

c02eq : Meetings' Air Flight CO_2 Emissions

An Illustrative Example with IETF meetings

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Disclaimer: Opinions expressed are solely my own and do not express the views or opinions of my employer.

Ericsson has worked for a long time in research regarding ICT sustainability impact and this work does not integrate yet these researches. Specifically, we will align with methodological insights for assessing the environment effect induced by ICT services in future version of the paper.

How sustainable are IETF meetings ?

1. How much CO_2 emission IETF meetings are responsible for ?
2. How can we make the IETF more sustainable ?

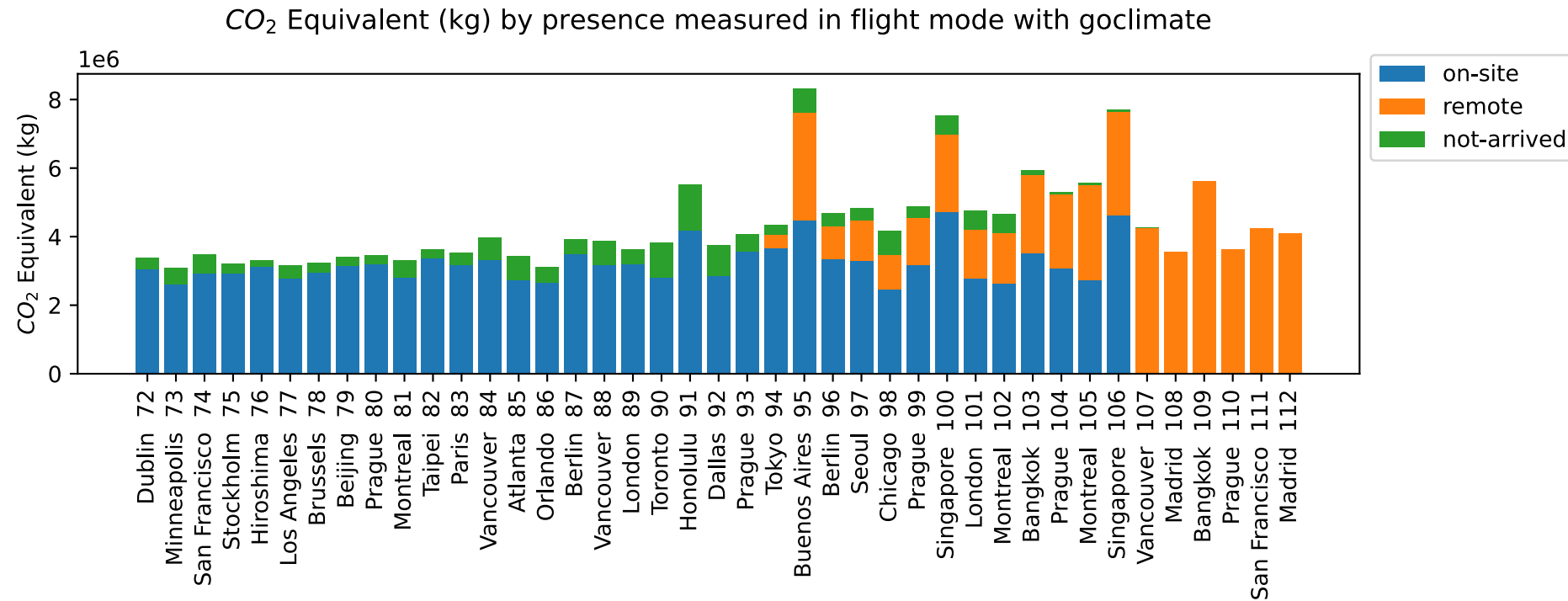
How much CO_2 emission do IETF meetings emit ?

`c02eq` focuses on air traffic CO_2 equivalent emission.

For each attendee `c02eq` estimates:

1. A **real** flight itinerary to fly to the meeting location -- including multiple segments.
2. The CO_2 equivalent emission for all attendees using:
 - [myclimate](#) (implemented in `c02eq`)
 - [goclimate](#) (using GO Climate service, thanks!)

