CURRENT CLIMATE CHANGE AND SOCIETAL EVOLUTION

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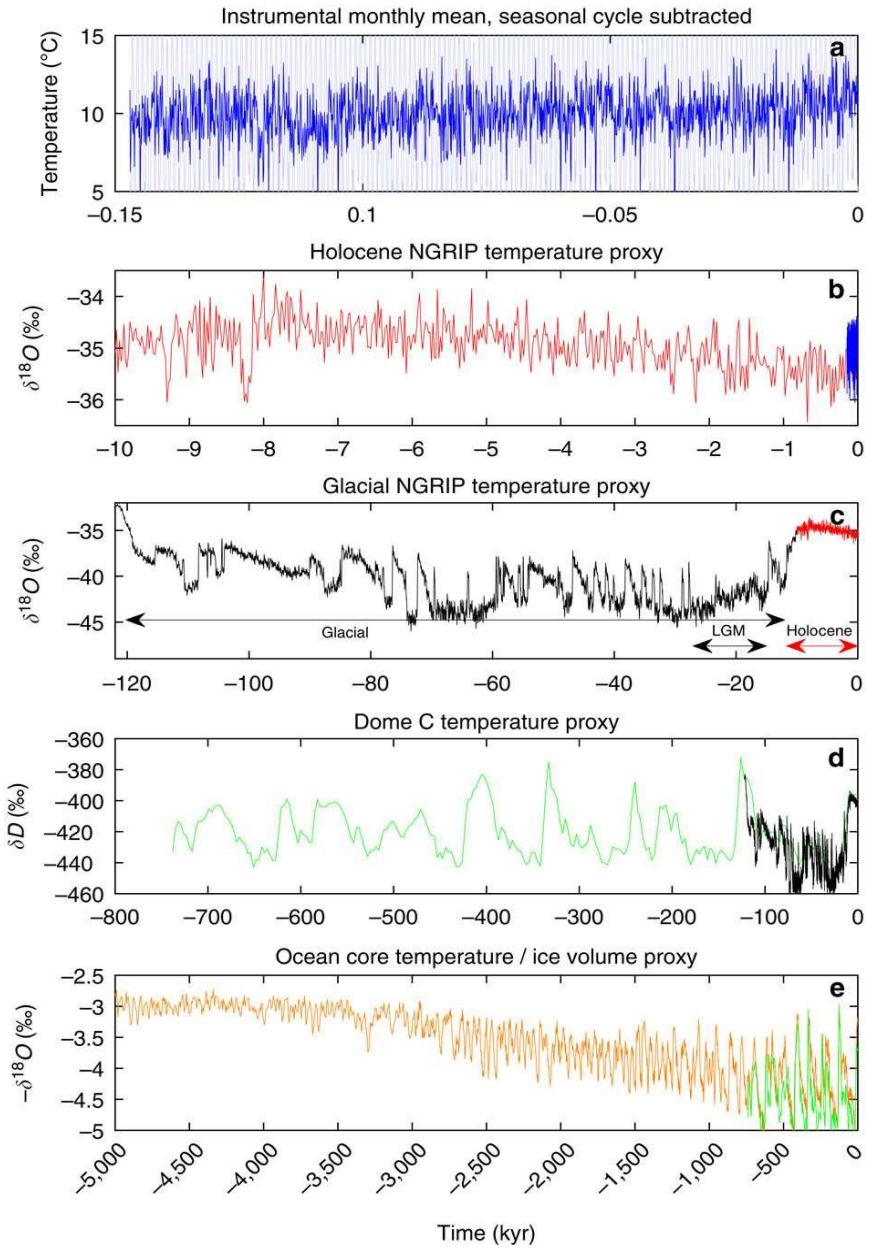
Trecutul geologic

Temperature variations in the last 5 million years

Source: Zhi-Gang Shao, Peter D. Ditlevsen. *Contrasting scaling properties of interglacial and glacial climates*. Nature Communications, 2016; 7: 10951 DOI: 10.1038/ncomms10951

Climatic variability is stronger in glacial periods compared to interglacial intervals.

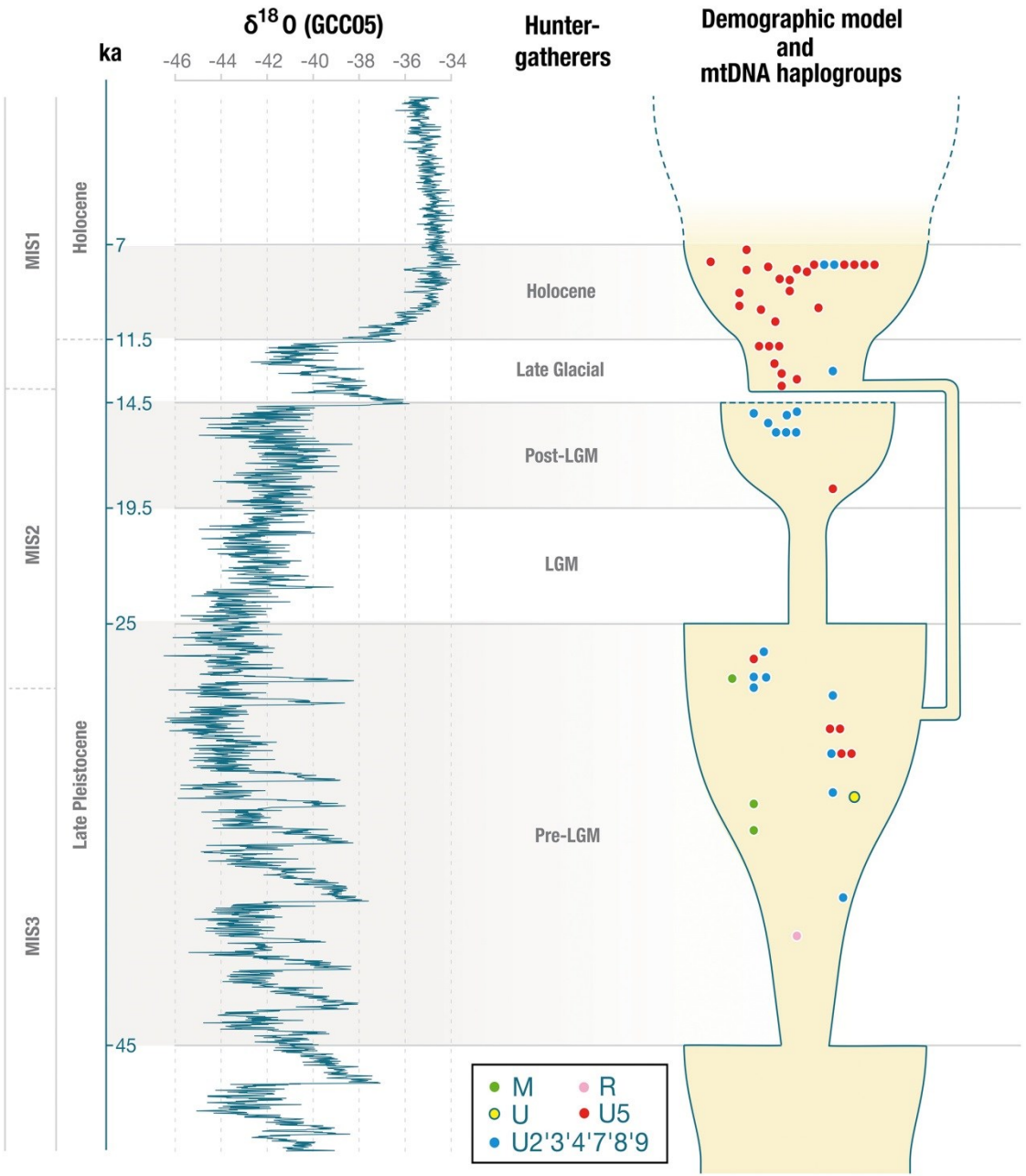


Preistoria

Source:http://www.cell.com/current-biology/fulltext/S0960-9822%2816%2900087-7

Posth et al. 2016. *Pleistocene Mitochondrial Genomes Suggest a Single Major Dispersal of Non-Africans and a Late Glacial Population Turnover in Europe.* Current Biology , Volume 26 , Issue 6 , 827 - 833

- Near the last glacial peak there was a significant decrease in genetic variability (population decline) on the European continent.
- After the last glaciation 14,500 years ago, the genetic footprint of the European hunter / harvester population has changed substantially; it is speculated that a population from southeast Europe, a region with a warmer climate, where it had developed in shelters without ice, appeared; this population has reached the center and northern Europe, modifying the genetic picture.

