Recent heatwaves as a prelude to climate extremes in the western Mediterranean region

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Supplementary materials -Table of contents

1. Supplementary Tables

Climate data and scenarios	Year 2022 (+3.6 C)	Year 2023 (+2.9 C)
	Return period (in years)	
Reconstruction (1119-2021 CE)	+10,000	+10,000
Instrumental (1901-2021)	+5,000	1,000
RCP2.6 (2006-2099)	950	40
RCP4.5 (2006-2099)	75	16
RCP8.5 (2006-2099)	7	4
SSP1-2.6 (2006-2099)	360	11
SSP2-4.5 (2006-2099)	7	5
SSP5-8.5 (2006-2099)	5	3.5

Table S1. Return periods of extreme maximum temperature anomalies for the warm Season (May-September) of the years 2022 and 2023 (anomaly calculated with respect to the baseline 1940-2000 for the Western Mediterranean).

Output	Driving Model	Regional Climate Model	Institution
KNMI.MOHC-HadGEM2-ES	MOHC-HadGEM2-ES	RACMO22E.v2	The Royal Netherlands Meteorological Institute (KNMI), Holland.
KNMI.ICHEC-EC-EARTH	ICHEC-EC-EARTH	RACMO22E.v1	
MPI-CSC.MPI-M-MPI-ESM-LR	MPI-M-MPI-ESM-LR	REMO2009.v1	Max Planck Institute for Meteorology, Germany.
NUIM.ICHEC-EC-EARTH	ICHEC-EC-EARTH	WRF341E.v1	The National University of Ireland Maynooth, Ireland
SMHI.NCC-NorESM1-M	NCC-NorESM1-M	RCA4.v1	Swedish Meteorological and Hydrological Institute, Sweden.
SMHI.MIROC-MIROC5	MIROC-MIROC5	RCA4.v1	
SMHI.MOHC-HadGEM2-ES	MOHC-HadGEM2-ES	RCA4.v1	
SMHI.ICHEC-EC-EARTH	ICHEC-EC-EARTH	RCA4.v1	
SMHI.MPI-M-MPI-ESM-LR	MPI-M-MPI-ESM-LR	RCA4.v1	

Table S2. Selection of CORDEX simulations within the Europe domain at 0.44 degrees. Our selection criteria focused on models that included the variable *tasmax* and the RCP2.6 scenario. From the 30 available outputs, we selected 10 to ensure a diverse representation of different driving and regional climate models.

Model GCM	Institution
ACCESS-CM2	Commonwealth Scientific and Industrial Research Organisation and Australian Research Council Centre of Excellence for Climate System Science, Australia
AWI-CM-1-1-MR	Alfred Wegener Institute Climate Model, Germany
BCC-CSM2-MR	Beijing Climate Center, China Meteorological Administration, China
CanESM5 p1	Canadian Centre for Climate Modelling and Analysis, Canada
CIESM	Community Integrated Earth System Model
CMCC-CM2-SR5	Centro Euro-Mediterraneo per i Cambiamenti, Italy
CNRM-CM6-1-HR f2	Centre National de Recherches Meteorologiques, Meteo-France, France
EC-Earth3	EC-Earth (European Earth System Model)
FGOALS-g3	Institute of Atmospheric Physics, Chinese Academy of Sciences, China
GFDL-ESM4	Geophysical Fluid Dynamics Laboratory, USA
GISS-E2-1-G p1	Goddard Institute for Space Studies, USA
HadGEM3-GC31-LL f3	Met Office Hadley Centre, UK
INM-CM4-8	Institute for Numerical Mathematics, Russia
IPSL-CM6A-LR	Institut Pierre-Simon Laplace, France
MIROC-ES2L f2	JAMSTEC, AORI, NIES, R-CCS, Japan
MPI-ESM1-2-LR	Max Planck Institute for Meteorology, Germany
UKESM1-0-LL f2	Met Office Hadley Centre, UK

Table S3. Selection of CMIP6 simulations.