

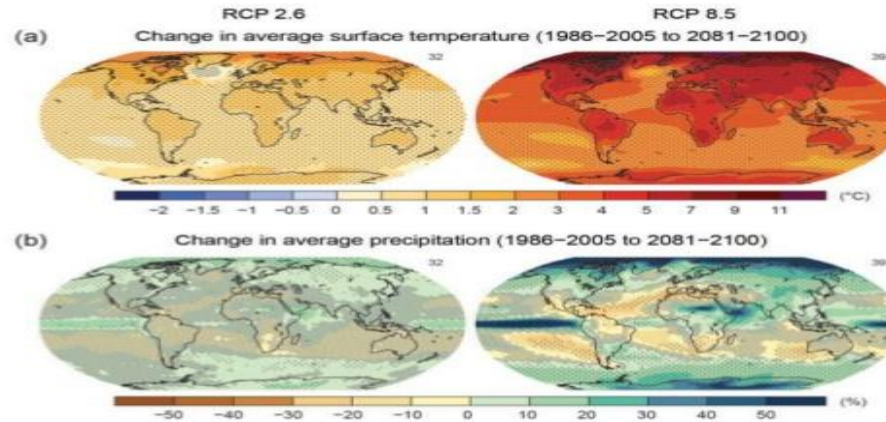
# Clima, biodiversità, inquinamento: trappole globali da evitare

Luca Mercalli – Società Meteorologica Italiana - [www.nimbus.it](http://www.nimbus.it)

Figure SPM.8a,b

Maps of CMIP5 multi-model mean results

All Figures © IPCC 2013



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

ipcc  
INTERGOVERNMENTAL PANEL ON climate change  
wmo unep



ANTÓNIO GUTERRES

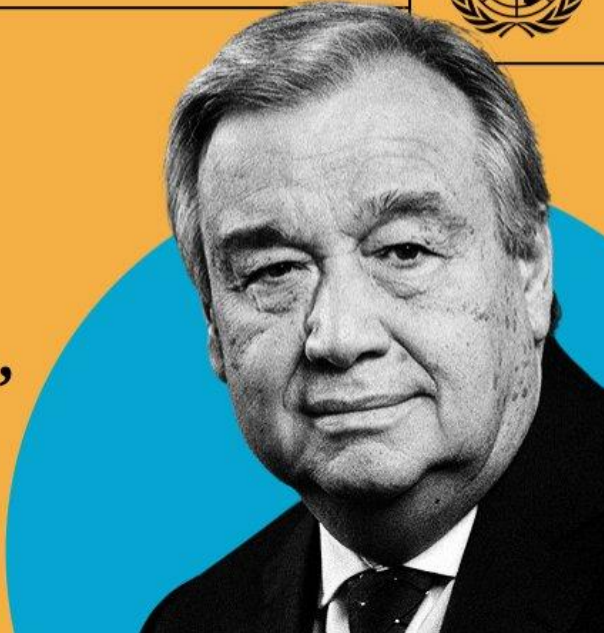
United Nations Secretary-General



“

Today's IPCC Working Group 1 Report is a **code red** for humanity.”

9 AUGUST 2021



EMBARGOED - Do not publish, quote or distribute before 10 a.m. Central European Summer Time (08:00 UTC/GMT; 4 a.m. EDT) on Monday 9 August 2021

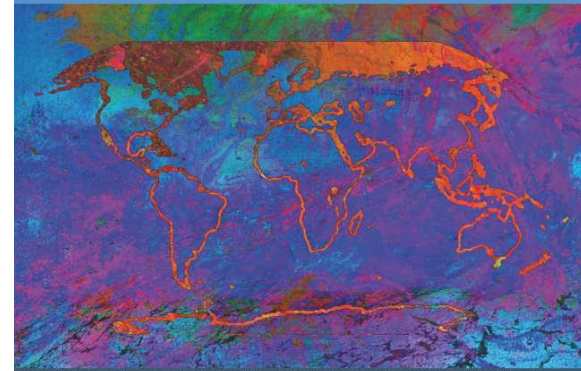
ipcc

INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2021

The Physical Science Basis

Summary for Policymakers



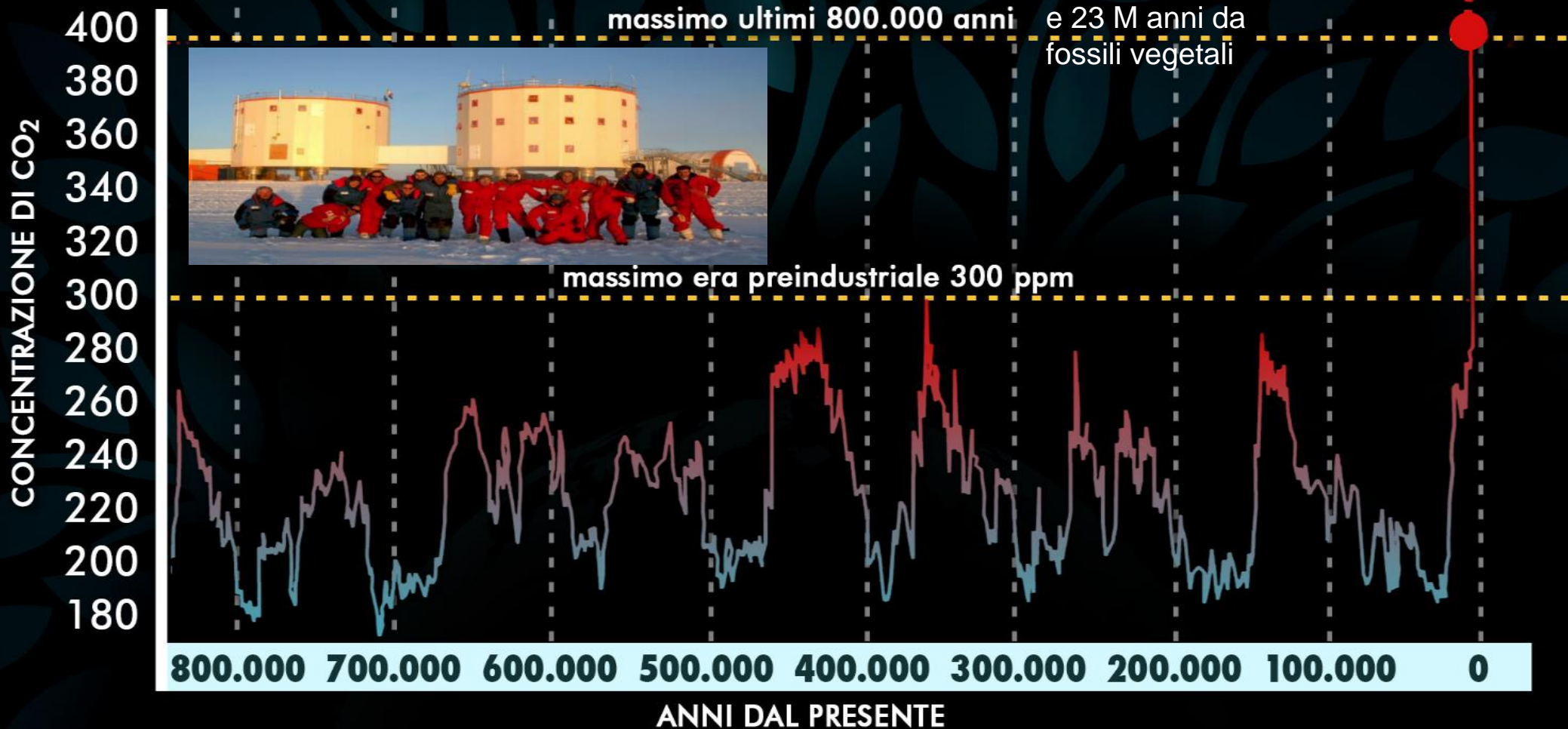
The Summary for Policymakers was formally approved at the 14th Session of Working Group I of the IPCC and accepted by the 56th Session of the IPCC, Virtual meeting, 8 August 2021. SUBJECT TO CORRECTIONS

