Supplementary Data

Mediterranean Marine Science
Indexed in WoS (Web of Science, ISI Thomson) and SCOPUS
www.hcmr.gr
DOI: https://doi.org/10.12681/mms.38392

Marine Heatwaves in the Mediterranean Sea: A Literature Review

Sofia DARMARAKI, Dimitra DENAXA, Iason THEODOROU, Eleni LIVANOU, Dionysia RIGATOU, Dionysios E. RAITSOS , Orestis STAVRAKIDIS-ZACHOU, Donna DIMARCHOPOULOU, Giulia BONINO, Ronan MCADAM, Emanuele ORGANELLI, Pitsouni ALEXIA and Antonios PARASYRIS

Mediterranean Marine Science, 25 (3) 2024

Table S1. Compilation of regional-scale studies investigating past MHW characteristics in the Mediterranean Sea (Med Sea).. For each study shown are: The type of dataset employed, the region and depth of examination, the temperature (Extreme event threshold) and reference period against which the MHWs were identified, the period during which MHWs were detected as well as the mean MHW frequency, duration and intensity. Whenever average MHW characteristics were not reported for the period examined, the equivalent trends were provided and vice versa.

Dataset	Region	MHW Threshold	Reference period	Examined period	MHW Frequency (Trend)	Mean MHW Duration (Trend)	Mean MHW Intensity (Trend)	Reference
Satellite data	Aegean, Ionian, Cretan Seas	SST≥90th monthly percentile for 5 days	2008 - 2021	2008 - 2021	1.7 events/ decade	21.3 days/ decade	-	Androulidakis & Krestenitis, 2022
Satellite data	Entire basin surface	SST≥99th percentile for 5 days	1982-2012	1982-2017	29 events	$79.9*10^{-2}$ days/year	$18.2*10^{-3}$ °C/ year	Darmaraki *et al.,* 2019
CNRM - RCSM6	Entire basin surface	SST≥99th percentile for 5 days, 20% min. spatial threshold	1982-2012	1982-2017	26 events	$42.9*10^{-2}$ days/year	$10.1*10^{-3}$ °C/ year	
	Entire basin 23m				21 events	$12.7*10^{-1}$ days/year	$22.1*10^{-3}$ °C/ year	
	Entire basin 41m				16 events	$98.3*10^{-2}$ days/year	$19.6*10^{-3}$ °C/ year	
	Entire basin 55m				14 events	$12.3*10^{-1}$ days/year	$17.3*10^{-3}$ °C/ year	
Satellite SST, Global & Regional Reanalysis dataset	Entire basin surface	SST≥90th percentile for 5 days	1993-2014	1993-2019	~ 1 event/ decade	2.3 - 3.7 days/decade	-	Dayan *et al.,* 2022
	Adriatic Sea				1.61 ± 0.17 events/ decade	3.4 ± 0.5 days/decade	-	
	Aegean Sea				1.3 ± 0.2 events/ decade	3.3 ± 0.9 days/decade	-	
	Eastern Med Sea				1.0 ± 0.1 events/ decade	2.4 ± 0.4 days/decade	-	
	Western Med Sea				1.1 ± 0.1 events/ decade	2.1 ± 0.6 days/decade	-	
Satellite SST	Eastern Med Sea	SST≥90th percentile for 5 days	1982-2020	1982-2020	1 - 2.5 events/ decade	10-15 days/decade	-	Ibrahim *et al.*, 2021

Continued

Table S1 continued

Satellite SST	Entire basin surface	SST≥90th percentile for 5 days, 5% min. spatial threshold	1982-2011	1982-2021	1.2 events/ decade	5 days/decade	1.6 °C	Pastor & Khodayar *et al.*, 2023
Satellite SST & *In situ* data	Entire basin surface	SST≥90th percentile for 5 days	1982-2021	1982-2022	0.74 events/ decade	1.54 days/decade	0.26°C/ decade (Imax)	Martinez *et al.*, 2023
		Detrended SST≥90th percentile for 5 days			no statistically significant trend	no statistically significant trend	no statistically significant trend	
Satellite data	Entire basin surface	SST≥90th percentile for 5 days	1982-2020	1982-2020	1.3 ± 0.246 events/decade	3.6 ± 1.16 days/decade	0.06 ± 0.04 °C/ decade (Imean); 0.12 ± 0.06°C/decade (Imax)	Hamdeno & Alvera-Azcaráte, 2023
Satellite data & hydrographic profiles	Entire basin surface	SST≥90th percentile for 5 days	1982-2015	1982-2020	1.1–1.8 events/ decade	1.23– 3.82 days/decade	0.06–0.13 °C/ decade (Imean); 0.26–0.55 °C/decade (Imax)	Juza *et al.,* 2022
Reanalysis & Satellite data	Exclusive Economic Zones, surface	SST≥90th percentile for 5 days	1987-2016	1987–2019	1.46 – 0.83 events/ decade	-3.5 – 12.64 days/ decade	-0.03–0.26°C/ decade (Imax)	Dayan *et al.*, 2023
							no statistically significant trend	
	Exclusive Economic Zones, subsurface				0.17–1.22 events/ decade	-18.18 – 54.3 days/ decade	-0.13 – 0.04 °C/decade (Imax)	
						no statistically significant trend	no statistically significant trend	
Satellite data	Eastern Med Sea	SST≥90th percentile for 5 days	1982 - 2021	1982 - 2021	1.1 ± 0.2 events/ decade	14.7 ± 3.4 days/decade	-	Aboelkhair *et al.*, 2023
Satellite SST	Entire basin surface	MHW Activity Index	1982-2021	1982-2021	1 - 2.5 events (summer)	8 - 20 days (summer)	1.8 - 1.9 °C (summer)	Simon *et al.*, 2022
Satellite SST	Entire basin surface	SST≥90th percentile for 5 days	1982 - 2001	2002 - 2021	89 days/ year	18 days	1.90°C	Rosselló *et al.*, 2023
			shifted baseline		43.1 days/ year	13 days	1.66°C	