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The 5th Global Ocean Observing System (GOOS)

Regional Alliances Forum (GRF V)

Fifth Session

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ABSTRACT

The 5th session of the GOOS Regional Alliances Forum (Sopot, Poland, 03 Oct. 2011) reviewed progress of GRAs, GRA governance and discussed implementation and sustainability strategies for Coastal GOOS. The Session reviewed the PICO Coastal Implementation Plan, and made suggestions for how the GRAs can be integrated into the plan and used to further the global extent of coastal ocean observations. The Integrated Framework for Sustained Ocean Observations (IFSOO) was reviewed and its impact on future GOOS governance and GRA implementation was considered. Within the context of the reorganization of GOOS by the ñStrengthening and Streamliningò resolution of the 25th IOC Assembly, the session agreed to strategies to assure the voice of the GRAs was present in the GOOS Steering Committee (GSC), and that the GRAs would play a major role in GOOS for implementing coastal observation systems and facilitating communication between the GRAôs member states and the GSC.

TABLES OF CONTENTS

1 Introduction and Welcome

Hans Dahlin, co-chair GOOS Regional Council of GRAs, opened the meeting with a short history of the GRA programme within GOOS. The GRF IV in Ecuador 2009 ended with many open questions. The GOOS Regional Council (GRC) was only partially started, but it was agreed to have EuroGOOS drive the process forward by chairing the GRC and holding this session of the GRA Forums, the GRF V. This forum is charged with finding a way forward for Coastal GOOS. Individual GRAs have been building for several years, and have been quite successful.

It was noted that the reorganization of GOOS Steering Committee allows the Chair of GRC to serve on the GSC ex-officio. GRC should ensure that representation of the top level coastal scientists is on the GSC, but it may not be necessary to explicitly nominate GRAs to the board.

It was noted that an Arctic observing system exists through SAON. GOOS and the GRC can regard SAON as the Arctic GOOS. David Hick is the co chair of SAON and has invited IOC to sit on the SAON board.

2 PICO Coastal Implementation Plan.

Introductory presentation by Jose Muelbert and Paul DiGiacomo Co-Chairs Panel for Integrated Coastal Observations.

The GRF IV in Guayquil was the starting point of the PICO Coastal Implementation Plan. Development of the plan took longer than expected, because the idea is so important. Other coastal planning documents did exist, but the PICO planned to emphasize implementation. A clear mandate exists for coastal systems meeting conditions of conventions such as UNCLOS, CBD, UNFCCC, UNCED Agenda 21. Conventions require, to some degree, an Ecosystem Approach and need observations and modeling for support. A Global Coastal Network has been proposed, based on LMEs, MPAs and the GRAs. Mechanisms are needed to work with data providers and users in regions. GRAs should implement the systems.

GOOS must be expanded to include ecological and biogeochemical elements in the context of ecosystem based approach. The PICO plan introduces the ideas of Phenomenon of Interest (PoI) and Key Indicators of Ecosystem State. The plan will define Essential Ocean Variables (EOVs) for these and a system of systems. A well-defined PoI will help identify user groups and products; Key Indicators and pressures; observing requirements; and help assess operational status.

Next steps for the report: Review by end of October. Introduce it by PICO to become core of GEO CZCP. Make the report a key agenda item for GSC.

Several comments on the length of the report led to the desire for an executive summary and perhaps a short list of decisions which could be voted on by the GRC or the GSC.

The PICO plan is a template for what should be done. But maybe not a template for what can be done. The plan must convince the politicians, not with science, but with ideas. GOOS is not implementing new plans now, it is saving what was started in the 70ôs

Implementing the plan will require integrating the existing systems and moving them forward. Nevertheless it is desired to measure resources and needs, identify gaps and estimate what can be accomplished. A business plan or gap analysis should be done. Some of the systems, like IOOS

and IMOS, have done this on a national scale, demonstrating the feasibility and usefulness of such a study.

GOOS coordination and ownership is a real issue. GOOS has shown strong ownership of ocean observations through GEO, with focal point of JCOMM and standards. The open ocean GOOS success should be downscaled to coastal methods.

Funding and support at national and regional areas is quite variable for coastal GOOS. EC directives set the EuroGOOS into motion. The agencies developing these programmes are not always coming from GOOS. GRAs and GOOS need to get closer rapport with agency needs and pay more attention to industry needs.

