

Climate change and forest fires – the Portuguese case

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Thanks to Álvaro Silva (IPMA)

e-IRG Workshop, 26th May 2021

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Forest Fires

Forest fires can be seen as endemic in Portugal

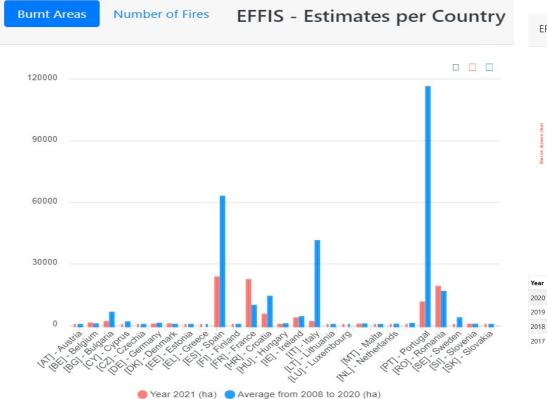


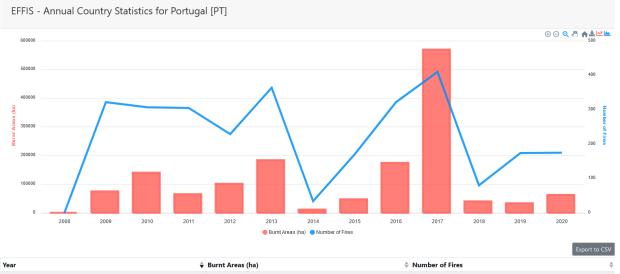
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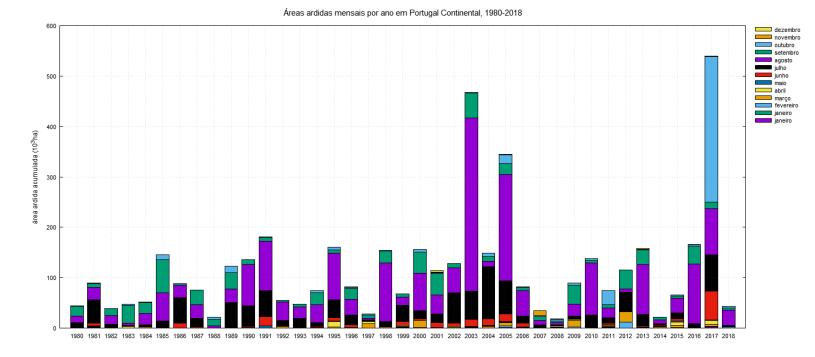
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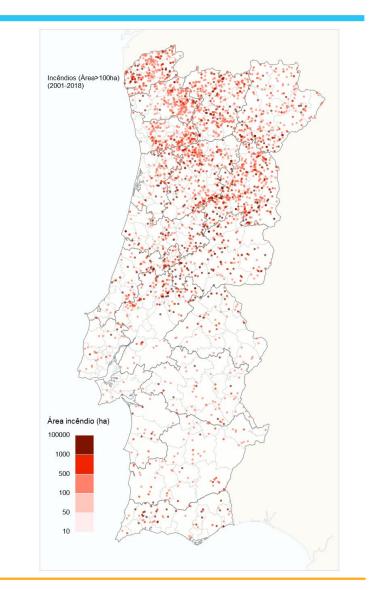
410



Forest Fires

Forest fires are geographically distributed and have high correlation with drier years and warm summers

