
IODYSSÉUS
SPORT & SCIENCE FOR OCEAN

OUR STORY

This is the story of a meeting between a sailor and a marine biologist, two individuals from different worlds with a shared passion for the ocean. Together, they formulated the idea of advancing science aboard sail-powered research vessels – to study plankton and raise awareness by sharing their passion with as many people as possible. They established the Iodysséus program in 2016, assembling a multidisciplinary team.

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THE SAILOR

ÉRIC DEFERT - PROFESSIONAL OFFSHORE SAILOR

20 years of offshore racing

9 Transatlantics

North Atlantic Record singlehanded

1 Route du Rhum

3 Solitaires du Figaro

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THE BIOLOGIST

PIERRE MOLLO - MARINE BIOLOGIST

Authored books on marine biodiversity

Directed 20 educational short films and 6 full-length films, including *Planet Plankton* in 2012 with Jean-Yves Collet

Co-production of a pictorial symphony *The Voice of the Ocean*

IODYSSÉUS

AND A MULTI-SKILLED CREW

Skipper, biologist, legal adviser, news reporter, business developer, partner attender ....

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OUR VALUES

Iodysséus harnesses all the advantages of **ocean yacht sailing by offering fast, economical, flexible and eco-friendly oceanography.**
We operate within the framework in the United Nations Decade of Ocean Science for Sustainable Development.

The **Iodysséus team** is made up of seasoned, passionate **sailors and scientists** who believe in pushing boundaries by combining **sport and science**.

The continents were discovered by sail, and we believe that sailing remains the most elegant way to conduct oceanic research. Moving at the speed of nature, close contact is the best way to understand and study all that our planet has to offer.

MISSION

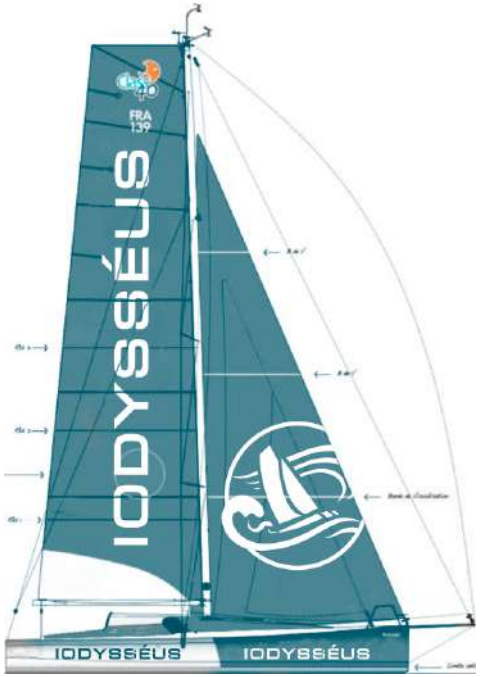
We specialise in the **capture of microorganisms from aerosols** (also called flying plankton) for marine laboratories and the biotech industry.

Iodysséus also collects data on surface water parameters, gas exchanges at the air-sea interface, and more.

Make a societal impact by supporting the development of biotechnologies.

Raise awareness for worthy causes: sustainable development, protection and preservation, the importance of biodiversity, and the role of plankton in climate regulation.

We provide links between laboratories and *in situ* study, **an interface between basic and applied science.**



WHAT WE OFFER

Iodysséus offers a range of services:

Applied research: capture of microorganisms and live delivery to laboratories (potential molecules of interest for biotechnology).

Basic science: continuous measurement of surface water parameters for research (CNRS, Max Planck Institute).

Iodysséus also offers launch and retrieval of ocean monitoring floats at sea.
Through our participation at various events and through awareness-raising sessions in schools, Iodysséus offers media exposure to worthy causes.

Iodysséus will initiate co-research consortiums looking at creating new synergies to strengthen the links between applied and basic science, and to accelerate the spread of knowledge in participatory science.

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To achieve these goals, we are constantly improving our scientific methodologies (especially collection and breed identification) and operational capabilities, reinforcing knowledge acquired during expeditions.