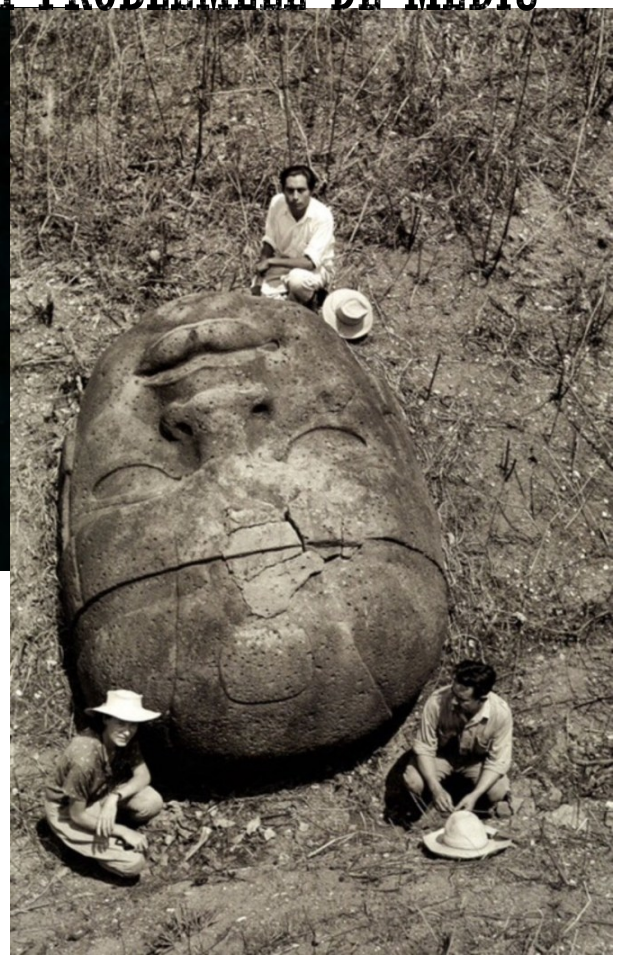


CIVILIZATII PIERDUTE SI PROBLEMELE DE MEDIU

Cucuteni/Trypilian-Trypolie

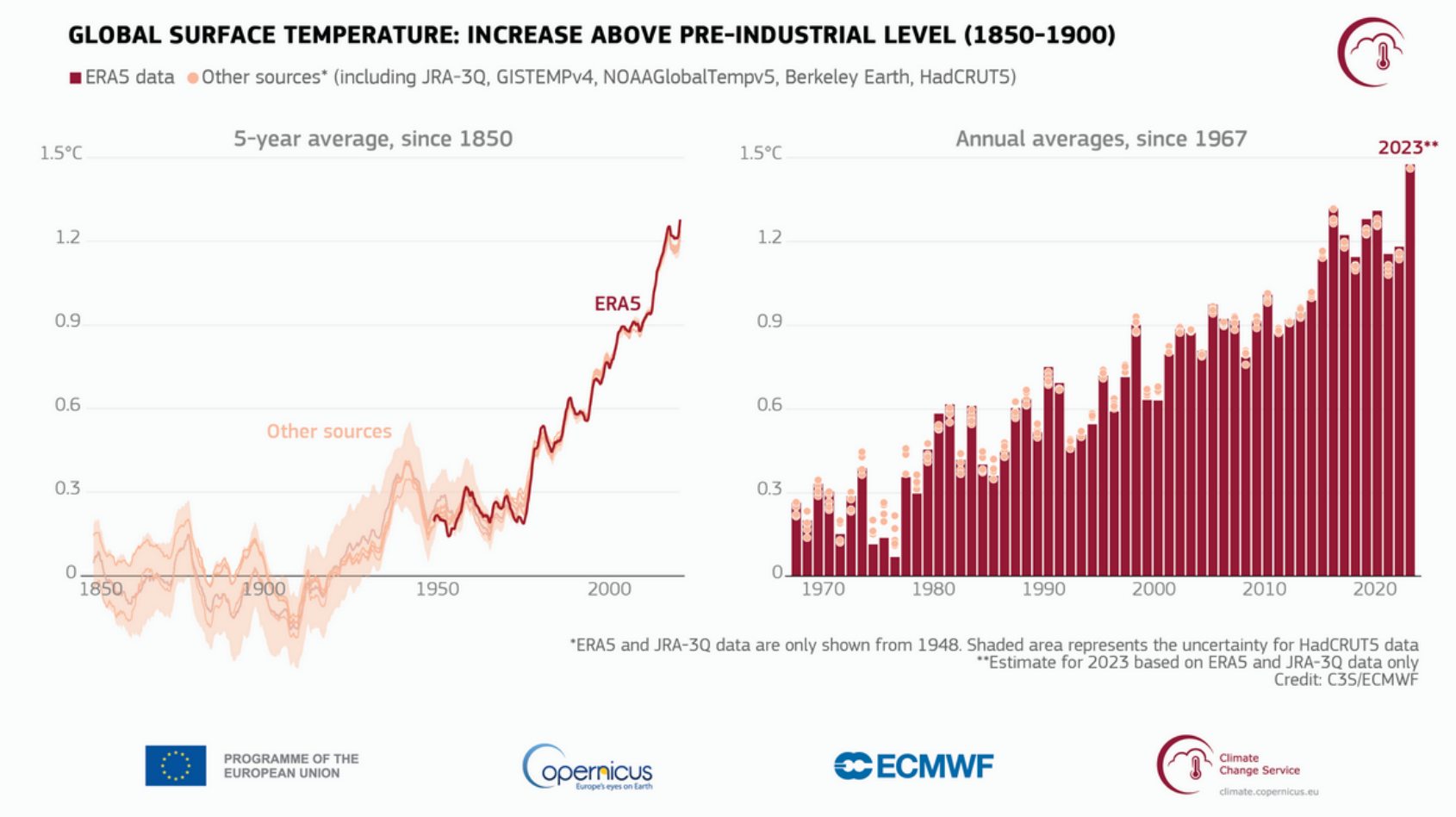
Between 4400-3500 BC. The Cucuteni civilization disappears concurrently with a regional climate change towards a colder and arid regime. Agriculture became unstainable in the new conditions and the large human settlements disappeared.

