

WGII assessment of regional information and lessons learned

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WG2 Regional Lessons

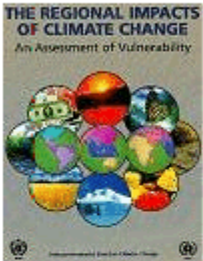
1. IPCC's first response to the need of regional information
2. Regional stakeholders and their expectations
3. The limits of the “GHG – climate – impact – response” paradigm
4. IPCC regional lookalikes
5. Opportunities for AR6

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1. IPCC's first response to the need of regional information

The Regional Impacts of Climate Change: An Assessment of Vulnerability



IPCC, 1997 - R.T.Watson, M.C.Zinyowera, R.H.Moss (Eds)

Cambridge University Press, UK. pp 517

Available from [Cambridge University Press](#), The Edinburgh Building Shaftesbury Road, Cambridge CB2 2RU ENGLAND

Summary for Policymakers

IPCC, Geneva, Switzerland. pp 16

Available from [IPCC Secretariat](#) in Chinese and French - N.B. Arabic, English, Spanish and Russian (OUT OF PRINT).

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- Written in response to lack of regional information in SAR
- But countries insisted that it cannot have additional information beyond SAR

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2. Regional stakeholders and their expectations

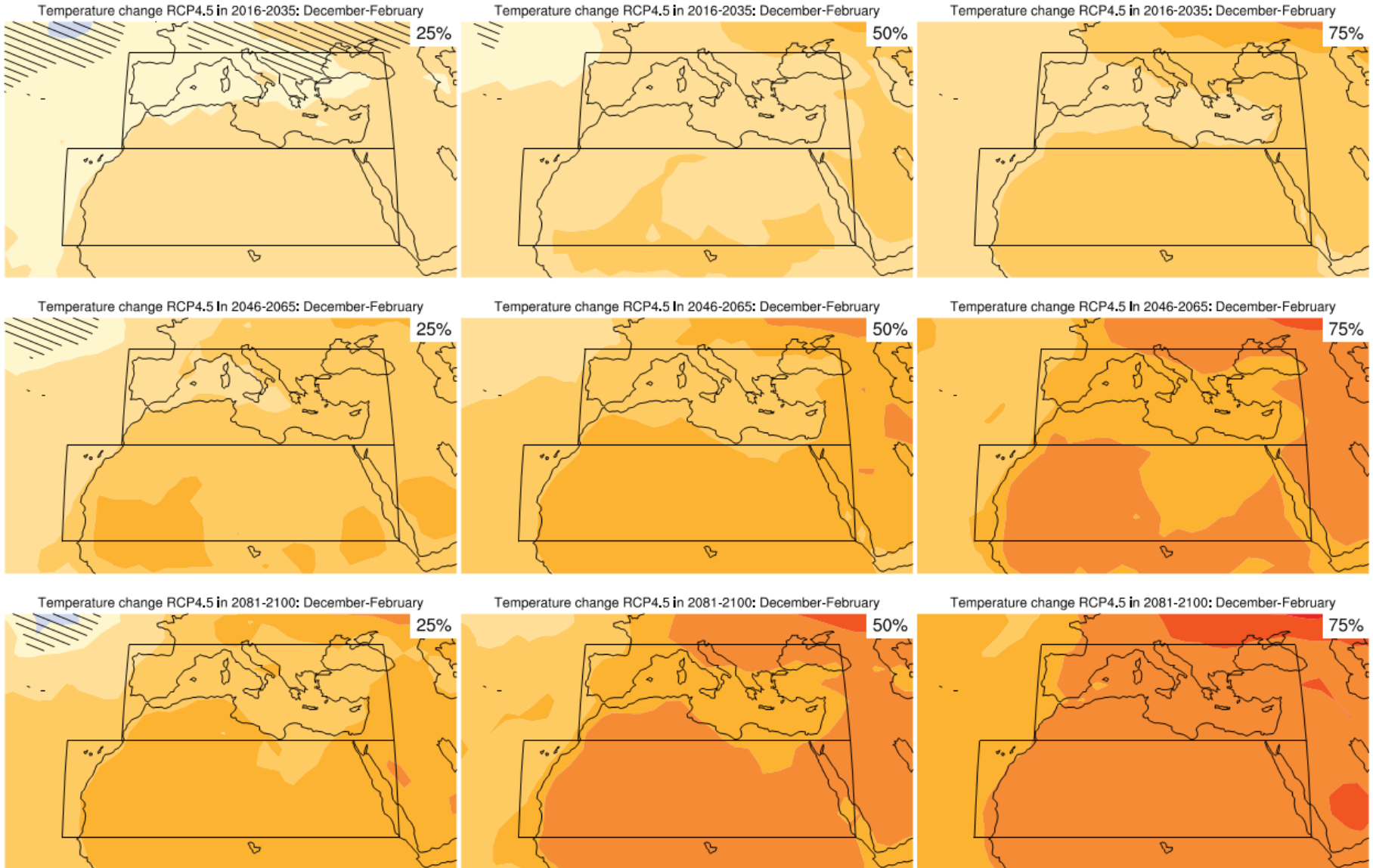
- Local and regional policy makers (mayors!)
- Businesses
- NGOs
- “Normal people”

