



# The Grange Association

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## **Christmas cancelled:**

no snow at North Pole for Santa's Sleigh.

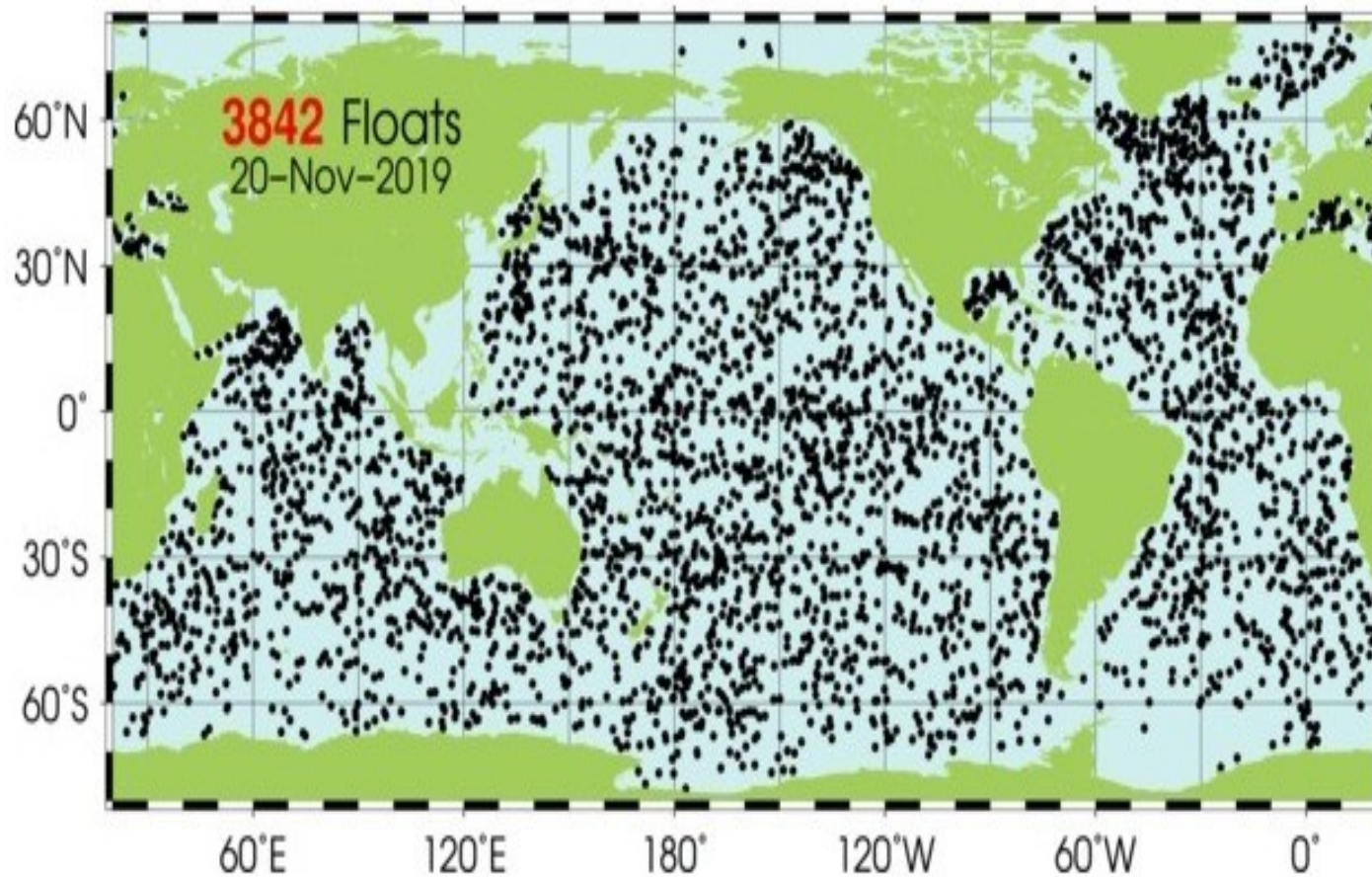
10 seasonal ideas for combating climate change

**Prof Roy Thompson**

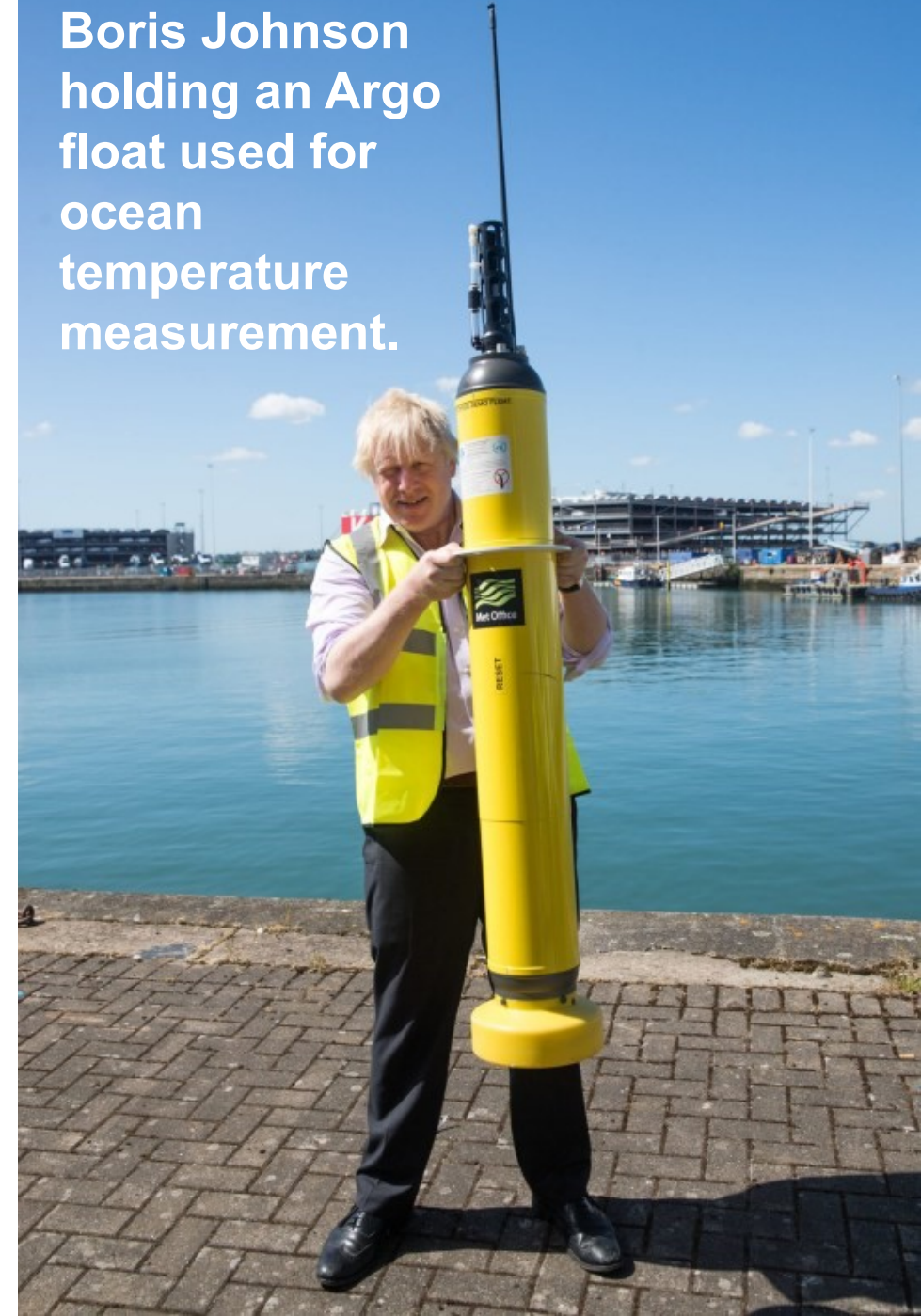
***Wednesday 4<sup>th</sup> December 2019***  
***at 7.30pm***

Doors Open at 7pm for Christmas Treats  
All welcome - Members free, Guests £4.00

