Interreg
EUROPEAN UNION
Balkan-Mediterranean
HERMES

Δήμος Παγγαίου

teuleda
Local Economic Development Agency

IGJEUM
Institute of Geosciences, Energy, Water and Environment

HERMES-3rd Steering Committee Meeting

Thursday 4-7-2019

IGEWE Main Building, Don Bosko nr.60, Tirana

The project is co-funded by the European Union and National Funds of the participating countries

Interreg
EUROPEAN UNION
Balkan-Mediterranean
HERMES

Δήμος Παγγαίου

teuleda
Local Economic Development Agency

IGJEUM
Institute of Geosciences, Energy, Water and Environment

Coastal Erosion in Bulgaria and the role of HERMES

Boyan Savov

The project is co-funded by the European Union and National Funds of the participating countries

Interreg
EUROPEAN UNION
Balkan-Mediterranean
HERMES

Δήμος Παγγαίου

teuleda
Local Economic Development Agency

IGJEUM
Institute of Geosciences, Energy, Water and Environment

Boyan Savov
Marine Construction and Environment
B.V.S. Consult Ltd.
Varna, Bulgaria
bvsconsultbg@gmail.com

Biography: Boyan Savov has made his 35-years professional career working for state authorities, as a freelance consultant, and with leading contractors in marine construction and dredging. He is one of the founders of the Black Sea Coastal Association which he chaired from 1997 to 2007. Mr. Savov is a graduate of the University of Architecture, Civil Engineering and Geodesy in Sofia, Bulgaria, with a degree in Hydraulic Engineering. He is also a UNESCO-IHE alumnus from Delft, The Netherlands. Boyan Savov's professional expertise in marine construction and environment ranges from research through design to execution and monitoring. As a young researcher, Boyan Savov participated in the elaboration of the General Scheme for protection of the Bulgarian Black Sea Coast. Over the last twenty years Mr. Savov has participated at a senior level in a considerable number of European projects in coastal engineering, coastal environment and port development, from small to multimillion in size . Throughout his career he has committed himself to bridging the gap between theory and practice. In this respect, for the last fifteen years, he has also made valuable contributions to training M.Sc. students and trainees.

The project is co-funded by the European Union and National Funds of the participating countries

Interreg
EUROPEAN UNION
Balkan-Mediterranean
HERMES

Δήμος Παγγαίου

teuleda
Local Economic Development Agency

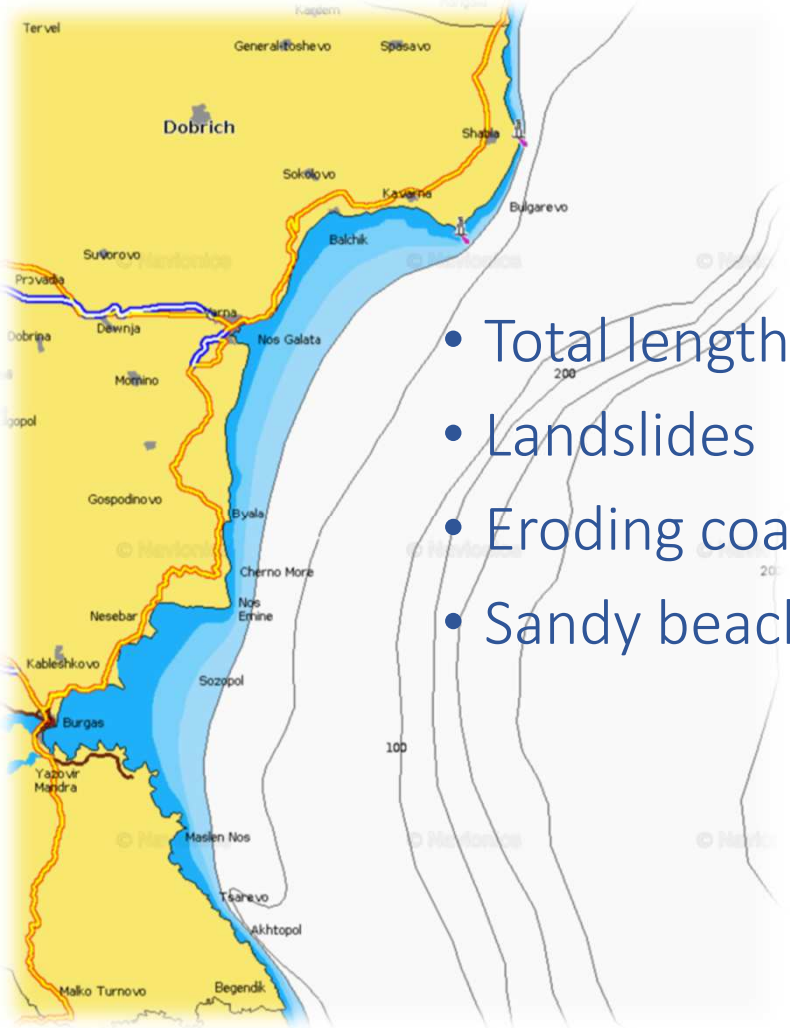
IGJEUM
Institute of Geosciences, Energy, Water and Environment

Contents:

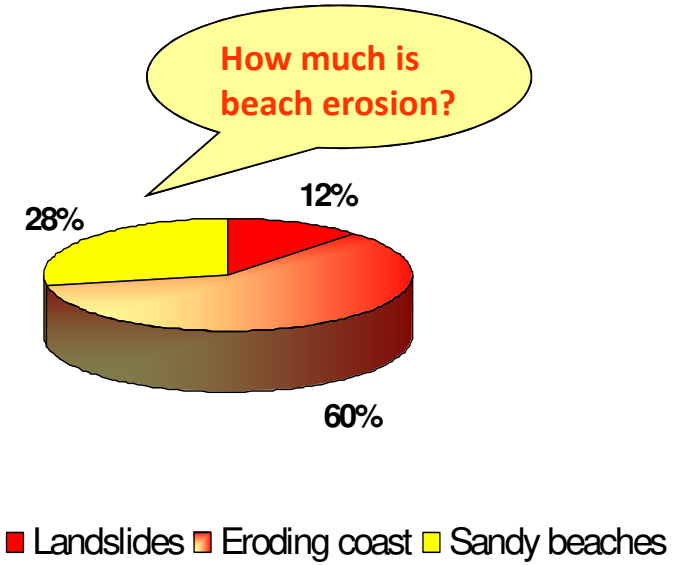
1. Overview- The Bulgarian Black Sea Coast in the EU Project EROSION context
2. The reality: Cliff Erosion, Landslides, and uncertain beaches
3. National Capacity- Legislation, Authorities, Science, Education, Marine Contractors
4. The Role of HERMES

