ACCREU
Assessing Climate Change Risk in EUrope

6th ACCREU final project meeting

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ACCREU Digital Tools

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ACCREU tools

- ACCREU Data Catalog
- Climate Change Impact & Adaptation Scenario Explorer
- European Adaptation Handbook







ACCREU Data Catalog

IIASA ACCELERATOR · ABOUT

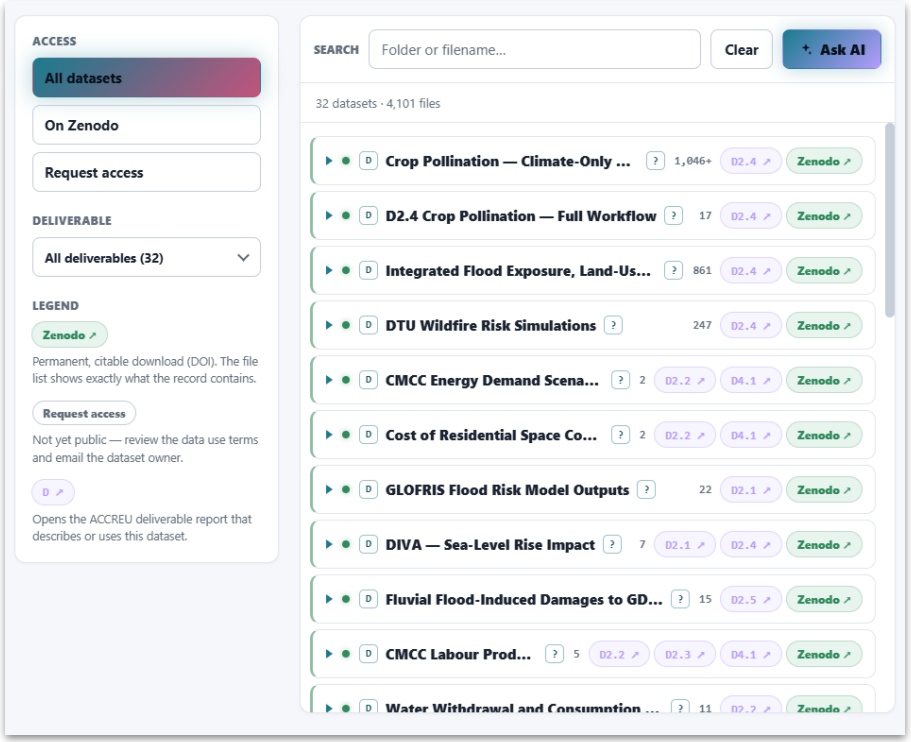
ACCREU Data Catalog

Project site ↗ | Zenodo community ↗ | ← Back to the catalog

The ACCREU Data Catalog provides a central entry point for discovering and accessing datasets produced within the ACCREU project (Assessing Climate Change Risk in EUrope). Explore quantitative data on the economic, physical and biophysical impacts of climate change and adaptation, covering agriculture and land use, water, ecosystems and biodiversity, energy, labour, coastal impacts, wildfire, and the economy, across a wide range of spatial scales and modelling approaches.

Throughout the project, IIASA has maintained ACCREU's internal data repository through the IIASA Accelerator, supporting the management, sharing and use of data among the 15 ACCREU partners. This catalog builds on that infrastructure to provide a single public entry point for the datasets released by ACCREU partners, and brings together datasets published through established research repositories such as Zenodo. Each dataset links to the ACCREU deliverable that describes it.

FILES CATALOGED	DATASETS	ON ZENODO	DELIVERABLES LINKED
4,101	32	32 of 32	11



ACCREU Data Catalog: Purpose and Users

- A common entry point to datasets from climate-impact and adaptation research.
- Designed for researchers and modelers, and relevant to policy analysts and other users of climate-risk data.

FIND

Locate data across partners, sectors and research activities.

INTERPRET

Connect datasets to documentation, methods and deliverables.

REUSE

Assess suitability for further analysis, modelling or comparison.

Data coverage: spatial scales, research domains, types

Coverage and resolution differ by dataset; not every domain is available at every scale.

SPATIAL COVERAGE

Global | European / regional | National | Subnational (NUTS2) | Case-study regions

RESEARCH DOMAINS

Agriculture and land use | Water resources and demand | Energy | Health and labour

Ecosystems and biodiversity | Flooding and Coastal impacts | Wildfire

Economic and distributional impacts | Infrastructure and built environment

INPUT DATA

Climate forcing

Climate projections used to drive the models

INTERMEDIATE DATA

Intermediate model outputs

Results from upstream models used as inputs to downstream assessments (e.g. hydrological data)

MODEL RESULTS

Impact and adaptation outputs

Biophysical impacts and socioeconomic / economic results

Example: Extreme heat: health and economic impacts

Can I use ACCREU data to study the health costs of extreme heat?

