

XI Jornadas

A Água e os Riscos de Proteção Civil

NOVOS PARADIGMAS DA PROTEÇÃO CIVIL

Conferência técnica e científica

29 | Maio 2025
Espinho | Portugal

Mudanças Climáticas e os Riscos Climáticos

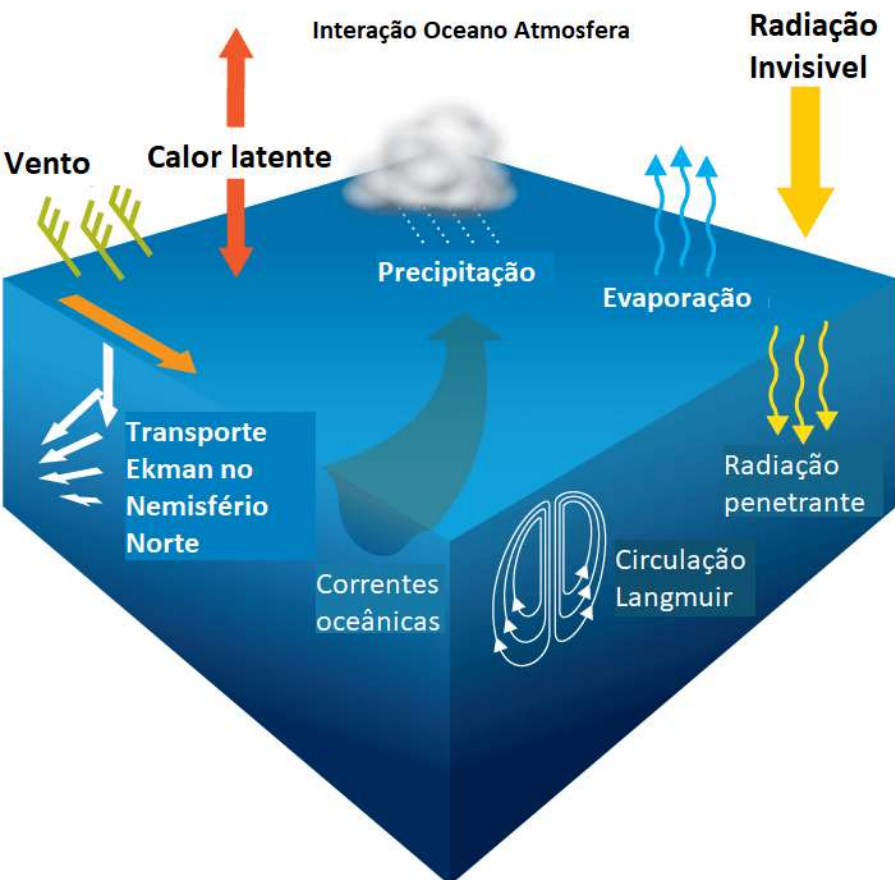
MÁRIO MARQUES - PLANOClima



ALTERAÇÕES
CLIMÁTICAS
MITO OU
REALIDADE?

