A few remarks about the urgency of increasing the ambition level of EU climate policies

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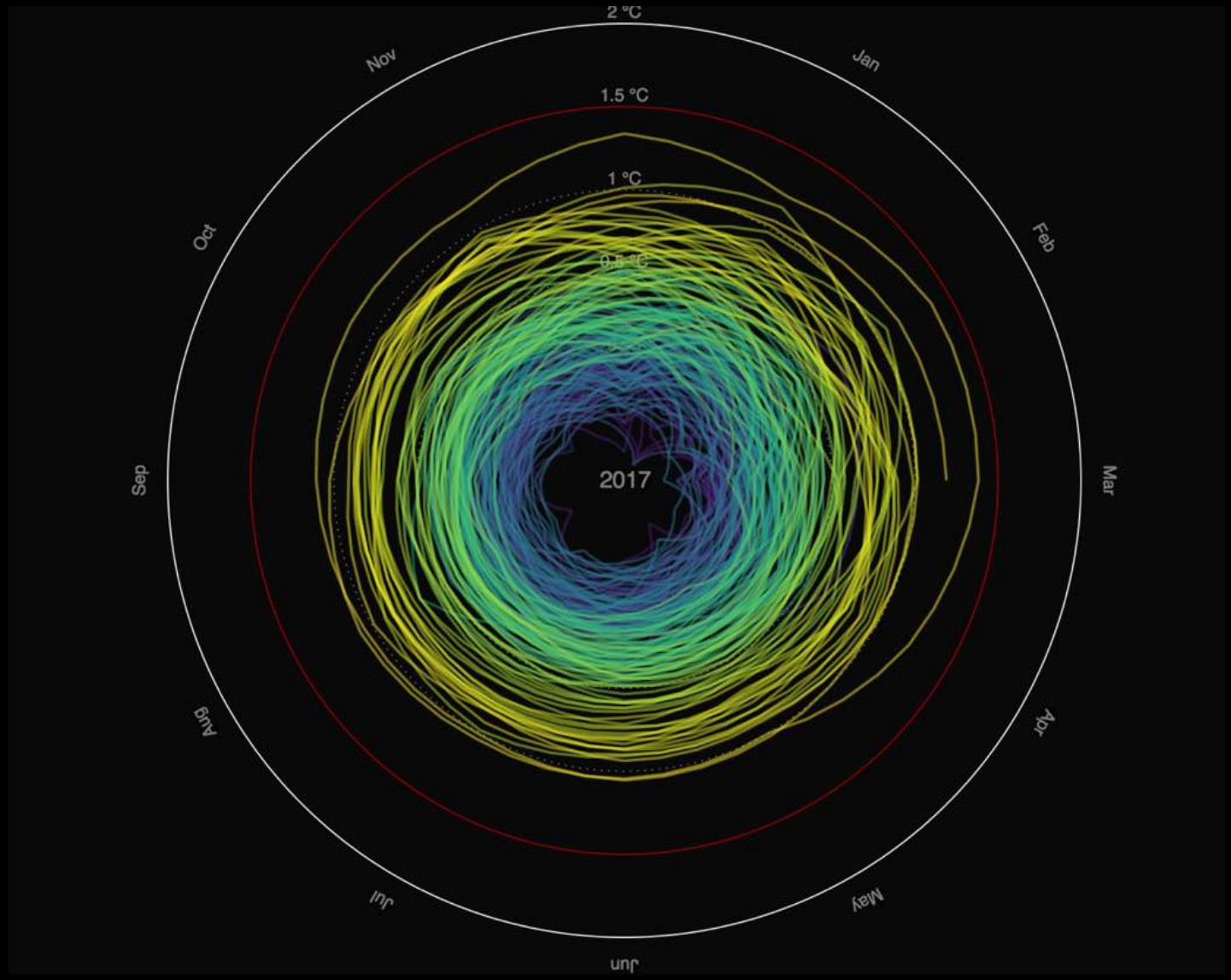
Press conference CAN-Europe,
Brussels, 20 September 2018

