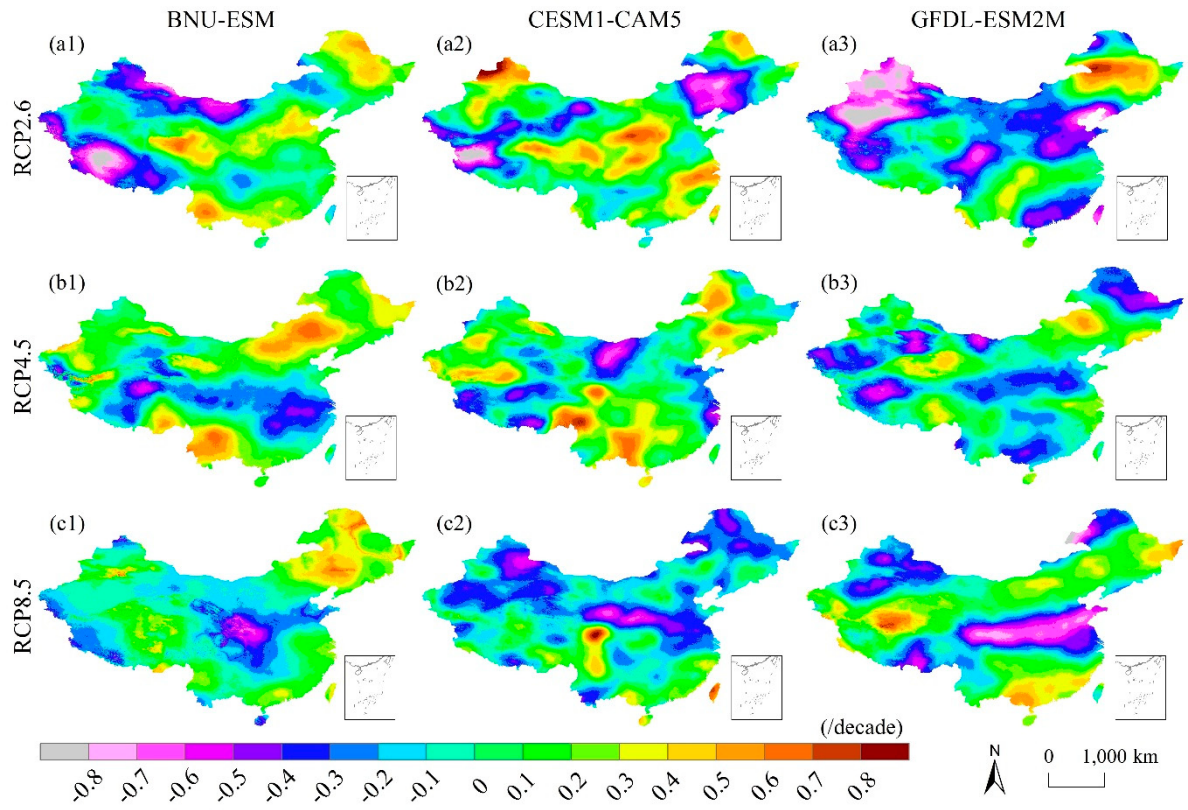


Figure S1. Spatial patterns of trend magnitude in annual SPEI variations during beginning-of-century (2018–2040).

Future (2041-2070)

