

# **Some of the reasons for climate urgency, and for keeping hope**

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**IPCC Vice-Chair from 2008 to 2015**

**Twitter: @JPvanYpersele**

**Extinction Rebellion meeting, Brussels, 13 January 2019**

Reminder: There is no planet B

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



**Fact n° 1: Because we use the atmosphere as a dustbin for our greenhouse gases, we thicken the insulation layer around the planet**

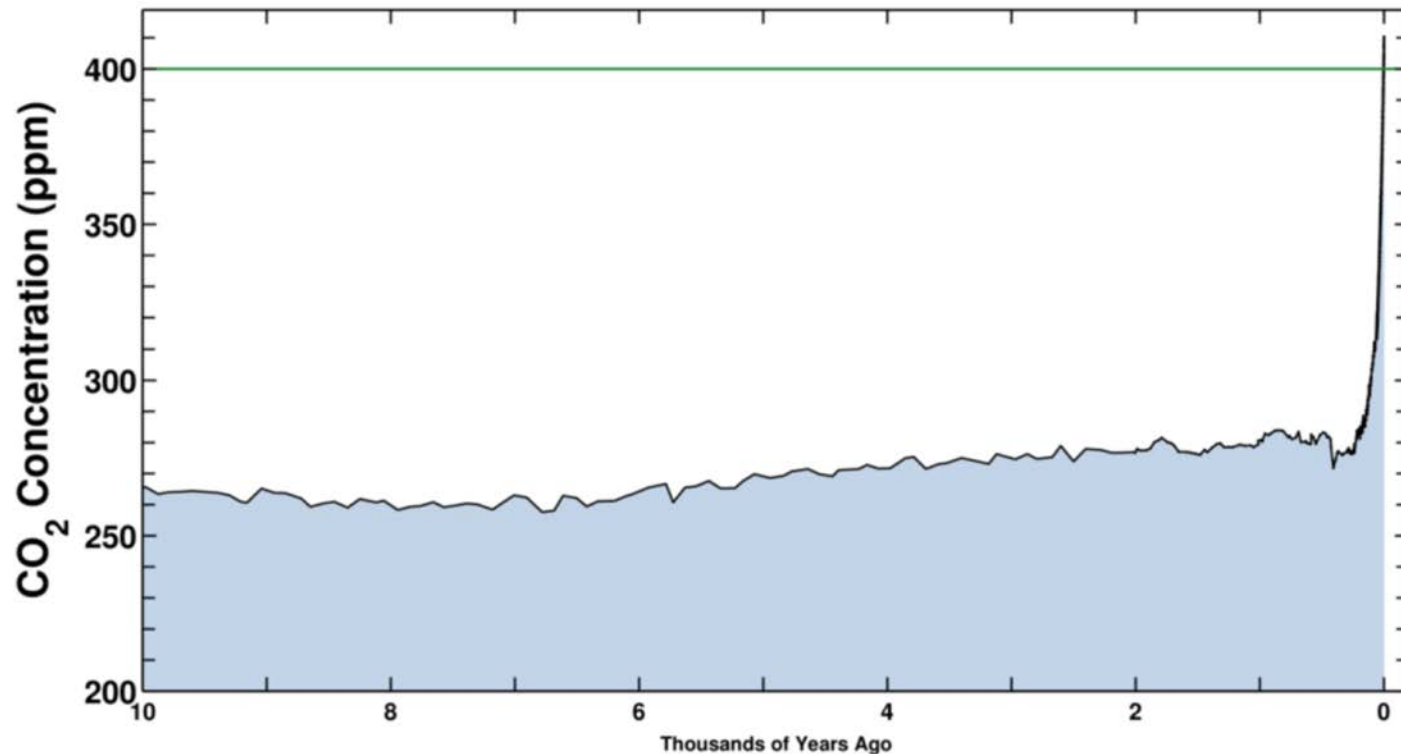
**That is why we must cut emissions to ZERO as soon as possible**

