

Climate Change, Ecoanxiety, and Hope through Commitment

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Martine Capron (Psychotherapist, Ecopsychologist, & trainer at EEPSSA.org)

X/Twitter: @JPvanYpersele, @CapronMartine

**Invited lecture, Green Office, Faculteit Economie en Bedrijfskunde,
and Faculteit Bioingenieurwetenschappen, UGent
Ghent, 28 March 2024**

**Thanks to the Walloon Government (funding the Walloon Platform for IPCC)
& to my team at UCLouvain for their support**

Martine Capron

- **Psychotherapist, trainer at EEPSSA (Strasbourg)**
- **Specialized in ecopsychology, a trans-disciplinary movement, born in the United States in the 1990s, from the meeting of environmental activists, psychologists and psychotherapists.**
- **Co-organised the first two congresses on ecopsychology in Belgium (2016 & 2019)**
- **Ecopsychology studies the relationships (conscious and unconscious) between human beings and the entire natural world, and works towards their profound reconnection.**

Jean-Pascal van Ypersele

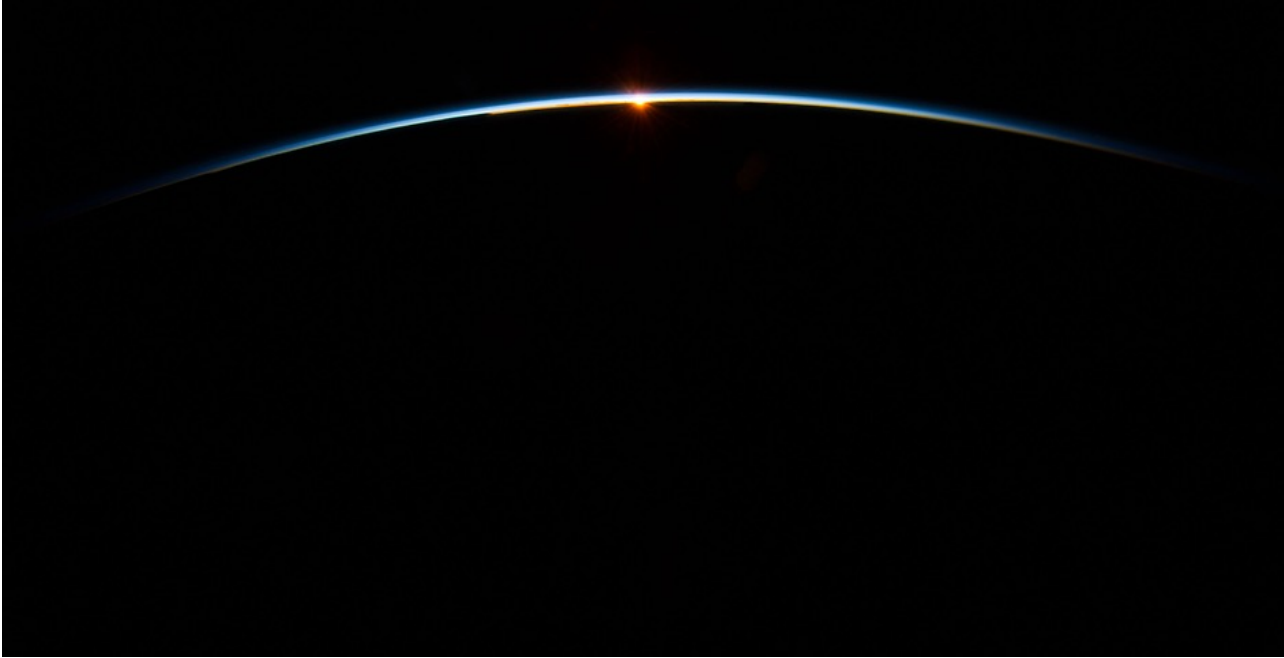
- **Climate physicist originally specialized in climate modelling**
- **Attended the first World Climate Conference as a student in 1979**
- **Published in 2004 the 1st report on climate change impacts in Belgium**
- **Has been sitting on the science-policy interface for 4 decades**
- **Was IPCC Vice-chair (2008-2015)**
- **Wrote « In het oog van de klimaatstorm » (EPO, 2018)**
- **Organised the www.YouthAndClimateFuture.be event on 13-2-2024**

**That small blue dot is the Earth, as seen from
Cassini, orbiting Saturn, 1.44 billion km from
us, on 19-7-2013**



@JPvanYpersele

**Our atmosphere is thin and fragile
(as seen by International Space Station
crew on 31 July 2013)**



Jean-Pascal van Ypersele
(vanyp@climate.be)

Let us think about the future of these children from Machakos in a warming climate



Photo:
@JPvanYpersele
April 2015

Climate Change

I want you to panic... and act

“I don’t want your hope. I don’t want you to be hopeful. I want you to panic ... and act as if the house was on fire. ”

Greta Thunberg
Environmental Activist

WORLD
ECONOMIC
FORUM



The Essential Truth About Climate Change in Ten Words

The basic facts of climate change, established over decades of research, can be summarized in five key points:

IT'S REAL

Global warming is happening.

IT'S US

Human activity is the main cause.

EXPERTS AGREE

There's scientific consensus on human-caused global warming.

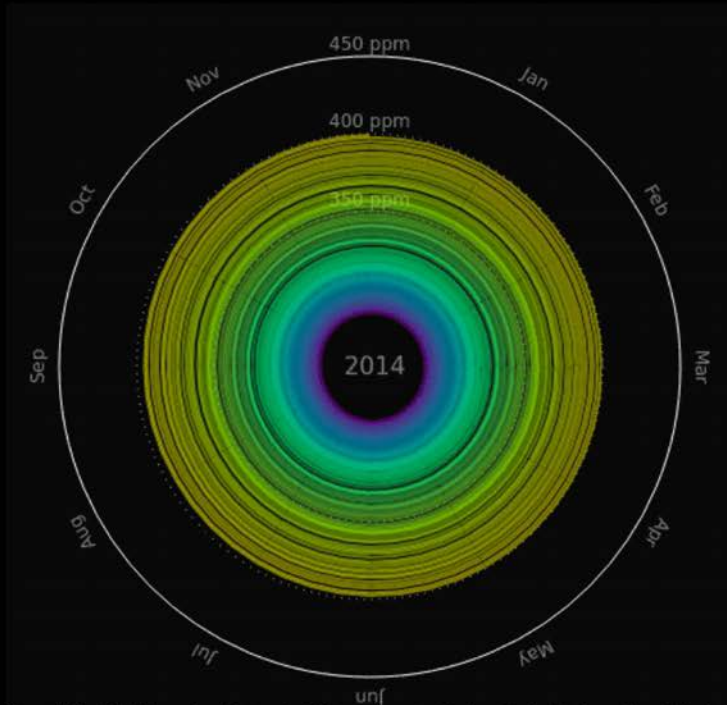
IT'S BAD

The impacts are serious and affect people.

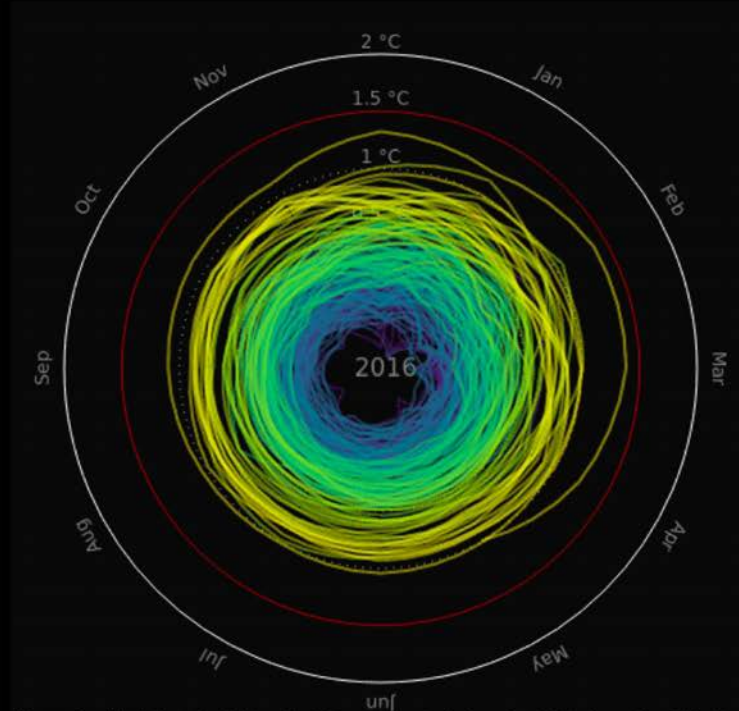
THERE'S HOPE

We have the technology needed to avoid the worst climate impacts.

CO₂ Concentration and Temperature spirals



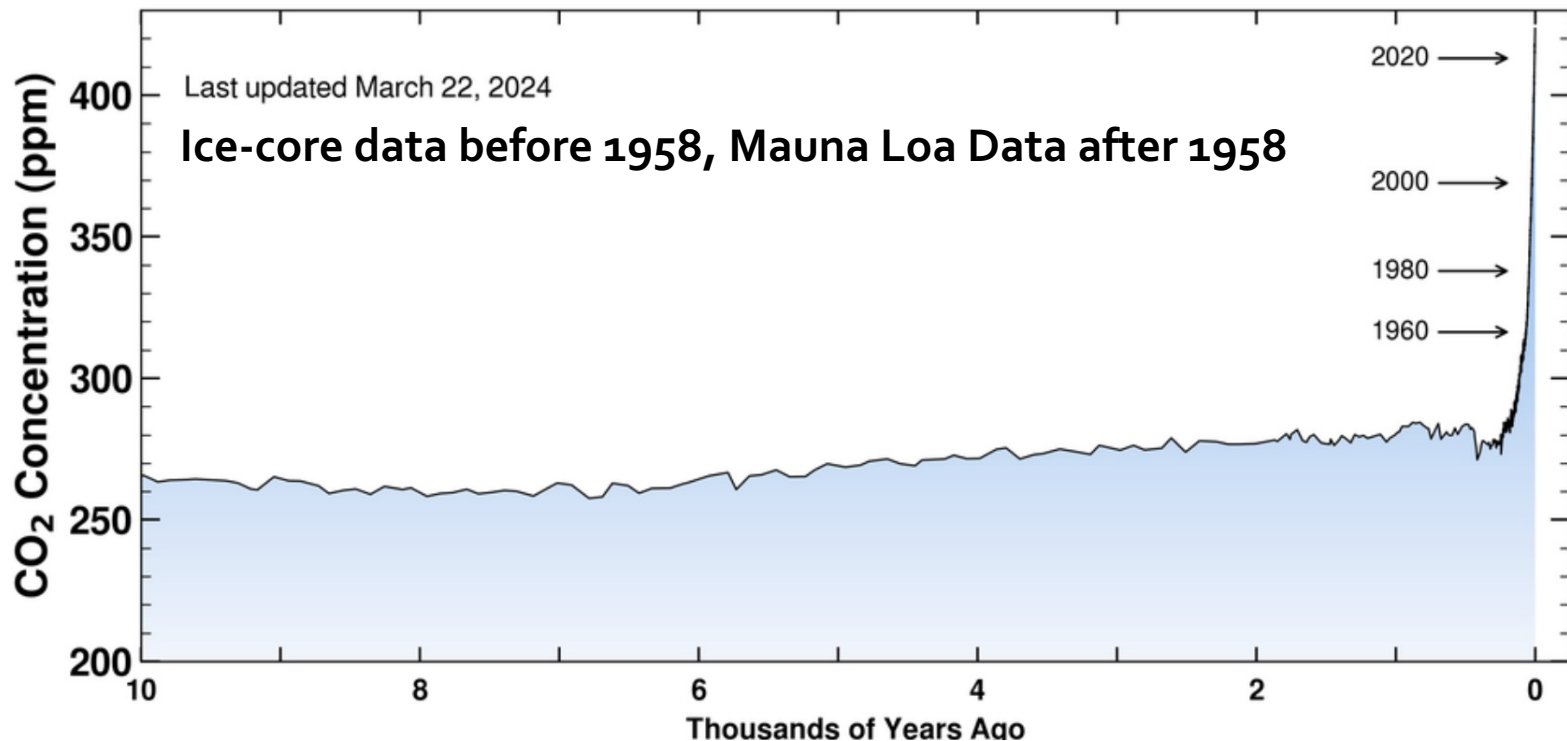
Concentration Spiral pik-potsdam.de/primap-live/ & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins



Temperature Spiral pik-potsdam.de/primap-live/ & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins

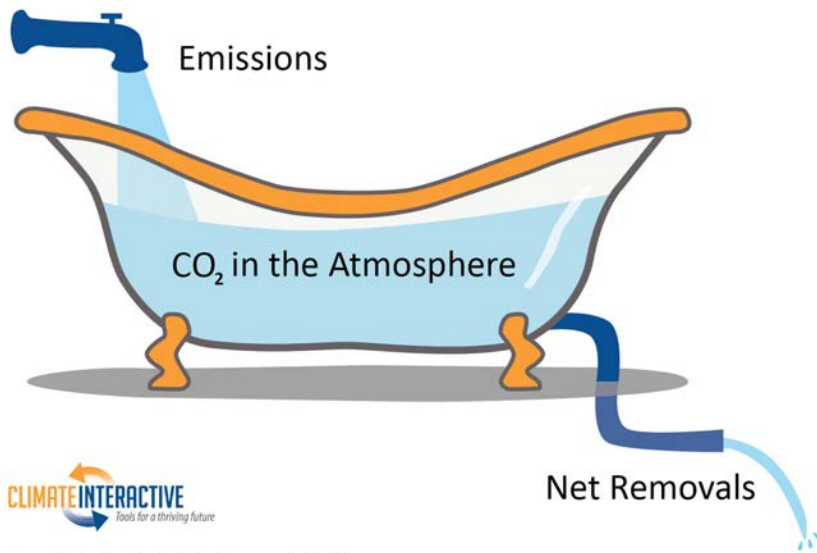
CO₂ Concentration since 1850 and Global Mean Temperature in °C relative to 1850 – 1900
Graph: Ed Hawkins (Climate Lab Book) – Data: HadCRUT4 global temperature dataset
Animation available on <http://openclimatedata.net/climate-spirals/concentration-temperature/>

CO₂ Concentration 22 March 2024: 426,17 ppm (Keeling curve + last 10000 years)



Source: scripps.ucsd.edu/programs/keelingcurve/

The Carbon Bathtub



Overall framing by Dr. John Sterman, MIT Sloan

Source: @CarbonInteractive

Financial Times editorial, 25-3-2024:

18



FINANCIAL TIMES

Monday 25 March 2024

The FT View



FINANCIAL TIMES

'Without fear and without favour'

The world is warming faster than scientists expected

Fossil fuel groups and investors cannot afford to ignore the warnings

Talk about unfortunate timing. At the start of last week, the head of the world's largest oil company, Saudi Aramco, was applauded when he told the CERAWEEK energy conference in Houston it was time to "abandon the fantasy of phasing out oil and gas". Amin Nasser said the world needed instead to invest in fossil fuels to meet demand at a time when the clean energy transition was "visibly failing on most fronts".

One day later, the head of the UN's World Meteorological Organization, Celeste Saulo, received no applause for issuing a report that showed climate records had been not just broken but smashed in 2023, the hottest year on record. More than 90 per cent of the world's oceans suffered heatwave conditions, glaciers lost the most ice on record

and the extent of Antarctic sea ice fell to by far the lowest levels ever measured.

It is tempting to believe we have been here before. Oil, gas and coal executives have spent years insisting they must satisfy demand for the fossil fuels that still drive the global economy. More recently, even relatively more green-minded European oil companies have weakened their climate goals in the wake of soaring energy prices, and big investors have backed away from climate action initiatives that they only recently joined. UN agencies have warned all the while that those fuels are the biggest cause of a climate warming that is growing more intense.

Yet when it comes to the physical state of the climate, we have not been here at all. To an extent not widely appreciated, the world is now warming at a pace that scientists did not expect and, alarmingly, do not fully understand. At a Financial Times conference this month, Jim Skea, the chair of the UN's Intergovernmental Panel on Climate Change,

said last year's spike in temperatures was "quicker than we all anticipated".

"It was a surprise," he said. "Ocean temperatures were just off the scale in terms of historic records. It was completely unusual and we still need to do more work to explain it."

The unnerving implications of these findings were spelt out last week by Gavin Schmidt, director of Nasa's Goddard Institute for Space Studies in New York City. Writing in the journal *Nature*, Schmidt warned that the data could imply that a warming planet was already "fundamentally altering how the climate system operates". The surprising heat in 2023 had "come out of the blue", he said, and revealed that "an unprecedented knowledge gap" had opened up for the first time since satellite data began to give scientists a real-time view of the climate system about 40 years ago.

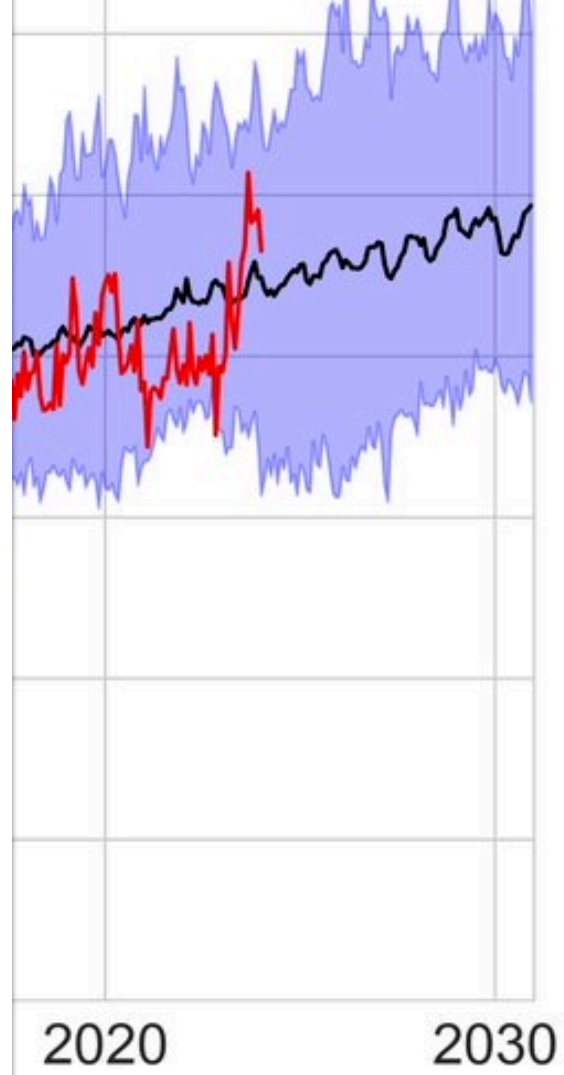
This gap may mean we have a shakier grasp of what lies ahead – which is worrying when it comes to forecasting

A full explanation remains elusive, which underlines a compelling echo of history

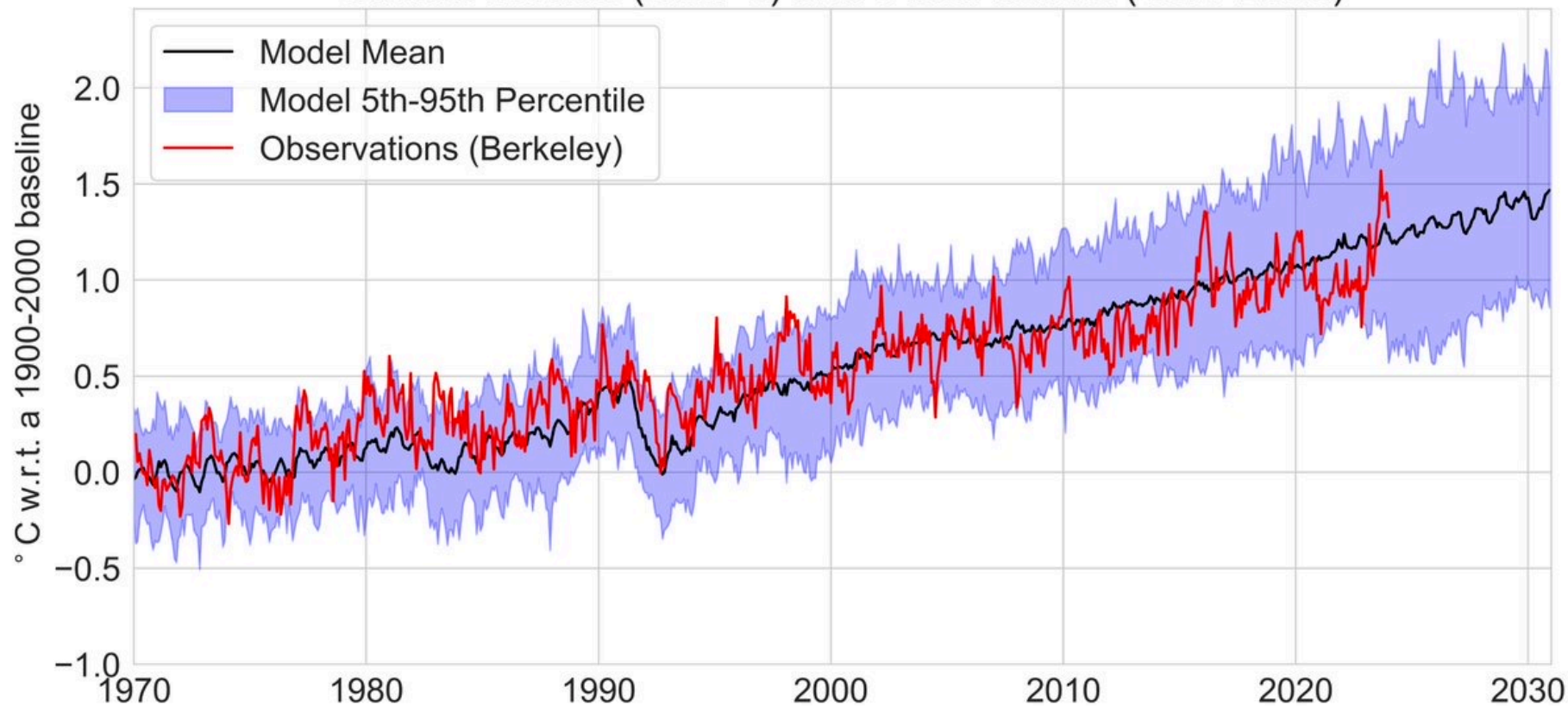
drought and rainfall patterns that are already aggravating food shortages. Theories for the unexpected warming range from a rise in solar activity ahead of a predicted solar maximum to new rules on cleaner shipping fuel that aim to cut sulphur emissions. Sulphur compounds in the atmosphere have a cooling effect.

