Climate Change 2013: The Physical Science Basis

Working Group I contribution to the IPCC Fifth Assessment Report

How Climate Change Science Can Inform Weather Reports

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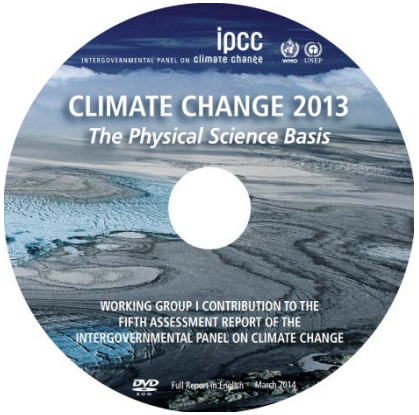
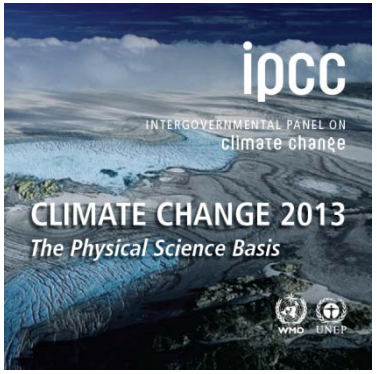
Conclusion:

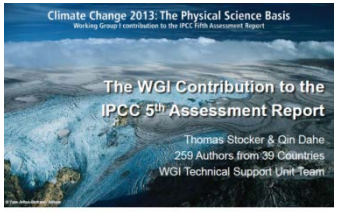
- Unique opportunity
- Widest possible audience
- Access to wide audience on a daily basis

Activate Weather Channels for Climate

www.climatechange2013.org



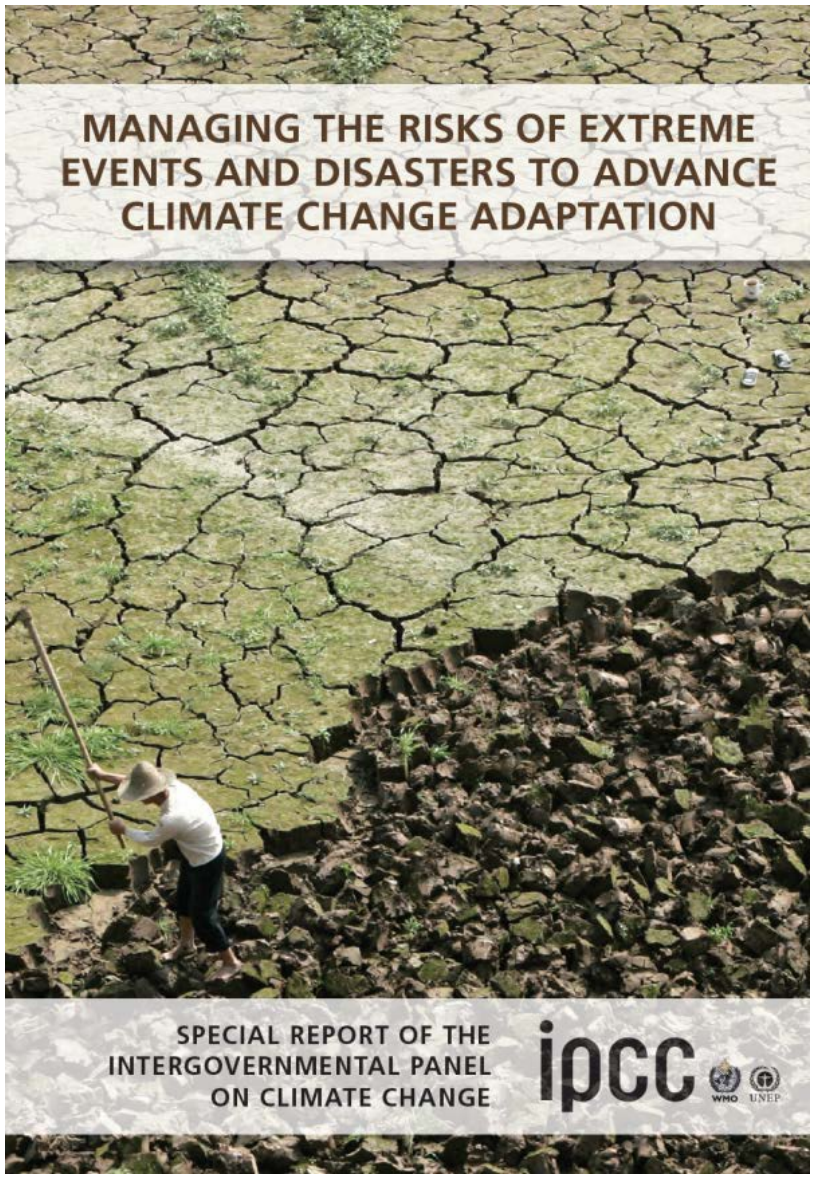




IPCC AR5 Working Group I
Climate Change 2013: The Physical Science Basis

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WMO UNEP

IPCC Assessment Reports (2011 – 2014)



