

Despite the growing availability of climate information, many regions still face challenges in obtaining clear, science-based adaptation and mitigation options. Climate risk depends on hazards, exposure, and vulnerability, with the latter two heavily influenced by knowledge and climate literacy.

As a result, economically vulnerable regions often experience more significant impacts from global climate change, as wealthier areas have greater resources to address the issue.

ClimEmpower aims to assist **five vulnerable regions in Southern Europe** facing a combination of severe climate-related hazards and limited coping capacity. These regions were selected to represent diverse climatic conditions and climate change-related risks, while also grappling with significant socioeconomic challenges such as economic stagnation, declining demographics, and high unemployment rates.

The project's focus will encompass addressing climate change impacts, developing adaptation strategies, and tackling ecological and socioeconomic issues based on the specific needs of these regions. ClimEmpower aims to enhance their collective understanding of climate change hazards, risks, and resilient development pathways. It will support knowledge-based regional planning and development by providing relevant data, knowledge, and user-friendly decision support applications.



User driven climate applications empowering regional resilience

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REGIONE SICILIA



FREDERICK
RESEARCH CENTER

Clim EMPOWER

Mission

ClimEmpower aims to enhance climate resilience in regional development by providing tools, data, and strategies to empower regions facing climate challenges, contributing to the EU's broader goal of a climate-resilient Europe.

ClimEmpower objectives

1. Understand regional background, challenges and expectations

ClimEmpower will establish Regional Communities of Practice (CoPs) in five regions to engage stakeholders and co-create Case Study Scenarios for improving climate change resilience. By identifying regional needs, gaps, and barriers, these CoPs will collaborate with technical and scientific partners to develop strategies and tools for enhancing climate resilience beyond the current state of the art.

2. Addressing the gaps in availability and usability of CC data and services

TSCC partners will assess existing European datasets and services in terms of their completeness, resolution, and usability for local users, identifying gaps in availability and interpretation. ClimEmpower will address these gaps through data enhancement techniques, provide targeted training materials to improve data accessibility, and engage with service providers to enhance their usability for non-experts.

3. Identification, definition, estimating, and communication of climate impact/resilience indicators suitable for local end-users

TSCC partners will develop and test climate risk indicators linking hazards with socio-economic impacts for participating regions. They will also analyze resilience indicators, evaluating the effects of adaptation and governance measures.

4. Simplify access to CC data and development of end user applications

TSCC partners will create a "CC-resilience toolbox" to simplify access to climate data, enabling regional and local authorities to develop user-driven applications for climate adaptation. ClimEmpower will build on Copernicus C3S data, offering easy feature extraction, microservices for data transformation, and reusable tools to prioritize adaptation measures that also support sustainability and societal justice.

5. Empower the regions to activate and enhance their potential for addressing the climate change challenge.

ClimEmpower will enhance local stakeholders' capacity to address climate challenges through data-driven planning and governance, fostering collaboration and mutual learning. The project will implement participatory workshops and tools to co-create climate-resilient strategies.

Results

Scientific results

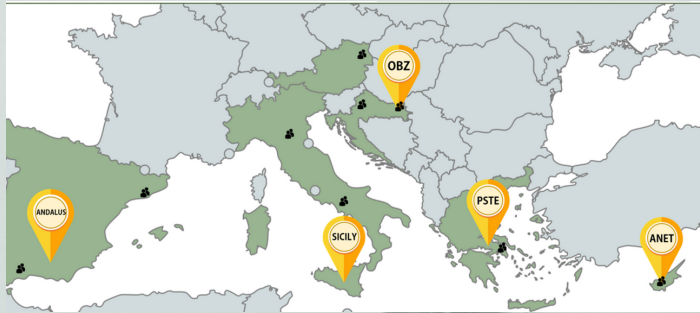
- Gap analysis of existing data and services
- Methodology for overcoming the data gaps
- Portfolio of training materials for enhanced CC-resilience
- CC risk / resilience indicators
- Measures and strategies for increased Climate change resilience

Technical results

- Climate data feature extraction library and service
- Climate data processing and indicator (micro)services
- Web-GUI application components and GUI integration environment
- Applications for enhanced CC-resilience

Socioeconomic results

- Communities of Practice for CC-resilient development
- Regional CC-resilience recommendations
- Community Validation



ClimEmpower Pilot Regions

Andalusia

Tackling heatwaves, drought, and biodiversity loss.

Osijek-Baranja County

Addressing flooding and agricultural impacts due to extreme weather events.

Sicily

Focused on urban flooding and the effects of rising temperatures.

Region of Central Greece

Dealing with health risks from flooding, heatwaves, and mosquito outbreaks.

Troodos Mountain Area

Dealing with heatwaves, sahara dust, wildfires.