Weltklimabericht IPCC 2014 - Synthesebericht: Aktuelles Wissen zum globalen Klimawandel

Eine (deutsch gesprochene) Einführung zum (englischen) Summary for Policymakers und eine Ermutigung zum Selber-Nutzen des Berichts

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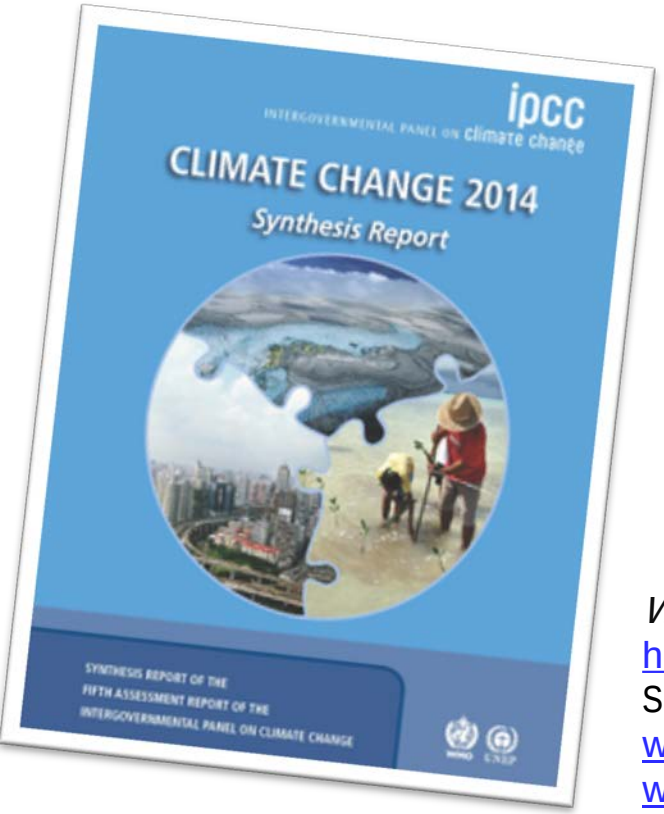
(Danke an das IPCC/www.ipcc.ch für Folienmaterial und Danke an Sabine Tschürtz für die Unterstützung bei der Erstellung der Folien)

IPCC AR5 Synthesebericht: Überblick zum SPM

An Integrated View of Climate Change - IPCC Fifth Assessment Report (AR5)

Climate Change 2014: Synthesis Report

Summary for Policymakers (SPM)



Introduction

1. Observed Changes and their Causes
2. Future Climate Changes, Risks and Impacts
3. Future Pathways for Adaptation, Mitigation and Sustainable Development
4. Adaptation and Mitigation

Weblinks:

http://www.ipcc.ch/report/ar5/syr/ (contains SPM, Presentation, Headline Statements,...)

www.ipcc.ch (IPCC homepage, entry to full breadth of information)

www.de-ipcc.de (einige deutschsprachige Informationsressourcen)

This Synthesis Report is based on the reports of the three Working Groups of the Intergovernmental Panel on Climate Change (IPCC), including relevant Special Reports. It provides an integrated view of climate change as the final part of the IPCC's Fifth Assessment Report (AR5).

Wichtig: die geeichte IPCC Sprache zu (Un)Sicherheit

Agreement ↑ / Evidence (type, amount, quality, consistency) →		
High agreement Limited evidence	*High agreement Medium evidence*	*High agreement Robust evidence*
Medium agreement Limited evidence	*Medium agreement Medium evidence*	*Medium agreement Robust evidence*
Low agreement Limited evidence	*Low agreement Medium evidence*	*Low agreement Robust evidence*

Confidence Scale

Table 1. Likelihood Scale

Term*	Likelihood of the Outcome
Virtually certain	99-100% probability
Very likely	90-100% probability
Likely	66-100% probability
About as likely as not	33 to 66% probability
Unlikely	0-33% probability
Very unlikely	0-10% probability
Exceptionally unlikely	0-1% probability

* Additional terms that were used in limited circumstances in the AR4 (*extremely likely* – 95-100% probability, *more likely than not* – >50-100% probability, and *extremely unlikely* – 0-5% probability) may also be used in the AR5 when appropriate.

The degree of certainty in each key finding of the assessment is based on the type, amount, quality, and consistency of evidence (e.g., data, mechanistic understanding, theory, models, expert judgment) and the degree of agreement. The summary terms to describe evidence are: *limited*, *medium*, or *robust*; and agreement: *low*, *medium*, or *high*.

Confidence in the validity of a finding synthesizes the evaluation of evidence and agreement. Levels of confidence include five qualifiers: *very low*, *low*, *medium*, *high*, and *very high*.

The likelihood, or probability, of some well-defined outcome having occurred or occurring in the future can be described quantitatively through the following terms: *virtually certain*, 99–100% probability; *extremely likely*, 95– 100%; *very likely*, 90–100%; *likely*, 66–100%; *more likely than not*, >50–100%; *about as likely as not*, 33–66%; *unlikely*, 0–33%; *very unlikely*, 0–10%; *extremely unlikely*, 0–5%; and *exceptionally unlikely*, 0–1%. Unless otherwise indicated, findings assigned a likelihood term are associated with *high* or *very high* confidence. Where appropriate, findings are also formulated as statements of fact without using uncertainty qualifiers.

Zwei Praxis-Beispiele: zur geeichten IPCC Sprache über (Un)Sicherheit und zum Zitierstil im SPM

Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are *extremely likely* to have been the dominant cause of the observed warming since the mid-20th century.

Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90% of the energy accumulated between 1971 and 2010 (*high confidence*). It is *virtually certain* that the upper ocean (0–700 m) warmed from 1971 to 2010 (see Figure SPM.3), and it *likely* warmed between the 1870s and 1971. {3.2, Box 3.1}

(> 1.500 authors,
> 2.000 expert reviewers,
> 5.000 report pages in total,
> 30.000 scientific articles assessed,
> 130.000 review comments accounted for,...)

"The IPCC's reports are some of the most ambitious scientific undertakings in human history, and I am grateful for the contributions of everyone who make them possible."

