

Salute e cambiamento climatico: una sfida sociale



silvia maritano silvia.maritano@unito.it



CENTRO DI RIFERIMENTO PER
EPIDEMIOLOGIA E LA PREVENZIONE
ONCOLOGICA IN PIEMONTE



UNIVERSITÀ
DI TORINO

Aristotele
Shen Kuo
ibn Mu'adh al-
Jayyānī



1827
Fourier

1856
Newton Foote



1896
Ahrrenius

1958
Keeling - Mauna Loa



1966
Climate and
Health- U.S.
Office of Science
and Technology

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Maccacaro
1924-1977



G.A. Maccacaro
1924-1977



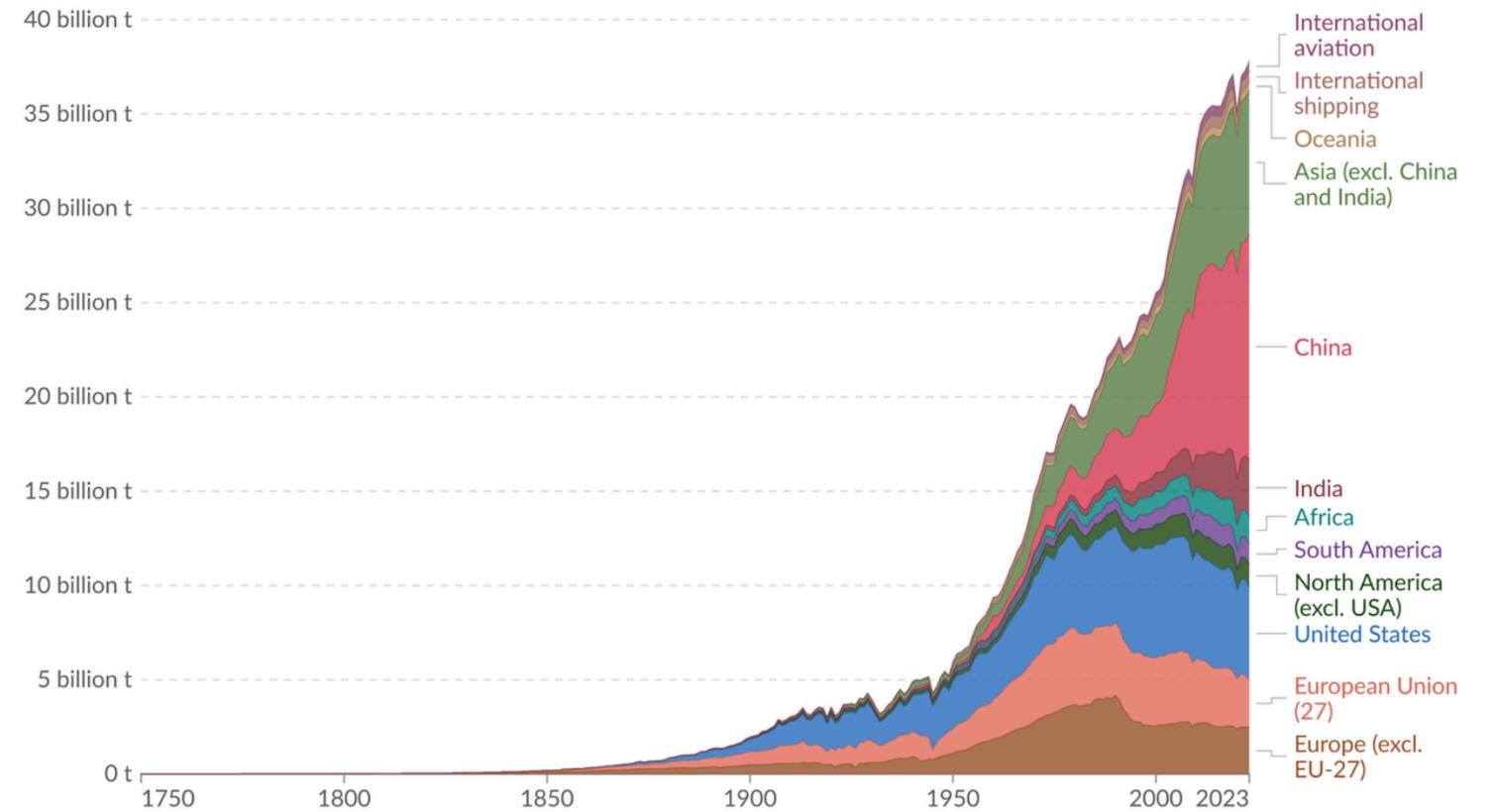
G.A. Maccacaro 1924-1977



Annual CO₂ emissions by world region

Our World
in Data

Emissions from fossil fuels and industry¹ are included, but not land-use change emissions. International aviation and shipping are included as separate entities, as they are not included in any country's emissions.



Data source: Global Carbon Budget (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

1. Fossil emissions: Fossil emissions measure the quantity of carbon dioxide (CO₂) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO₂ includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

