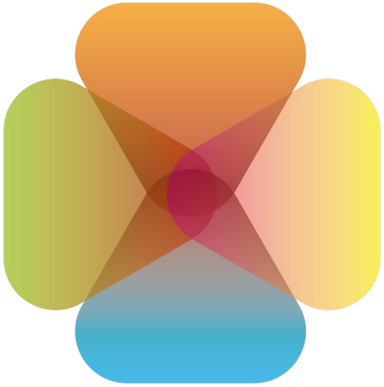


ACCREU
Assessing Climate Change Risk in EUrope

# The macroeconomic dimension of climate change impacts in the EU regions and countries

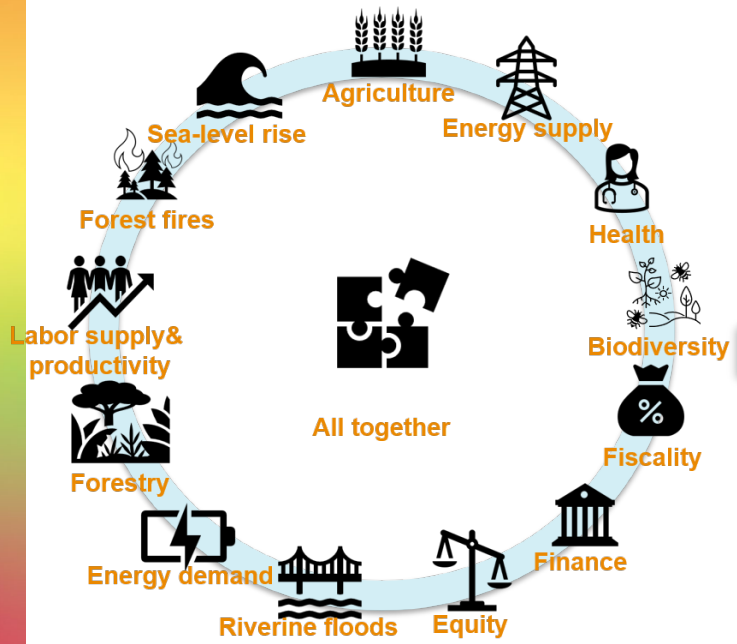
Francesco Bosello, Enrica De Cian
University of Venice and CMCC

The ACCREU-CROSSEU final event
Climate Risk Across Europe:
Knowledge,Tools and Path to Resilience