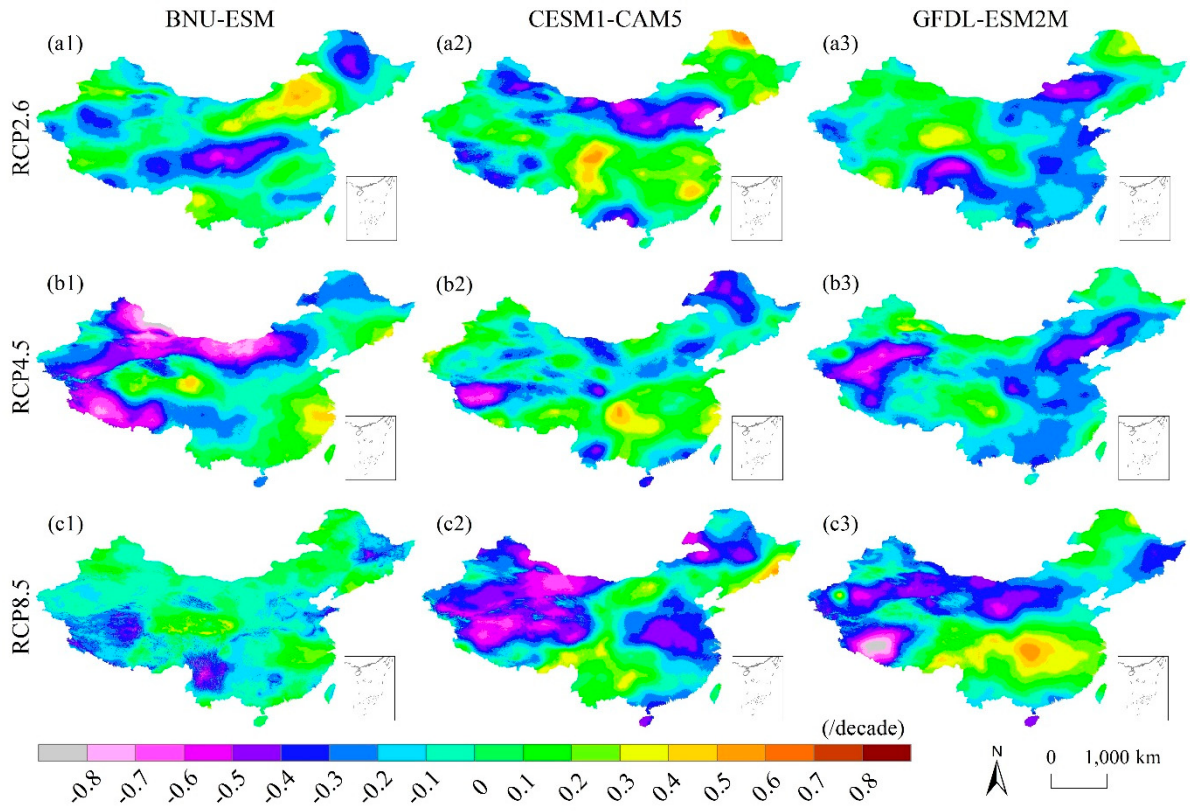


Figure S2. Spatial patterns of trend in mid-century annual SPEI variations during (2041-2070).

Future (2071-2100)

