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Abstract :

Drought is a sustained period of below-normal water availability. It is a recurring and worldwide phenomenon, but the Mediterranean Basin is seen as a very vulnerable environment in this perspective, and understanding historical drought conditions in this area is necessary to plan mitigation strategies to further face future climate change impacts. The current research was aimed at the description of drought conditions and evolution for the Campania region (southern Italy), assessed by the analysis of an in situ measurement database which covers a centennial period from 1918 to 2019. Standardized Precipitation Index (SPI) time series were reconstructed for different accumulation timescales (from 3 to 48 months) and the modified Mann–Kendall and Sen's tests were applied to identify SPI changes over time. SPI time series were mostly affected by a negative trend, significant for a very large area of the region, particularly evident for the accumulation scales longer than 12 months. Mean drought duration (MDD), severity (MDS) and peak (MDP) were furthermore investigated for both moderate ($SPI \leq -1$) and extremely severe conditions ($SPI \leq -2$). The accumulation scale affected the drought features, with longer duration and larger severity associated with the larger accumulation scales. Drought characteristics spatial patterns were not congruent for the different SPI timescales: if duration and severity were larger in the southern areas, peaks appeared mostly severe in the northern areas of the region. Extremely severe events were featured by shorter durations and larger severity compared to the moderate drought events but were very less frequent (over 75 % less then) and did not appear to be focused on specific areas of the region.

Keywords : Assessment of centennial ; (1918–2019) ; Campania region ; Historical ; Situ ; Measurements (southern Italy)

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