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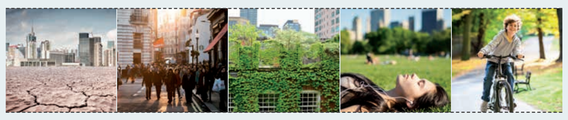
URBAN GOVERNANCE STRATEGIES

Smart governance sustaining urban futures

The DECUMANUS project will provide city managers with a set of sustainable decision support services that allow the deployment of geo-spatial products in the development and implementation of climate change strategies, in meeting the diverse challenges of sustainable urban development. DECUMANUS offers two product levels and five services.

DECUMANUS Background



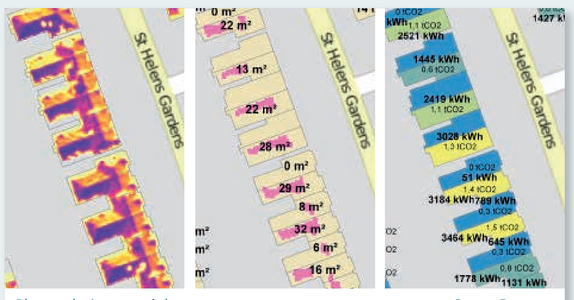
Understanding of the potential impacts of societal challenges for individuals and society is developing fast. In addition, a number of legislative drivers and policy commitments are encouraging European city administrations to take actions with regard to societal challenges including climate change adaptation, reduction of CO2 emissions, energy efficiency, poor air quality, and the re-naturing of cities.

DECUMANUS addresses these societal challenges and the corresponding research and development gaps necessary to secure effective urban governance. DECUMANUS provides services accessible to urban managers dealing with societal challenges including climate change, based on the philosophy that it is possible to adapt to, and mitigate, the challenges if you can understand and measure them.

DECUMANUS Services

CITY ENERGY EFFICIENCY

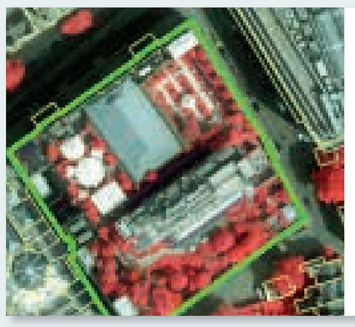
The service provides information to detect energy waste due to anthropogenic heating and provides a quantitative estimate of integral light pollution. This information can be used to locate areas with anomalous high energy losses (thermal losses), to quantify where energy is consumed in specific areas of the city, and to identify high potentials for solar panel installation. Furthermore, the service can be used to monitor light emissions over time, for example, as evidence-based policy support before, during, or after large-scale retrofitting/renewal campaigns across the city.



Photovoltaic potential maps *Source: Eurosense*

LAND MONITORING

The service comprises indicators describing the development of cities, such as the delineation of urban settlements over time and the estimation of the percentage of impervious surface (soil sealing). In addition the service provides more detailed information on current and potential green roof locations, as well as the location of single trees within the city. All these products can be effectively used to characterize scenarios of current and future trends in urbanization.

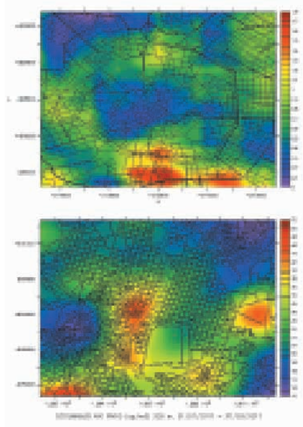


Example land monitoring – Green roof detection in London

Source: DLR
Background image: Getmapping

CITIZEN HEALTH

The service demonstrates how urban air pollution responds to different future climatic scenarios and how human health could be affected identifying vulnerability hotspots over the cities (Basic service: 200m / Premium service: up to 50m). The service will assist users to understand the health impact of the global climate change for the local urban environment, identifying vulnerabilities, and how human health may be affected by changes induced by global warming emissions. The health service focus is on the direct health effects of global climate in relation to temperature and air quality.



