



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

Laura Lorenzoni – IOCCP SSG Member for Time Series
Maciej Telszewski - Project Director

IOCCP UPDATE



IOCCP Themes and SSC members

Chair

Toste Tanhua (Germany)

Underway pCO₂ Observations:

Ute Schuster (UK)

Surface CO₂ Data:

Kim Curry (New Zealand)

Ocean Interior Observations:

Masao Ishii (Japan)

Ocean Interior Data:

Are Olsen (Norway)

Time Series Networks:

Laura Lorenzoni (USA)

Instruments and Sensors:

Todd Martz (USA)

Data Management:

Benjamin Pfeil (Norway)

Nutrients

Michio Aoyama (Japan)

Framework for Ocean Obs.

Toste Tanhua (Germany)

Ocean Acidification

Richard Feely (USA)

Project Director:

Maciej Telszewski (Poland)

Why IOCCP?

The IOCCP promotes the development of a global network of ocean carbon observations for research through technical coordination and communication services, international agreements on standards and methods, and advocacy and links to the global observing systems.



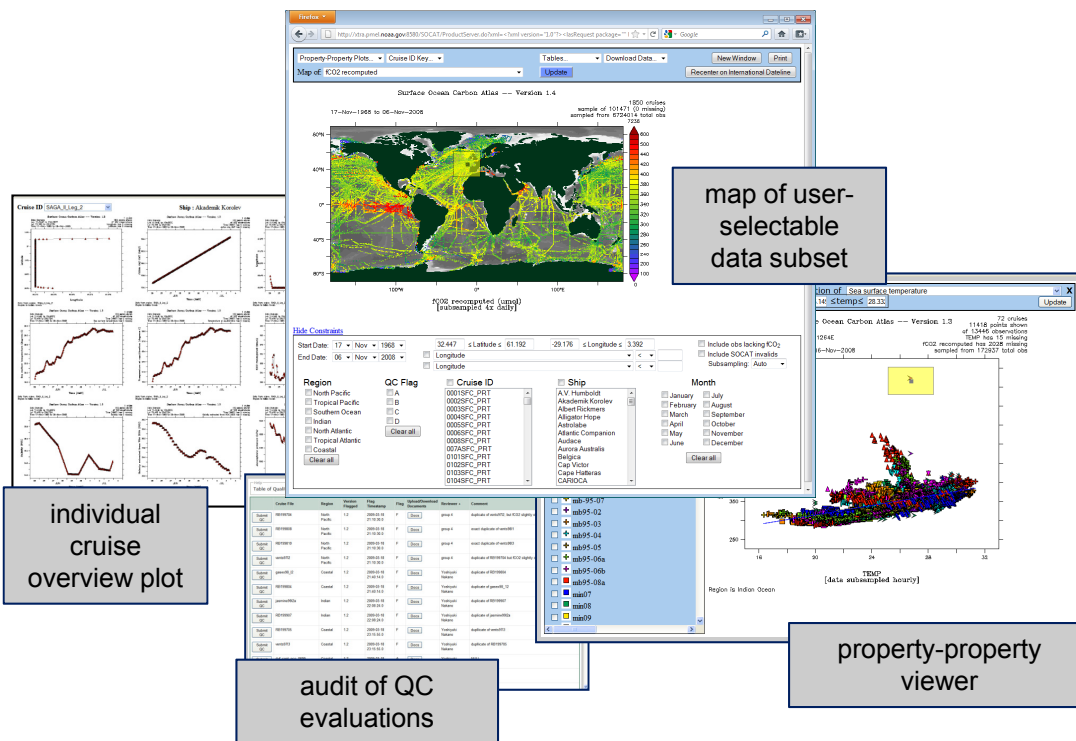
In the ~11 years the IOCCP has:



- ✓ held 28 workshops and
- ✓ published over 23 reports, guides, and strategy documents
- ✓ issued 34 newsletters (The IOCCP Conveyor)



