

Mediterranean marine heatwaves intensification in the presence of concurrent atmospheric heatwaves.

Supplementary material

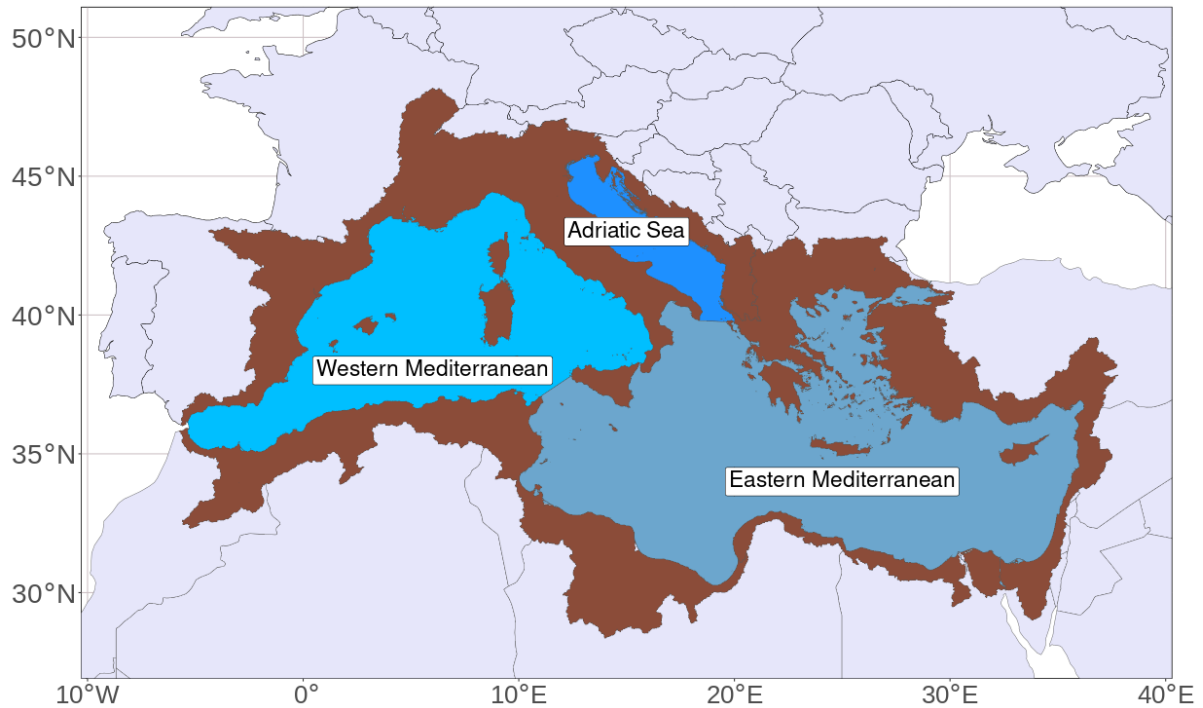


Figure S1. Mediterranean basin subregions for HW analysis: Mediterranean Sea, Western and Eastern basins and the Adriatic Sea.

