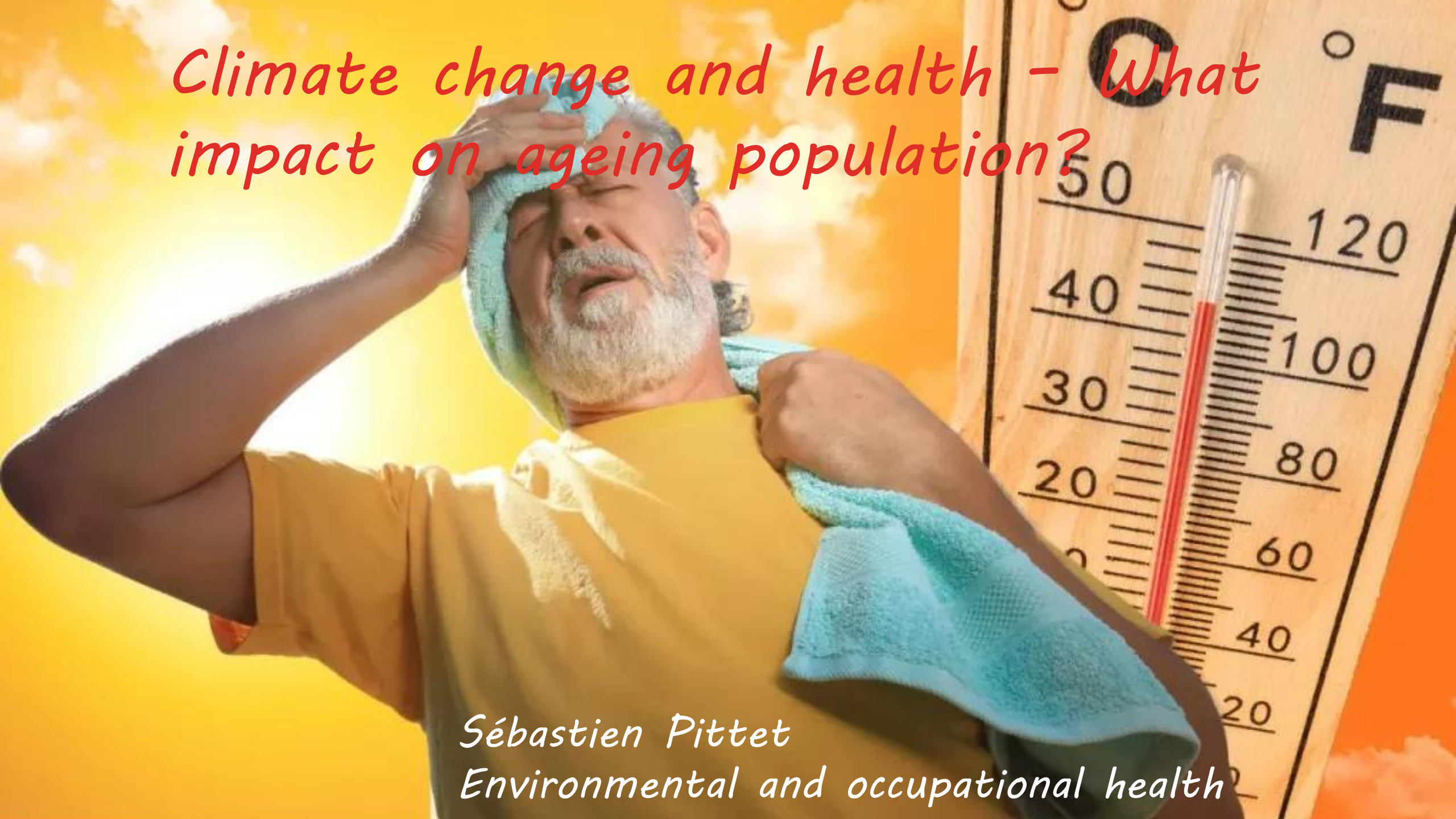