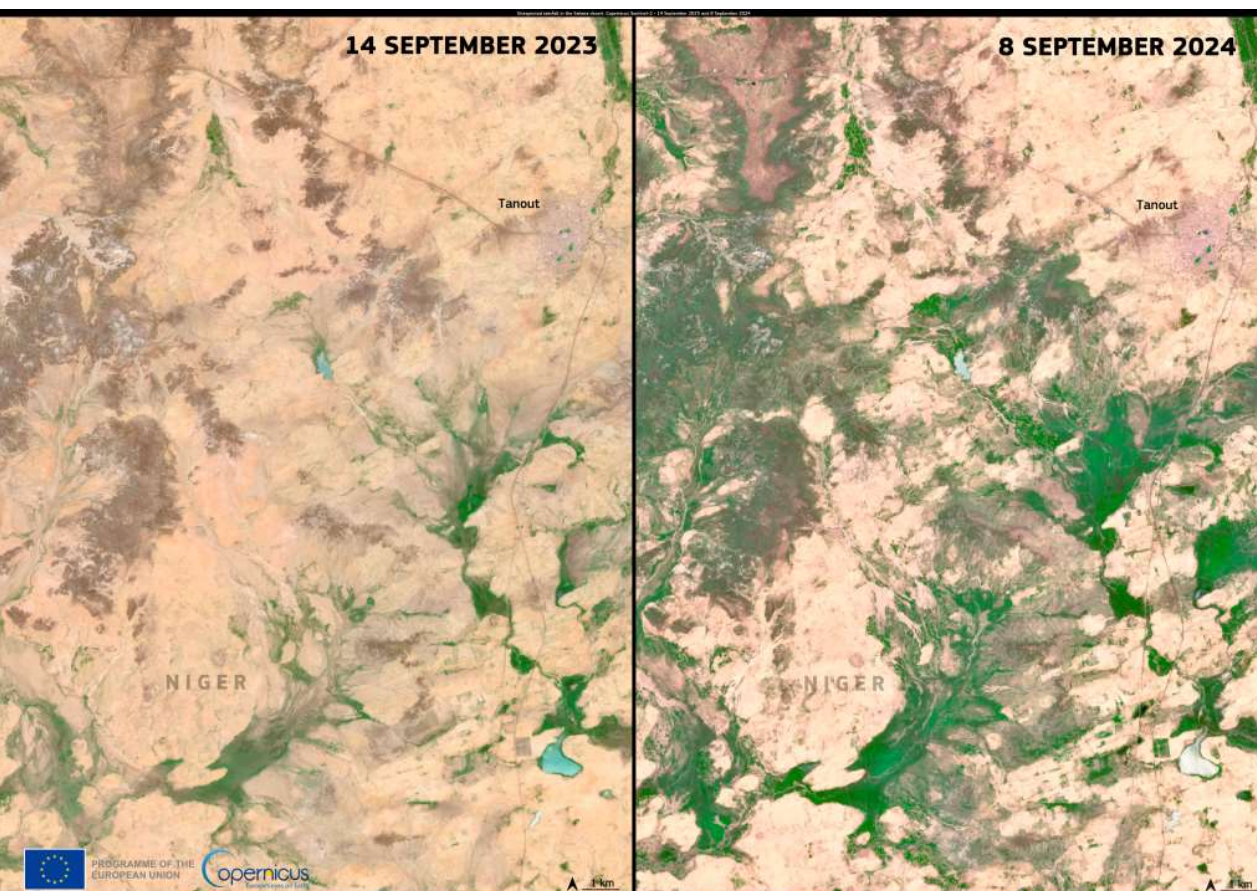
© Planoclima





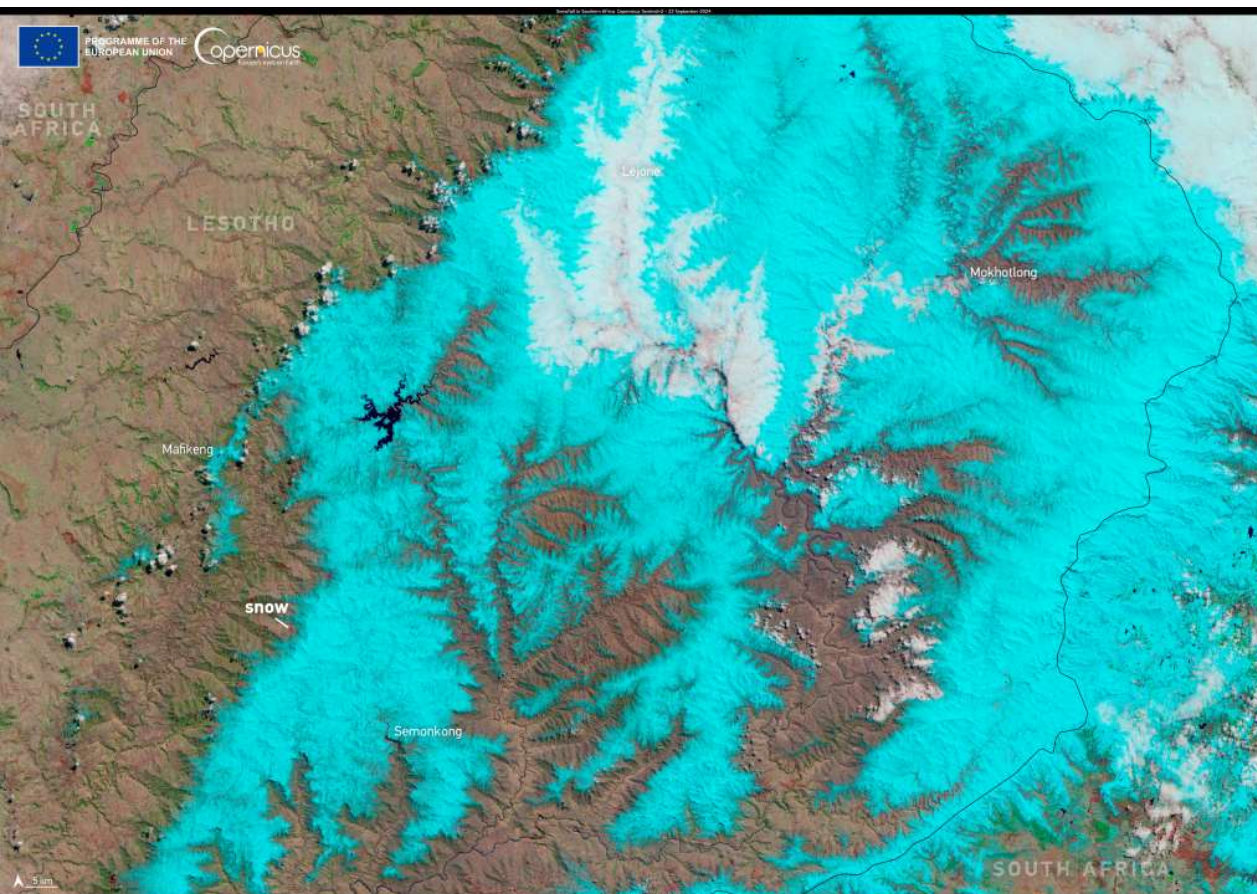
CICLO PERCUTOR DA NOSSA ATMOSFERA

Precisão | Confiança | Decisão ³

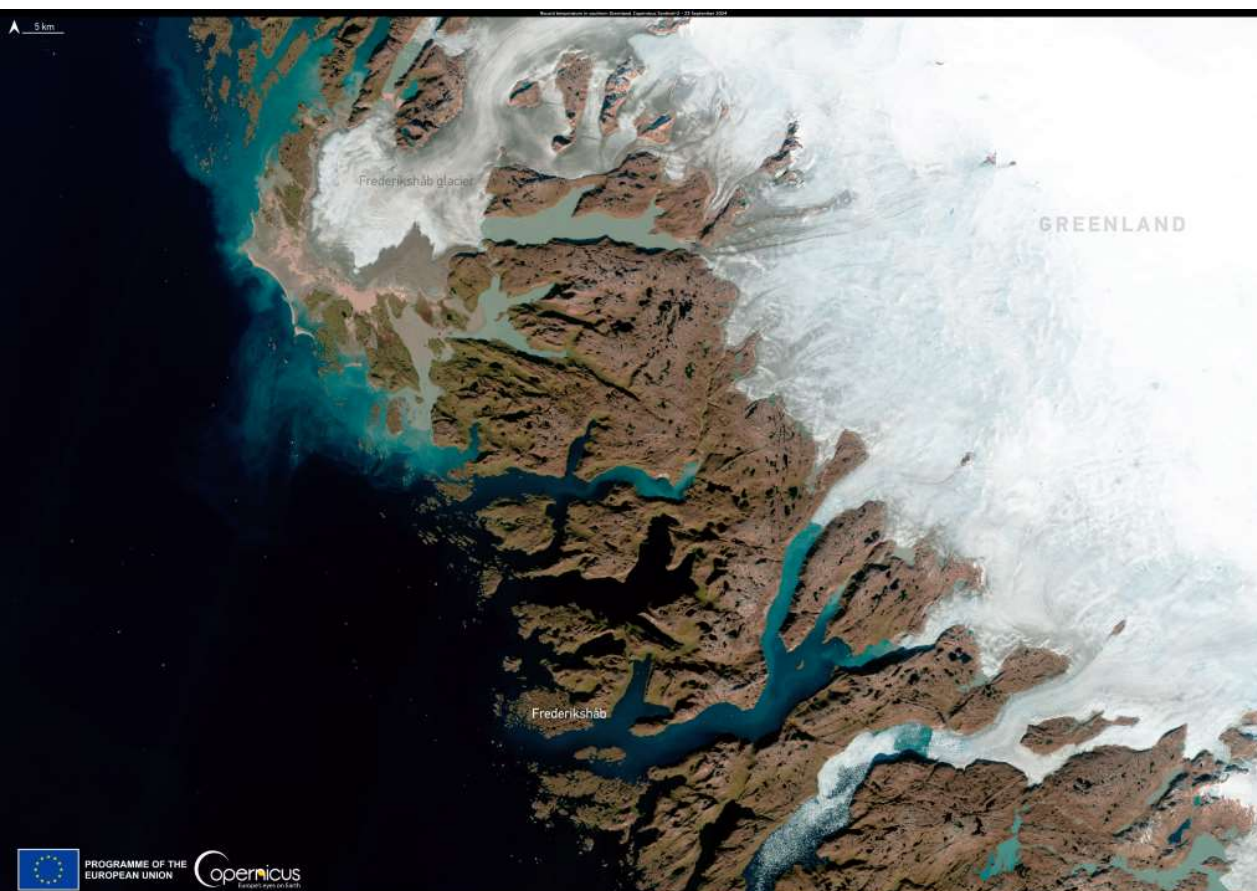


PLANOClima

Chuva no
Deserto do
Sahara -Fonte:
Copernicus.eu



Queda Neve
21.09.2024
África do Sul
Fonte:



Recorde de
Temperaturas
TMx de 18.9°C a
23.09.2024 em
Narsarsuaq
Gronelândia



29 JUNE 2022

14 JUNE 2023

Canelon Grande reservoir

Canelon Grande reservoir



PROGRAMME OF THE
EUROPEAN UNION

Copernicus
Satellites Eyes on Earth

0 500 m

0 500 m

Credit: European Union, Copernicus Sentinel-2 imagery - Processed by DESIS-JU



22 December 2018

10 January 2024

Prey Long Wildlife Sanctuary

Prey Long Wildlife Sanctuary

Desflorestação
intensiva na
região Stung
Trenq no NE do
Camboja, que é
rica em terras
húmidas e
biodiversidade

Copernicus
Sentinel-2 satellites
01 Janeiro 2024.

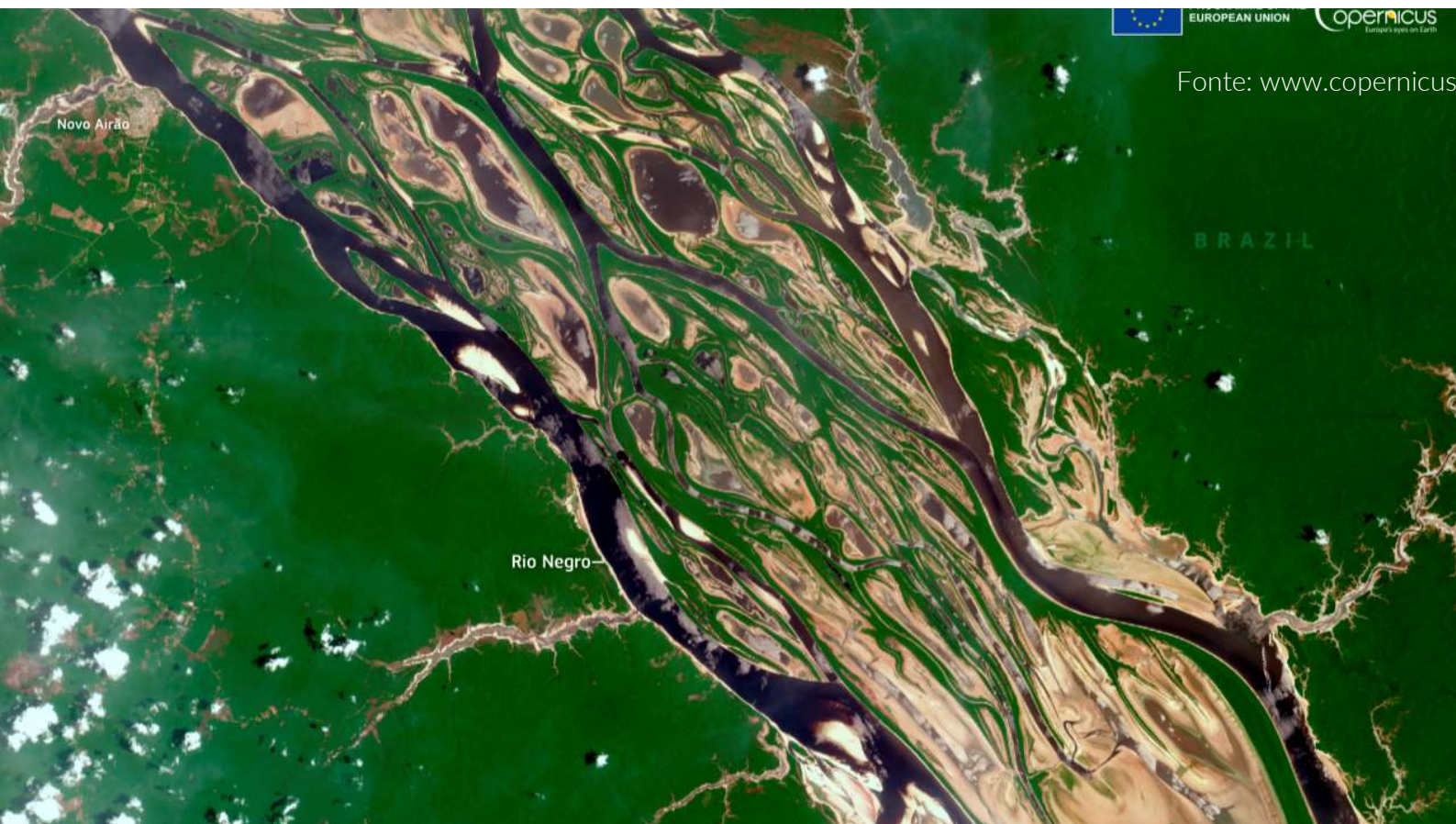




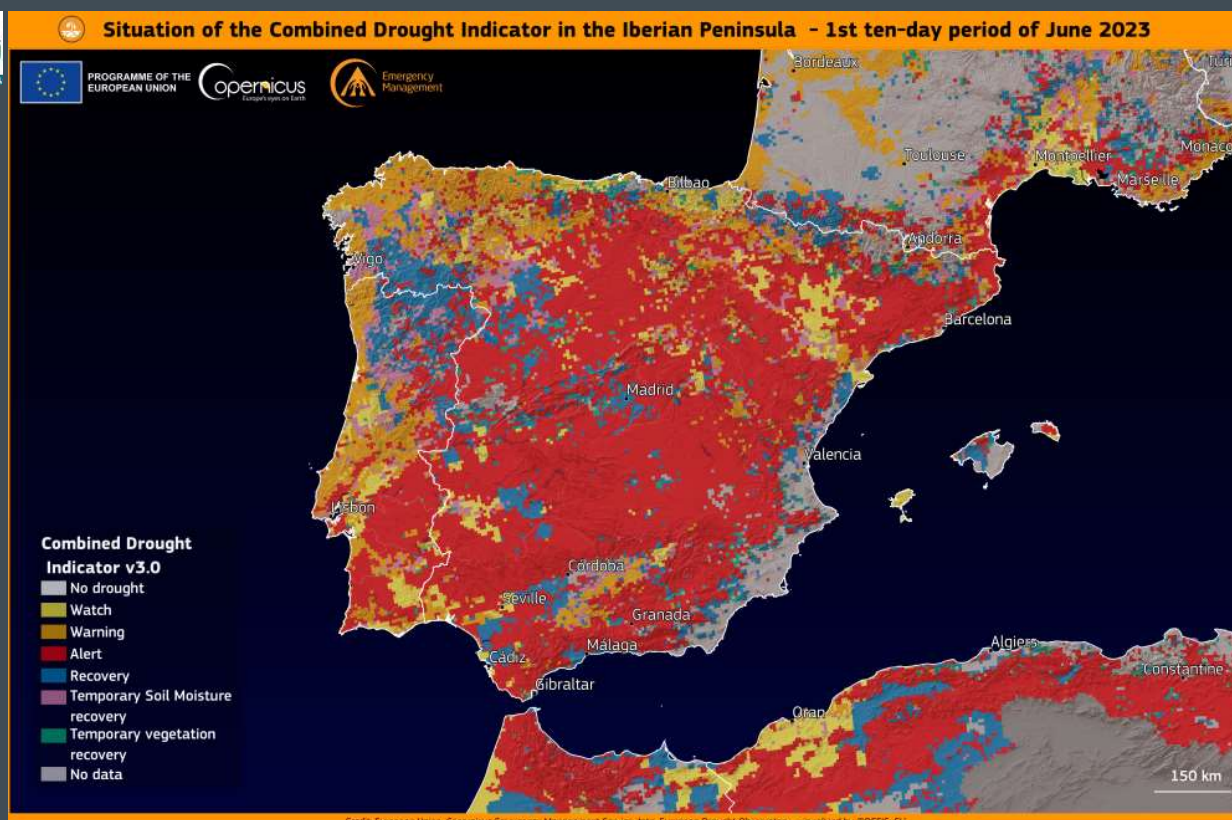
Rio Danúbio na
Roménia, com
um fluxo de
apenas 2900m³
quando média
em agosto são
4600m³/s

Copernicus
Sentinel-2 satellites
on 12 agosto 2024.