# How do we really know that the Earth is warming?

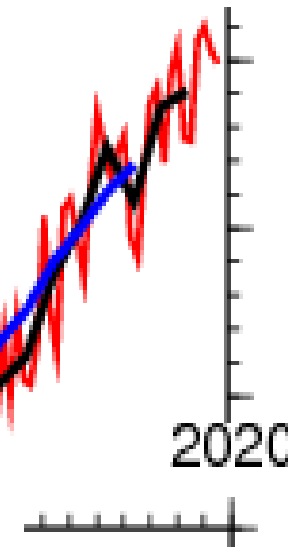
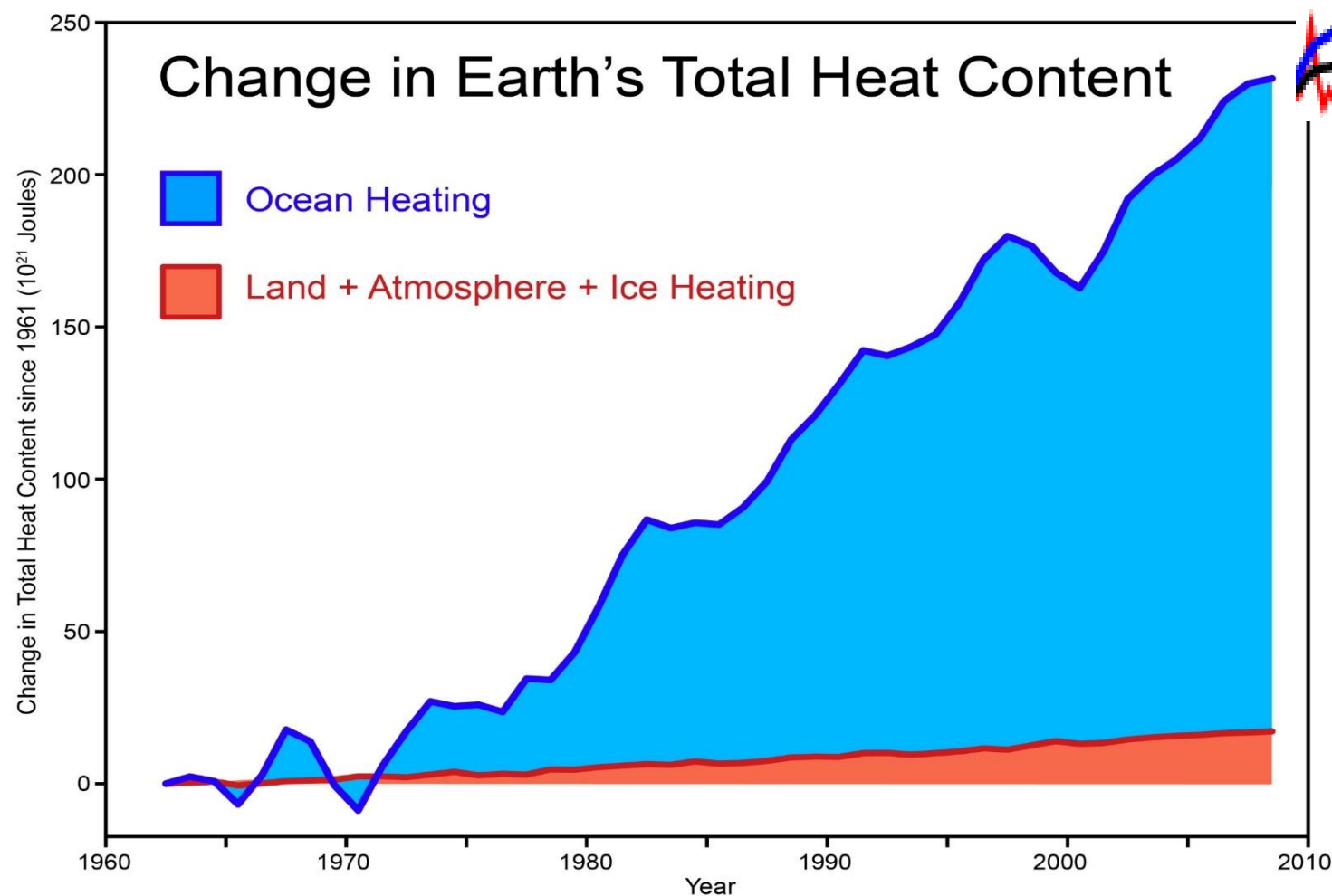


Boris Johnson holding an Argo float used for ocean temperature measurement.



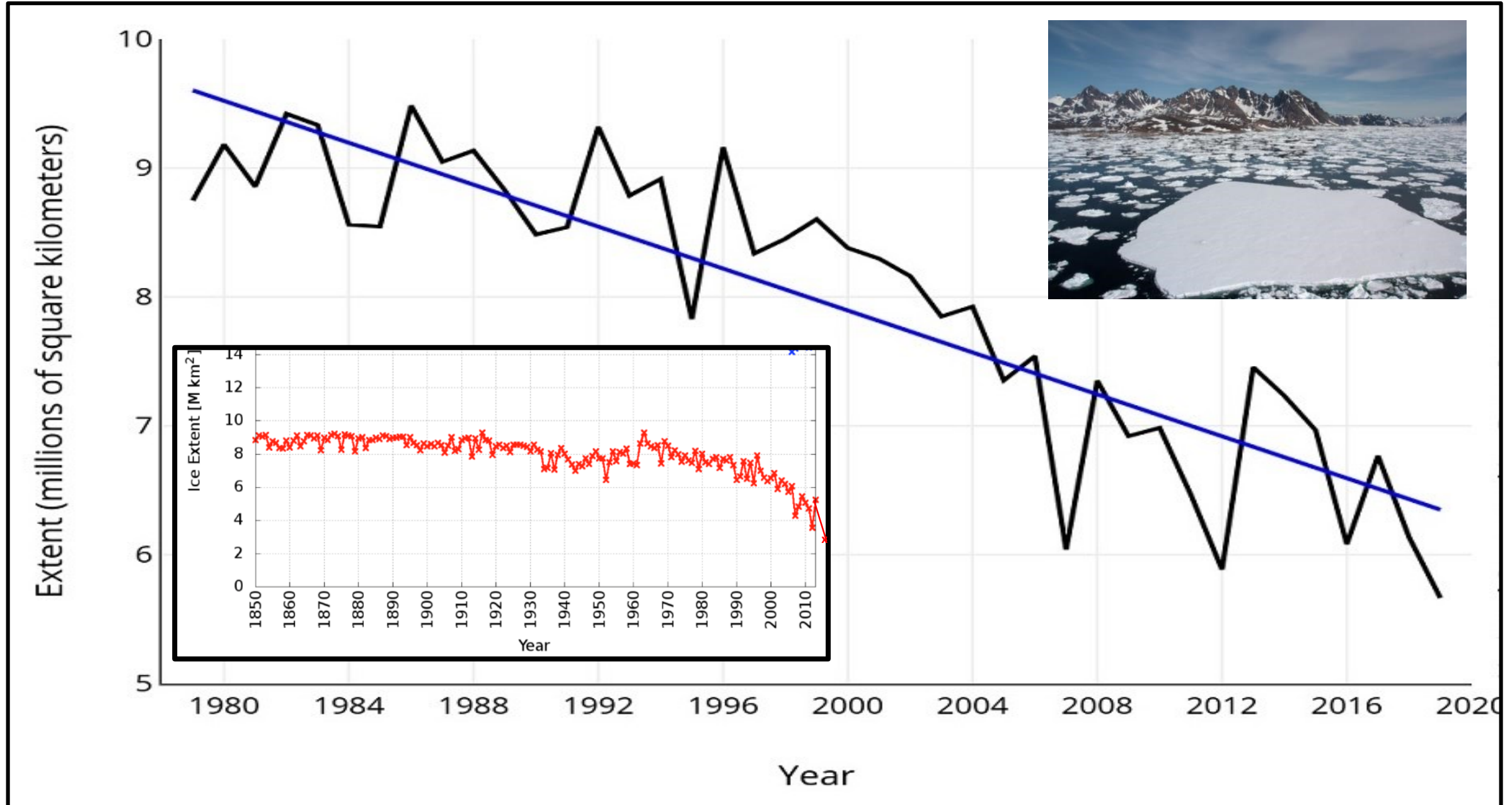


**Ocean Exploration  
and Research**



Church et al., 2011, GRL, *"Earth's sea-level and energy budgets from 1961 to 2008."*

# October 2019 goes down in history with the lowest monthly sea-ice extent on record





**These four little girls (Katy-Leigh, 10, Ellie, 8, Amelia 5, and three-year-old Alice) were left heartbroken after their dream Christmas trip to Lapland was cancelled – because there was no snow. [Metro](#).**