CIVILIZATII PIERDUTE SI PROBLEMELE DE MEDIU



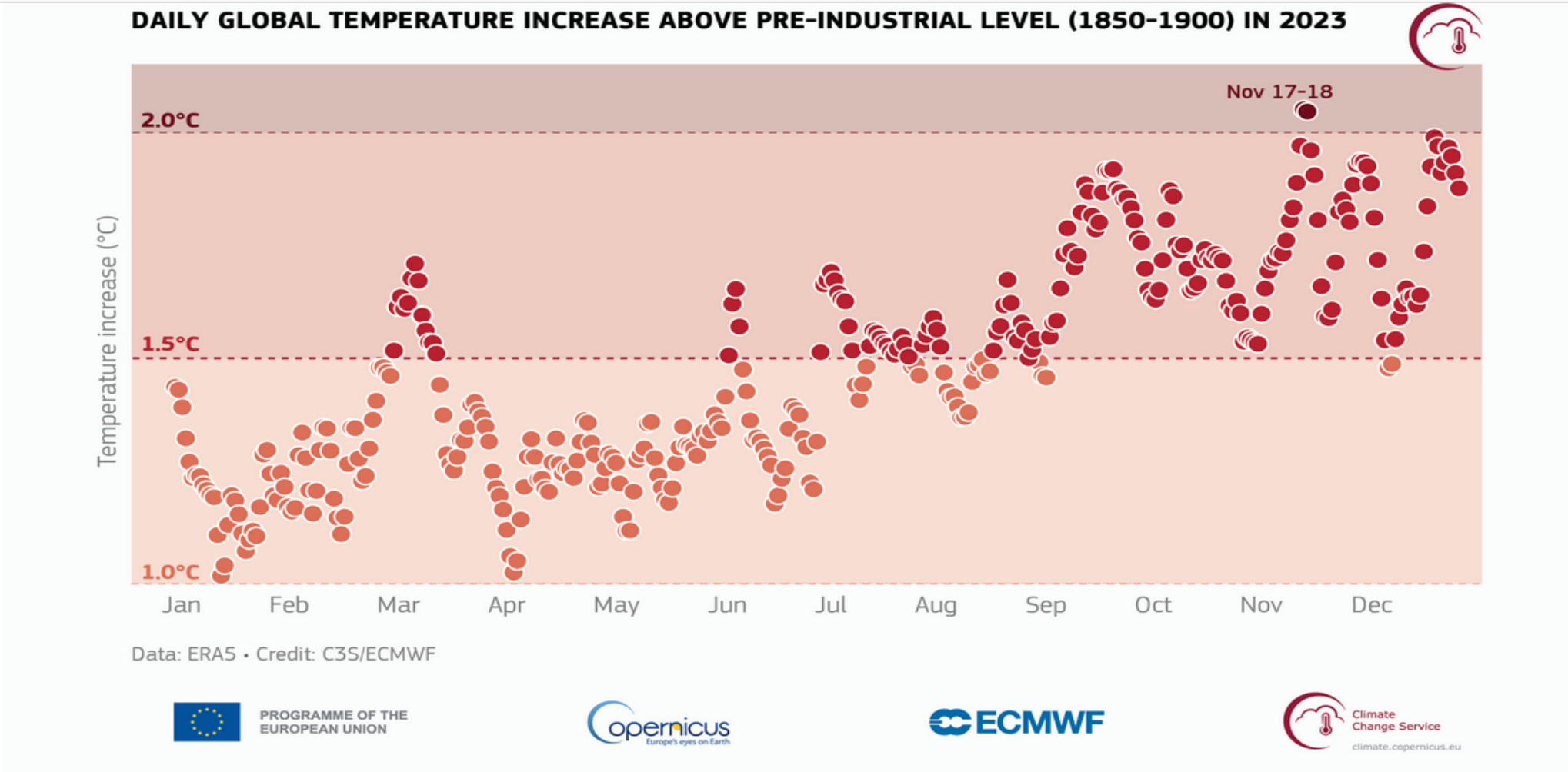
In Central America, starting in 1200 BC. About 400 BC - 350 BC Olmecs disappeared as a result of the diminishing of local natural resources and food insecurity due to prolonged droughts.

Prezentul



Global surface air temperature increase relative to the average for 1850-1900, the designated pre-industrial reference period, based on several global temperature datasets shown as 5-year averages since 1850 (left) and as annual averages since 1967 (right). Credit: C3S/ECMWF.

