Supplementary Material for "Different trends between median and extreme surface aerosol extinction coefficients over China inferred from quality controlled visibility data"
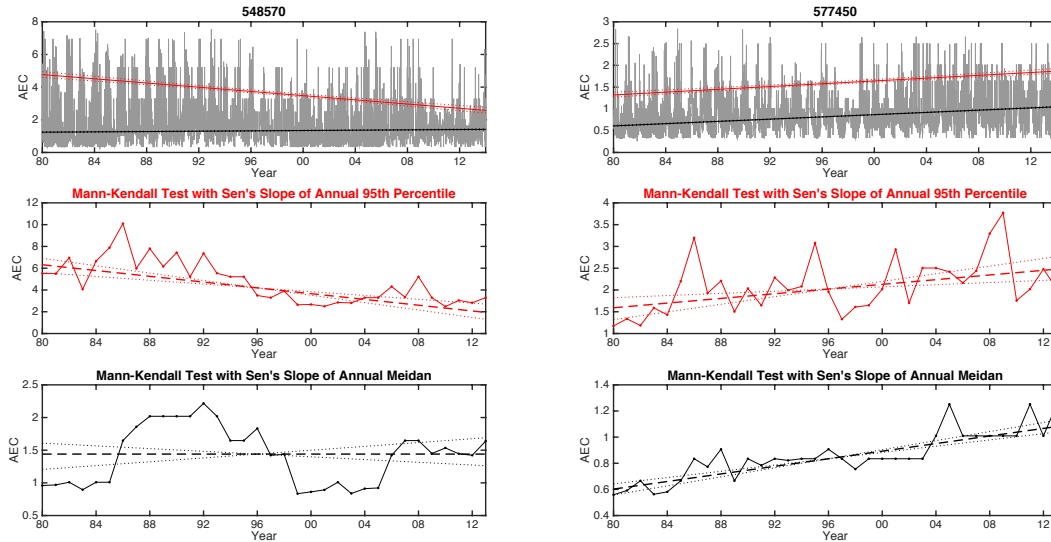
Figure S1. Example of extreme and median trend estimation for two sites (548570 and 577450). The first row shows the raw time series with the red line indicating quantile regression estimated 95th percentile trend and black line representing median trend. The middle row is annual 95th percentile trend estimated using Sen's slope, and the bottom row shows median trend estimated using Sen's slop. The dotted lines