Temperature spiral



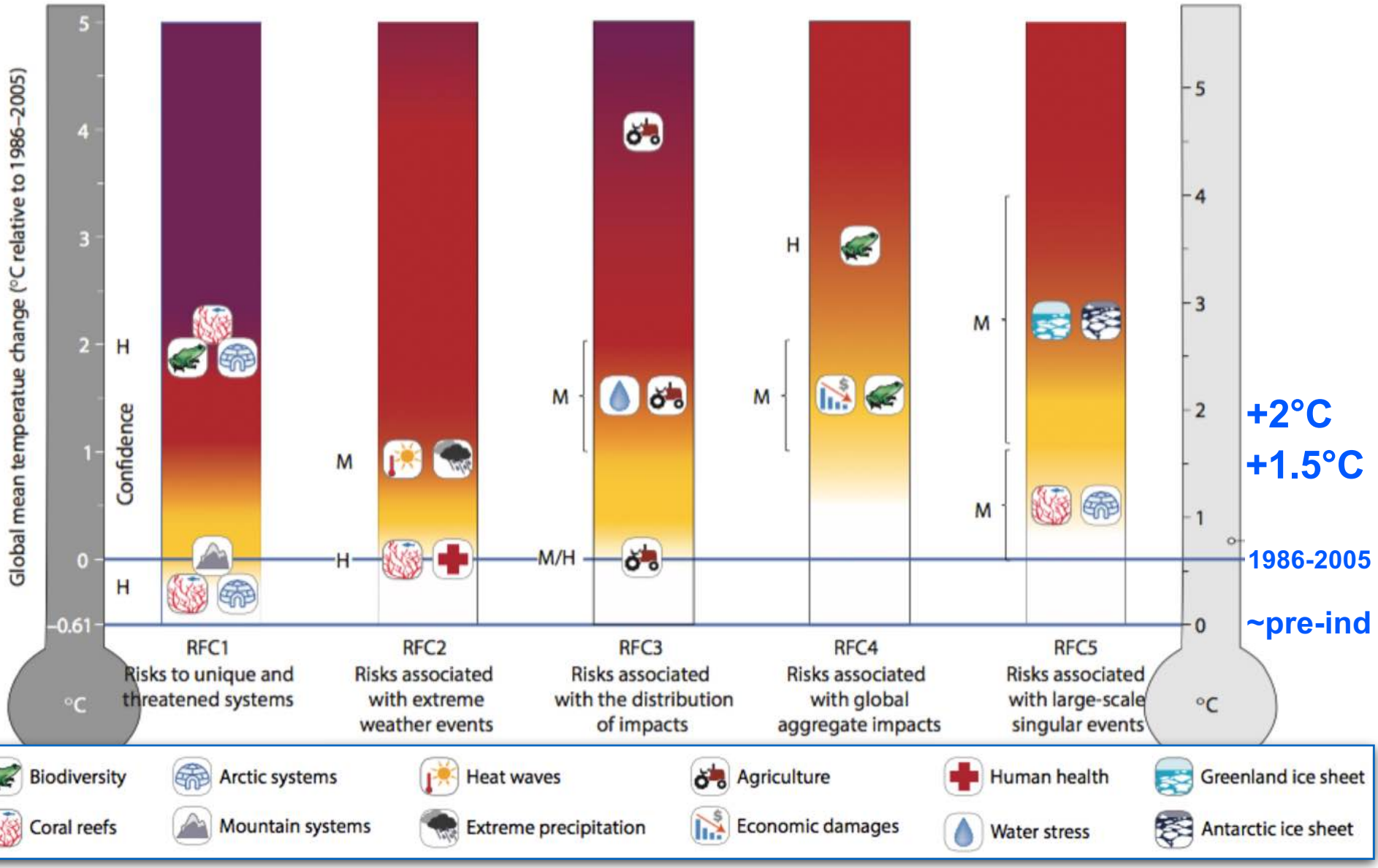
Global Mean Temperature in °C relative to 1850 – 1900
Graph: Ed Hawkins (Climate Lab Book) – Data: HadCRUT4 global temperature dataset
Animated version available on http://openclimatedata.net/climate-spirals/temperature

