



Upgrading of the solar irradiance measuring network in Croatia in frame of the EU-IPA project ENHEMS-Buildings

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In the solar irradiance measurement network of Croatian Meteorological and Hydrological Service (DHMZ) there were six automatic meteorological stations equipped with instrumentation for measurement of global irradiance and only two meteorological stations for diffuse solar irradiance assessment. This was extremely sparse coverage for the country which stretches over three climatic zones - mediterranean, mountain and continental. Also, spatial distribution of stations was not adequate to have relevant irradiance information. There was thus a need for upgrading of the solar irradiance measuring network through the DHMZ network of automatic meteorological stations.

ENHEMS-Buildings project (Enhancement of Research, Development and Technology Transfer Capacities in Energy Management Systems for Buildings) funded by European Union was launched in April 2013. One of the main goals of this project is to improve a solar irradiance modeling infrastructure for solar irradiance forecasting. In order to achieve this improvement more ground measurements were required for model validation. ENHEMS-Buildings project enabled acquisition of more solar irradiance sensors and covering the entire Croatia with solar irradiance measurements. Instruments for diffuse solar irradiance were installed on four stations that measured only global radiation. One more main meteorological station was fully equipped with instruments for measuring both global and diffuse solar irradiance and additionally with sensors for measuring sunshine duration. Therefore, global and diffuse irradiance data are available at seven locations in real time and, after verification, permanently stored in the newly established Croatian Solar Irradiance Database. Thus data will be available for data-based modelling of plethora of phenomena affected by solar irradiance and will provide a basic tool that will be used to monitor the improvement of solar irradiance forecasts performed by the mesoscale model ALADIN (Aire Limitée Adaptation Dynamique Développement InterNational).