

**National Academy of Sciences Workshop April 10-11, 2024**

**Evolving Technological, Legal and Social Solutions to  
Counter Disinformation in Social Media**

**Panel on *Educational interventions* April 10, 2024  
(3:30 – 5:05 pm ET = 16:30 – 18:05 Argentina time)**

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**Researcher at the Institute of Physics Rosario, CONICET (National Council for Scientific  
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**Honorary Professor at the National University of Rosario**

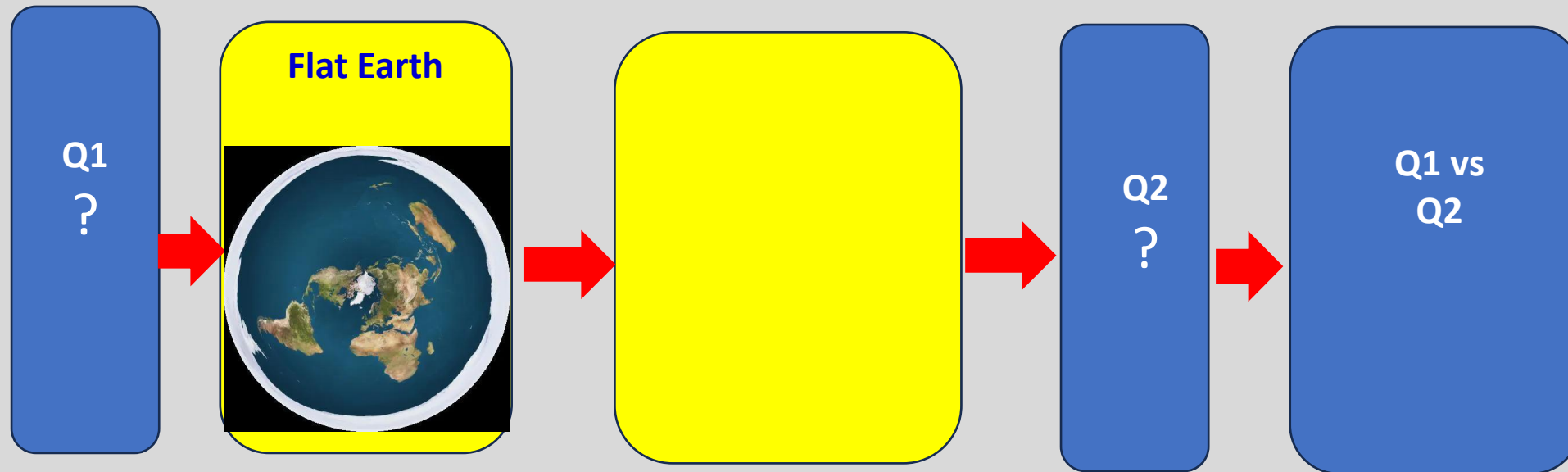
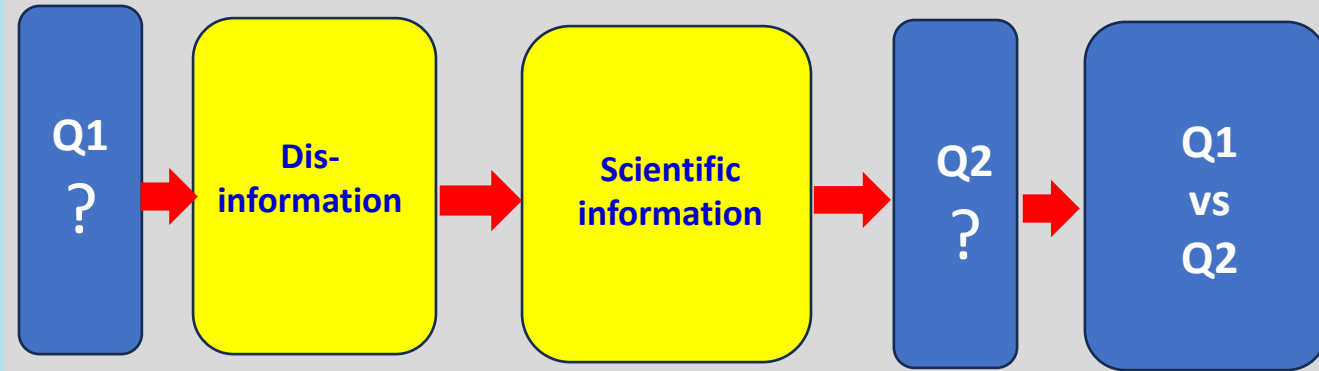
**Rosario, Argentina**

# Highlight open questions

Is it possible to test the following proposals?

1. Before developing a real or virtual experiment/demonstration (without and with Scientific information), ask to the students or general public through a *well prepared questionnaire*, which is their level of knowledge of the subject to be analyzed. Do both experiments. Ask for the same questions at the end of the experiment/demonstration. Compare.

Example: Is the Earth flat or (almost) spherical ?