WGI

Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change



## LIVELLO CO<sub>2</sub> NEL TEMPO



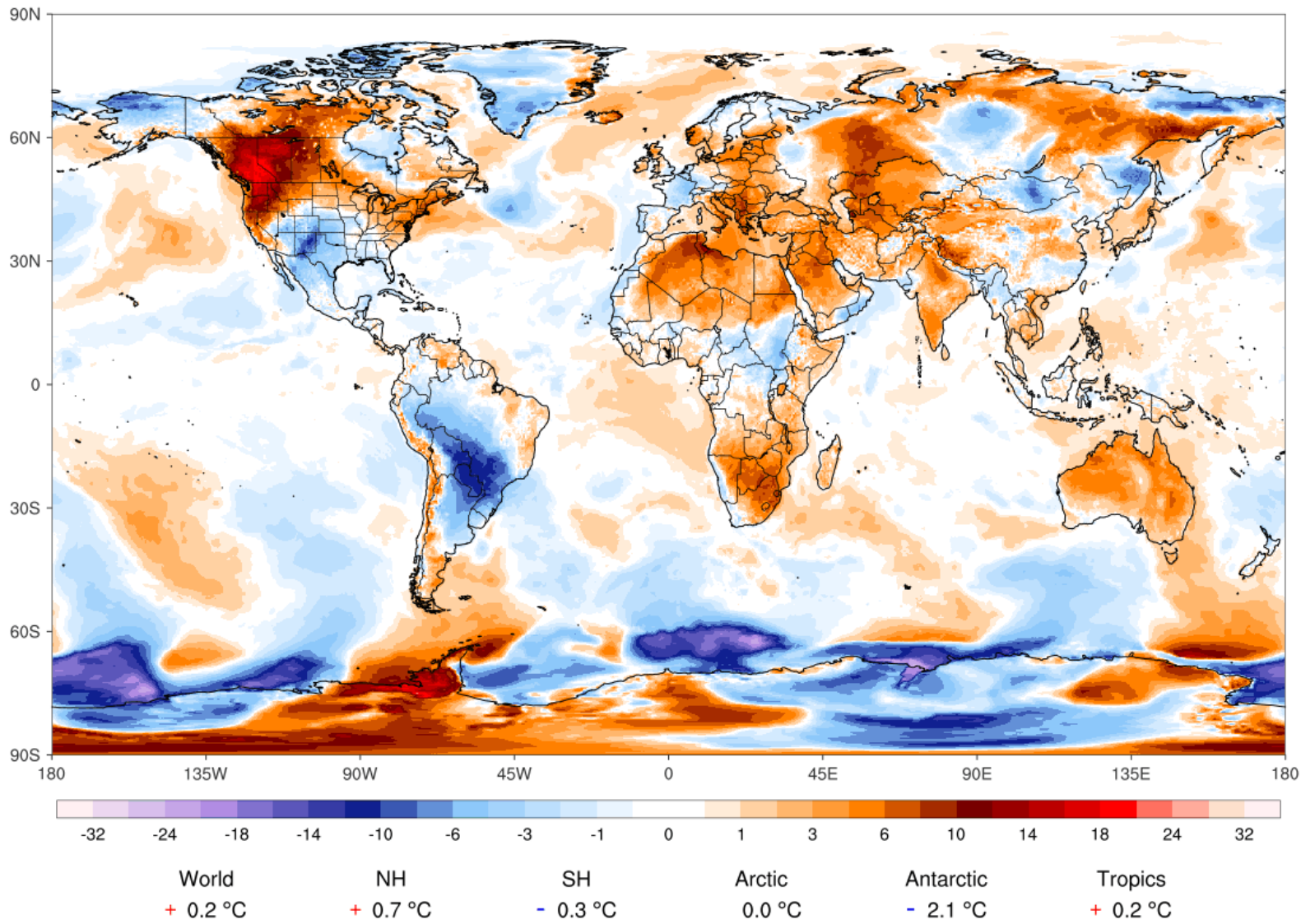
# Temperatura in aumento su tutto il pianeta: **+1,2°C** nell'ultimo secolo

Anomalie termiche globali 1850-2021  
(rispetto a media trentennio 1961-90)  
*serie MetOffice - Hadley Center*



**Lytton,  
Canada  
occidentale**

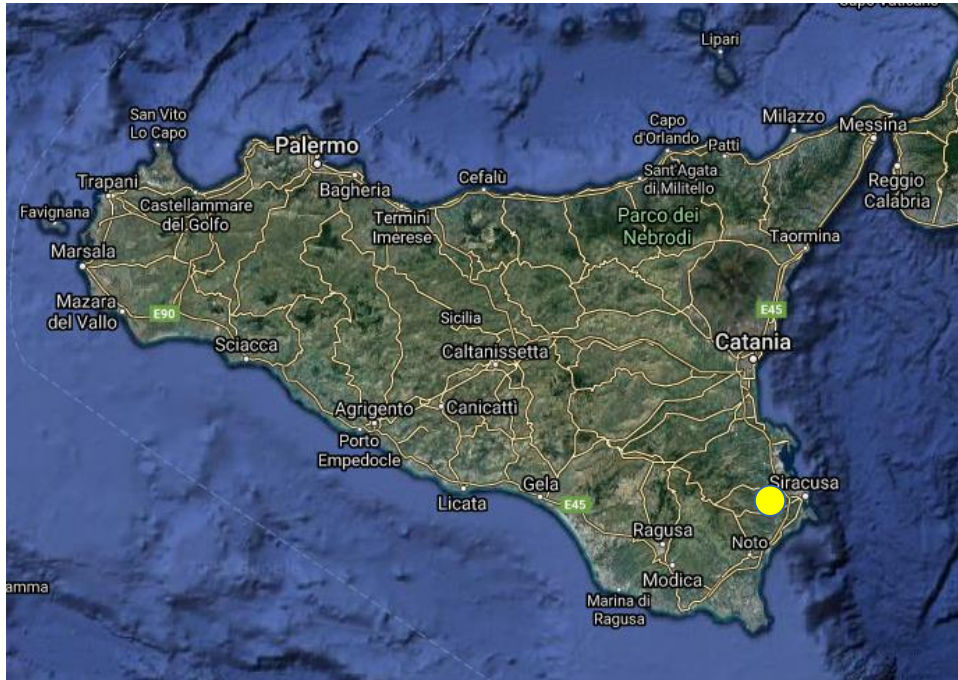
**29 giugno  
2021: 49,6 °C,  
record  
nazionale**



