

Gli scenari climatici del futuro

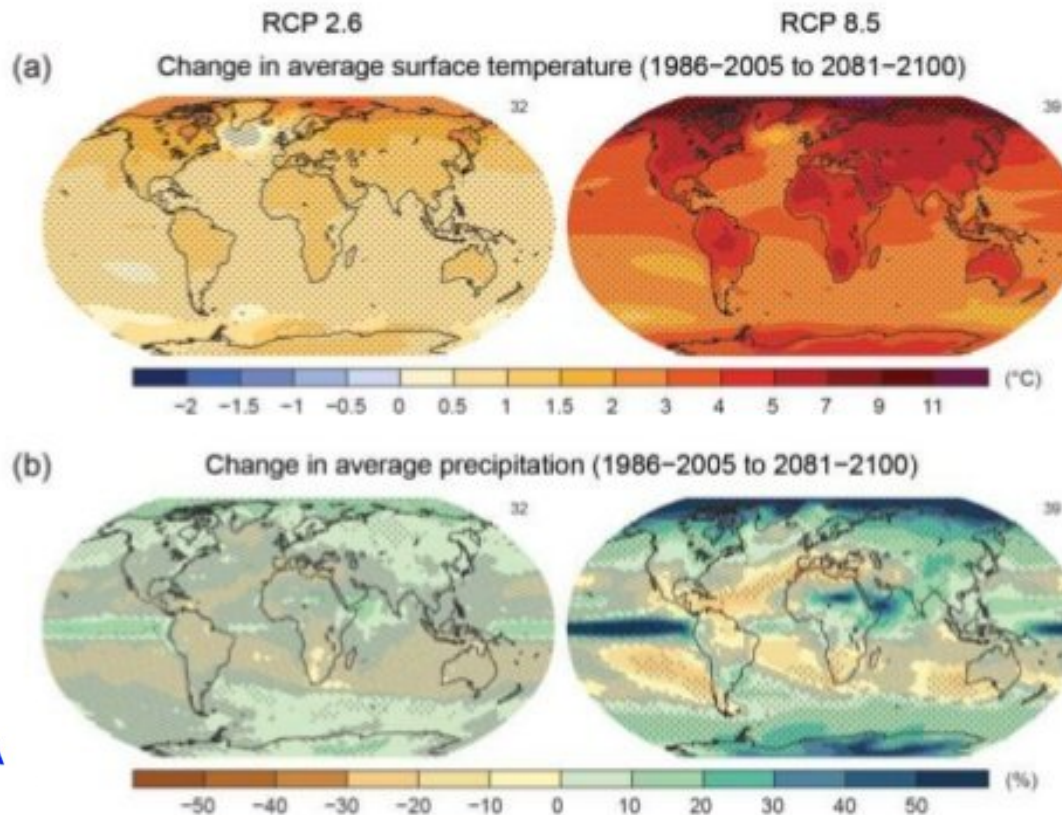
Luca Mercalli – Società Meteorologica Italiana

