



Towards intelligent spatially detailed heatwave risk assessments for authorities and personalised tools for citizens

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In the decade from 1998 to 2009 heat waves were the most prominent hazard in Europe. Their impact can vary within an urban area due to specific characteristics such as the Urban Heat Island phenomenon and the distribution of the population. Even though timely preventive measures can reduce the risk, current estimations of heat wave risk lack any explicit spatial dimension. To that end, TREASURE (Thermal Risk rEduction Actions and tools for SecURE cities) project integrates the expertise of epidemiologists, climatologists, Earth Observation scientists and Information technology developers into intelligent spatially detailed heat wave risk assessments for authorities and personalized tools for citizens.

In this project, an operational real-time system that exploits remote sensing imagery and generates high spatiotemporal land surface temperature, 2m air temperature and relative humidity time series has been developed. Satellite technology is employed to evaluate the spatial distribution of current urban heat wave hazard, via spatiotemporal analysis of the satellite-derived air temperatures, whilst high resolution regional climate models provide climate change projections for the following decades.

These datasets form the basis for the generation of higher value products and services related to energy demand and thermal discomfort and the development of some of TREASURE's services such as the determination of optimum distribution of Ambulances within a city, and the personalized heat wave risk mobile application. In addition, a webtool provides heatwave, health and energy demand related climate change projections in a time horizon appropriate for longer term policy planning.