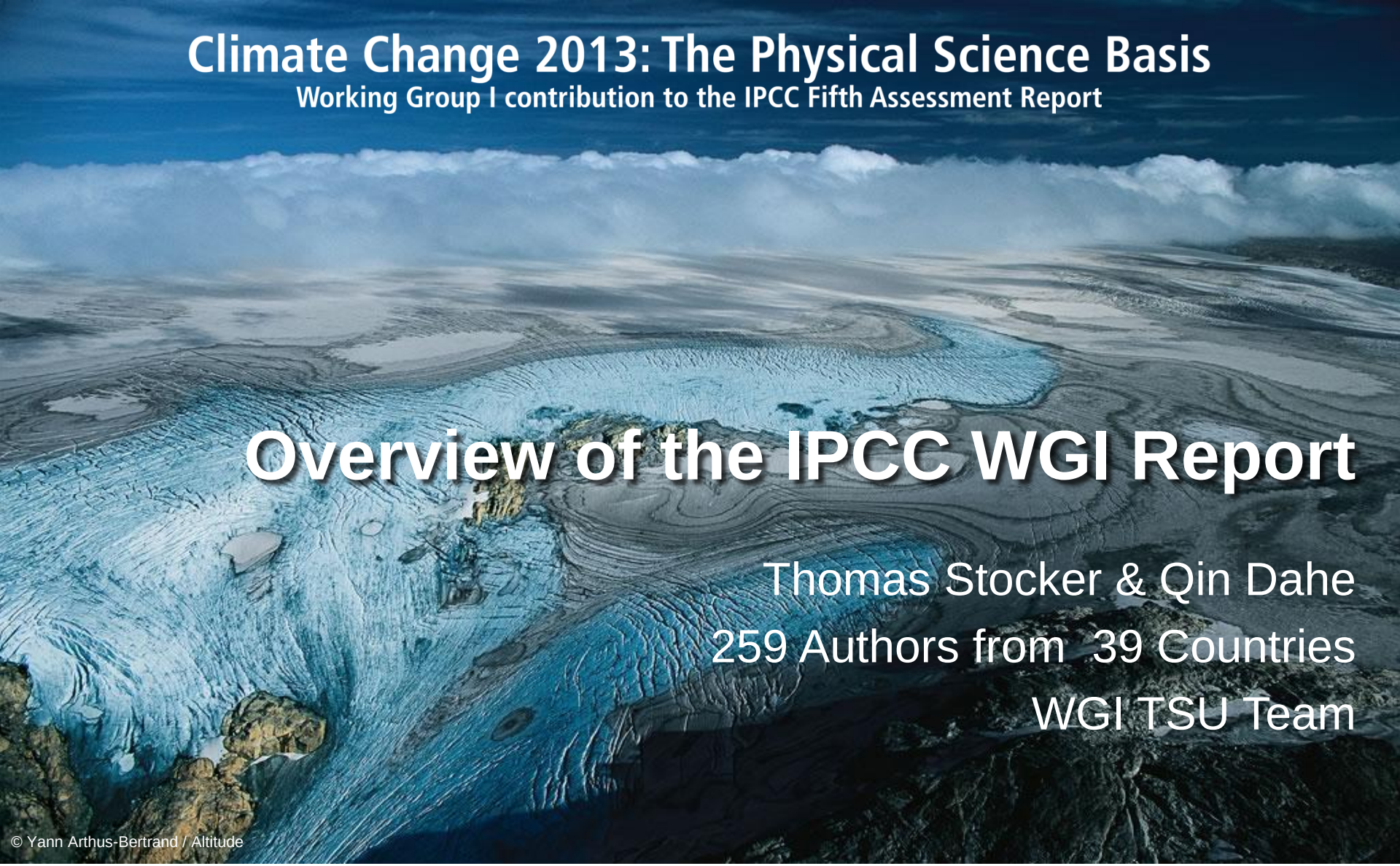
Climate Change 2013: The Physical Science Basis