# Global Emissions by Economic Sector

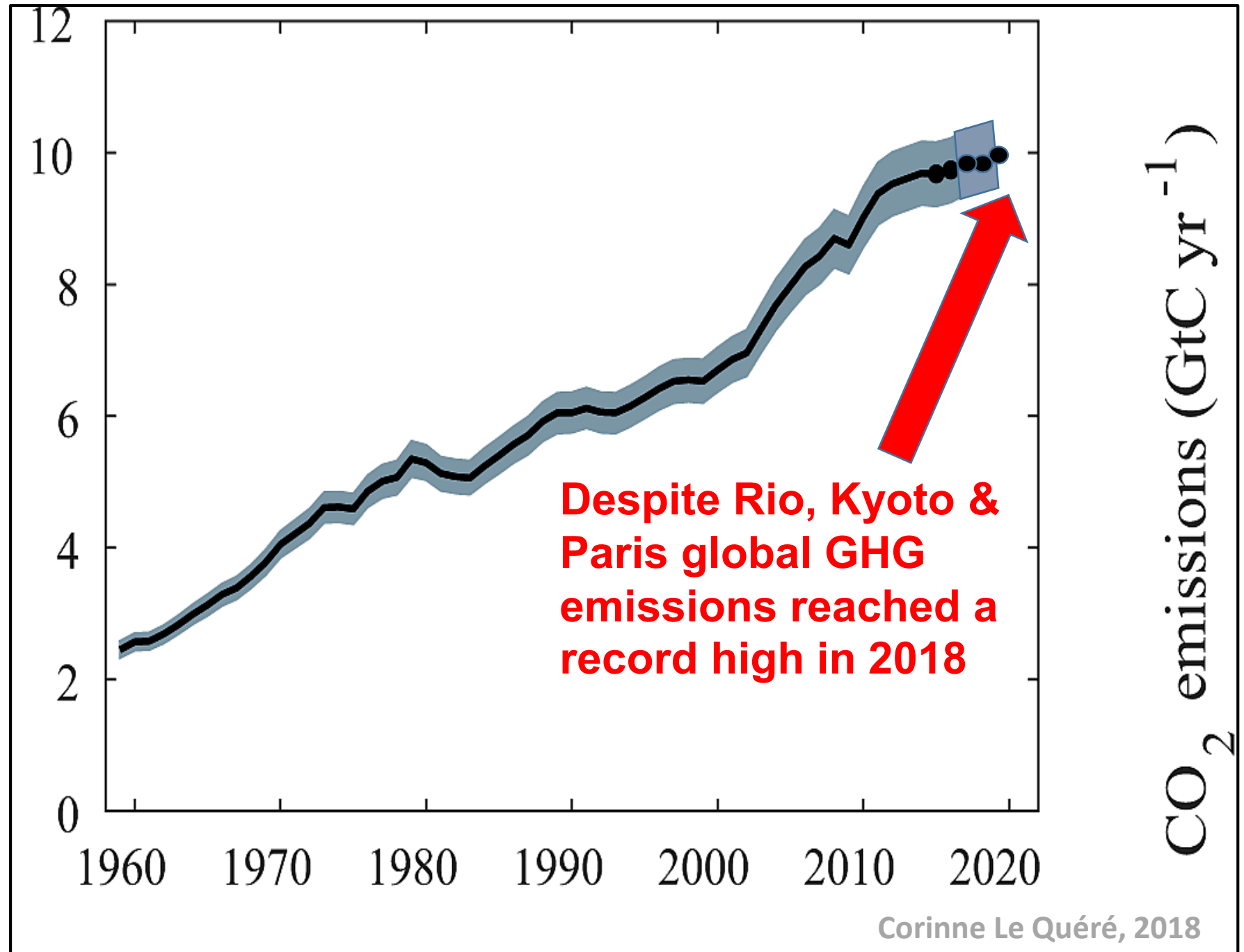
**25%** Agriculture, forestry, land-use

**25%** Electricity, heat production

**20%** Industry

**15%** Transport

**15%** Other: fuel extraction, refining, buildings



**1. Would you eat insects at Xmas to save the planet from global warming?**



Buy Edible Insects at Amazon | Low Prices on Edible Insects

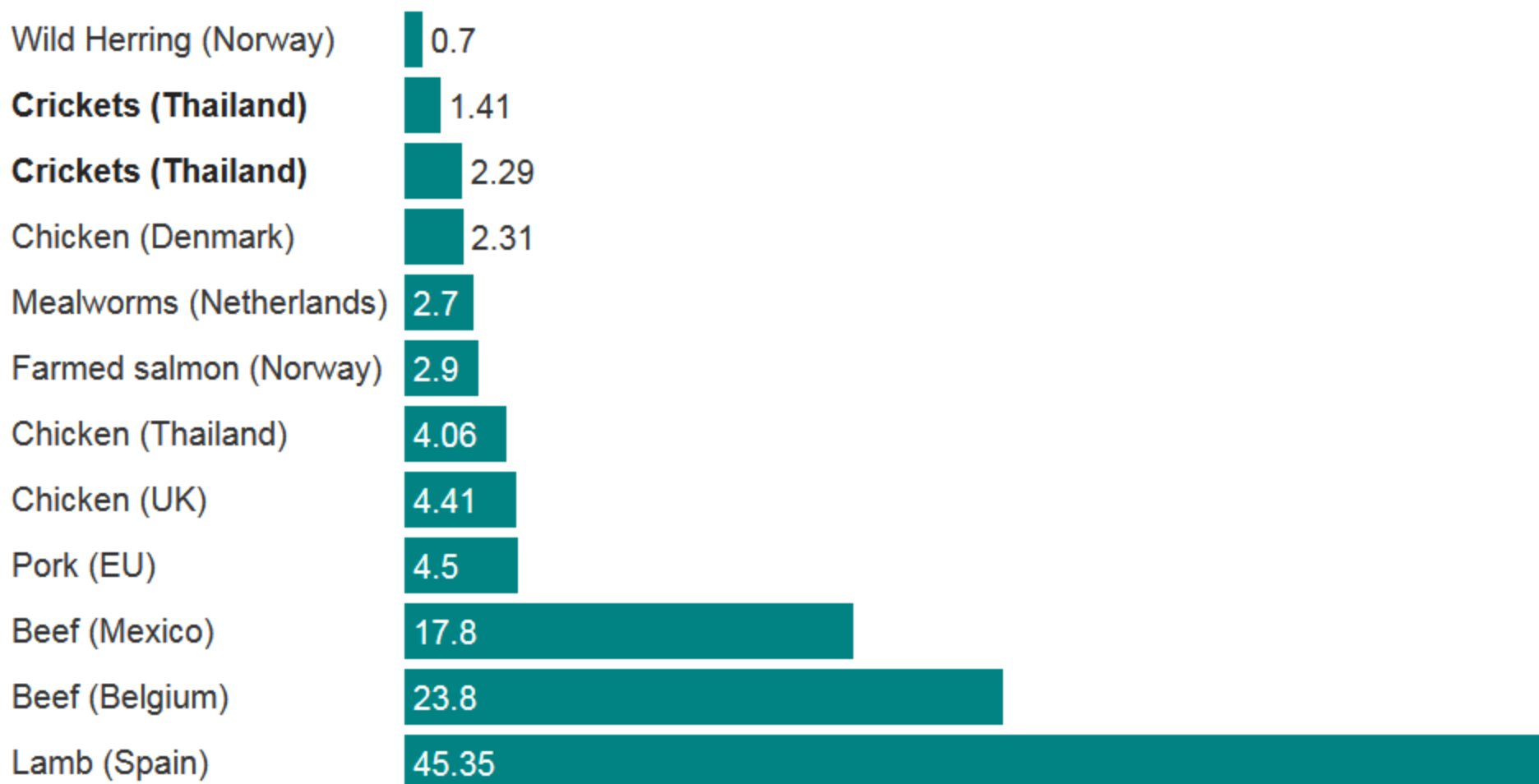
 [www.amazon.co.uk/Kitchen/Homeware](https://www.amazon.co.uk/Kitchen/Homeware) ▼