www.nimbus.it

Figure SPM.8a,b

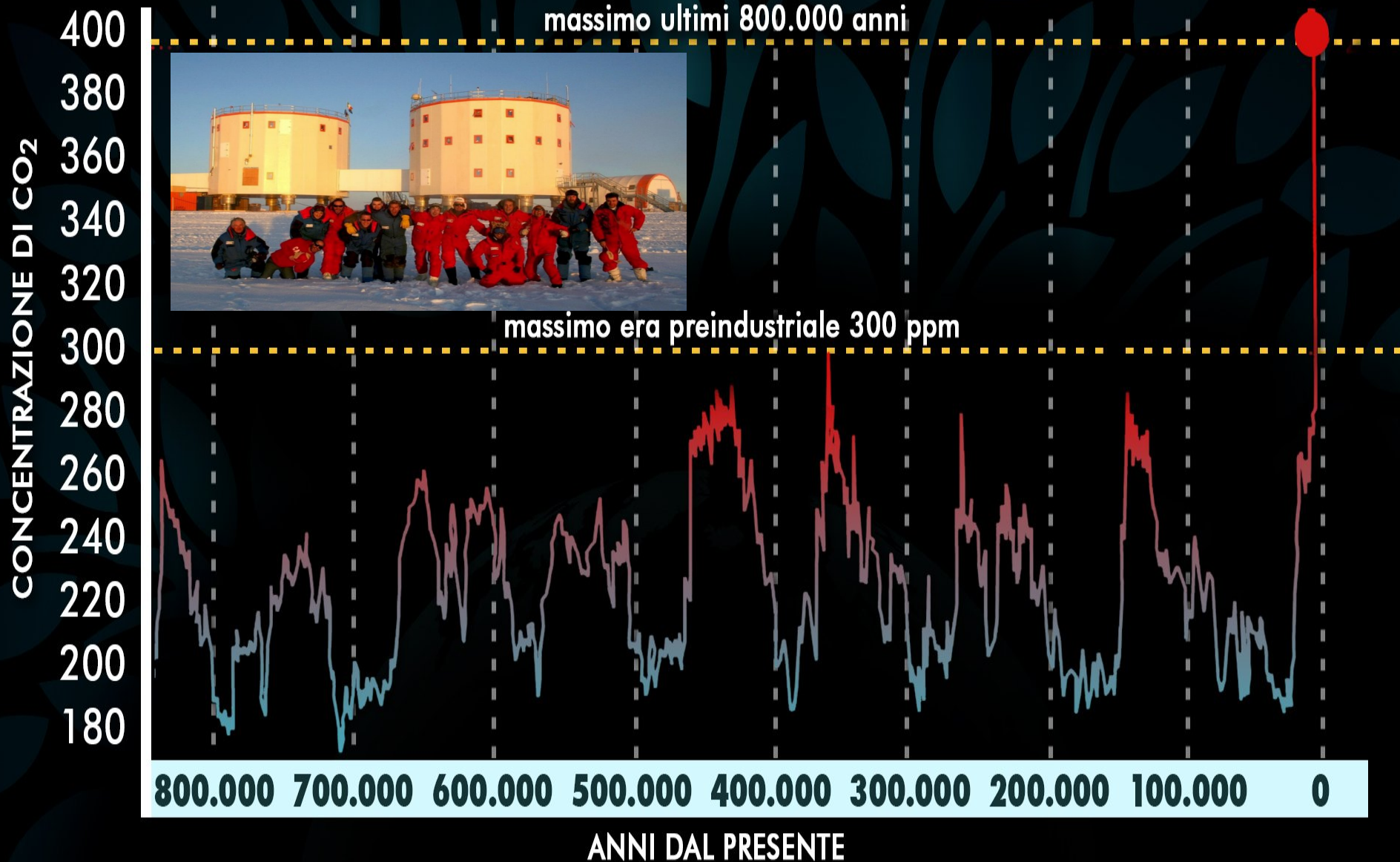
Maps of CMIP5 multi-model mean results

All Figures © IPCC 2013



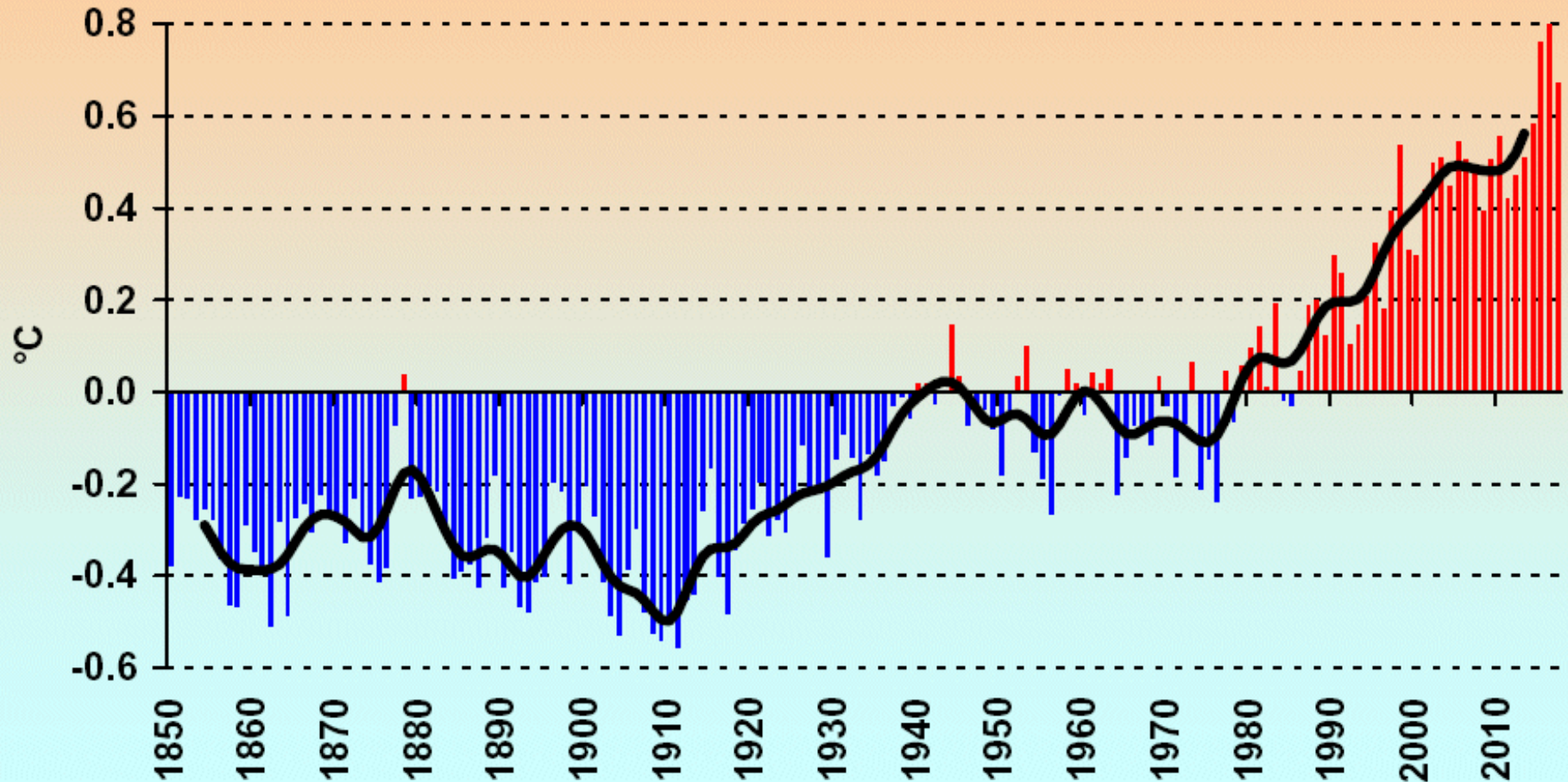
fonte: progetto EPICA

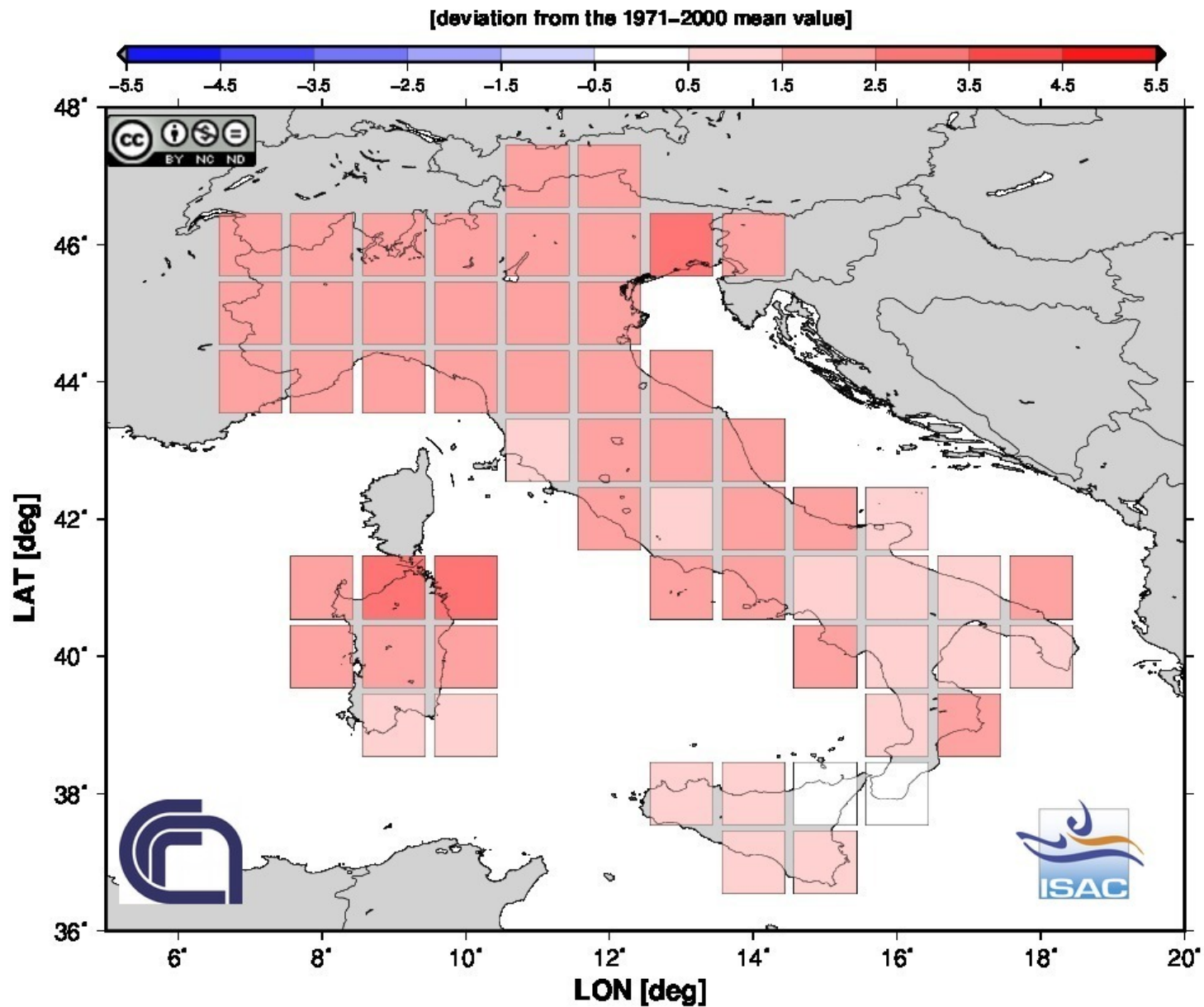
LIVELLO CO₂ NEL TEMPO



Temperatura media globale: +1°C in più nell'ultimo secolo

Anomalie termiche globali 1850-2017
(rispetto a media trentennio 1961-90)
serie MetOffice - Hadley Center