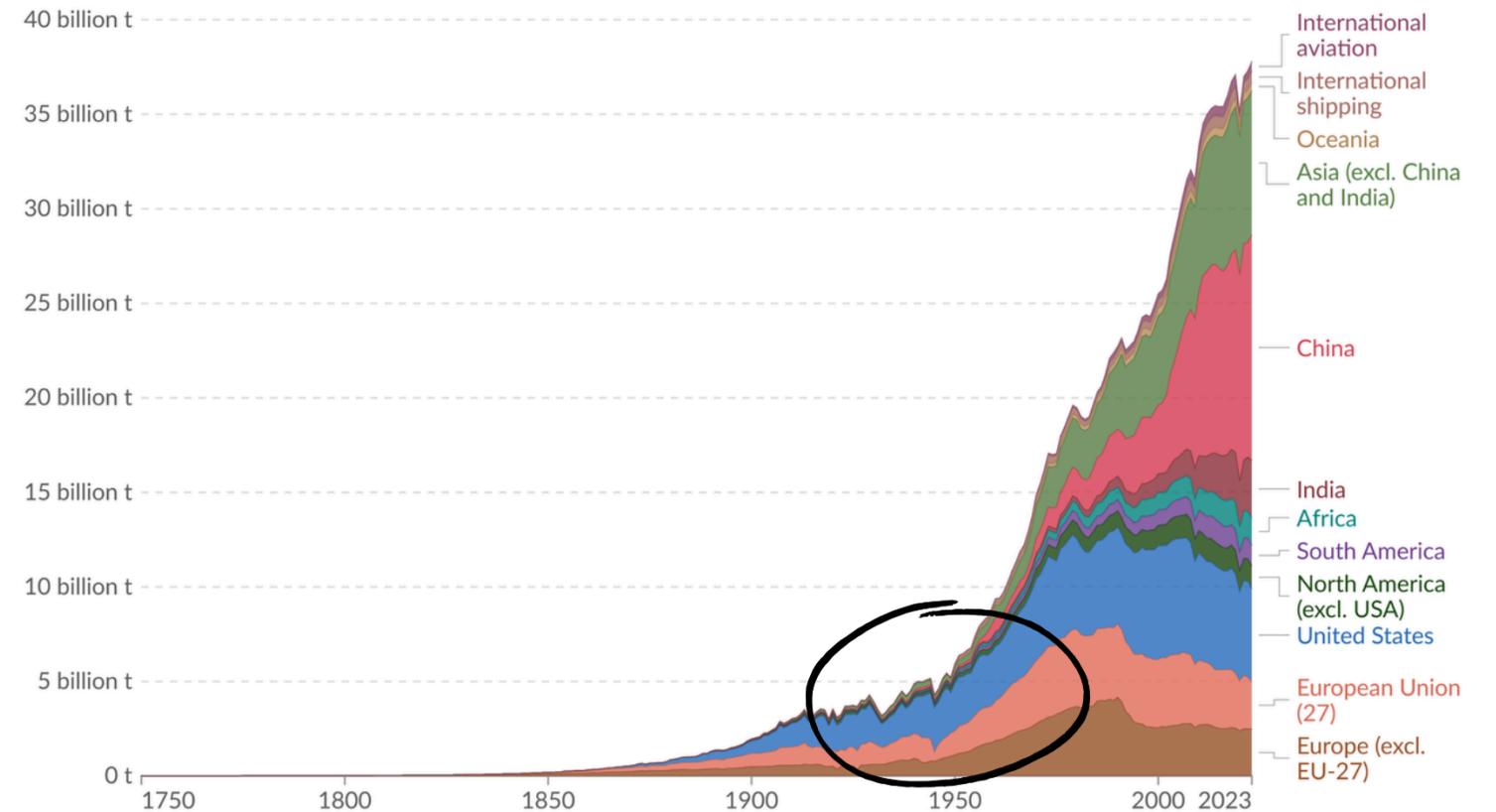
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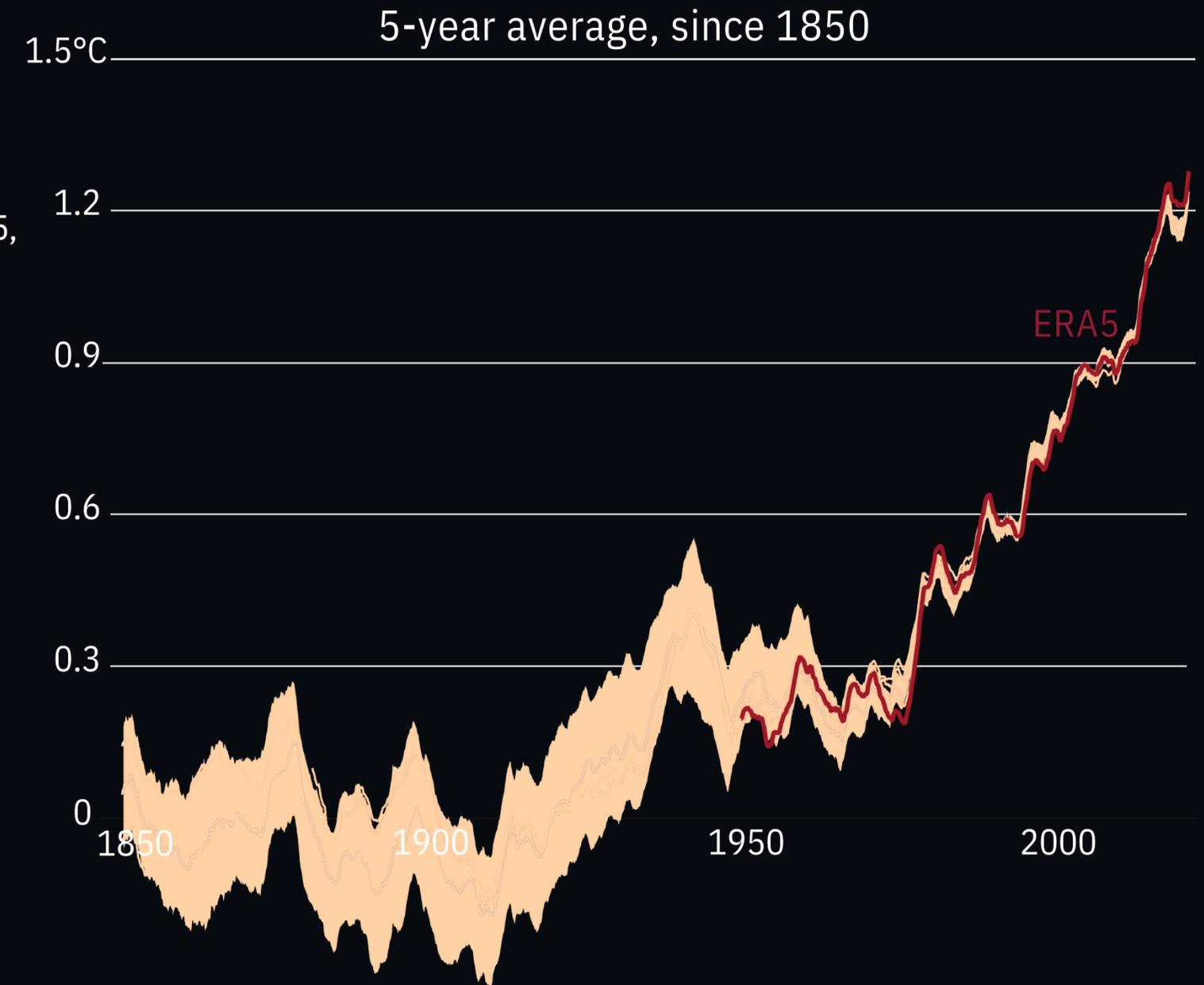
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G.A. Maccacaro
1924-1977



GLOBAL SURFACE TEMPERATURE: INCREASE ABOVE PRE-INDUSTRIAL LEVEL (1850-1900)

- ERA5 data
- Other sources*
(including JRA-3Q, GISTEMPv4, NOAA GlobalTempv5, Berkeley Earth, HadCRUT5)