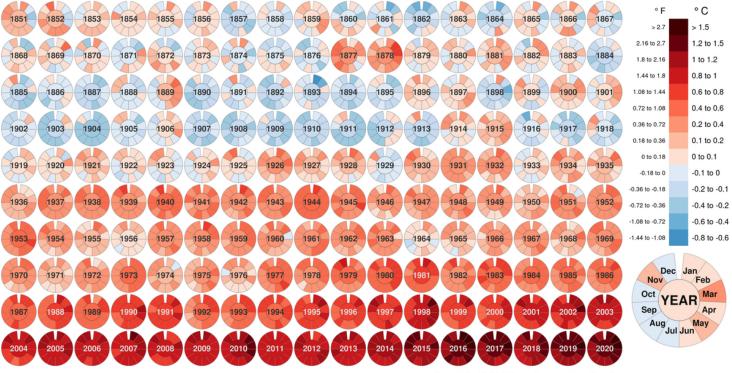




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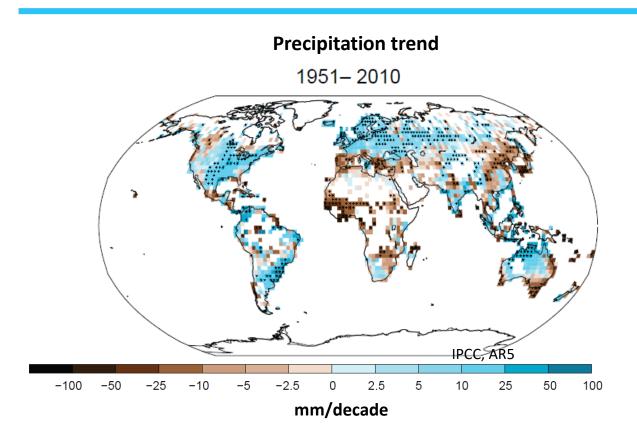
Monthly global mean temperature 1851 to 2020 (compared to 1850-1900 averages)