But a full explanation remains elusive, which underlines a compelling echo of history. Schmidt's position at Nasa was once held by another scientist, James Hansen, whose 1988 testimony to the US Congress alerted the world that global warming had begun.

The world did not entirely ignore Hansen's warnings in the 36 years that followed, but nor did it take them anywhere near seriously enough. Oil company bosses may prefer to preach a message of business as usual. But neither they nor anyone else can afford once again to downplay what science is showing us about a climate threat that is now moving into uncharted territory.



Climate Models (CMIP6) and Observations (1970-2030)



Source: @MichaelEMann

Why the IPCC ?

Established by WMO and UNEP in 1988

to provide **policy-makers**
with an **objective source of**
information about

- causes of climate change,
- potential environmental and socio-economic impacts,
- possible response options (adaptation & mitigation).

WMO=World Meteorological
Organization

UNEP= United Nations Environment
Programme



Human-induced climate change is already affecting many weather and climate extremes in every region across the globe



Extreme heat

More frequent

More intense



Heavy rainfall

More frequent

More intense



Drought

Increase in some regions



Fire weather

More frequent



Ocean

Warming

Acidifying

Losing oxygen

Heat waves kill (Ex: 2003 summer in EU: 70000 deaths)

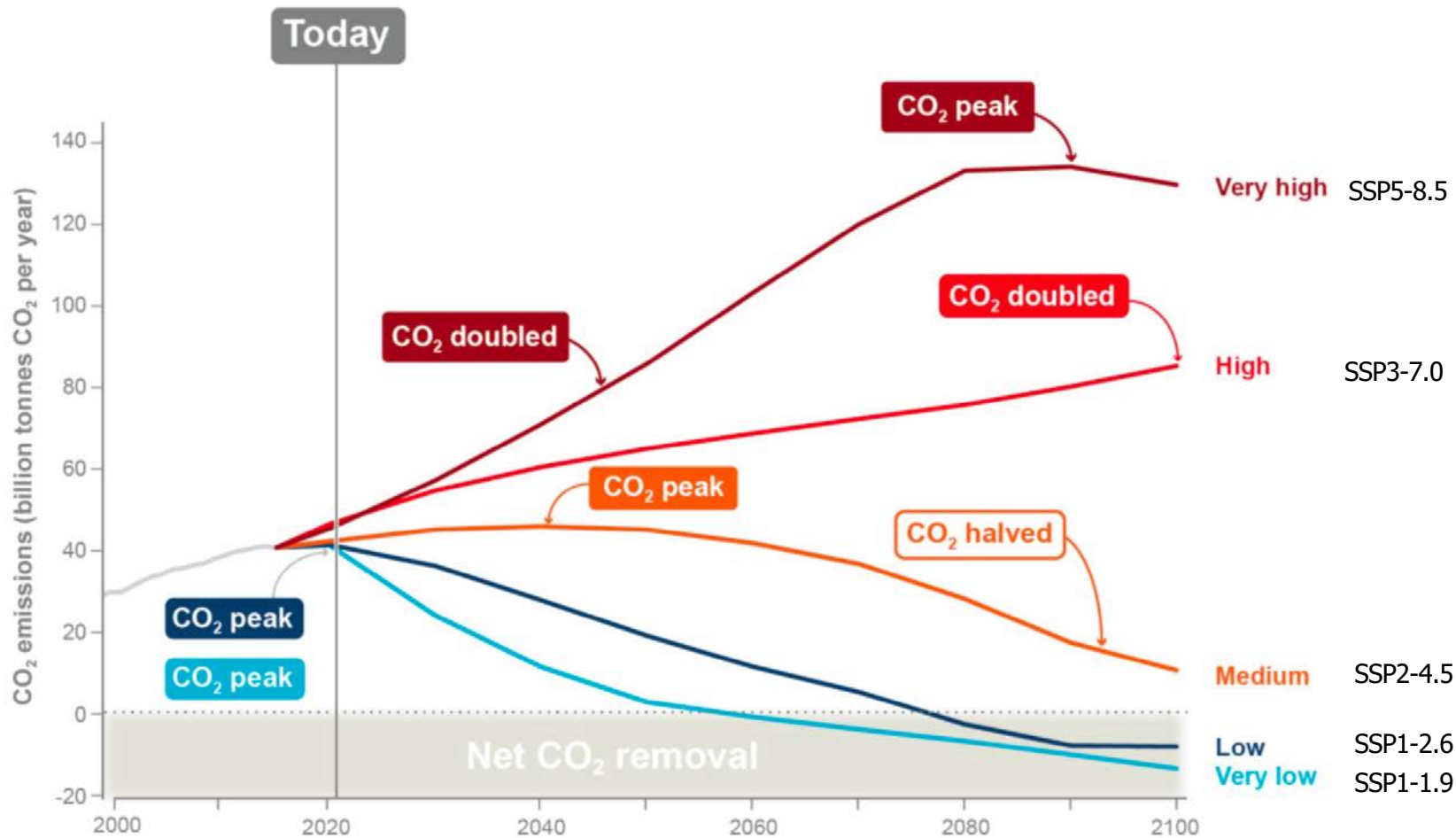
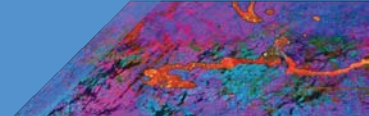


Une personne âgée dans un couloir des urgences du centre hospitalier de Versailles en août 2003. | AFP PHOTO MARTIN BUREAU

Wallonia Floods, July 2021



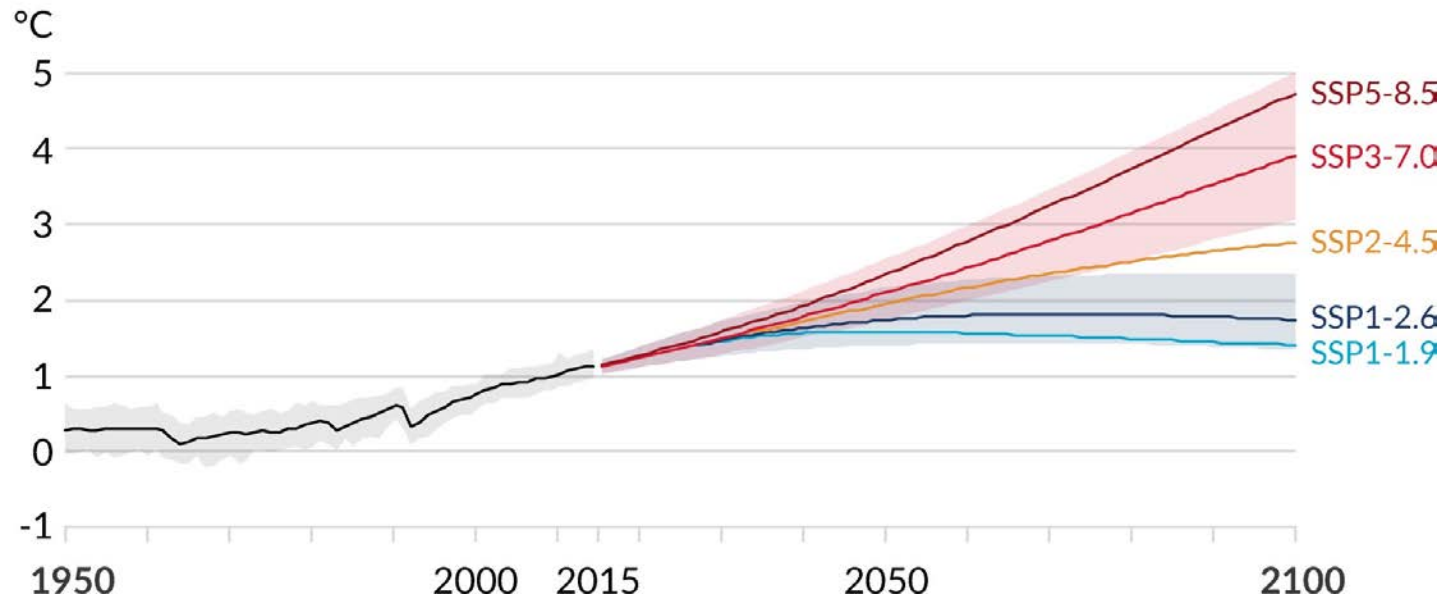
Source:
VRT Nieuws



Human activities affect all the major climate system components, with some responding over decades and others over centuries

Figure SPM.8

a) Global surface temperature change relative to 1850-1900



SIXTH ASSESSMENT REPORT

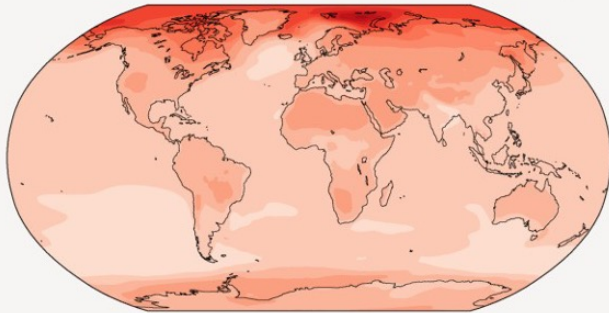
Working Group I – The Physical Science Basis



Across warming levels, land areas warm more than oceans, and the Arctic and Antarctica warm more than the tropics