Funders must be convinced that the benefits are worthwhile. Legislative frameworks are local and will respond to demonstrations of good governance, preferably by local implementers. Small Island Developing States (SIDS) have small scale implementers, but they are not visible most of the time. CZCP regional workshops focused on areas delivering the plan and bringing the community together. These demonstrate moving forward on these projects in the GOOS context.

GOOS does not sell ecosystem management or governance plans. GOOS should sell and provide safety and products which protect lives and livelihood. It would be useful to reorganize the PICO document away from science, methods, observations and techniques. An executive summary should provide progress indices, costs and a clear vision of what is being implemented. Do not forget that in fact billions of dollars are being spent. It should be made obvious why.

ACTION*: The GPO to create "A Summary for Policy Makers" for the PICO Implementation plan. [GPO with PICO]*

ACTION: *GRA chairs to deliver comments on PICO plan by end October. [Individual GRA chairs]*

3 An Overview of the Integrated Framework for Sustained Ocean Observing IFSOO

Introductory presentation by Eric Lindstrom, chair OOPC.

The Ocean Obsô09 meeting produced common visions for ocean observing: to meet societyôs needs; to consider future ocean observations; to fully implement by 2015 the initial physical and carbon global ocean observing system; to commit to the implementation of ocean observations of biogeochemical and biological processes, fisheries, marine carbon, and ocean acidification. A working group was formed to create a new framework for observation systems which could address these visions. The Integrated Framework for Sustained Ocean Observations (IFSOO) is a system based approach: Input/ Process/ Output; Requirements/ Deployment/ Information.

Benefits of IFSOO: focus on variables is motivating; endorsing at high level; best practices repeated; reduce duplication; shared platforms; blended data.; more use of data collected; sponsors see efficiency and unity of systems; society benefits are validated and directed where need is the greatest.

The basis of the IFSOO is the Essential Ocean Variable (EOV) expert and implementation teams. Their assignments will be to improve readiness, implement, and improve literacy. The teams are made up of the experts who love their variable and will see it through to operational status. The

development of an observation system around an EOV will depend upon continuous evaluation of its ñReadiness Levelò: Concept/ Pilot/ Mature. Innovation and science are the basis of the system, always involved, but not an end point.

Connecting these expert groups to the larger system will be the Ocean Observing Panels which are defined by science or observation domains: coastal, ecosystem, climate, physical, biogeochemical, etc.

4 GOOS Strengthening and Streamlining Restructure

Introductory presentation by Albert Fischer, interim Directory OOS and GOOS Project Office, IOC.

The IFSOO has been realized in the new, changed, streamlined and strengthened GOOS structure, which was reformed at the 26th Session of IOC Assembly. However there remains a separation between the observing system and the governance and planning process. The Framework was describing the observing system. The organizing structures of GOOS create a platform for collaboration, global participation and capacity development.

Steps taken in the reform of GOOS: IOC governing bodies are directly responsible for GOOS; Dissolve PICO, GSSC, IGOOS, OOPC (sort of); Form a GOOS Steering Committee composed of 5 IOC member state representatives; 10 experts; representatives of relevant bodies and sponsors; chair of GOOS Regional Council, ex-officio.

In the new GOOS governance the role of the GRAs is envisioned to reinforce the national drivers which will be primary driving force of GOOS. The System must drive local services, real time warnings and assessments and different national level needs, arrangements, capacity.

There ensued a lengthy discussion of the question of ñWhat is global about Coastal GOOS?ò There are global requirements for UN agreements and a need for a system of coordinating networks which can align national structures with the system. To achieve this there is a need for uniform tracking of regional priorities and implementation, promotion of global participation and data sharing best practices.

It was stated that GOOS is not voluntary. The IOC members have decided to establish GOOS. Every member has to contribute, as far as it is possible. In a maritime policy for Germany meeting, no one mentioned the need for observations. We must include the users for whom we want to establish these systems. National commitments are lagging the professed necessity of GOOS. The new GOOS structure is designed to engage and motivate the Member states to be present at the earliest point of GOOS decision making. The GRAs should share experiences in engaging these decision makers.

5 Review of progress of the WMO integrated global observing system (WIGOS)

Introductory presentation by Miroslav Ondras, WMO.