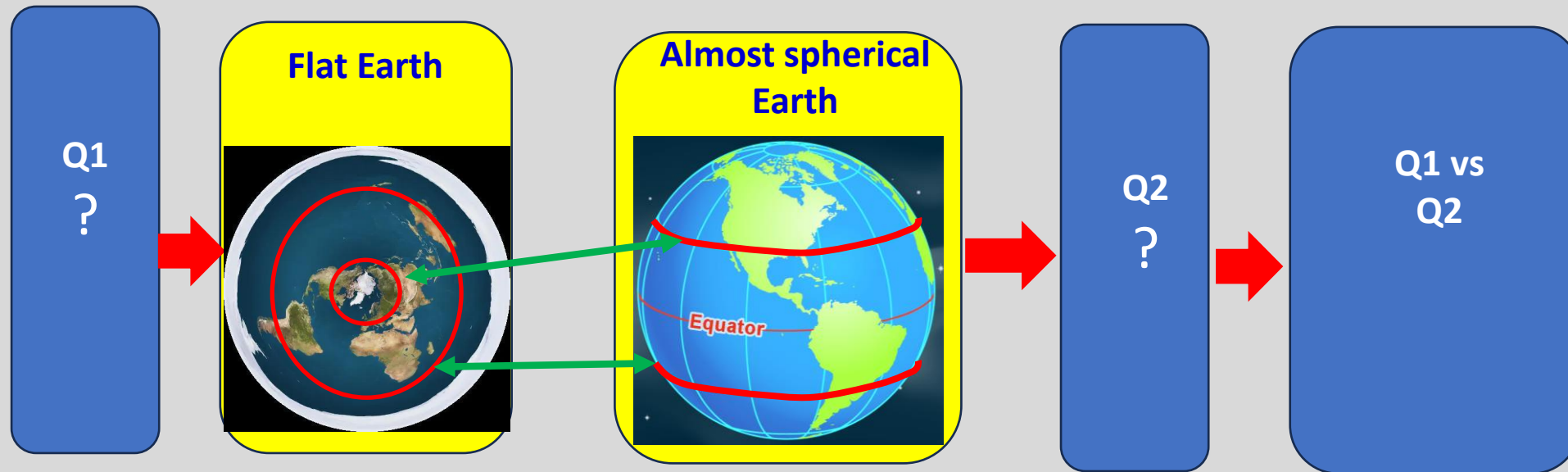
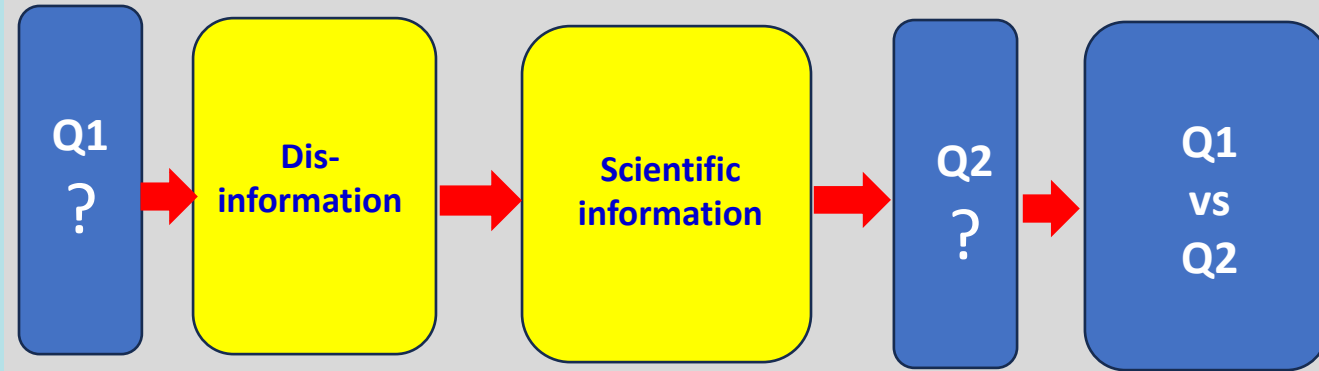


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2. Develop Citizen science projects specifically oriented to counter disinformation. For example:

a) “Disinformation about the level of risk when exposed to different *air contaminants*”.

b) “How disinformation on *lightning* during a severe storm can affect our health and the electronic systems”.



