SeaTI Med SPACEMAR 2011

1st International Symposium

Maritime surveillance, infrastructure and services Air-Land-Sea

Under the honourable patronage of Mr. Nicolas SARKOZY, Président of the Republic

PRESS PACK

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Summary

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Editorial

Since its certification in 2005, the Mer PACA competitiveness cluster with its global vocation has become a key player in sustainable development policies and maritime and coastal safety and security in the Mediterranean and in Europe.

Pôle Mer PACA has a privileged geostrategic position at the heart of regional fields of excellence and contributes to the expansion of their sphere of influence. In Provence-Alpes-Cote d'Azur, Languedoc-Roussillon and Corsica, the cluster brings together key players in research and the economy in an environment of cooperative innovation around themes based on the challenges of maritime and coastal security and durability (there are more than 300 members to date).

With more than 500,000 inhabitants, the Toulon Provence Mediterranean Agglomeration is the tenth largest French city and an active partner of the Pôle Mer PACA.
As part of this cooperation, we wanted to launch an exhibition with global visibility «SeaTI Med» with the first theme being «dedicated maritime surveillance systems, from land, sea or space: SPACEMAR.»

SeaTI Med / SPACEMAR 2011 will bring together leading international experts in the field - with the participation of ESA, EMSA, UPS, SHOM, SG MER, the EUSC, DG MARE - to put forward a common strategic vision to the principal European maritime countries to be embodied by the establishment of operational systems. All players in this field are involved, institutional researchers, industrialists, end users. This is a significant challenge because it involves integrating space systems into maritime surveillance systems.

Further to this first SeaTI Med conference our long term ambition is to create a recurring event which will bring those involved in maritime and coastal issues together to focus on the themes put forward by the Pôle Mer and to measure the progress made in these fields.

Patrick Baraona,
Managing Director of Pôle Mer PACA competitiveness cluster

SeaTIMed/SPACEMAR: a European event bringing together key players and experts in the maritime surveillance sector in anticipation of the upcoming European discussions.

Under the honourable patronage of Mr. Nicolas SARKOZY, Président of the Republic and organised by the Pôle Mer PACA and the Toulon Provence Mediterranean Agglomeration the SeaTI Med / SPACEMAR symposium will be held on the 27th and 28th September 2011 at the Palais Neptune in Toulon.

This event, co-financed by the Toulon Provence Mediterranean Agglomeration, the Provence-Alpes-Cote d'Azur region and the Var County Council, dedicated to land, sea or space based maritime surveillance will bring together top international experts. It will prepare for the future of safety and security at sea for all levels of usage: European agencies, states, military/port/commercial bodies, businesses, and professional and leisure sailors.

SeaTIMed/SPACEMAR has **3 main aims**:

- **Develop a common vision** amongst the key European maritime countries,
- **Understand the integration of space** into other maritime surveillance systems,
- **Implement a road map** for the development of operational systems.

The symposium will focus on the following objectives:

- **Bring together key players** (end users, institutions, industries) to assess the current contribution and capabilities offered by space in maritime surveillance (SATCOM, observation, navigation...) on projects or systems already under way.

- **Propose specific actions** at the highest European level to develop the necessary infrastructure, particularly at the next ministerial conference on space in 2012 and given the financial position of the EU for the 2014-2020 period.

- **Develop a common vision** for the use of space in the development of maritime services with appropriate quality standards and in line with the integrated European maritime policy.

Further to the huge success of SPACEMAR 2010, Pôle Mer PACA, in partnership with the TPM Agglomeration, recognised the need for this symposium, and aims to make it a **key annual European event**.

Held in Cannes, SPACEMAR 2010 brought together the most influential decision makers from politicians, agencies and management of European maritime surveillance projects.
SPACEMAR 2010 helped to inform end users of the current contribution of space in maritime surveillance and on the future capabilities of integrated space systems.

A symposium on the subject of the protection of the coasts, the sea and its users; both professional and general public.

90% of international trade is made by sea, 45% in Europe.
Given the challenges to both the environment and biodiversity (pollution, illegal fishing, etc.), **and to society** (drug, arms and illegal immigrant trafficking, etc.), there is no longer any doubt that **states must increase monitoring and control of all human activity at sea.**
However maritime areas are immense (France for example has an exclusive maritime zone of 11 million km2 or more than 20 times the area of metropolitan France) and State action at sea would remain incomplete without the aid of space systems which are the sole means of surveillance on a planet wide scale.
This symposium is now a necessity.

