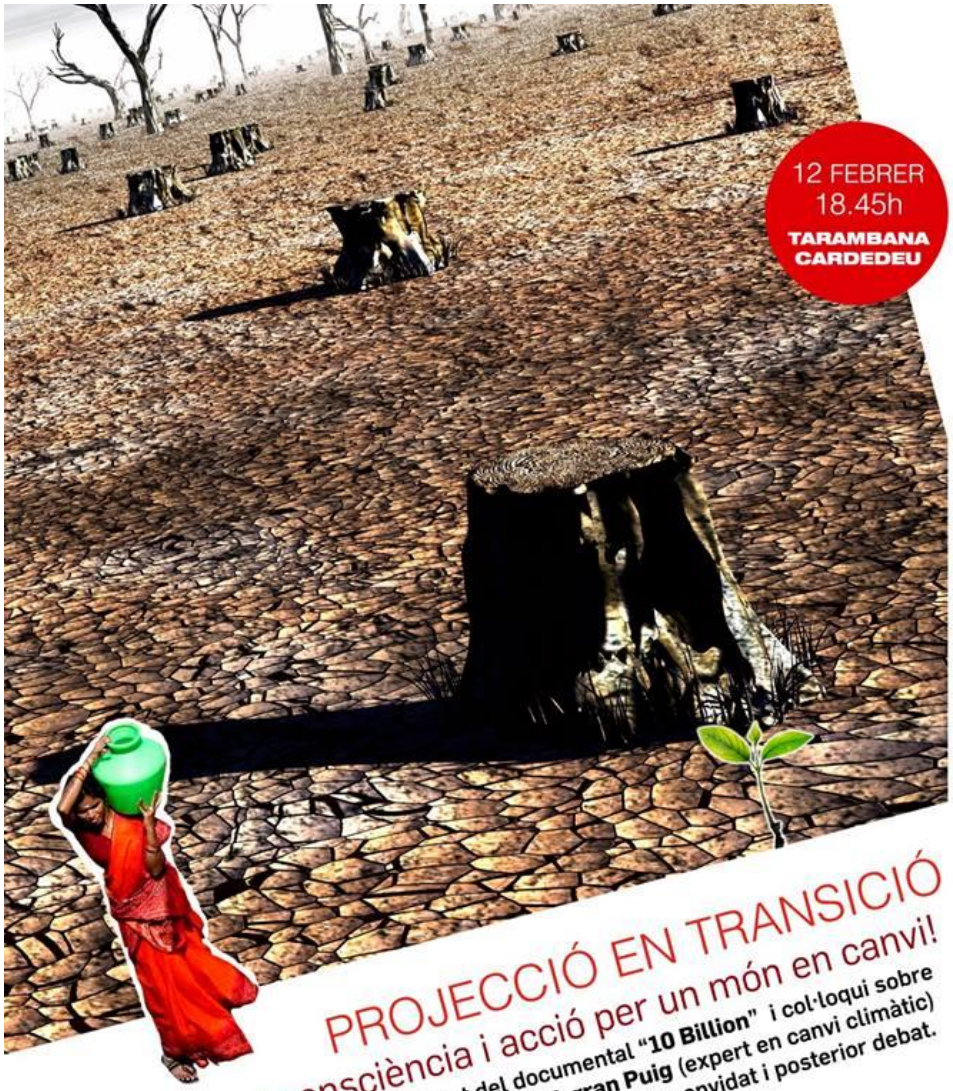


12 FEBRER
18.45h
TARAMBANA
CARDEDEU

PROJECCIÓ EN TRANSICIÓ

Creant consciència i acció per un món en canvi!

Fragment del documental "10 Billion" i col·loqui sobre canvi climàtic amb en Ferran Puig (expert en canvi climàtic) com a convidat i posterior debat.

Organitza:

RED de transición .org

cardedeu en transició

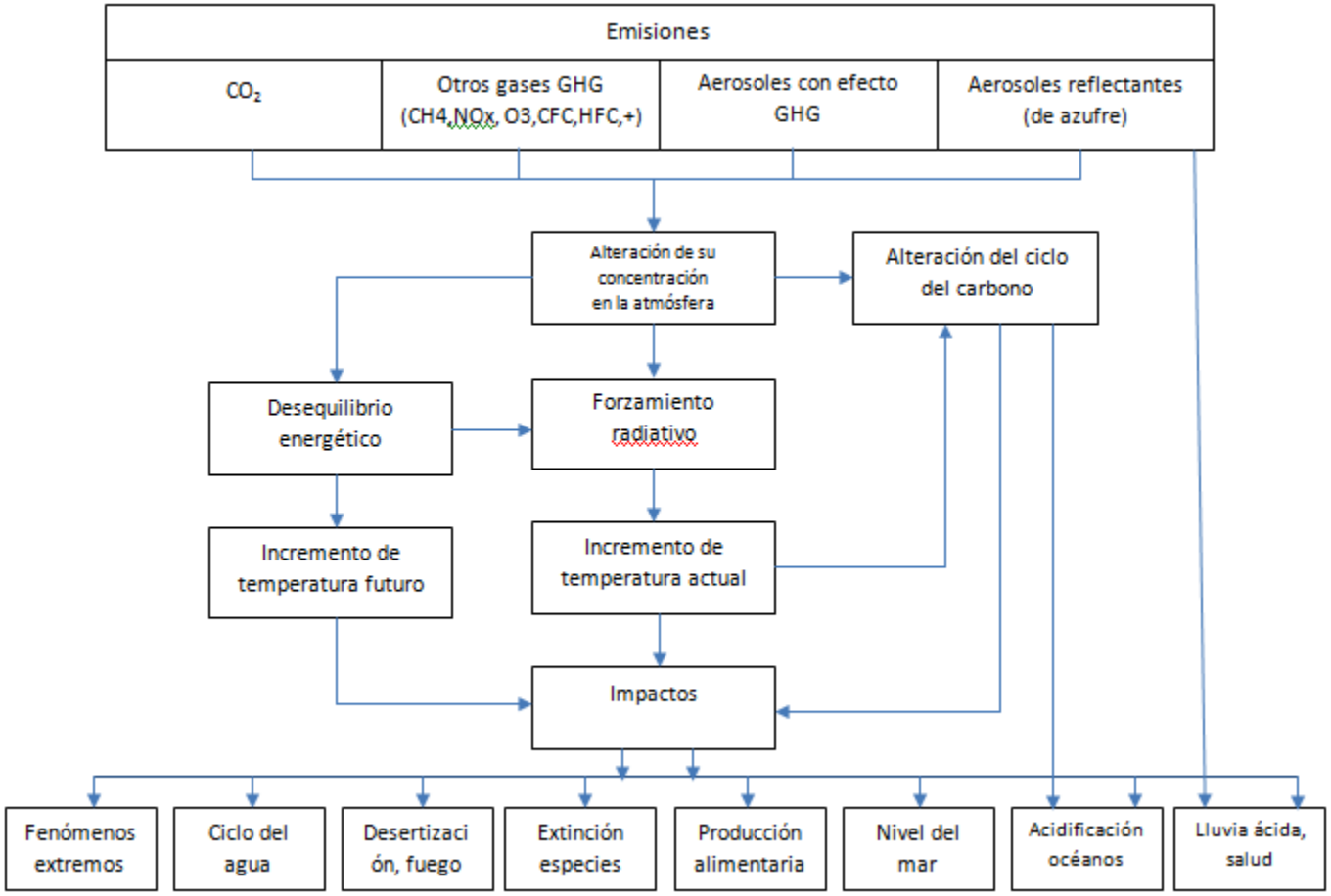
Tarambana
CAFÈ CULTURAL CARDEDEU
c/ Bellsolar amb c/ Barcelona