The project is co-funded by the European Union and National Funds of the participating countries

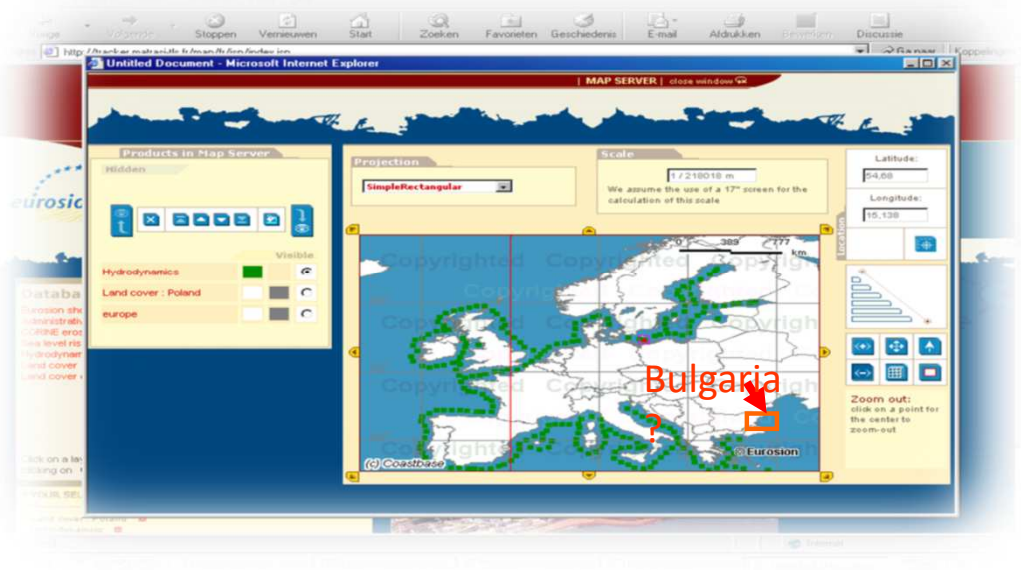
1. Overview- The Bulgarian Black Sea Coast



- Total length of shoreline: 394 km
- Landslides 12%
- Eroding coast: 60%
- Sandy beaches: 28%



Coastal Erosion in Bulgaria in EU context



About 100,000 kilometres of shoreline have been surveyed by EUROSION. Among the various data gathered, erosion trends are among the most important.
This map summarizes these trends by distinguishing eroding coastal segments from non eroding segments. Ultraperipheral regions have not been depicted on the map.
Eroding segments reach 15,100 kilometres

Eroding segments

Stable or accreting segments

River catchment boundaries

Data source - Source des données : EUROSION

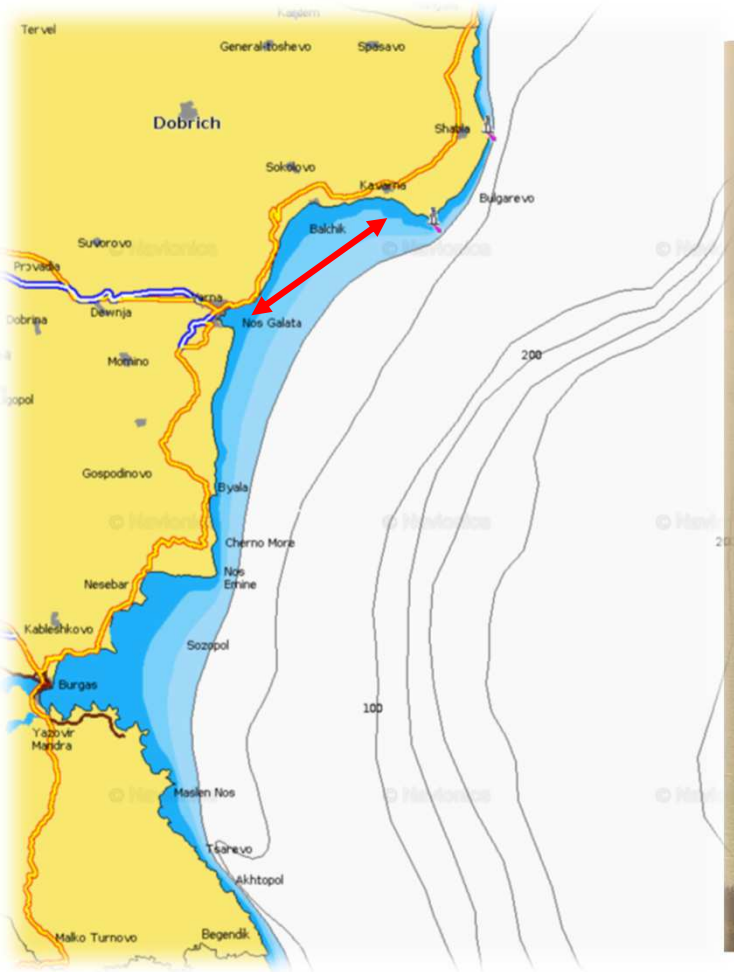
In 2004 the Pan-European project EUROSION reported summary regarding the erosion trends along the shorelines of Europe. Bulgaria was not present in this project, so no data neither information regarding erosion along our coast has been reported. This demonstrates the careless attitude of our administration at that time. This later resulted in no funds subsecuently no coastal projects in Bulgaria.