Brussels, Nov. 13th, 2026

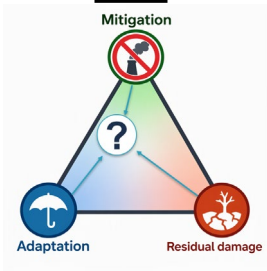
# ACCREU macroeconomic scope

## ACCREU «Impact focus»

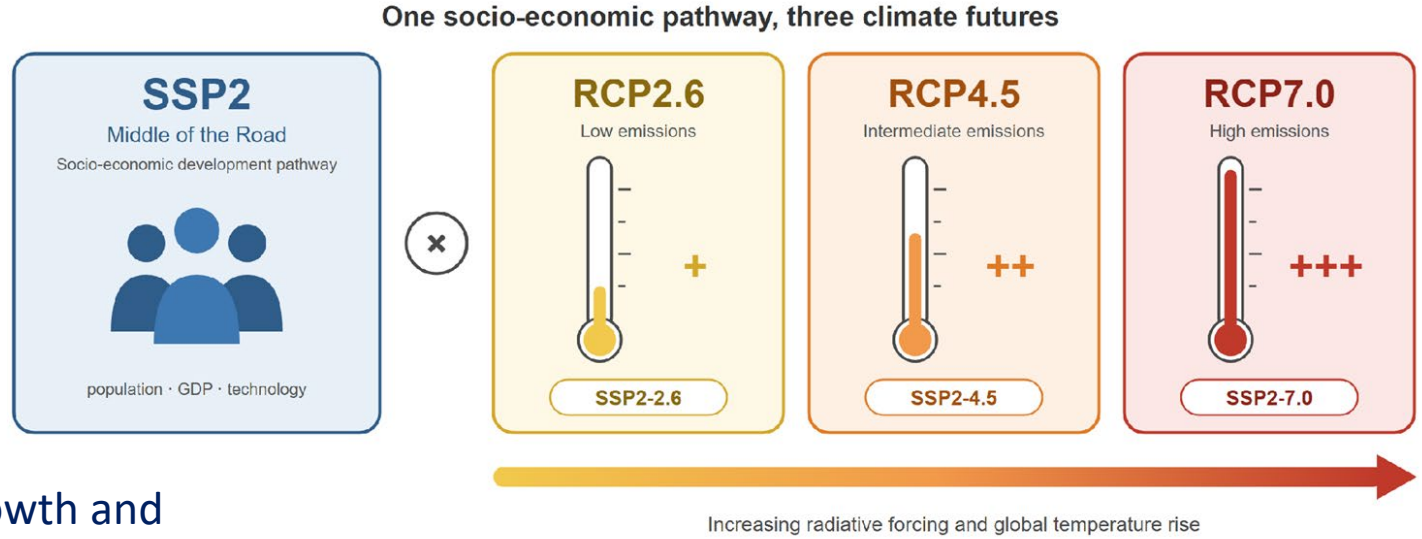



## Macroeconomic models

All produce information on GDP and growth, that will be presented, but the different models have been used with different focuses

| | |
|---|---|
| 1 Nuts-2 (regional) CGE model for the EU | Regional macroec. impacts  |
| 2 country-level CGE models | Macroeconomics of adaptation  |
| 1 CGE multi-household model for the EU | Equity  |
| 3 global integrated assessment models | Policy optimization   |

# The scenario framework




Growth and technological trends follow historical patterns

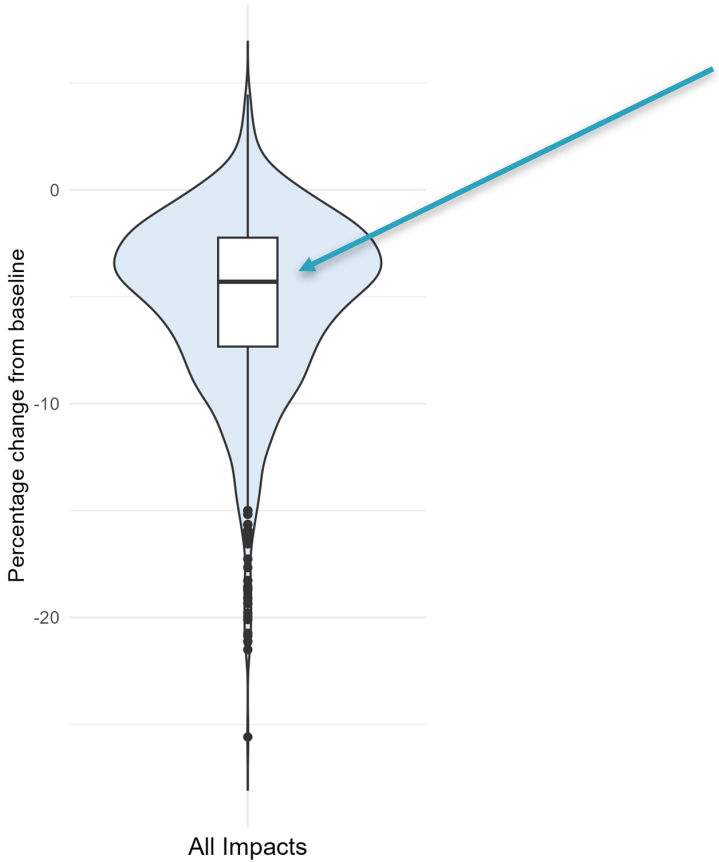
Below 2°C respect to pre-industrial level