(Rajendra Pachauri, IPCC Vorsitzender, 31.3.2014)

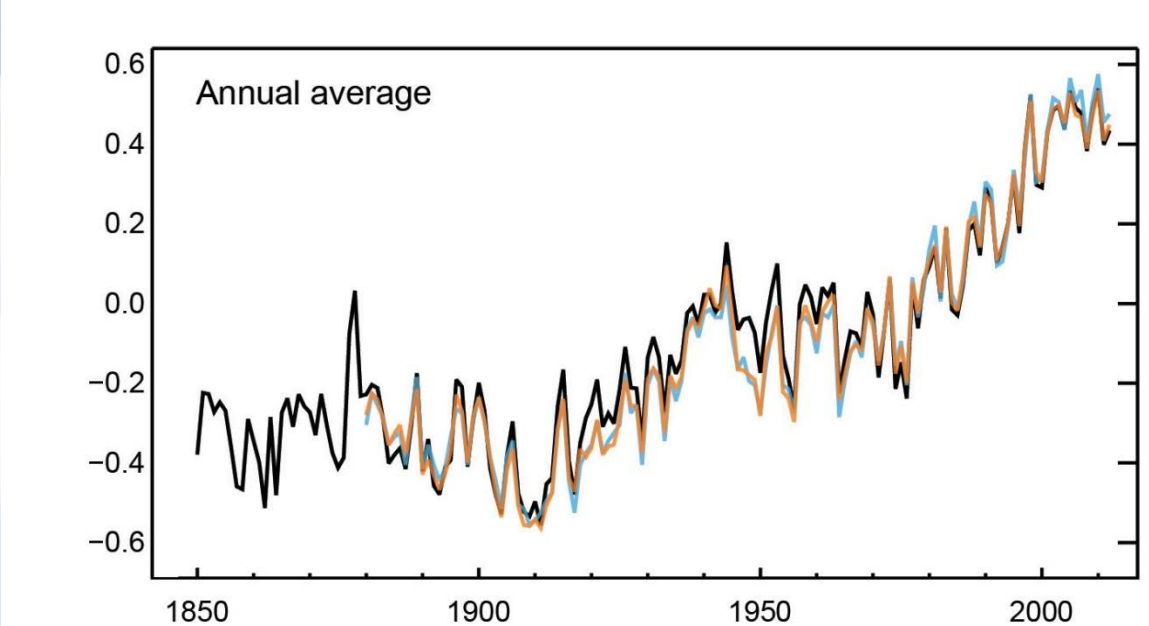
ipcc
INTERGOVERNMENTAL PANEL ON Climate change

1. Beobachtete Änderungen und deren Ursachen (Observed Changes and their Causes) *zusammenfassende Kernaussagen*

Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems.

- Der menschliche Einfluss auf das Klimasystem ist klar; die in letzter Zeit von Menschen verursachten Emissionen von Treibhausgasen sind die höchsten in der Geschichte.
- Die jüngsten Klimaänderungen haben weitreichende Auswirkungen auf Mensch und Natur.

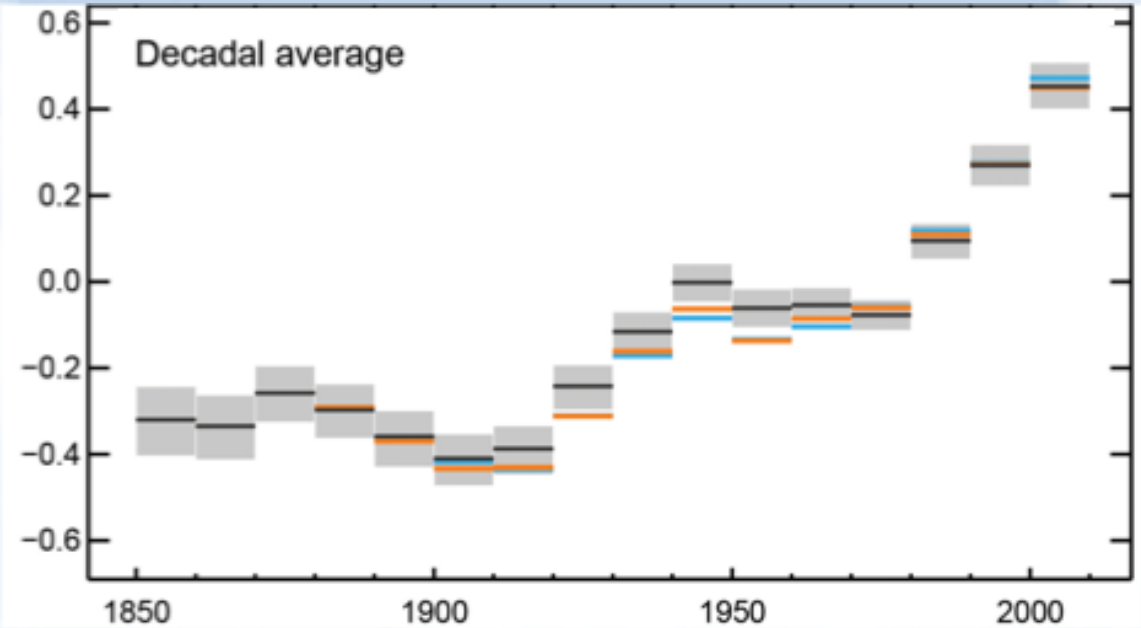
It is extremely likely that we are the dominant cause of warming since the mid-20th century



Globally averaged combined land and ocean surface temperatures

1. Beobachtete Änderungen und deren Ursachen
die globale Temperatur steigt weiter an

Each of the past 3 decades has been successively warmer than the preceding decades since 1850



Globally averaged combined land and ocean surface temperatures

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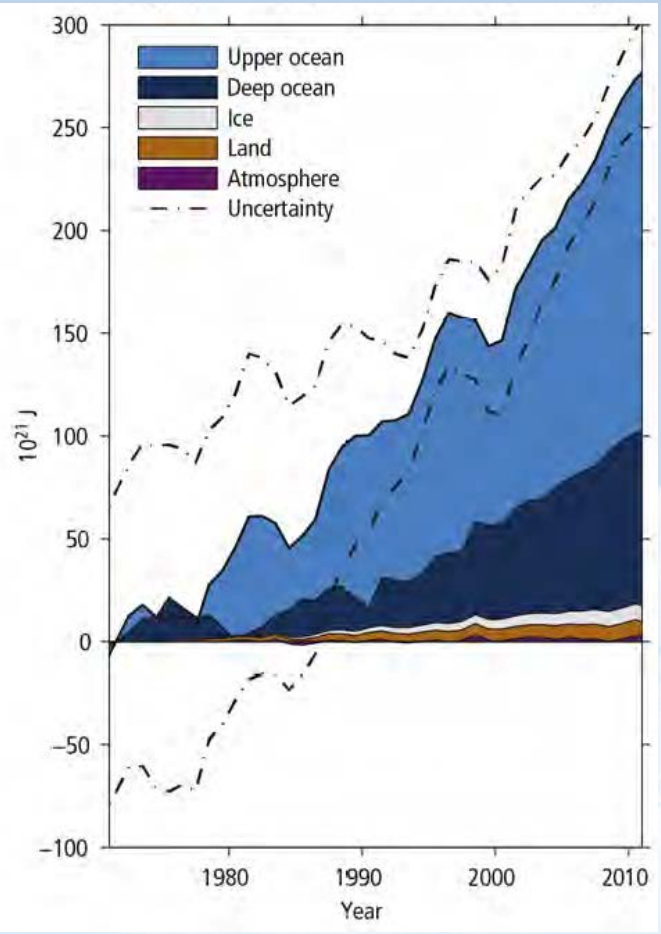
Energy accumulation within the Earth's climate system