- Huge focus on adaptation needs and options
- Growing interest in opportunities for mitigation

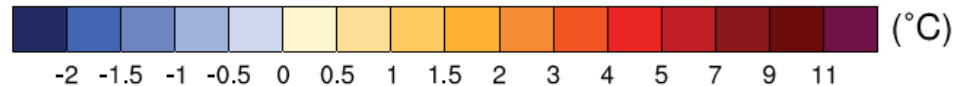
2. Regional stakeholders and their expectations

- TAR, AR4, AR5 have all been very rich in regional information, on climate, impacts and adaptation options
- Are these reports being used to the full extent possible?

Mediterranean warming Dec-Feb for different scenarios (IPCC AR5)



IPCC, 2013: Annex I: Atlas of Global and Regional Climate Projections [van Oldenborgh, G.J., M. Collins, J. Arblaster, J.H. Christensen, J. Marotzke, S.B. Power, M. Rummukainen and T. Zhou (eds.)].



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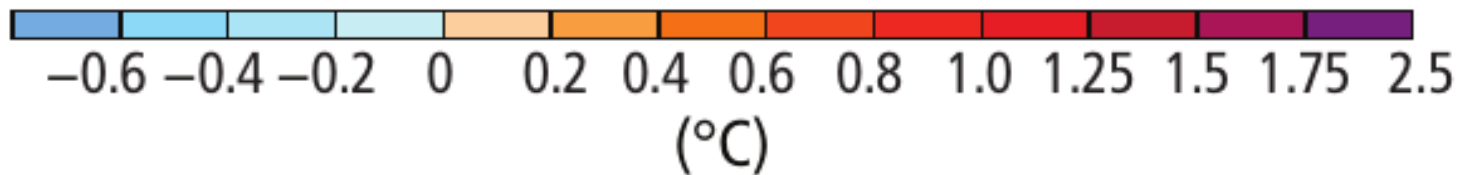
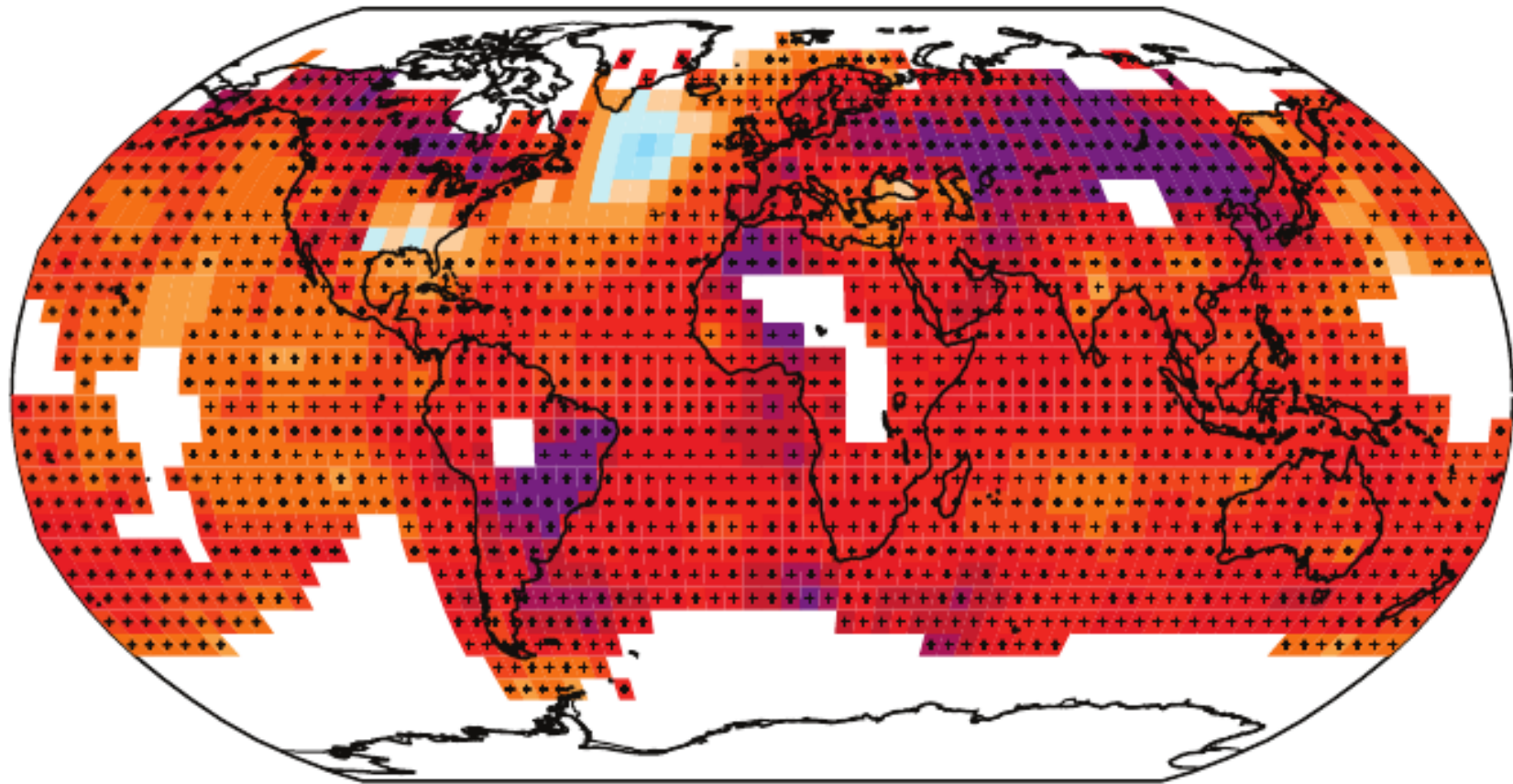
3. The limits of the “GHG – climate – impact – response” paradigm

- Through downscaling, observed or expected impacts can be linked to anthropogenic CC
- But most regions need to understand their own vulnerability, risk levels, and adaptation options first – the CC signal is not the main prerequisite for this analysis
- Also, regions need to relate CC to other forcings of environmental change (land use change, pollution...)

