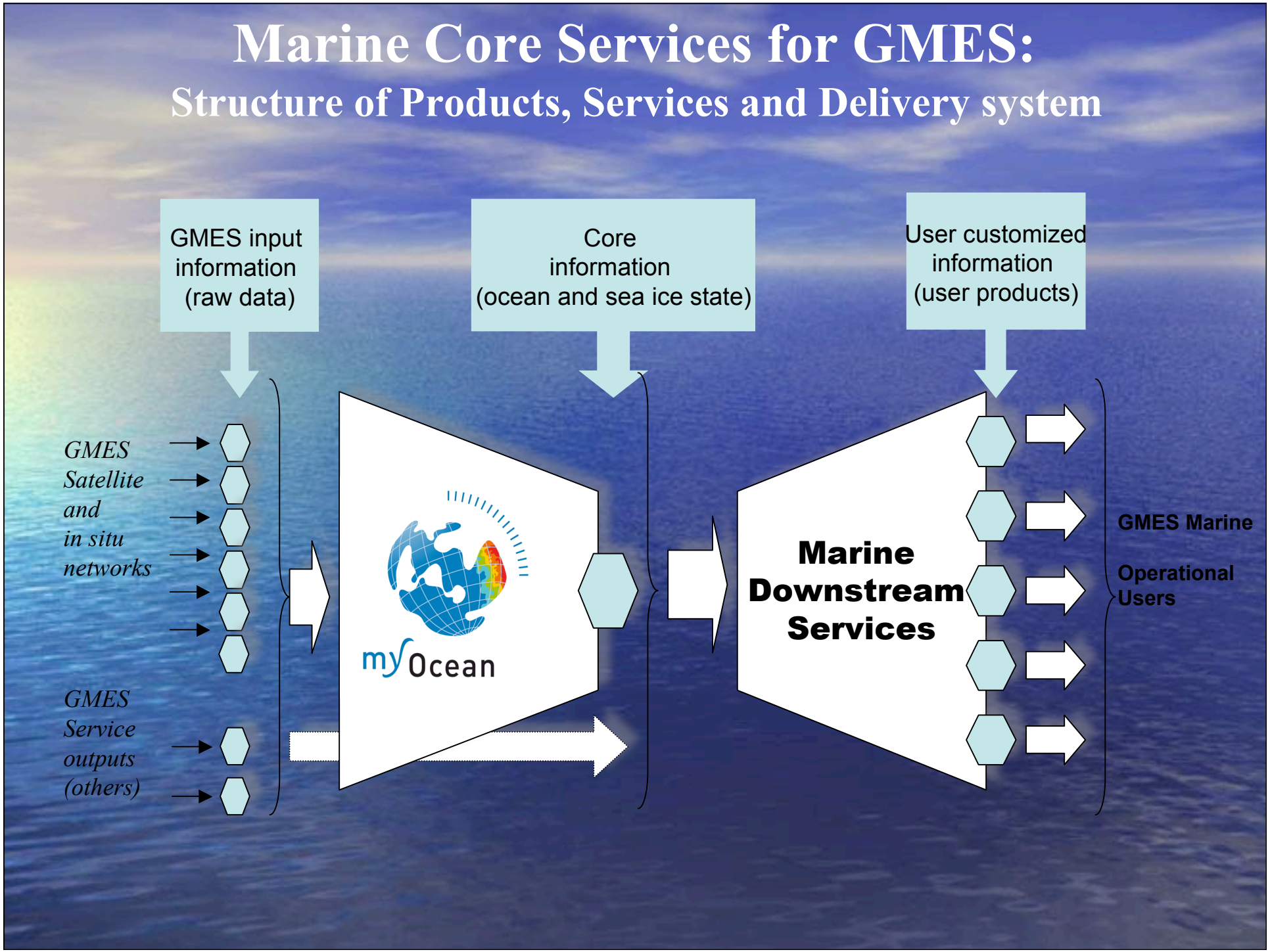
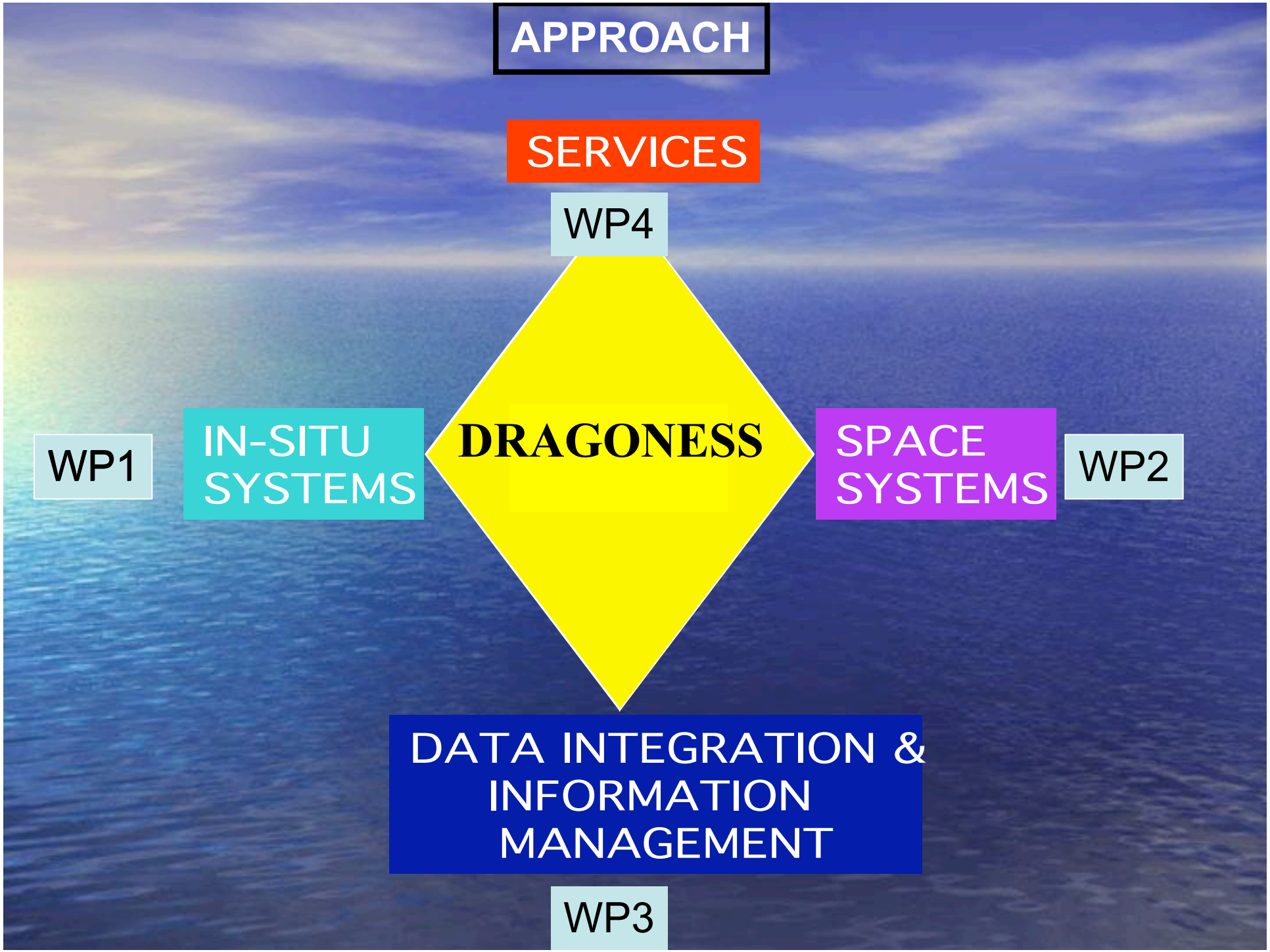
DRAGON in support of harmonizing European and Chinese marine monitoring for Environment and Security System

