

Introduction to Carbon Offsetting

Is offsetting still a viable option for climate protection?

Anja Kollmuss April 2022

Carbon Market Instruments

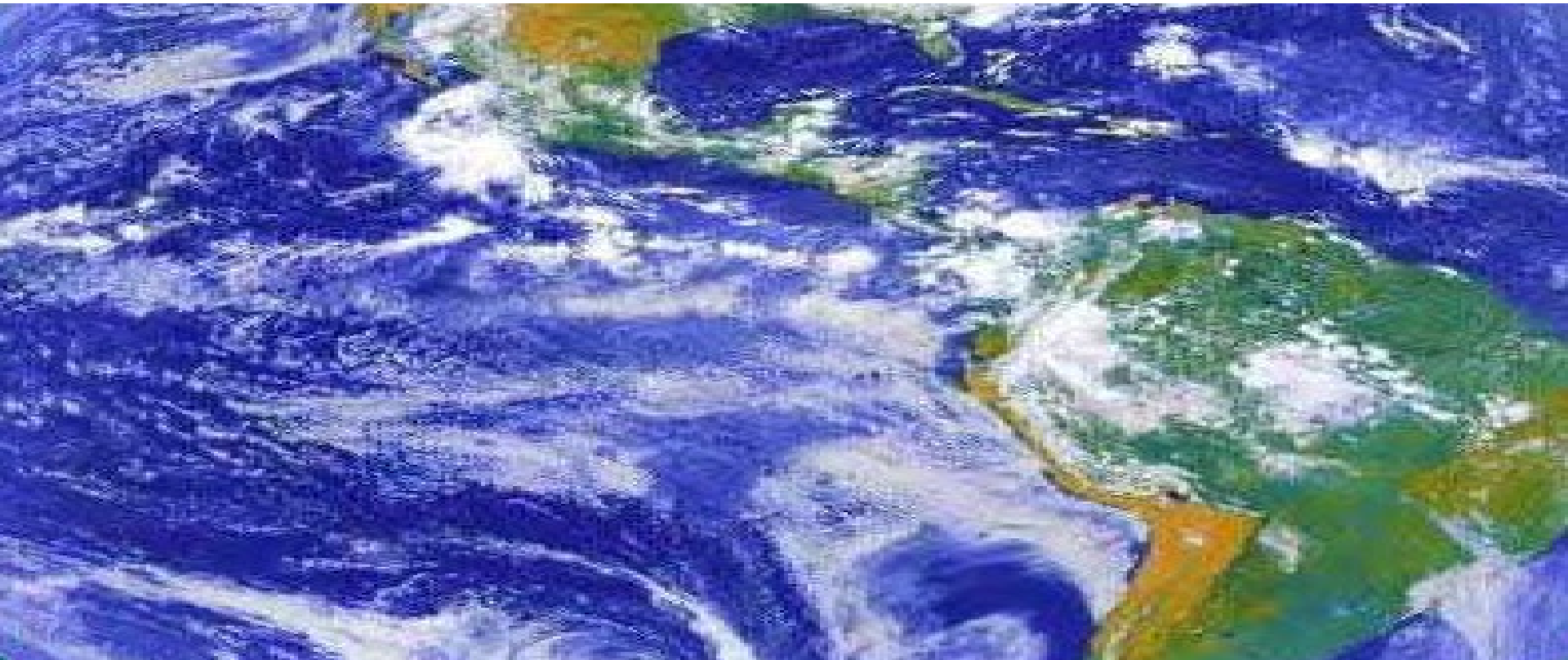
- Emissions trading systems (ETSs)
 - Emissions from economy are capped
 - Allowances (= permits to emit) are auctioned or allocated for free to emitters
 - Emitters can trade allowances
- Crediting mechanisms (offsetting)
 - Entities are awarded credits for reducing emissions against a baseline
 - Credits can be used for compliance or in voluntary market.

