Today's topic

The 6th Global extinction


The Earth is in Our Hands


The light at the end of the tunnel is the oncoming 6th Mass Extinction…
YOURS!
And mankind is the primary cause

Mass extinctions are characterized by the loss of at least 75% of species within a geologically short period of time

Some have suggested that anthropogenic extinctions may have begun as early as when the first modern humans spread out of Africa between 100,000 and 200,000 years ago, which is supported by rapid mega-faunal extinction following recent human colonisation in Australia, New Zealand and Madagascar

Preparing to live with climate change

We all know what happened to the Dinosaurs 65 million years ago

Why we need conservation

Earth is in the midst of the Sixth Mass Extinction: 50% of all species are disappearing

The last mass extinction was 65 million years ago. And it wasn't the first!
It is best known for the extinction of non-avian dinosaurs, but massive amounts of plant species became extinct at that time as well

If present trends continue one half of all species of life on earth will be extinct in less than 100 years, as a result of habitat destruction, pollution, invasive species, and climate change

There have been five previous mass extinctions

Climate change is implicated in almost every case!

Everyone knows what happened to the dinosaurs, and when

But they weren't the first to go

Ordovician-Silurian mass extinction

443 million years ago. 85% of sea life wiped out due to *climate change*

Late Devonian mass extinction

359 million years ago. **75% of life wiped out. Start of the carboniferous era. Caused by asteroid impact and then** *climate change*

Permian mass extinction

248 million years ago. 96% of life wiped out. Various possible causes including massive methane release; asteroid impact; drop in oxygen levels; flood basalt eruptions

Triassic-Jurassic mass extinction

200 million years ago. Possibly due to ***climate change***; basaltic eruptions and impact events

Cretaceous-Tertiary mass extinction

65 million years ago. Due in part to ***climate change*** and basaltic eruptions but eventually to a massive impact event. End of the dinosaurs and much else besides

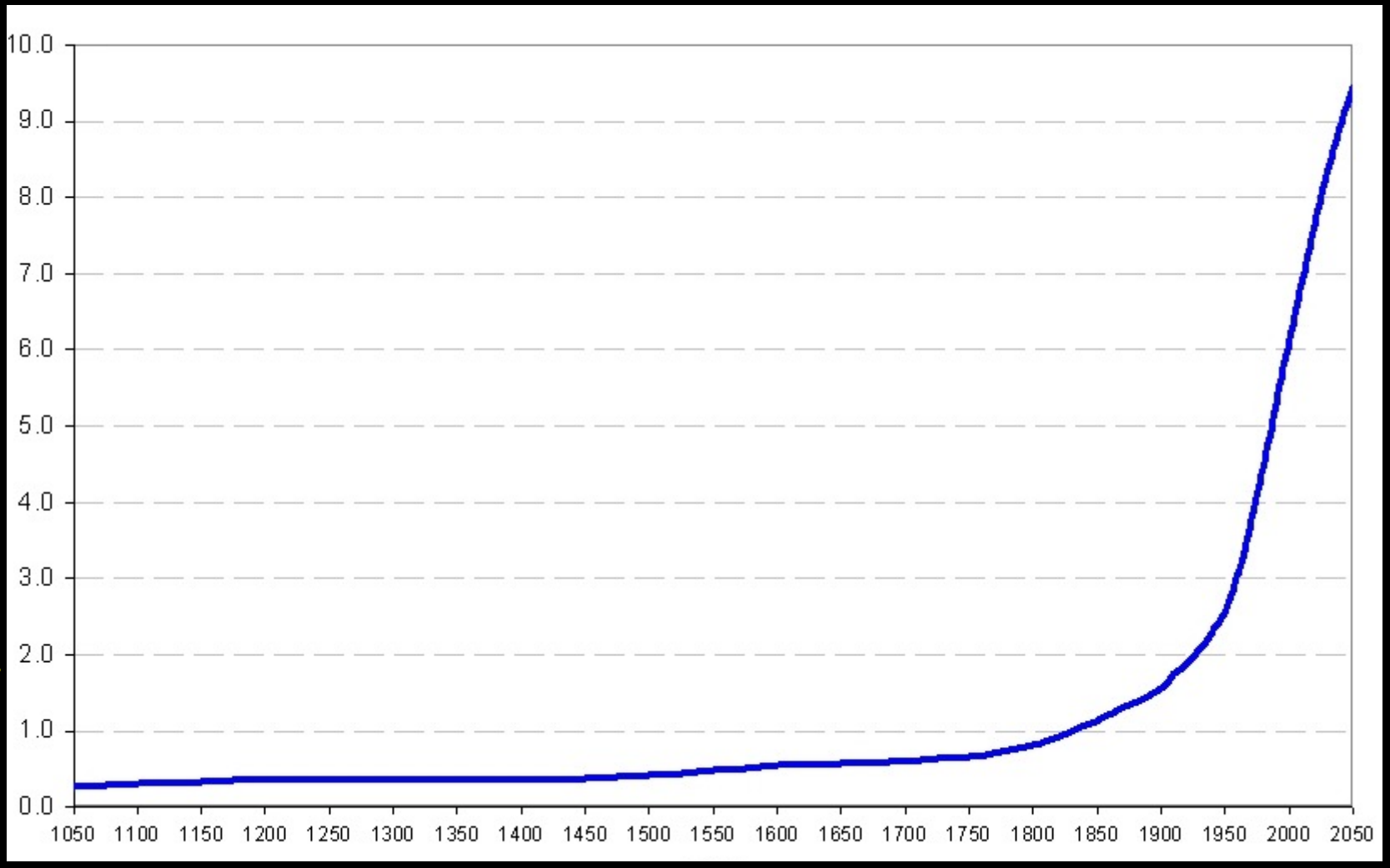
Some worrying facts

- The survival of 1 in 4 land mammals is in doubt
- More than 1 in 3 marine mammals are under threat
- Amphibians are in severe trouble. 1 in 3 is extinct or threatened
- 1 in 5 reptiles faces a battle to survive
- Habitat loss and degradation caused by agriculture and deforestation affects 40 per cent of the world's mammals
- Over-fishing is decimating fish stocks
- Man-made carbon dioxide from fossil fuels is causing global warming....