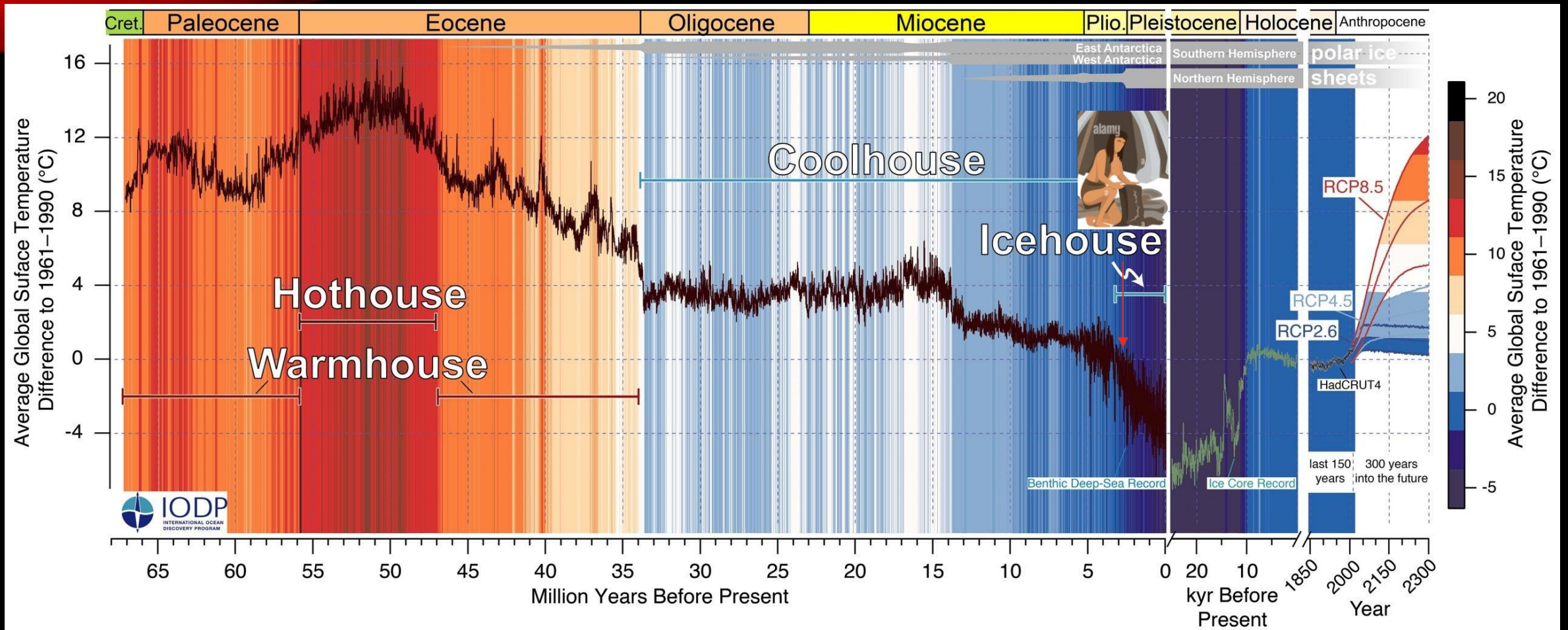