# CO<sub>2</sub> Concentration, 28 May 2018 (Keeling curve)

Latest CO<sub>2</sub> reading  
May 28, 2018

411.98 ppm

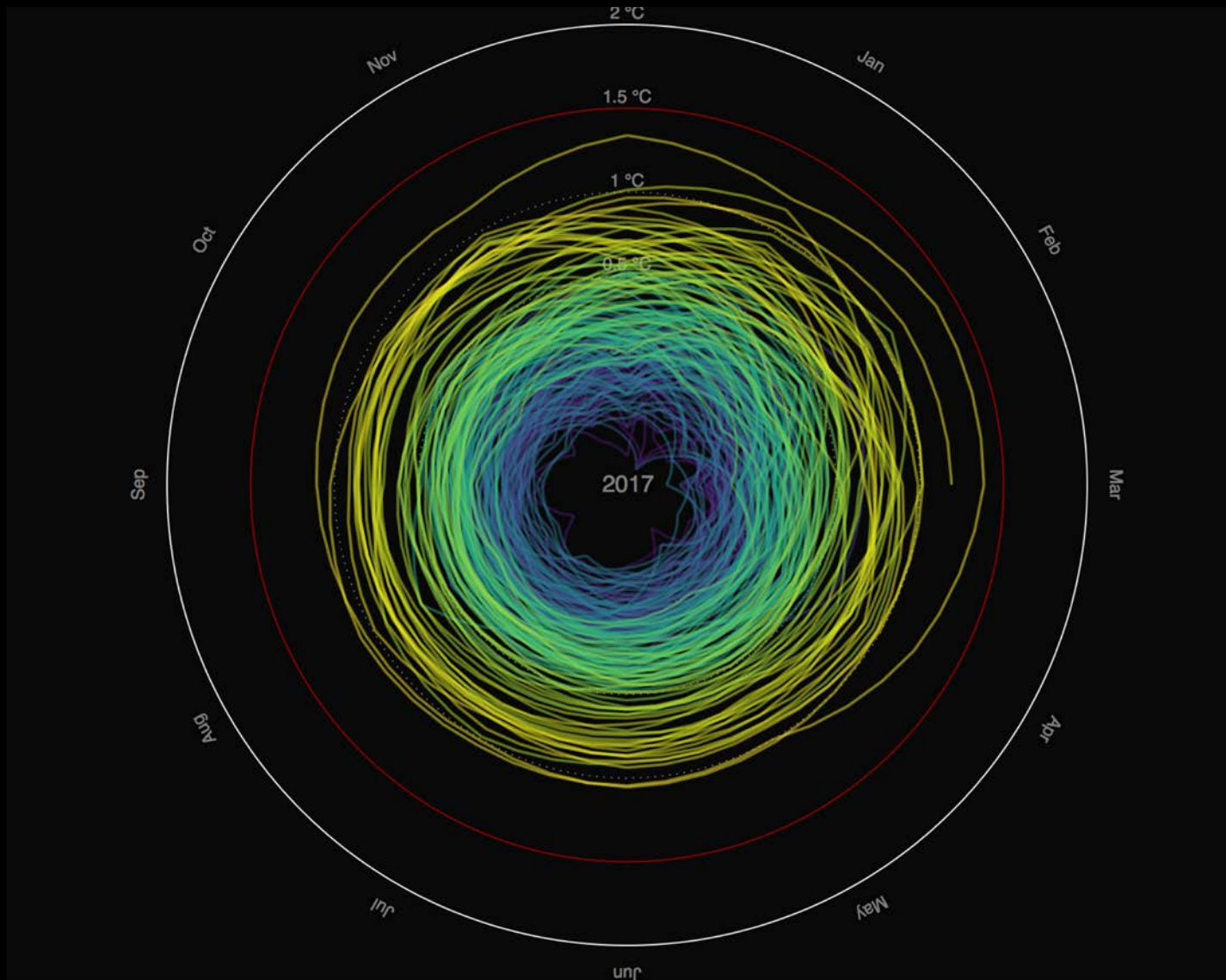
Ice-core data before 1958. Mauna Loa data after 1958.