Air pollution health risk

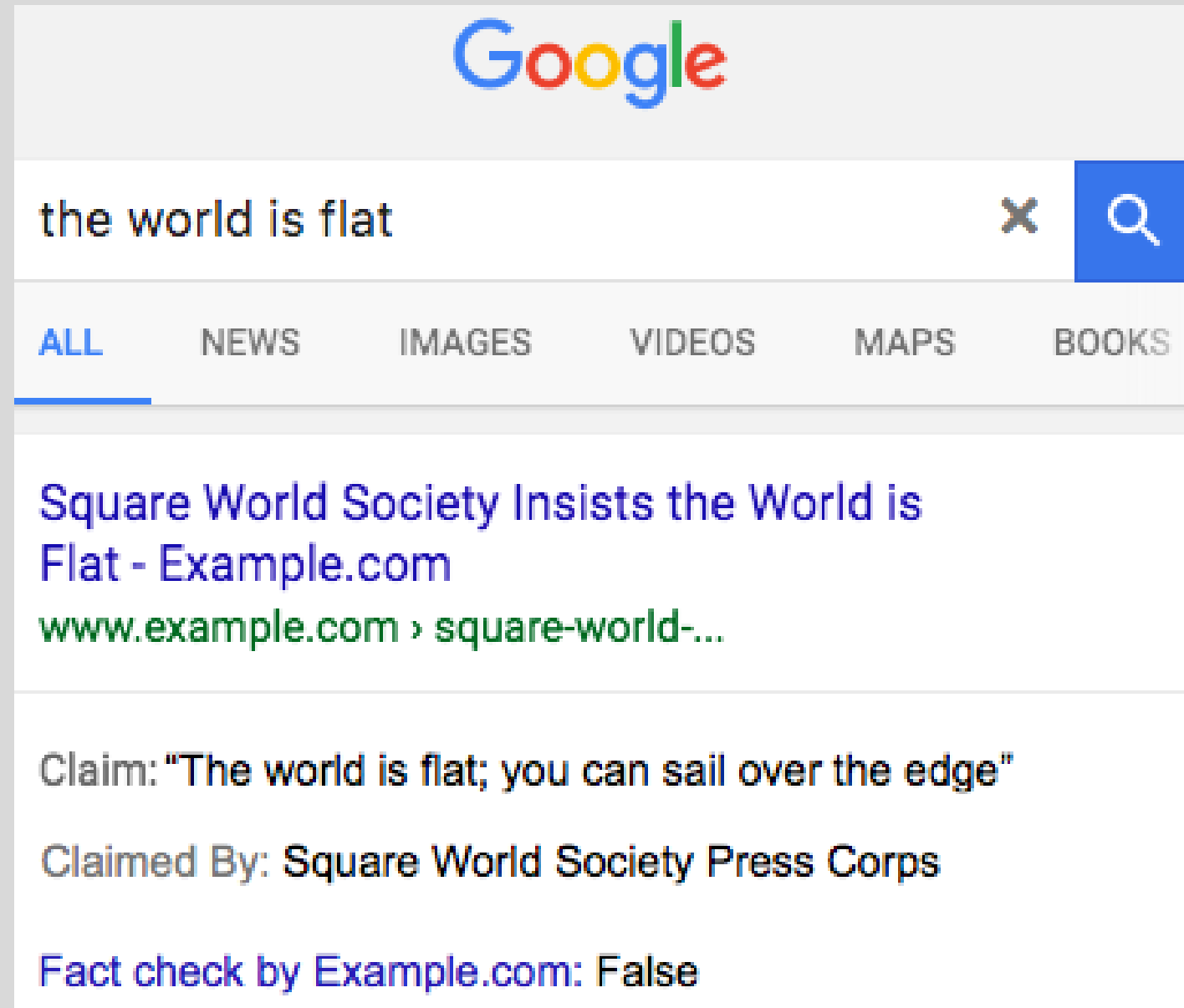


Lightning risk for persons and electronic systems.  
Multiple Lightnings in Athens, Greece

## Highlight open questions

3. To train people (teachers, professors, journalists, general public) how to obtain information *for counter disinformation in the media*. For example, Google proposes to use: *Fact Check Tools*.

