

# Climate Change 2013: The Physical Science Basis

Working Group I contribution to the IPCC Fifth Assessment Report

## Highlights from the IPCC Working Group I Report

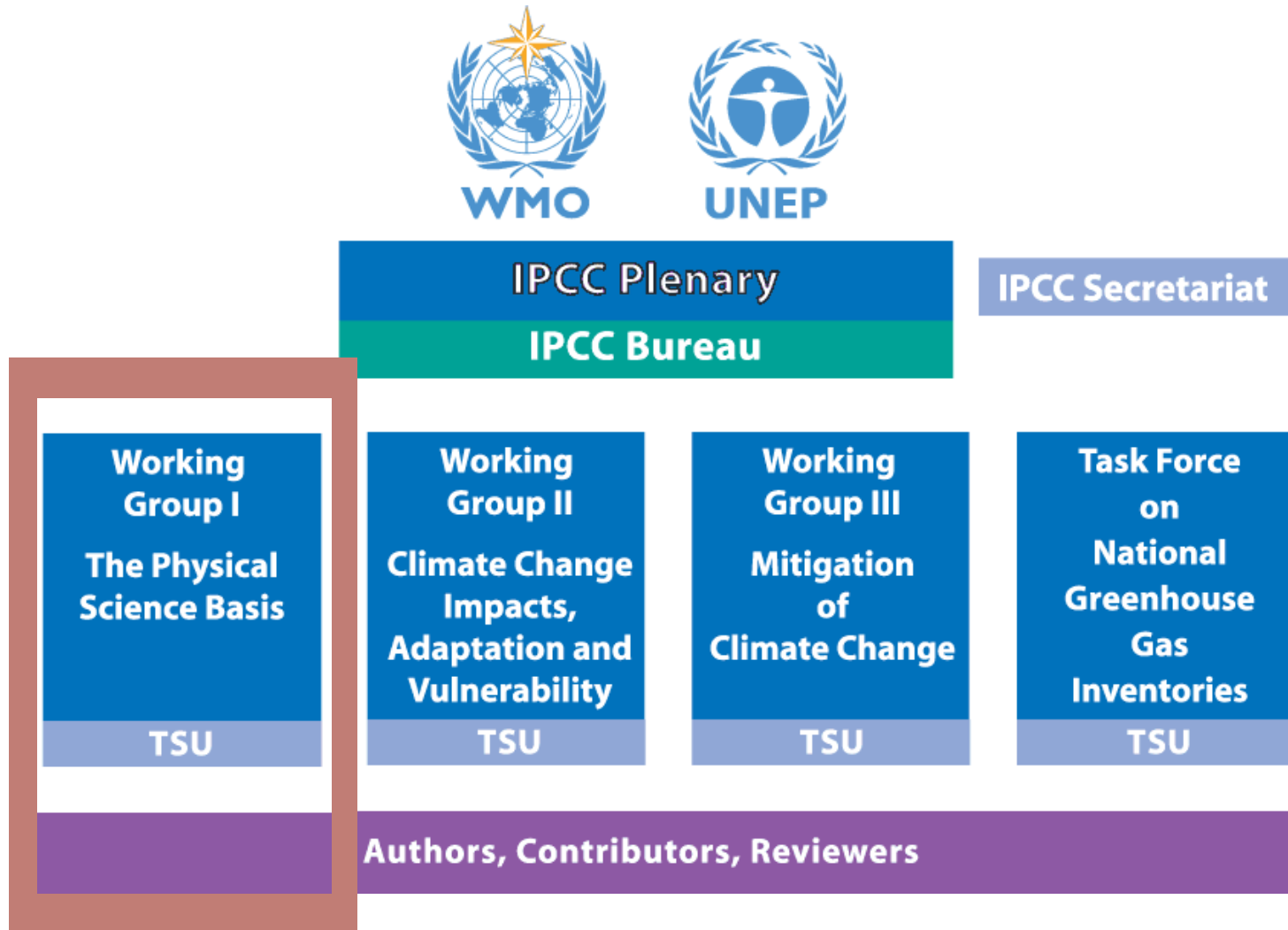
Gaetano Leone  
Deputy-Secretary, IPCC  
Geneva, Switzerland

High Summit  
Lecco, Italy – 25 October 2013

© Yann Arthus-Bertrand / Altitude



# The Intergovernmental Panel on Climate Change: Structure





# The Process for IPCC Working Group I

Science

Lead Authors

Governments

2008

Election of Bureaux

2009

Development of the WGI Outline

Approval of the WGI Outline

2010

Nomination and Selection of Experts

2011

Informal Review

Zero Order Draft

2012

Expert Review

First Order Draft

Expert Review

Second Order Draft

Government Review

2013

Final Draft

Government Review

Sept  
2013

Acceptance and Approval of the Report



Key SPM Messages

# 19 Headlines

on less than 2 Pages

Summary for Policymakers  
~14,000 Words

14 Chapters  
Atlas of Regional Projections

54,677 Review Comments  
by 1089 Experts

2010: 259 Authors Selected

2009: WGI Outline Approved

ipcc

INTERGOVERNMENTAL PANEL ON climate change

## CLIMATE CHANGE 2013

*The Physical Science Basis*

WG I

WORKING GROUP I CONTRIBUTION TO THE  
FIFTH ASSESSMENT REPORT OF THE  
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