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

IPCC reasons for concern / climate change risks

(Nat Climate Change 2017)



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

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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

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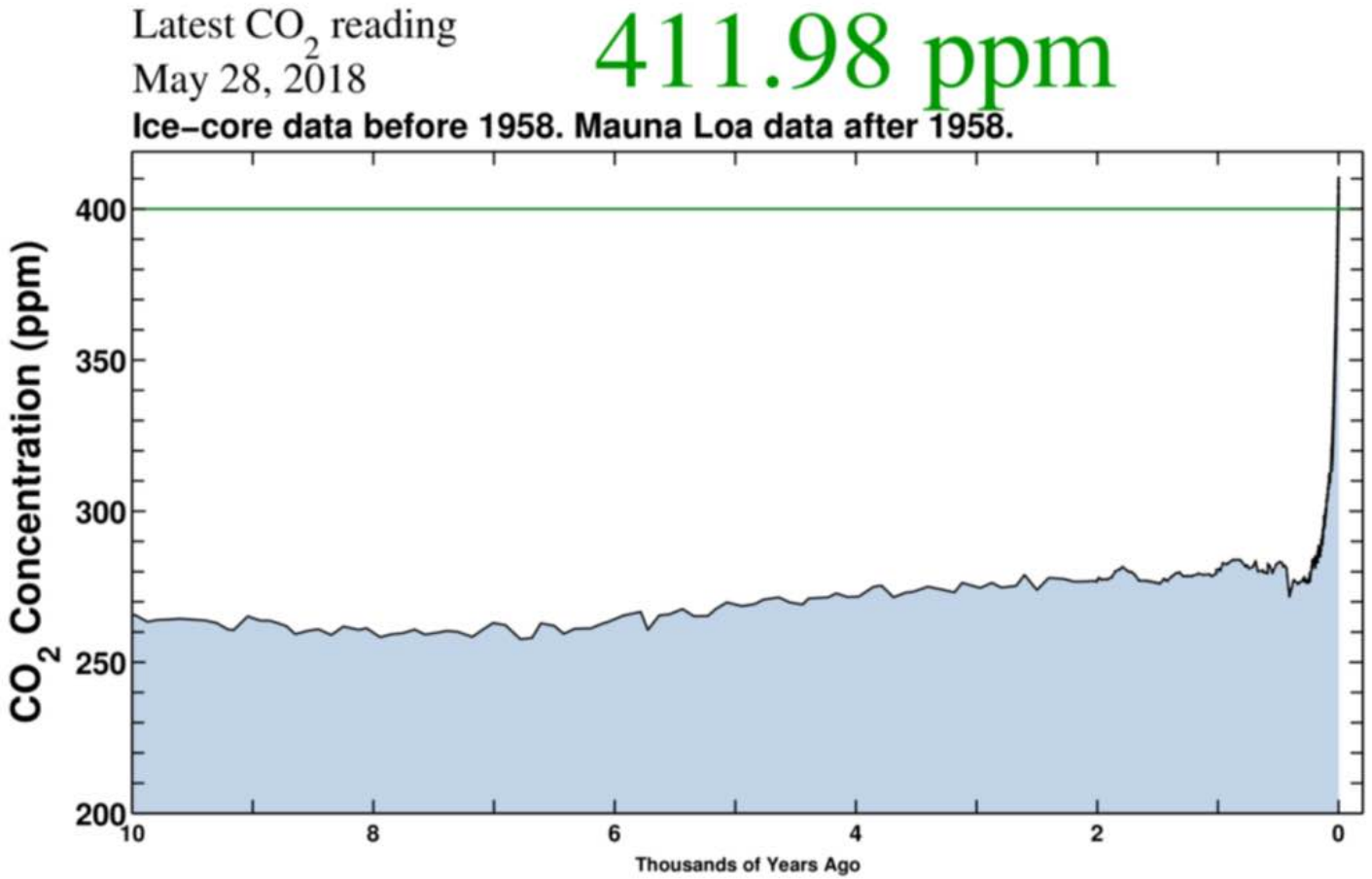
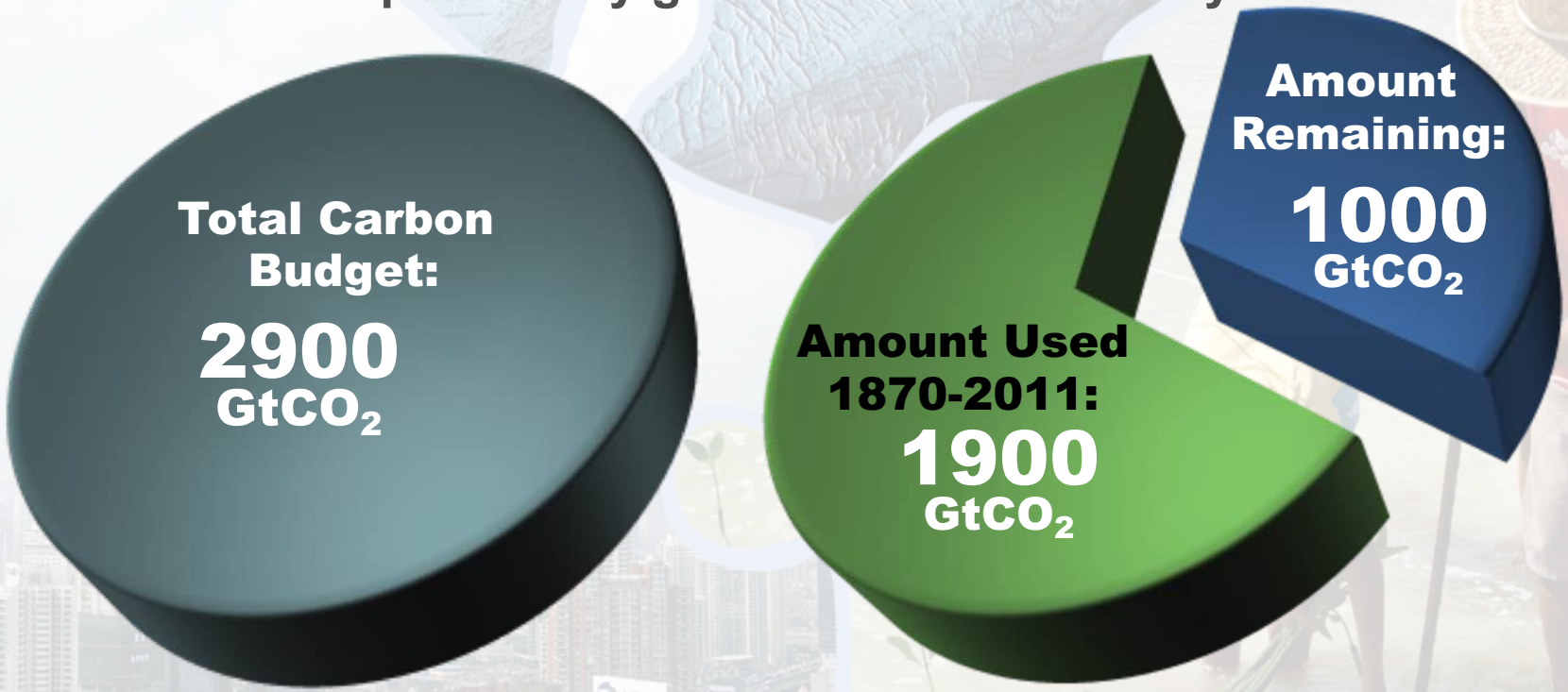
CO_2 Concentration, 28 May 2018 (Keeling curve)



