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FINNISH METEOROLOGICAL INSTITUTE

Open Science in Climate research:

the good 

the bad 

the ugly 

29.9.2022

Anca Hienola
Finnish meteorological Institute





Air and water pollution

Droughts

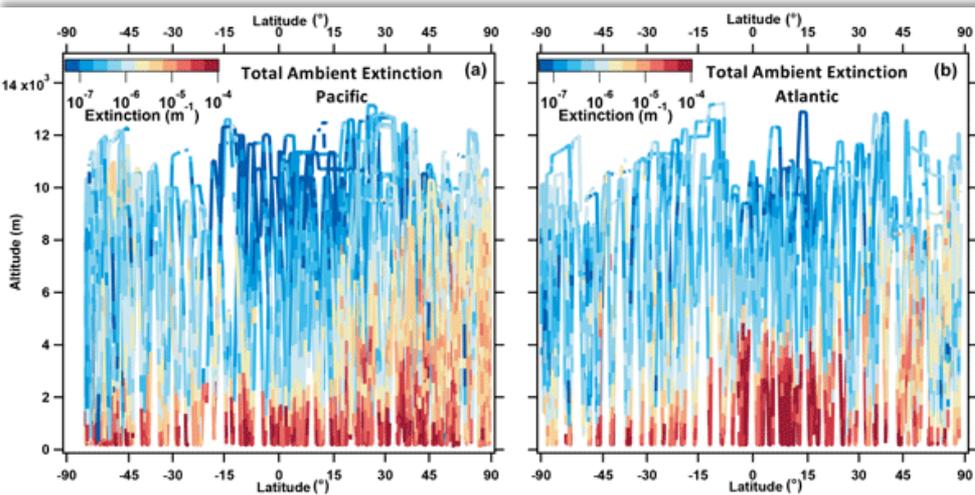
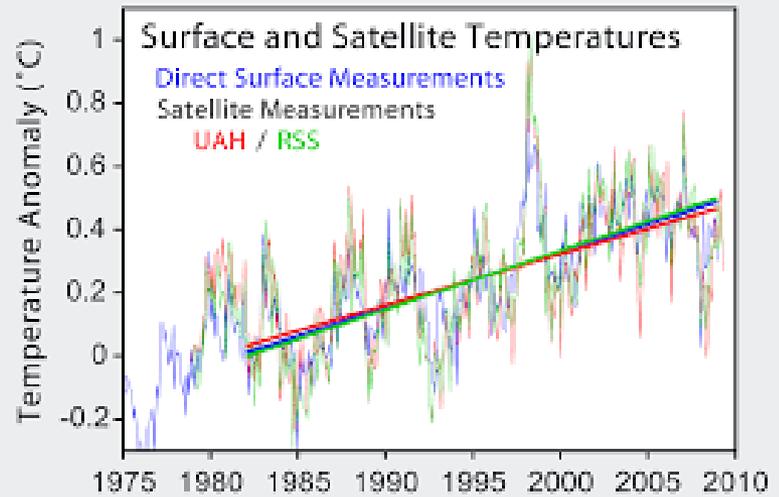
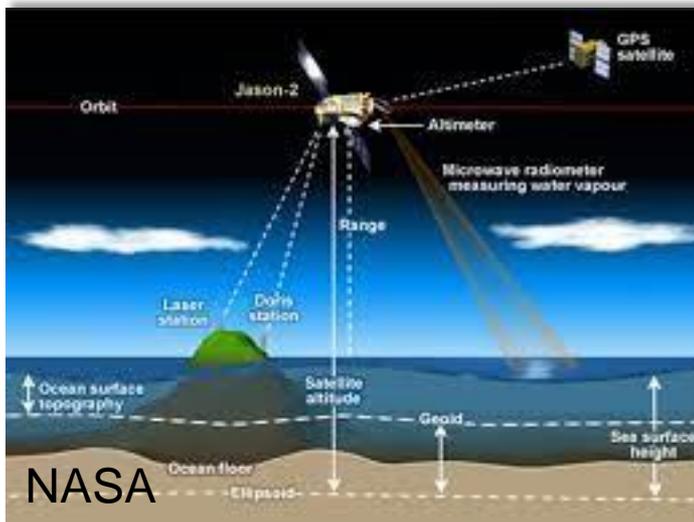
Diminished resources of water

Biodiversity loss

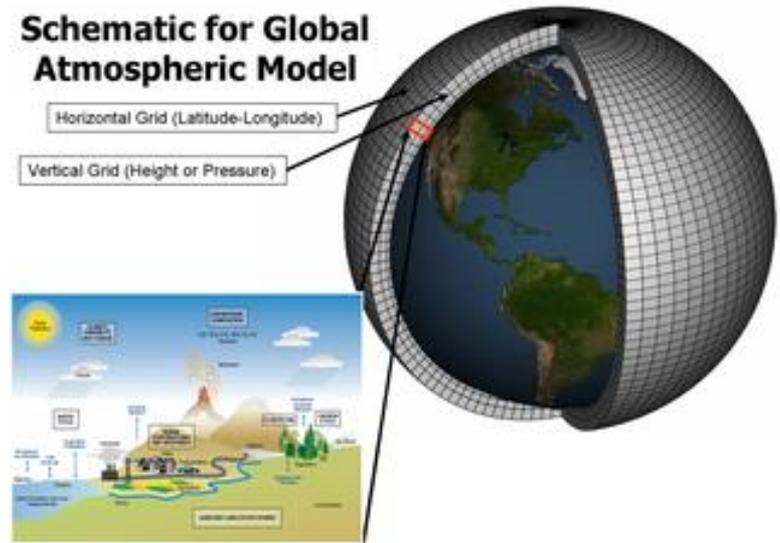
Deforestation/erosion



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Schematic for Global Atmospheric Model



