Working Group I Contribution to the IPCC Fifth Assessment Report
Climate Change 2013: The Physical Science Basis

Summary for Policy Makers

Technical Summary

Chapter 1: Introduction

Executive Summary
• Rationale and key concepts of the WG1 contribution
• Treatment of uncertainty
• Climate change projections since FAR
Frequently Asked Questions

Chapter 2: Observations: Atmosphere and Surface

Executive Summary
• Changes in surface temperature and soil temperature
• Changes in temperature, humidity and clouds
• Changes in atmospheric composition
• Changes in radiation fields and energy budget
• Changes in hydrology, runoff, precipitation and drought
• Changes in atmospheric circulation, including wind
• Spatial and temporal patterns of climate variability
• Changes in extreme events, including tropical and extratropical storms
Frequently Asked Questions

Chapter 3: Observations: Ocean

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• Changes in ocean temperature and heat content
• Ocean salinity change and freshwater fluxes
• Sea level change, ocean waves and storm surges
• Ocean biogeochemical changes, including ocean acidification
• Changes in ocean surface processes
• Changes in ocean circulation
• Spatial and temporal patterns of ocean variability
Frequently Asked Questions
Chapter 4: Observations: Cryosphere

Executive Summary

- Changes in ice sheets, including mass balance
- Changes in ice shelves
- Changes in glaciers and ice caps
- Sea ice variability and trends
- Snow and ice cover variability and trends
- Changes in frozen ground
- Dynamics of ice sheets, ice shelves, ice caps, glaciers and sea ice

Frequently Asked Questions

Chapter 5: Information from Paleoclimate Archives

Executive Summary

- Characteristics of early instrumental, documentary and natural climate archives
- Reconstruction of radiative forcing and climate response
- Reconstruction of regional variability and extremes
- Abrupt climate changes and their regional expression
- Sea level and ice sheets: patterns, amplitudes and rates of change
- Paleoclimate perspective on irreversibility in the climate system
- Paleodata-model intercomparisons

Frequently Asked Questions

Chapter 6: Carbon and Other Biogeochemical Cycles

Executive Summary

- Past changes in CO₂, CH₄, N₂O and biogeochemical cycles
- Recent trends in global and regional sources, sinks and inventories, including land use change
- Processes and understanding of changes, including ocean acidification
- Interactions between the carbon and other biogeochemical cycles, including the nitrogen cycle
- Projections of changes in carbon and other biogeochemical cycles
- Greenhouse gas stabilisation
- Carbon cycle – climate feedbacks and irreversibility
- Geoengineering involving the carbon cycle

Frequently Asked Questions

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Executive Summary

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- Cloud and water vapour feedbacks and their effects on climate sensitivity
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- Aerosol-cloud-precipitation interactions
- Geoengineering involving clouds and aerosols

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- Anthropogenic radiative forcing, including effects from land surface changes
- Effects of atmospheric chemistry and composition
- Spatial and temporal expression of radiative forcing
- Greenhouse gas and other metrics, including Global Warming Potential (GWP) and Global Temperature Change Potential (GTP)

Frequently Asked Questions

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- Downscaling methods
- Assessing model performance, including quantitative measures and their use
- New model components and couplings
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- Simulation of recent and longer term records
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Frequently Asked Questions

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- Pre-instrumental perspective
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Frequently Asked Questions

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- Atmospheric composition and air quality
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- Quantification of the range of climate change projections

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Frequently Asked Questions

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Frequently Asked Questions

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Frequently Asked Questions

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1 Annex I: Atlas of Global and Regional Climate Projections will provide comprehensive information on a selected range of variables (e.g., temperature and precipitation) for a few selected time horizons (e.g., 2020, 2050, and 2100) for all regions and, to the extent possible, for the four basic RCP scenarios. Numerical fields corresponding to the figures together with the specification of the data sources and the description of how the figures were constructed will also be included. The information used in Annex I will be based on material assessed in WGI Chapters 9, 11, 12 or 14. Each Figure caption will include a reference to the location in the assessment report where the underlying information is assessed and vice versa. Each figure included in the Atlas will be assessed and reviewed as part of the underlying chapter in which it originates. The Atlas will be produced by an Editorial Team consisting of 2 members of the Lead Author Teams of each of WGI Chapters 9, 11, 12 and 14. This Editorial Team will be assisted by an Advisory Board consisting of 2 WGI Vice-Chairs and an invited member of the WGII AR5 Lead Author Team. The review process will be overseen by a Review Editor Team consisting of one Review Editor of each of WGI Chapters 9, 11, 12 and 14.