1 DOES IT COVER MY RESEARCH QUESTION?

Heat-related mortality, morbidity and economic valuation for people aged 65+.

2 IS THE SPATIAL AND TEMPORAL COVERAGE SUITABLE?

European NUTS3 regions · Historical, 2030, 2050 and 2070 · Four SSP–RCP combinations

3 HOW WERE THE RESULTS PRODUCED?

Links to relevant ACCREU deliverables with methodology, scenarios and analysis.

4 CAN I ACCESS AND PROPERLY CITE THE DATA?

Zenodo record with DOI and authorship, plus links to the underlying publications.

5 ARE THERE ANY RELATED DATASETS THAT COULD SUPPORT MY RESEARCH?

Explore additional datasets linked to the same ACCREU deliverable

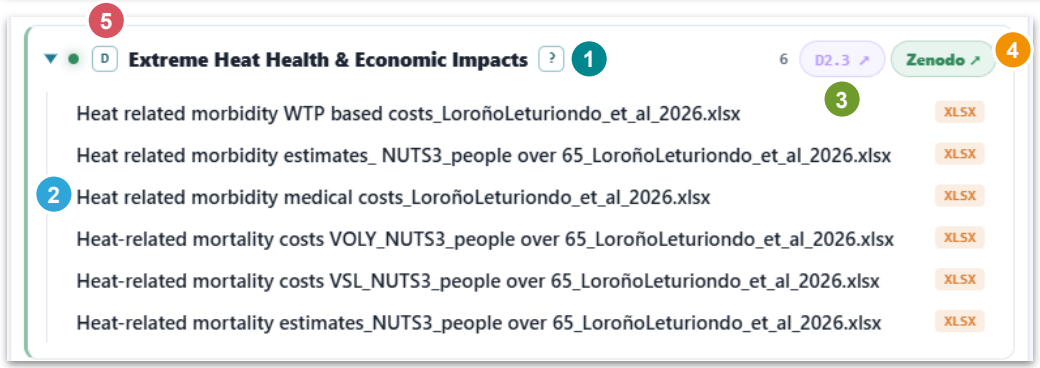
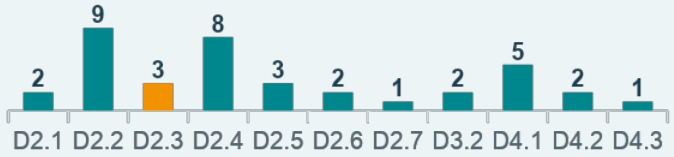