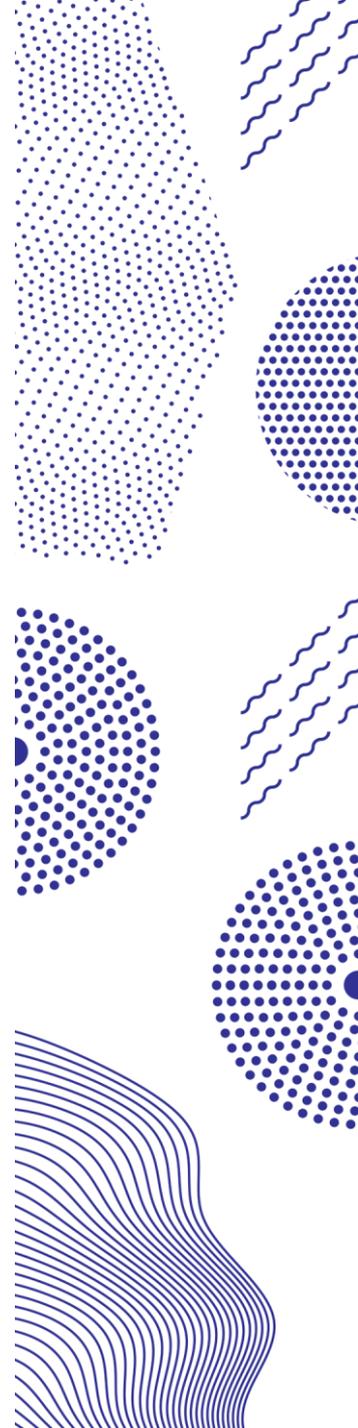


The good

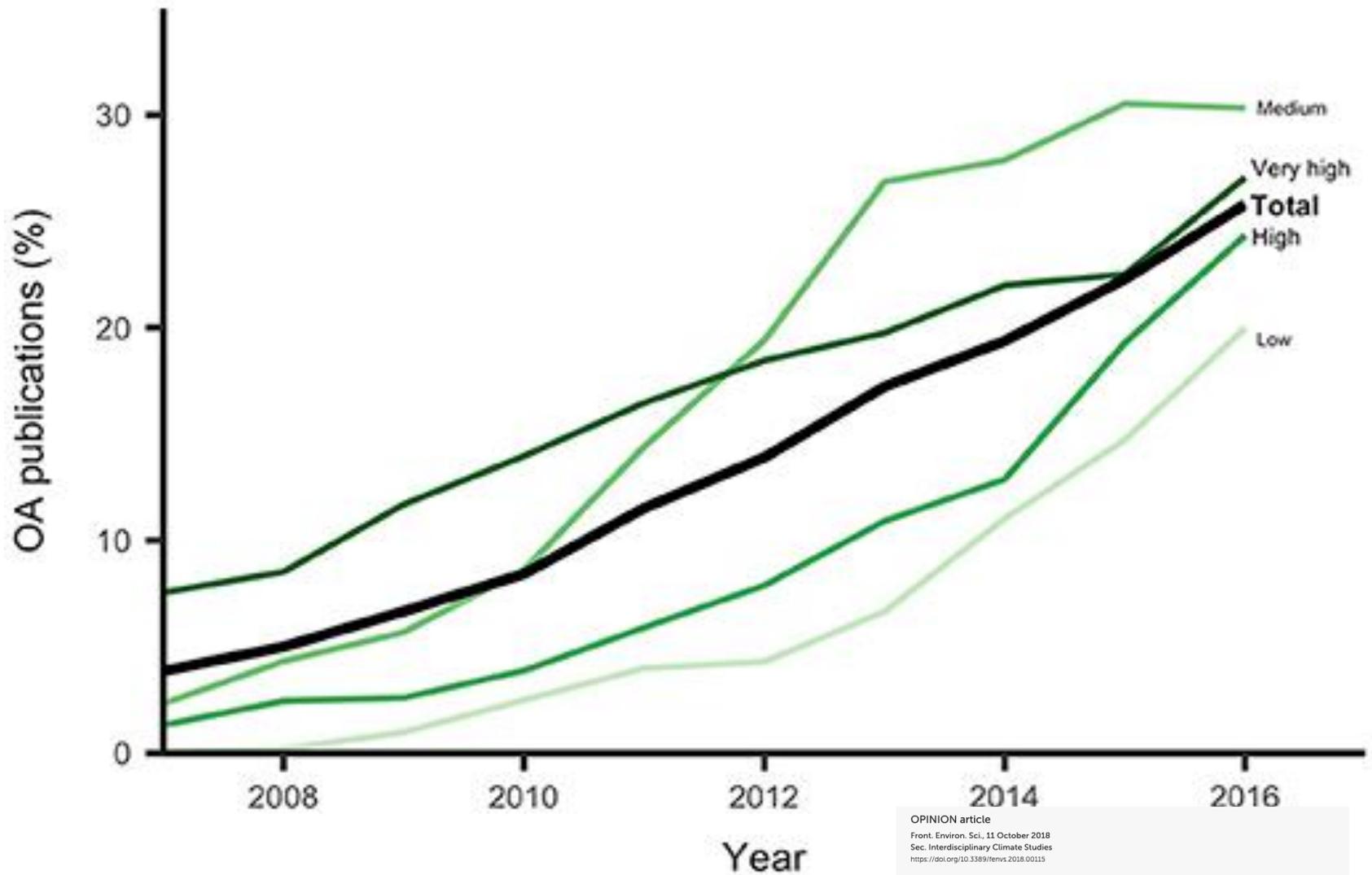
...ish, normal, solid



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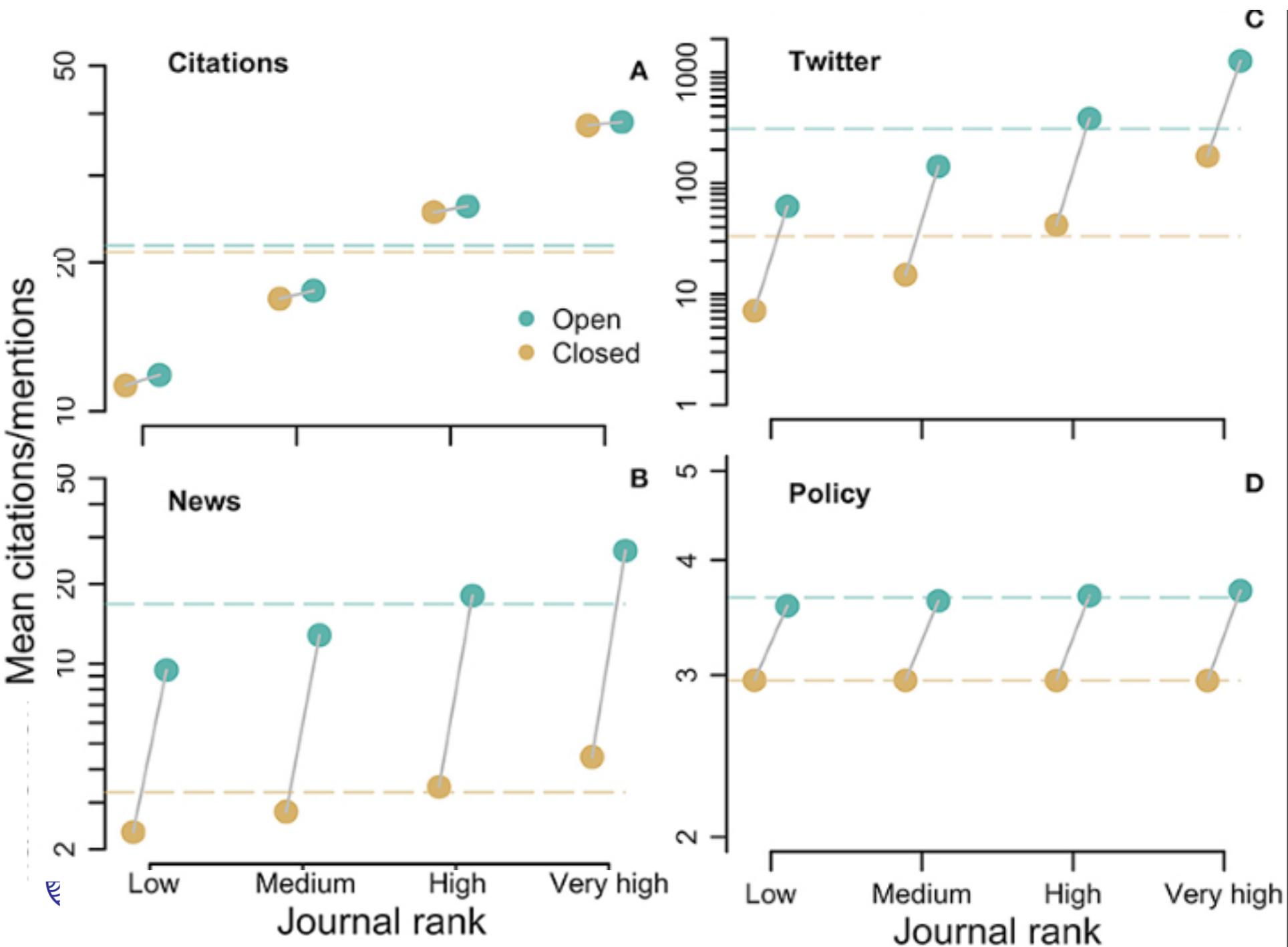
Open access