Main objective: cost effective emission reductions

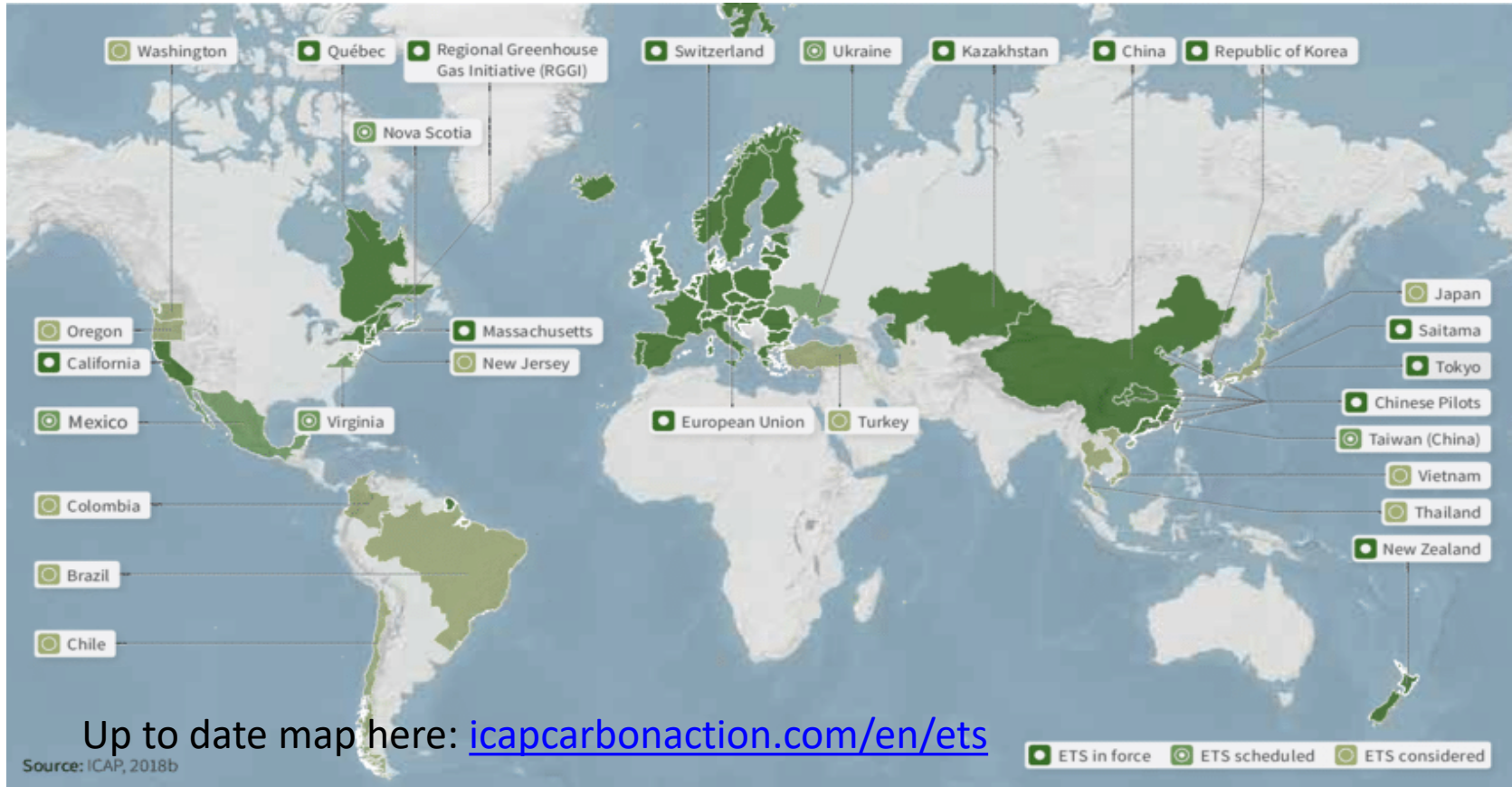
Why Carbon Markets Work (in theory)



