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Assessing the long-term evolution of water supply capacity: comparison of two Mediterranean catchments

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Abstract This study aims at defining the main stakes in the development of a generic, multidisciplinary approach to evaluate water supply capacity and its spatial and temporal variability over long time periods. A common modelling framework was applied over two Mediterranean basins with different physical and anthropogenic characteristics: the Ebro (85 000 km^2, Spain) and the Hérault (2500 km^2, France) catchments. Runoff and river flow regulations were simulated using conceptual hydrological models and reservoir management models, respectively. Water demand was estimated from population and unit water consumption data for the domestic sector, and from irrigated area, crop, soil and climatic data for the agricultural sector. A ratio comparing water resource availability to water demand was computed on each catchment. Working on two catchments with different geographical scales and water management issues underlines the challenges in the development of a reliable and generic water allocation assessment method.

Key words integrated modelling; River Ebro; River Hérault; water supply; water demand; water demand satisfaction