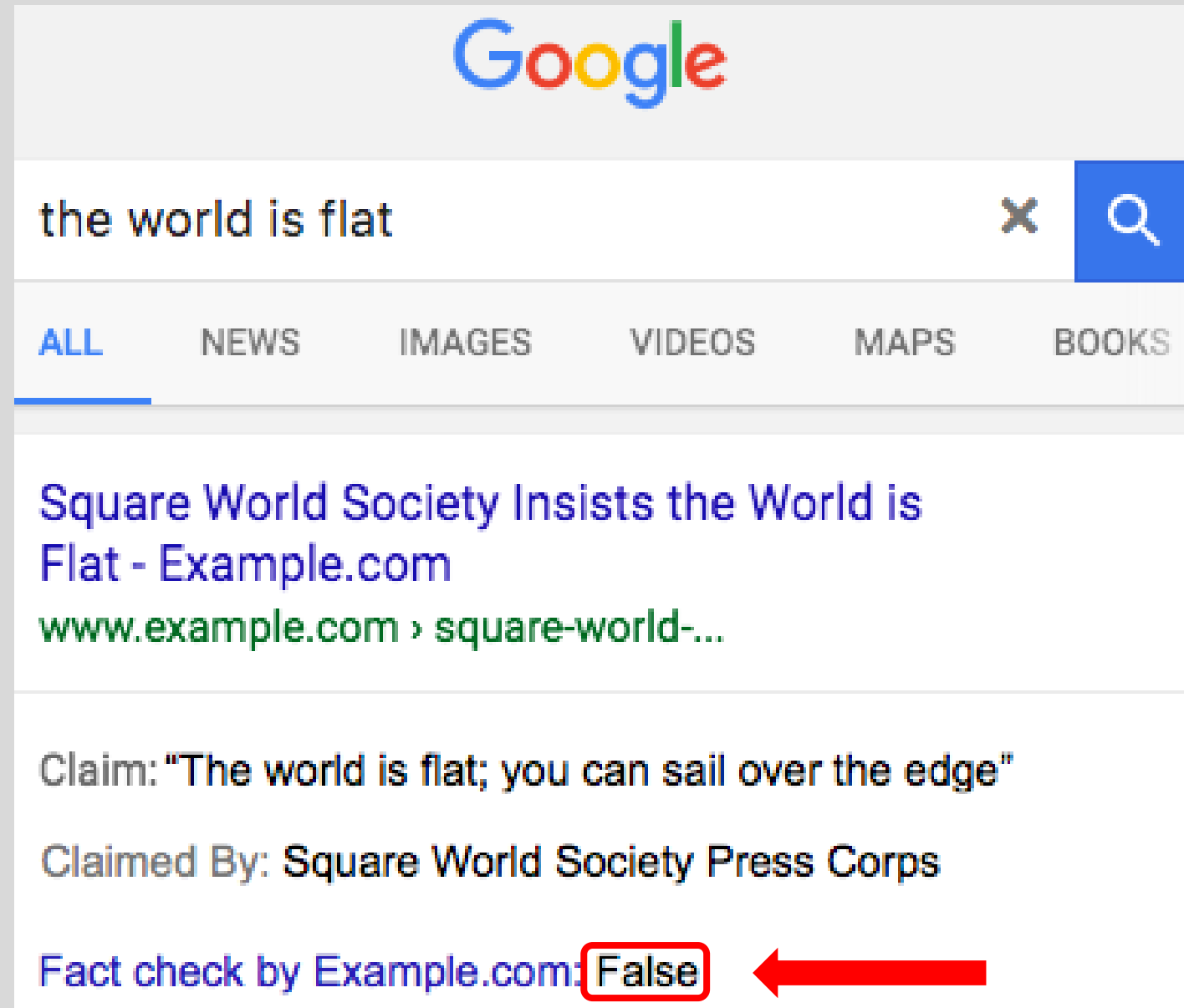
The image shows a particular search on “the world is flat”. →



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Thank you !!  
Muchas gracias !!

# Appendix



# Complex context of Argentina, a country with Great National Personalities, but also with high percentage of poverty



Pope Francis



Messi – Inter/Miami. Many times  
World Best Soccer player



Galperin - CEO “Mercado  
Libre”, similar to Amazon  
in Latinamerica/Caribe

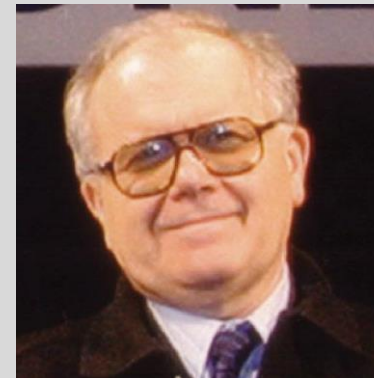


Houssay-Nobel Prize.  
Founder of CONICET

## Idea for countering disinformation in social media in a complex contest:

*Develop **real** and **virtual** experiments and demonstrations in formal education (School, etc) and non-formal education (Science museum, Internet, etc) to show: **first** the incorrect (fake) news and **then** contrast with the correct (scientifically proved) news.*