Source: [scripps.ucsd.edu/programs/keelingcurve/](https://scripps.ucsd.edu/programs/keelingcurve/)

**Fact n° 2: Because we have  
changed the composition of the  
atmosphere, the climate system  
is disturbed**

# Temperature spiral



Global Mean Temperature in °C relative to 1850 – 1900

Graph: Ed Hawkins (Climate Lab Book) – Data: HadCRUT4 global temperature dataset

Animated version available on <http://openclimatedata.net/climate-spirals/temperature>

Since 1950, **extreme hot days** and **heavy precipitation** have become more common



There is evidence that anthropogenic influences, including increasing atmospheric **greenhouse gas concentrations**, have changed these extremes

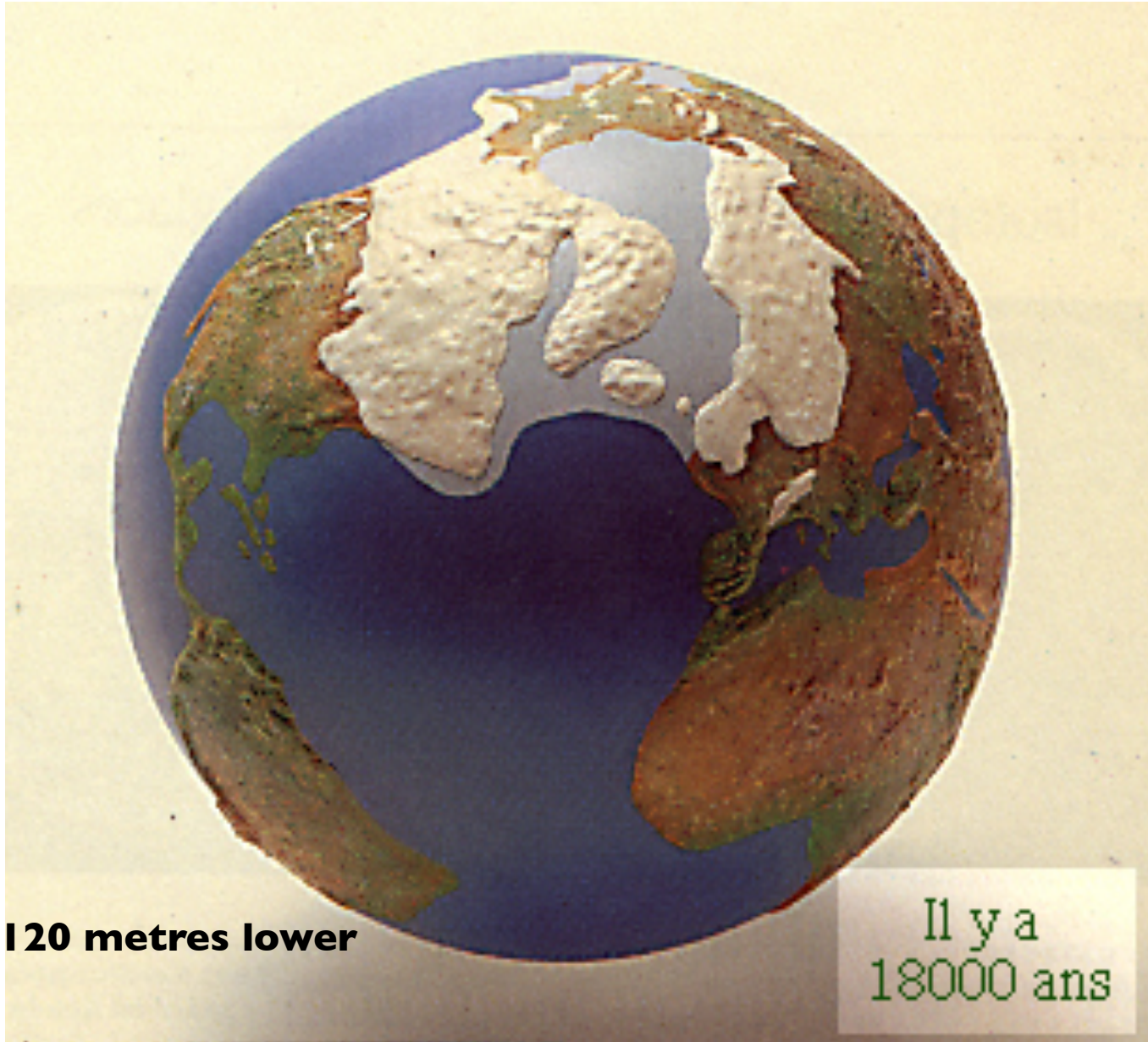


**Fact n° 3: Average temperature is probably on its way to exceed the « conservation temperature » for the Greenland and (some of the) Antarctic ice sheet**

There is therefore a very high risk that average sea level would increase by several metres over the next century or two

