Brest, Nov.2012

United Nations
Educational, Scientific and
Cultural Organization

Intergovernmental
Oceanographic
Commission

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

Commission
océanographique
intergouvernementale

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

Comisión
Oceanográfica
Intergubernamental

Организация
Объединенных Наций по
вопросам образования
науки и культуры

Межправительственная
океанографическая
комиссия

JCOMM
in-situ
Observations Programmes
Support Centre
Establishment in Brest

support@jcommops.org

Albert Fischer (Head of Ocean Observations section UNESCO/IOC)

Introduction on behalf of IOC Executive Secretary

Increased cooperation JCOMMOPS – Coriolis

Importance of JCOMMOPS to IOC/UNESCO and to GOOS

IOC/UNESCO Support to the transition to Brest proposal

History:

1987: Embryo of JCOMMOPS: DBCP/SOOP coordinator (USA, CLS)

1999: OceanOBS'99: Argo project

2001: DBCP and Argo coordinators = JCOMMOPS CLS/Toulouse

French partners (Coriolis/CLS) proposal to host JCOMMOPS was selected by JCOMM in 2009, amongst a dozen of worldwide proposals

JCOMMOPS, hosted by CLS/Toulouse since 2001 would continue to operate in France, with:

- additional support from Coriolis
- additional support from CLS
- commitments to facilitate its expansion.

A changing context:

- Any Member State can propose to host JCOMMOPS
- USA is the main JCOMMOPS funder (60%) and has repeated difficulties to send cash outside (e.g. Restrictions on financial transfers to UNESCO)
- French support is evaluated roughly at 30% mostly in –kind
- JCOMMOPS sustainability is fragile
- DBCP Coordinator is back to the USA for undetermined period.
- CLS (Argos system) is gradually losing some market share (Iridium)
- JCOMMOPS needs to prepare its future

Establish JCOMMOPS in Brest (2014):

- Work closer to the institutional partners within the French “Ocean Pole”
- Build on the existing proposal
- Involve new local and national partners
- Increase slightly JCOMMOPS visibility and means
- Anchor the centre in France

- Keep a close relationship with its historical partner CLS to maintain and develop its information system and administrative support by contract

- Day to day work with institutional partners
- Regular communications with its I.S. host and
- Regular professional relations with main satcom. Provider

- Increase contacts with French ocean. partners
- Keep contacts with CLS

To meet the objectives, JCOMMOPS suggests working the project at three levels:

- JCOMM (Coriolis and institutional partners) - focal point Ifremer (PY Le Traon, Ifremer)
  to sustain and possibly augment existing support

- Local partners (Brest city, Science Park and partners) - focal point (M. Morvan, Science Park Director)
  to clarify and size the commitments

- IOC/UNESCO French delegation, ministerial level - (IOC Exec. Secretary, French ambassador UNESCO) - focal point (A. Fischer)
  to foster when all clarified.

3 options are available for the short term hosting of JCOMMOPS in Brest

- Ifremer
- CLS Brest
- BMO, Technopole, etc

Objective is to call for the synergies of these 3 partners to share the support to JCOMMOPS according to their resources

No taboo. No competition.

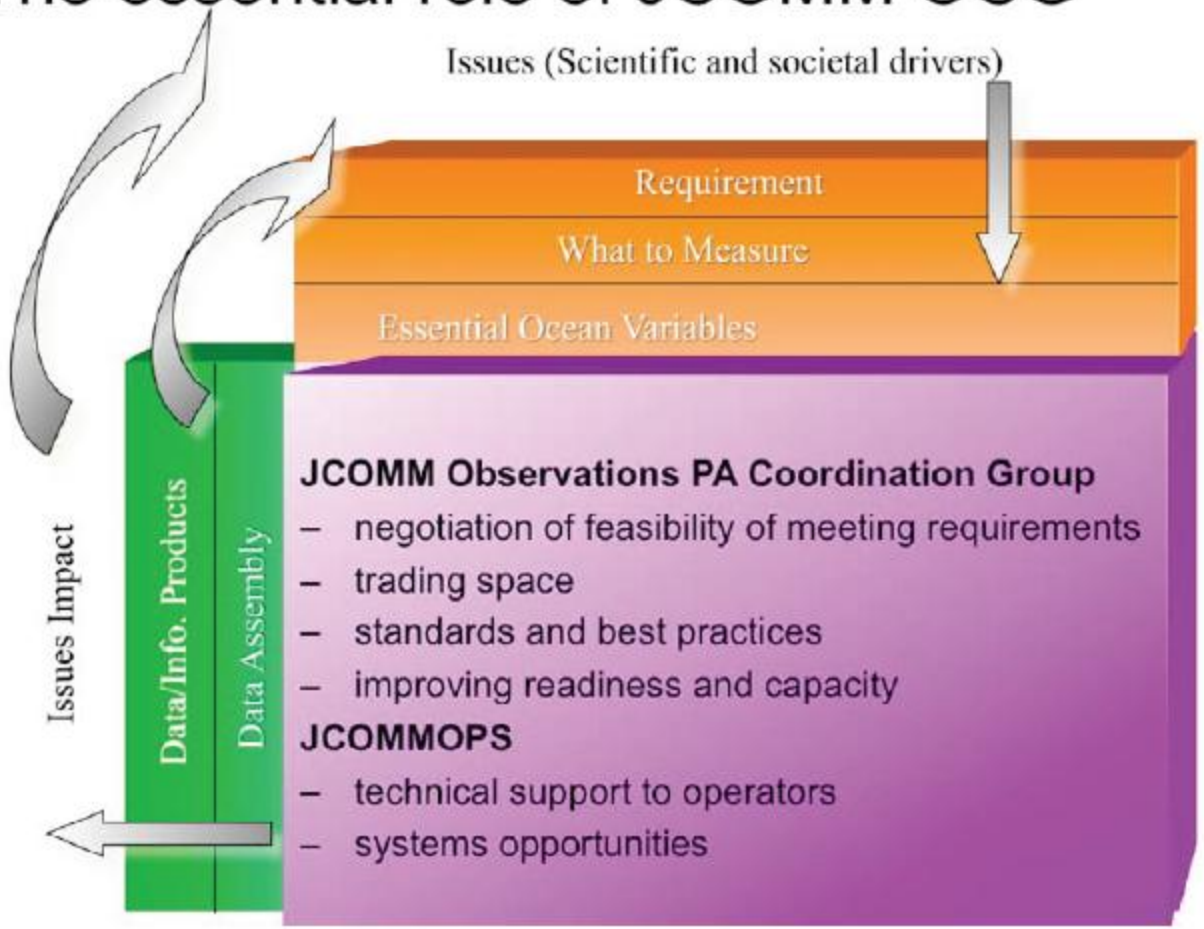
Assemble a proposal to be presented to JCOMMOPS stakeholders at its next roundtable. End 2012/Early 2013

- Global observing programmes are funded & implemented nationally
- International and technical coordination is required,
  - Through dedicated Panels:
    DBCP, SOT, Argo, OceanSITES, IOCCP, GLOSS, GO-SHIP, ...
  - Between
    - Member States
    - Funding agencies
    - Platform operators, Prog. Managers, Principal Investigators
    - Satellite data telecommunication providers
    - Instrument, sensor manufacturers, industrial partners
    - Data centres, archiving centres, data users

- JCOMM (1999): successful as an implementation mechanism (GOOS/GCOS/WWW), by coordinating and developing standard procedures and best practices for fully integrated marine **observing**, **data management**, and **services** system.

GOOS Framework for Ocean Observing

The essential role of JCOMM OCG



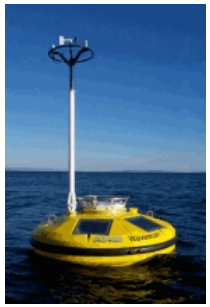
- JCOMMOPS was established by JCOMM in 2001