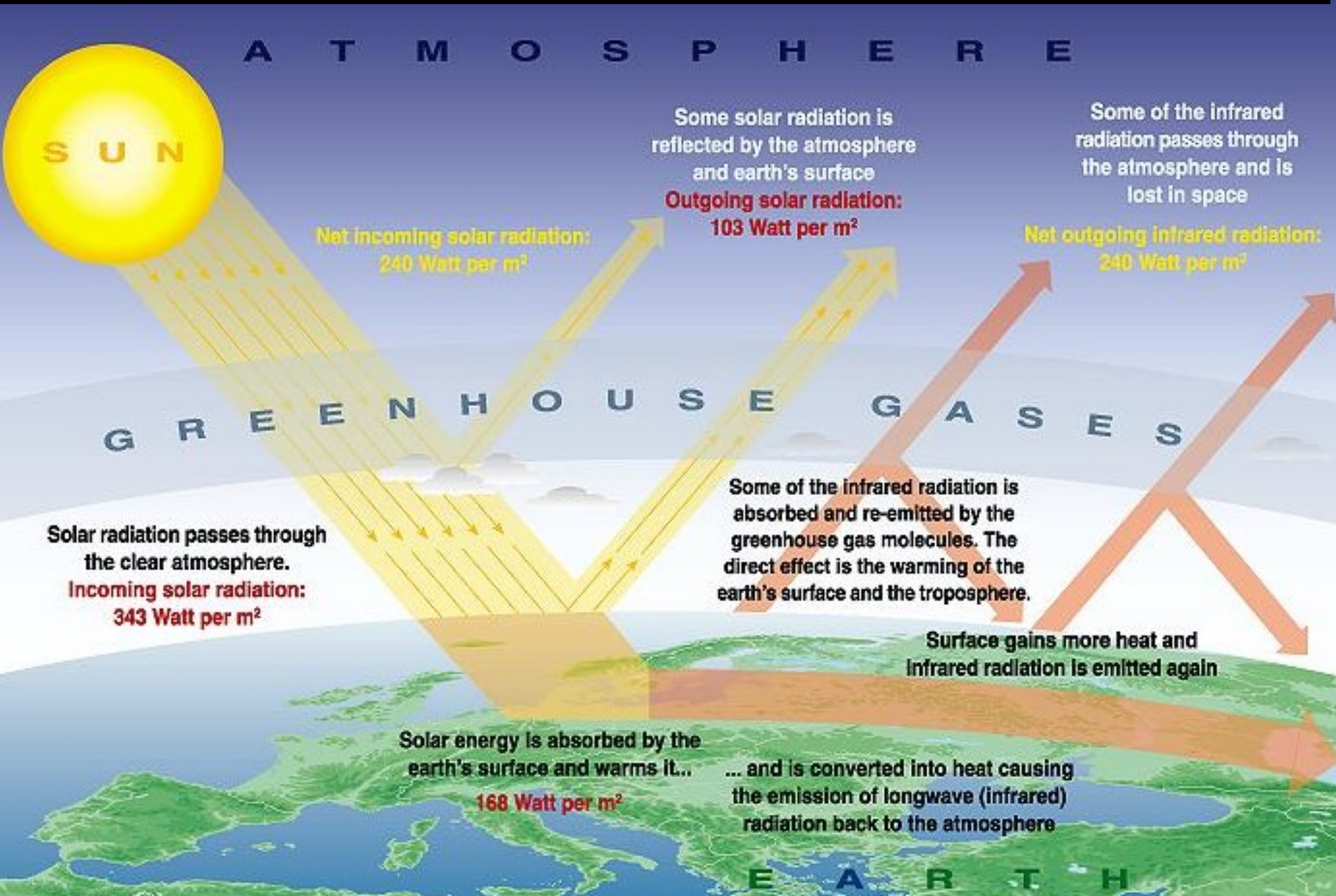
It gets worse

- Global warming means that the hot and dry areas of the World will become even more parched
- Rising sea levels caused by melting ice and expansion of the sea water will flood low-lying lands (like Bangladesh) And all our major cities are at sea level!
- The seas will become more acid and this will seriously affect corals at the base of the ecological chain
- Increasing World population puts increasing pressure on scarce resources

