



## **The CLARITY Climate Services Information System – providing hazard characterisation on European scale**

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Climate research and modelling efforts provide a large amount of data and knowledge on how the climate will change in different regions of the world. Translating available climate data such that decision-makers can incorporate the information into their decisions is crucial to increase resilience at local level.

Within the EU-Horizon-2020 funded project CLARITY (<http://www.clarity-h2020.eu>) an integrated Climate Services Information System (CSIS) is being developed to transfer knowledge about climate change and its implications for urban areas and traffic infrastructure to decision-makers and thus to support urban infrastructure planning. CSIS implements the standardized CLARITY methodological framework that comprises the hazard characterisation, exposure analysis, vulnerability analysis, risk and impact assessment and the identification and appraisal of adaptation options.

Hazard analysis is the first step needed to provide an assessment on the risk and impact of such hazards. The following hazards are being evaluated for inclusion in CSIS: heat, cold, floods, storms, droughts, forest fires and landslides. For each included hazard (e.g. heat), several climate indices (e.g. consecutive summer days, tropical nights, etc.) will be provided to fully capture its effects. Climate indices will be available for the whole of Europe - for the historical period 1971-2000 as well as for three future time periods (2011-2040, 2041-2070, 2071-2100). The indices are being calculated for 16 Global Climate Model – Regional Climate Model combinations from the EURO-CORDEX simulations at 0.11° resolution (EUR-11) to account for inter-model variability. An ensemble mean will be available for three representative concentration pathways (RCP2.6, RCP4.5 and RCP8.5). Combining climate data with additional data sources (e.g. EUROSTAT) will then enable the evaluation of the exposure of certain elements at risk, which, together with an assessment of their vulnerability, is necessary for the risk and impact analysis.

While the CSIS methodology will be tested and demonstrated in detail in four different study areas within Europe, the CLARITY CSIS platform will also provide an easy to use screening tool for risk assessment. It will demonstrate: (1) how a core set of hazards and exposure data, based on available Open Data, can be easily provided for any major urban region within Europe; and (2) the added value of the screening based on high resolution regional data sets.

The CLARITY screening tool together with the more detailed studies in four demonstration cases will display the potential of climate services and will help to develop business models for further exploitation of climate services among decision-makers interested in expert studies for climate resilient planning.