indicate 95% confidence intervals. For the left panels, the 95th percentile show a significant downward trend while the median shows no significant trend. For the right panels, both the extreme and the median exhibit significant downward trends. Note for these two examples the trends are estimated for the entire period.
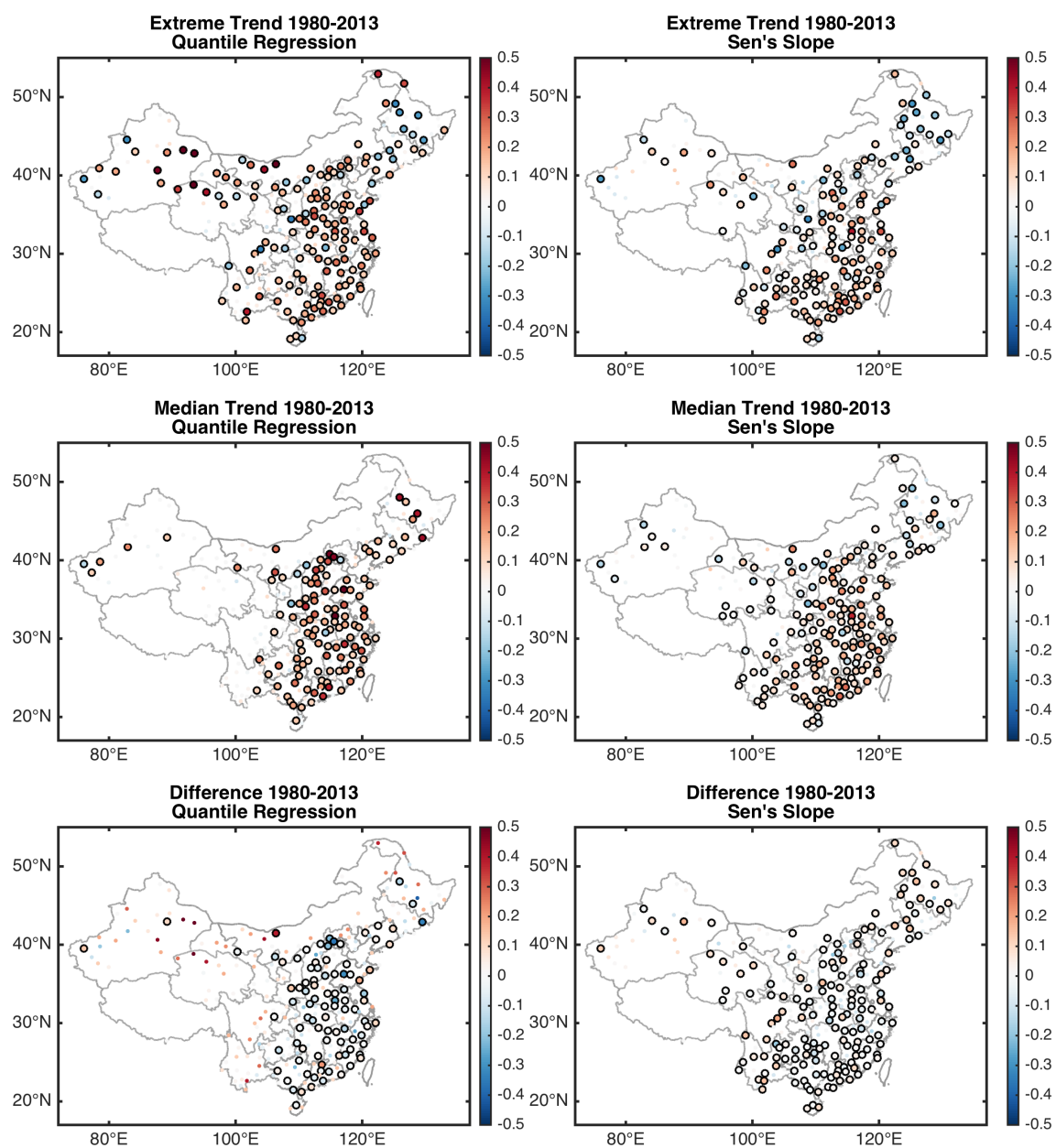
Figure S2. Extreme (first row) and median (second row) for the entire 1980-2013 period

and their differences (bottom row).
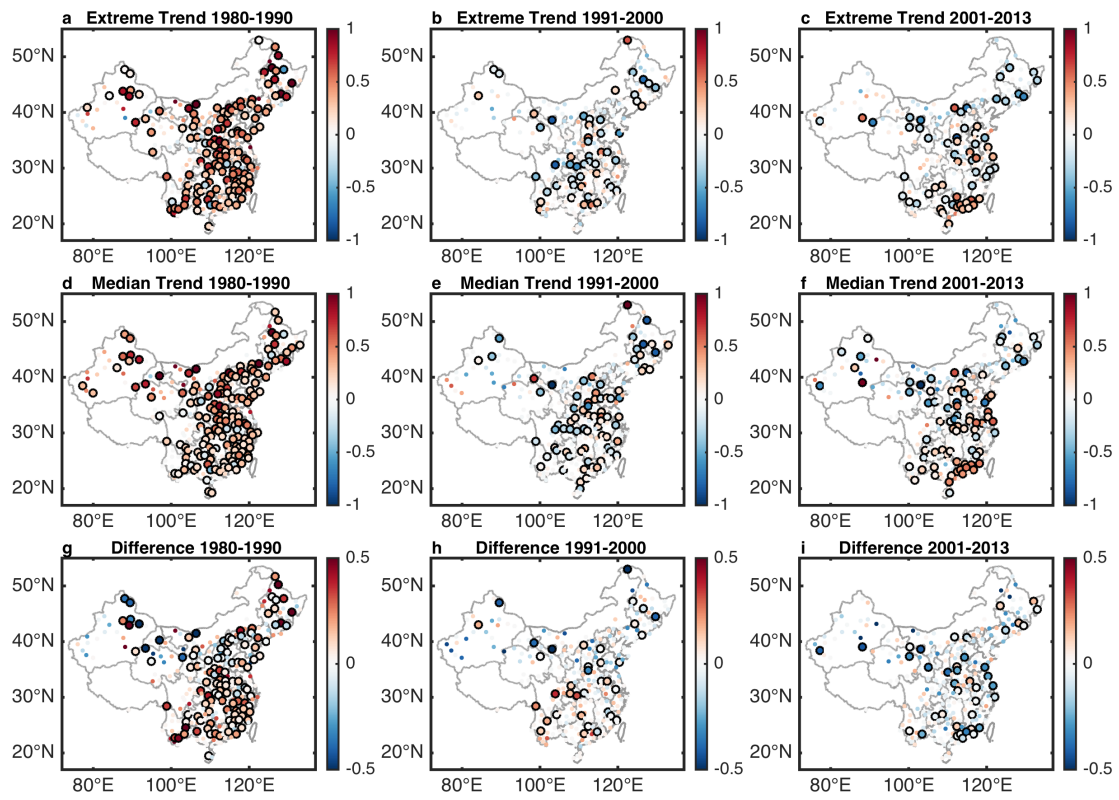
Figure S3. Same as Figure 1 in the main text but using Sen's slope method to estimate the trends.