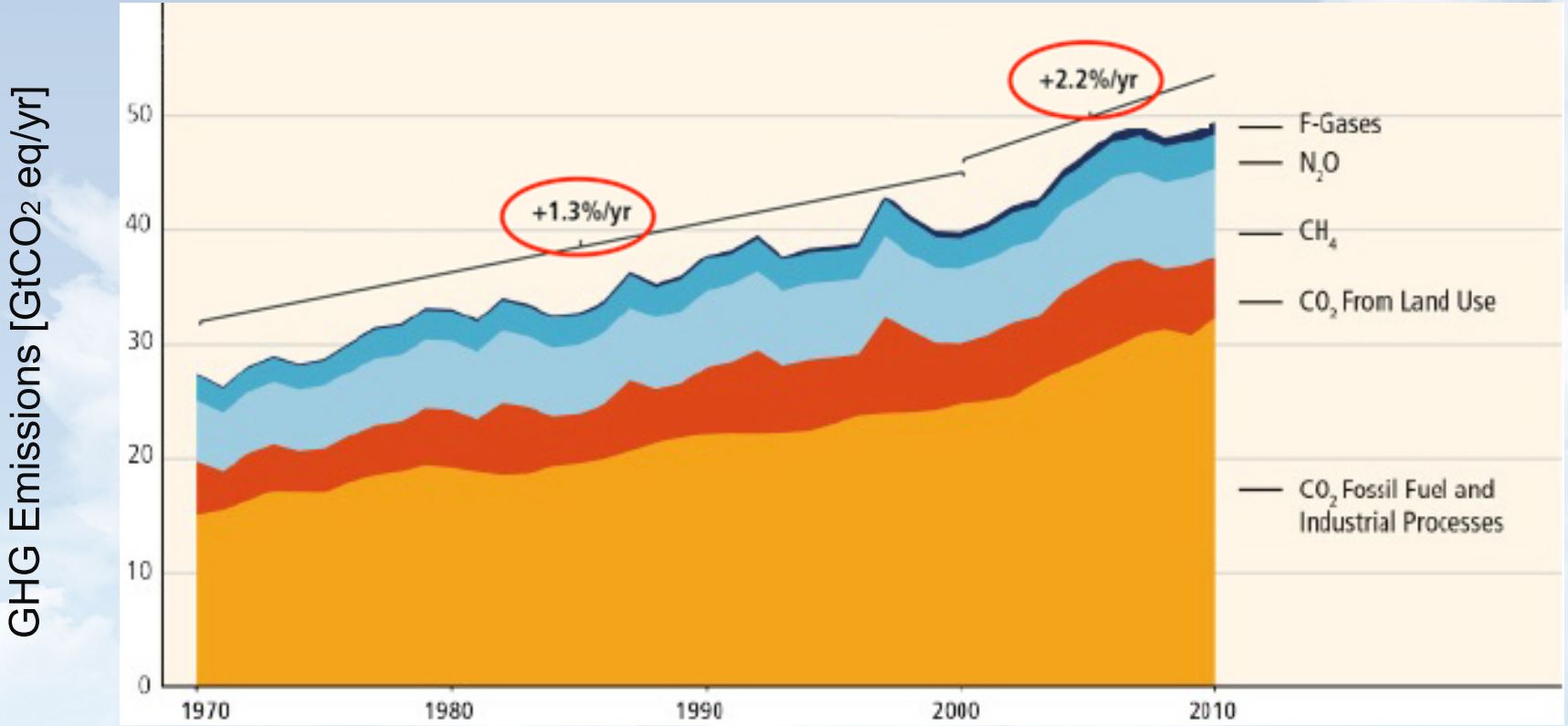


- **More than 90% of the energy accumulating in the climate system between 1971 and 2010 has accumulated in the ocean**
- **Land temperatures remain at historic highs while ocean temperatures continue to climb**

1. Beobachtete Änderungen und deren Ursachen

der Anstieg der Emissionen zwischen 2000 und 2010 war wiederum größer als in den Jahrzehnten davor

GHG emissions growth between 2000 and 2010 has been larger than in the previous three decades



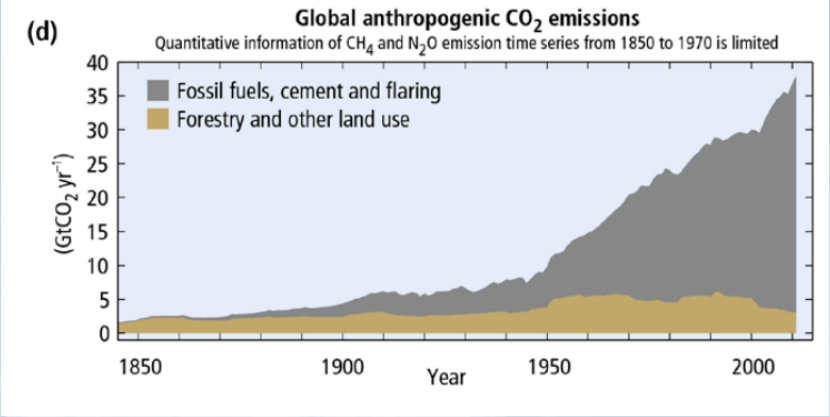
Sources of emissions by sector

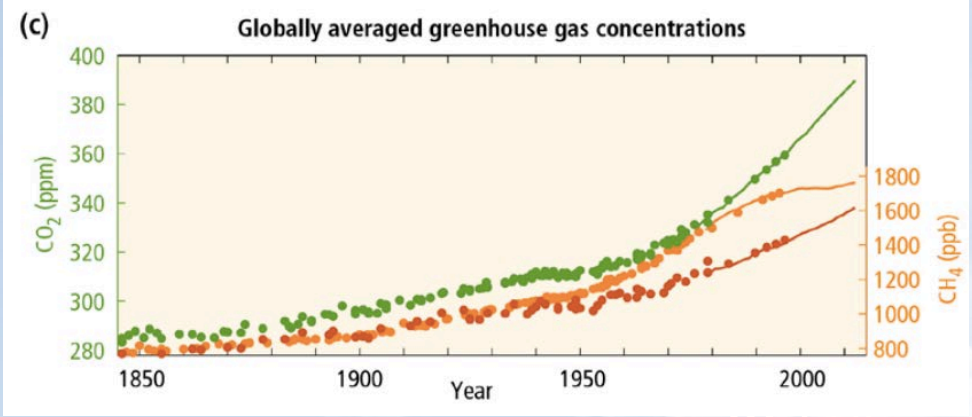
Energy production remains the primary driver of GHG emissions