Key SPM Messages

19 Headlines

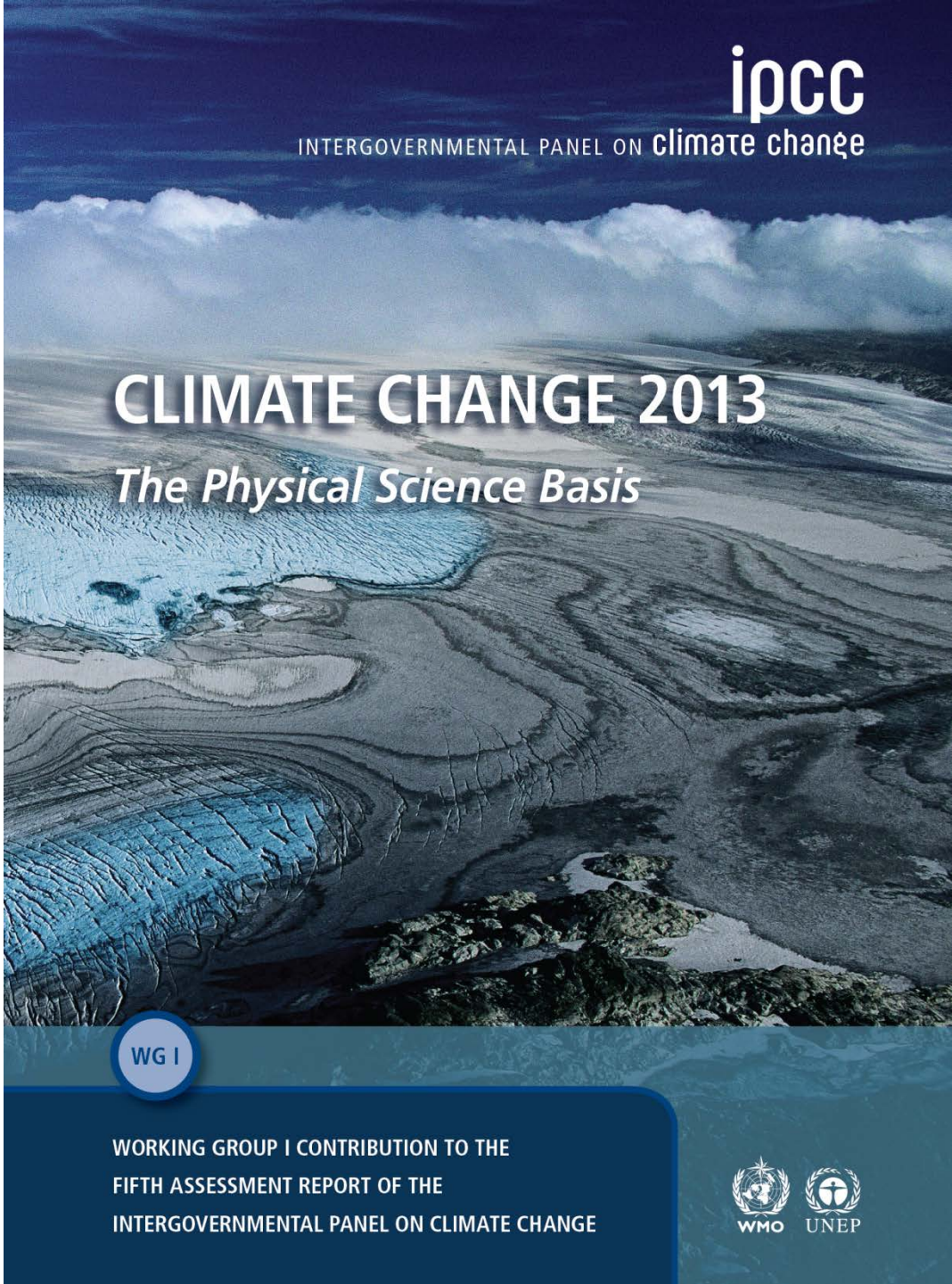
on less than 2 pages

Summary for Policymakers

14,000 Words

14 Chapters & Atlas

1,100,000 Words



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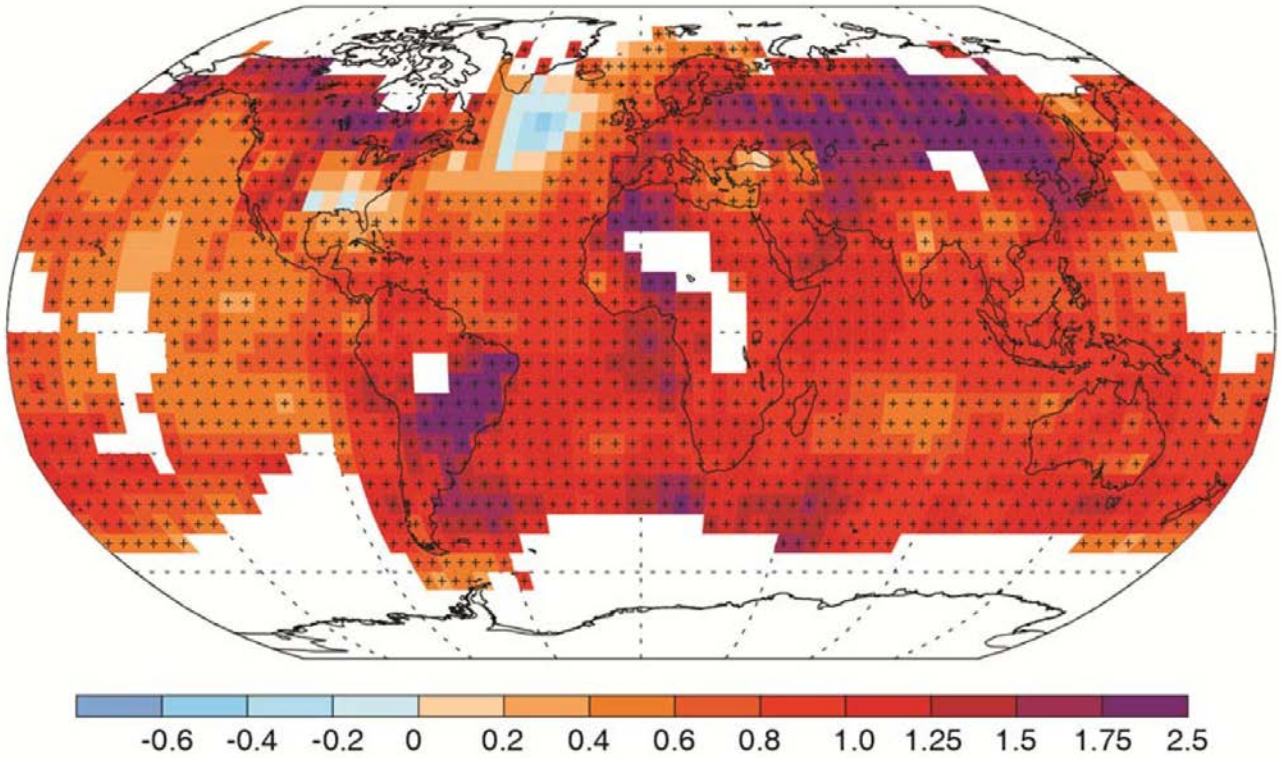


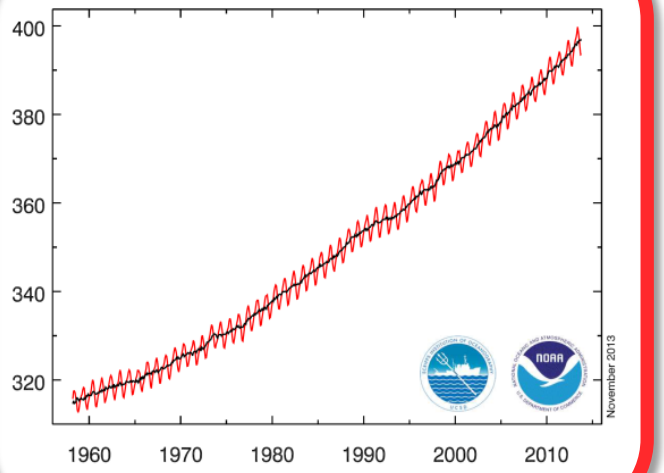
Temperature Difference 1901 to 2012 based on trend (°C)