Climate Change: Non-localized



Emissions Trading Systems



Overview of crediting mechanisms

- Article 6 of the Paris Agreement:
 - Article 6.2: Parties can implement mechanisms and account for unit transfers
 - Article 6.4: A new UN crediting mechanism
- Kyoto mechanisms:
 - Clean Development Mechanism (CDM) targeting developing countries;
 - Joint Implementation (JI) targeting industrialized countries
- Voluntary, (sub)national, bilateral mechanisms
 - Chinese Certified Emission Reductions (CCERs)
 - Japanese Crediting Mechanism (JCM)
 - Climate Action Reserve (CAR)
 - Voluntary Carbon Standard (VCS)
 - Gold Standard (GS)

Arguments In Favor of Carbon Offsetting



- **Flexible, lower cost greenhouse gas reductions**
- **Investment in new technologies**
- **Secondary social and environmental benefits**

Criticism of Carbon Offsetting



- May stifle reductions in other sectors
- May lack development benefits
- May have negative social impacts
- May have negative impacts on future policies
- May lead to more greenhouse gas emissions...

What matters for the quality of units?

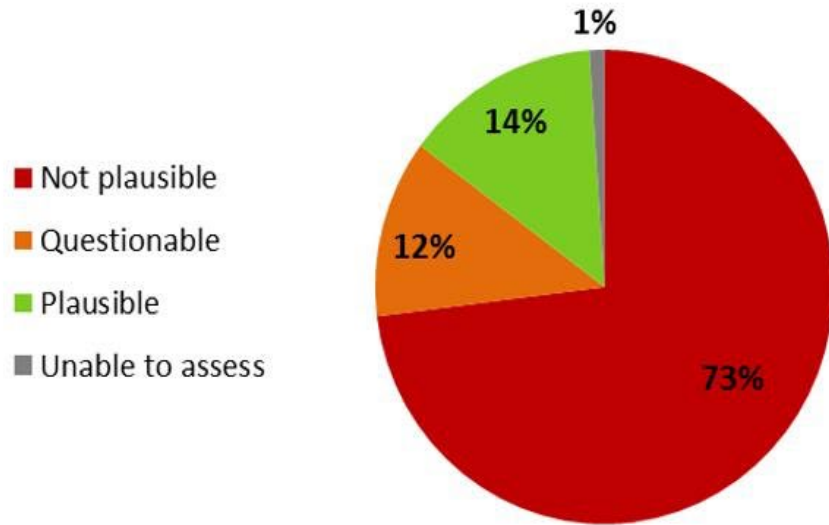
- Emissions trading systems
 - Ambition of the cap
 - Monitoring and verification of emissions
 - Price mechanisms: price floor, etc
- Crediting mechanisms
 - Additionality
 - Quantification of emission reductions
 - Duration of crediting

Over-allocation of allowances

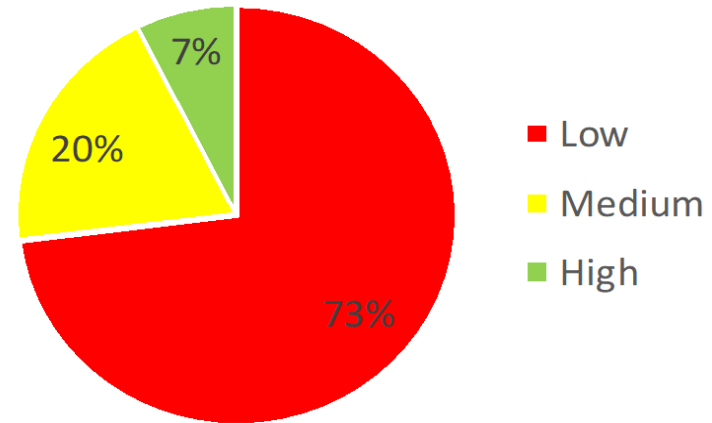
**Questionable
additionality
claims**

Plausibility of Additionality Claims

Joint Implementation (JI)
Credits issued



Clean Development Mechanism (CDM)
Credit supply potential 2013-2020



Sources: Cames et al. (2016), Kollmuss et al. (2015)

Nature-based solutions



1. Projects that aim to reduce GHG emissions from land use management: afforestation and reforestation:

Land Use, Land-Use Change, and Forestry (LULUCF)

2. Protecting existing forests:

Reduced Deforestation and Degradation (REDD)

Forest Projects



Permanence

Ensuring that the GHG reductions are irreversible. Forests may be destroyed by fire or logged.

