Solar radiation forecast using analogue and stochastic models for power generation

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Renewable energy resources, such as solar energy, are related to the variability and uncertainty of natural processes. Thus, unpredictability is inherent to renewable energy systems. However, unpredictability and determinism may coexist in nature. We investigate a simple technique of predicting solar radiation by defining the time period for which predictability dominates over unpredictability. In order to determine the time window of predictability, we apply a stochastic prediction model in combination with a chaotic (analogue) one. Once the time window is defined, renewable energy systems related to solar energy could be considered more manageable within this window. The models for solar radiation prediction are implemented to a certain type of solar panels in order to test the accuracy of this solar radiation forecast.