



Interreg



Balkan-Mediterranean HERMES

A HarmonizEd fRamework to Mitigate coastal EroSion promoting ICZM protocol implementation

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Local development needs cooperation and information.

We live in a time that seems to reward those that denounce the European integration process and put into question the scientific assumptions and conclusions about Climate Change. It is true that the European Union is far from being perfect and that some proponents of Climate Change seem sometimes off the mark.

Yet, the EU is the only refuge that we have succeeded to jointly built over the past few decades and CC is a real challenge that threatens our prosperity and security. To navigate in these troubled waters, local authorities need to reach out for cooperation with their counterparts and at the same time draw strength from place-based skills and knowledge.

These are the elements that the Municipality of Paggaió sought to bring together in the HERMES project and we consider that this initial objective has been achieved. What remains to be done now is that the HERMES partnership delivers those tools that will enable us all, from Greece, Cyprus, Bulgaria and Albania, to implement a set of actions to mitigate coastal erosion. To prove that countering coastal erosion at local scale is possible, when people and institutions cooperate across national borders and beyond fields of activity.

More than a project, HERMES aims to become an inclusive network based on knowledge, innovation and territorial cooperation which will propose tools and solutions that both fill gaps in coastal monitoring activities and improve operational capacity to take concrete action at local scale for the mitigation of coastal erosion.

*Philippos Anastasiadis
Mayor of Paggaió*



HERMES : Building resilient coastal communities across borders in the Balkan-Mediterranean area.

Coastal erosion is undoubtedly one of the most important environmental concerns faced by coastal communities, aggravated by the prospect of accelerated sea level rise due to climate change and the accumulated negative effects of mismanagement practices.

Over the past 100 years about 70% of the world's sandy shorelines have been retreating due to coastal erosion, while currently around 20% of EU coastline is eroding. Coastal erosion is directly linked to economic losses due to coastal retreat and loss of land, ecological damage (especially of valuable coastal habitats) and societal problems. In the BMP area the impact of high-frequency and high intensity winter storms, the effect of sediment blockage due to river damming, the degradation of beach stability in areas of urban and tourist activities and the lack of integrated approach in human interventions have led to significant coastal erosion rates.



Presently, almost 30% of coasts in Greece are eroding or appear as vulnerable to erosion. In Cyprus this percentage reaches 38%, while in Bulgaria almost 71% of Black Sea beaches are eroding. In Albania, a country with 420 km coastline, coastal erosion is a significant issue for the northern and central parts.

HERMES aims to develop a unified and harmonized framework for coastal erosion mitigation and beach restoration covering the four partner countries (Albania, Cyprus, Greece and Bulgaria) through the implementation of a coherent ensemble of studies, the sharing of already developed technical tools and the design of joint policy instruments. HERMES will aid coastal stakeholders to harmonize and adapt to the most relevant EU policies on coastal zones, as CC, Integrated Maritime Policy, Maritime Spatial Planning, ICZM, Marine Strategy and Water Framework Directives, Inspire, etc. Coastal municipalities and regional authorities, coastal users, local and international NGOs, landowners and businesses situated in or near coastal areas will benefit from project outputs.

HERMES capitalizes on previous EU-funded projects (BeachMED, CoastGAP, Coastance, Mare Nostrum) to build a joint coastal erosion methodological framework to be applied at four study sites (one per partner country). At each site: historic and future coastline retreat will be evaluated; erosion and climate change vulnerability indicators will be derived; causes related to human interventions will be assessed; existing environmental and socio-economic data will be integrated into a coastal webGIS; data from a modeling toolkit (atmospheric, hydrodynamic, wave and morpho-dynamic) will be applied; a series of intervention scenarios will be tested and evaluated. HERMES will place emphasis on the promotion of environmental-friendly technical works for coastal restoration (e.g., beach and dune stabilization, beach nourishment). Workshops and seminars will be organized to train national, regional and local managers on the use of HERMES system and raise the public awareness on the proposed action plan.