Leakage

Occurs when activities that reduce GHG emissions (or increase carbon in plants and soils) in one place and time result in increases in emissions (or loss of soil or plant carbon) elsewhere or at a later date.

Co-benefits

Social and ecological benefits that offset projects can have.

Bio-Sequestration



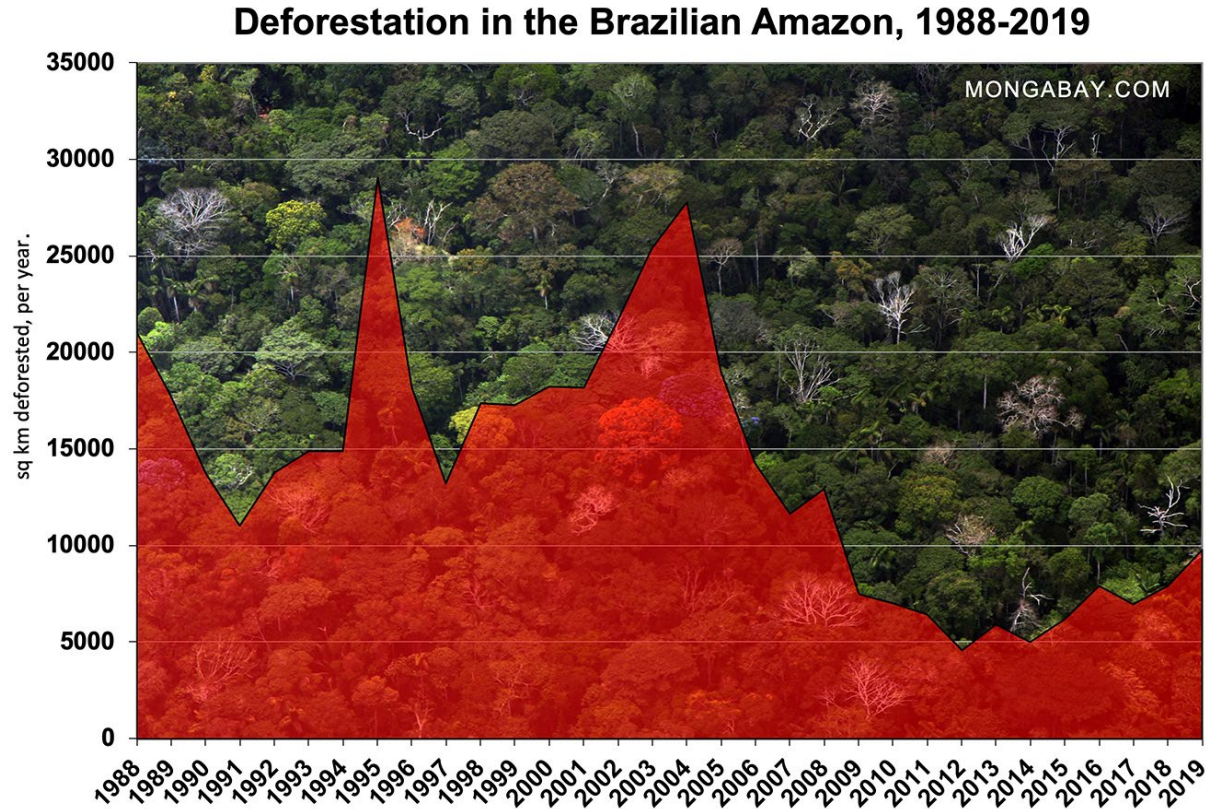
Pros:

- Increasing finance forest protection
- Can have high social and ecological co-benefits

Cons:

- Permanence
- Baselines / forest reference levels: Uncertainty in data / emissions quantification. More important: uncertainty in future BAU developments
- In many cases does not address underlying causes of deforestation: leakage
- Additionality (REDD projects)

Why is establishing baselines difficult?



How can non-permanence be addressed?