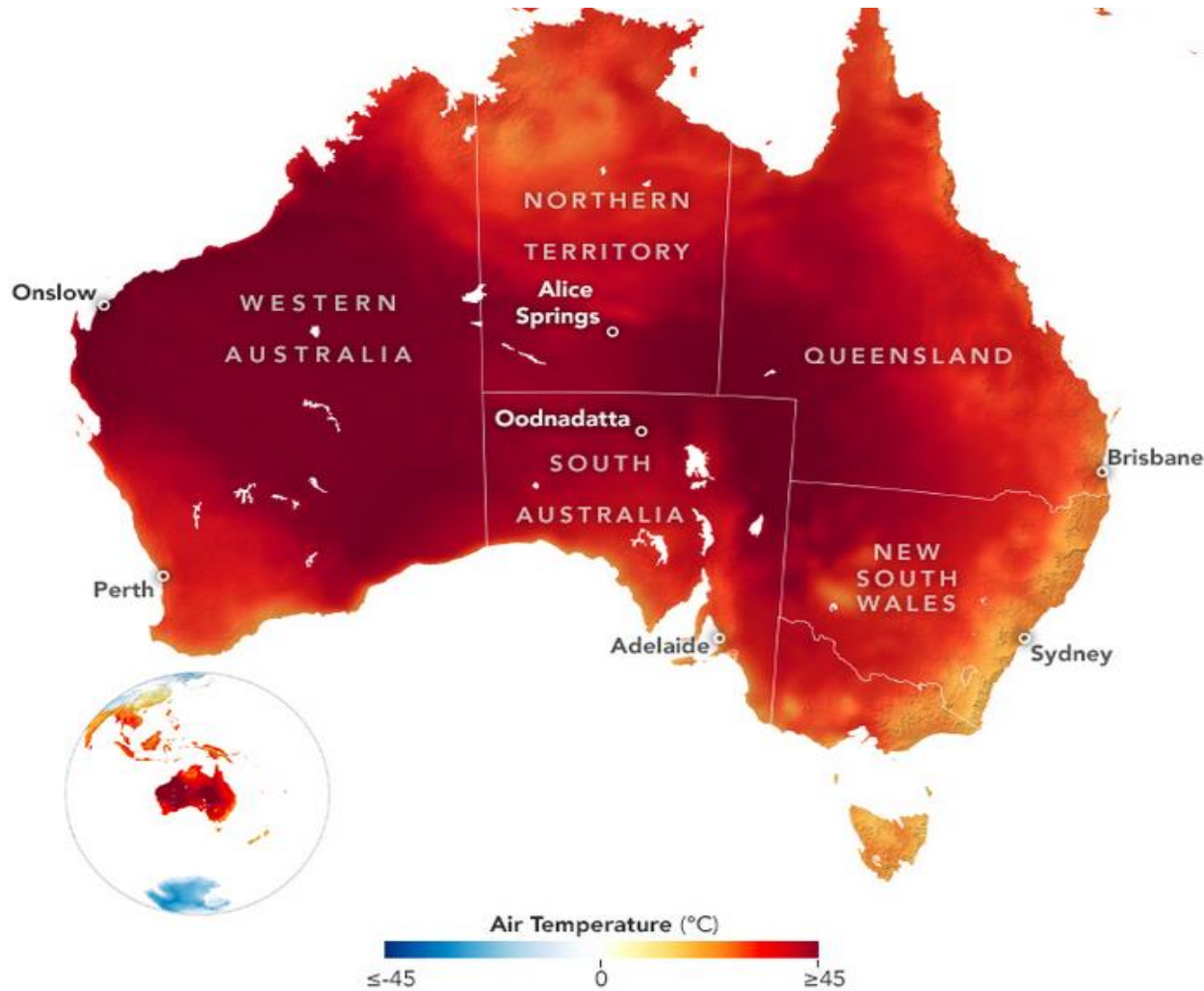
**11 agosto 2021**

**48,8 °C a Floridia, Siracusa**

**Temperatura massima record in Italia e in Europa in circa 200 anni di osservazioni**



Stazione meteo rete SIAS

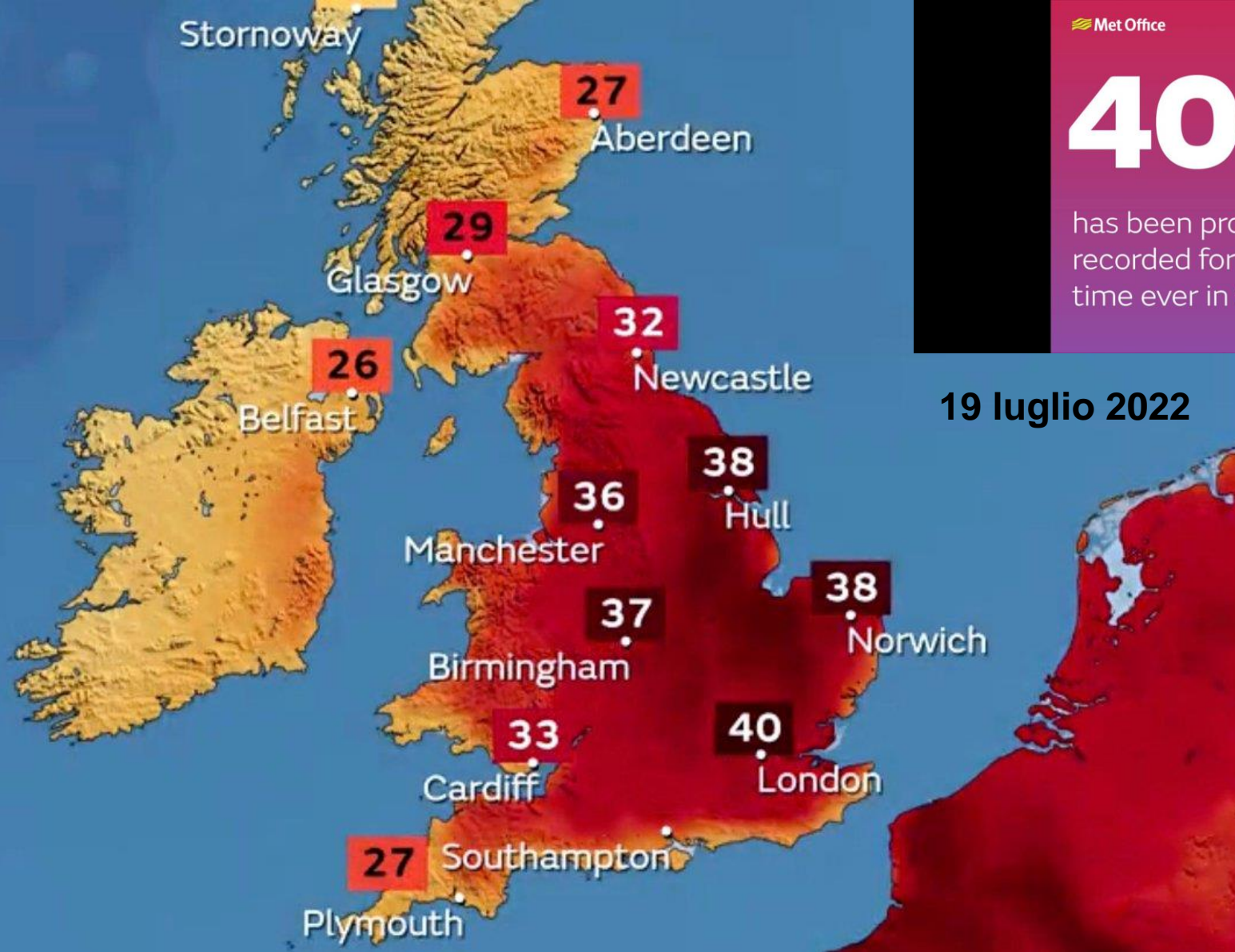


**13 Gennaio 2022:  
50,7 °C a Onslow,  
Australia  
Temperatura  
massima emisfero  
Sud**

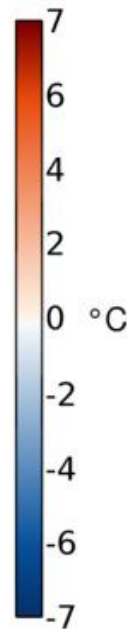
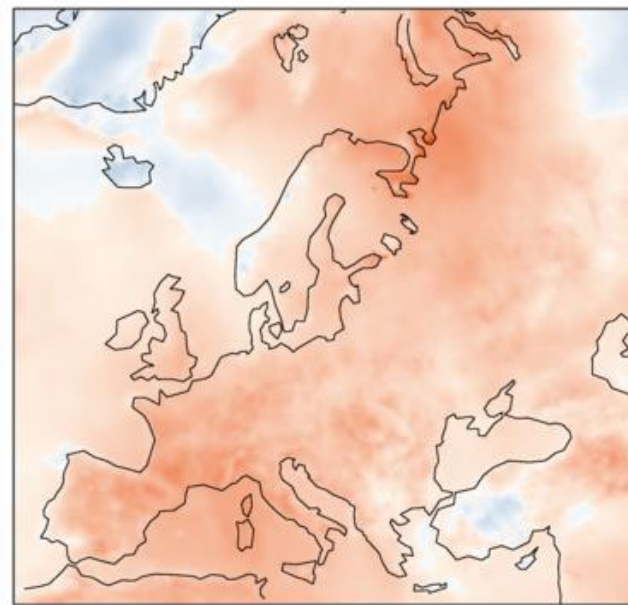
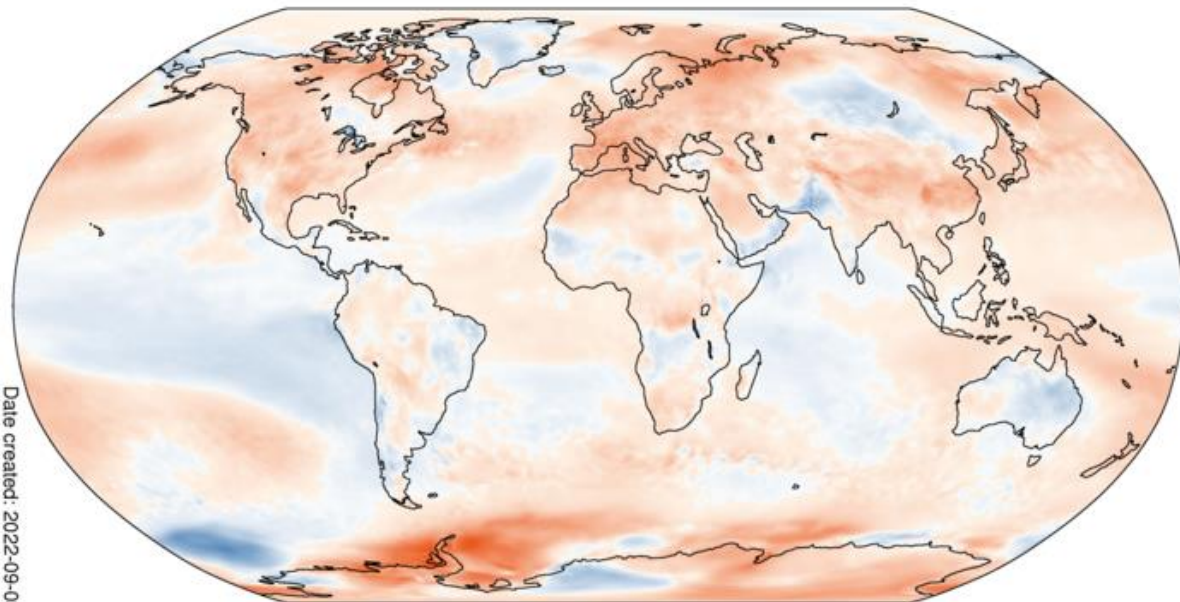
# 40°C

