NATIONAL INSTITUTE OF MARINE GEOLOGY AND GEOECOLOGY

GeoEcoMar

ANNUAL REPORT 2009

NATIONAL AUTHORITY FOR SCIENTIFIC RESEARCH
MINISTRY OF EDUCATION, RESEARCH, YOUTH AND SPORT

1. Foreword

GeoEcoMar, the National Research and Development Institute for Marine Geology and Geoecology, founded in 1993 as Romanian Centre of Marine Geology and Geoecology" – RCMGG, has become a representative institution for Romanian research in Earth Sciences, its activity being focused on geology and geoecology of marine, coastal, deltaic, lacustrine and fluvial aquatic environments.

The technical capacity and scientific performance obtained within research projects, allowed NRDI GeoEcoMar to be involved in numerous projects, financed both from domestic, state-owned or private (e.g. ROMPETROL, PETROM, MEF) and external funds (European Commission Framework Programs 6 and 7, structural funds, PHARE, NATO, UNESCO etc.).

Strengthening its leading position in the Romanian scientific research domain, NRDI GeoEcoMar has become both National and European Center of Excellence (Euro-EcoGeo-Centre Romania) for environmental and geoecological studies, in the fluvial – deltaic – marine systems.

The specialists of the Institute, including two Corresponding Members of the Romanian Academy, are members of the scientific board of some major organizations (e.g. The Administration of the Danube Delta Biosphere Reserve) and also, of various advisory organizations (e.g. The National Committee of the Coastal Area, The International Association of Danube, The Advisory College of Research, Development and Innovation, etc.).

The scientific research projects and programs approached by the Institute were, largely oriented to environmental knowledge and management, but also to uncover new mineral resources.

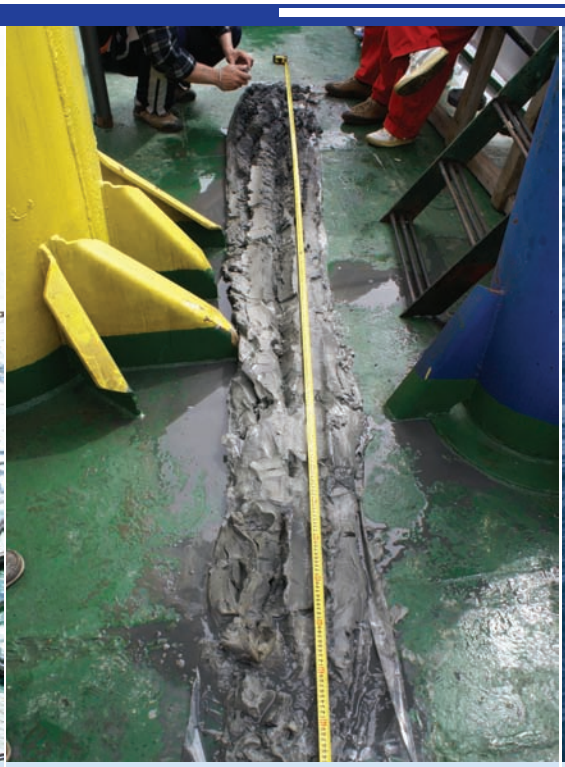
NRDI GeoEcoMar pays particular attention to permanent training and improving its scientific researchers, linking them to training, doctoral programs and post doctoral training, both in Romania and abroad (e.g. France, the Netherlands, Switzerland).

In order to characterize and monitor the quality of the environment, the Institute makes special efforts to buy advanced research equipment. NRDI GeoEcoMar is able to perform high quality geological, geophysical and geoecological studies, including environmental impact and environmental assessment studies, in this regard being authorized by the Ministry of Environment and Forests (License Certificate R-BM-06-59/2008, R-EIM-06-61/2008).

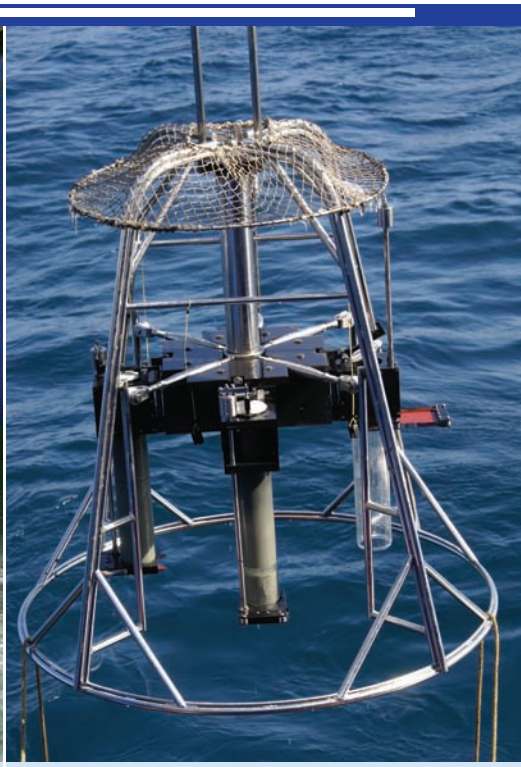
In order to increase the confidence of its beneficiaries, in elaboration of specialized studies, the Institute has implemented a Quality Management System authorized by Lloyd's Register Quality Assurance, in accordance with the standards: ISO 9001:2008 and SR EN ISO 9001:2008.

Compared with past years, in 2009 NRDI GeoEcoMar has recorded again a significant scientific and financial growth, occupying a leading position within the annual statistics of NASR, as well as in other various ratings, at national or local level. The institute has been awarded with diplomas and medals within fairs and exhibitions organized in Romania and abroad.

CTD Equipment + Niskin carousel



Sampling of cored sediment



Mark II - 400 Multicorer

Preconcentration of biological samples

Van Veen Boden-greifer

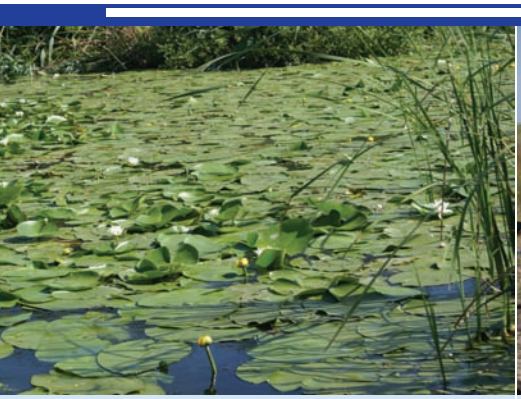
Core sampling

Research activity on the Danube

ADP system for measuring the velocity of stream water

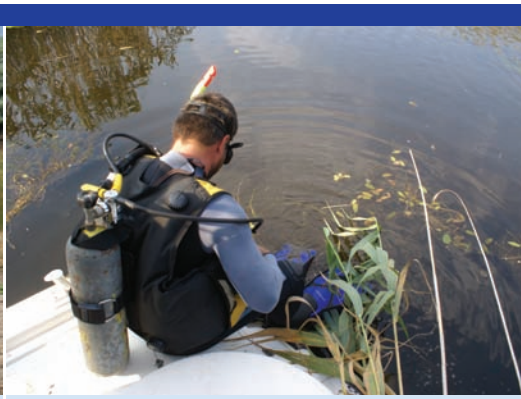
Van Veen Boden-greifer

Niskin bottle for water sampling



Danube Delta

Spectrometric measurements



Underwater investigations in the Danube Delta

Geological activities

Slănicul de Buzău - Seashore ambient (Middle Pontian)

Milcov (Upper Miocene)

Beceni secondary Gypsum (Romanian)

Milcov (Upper Pontian)

Milcov (Upper Pontian)

Milcov (Upper Pontian)

As National Research and Development Institute, coordinated by the Ministry of Education, Research and Innovation, through the National Authority for Scientific Research, in 2009 NRDI GeoEcoMar had a total of 118 positions in the employees scheme, 36 of them being filled by certified researchers and the rest by technical staff (engineers, subengineers, technicians, laboratory assistants, sailors).

The main domains of NRDI GeoEcoMar activity are: marine geology and geophysics, mineral and energetic resources, environment protection, with focus on marine, coastal, deltaic and fluvial environments.

In accordance with its organizational and operational status, the main objectives of NRDI GeoEcoMar are:

- knowledge of the superficial and deep geological structure of the area occupied by the Danube-Danube Delta-Black Sea geo-system, modeling and forecasting its evolution under the influence of the global climate and sea level changes;

- outlining of new resources (mineral, energetic – conventional and unconventional, biological) in accordance with the legislation regarding the environment protection;

- scientific substantiation of the decision makers regarding the adaptive, sustainable and integrative management of the marine and coastal areas, in terms of structure protection and functioning of the characteristic ecosystems;

- study of natural hazards specific to marine, fluvial and lacustrine environments (landslides, gas releases, tsunami waves, erosion, floods, extreme seasonality, etc.), their forecasting and mitigation using monitoring systems;

- study of sedimentary paleo-environments, for a better understanding of the modern sedimentary environments;

- implementing up-to-date techniques, technologies and biotechnologies of investigation, including long term monitoring systems;

- participating in the building of platforms and technologic parks, in order to study the deep ocean areas, to capture the sea flow of energy (waves, tides, gas hydrates, wind) and positioning of marine construction buildings, etc.

- major contribution to the implementation in Romania of studies regarding the carbon dioxide capture and storage in geological structures, as method of reducing the emission of greenhouse gases;

- wide dissemination of knowledge on the issue of carbon dioxide;

- environmental education, involvement of younger generations in natural sciences, focused on marine, coastal, deltaic, lacustrine and fluvial environments;

Between 1996-2009, the Institute has participated in numerous research projects, part of the EC Framework Programs 4-7, adding those concluded with GEF-UNDP, UNEP, International Atomic Energy Agency (IAEA), Land Ocean Interactions in the Coastal Zone Project (LOICZ), Past and Present Global Changes Project (PAGES), Joint Global Ocean Flux Study Project (JGOFS).

Bilateral scientific cooperation have been continuously developed with traditional partners such as IFREMER-Brest (France), Institute of Biogeochemistry and Marine Chemistry-Hamburg University (Germany), ISMAR – Department of Marine Geology, Bologna, Italy, Institute of Earth Sciences "F.A. Forel" of Geneva University and Centre d'Ètudes en Sciences Naturelles de l'Environnement – CESNE Geneva (Switzerland).

The scientific activities within international projects have increased the rate of Institute funding from external sources.

Other revenue were obtained by participating in tenders for internal projects and research contracts with partners, especially private ones, both in Romania and abroad.

3. Organizational and Functional Framework

The organizational framework of NRDI GeoEcoMar, approved through the Order of the Ministry of Education, Research and Youth no. 6366/18.12.2008, is presented below.

The Institute headquarters is in BUCHAREST, 23-25, Dimitrie Onciul Street, sector 2. Several departments and laboratories are located here: Laboratory of Marine Geology and Sedimentology, Laboratory of Deep Geophysical Investigation, Laboratory of Seismo -Acoustics, Digital Mapping, Geographical Informational System (GIS) and Databases, Department of Coastal Research and Management, Department of Environmental Quality Investigation, Project Management and Marketing Office, Workshop of Scientific Equipment Maintenance and Management.

The Institute has a branch, with no legal status, based in Constanța, on 304, Mamaia Boulevard, with activities coordinated by the Branch Director. The Laboratory of Geochemical, Geoecological and Sedimentological Analysis carries on here.

The management of the Institute is provided by:

- Board of Directors;
- Scientific Board;
- General Director;
- Steering Committee.

Both councils meet once a month or whenever is needed.

In accordance with the Order of the Ministry of Education, Research and Youth no. 6125/11.12.2008, the Board of Directors is composed of:

1. Gheorghe OAIE
   President, General Director
2. Adrian STĂNICA
   Member, President of the Scientific Board
3. Silviu RĂDAN
   Member, specialist
4. Corneliu DINU
   Member, specialist, University of Bucharest, Faculty of Geology and Geophysics
5. Mariana STĂNESCU
   Member, representative of the Ministry of Education, Research, Youth and Sport
6. Maria POPESCU
   Member, representative of the Ministry of Public Finances
7. Ion MIHALCEA
   Member, representative of the Ministry of Labor, Social Solidarity and Family

A representative of the Union is always invited to attend the Board Meetings.

The main prerogatives of the Board of Directors are:

- approve the strategy and development programs of the Institute, according to the general strategy in its own domain of activity;
- analyze and to propose for approval the investments to be made by the Institute, under the law circumstances;
- analyze the achievement of performance criteria regarding the activity of the Institute;
- analyze and to endorse the annual financial statements, submitted for approval to the coordinating ministry;
- approve the administration report regarding the activity of the Institute in the previous year;
- analyze and endorse the draft budget of revenue and expenditure.

