

# Debate on "Climate change and forest fires in Europe"

*Sustainable forest management and rural fires*

*from a Southern European perspective*

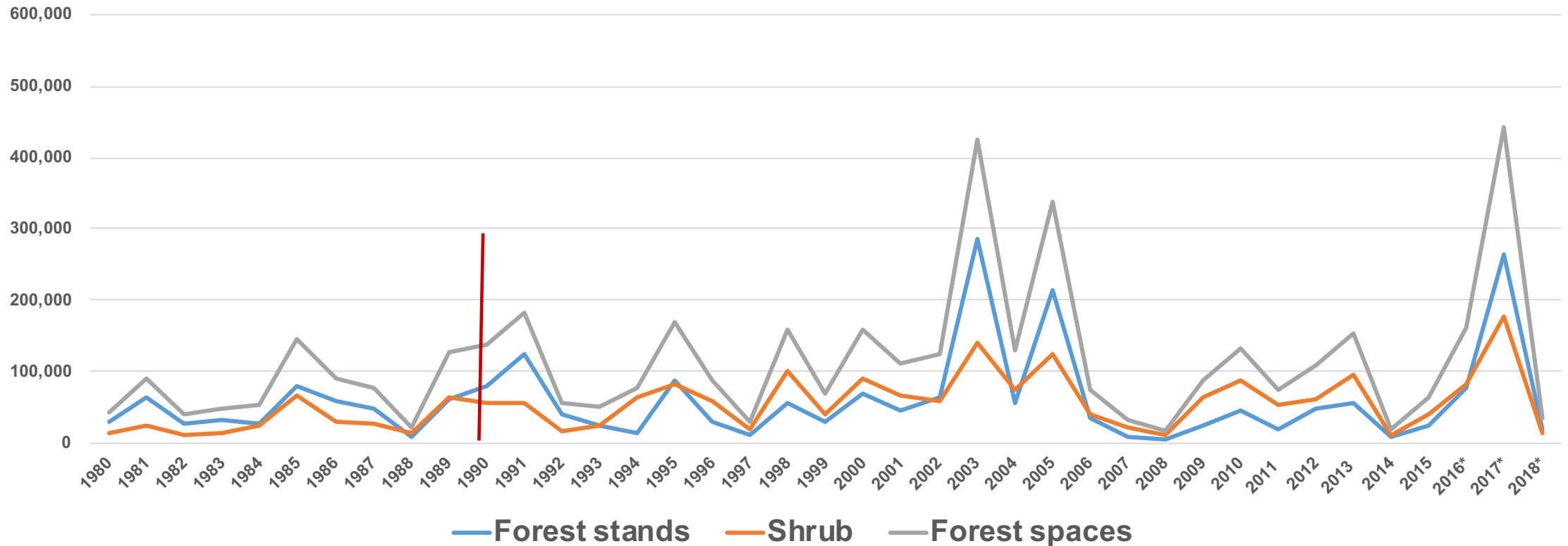
*João Soveral – [jsoveral@cap.pt](mailto:jsoveral@cap.pt)*



