

List of French Experts

Scientific symposium “Technologies and sustainable management of marine resources”

**9th June 2015, Malaysia Tourism Centre (MaTiC),
Kuala Lumpur**

Keynote speaker – Ocean: sustainable Management and global climate change

Prof. Yves Henocques, Scientific councillor, Ifremer

First trained as a scientist (1977: PhD in marine ecology) who then acquired management and international cooperation skills (to start with in Japan and South-East Asia) through technical training and professional practice, it was from the very beginning of the 90s that Yves Henocque settled in the Mediterranean to start a new coastal environmental laboratory within the premises of the French Research Institute for the Sustainable Development of the Sea (IFREMER) in Toulon. After a dedicated vocational training in the United States in 1994, he started to practice integrated coastal management (ICM) and strategic planning in the Mediterranean and other marine regions like the Indian Ocean (1995-2000). He then expanded his experience in Thailand (Department of Fisheries) as co-director of a 5-year project (2002-2007) called CHARM (Coastal Habitats and Resources Management). At the request of the Ministry of Sustainable Development, he became (2006) the chair of a national programme scientific committee, LITEAU, funding multidisciplinary research projects in support of public policies for coastal management. Since 2008 he is Senior Advisor for Ocean Policy and Governance at IFREMER where, among others, he is contributing to the building up and implementation of national maritime strategies and integrated coastal and ocean management strategy and action plans in Europe (Mediterranean), Indian Ocean, Caribbean, and Asia-Pacific region including Japan where he is currently working as JAMSTEC Guest Researcher, initiating a JAMSTEC-IFREMER integrated project on the environmental aspects of deep sea mineral resources, and Ocean Policy Research Foundation Visiting Fellow.

1. Monitoring of sustainable management of Fisheries resources

Dr. Fabien Lefevre, Collecte Localisation Satellites (Toulouse)

Fabien Lefèvre holds an engineering degree in Hydraulics / Waters Resources (1996) from the National Hydraulic Engineering School of Grenoble (France) and a Ph.D. in Physical Oceanography (2000) from the University Paul Sabatier of Toulouse (France).

He worked one year in the Hydraulic and Oceanographic Service of the French Navy (EPSHOM, Brest, 1996). In 1997, he moved to Collecte Localisation Satellites (CLS, Toulouse, France) as an engineer in the Space Oceanography Division (CLS/DOS). He was assigned three years to the French National Research Centre (CNRS, Toulouse, France) to master his PhD (1997-2000). Back to CLS in 2000, he worked as a scientific engineer and developed oceanographic expertise in space, in-situ and numerical model applications.

In 2010, he became the Head of the Applications and Services Team of CLS/DOS, a new team of 25 engineers and oceanographers to contribute to the development of services and applications in the field of oceanography. As an applications project manager he was in charge of operational and technical activities related to fishing support, environmental applications, offshore oil & gas sector, ship routing... His role was to design and adapt operational oceanography products by best combining, analyzing, post-processing and delivering products to customers.

Since June 2014, Fabien Lefèvre works as a senior project manager in CLS. He is coordinating the setup and the implementation of CLS integrated projects. His sectors of expertise are environmental surveillance, maritime security and sustainable management of marine resources.

Abstract:

Use of satellite technologies for the benefit of the management of marine resources

Before the launch of the first satellites into space, oceans were described and observed with sparse and rare in situ data collected from ships, buoys, drifters... After the seventies and the eighties, entering the era of operational satellites, ocean knowledge was greatly improved. A new scientific/technological field was developed: space oceanography with 'Earth Observation' satellites. These satellites are dedicated technological spatial instruments that observe the Earth from space (oceans and lands). They fly above the Earth on a virtually circular orbit at altitudes between ~800 to ~1300 km for low orbiting satellites and at around 36000 km for geostationary satellites. These satellites carry onboard sensors that measure different physical and chemical parameters describing the ocean (ocean currents, sea surface temperature, salinity, phytoplankton content...). Ground segment stations download real time satellite data in order to process value added products for the benefit of institutional, scientific and industrial communities.

The talk will give a review of the satellite technologies that support the management of marine resources.

2. Monitoring of sustainable management of coastal environment

1. Mr. Alexis Chappuis, company Creaocean

Alexis Chappuis is a marine biologist (MSc. in Marine Biology & Ecology) and commercial diver working as the Southeast Asia representative for CREOCEAN, based in Jakarta, Indonesia. He took part in various marine environmental surveys worldwide, notably in tropical environments (e.g. coral and fish populations monitoring, baseline assessments, etc.).

CREOCEAN belongs to Keran Group and is a consultancy company providing environmental, engineering and planning services in marine and coastal environment. Headquartered in La Rochelle (France), CREOCEAN has a 65 people staff and operates from an established network of five offices in France, one in the Caribbean (Fort-de-France/Martinique), one in Tahiti, two in the Middle-East (Doha/Qatar and Abu Dhabi-UAE), one in North-Africa (Casablanca/Morocco) and one in South-East Asia (Jakarta/Indonesia). Our expertise covers geology, geophysics, hydrodynamics, sediment transport, biology, and ecology. With the technical and financial resources provided by its parent company, Keran (including SCE, NAOMIS, and GROUPE HUIT), CREOCEAN has the capability to deal with many projects.

Therefore, CREOCEAN offers a comprehensive service turned towards protection, development and planning of coastal and marine areas with a major cause for integrated and sustainable management.