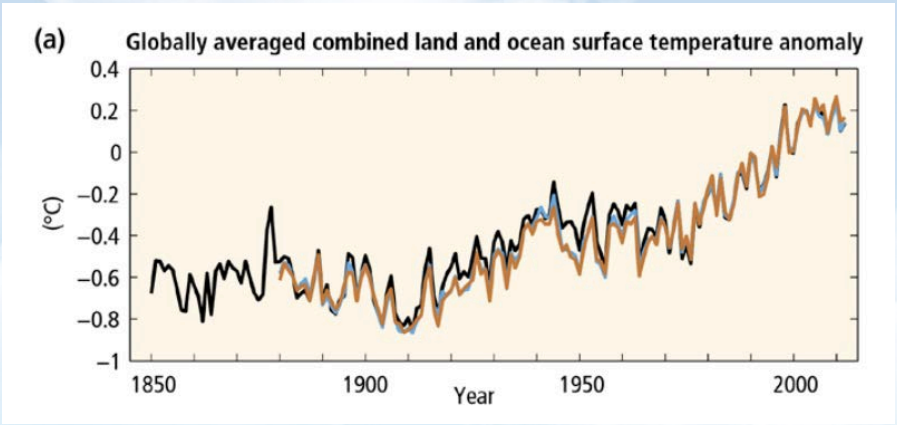
2010 GHG emissions

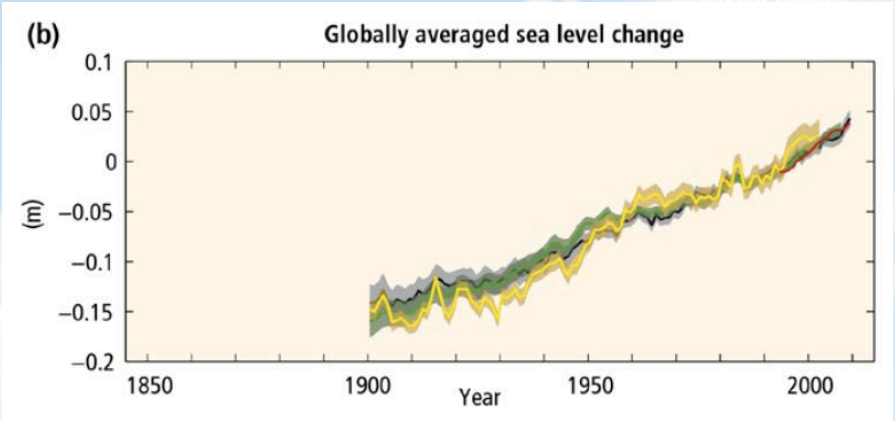
1. Beobachtete Änderungen und deren Ursachen

der Ursache-Wirkungszusammenhang ist in seinen wesentlichen Teilen sehr gut verstanden









2. Zukünftiger Klimawandel, Risiken und Folgen (Future Climate Changes, Risks and Impacts) *zusammenfassende Kernaussagen*

Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks.

- Anhaltende Treibhausgasemissionen werden eine weitere Erwärmung und langfristige Veränderungen in allen Komponenten des Klimasystems bewirken, was die Wahrscheinlichkeit für schwerwiegende, tiefgreifende und irreversible Auswirkungen für Mensch und Umwelt erhöht.
- Die Begrenzung des Klimawandels erfordert eine wesentliche und anhaltende Verringerung der Emissionen von Treibhausgasen, welche zusammen mit Anpassungsmaßnahmen die Folgen und Risiken begrenzen können.

Impacts are already underway

- **Tropics to the poles**
- **On all continents and in the ocean**
- **Affecting rich and poor countries**




Projected climate changes

Continued emissions of greenhouse gases will cause further warming and changes in the climate system

Oceans will continue to warm during the 21st century

Global mean sea level will continue to rise during the 21st century

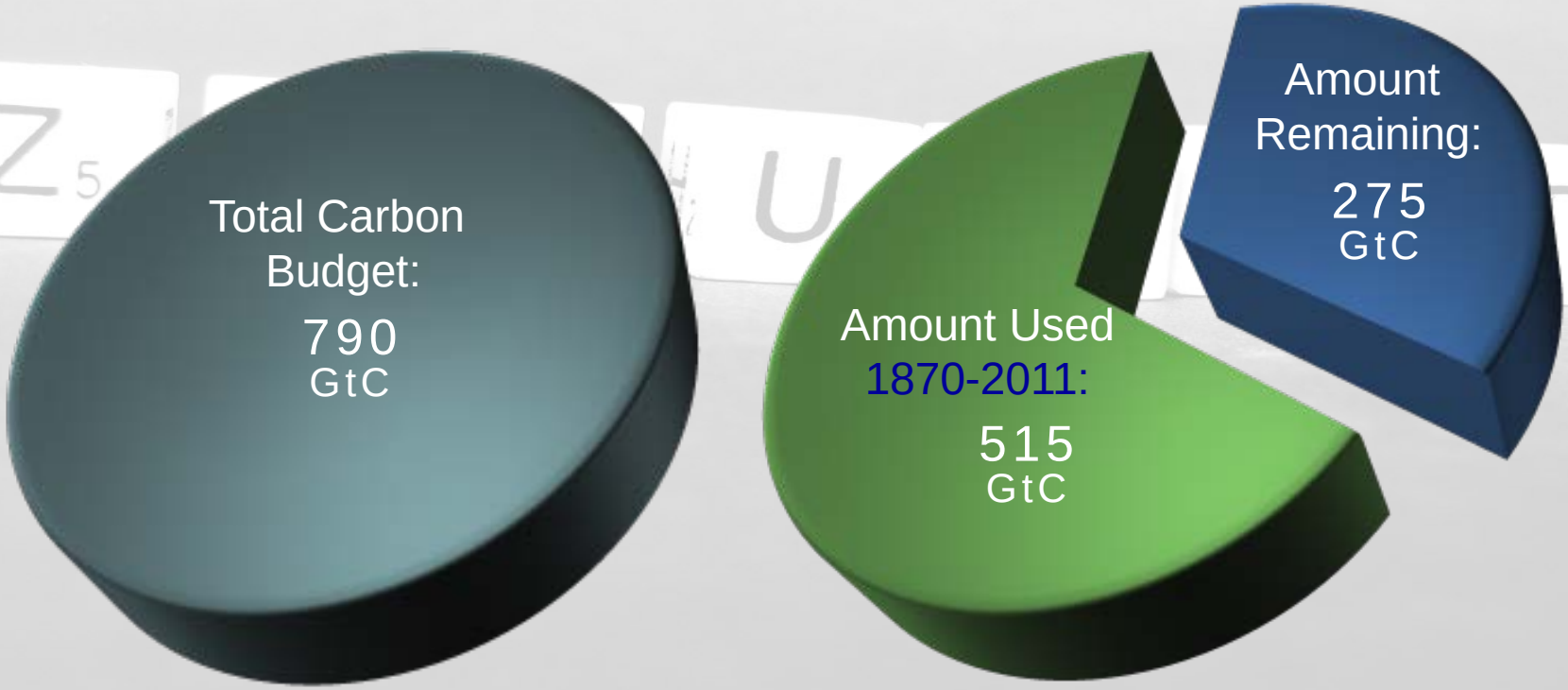
It is very likely that the Arctic sea ice cover will continue to shrink and thin as global mean surface temperature rises