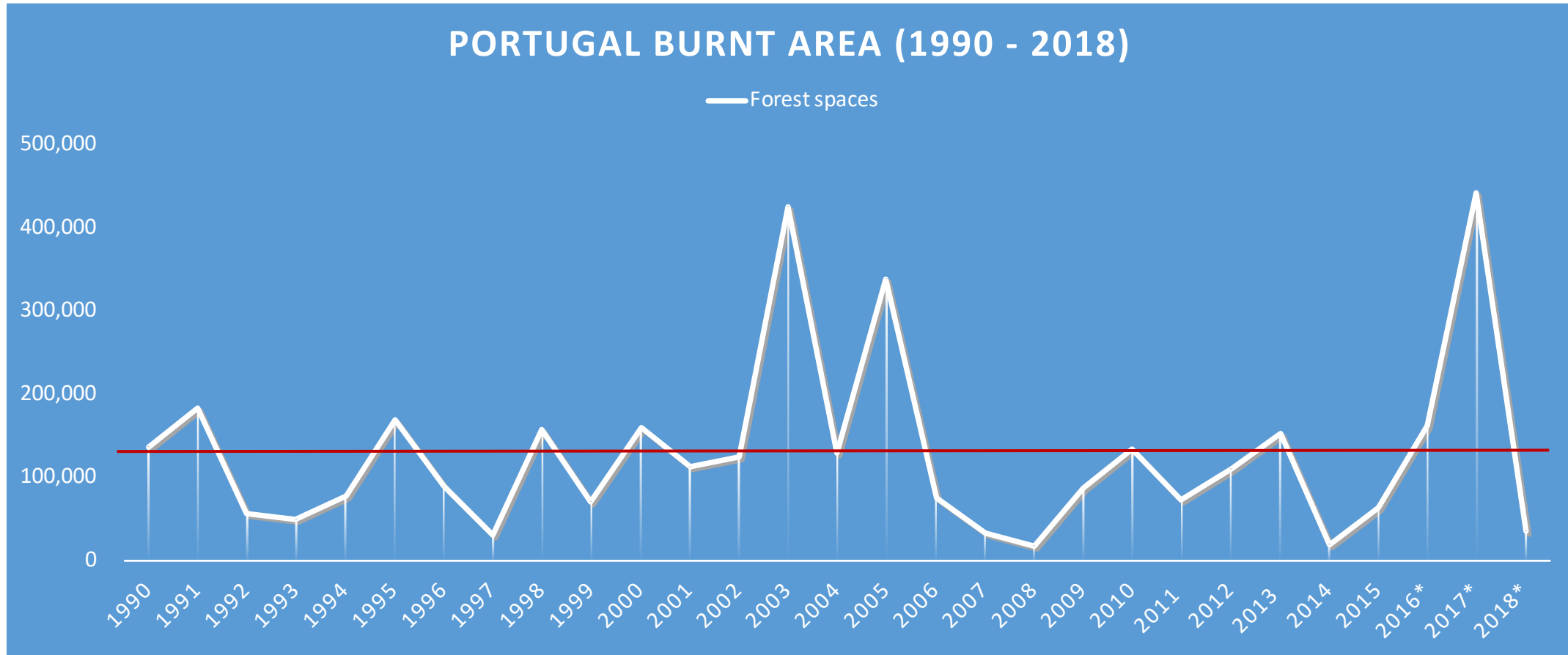
# Portugal

**No major variation in the (average) burnt area**

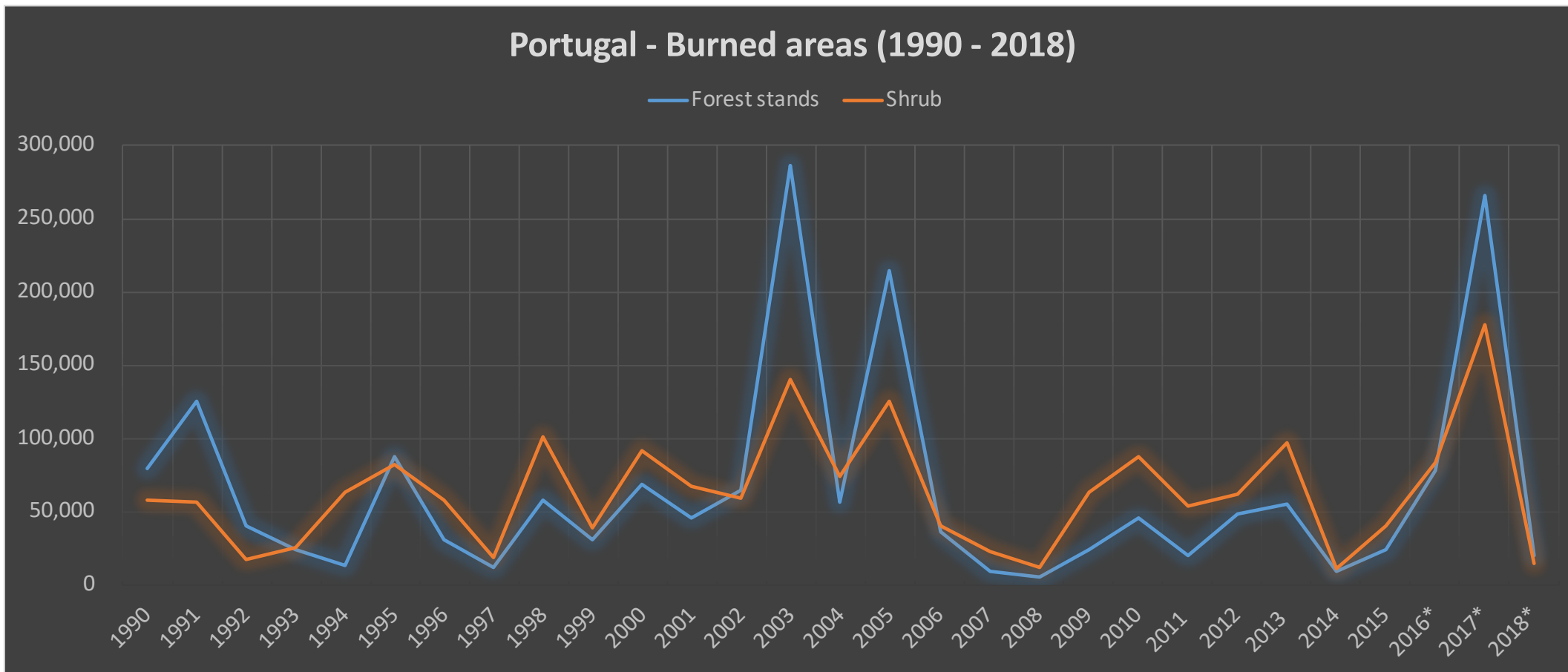
**Portugal burnt area (1980 – 2018)**



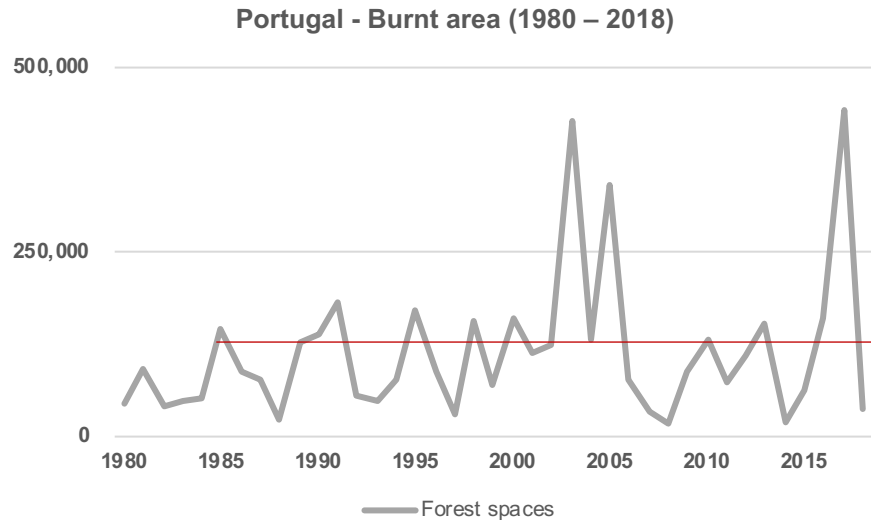
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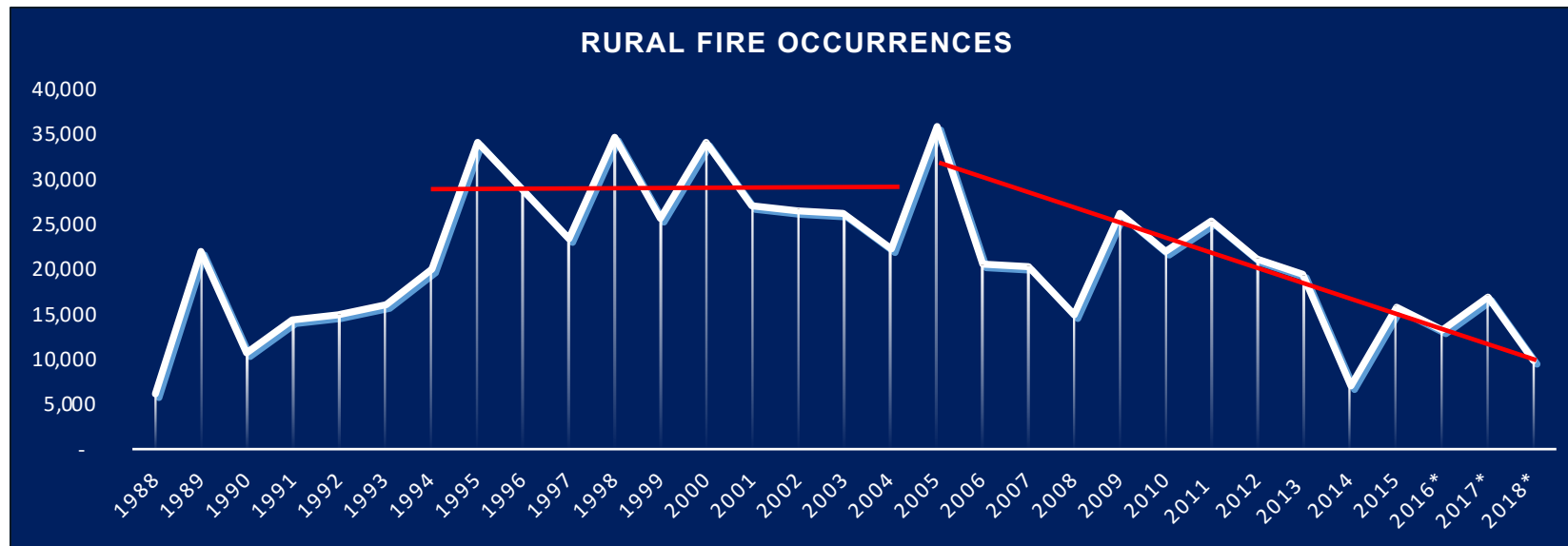