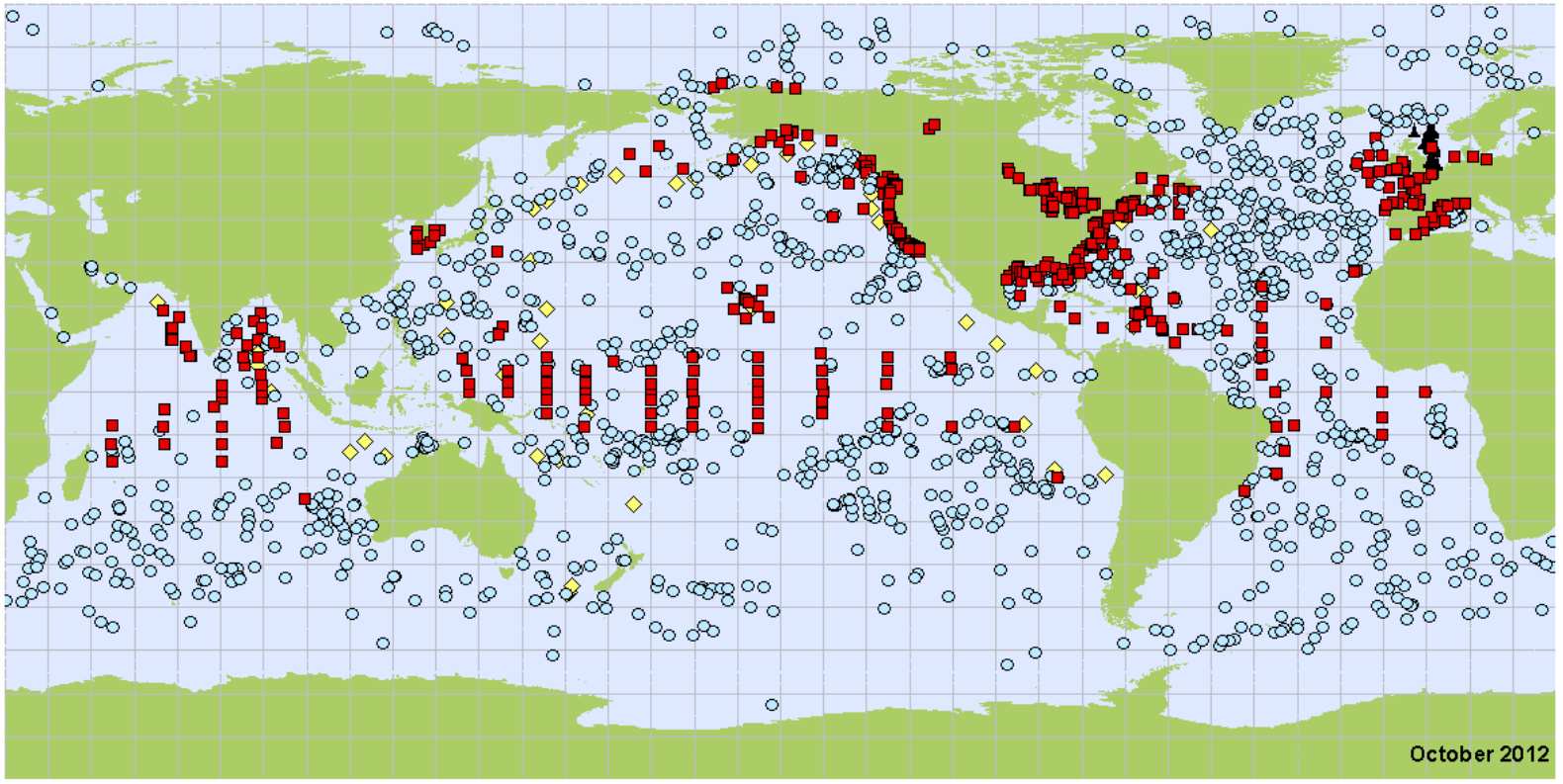
- It is involved with the implementation of the main global *in-situ* observing systems, including:
  - **DBCP (data buoy cooperation panel):** Drifting and moored buoys in the high seas and tropical moorings, tsunameters and misc. fixed platforms.
  - **SOT (ship observations team) :** SOOP (XBTs, TSGs), ASAP atmospheric soundings, VOS meteorological observations
  - **GO-SHIP** hydrographic sections
  - **Argo:** Profiling floats
  - **OceanSITES:** Deep ocean time-series reference stations
  - **Potential:** coastal/regional systems (gliders, polar, coastal floats, marine mammals, etc)

- GOOS/JCOMM integrated system

Data Buoy Cooperation Panels: ~1250 surface drifters & ~400 moorings

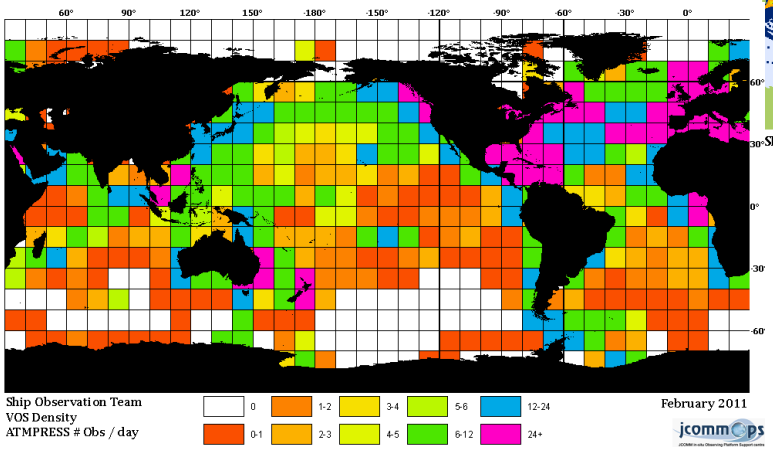
http://dbcp.jcommops.org

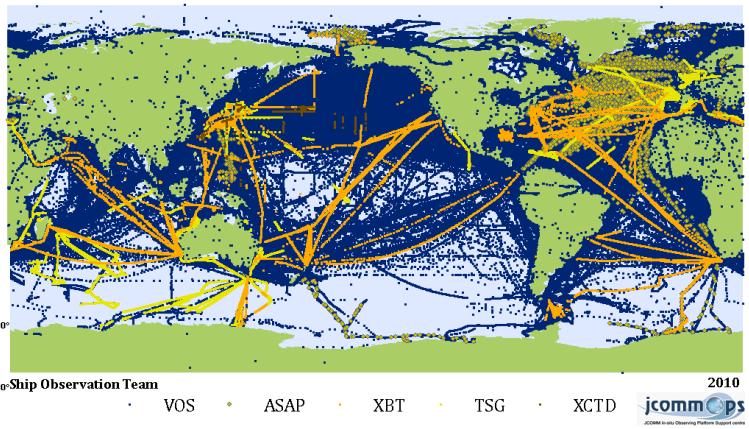




Surface drifters, tropical/coastal moorings, ice buoys, tsunameter , misc. fixed platforms ...

- **Ship Observation Team (~2000 ships)**
  The work of the SOT consists of several very successful and enduring data collection programmes (over 100 years), involving voluntary observing ships and ships of opportunity operated through the VOS and SOOPIP.

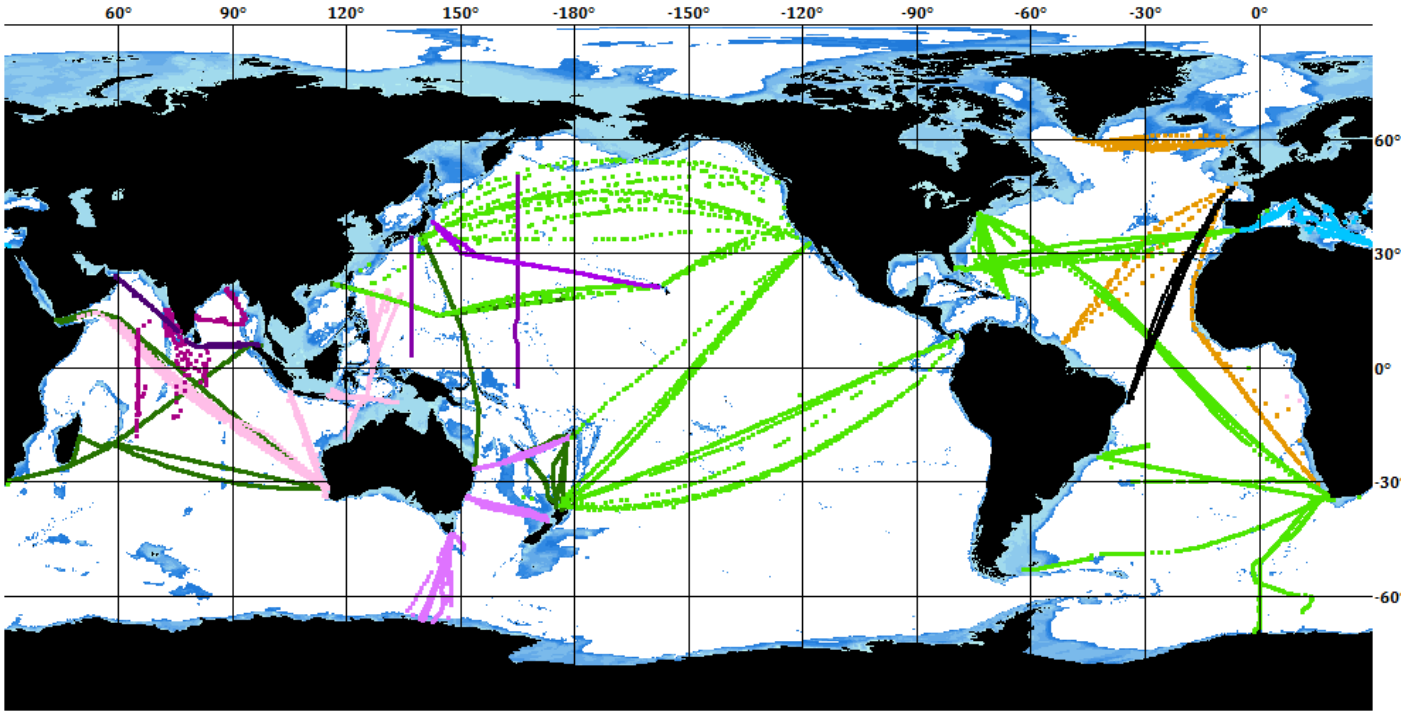




A long tradition of voluntary ocean data collection by the world's seamen gathering essential variables used for research, climate forecasting, numerical weather prediction and maritime safety .