Global glacier volume will further decrease

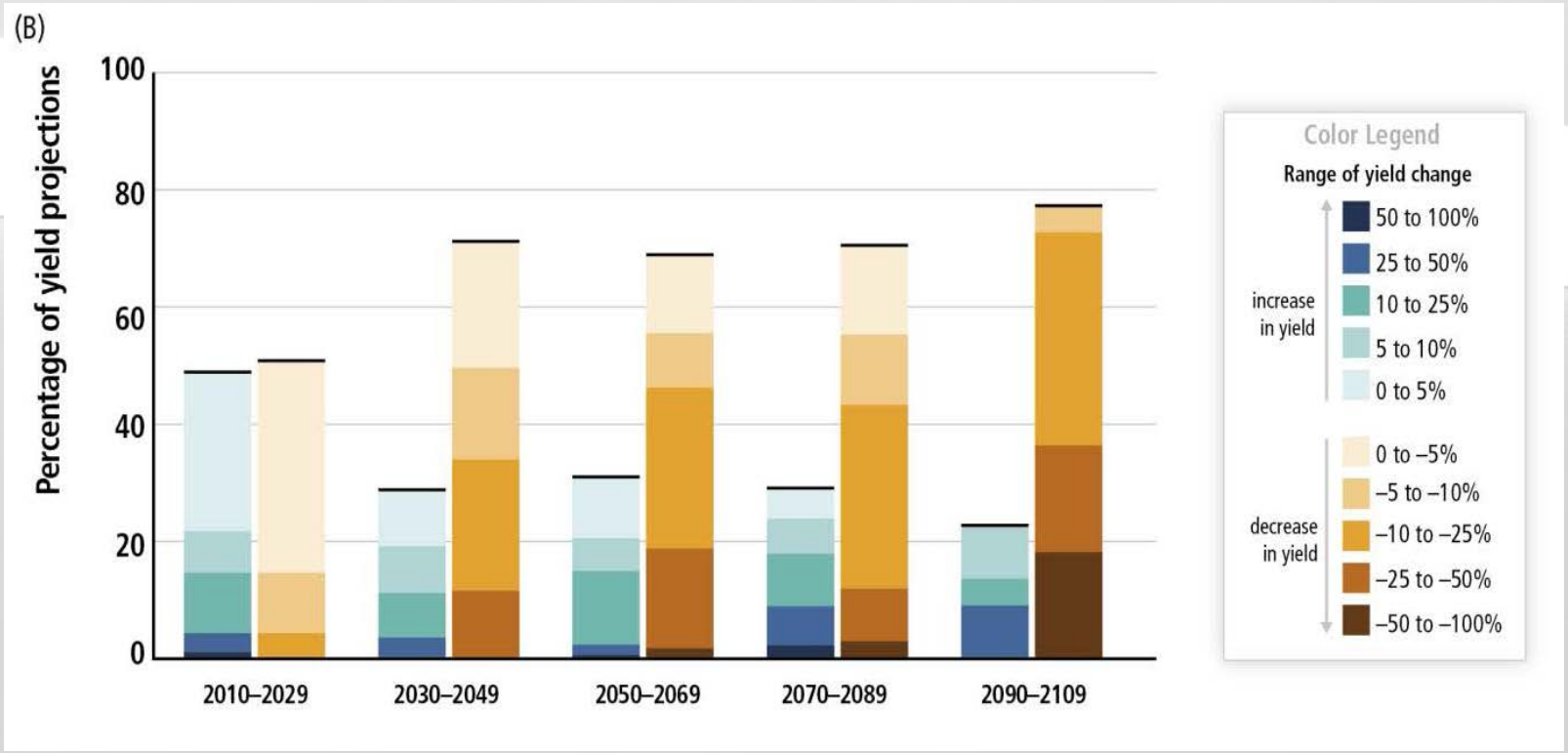
2. Zukünftiger Klimawandel, Risiken und Folgen
die Auswirkungen sind vielfältig und weitreichend