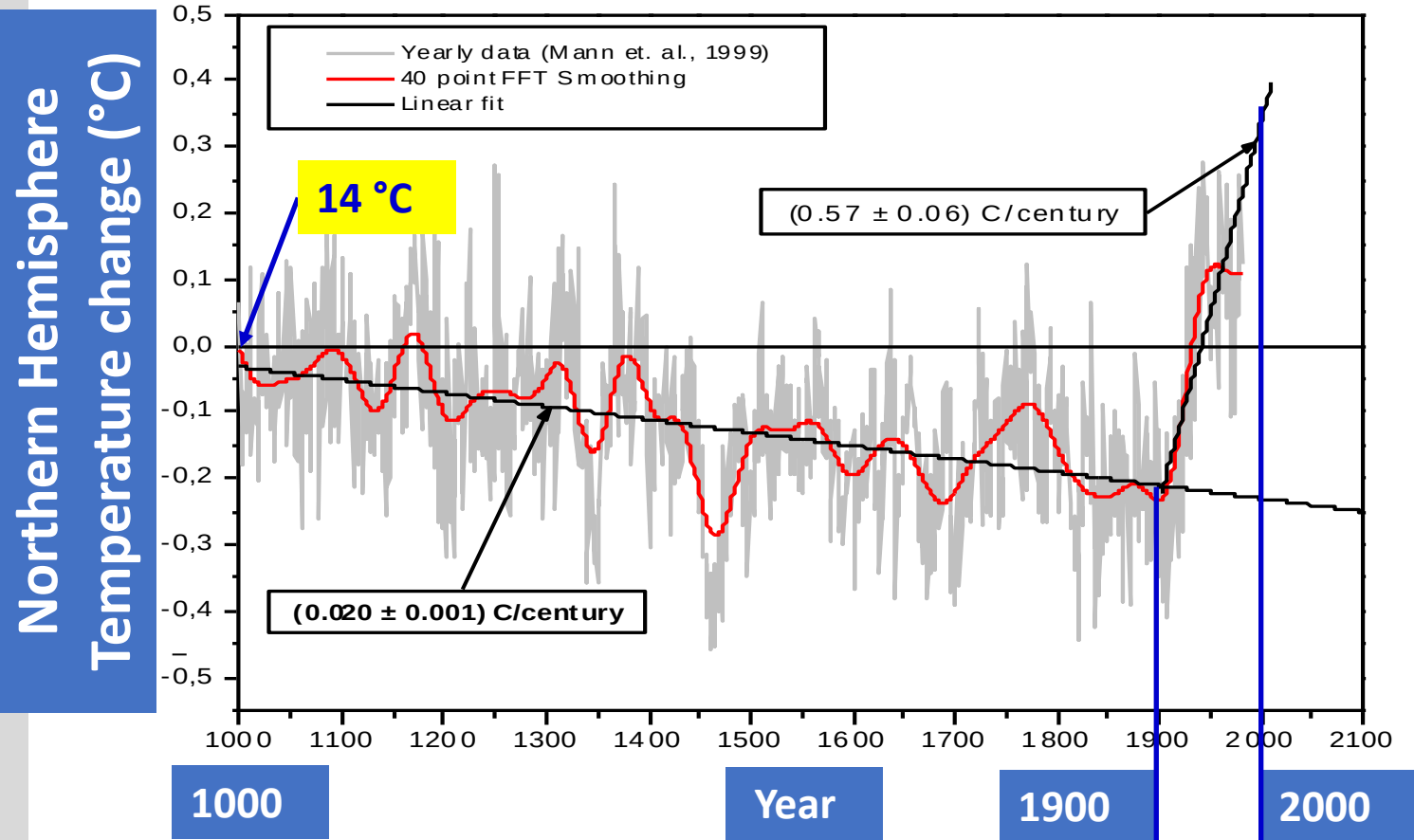
Poverty from about  
5.7 % in 1970s to  
more than 40% at  
present. Source:  
Telam



Varotto - Ex Director of  
CONAE (Argentina “Little  
NASA”) and Founder of  
INVAP high technology  
industry

