

**Acqua: risorsa chiave per il rilancio sostenibile del Paese**



## PRESENTAZIONE DI LUCA MERCALLI

Evento Phygital **#ValoreAcqua**  
Martedì 23 marzo 2021

MAIN PARTNER



PARTNER



Life Is On



JUNIOR PARTNER



# Clima e acqua, prepararsi in tempo

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



## Environment

This article is more than 2 months old

# Humanity is waging war on nature, says UN secretary general

António Guterres lists human-inflicted wounds on natural world in stark message

- World is 'doubling down' on fossil fuels despite climate crisis - UN report

**Fiona Harvey**  
Environment correspondent

Wed 2 Dec 2020  
14.24 GMT



3093



Exclusive features for you, independent journalism for everyone

Become a digital subscriber now →

50%  
off for three months

The Guardian

### most viewed



Donald Trump takes up a post-presidency hobby: revenge



Live Coronavirus live news: international travel 'biggest factor in death rate'; German doctors help hardhit Portugal



## The age of extinction Environment

# Top scientists warn of 'ghastly future of mass extinction' and climate disruption

Sobering new report says world is failing to grasp the extent of threats posed by biodiversity loss and the climate crisis

The age of extinction is supported by

About this content

**Phoebe Weston**

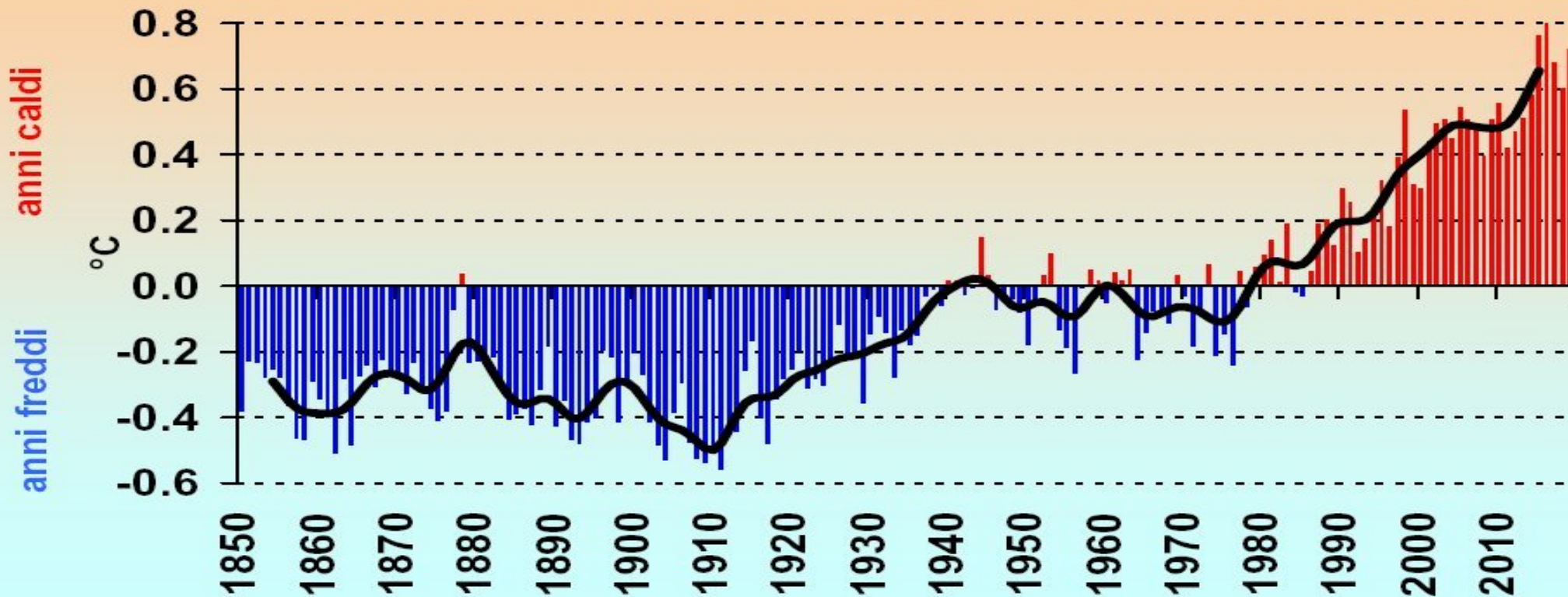
@phoeb0

Wed 13 Jan 2021 05.01 GMT



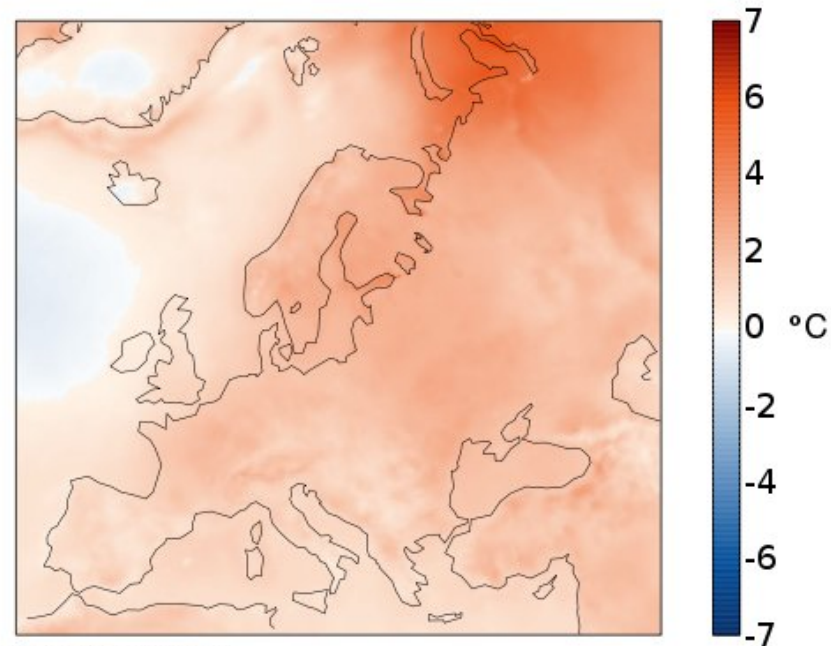
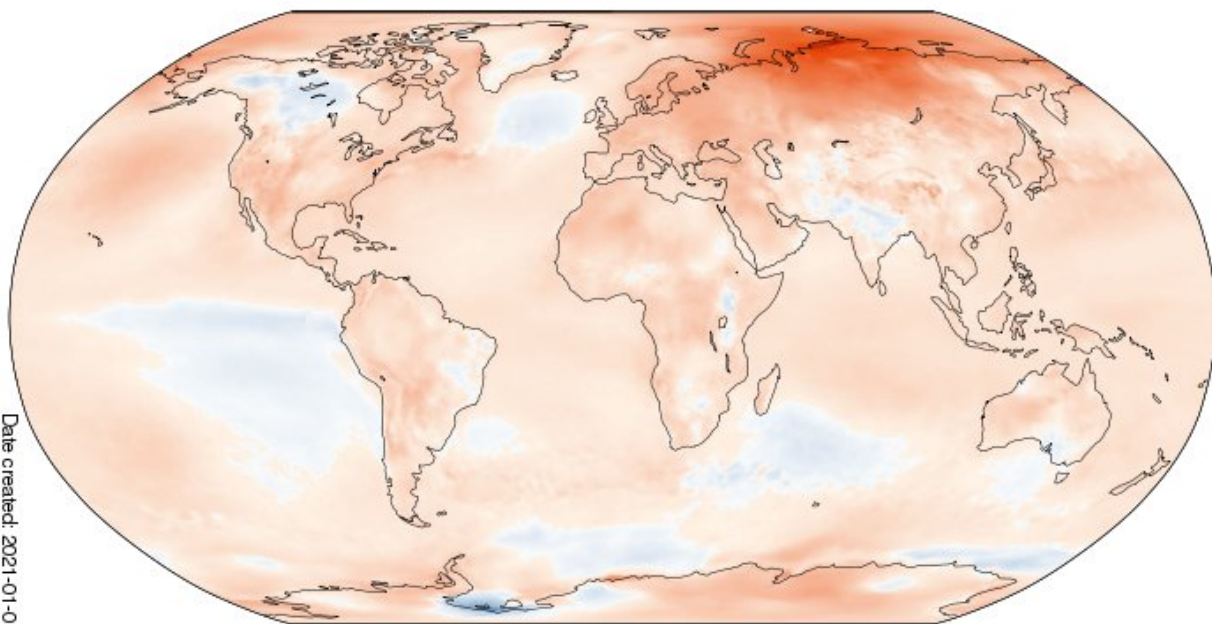
# Temperatura media globale: +1°C in più nell'ultimo secolo

Anomalie termiche globali 1850-2019  
(rispetto a media trentennio 1961-90)  
*serie MetOffice - Hadley Center*