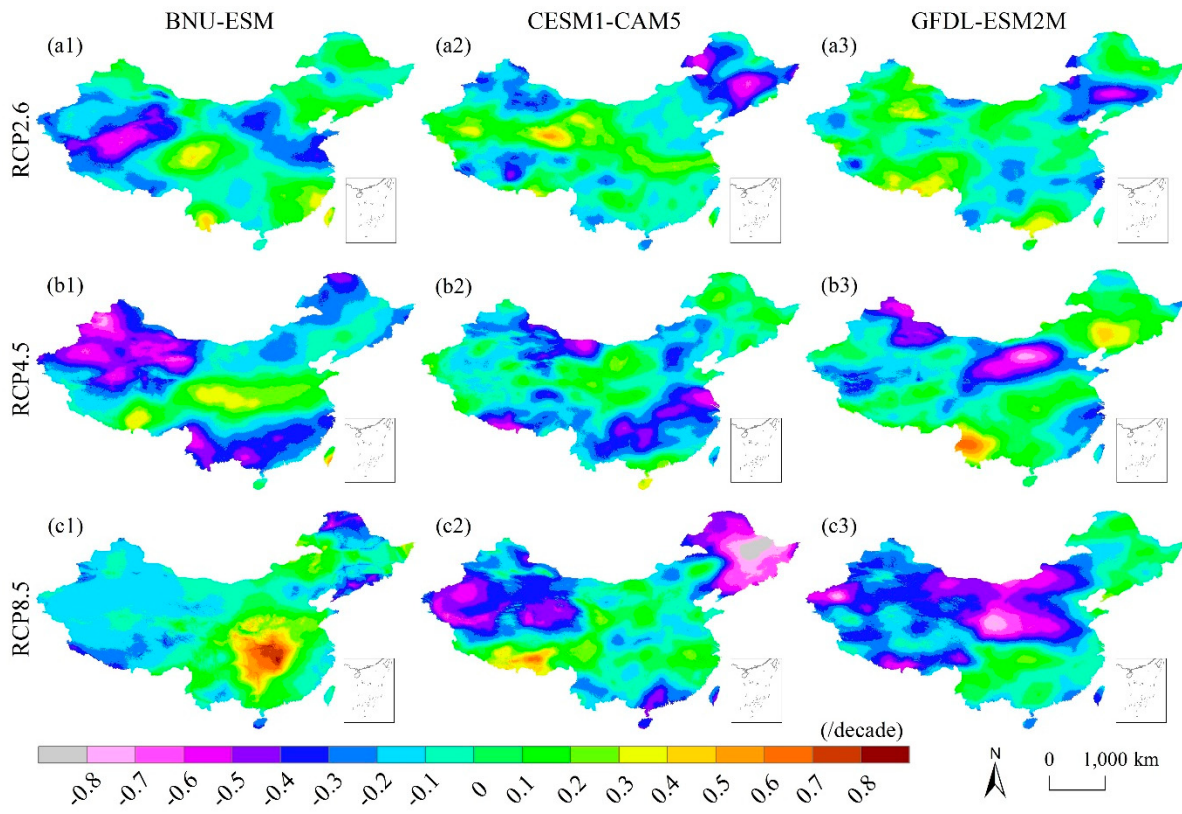


Figure S3. Spatial patterns of trend in annual SPEI variations during the end of the century (2071–2100).

Future (2018-2040)