SOCAT Version 2

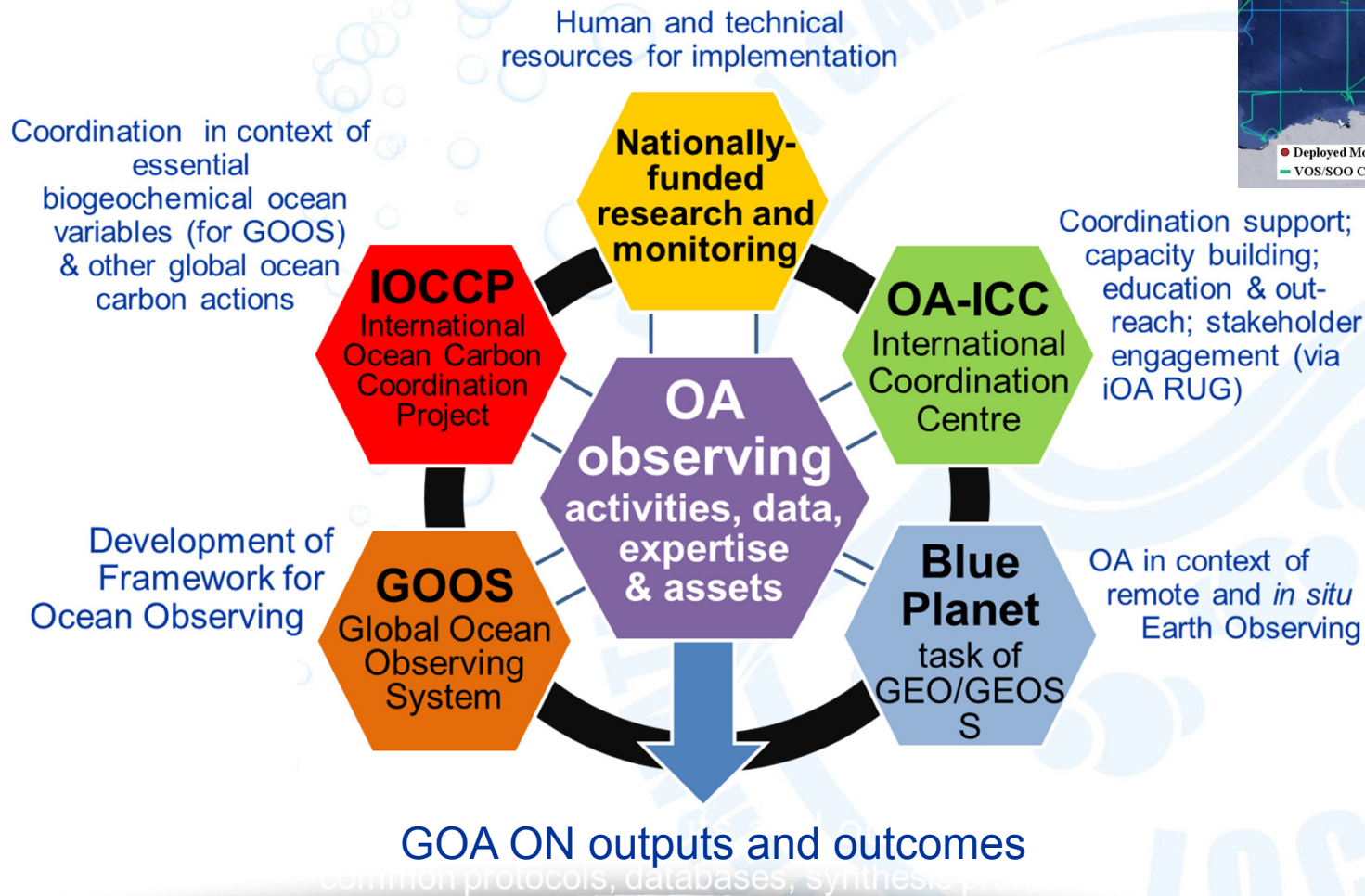
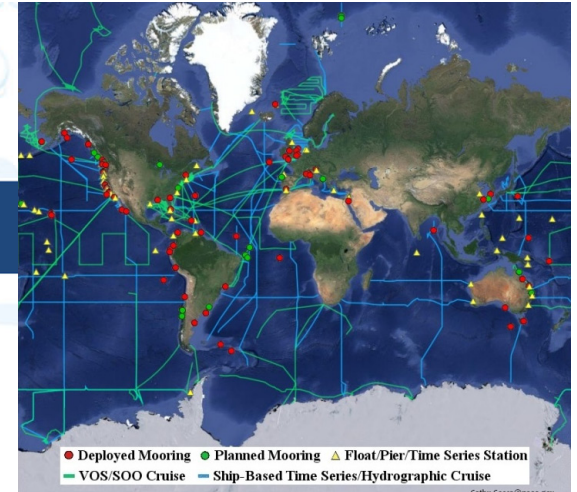
· SURFACE OCEAN CO₂ ATLAS ·



