

Supplement

Tab. S1 Overview of the GCMs

Model	Institute	Atmospheric Resolution (Longitude × Latitude)
GFDL-ESM2M	Geophysical Fluid Dynamics Laboratory	2.5° × 2°
HadGEM2-ES	National Institute of Meteorological Research/Korea Meteorological Administration	1.875° × 1.25°
IPSL-CM5A-LR	Institute Pierre-Simon Laplace Japan Agency for Marine-Earth Science and Technology	3.75° × 1.875°
MIROC-ESM-CHEM	Atmosphere and Ocean Research Institute (University of Tokyo), and National Institute for Environmental Studies	2.8° × 2.8°
NorESM1-M	Norwegian Climate Centre	2.5° × 1.89°

Tab. S2 National average drought frequency for each time period and scenario

Drought frequency of different grades		Mild (%)	Std	Moderate (%)	Std	Extreme (%)	Std
RCP4.5	2011-2040	14.97	0.0294	16.06	0.0298	1.16	0.0105
	2041-2070	15.29	0.0267	15.87	0.0273	1.20	0.0097
	2071-2099	15.14	0.0287	16.44	0.0279	0.96	0.0093
RCP8.5	2011-2040	14.85	0.0274	16.25	0.0280	1.08	0.0091
	2041-2070	15.19	0.0291	16.19	0.0287	1.15	0.0102
	2071-2099	14.71	0.0284	16.79	0.0314	1.05	0.0100

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Tab. S3 National average drought duration for each time period and scenario

		Duration (months)	Std
RCP4.5	2011-2040	3.84	1.0770
	2041-2070	3.87	1.0431
	2071-2099	3.93	0.9359
RCP8.5	2011-2040	3.68	0.8783
	2041-2070	4.11	1.2620
	2071-2099	4.12	1.2583

Tab. S4 National average drought frequency and duration for 2011-2099 in RCP4.5 and RCP8.5 scenario

	Frequency (%)	Std	Duration (months)	Std
RCP4.5	32.26	0.0152	3.76	0.5964
RCP8.5	32.35	0.0145	3.84	0.7318

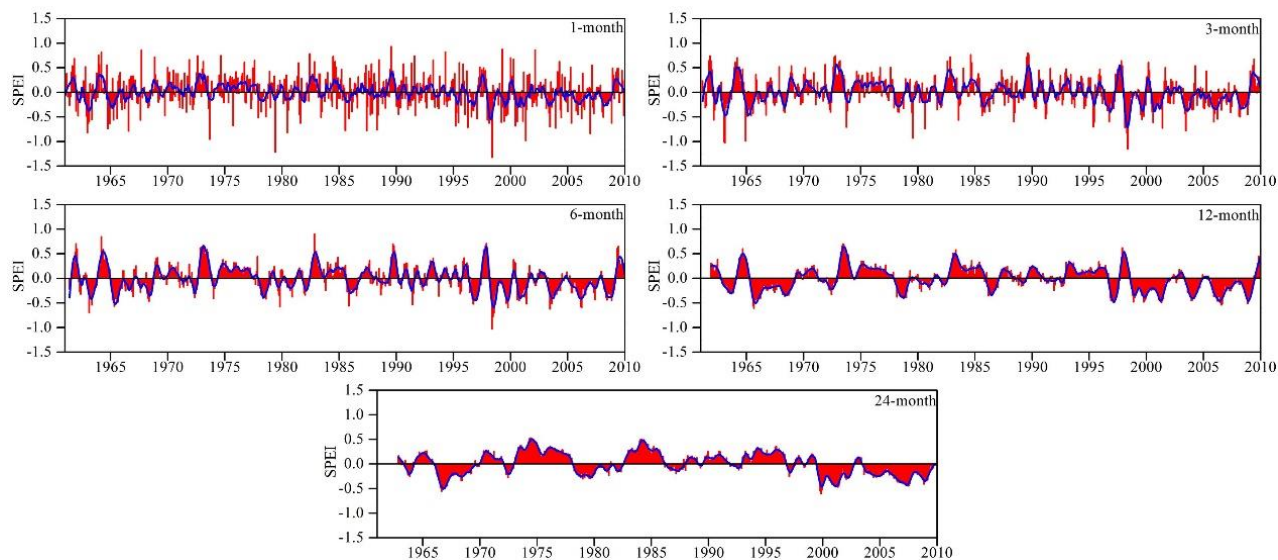


Fig. S1: SPEI trends over different timescales in China for 1961–2010 (SPEI-1, 3, 6, 12 and 24).