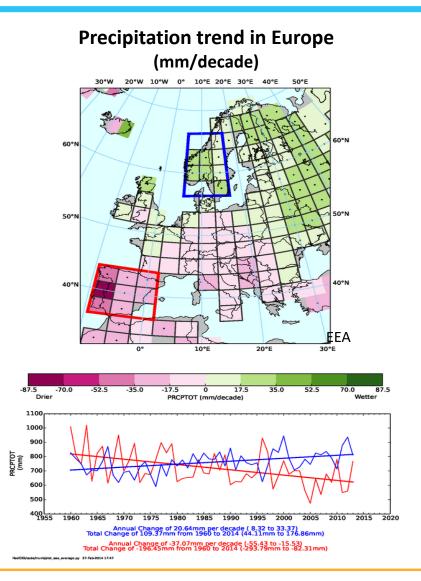
Data: HadCRUT5 - Created by: @neilrkaye



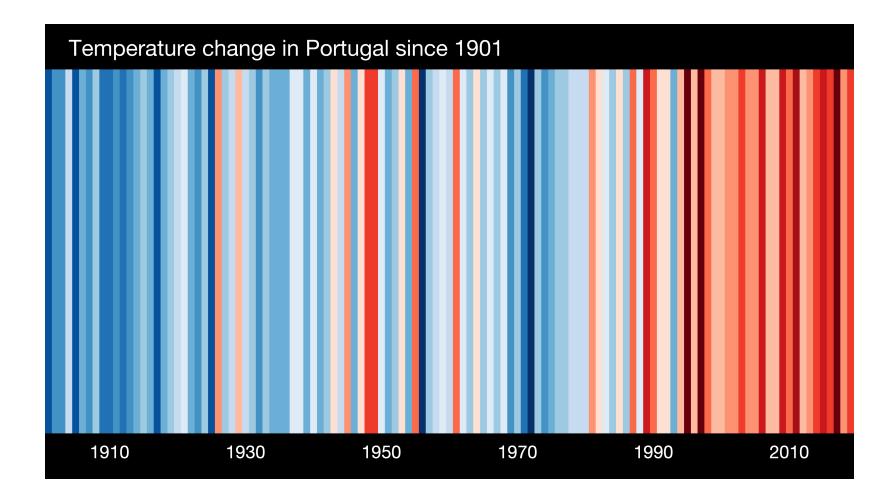
Climate change



Reduction of precipitation in the Iberian Peninsula and Mediterranean basin





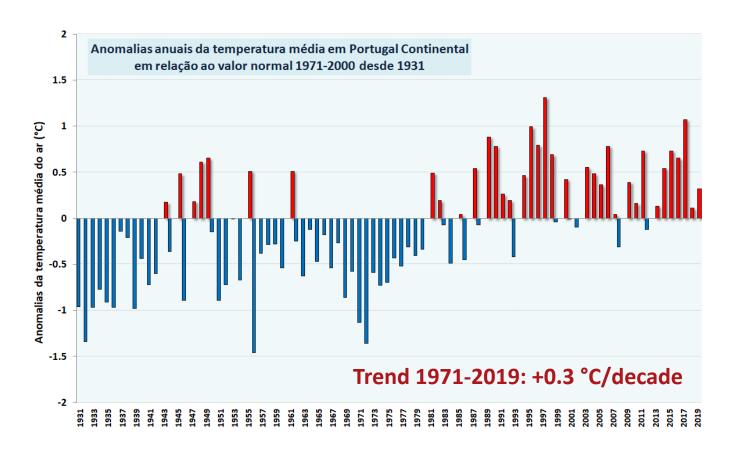


Source: <u>https://showyourstripes.info</u> Credits: Professor Ed Hawkins (University of Reading)

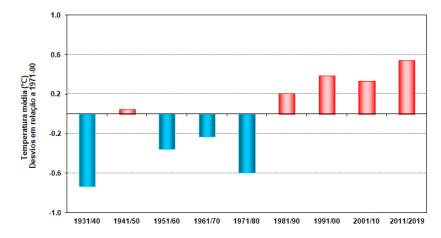


Climate change observed in Continental Portugal

Average temperature anomalies



Average temperature anomaly per decade



Of the 10 warmest years, 8 occured after 1990:

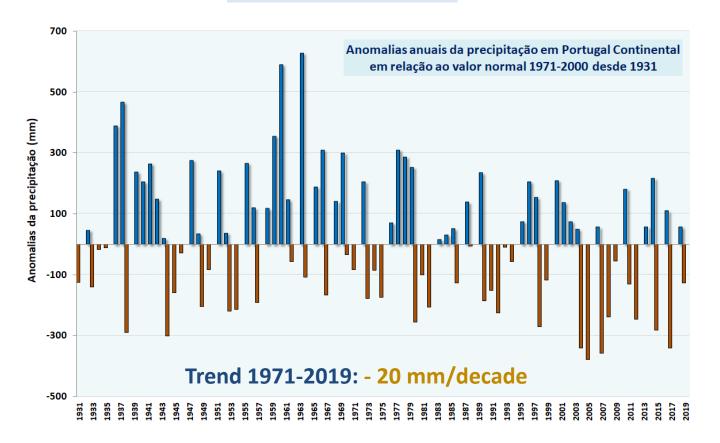
1997 warmest year (but low area burnt)

2017 second warmest year (worst year of forest fires)

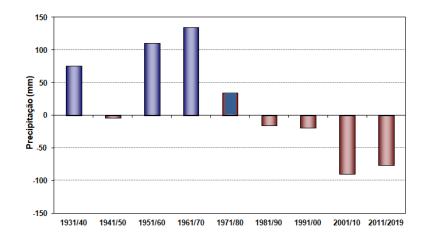


Climate change observed in Continental Portugal

Precipitation anomalies



Precipitation anomalies per decade

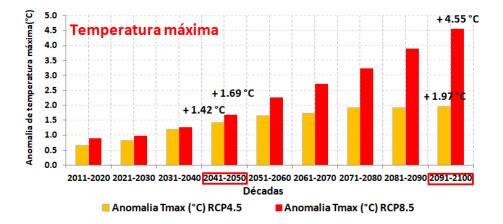


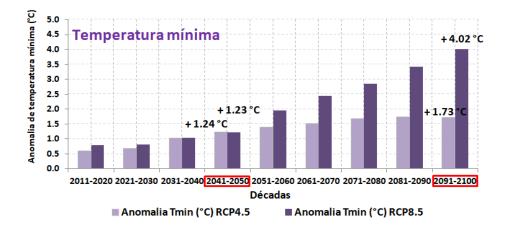
Decrease of precipitation in the last four decades, with more impact in the last 20 years

