

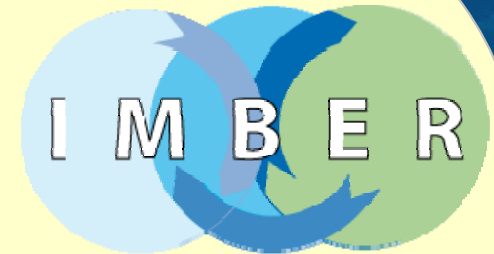
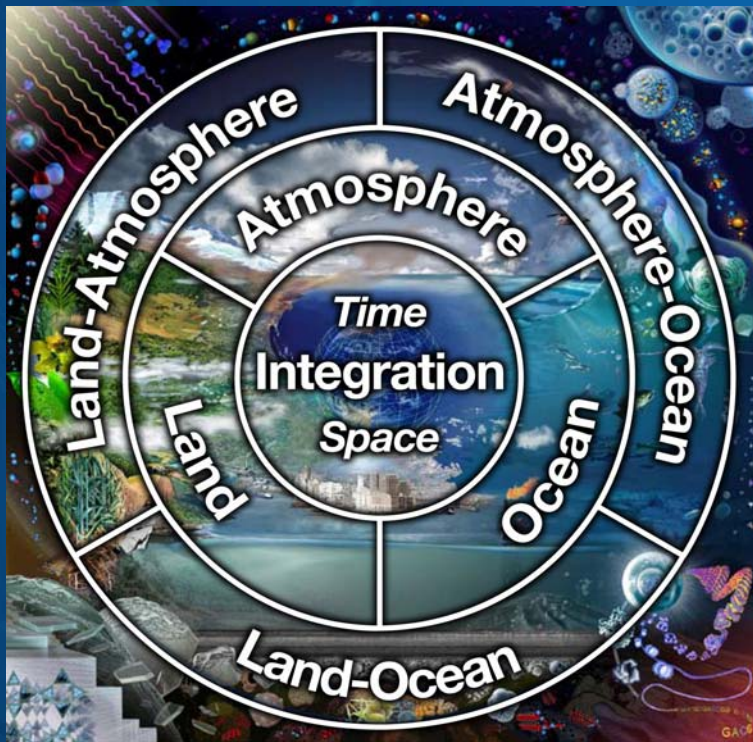


