Dr. Vangelis Papathanassiou

Acting Director of the Institute of Oceanography

Hellenic Centre for Marine Research

HCMR HQ- Anavissos

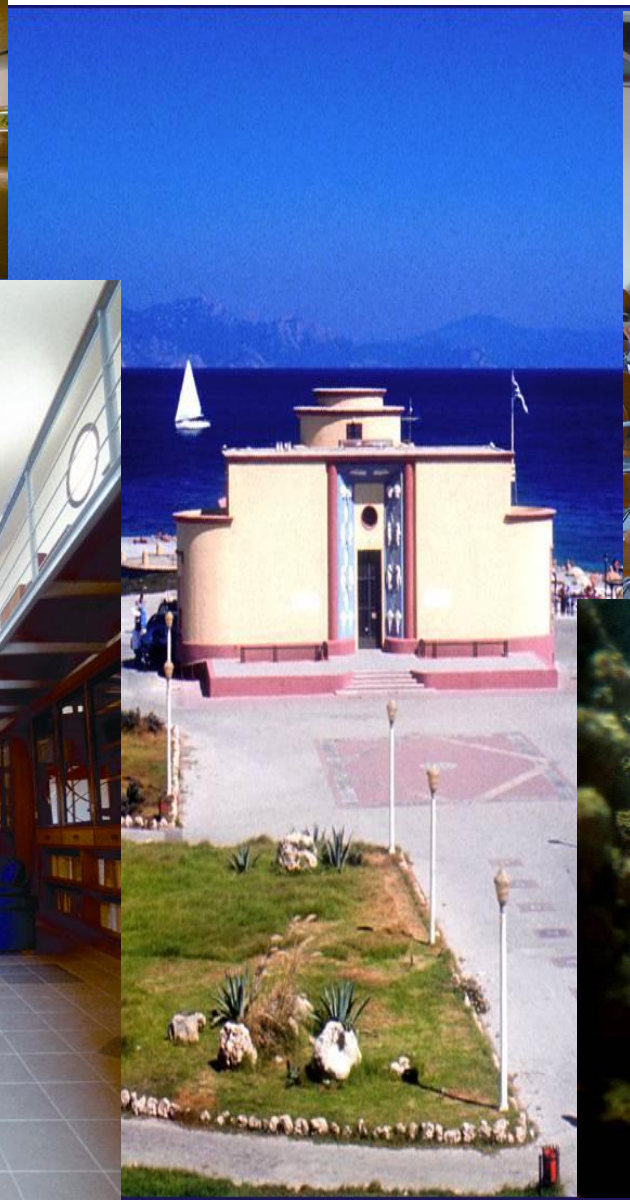
HCMR- Ag. Kosmas

HCMR- Crete

HCMR- Rhodes Isl.

Cretaquarium “Thalassokosmos”

HYDROBIOLOGICAL STATION OF RHODES



Research vessel “Aegaeo”

Built in 1985, Rebuilt in 1997
Length : 62 m
Max. Speed : 12.5 Knots
Maximum cruising range : 20 days

On-board Staff
Crew : 22 persons
Scientific personnel : 21 persons

Scientific Laboratories

- General Laboratories (Chemistry/Biology)
- Wet Laboratory
- Primary Productivity Laboratory
- Geological Acoustics survey room - CTD & Electronic Laboratory
- Computers Laboratory
- Container on board

HCMR FLEET

Built in 1986

Length : 26,1 m
Max. Speed : 10 Knots
Maximum cruising range : 10 days

On-board Staff

Crew : 7 persons
Scientific personnel : 6 persons

Scientific Laboratories

- ✓ **Wet Laboratory**
- ✓ **Dry Laboratory**
- ✓ **CTD & Electronic Laboratory**
- ✓ **Computers Laboratory**

Built in 2009

Length: 13.40 m.
Max Speed: 20 Knots
Max cruising range: 1 day

On-Board Staff

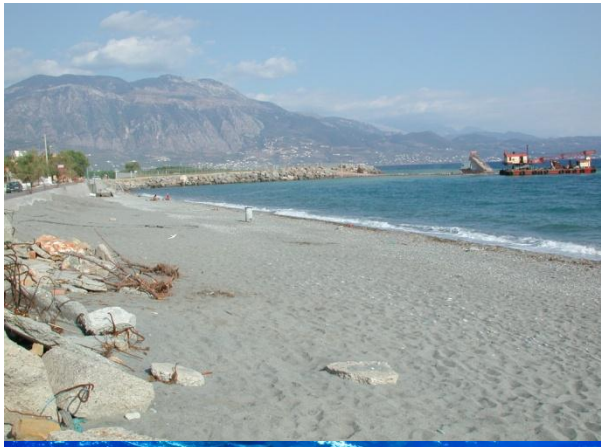
Crew: 2 persons
Scientific personnel: 8 persons

Scientific equipment on board

- ✓ **CTD and Rosette**
- ✓ **Multi-Beam Sonar System.**
- ✓ **Sub Bottom Profiler3.5 kHz**
- ✓ **Sediment and benthos samplers.**
- ✓ **Remotely Operated Vehicle - ROV**

THETIS: The manned submersible that can have a crew of two, an operational depth of 610 m and a submergence limit of 8-9h.

