



European Marine Ecosystem Observatory (EMECO)

# EMECO Datatools: Regional scale information products for environmental policy needs

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Oceanology International, London 2010

EMECO

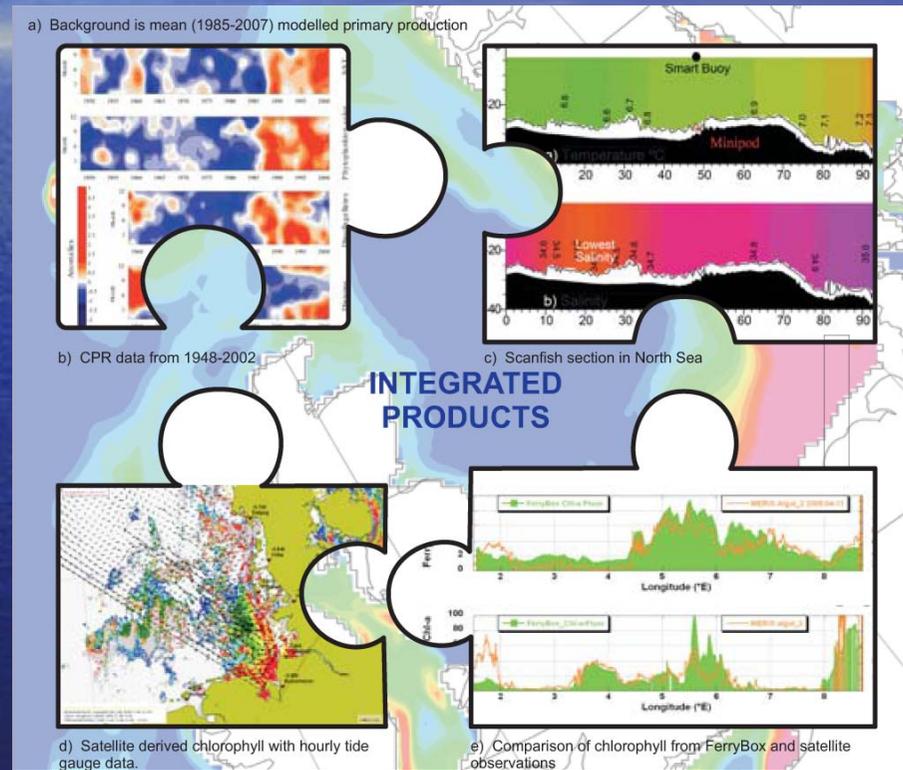
# What is EMECO?

EMECO is a an informal European network for integration of monitoring, modelling & research.



Builds on existing infrastructure to

- Improve knowledge
- Strengthen the evidence base for environmental assessments
- Increase uptake
- Highlight gaps



UK-Cefas, EA, NOC, SAHFOS; NL-Rijkswaterstaat, Deltares, NIOZ, Norway-IMR, NERSC, Met Off; DE-GKSS, BSH, BE – MUMM, F – IFREMER, Ire – Marine Institute, D – NIVA; S - SMHI