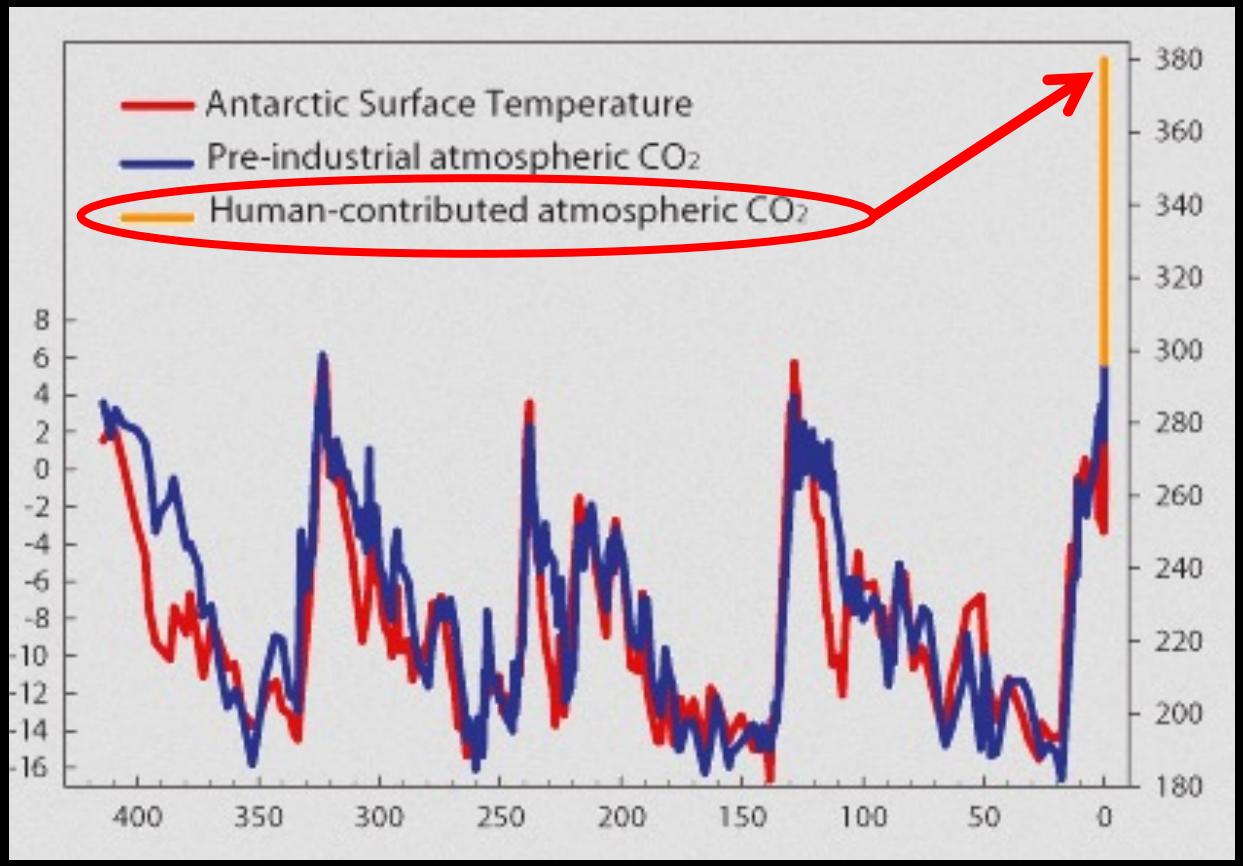
World Population and growth rate



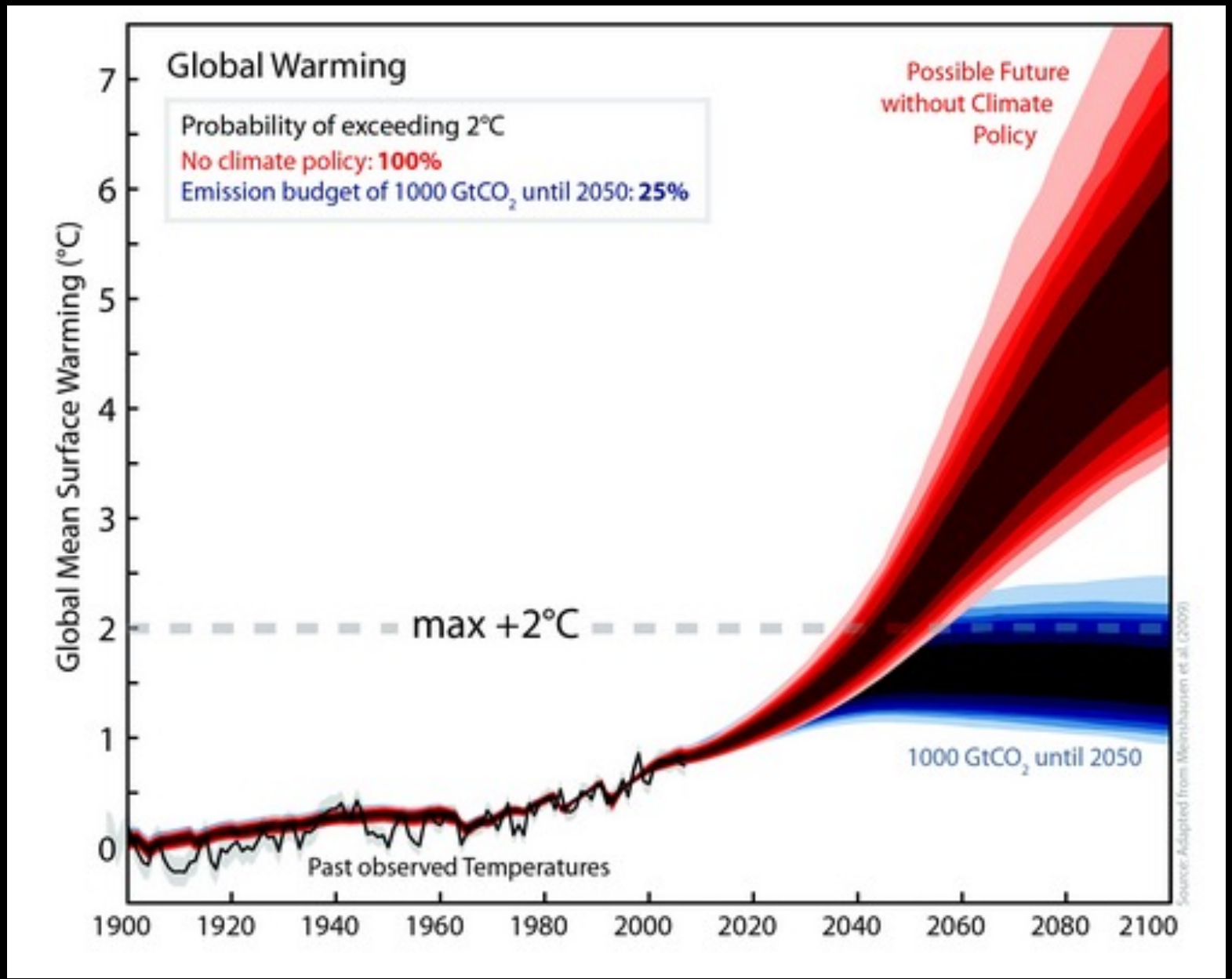
The Greenhouse effect



Correlation between Temperature and Carbon Dioxide during the last 400,000 years

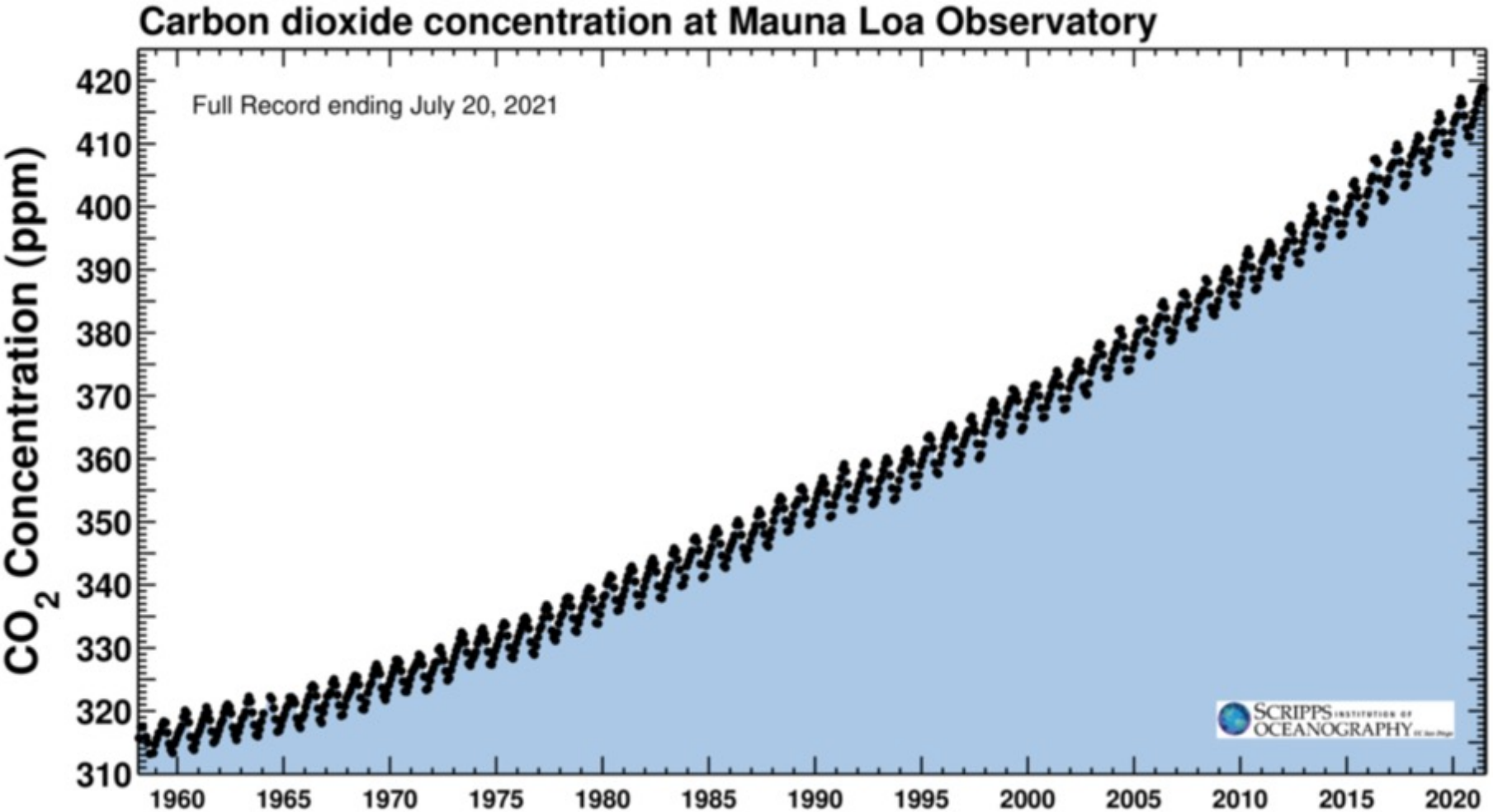


And if we do nothing…