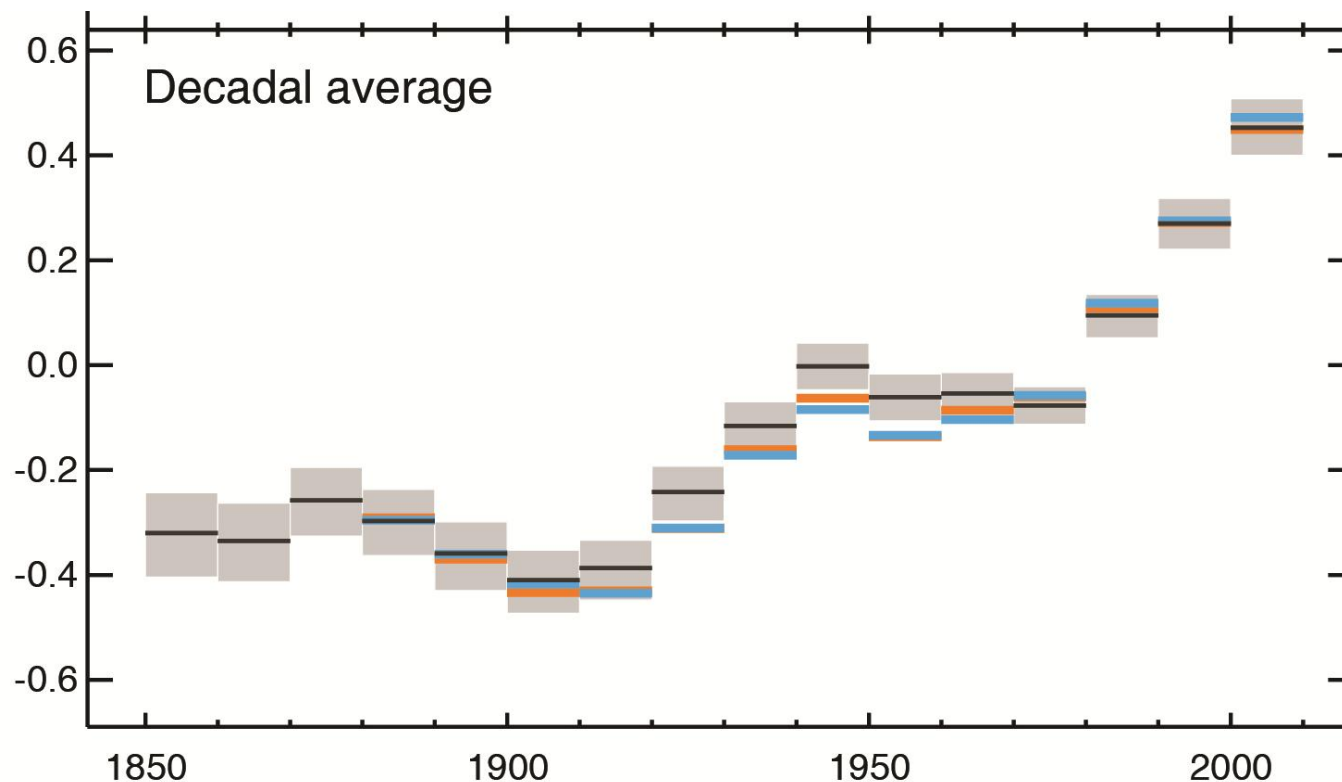


Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions

Human influence on the climate system is clear

Warming in the climate system is unequivocal



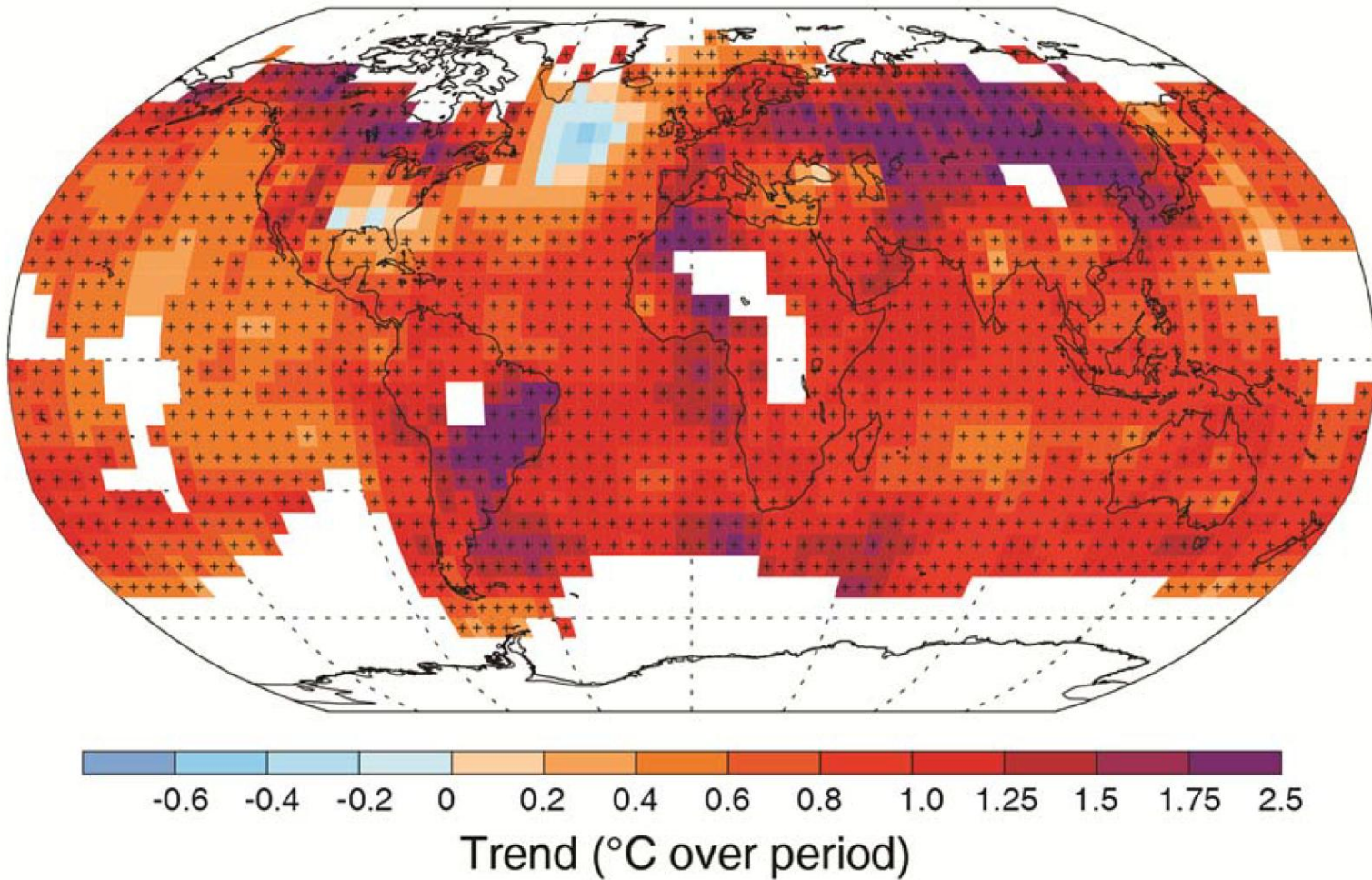


(IPCC 2013, Fig. SPM.1a)

Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850.

In the Northern Hemisphere, 1983–2012 was *likely* the warmest 30-year period of the last 1400 years (*medium confidence*).





(IPCC 2013, Fig. SPM.1b)

