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## Hydronomeas 2020: Open-source decision support system for water resources management

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Over the last 30 years, numerous water resources planning and management studies in Greece have been conducted by using state-of-the-art methodologies and associated computational tools that have been developed by the Itia research team at the National Technical University of Athens. The spearhead of Itia's research toolkit has been the Hydronomeas decision support system (which stands for "water distributor" in Greek) supporting multi-reservoir hydrosystem management. Its methodological framework has been based on the parameterization-simulation-optimization approach comprising stochastic simulation, network linear optimization for the representation of water and energy fluxes, and multicriteria global optimization, ensuring best-compromise decision-making. In its early stage, Hydronomeas was implemented in Object Pascal – Delphi. Currently, the software is being substantially redeveloped and its improved version incorporates new functionalities, several model novelties and interconnection with other programs, e.g., EPANET. Hydronomeas 2020 will be available at the end of 2020 as a free and open-source Python package. In this work we present the key methodological advances and improved features of the current version of the software, demonstrated in the modelling of the extensive and challenging raw water supply system of the city of Athens, Greece.