5 INSTITUTES



Institute of Oceanography

Institute of Marine Biological Resources

Institute of Aquaculture

Institute of Inland Waters

Institute of Marine Biology and Genetics

Institute of Oceanography

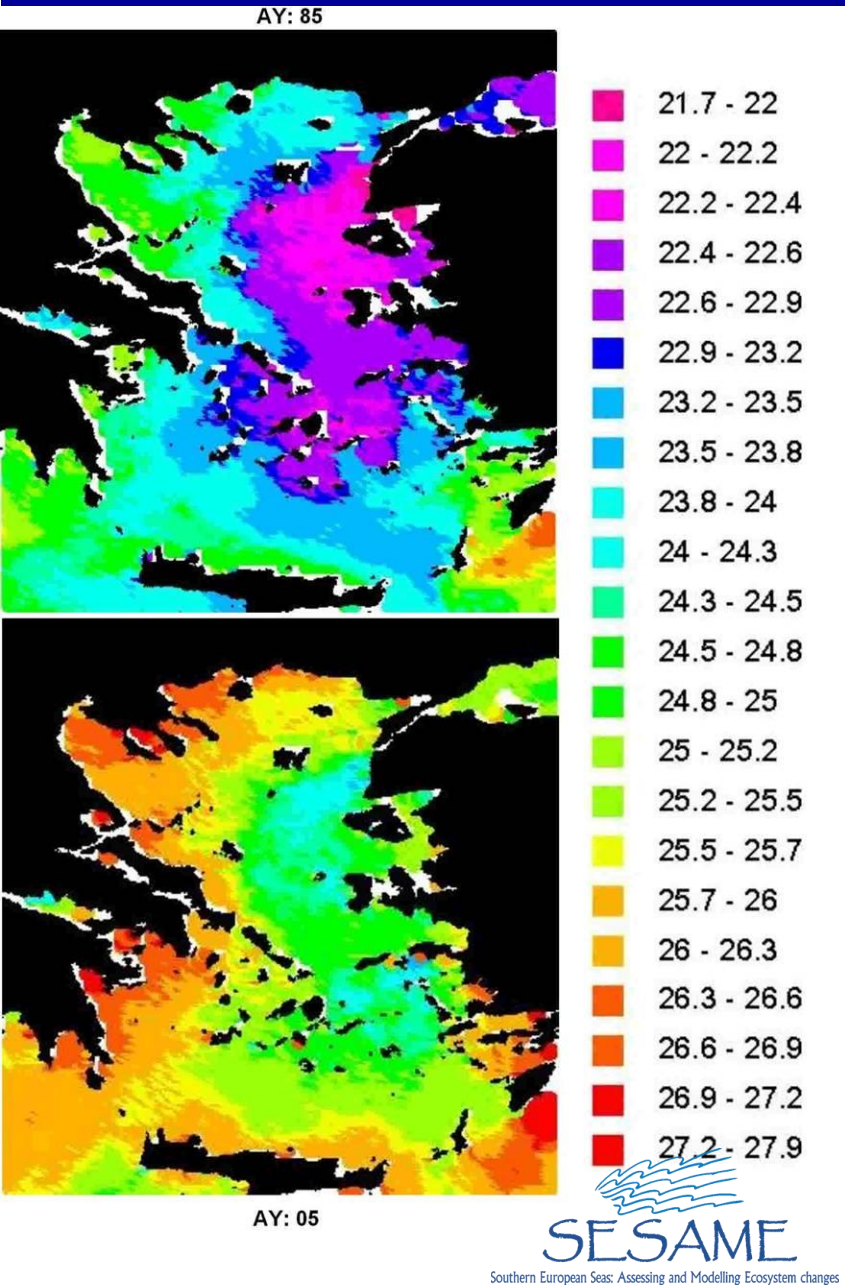
Mission:

- Study and produce information in all aspects of the marine environment.
- Study the interactions among physical, chemical, biological and geological processes
- Increase competence and capacity building

Research Directions

1. Climate variability and impact on marine ecosystems
2. Integrated and multidisciplinary research in continental margins and deep basins
3. Coastal zone (processes and management)
4. Marine geo-hazards
5. Operational Oceanography
6. Cross cutting activities and services provision

Temperature differences by 1.5 °C in 20 years in the Aegean Sea



SESAME
Southern European Seas: Assessing and Modelling Ecosystem changes

I. Climate variability and impact on marine ecosystems

hcmr ΑΚΕΘΕ

1. Impact of climate variability on structure and functioning of marine ecosystems (biogeochemical cycles, pelagic and benthic food webs, marine biodiversity) (e.g. SESAME)
2. Long range (climatic) changes in thermohaline circulation. Future scenarios (e.g. MEDCLIVAR)
3. Systematic monitoring of key marine environmental parameters (flux, temperature and salinity time series, sea color, CO2 , waves, sea level etc.)
4. Study of the role of atmospheric CO2 in ocean acidification and impact on the marine organisms – carbon cycles(e.g. MEDSeA)
5. Paleo- environmental and paleo-climatic changes