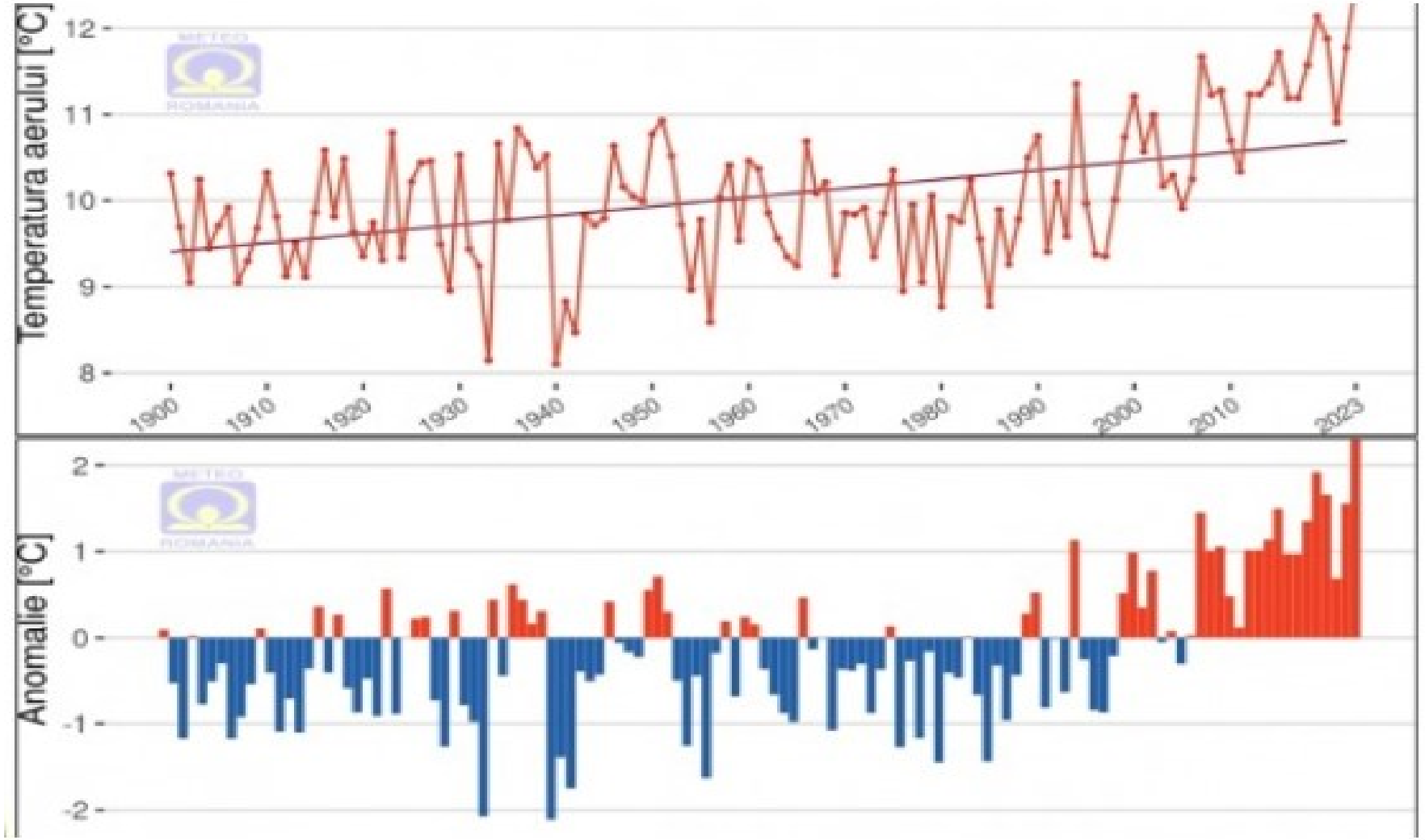
Prezentul



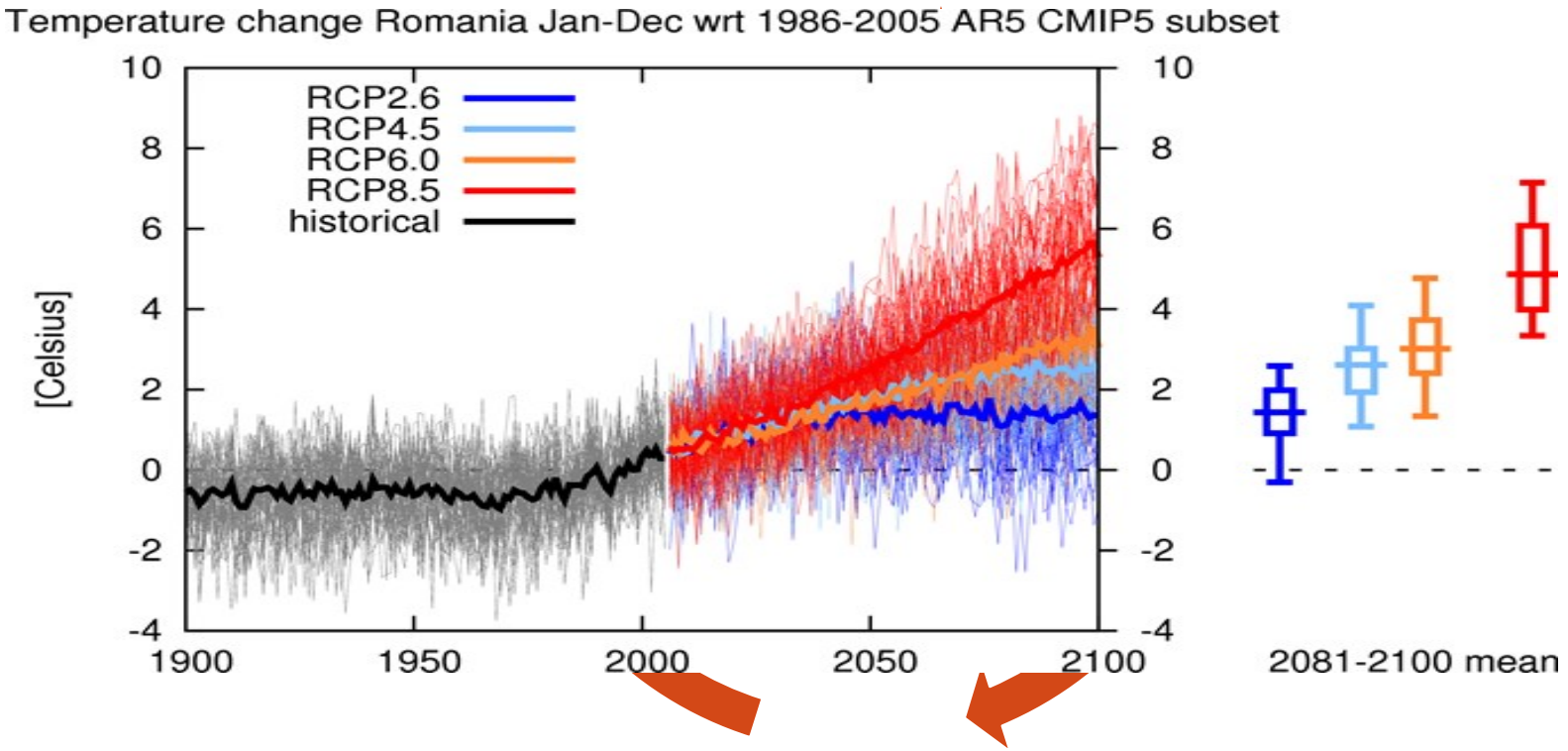
Daily global surface air temperature increase relative to the average for 1850–1900, the designated pre-industrial reference period, for 2023. The plot highlights temperature increases within three ranges: 1–1.5°C (orange), 1.5–2°C (red), and above 2°C (crimson). Source: ERA5. Credit: C3S/ECMWF

Prezentul

2023 – cel mai cald an si in România



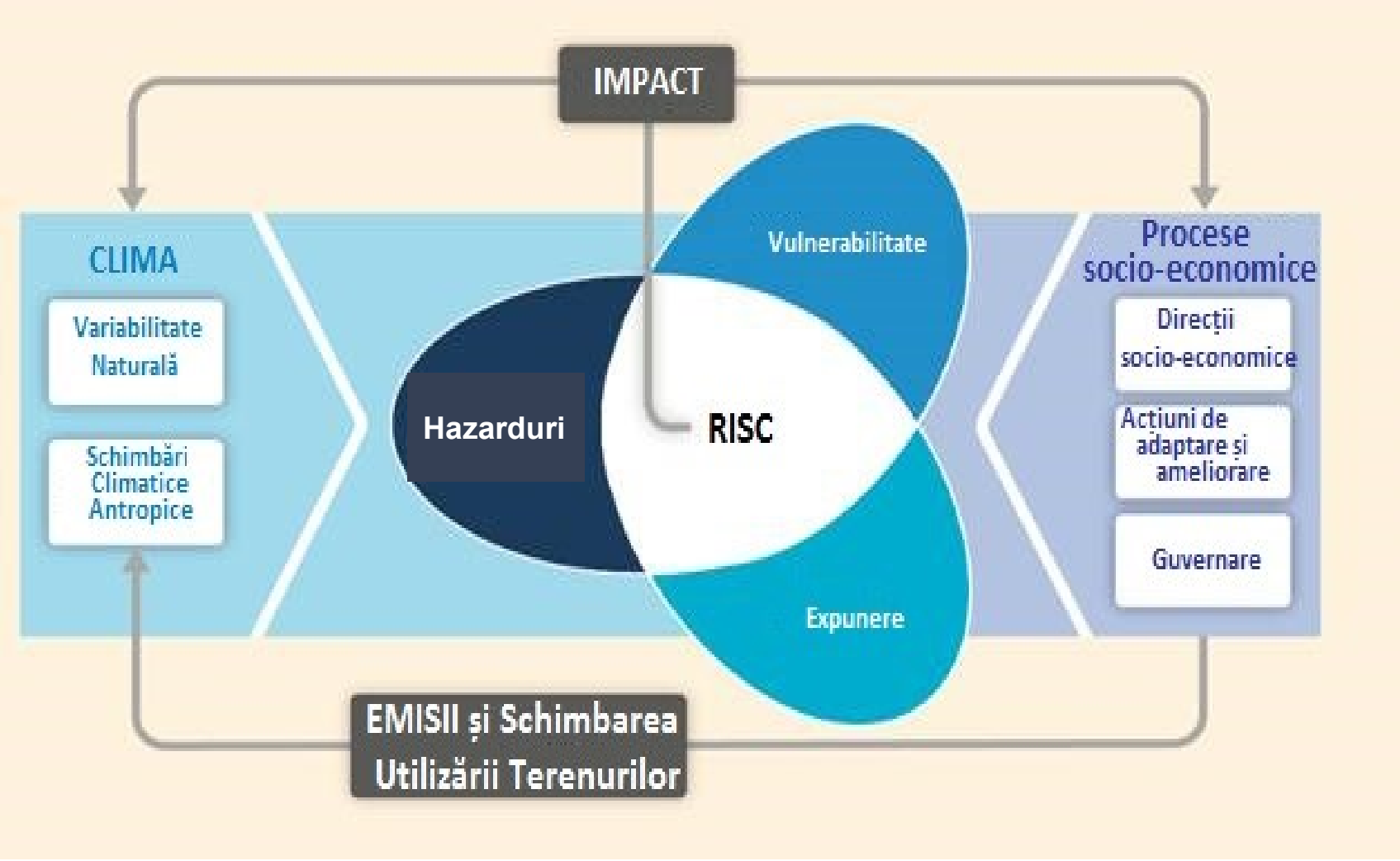
VIITORUL?