Drier years: 2005, 2007, 2017

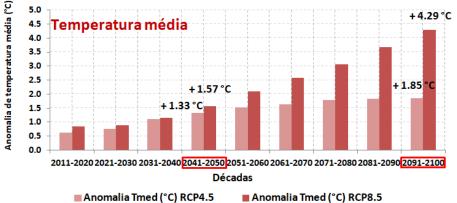


Climate scenarios for Continental Portugal





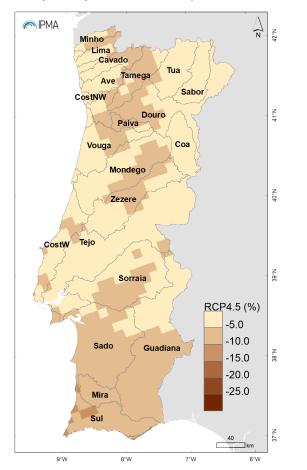
All scenarios with an increase in temperatures





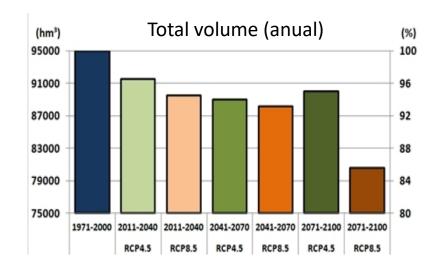
Climate scenarios for Continental Portugal

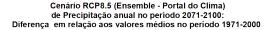
Cenário RCP4.5 (Ensemble - Portal do Clima) de Precipitação anual no período 2071-2100: Diferença em relação aos valores médios no periodo 1971-2000

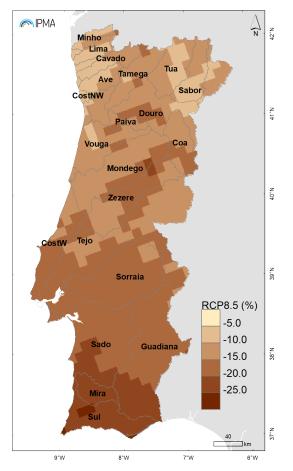


Less precipitation in all scenarios, more noticeable in the south

Until 2071-2100, in the RCP 4.5 scenario, a reduction of at least 5% but could reach 15% in the south