DRAGONESS

WP 1-Review and Utilization of in-situ observing system

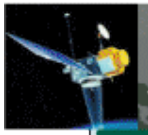

Marine Core Services for GMES:
Structure of Products, Services and Delivery system
GMES input information (raw data)
Core information (ocean and sea ice state)
User customized information (user products)
GMES Satellite and in situ networks
GMES Service outputs (others)
myOcean
Marine Downstream Services
GMES Marine
Operational Users


APPROACH
SERVICES
WP4
WP1
IN-SITU SYSTEMS
DRAGONESS
SPACE SYSTEMS
WP2
DATA INTEGRATION & INFORMATION MANAGEMENT
WP3

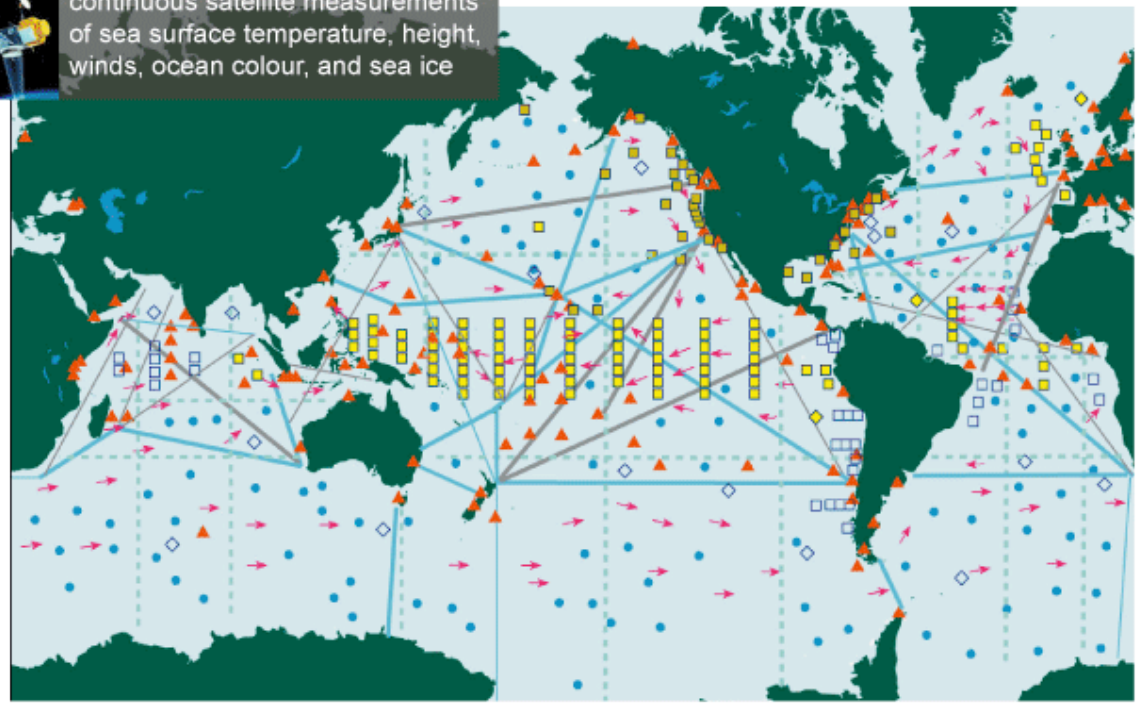
Initial Global Ocean Observing System for Climate

Status against the GCOS Implementation Plan and JCOMM targets

Total ***in situ networks*** **57%** January 2007



continuous satellite measurements of sea surface temperature, height, winds, ocean colour, and sea ice



57% **Surface measurements** from volunteer ships (VOSclim)

200 ships in pilot project

100% Global **drifting surface buoy** array

5° resolution array: 1250 floats

42% **Tide gauge** network (GCOS subset of GLOSS core network)