The Scientific Board is a collective and advisory body, which has as main objective the orientation of the programs, projects and research activities carried on by the Institute. The Board is composed of 15 members, elected by vote, representing the main scientific departments of the Institute. The General Director, the Branch Director and the Director of Research are members of right. The Scientific Board is mandated to assist the Board of Directors in making decisions on research policy.

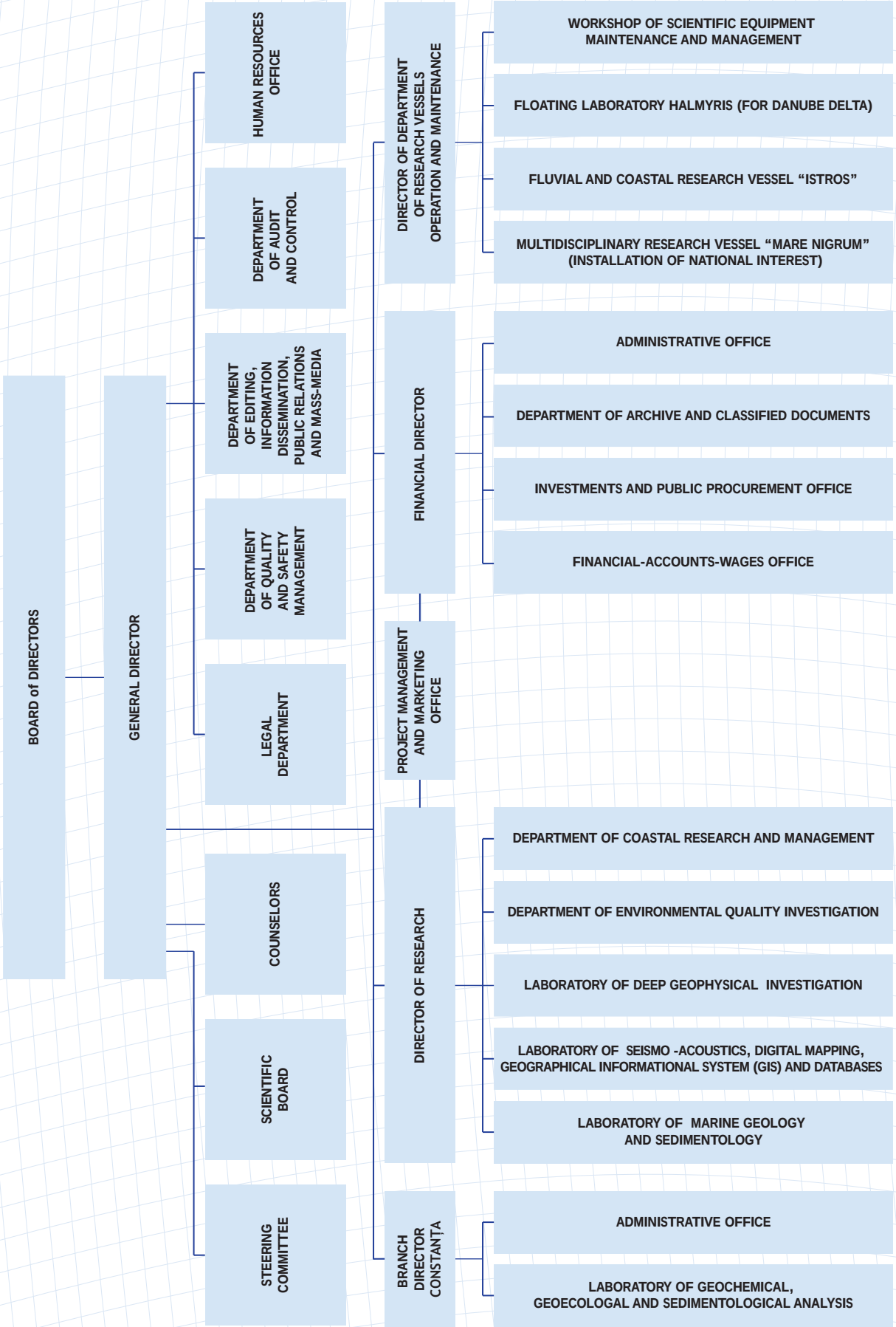
The activity of the Scientific Board of NRDI GeoEcoMar is based on a Regulation of Organization and Functioning, approved by the Board of Directors.
The most important prerogatives of the Scientific Board are:

- draw up the development strategy of the research and development activity of the Institute;
- draw up its own research and development plans;
- analyze, approve and monitor the fulfillment of scientific works;
- propose for approval by the Board of Directors the research - development and innovation program of the Institute;
- endorse the decisions of the Board of Directors on research policy of the Institute and of the Branch;
- propose training programs and employment of research staff, on professional ranks;
- organize and coordinate the scientific events;
- endorse the domestic and international scientific cooperation activities;
- endorse the granting of scholarships and training programs in the country and abroad.

The General Director is appointed by the coordinator ministry and leads the current activity of the Institute. The prerogatives of the General Director are stated by the Mandatory Agreement no. 11/15.01.2009, signed together with the National Authority for Scientific Research, as well as by Art. 25 of the Regulation of Organization and Functioning of NRDI GeoEcoMar, approved by the Governmental decision no. 967/15.06.2004.

The Steering Committee provides the operative management of the Institute and is composed by General Director, Branch Director, Director of Research, Financial Director and the Director of Vessels Department. Depending on the issues on the agenda, the department managers are also invited to attend meetings. A representative of the Union may be also invited to attend the meetings. The Steering Committee coordinates all the necessary activities needed to achieve the objectives resulting from:
- the strategy of research-development programs;
- the annual research-development program;
- the budget of revenue and expenditure;
- the investments program;
- the quality assurance system;
- other liabilities.

Organizational Framework of NRDI GeoEcoMar



4. Human Resources

The total number of NRDI GeoEcoMar employees during 2009 was 118.
A 44% percent represents the staff involved in research activities.
The University graduated staff represents a percent of 51%, out of which 2 persons are Corresponding Members of the Romanian Academy, 22 persons have a PhD Degree and 11 persons are involved in PhD programs.
The crews of NRDI GeoEcoMar research vessels fill 35 positions, 23 on RV Mare Nigrum, 10 on RV Istros and 2 on the floating-lab Halmyris.

4.1. Staff Structure

Ind. No.	Index	No.	%
1	**Total positions, of which:**	132	100
	- filled positions	118	89
2	- total University graduated staff	60	51
3	**Total staff involved in research - development (R-D) activities, of which:**	52	44
	- University graduated staff (R-D)	40	77
	- certified staff (R-D)	36	69
4	**Total administrative staff, of which:**	20	17
	- administrative staff, University graduated	11	55
5	University graduated staff involved in Marketing/Sales activities	1	100
6	**Other staff (sailors, workers, guards), of which:**	45	38
	- other staff (navy officers) University graduated	8	18

4.2. Research Staff Component

Ind. No	Index	No.
1	Romanian Academy Members/Corresponding Members	2
2	Staff involved with teaching in University education	3
3	PhD coordinators	2
4	PhD graduates/total no. of University graduates	22/60
5	PhD students/total no. of RD Staff University graduates	11/40
6	Staff involved in famous scientific and professional organizations in the country	30
7	Staff involved in prestigious scientific and professional organizations abroad	15
8	Scholarships and internship trainings in the country	5
9	Scholarships and internship trainings abroad	3
10	Scientific events organized by the Institute	6

The NRDI GeoEcoMar budget at the end of 2009 is presented below, drew up according to the regulations in effect (the values for 2008 are presented for comparison).

Crt. no.	Index	Value 2008 (lei)	Value 2009 (lei)
1	Turnover	19.086.789	16.959.883
2	Total revenue	21.189.957	22.674.681
3	Total expenditure	21.162.930	18.799.889
4	Investments	3.650.000	1.216.202

The total revenue of NRDI GeoEcoMar in 2009 was 22.674.681 lei.

The basic activity turnover of NRDI GeoEcoMar results from:

1. Revenue from research-development – 13.159.883 lei, the main sources being:

1.1. Contracts with MERI:
- Core Program;
- National Plan II – IDEAS and PARTNERSHIPS Programs;
- CORINT projects;
- FENCO-ERA program;
- NURC grant.

1.2. Contracts with other beneficiaries

1.3. Revenue from external sources:

- European Commission Framework Program VI;
- European Commission Framework Program VII;

2. Revenue from state budget subsidies for installations and objectives of national interest - RV Mare Nigrum, 3.800.000 lei.

The expenditure of NRDI GeoEcoMar in 2009 was 18.799.889 lei. It mainly consisted in:

- expenditure on wages, including contributions to social insurance budget, health, unemployment, travels, etc.
- material expenditure;
- expenditure for supporting from own sources the objective of national interest - RV Mare Nigrum (1.020.487 lei).

The investments were worth 1.216.202 lei and they were made exclusively from own funds. These investments represent expenditure made for rehabilitation/modernization of buildings (Bucharest Headquarters, Building B and Constanța Branch Headquarters).

NRDI GeoEcoMar activity is supported by a scientific infrastructure specific to marine research and consisting of three main components:

- research vessels;
- specialized laboratories;
- specialized equipment.

6.1. Research Vessels

Oceanographic multidisciplinary research vessel "Mare Nigrum": displacement - 3200 t, scientists - 25 persons, 10 laboratories measuring a total area of 200 sm

Fluvial and coastal research vessel "Istros": displacement - 147,8 t, scientists - 10 persons, 3 laboratories, endurance - 900 km

Floating-lab "Halmyris": displacement - 90 t, scientists - 20 persons, 2 laboratories, conference room

Research - surveillance motorboat "Carina": length - 6 m, 6 seats, 150 hp, diesel motor

6.2. Specialized Laboratories

Laboratories located in Bucharest Headquarters:

- Laboratory of Marine Geology and Sedimentology;
- Laboratory of Seismo - Acoustics, Digital Mapping, Geographical Informational System (GIS) and Database;
- Laboratory of Deep Geophysical Investigation;
- Department of Coastal Research and Management;
- Department of Environmental Quality Investigation;
- Department of Quality and Safety Management.

Departments supporting research activities:

- Project Management and Marketing Office;
- Workshop of Scientific Equipment Maintenance and Management.

Laboratories located in Constanța Branch:

- Laboratory of Geochemical, Geoecological and Sedimentological Analysis.

6.2.1. Laboratory of Marine Geology and Sedimentology

Field equipment:

- HACH DR 5000 UV-Vis Portable Spectrophotometer;
- WTW multi-line kit F/SET 3;
- HUMMINBIRD. WIDE Portable Sonar;
- PWS-NISKIN (5 l) bottles;
- INNOVA Multi-Gas Analyzer;
- Van Veen Boden-greifer;
- Hydro-Bios Gravitational Corer;
- Alpha – Laval Field Centrifuge, 7000t/min, liquid flow 5l/min.;
- Terhi Nordic 6020 C Motorboat "Măriuca", gasoline, 30HP;
- turbidimeter 2100P
- Doppler Profiler SONTEK acoustic system– Mini ADP, 1500kHz;
- manual drill;
- Magellan Meridian Color GPS;
- Bushnell laser telemeter (1000m);
- Bürkle immersion cylinder.

Laboratory equipment:

- DIGESTAHL HACH demineralization device;
- Langford Ultrasonic Sonomatic ultrasounds basket, 375H, 40kHz;
- Cooling thermo-incubator;
- Computers and accessories.

Underwater geological investigations. Bâlea Lake

6.2.2. Laboratory of Seismo - Acoustics, Digital Mapping, Geographical Informational System (GIS) and Database

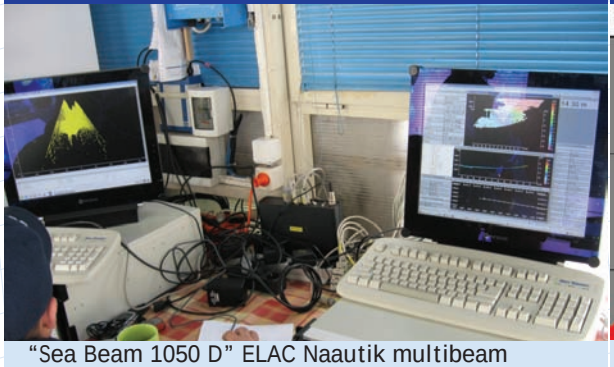
Facilities for seismo-acoustics:

- Edge Tech X-Star full spectrum Sub-bottom Profiler;
- GeoAcoustics digital sonar;
- Sea Beam 1050 D, EIAC Nutik GmbH multibeam bathymetric system, double frequency;
- Ceeducer Hydrographic System Bruttour Interntional Pty. Ltd bathymetric echosounder;
- Chirp Digital Echosounder for studying the sediments structure.