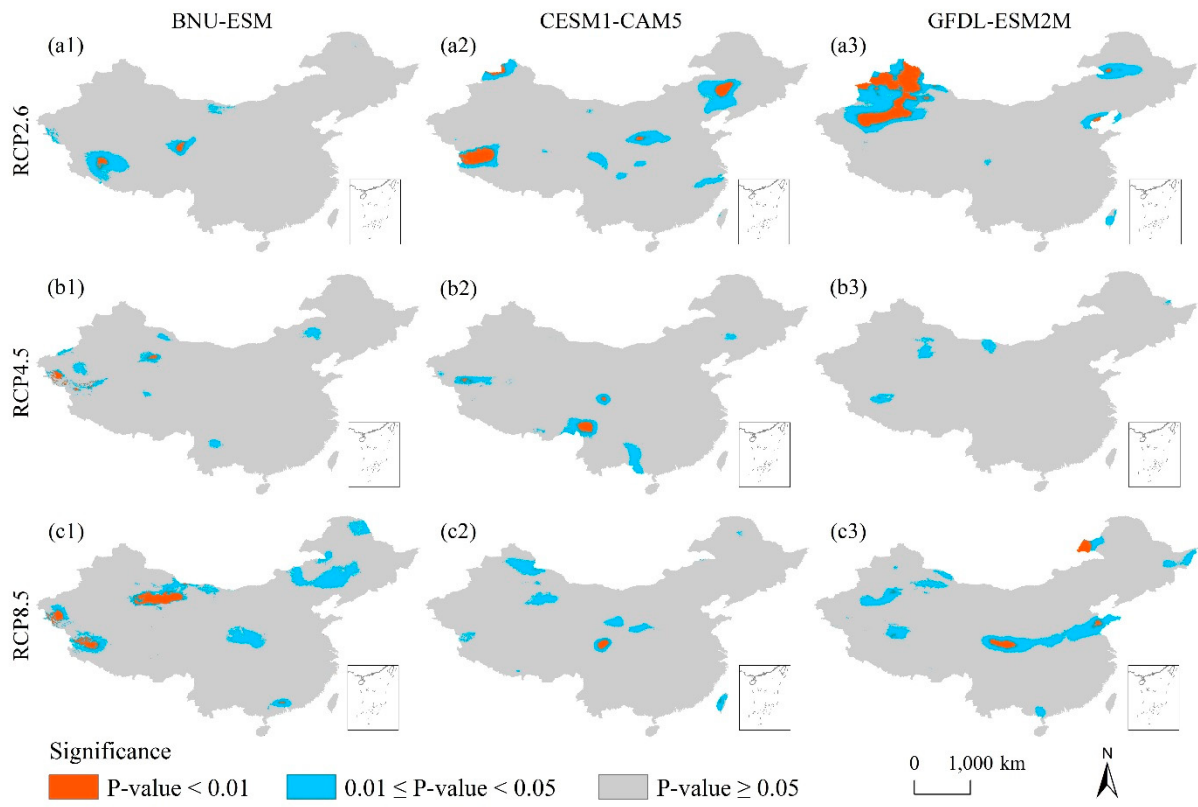


Figure S4. Spatial patterns of trend significance in annual SPEI variations at the beginning of the century (2018–2040).

Future (2041-2070)

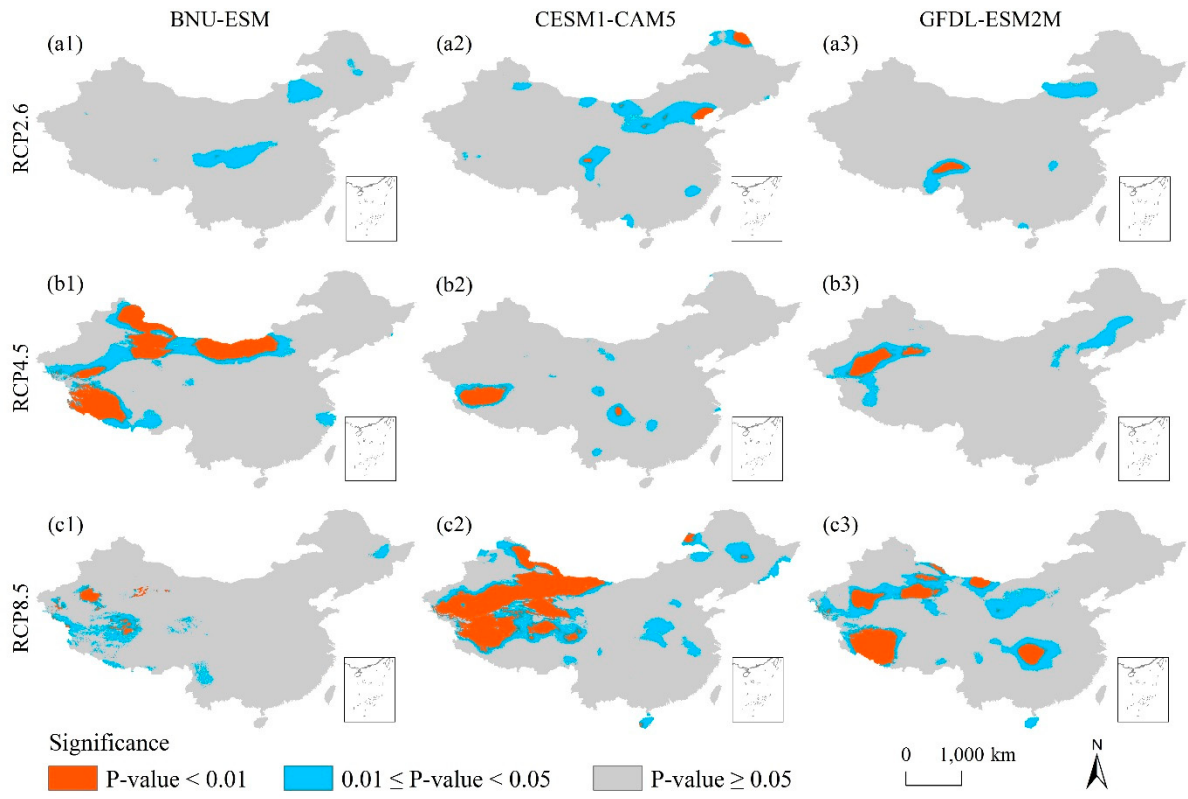


Figure S5. Spatial patterns of trend significance in annual SPEI variations during the middle of the century (2041–2070).