Climate change and health - What impact on ageing population?



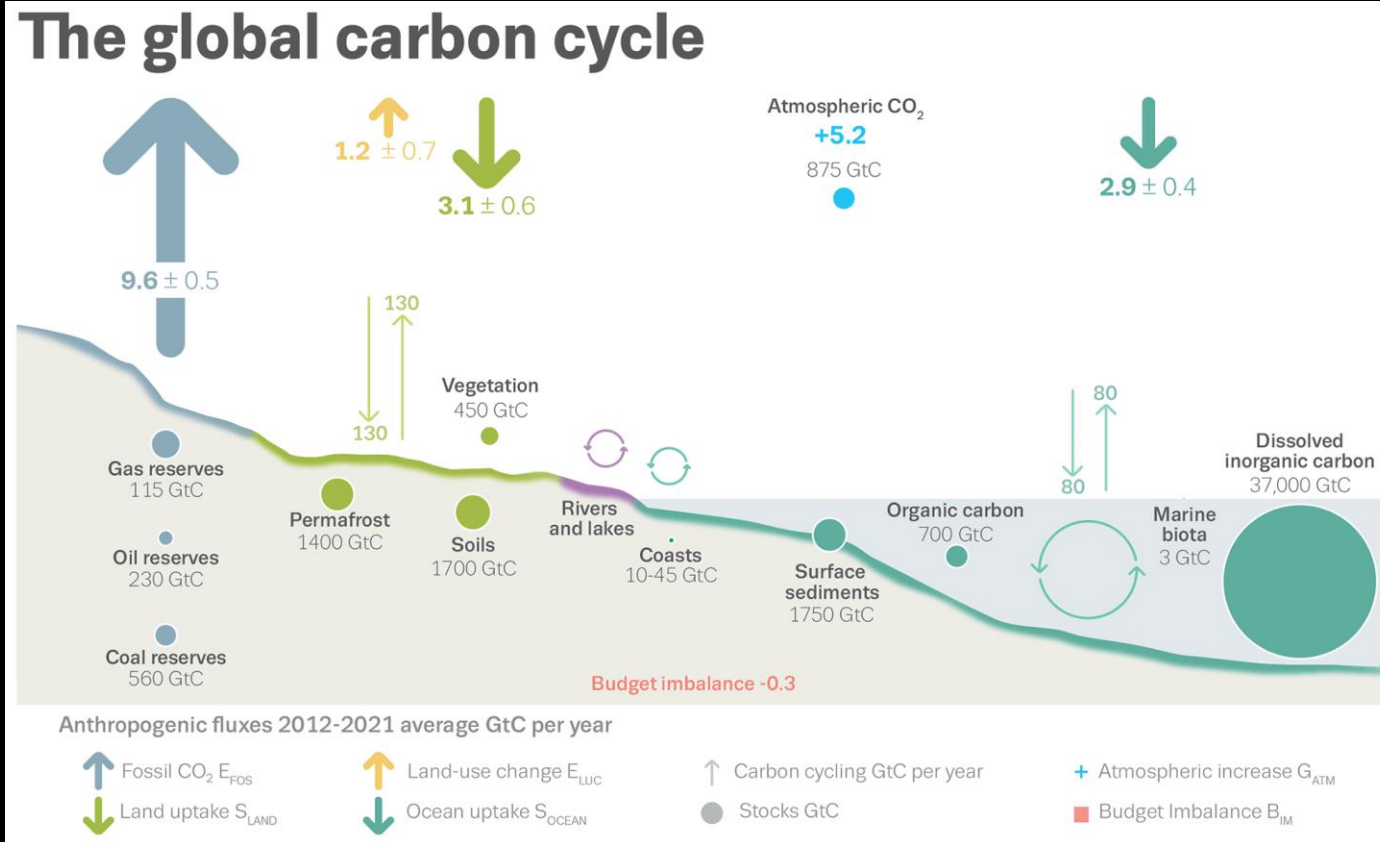
*Sébastien Pittet
Environmental and occupational health*

CLIMATE CHANGE OVER LONG TIME



We will very probably experience soon temperatures that no (prehistorical) human being has ever known!

MAIN PROBLEM: THE DEREGULATION OF THE CARBON CYCLE



Through fossil energies, an enormous amount of carbon is sent into the atmosphere, which deregulates the natural carbon cycle.