The hyper-specialisation of this symposium does not mean any less impact for the general public:
Warning leisure sailors of the presence of pirates, alerting customs about a suspected drug trafficking boat or locating pollution in high seas… **European maritime surveillance agencies, European, Mediterranean and African states, as well as military, port and commercial bodies and private businesses and professional and leisure sailors… All are affected by the issues discussed,** and will benefit from the advances resulting from this symposium.

Maritime surveillance operators today have, at a national level, accurate surveillance systems but which are of limited capability (radars, cameras, satellites, etc.) and the flow of information is completely sealed between one country and another.
They now want **information to be correlated and optimised across countries, in order to identify threats** (pollution, movement and speed of vessels, piracy, illegal immigration, drug trafficking, illegal fishing, etc.) and to be able to **broadcast fair and accurate alerts**.

6 SESSIONS AND ROUND TABLES TO MAP OUT THE FUTURE OF MARITIME SURVEILLANCE

Through the 6 sessions and round tables held at this unique symposium, the only one of its kind to tackle the subject in this detail and with such rigour, the maritime surveillance contributors aim to encourage consensus around a **shared information system called CISE** (Common Information Sharing Environment), and other R&D projects.

The integration of high tech surveillance systems from Space is one of the areas of development for this project.
The partnership between nations and different authorities is another.
Leading maritime surveillance experts and operators will gather to:
- present current R&D projects
- discuss the best solutions to implement
- take stock of what can be done already and what business operators want going forwards

Each session brings together several experts from industry, from institutions and from those operating maritime surveillance systems and will be led by a moderator.

Opening remarks: feedback from SPACEMAR 2010

Led by Patrick Baraona, Managing Director of the Pôle Mer PACA competitiveness cluster, the first session will take a look at the huge success of the 2010 SPACEMAR event.
Held in Cannes, SPACEMAR 2010 brought together the most influential decision makers from politicians, agencies and the management of European maritime surveillance projects.
SPACEMAR 2010 helped to inform end users of the current contribution of space in maritime surveillance and on the future capabilities of integrated space systems.

With the participation of the presidents and representatives of partnering local authorities and Monique Pariat (European Commission, Directorate-General «Maritime Affairs and Fisheries»), Jean-Marie Van Huffel (Secretary General for the Sea), Bernard Sans (Director of DCNS Services Toulon and President of Pôle Mer PACA) and Henri De Roquefeuil (Military advisor at the CNES and CEO of the CNES Defence Team)

1—

Recent trends in user needs: user priorities from the regional to the global

Security (search and rescue, maritime traffic control), pollution control, safety at sea (drug trafficking, illegal immigration, terrorism...), the fight against illegal or unregulated fishing, this session will tackle all these subjects and assess user priorities, both locally (territorial waters, European borders, ...) and globally.
It will also aim to **assess the situation with regard to the ideal systems which can be envisaged within the timeframe of the forthcoming European consultations:** the 2012 ministerial conference on space will table these projects and allocate a budget.
At present, ocean imaging, such as monitoring of shipping for maritime traffic and pollution control is carried out by monitoring from the coast or through various satellite systems and civilian and military radars.

There is little synergy between states and the various agencies, even though France and Italy or the French National Space Agency and the European Space Agency work on joint projects. A few examples of existing systems:
– AIS provides a mapping system open to all to provide access to real-time ship movements. However the data is sometimes incomplete, delayed and only shows the largest ships...
– EMSA (European Maritime Safety Agency) has developed the CleanSea Net satellite which identifies indications of pollution at sea and the polluting vessels
– The Italian Space Agency has also implemented COSMO SkyMed, a satellite system for civilian and military use for observation of coastal areas and the seas, both for defence and environmental purposes.

However, none of these systems has the relevance of an integrated space system which would allow:
– Global coverage
– Complete monitoring (e.g. real time monitoring of a vessel from beginning to end of voyage)
– Fine tuning of the system (e.g. for very small vessels)

This session will be led by Michel Morel (Research and Development Director of information and surveillance systems, DCNS), with the participation of Bernard Garnier (European Commission Maritime Surveillance Expert and Permanent Secretary of the Technical Advisory Group for the development of CISE), Jean-Marie Van Huffel (Secretary General for the Sea), Machteld Price (Project and Services Manager for Integrated Maritime Surveillance at EMSA), Erick Berglund (Director of Capacity Building chez FRONTEX), and CF Dominique CAILLE (French Naval Staff).