3. The limits of the “GHG – climate – impact – response” paradigm

- Regional assessments for adaptation have focused on “precise” climate information (“how much more runoff”, “how long heatwaves”) at high spatiotemporal resolution
- This may have delayed implementation (“we do not know enough”, “we first need better regional climate models”)

Observed change in surface temperature 1901–2012



3. The limits of the “GHG – climate – impact – response” paradigm

- The traditional view has given the impression that only well-detected and well-attributed impacts are “real”
- But in fact many more impacts are perceived by regional actors, despite lacking rigorous detection and attribution

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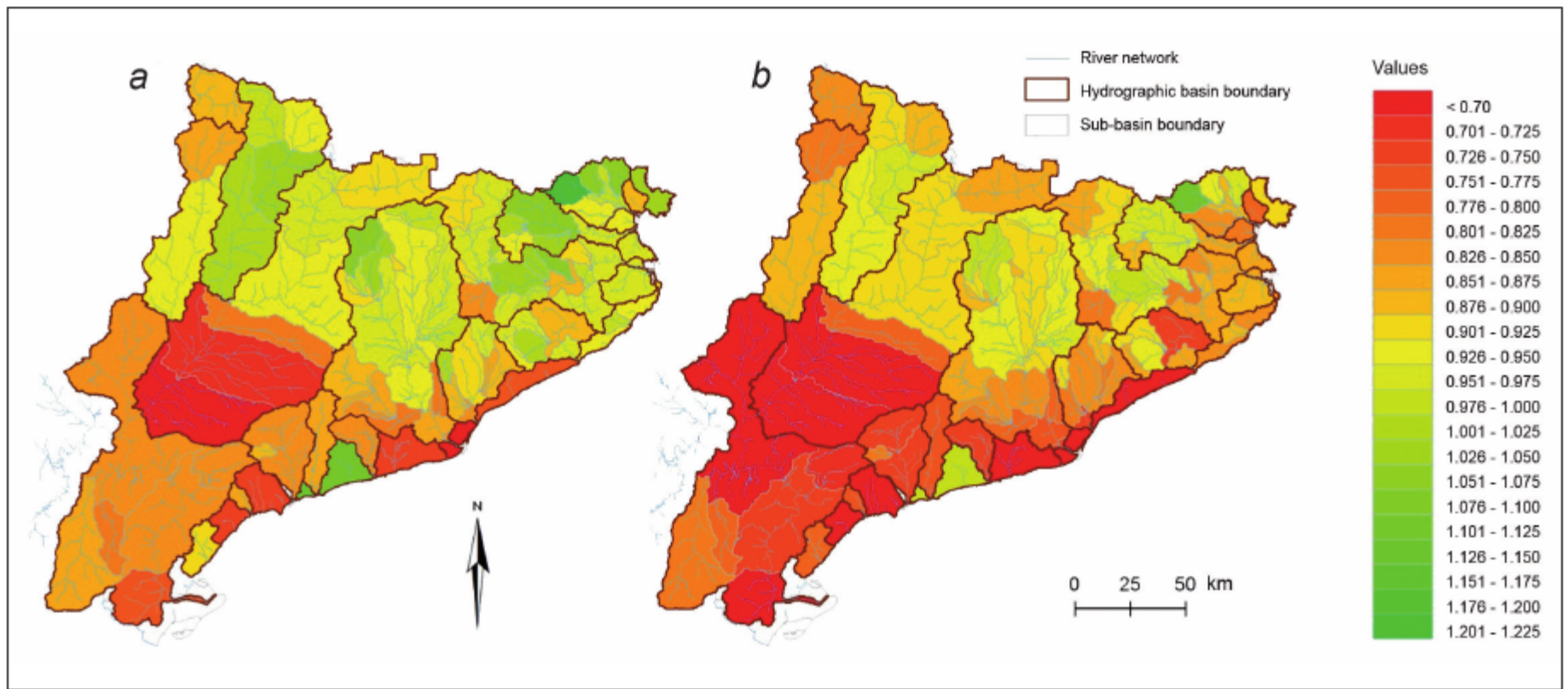


Figure 10. Regional distribution of available water resources in Catalonia for the time frames a) 2021 and b) 2050, using the R/P ratio for each time frame and the present value based on data recorded at 168 observatories in Catalonia. The current distribution of land use is a determinant factor in the evapotranspiration of the water balance, and has also been taken into consideration in the calculation of the total available resource.