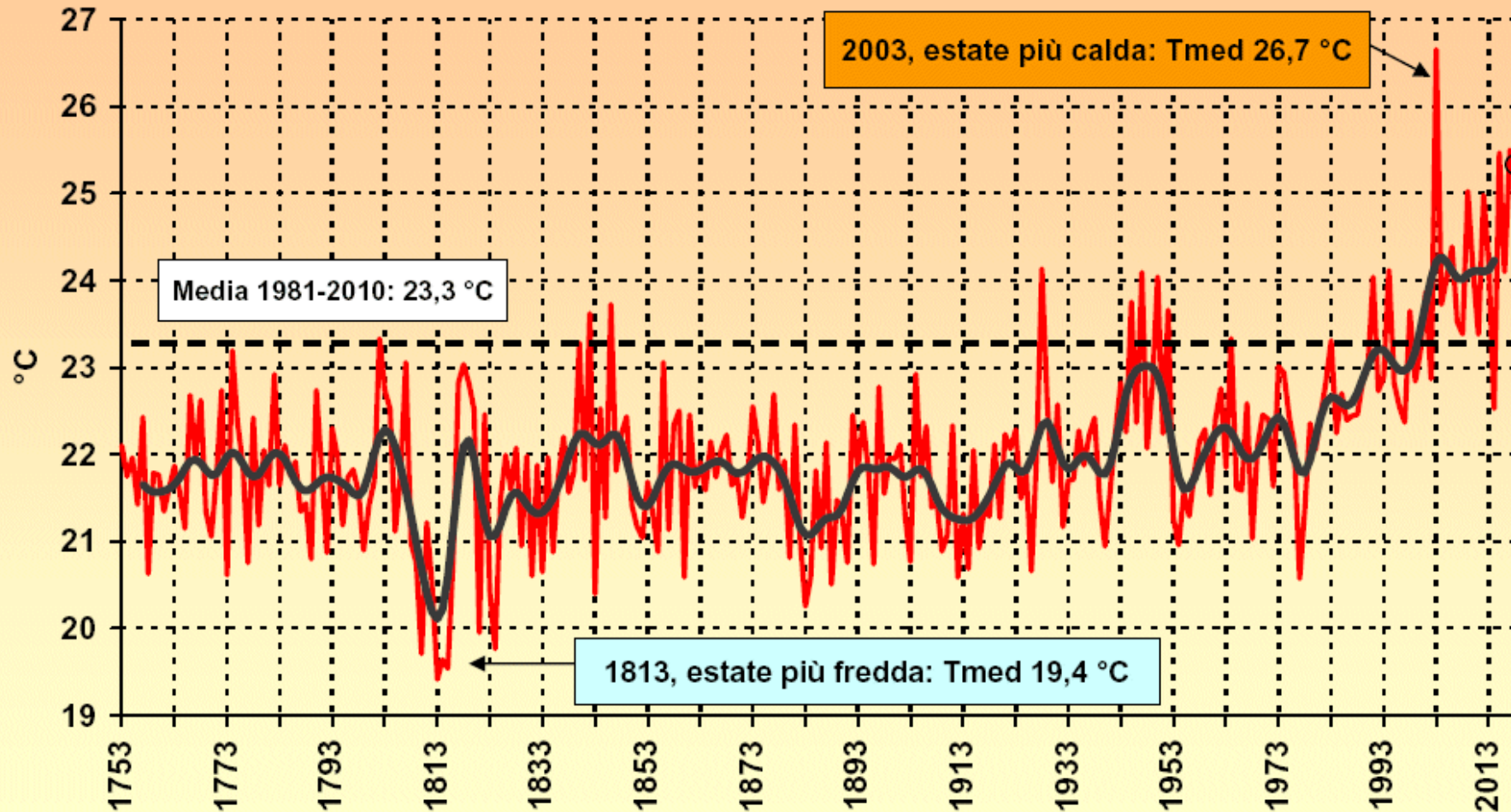




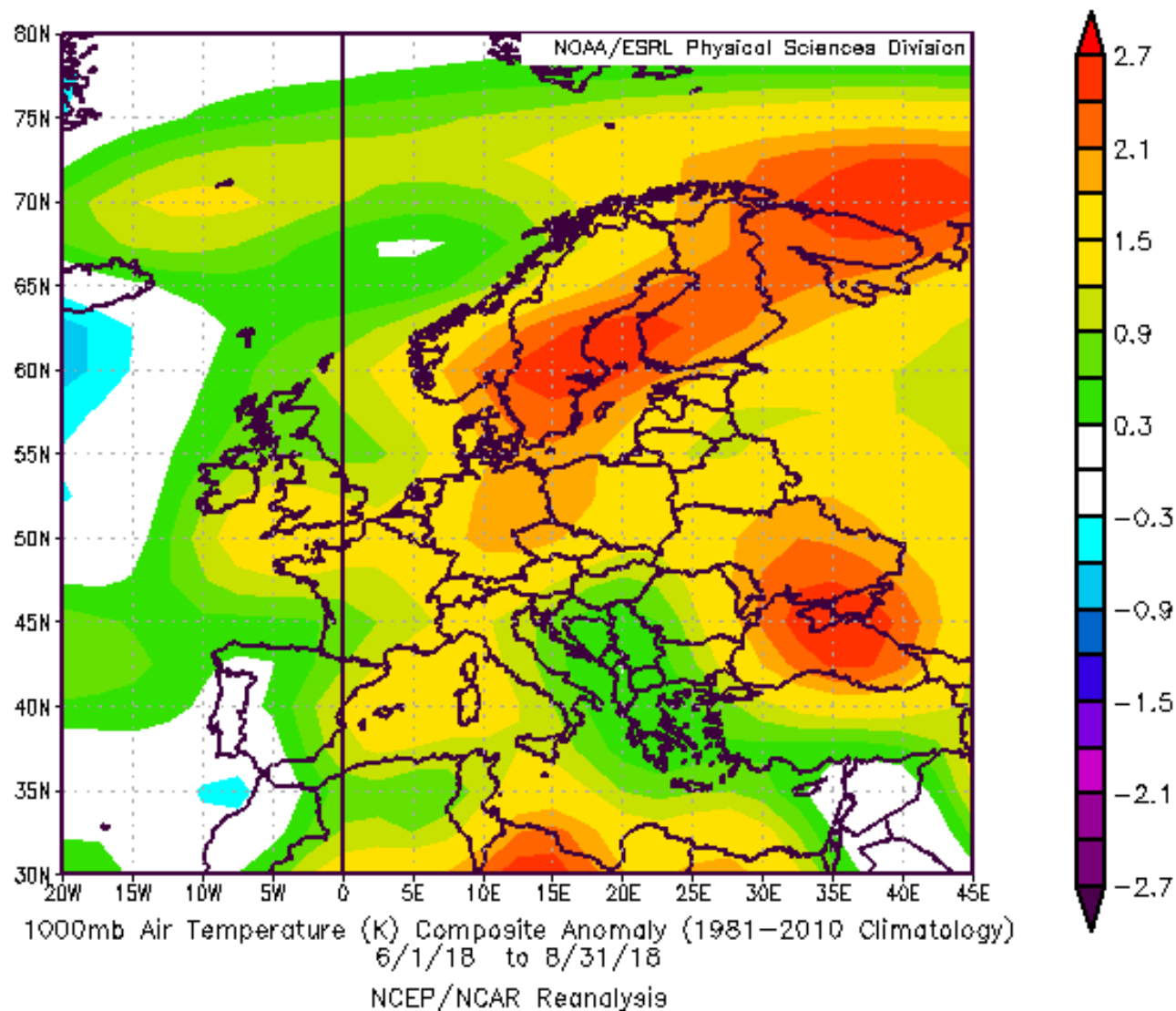
Estate 2018 in Italia: 5^a più calda dal 1800
(più anomala al Nord che al Sud)

Torino - Temperature medie estive (°C) dal 1753 al 2018

(elaborazione dati: SMI - www.nimbus.it)



9 su 10 delle estati più calde sono successive al 2002