IMPORTANCE OF SLCFS (SHORT-LIFE CLIMATE FORCERS)

Global warming mitigation scenarios

Black carbon and methane reduction

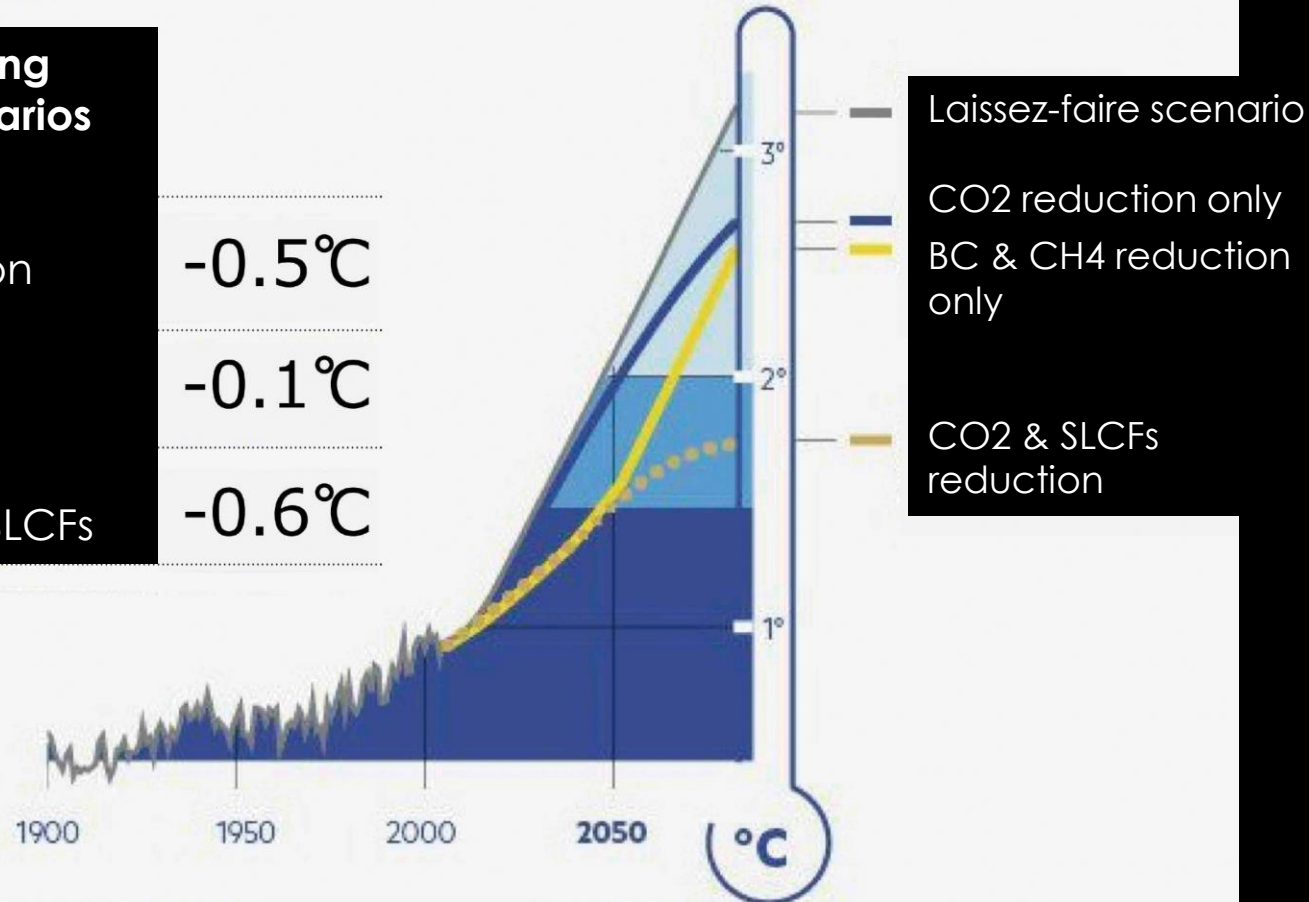
-0.5°C

HFC reduction

-0.1°C

Reduction of aforementioned SLCFs

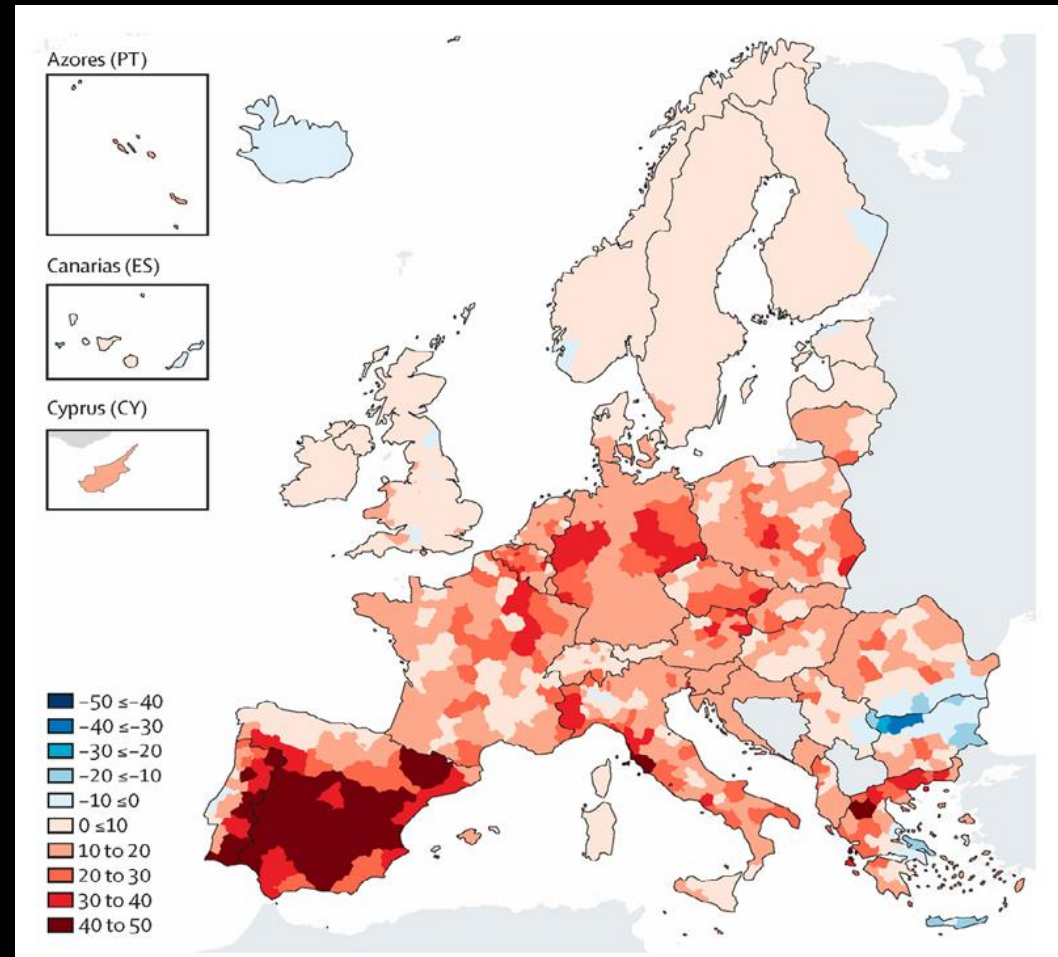
-0.6°C



