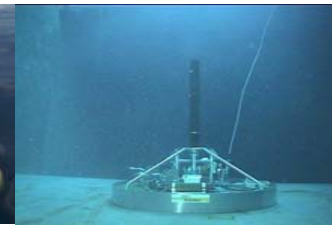


Marine Research Infrastructures

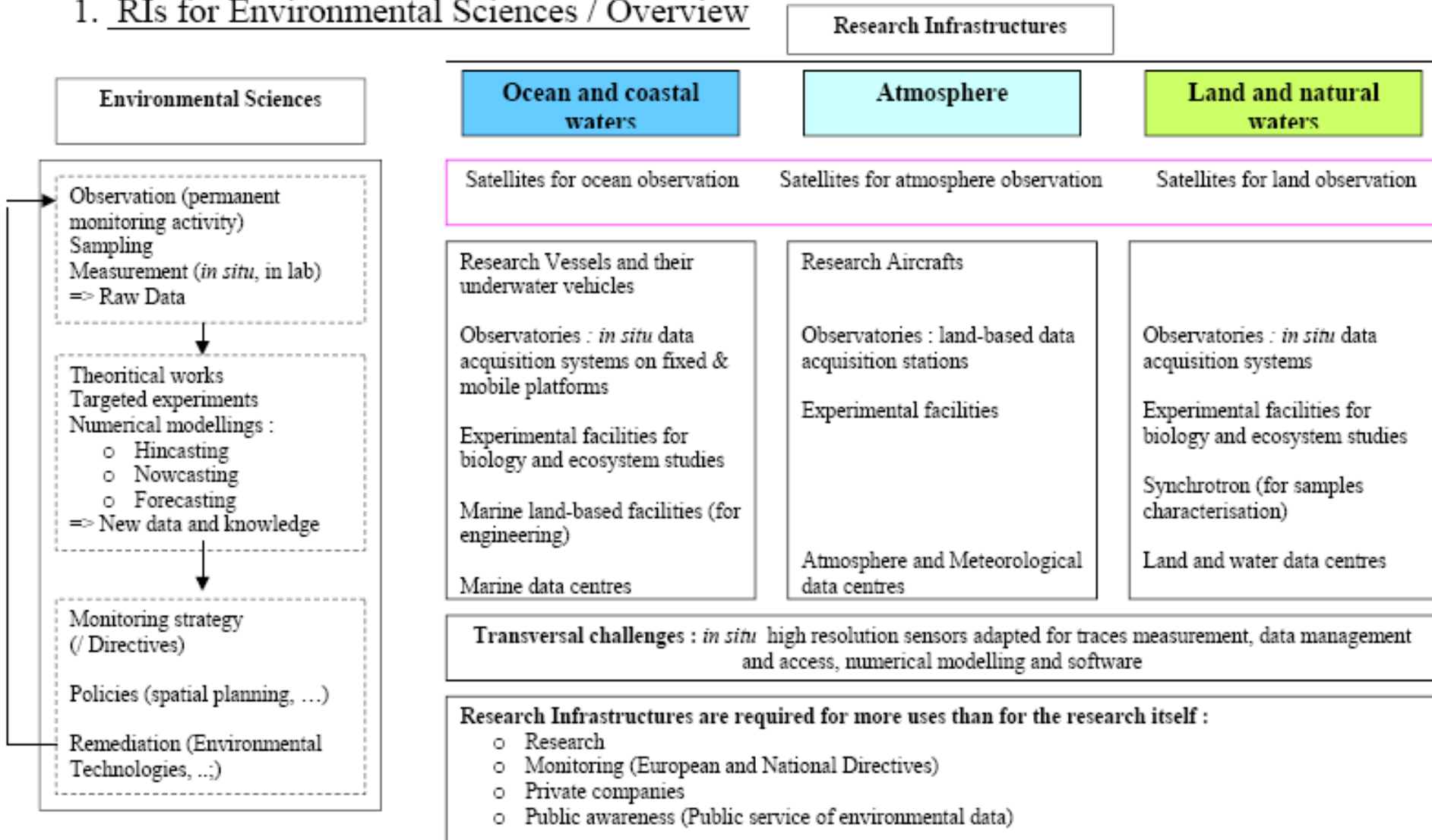
What are they ? What are they for ?

- **Research vessels and their underwater vehicles** : for sea access and deep sea exploration/sampling.
- **In situ data acquisition systems** : for seawater/seabed monitoring and observation.
- **Satellites** : for sea-surface monitoring.
- **Marine data centres** : for data validation, storage and dissemination through web portals; may include high computing facilities.
- **Marine land-based facilities for engineering** : water circulation canals, hyperbaric tanks, material behaviour, marine sensors calibration laboratories.
- **Experimental facilities for biology and ecosystem studies** : rearing systems, mesocosms,...



