

Cooling load demand assessment – a key issue for economic operation of solar cooling systems

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Already existing buildings mostly do not correspond to the requirements for solar cooling technologies. The decision for solar cooling applications is often done on the basis of simulation tools. But the main challenge in the use of such simulation tools is the correct description of the internal loads, thus the description of the behaviour of human user of the building. An alternative procedure is the data collection of heating and cooling loads and environmental conditions during a selected period. The monitored data can result in a simulation with realistic cooling load characteristics to assess the economic efficiency of a solar cooling system.

In the presented project an application (mold design and manufacturing plant) will be analysed. The poster shows the results of the data monitoring for the cooling loads, the heating loads and the environmental conditions. Moreover a feasibility study, the comparison with common technologies, and the dimensioning of the solar cooling plant can be carried out based on the monitoring results and results in a decision-making-model for economic-efficient operation. The presented results of monitoring and simulation show a vast simultaneity of solar irradiance and cooling loads. It turns out, that the huge water basin is a central component for a competitive solar cooling system. The deliverables on this certain plant can be transferred to similar applications.