Image of the Extreme Heat dataset in the ACCREU Data Catalog

Finding datasets: Browse the catalog or use AI agent

Navigate Data Catalog by project deliverable

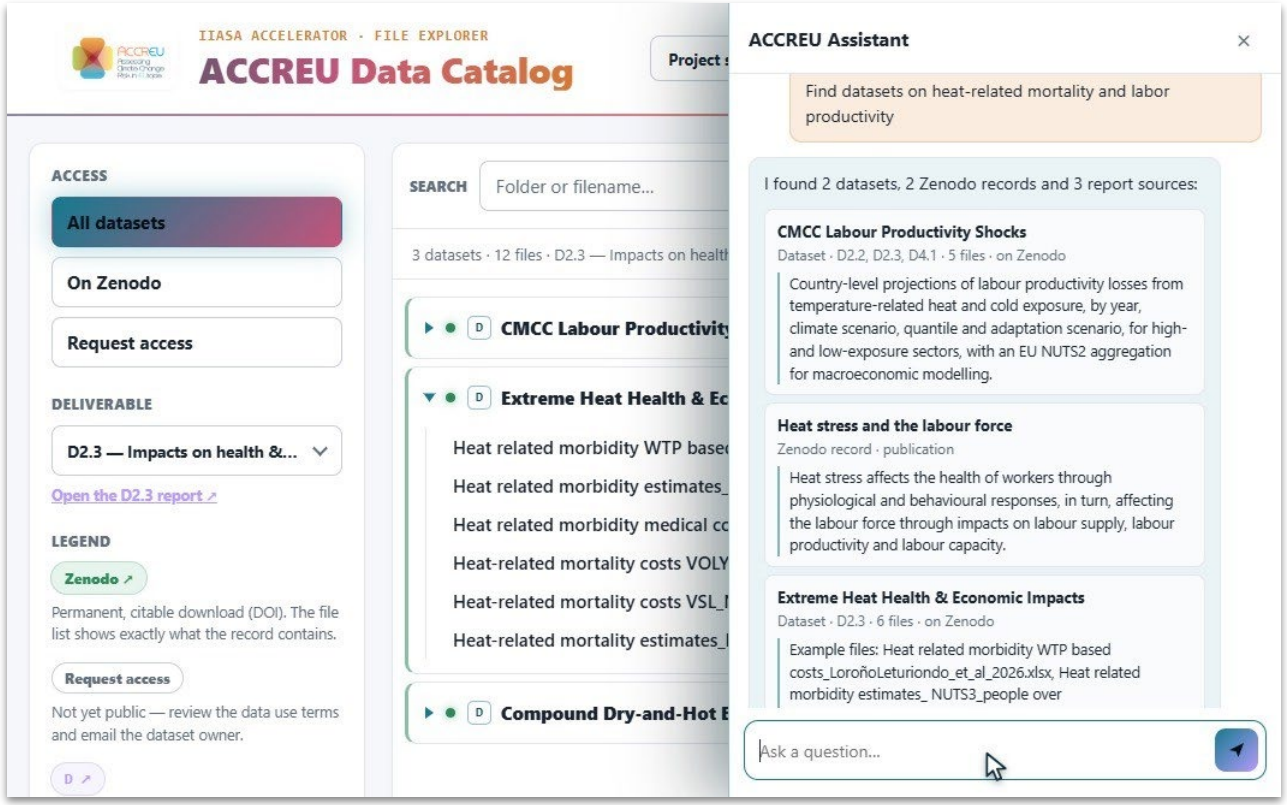


Datasets per deliverable (one dataset can belong to several)

Ask AI

Use a research question to identify potentially relevant deliverable and dataset records.

"Find datasets on heat-related mortality and labor productivity."



1 Enter a query › 2 Inspect the result › 3 Open the original record

Documentation, access and citation

CATALOG RECORD

Understand the dataset

- Title and description
- Links to underlying Zenodo records
- Related project deliverables, where applicable

REPOSITORY RECORD

Check before reuse

- Methods and provenance
- Coverage, variables and units
- License and access conditions

ZENODO RELEASE

Cite the data

- Persistent DOI
- Version information
- Metadata and associated files

Some records may require an access request while data remain restricted or embargoed until publication.

Access Data Catalog and related resources

Locate ACCREU datasets, review the documentation and project deliverables and cite the relevant records.

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Data Catalog
iiasa.github.io/ACCREU

Zenodo Community
zenodo.org/communities/accreu-project

ACCREU
Assessing Climate Change Risk in EUrope

Welcome to the

Climate Change Impact & Adaptation Scenario Explorer

This tool showcases the main results of the ACCREU project.

Different impacts along the causal chain starting from climate change pressures and ending with economic implications, together with cost effectiveness ratios of adaptation actions are presented in multiple climate change and social economic scenarios. These assessments are performed by a set of last generation biophysical, econometric, economic models. They are integrated consistently to provide a comprehensive and multidimensional picture of realistic climate change futures.

Results are shown at the NUTS 2 level for the European Union + UK.

Impacts

Adaptation

ACCREU Scenario Explorer

Key sectors

1. Agriculture
2. Sea-level rise
3. **Riverine floods**
4. Labour
5. Energy supply
6. Energy demand
7. Biodiversity
8. Wildfires