SESAME
Southern European Seas: Assessing and Modelling Ecosystem changes

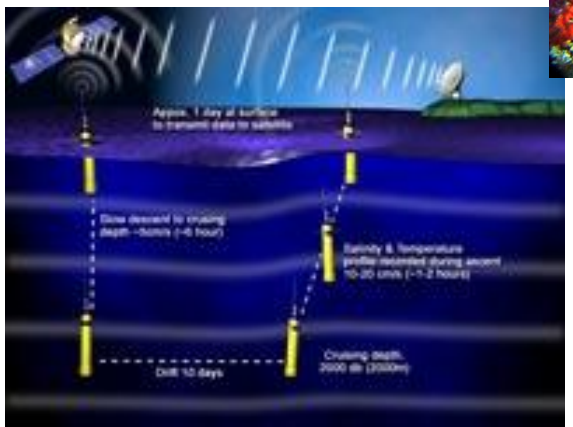
New data on Basin and regional scale

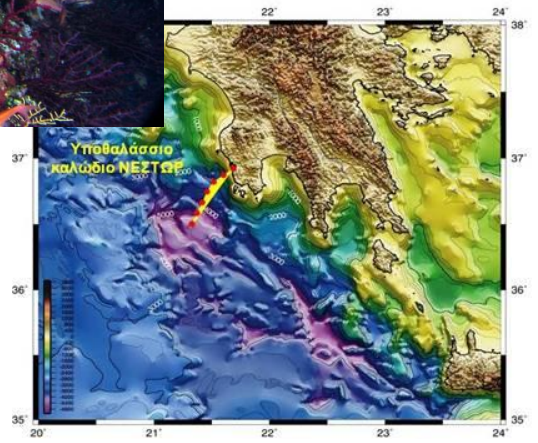
hcmr
ΕΛΚΕΘΕ

Ten oceanographic research vessels simultaneously conducted multinational cruises across the Mediterranean and the Black Sea. The cruises were done in March-April and August-September 2008 (In Progress)

II: Integrated and multidisciplinary research in continental margins and deep basins

1. Natural drivers, biodiversity and ecosystem functioning in deep-seas and the role of human impact
2. To develop concepts and strategies for the sustainable use of deep-sea marine resources



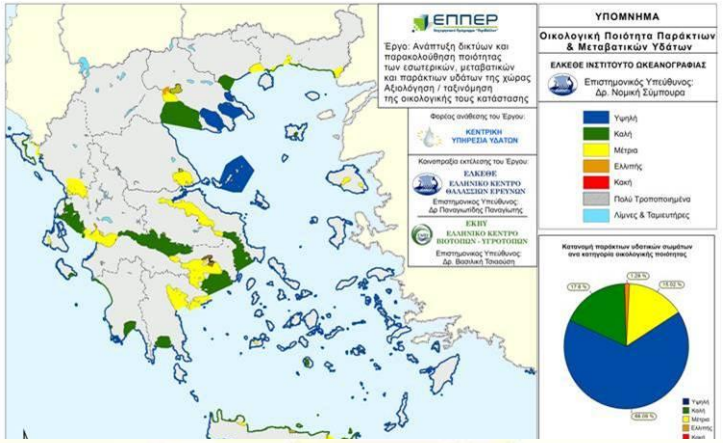


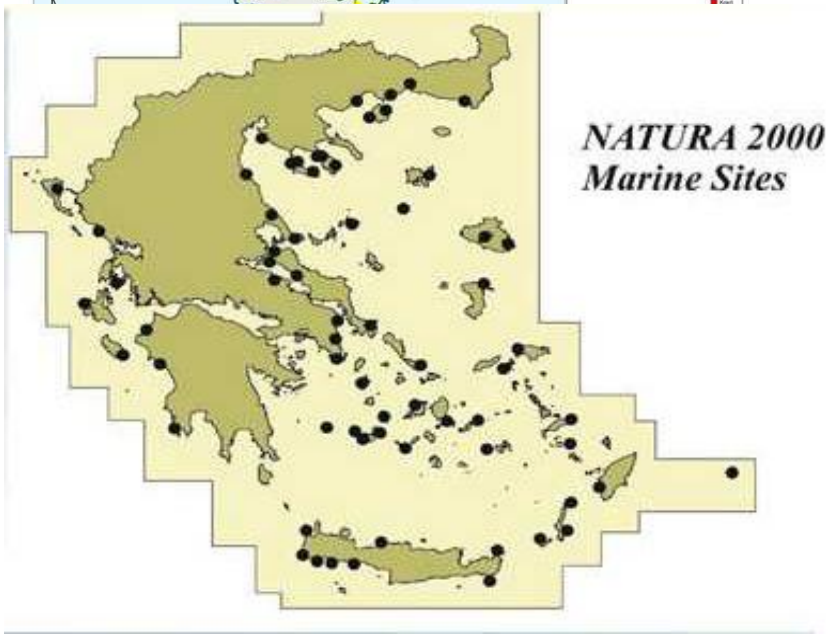
III. Coastal zone (processes and management)

1 Land–Ocean interaction processes
2. Anthropogenic impact
3. Contribution to the implementation of Directives (e.g. HABITAT, WFD MSFD)

Main goals are

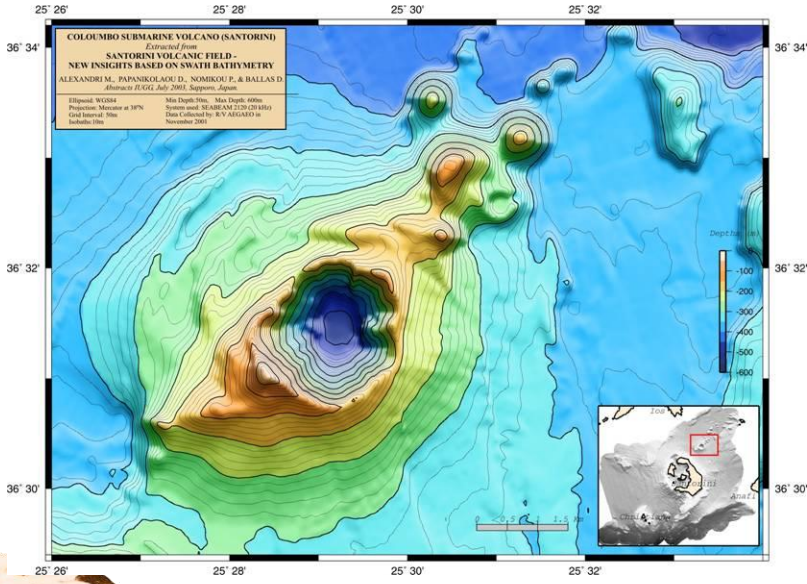
- ***to improve the scientific and technological capacity in coastal research,***
- ***to provide a sound scientific basis for policies anticipating effects of global change/alterations in coastal zone.***
- ***gain knowledge of the functioning of the coastal environment and its significance, as a part of the earth system.***