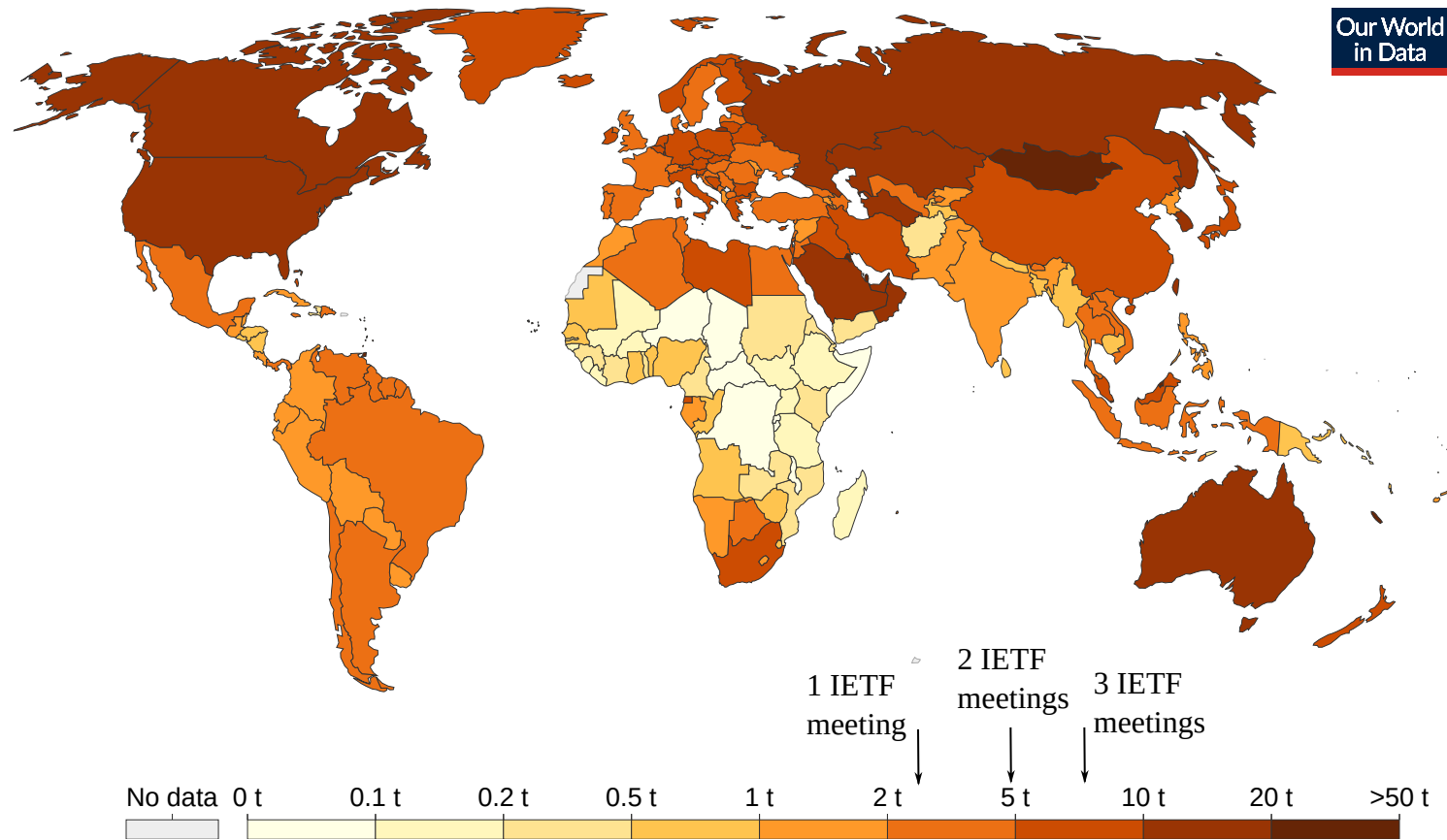
IETF CO_2 emission versus presence participation type



