

**Viessmann Energieforum, Allendorf,
13 Oktober 2015**

Das Jahr des Klimas

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Vorsitzender, Wissenschaftlicher Beirat

Globale Umweltveränderungen (WBGU)



Workshop der Pontifikalakademien, Vatikan, 2-6 Mai 2014

Sustainable Humanity, Sustainable Nature: Our Responsibility



Signatories:

PASS President Prof. Margaret Archer, Prof. Vanderlei S. Bagnato, Prof. Antonio M. Battro, Dr. Lorenzo Borghese, Prof. María Verónica Brasesco, Prof. Joachim von Braun, Prof. Edith Brown Weiss, Dr. Pablo Canziani, Marco Casazza, Prof. Yves Coppens, Prof. Paul Crutzen, Dr. Michael Czerny S.J., Aisha Dasgupta, Prof. Sir Partha Dasgupta, Prof. Gretchen Daily, Prof. Pierpaolo Donati, Prof. Gérard-François Dumont, Prof. Ombretta Fumagalli Carulli, Juan Graboïs, Prof. Allen Hertzke, Prof. Vittorio Hösle, Prof. Daniel Kammen, Emily Kelly, Prof. Charles Kennel, Dr. Anil Kulkarni, Prof. Nicole Le Douarin, Prof. Yuan T. Lee, Prof. Pierre Léna, Prof. M. Ramón Llamas, Prof. Karl-Göran Mäler, Dr. Marcia McNutt, Prof. Dr. Jürgen Mittelstrass, Prof. Walter Munk, Prof. Naomi Oreskes, Alicia Peressutti, Dr. Janice Perlman, Prof. Vittorio Possenti, Prof. Ingo Potrykus, Prof. V. Ramanathan, Prof. Sir Martin J. Rees, Dr. Daniel Richter, Prof. Ignacio Rodríguez-Iturbe, Dr. Courtney Ross, Prof. Louis Sabourin, Prof. Jeffrey Sachs, Msgr. Marcelo Sánchez Sorondo, Prof. John Schellnhuber, Prof. Bob Scholes, Matthew Siegfried, Prof. Hanna Suchocka, Prof. Govind Swarup, Msgr. Mario Toso, Card. Peter K.A. Turkson, Prof. Rafael Vicuña, Prof. Wilfrido Villacorta, Prof. Peter Wadhams, Prof. Dr. Hans F. Zacher, Prof. Stefano Zamagni



PAPA FRANCESCO SULLA CURA DELLA CASA COMUNE

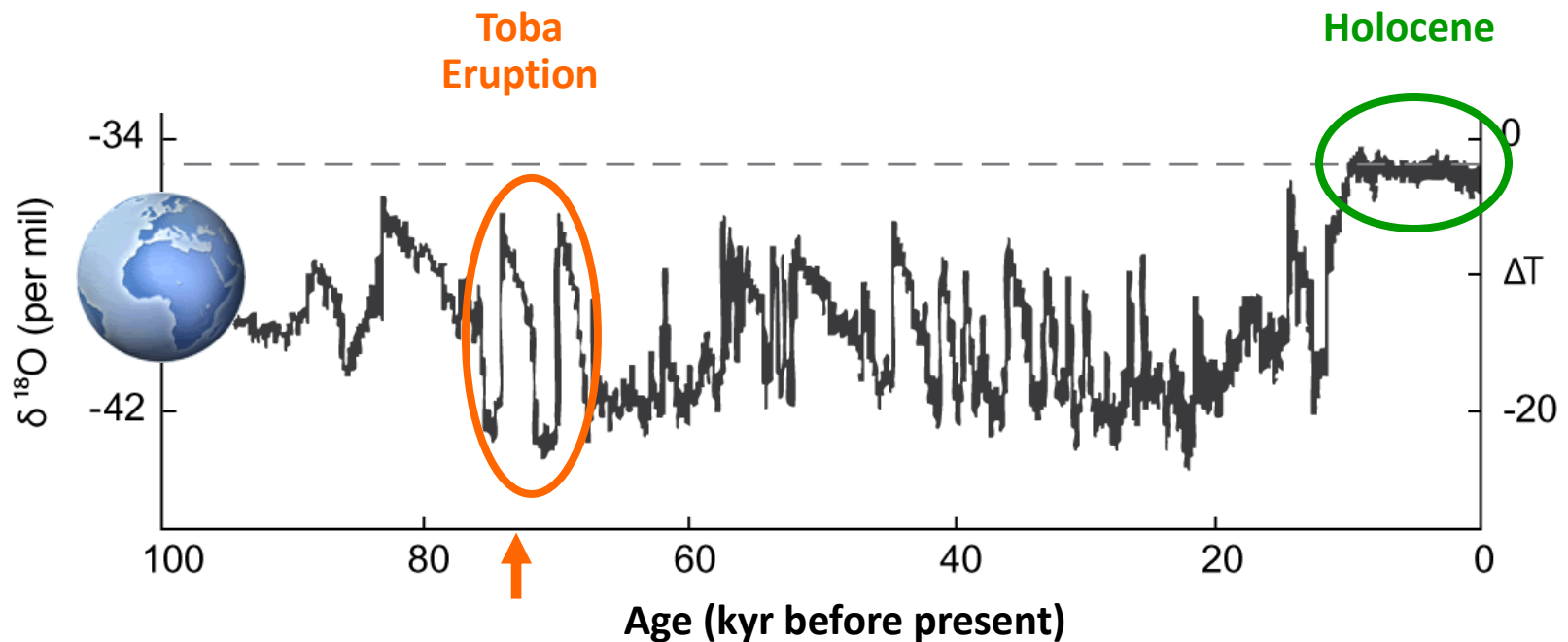
ENZYKLIKA „LAUDATO SI’“ Veröffentlicht am 18. Juni 2015

FRANCESCO

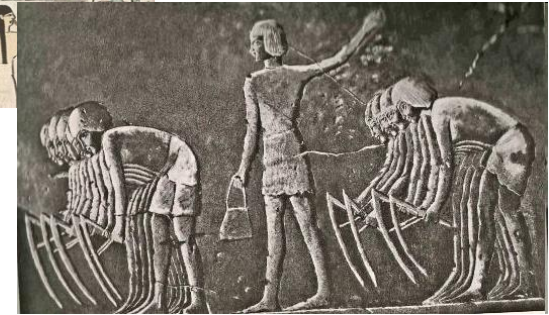
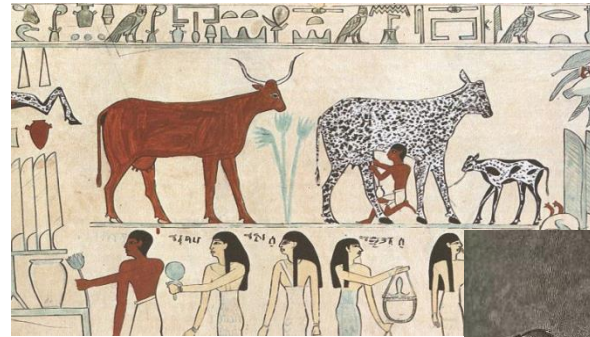
Laudato si'
sulla cura
della casa comune