# 2020 anno più caldo della storia delle osservazioni meteo globali

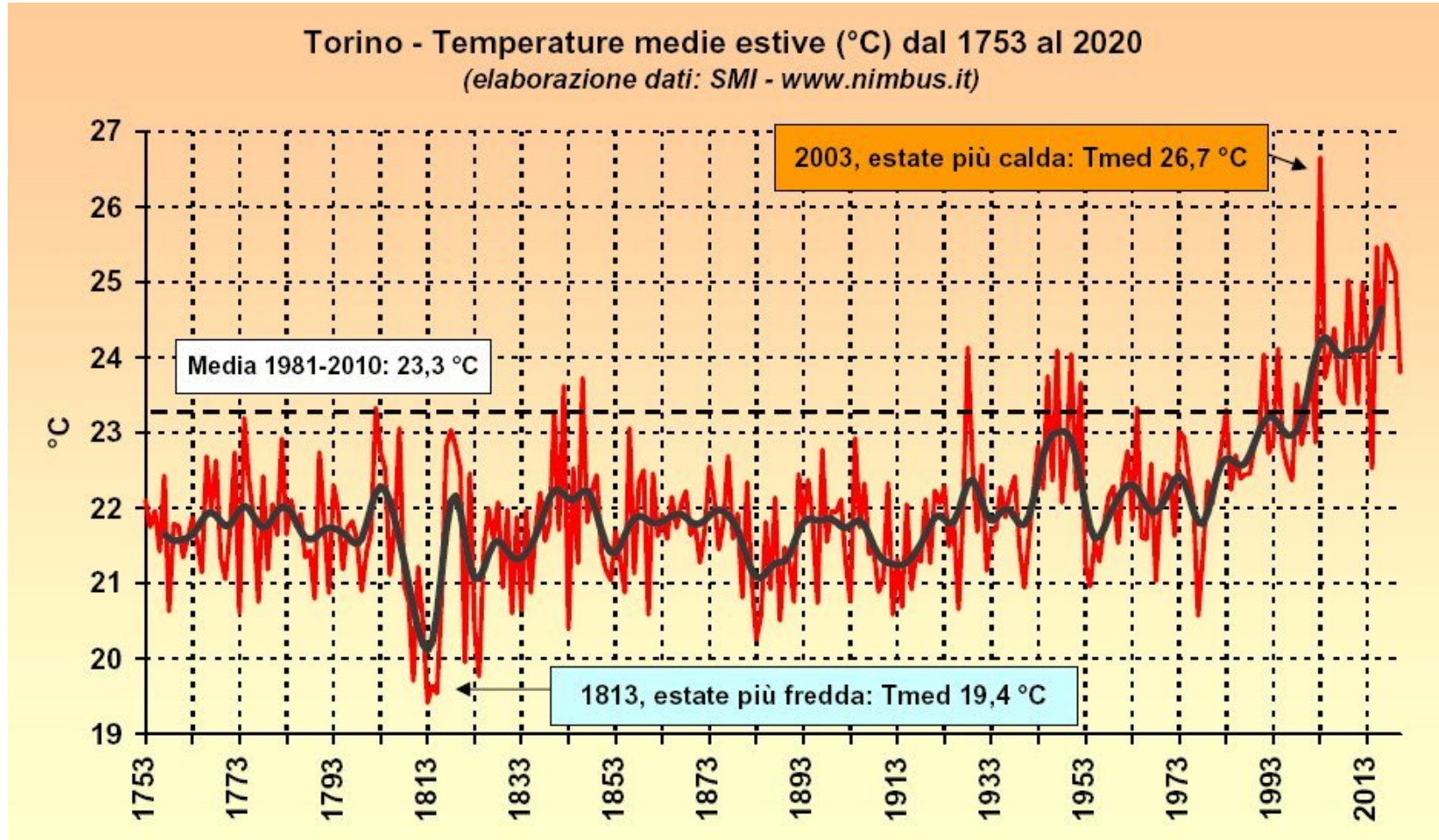
Surface air temperature anomaly for January 2020 to December 2020



(Data: ERA5. Reference period: 1981-2010. Credit: C3S/ECMWF)



Temperature estive in aumento, maggiore utilizzo acqua in agricoltura, energia, usi civili







**1897**  
(f. Druetti)



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



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

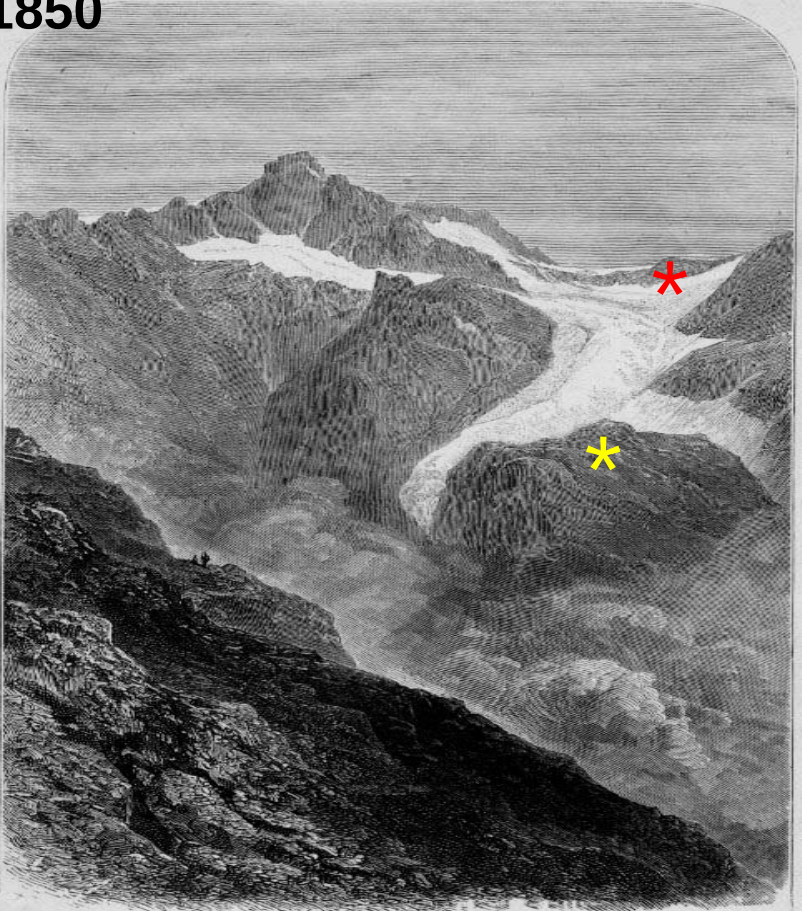
## **Ghiacciaio Pré de Bar (Monte Bianco):**

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

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



1850



LA TOUR DU GRAND ST. PIERRE,  
APRÈS NATURE, PAR M. A. A. REILLY.