The Iodysséus team is flexible with a variety of specialisations; our services are adaptable to many different needs.

Water column

- Research up to 2000m depth
- Launch and retrieval of biogeochemical floats

Water parameters

- Temperature
- Salinity
- Chlorophyll a
- CO_2
- Dissolved Oxygen

Air samples

- Aerosols captation on filters (MCE membranes)
- Impinger

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OUR ROAD MAP

2016

Eric Defert and Pierre Mollo meet; initial idea born

Concept creation

2017

Understanding current situation and needs

Establishing a plan

National campaign to explain Iodysséus' goals

2018

Assembling the team

Search for funding for the first expedition "Objectif Boom"

2019

First expeditions, first Proof of Concept of sailing oceanography

Raising awareness

2020

New expeditions

Submission of a research consortium

UNESCO Label

Brest International Maritime Festival

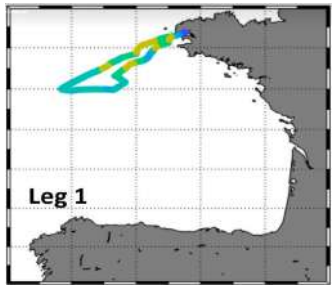
2021

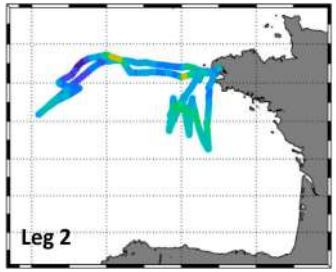
Continually strengthening our scientific methodology

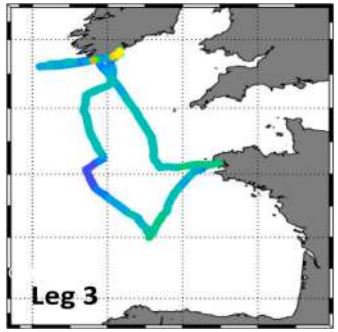
Round the world: A journey through the world of plankton

2022

New expeditions







OUR ACHIEVEMENT 2019, SAILING ON THE BLOOM

- 3 expeditions
- 3500 nautical miles
- 28 days at sea
- 5 crew members:

2 sailors, 2 biologists and 1 news reporter

- 2 biogeochemical floats launched & retrieved
- 72 samples:

57 atmospheric samples and 15 aquatic samples

- samples are still being analyzed. Results will be soon published

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Why are we sailing to the plankton Bloom ?

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BECAUSE...

- Plankton provides 50% of the oxygen we breathe.

- Alongside forests, plankton represent one of Earth's largest CO_2 sinks, absorbing 25% of our carbon emissions. Unlike plants or trees, which release stored carbon when burned, the ocean floor can trap carbon dioxide for millions of years due to marine sequestration.

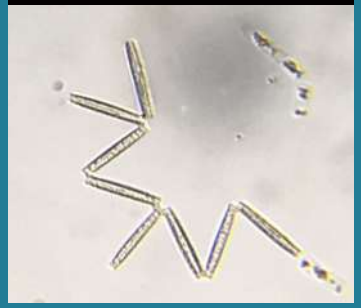
- Plankton supplies 98% of raw material in the marine food chain; it is the principal food source for sea life, and 50% of mankind eats seafood as part of its everyday diet.

But... Phytoplankton (vegetal plankton) population has decreased by 40% since 1950.

It is crucial to protect it.

For protecting it, we are contributing to its study and we sensitize the public to ocean protection.

This plankton bloom in the ocean worths several million dollars (value of ecosystem services).



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PLANKTON IN OUR DAILY LIFE

Around 80% of plankton DNA is still unknown, exploitation of marine resources is a real gold mine.

- **UNDERSTANDING THE CLIMATE**

The climatic impact of phytoplankton on the Antarctic ocean has been quantified. Thanks to the dimethyl sulfoxide(DMSO) emitted by phytoplankton, cloud droplet density is doubled and the albedo effect is increased.

