



HAL
open science

Ecological monitoring of sub-Antarctic costal marine biodiversity Implementation of a submarine observatory in the Kerguelen Islands (French Southern Territories)

Thomas Saucède, Chantal de Ridder, Philippe Dubois, Marschal Christian, Marty Gilles, Sébastien Motreuil, Pierre-Yves Pascal, Elie Poulin, Jean-Pierre Féral

► To cite this version:

Thomas Saucède, Chantal de Ridder, Philippe Dubois, Marschal Christian, Marty Gilles, et al.. Ecological monitoring of sub-Antarctic costal marine biodiversity Implementation of a submarine observatory in the Kerguelen Islands (French Southern Territories). MEASO18 - Marine Ecosystem Assessment of the Southern Ocean, Apr 2018, Hobart, TAS, Australia. 10.13140/RG.2.2.30677.73445 . hal-04651335

HAL Id: hal-04651335

<https://hal.science/hal-04651335>

Submitted on 17 Jul 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

T Saucède*, C De Ridder, P Dubois, C Marschal, G Marty, S Motreuil, L Michel, P-Y Pascal, E Poulin, J-P Féral

* Biogéosciences, Université Bourgogne Franche-Comté, France – thomas.saucede@u-bourgogne.fr



In the current context of climate change, alterations of marine biodiversity and ecosystem functioning are expected to impact sub-Antarctic islands where coastal areas are particularly at risk. In the **Kerguelen Islands**, coastal marine habitats have been little impacted by direct anthropogenic disturbance. They still represent **pristine marine ecosystems** that are priceless **sentinels of climate change**.

The French Polar Institute (IPEV) program **Proteker** was conceived as a **multidisciplinary approach** including oceanographic measurements, benthic dynamics survey, as well as genetic, trophic, and eco-physiological analyses. The objectives of the program are to identify, monitor, and predict changes in marine coastal ecosystems as a basis for **vulnerability assessments** and appropriate management planning.



Fronds of the giant sea weed **Macrocystis pyrifera** can reach up to 50 m in length and form dense covers. Many marine organisms depend on these habitats to live.

Pix: Ile du Prince de Monaco, 20m.

Rocky bottoms are covered with a rich and diversified benthic fauna whose inventory is in progress.

Pix: Ile Haute, 15m.

