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Spatial variation and temporal trends of solar radiation over Morocco based on ground observations and CMSAF data records.

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The main advantage of remote sensing products is that they are reasonably good in terms of temporal and spatial coverage, and they are available in a near real time. Therefore, an understanding of the strengths and weaknesses of satellite data is useful to choose it as an alternative source of information with acceptable accuracy. On the first hand, this study assesses an Inter-comparison between CMSAF Sunshine Duration (SD) data records and ground observations of 30 data sets from 1983 to 2015. the correlation is very significant and the satellite data fits very closely to in situ observations. On the other hand, trend analysis is applied to SD and Solar Incoming Direct radiation (SID) data, a number of stations show a statistically significant decreasing trend in SD and also SID shows a decreasing trend over Morocco in most of regions especially in summer. The results indicate a general tendency of decrease in incoming solar radiation mostly during summer which could be of some concern for solar energy.