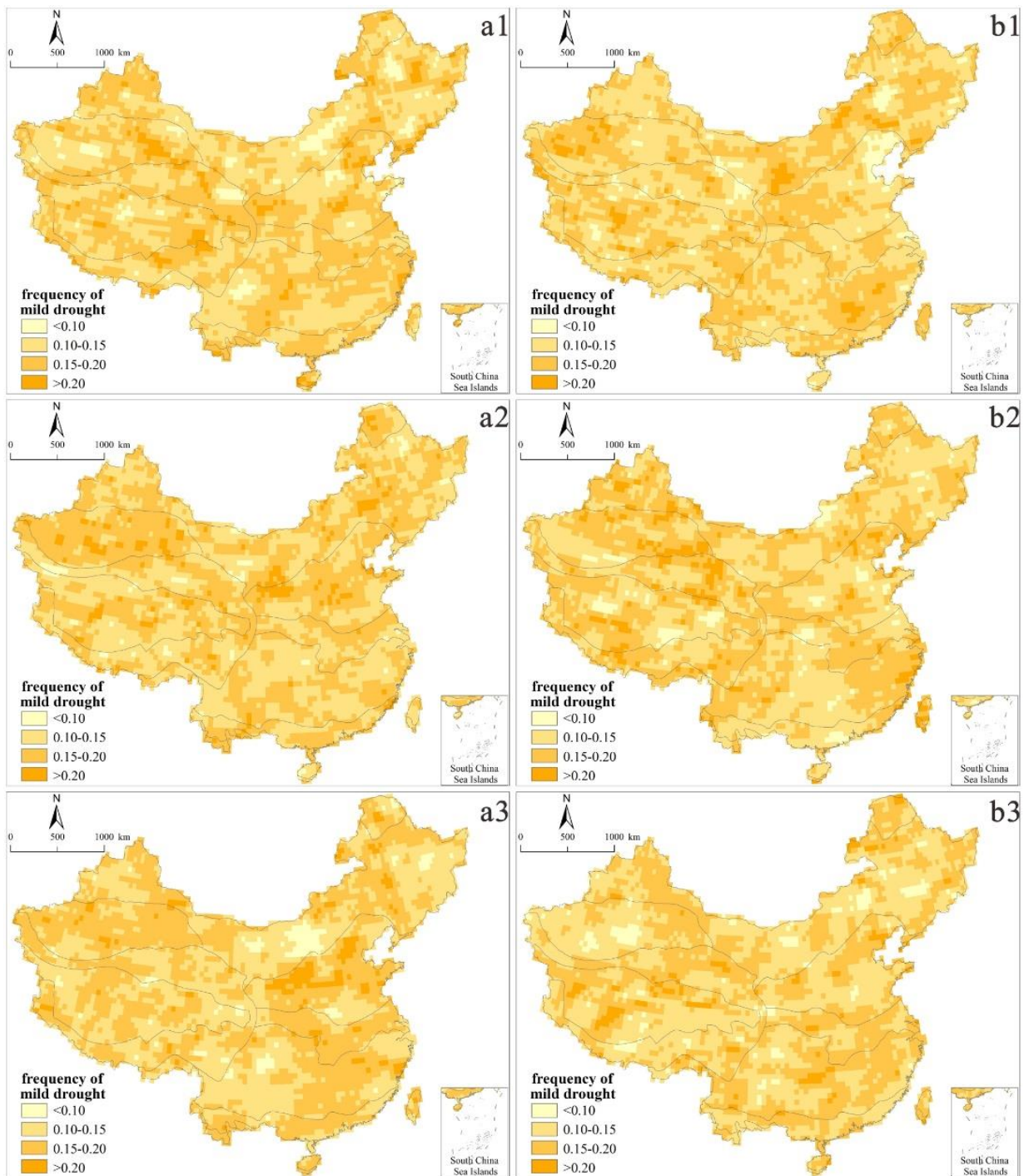


Fig. S2 Spatial distribution of frequency of mild drought ($-1.0 < \text{SPEI} \leq -0.5$) for different time periods (1: 2011–2040; 2: 2041–2070; 3: 2071–2099) under RCP4.5 (a) and RCP8.5 (b) scenarios.