Integrated **M**arine **B**iogeochemistry and **E**cosystem **R**esearch



2004 - 2014

IGBP Ocean Projects



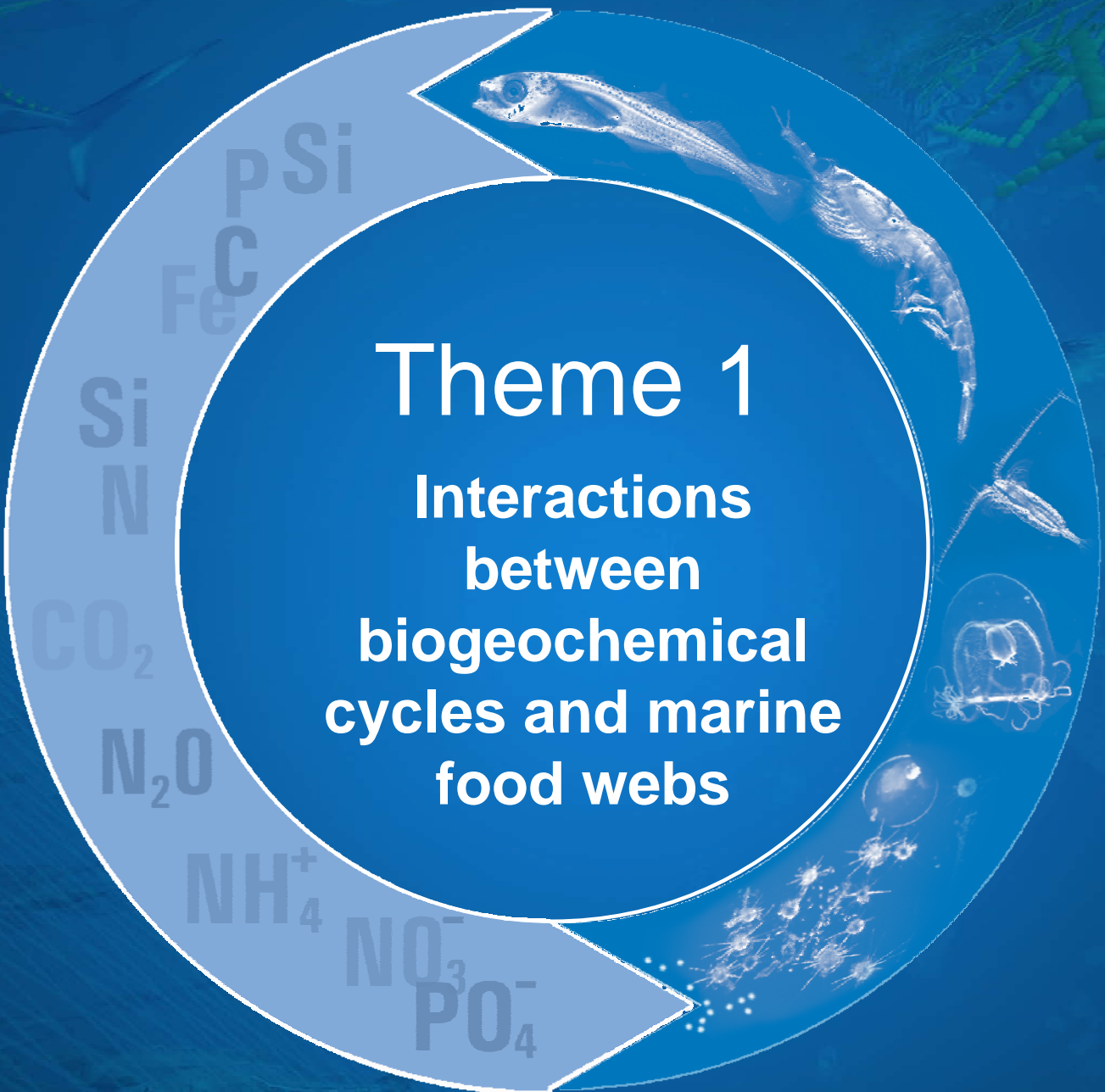
Content

- IMBER Science
- IMBER Structure
- IMBER/SOLAS Carbon Working Group
- National activities (focusing on France)



Overall scientific objective

“to investigate the sensitivity of marine biogeochemical cycles and ecosystems to global change, on time scales ranging from years to decades”

The diagram consists of a central white circle containing text, surrounded by a larger blue ring. The ring contains various chemical formulas and images of marine organisms. The chemical formulas are: PSi , Fe , Si , N , CO_2 , N_2O , NH_4^+ , NO_3^- , and PO_4^- . The organisms include a large fish, a shrimp, a jellyfish, and various plankton and coral-like structures.