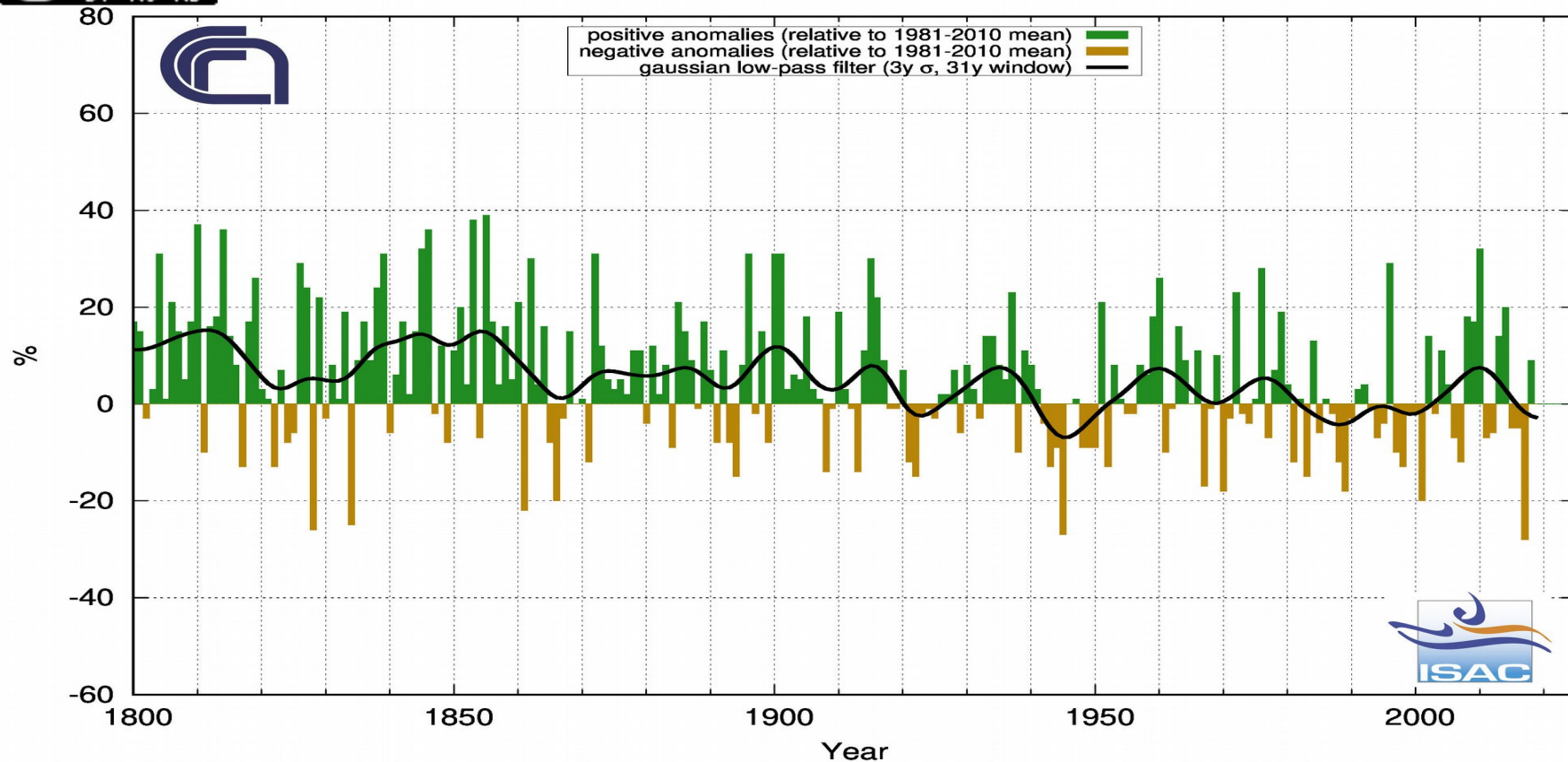
2017



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



## ANNUAL PRECIPITATION

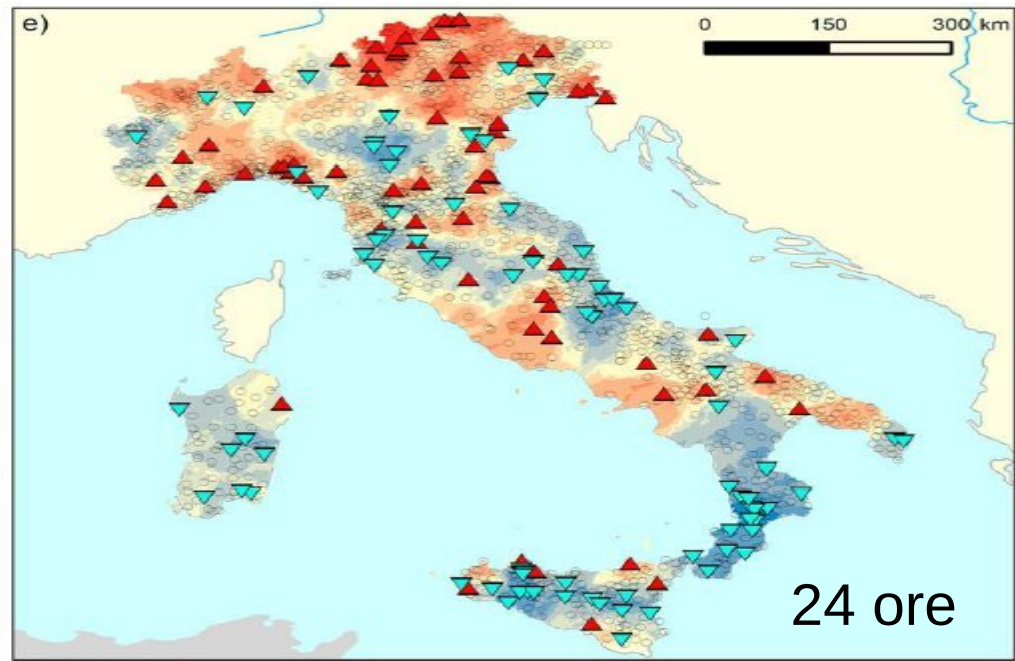
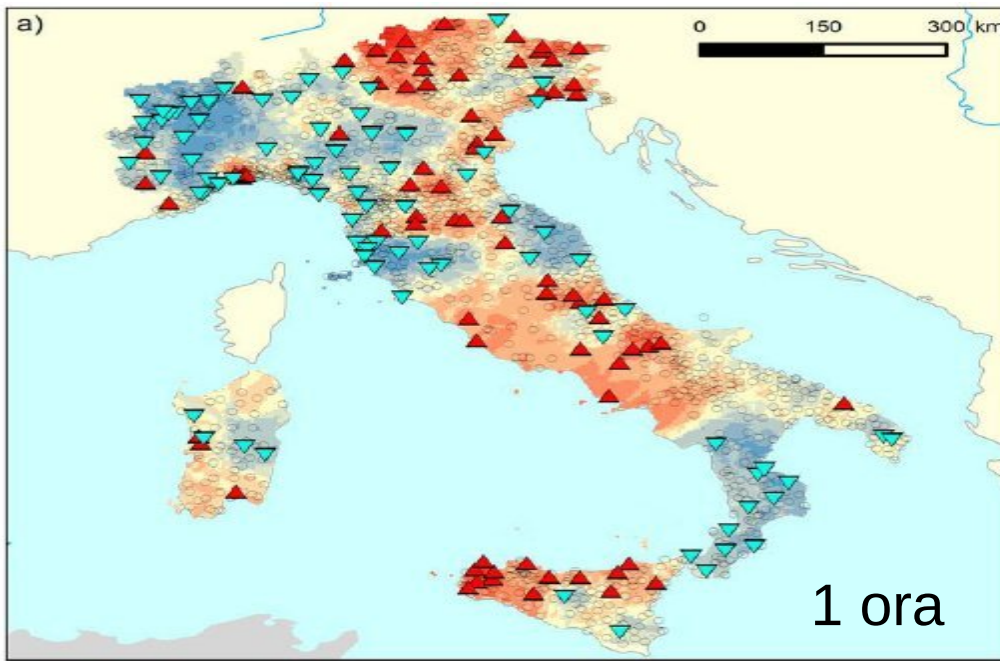


Precipitazioni annue in Italia (1800-2019): tendenze per ora poco evidenti, solo lieve calo rispetto all'Ottocento



# Siccità 2017





Decreasing significant trend ▼ Increasing significant trend ▲ Not significant trend (5%) ○

Tratto da: Libertino et al., 2019 - *Evidence for Increasing Rainfall Extremes Remains Elusive at Large Spatial Scales: The Case of Italy*. *Geophysical Research Letters*, 46.

### **Intensità degli episodi piovosi (1915-2015):**

**tendenze a lungo termine ancora variegata a livello nazionale,  
ma probabili primi effetti del riscaldamento globale  