1. **Avoiding or reducing the risk of non-permanence events:** Exclusion of projects with high non-permanence risks or incentives for project owners to manage risks
2. **Accounting / compensating for non-permanence events:**
 - **Temporary carbon credits:** Credits automatically expire after a pre-defined period and need to be replaced. New temporary credits may be issued if no reversal occurred (tCERs approach under the CDM)
 - **Compensation for reversals through pooled buffers (or insurances):** A fraction of the carbon credits is set aside in a pooled buffer. A non-permanence event is compensated for by cancelling credits from the pool
 - **Ton-year accounting:** A form of “discounting” of emission reductions

Leakage risks depend on ...

- Drivers for land-use change (e.g. agriculture, timber, paper)
- Type of activity
 - High risks: avoiding deforestation
 - Lower risks: afforestation
- Scale of the activity
 - Projects have highest risks
 - Jurisdictional approaches can address leakage at jurisdictional level
- Global leakage remains challenging to address

Key issues for “Nature-based solutions”

- Ensure non-permanence through
 - Exclusion of activities with high non-permanence risks from crediting
 - Pooled buffer approaches with sufficient capitalization and diversification
 - Monitoring and compensation for reversals over a 100-year time horizon
- Limit crediting to activities where
 - Emission reductions can be clearly attributed to the intervention
 - Uncertainty of baselines and emission reductions is manageable
 - Significant global leakage is unlikely

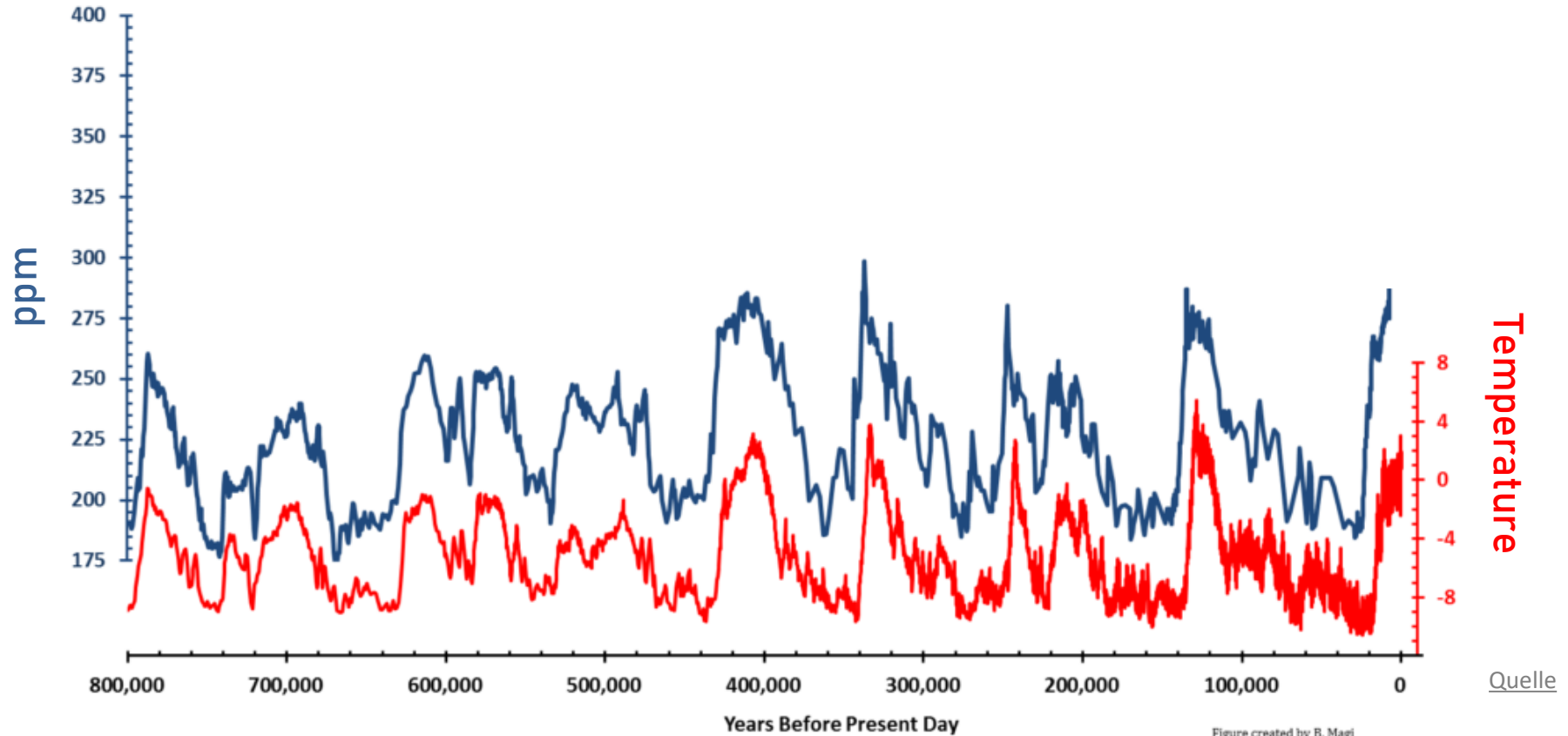
Are Offsets Fair?



