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كل الحقوق محفوظة للمدرسة الوطنية العليا للري

Abstract : The Soil and Water Assessment Tool (SWAT) is a well-established eco-hydrological model that has been extensively applied to watersheds across the globe. This work reviews over two decades (2002–2022) of SWAT studies conducted on Mediterranean watersheds. A total of 260 articles have been identified since the earliest documented use of the model in a Mediterranean catchment back in 2002; of which 62% were carried out in Greece, Italy, or Spain. SWAT applications increased significantly in recent years since 86% of the reviewed papers were published in the past decade. A major objective for most of the reviewed works was to check the applicability of SWAT to specific watersheds. A great number of publications included procedures of calibration and validation and reported performance results. SWAT applications in the Mediterranean region mainly cover water resources quantity and quality assessment and hydrologic and environmental impacts evaluation of land use and climate changes. Nevertheless, a tendency towards a multi-purpose use of SWAT is revealed. The numerous examples of SWAT combined with other tools and techniques outline the model's flexibility. Several studies performed constructive comparisons between Mediterranean watersheds' responses or compared SWAT to other models or methods. The effects of inputs on SWAT outputs and innovative model modifications and improvements were also the focus of some of the surveyed articles. However, a significant number of studies reported difficulties regarding data availability, as these are either scarce, have poor resolution or are not freely available. Therefore, it is highly recommended to identify and develop accurate model inputs and testing data to optimize the SWAT performance.

Key words : Soil and water assessment tool ; Watershed modeling ; Mediterranean catchment ; Model performance

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