# 18-20000 years ago (Last Glacial Maximum)

With permission from Dr. S. Joussaume, in « Climat d'hier à demain », CNRS éditions.



**Sea level: 120 metres lower**

Il y a  
18000 ans

# Today, with +4-5° C globally

With permission from Dr. S. Joussaume, in « Climat d'hier à demain », CNRS éditions.



**Fact n° 4: World Health Organization (2018): Air pollution kills 7 million people per year (inc. 500 000 in Europe)**

Sources of air pollution are broadly the same as those affecting climate: fossil fuels, wood and biomass combustion

# Children are particularly sensitive to air pollution



Photo: Indiatoday.in, 6-12-2017

**Fact n° 6: Climate change  
impacts poor people first, but we  
are all on the same spaceship**

Belgian Prime Minister Charles Michel (RTBF,  
4 May 2018): « when there is a geopolitical  
instability, we pay the cost as well »

# **Risk = Hazard x Vulnerability x Exposure**

**(Victims of New Orleans floods after Katrina in 2005)**



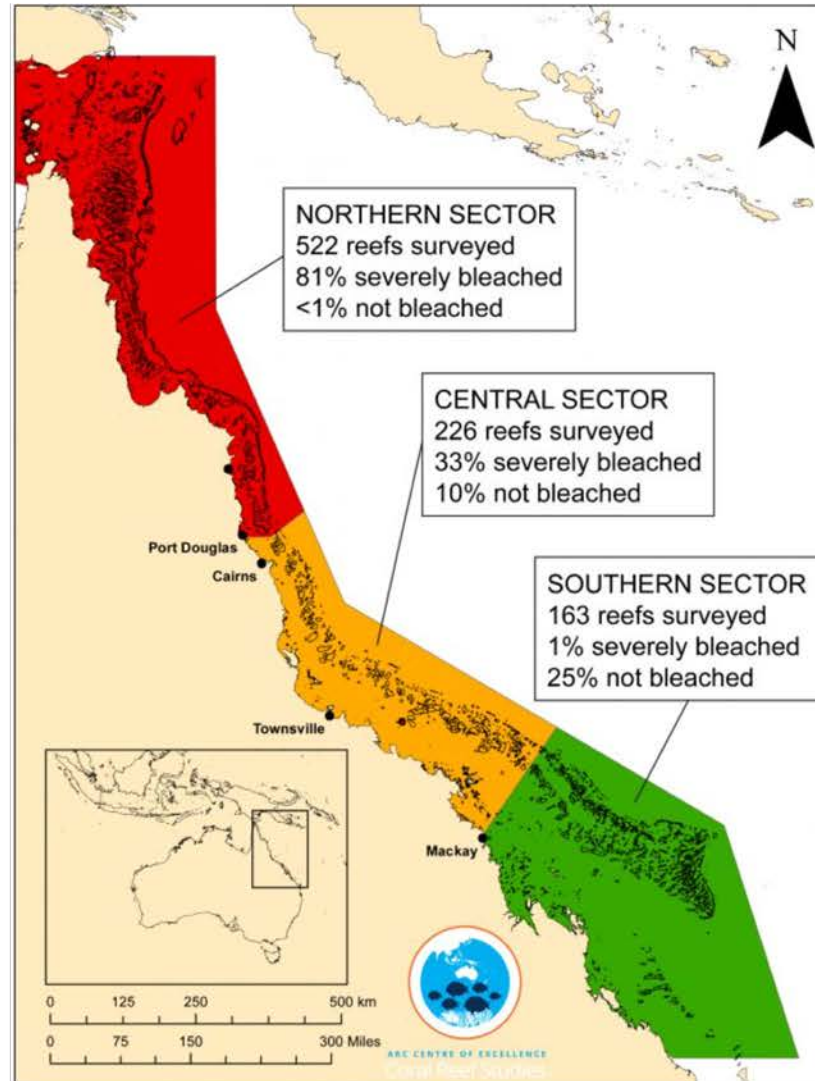
AP Photo - Lisa Krantz (<http://lisakrantz.com/hurricane-katrina/zspbn1k4cn17phidupe4f9x5t1mzdr>)