Diferenta in temperatura medie globala (in grade Celsius) fata de 1986-2005 in conditiile scenariilor de concentratii RCP pentru România. Sursa: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Atlas of Regional and Global Climate Change Projection, http://climexp.knmi.nl/plot_atlas_form.py

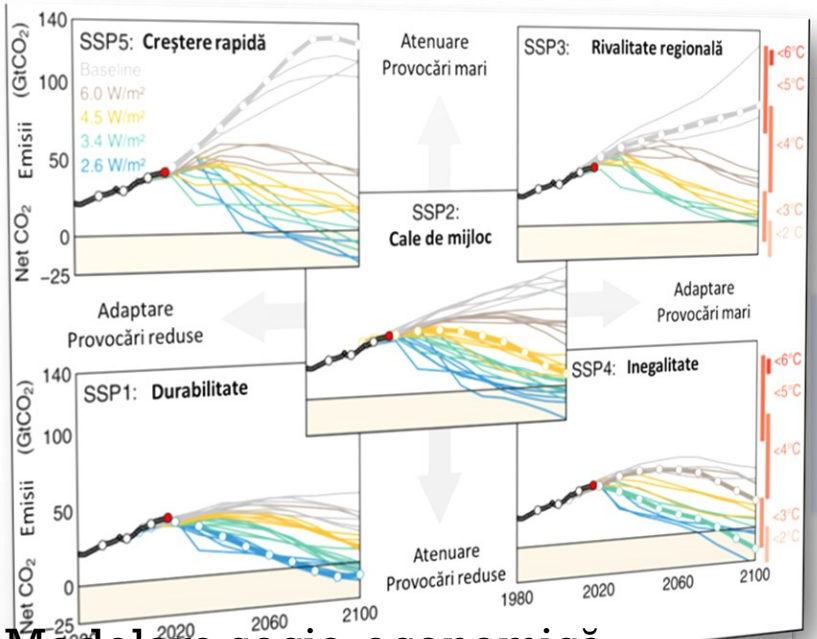
HAZARDURI, IMPACTURI ȘI RISCURI CLIMATICE ÎN GEOSISTEM

CLIMATIC HAZARDS, IMPACTS AND RISKS IN THE EARTH'S SYSTEM

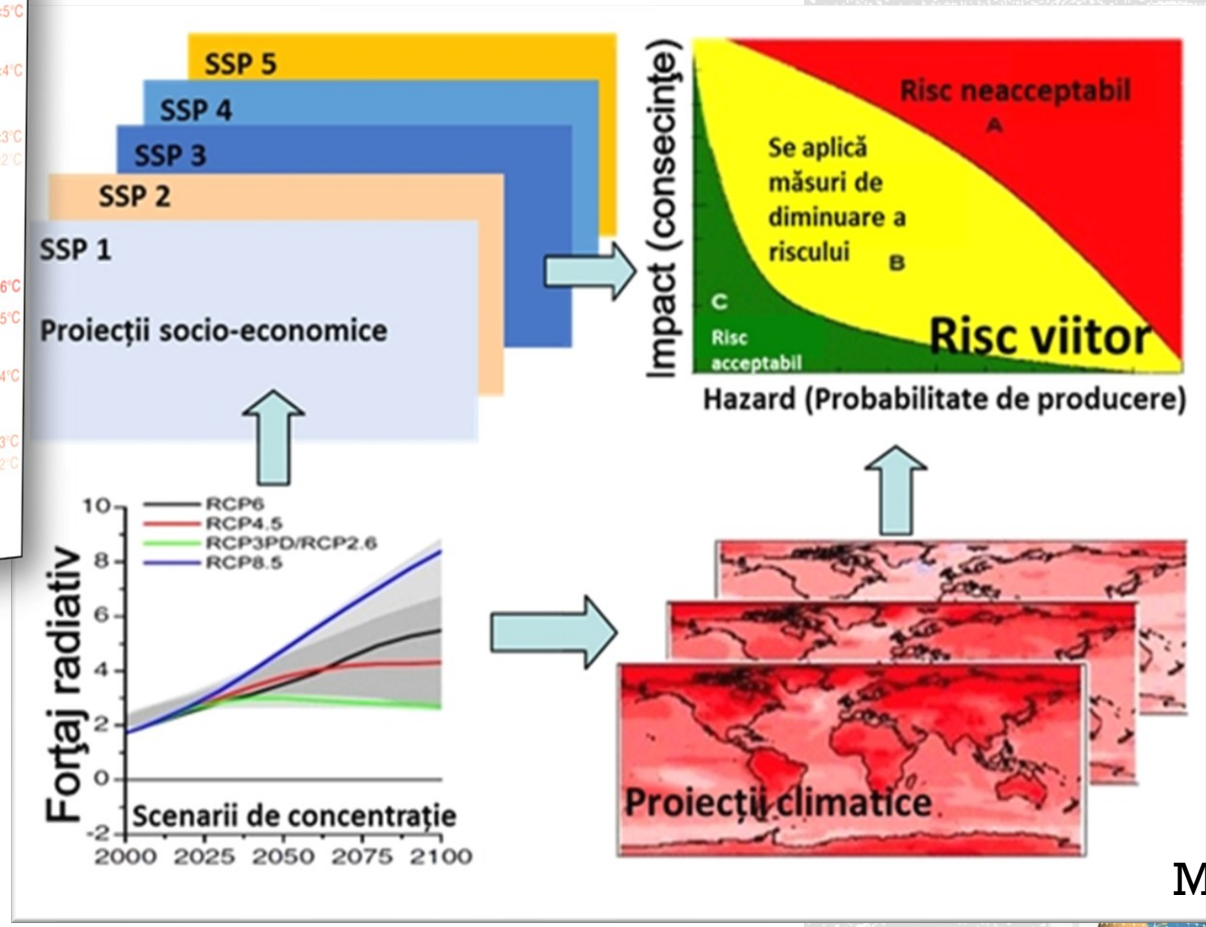


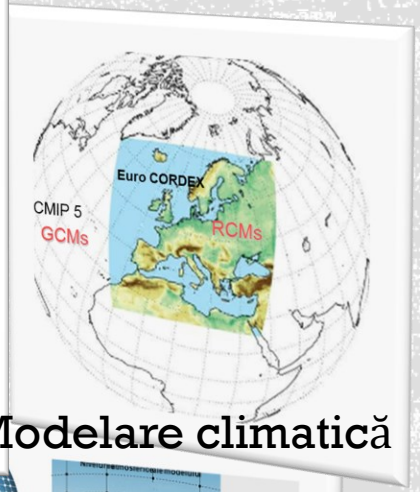
Sursa: IPCC WGII Summary for Policymakers, 2014.