-  SOCAT V2 consists of 10.1 million $f\text{CO}_2$ data (+60% over version 1.5) covering the years 1968-2011
-  SOCAT accepts sensor data with a special set of quality flags
-  SOCAT data submission and data quality control system automation to be launched within 2 years
-  SOCAT version 3 to be released in 2015

Ocean Acidification

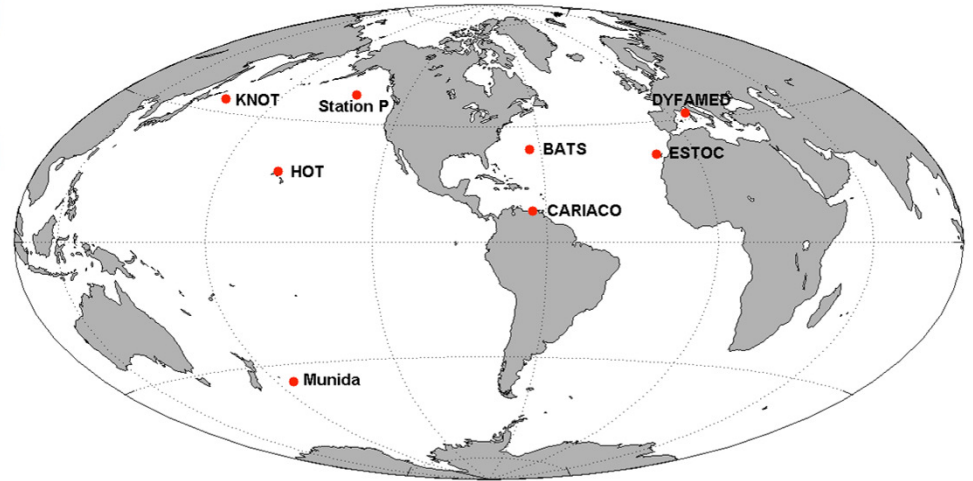
Global OA Observing Network




Time Series

Continue maintaining the ship-based biogeochemical TS network; live web presence (<http://www.who.edu/website/TS-network/home>)

WMO annual Greenhouse Gas Bulletin to feature a new 'oceans' page where ocean $p\text{CO}_2$ and pH from TS will be included. **8 ship-based time-series were selected** based on their historical records to be highlighted on this bulletin.

