Klimaänderung I
Vorlesung    SS 2007

Robert Sausen
DLR-Institut für Physik der Atmosphäre
Oberpfaffenhofen
Change of German equivalent CO$_2$ emissions relative to 1990

Kyoto target (2012) -21%

data: http://unfccc.int
http://www.ag-energiebilanzen.de/
Does EU-15 comply with the Kyoto Protocol?
Equivalent CO₂ emissions relative to 1990

Kyoto target (2012)
EU-15 -8.0%
Absolute equivalent CO₂ emissions since 1990

- **EU-15 total**
- **EU-15 transport**
- **EU-15 aviation bunkers**
- **EU-15 marine bunkers**
Aviation and shipping emissions grow fast but still are only a minor fraction of the total emissions.

Equivalent CO₂ emissions relative to 1990

Absolute equivalent CO₂ emissions since 1990
The Intergovernmental Panel on Climate Change (IPCC) has been established by WMO and UNEP to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. It is currently finalizing its Fourth Assessment Report "Climate Change 2007", also referred to as AR4. The reports by the three Working Groups provide a comprehensive and up-to-date assessment of the current state of knowledge on climate change. The Synthesis Report integrates the information around six topic areas.

www.ipcc.ch
May 2007
IPCC Assessment Reports (1)

IPCC First Assessment Report. 1990

Scientific Assessment of Climate change – Report of Working Group I
JT Houghton, GJ Jenkins and JJ Ephraums (Eds)
Cambridge University Press, UK. pp 365
(Summary for Policymakers)

Impacts Assessment of Climate Change – Report of Working Group II
W.J.McG Tegart, G.W.Sheldon, D.C.Griffiths (Eds)
Australian Government Publishing Service, Australia
(Summary for Policymakers)

The IPCC Response Strategies – Report of Working Group III
Island Press, USA. pp 270
IPCC Assessment Reports (2)

IPCC Second Assessment Report: Climate Change 1995

Climate Change 1995: The Science of Climate Change
Contribution of Working Group I to the Second Assessment of the Intergovernmental Panel on Climate Change
JT Houghton, LG Meira Filho, BA Callender, N Harris, A Kattenberg and K Maskell (Eds)

Climate Change 1995: Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses
Contribution of Working Group II to the Second Assessment of the Intergovernmental Panel on Climate Change
R.T. Watson, M.C. Zinyowera, R.H. Moss (Eds)

Climate Change 1995: Economic and Social Dimensions of Climate Change
Contribution of Working Group III to the Second Assessment of the Intergovernmental Panel on Climate Change
J.P. Bruce, H. Lee, E.F. Haites (Eds)
IPCC Assessment Reports (3)

IPCC Third Assessment Report: Climate Change 2001

Climate Change 2001: Synthesis Report

Climate Change 2001: The Scientific Basis

Climate Change 2001: Impacts, Adaptation & Vulnerability

Climate Change 2001: Mitigation
IPCC Special Reports (Beispiele)

Special Report on Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons. 2005

Emissions Scenarios. 2000

Aviation and the Global Atmosphere. 1999
IPCC Fourth Assessment Report (AR4) 2007

Climate Change 2007: The Physical Science Basis

Climate Change 2007: Impacts, Adaptation and Vulnerability

Climate Change 2007: Mitigation of Climate Change

AR4 Synthesis Report
IPCC web site: www.ipcc.ch
IPCC Fourth Assessment Report (AR4) 2007

Climate Change 2007: The Physical Science Basis

Climate Change 2007: Impacts, Adaptation and Vulnerability

Climate Change 2007: Mitigation of Climate Change

AR4 Synthesis Report
IPCC AR4: Climate Change 2007: The Physical Science Basis

Summary for Policymakers
Technical Summary
Frequently Asked Questions

1. Historical Overview of Climate Change Science
2. Changes in Atmospheric Constituents and in Radiative Forcing
3. Observations: Surface and Atmospheric Climate Change
5. Observations: Oceanic Climate Change and Sea Level
6. Paleoclimate
7. Couplings Between Changes in the Climate System and Biogeochemistry
8. Climate Models and their Evaluation
9. Understanding and Attributing Climate Change
10. Global Climate Projections
11. Regional Climate Projections

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Uncertainty Guidance Note for the Fourth Assessment Report
IPCC Fourth Assessment Report (AR4) 2007

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Climate Change 2007: Impacts, Adaptation and Vulnerability
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AR4 Synthesis Report