Source: *Third Report on Climate Change in Catalonia*, 2016.



Mediterranean Experts on Climate and environmental
Change

The MedECC First Assessment Report – outline

Summary for Policymakers

stakeholder dialogue

1. Introduction
2. Drivers of the environmental impacts (physical and human drivers)
 - a. Climate
 - b. Pollution
 - c. Land/sea use and management
 - d. Invasive species
3. Challenges
 - a. Water, food, energy (WG1)
 - b. Ecosystems and ecosystem services (WG2)
 - c. Development, health and human security (WG3) *current main focus*
4. Managing future risks and building resilience
 - a. Best practices and policies for adaptation, mitigation and sustainable devel.
 - b. Knowledge gaps and needs for research and observations
 - c. Mediterranean cooperation and networking for building resilience
 - d. Training and capacity building *second phase*

**Summary for policymakers to be submitted for approval by
decision makers**

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- Clearly, new opportunities arise from improved climate and impacts modelling at higher resolution
- But we need to address the problems of insufficient monitoring of impacted systems
- We also need to have better multidisciplinary approaches, fully covering social and economic impacts
- SDGs can be a helpful framework

5. Opportunities for AR6

- Encouraging regional assessment bodies could also be helpful (“do-your-own-IPCC” kit)
- The problem of the actual use of the growing information remains

Regional key risks and potential for risk reduction

Representative key risks for each region for

Physical systems
 Glaciers, snow, ice and/or permafrost
 Rivers, lakes, floods and/or drought
 Coastal erosion and/or sea level effects

Biological systems
 Terrestrial ecosystems
 Wildfire
 Marine ecosystems

Human and managed systems
 Food production
 Livelihoods, health and/or economics

Polar Regions (Arctic and Antarctic)

Risks for ecosystems



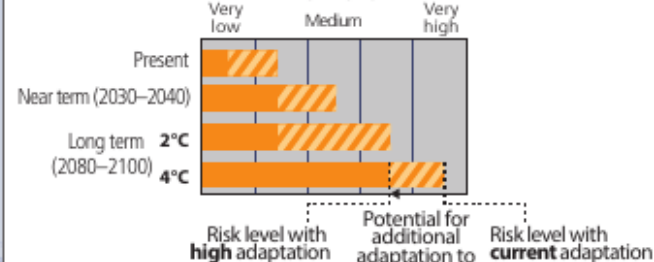
Risks for health and well-being



Unprecedented challenges, especially from rate of change



Risk level



North America

Increased damages from wildfires



Heat-related human mortality



Increased damages from river and coastal urban floods



Europe

Increased damages from river and coastal floods



Increased water restrictions



Increased damages from extreme heat events and wildfires



Asia

Increased flood damage to infrastructure, livelihoods and settlements



Heat-related human mortality



Increased drought-related water and food shortage



The Ocean

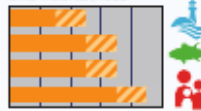
Distributional shift and reduced fisheries catch potential at low latitudes



Increased mass coral bleaching and mortality



Coastal inundation and habitat loss



Central and South America

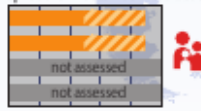
Reduced water availability and increased flooding and landslides



Reduced food production and quality



Spread of vector-borne diseases



Africa

Compounded stress on water resources



Reduced crop productivity and livelihood and food security



Vector- and water-borne diseases



Small islands

Loss of livelihoods, settlements, infrastructure, ecosystem services and economic stability



Risks for low-lying coastal areas



Australasia

Significant change in composition and structure of coral reef systems



Increased flood damage to infrastructure and settlements



Increased risks to coastal infrastructure and low-lying ecosystems

