



What are the governing processes during low-flows in a chalk catchment?

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Low flows are important because they lead to the prioritisation of different consumptive water usages, imposition of restrictions and bans, raising of water tariffs and higher production costs to industry. The partitioning of precipitation into evaporation, storage and runoff depends on the local variability in meteorological variables and site-specific characteristics e.g., topography, soils and vegetation. The response of chalk catchments to meteorological forcing especially precipitation is of particular interest because of the preferential flow through the weathered formation. This makes the observed stream discharge groundwater-dominated and hence, out of phase with precipitation. One relevant question is how sensitive the low flow characteristics of such a chalk catchment is to changes in climate and land use. It is thus important to understand all the factors that control low stream discharge periods. In this study we present the results from numerical sensitivity analysis experiments performed with a detailed physically-based model on the Kennet, a sub-catchment of the River Thames, in the UK during the historical drought years of the 1970's.