★★★★★ Rating for amazon.co.uk: 4.6 - Order accuracy: 95–100%



# Global warming potential of selected animal source foods

Kilograms CO2 equivalent



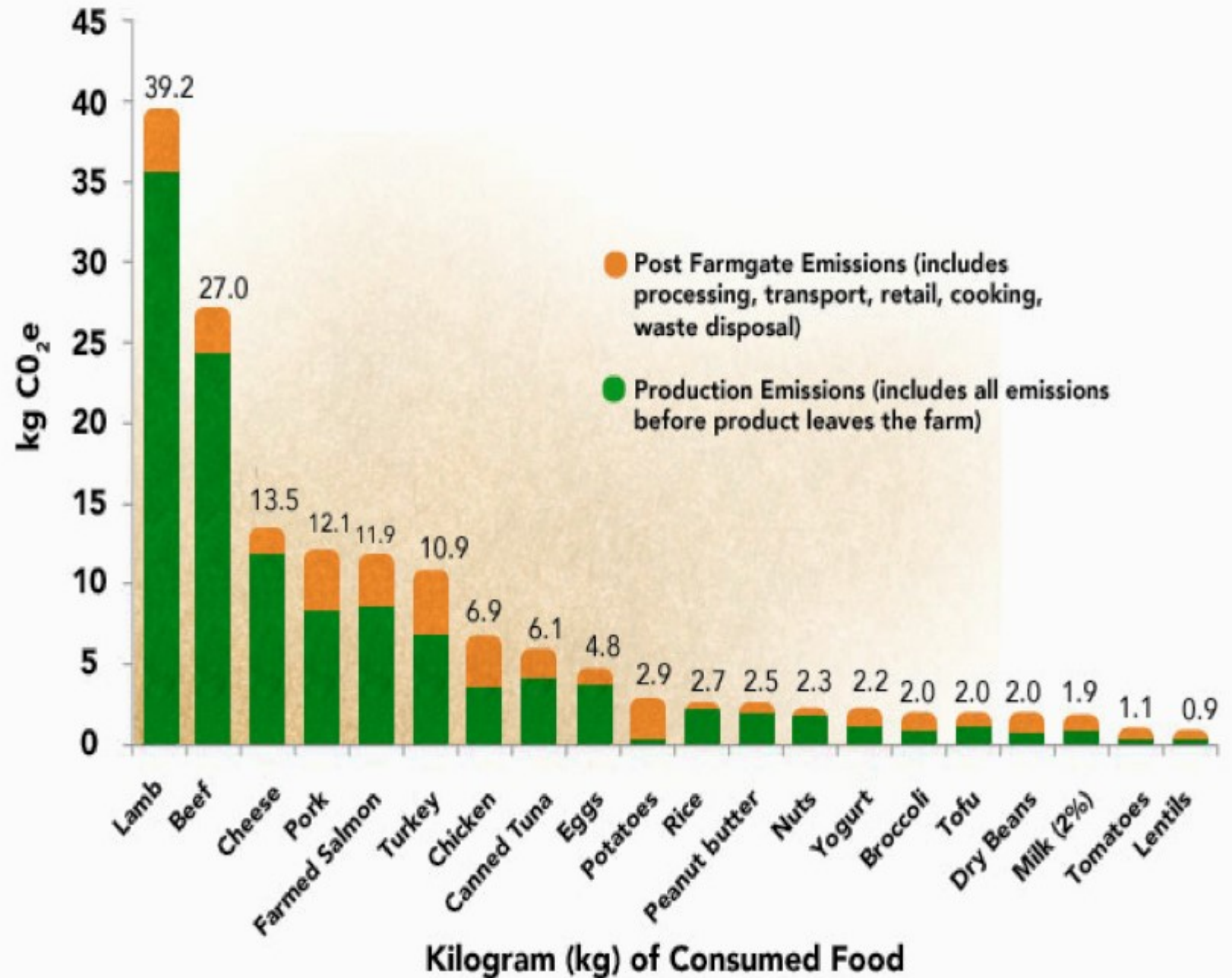
## 2. Would you eat local organic food at Xmas to save the planet from global warming?



# Does buying local food slow climate change?

The short answer is that buying local food is a good principle, but not a universal rule.

As you move toward the right in the graph climate impacts decrease and food miles represent a more significant portion of the food's climate impact.



### 3. Are real or fake Christmas trees better for the planet?



*“The general rule is that locally grown, real trees are better than artificial trees.”*



**Bethany Trust  
sells thousands  
of Christmas  
Trees throughout  
Nov and Dec  
across  
Edinburgh, Fife,  
the Lothians, and  
Glasgow. In 2018  
Bethany raised  
£53k towards its  
Shelter and other  
winter projects  
with the  
homeless.**



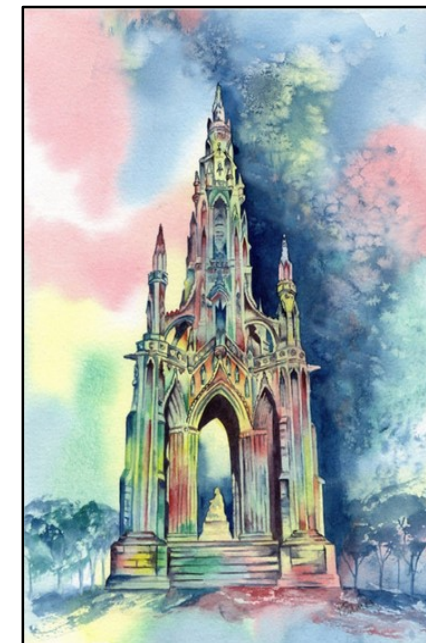
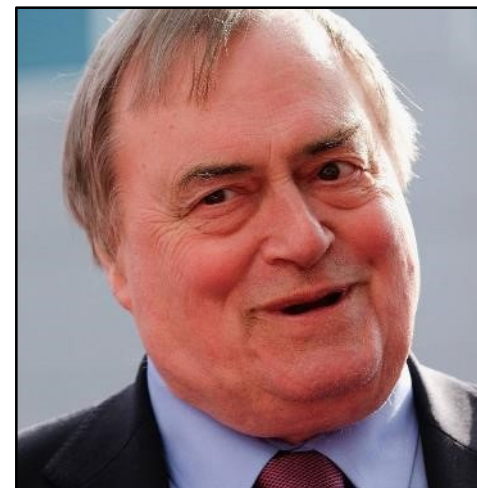
## 4. Have you changed all your lighting to LEDs?



**A British couple has decked out their semi- with 30,000 twinkling Christmas lights.**

## 5. eCards. Marketing gimmick or genuine alternative to traditional greeting cards?

- In the UK alone more than a billion Christmas cards are likely to be dumped or burnt - which, laid end to end, would stretch around the world **five times**.
- That's not all - about 83 square kilometres of wrapping paper will also be thrown out or burnt - enough to gift-wrap **400,000 Scott Monuments**.
- You can also add to that 125,000 tons of plastic packaging - which, the Liberal Democrats helpfully point out, is the equivalent of more than **a million John Prescotts**.



# Free Christmas E-Cards

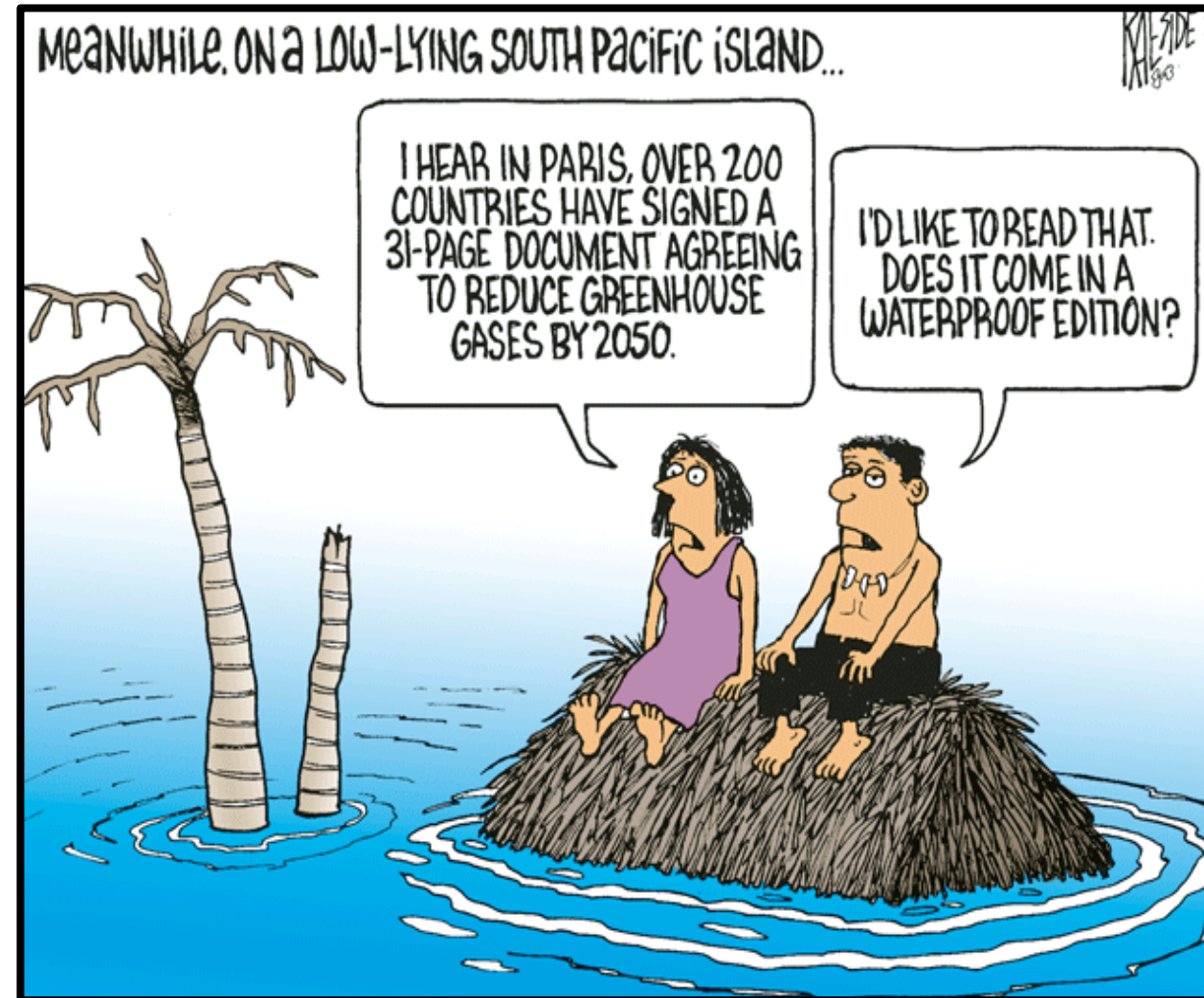


*October 1, 2019 11:30 AM* [cloudHQ](#)  
is pleased to debut their brand  
new free eCards for Gmail.