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**No major variation in the average burnt area by decade in the last 30 years**

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**Yet, a reduction in the number of occurrences has been achieved**



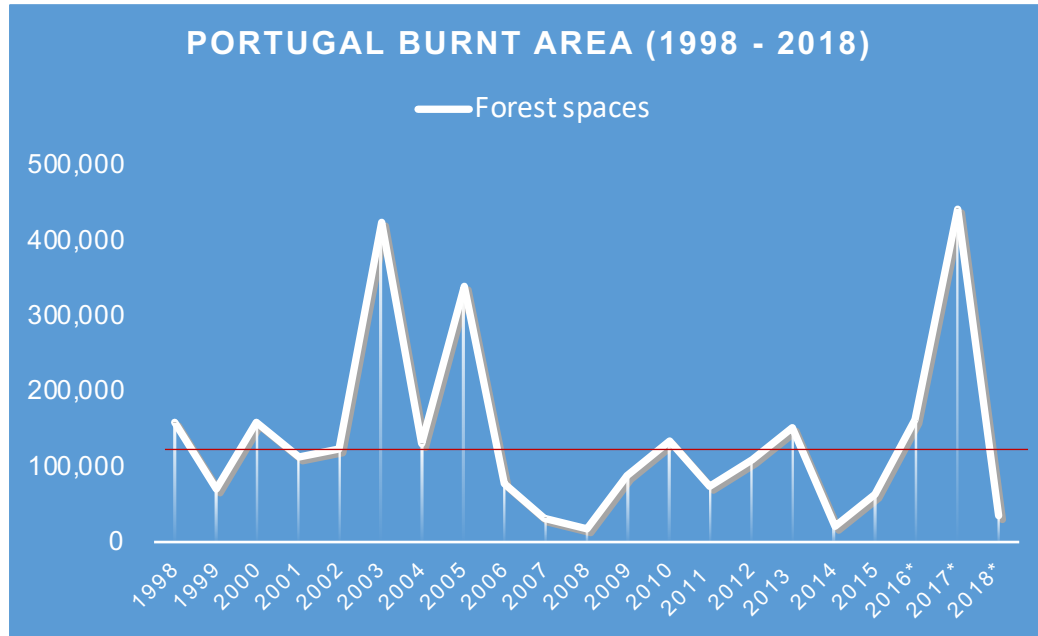
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# Portugal