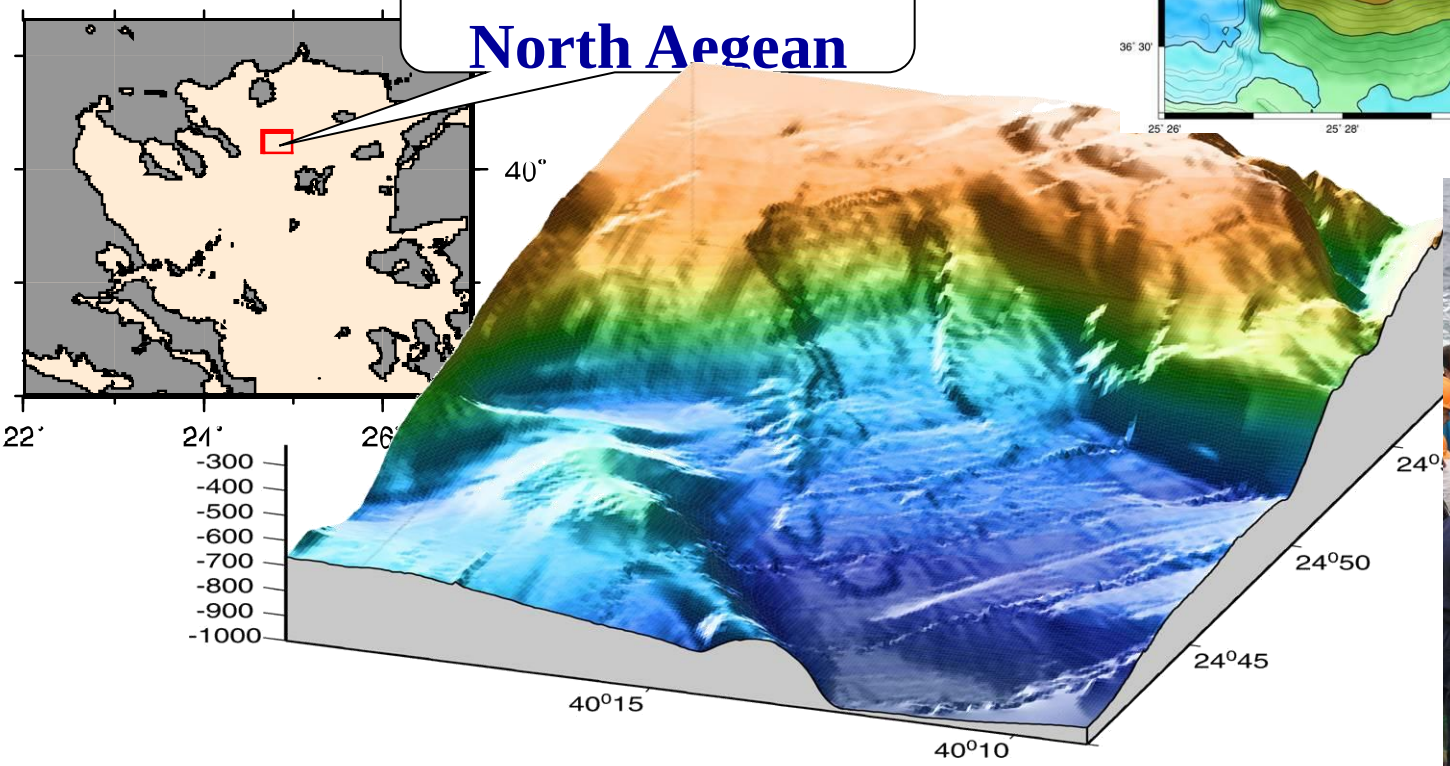


IV: Marine geo-hazards

1. Seismicity and volcanism
2. Sediment slope failures
3. Tsunami impacts



3D Slide of the North Aegean



V: Operational Oceanography

Research, Education, International activities

Research

- ✓ **Forecasting (e.g.** Daily sea-state forecast)
- ✓ **Wave Forecasting (e.g.** Improved information about the sea state)
- ✓ **Integrated forecasting Systems (e.g.** Collection and processing of oceanographic data)
- ✓ **Dissemination of information** to users in real time
- ✓ **Ocean remote sensing**

