

# The occurrence of heat waves in connection to global warming in the Mediterranean region

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**Climatematch**  
Academy —

# ➤ Introduction

[Speaker  
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video]

## Scientific background

- Heatwaves in the Mediterranean region have become a subject of increasing concern due to their rising frequency and intensity
- Understanding the link between heatwaves and climate change is vital for assessing the region's vulnerability to future warming and developing effective adaptation strategies

## Study aims

- Understand the dynamics in global and mediterranean temperature change
- Explore the heat wave occurrence and its connection to Global warming



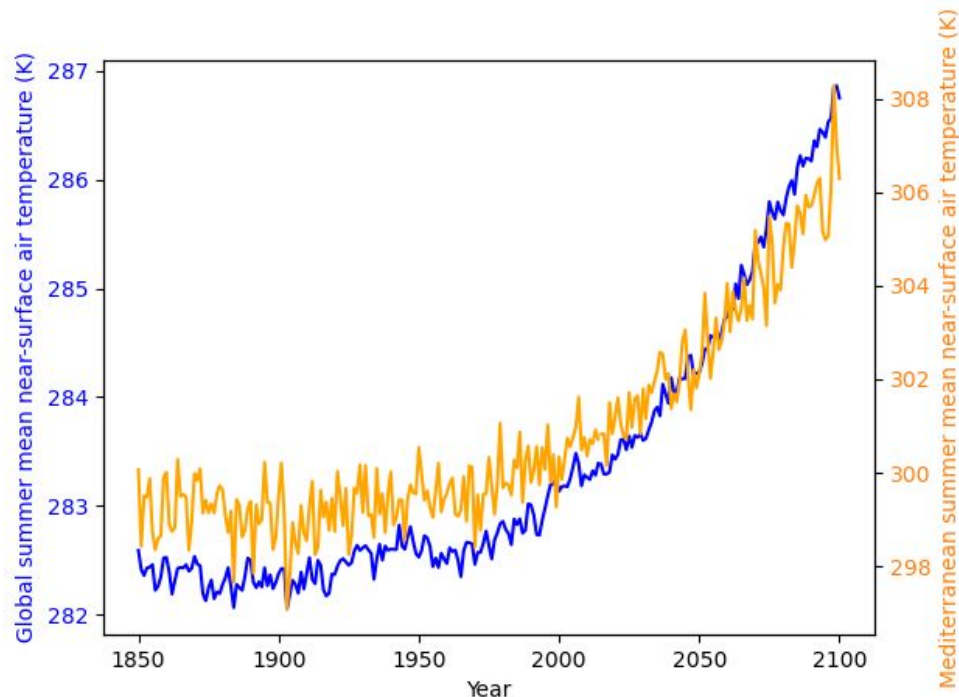
## ➤ Methodology

- Data from MPI-ESM1-2-LR model, experiments “historical” and scenarios SSPS 126 and SSPS 585
- Study area: Mediterranean basin
- Study period: summer seasons from 1970 to 2014
- Develop a tool to detect heat waves based on conditions:
  - Temperature exceeds the threshold (95th percentile)
  - The extreme temperature lasts at least 5 consecutive days
  - Extreme temperatures spread over at least one grid cell or 0.3% of the whole area



## ➤ Results and discussion

- Summer-season mean temperatures are increasing (and continue to increase in ssp 585 scenario)