Theme 1
Interactions
between
biogeochemical
cycles and marine
food webs

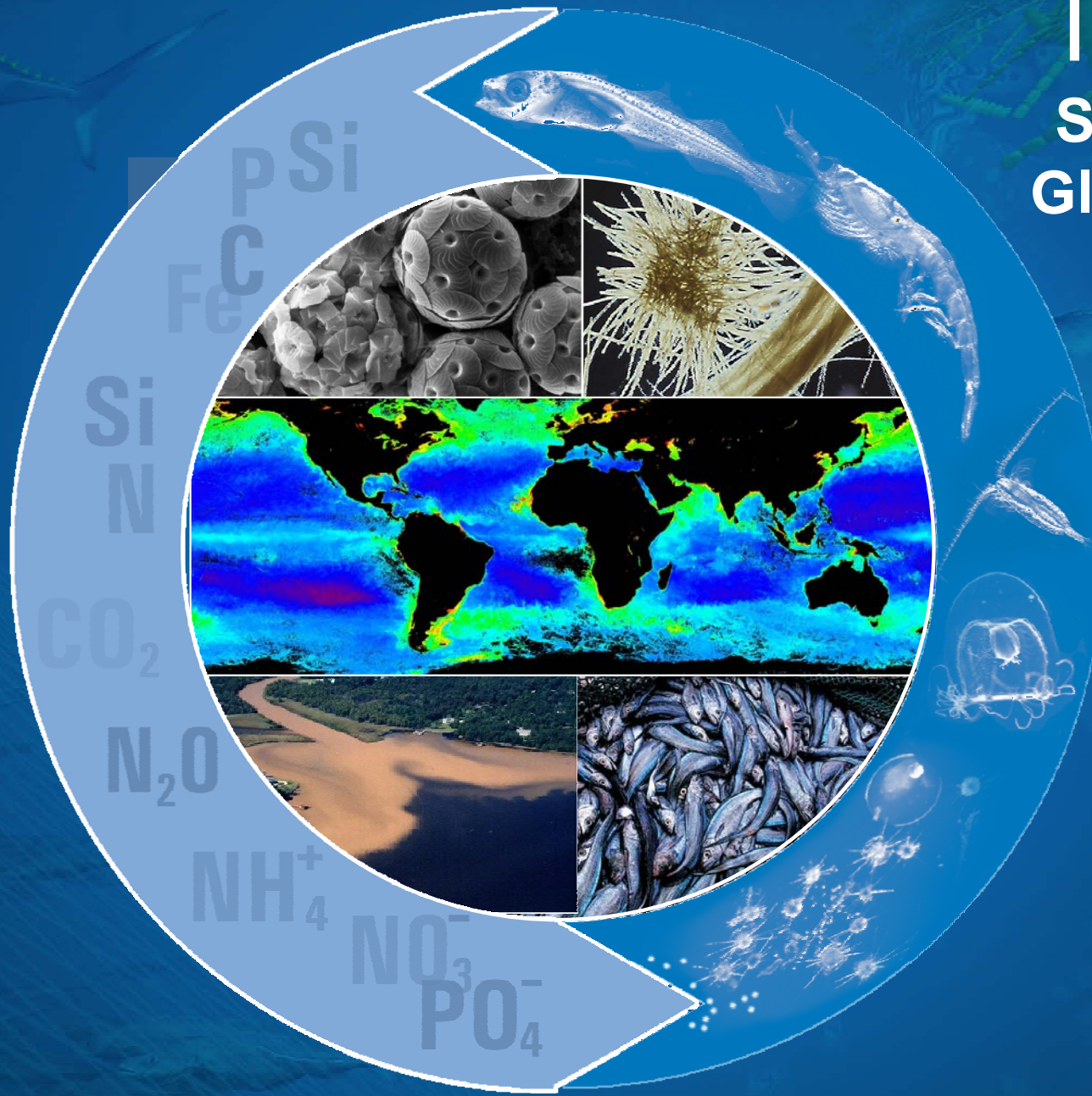
What are the key marine biogeochemical cycles and related ecosystem processes that will be impacted by global change?

Theme 1 - Interactions between biogeochemical cycles and marine food webs.

- 1- Transformation of organic matter in marine food webs
- 2- Transfers of matter across ocean interfaces
- 3- End-to-end food webs and material flows
(IMBER/GLOBEC collaboration)