Das Holozän: *Vom Glazialen Chaos zum Klimaparadies*

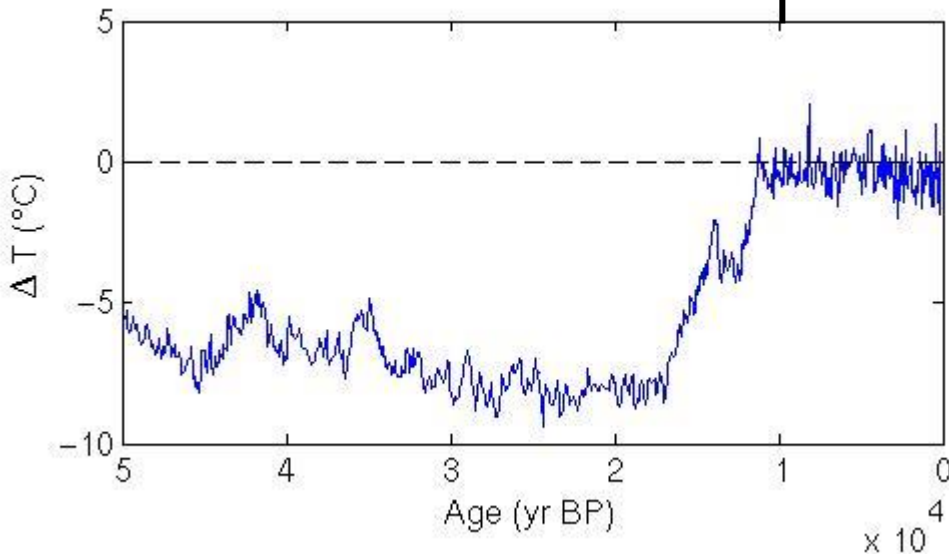


Die Neolithische Revolution



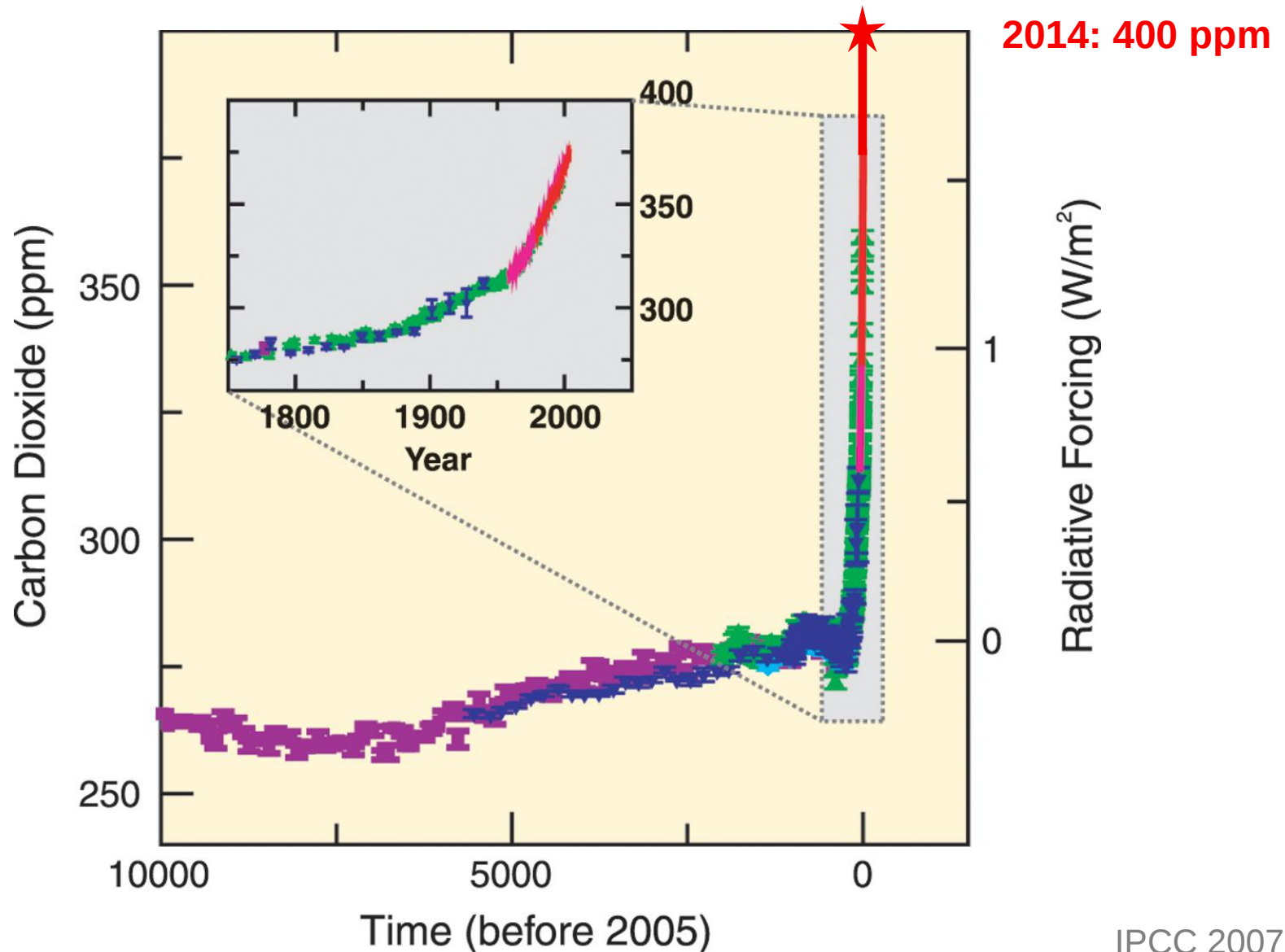
Neolithische Revolution
Beginn ~ 10 000 v.Chr.