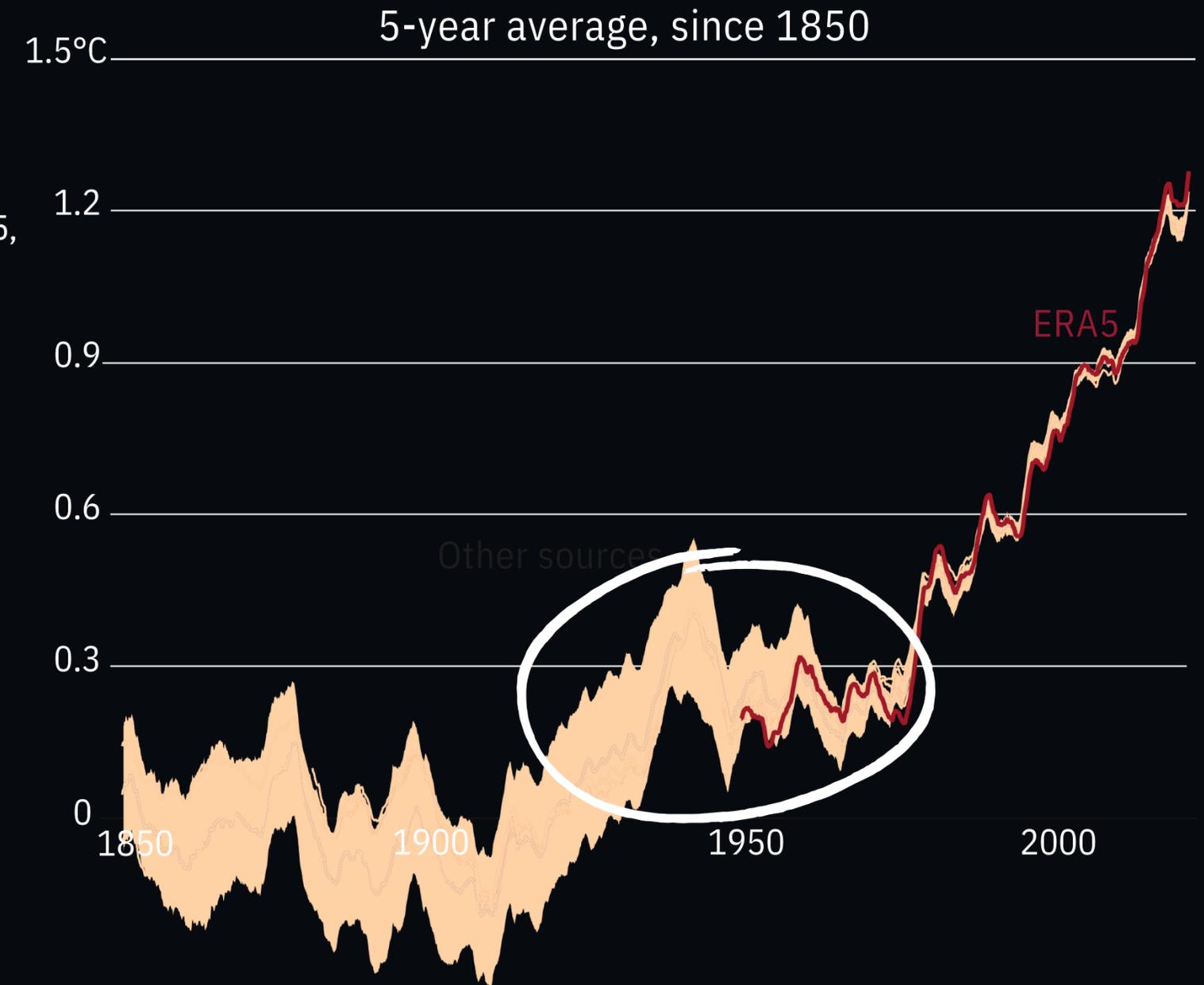
*ERA5 and JRA-3Q data are only shown from 1948. Shaded area represents the uncertainty for HadCRUT5 data
Credit: C3S/ECMWF

G.A. Maccacaro
1924-1977



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*Le malattie non sono solo eventi biologici ma
fenomeni sociali e ambientali*

G.A. Maccacaro
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*Le malattie non sono solo eventi biologici ma
fenomeni sociali e ambientali*

*La scienza e la medicina devono essere strumenti di
giustizia sociale, non solo di cura.*

Le malattie
non sono solo
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ma fenomeni
sociali e
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Editorial

**Complementing the Genome with an “Exposome”:
The Outstanding Challenge of Environmental
Exposure Measurement in Molecular Epidemiology**

Christopher Paul Wild

Molecular Epidemiology Unit, Centre for Epidemiology and Biostatistics, Leeds Institute of Genetics, Health and Therapeutics, Faculty of Medicine and Health, University of Leeds, Leeds, United Kingdom