The HERMES Monitoring and Modeling Actions on Coastal Erosion

In the framework of the HERMES project data from three hydrodynamic and one atmospheric modeling systems will be provided in a dedicated HERMES webGIS page, in order to be used for the evaluation of their role in the coastal erosion and the application of the numerical model for transport and sedimentation of the particular matter in the four study areas.

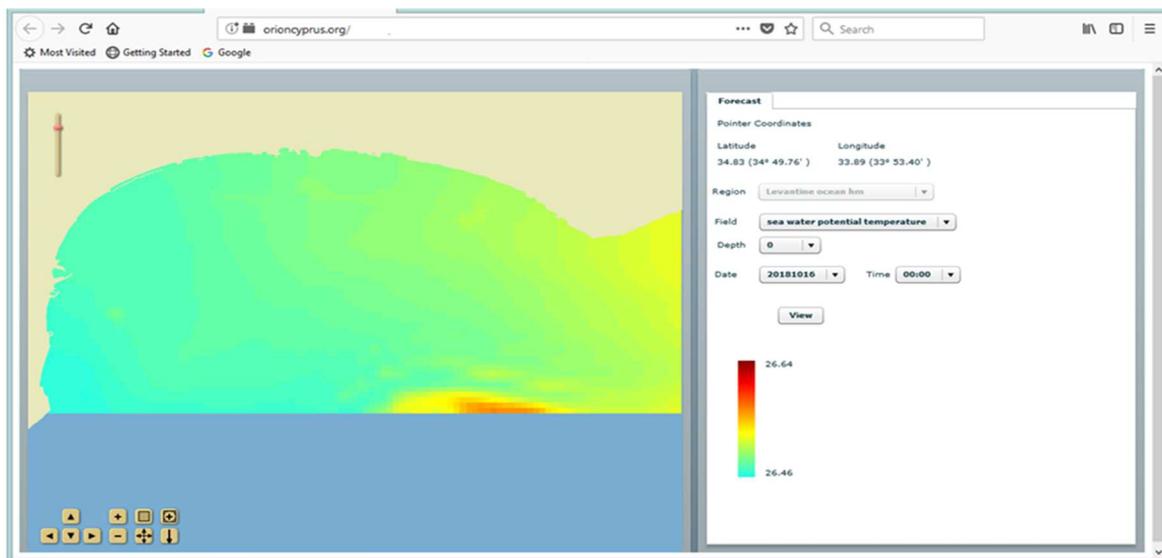
At first, sea currents, sea temperatures and waves provided operationally by the Copernicus CMEMS MFCs—monitoring and forecasting centers in the Mediterranean and the Black sea, will be used to suit the study areas of the HERMES project. Moreover, higher resolution sea currents and sea temperatures provided by the new

downscaled hydrodynamical models in the Eastern Mediterranean and the Levantine Basin will be used for the study areas in the Mediterranean.

The wave data (significant wave height, wave direction and maximum wave height) from the new WAM model covering both, the Mediterranean and the Black Sea at a resolution of 5 km will be used.

The high resolution SKIRON wind data covering the Mediterranean and the Black Sea will be also used for the needs of the project.

Finally, the in-situ data (sea currents, waves, tidal variations and suspended particles) gathered from the monitoring stations of the HERMES project, will be transmitted in near real time via internet to the dedicated webGIS web page for visualization and further dissemination for the needs of the project.



Beta version of the webGIS implementation software for online visualization of the data provided by the new hydrodynamic downscaled models in the Larnaca bay.

HERMES Synergies with the Black Sea Program

The Ocean is the media used to investigate our world and transport commodities since ancient times. Thus, coastal zones accommodated larger part of world's population. For thousands of years coastal habitats are exposed to continuous interaction between land and water. Despite of remarkable achievements of our engineering science in the last decades, today coastal professionals are facing new challenges.

