Exposição e Suscetibilidade de Portugal às Alterações Climáticas

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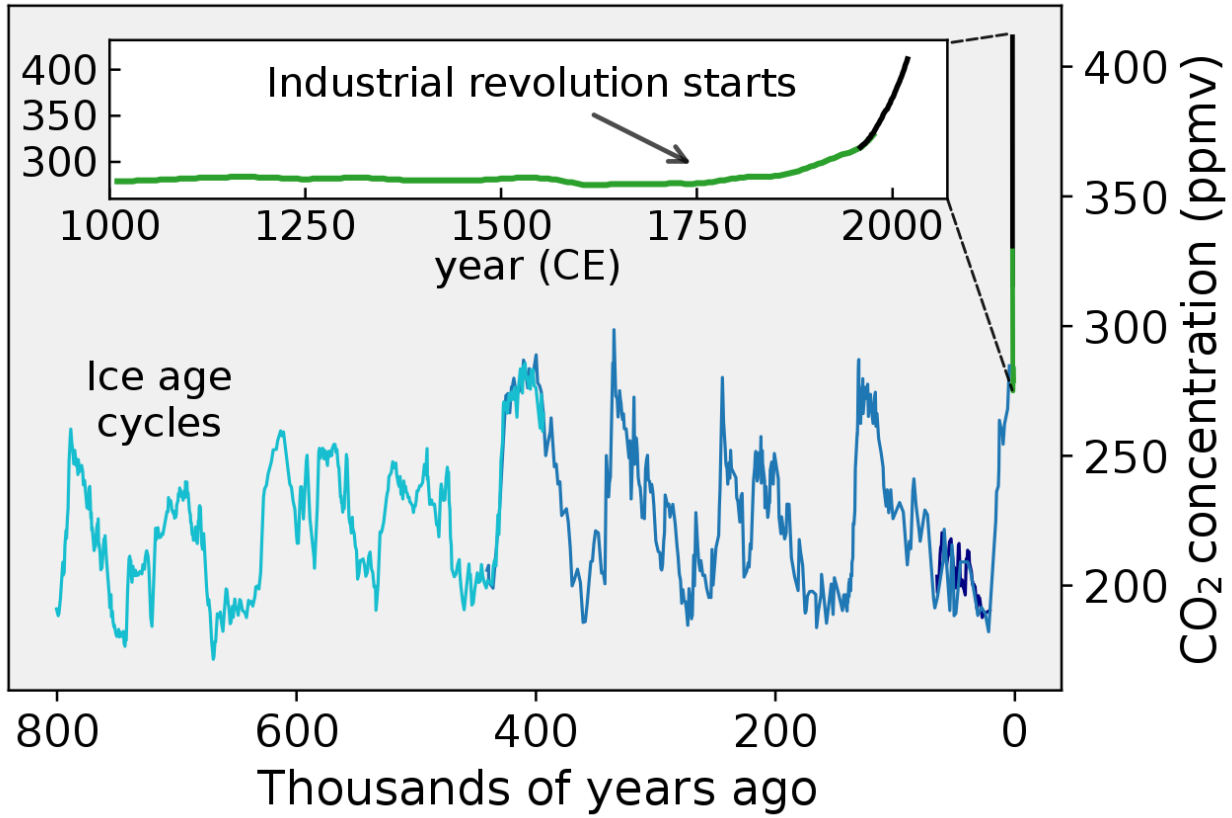
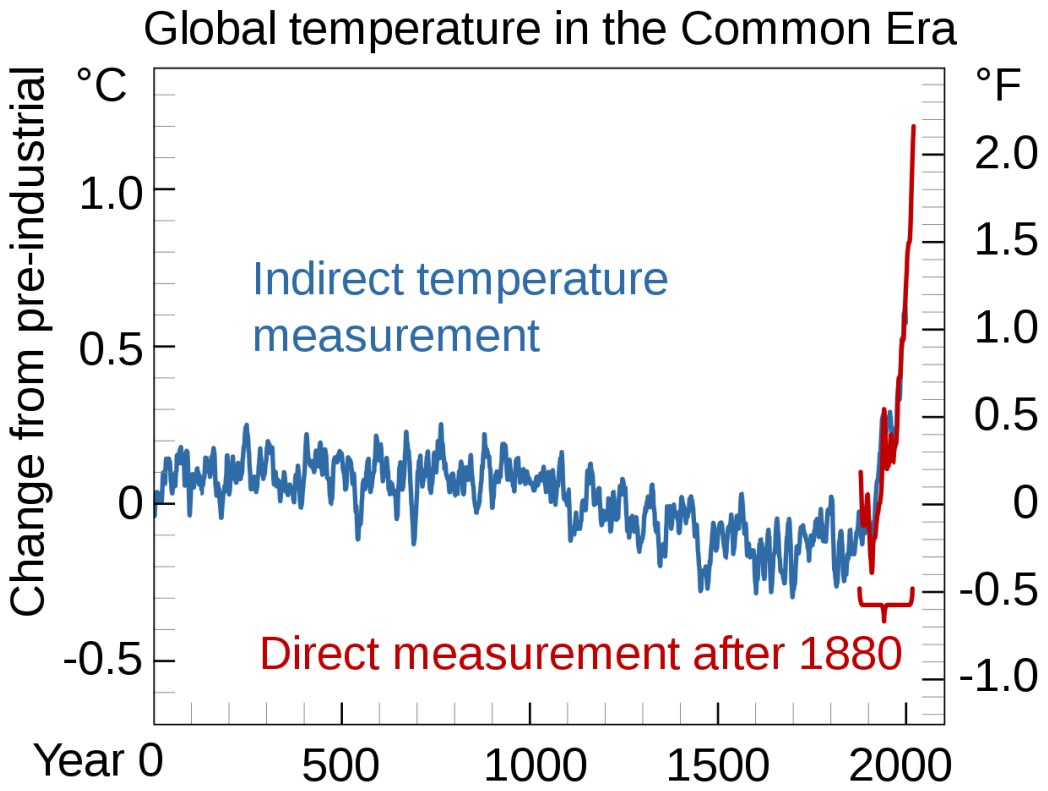
utad UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO

CITAB

Inov4Agro

Evidência das alterações climáticas





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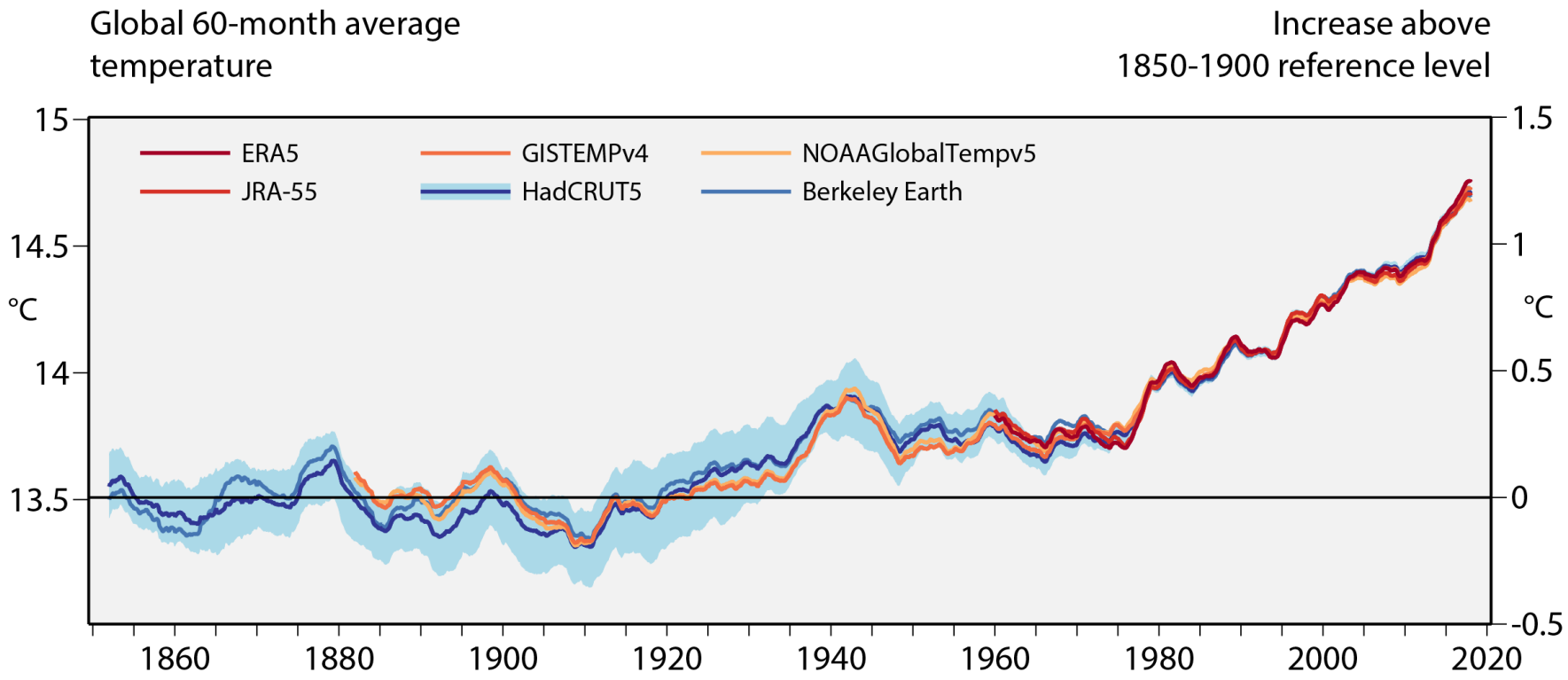
Aquecimento global



Global temperatures have increased significantly since the pre-industrial era.

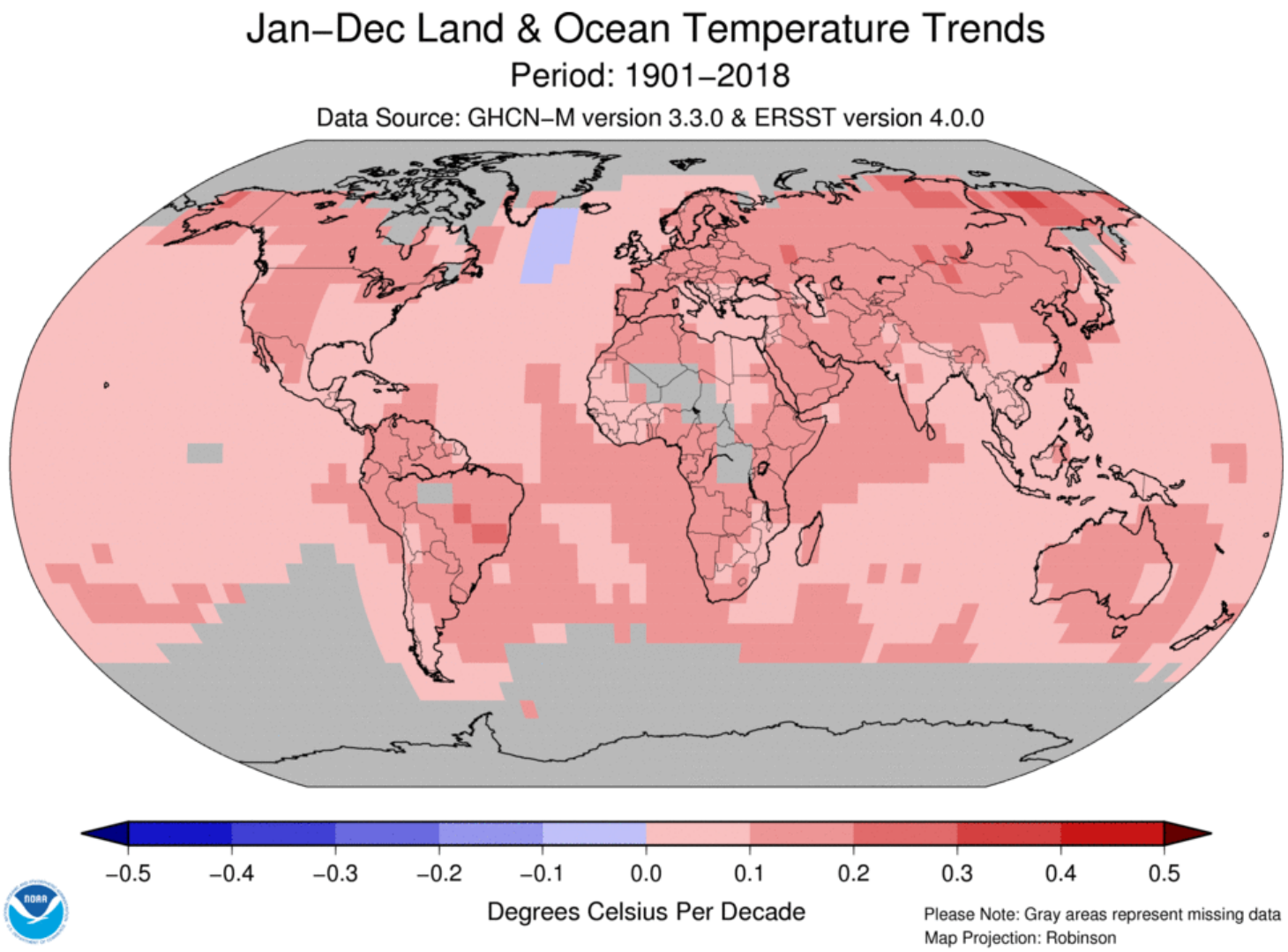
The latest five-year average global temperature is the highest on record.