- **CURING DISEASES**

The first cancer treatment of marine origin is extracted from ascidian, a plankton filter, and has been on the market for 6 years. Today, nanotechnology is inspired by the diatom exoskeletons to target tumours while avoiding side effects. Soon, new antibiotics from sponges will combat resistent bacteria.

- **FEEDING HUMANITY**

Spirulina is a cyanobacterium (also called blue-green algae) with tremendous properties; it contains twelve times more digestible protein than beef. It carries extremely high concentrations of beta carotene, vitamin b-12, iron and magnesium. This microalgae is a possible solution for malnutrition and could supply necessary protein to a growing population.

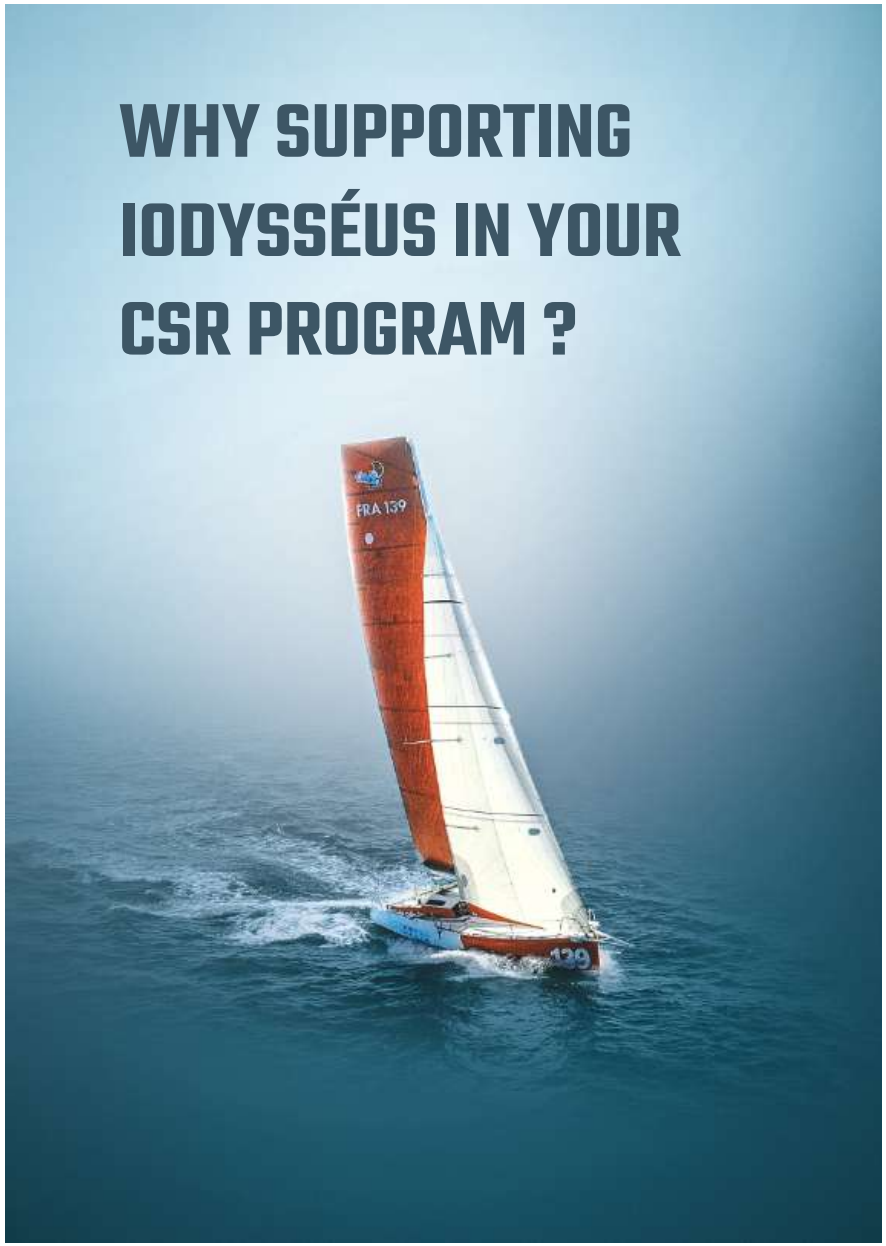
- **PRODUCING ENERGY**

The production of biodiesel from phytoplankton lipids is a path being explored for third-generation biofuels. In the field of electricity, researchers in Singapore have developed a new type of anode inspired by the structure of diatoms - 10 times more efficient than current lithium-ion batteries.