# **Fact n° 6: Ecosystems suffer more and more, while our wellbeing depends on their good state**

The « Sixth Extinction » has started, and climate change is one of the causing factors



# 2016: Only 7% of the Great Barrier Reef has avoided coral bleaching



**Fact n° 7: In the USA alone,  
organizations which sow doubt  
about climate change spend almost  
a billion dollars/year! (Brulle 2014, average  
numbers for 2003-2010)**

The European Union fares a little better, but many Brussels lobbyists try to dilute the EU environmental efforts (see the car industry...)

# The « merchants of doubt » have evolved in their arguments:

- Existence of global warming
- Human responsibility in the warming
- Cost of decarbonization
- Drawbacks from alternatives

(recent example: so-called enormous needs of cobalt for electric mobility reported on CNN; see critical analysis on <https://www.desmogblog.com/2018/05/02/cnn-wrongly-blames-electric-cars-unethical-cobalt-mining>)

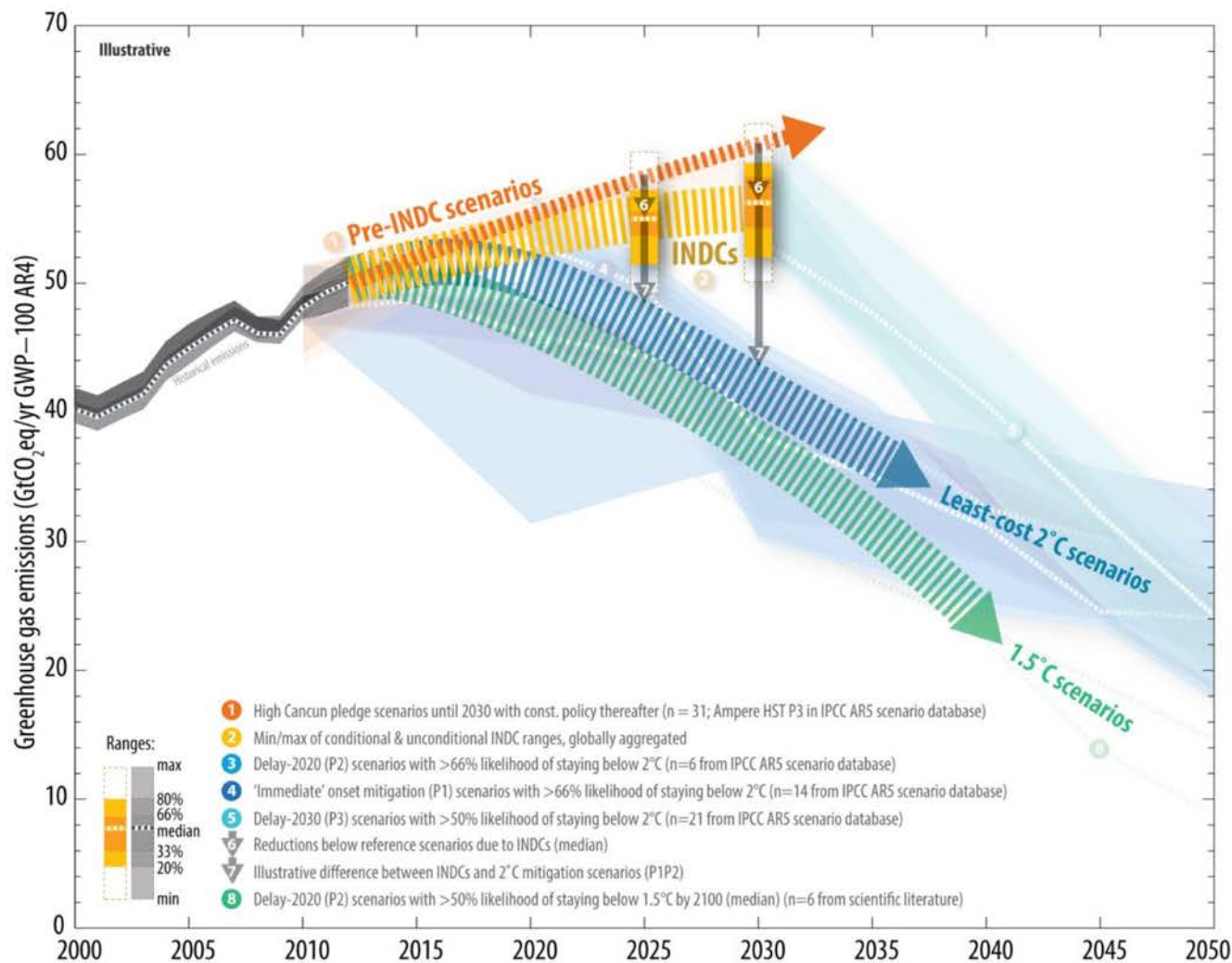
**Fact n° 8: European Union  
spends at least 1 billion euros  
*per day* simply to buy fossil fuels  
outside its borders.**

True, decarbonizing the EU economy will cost, but not doing it could cost much more in impacts. Saving these 400 billions €/year could offer many opportunities

**Fact n° 10: The present national plans (NDCs) introduced ahead of the Paris Agreement are far from what is needed to respect the 1.5° C objective, and even to stay below 2° C warming**

Please note that the Paris Agreement speaks about 1.5° C and « *well below 2° C* » warming, not 2° C