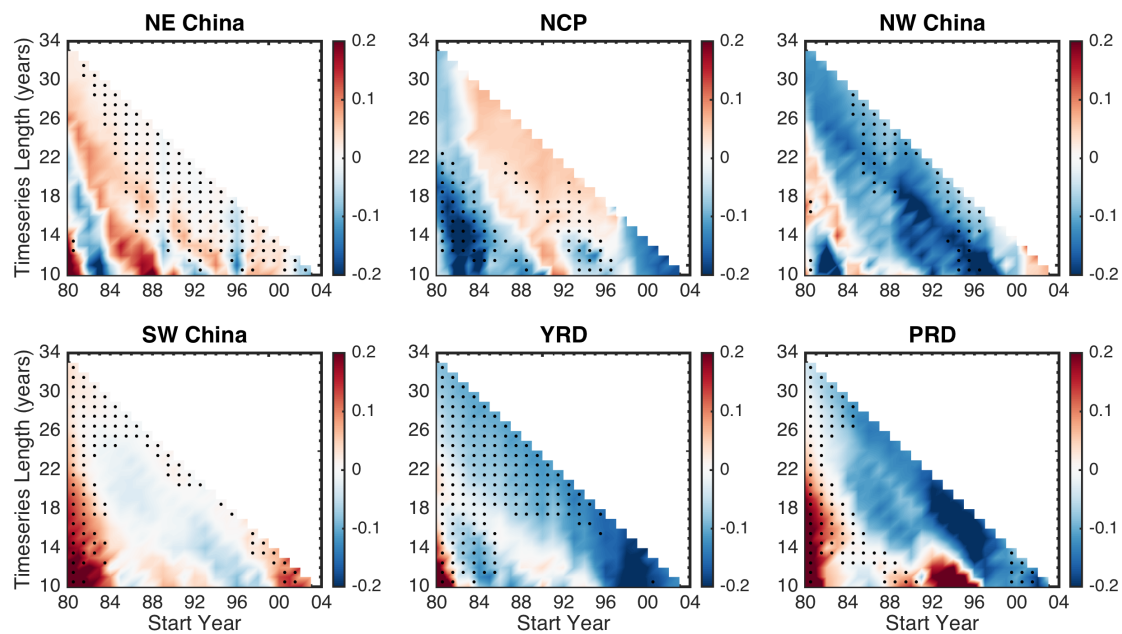
Figure S4. Same as Figure 3 of the main text but for trends estimated using *Sen's* slope.