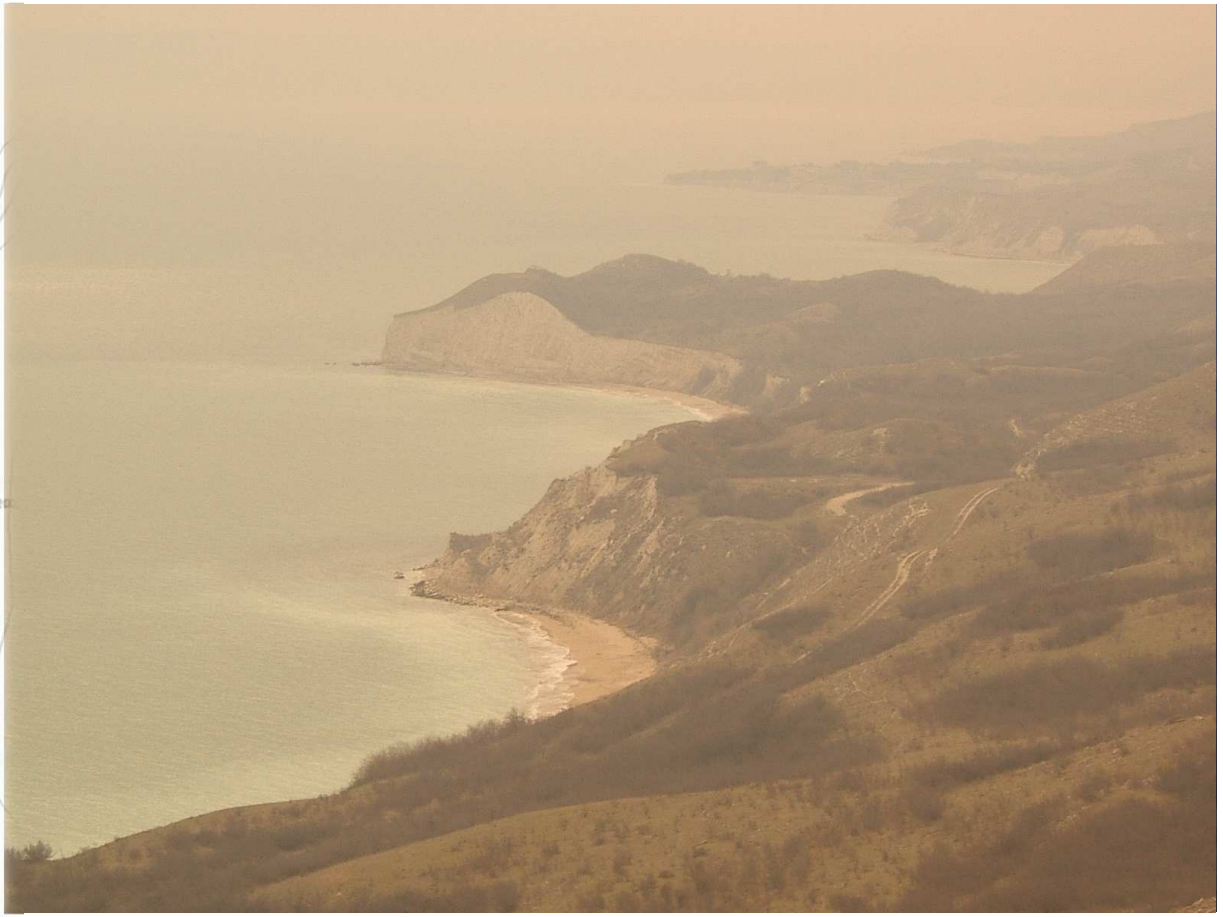
Conclusion: In European context the Bulgarian Black Sea Coast does not erode!

2. The reality: Coastal landslides and eroding cliffs

Highest cliff erosion rates between Cape Sivriburun and Cape Shabla

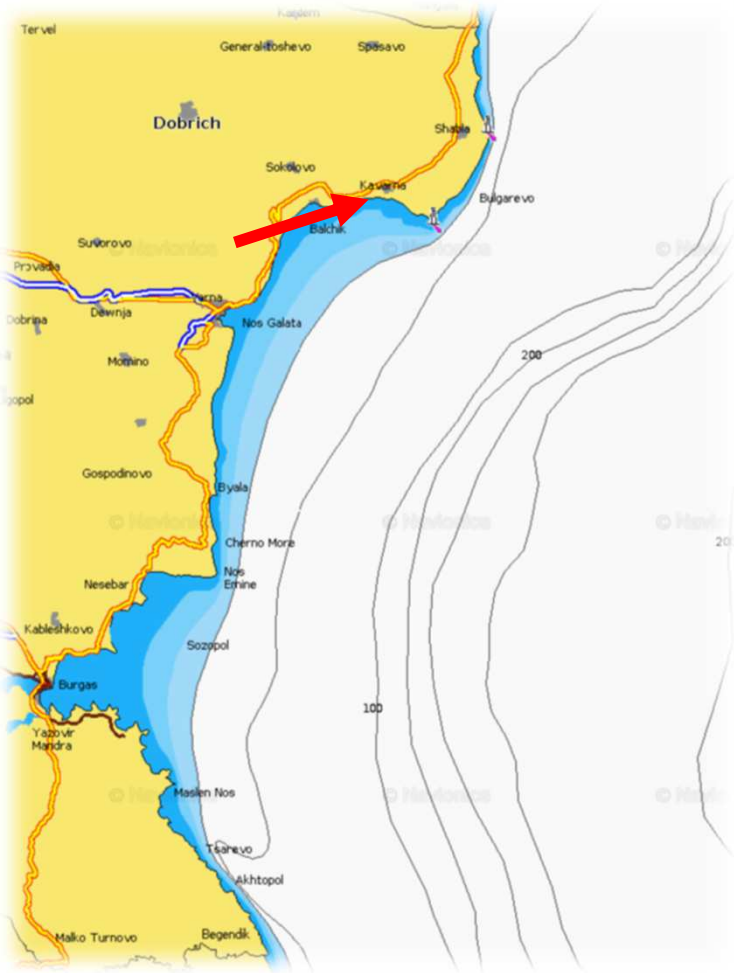
2. The reality: Coastal landslides and eroding cliffs





