IMPETUS 4CHANGE

Improving
near-term climate predictions for social transformation

Impetus 4 Change (I4C)

Climate change, a recognized crisis, lacks usable information to inform timely action and mitigate the negative effects of global warming. Cities globally face adverse consequences, including extreme weather events that pose risks to densely populated areas. Urban decision makers require location-specific, science-based climate information for effective adaptation planning and to avoid detrimental outcomes.

In line with the EU's Mission on Adaptation to Climate Change for a 'climate prepared and resilient Europe' by 2030, I4C aims to improve the quality, accessibility, and usability of short-term climate information and services at local and regional levels by 2030.

Demonstrator Cities

4 European cities were selected to serve as demonstrator cities for the transdisciplinary co-development and co-production process. The demonstrators will be used to showcase innovative approaches and examples for implementing effective and locally tailored strategies to address climate challenges.

Bergen

Paris

Prague

Barcelona

Tools and Solutions

Modelling

I4C employs Supermodels, an innovative approach that combines models to understand oceanic and atmospheric behaviours accurately. This method offers the most accurate mapping of oceanic and atmospheric behaviours and interactions.

Atmosphere model 1

Atmosphere model 2

Ocean model 1

Ocean model 2

Atmosphere supermodel

Ocean supermodel
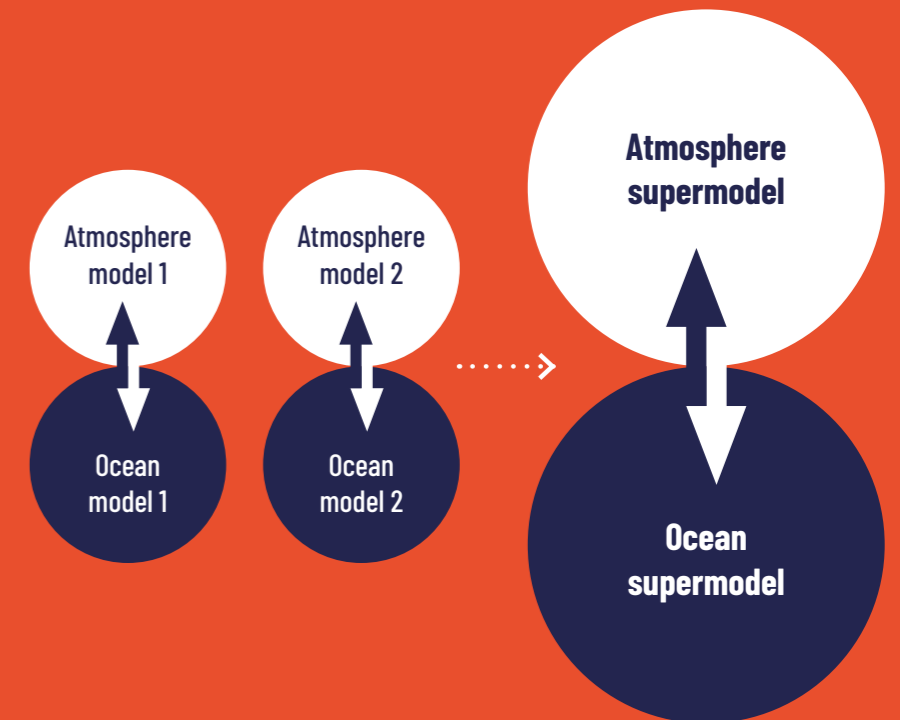
Barcelona

I4C tackles the impact on public health in response to rising temperatures and heat waves. Actions include a vulnerability assessment of the unequal distribution of heat-related impacts, designing public spaces as climate shelters, and policy insights for housing retrofitting and urban regeneration.

Paris

To tackle urban heat islands in Paris, I4C will integrate urban climate response into urban planning to develop mitigation strategies. This involves assessing health impacts and stakeholder needs, conducting high-resolution climate simulations, and combining impact indicators with socio-demographic and epidemiological data to evaluate health risks.

Bergen

I4C aims to address flooding challenges by studying hydrological patterns and their relationship to floods, involving local stakeholders in assessing historical damage, and utilizing models to simulate hydrological events in the city. The end goal is to develop a tailored hydrological risk assessment for urban planning and adaptation decisions.

Prague

In response to urban heat island impacts on air quality, I4C will conduct a study in collaboration with local stakeholders using simulations to assess the potential for green infrastructure to mitigate adverse effects. The simulations will inform future planning needs, including considerations for quality, health, and the implementation of adaptation measures.

Climate hazards toolkit

This **toolkit** will offer custom hazard information, accounting for specific areas, timeframes, and stakeholder needs. It is an invaluable resource for climate adaptation planning, enhancing risk assessments and urban resilience.

eosc

A dedicated **European Open Science Cloud data space** will integrate core datasets and user-relevant software packages, including bias adjustment methods for local data preparation. This space ensures long-term availability and usage of project outcomes beyond the project duration.

Adaptation Support Pack

The support pack will provide: a **"roadmap"** or **strategic guide** to ensure that innovative climate data can support urban adaptation, built around learnings from the Demonstrator Cities.

I4C Climate Adaptalab

A series of **collaborative workshops**, inspired by hackathons, fostering transdisciplinary collaboration among diverse stakeholders, including scientists, planners, consultants, and NGOs. The Adaptalabs collectively address pressing issues, enhance decision-making, and integrate perspectives, expertise, and tools to tackle project challenges.

4 stages of local-scale near-term climate knowledge generation

Co-exploration

Scientists and local stakeholders collaborate to understand cities' climate adaptation engagement, information needs, and usage of climate services for adaptation strategies.

Co-design

Identified potential users collaborate with I4C at events like Adaptalabs to co-create climate service mock-ups using existing data. Participatory events facilitate discussions to define the structure, data processing, and delivery formats for the final services.

Co-development

Newly produced climate data from I4C contributes to final climate services supporting decision-making for various aspects of climate change adaptation. Testbed cities demonstrate the applicability of the project's data outputs in diverse urban contexts.

Co-evaluation

A continuous process in I4C, co-evaluation supports the entire coproduction process and emphasises long-term assessment beyond the project duration. This approach enables learning, course correction, and the development of guidelines for sustained evaluation, providing insights for future development in diverse contexts.

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