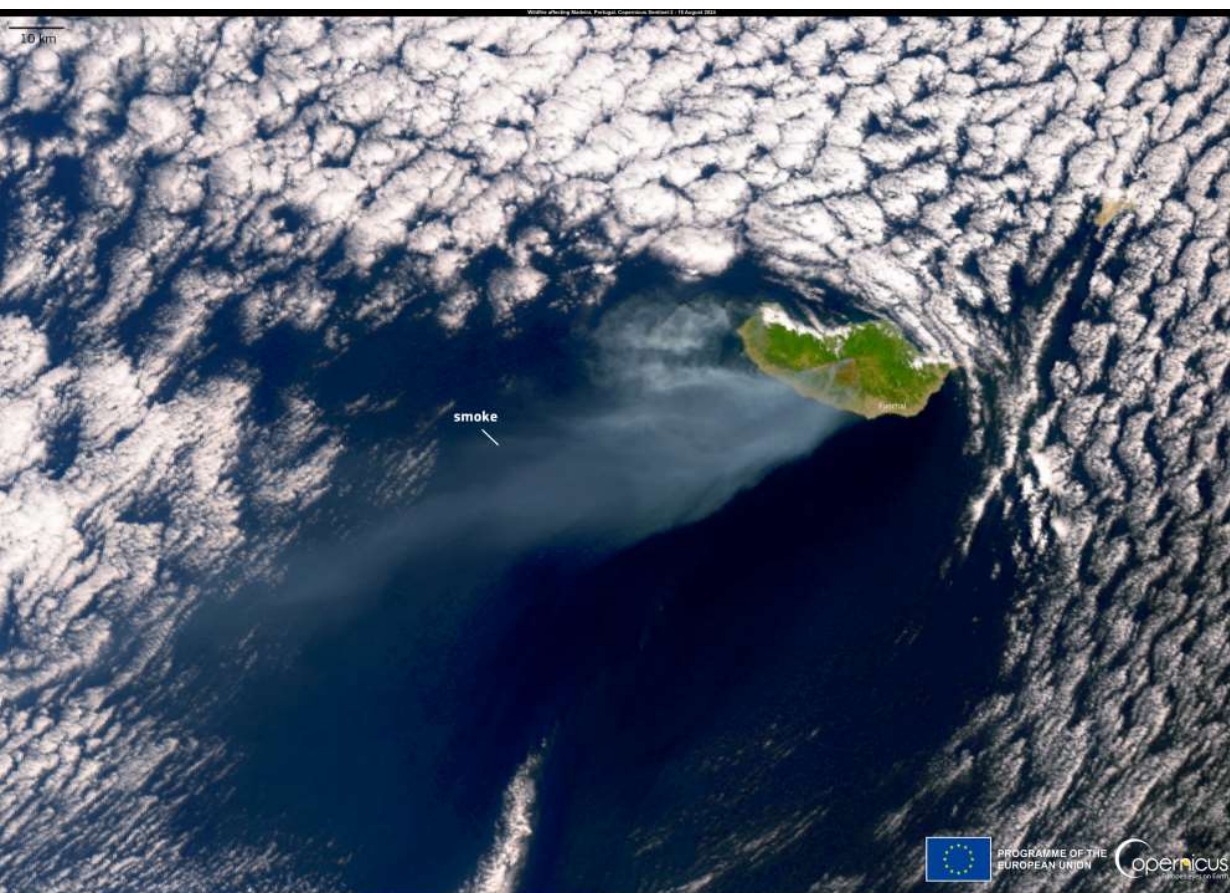
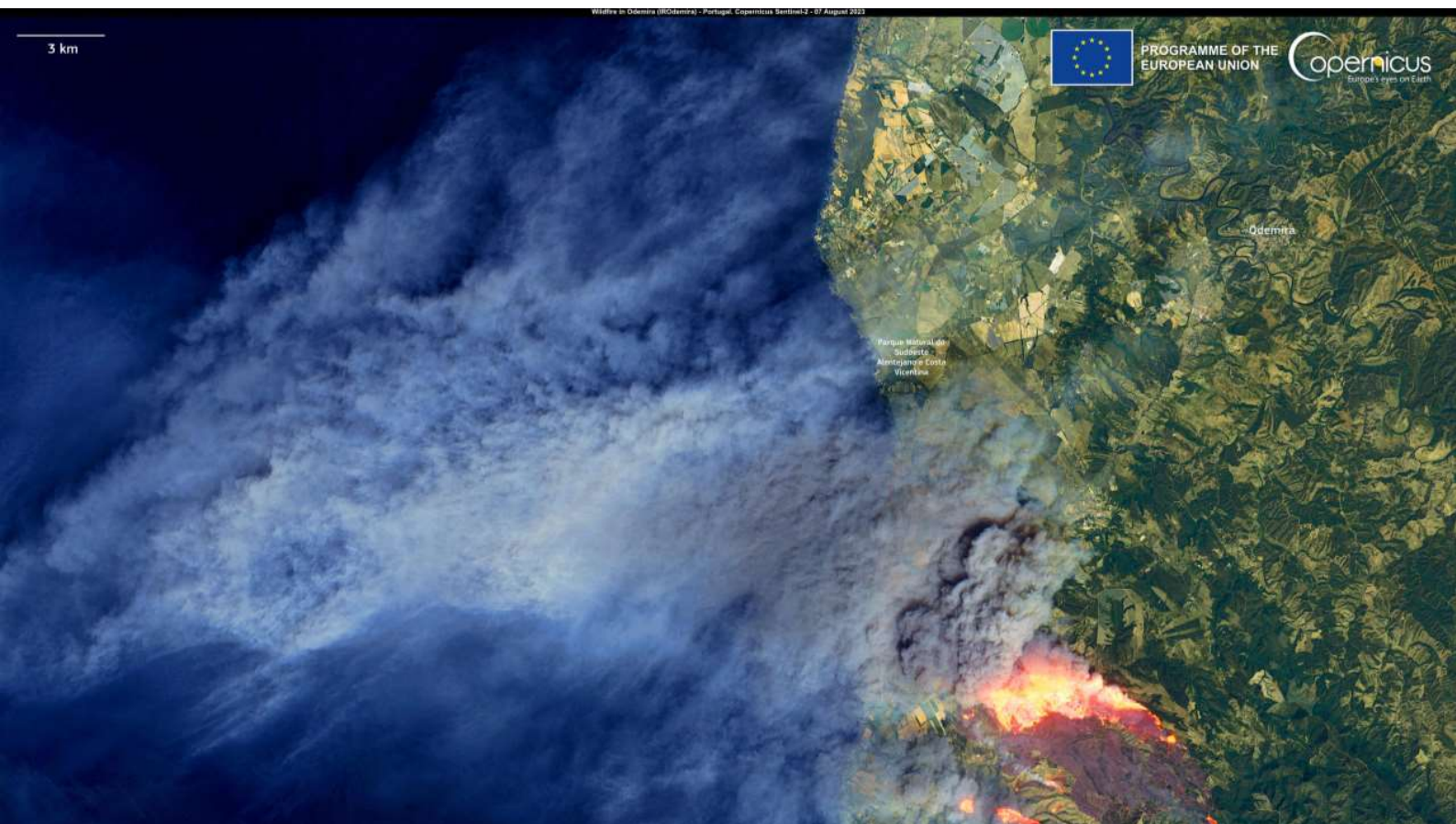




PLANOClima



SECAS

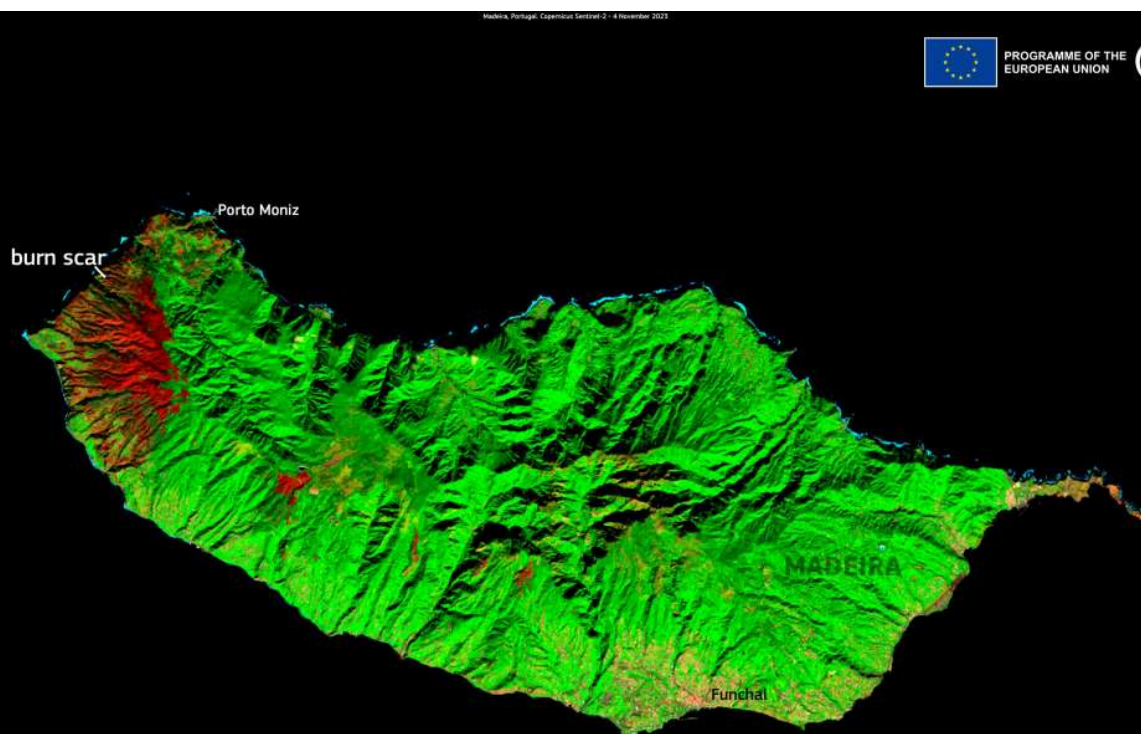


Fogo na
Madeira foto
dia 19.08.2024,
onde arderam
mais de
5600ha, 8% da
ilha.

