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Assessing the skill of two operational seasonal forecast systems on a small insular Mediterranean catchment.

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The water resources replenishment and water consumption in semi-arid Mediterranean regions exhibit a seasonal pattern. This is due to the fact that the precipitation occurs mainly during the winter months while the water consumption peaks during the summer [1, 2] leading to water deficits especially during dry year. A drought decision support system of seasonal range has been developed to provide water availability information services to the water managers and users of small Mediterranean basin on the island of Crete, Greece. During this development the ability of realistic representation of precipitation and temperature has been examined for the ECMWF S4 and GLOSEA 5 operational systems. The hydrological model HYPE was then forced with the hindcast dataset of the two systems resulting to local hydrologic hindcasts. Additionally, forecasts of the Standardized Precipitation Index (SPI) were assessed as a proxy of the groundwater level status. The results show a promising skill for both systems, which is however limited to lead times up to one month. The results outline the need of downscaling and bias adjustment of the precipitation [3, 4] in order to increase the skillfulness of the flow prediction for hydrological purposes. Predictions of precipitation and temperature at the seasonal scale can assist in the assessment of the forthcoming winter recharge, as well as the evapotranspiration potential during the dry season.

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