Coverage declining (difficulty to recruit new ships in some areas)

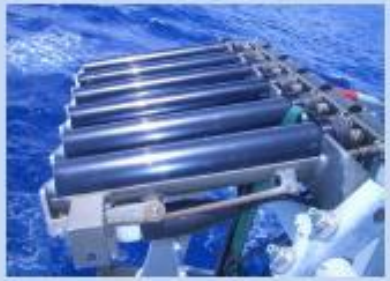
- **SOOP XBT network**



SOOP 2009
20262 XBT drops

AUSTRALIA (BOM) · GERMANY (BSH) · FRANCE (IRD_BREST) · JAPAN (JMA) · INDIA (NIO) · USA (SIO)
AUSTRALIA (CSIRO) · ITALY (ENEA) · JAPAN (JAMSTEC) · JAPAN (TOHOKU UNIV.) · USA (AOML)

jcommops
JCOMM in-situ Observing Platform Support centre

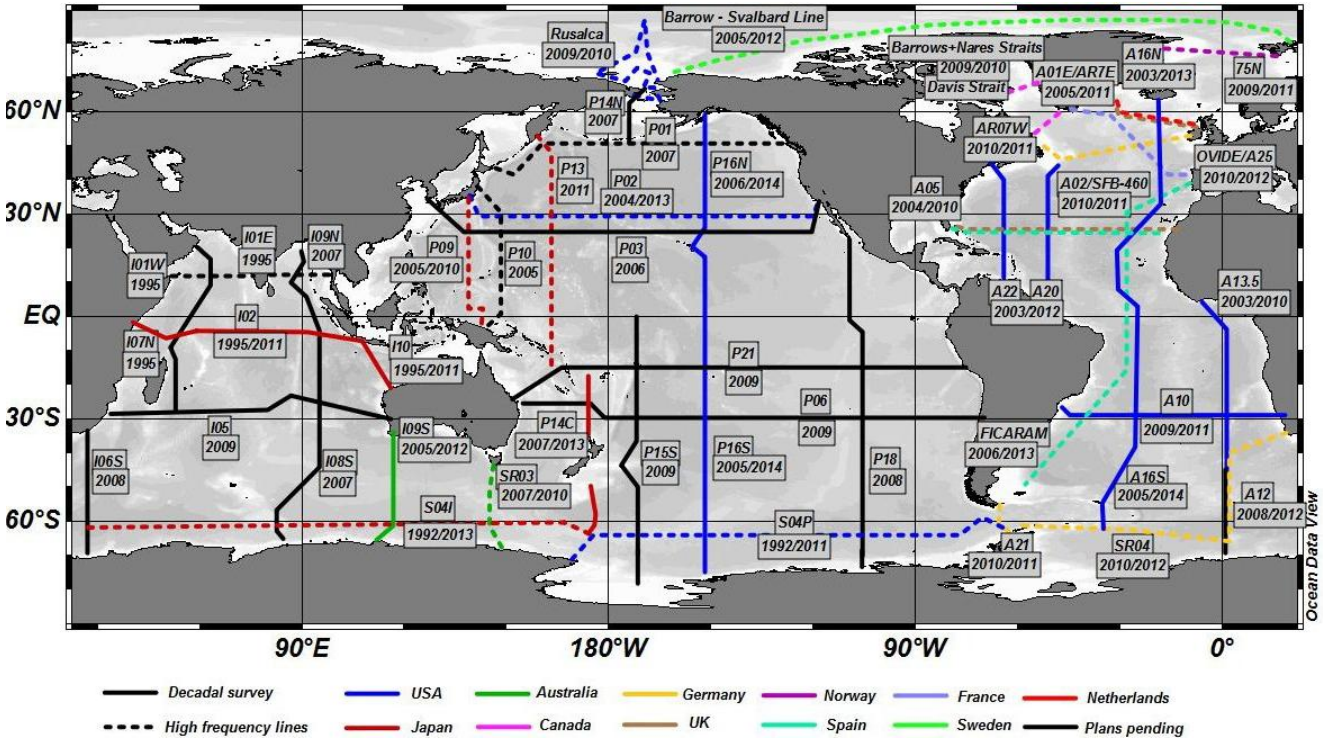


XBT automatic launcher – loaded and ready

Needs:

- Research-quality deep (2000 m) XBT,
- Next generation automatic XBT launcher,
- Modernization/standardization of data management system.

- **GO-SHIP (IOCCP/CLIVAR)**



Reference hydrographic sections.

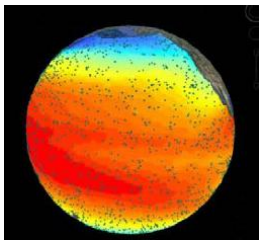
~3500 Profiling floats: Argo Programme

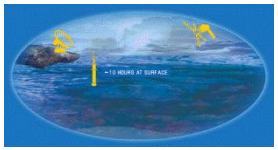
A revolutionary achievement for subsurface observations

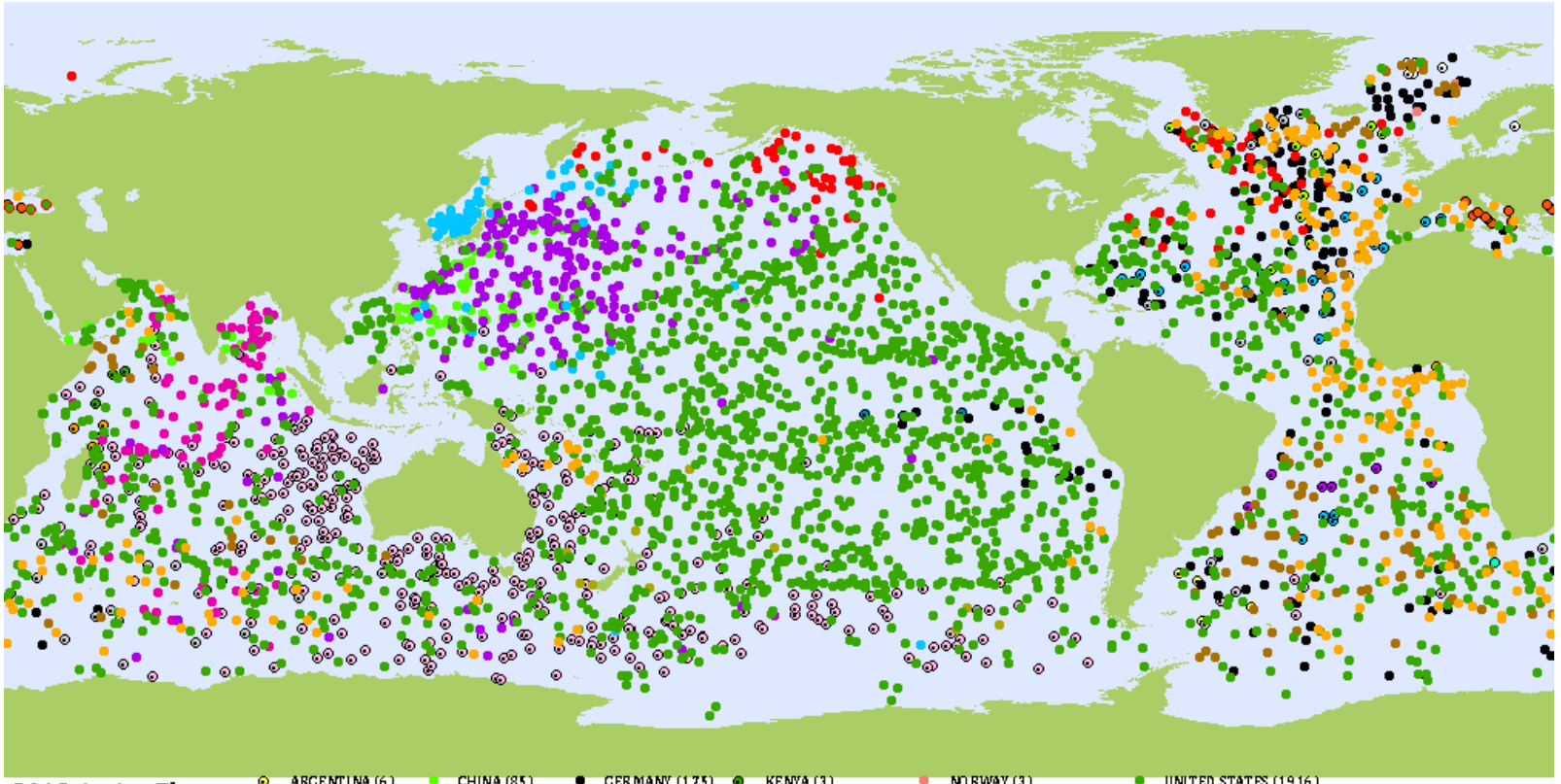
An unprecedented cooperative effort in the history of oceanography