# Change in Northern Hemisphere ambient temperature in the last millennium\*

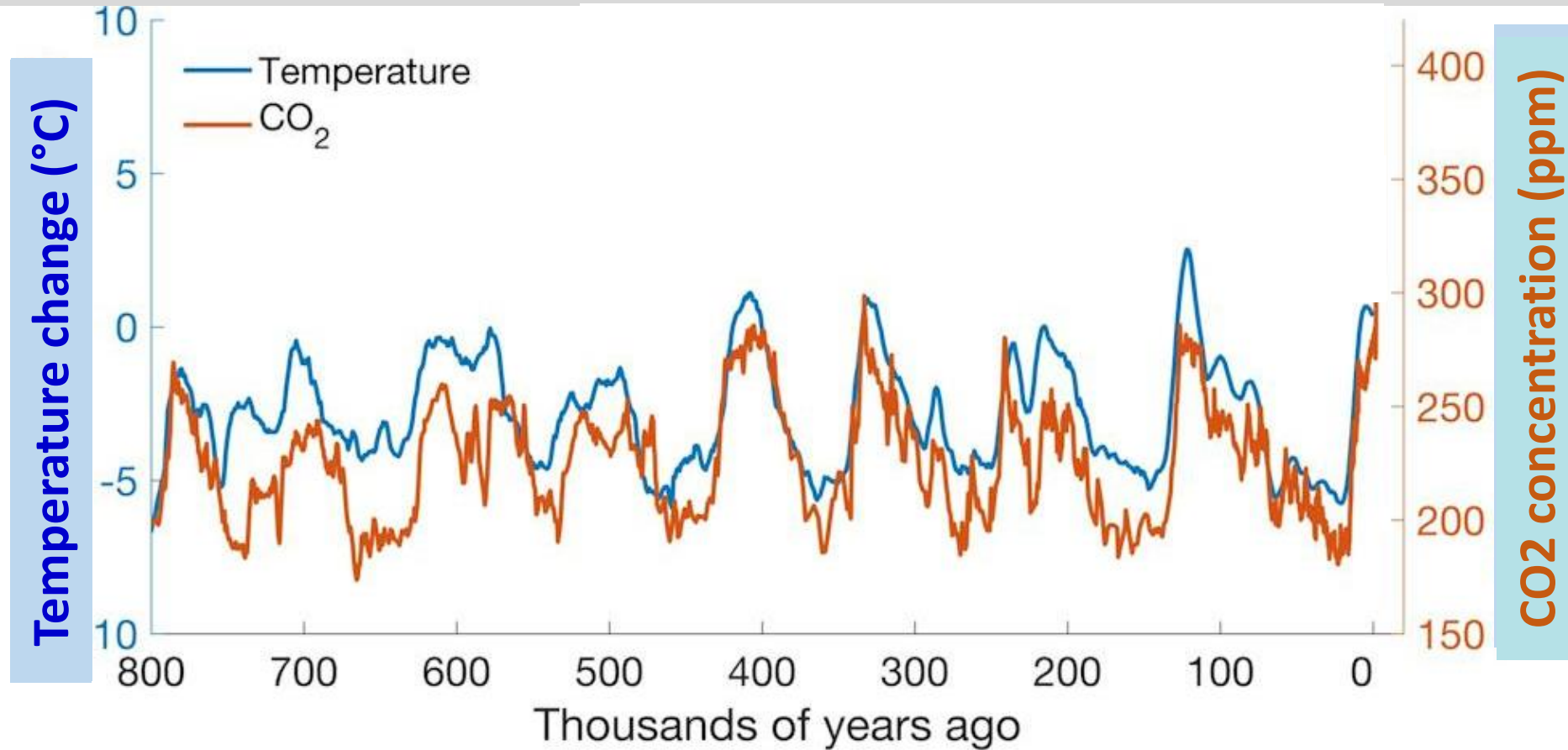
Temperature change in the Northern Hemisphere, with respect to a value of about 14 °C. See the significant change in the slope around 1900 decade, from a negative trend of -0.02 °C per decade to a positive one of 0.57 °C per decade.



\* Statistical treatment with the Fast Fourier Transform (FFT) technique made by Piacentini and Mujumdar (2009), from data published by Mann and Jones (1999).

# Cycles in the past world temperature and CO<sub>2</sub> concentration

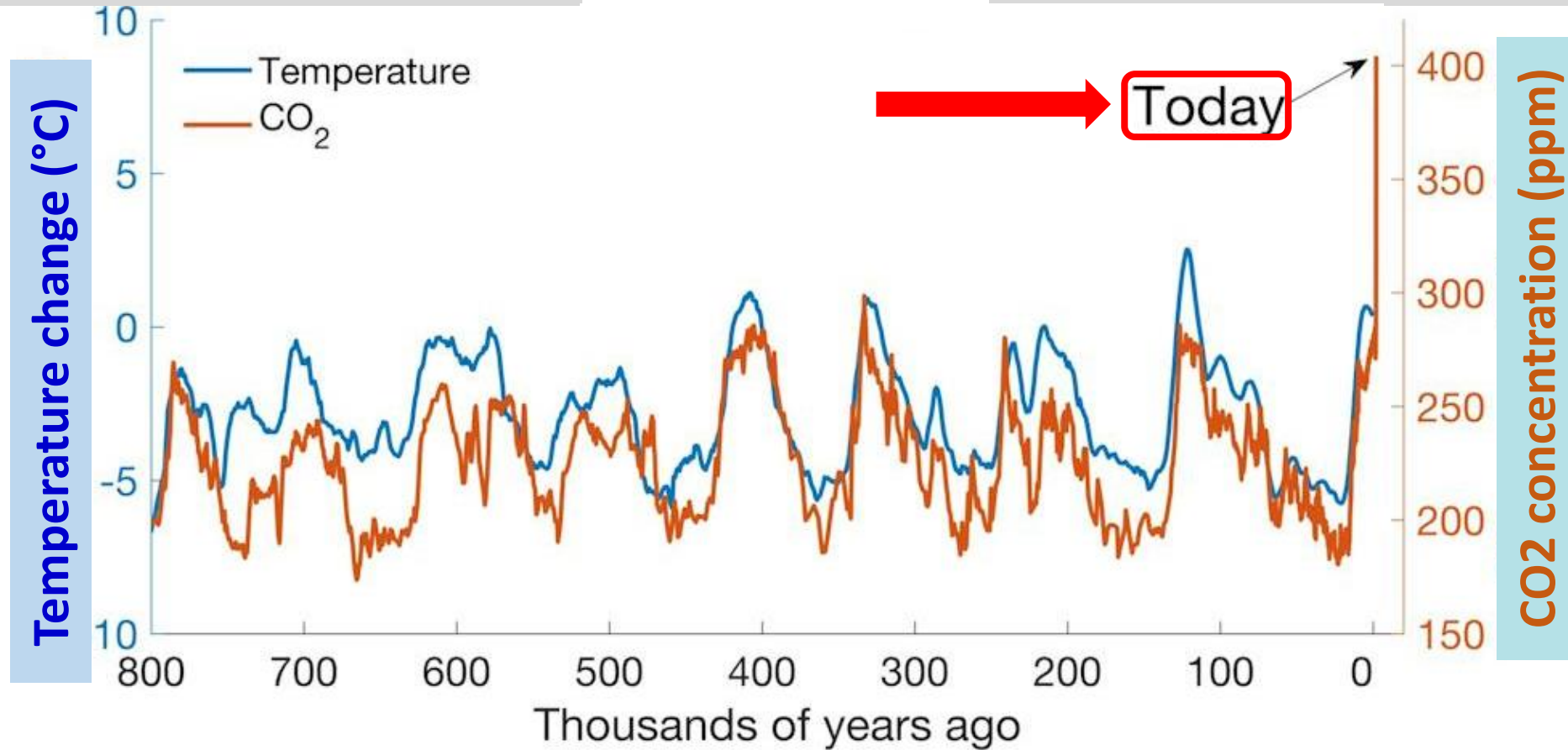
Cycles in global temperature and CO<sub>2</sub> concentration, oscillating in coincidence in the last 800 000 years, up to several decades ago.



