

Supplemental Materials:

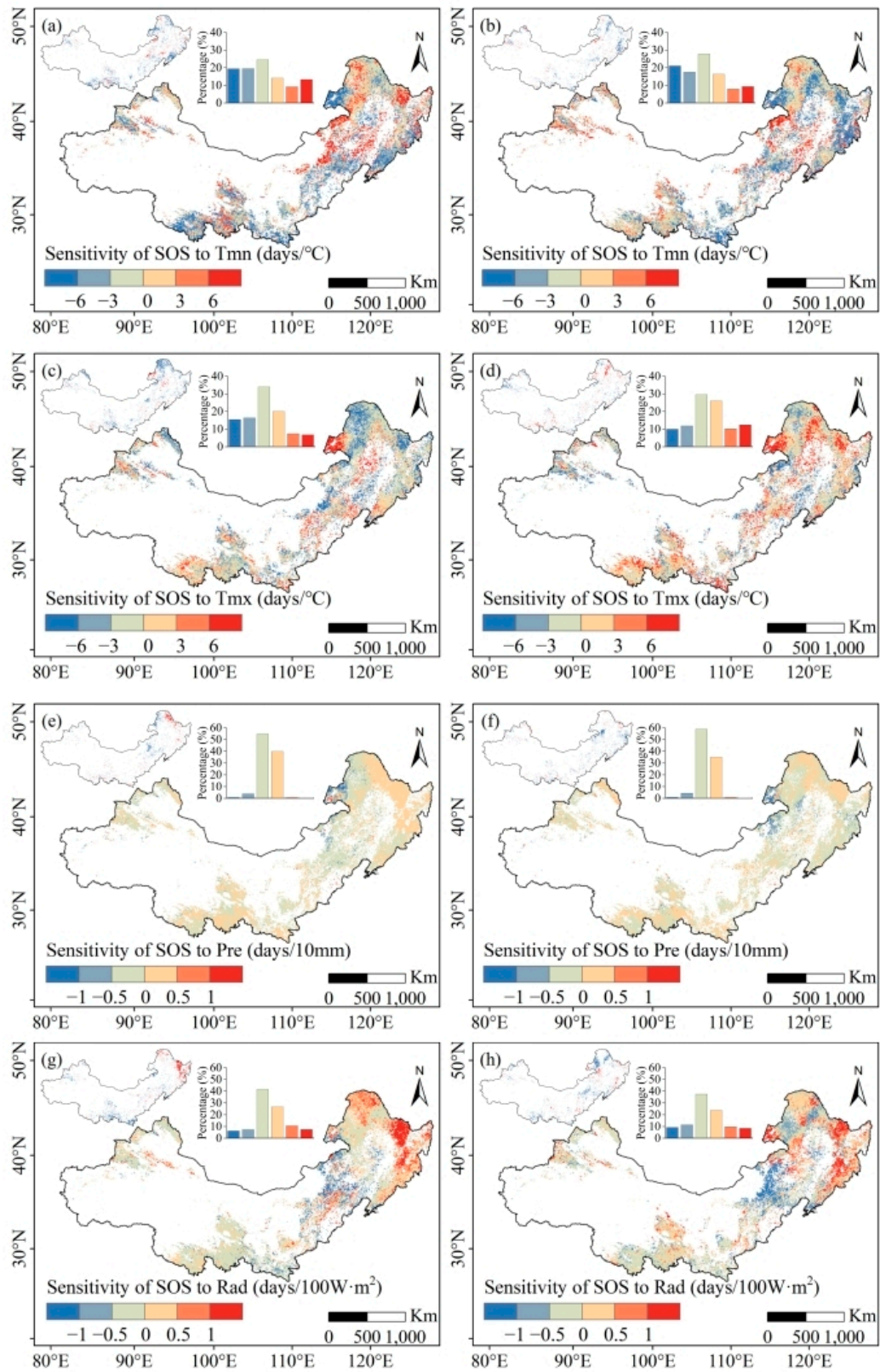


Figure S1. The spatial pattern of the sensitivity of SOS to preseason (a, b) Tmn, (c, d) Tmx, (e, f) Pre, and (g, h) Rad in two sub-periods. (a, c, e, g): before 1998; (b, d, f, h):

after 1998. The top insets show the proportions of different numerical grades. The top-left insets show the spatial patterns of significance at $p < 0.05$, where red (blue) represents positive (negative) values.