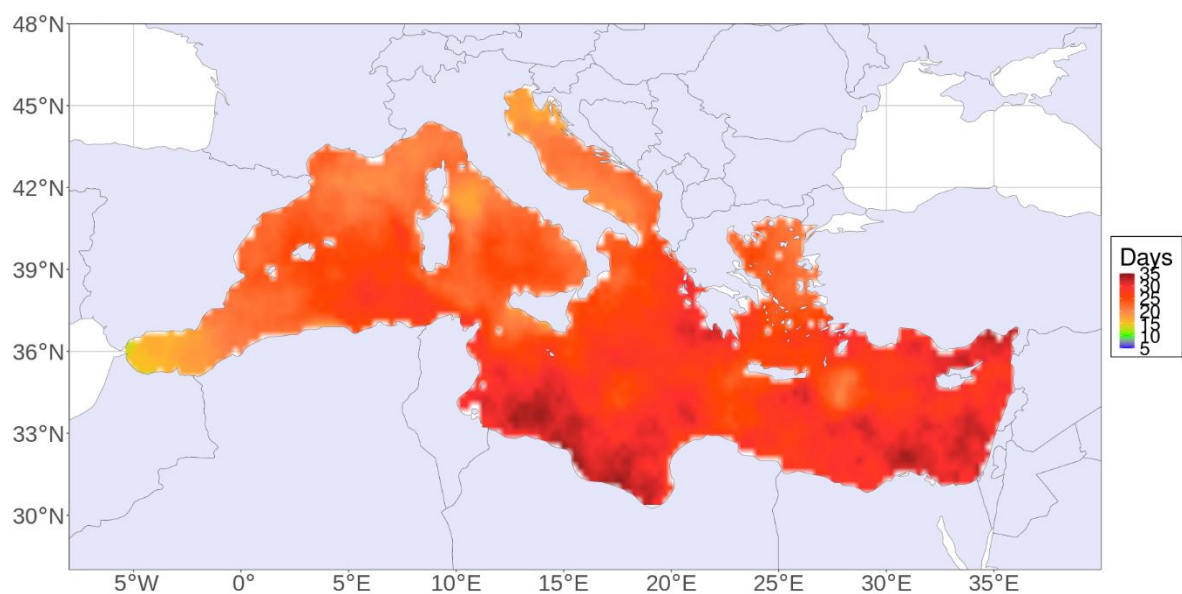


Figure S2. Mean values of the maximum MHW persistence, calculated as the mean value of the maximum persistence of all events recorded in a grid point for the 1940-2022 study period, with reference climatology 1961-1990

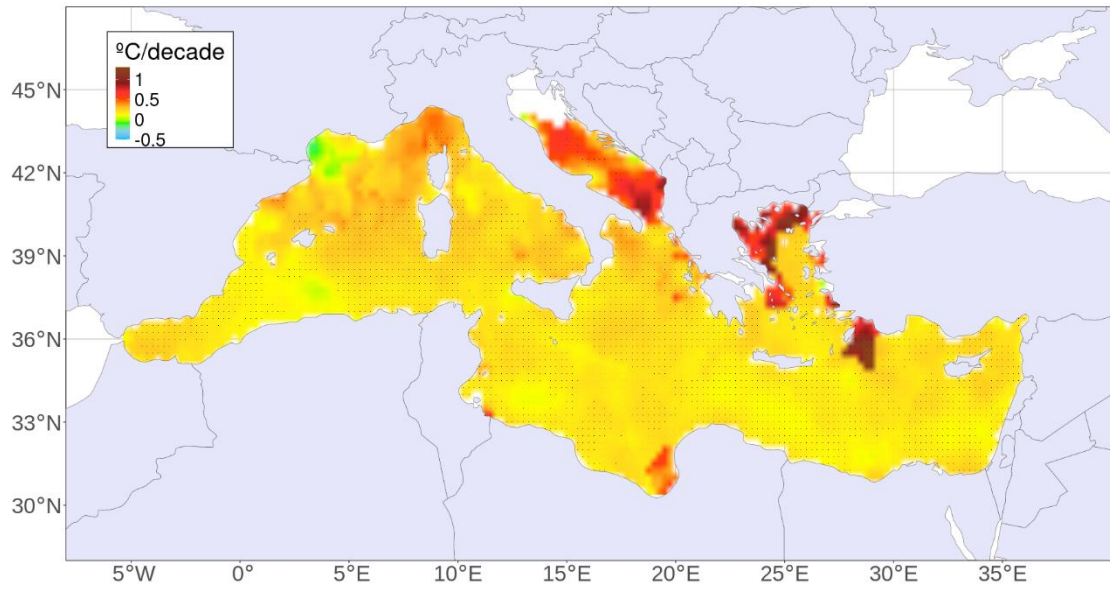


Figure S3. Regional distribution of $I_{\max}$ trend (dots show 95% statistically significant values) for the 1940-2022 period.