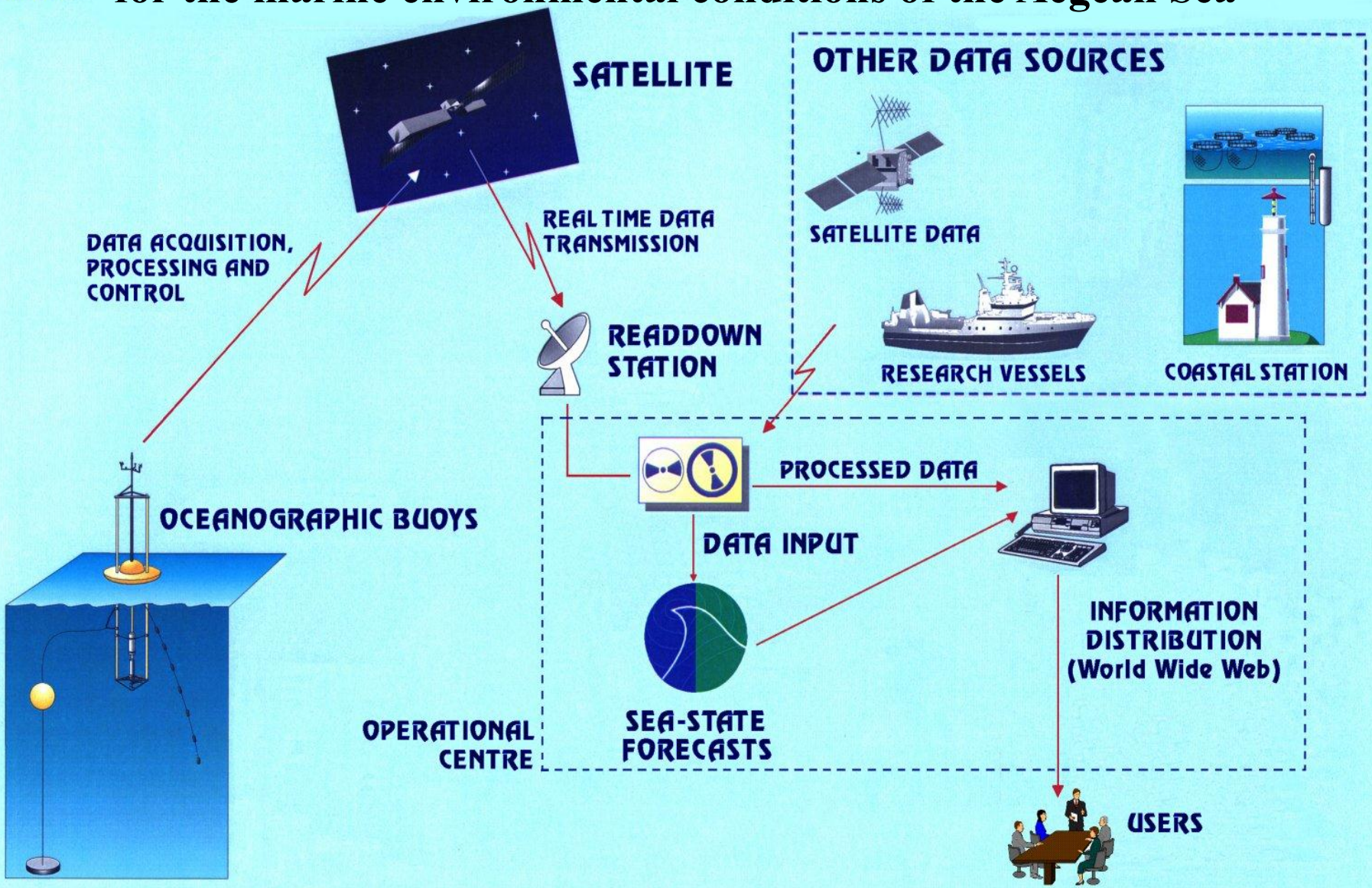
Main Operational Project : POSEIDON I, II and III

Education and International Activities

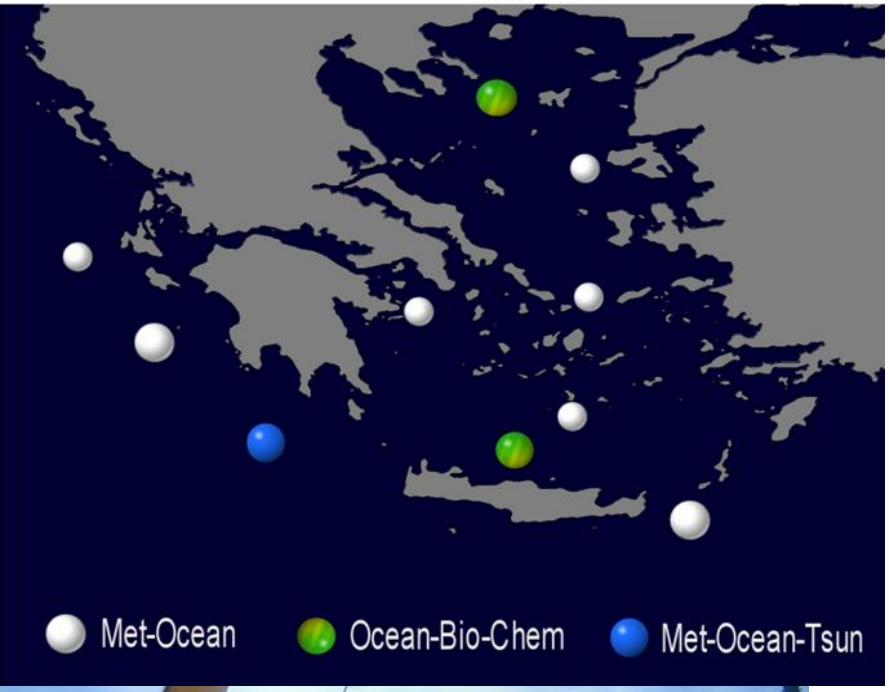
- ✓ Scientific and operational training on POSEIDON system
- ✓ Collaboration with EU and third countries (e.g. Russia, Romania, Saudi Arabia etc.)