Latest CO_2 reading: 416.70 ppm

July 20, 2021

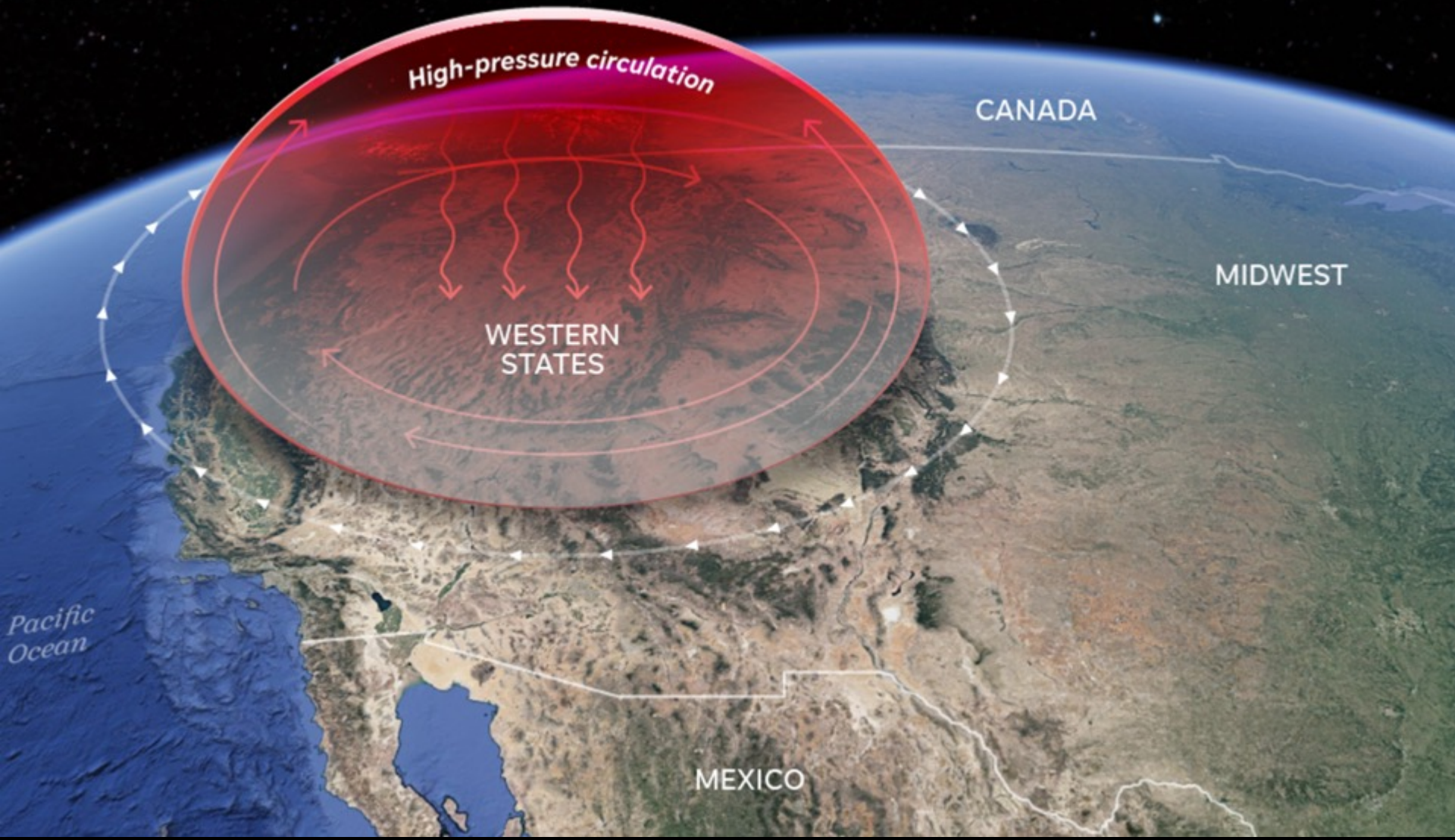


Floods in Germany

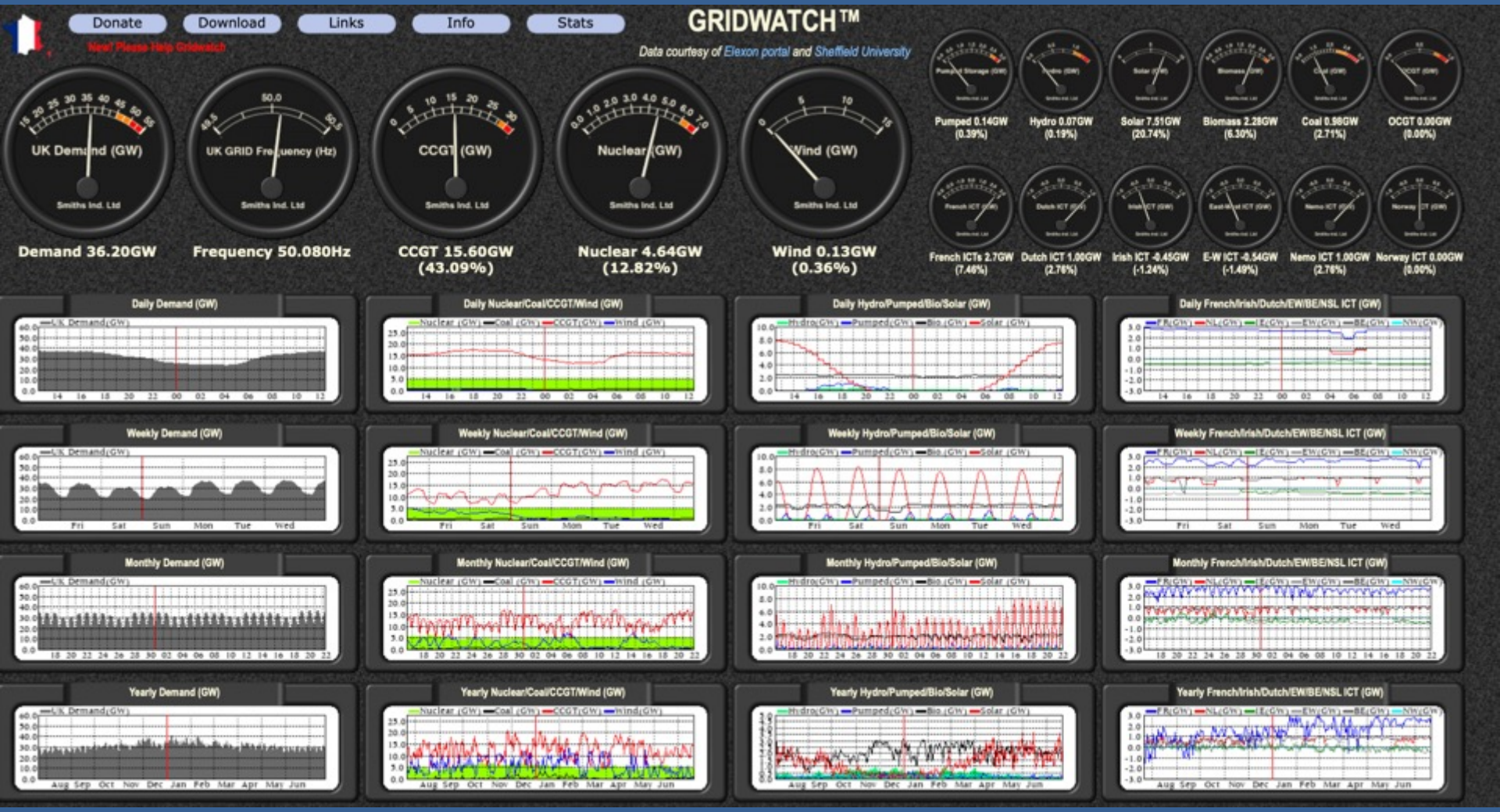
Floods in China

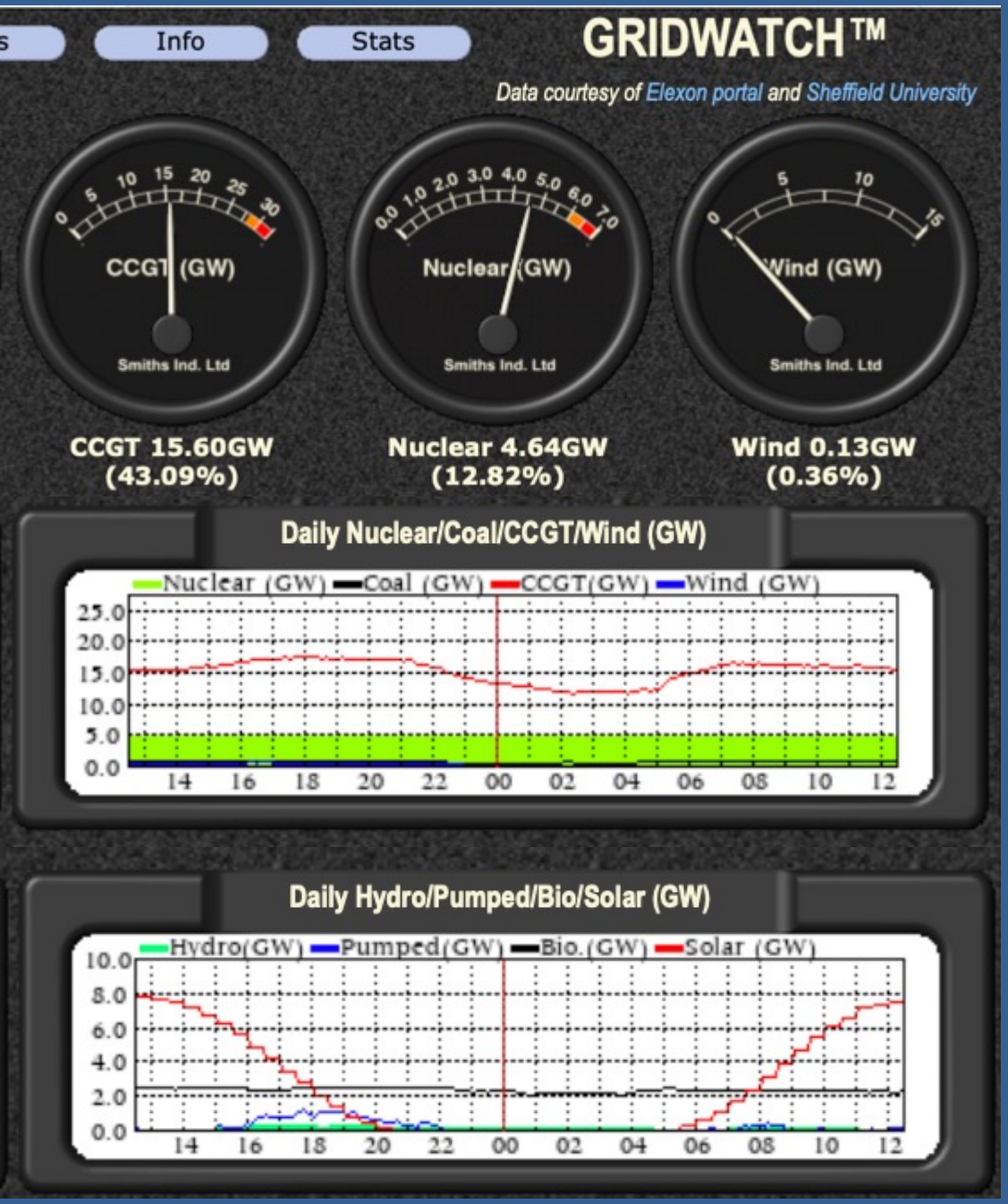
Floods in China

Heat dome over western US and Canada