WMO needs to expand its expertise for coordination, cooperation of WMOôs traditional weather forecast systems to encompass other domains of growing need, such as disaster prediction and

preparation, and climate services. To take advantage of the other data, WMO needs data sharing technologies, governance, standardization, interoperability and finally collaboration with partners. WIGOS sets requirements for products; respects existing priorities; utilizes standards; implements quality management system; and provides for capacity building. WIGOS will be built by: members; regional associations; technical commissions (technical manuals, drafting standards, best practices); WMO secretariat; partner organizations (GOOS, GTOS, GCOS, SOOS, SAON é)

WIGOS and GOOS interactions: JCOMM and data management; DBCP and regional action groups (DBCP-27 Report); SOT, VOS; GLOSS; Argo, IOCCP; IODE and data management practices.

JCOMM pilot project produced various buoy and methods guides, Regional Marine instrument Centres (RMIC) in USA and China, Morocco planned in 2012.

The WMO Global Framework for Climate Services will be a highest priority for WMO. Governance arrangements are still not clear.

6 Continued Discussion of Questions Raised by GOOS Governance Presentation

Consideration of the implications of the questions which Dr. Fischer ended his presentation of the implementation of GOOS:

- What are your regional priorities? Do you have the structures/framework to collect and express these requirements and assess readiness and fitness-for-purpose?
- What can/should GOOS track at a global level?
- How can we work to encourage data sharing, best practices and standards across all of GOOS? for data and products?
- In a context of limited IOC resources, what is our best role in working with and supporting GRAs?
- Does capacity development focus on technical aspects or on helping develop regional proposals for end-to-end system with policy, connecting with decision-makers and donors?

The IOC Assembly does not include presentations on science of regional programmes. Perhaps with the new GOOS governance the Assembly can take the time for global and regional presentations. This could strengthen the connections between IOC delegates and the GOOS national contact points, which are quite numerous. The GRAs could aid this by coordinating their interior representation to the IOC Assembly. Some GRAs are reported through the IOC regionals, WestPAC, Rio, etc. But the GRAs should consolidate and present in a two-way communication.

Action: *An agenda item for presentation of a GRA report to be requested for future IOC Assembly. The GSC should make this request on behalf of GRC. [GSC to be tasked, GRC chair to deliver]*

Statement should include:

1. *Clarification of what is Global about Coastal GOOS*
2. *Requirements for global observing systems obtained from GRAs.*

3. *Communication to member state delegates about the GRA successes.*
4. *The GRAs should press the member states and this will intensify the responsibility of the member states.*

The IFOOS essential ocean variables become the focus, not artificial problems of a separation of climate from coast. The systems cannot assume that climate variables do not exist in the coastal zone, or that coastal data isn't also climate worthy. Similarly the Coastal GOOS panel was an amalgam of other GOOS priorities. The point should be that it is all a single GOOS system. Coastal EOVs were demonstrated and their key issues common across conventions etc. Integration of systems is needed by the conventions, and GOOS should provide the leadership to demonstrate the stitching together of these systems.

Global does not have the same meaning in coastal areas as it does in the deep ocean. In the coastal ocean, things are a little different. Resolution and precision of coastal salinity is very different from Argo needs. If the standards are there initially, the data becomes global based on its interoperability.

The group discussed the possibility of improving GRA communication and sustainability by demonstrating global applicability through development of a few demonstration EOVs. Recognizing that open ocean GOOS is based on platforms, the example suggests coastal platforms, such as GLOSS or HF radar, which can become global. The GOOS task will be to decide how to report GRA activities, or data streams, to expand the global GOOS image of the system and support the mutual interests of value to GRAs. Communication and sharing of best practices may be the most practical definition of global GRAs. The demonstration of EOVs is not intended to be another pilot project, rather it is time to build sustainable global systems around these pre-existing coastal platforms. However the IFSOO (Integrated Framework for Sustained Ocean Observations) puts a primacy on variables, and discounts the idea of following the platform. A disagreement here is resolved by noting that one question is how to present and sell an observation system, and the other is about how it should be defined.

EuroGOOS is coordinating the European contribution to GOOS, the national and EU commitments have become GOOS contributions. The GOOS goal of making data freely available has been demonstrated. The EuroGOOS GRA contributes to the global GOOS, but it is always driven by local requirements.

GRAs are addressing global and local. Best practice is to downscale standards etc from global to the local. Implementation plans are working in large scales. But local scale implementation plans are needed. Local scale implementation by the GRA community can contribute to the broadening of the suite of EOV as we move toward biogeochemistry. But some EOV need help in scale changes, like SST, which may need help going coastal.

