

SONAR

CAMPUS
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MER

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**ÉRIC POULIQUEN: THE NATO
MAN WITH A KEEN BRETON
EAR FOR UNDERWATER
ACOUSTICS**

© Laurent Mayer



Laurent Mayer

Former Special Representative for Polar Affairs at the French Ministry of Europe and Foreign Affairs; Senior Editor of 'Polar Watch – polar regions monitoring and forecasting'; Policy Advisor on Polar Issues at the French Ministry of National Education

“However, even in this “land of peace and science”, research also serves as a non-military arm of national strategy.”

Few people are familiar with the history of international polar research which originated with Austrian military officer and explorer Karl Weyprecht. In the 1870s he described this research as an ideal that should “transcend the disaster of war, discord between nations and the constraints of human rivalries” (M. Nicolet, 1956). His dream was to create a shared intangible scientific heritage for humanity.

One hundred and fifty years later, this vision for internationalising polar science has stood the test of time, with four International Polar Years (IPYs) having taken place more or less once every 50 years. The third IPY, known as the International Geophysical Year 1957-1958, is credited with facilitating the negotiations at the height of the Cold War which led to the Antarctic Treaty.

strategic tensions were initially confined to the middle latitudes, analysis by the French Ministry of Armed Forces shows that these tensions have reached the High North, with Russia's remilitarisation and China's growing dual-use presence there.

The situation in the Southern Hemisphere is different, as the Antarctic is protected by a legal framework that prohibits military activity, freezes territorial claims and bans the extraction of mineral resources. However, even in this “land of peace and science”, research also serves as a non-military arm of national strategy and we are witnessing increasingly overt strategic positioning by certain powers, with Russia and China at the forefront. At the same time the “best available science” concept which governs scientific cooperation is being questioned.

This is the strained geopolitical context in which preparations for the fifth IPY are taking place. The IPY continues to maintain the ideal of an international polar research community, seeking to go beyond “the disaster of war, discord between nations and the constraints of human rivalries” and to advance issues of mutual concern among rival and allied nations for the benefit of all humanity. ●

Recently, this tradition of international polar research that rises above geopolitical divisions gained new momentum, when the major organisations which coordinate global scientific research decided to bring forward the next IPY by 25 years to 2032-2033. It will span two calendar years to cover one summer and one winter season at each pole. The decision came in response to the urgent need for coordinated international research to address challenges in the polar regions that are of global

concern, including rising sea levels, retreating sea-ice and acidifying oceans. The last IPY (2007-2008) brought together 61 different countries. However, the preparatory period for the next global scientific polar research initiative is facing challenging times in inter-governmental cooperation. Celebrated since the end of the Cold War as a beacon of peace, cooperation in the Arctic has been weakened by the exclusion of Russia in response to its war of aggression against Ukraine. Although

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October 6-8, 2026: Sea Tech Week® 2026

October 16-18, 2026: 10th edition of Ocean Hackathon®

SNOWMI

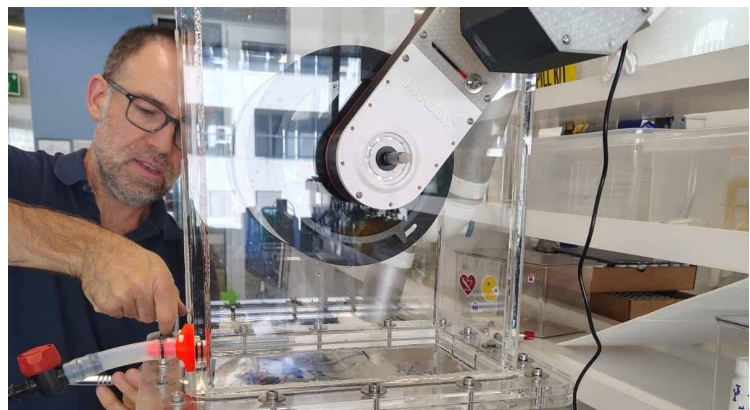
CAPTURING ORGANIC PARTICLES FROM THE ARCTIC OCEAN

Supported by Technopôle Brest-Iroise, the new start-up Snowman Marine Instruments (SnowMi) is gearing up to supply equipment for an Arctic mission in 2027. For this the company combines state-of-the-art instrumentation with the strength and toughness demanded by the polar environment.

