

A COASTAL OPERATIONAL OCEANOGRAPHY SYSTEM COUPLED TO THE GMES MARINE SERVICE

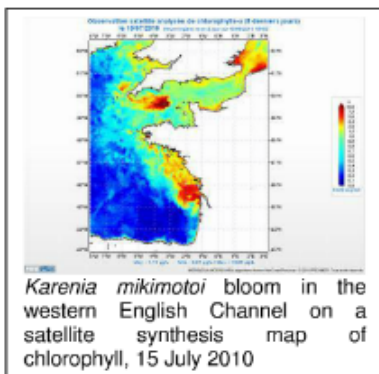
PREVIMER provides tailored ocean products and services for the French coastal zone

The challenge

Our coastal zones are subject to increasing anthropogenic pressure. Monitoring systems are required to protect them, to prevent or mitigate risks and to ensure sustainable management of their resources.

The GMES Marine Service provides a core European service (satellite observations, modelling) for monitoring and forecasting the state of the global ocean and European regional seas. In particular, the information provided by GMES is essential for monitoring and forecasting the coastal ocean.

PREVIMER provides coastal observations, analyses and 96 hour forecasts for the French coasts of the English Channel, Atlantic Ocean and Mediterranean Sea: currents, water levels, waves, temperature, salinity, turbidity, nutrients and plankton concentrations.



Karenia mikimotoi bloom in the western English Channel on a satellite synthesis map of chlorophyll, 15 July 2010

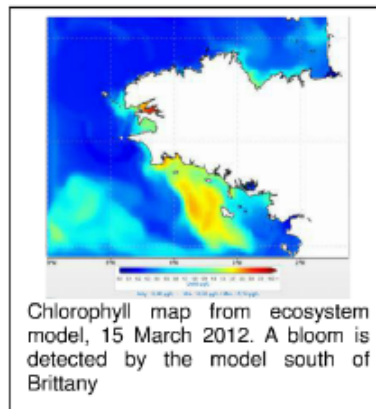
Benefits to citizens

PREVIMER services are used by French marine environment monitoring and maritime safety agencies to inform professionals (e.g. fish/shellfish farming industry), local authorities, consultants and scientists.

Many applications are targeted. Marine environment monitoring (Marine Strategy) provides alerts to users of cases of eutrophication (bottom oxygen deficiency, excess of biomass) or harmful algal bloom (e.g. amnesic shellfish poison produced by *Pseudo-Nitzschia* diatoms). It also provides online tracking in the marine ecosystem of the nitrogen loaded by a specific river, storm surge forecasts to prevent risk of

'A coastal monitoring system coupled to the GMES Marine Service is a major asset to reach a good environmental status.' P. Camus, Coordinator Marine Strategy implementation, Ifremer

coastal flooding, drift predictions and pollutant impacts, optimising and monitoring renewable marine energy sites.



The space-based solution

PREVIMER products and services include information based on and satellite observations and numerical simulations.

GMES satellite observations (ocean colour, sea surface temperature, sea level, waves) are key for PREVIMER. Every day, PREVIMER issues, for example, chlorophyll-a, mineral suspended matters and sea surface temperature maps derived from satellite observations.

Users can access real-time and archived data. These observations are also systematically used to validate numerical

models. For PREVIMER numerical models (physics and ecosystems), resolution varies from 2.5 km for regional models to a few hundred metres for coastal models. The regional models need boundary and initial conditions. PREVIMER is thus coupled to the GMES/MyOcean modelling and forecasting centres. This allows a seamless description of the ocean from the open sea to coastal zones.

Quarterly bulletins are also provided from in-situ and satellite observations and model simulations. These bring together information concerning the state of the coastal environment. Indicators such as the occurrence of harmful algal blooms (*Karenia mikimotoi*) or toxin risk (domoic acid), oxygen depletion probability or eutrophication alerts are provided. Annual reporting on the state of continental shelf seas prepares the monitoring network for the application of the European Marine Strategy Directive.

Outlook for the future

PREVIMER, coupled to the GMES Marine Service, will be an essential tool for the application of the European Marine Strategy Directive, and to achieve a good environmental status.

Acknowledgement:

PREVIMER is a partnership between several major French institutions and the Brittany region (www.previmer.org).

Lecomu, F., Dumas, F., Gohin, F., Le Traon, P.-Y., Ménesguen, A. and Pineau-Guillou, L. IFREMER, Technopôle Brest Iroise, BP 70, 29280 Plouzané, France. Fabrice.Lecomu@ifremer.fr