has been provisionally recorded for the first time ever in the UK.

19 luglio 2022



## Surface air temperature anomaly for June to August 2022



(Data: ERA5. Reference period: 1991-2020. Credit: C3S/ECMWF)



PROGRAMME OF  
THE EUROPEAN UNION



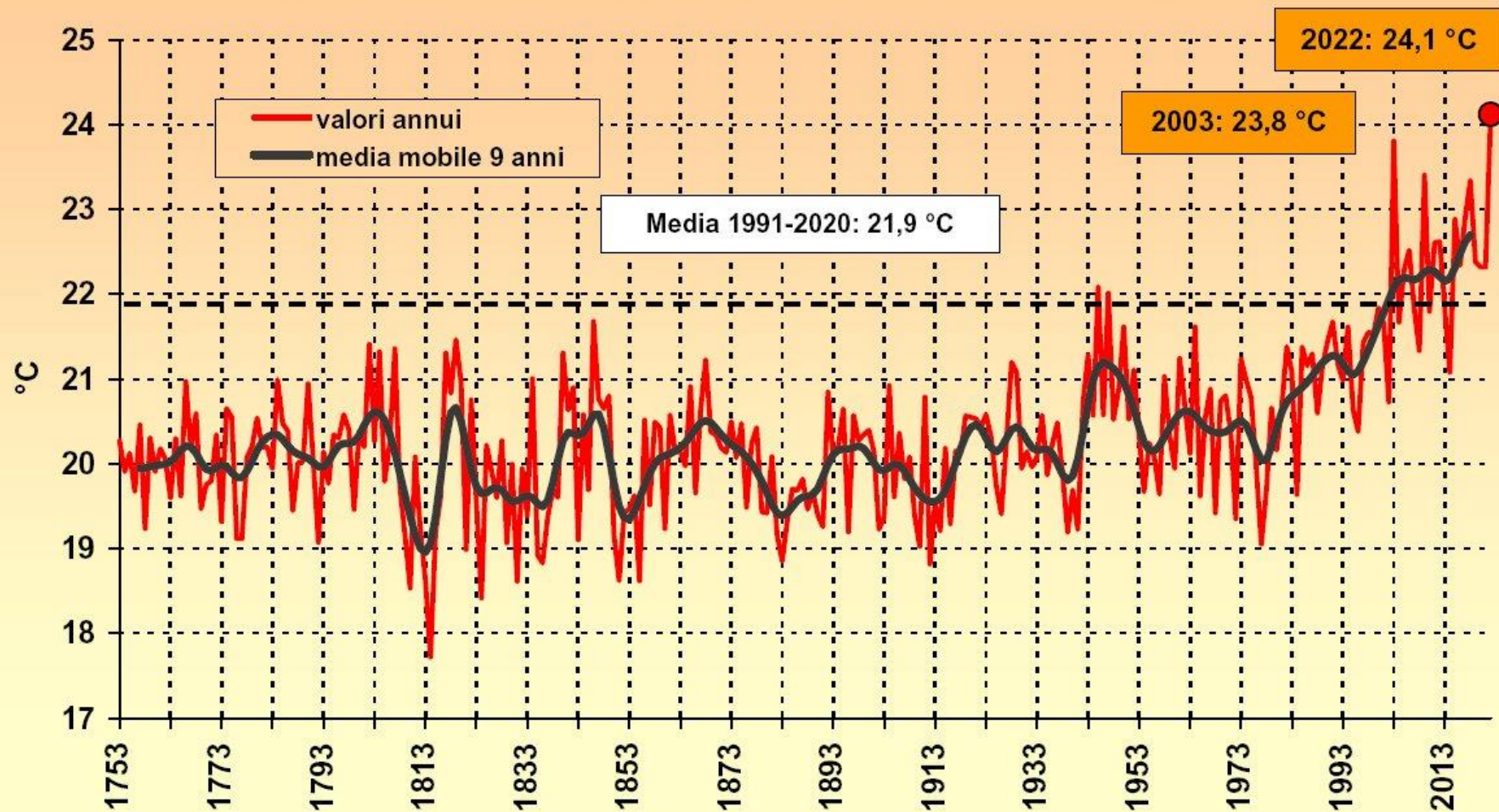
IMPLEMENTED BY



# Estate 2022, la più calda di sempre in Europa (fonte: EU-Copernicus)

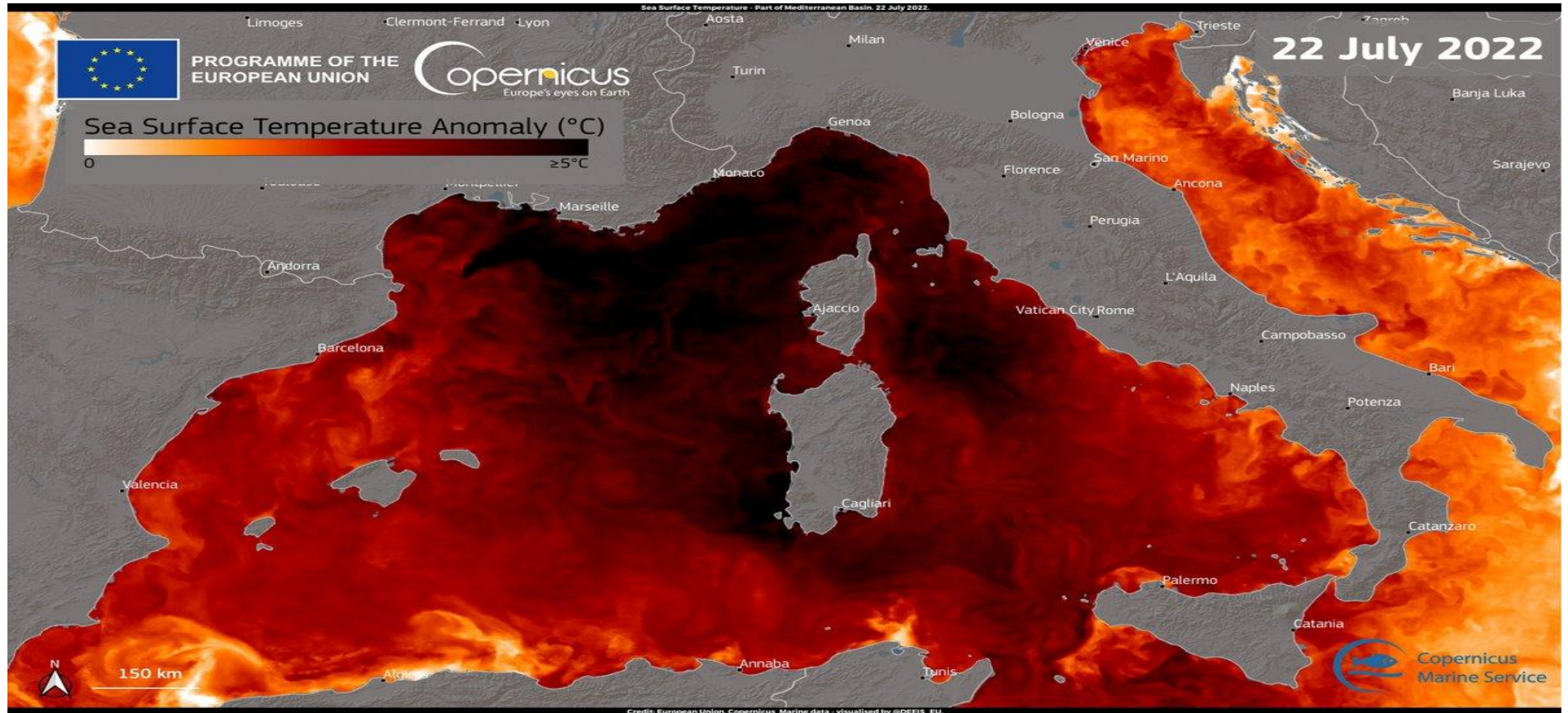
# Torino centro - Temperature medie maggio-settembre (°C), 1753 - 2022