Marine biogeochemist Emmanuel Laurenceau Cornec set up SnowMi in early 2026. His latest challenge is to develop instruments that can cope with the extreme conditions found when studying the biological carbon pump in icy waters. His earlier groundbreaking invention, the *Snowman*, enables the organic particles that sequester CO₂ into the ocean depths – known as marine snow – to be simulated in the laboratory.

Bespoke prototyping

"SnowMi is all about modular and affordable prototyping", the company's founder explains. It uses FabLab methods (laser cutting and 3D printing) to keep costs down without compromising reliability. "When it comes to components that are subject to significant stress or extremes of temperature, we turn to industrial machining. Our hybrid approach means we can provide bespoke instruments when research budgets won't stretch to the cost of conventional solutions."



© SnowMi

Heading for the Arctic with the CNRS

This expertise has earned the company a place at Brittany's regional innovative business incubator, Emergys Bretagne, for a cutting-edge project. SnowMi is set to supply six specialised sediment traps for a mission led by the LEMAR joint research unit on behalf of the French National Centre for Scientific Research (CNRS). The equipment will be secured beneath the Arctic sea ice in spring 2027. ●

Information:

www.snowman-marine-instruments.fr

Laboratory of Environmental Marine Sciences (LEMAR) (IUEM | UBO, CNRS, IRD, Ifremer): www-iuem.univ-brest.fr/lemar/?lang=en

The Snowman: a bespoke prototype for studying the biological carbon pump in the ocean.



Yannick Fagon

Engineer leading the team in charge of the reconstruction project at IPEV

POLAR FRONTIERS

IPEV

“THERE’S A PRESSING NEED TO ADAPT THIS FACILITY FOR RESEARCHERS’ REQUIREMENTS”

The Institut polaire français (IPEV) is pioneering scientific logistics in one of the world’s most challenging environments. Since Dumont d’Urville Antarctic station no longer meets the latest standards, preparations are underway for a major modernisation project. Brittany’s technology community is primed to help – under the leadership of Yannick Fagon, an IPEV engineer heading up the refurbishment team.

IPEV is modernising Dumont d’Urville Station in Adélie Land to maintain France’s scientific presence in Antarctica. What are the challenges involved in managing this large-scale rebuild from Brest?

Yannick Fagon: The buildings we have at Adélie are over 60 years old. They leak, they’re uncomfortable from the point of view of both acoustics and temperature, and they use too much fuel. The station is divided into 150m² blocks and that no longer works, the garages are too small for maintaining our vehicles, and the laboratories don’t have the necessary connections to transfer data directly back to mainland France. There’s a pressing need to adapt this logistics infrastructure for the visitors every austral summer – 40 or so researchers at a time – while being mindful of our overall energy footprint.

How did the climate and environment affect your construction plans?

YF: The station is on an island with a chaotic structure and very steep slopes, so we can’t do any major earthworks. We also experience katabatic winds of over 200km/h, so we can’t install conventional wind turbines. Our priority is to stabilise fuel consumption by building

with a more compact envelope using high-performance insulation materials.

Is there a particular type of IPEV station you’re aiming for?

YF: We’re adopting a strategy that we share with our counterparts operating in the polar region, like the British Antarctic Survey (BAS). It involves gathering together scattered logistical and scientific functions into large but compact buildings. After 70 years of managing construction projects ourselves, we plan to engage private-sector building firms this time so we can be sure of meeting a very tight timetable.

How will Brittany’s economy play a part in your plans?

YF: In Brest, IPEV has a team of some 50 permanent employees. A large proportion of the materials and equipment will come from small- and medium-sized Breton industries and businesses. We work closely with Cerema, the French body that deals with risks, the environment, mobility and urban planning, based at Technopôle Brest-Iroise. We’ll also seek closer ties with Ifremer as we bring IPEV into the Institute itself, generating new synergies with prestigious engineering schools and the IUEM (European Institute for Marine Studies).

“Gathering together scattered logistical and scientific functions”



© Jean-Luc Sinardet – IPEV

The Dumont d'Urville Station based in Adélie Land for over 60 years.