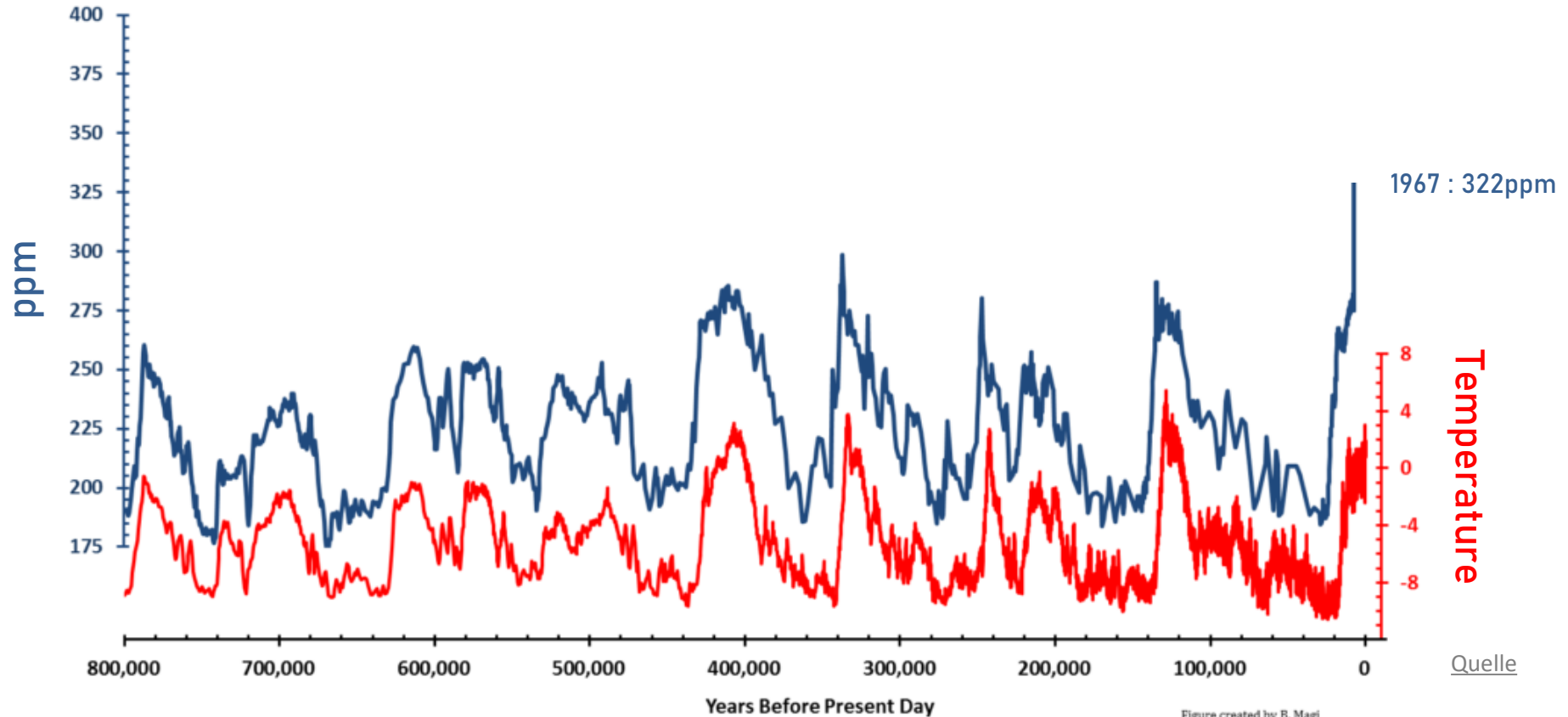
I WANT TO OFFSET MY CARBON FOOTPRINT
JENKINS...CANCEL YOUR HOLIDAY FLIGHTS