# Comparison of global emission levels in 2025 and 2030 resulting from the implementation of the intended nationally determined contributions



UNFCCC, Aggregate effect of the intended nationally determined contributions: an update

<http://unfccc.int/resource/docs/2016/cop22/eng/02.pdf>

**(Element) of solution n° 1: The  
survival of humanity and  
ecosystems must become a  
much higher political priority**

... as if we were all running for our life.

# **Solution n° 2: Economic actors must be confronted much more clearly with their responsibilities**

Degrowth of climate-unfriendly activities must be accepted, while growth of activities helping climate protection and poverty eradication must be encouraged



**100 fossil-fuel related  
companies were responsible for  
71 % of world industrial CO<sub>2</sub>  
emissions between 1988 and  
2017**

Of course, their products are bought by billions of people, but they have a particular responsibility

Source: The Carbon Majors Database, CDP Carbon Majors Report 2017, CDP, 2017, [www.cdp.net](http://www.cdp.net)

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**Solution n° 3: The best understood language is the price. Destroying the environment must become more and more expensive. Collected funds must be used to help the decarbonization, and avoid impacting the poor disproportionately**

EU Emission Trading System, CO<sub>2</sub> taxes, fines, internal CO<sub>2</sub> price (firms do « as if » CO<sub>2</sub> emission was expensive). NB: Price must match the effect desired!