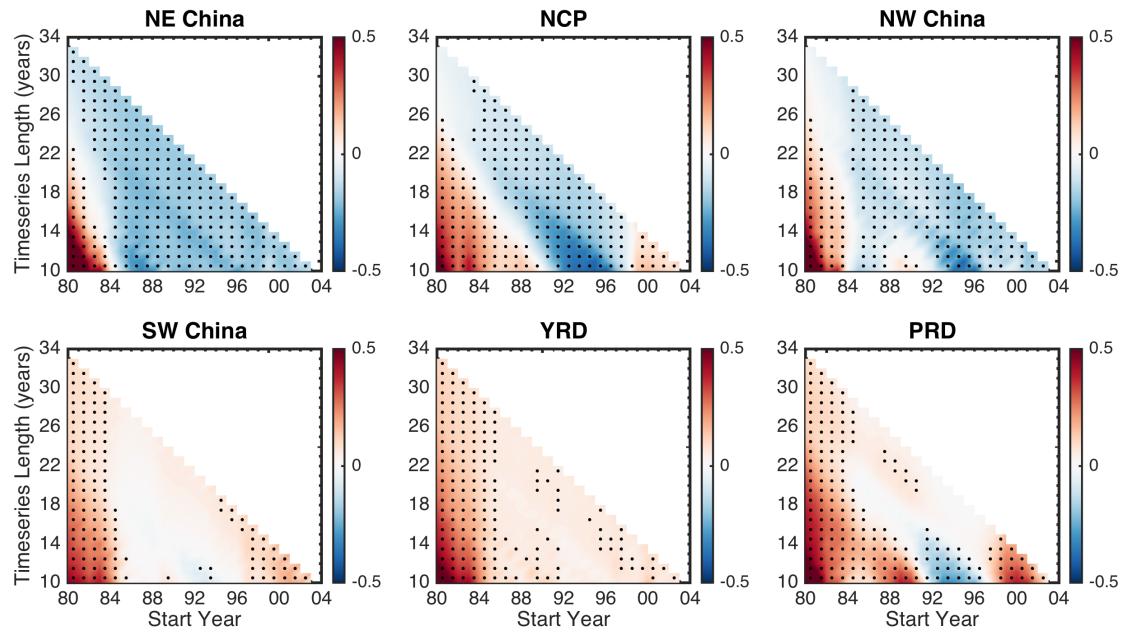
Figure S5. Quantile Regression trends for the 95th percentile for the six regions. The x axis shows the trend calculation start year and the y axis shows the length of the time series in years.
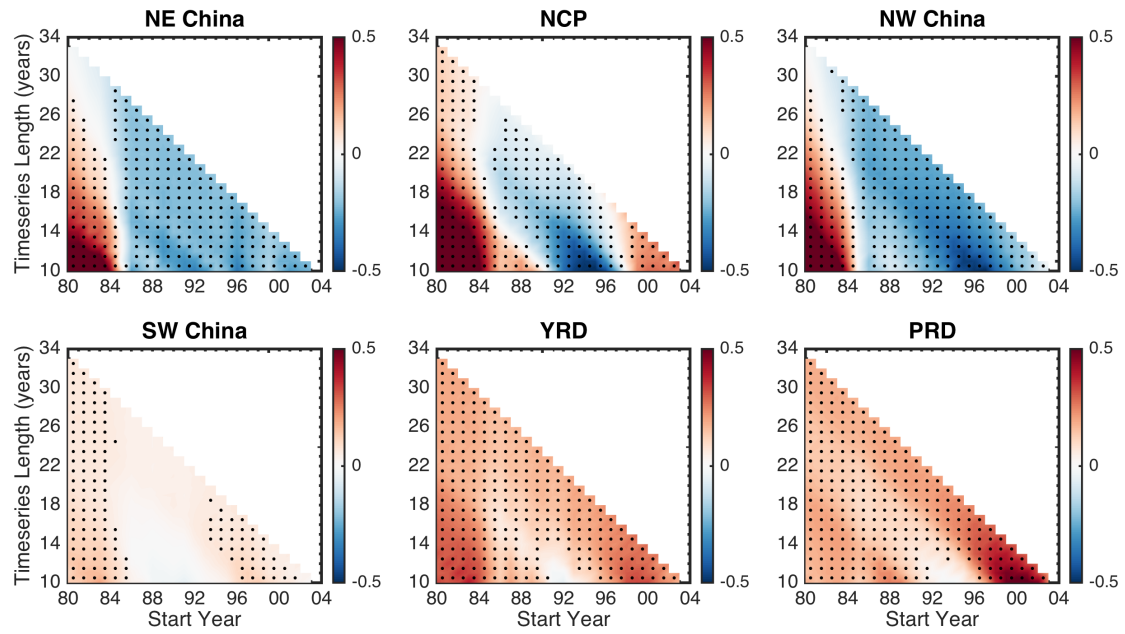
Figure S6. Quantile Regression trends for the median percentile for the six regions. The x axis shows the trend calculation start year and the y axis shows the length of the time series in years.