Estate 2018: caldo eccezionale
su Scandinavia e Mar Nero



1897
(f. Druetti)



2005
(f. L. Mercalli)

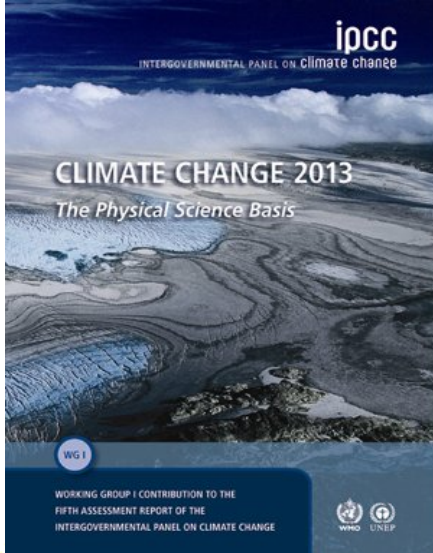


2015
(f. S. Jobard)

Ghiacciaio Pré de Bar (Monte Bianco):

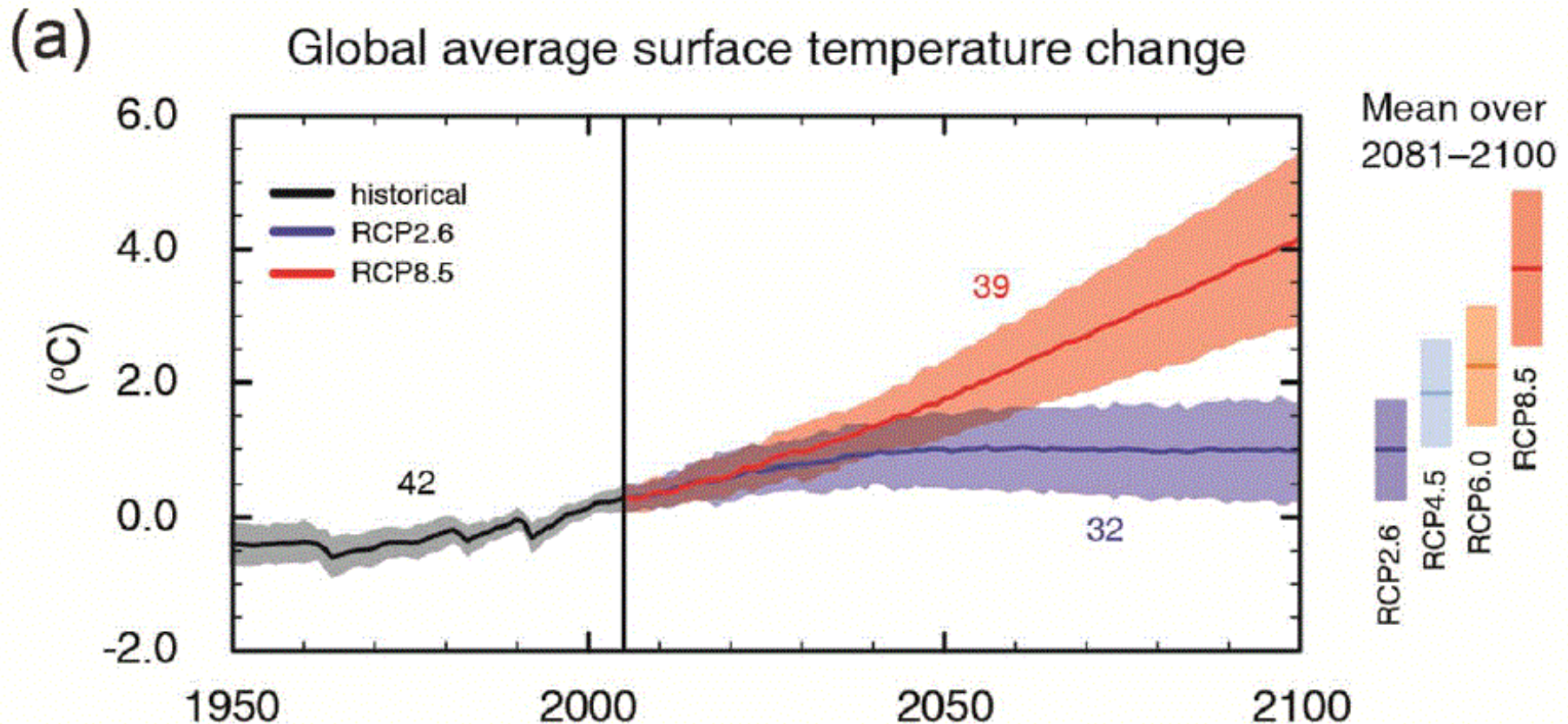
ritiro della fronte di oltre 800 m dal 1897 al 2015

