

{rokbox title=| Regional projections of mean sea level change components (median estimates) for 2080–2099 relative to 1995–2014 under SSP5-8.5: (a) surface mass balance, (b) vertical land motion, (c) steric dynamic from the regional ensemble mean, and (e) steric dynamic from the global ensemble mean :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-regionalized-mediterranean-relative-jorda-2025-thumb-et-al.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-regionalized-mediterranean-relative-jorda-2025-et-al.jpg{/rokbox}

I M Parras-Berrocal, R Waldman, N M Gonzalez, B Ahrens, W Cabos, **G Jordà**, P Lionello, G Sannino and S Somot, 2025.

[Regionalized Mediterranean relative sea level projections under high-emission regional climate scenarios](#)

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**Abstract:** Future sea level (SL) change in the Mediterranean Sea is one of the major climate hazards for populations living in coastal areas. In this study, we analyze projections of relative SL (RSL) rise in the Mediterranean Sea until the end of the 21st century. For the first time, we provide a detailed characterization of regional patterns of future SL change using an ensemble of three multi-decadal SSP5-8.5 scenario simulations with high-resolution fully coupled regional climate system models (RCSMs) of the Med-CORDEX initiative and their driving global climate models (GCMs). At the basin-scale, RCSMs do not significantly modify the GCM-projected RSL changes by 2100, with a mean RSL change of 69 cm (60–93 cm, 17th–83rd percentiles) relative to 1995–2014. Among the RSL components, the steric dynamic (primarily driven by the global thermal expansion) and the surface mass balance drive the basin-scale RSL rise, with the latter being the largest source of uncertainty. We find that the RSL rise in the Mediterranean is expected to be 4%–12% lower than the global mean due to differences in the surface mass contribution, and 6%–15% lower than in the nearby Atlantic as a result of dynamic adjustments within the semi-enclosed basin. While dynamic SL drives the mean regional patterns, vertical land motion introduces the greatest local spatial variability along coasts, resulting in a projected local RSL rise by 2100 of –26 cm to +178 cm in GCMs and –39 cm to +170 cm in RCSMs. Furthermore, compared to GCMs, RCSMs incorporate local details that result in greater spatial variability, which is important to consider in risk assessments and adaptation planning.

**Keywords:**mediterranean sea,high-emission scenarios,sea level.