## Dramatic change in the fire regime

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**Dramatic change in the fire regime in the last 20 years**

**2003 – 425 839 hectares**

**2005 – 339 089 hectares**

**2007 – 32 595 hectares**

**2008 – 17 565 hectares**

**2014 – 19 930 hectares**

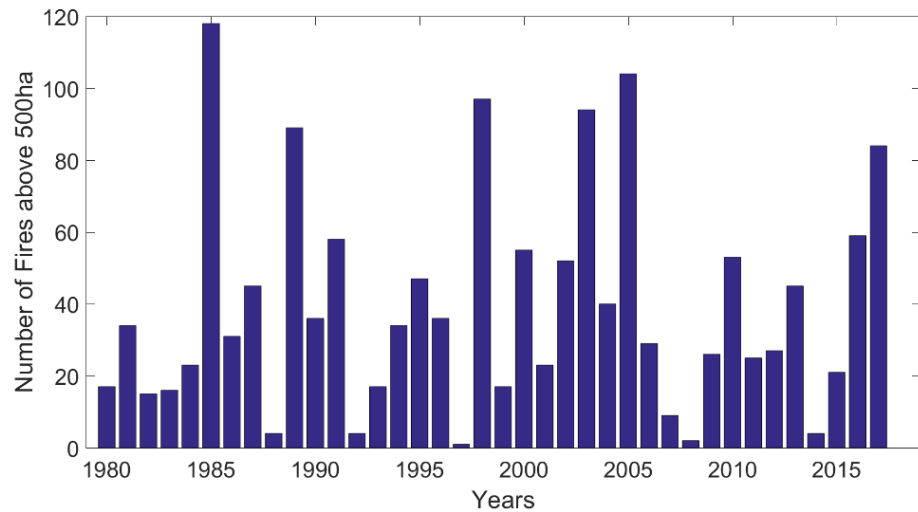
**2017 – 442 418 hectares**

**2018 – 35 605 hectares**

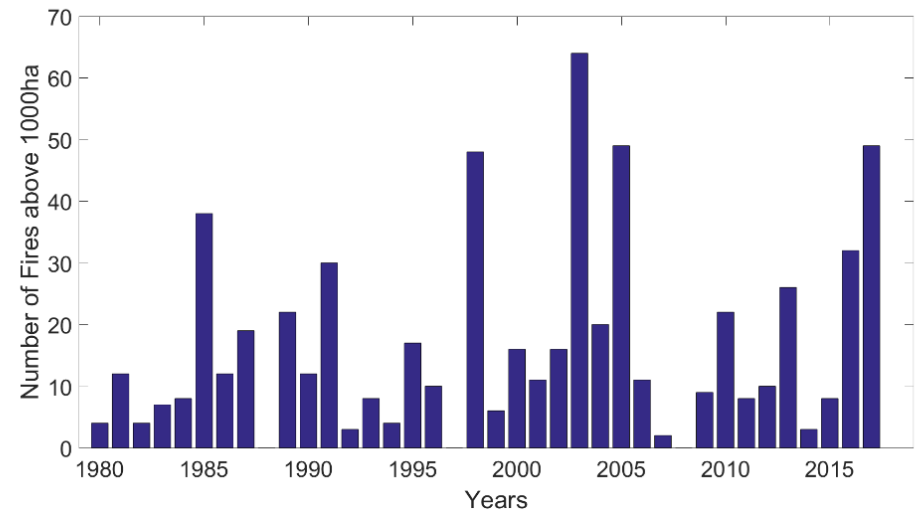
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**Large and very large rural fires in Portugal (1988 – 2017)**