Weltbevölkerung < 1 Million

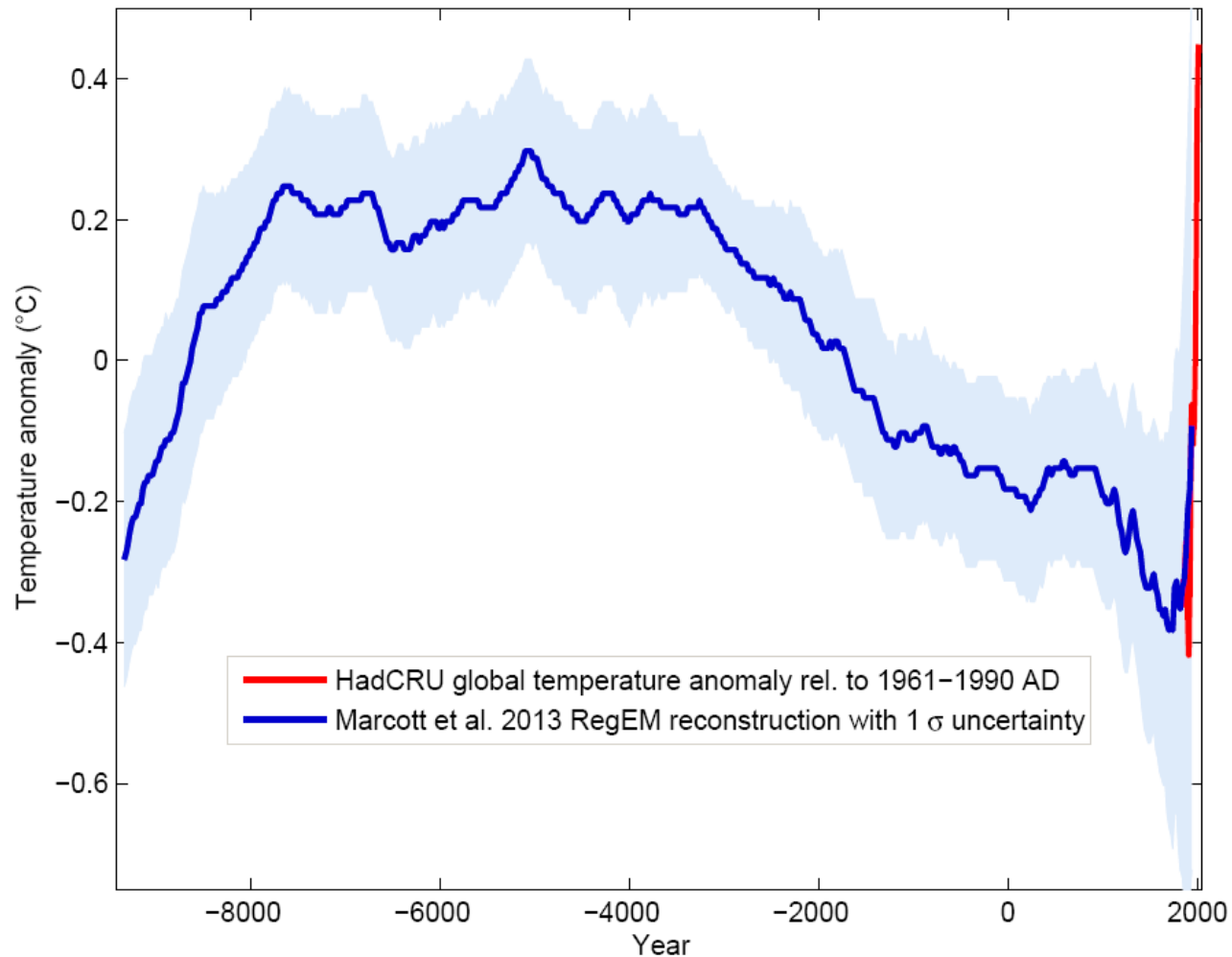


Weltbevölkerung (2050) ~ 9 Milliarden

Historische Entwicklung der CO₂-Konzentration

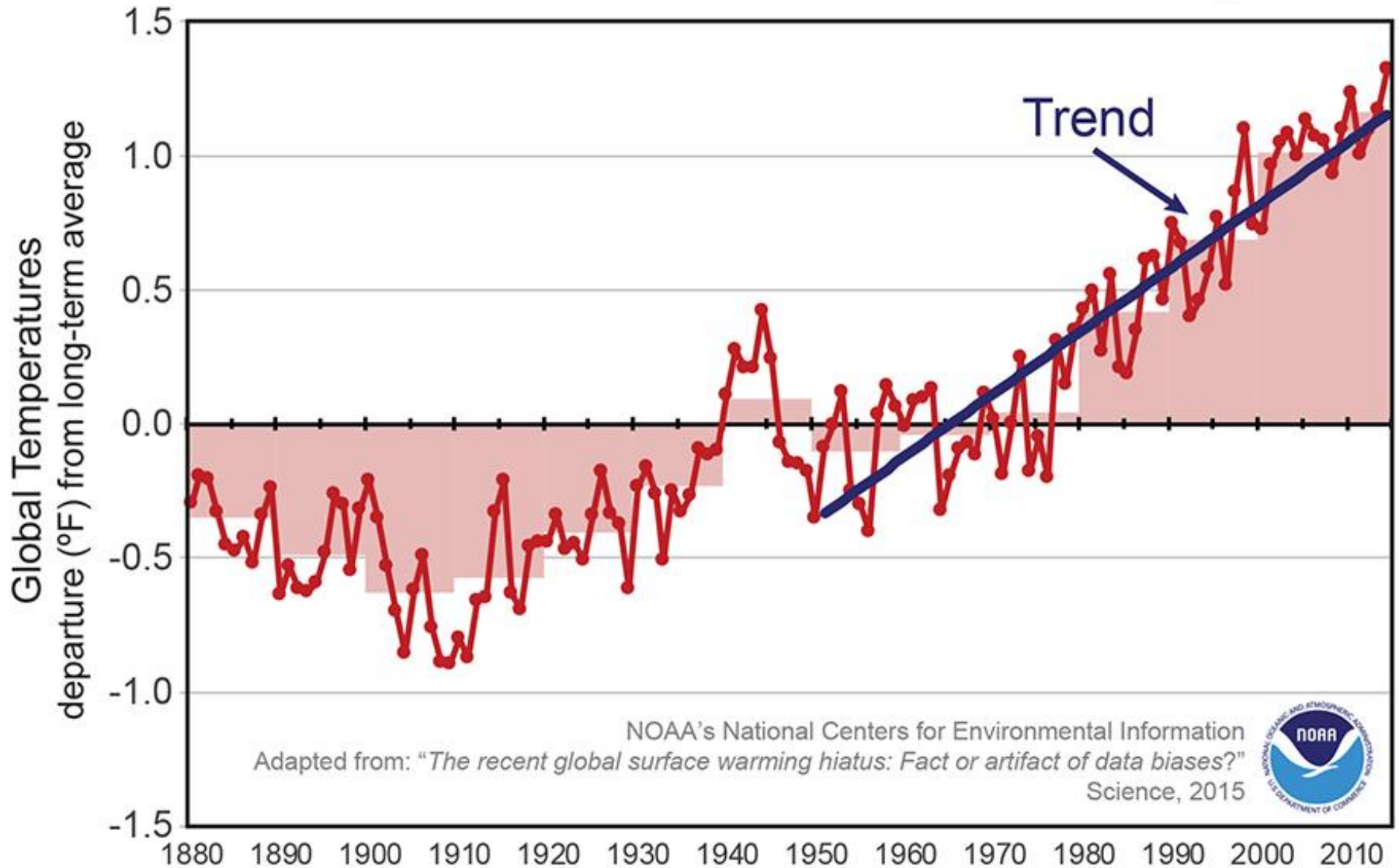


Erste globale Temperaturrekonstruktion für die vergangenen 11000 Jahre



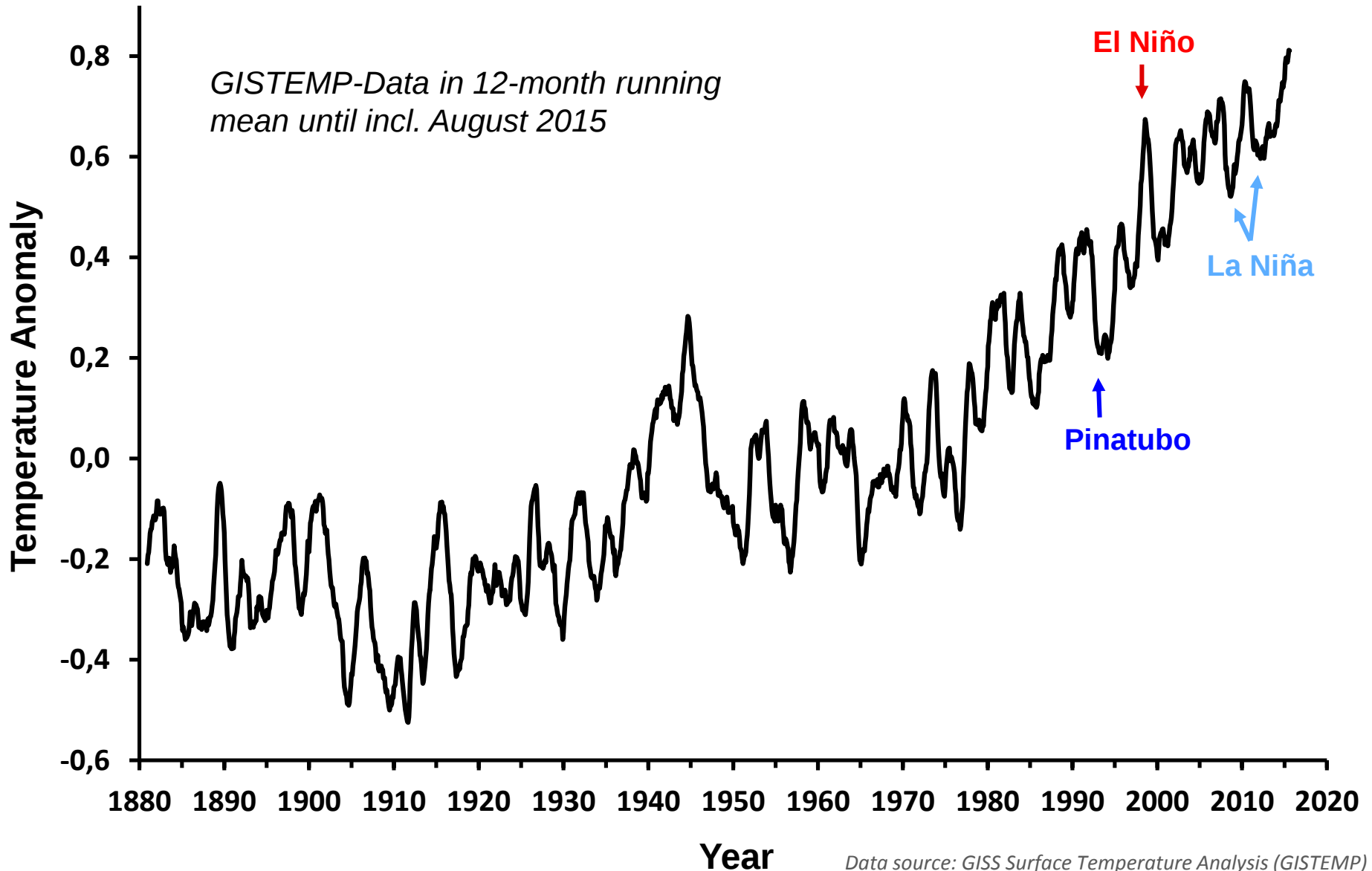
Marcott *et al.* Science 2013

Keine Abschwächung der Globalen Erwärmung



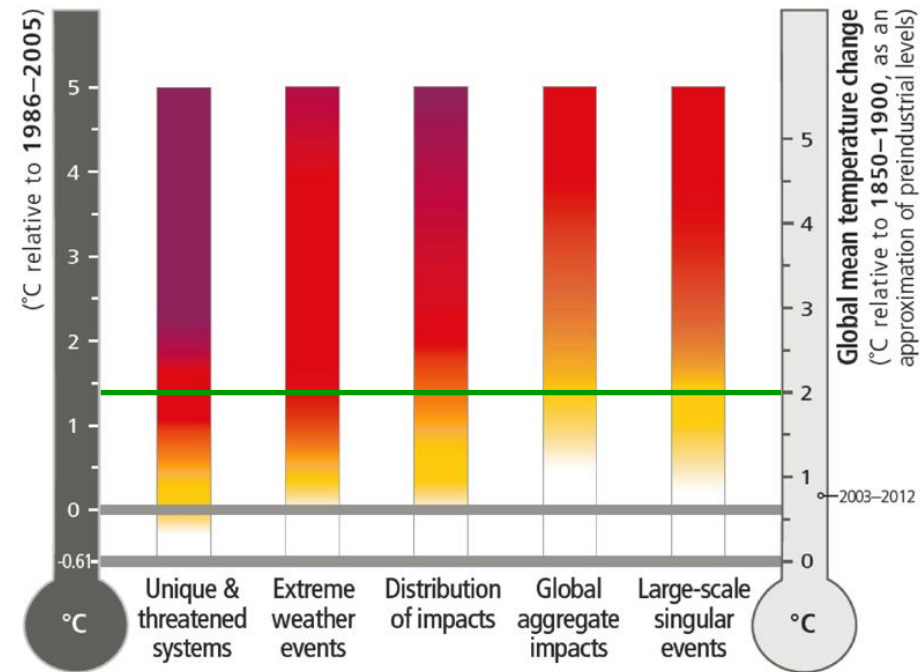
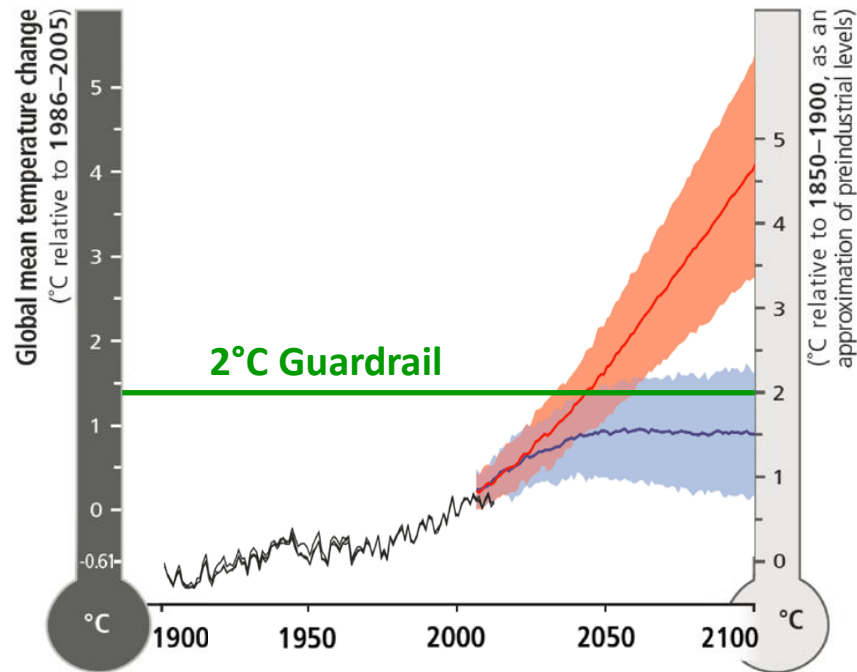
Contrary to much recent discussion, the latest corrected analysis shows that the rate of global warming has continued, and there has been no slow down.

