

Earth observations for impacts, risks, and adaptation progress

Climate change 2022: Impacts, adaptation and vulnerability

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Characteristics of observations relevant for IPCC WGII:

... what need to be monitored for changes (declines and improvements) and action

Wanted:

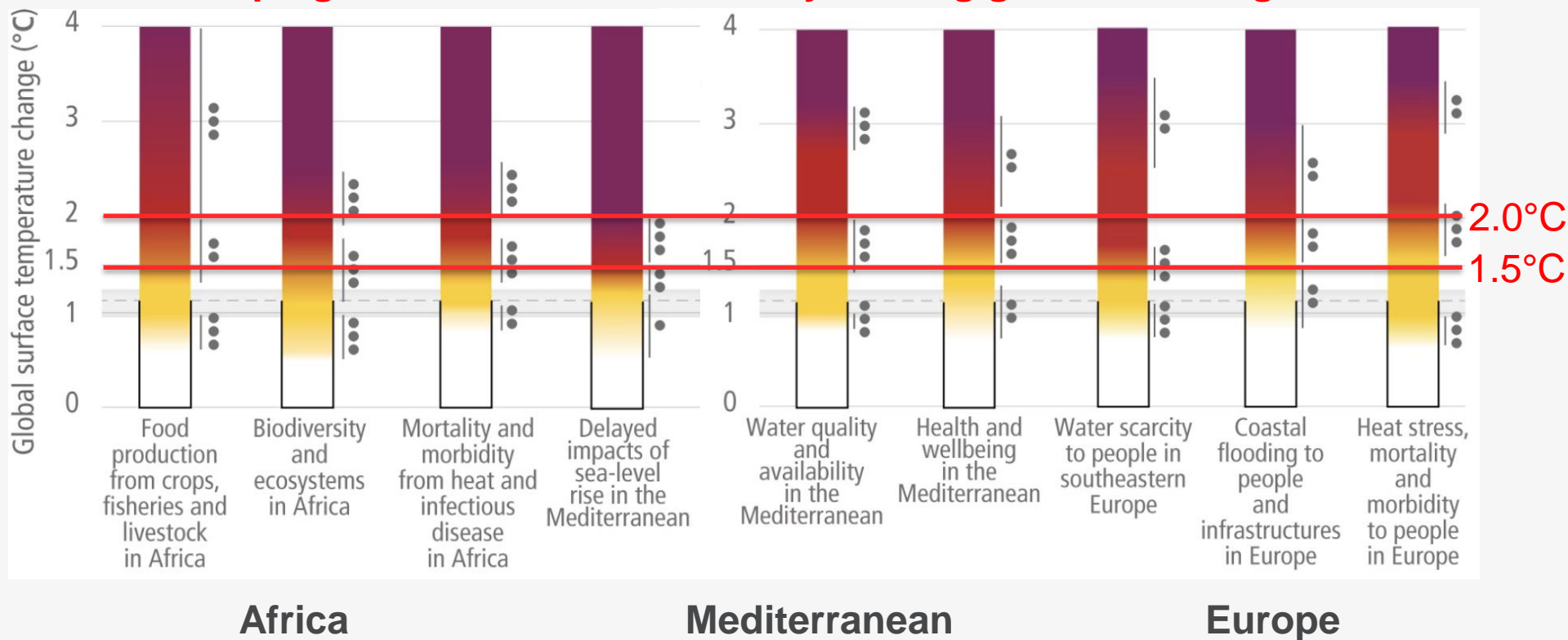
- Indicator (sets) for complex processes involving living “systems“
- To be integrated into higher level characters such as
- ...vulnerability, ... biodiversity, ... risk levels ... spatial patterns

Goal: **Mobilizing action ...**

- Guidance of ambition in mitigation and adaptation
- Setting guardrails for climate action
- Pointing to criteria for alternative futures (... or their avoidance)
- Providing early warnings, e.g. for health: heat, disease vectors etc.
- Assessing liveability and Climate Resilient Development
- Evaluating Progress in Adaptation and Mitigation