Marine Research Infrastructures in the context of the Environmental sciences

1. RIs for Environmental Sciences / Overview



Marine Research Infrastructures in the context of the Environmental sciences

Some cross-cutting issues :

- o earth observation and modelling
 - o climate forecast, climate change
 - o carbon cycle
 - o living resources, biodiversity
 - o in-situ acquisition, environmental data access
- Etc ...

=> most of them need an upper layer of coordination for RIs devoted to both ocean and coastal waters, atmosphere, land and natural waters.

Three tasks are included in this WP4 Infrastructures :

Task 4.1 – A strategic vision for marine research infrastructures (Task leader : MEYS)

Not just a passive vision, but a strategic vision ...

Task 4.2 - Rationales and guidelines for a better infrastructure planning and use for the joint activities (Task leader IFREMER)

For more trans national access, for an optimal coordination and use (scientifically, technically) at the European level ...

Task 4.3 – Increasing interactions with the maritime and industrial sectors as regard infrastructures access and use (Task leader MIUR)

For an access extension to both public and private infrastructures within win-win agreements

Task 4.1 – A strategic vision for marine research infrastructures (Task leader : MEYS)

- An updated overview of the existing infrastructures

For each major family of Marine Research Infrastructures, through a regional approach at first stage (Task 6.4 (Atlantic), Task 7.4 (Mediterranean), Task 8.4 (Black sea) + Baltic within BONUS) and through a pan European overview in a second stage (within the present Task), the aim is to :

- i) ***list the existing MRIs***, their main capabilities and their access conditions (e.g. estimated unit cost, the total number of units per year, etc...), ***using existing web portals + specific enquiries when necessary***,
- ii) ***check their ability to cope with the requirements of the great scientific objectives at short and mid-term (outputs of Tasks 1.1 and 1.2)***,
- iii) ***check their degree of pan-European sustainable integration***, taking into account the existing I3 and ESFRI projects and others multilateral coordination if any, gathering the Member States national roadmaps for RIs, the international ones.

This sub-task will complete and update the database and the web site already initiated through previous ERANet activities. A standardised presentation of this access information for each MRI will be a sound basis for further discussion on their involvements within the different joint calls and to highlight consistently the related costs.

This activity will also highlight and rank the main gaps in the fields of technical capabilities, of shared programming and of trans-national access, for which a better coordination at EU level should be promoted and initiated at short term within the frame of the present ERANet.

Pre deliverable : An updated overview of the existing infrastructures (month 12 = May 2012)

and corresponding updating of the EUROCEAN infobase will be done : <http://www.eurocean.org/np4/164.html> .

Task 4.1 – A strategic vision for marine research infrastructures (Task leader : MEYS)

- A common strategic vision and roadmap for new investment

On the basis of the updated overview, this work will consist in determining a common strategic vision and roadmap for the investment in new equipment or in major updating, for the MRIs not yet engaged in that process within a running European project, and with a special focus on countries lacking MRIs capacities. The work will include the collection and the dissemination of available data concerning innovative funding through the partners to facilitate these investments. It will also include recommendations to the owners and/or managers:

- to explore new fundamental technologies or techniques,
- to improve the services provided to the scientific users,
- to propose technological topics for joint activities dedicated to MRIs improvement,

Added-value to existing visions and roadmaps => the main “evident” gaps and how to fill them at short term should be the guide lines for this activity, for each MRIs main family , if consistent for each regional issue , if consistent for environmental sciences cross-cutting issues.

This work will be performed in two stages :

- **In a first stage, a regional approach** will be considered as it is assumed that a lot of procurements are relevant and can be envisaged at this level. This stage will be performed within the Task 6.4 (Atlantic), Task 7.4 (Mediterranean), Task 8.4 (Black sea) and Baltic (within BONUS).
- **In a second stage, a pan-European approach** will be performed to consider as a whole the outcomes of the regional approaches, to highlight the necessary procurement of high size infrastructures and the coordination (within a network when relevant) of regional small-medium size infrastructures. This stage will be performed within the present task.

Deliverable D 4.1.1 : A common strategic vision and roadmap for the investment in new infrastructures or in major updating (month 24 = May 2012).

Task 4.2 - Rationales and guidelines for a better infrastructure planning and use for the joint activities (Task leader Ifremer)

MRIs play a complementary role to the funding organisations for the implementation of their joint programmes and calls. On one hand, funding organisations orient a fraction of their budget on research targets, and on the other, MRIs make available a fraction of their access capacities for the teams selected to perform a given research project. A better coordination of this two roles is necessary.