A crucial mechanism to better understand the warming of the upper ocean

Innovative data system



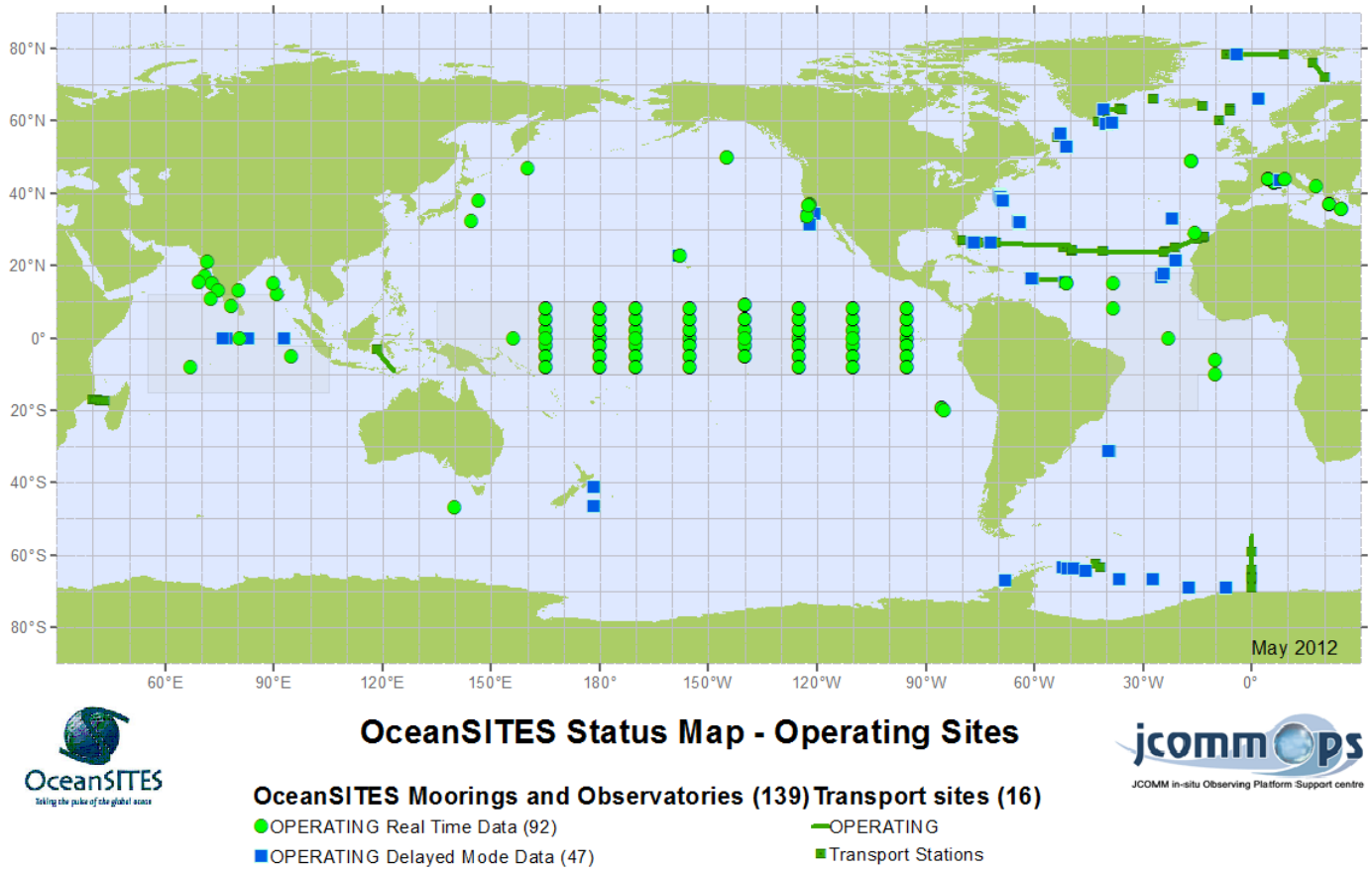




IOC

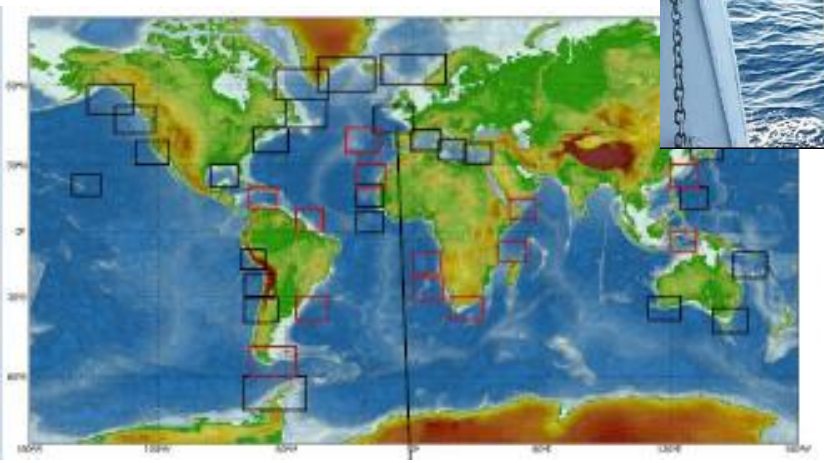
OceanSITES www.oceansites.org

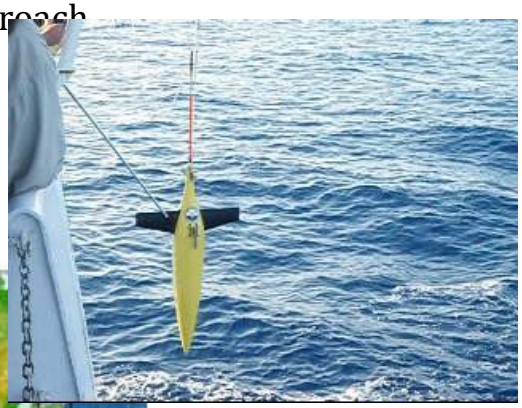
A worldwide system of long-term, deepwater reference stations measuring dozens of variables and monitoring the full depth of the ocean from air-sea interactions down to 5,000

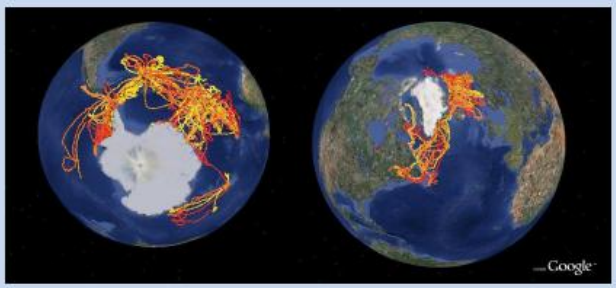


Many other observing systems are emerging and will complete the GOOS:

- Polar systems (Met. / Oceano)
- Coastal floats
- Marine mammals equipped with sensors
  - Find holes in ice-covered regions
  - Multidisciplinary approach
- Gliders (regional)
  - Guided
  - Multi sensors
  - expensive







Partial tracks of tagged animals collected by the 'Marine Mammals Exploring the Oceans – Pole to Pole' (MEOP) project since July 2007 in polar regions.

Needs:
(international) Scientific Steering Team and Data Management Team participating to the international coordination infrastructure

And technical coordination within JCOMMOPS

- JCOMMOPS Governance:

  by consensus

  Panels and Steering Teams chair

  JCOMM Observation Coordination Group

  Secretariats (IOC/WMO)

  Host country partners

  JCOMMOPS coordinators

- JCOMMOPS comprises Technical Coordinators , under panels, IOC/WMO, JCOMM-OCG guidance:
  - **Mathieu Belbeochn (FR)**
    JCOMMOPS Lead
    The Argo Profiling Float programme
  - **Kelly Stroker (back to USA)**
    The Data Buoy Cooperation Panel
    The OceanSITES Program
  - **Martin Kramp (GER) just recruited**
    SOT program coordination
    Ships/Cruises metadata champion
    Operations (charters, partnerships, ship time service)
    Coordination for GO-SHIP (CTDs)
- I.T. experts: 1 EFT. to be expanded to 1.5 EFT in 2013
- Students on short/long work experience
- Secretarial support by IOC and WMO
- Specific support and facilities (including meetings organizations), incomes/expenses management
- International professional connections and synergies

	Member States incomes (in cash) to IOC/WMO/CLS for the different programs it supports.	France support		Total
		In cash support (Coriolis)	In kind support (CLS)	
Personnel	350			350
Mission	50			50
Infrastructure	100		150	250
Total	500	**(70)**	**150**	**650**

JCOMMOPS overall functioning budget (in kUSD)

Item	Estimated cost for host	JCOMMOPS contractual contribution	Total cost	Host Commitments for JCOMMOPS expansion (Toulouse & Brest)
Logistics: *Building rents, phone IT and personal computers (CLS + Ifremer)*	*30 000*	*30 000*	*60000*	*30 000*
Financial management, Promotion, communication, events, secretariat, logistics (CLS)	*25 000*		*25000*	
Student, fellowship (CLS)	*10 000*		*10 000*	
I.T.: *Internet, network, servers, monitoring, technical support (CLS)*	*25 000*	*10 000*	*35 000*	*25 000*
Software Engineer EFT (CLS)	*60 000*	*60 000*	*120 000*	
Misc. Coriolis support (Ifremer)				*30000*
Total	*150 000*	*100 000*	*250 000*	*85000*

Break-down of the host in-kind contribution in support of JCOMMOPS, including JCOMMOPS contractual contribution to CLS. (in USD).

Requirements to be considered for a transition to Brest

- Office space for 3,4 people
- Dedicated secretarial support, or administrative staff
- Continuation of subcontracting operational needs via CLS
  Help to pay a 100k$ bill per year
- Reasonable (and in line with Resolution on decentralized offices)
- Secondments ? Interships, etc?

- JCOMMOPS Services to panels and Steering Teams = **Focal Point** + **Information System**

- Manage and **control** all information except physical (and BGC) data
  - 50000 platforms, 15000 ships, millions of observations, locations, 2000 contacts points, 400 programs, 50 countries, etc
  - 4 Servers: DB (Oracle 11x), GIS (ESRI 10.x), Java Web Application
  - Real-time synchronization with GTS, GDACs, NODCs, Operational centres, …
  - Websites, Web services
  - Routine and ad hoc products for the community
  - Real-time intergovernmental warning system
  - Products to promote the observing systems to large public (e.g. G-Earth displays)

- JCOMMOPS **is not** a data distribution centre
  but rather a metadata centre "quality controlling" metadata essential to global programmes coordination

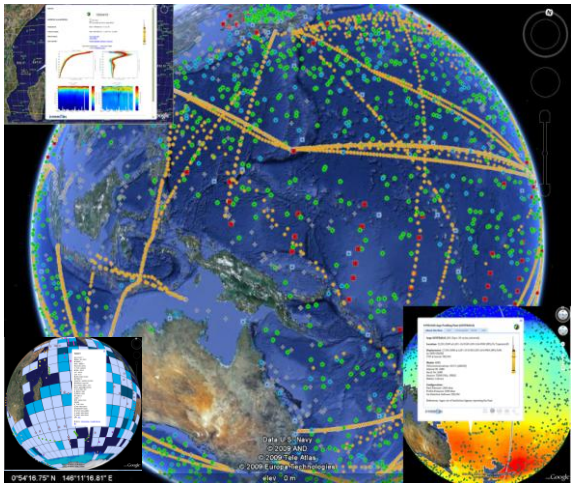
The **JCOMM O**bservations **P**rogramme **S**upport Centre, on behalf of GOOS and JCOMM, aims to:

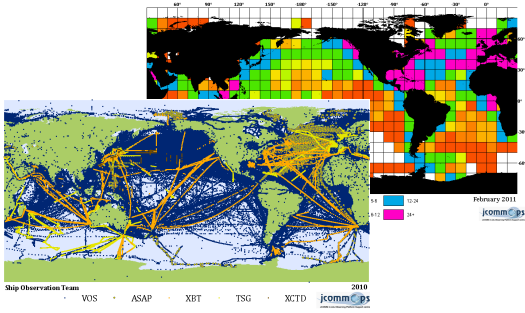
- **monitor** and **evaluate** the performance of the networks
- assist in the **planning**, **implementation** and **operations** of the observing systems
- act as a **clearing house** and **focal point** on all programme aspects
- assist in **data distribution** on the Internet and GTS
- encourage **cooperation** between communities and member states
- relay user **feedback on data quality** to platform operators
- provide **technical assistance** and **user support worldwide**
- develop **synergies** between observing systems (GOOS)