Theme 2

Sensitivity to Global Change



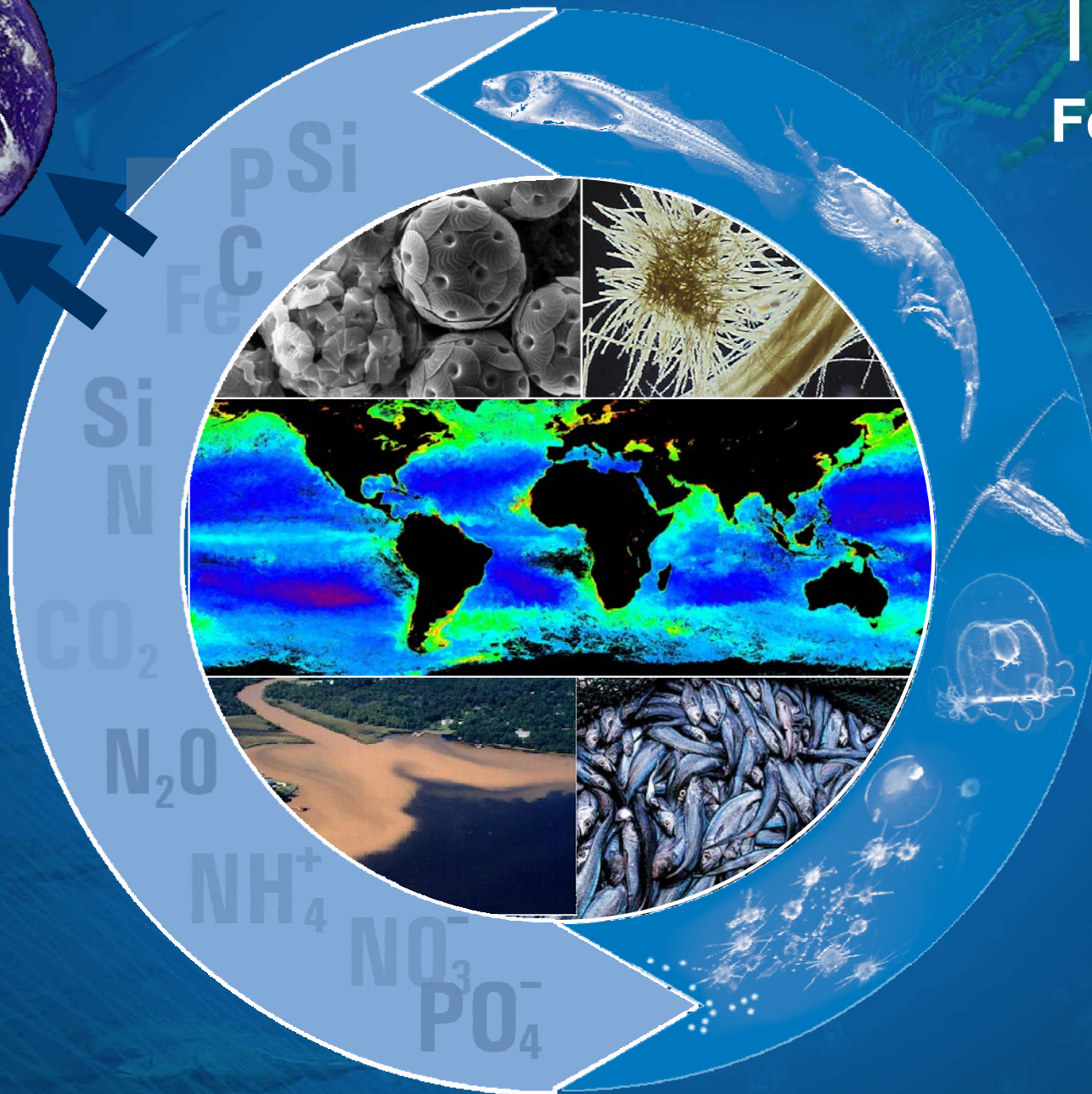
What are the **responses** of key marine biogeochemical cycles, ecosystems and their interactions, to global change?

Theme 2 - Sensitivity to Global Change

1. Impacts of climate-induced changes through physical forcing and variability
2. Effects of increasing anthropogenic CO₂ and changing pH on marine biogeochemical cycles, ecosystems and their interactions (IMBER/SOLAS: Joint Implementation plan)
3. Effects of changing supplies of macro- and micronutrients
4. Impacts of harvesting of marine resources on end-to-end food webs and biogeochemical cycles (IMBER/GLOBEC)

Theme 3

Feedbacks to the Earth System



What are the roles of ocean biogeochemistry and ecosystems in regulating climate?