IPCC 2013, Fig. SPM.1b

Warming of the climate system is unequivocal

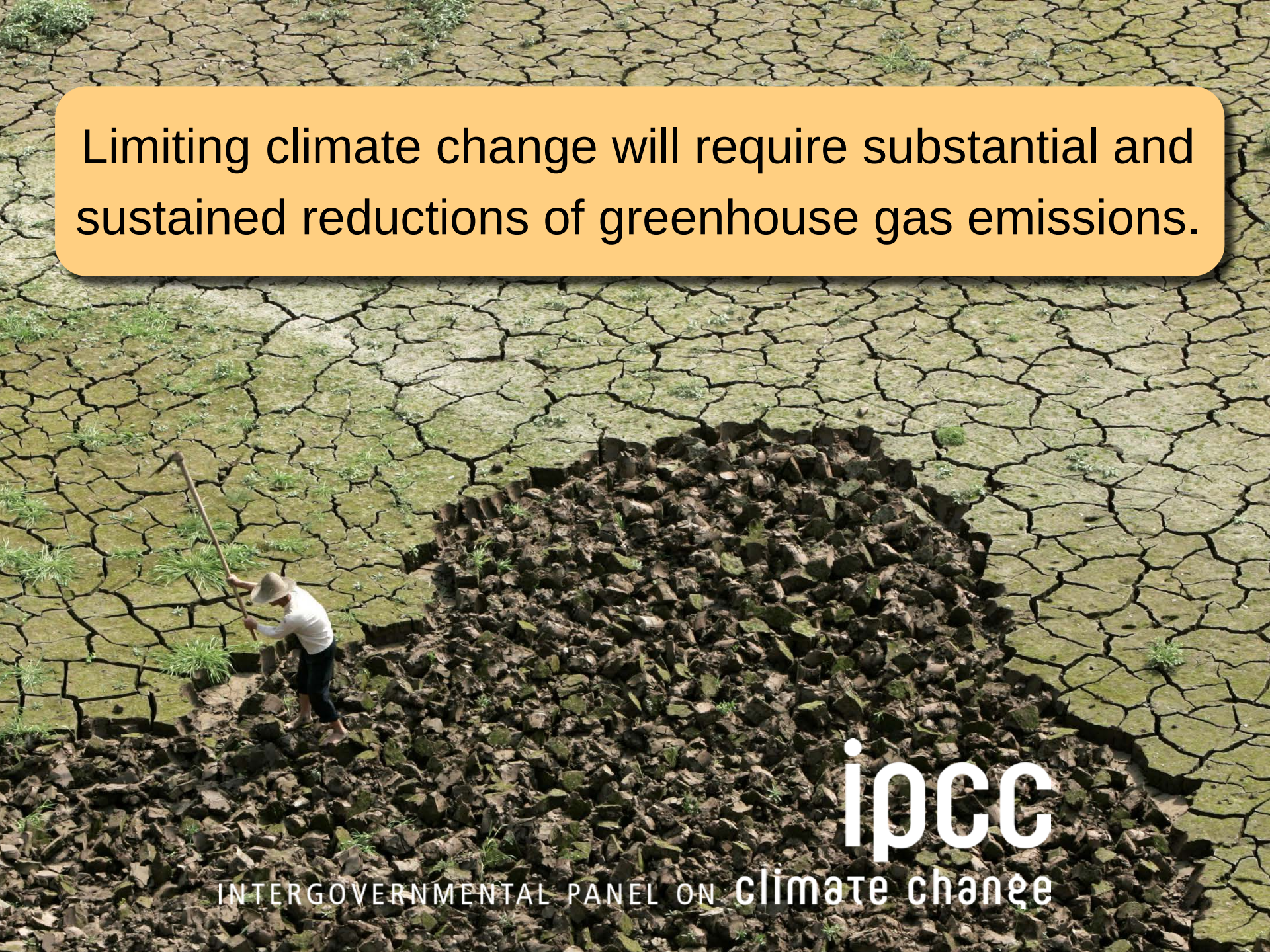
Worldwide Effects

Cause



- atmosphere, land, ocean
- extreme events
- water cycle
- sea ice, glaciers, ice sheets
- global mean sea level

Human influence on the climate system is clear.


Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.
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Communicating Climate through News Channels

How to communicate key IPCC assessment findings through Weather Channels and Meteo News?

- Need a "*Weather* " Anchor
- Provide short scientific facts from the IPCC Assessment
- Use figures and headline statements from the WGI AR5 SPM
- Message in 1 minute plus 1 simple graphics

Examples of "Weather" Anchors for WGI AR5

(1) Atmospheric CO_2 concentration: record levels

(2) Warming Pause: Where has the heat gone?

(3) Greenland melting and sea level rise

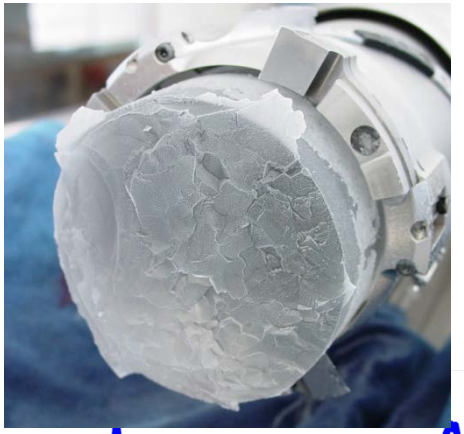
(4) Extreme temperatures: Eastern Europe 2010

Anchor 1: Record CO_2 concentration levels

WMO Press Release

Geneva, 26 May 2014 (WMO) - For the first time, monthly concentrations of carbon dioxide (CO_2) in the atmosphere topped 400 parts per million (ppm) in April throughout the northern hemisphere.

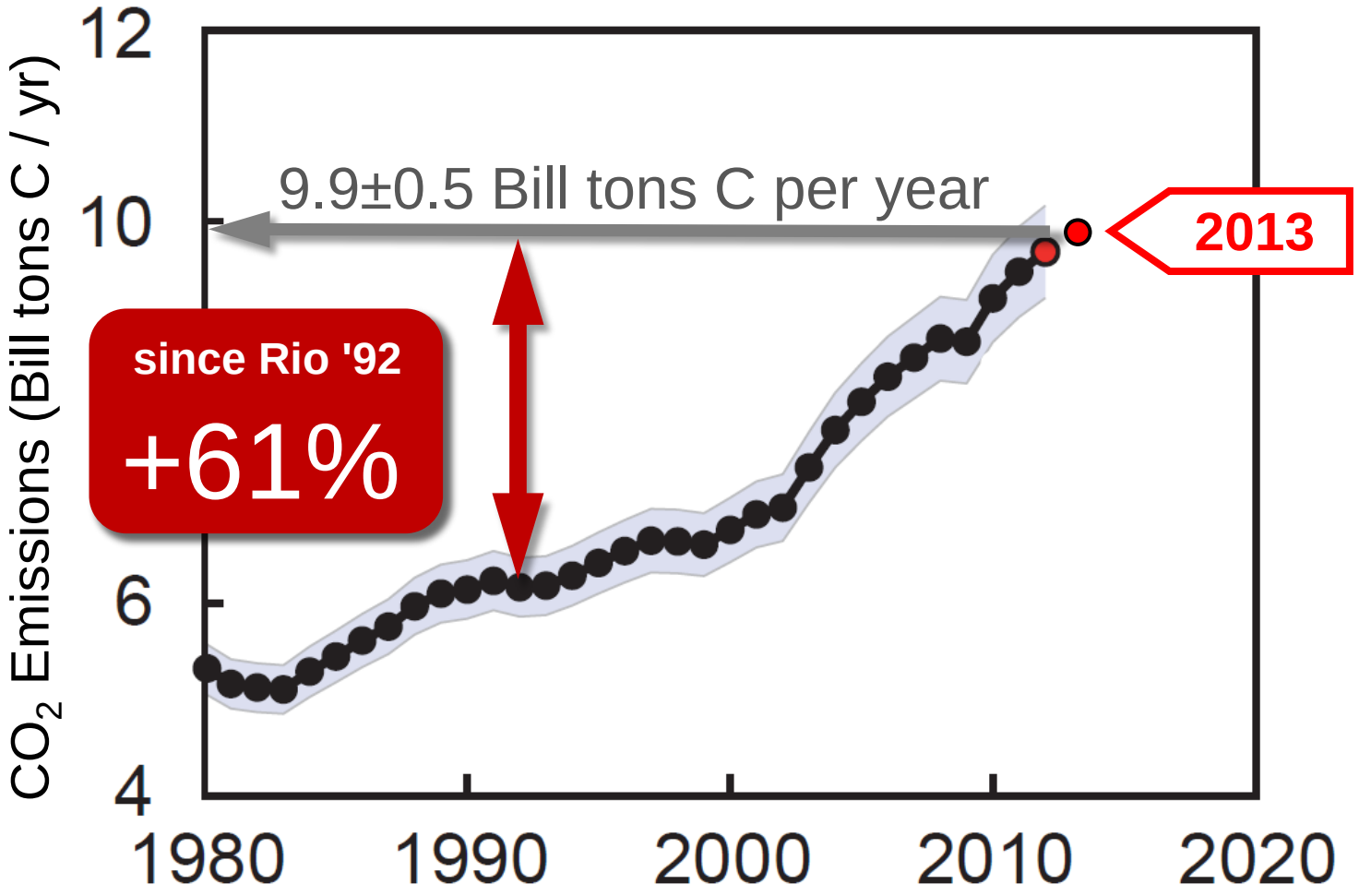
Anchor 1: Record CO_2 concentration levels



(Lüthi et al.,2008, NOAA)

The concentrations of CO_2 have increased to levels unprecedented in at least the last 800,000 years.