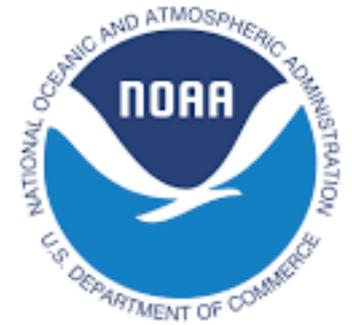
OPINION article
Front. Environ. Sci., 11 October 2018
Sec. Interdisciplinary Climate Studies
<https://doi.org/10.3389/fevrs.2018.00115>

Enhancing Climate Change Research With Open Science

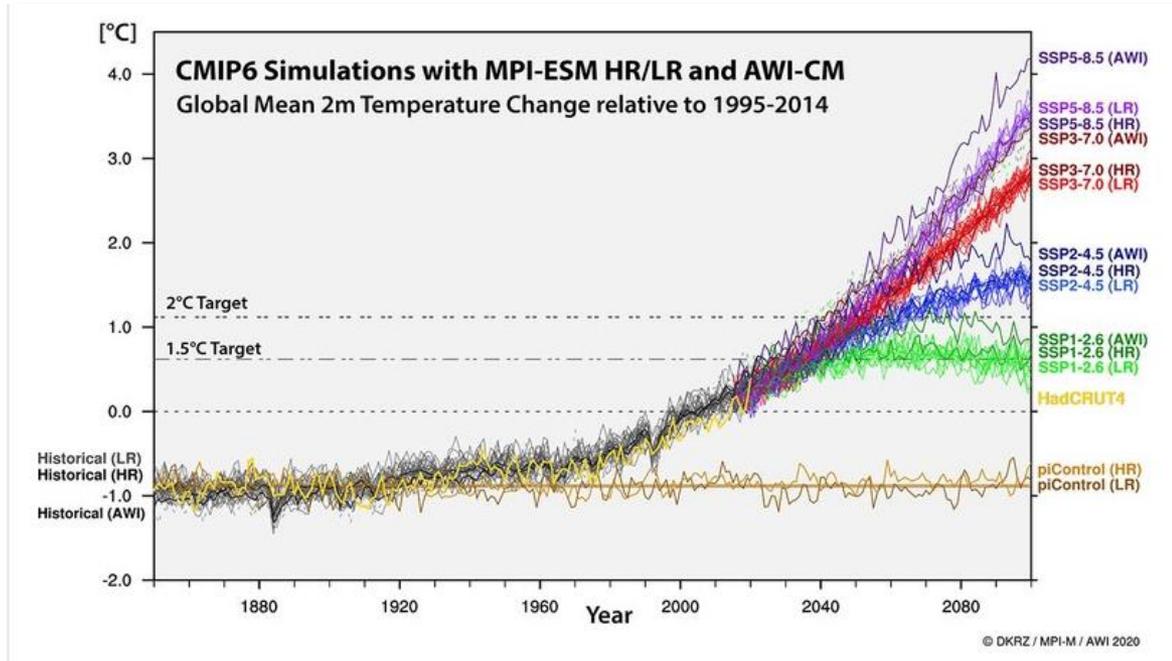
Travis C. Tai^{1*} and James P. W. Robinson²