sulla severità e frequenza degli eventi (più energia e vapore dal mare caldo).**





*Limone Piemonte, impianto di risalita sepolto da una colata detritica (fonte: localteam.it).*

**2-3 ottobre, alluvione disastrosa sulle Alpi Marittime (tempesta Alex): nubifragi eccezionali in risalita dal mare troppo caldo**



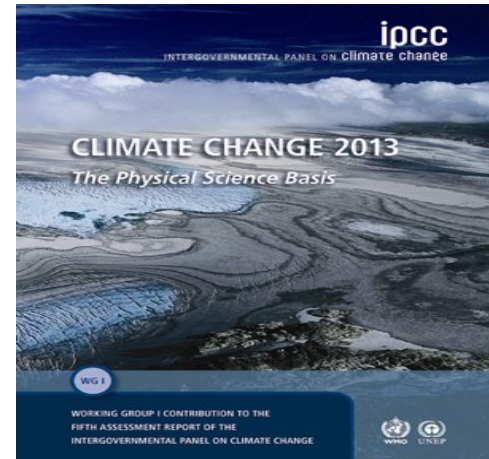
# Nord-Est, Emilia e regioni tirreniche, 4-6 dicembre 2020



*Rotta dell'argine destro  
del F. Panaro  
a Castelfranco Emilia  
(f. W. Morandi)*

Precipitazione massima  
786 mm a Barcis (Dolomiti  
friulane), quattro volte  
la media mensile.  
Ma piene fluviali più  
appariscenti nel Modenese per  
200-300 mm di pioggia caduti in  
Appennino e fusione nivale.