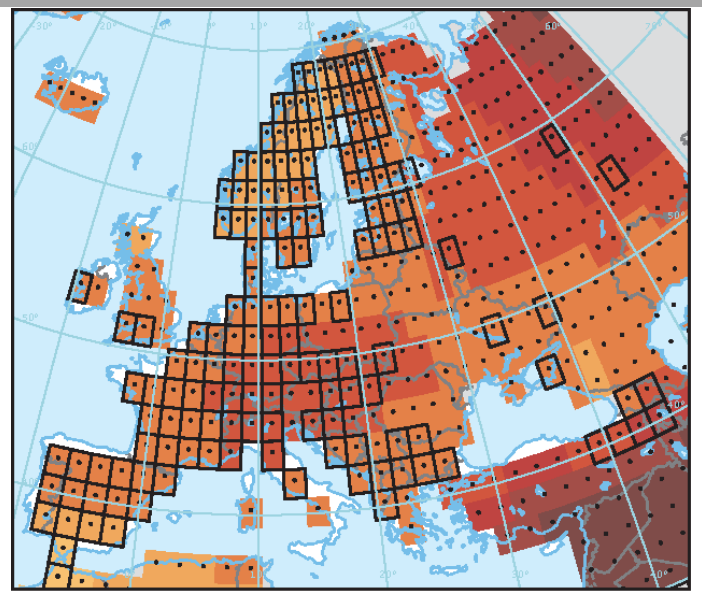
Over the past 45 years, temperatures over land have risen about twice as fast as those over oceans.