Copernicus
Sentinel-2 satellites
19 agosto 2024.



Fogo na Madeira foto estimativa área ardida até 20.08.2024, 8200ha



PROGRAMME OF THE
EUROPEAN UNION

Copernicus
Europe's eyes on Earth



Fogo na
Madeira foto
Outubro
2023, onde
arderam mais
de 3500ha,
5% da ilha.

Copernicus
Sentinel-2 satellites
09 Novembro 2023.

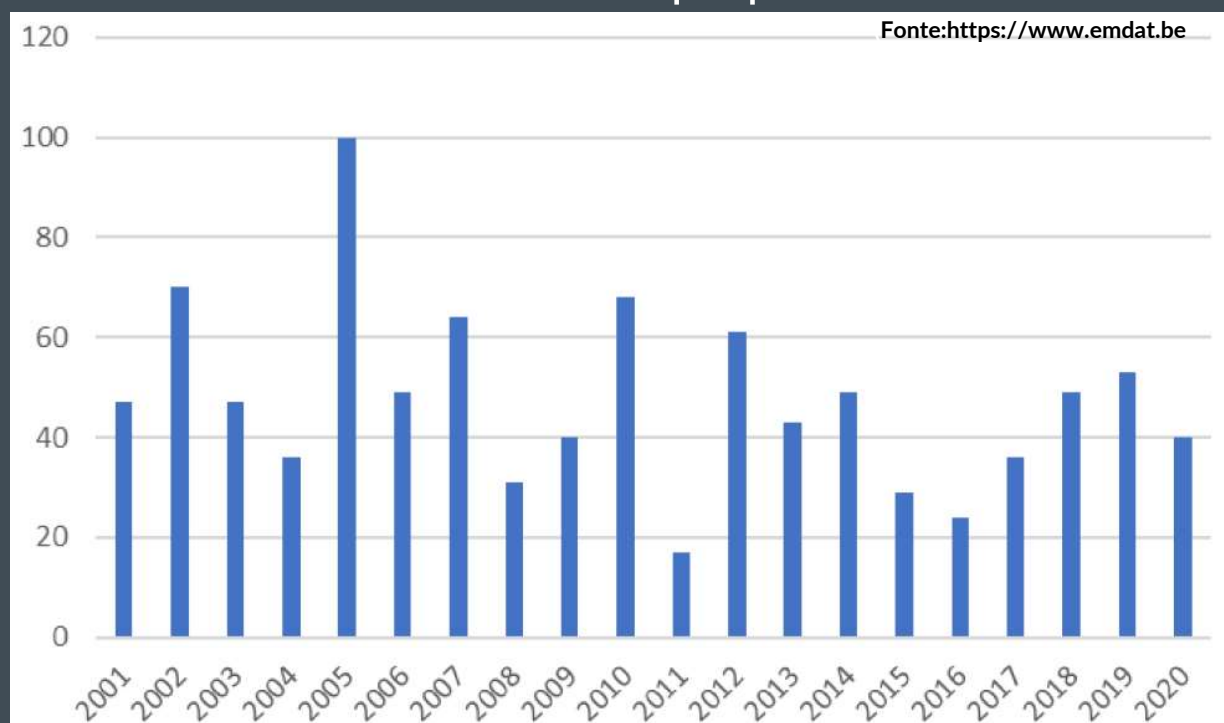


Credit: European Union, Copernicus Sentinel-2 imagery. Processed by @CopernicusEU

Desastres e Riscos Naturais

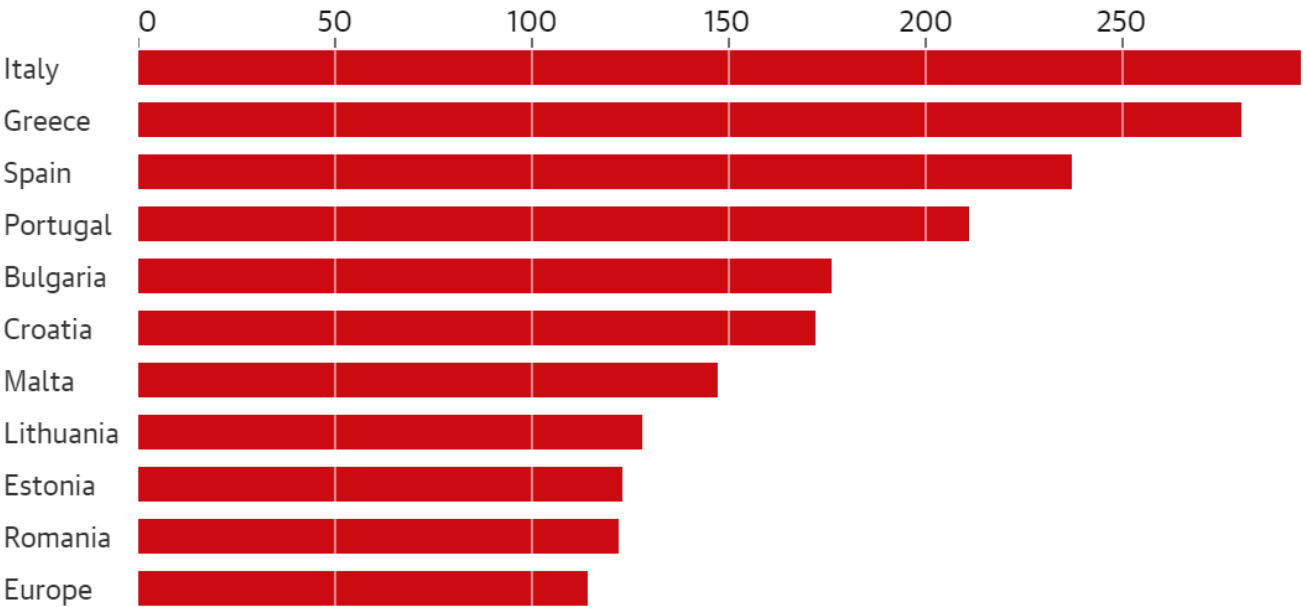


Desastres Naturais na Europa por ano 2000-2021



Summer heat in 2022 killed 114 people in Europe for every million population

Heat-attributable deaths per million, summer 2022

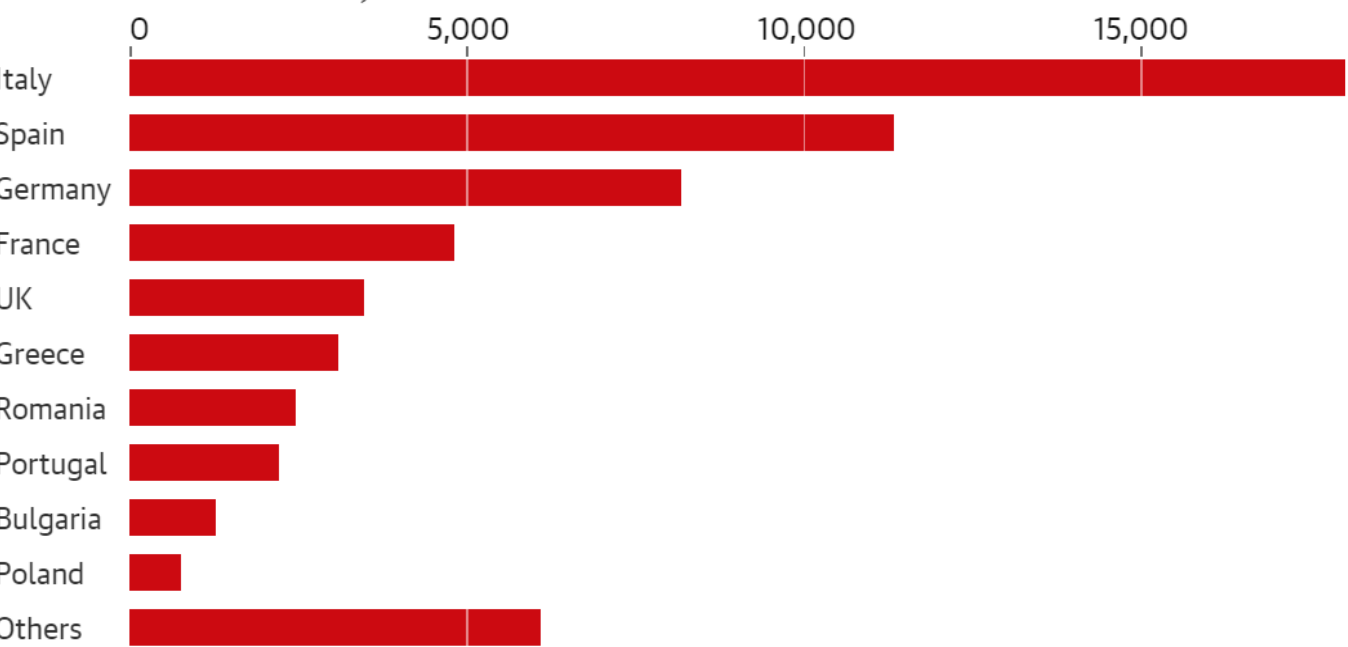


Guardian graphic | Source: IS Global. Note: highest 10 European mortality rates shown



