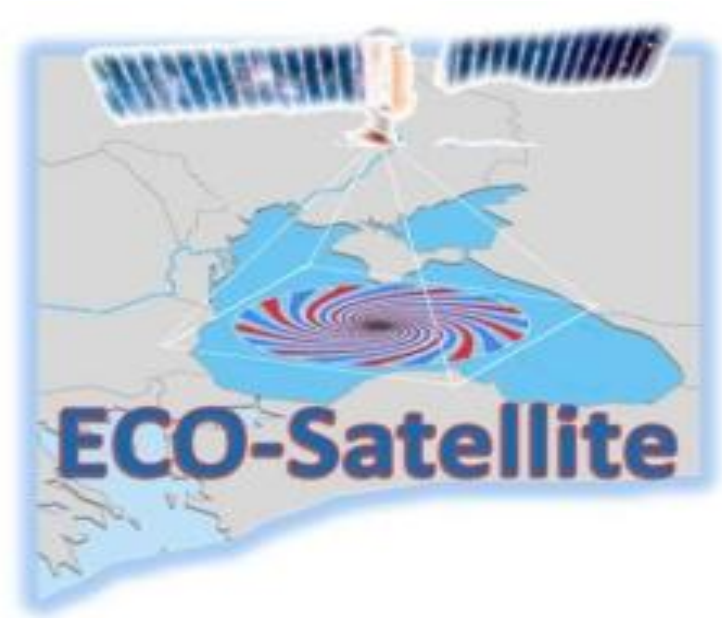

ECO-SATELLITE

July 2013

DEVELOPMENT OF A COMMON INTRAREGIONALMONITORING SYSTEM FOR THE ENVIRONMENTAL PROTECTION AND PRESERVATION OF THE BLACK SEA

Objectives of the project

The main scope of ECO-Satellite is the creation of a common intraregional environmental monitoring system, elaborating on the technological assets provided by satellite Earth Observation geoinformatics, and the transfer of knowledge on the Black Sea stakeholders.

The project will contribute to the efforts of strengthening the joint knowledge and information base needed for the environmental protection and preservation of the Black Sea ecosystem, through the promotion of stronger integration and development of research between the involved partners and by exchanging scientific data and know-how in the fields of monitoring and protection of marine, coastal and wetland systems in the Black Sea Basin.

Specific Objectives

The specific objectives of the ECO-SATELLITE project are the following:

1. Develop and test a system for monitoring the state of marine, coastal and wetland ecosystems. This objective will increase the intraregional knowledge for the coastal zones of Black Sea.

2. Creation of a unified, easy to update geodatabase covering the entire Black Sea area in order to support the design of a common cross-border environmental policy for the Black Sea.

3. Develop a Web-GIS system which will contribute to the environmental protection of the Black Sea ecosystems as it will raise awareness through the presentation of the study results and facilitate decision making, with the use of a decision support module that includes an effective help desk support.

4. Diffuse the project knowledge and outputs through training, mass media actions, web-portal and e-lessons.

5. Increase the capacity of decision makers who are related to Black Sea environmental policy.

Black Sea CROSS BORDER COOPERATION

The ECO-SATELLITE project is co-financed by 90% from the **"Black Sea Basin Joint Operational Programme"** and by 10% from national resources. The total budget of the project is 650.000,00. The Grant amount is 585.000,00 €.

The "Black Sea Basin Joint Operational Programme" is co-Financed from the **European Union** through the European Neighborhood and Partnership Instrument and the Instrument for Pre-Accession Assistance.

More information about the Black Sea Basin Joint Operational Programme could be found at: http://www.blacksea-cbc.net

Project's Implementation

Partners

The ECO-SATELLITE project is being implanted by the following partners:

- Decentralized Administration of Macedonia & Thrace (DAMT), Greece - LP
- Aristotle University of Thessaloniki (AUTH), Greece
- Balkan Environment Center (BEC), Greece
- Danube Delta National Institute for Research and Development (DDNI), Romania
- Odessa Branch Institute of Biology of Southern Seas, National Academy of Sciences of Ukraine (OBIBSS), Ukraine
- District Administration Varna (DAV), Bulgaria

The partners involved in ECO-Satellite have proven experience in environmental monitoring (BEC and OBIBSS), remote sensing and geoinformatics (AUTh and DDNI), and knowledge diffusion and capacity building (DAMT and DAV).