@benhenley, @dr\_nerilie

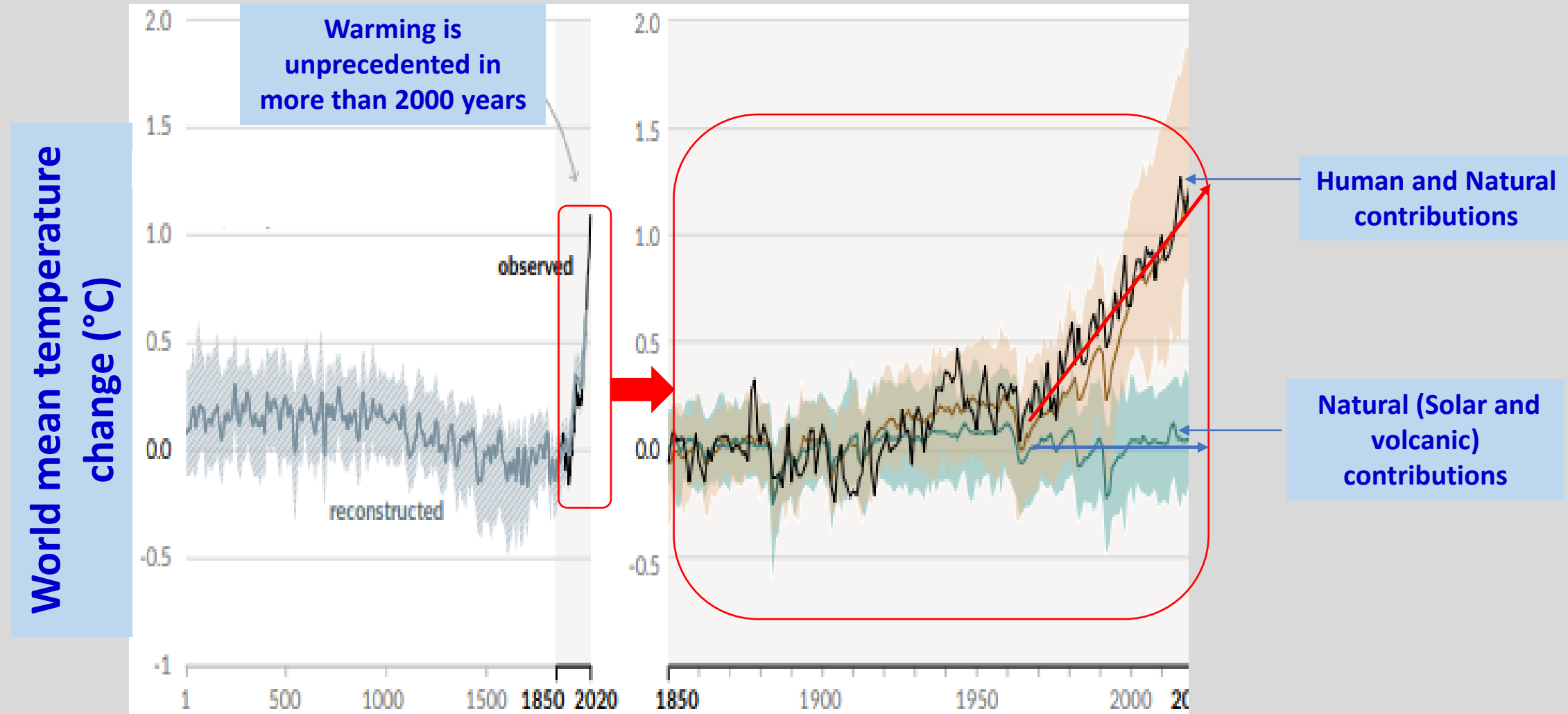
# Cycles in the past world temperature and CO<sub>2</sub> concentration