Summer heat killed 61,672 people in Europe in 2022

Heat-attributable deaths, summer 2022

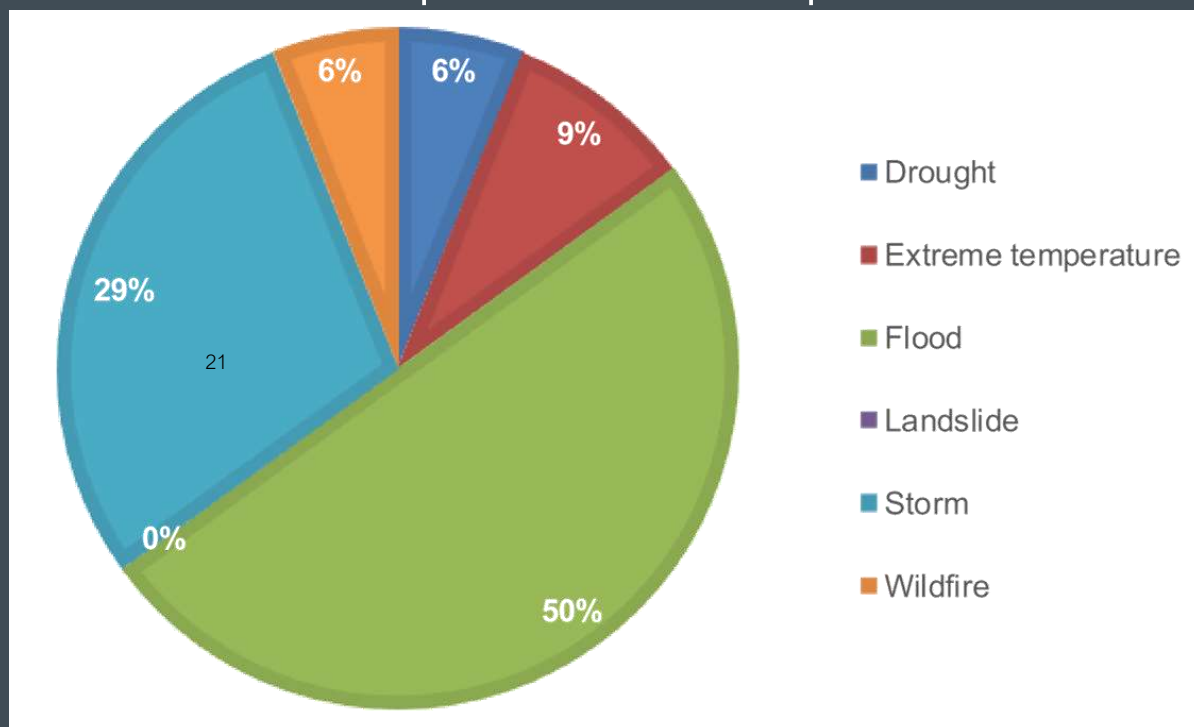


<https://www.theguardian.com/environment/2023/jul/10/heatwave-last-summer-killed-61000-people-in-europe-research-finds>

Guardian graphic | Source: IS Global



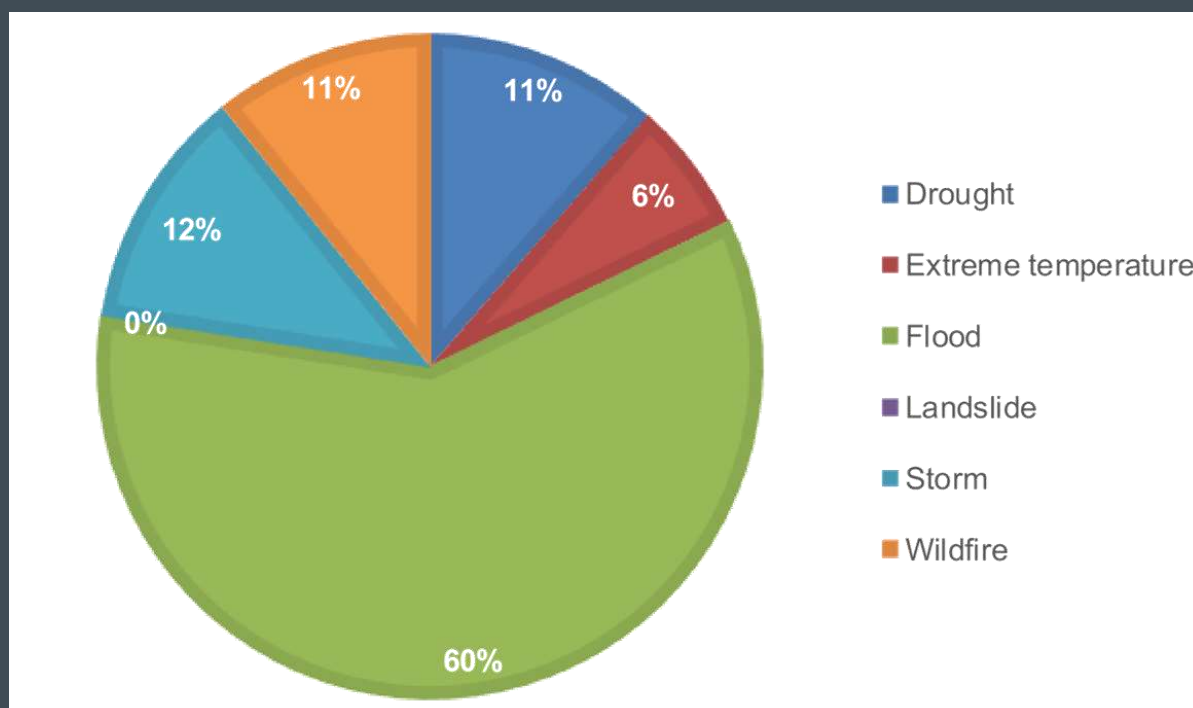
Ocorrências Tipo evento Europa 2000-2021



Fonte: <https://www.emdat.be/>
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Precisão | Confiança | Decisão

Total afetados por tipo de evento Europa 2000-2021

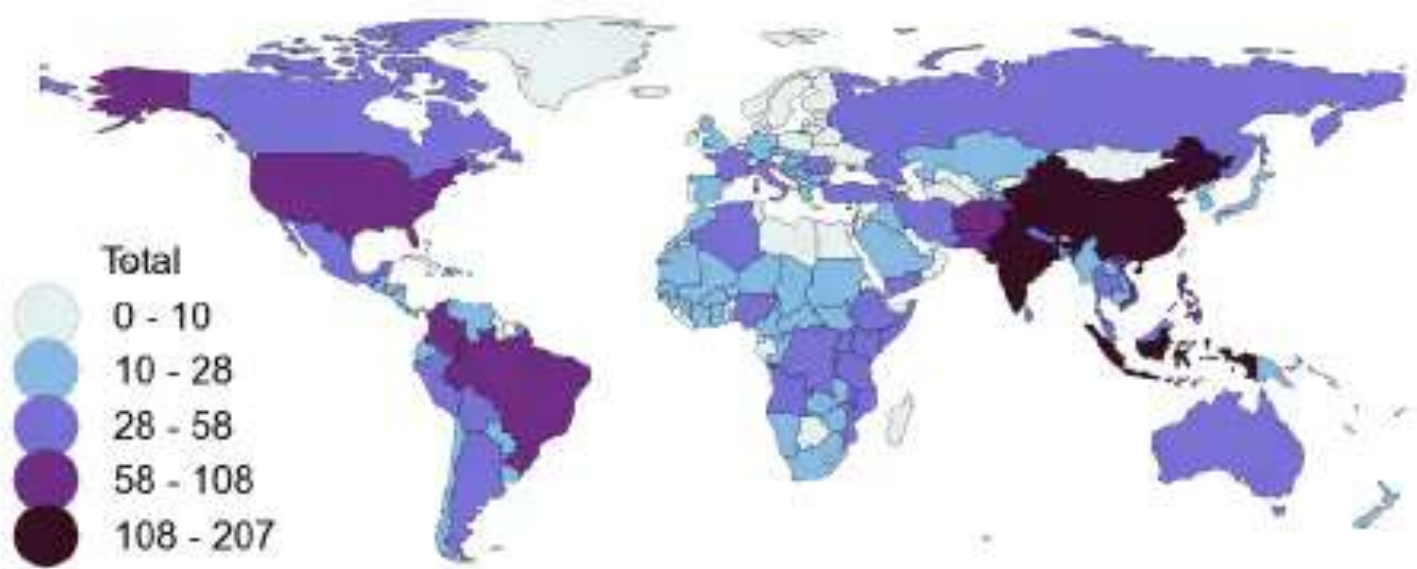


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Flood occurrence per country (2000-2022)

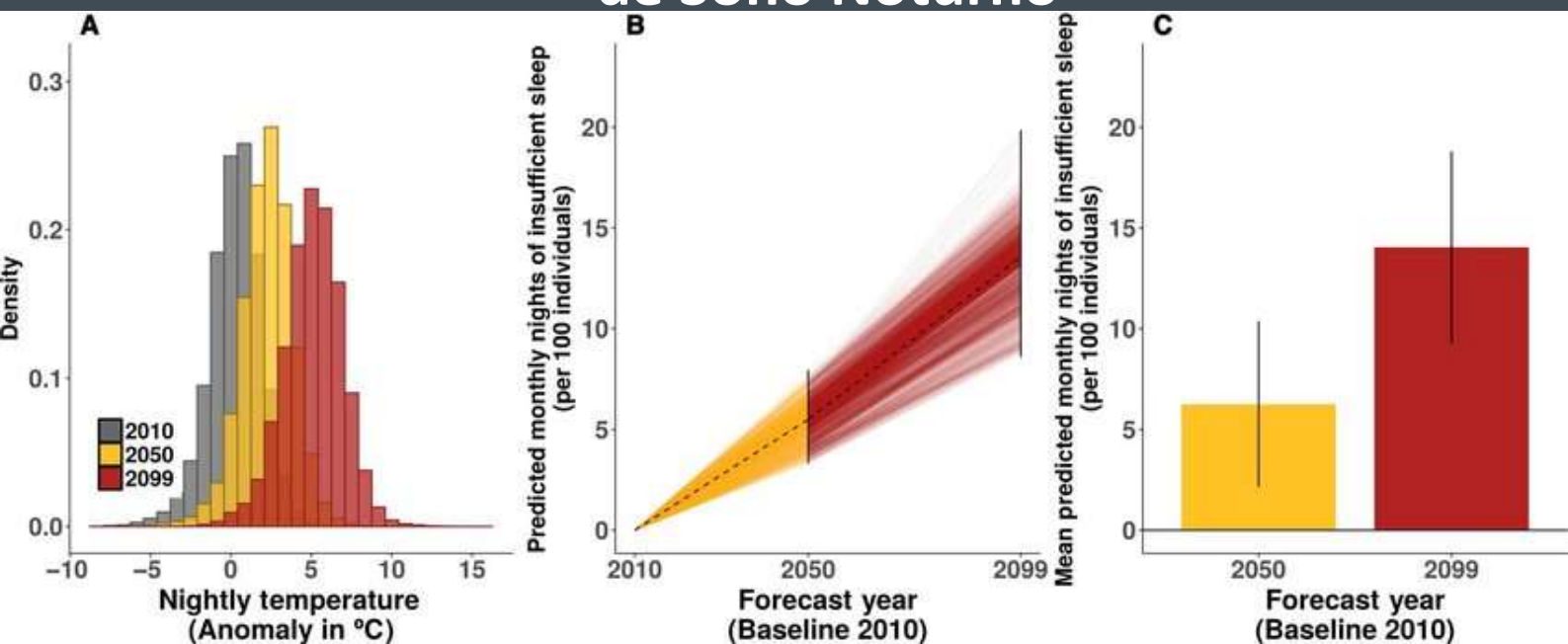


Fonte: <https://www.emdat.be/>

RESURGIMENTO DOENÇAS



Alterações Climáticas VS Perdas Diárias de Sono Noturno



NOVA REALIDADE CLIMÁTICA?