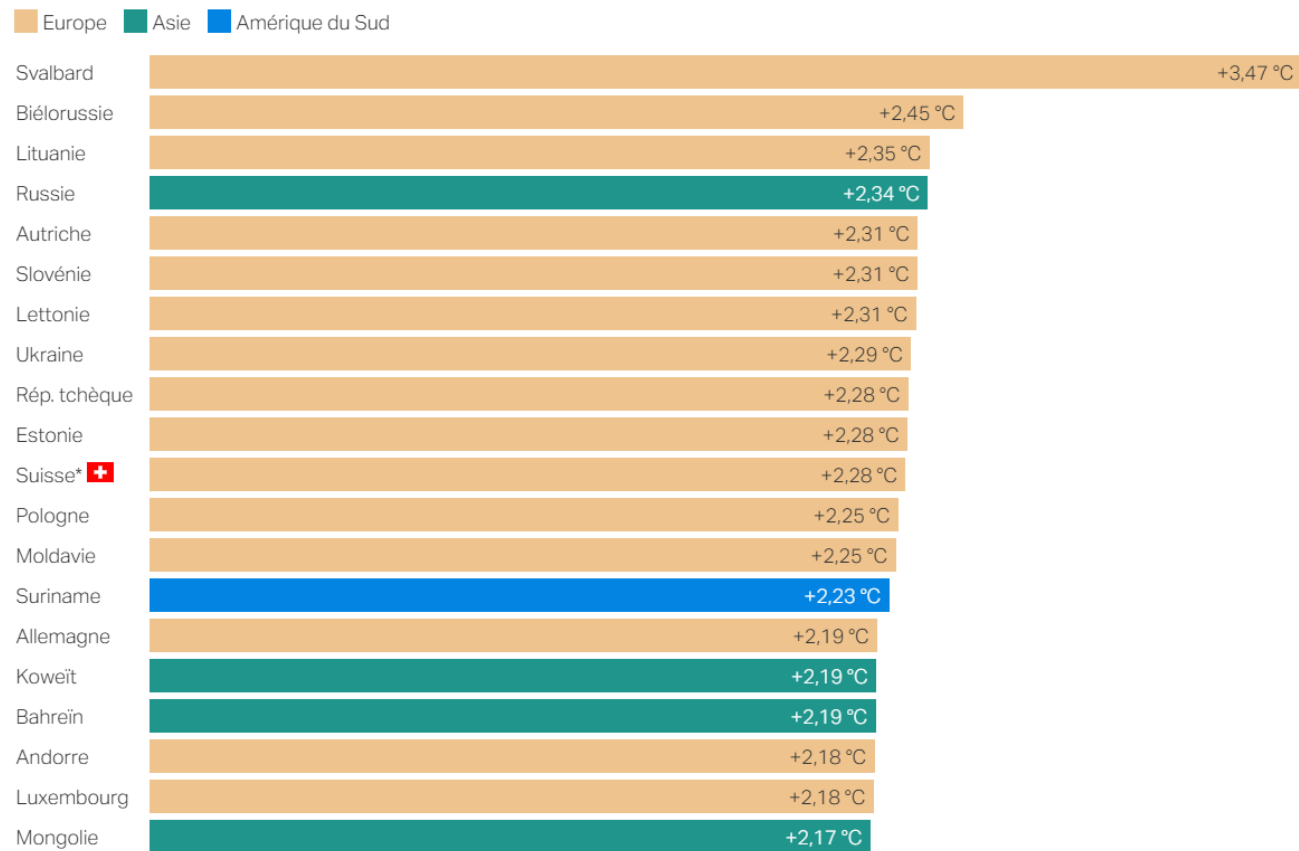
Simulation of temperature changes based on climate mitigation scenarios

EFFECTS OF HEAT WAVES ON THE POPULATION

Trends in heat-related mortality (annual number of million deaths per decade) among the general population (2000-2020)



Switzerland about the « top fast warming countries »
(already +2,3°C since reference period 1951-1980)



*Liechtenstein inclus

Graphique: ptur • Source: [Organisation des Nations unies pour l'alimentation et l'agriculture \(FAO\)](#) • [Télécharger les données](#)

 swissinfo.ch

Different reasons:

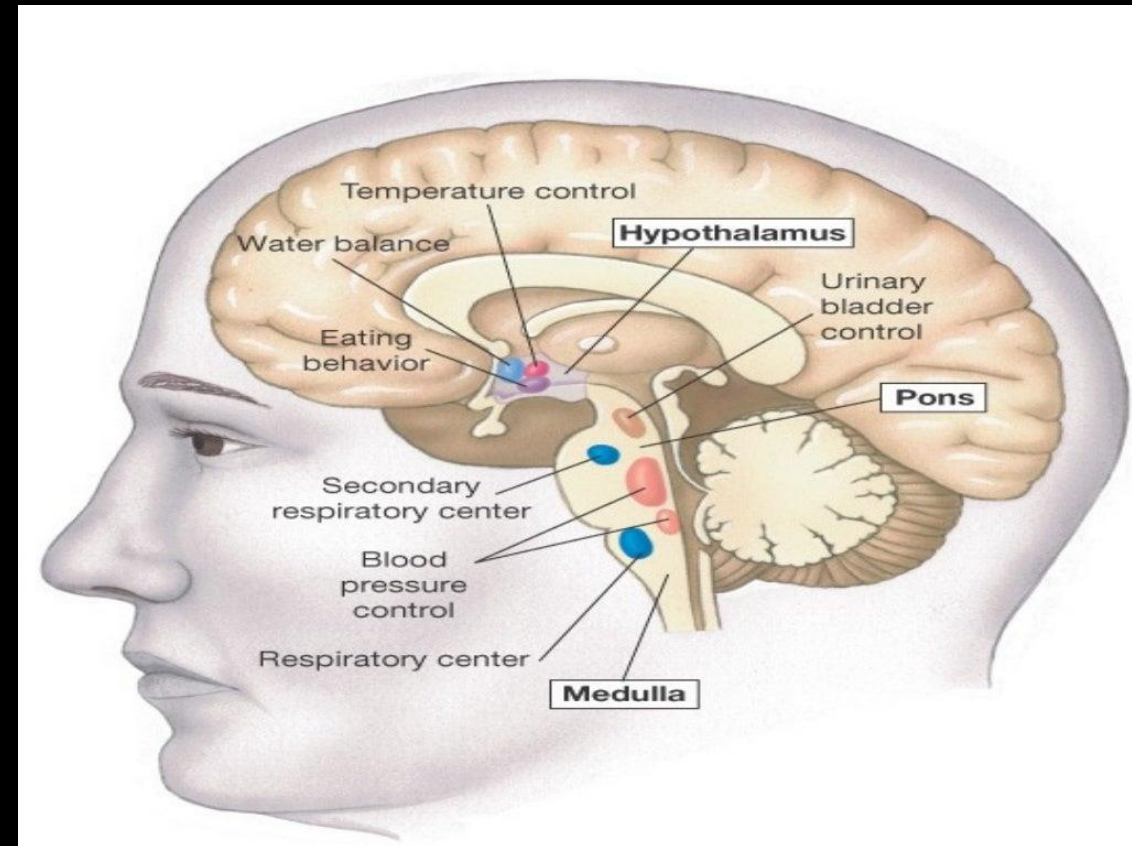
- No access to the sea (no warmth absorption by huge water masses)
- Diminution of albedo because of glaciers loss
- Change of atmospheric circulation in general in Europe

Focus on the ageing population

- “People over 60” age group is growing faster than other age groups (30% of EU population over 65 by 2070)
- Ageing of the population leads to decrease in income and fewer resources available (pressure on health system)
- Frequent social isolation
- Economic disadvantages (less access to health services)
- Recognised as a vulnerable group by the ICCP 2014 report

Effects of heat on older people

- Lower thermoregulatory (late vasodilation) and acclimatisation capacity (less sweat), sometimes exacerbated by multiple medication
- Inability to sense extreme environments (less sensitivity)
- Diminution of heat shock proteins (help to stabilise new proteins or to refold proteins affected by cell stress)
- Less efficient thirst mechanism (hypothalamus gets less blood and hormones/neurotransmitters) and risk of dehydration