What sort of local marine innovations will benefit?

YF: Researchers from IUEM and Ifremer are designing sensors, sonar devices and autonomous buoys capable of withstanding the polar environment. They're working with Brest-based SMEs to strength-test their innovations using scientific protocols. Thus, scientific requirements are directly stimulating research in Brest, especially in the fields of acoustics and engineering for extreme conditions.

Are there any logistical differences between the British approach and yours?

YF: The BAS has its own vessels and aircraft plus in-house research staff, which IPEV doesn't. The British model means they can adjust their logistics response in real time. With our French approach, the Astrolabe Antarctic logistical support vessel is booked up on the rotations needed to resupply Dumont d'Urville and Concordia Stations. That limits the cutting-edge oceanography operations we can perform.

How do you plan to get over this maritime hurdle?

YF: The designs for an all-new dedicated research vessel for the Pacific and the southern seas are being finalised. Named the Michel Rocard, it will be part of the French oceanic fleet operated by Ifremer and fitted out by Genavir from Brest. This new vessel will round out the world-class oceanographic capacity already to be found in Brittany's laboratories. ●

Information:

www.institut-polaire.fr/en

The Dumont d'Urville before its major transformation for cutting-edge polar research mindful of its environmental footprint.



© Yannick Fagon – IPEV



UNIVERSITY OF WESTERN BRITTANY

GREATER RESEARCH COOPERATION IN UARCTIC NETWORK

The University of Western Brittany (UBO) has been a member of the University of the Arctic network since 2022, and is now strengthening its cooperation with the High North. Isabelle Guissard, a Vice-President of UArctic, visited UBO's European Institute for Marine Studies (IUEM) in early April. This provided a chance to achieve a long-held ambition: to establish a network dedicated to the theme of the Arctic soundscape, spearheaded by Brest.

Sara Bazin (left) and Isabelle Guissard (right) leading an international collaboration on Arctic marine science research.

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Isabelle, who is responsible for ensuring mobility within the 200-institution consortium, explains: "UArctic is a network of universities researching and cooperating on issues concerning the High North". At the start of April, she journeyed from the Arctic University of Norway (UiT) in the town of Alta, a mere 250km from the North Pole, to the UBO in Brittany. The University's inclusion in UArctic in 2022 cemented international recognition of Brittany's maritime expertise.

A new frontier in polar research: underwater acoustics

One person Isabelle Guissard met in Brittany was Sara Bazin, an academic at IUEM who is taking the lead on establishing the Arctic Soundscape thematic network within UArctic. Sara conducts geoscience research, and explains: "As part of this project, we aim to expand our deep water listening sites. Our focus is on the Indian Ocean and the Atlantic, but we're especially interested in the Arctic Ocean against the backdrop of global heating". For this initiative, the US National Oceanic and Atmospheric Administration (NOAA) has joined forces with three universities: UiB (University of Bergen, Norway), UQUAR (Université de Québec à Rimouski, Canada) and the University of Bath (United Kingdom). Funding for the network is expected to be agreed at the UArctic Congress in the Faroe Islands in May, which could position Brest as a vital hub for hydroacoustic observation using AI tools.

The north2north programme builds academic bridges

Sara Bazin explains the potential for exchanging information: "IUEM has crosscutting research interests that overlap with all UArctic's areas of activity including geoscience, biology and the social sciences". She also highlights how the north2north mobility programme, which forms an integral pillar of UArctic, has already helped UBO with practical, interpersonal exchanges: "This year, a biology student from UQAR and a lecturer from Norway joined us at UBO, while a final-year marine biology undergraduate went to the University of Bergen for one semester". Isabelle Guissard adds: "It's a very flexible programme that allows us to fund mobility to Arctic zones – which is not always covered by the Erasmus framework".

Brest – base camp for the blue economy

The synergy generated between acoustics, marine biology and polar logistics could well extend beyond the confines of laboratories. Establishing the Arctic Soundscape network may open doors for the Brest ecosystem, as a new way to contribute to major polar research projects. Sara Bazin concludes, "We've laid the foundations and now we need to build real, active cooperation". ●

Information:

www.uarctic.org

www-iuem.univ-brest.fr/?lang=en

LOPS AND LEMAR

CLIMARCTIC : COMING TO THE AID OF THE ARCTIC OCEAN

The aim of the CLIMArctic project teams, managed from Brest by the Laboratory for Ocean Physics and Satellite Remote Sensing (LOPS), is to understand how sea-ice retreat and the nutrients transported by Russian rivers are transforming the dynamics of an ocean on the front line of climate change.