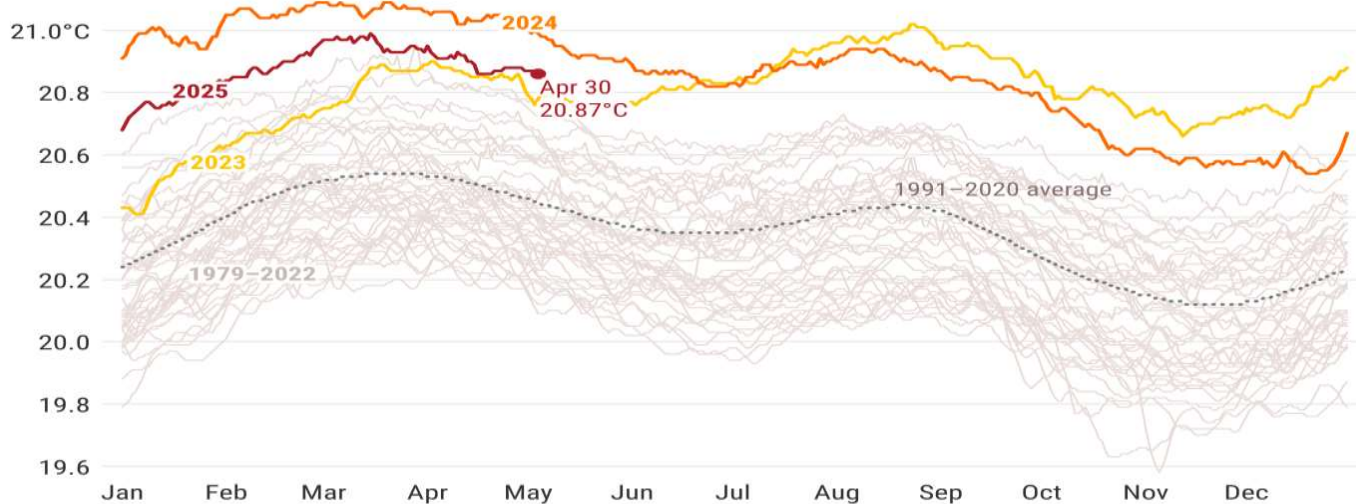


AQUECIMENTO ATMOSFERA



Daily sea surface temperature for 60°S–60°N

Data: ERA5 1979–2024 • Credit: C3S/ECMWF



PROGRAMME OF
THE EUROPEAN UNION



IMPLEMENTED BY

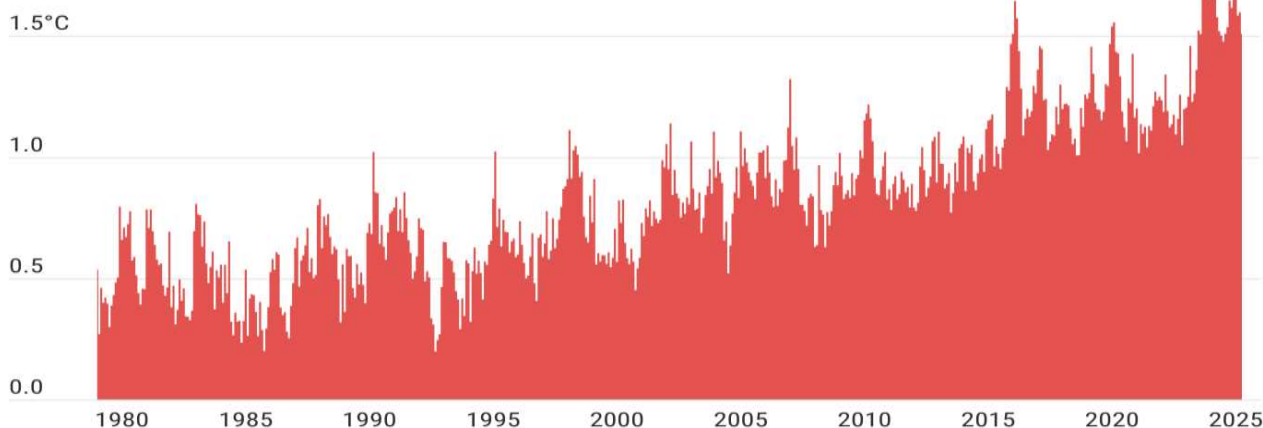


ANOMALIA TEMPERATURA



Global surface air temperature anomalies

Data source: ERA5 • Reference period: pre-industrial (1850–1900) • Credit: C3S/ECMWF



Select one option:

April

all months

12-month average



PROGRAMME OF
THE EUROPEAN UNION



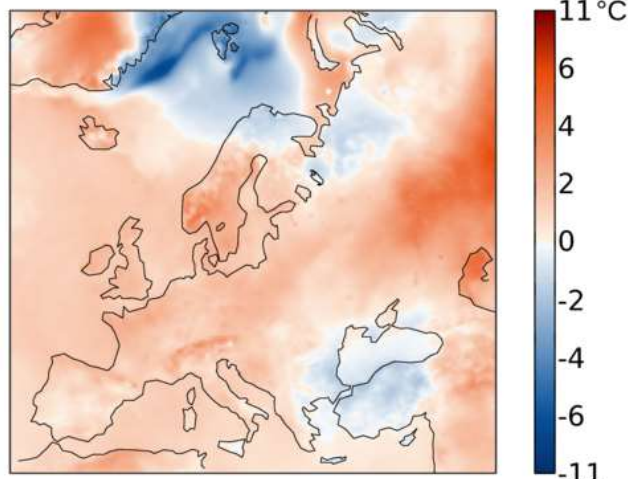
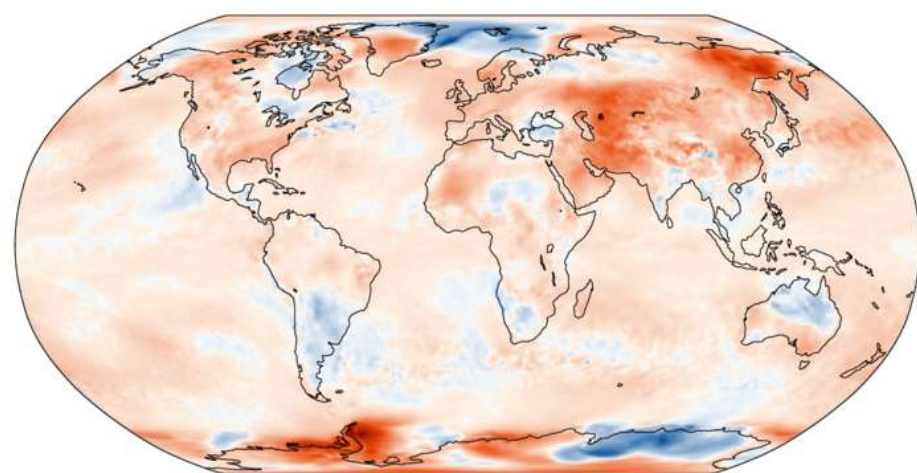
IMPLEMENTED BY





Surface air temperature anomaly for April 2025

Data: ERA5. Reference period: 1991-2020. Credit: C3S/ECMWF



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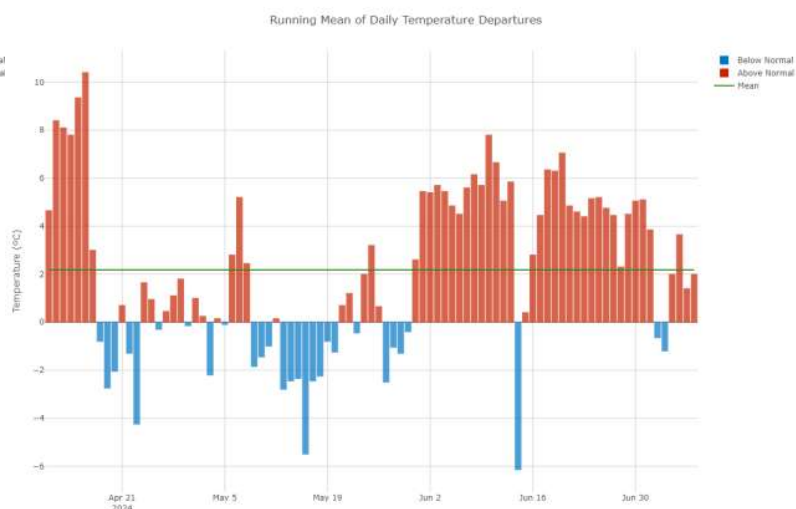
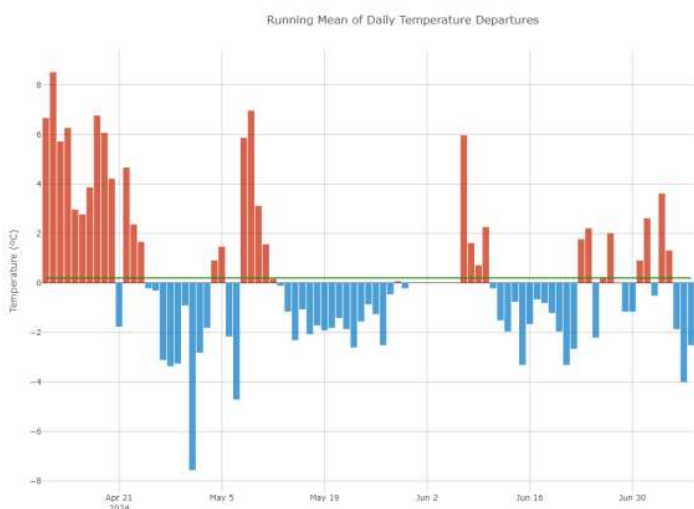