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nature medicine



Article

<https://doi.org/10.1038/s41591-024-03483-9>

**Integrating the environmental and genetic
architectures of aging and mortality**

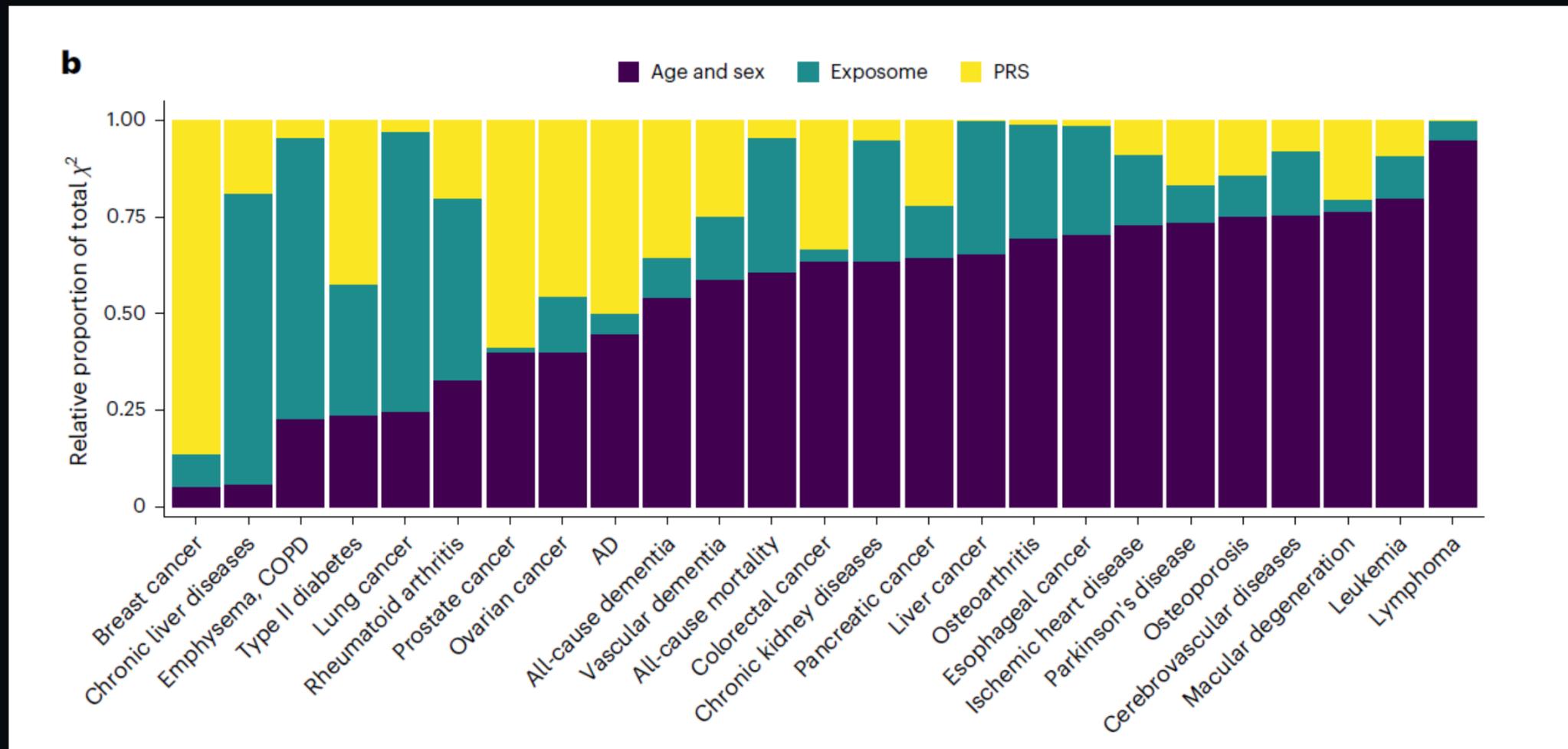
Received: 16 May 2023

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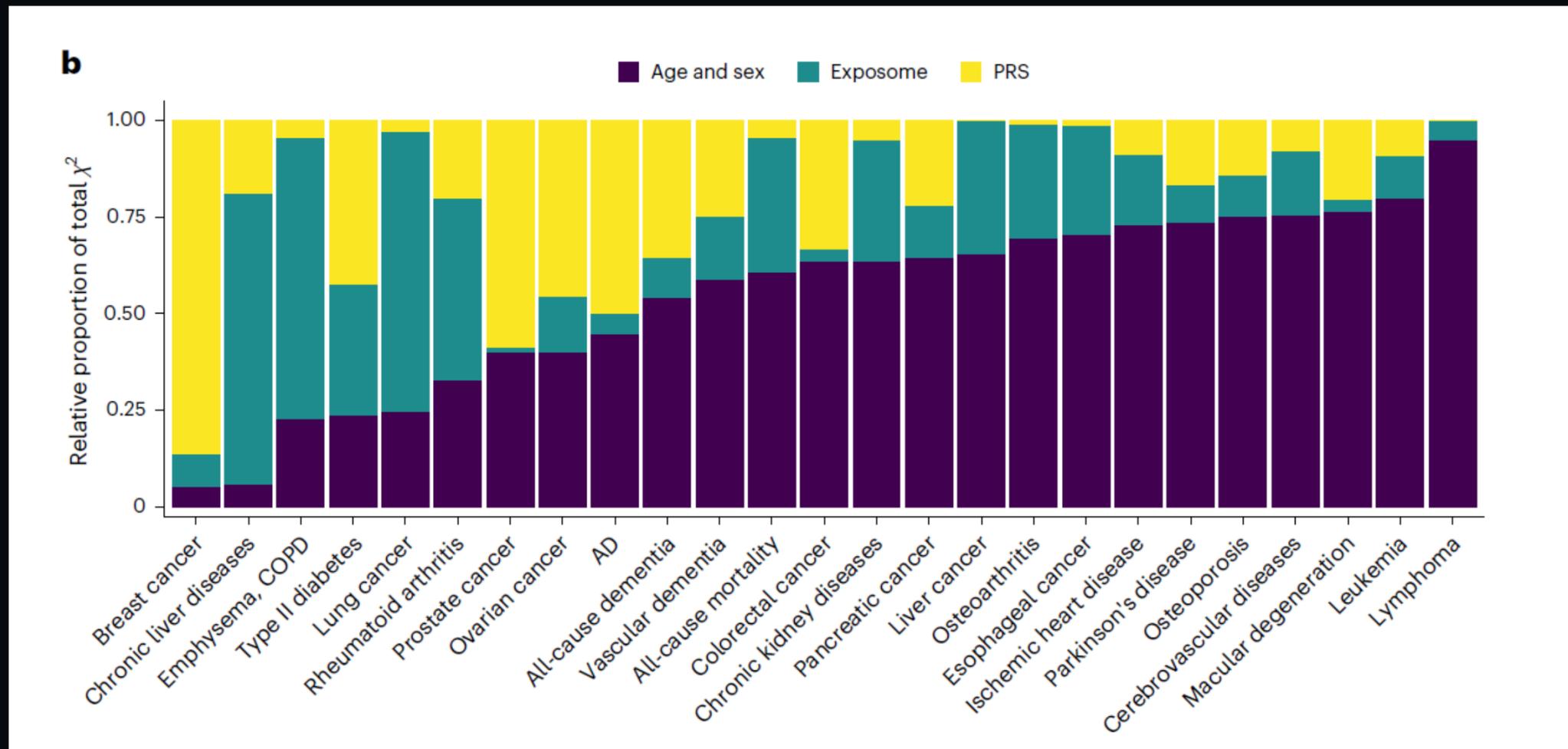
Published online: 19 February 2025

M. Austin Argentieri^{1,2,3}✉, Najaf Amin¹, Alejo J. Nevado-Holgado⁴,
William Sproviero⁴, Jennifer A. Collister¹, Sarai M. Keestra^{5,6},
Midas M. Kuilman⁷, Bigina N. R. Ginos⁷, Mohsen Ghanbari⁷, Aiden Doherty¹,
David J. Hunter^{1,3,8}, Alexandra Alvergne⁹ & Cornelia M. van Duijn¹✉

Integrating the environmental and genetic architectures of aging and mortality



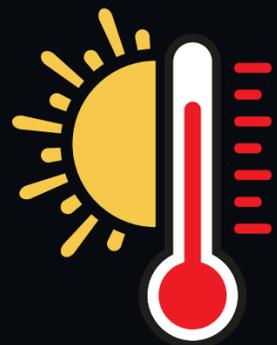
Integrating the environmental and genetic architectures of aging and mortality