TEN BILLION
www.tenbillionmovie.com

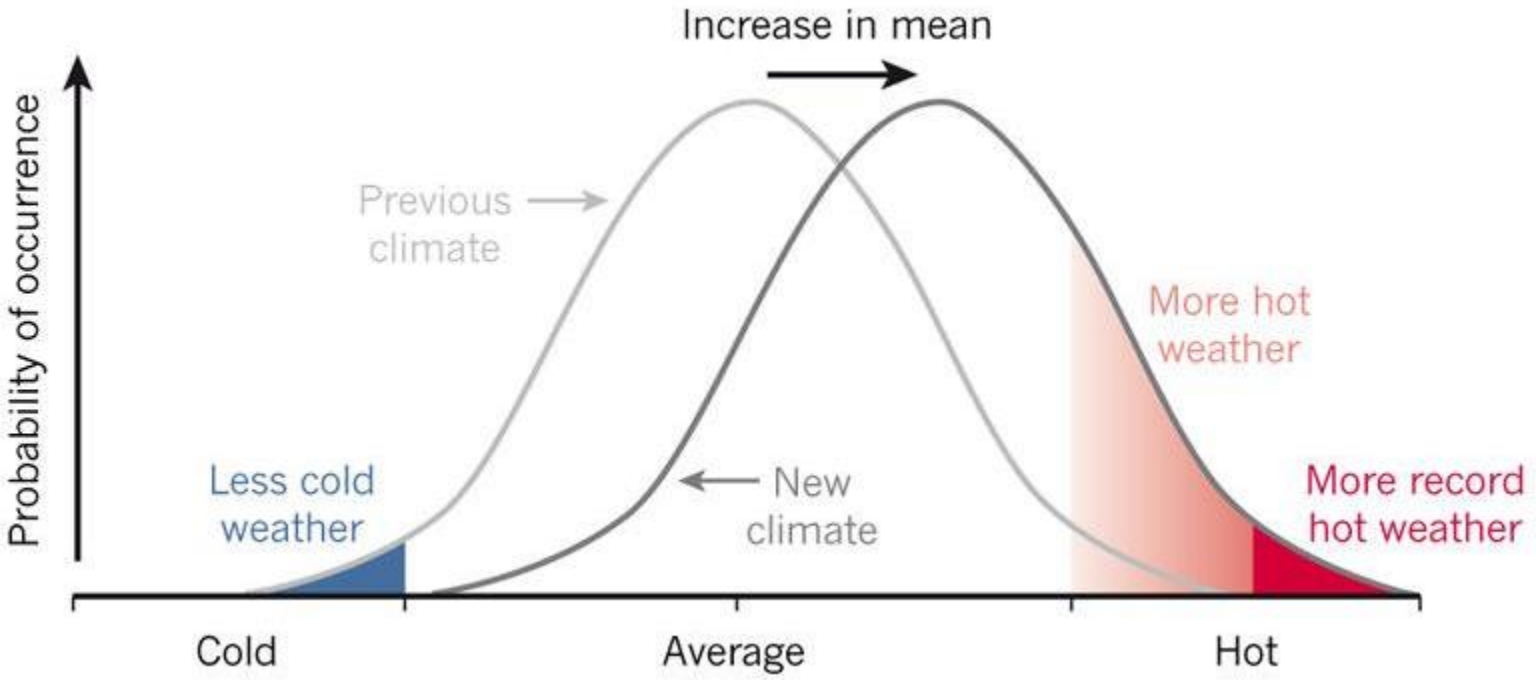
Manila, 2009

New Jersey, 2012

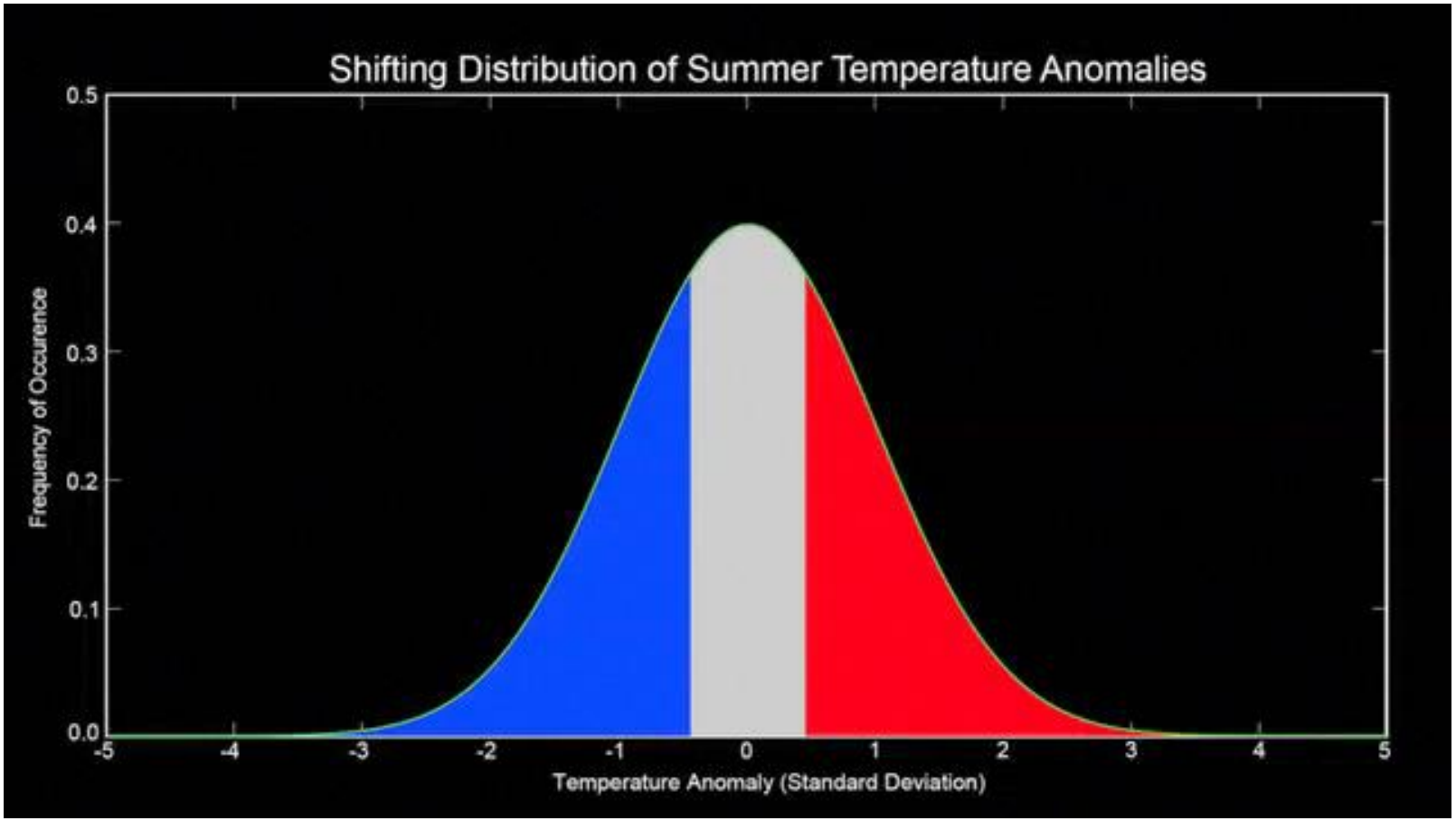
La cadena causal



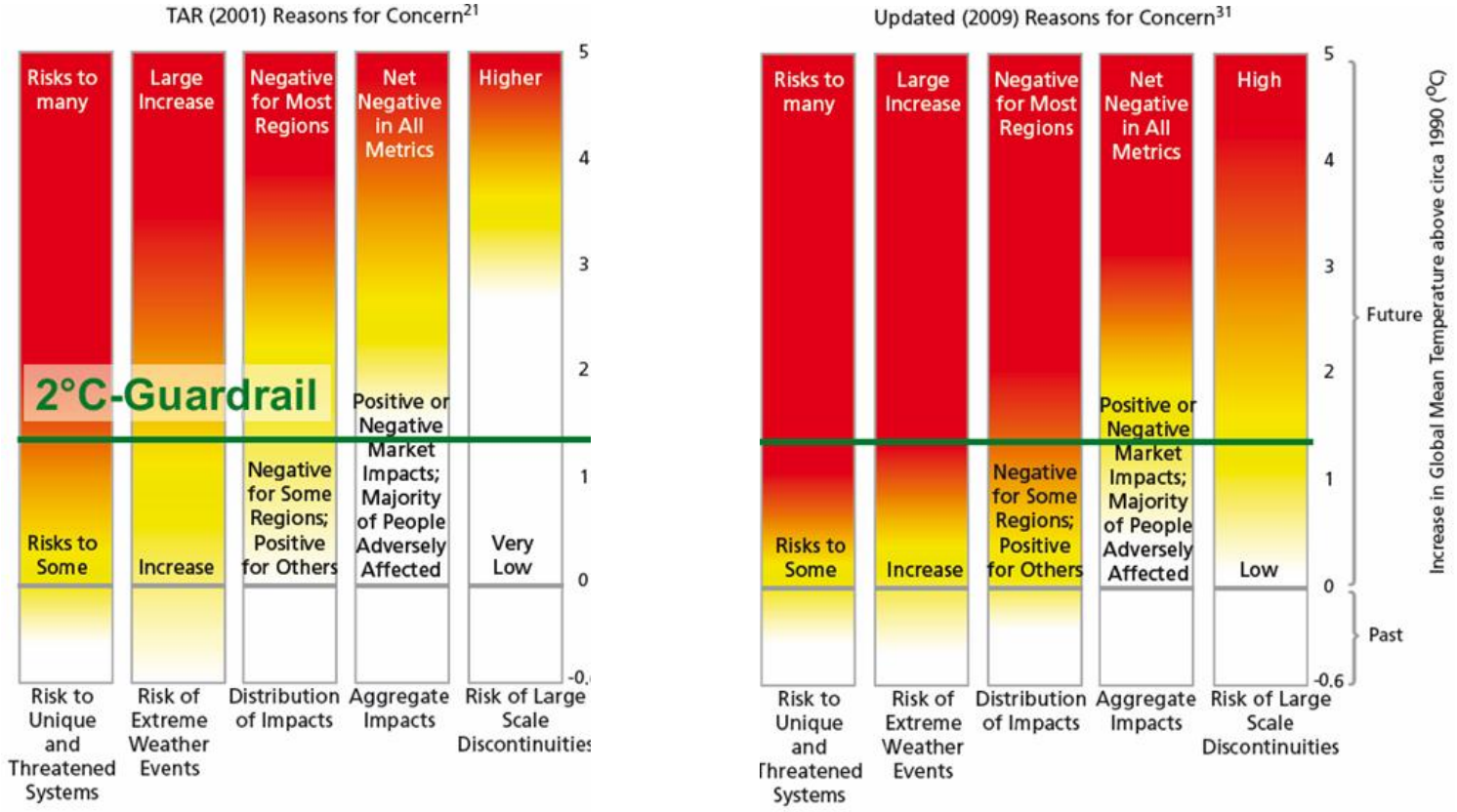
Fenòmens extrems



Quirin Schiermeier (2011) - Climate and weather: Extreme measures - Nature 477:148-149 doi:10.1038/477148a - http://www.nature.com/news/2011/110907/full/477148a.html


Shifting Distribution of Summer Temperature Anomalies
Frequency of Occurence
0.5
0.4
0.3
0.2
0.1
0.0
-5
-4
-3
-2
-1
0
1
2
3
4
5
Temperature Anomaly (Standard Deviation)

Son segurs + 2˚C?



Joel B. Smith et al (2009) – Assessing dangerous climate change through an update of the Intergovernmental Panel