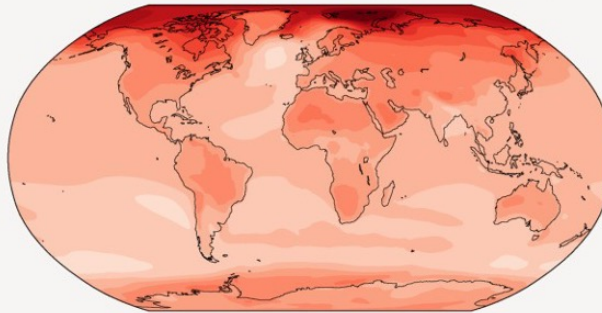
+1.5° C

Simulated change at 1.5 °C global warming



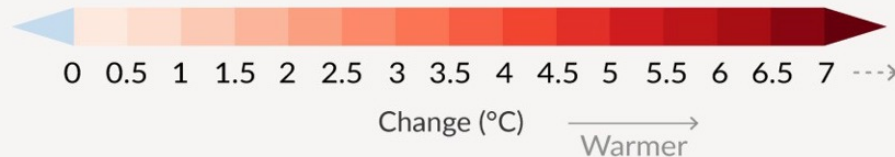
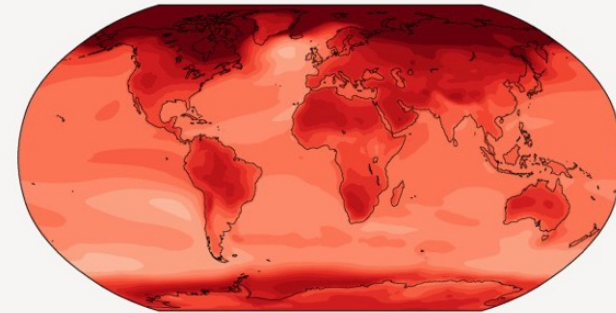
+2° C

Simulated change at 2 °C global warming



+4° C

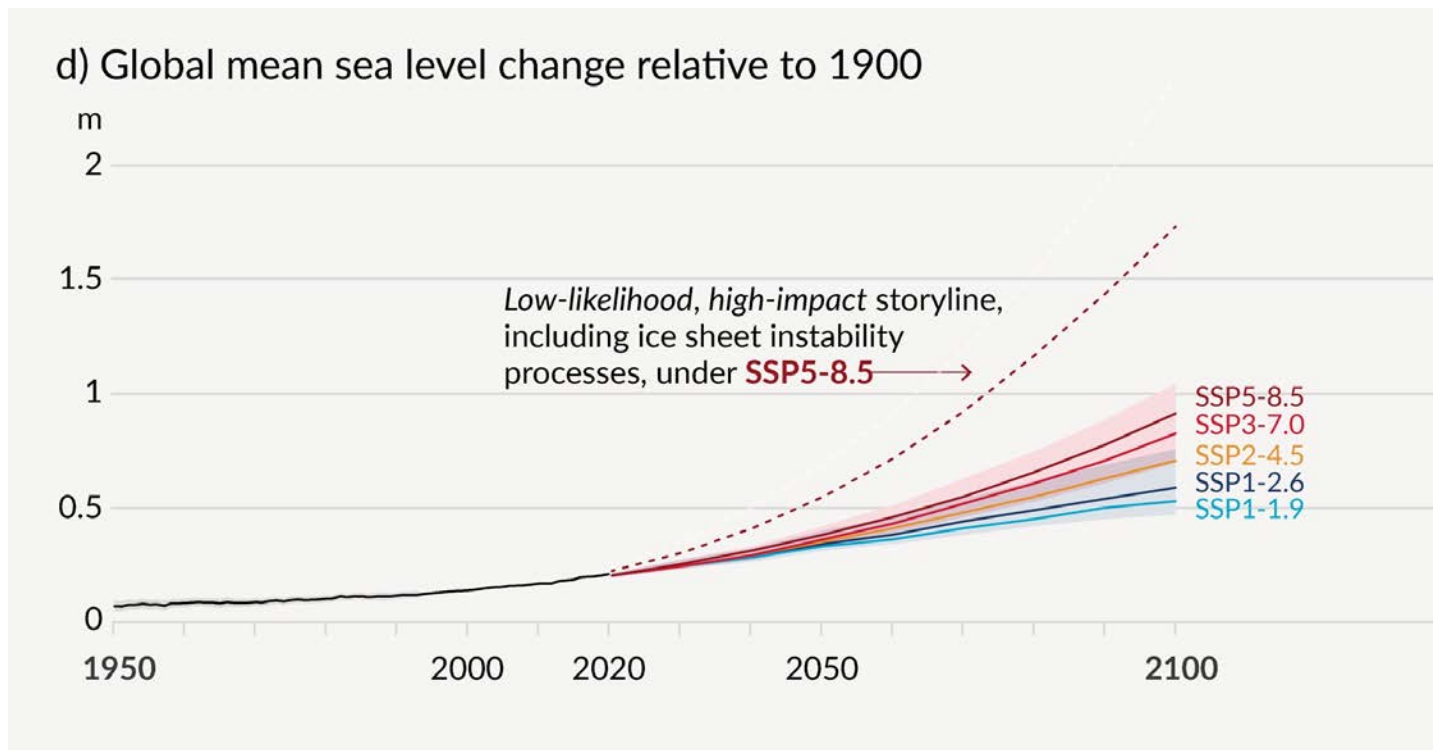
Simulated change at 4 °C global warming



SIXTH ASSESSMENT REPORT

Working Group I – The Physical Science Basis

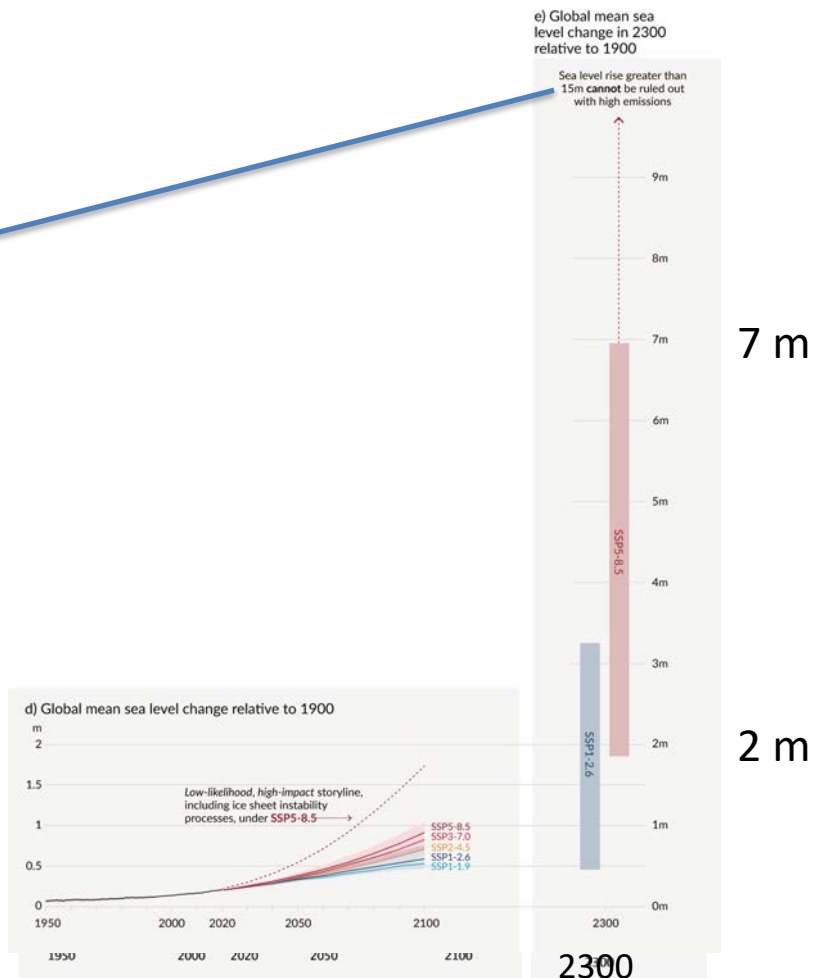
Human activities affect all the major climate system components, with some responding over decades and others over centuries *Figure SPM.8*



SIXTH ASSESSMENT REPORT

Working Group I – The Physical Science Basis

« Sea level rise **greater than 15 m** cannot be ruled out with high emissions »



Gent koningin der badsteden?

Zonder maatregelen voor milieu is Antwerpen overspoeld in 3000

BRUSSEL - Zonder nieuwe maatregelen zal ons klimaat verder opwarmen. Dan komt tegen 3000 tien procent van België onder water te staan. Daaronder uiteraard alle kuststeden, maar ook Brugge, Antwerpen en zelfs Mechelen. Gent komt aan zee te liggen. Dat blijkt uit een studie van professoren van de UCL in opdracht van Greenpeace.



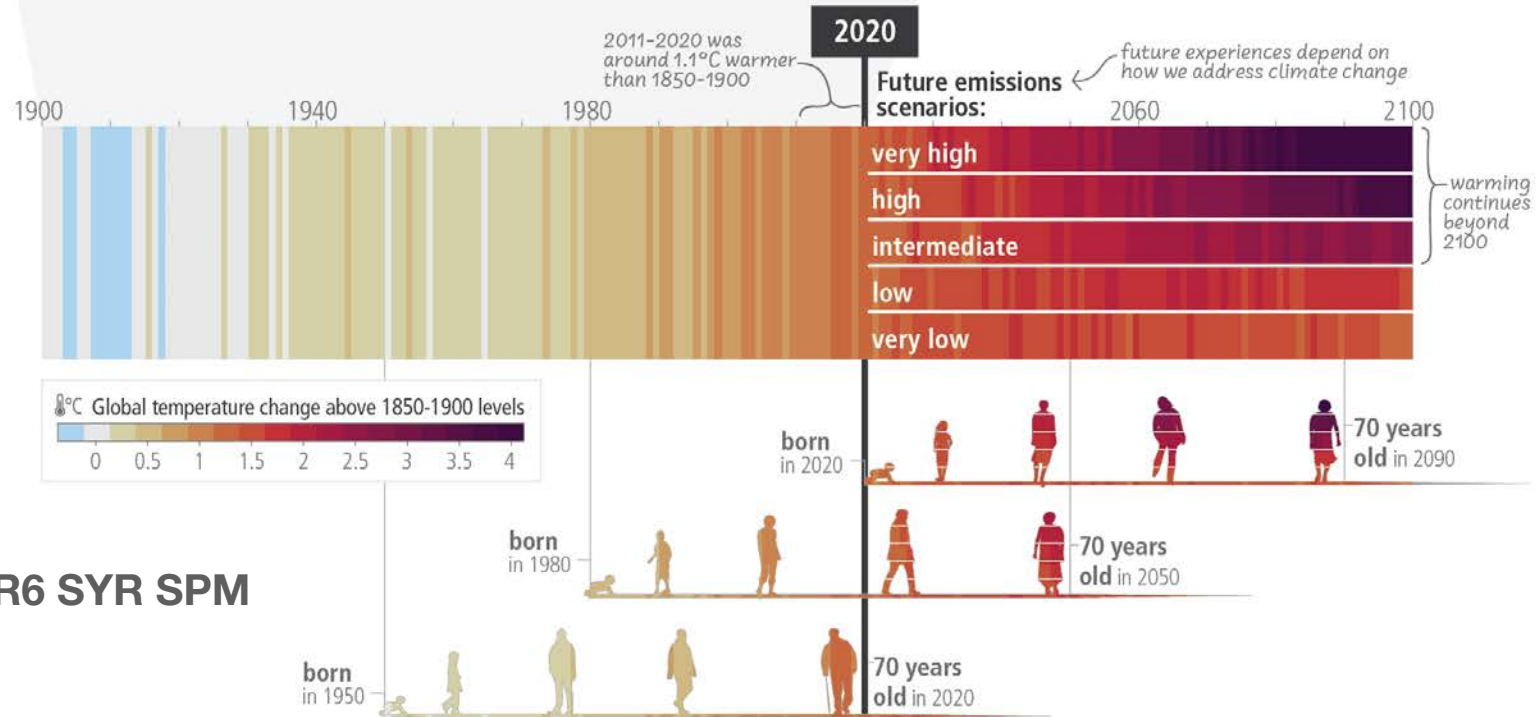
Gerard Govers, professor geografie aan de Katholieke Universiteit Leuven, tekende gisteren op onze vraag het nieuwe kaartje van Vlaanderen anno 3000 uit. Een land waarin de zeespiegel volgens het rapport van Greenpeace mogelijk 8 meter gestegen is. "Je dat geval zou het grootste gedeelte