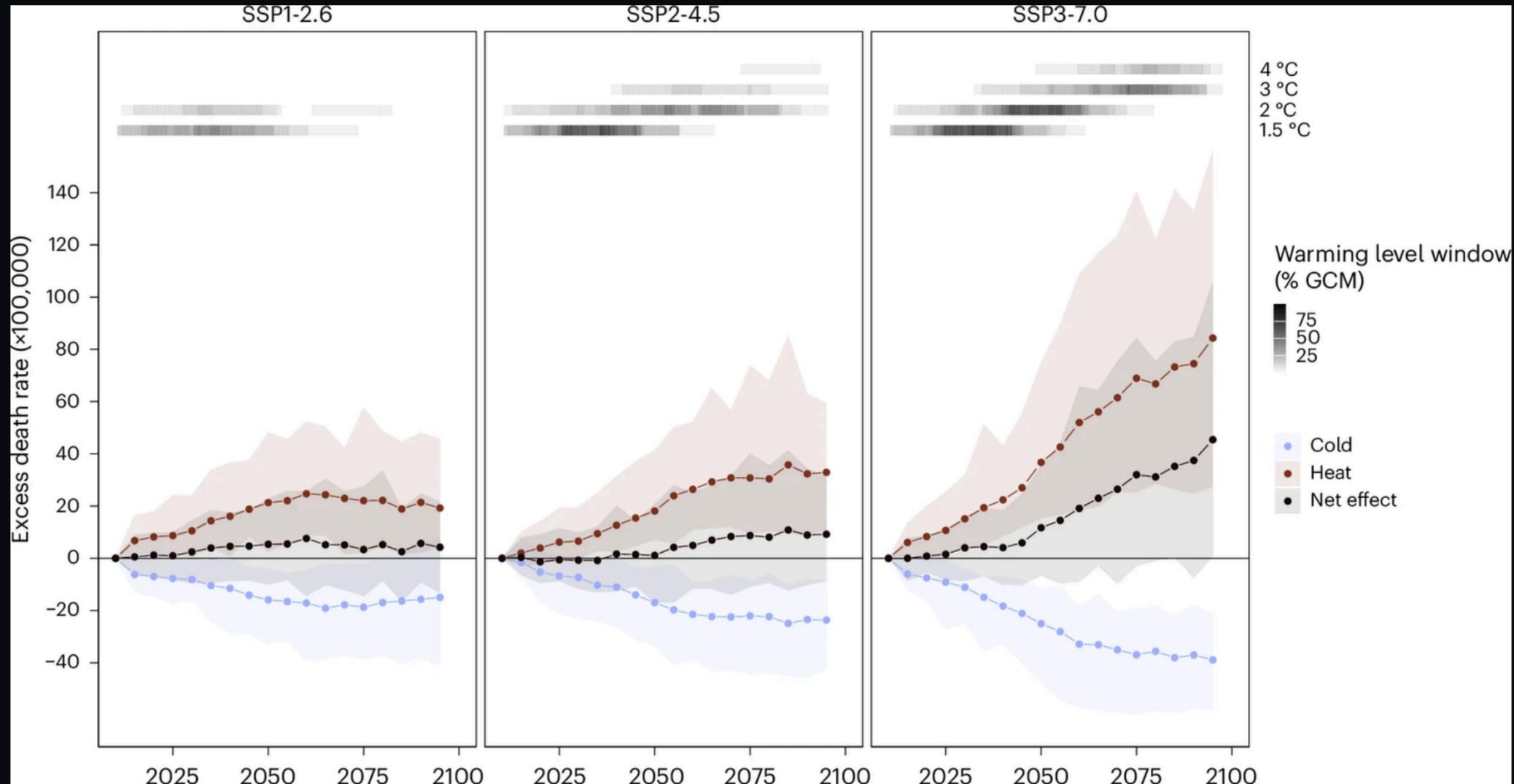
Casa/residenza
 Problemi finanziari
 Stanchezza
 Sonno disregolato
 Fumo

Supporto familiare
 Reddito
 Attività fisica
 Intake fibre

Climate



Estimating future heat-related and cold-related mortality under climate change, demographic and adaptation scenarios in 854 European cities

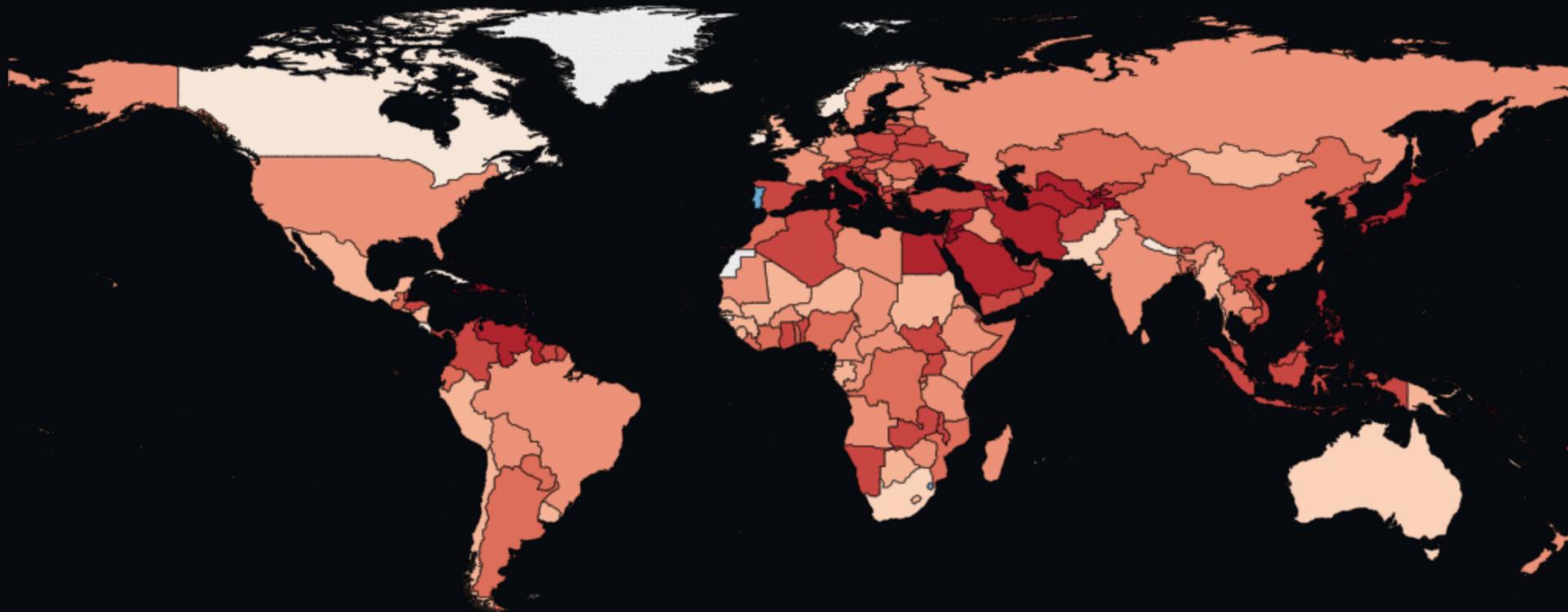


Esposizioni disuguali

Variatione di esposizioni a ondate di calore nella popolazione di 65 + anni

2014-3023 vs 1986-2005

giorni



The 2024 report of the Lancet Countdown on health climate change: facing record-breaking threats from delayed action. Romanello, Marina et al. The Lancet, Volume 404, Issue 10465, 1847 - 1896



Esposizioni disuguali

Variatione di esposizioni a ondate di calore nella popolazione di 65 + anni

2014-3023 vs 1986-2005

giorni



Variatione percentuale di mortalità per ondate di calore nella popolazione di 65 + anni