I ghiacciai alpini si sono ridotti di oltre il 50% in un secolo



Scenari 5° rapporto IPCC (2013):

+2°C al 2100 se si applica
Accordo Parigi (linea azzurra),
oppure fino a 5°C in più con
business-as-usual (linea rossa)



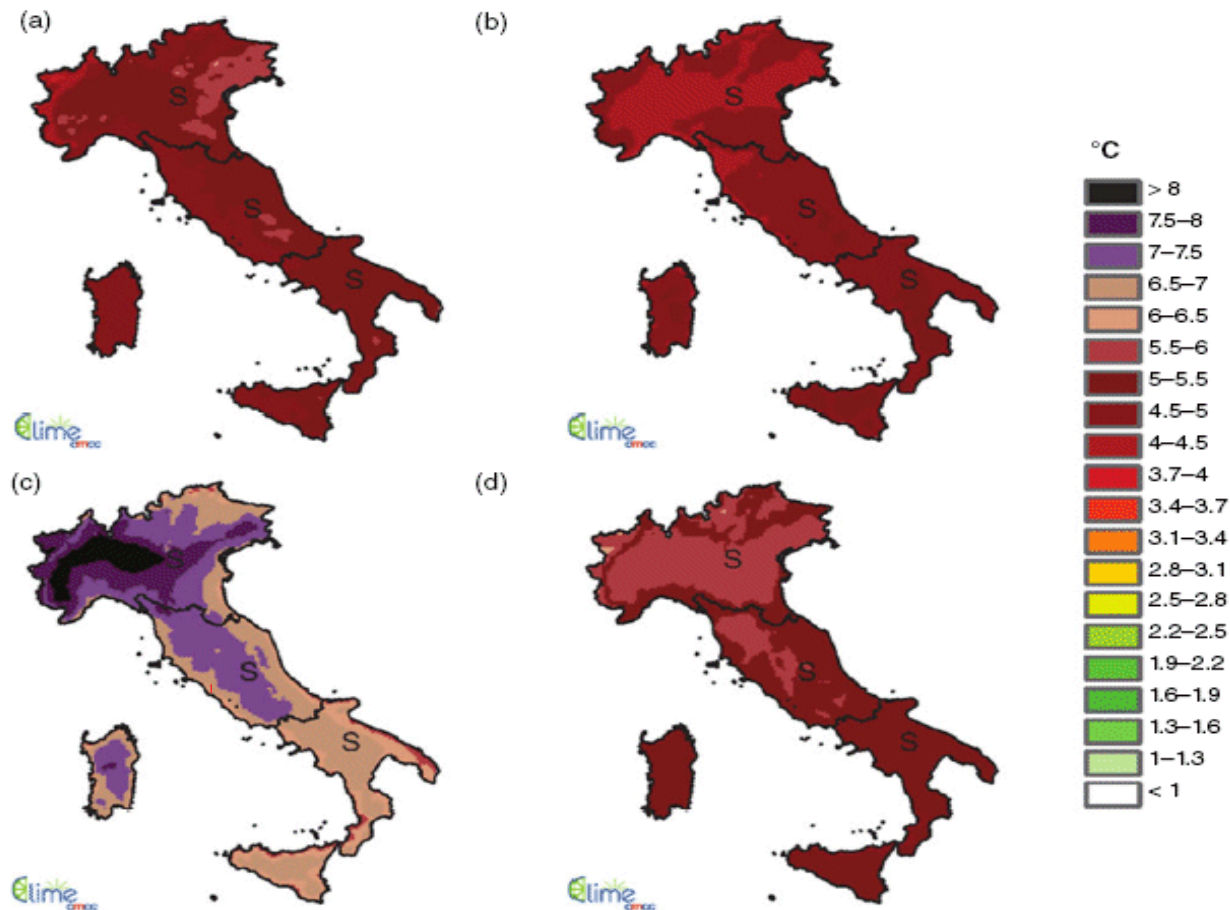


Figure 9. Temperature climate projections, RCP8.5: seasonal differences (°C), between the average value over 2071–2100 and 1971–2000 for (a) DJF, (b) MAM, (c) JJA and (d) SON (S, significant; NS, not significant).

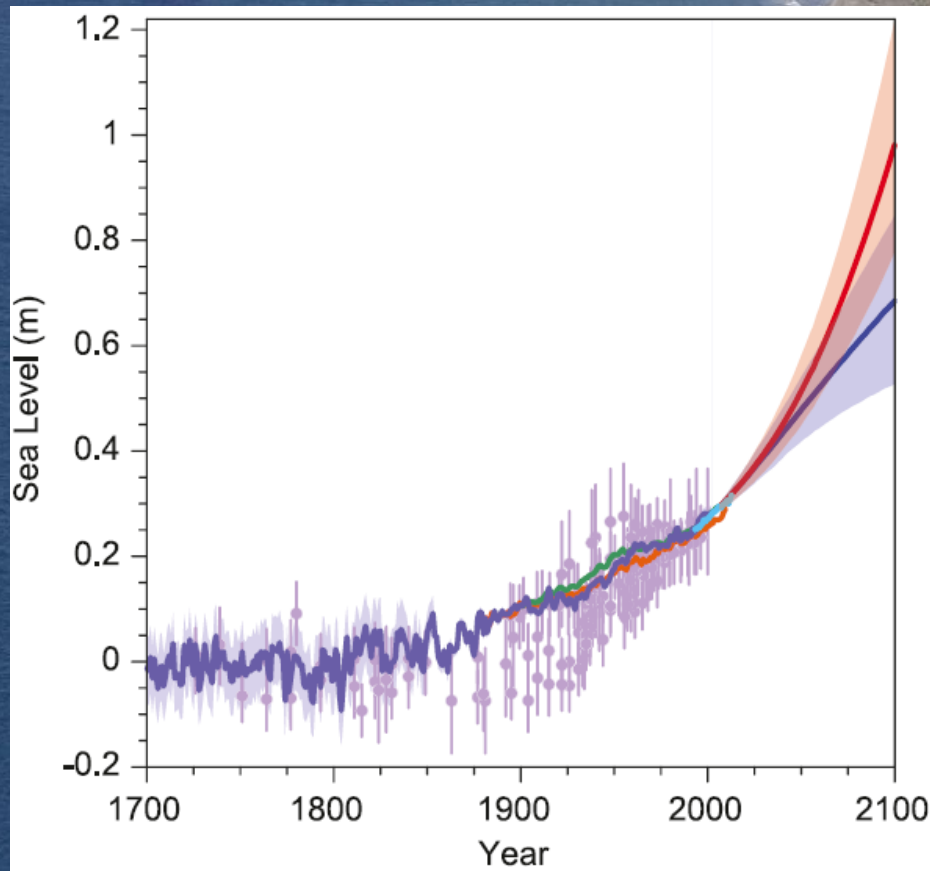
**E se non facessimo nulla? NW Italiano + 8 °C in estate
nel 2100! Torino come Karachi...**

Bucchignani et al. (2015) *High-resolution climate simulations with COSMO-CLM over Italy*, Int. J. Climatol.