Future (2071-2100)

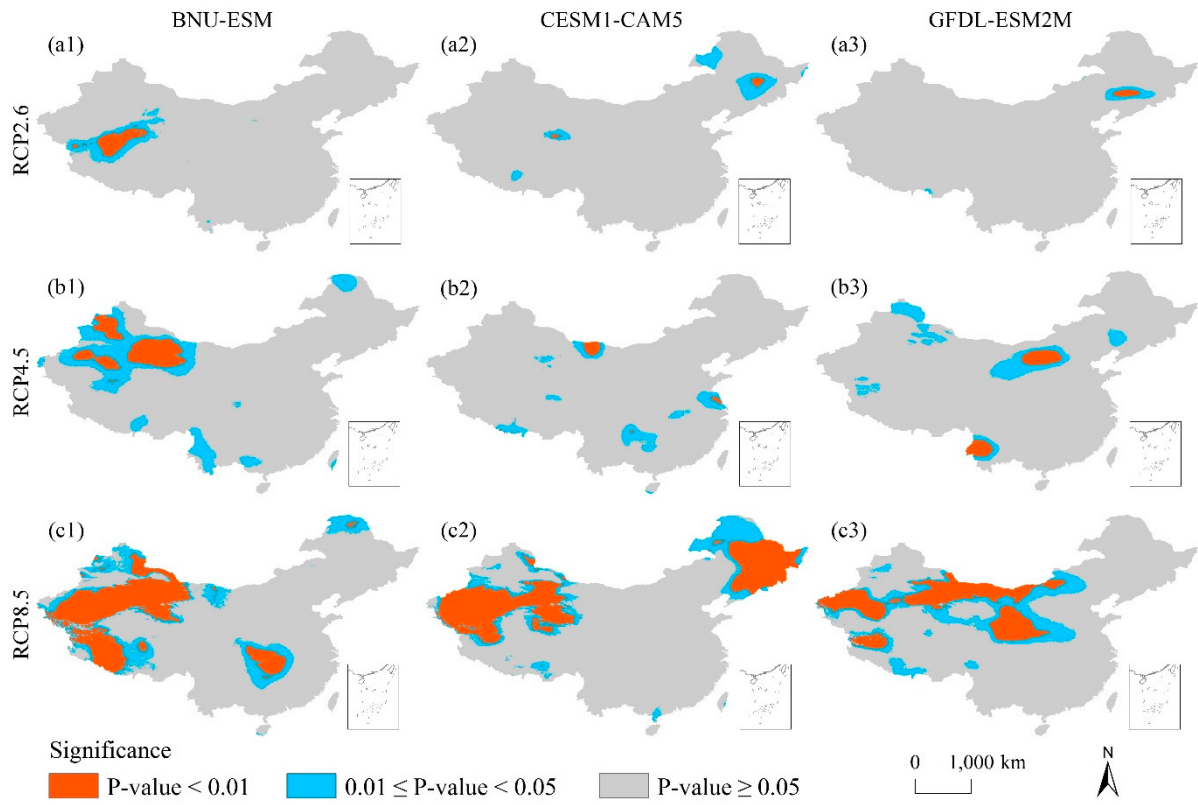


Figure S6. Spatial patterns of trend significance in annual SPEI variations during the end of the century (2071–2100).