Anchor 1: Record CO_2 concentration levels



(modified from Peters et al., 2013, Global Carbon Project)

CO_2 emissions by human activity are unprecedented

Anchor 1: Record CO_2 concentration levels

Budget for the 2°C target:	790 bill t C
CO_2 emissions until 2013*:	−535 bill t C
Remaining emissions:	**255 bill t C**
CO_2 emissions in 2013*:	***9.9 bill t C***

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

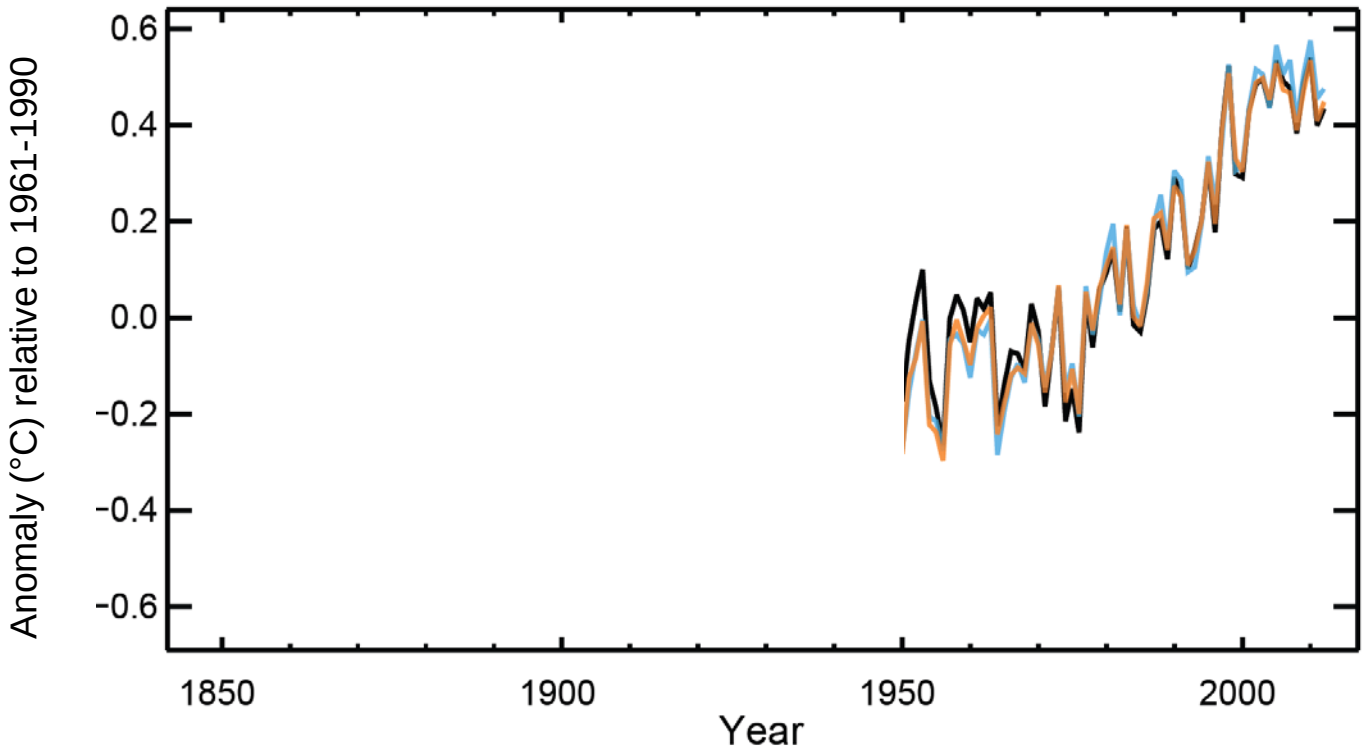
* updated from IPCC 2013, WGI SPM

Anchor 2: Warming Pause: Where has the heat gone?

WMO Press Release

Geneva, 13 November 2013 (WMO) - Temperatures so far this year are about the same as the average during 2001-2010 ...

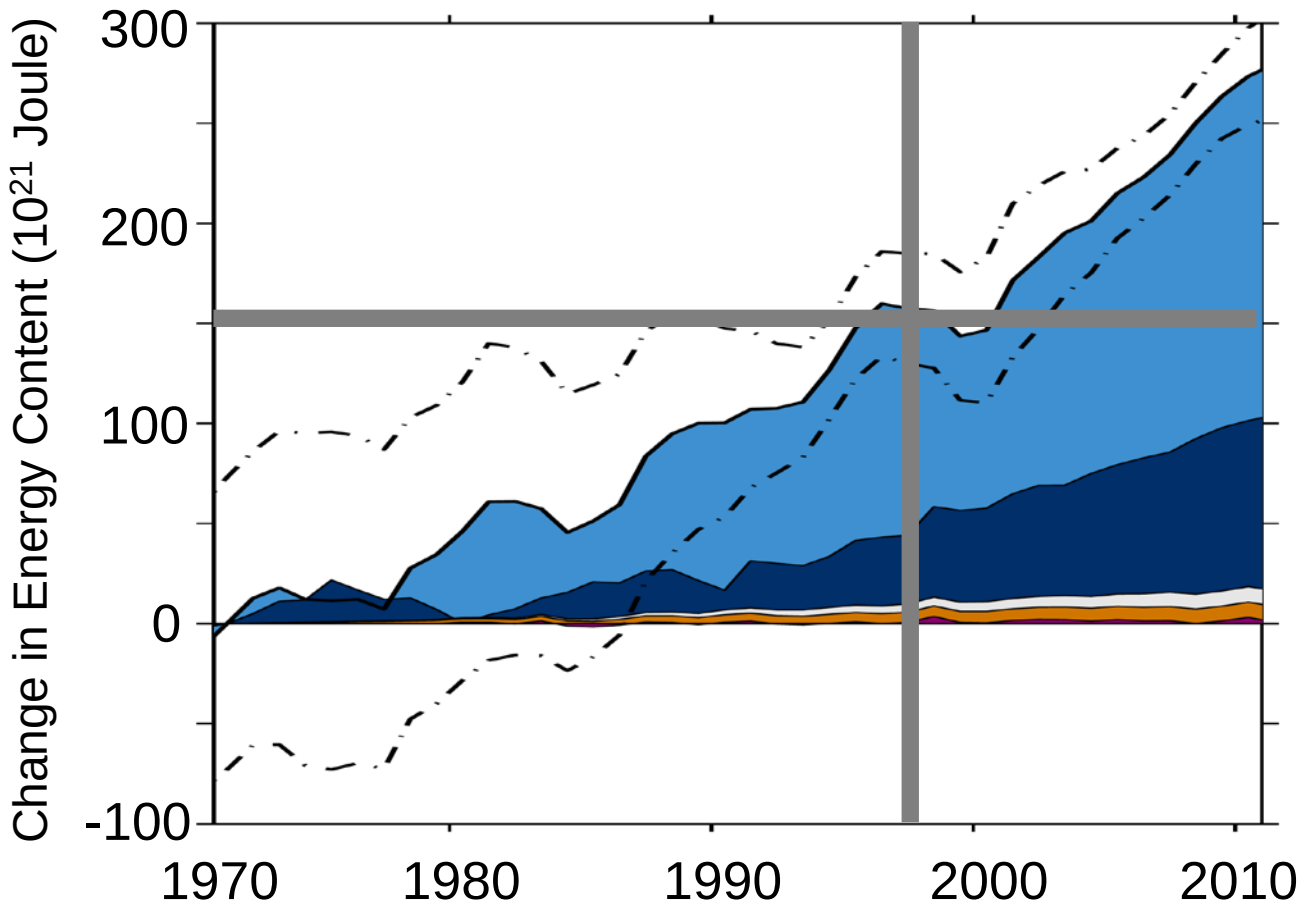
Anchor 2: Warming Pause: Where has the heat gone?



IPCC 2013 Fig. SPM.1a

[…] the rate of warming over the past 15 years […] is smaller than the rate calculated since 1951 […]

Anchor 2: Warming Pause: Where has the heat gone?