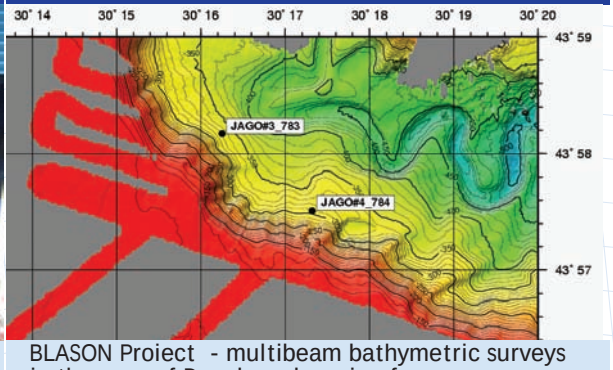
Facilities for digital mapping, database and GIS:

- Linux and Windows 2000 servers
- 5 Windows XP and Microsystems Ss20 work stations;
- HP plotter, format A1;
- Contex color scanner, format A0;
- Color laser printer, format A3
- ArcInfo and ArcView specialized software for GIS and database.

METROL Proiect - Underwater carbonate structures (batiscaf image)



"Sea Beam 1050 D" ELAC Naautik multibeam bathymetric system

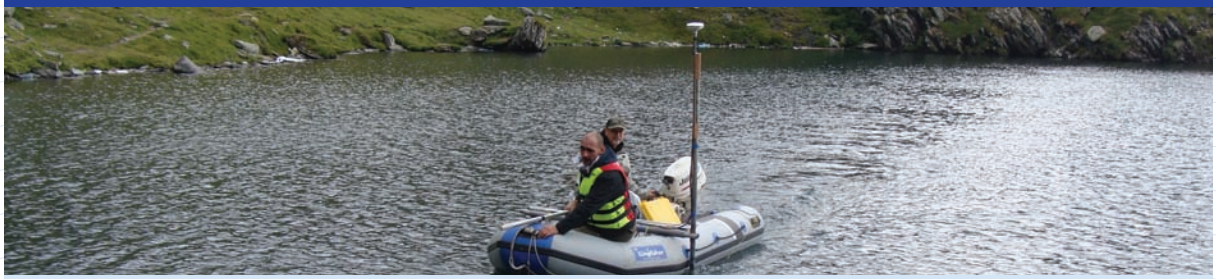


BLASON Proiect - multibeam bathymetric surveys in the area of Danube submarine fan

6.2.3. Laboratory of Deep Geophysical Investigation

Basic facilities:

- GD-K model sea bottom gravimeters (2 pcs.), depths between 0-300m, measuring range 100-6000mgal;
- GMN-K on board marine gravimetric equipment, measuring range 500-7000mgal
- Geometrics G877 marine proton magnetometer;
- Geometrics G856-2002 (differential), Geometrics G856 terrestrial proton magnetometer;
- resistivity device measurement;
- Trimble GPS receivers;
- Ceeducer integrated bathymetric systems, depth range 0,3-100m;
- River boat – a component of the RIO GRANDE Doppler system, 1200 Khz DRADCT;
- Surveying equipment: Trimble total station, laser telemeter, theodolites, levels, different models of compasses;
- IMB compatible computers and accessories;
- OASIS software
- Autocad Map 3D and Raster Design software;
- Global Mapper software.



Bathymetric measurements on Bâlea Lake

6.2.4. Department of Coastal Research and Management

Basic facilities:

- standard surveying equipment and total stations for beach profile measurements;
- single beam sounder and GPS – specialized for low depth bathymetric measurements;
- low depth Doppler current meter (ADP);
- sampling equipment for shallow sediments;
- specialized software numerical modeling of the coastal sediments dynamics.

Coastal area - "Împutita" Canal

6.2.5. Department of Environmental Quality Investigation

Basic facilities:

- TERHI motor boat, 15 hp;
- HANNA HI 9828 multiparameter kit;
- diving equipment;
- GARMIN GPS;
- ELITE 1500 BUSHNELL telemeter;
- Canon, Nikon digital cameras;
- Sony video camera;
- HP FU 470 EA laptop.

Environmental investigations - "Lilieci" drill

6.2.6. Laboratory of Geochemical, Geoecological and Sedimentological Analysis

Laboratory is includes the following divisions:

- geochemistry - geoecology;
- granulometry;
- mineralogy.

Laboratory analysis performed:

- heavy metals in water and sediment samples (Cu, Pb, Zn, Cr, Ni, Cd, Co, Sr, Rb, Ba, Zr, As) using atomic absorption and/or XR fluorescence analytical methods;
- nutrients in water samples – PO_4, NO_2, NO_3 and silica, dissolved using standard methods (HACH);
- major chemical components in sediments: $CaCO_3$, TOC, total Fe_2O_3, TiO_2, MnO;
- chlorophyll, by using UV-VIS spectrophotometry method;
- physico-chemical parameters on water samples: dissolved oxygen, oxygen saturation, pH, Eh, conductivity, salinity, total solids dissolved, by using electrochemical methods;
- biological analysis on phytoplankton, zooplankton, zoobenthos;
- mineralogical analysis;
- granulometrical analysis.

Types of activities:

- monitoring of marine, salt water and fresh water environments;
- participation in environmental impact and environmental assessment studies;
- studies concerning the impact of global changes on coastal and marine environments;
- laboratory analysis carried on within contracts for implementation of the national research plan, funded by MERI, projects within international programs, contracts with economic agents;
- studies on mineral deposits used in building industry, of ceramics and glass;
- studies on oil contamination.

Technical facilities of the geochemistry-geoecology division:

- SOLAAR 939E atomic absorption spectrophotometer, flame atomization and graphite kiln;
- VRA 30 sequential XR fluorescence spectrophotometer;
- UV – VIS Perkin Elmer Lambda 35 spectrophotometer;
- binocular microscope equipped with image capture;
- HACH DREL 2000 kit;
- WTW oxymeters;
- WTW multi-parameter device;
- WTW pH/Oxi set;

Diving preparations

Submarine biological investigations

CTD measurements

Laboratory of Geochemistry on RV “Mare Nigrum”

CTD profiles

- digital thermometer;
- CDT equipped with water samples collecting device;
- MARK II-400 multi-corer;
- computers, accessories and specialized software;
- Agilent 7890 A gas chromatograph equipped with quadropole mass spectrometer;
- ROV (operating depth – 1000m);
- BERGHOFF MWS 2 microwave digestive system;
- DIONEX ASE 300 solvent extraction system;
- wave characteristics automatic measurement station, located in Mangalia.

Facilities of the granulometry division:

- MASTERSIZER 2000 E, Hydro 2000MU laser particles analyzer;
- electro-magnetic vibrator;
- 0,063 - 2 mm sieves;
- Sartorius BP210S analytical balance;
- computers, accessories and specialized software;
- other specific laboratory facilities.

Facilities of the mineralogy division:

- FRITZ magnetic separator;
- CARL ZEISS JENA polarizer microscope;
- binocular magnifiers.

Beach deposit - Perişor

7. NRDI GeoEcoMar Activity

In 2009, NRDI GeoEcoMar activity was carried on the following programs:

Plan/Program	Value in 2009 (lei)
National Programs	4.375.061
Core Program - GEOSIDMAR	4.793.437
Third Parties Contracts	2.618.117
International projects	1.373.268
Total	**13.159.883**

7.1. National Programs

Crt. no.	Project	Contractor	Subcontractors
National Plan II - PARTNERSHIP Program			
1	Using and developing new methods for investigating major changes of climate and sea level changes in the Danube Delta and the Black Sea, in order to reconstruct the evolution and forecast the associated risks – **CLIMARISC**	NRDI GeoEcoMar	- University of Bucharest Faculty of Physics - NRDICIT Rm. Valcea - SC Accent Pro 2000
2	Complex study of the semi-closed ecosystems (Alpine and volcanic lakes), in order to establish the reference level of anthropogenic impact: Alpine lakes from Făgăraş Mountains and St. Ana Lake - **ALPIMP**	NRDI GeoEcoMar	- University of Bucharest Faculty of Physics - GIR Bucharest - ICPE - CA Bucharest - SC Accent Pro 2000
3	Scientific substantiation, conceptual and numerical modeling of the aquifer structures for the protection and sustainable use of the groundwater resources in the southern part of Romania – **AQUASID**	NRDI GeoEcoMar	- SC GEOAQUA Consult - University of Bucharest Faculty of Geology and Geophysics - NIHWM Bucharest
4	Geo-Biodiversity of the National Park Cheile Bicazului-Hasmas. Geological, geographical, biological integrated studies to enrich the natural heritage of the park and to expand its boundaries – **GEOBIOHAS**	GIR Bucharest	- NRDI GeoEcoMar - University "Alexandru Ioan Cuza" - Iasi, - University of Bucharest, Faculty of Geology and Geophysics
5	Protected areas: assessing environment quality in order to capitalize the natural resources and to achieve a sustainable local development – **PROMED**	GIR Bucharest	- NRDI GeoEcoMar - University of Bucharest, Faculty of Geology and Geophysics - NIHWM Bucharest
6	The influence of the global geo-climate changes on sustainable development in Dobrogea - **GLOBE**	Constanta Maritime, Hydrographic Directorate	- NRDI GeoEcoMar - NRDI Grigore Antipa - University "Ovidius" Constanta - University of Bucharest CCSFN - "Ovidiu" Townhall - SC Buta&Co. SA

7	New innovative model used in scientific substantiation of the decisions regarding the ecological protection and reconstruction of the wetlands and the preservation of the protected areas, based on mathematical modeling of the morpho-hydrographic dynamics and water quality - **MORFDD**	NRDI Danube Delta	- NRDI GeoEcoMar - NIHWM Bucharest - UTCB - Faculty of Hydrotechnics and Land Improvements
8	Water and sediments flow on the Romanian Coast: measurements using modern technologies and mathematical modeling in order to draw up a support system for taking decisions on coastal protection - **CLASS**	NRDI GeoEcoMar	- University of Bucharest, Faculty of Geology and Geophysics - ISMAR, Venice, Italy - SC Gera SRL
9	Assessing the impact of oil pollutants and natural degradation of hydrocarbons upon the aquatic ecosystems - **IDEA**	National Institute for Laser, Plasma and Radiation Physics	- NRDI GeoEcoMar - Univ."Ovidius"Constanta - Institute of Biology of Romanian Academy - NRDI Optoelectronics - SC DOLSAT Consult
National Plan II - IDEAS Program			
1	The implications of the Mediterranean Sea Messinian drainage on the Dacian Basin evolution. Physical, biological and sedimentological processes	NRDI GeoEcoMar	
2	Black Sea: the evolution of the calcareous nannoplakton in the last 7000 years. Paleoenvironmental and paleogeographical reconstruction	NRDI GeoEcoMar	
CORINT Projects			
1	Southern European Seas: Assessing and Modelling Ecosystem changes - **SESAME**	NRDI GeoEcoMar	
2	Hotspot ecosystem research on the margins of European seas - **HERMES**	NRDI GeoEcoMar	
3	Concept and science for coastal erosion management - **CONSCIENCE**	NRDI GeoEcoMar	
FENCO-ERA Program			
1	Scrutinizing the impact of CCS communication on the general and local public	NRDI GeoEcoMar	
NURC Grant			
1	Geomorphological and geoenvironmental evolution of the interface between the hydrographic network and the area of active deposition of sediments: case study Danube Delta – EUROC/2009	NRDI GeoEcoMar	
Total National Programs = 4.375.061 lei			

7.2. Core Program – acronym GEOSIDMAR

In 2009, NRDI GeoEcoMar activities in Core Program - GEOSIDMAR included:

- complex investigations on Black Sea, Danube Delta, along the Romanian Black Sea Coast, along the Romanian sector of Danube, on the junction of Danube with the tributary rivers (Cerna, Topolnița, Jiu, Olt, Vedea, Argeș, Ialomița, Siret and Prut);

- measurements, sampling (water, sediments, biological), laboratory analysis, data processing and interpretation;

- drafting stage reports and annual summary report;

- scientific substantiation of the necessary measures proposed to reduce/eliminate the negative impact of human activities upon the environment;

- substantiation of some international partnership proposals applied in programs such as Cross Border Cooperation (CBC), Joint Operational Program Black Sea 2007 – 2013, South East Europe (SEE).