© Aridane González González – LEMAR, ULPGC

Temperatures in the Arctic are rising four times faster than the global average. This is what drives the researchers involved in the CLIMArctic project. Supported by France 2030, the project has been managed by LOPS (Ifremer) since 2023. Camille Lique, project coordinator and oceanographer at LOPS, explains the scale of the issue: "We are seeing the 'atlantification' of the Arctic, as Atlantic water properties extend northwards. This is contributing to the melting of the ice, resulting in radical changes in ocean stratification. It's a challenge on a global scale because the Arctic acts as the regulator of the global climate. Understanding these local changes is essential to better inform our global predictions."

Coordinating physics, chemistry and biology for an integrated picture

Hélène Planquette, National Centre for Scientific Research (CNRS) director of research at the Laboratory

of Environmental Marine Sciences (LEMAR), studies the transportation of nutrients by rivers, icebergs and sea ice. "The rivers of Siberia carry huge quantities of organic material and metals into the ocean, but the distribution and impact of these nutrients on ecosystem structures is still unclear. Our task is to bring together physics, chemistry and biology to produce an integrated picture of this ecosystem." ●

At the bow of the Polarstern during the Transarc expedition in 2015.

Information:

www.climarctic.cnrs.fr

Laboratory of Environmental Marine Sciences (LEMAR) (IUEM | UBO, CNRS, IRD and Ifremer):
www-iuem.univ-brest.fr/lemar/?lang=en

Laboratory for Ocean Physics and Satellite Remote Sensing (LOPS) (CNRS, Ifremer, IRD and UBO): www.umr-lops.fr/en

SOMME

LISTENING TO THE ICE

Based in Brest, the SOMME multimodal research unit (Société d'Observation Multimodale de l'Environnement) has established its expertise in underwater acoustics. The team headed by Delphine Mathias conducts both commercial and research missions, deploying its hydrophones as far as the polar waters of the Arctic and Antarctic.

Laurent Chauvaud (LEMARS/CNRS),
Delphine Mathias (SOMME) and
Erwan Amice (LEMARS/CNRS)

SOMME (part of the Ecosphère group) was founded by researchers in 2012 to transform scientific expertise into operational solutions. With seven members of staff, the company specialises in acoustic monitoring of ecosystems from its new

premises in Brest. "Our core work is passive underwater acoustics. We record sounds to document biodiversity and measure the impact of human activity," explains director Delphine Mathias. This is a vital service in an increasingly noisy ocean.

Driven by research

SOMME is now exporting its expertise to the poles, by taking part in missions run by the LEMAR and the French Polar Institute Paul-Émile Victor (IPEV).

"This environment comes with unique constraints. The cold and ice mean our recording systems must be extremely robust," says Delphine Mathias, who has led studies in the polar zone herself as a researcher. "The academic projects provide our research unit with strategic leverage, because the research feeds into the commercial side of our work. It enables us to develop expertise in data processing and instrumentation, which we then apply when working for our clients." ●

Information:

seaobs-somme.fr/language/en/english

Laboratory of Environmental Marine Sciences (LEMAR) (IUEM | UBO, CNRS, IRD and Ifremer): www-iuem.univ-brest.fr/lemar/?lang=en

IPEV : www.institut-polaire.fr/en



© Erwan Amice, LEMAR/CNRS

UNDER THE POLE

ROBUST LOGISTICS FOR DEEP-WATER EXPLORATION

Expedition organiser Under The Pole is expanding its logistics base with a 400m² warehouse in Brittany.

Having recently returned from a three-month expedition in the Antarctic, Under The Pole can be found at the base established by Sophie and Roland Jourdain's Explore endowment fund in Concarneau. Under The Pole co-founder Emmanuelle Périé-Bardout explains, "We organise scientific expeditions around the world to explore the oceans, make them more visible and help protect them". Indeed, it was preparing for these missions that motivated the organisation to invest in a nearby warehouse to store its semi-rigid boat, expedition equipment and touring education caravan.