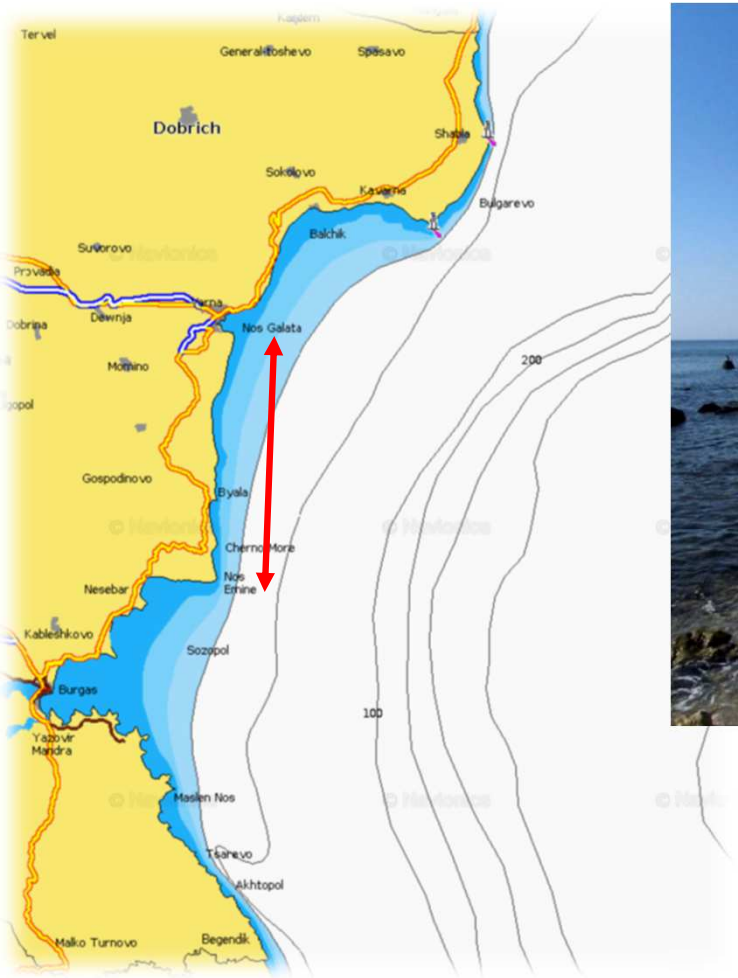
Impressive landslides, a lot of erosion of clayey material, therefore only very small beaches occur

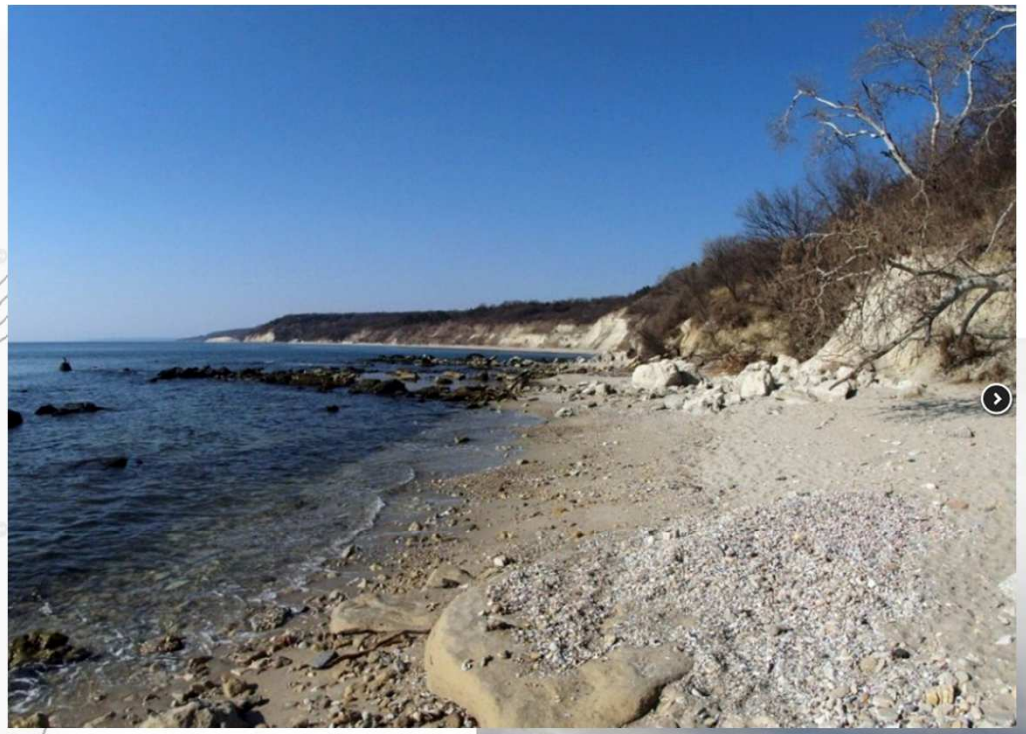
2. The reality: Coastal landslides and eroding cliffs