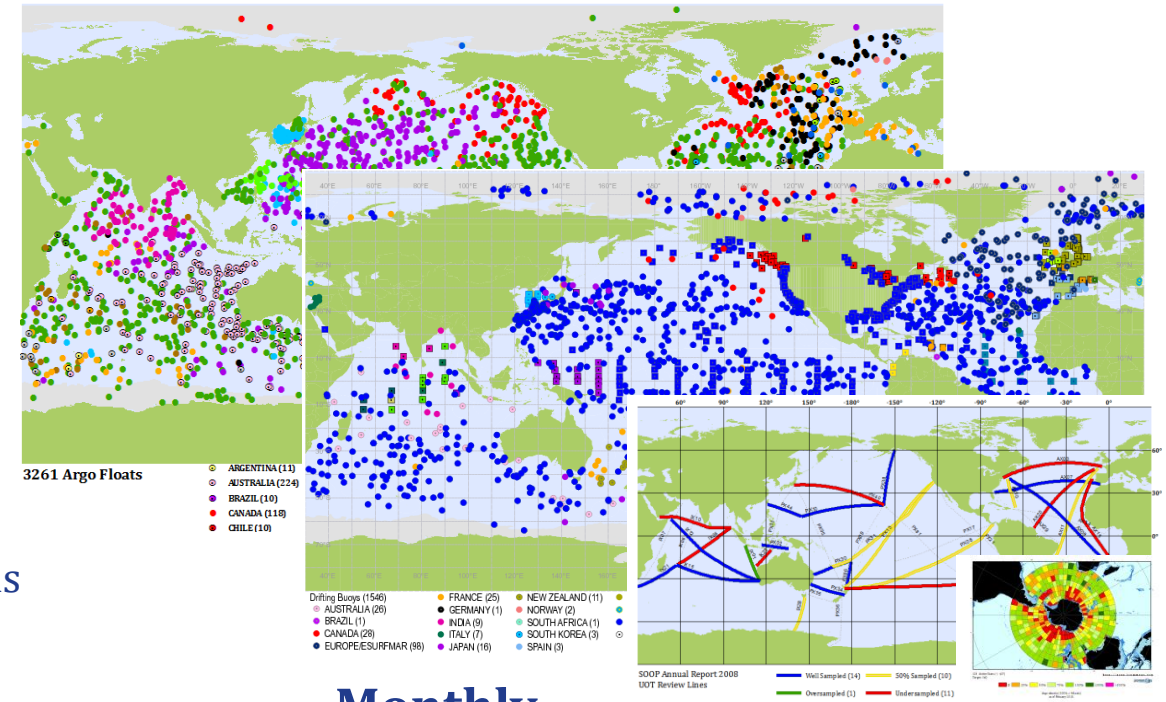
Some key achievements:

- Recognized element of the system of systems
- Day to day assistance to all partners (including industry)
- Innovative Information system and services
- Rigorous metadata QC, and RT tracking of networks
- Technical expertise on codes, data systems, instrumentation, satcom
- Expertise on international and intergovernmental issues. Operating a notification and warning system for Argo floats (IOC Res. XX-6 XLI-4)
- Design of uniform authoritative maps and core metrics for system performance monitoring; regular publications of reports and bulletins on GOOS status
- Development of international cooperation (donor programmes)
- Development of ship time capacity (chartering, partnerships) and light operational capacities to assist in filling network gaps

Products & Services: Examples







Real-time ...

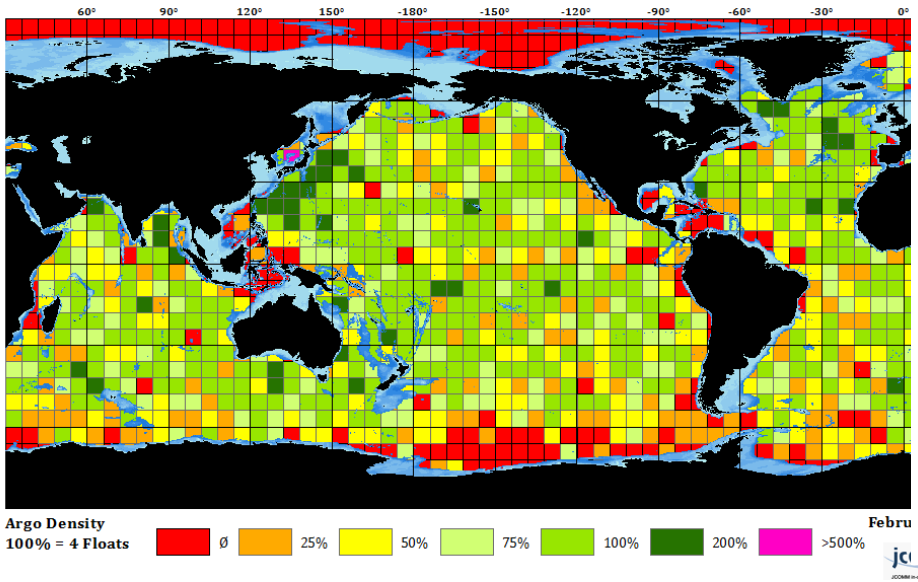
Very early on, JCOMMOPS provided online, interactive GIS–based, real-time tracking tools for ocean platforms and is now working on a partnership with Google to include JCOMM/GOOS observing system status and products within Google Ocean

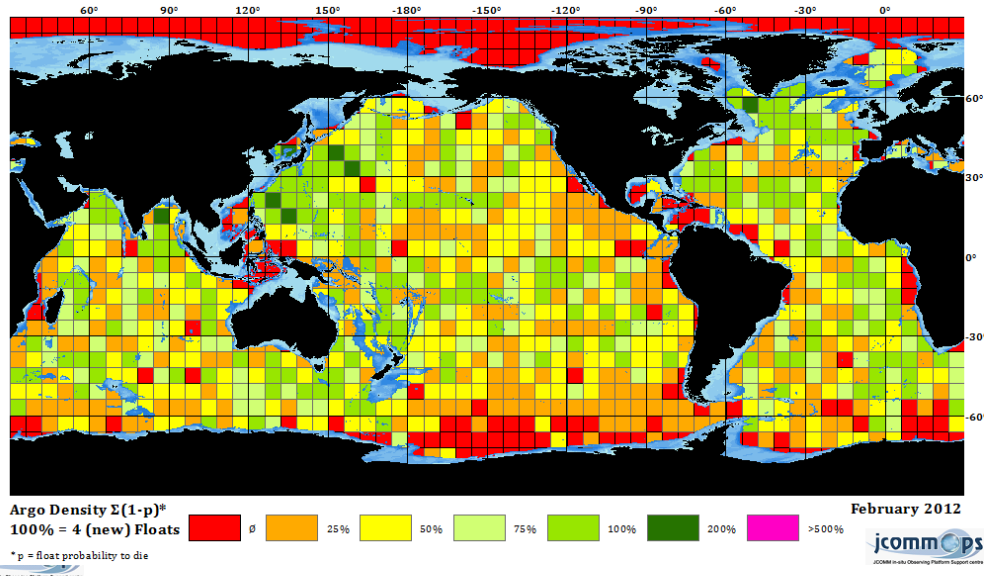
Interoperability targeted: Web Map Services, XML metadata exports, etc.

Monthly ...

JCOMMOPS Status maps are widely recognized as authoritative and giving an up-to-date, verified status of the arrays, encouraging community to share the data and showing how the programmes assess and meet their requirements

IOC





(Argo) Planning management...

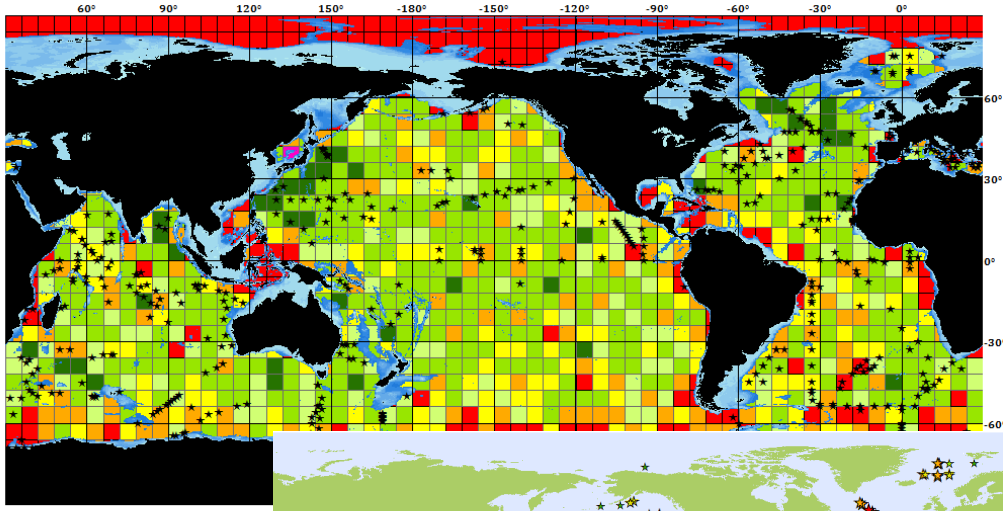
Centralized Planning 6-12 months in advance

