

Shoreline change dynamics along the Augusta coast, eastern Sicily, South Italy

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Abstract	<p>The coastal region of Augusta, eastern Sicily, Italy, is a densely populated zone, where human pressures profoundly shaped the coastal and land dynamics. So far, understanding the interaction between natural and human processes in modelling coastal geomorphology is still quite challenging. However, coastal and environmental monitoring poses the bases for managing coastal areas properly. Therefore, the aim of this research was first to understand the medium-term shoreline changes along Augusta Bay between 1972 and 2021, and then assess the main local coastal modifications determined by the increasing coastal armouring. To do so, the shorelines dataset was extracted from Landsat and Sentinel-2 satellite imageries using the NDWI and mNDWI methods and then statistical parameters were computed using Digital Shoreline Analysis System (DSAS). Results show that this coastal fringe experienced significant shoreline recession over the studied time interval. Negative shoreline shifts are higher in correspondence with torrent deltas, as a result of the increasing human and natural forces insisting on the land and coastal environments. Since 1970s, Augusta Bay registered a significant increase in artificial coastal length and a coastal armouring index of Maximal level was reached today.</p>
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