2. The reality: Coastal landslides and eroding cliffs

The reality: Coastal landslides and eroding cliffs

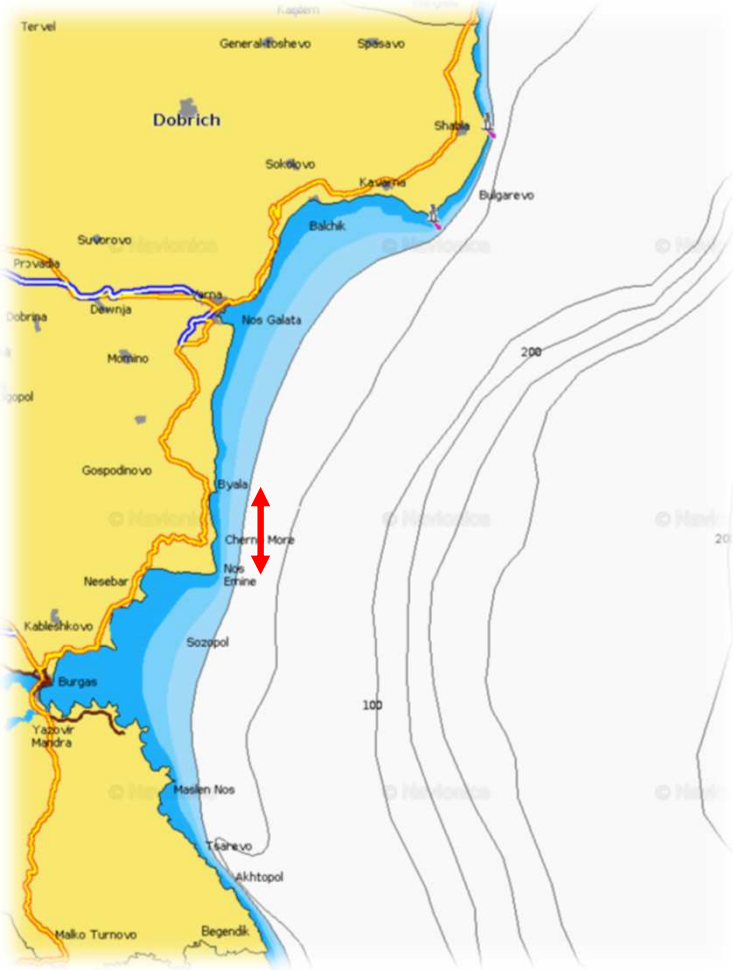


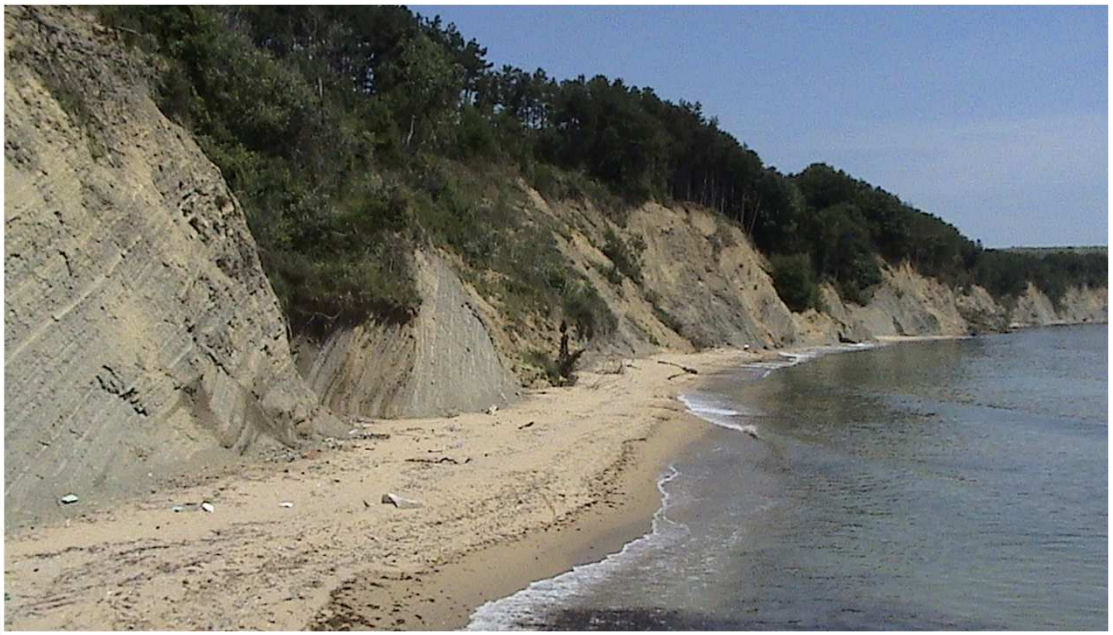


This restaurant collapsed during the extreme winter storm in 2012. The owner restored it and placed some armor.

Veteran Beach after storm, beach width of 18 m, in summer is normally 30 m

The reality: Coastal landslides and eroding cliffs





The coast to the south of Cape Byala: Eroding cliffs producing sand that feeds the beaches in the neighborhood.

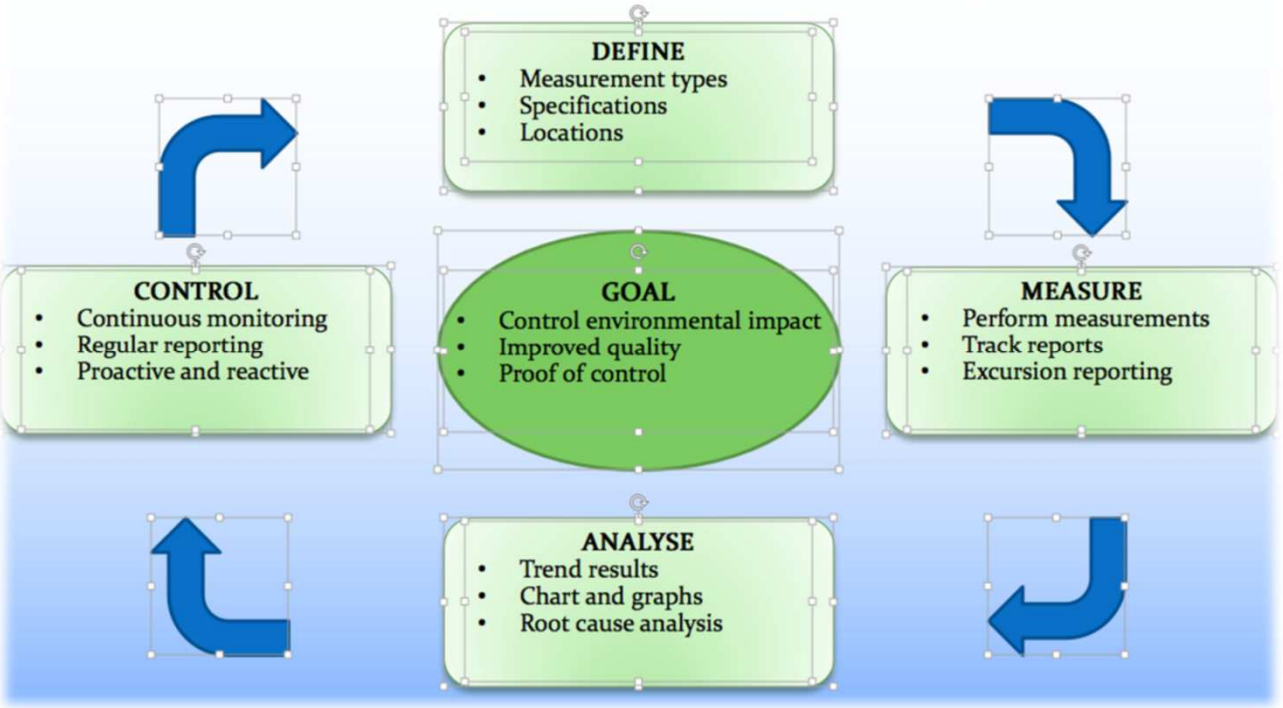
3. National Capacity- Legislation, Authorities, Science, Education, Marine Contractors

- Bulgaria has a Coastal Act, but it is a simple document which cannot be a base for ICZM;
- Bulgaria does not have an authority that is in charge of ICZM;
- Science and research is based mostly on the willingness and enthusiasm of individuals rather than on a well-structured organization;
- Education in the field of Coastal Engineering and ICZM is not existing;
- There are very few contractors with very limited capacity in marine construction.