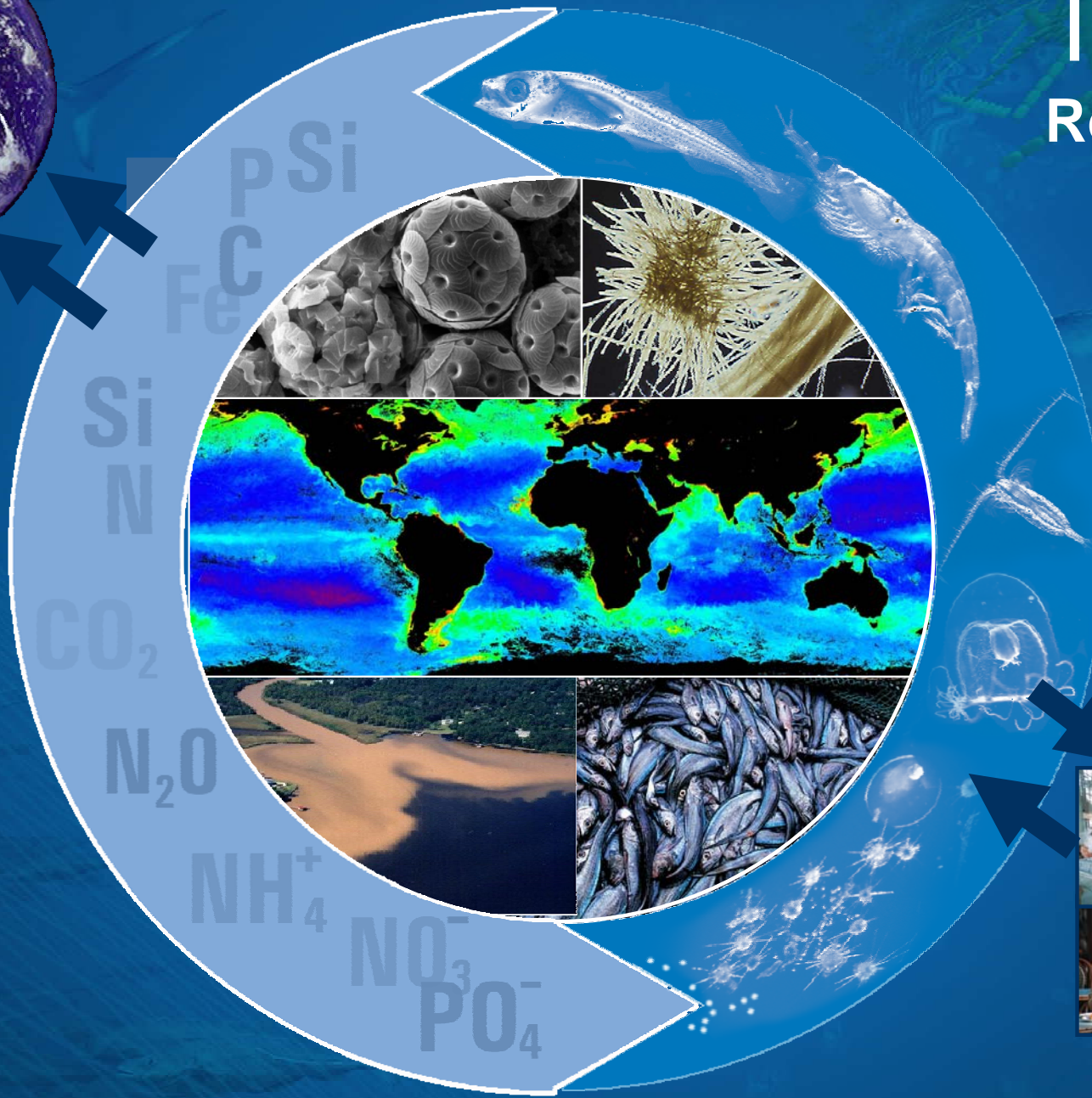
An underwater scene with a blue background. In the top left, a large fish swims. In the top right, there are green and blue structures resembling coral or a reef. In the middle right, there are several colorful, rounded objects that look like sea urchins or similar marine organisms. In the bottom left, there are more fish swimming. The overall scene is a diverse marine ecosystem.

Theme 3: Feedbacks to the Earth System

1. Oceanic storage of anthropogenic CO₂
2. Ecosystem feedback on ocean physics and climate

Theme 4

Responses of Society



What are the relationships between biogeochemistry cycles, ecosystems and human society?

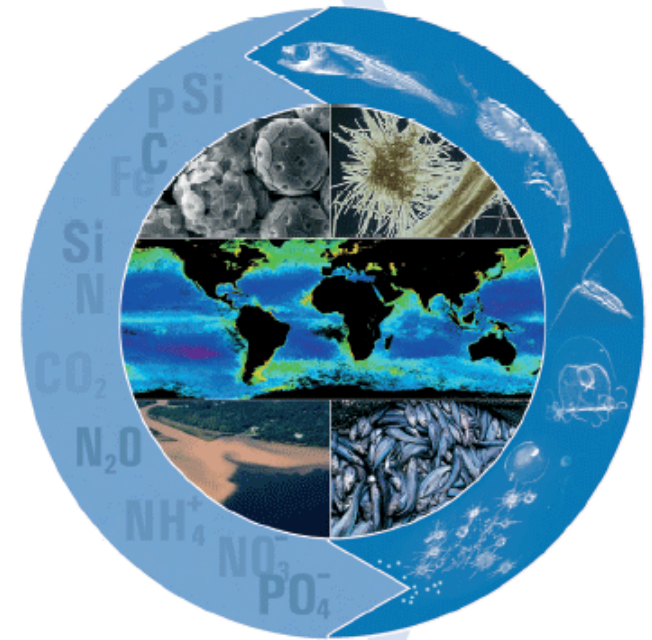
IMBER Science Plan and Implementation Strategy