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

The window for action is rapidly closing

65% of the carbon budget compatible with a 2˚ C goal is already used
NB: this is with a probability greater than 66% to stay below 2˚ C



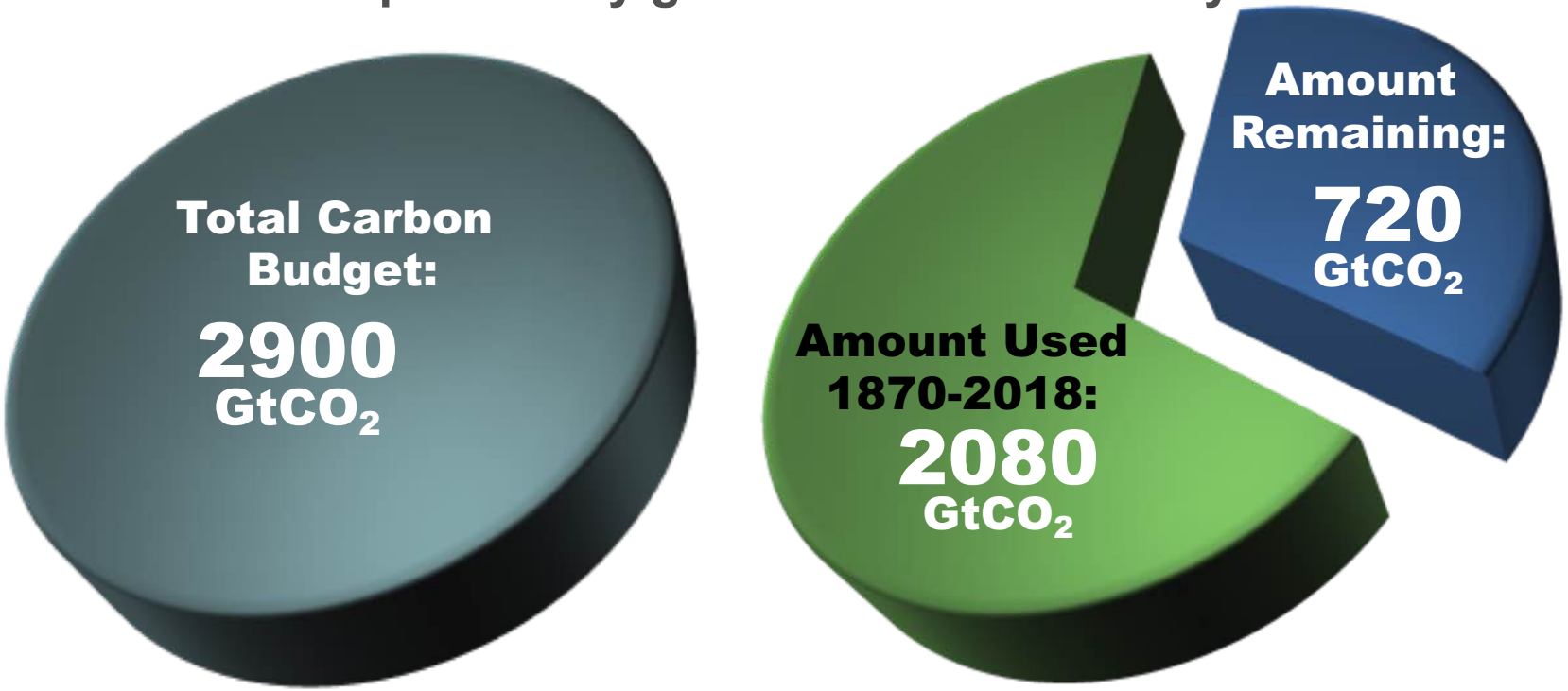
NB: Emissions in 2011: 38 GtCO2/yr

AR5 WGI SPM

My personal update (2018):
The window for action is VERY rapidly closing

75% of the carbon budget compatible with a 2° C goal is already used

NB: this is with a probability greater than 66% to stay below 2° C



NB: Emissions in 2011: 38 GtCO2/yr

AR5 WGI SPM

Adapted by @JPvanYpersele from the IPCC AR5

AR5 SYR: Carbon dioxide « budgets »