Govers. "Gent zou nog net boven water blijven, ze mogen daar al appartementjes beginnen bouwen." Gent als koningin der badsteden? Het is een grapje, volgens professor Govers is het moeilijk om nu al voorspellingen voor het volgende millennium te maken. "Dat lijkt me

meetbaar te worden en er bestaan al voorspellingen voor het jaar 2050, zelfs 2100. Maar verder hangt veel af van wat op Antarctica gaat gebeuren en dat is moeilijk te zeggen. Afwachten dus." Het rapport van Greenpeace werd gisteren overhandigd aan Bruno Tobback en Kri

Adverse impacts from human-caused CC will continue to intensify

c) The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term



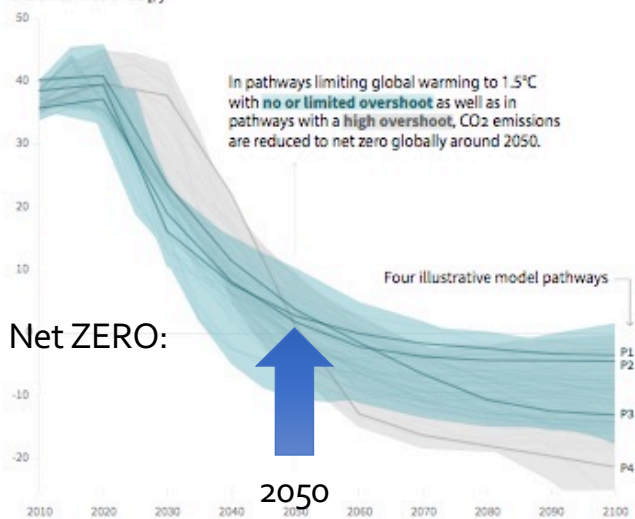
IPCC AR6 SYR SPM

Global emissions pathway characteristics

General characteristics of the evolution of anthropogenic net emissions of CO₂, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit global warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals. Reductions in net emissions can be achieved through different portfolios of mitigation measures illustrated in Figure SPM3B.

Global total net CO₂ emissions

Billion tonnes of CO₂/yr



Timing of net zero CO₂

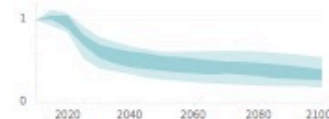
Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios



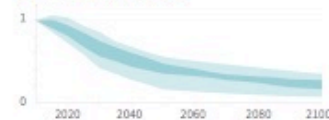
Non-CO₂ emissions relative to 2010

Emissions of non-CO₂ forcers are also reduced or limited in pathways limiting global warming to 1.5°C with **no or limited overshoot**, but they do not reach zero globally.

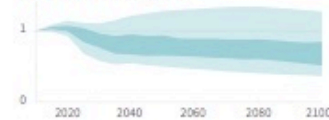
Methane emissions



Black carbon emissions



Nitrous oxide emissions



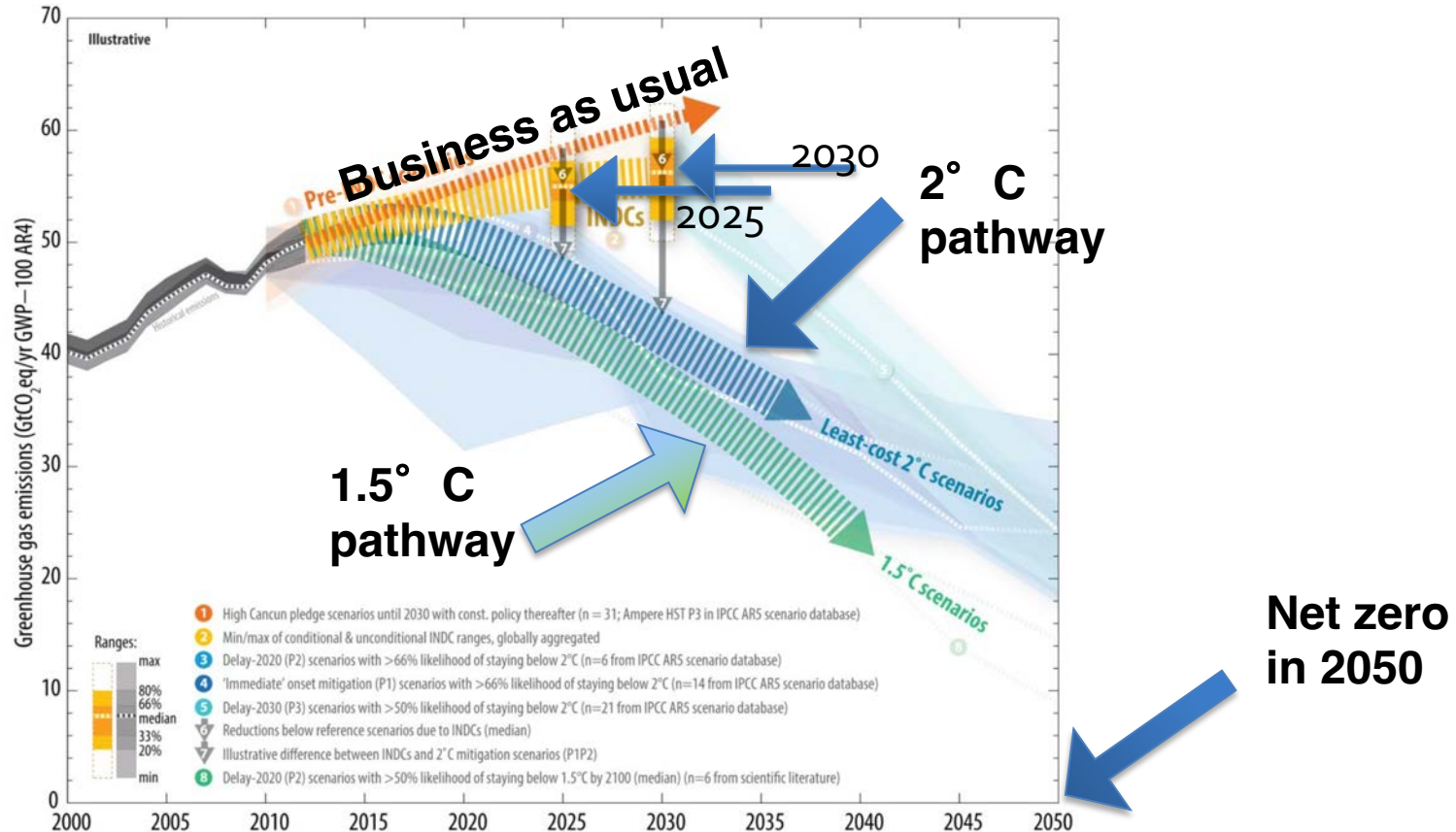
Nations Unies
Conférence sur les Changements Climatiques

COP21/CMP11

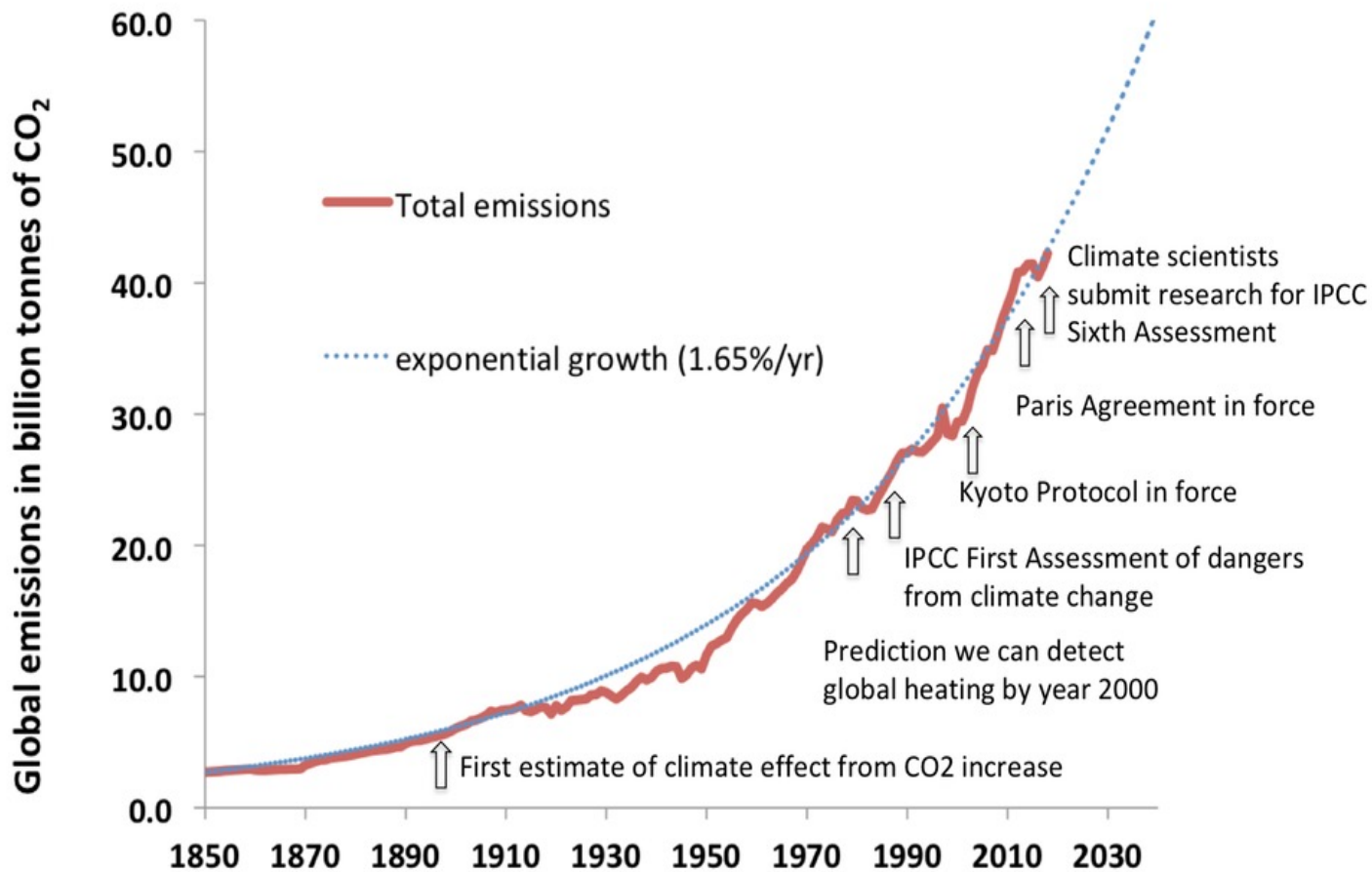
Paris, France



Paris Agreement: plans not sufficient yet!