Logistics to support the science

Under The Pole has 11 employees. Its expeditions operate from a 19-metre aluminium schooner named 'WHY?'. From December 2025 to March

2026, the team skirted the Antarctic peninsula mapping little-known ecosystems. Once in situ, the expedition divers then surveyed the area: taking samples, counting fish, installing instruments like hydrophones, taking standardised photos of the sea bed, and more.

Marine animal forests – oases in the deep ocean

This research revolves around the UN-recognised DeepLife project (2021-2030). Some 40 international researchers are working on the project, under the direction of two CNRS researchers: Lorenzo Bramanti (LECOB) and Laetitia Hédouin (CRIOBE). Working in partnership with these 40 international research partners and CNRS, Under The Pole is studying marine animal forests. The forests are deep-water struc-



© Franck Gazzola

tures formed by living organisms such as sponges, corals and gorgonians that can change the local microclimate to help it sustain fauna. Emmanuelle Périé-Bardout ends on a hopeful note, "These mesophotic zones are less exposed to anthropic pressures, and give us hope for biodiversity". ●

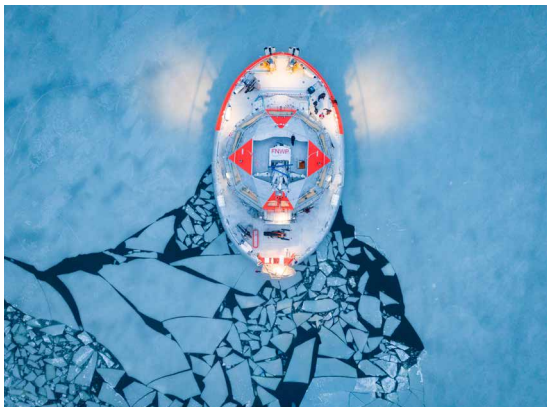
From aboard the schooner WHY, divers from Under The Pole are mapping little-known Antarctic ecosystems.

Information: underthepole.org/en

DeepLife : <https://4euplus.eu/4EU-1119.html>

Benthic Ecogeochemistry Laboratory (LECOB): lecob.obs-banyuls.fr/index.php/en

Center for Insular Research and Environmental Observatory (CRIOBE): www.criobe.pf



© Maéva Bandy – Fondation Tara Océan

The Tara Polar Station undergoing a wintering trial in the Finnish ice.

“The Arctic is the climate engine for the whole planet, but it still harbours a number of scientific mysteries, especially during the polar night”, explains Romain Troublé, executive director of the Tara Ocean Foundation. With the aim of filling in these gaps, the drifting base will be able to accommodate 12 people who can live there self-sufficiently. Starting this summer, their challenge will be to document the Arctic before irreversible changes take hold, since the first ice-free summers are predicted around 2045.

Roscoff: part of Tara's scientific DNA

As a key partner of the Foundation for some 20 years, Roscoff Biological Station has brought its marine biology expertise to the project, which is led by Colombar de Vargas, research director at CNRS, with the aim of coor-

TARA OCEAN FOUNDATION

TARA POLAR STATION: ROSCOFF BIOLOGICAL STATION'S NEW OUTPOST

The Tara Ocean Foundation has made history by launching its Tara Polar Station. This drifting laboratory and observation station was created thanks to direct collaboration with Roscoff Biological Station and aims to unravel the mysteries of an ecosystem on the edge.

dinating analysis of the marine microbiome and describing its genomic biodiversity.

A question of sovereignty

Another aim of the project is to restore the French presence at the poles. "The goal is to develop our research activities and our place in this strategic territory", Romain Troublé tells us. In combining advanced technology, international cooperation and Breton academic excellence, Tara Polar Station is set to be the last sentinel of an icy world that is disappearing. ●

Information: [Roscoff Biological Station \(CNRS, Sorbonne University\): www.sb-roscoff.fr/en](http://www.sb-roscoff.fr/en)

MINISTRY OF THE ARMED FORCES

DEFENCE IN THE ARCTIC: BRITTANY AT THE HEART OF POLAR STRATEGY

With melting ice and new sea routes opening up, the Arctic is increasingly becoming a theatre of geopolitical tension. The permanent secretariat for climate and defence within the French Ministry of the Armed Forces is working to adapt the country's operational capacity to respond to these changes. Given these innovations, Brittany's research ecosystem is proving pivotal to developing a strategy of resilience.