(dati attuali ARPA Piemonte; elaborazione dati storici: SMI - [www.nimbus.it](http://www.nimbus.it))



# 2022, straordinaria ondata di calore “marina” nel Mediterraneo, fino a 5 °C sopra media!

*Credit: European Union, Copernicus Sentinel-3 imagery*



2022: portata media del Po ai minimi storici, 22 luglio = 108 m<sup>3</sup>/s



*T. Orco in magra primaverile straordinaria nel Torinese (9 aprile 2022)*

Portata del fiume Po a Pontelagoscuro





Alluvioni Germania-  
Belgio luglio 2021:  
243 vittime;  
Alluvione Marche  
15 Settembre 2022,  
13 vittime



A satellite image of the Mediterranean region, showing the Iberian Peninsula, France, Greece, Turkey, and parts of North Africa. Large plumes of white smoke are visible rising from the coastlines, indicating significant wildfires. The smoke plumes are most prominent over the Mediterranean Sea and the Aegean Sea. The landmasses are shown in shades of green and brown, with the sea in dark blue.

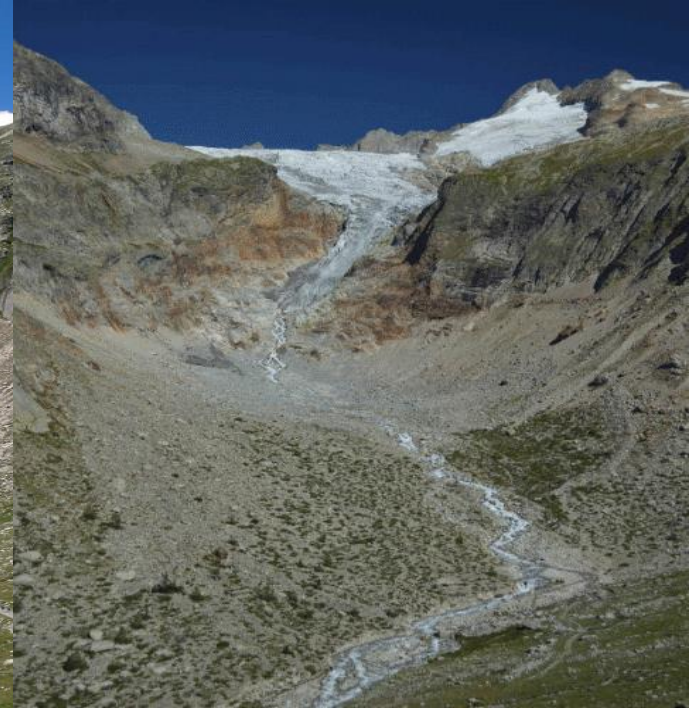
**Estate 2021: incendi in California, Grecia, Turchia, Algeria, Siberia, Francia...**



**1897**  
(f. Druetti)



**2005**  
(f. L. Mercalli)



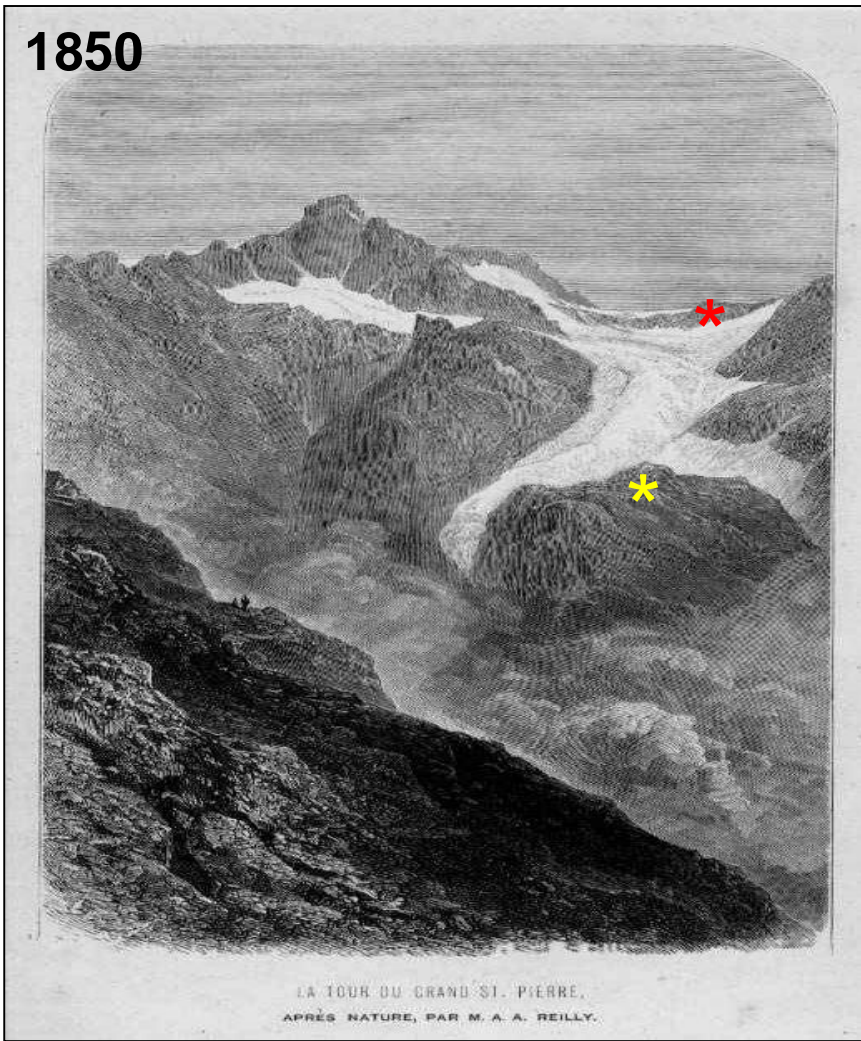
**2015**  
(f. S. Jobard)