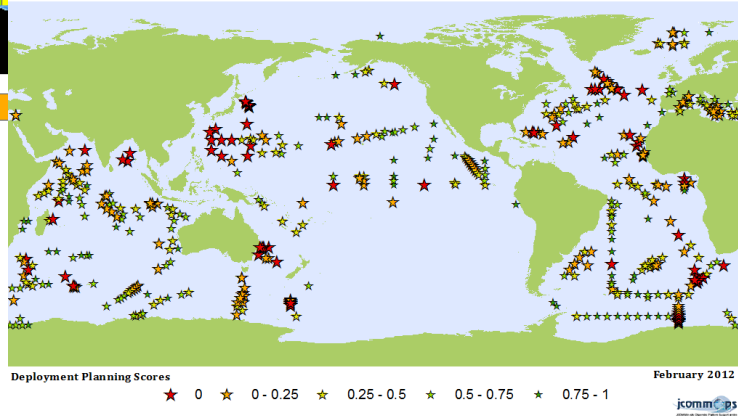
Official registration/notification

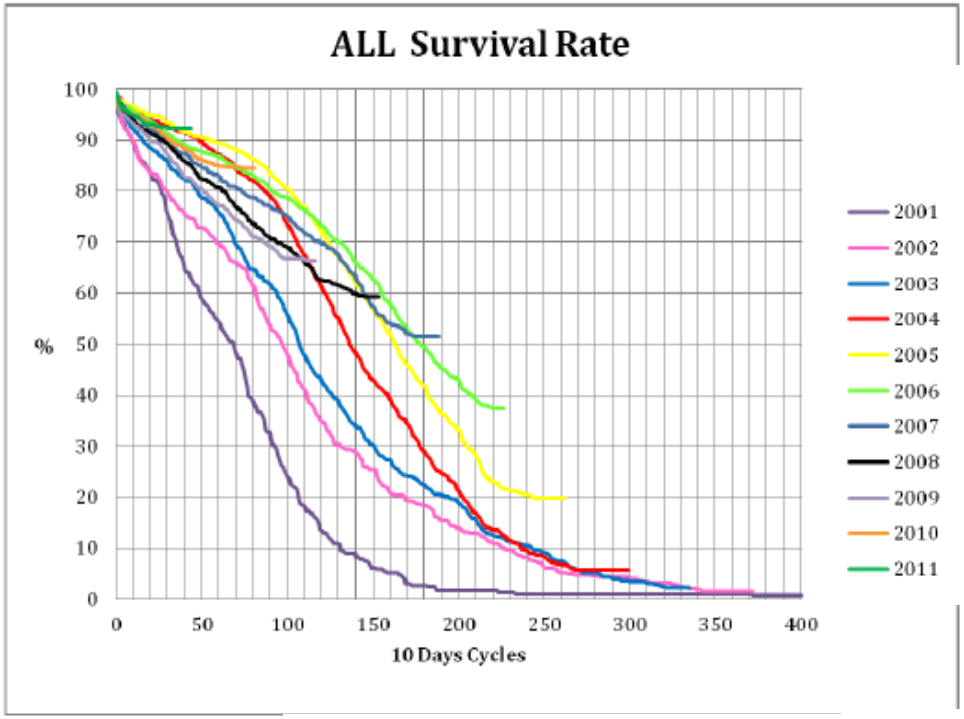
Synchronization with all national programmes

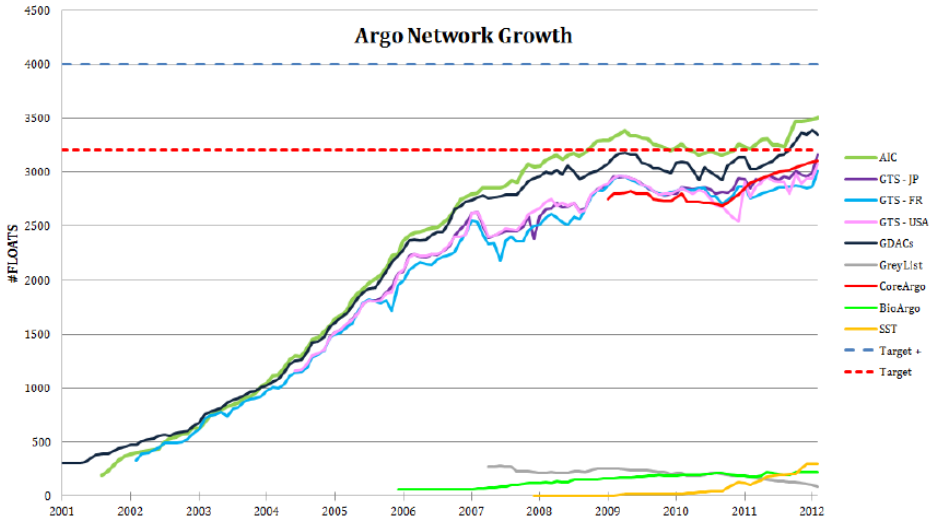
Crucial for a global array maintenance

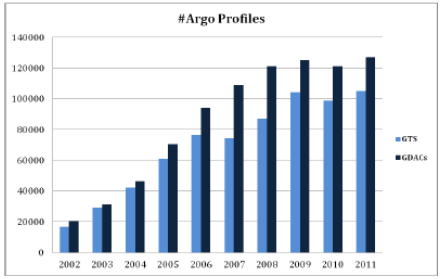
Plans rated to guide implementation

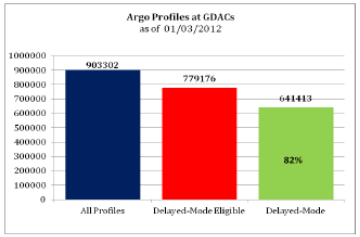




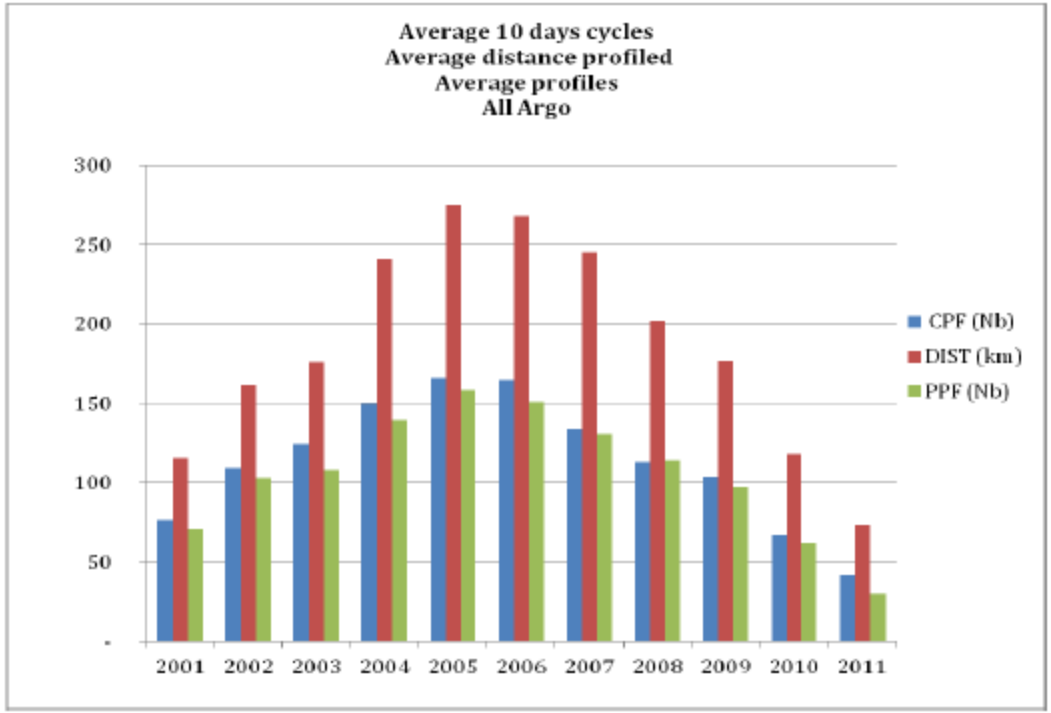








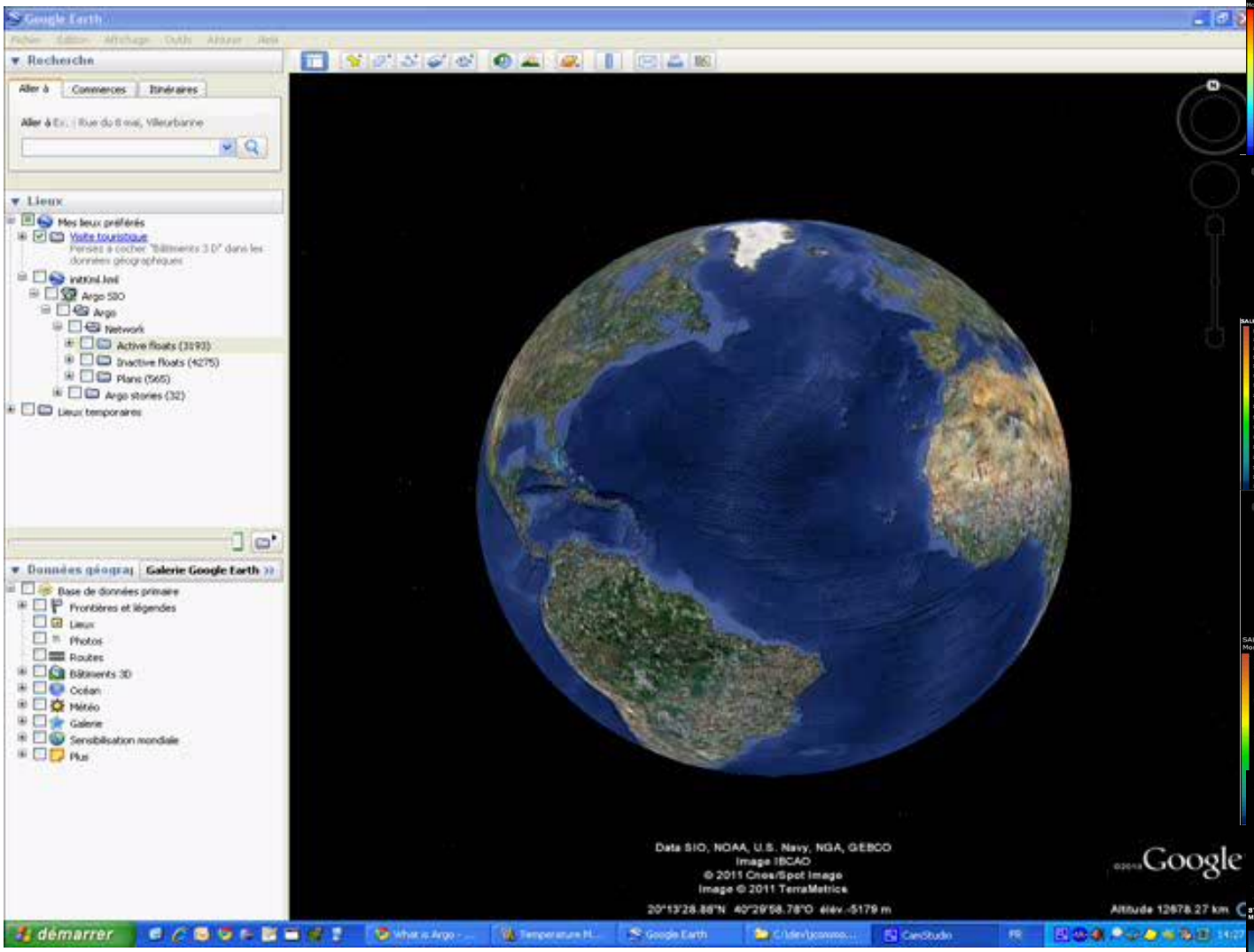
2011 Stats:
GDACs: 127042 profiles from 4098 distinct floats
GTS: 105233 profiles from 3801 distinct floats