	Cumulative CO_2 emissions from 1870 in $GtCO_2$					
Net anthropogenic warming [a]	<1.5°C			<2°C		
Fraction of simulations meeting goal [b]	66%	50%	33%	66%	50%	33%
Complex models, RCP scenarios only [c]	2250	2250	2550	2900	3000	3300
Simple model, WGIII scenarios [d]	No data	2300 to 2350	2400 to 2950	2550 to 3150	2900 to 3200	2950 to 3800
	Cumulative CO_2 emissions from 2011 in $GtCO_2$					
Complex models, RCP scenarios only [c]	400	550	850	1000	1300	1500
Simple model, WGIII scenarios [d]	No data	550 to 600	600 to 1150	750 to 1400	1150 to 1400	1150 to 2050

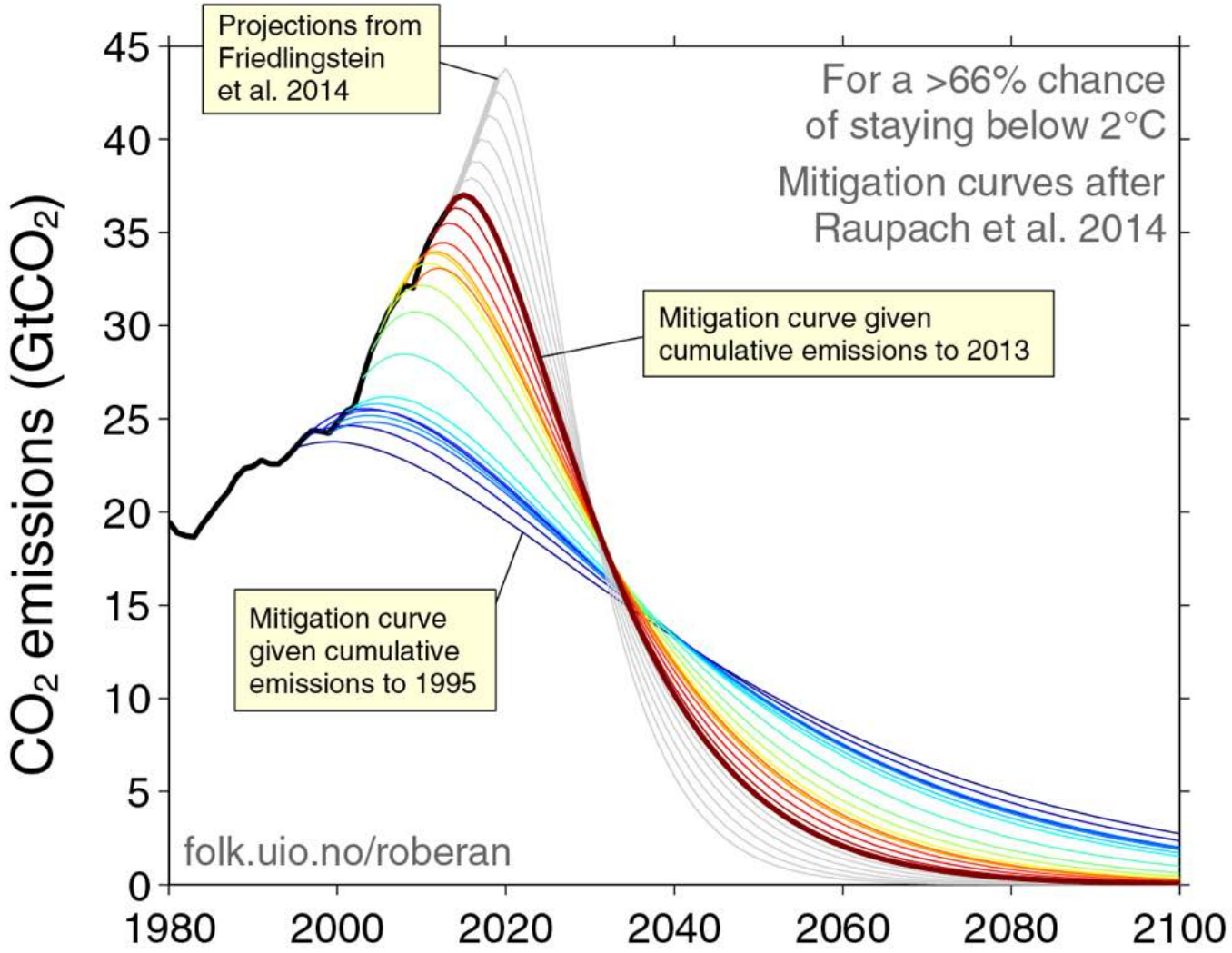
<3°C (see AR5 SYR)

