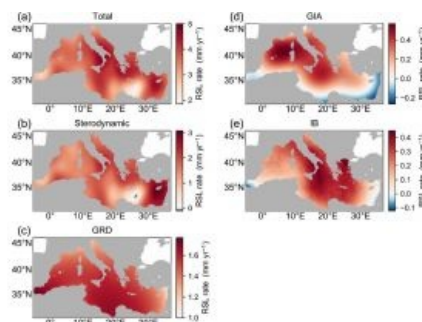
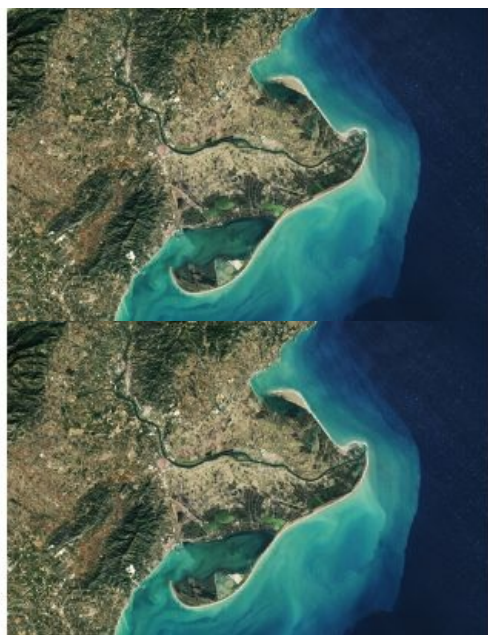


Scientists Discover Staggering Sea-level Rise in Mediterranean Sea



Scientists from the National Oceanography Centre (NOC) have discovered a substantial rise in sea levels in the Mediterranean Sea, using a vital new method to measure changes in sea level. The study, published in the *Journal of Geophysical Research: Oceans*, demonstrated that sea levels in the Mediterranean Sea have risen at vastly higher rates over the past 20 years

compared to the entire 20th century.

The study revealed that sea levels in the Mediterranean Sea increased by about 7cm in the period 2000–2018. Previous changes in sea-level rise in the Mediterranean Sea have been highly unpredictable due to limited observational data but using this latest method, scientists analysed sea-level data from tide gauges and satellites to reveal an enormous increase as a result of ocean warming and land-ice melt.

Tide Gauges and Satellite Altimetry

Dr Francisco Mir Calafat, senior scientist from the Marine Physics and Ocean Climate group at the [NOC](#), said: “Our research demonstrates how climate change has sped up sea-level rise in the Mediterranean significantly since the turn of the millennium through increased melting of land ice. This is especially true in the Adriatic, Aegean and Levantine Seas, which are rising even faster than the rest of the Mediterranean.”

The previous lack of long-term sea-level records has hampered the ability to make long-term plans for local coastal defences.



Pattern of relative sea level (RSL) rates, 2000-2018, estimated by the Bayesian hierarchical model (BHM). a) Total RSL including inverse barometer (IB) effect, and contributions from: b) Sterodynamic changes, c) Gravitational, rotational, deformation effects, and d) Glacial isostatic adjustment, with e) The contribution from the IB effect (computed outside the BHM).

Dr Calafat continued: “This is the first time that we have been able to clearly distinguish between natural variations in sea-level rise and changes arising from sustained human impact in the Mediterranean Sea, based on observations alone. We have achieved this by analysing data from tide gauges and satellite altimetry together with sea-level patterns of response to land-ice melting, which explain how sea levels rise thousands of miles away from melted land-ice sheets.

“The new estimates will allow us to detect acceleration in sea-level rise much earlier, allowing more time to increase adaptation. We expect this new data set will be extremely valuable not only to the wider science community, but to policymakers, coastal planners and coastal communities at large.”

The new data sets will help local authorities with planning coastal defences that protect local communities, as well as better determining the most appropriate levels of protection required in certain areas.

Being able to accurately project regional sea-level rise is critical for ensuring that the correct coastal adaptation strategies are developed and implemented. As one of the most vulnerable regions susceptible to climate change, the Mediterranean’s World Heritage sites are already at risk from coastal flooding and erosion.

[The full paper can be found here](#)



The coastline of Spain is changing due to the rising sea and more frequent and intense storms. (Courtesy: NASA Earth Observatory/Lauren Dauphin, using Landsat data from the U.S. Geological Survey)