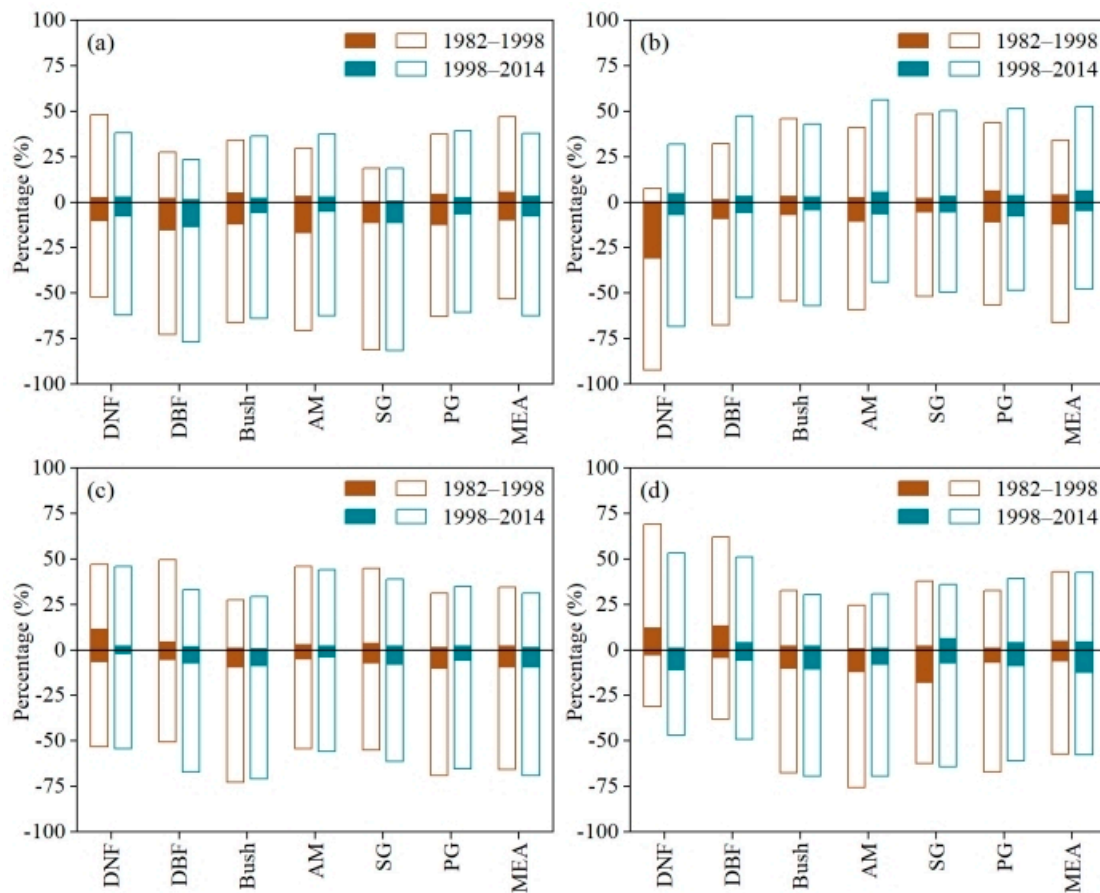


Figure S2. The sensitivity of SOS to preseason (a) Tmn, (b) Tmx, (c) Pre, and (d) Rad at the vegetation type scale in two sub-periods. Solid color blocks represent significant correlations.

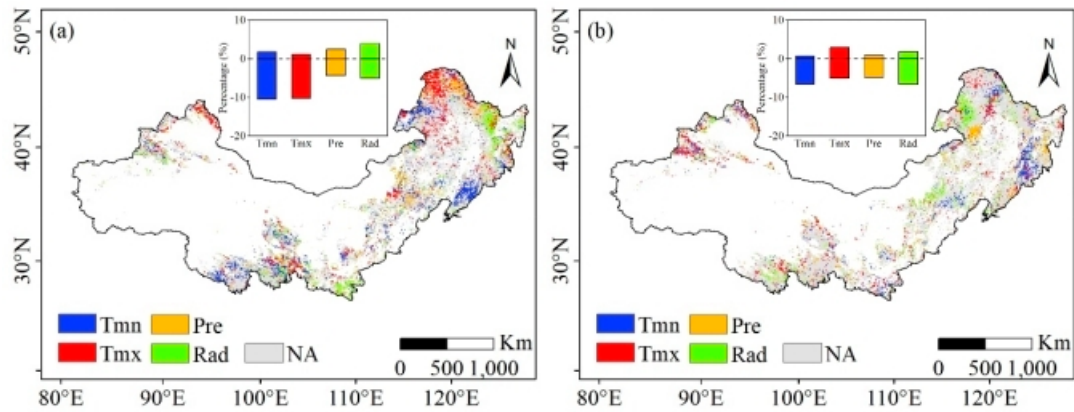


Figure S3. The spatial pattern of the most critical climatic factor in SOS in two sub-periods. (a): before 1998; (b): after 1998. NA represents non-significant pixels and is not counted in Figure S3(b). The top insets show the proportions of different climatic factors.

Table S1. The proportion of the most critical climatic factor in SOS at the vegetation type scale before 1998. Non-significant pixels were not shown.

Types	Tmn	Tmx	Pre	Rad
DNF	5.57%	27.12%	11.25%	8.30%
DBF	14.13%	8.28%	6.14%	12.97%
Bush	15.35%	5.23%	5.92%	7.46%
AM	17.28%	9.75%	4.24%	8.17%
SG	9.14%	5.62%	6.67%	16.48%
PG	13.63%	11.38%	6.88%	4.63%
MEA	10.60%	11.78%	6.61%	6.66%

Table S2. The proportion of the most critical climatic factor in SOS at the vegetation type after 1998. Non-significant pixels were not shown.

Types	Tmn	Tmx	Pre	Rad
DNF	6.31%	8.27%	2.98%	7.71%
DBF	11.99%	6.78%	6.31%	6.12%
Bush	5.83%	4.55%	6.43%	9.35%
AM	5.06%	10.22%	4.19%	6.69%
SG	8.29%	5.43%	7.81%	9.05%
PG	5.04%	9.79%	5.21%	9.63%
MEA	5.98%	7.52%	7.04%	11.52%

Table S3. Trends of climatic factors over the study period.

Period	Tmn (°C/year)	Tmx (°C/year)	Pre (mm/year)	Rad (W/m ² ·year)
1982–2014	0.03*	0.02	0.35*	3.39*
1982–1998	0.09*	0.11*	0.17	8.15*
1998–2014	−0.04	−0.05	0.27	2.72*

* represents significant at $p < 0.05$.