Warming in the climate system is unequivocal



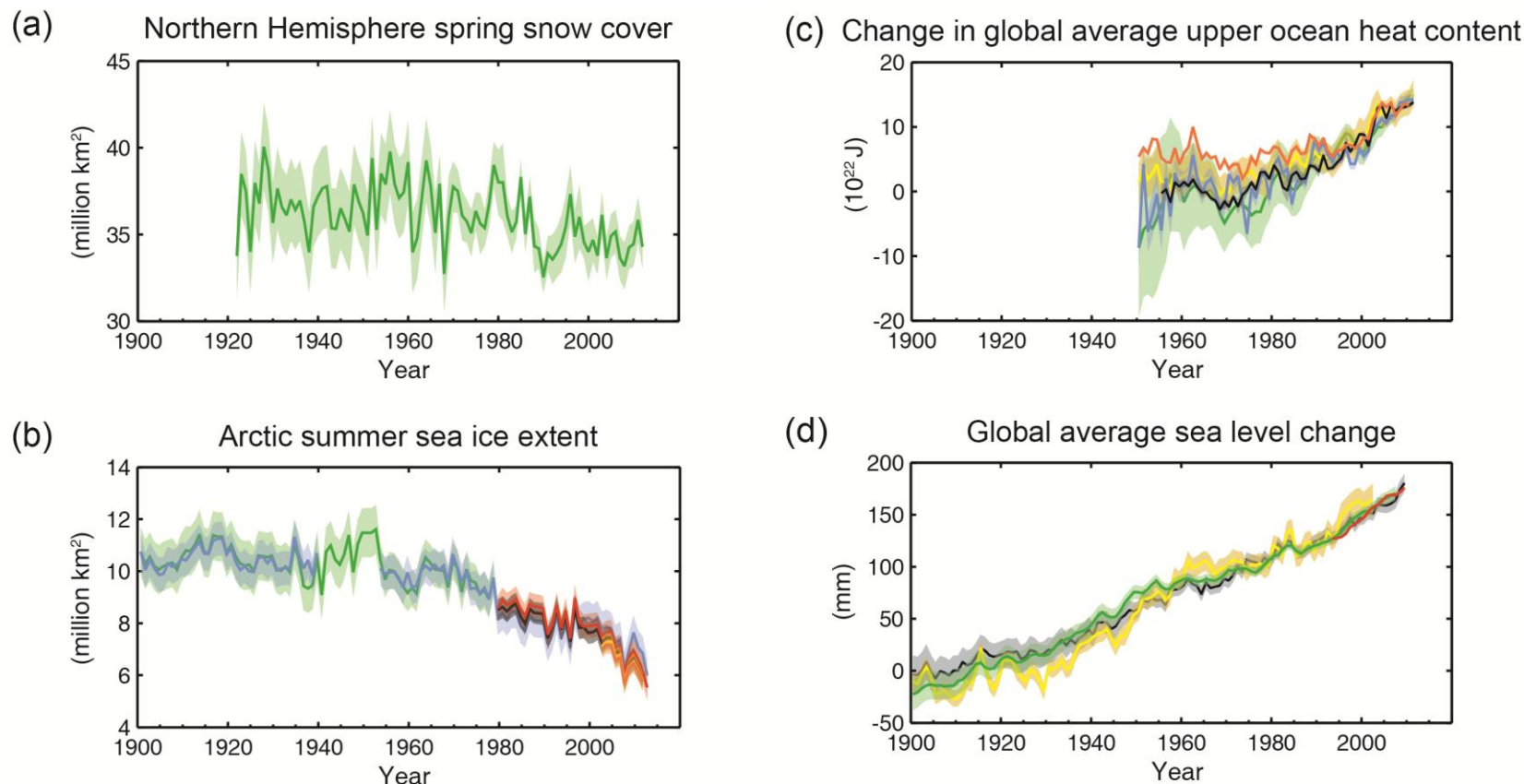
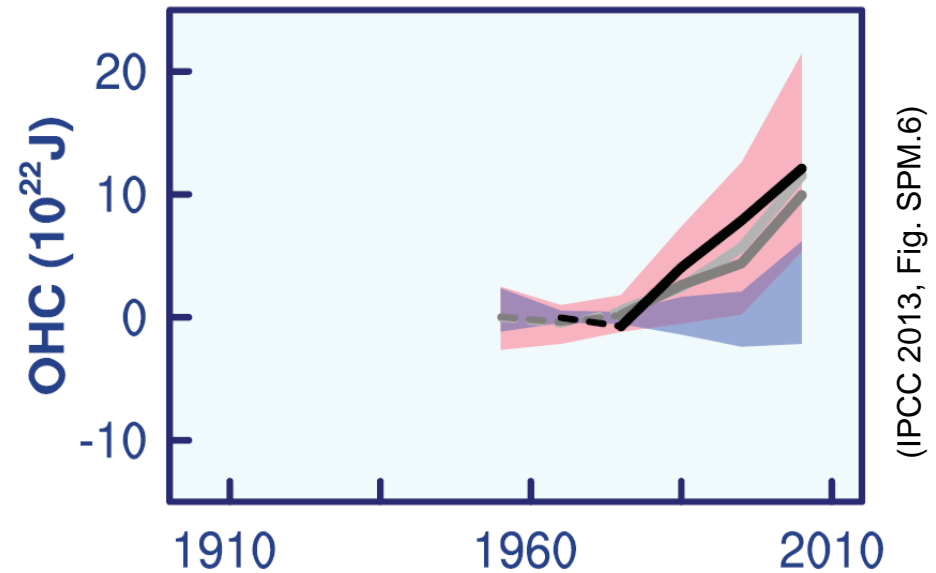
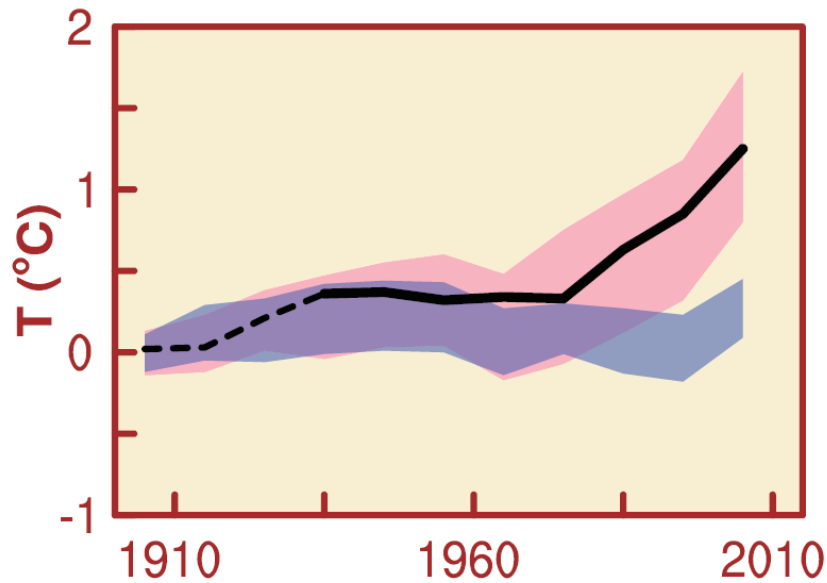