## **Ghiacciaio Pré de Bar (Monte Bianco):**

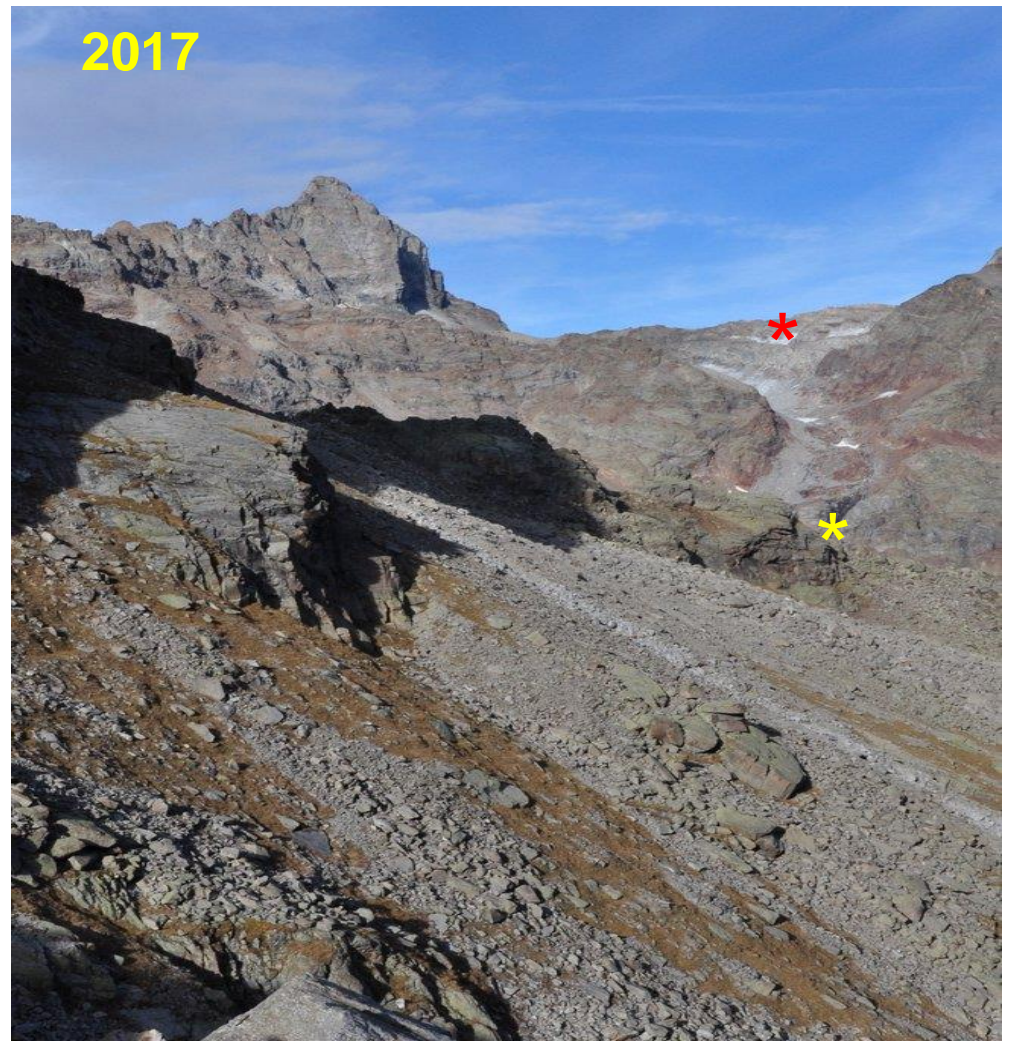
**ritiro della fronte di oltre 800 m dal 1897 al 2015**

**I ghiacciai alpini si sono ridotti di oltre il 60% in un secolo**

1850



2017

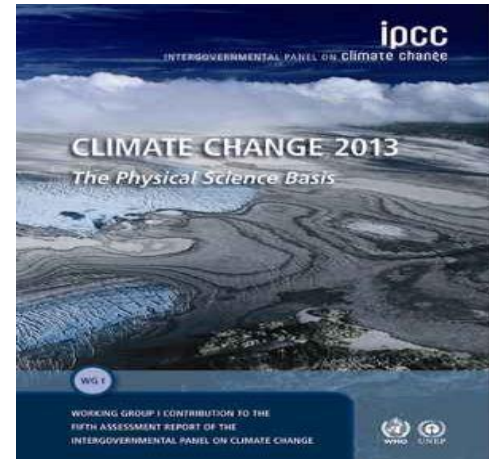


Ghiacciai piccoli estinti: Gh. di Teleccio (Gran Paradiso)

3 luglio 2022: ghiacciaio Marmolada, collasso glaciale causato da massiccio e anomalo afflusso di acqua di fusione all'interno del ghiacciaio, 11 vittime

Foto CNSAS



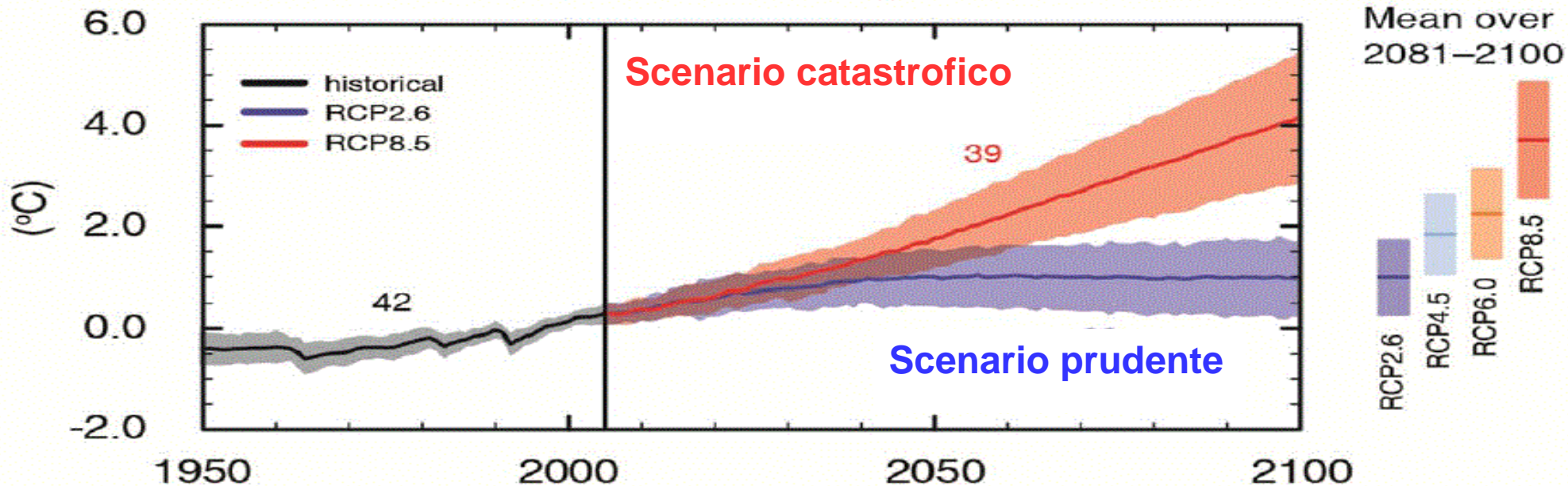


# Scenari 5° rapporto IPCC (AR5 2013):

**+2°C** al 2100 se si applica **Accordo Parigi 2015** (linea azzurra), o fino a **+5°C** in più con business-as-usual (linea rossa)