2—

Round Table 1 – New applications and services : 5 year strategic vision and the role of integrated space systems

The aim of this first round table is to focus on a **range of services under development, matching both new satellite capabilities and increasingly sophisticated needs**. These are linked to the growing challenges of the increased risks faced by maritime traffic (piracy, Arctic routes…), and of the need for a greater understanding of climate change and of marine ecosystems and habitats etc.

With the seas being acknowledged as the beating heart of our planet, the issues at stake are increasingly recognised by all societies today.

Some of these services are already in place and available to all the members of European maritime security bodies: further to the disasters of the 2000s (Erika, Prestige…), the European Union created and commissioned EMSA in Lisbon to offer a maritime traffic integrated monitoring service (SafeSeaNet) and pollution detection service (CleanSeaNet) which make an ever increasing use of satellite imagery (particularly of Synthetic Aperture Radar). Other services offered by the industry are universally known and used (Argos beacons…) across all domains, from navigation security to marine biology…

However, as yet no space resource has the endurance nor the resolution, nor the on board intelligence of an integrated global space system. If such a system could be coordinated and its data shared not just between departments but also between neighbouring countries we would begin to see a worthy approach which would progress in line with the European Maritime Policy. Moreover, satellite data analysis requires specific expertise not generally available to the various national administrations. It is therefore relevant to consider the management and the distribution as services which can be personalised to a greater or lesser degree, which will enhance the operational outlook for each participant and give a view beyond the horizon, such as the capacity to detect certain targets, which to date has not been possible.

This system is currently under development under the name of CISE (Common Information Sharing Environment) and aims to gradually **unite** all the **maritime user communities** through a continuous and secure, shared information exchange platform by 2020.

This session will be chaired by Bernard Garnier (European Commission Maritime Surveillance Expert and Permanent Secretary of the Technical Advisory Group for the development of CISE), with the participation of Philippe Bardey (CEO of ACRI S.A), Denis Bonicel (Founder and Technical Director of GLOBOCEAN), Vincent Thouvenin (Founder and CEO of GLOBOCEAN), Bruno Frachon (Executive Director of the Hydrographic and Oceanographic Service of the French Navy (SHOM)), Laurent Prat (Sales Manager – CLS), Jochen Harms (CEO of LUXSPACE), Alain Podaire (Head of Implementation of GMES Marine services for MERCATOR OCEAN).

3—

The role of space in global maritime surveillance systems

The preceding two sessions focused on the needs of users, existing applications and the issues of space in maritime surveillance systems. R&D framework programmes for an "integrated maritime policy". (FP7, Cordis, Marcoast) now encourage industry, via grants, to work towards this policy.

As Europe is economically dependent on the sea, its goal is now to work to open up and share information between states and agencies across different countries. The goal is to make the various projects consistent from one country to another. This is known as interoperability, to avoid duplication of effort and **to make maritime surveillance economically efficient**. This efficiency should be equally evident in rapid response situations, whether in protecting the marine environment (waste dumping at sea, discharging, natural pollutants due to traffic, fisheries management), safeguarding marine transport (major traffic routes, piracy), or border surveillance (illegal immigration, drug and arms trafficking, smuggling of people or nuclear products).

Space technology, i.e. satellites, have become an essential part of this.

They are used to observe the surface of the water with a precision and a frequency that no other system can match. By day or by night they can survey:

– wave formation
– pollutants (especially hydrocarbons)
– the colour of the sea (for example; plankton or blooms of toxic algae)
– all types of shipping

They have a wide surveillance zone across space and geographies as well as a very regular frequency of observation (several times per day) and the capacity to retransmit information rapidly.

All this data, which is transmitted within minutes, is obviously just a link in the chain and must be substantiated on the ground before any intervention is initiated. The increasingly refined and rapid analysis of satellite information required from the industry should thus allow a reduction in the number of missions as well as making them more efficient and reducing operating costs...