The window for action is rapidly closing

~65% of our carbon budget compatible with a 2°C goal already used



Climate Change Poses Risk for Food Production



Percentage of yield projections

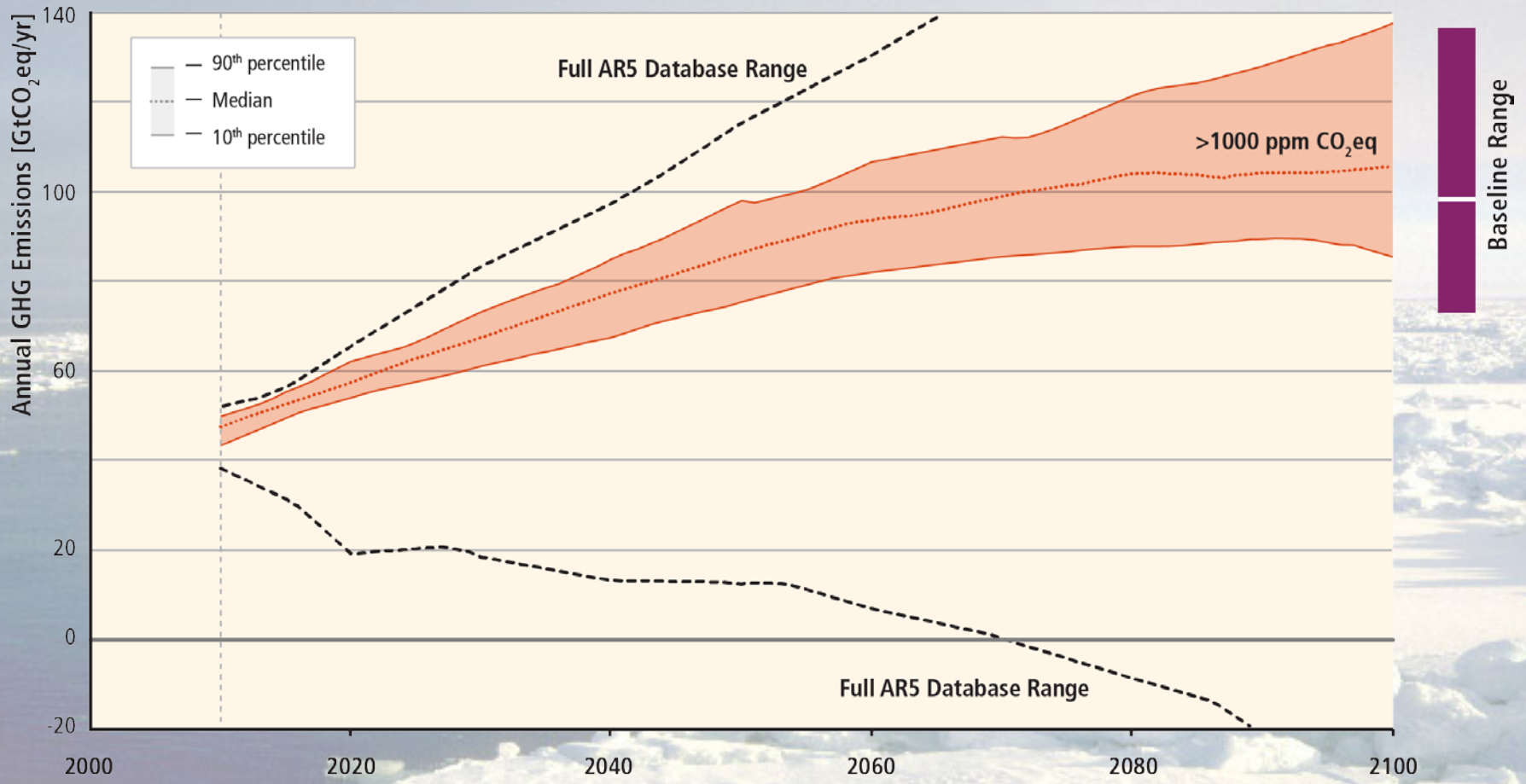
3. Zukünftige mögliche Wege für Anpassung, Emissionsminderung und nachhaltige Entwicklung
zusammenfassende Kernaussagen

Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term, and contribute to climate-resilient pathways for sustainable development.

- Die Minderung von Treibhausgasemissionen und Maßnahmen zur Anpassung an den Klimawandel stellen einander ergänzende Strategien dar, um die Risiken des Klimawandels zu verringern und zu bewältigen.
- Massive Einschnitte bei den Treibhausgasemissionen in den kommenden Jahrzehnten können die Risiken im 21. Jahrhundert und danach wesentlich verringern, die Wirksamkeit von Anpassungsmaßnahmen verbessern, die Kosten und Herausforderungen von Minderungsmaßnahmen langfristig reduzieren und zu einer klimaverträglichen, nachhaltigen Entwicklung beitragen.

3. Zukünftige mögliche Wege für Anpassung, Emissionsminderung und nachhaltige Entwicklung

Stabilization of atmospheric concentrations requires moving away from the baseline – regardless of the mitigation goal.