Anomalia Temperatura 90 dias



Porto-08545

Bucareste-15422



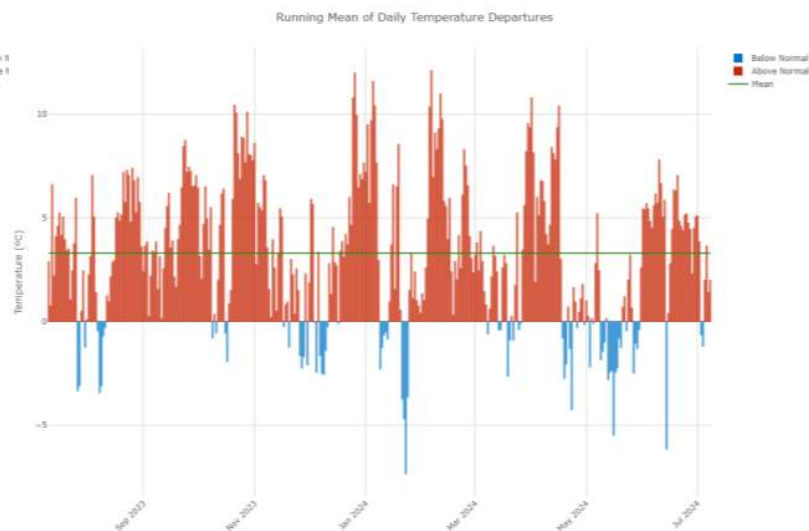
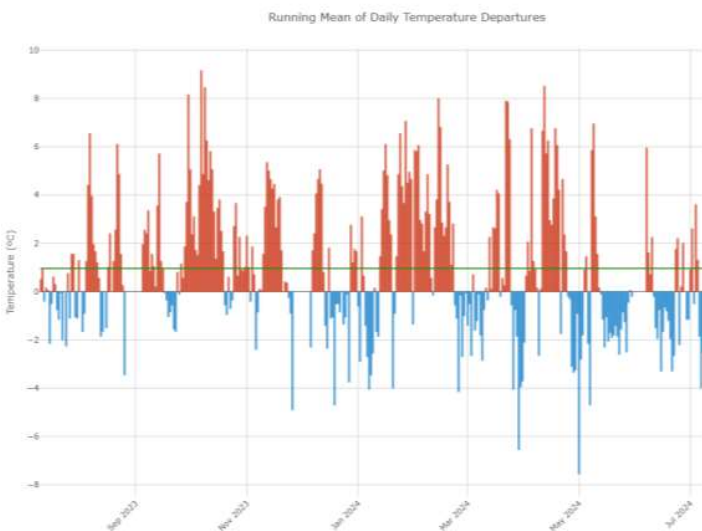
Fonte: <https://www.cpc.ncep.noaa.gov> - * Período normal climatológica 1991-2020

Anomalia Temperatura 365 dias



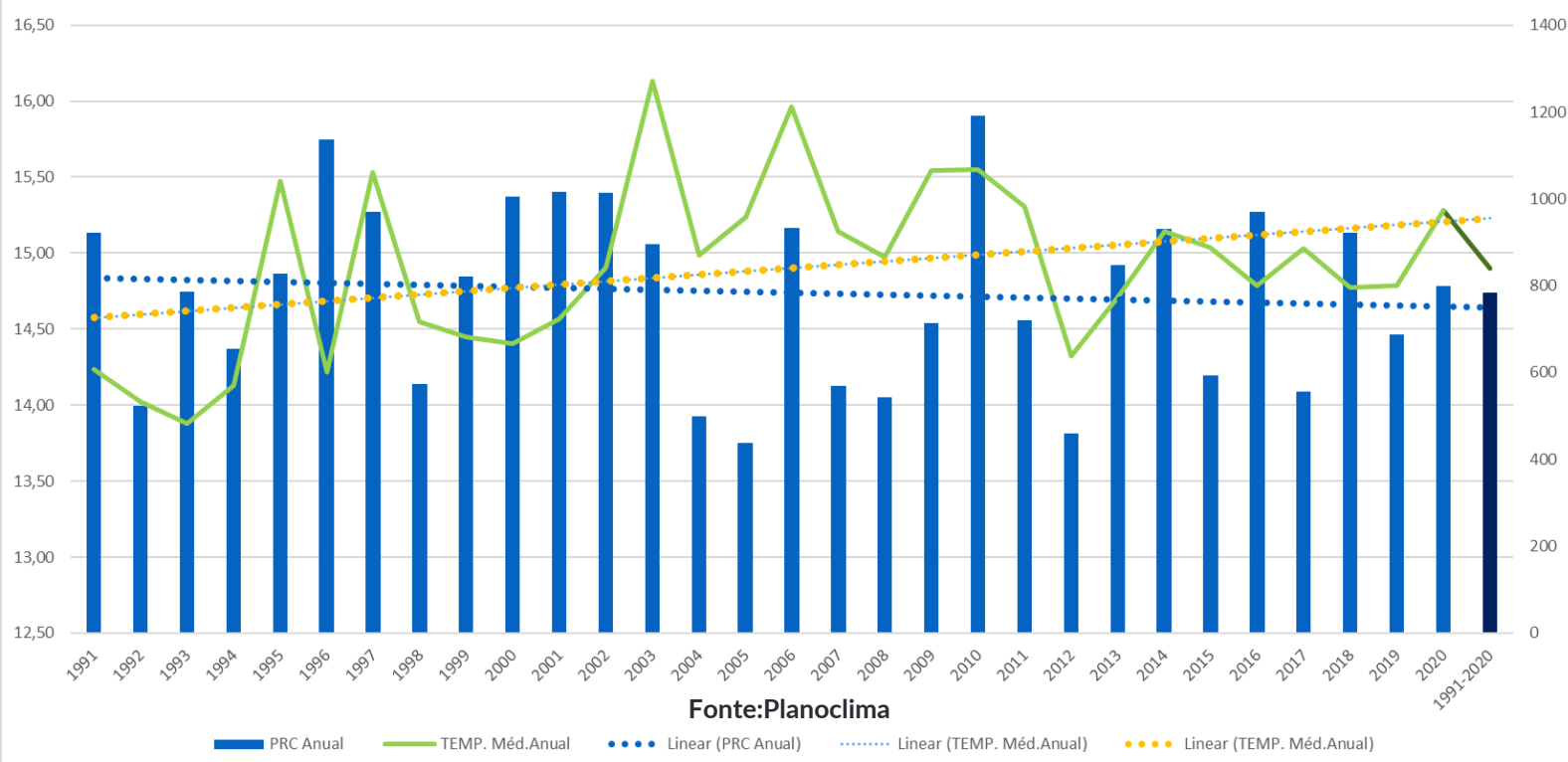
Porto-08545

Bucareste-15422

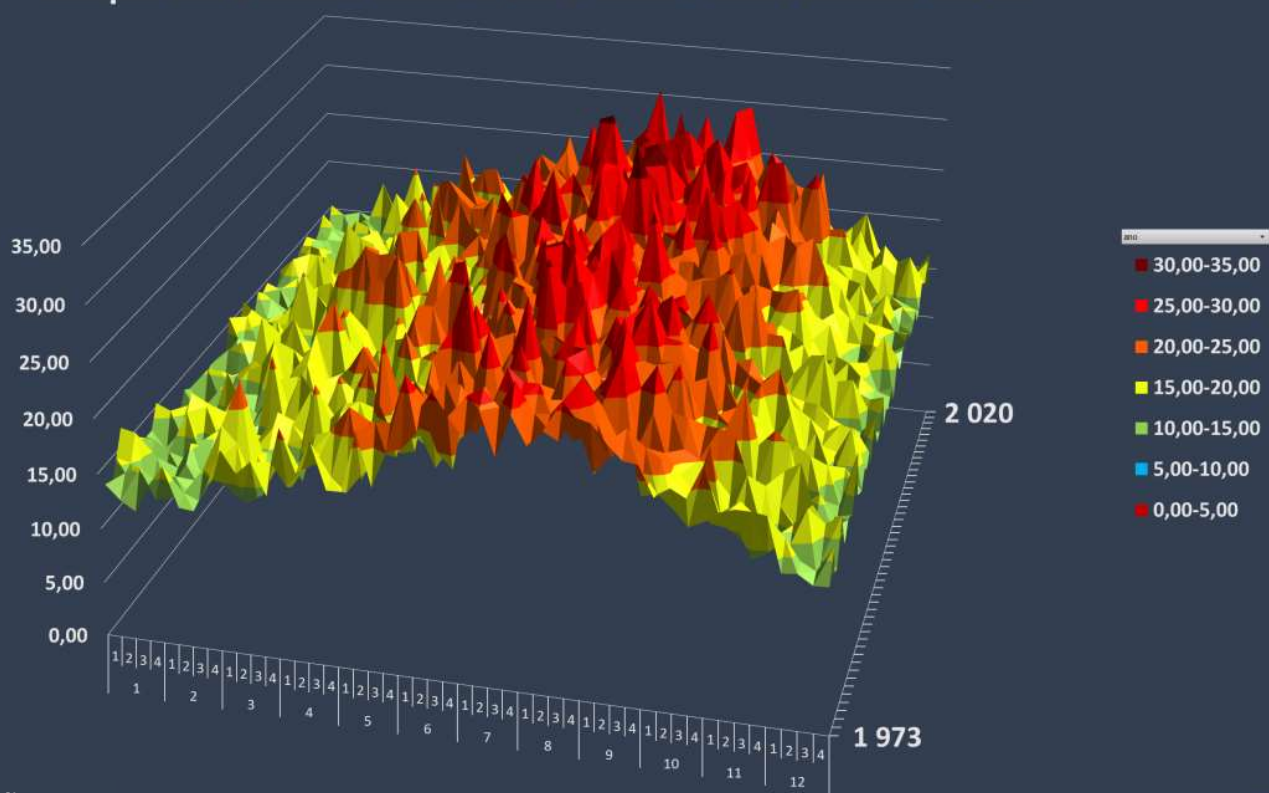


Fonte: <https://www.cpc.ncep.noaa.gov> - * Período normal climatológica 1991–2020