Crt. No.	Project	Expected results
Objective 1: Global changes: effects evaluation, risks forecasting and management Objective Code: PN 09-41 01		
1	Project Code: PN 09 41 01 01 **Geoecological monitoring of the Romanian continental shelf**	- complex geological, sedimentological, seismo-acoustical, bathymetrical, geochemical, ecotoxicological and geoecological studies in order to establish basic levels absolutely necessary for identifying recent and future local/global climate and sea level changes; - monitoring the evolution in time of geoecological consequences regarding global climate changes and geotectonic events; - knowledge of characteristic ecosystems structure and functioning; - understanding the consequences of global changes on ecosystems, an essential request in their sustainable operation; - expanding the database of the Institute; - integration of marine research activities in international programs.
2	Project Code: PN 09 41 01 02 **Identification of geological structures suitable for CO_2 storage in Romania; the establishment of an appropriate methodology**	- inventory of major Romanian CO_2 sources; - substantiation of a CCS demonstrative project in Romania; - scientific substantiation of a future National Program and an Action Plan for CCS commercial development in Romania including all its components: caption, transport and storage - proposal of funding sources and support scheme for implementing a CCS demonstrative project in Romania - proposals to create legislative and regulatory framework in order to ensure the competitiveness of a CCS demonstrative project in Romania and the development of CO_2 capture/ transport/storage points.
Total Objective 1 = 1.400.000 lei		

Objective 2: Sustainable and adaptive development, resources management		
1	Project Code: PN 09 41 02 01 **Complex research for outlining of new marine, mineral and energetic resources**	- location and delimitation of areas of interest based on existing documentation; - preparation of research vessel, including supply of fuels and lubricants; - research equipment testing and calibration, including those owned by the vessel; - multi-beam bathymetric measurements; - seismo-acoustics measurements; - sediments sampling from cores and water/sediments interface; - CDT measurements and water sampling from interest points; - hydro and geochemical laboratory analysis; - interpretation of results for confining areas of interest from economic point of view; - drafting of cartographic materials (distribution/concentration maps, geological sections, etc.) - drafting of stage reports and final report.
2	Project Code: PN 09 41 02 02 **Potential risks in the exploitation of the Black Sea resources, in terms of global climate changes**	- synthesis of existing published and/or unpublished data, related to exploitable or potentially exploitable marine resources in the Black Sea; - updated evaluation of the basic status of the major ecosystems in the Black Sea; - identifying the potential risks of operating activities of Black Sea resources; - proposing measures to mitigate negative results following resources operation, including the strategies regarding the sustainable management of natural resources; - environmental protection against the natural or man-made undesirable effects, aiming to improve environment quality; - awareness of policy makers and of locals; - results publication and dissemination.
Total Objective 2 = 828.015 lei		

Objective 3: Integrated management of Danube-Danube Delta-Coastal-Black Sea Geosystem Objective Code: PN 09-41 03		
1	Project Code: PN 09 41 03 01	- expanding (updating) the knowledge-base regarding the Romanian continental shelf by drafting geologic - sedimentologic, bathymetric and geoecologic maps; - documentation based on known database, owned or from other sources, in order to elaborate the scheme for achieving marine mapping works, delimitating the map sheets of economic or scientific major interest; - preparation of research vessel, including supply of fuels and lubricants; - research equipment testing and calibration, including those on research vessel; - understanding the physico-chemical and biological processes, the structure and functioning of the benthic biocenosis, indispensable to their sustainable exploitation; - knowledge of the sediment genesis processes; - knowledge of pollutants dispersion and fixing mechanisms in sediments; - expanding information regarding the potential of mineral resources in Romania through updating the knowledge-base on marine resources; - achievement of the theoretical database, necessary for the sustainable exploitation of the marine environment, in terms of protecting specific ecosystems; - achievement of the informational database necessary for the substantiation of coastal protection works or oil rig emplacement, etc.
	Geological and geophysical mapping of the marine areas under Romanian jurisdiction	
2	Project Code: PN 09 41 03 02	- analysis of distribution and intensity of coastal area activities; - analysis of potential conflicts between these activities; - appointment of a multi-criteria analysis system for implementation of a sustainable development (environmental, economical, social) and its testing in the coastal area; - solutions regarding the spatial planning of the anthropogenic activities from coastal area and comparison with plans currently existing in Europe; - choosing the most acceptable measures of protection for each littoral sector, using multi-criteria analysis.
	Comprehensive spatial planning of the Romanian seaside	
3	Project Code: PN 09 41 03 03	- identifying the characteristics of each sector of beach to be studied; - obtaining a wave climate for a long period of time (years) - calculating the amount of sediment transported in Romanian coastal area; - predictions concerning short-term (years) and medium-term (tens of years) beach evolution;
	Investigation and quantification of water and sediment circulation in coastal area, based on numerical models	

4	Project Code: PN 09 41 03 04 **Geoecological research to evaluate natural and anthropogenic factors influencing the distribution of sediments, marine water quality and emissions of greenhouse gases in the Danube Delta and Razim - Sinoie Lagunar Complex**	- mineralogical and geochemical study of suspended and bottom sediments and cored sediments; - determine the main physicochemical parameters of water and sediments; - analysis of contaminants (heavy metals, pesticides, hydrocarbons, nutrients, etc.) from water and sediments; - study the pelagic and benthic populations of aquatic ecosystems; - mapping of biogas emissions (N_2O, CO_2, CH_4) using *in situ* measurements on various aquatic and terrestrial environments; - setting trends for seasonal variation in representative aquatic or terrestrial ecosystems; - assessing the impact of human interventions on productivity of water bodies and on eutrophication processes, and the consequences they have upon greenhouse gas emissions; - assessing consequences of human activities in the Danube Delta, identifying areas under stress and environmental and socioeconomic risk assessment on short, medium and long term.
5	Project Code: PN 09 41 03 05 **Danube river: morpho-sedimentological and geoecological evolution and estimative anthropogenic pollution**	- measurements of water flow and sediment carried by river; - determine the main categories of pollutants in the Danube and its main tributaries; - determine the influence of water flows, sediment and pollutants on the Danube and Danube Delta ecosystems, including the northwestern part of the Black Sea; - development of cartographic documents (geological, sedimentological, geoecological, bathymetric maps) necessary for environmental control and surveillance; - geological, sedimentological and geophysical measurements and observations (bathymetry and seismo-acoustics) in critical areas (thresholds) to increase the navigation safety; - expanding the database opened for internal users; - implementation of new research technologies in collaboration with other research institutes, including those from abroad; - scientific substantiation of proposals of measures to reduce / eliminate pollution and to make the best decisions on environmental protection.

6	Project Code: PN 09 41 03 06 **Implications of terrestrial movements on morpho-geological evolution of the Danube – Black Sea geosystem**	- creation of a complex geodynamic network to enable the future achievement of a wide range of geodetic and geophysical observations, permanently or by monitoring. Including these stations in the international and national network of permanent GPS stations. Creating the necessary premises for the expansion of the geodynamic polygon on the entire western shore of the Black Sea, via a / some bilateral project (s) with Bulgaria and Ukraine; - integration of surveying and geodetic station networks and registering tide gauges in a uniform system of coordinates (EUREF) and integrated interpretation of records; - obtaining of some inaccessible geodynamic information, by other methods and their integration together with hydrologic and sedimentological data in hydrodynamics simulation models of processes occurring in the coastal zone, all of these leading to the scientific management of the coastal zone; - integrating the results and data exchange in international projects (such as Wegener - Medlas, CERCOP, etc.), whose purpose is to highlight and monitor the movement of lithospheric plates; - determining the relative and absolute rate of sea level change compared to the land; - determining the direction and amplitude of the epirogenetic movements, affecting different sectors of the coast line, in order to choose the best methods of coastal protection; - contributions to the study of regional seismicity and the highlighting of the active faults; - highlighting the main trends of hydro-geomorphological evolution of the Danube in its problematic sectors; - connecting, through the complex network of terminals made along the Lower Danube, of the geophysical and geodetic networks of the riverside States.
Total Objective 3 = 2.415.422 lei		
Objective 4: Protection and integrated management of national geological and archaeological heritage Objective Code: PN 09-41 04		
1	Project Code: PN 09 41 04 01 **Geological and paleontological studies in the protected areas of the Carpathians and Apuseni Mountains, in order to ensure conservation and sustainable use**	- assessment of natural factors and anthropogenic impact on areas protected by law; - assessment of economic and social value and the costs and benefits of natural heritage conservation in protected areas; - proposals of solutions for the natural recovery of damaged areas; - providing to local and national bodies of a scientifically based documentation regarding protected areas, to be used in decision making regarding sustainable development, in order to protect and conserve nonrenewable natural resources or endangered ones; - proposals for alternative strategies of exploiting natural resources by redirecting some activities from those areas to clean and environment friendly activities, such as ecotourism and geotourism which, on the one hand, ensure the preservation of natural environment, healthy and unpolluted, and on the other, enable growing benefits for local communities and attaining economic sustainability; - sustainable development of the studied areas by capitalization of local resources.

2	Project Code: PN 09 41 04 02	- obtaining information on archaeological and cultural potential of Histria Argamum, Albesti-Tropaeum Traiani archaeological sites; - archaeological research will be oriented according to geophysical data; - parameters observations and measurements on extracted samples (magnetic susceptibility) will allow adjustment of criteria for geophysical interpretation, leading to a better calibration of geophysical interpretation process; - completion of the study will enable the development of a specific geophysical research methodology , modernization and continuous diversification of geophysical equipment and software; - publication of the obtained results; - expanding the existing database.
	Environmental and engineering geophysics research for highlighting the shallow geological, archaeological and other kind of structures	
Total Objective 4 = 150.000 lei		
TOTAL PROGRAM = 4.793.437 lei		

7.3. Third Parties Contracts

NRDI GeoEcoMar has provided economic agents with research services, consisting of complex marine and fluvial research, performing laboratory tests and analyses, conducting studies regarding the state of the environment.

Crt. no.	Activity	Beneficiary
1	Environmental impact assessment /3D seismic prospecting works for hydrocarbons in the Black Sea continental shelf in the exploration - development - operation perimeter of Neptun XIX;	OMV-PETROM SA – PETROMAR Oil Deposits Group - Constanţa
2	Technical memorandum to obtain the environmental agreement, target LV04 oil rig -- “Lebăda Vest” Structure, Black Sea continental shelf;	OMV-PETROM SA – PETROMAR Oil Deposits Group - Constanţa
3	Environmental Impact Assessment for digging the LV04 oil rig – “Lebăda Vest” Structure, Black Sea continental shelf;	OMV-PETROM SA – PETROMAR Oil Deposits Group - Constanţa
4	Solving the discharge, storage and possible recovery of dredged material placed at the critical sailing points along the maritime Danube;	AFDJ Galaţi
5	Study on consequences upon the environment in the Danube Delta Biosphere Reserve, caused by the construction of phase II of the Ukrainian project “The Danube - Black Sea deep-sea waterway, from the Ukrainian sector of the Danube Delta, on the route Chilia Distributary - Bâstroe Canal”;	INRDI Danube Delta
6	Monitoring of environmental factors on oil rig 1 ”Lilieci” (Bacău County);	Aurelian Oil&Gas (România) S.R.L
7	Environmental impact assessment for the consolidation works of the cliff near Eforie Nord and Eforie Sud, Constanţa county;	D.A.D.L. Constanţa

8	Environmental Impact Assessment for the consolidation works of the cliff in Tuzla, Constanța County;	D.A.D.L. Constanța
9	Environmental Impact Assessment for the consolidation works of the cliff in Costinești, Constanța County;	D.A.D.L. Constanța
10	Methodology of spatial planning for the coastal zones: Black Sea Coast;	NRDI Urban Proiect
11	Research contracts (3 stages);	Marine Resources Exploration International B.V.
12	General environmental information about the Romanian sector of the Black Sea;	Peter Gaz Ltd. (Russian Federation)
13	Geological, geomorphological and oceanographical information about the Romanian Sector of the Black Sea;	Peter Gaz Ltd. (Russian Federation)
14	General information about the Romanian Coastal Zone;	Peter Gaz Ltd. (Russian Federation)
15	Accomplishment of a Geological Guidebook;	S.C. Midia Resources S.R.L.
16	Inventory and synthesis of data to identify opportunities for storing carbon dioxide emitted by "Rovinari" Power Station;	ISPE Bucharest
17	Inventory and synthesis of data to identify opportunities for storing carbon dioxide emitted by "Işalnița" Power Station;	ISPE Bucharest
18	Bathymetry "Mangalia" Harbor for pipeline establishment.	TAHAL Group
Total Third Parties = 5.785.039 lei		

7.4. International Cooperation

NRDI GeoEcoMar conducts a laborious research activity in international projects, being an active participant to research and exploration of the Black Sea and other marine areas of interests.

NRDI GeoEcoMar is involved both in European projects (European Commission Framework Programs VI and VII, CEE, CBC, Black Sea 2007-2013) and in bilateral cooperation projects (IFREMER - France; CESNE - Switzerland) or other international projects.