POSEIDON SYSTEM

"An operational monitoring, forecasting and information system for the marine environmental conditions of the Aegean Sea"



POSEIDON network

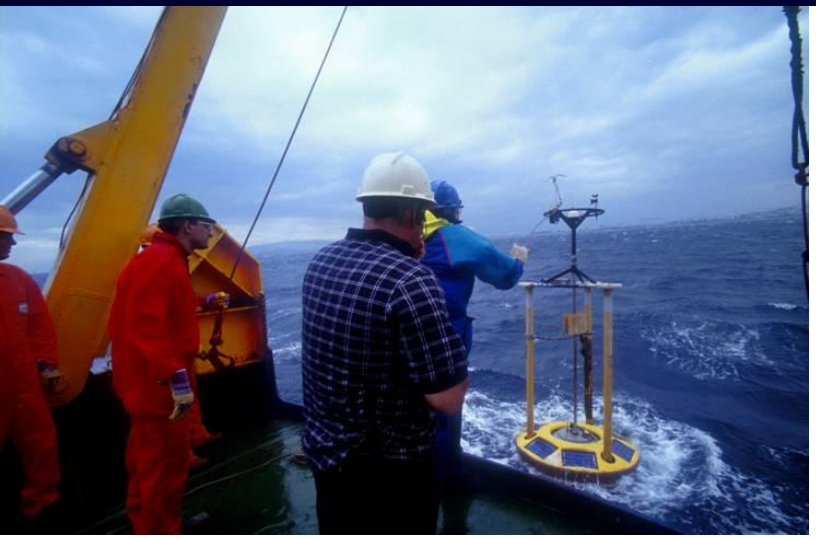


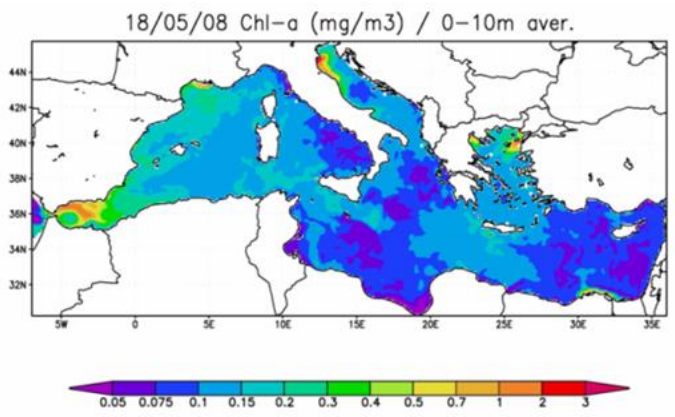
10 Buoys

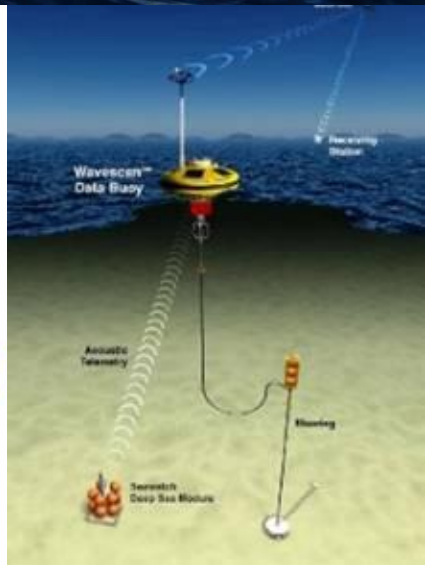
✓Meteorological Sensors

✓"Blue" Sensors

✓"Green" Sensors

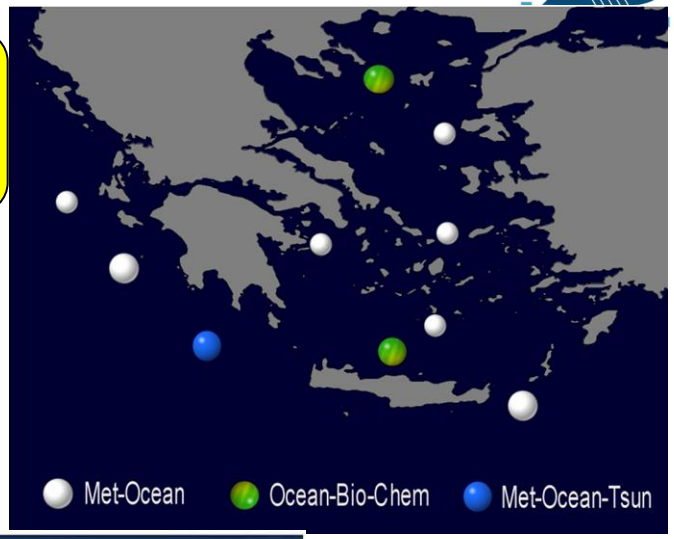


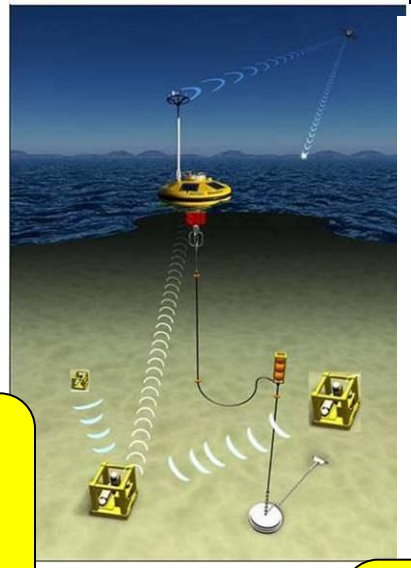




Infrastructure

Buoys and sensors



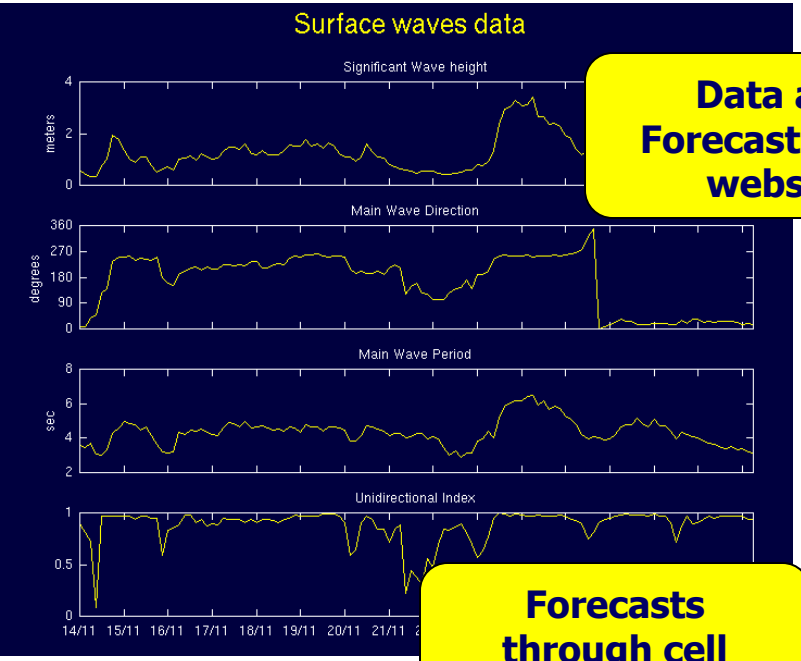


Benthic Platforms

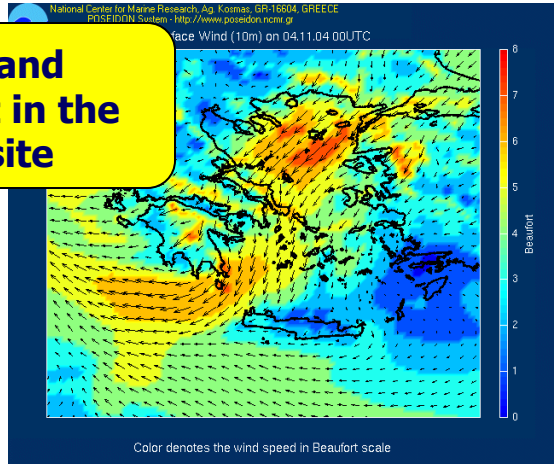
Super Computer