Abstract:

Sensitivity Mapping of Coral Reefs and Marine Habitats: a stairway to an efficient Coastal Zone Management

Coral reefs have a priceless economic and ecological value, notably in Southeast Asia and particularly for nations belonging to the Coral Triangle, where many people directly rely on them for living. But these highly sensitive ecosystems are facing a lot of various threats, leading to social, ecological and financial losses. Consequently, it is crucial to take coral reefs into account during any process of sustainable marine resources management. And a key stone to an efficient conservation of coral reefs is having a good knowledge of their richness and biodiversity. It is the preliminary step enabling the implementation of protective measures. Indeed, the better we know, the better we can preserve. However, comprehensive biodiversity studies are time consuming and cannot be applied in a short time frame on a very large territory. The sensitivity mapping is a tool leading to a large scale cartography, allowing the identification of the most sensitive locations, where priorities should be put. All the coastal sensitive areas are identified during this process and detailed biodiversity assessments are conducted. The final product is an atlas including many maps that can be used by non-specialist decision makers, public or private, for any development project. For example, it can be suitable prior to a renewable marine energy program, in order to identify where are the best places to lay underwater turbine's cables or OTEC/SWAC underwater pipes.

2. **Yvan Bettarel**, French Institute of Research for Development (IRD)

Yvan Bettarel is a researcher at the French Institute of Research for Development (IRD), in the joint Lab MARBEC (*Marine Biodiversity, Exploitation and Conservation*). His investigations in the field of marine microbiology have been conducted, mainly in Vietnam and Senegal, to evaluate the ecological role of viruses in oceanic systems. He is currently assigned at the Vietnamese Institute of Biotechnology of Hanoi (IBT) where he examines the impact of microbes on coral health.

Abstract:

Microbes and viruses, rescuers of coastal resources at risk.

Given the economic and ecological values of coastal ecosystems in South East Asia, their preservation represents a tremendous environmental stake. Estuaries, mangroves and coral reefs, for example, provide resources and incomes for millions of inhabitants in these regions. However these ecosystems are severely threatened by anthropogenic and climatic pressure, which are often closely related. Recent findings have revealed that microbes and their viral parasites are highly abundant and dynamics in coastal waters. We also now know that they can quickly respond to environmental perturbations, and therefore represent excellent indicators of ecosystem health status. Here, I will take the emblematic example of coral reefs in which the specific interactions between bacteria and viruses are now strongly suspected, according to the environmental conditions (water quality, temperature, salinity, contaminants, etc.), either to reinforce coral stability or conversely fasten their decline. Ongoing projects conducted in the Bay of Halong and Nha Trang (Vietnam) aim at further investigating such poorly known mechanisms, which could promote the development of pioneer works for a better protection of marine resources.

3. **Renewable energy or sustainable management of marine energy**

1. **Ms. Virginie Lelarge** (To be confirmed)

Company DCNS

Business Development Manager - Marine Renewable Energy chez DCNS

2. **Mr. Jean-Christophe Allo**, Project manager / Business developer, Company Sabella,

Jean-Christophe ALLO is a project manager and business developer at SABELLA, a French company developing a marine current energy technology. He followed engineering studies at the École des Mines de Nantes, France, with a specialization in energy systems. After a first professional experience as energy project manager at DCNS, he decided to study one more year for a post master degree in Marine Renewable Energy field at ENSTA Bretagne. He then joined SABELLA as a project manager in 2012, where he was especially in charge of hydrodynamic engineering, site characterization, storage coupled solution and tank tests. Now he fully work for business development and project management, identifying interesting potential site all over the world and estimating the available energy yield.

Abstract:

Marine current energy solution to decrease fioul dependencies in remote communities

Introduction

The Fromveur strait is located off western coast of Brittany, in France. It has among the most important marine currents in the world and, as such, has been selected by the French Government in late 2013 in a call for expression of interests regarding tidal turbine pilot power plants. The strait is more precisely situated between Molène archipelago and Ushant Island.

SABELLA, since ten years, promotes this spot, particularly interesting for its hydrokinetics properties, for the Ushant protection from prevailing swell and for vicinity to a continental electricity consumption center with no major existing power plant, Brittany.

“Sabella D10 project”, first grid connected tidal turbine in France

Since 2009 and its reward and recognition of promising technology by French public authorities, SABELLA is working on its real scale marine current turbine “Sabella D10”, 10 meter diameter device with maximal output power of 1 MW. This pre industrial machine will be immersed in early 2015 in the Fromveur strait for one year. During this trial period at sea, energy produced will be delivered, through a submarine power cable, to the non-interconnected insular grid of Ushant.

This device will be fully monitored, both in operation and in terms of environment. With the feedback of the demonstrator and a better understanding of environmental conditions of the site, SABELLA aims to continue with Eussabella project, a tidal turbine pilot power plant of 3 to 4 devices with an installed power capacity around 5 MW.

Eussabella project”, pre commercial deployment associated with energy transition

Within this framework, SABELLA already works on key issues related to a project with high expectations from public authorities and local citizens. The main ones, delivered in this paper, are:

- *implementation of tests in stream tank to validate the technological choices and optimize the rotor design (blades number and profiles);*
- *optimization of the global layout of machines in a farm and inter-devices cables;*
- *development and deployment of a reliable 30 years life-time subsea junction system to reduce the number of export cables needed;*
- *medium capacity energy storage studies to suit intermittent tidal production of the pilot power plant with the insular energy consumption of Ushant;*
- *reflection on smart grids adaption based on peak flows and slack hours;*
- *pre studies on installation ships dedicated to marine current turbines, able to work in specific environment with limited operating time;*

- *protection and stabilization of export power cables laid in the crossflow.*