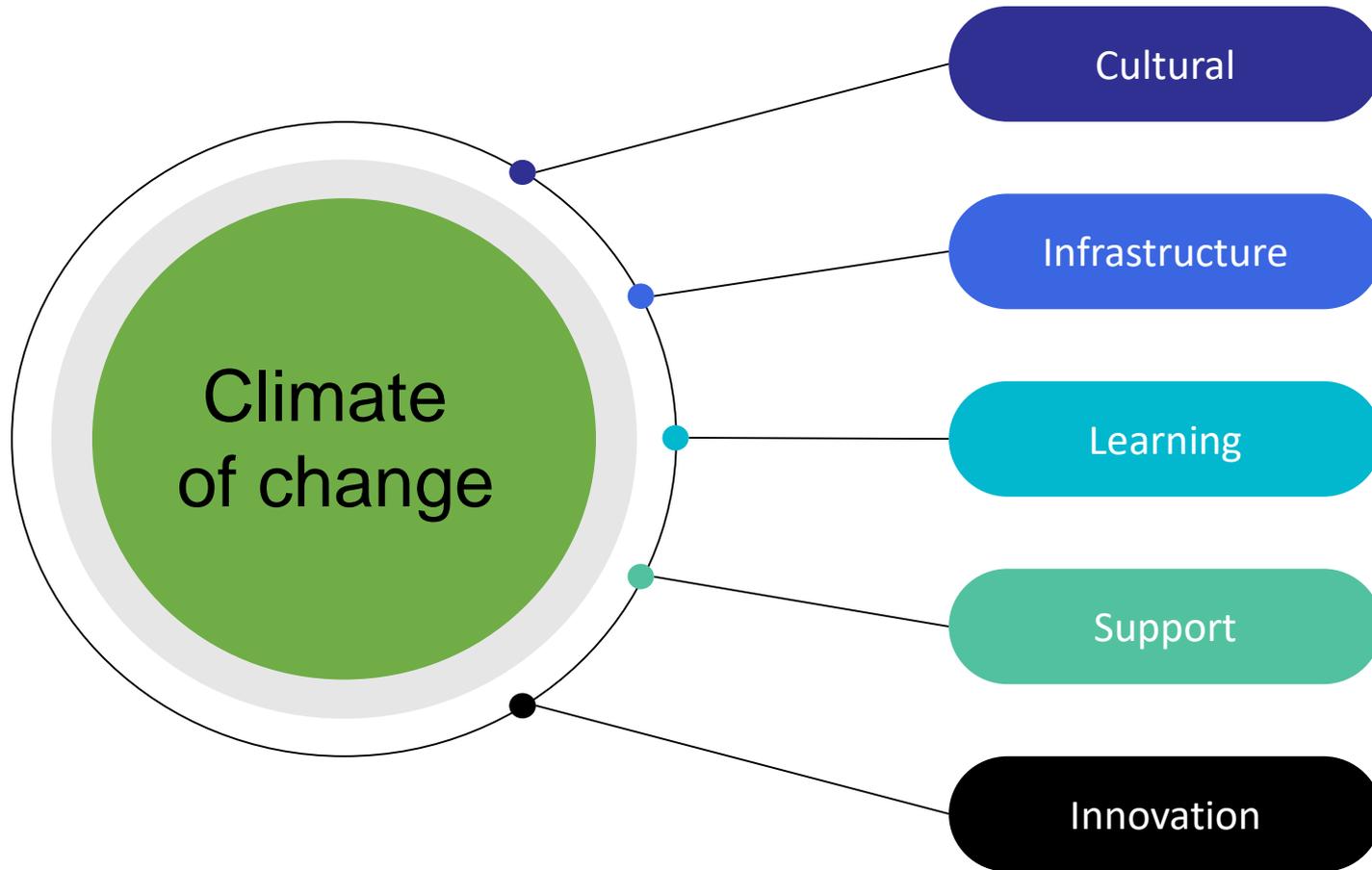
Open data



CMIP6 – Coupled model intercomparison Project

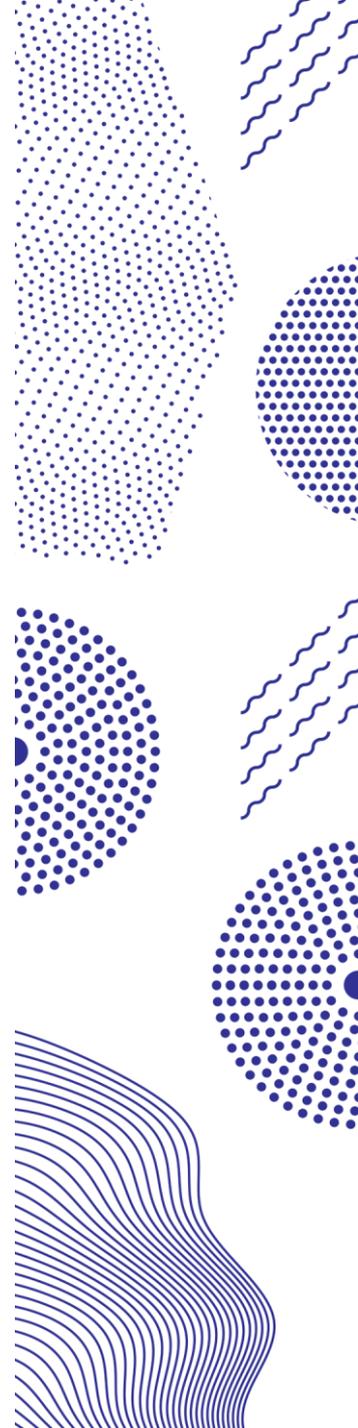


In the end, it's all about people!



The bad

...ish, blah, bummer



Climate data repositories around the world

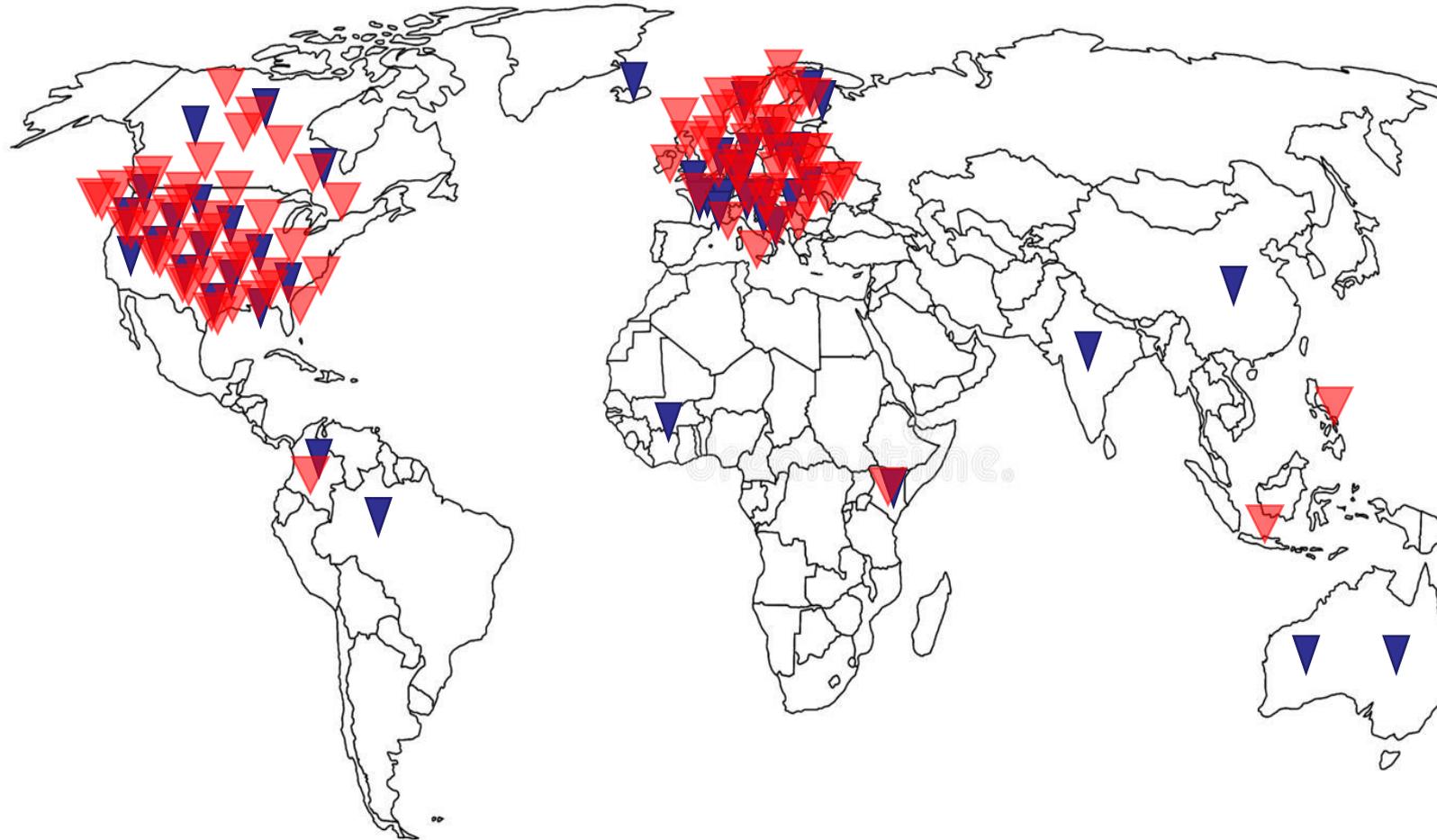
1. International climate data repositories - 38



- Australia (2)
- Belgium (2)
- Brazil (1)
- Canada (3)
- China (1)
- Colombia (1)
- European Union (7)
- Fiji (1)
- Finland (2)
- France (6)
- Germany (11)
- Ghana (1)
- Iceland (1)
- India (1)
- Italy (3)
- Kenya (1)
- Netherlands (1)
- New Caledonia (1)
- Norway (1)
- Switzerland (3)
- United Kingdom (1)
- United States (14)