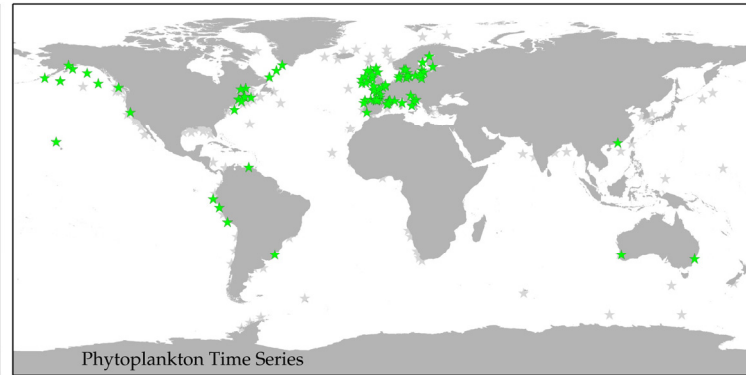
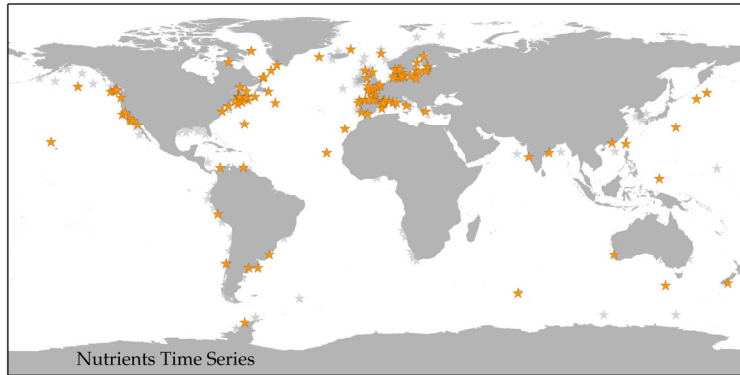
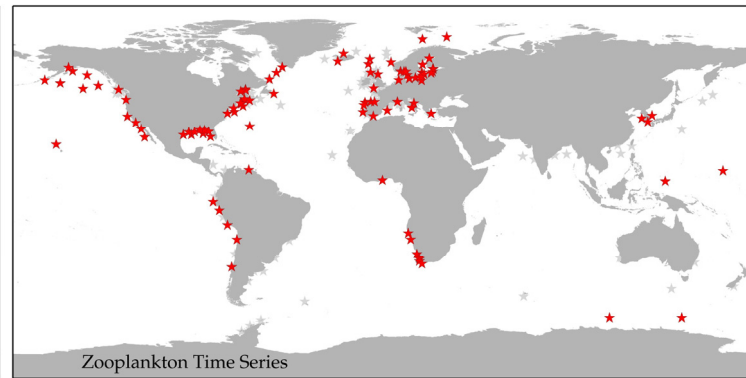
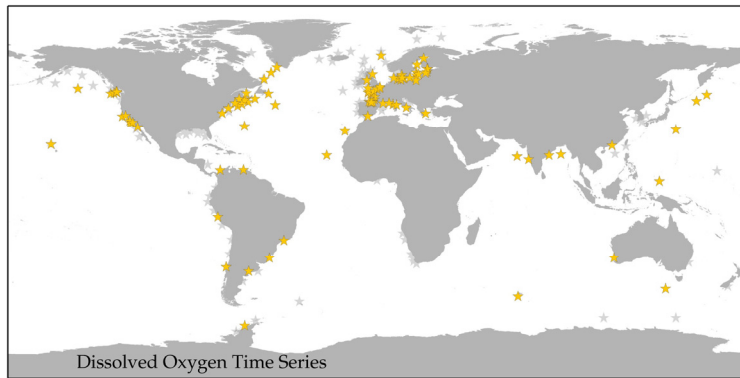


Time Series

 The International Group for Marine Ecological Time Series (IGMETS) seeks to integrate a suite of *in situ* biogeochemical variables from ship-based time-series stations, together with satellite-derived information, to look at holistic changes within different ocean regions.



International Group for Marine Ecological Time Series (IGMETS)



Time Series

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- Comprehensive, integrated report published under the auspices of IOC-UNESCO
- The report is estimated to be completed by summer 2015
- AAAS meeting February 2015: Marine Ecosystems In Hot Water: Some Like It Hot (But Some Do Not!).

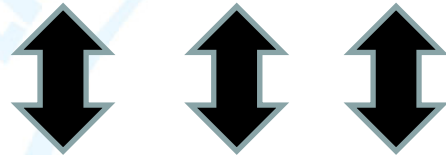


Framework for Ocean Observing

Approved governance structure

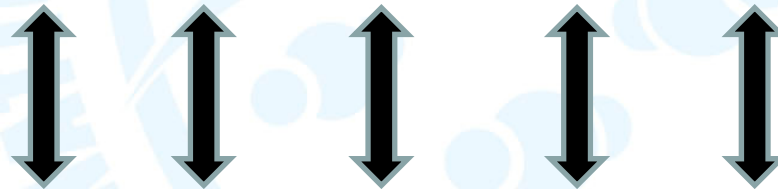
GOOS Steering Committee

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



Observing System Panels

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



Technical Advisory Groups

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

Biogeochemical EOVS workshop Townsville, Australia, November 2013



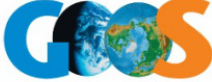
The Essential Ocean Variables for Biogeochemistry

- 1) Oxygen
- 2) Macro Nutrients
- 3) Carbonate System
- 4) Transient tracers
- 5) Suspended particulates
- 6) Particulate Matter Transport
- 7) Nitrous Oxide
- 8) Carbon-13
- 9) Dissolved Organic Matter