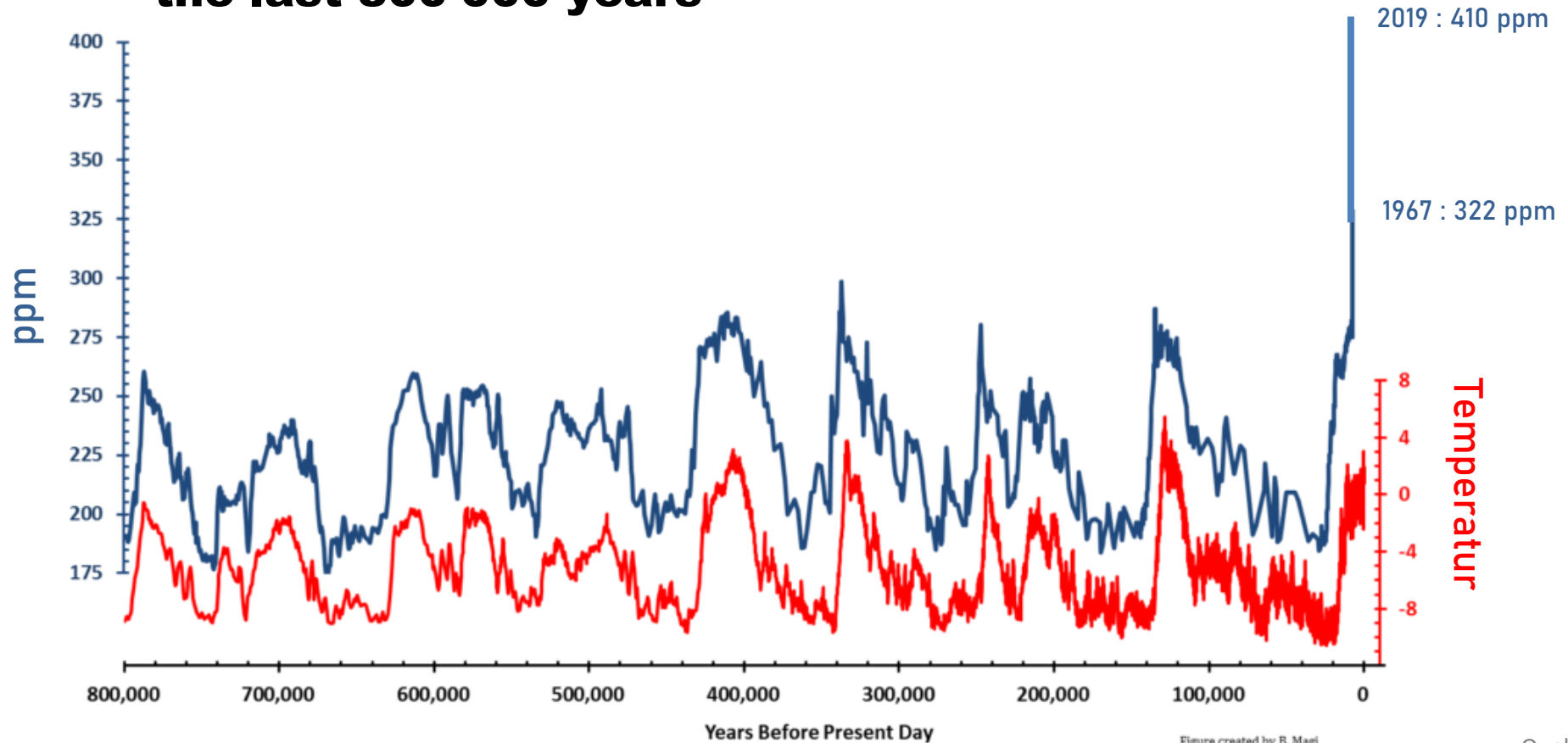
CO₂ Concentration and global Temperature in the last 800'000 years