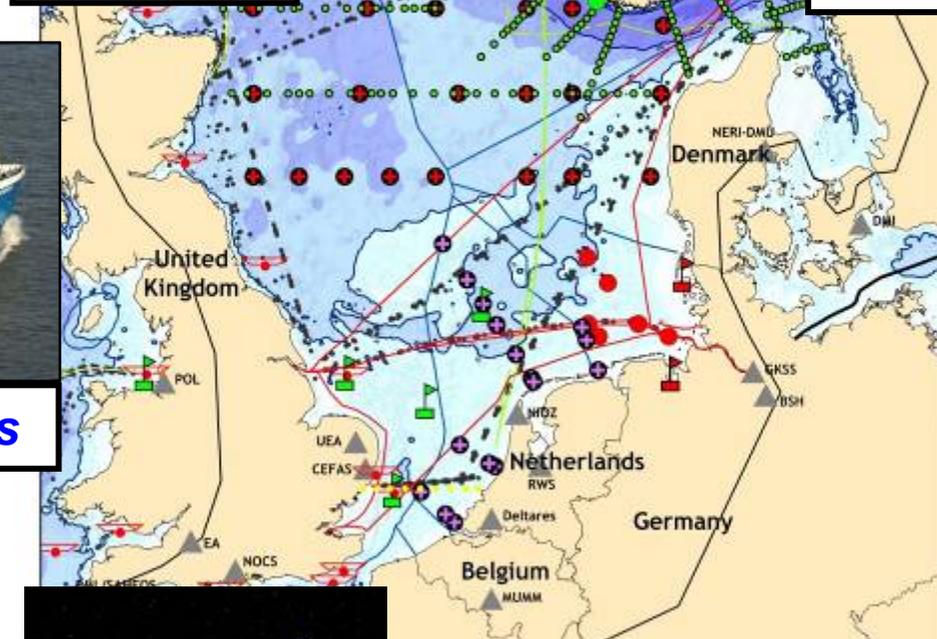
**Models**



**Ferries**



**Research vessels**



**Map Legend**

● P Stations (UK Ferry Route)	● BSH Stations	— UK FerryBox
● IMR Stations	▲ Cosyna Stations	● CPR
○ IMR Transects	▲ Cefas Wavenet	— 200m
▲ SmartBuoys	▲ Partners	— 40m
● RWS Stations	— German FerryBox	— Territorial Limits
● Marnet Stations	— Norwegian FerryBox	



**Gliders**



**Towed bodies**



**Satellites**



**Buoys**

# The Challenges

- Existing challenges
  - Improving evidence base for environmental assessments that can be challenged in court
- Future requirement
  - Marine Strategy Framework Directive
  - Need to define “good environmental status” (GES)
  - Integrated assessments (physics to fish)
  - International cooperation – building mutual trust

1. Biodiversity
2. Introduced species
3. Fisheries
4. Food webs
- 5. Eutrophication !**
6. Benthic communities
7. Hydrographical conditions
8. Contaminants
9. Human food fish
10. Marine litter
11. Introduced energy

*“The marine environment is a precious heritage that must be protected, restored and treated as such with the ultimate aim of providing biologically diverse and dynamic oceans and seas that are safe, clean, healthy and productive.”*