170 real-time reporting gauges

81% **XBT** sub-surface temperature section network

51 lines occupied

81% Argo **profiling float** network

3° resolution array: 3000 floats

43% Repeat **hydrography** and **carbon inventory**

Full ocean survey in 10 years

Reference time series 21%

58 sites

48% Global **reference mooring** network

29 moorings planned

66% Global tropical **moored buoy** network

119 moorings planned

GCOS

GOOS

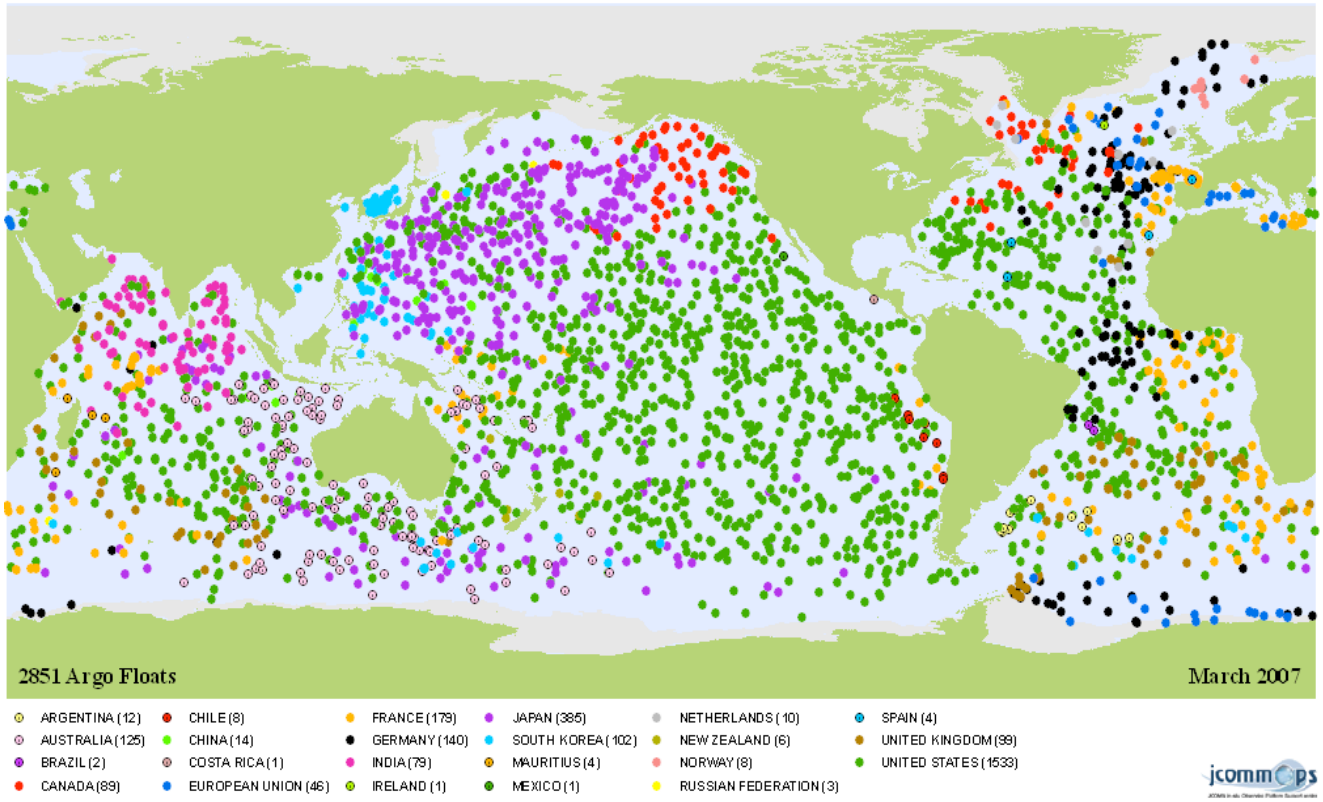
jcomm OCEANOGRAPHY & MARINE METEOROLOGY

- A total of 5635 platforms are maintained globally.

ARGO

part of the integrated global observation strategy

The pre-GODAE in-situ ocean observing system was clearly inadequate for the global scope of GODAE => Argo : a joint GODAE/CLIVAR pilot project.



Outstanding progress thanks to international cooperation.

A global array (3000 floats) is now in place

An efficient data management system is in place.

Main issue is long term sustainability

http://argo.jcommops.org

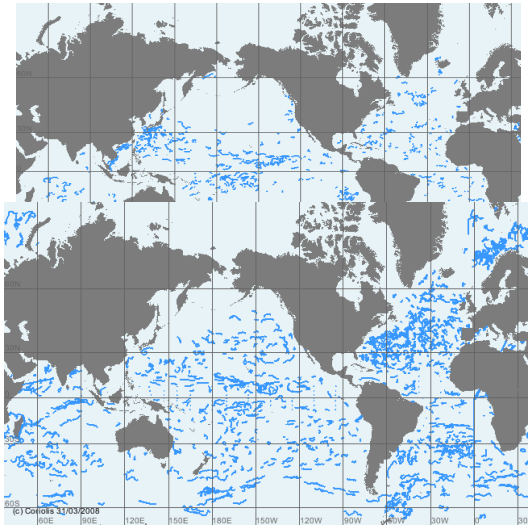
In-situ data integration and transmission to models * by 3

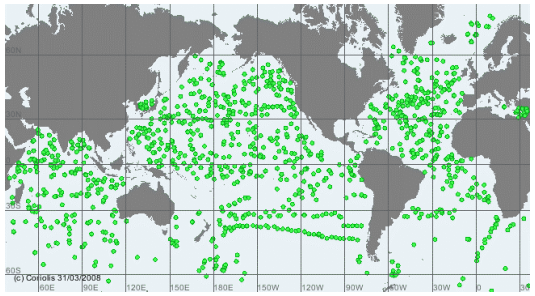
Drifters (DBCP)

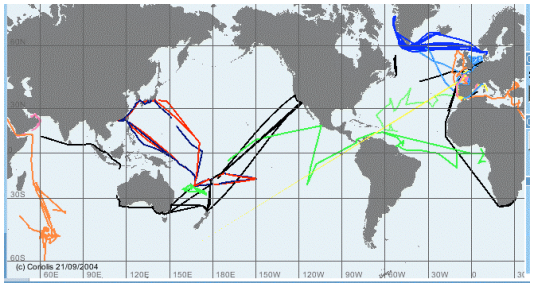
Floats(Argo)

Vessels(Gosud)