Fig. SPM.3

Warming in the climate system is unequivocal





Human influence on the climate system is clear



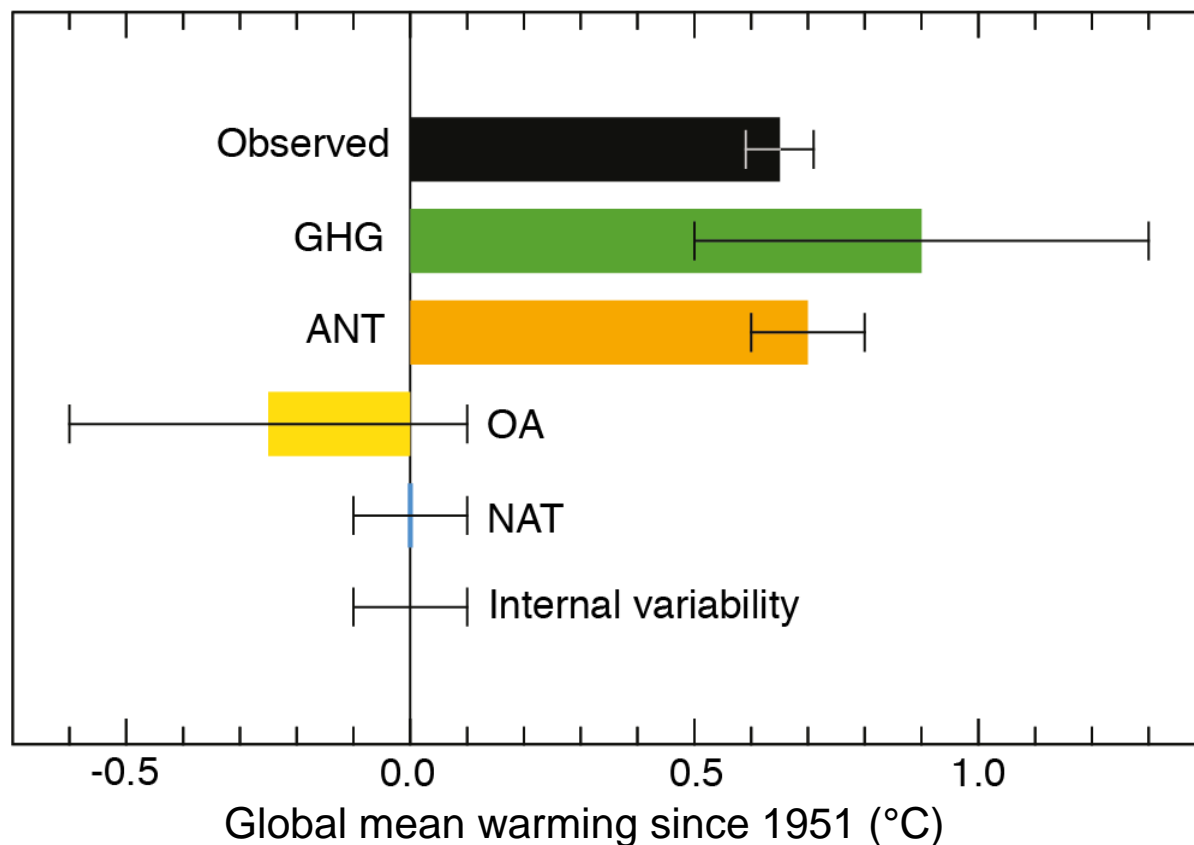
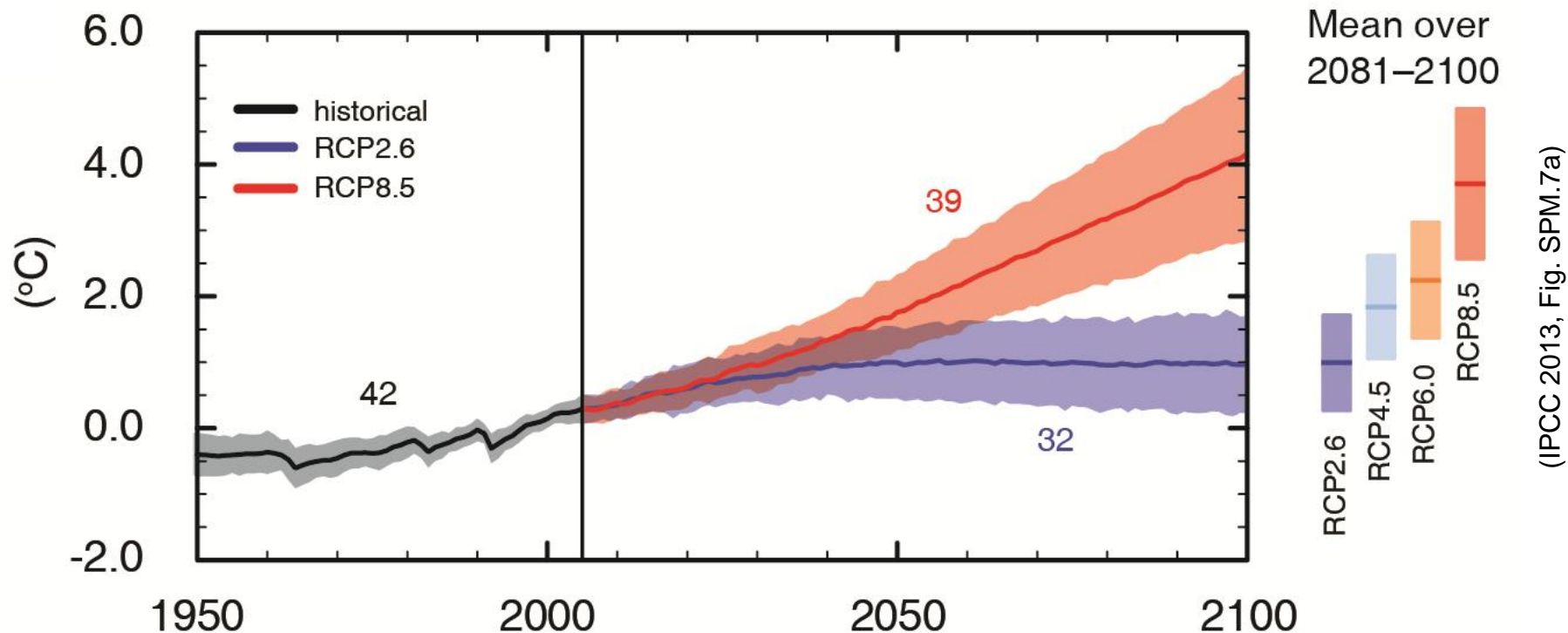