on Climate Change (IPCC) 'reasons for concern' - Proceedings of the National Academy of Sciences PNAS 106:4133–4137 doi:10.1073/pnas.0812355106 – 15 autores

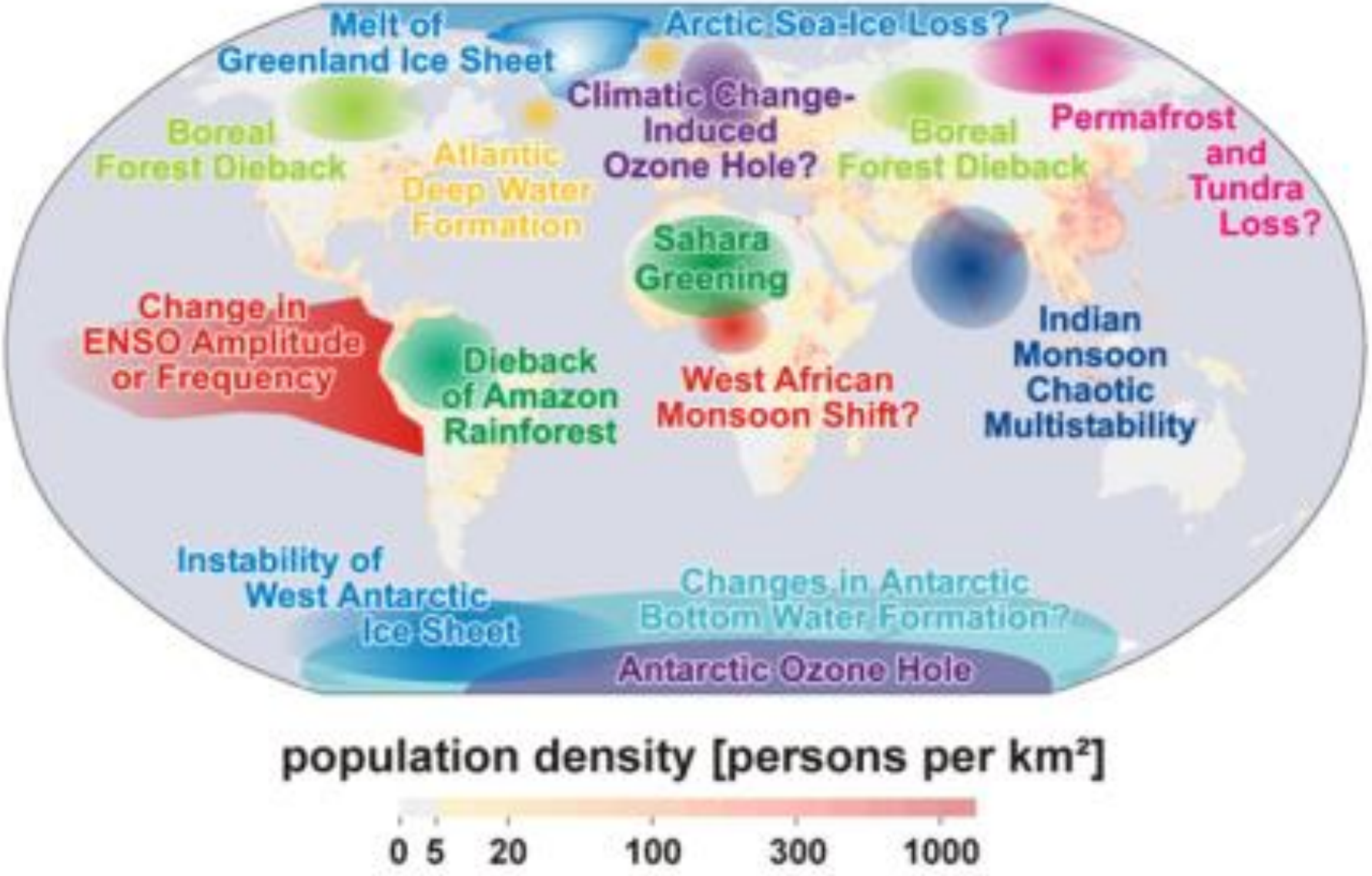

Melt of Greenland Ice Sheet
Arctic Sea-Ice Loss?
Climatic Change-Induced Ozone Hole?
Boreal Forest Dieback
Atlantic Deep Water Formation
Boreal Forest Dieback
Permafrost and Tundra Loss?
Sahara Greening
Change in ENSO Amplitude or Frequency
Dieback of Amazon Rainforest
West African Monsoon Shift?
Indian Monsoon Chaotic Multistability
Instability of West Antarctic Ice Sheet
Changes in Antarctic Bottom Water Formation?
Antarctic Ozone Hole
population density [persons per km²]
0 5 20 100 300 1000

