

## **The impact of green areas in mitigation of urban heat island**

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In the framework of the project REPUBLICMED (REtrofitting PUBLIC spaces in Intelligent MEDiterranean Cities) co-financed by the European Union, the changes in urban structure have to be proposed in order to mitigate the urban heat island in Zadar, Croatia.

The intention is to compare thermal perception for selected locations in Zadar in the present situation and after proposed changes in different parts of the year. For that purpose, four days in different seasons were selected. For winter and summer, the days with extreme minimum and maximum temperatures were selected, whilst for spring and autumn the days in the middle of seasons (April and October) with mean temperatures similar to the corresponding mean seasonal temperatures were selected. All selected days were mainly clear or with small cloudiness resulting with maximum solar radiation. The thermal perception was calculated by means of biometeorological index based on energy equilibrium between human body and environment – physiologically equivalent temperature (PET).

In the first analysis, daily courses of biometeorological index for selected situations based on hourly data were compared. During warmest parts of the day in summer the thermal perception differs up to 5°C under the tree shadow, while the differences in other seasons are smaller. The second analysis included the differences in the distribution of frequencies of thermal perception in the warmest part of the day (2 p.m.) throughout the year for selected locations. It is performed using meteorological data measured at the meteorological station Zadar in the 30-year climate period 1981-2010. The results have revealed the reduction in the frequency of sensations of hot and very hot (PET > 35°C or 41°C) under the shadow of the trees during summer, at the rate of up to 25% comparing to the situation before modification (without trees).