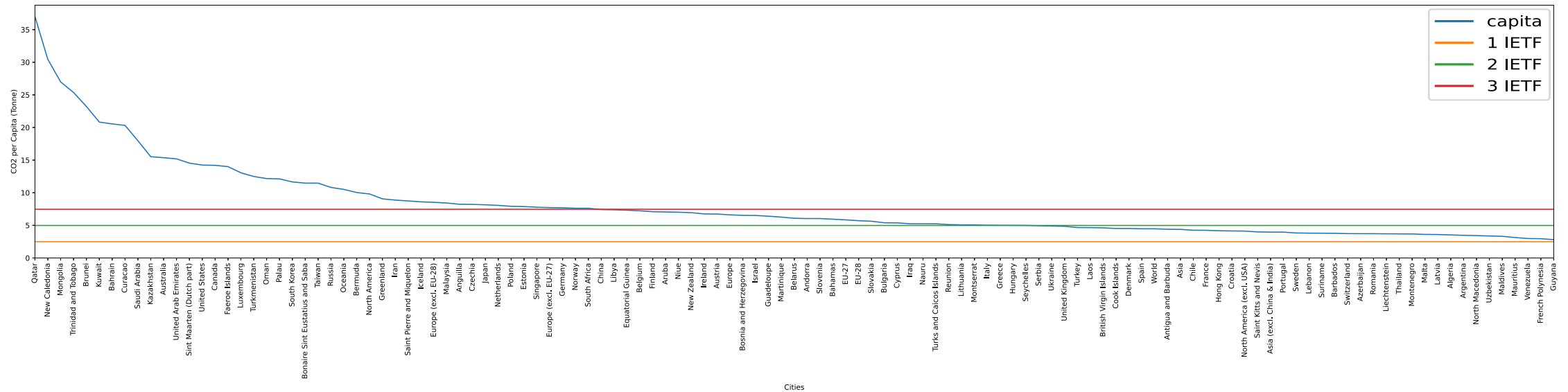
For IETF 72-106 Go Climate estimates the average emission of CO_2 equivalent to:

- 3.2 Gg of CO_2 for an IETF meeting
- 2.7 tonnes of CO_2 per attendee.

IETF CO_2 emission versus CO_2 per capita



IETF CO_2 emission versus CO_2 per capita



- 3 IETF meeting \approx Germany, Poland
- 2 IETF meeting \approx Greece, Italy, UK
- 1 IETF meeting \approx Mauritius, Venezuela

IETF meeting applied to air traffic evolution

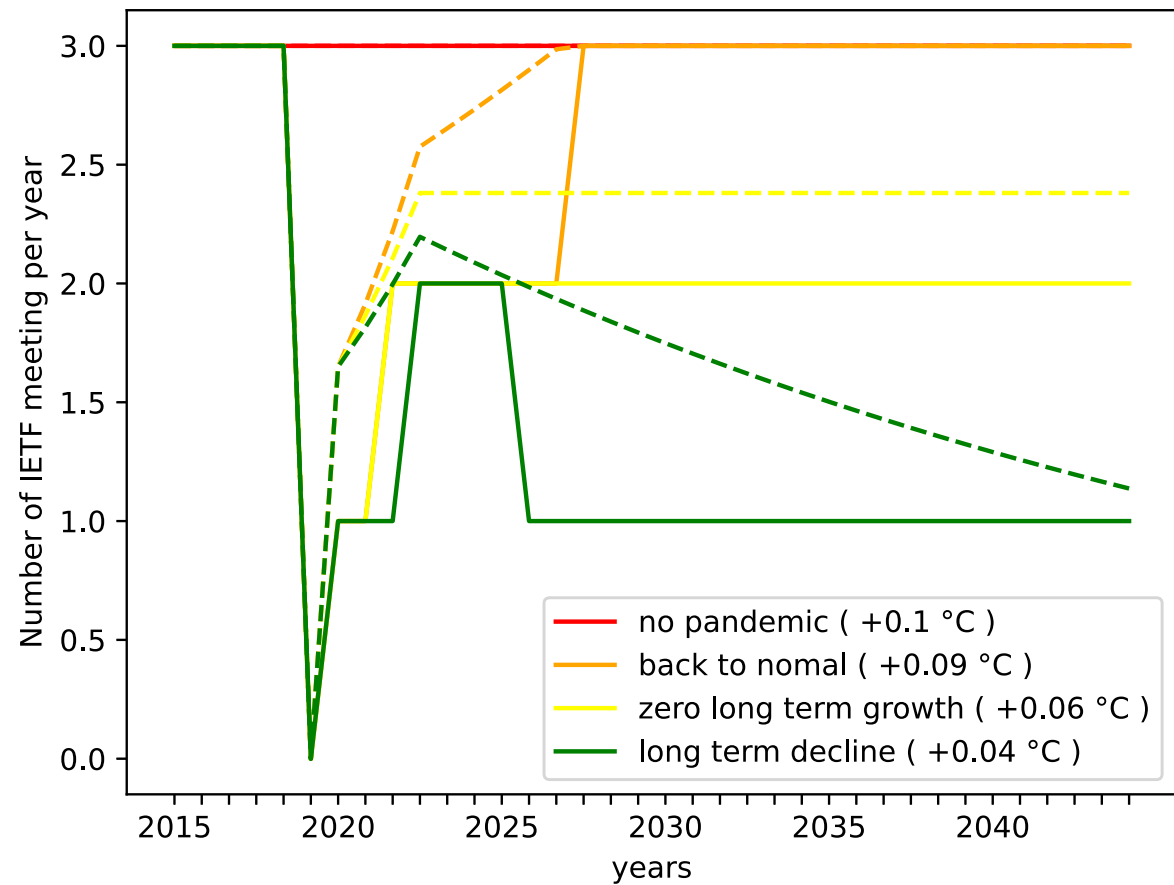
Aviation contributed approximately 4% to observed human-induced global warming