- **CREATING COSMETICS**

Many laboratories are working on formulating a natural sun cream with no effect on marine life such as coral. We collect live, UVA-resistant marine microorganisms from aerosols.

WHY SUPPORTING IODYSSÉUS IN YOUR CSR PROGRAM ?



1. CONTRIBUTE TO PROTECT BIODIVERSITY

Plankton consists of all types of life forms except for terrestrial plants.

2. AID THE OCEAN SCIENCE COMMUNITY

Oceanography receives 1,000 times less funding than space research, and is yet 1,000 times more promising.
Supporting ocean research means creating a better world for future generations.

3. ENGAGE IN CORPORATE SOCIAL ACCOUNTABILITY

Nowadays, the public expects for organisations to commit to CSR policies.
You can send a message with concrete actions.

4. CONTRIBUTE TO ENVIRONMENTAL EDUCATION

You can educate the public and raise awareness of environmental issues and the protection of the world's ocean..
Iodysséus also offers educational events for your organisation.

5. WRITE A STORY

Every offshore expedition is an opportunity to bring people together for a new adventure.
Keep your network updated with latest Iodysséus news.

6. SHARE YOUR INTEREST WITH COLLABORATORS

For any skipper, or anyone with a sense of respect for the sea, the ocean is more than just a playground. Equipment monitoring and our team's training and safety standards allow us to remain at sea for longer periods of time. Sailing has long been associated with historic discoveries, inspiring the public with a sense of adventure and hard work.

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MEDIA IMPACT

A HIGHLY MEDIATIZED SOCIETAL TOPIC

Around 30 articles in notorious newspapers (Le télégramme, Ouest France, Figaro Nautisme, Dépèche AFP, Geo Aventure, Le Marin, Figaro.fr, etc). To be continued with scientific results that will boost media coverage.
4 radio reports and a fifth in preparation (*CO2 mon amour*) for 2020 spring.
2 television reports (France 3, Tebeo).
Preparation of a 52-minute report, *Clouds are Humanity's Guardian Angels*.

789 followers on Facebook

165 followers on Twitter

206 followers on LinkedIn

79 followers on our new Instagram account

Youtube channel

2000 subscribers to our newsletter
These figures are current as of January 2020 and the numbers of followers are continuously increasing.

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WANT TO MAKE A LASTING IMPACT ON SOCIETY ?

JOIN FORCES WITH IODYSSÉUS

BUDGET

2020: € 537 k

2021: € 750 k

2022: € 1,1 M

SPONSOR OR PARTNER

Iodysséus is currently an NGO (endowment fund)

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OUR MAIN PARTNERS - BASIC AND APPLIED SCIENCE

- **BIOTECHNOLOGIES**

Morgane Rousselot (SeaBeLife): inhibitor of cell death.

- **CNRS**

Pierre Amato (University Clermont Auvergne) : research on cloud microbiology.
Fabrice Not (Roscoff Marine Station): study on eukaryotic protists of marine aerosols.

- **MAX PLANCK INSTITUTE**

Peter Landschützer: study of CO_2 exchanges between the ocean and the atmosphere; impact of plankton on climate.

- **EURO ARGO PROGRAM**

Grigor Obolensky: prototyping of biogeochemical profilers.

- **JCOMMOPS**

Martin Kramp: VOS (Voluntary Observing Ship) program.

LET'S DISCUSS !

ÉRIC DEFERT
eric@iodysseus.org
+33 6 20 38 04 94

WWW.IODYSSEUS.ORG

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