Copernicus Climate Change Service
Climate Indicators

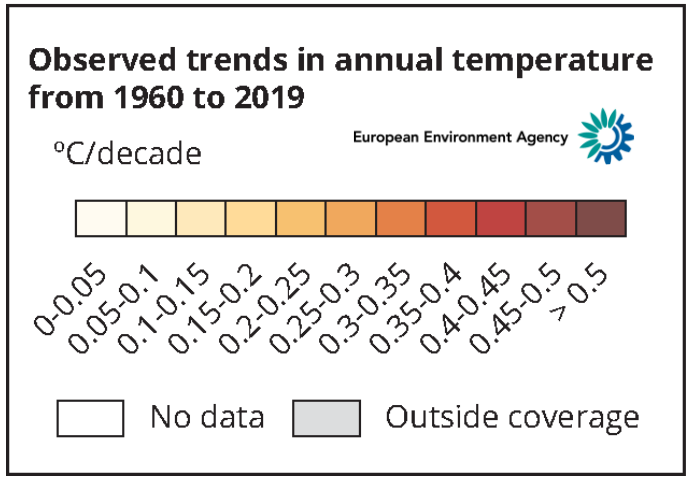
IMPLEMENTED BY ECMWF

Tendências históricas: temperatura

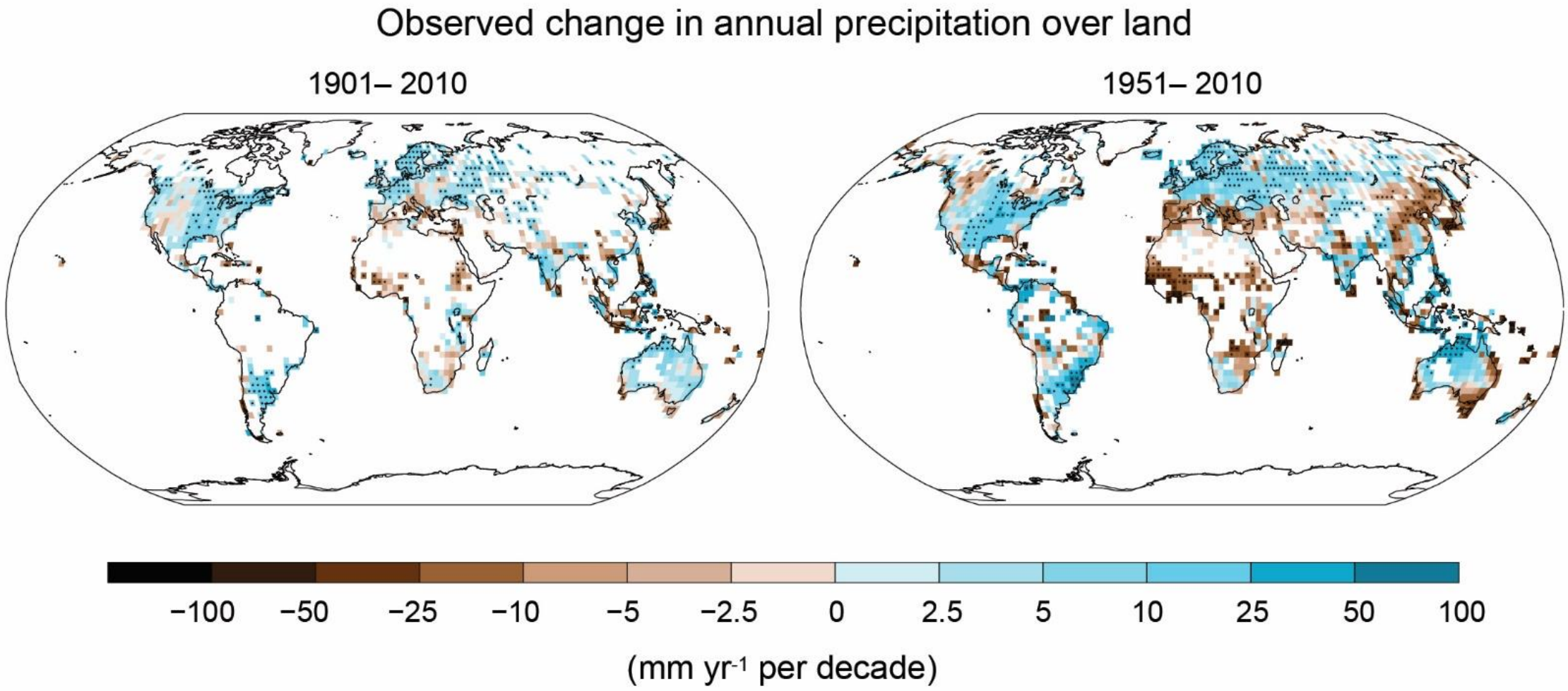




Reference data: ©ESRI

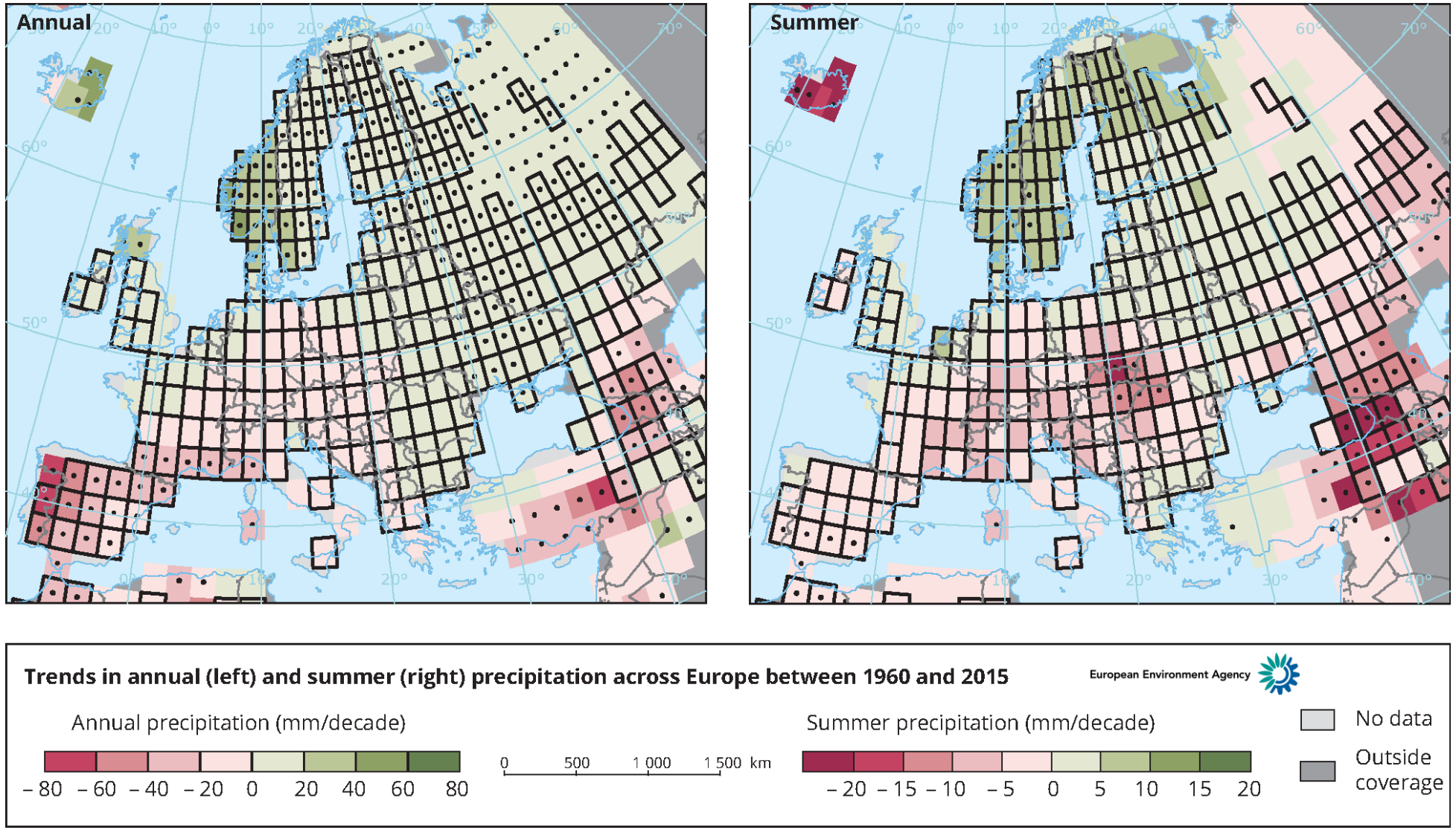


Tendências históricas: precipitação



Source: IPCC-5AR, 2014

Tendências históricas: precipitação

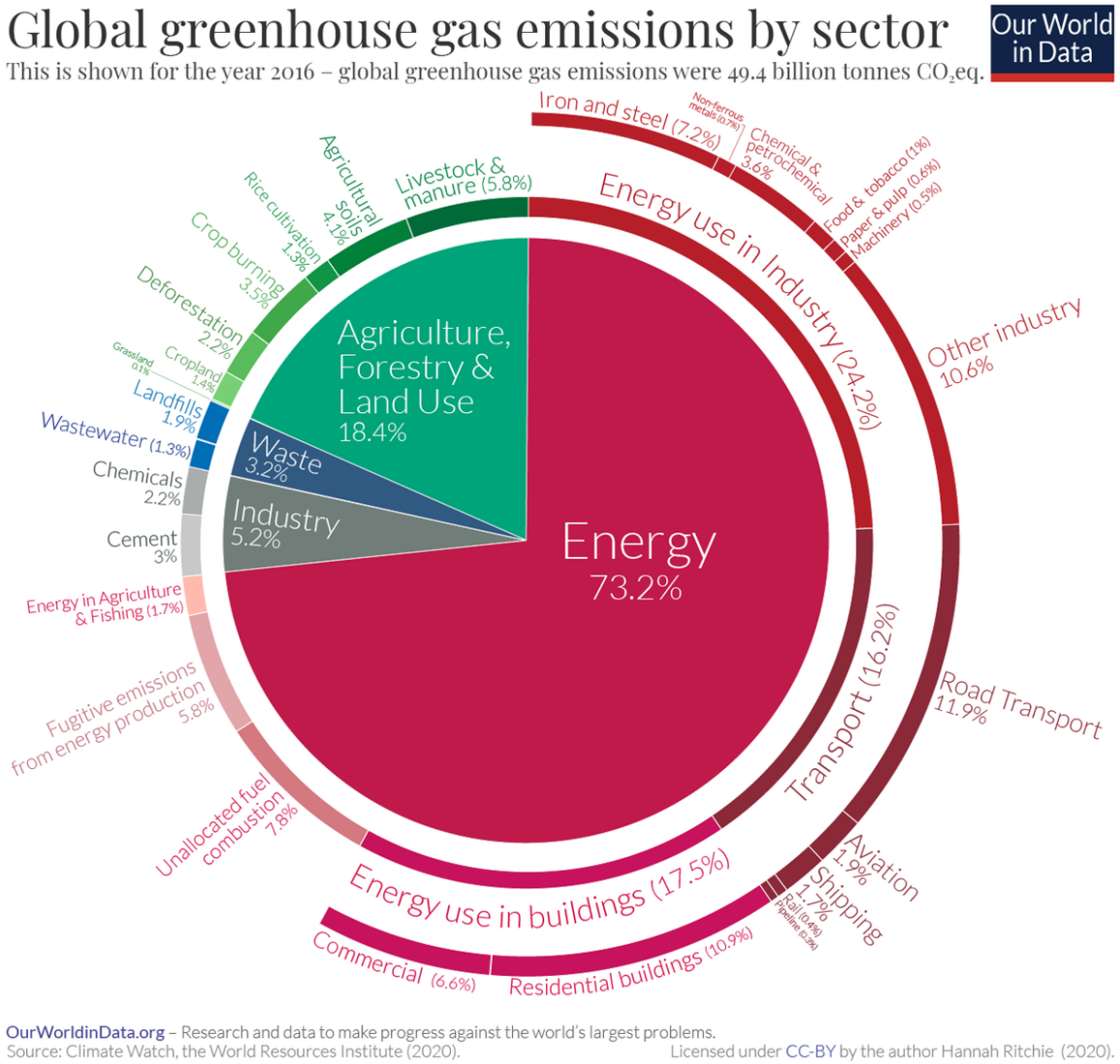


Conclusões do IPCC

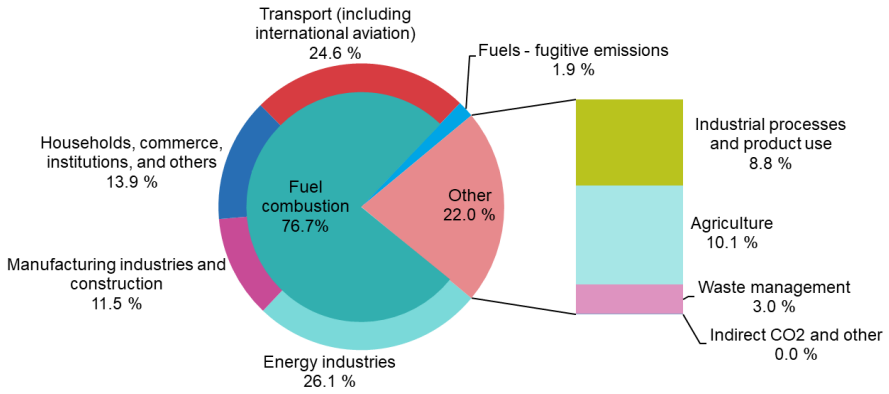
IPCC 2018. *Global Warming of 1.5°C*

Human activities are estimated to have caused approximately 1.0°C of global warming[5] above pre-industrial levels (1850-1900), with a *likely* range of 0.8°C to 1.2°C. Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.

Emissões por setor económico



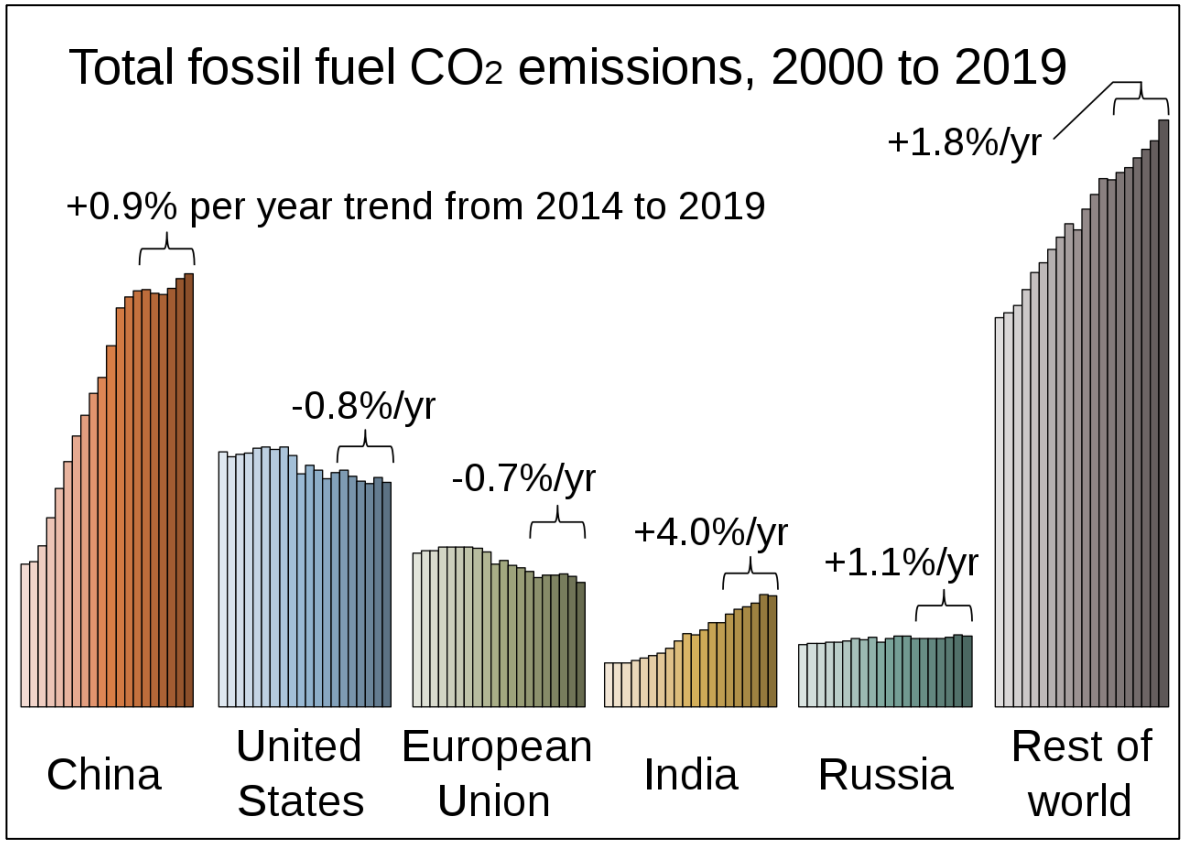
Greenhouse gas emissions by IPCC source sector, EU-27, 2018

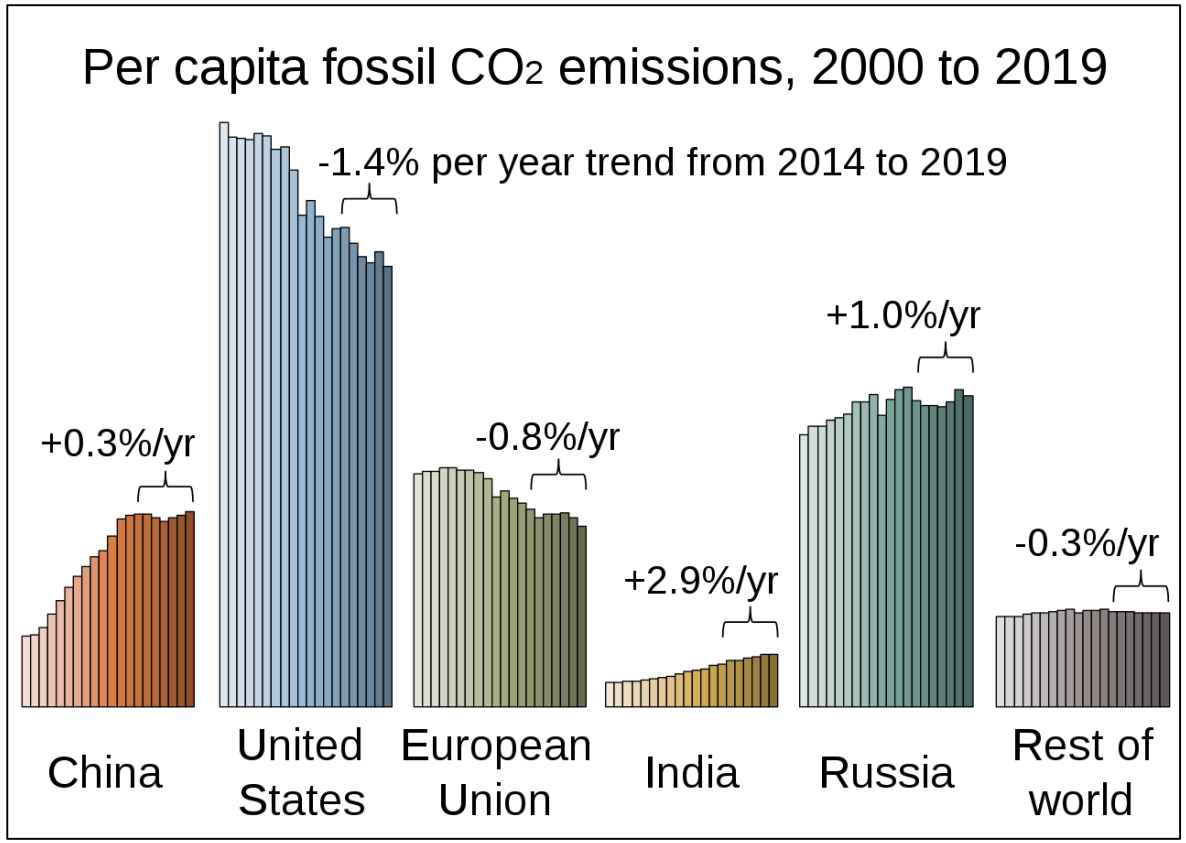


Source: EEA, republished by Eurostat (online data code: env_air_gge)