Studies of COVID-19 impact of aviation's emissions considers the scenarios below:

scenario	post-COVID growth until 2024	post 2024 growth until 2050	temperature increase
no pandemic	3 %	3 %	0.1 C
back to normal	16 %	3 %	0.09 C
zero long term growth	13 %	0 %	0.06 C
long term decline	10 %	-2.5 %	0.04 C

Reduction due to COVID-19 is small (at most a 5 year delay)

long term decline results in emissions 50% lower in 2050 compared with 2019 --
consistent with no additional aviation-induced warming



Applying these scenarios to the IETF seems to indicate 1 IETF meeting per year

Conclusion

1. Limiting 'on-site' IETF meeting to a maximum of 1 meeting a year:
 - CO_2 resulting from attending 3 'on-site' IETF meetings is equivalent to the CO_2 per capita of european countries that generate energy using coal.
 - long term decline scenario for aviation suggests 1 meeting per year.
 - Science urges us to reduce our emissions by 45% by 2030 compared to 2010
2. Increasing effort to improve the 'remote' IETF meetings user experience
3. Ensure the IETF aligns its strategy and report progress toward sustainability (UN Global Compact and the caring for climate initiative)

Our fragile planet is hanging by a thread.

We are still knocking on the door of climate catastrophe.

It is time to go into emergency mode --- or our chance of reaching net zero will itself be zero. (...)

Science tells us that the absolute priority must be rapid, deep and sustained emissions reductions in this decade.

Specifically --- a 45% cut by 2030 compared to 2010 levels.

But the present set of Nationally Determined Contributions -- even if fully implemented -- will still increase emissions this decade on a pathway that will clearly lead us to well above 2 degrees by the end of the century compared to pre-industrial levels. (...)

COP 27 starts now.

António Guterres, COP26

Reference:

c02eq : <https://github.com/mglt/co2eq>

MyClimate: <http://www.myclimate.org>

Go Climate: <https://goclimateneutral.org>

M. Klöwer, M. R. Allen, D. S. Lee, S. R. Proud, L. Gallagher, and A. Skowron,
“Quantifying aviation’s contribution to global warming,” vol. 16, no. 10, p. 104027, oct
2021. <https://doi.org/10.1088/1748-9326/ac286e>

“United Nations Global Compact,” 2021. <https://www.unglobalcompact.org/>

CARING FOR CLIMATE: THE BUSINESS LEADERSHIP PLATFORM

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Thanks!