Below are listed the major international projects in which NRDI GeoEcoMar was involved in 2009:

Crt. no.	Project	Thematic/Main results achieved
1	PC VII - EUROFLEETS Toward an alliance of European research fleets	- collaboration concepts between European research fleets;
2	PC VII - HYPOX In situ monitoring of oxygen depletion in hypoxic ecosystems of coastal and open seas, and land-locked water bodies	- monitoring of oxygen concentration by performing in situ measurements, in order to evaluate its deficit in the marine environment;

3	PC VII - Black Sea Scene - Upgrade	- creating a multidisciplinary scientific network, at basin level.
4	PC VII - CLIMATEWATER Bridging the gap between adaptation strategies of climate change impacts and European water policies	- improving the European legislation on water, by highlighting the national and Community currently legislative shortcomings; - harmonization of national and European legislation - implementation of new regulations at the Union level.
5	PC VI - HERMES Hotspot ecosystem research on the margins of European seas	- research of deep sea areas between the Arctic Ocean and the Black Sea; - study of marine ecosystems along continental margins; - complex studies: biodiversity, physical oceanography, microbiology, biogeochemistry, etc.
6	PC VI - EU GeoCapacity Assessing European capacity for geological storage of carbon dioxide	- assessment of local and regional potential for CO_2 storage, in Romania; - analysis of source-transport-storage scenarios and their economic evaluation; - assessment of geological storage capacity of Romania.
7	PC VI - CONSCIENCE Concept and science for coastal erosion management	- reconsider and redefine concepts concerning the transport of sediments in coastal areas.
8	PC VI - CO_2 - Capture and storage networking extension to the new EU member states	- systematic research to estimate Romania's capacity to store carbon dioxide.
9	PC VI - Black Sea Scene - Black Sea scientific network	- database for marine sciences; - multidisciplinary marine researches.
10	South Eastern Europe (SEE) ECOPORT 8	- establishing a guide to good environmental practices which should be applied to South Eastern European harbors.
11	United States Trade and Development Agency - COAST EROSION	- establishing protection plans against erosion for beaches situated in front of the Danube Delta, in the context of integrated management of coastal area.
12	European Science Foundation TOPOEUROPE - SourceSink Project	- assessment of natural hazards in order to quantify sediment transfer from mountain ranges to active sedimentary basins.
13	Action COST - TD 0902 – SPLASH	- joins expert geologists (experienced in marine geology) and archaeologists (experienced in prehistoric times) to make possible the identification of submerged sites located in marine areas; - studying the migration of populations due to changes of environmental conditions imposed by climate change older than 5000 years old; - training and specialization in archeogeology.
14	IGCP 521 Black Sea Mediterranean corridor during the last 30 ky: sea-level change and human adaptation	- changes in sea level, the shoreline evolution and the adaptation of humans to regional environmental conditions; the tectonics of the area (e.g. Caucasian coast, Marmara Sea), stable areas (e.g. Manici Low Land, variable climate from temperate (e.g. North Western Black Sea) to Mediterranean.

15	INQUA 0501 – Caspian-Black Sea-Mediterranean Corridor during the last 30 ky: sea-level change and human adaptive strategies	- exchange of ideas on the Black Sea region in order to link natural processes with specific ecosystems.
16	Swiss National Science Foundation NEAR 4	- establishment of programs to study management of water resource and of wetlands for master and PhD students from Eastern Europe.
17	Swiss National Science Foundation NEAR 3 - Network for environmental assessment and remediation in the aquatic system: Environmental curriculum and training at the postgraduate level	- establishment of programs to study the role of wetlands, lagoons, deltas and reservoir lakes, in order to evaluate environmental quality and propose remedial measures.
18	PC VI SESAME Southern European Seas: Assessing and Modelling Ecosystem changes	- multidisciplinary marine researches in the European southern seas, in order to aknowledge the ecosystem changes.
Total = 2.500.260 lei		

In 2009, NRDI GeoEcoMar was the main organizer of the following scientific events and meetings (some of them international):

- 17th - 18th of March 2009, Constanța, Romania - ROV training program, guided by a "Deep Ocean ", USA specialist;

- 23rd – 27th of March 2009, Bucharest, Romania – Course of Limnology by professor Richard Thomas, organized by NRDI GeoEcoMar and the University of Bucharest;

- 5th – 8th of May 2009, Bucharest – Murighiol, Romania – "Evolution in the deep sea", a Conference of professor Adolf Seilacher from University of Tübingen, Germany; the conference was followed by a geological field trip to Dobrogea;

- 7th-8th of May 2009, Bucharest, Romania – Annual Scientific Session of NRDI GeoEcoMar;

- 25th of September – 1st of November 2009, Murighiol, Romania – "Carpathian – Danube delta – Black sea Sedimentary System" Summer School;

- 14th – 16th of December 2009, Bucharest, Romania – Course on "Depositional Systems" by professor Cornel Olaru, the University of Texas at Austin, USA, organized by NRDI GeoEcoMar.

NRDI GeoEcoMar participation in fairs and exhibitions:

- 25th of September 2009 , Bucharest, Romania – "Researchers' Night" Exhibition;

- 4th – 7th of November 2009, ROMEXPO, Bucharest, Romania – "INVENTICA" International exhibition for inventions, scientific research and new technologies";

- 11th of November 2009, Brussels Belgium – "SciTech 2009" International exhibition;

- 19th – 21st of November 2009, Bacau, Romania – The Regional Research Fair";

The specialists of NRDI GeoEcoMar have participated in numerous scientific events, both home and abroad, as follows:

- 20th – 21st of January 2009, Julich, Germany – "Impact of Communication" – Workshop I as part of FENCO-ERA Program;

- 28th of January 2009, Brussels, Belgium – ZEP-ETP Advisory Council Meeting;

- 17th – 19th of February, Berlin, Germany – ZER-ETP Governmental Group Meeting;

- 24th – 25th of February 2009, Sinaia, Romania – "Climate Change: policies to reduce emissions and adaptation" – International and European framework, examples of national policies, technical options and tools available for different sectors – Workshop;

- 2nd – 6th of March 2009, Bratislava, Slovakia – CO_2 Net East Workshop;

- 18th – 20th of March 2009, Venice, San Servolo Island, Italy – CO_2 GeoNet Open Forum;

- 15th – 17th of April 2009 Max Planck Institute for Marine Microbiology, Bremen, Germany – FP7 kick-off meeting;

- 27th – 29th of April 2009, Cork, Ireland – FP6 CONSCIENCE International Workshop;

- 27th of May – 1st of June 2009, Athens, Greece – FP6 no.036949/2006 Southern European Seas: Assessing and Modeling Ecosystem changes (SEASME), Workshop;

- 10th – 16th of May 2009, Belgrade, Serbia – 5th BGC Congress – Geophysics at the Crossroads;

- 13th – 15th of May 2009, Copenhagen, Denmark – ERVO Meeting;

- 29th of May – 5th of June 2009, Cluj – Napoca, Romania – 3rd International Workshop" Neogene of Central and South Eastern Europe";

- 29th of May- 5th of June 2009, Kona, USA – 20th International Radiocarbon Conference;

- 8th – 13th of June, Amsterdam, Holland – EAGE 's 71st Conference and Exhibition;

- 4th of July 2009, Varna, Bulgaria – training program: CBC Black Sea International Programs Presentation;

- 9th - 13th of July, Cluj-Napoca, Romania – MAEGS – 16, the Meeting of Association of European Geological Societies "Geology for society: education and cultural heritage";

- 31st of July 2009, Bari, Italy – SEE ECOPORT Project 8 kick-off meeting;

- 24th – 27th of August 2009, Trondheim, Norway – Workshop III Program FENCO-ERA "Impact of Communication";

- 22nd – 31st of August 2009, Izmir, Turkey – IGCP 521-0501 INQUA Fifth Plenary Meeting and Field Trip;

- 5th – 12th of September, Venice, Italy – Summer school "Environmental Problems of the Venice Lagoon" (third edition);

- 7th – 10th of September 2009, Brno, Czech Republic – Participation in the Steering Committee meeting of the European Network of Geoenergetic Research (www.energnet.eu) and Net CO_2 East Project meeting (http://co2neteast.energnet.com);

- 6th – 20th of September, Paris, France – training for use of "Dionysos" software in stratigraphical modeling, the French Institute of Petroleum (IFP);

- 21st – 25th of September 2009, Paris, France – FP VII EUROFLEETS Project;

- 24th – 25th of September 2009, Tulcea, Romania – XVIII International Symposium NRDI Danube Delta – "Deltas and Wetlands";

- 28th – 30th of September 2009, Eastbourne, United Kingdom – Steering Committee Meeting FP 6 CONSCIENCE;

- 1st – 2nd of October 2009, Russe, Bulgaria – Workshop "Sustainable Navigation on the Danube", organized by WWF and IAD;

- 5th – 9th of October 2009, Ankara, Turkey – the 2nd International Symposium on the Geology of the Black Sea Region;

- 12th – 18th of October 2009, Thailand – Climate Leaders Workshop, the British Council and Asia-Europe Foundation;

- 20th of October 2009, Brussels, Belgium – General Assembly of ZEP (Zero Emission Platform);

- 21st – 22nd October 2009, Copenhagen, Denmark – EU GeoCapacity Final Conference;

- 21st – 24th of October 2009, Cluj Napoca, Romania – 7th National Symposium of Paleontology;

- 25th – 29th of October 2009, Rennes, France – 12th French Congress of Sedimentology;

- 27th of October 2009, Brussels, Belgium – ZEP-ETP Governmental Group meeting;

- 29th - 30th of October 2009, Bucharest, Romania – participation in national training program on scientific authorship in the project "PhD in Excellence Schools - Evaluation of research quality in universities and increase visibility through scientific publications";

- 30th of October 2009, Symposium "Mineralogy and Geodiversity", dedicated to the 70th Anniversary of Emil Constantinescu;

- 4th - 7th of November 2009, Paris, France – "The 3rd International Symposium - Capture and Geological Storage of CO_2"; IFP, ADEME, BRGM;

- 12th of November 2009, Brussels, Belgium – ESFRI environmental working group meeting;

- 9th - 12th of November 2009, Villefranche-sur-Mer, France – Sesame 4th General Assembly and 2nd Scientific Workshop;

- 21st - 27th Of November 2009 – CO_2 Geological Storage, ESF Conference;

- 24th - 29th of November, Salzburg, Austria – SourceSink Meeting;

- 3rd - 4th of December 2009, Durres, Albania – Steering Committee Meeting EEA ECOPORT 8;

- 07th - 09th of December 2009, Varna, Bulgaria – ARGO BLACK SEA working meeting;

- 8th - 9th of December 2009, Bucharest, Romania – Black Sea International Conference - ERA-NET;

- 10th - 11th of December 2009, Constanta, Romania – The ProjectGlobe Workshop;

- 11th - 15th of December 2009, Copenhagen, Denmark – activities of COP 15, as well as those organized by the ZEP (Advisory Council & Government Group) and Bellona;

- 15th - 16th of December 2009, Helsinki, Finland – ESFRI environmental working group meeting;

In 2009, the researchers of NRDI GeoEcoMar have published 15 articles in foreign journals (in ISI, SCOPUS), 11 articles in Romanian journals (Rated NURC), 2 geological guidebooks and chapters in 3 international books.

7.5. Vessels Activity

NRDI GeoEcoMar owns the following research vessels:

- Oceanographic vessel "Mare Nigrum";
- Research vessel "Istros" for coastal and fluvial areas;
- Floating-lab "Halmyris".

All vessels are equipped with laboratories, scientific equipment and provide accommodation for scientific staff.

During 2009, vessels activity took place within research programs or contracts, as follows:

Research Vessel "Mare Nigrum"

16th - 18th of March – ROV equipment offshore testing;

19th - 28th of May – expedition, Core Program GEOSIDMAR, Project PN 41 01 01 ;

8th – 26th of June – first expedition for the research Contract signed with Marexin SRL;

14th – 16th of July – Contract PETROM-PETROMAR, Constanța;

20th-29th of July – second expedition for research Contract signed with Marexin SRL;

6th – 7th of August – new capstan purchased for "Mare Nigrum" offshore testing;

13th – 17th of August – first expedition, Core Program GEOSIDMAR, Project PN 09 41 03 01 and Contract PN II 31 – 068;

26th – 30th of September – second expedition, Core Program GEOSIDMAR, Project PN 09 41 03 01 and Contract PN II 31 – 068;

Research Vessel "Istros"

1st of March-12th of April - expedition on Sulina – Bazias route, Core Program GEOSIDMAR, Project PN 09 41 03 05;

22nd of April-3rd of May – expedition on Dubova – Murighiol route, Core Program GEOSIDMAR, Project PN 09 41 03 06;

6th – 16th of May – expedition on Tulcea – Sulina – Murighiol route, Core Program GEOSIDMAR Project PN 09 41 03 04;

12th – 24th of August – second expedition to Razelm Lake, Core Program GEOSIDMAR, Project PN 09 41 03 04;

25th of August – 4th of September – expedition on Tulcea – Mile 23 – Murighiol route Project PN II, acronym MORFDD;

4th – 14th of September – complex field activities, core and boden-greifer sampling, according to Contract signed with AFDJ Galați;

27th – 31st of October – travel on Tulcea – Periprava – Murighiol route, in order to achieve the objectives assumed by NRDI GeoEcoMar through the contract signed with NRDI Danube Delta.