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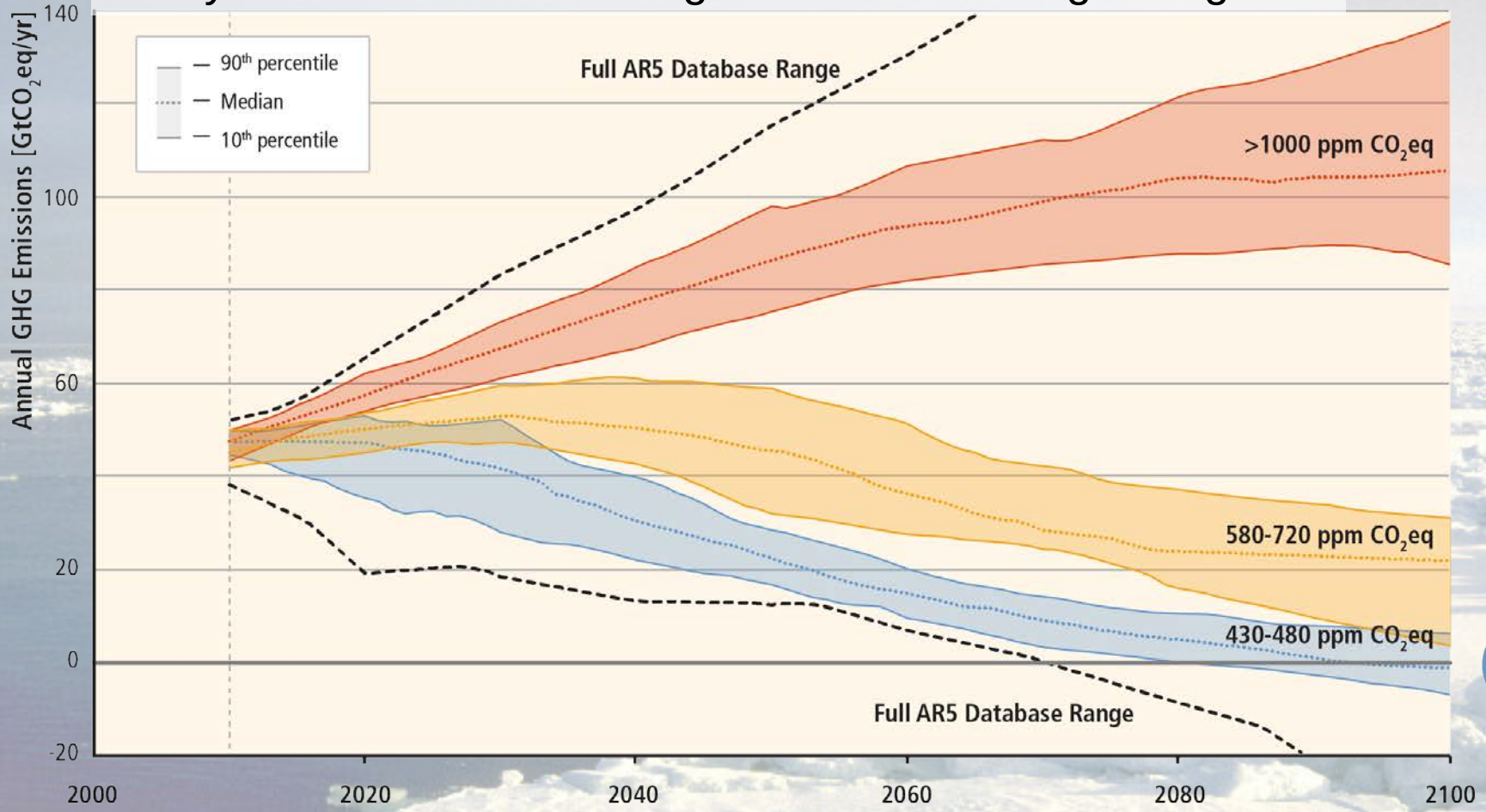
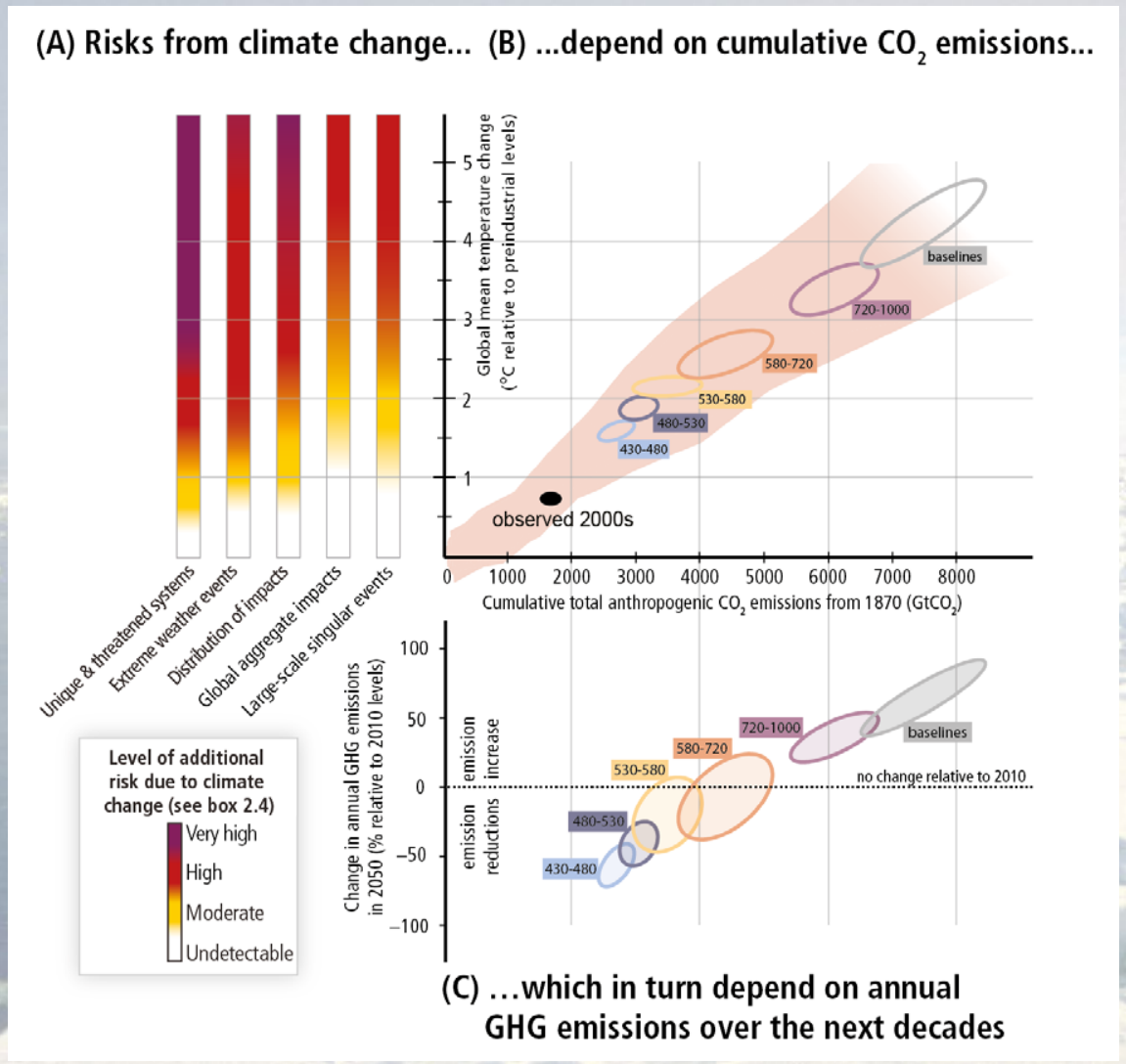


3. Zukünftige mögliche Wege für Anpassung, Emissionsminderung und nachhaltige Entwicklung

die Emissionsminderung begrenzt die Risiken



4. Klimawandel-Anpassung und Emissions-Minderung (Adaptation and Mitigation)
zusammenfassende Kernaussagen

Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales, and can be enhanced through integrated responses that link adaptation and mitigation with other societal objectives.

- Viele Anpassungs- und Minderungsmaßnahmen können dem Klimawandel entgegenwirken, aber keine Einzelmaßnahme ist für sich allein ausreichend.
- Eine wirksame Umsetzung hängt von Politikmaßnahmen und Kooperationen auf allen Ebenen ab und kann durch integrierte Ansätze, die Klimawandel-Anpassung und Emissions-Minderung mit anderen gesellschaftlichen Zielen verbinden, verstärkt werden.