**> 500 hectares**



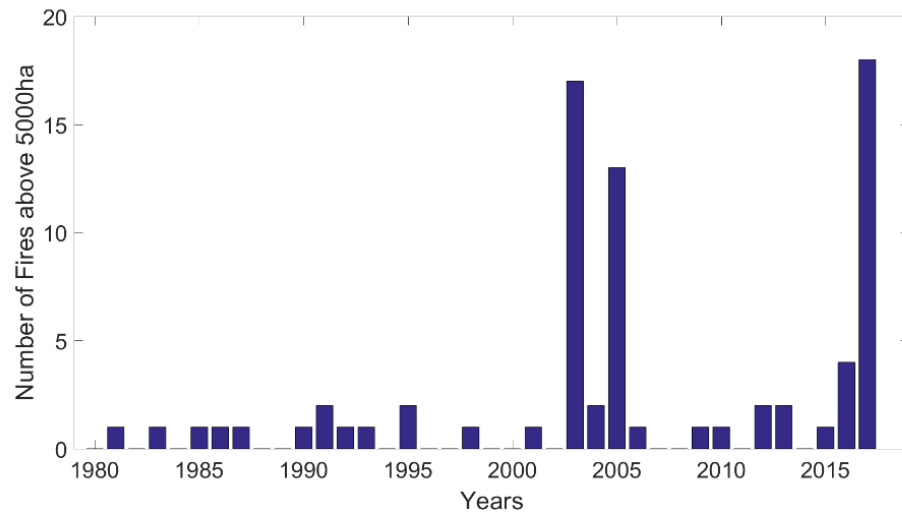
**> 1.000 hectares**



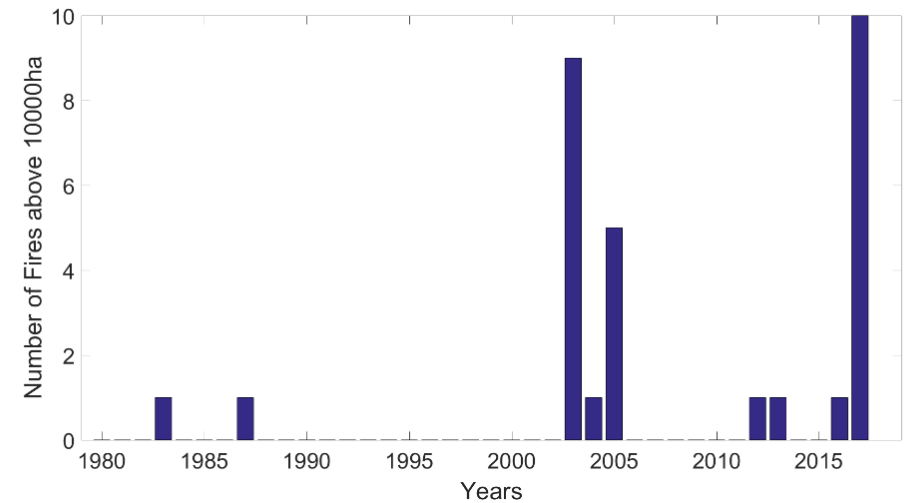
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**Large and very large rural fires in Portugal (1988 – 2017)**

**> 5.000 hectares**



**> 10.000 hectares**



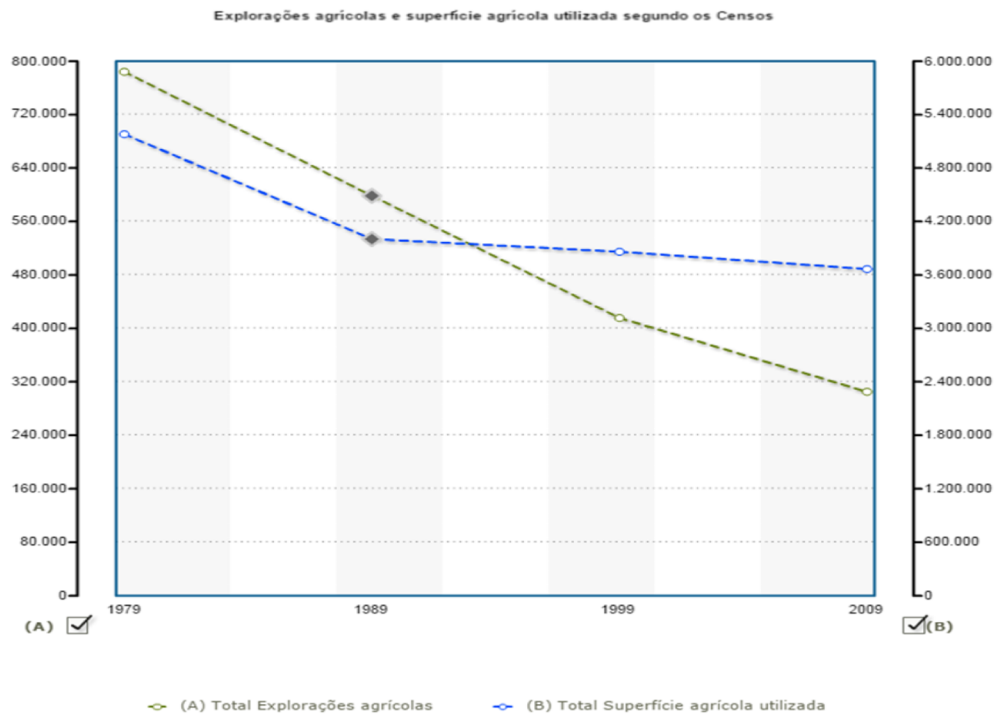
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# Portugal

## Farmland abandonment

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## Evolution of agricultural area in Portugal in use (1979 – 2009)



**Agricultural area: - 29,2 %**

**Number of farms: - 61,1 %**

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# Portugal

**Dramatic change in demography in rural spaces**

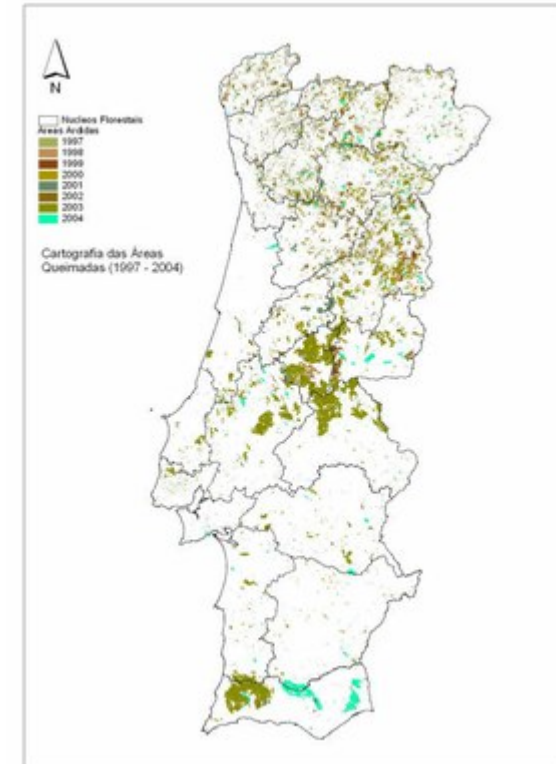
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## Potential Sustainability Index (PSI)