CLIMATIC HAZARDS, IMPACTS AND RISKS IN THE EARTH'S SYSTEM

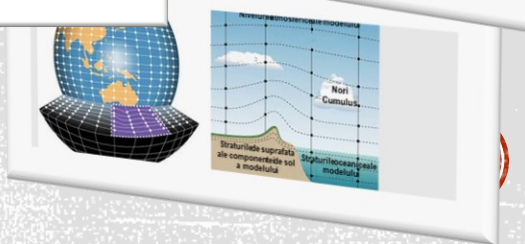


Modelare socio-economică (incusiv a proceselor legate de sănatatea publică)



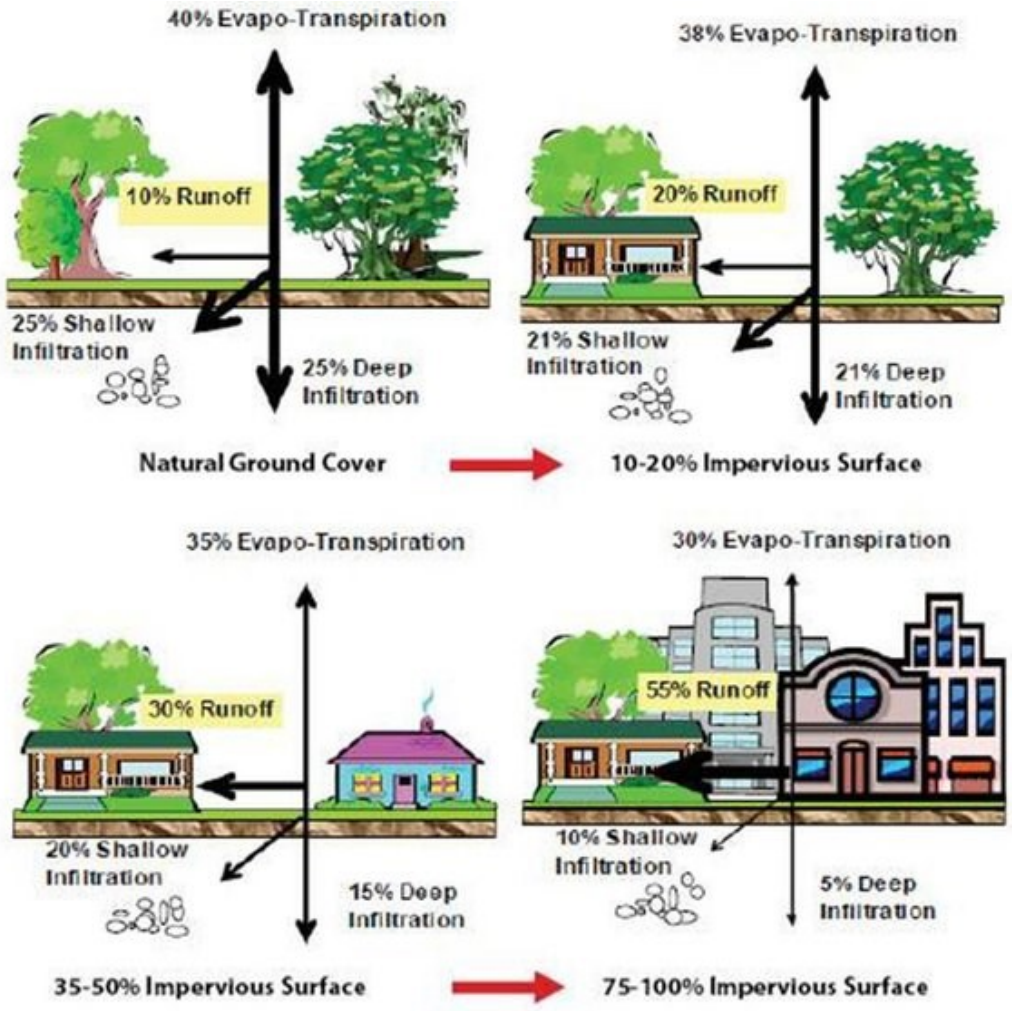


Modelare climatică

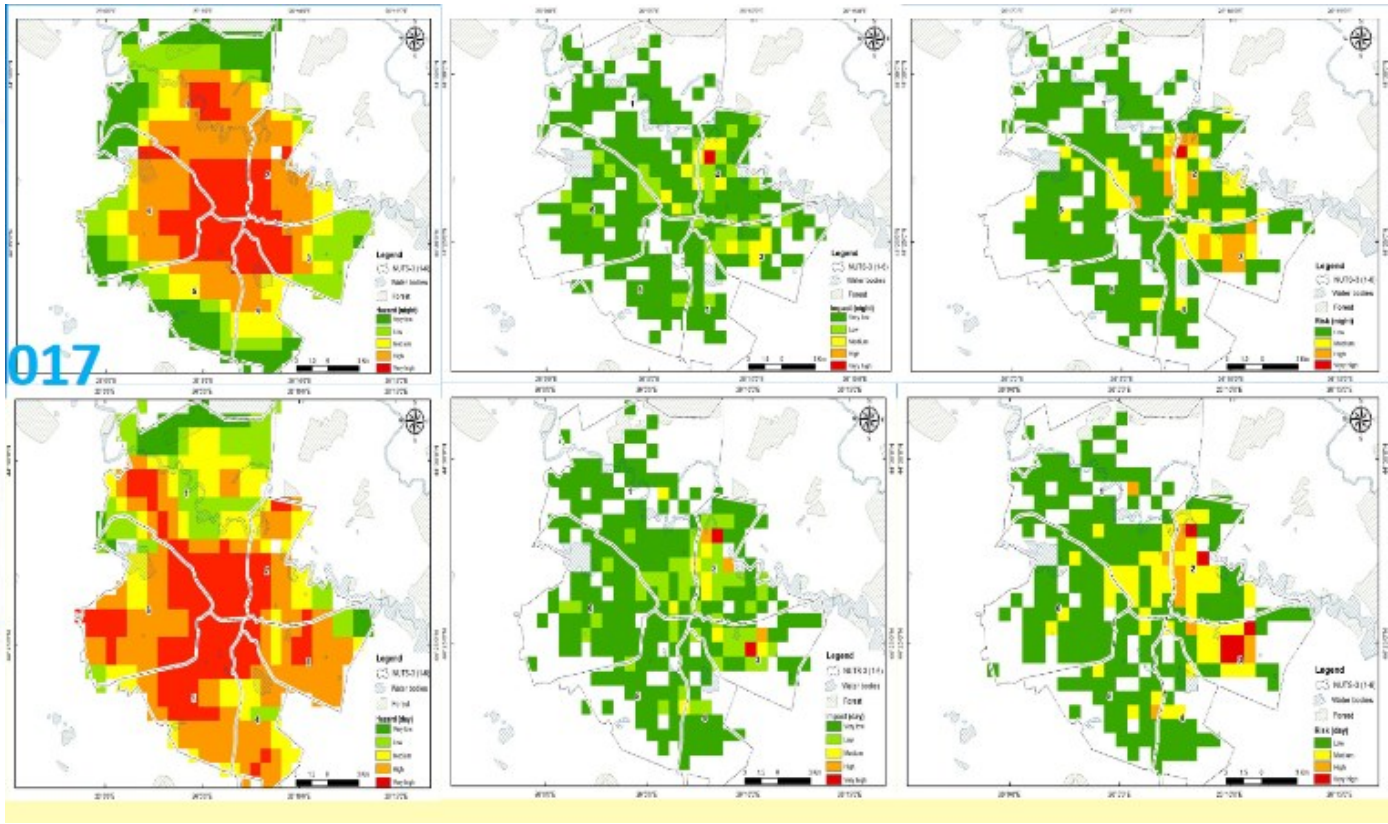


Reprezentarea schematică a procesului de estimare a riscurilor viitoare pe baza scenariilor climatice şi şi a proiecţiilor socio-economice şi climatice. După Bojariu şi colab. (2015)