Climate data repositories around the world

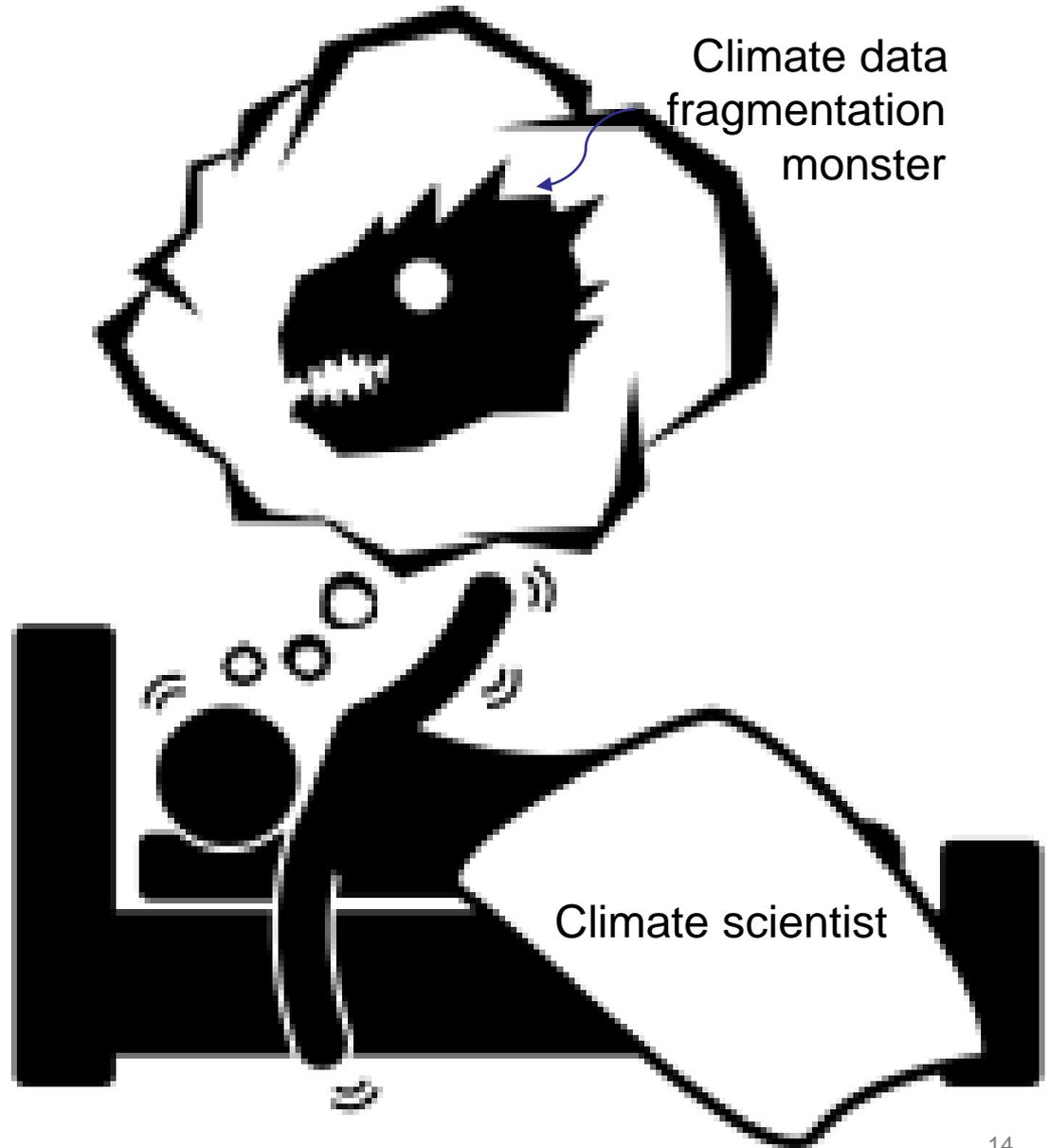
1. Institutional climate data repositories - 101



- Australia (5)
- Belgium (2)
- Canada (6)
- Colombia (1)
- Cyprus (1)
- European Union (8)
- Finland (1)
- France (1)
- Germany (18)
- Ghana (1)
- India (1)
- Indonesia (1)
- International (8)
- Japan (1)
- Kenya (1)
- Luxembourg (1)
- Netherlands (4)
- Norway (1)
- Slovenia (1)
- Spain (2)
- Switzerland (1)
- United Kingdom (1)
- United States (34)