© DR

Sarah Mercier-Tigrine, scientific expert on climate and defence at the Ministry of the Armed Forces

Brest: a support base for polar innovation

Operational capacity is highly dependent on a detailed knowledge of the polar environment and the ability to navigate through icy seas. "We've already worked with Shom, Ifremer and the CNRS", Mercier-Tigrine notes. Brest's centre of expertise was recently in the spotlight, with a symposium on defence and research in the Arctic organised by the

Sarah Mercier-Tigrine, a scientific expert in climate and defence at the Ministry of the Armed Forces, explains the situation: "The melting of the ice is opening up new sea routes, creating a renewed geostrategic focus on the region, and this reinforces the need to improve our understanding of how climate change impacts our operational capacity."

Defence Innovation Agency (AID) and the French National Centre for Scientific Research (CNRS), held in January 2025. "We had some very useful exchanges that helped underline the importance of dual research, with oceanography feeding into military decision-making", Mercier-Tigrine says. "The ecosystem in Brest definitely has some cards to play in the polar regions, not just with its concentration of expertise but because of its geographical location, as the sea route remains one of the simplest ways of getting there." ●

Information:

Permanent secretariat for climate and defence: www.defense.gouv.fr/ministere/politique-defense/strategie-climat-defense

Naval Hydrographic and Oceanographic Service (Shom): www.shom.fr/en

Defence Innovation Agency (AID): www.defense.gouv.fr/aid

OCÉANOPOLIS

SENSORY IMMERSION AT THE SOUTHERN PAVILION

Brest's Océanopolis, a cultural centre for the public understanding of science devoted to the ocean, has reached a key stage in its current transformation: the Polar Pavilion is set to become the all-new Southern Pavilion. This 1,500m² space is due to open in autumn 2026. It will adopt an ecosystem approach and focus on technological prowess, immersing visitors in a Southern Ocean sanctuary.

As designer of the displays, Lionel Feuillassier tells us, "This new Southern Pavilion is just one part of the much wider Métamorphose project to modernise Océanopolis. It aims to provide visitors with fresh spaces and

themes relating to the ocean". This metamorphosis owes a great deal to supporters including the French Polar Institute (IPEV), CNRS, Ifremer, Chizé Centre for Biological Studies and the Paris National Museum of Natural History, who have helped ensure the data and content are accurate.

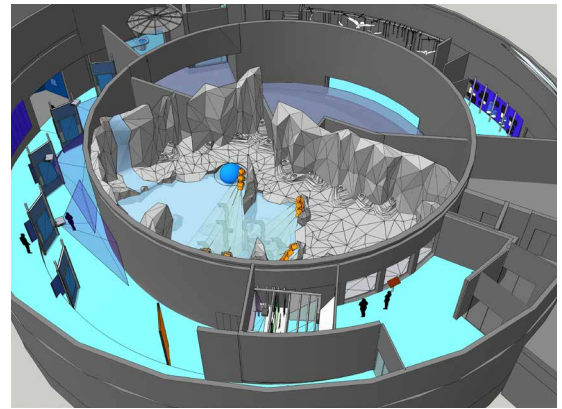
Kelp and leafy seadragons: climate barometers

Feuillassier emphasises that, "Wonder is what underpins our approach to knowledge sharing. The main attraction in this new pavilion will be a huge aquarium with rockhopper penguins, southern ocean fish species, and forests of giant kelp

which support great biodiversity. Developments in technology have enabled us to grow this macroalgae under controlled conditions."

The pavilion will also feature an aquarium column housing leafy seadragons, a rare species whose survival depends on kelp. Visitors to the pavilion will also encounter an interactive, six-metre-long giant kelp model based on a 3D scan. The plant itself can reach up to 60 metres in length. Exploring this tactile replica will illustrate stages in the organism's life cycle. ●

Océanopolis' new Southern Pavilion: a 360° ecosystem-based approach.



