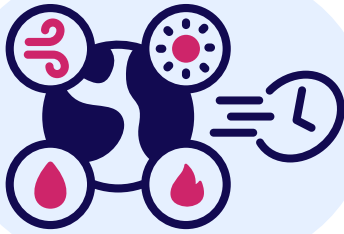


D Living with climate extremes in the EU

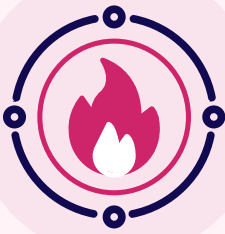


Europe is the fastest warming continent.

Extreme precipitation and heat, marine heatwaves, storms, flooding, wildfires and prolonged droughts are only some of the **intensifying extreme events** in the continent, due to climate change and increasing temperatures.

By 2050

Medium emissions scenario



Increase of wildfire-burned area in the EU every year:

+1,660 km²

1

By 2100

With +3°C global warming

The number of **people exposed to flooding** in the EU and UK every year could **nearly triple.**



2

Climate-related hazards in interaction with non-climatic risk drivers threaten EU's:



food security



public health



ecosystems



infrastructure



economy

Vulnerable groups are most at risk

3



Smart adaptation saves money and lives

The **costs of extreme events** are affecting even in the short term:

- public finances of EU Member States
- EU's economic growth



Costs of river flooding in the EU by 2050:

High emissions/fossil-fueled development



€ 18 bn/year

without adaptation



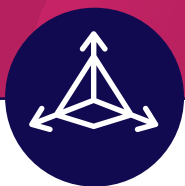
€ 7.7 bn/year

with adaptation

4

CMCC stands at the forefront of climate extreme research, leveraging advanced climate models to unravel the complex dynamics and developing participatory frameworks for inclusive adaptation, preparedness and emergency response.

CMCC - From science to policy and decisions



Advanced and technologically forward modeling

- **We employ** [Artificial Intelligence and Machine Learning techniques](#) to improve the detection, causation, and attribution of extreme events.
- **We develop** advanced data-driven techniques for [marine heatwave prediction](#).
- **We advance** the understanding of [cyclone generation](#) in the Mediterranean region.
- **We assess** the accuracy and consistency of information used to [understand record-breaking storm systems](#).
- **We offer** a [visualization of the economic costs of climate change](#) at different scales for different socio-economic and climate scenarios.



Prevention and preparedness for just and participatory adaptation

- **We are partnering** to develop a fully integrated impact-based [multi-hazard Early Warning System \(EWS\)](#) to enhance response strategies.
- **We support** local communities in Europe to become more resilient to future impacts through [preventive adaptation measures](#).
- **We work** with key stakeholders to develop [innovative insurance solutions](#) for at-risk areas.
- **We are involved** in establishing a cohesive framework for [adaptation in the Adriatic basin](#).
- **We support** the DG ECHO in implementing the [Union Civil Protection Mechanism \(UPCM\) Peer Review Programme](#).

**Further readings
on CMCC works
on climate
change adaptation**



**More information
on the
CMCC Foundation**



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Data references:

1 - G20 Climate Risk Atlas. Impacts, policy and economics in the G20, 2021, DOI: 10.25424/cmcc/g20_climaterisk

2 - The Joint Research Centre: EU Science Hub - https://joint-research-centre.ec.europa.eu/projects-and-activities/peseta-climate-change-projects/jrc-peseta-iv/river-floods_en

3 - European Climate Risk Assessment (EUCRA), EEA Report 01/2024, DOI:10.2800/8671471

4 - COACCH Climate Change Impact Scenario Explorer: www.scenariexplorer.coacch.eu