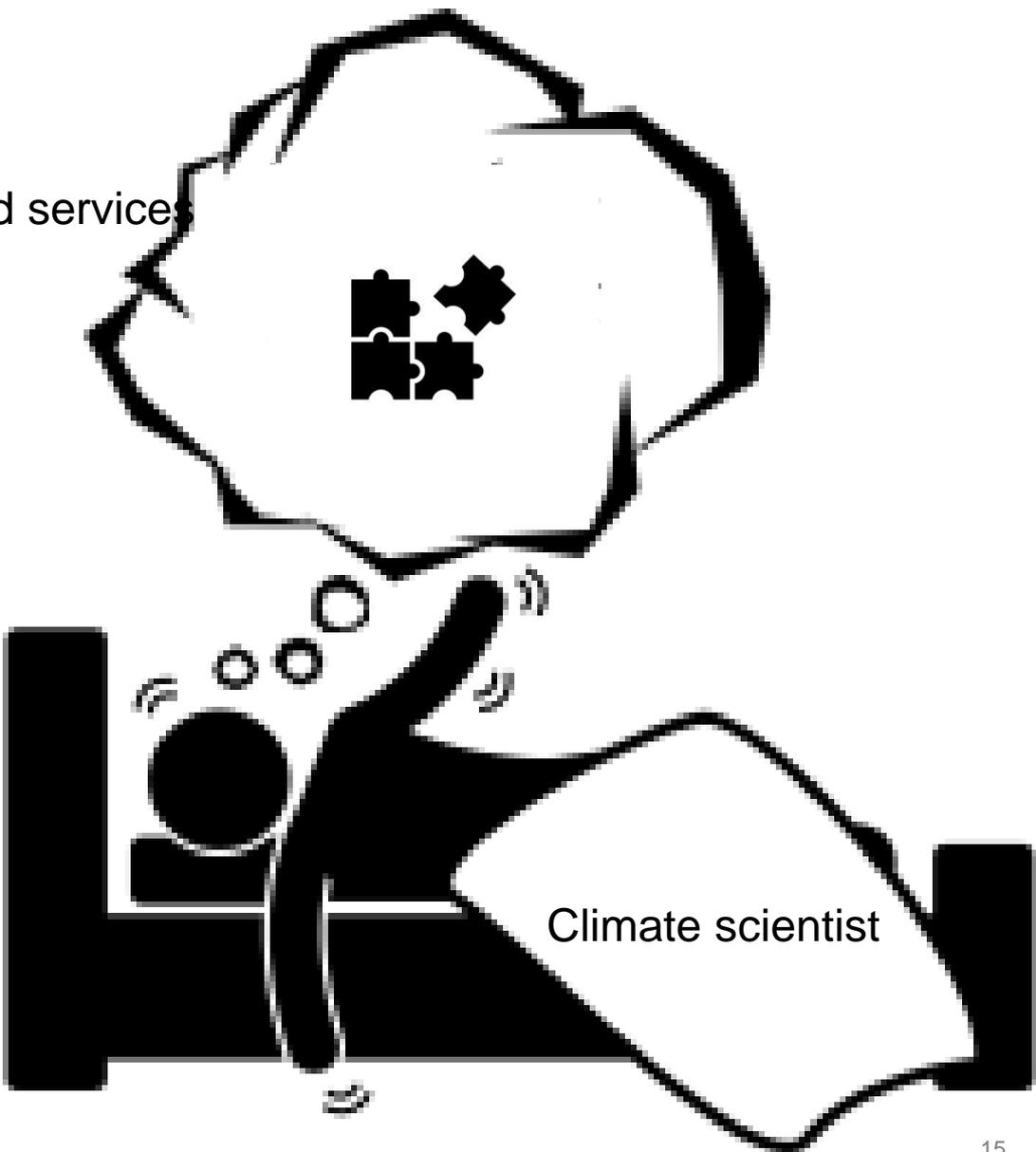


Fragmented access



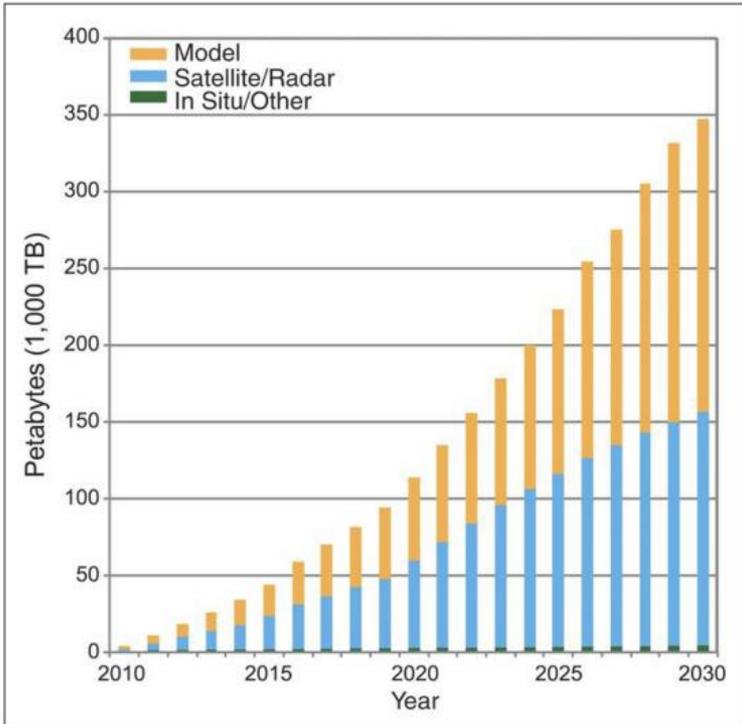


Non-interoperable data and services

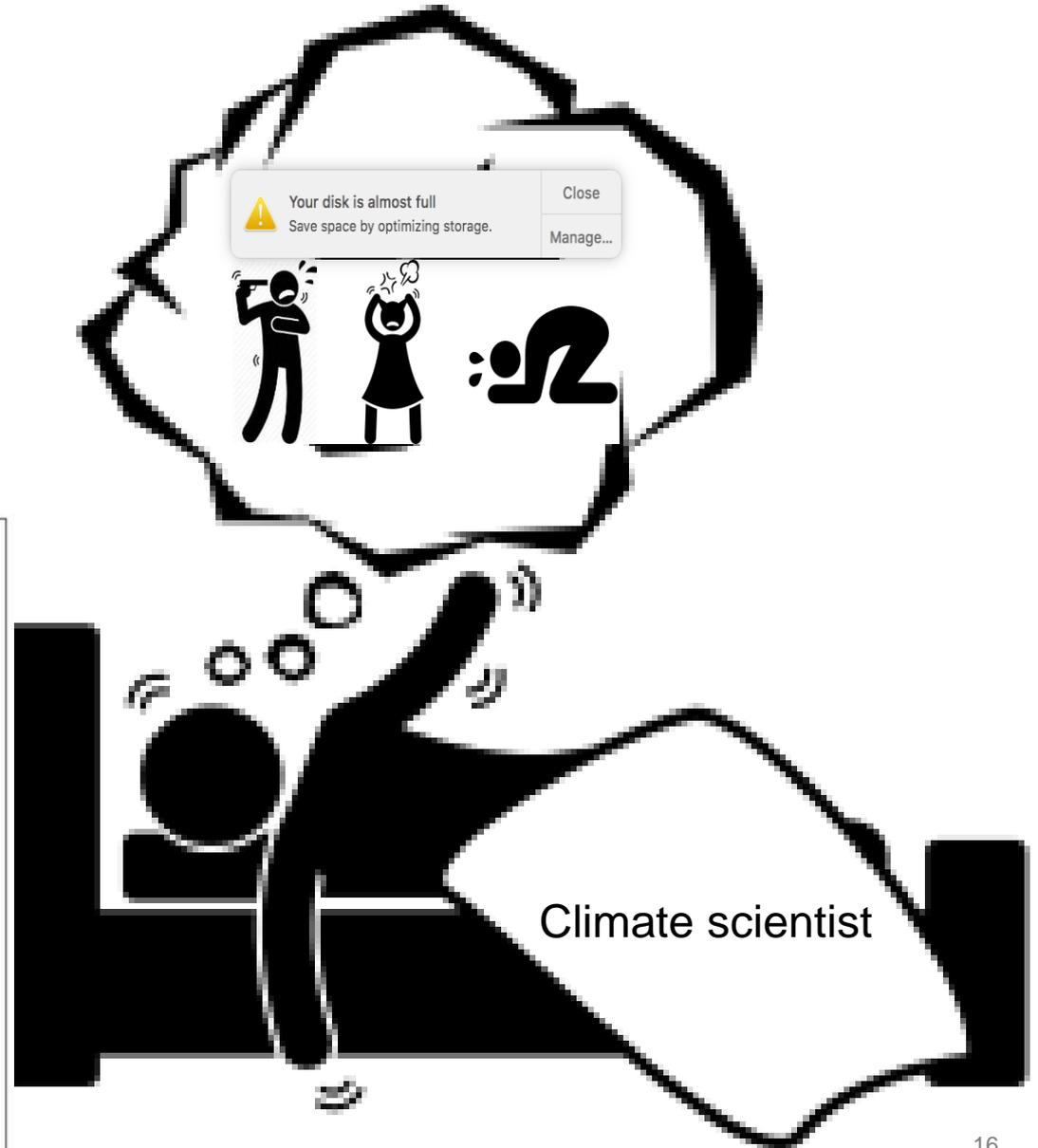




Data storage limitation

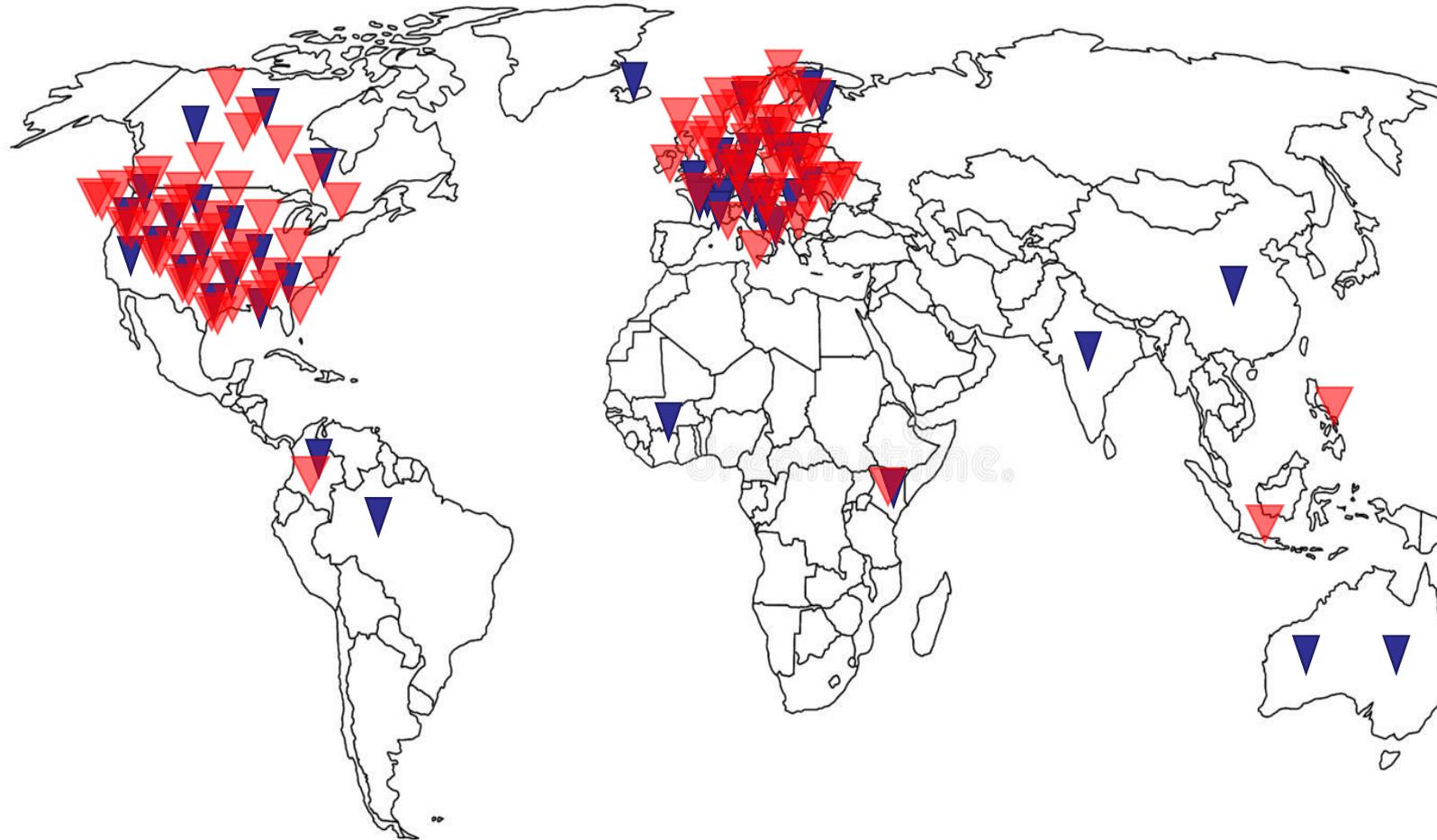


From Overpeck, J T et al. 2011



Climate data repositories around the world

1. Institutional climate data repositories - 101

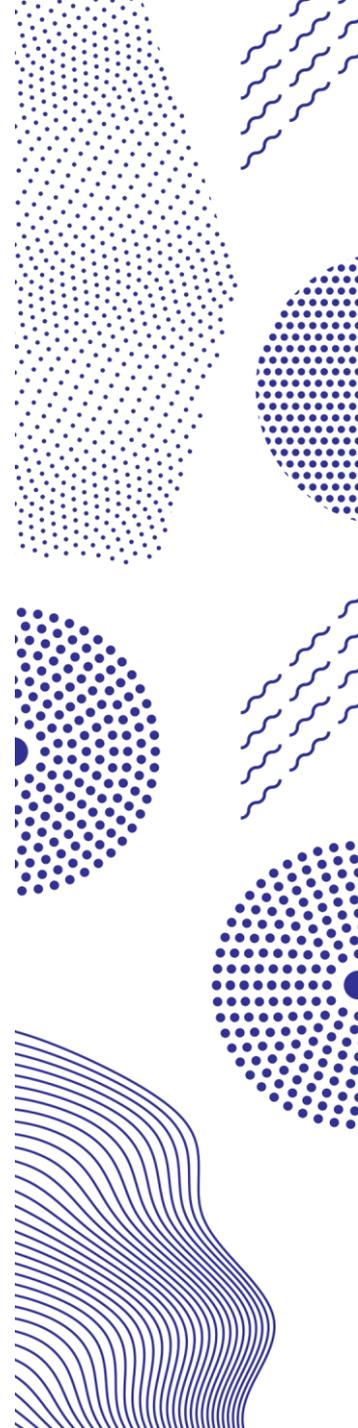


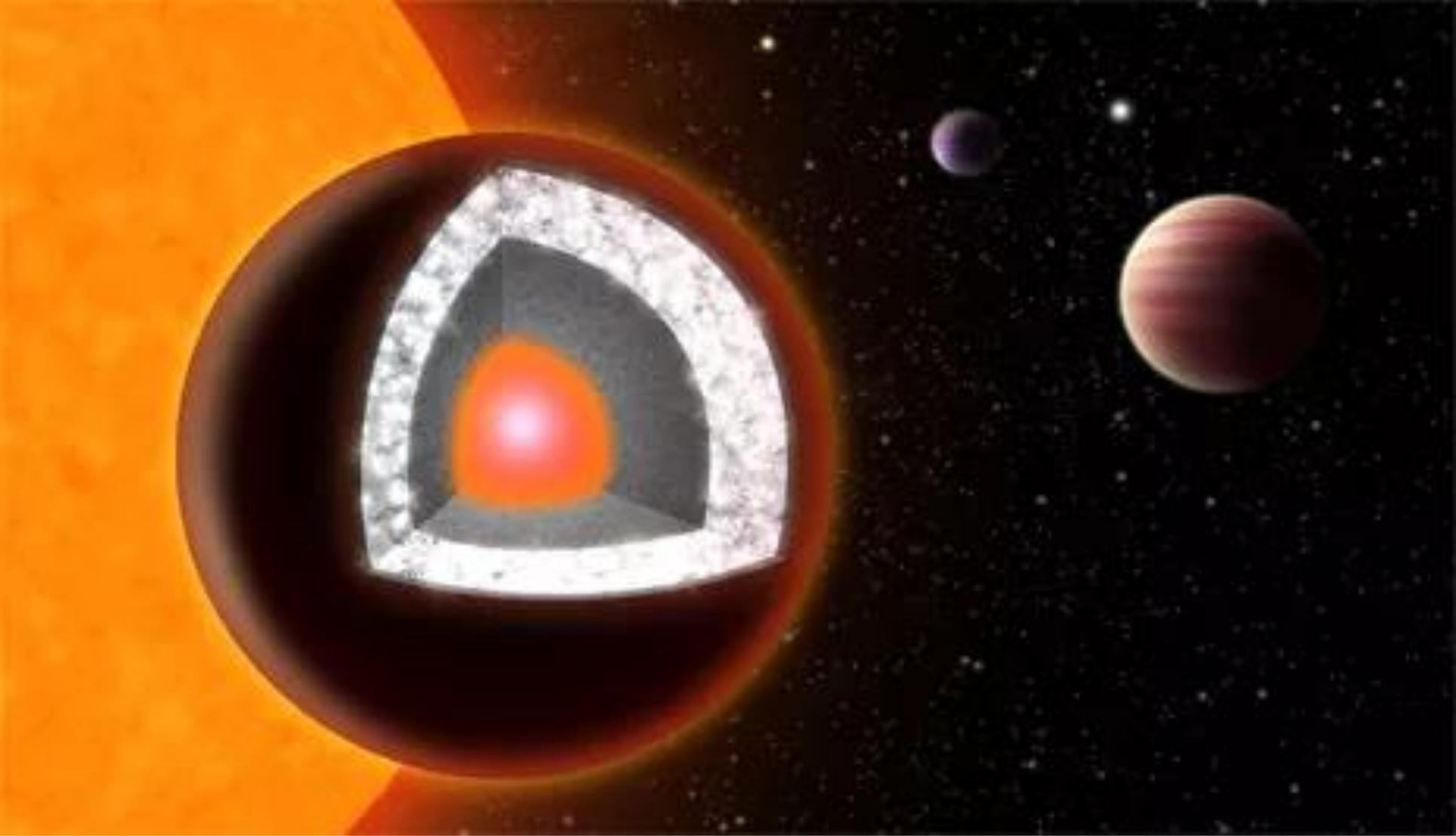
Australia	(5)
Belgium	(2)
Canada	(6)
Colombia	(1)
Cyprus	(1)
European Union	(8)
Finland	(1)
France	(1)
Germany	(18)
Ghana	(1)