The total duration of the project is **24 months, until 30/9/2013.**

Group of Activities

The implementation of the project is divided into five groups of activities:

1) Design and development of system architecture
2) Geodatabase development and data collection
3) Integration and implementation of the monitoring system
4) Visibility of the Action
5) Management and coordination of the Action

Image 1: Web-GIS System

Main achievements so far

The first step of the project was to review the scientific, technical and legal framework for environmental monitoring in the countries where the project is implemented. This review was necessary in order to design the protocol and the system architecture towards environmental monitoring.

Following the review, a monitoring protocol was designed with the assistance of all project partners. This protocol defined the parameters that had to monitored and set guidelines and monitoring actions that have to be carried out thought the duration of the project.

In addition, innovative technologies for monitoring the natural environment of the Black Sea and their related human pressures were being examined in order to see which technologies will be selected. Special issues related to adapting innovative technologies for environmental monitoring into the ECO-Satellite monitoring system where examined.

Monitoring System

The ECO-Satellite monitoring system is mainly aiming at the exploitation of satellite technologies and the optimal combination of satellite and ground-based heterogeneous data sources in order to strengthen and harmonize different issues of scientific knowledge and contribute to the development of the appropriate information basis needed for the environmental protection and preservation of marine, coastal and wetland areas of the Black Sea ecosystem.

The ECO-Satellite monitoring system contains two main components and an auxiliary one. The two main **components** are:

- The core component and
- The decision support component

The **core component** refers to the analysis and visualization of the data and the interaction of the system with the end-users. The core component is the main platform of the system. Its role is to provide to the end-users the ability to visualize and analyze the available data by using appropriately designed tools. It is the basis for any further development and extension of the system. The visualization includes the abilities to browse through a map, identify elements on a map and display or hide layers of information. Furthermore, the analysis features include the ability to display graphs and table data as well as perform attribute and spatial queries.

On the other hand, the **decision support component** utilizes the core one and provides additional options to the end-user for performing specialized actions supporting decision making, risk and vulnerability evaluation and policy making.

The design of the ECO-SATELLITE system was delivered in September 2012.

Geo-database development and data collection

The project partners preceded with the production of guidelines for the selection of the most suitable types of data for utilization in the environmental monitoring of the Black Sea and the creation of a data environment.

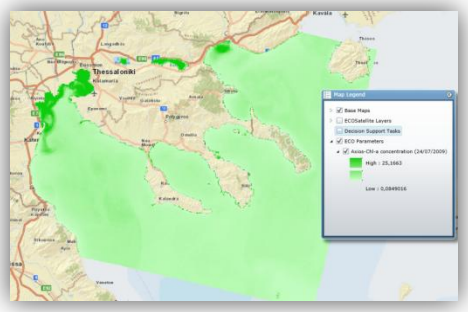

Image 2: Example of the presentation of data

The data inventory covers two sites: Delta of rivers Axios-Loudias-Aliakmon (Greece) and Delta of river Danube and marine area (Romania and Ukraine). All types of environmental data were considered: Earth Observation (EO) data, data from telemetric stations, and data from in-situ observations. The sources that were searched included free product providers, free databases of data, data vendors, and local partners (through questionnaires). The results showed a wide range of available datasets, which cover the requirements of the project: satellite images, satellite altimetry recordings, data from telemetric stations, and data from in-situ measurements and surveys.

The ECO-Satellite geo-database was developed in four stages. The first stage involved the design of the geo-database. The second stage was the collection of current and historical data as well as in-situ measurements for the two test-sites and the wider region. The third stage dealt with the processing including their transformation to a common coordinate reference system, i.e., the World Geodetic Reference System 1984 (WGS84). The fourth and final stage involved the incorporation of all the available data into the geo-database.

After having collected the data the next step was their processing procedure. The data processing procedure aimed at producing the final data sets that were incorporated into the geo-database.

The data collection and processing was finished by July 2012 and the design of the actual database and its creation was completed by the end of May 2013.