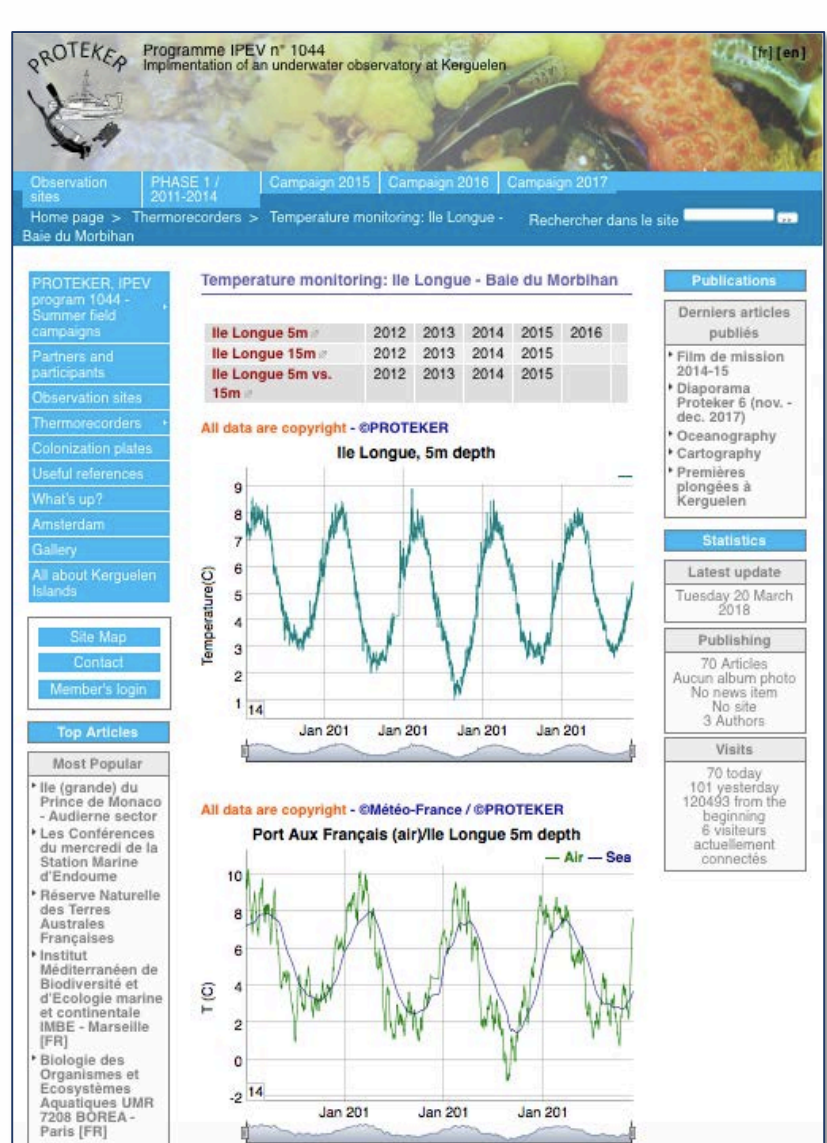


The **National Nature Reserve of the French Southern Territories** (RNN-TAF) was created 10 years ago by a French inter-ministerial decree. Recently, a second ministerial decree has extended the RNN-TAF to most of the French Exclusive Economic Zone. In the Kerguelen Islands, the area covered by the **Marine Protected Area** reaches **389,829 km²** with all coastal marine areas placed under enhanced protection.

PROTEKER: 18 sites of the main island, already investigated in the framework of previous programs, were revisited by scuba diving. Explorations were pushed down to 50 m and 100 m depth in the vicinity of each site using a beam trawl and a ROV. Finally, **8 monitored sites** were selected in different geographic areas as representative of the different Kerguelen coastal habitats.