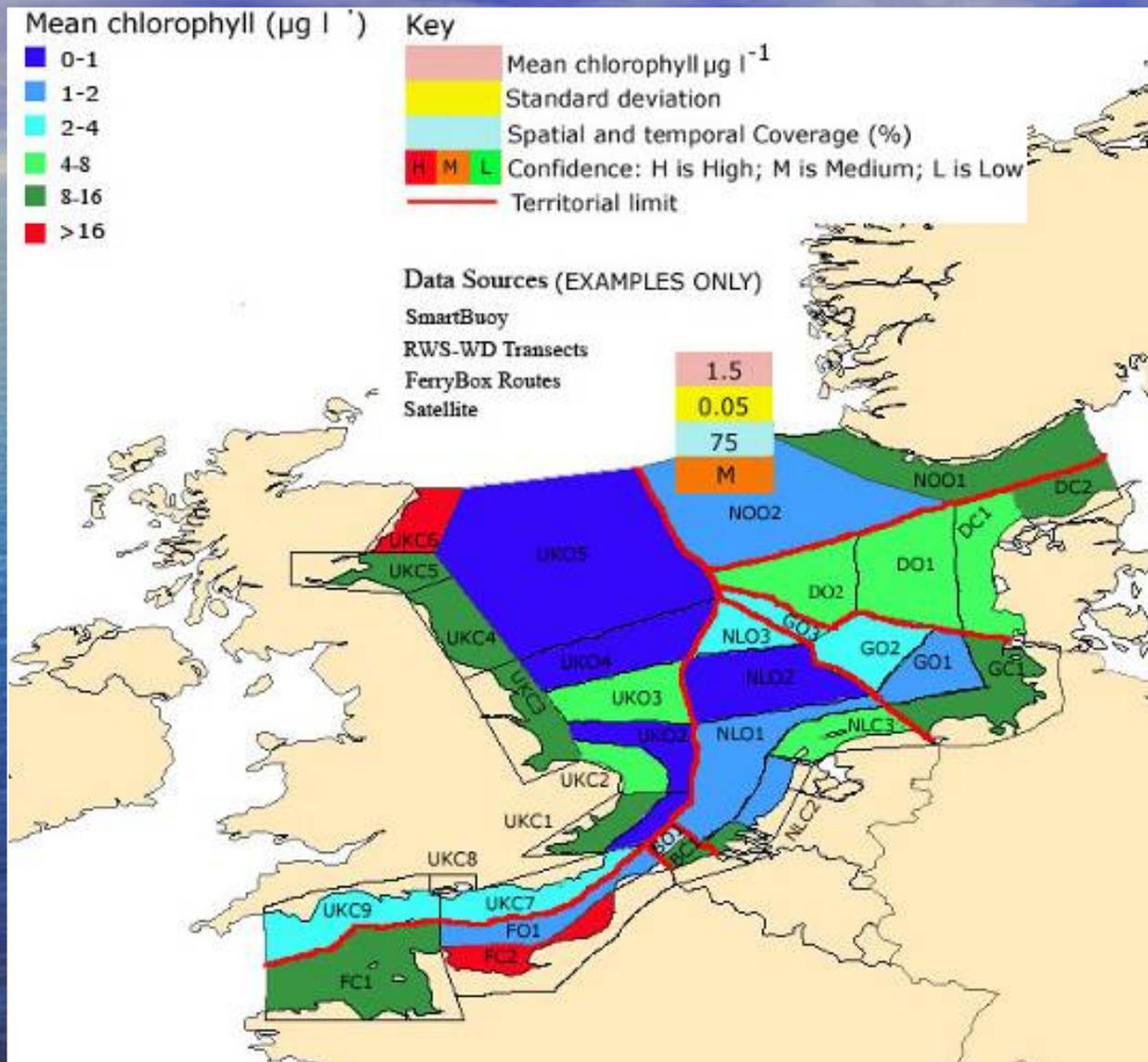
# The Brief

“Develop a datatool that provides rapid integration and visualisation of multi-platform, multi-parameter and multi-national data to create policy relevant information products in an auditable and transparent manner, using an international map of chlorophyll of the OSPAR defined greater North Sea as an example”