Basic Pre-conditions for a successful coastal engineering project

- Sufficient information- monitoring of coastline and nearshore
- Up-to-date tools for modeling- cooperation with leading laboratories and consultancies
- Well trained personnel- joint training programs
- Favorable legal framework- Coastal Act (a proper one)
- Beach management strategy- Coastal Sediment Master Plan

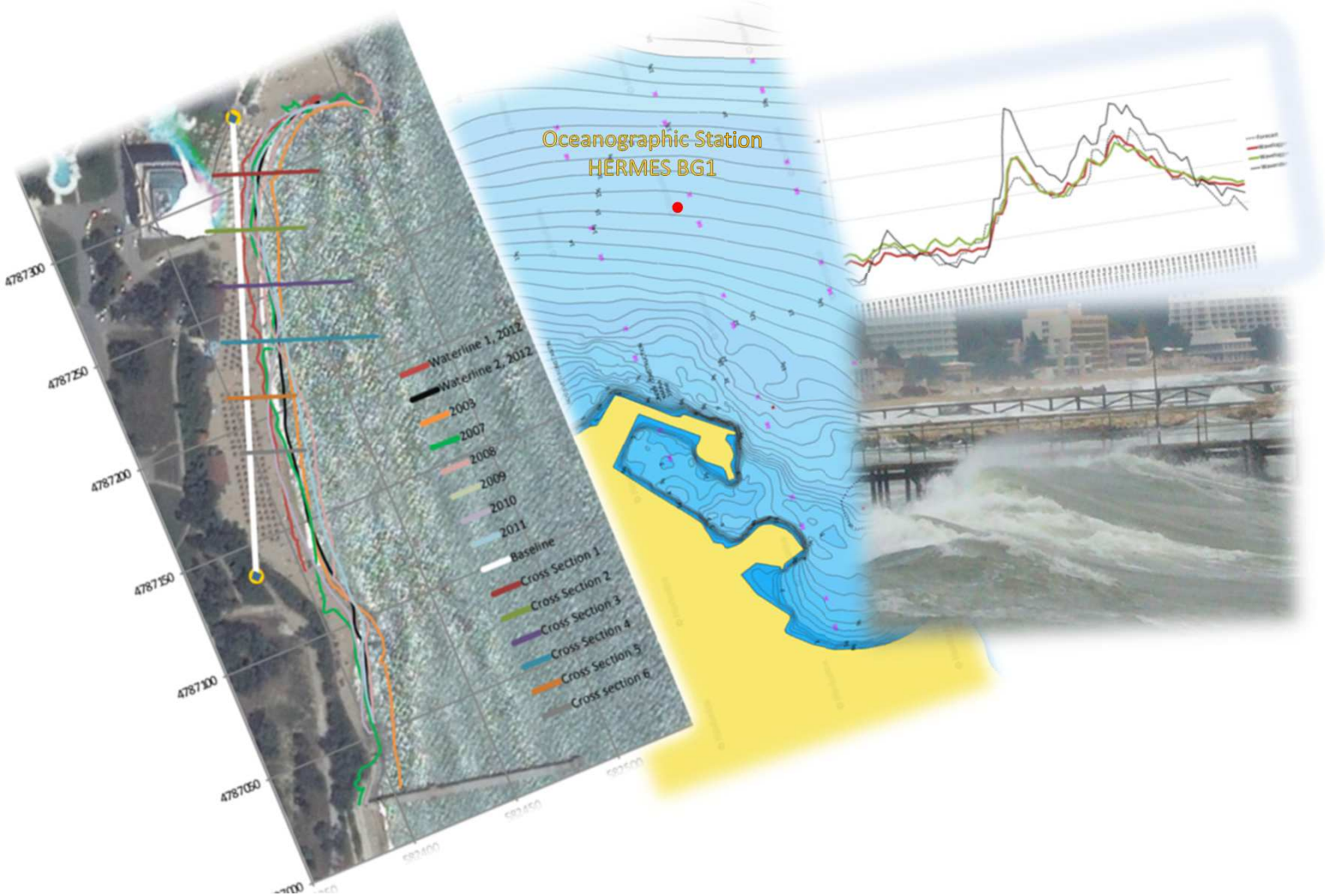
Monitoring Process



4. The Role of HERMES

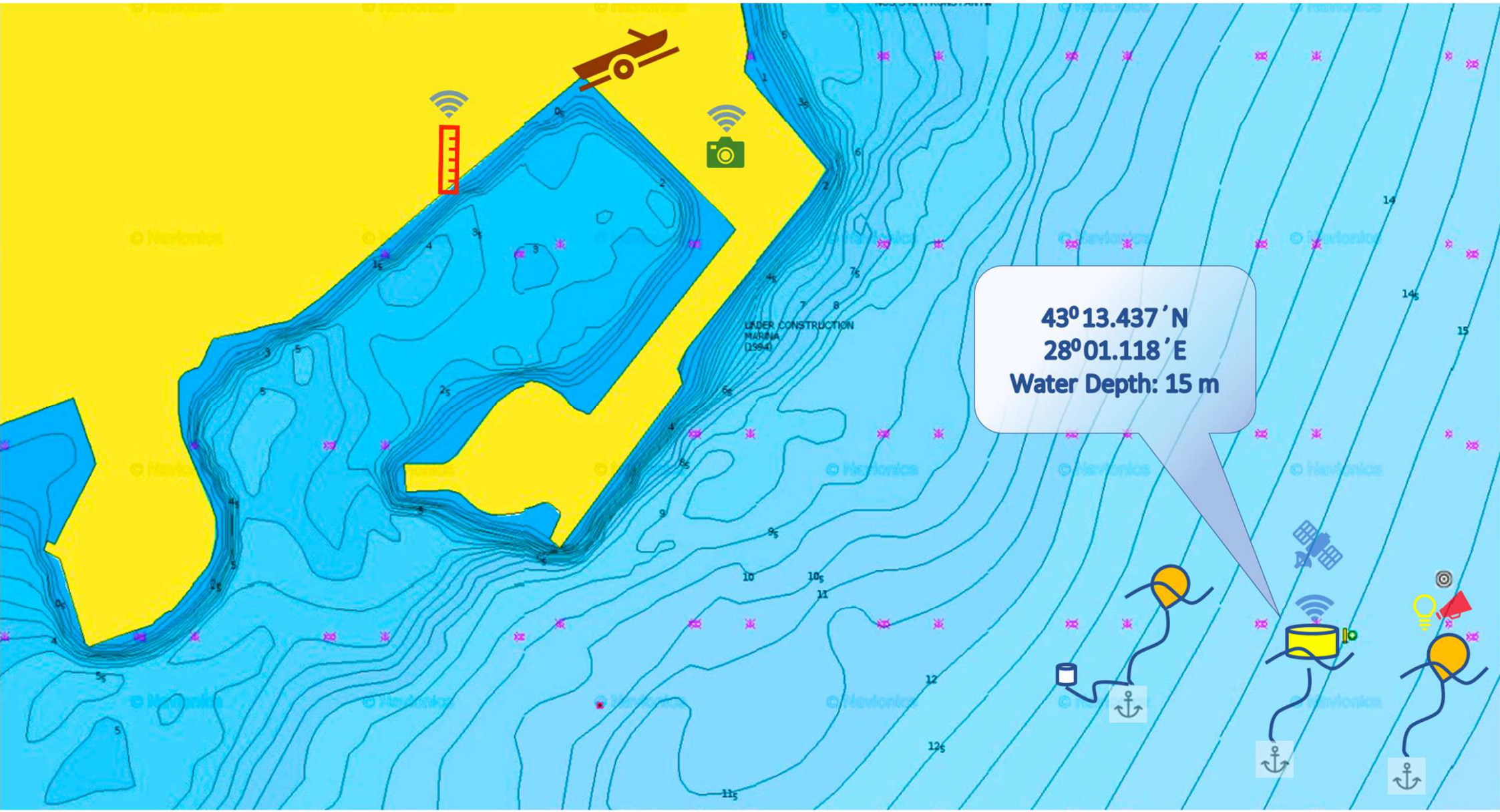
- To demonstrate the importance of monitoring and gathering coastal data in a systemized way and create and maintain open data base;
- To emphasize the role of a proper legislation encouraging public-private partnership in ICZM and in this respect to trigger urgently needed changes in the National Coastal Act;
- To emphasize the importance of early response to climate change effects on the coastal environment and make necessary normative alterations;
- To foster practical application of modern methods for coastal erosion mitigation;
- To make all above transparent and easily public- accessible.

Oceanographic Station Hermes BG-1