UNFCCC, Aggregate effect of the intended nationally determined contributions: an update
<http://unfccc.int/resource/docs/2016/cop22/eng/02.pdf>



Source: Wolfgang Knorr, in *The Conversation* (2019)

Conclusion of JP van Ypersele
in « Het klimaat alarm », Knack, september 2020

« May we all be deeply moved in our hearts and guts by the gravity of what has just happened (with Covid)..., and by the enormous risk of even worse climate extremes.

This will help us to understand the urgent need to act with courage and wisdom. »

Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey (Hickman et al., 2021, in Lancet Planet Health)

- **Survey of 10000 children and young people in 10 countries (Australia, Brazil, Finland, France, India, Nigeria, Philippines, Portugal, the UK, and the USA)**
- **59% very or extremely worried about climate change**
- **84% at least moderately worried**
- **More than 50% reported each of the following emotions: sad, anxious, angry, powerless, helpless, and guilty**
- **Climate anxiety was correlated with perceived inadequate government response and associated feelings of betrayal**

Ecoanxiety

What is ecoanxiety? Not a pathology!!

A feeling of deep worry related to climate change, loss of biodiversity, severe pollution of our environment. Also a legitimate and sound worry concerning our future...

What are the eco-emotions ?

Other emotions like anger, sadness, shame, insecurity, disgust,... related to the same topics

What is an emotion exactly ?

A bodily signal (pleasant or painful) that tells us whether or not our values and deepest needs are being met.

When the signal is painful, we tend to repress it, to protect ourselves from suffering, and we resist the changes that we should be putting into practice individually and/or collectively in our lives...

Psychological causes to our resistance to change (1)

- **Difficulties of perception**
 - **Complex, often diffuse phenomena; and saturation effect...**
 - **Contemporary urban lifestyles :**
 - **separation from Nature**
 - **addictions to our consumption**
 - **virtualisation of our lifestyles**

Psychological causes to our resistance to change (2)

- **Inner dissociations:**
 - **Education in rationality, logic, abstraction**
 - **Devaluation of the emotional, the intuitive, the poetic**
 - **Cleavage between intellect and emotions**
 - **Disconnection from our body and our senses**

Psychological causes to our resistance to change (3)

Our protection mechanisms against unpleasant emotions:

- Fear in the face of environmental threats**
- Sadness and anger at the suffering of the living world**
- Guilt at being complicit**
- Shame at not doing more and doing it better**
- Feelings of loneliness, emptiness and powerlessness in the face of the scale of the problems**

Psychological causes to our resistance to change (4)

Cognitive dissonance:

- The discrepancies between our well-established and reassuring beliefs and the facts that contradict them.
- We have difficulty accepting the discomfort associated with these discrepancies.
- So we tend to select information and people who do not challenge our beliefs and/or actions...

Actually cognitive dissonance is a magnificent opportunity for change!

But for that to happen, we have to learn to accept and move through this discomfort in order to broaden our field of consciousness and act differently.

That takes a bit of courage!

But at the same time it strengthens us and makes us very creative!

Psychological causes to our resistance to change (5)

Double bind = inner conflicts

We can also feel trapped between contradictory feelings, which makes us fear suffering too much, whether we act or not.

So we repress...

Psychological causes to our resistance to change (6)

These various discomforts lead us to develop a force of inertia

We resist change, which we see first and foremost as a threat to our comfort, our security, our freedom, and even our identity...

We all experience this force of inertia at times

Poor
humans,
they have
to change
so many
things



K

19 DECEMBRE 2018

RIBF - "À VOTRE AUIS"

Pierre Kroll,
2018

All these obstacles can lead to :

- Denial, rigidity, even violence
- Passive hope, disempowerment
- Discouragement, eco-anxiety, exhaustion, inner collapse (burnout)

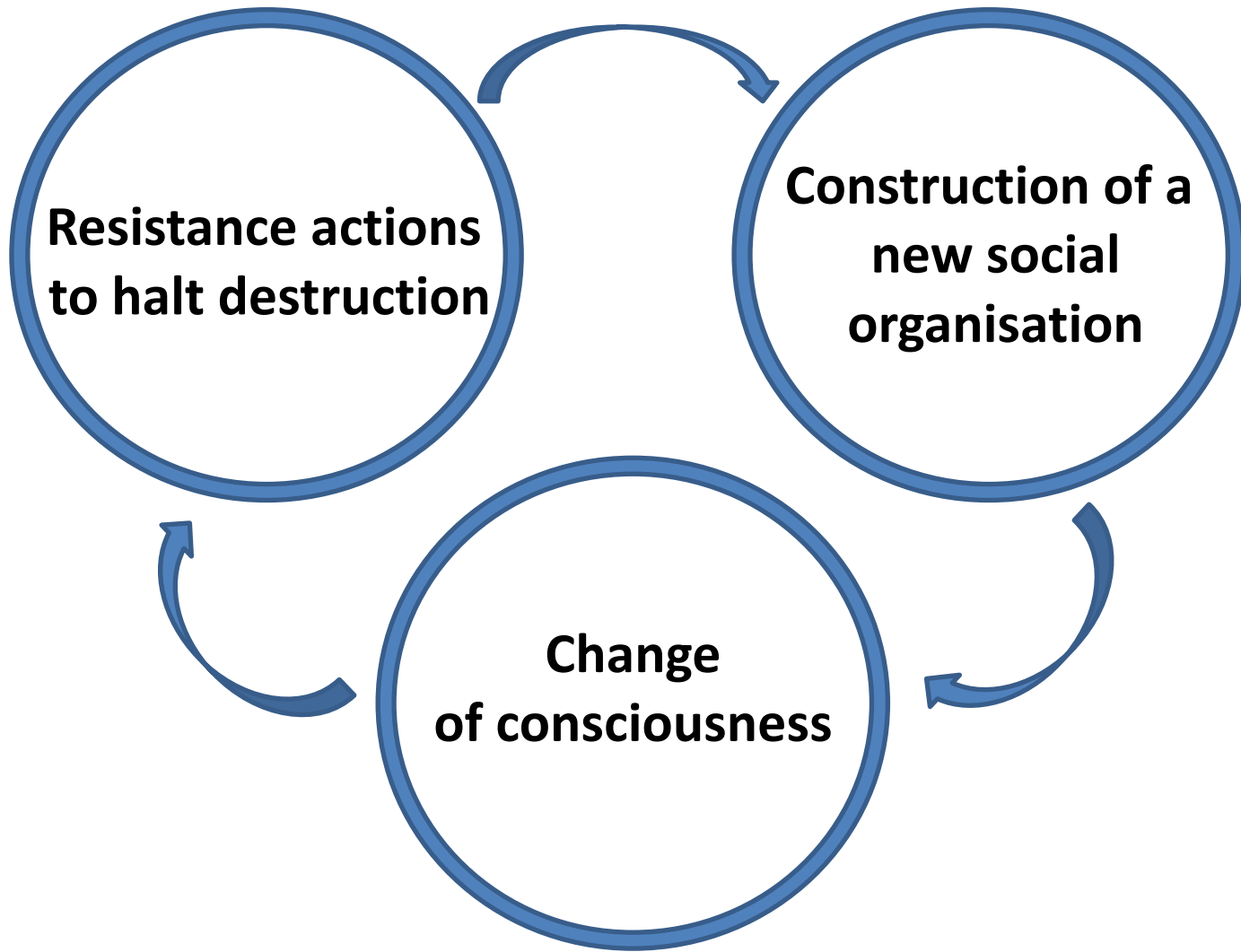
Choice between 4 scenarios

- 1) "Business as usual": The scenario of denial and resistance to change: *"It's not that bad, we're exaggerating!"*
- 2) Power to the experts : The scenario of disempowerment: *"The experts will find the solutions for us".*
- 3) Collapse: The scenario of lucidity... by staying on the current trajectory: *"There's nothing we can do about it, it's all over!"*
- 4) The change of course: The scenario of hope, adventure, new awareness, personal and collective commitment: *"Together, WE can change things!"*



Louvain-la-Neuve, March 2019

Photo: Martine Capron



“We scientists don’t know how to do that”

“I used to think the top environmental problems were biodiversity loss, ecosystem collapse and climate change.

I thought that with 30 years of good science we could address those problems.

But I was wrong.
The top environmental problems are selfishness, greed and apathy...

...and to deal with those we need a spiritual and cultural transformation

- and we scientists don't know how to do that.”