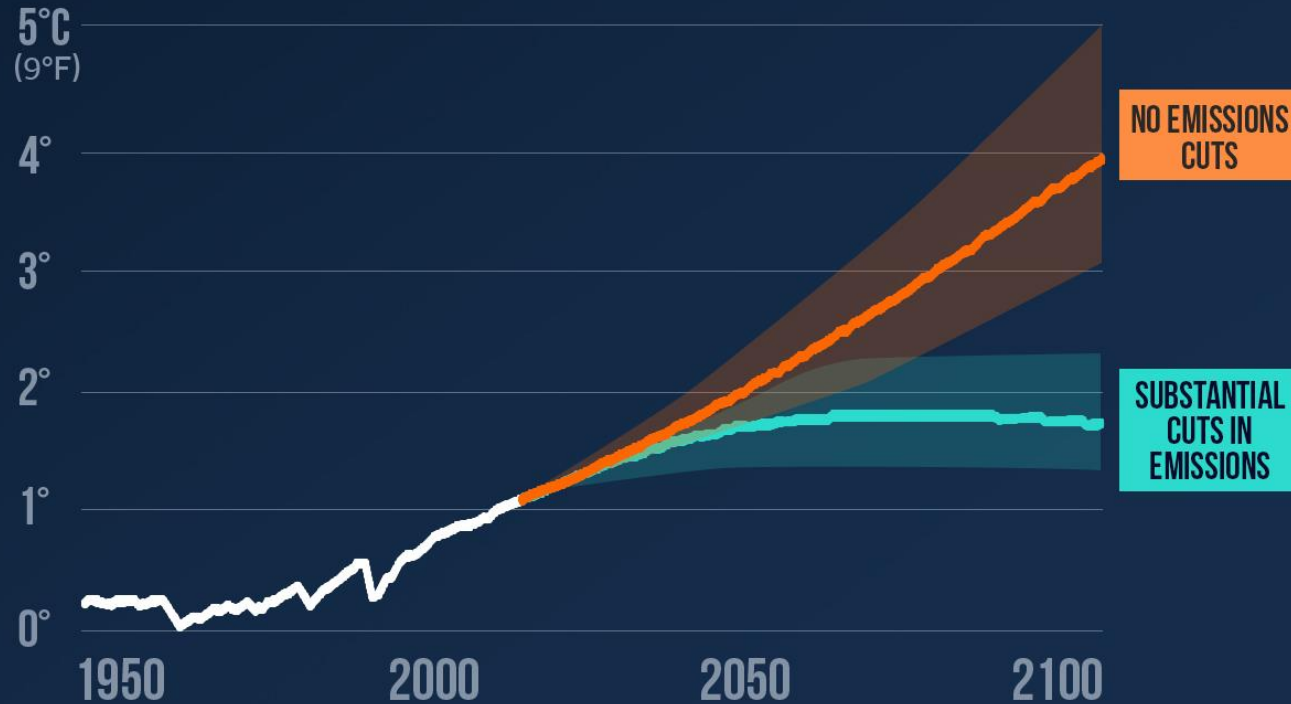
(a)

Global average surface temperature change



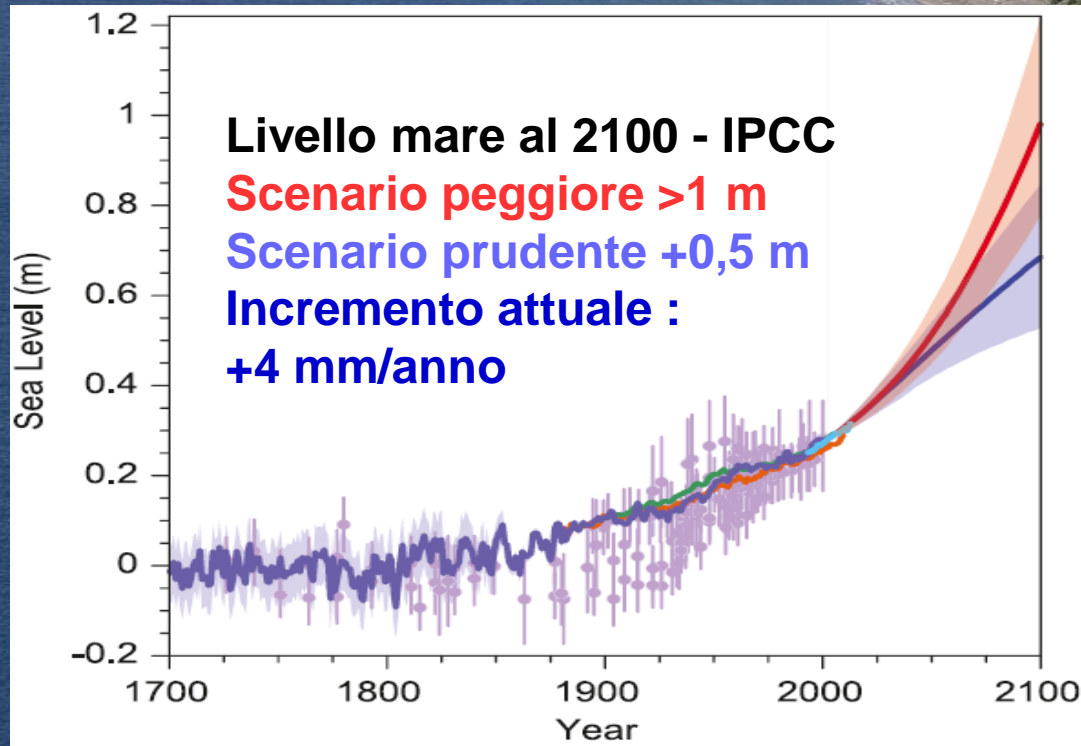
# FUTURE TEMPERATURES

WARMING DEPENDS ON CHOICES TODAY



Global surface temperature (°C) anomaly relative to 1850-1900  
High warming scenario: SSP3-7, Low warming scenario from SSP1-2.6.  
Source: IPCC AR6 WG1

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



# Cambiamento clima e perdita biodiversità

ipcc

INTERGOVERNMENTAL PANEL ON climate change

## Climate Change and Land

An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems

Summary for Policymakers



WG I WG II WG III



Nature's Dangerous Decline 'Unprecedented'  
Species Extinction Rates 'Accelerating'  
Current global response insufficient;  
'Transformative changes' needed to restore and  
protect nature;  
Opposition from vested interests can be overcome for  
public good  
1,000,000 species threatened with extinction



Science and Policy  
for People and Nature

# Global assessment on biodiversity and ecosystem services 2019



Food and Agriculture  
Organization of the  
United Nations

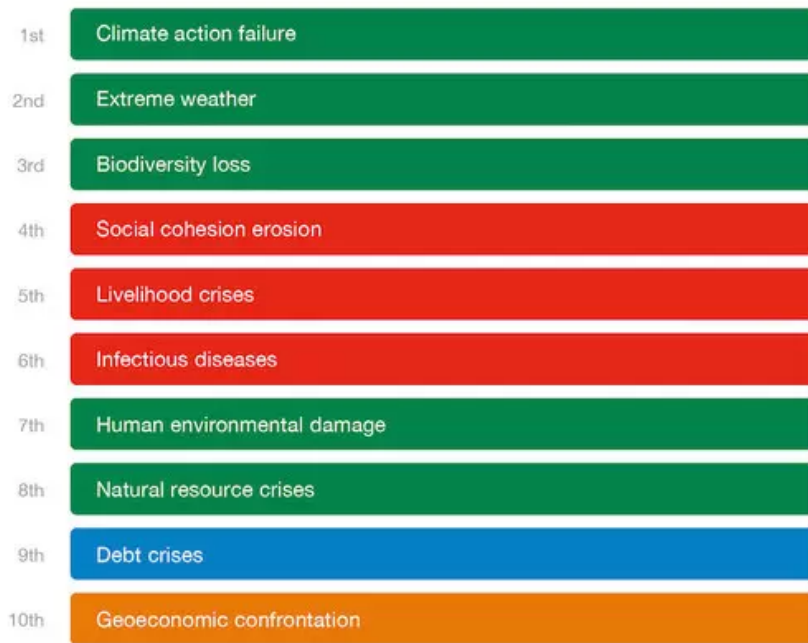




**L'inquinamento  
di aria, acqua e  
suolo minaccia  
la nostra salute  
e quella delle  
generazioni  
future  
POP Persistent  
Organic  
Pollutants +  
Heavy Metals  
Toxicity**