"Halmyris" floating-lab

Was used to support the following activities (research contract, scientific events, summer schools):

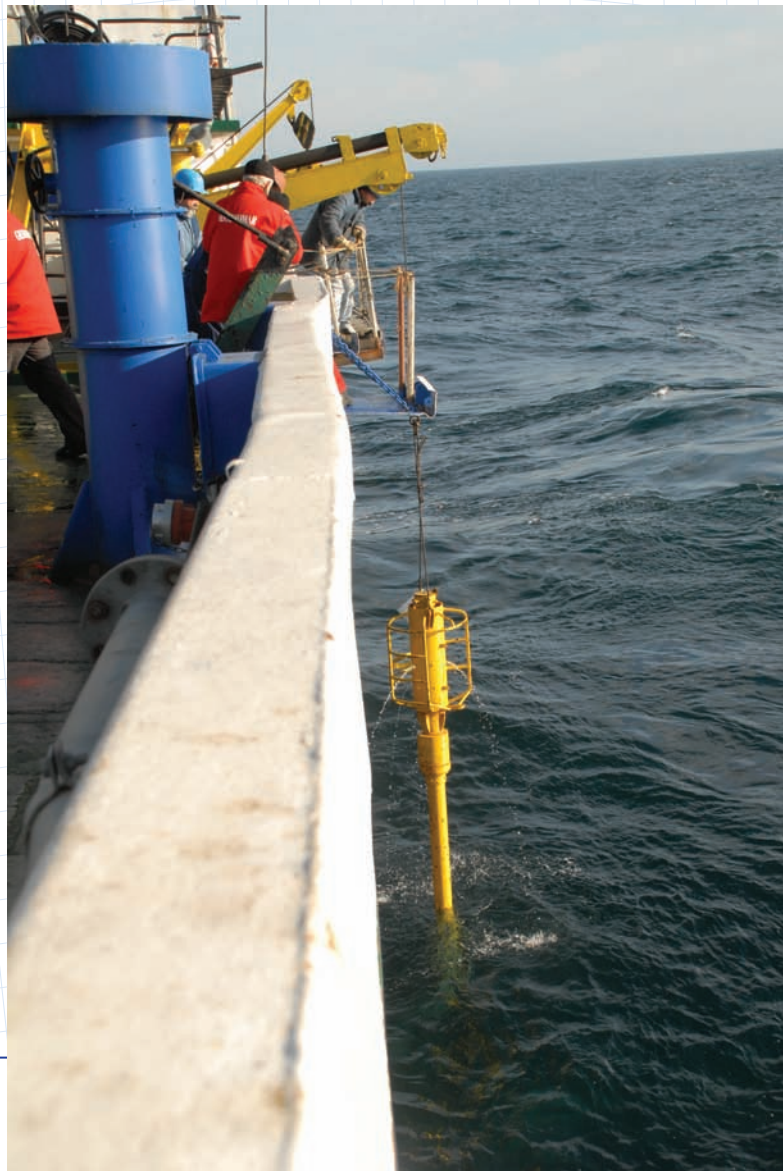
3rd -12th of July – Contract PN II 31 – 068;

3rd – 7th of September – Contract PN II 31 – 068;

26th – 29th of September – Summer School Carpathian – Danube Delta – Black Sea sedimentary system;

31st of October – 3rd of November – Contract PN II 31 068;

Other current activities of Core Program GEOSIDMAR.



This chapter highlights main results of each laboratory within NRDI GeoEcoMar and areas where these activities took place.

8.1. Laboratory of Marine Geology and Sedimentology

The Laboratory of Marine Geology and Sedimentology (LMGS) consists of 11 researchers and 2 technicians.

Members of the laboratory had a significant contribution to achieving NRDI GeoEcoMar research objectives in 2009, unfolding a vast and complex activity, both in national and international research programs and in projects contracted by various economic agents.

This activity has resulted in numerous reports and studies delivered to beneficiaries, in scientific papers published or presented at symposia, conferences and other scientific events in the country and abroad, as well as in organization of specific forms of capitalization and dissemination of research results.

Much of the research activity took place in the framework of two programs under the National Plan II: "PARTNERSHIPS" and "IDEAS".

Within "PARTNERSHIPS" Program, the activity was distributed in 7 research projects (ALPIMP, AQUASUD, CLIMARISC, GLOBE, GEOBIOHAS, PROMED, and IDEA) the first three of them being initiated and led by a Project Director of the LMGS and in the other four, where GeoEcoMar is only partner, Project Responsibles are researchers from the same laboratory.

Within "IDEAS" Program, the activity was distributed in 2 research projects. To all these projects is added a NURC Grant (ESF-EUROC), in which three researchers from laboratory are involved.

Themes of the projects included in the National Plan cover a wide range of research directions, such as assessing the influence of climate change and anthropogenic pressures on groundwater and surface water environment, deep investigations on the evolution of the Dacian Basin, Black Sea and the Danube Delta, studies on alpine and volcanic lakes, complex research of protected areas etc.

Another series of research was conducted in four projects included in the Core Program, two of them in the responsibility of researchers from laboratory.

The major objectives of these projects concern the evaluation of influence of natural and anthropogenic factors on the quality of aquatic and sedimentary environments of the Danube Delta, the study of greenhouse gas emissions in wetlands, complex research of protected areas in the Carpathians and the Apuseni Mountains and also discovering new mineral and energetic resources.

A special category of studies are those contracted directly by economic agents, with various objectives, such as handling of problems regarding navigation on the maritime Danube, study the consequences of human intervention in the Danube Delta (Bâstroe Canal), or environmental impact assessment and monitoring of environmental factors for different objectives and economic activities (land drilling or exploration for hydrocarbons in the Black Sea).

During 2009, research of major interest has been accomplished in four international projects (CLIMATEWATER, ESF EUROCORES Topo-Europe, UNESCO IGCP-521 and INQUA-UNESCO 0501), the last three of them being coordinated by researchers from laboratory.

Most activities were held within the Topo-Europe project, materialized in organization of an international summer school at Murighiol – Danube Delta (25th of September to 1st of October, 2009), on the subject of the Carpathian – Danube Delta Black Sea sedimentary system. The program included two field applications, the first in Danube Delta and the second in Slănic of Buzău Valley - Berca (mud volcanoes) from the Subcarpathian zone of the East Carpathians. In connection with Topo-Europe project, two researchers participated in the meeting "Source Sink" in Salzburg, Austria (24th-29th of November 2009).

Intensive field activities enabled to achieve the goals of research programs and projects. Research expeditions have been organized on the Danube, Black Sea, Danube Delta and Razim-Sinoe Lagunar Complex.

Terrestrial field campaigns have targeted goals from Dobrogea and Carpathians or Carpathian foothills area, located in the counties of Neamţ, Bacău, Vrancea, Buzău, Prahova, Harghita, Hunedoara and Caraş-Severin.

Capitalization of research conducted by members of this laboratory resulted in their participation in over 10 conferences, symposia and national and international workshops where numerous scientific presentatios have been delivered, most of them published as abstracts or full papers in special volumes during the events.

A higher form of capitalization is represented by the numerous papers published in scientific journals or in special volumes published in Romania or abroad.
Among the papers published in the country by the laboratory researchers, as main authors or as co-authors, we have to mention the book "The Dacian Basin", by D. Jipa and C. Olariu (GEOECOMARINA Special Publication 3), two chapters of the volume "Mineralogy and Geodiversity. Tributes to Career of Professor Emil Constantinescu", published by the Romanian Academy and the University of Bucharest, two geological field trip guides and 6 papers published in specialized Romanian publications (GEOECOMARINA and Studia Universitatis).

Among publications in international journals, it is worth to mention the three chapters included in two books of major importance: "Geologic Problem Solving with Microfossils. A Volume in Honor of Garry D. Jones" – SEPM Spec. Publ. 93 and "Cretaceous Oceanic Red Beds: Stratigraphy, Composition, Origins and Paleoceanographic / Paleoclimatic Significance " – SEPM Spec. Publ. 91.

Other 12 papers were published in professional journals from abroad, 10 of which occurring in ISI publications.

Among the research supporting activities to which the researchers from laboratory have contributed, we have to mention the participation in four international fairs and exhibitions, of which three took place in the country (Science Show – Scientists Night in Bucharest, Research Regional Fair, Bacău County) and one abroad (SciTech Europe 09 - Brussels, Belgium).

Other research supporting activities are represented by two working visits - one in Hamburg, Germany, at the Institute of Biochemistry and Marine Chemistry and the other in France, at the Universities of Aix-en-Provence and Perpignan.

Among the laboratory achievements we have to include several events confirming the importance of activities of this laboratory. In 2009, a group of four researchers from the laboratory were granted the "Gr. Cobălcescu" Award of the Romanian Academy.

Also, as a recognition of merits of our researchers, two scientists were invited to held courses in Universities from France (M. Melinte in Marseille and L. Tiron Jugaru in Aix-en-Provence), researchers from laboratory were included in three doctoral committees, two in the country and one in France (Aix-en-Provence), a senior researcher was an reviewer of national and international projects or ISI Referee (M. Melinte).

In order to maintain high standards of research quality, there is a continuous concern for increasing the staff expertise. In this regard, young scientists participated in training courses, both in the country (Course of Limnology, delivered by Professor Richard Thomas from Switzerland, Course of Depositional Systems, delivered by Prof. Cornel Olariu from U.S.A. and a national training program in scientific authorship) and abroad (training for use of "Dionysos " software of stratigraphic modeling – IFP-Paris, France).

In the same category, but at another level, we also mention the title of Doctor of Science degree awarded by the University of Provence-Aix-Marseille, France, to our researcher Laura Tiron Jugaru and the title of PhD in Geology, awarded by the University of Bucharest, to our researcher Alina Pavel.

8.2. Laboratory of Seismo-Acoustics, Digital Mapping, GIS and Database

The data management system used by NRDI GeoEcoMar, operates in a local area network (LAN) that communicates with the exterior, controlled by an Internet server (using services such as HTTP, FTP, email).

Each system (server and database files) provides access to user level.

The general architecture is based on geological /geoecological information division into two main types: metadata and data itself. Metadata refer to information that describes as completely as possible their nature itself (e.g. physico-chemical parameters of water and sediment samples, lithologies, mineralogical data, etc.), including the geographical location of point of description / sampling, the date and time of sampling, geology/geoecological domain etc.

For an efficient handling, all this information is encoded. Codes are explained in a dictionary that allows translation and understanding by users.

Data themselves are the result of in situ and laboratory research, being structured according to certain criteria, having unique identification key, which allows virtual pooling (in reports) information, in accordance with user requirements.

To protect the server (MySQL), against attacks from outside, a set of rules have to be applied.

As in previous years, during 2009, a GIS database for Danube - Danube Delta - Black Sea macro system was completed.

Bathymetric and seismo-acoustics measurements:

In 2009, multi beam bathymetric system, mounted on board of RV Mare Nigrum, allowed carrying on of activities within the research projects.

The equipment was used both in national (Core Program - GEOSIDMAR) and international projects (HERMES, Black Sea Scene Upgrade), including a number of economic agents (e.g. SC Midia Resources SRL, Marine Exploration Resources International BV Petrom, Peter Gas Ltd.).

8.3. Laboratory of Deep Geophysical Investigation

During 2009, researchers of the Laboratory of Deep Geophysical Investigation were involved in research projects included in Core Program GEOSIDMAR, in international projects of the EC Framework Program VI (e.g. CO_2NET EAST) or FENCO ERA, but also in contracts with third parties (e.g. the contract with the company TAHAL Group, for bathymetric survey of a submarine pipeline in the Mangalia area).

The importance of activity of the researchers from this laboratory results from their involvement in projects and contracts managed by other departments of the institute (e.g. National Plan II projects with acronyms: MORFDDD, ALPIMP, PROMED, GEOBIOHAS).

A major implication of the Laboratory of Deep Geophysical Investigation was the approach of several projects regarding the storage of CO_2 in underground geological structures. In this regard, we mention the following contracts:

- identifying opportunities for storage of CO_2 issued by the new group of 500 MW power plant from Rovinari;

- identifying opportunities to store CO_2 emissions by the new energy block of 500 MW, using lignite, of SC Complex Energetic Craiova SA - SE Işalniţa.