Globale Temperaturentwicklung seit 1880



Data source: GISS Surface Temperature Analysis (GISTEMP)
<http://data.giss.nasa.gov/gistemp/>

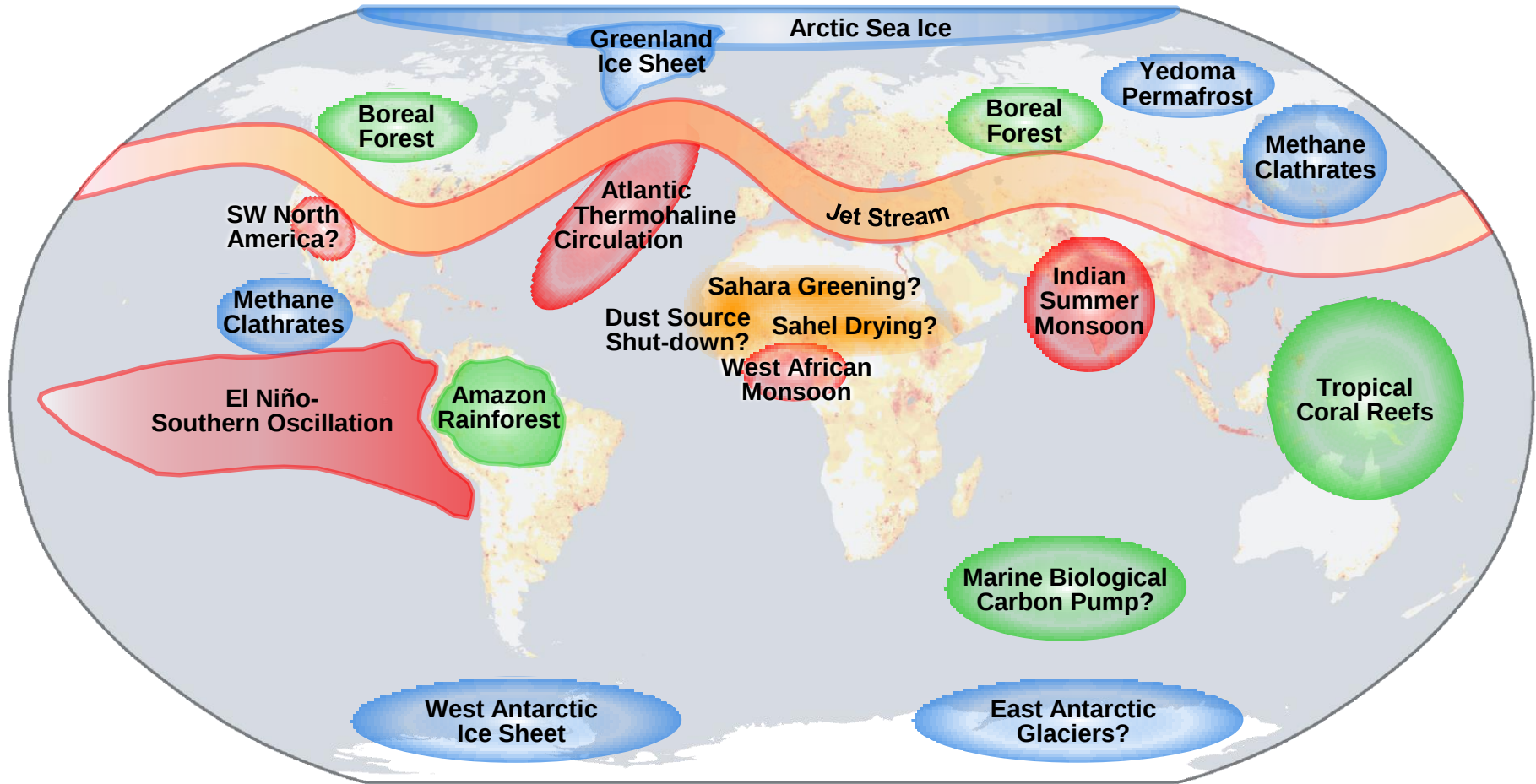
IPCC AR5 (2014): Klimaprojektionen und damit verbundene Risiken



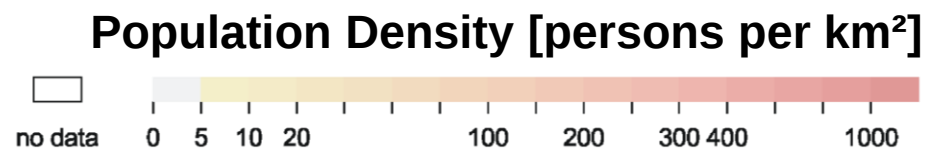
Level of additional risk due to climate change

Undetectable Moderate High Very high

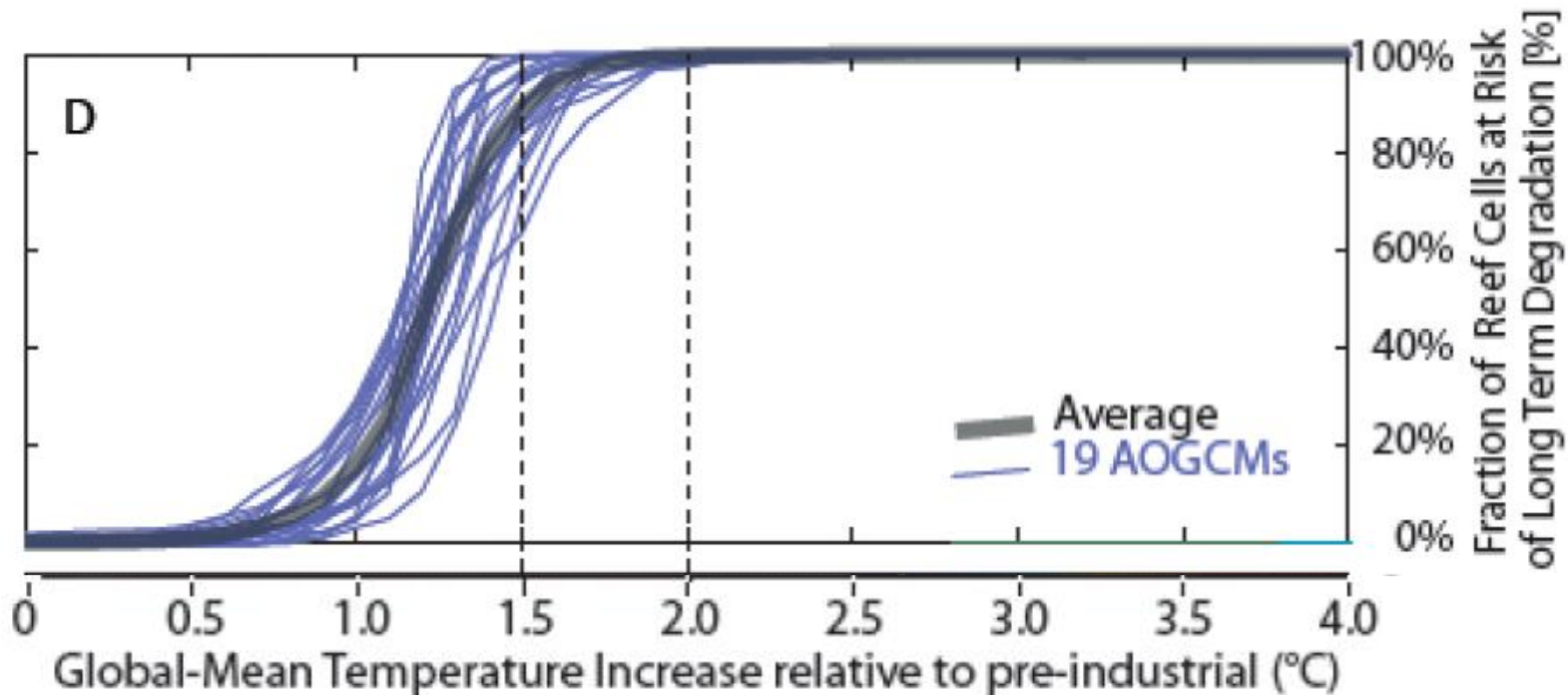
Risiken am Horizont: Kippelemente im Erdsystem