2014-3023 vs 1986-2005

cambio %

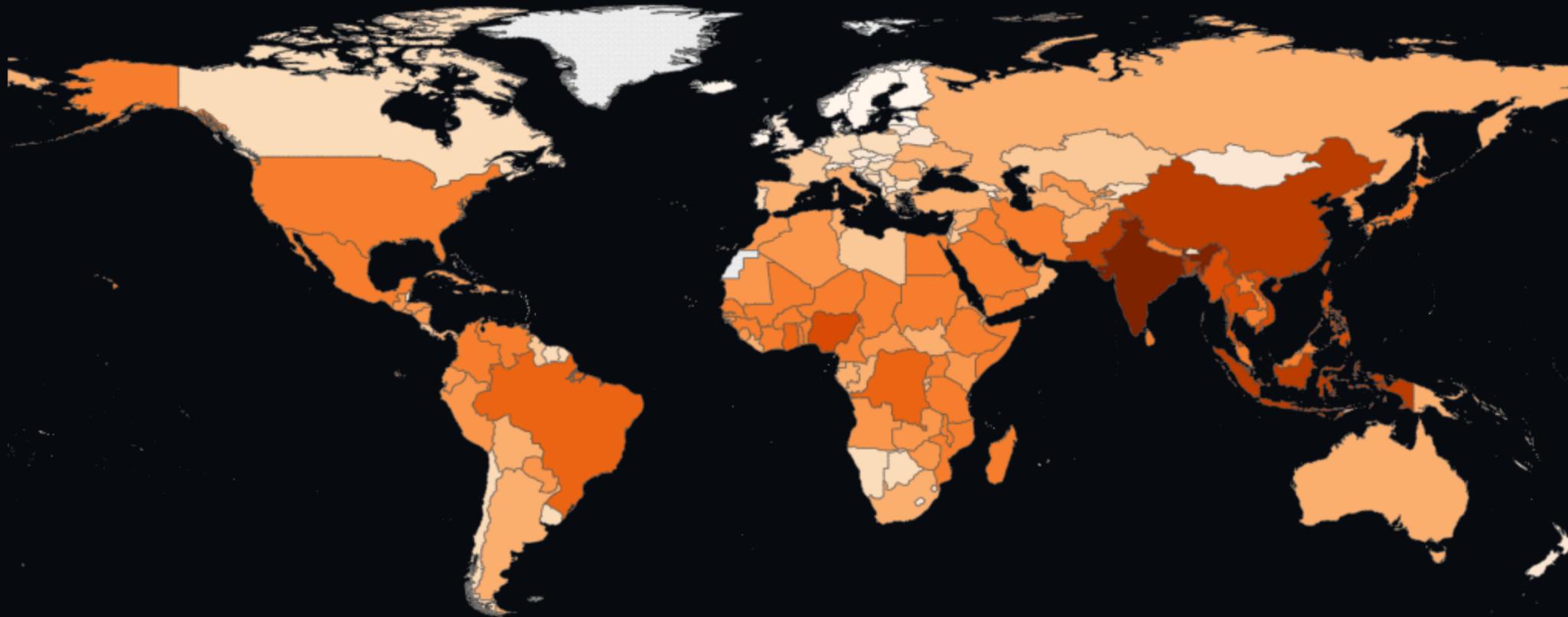


The 2024 report of the Lancet Countdown on health climate change: facing record-breaking threats from delayed action. Romanello, Marina et al. The Lancet, Volume 404, Issue 10465, 1847 - 1896



Potenziali ore di lavoro perse nel 2023 dovute all'esposizione a calore estremo

milioni di ore:



The 2024 report of the Lancet Countdown on health climate change: facing record-breaking threats from delayed action. Romanello, Marina et al. The Lancet, Volume 404, Issue 10465, 1847 - 1896

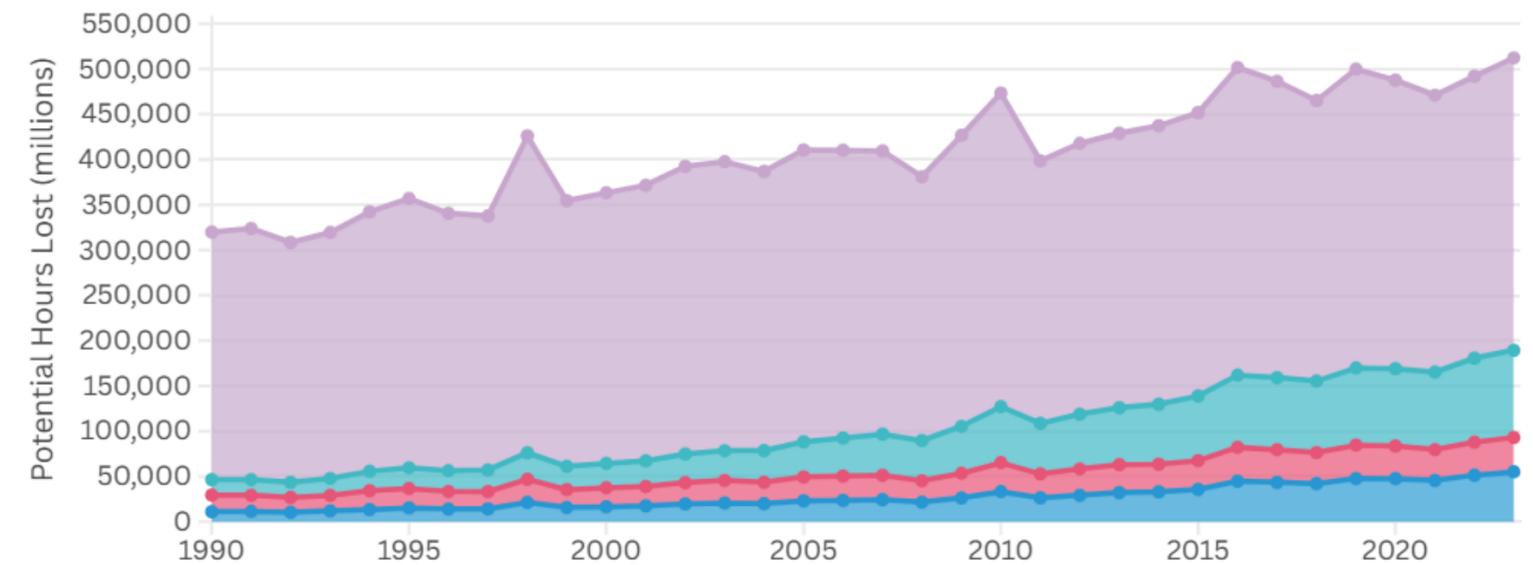


Potential Hours of Labour Lost Due to Exposure to Heat

Potential labour hours lost annually due to heat exposure, by sector and by country, Human Development (HDI) group, or World Health Organization (WHO) region, from 1990 to 2023