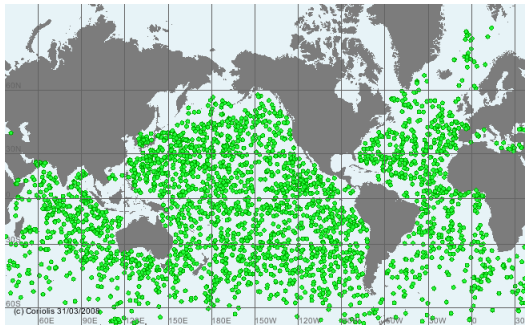
March 2004

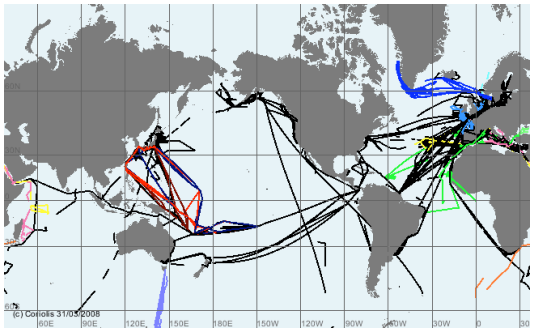






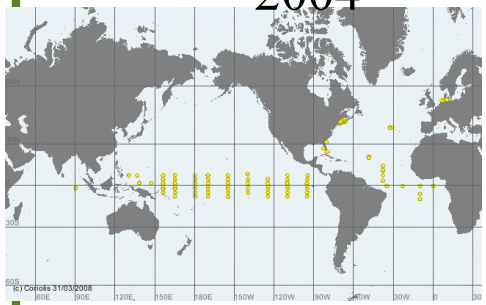
April 2008



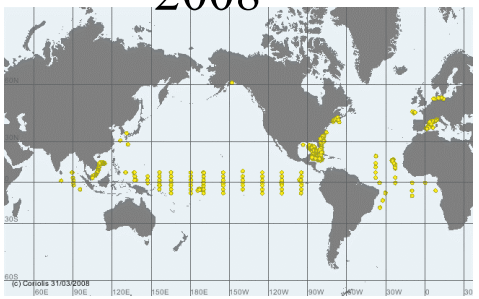


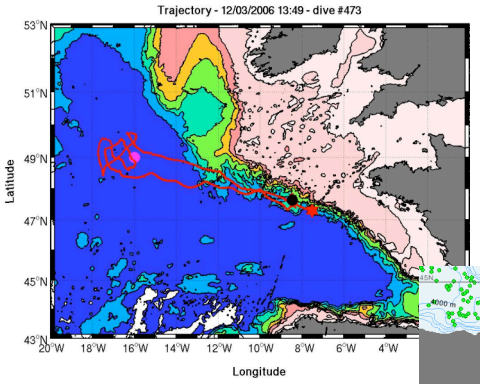
Moorings(OceanSITES)

