



Oil spill event tracking in the Aegean Sea.
Integration of diverse data sets by the use of harmonization tools

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HCMR Background and Role

Hellenic Centre for Marine Research (HCMR) owns the know-how and has the necessary infrastructures related to the integration and visualization of information regarding an oil spill event in the area of Aegean Sea. The information sets that constitute the recognition of the event are the results of a human/computer mechanism capable to deliver and process information form various and diverse data sources like satellites images, buoy and in situ observations from the area of the possible event, information about the nearby coats that are threaten form the event etc.

Diverse Heterogeneous and not Harmonized Data Sets

In most of the cases these sets of information are gathered from different systems/mechanisms because for the oil spill event to be faced various areas of information are implicated. In particular oil spill characteristics, location of area of the event, weather and wave conditions, drifting of the spill, land cover and use of the near by coasts, their road network, the locations of local authorities etc., are necessary for the handling of the event. Obviously all these datasets are heterogeneous not homogenized and not harmonized with the effect the process of their integration and visualization to be a very heavy task.

The Story of the Use Case

The story of the use case starts with Satellite Images that are received from ENVISAT ASAR regarding a possible Oil spill event in the Aegean Sea.

A specialized user in data integration, process the satellite images together with other in-situ data sets regarding the possible oil spill event.

This process will lead to the creation of a Pollution Report, and this report will be delivered to the SYSTEM (human/computer) responsible for the creation of the forecasting of the oil spill drift.

The SYSTEM responsible for the forecasting of the oil spill drift is calledPOSEIDON which is a general purpose System regarding forecasting, monitoring and information producing for the Greek seas.

An Administrator initializes the SYSTEM by feeding it with the necessary input datasets in order for the forecasting model to run and produce the forecasting information about the drift of the oil spill.

SYSTEM takes as inputs the following Data Sets:

- The pollution report's data.
- Weather and Wave model data (WAM)
- Oceanographic model data (POM)

Subsequently, the forecasting information (the output of the system) together with GIS data sets about the nearby coasts layout (roads, urban or protected areas etc), it is combined in a Web GIS Application.

This application will act as a decision making tool for the stakeholders as well as an information portal (regarding non confidential information) for public users.

HUMBOLDT EU Project

Under this point of view the GMES funded project HUMBOLDT had the target to contribute to the implementation of a European Spatial Data Infrastructure (ESDI). The main objective of this infrastructure was to integrate a diverse spatial Data Sets located in a various European organizations from miscellaneous domains. For this target to be achieved the requirements of INSPIRE directive, of GMES Initiative and others EU related activities have to be net in HUMBOLDT Project.