The main requirements which were taken into account for the design of the database were:

- Adaption of innovative technology
- Data availability, type, content and coverage
- Decision making procedure

The last step of this group of activities was the test of the geo-database in test sites. In-situ measurements were carried out in the wider area of the project test site of Axios-Loudias-Aliakmon by the AUTH and BEC project team. The raw data used included GPS height and bathymetry measurements. These data, after appropriate processing, were used for conducting validation of existing datasets in the geo-database. As for the satellite images, their availability at low resolution in the marine area of the Danube Delta during the times of in-situ surveys by OBIBSS has been also evaluated by AUTH.

Development of project's Website – Help Desk

The ECO-SATELLITE **website** was created in order to present the project and its outputs, results and deliverables, to serve as the main dissemination tool. Additionally, the e-learning platform and the video conference, which will be used for the distance learning web based courses has been finalized, while training videos regarding the use of the ECO-SATELLITE monitoring system has been uploaded.

An on-line help desk was also developed were everyone could ask for assistance by submitting a question through the electronic format.

ECO-SATELLITE WEBSITE

For further information, you can visit the ECO-SATELLITE website on: http://www.eco-satellite.eu/

Visitors are recommended to register in order to have access to training material via the e-learning platform.

Meetings

The **kick off meeting** took place in Thessaloniki (23/1/2012). The Steering Committee (SC), the Scientific & Technical Committee (S&T-C) and the Exploitation/Dissemination Committee (E/D-C) were established in order to manage the project efficiently.

The **1st technical and support meeting** of the project took place in Odessa, Ukraine, from July 11 to 13, 2012.

The **2nd technical and support meeting** of the project took place in Tulcea, Rumania, from 22nd to 24th of October 2013.

The **3rd technical and support meeting** of the project took place took place in Varna, Bulgaria from 5th to 6th of June 2013. At the same time, DAV organized a training seminar on the use of the monitoring system for stakeholders from all the participating countries.

Image 3: Print screen of the ECO-SATELLITE home page

Mass Media and Publicity actions

In order to make the public aware of the projects and its results, the partners prepared a press release which was published on the partners' web sites or was promoted to local media.

Furthermore, OBIBSS gave a speech on assessing the vulnerability of the region of the Danube Delta Ukraine - Moldova in the frame of the WWF project "Climate proofing the Danube Delta through integrated land and water management" (12 June 2012).

In addition, brochures and other supplementary promotional material, such as posters, banners, hats and pens were created for the dissemination of the project.

Training Seminars

The DAV organized a training seminar on the use of the environmental monitoring system that has been developed through the ECO–SATELLITE project. The training seminar took place on the 5th and 6th of June 2013 in Varna, Bulgaria.

The training seminar was attended by representatives from stakeholders from Greece, Romania, Ukraine and Bulgaria. In total 36 trainees were trained on the use of the ECO-SATELLITE monitoring system by 9 trainers/representatives of the partners.

Image 4: Training seminar in Varna, Bulgaria

In the **1st day** of the training seminars, there was a brief presentation of the current status of the ECO-SATELLITE project, its future activities as well as the main scientific achievements until now. Then a general presentation of GIS systems followed. After that, there was an overview of the environmental monitoring systems and especially the ECO-SATELLITE system and members of the scientific group of the project presented the methodology that was used for the development of the system and the individual characteristics of the system and the geo-database. Last but not least, a presentation on the Danube Delta area took place by Prof. Borys Aleksandrov.

Image 4: Participants in the training seminar in Varna, Bulgaria

In the **2nd day** of the seminars, trainees had the opportunity to become familiar with the use and the functions of the ECO-SATELLITE monitoring system interact with the aid of the trainers. The main tools of the system were thoroughly explained to the trainees.

Up Coming Events

The next event of the ECO-SATELLITE project is the **final (4th) technical meeting** of the partners that will take place in Thessaloniki in September 2013.

The responsible partner for the organisation of the meeting is the Decentralized Administration of Macedonia and Thrace (DAMT) in Greece. All partners shall attend the meeting.

The exact date and place of the meeting will be chosen by the Lead Partner.

MORE INFORMATION

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