Working Group I contribution to the IPCC Fifth Assessment Report



Overview of the IPCC WGI Report

Thomas Stocker & Qin Dahe

259 Authors from 39 Countries

WGI TSU Team

Key SPM Messages

19 Headlines

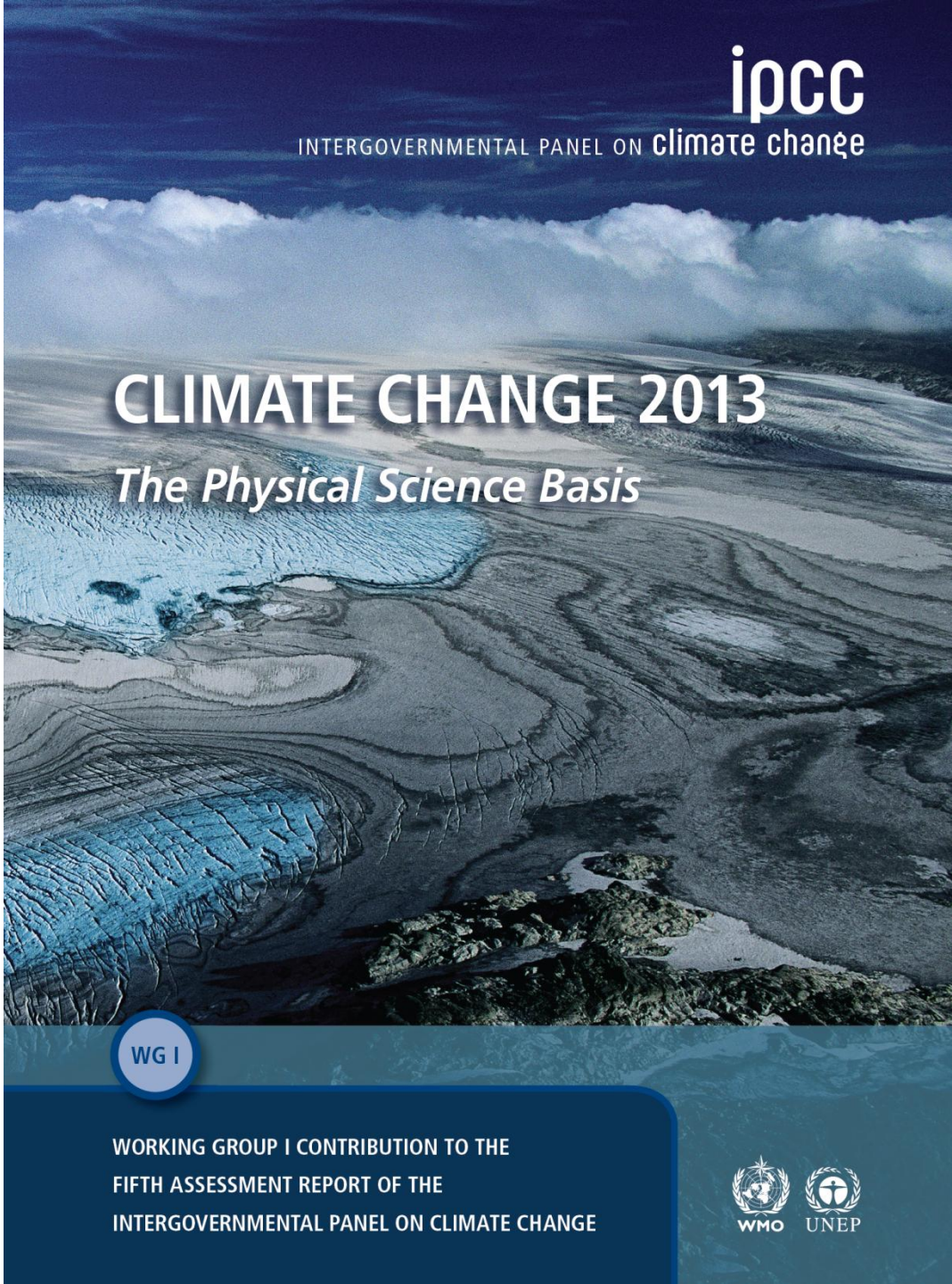
on less than 2 Pages

Summary for Policymakers

ca. 14,000 words

14 Chapters, Atlas

> 1,140,000 words



Observation

Ch 2, 3, 4, 5

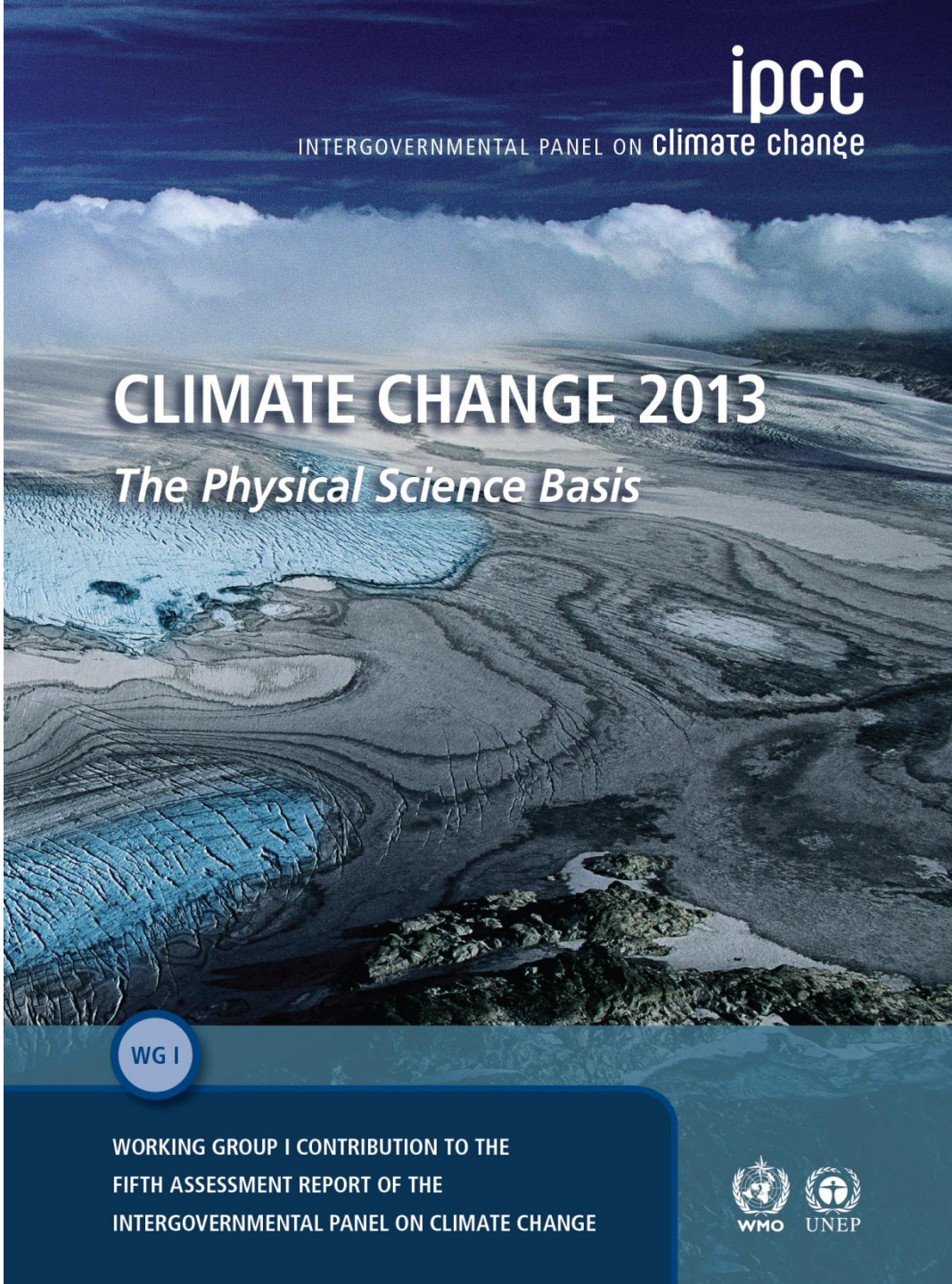
Understanding

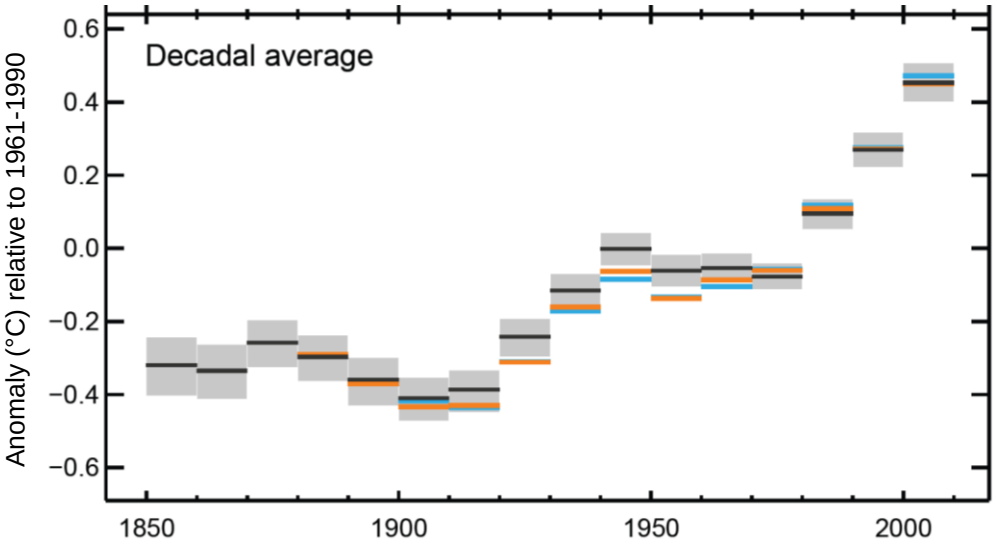