## 6. Which is the best overall strategy when it comes to dealing with climate change?

- **‘Mitigate’** where action is taken to prevent the release of the greenhouse gases that cause the issue in the first place, or
- **‘Adapt’** where we accept that climate change is coming and take measures to reduce its impacts.



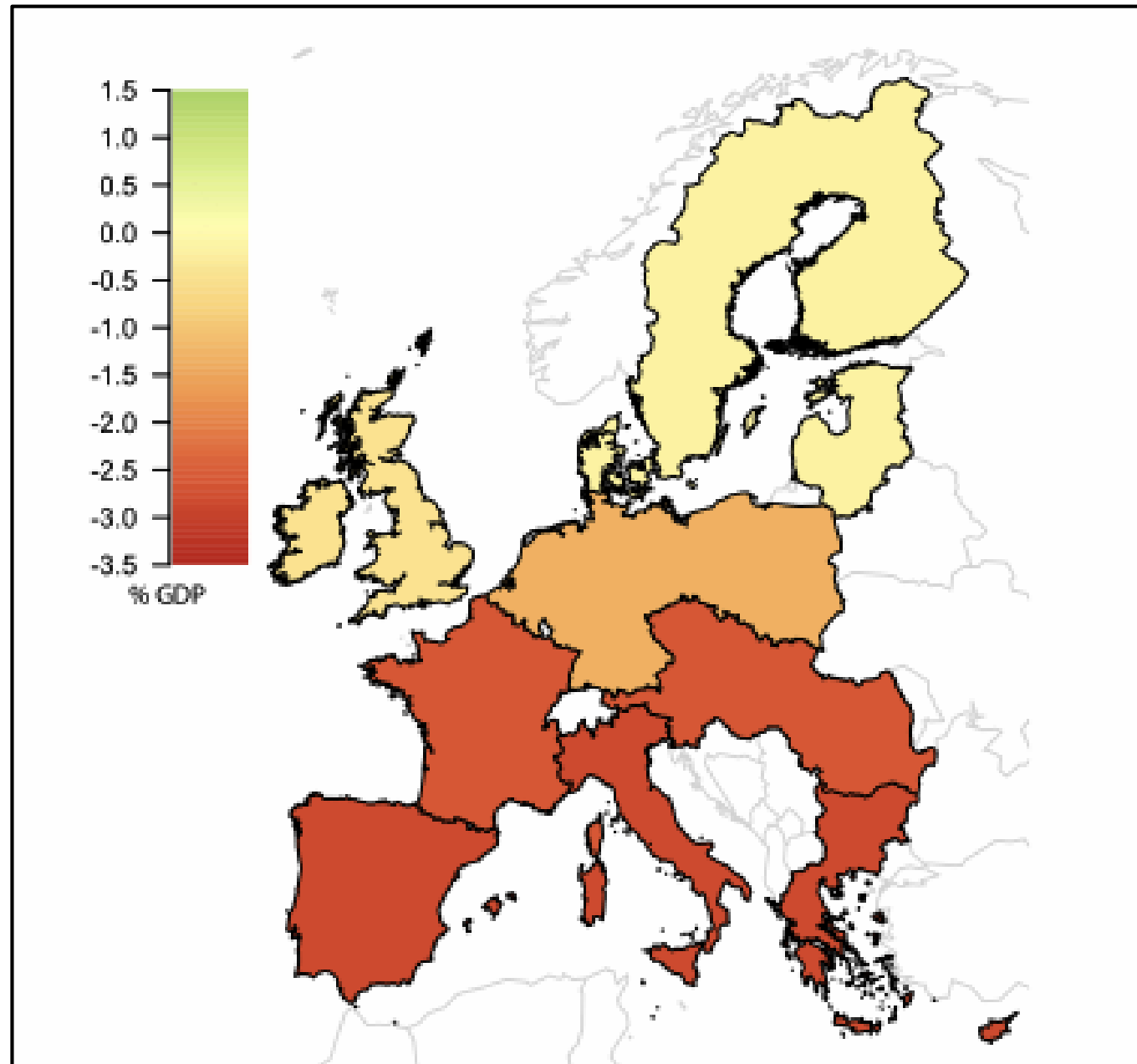
# Impacts of climate change in Europe

## Losses (in order of importance)

- Heat-related mortality,
- Coastal flooding,
- Lower labour productivity,
- Agriculture,
- River flooding.

## Small welfare gain from

- lower energy consumption.

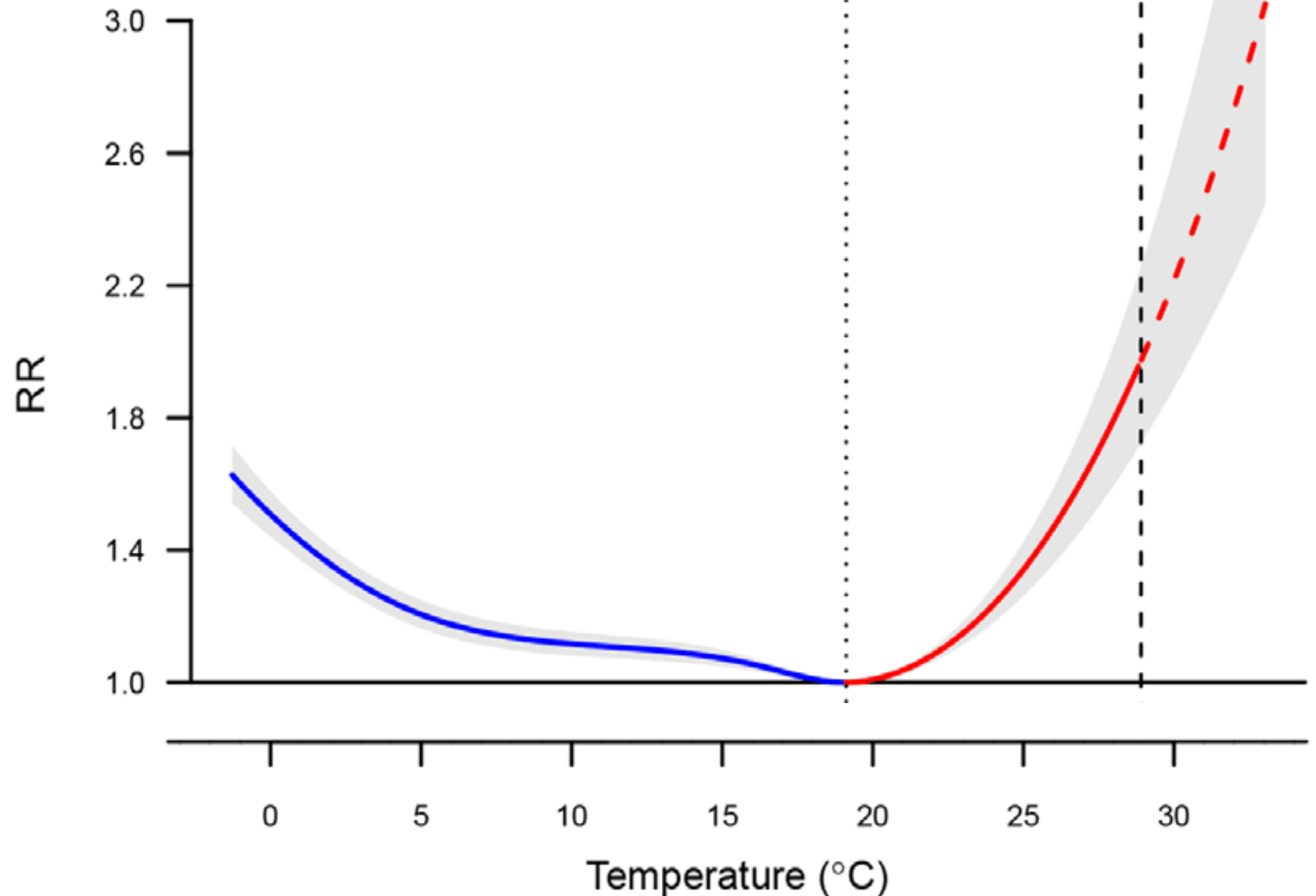


Total welfare impact under a business-as-usual scenario for 2080s, as a % of GDP (from the EU funded PESETA II project).