# Top 10 Global Risks by Severity

Over the next 10 years



■ Economic ■ Environmental ■ Geopolitical ■ Societal ■ Technological

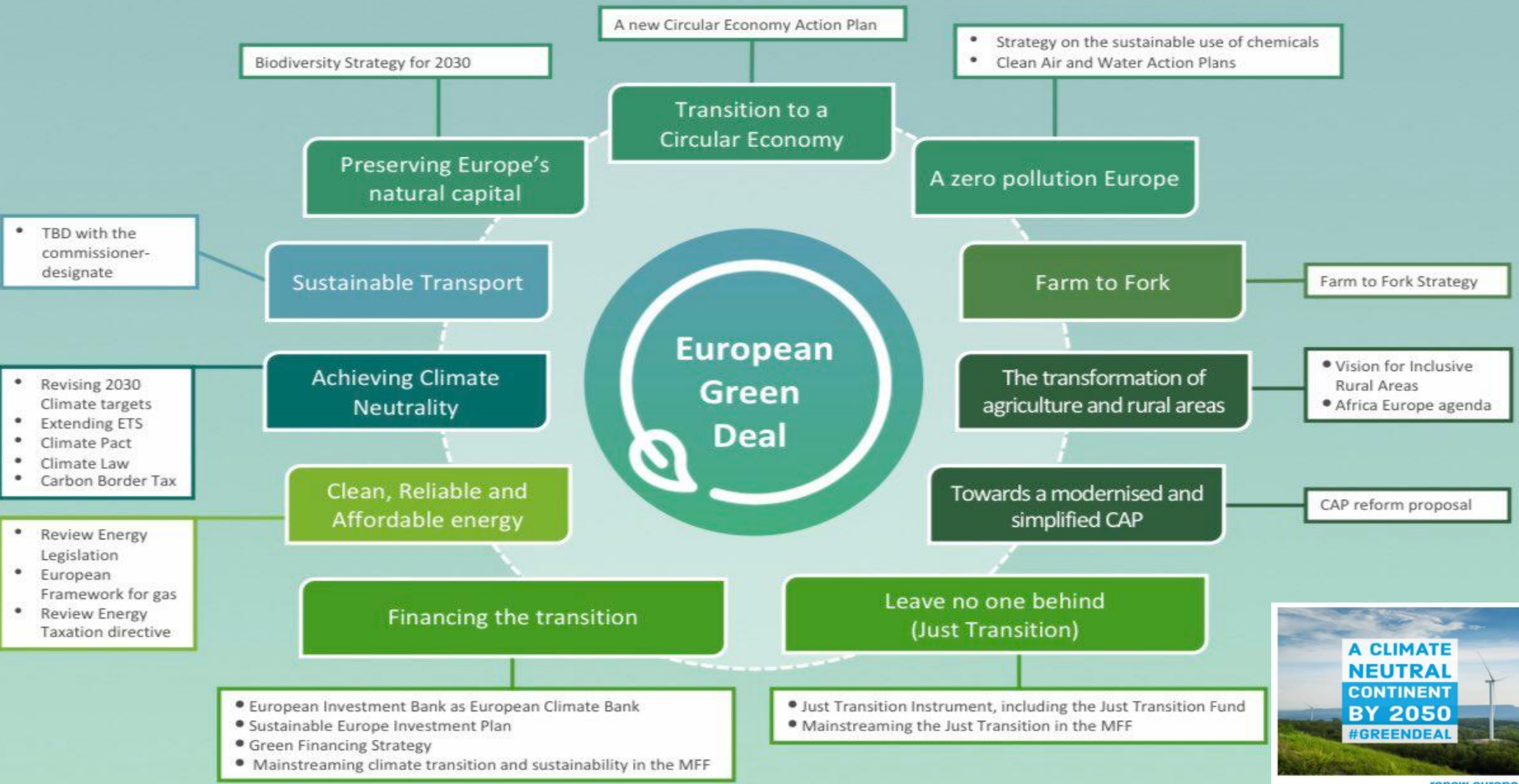
Source: World Economic Forum Global Risks Report 2022



**I primi tre rischi globali più importanti secondo il World Economic Forum 2022 sono :**

- cambiamenti climatici
- eventi meteorologici estremi
- perdita di biodiversità.

**Possiamo ancora agire per evitare di peggiorarli, ma dobbiamo farlo subito! Non c'è più tempo...**





**Più energie rinnovabili ed efficienza  
energetica abitazioni**

**Favorire mobilità elettrica a condizione che sia alimentata da elettricità rinnovabile e che sia obbligatorio il riciclo delle batterie**



Meno viaggi aerei, meno trasporti in genere, più telelavoro



**Allevamento: vale 15% delle emissioni globali (metano)  
Ridurre la quota di carne rossa nella dieta e sostenere  
agricoltura biologica e a filiera corta locale**



# Fermare la cementificazione, il suolo non è infinito!

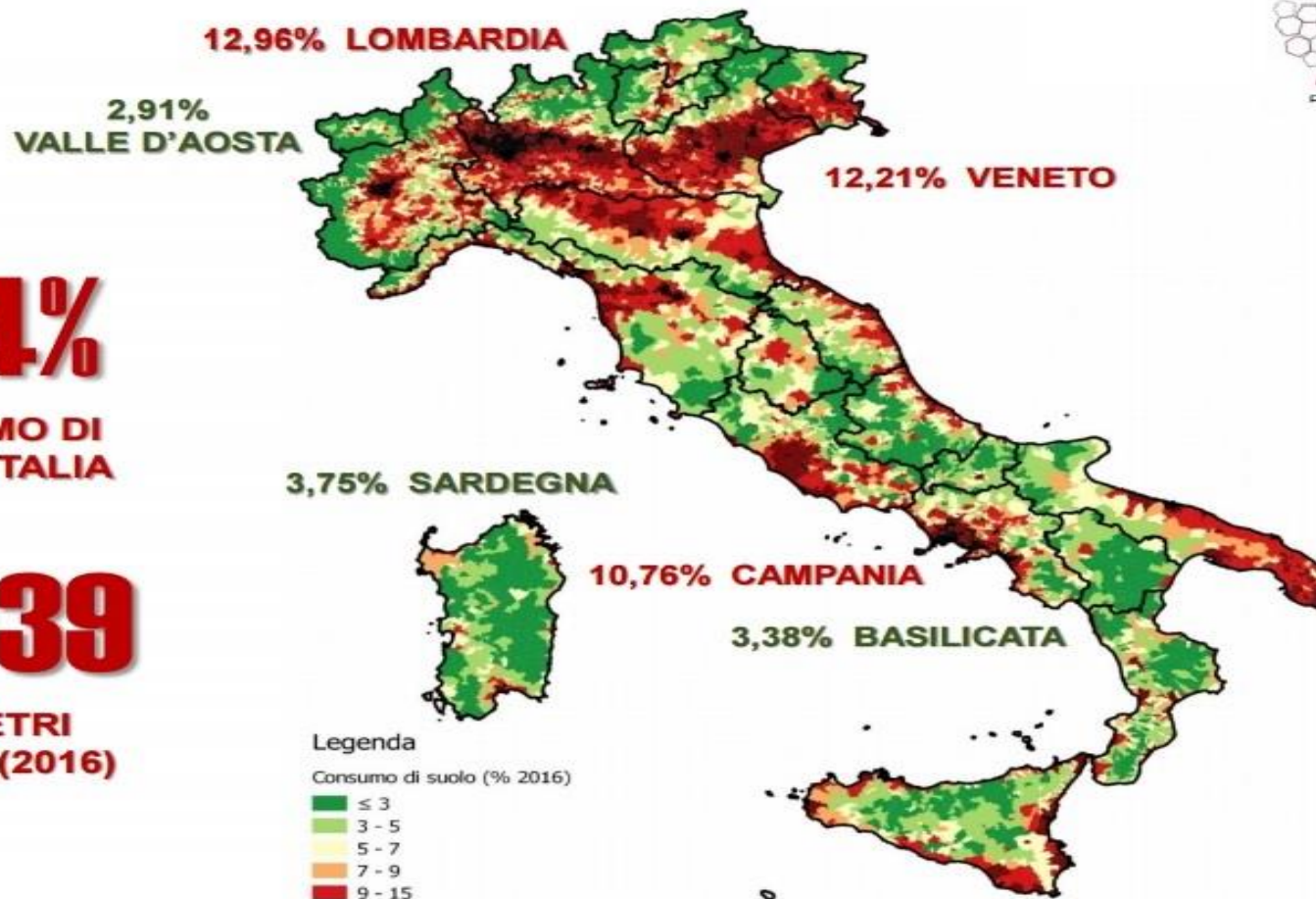


**7,64%**

**IL CONSUMO DI  
SUOLO IN ITALIA**

**23.039**

**CHILOMETRI  
QUADRATI (2016)**



# Al lavoro! Gli obiettivi UN dell'Agenda 2030





NOW

THIS

“

We have a choice. Collective action or collective suicide. It is in our hands.

UN SECRETARY-GENERAL ANTÓNIO GUTERRES  
JULY 18, 2022

“ The Guardian Pacific Press / LightRocket via Getty Images