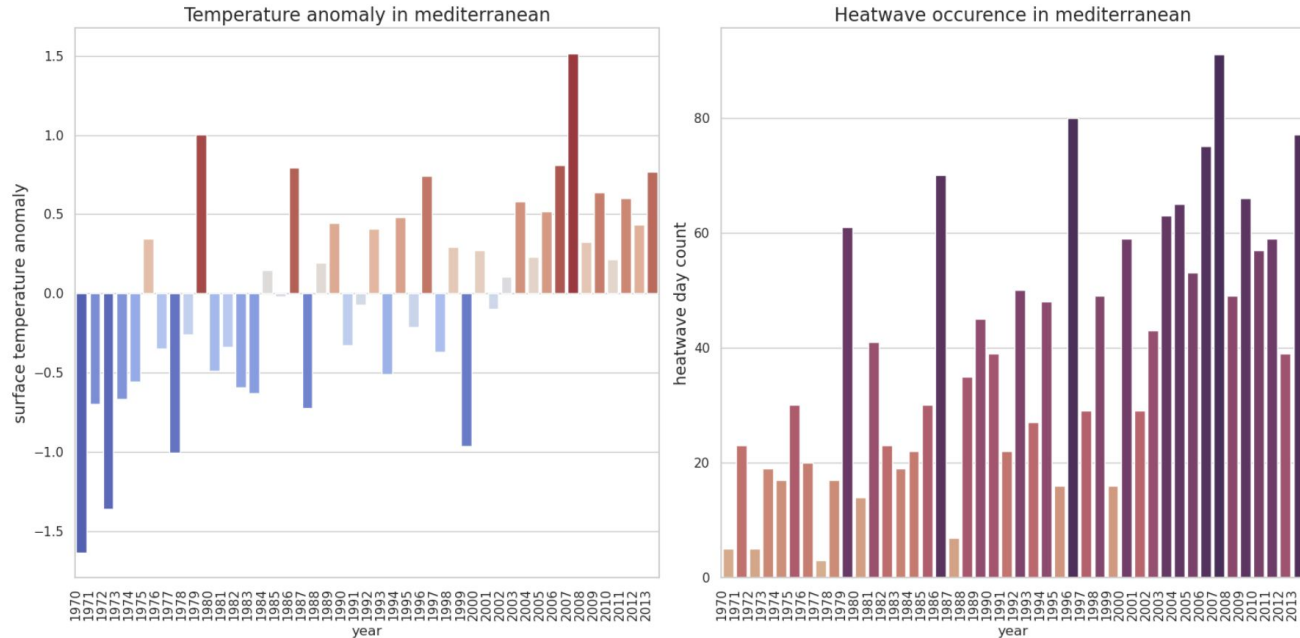


# ➤ Results and discussion

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## Heat wave events

- Heat waves are increasing in mediterranean region.

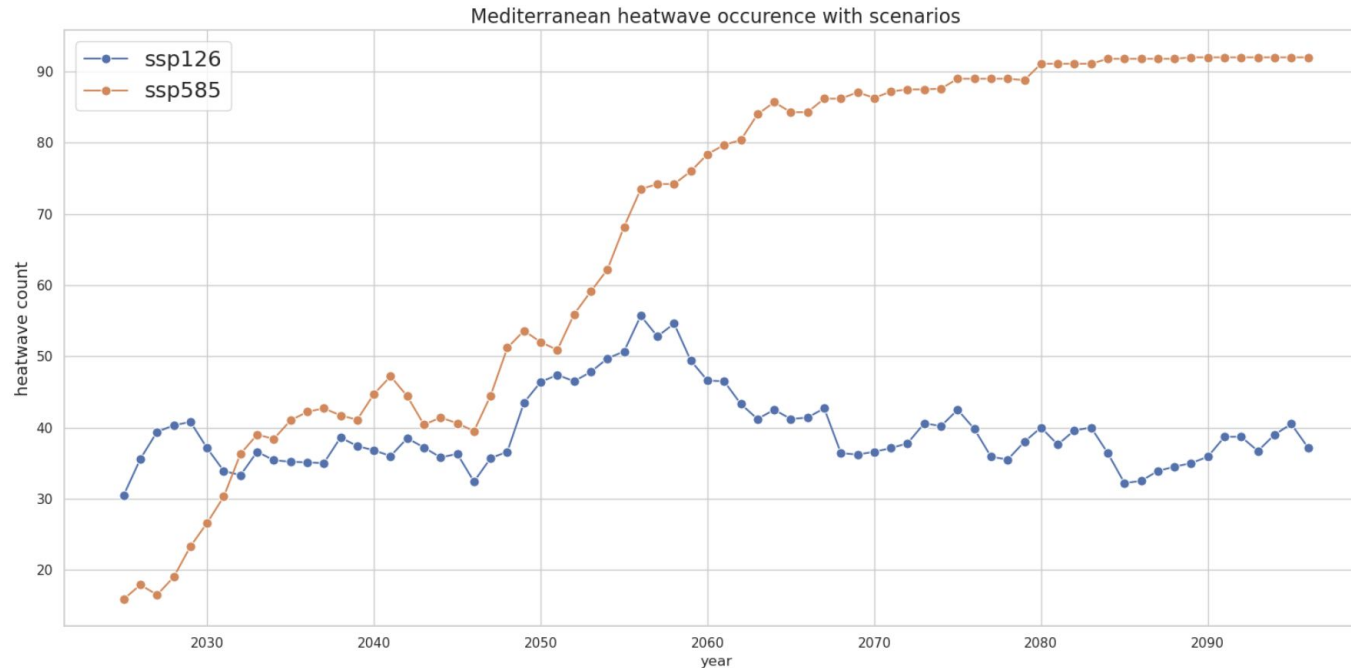


# ➤ Results and discussion

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## Heat wave events

- Different scenarios cause different amount of heat wave days.



## ➤ Conclusions

- According to SSP 585 scenario, global mean temperature in summer seasons will increase by 4° while in the Mediterranean region will increase by 10°. So, we conclude that Mediterranean region will be more affected for the increasing temperatures.
- The number of heat wave days during summer season is increasing in the Mediterranean region. According to best scenario, in the time period 2020-2100, the number of heat wave days is expected to decrease. However, as for the worst scenario, there will be only one heat wave event during the entire summer, starting from 2080.
- To gain a comprehensive understanding, it would be valuable to analyze heat wave intensity and duration in the same region in order to establish if this factors are also increasing.