Summer field campaigns

Data repository



<http://www.proteker.net/>

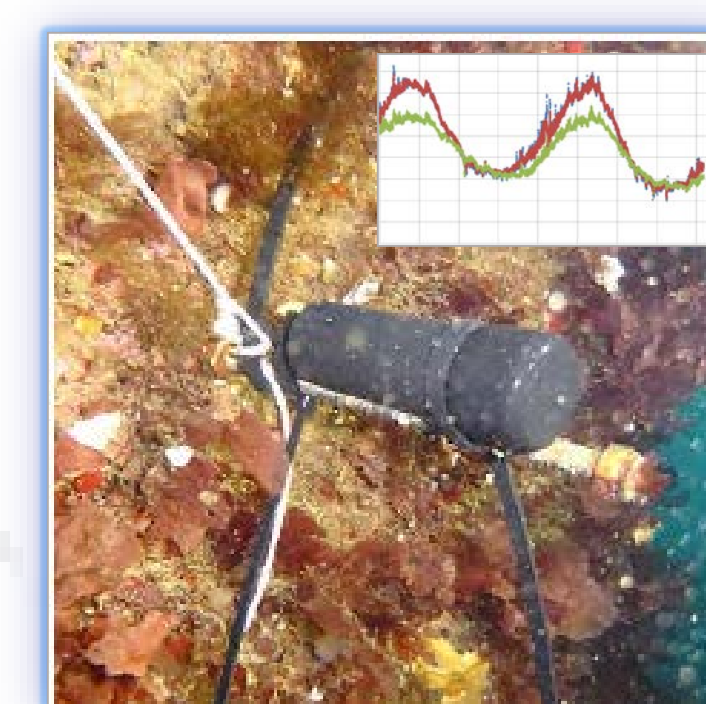
Networking

SCAR Action Groups

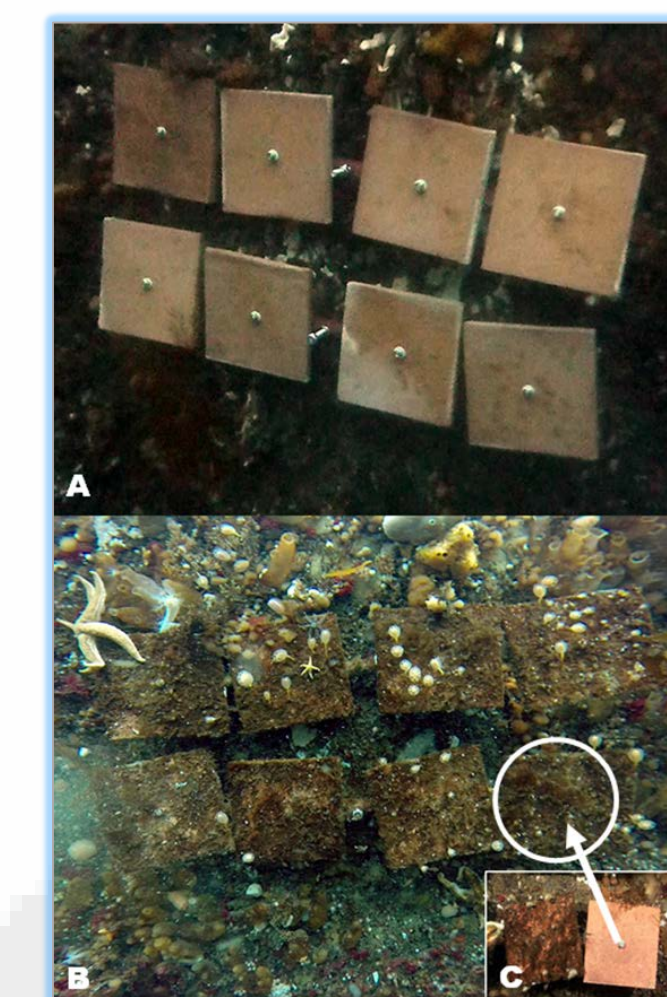
- **ANTOS**
Antarctic Near-shore and Terrestrial Observing System
- **ISSA**
Integrated Science for the Sub-Antarctic

