

{rokbox title=| Spearman correlation matrix of flowering intensity, geographic coordinates, and thermal variables :: Image:

Authors|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-mas-s-flowering-seagrass-carlot-2026-thumb-et-al.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-mas-flowering-seagrass-carlot-2026-et-al.jpg{/rokbox}

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[Mass flowering of the seagrass *Posidonia oceanica* after 2022 record-breaking marine heatwaves, a Pan-Mediterranean study.](#)

Communications Earth and Environment. Volume 7. Article number: 525 (2026).

<https://doi.org/10.1038/s43247-026-03631-8>

Abstract: Following the unprecedented marine heatwaves of summer 2022, extensive flowering of the endemic seagrass *Posidonia oceanica* was witnessed across the western Mediterranean. To unravel the causes of this event, we conducted a pan-Mediterranean analysis across 442 sites spanning all Mediterranean ecoregions, with 76% exhibiting flowering. Flowering differed regionally, with both highest flowering prevalence (over 90%) and flowering intensity (up to 0.75) recorded in the Liguro-Provençal and Balearic Seas. We demonstrate that regions experiencing large summer sea surface temperature anomaly with high marine heatwave cumulative intensity displayed the highest flowering intensity. The probability of

flowering was very likely when marine heatwave cumulative intensity exceeded $\geq 120^{\circ}\text{C}$ days. These findings suggest that marine heatwaves trigger flowering in *P. oceanica* and, given the high energetic cost of sexual reproduction, continued ocean warming may shift energy allocation toward flowering. This shift could profoundly affect the species' reproductive strategies, posing major challenges and uncertainties for its long-term evolution.

Keywords: Climate-change impacts, Phenology.