Gus Speth



Gus Speth is the founder of the World Resources Institute

There are options available **now** in every sector that can at least **halve** emissions by 2030



Demand and services



Energy



Land use



Industry



Urban



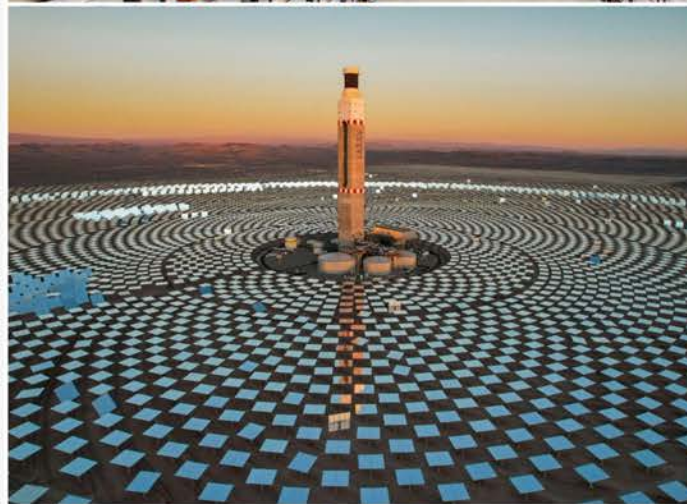
Buildings



Transport

Energy

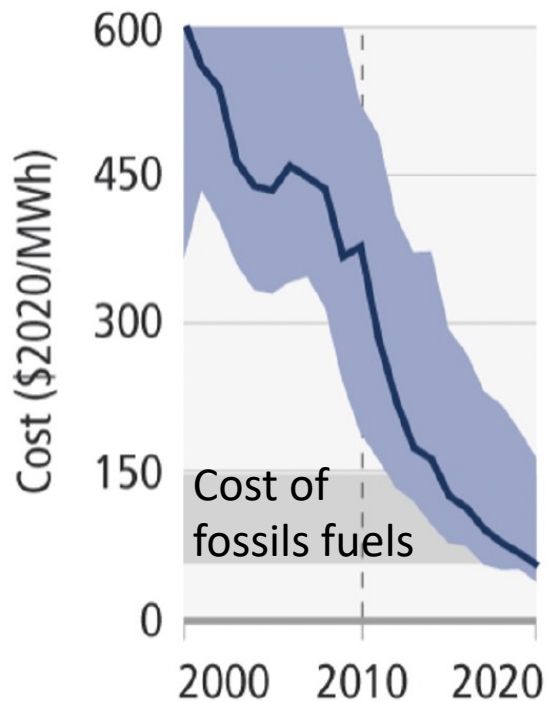
- **major transitions** are required to limit global warming
- reduction in fossil fuel use and use of carbon capture and storage
- low- or **no-carbon** energy systems
- widespread **electrification** and improved energy **efficiency**
- **alternative fuels**: e.g. hydrogen and sustainable biofuels



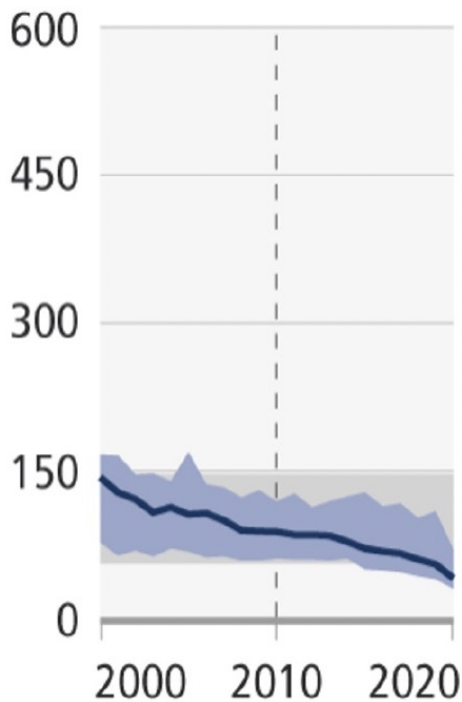
[Portland General Electric CC BY-ND 2.0, Harry Cunningham/Unsplash, Stéphane Bellerose/UNDP in Mauritius and Seychelles CC BY-NC 2.0, IMF Photo/Lisa Marie David, Tamara Merino CC BY-NC-ND 2.0]

Good news: solar & wind energy become cheaper than fossil fuels

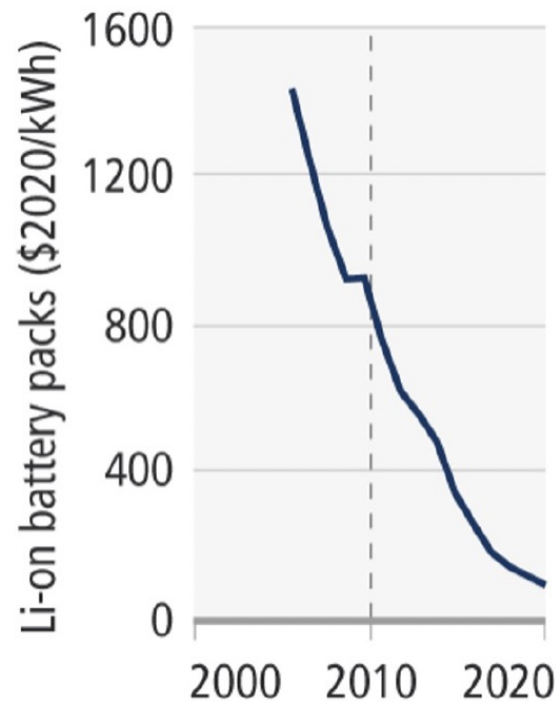
Photovoltaics (PV)



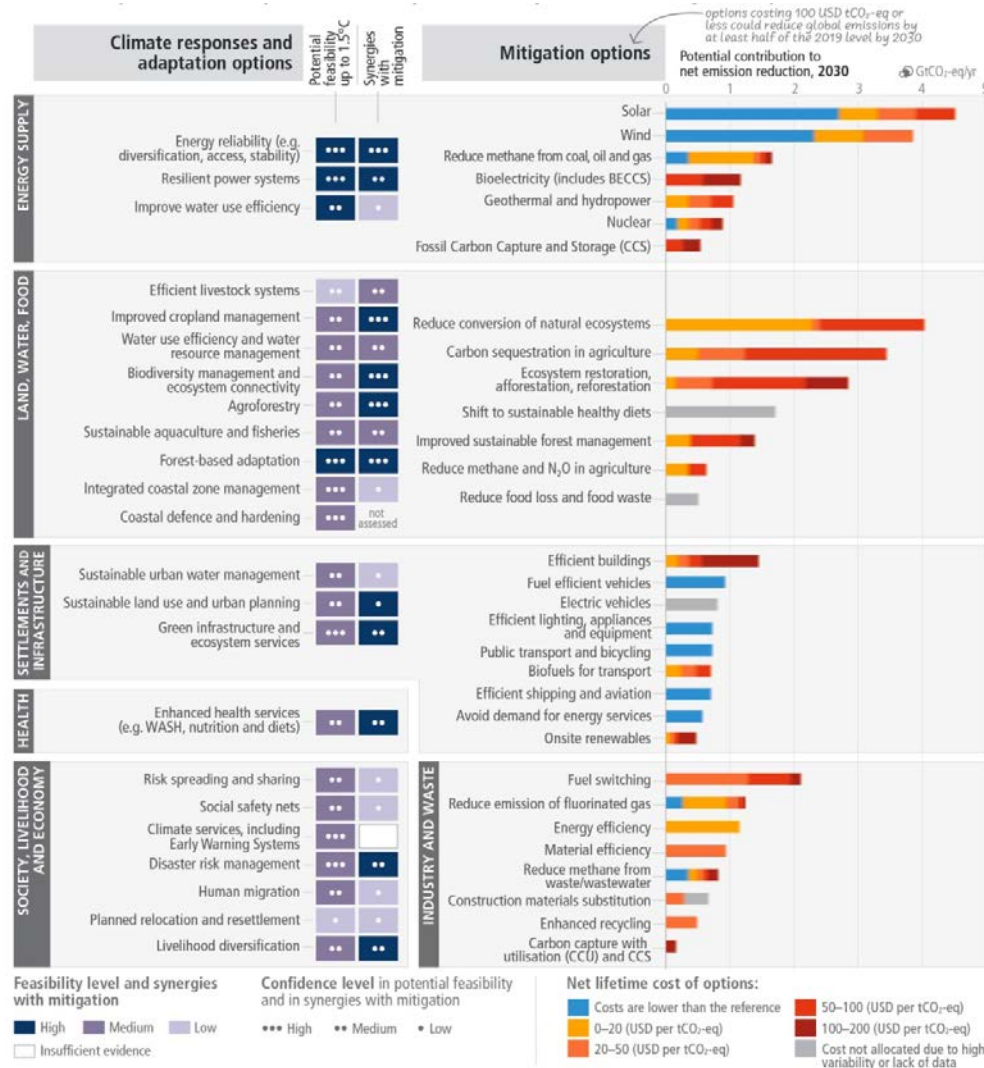
Onshore wind



Batteries for passenger electric vehicles (EVs)



Feasibility of climate responses and adaptation, and potential of mitigation in the near-term



Demand and services

- potential to **bring down global emissions by 40-70%** by 2050
- walking and cycling, electrified transport, reducing air travel, and adapting houses make large contributions
- **lifestyle changes** require **systemic changes** across all of society
- **some** people require additional **housing, energy and resources** for human wellbeing



Transport

- **reducing demand and low-carbon technologies** are key to reducing emissions
- **electric vehicles:** greatest potential
- **battery technology:** advances could assist electric rail, trucks
- **aviation and shipping:** alternative fuels (low-emission **hydrogen** and **biofuels**) needed
- Overall, substantial potential but depends on **decarbonising the power sector.**



Cities and urban areas

- better urban planning, as well as:
- sustainable production and consumption of goods and services,
- **electrification** (low-emission energy),
- enhancing **carbon uptake and storage** (e.g. green spaces, ponds, trees)

There are options for existing, rapidly growing *and* new cities.



Buildings

- buildings: possible to reach net zero emissions in 2050
- action in this decade is critical to fully capture this potential
- involves retrofitting existing buildings and effective mitigation techniques in new buildings
- requires ambitious policy packages
- zero energy and **zero-carbon** buildings exist in new builds and **retrofits**



Industry

- using materials more **efficiently, reusing, recycling, minimising waste**; currently **under-used** in policies and practice
- **basic materials**: low- to zero-greenhouse gas production processes at **pilot to near-commercial** stage
- achieving **net zero** is challenging



Land use

- can provide large-scale emissions reductions **and** remove and store CO₂ at scale
- protecting and restoring **natural ecosystems** to remove carbon: forests, peatlands, coastal wetlands, savannas and grasslands
- competing demands have to be **carefully managed**
- **cannot compensate** for **delayed** emission **reductions** in other sectors



Technology and Innovation

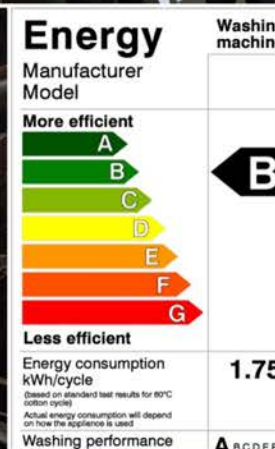
- investment and policies **push forward low emissions** technological **innovation**
- **effective decision making** requires assessing potential benefits, barriers and risks
- **some options** are technically **viable**, rapidly becoming **cost-effective**, and have relatively **high public support**. Other options face barriers

Adoption of low-emission technologies is slower in most developing countries, particularly the least developed ones.





Policies, regulatory and economic instruments



- regulatory and economic instruments have **already proven effective** in reducing emissions
- **policy packages** and **economy-wide packages** are able to achieve **systemic change**
- ambitious and effective mitigation requires **coordination across government and society**



[World Bank/Simone D. McCourtie, Dominic Chavez CC BY-NC-ND 2.0, Trent Reeves/MTA Construction & Development CC BY 2.0, IMF Photo/Tamara Merino CC BY-NC-ND 2.0, Olga Delawrence/Unsplash.]