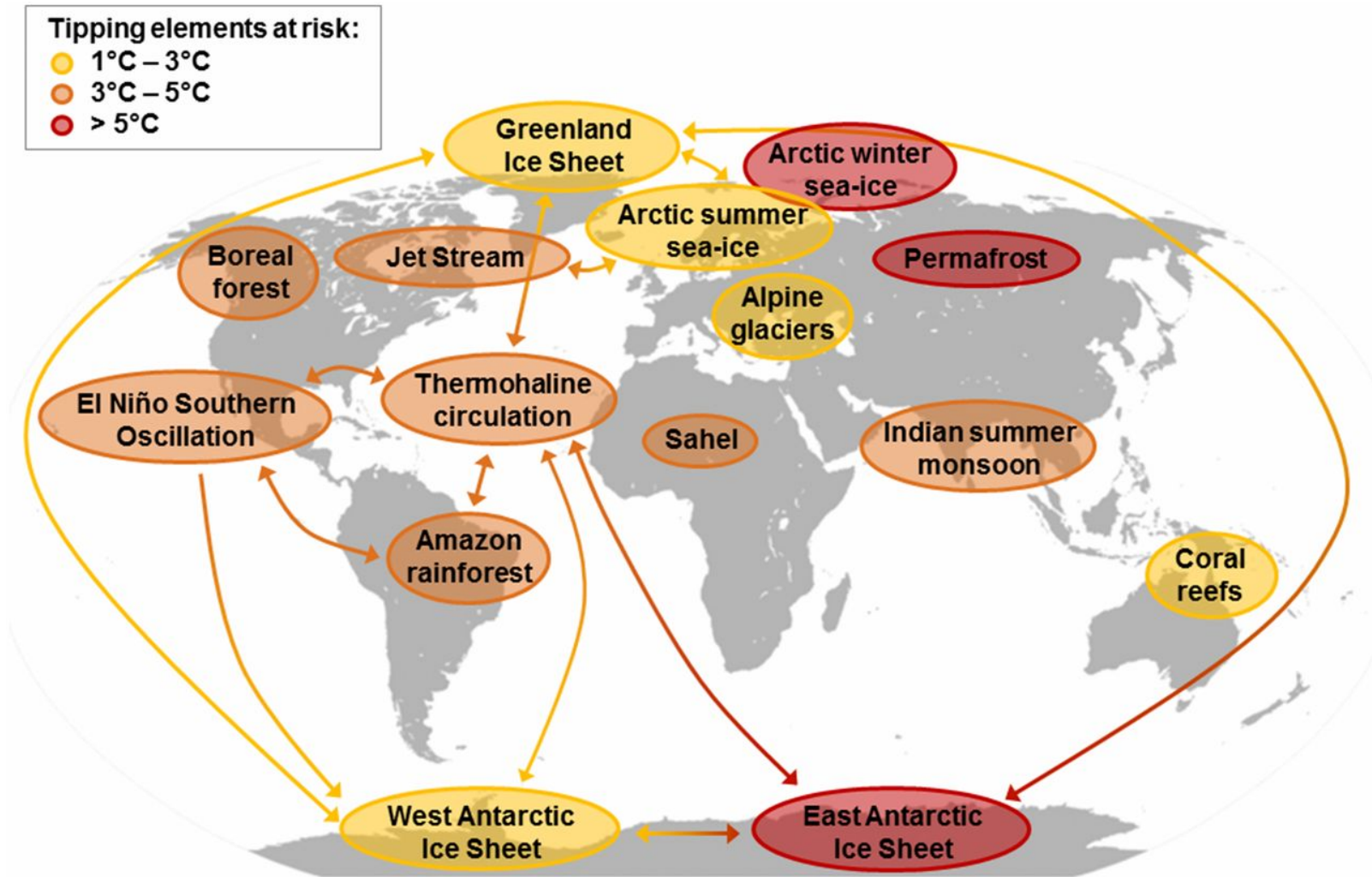


**Aumento livello marino:
a rischio laguna veneta e delta del Po**

Le zone costiere risentiranno dell'aumento del livello marino, e dovranno essere adeguatamente protette (es: Venezia, delta del Po)