Modern Coastal Management is aiming to:

- Integration of activities and uses (ICZM)
- Feasibility/multi-functionality of projects
- Sustainability of what is built
- Environmental compliance
- Safety of coastal projects

Project co-funded by the European Union and National Funds of the participating countries

Challenges are related to the following factors:

Natural: Geology and tectonics, climate change, sea level rise, and increased storminess

Humanitarian: Socio-political, science, research, education and training

Technogenic: Industry, urbanization, tourism, agriculture

The Black Sea Basin Programme 2014-2020 fosters efforts to improving the status of the coastal areas and coastal waters of the Black Sea. Numerous projects are focused on: Monitoring and assessment of the sea and coast, based on scientific knowledge, is the indispensable basis for the management of human activities. (*National institute of Marine science Grigore Antipa, Romania*); Prevention actions by creating a cross border environmental monitoring system, development of prevention activities for environmental protection and improve the availability and cross border interoperability. (*Constanta County*); Online access and interactive components to provide information support, decision making support and web-based Internet portal to support geospatial data on Black Sea region including digital maps on marine environmental conditions, geophysical maps for the coastal areas, environmental parameters for the broader region, maps of protected areas, and projections of future climate change (*The Black Sea Network*). One project supports the cooperation between three partners from Greece, Bulgaria, and Georgia. These countries share common cultural background since people travelling between ports of these countries and trading goods has been taking place for millenniums. Modern tourism routes are the outcome of these bonds that need to be enhanced in order to achieve maximum cross-border cooperation between bodies/businesses in all participating countries (*Port Authority of Alexandroupolis*).

HERMES project based on previous experiences will work together with running territorial cooperation or other projects on the topic of coastal erosion. HERMES is focused on the issue "Coastal erosion" which is critical for the existence and the future of the coastal strip, an area of utmost importance for any type of use and all the users. In this respect the achievements of the project will be beneficial for the various projects under the Black Sea Basin Program. HERMES will result in demonstrating a common approach to tracking the erosion process, collecting data for running hydrodynamical and morpho-dynamical models, and predicting the coastline changes. Thus the HERMES will become a useful source of information for already running and future projects dealing with special planning, integrated coastal management, and environmental mitigation.



This is what is all about - a clean environment and a bright future for our children!

HERMES builds capacity of key actors in Albania

The consolidation of democracy in Albania has led to a socio-economic evolution that had a considerable impact on the coastal zone, already affected from coastal erosion processes and the sedimentary budget deficit.

Constructions of infrastructures and tourism development activities have contributed to the alteration of the landscape with negative consequences on both the morphological equilibrium and the sediment dynamic.

Within the framework of HERMES two partners from Albania (IGEWE and TEULEDA) aim to develop a unified and harmonized framework for coastal erosion mitigation and beach restoration covering the four partner countries (Albania, Cyprus, Greece and Bulgaria).

IGEWE is the national hydro meteorological service of Albania and responsible for the studies in relation to natural hazards. IGEWE through the HERMES project, aims to build capacity, gain experience, and acquire equipment that will strengthen its capability to provide timely warnings, elaborate hydrodynamic studies, carry out coastal water monitoring and contribute in collaboration with the civil protection actors to disaster risk reduction. The purchase, installation and operation of a Monitoring Station for sea currents, waves, tidal variations and suspended particular matter in the four pilot sites (Paggai, Larnaca, Varna and Shengjin) will enable us



Automatic Weather Station, part of the national monitoring system in Albania

to obtain data on a real-time. These data, which will be collected, stored and transferred to a land station in real-time, will upgrade the capacity related to coastal erosion mitigation and climate change resilience of local/regional/national authorities involved in coastal zone management in the participating countries. TEULEDA in the frame of HERMES project is focused on the design and promotion of innovative technologies following the ecosystem-approach for the improvement of environmental protection along coastal zones. HERMES

will aid coastal stakeholders to harmonize and adapt to the most relevant EU policies on coastal zones. Coastal municipalities and regional authorities, coastal users, local and international NGOs, landowners and businesses situated in or near coastal areas will benefit from project outputs. Thanks to the project, the level of capacity of TEULEDA to operate at transnational scale will be improved and at the same time it will further develop its service portfolio in matters related to environmental vulnerabilities, fragmentation, and the safeguarding of ecosystem services.



The location of the new Monitoring Station for sea currents, waves, tidal variations and suspended particular matter in the Shengjin coastal area (Albania)



The information and views of this Newsletter lie entirely with the HERMES partnership. The BalkanMed Programme is not responsible for any use that may be made of the information it contains.

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