Limiting Temperature Increase to 2˚C

Measures exist to achieve the substantial emissions reductions required to limit likely warming to 2°C

A combination of adaptation and substantial, sustained reductions in greenhouse gas emissions can limit climate change risks

Implementing reductions in greenhouse gas emissions poses substantial technological, economic, social, and institutional challenges

But delaying mitigation will substantially increase the challenges associated with limiting warming to 2°C

Mitigation Measures

More efficient use of energy

Greater use of low-carbon and no-carbon energy

- Many of these technologies exist today

Improved carbon sinks

- Reduced deforestation and improved forest management and planting of new forests
- Bio-energy with carbon capture and storage

Lifestyle and behavioural changes

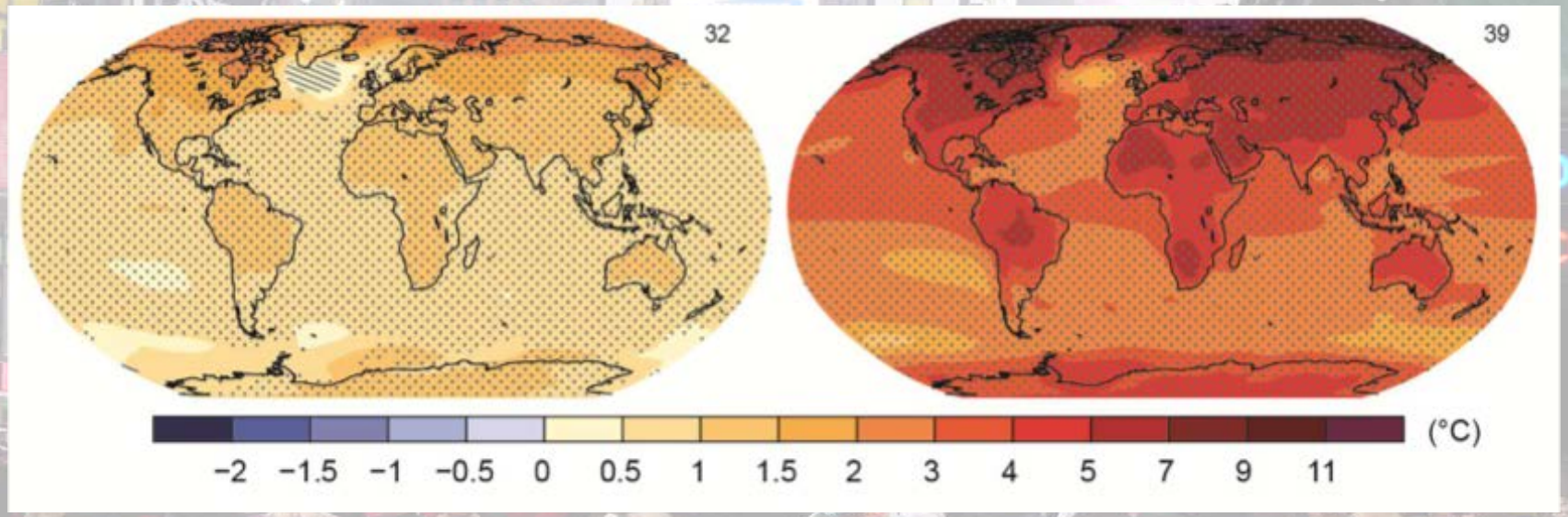
Ambitious Mitigation Is Affordable

- ➜Economic growth reduced by only order ~0.1%
  (for comparison, BAU econ.growth around ~2%)
- ➜This translates into delayed and not forgone growth
- ➜Estimated cost does not account for the benefits of reduced climate change
- ➜Unmitigated climate change would create increasing risks to economic growth

The Choices We Make Will Create Different Outcomes

With substantial mitigation

Without additional mitigation



Change in average surface temperature (1986–2005 to 2081–2100)

Bedeutung des IPCC Berichts für Österreich
massive Bestärkung für mehr Klima-Handeln auch hier.

An Integrated View of Climate Change - IPCC Fifth Assessment Report (AR5)

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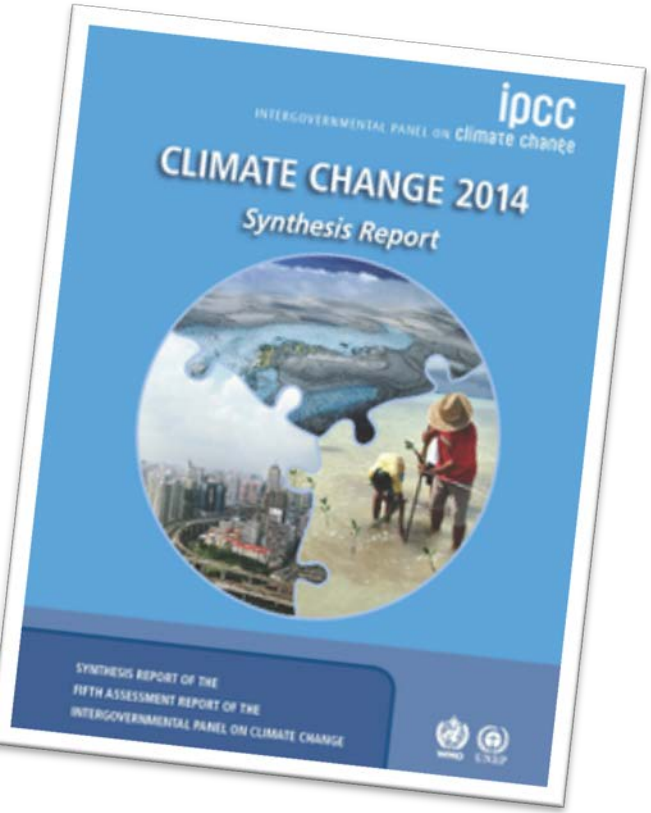

- In Österreich zeigen sich die Erwärmung und viele Aspekte des Klimawandels, wie beispielsweise Wetter- und Klimaextreme, zum Teil schon deutlicher als bei globalen Klimabetrachtungen.
- Die österreichische Wirtschaft und Gesellschaft, und allen voran die Politik, wird durch den neuen Weltklimabericht massiv daran erinnert—und massiv darin bestärkt—sowohl beim Klimaschutz zur Verringerung der Emissionen als auch bei der notwendigen Anpassung an den Klimawandel ihre Bemühungen und Aktivitäten weiter zu intensivieren.
- Wir müssen auch auf Landes-, Bundes- und EU-Ebene wirksame Maßnahmen unterstützen, sodass Anpassungs-massnahmen forciert werden und gleichzeitig das 2°C Ziel noch mit aller notwendigen Kraft angepeilt wird und erreicht werden kann.

Weblinks reminder (cf. page 2):
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Thank You! ☺