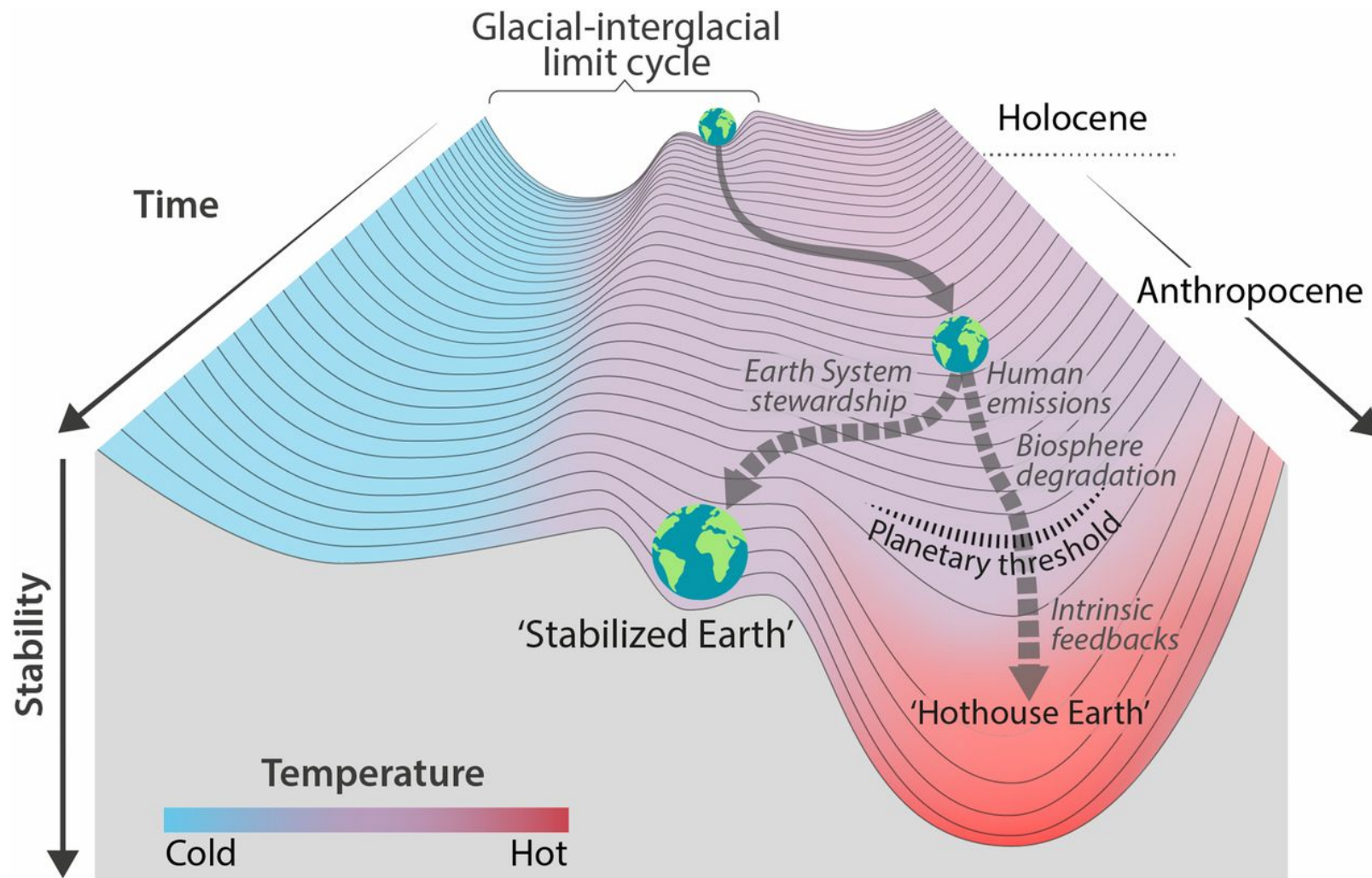
Global map of potential tipping cascades.



Will Steffen et al. PNAS doi:10.1073/pnas.1810141115

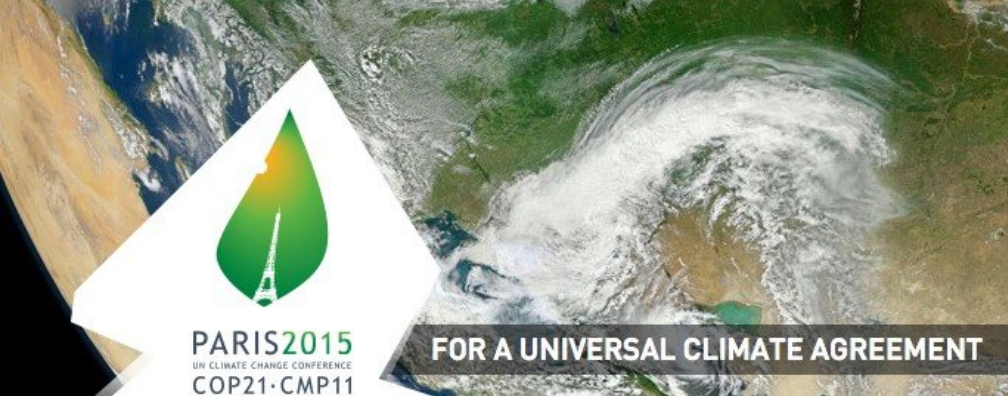
PNAS

Stability landscape showing the pathway of the Earth System out of the Holocene and thus, out of the glacial–interglacial limit cycle to its present position in the hotter Anthropocene.



Will Steffen et al. PNAS doi:10.1073/pnas.1810141115

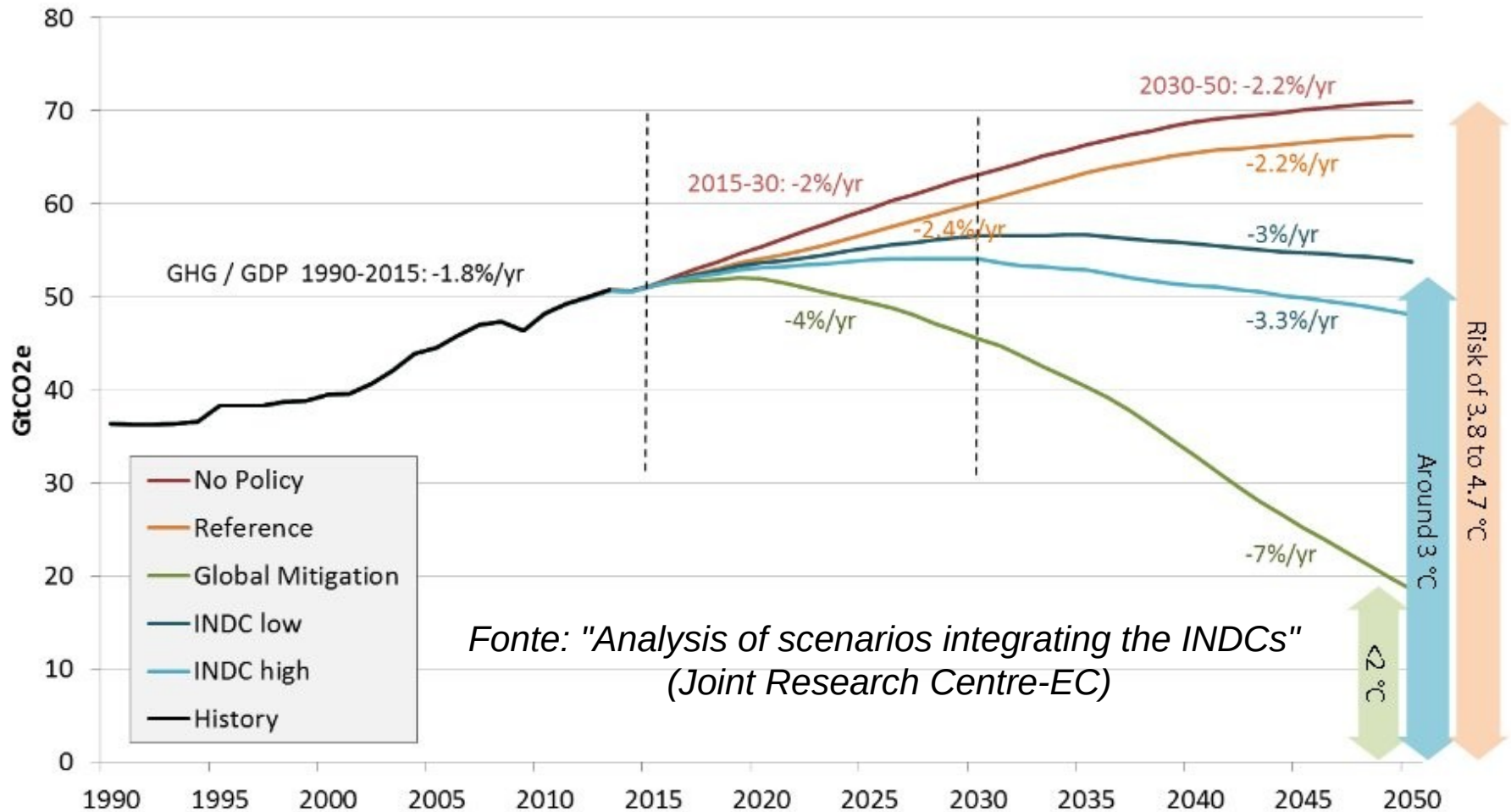
PNAS



COP21 e Accordo di Parigi-2015: un modesto punto di partenza



Promesse ambiziose di riduzione CO₂, ma non bastano: se applicate, circa +3 °C nel 2100 !