Purpose

- The HERMES BG1 Oceanographic Station is a tool to accumulate relevant data for sensing climate change impacts and the effect on coastal erosion rates in particular
- The HERMES BG1 Oceanographic Station provides essential information about the sea state to meet the demand already expresses by key stakeholders such as fishermen, boat operators, and marine research/scientific community.
- It is expected the HERMES BG1 Oceanographic Station to become an reliable source of information for the dedicated users


43° 13.437´N
28° 01.118´E
Water Depth: 15 m
UNDER CONSTRUCTION
MARINA
(1994)

Legend

WaveDroid® (directional wave buoy)

TideDroid® (sea level logger)

CamDroid® (time-laps imagining)

ADCP (Acoustic-Doppler Current Profiler)

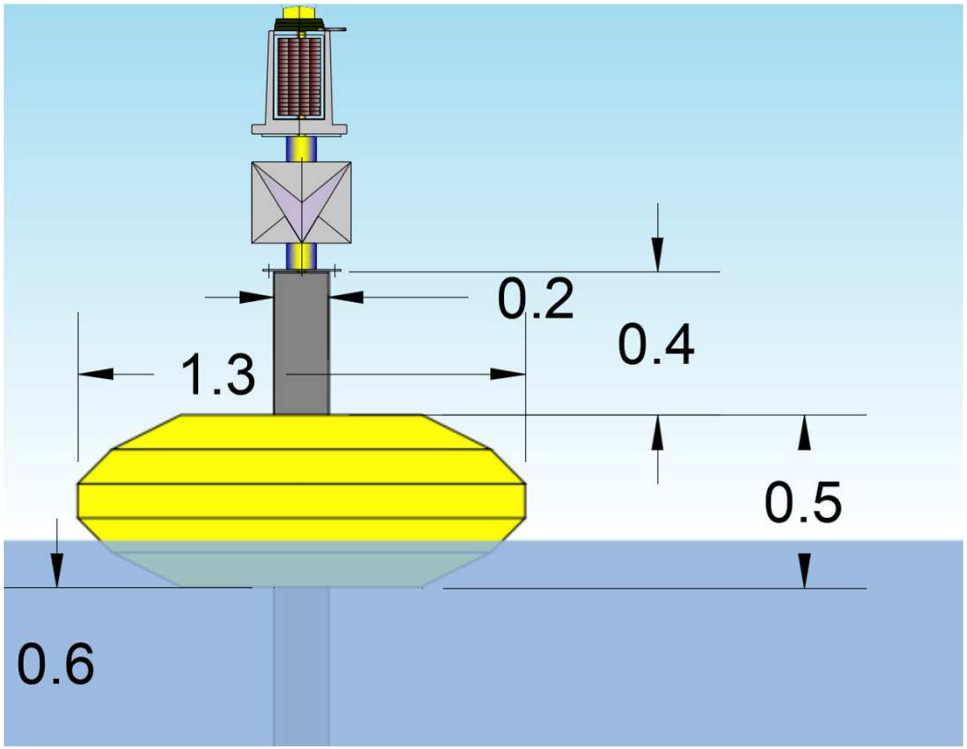
GPRS data transmission

Satellite data transmission

Buoy, Anchor

Navigation aids (light, horn, radar reflector)

The HERMES BG-1 Buoy



The HERMES BG-1 Buoy is an oceanographic buoy, however it has a function as a navigational eastern cardinal buoy at an obstruction for navigation. The buoy is designed with respect to the guidelines of IALA.