Table 1. Policy-relevant potential future tipping elements in the climate system and (below the empty line) candidates that we considered but failed to make the short list*

Tipping element	Feature of system, F (direction of change)	Control parameter(s), p	Critical value(s),† p_{crit}	Global warming†‡	Transition timescale,† T	Key impacts
Arctic summer sea-ice	Areal extent (−)	Local ΔT_{air}, ocean heat transport	Unidentified§	+0.5–2°C	~10 yr (rapid)	Amplified warming, ecosystem change
Greenland ice sheet (GIS)	Ice volume (−)	Local ΔT_{air}	+~3°C	+1–2°C	>300 yr (slow)	Sea level +2–7 m
West Antarctic ice sheet (WAIS)	Ice volume (−)	Local ΔT_{air}, or less ΔT_{ocean}	+~5–8°C	+3–5°C	>300 yr (slow)	Sea level +5 m
Atlantic thermohaline circulation (THC)	Overturning (−)	Freshwater input to N Atlantic	+0.1–0.5 Sv	+3–5°C	~100 yr (gradual)	Regional cooling, sea level, ITCZ shift
El Niño–Southern Oscillation (ENSO)	Amplitude (+)	Thermocline depth, sharpness in EEP	Unidentified§	+3–6°C	~100 yr (gradual)	Drought in SE Asia and elsewhere
Indian summer monsoon (ISM)	Rainfall (−)	Planetary albedo over India	0.5	N/A	~1 yr (rapid)	Drought, decreased carrying capacity
Sahara/Sahel and West African monsoon (WAM)	Vegetation fraction (+)	Precipitation	100 mm/yr	+3–5°C	~10 yr (rapid)	Increased carrying capacity
Amazon rainforest	Tree fraction (−)	Precipitation, dry season length	1,100 mm/yr	+3–4°C	~50 yr (gradual)	Biodiversity loss, decreased rainfall
Boreal forest	Tree fraction (−)	Local ΔT_{air}	+~7°C	+3–5°C	~50 yr (gradual)	Biome switch
Antarctic Bottom Water (AABW)*	Formation (−)	Precipitation–Evaporation	+100 mm/yr	Unclear¶	~100 yr (gradual)	Ocean circulation, carbon storage
Tundra*	Tree fraction (+)	Growing degree days above zero	Missing‖	—	~100 yr (gradual)	Amplified warming, biome switch
Permafrost*	Volume (−)	$\Delta T_{permafrost}$	Missing‖	—	<100 yr (gradual)	CH_4 and CO_2 release
Marine methane hydrates*	Hydrate volume (−)	$\Delta T_{sediment}$	Unidentified§	Unclear¶	10^3 to 10^5 yr ($>T_E$)	Amplified global warming
Ocean anoxia*	Ocean anoxia (+)	Phosphorus input to ocean	+~20%	Unclear¶	~10^4 yr ($>T_E$)	Marine mass extinction
Arctic ozone*	Column depth (−)	Polar stratospheric cloud formation	195 K	Unclear¶	<1 yr (rapid)	Increased UV at surface

N, North; ITCZ, Inter-tropical Convergence Zone; EEP, East Equatorial Pacific; SE, Southeast.

*See *SI Appendix 2* for more details about the tipping elements that failed to make the short list.

†Numbers given are preliminary and derive from assessments by the experts at the workshop, aggregation of their opinions at the workshop, and review of the literature.

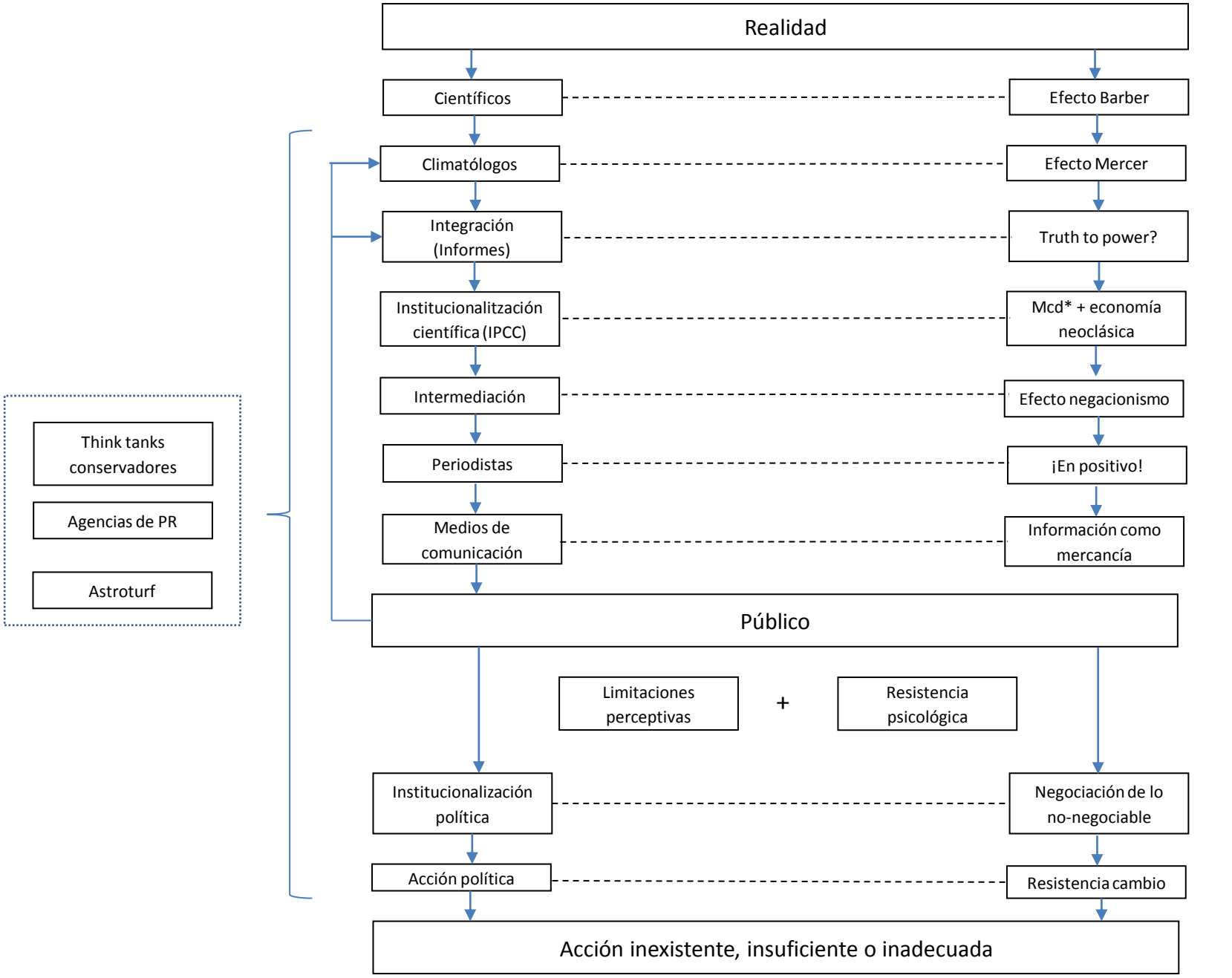
‡Global mean temperature change above present (1980–1999) that corresponds to critical value of control, where this can be meaningfully related to global temperature.