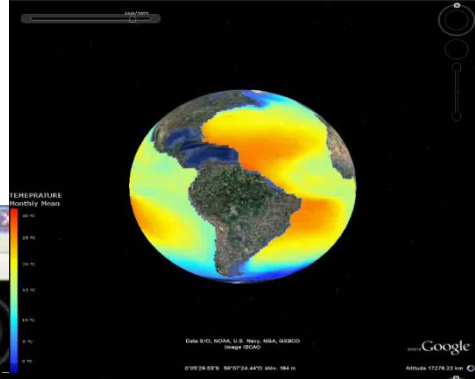


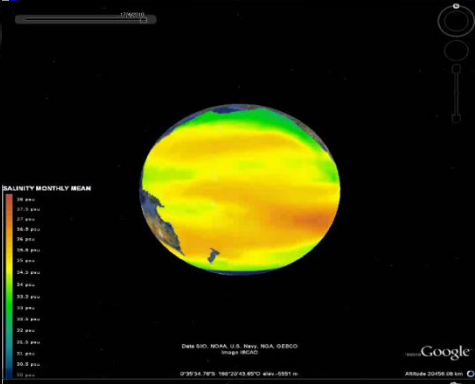
[G-Earth: Community monitoring tool](#)

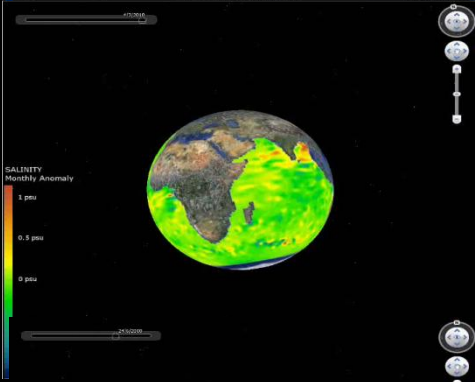
[Outreach](#)

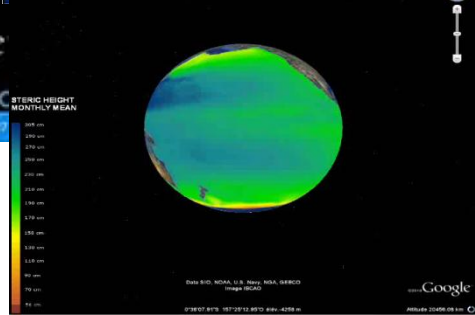
[http://argo.jcommops.org/argo.kml](#)



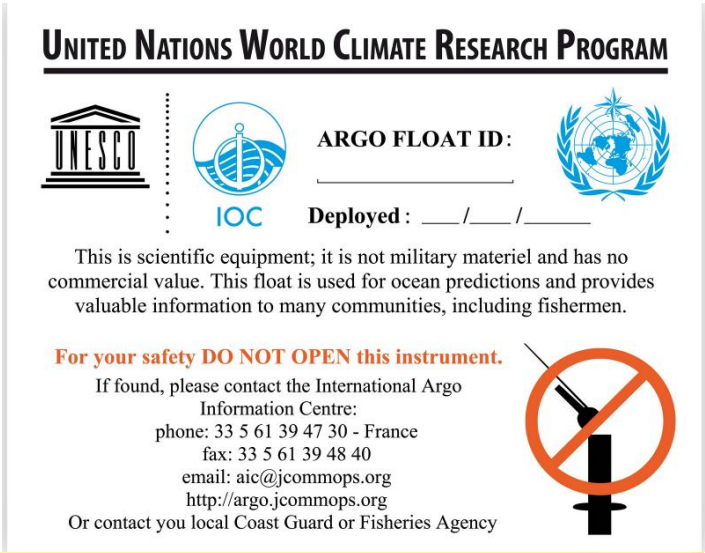


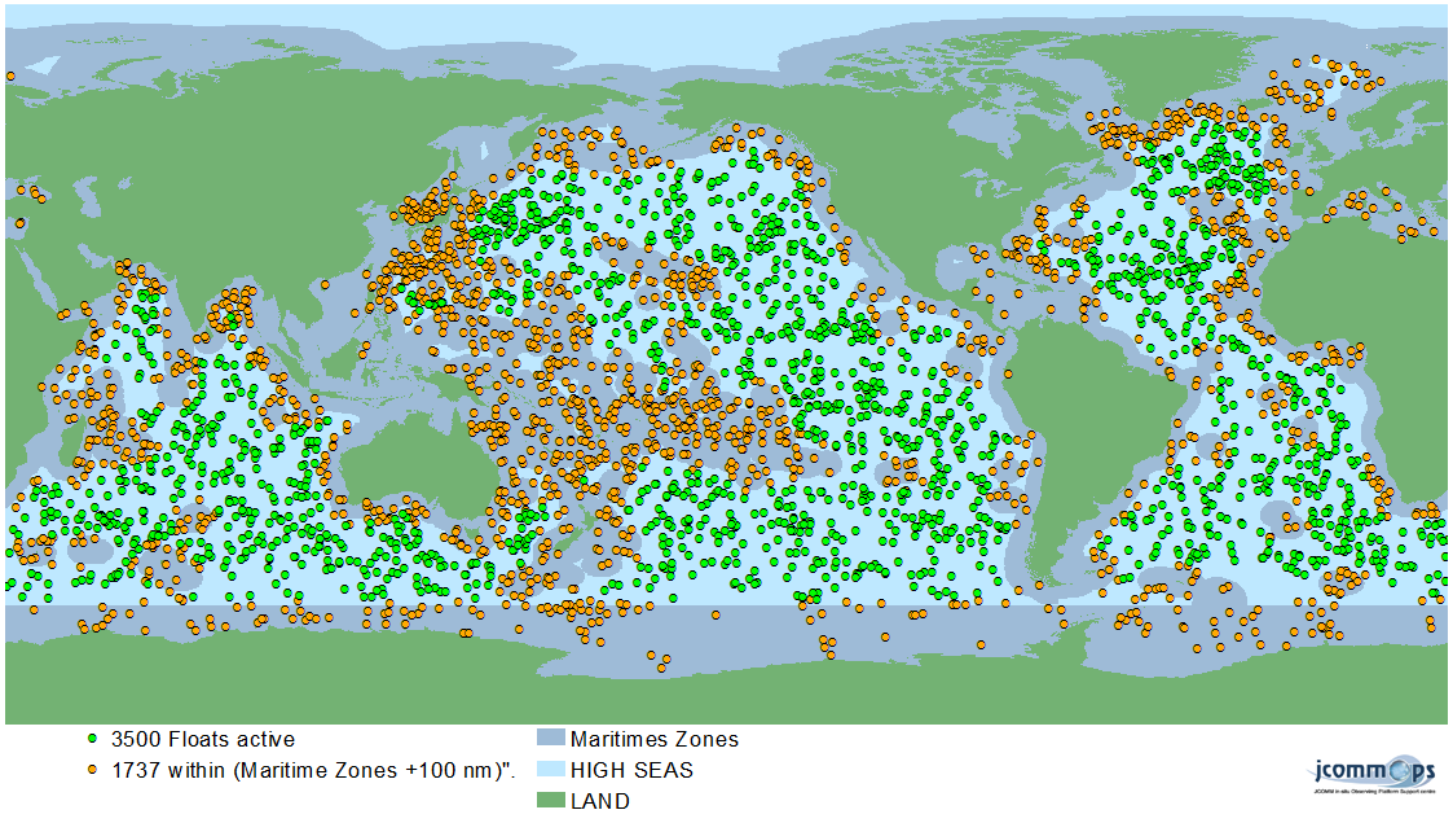






- Retrieval procedure of beached instruments
  - Guidance for retrieval, safety information
  - Regional cooperations developed
- Registration/Certification of platforms
  - Impartial tracking at air-time provider level
  - Free data access guaranteed
  - Full transparency on programme implementation





- Information on international rules provided to implementers
- Notification procedure for Argo: implementation of Res XX-6, Res XLI-4
- RT warning system and reporting to Member States
- Reports provided on demand to coastal states
- Cooperation encouraged (Donor programmes)

- **JCOMMOPS Ship Time Service**
  - Recurrent global and regional gaps in the arrays
  - Global economical context under pressure (ship time decreasing)
  - Resources available for planning operations under pressure

