

Effects of sea level rise on coastal areas of eastern Aegean - GR

1. Policy Objective & Theme

- ADAPTATION TO RISK: Managing impacts of climate change and safeguarding resilience of coasts/coastal systems

2. Key Approaches

- Integration
- Technical

3. Experiences that can be exchanged

Identification and mapping of extreme sea elevation for Eastern Mediterranean coasts. Production of inundation maps, due to storm surge, of selected high risk areas. Actions for information and awareness of citizens on the responses to floods due to sea level rise.

4. Overview of the case

Assessment of the hazard that extreme sea-level variability may pose to coastal areas of the eastern Mediterranean, considering the potential synergy of storm surge, tidal currents, and extreme wave conditions.

5. Context and Objectives

a) Context

The actions refer to the assessment of sea level rise and the associated flooding risk due to storm surge, in the eastern Mediterranean Sea. The frequency and size of extreme sea-level events is expected to rise in the future, possibly causing sea-originated floods. The actions aim to protect and improve the natural and human environment of the eastern Mediterranean coastal areas by contributing to the prevention and management of sea-originated risks.

b) Objectives

The actions aim to provide tools and methodologies to intercept and/or manage sea-originated hazards to the coastal zone and to increase the resilience of coastal regions. More specifically, the objective is to develop long term planning and immediate response measures for the monitoring, interception and management of sea-originated hazards (flooding and erosion) related to extreme sea-level variability. The actions are envisaged for information and awareness of citizens on the responses to environmental risks, development of protection policy tools, incorporation of new technology methods in identifying sea-originated risks and thematic mapping of eastern Mediterranean coastal regions.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The work was conducted by the Laboratory of Maritime Engineering and Maritime Works of the University of Thessaloniki.

b) ICZM Tools

The actions aimed to provide tools to manage extreme sea level hazards to eEastern Mediterranean coasts.

The main activities, results and outputs were:

- Study of sea-level changes in coastal areas by using an existing storm surge numerical model, a tidal propagation model and/or results of harmonic analysis of tide-gauge data, and deterministic/stochastic simulations of the wind-forced waves.
- Assessment of highest expected sea elevation due to long-term sea-level rise.
- Identification of extreme sea level variability in the eastern Mediterranean coasts based on the combination of worst-case scenarios
- Production of vulnerability maps, using a GIS system.
- Production of inundation maps of selected high risk areas
- Actions for information and awareness of citizens on the responses to floods due to sea level rise. Suggestions to policy makers. Promotion of the results to coastal managers and civil protection authorities. Dissemination of the information to the general public.

7. Cost and resources

The cost was ca. €200.000. It was part financed by ERDF funds.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The results contributed to the prevention and management of coastal environmental risks through the improvement of direct response methodologies and long term planning.

9. Success and Fail factors

The achievements, among others, offer a coastal flood study for the eastern Mediterranean exploiting combined worst case scenarios, resulting in vulnerability maps as well as inundation maps of selected high risk areas. The project also included actions for information and awareness of citizens on the responses to floods due to sea level rise and suggestions to policy-makers.

10. Unforeseen outcomes

None.

11. Prepared by

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12. Verified by

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13. Sources

- Project CORI (2006-2009), PREVENTION AND MANAGEMENT OF STORM SURGE RISKS TO THE COASTAL ZONE (INTERREG III B - ARCHIMED)
- http://marine_lab.civil.auth.gr/cori.htm
- [https://hermes.aegean.gr/owa/redir.aspx?C=2306cf1698db47f2a7dae7705617d603&URL=http%3a%2f%2fmarine_lab.civil.auth.gr%2fcori.!](https://hermes.aegean.gr/owa/redir.aspx?C=2306cf1698db47f2a7dae7705617d603&URL=http%3a%2f%2fmarine_lab.civil.auth.gr%2fcori.)