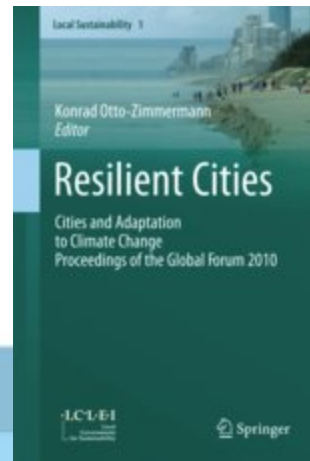


ROTTERDAM RESILIENCE STRATEGY.

READY FOR THE
21ST CENTURY

CONSULTATION
DOCUMENT

Città resilienti e sostenibili



The Risks

As more people and assets become rapidly concentrated in cities and as infrastructure struggles to keep up with rapid growth, the risk from natural disasters and climate change is rising.

collapsed buildings

landslides

broken bridges

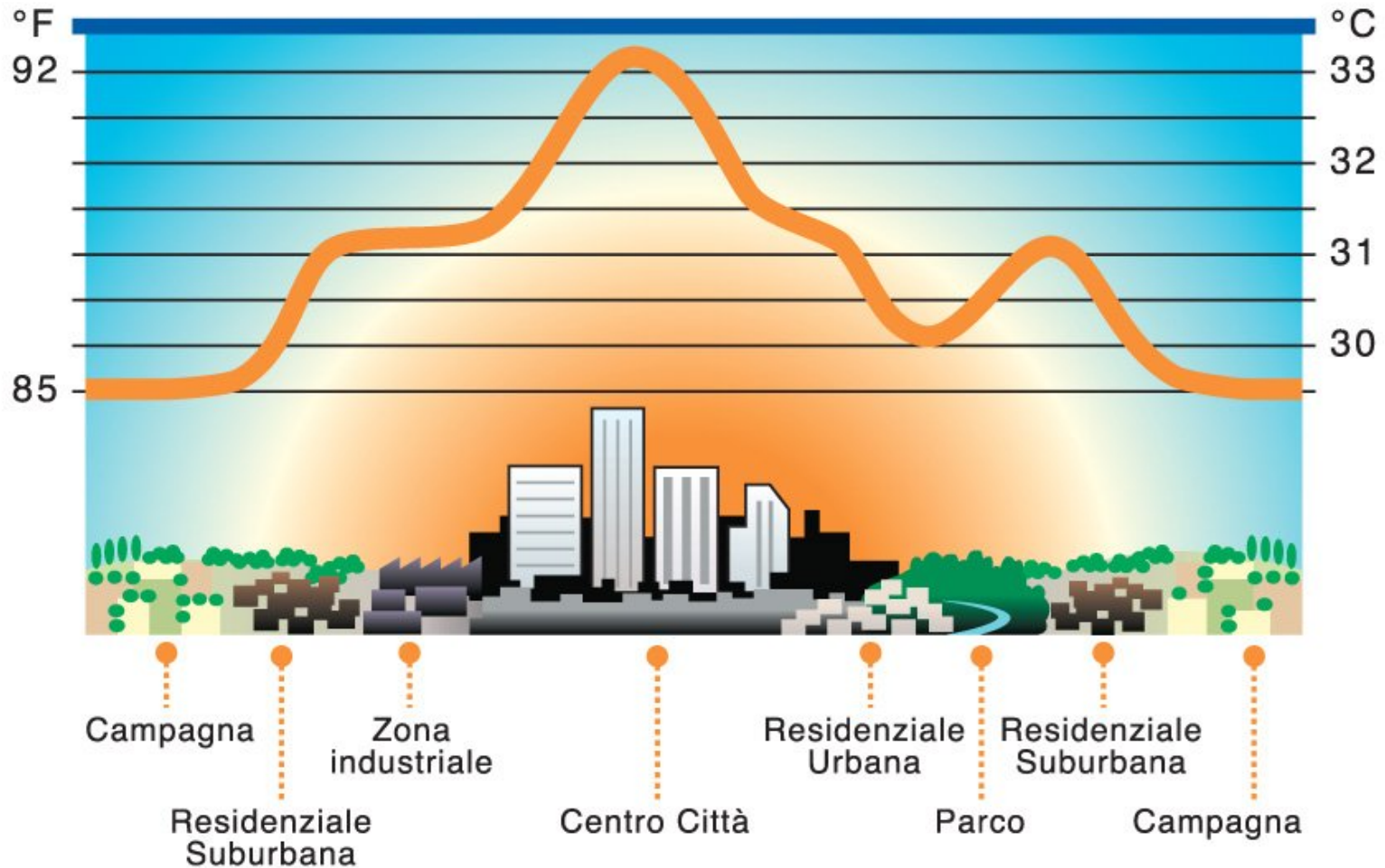
brownouts

fires

flooding



Isola di calore urbana



Adattamento = resilienza a eventi estremi, ondate di caldo e nubifragi/alluvioni



Mitigazione = riqualificazione per efficienza energetica e minori emissioni

Più energie rinnovabili ed efficienza energetica abitazioni

Al lavoro! Gli obiettivi UN dell'Agenda 2030





A RACE WE CAN WIN

“Climate change is the defining issue of our time – and we are at a defining moment.”



António Guterres,
United Nations Secretary-General,
10 September, 2018

“Climate change is moving faster than we are.”

“If we do not change course by 2020, we risk missing the point where we can avoid runaway climate change, with disastrous consequences for people and all the natural systems that sustain us.”



A RACE WE CAN WIN

“The transition to a cleaner, greener future needs to speed up. We stand at a truly “use it or lose it” moment.”



António Guterres,
United Nations Secretary-General,
10 September, 2018

SPLENDENDO GENERO



Il tempo è il fattore critico di successo.
Dobbiamo accelerare la transizione!

LAT. 45:07:18 - LON. 07:24:30 - ALT. 500 M