- Cryosphere Entities
- Circulation Patterns
- Biosphere Components

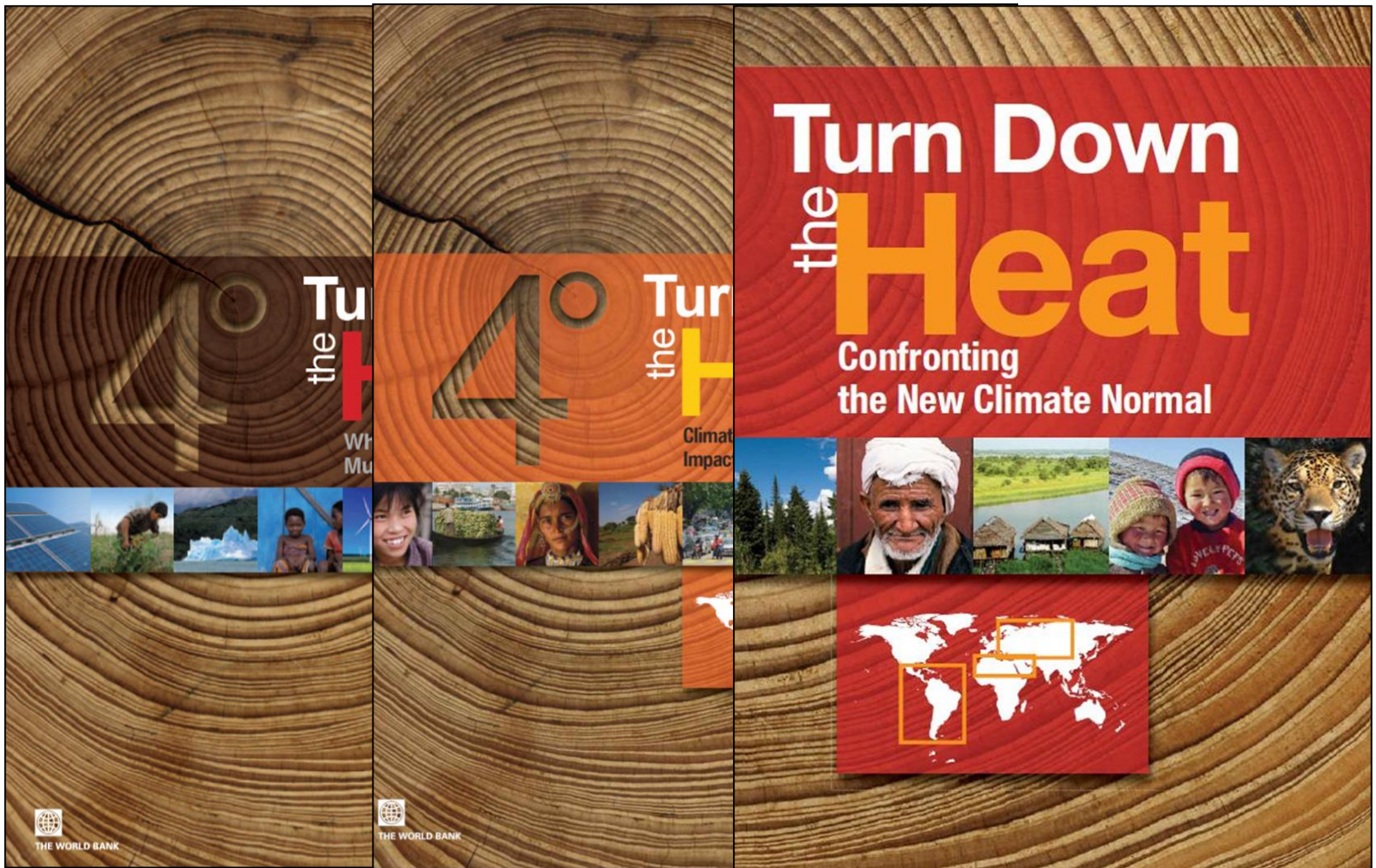


Verlust eines Großteils der Korallenriffe bereits bei 1,5°C Erwärmung

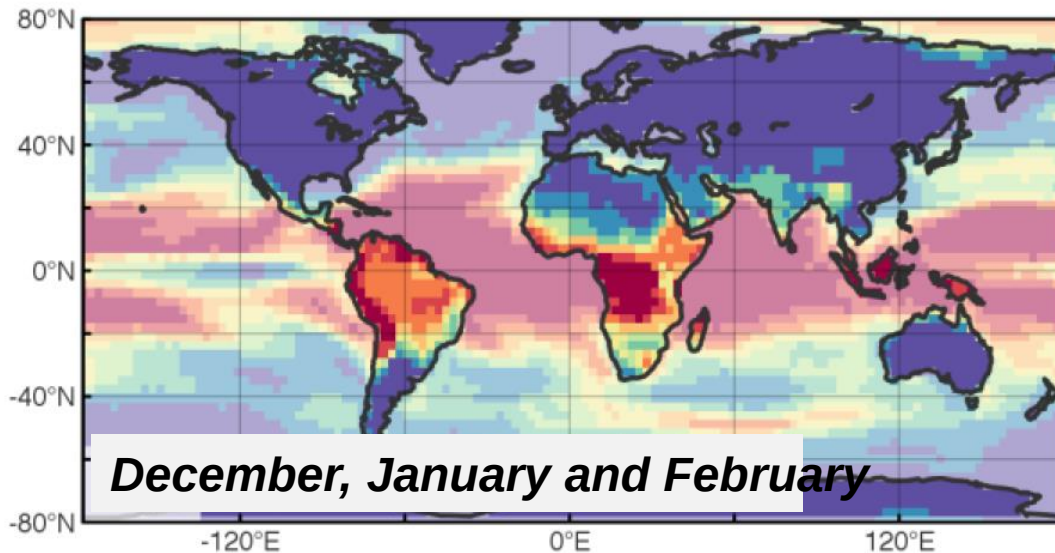
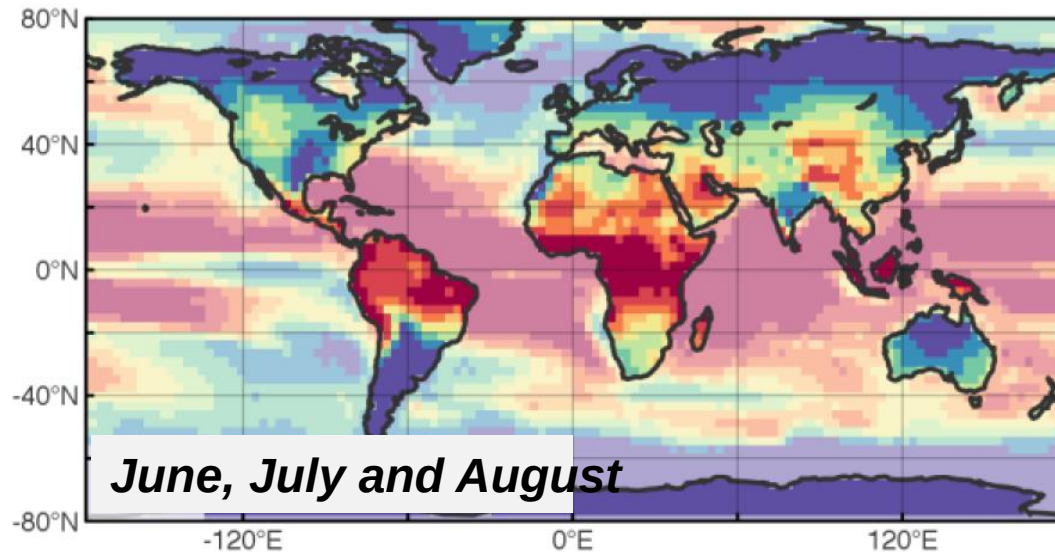


Um 10% der Korallenriffe weltweit zu erhalten, müsste die globale Erwärmung auf unter 1.5°C begrenzt werden.

Die Weltbank-Serie *Turn Down the Heat*



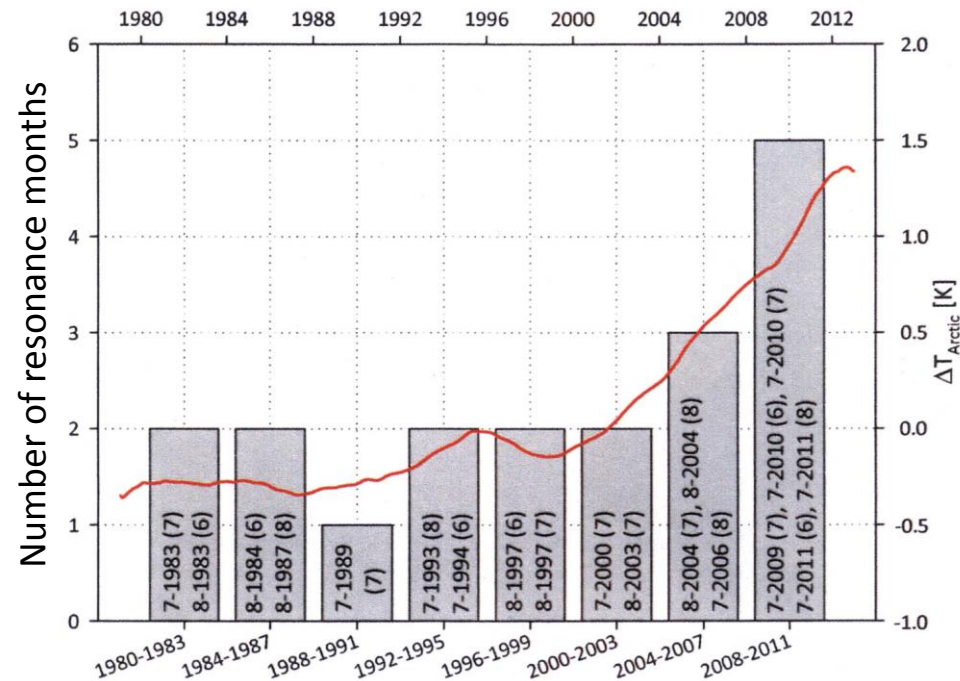
Häufigkeit signifikant wärmerer Monate



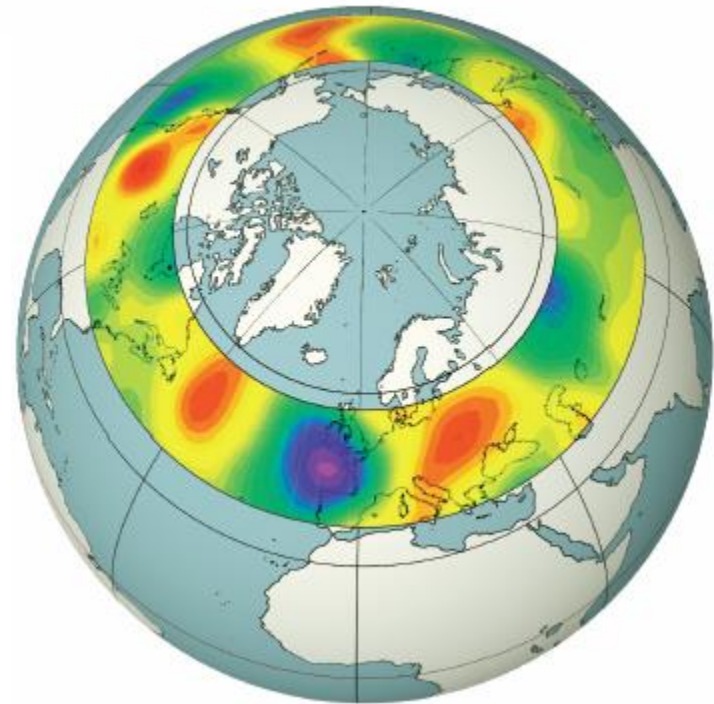
Multimodel mean of the percentage of months during 2080-2100 that are warmer than 5-sigma relative to the present-day climatology

