



Recent trends in Iberian river flows (1945-2006)

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Monthly, seasonal and annual hydrological trends across the Iberian Peninsula are analyzed by means of 187 homogeneous river discharge series for the period 1945-2006. The hydrological data set belongs to 4 Iberian water agencies (3 in Spain and 1 in Portugal). The data set covers the high spatial variability of the climate and hydrological characteristics of the Iberian Peninsula. Given the length of the series, the data set allows for identifying the long-term trends of river discharges and identifying the driving mechanisms, both related to climate change processes and human management and regulation in the second half of the twentieth century. Trends were analyzed by means of the Mann-Kendall Test, also considering the pre-whitening of the series to avoid the autocorrelation effects. The magnitude of change, in Hm^3 per decade, was also analyzed in the last 6 decades.

On the one hand, the results show a large decrease of the winter and spring flows, with some spatial differences as a consequence of climate processes or by regulations and water transfers. On the other hand, we found an increasing trend of the summer flows, mainly in the central and western areas of the Iberian Peninsula. This is explained by the water storage in the reservoir during the winter, which is released in summer months to satisfy the demand by irrigation and urban supply