Roughly 2.7°C respect to pre-industrial level

Roughly 3.6°C respect to pre-industrial level

**Important: Results that follow are shown for adaptation frozen at today's level!**

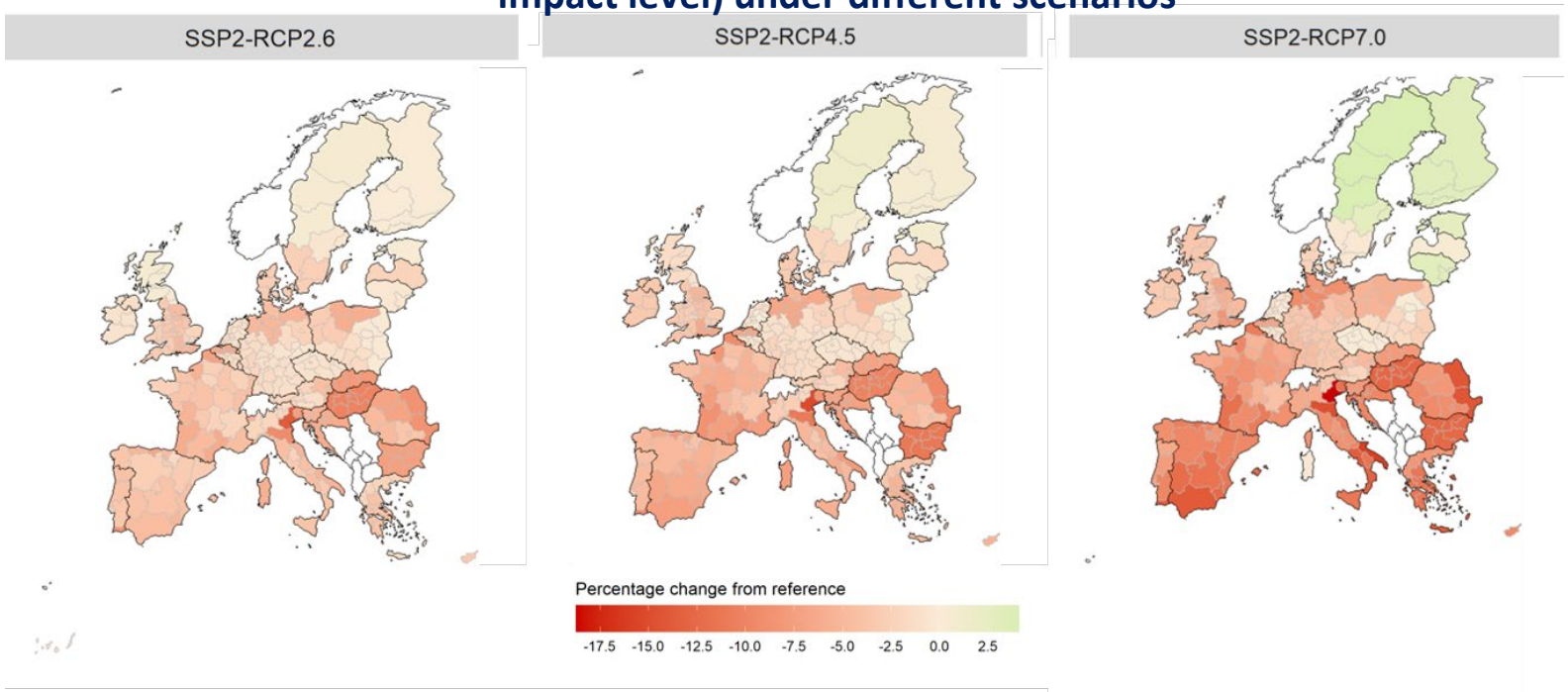
# Putting all together… in 2070




The median GDP loss across all scenarios (all regions) is 4.3 % wrt the current climate.

# The regional picture… in 2070

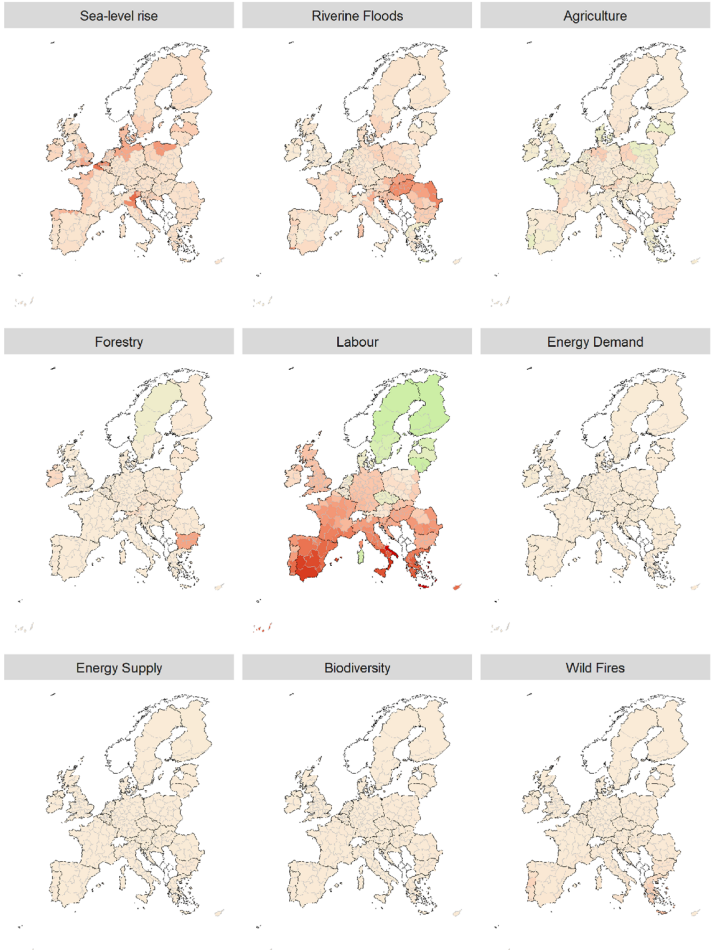
**Climate change impacts on EU NUTS2 region per-capita GDP in 2070 (medium impact level) under different scenarios**