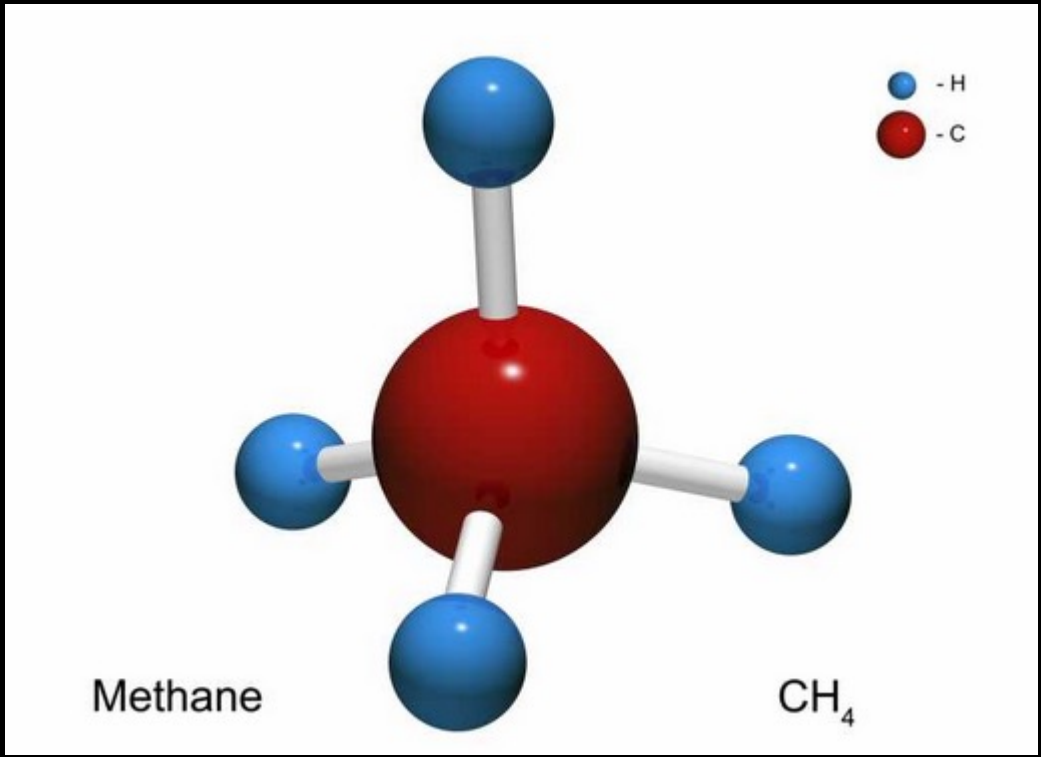


Our electricity - NOW

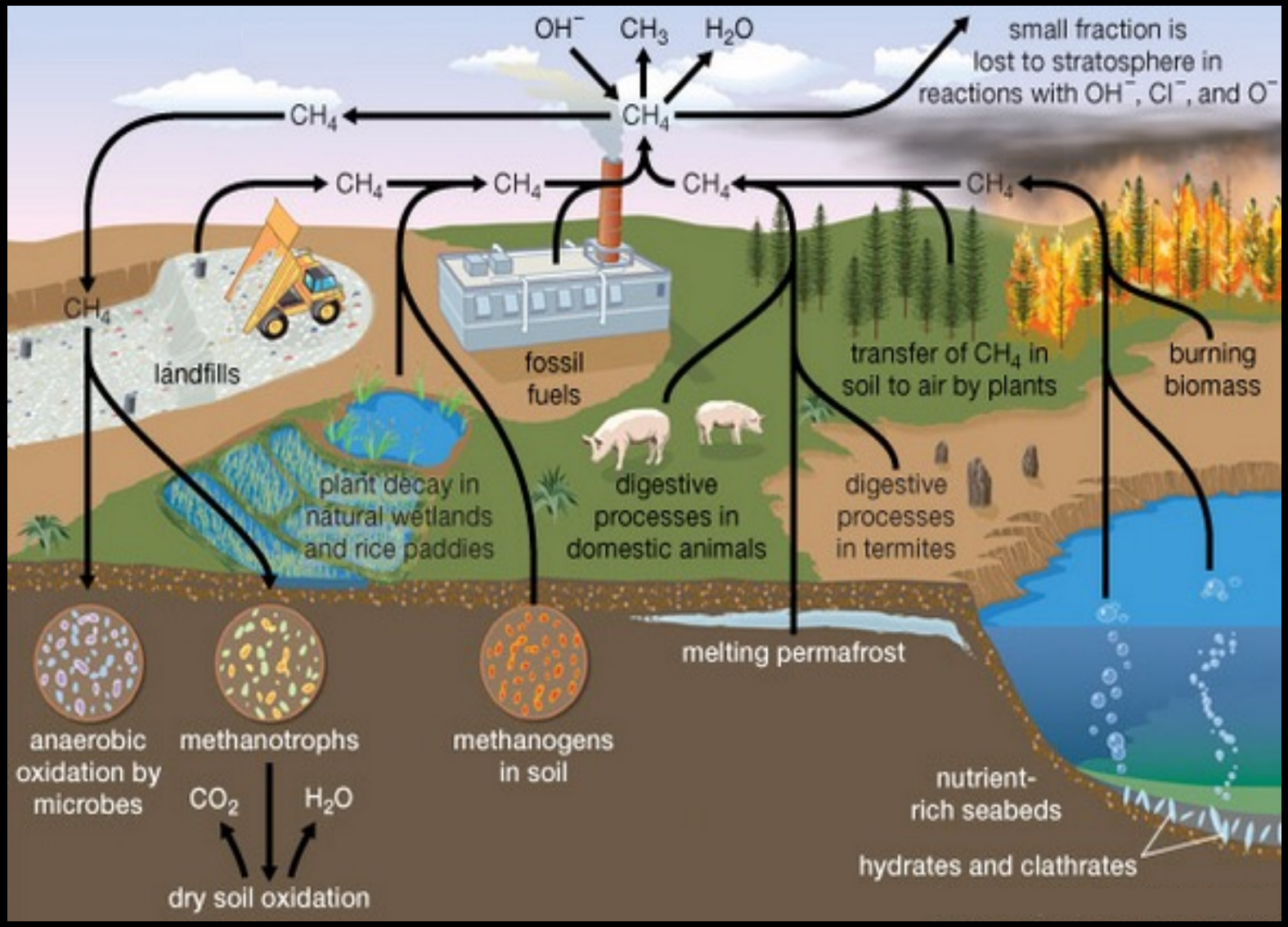



Info
Stats
GRIDWATCH™
Data courtesy of Elexon portal and Sheffield University
CCGT (GW)
Smiths Ind. Ltd
Nuclear (GW)
Smiths Ind. Ltd
Wind (GW)
Smiths Ind. Ltd
CCGT 15.60GW
(43.09%)
Nuclear 4.64GW
(12.82%)
Wind 0.13GW
(0.36%)
Daily Nuclear/Coal/CCGT/Wind (GW)
Nuclear (GW) Coal (GW) CCGT(GW) Wind (GW)
Daily Hydro/Pumped/Bio/Solar (GW)
Hydro(GW) Pumped(GW) Bio.(GW) Solar (GW)

CH_4 - Methane



The Methane cycle



The elephant in the room?

Methane – the elephant in the room!