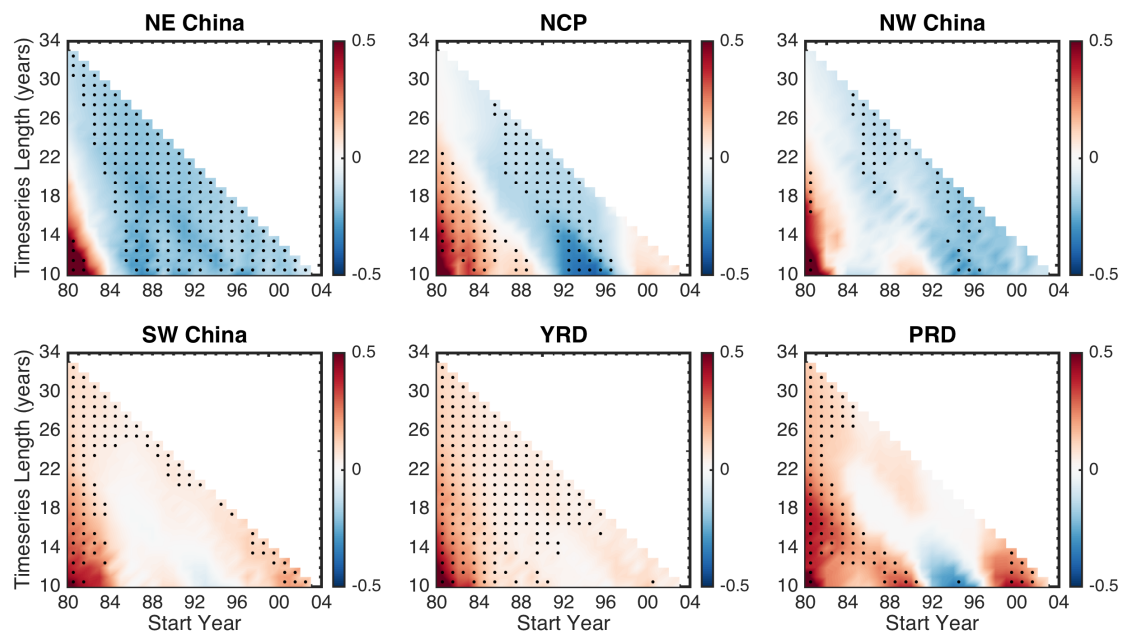
Figure S7. *Sen's* slope trends for the 95th percentile for the six regions. The x axis shows

the trend calculation start year and the y axis shows the length of the time series in years.
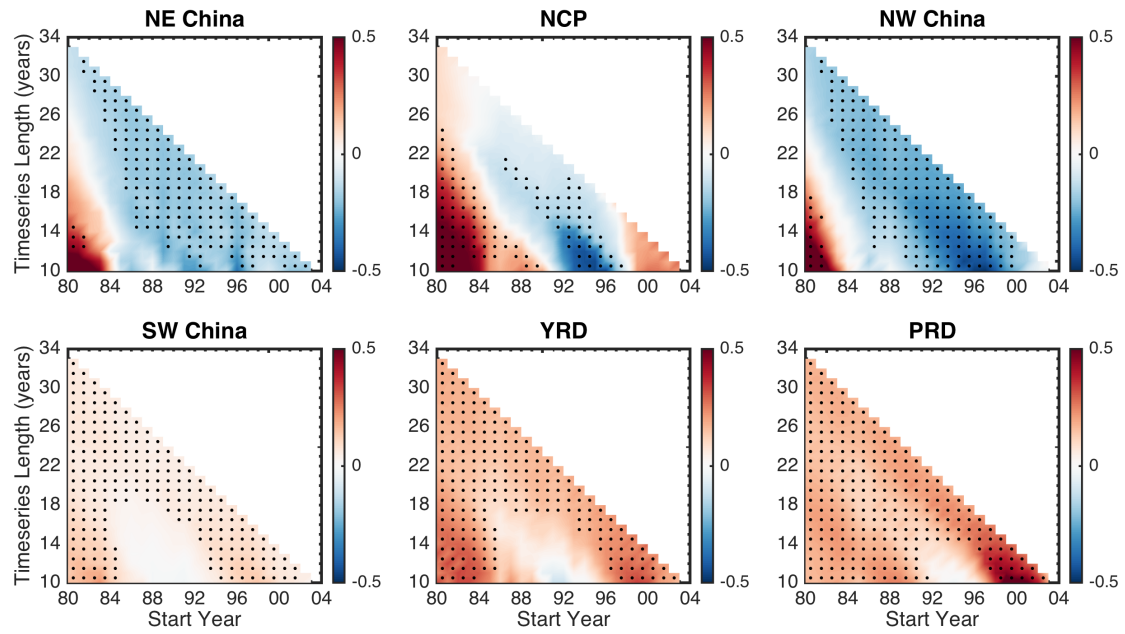
Figure S8. *Sen's slope* trends for the median percentile for the six regions. The x axis

shows the trend calculation start year and the y axis shows the length of the time series in

years.