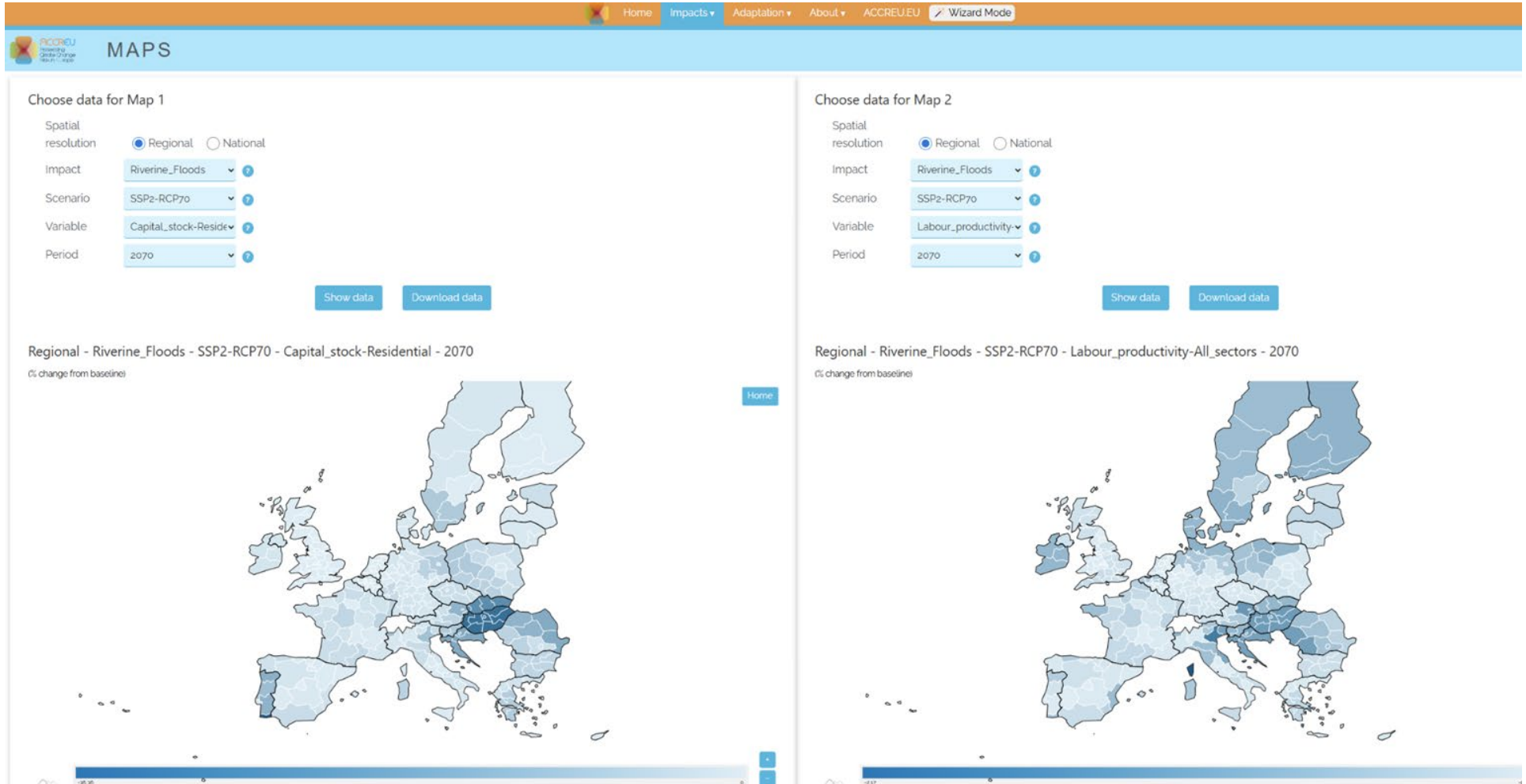
Direct physical and biophysical impacts (e.g. change in crop yields, capital, land losses)