Ch 6, 7, 8, 9, 10

Future

Ch 11, 12, 13, 14

Atlas of Regional Change





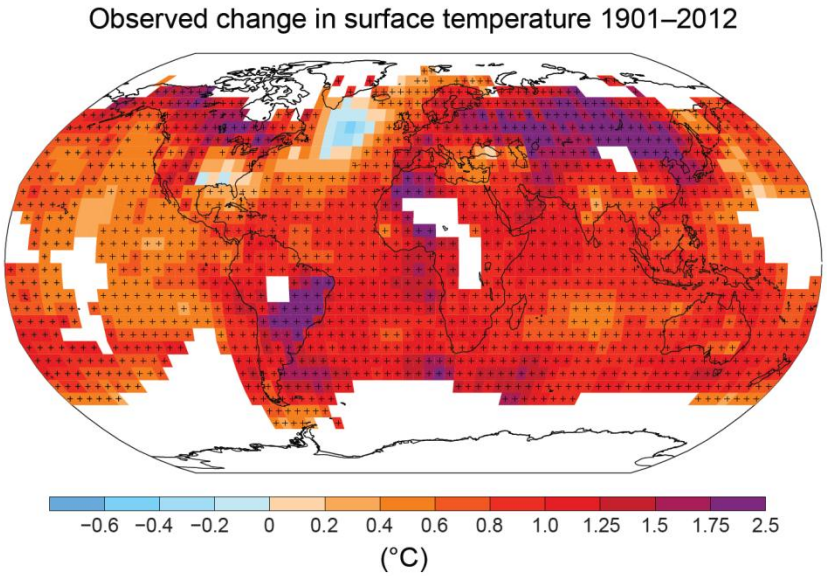


Fig. SPM.1

Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia.

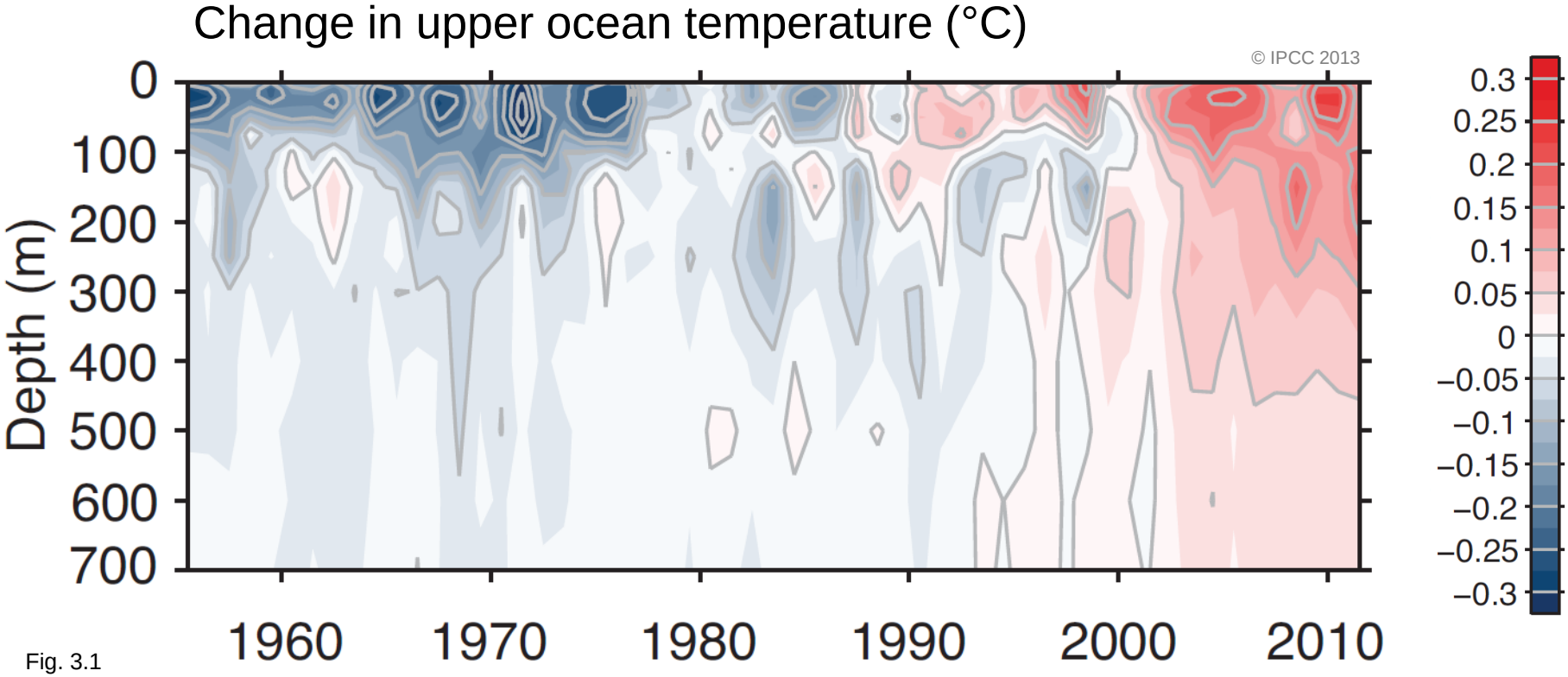
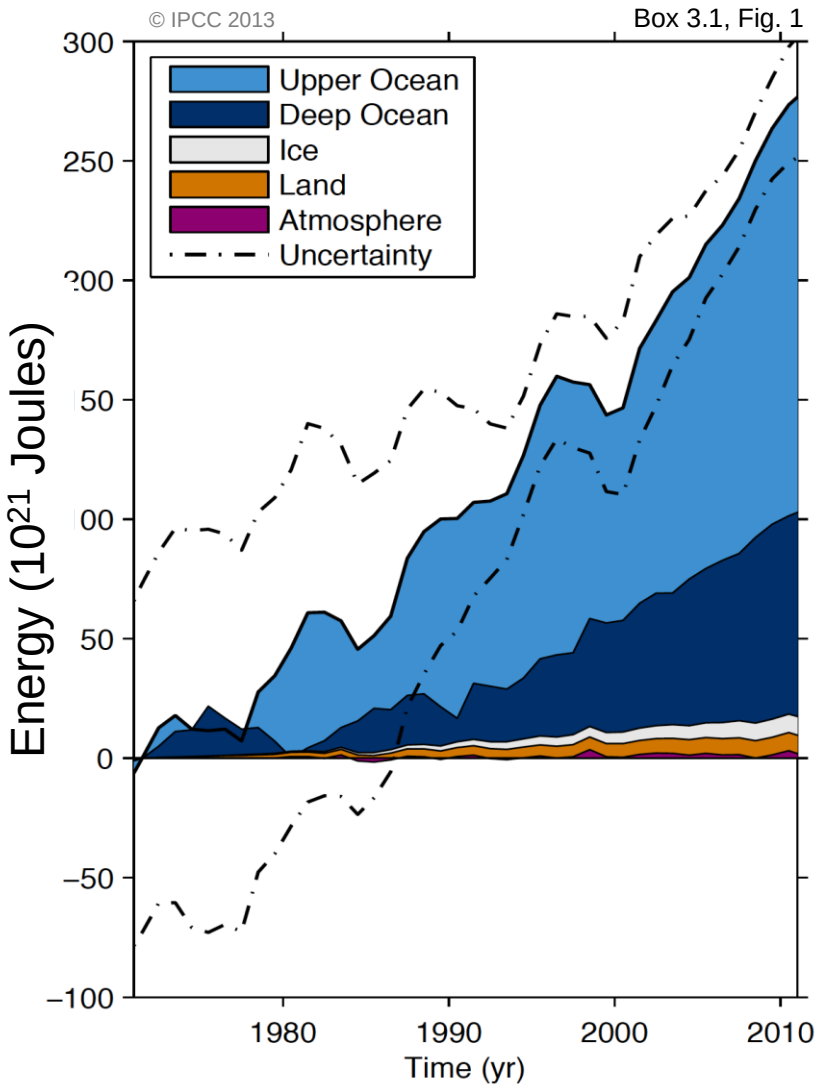


Fig. 3.1

It is *virtually certain* that the upper ocean (0-700 m) warmed from 1971 to 2010, [...]. It is *likely* that the ocean warmed between 700 and 2000 m from 1957 to 2009.