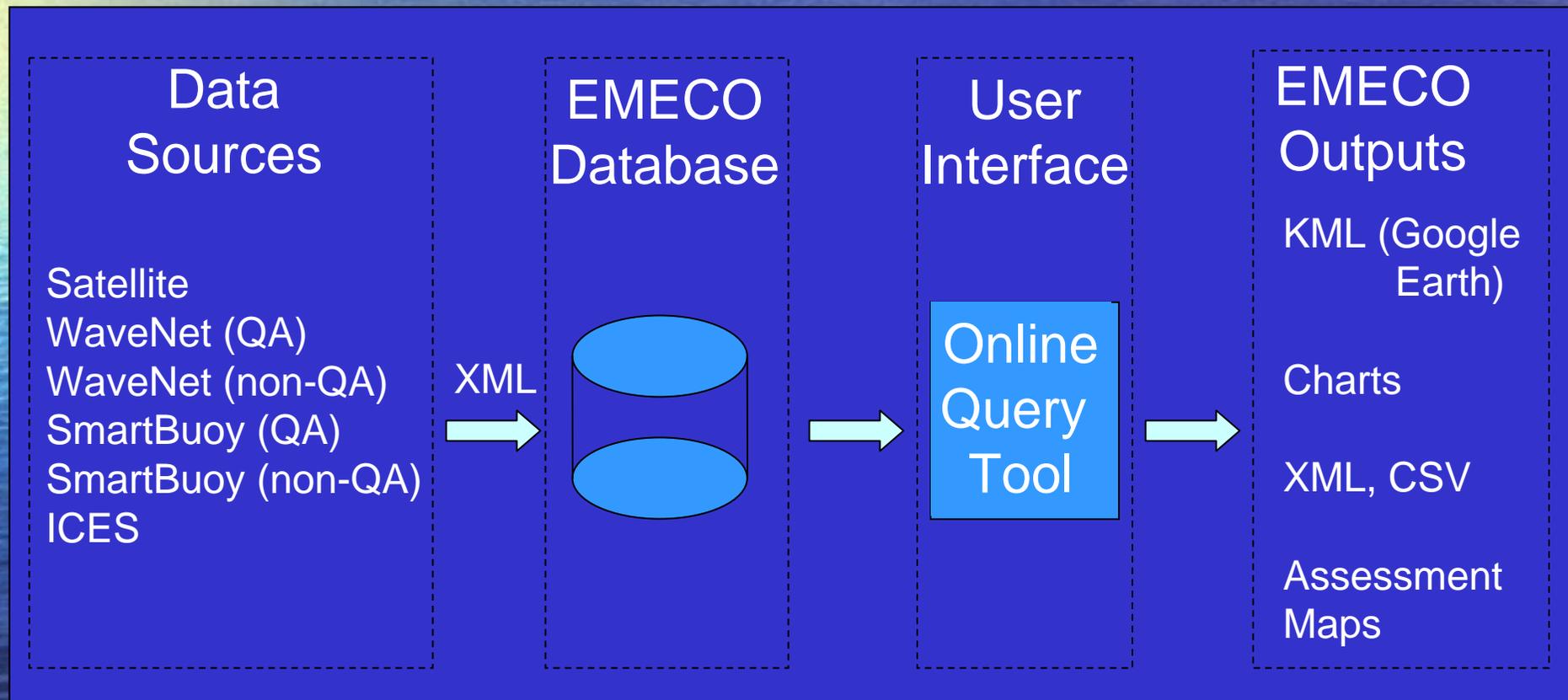
# The Requirements

1. Speed up the environmental assessment process in a robust manner
2. Be transparent about its data sources and the treatment of its data
3. Display average chlorophyll concentration for the North Sea from a variety of sources
4. Display a measurement of overall confidence
5. Have the flexibility to cope with changes in future assessment processes, and be useful for other policy and non-policy users.
6. Be agreed by the international EMECO partners and stakeholders.

# The "Mock-Up"



# The Tools



# The Query Tool

European Marine Ecosystem Observatory

Home User Guide Username: Password: Login

### EMECO Datatool version 0.3

From date: 1 Jan 2000 To date: 24 Feb 2010 Data Output Type: Chart Average: Average by Month

Regions: CP2 OSPAR

Parameters: Ammonia (ug/l) Average (zero crossing) wave period (s) Chlorophyll-a (ug/l) Dominant peak wave direction (degrees) dominant peak wave period (s) Hills Species Diversity Margalef Species Richness Number of Individuals Number of species Oxygen Concentration (mg/l) Oxygen Saturation (ml/l) salinity Shannon Species Diversity Significant wave height (m) Temperature (° C) Research Vessel Smartbuoy QA Satellite Wavenet QA Smartbuoy Non QA Wavenet Non QA TOxN (umol/l) Wave spread (degrees)

Platform Selector

Date Selector

Output Selector

Average Selector

Region Selector

Parameter Selector

Line Chart

Temperature (° C)