Macroeconomic implications
GDP changes

ACCREU Scenario Explorer: Riverine flood

Direct impacts: on labor productivity and capital stock

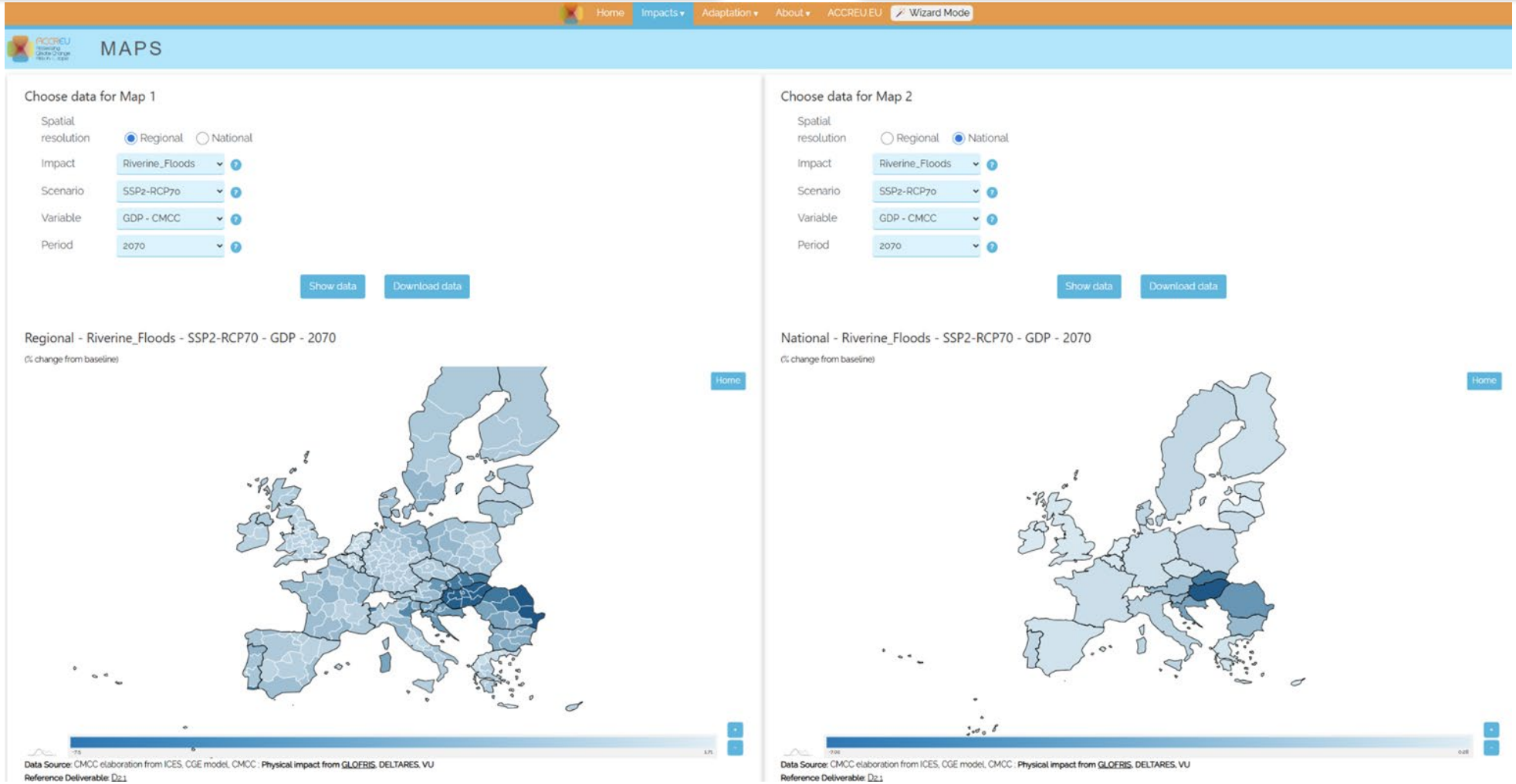
Regional impacts
138 European regions