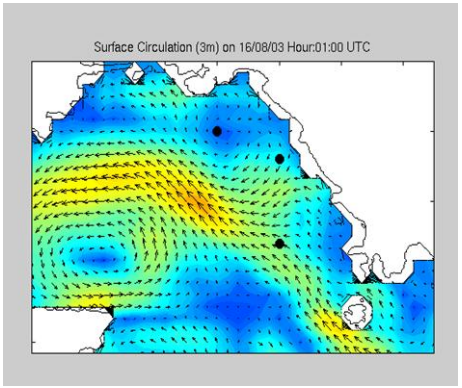
Products for Users

Tailor made applications (e.g. Support to 2004 Olympic games Sailing

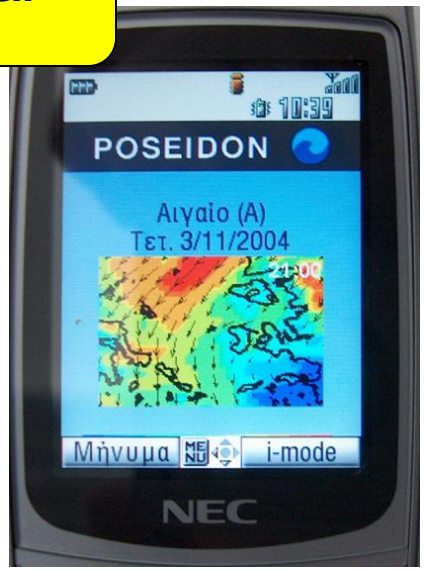


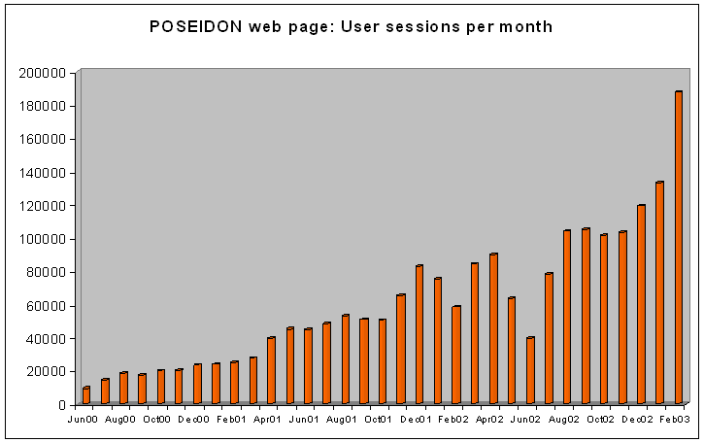
Data and Forecast in the website





Forecasts through cell phone

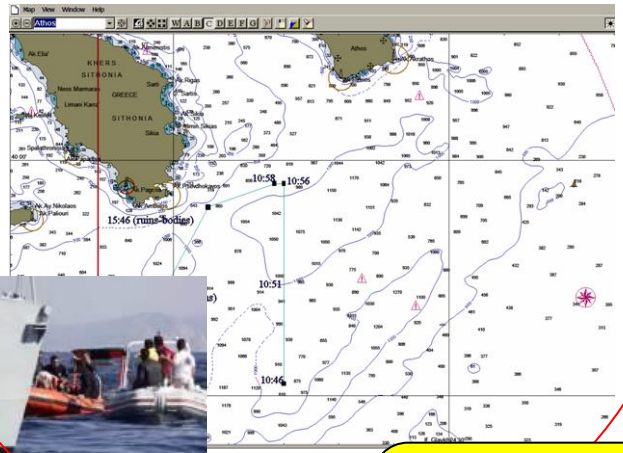




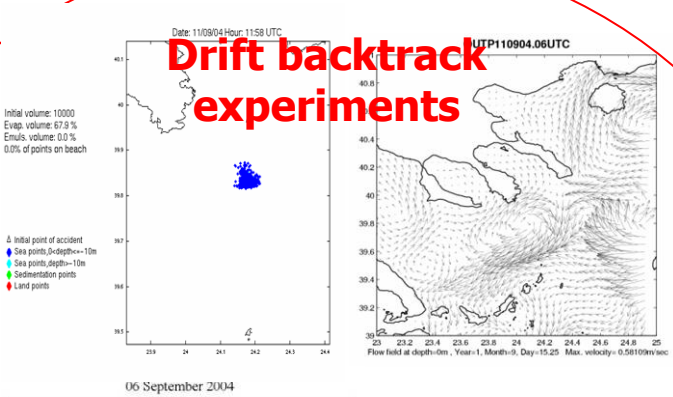
Website: More than 300.000 visitors per month

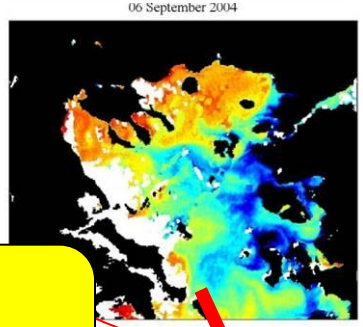
Applications: Search – Find -Recovery

Area of accident



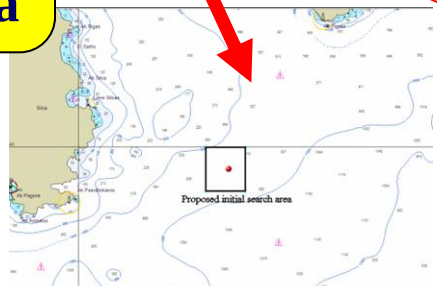
Drift backtrack experiments





NRT validation

POSEIDON