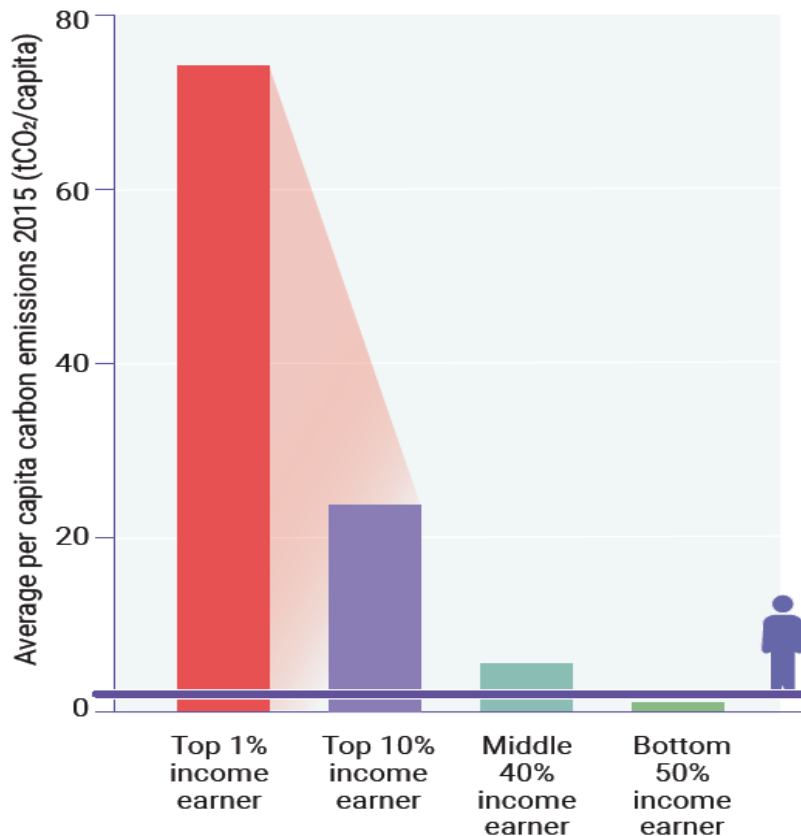
CO₂ Concentration and global Temperature in the last 800'000 years



CO₂ Concentration and global Temperature in the last 800'000 years



Who is responsible?



The richest 10% cause more than 50% of global CO₂.

The poorest 50% cause 7%.
That is half as much as the richest 1%

(Source: [SEI](#))

2.1 tCO₂
Global average
per capita consumption
emissions target
by 2030 for 1.5°C

Summary

- Quality of offsets difficult to assure
- The remaining CO2 budget does not allow for a delay of action.
- Do not think you can “offset” your carbon footprint.
- Large scale change is needed. Project-based approach not that suitable for such change.
- Financial support for climate protection is vital: Donate money to organizations that work towards political change and to NGOs that do well respected work that benefits local populations.

Thank you for your attention!

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Helpful links:

<https://icapcarbonaction.com/en>

www.OffsetGuide.org

<https://carboncreditquality.org/>

Related publications:

- <https://blog.oeko.de/glasgow-delivered-rules-for-international-carbon-markets-how-good-or-bad-are-they-cop26/>
 - [What makes a high-quality carbon credit?](#) (with WWF and EDF)
 - [Environmental integrity of international carbon market mechanisms under the Paris Agreement](#) (Climate Policy)
 - [Double counting and the Paris Agreement rulebook](#) (Science)
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