Auxiliary materials

1 Selection of 8 from 197 catchments for annual duration curve analysis

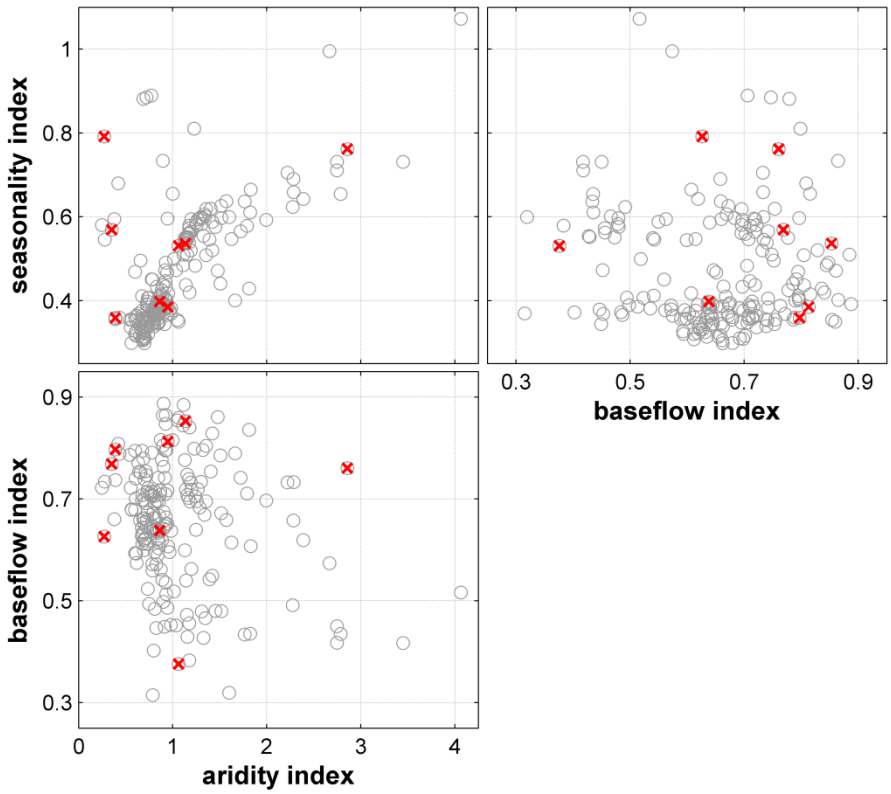

Fig. S1. Comparison of the aridity index, baseflow index, and seasonality index of the 8 catchments for annual duration analysis (red crosses) and all 197 catchments studied (open circles).

2 Seasonality index: definition and distribution

The equation used to estimate seasonality index (SI), which was defined by Walsh and Lawler (1981), is as following:

$$SI = \frac{1}{\bar{R}} \sum_{n=1}^{12} \left| \overline{x_n} - \frac{\bar{R}}{12} \right|$$

where $\bar{R}$ is mean annual rainfall and $\overline{x_n}$ is the mean rainfall of month n (n = 1, 2., …, 12). The value of SI can be larger than 1.0 if the distribution of mean monthly is very uneven. The spatial distribution of the SI of 197 studied catchments is shown in Fig. A2.

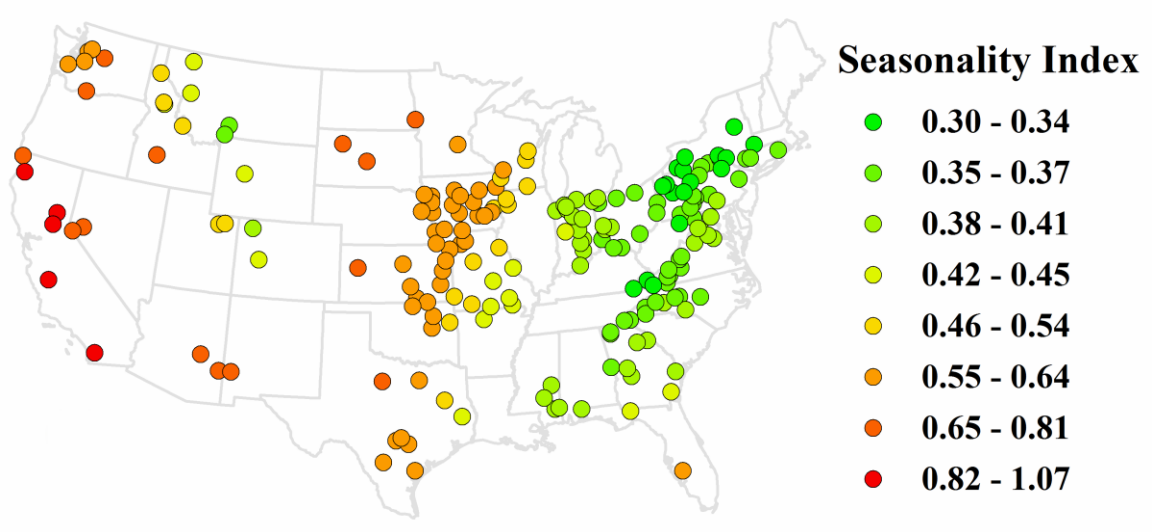

Fig. S2. The spatial variability of seasonality index of studied 197 catchments

References:

Walsh, R. P. D., and Lawler, D. M.: Rainfall seasonality: description, spatial patterns and change through time, Weather, 36, 201-208, doi:10.1002/j.1477-8696.1981.tb05400.x, 1981.