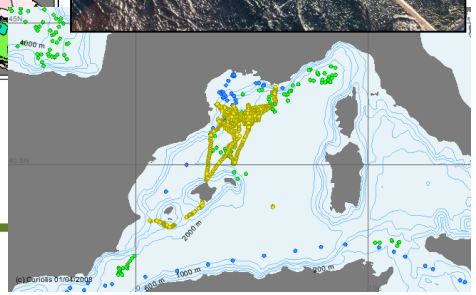
2004



2008

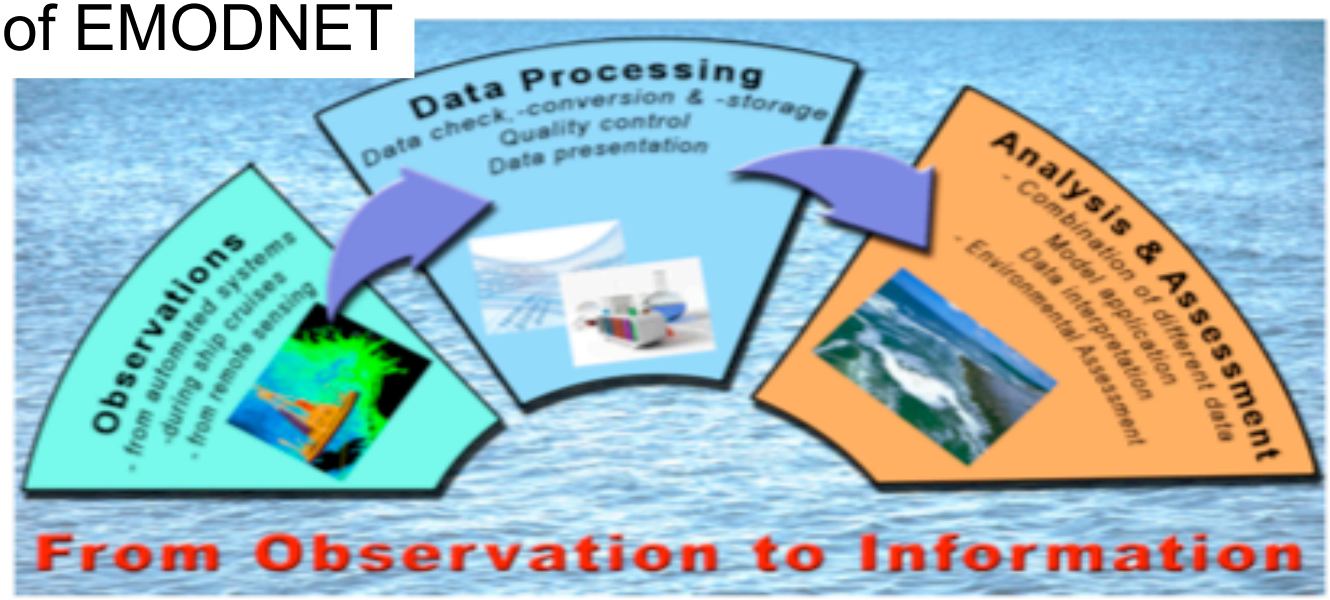






Gliders (EGO)