The possibilities to store the CO_2 produced by the Rovinari and SE Işalnita Power Plants were focused on a geological area that comprises the Moesian Platform and a part of the Getic Depression, the area being located in the western part of the Olt River. In order to reduce the length of transmission lines, identification of geological storage sites for CO_2 located as close as possible to the power plants was attempted.

To raise awareness on the importance of capturing and storing CO_2 in underground geological structures, the laboratory along with the CO_2 Club has coordinated the drafting of the brochure “What is, in fact, the geological storage of CO_2?”. The brochure was printed with the support of the European Network of Excellence CO_2 GeoNet.

The scientific theme approached for CO_2 storage in underground geological structures is enclosed within the NRDI GeoEcoMar object of activities, but also in current international trends, like the worldwide efforts in order to control global warming.

8.4. Department of Coastal Research and Management

This Department is specialized in studies and research focused on:

- historical evolution of coastal areas;
- geomorphology and bathymetry;
- sedimentology / granulometry / mineralogy;
- numerical modeling of sediment transport in coastal zone.

Activities in the field of Integrated Coastal Zone Management concerns:

- advice in developing strategies for sustainable development of the coastal zone;

- causal analysis (DPSIR and CCA) for integrated coastal zone management;

- multi criteria analysis for substantiation of the decisions regarding integrated coastal zone management;

The relevant projects, in 2009, to which the members of the department have brought their contribution are:

- CONSCIENCE (Concepts and Science for Coastal Erosion Management) - European Union Framework Program 6;

- COASTEROSION - United States Trade and Development Agency;

- NEAR 3 - Swiss National Science Foundation;

- NEAR 4 - Swiss National Science Foundation;

- Core Program GEOSIDMAR - Project PN 09 41 03 02: complex research for the Romanian seaside Spatial Planning;

- Core Program GEOSIDMAR – Project PN 09 41 03 03: Investigation and quantification of water and sediment movement in coastal area, based on numerical models.

8.5. Department of Environmental Quality Investigation

Consequently to obtaining the Certificate of attestation for elaboration of environmental impact assessment studies (R-EIM-06-61/22.10.2008), issued by the Ministry of Environment and Forests, according to Romanian legislation and EU directives in force, the Department of Environmental Quality Investigation draws specific documentation such as:

- technical memorandums to obtain the environmental agreement;
- studies of environmental impact assessment;
- monitoring studies on how different types of investment works affect the quality of environmental factors.

Members of the department are involved in field work, consisting of:

- photo-visual recognition ;
- data acquisition / documentation;
- performing *in situ* physico-chemical measurements;
- sampling (water, sediment and biology).

In order to determine the chemical and physicochemical characteristics of water samples collected, the following parameters are analyzed: temperature, pH, oxidation -reduction potential (Redox), dissolved oxygen concentration, conductivity, total dissolved solids content (TDS), resistivity and salinity.

Sediment samples are analysed for grains size, composition and magnetic susceptibility, other types of analysis being obtained under contracts with third certified laboratories.

For field determinations / measurements a HANNA HI 9828 – multi parameter portable kit is being used, in order to measure the water parameters from rivers, lakes and sea.

During 2009 the Department of Environmental Quality Investigation has participated in the elaboration of numerous contracts, among the main beneficiaries of environmental studies conducted by NRDI GeoEcoMar in 2009 being large companies in the oil industry, such as OMV - Petrom - PETROMAR Constanţa, but also companies and prestigious institutes such as DADL Constanţa, AFDJ Galaţi, NRDI Danube Delta, Aurelian Oil&Gas Romania and others.

8.6. Department of Quality and Safety Management

The Department of Quality and Safety Management, established in 2007, ensures the implementation, maintenance and planning of the Quality Management System (QSM) to improve further scientific performance of NRDI GeoEcoMar.

Activities of this department concern: developing the quality manual, the specific procedures and work instructions, conducting internal audits (biannual) and monitoring the conduct of research activity according to quality requirements.

On the basis of QSM specific procedures, the compliance with the quality requirements of the standard in force (DIN EN ISO 9001:2008) with research activities of the institute is ensured. In order to acknowledge the confidence of the partners, collaborators and beneficiaries in NRDI GeoEcoMar, the department monitors their reactions and proposes them to management's analysis.

In the year 2009, because of the activity of Department of Quality and Safety Management, NRDI GeoEcoMar received recertification in quality and adopted new quality standard, SR EN ISO 9001:2008.

Also, during 2009, have been completed the internal audit activities, as planned on the assessment of research processes carried out within the Institute through: 5 laboratories, 7 compartments, 5 support services, 1 workshop and the Institute management.

During the 13th - 16th of April 2009, the QSM re-certification audit took place, conducted by Lloyd's Register Romania. Subsequently, recertification of QSM was recommended, with the referential standard ISO 9001:2008. QSM efficacy was assessed from the records relating to policy and objectives of quality, but also on internal audits, establishing a series of corrective actions.

The second external audit, conducted on 12th -13th of November 2009, found that the QSM has been implemented according to the procedures of the system.

Another conclusion of the audit was that the engagement of the new management of the Institute in setting and implementing the policy objectives of QMS has increased the relevance of performance objectives and indicators.

It was recommended to maintain certification and a minor non-compliance on Chapter on Competence, Training and Awareness was opened.

8.7. Project Management and Marketing Office

The Project Management and Marketing Office of NRDI GeoEcoMar manages the portfolio of projects, applying specific techniques and tools of project management control system.

The activity of the office provides, directly, both the success of the projects and best implementing practices, including of ISO 9001:2008.

In 2009 the activity of the Project Management and Marketing Office has been focused primarily on access to new sources of funding, structural funds, open for the period 2007 to 2013, necessary to achieve the goals of institutional development.

Project proposals were developed and submitted, with NRDI GeoEcoMar as main coordinator of the consortium, for all calls opened in 2009, under the Sector Operational Programs in the activity domain of the Institute and for which it was eligible. Note in this regard:
- Program of Cross Border Cooperation Romania-Bulgaria: 2 proposals (MARINEGEOHAZARD, HERAS), totaling approx. 10.50 million Euros;

- Regional Cooperation in South-East-Europe: 2 proposals (GEOBALC, GEOARCH), totaling approx. 7 million Euros;

- Joint Program of Cooperation in the Black Sea Basin: 2 proposals (MAREAS, GEOSAFE), totaling approx. 1.10 million Euros.

All proposed projects listed above, included the NRDI GeoEcoMar regional empowering and its promotion as leadership in marine geology, at least within the Black Sea region.

In addition to managing the project portfolio of NRDI GeoEcoMar, Project Management and Marketing Office was involved in research infrastructure expansion, by proposing adequate facilities for the scientific research projects pursued.

8.8. Workshop of Scientific Equipment Maintenance and Management

During 2009, the Workshop of Scientific Equipment Maintenance and Management (WSEMM) conducted the following activities:

- technical assistance for research teams, both on land and on board of the research vessels;

- maintenance of research equipment, in the laboratory located at Bucharest headquarters;

- participation in geomagnetic field measurements;

- drafting documents on the maintenance and metrology of research equipment, according to Quality Management System recommended by ISO 9001/2008 standards;

- calibration of equipment for geomagnetic and gravimetric measurements;

- designing and building a prototype of freeze dryer necessary for vacuum drying of sediment samples;

- building a new device, type lead block, with improved working parameters;

- purchasing of new equipment for geological, geophysical and geochemical survey;

- coordinating data collection and processing within the Wave Power Study Station in Mangalia (including maintenance of the equipments).

Currently, the workshop concerns are to continue maintenance and repairing of scientific equipment, as well as launching a project of building a trap for monitoring and measurement of sediment carried by rivers, crawled on the bottom of the water or by saltation.

8.9. Laboratory of Geochemical, Geoecological and Sedimentological Analysis

In 2009 the laboratory staff was involved in the implementation of about 40% of all research topics approached by the Institute, distributed as follows:

- international projects: the EC Framework Programs VI and VII and the SEE Program;
- Corint Program - 1 project;
- Core Program GEOSIDMAR - 7 projects;
- National Plan II - 4 projects;
- contracts with third parties - 6.

Laboratory members were involved mainly in field work but also in performing laboratory analysis, in particular biological, despite severe limitations due to renovation works and general upgrading of the building from Constanța Branch.

In the field activities, in addition to sampling and preservation of samples, 32 CTD profiles were done, with recording of vertical variations of salinity, conductivity, temperature, density, concentration of dissolved oxygen and chlorophyll, light and pH mitigation and 46 samples of water have been analyzed.

The measurements included a number of parameters listings CTD (conductivity, salinity, dissolved oxygen, pH) and some additional parameters: H_2S concentrations, phosphate, silica, nitrates, nitrites.

Biological laboratory program included determination of zooplankton - 75 samples, determinations of phytoplankton - 234 samples macrobenthic analysis - 154 samples and the analysis of the meiobenthic fauna - 280 samples.

Chemical analysis consisted of calcium carbonate determinations on a total of 100 sediment samples and detailed analysis of 56 samples of sediments, with the determination of 17 chemical components. The remaining sediment samples collected for chemical analysis were preserved and stored to be analyzed at a later date.

Grain-size analysis were performed on a total of 700 samples.

During 2009, a very important activity was the data processing for loading them into international databases.

The work was completed with 10 sets of CTD and biological data loaded in ISRAMAR database, the SESAME project (Framework Program VI) and 28 sets of CTD data loaded in the PANGAEA database, the HYPOX Project (Framework Program VII).

Beside the stage and final reports, the data obtained in field and laboratory activities were capitalized in 9 scientific papers published in GEOECOMARINA and 4 extended abstract of papers presented in international scientific meetings (EGU General Assembly and IGCP 2009) and published in their proceedings.

Beside the two scientific events mentioned, the laboratory members participated in 5 other international meetings, the most important being the PC VII HYPOX kick-off meeting and the 4th General Assembly and Scientific Workshop of the PC VI SESAME, where scientific presentations were made.

As in previous years, NRDI GeoEcoMar retains its basic mission, that of being an institute of research and development of excellence in the field of marine geology, geophysics and geoecology, coastal and inland waters and to represent, at European Union level, a reference unit and an important partner for the Sea and Earth Sciences.

In 2010 NRDI GeoEcoMar will concentrate its human and material resources on basic specific activities: multidisciplinary marine research, research on mineral, energetic and biological marine resources, scientific substantiation on decision making by central and local State authorities, in order to protect and improve the environmental quality, international cooperation and integration in European research infrastructures.

The 2010 objectives pursued by NRDI GeoEcoMar, based on medium term development strategy (2006 to 2016), partially adapted to the economic crisis are:

- supporting of Sea Sciences, as a priority area of research in Romania;
- outlining of new resources (mineral, energetic, biological);
- carrying out complex research along the coastal area of Romania to the Black Sea for scientific substantiation of protection solutions;
- environmental studies (e.g. audit, impact, survey) and specialized documentations (e.g. bathymetric maps and studies, geo-thematic, ecological, etc.)
- the performance requirements of ISO 9001: 2008 quality standards, according to the License Certificate (No. 170539/2006) granted by Lloyd's Register Romania;
- providing human resources needed to cover the research plan;
- increasing the professional level of the young researchers from the Institute, but also of the support staff;
- modernization of research infrastructure, even in conditions of financial cuttings, for projects managed by the CNMP and NURC;
- maintaining the marine research vessels, "Mare Nigrum" and "Istros", in the European research fleet (by European Research Vessel Operators and EUROCEAN bodies) and also by improving scientific facilities and navigation equipment;
- proposing new projects under the European programs, bilateral or other;
- supporting government bodies (e.g. MAE, MMP, MERYS) in implementing the EC recommendations of the environmental and integrated management of marine area, including the coastal zone.

The list of objectives remains open to approach new areas, to the demands of existing and potential beneficiaries.