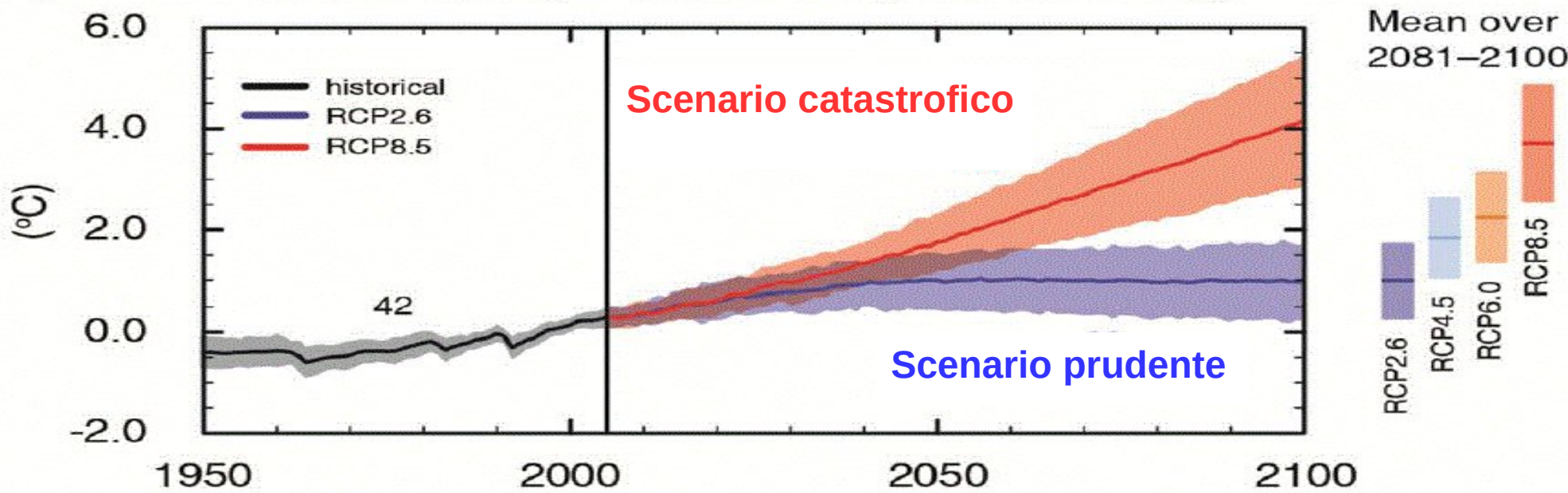


# Scenari 5° rapporto IPCC (AR5 2013):

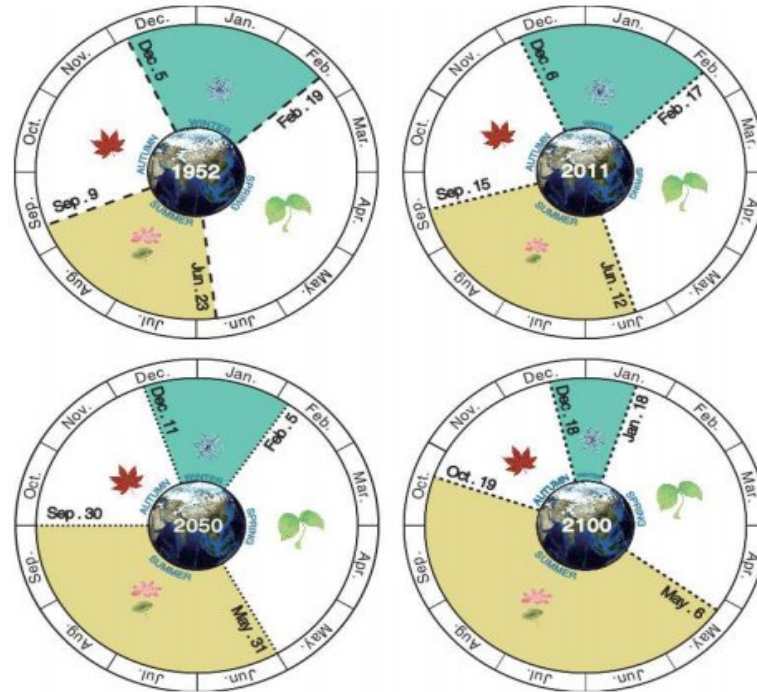
**+2°C** al 2100 se si applica **Accordo Parigi 2015** (linea azzurra), o fino a **+5°C** in più con business-as-usual (linea rossa)

(a)

Global average surface temperature change



4, Figures S7-8), indicating that even if seasons are to continue at the current rate observed, a longer summer and shorter winter will become the new normal in the twenty-first century.



**Inverni sempre più brevi, estati sempre più lunghe (fino a 6 mesi nel 2100)**

**Figure 5. Onsets and lengths of the four seasons in 1952, 2011, 2050 and 2100.** The top row is from HadGHCND, and the bottom row is from RCP8.5.

### Changing Lengths of the Four Seasons by Global Warming

Jiamin Wang Yuping Guan Lixin Wu Xiaodan Guan Wenju Cai Jianping Huang Wenjie Dong Banglin Zhang First published: 19 February 2021

<https://doi.org/10.1029/2020GL091753> Geophysical Research Letters

**Over the period of 1952–2011, the length of summer increased from 78 to 95 days and that of spring, autumn and winter decreased from 124 to 115, 87 to 82 and 76 to 73 days, respectively. In addition, summer is projected to last nearly half a year, but winter less than two months by 2100.**