Territórios	Índice de Sustentabilidade Potencial		
	Anos	1960	2011
Portugal		7,9	3,5
— Continente		7,8	3,4
+ Norte		8,5	4,0
+ Centro		6,7	2,8
+ Área Metropolitana de Lisboa		9,0	3,6
+ Alentejo		8,1	2,6
+ Algarve		6,3	3,4
— Região Autónoma dos Açores		9,0	5,3
+ Região Autónoma dos Açores		9,0	5,3
— Região Autónoma da Madeira		9,0	4,6
+ Região Autónoma da Madeira		9,0	4,6
Ignorado/Outro		28,3	-

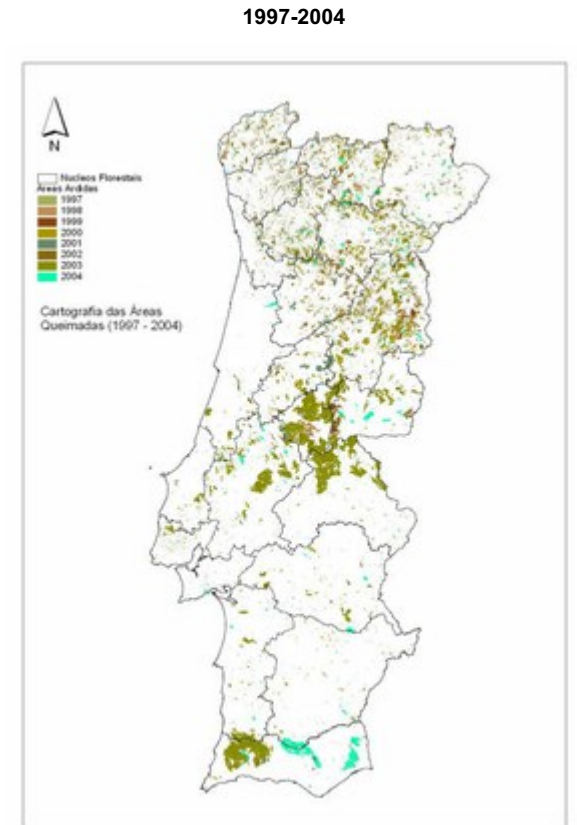
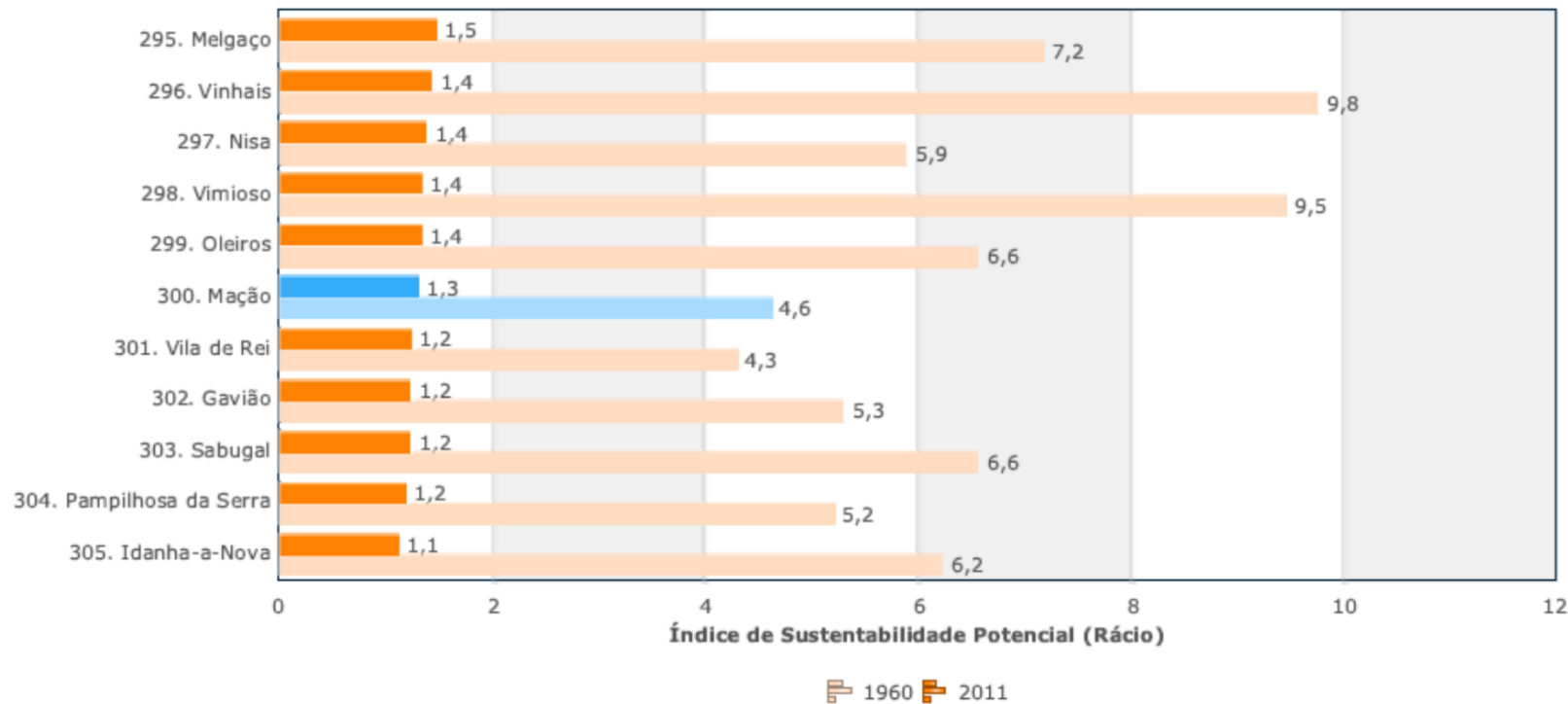