World

Agriculture Construction Manufacturing Service



Please reference the 2024 Report of the Lancet Countdown if using this data •

For a full description of the indicator, see the 2024 report of the Lancet Countdown at lancetcountdown.org



Workclimate report 2024

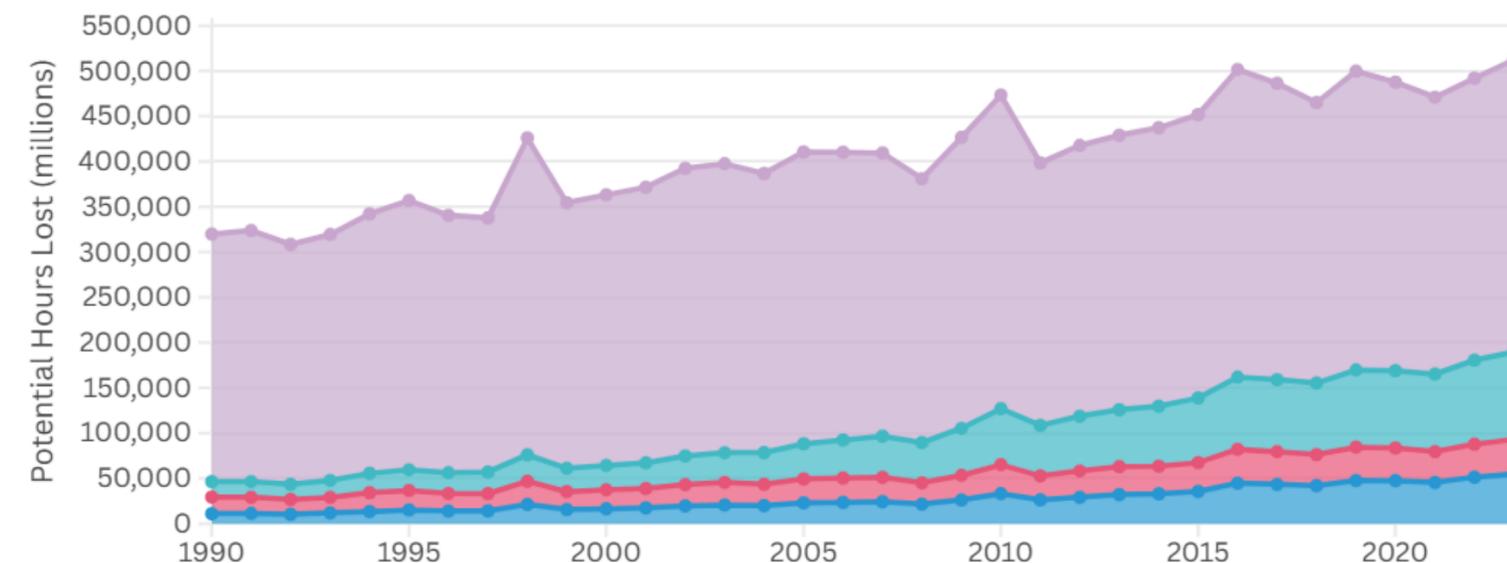


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AFRICA

n HEAT RELATED INJURIES (of which fatal)

7 454 041 (7.2%)

HEAT RELATED CKD* n

2 039 131



ASIA/ PACIFIC

n HEAT RELATED INJURIES (of which fatal)

10 548 099 (5.8%)

HEAT RELATED CKD* n

20 846 952



AMERICAS

2 801 704 (6.7%)

1 619 123



ARAB STATES

1 771 890 (6.4%)

350 827



EUROPE/ CENTRAL ASIA

276 930 (1.7%)

1 340 884

CKD: Chronic Kidney Disease

2024 REPORT



Non solo
temperatura

Eventi
estremi

Migrazioni

Non solo
temperatura

Sicurezza
alimentare

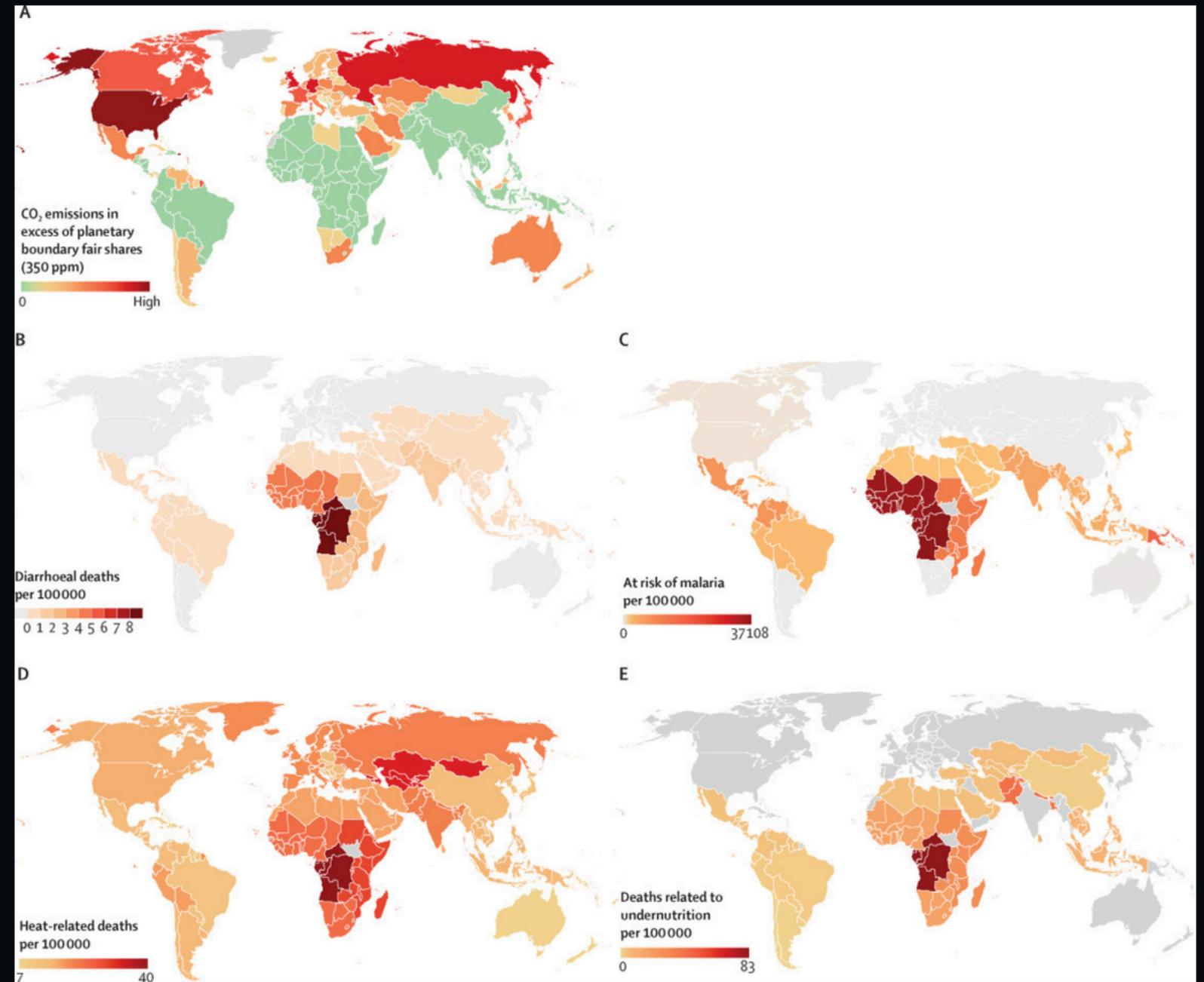
Malattie
infettive

Cambio equilibri
ecosistemici

?????