MEDIUL URBAN SI RISCURILE ASOCIATE



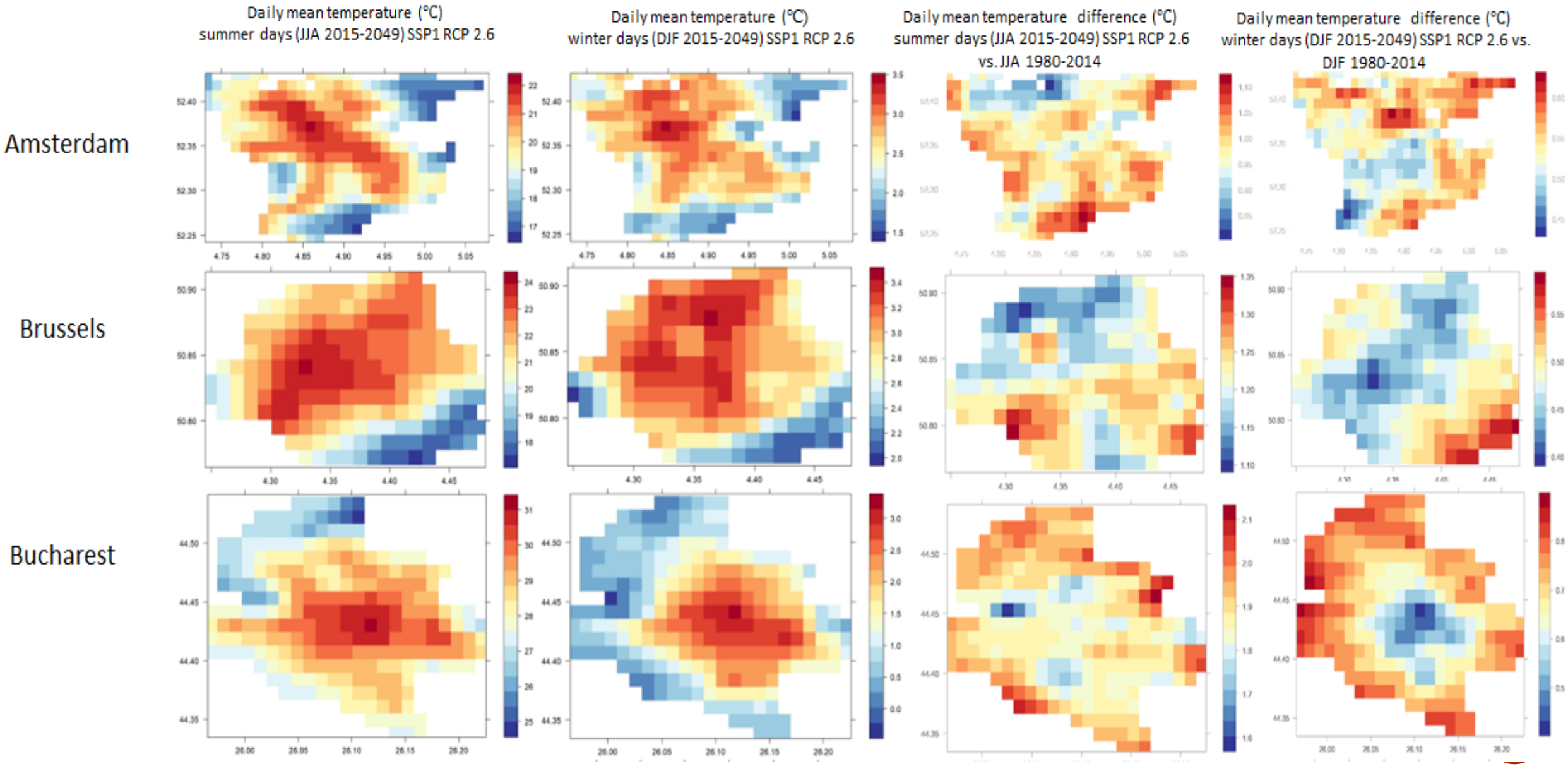
Increasing risks associated with urban floods - the impact of soil sealing (source - European Commission, 2012) on urban floods amplified by increased rainfall intensity under climate change



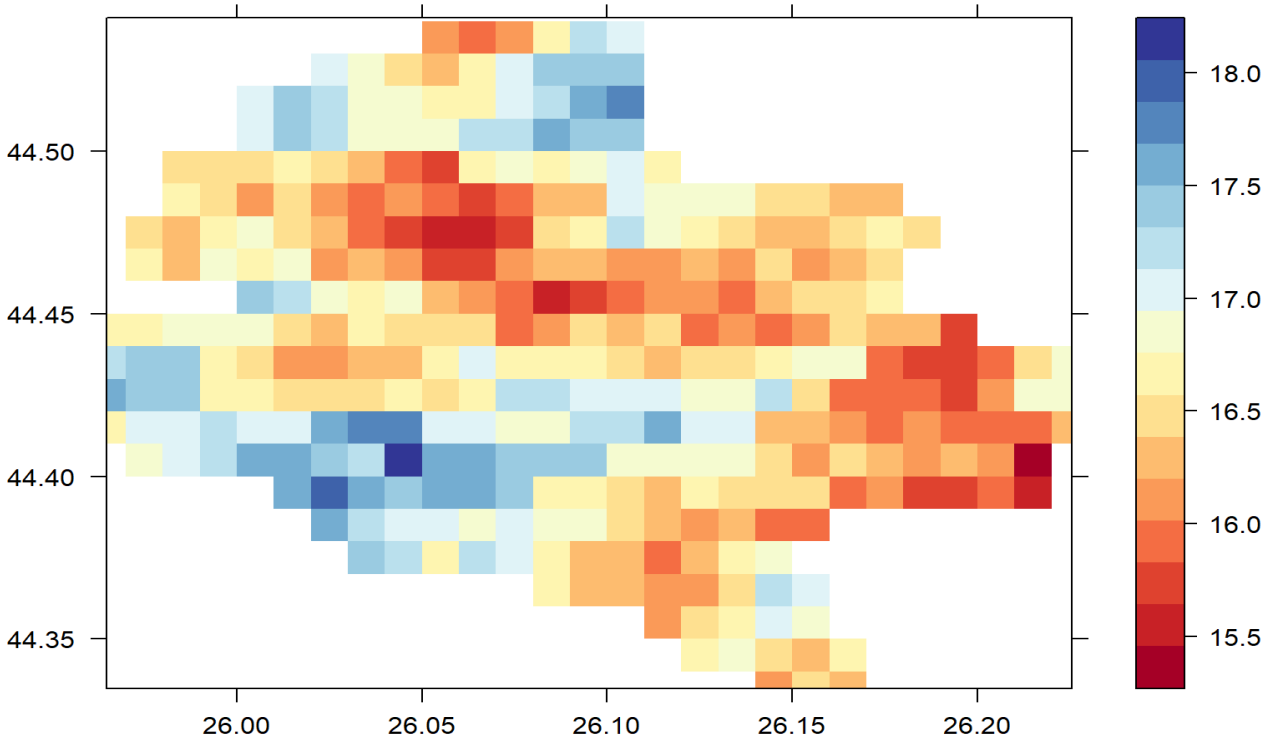
Riscul la valurile de caldura asupra sanatatii publice

Orasele – cele mai importante surse de emisii de gaze cu efect de sera, cele mai expuse sisteme umane la schimbarea

