

Forecasting Impacts on Vulnerable Shorelines: Vulnerability Assessment Along the Coastal Zone of Messologi Area - Western Greece

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Abstract : The coastal areas of the Mediterranean have been extensively affected by the transgressive event that followed the Last Glacial Maximum, with many studies conducted regarding the stratigraphic configuration of coastal sediments around the Mediterranean. The coastal zone of the Messologi area, western Greece, consists of low relief beaches containing low cliffs and eroded dunes, a fact which, in combination with the rising sea level and tectonic subsidence of the area, has led to substantial coastal. Coastal vulnerability assessment is a useful means of identifying areas of coastline that are vulnerable to impacts of climate change and coastal processes, highlighting potential problem areas. Commonly, coastal vulnerability assessment takes the form of an 'index' that quantifies the relative vulnerability along a coastline. Here we make use of the coastal vulnerability index (CVI) methodology by Thieler and Hammar-Klose, by considering geological features, coastal slope, relative sea-level change, shoreline erosion/accretion rates, and mean significant wave height as well as mean tide range to assess the present-day vulnerability of the coastal zone of Messologi area. In light of this, an impact assessment is performed under three different sea level rise scenarios, and adaptation measures to control climate change events are proposed. This study contributes toward coastal zone management practices in low-lying areas that have little data information, assisting decision-makers in adopting best adaptations options to overcome sea level rise impact on vulnerable areas similar to the coastal zone of Messologi.

Keywords : coastal vulnerability index, coastal erosion, sea level rise, GIS

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