possible?
implications?

ranges likely to change
at least due to more studies

(Source: AR5 Synthesis report table 2.2)

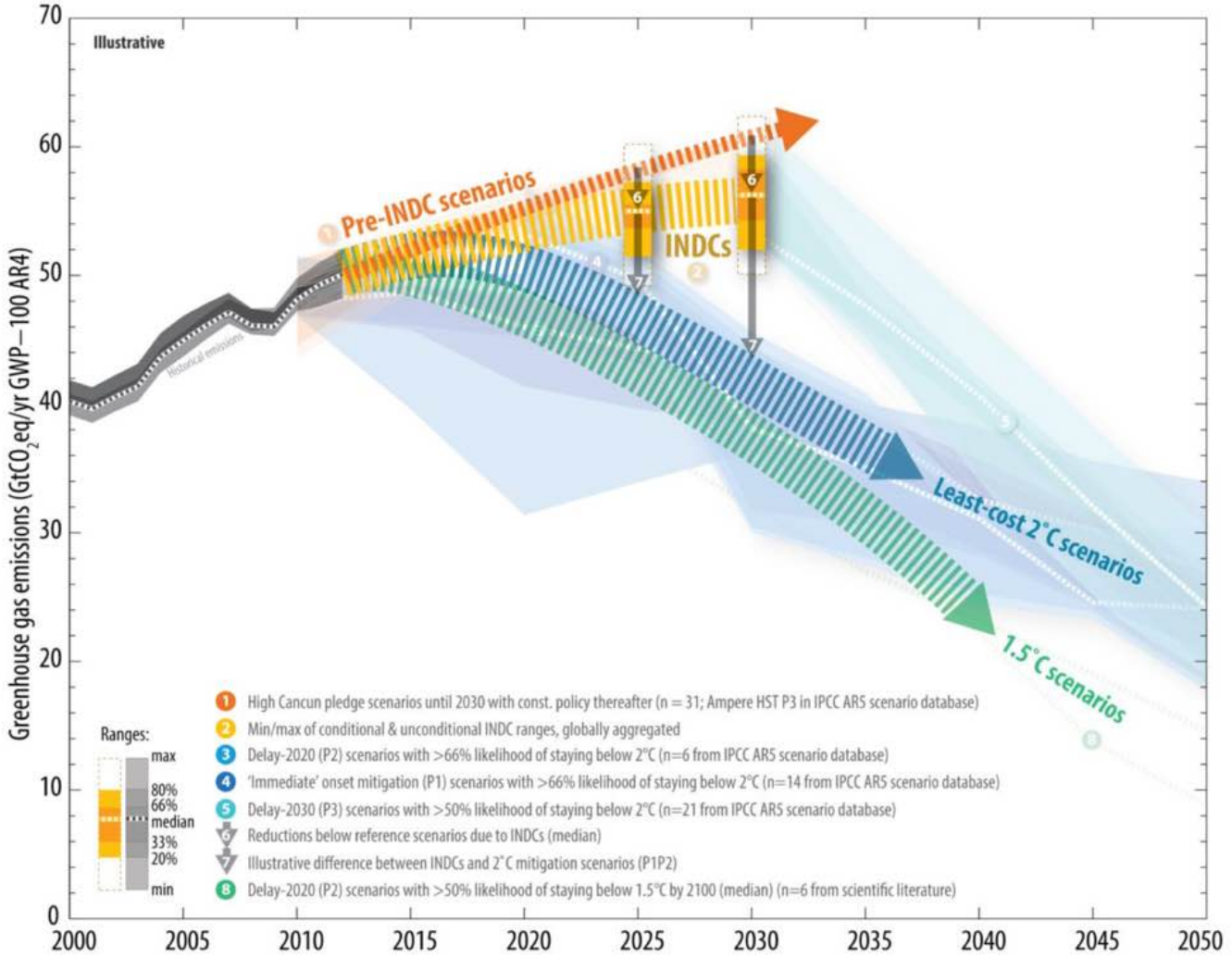
Limiting warming becomes much more difficult when the peak happens later