§Meaning theory, model results, or paleo-data suggest the existence of a critical threshold but a numerical value is lacking in the literature.

¶Meaning either a corresponding global warming range is not established or global warming is not the only or the dominant forcing.

‖Meaning no subcontinental scale critical threshold could be identified, even though a local geographical threshold may exist.

Gaia Vince (2009) - How to survive the coming century - New Scientist, Marzo 2009 - http://www.newscientist.com/article/mg20126971.700-how-to-survive-the-coming-century.html



* Mínimo común denominador

Climatic Change
DOI 10.1007/s10584-009-9607-1

Carbon cycle amplification: how optimistic assumptions cause persistent underestimates of potential climate damages and mitigation needs

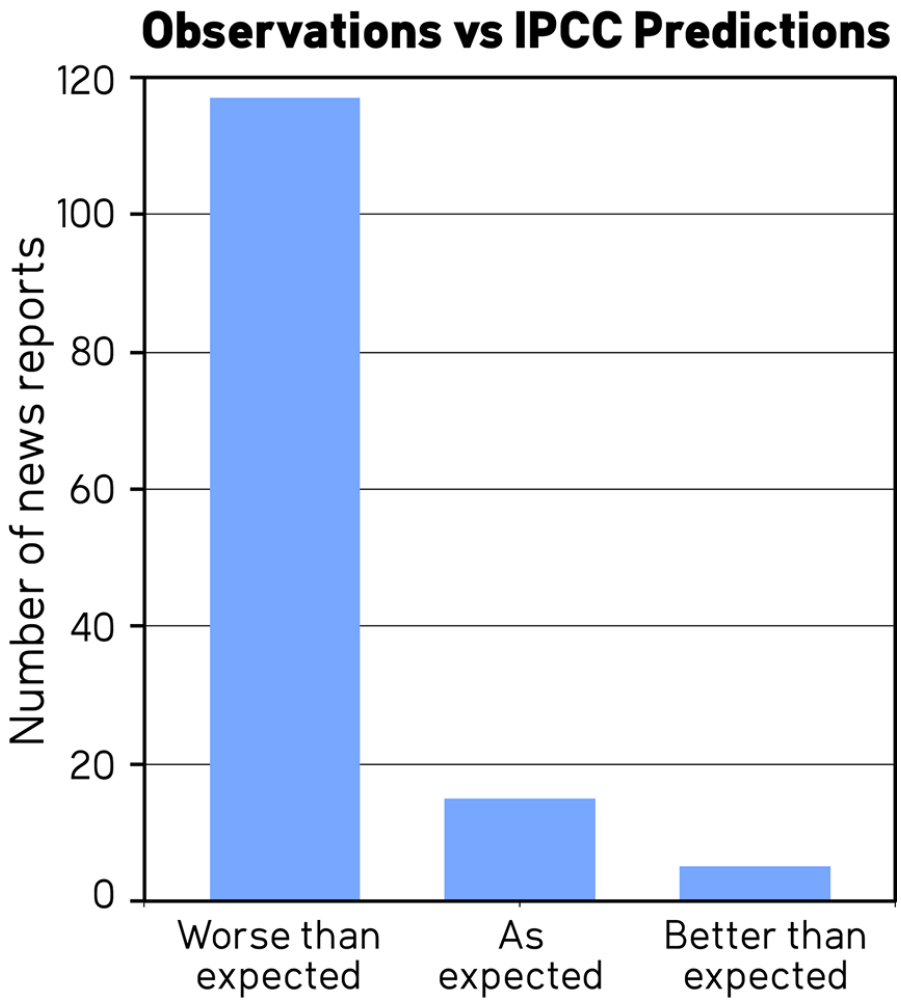
An Editorial Comment

Paul A.T. Higgins

Received: 31 March 2009 / Accepted: 3 April 2009

Biological systems constitute a critical, but sometimes overlooked, component of the climate system because they influence key physical characteristics of the land surface and atmosphere. For example, the absorption of solar radiation, the amount of carbon stored in plants and soil, and the partitioning of surface energy between sensible and latent heat all depend on the characteristics and functioning of vegetation at the land surface (Betts et al. 1997; Lashof et al. 1997; Sellers et al. 1997; Field and Avissar 1998; Pielke et al. 1998; Saleska et al. 2002; Feddema et al. 2005). As a result, vegetation's response to human induced climate change will likely contribute important climate feedbacks at local, regional and global scales.

Unfortunately, it's difficult to include these feedbacks accurately in climate projections because future responses of vegetation are hard to constrain using past observations and field experiments. For example, Higgins and Harte (2006) demonstrated that the strength—and in some cases even the sign—of the feedbacks on the absorption of solar radiation and the partitioning of surface energy depend on uncertain assumptions about how effectively plants will be able to migrate in

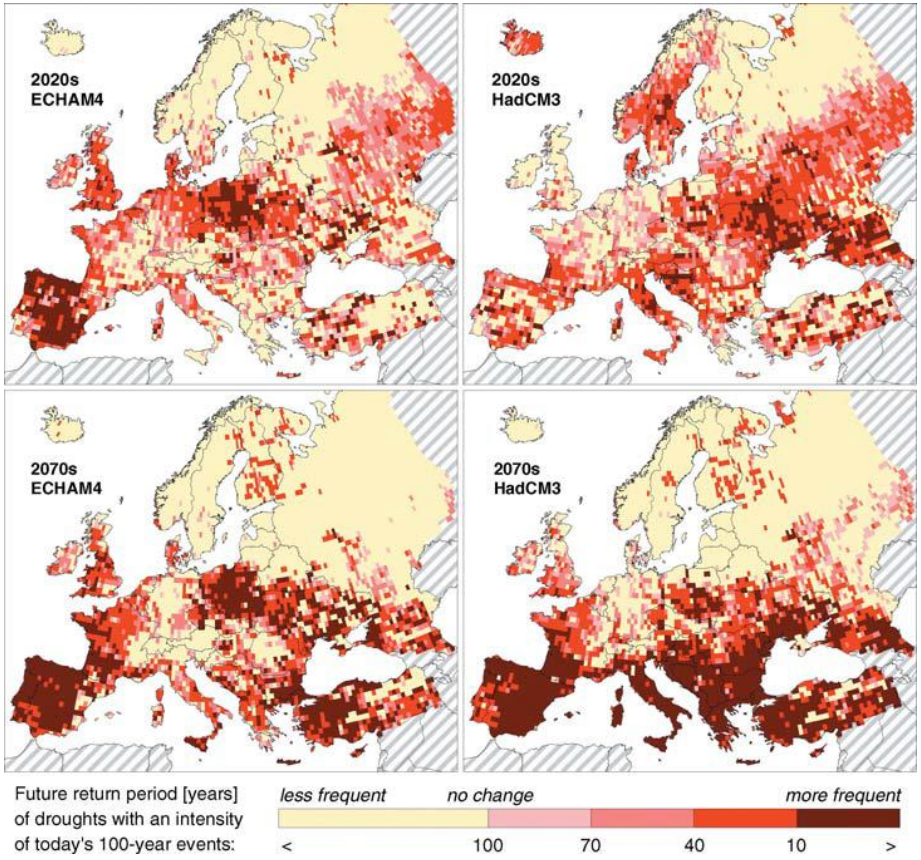

Observations vs IPCC Predictions
Number of news reports
120
100
80
60
40
20
0
Worse than expected
As expected
Better than expected