Date

Chart Type: Line Chart

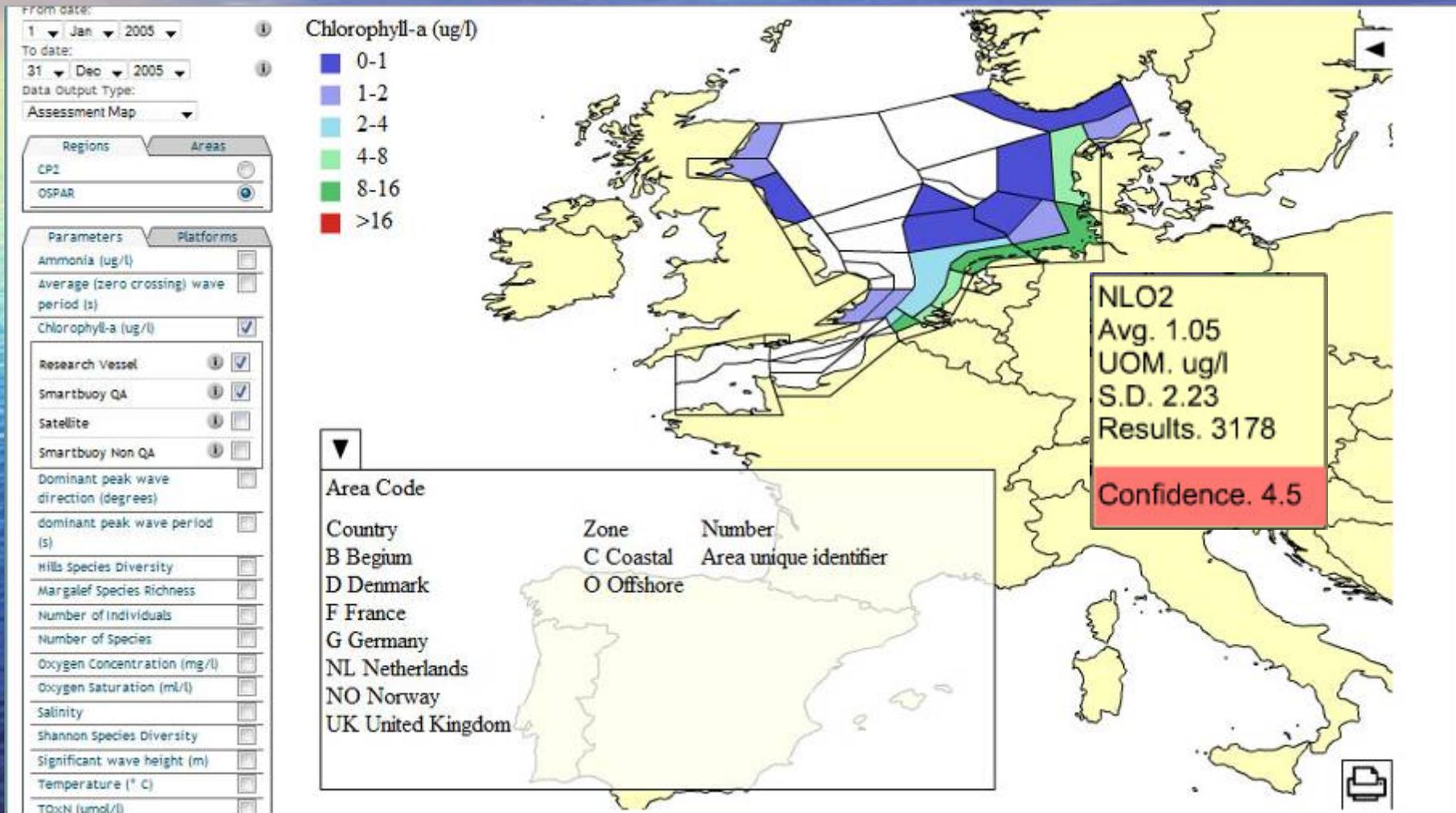
- Research\_Vessel
- Smartbuoy\_QA
- Smartbuoy\_Non\_QA
- Wavenet\_QA
- Wavenet\_Non\_QA
- Satellite

Create JPG image

Satellite Value: 16.84 Date: 2009-08 Num of Results: 6348 Standard Deviation: 1.20