Asian nations have developed a taste for Milk and Beef

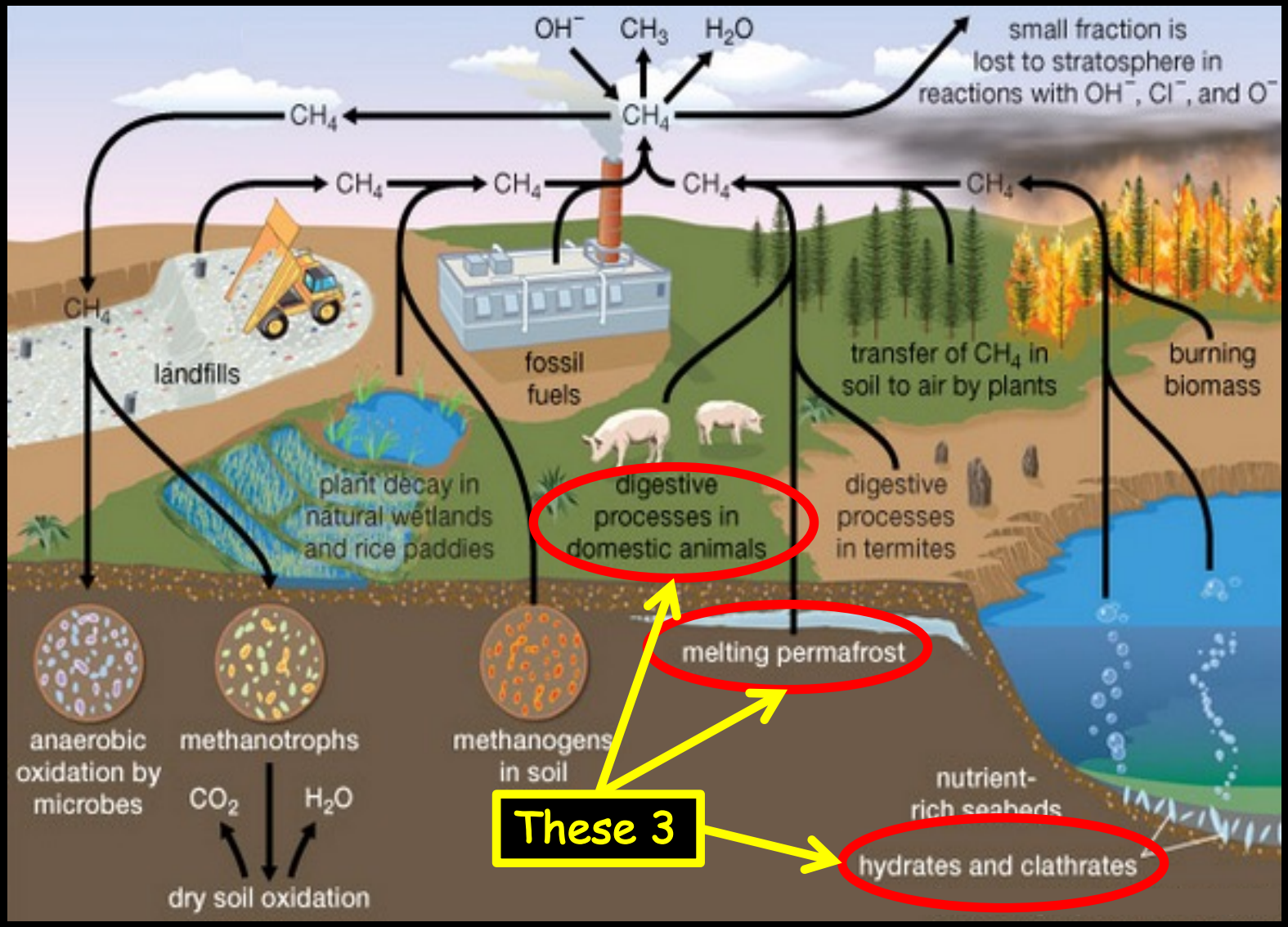
Cattle produce methane

If the temperature continues to rise in the Arctic the Tundra will also thaw out.

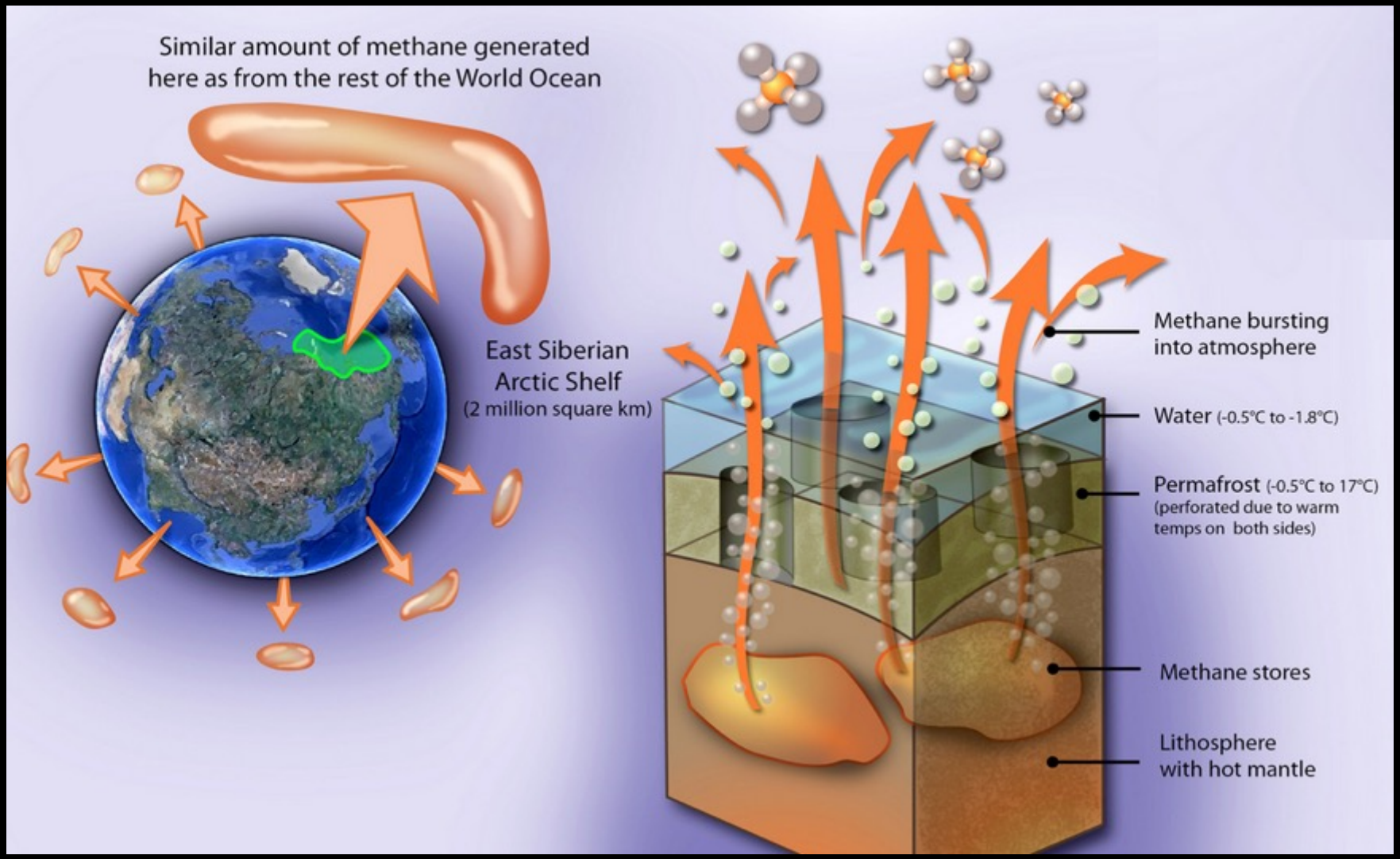
If the Tundra thaws out vast quantities of Methane will be released from Methane Hydrate.