Source: Schellnhuber et al, 2012
Turn Down the Heat – Why a 4°C Warmer World Must be Avoided

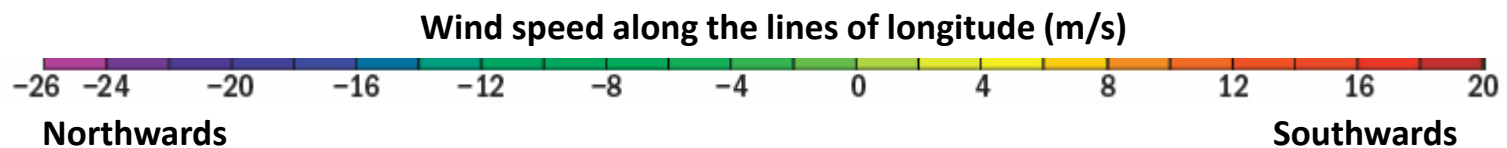
Quasi-Resonanz von planetaren Wellen



Coumou et al. 2014

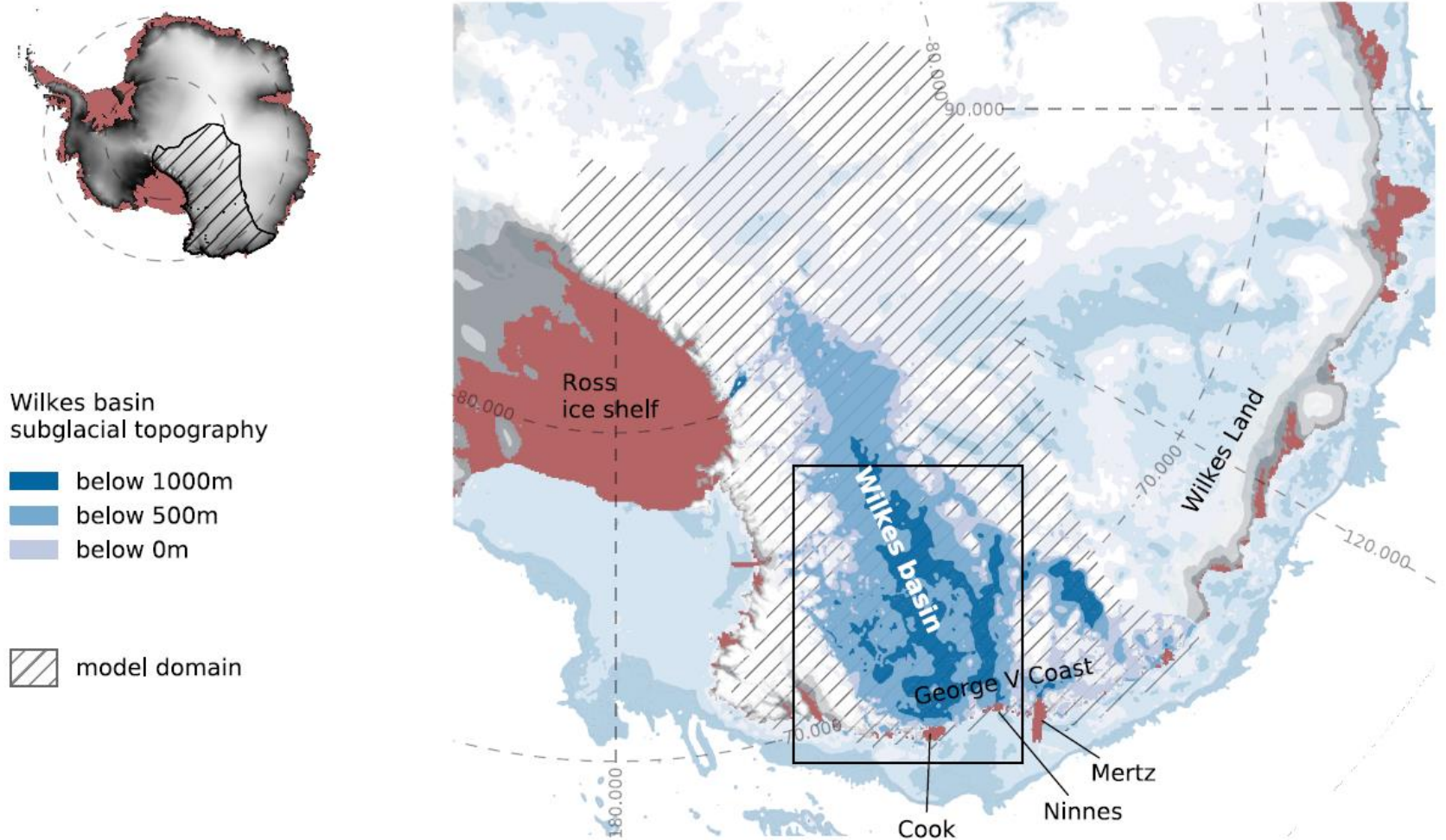


Extreme: May 2013

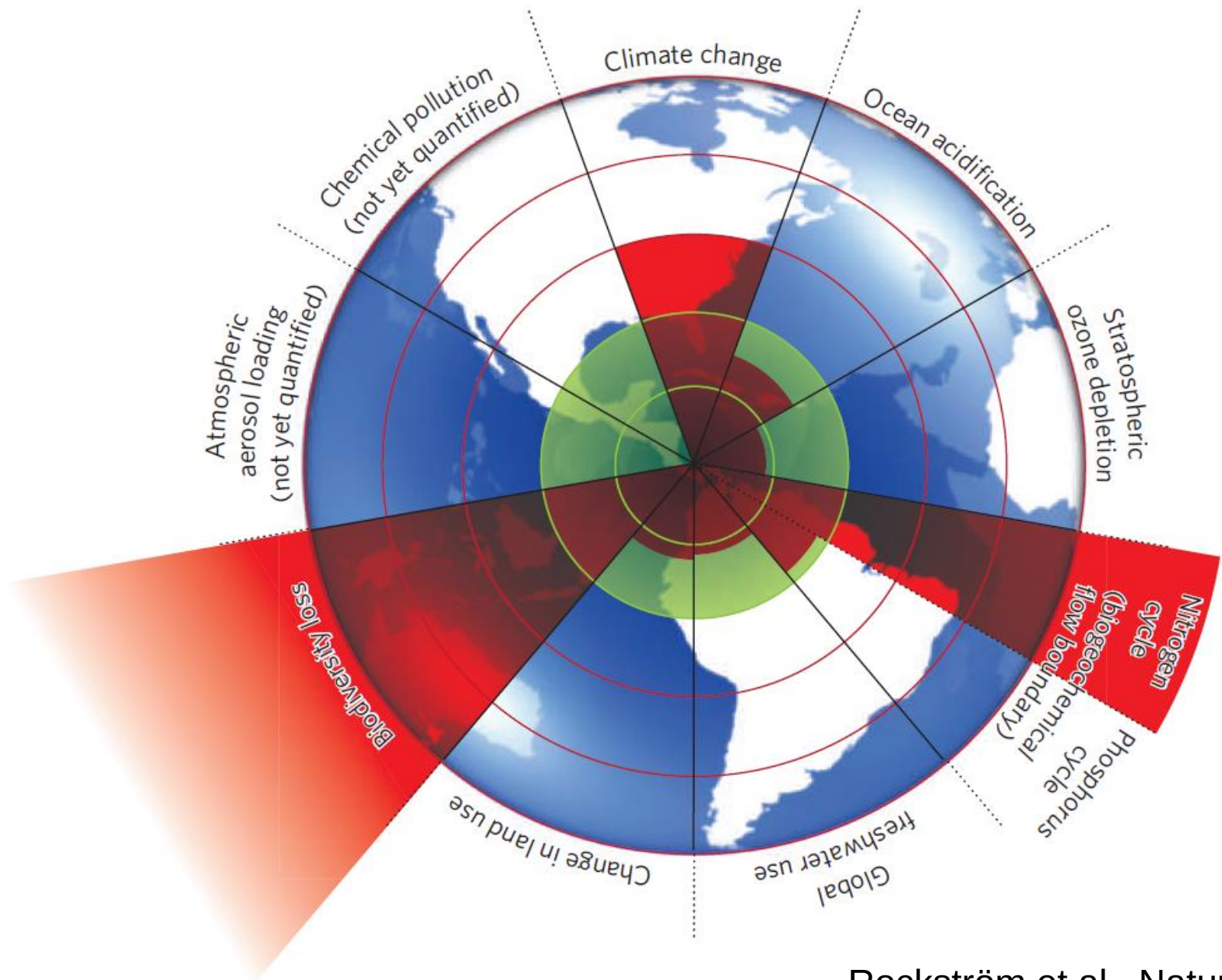


Wilke-Basin in Ostantarktis

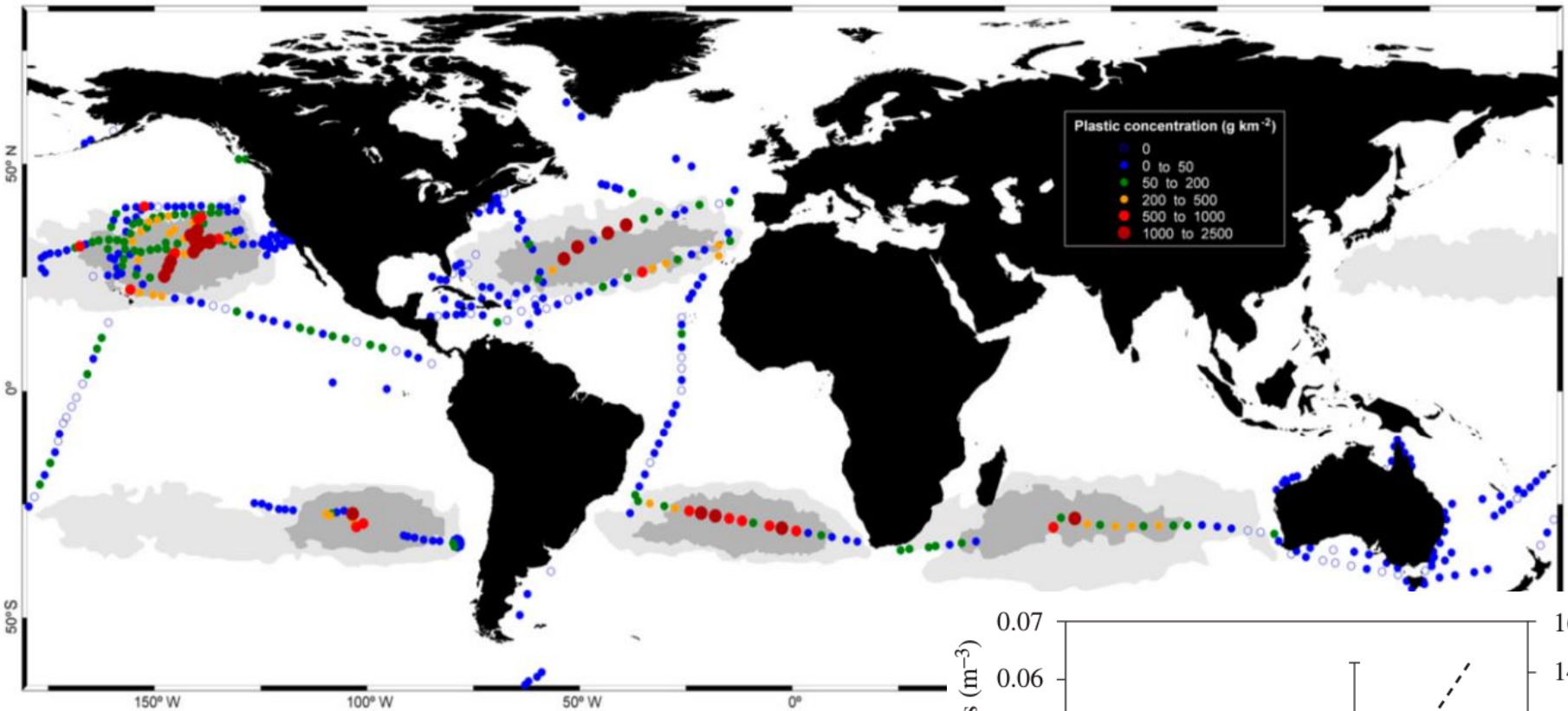
... is grounded below sea-level and thereby potentially unstable.