- JCOMMOPS can now provide assistance for deployments, servicing, at a marginal cost
  - e.g. Lady Amber story, supported by JCOMM, IOC/UNESCO (and IOC Perth) , WMO

- Partnerships Sailing community, industry, individuals, explorers, NGOs are being developed

After a decade of implementation using mainly research vessels and merchants ships, the global programmes are now investigating ***green, flexible,*** *free or non-profit based, and* ***dedicated*** *deployment platforms,* ***combining operational efficiency and promotional/educational opportunities***

Lady Amber story

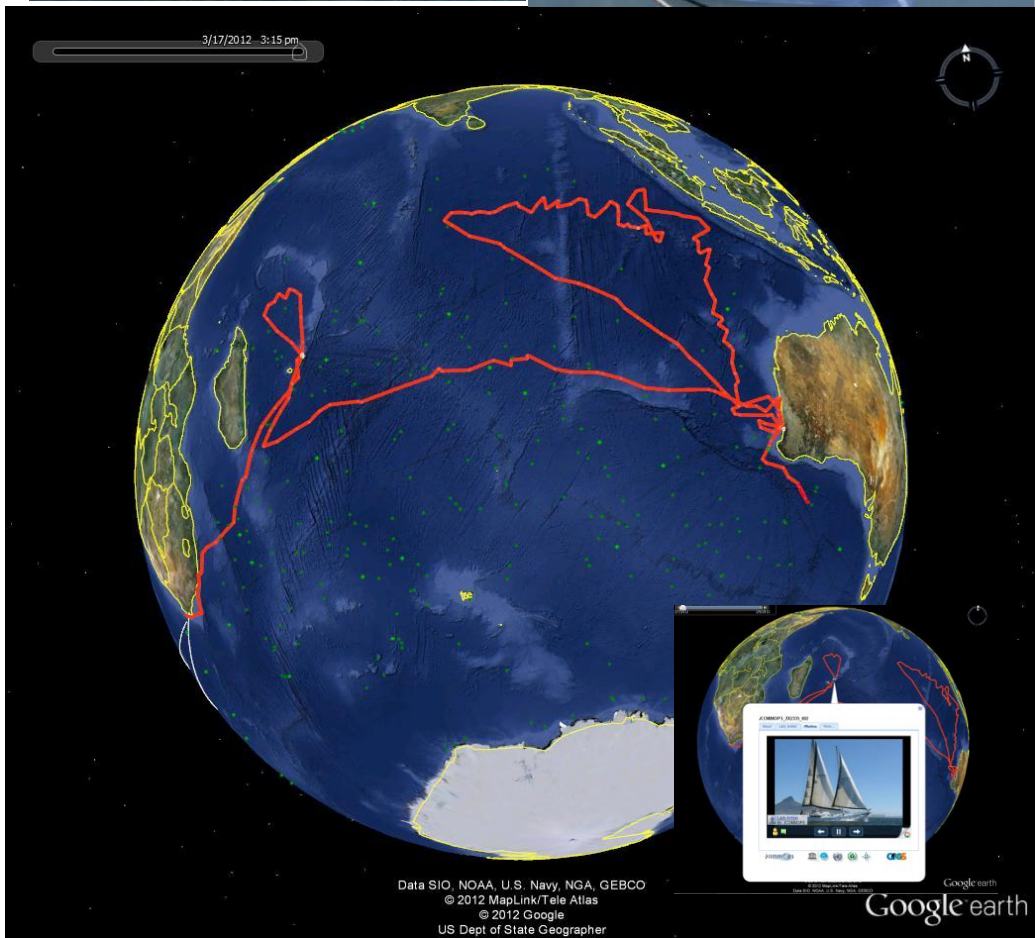
~60 floats deployed for CSIRO

South African crew.
Green, flexible, dedicated, trained crew
30 keuros/month (via CLS/JCOMMOPS)

Autonomy: 2 months
Iridium com./email,
Argos/GPS tracking
Storage capacity (50 units) 100 soon.
Crane/CTD to be installed

2011-2012: Indian Ocean
2013: Atlantic ocean

Very good communication operation (TV, radios, newspapers websites, …)



Voiles sans Frontières: NGO

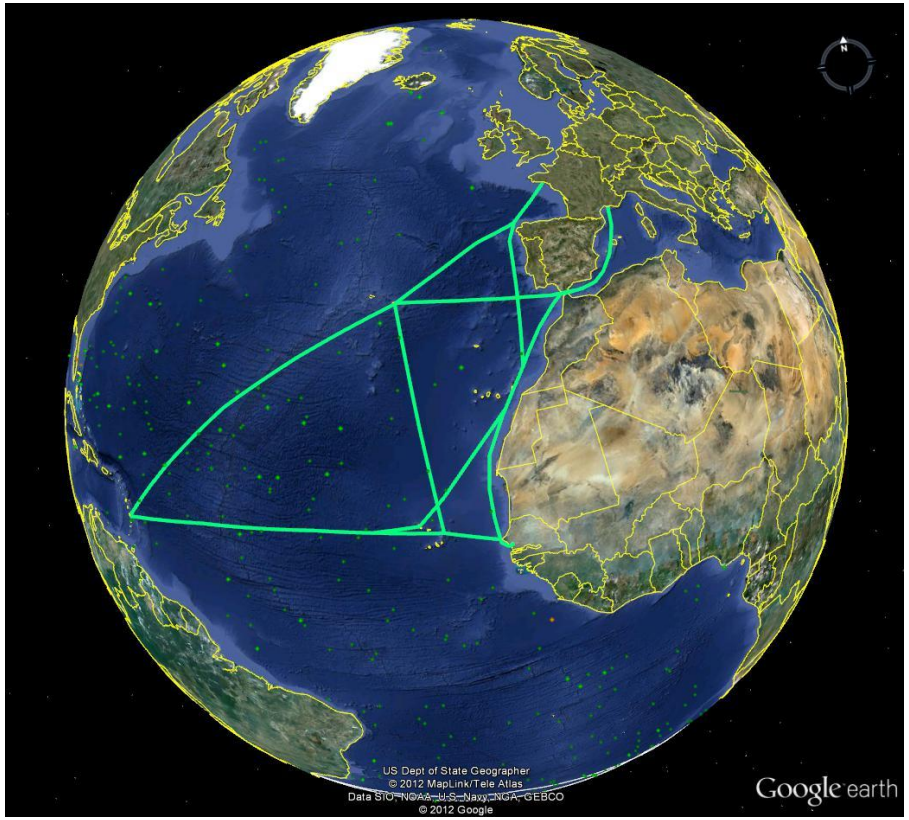
« Sail without borders … »

Unique french NGO recruiting 20 ships every year
Development project, solidarity, etc in Senegal

10 floats to be deployed
(departure/storage Lorient and Sètes)
Flexibility (deploy, load, retrieve, etc)

Large spatial coverage

!!!! Huge communication potential !!!!



Partnership UNESCO/ MultiOneAttitude
"Race for Water"

2 floats deployed between Brest and New York.

Presence at the Brest 2012 ship Festival: outreach

Huge communication means.

Possibility to deploy floats/drifters during sailing races under evaluation

JCOMMOPS: modest but essential oil in the systems of systems

- It has proven its efficiency, and inventiveness
  - assisting as appropriate the varied OOS community
  - providing an identity to obs. programmes through rigorous monitoring tools
  - ensuring the transparency of their implementation
  - Optimizing their efficiency
  - encouraging international cooperation proactively
  - developing light operational support means

- It reasonably needs further means to serve properly each component of the GOOS.
- It needs to focus on its fundamental services, and professionalize them
- It needs to demonstrate its efficiency (for each component) and the integrated value added
- It needs to improve it legal standing with host country, IOC and WMO

- Support from host country (France) is critical to its success

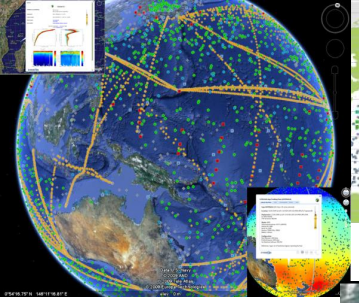
Working towards a win-win partnership

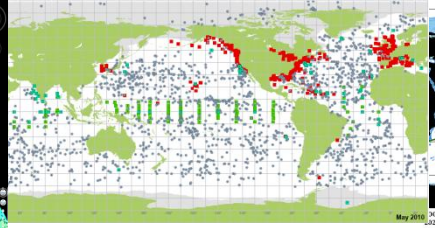
- Ideally French contribution to the centre should be reinforced for a long term establishment in France
- Short term requirements are reasonable

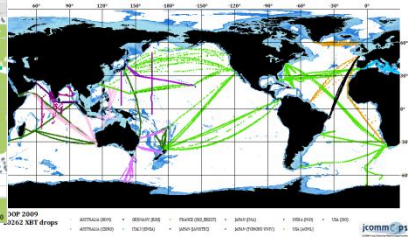
- Advantages for JCOMMOPS to go in Brest are well known but need to presented clearly to our stakeholders
- Advantages for Brest partners to host JCOMMOPS are modest, various, and yet to be defined and exploited:
  - Synergies with Coriolis day to day activities (research, data system, operations)
  - Synergies with European activities led by France
  - Synergies with blue economy partners (NKE, Actimar, etc)
  - Synergies with outreach and educational partners (Oceanopolis)
  - International nature of JCOMMOPS, IOC, WMO participates in strengthening BMO international visibility

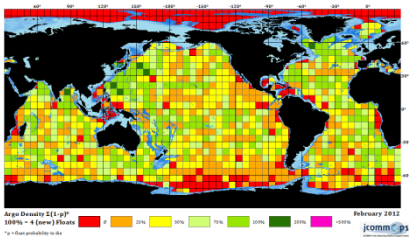
- A success of JCOMMOPS, fuelled by French means and guidance would also be seen as a successful French contribution to GOOS common infrastructure

JCOMMOPS is in hands of French partners ...









IOC

jcommops