© Set design workshop Expositif

The Dragon Seahorse in the kelp beds of Océanopolis



© Richard Ling

ÉRIC POULIQUEN

THE NATO MAN WITH A KEEN BRETON EAR FOR UNDERWATER ACOUSTICS

From Ifremer lab worker to director of the NATO Centre for Maritime Research and Experimentation (CMRE) in Italy, Éric Pouliquen is the embodiment of Finistère's proud maritime pedigree. The underwater acoustics expert from Brest gives Sonar his analysis of developments in maritime innovation, looking at global challenges and the issues facing Brest's research ecosystem.

Could you give us a brief outline of CMRE, its research model and the major technological challenges it faces?

CMRE was set up in 1959 and was the last in-house laboratory to be set up by NATO to counter the Soviet threat. We develop naval technology that then gets transferred to national labs and the defence sector. Our model brings together science, engineering and access to the sea using two scientific vessels to optimise the Alliance's decision-making. In particular, we use AI and underwater drones for complex missions, including the detection of submarines in the Arctic Ocean. Quantum technology is also a major area in keeping communications, navigation and computing secure.

What was your next move after completing your underwater acoustics PhD in Brest?

In 1989 I was one of the first PhDs in underwater acoustic engineering at Ifremer. At 22, as mission leader on a research vessel, the R/V Thalia, I had the means at my disposal to collect data at sea, in situ, that would normally be very hard to obtain. By the end of 1990, the increasingly close ties between Ifremer and the Naval Hydrographic and Oceanographic Service (Shom) helped me appreciate the importance of shared interests and an interdisciplinary approach in driving scientific progress. After doing a postdoc at the Scripps Institution of Oceanography in the US, I went back to the CMRE in La Spezia, followed by a spell in Norfolk, Virginia, before returning to La Spezia as the Centre's director.

Where do you see Brest in the global context?

I am Brestois myself, so naturally I'm proud of how Brest has progressed. Competition is getting more intense now, with the emergence of dedicated centres of expertise in both Europe and North America. There is nothing guaranteed or permanent about its position, though: considerable ambition and new ideas will be required if Brest is going to stay ahead of the game.

Do you maintain direct links with organisations involved in Campus Mondial de la Mer?

Our direct links remain targeted. We take on interns from ENSTA and the French Naval Academy (École Navale), we work with Shom in the High North, and also with Thales and Exail via the Directorate General of Armament in the French Ministry of Armed Forces (DGA).

How does the international research scene differ from the landscape in France?

France has the second-biggest maritime area in the world, but it currently lacks a clear vision – unlike in the 1970s and 80s. Without a clearly stated national ambition or sufficient investment to power the maritime economy, French research efforts will lag behind those of countries that know what direction they're heading in.

➔ **information:**
www.cmre.nato.int

What advice would you give to a young researcher in Brest today?

To move away from academia in your own country once you've done your PhD. You need to do a postdoc so that you can find your way, take risks in an international context and explore the world – but never forgetting your Breton roots. Then, you can return to the Finistère all the richer. ●



© Eric Pouliquen – CMRE



OCEANHUB AFRICA

WHEN OCEAN HACKATHON® REACHES CAPE TOWN

The winning team from Cape Town in Brest for the Ocean Hackathon® 2025 Grand Finale.

As a Ocean Hackathon® partner based in Cape Town, OceanHub Africa (OHA) has established itself as a major Blue Economy catalyst on the continent. By connecting local innovators to international networks like Brest's Ocean Hackathon®, the hub structures a sustainable maritime sector at the crossroads of three oceans.

OceanHub Africa's journey began in July 2019 with a clear ambition: to bridge the gap between scientific research and the commercialisation of viable ocean solutions. From Cape Town, Ashley Reynolds is head of communication for the Entrepreneurial Support Organisation, which employs 23 people. The organisation fosters an ecosystem that goes beyond incubation and acceleration, to build and scale regenerative business models by supporting, connecting, and investing in Africa's ocean-impact ecosystem.