Fig. TS.10

It is *extremely likely* that **more than 50% of the warming since 1951** is due to the increase in greenhouse gases and other anthropogenic forcings together



## Global average surface temperature change



Global surface temperature change for the end of the 21st century is *likely* to exceed 1.5°C relative to 1850 for all scenarios



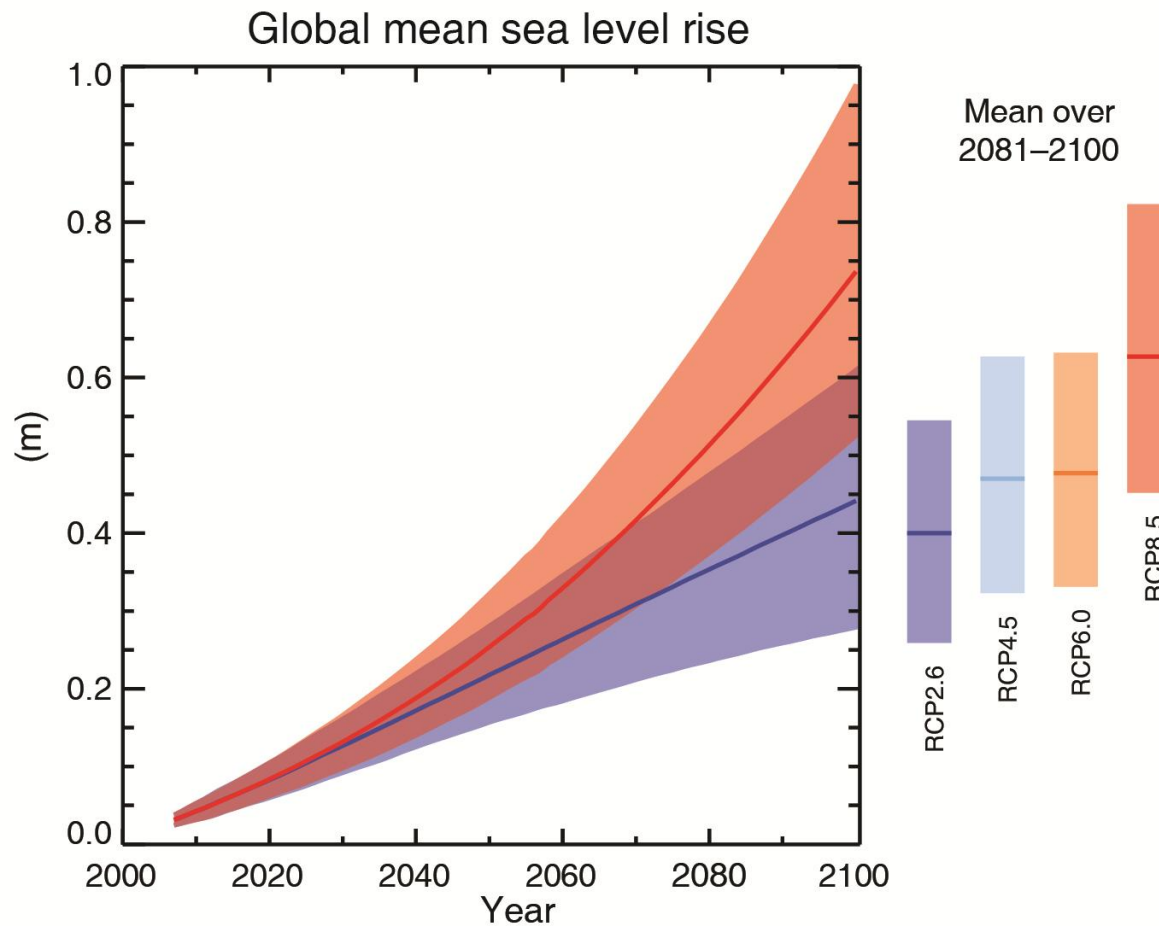
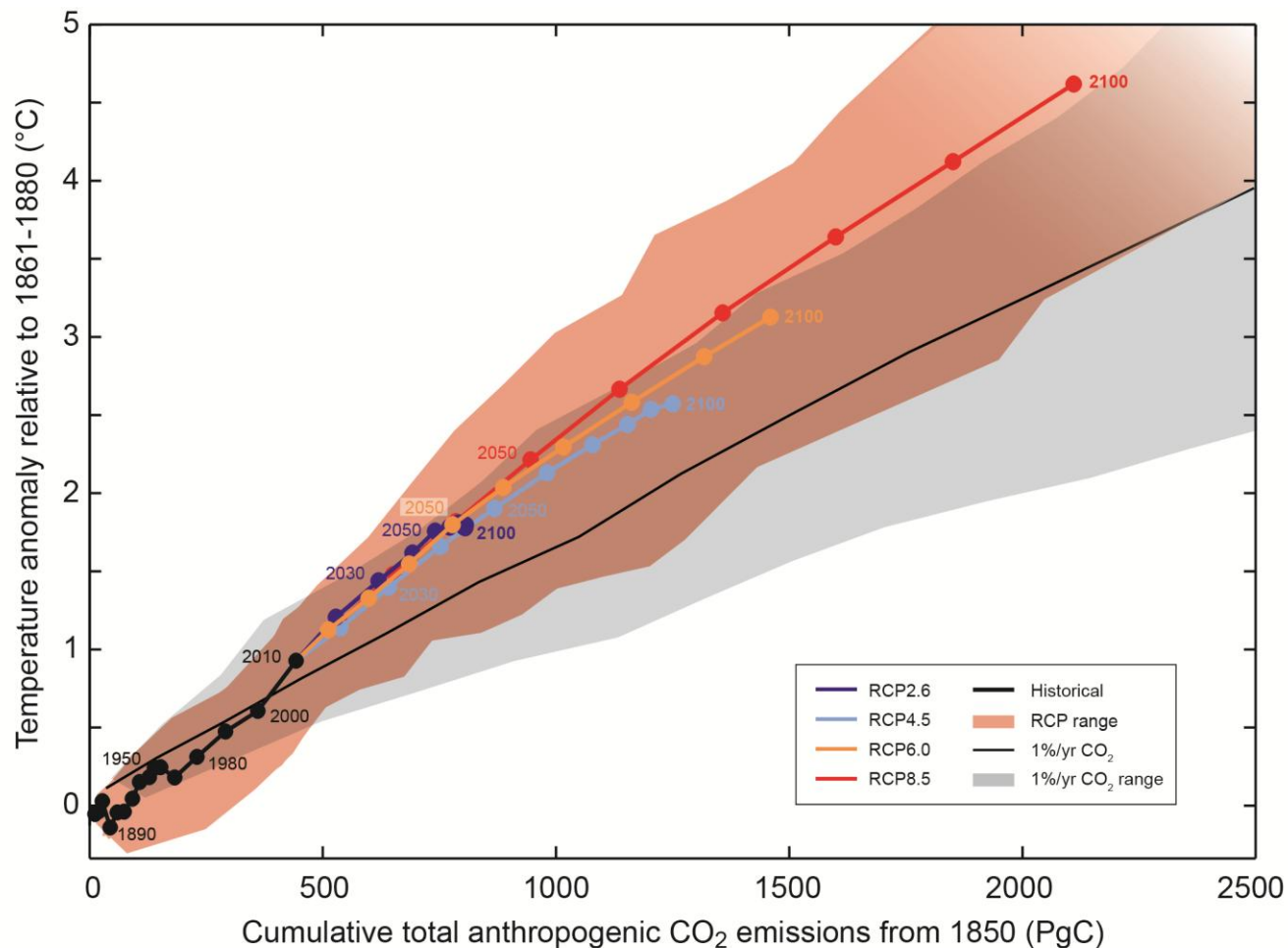