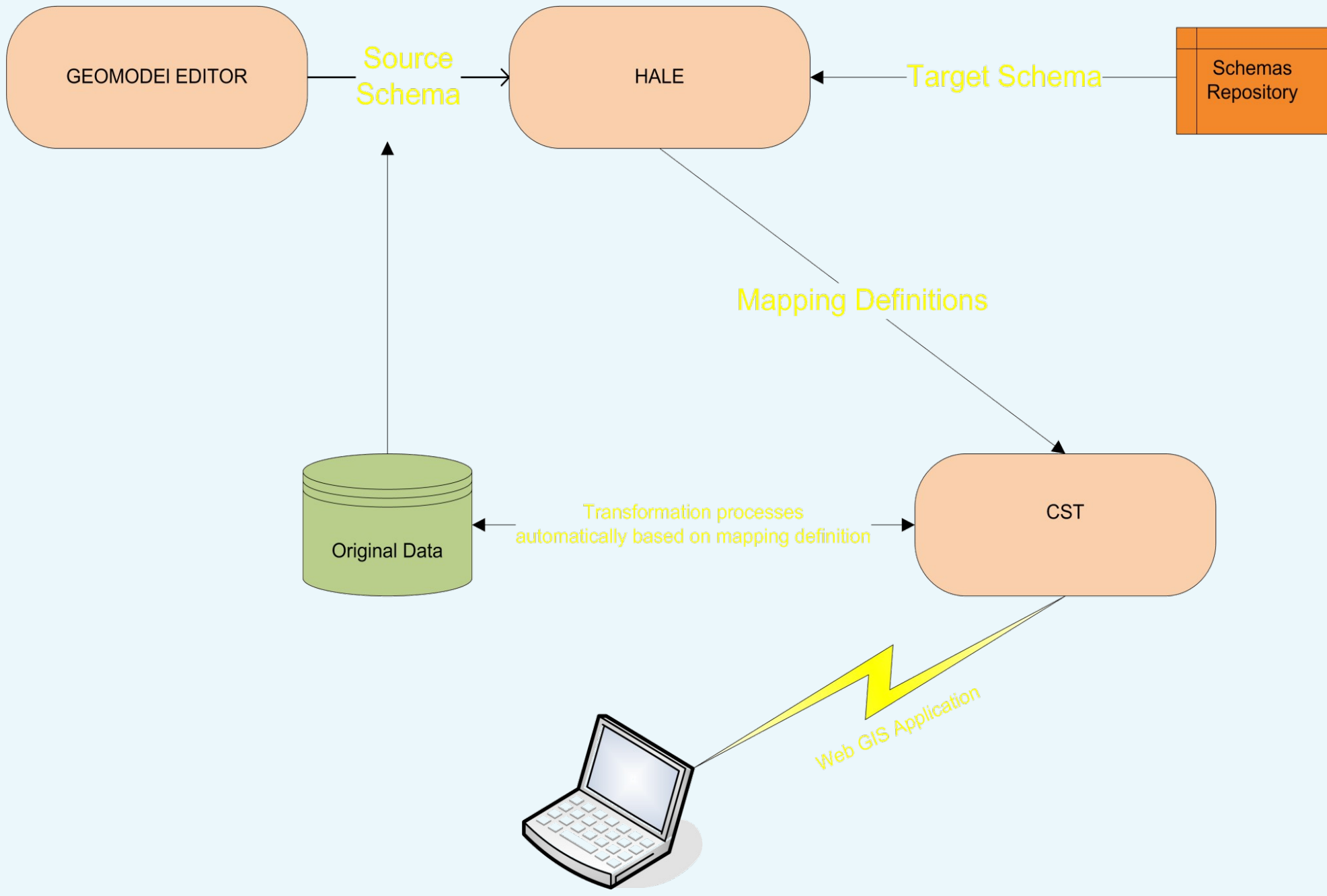
"Oil spill event tracking in the Aegean Sea" as a HUMBOLDT Scenario

The scope of the "Oil spill event tracking in the Aegean Sea" entry was not to develop a new system or new tools aiming in forecasting and drifting of the oil spill. Contra wise the objective was the already developed in HUMBOLDT Project tools to be used together with POSEIDON system which is a system for forecasting, monitoring and information producing for the Greek seas. The idea was via the above tools, Harmonization of diverse Data Sets regarding oil spill event to take place. The Harmonization would deal either for Input Data Sets of Poseidon system, as well as in System output Data Sets together with External GIS data about the nearby coasts layout (roads, urban or protected areas etc) .