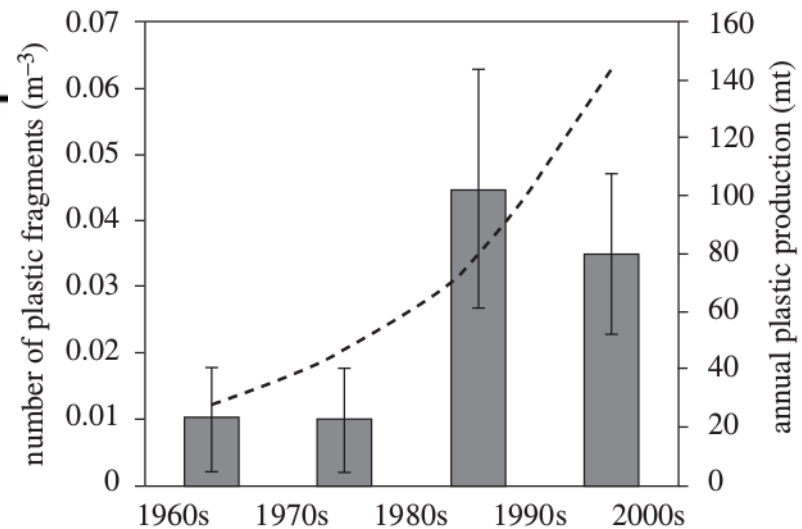
Planetary Grenzen!



Akkumulierter Plastikabfall in den Ozeanen



Cózar et al. (2014)



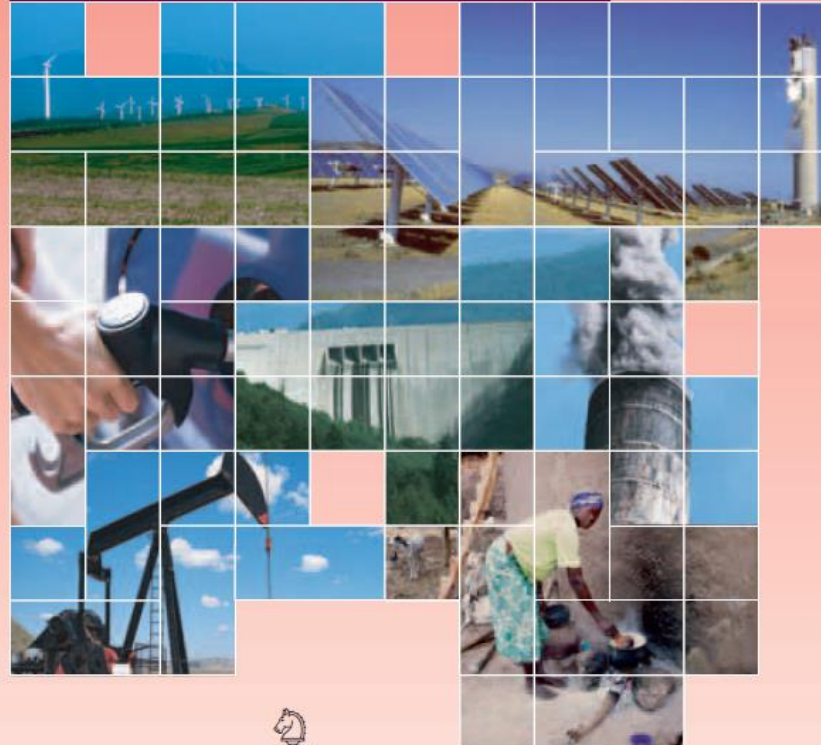
Barnes et al. (2014)

Welt im Wandel



Wissenschaftlicher Beirat
der Bundesregierung
Globale
Umweltveränderungen

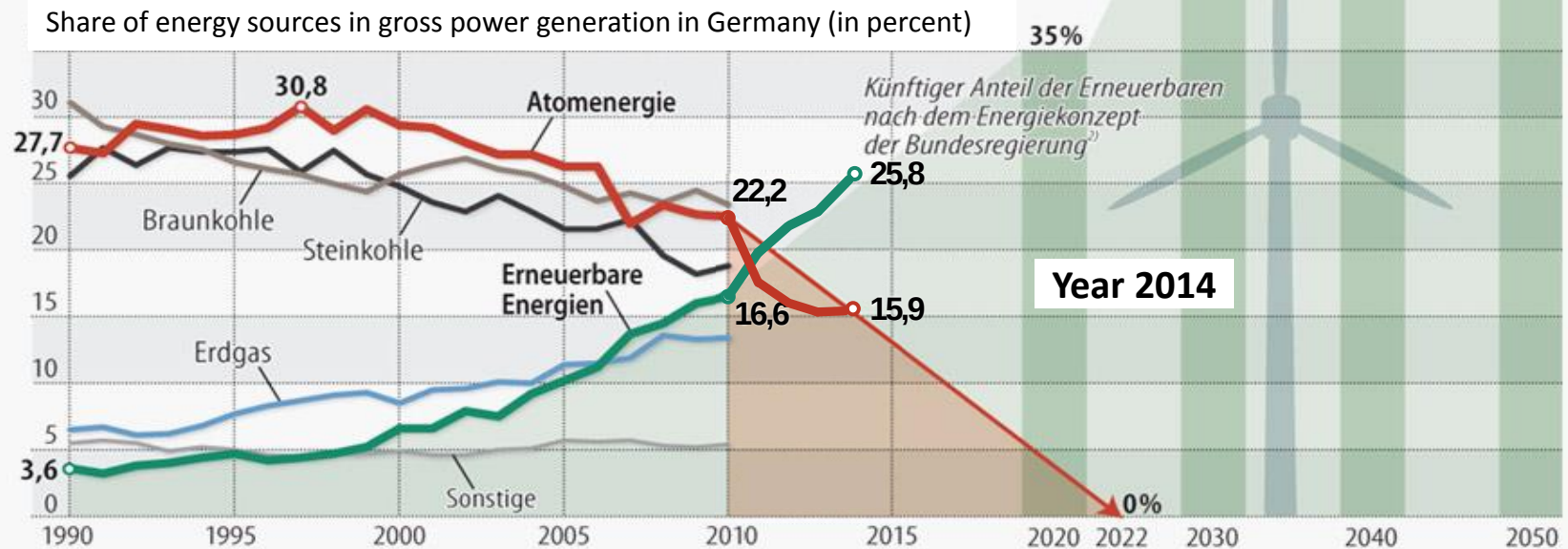
Energiewende zur Nachhaltigkeit



Springer

“Energiewende“ in Germany

Renewables are expected to replace nuclear, later fossil energy.