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*).

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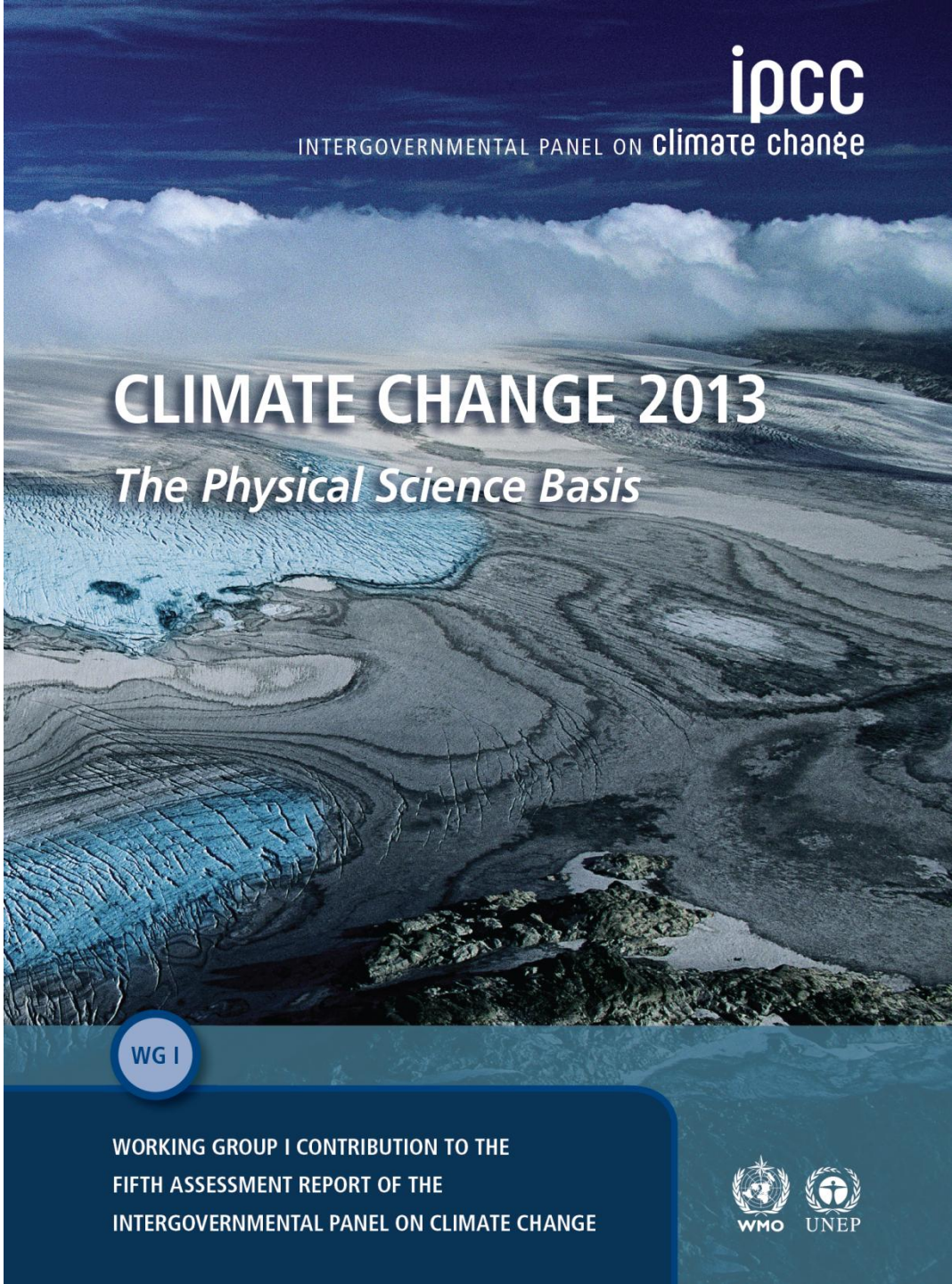