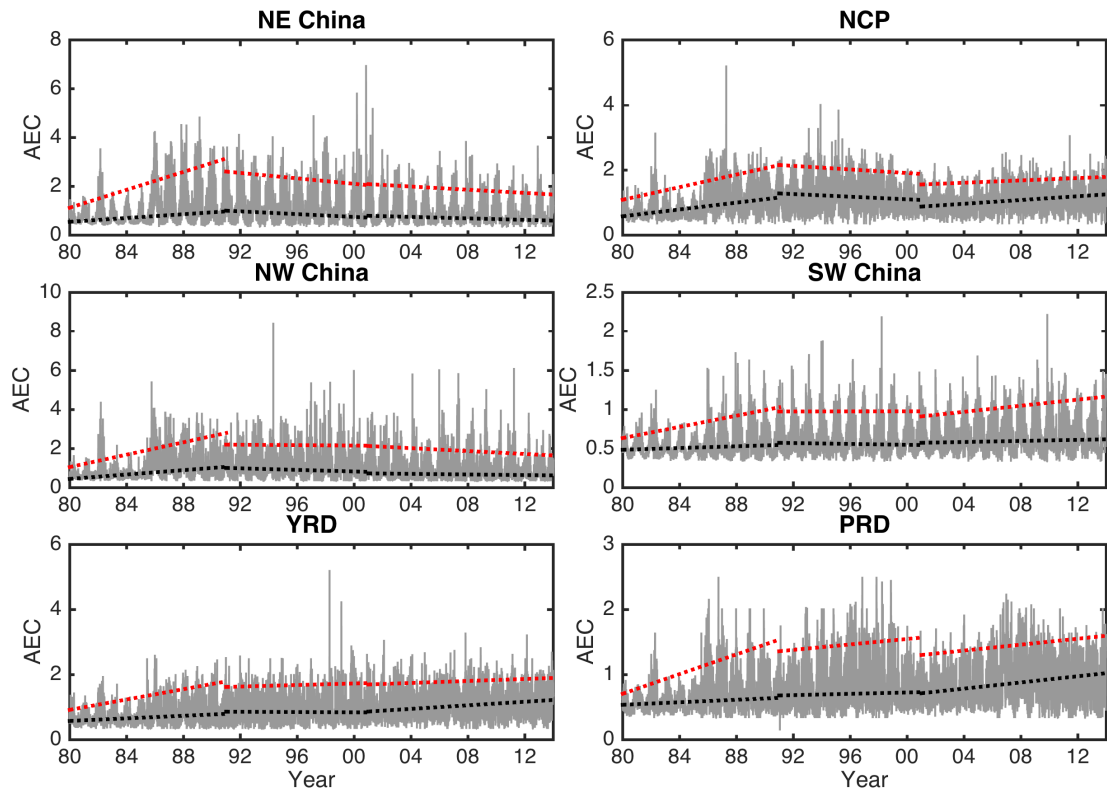
Figure S9. Regionally averaged AEC time series and quantile regressed trends. The red

dotted lines represent 95th percentile trends and the black dotted lines are median trends.

The trends are estimated for three periods: 1980-1990, 1991-2000, 2001-2013

respectively.
