**Data List**

1. Correlation coefficients between urban expansion and socioenvironmental indicators among watersheds running through China in 1992-2016
2. Scale effects reflected by correlation coefficients
3. Data used to fit the constraint line
4. Correlation coefficients between urban expansion and socioenvironmental indicators amog watersheds running through China in 1992-2016

The data contain the correlation coefficients of 255 socio-environmental indicators with the area and rate of urban expansion in the watersheds. The time scale is each time period from 1992-2016, and the spatial scale is the level 1-3 watersheds flowing through China. It is also indicated whether the correlation coefficients have a significant relationship in all time periods.

1. Scale effects reflected by correlation coefficients

The data contain correlation coefficients classified into five classes, watershed scales with different classes of correlation coefficients within the watershed, and trends in correlation coefficients across watershed scales.

1. Data used to fit the constraint line

The data contain the upper boundary points used to fit the constraint relationship between 12 socio-environmental indicators and the urban expansion rate at the watershed scales of level 1-3. Indicators were selected for constraint line analysis based on the type of interscale variation of each indicator, the significance of all periods from 1992 to 2016, and the distribution pattern of the scatter plot, namely, river area, Annual maximum elevation, average river gradient, average drought index, average annual snow cover, potential temperate broad-leaved evergreen forest spatial extent, the spatial extent herbaceous plant cover, the spatial extent of lakes, average annual soil moisture content, average soil erosion, average population density, and average nighttime light distribution.