Example citizen health - Milan health impacts 2050-2011 RCP 4.5 All causes mortality change.

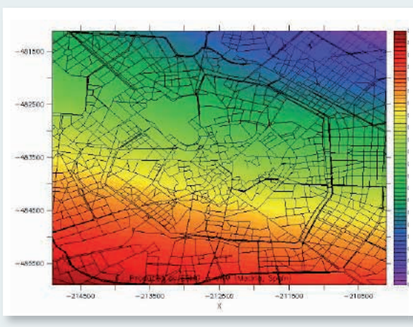
Source: UPM

Example citizen health- Madrid air quality PM10 daily average RCP 4.5

Source: UPM

URBAN CLIMATE ATLAS

The service shows how urban climate responds to different future global climatic scenarios identifying vulnerability hotspots over cities (Basic service: 200m / Premium service: up to 50m). Based on a large list of indicators, the service helps city planners to understand the impact of global climate change on the local urban environment identifying vulnerabilities. It also assists to identify key adaptation challenges using reliable science-based information.

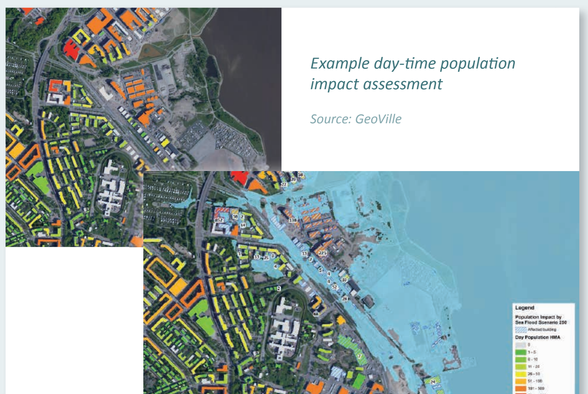


Example Milan urban climate impacts. Temp 2050-2011

Source: UPM

POPULATION IMPACT ASSESSMENT

The service provides information on the night-time (residential) population based on census population data. Based on a variety of input data, for example commuting data, work places, the service furthermore derives day-time population distribution information on building level. Both datasets are then combined with, for example the outcomes of urban climate models and urban air quality models and flood risk/sea level rise datasets to derive the exposure of population according to selected environmental threats and climate change risk within the wider urban area.



Example day-time population impact assessment

Source: GeoVille

DECUMANUS User Feedback

DECUMANUS enhances the capacities of urban planners regarding the assessment and management of climate related and other environmental variables at local level. It is anticipated that these products will have demonstrable impact on the service chain of the targeted community.

"Climate change management requires reliable knowledge about the adequate scale of adaptation measures and, on the other hand, how the emissions from energy use can be effectively decreased. This is exactly what the DECUMANUS services will deliver to the cities of the Helsinki Metropolitan Area. Besides, we can use this data in monitoring the implementation of our regional climate strategies."

Johannes Lounasheimo,
Climate Specialist, HSY

"The Royal Borough of Kensington and Chelsea expect DECUMANUS services to help inform strategies on tackling energy efficiency of buildings as well as improving flooding mitigation through the monitoring of land-use. Planning, environmental health, public health and climate change services will be among those to benefit from the innovative intelligence."

David Yarwood, GI Services Manager;
Royal Borough of Kensington and Chelsea

"The city of Antwerp is looking forward to develop a set of geo-spatial products together with the service providers and city partners in the Decumanus project . By involving the end users, services will be tailor-made for cities tackling actual urban climate challenges. We expect Decumanus to be helpful in reaching the mitigation goals as put forward in the cities Climate Plan."

Griet Lambrechts, Policy advisor sustainable urbanism, City of Antwerp

"A Decision Support System that will increase the proficiency of the city of Milan in understanding and managing climate change issues and in acting to protect population."

Simona Collarini,
Director of General Urban Planning
Department of the municipality of Milano
Maria Berrini,
CEO and Director of AMAT (Milano Agency for Mobility, Environment and Territory)

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