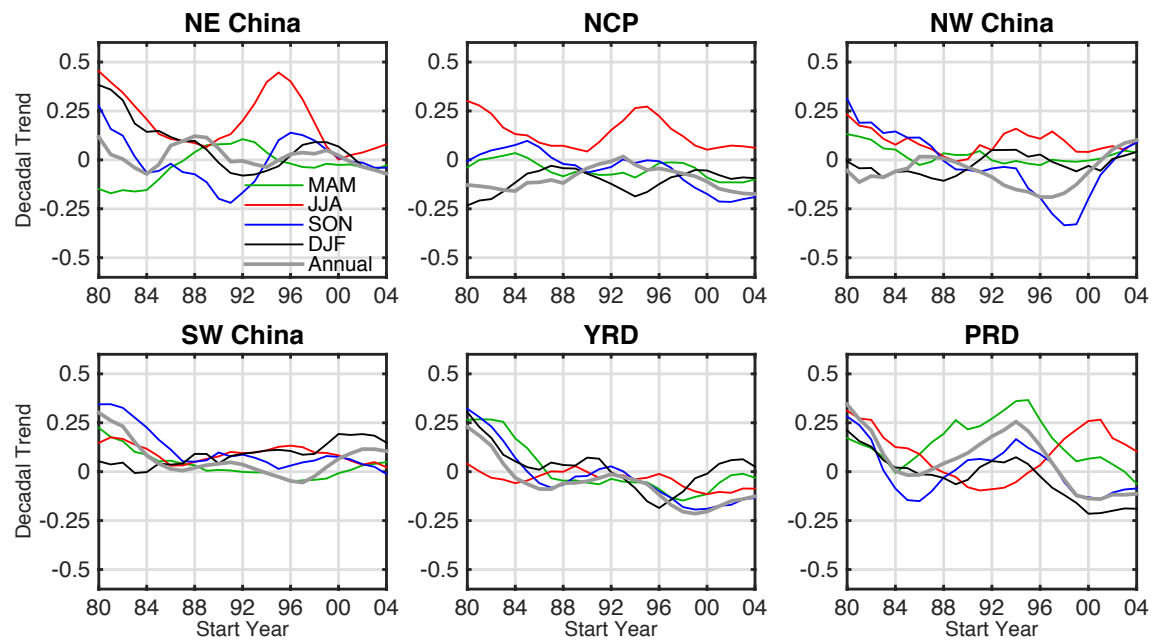
Figure S10. Seasonal time series for the difference between the 95th percentile and

median trends.
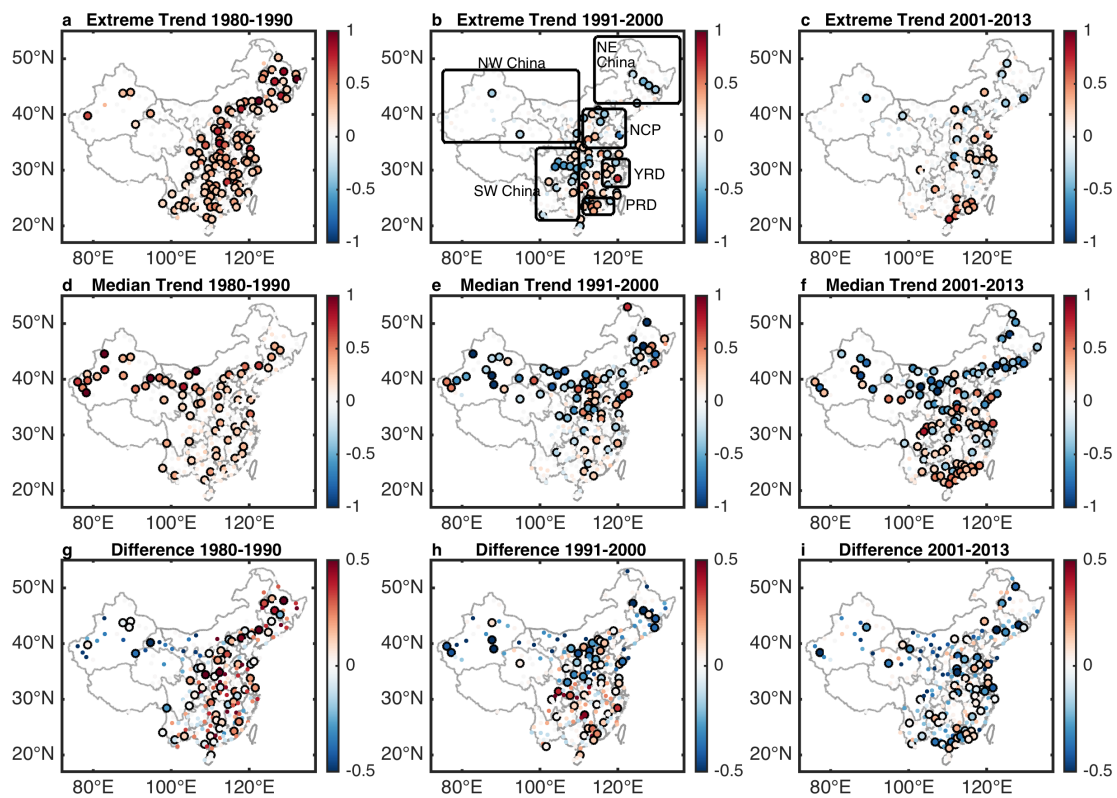
Figure S11. The same type of plot as Figure 1 of the main text but using daily minimum AEC.