(IPCC 2013, Box 3.1, Fig. 1, modified)

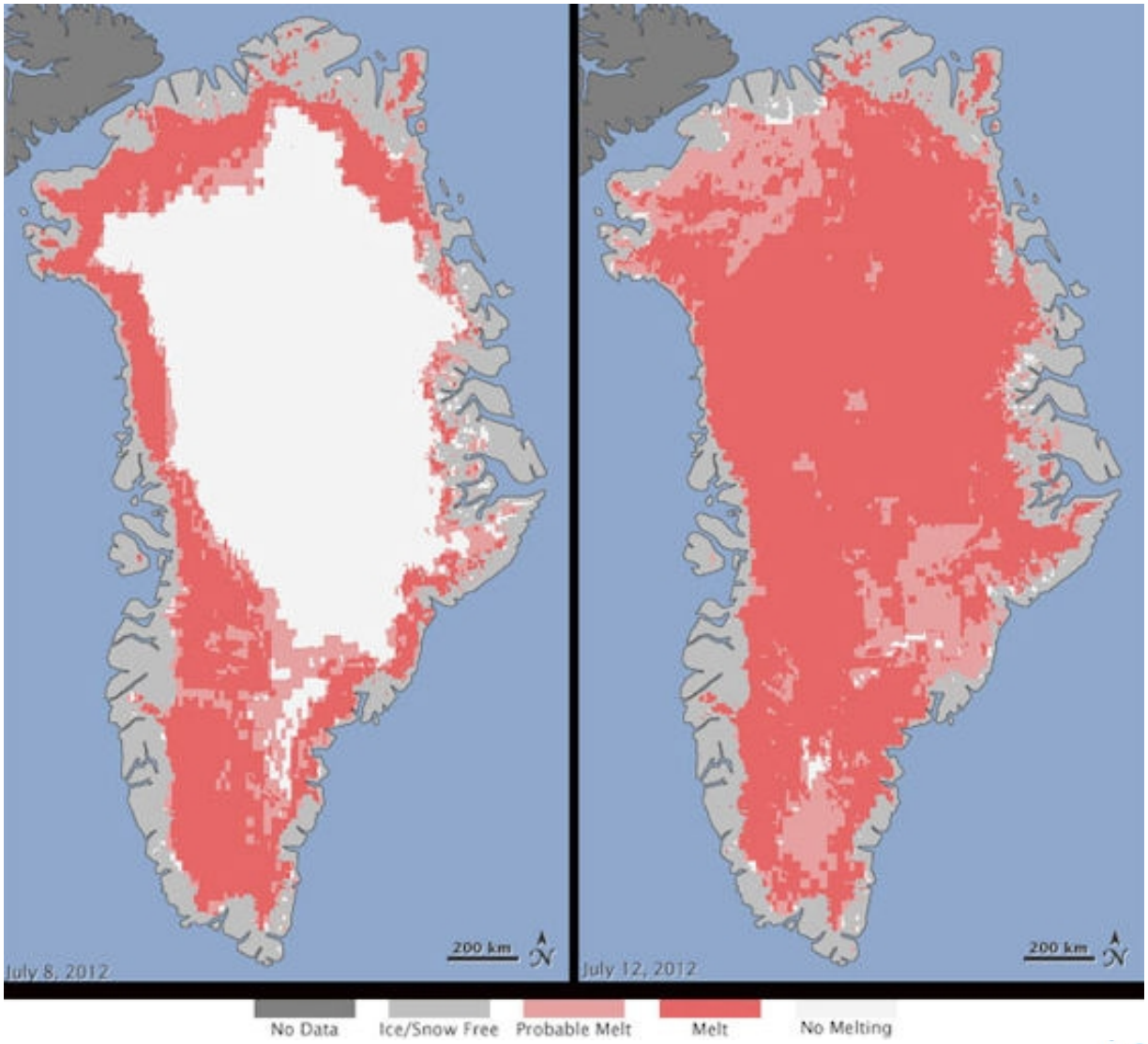
About half of all heat accumulated in the ocean since 1970 was added after 1998.

Anchor 3: Greenland melting

WMO Press Release

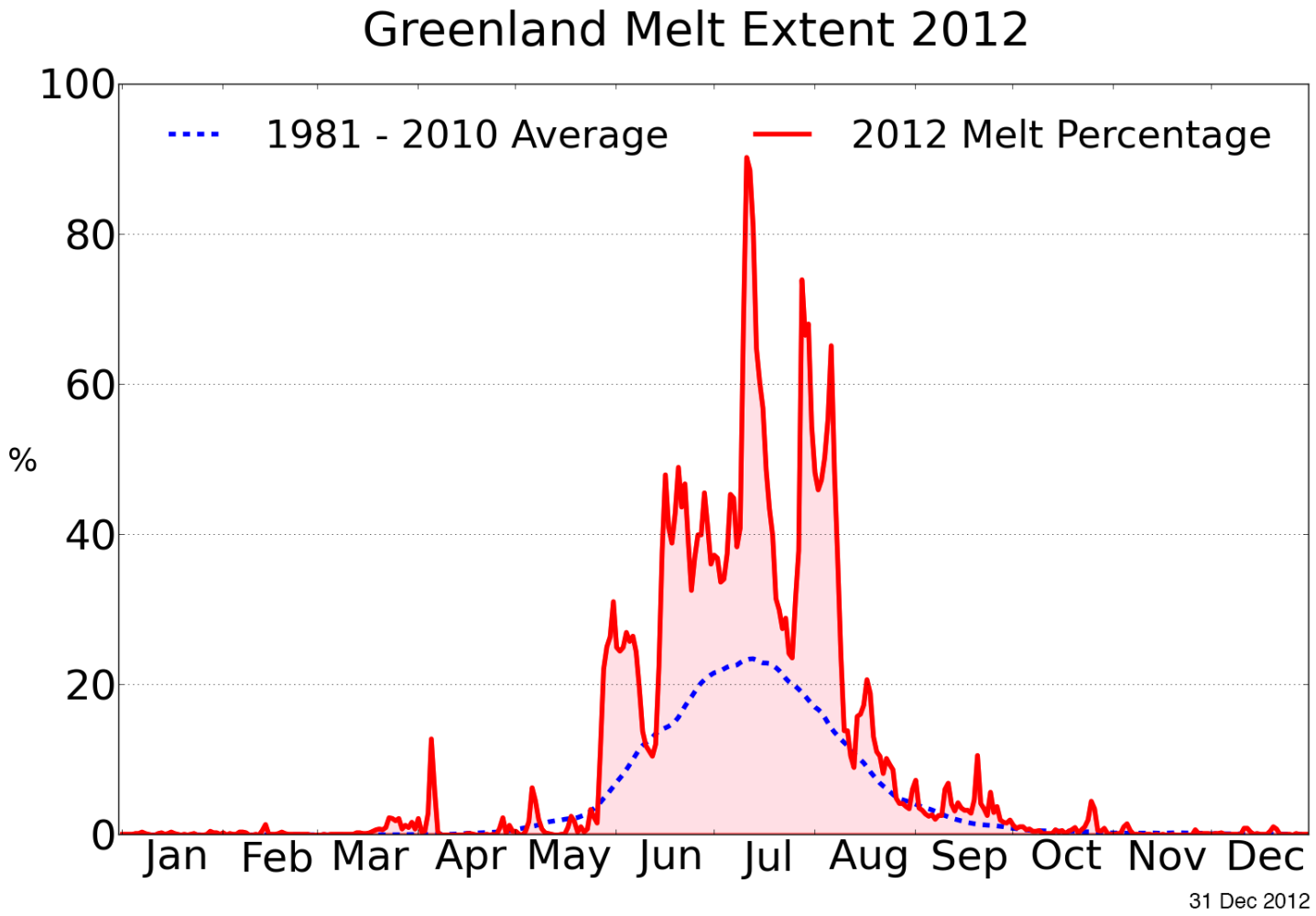
Geneva, 2 May 2013 (WMO) - In early July, the Greenland ice cover experienced surface melting at an unprecedented extent, ...