**It is virtually certain that the frequency and intensity of heat waves will increase in the future. This will lead to a substantial increase in mortality, especially in vulnerable population groups, unless adaptation measures are taken.**

## Temperature-related mortality impacts

London (NorESM1-M - RCP8.5)



# Pet Cooling Mat

Automatically cools down  
when your pet sits on it

Ideal to help pets with  
allergies, heat stroke,  
skin conditions  
& post surgery



Safe



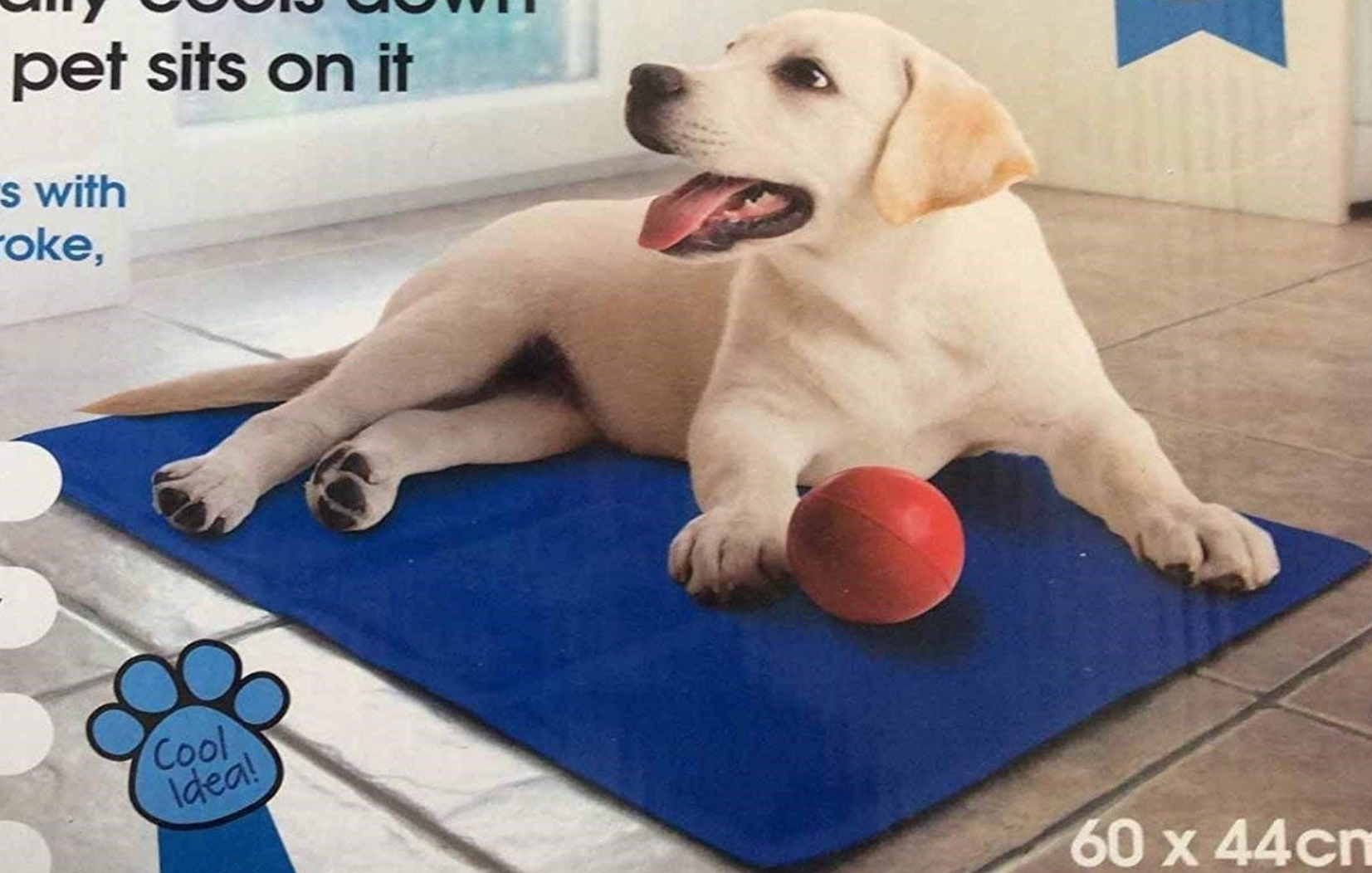
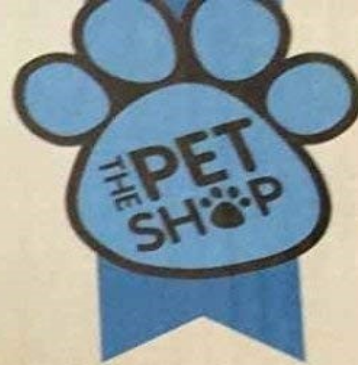
No Electricity



No Water



Non Toxic



60 x 44cm  
(approx)

## 7. Do you contribute to Edinburgh being named as the '*worst city in Britain*' for traffic congestion?

### UK's most congested cities

(extra travel time caused by congestion)



**Mumbai takes the crown for being the most congested city on the planet according to a recent report by leading sat-nav specialist, TomTom.**



**The report detailed the traffic situation in 403 cities around the world.**

**Edinburgh ranked 27th.**

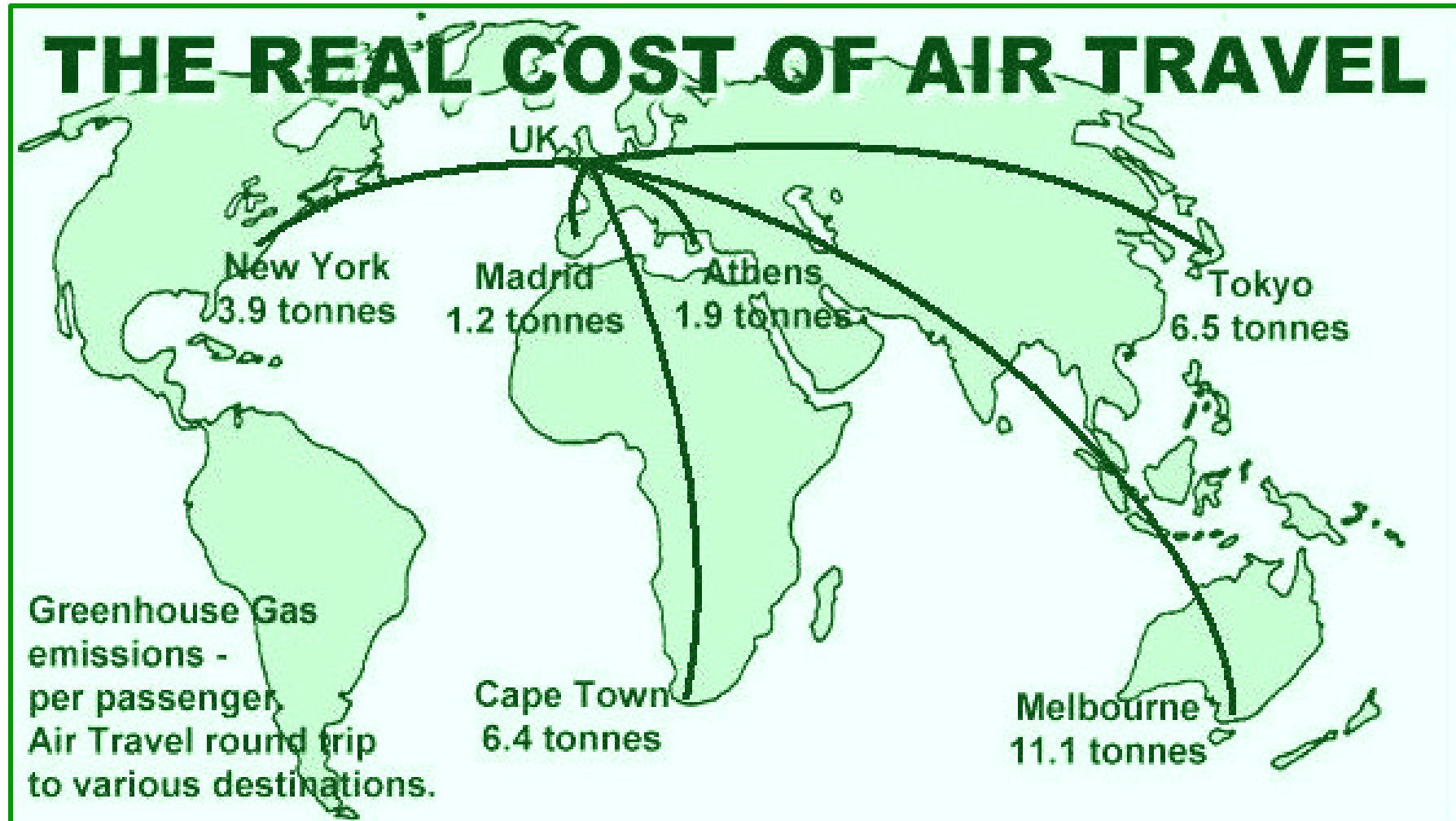
**Heiko Schilling, head of navigation said: *"Advances in journey planning and autonomous vehicles promise to alleviate congestion in Edinburgh and other cities in the UK"*.**