eurostat

Geografia das emissões





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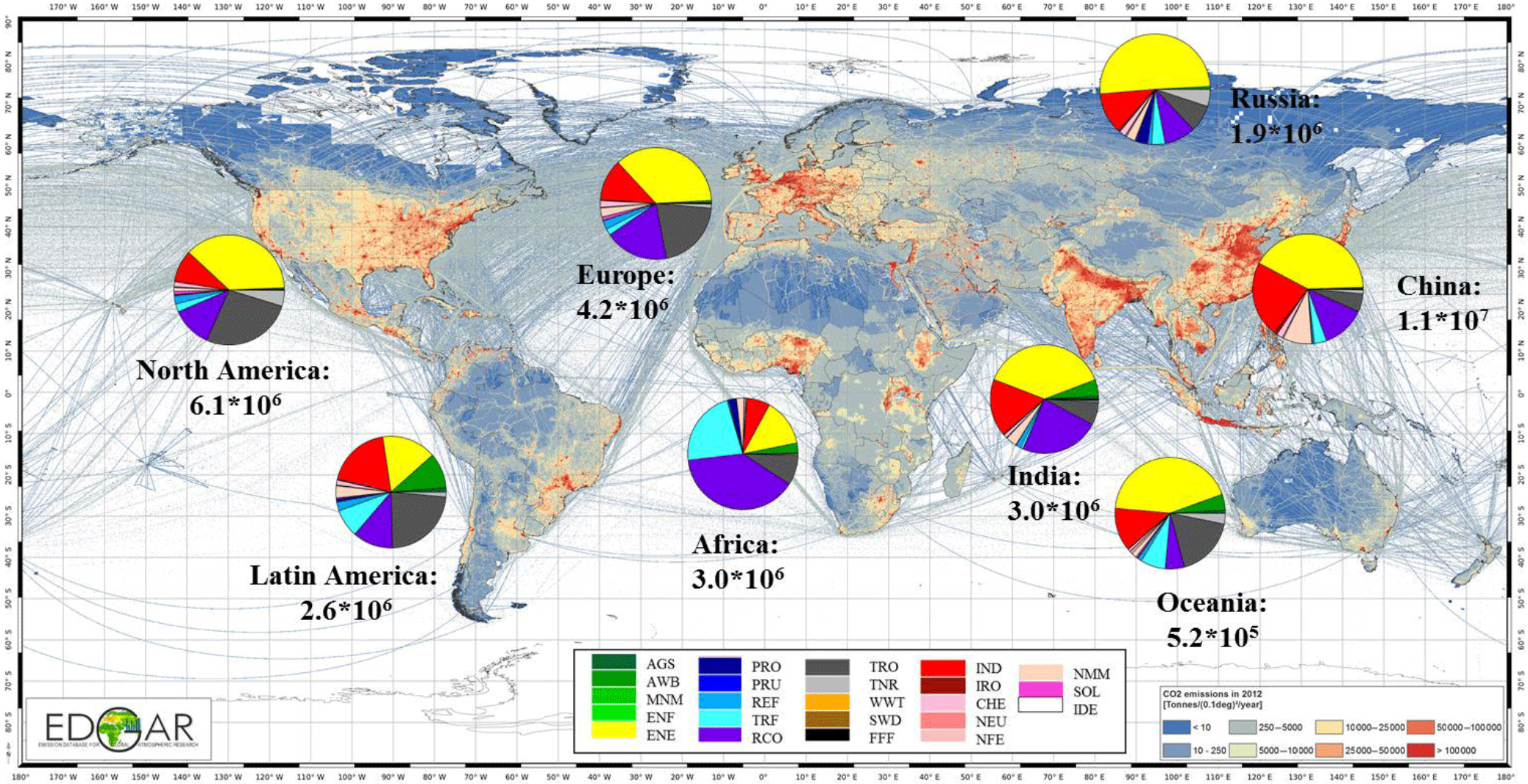
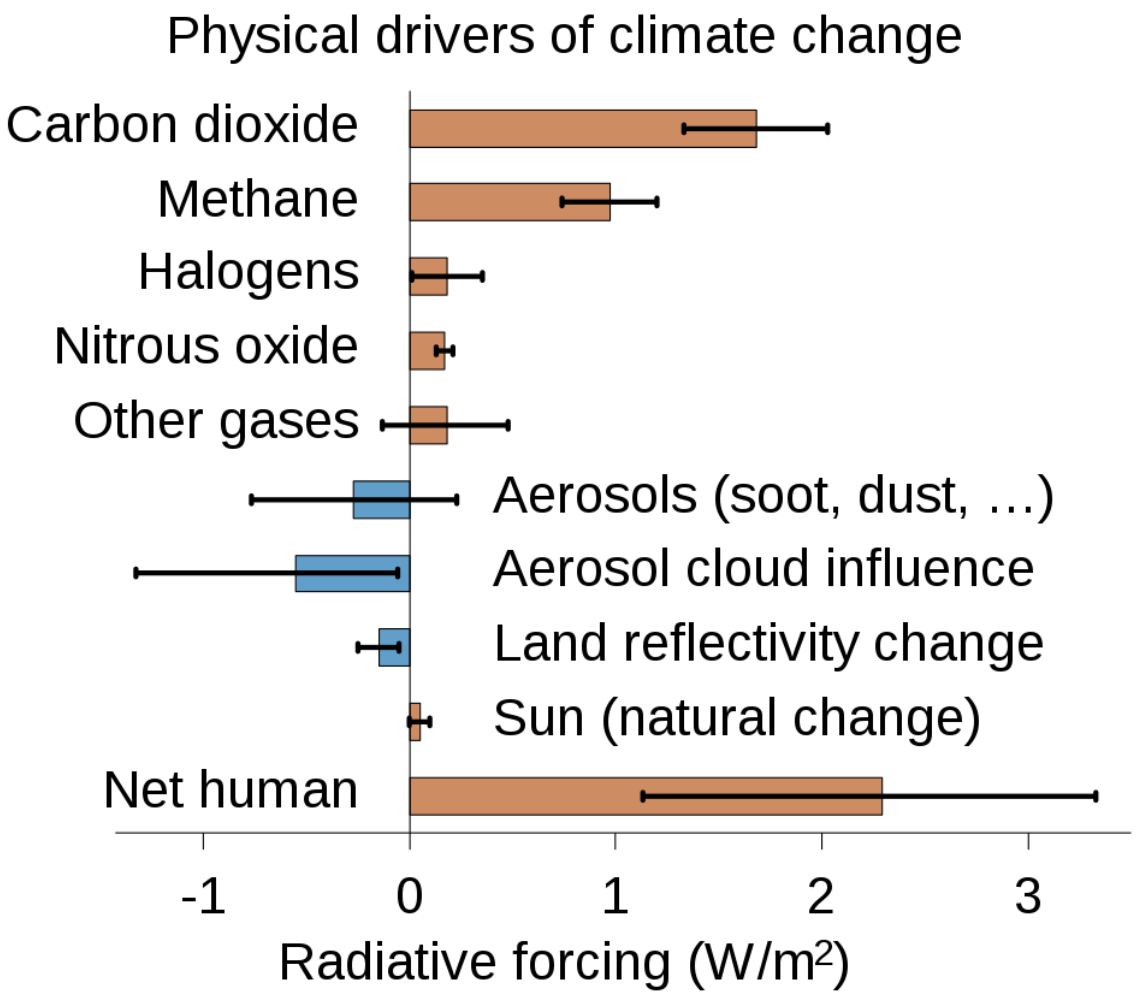
Geografia das emissões



Forçamentos



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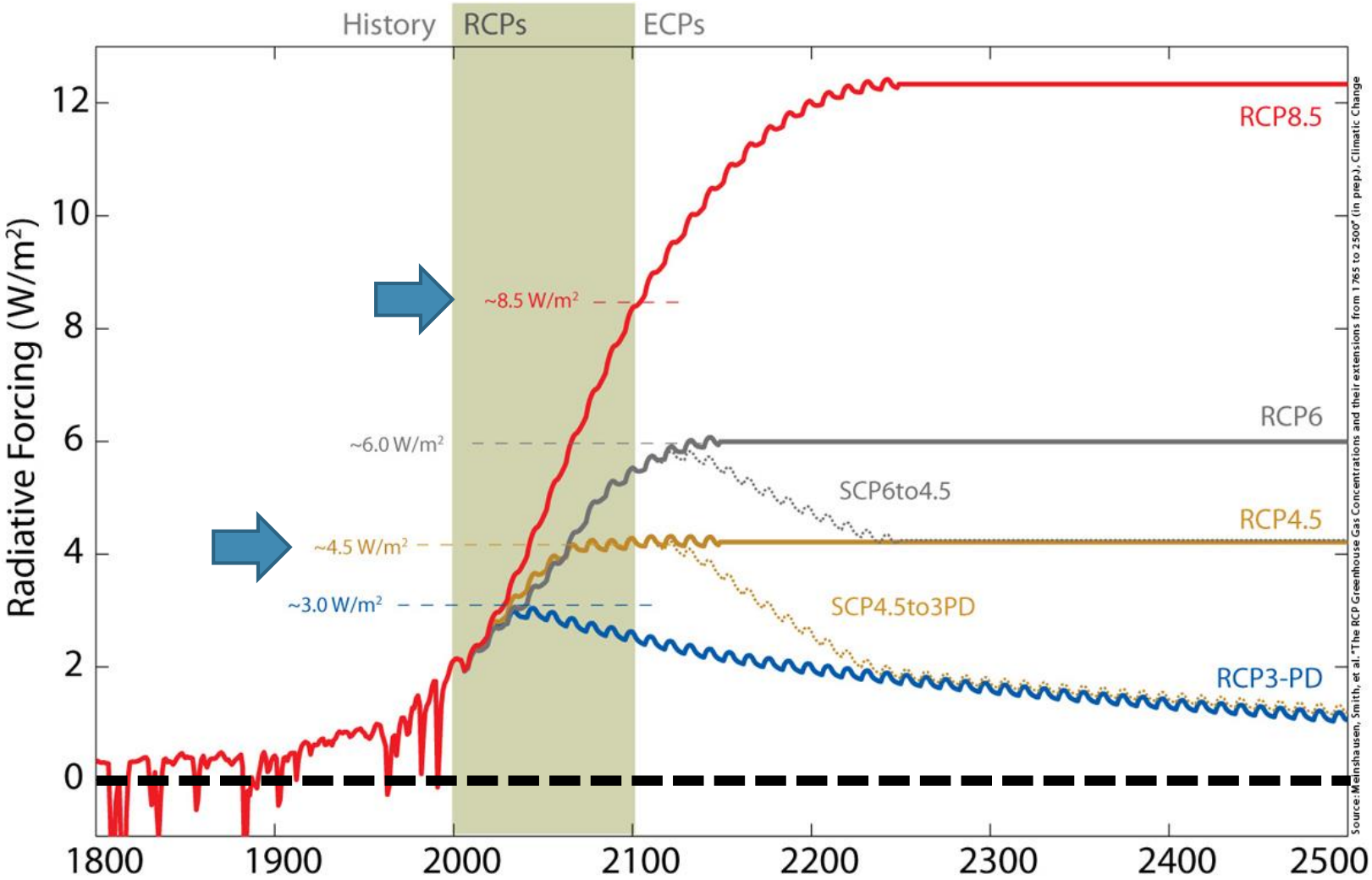
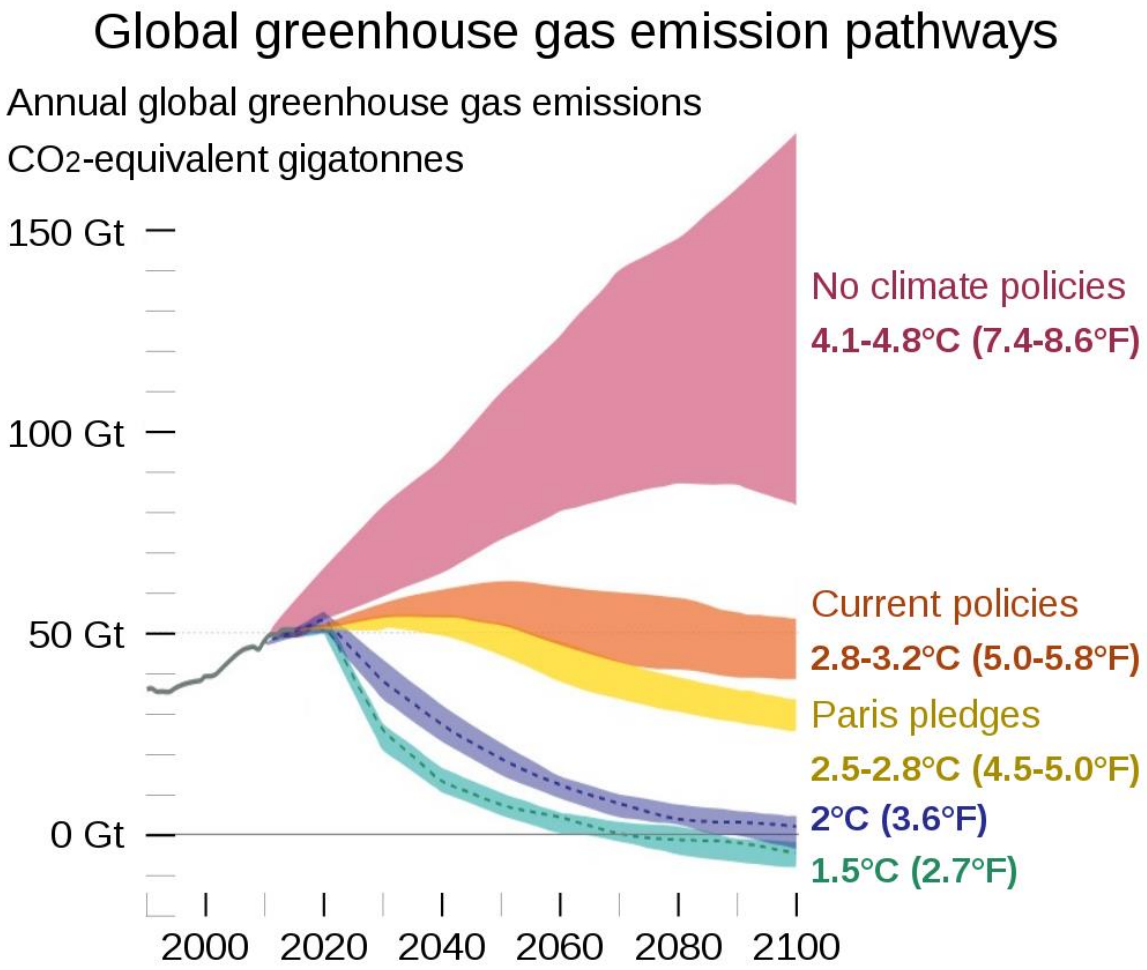
Cenários de emissão