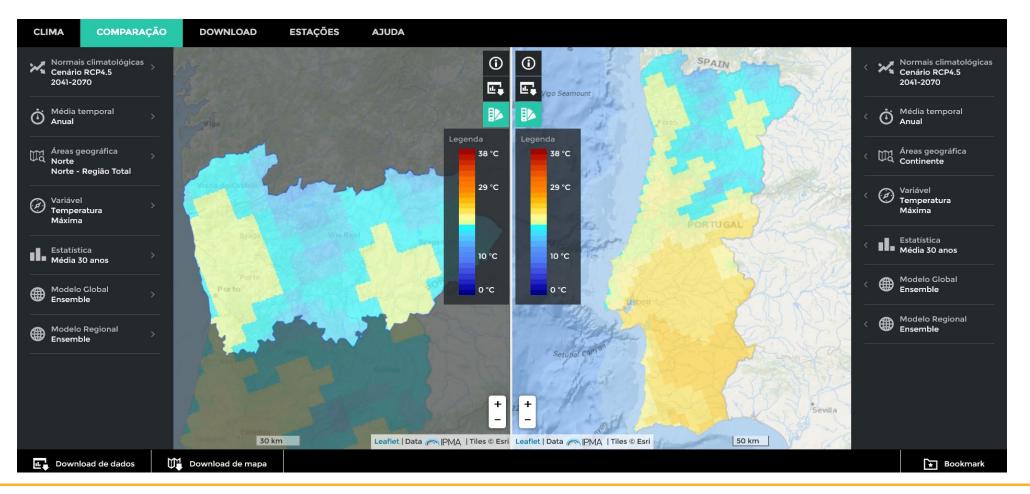








Climate Portal - Provide the information to all users





Digital tools – Climate Portal

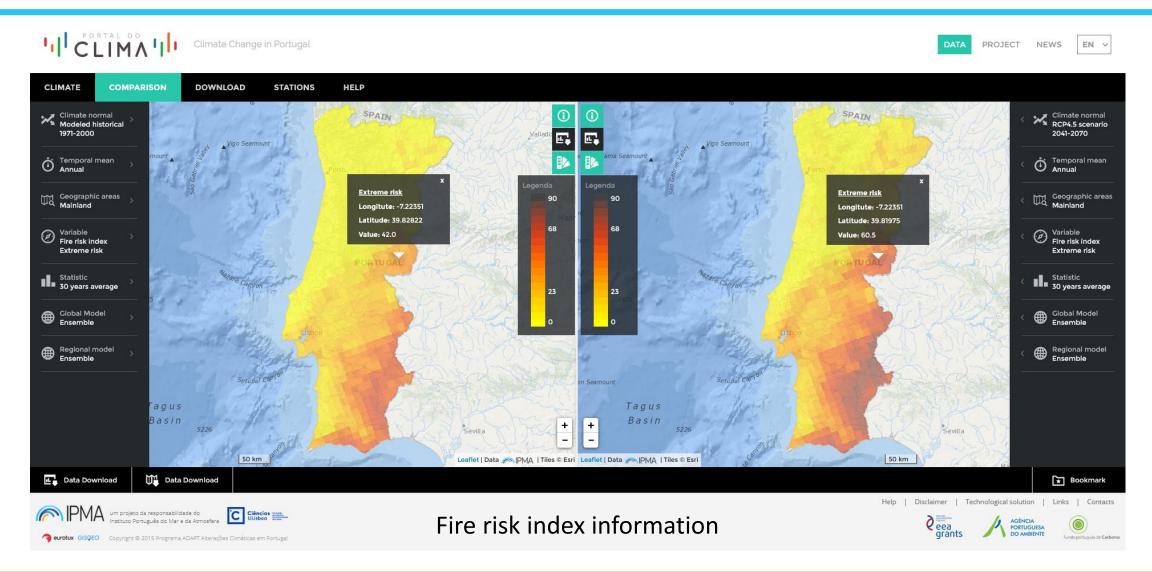
Período 2071-2100, Algarve Data manipulation, data download CLIMATE COMPARISON DOWNLOAD STATIONS HELP Mean Temperature Climate normal Modeled historical SPAIN PAL ÷ģ: Period 1971-2000, Mainland 1971-2000 * ? + 11 Vigo Seamoun (C) Annual 20 Geographic areas Mainland Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Variable \oslash Temperature Average Mean Climate normal: Modeled historical - 1971-2000, Statistic: 30 years average, Global Model: Ensemble, Regional model: Ensemble Statistic 30 years average Mean Temperature Annual Evolution 1971-2000, Mainland Global Model ? ⊪.± 11 Ensemble ŝ Regional model 30 km Leaflet | Data 🦱 IPMA | Tiles © Esri 2000 Normais climatológicas: Cenário RCP8.5 - 2071-2100, Média temporal : Anual, Estatística: Média 30 anos, Modelo Regional: Ensemble, Modelo Global: Ensemble 1975 1985 1990 1995 Percentile90 Average Percentile10 (ensemble (ensemble) + Climate normal: Modeled historical - 1971-2000, Temporal mean: Annual, Statistic: 30 years average, Regional model: Ensemble, Global Model: Ensemble 50 km Leaflet | Data 🦳 |PMA | Tiles © Esri Data Download Data Download * Bookmark

