PHYTOBS
FRENCH NATIONAL SERVICE OF OBSERVATION PROGRAM FOR PHYTOPLANKTON IN COASTAL WATERS

Maud Lemoine [1] and Pascal Claquin [2]

[1] IFREMER, rue de l'Ile d'Yeu BP 21105 44311 Nantes Cedex 03, maud.lemoine@ifremer.fr

[2] Laboratoire BOREA – UMR CNRS-8067, MNHN, IRD, Sorbonne Université, UA, UniCaen, BP49, 54, rue du Docteur Charcot – 14530 Luc-sur-Mer, pascal.claquin@unicaen.fr

Abstract

PHYTOBS is a French national network of microphytoplankton monitoring deployed along the French coast in many sites and supported by Ifremer, CNRS and Universities. PHYTOBS is part of the French national federative Research Infrastructure for coastal ocean and seashore observations ILICO.

Keywords: Observation infrastructure, Coastal observatory, phytoplankton, Environmental time series, FAIR data, ILICO

1. What? Phytobs within the French ILICO RI

The PHYTOBS network studies microphytoplankton diversity in the hydrological context along French coasts under anthropogenic pressures.

It provides the scientific community and stakeholders with validated and qualified data, in order to improve knowledge regarding biomass, abundance and composition of marine microphytoplankton in coastal and lagoon waters in their hydrological context. The PHYTOBS network plays also a key role for the scientific community networking allowing dissemination of knowledge and strengthening of skills. Workshops and scientific meetings are organized every year involving PHYTOBS partners.

It is part of the French national federative Research Infrastructure for coastal ocean and seashore observations ILICO (Cocquempot *et al.*, 2019) which allows interactions between PHYTOBS and other environmental monitoring networks.

2. Why?

The PHYTOBS network allows to analyse the responses of phytoplankton communities to environmental changes at various scales, to assess the quality of the coastal environment through indicators, to define ecological niches, to detect variations in bloom phenology, and to support any scientific question by providing data since 1987 for the longest dataset.

3. Where?

PHYTOBS monitors 25 sites in the Channel, in the Atlantic coast and in the Mediterranean. It relies on two original networks. The historical REPHY supported by Ifremer since 1984 (French Observation and Monitoring program for Phytoplankton and Hydrology in coastal waters – https://wwz.ifremer.fr/envlit/Surveillance-du-littoral/Phytoplancton-et-phycotoxines) and the SOMLIT supported by INSU-CNRS since 1995 (French Coastal Monitoring Network – http://www.somlit.fr/). The monitoring started in 1987 on some sites and later in others.

4. How?

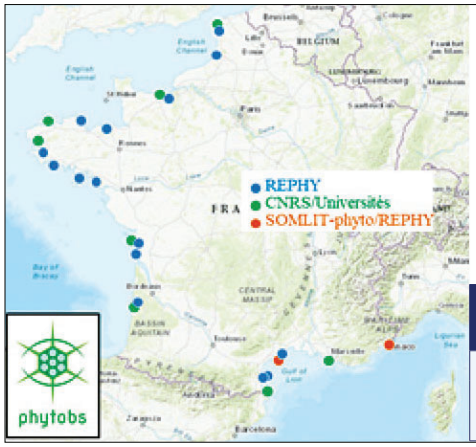
A common protocol is applied for sampling, analysis, identification and taxonomic classification. Physicochemical parameters associated to each sample, acquired by Ifremer or by the SOMLIT, are available on the database.

Work has been conducted to obtain taxonomic groups called 'taxon labellisé' corresponding to the best shared identification expertise within the community of analysts. This means that in a given group, all the analysts are able to identify to the given level (eg Genus), even if some analysts are able to go deeper (eg species).

5. Data

The PHYTOBS dataset includes long-term time series on marine microphytoplankton, since 1987, along the whole French metropolitan coast. Microphytoplankton data cover microscopic taxonomic identifications and counts. The whole dataset will soon be available online, it includes 25 sampling locations.

Results are stored in two databases: PELAGOS (supported by Abîms-Biological Station of Roscoff) and Quadrige (Ifremer) for results from Universities/CNRS sampling site and from Ifremer sampling sites respectively. An online platform is being developed (www.phytobs.fr – in progress) to access to all results with graphs for each labelled taxon and with downloadable files.



TAXON LABELLISÉ GROUP	RANG	TAXON	APHIAID RAW
Metaphalacroma + Phalacroma + Palaeophalachroma +	groupe GENUS	Metaphalacroma	231778
		Phalacroma	109466
		Palaeophalachroma	109512

Fig. 1. Organisation of the network: a) sampling site location; b) taxon grouped to the best shared expertise of the analysts community.

Acknowledgements

The authors gratefully acknowledge: (i) Ifremer and the Marine Universities/CNRS for supporting the network, (ii) ILICO for the financial support (iii) coastal laboratories of Ifremer (Boulogne, Port en Bessin, Dinard, Concarneau, Brest, Nantes, La Tremblade, Arcachon, Sète, Toulon), Université de Lille, ULCO, UMR LOG, Station Marine de Wimereux, Université de Caen Normandie, FRE BOREA, CREC – Station Marine, Sorbonne Université, Station Biologique de Roscoff, Université de Bretagne Occidentale, IUEM, UMR LEMAR, Rochelle Université, UMR LIENSs, Université de Bordeaux, UMR EPOC, Station Marine d'Arcachon, OASU, Université de Montpellier, UMR MARBEC, OSU OMERE, Sorbonne Université, Observatoire Océanologique de Banyuls, Aix Marseille Université, UMR MIO, Institut Pythéas, Sorbonne Université et CNRS, UMR 7093 LOV

References

Cocquempot L., Delacourt C., Paillet J., Riou P., Aucan J., Castelle B., Charria G., Claudet J., Conan P., Coppola L., Hocdé R., Planes S., Raimbault P., Savoye N., Testut L., Vuillemin R. (2019). Coastal Ocean and Nearshore Observation: A French Case Study. 6, 324. https://doi.org/10.3389/fmars.2019.00324