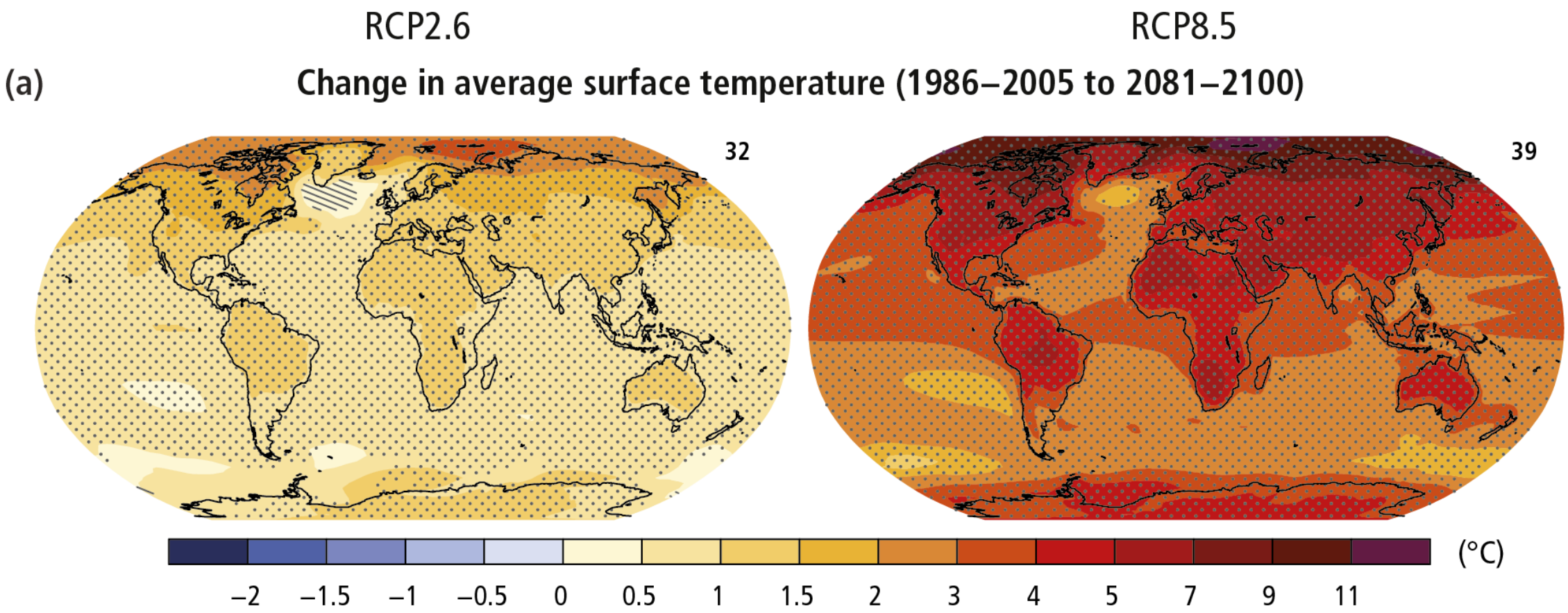


Cenários de emissão vs. aquecimento global



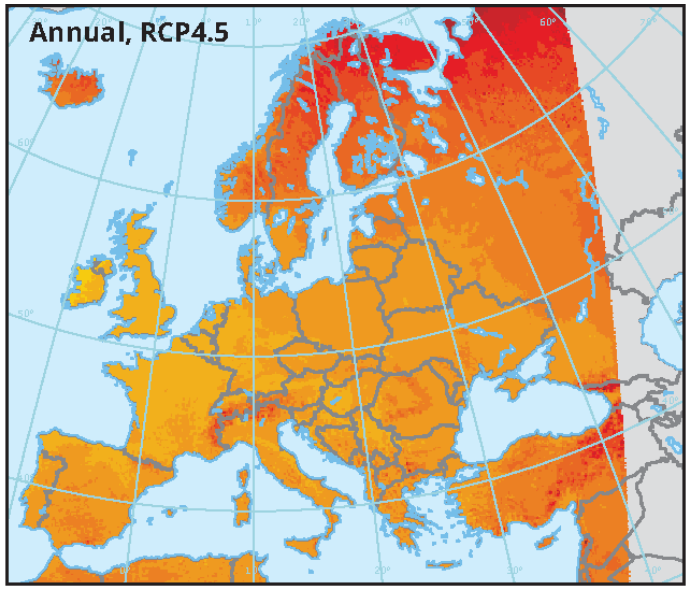
By Hannah Ritchie and Max Roser, adapted for svg and smartphone by Eric Fisk - Hannah Ritchie and Max Roser (2017) - "CO_2 and Greenhouse Gas Emissions". Published online at OurWorldInData.org. Retrieved from: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions#future-emissions [Online Resource], adapted for svg and smartphone by Eric Fisk, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=93453063