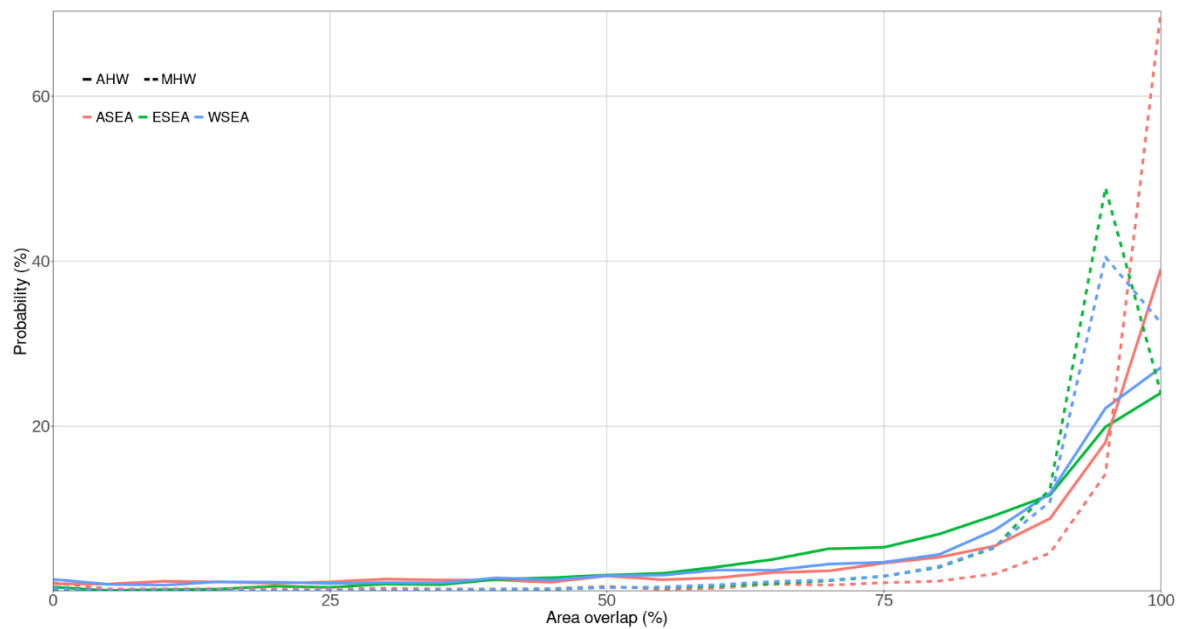


Figure S4. Probability density function of the daily overlapping area for AHW and MHW events

	Area	Duration (days)	Persistence (days)	Size (km ²)	I _{mean} (°C)	I _{max} (°C)	T _{max} (°C)	T _{min} (°C)
AHW	Med. Sea	12	6	371000	0.86	1.60	25.80	23.40
	WMED	11	6	150600	0.86	1.60	25.20	22.40
	ASEA	11	6	42850	0.90	1.70	25.80	22.70
	EMED	12	6	237500	0.79	1.44	26.30	23.80
	Area	Duration (days)	Persistence (days)	Size (km ²)	I _{mean} (°C)	I _{max} (°C)	I _{cum} (°C x days)	
MHW	Med. Sea	42	16	422500	1.19	1.46	28.90	
	WMED	29	15	304000	1.35	1.68	28.20	
	ASEA	21	13	65000	1.57	1.96	26.50	
	EMED	40	17	355000	1.11	1.37	29.30	

Table S1. Mean values for main AHW and MHW characteristics (maximum values in bold) for the 1940-2022 period with reference climatology 1961-1990

	Area	Duration (days)	Persistence (days)	Size (km ²)	I _{mean} (°C)	I _{max} (°C)	I _{cum} (°C x days)
MHW	Med. Sea	22	11	351400	1.37	1.62	6.44
	WMED	18	11	276100	1.48	1.76	11.60
	ASEA	14	10	75300	1.76	2.09	14.44
	EMED	22	11	251000	1.26	1.49	6.92

Table S2. Mean values for MHW characteristics (maximum values in bold) for the 1940-2022 period with reference climatology 1991-2020

Reference 1991-2020	All days in this reference: I = 1.40°C	
	MHW only in this reference (<1% total days) I = 0.91°C	MHW in both references (~99% total days) I = 1.40°C
Reference 1961-1990	All days in this reference: I = 1.3°C	
	MHW in both references (32% total days) I = 1.51°C	MHW only in this reference (68% total days) I = 1.20°C

Table S3. Mean intensity for different subsets of days for the MHW computed using the 1991-2020 reference (top rows) and the 1961-1990 reference (bottom rows).