Global and regional risk provide orientation for action (adaptation and mitigation)

... keeping risk at moderate levels by limiting global warming to 1.5°C



Tracking vulnerability at high spatial and societal resolution

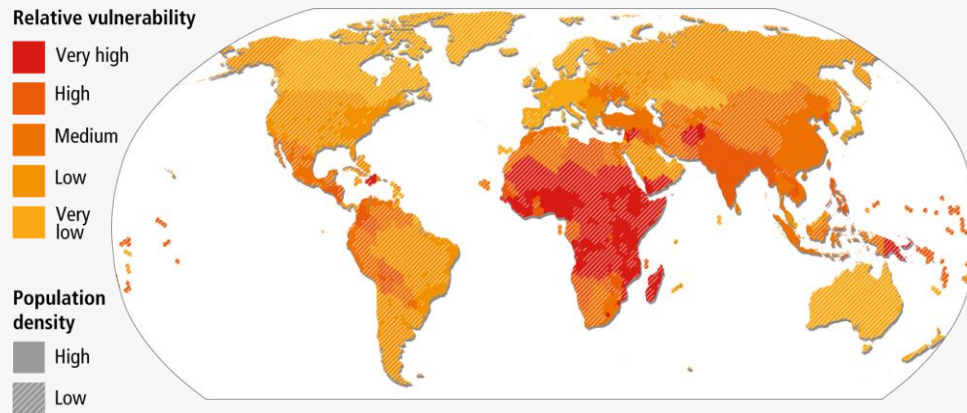
Regional differentiation needed

Higher resolution needed

Indicators to be tracked and integrated:

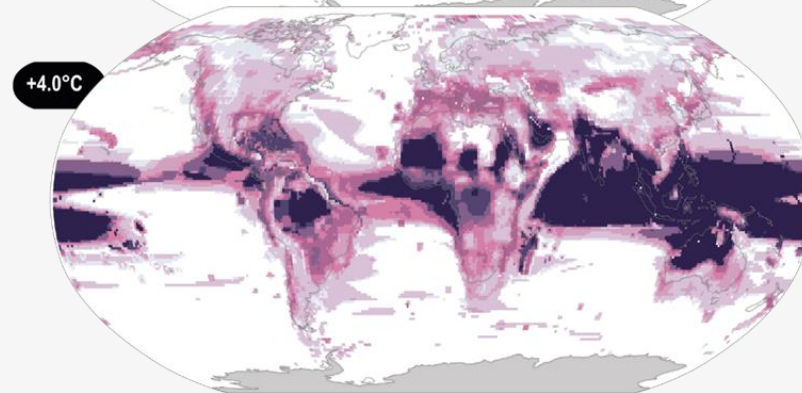
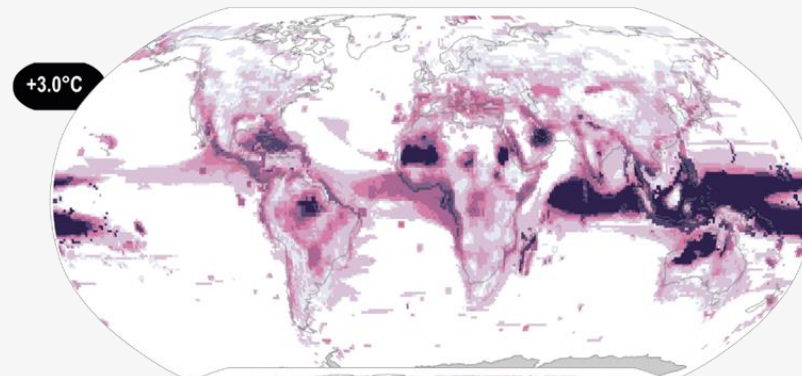
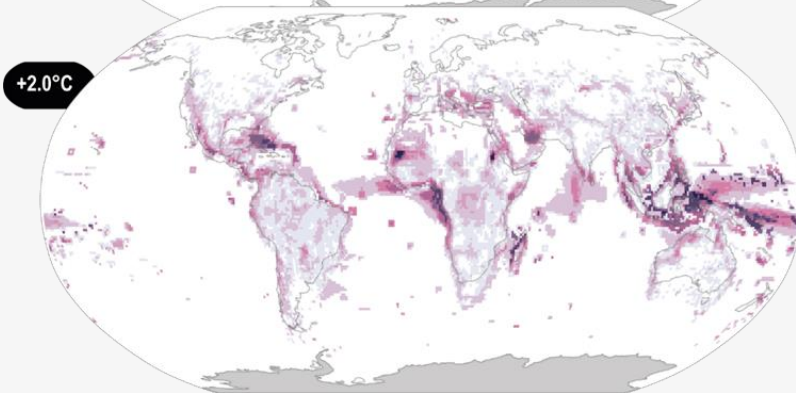
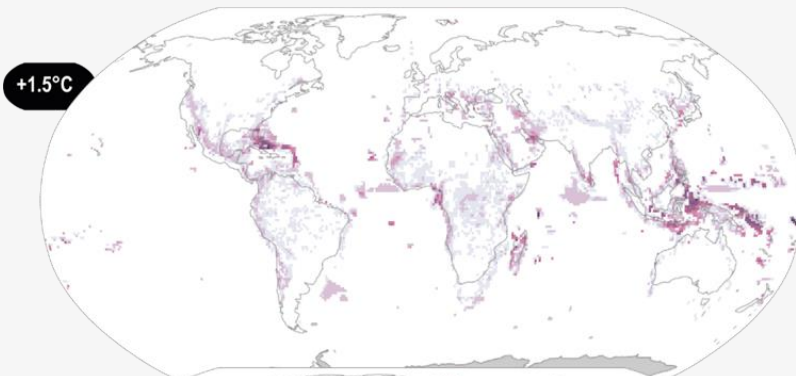
- Poverty, inequity, inclusivity
- Basic services availability (electricity, water, communication, health, education)
- Security
- Social, political, economic stability
- Transparency