Courtesy of EMODNET

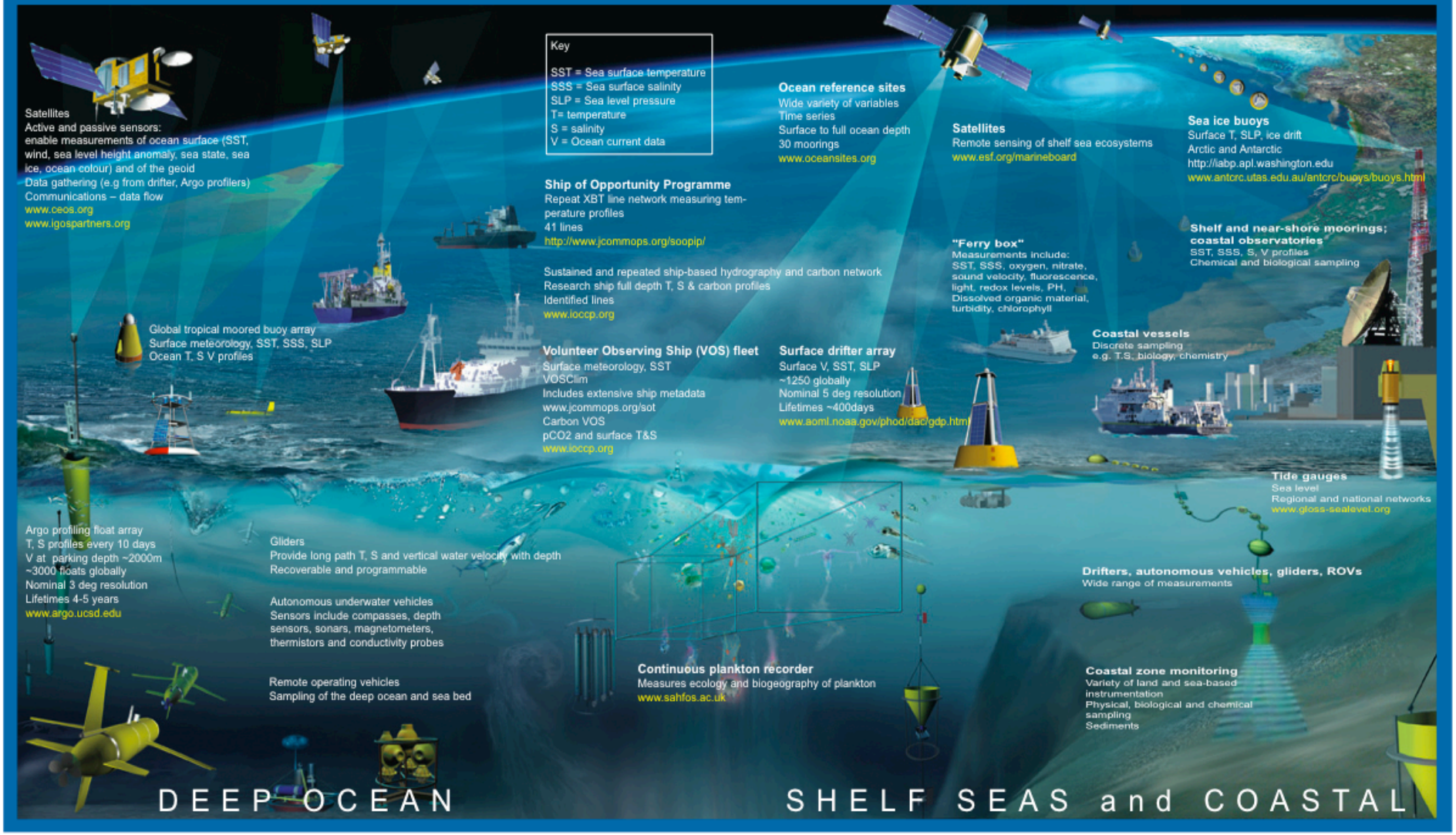


Main tasks in **EMODNET** will be to (i) build on and integrate the combined in situ and remote sensing and open ocean, shelf seas and coastal observation systems; (ii) harmonise currently different methodologies and strategies for data management under common protocols, data formats and quality control and (iii) ensure that data can be consistently distributed for user applications including regional data interpretation, environmental assessments and modelling.

Essential Components of an Observation Network

Ocean observing systems

Courtesy of EMODNET

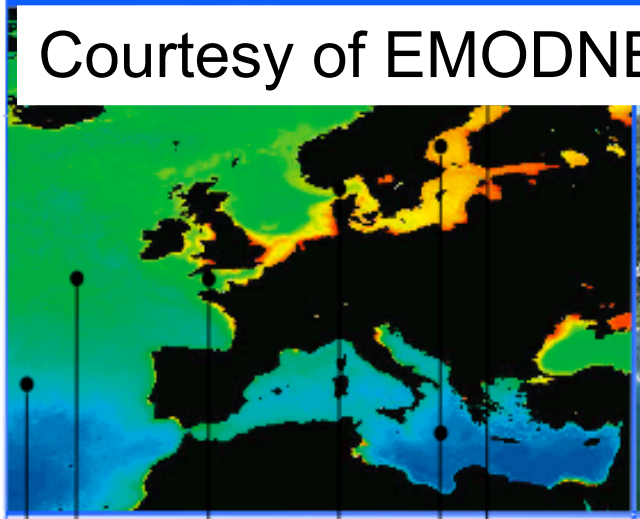


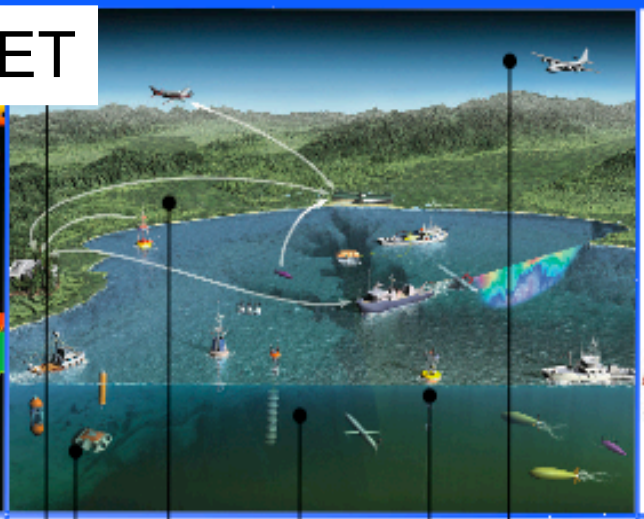
"A comprehensive system of ocean observations covering coastal and regional seas and the wider global ocean lies at the core of EMODN. This requires investment in proven technologies enabling the gathering of data from a variety of in-situ and remote sensing platforms. Examples of some in situ platforms and their measurements are shown above. Remote sensing data may come from satellites and, especially in the coastal zone, aircraft and ground based stations.

For EDMONET to be successful efforts must be made to both maintain and build the present network of observing systems and to ensure continuity in remote sensing satellite missions. Strong investment in new and emerging technologies is ased data transmission into the pool of observing tools. This tendency is particularly visible with respect to the growing number of autonomous gliders and profiling floats, as well as in the more effective use of routine remotely sensed data"

