Supporting information for

A homogenized daily *in situ* PM$_{2.5}$ concentration dataset from national air quality monitoring network in China

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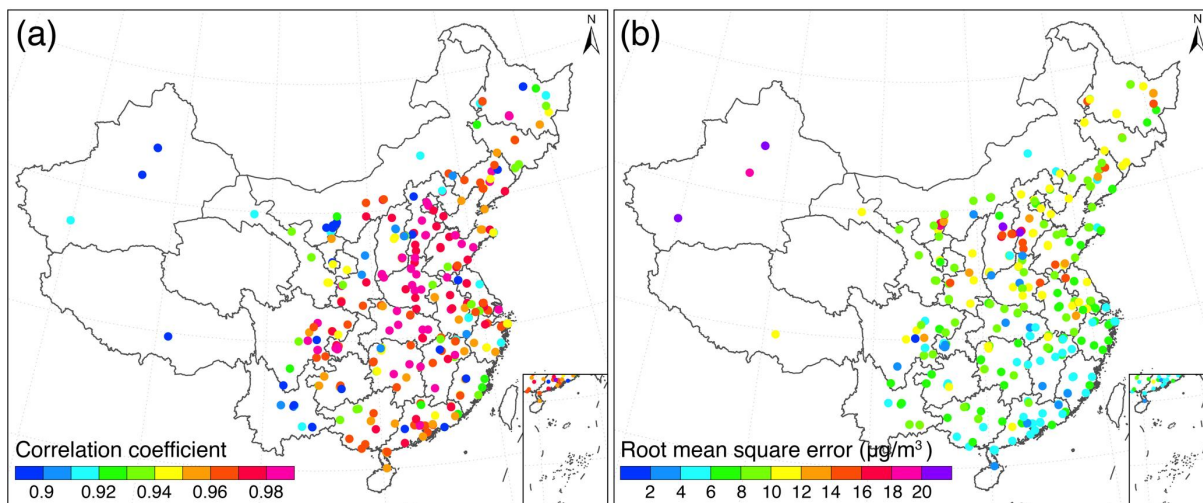*Correspondence to: Dr./Prof. Jianping Guo (jpguocams@gmail.com)

Figure S1. Spatial patterns of (a) correlation coefficient and (b) root mean square error between PM$_{2.5}$ concentration records failing to pass the homogeneity test and their corresponding reference series. Statistics were calculated on the basis of daily PM$_{2.5}$ concentration time series.
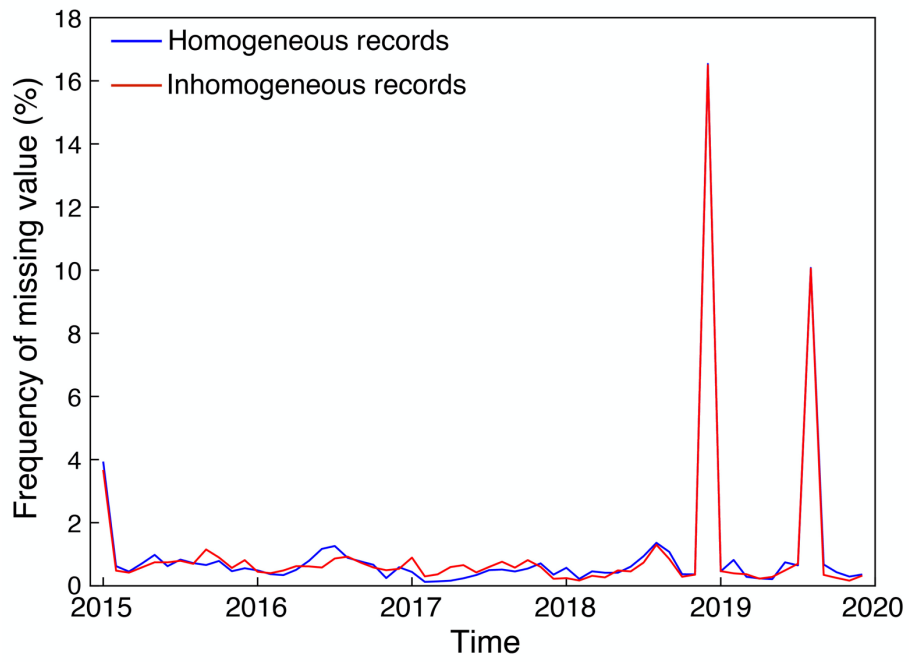
Figure S2. Comparisons of monthly mean frequency of missing values in hourly PM$_{2.5}$ concentration records during 2015–2019.
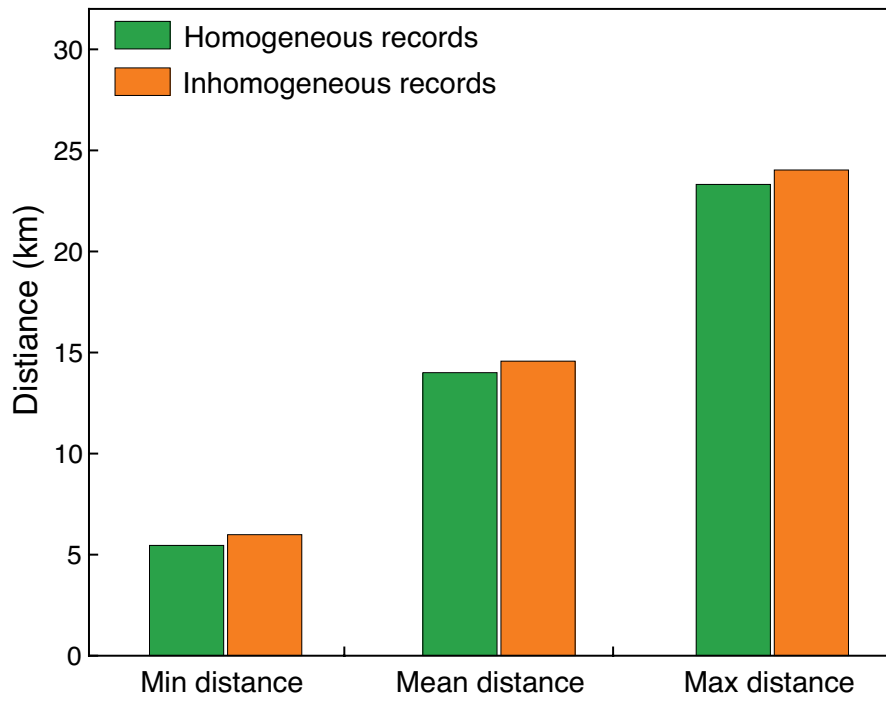
Figure S3. Comparisons of the average spatial distance between the base and neighboring PM$_{2.5}$ series.

Figure S4. Geographic locations of five regions of interest (ROIs). BTH, YRD, CC, SCB, and PRD denote regions of Beijing-Tianjin-Hebei, Yangtze River Delta, Central China, Sichuan Basin, Pearl River Delta, respectively.