Main characteristics:
Maximum diameter: 1.30 m
Weight: 110 kg (including ballast)
Ballast: 35 kg
Navigation equipment:
Lantern visible at 3.5 nm (solar powered)
Radar reflector
Oceanographic equipment:
ADCP AquaDop by NORTEC (solar powered)
Compartment for additional equipment

- **WaveDroid®:** directional wave buoy, real-time wave data (GPRS, satellite), GPS-fence, full spectral data directly from the buoy or from the server;

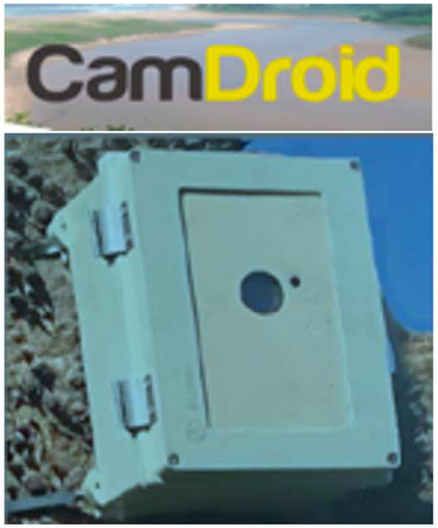
The Wave Droid Deployment Experience

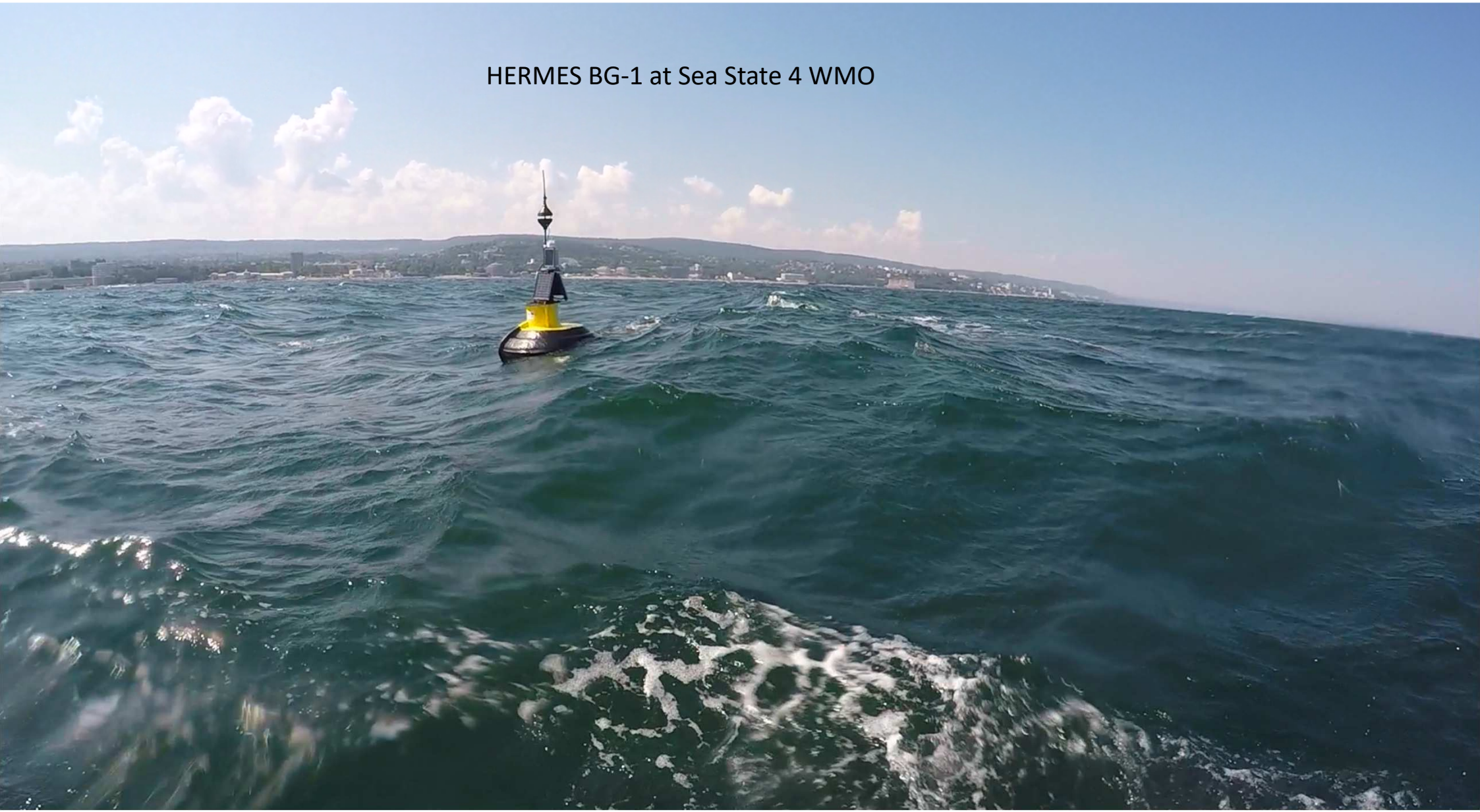
- Low cost
- High mobility
- Easy deployment

- Acajutla, El Salvador, 2016, Client: Energia del Pacifico, USA
- Burgas, Bulgaria, Client: Chevron
- The White Lagoon, Bulgaria, Client: TU-Delft, The Netherlands

- **TideDroid®-** real-time sea level data (GPRS)

- **CamDroid®-** time-laps imagining




HERMES BG-1 at Sea State 4 WMO

BG-1

Interreg
EUROPEAN UNION
Balkan-Mediterranean
HERMES

Δήμος Παγγαίου

teuleda
Local Economic Development Agency

IGJEUM
Institute of Geosciences, Energy, Water and Environment

The expected benefit of HERMES is that the results of it will be ground to sent a strong message and a wake-up call for action to the Bulgarian Government.

We will request the government to undertake the following actions:

1. To confess there is no national capacity to deal with coastal issues in line with modern EU concepts and policies and take immediate action to close this gap;
2. To establish a new agency that will deal with Integrated Coastal Zone management which will be lead by Engineering in Coastal Environment and will be managed in a professional way;
3. To recognize the fact that there are very few professionals in the field and therefore education and training is of utmost importance. Before creating sufficient local potential, professionals must be sought internationally.

The project is co-funded by the European Union and National Funds of the participating countries

And this is what is all about- clean environment and bright future for our children

Interreg
EUROPEAN UNION
Balkan-Mediterranean
HERMES

Δήμος Παγγαίου

teuleda
Local Economic Development Agency

IGJEUM
Institute of Geosciences, Energy, Water and Environment

http://www.interreg-balkanmed.eu/approved-project/18/

https://www.facebook.com/HermesBalkanMedProject/

The project is co-funded by the European Union and National Funds of the participating countries