As a greenhouse gas, Methane is 21 times more potent than CO_2

Three big problem areas



Melting permafrost

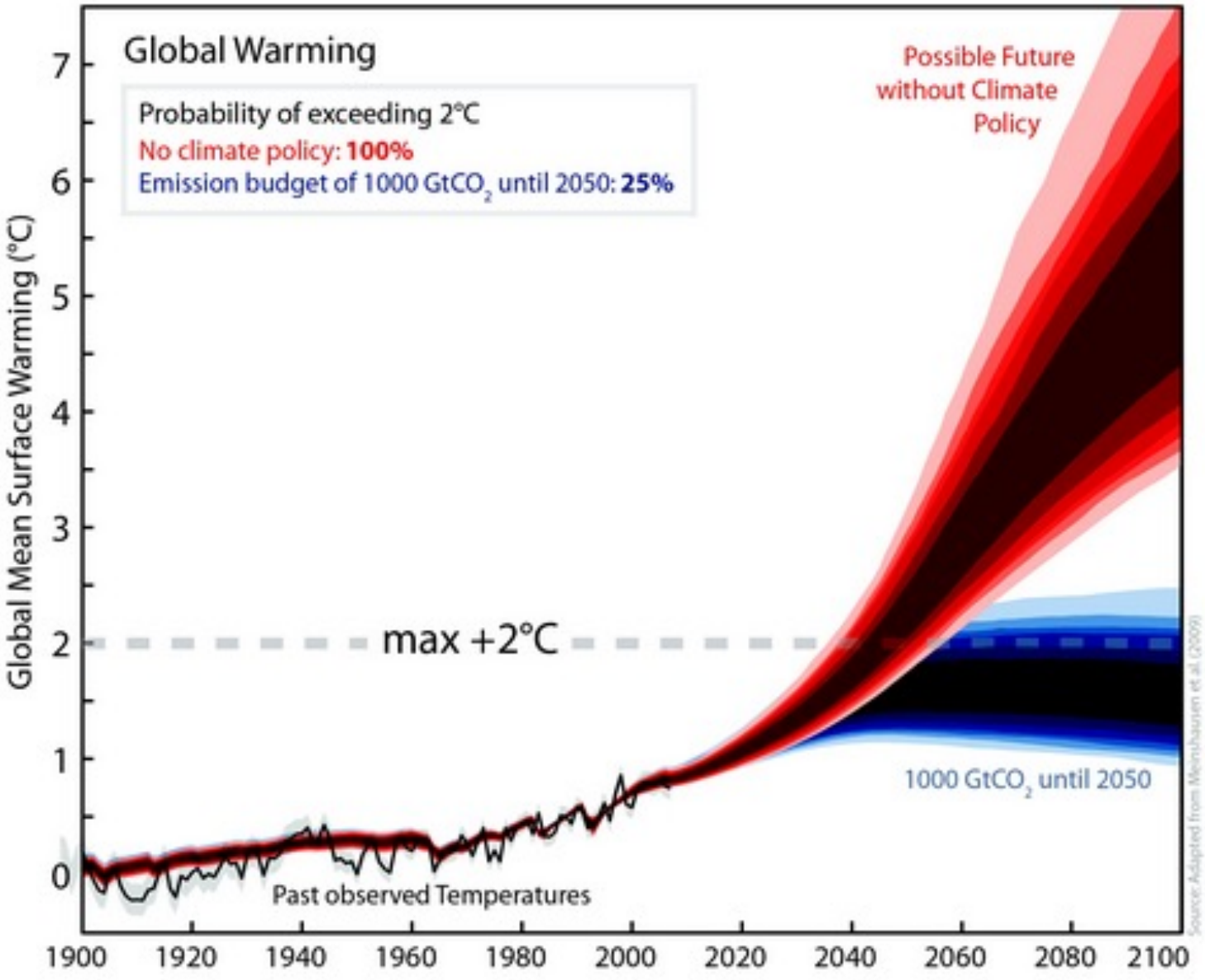


Ignition of methane escaping from a frozen lake

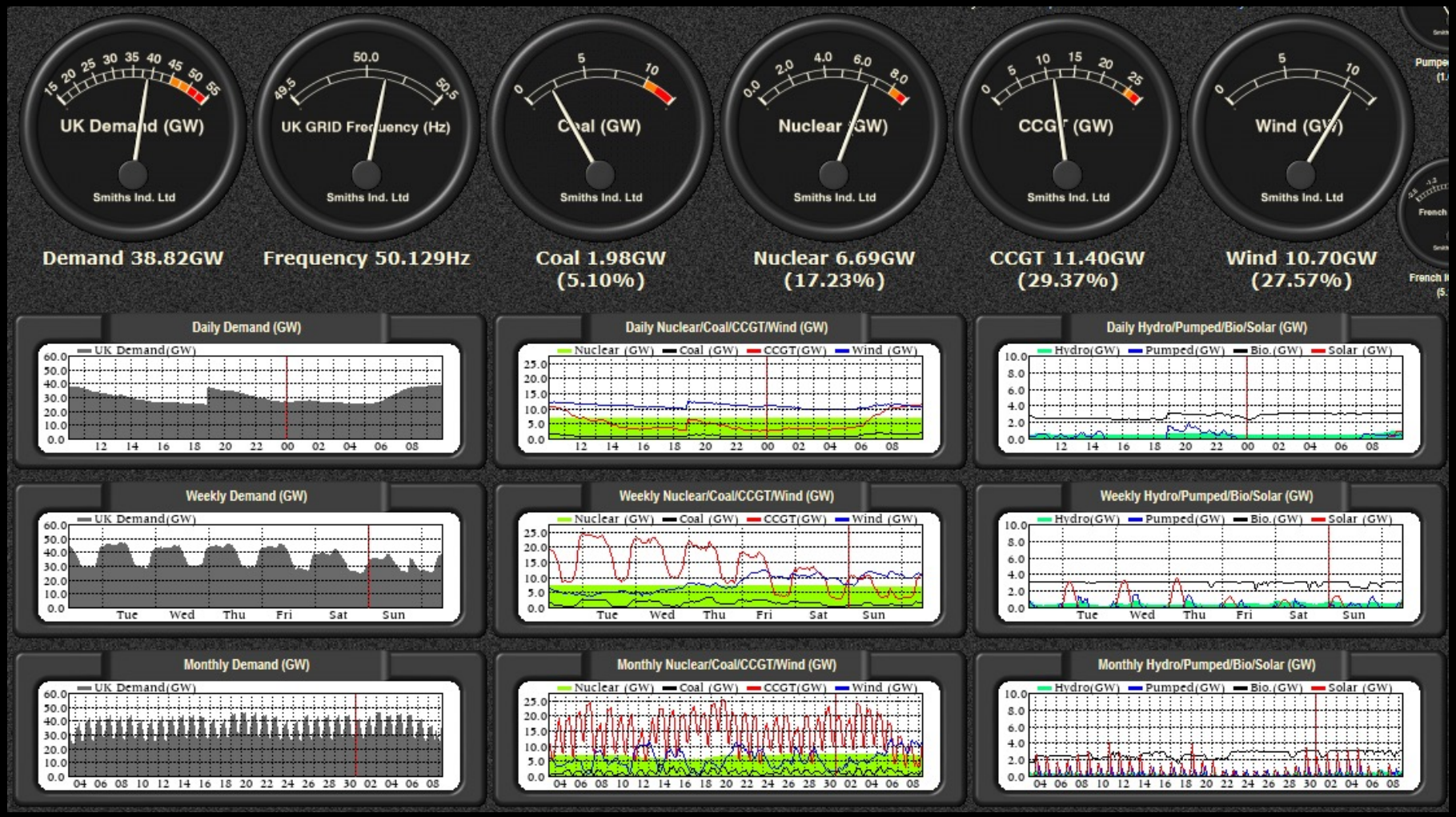
How can we help?

- Reduce global warming through stopping consumption of fossil fuels (gas; coal; oil)
- Build power stations relying on nuclear; wind and tidal energy, or even direct absorption of the Sun's energy and conversion to electricity
- Use less energy
- Insulate our houses properly
- Make sure we know the 3 R's

Just a reminder…



How much power do we need?
What sources does it come from?



A closer look at the details

Monday 9th December 2019 at 10:08

Demand	38.82 Gigawatts	
Coal	5.1%	Base load
Nuclear	17.23%	Base load
Combined cycle gas turbine	29.37 %	Instant ON-OFF
Wind	27.57%	(can go as high as 12GW)
Pumped storage	1.08%	
Hydroelectric	2.24%	
Biomass	7.93%	
French connector	5.15% (nuclear)	
Dutch connector	0.26% (wind?)	
Solar	2.55% (not separately metered)	

The three R's ?

No – it's not Reading, Writing and 'Rithmetic

Reuse things. Don't just throw them away

Reduce our use of the planet's finite resources

Recycle all your materials

Spot the recycling challenge!

Do you really want this?

Which then leads to this

And this – and more CO_2

Or this – idyllic beach scene

WEEE recycling undertaken

Plastics recycling – but how many times?

Automotive recycling