Led by Jean-Pierre Cauzac (Business and Operations Department, for Satellite Radar Applications Division, CLS), with the participation of Salvatore Rampino (Vice-President of SELEX integrated systems), Fernandez Barbero (INDRA, European Commission PERSEUS Project Leader), Sophie Ramongassie (Thales Alenia Space), Paola Nicolosi (e-GEOS, Project Manager for ESA and ESMA), Michel Morel (Research and Development Director of information and surveillance systems, DCNS)

4—

The challenges of an integrated approach

The preceding sessions discussed:
– institution led projects which aim to provide the necessary information to the operators (BLUEMASSMED from DG Mare)
– a global information exchange system between countries (CISE)
– the necessity of integrating space technology into maritime surveillance systems.

These are necessary stages in the evolution of maritime surveillance and aim to bring the European states together in order to unite the actions of the thirty or so administrations or agencies of each country.
Today **the main challenge** in adopting this integrated approach, the merits of which have been mentioned already, lies **in the setting up of an information exchange system which is under the direct jurisdiction of the end users, instead of having a system based on a centralised global service at the suppliers**.
If Europe is to decide on the direction and participate in the funding **then the users must put forward the projects**. They must be able to use the systems as they wish and **drive the space agencies and industry to create the tools that they really need**.
For example, the creation of a security charter would allow the satellites to be programmed to observe a specific area as set by a « user centre » and to transmit the information to all other users.

Whilst industry initiatives are needed, the R&D projects that are developed are sometimes far from real operational restraints. It is therefore necessary to turn the whole process of selection and validation of services on its head to bring them back to the end users.
The challenge of an integrated approach lies in the pooling of needs and resources and the distribution of roles.
This symposium and this session in particular will serve as a « sounding board » in order to present the different projects and to select the strategic direction of any implementation together (institutions, agencies, industry and users) and to enlarge the circle of users.

Led by Jean-Paul Abadie (Head of Space Security Programmes for the CNES Strategy and Direction Programme), with the participation of Michel Morel (Research and Development Director of information and surveillance systems, DCNS), Hugues Sassier (System Engineer, Thales Alenia Space), Christophe Claramunt (Professor and Director of the Naval Academy Research Institute, IRENAV)

5—

Round table 2 – INTERNATIONAL COOPERATION IN SUPPORT OF A GLOBAL APPROACH

Even if all maritime surveillance operators agreed on the integration of space systems into a coordinated global surveillance system it would still be necessary for immediate international cooperation to optimise usage of existing systems or of those under development.

Operator feedback on these systems:

– **SISMARIS:** Led by DCNS, the SISMARIS research and development project aims to further the development of a complete information system and associated technologies for extended surveillance and analysis of maritime traffic. The future system will continuously track all types of vessels at up to 400 km from the coast, compared to the range of 24 km achieved with the world's most advanced systems today.

– **PERSEUS:** The PERSEUS (Projet Étudiant de Recherche Spatiale Européen Universitaire et Scientifique – University and Scientific Student European Space Research Project) is an initiative from the Launch Directorate at the National Space Studies Centre (CNES). It is part of the preparation for the future and aims to encourage young people in higher education in the development of innovative technical solutions for space projects that are of both industrial and pedagogical value. This project is the future linchpin of maritime surveillance in terms of the integration of space systems and is supported by INDRA and DCNS.

– **EUROSUR** is a European Commission programme for the surveillance of maritime borders. It should provide a common technical framework to simplify daily cooperation and communication between member state authorities and facilitate the use of advanced technology for border surveillance. A key operational objective should be the sharing of information, excluding personal data, between national and European systems.

– **FRONTEX :** The creation of the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union (Frontex) is in response to the requirement to improve the integrated management of external borders of the European Union (EU). Even if member states are responsible for the control and surveillance of external borders, the agency facilitates the implementation of both existing and future EU measures relating to the management of these borders. It provides for the implementation of EUROSUR and in particular assists member states in training border guards and developing common training standards, providing European level training for national border guard instructors, and organising seminars and offering additional training to officials of the competent authorities.

– **Spationav:** Adopted by the French Navy in 2002, the Spationav maritime surveillance system enabled the creation of a data network of information collected by all those involved in metropolitan coastal surveillance. Sémaphore, Cross, Naval operational centres... each one is involved in monitoring, in real time, seven days a week, everything that passes off the coast and everything that enters French ports. This is a huge database which perfectly meets the needs of the State at sea, whether it is the fight against drug trafficking and illegal immigration, or security at sea or rescue operations. Further to the success of Spationav, the Navy decided to upgrade to extend coverage to a wider area. **There are also equivalents in Spain (SIVE) and in Italy (UTS: Coastal stations system)**.