**Voucher  
for e-Bike  
hire  
£30/day**

253 St John's  
Road,  
Corstorphine



## 8. Is it worth carbon offsetting your holiday vacation flight – and how should you do it?



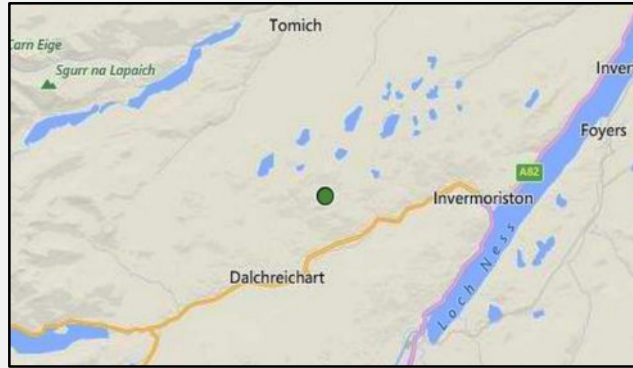
What  
does  
1 tonne  
of CO<sub>2</sub>  
look  
like?



# Dundreggan:

Flagship forest restoration Project that aims is to bring back the globally unique Caledonian Forest and all its wildlife to the Scottish Highlands.

A hive of conservation activity. Each year over 60,000 native trees are grown.



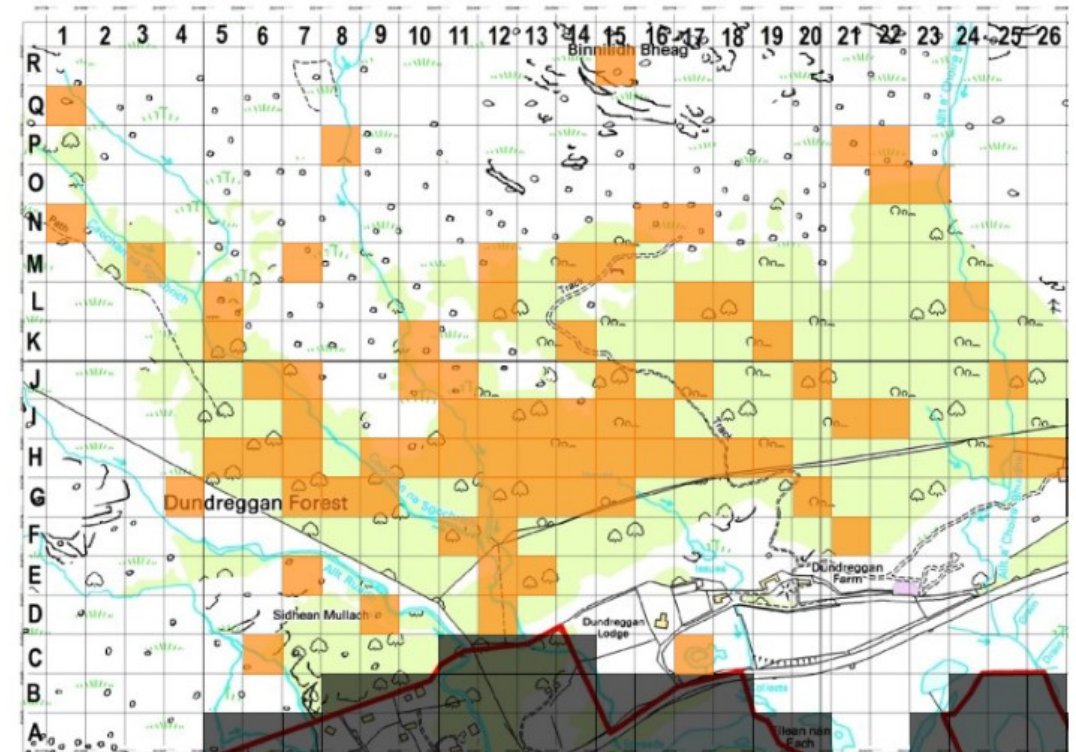
Nursery Assistant, Emma Beckinsale, and 8,000 downy willow seedlings. This is comparable to the entire population of the species left in the wild in Scotland.



## Sponsor an Acre for one year for £60



Thank you for choosing to sponsor an acre of Dundreggan to help restore wildlife habitats. Please select the acre you would like on the map below.



Acres already sponsored    Acres outside estate boundary    Acres you have selected

Saturday, 9 March, 2013



**A 23.5 acre enclosure erected in 1994 for natural regeneration. In the last 25 years a profusion of blaeberry and other shrubs have sprung up. Scots pine, downy birch, rowan and willows are flourishing once again, providing a greatly-enhanced habitat for wildlife. [Costs £5 per tonne CO<sub>2</sub>]**

# **Alt Coire Ghaidheil**

**Illustrates how nature responds when the pressure of overgrazing is removed.**



# Natural regeneration at Coille Ruigh na Cuileige



A Scots pine showing growth from 1992 to 2015



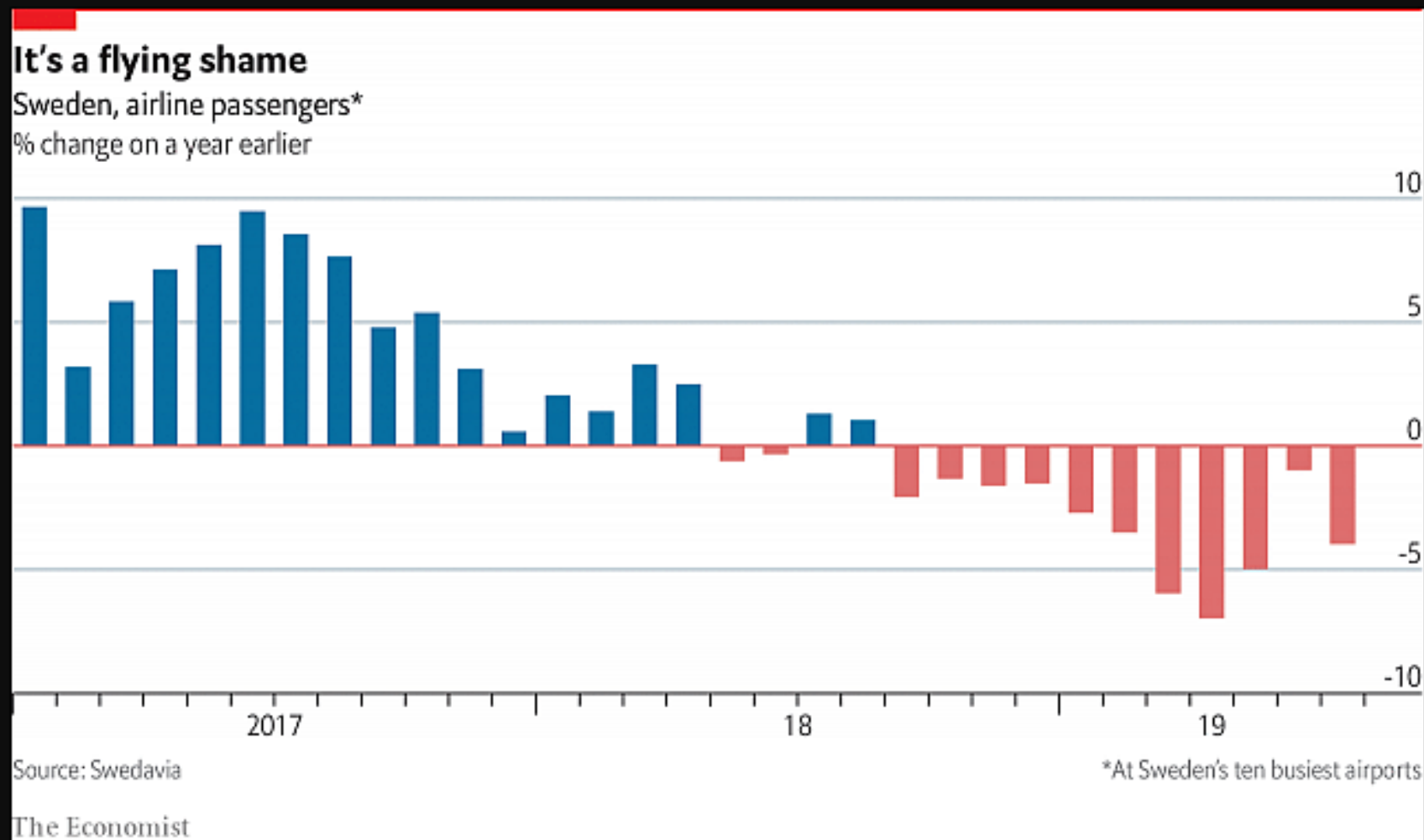
FLIGHT FREE **UK**

Why flight free?