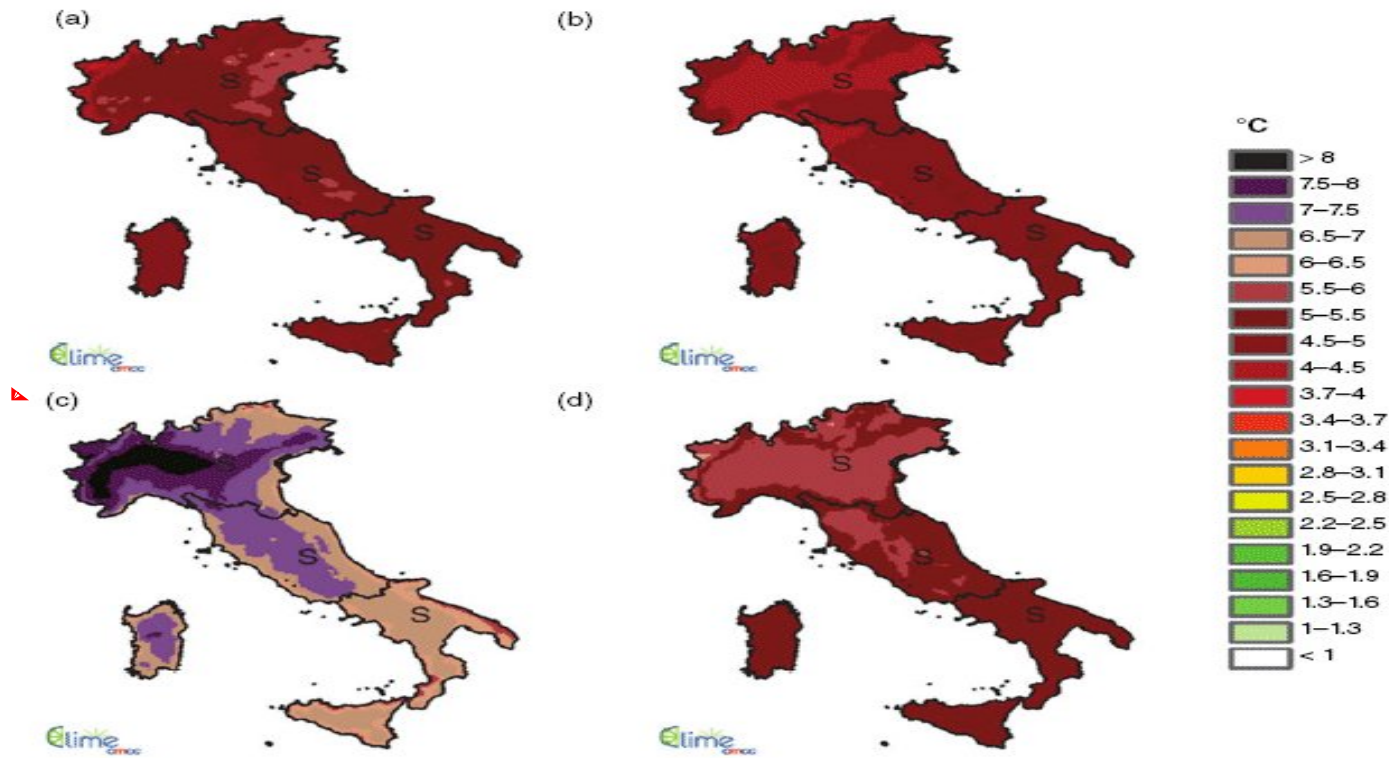
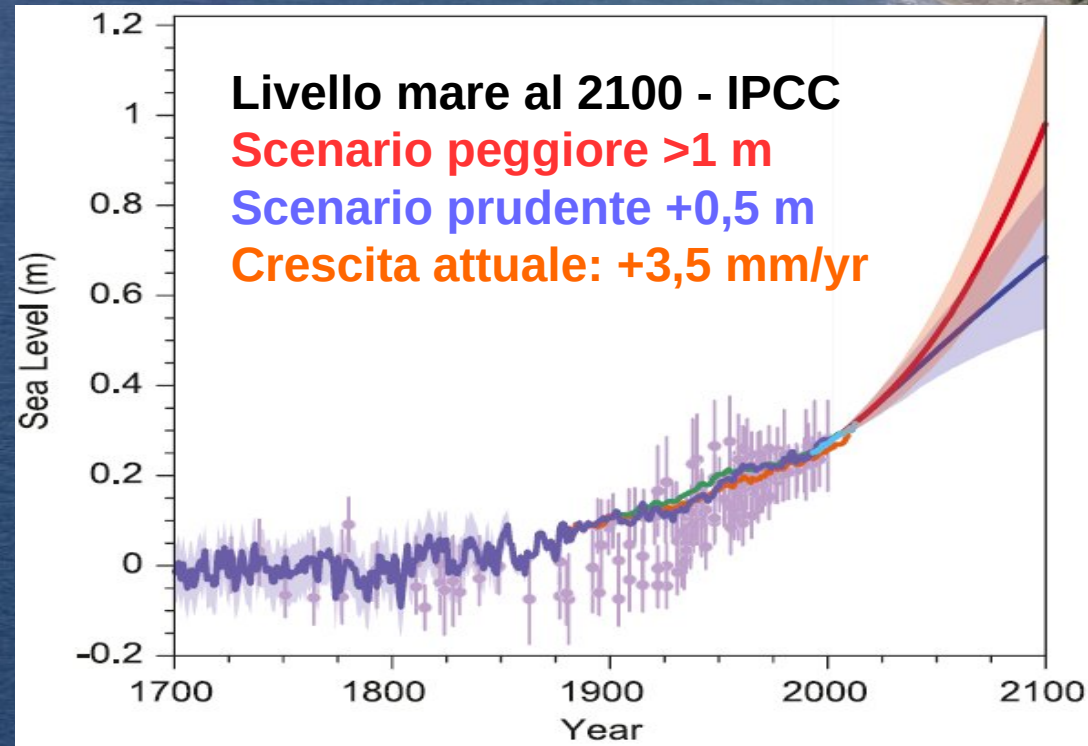


Figure 9. Temperature climate projections, RCP8.5: seasonal differences (°C), between the average value over 2071–2100 and 1971–2000 for (a) DJF, (b) MAM, (c) JJA and (d) SON (S, significant; NS, not significant).