Anchor 3: Greenland melting and sea level rise



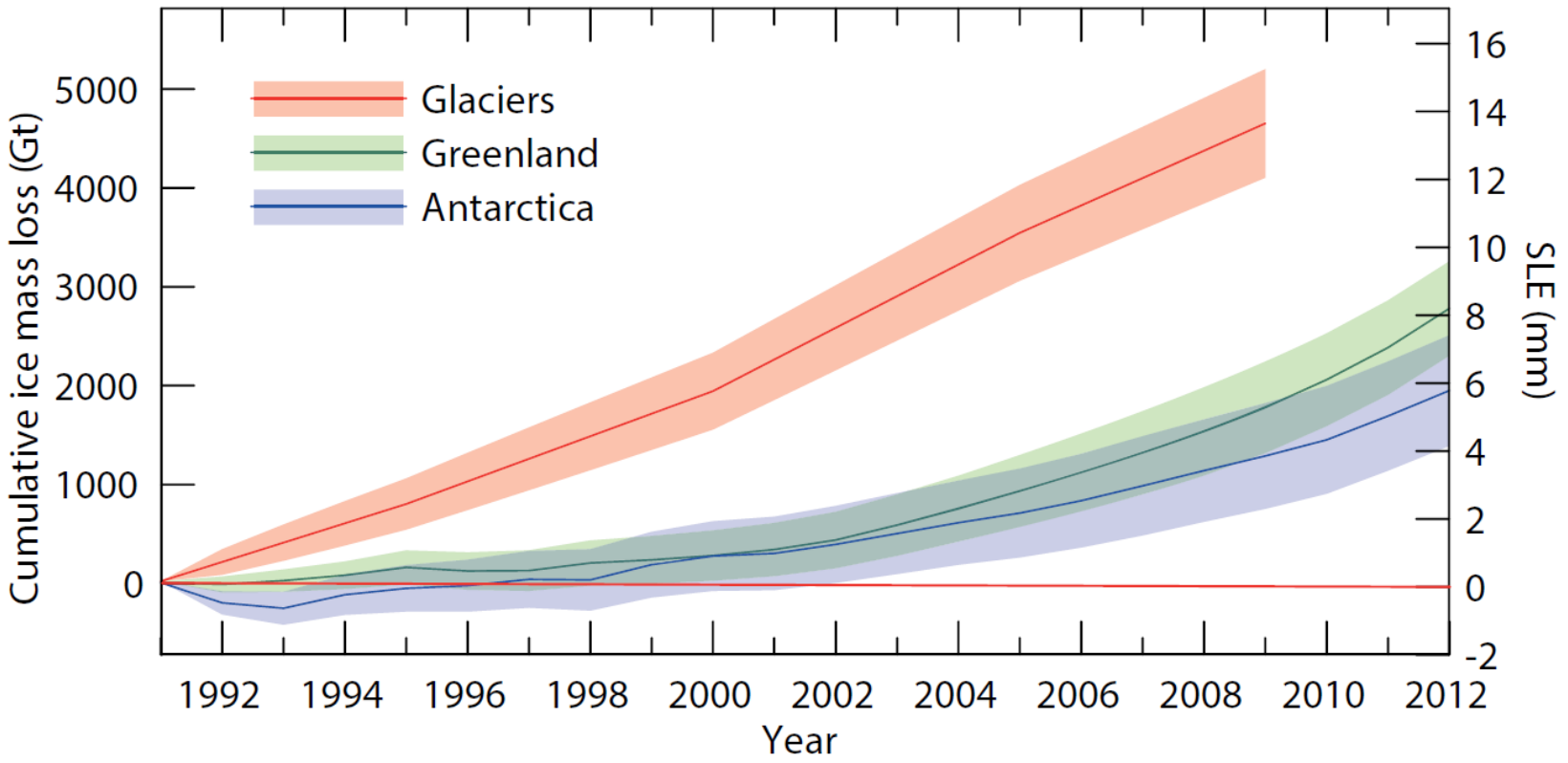
Nicolo E. DiGirolamo, SSAI/NASA GSFC, and Jesse Allen, NASA Earth Observatory

Anchor 3: Greenland melting and sea level rise



NSIDC, Thomas Mote, University of Georgia

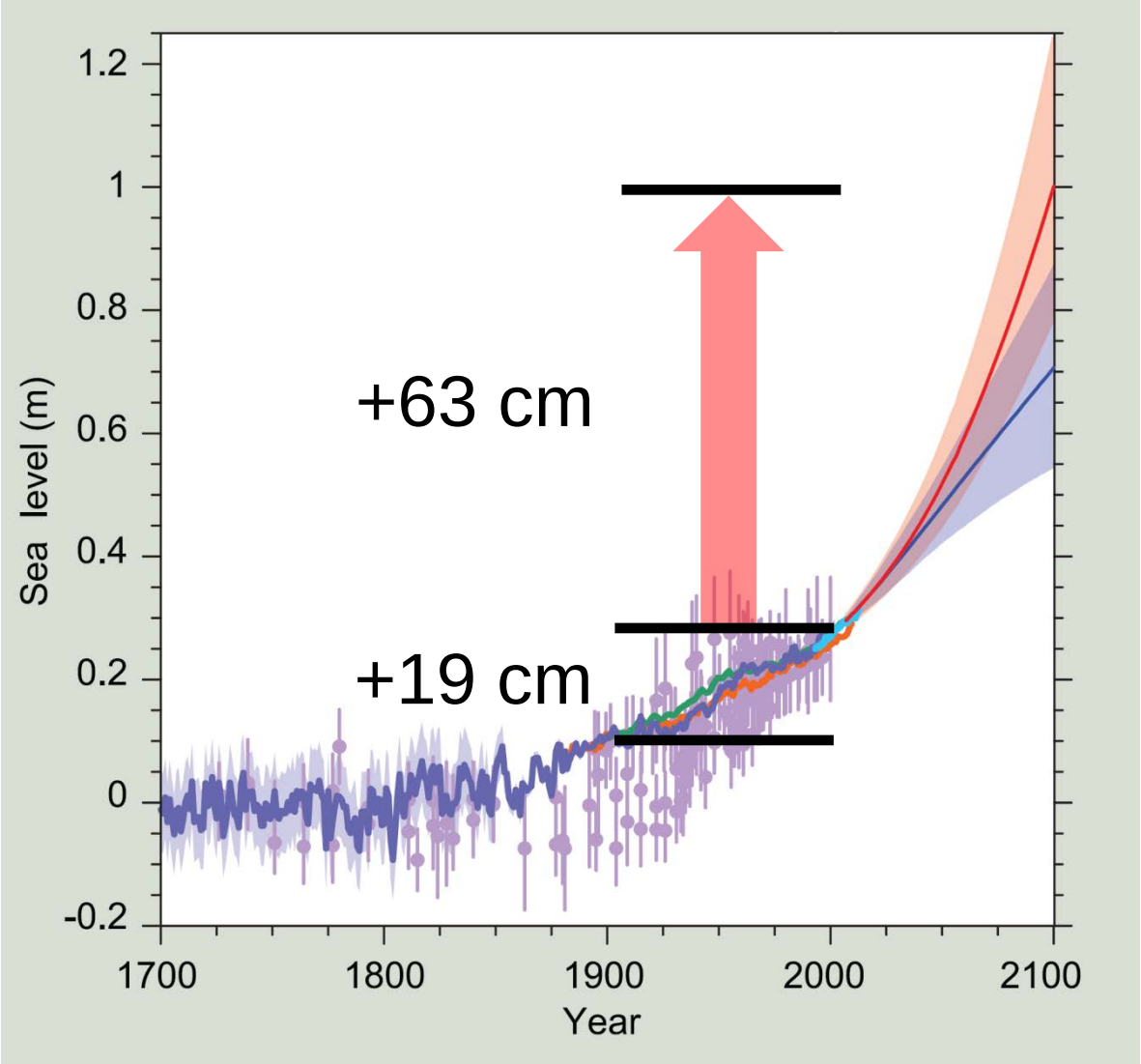
Anchor 3: Greenland melting and sea level rise