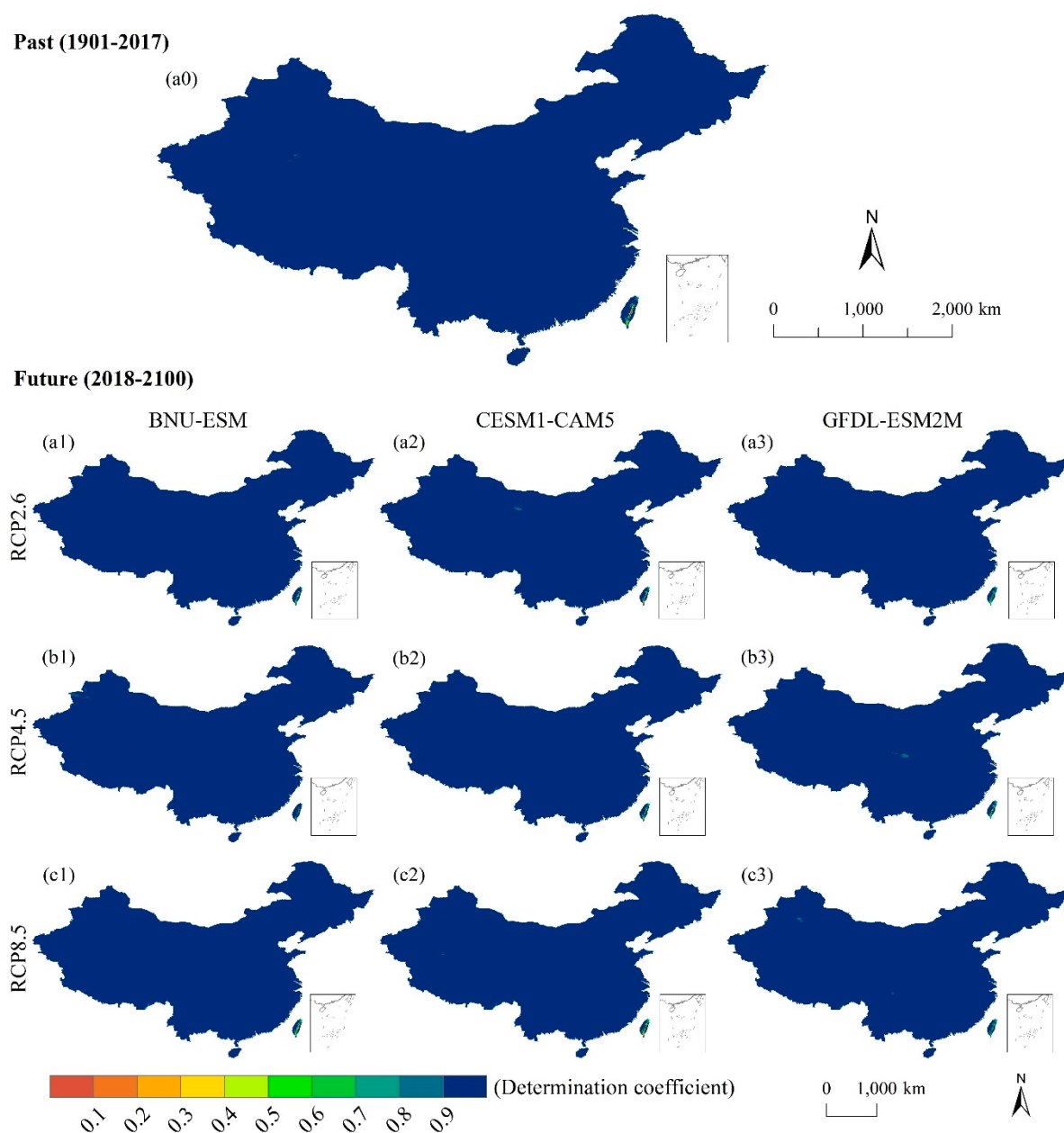


Figure S7. Spatial patterns of determination coefficient (R^2) for the linear regression equation ($\Delta\text{SPEI} = a \times \Delta\text{PRE} + b \times \Delta\text{PET}$) of the interannual variations in SPEI and PRE/PET for the past (1901–2017) and future (2018–2100) periods. p-value of the equation at each grid over China is less than 0.05, indicating a 95% significance level.