Ecology Community
@PLOSEcology

Follow

Good panel on "Reticent Researchers: Are we failing humanity!" #scicomm #climatechange #AGU15

Impactes a Europa



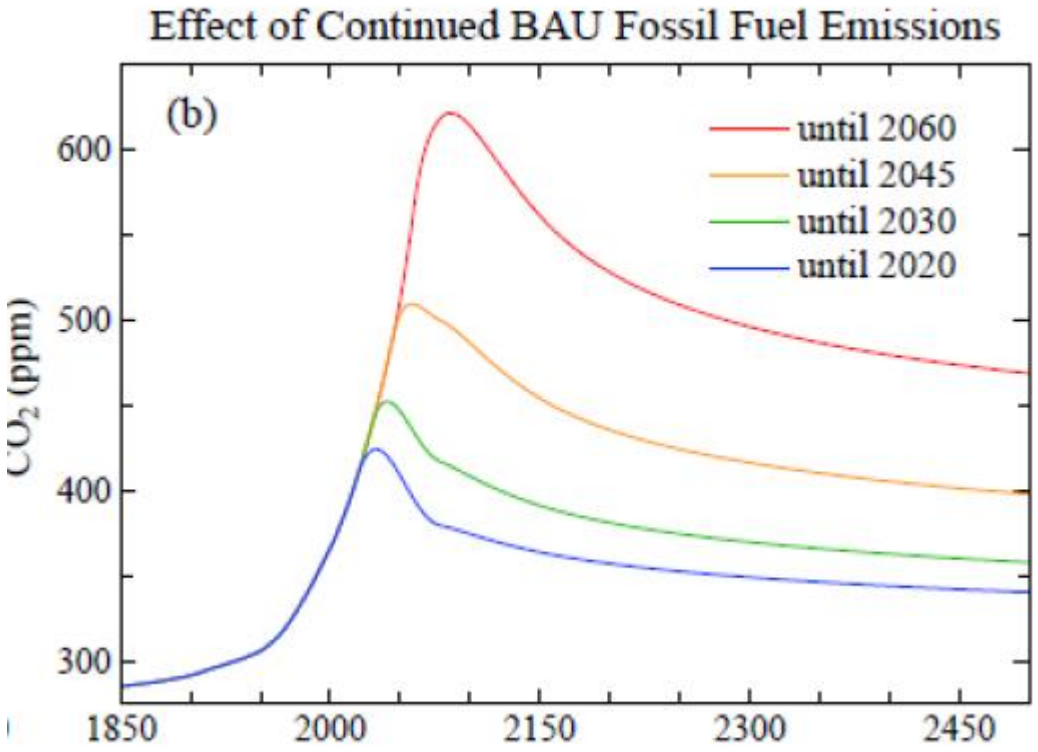
Bernhard Lehner et al (2005) - The impact of global change on the hydropower potential of Europe: a model-based analysis - Energy Policy 33:839–855 doi:10.1016/j.enpol.2003.10.018

Climate migration in northwest Africa

Nigeria, Niger, Algeria and Morocco bear the bruntof this growing security challenge

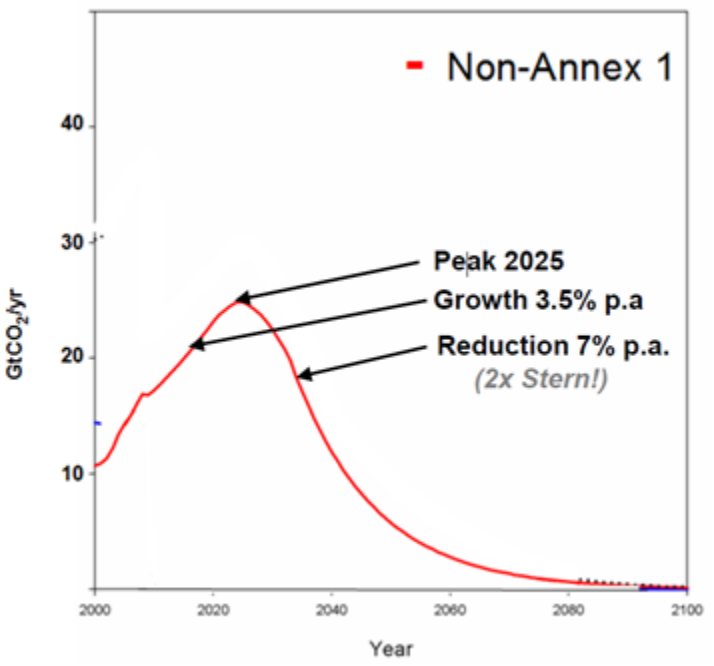
Source: Center for American Progress (2012).

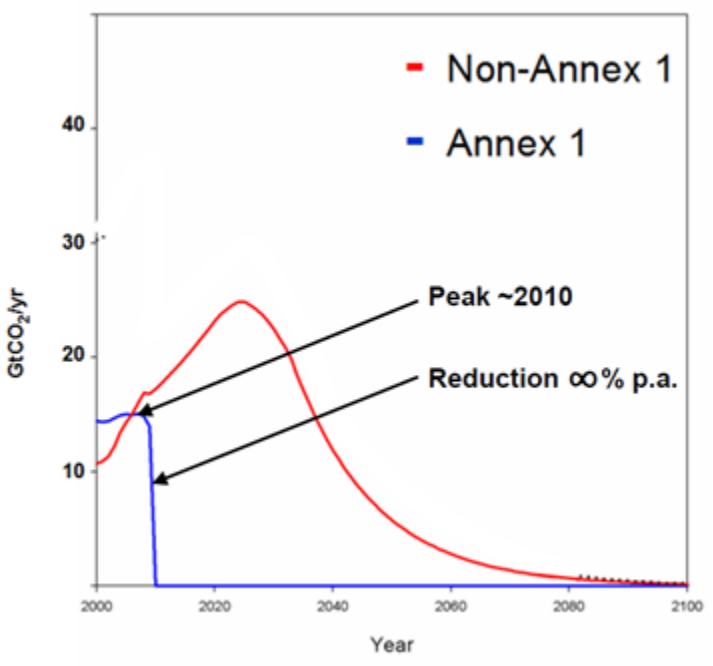
Solució?



James Hansen et al (2011) – The Case for Young People and Nature: A Path to a Healthy, Natural, Prosperous Future – Columbia University Earth Institute, New York –http://www.columbia.edu/~jeh1/mailings/2011/20110505_CaseForYoungPeople.pdf - 15 autors

