

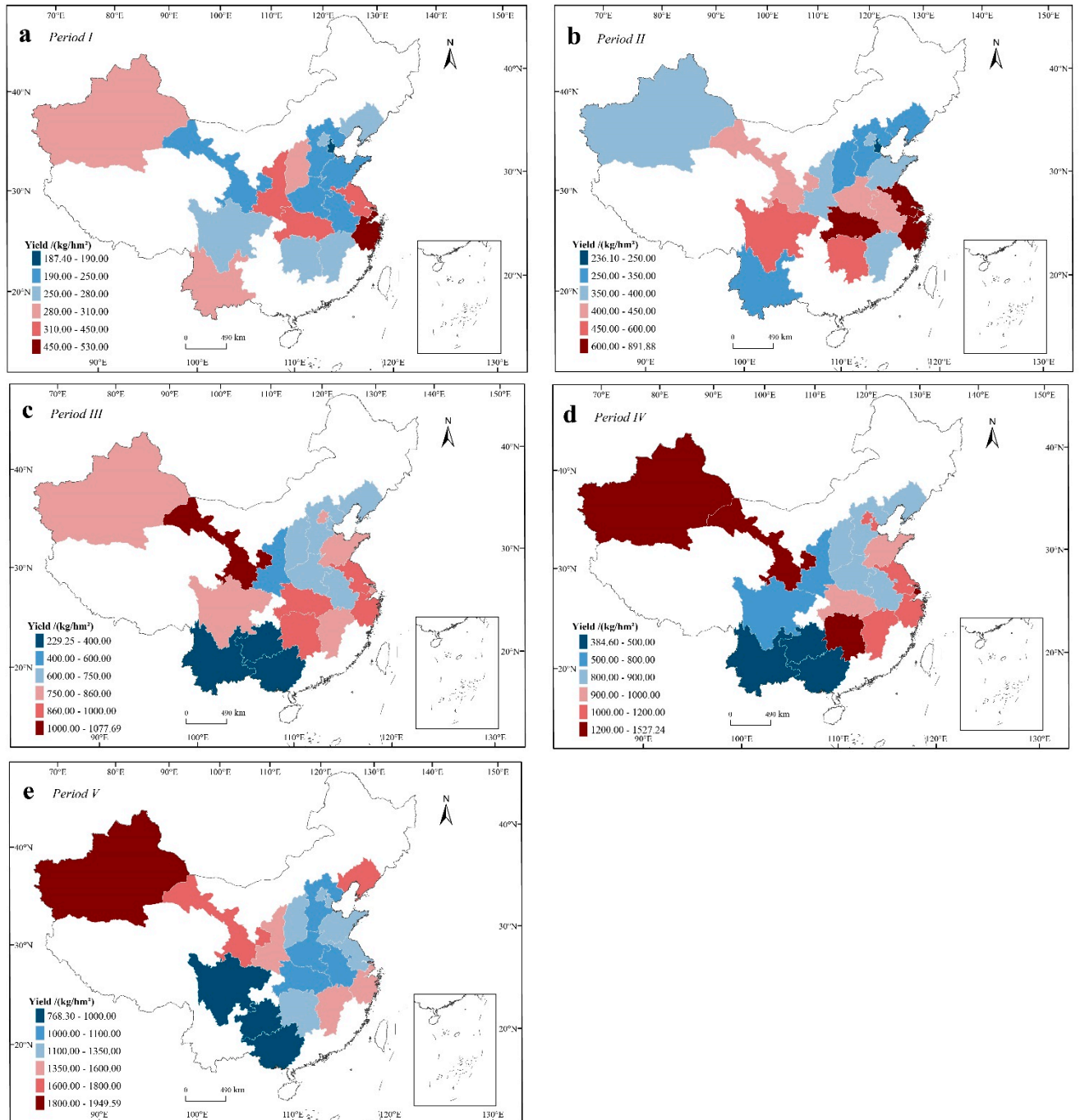
Supplementary information

Supplemental Table S1. Statistical results of cotton phenological event date in three main regions.

Region	Statistics	Sowing	Emergence	Squaring	Flowing	Boll opening	Maturity
NC	Maximum	May 19	May 20	June 29	August 20	October 20	November 25
	Minimum	March 24	April 6	May 18	June 6	July 18	September 12
	Mean	April 15	April 27	June 7	July 2	September 2	October 17
	Median	April 15	April 27	June 6	July 1	August 30	October 17
	Mode	April 8	April 30	May 30	June 30	August 30	October 18
YERB	Maximum	June 9	June 16	July 24	September 4	October 12	November 24
	Minimum	March 27	April 6	May 30	June 17	August 9	August 23
	Mean	April 26	May 5	June 19	July 10	September 4	October 20
	Median	April 25	May 4	June 18	July 9	September 5	October 20
	Mode	April 16	April 30	June 10	July 8	August 31	October 18
YERB	Maximum	May 26	May 29	July 31	August 11	October 30	December 17
	Minimum	March 14	March 20	May 26	June 16	July 26	September 13
	Mean	April 12	April 23	June 21	July 12	August 31	October 29
	Median	April 13	April 22	June 20	July 12	August 30	October 28
	Mode	April 17	April 22	June 18	July 10	August 30	October 28

Note: NC is Northwest China. YERB is the Yellow River Basin, YARB is the Yangtze River Basin.