A map with limited (within region) resolution:



The Future: e.g., Loss of Species (and Human) Habitat and Biodiversity

Percentage of biodiversity exposed



What needs to be monitored for changes (declines, improvements) and action?

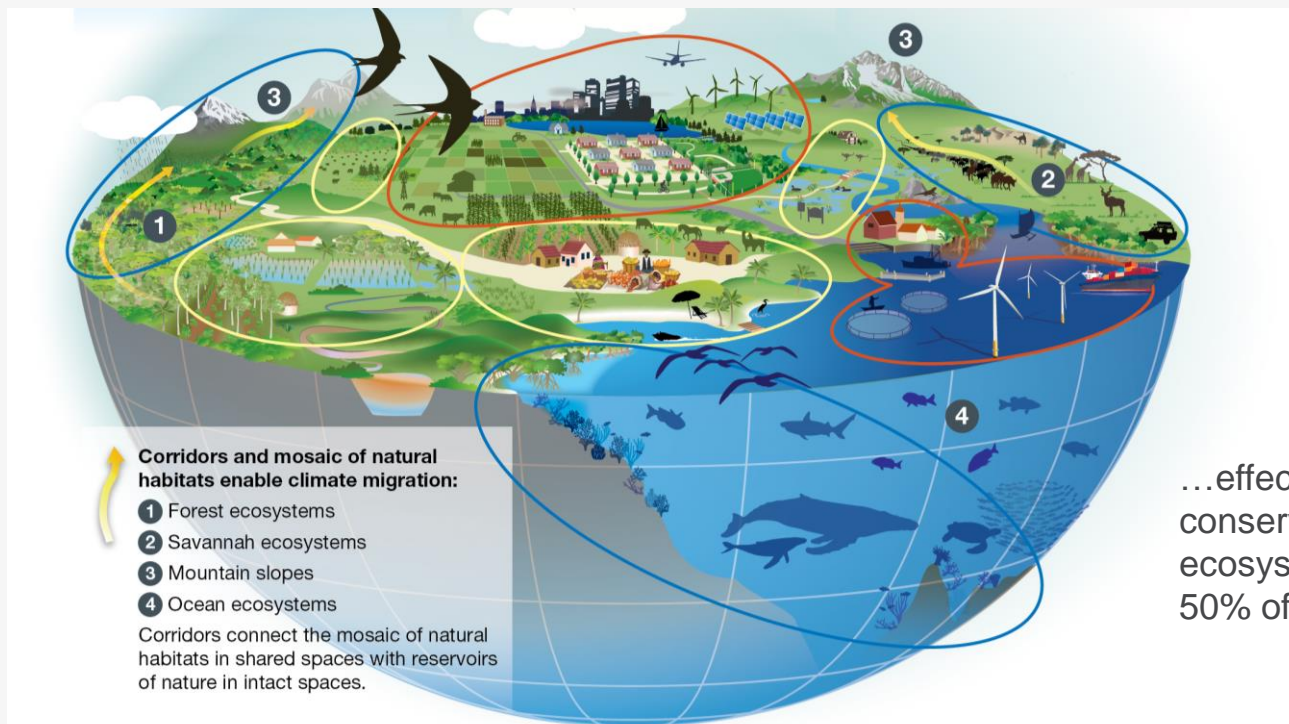
Indicators to be tracked and integrated:

- Background: non-climatic stressors enhancing vulnerability
- Species inventories
- Population Densities
- Geographical ranges
- Phenological indicators
- Metagenomics
- Resilience

Spatial planning guided by success implementation :

Treating climate, biodiversity, and human society as coupled systems is key to successful outcomes.

To be successful, conservation and climate actions would go hand in hand across landscapes, in cities and rural areas, taking people's needs into consideration, for maximized benefits for climate, biodiversity and humans.

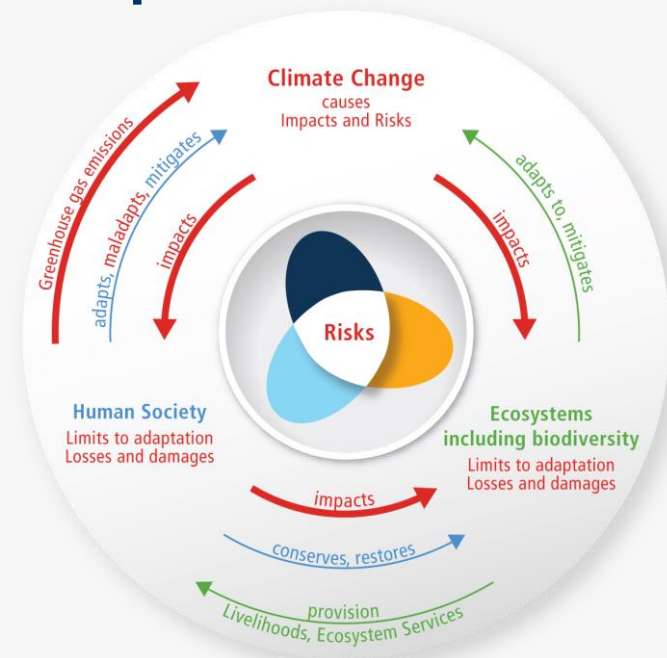


...effectively
conserving
ecosystems on 30 to
50% of land and ocean

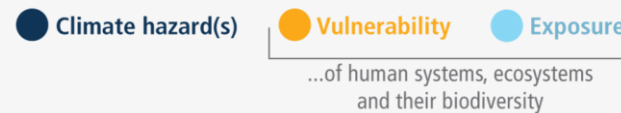
Observations for risk assessment and adaptation

Systematic observation linking earth observation and statistical data, is key to better understand patterns of:

- **Rapid and slow-onset hazards** (droughts, floods, sea-level rise), including compound events
- **Exposure to different climatic hazards** over time (biodiversity, cities, settlements, people, critical infrastructures)
- **Vulnerability of humans** (e.g. low-income households and marginalized groups) **and ecosystems** (fragmentation, degradation)



The risk propeller shows that risk emerges from the overlap of:



Thank you!

IPCC Working Group II Author Team



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