IPCC 2013, Fig. TS.3

Sea Level Rise: 40% + 30% + 20%

Anchor 3: Greenland melting and sea level rise



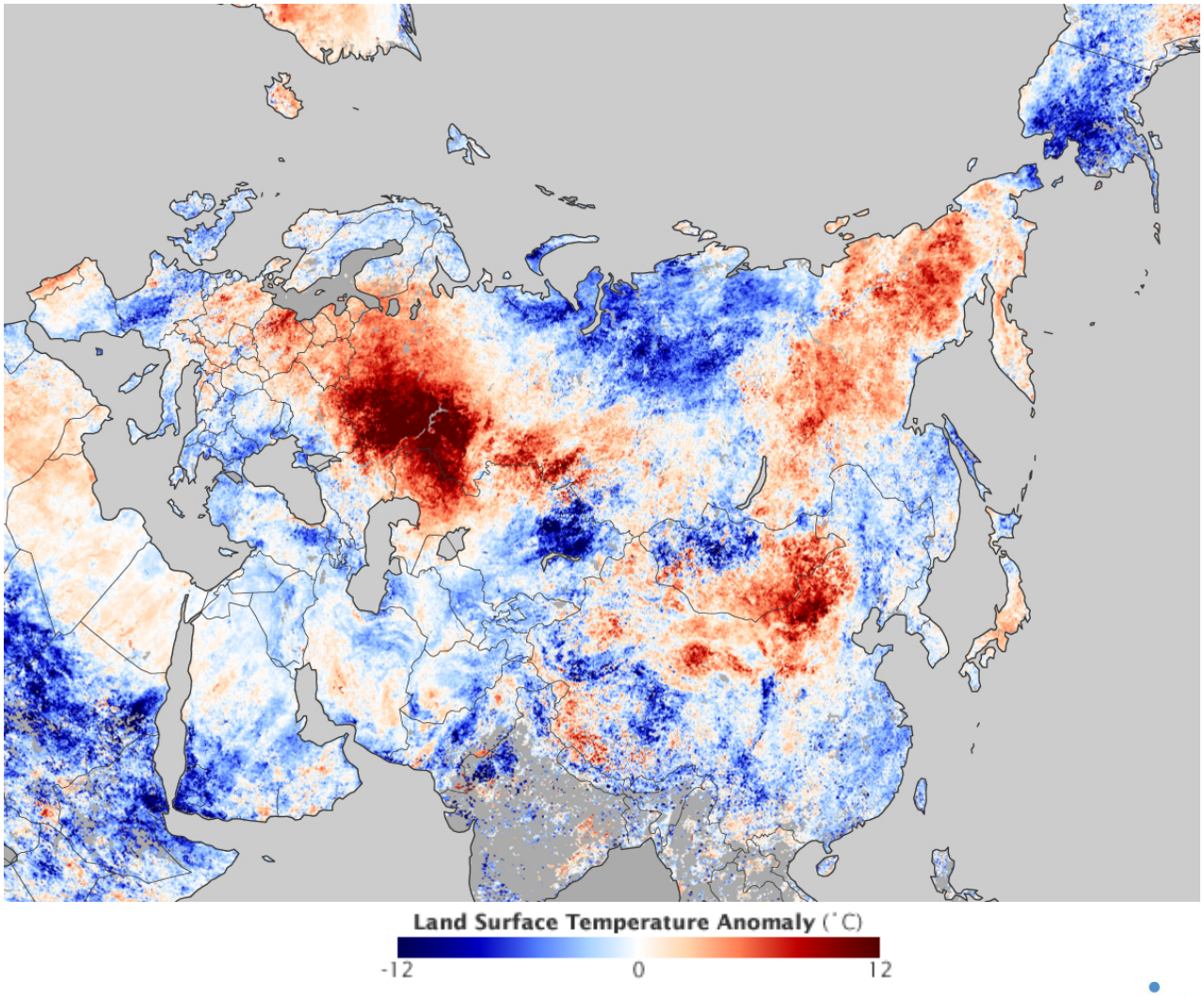
IPCC 2013, TFE.2, Fig. 2

Anchor 4: Extreme Summer Heat

WMO Press Release

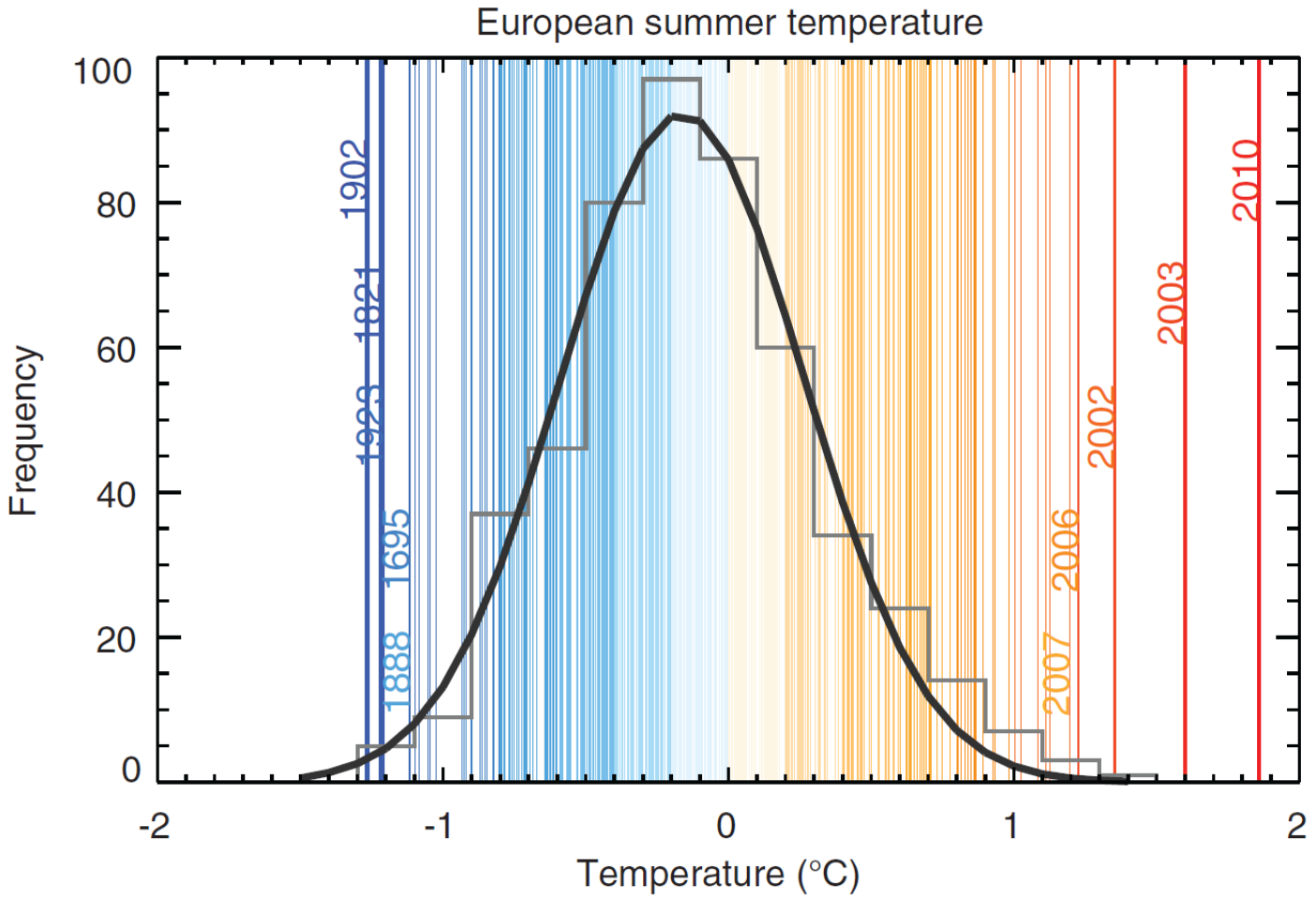
Geneva, 19 September 2014 (WMO) - The globally averaged temperature over land and ocean surfaces for August 2014 was the highest for August since record keeping began ...