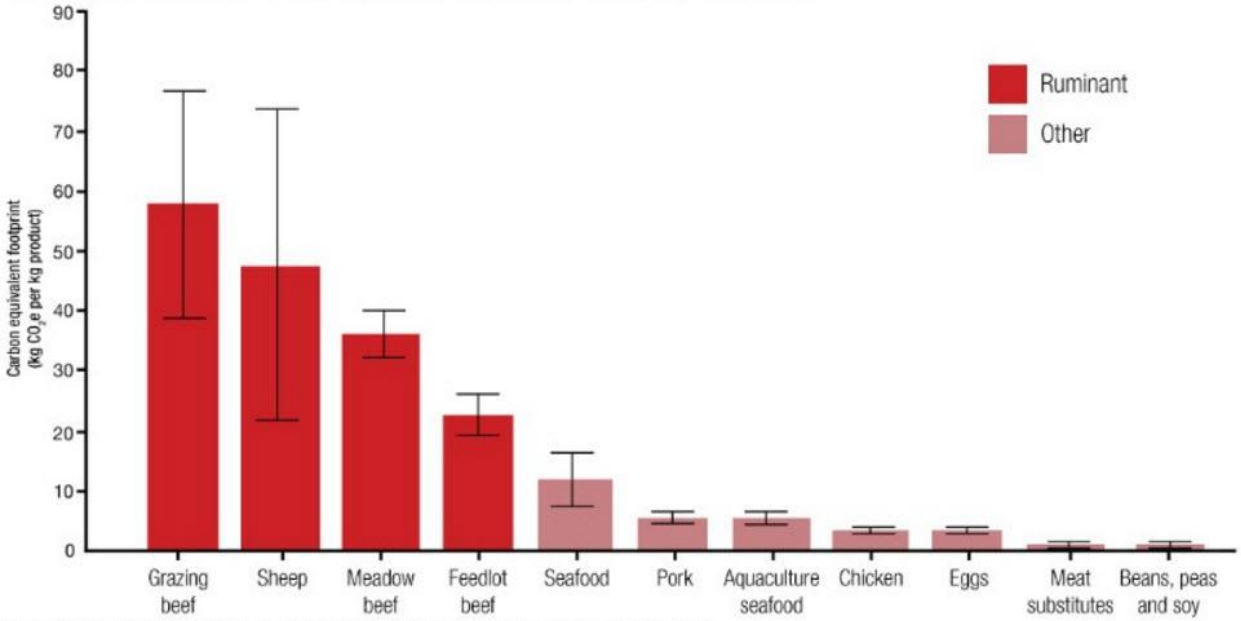
Solució?





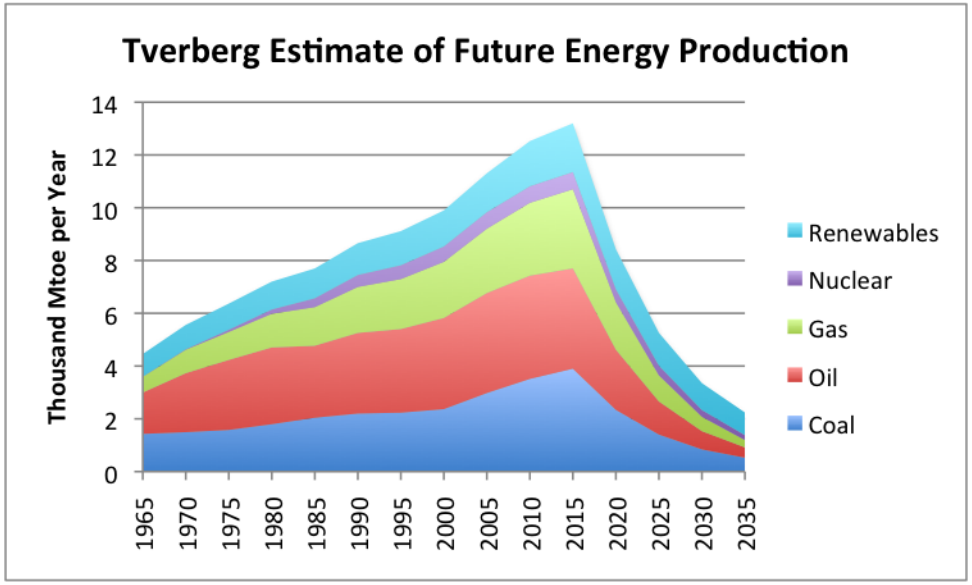
Kevin Anderson and Alice Bows (2011) - Beyond 'dangerous' climate change: emission scenarios for a new world - Philosophical Transactions of the Royal Society of London A 369:20-44 doi:10.1098/rsta.2010.0290 - Published online: 29/11/2010 - Tyndall Centre for Climate Change Research + School of Mechanical, Aerospace and Civil Engineering + School of Environmental Sciences and School of Development, University of East Anglia; Sustainable Consumption Institute, School of Earth, Atmospheric and Environmental Sciences, University of Manchester

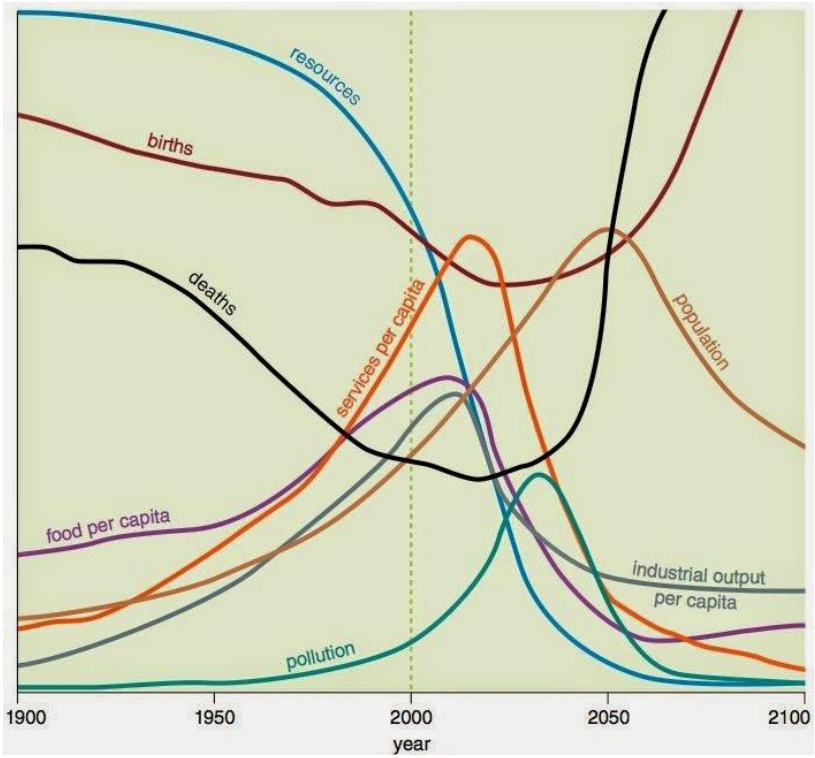
YOUR FOOD'S CARBON FOOTPRINT



Reproduced from Nature Climate Change: Ruminants, climate change and climate policy; January 2014

- “Hemos creado un problema existencial
- Rehusamos obstinadamente hacerle frente
- Hacemos todo lo posible por diferir la respuesta. Imponemos cargas a los demás
- Confundimos conceptos, insistiendo en soluciones incrementales
- ¿Qué tipo de gente haría algo así?”


Tverberg Estimate of Future Energy Production
Thousand Mtoe per Year
14
12
10
8
6
4
2
0
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
Renewables
Nuclear
Gas
Oil
Coal


resources
births
deaths
services per capita
population
food per capita
industrial output per capita
pollution
1900
1950
2000
2050
2100
year

COP21: Equip intel·lectual

1. Elitista, no popular
2. No tipping points
3. No naval, aviación, Pentágono, solo CO_2
4. Economicista, no físico (largo plazo no vale)
5. Datos de partida
6. Síntoma, no enfermedad
7. Tratar un síntoma aisladamente
   - Político-jurídico
   - Todo està interrelacionado
8. Pressió corporativa
   - Costat consum, desviar atenció
   - Curterminisme
9. Actors
   - Països
     - USA + Xina 70% emissions
   - Alternatives
     - Per càpita
     - Per consum individual
10. Reunió prèvia tots els caps
    - Acord com sigui (efecte Papa)
    - Immensa majoria no hi seran a 2023
    - Tornaràn a casa i ... New Scientist 07/10/2015