1997-2004



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## Portuguese municipalities with lower PSI



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# Portugal

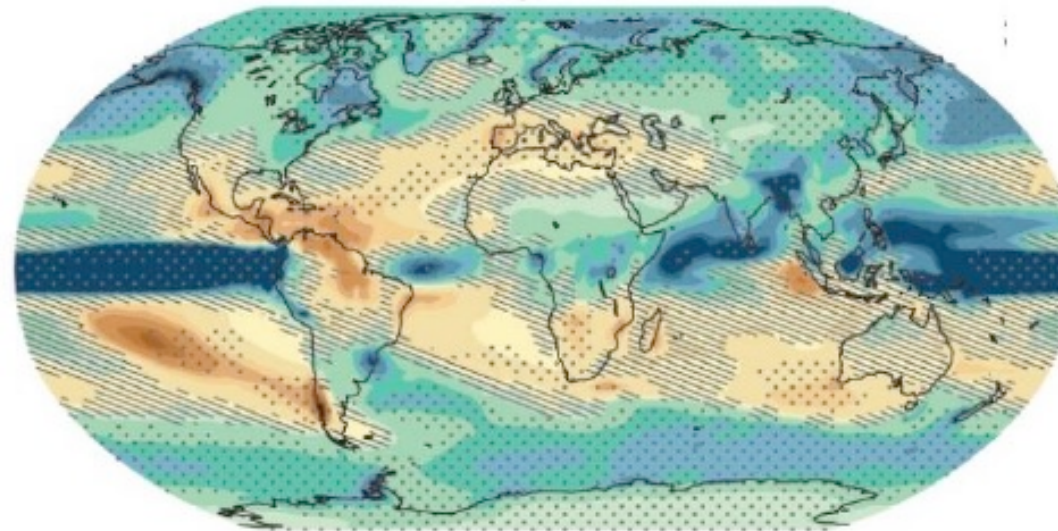
**And about climate change?...**

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## IPCC 2014

The Mediterranean will maintain its **hotspot** status in the coming decades

### Precipitation



(mm day<sup>-1</sup>)

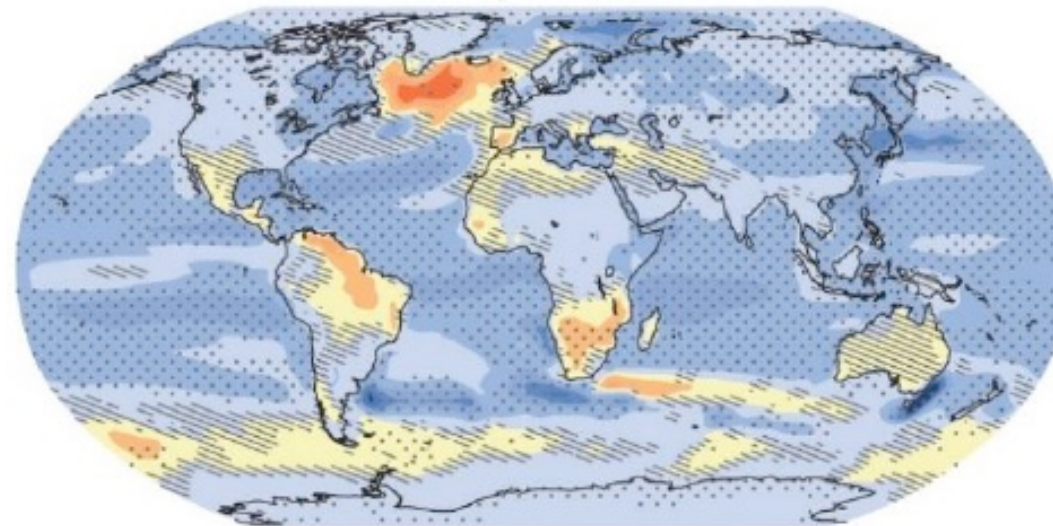


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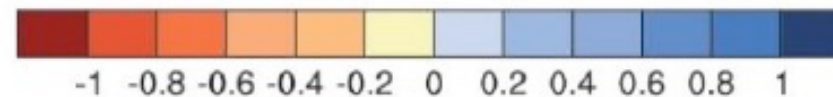
**IPCC 2014**