- **Global**
- **General**
- **A pick of the „top 10“**
- **Can be important to designing observing systems, and for fund-rising**

Community input on BGC EOVS

- **Townhall meeting in Honolulu during the OSM-2014**
 - Attended by >100 people
 - The audience was invited to consult a draft EOVS Report and Specification Sheets (<http://www.ioccp.org/foov>)
- **GOOS Webminar June 2014**



The Global Ocean Observing System


WEBINAR

Towards Essential Ocean Variables for Biogeochemistry

Presented by:
Toste Tanhua: GEOMAR, Germany
Maciej Telszewski: IO PAS, Poland

Moderated by: Albert Fischer
Head, Ocean Observations and Services Section
GOOS Project Office - JCOMM

Please Note: This session is being recorded for posting on the GOOS website





GOOS Biogeochemistry Panel

Next steps

- Development of metrics
- Partnerships
- Pilot projects with strong biogeochemical component



Future planned activities

- 🌊 Summer course “Instrumenting our oceans for better observation: a training course on biogeochemical sensors” June 2015.
- 🌊 Generate a “Best Practices” guide with easy-to-follow steps on usage (including preparation, deployment, recovery and basic data reporting, processing and quality) of autonomous biogeochemical sensors.
- 🌊 The course will be held at the Sven Lovén Center for Marine Sciences in Kristineberg, Sweden.



<http://www.ioccp.org/>

The IOCCP promotes the development of a global network of ocean carbon observations for research through technical coordination and communication services, international agreements on standards and methods, and advocacy and links to the global observing systems. The IOCCP is co-sponsored by the Scientific Committee on Oceanic Research and the Intergovernmental Oceanographic Commission of UNESCO. Read more...

[Underway CO₂ Observations](#)

[Ocean Interior Observations](#)

[Time Series Efforts](#)

[Synthesis Activities](#)

[Ocean Acidification](#)

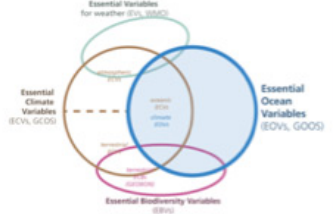
[Nutrients](#)

[Oxygen](#)

[Data and Information Management](#)

[Instruments and Sensors](#)

[Related Projects](#)



Establishment of Biogeochemical Essential Ocean Variables

The IOCCP leads the multidimensional feasibility assessment of the marine biogeochemistry parameters necessary for inclusion into the future global ocean observing system as Essential Ocean Variables.

[>>](#)

News

II INTERNATIONAL OCEAN RESEARCH CONFERENCE "One Planet, One Ocean", Barcelona (Spain), 17-21 November 2014 [+ more news](#)



Tuesday, 29 10 2013
We are pleased to announce the 2nd INTERNATIONAL OCEAN RESEARCH CONFERENCE, which will be held on the 17-21 of November 2014 in Barcelona (Spain).

[more](#)



Ocean Acidification Talking Points ready for distribution

Friday, 18 10 2013

An interesting compilation of the state of ocean acidification research and understanding has just been published and can be downloaded [here](#).



Incorporation of Alternative Sensors in the SOCAT Database and Adjustments to Dataset Quality Control Flags

Friday, 18 10 2013

With the advent of new sensors and platforms to measure surface water CO₂ levels, the dataset quality control criteria are updated in SOCAT to accommodate surface water fugacity of CO₂ (fCO₂) data from these sensors.

[more](#)

Calendar



IOCCP meetings, IOCCP-related meetings as well as events related to a wider scope in marine biogeochemistry.

[VIEW](#)

IOCCP E-list

Subscribe to the IOCCP mailing list to receive frequent news updates and quarterly newsletter IOCCP Conveyor

E-mail

[Subscribe](#)

IOCCP future events

13
Wednesday

11 2013

First Technical Experts Workshop for the GOOS Biogeochemistry Panel

[more](#)

21
Friday

02 2014

The Global Ocean Ship-based Hydrographic Investigations Program Committee Meeting

[more](#)

22
Saturday

9th Session of the IOCCP Scientific Steering Group

[more](#)