9.1. Scientific research strategy

Main strategic directions of development in scientific research for 2010 are:

Crt. No.	Strategic directions	Period	Responsibility	Resources
1	Permanent access to programs under the National Plan II. Preparation of a portfolio of research proposals for future competitions.	Permanent	NRDI GeoEcoMar Management, PM&M Office, Heads of Laboratories, Researchers	Own funds
2	Continuously accesing international programs, notably the European Commission Framework Program VII (2007-2013), structural funds, but also other, including bilateral projects.	Permanent	NRDI GeoEcoMar Management, PM&M Office, Heads of Laboratories, Researchers	EC, NATO, UNDP, etc.
3	Increasing the number of contracts and collaborations with companies and large companies in the country and abroad, with other representative institutions in the field, in order to attract new sources of funding.	Permanent	NRDI GeoEcoMar Management, PM&M Office, Heads of Laboratories	Private and/or state funds

4	Continuous improvement of services provided by the NRDI GeoEcoMar by compliance with quality standards ISO 9001: 2008 and the ISM for research vessels.	Permanent	NRDI GeoEcoMar Management, Department of Quality and Safety Management	Own funds
5	Involvement of research staff in the education process, both in the country and abroad.	Permanent	NRDI GeoEcoMar Management, Scientific Board, Heads of Laboratories	MERYS, Education bodies from abroad
6	The computerization of the research process, proper management of computer networks, the database development, constantly upgrading the website of the institute www.geoecomar.ro	Permanent	NRDI GeoEcoMar Management, Directors of Projects, Head of GIS and Database Laboratory	Own funds, donations and sponsorships, Research Projects/ Contracts
7	Permanent development of cooperation with prestigious universities and institutions.	Permanent	General Management, Scientific Board, PM&M Office, Directors of Projects	EC, PHARE, NATO, UNDP, UNESCO, Research Projects/ Contracts
8	Organizing domestic and international scientific events (communication sessions, summer schools, workshops, etc.).	Annual	Scientific Board, Director of Research, Heads of laboratories, Directors of Projects	Own funds, sponsorships
9	Training and development of scientific, technical and auxiliary staff of the Institute.	Permanent	NRDI GeoEcoMar Management, Heads of Laboratories	Own funds

9.2. Human Resources Strategy

At the beginning of 2010, NRDI GeoEcoMar human resources involved in research activities, were composed of: 5 research assistants trainees (RA), 5 scientists (SR), 13 scientists (SR III), 7 Scientific researchers II (SR II), 12 scientists I (SR I), 2 Corresponding Members of the Romanian Academy, 22 PhD and 11 PhD students.

Although NRDI GeoEcoMar organizes annual recruitment competitions of young researchers, yet a high average age of staff, directly involved in research activities, is stored.

Economic crisis, coupled with reduced activity in areas such as oil industry and exploitation of useful mineral resources, has led to an increasing number of specialists who wish to proceed to research. However, a constant source of research staff remains the graduates of profiled faculties (geology, ecology / biology, chemistry, etc.), and also older graduates who seek to find another job.

Personnel policy that NRDI GeoEcoMar will apply in 2010 will address the following issues:

- increasing the number of staff employed in research, reported the total number of employees;
- reducing the average age of researchers, by

employing young people;
- maintaining a core of experienced researchers;
- increasing the number of employees with contracts of collaboration;
- increasing, differentially, the salaries of scientific staff based on "annual self-evaluation sheets", scientific performance and contribution to the development of the Institute.

In order to maintain a high standard in research, following a review conducted in the Scientific Board of the Institute, the following personnel policy have been proposed for 2010:

- attracting in research field of students and Master students, to work part - time in different projects, with the possibility of employment by competition;
- hiring, part-time or full-time, experienced professionals, to cover fields complementary to the activity of the Institute;
- new staff employed in research will be subject to a trial period under the provisions of the Labor Code and Collective Labor Agreement of the Institute;
- attracting specialists from EU countries who want to operate in Romania;
- increasing contributions of specialists with titles of "associate researcher"; and "honorary member", affiliated to NRDI GeoEcoMar, titles awarded to experienced specialists working both in the country and abroad.

To ensure a very close relationship between research and education, NRDI GeoEcoMar concluded / renewed cooperation agreements with Universities of Bucharest, Iaşi and Constanţa, thus trying to attract in research field an increased number of young people by providing certain facilities (e.g. ensuring student practices on board of research vessels, supporting and coordinating the Bachelor, Master and Doctoral Degrees, practice training in own laboratories).

9.3. Scientific Research Funding Strategy

Funding the NRDI GeoEcoMar scientific research is made by participating in tenders for projects and by direct contracting of local and foreign partners, state owned or private.

In 2010 NRDI GeoEcoMar will give a great importance to external funds. Based on national research funding, through programs of the National Plan II, all the financial opportunities offered will be accessed. The categories of funds which NRDI GeoEcoMar will apply for in 2010 are detailed below.

Internal Competitions:

The Core Program – GEOSIDMAR, PARTNERSHIPS and IDEAS Programs, Human Resources and Capacities of the National Plan II, Grants of the Romanian Academy.

The Leadership of the Institute will require researchers to prepare new projects that may be proposed as soon as will be announced the competition organized by NASR, CNMP or by NURC or Romanian Academy.

International competition:

I. European funds for research, the EC Framework Program VII. NRDI GeoEcoMar is currently involved, as partner, in 4 projects FP VII, won in 2007, 2008 and 2009;

II. European funds for research, on regional and inter-regional level: Black Sea 2007 - 2013 - Joint Operational Program, CBC Romania - Bulgaria, The INTER-REG IV C and SEE Program (South East Europe). In early 2010 the institute was involved in a SEE Project and has submitted several proposals to other programs mentioned;

III. Structural Funds. This type of funds has the priority to reduce disparities between EU Member States. Funds are being developed along several structural axis, where NRDI GeoEcoMar can find its own operational field (e.g. Sectoral Operational Program - Increasing Economic Competitiveness (SOP-IEC), the Sectoral Operational Program - Transport (SOP-T), Environment Sectoral Operational Program (SOP - Environment), Regional Operational Program (ROP), Sectoral Operational Program Human Resources Development (POS-DRU).

NRDI GeoEcoMar will access funds provided by the programs listed, as the main contractor, partner or subcontractor.

Third parties contracts:

In order to successfully overcome the economic crisis period, which is projected for research in Romania also in 2010, NRDI GeoEcoMar will seek to engage in as many as possible, contracts for applied research and / or consulting services, with beneficiaries in the private sector, both in Romania and abroad. These funding sources may come from several areas of activity:

- Research for offshore oil resources, on the continental shelf of the Western Black Sea. The exploration of

offshore oil resources remains an attractive source for specialized companies. Based on its research infrastructure specialized in marine study, but also on a highly specialized staff, NRDI GeoEcoMar is the only strong player on offshore research and exploration market and, therefore, offers its services to all potential beneficiaries.

- Consulting services on coastal integrated management and on artificial sediment supply to eroded beaches. NRDI GeoEcoMar has participated and still does in domestic or international consortiums, in charge of developing strategies for sustainable development of coastal zones, to propose solutions for the rehabilitation of beaches on the Romanian Black Sea coast.

The NRDI GeoEcoMar Know-how qualifies the Institute to become a partner in any consortium which can carry out protection works regarding: sedimentology and coastal dynamics, identifying sources of sediment artificial supply for beaches, environmental impact study, monitoring activity and technical consulting for any issue related to coastal management.

- Environmental impact studies, preparation of documentation for archaeological sites, natural monuments and reserves, etc.

NRDI GeoEcoMar already has a real tradition in the mentioned areas, being authorized by MEF to achieve environmental impact studies and environmental surveys.

Under currently existing economical crisis conditions, when the security on financing for projects won by internal competition is very low, NRDI GeoEcoMar, its Department of Environmental Quality Investigation, will apply, to a much larger scale, for contracts on impact studies and environmental surveys. Consultancy contracts are also significant sources of funding for NRDI GeoEcoMar.

9.4. Editing and Documentation Services, Library and the Management of Archived Information Strategy

NRDI GeoEcoMar provides its employees access to many sources of specialized information, listed on top level in geology, geophysics and environmental issues.

The Institute has subscribed to professional journals of high scientific level and has access to several databases recognized worldwide. In recent months, free access to online journals from Science Direct database, the largest publisher of scientific articles edited by Elsevier, was obtained for employees.

In order to disseminate scientific information, in 2010 NRDI GeoEcoMar will edit the issue nr.16 of GEOECOMARINA journal. GEOECOMARINA covers scientific reference work of researchers from the institute, but also of other scientists from Romania and abroad, which can be freely accessed on the website www.geoecomar.ro as “pdf” documents.

All articles which are to be submitted for publication in the GEOECOMARINA journal will be reviewed by Romanian and foreign reviewers, the transition to a peer-review system being critical for the inclusion among the top publications in the field.

The major objective of the Institute remains its entry in the ISI Thomson - Reuters Scientific and SCOPUS databases. Therefore, the journal will be included in major scientific publication databases available online (DOAJ, EBSCO Publishing).

Promoting the journal on the www.geoecomar.ro website will allow rapid access to scientific articles.

In order to acknowledge the impact of the publication, the extent of visiting the site will be monitored, on a counter - provider of Internet traffic, which will mark the visitor structure of the GEOECOMARINA site (country, institution), dedicated to identifying the most important partners / users.

In addition to these measures (maintenance of online subscriptions and promoting and enhancing the quality of the journal), NRDI GeoEcoMar will pursue informatics:

- permanent expanding of the website;

- achievement of an efficient communication between the NRDI GeoEcoMar Bucharest headquarters and Constanța Branch ;

- promoting the activities of NRDI GeoEcoMar, by using new methods offered by the virtual space (e.g. the presentation of documentaries on the NRDI GeoEcoMar activities and capabilities on sharing websites such as www.youtube.com etc.) and also by participating in research fairs and exhibitions.

9.5. Infrastructure and Investments Strategy

For 2010, NRDI GeoEcoMar envisages the following:

- completion of building works in the Building B at its headquarters in Bucharest;

- changing the administrative headquarters of Wave Measuring Station in Mangalia, action not finished in 2009;

- modernizing laboratories, by putting into operation of new equipment (e.g. inauguration of ROV equipment which endows "Mare Nigrum" research vessel, UV-VIS spectrophotometer from Constanta Branch, gamma spectrometer with hyper pure germanium detector).

Purchasing of new research equipment will come from research projects (funds provide by NASR - CNMP through contracted projects), from its own funds, budget funds, international projects or other financial sources.

9.6. Management Strategy

To maintain and increase the level of competitiveness, NRDI GeoEcoMar managerial strategy will consider optimizing the organizational structure of the Institute, to an efficient and effective use of human, material and financial resources.

The use of the new office and laboratory spaces will create a working environment that encourages creativity.

The costs reducing scheme, proposed by management of NRDI GeoEcoMar in early 2009, will attempt to further minimize losses and wastage, taking into account the application of quality management system standards.

Permanent increase in the level of training of human resources will override the management of NRDI GeoEcoMar, so a quickly and efficient respond to be given to all beneficiaries.

The Project Management and Marketing Office will manage the portfolio of projects in the Institute and will maintain a balance between revenue and expenditure.

In terms of economic and social crisis that seems to affect research in Romania in 2010, maintaining the current position of the NRDI GeoEcoMar market research and services, will assume the same policy management based on solid and realistic principles, which should take into account the changes at both national and EU level.

10. Means to Promote NRDI GeoEcoMar Activity

NDRI GeoEcoMar announces its scientific work by using several means:

- Website: www.geoecomar.ro

- GEOECOMARINA annual journal (in 2009 number 15 was printed together with supplements);

- Participating in scientific events in the country or abroad;

- Educational activity - involving the scientific researchers in University teaching activities, organizing summer schools, scientific sessions, training - publishing specialty books;

- publishing maps, guides, brochures, etc.;

- participation in public debates;

- TV and radio shows;

- Participating in fairs and exhibitions;

- Organizing events dedicated to children (e.g. contests, visits to at the research vessels, thematic exhibitions).

11. Public Relations and Useful Addresses:

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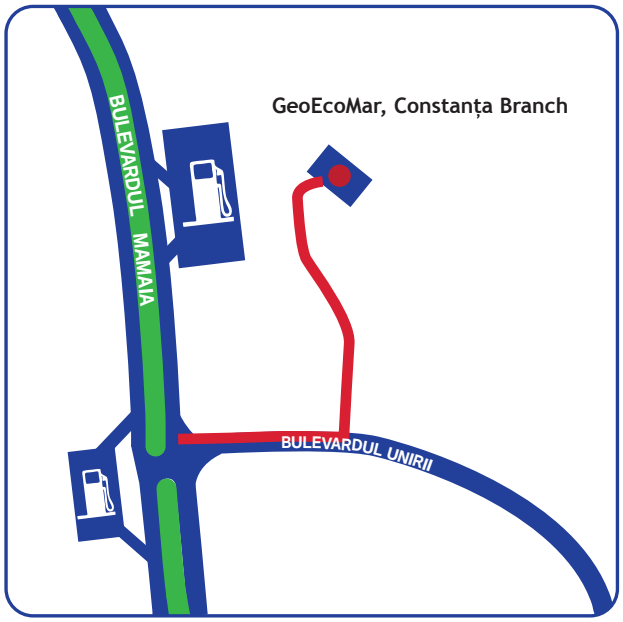

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