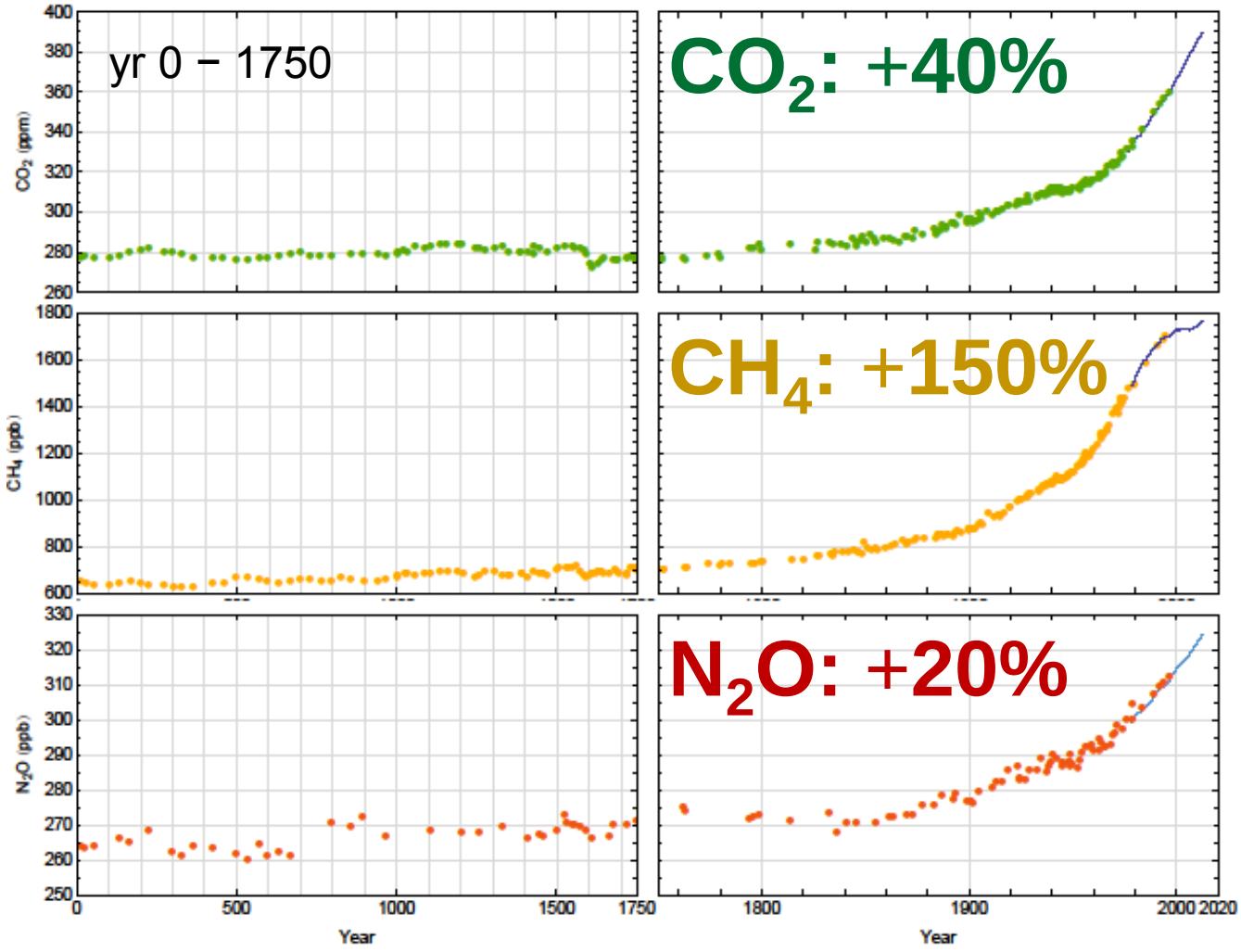

Fig. 6.11

The atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have all increased since 1750 due to human activity.