HUMBOLDT tools used

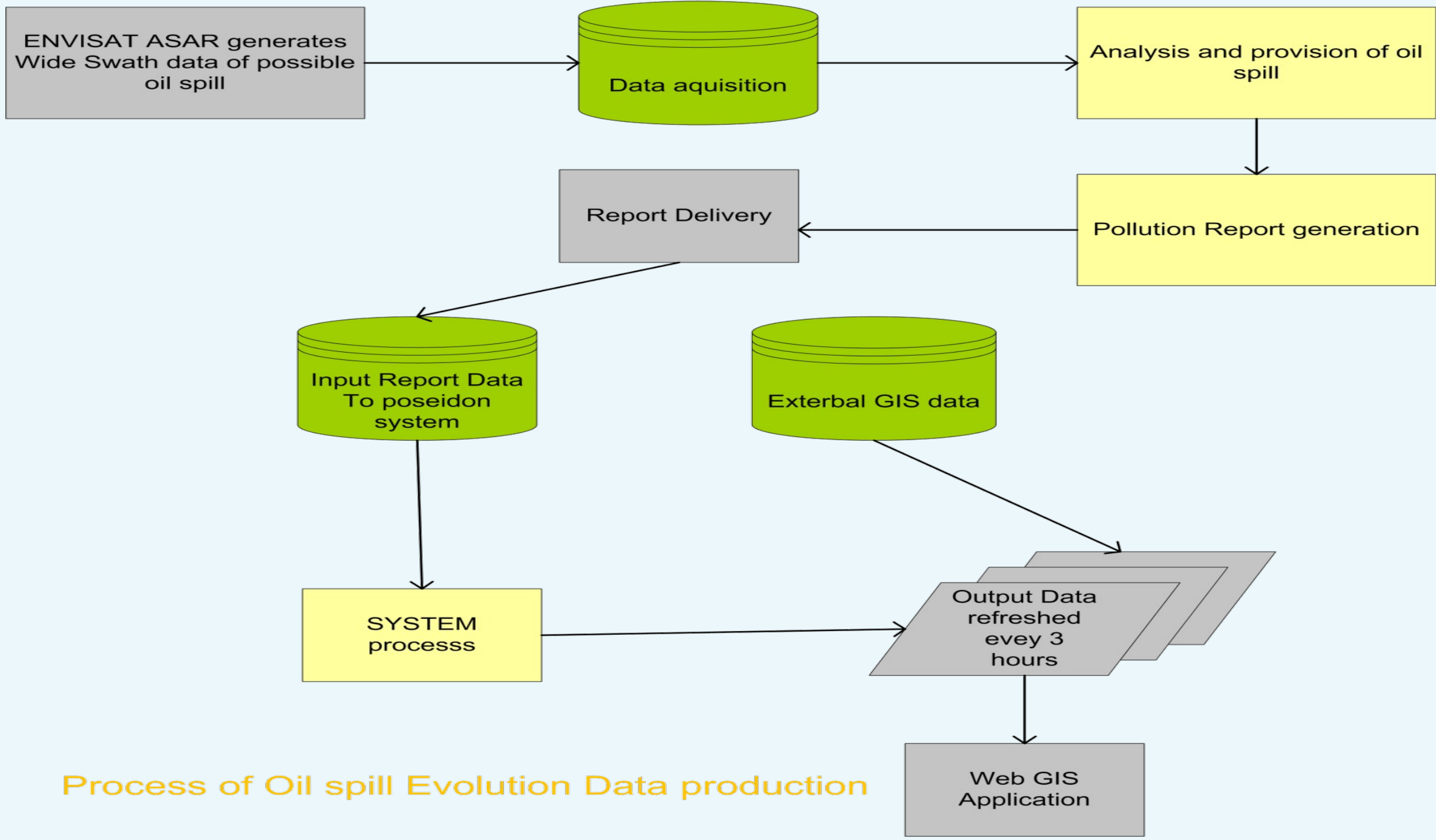
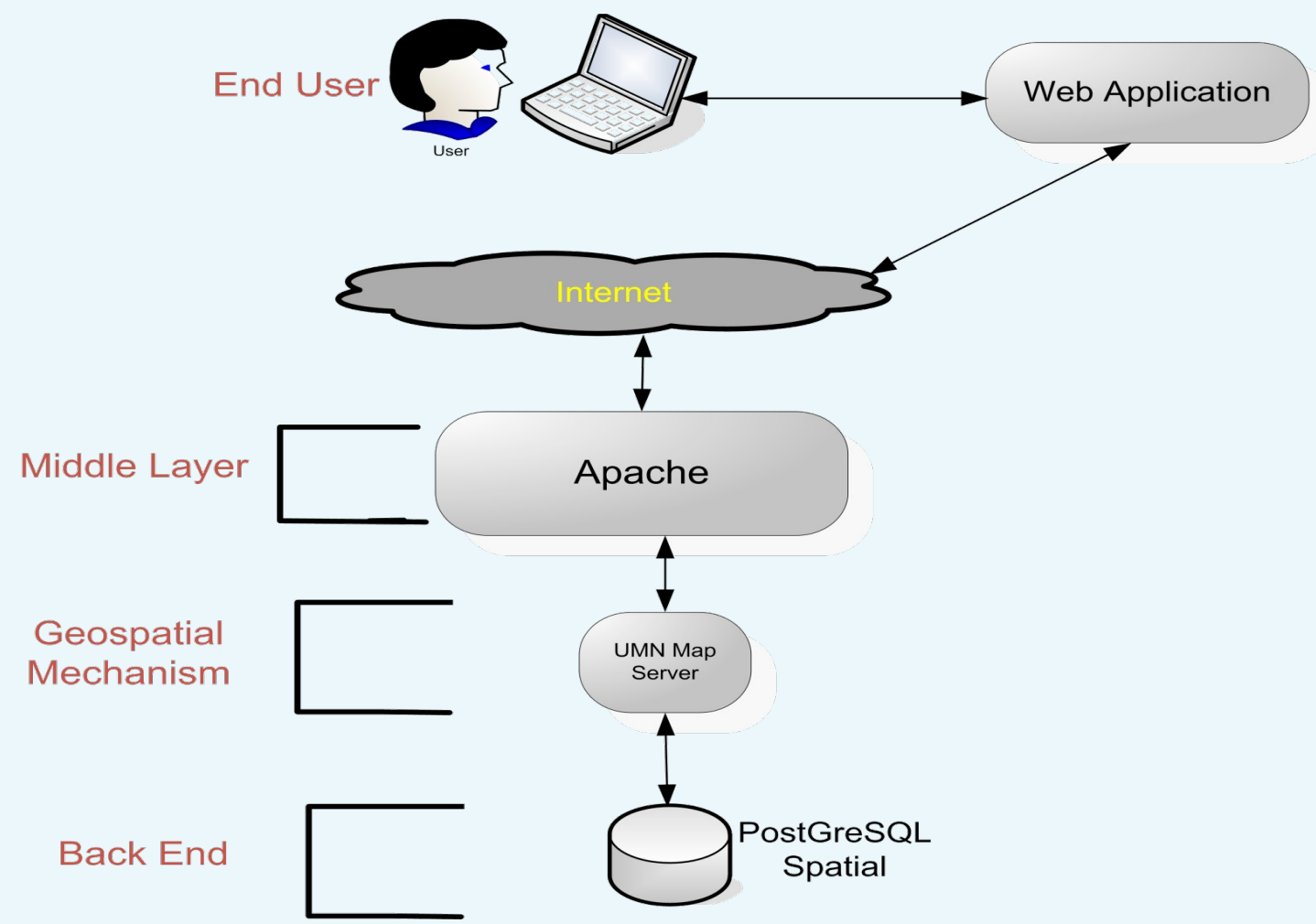
Among the various tools that the HUMBOLDT Framework developed, we used the following three tools for handling Harmonization :