– **CeCLAD-M:** This was offered to European and Mediterranean partners at the beginning of 2008, France set up a permanent centre dedicated to the fight against drugs in the Mediterranean based in Toulon. Its objective is to contribute to the fight against drug trafficking in the Mediterranean at sea and by air through improved coordination of intelligence activities conducted by the French and foreign police.
The centre's responsibilities include:
- Strengthening the exchange of information between participating States, particularly between North and South coasts;
- Centralizing and analysing information given to them by the departments concerned ;
- Passing on all information relevant to their work, particularly in the identification and search for offenders and regarding interception operations on vessels and aircraft passing through the Mediterranean ;
- Preparing the departments concerned with regard to interception procedures.
It is already the base for liaison officers from member states of the European Union and the countries around the Mediterranean basin: Spain, Greece, Italy, Morocco, Portugal, France, United Kingdom, Cyprus, Malta and Senegal. Other European and Mediterranean partners may join the centre later.

This session will be led by Paul Kamoun (European Vice President Sales and Marketing at Thales Alenia Space), with the participation of Carolina Matarazzi (Vice President of ASI), Dario Cau (Italian Coast Guard), John Mittleman (Naval Research Laboratory, Washington DC), Torkild Eriksen (Principal Scientist at the Norwegian Defence Research Establishment), Alain Dequaire (Lieutenant Colonel CECLAD) and Simon Chesworth (Sales Director – Exact Earth).

6—

Outlook and recommendations

This session will seek to **summarize the main topics discussed and the evolution of European maritime surveillance**, with the aim of **developing a road map** of European Union projects. It will deliberate upon the choices to be made and **establish priorities** for the selected projects.

The discussions will also enable a **logical economic justification for investment in maritime surveillance infrastructure** to be laid out which takes budgetary deadlines and general European objectives into account.

A **citizen and general public** led approach will also be undertaken in the fight against pollution, illegal fishing and piracy.

Finally the speakers will give their recommendations for the future and what comes after this symposium.

As maritime boundaries are so vast and all states seek to extend them further, this session **aims to broaden the subject to non European countries**, thus bringing the symposium to **global attention**. In order to make this an annual event and to consider running another SPACEMAR event the debate should be opened up to the whole world and held across different venues. According to Bernard Garnier of the European Commission this symposium will have reached maturity when one third of the participants come from the USA, Australia

and Asia and that 80% of the speakers are foreigners! In the meanwhile the Mediterranean and Europe are the testing ground for global issues in terms of maritime surveillance.

This session will be led by Jean-Marie Lhuissier (Manager, Coordination and Business Development of Maritime Surveillance, Thales) (Safety, security and environment)), with the participation of Magalie Vaissiere (Director of Telecommunications and Integrated Applications at the European Space Agency), Denis Bruckert (GMES Coordinator (Global Monitoring Environment and Security) and Head of the GMES Satellite Centre of the European Union (CSUE)), Olivier Autran (Thales Alenia Space) and John Mittleman (Naval Research Laboratory, Washington DC)

A prestigious evening event will be held at the Naval Museum in Toulon on 27th September and will provide a relaxed opportunity to continue discussions among participants. It will be hosted and organised by a special guest.

The SeaTIMed/SPACEMAR symposium will also welcome the distinguished navigator Marc Thiercellin to the Naval Museum as guest of honour. He will share his views on the use of satellite data in maritime operations.

Toulon, at the heart of the Mediterranean and of European issues: « In Sea We Trust », the credo of the organisers of SeaTIMed/SPACEMAR

20% of global energy traffic is concentrated here and it is the crossroads for East/West and North/South commerce, the Mediterranean is the setting for strong European involvement.

Toulon is a strategic Mediterranean port:

- it has, on the one hand, **a number of natural, industrial and military sites**, which will allow testing of new solutions on site
- and is also host to **several operational bodies** such as the Centre for Mediterranean Marine Operations (Centre des Opérations de la Marine pour la Méditerranée) and the Regional Operations Centre for Surveillance and Safety in the Mediterranean (Centre Régional des Opérations de Surveillance et de Sauvetage en Méditerranée (CROSS Méd.))