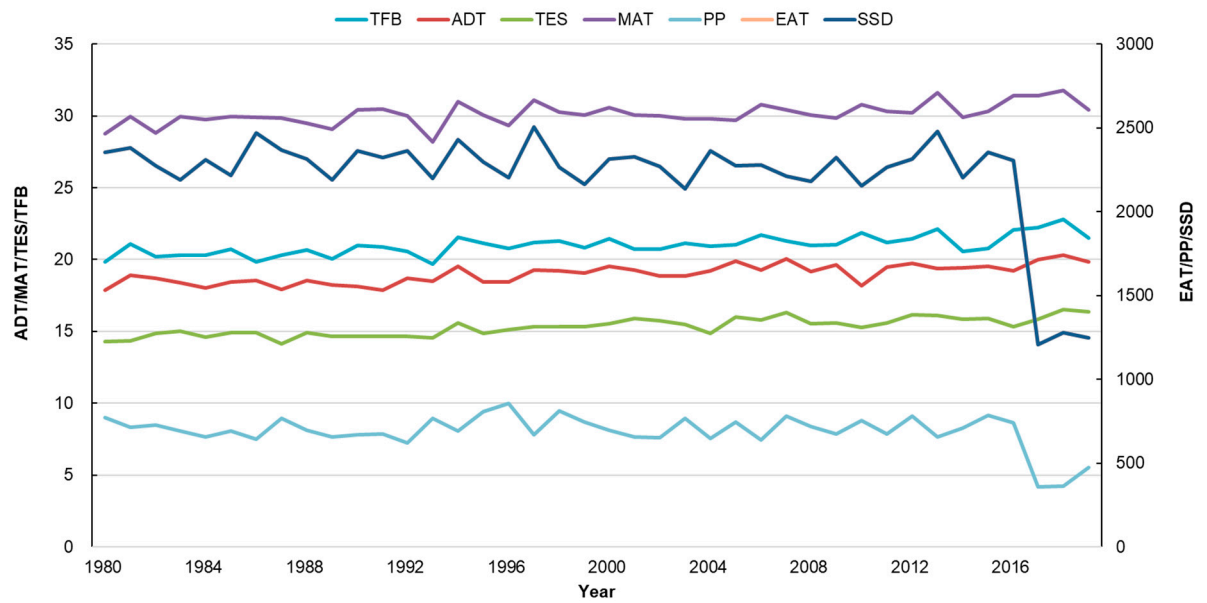
Supplementary Figure S1.



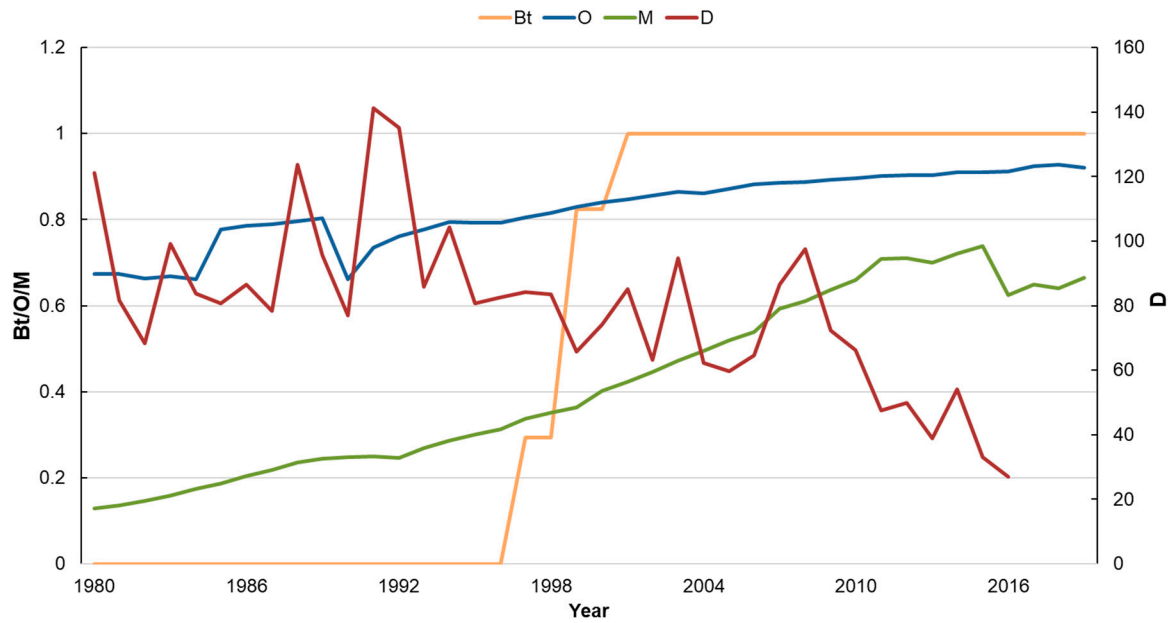
Supplementary Figure S1. Maps showing spatial distribution of cotton yield from 1949 to 2020: (a) period I (1949–1967), (b) period II (1968–1981), (c) period III (1982–1992), (d) period IV (1993–2006), (e) period V (2007–2020). The base map was applied without endorsement using data from the National Geomatics Center of China (NGCC; <http://www.ngcc.cn/ngcc/>) and the Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences (IARRP; <https://iarrp.caas.cn/>).

Supplementary Figure S2.

(a)



(b)



Supplementary Figure S2. Trends in various influencing factors in China from 1980 to 2020: (a) Climate factors; (b) Social, technological and disaster factors.