- HUMBOLDT Geomodel Editor
- HUMBOLDT Alligment Editor
- Conceptual Schema Transformer

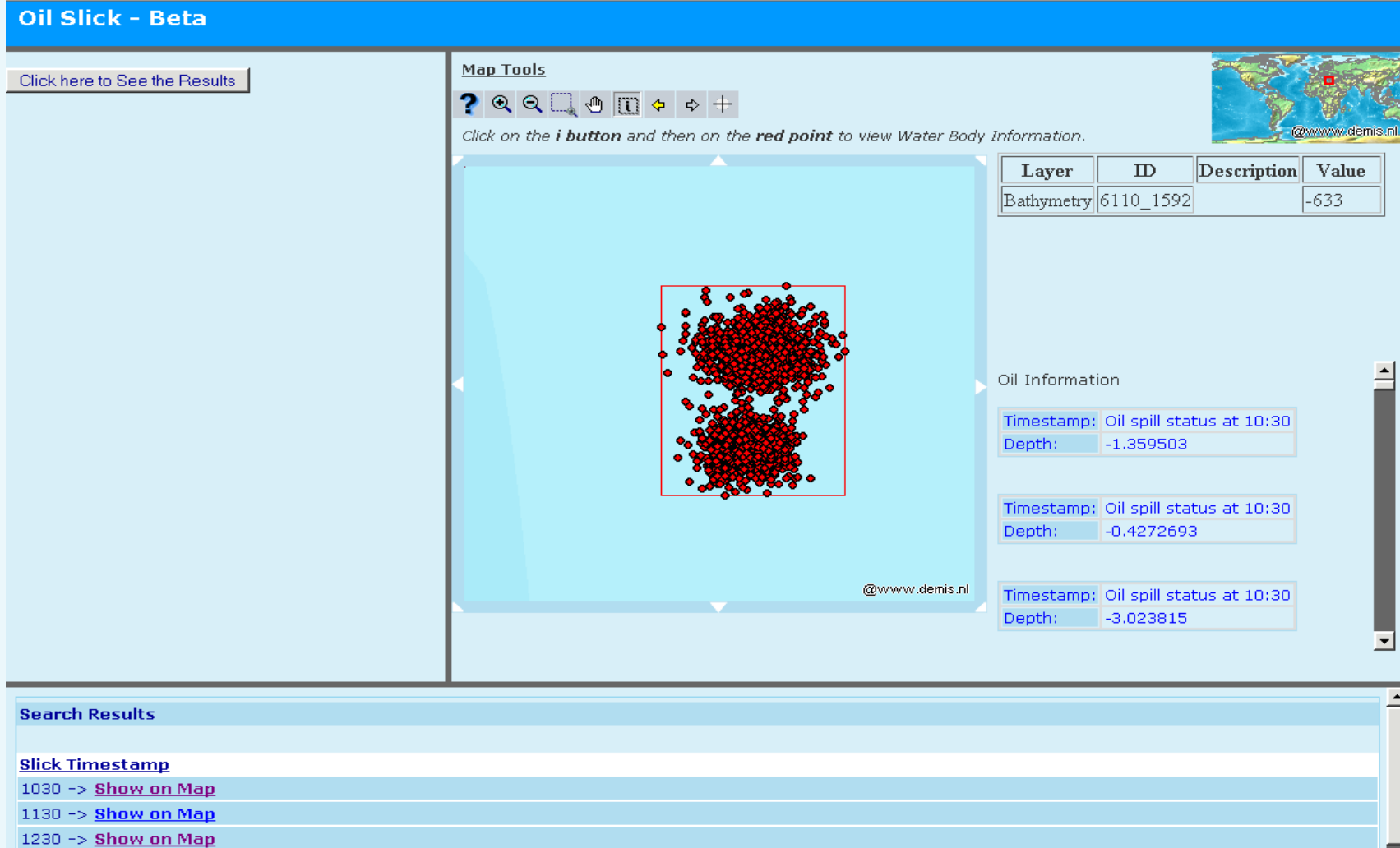
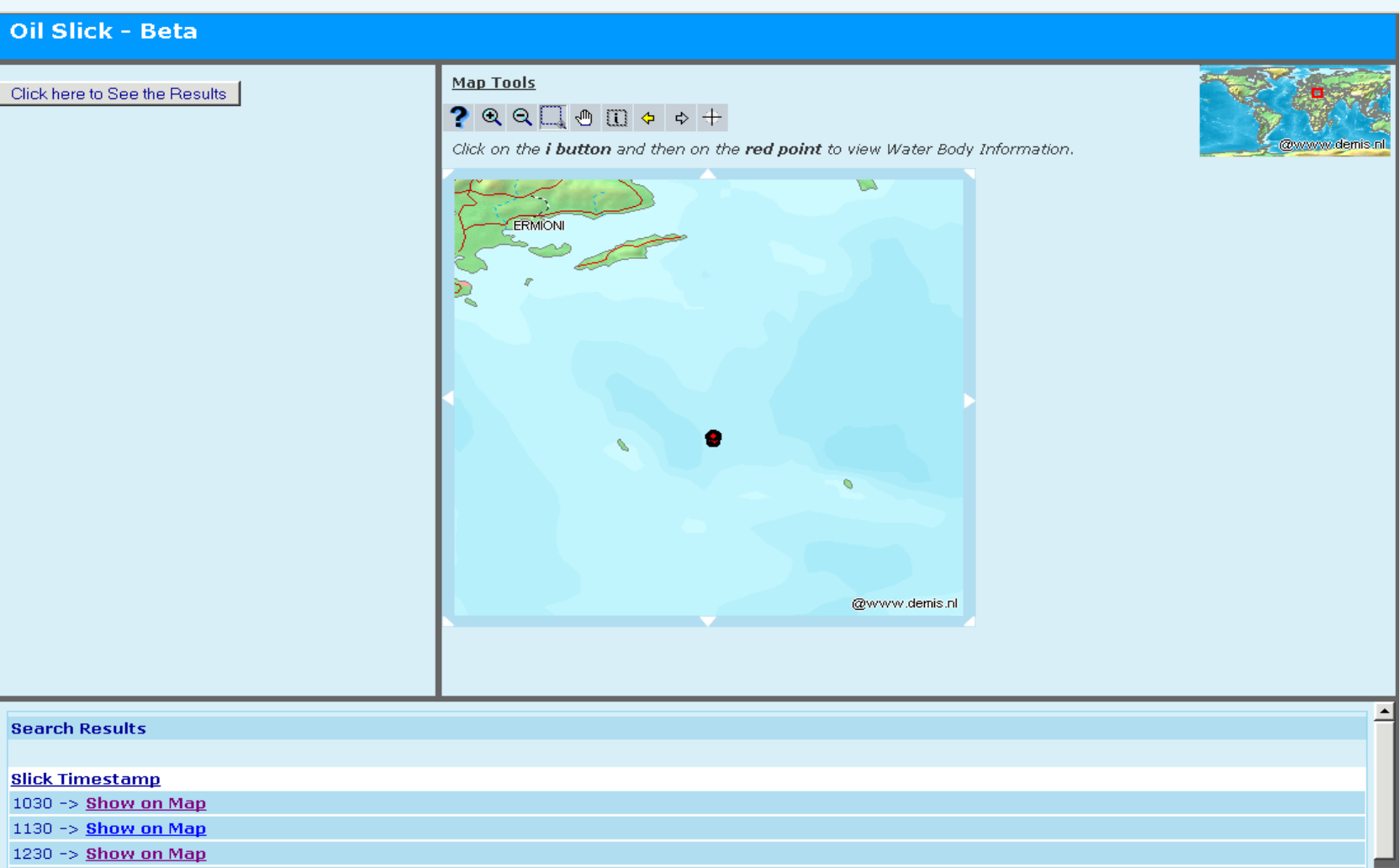
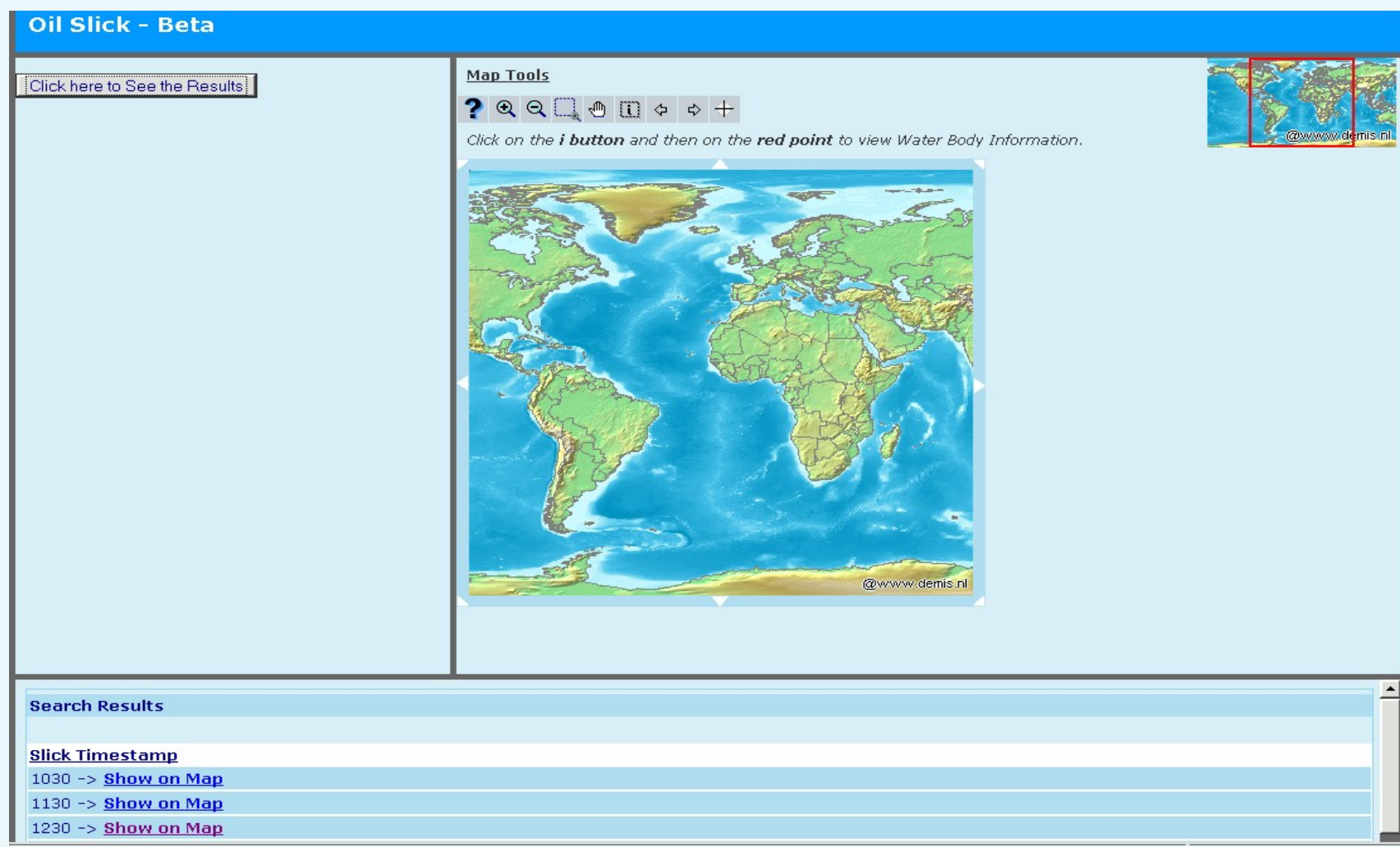


Web GIS Application

A Web GIS Application developed which acted as the visualization part of the scenario



Web GIS user interface



Conclusions

- As a conclusion the whole entry will play the role
- of a valuable mean for Ecological Protection of Greek seas and coasts
- capable to provide thedecision-makers strategic information regarding environmental and security issues
- based on an independent and permanent access to reliable data

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