Large economic losses are projected in RCP7.0 by 2070 especially for areas in the MED and Central-Eastern EU

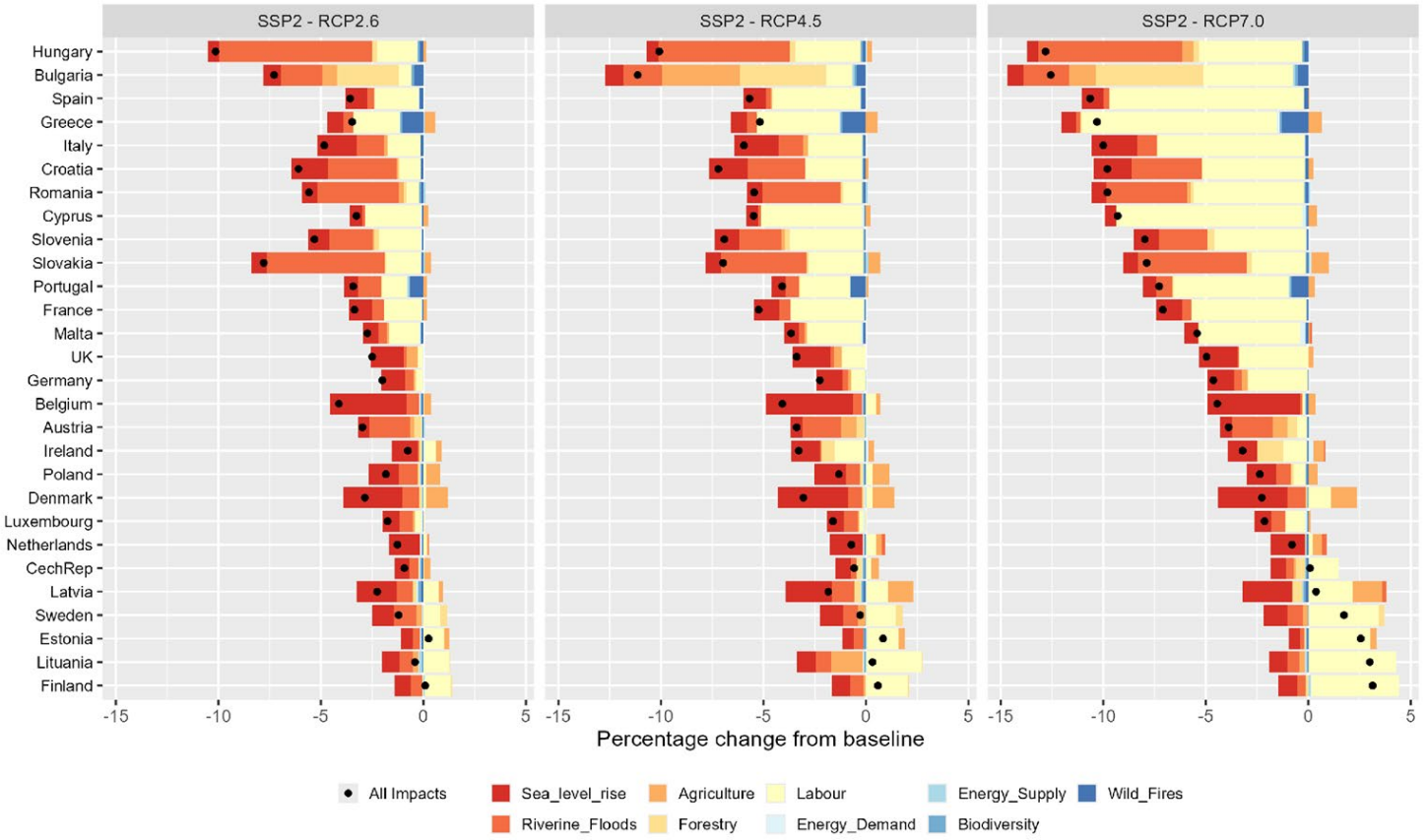
# Impact decomposition

**Climate change impacts on NUTS2 region per capita GDP per impact driver in 2070 (medium level impact, SSP2-RCP7.0 scenario)**