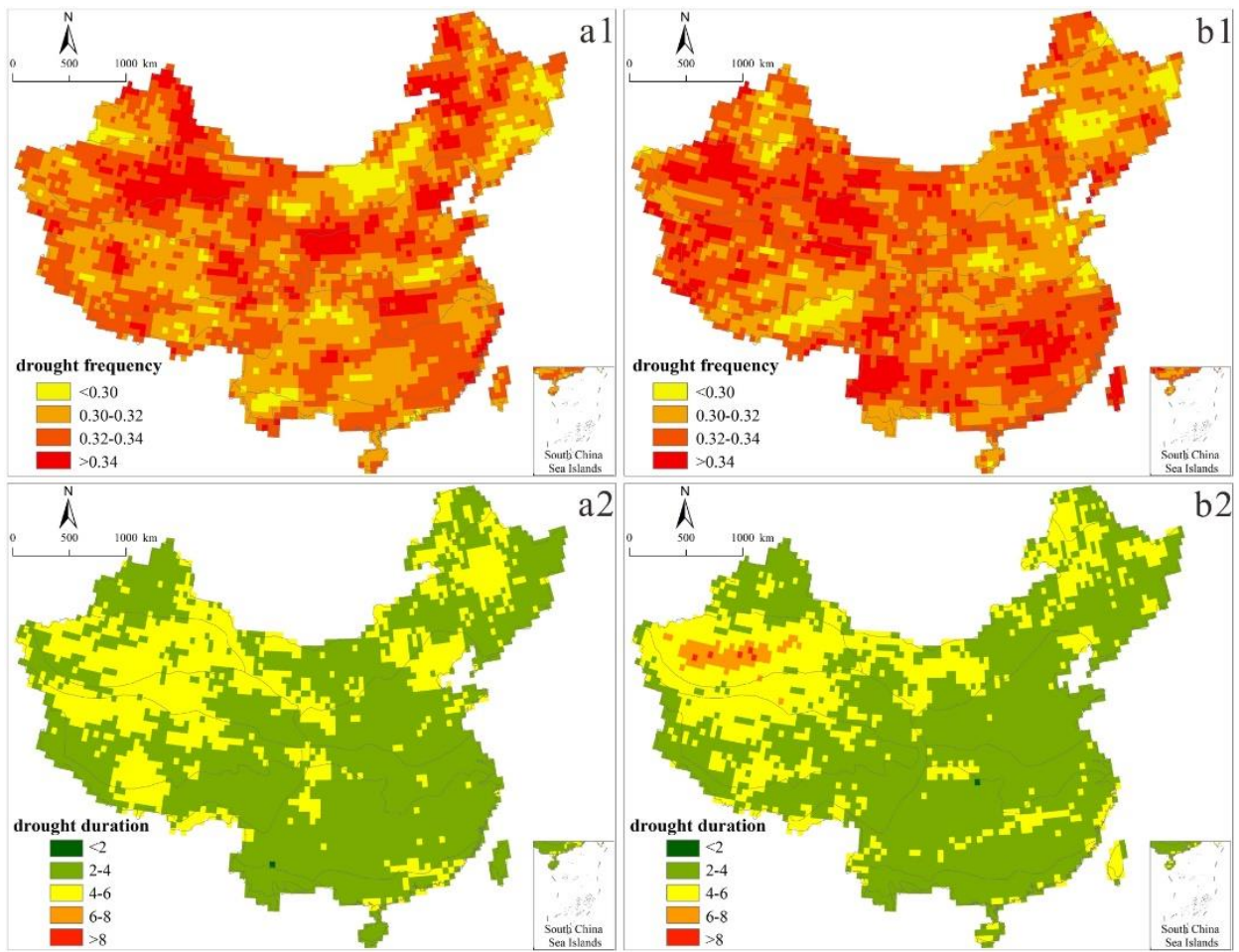


Fig. S3 Spatial distribution of drought frequency (1) and duration (2) during 2011–2099 under RCP4.5 (a) and RCP8.5 (b) scenarios.