Downloadable pdf version:
www.IMBER.info/SPIS.html



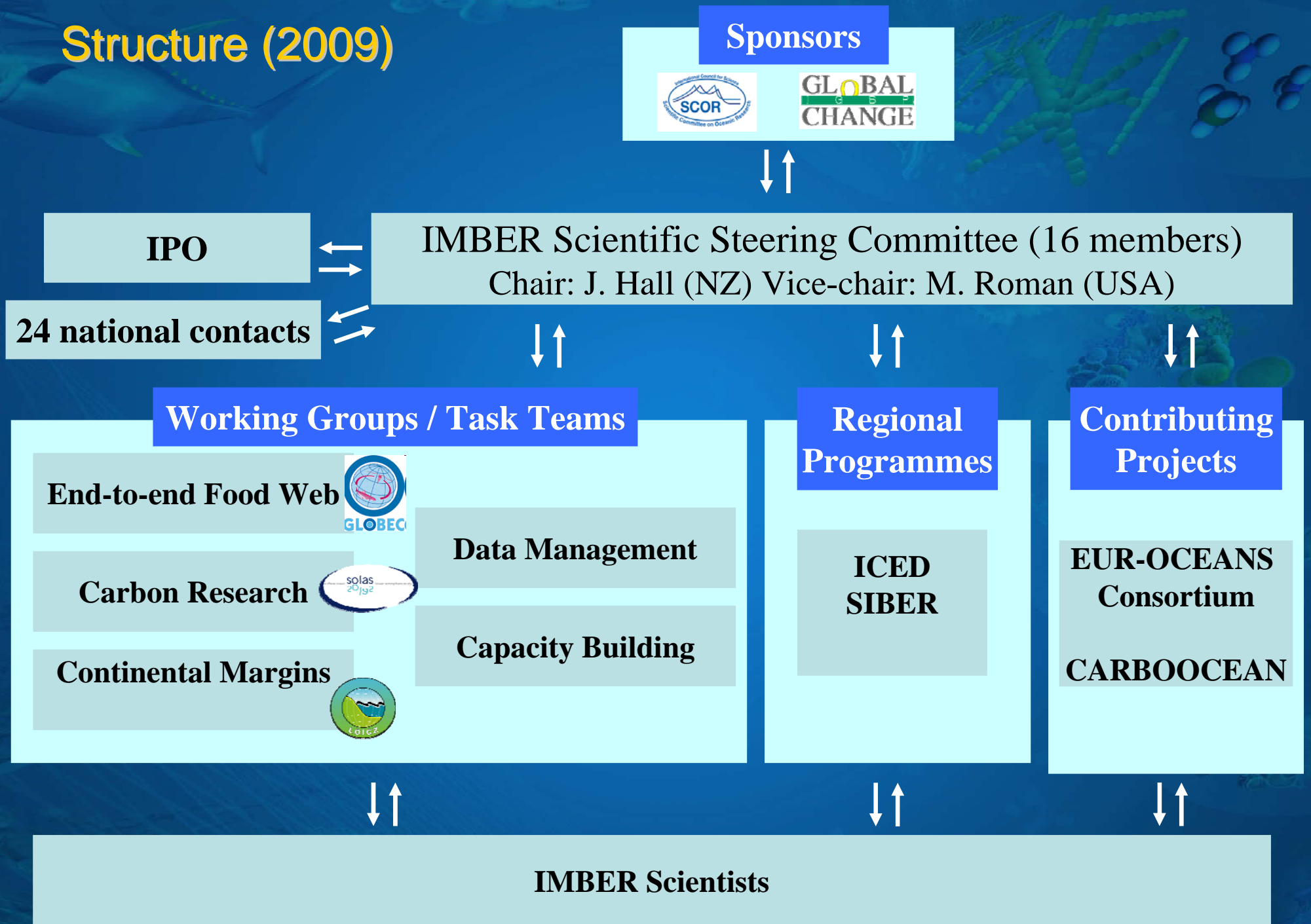
IGBP Report 52

Integrated
Marine Biogeochemistry and
Ecosystem Research



Science Plan and
Implementation
Strategy

Structure (2009)





Joint SOLAS - IMBER Carbon Research Group



Two sub-groups to implement ocean carbon research:

1. Surface Ocean System (SOS)
(Chair: Nicolas Metz)

2. Interior ocean carbon storage
(Chair: Nicolas Gruber)

+ WG on Ocean Acidification
→ to be launched





Sub-Group I: Surface Ocean System



10 year goal:

Understanding the long-term and decadal variability, trends and shifts, of the global air-sea CO₂ flux

❑ Surface Ocean pCO₂ vulnerability and variability (SOCOVV) workshop (Paris, 2007)

→ DSR II (Vol. 56, Issues 8-10, 2009)

❑ SOCAT: Surface Ocean CO₂ Atlas
5 regional WG, 4 workshops

→ Data base released late 2009





Sub-Group II: Interior Ocean Carbon Storage



General goal:

Determine the uptake, transport and storage of anthropogenic CO₂ on decadal timescale.

❑ The Argo-Oxygen Program

A white paper to promote the addition of oxygen sensors to the international Argo float program



- ❑ ***Decadal variations of the ocean's interior carbon cycle: synthesis and vulnerabilities***
(Ascona, Switzerland 13-17 July 2009)

Decadal Variations of the Ocean's Interior Carbon Cycle: Synthesis and Vulnerabilities

International Symposium at the CSF Monte Verità

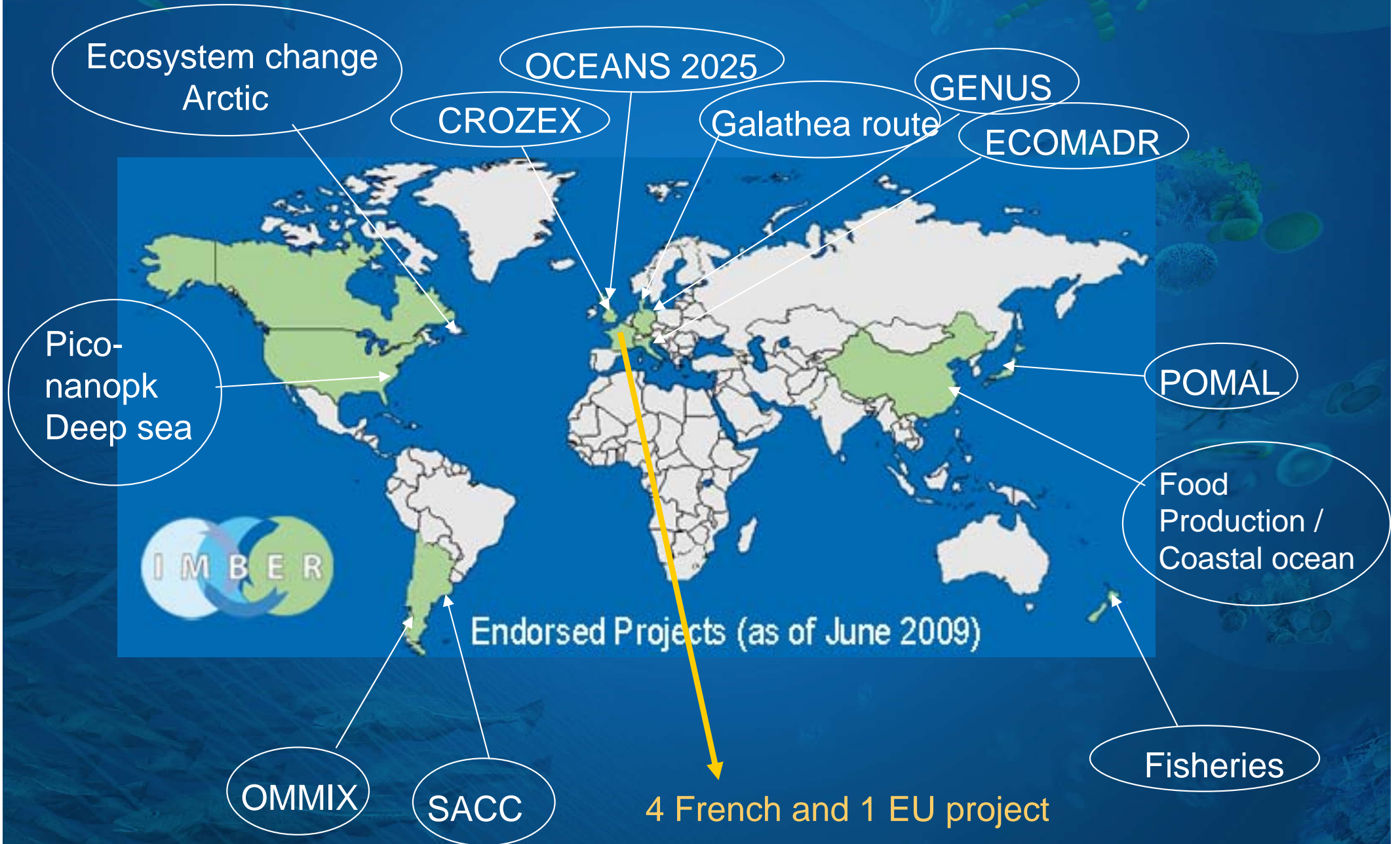
July 13 - 17, 2009 - Registration Deadline: June 12, 2009
Centro Stefano Franscini, Monte Verità, Ascona, Switzerland