The Mediterranean will maintain its **hotspot** status in the coming decades

Evaporation



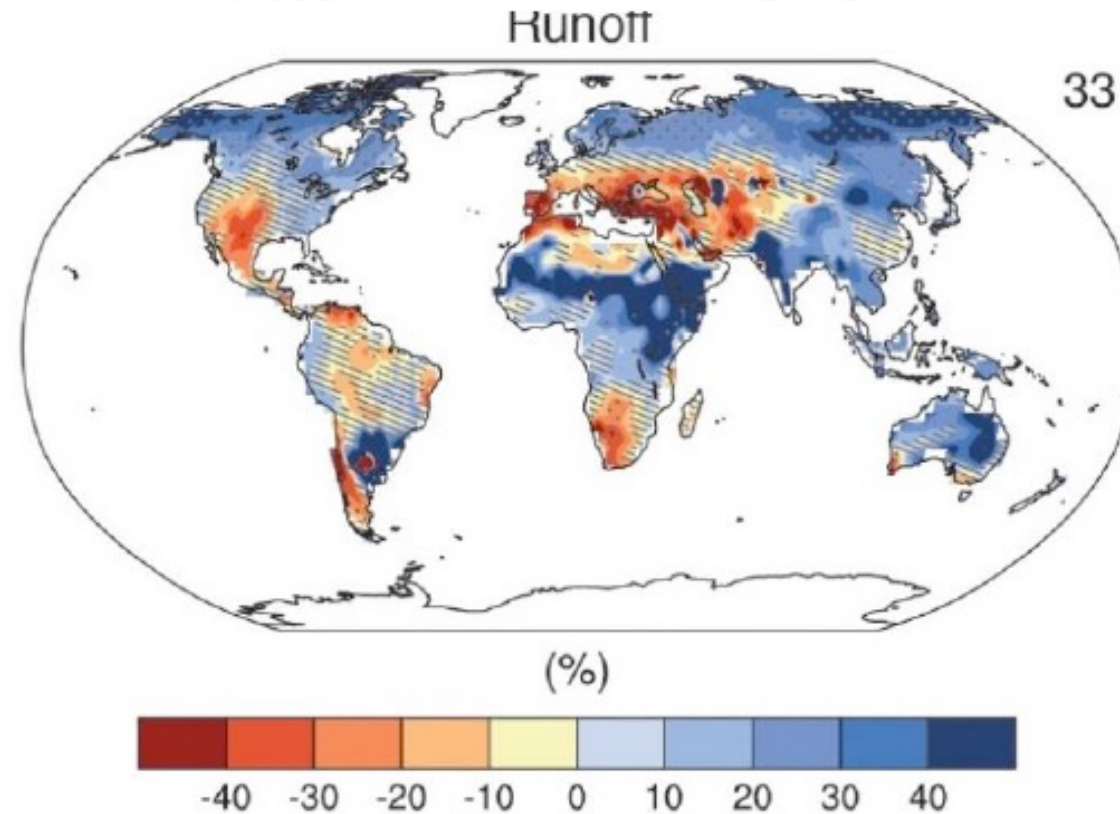
(mm day<sup>-1</sup>)



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## IPCC 2014

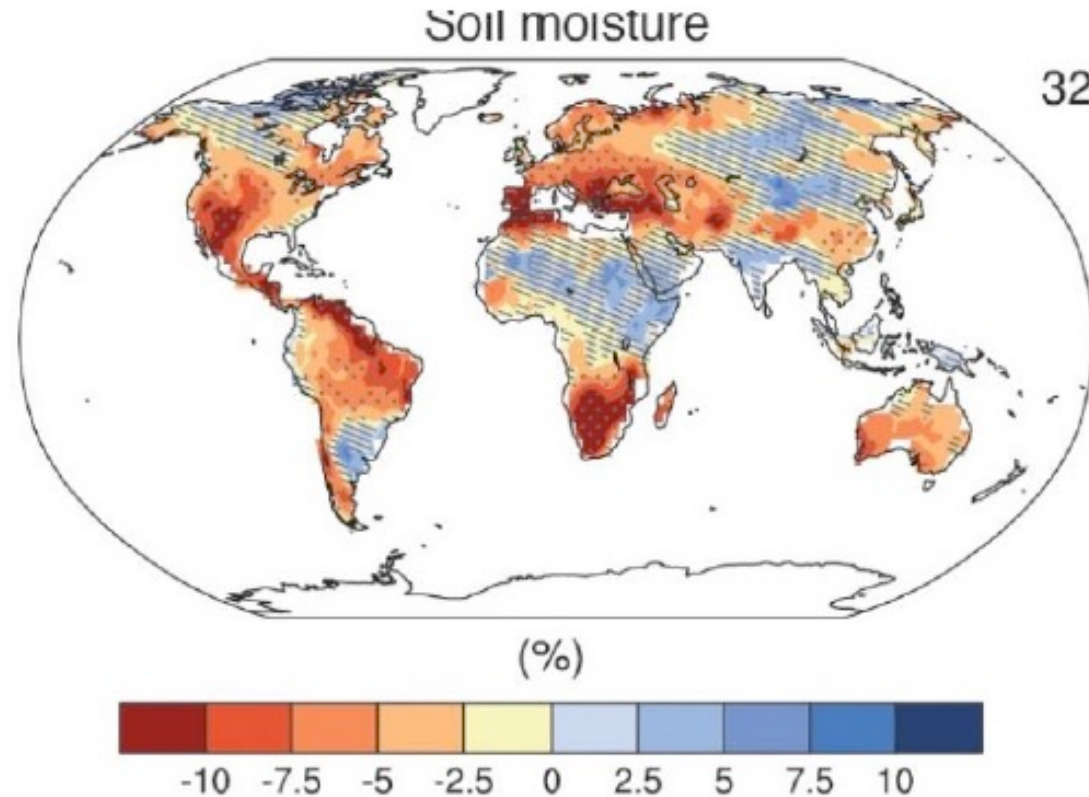
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**IPCC 2014**

The Mediterranean will maintain its **hotspot** status in the coming decades



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# How can forestry and forest spaces management cope with the challenge?

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# **Sustainable forest management is needed, but it's not enough!**

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## **Forestry in Southern Europe, *i.e.*, in the Mediterranean region, needs agriculture**

- **space organization** (territorial resilience)
- **diversity of economic activities** (economic resilience)
- **revenues** (human resilience)



## **What is needed:**

- **public policies that allow the articulation between agriculture and forestry as complementary productive activities;**
- **long-term compensation schemes (at least 15 years) for ecosystem services provided by agriculture and forests.**

**To address climate change and increasing fire risk in Southern Europe, Sustainable Forest Management requires a much stronger integration of forestry with agriculture**

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