Precipitação

3600



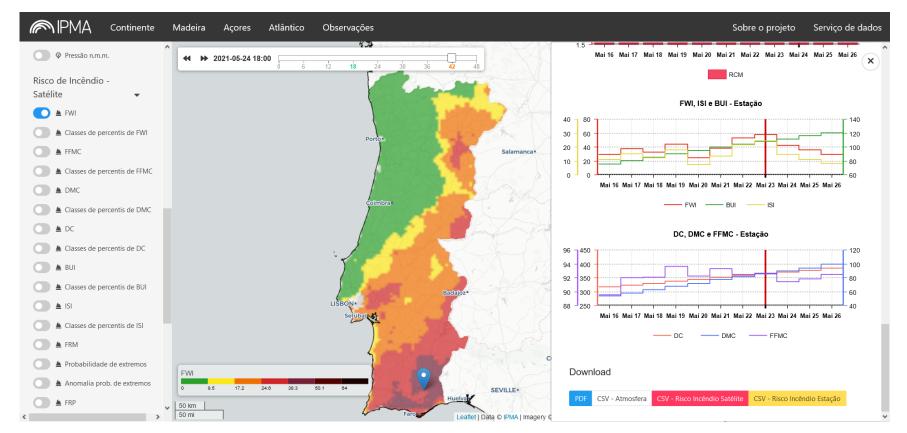
Digital tools – Climate Portal





Digital tools – MF2 project

Database with real-time observations and real-time forecasts with tailored products for fire risk in Portugal



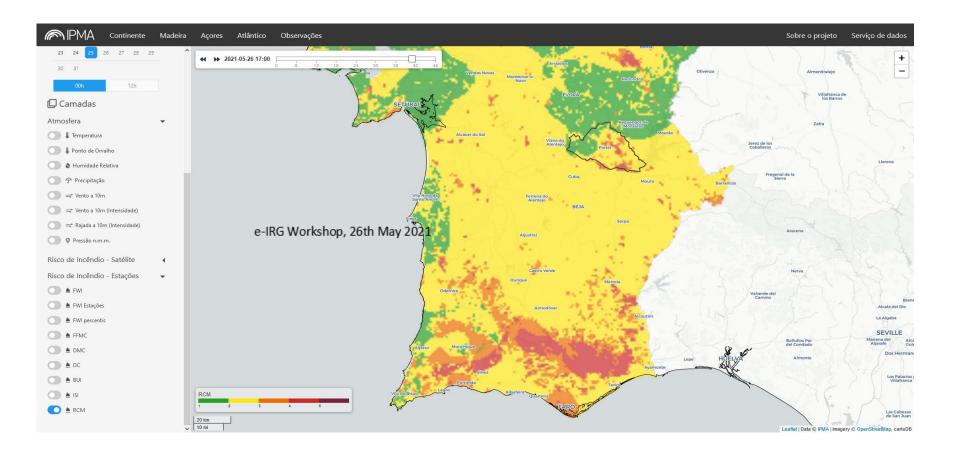
Source: mf2.ipma.pt



Digital tools – MF2 project

High resolution data (model and satellite)

All data available for download



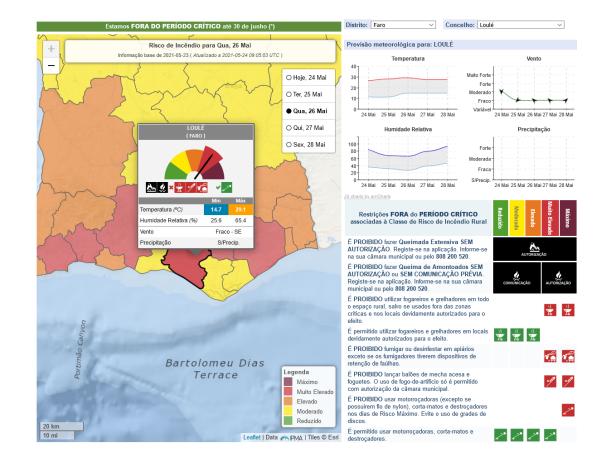
Source: mf2.ipma.pt



Digital tools

Official fire risk index with user friendly interface

Risco de Incêndio Rural			Selecione um Concelho	
	Estamos FORA DO PERÍODO CRÍTICO até 30 de ju	unho (*)	Distrito: Seleccione Distrito V Concelho: Sele	eccione primeiro o Distrit $<$ \vee
+ Risco de Incêndio para Qua, 26 Mai			Previsão meteorológica para:	
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- la	Profile a	The second	É PROIBIDO fumigar ou desinfestar em apiários exceto se os fumigadores tiverem dispositivos de retenção de faúlhas.	1
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1 2 M	of Babas and	Elevado	É PROIBIDO usar motorroçadoras (excepto se possuírem fio de nylon), corta-matos e destrocadores	



Source: www.ipma.pt



Thank you for your attention!

e-IRG Workshop, 26th May 2021

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