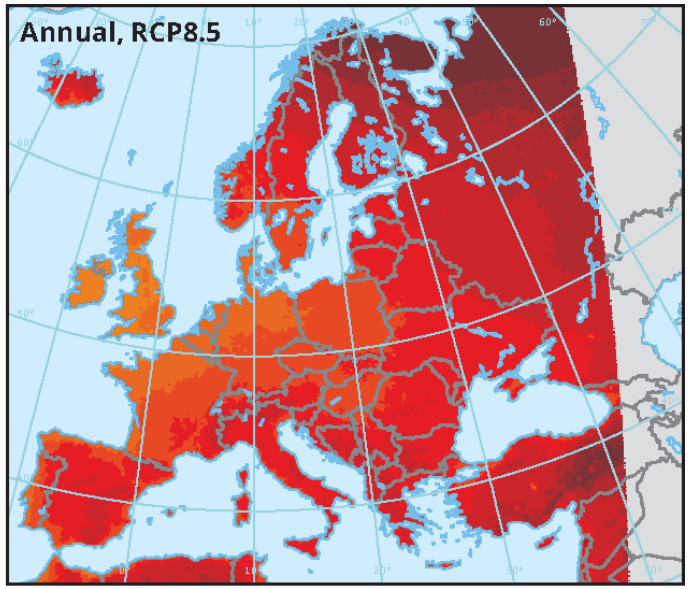
Projeções climáticas: temperatura

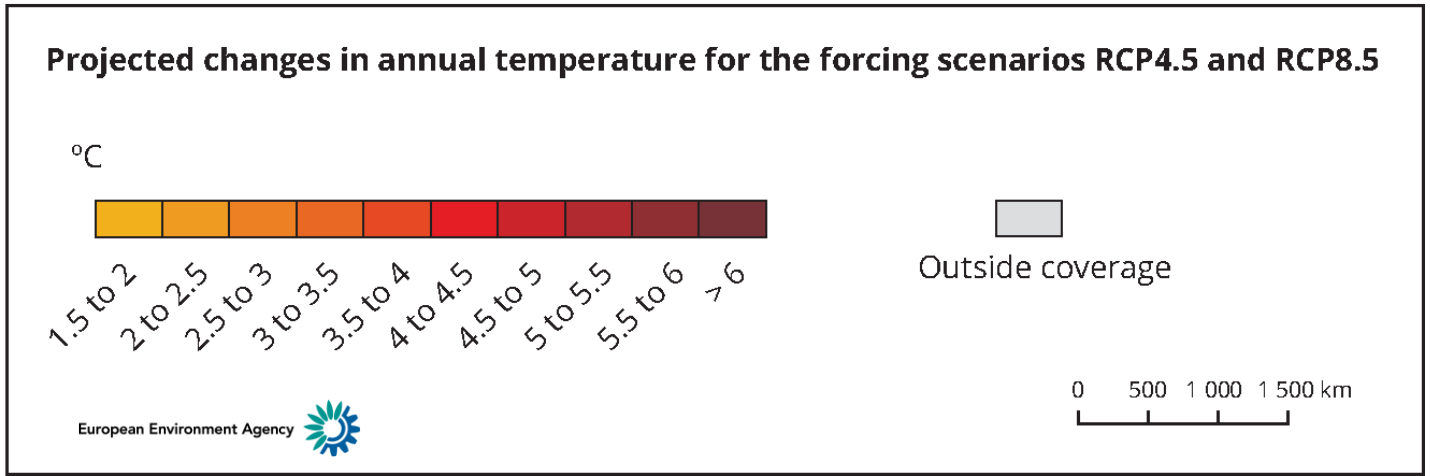


Source: IPCC-5AR, 2014

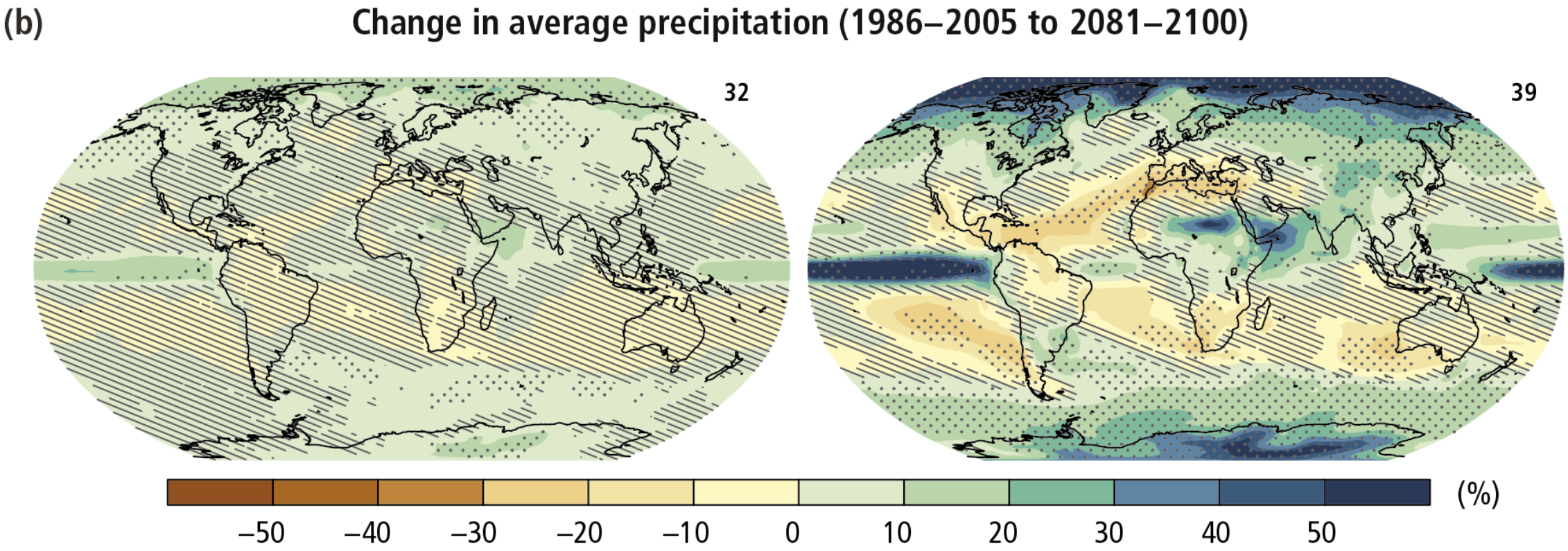
Projeções climáticas: temperatura





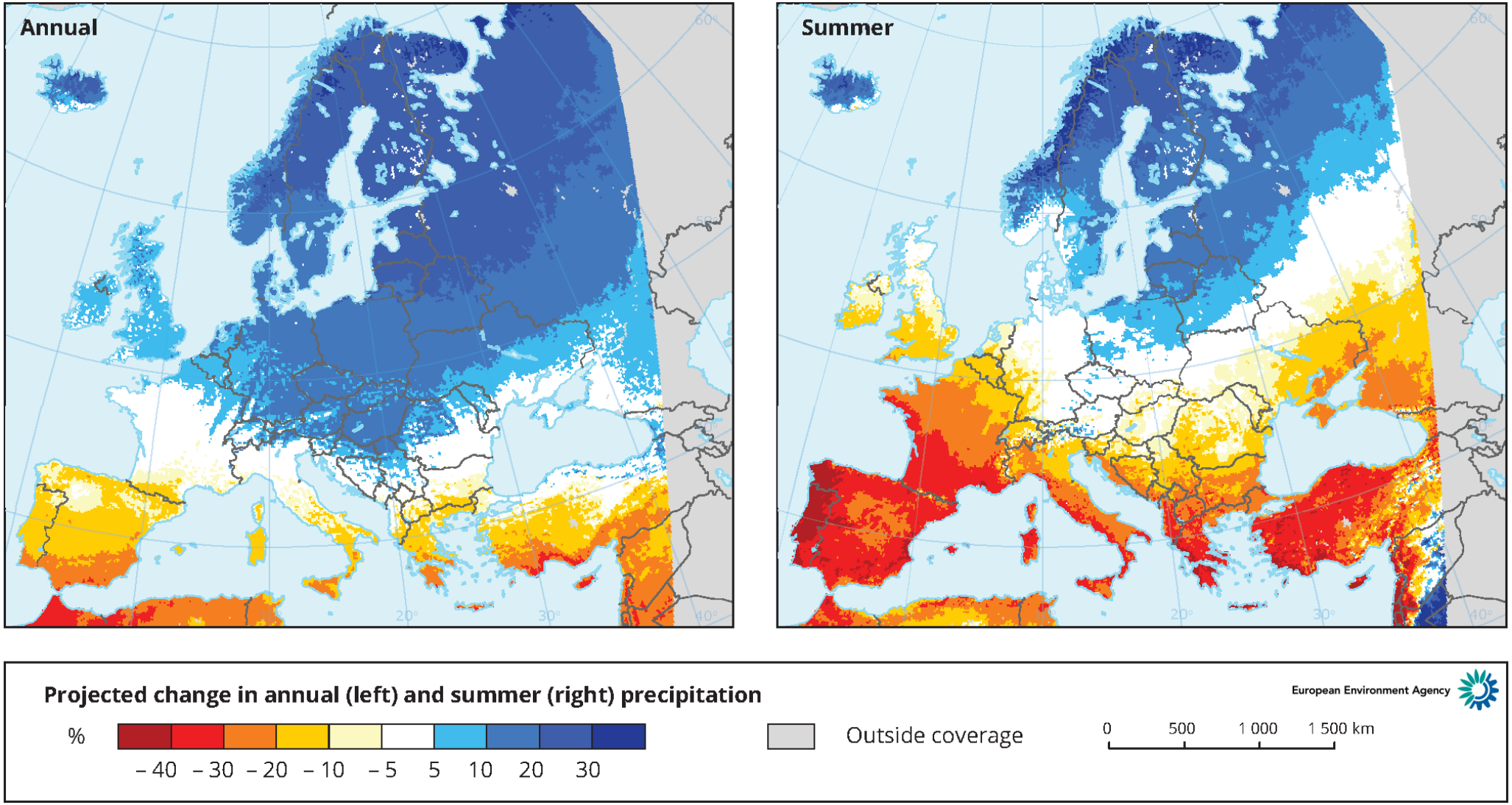


Projeções climáticas: precipitação

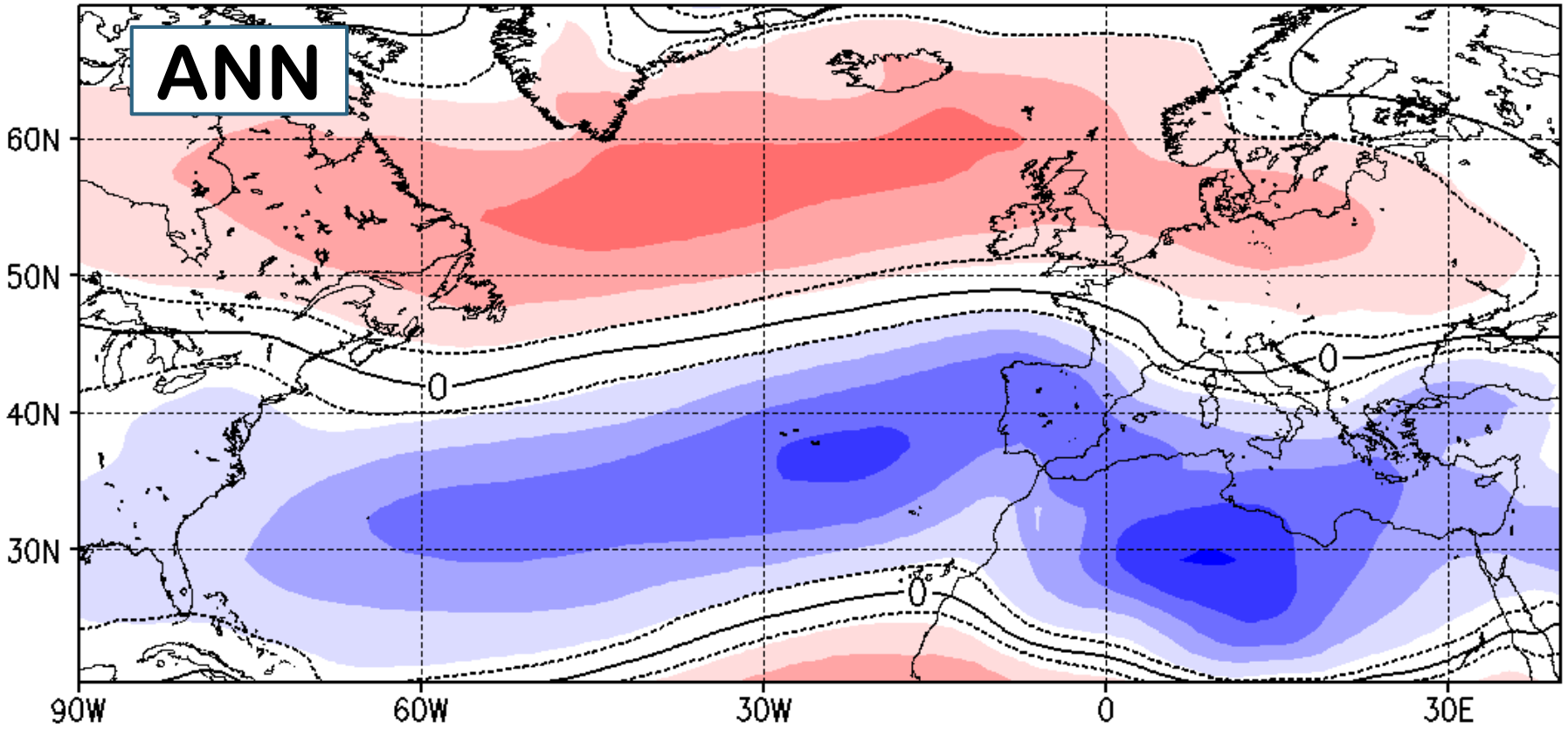


Source: IPCC-5AR, 2014

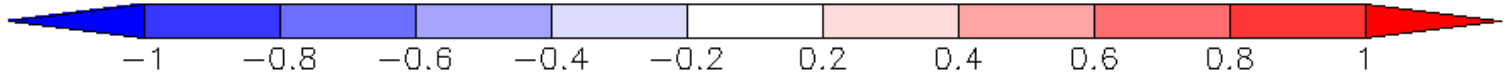
Projeções climáticas: precipitação



Mudanças de larga escala



Zonal wind component (RCP8.5, 2071–2100 vs. 1979–2005): 22 GCM CMIP5



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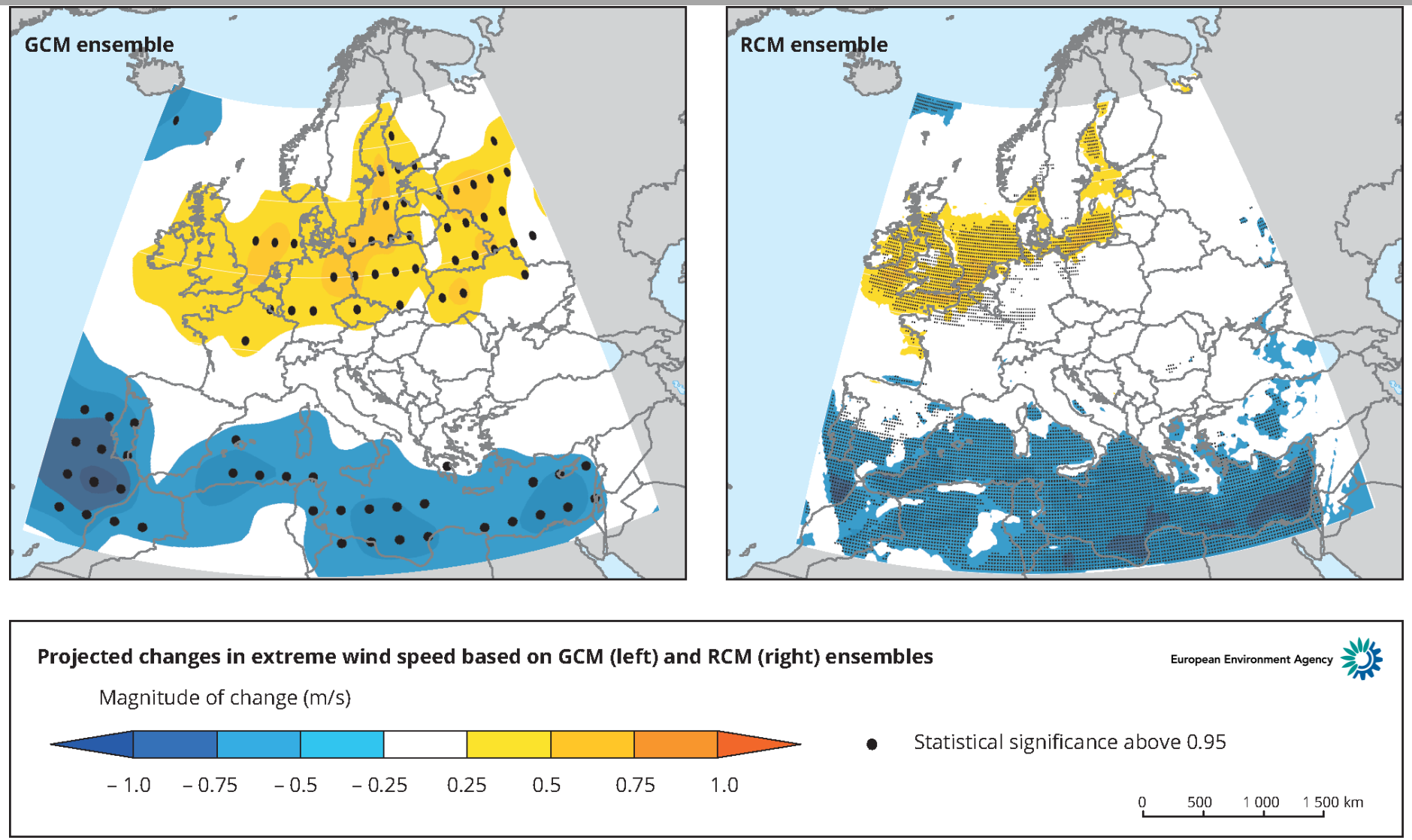
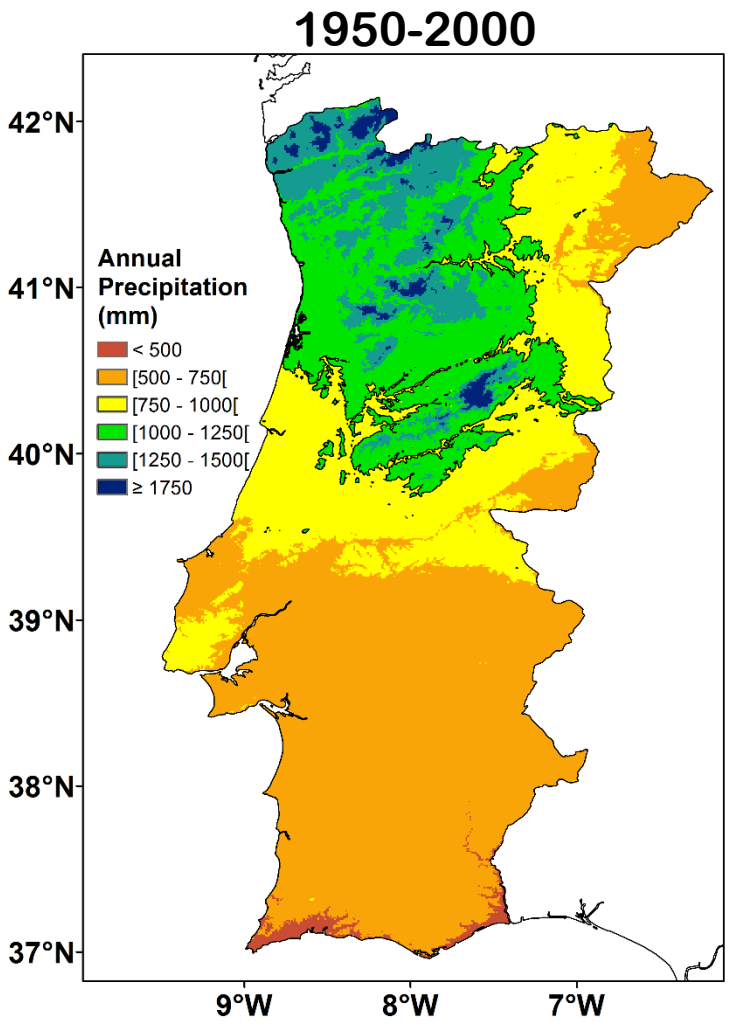
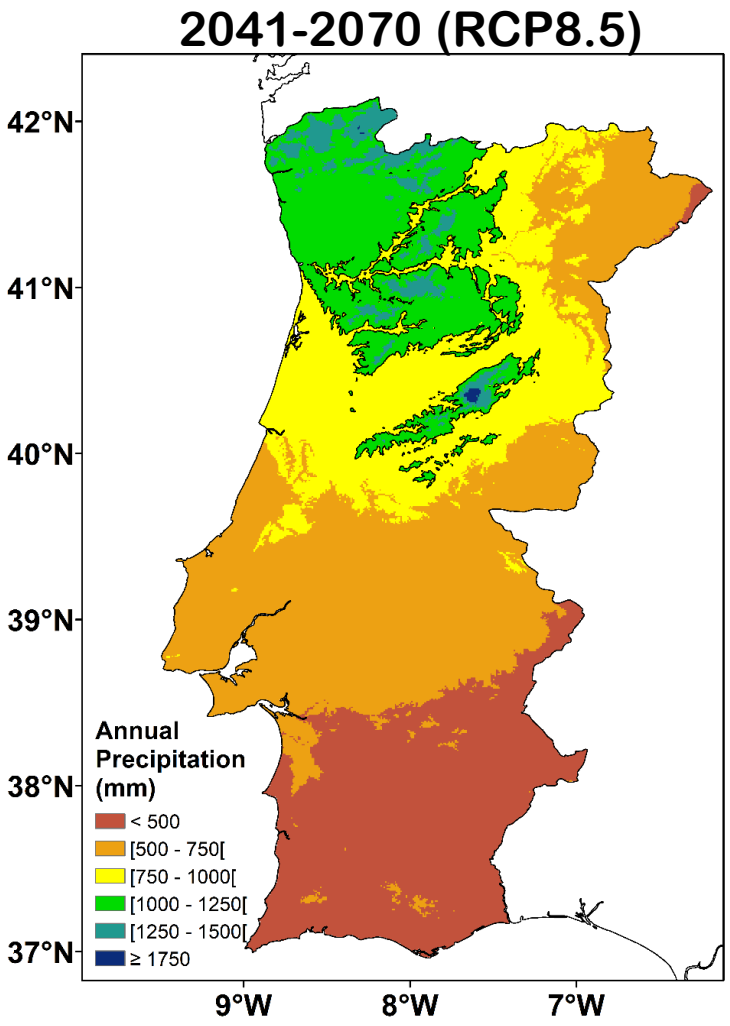