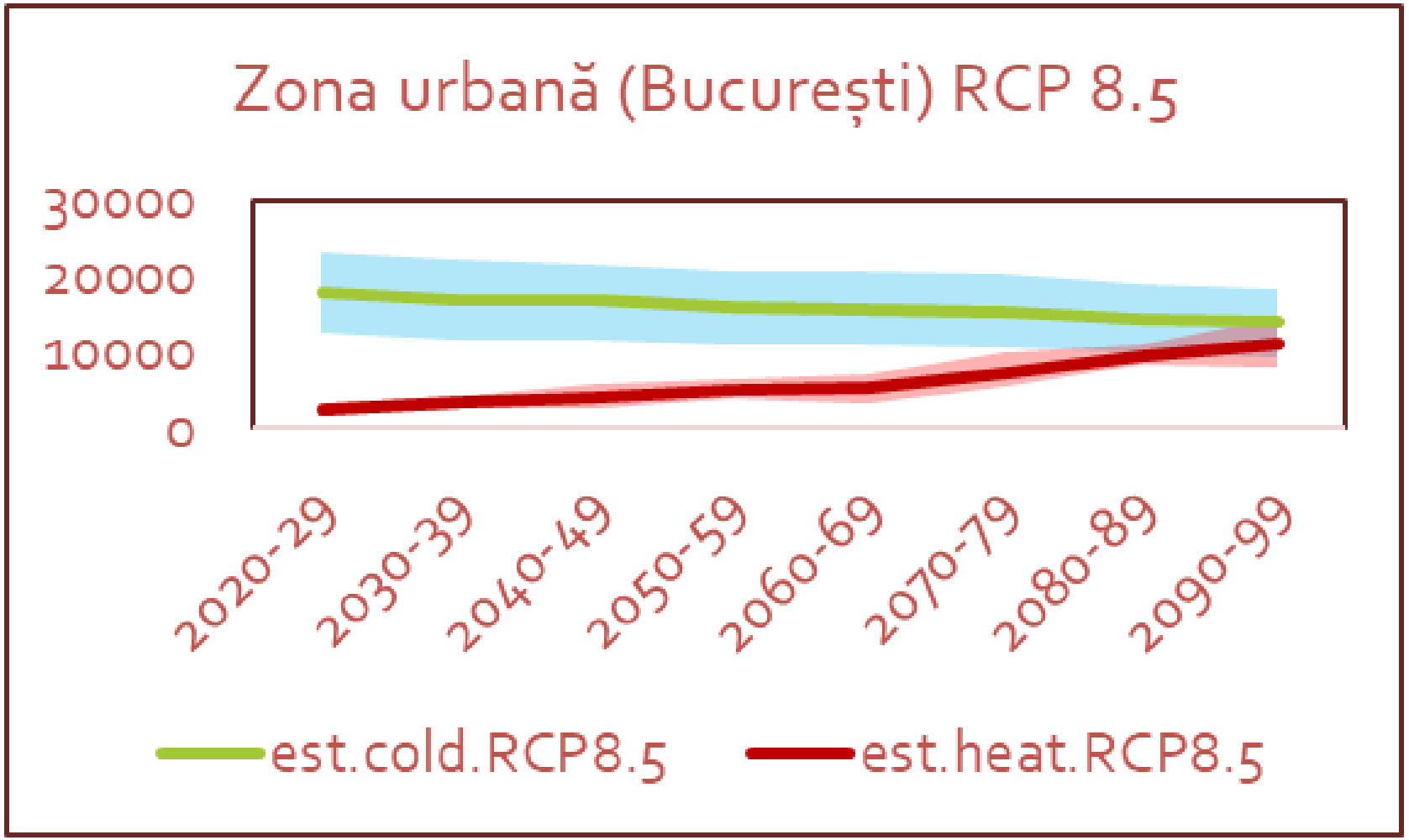
Rezultate ale proiectului european EXAUSTION



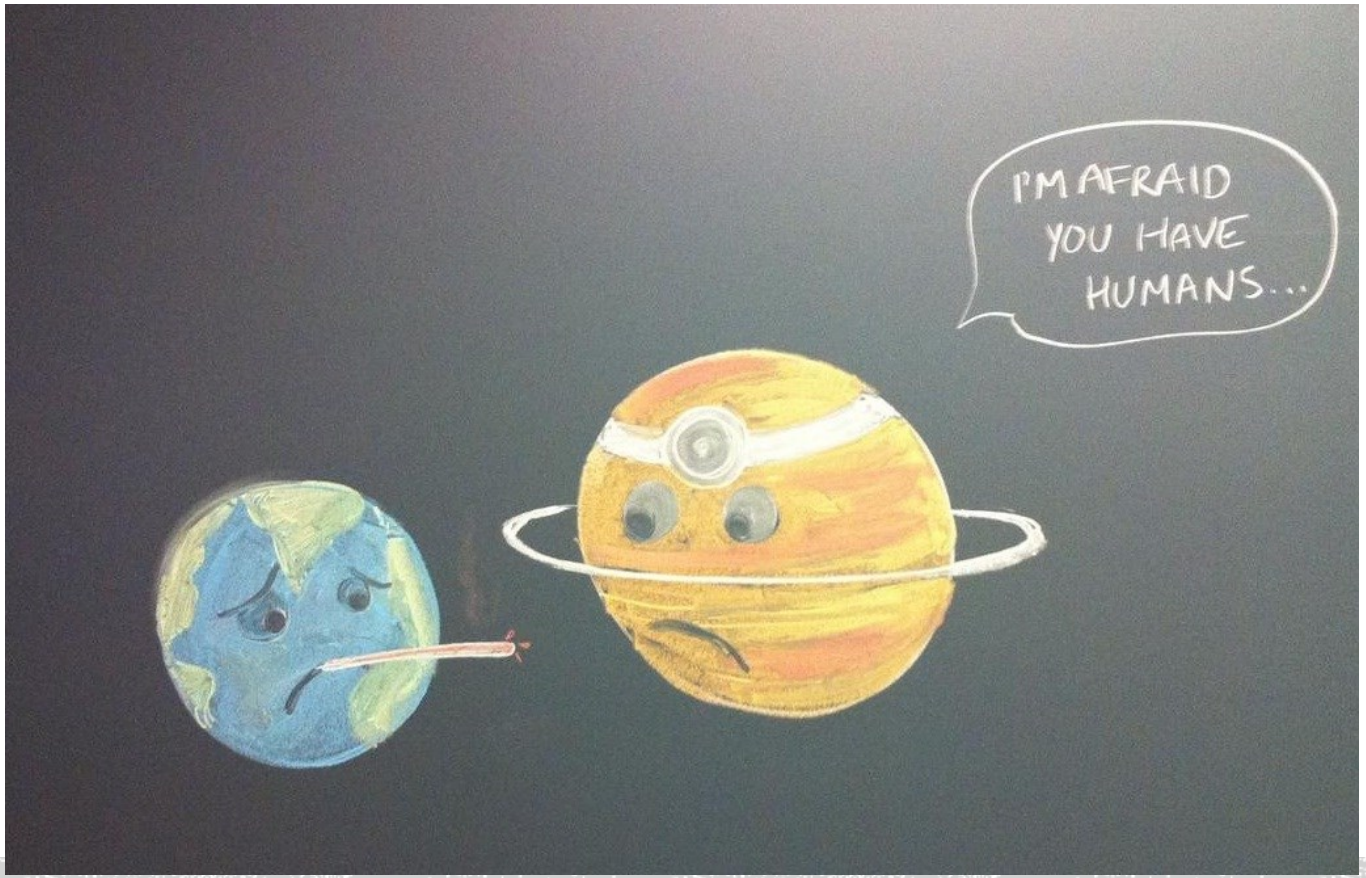
Proiectii ale concentratiilor de pm 2.5 2015-2049 vs. 1981-2014
Rezultate ale proiectului european EXHAUSTION
RCP 2.6



Proiectii ale mortalitații legate de extremele termice



Conclusions?



- Homo Sapiens evolution has been influenced by climate changes.
- We live now under a climate emergency/crisis.
- Our human civilization has to be saved, not the planet.
- From Terra's point of view: "Humans happen" ☺