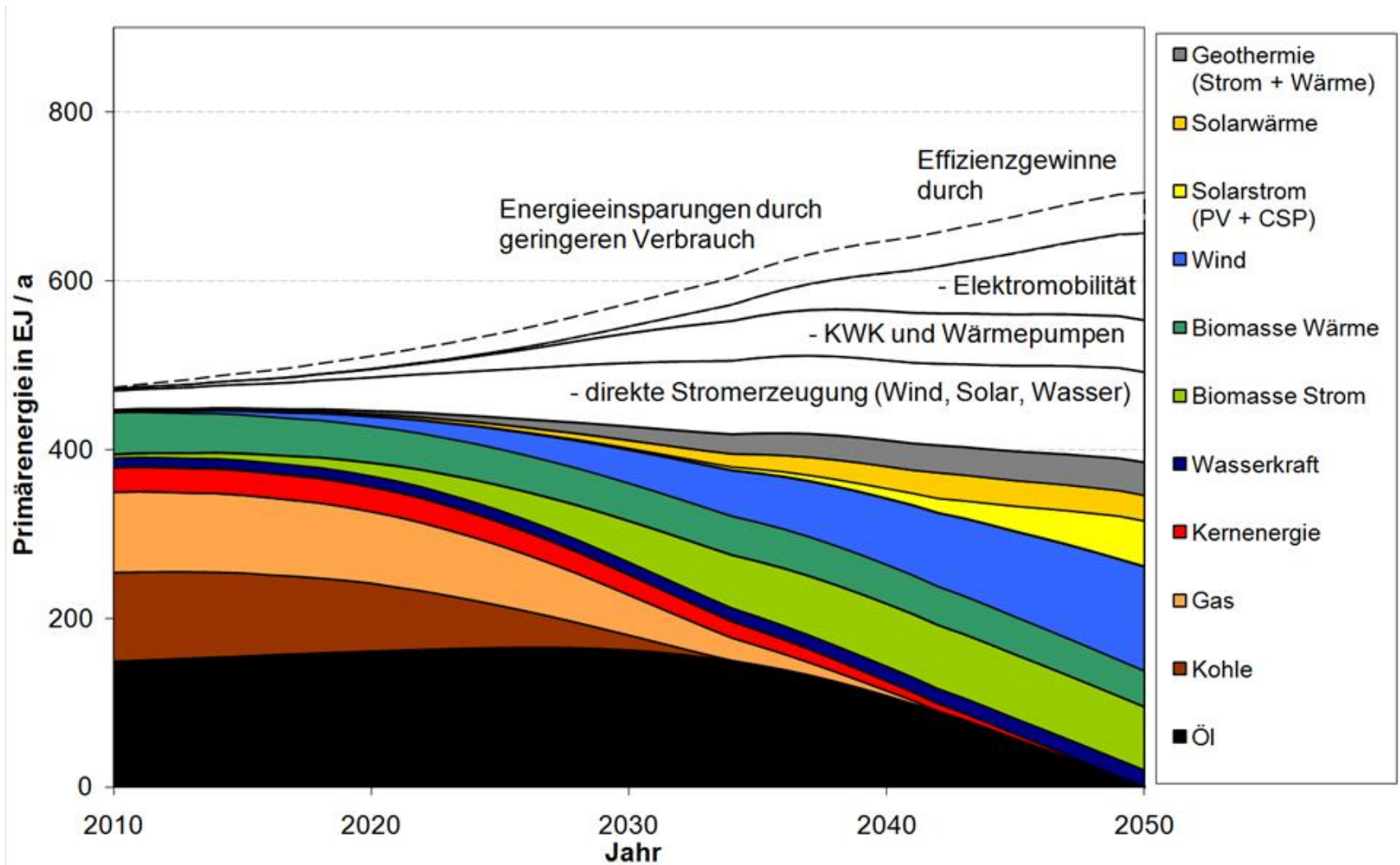


Hauptgutachten

Welt im Wandel Gesellschaftsvertrag für eine Große Transformation



Ambitioniertes globales 2° C-konformes Szenario für eine Transformation der Energieversorgung



Abschlussklärung G7-Gipfel 7.-8. Juni 2015



G7 GERMANY
2015 | Schloss Elmau

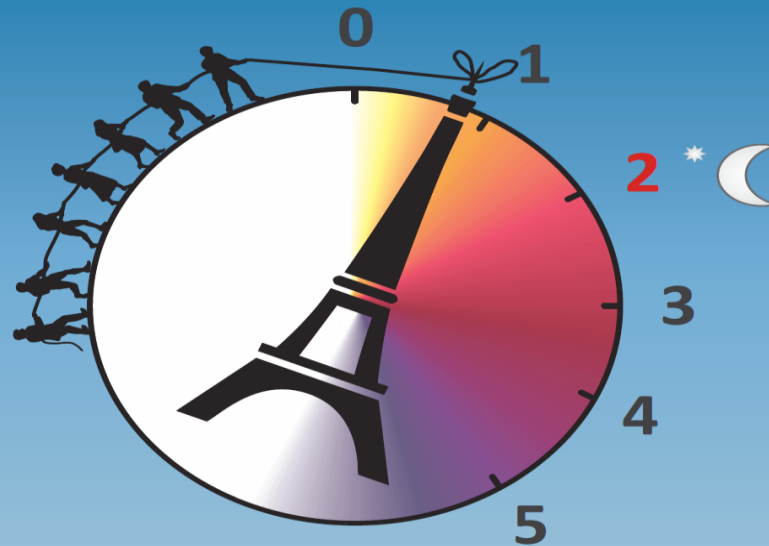
Klimakonferenz im Dezember
dieses Jahres in **Paris (COP21)**:

Übereinkommen aller Länder,
den Anstieg der weltweiten
Durchschnittstemperatur **unter 2°C**
zu halten

Dekarbonisierung der Weltwirtschaft
im Laufe dieses Jahrhunderts.

Sondergutachten

Klimaschutz als Weltbürgerbewegung



THE WORLD'S 60 RICHEST PEOPLE

OWN THE SAME WEALTH AS
THE 3.5 BILLION POOREST



THE WEALTH OF THE SUPER RICH
GROWS GREATER WHILST WORLD
POVERTY BITES DEEPER.
TOGETHER WE CAN EVEN IT UP.

ACT TODAY - FREE TEXT EVEN TO 70064

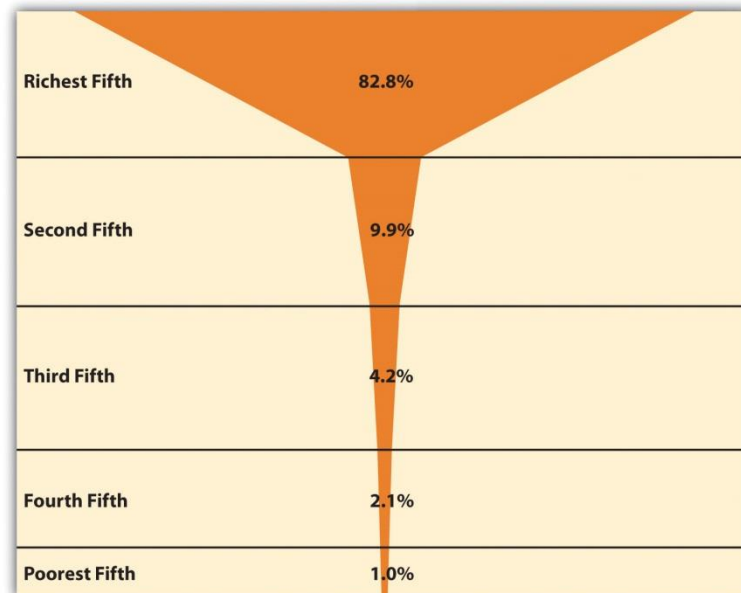
**EVEN
IT UP**



OXFAM

By texting you consent to future telephone contact from Oxfam. Text NOINFO to 70064 to stop future SMS.

Evening Standard, 11/4/2014



The champagne glass of global income distribution

Data from Ortiz, I., & Cummins, M. (2013)
Visualization: Barkan, S.(2014)

Hans Joachim Schellnhuber

SELBST VERBRENNUNG

*Die fatale Dreiecksbeziehung
zwischen Klima, Mensch
und Kohlenstoff*



C. Bertelsmann