Cycles in global temperature and CO<sub>2</sub> concentration, oscillating in coincidence in the last 800 000 years, up to several decades ago, *but after this long period of 800 000 years, a significant increase in both variables were scientifically confirmed.*



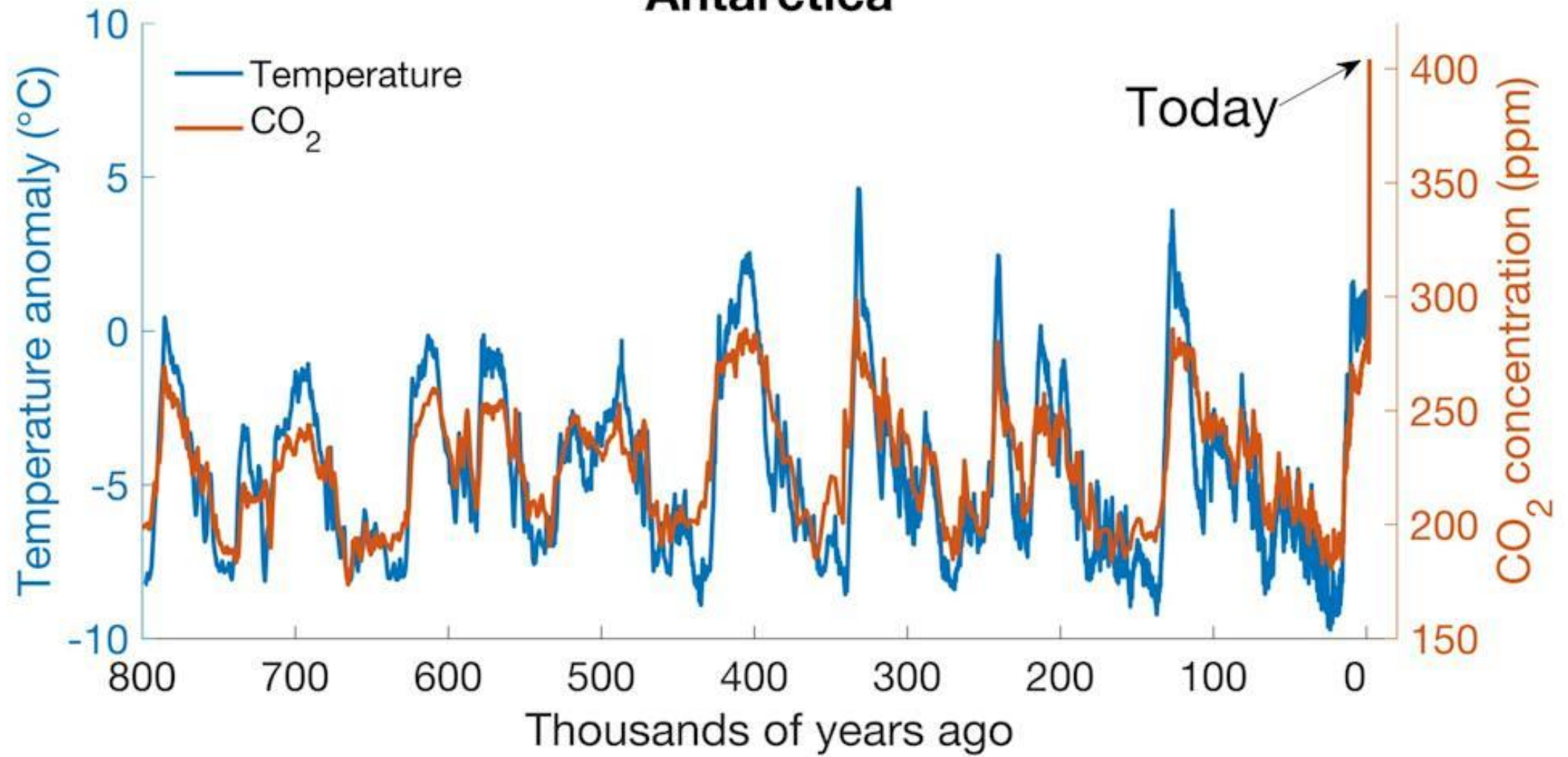
@benhenley, @dr\_nerilie

Global ambient temperature change of more than 1 °C since pre-industrial times (around 1750), mainly in recent decades\*.





## Antarctica



# Example for avoiding disinformation in the media

- A possibility to avoid misinformation when an image is reproduced with Artificial Intelligence (AI) is **To declare the origin of the image (and also) video, internet news, etc.**
- The following **NASA image of the Sun** with the advice that it is an *"Image Instagrammed by nasa"*, was published by the NDTV (New Delhi TV) World News media at:

<https://www.ndtv.com/world-news/nasa-shares-dynamic-pic-of-the-sun-as-we-enter-a-new-orbit-3656122>



Image Instagrammed by nasa