A bridge between science and investment

"Our priority for the 2025 edition of the Ocean Hackathon® was to develop business-oriented solutions to the challenges facing Africa in relation to the sustainable use of marine resources, and to connect project leaders with stakeholders who could help them build on strategic global partnerships," explains Ashley Reynolds, Senior Communications Associate.

OHA supports a broad spectrum of actors, including researchers and startups, and

offers technical, as well as business and personal development support. The hub serves as a trusted intermediary for investors and major corporations, such as The Coca-Cola Foundation, seeking to decarbonize their value chains.

This positioning has been strengthened through events like the Ocean Hackathon®, which OHA joined in 2021. "By organizing the African edition of the Ocean Hackathon® in Cape Town, our goal is to solve concrete problems while supporting project leaders through the OceanHub Venture Development Department, our incubation and acceleration branch. We provide access to our network of partners and our coaching services, and facilitate consultations with The Coca-Cola Foundation for project development," adds Ashley Reynolds.

Uber Plastic: Data driving circularity

The winner of the Cape Town edition of the latest challenge proposed by the International Union for Conservation of Nature (IUCN), – who went on to pitch at the Grand Finale in Brest –, was the "Uber Plastic" project: a digital platform optimizing the PET bottle collection chain by connecting collectors, transporters, and recyclers.

Another notable initiative involved mapping and monitoring marine protected areas between East Africa and the Indian Ocean islands, proposed by Western Indian Ocean Marine Science Association (WIOMSA). "These successes prove that collaboration and local knowledge can generate solutions with international impact," emphasizes Ashley Reynolds. ●

➤ information:
www.oceanhub.africa

“Collaboration and local knowledge can generate solutions with international impact”

SEQUOIA

BRITTANY'S FOCAL POINT FOR MARITIME AI

The SequoIA cluster, named as one of nine French centres of excellence in artificial intelligence, lays the foundation for Brittany's digital ecosystem. With its maritime components coordinated from Brest, the SequoIA network brings research and industry together to harness AI for oceanography and defence.

CLUSTER
SEQUOIA

The SequoIA cluster puts Brittany front and centre in the development of AI applications to serve the maritime sector and protect national security. The members of the cluster were selected following a national tendering process, and they include academic institutions based in Brest, Rennes and Vannes: IMT Atlantique, the University of Rennes, ENSTA, ENIB, UBO, UBS, INSA, ENSAI and the Saint-Cyr Foundation, as well as the French Naval Academy (École Navale). SequoIA specialises in areas of sovereign authority. "The SequoIA cluster is unique in how it applies AI to cybersecurity, defence and the sea", says Ronan Fablet, a tenured professor at IMT Atlantique and a member of SequoIA's executive committee.

A crucial link between science and industry

The cluster has helped several research institutions to pool their excellence in Brest, including ISblue, Ifremer, CNRS and Inria; the cluster also has direct links with the Technopôle Brest-Iroise / Campus Mondial de la Mer ecosystem. "The SequoIA cluster aims to serve as a catalyst for collaborations not only with the giants of the sector, such as Thales and Naval Group, but also with local SMEs such as eOdyn and OceanDataLab", says Fablet, who specialises in research through ocean modelling. "We're focused on

processing satellite data and acoustic modelling", he adds. This synergy has facilitated technology transfer as well as supporting PhD theses under the mechanism known as CIFRE (industrial agreements for training through research).

Training and development on an international scale

The cluster's third pillar is training, the goal being to double the number of graduates in AI by 2030. "We want to attract a high calibre of students and researchers", Ronan Fablet says, while emphasising that the cluster also focuses on social issues. "It's crucial for those developing these tools to understand what's in an algorithm, and the implications for society." This represents an ethical, interdisciplinary approach which should help Brittany to establish itself as a global leader in maritime AI applications. ●

Information:

cluster-sequoia.univ-rennes.fr

CNRS: the French National Centre for Scientific Research

ENIB: Brest National School of Engineering

ENSAI: National School of Statistics and Information Analysis

ENSTA: French National Graduate School for Advanced Technologies

Ifremer: French National Institute for Ocean Science

INRIA: National Institute for Research in Digital Science and Technology

INSA: National Institutes of Science and Technology

ISBlue: Interdisciplinary Graduate School for the Blue Planet

UBO: University of Western Brittany

UBS: Southern Brittany University

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