Projeções para Portugal





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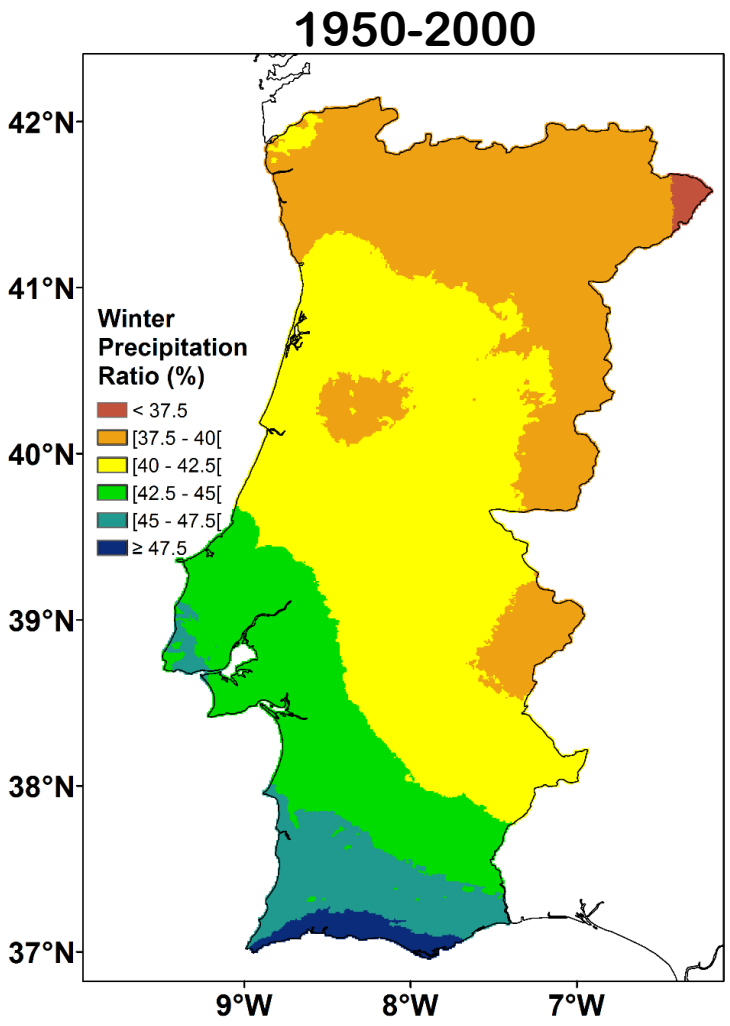
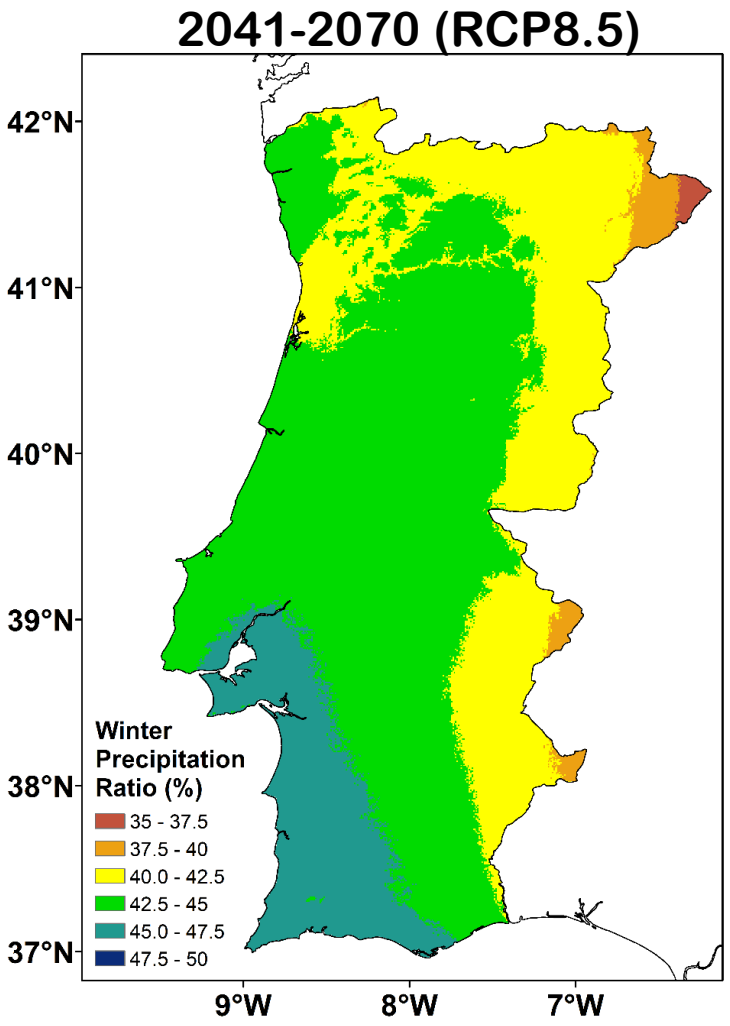
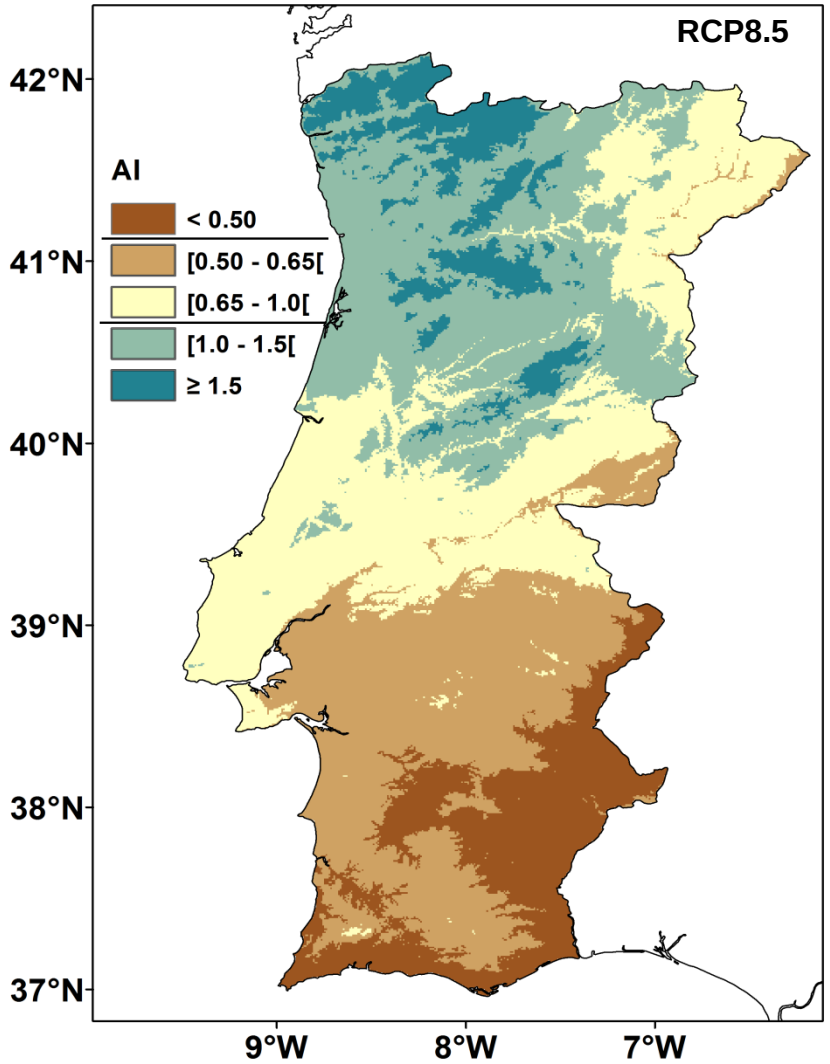
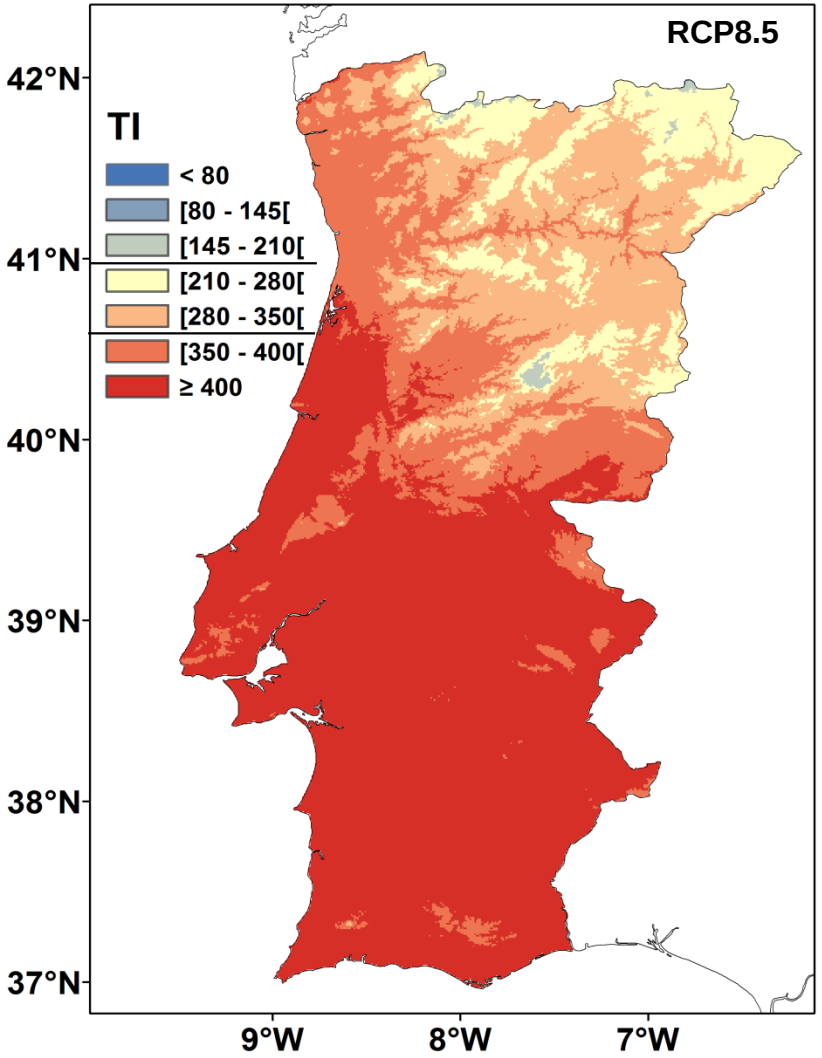