**Solution n° 4: Transition towards a clean and sustainable economy and energy system must be « just », and other synergies with the SDGs must be sought**

**Ex : The Polish energy system cannot be transformed without facilitating the coal miners reconversion**



# SUSTAINABLE DEVELOPMENT GOALS



**Solution n° 5: Before looking at how to produce energy cleanly, much more attention must be given to reducing energy demand and efficiency, in all sectors**

All production and consumption patterns must be reconsidered, helped by energy audits, etc.

**Solution n° 6: Building sector: offers many opportunities in energy saving, economic activity, improving wellbeing...**

Trying to practice what I « preach »



**Solution n° 7: Mobility : much more space and priority to pedestrians, bicycles, and public transport; reduce priority given too long to individual transport in urban planning**

Electrify remaining vehicles (with clean electricity). Fly less, only if essential.



**Solution n° 8: Food and agriculture. A possible change with big positive impact: eat less (red) meat and cheese, of better quality!  
Eat more plant-based food (produced cleanly)<sup>(\*)</sup>**

**...It is good for health as well!**

(\*) See « Beyond-Meat », page 14 of De Tijd, page 13 of L'Écho, 23 November 2018

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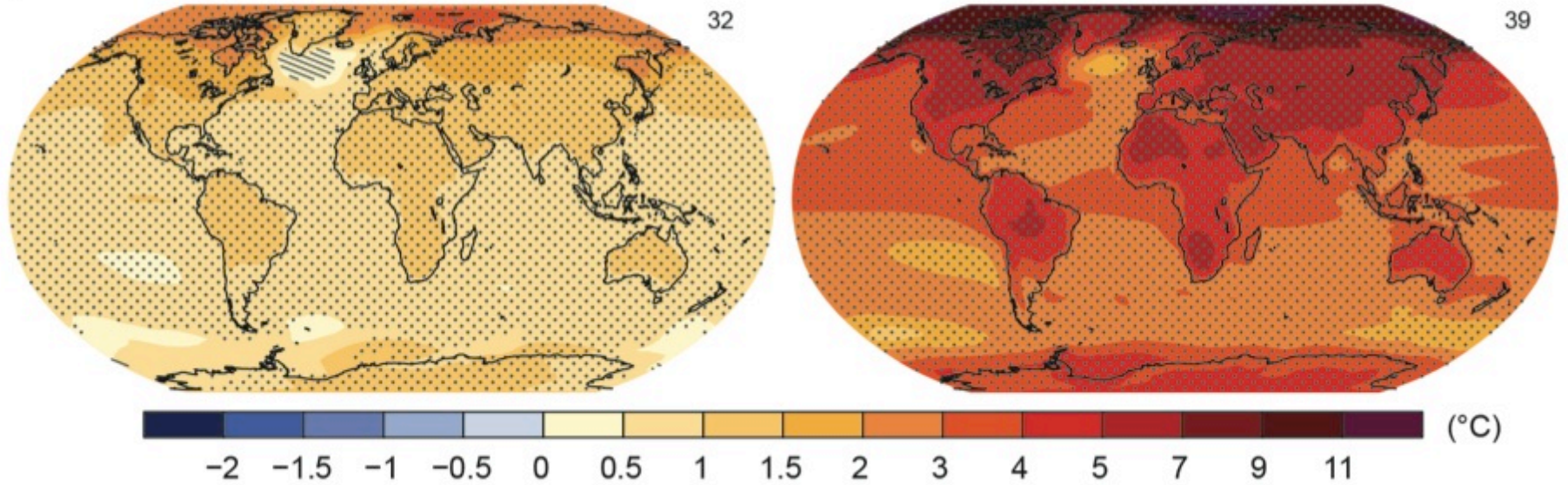
**Solution n° 9: The Sun gives us  
in two hours about as much  
energy as the world uses in *one*  
*year*, all forms of energy  
considered**

The cost of solar kWh is crashing, wind power, heat and electricity storage, and smart grids are moving forward

# RCP2.6

# RCP8.5

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



Humanity has the choice

This gives me  
hope:

Well-  
informed  
young people  
speaking  
truth to  
power, in a  
non-violent  
way

With @GretaThunberg at COP24



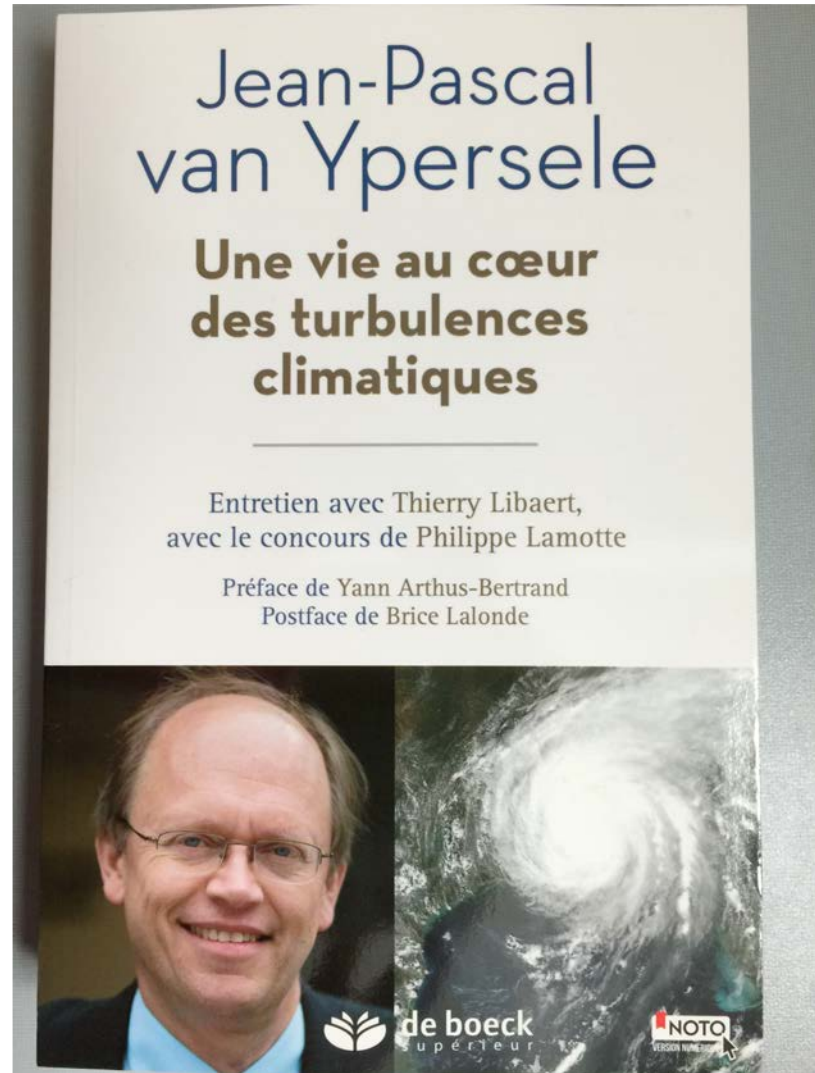
**Pour en savoir plus:**

**Lisez mon livre, où  
j'aborde tous ces sujets**

**Publié chez De Boeck  
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**Préface: Yann Arthus-  
Bertrand**

**Postface: Brice Lalonde**



**Om meer te weten:**

**Bij EPO (2018)**

**Voorwoord:  
Jill Peeters**



# To go further :

- [www.climate.be/vanyp](http://www.climate.be/vanyp) : my slides (under « conferences)
- [www.ipcc.ch](http://www.ipcc.ch) : IPCC
- [www.realclimate.org](http://www.realclimate.org) : answers to the merchants of doubt arguments
- [www.skepticalscience.com](http://www.skepticalscience.com) : same
- [www.plateforme-wallonne-giec.be](http://www.plateforme-wallonne-giec.be) : IPCC-related in French, Newsletter, latest on SR15
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