CO_2 provides largest RF

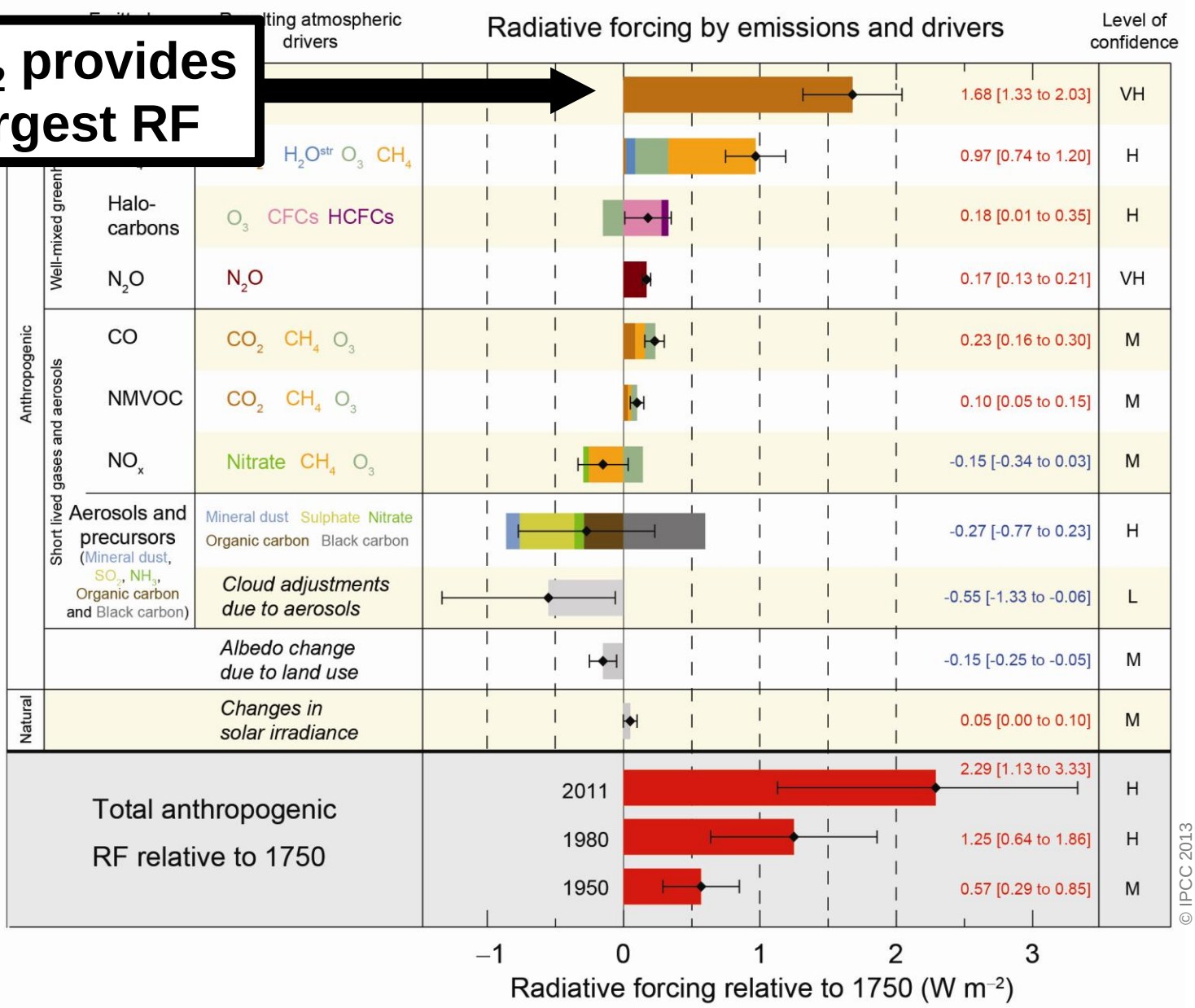

Fig. SPM.5

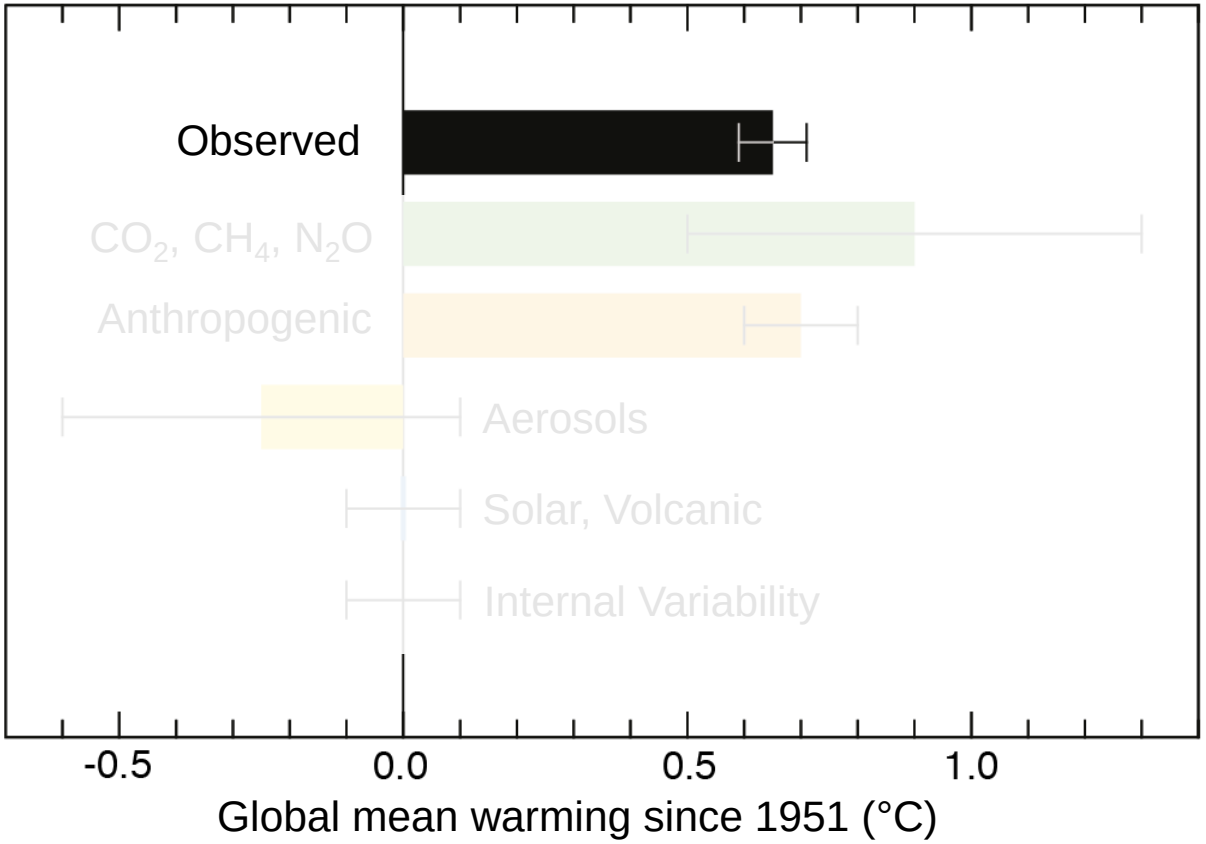

Fig. TS.10

The observed warming 1951–2010 is approximately 0.6°C to 0.7°C.

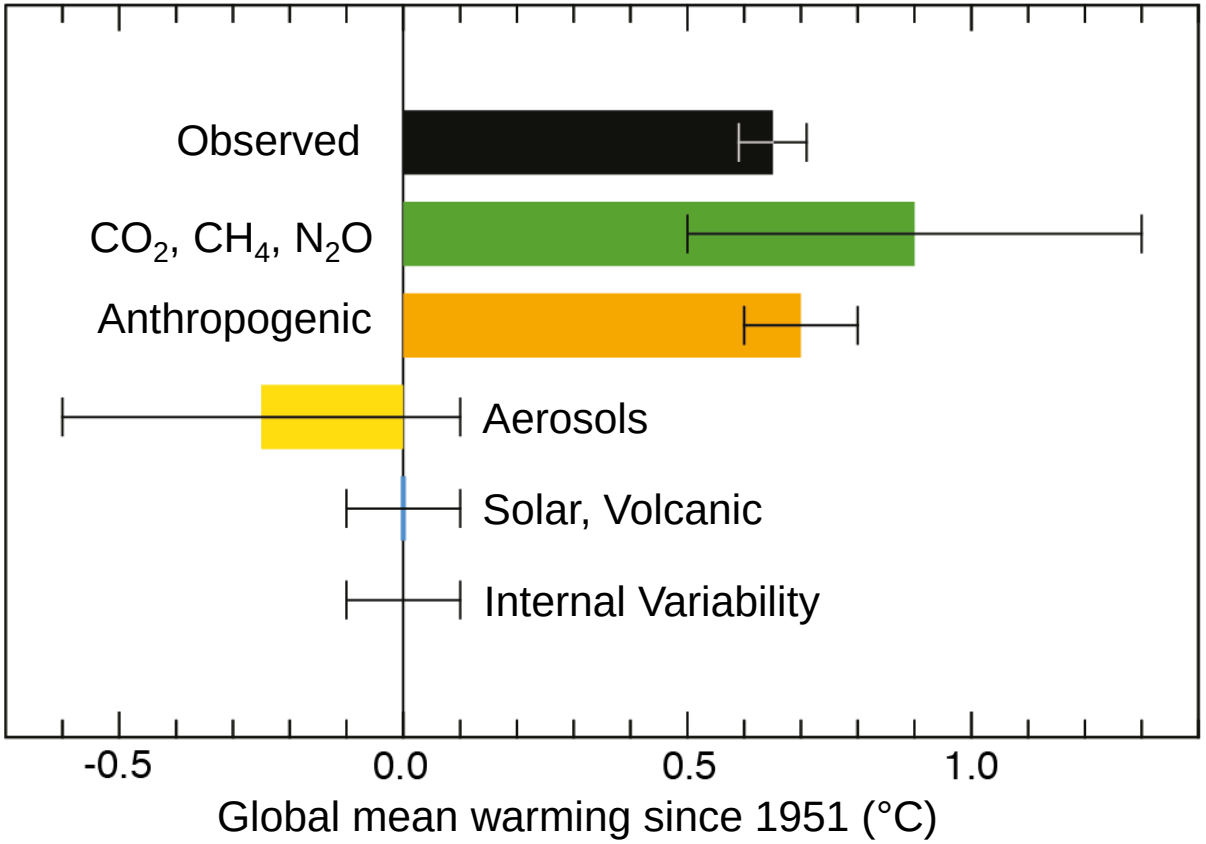

Fig. TS.10

It is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century.