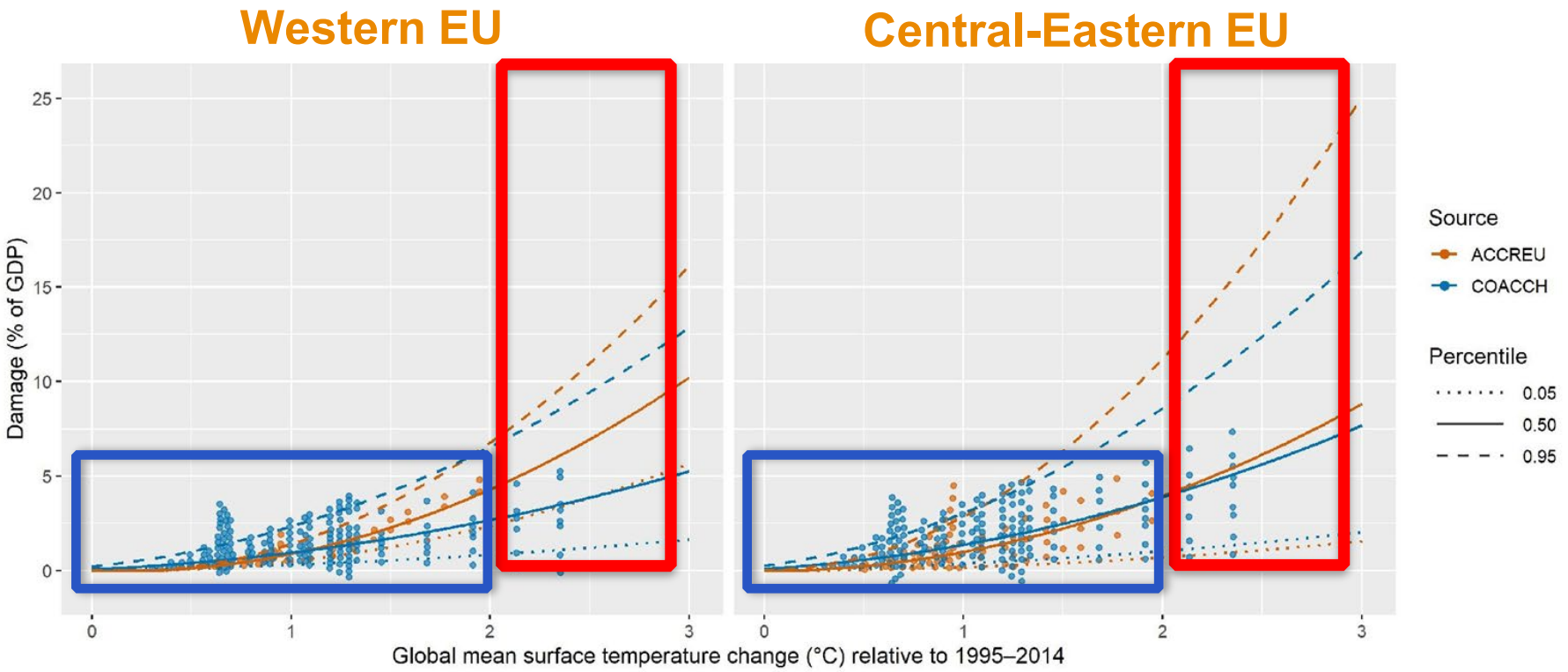



GDP losses are dominated by impacts on the labor force, riverine floods and sea-level rise

# The country picture… GDPs in 2070



# Considerations on the relation between temperature and GDP loss




On the one hand good consistency, on the other hand, huge uncertainty for temperature increases >2°C => additional cautiousness and important INSURANCE role of MITIGATION

# Conclusions

Macroeconomic implications of climate change (recall the «no adaptation premise») are large especially for the Mediterranean and Central-Eastern EU.

The most important drivers for economic losses are impacts on the labor force and on infrastructure and operations from sea-level rise and riverine floods.

Impacts on the labor force need more scrutiny...

All uncertainty considered, the «aggregated picture» for the EU remains robust. Furthermore, potential for huge losses is highlighted beyond 2°C temperature increases (compared this time with the reference 1995-2014 period). A mix of mitigation and adaptation is required (see next presentations!)

# Thanks!

## PARTNERS

ACCREU research is conducted by a consortium of 14 leading EU research institutions:

- Euro-Mediterranean Center on Climate Change (CMCC) **Coordinator**
- BC3 Basque Centre for Climate Change (BC3)
- Ca' Foscari University of Venice
- Climate Analytics
- Deltares
- Ecologic Institute
- Global Climate Forum (GFC)
- IIASA
- Paul Watkiss Associates (PWA)
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