Fig. SPM.9

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





(IPCC 2013, Fig. SPM.10)

Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions



# Atlas of Global and Regionale Climate Projections

❖ 42 global Climate Models

❖ 35 Regions

❖ 2 Variables

Temperature, Precipitation

❖ 4 Scenarios

RCPs 2.6, 4.5, 6.0, 8.5

❖ 2 Seasons

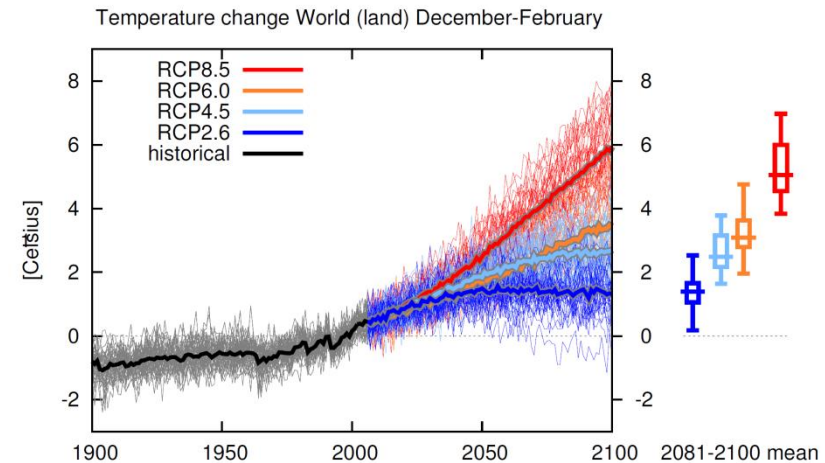
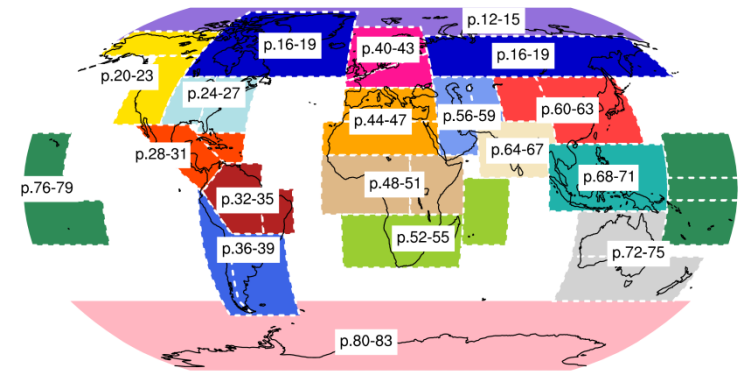
Dec-Feb, Jun-Aug (Temperature)

Apr-Sept, Oct-Mar (Precipitation)

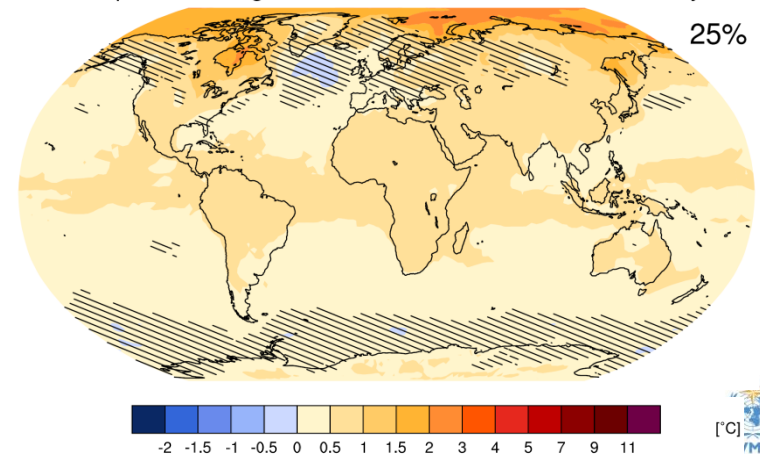
❖ Maps for 3 Time Horizons

2016-35, 2046-65, 2081-2100

Reference Period 1986-2005



Temperature change RCP4.5 in 2016-2035: December-February





# Climate Change 2013: The Physical Science Basis

Working Group I contribution to the IPCC Fifth Assessment Report

Further Information

[www.climatechange2013.org](http://www.climatechange2013.org)

[www.ipcc.ch](http://www.ipcc.ch)

© Yann Arthus-Bertrand / Altitude