Does global mean that data has global coverage? A global summary of local implementation is needed for the IOC GA and GSC. Gaps revealed to the Member States will help them recognize the need for global coverage achieved through support of local. The GRAs should press the Member States to consider what they need to do to close this gap and to clarify the responsibility of the Member States.

Information about the readiness levels of EOVs within GRAs was questioned. It could be more effective to poll the eleven GRAs for information about the coastal observation needs, rather than the 140 Member States. What information should be gathered? Should we ask about the whole suite of EOVs identified in the PICO plan, or just a subset? Or ask via number of platforms available

Twenty six variables are hard to sell. To show the value of the coastal contribution, you need high impact variables, a limited set with high readiness. A productive next step will be to evaluate the readiness level of the PICO EOVs. Some groups, eg CEOS, are already working through the framework readiness process. The next step for GOOS will be to create the domain panels which will estimate the readiness of Coastal EOVs.

The GRAs provide the suitable connections into the science institutes and government agencies. But they are not working maximally. There must be a way to get more out of the GRAs. Local and regional priorities are driving what GRAs are doing, so it is no longer automatic that GRAs contribute to global GOOS.

Having agreed that it would be useful to highlight a few high impact variables, the discussion turned to which variables might be best. They should be variables which can show how the global coastal variables can be delivered.

Sea Surface Temperature in coastal zones is identified as an unfulfilled priority for GHRSST. It is easily delineated and can be incorporated into global modeling efforts currently underway. A great need is for SST in the Caribbean, where Argo does not deploy. Simple SST systems would be a useful to prove capacity building in the area. Coastal SST is a recognized ECV, it will have impact, and it will demonstrate the problems and value of a coastal GOOS system.

In addition a biological variable should be found. Local insitu chlorophyll data would be of great value to ChloroGIN, and through ChloroGIN could be disseminated through global products.

Action: *Introduce coastal SST as a EOV to be evaluated etc. and then delivered by multiple GRAs as a global variable to be integrated into the GHRSST. Identify a second, non-ECV, to do also, perhaps chlorophyll to be delivered to ChloroGIN. [Each GRA to report on data sources. Group to contact GHRSST, ChloroGIN]*

Coming to the summary of the meeting the current chair of the interim GOOS Steering Committee pointed out that the new GOOS Steering Committee will provide a good place for GRAs to strengthen their influence on GOOS. GRAs contribution to global GOOS is good, but the GRAs need the benefits deriving from a Global GOOS. The GRAs should report to the GSC with a summary of recent developments of GRAs. The GSC must know each GRA contributes to the global GOOS.

The GRAs agreed to coordinate an effort to summarize the GRA contributions to Global GOOS, by first designing a template questionnaire for the GRAs. The information so obtained will become the basis of the GRA report to the GSC. There should also be information about the financial impact of the coastal observation systems. This issue of creating an effective reporting procedure for the GRAs will be an on-going effort by the GOOS Project Office and the chair of the GSC. This is the sort of information needed to complete the feedback to the PICO Implementation plan. It was pointed out that the GEO CZCP has been charged with the similar task of identifying gaps in coastal ocean observation systems.

Action*: Basic information from all GRAs to be obtained concerning: local priorities, assets and liabilities; how each GRA contributes to the global GOOS; identify mature elements are already contributing. A template questionnaire will be designed and tested on EuroGOOS and IOOS. Template to then be sent to all GRAs and associated observation systems (ie including IMOS, MyOcean) [GRC chair to lead intercessional group to formulate questions and gather information]*

Action: *The GSC expressed the need for a business plan, or cost/benefit analysis for coastal GOOS.*

Action: *Move forward the GEO CZCP process to identify gaps in coastal network. GRAs to work with CZCP to identify gaps and suggest implementation follow-through. [GEO CZCP will need to work with the GRAs.]*

7 Other Business:

Hans Dahlin and Kostas Nittis, are terminating their co-chairmanship of the GRC. By popular acclimation and volunteering, the chair of US GOOS (to be known henceforth as IOOS), Zdenka Willis is elected chair of GRC. The next GRA Forum will be organized by the IOOS for sometime in Fall 2013.

8 GRA Session During EuroGOOS

A session of the EuroGOOS conference was given to the GRAs to present results of the progress and demonstration of ocean observation products in the regions. The presentations are available on the GOOS web site.

ANNEX I

LIST OF ACTIONS

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ANNEX II

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