Anchor 4: Extreme Summer Heat: Eastern Europe 2010



NASA Earth Observatory image by Jesse Allen, based on MODIS land surface temperature data

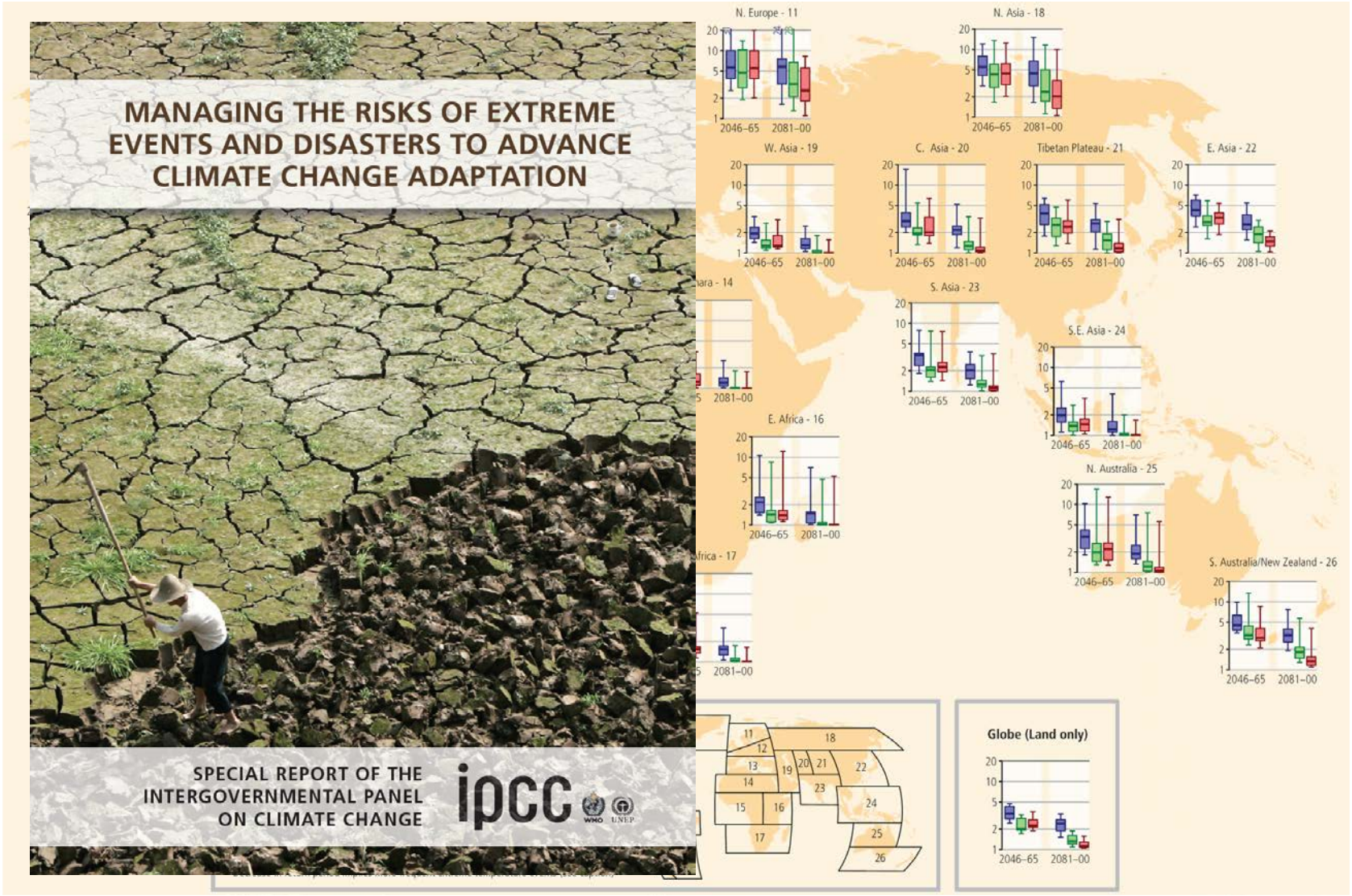
Anchor 4: Extreme Summer Heat: Eastern Europe 2010



Bariopedro et al., 2012

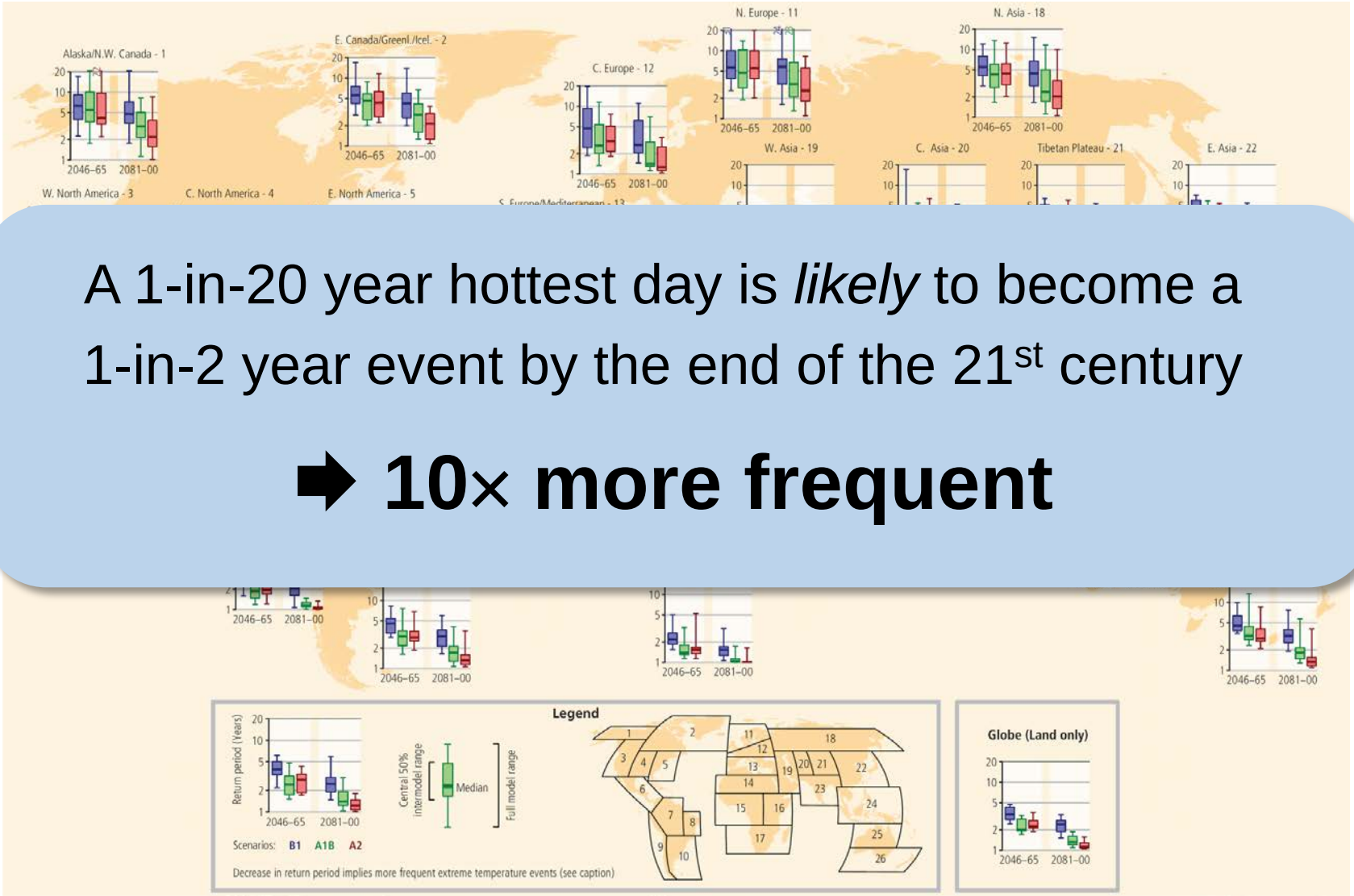
The five hottest summers in Europe occurred after 2001, the five coldest before 1924.

Anchor 4: Extreme Summer Heat



IPCC 2012, Fig. SPM.4A

Anchor 4: Extreme Summer Heat



A 1-in-20 year hottest day is *likely* to become a 1-in-2 year event by the end of the 21st century

➡ **10× more frequent**

IPCC 2012, Fig. SPM.4A

Conclusions

Communication of climate facts through Weather Channels provides:

- **a unique opportunity of citizen information**
- **occasions to evidence the weather-climate link**
- **bring climate science to the people**

Activate Weather and News Channels for Climate Facts

WGI Co-Chairs and TSU would be interested to assist in the preparation of background material from IPCC WGI AR5 that could be widely used (contact: plattner@ipcc.unibe.ch)

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Further Information

www.climatechange2013.org

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