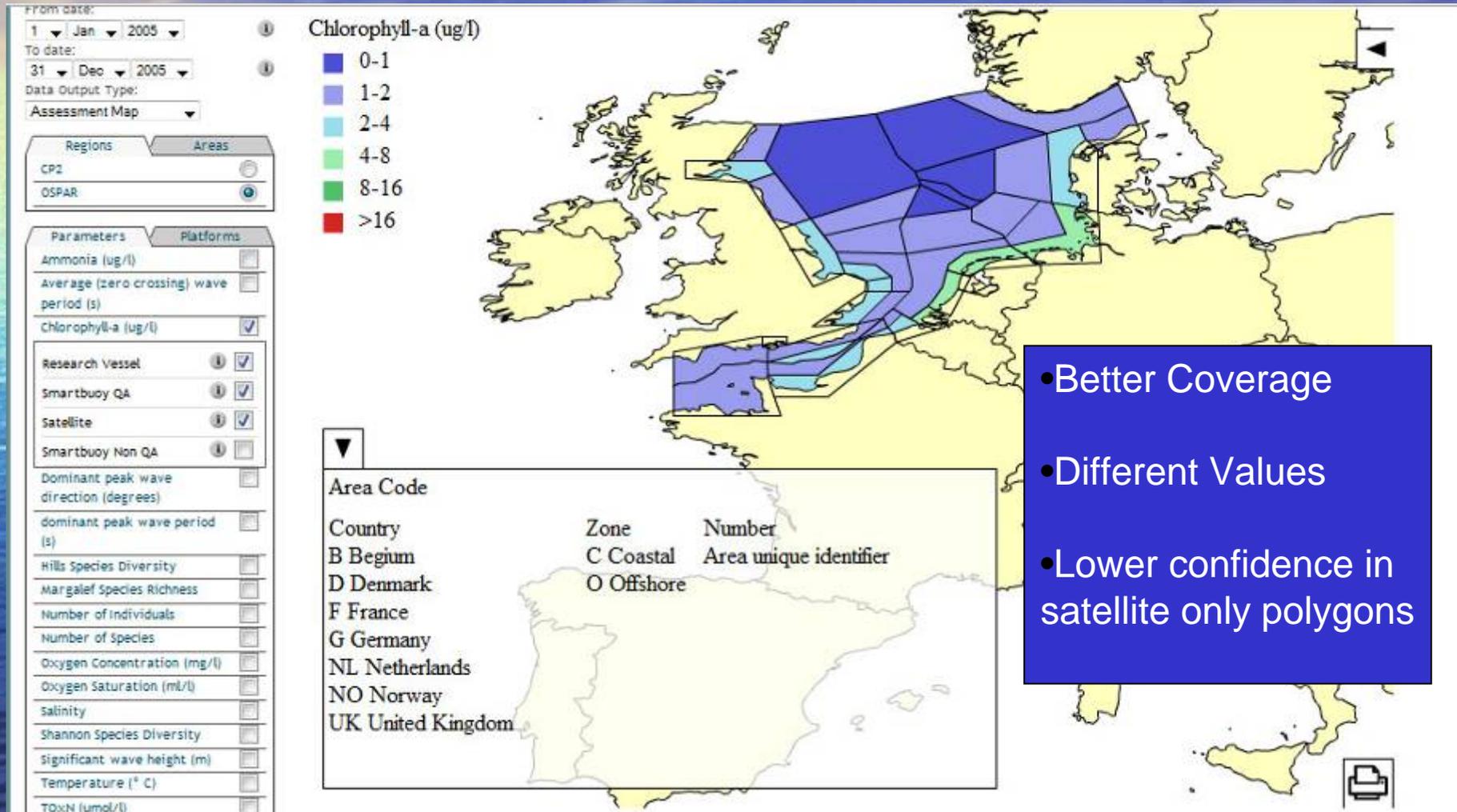
# The Outputs

## Chlorophyll 2005 Traditional Monitoring



