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Developing an integrated Urban Heat Island Forecasting and Heat Health Warning System for selected Mediterranean urban areas

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The aim of the present study is the description of the implementation and operation of an integrated modeling system that focuses on the Urban Heat Island and its impact on human health. The modeling system, used for both short-term prediction and future projection, was developed on two levels:

- a. The UHI forecasting system which produces high-resolution (250 m) UHI-related products, including thermal bioclimate indices (UTCI, DI, Tapp) and Heating/Cooling Degree Days (HDD/CDD).
- b. Heat Health Warning Systems that provide differential alerts within each involved city and the potential effects on health at high spatiotemporal resolution.

The above endeavor is being realized by a coupled modeling system, consisting of the Weather Research and Forecasting model (WRF) and the Urban Canopy Model (UCM) in high horizontal resolution (2 km). The main purpose of the coupled model is to improve the description of lower boundary conditions and to provide more accurate forecasts for urban regions in order to assess the impacts of UHI.

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