Contenido Acuerdo de París

- Muy por debajo 2, proseguir esfuerzos 1,5 ºC
- Compromisos no vinculantes
  - 2,7 ºC
  - Pico lo antes possible (ja estancada) i reduir depressa
  - Primer balanç a 2023 – cada 5 anys
  - Moving targets
- Neutralitat segona meitat: tecnologia
- No responsabilitat , no equity [Xercavins]
- Permís per a seguir emitint
- Fons verd no se sap d'on surt

Acord de Paris (1)

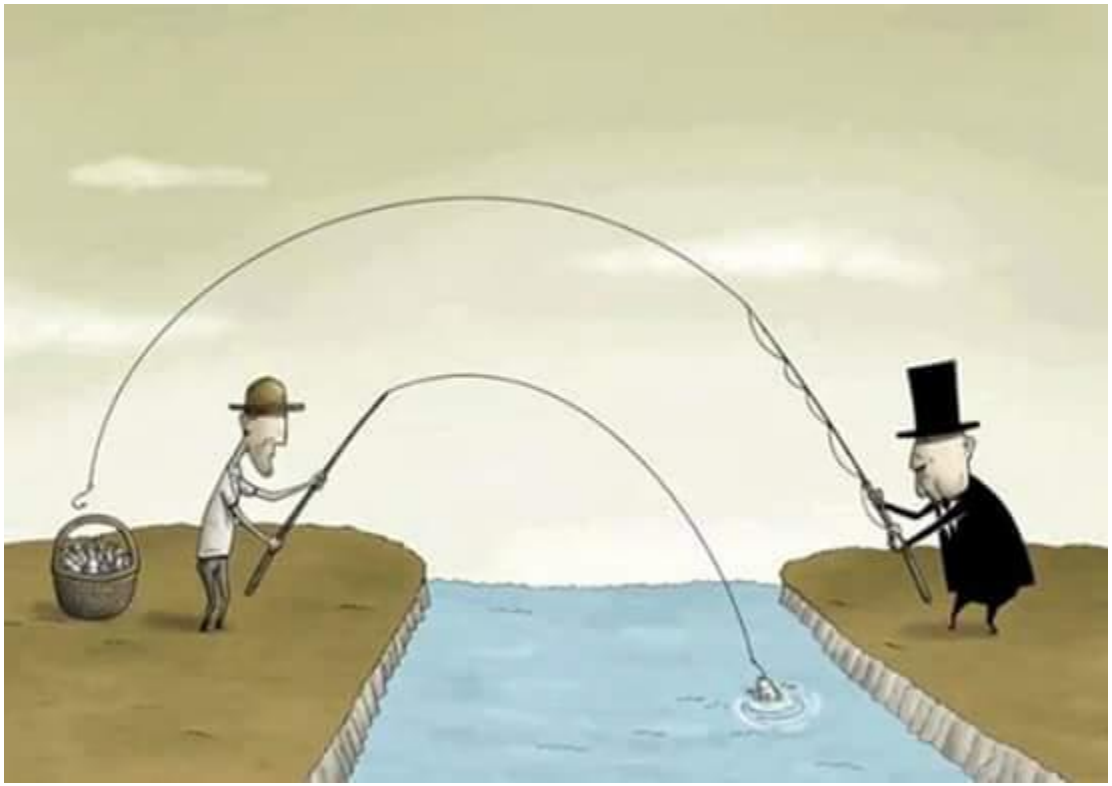
- “Artículo 2 1. El presente Acuerdo, al mejorar la aplicación de la Convención, incluido el logro de su objetivo, tiene por objeto reforzar la respuesta mundial a la amenaza del cambio climático, en el contexto del desarrollo sostenible y de los esfuerzos por erradicar la pobreza, y para ello: a) Mantener el aumento de la temperatura media mundial muy por debajo de 2 ºC con respecto a los niveles preindustriales, y proseguir los esfuerzos para limitar ese aumento de la temperatura a 1,5 ºC con respecto a los niveles preindustriales, reconociendo que ello reduciría considerablemente los riesgos y los efectos del cambio climático; ”

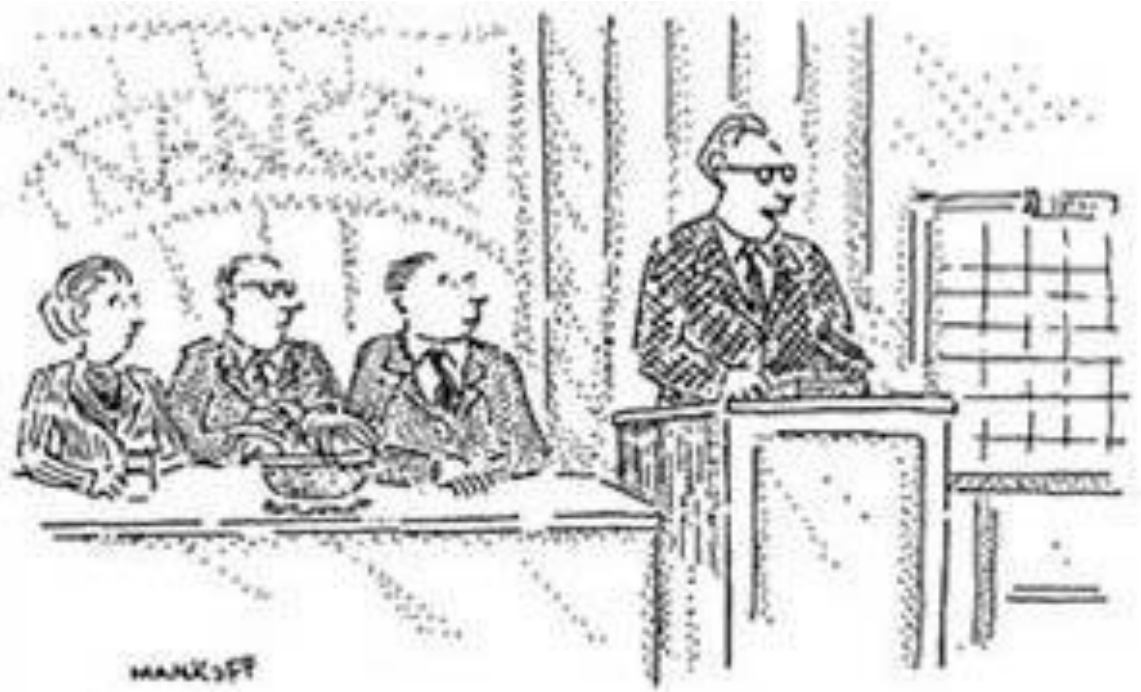
Acord de Paris (2)

- Para cumplir el objetivo a largo plazo referente a la temperatura que se establece en el artículo 2, las Partes se proponen lograr que las emisiones mundiales de gases de efecto invernadero alcancen su punto máximo lo antes posible, teniendo presente que los países en desarrollo tardarán más en lograrlo, y a partir de ese momento reducir rápidamente las emisiones de gases de efecto invernadero, de conformidad con la mejor información científica disponible, para alcanzar un equilibrio entre las emisiones antropógenas por las fuentes y la absorción antropógena por los sumideros en la segunda mitad del siglo, sobre la base de la equidad y en el contexto del desarrollo sostenible y de los esfuerzos por erradicar la pobreza. ”

Acord de Paris (3)

- … y observando también la importancia que tiene para algunos del concepto de “justicia climática”, al adoptar medidas para hacer frente al cambio climático … ”
- Conviene en que el artículo 8 del Acuerdo no implica ni da lugar a ninguna forma de responsabilidad jurídica o indemnización ”





"And so, while the end-of-the-world scenario will be rife with unimaginable horrors, we believe that the pre-end period will be filled with unprecedented opportunities for profit."

Gràcies.

http://ustednoselocree.com

@FerranPVilar

Facebook: Usted no se lo Cree