The **Toulon Provence Mediterranean Agglomeration**, the key institution involved in the promotion of the city and its docks, and the **Mer PACA competitiveness cluster**, whose marine oriented vocation is global, **have welcomed this rightful opportunity for the city to host a symposium dedicated to maritime surveillance**.

The Mer PACA competitiveness cluster has a global vocation

The Pôle Mer PACA is a **world reference** for the control of **sustainable development** and **security in the Mediterranean**. It has **300 members,** 80% of whom are in the PACA region.

The sea is one of the key components of future global development with its role in trade, strategic political issues and energy and food resources.

Since its creation in 2005, Pôle Mer PACA's actions are centred on **sustainable development and maritime security around five themes:**

– Maritime security and safety
– Naval and nautical
– Marine energy resources
– Marine biological resources
– Environment and coastal management

The Pôle Mer helps make Provence Alpes Côte d'Azur a global magnet for maritime technology and knowledge.

Alongside entrepreneurs, SMEs and larger groups, researchers and training centres, the Pôle Mer supports the development of technology, innovative products and services for maritime activities in the PACA region. Through a systematic network approach the Pôle Mer extends regional expertise to an international audience.

The Pôle Mer PACA is a major player in the SISMARIS and SECMAR projects (Security Systems for goods, people and installations situated in sensitive maritime zones) and wants to contribute to the building of a truly national and European Maritime Programme. It is therefore appropriate that the Pôle Mer presents an event on the scale of SeaTIMed/SPACEMAR.

The Toulon Provence Mediterranean Agglomeration

All economic actions taken by the 12 municipalities of the Toulon Provence Mediterranean Agglomeration aim to ensure the **right balance between environmental protection and the coherent and dynamic economic and urban development necessary** for the current boom in this city.

As the third urban centre along the French Mediterranean coastline and Europe's first military port, with a strategic position and a web of high tech businesses and the presence of the Maritime global competitiveness cluster and four other major clusters, the city of Toulon is confirming its metropolitan ambitions.

The TPM, which has closely supported the creation of the Pôle Mer and its ongoing development and plays host to companies with global reach such as DCNS, Thalès, Eca and CNIM, aims **to offer a suitably adapted framework for their ongoing development and to welcome new players in the field**.

Around its harbour, which is a site of Euro-Mediterranean interest, TPM is implementing major operations and coordinating **large investments** projected for the coming years (technopolitan sites, new activity zones, a network of incubators and business centres, a new university scheme, renovation of the town centres of Toulon and La Seyne-sur-Mer, Dedicated Lane Public Transport, port facilities, high-speed network...).

The creation of the Marine Technology Park, for example is a project at the heart of this strategy for the future

It will be the first technology park in Europe focused on maritime safety and security and on sustainable development based on marine and underwater high technology. At its land base in Ollioules and its marine base in Brégaillon it will host innovative companies, laboratories and innovative pioneers across 5 strategic sectors:

- Maritime safety and security
- Biological marine resources
- Marine energy sources
- Environment and coastal development
- Water based activities and boating

In this way TPM is an integral part of the innovation chain and creates a favourable environment for fundamental research projects.

Here are two, globally recognised, examples:

- The European Centre for Underwater Technology project (CETSM) allows IFREMER, in partnership with institutes in Germany and Spain to construct a new building whose purpose will be to manage the scientific surveys and acquire a stock of shared underwater equipment which will be made available to affiliated universities, institutes and educational institutions. This €5 million plus programme is funded at a local and regional level by IFREMER and European funds.
- The **Mediterranean European Underwater Science and Technology project** supported by the INSU and IN2P3 of the CNRS (MEUST) institutes will implement the implement the technology selected by the two major European scientific programmes : KM3NeT (Cubic Kilometre Neutrino Telescope) and EMSO (European Multidisciplinary Seafloor Observatory). This €23 million project aims both to extend the facilities of the underwater telescope ANTARES already in operation and to install on the sea bed off Toulon a whole range of multi-disciplinary intelligent sensors (cameras, hydrophones, chemical sensors...), to be used by the whole community of oceanography and marine biology researchers.

In this way the region provides the perfect setting to host shared research projects above budgetary issues and TPM is working to implement technology sharing between researchers, industry and institutions.

Hosting and supporting the SeaTIMed/SPACEMAR event alongside the Pôle Mer is the result of this dynamic process.

Partners

Organizers

Toulon Provence Méditerranée
Communauté d'Agglomération

Pôle Mer PACA

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