Aridez & termicidade

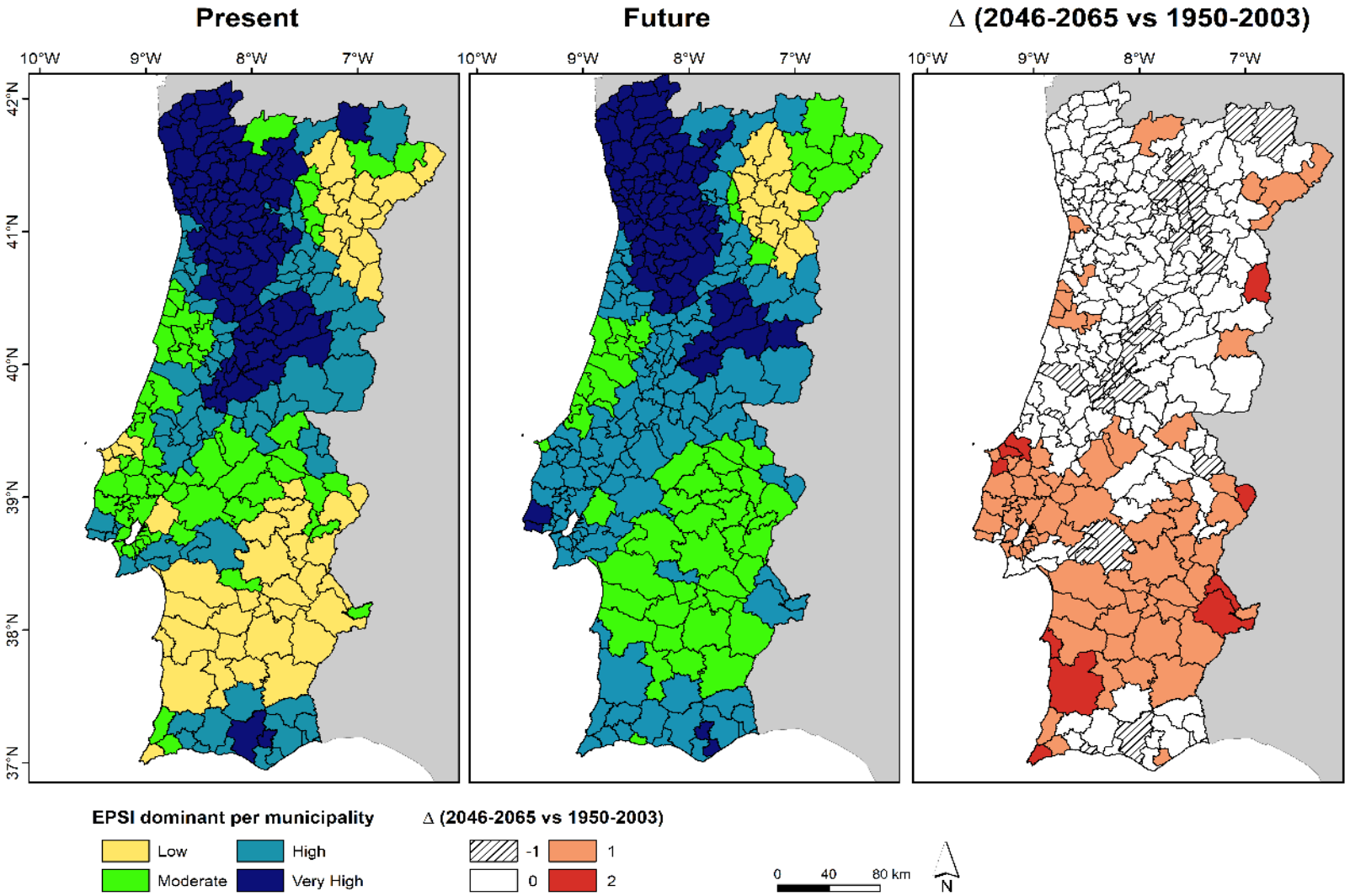


1950–2000 vs. 2041–2060

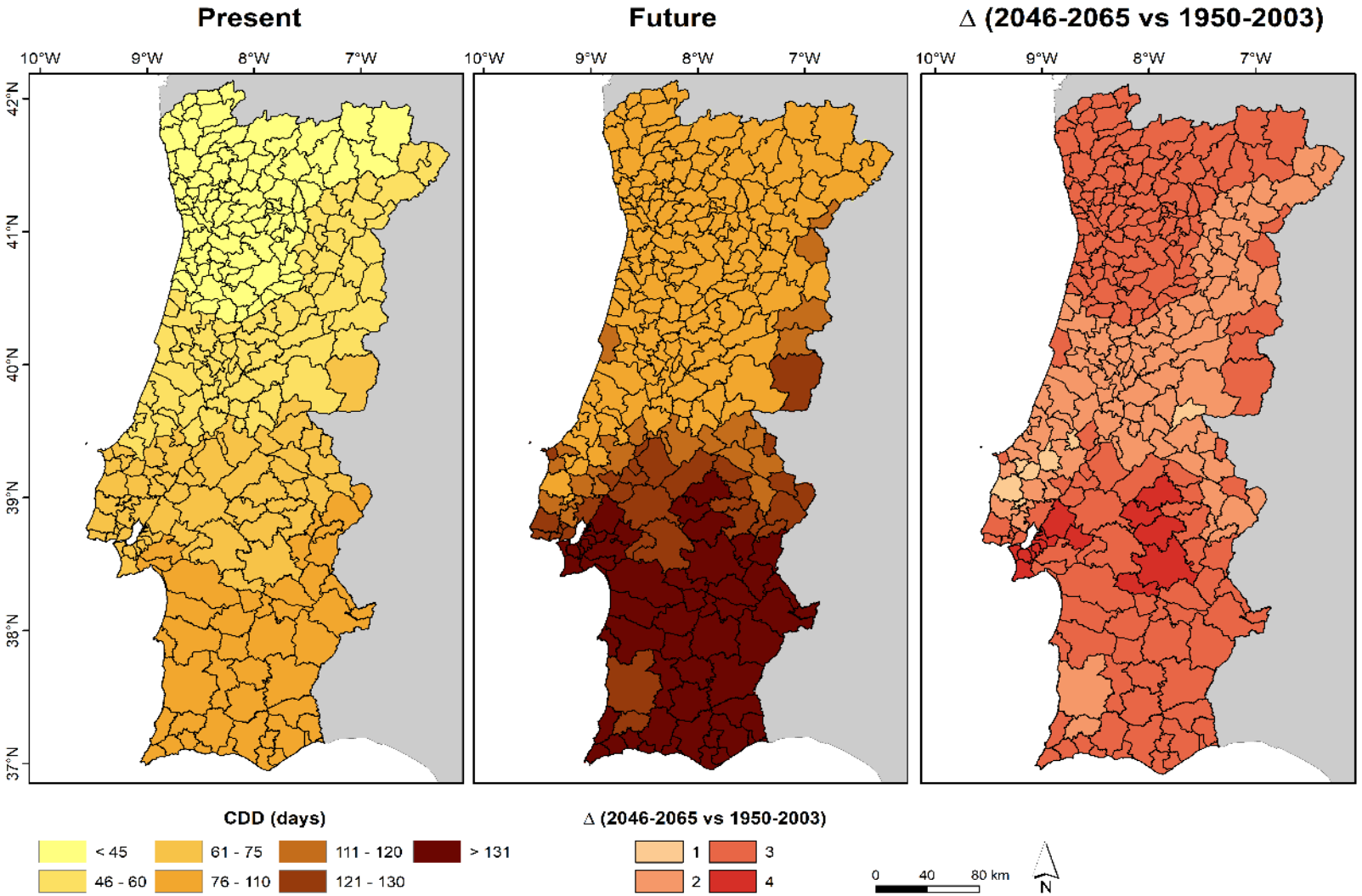


1950–2000 vs. 2041–2060

Suscetibilidade a extremos de precipitação



Suscetibilidade à seca



Algumas estratégias para o setor agrícola

Investigação climática aplicada

- Modelação climática regional
- Projeções climáticas adequadas ao setor agrícola
- Zonagem agroclimática em diferentes cenários futuros
- Rigorosa avaliação das incertezas

Avaliação de impactos

- Redes de monitorização de culturas agrícolas
- Criação e gestão de bases de dados
- Modelação e simulação de culturas agrícolas
- Modelação e simulação socioeconómica

Estratégias de Adaptação

Redução do risco

- Maior eficiência na gestão dos recursos hídricos
- Modificação de práticas agrícolas a curto, médio e longo prazo
- Seleção de meso & microclimas
- Seleção de culturas mais aptas às condições pedo-climáticas
- Seleção varietal & clonal

Estratégias de Mitigação

Redução da pegada carbónica

- Maior eficiência energética em toda a cadeia de produção
- Maior eficiência na gestão de resíduos/coprodutos e opções de economia circular
- Implementação de práticas de sequestro de carbono
- Maior eficiência no uso do solo, fertilização orgânica e promoção da saúde do solo

Políticas do clima

Acordo de Paris 2015 – a cada cinco anos, os países subscritores irão rever o progresso da limitação de emissão de GHG, com o objetivo de limitar a subida da temperatura media global abaixo de 2°C até 2050 relativamente aos valores pré-industriais, bem como encetar todos os esforços com vista à sua limitação a 1,5°C.

Lei Europeia do Clima – visa verter em lei o objetivo estabelecido no **Pacto Ecológico Europeu** de neutralidade climática até 2050. Com este novo quadro legal pretende-se garantir que todas as políticas da UE estejam alinhadas com este objetivo e que todos os setores da economia e da sociedade participem ativamente neste desiderato.

Roteiro para a Neutralidade Carbónica 2050 (RNC2050), publicado pela Resolução de Conselho de Ministros n.º 107/2019, de 1 de julho.

Clim4vitis

https://clim4vitis.eu/

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UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO

POTSDAM INSTITUTE FOR CLIMATE IMPACT RESEARCH

UNIVERSITÀ DEGLI STUDI FIRENZE

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Sociedade Portuguesa de Inovação