LTER Long-Term Ecosystem Research in Europe

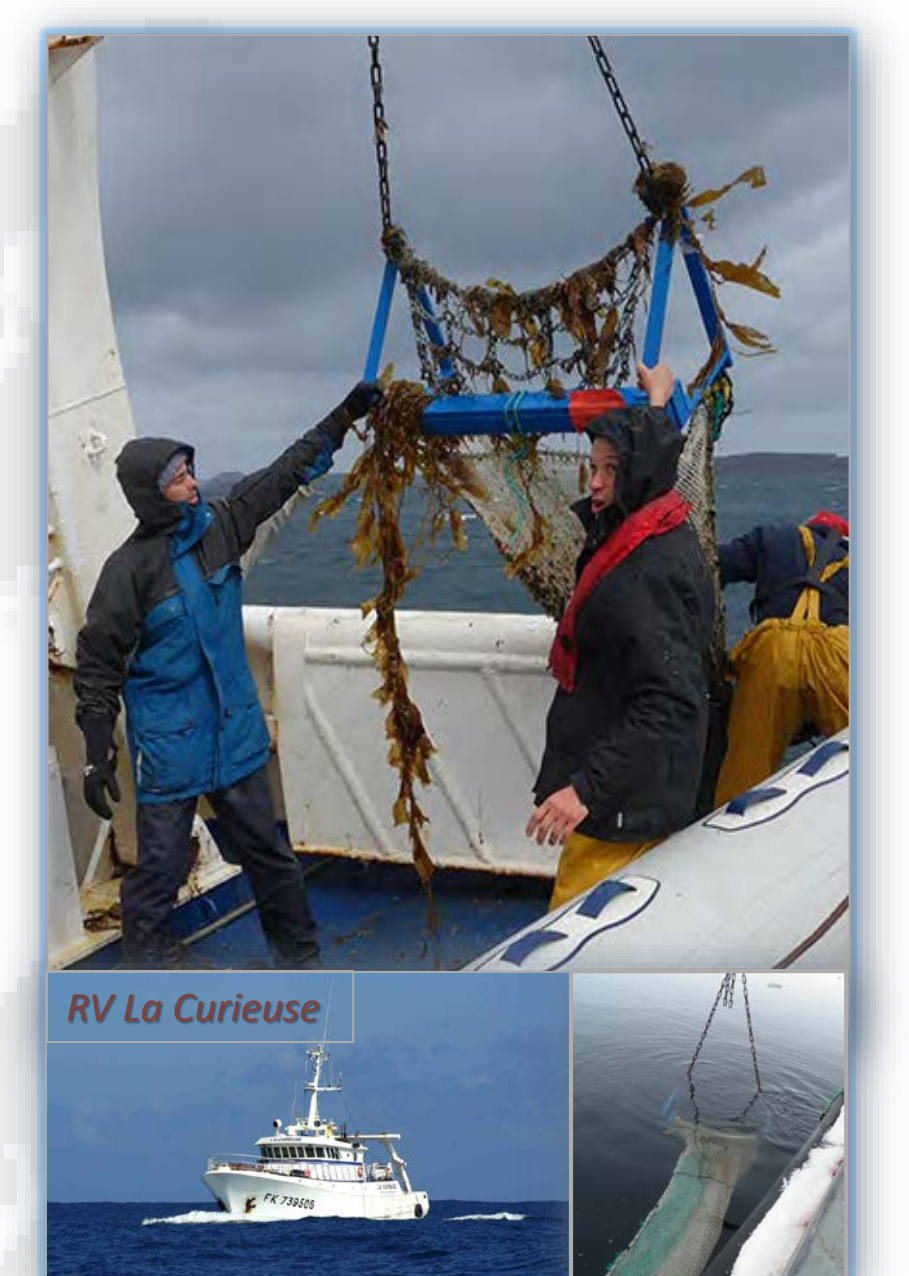
Zone Atelier LTER FRANCE ANTARCTIQUE



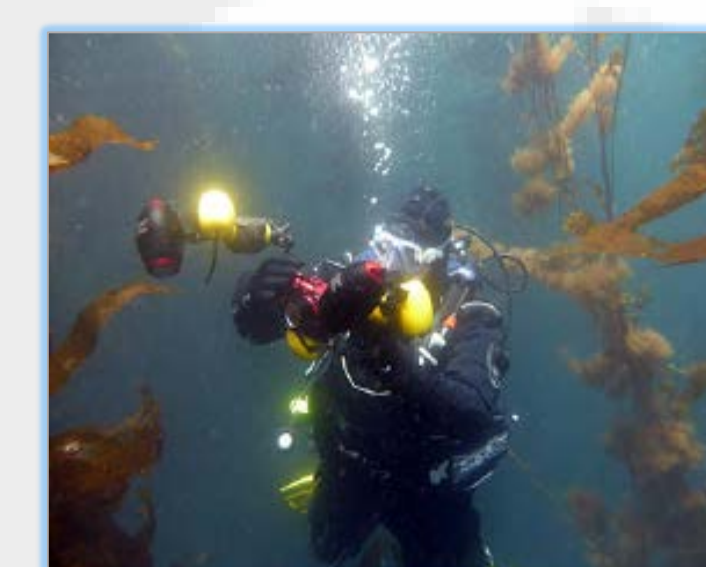
Temperature & salinity loggers



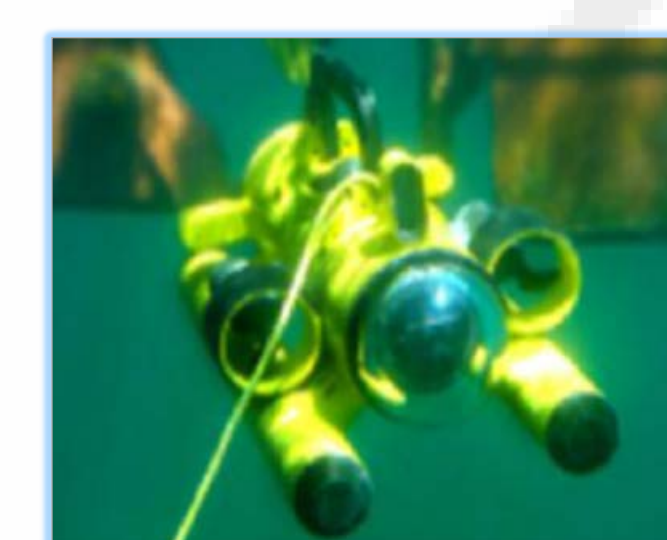
Settlement plots



Trawling



Scuba Diving



ROV



Experiments