ACCREU Scenario Explorer: Riverine flood

Macroeconomic GDP changes

Regional and national results



ACCREU Scenario Explorer: Riverine flood

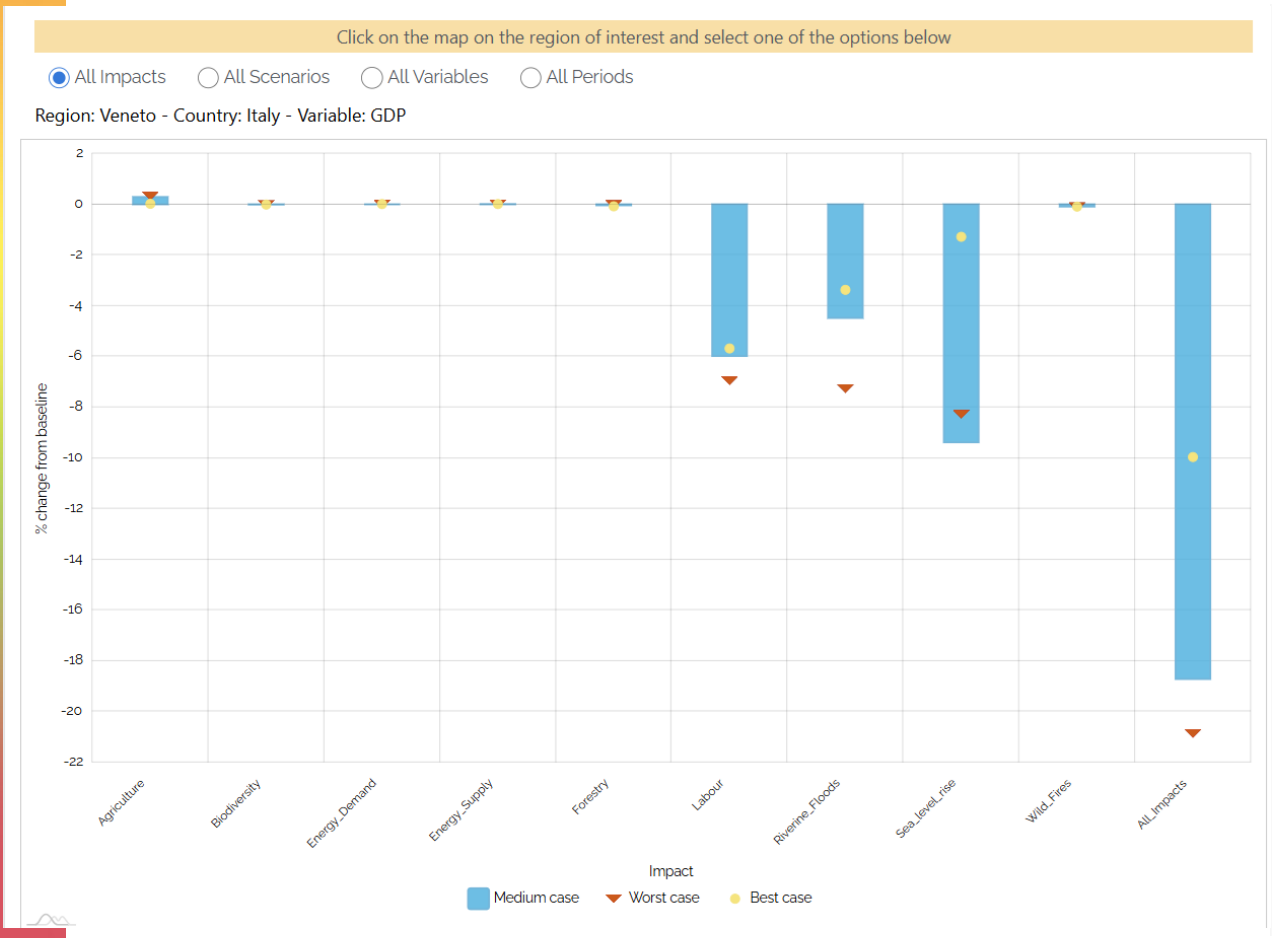
Different degree of warming
RCP2.6, 4.5, 7