**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.

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





# http://climate-adapt.eea.europa.eu/



Climate-ADAPT

## European Climate Adaptation Platform

Sign In | Glossary | Contact | Sitemap | Legal notice | About | Help

Search the website

[Home](#) | [Adaptation information](#) | [EU Adaptation Policy](#) | [Countries, regions, cities](#) | [Tools](#) | [Links](#) | [Search the database](#) | [Newsletter](#)



### About Climate Change Adaptation in Europe

The European Climate Adaptation Platform (Climate-ADAPT) aims to support Europe in adapting to [climate change](#). It is an initiative of the European Commission and helps users to access and share information on:

- Expected climate change in Europe
- Current and future [vulnerability](#) of regions and sectors
- National and transnational adaptation strategies
- [Adaptation](#) case studies and potential adaptation options
- Tools that support adaptation planning

[→ Read more](#)

### SEARCH THE CLIMATE ADAPTATION DATABASE

**Search Term(s):**

**Sectors:**

**Country:**

[SEARCH](#)

[Advanced Search](#)

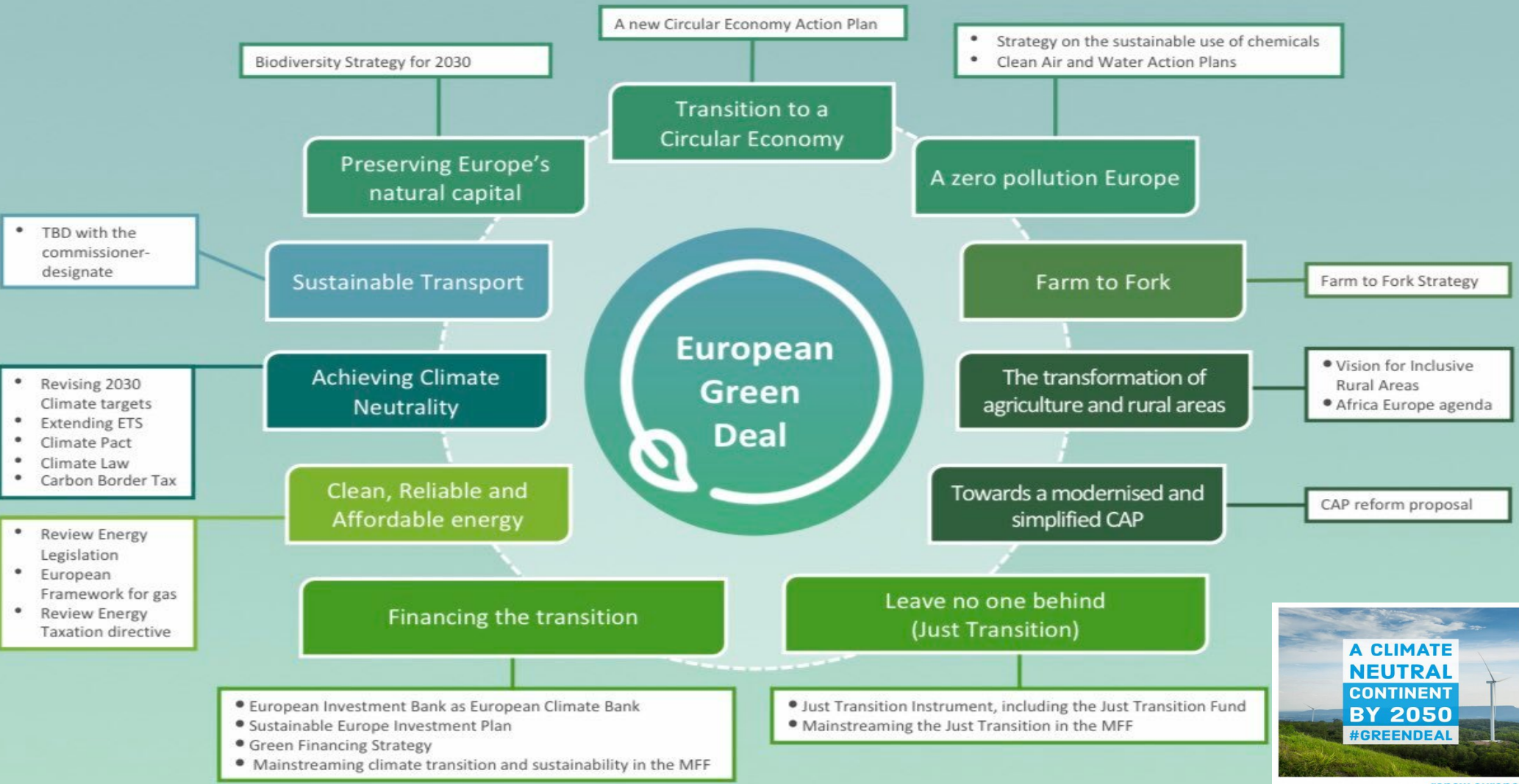
Adaptation support tool

New to adaptation?  
Use the Adaptation Support Tool

What are European countries doing?

Find case studies on adaptation in Europe

Share your information





# 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.”**