MRIs must also face a new trend as they are a requirement for (a lot) more usage than for the research itself :

For the monitoring of ocean seas and coastal waters : as required by the EU Directives (Marine Strategy Framework Directive, Water Framework Directive) **For a public service of marine data** : EMODNET (European Marine Observation and Data Network, **For the operational oceanography** : in situ real time data acquisition, long term data series, within GMES programme, For private companies : environmental studies for the offshore industry, downstream (commercial) services plugged on (public) data centres, ... **For public awareness** : on standard environmental data

Some (academic users, ...) require a flexible access and use, others (for EU Directives, EMODNET, operational oceanography,...) need an operational continuous service. This lead to a management challenge : how to mix the two requests within the same research infrastructures ?

⇒ ***the issues for which we want to move forward :***

- ***Trans national access : more developed (> 30%), and not only based on EC support***
- ***Time allocation process : more clear, organised and associated with the call process of the funding agencies***
- ***Financial conditions : common rules and standards, as much as possible***
- ***Help and training for experiment preparation***
- ***Web sites devoted to RIs planning and access conditions***

Task 4.2 - Rationales and guidelines for a better infrastructure planning and use for the joint activities
(Task leader ANR)

The aim of this sub-task is **to provide methods and procedures** within which MRIs can be involved in the joint activities, for a better coordination of the scientific calls involving MRIs, beyond the present process. Specifically, the here under usual gaps will be tackled :

- anticipation in the planning,
- visibility in the related costs,
- trans-national access.

Within this process, MRIs managers, together with the funding organisations representatives, will examine all the possible mechanisms to create durable links with financial resources and will propose procedures to foster a wider trans-national use of their facilities for scientific reasons, as well as for cost or effectiveness ones.

Outcome of MARINERA and experiences from projects such as ECORDNet, EUROFLEETS, SEADATANET, EMSO, EURO ARGO, HYDRALAB IV, MARINET, JERICO, AQUAEXCEL, MESOAQUA, ASSEMBLE, EMBRC, MY OCEAN, EMODNET Preparatory actions, ... will be considered.

Also to consider : Output of the on-going ESF-Eurohorcs Forum on medium-sized research infrastructures, which includes 4 working groups :

- o ***wg1 : access and standards (chair : DFG/C. Renner coord. « ERA instruments », IFREMER/JF Masset for Env. Sciences)***
- o ***wg2 : funding procedures and evaluation***
- o ***wg3 : mobility and networks support***
- o ***wg4 : mapping (links with MERIL, links with Task 4.1)***

Task 4.2 - Rationales and guidelines for a better infrastructure planning and use for the joint activities
(Task leader ANR)

Milestone M 4.2.1 : A specific workshop will be dedicated to this activity final achievement (month 30 = nov. 2012)

Deliverable D4.2.1 : MRIs common management guidelines for joint research activity (common programmes and joint calls) will be then proposed (month 33 = janv. 2013)

Then, these guidelines will be circulated in Europe outside the original consortium and outside Europe for discussion. A long term objective is that a majority of European peer review structures work with these guidelines.

Task 4.3 – Increasing interactions with the maritime and industrial sectors as regard infrastructures access and use (Task leader MIUR)

This task will tackle two symmetrical issues :

- **How scientists from the public area can use private infrastructures** such opportunity ships, offshore platforms, fishing boats, etc ..., for public research tasks ?
- **How can the access to MRIs for industry be made easier ?**

Through contacts with the private owners of the maritime and industrial sectors, a methodology (D 4.3.1) will be developed to make common practice, through win-win agreements, the use of both private infrastructures and public research ones. If any, to share the common preoccupations on some scientific critical challenges (fish stock assessment, seawater pollution by oil spills, ...).

Deliverable D4.3.1 : Access methodology to both private infrastructures and public research ones (month 40 = sept. 2013)

Planning and person.months effort :

Task 4.1 – A strategic vision for marine research infrastructures (Task leader : MEYS)							
Year 1		Year 2		Year 3		Year 4	
- An updated overview of the existing infrastructures							
Incl. Regional approaches		< Pre deliverable month 12 (may 2011)					
- A common strategic vision and roadmap for new investment							
Incl. Regional approaches		< Deliverable month 24 (may 2012)					
Task 4.2 - Rationales and guidelines for a better infrastructure planning and use							
for the joint activities[1] (Task leader IFREMER)							
		Specific workshop month 30 >		< Deliverable month 33 (feb. 2013)			
Task 4.3 – Increasing interactions with the maritime and industrial sectors							
as regard infrastructures access and use (Task leader MIUR)							
		< Deliverable month 40 (sept. 2013)					

IFREMER (WP4 and Task 4.2 Leader) : 19 p.m

MEYS (Task leader 4.1) : 9 p.m

MIUR (Task leader 4.3) : 4 p.m

Other partners : 1 p.m each => 19

Total : 51 p.m (data ref : DoW B.1.3.6)

Nota : Task 4.2 specific workshop budget is 30 k€ for ~ 30 People, within Ifremer budget