Different time horizons
2025-2070

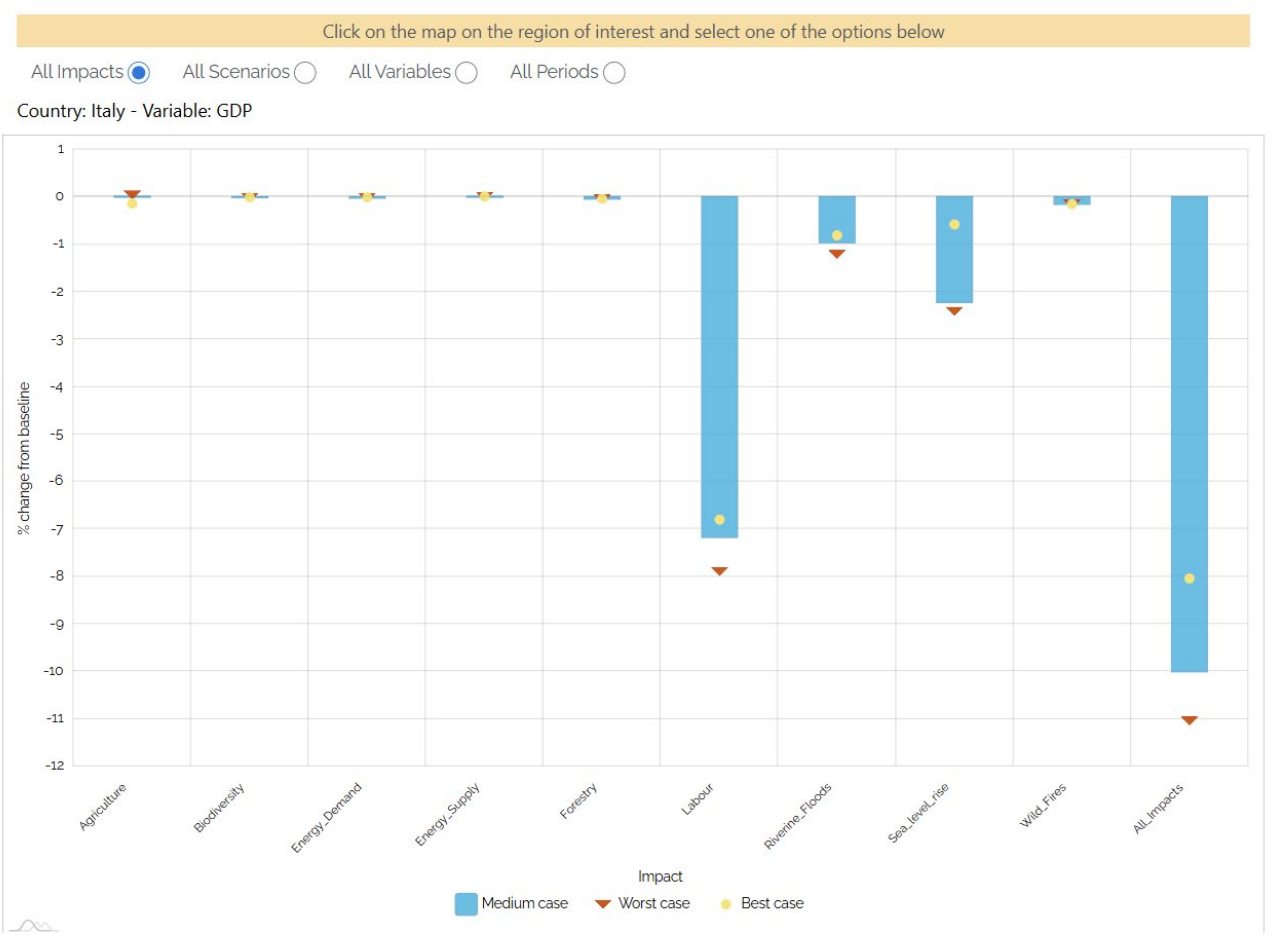


ACCREU Scenario Explorer: All impacts

Impact decomposition by region



Impact decomposition by country



ACCREU Scenario Explorer: Adaptation



ACCREU Scenario Explorer: Adaptation in models



ACCREU Assessing Climate Change Risk in EUrope

European Adaptation Handbook

What climate adaptation costs and what it delivers, in 15 European case studies

7 TOPICS · 15 CASE STUDIES

FROM THE CASE STUDIES 1 / 15

€526 million of benefits from adaptation, mostly from housing

Floods · Case study 1.1 Den Helder

Health

How European regions protect those who are most exposed to rising heat

Heat is one of the most dangerous climate hazards in Europe. In ACCREU we have used two case studies, in the Basque Country and Bremen, Germany, to calculate the costs and benefits of regional heat plans and how these are distributed. In both places we find that modest coordination budgets bring very large health benefits: in Bremen, each Euro spent provides an investment return of €73 to €105.

Pressures

Average temperatures and the number of hot days are continuing to rise, while factors such as existing health conditions, unemployment, poverty and isolation create imbalances inthe way that people are affected.

Risks

Increase in heat-related deaths and illness with babies, elderly people, pregnant women and people on low incomes at particular risk.



VIDEO OVERVIEW

Who benefits from a heat plan and how much are these benefits worth?

The cost of heat plans is very low compared to the health benefits

A Socially Just Heat Adaptation Plan in Bremen, Germany



Assessing the social justice and economic implications of health-related adaptation policies

This case study focuses on the federal state of Bremen in northern Germany, a region marked by socio-economic disparities and poor health outcomes compared with other German states. Facing rising temperatures and prolonged heat waves, Bremen adopted a **Heat Action Plan** in 2024, covering risk communication, extreme event management, urban development and monitoring. Annual costs are approximately estimated at € 510.000, against benefits of € 50 million per year in terms of avoided deaths and illness.

Cross-cutting

How national governments estimate what their adaptation plans cost and what they deliver

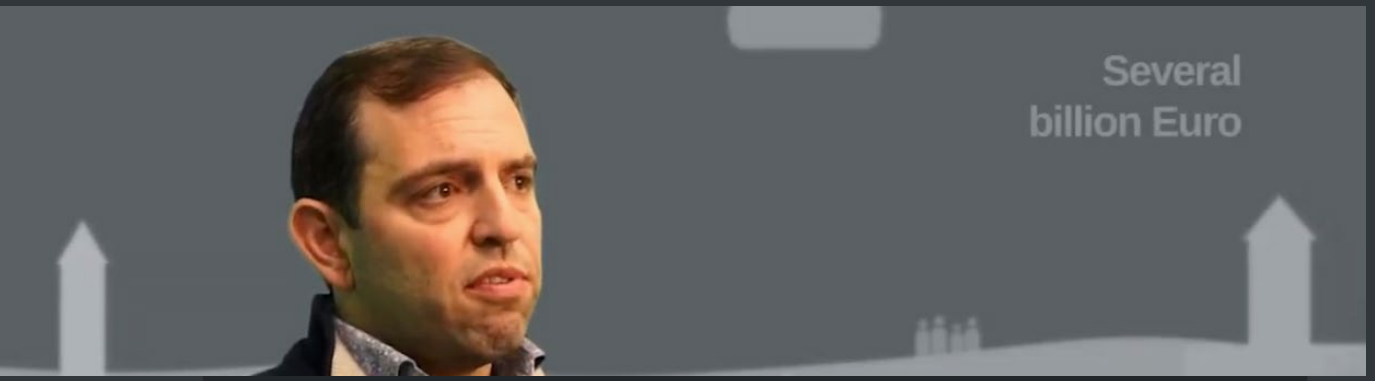
Climate change affects every sector of the economy, so adapting to it needs coordination across government. Two ACCREU case studies, in England and Cyprus, estimate what a national adaptation plan costs and what it is worth. In England, the measures of the national adaptation programme cost around £9 billion a year, and almost all of them bring more benefits than costs.