Infrastructure for assessment of search area

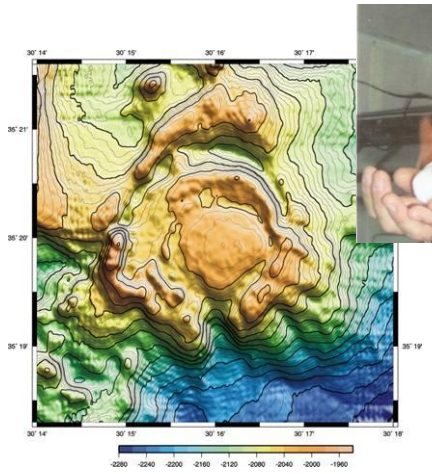


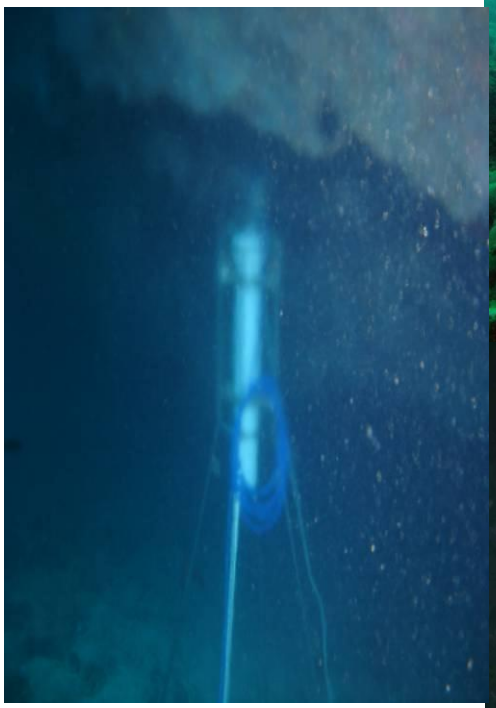
Accident site best guess
(σε 2-24h)

Visual Search & Recovery

Cross cutting activities

1. Seabed geotechnical studies for installation of large infrastructures
2. Renewable energy resources in the marine environment
3. Contribution to underwater archaeology
4. Ecosystem modelling
5. Operational Services e.g. Oil spill, pollutant dispersion models and Search & Rescue services.
6. Radioactivity applications, underwater discharges
7. Education and training






Thank you for your attention