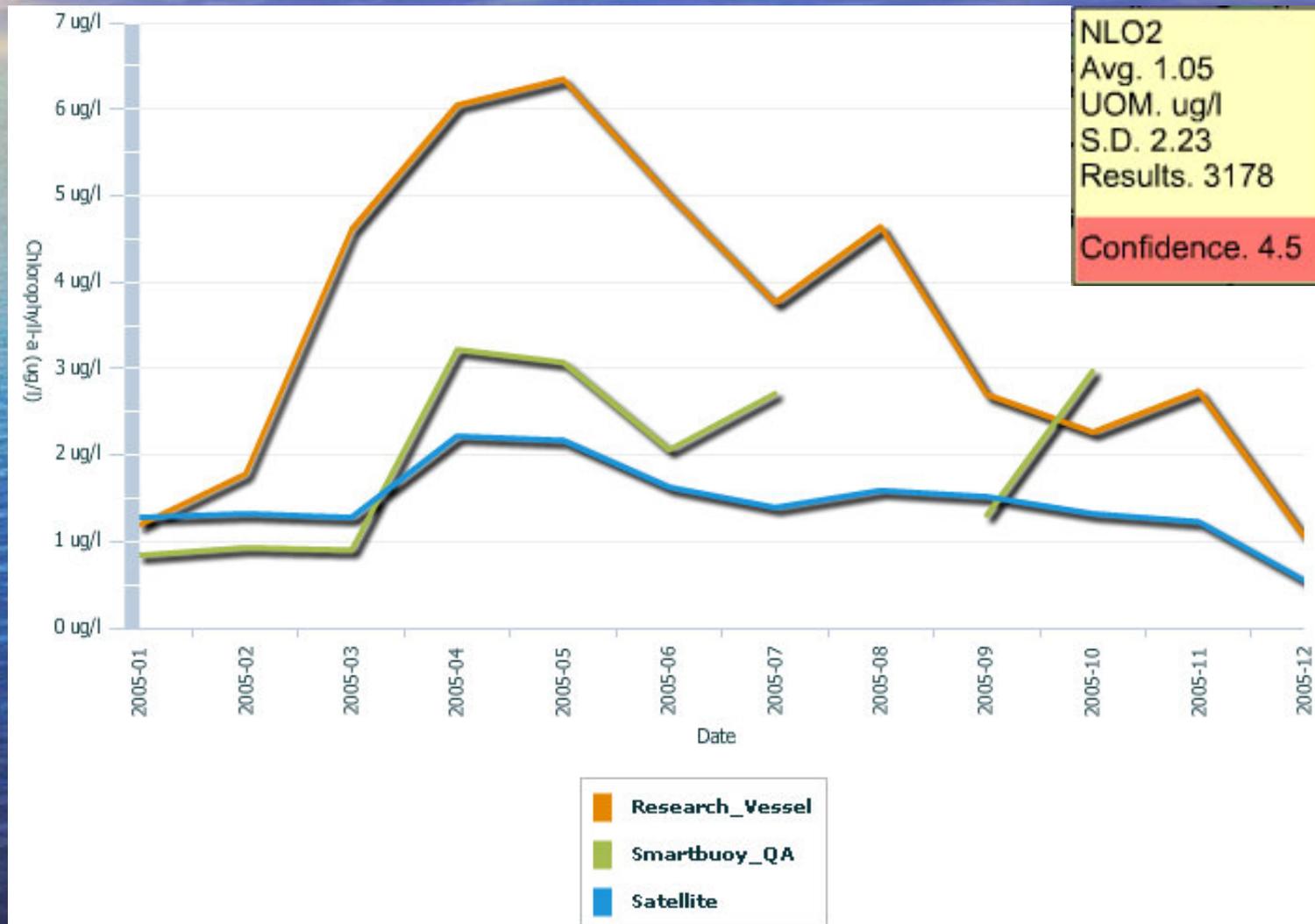
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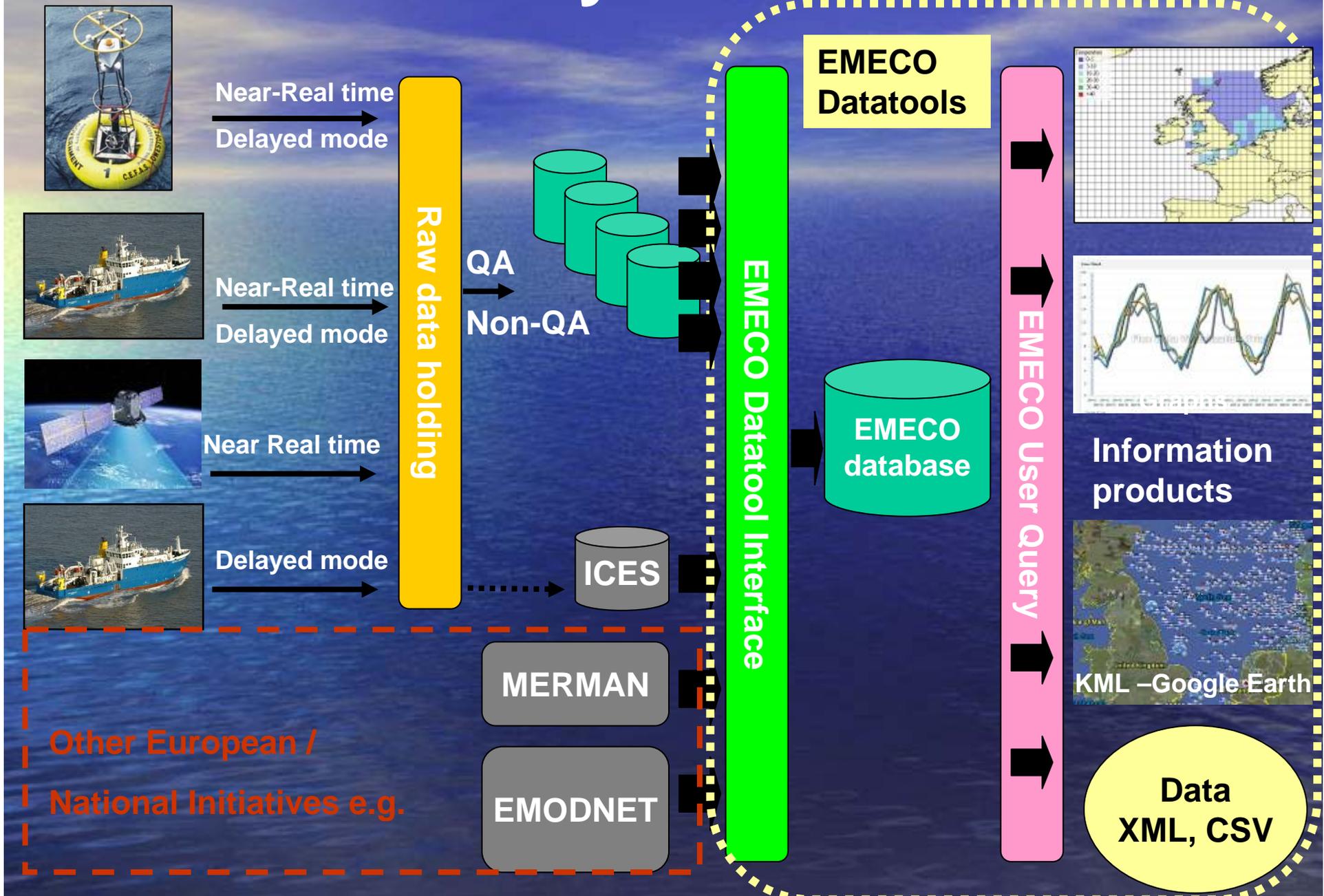