Pressures

Floods, water shortages and heat increasingly affect England, while Cyprus expects about 25 more days above 35°C by mid-century.

Risks

Without adaptation, cumulative climate damage in Cyprus could reach close to €20 billion by 2050 and around €90 billion by 2100.



VIDEO OVERVIEW

What national adaptation plans cost, and who pays for them

Climate change affects every sector of the economy, so adaptation

Costing England's Third National Adaptation Programme

England / United Kingdom / National adaptation planning

England's third National Adaptation Programme sets out 389 actions for 2023–2028, but did not estimate their costs or benefits. The research team worked with government departments to cost the main measures and compare them with what they deliver.

Climate-proofing | Public spending | Benefit versus costs

Key takeaway: delivering the programme costs around £9 billion a year, about 1% of government spending, and almost all



CASE STUDY 7.2



Cyprus can make smart climate investments pay off

Cyprus / National / National adaptation planning

During the 2024–2025 revision of the national adaptation strategy of Cyprus, the research team worked with national ministries to estimate the investment needed, how much of it is already planned, who should pay for it, and the cost of not adapting.

Cyprus can make smart climate investments pay off

A few billions in adaptation today could prevent tens of billions in future climate damage



Cyprus lies in a rapidly warming Eastern Mediterranean hotspot and already faces more frequent heatwaves, droughts and damaging storms that threaten water security, tourism and health. Costing the revised adaptation strategy and related plans suggests additional investment needs of about 4.1 billion euros to 2050 - 0.5% of national GDP of the entire period – with only around 30% planned so far, leaving a funding gap of roughly 2.9 billion euros.

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Data

Context

After a climate vulnerability and risk assessment in 2016, Cyprus adopted a national adaptation strategy and action plan in 2017, but implementation remained relatively weak, partly because there was no strong institutional framework to make measures binding for public authorities.

In 2024–2025, the Ministry of Agriculture, Rural Development and Environment led a revision of the strategy, and the ACCREU research team worked with national ministries to clarify how much adaptation investment is needed, which measures are already planned, who should finance them, and what the costs of unmitigated climate change could be.

ADAPTATION OPTIONS

Cooling buildings, greening cities and modernising water networks

Key adaptation options in Cyprus focus on reducing heat exposure, safeguarding water resources and climate-proofing economic activities. They include upgrading building envelopes and cooling systems in homes, schools and hospitals, rolling out shading, ventilation and reflective surfaces in public spaces, and expanding urban **green and blue infrastructure** to lower local temperatures.
Water-related measures involve modernising supply networks, enhancing **drought** and leakage management and increasing reuse in agriculture and tourism facilities. In climate-sensitive sectors, options range from adjusting tourism offers and working hours during extreme heat to promoting more resilient crops and irrigation practices. These measures combine technical investments with regulatory standards, early-warning systems and targeted support for vulnerable households, workers and visitors across energy, water, health, transport and tourism sectors.

COSTS

€4.1 billion needed by 2050, only 30% currently funde

Implementing the measures in Cyprus's revised adaptation strategy and related plans is estimated to require around 4.1 billion euros of additional investment up to 2050, but only about 30% of this amount is currently planned or budgeted, leaving a funding gap of roughly 2.9 billion euros. The level of required additional investments is not prohibitive for the Cypriot economy since both the public and the private sector have already implemented several measures to adapt to the existing climate conditions in Cyprus. 70% of the necessary investments are related to energy-efficiency-related renovations of buildings, which contribute to both adaptation and mitigation of climate change.

BENEFITS

Every €1 spent on adaptation avoids more than €4 in

The economic benefits of timely and well-planned adaptation in Cyprus are large compared with the costs. Modelling shows that without adaptation, cumulative climate-related damages could reach close to 20 billion euros by 2050 and around 90 billion euros by 2100, whereas ambitious adaptation and climate-resilient investment pathways could avoid severe damages over the long term. These avoided losses could reflect reduced heat-related productivity impacts, smaller shocks to tourism and agriculture and lower damage to infrastructure, buildings

Access to ACCREU tools

Locate ACCREU tools with QR Codes available in the room

Data Catalog:
iiasa.github.io/ACCREU

Scenario explorer:
https://explorer.accreu.eu/

Digital handbook
https://adaptation-handbook.accreu.eu