



United Nations Educational, Scientific and Cultural Organization

> Organisation des Nations Unies pour l'éducation la science et la culture

Organización de las Naciones Unidas para la Educación la Ciencia y la Cultura

Организация Объединенных Наций по вопросам образования науки и культуры Intergovernmental Oceanographic Commission

Commission océanographique

intergouvernementale

Comisión Oceanográfica Intergubernamental

Межправительственная океанографическая комиссия

## **IOC and WCRP**

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### Outline

- 1. IOC objectives and the WCRP
- 2. IOC at risk / IOC initiatives
- 3. GOOS Framework for Ocean Observing
- 4. Maintaining cooperative work through WCRP



#### One planet, one ocean All the cycles of life

#### **Climate**

Water



### Nitrogen



#### Ocean and climate The ocean in the climate system

#### Upper ocean heat content

100

#### Global sea level



#### Human vulnerability and ocean climate Regional sea level rise and variability



### Management and stewardship

- What are the limits of the natural system?
- How can we reduce our vulnerability?
- How do we move toward sustainable development?



### Management and stewardship

- Research
- Observations
- Data management
- Forecasting
- Information for societal benefit



Intergovernmental Oceanographic Commission

- Promote international cooperation and coordinate programmes
- Apply knowledge for improvement



#### **IOC Regional Bodies**





## IOC within UN

- Focal point for ocean observations, science, services and data exchange
- Competent international organization for marine science (United Nations Convention on the Law of the Sea - UNCLOS)
- Functional autonomy within UNESCO





## IOC in the UN System: climate



## IOC objectives and actions

- Preventing and reducing the impacts of **natural hazards**
- Mitigating the impacts of and adapting to climate change and variability
- Safeguarding the health of ocean ecosystems
- Promoting management procedures and policies leading to the sustainability of coastal and ocean environment and resources





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# UNESCO and the IOC at risk

- The UNESCO General Conference admits Palestine as a Member State: 31 October
- United States Department of State announces stop of all assessed and voluntary contributions to UNESCO







#### Impact on budget

Assessed 'regular programme' \$4.7m: US 22% Vountary contribution 'extrabudgetary' \$7.3m: US 15%







### Some positive ways forward

- GEF-funded Transboundary Waters Assessment Project – assessment of global ocean environment and local impacts led by IOC
  - WCRP is involved as a partner with a modest level of funding
  - provides WCRP with an opportunity to work with "end users" and develop a two-way dialogue about what is needed in the way of climate information



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#### Ocean observing system for climate – drawing from best practices Requirements for Essential Climate Variables



## OceanObs'09

Cones

EUMETSAT

•eesa

Ocean information for society: sustaining the benefits, realizing the potential

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NASA



#### Why a Framework?

- OceanObs' 09 identified tremendous opportunities, significant challenges
- Called for a framework for planning and moving forward with an enhanced global sustained ocean observing system over the **next decade**, integrating new physical, biogeochemical, biological observations while sustaining present observations



#### post-OO'09 Working Group

#### Framework for Ocean Observing

#### **Sponsors and team**

Keith Alverson, Bee Berx, Peter Burkill, Francisco Chavez, Dave Checkley, Candyce Clark, Vicki Fabry, Albert Fischer, John Gunn (co-chair), Julie Hall, Eric Lindstrom (co-chair), Yukio Masumoto, David Meldrum, Mike Meredith, Pedro Monteiro, José Mulbert, Sylvie Pouliquen, Carolin Richter, Sun Song, Mike Tanner, Martin Visbeck, Stan Wilson

- IOC-UNESCO Intergovernmental Oceanographic Commission of UNESCO
- **GEO** Group on Earth Observations
- CEOS Committee on Earth Observation Satellites
- **POGO** Partnership for Observation of the Global Oceans
- SCOR Scientific Committee on Oceanic Research
- SCAR Scientific Committee on Antarctic Research
- **GCOS** Global Climate Observing System
- **GOOS** Global Ocean Observing System
- **JCOMM** Joint WMO-IOC Tech. Comm. for Oceanography and Marine Meteorology
- **PICES** North Pacific Marine Science Organization
- ICES International Council for the Exploration of the Sea
- **CoML** Census of Marine Life
- IGBP International Geosphere-Biosphere Programme
- WCRP World Climate Research Programme



## Framework for Ocean Observing High level objectives

- Take lessons learned from successes of existing observing efforts – best practices
- **Guide** observing community as a whole to sustain and expand the capabilities of the ocean observing system
- Deliver and observing system that is **fit-for-purpose**
- Promoting collaborative alignment of independent groups, communities and networks, building on existing structures as much as possible



## Framework for Ocean Observing **A simple system**







Driven by requirements, negotiated with feasibility **Essential Ocean Variables** 



- We cannot measure everything, nor do we need to
- Basis for including new elements of the system, for expressing requirements at a high level
- Driven by requirements, negotiated with feasibility
- Allows for innovation in the observing system over time

Towards sustained system: requirements, observations, data management



community level.

## Framework for Ocean Observing Societal drivers 2012





## Framework for Ocean Observing Societal drivers next decade



Framework for Ocean Observing **Characteristics** 



- Common language and consistent handling of requirements, observing technologies, and information flow among different, largely autonomous, observing elements
- Seeks to support self-funding and self-managing elements
- Essential Ocean Variables as common focus
- Assessment and promotion of Readiness
- for coastal and open ocean
- An "Integrated Observing System" will be a derivative of an EOV-based approach driven by requirements.

Framework for Ocean Observing
Proposed governance structure



#### **GOOS Steering Committee**

(Peak Bodies, Sponsors, Observing Panel Chairs, Observing System leaders)



#### **Observing System Panels**

(focused on EOVs e.g. Physics through **OOPC**, Carbon/Biogeochemistry through **IOCCP**, new Biology/Ecosystems); Coordination for observing system elements

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#### **Technical Advisory Groups**

(Observing technologies and networks, Variable focus: data and products, synthesis, link to models)



#### **GOOS Steering Committee**





## WCRP and the IOC

- WCRP contributes to IOC objectives
- WCRP and GOOS
- WCRP and Future Earth / Future Ocean
- WCRP and IOC regional programmes



## **One Planet – One Ocean**





www.ioc-unesco.org