Aggravating factor: urbanisation

- Higher concentration of older people in the cities
- Urbanisation makes extreme water levels more probable (impermeabilization)
- Heat islands through asphalt and concrete accumulating heat, anthropogenic heat (i.e. air conditioning) and airborne pollutants
- Global Age-Friendly Cities Project lead by WHO since 2017

Other hazards impacting predominantly the elderly

- Extreme weather events like fires (more difficulty to evacuate, sensitivity to fumes), floods (also augmenting the exposure risk to mould) and hurricanes
- More sensitivity to poor air quality and climate-sensitive infectious diseases brought for example by mosquitoes

Quantifying the risks

- Incapacity to take care of oneself or to get out without any help augmented the risk to die by between three to six times during heat waves
- Mortality due to cardiovascular diseases increases by 24% if temperatures rise above 27.7°C for more than five days
- Incidence of dengue fever two times higher in people between 60 and 69 years old compared to those under 40
- Increased risk for chronic obstructive pulmonary disease during hot days
- During heat waves, two times higher risk to get hospitalised for heat stroke and 18% more risks for fluid and electrolyte disorders (loss of minerals leading e.g. to hyponatremia)

Current risk mitigation

- Heat wave plans in Europe: public or quasi-public institutions contact elderly people and can send volunteers at home
- Hotlines in Switzerland during heat waves
- Staying in cool places, drinking enough, limiting physical efforts, eating light meals → such simple measures can half the risk of dying during heat waves
- Short stay in medico-welfare establishments

KLIMASENIORINNEN VERSUS SWITZERLAND

- In 2016, the Klimaseniorinnen sued the Federal Council, the Federal Department of the Environment, Transport, Energy and Communication, Federal Office for the Environment and the Swiss Federal Office for Energy for “failures in climate protection”.
- Complaint based on art. 10 (Right to life and to personal freedom), 73 (Sustainable development), 74 (Protection of the environment) of the Federal Constitution
- Opposition to non ambitious emissions reduction objectives and lacking implementation

abo+

The Federal Supreme Court ruled against them, arguing that the elderly were not especially impacted by climate change and that the state was taking measures for climate

APPEAL TO THE EUROPEAN COURT OF HUMAN RIGHTS

- Violation of Article 8 (right to respect for private and family life) of the European Convention on Human Rights according to the court
- Non-respect of agreements about climate change (Tokyo Protocol, Paris Agreement) by Switzerland recognised by the court
- Swiss government condemned to pay for disbursements but no other form of monetary penalty

Article 8

1 Everyone has the right to respect for his private and family life, his home and his correspondence.

2 There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

INFLUENCE ON SWISS POLITICS

- More symbolic than effective win: no measure taken since then and decision contested by many politicians and jurists (“threat of sovereignty”)

Article 46 (binding force and execution of judgments)

When the Court finds a breach of the Convention, the State has a legal obligation to select, subject to supervision by the Committee of Ministers, the general and/or, if appropriate, individual measures to be adopted in its domestic legal order to put an end to the violation found by the Court and to redress the situation. In certain cases, the Court has found it useful to indicate the type of measure – individual and/or general – that might be taken to put an end to the situation which has given rise to the finding of a violation.



“The ECtHR oversteps its authority by overriding domestic legislation as well as direct democracy.” Former federal judge Brigitte Pfiffner. Photo: Keystone

SOLUTIONS FOR REDUCING RISKS FOR ELDERLY PEOPLE

- Urban revegetation, de-artificialisation of soils, white paintings (higher albedo)
- Climate shelters?
- Community health programs (i.e. home consultation), intergenerationality, age-friendly transportation, high walkability (people in better health)
- Educating the elderly about the risks and informing about possible measures
- But the most crucial measure by far: fight against climate change!



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