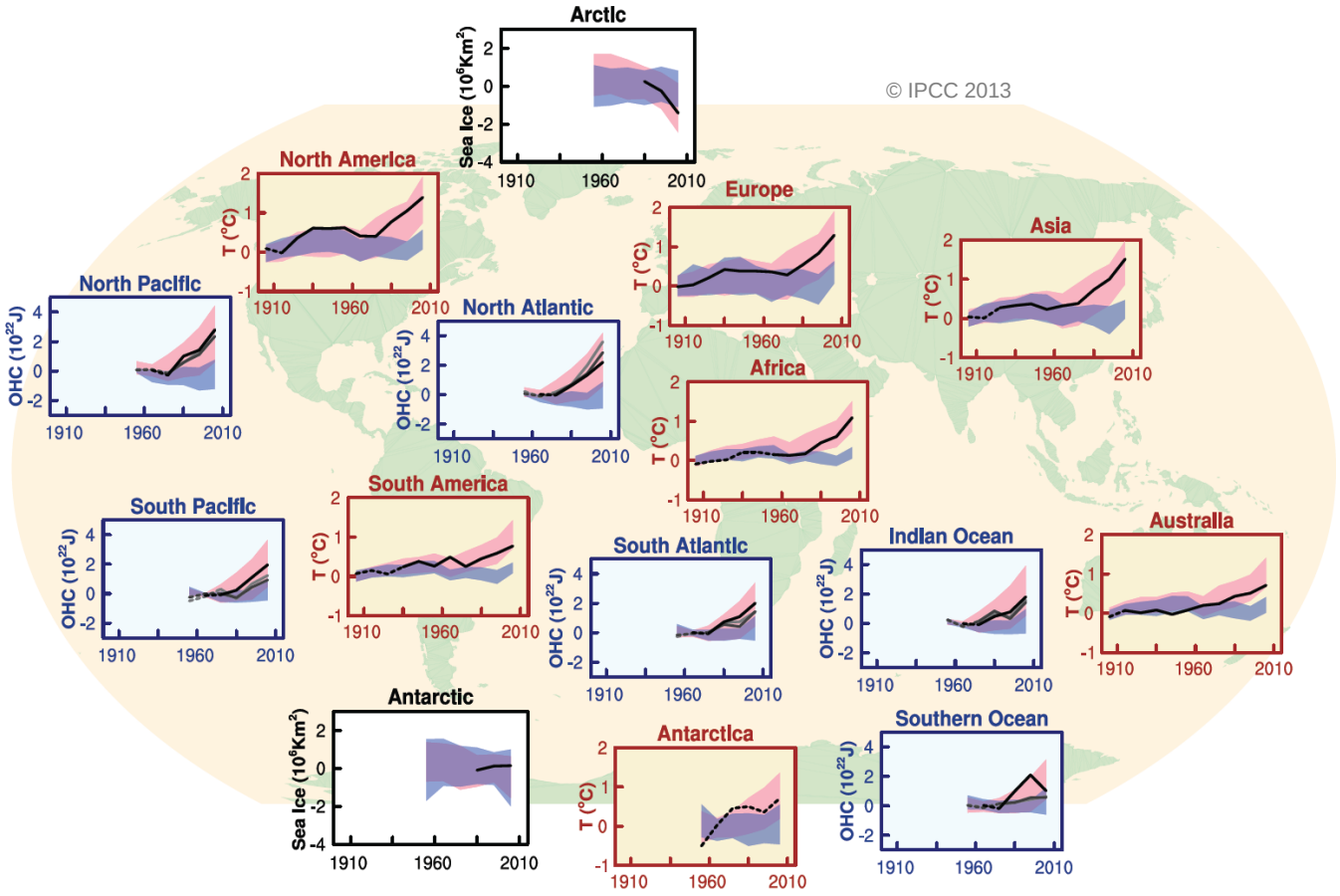

Fig. SPM.6

Human influence on the climate system is clear.

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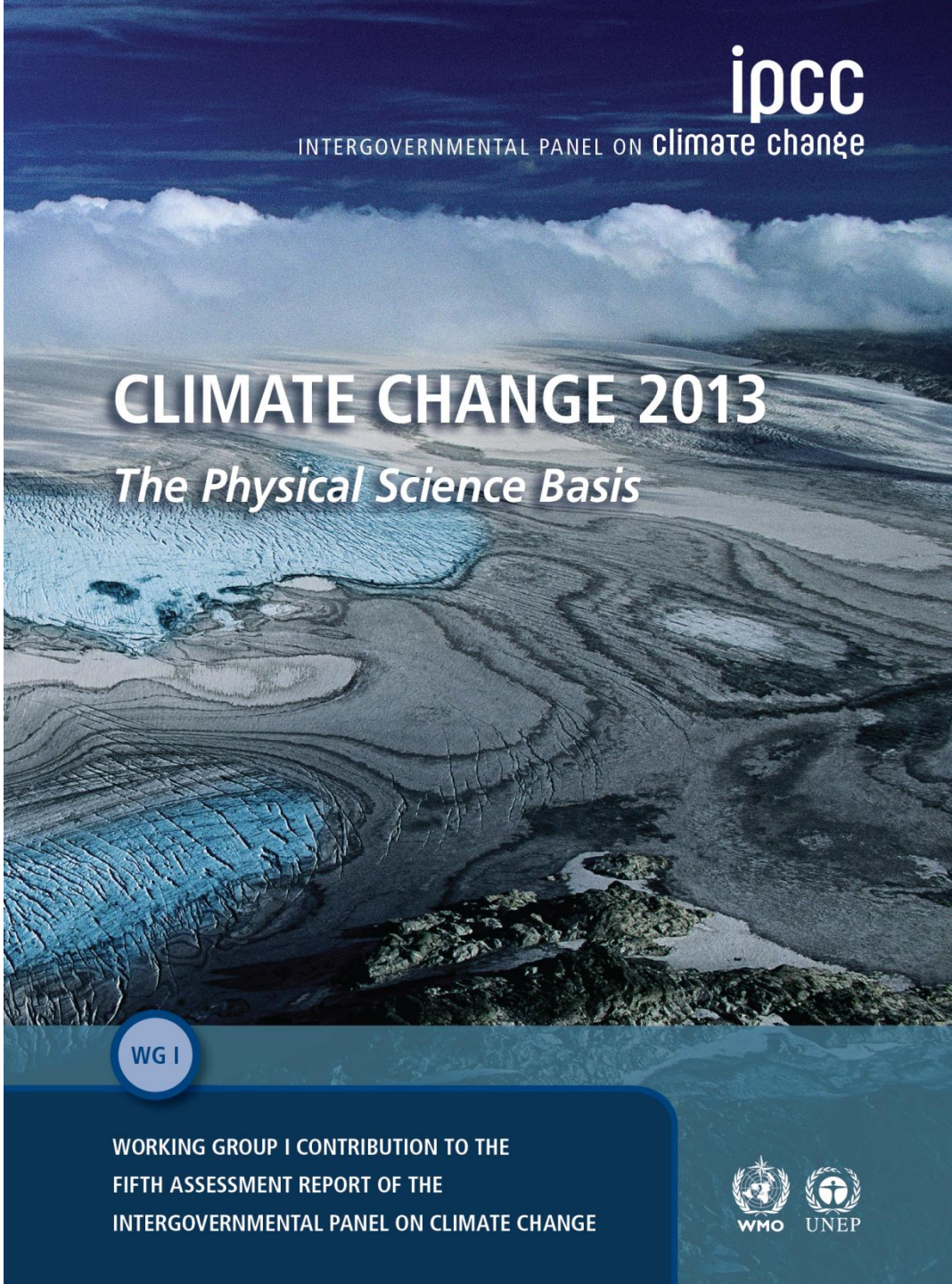
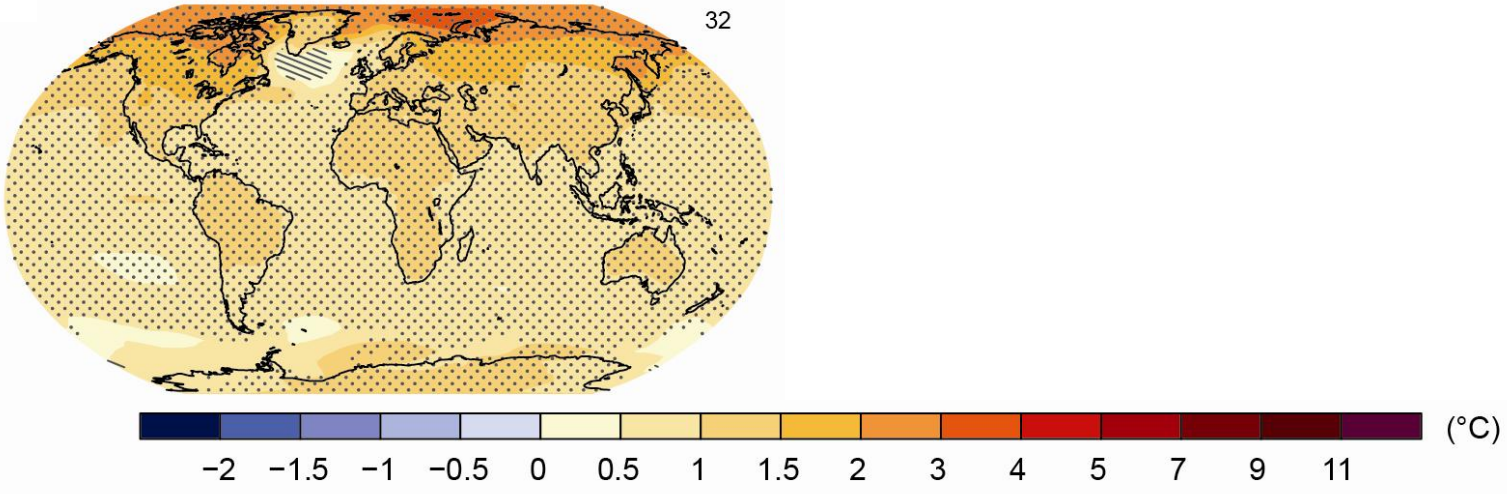