Make the pledge to be  
flight free in 2020

**#flightfree2020**

# “Flysgskam” the flight-shaming movement sweeping Europe



# 9. Can geo-engineering fix climate change?

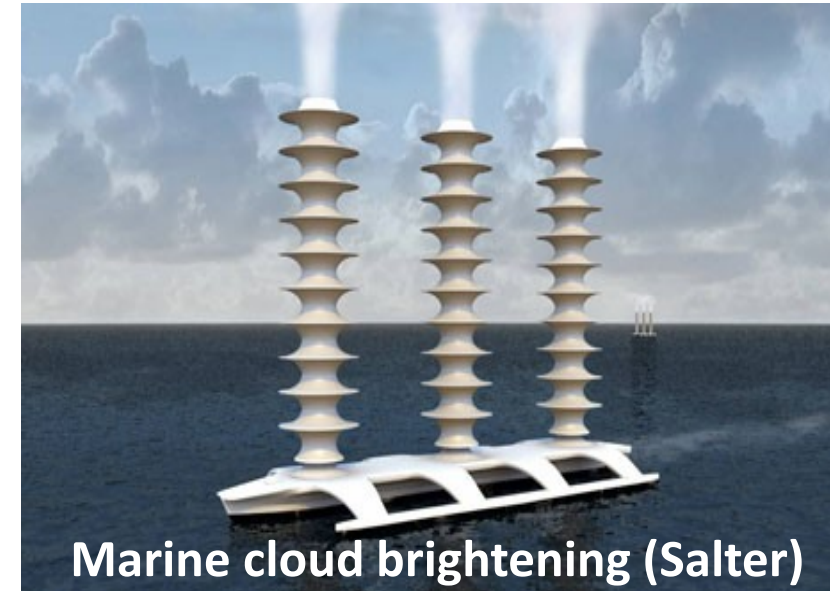
Reflect sunlight  
with space mirrors



Sulphate aerosols



Marine cloud brightening (Salter)



CCS - turn carbon  
dioxide to rock



Biochar – bury CO<sub>2</sub>  
in soil as charcoal



Enhanced weathering  
- speed up nature



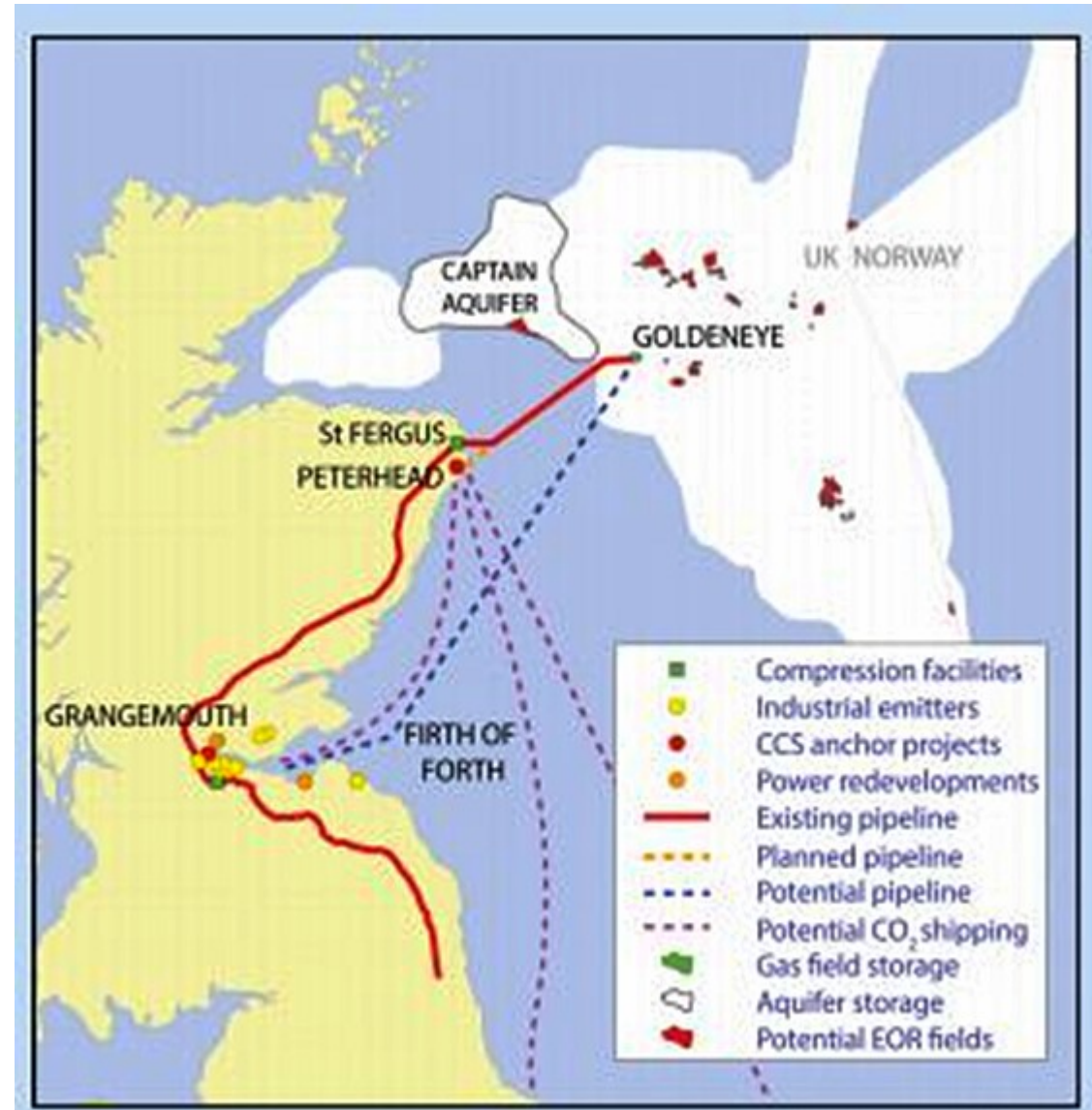
# Direct air capture

**Climeworks' rooftop plant :**  
the first direct-air-capture venture in history seeking to sell CO<sub>2</sub> by the ton.

Using machines that resemble jet engines, the Swiss startup extracts CO<sub>2</sub> from thin air.



**CCS** Scotland  
could cost-effectively  
become Europe's carbon  
capture and storage hub,  
building on existing  
pipelines and offshore  
infrastructure and saving  
on oil decommissioning  
costs.



# 10. Climate change action and politics



Extinction  
Rebellion  
targets  
North  
Bridge

# What the parties' manifestos say on climate change ahead of the 2019 UK general election

**Labour:** would put the UK on track for net-zero during the 2030s. Supports new nuclear power.



**Tories:** lead the global fight by delivering their target of net zero by 2050 with a focus on offshore renewables.



**LibDems** want net-zero by 2045 at the latest. More inter-connectors, solar and wind.



**The Greens** net zero by 2030. 10-year plan to remove subsidies from oil and gas and apply carbon pricing. Wind, CCS.



**Brexit** no mention of climate change



a ban on fracking and no new nuclear.

**The SNP** would demand the UK accelerates its actions to meet Scotland's target of net zero by 2045 including

# 10 seasonal ideas for combating climate change

Net   Travel   Cards   Tree   Lunch Zero & presents	1. Climate-smart Xmas dinner	Eat less meat.
	2. Local food	Eat local vegetables.
	3. Real vs. Artificial Trees	Local, from Bethany.
	4. Electricity	LED lighting.
	5. Say <i>'Happy Xmas'</i>	e-card - Friends of the Earth - Gmail.
	6. Mitigate or adapt?	Avoid heat stroke - Cooling pad.
	7. Cut transport emissions	eBike - Hart's cyclery - Halfords.
	8. Holiday flight	Offset locally - Trees for Life.
	9. Geoengineering	Sponsor direct air capture.
	10. Net-zero	Use your vote.