Ocean Observating Systems

Courtesy of EMODNET





Channels & Coasts
Transport
Regulation
Models

Polar Seas
Climate
Climate models

Ocean Margins
Transport heat
Climate regulation
Climate models

Deep Ocean
Transport heat
Climate regulation
Climate models

Deep Ocean
Transport heat
Climate regulation
Climate models

Shelf Seas
Fisheries
Transporting pollution

Ships
Sensors
Mapping
Sampling
Flexibility

Aircraft
+VE

Autonomous Vehicles
+VE

Floats
+VE

Bouys
+VE

Satellites
Temperature
Chlorphyll
Waves

Fundamental understanding

Health & Well Being

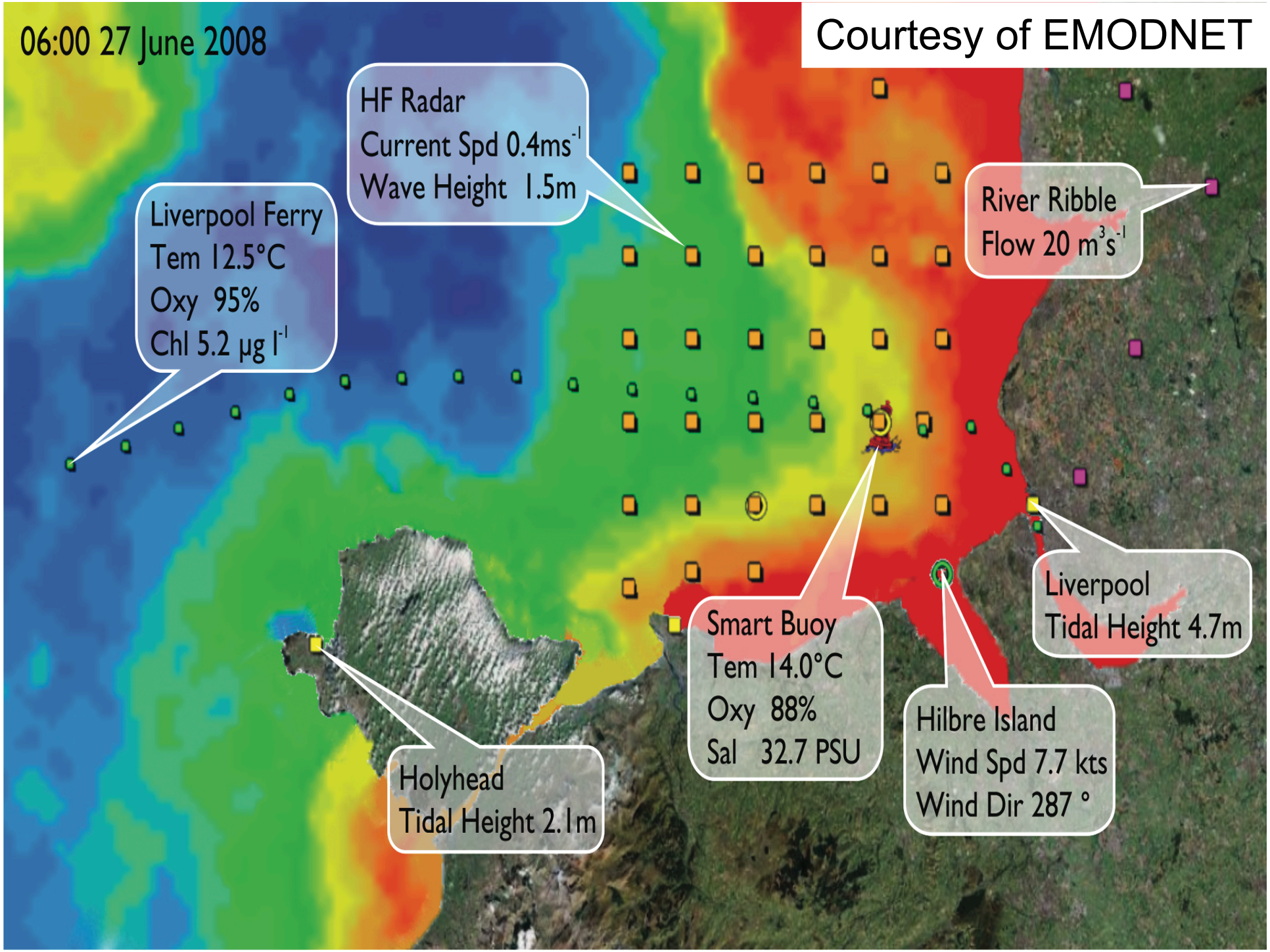
Safety & Security

Regulatory

Forcasting

Policy

Sustainable Management


06:00 27 June 2008
Courtesy of EMODNET
HF Radar
Current Spd 0.4ms-1
Wave Height 1.5m
Liverpool Ferry
Tem 12.5°C
Oxy 95%
Chl 5.2 µg l-1
River Ribble
Flow 20 m3s-1
Smart Buoy
Tem 14.0°C
Oxy 88%
Sal 32.7 PSU
Liverpool
Tidal Height 4.7m
Hilbre Island
Wind Spd 7.7 kts
Wind Dir 287 °
Holyhead
Tidal Height 2.1m