# The Outputs

## Chlorophyll 2005 Traditional Monitoring



# An end to end system



# What's Next?

- Datatool going live in March 2010
- Now also have CP2 polygons and a 100km<sup>2</sup> grid
- Currently importing model, benthic, fisheries and pressure data into the tool
- Extending the geographic domain to the tools to the Celtic seas
- On the live application some of the data will be near real-time
- Further development of the tools interface and functionality
- Provides the building blocks for meeting existing and future challenges set by National and European Directives.

# Thanks

The screenshot shows the EMECO website homepage. At the top, the logo "EMECO" is displayed in large white letters, with "European Marine Ecosystem Observatory" written below it. The contact email "info@emecogroup.org" is in the top right. A navigation bar includes links for Home, Overview, Ocean Threats, Ocean Health, About, and Contact. A search box is also present. The main content area is divided into three columns. The left column has "Information for:" (Policy Makers, Researchers, Partners, General Public) and "Quick Links:" (Products and Projects, Monitoring Platforms, Modelling Tools). The middle column features a "Welcome to EMECO" section with a blue wave graphic, followed by "Products and Projects" including "Oyster Grounds Tour", "Watch the 2008 Spring Bloom", "GKSS ICON", and "Oyster Grounds SmartBuoy". The right column contains "News & Events" with articles like "Storm over planned ocean fertilization experiment" and "Scientists aim to dispel great white myths", and "Satellite Images" showing North Sea Chlorophyll maps for July and June 2008. The Windows taskbar at the bottom shows several open applications including Thunderbird, Connection Center, Microsoft Office, and EMECO website windows.

www.emecogroup.org