India	(1)
Indonesia	(1)
International	(8)
Japan	(1)
Kenya	(1)
Luxembourg	(1)
Netherlands	(4)
Norway	(1)
Slovenia	(1)
Spain	(2)
Switzerland	(1)
United Kingdom	(1)
United States	(34)

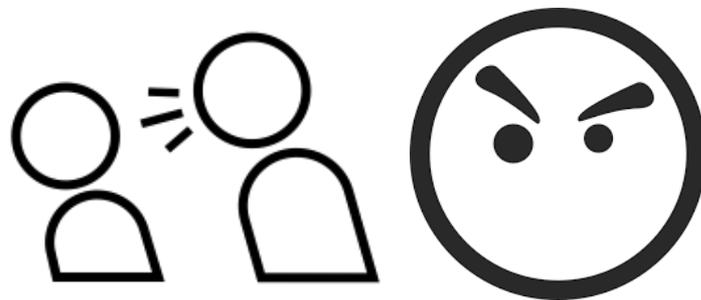


The ugly

... well, just ugly





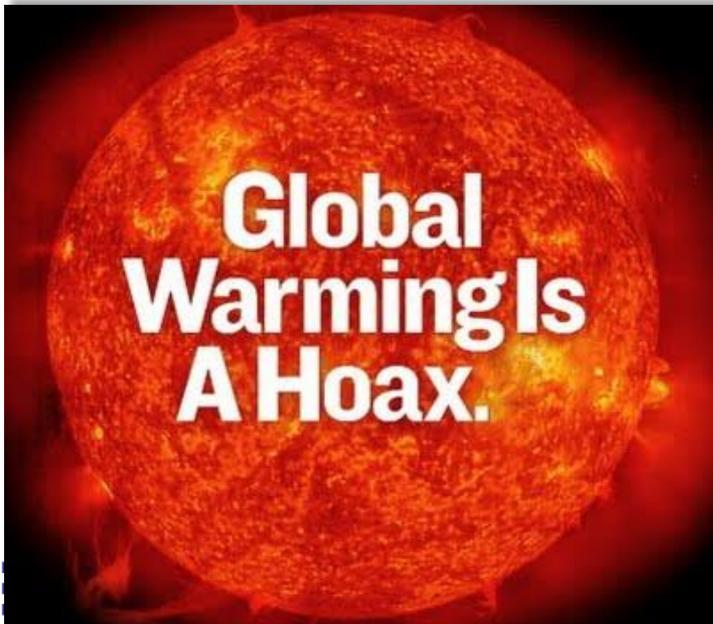


ACCESS



ACCESIBILITY





QandA

#QandA

Show me empirical data

"The data has been corrupted, and we know the 1930s were warmer than today," Roberts said.

"What do you mean by corrupted?" Cox asked.

"It's been manipulated," Roberts said.

"By who?"

"By NASA," Roberts said.



*“Well, it’s a hoax.
