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The Influence of Meteorological Properties on the Power of Night Radiation Cooling

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Abstract : To make better use of cooling resources, systems have been derived on the basis of the use of night radiator systems for heat pumping. Using the TRNSYS tool we determined the influence of the climatic characteristics of the two zones in Morocco on the temperature of the outer surface of a Photovoltaic Thermal Panel “PVT” made of aluminum. The proposal to improve the performance of the panel allowed us to have little heat absorption during the day and give the same performance of a panel made of aluminum at night. The variation in the granite-based panel temperature recorded a deviation from the other materials of 0.5 °C, 2.5 °C on the first day respectively in Marrakech and Casablanca, and 0.2 °C and 3.2 °C on the second night. Power varied between 110.16 and 32.01 W/m² marked in Marrakech, to be the most suitable area to practice night cooling by night radiation.

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