Source and details:

http://folk.uio.no/roberan/t/global_mitigation_curves.shtml

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

Synergies: Combustion of fossil fuels, wood, and biomass also cause air pollution, which kills 7 million people per year (including 500 000 in Europe)

(World Health Organization, 2018)

Opportunity: Addressing the causes of climate change can also improve air quality and wellbeing

Children are particularly sensitive to air pollution

Photo: Indiatoday.in, 6-12-2017

European Union loses 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

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Global warming of 1.5°C

A IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, ***in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty***

Proposed outline (as adopted in October 2016; report to be finalized in 2018) :

- Summary for policy makers (max 10 pages)
- Chapters :
  - 1. Framing and context
  - 2. Mitigation pathways compatible with 1.5°C in the context of sustainable development
  - 3. Impacts of 1.5°C global warming on natural and human systems
  - 4. Strengthening and implementing the global response to the threat of climate change
  - 5. Sustainable development, poverty eradication and reducing inequalities
- Boxes (integrated case studies/regional and cross-cutting themes),
- FAQs (10 pages)

Tentative and personal conclusions

(The SR1.5 has not been finalized yet!)

1.5°C matters: reducing the warming, even by tenths of a °C, can make large differences for impacts, as many of these are non-linear, that is they worsen faster with warming than the warming itself.

The probability of extremes (heat waves, drought, floods, extreme sea level) is significantly lower in a 1.5°C world than in a 2°C world

1.5°C is much safer than 2°C in terms of long-term sea-level rise associated to ice-sheet processes, particularly for low-lying regions

Tentative and personal conclusions

(The SR1.5 has not been finalized yet!)

1.5°C lower impacts will make adaptation less costly than in 2°C world, even if there is a temporary overshoot above 1.5°C

It is very ambitious to reduce emissions fast enough to ZERO for a 1.5°C long-term average temperature above pre-industrial objective; a little easier with overshoot above 1.5°C for a short period

The slower radical changes in emission patterns take place, the more we may need uncertain or risky technologies, such as large use of carbon dioxide removal from the atmosphere (possibly at the expense of bio-energy competition with food production)

Decision making needs the best scientific information possible – the IPCC SR 1.5 will be essential, but much can be done to raise ambition without waiting for it

To go further :

- www.climate.be/vanyp : my slides (under « conferences)
- www.ipcc.ch : IPCC
- www.realclimate.org : answers to the merchants of doubt arguments
- www.skepticalscience.com : same
- **Twitter: @JPvanYpersele**
  @IPCC_CH