I think the scientists are
having a lot of fun.”*

-DONALD TRUMP



PHOTO: GAGE SKIDMORE

Rolled back policies of climate mitigation

Withdraw from Paris climate agreement

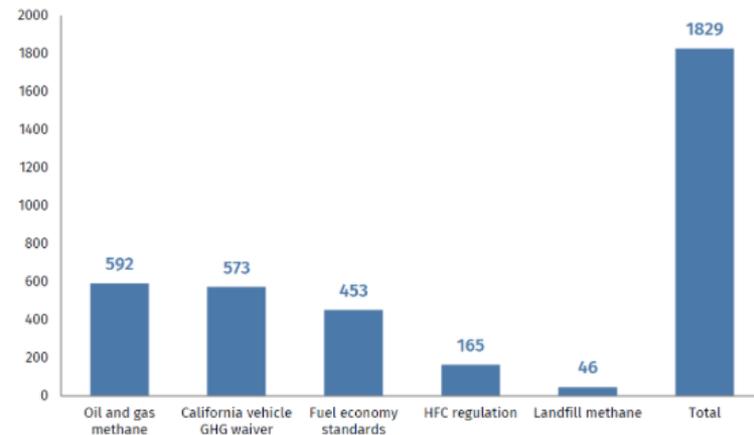
Relaxed regulations for polluters

Abandoned the Clean Power Plan

Approved Keystone XL pipeline

Scientists feared a “21st century book
Burning”

Cumulative GHG emissions impact of regulatory rollbacks through 2035
Million metric tons of CO₂e



Source: Rhodium Climate Service



LIVE LONG(ER) AND PROSPER





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Thank you!