Envisioning environmental equity: climate change, health, and racial justice.

JUSTICE



La scienza e la
medicina
devono essere
strumenti di
giustizia sociale,
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Esposizione



Evento



**Prevenzione
secondaria**



Esposizione



Evento



**Vera
prevenzione**

**Prevenzione
secondaria
(adattamento)**

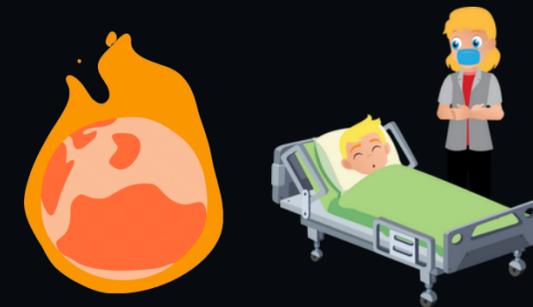
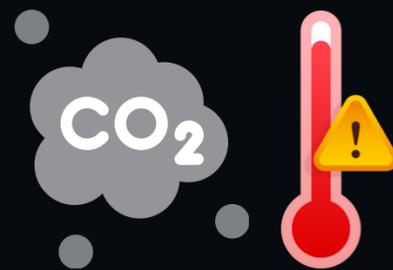


Esposizione

Evento



**Vera
prevenzione
(mitigazione)**



Conference of the Parties (COP)

Loss and Damage Fund

COP 29: \$300bn su \$1,3tn di necessari

Istituito nel 2023, operativo dal **1 gennaio 2025**

\$741m a fine gennaio (di cui \$17m da US)



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20 gennaio 2025 l'amministrazione Trump si ritira dagli accordi di Parigi



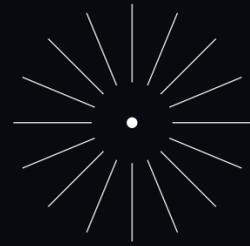
Perchè così difficile?



Antropocene o capitalocene?



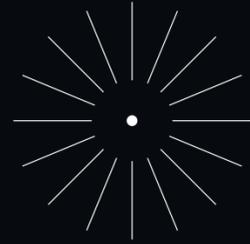
Capitalocene



Capitalismo come causa dei cambiamenti climatici

Basato su sfruttamento
della natura e del lavoro,
unico fine il profitto e
non i bisogni reali della
popolazione

Capitalocene



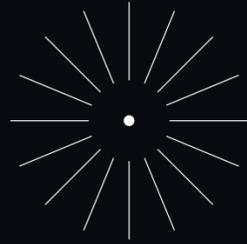
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Rifiuti di
produzione in
natura

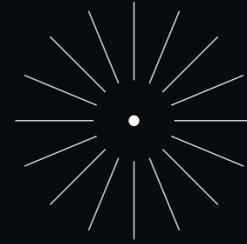
Disuguaglianze
di impatto

Capitalocene



Capitalismo come causa dei cambiamenti climatici

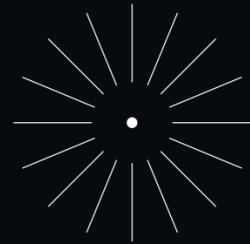
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Responsabilità disuguali

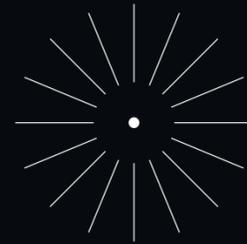
Non *anthropos* ma il
sistema socio-economico
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Capitalocene



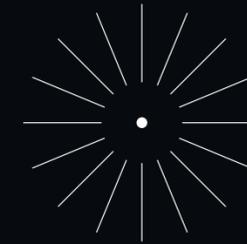
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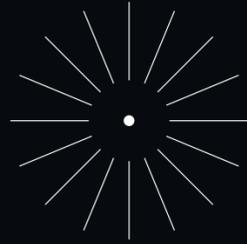
Dimensione storica e coloniale

I rapporti di produzione
capitalistici iniziati con
l'espansione coloniale nel
XV secolo

Uno sguardo al futuro...



Uno sguardo al futuro...

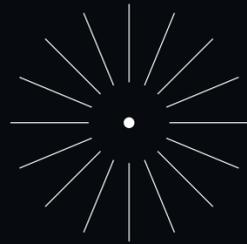


Superare il dualismo Natura/Società

Radicato nel concetto di
uomo come altro rispetto
alla natura e al sistema
terra.

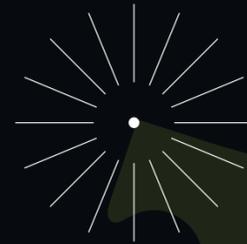


Uno sguardo al futuro...



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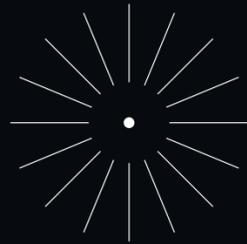
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Superare le disuguaglianze di potere

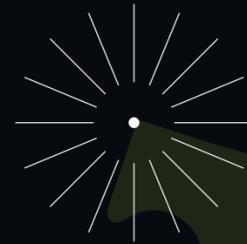
Riconoscere chi ha il
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Riportare al centro i
bisogni e i diritti
fondamentali di ogni
essere umano

Uno sguardo al futuro...



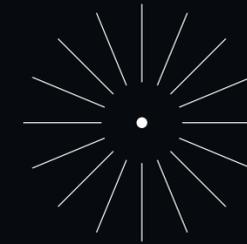
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Superare le disuguaglianze di potere

Riconoscere chi ha il potere e perchè.
Riportare al centro i bisogni e i diritti fondamentali di ogni essere umano



Riconoscere la dimensione politica della crisi ecologica

Risolvere la crisi in maniera **partecipata** sia a livello politico che scientifico, comunicare e collaborare

Un sistema di valori diverso è
possibile?



Grazie!!!



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**UNIVERSITÀ
DI TORINO**