Pedra Rubras 08545- Temperatura Média e PRC Anual 1991-2020



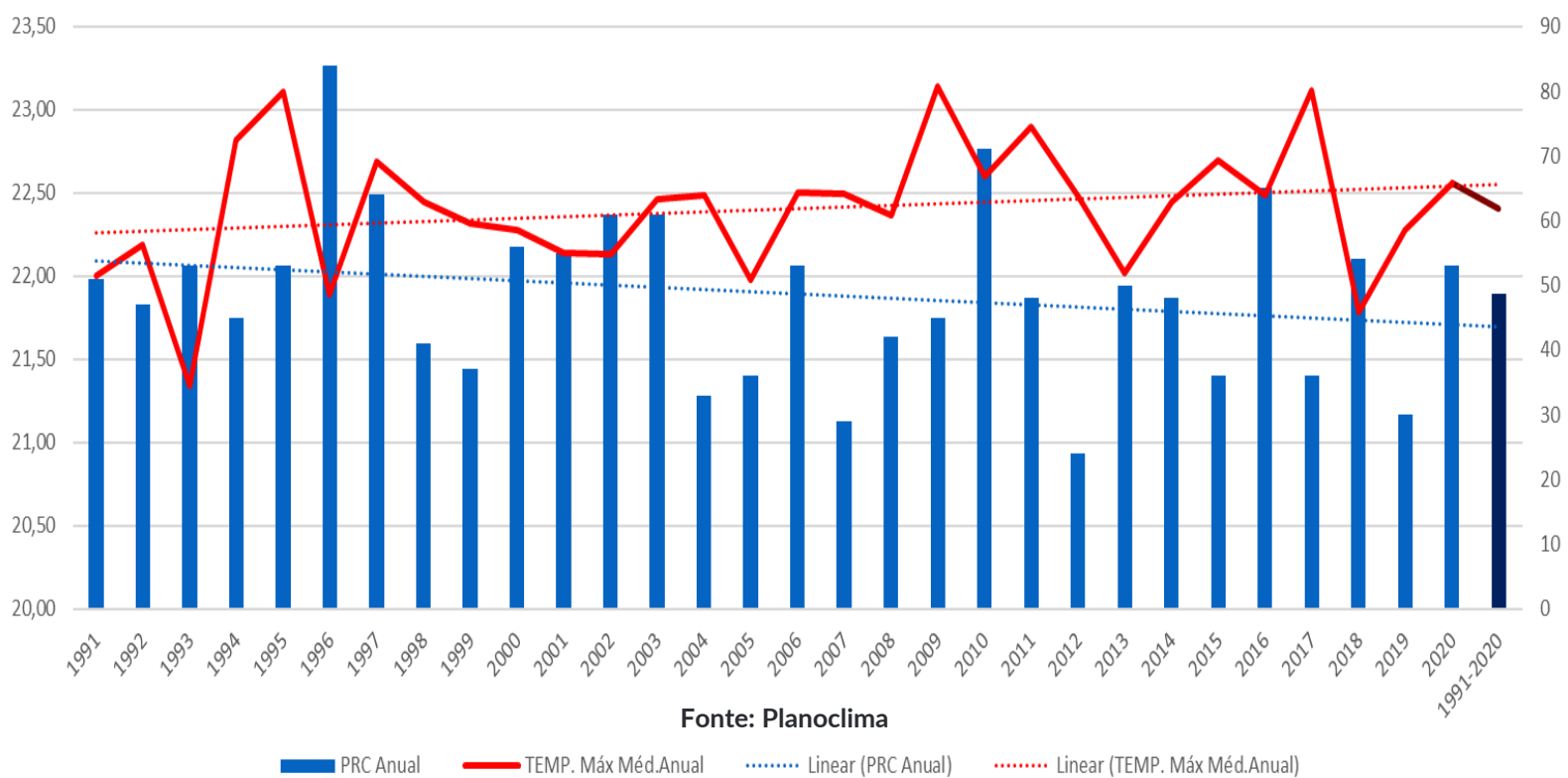
Temperatura Média Mensal 1973-2020-Pedras Rubras 08545



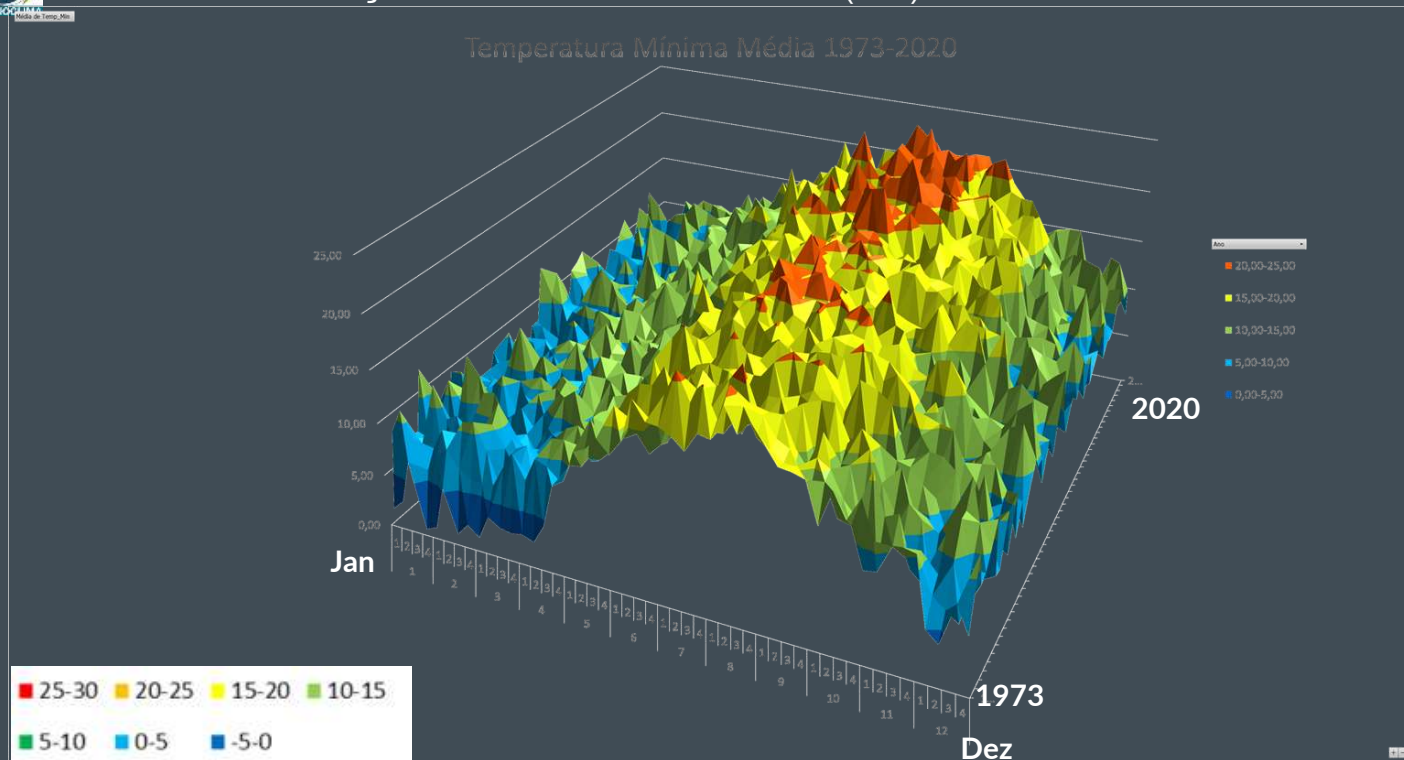
Fonte: Planoclima



Faro - Temp. Máx. Anual Média e Nº Dias/Chuva Anual 1991-2020



Evolução Tmín média Faro (°C) – 08554



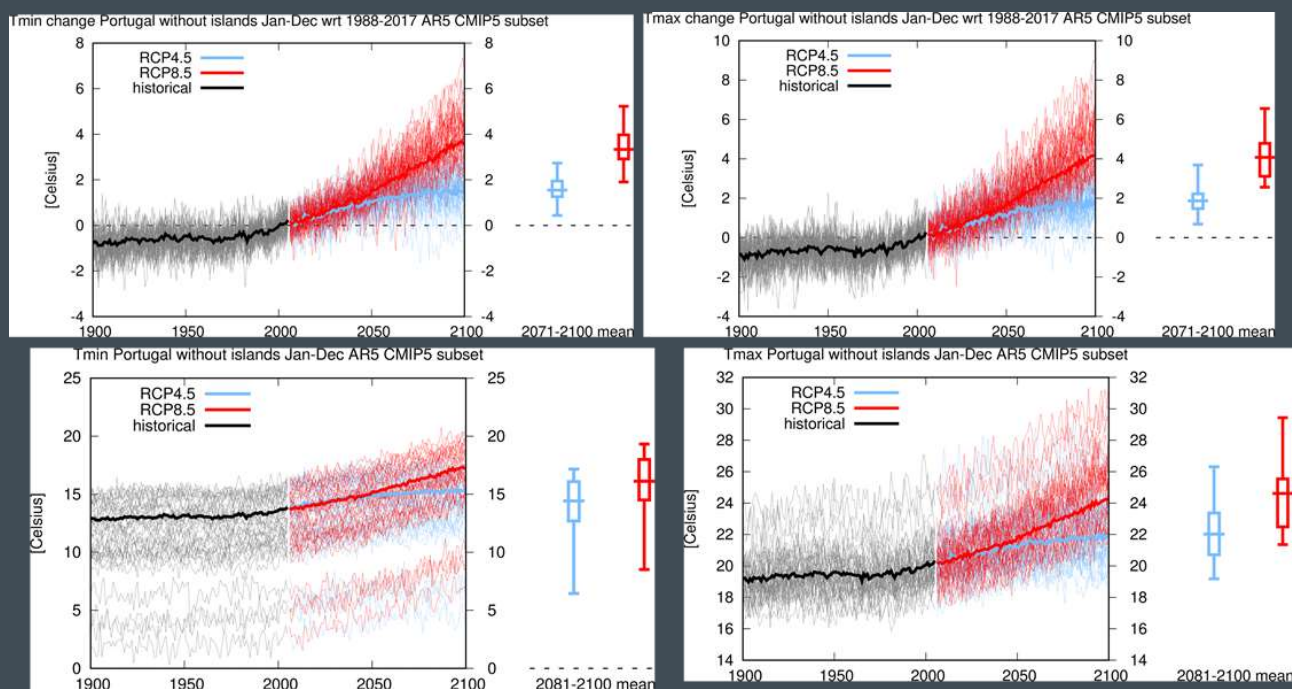
Fonte: Planoclima

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CENÁRIOS E EVOLUÇÃO TEMPERATURA



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CENÁRIOS EVOLUÇÃO PRECIPITAÇÃO