Closing investment gaps

- financial flows: **3-6x lower** than levels needed **by 2030** to limit warming to below 1.5°C or 2°C
- there is **sufficient global capital** and liquidity to close investment gaps
- challenge of closing gaps is widest for developing countries





SUSTAINABLE DEVELOPMENT GOALS



Commitment

Low emission scenario

High emission scenario

Change in average surface temperature (1986–2005 to 2081–2100)

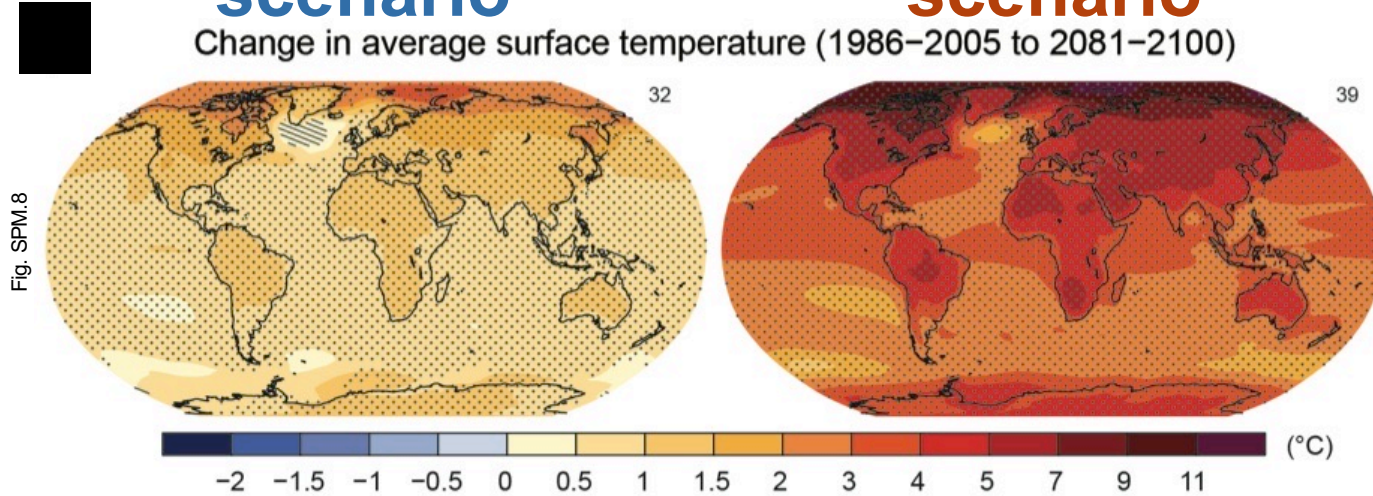
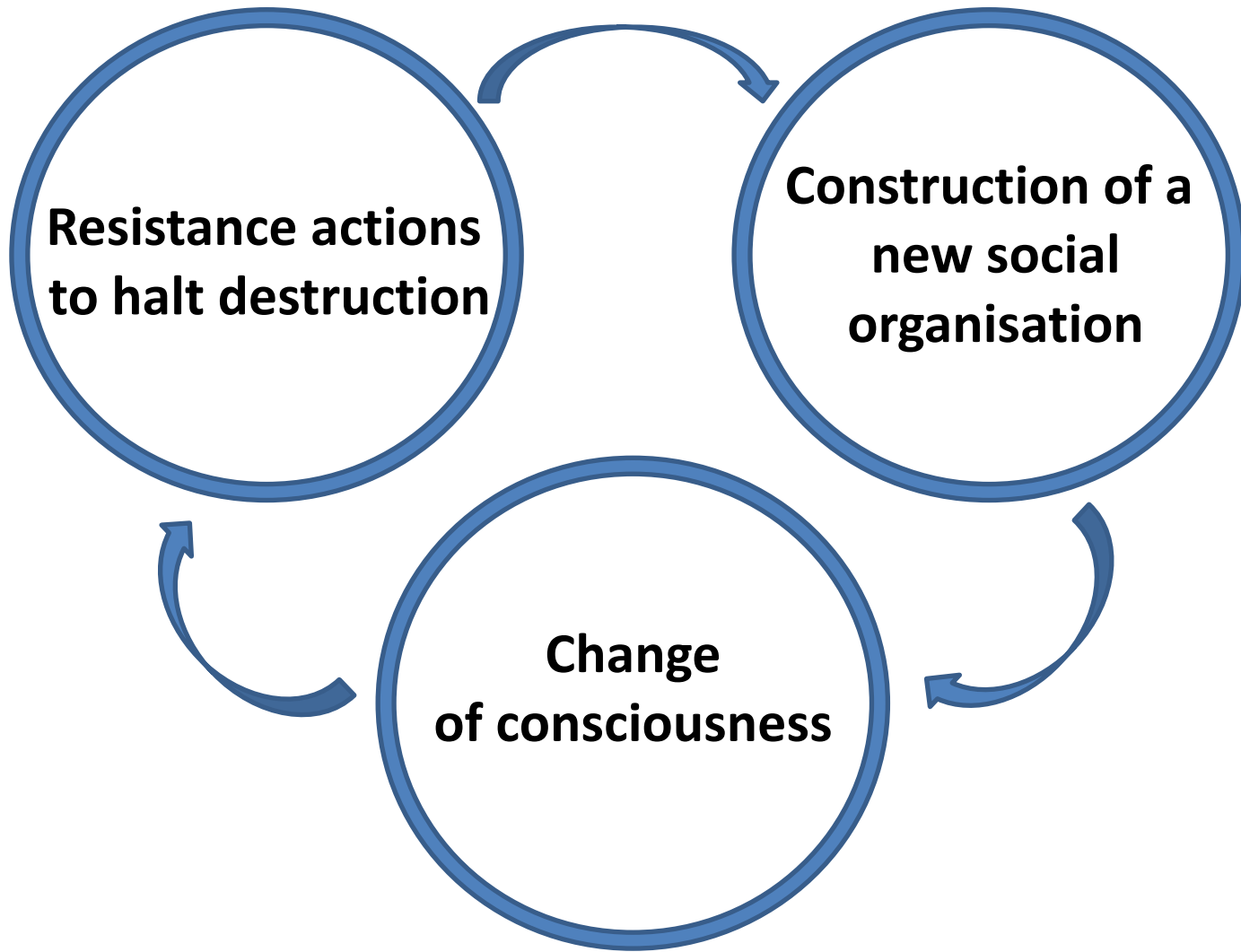


Fig. SPM.8

Humanity has the choice



What's the best way to experience this change in consciousness?

- **Welcoming, understanding and expressing our emotions and using them as drivers for action**
- **Feeling truly listened to, and accepted in all the inner conflicts we experience**
- **Helping each other to express our sorrows for the Earth and to experience our hurts in order to strengthen our resilience**
- **Develop our awareness of our total interdependence with Nature and...**
- **Marvel at its intelligence and beauty!**



Photo: JP van Ypersele

And also...

- ***Taking the time to awaken all our senses, in contact with Nature as much as possible***
 - ***Developing our capacity for self-empathy and inner happiness***
 - ***Improve our capacity for contact, listening and empathy***
 - ***Developing our collective creativity and living a life of happy sufficiency (sobriety) together!***
- = Move from the "ego-centric" self to the "eco-centric" self**

To help us put all this into practice

- *Trainings in listening, ecopsychology and eco-practices (NVC, The work that reconnects)*
- *Awareness and mutual support groups ("inner transition" groups)*
- *Therapeutic practices linked to the living world: ecotherapy, art therapy, meditation, permaculture, etc.*
- *And, of course, taking part in transition initiatives and resistance actions to halt destruction*

Hope

Being and acting connected

- with oneself
- with others
- with Nature

= Living the "We" to the full

Some sites worth exploring

About the state of climate change science:

www.IPCC.ch

www.skepticalscience.com

(answers to the merchants of doubt)

www.climate.be/vanyp

(e.g., my slides, under “conferences”)

www.Plateforme-wallonne-GIEC.be

(in French: e.g., free newsletter)

About ecopsychology and eco-practices:

www.workthatreconnects.org

www.EarthWise.education

(Leercentrum voor Ecopsychologie/Verbinding met natuur)

www.terreetconscience.be

www.terreveille.be & www.naviguer.org

www.reseautransition.be

Om meer te weten:

Bij EPO (2018)

**Voorwoord:
Jill Peeters**



DAT POLITICI OVER TWINTIG JAAR NIET KOMEN JANKEN DAT ZE HET NIET WISTEN.



DIRK DRAULANS

(1956) is bioloog, doctor in de wetenschappen en was gastonderzoeker aan de University of Oxford. Sinds 1987 is hij journalist bij Knack.



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BIJLAGE BIJ KNACK VAN 16 SEPTEMBER 2020. MAG NIET LOS VERKOCHT WORDEN.

HET KLIMAAT ALARM

Dirk Draulans en
Jean-Pascal van Ypersele



Knack

HET KLIMAATALARM

Gratis pdf op : www.knack.be/klimaatalarm

Ecrit pour les
jeunes (et moins
jeunes), avec des
liens vers des
ressources utiles

Plateforme Wallonne pour le GIEC
Lettre N°13 - avril 2019

**'Sauver le climat' :
les bases**

Le Saint-Louis & social sciences
Motions against climate change

Suite à l'intense mobilisation des jeunes, les changements climatiques ont fait l'objet de beaucoup d'attention au cours des derniers mois. Lèves du secondaire, étudiants, professeurs, parents et grand parents sont descendus dans la rue pour montrer leur désarroi face à la lenteur de l'action vis-à-vis des changements climatiques.

Nous nous réjouissons de cette mobilisation, car notre rôle nous met encore plus fréquemment que l'ensemble de la population en position de témoin des risques que font courir les changements climatiques ainsi que de l'ampleur des efforts nécessaires pour mettre en œuvre les objectifs que se sont fixés les membres des Nations Unies à Paris en 2015 (COP21).

Une démarche essentielle en faveur de ces jeunes est de les aider à se former, à appréhender les principaux éléments de la problématique du climat, et plus largement, de l'influence de nos activités sur notre environnement et sur le futur de l'humanité. L'éducation est un des instruments essentiels pour évoluer vers une société plus durable et plus juste.

Pour y contribuer, nous présentons ici une brève synthèse de la problématique et une sélection de références commentées. Nous espérons que cette Lettre aidera enseignants et élèves à disposer d'une base d'information solide et ainsi à prendre leur part dans la solution à ce problème planétaire : agir à leur niveau et favoriser l'action dans leur entourage et au niveau societal.

Plusieurs témoignages d'élèves ou de professeurs sont également présentés.

Nous vous souhaitons une bonne lecture !
Jean-Pascal van Ypersele, Philippe Marbaix et Bruna Gaiino

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By informing us

Listening to us

By helping each other

Together, we can create the future we dream of!