RCP2.6
CO_{2eq} = 475 ppm)

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



Change in average precipitation (1986−2005 to 2081−2100)

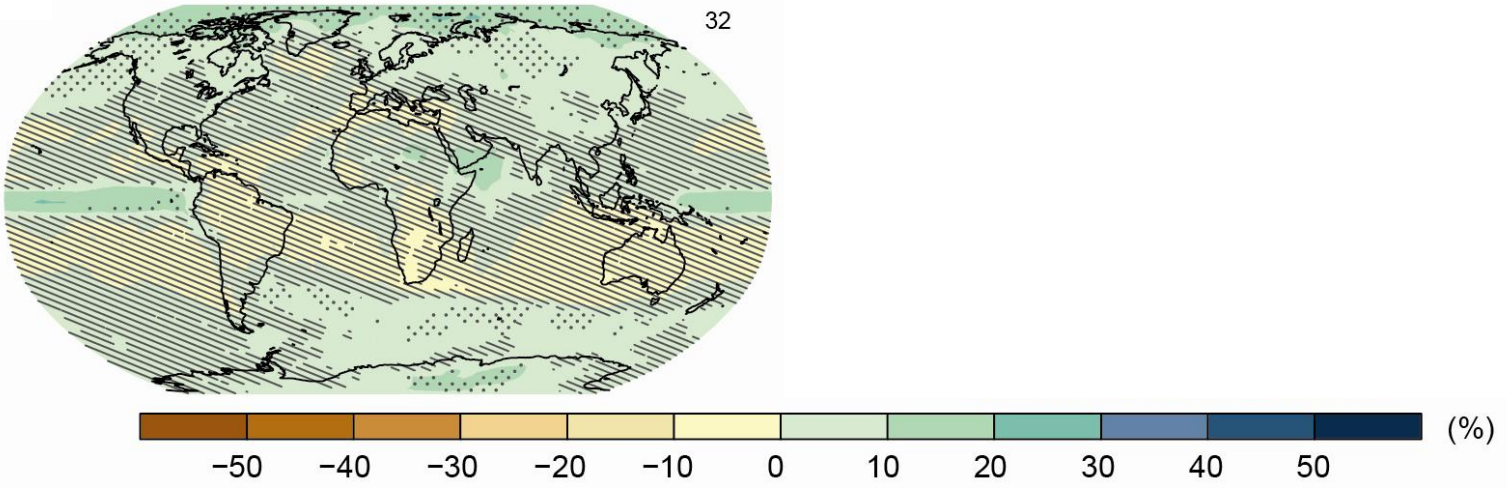


Fig. SPM.8

Annex I: Atlas of Global and Regional Climate Projections

- **35 regions**
- **42 global climate models**
- **2 variables**

  Temperature, Precipitation

- **4 scenarios**

  RCPs 2.6, 4.5, 6.0, 8.5

- **2 seasons**

  temp: DJF, JJA (for temp)
  precip: AMJJAS, ONDJFM

- **Maps for 3 time horizons**

  2016-35, 2046-65, 2081-2100
  reference period 1986-2005

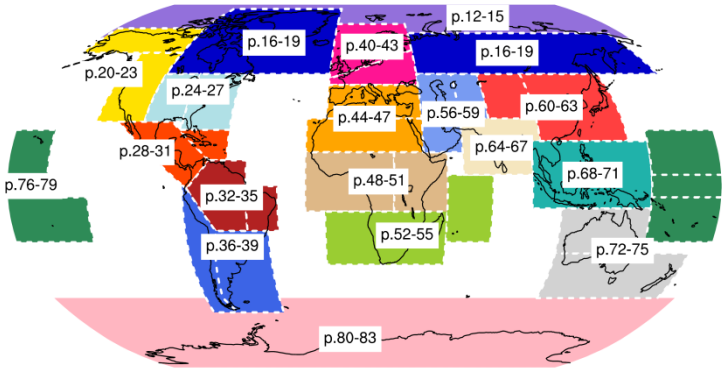
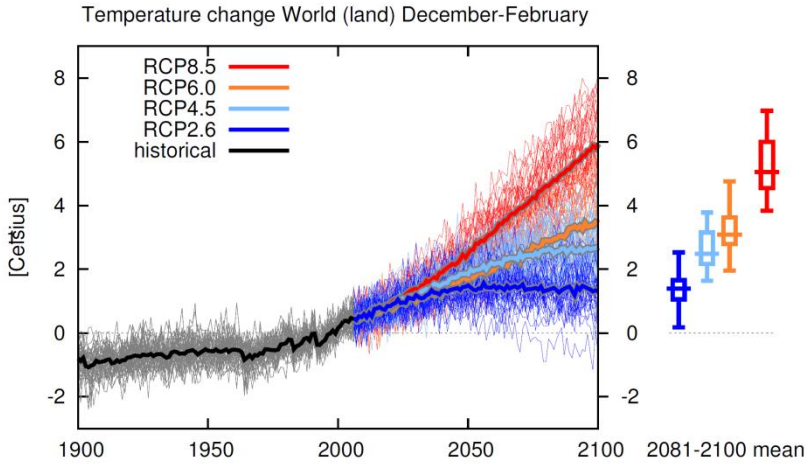


Fig. AI.3



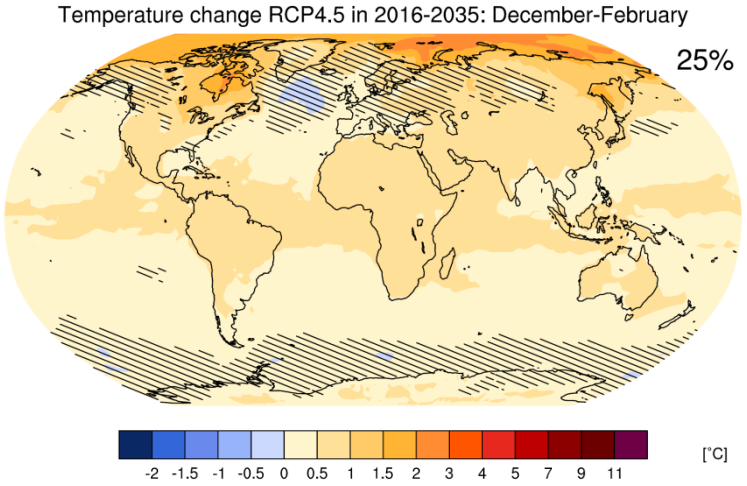


Fig. AI.4

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Working Group I contribution to the IPCC Fifth Assessment Report

Further Information

www.climatechange2013.org

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WMO UNEP