Centro Stefano Franscini
Hauptstrasse 20
CH-8850 Ascona

ETH
Hauptstrasse 85
CH-8092 Zurich

17 IMBER Endorsed Projects



4 French projects endorsed by IMBER

MALINA What is the impact of the decrease in sea ice, increase in UV radiation, and permafrost thaw on microbial biodiversity and biogeochemical fluxes in the Arctic ocean?

Leader: Marcel Babin (LOV – Villefranche)

BOUM Biogeochemistry from the Oligotrophic to the Ultra oligotrophic Mediterranean Sea

Leader: Thierry Moutin (LOB - COM, Marseille)

POTES Pressure effects On marine prokaryotes

Leader: Christian Tamburini (LMGEM – COM, Marseille)

BIOSOPE Biogeochemistry and Optics South Pacific Experiment

Leader: Hervé Claustre (LOV, Villefranche)

+ 1 European project

EPOCA European Project on Ocean Acidification

Leader: Jean-Pierre Gattuso

IMBER IMBIZO

IMBER will conduct a series of IMBIZO's over the next decade

IMBER IMBIZO
Integrating biogeochemistry and ecosystems in a changing ocean

9-13 Nov 08 — Miami (FL, USA)

Conveners: Julie Hall - Dennis Hansell - Gerhard Herndl
Coleen Moloney - Wajih Naqvi - Mike Roman - Hiroaki Saito
Sharon Smith - Debbie Steinberg - Jing Zhang

Contact: imbizo@univ-brest.fr
Web site: <http://www.imber.info/imbizo.html>

IMBER
UNIVERSITY OF MIAMI
ROSENSTIEL SCHOOL
Oceans
International Council for Science
Scientific Committee on Oceanic Research

IMBER IMBIZO II

“Integration of biogeochemistry and ecosystems in a changing ocean: Regional comparison”

October 2010, Crete

Contact us



www.IMBER.info

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Integrated Marine Biogeochemistry and Ecosystem Research

Welcome to the official IMBER Website

IMBER project goal: To understand how interactions between marine biogeochemical cycles and ecosystems respond to and force global change.

IMBER is a new IGBP-SCOR project focusing on ocean biogeochemical cycles and ecosystems. The IMBER vision is to provide a comprehensive understanding of, and accurate predictive capacity for, ocean responses to accelerating global change and the consequent effects on the Earth System and human society.

e-NEWS

IMBER e-NEWS

Integrated Marine Biogeochemistry and Ecosystem Research

IMBER e-News N°6 - August 2007

Content:

- 1- IMBER News
- 2- Funding and Collaborative opportunities
- 3- Early Career Scientist Opportunities
- 4- Jobs
- 5- Publications / Web Resources
- 6- Meetings / Conferences / Workshops

Newsletter

IMBER Update

Issue No. 6 - March 2007

Contents:

- Editorial
- IPCC Report
- Science Highlight
- Global surface ocean alkalinity climatology
- Regional activities
- Southem Ocean science during the International Polar Year - KID
- Related activities
- Chinese IMBER/GLOBEC p. 6
- Forest Research activities on CO₂ cycle in the oceans p. 8
- IMBER workshops and meetings
- CLUTOP Symposium: Climate Impacts on oceanic top predators
- International Conference on the Humboldt Current System
- Workshop on ocean acidification: Learning from the Oyster Reef
- Austral Summer Institute VIII in China
- Sponsored participants news
- Partner Programmes
- ICLANS: An ocean-atmosphere observatory in the eastern tropical Atlantic Ocean
- Announcements
- Related conferences and workshops

IMBER is an international project of IGBP and SCOR