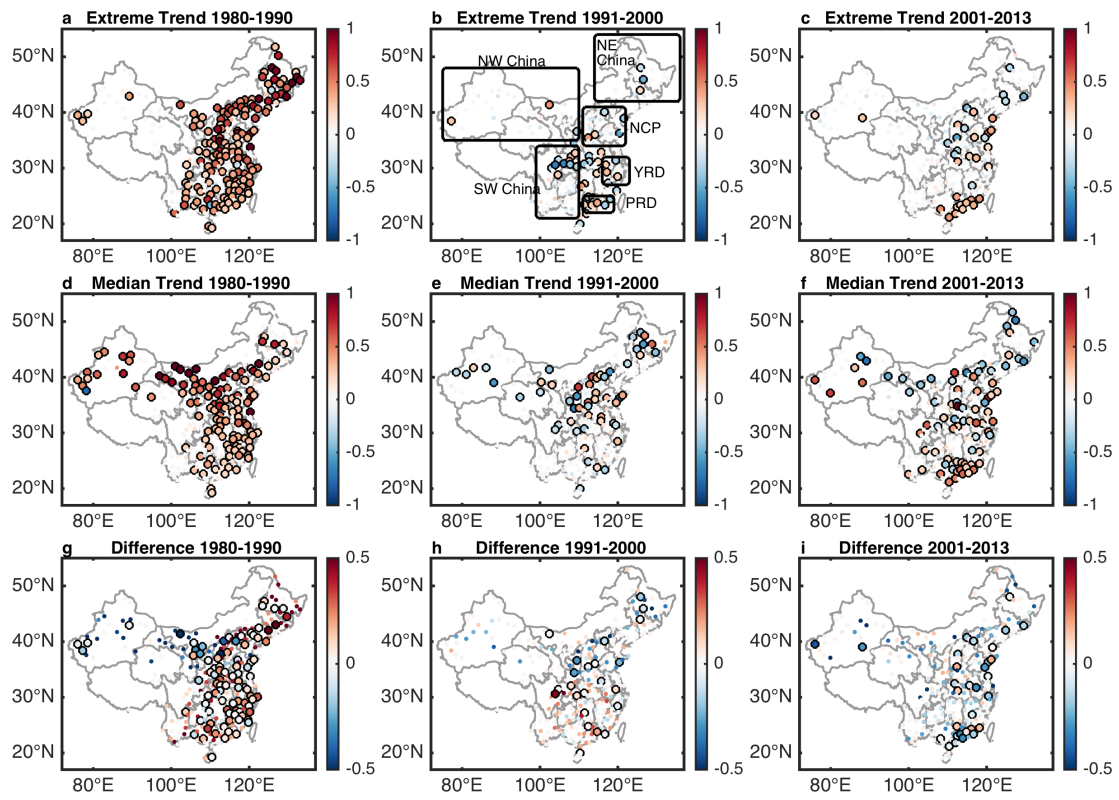
Figure S12. The same type of plot as Figure 1 of the main text but using daily maximum

AEC.